# 55TH ANNUAL MEETING OF THE EUROPEAN ASSOCIATION FOR THE STUDY OF DIABETES

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DEAR MEMBERS AND GUESTS,

It will be my great honour and pleasure to welcome you to the 55th Annual Meeting of the European Association for the Study of Diabetes e.V. which will take place in Barcelona from 16 to 20 September 2019.

Under the chairmanship of EASD Honorary Secretary, Mikael Rydén, the Scientific Programme Committee selected 1195 abstracts for presentation from a total of 2003 submitted. The outstanding programme will comprise of stimulating symposia, numerous oral and poster presentations as well as Prize Lectures, honouring the achievements of distinguished researchers.

The EASD Annual Meeting offers the ideal opportunity to interact and communicate with researchers of the highest calibre from all over the world. I hope you will enjoy the wide choice of lectures, presentations and posters.

I look forward to welcoming you in Barcelona, a city renowned for its history, culture and architecture, and wish you a very successful and inspiring EASD Annual Meeting.

David R. Matthews
President EASD/EFSD
WELCOME ADDRESS

On behalf of the EASD Board and the 2019 Scientific Programme Committee, I have the pleasure of welcoming you to the 55th EASD Annual Meeting in Barcelona.

The EASD meeting brings together a broad span of professionals and covers almost every scientific and clinical aspect of diabetes. The quality of the meeting is to a large part determined by the participants who contribute by presenting their most recent studies. Looking through the programme I hope that everyone will find interesting topics which together help us advance the field.

To convene here in Barcelona will offer ample opportunities to socialise and network with peers from all over the world and perhaps discuss future collaborations. Needless to say, this city offers great options outside of the scientific programme hours. History, architecture, beaches and gastronomy provide a variety of choices on how to spend your evenings.

We look forward to seeing you in Barcelona.

Mikael Rydén
Honorary Secretary EASD
European Association for the Study of Diabetes

BOARD
President
D.R. Matthews, UK
Senior Vice-President and Chair PGEC
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Vice-President
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Board Member
F. Gribble, UK
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A.-M. Felton, UK
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B. Hellman, SE
V. Jörgens, DE
F. Kaufman, US
E. Kohner, UK
H. Lebovitz, US
P. Lefèbvre, BE
J. Ludvigsson, SE
W. Malaisse, BE
C.E. Mogensen, DK
J. Nerup, DK
L. Orci, CH
H.-H. Parving, DK
O. Pedersen, DK
J. Roth, US
M.-R. Taskinen, FI
R. Unger, US
E. Van Obberghen, FR
G. Viberti, IT
W. Waldhäusl, AT
C.B. Wollheim, CH
P. Zimmet, AU

HEADQUARTERS DÜSSELDORF
Managing Director, Chief Medical Officer
M. Grüsser
Rheindorfer Weg 3
40591 Düsseldorf
Germany
Phone: +49-211-7584690
www.easd.org
HISTORY OF THE EASD ANNUAL MEETINGS

1965 Montecatini
1966 Aarhus
1967 Stockholm (IDF)
1968 Louvain
1969 Montpellier
1970 Warsaw
1971 Southampton
1972 Madrid
1973 Brussels (IDF)
1974 Jerusalem
1975 Munich
1976 Helsinki
1977 Geneva
1978 Zagreb
1979 Vienna (IDF)
1980 Athens
1981 Amsterdam
1982 Budapest
1983 Oslo
1984 London
1985 Madrid (IDF)
1986 Rome
1987 Leipzig
1988 Paris
1989 Lisbon
1990 Copenhagen
1991 Dublin
1992 Prague
1993 Istanbul
1994 Düsseldorf
1995 Stockholm
1996 Vienna
1997 Helsinki (IDF)
1998 Barcelona
1999 Brussels
2000 Jerusalem
2001 Glasgow
2002 Budapest
2003 Paris (IDF)
2004 Munich
2005 Athens
2006 Copenhagen
2007 Amsterdam
2008 Rome
2009 Vienna
2010 Stockholm
2011 Lisbon
2012 Berlin
2013 Barcelona
2014 Vienna
2015 Stockholm
2016 Munich
2017 Lisbon
2018 Berlin
The mission of EASD is to promote excellence in diabetes care through research and education

Since its foundation in 1965, EASD has been organising an Annual Meeting, which has become the largest international annual conference on diabetes research worldwide. Although the meetings have grown so dramatically, they are still driven by the academic traditions of the founding members. The EASD Meeting is a meeting of members where guests are welcome. Chairpersons of oral presentations and poster sessions are chosen exclusively from the EASD membership. The abstracts are evaluated on a strictly anonymous basis and the selection is based exclusively on the quality of the science, regardless of the place of work. The EASD Honorary Secretary is solely responsible for inviting speakers and chairpersons for symposia and lectures. Comments, advice and proposals from the membership and the Programme Committee are welcome. None of the speakers or chairpersons at the EASD Annual Meeting receives an honorarium; reimbursement of their travel costs is exclusively provided by the Association.

EASD and its Foundation EFSD are academic charities dedicated to diabetes research. As an academic society, EASD encourages cooperation with industry and other institutions conducting and funding diabetes research. EASD is committed to transparency. In 2005, its Annual Meeting endorsed the following policy with respect to duality of interest: prior to the Meeting speakers invited to symposia or lectures declare to EASD the existence of any relationship or arrangement that could be reasonably considered to affect the content of the presentation. Invited speakers who declare a duality of interest are asked by EASD to disclose this on a slide of their presentation.

Any occasional, positive balance resulting from the Annual Meeting is used to encourage further diabetes research in Europe. Increasingly, major end-point related trials are carried out to evaluate diabetes treatments. EASD encourages these trials and provides an outstanding forum to announce their results to the scientific community.
The EASD regulations on the presentation of major clinical trials state that all data of the trial must be openly available, and clear information should be provided on the role of the funding source/sponsor on study design, data collection, analysis and interpretation of the data. Moreover, a commentator, nominated by the EASD Honorary Secretary, must have prior access to the data in order to prepare an unbiased review. EASD Meetings are organised in such a way as to ensure the academic independence of physicians and scientists as the patients’ advocates.

Article 1, Section 2
Statutes of the European Association for the Study of Diabetes, Diabetologia 1, 256-260 (1965):

The aims of the Association are to encourage and support research in the field of diabetes, to rapidly spread acquired knowledge and to facilitate its application.
EASD HAS THE FOLLOWING STUDY GROUPS

Artificial Insulin Delivery, Pancreas and Islet Transplantation Study Group (AIDPIT)

Diabetes and Cancer Study Group (DCSG)

Diabetes and Cardiovascular Disease Study Group (DCVD)

Diabetes and Nutrition Study Group (DNSG)

Diabetes Education Study Group (DESG)

Diabetes Neuropathy Study Group (NEURODIAB)

Diabetes Pregnancy Study Group (DPSG)

Diabetic Foot Study Group (DFSG)

European Diabetes Epidemiology Group (EDEG)

European Diabetic Nephropathy Study Group (EDNSG)

Exercise and Physical Activity Study Group (ExPAS)

Eye Complication Study Group (EASDec)

Incretin Study Group (INCSG)

Islet Study Group (ISG)

Non-alcoholic fatty liver disease (NAFLD)

Psychosocial Aspects of Diabetes Study Group (PSAD)

Reactive Metabolites (RMSG)

Study Group on Genetics of Diabetes (SGGD)

Biomedical Imaging in Diabetes Study Group (DIAB IMAGE)

Study Group on Primary Care Research in Diabetology (PCDE)
GENERAL INFORMATION

Meeting venue:
Fira Barcelona Gran Via
South Access
Av. Joan Carles I, 64, 08908 L’Hospitalet de Llobregat Barcelona
www.firabarcelona.com/en/gran-via

First Aid:
The First Aid Centre is located in P3.
In case of emergency: Contact the nearest staff member.

Registration:
Sunday 10:00 - 18:30
Monday 08:00 - 18:30
Tuesday, Wednesday and Thursday 07:00 - 19:00
Friday 07:00 - 14:00

Children under the age of 18 are not permitted to enter.

Delegates receive:
- Admission to Scientific Programme
- Final Programme book
- Admission to the Industry Exhibition
- Free public transportation ticket (valid for 5 days)
- Coffee breaks and lunch snacks from Tuesday to Friday

Certificate of Attendance:
The Certificate of Attendance can be downloaded from EASD’s homepage from Tuesday, 17 September onwards.

EACCME Certificate:
The EACCME certificate can be downloaded from EASD’s homepage from Monday, 23 September onwards or printed at the CME counters in the Entrance Hall, starting Thursday, 19 September at 15:00.

Press Registration:
Press delegates can register at a special press registration desk.
The Press Centre and Press Conference Hall are located behind the Entrance Hall. The schedule of press conferences is available in the Press Centre.
EASD / EFSD Booth and Member Lounge:
The EASD / EFSD Booth and the Member Lounge are located in the EASD Community Plaza in Hall P2.

Associations' Village:
The Associations' Village is located in the EASD Community Plaza in Hall P2.

Speakers' Lounge:
The Speakers' Lounge is located in the basement of the Entrance Hall. Please check your presentation at the Speakers' Lounge at least two hours before your scheduled presentation time. If your presentation is scheduled in the morning, you are kindly asked to check your presentation at the Speakers' Lounge the day before.

Opening Hours Speakers’ Lounge:
- Sunday: 10:00 - 18:30
- Monday: 08:00 - 18:30
- Tuesday, Wednesday and Thursday: 07:00 - 19:00
- Friday: 07:00 - 14:00

Posters:
Posters can be mounted on Monday 13:00 - 17:30 and Tuesday 07:30 - 10:00. Posters must not be removed before 12:00 on Friday. Posters that have not been taken down by 14:30 on Friday will be removed by the organisation. The authors are required to be present to discuss their work with a Poster Chairperson during the Poster Events. The Poster Chairperson is a scientist with knowledge of the respective field of work. He/she will elaborate on the findings together with the author.

| Poster Event A | Tuesday | 12:00 - 13:00 |
| Poster Event B | Tuesday | 13:15 - 14:15 |
| Poster Event C | Wednesday | 12:00 - 13:00 |
| Poster Event D | Wednesday | 13:15 - 14:15 |
| Poster Event E | Thursday | 12:00 - 13:00 |
| Poster Event F | Thursday | 13:15 - 14:15 |

Silence Room:
The Silence Room is located on the first floor of the Entrance Hall.

Internet Access:
Unrestricted Internet access is available throughout the conference venue.
Food and Beverages:
Food and beverages are not allowed in the lecture halls.

Lunch Snacks:
Lunch snacks are served in the Exhibition (P2), the Poster Hall (P1) and between the lecture halls (P3) as follows:

Tuesday - Thursday 11:30 - 14:30
Friday 11:30 - 14:00 (except Exhibition and Poster Hall)

Badges:
The delegates’ name badges serve as an admission pass to all scientific sessions and the exhibition. Name badges have to be displayed at all times. Lost badges can be replaced and will be charged for. Please be aware that when presenting the barcode on the name badge for scanning at an exhibition stand the following data can be retrieved: first name(s), last name(s), country and area of interest.

Cloakroom / Lost and Found Counter:
A cloakroom with facilities for luggage storage and a lost & found service is located in the Entrance Hall.

Exhibition Opening Hours:
Tuesday 09:00 - 16:30
Wednesday and Thursday 09:30 - 16:30

Hotels:
Bco Congresos
https://easd2019officialhotels.com
Security:
Any suspicious or unidentified items are to be reported immediately to the nearest staff member. Security staff are on duty to ensure that all persons entering the venue are wearing a badge. For your safety, it is strongly advised to leave all your valuables in a safe at your hotel.

Insurance:
The registration fees do not include the insurance of participants against accidents, sickness, cancellation, theft, property loss or damage. Participants are advised to take out adequate personal travel insurance.

Disclaimer:
All efforts will be made to adhere to the programme as printed. However, EASD and its agents reserve the right to alter or cancel, without prior notice, any of the arrangements, timetables, plans or other items relating directly or indirectly to the Meeting, for any case beyond their reasonable control. EASD and the local conference organisers are not liable for any other loss or inconvenience caused as a result of such changes.

Advisory Note to Delegates:
All EASD activities are handled via the official website of EASD: www.easd.org.

Please be aware of “fraudulent” third party companies offering EASD services e.g. registration / hotel accommodation. EASD is the official registration provider and please only register via our official website.
EASD COMMUNITY PLAZA

The EASD Community Plaza is located in P2 and provides the EASD Booth, EASD Member Lounge, Virtual Meeting Tower, seating area, abstract printing, business printing, TV-Studio and charging stations for mobile devices.

Opening Hours EASD / EFSD Booth / Member Lounge:
Monday 08:00 - 18:00
Tuesday, Wednesday and Thursday 08:00 - 18:30
Friday 08:00 - 14:00

EASD ASSOCIATIONS’ VILLAGE

The EASD Associations’ Village brings together international diabetes associations and societies. Each represented association has an exhibition stand displaying its current activities and highlighting its work and practices. The EASD Associations’ Village is a multinational networking platform which aims to further increase and facilitate the exchange of knowledge and experiences among diabetes associations, and to provide information to physicians and researchers from all over the world on the existing associations.

Opening Hours Associations’ Village:
Tuesday to Thursday 09:00 - 17:00
Friday 09:00 - 12:00
TRANSPORTATION

Use your free transportation ticket for public transportation.

Transport and accesses to the Gran Via venue:

By metro:
TMB Line: L9 Sud ("Fira" and "Europa/Fira" stations)

By bus:
TMB Lines: H12, V1, 46, 65 and 79
Direct access from the airport: TMB Line 46 ("Pl. Europa" stop)

By train:
Ferrocarrils Generalitat de Catalunya (FGC)
Lines S8, S33, R6, R5, S4 ("Europa / Fira" station)

By taxi:
Taxis are easy identifiable by their yellow and black appearance. The approximate price of a trip can be found through the official application “AMB Taxi Barcelona”.

By car:
The Gran Via venue is located in a new business development area, connected to the main motorways and roads to Barcelona:
AP-7, AP-2, A-2, C-16, C-58, C-31, C-32, C-33

Parking:
A car park is available on the fairgrounds with 4,580 parking places.
ABSTRACT SELECTION

2003 abstracts were received by the Association. 1195 abstracts were accepted for inclusion. All abstracts were considered anonymously and were scored by 40 Abstract Review Committee Members. 16 Programme Committee Members designed the programme and created Oral and Poster Sessions based upon the anonymous abstracts.

Publication of Abstracts
Accepted abstracts are published in the Volume of Abstracts which is part of Diabetologia, the official journal of the Association. Abstracts are available online in the EASD Virtual Meeting. Participants can print abstracts at Print Stations during the Annual Meeting.

Embargo Policies
Information contained in abstracts may not be released until 1 July when the abstracts are published online. Oral Presentations are under embargo until one (1) minute following the commencement of the speakers’ presentation. Poster Presentations are under embargo until 11:59 CET on Tuesday 02 October.
Sebastian Barg, SE
Kåre I. Birkeland, NO
Karim Bouzakri, FR
Mikkel Christensen, DK
Leszek Czupryniak, PL
Dana Dabelea, US
Bastiaan E. de Galan, NL
Marc Y. Donath, CH
Paola Fioretto, IT
Anna L. Gloyn, UK
Per-Henrik Groop, FI
Gabriella Gruden, IT
Hans-Ulrich Häring, DE
Simon R. Heller, UK
Martin Heni, DE
Anna Krook, SE
Nebojsa Lalic, RS
Robert Lindsay, UK
Roberto Mallone, FR
Boris Mankovsky, UA
Didac Mauricio, ES
Juris J. Meier, DE
Michael A. Nauck, DE
Tommy G. Olsson, SE
Ewan R. Pearson, UK
Gregory A. Raciti, IT
Magalie A. Ravier, FR
Romano Regazzi, CH
Peter Rossing, DK
Mikael Rydén, SE
Naveed Sattar, UK
Rafael Simó, ES
Ulf Smith, SE
Michele Solimena, DE
Norbert Stefan, DE
Coen D. A. Stehouwer, NL
Vincenzo Trischitta, IT
Emmanuel Van Obberghen, FR
Daniël H. van Raalte, NL
Tina Vilsbøll, DK
PROGRAMME COMMITTEE

Sebastian Barg, SE
Karim Bouzakri, F
Dana Dabelea, US
Marc Y. Donath, CH
Paola Fioretto, IT
Hans-Ulrich Häring, D
Simon Heller, UK
Juris J. Meier, D
Mikael Rydén, SE (Chair)
### Tuesday, 17 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Joslin Hall</th>
<th>Vilanova Hall</th>
<th>Ochoa Hall</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Opening Ceremony</td>
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<tr>
<td>08:45</td>
<td>Presidential Address</td>
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<td>09:15</td>
<td>Claude Bernard Lecture</td>
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<td>Break</td>
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<td>10:15</td>
<td>OP 1</td>
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<tr>
<td>12:00</td>
<td>CREDENCE</td>
<td>GABA</td>
<td>DynaHEALTH</td>
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<td>Break</td>
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<tr>
<td>13:15</td>
<td>Beijing Community Diabetes Study (BCDS)</td>
<td>Results from the Anti-CD3 mAb prevention trial</td>
<td>The PIONEER journey</td>
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<td>Break</td>
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<td>14:30</td>
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<td>OP 8</td>
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## Tuesday, 17 September

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<th>Servet Hall</th>
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<tr>
<td>Poster Event A</td>
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<td>12:00 - 13:30 EASD</td>
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<td>Poster Event B</td>
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<td>Break</td>
<td>General Assembly</td>
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### Wednesday, 18 September

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<th>Time</th>
<th>Joslin Hall</th>
<th>Vilanova Hall</th>
<th>Ochoa Hall</th>
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<tbody>
<tr>
<td>08:30</td>
<td><strong>SGLT2 inhibitors for type 1 diabetes: clinical implications</strong></td>
<td><strong>Why is paediatric type 2 diabetes a more aggressive disease?</strong></td>
<td><strong>Reducing hypoglycaemia in patients treated with insulin</strong></td>
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<td><strong>Break</strong></td>
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<td>10:15</td>
<td><strong>OP 13</strong></td>
<td><strong>OP 14</strong></td>
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<td><strong>Break</strong></td>
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<td>12:00</td>
<td><strong>DECLARE study: call for action</strong></td>
<td><strong>The St Vincent Declaration: 30 years on</strong></td>
<td><strong>Imeglimin</strong></td>
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<td><strong>Break</strong></td>
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<td>13:15</td>
<td><strong>VERIFY</strong></td>
<td><strong>DEFINE-HF</strong></td>
<td><strong>Poster Event D</strong></td>
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<td>14:30</td>
<td><strong>OP 19</strong></td>
<td><strong>OP 20</strong></td>
<td><strong>OP 21</strong></td>
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<td><strong>Break</strong></td>
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<td>16:15</td>
<td><strong>Diabetes Prize for Excellence Lecture</strong></td>
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<td><strong>Break</strong></td>
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<tr>
<td>17:30</td>
<td><strong>EASD/ADA Symposium: Digital apps for diabetes treatment and prevention: opportunities and challenges</strong></td>
<td><strong>New directions for paediatric diabetes registries</strong></td>
<td><strong>Raising awareness about hypoglycaemia unawareness</strong></td>
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<td></td>
<td><strong>Break</strong></td>
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Wednesday, 18 September

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>12:00 - 13:30</td>
<td>EASD e-Learning: Introduction to diabetic complications</td>
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<tr>
<td>14:00 - 16:00</td>
<td>Beta cell replacement therapy for insulin-dependent diabetes</td>
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<tr>
<td>OP 16</td>
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<tr>
<td>Poster Event C</td>
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<td>Poster Event D</td>
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<tr>
<td>OP 22</td>
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<tr>
<td>New insights into diabetic kidney disease</td>
<td>Diabetes and neurodegenerative disease: What is the link?</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Joslin Hall</th>
<th>Vilanova Hall</th>
<th>Ochoa Hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Incretin-based medication: current state and future developments</td>
<td>Hyperglycaemia in pregnancy: treatment and risk for mother and child</td>
<td>New data from the Restoring Insulin Secretion (RISE) Study</td>
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<td><strong>Break</strong></td>
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<tr>
<td>10:15</td>
<td>OP 25</td>
<td>OP 26</td>
<td>OP 27</td>
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<td><strong>Break</strong></td>
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<tr>
<td>12:00</td>
<td><strong>CONCLUDE</strong></td>
<td>Unique features and findings of the long-term REWIND trial</td>
<td>Poster Event E</td>
</tr>
<tr>
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<td><strong>Break</strong></td>
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<tr>
<td>13:15</td>
<td><strong>CAROLINA</strong></td>
<td>PRIORITY study</td>
<td>Poster Event F</td>
</tr>
<tr>
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<td><strong>Break</strong></td>
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<tr>
<td>14:30</td>
<td>OP 31</td>
<td>OP 32</td>
<td>OP 33</td>
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<td></td>
<td><strong>Break</strong></td>
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<tr>
<td>16:15</td>
<td>Minkowski Lecture</td>
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<td><strong>Break</strong></td>
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<tr>
<td>17:15</td>
<td>Diabetes in primary care</td>
<td>Dialogue between clinical chemistry and diabetology</td>
<td>Micheal Berger debate: The emphasis on sedentary behaviour as lifestyle intervention target is entirely warranted</td>
</tr>
</tbody>
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*Thursday, 19 September*

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**Joslin Hall**

- Incretin-based medication: current state and future developments
- Minkowski Lecture
- Diabetes in primary care

**Vilanova Hall**

- Hyperglycaemia in pregnancy: treatment and risk for mother and child
- Dialogue between clinical chemistry and diabetology

**Ochoa Hall**

- New data from the Restoring Insulin Secretion (RISE) Study
- Poster Event E
- Poster Event F
<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:00 - 13:30</td>
<td>EASD</td>
<td>e-Learning: Pathogenesis and arresting type 1 diabetes</td>
</tr>
<tr>
<td>12:30 - 14:00</td>
<td>Maimónides Hall</td>
<td>EFSD/AstraZeneca Mentorship Presentation</td>
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<tr>
<td></td>
<td></td>
<td>12:00 - 13:30 EASD e-Learning: Pathogenesis and arresting type 1 diabetes</td>
</tr>
<tr>
<td>Break</td>
<td>Servet Hall</td>
<td>Diabetologia Symposium: Developmental origin of diabetes</td>
</tr>
<tr>
<td>Break</td>
<td>Trueta Hall</td>
<td>Is type 2 diabetes produced by precocious senescence?</td>
</tr>
<tr>
<td>Break</td>
<td>Serrano-Rios Hall</td>
<td>Targeting liver may have an impact on glycaemia?</td>
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<tr>
<td>Break</td>
<td>Sols Hall</td>
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<tr>
<td>18:15</td>
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<td>Break</td>
<td>Servet Hall</td>
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<td>Serrano-Rios Hall</td>
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### Friday, 20 September

<table>
<thead>
<tr>
<th>Time</th>
<th>Joslin Hall</th>
<th>Vilanova Hall</th>
<th>Ochoa Hall</th>
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</thead>
<tbody>
<tr>
<td>08:30</td>
<td>EASD/EASL Symposium: Is NAFLD a risk for health in the context of diabetes?</td>
<td>EASD/ESC Symposium: Heart failure in type 2 diabetes</td>
<td>Diabetes imaging for clinical diabetes research</td>
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<td>09:45</td>
<td>OP 37</td>
<td>OP 38</td>
<td>OP 39</td>
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<tr>
<td>11:00</td>
<td>OP 43</td>
<td>OP 44</td>
<td>OP 45</td>
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<td>Break</td>
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<tr>
<td>12:15</td>
<td>Personalising the screening for sight threatening diabetic retinopathy</td>
<td>TEDDY study</td>
<td>Motivation to behavioural change: brain, gut and environment</td>
</tr>
</tbody>
</table>
### Friday, 20 September

<table>
<thead>
<tr>
<th>Servet Hall</th>
<th>Trueta Hall</th>
<th>Serrano-Rios Hall</th>
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<tbody>
<tr>
<td>Targeting inflammation in diabetes treatment: hope or hype?</td>
<td>Genetics and precision medicine</td>
<td>The biological clocks keep islets on time</td>
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#### Break

<table>
<thead>
<tr>
<th>OP 40</th>
<th>OP 41</th>
<th>OP 42</th>
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<tr>
<th>OP 46</th>
<th>OP 47</th>
<th>OP 48</th>
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</thead>
<tbody>
<tr>
<td>EASD/JDRF Symposium: The islets are on fire!</td>
<td>Gestational and transgenerational diabetes</td>
<td>East-West-Forum: Supporting diabetes self-management</td>
</tr>
</tbody>
</table>
EASD E-LEARNING

Three new EASD e-Learning modules will be launched and presented during live demonstrations with the opportunity for the audience to trial and to provide feedback.

EASD e-Learning is designed to afford participants to self-direct the way they learn. Participants create their own learning pathways within the e-Learning modules, guided by opportunities for self-reflection, assessment and feedback.

Internationally renowned academic experts in their field will guide participants through each course within the modules. The courses consist of text, visuals, audio, video and rich-media.

Tuesday, 17 September 2019, 12:00 - 13:30 (Sols Hall)
EASD e-Learning: Technology and type 1 diabetes

Wednesday, 18 September 2019, 12:00 - 13:30 (Sols Hall)
EASD e-Learning: Introduction to diabetic complications

Thursday, 19 September 2019, 12:00 - 13:30 (Sols Hall)
EASD e-Learning: Pathogenesis and arresting type 1 diabetes
EFSD MENTORSHIP PROGRAMME

EFSD Future Leaders Mentorship Programme for Clinical Diabetologists supported by an unrestricted educational grant from AstraZeneca

The major goal of the EFSD Mentorship Programme is to identify and promote the advancement of the next generation of leading clinical diabetologists in Europe by refining their skills, keeping them in the field of diabetes and facilitating their appointment to senior academic positions at major European institutions. This programme provides a unique opportunity for clinical diabetologists to take part in a broad range of educational and training opportunities centred around a clinical research project, with leading European clinical diabetologists serving as personal mentors.

Thursday, 19 September 2019, 12:30 - 14:00 (Maimónides Hall)

The Mentees of the 2018 cohort will present their projects:

Francesca Cinti, Italy
Mentor: Miriam Cnop, Belgium

Rumyana Boykova Dimova-Draganova, Bulgaria
Mentor: Stefano Del Prato, Italy

Jan Gojda, Czech Republic
Mentor: Fredrik Karpe, UK

Rocky Strollo, Italy
Mentor: Colin Dayan, UK

Domenico Tricó, Italy
Mentor: Stephanie Amiel, UK

In addition, the Mentees of the 2019 cohort will be inaugurated and the Mentees of the 2017 cohort will be featured.
EUDF* Symposium: Excellence, equity and efficiency in diabetes care

Wednesday, 18 September 2019, 14:00 - 16:00, Sols Hall

Chair: J.J. Nolan, IE

14:00  D.R. Matthews, UK: Welcome

14:05  J.R. Zierath, SE: Opening remarks


14:15  D. Lewis, US, J. Bowis, UK: Living with diabetes: Priorities for health and quality of life

14:50  B. Kennon, UK, R. Holl, DE: Data and Registries: From data to outcomes to policy

15:15  K. Braune, DE: Healthcare professionals: Their role in policy and shaping a future clinic

15:30  J. Chan, HK: It can be done: a full cycle of care from data, registries to outcomes and cost savings

15:50  All aforementioned: Panel discussion: Translating knowledge and expertise into practice

16:00  J.J. Nolan, IE: Closure

* in constitution
EUDF* Evening Symposium: From concept to coalition. National responses to the diabetes epidemic

Thursday, 19 September 2019, 18:15 - 20:15, Sols Hall

Chair: J.J. Nolan, IE

18:15  D.R. Matthews, UK, S. Del Prato, IT:
Welcome and opening remarks

18:25  J.J. Nolan, IE:
Introduction

18:30  S. Sauermann, AT:
Keynote address:
The potential of multi-stakeholder alignment in diabetes

18:45  G. Roman, RO, C. Guja, RO:
The Romanian Diabetes Forum

19:05  C. Mathieu, BE, B. Torbeyns, BE:
Diabetes cooperation in Belgium

19:25  D. Müller-Wieland, DE, B. Bitzer, DE:
Diabetes cooperation in Germany

19:45  Panel discussion (all):
Establishing National Diabetes Fora

20:10  J.J. Nolan, IE:
Closure

* in constitution
CLAUDE BERNARD LECTURE

The Claude Bernard Lectureship recognises contributions to the advancement of knowledge in the field of diabetes mellitus and related metabolic diseases. The Claude Bernard Award is presented to the lecturer by the President of the EASD at the Award Ceremony immediately preceding this lecture.

CLAUDE BERNARD LECTURERS

1971 Southampton  M. DEROT, FR  1996 Vienna  J.D. WARD, UK
1972 Madrid  K. LUNDBAÆK, DK  1997 Helsinki  C.E. MOGENENSEN, DK
1973 Brussels  A.E. DONIACH, CH  1998 Barcelona  C. WOLLHEIM, CH
1974 Jerusalem  T.R. FRASER, UK  1999 Brussels  J.P. ASSAL, CH
1979 Vienna  D.A. PYKE, UK  2004 Munich  C.R. KAHN, US
1984 London  P.J. LEFEBVRE, BE  2009 Vienna  O. PEDERSEN, DK
1986 Rome  W. K. WALDHÄUSL, AT  2011 Lisbon  E. FERRANNINI, IT
1987 Leipzig  H. KEEN, UK  2012 Berlin  D.J. DRUCKER, CA
1988 Paris  T. DECKERT, DK  2013 Barcelona  M. LAAKSO, FI
1989 Lisbon  G. TCHOBROUTSKY, FR  2014 Vienna  D. ACCILI, USA
1991 Dublin  E. SHAFRIR, IL  2016 Munich  M.E. COOPER, AU
1993 Istanbul  D. ANDREANI, IT  2018 Berlin  J. TUOMILEHTO, KW

Tuesday, 17 September
8:30 OPENING CEREMONY
D.R. Matthews, President, EASD and EFSD
Joslin Hall

8:45 PRESIDENTIAL ADDRESS
D.R. Matthews, President, EASD and EFSD
followed by

9:15 51ST CLAUDE BERNARD LECTURE
Chair: D.R. Matthews, President, EASD and EFSD
Speaker: S.E. Kahn, USA
Title: Unravelling beta cell dysfunction in type 2 diabetes:
from the unpredicted to the unknown

Steven Kahn is a Professor of Medicine at the VA Puget Sound Health Care System and University of Washington in Seattle, Washington, USA, where he holds the Leonard L. Wright and Marjorie C. Wright Chair and directs the Diabetes Research Center. He received his medical degree from the University of Cape Town, South Africa and undertook his fellowship training in endocrinology and metabolism at the University of Washington.

His research interests focus largely on the pathogenesis and treatment of prediabetes and type 2 diabetes. His clinical studies have elucidated the critical importance of beta cell secretory dysfunction in the development of hyperglycaemia and have shown that impaired proinsulin processing is also a manifestation of beta cell dysfunction. His contributions in a number of clinical trials have been influential in fostering the idea that “offloading” the beta cell may be the best approach to slow the progressive loss of beta cell function seen in prediabetes and type 2 diabetes. He also has an extensive basic science research programme examining the loss of beta cells in type 2 diabetes. These studies have primarily focused on the role of islet amyloid formation in beta cell apoptosis and secretory dysfunction. This work has also identified novel islet proteins which play important roles in the normal function of beta cells and the development of beta cell dysfunction in type 2 diabetes.

His research has been continuously funded by the United States Department of Veterans Affairs, National Institutes of Health and the American Diabetes Association. He has been elected to the American Society for Clinical Investigation and the Association of American Physicians. He has received numerous awards for his research and mentoring, including the Endocrine Society Clinical Investigator Award, Department of Veterans Affairs John B. Barnwell Award, European Association for the Study of Diabetes Albert Renold Award and American Diabetes Association Outstanding Achievement in Clinical Diabetes Research Award.
10:15 - 11:45  Joslin Hall

**OP 01 SGLT2 inhibitors: glucose and beyond**

Chair: A.L. Birkenfeld, Germany, C. Mathieu, Belgium

1. Long-term efficacy and safety of dapagliflozin in patients with inadequately controlled type 1 diabetes: the DEPICT-2 study
   G. Rudofsky, C. Mathieu, P. Dandona, M. Lind, N. Arya, F. Thorén, J. Xu, M. Scheerer, A. Langkilde, on behalf of the DEPICT-2 investigators, Switzerland, Belgium, USA, Sweden, Germany

2. Sotagliflozin, a dual SGLT1 and SGLT2 inhibitor, in overweight/obese patients with type 1 diabetes: addressing unmet needs as adjunct therapy to insulin

3. Effect of sotagliflozin on body weight and composition in adults with type 1 diabetes
   S. Sawhney, T. Danne, S. Ramtoola, P. Banks, M.J. Davies, P. Lapuerta, USA, Germany, UK

4. Cardiovascular and renal outcomes with combination exenatide and open-label SGLT2 inhibitor treatment in EXSCEL

5. Empagliflozin and cardiorenal outcomes in patients with non-proteinuric kidney disease in the EMPA-REG OUTCOME trial
   C. Wanner, B. Zinman, J.T. George, M. Mattheus, M. von Eynatten, S.E. Inzucchi, S.J. Hauske, Germany, Canada, USA

6. Effects of dapagliflozin, metformin or exercise on glucose metabolism and glycaemic variability in individuals with prediabetes: the PRE-D trial
10:15 - 11:45 Vilanova Hall

OP 02 Looking ahead towards better treatments for type 1 diabetes

Chair: A. Lehuen, France, T. Mandrup-Poulsen, Denmark

7 A novel in vitro human islet platform for studying type 1 diabetes

8 Single cell characterisation of CD8 T-cells in type 1 diabetes patients with high or low residual C-peptide

9 CRISPR-editing of hESCs allows for production of immune evasive cells capable of differentiation to pancreatic progenitors for future type 1 diabetes therapy
V.M. Sluch, D. Swain, W. Whipple, M. Liao, A. Bhoumik, A.D. Agulnick, A. Rezania, USA

10 IFNα kinoid is a promising vaccine against type 1 diabetes targeting IFNα in the NOD mouse model
N. Caillot, F. Colaone, R. Bertrand, J. Da Silva, S. Hamdi, J. Bonnefoy, V. Serra, A. Lehuen, C. Boitard, G. Grouard-Vogel, France

11 Enteroviral mRNA detection in the pancreas of patients with type 1 diabetes
S. Geravandi, K. Maedler, nPOD virus group, Germany

12 Understanding the increased risk of infections in diabetes: comparison of immunological responses in subjects with type 1 diabetes and healthy subjects
A.W. Janssen, R. Stienstra, N.P. Riksen, C.J. Tack, Netherlands
OP 03 Addressing limitations of insulin therapy

Chair: K. Khunti, UK, P. Kristensen, Denmark

13 Suboptimal glycaemic control globally in all age groups of adults with type 1 diabetes: results of a multinational, observational study (SAGE)

14 Regional differences in glycaemic control, hypoglycaemia and disease management in adults with type 1 diabetes: the SAGE study

15 Identification of factors influencing the carb-counting error in the type 1 diabetes management
C. Roversi, M. Vettoretti, A. Facchinetti, S. Del Favero, G. Sparacino, Hypo-RESOLVE Consortium, Italy

16 The influence of prepubertal onset of diabetes and model of insulin therapy on polycystic ovary syndrome in women with type 1 diabetes
A. Lebkowska, A. Adamska, A. Krentowska, A. Uruska, A. Rogowicz-Frontczak, A. Araszkiewicz, J. Hryniewicka, K. Ozegowska, E. Wender-Ozegowska, D. Zozulinska-Ziolkiewicz, I. Kowalska, Poland

17 Efficacy and safety of fast-acting insulin aspart compared with insulin aspart, both with insulin degludec with or without metformin, in adults with type 2 diabetes
W. Lane, K. Bozkurt, E. Favaro, H.C. Jang, M.I. Kjærgaard, A. Oviedo, L. Rose, P. Senior, G. Sesti, A. Soto Gonzalez, E. Franek, USA, Denmark, Korea, Democratic People's Republic of, Argentina, Germany, Canada, Italy, Spain, Poland

18 The effect of DAFNE education, CSII, or both in a population with type 1 diabetes in Scotland
J.A. McKnight, C. Mair, O. McKnight, F. Gibb, H. Colhoun, R. Wright, M. Strachan, S. Ritchie, UK
10:15 - 11:45

Servet Hall

**OP 04 Mechanisms of adaptation of insulin secretion**

Chair: P. Maechler, Switzerland, G. Rutter, UK

19 Placental urocortin 2 (UCN2): a novel signal involved in islet adaptations to pregnancy
S.J. Simpson, L.I. Smith, P.M. Jones, J.E. Bowe, UK

20 The Clec11a promotes glucose stimulated insulin secretion and cell proliferation in human islets
R. Shi, Z. Sun, J.L. Börjesson, China, Sweden

21 Effects of GLP-1R agonists on beta cell survival, function and granule motility
G. Ferri, F. Grano, M. Occhipinti, M. Suleiman, C. De Luca, L. Marselli, V. De Tata, F. Cardarelli, P. Marchetti, M. Bugliani, Italy

22 Increasing the cellular populations that secrete incretins improves glucose homeostasis
M. Terasaki, L. Chu, R. Teinturier, C.L. Mattsson, K.-C. Liu, Q. Zhou, T. Hirano, O. Andersson, Sweden, Japan, USA

23 Effects of phylogenetically ancient NPY1 receptor specific forms of PYY(1-36) on pancreatic beta cell function, growth and survival
P.R. Flatt, R.A. Lafferty, A. McCloskey, Y. De Marinis, N. Irwin, UK, Sweden

24 Free fatty acid receptors GPR120 and GPR40 are essential for oil-induced GIP secretion
T. Kato, N. Harada, A. Sankoda, E. Ikeguchi, K. Iwasaki, S. Yamane, Y. Murata, A. Hirasawa, N. Inagaki, Japan
OP 05 Monitoring risk and prognosis of peripheral diabetic neuropathy

Chair: A.J.M. Boulton, UK, S. Tesfaye, UK

25 Obesity and metabolic risk factors associated with non-painful and painful diabetic polyneuropathy: a nationwide prevalence study of 5,249 patients in the Danish DD2 cohort

26 Higher percentages of basophils, CD4⁺ T cells and B cells are associated with lower nerve conduction velocity: the Maastricht study

27 Cutaneous carbonyl stress mediated posttranslational protein modifications are associated with peripheral nerve dysfunction in recent-onset type 2 diabetes patients
G.J. Bönhof, A. Strom, T. Jung, J. Szendroedi, K. Müssig, T. Grune, M. Roden, D. Ziegler, Germany

28 Central brain mechanisms that predict treatment response in painful diabetic neuropathy

29 Altered motor and motor imagery task related activation in diabetic peripheral neuropathy: insights from functional magnetic resonance imaging
K. Venkataraman, V. Pun, A.Z. Mohamed, M. Luo, C. Wong, F. Zong, E.Y. Khoo, E.S. Tai, F. Nasrallah, Singapore, Australia

30 Central pain signature for painful diabetic neuropathy (DN) derived from magnetic resonance imaging
D. Selvarajah, K. Teh, S. Palai, G. Sloan, S. Tesfaye, I. Wilkinson, UK
OP 06 Novel biomarkers of CVD in type 2 diabetes

Chair: C. Schalkwijk, Netherlands, B.H.R. Wolffenbuttel, Netherlands

31 Skin autofluorescence predicts incident CVD and mortality in people with type 2 diabetes
B.H.R. Wolffenbuttel, H. Boersma, A.J. Smit, R. Graaff, R. Van Waateringe, M.M. Van der Klauw, Netherlands

32 Cyclophilin A level: a novel biomarker for cardiovascular disease in patients with type 2 diabetes
M.M. Hussain, A.A. Al Sherbiny, A.R. Shehata, E.A. Mohmed, Egypt

33 The branched-chain amino acids valine and leucine predict all-cause mortality in cardiovascular disease patients independently from the presence of type 2 diabetes

34 MR-proANP predicts major adverse cardiovascular events and all-cause mortality in patients with type 2 diabetes
S.I. Chisalita, C. Östgren, F. Nyström, Sweden

35 mRNA expression profile changes in adipose tissue and muscle tissue in patients with type 2 diabetes and coronary artery disease
H. Kratochvílova, A. Cinkajzlova, Z. Lacinova, J. Klouckova, M. Lips, P. Kopecky, M. Porizka, J. Lindner, M. Mraz, M. Haluzik, Czech Republic

36 Plasma Trimethylamine N-oxide levels are associated with coronary atherosclerotic burden in patients with type 2 diabetes
N. Yu, N. Gu, Y. Wang, D. Lu, X. Ma, China
12:00

Joslin Hall

CREDENCE

Chair: V. Perkovic, Australia

C. Pollock, Australia:
Introduction and design

H.J. Lambers Heerspink, Netherlands:
Renal outcomes

K.W. Mahaffey, USA:
Cardiovascular and safety outcomes

M.A. Nauck, Germany:
Commentary

Vilanova Hall

Gamma Aminobutyric Acid (GABA): Role in pancreatic islet cell function and type 1 diabetes

Chair: K. McCormick, USA

Q. Wang, Canada:
Effect of GABA on alpha and beta cell function and on the immune system in type 1 diabetes

K. McCormick, USA:
Clinical trial presentation: Effect of Gamma Aminobutyric Acid (GABA) or GABA with Glutamic Acid Decarboxylase (GAD) on the progression of type 1 diabetes mellitus in children
12:00

Ochoa Hall

Lessons from the DynaHEALTH consortium: bio-psychosocial model of glycaemic health

Chair: M.-R. Järvelin, UK

S. Sebert, Finland:
Modelling and prediction of the gluco-psychosocial axis - deterioration of glucose tolerance

S. Hummel, Germany:
Metabolomics and long-term health in mothers with gestational diabetes and their offspring
**Poster Events**

Poster presentations rank equally with oral presentations at EASD Annual Meetings. Posters must be displayed throughout the duration of the Meeting and should be already mounted in the morning of the first day and removed at the end of the EASD Meeting. The posters must be accessible at any time during the hours of the Annual Meeting. Furthermore, all posters are presented at six Poster Events which will be held on Tuesday, Wednesday and Thursday from 12:00 to 14:15.

During the Poster Presentation Sessions, the presenting author must be present or make arrangements for somebody with knowledge of the displayed work to be present at the poster. An average of four minutes will allow each author to present the poster, followed by open discussion of four minutes (depending on the number of abstracts in the poster session). Participants can collect a headset on a first come first served basis to follow the presentations within the corresponding sessions.

EASD will also make posters available via its Virtual Meeting. Participants are invited to discuss and comment on the posters using the Virtual Conference Tool.
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<tr>
<td>12:00 - 13:00</td>
<td>Poster Event A</td>
<td></td>
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<tr>
<td>PS 001</td>
<td>Twisting the helix</td>
<td>131</td>
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<tr>
<td>PS 007</td>
<td>Biomarkers and diabetes: new and old</td>
<td>139</td>
</tr>
<tr>
<td>PS 013</td>
<td>Infections and pancreatitis in diabetes</td>
<td>147</td>
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<tr>
<td>PS 019</td>
<td>GLPR and other GPCRs: juggling with acronyms</td>
<td>154</td>
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<tr>
<td>PS 025</td>
<td>Changing insulin sensitivity: a stairway to heaven?</td>
<td>161</td>
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<td>Clinical aspects of macrovascular disease</td>
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Beijing Community Diabetes Study (BCDS)

Chair: R.R. Holman, UK

M. Yuan, China:
More sustained combined target control leading to less cardiovascular events and all-cause mortality in patients with type 2 diabetes mellitus: a 10-year cohort study with a community-hospital-integrated model for diabetes management in Beijing

G. Yang, China:
Neck circumference, an ignored anthropometric indicator, was related to cardiovascular events in Chinese patients with type 2 diabetes in 10-year cohort study in Beijing

L. Ji, China:
BCDS clinical and societal impact

Results from the Anti-CD3 mAb (teplizumab) prevention trial

Chair: L. Chatenoud, France

K.C. Herold, USA:
Clinical data from the trial including the background, results, features of the participants associated with clinical responses; conclusions and significance

P.S. Linsley, USA:
Studies of the mechanism of teplizumab

A.G. Ziegler, Germany:
Commentary
13:15

Ochoa Hall

The PIONEER journey: from concept to successful oral peptide delivery

Chair: S.C. Bain, UK

M.J. Davies, UK: Early intervention with oral semaglutide and long term safety

O. Mosenzon, Israel: Impact of treatment intensification with oral semaglutide in patients with type 2 diabetes

M. Husain, Canada: Cardiovascular outcome with semaglutide
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14:30 - 16:00

OP 07 Benefits of technologies in type 1 diabetes

Chair: J.K. Mader, Austria, E. Renard, France

37 Diabeloop closed loop system is able to achieve similar day and night good blood glucose control whatever there is or not physical daily activities practices

38 Clinical evaluation of a closed-loop insulin delivery system on glycaemic control in adults with type 1 diabetes
A. Koutsovasilis, A. Sotiropoulos, M. Pappa, V. Kordinas, M. Bourikou, E. Bletsa, S. Bousboulas, T. Peppas, Greece

39 Continuous glucose monitoring profiles in participants with type 1 diabetes of over 35 years duration in the DCCT/EDIC study

40 For type 1 diabetes, real-time CGM is more important than insulin delivery method: 3 years of follow-up in the COMISAIR study

41 Majority of persons with type 1 diabetes on multiple daily insulin injections benefit from continuous glucose monitoring

42 Continuous glucose monitoring reduces hypoglycaemia and improves glycaemic control among older adults with type 1 diabetes
K. Miller, L. Kanapka, R. Pratley, USA
14:30 - 16:00

Vilanova Hall

OP 08 Inflammation: new and old kids on the block

Chair: P. Marchetti, Italy, C.J. Tack, Netherlands

43 Myeloid-CPT1a knockout leads to leaner phenotype and improved insulin sensitivity in mice under high-fat diet feeding
Y. Gao, T. Feng, X. Hui, A. Xu, Hong Kong

44 Immunotherapy with anti-inflammatory M2 macrophages for the treatment of impaired glucose tolerance in a murine model
D. Vega Galaviz, A. Pérez Gómez, D.L. Rodríguez Orihuela, G. Escobedo, Mexico

45 Cell membrane pannexin channels are releasing high levels of ATP to extracellular medium triggering inflammation and insulin resistance in skeletal muscle from obese mice
G. Jorquera, R. Meneses-Valdés, G. Rosales-Soto, C. Campos, P. Llanos, M. Casas, E. Jaimovich, Chile

46 SGLT2 inhibitors protect palmitate-induced cardiomyocytes inflammation by increasing activation of AMPK and lipid oxidations
K.-W. Lee, J. Jeon, H. Lee, S.-E. Choi, Y. Kang, T. Kim, H. Moon, S. Han, H. Kim, Korea, Republic of

47 Effects of second-generation antipsychotics on adipose tissue metabolism and inflammation

48 Proinflammatory cytokines as biomarkers of effective metformin therapy in patients with type 2 diabetes
OP 09 Semaglutide: ingested or injected

Chair: J.J. Meier, Germany, T. Vilsbøll, Denmark

49 Efficacy of oral semaglutide according to diabetes duration: an exploratory subgroup analysis of the PIONEER trial programme
M. Haluzik, R. Bauer, J.W. Eriksson, S.T. Hoff, K. Kallenbach, R.E. Pratley, J.B. Buse, Czech Republic, Denmark, Sweden, USA

50 Oral semaglutide improves postprandial glucose and lipid metabolism and delays first-hour gastric emptying in subjects with type 2 diabetes
K. Dahl, J. Blundell, C. Gibbons, A. Brooks, F. Almazedi, S.T. Hoff, S. Lövdahl, T.A. Bækdal, Denmark, UK

51 Efficacy of oral semaglutide according to baseline HbA1c: an exploratory subgroup analysis of the PIONEER trial programme
J.J. Meier, R. Bauer, T.M. Blicher, I. Lingvay, M.B. Treppendahl, B. Zinman, J. Rosenstock, Germany, Denmark, USA, Canada

52 Once-weekly semaglutide vs canagliflozin in type 2 diabetes: results of the SUSTAIN 8 trial
I. Lingvay, A. Catarig, J.P. Frias, H. Kumar, N.L. Lausvig, C.W. Le Roux, D. Thielke, A. Viljoen, R.J. McCrimary, USA, Denmark, India, Ireland, UK

53 Efficacy and safety of semaglutide 1.0 mg once weekly vs liraglutide 1.2 mg once daily as add-on to 1-3 oral glucose-lowering drugs in subjects with type 2 diabetes (SUSTAIN 10)
M.S. Capehorn, A.-M. Catarig, J.K. Furberg, A. Janez, H.C. Price, S. Tadayon, B. Vergès, M. Marre, UK, Denmark, Slovenia, France

54 Effects of once-weekly semaglutide vs canagliflozin on body composition in type 2 diabetes: a substudy of the SUSTAIN 8 trial
R.J. McCrimary, A. Catarig, J.P. Frias, N.L. Lausvig, C.W. Le Roux, D. Thielke, I. Lingvay, UK, Denmark, USA, Ireland
14:30 - 16:00

OP 10 Looking into the future: predicting renal outcomes

Chair: F. Persson, Denmark, D. Van Raalte, Netherlands

55 Modelling the metabolic reprogramming of diabetic nephropathy using hESC-derived 3D kidney organoids
C. Hurtado del Pozo, E. Laplaza, P. Prado, A. Gavalda-Navarro, E. Garreta, F. Villaroya, N. Montserrat, Spain

56 Urinary metabolites detected by nuclear magnetic resonance (NMR) predict progression of diabetic nephropathy in type 1 diabetes
S. Mutter, E. Valo, V. Aittomäki, N. Sandholm, C. Forsblom, P. Würtz, P.-H. Groop, FinnDiane Study Group, Finland

57 Circulating metabolites are associated with present and future renal impairment in type 1 diabetes

58 Sparse panels of biomarkers in serum and urine predict rapid progression of renal disease in type 1 diabetes and out perform albumin creatinine ratio
M. Colombo, S. McGurnaghan, I. Thoma, D. Dunger, N. Dalton, P.M. McKeigue, Scottish Diabetes Research Network Type 1 Bioresource Investigators (SDRNT1BIO), H.M. Colhoun, UK

59 Prognostic value of plasma concentrations of betaine, choline, carnitine and TMAO for end-stage renal disease in type 2 diabetes patients: the SURDIAGENE cohort
P. Saulnier, M. Croyal, E. Gand, B. Cariou, S. Ragot, M. Krempf, S. Hadjadj, France

60 The utility of plasma concentration of Trimethylamine-N-Oxide in predicting cardiovascular and renal complications in individuals with type 1 diabetes
14:30 - 16:00

OP 11 Lost islets in type 2 diabetes

Chair: M.A. Ravier, France, S. Ullrich, Germany

61 Glucose tolerance status and beta and alpha cell mass in community-based autopsy samples of Japanese: the Hisayama study
J. Inaishi, Y. Saisho, N. Mukai, Y. Hirakawa, D. Yoshida, J. Hata, Y. Watanabe, Y. Oda, H. Itoh, T. Ninomiya, Japan

62 The transcription factor ZBED6 affects beta cell mass and glucose tolerance in high-fat diet treated mice
X. Wang, S. Younis, C. Krizhanovskii, L. Andersson, N. Welsh, Sweden

63 Defining the transcriptome of a successful beta cell compensation to insulin resistance
D. F. De Jesus, A. El Ouaamari, E. Dirice, R.N. Kulkarni, USA

64 Deletion of Drp1 gene in pancreatic beta cells leads to islet hyperplasia and diet-induced obesity in mice
Y. Ohtsuka, N. Hasuzawa, K. Uchida, Y. Nakanishi, M. Kabashima, R. Tokubuchi, K. Ashida, Y. Tajiri, M. Nomura, Japan

65 Loss of Hippo kinase LATS2 preserves beta cell survival and function in diabetes
K. Annamalai, T. Yuan, B. Lupse, D. Lim, K. Maedler, A. Ardestani, Germany, Korea, Republic of

66 PHLPP1/2 phosphatases are key mediators of beta cell failure in type 2 diabetes
B. Lupše, A. Ardestani, K. Annamalai, K. Maedler, Germany
OP 12 Prediction of vascular complications in type 1 diabetes

Chair: H. Colhoun, UK, B. Zinman, Canada

67 MicroRNA 146a is associated with diabetic complications in patients with type 1 diabetes from the EURODIAB PCS

68 sIL-2R plasma levels as a potential marker for progression to vascular complications in patients with type 1 diabetes

69 Autoantibodies against methylglyoxal modified ApoB100 and ApoB100 peptide are associated with less coronary artery atherosclerosis in long-term type 1 diabetes

70 Predicting cardiovascular disease from fundus images using deep learning
J. Mellor, A. Storkey, H.M. Colhoun, P. McKeigue, on behalf of the SDRNT1BIO Investigators, UK

71 Low serum adiponectin is associated with the metabolic syndrome and adds to cardiovascular risk in individuals with type 1 diabetes without nephropathy

72 Coronary artery disease is common in very long-term type 1 diabetes: associations with the collagen oxidation product methionine sulfoxide and the AGE glucuronidine/LW-1
CAMILLO GOLGI PRIZE

Camillo Golgi (1843 - 1926) was awarded the Nobel Prize in 1906 for his studies on the nervous system and kidney physiology. The EASD Camillo Golgi Prize is awarded for outstanding contributions in the field of the histopathology, pathogenesis, prevention and treatment of the complications of diabetes mellitus, which have been carried out in Europe by a member of EASD normally resident in Europe. The awardee delivers a lecture named in honour of Camillo Golgi at the EASD Annual Meeting in the year of the award.

CAMILLO GOLGI LECTURERS:

1986 Rome G.C. VIBERTI, UK
1987 Leipzig D.J. EWING, UK
1988 Paris C.E. MOGENSEN, DK
1989 Lisbon G.B. BOLLI, IT
1990 Copenhagen P.J. WATKINS, UK
1991 Dublin R. OSTERBY, DK
1992 Prague E. KOHNER, UK
1993 Istanbul K.F. HANSSEN, NO
1994 Düsseldorf J.E. TOOKE, UK
1995 Stockholm R. LANDGRAF, DE
1996 Vienna M.-R. TASKINEN, FI
1997 Helsinki H.-H. PARVING, DK
1998 Barcelona D.R. TOMLINSON, UK
1999 Brussels E. STANDL, DE
2000 Jerusalem U. DI MARIO, IT
2001 Glasgow A. FLYVBJERG, DK
2002 Budapest J. TUOMILEHTO, FI
2003 Paris A. J. M. BOULTON, UK
2004 Munich A. CERIELLO, IT
2005 Athens C. STEHOUWER, NL
2006 Copenhagen M. LAAKSO, FI
2007 Amsterdam P. FIORETTO, IT
2008 Rome A. AVOGARO, IT
2009 Vienna P.-H. GROOP, FI
2010 Stockholm D. ZIEGLER, DE
2011 Lisbon A. BIERHAUS, DE
2012 Berlin G. PUGLIESE, IT
2013 Barcelona T. LAURITZEN, DK
2014 Vienna S. TESFAYE, UK
2015 Stockholm H.-P. HAMMES, DE
2016 Munich P. ROSSING, DK
2017 Lisbon B.M. FRIER, UK
2018 Berlin P.P. NAWROTH, DE
16:15  34TH CAMILLO GOLGI LECTURE                Joslin Hall
Chair:  D.R. Matthews, President, EASD and EFSD  
Speaker:  R. A. Malik, Qatar  
Title:  Diabetic neuropathy: a time to challenge the dogma

Rayaz Malik graduated in Medicine from the University of Aberdeen in 1991, obtained his MRCP (London) in 1996, PhD from the University of Manchester in 1997 and was elected to become a fellow of the Royal College of Physicians in 2007. He was appointed as Consultant Physician and Senior Lecturer in 2001 and as Professor of Medicine and Consultant Physician in 2008 in Central Manchester University Teaching Hospitals and the University of Manchester. In 2014 he was appointed as Professor of Medicine at Weill Cornell Medicine and remains an honorary Professor of Medicine at the University of Manchester and visiting Professor of Medicine at Manchester Metropolitan University. He was appointed as the Organisational Official in November 2016 and as the Assistant Dean for Clinical Research at Weill Cornell Medicine-Qatar in February 2019.

His research focuses on the pathogenesis, assessment and treatment of diabetic and other peripheral neuropathies and central neurodegenerative disorders. The research is funded by the NIH, JDRF, QF, ECTRIMS and MJFF. Over 20 years he has pioneered the use of corneal confocal microscopy, a non-invasive ophthalmic instrument, to quantify diabetic and other peripheral neuropathies and more recently used CCM to assess neuronal damage in patients with Multiple Sclerosis, Parkinson’s disease, Stroke, Dementia and Autism.

He was the President of Neurodiab (the diabetic neuropathy study group of the EASD) from 2009-2012. He is an associate editor for Diabetic Medicine (2006 to present); J of Diabetes and its Complications (2012-present), PLOS One (2016-present), BMC Neurology (2009-present) and Advances in Therapy (2009-present). He serves on the Juvenile Diabetes Research Foundation Complications and Clinical Investigation Research Committee (2005-present) and served on the MRC Clinical Translational research panel from 2012-2014.
ALBERT RENOLD PRIZE

The Albert Renold Prize and Lecture honours the memory of A. Renold, the distinguished diabetologist and researcher. The aim of the Lectureship is to recognise an individual's outstanding contribution to the advancement of knowledge in the field of research on the islets of Langerhans. Not only do many generations of scientists consider A. Renold their principal mentor, but he was also one of the founding fathers of EASD, serving as Honorary Secretary (1965-1969) and President (1974-1977). He trained with the eminent diabetologist, E.P. Joslin, and was the first full-time director of the Joslin Research Laboratory in the mid-1950s. In 1963, he returned to Geneva, where he founded the Institut de Biochimie Clinique. Under his leadership, it became an international centre of excellence in islet research until his death in 1988.

P. Langerhans Jr. was born in Berlin and entered the famous “School of the Grey Monastery” in the same city. He began medical studies at the University of Jena and completed them in Berlin. The discovery of the islets of Langerhans was published in his thesis in 1869. Later he became Professor of Pathology in Freiburg. He also gained fame due to his discovery of the Langerhans cells in the skin. In 1887, while living on the island of Madeira, progressive renal failure brought his medical activities to an end and he died of uraemia in 1888.

ALBERT RENOLD LECTURERS

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<thead>
<tr>
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<td>2007</td>
<td>Amsterdam</td>
<td>F. ASHCROFT, UK</td>
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<td>J.-C. HENQUIN, BE</td>
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<td>Vienna</td>
<td>B. THORENS, CH</td>
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<td>Stockholm</td>
<td>S. SEINO, JP</td>
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<td>2011</td>
<td>Lisbon</td>
<td>M. PRENTKI, CA</td>
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<td>2012</td>
<td>Berlin</td>
<td>D.L. EIZIRIK, BE</td>
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<td>Barcelona</td>
<td>P. RORSMAN, UK</td>
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<td>2014</td>
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<td>S.E. KAHN, US</td>
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<td>A. HATTERSLEY, UK</td>
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<td>2016</td>
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<td>M.S. GERMAN, US</td>
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<td>2017</td>
<td>Lisbon</td>
<td>J. FERRER, UK</td>
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<tr>
<td>2018</td>
<td>Berlin</td>
<td>R.N. KULKARNI, US</td>
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Timo Otonkoski, MD, D.M.Sc., is Professor of Medical Stem Cell Research and director of the Biomedical Stem Cell Center and the Stem Cells and Metabolism Research Program at the Faculty of Medicine, University of Helsinki. After completing his medical training in 1981 he specialised in pediatrics and obtained his doctoral degree in 1989 under the mentorship of Olli Simell. He did his Post-doctoral Fellowship in the laboratory of Alberto Hayek at the Whittier Institute, University of California, San Diego, in 1991-94. He has a specialist degree in Pediatric Endocrinology and a clinical position at the Children’s Hospital of the Helsinki University Central Hospital. His main clinical specialities are childhood diabetes and hypoglycaemia.

Timo Otonkoski’s research has focused on the growth and development of the pancreatic islets. Already his doctoral thesis dealt with the functional maturation of human fetal beta cells. During his postdoctoral studies, he identified nicotinamide and HGF as potent factors for fetal beta cell differentiation and expansion. Later, his lab has elucidated the role of EGFR-mediated signalling in beta cell growth and regeneration. He has also made important contributions in the field of congenital hyperinsulinism and neonatal diabetes. He identified a new mechanism of exercise-induced hyperinsulinaemic hypoglycaemia. He also contributed significantly to the development of PET-imaging for the focal form of congenital hyperinsulinism. Lately, he has shifted his main area of interest into the use of human pluripotent stem cells and genome editing to study beta cell pathophysiology. His group has made fundamental discoveries of the pluripotent reprogramming of human cells, developed novel approaches for controlling their differentiation, and used this approach to elucidate several monogenic mechanisms of beta cell dysfunction.
16:15 RISING STAR SYMPOSIUM Ochoa Hall

Chair: M. Rydén, Sweden

The Rising Star Symposium aims to identify promising and innovative keen researchers who are developing their research activities in Europe. Selected candidates will have the opportunity to present an overview of their past and ongoing research activities during a multidisciplinary research symposium at the EASD Annual Meeting. Four candidates have been selected.

Rising Star Awardees

2005 Athens
- P.-O. CARLSSON, SE
- A.L. GLOYN, UK
- N. MARX, DE

2006 Copenhagen
- G. DA SILVA XAVIER, UK
- M. FLODSTRÖM-TULLBERG, SE
- J.J. MEIER, DE

2007 Amsterdam
- T. FRAYLING, UK
- A. TENGHOLM, SE
- E.R. PEARSON, UK

2008 Rome
- R. MALLONE, FR
- P. SCHRAUWEN, NL
- M. BLÜHER, DE

2009 Vienna
- V. GAULT, UK
- G.P. FADINI, IT
- C. HERDER, DE

2010 Stockholm
- P. FRANKS, SE
- F. KNOF, DK
- C. LINDGREN, UK

2011 Lisbon
- I. PROKOPENKO, UK
- M. RAVIER, FR
- A.L. BIRKENFELD, DE

2012 Berlin
- A. BONNEFOND, FR
- J. BEULENS, NL
- L. HERRERO, ES

2013 Barcelona
- A. ROSENGREN, SE
- J.A. POSPISILIK, DE
- D.J. PREISS, UK

2014 Vienna
- G.H. GOOSSENS, NL
- H.J. HEERSPINK, NL
- L. PASQUALI, ES
- R. STIENSTRA, NL
- M. HENI, DE
- D. HODSON, UK
- R. NOGUEIRAS, ES
- R.A. SCOTT, UK
- S. KOOLJMAN, NL
- F. D’ADDO, IT

2015 Stockholm
- T. MEZZA, IT

2016 Munich
- A.G. JONES, UK
- G. CHRISTOFFERSSON, SE
- T. MEZZA, IT
- A.R. WOOD, UK
- Y. YAGHOOTKAR, UK
- M.R. BOON, NL
- E. DE FRANCO, UK
- N. DE LEU, BE

2017 Lisbon
- G. CHRISTOFFERSSON, SE
- T. MEZZA, IT
- A.G. JONES, UK
- G. CHRISTOFFERSSON, SE
- T. MEZZA, IT
- A.R. WOOD, UK
- Y. YAGHOOTKAR, UK
- M.R. BOON, NL
- E. DE FRANCO, UK
- N. DE LEU, BE
- N.R. Gandasi, SE
Speaker: S. Ahmad, Sweden
Title: Dissecting the role of genetic and lifestyle factors in understanding obesity and cardiometabolic traits

Speaker: I. Miguel-Escalada, Spain
Title: Modelling human enhancer mutations reveals new mechanisms of pancreas development

Speaker: I. Nikolic, Spain
Title: T cells and stress: novel regulators of obesity development

Speaker: D. Tricò, Italy
Title: Tailoring nutrient type and timing to tweak glucose tolerance

18:10 EASD General Assembly
Discussions and Questions
08:30

Joslin Hall

SGLT2 inhibitors for type 1 diabetes: clinical implications

Chair: P. Narendran, UK

T.R. Pieber, Austria:
Unmet needs in the management of type 1 diabetes: implications for therapy with SGLT2is

R.J. McCrimmon, UK:
Clinical trial data for SGLT2is in type 1 diabetes

T. Danne, Germany:
Safe use of SGLT2is in type 1 diabetes

Vilanova Hall

Why is paediatric type 2 diabetes a more aggressive disease?

Chair: R. Holl, Germany

K.J. Mather, USA:
Youths with type 2 diabetes are not just small adults

M.E. Pavkov, USA:
Long-term complications of type 2 diabetes diagnosed in youths vs adults

C. Pihoker, USA:
Higher burden of complications in youths with type 2 diabetes vs type 1 diabetes
08:30

Reducing hypoglycaemia in patients treated with insulin

Chair: S.A. Amiel, UK

B.M. Frier, UK:
Impact of hypoglycaemia

A. Philis-Tsimikas, USA:
New generation basal insulins, what do we know so far?

A. Pfützner, Germany:
Is there more to it than just insulin?

Metabolic surgery update

Chair: J. Logue, UK

G. Mingrone, Italy:
Longer term outcomes of bariatric surgery

D. Cummings, USA:
Pitfalls of bariatric surgery

L. Baur, Australia:
Bariatric surgery in adolescents: dos and don’ts
08:30

Trueta Hall

Diabetic retinopathy: looking beyond the eyes

Chair: R. Simó, Spain

M. Evans, UK:
The association between diabetic retinopathy and complications of diabetes: implication for care

A. Avogaro, Italy:
Diabetic retinopathy: a tool for cardiovascular risk stratification

C.D.A. Stehouwer, Netherlands:
Is the eye a mirror of the brain?

Serrano-Rios Hall

The undervalued actors in metabolism: pancreatic alpha cells and glucagon

Chair: E. Van Obberghen, France

M.C. Moore, USA:
Regulation of metabolism by glucagon

P. Rorsman, UK:
Glucose control of glucagon secretion

P.L. Herrera, Switzerland:
Diabetes remission by insulin-producing alpha cells
10:15 - 11:45  Joslin Hall

**OP 13 Nephropathy: mechanisms of renal injury and nephroprotection**

Chair: P. Fioretto, Italy, G. Gruden, Italy

73 FoxO1-mediated inhibition of STAT1 alleviates tubulointerstitial fibrosis and tubule apoptosis in diabetic kidney disease
G. Qin, F. Huang, L. Ji, T. An, China

74 TGFβ3 in the kidney: implications in lipid metabolism and fibrosis

75 The relative roles of pro-oxidant enzymes Nox4 versus Nox5 in diabetic kidney disease

76 Disparate effects of the combined therapy of empagliflozin and linagliptin versus metformin and insulin glargine on renal haemodynamics in type 2 diabetes
C. Ott, S. Jung, D. Kannenkeril, K. Striepe, A. Bosch, M. Korn, P. Bramlage, R.E. Schmieder, Germany

77 Dapagliflozin improves the urinary CKD273 proteomic score when added to renin-angiotensin blockade in patients with type 2 diabetes and nephropathy
M.K. Eickhoff, M. Frimodt-Møller, H. Mischak, P. Rossing, F. Persson, Denmark, Germany

78 GLP-1 alleviates DKD through activation of autophagy by regulating AMPK/mTOR pathway
X. Zhuo, L. Yang, C. Lin, S. Yang, Q. Li, S. Rao, Y. Cheng, China
10:15 - 11:45

Vilanova Hall

OP 14 New insights on early onset type 2 diabetes

Chair: B. Eliasson, Sweden, N. Sattar, UK

79 The contrasting phenotypes of type 2 diabetes at diagnosis: a cross-section study of 100,000 individuals from South India and the United Kingdom

80 Associations between markers of childhood body composition and type 2 diabetes in adulthood

81 Early stages of type 2 diabetes: cohort study linking genetic liability with repeated metabolomics across early life
J.A. Bell, C.J. Bull, M.J. Gunter, D. Carslake, G. Davey Smith, N.J. Timpson, E.E. Vincent, UK, France

82 Temporal trend in young-onset type 2 diabetes: comorbidities, macrovascular and mortality risk: study of UK primary care electronic medical records
D. Koye, J. Ling, J. Dibato, K. Khunti, S. Paul, Australia, UK

83 A pragmatic life style modification programme reduces cardio-metabolic disease and predictors of type 2 diabetes in young South Asians aged 10 to 18 years
N. Fountoulakis, L. Gnudi, M. Wijesuriya, J. Karalliedde, UK, Sri Lanka

84 Efficacy and safety of liraglutide vs placebo in children and adolescents with type 2 diabetes: the ellipse randomised trial results
T. Barrett, W.V. Tamborlane, U. Fainberg, H. Frimer-Larsen, M. Hafez, P.M. Hale, M.Y. Jalaludin, M. Kovarenko, I. Libman, P.V. Rao, N. Shehadeh, S. Turan, D. Weghuber, M. Barrientos-Pérez, UK, USA, Denmark, Egypt, Malaysia, Russian Federation, India, Israel, Turkey, Austria, Mexico
10:15 - 11:45   Ochoa Hall

OP 15 Clinical aspects of hypoglycaemia

Chair: S. Heller, UK, U. Pedersen-Bjergaard, UK

85 C-peptide micro-secretion is associated with lower rates of hypoglycaemia on flash glucose monitoring in people with type 1 diabetes
F.W. Gibb, J.A. McKnight, C. Clarke, M.W. Strachan, UK

86 Restoration of hypoglycaemia awareness alters brain activity in type 1 diabetes
M. Nwokolo, S.A. Amiel, O. O’Daly, M.L. Byrne, F.O. Zelaya, P. Choudhary, UK

87 Number of preceding episodes of severe hypoglycaemia determine subsequent acute death in people with type 1 diabetes: a retrospective cohort study

88 Can computational modelling explain the dead in bed syndrome?
A. Bernjak, S.R. Heller, R.H. Clayton, UK

89 Improved counter regulatory response to hypoglycaemia after dishabituation with high intensity exercise in people with type 1 diabetes and impaired hypoglycaemia awareness
C.M. Farrell, D.J. West, S. Hapca, P. Fournier, T.W. Jones, A.D. McNeilly, R.J. McCrimmon, UK, Australia

90 Reduced risk of hypoglycaemia and lower HbA1c with degludec compared to glargine U300 in insulin-treated patients with type 2 diabetes
10:15 - 11:45

OP 16 The many faces of metabolic surgery

Chair: G. Rudofsky, Switzerland, N. Wierup, Sweden

91 Type 1 diabetes and obesity: Could bariatric surgery be a safe and beneficial option?

92 Are early dumping and postprandial hypoglycaemia after Roux-en-Y gastric bypass related events?
C.C. Øhrstrøm, D.L. Hansen, J.J. Holst, U.L. Kielgast, D. Worm, Denmark

93 Metabolic surgery improves brain glucose metabolism, cognitive function and neuroplasticity in obese non-diabetic subjects

94 Brain FFA uptake is higher in morbidly obese as compared to lean subjects, and is attenuated after bariatric surgery: a positron emission tomography study
E. Rebelos, L. Pekkarinen, J. Hannukainen, P. Iozzo, M. Bucci, P. Nuutila, Finland, Italy

95 Relationship between markers of white adipose tissue browning and early diabetes resolution after bariatric surgery

96 Adipose tissue mast cell infiltration is indicative of a metabolically-favourable obese sub-phenotype, particularly among dys-glycaemic obese patients
A. Rudich, N. Goldstein, Y. Kezerle, Y. Gepner, Y. Haim, M. Bluher, V. Polischuk, I.F. Liberty, Israel, Germany
10:15 - 11:45  
Truea Hall

OP 17 Are we making progress in diabetic neuropathy?

Chair: P. Rossing, Denmark, T. Varkonyi, Hungary

97 Risk factors for peripheral and cardiovascular autonomic neuropathy in type 1 diabetes: 30 years of follow-up in DCCT/EDIC

98 Relative hypoxia in both supine and standing position in type 1 diabetes: Impaired autonomic cardiorespiratory control around the clock?

99 Neuropeptide regulation of endothelial progenitor cell function in diabetic wound healing
E.C. Leal, A. Figueiredo, E. Carvalho, Portugal, USA

100 Negative pressure wound therapy may affect circulating plasma microRNAs after patients with diabetic foot ulceration

101 Inhibition of miR-29a and miR-146a accelerates the wound closure in a mouse model of type 1 diabetes
M. Petkovic, E.C. Leal, A.E. Sørensen, J.T. Ottesen, P.T. Jørgensen, J. Wengel, E. Carvalho, L.T. Dalgaard, Portugal, Denmark, USA

102 Administration of secretome derived from human mesenchymal stem cells prevents diabetic neuropathy progression in an animal model of type 2 diabetes
F. Ezquer, C. De Gregorio, D. Contador, M. Campero, D. Santapau, M. Ezquer, Chile
10:15 - 11:45  Serrano-Rios Hall

**OP 18 The still mysterious alpha cells**

Chair: P. Gilon, Belgium, P. Rorsman, UK

103 *Pancreatic alpha cell mass across the adult human lifespan*
A.S. Moin, M. Cory, T. Gurlo, R.A. Rizza, Y. Saisho, A.E. Butler, Qatar, USA, Japan

104 *Novel spatiotemporal analysis for exploring alpha cell neogenesis and differentiation*

105 *xBCL-XL, but not complement C3, protects alpha cells against metabolic stress- or proinflammatory-induced apoptosis*
L. Marroqui, A. Nadal, D.L. Eizirik, R.S. Dos Santos, Spain, Belgium

106 *Suppression of Stat3 signalling promotes α-to-β reprogramming within the adult pancreas*
Y. Wakabayashi, T. Miyatsuka, L. Suzuki, M. Himuro, T. Katahira, M. Miura, H. Watada, Japan

107 *Paracrine control of alpha cell glucagon exocytosis is compromised in human type 2 diabetes*

108 *Glucose-induced changes of the ATP/ADP ratio in alpha and beta cells*
D. Brüning, E. Früh, C. Bütfisch, I. Rustenbeck, Germany
12:00

Joslin Hall

DECLARE study: call for action
Chair: J.P.H. Wilding, UK

I. Raz, Israel:
Cardio renal protection and safety in broad patients with type 2 diabetes

O. Mosenzon, Israel:
New data on renal protection

A. Cahn, Israel:
Efficacy and safety in the elderly population

I. Raz, Israel:
SGLT2 call for new guidelines

M.J. Davies, UK:
Commentary

Vilanova Hall

The St Vincent Declaration: 30 years on
Chair: G. Schernthaner, Austria

P.D. Home, UK:
What have we achieved?

A.-M. Felton, UK:
Future perspectives
12:00

Imeglimin: a first-in-class oral medication with a unique mechanism of action targeting mitochondrial bioenergetics

Chair: R.A. DeFronzo, USA

R.A. DeFronzo, USA:
The role of mitochondrial dysfunction in the pathophysiology of diabetes

J. Dubourg, France:
Clinical evidence to support the safety and efficacy of imeglimin in various populations of patients with type 2 diabetes
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<td>Monogenic diabetes: from MODY and beyond</td>
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<td>Diabetes: new lessons from animals</td>
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Joslin Hall

Vildagliptin Efficacy in combination with metformin for early treatment of T2DM VERIFY

Chair: C. Mathieu, Belgium

C. Mathieu, Belgium:
Introduction and background

M. Stumvoll, Germany:
Rationale, design, methods

D.R. Matthews, UK:
Main results and safety

S. Del Prato, Italy:
Summary and clinical implications

C.J. Bailey, UK:
Commentary
13:15

Dapagliflozin effects on biomarkers, symptoms and functional status in patients with heart failure and reduced ejection fraction with and or without diabetes: the DEFINE-HF trial

Vilanova Hall

Chair: L. Rydén, Sweden

M.N. Kosiborod, USA:
Background and rationale for DEFINE-HF trial

M.E. Nassif, USA:
DEFINE-HF study design and baseline characteristics

M.N. Kosiborod, USA:
Effect of dapagliflozin on the primary outcomes

M.E. Nassif, USA:
Effect of dapagliflozin on secondary and safety outcomes

M.N. Kosiborod, USA:
Putting DEFINE-HF in perspective: clinical implications and path forward

Discussion

Serrano-Rios Hall

Beta cell replacement therapy for insulin-dependent diabetes

Chair: E. Latres, USA

T.J. Kieffer, Canada:
Stem cell derived islets vs endocrine progenitors to treat diabetes

C.L. Stabler, USA:
Engineering biomaterials for islet transplantation

J.S. Odorico, USA:
Engineering stem cell-derived islets for immune privilege

L. Piemonti, Italy:
Allogeneic and autologous mode of stem cells transplantation in beta cell replacement: Which way to go?
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<td>Treatment of cardiovascular disease</td>
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Joslin Hall

OP 19 Treating diabetes with peptides from the gut

Chair: F. Giorgino, Italy, M.A. Nauck, Germany

109 ADO09, a co-formulation of the amylin-analogue pramlintide and the A21G human insulin analogue, lowers postprandial blood glucose versus insulin lispro in type 1 diabetes
G. Meiffren, G. Andersen, C. Seroussi, A. Ranson, S. Famulla, M. Gaudier, R. Soula, O. Soula, R. Eloy, T. Heise, Y.-P. Chan, R. Charvet, J. DeVries, France, Germany

110 The role of glucagon-like peptide 1 for the postprandial effects of metformin in type 2 diabetes

111 Cotadutide (MEDI0382) promotes dose-dependent increases in gastric emptying time
D. Robertson, V.E. Parker, P.D. Ambery, M. Petrone, T. Wang, T. Heise, L. Plum-Moerschel, L. Jermutus, B. Hirshberg, J.J. Meier, UK, USA, Germany

112 The novel dual GIP and GLP-1 receptor agonist, tirzepatide, transiently delays gastric emptying similarly to a selective long-acting GLP-1 receptor agonist
S. Urva, M.A. Nauck, T. Coskun, X. Cui, A. Haupt, C.T. Benson, C. Loghin, USA, Germany

113 Cotadutide (MEDI0382), a dual receptor agonist with balanced glucagon-like peptide-1 and glucagon activity, modulates hepatic glycogen stores
V.E. Parker, D. Robertson, L. Hansen, P.D. Ambery, R. Esterline, L. Jermutus, Y.-T. Chang, M. Petrone, E. Johansson, L. Johansson, F. Sjöberg, B. Hirshberg, UK, USA, Sweden

114 Efficacy and safety of three dose-escalation algorithms of tirzepatide, a novel dual GIP and GLP-1 receptor agonist, in patients with type 2 diabetes
M.A. Nauck, J.P. Frias, J. Van, C.T. Benson, R. Bray, Z. Milicevic, A. Haupt, D.A. Robins, Germany, USA, Austria
14:30 - 16:00  Vilanova Hall

**OP 20 Youth-onset type 1 diabetes: Are we making progress?**

Chair: D. Dabelea, USA, E. Patrakeeva, Russian Federation

115 **Increasing prevalence of diabetic ketoacidosis at diagnosis of type 1 diabetes in Colorado children**
A. Rewers, A. Coakley, L. Pyle, K. Manseau, S. Thomas, G.T. Alonso, USA

116 **Rapid increase in prevalence of DKA at diagnosis among youth with type 1 diabetes: the SEARCH for Diabetes in Youth study**

117 **Identification of predictive factors for DKA using a subgroup discovery algorithm**
A. Ibald-Mulli, M. Blanchon, J. Hermann, A. Civet, S. Gosset, O. Berguiga, D. Paar, France, Germany

118 **A nationwide evaluation of glycaemic control in children and young adult patients with type 1 diabetes in Poland: the PolPedDiab HbA1c study**
A. Szadkowska, A. Baranowska-Jaźwiecka, A. Michalak, P. Jarosz-Chobot, M. Myśliwiec, A. Szypowska, B. Głowińska-Olszewska, D. Zozulińska-Ziółkiewicz, W. Młynarski, on behalf of the Diabetes Poland, Poland

119 **CD-DIET: a randomised controlled study to assess treatment of asymptomatic coeliac disease and type 1 diabetes on glycaemic control and variability in adults and children**

120 **Increase trend in proportions of overweight and obesity in Japanese paediatric patients with type 1 diabetes**
OP 21 Cardiovascular disease in diabetes: causes and consequences

Chair: K.I. Birkeland, Norway, N. Marx, Germany

121 Ethnic differences in CVD for UK South Asians and Europeans with diabetes, and their explanations: SABRE study 1988-2015
S.V. Eastwood, T. Tillin, A.D. Hughes, N. Chaturvedi, UK

122 Glycaemic trajectories in type 2 diabetes and risk of cardiovascular disease: exploring the link
M.B. Whyte, M. Joy, U. Hoang, W. Hinton, A. McGovern, N. Munro, J.E. Mount, S. Calderara, S. De Lusignan, UK

123 Mannan-binding lectin and cardiovascular events and mortality in type 2 diabetes: a cohort study of 7,307 patients in the Danish DD2 cohort
A. Gedebjerg, M. Bjerre, R. Steffensen, J.S. Nielsen, J. Rungby, S. Friborg, I. Brandslund, S. Thiel, H. Beck-Nielsen, H.T. Sørensen, T.K. Hansen, R.W. Thomsen, Denmark

124 Higher circulating omentin is associated with increased risk of primary cardiovascular events in type 2 diabetes: results from the ESTHER study
C. Niersmann, M. Carstensen-Kirberg, H. Maalmi, B. Holleczek, M. Roden, H. Brenner, C. Herder, B. Schöttker, Germany

125 Relationship between hypoglycaemia, cardiovascular (CV) outcomes and all-cause mortality (ACM) in type 2 diabetes (T2D) in the CARMELINA trial

126 Cardiorenal disease is the most common first CV manifestation in type 2 diabetes and associated with increased mortality: a large multinational observational study
OP 22 Determinants of exercise response

Chair: M.Y. Donath, Switzerland, J.R. Zierath, Sweden

127 Glucose metabolism dysregulation affects the transcriptome of skeletal muscle and responds to three-month exercise intervention in humans

128 Oral administration of osteocalcin, bone-derived hormone, improves the performance of voluntary exercise concomitant with the amelioration of fat utilisation in mice
Y. Tajiri, Y. Sakai, H. Mifune, M. Hirata, Japan

129 Skeletal muscle beta-oxidation, stearoyl-CoA desaturase 1 and insulin sensitivity in subjects with or without prediabetes after 12 weeks of intensive exercise training

130 Skeletal muscle acetylcarnitine formation is compromised in impaired glucose tolerant subjects and type 2 diabetes patients

131 Effect of 12 weeks high-intensity interval training on glycaemic control in overweight and obese adults with type 1 diabetes

132 Efficacy of carbohydrate supplementation and bolus insulin dose reduction in preventing hypoglycaemia during exercise: a retrospective controlled analysis
M.L. Eckstein, O. McCarthy, R.M. Bracken, P. Hofmann, H. Sourij, O. Moser, Austria, UK
14:30 - 16:00

OP 23 The diabetic brain: culprit or victim?

Chair: M. Haluzik, Czech Republic, C. Hölscher, China

133 Is type 2 diabetes causally associated with poorer cognitive function in the UK Biobank? A Mendelian randomisation study

134 Association between inflammatory biomarkers and cognitive dysfunction in type 1 and type 2 diabetes patients
X. Yang, Y. Chen, H. Yuan, China

135 The acute effect of hyperketonaemia on cognitive performance in patients with type 2 diabetes: a randomised cross-over trial

136 Obesity related changes on brain metabolism and structure are not associated with amyloid or tau pathology
A. Pané, J. Pegueroles, L. Videla, M. Carmona-Iragui, I. Barroeta, A. Lleó, J. Vidal, R. Blesa, J. Fortea, A. Jiménez, ADNI (Alzheimer’s Disease Neuroimaging Initiative), Spain

137 Apolipoprotein CIII in the human and the mouse brain: a potential link between metabolic diseases and neurodegenerative disorders
I. Valladolid-Acebes, P. Recio-López, P.-O. Berggren, L. Juntti-Berggren, Sweden

138 RAAS blockers reduce neuroinflammation in diabetes comorbid depression
14:30 - 16:00

OP 24 More and better beta cells for therapy

Chair: D.L. Eizirik, Belgium, T. Otonkoski, Finland

139 Generation of a novel mouse model to study beta cell proliferation
S. Tokumoto, D. Yabe, H. Tatsuoka, R. Usui, M. Fauzi, A. Botagarova, H. Goto, M. Ogura, N. Inagaki, Japan

140 Pancreatic elastase regulates human beta cell proliferation via the focal adhesion and PAR2 signalling pathways
G. Basile, A. Vetere, O. Ijaduola, J. Hu, K.-C. Liu, Y. Zhang, O. Andersson, B.K. Wagner, R.N. Kulkarni, USA, Sweden

141 Lactation improves glucose homeostasis by enhancing beta cell mass and function via serotonin production
J. Moon, H. Kim, J. Park, R.A. Banerjee, S.K. Kim, N.H. Cho, H.C. Jang, M.S. German, H. Kim, Korea, Republic of, USA

142 In vitro and fully mature in vivo function of human induced pluripotent stem cell-derived beta cells

143 Diabetic condition upregulates insulin secreting capacity of human iPSC-derived pancreatic endocrine progenitor cells after implantation in mice
T. Mochida, H. Ueno, N. Yamazoe, H. Hiyoshi, R. Ito, H. Matsumoto, T. Toyoda, Japan

144 Optimising islet transplantation efficiency through mesenchymal stromal cell mediated mitochondrial transfer
C.L. Rackham, E.L. Hubber, A.N. Malik, P. Choudhary, A.J. King, P.M. Jones, UK
EASD-Novo Nordisk Foundation Diabetes Prize for Excellence

EASD, in partnership with the Novo Nordisk Foundation, is again pleased to announce the “Diabetes Prize for Excellence” which was awarded for the first time in 2015.

The EASD-Novo Nordisk Foundation Diabetes Prize for Excellence is to be awarded to an internationally recognised researcher who has contributed significantly to our understanding of diabetes and/or its treatment. The Prize awardee’s research may focus on prevention, treatment and/or basic research in physiological biochemistry.

The awardee will deliver a keynote lecture after the award ceremony.

The history of the Novo Nordisk Foundation commences in 1922 when August Krogh, who received the Nobel Prize for Physiology/Medicine in 1920, returned from Canada and the United States holding permission to produce insulin in the Nordic countries. In 1923, the first Foundation was formed - Nordisk Insulinlaboratorium and Nordisk Insulin Foundation which should become the forerunners for the Novo Nordisk Foundation. Today, the Novo Nordisk Foundation is an independent foundation with the vision to improve the health and welfare of people by contributing to research and development.

DIABETES PRIZE FOR EXCELLENCE LECTURER

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<td>SIR S. O’RAHILLY, UK</td>
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<td>Munich</td>
<td>A. HATTERSLEY, UK</td>
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<td>2017</td>
<td>Lisbon</td>
<td>P.E. SCHERER, US</td>
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<td>2018</td>
<td>Berlin</td>
<td>G.S. HOTAMISLIGIL, US</td>
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Daniel Drucker has discovered multiple mechanisms of glucagon-like peptide action, enabling development of new classes of drugs for the treatment of diabetes, obesity, and intestinal failure. In 1987, Drucker described the first direct actions of GLP-1 on islet beta cells, encompassing stimulation of cAMP formation, insulin gene expression and glucose-dependent insulin secretion. This discovery formed the basis of the first patent filings describing the use of GLP-1 to treat diabetes. Drucker has used molecular biology, whole animal physiology, and mouse genetics to identify multiple new actions of GLP-1 in the brain, gut, pancreas, cardiovascular and immune systems.

A series of GLP-1 Receptor (GLP-1R) agonists was subsequently approved for the treatment of type 2 diabetes (T2D-beginning in 2005) and obesity (2014). Drucker has studied how and where the enzyme dipeptidyl peptidase-4 (DPP-4) controls peptide degradation, science supporting development of a new class of orally available drugs, the DPP-4 inhibitors, for the treatment of T2D. He discovered the biological actions of glucagon-like peptide 2 (GLP-2), identifying its regenerative, proabsorptive and cytoprotective actions in the GI tract. The GLP-2R agonist, teduglutide, discovered by Drucker, was approved by the FDA for the treatment of parenteral nutrition-dependent short bowel syndrome in 2012. This medication enables marked reduction of parenteral nutrition (PN) requirements in human subjects with intestinal failure, improving their quality of life, and reducing their risk of developing PN-associated infections and liver failure. A hallmark of Drucker’s research career has been translation of his basic science into new therapies, supported by 33 US Patents.

Incretin therapies enable highly effective glucose control, weight loss, and a very low risk of hypoglycaemia, obviating the need for frequent glucose monitoring. Drucker has also led the field in understanding the cardioprotective actions of these agents in preclinical studies, and GLP-1R agonists have now been shown to reduce the development of major cardiovascular events in people with T2D, broadening the utility of GLP-1 therapy from control of blood glucose and body weight to reduction of cardiovascular mortality. Drucker’s science over 3 decades has enabled the repeated discovery and mechanistic understanding of gut hormone therapies for the treatment of diabetes, obesity and intestinal failure. These therapies have changed the lives of millions of subjects worldwide, and represent real breakthroughs with meaningful proven improvements in health outcome for human subjects.
17:30  
Joslin Hall

EASD/ADA Symposium: Digital apps for diabetes treatment and prevention: opportunities and challenges  
Chair: L. Heinemann, Germany, G.A. Fleming, USA

K. Braune, Germany:  
Doctor and patient perspective

U. Thurm, Germany:  
Diabetes educator perspective

G.A. Fleming, USA:  
Regulatory and public policy indications for diabetes-related digital apps

A. Peters, USA:  
Diabetes digital apps: considerations and recommendations

Vilanova Hall

New directions for paediatric diabetes registries  
Chair: D. Dabelea, USA

A. Green, Denmark:  
Childhood type 1 diabetes in Europe: lessons from 30 years EUROCADIAB collaboration

E.J. Mayer-Davis, USA:  
Towards sustainable surveillance of paediatric diabetes: the US perspective

S. Amed, Canada:  
Paediatric registries as model of diabetes care: the Canadian perspective
17:30

Ochoa Hall

Raising awareness about hypoglycaemia unawareness

Chair: B.M. Frier, UK

E.R. Seaquist, USA:
What we have learnt about central mechanisms of reduced awareness

T.W. Jones, Australia:
The use of technology to treat reduced awareness

Servet Hall

New insights into diabetic kidney disease

Chair: P. Fioreto, Italy

S. Hadjadj, France:
Genetics in diabetic kidney disease

M. Kretzler, USA:
New insights in system biology applications to diabetic kidney disease

P.-H. Groop, Finland:
The role of hypoxia in diabetic kidney disease
17:30

Trueta Hall

Diabetes and neurodegenerative disease: What is the link?

Chair: T. Vilsbøll, Denmark

H. Preissl, Germany:
Cognitive decline in diabetes mellitus: mechanisms and clinical implications

C. Hölscher, China:
Can antidiabetic drugs save neurons?

Serrano-Rios Hall

Exploring myths in diabetes

Chair: M.R. Cowie, UK

N. Marx, Germany:
Primary prevention in diabetes: Does it exist?

J. Rosenstock, USA:
Is type 2 diabetes more harmful to CV system than type 1 diabetes?
8:30

Joslin Hall

Incretin-based medication: current state and future developments

Chair: F. Giorgino, Italy

M.A. Nauck, Germany:
Clinical properties and differences between GLP-1 agonists

K. Stemmer, Germany:
Future development in GLP-1 receptor agonist treatment

J.J. Holst, Denmark:
Lessons learned from studies with hybrid incretin therapies

Vilanova Hall

Hyperglycaemia in pregnancy: treatment and risk for mother and child

Chair: D. Møller Jensen, Denmark

E. Vanky, Norway:
Treatment with metformin in pregnancy: long-term consequences for the offspring

M.N.M. van Poppel, Austria:
Lifestyle intervention in pregnancy and neonatal body composition: results from the DALI study

D.R. McCance, UK:
The Hyperglycaemia and Adverse Pregnancy Outcome (HAPO) study: 10 year follow-up of the women and their offspring
Ochoa Hall

8:30

New data from the Restoring Insulin Secretion (RISE) Study

Chair: P. Zeitler, USA

S. Arslanian, USA:
Comparisons of outcomes in adults and youth

D.A. Ehrmann, USA:
Comparisons of outcomes of surgery and medication in adults

S.E. Kahn, USA:
Alpha cell function in youth and adults

Servet Hall

Diabetologia Symposium: Developmental origin of diabetes

Chair: S.M. Marshall, UK, D. Dabelea, USA

E. Oken, USA:
Developmental overnutrition and offspring obesity and type 2 diabetes

O.J. Rando, USA:
Programming of obesity and type 2 diabetes in the next generation

P.E.H. Schwarz, Germany:
What should governments be doing to prevent diabetes?
8:30

Is type 2 diabetes produced by precocious senescence?

Chair: U. Smith, Sweden

L. Fontana, Australia:
Calorie restriction and ageing

T. Tchkonia, USA:
Targeting cellular senescence in metabolic disorders

U. Smith, Sweden:
Increased precursor cell senescence is associated with insulin resistance and type 2 diabetes

Serrano-Rios Hall

Targeting liver may have an impact on glycaemia?

Chair: H. Al-Hasani, Germany, K. Bouzakri, France

H. Katagiri, Japan:
Regulation of beta cell function by the liver: nerve implication

K. Sakamoto, Switzerland:
AMP-regulated and AMPK-related enzymes as drug target in the liver?

G.I. Shulman, USA:
Are liver-targeting drugs needed in the treatment of diabetes?
10:15 - 11:45

**Joslin Hall**

**OP 25 New horizons in incretin-based therapies**

Chair: B. Gallwitz, Germany, J.J. Holst, Denmark

145 Liraglutide preserved insulin secretion in adults with newly diagnosed type 1 diabetes: the NewLira trial
T.F. Dejgaard, C. Frandsen, U. Kielgast, H.U. Andersen, B. Thorsteinsson, T. Krarup, J.J. Holst, S. Madsbad, Denmark

146 Efficacy and safety of once-weekly polyethylene glycol loxenatide (PEX168) combining with metformin in patients with type 2 diabetes: a phase 3b clinical trial
W. Jia, F. Gao, X. Lv, Z. Mo, J. Ma, Q. Zhang, G. Yang, W. Liu, J. Zhou, Y. Bao, China

147 Sustained 24hr elevation of active GLP-1 and GIP but reduced secretion during DPP-4 inhibition in type 2 diabetes subjects: comparison of three different DPP-4 inhibitors
W. Alsalim, O. Göransson, B. Ahrén, Sweden

148 Roles of endogenous GLP-1 in the glycaemic and energy expenditure responses to fat in type 2 diabetes studied using vildagliptin and exendin(9-39)
C. Xie, X. Wang, M.J. Bound, J. Grivell, K.L. Jones, M. Horowitz, T. Little, C.K. Rayner, T. Wu, Australia, China

149 Acute effects of lixisenatide on intragastric meal distribution: impact on energy intake

150 Dulaglutide in type 2 diabetic patients with binge eating disorder: a pilot study
A. Da Porto, A. Cavarape, L.A. Sechi, Italy
10:15 - 11:45   Vilanova Hall

**OP 26 Gestational diabetes: novel biomarkers and consequences**

Chair: G. Desoye, Austria, A. Tabák, Hungary

**151 Using fasting plasma glucose to identify women with gestational diabetes at low risk of complications**
H. McIntyre, K.S. Gibbons, D.A. Sacks, L.R. Madsen, R.C. Ma, W.H. Tam, P.M. Catalano, Australia, USA, Denmark, Hong Kong

**152 Does interpregnancy BMI change predict gestational diabetes in subsequent pregnancy? Population-based cohort study**

**153 A genetic risk score combining four risk genes for diabetes modulate the effect of a mediterranean diet on the incidence of gestational diabetes**

**154 Alterations in the placental proteome in gestational diabetes**

**155 Gestational diabetes impacts foetal progenitor cell responses with consequences for offspring**

**156 ‘Supersize me’ - Is a diagnosis of gestational diabetes associated with foetal brain volume?**
10:15 - 11:45   Ochoa Hall

OP 27 Modulations of insulin secretion

Chair: H.-U. Häring, Germany, E. Van Obberghen, France

157 Sirtuin 3 (Sirt3) deficiency impairs glucose stimulated insulin secretion (GSIS)
X. Ming, X. Tian, A.C. Chung, H. Lee, H. Cao, J.C. Chan, A.P. Kong,
Hong Kong

158 Proinsulin-insulin pancreatic islets in-situ expression mirrors metabolic defects observed in type 2 diabetic and glucose intolerant living donors
N. Brusco, G. Sebastiani, G. Licata, G.E. Grieco, L. Nigi, F. Cinti,
G.P. Sorice, S. Moffa, C.M. Cefalo, A. Mari, F. Dotta, A. Giaccari, T. Mezza,
Italy

159 Restoration of insulin secretory function brings about recovery of pancreas volume in type 2 diabetes
A. Al-Mrabeh, S.V. Zhyzhneuskaya, C. Peters, A.C. Barnes,
K.G. Hollingsworth, N. Sattar, M. Lean, R. Taylor, UK

160 Loss of fasting and post-load glucose control in non-diabetic subjects are largely independent and are caused by distinct beta cell function defects
A. Mengozzi, D. Tricò, A. Mari, A. Natali, Italy

161 Mff mediates Drp1 dependent mitochondria adaptation that is important for responsiveness of pancreatic beta cells
J. Schultz, C. Voigt, R. Waterstradt, M. Tiedge, S. Baltrusch, Germany

162 Pancreatic fat associates with impaired insulin secretion in genetically predisposed individuals
B.A. Jaghutriz, R. Wagner, F. Gerst, J. Machann, F. Schick, F. Fend,
A. Königsrainer, A. Peter, D. Siegel-Axel, S. Ullrich, H.-U. Häring, A. Fritsche,
M. Heni, Germany
10:15 - 11:45

OP 28 What you eat is what you are

Chair: A.F.H. Pfeiffer, Germany, R. Taylor, UK

163 Short-term dietary reduction of branched-chain amino acids reduces meal-induced insulin secretion and modifies microbiome composition in type 2 diabetes

164 Effect of the time of day of food intake and eating occasions on clock gene mRNA expression, weight loss, HbA1c and overall glycaemia in type 2 diabetes
D. Jakubowicz, Z. Landau, S. Tsameret, J. Wainstein, I. Raz, B. Ahren, T. Ganz, N. Chapnik, M. Barnea, N. Mor, M. Menaged, Y. Bar-Dayan, O. Froy, Israel, Sweden

165 Vitamin D supplementation and risk of diabetes: results from the vitamin D and type 2 diabetes study
A.G. Pittas, USA

166 Remission of type 2 diabetes and recovery of beta cell function one year after sleeve gastrectomy or gastric bypass: a randomised clinical trial

167 Key role for glucose-alanine cycling in the regulation of hepatic mitochondrial oxidation during starvation in humans
K. Falk Petersen, S. Dufour, G.W. Cline, G.I. Shulman, USA

168 Comparative effects of proximal and distal small intestinal glucose exposure on blood pressure, heart rate and mesenteric blood flow in health and type 2 diabetes
T. Wu, X. Zhang, M. Horowitz, K.L. Jones, C.K. Rayner, Australia, China
10:15 - 11:45  
OP 29 Spotlights on prediction and prevention of type 2 diabetes

Chair: J. Gill, UK, L. Groop, Sweden

169 Circulating metabolites and the risk of type 2 diabetes:  
a prospective study of 11,896 young adults from four Finnish cohorts  
P. Würtz, Finland

170 Deep serum proteomics reveal biomarkers and causal candidates  
for type 2 diabetes  
V. Gudmundsdottir, V. Emilsson, T. Aspelund, M. Ilkov, E.F. Gudmundsson,  
N. Zilhão, L.J. Jennings, V. Gudnason, Iceland, USA

171 Combining different glycaemic global polygenic scores improves  
the longitudinal prediction of type 2 diabetes in 21,802 participants  
from the Partners Biobank  
J. Mercader, A. Leong, V. Kaur, B. Porneala, M. Udler, J. Meigs, J.C. Florez,  
USA

172 Follistatin-a circulating biomarker for type 2 diabetes  
C. Wu, Y. Borné, M. López Rodriguez, K.L. Duffin, R. Gao, O. Melander,  
M. Orho Melander, A. Shore, F. Khan, A. Natali, J. Nilsson, A. Vaag,  
M. Laakso, L. Groop, Y. De Marinis, Sweden, Finland, USA, China, UK, Italy

173 Incidence of drug-treated type 2 diabetes, cardiovascular events  
and all-cause mortality according to weight changes of a cohort of  
people at high risk of diabetes  
R. Rintamäki, N. Rautio, M. Peltonen, J. Jokelainen, S. Keinänen-Kiukaanniemi,  
J. Saltevo, H. Oksa, T. Saaristo, H. Puolijoki, J. Tuomilehto,  
M. Uusitupa, L. Moilanen, Finland

174 Progress of the English National Health Service type 2 diabetes  
prevention programme  
J. Valabhji, E. Barron, D. Bradley, C. Bakhai, J. Fagg, J. Smith, UK
10:15 - 11:45 Serrano-Rios Hall

OP 30 NAFLD and diabetes: new horizons

Chair: M. Roden, Germany, H. Yki-Järvinen, Finland

175 Fatty liver index is a strong predictor of changes in glycaemic status in people with prediabetes: the IT-DIAB study
M. Pichelin, M. Wargny, S. Smati, E. Bigot-Corbel, C. Authier, V. Dierry, Y. Zair, V. Jacquin, S. Hadjadj, J. Boursier, B. Cariou, France

176 Cluster analysis reveals distinct risk profiles for liver steatosis and fibrosis as well as neuropathy in newly diagnosed diabetes

177 Effect of exenatide and dapagliflozin combination on non-alcoholic fatty liver disease in type 2 diabetes
C. Guja, E. Repetto, E. Hardy, S.A. Jabbour, E. Ferranini, A. Gastadelli, Romania, USA, Italy

178 Effects of tirzepatide (TZP), a novel dual GIP and GLP-1 receptor agonist, on biomarkers of non-alcoholic steatohepatitis (NASH) in patients with type 2 diabetes
A. Haupt, A. Sanyal, R. Loomba, J. Wilson, R. Bray, A. Nikooi, A. Nikooienejad, K. Duffin, D. Robins, M. Hartman, USA

179 Efficacy of cenicriviroc (CVC) in adults with NASH-induced liver fibrosis
H. Landgren, N. Alkhouri, R. Charlton, E. Martins, A. Coviello, M. Abdelmalek, UK, USA

180 Effect of a portfolio diet targeting multiple dietary components on liver fat content in individuals with type 2 diabetes: an 8-week randomised controlled clinical trial
12:00

Joslin Hall

CONCLUDE: a trial COMparing the efficacy aNd safety of insulin degLUDEc and insulin glargine 300 units/mL in subjects with type 2 diabetes mellitus inadequately treated with basal insulin and oral antidiabetic drugs

Chair: T. Heise, Germany

T.R. Pieber, Austria: Rationale, trial design and methods

A. Philis-Tsimikas, USA: Results

S. Del Prato, Italy: Commentary

Vilanova Hall

Unique features and findings of the long-term REWIND (Researching cardiovascular Events with a Weekly INcretin in Diabetes) trial

Chair: L. Rydén, Sweden

H.C. Gerstein, Canada: Effect of dulaglutide on serious health outcomes

M.C. Riddle, USA: New findings from the REWIND trial
12:00  

**Servet Hall**  

**Innovative technologies in obesity and type 2 diabetes discovery and treatment**  

Chair: F. Bosch, Spain  

**I. Barroso, UK:**  
Unravelling the genetic aetiology of severe obesity  

**N. Ahituv, USA:**  
CRISPRa-based technology as a potential therapeutic to treat severe obesity
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<td>Beta cells: be yourself and grow</td>
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Results and implications of CAROLINA (CARdiOvascular Safety of LINAgliptin) comparing linagliptin vs glimepiride

Chair: J. Rosenstock, USA

J. Rosenstock, USA: Introduction and study background

M. Espeland, USA: Study design and baseline characteristics

S.E. Kahn, USA: Metabolic and weight outcomes

N. Marx, Germany: Cardiovascular, mortality and hospitalisation outcomes

B. Zinman, Canada: Safety and comprehensive hypoglycaemia analyses

D.K. McGuire, USA: Clinical implications

P.D. Home, UK: Commentary
13:15
Vilanova Hall

Proteomic prediction and Renin angiotensin aldosterone system inhibition prevention of early diabetic nephropathy in Type 2 diabetic patients with normoalbuminuria: (PRIORITY) study

Chair: C. Delles, UK

G. Currie, UK:
Urinary proteomic prediction of albuminuria and eGFR progression

M.K. Lindhardt, Denmark:
Effect of aldosterone blockade on progression to microalbuminuria in high risk subjects

P. Rossing, Denmark:
Conclusions and perspective
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OP 31 Innovative insulin therapy

14:30 - 16:00   Joslin Hall

Chair: T. Heise, Germany, T.R. Pieber, Austria

181 Ultra rapid lispro (URLi) improves postprandial glucose (PPG) control vs lispro in type 1 diabetes: PRONTO-T1D study
D. Dahl, D. Cao, M. Dellva, J.A. Tobian, J. Miura, L. Klaff, J.M. Bue-Vallesky, Germany, USA, Japan

182 Ultra rapid lispro (URLi) lowers postprandial glucose (PPG) and more closely matches normal physiological glucose response compared to other rapid insulin analogues

183 Technosphere insulin provides better early postprandial glucose control than s.c. rapid-acting analogue
M. Grant, F. Pompilio, G. Sharma, N. Zaveri, J. Krueger, D. Kendall, USA

184 Earlier onset of action and higher early effect of Dance 501 inhaled human insulin vs s.c. insulin lispro in patients with type 2 diabetes
E. Zijlstra, L. Plum-Mörschel, M. Ermer, O. Klein, L. Porter, B. Bueche, M.-C. Kuo, T. Le, B.J. Stedman, J.S. Patton, Germany, USA

185 DUAL VIII: more patients met treatment targets with IDegLira (insulin degludec/liraglutide) vs IGlar U100 by week 26 in a 104 week randomised trial mirroring clinical practice
G. Sesti, L. Bardtrum, S. Daðdelen, N. Halladin, M. Haluzík, P. Örsy, M. Rodriguez, V.R. Aroda, Italy, Denmark, Turkey, Czech Republic, Argentina, USA

186 DUAL VIII: longer time to intensification with insulin degludec/liraglutide (IDegLira) vs insulin glargine in a 104-week randomised trial mirroring clinical practice
V.R. Aroda, G. González-Galvez, M. Haluzík, R.J. Silver, R. Grøn, N. Halladin, P. Örsy, G. Sesti, USA, Mexico, Czech Republic, Denmark, Italy
14:30 - 16:00

Vilanova Hall

OP 32 Novel biomarkers in diabetes, towards precision medicine

Chair: C.D.A. Stehouwer, Netherlands, P. Welsh, UK

187 Circulating HER2/ErbB2 levels are associated with increased incidence of diabetes: a population based cohort study

188 Prognostic value of gamma-glutamyl transferase variability in individuals with diabetes: a nationwide population-based study
D. Lee, K. Han, J. Yu, J. Seo, N. Kim, H. Yoo, S. Kim, S. Kim, K. Choi, S. Baik, Y. Park, N. Kim, Korea, Republic of

189 Time-series metabolomics connects biochemical changes with baseline cardiometabolic risk factors and weight gain in 5,302 individuals across 15-years of follow-up
V.-P. Makinen, Q. Wang, K. Puukka, S. Sebert, M. Kähönen, T. Lehtimäki, J. Viikari, O.T. Raitakari, M.-R. Järvelin, J. Kettunen, M. Ala-Korpela, Australia, Finland, UK

190 Metabolomic measurements are associated with glycaemic control and progression of type 2 diabetes: a BBMRI-NL metabolomics study
L.M. ‘t Hart, E. Schoep, F. Rutters, A.A. Van der Heijden, G. Nijpels, P.J. Elders, J.W. Beulens, R.C. Slieker, the BBMRI-NL diabetes metabolomics consortium, Netherlands

191 Novel biomarkers predicting renal decline in people with dysglycaemia in the ORIGIN trial
H.C. Gerstein, G. Pare, M. Matthew, S. Lee, A. Kannt, S. Hess, Canada, Germany

192 Serum amyloid component P improves the ability of C-reactive protein to predict all-cause mortality in patients with type 2 diabetes
M. Scarale, M. Copetti, M. Garofolo, A. Fontana, L. Salvemini, S. De Cosmo, O. Lamacchia, G. Penno, V. Trischitta, C. Menzaghi, Italy
OP 33 Heart failure: a novel complication of diabetes? Human and animal studies

Chair: L. Handoko, Netherlands, L. Rydén, Sweden

193 Ethnicity and diabetes in older age in association with left ventricular function and structure in a UK population-based cohort (SABRE: Southall and Brent REvisited)
T. Tillin, C. Park, S. Jones, S. Williams, S.V. Eastwood, A.D. Hughes, N. Chaturvedi, UK

194 Early left ventricular systolic dysfunction in asymptomatic patients with type 1 diabetes is frequent and associated with increased adiposity

195 Type 2 diabetes and heart failure: insights from the DISCOVER study
S.V. Arnold, H. Chen, M.B. Gomes, K. Khunti, G. Luporini Saraiva, J. Medina, S. Pocock, M.V. Shestakova, I. Shimomura, F. Tang, H. Watada, L. Ji, B. Charbonnel, F. Bonnet, M. Kosiborod, USA, Brazil, UK, Spain, Russian Federation, Japan, China, France

196 Effect of metformin on dicarbonyl stress in patients with type 2 diabetes and chronic heart failure
J. Kopecky jnr, E. Hošková, H. Malínská, J. Veleba, K. Velebová, V. Melenovský, T. Pelikánová, Czech Republic

197 Empagliflozin improves obesity-related heart failure with preserved ejection fraction by Sestrin2-mediated AMPK activation and antioxidant system in obese mice
X. Sun, F. Han, X. Li, J. Li, China, USA

198 A SGLT2 inhibitor dapagliflozin prevents heart failure with preserved ejection fraction through activating mitophagy in ZDF diabetic rats
B. Feng, N. Zhang, B. Shi, China
14:30 - 16:00  Servet Hall

OP 34 New light into the signalling pathway

Chair: K. Bouzakri, France, S.J. Persaud, UK

199 FoxK1 and FoxK2 are positive regulators for IR and IGF1R signalling in cell proliferation and metabolism
M. Sakaguchi, E. Araki, M. Mann, S. Enerbäck, C.R. Kahn, Japan, Germany, Sweden, USA

200 Regulation of bone morphogenetic protein-9 in hepatic glucose production and lipid metabolism
Y. He, L. Li, G. Yang, China

201 PVT1 induces the insulin resistance of obesity-related metabolic diseases via modulation of transcription factor FoxO1 through binding with PTBP1
X. Lin, W. Gui, S. Tang, H. Li, China

202 Hyperinsulinaemia decreases insulin receptor internalisation mediated by circular dorsal ruffles

203 FoxO1 mediates high glucose-cardiac fibroblasts differentiation
R. Vivar, R. Anfossi, S. Cárdenas, Chile

204 Immobilisation decreases FOXO3a phosphorylation and increases autophagy-related gene and protein expression in human skeletal muscle
A. Møller, M.H. Vendelbo, P. Schjerling, C. Couppe, N. Møller, M. Kjær, M. Hansen, N. Jessen, Denmark
14:30 - 16:00

OP 35 Novel concepts paving the way for future treatments

Chair: E. Ferrannini, Italy, D. Konrad, Switzerland

205 Skeletal muscle ketone body oxidation as a novel target for improving obesity-induced dysglycaemia in mice

206 Ketone bodies ingested orally inhibits lipolysis through de-phosphorylation of hormone sensitive lipase (HSL)
M. Svart, N. Rittig, S. Pedersen, N. Jessen, N. Møller, Denmark

207 The long noncoding RNA Blnc1 protects against diet-induced obesity by remodelling mitochondrial function in white fat
S. Tang, W. Gui, X. Lin, F. Zheng, W. Zhu, H. Li, China

208 The calcitonin receptor is essential for glucose regulation as a function of dual amylin and calcitonin receptor agonist therapy
A.T. Larsen, N. Sonne, K.V. Andreassen, M.A. Karsdal, K. Henriksen, Denmark

209 A novel amino acid transporter modulating insulin resistance via adipocytes
R. Jersin, J.-I. Bjune, M.S. Nilsen, A. McCann, M. Blüher, J. Fernø, M. Claussnitzer, G. Mellgren, S.N. Dankel, Norway, Germany, USA

210 Role of IL-1beta in human adipose tissue remodelling in obesity and type 2 diabetes
J. Laurencikiene, K. Hofwimmer, B. Tavira, J. Acosta, M. Rydén, Sweden
14:30 - 16:00

**Serrano-Rios Hall**

**OP 36 Genetics of diabetes: the final countdown?**

Chair: E.R. Pearson, UK, H. Shah, USA

211 Genetic association analysis of type 1 diabetes in >60,000 ancestrally diverse subjects: refinement of existing association signals and discovery of novel type 1 diabetes risk loci

212 A genome-wide search for genes affecting the age-at-diagnosis of type 1 diabetes
A. Syreeni, J.R. Inshaw, N. Sandholm, C. Sidore, F. Cucca, J.A. Todd, P.-H. Groop, Finland, UK, Italy

213 Angiotensin-converting enzyme and type 2 diabetes risk: a Mendelian randomisation study
M. Pigeyre, J. Sjaarda, M. Chong, S. Hess, J. Bosch, S. Yusuf, H. Gerstein, G. Pare, Canada, Germany

214 Transcriptome response of a liver-specific enhancer at rs780094 and genome-wide expression relationships of glucokinase regulatory protein (GCKR) gene

215 Genome-wide association study of adipose tissue lipolysis in the GENetIcs of adipocyte lipolysis (GENIAL) cohort
I. Dahlman, R.J. Strawbridge, A. Kulyte, V. Lundbäck, P. Arner, Sweden, UK

216 Multi-trait genome-wide association meta-analysis of dietary intake identifies new loci and functional links with metabolic traits
J. Merino, H.S. Dashti, C. Sarnowski, J.M. Lane, R. Saxena, J.C. Florez, USA
MINKOWSKI PRIZE

The prize will be given in relation to research which has been carried out by a person normally residing in Europe.

It is awarded for distinction, manifested by publications which contribute to the advancement of knowledge in the field of diabetes mellitus.

The prize commemorates Oskar Minkowski (1858-1931) who successfully performed the extirpation of the pancreas in dogs in 1889 and noticed that they developed diabetes.

MINKOWSKI LECTURERS

<table>
<thead>
<tr>
<th>Year</th>
<th>City</th>
<th>Lecturer</th>
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<tbody>
<tr>
<td>1966</td>
<td>Aarhus</td>
<td>P.J. PELTONEN-PALOTIE, UK</td>
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<td>1967</td>
<td>Stockholm</td>
<td>E.R. FROESCH, CH</td>
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<td>1968</td>
<td>Louvain</td>
<td>L.A. CARLSON, SE</td>
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<td>1969</td>
<td>Montpellier</td>
<td>B. HELLMAN, SE</td>
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<td>1970</td>
<td>Warsaw</td>
<td>B. JEANRENAUD, CH</td>
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<td>1971</td>
<td>Southampton</td>
<td>C.N. HALES, UK</td>
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<td>1972</td>
<td>Madrid</td>
<td>W.J. MALAISSE, BE</td>
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<td>1973</td>
<td>Brussels</td>
<td>L. ORCI, CH</td>
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<td>1974</td>
<td>Jerusalem</td>
<td>E. CERASI, SE</td>
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<td>1975</td>
<td>Munich</td>
<td>P. FREYCHET, FR</td>
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<td>K.D. HEPP, DE</td>
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<td>J. WAHREN, SE</td>
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<td>Zagreb</td>
<td>J. NERUP, DK</td>
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<td>Vienna</td>
<td>S.J.H. ASHCROFT, UK</td>
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<td>I.-B. TALJEDAL, SE</td>
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<td>Amsterdam</td>
<td>P. DE MEYTS, BE</td>
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<td>G.F. BOTTAZZO, UK</td>
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<td>Oslo</td>
<td>S.L. HOWELL, UK</td>
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<td>A. LERNMARK, DK</td>
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<td>E. VAN OBBERGHEN, FR</td>
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<td>D. PIPELEERS, BE</td>
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<td>1987</td>
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<td>J.-L. CARPENTIER, CH</td>
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<td>J.C. HUTTON, UK</td>
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<td>P.A. HALBAN, CH</td>
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<td>1991</td>
<td>Dublin</td>
<td>C. BOITARD, FR</td>
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<tr>
<td>1992</td>
<td>Prague</td>
<td>E. VAN SCHAFTINGEN, BE</td>
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16:15  INDUCTION OF HONORARY MEMBERS  Joslin Hall

D.R. Matthews, President EASD and EFSD
followed by

54TH MINKOWSKI LECTURE

Chair:  D.R. Matthews, President EASD and EFSD
Speaker:  F.K. Knop, Denmark
Title:  My gut feeling about glucagon

Filip K. Knop, MD PhD, is a consultant endocrinologist, professor of endocrinology and head of Center for Clinical Metabolic Research, Gentofte Hospital, University of Copenhagen, Denmark. Filip K. Knop has been involved in diabetes research since his fellowship at The Distinguished Gifford Laboratories for Diabetes Research, University of Texas, Southwestern Medical Center in Dallas in 1999 where he was supervised by Christopher B. Newgard. Knop received his PhD training at University of Copenhagen under the academic supervision of Jens J. Holst. Together with Tina Vilsbøll, Filip K. Knop established Diabetes Research Division (at Gentofte Hospital), which over the years has developed into Center for Clinical Metabolic Research with a current staff of more than 40 people. Knop’s research centres on human metabolism and the pathophysiology of obesity and related metabolic disorders including type 2 diabetes and non-alcoholic fatty liver disease, regulation of appetite and food intake, and the therapeutic potential of factors involved in these processes. Filip K. Knop is particularly interested in the integrative role of the gut and the liver in human physiology and pathophysiology and he has been instrumental in describing how the gut and the liver interact with pancreatic glucagon secretion. Also, he has pioneered research of gut-derived glucagon secretion in humans and contributed importantly to the description of the liver-alpha cell axis. Knop has authored 310 peer-reviewed scientific publications and he has received several national and international honours for his research, e.g. The Rising Star Award by the European Association for the Study of Diabetes (2010), The DPLU/LUDC Nordic Prize for an Outstanding Young Diabetes Investigator (2011), The Johan Quentin and Wife’s Prize for Outstanding Research (2014), The Capital Region of Denmark’s Global Excellence Award (2014), The Danish Diabetes Association’s Thomsen Prize (2015), The Niels Schwartz Sørensen’s Prize (2017), The Odd Fellow Research Prize (2017) and The European Journal of Endocrinology Prize (2018).
17:15

Joslin Hall

Diabetes in primary care

Chair: A.J.M. Boulton, UK

K. Khunti, UK: Real world evidence and pragmatic trials in type 2 diabetes

X. Cos, Spain: Primary care for innovation in the approach to diabetes

Vilanova Hall

Dialogue between clinical chemistry and diabetology

Chair: M. Nauck, Germany

G. Freckmann, Germany: Blood glucose measurement: post-market evaluation of blood glucose systems

G. John, UK: HbA1c measurements in Europe: implications for clinical guidelines and recommendations

Ochoa Hall

Michael Berger debate: The emphasis on sedentary behaviour as lifestyle intervention target is entirely warranted

Chair: N. Sattar, UK

D.W. Dunstan, Australia: For the proposal

J. Gill, UK: Against the proposal
17:15

Servet Hall

Reactive metabolites in mechanisms of insulin resistance

Chair: P.J. Thornalley, Qatar

C. Schalkwijk, Netherlands:
Methylglyoxal as a mediator of insulin resistance

P. Schrauwen, Netherlands:
Muscle insulin resistance: role of mitochondria

Trueta Hall

The many faces of type 2 diabetes

Chair: H. Yki-Järvinen, Finland

J.W. Eriksson, Sweden:
Staging of type 2 diabetes: time for new diagnostic criteria?

L. Groop, Sweden:
Novel diabetes subgroups and their association with outcomes

Serrano-Rios Hall

Diabetes and the brain: from mice to man

Chair: H.-U. Häring, Germany

J.C. Brüning, Germany:
Mechanism of insulin resistance in the brain

M. Heni, Germany:
Control of peripheral metabolism by insulin action in the human brain
08:30
Joslin Hall

EASD/EASL Symposium: Is NAFLD a risk for health in the context of diabetes?

Chair: A. Gastaldelli, Italy

M. Roden, Germany:
Metabolic NAFLD

S. Romeo, Sweden:
Genetic NAFLD

E. Bugianesi, Italy:
NAFL vs NASH, diagnosis and treatment: a hepatologist’s perspective

Vilanova Hall

EASD/ESC Symposium: Heart failure in type 2 diabetes

Chair: A. Cittadini, Italy, F. Cosentino, Sweden

L. Handoko, Netherlands:
Diagnosis and screening for heart failure in type 2 diabetes

J. Butler, USA:
Can we prevent heart failure?

Ochoa Hall

Diabetes imaging for clinical diabetes research

Chair: D.L. Eizirik, Belgium

M. Gotthardt, Netherlands:
Positron emission tomography of beta cell mass, islets transplants and beyond: imaging the GLP-1 receptor

B.E. de Galan, Netherlands:
Magnetic resonance imaging for resolving hypoglycaemia
08:30

Servet Hall

Targeting inflammation in diabetes treatment: hope or hype?

Chair: M. Rydén, Sweden

M.Y. Donath, Switzerland:
Hope

G. Leibowitz, Israel:
Hype

Trueta Hall

Genetics and precision medicine

Chair: V. Trischitta, Italy

J.C. Florez, USA:
A global overview of precision medicine in type 2 diabetes

A. Doria, USA:
Personalised prevention of cardiovascular disease in type 2 diabetes: Is it possible?

Serrano-Rios Hall

The biological clocks keep islets on time

Chair: S. Barg, Sweden

J. Bass, USA:
Clock function in beta cell failure and metabolic disease

C. Dibner, Switzerland:
Islets clocks keep metabolism in shape
OP 37 New modes of organ crosstalk

Chair: S. Barg, Sweden, R. Regazzi, Switzerland

217 Exosomes as mediators of the systemic adaptations to high intensity interval training
C. Castaño, M. Mirasierra, M. Vallejo, L. Brugnara, S. Murillo, A. Novials, M. Párrizas, Spain

218 Characterisation of exosomal proteins before and after exercise intervention in human insulin resistance and type 2 diabetes

219 Pancreatic islets control hepatic insulin sensitivity via the secretion of exosomal miR-29 family
J. Li, China

220 Long non-coding RNA H19 improves insulin resistance in skeletal muscle by regulating heterogeneous nuclear ribonucleoprotein A1
W. Gui, X. Lin, W. Zhu, Z. Zhang, S. Tang, Y. Zhu, F. Zheng, H. Li, China
09:45 - 10:45

Vilanova Hall

OP 38 Continuous measurement of glucose: standard of care?

Chair: B.E. De Galan, Netherlands, K. Nørgaard, Denmark

221 Psychological impact of 3-monthly retrospective continuous glucose monitoring (rCGM) in adults with type 2 diabetes in primary care: secondary results of the GP-OSMOTIC RCT
J. Speight, E. Holmes-Truscott, S. Thuraisingam, J. Manski-Nankervis, K. De La Rue, L. Ginnivan, D. O’Neal, J. Furler, the GP-OSMOTIC Study Group, Australia

222 High treatment satisfaction and less time in hypoglycaemia after introduction of flash glucose monitoring in a large type 1 diabetes population
S. Charleer, C. De Block, L. Van Huffel, B. Broos, F. Nobels, C. Mathieu, P. Gillard, Belgium

223 Effect of flash glucose monitoring on glycaemic control in adults with type 1 diabetes: a nationwide, longitudinal observational study
D. Nathanson, A. Svensson, M. Miftaraj, S. Franzén, J. Bolinder, K. Eeg-Olofsson, Sweden

224 Meta-analysis of three, real-world, chart review studies to determine the effect of FreeStyle Libre Flash Glucose Monitoring System on HbA₁c in adults with type 2 diabetes
J. Kroeger, P. Fasching, H. Hanaire, Germany, Austria, France
09:45 - 10:45  Ochoa Hall

**OP 39 Insights on retinopathy from observational studies**

Chair: B. Mankovsky, Ukraine, R. Simó, Spain

225 Novel obesity-related markers in the prediction of sight-threatening diabetic retinopathy: a prospective study of the Hong Kong West Diabetes Registry
W. Chow, C. Lee, I. Wong, D. Lui, C. Fong, M. Yuen, Y. Woo, A. Xu, K. Lam, Hong Kong

226 Safety and efficacy of individualised compared to annual screening for diabetic retinopathy in the ISDR randomised controlled trial

227 Risk of microvascular complications over 30 years in latent autoimmune diabetes of adults compared with type 2 diabetes
E. Maddaloni, R.L. Coleman, O.F. Agbaje, R. Buzzetti, R.R. Holman, Italy, UK

228 Relation between a mean HbA1c variable and retinopathy in type 1 diabetes: a DCCT/EDIC subgroup analysis
A. Hirose, A. Goto, S. Kitano, Y. Uchigata, T. Babazono, Japan
OP 40 Novel treatments in obesity: lean on me

Chair: G. Mingrone, Italy, J.L. Ruas, Sweden

229 From GWAS to function: identification of ALK as a candidate thinness gene
N. Gheldof, M. Orthofer, A. Valsesia, J. Hager, J.M. Penninger, Switzerland, Austria

230 Adipocyte-specific gp130 signalling mediates exercise-induced weight reduction
T.S. Odermatt, M. Dedual, M. Borsigova, S. Wueest, D. Konrad, Switzerland

231 Role of the tumor suppressor p19ARF in adipocyte in the development of obesity and its metabolic complication
C. Meziat, J. Toutain, K. Dumas, J. Gilleron, J. Jager, J.-F. Tanti, M. Cormont, France

232 DD01, a potential disease modifying agent for obesity
OP 41 Cardiovascular hotspots in diabetes

Chair: A. Doria, USA, M. Federici, Italy

233 Epicardial fat volume and the risk of cardio-metabolic diseases among women and men from general population
A. Brahimaj, F. Ahmadizar, M.W. Vernooij, M. Ikram, M. Ikram, T.V. Walsum, A. Dehghan, O.H. Franco, D. Bos, M. Kavousi, Netherlands, UK, Switzerland, USA

234 Cardiovascular complications in type 1 and type 2 diabetes patients show more similarities than differences

235 Change in heart rate and heart rate variability is not related to cardiovascular events or death, irrespective of dysglycaemia: Downfall of risk markers? The Whitehall II study
C. Hansen, J.E. Marit, M. Malik, D.R. Witte, E. Brunner, A.G. Tabák, M. Kivimäki, D. Vistisen, Denmark, UK

236 Phenotype at diagnosis and disease progression over a 10-year period: a data driven approach in a large population with type 2 diabetes
A. Nair, L. Donnelly, A. Wesolowska-Andersen, S. Gan, A. Dawed, E.R. Pearson, UK
09:45 - 10:45  
**Serrano-Rios Hall**

**OP 42 The inner life of the beta cell**

Chair: R. Mallone, France, M. Solimena, Germany

**237 Inflammatory and metabolic stress perturbs the beta cell circadian clock**
P.A. Andersen, P.H. Rose, M. Koomen, V. Petrenko, T. Dahlby, S.M. Ghiasi, C. Dibner, T. Mandrup-Poulsen, Denmark, Switzerland

**238 The role of TALK-1 K⁺ channels in modulating islet hormone secretion and mitochondrial function**
S.M. Graff, S.R. Johnson, P.K. Dadi, E.L. Duncan, D.A. Jacobson, USA, Australia

**239 The interaction of the actin binding protein villin with SNAREs for regulation of insulin granule exocytosis**
H. Mziaut, J. Dehghany, A. Gheisari, I. Kalaidzidis, Y. Kalaidzidis, A. Sönmez, M. Grzybek, M. Meyer-Hermann, M. Solimena, Germany

**240 Melanophilin accelerates insulin granule fusion without stable docking to the plasma membrane via interaction with myosin-Va and syntaxin-4**
T. Izumi, K. Mizuno, K. Okunishi, H. Wang, Japan
11:00 - 12:00

**OP 43 Disease progression in type 2 diabetes**

Chair: M. Pinget, France, N. Stefan, Germany

**241 BMP4 gene therapy delays diabetes progression in the diabetic db/db mouse model**
R. Khatib Shahidi, L. Mannerås Holm, L. Bonnet, T. Kroon, D. Nilsson, A. Ahnmark, I. Elias, F. Bosch, U. Smith, J. Boucher, Sweden, Spain

**242 Insulin receptor isoform expression is altered in mouse tissues of genetic and dietary models of obesity and type 2 diabetes**
N. Moruzzi, I. Valladolid-Acebes, M. Paschen, T. Moede, B. Leibiger, P.-O. Berggren, I.B. Leibiger, Sweden

**243 Searching for the metabolic mechanisms of indolepropionic acid, a gut-derived serum metabolite, in the prevention of type 2 diabetes: preliminary results**
V. De Mello Laaksonen, M. Tuomainen, A. Mattsson, D. Kaminska, K. Hanhineva, J. Pihlajamäki, K.A. Virtanen, Finland

**244 Glucose sensitivity, insulin sensitivity and their longitudinal changes are strong independent determinants of type 2 diabetes progression: an IMI DIRECT study**
11:00 - 12:00   Vilanova Hall

OP 44 Exploring novel mechanisms of action of SGLT2 inhibitors

Chair: P.-H. Groop, Finland, J. Seufert, Germany

245 Empagliflozin as metabolically active compound for treatment of non-alcoholic fatty liver disease in type 2 diabetes
S. Kahl, S. Gancheva, K. Strassburger, C. Herder, J. Machann,
Y. Kupriyanova, S. Kabisch, E. Henkel, K. Kantartzis, S. Kopf, C. Kasperk,
N. Stefan, A. Pfeiffer, A.L. Birkenfeld, M. Roden, Germany

246 The metabolic effects of an SGLT2 inhibitor (dapagliflozin) during a period of acute insulin withdrawal and development of ketoacidosis in people with type 1 diabetes
R. Herring, F. Shojae-Moradie, R. Garesse, M. Stevenage, N. Jackson,
C. Lucy, B.A. Fielding, A. Umpleby, D.L. Russell-Jones, M. Davies, UK

247 The increase in endogenous glucose production with SGLT2 inhibition is unchanged by renal denervation but highly correlates to urinary glucose excretion
C. Solis-Herrera, M. Alatrach, C. Agyin, H. Honka, R.D. Patel, C. Triplitt,
J.M. Adams, A. Gastaldelli, M. Abdul-Ghani, D. Tripathy, E. Cersosimo,
R. DeFronzo, USA

248 SGLT2 is not expressed in pancreatic alpha and beta cells and its inhibition does not directly affect glucagon and insulin secretion in rodents and humans
P. Gilon, H. Chae, N. Antoine, B.-K. Lai, B. Singh, L. Ruiz, A. Wojtusciszyn,
C. Broca, B. Stierstorfer, H. Klein, E. Mayoux, M. Pieper, M. Mark,
R. Augustin, Belgium, France, Germany
OP 45 Integrating psychology into diabetes care

Chair: S.A. Amiel, UK, S.F. Dinneen, Ireland

249 A new diabetes questionnaire to add patients’ perspectives to diabetes care: a nationwide cross-sectional study among adults with type 1 and type 2 diabetes

250 Association of personality traits with continuous glucose measurement parameters in type 1 diabetes adults treated with personal insulin pumps
T. Klupa, B. Matejko, M. Flakus, S. Mrozińska, Ł. Tota, M. Morawska, B. Kieć-Wilk, M. Malecki, Poland

251 Perceptions of life with diabetes revealed through a solution focused brief therapy exercise via Twitter
D.A. Greenwood, T. Ross, E. Reifsnider, USA

252 Ketoacidosis hospitalisations among people with type 1 diabetes are associated with increased risks of rehospitalisation for suicide attempt
J. Petit, K. Goueslard, J.-C. Chauvet-Gelinier, B. Bouillet, B. Vergès, C. Quantin, France
11:00 - 12:00  
OP 46 Holistic view on ageing  
Chair: G. Medina-Gomez, Spain, U. Smith, Sweden

253 Sarcopenic obesity and the risk of incident type 2 diabetes  
J. Jun, Y.-C. Hwang, J. Kim, Korea, Republic of

254 Longitudinal changes in fasting and glucose-stimulated GIP and GLP-1 in healthy older subjects  

255 Peroxiredoxin6 plays a crucial role in the crosstalk between diabetes and ageing in the development of sarcopenia  
F. Pacifici, D. Pastore, R. Arriga, B. Capuani, A. Coppola, S. Rea, A. Andreadi, G. Donadel, P. Abete, A. Bellia, D. Della-Morte, D. Lauro, Italy

256 Hypomethylation of the p53-target ZMAT3 is associated with senescence of subcutaneous adipocyte precursor cells in individuals with a family history of type 2 diabetes  
OP 47 Type 2 diabetes across ethnicities

Chair: N. Chaturvedi, UK, J. Tuomilehto, Spain

257 Type 2 diabetes prevalence in people of mixed African Caribbean/European ethnicity and second generation African Caribbean migrants: a UK Biobank analysis

258 Genome-wide polygenic risk scores and prediction of gestational diabetes in South Asian women
A. Lamri, S. Mao, D. Desai, M. Gupta, G. Paré, S.S. Anand, Canada

259 Low hepatic insulin extraction despite low intrahepatic lipid and preserved hepatic insulin sensitivity in healthy black African men

260 Ethnic differences in initiation and intensification of antidiabetic treatment amongst adults newly diagnosed with type 2 diabetes in the UK
11:00 - 12:00  Serrano-Rios Hall

OP 48 Not all beta cells are alike

Chair: M. Cnop, Belgium, I. Rustenbeck, Germany

261 Pancreas patch-seq links physiologic dysfunction in diabetes to single-cell transcriptomic phenotypes

262 Parallel multi-parametric monitoring of single pancreatic islets in a microfluidic Organ-on-Chip system made from glass
T. Schulze, K. Mattern, A. Dietzel, I. Rustenbeck, Germany

263 Two distinct directions of pancreatic beta cell neogenesis revealed by spatiotemporal imaging and single cell transcriptome analysis

264 Beta cells subpopulations: Do they control islet function?
V. Kravets, J.M. Dwulet, W.E. Schleicher, R.A. Piscio, R.K. Benninger, USA
12:15

Joslin Hall

Personalising the screening for sight threatening diabetic retinopathy

Chair: R. Simó, Spain

A. Ochs, UK:
Personalised approaches to screening for diabetic retinopathy

D.M. Broadbent, UK:
Developments in individualised risk based screening, applicable to large local populations

M. James, UK:
Cost effectiveness of personalised screening and scaling up to address a worldwide “pandemic”

Vilanova Hall

TEDDY study

Chair: B. Akolkar, USA

A.G. Ziegler, Germany:
Genetics of first appearing islet autoimmunity in the TEDDY study and implications for clinical studies

H.A. Hyöty, Finland:
Virus aetiology of first appearing islet autoimmunity in the TEDDY study
12:15

Motivation to behavioural change: brain, gut and environment

Chair: A. Nouwen, UK

S. Higgs, UK:
Eating and overeating: a biobehavioural perspective

J. Lakerveld, Netherlands:
Environmental determinants of behaviour, obesity and diabetes

EASD/JDRF Symposium: The islets are on fire!

Chair: C. Mathieu, Belgium, P. Marchetti, Italy

R. Mallone, France:
Immune biomarkers in type 1 diabetes: lessons from the T cell/beta cell cross-talk

T. Mandrup-Poulsen, Denmark:
Inflammatory cytokines

R. Regazzi, Switzerland:
Impact of lymphocyte-derived exosomes on type 1 diabetes aetiology
12:15

Trueta Hall

Gestational and transgenerational diabetes

Chair: H.-U. Häring, Germany

M. Hrabě de Angelis, Germany:
Epigenetic mechanisms of transgenerational diabetes in mice

R. Scharfmann, France:
Metabolic impact on foetal pancreatic development in mice and humans

A. Fritsche, Germany:
Metabolic impact on foetal brain development in humans

Serrano-Rios Hall

East-West-Forum: Supporting diabetes self-management

Chair: S.F. Dinneen, Ireland, T. Nakagami, Japan

S.A. Amiel, UK:
Preventing severe hypoglycaemia in type 1 diabetes: technology versus psycho-educational approaches

K. Ikeda, Japan:
Cross-cultural predictors of self-management behaviours in type 2 diabetes

D. Grabowski, Denmark:
The role of family in supporting diabetes self-management
Poster Event A, Tuesday, 12:00 - 13:00

PS 001 Twisting the helix

Chair: C. Miele, Italy

265 The mechanisms of LncRNA Tug1 in islet dysfunction in the intrauterine growth retardation mice
Y. Li, C. Dai, Y. Yuan, Q. Yuan, China

266 Maternal glucose and DNA methylation in maternal blood: an epigenome-wide association study

267 Paternal sleep deprivation induces glucose metabolic perturbations in male offspring involving altered LRP5 DNA methylation of islets
Y. Zeng, L. Guo, China

268 HDAC5 regulates IL-6 transcription and enhances insulin signallling in skeletal muscle

269 The impact of epigenetic on insulin resistance in adipose tissue: in vivo study
M. Malodobra-Mazur, A. Alama, D. Pawelka, Poland

270 Cytosine methylation sequencing identifies pathways implicating insulin signalling in diabetic complications

271 The long non-coding RNA HOTAIR is an important angiogenic mediator in diabetic retinopathy
S. Biswas, B. Feng, S. Chen, E. Aref-Eshghi, J. Gonder, B. Sadikovic, S. Chakrabarti, Canada
272 Impact of HbA1c and blood glucose levels on the epigenetic regulation of TXNIP in newly-diagnosed type 2 diabetic subjects
S. Garcia-Calzon, A. Perfilyev, L. Groop, E. Ahlqvist, C. Ling, Sweden

273 Weight loss in people with impaired glucose regulation affects caveolin-1 (CAV1) expression and DNA methylation in a tissue-specific way
H.A. Fachim, K. Siddals, N. Malipatil, R. Donn, C. Dalton, M. Gibson, A. Heald, UK

274 Diabetes-associated SNPs in the FTO locus link to aberrant p53 activity in the pancreas via IncRNA CRNDE
R.C. Slieker, J.G. Nap, J.W. Beulens, L.M. 't Hart, Netherlands

Poster Event B, Tuesday, 13:15 - 14:15
PS 002 The attack from within: autoimmunity in diabetes
Chair: R. Mallone, France

275 Low birthweight and genetic susceptibility in relation to the risk of latent autoimmune diabetes in adults (LADA) and type 2 diabetes
R. Hjort, E. Ahlqvist, L. Alfredsson, L. Groop, T. Tuomi, S. Carlsson, Sweden, Finland

276 Contrasting predictive factors for development and progression in LADA patients: the HUNT study
E.P. Sorgjerd, B.O. Åsvold, V. Grill, Norway

277 Cohort profile: the Australia-wide environmental determinants of islet autoimmunity (ENDIA) study

278 Red and processed meat consumption and the risk of latent autoimmune diabetes in adults (LADA) and type 2 diabetes
J.E. Löfvenborg, E. Ahlqvist, L. Alfredsson, T. Andersson, L. Groop, T. Tuomi, A. Wolk, S. Carlsson, Sweden, Finland
279 General population screening for type 1 diabetes and coeliac disease: Autoimmunity Screening for Kids (ASK)
M. Rewers, C. Geno Rasmussen, E. Liu, L. Yu, B.I. Frohnert, A. Steck, J.M. Norris, R.B. McQueen, J. Baxter, USA

280 Vitamin D is a partial agonist of human TRPV1 channel and may play an important role in the reduction of naive T cell activation in autoimmune disease

281 Antibody profile of adult onset type 1 diabetes shows a high prevalence of Zinc Transporter 8 (ZnT8) and Insulinoma Antigen-2 (IA-2) antibodies
K. Wyne, USA

282 HLA DR-DQ genotypes and specificity of first autoantibody initiating islet specific autoimmunity
J. Ilonen, M.-L. Mikk, S. Pfeiffer, M. Kiviniemi, A.-P. Laine, J. Lempainen, T. Härkönen, J. Toppari, R. Veijola, M. Knip, Finland

283 Luciferase-tagged (pro)insulin constructs detect high affinity insulin autoantibodies to epitopes associated with fast progression to diabetes in first-degree relatives

284 Autoantibody persistence is common in long standing type 1 diabetes
S. McGurnaghan, UK

Poster Event C, Wednesday, 12:00 - 13:00

PS 003 Monogenic diabetes: from MODY and beyond

Chair: S. Prudente, Italy

285 The family-based characterisation of HNF1A-MODY
J.L. Kettunen, B. Isomaa, L. Sarelin, P. Kokko, L. Groop, P.J. Miettinen, T. Tuomi, Finland, Sweden
286 Functional characterisation of HNF1B variants detected in Norwegian diabetes registries can be important for precision medicine in diabetes clinics
B. Berg Johannsson, K.A. Mohamed, M. Ringdal, A. Kaci, E. Tjora, J.V. Sagen, J. Molnes, P.R. Njølstad, Norway

287 Use of the MODY probability calculator in the real-world setting
A. Hattersley, T. McDonald, M. Shepherd, M. Hudson, K. Colclough, S. Ellard, E. Pearson, B. Shields, UK

288 Improving the MODY calculator for use in insulin treated patients with the addition of C-peptide and islet autoantibodies
B. Shields, T. McDonald, K. Owen, M. Malecki, A. Jones, K. Colclough, A. Hattersley, UK, Poland

289 Gain of function mutations in Malate Dehydrogenase 2 (MDH2) cause familial diabetes of the adulthood

290 Pathogenic, loss-of function mutations in MRAP2 cause monogenic metabolic syndrome
M. Baron, J. Maillet, M. Huyvaert, A. Dechaume, R. Boutry, C. Aubert, B. Balkau, R. Roussel, M. Marre, M. Canouil, P. Froguel, A. Bonnefond, France

291 In vitro iPSC modelling of a Wolfram syndrome patient suggests relationship between ER dysfunctions and disease pathogenesis
S. Torchio, R. Chimienti, F. Manenti, G. Rossi, C. Cancellieri, S. Pellegrini, V. Sordi, V. Broccoli, G. Frontino, F. Meschi, L. Piemonti, Italy

292 Genetic determinants of intellectual disability in KATP channel neonatal diabetes

293 Mutant RFX6 disturbs pancreatic progenitor identity in an iPSC-based model of neonatal diabetes
H. Ibrahim, D. Balboa, J. Saarimäki-Vire, S. Eurola, V. Chandra, T. Otonkoski, Finland

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294 Clinical characteristics of mitochondrial diabetes in Koreans
S. Kwak, S. Baek, T. Oh, Y. Cho, H. Jang, K. Park, Korea, Republic of

Poster Event D, Wednesday, 13:15 - 14:15

PS 004 Additional spotlights on cardiovascular disease

Chair: E.R. Pearson, UK

295 Differences in prediabetes and diabetes associated co-morbidities between men and women

296 Whole genome sequencing analysis on coronary artery disease in type 1 diabetes
A.A. Antikainen, N. Sandholm, J. Haukka, E. Valo, P.-H. Groop, Finland

297 Genetic variation in TCF7L2 rs7903146 increase the risk of peripheral artery disease in longstanding type 2 diabetes
E. Ku, D.-H. Lee, H. Jeon, J. Kim, T. Oh, Korea, Republic of

298 SIRT1 rs7896005 SNP and incidence of major vascular events in type 2 diabetes: a 13-year, single-centre, follow-up study
D. Lucchesi, M. Garofolo, E. Gualdani, L. Giusti, V. Sancho Bornez, A. Dardano, P. Francesconi, G. Penno, S. Del Prato, Italy

299 Predicting risk for new-onset type 2 diabetes in Chinese people with coronary heart disease and impaired glucose tolerance
S. Xu, C. Scott, R.L. Coleman, J. Tuomilehto, R.R. Holman, UK, China, Finland

300 The impact of diabetes, educational level and income on the risk for myocardial infarction and ischaemic stroke in a hypertensive primary care population
301 Magnesium supplementation is associated with a lower cardio-metabolic risk in patients submitted to bariatric surgery

302 Outcomes of type 2 diabetes clustering replicated in the DEVOTE trial
J.B. Buse, A.R. Kahkoska, E. Hachmann-Nielsen, K.R. Klein, K.G. Kongsbak, K. Kvist, USA, Denmark

303 Estimating cardiovascular risk and all-cause mortality in individuals with type 2 diabetes using the UKPDS Outcomes Model

304 Preoperative disturbances of glucose metabolism and mortality after coronary artery bypass grafting
C. Djupsjo, U. Sartipy, T. Ivert, S. Karayiannides, P. Lundman, T. Nyström, M. Holzmann, J. Kuhl, Sweden

Poster Event E, Thursday, 12:00 - 13:00

PS 005 Diagnostic discussions in diabetes
Chair: K. Khunti, UK

305 The optimal cut-off point of haemoglobin A$_{1c}$ for diagnosing diabetes is 6.1% in east China
Z. Sun, Z. Du, S. Qiu, J. Chen, H. Guo, S. Yuan, C. Qu, W. Li, T. Mao, X. Wang, M. Cai, B. Wang, X. Li, China

306 Time to revise HbA$_{1c}$ thresholds for diabetes risk? Evidence from a prospective study of 4010 participants
L.R. Rodgers, A.V. Hill, A.T. Hattersley, T.J. McDonald, A. Jones, B.M. Shields, UK

307 C-peptide and risk of developing type 2 diabetes in the general population

136
308 Changes in beta cell function 6 and 12 months after a diagnosis of type 1 diabetes: insights from the ADDRESS-2 study

309 The utility of clinical features and glycaemia at diagnosis in classifying young adult onset diabetes

310 The utility of one-hour plasma glucose during OGTT for diagnosing type 2 diabetes in the Botnia Study
V. Ahuja, L. Groop, M. Bergman, T. Tuomi, Botnia Study, Finland, Sweden, USA

311 Every fifth individual with type 1 diabetes suffers from an additional autoimmune disease: a Finnish nationwide study
S. Mäkimattila, V. Harjutsalo, C. Forsblom, P.-H. Groop, FinnDiane Study Group, Finland, Australia

312 Discordance between glucose levels measured in the interstitial fluid versus venous plasma after an oral glucose administration: the PRE-D trial

313 A carbohydrate standard breakfast as a more physiological test of glucose tolerance than OGTT in obese patients
P. Valensi, A. Rezki, S. Chiheb, I. Banu, E. Cosson, M. Fysekidis, France

314 Glucose variability in relation to glucose metabolism status, sex, age and established glycaemic indices: the Maastricht study
Y.D. Foreman, M.C. Brouwers, C.J. Van der Kallen, N.C. Schaper, C.D. Stehouwer, Netherlands
Posters

Poster Event F, Thursday, 13:15 - 14:15

PS 006 Trends, prevalence and incidence

Chair: S.H. Wild, UK

315 Diabetes incidence over time: a systematic review
D.J. Magliano, C.M. Lee, L. Chen, I. Rakibul, E.W. Gregg, T. Pritichard, T. Hird, M. Pavkov, J. Harding, A. Chung, R. Ofori-asenso, T. Gordon, J. Wang, M. Pham, J.E. Shaw, Australia, USA

316 Trends on prevalence and incidence of type 2 diabetes in France between 2010 and 2017: a nationwide population-based study
S. Fuentes, S. Fosse-Edorh, L. Mandereau-Bruno, P. Bernillon, C. Bonaldi, E. Cosson, France

317 Temporal trend in prevalence and incidence of type 2 diabetes in early-onset depression and mortality risk: study of UK primary care electronic medical records
S. Paul, J. Dibato, D. Koye, J. Ling, O. Montvida, Australia

318 Trends in the incidence of prediabetes among younger and older immigrants in Canada, 2011-2015
G.S. Fazli, R. Moineddin, B.R. Shah, F. Wu, G.L. Booth, Canada

319 Ten-year follow-up of diabetes incidence in the DE-PLAN project (diabetes prevention using intensive lifestyle intervention) in Catalonia

320 Diabetes prevalence in Pakistan: What is driving this? Clues from subgroup analysis of normal weight individuals
H. Aamir, S. Fazid, B. Hussain, I. Ahmed, F. Qureshi, Z. Ul-Haq, A. Heald, Pakistan, UK

321 Trends in hyperglycaemic crisis hospitalisations in- and out-hospital mortality in the last decade: based on Korean National Health Insurance claims data
322 Incidence and relative risk of renal replacement therapy in people with and without diabetes in a German region, 2002-2016
H. Claessen, M. Narres, T. Kvitkina, M. Koch, L. Rump, A. Icks, Germany

323 Prevalence of depression in older adults with diabetes: a comparative analysis of three countries using nationally representative data
N.M. McGrath, S. McHugh, E. Toomey, P.M. Kearney, Ireland

324 The prevalence of osteoporosis, osteopenia by quantitative computed tomography evaluation stratified by different glucose tolerance
Y. Li, W. Yang, X. Cai, L. Ji, China

Poster Event A, Tuesday, 12:00 - 13:00

PS 007 Biomarkers and diabetes: new and old

Chair: C. Menzaghi, Italy

325 Vitamin D deficiency, overall and cause-specific mortality: the impact of age and diabetes
R. Marculescu, G. Endler, L. Yang, G. Haidinger, O. Wagner, T. Waldhör, Austria

326 Circulating PCSK9 levels are not associated with the conversion to type 2 diabetes
B. Cariou, S. Ramin-Mangata, M. Wargny, M. Pichelin, C. Le May, V. Blanchard, R. Santos, I. Bensenor, P. Lotufo, G. Lambert, France, Brazil

327 Role of serum LRIG2 as biomarker in diagnosis of type 2 diabetes
J. Kim, K.-H. Joung, S. Choung, O.-S. Kim, H. Kim, B. Ku, Korea, Republic of

328 Postprandial 2hr rise in insulin is a strong predictor of postprandial glycaemic responses in healthy and prediabetic individuals: the PREDICT I study
P.W. Franks, S. Berry, A. Chan, R. Davies, D. Drew, T. Spector, A.M. Valdes, Sweden, UK, USA
329 From gestational diabetes to postpartum abnormal glucose metabolism: the role of metabolomics signatures
L.-J. Li, X. Wang, Y. Gao, I. Aris, J. Eriksson, Y. Chong, K. Tan, C. Zhang, L. Zhou, Singapore, China, Finland, USA

330 Prediction of pancreatic fat and analysis of its determining factors using multi-omics datasets: an IMI DIRECT study
T. Karaderi, G. Mazzoni, C. Brorsson, D. Westergaard, K. Banasik, R. Koivula, L. Thomas, J. Bell, P. Franks, E. Pearson, S. Brunak, for the IMI DIRECT consortium, Denmark, UK, Sweden

331 Proteomic and bioinformatic analysis of the anti-obesity and anti-diabetes effects of Platycodon grandiflorum in mice
E.C. Park, W. Kim, S. Yun, W. Back, S.-Y. Lee, S. Kim, Korea, Republic of

332 The transcriptome of persistent or transient human beta cell dysfunction caused by lipo-glucotoxicity correlates with the gene expression signature of type 2 diabetic islets

333 The impact of birthweight on the phenotype of type 2 diabetes

Poster Event B, Tuesday, 13:15 - 14:15
PS 008 Genetics of diabetes: more to know?
Chair: H. Shah, USA

334 N-glycosylation of plasma proteins is changed in children with early onset type 1 diabetes and regulated by glycosyltransferase and complement C3 genes
O. Gornik, N. Selak, S. Kaur, D. Kifer, F. Pociot, G. Morahan, Croatia, Denmark, Australia
335 Genome-wide association study of urinary metabolites in individuals with type 1 diabetes
E. Valo, S. Mutter, V. Aittomäki, N. Sandholm, C. Forsblom, P. Würtz, P.-H. Groop, FinnDiane Study Group, Finland

336 The Accelerating Medicines Partnership Type 2 Diabetes knowledge portal
A. Sankar, D. Spalding, The Accelerating Medicines Partnership in Type 2 Diabetes, UK

337 Effect of type 2 diabetes on the expression of hypoxia-inducible factor 1-alpha (HIF-1α): Is there a relationship with the clock genes?

338 Differential association of 53 genome-wide association studies identified loci with type 2 diabetes in Lebanese and Tunisian Arabs
K. Atageldiyeva, W.Y. Almawi, Kazakhstan

339 Genome-wide association study of circulating levels of glucagon during an oral glucose tolerance test

340 Genetic loci associated with BMI in GWAS: influence on adipose lipolysis and diabetes
A. Kulyté, V. Lundbäck, R.J. Strawbridge, P. Arner, I. Dahlman, Sweden, UK

341 Do the ‘favourable adiposity’ genes influence weight / metabolic change over time in type 2 diabetes? Results from a 14 year prospective UK study

342 Liver fat and whole-body insulin sensitivity are higher in newly diagnosed type 2 diabetes patients with a variant in transmembrane 6 superfamily member 2 protein (TM6SF2)
343 In vivo evaluation of a novel therapeutic target for type 2 diabetes identified through genome wide association study-based drug discovery
M. Imamura, M. Matsunami, S. Maeda, Japan

Poster Event C, Wednesday, 12:00 - 13:00

PS 009 Diabetes: new lessons from animals
Chair: F. Bosch, Spain

344 Bisphenol-A modulates ion channel expression and activity in mouse pancreatic beta cell via oestrogen receptor beta (ERβeta)

345 DOCK5 acts as a key role in glucose metabolism and insulin sensitivity through mTORC1 signalling dependent mechanism
A. Zhao, L. Li, G. Yang, China

346 Zebrafish larvae as a model system for systematic image- and CRISPR-Cas9-based genetic screens in insulin resistance
M. Den Hoed, A. Emmanouilidou, P. Ranefall, M. Bandaru, A. Allalou, E. Ingelsson, Sweden, USA

347 Introgression of a C3H locus on chromosome 15 protects NZO mice from diabetes
D. Altenhofen, T. Schallschmidt, J. Khuong, S. Görgik, S. Lebek, A. Pelligra, T. Sterman, B. Knebel, A. Chad, A. Schürmann, J. Weiss, H. Al-Hasani, Germany

348 Induction of the 5'-ectonucleotidase CD73 by profibrotic TGF-beta signalling during diabetic nephropathy
C. Cappelli, A. Téllez, C. Jara, P. Mendoza, C. Oyarzú, R. San Martín, Chile

349 The effect of IncRNA SNHG12 on pancreatic islet function in IUGR mice
C. Dai, Y. Li, Y. Yuan, Q. Yuan, China
350 Diversity and short-chain fatty acid signatures of gut microbiome as prognostic marker for diabetes onset in the LEW.1AR1-iddm rat model of autoimmune diabetes

351 MANF knock-out hESC-derived beta cells show impaired function in humanised mice
J. Saarimäki-Vire, D. Balboa, H. Montaser, A. Näätänen, V. Lithovius, H. Grym, S. Eurola, J. Ustinov, T. Otonkoski, Finland

Poster Event D, Wednesday, 13:15 - 14:15

PS 010 Treatments for type 2 diabetes
Chair: L. Groop, Sweden

352 The rapidly evolving landscape of drug therapy in people living with type 2 diabetes in Scotland
T.M. Caparrotta, L.A. Blackbourn, S. McGurnaghan, P.M. McKeigue, H. Colhoun, SDRN Epidemiology, UK

353 Changes in HbA$_1c$ and treatment in the second year following initiation of second-line therapy in people with type 2 diabetes: the global DISCOVER study

354 Initiation of combination therapy in type 2 diabetes patients with high HbA$_1c$ at diagnosis
R. Klok, T. Gulati, S. Rajpathak, S. Pal, L. Yang, A. Bandyopadhyay, K. Khunti, USA, UK

355 The development of HbA$_1c$ level among individuals with type 2 diabetes in DIREVA registry
A. Käräjämäki, K. Lahti, C. Pähls, L. Groop, T. Tuomi, Finland, Sweden
356 Precision medicine in type 2 diabetes: harnessing individual-level trial data alongside routine care records to identify predictors of response to SGLT2 inhibitors and DPP4 inhibitors

357 Contributing factors associated with long-term variability of HbA1c in patients with type 2 diabetes: a real world analysis
D. Matsutani, Y. Tsujimoto, S. Minato, R. Ukichi, M. Nishikawa, M. Sakamoto, Japan

358 HbA1c progression and delay in time to insulin initiation in people with type 2 diabetes with different ethnicities: the diabetes care system cohort study
P.J. Elders, S. Bouchareb, G. Nijpels, F. Rutters, J.W. Beulens, A.A. Van der Heijden, Netherlands

359 Effects of treatment with metformin and/or sitagliptin on beta cell function and insulin resistance in prediabetic women with previous gestational diabetes

360 Eligibility for metabolic surgery in patients with type 2 diabetes: a two-centre descriptive study

361 TOTUM-63 differentially alters incretin and hormonal responses to glucose stimulation in high fat-fed mice
B. Morio, V. Chavanelle, M. Soumarmon, S. Peltier, P. Sirvent, France
Poster Event E, Thursday, 12:00 - 13:00

PS 011 Control, incidence and risk factors in type 1 diabetes

Chair: S. Gudbjörnsdottir, Sweden

362 Exploring the tracking of HbA$_{1c}$ in a nationwide population of people with type 1 diabetes in Scotland
A. Jeyam, R.J. McCrimmon, C. Mair, S.J. McGurnaghan, L.A. Blackbourn, P.M. McKeigue, H.M. Colhoun, on behalf of the SDRN Epidemiology Group, UK

363 Patterns of polypharmacy and advanced complications of type 1 diabetes in a contemporary Scottish national cohort

364 Incidence of adult-onset type 1 diabetes in Sweden between 2006 and 2015

365 Characteristics of people with type 1 diabetes in the UK: results of a 5-year cohort study using data from the Clinical Practice Research Datalink
P. Choudhary, E. Wilmot, M. Baxter, L. Leelarathna, M. Afonso, R. Shah Gupta, R. Pulikottil-Jacob, F.L. Zhou, UK, France, USA

366 Longitudinal patterns of resting heart rate in long-term type 1 diabetes

367 Pulse rate and cardiovascular disease in type 1 diabetes
R.G. Miller, T. Costacou, T.J. Orchard, USA

368 Long-term incidence of hospitalisation for ketoacidosis in adults with established type 1 diabetes: a prospective cohort study
V. Harjutsalo, M. Thomas, M. Feodoroff, C. Forsblom, D. Gordin, P.-H. Groop, Finland, Australia
369 Amount of gluten in early life and risk of type 1 diabetes

370 Extremely early appearance of type 1 diabetes-associated autoantibodies in genetically susceptible children
A. Kyrönniemi, P. Vähäsalo, J. Ilonen, J. Toppari, M. Knip, R. Veijola, Finland

Poster Event F, Thursday, 13:15 - 14:15
PS 012 You are what you do: environment, lifestyle and diabetes
Chair: P. Welsh, UK

371 The effect of alcohol consumption on glucose and lipid metabolism in type 2 diabetes: a systematic review and meta-analysis
Y. Chen, X. Zhu, L. Li, China

372 Dietary changes and their association with clinical risk factors after diabetes prevention intervention in primary health care
A. Pölönen, J. Lindström, H. Oksa, J. Jokelainen, FIN-D2D Study Group, Finland

373 Spatial accessibility of food retailers, dietary patterns and type 2 diabetes incidence

374 Neighbourhood walkability and gestational diabetes among women living in the greater Toronto area, 2002-2014

375 Cost-effectiveness of a peer-support lifestyle intervention for the prevention of type 2 diabetes in India: within-trial analysis of the Kerala Diabetes Prevention Program
376 Obesity and unfavourable lifestyle increase type 2 diabetes-risk independent of genetic predisposition

377 Body mass index trajectories before the onset of diabetes among people with prediabetes
H. Hu, Y. Kawasaki, K. Kuwahara, I. Kabe, T. Mizoue, S. Dohi, Japan

S. Carlsson, T. Andersson, M. Talbäck, M. Feychting, Sweden

379 The association of husband smoking with wives’ diabetes status: a cross-sectional study among over 10 million Chinese women aged 20-49
J. Jia, M. Zhang, Y. Yang, Q. Xu, L. Wang, T. Guo, Z. Peng, X. Ma, China

380 Resveratrol improves glucose homeostasis and serum lipids in type 2 diabetes: a systematic review and meta-analysis
X. Zhu, Y. Chen, L. Li, China

Poster Event A, Tuesday, 12:00 - 13:00

PS 013 Infections and pancreatitis in diabetes
Chair: K. Strojek, Poland

381 Pandemic influenza: vaccination, hospitalisation and mortality in people with and without type 2 diabetes

382 Trajectories of seasonal vaccination uptake in people with diabetes in France, 2006-2015
F. Galtier, S. Cortaredona, L. Fressard, P. Louergue, J. Raude, A. Sultan, A. Bocquier, P. Verger, France
383 **Bacterial infections as a risk factor for incident coronary heart disease in type 1 diabetes**
J. Simonsen, V. Harjutsalo, C. Forsblom, P.-H. Groop, A. Järvinen, M. Lehto, Finland

384 **Complement activation is impaired in patients with type 2 diabetes during bacterial infections**

385 **Higher periodontal inflammation in non-obese adults with type 1 diabetes and indirect measures of insulin resistance: a cross-sectional study**
A. Duda-Sobczak, D. Zozulsinska-Ziolkiewicz, M. Wyganowska-Swiatkowska, Poland

386 **Prediction model and risk engine web application for infection risk in preoperative patients with diabetes**
M. Koshizaka, R. Ishibashi, Y. Maeda, T. Ishikawa, Y. Maezawa, M. Takemoto, K. Yokote, Japan

387 **Prevalence of new onset diabetes secondary to acute pancreatitis: a systematic review and meta-analysis**
M. Zhi, X. Zhu, L. Li, China

388 **History of resolved childhood acute pancreatitis and the risk for incident diabetes in young adulthood**

**Poster Event B, Tuesday, 13:15 - 14:15**

**PS 014 Islets in the stream: transplantation for a better journey**
Chair: G. Leibowitz, Israel

389 **Early worsening of diabetic retinopathy after simultaneous pancreas and kidney transplantation?**

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390 Causes of partial pancreas function after transplant
D. Morris, P. Choudhary, M. Drage, R. Gare, UK

391 Prolonged culture of human beta cells increases endocrine purity and results in longer islet graft survival in patients with type 1 diabetes

392 Generation of prevascularised pseudo-islets as a new strategy to enhance the revascularisation of pseudo-islets

393 What causes cystic liver lesions after pancreatic islet transplantation?
A. Vojtíšková, A. Patikova, L. Kosinova, E. Sticova, F. Saudek, J. Kriz, Czech Republic

394 Changes in islet cellular composition following whole organ human pancreas transplantation
A. Clark, R. Dumbill, H. Laurenson-Schafer, J. Barnes, E.J. Sharples, S. Sweeney, P.J. Friend, UK

395 Assessment of intrahepatic islet of Langerhans grafts using $^{68}$Ga-exendin PET imaging
T.J. Jansen, M. Buitinga, M. Boss, E.J. De Koning, M.A. Engelse, M.F. Nijhoff, O. Korsgren, O. Eriksson, M. Brom, M. Gotthardt, Netherlands, Belgium, Sweden

396 Using individualised normal target range of glycaemia to determine treatment efficacy in mice
M.R. Kennard, A.L. Austin, J.E. Bowe, P.M. Jones, M. Nandi, A.J. King, UK
Poster Event C, Wednesday, 12:00 - 13:00

PS 015 You ain’t seen nothin’ yet with stem cells, the best is yet to come
Chair: R. Scharffmann, France

397 Placenta stromal cell therapy modulates regeneration of pancreas tissue in a diabetes rat model
T. Fogel, R. Gorodetsky, S. Weksler-Zangen, Israel

398 Engineering of NK activating receptor ligands enhances immune compatibility of MHC-I/- iPSC for cell therapy of type 1 diabetes
R. Chimienti, T. Baccega, F. Manenti, S. Torchio, S. Pellegrini, T. Pritchard-Meaker, V. Sordi, A. Lombardo, M. Malnati, L. Piemonti, Italy, UK

399 Insulin resistance induces pancreatic adaptation through beta cell neogenesis both in young and old mice
B. Blondeau, A. Liboz, E. Carotine, B. Fève, G. Guillemain, France

400 Beta cell replication in old islets is restricted to a subpopulation of immature cells responsive to extracellular signals
N. Tellez, C. Fernandez, S. Bonnin, E. Montanya, Spain

401 The conditioned medium of human immortalised pancreatic stromal cells: a favourable supportive microenvironment for human beta cell
O. Villard, Y.-H. Chiang, J. Sabatier, C. Broca, P. Cattan, A. Wojtusciszyn, M. Armanet, France

402 Quantification of mass and function of transplanted human stem cell derived beta cells with [18F]exendin-4 positron emission tomography

403 Probing the functional immaturity of human pluripotent stem cell derived beta cells
T. Barsby, D. Balboa, V. Lithovius, H. Ibrahim, A. Viheriäranta, L. Mäenpää, H. Grym, J. Ustinov, V. Chandra, J. Saarimäki-Vire, T. Otonkoski, Finland, Spain

404 Therapeutic potential of MANF in mouse model of type 1 diabetes
H. Li, T. Danilova, T. Otonkoski, M. Saarma, M. Lindahl, Finland
Poster Event D, Wednesday, 13:15 - 14:15

PS 016 Reaching to the stars for future type 1 diabetes treatment

Chair: S.J. Persaud, UK

405 Inhibiting nicotinamide phosphoribosyltransferase (NAMPT) to prevent cytokine-mediated beta cell dysfunction
D. Egbase, S. Sayers, E. Evans, S. Butterworth, J. Greally, G. Bewick, A. Tsakmaki, S. Persaud, P. Caton, UK

406 Orally delivered microparticles loaded with all-trans retinoic acid and transforming growth factor β rescue mice from type 1 diabetes development
I. Koprivica, D. Gajić, T. Saksida, E. Cavalli, D. Auci, N. Pejnović, S. Stošić-Grujičić, F. Nicoletti, I. Stojanović, Serbia, Italy, USA

407 Reduced short-chain fatty acids and impaired glucose homeostasis in an animal model of accelerated type 1 diabetes
C. Wessel, M. Blaut, M. Roden, V. Burkart, Germany

408 Pancreatic beta cell specific reduced Stat2 gene expression is responsible for serving susceptibility to virus-induced diabetes in DBA/2 mice
K. Mine, S. Nagafuchi, H. Mori, H. Takahashi, Y. Yoshikai, K. Anzai, Japan

409 Enterovirus as triggers of disease? New insights from auto-antibody positive and type 1 diabetic nPOD donors
P. Apaolaza Gallegos, D. Balcacean, J. Zapardiel-Gonzalo, S. Richardson, N. Morgan, P. Akhbari, M. von Herrath, I. Kusmartseva, A. Pugliese, T. Rodriguez-Calvo, the nPOD-Virus Group, Germany, UK, USA

410 Pancreatic ECM-based microencapsulation: a bioartificial pancreas platform
S. Krishtul, M. Machluf, Israel

411 Spatially separated immunomodulatory and cell adhesive surface coatings enhance beta cell survival in encapsulation devices
R.P. Tan, N. Hallahan, E. Kosobrodova, M.M. Bilek, P. Thorn, S.G. Wise, Australia
412 Utility of anti-tetraspanin 7 auto-antibodies in adults and children with type 1 diabetes: insights from the ADDRESS-2 study

Poster Event E, Thursday, 12:00 - 13:00

PS 017 Beta cells: be yourself and grow
Chair: T. Otonkoski, Finland

413 Mechanotransduction in human and mouse beta cell lines: reliable models to characterise novel signalling pathways controlling beta cell fate
A. Galli, E. Maffioli, A. Marku, F. Bertuzzi, C. Lenardi, G. Tedeschi, C. Perego, Italy

414 The long non-coding RNA PAX6-AS1 controls human beta cell identity
L. López Noriega, A. Martinez Sanchez, R. Callingham, E. Akalestou, M.-S. Nguyen-Tu, I. Leclerc, L. Cardenas, P.J. Gadue, P. Marchetti, T.J. Pullen, G.A. Rutter, UK, USA, Italy

415 Inhibition of calcineurin and activation of the dual leucine zipper kinase by reactive oxygen species contribute to the loss of beta cell mass

416 Serotonin regulates beta cell mass during perinatal period
H. Kim, J. Moon, Y. Kim, K. Kim, M.S. German, Korea, Republic of, USA

417 Inhibition of microRNA-33 and microRNA-503 maintains beta cell mass and promotes beta cell secretory function
B. Liu, I. Ruz-Maldonado, P. Atanes, S.J. Persaud, UK

418 Direct effects of the selective serotonin reuptake inhibitors, fluoxetine and sertraline, to improve beta cell mass and function in vitro and in vivo
K. Toczyska, I. Ruz-Maldonado, B. Liu, S.J. Persaud, UK

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419 TSC2, RAPTOR and glucokinase are key regulators of mTORC1 signalling and pancreatic beta cell survival under energetic stress

Poster Event F, Thursday, 13:15 - 14:15

PS 018 The ins and outs of ions in islets

Chair: M.A. Ravier, France

420 Stimulation of FFA1/GPR40 raises the intracellular Ca^{2+} concentration via activation of TrpM3 channels in beta cells
G. Kaiser, T. Ulven, P. Krippeit-Drews, H.-U. Häring, G. Drews, S. Ullrich, Germany, Denmark

421 Tetraspanin-7 regulation of Ca^{2+} handling and actin dynamics modulates islet hormone secretion
M.T. Dickerson, P.K. Dadi, R.B. Butterworth, D.A. Jacobson, USA

422 MICU2 and the critical role of mitochondrial calcium uptake in glucose-stimulated insulin secretion
A. Hamilton, N. Vishnu, D.G. Nicholls, H. Mulder, Sweden, USA

423 The role of KCNQ1 in regulation of insulin secretion involving beta cell repolarisation
N. Gu, P. Chen, C. Stanley, D.D. De Leon, C. Li, USA, China

424 Electrical coupling in primary or clonal islet cell spheroids
E. Puginier, K. Leal Fischer, J. Gaitan, E. Malyshev, B. Charlot, M. Raoux, J. Lang, France

425 Chronic fructose and extracellular ATP signalling induce intracellular fasting-like phenotype mediated by AMPK in the pancreatic beta cell
T. Brun, C. Bartley, L. Oberhauser, D. Duhamel, Y. Gosmain, D. Bosco, P. Maechler, Switzerland
426 Dual action of glimepiride on TRPM5 and $K_{ATP}$ channels stimulates glucose-induced insulin secretion while preventing hypoglycaemic events
K. Philippaert, P. Light, R. Vennekens, Belgium, Canada

427 Changes in K/Ca$^{2+}$ currents, Ca$^{2+}$ signals and secretion in pancreatic alpha and beta cells from aged mice
L. Almagro, S. Soriano, P. Alonso-Magdalena, Á. Nadal, E. Tudurí, I. Quesada, Spain

Poster Event A, Tuesday, 12:00 - 13:00

PS 019 GLPR and other GPCRs: juggling with acronyms
Chair: S. Barg, Sweden

428 Glucagon-like peptide-1 receptor imaging with [Lys$^{40}$ (Ahx-HYNIC-$^{99m}$Tc/EDDA)NH$_2$]-exendin-4 in localisation of insulinoma
A. Skvarca, K. Senica, A. Tomazic, A. Hubalewska-Dydejczyk, R. Mikolajczak, P. Kolenc Peitl, L. Lezaic, Slovenia, Poland

429 Fusion pore regulation by cAMP/Epac2 controls cargo release during insulin exocytosis

430 Intra-islet paracrine hormones dictate the effectiveness of GPCR agonists as insulin secretagogues: studies with GIP and GLP-1

431 Expression of FFA2 and FFA3 and their role in human, mouse and rat insulin secreting cells
E. Lorza Gil, G. Kaiser, E. Rexen Ulven, F. Gerst, H.-U. Häring, T. Ulven, S. Ullrich, Germany, Denmark

432 Opposite functions of beta-arrestin2 for the potentiation of insulin secretion by GLP-1 and GIP
M. Ravier, J. Obeid, S. Costes, M. Leduc, C. Broca, A. Wojtusciszyn, S. Dalle, G. Bertrand, France
433 The transcriptional activity of E2F1 is controlled through exendin-4 signalling in pancreatic beta cell
C. Bourouh, F. Oger, X. Gromada, M. Moreno, C. Carney, J. Kerr-Conte, F. Pattou, P. Froguel, J.-S. Annicotte, France

434 GPR56 is activated by a tethered agonist-derived peptide to improve beta cell function
O.E. Olaniru, P. Atanes, A.J. King, P.M. Jones, S.J. Persaud, UK

435 PPP1R1A, a novel target of MAFA, modulates GLP-1 amplification of glucose-stimulated insulin secretion

436 GLP-1R translocation to plasma membrane nanodomains and downstream signalling are modulated by agonist-dependent receptor palmitoylation

437 Insulin resistance-induced alterations in hepatocyte expression of mRNAs encoding GPCRs and GPCR peptide ligands
P. Atanes, L. Smith, J. Bowe, S.J. Persaud, UK

Poster Event B, Tuesday, 13:15 - 14:15

PS 020 Rise and fall of the beta cell
Chair: H. Mulder, Sweden

438 Identification of molecular signature genes for age-related pancreatic islet dysfunction
W. Jeon, K.-M. Lee, S. Chae, D. Hwang, Korea, Republic of

439 Beta cell prohormone convertase 1/3 deficiency causes hyperglycaemia in male mice
A.J. Taylor, Y.-C. Chen, C.B. Verchere, Canada

440 DMT1, a potential methyltransferase, role in insulin secretion and diabetes
G. Verma, J. Esguerra, L.R. Buscunan, M. Fex, H. Mulder, Sweden
441 Quantitative proteomics reveals novel interaction partners of Rac1 in pancreatic beta cells under normal and glucotoxic conditions
A. Kowluru, D. Damacharla, V. Thamilselvan, Z. Yi, USA

442 ATPase inhibitory factor 1 (IF1): a novel player in regulation of insulin secretion by pancreatic beta cells
A. Dlasková, A. Kahancová, P. Ježek, Czech Republic

443 MiR-200a/b/c regulates the expression of transcription factor ETV5 to reduce depolarisation-induced insulin secretion in pancreatic beta cells

444 Glucose-controlled miR-125b regulates beta cell function

445 Irisin improves the secretory defects of pancreatic islets from type 2 diabetic subjects
N. Marrano, A. Natalicchio, G. Biondi, L. Dipaola, A. Cignarelli, S. Perrini, L. Laviola, L. Vincenti, L.G. Lupo, F. Giorgino, Italy

446 Mechanisms of age-dependent amplification of insulin secretion
C. Henke, C. Chen, S.R. Bornstein, R. De Cabo, S. Speier, A.L. Birkenfeld, Germany, USA

447 Dimerisation of eNAMPT recovers insulin function in islets using the novel eNAMPT modulator MGS84

Poster Event C, Wednesday, 12:00 - 13:00

PS 021 Tales of the injured beta cell
Chair: M. Cnop, Belgium

448 Islet inflammation and beta cell dysfunction by fat and Fetuin-A
R. Kundu, India

156
449 Cholecystokinin-A-receptor signalling protects pancreatic beta cells against pro-inflammatory cytokine mediated cell death
H. Kim, J. Bartosiak, S.J. Sacotte, R. Williams, S.K. Schini, A.H. De Souza, D.B. Davis, USA

450 Pro-inflammatory cytokines and beta cells death: role of cytosolic ROS
E.A. Vilas Boas, L.P. Roma, F. Ortis, A.R. Carpinelli, Brazil, Germany

451 The transcription factor ZBED6 counteracts palmitate-induced mitochondrial activation and ROS production in beta cells by reducing IGF2 and PRC gene expression
J. Cen, X. Wang, S. Younis, Y. Wang, C. Krizhanovskii, L. Andersson, N. Welsh, Sweden

452 Metabolic dysregulation by cellular stress is implicated in the dedifferentiation and dysfunction of pancreatic beta cells
Y. Tanizawa, K. Tanabe, K. Amo-Shiinoki, Japan

453 Treatment of human-type diabetes by an autophagy enhancer expediting clearance of islet amyloid protein
M.-S. Lee, J. Kim, J.H. Kim, Korea, Republic of

454 Regulation of pancreatic beta cell autophagy by glucose metabolism
C. Arden, F.P. Zummo, K. Lanyi, J.A. Shaw, P.E. Lovat, UK

Poster Event D, Wednesday, 13:15 - 14:15

PS 022 Inflamed islets in type 1 diabetes
Chair: A. Lehuen, France

455 Identification and characterisation of the dose response of otelixizumab in new onset type 1 diabetes patients
456 Dendritic cells from paediatric patients with type 1 diabetes show altered phagocytosis capacity correlating with disease evolution
S. Rodriguez-Fernandez, M. Murillo, D. Perna-Barrull, A. Villalba, D. Maspoch, J. Bel, M. Vives-Pi, Spain

457 GLP1R signalling promotes allograft survival by skewing the effector/regulatory T cell balance
A. Seelam, A. Abdelsalam, E. Assi, E. Ippolito, M. Ben Nasr, C. Loretelli, F. D’Addio, A. Maestroni, S. Di Maggio, T. Letizia, G. Zuccotti, P. Fiorina, Italy, Egypt, USA

458 Distinct islet antigen-specific CD8+T cell responses among the three subtypes of type 1 diabetes

459 Follicular regulatory T cells are increased in the blood of subjects with multiple autoantibodies but reduced in the pancreatic lymph nodes of patients with type 1 diabetes
G. Fousteri, A. Vecchione, J. Gerosa, K. Shankwitz, A. Schultz, T. Jofra, A. Stabilini, F. Ragogna, A. Laurenzi, R. Bonfanti, A. Aiuti, M. Cicalese, T. Brusko, C. Petrovas, M. Battaglia, Italy, USA

460 Effect of P53 activation through targeting MDM2/MDM4 heterodimer on T regulatory and effector cells in the peripheral blood of type 1 diabetes patients
A. Fierabracci, M. Pellegrino, G. Traversi, M. Cappa, M.M. Rosado, F. Moretti, Italy

461 Circulating platelet-neutrophil aggregates represent a peripheral biomarker of type 1 diabetes development

462 PCR based immune phenotyping of inflamed islets isolated from formalin fixed sections from patients with type 1 diabetes
F. Torabi, P. Leete, M. Tombs, S.J. Richardson, N.G. Morgan, M.R. Christie, UK
Poster Event E, Thursday, 12:00 - 13:00

PS 023 The downfall of beta cells

Chair: J. Philippe, Switzerland

463 EIF2A protects beta cells from ER stress by decreasing ERN1, while increasing EIF5B and global protein translation

464 Fetuin-A inhibits functional maturation of insulin secreting beta cells

465 Effects of obesity and diabetes on pancreatic endocrine cell mass and the relative change in humans
Y. Watanabe, Y. Saisho, J. Inaishi, R. Murakami, T. Tsuchiya, H. Sasaki, M. Makio, M. Kitago, Y. Kitagawa, T. Yamada, H. Itoh, Japan

466 Circadian clock nuclear receptor REV-ERBα is a novel regulator of beta cell function, survival and autophagy under diabetogenic conditions
S. Costes, D. Laouteouet, M.A. Ravier, M. Delobel, G. Bertrand, S. Dalle, A.V. Matveyenko, France, USA

467 Verification of pancreatic beta cell injury detection method using serum cfDNA
M.Y. Yamada, A. Kuroda, Y. Tominaga, M. Matsuhisa, Japan

468 Screening and identification of key genes for activation of islet stellate cell
X. Wang, W. Li, J. Chen, Y. Chen, Z. Sun, China

469 Atp6ap2 deletion causes extensive vacuolation that consumes the insulin content of pancreatic beta cells
K.J. Binger, M. Neukam, S. Gopal Tattikota, F. Qadri, D. Puchkov, M. Poy, M. Solimena, D.N. Muller, A. Birkenfeld, Australia, Germany, USA
470 Aldolase B is a marker of functional immaturity of type 2 diabetic beta cells

Poster Event F, Thursday, 13:15 - 14:15

PS 024 The endocrine role of the gut: incretins and other hormones
Chair: A. Giaccari, Italy

471 The natural GIP receptor mutation E345Q displays enhanced signalling and internaliation mimicking GIP receptor desensitisation
M.B. Gabe, Denmark

472 Gut-derived glucagon in man

473 Acetyl-CoA-Carboxylase 1 (ACC1) plays a critical role in glucagon and GLP1 secretion and controls whole body glucose homeostasis
A. Veprik, R. Bany Bakar, L. Vetterli, R. Ramracheya, P. Rorsman, F. Gribble, F. Reimann, H. De-Wet, J. Cantley, UK

474 Rising GLP-1 concentrations after parathyroidectomy in patients with asymptomatic primary hyperparathyroidism and normal glucose homeostasis

475 Acute injection of the GLP-1 analogue Exendin-4 in the olfactory bulb improves glucose tolerance in diet-induced obese mice
M. Montaner, J. Denom, N. Emery-Fillon, C. Magnan, H. Gurden, S. Migrenne-Li, France

476 Pancreatic and gut hormone responses to mixed meal test in type 3c diabetes after chronic pancreatitis
L. Qi, L. Li, S. Pandol, China, USA
477 The short-term high-fat diet induces fat-responsive gastric inhibitory polypeptide hypersecretion in the murine enteroendocrine K-cells
K. Suzuki, Y. Murata, N. Harada, N. Inagaki, Japan

478 Prolonged beta-2 adrenoceptor agonist treatment abolishes liver steatosis and improves glucose homeostasis in insulin resistant mice

479 Modulation of dopaminergic signalling with Bromocriptine improves glucose and lipid metabolism in an obese type 2 diabetic animal model

Poster Event A, Tuesday, 12:00 - 13:00

PS 025 Changing insulin sensitivity: a stairway to heaven?
Chair: C. Dibner, Switzerland

480 Hepatic saturated fatty acid fraction is associated with de novo lipogenesis and hepatic insulin sensitivity

481 Comparison of SGLT inhibitors in an animal model of metabolic syndrome: effect on metabolic parameters and insulin sensitivity

482 Impact of second generation antipsychotics on insulin sensitivity and mitochondrial bioenergetics after acute treatment in rats
G. Di Nunzio, R. Santamaria, A.C. Fonseca, M. Petkovic, D.F. Santos, A. Piscosquito, E. Carvalho, J.G. Jones, Portugal, USA
483 Overnight insulin sensitivity and insulin secretion signatures in individuals with type 2 diabetes
C. Fabris, A. Basu, R. Basu, USA

484 Chronic GIPR agonism results in weight independent insulin sensitisation
R.J. Samms, M. Christe, T. Coskun, W. Roell, USA

485 Novel insulin sensitising drug candidates inhibit SHIP2 activity in kidney and skeletal muscle

486 Insulin sensitivity is a predictor for major vascular events in type 1 diabetes: a single-centre 10-year follow-up study
M. Garofolo, E. Gualdani, R. Giannarelli, M. Aragona, P. Falcetta, D. Lucchesi, G. Daniele, R. Miccoli, P. Francesconi, S. Del Prato, G. Penno, Italy

487 Impaired beta cell function is associated with decreased insulin-mediated suppression of glucagon in obese Hispanic Americans
X. Chen, A. Merovci, R. DeFronzo, D. Tripathy, USA

488 Acute effects of melatonin on glucose metabolism

Poster Event B, Tuesday, 13:15 - 14:15

PS 026 Causes and consequences of insulin resistance
Chair: A. Langlois, France

489 Study of the efficacy of vitamin D supplement on glycaemic control and insulin resistance parameters in prediabetes and type 2 diabetes
M. Abushady, M. El Gayar, M. Shukry, Y.M. Eid, Egypt

490 Determinants and prognostic role of insulin resistance based on HOMA-IR in the population
491 FGF-21 is a reliable marker of insulin resistance before the occurrence of glucose intolerance
A. Sawah, M. Shikh Hamdon, Z. Msallaty, F. Berhane, W. Al-Janabi, Z. Yi, B. Seyoum, USA

492 Jejunal microbiota in morbidly obese patients and its association with insulin resistance and metformin
C. Gutierrez Repiso, I. Moreno-Indias, G. Martín-Núñez, S. García-Serrano, S. Valdés, M. Gonzalo, A. Rodríguez-Cañete, F. Moreno-Ruiz, E. García-Fuentes, F. Tinahones, Spain

493 Circulating fetuin B is associated with insulin resistance in polycystic ovary syndrome women and is regulated by liraglutide treatment
K. Li, L. Li, G. Yang, China

494 Protein tyrosine phosphatase deficiency in mice protects against insulin resistance induced by treatment with olanzapine
V. Ferreira, P. Rada, D. Grajales, I. García-Martínez, Á. Valverde, Spain

495 Collagen 24 alpha1 is a new extracellular marker of insulin resistance
X. Weng, D. Lin, C.K. Hennayake, L. Kang, UK

496 Investigation of glucose metabolism and insulin resistance in patients with primary hyperparathyroidism before and after parathyroidectomy: a pilot study

497 Fibronectin-integrin α5β1 interaction contributes to high-fat diet induced insulin resistance in mice
A. Hasib, C.K. Hennayake, A.R. Bugler-Lamb, L. Kang, UK

498 The inhibition of skeletal muscle xanthine oxidoreductase (XOR) improves skeletal muscle insulin resistance in male Wistar rats
H. Satoh, C. Moriya, S. Kakehi, H. Watada, Japan
Poster Event C, Wednesday, 12:00 - 13:00

PS 027 Insulin secretion and beta cell function

Chair: K. Bouzakri, France

499 Study of evolution of type 2 diabetes timeline and type 2 diabetes clinical phenotypes using insulin response morphology during OGTT
S.N. Shinde, R.S. Shinde, A.S. Joshi, India

500 Redox signalling is essential for efficient insulin secretion from beta cells upon glucose induction
B. Holendova, J. Tauber, P. Jezek, L. Plecita-Hlavata, Czech Republic

501 Effects of long-term treatment of female mice with olanzapine-supplemented diet on beta cell function
D. Grajales, P. Vázquez, V. Ferreira, B. Tiros, G. Leibowitz, Á.M. Valverde, Spain, Israel

502 Role of proglucagon family hormones in augmentation of first phase insulin secretion after gastric bypass and sleeve gastrectomy

503 Loss of carboxypeptidase E in pancreatic beta cells does not accelerate the development of obesity-induced glucose intolerance in mice
Y.-C. Chen, A.J. Taylor, K. Fok, C.B. Verchere, Canada

504 The impact of lifestyle on adipose tissue inflammation and pancreatic beta cell plasticity
P. Gama-Perez, A. Gonzalez-Franquesa, N. Dahdah, R. Fernandez-Ruiz, M. Kulis, L. Herrero, J.I. Martin-Subero, P.M. Garcia-Roves, Spain, Denmark

505 Disrupted diurnal regulation of glucose homeostasis following massive beta cell ablation
V. Petrenko, M. Stolovich-Rain, B. Vandereycken, Y. Dor, C. Dibner, Switzerland, Israel

506 Bisphenol-A consumption impairs endocrine pancreas proliferation in menopausal female mice that fed on a high-fat diet
507 C-peptide decline is individual and age-dependent even years after the diagnosis of type 1 diabetes

Poster Event D, Wednesday, 13:15 - 14:15

PS 028 Incretins regulating incretins
Chair: P. Maechler, Switzerland

508 Persistent antidiabetic benefits following treatment with a GIP/xenin hybrid in combination with exendin-4 in high fat fed mice
N. Irwin, S.L. Craig, R.A. Perry, S.S. Vyavahare, M.T. Ng, P.R. Flatt, V.A. Gault, UK

509 Relationships between GIP and GLP-1 secretion in people with normal or impaired glucose tolerance
J.A. Marathe, H. Pham, L. Trahair, L.Q. Huynh, T. Wu, C.K. Rayner, M.A. Nauck, M. Horowitz, K.L. Jones, C.S. Marathe, Australia, Germany

510 Weight loss one year after bariatric surgery is more strongly associated with increases in the postprandial response of glicentin rather than GLP-1
A. Kokkinos, N. Perakakis, N. Peradze, N. Tentolouris, W. Ghaly, E. Pilitsi, J. Upadhyay, A. Alexandrou, N. Katsilambros, C.S. Mantzoros, Greece, USA

511 Up-regulation of expressions of PYY, GLP-1, and NTS by intermittent hypoxia in enteroendocrine cells

512 Distinct mechanism for the elevation of plasma glucose-dependent insulino-tropic polypeptide by high-fat-diet and by leptin-deficiency
E. Lee, X. Zhang, J. Miyamoto, I. Kimura, R. Hatano, T. Miki, Japan

513 Elucidating the interactions between the microbiome, intestinal immunity and circadian secretion of glucagon-like peptide-1
S.E. Wheeler, A. Martchenko, D. Prescott, P.L. Brubaker, Canada
Deficiency of glucose-dependent insulinotropic polypeptide (GIP) secretion alleviates increasing obesity and insulin resistance with aging
Y. Kanemaru, N. Harada, S.S. Kuwahara, S. Yamane, E. Ikeguchi, Y. Murata, S. Kyo, N. Inagaki, Japan

Effects of medium-chain triglyceride (MCT) on long-chain triglyceride (LCT)-induced GIP secretion and body weight gain

Differential changes in glucagon and GLP-1 after partial pancreatoduodenectomy might represent an attempt to increase the incretin effect in insulin-resistant subjects
T. Mezza, G. Sorice, S. Moffa, C.M. Cefalo, F. Cinti, A. Mari, J.J. Holst, A. Giacca, Italy, Denmark

Poster Event E, Thursday, 12:00 - 13:00

PS 029 Modulation of islet hormones
Chair: E.C. Leal, Portugal

Glucose controls glucagon secretion with minor changes in alpha cell [Ca^{2+}]_c whereas sulfonylureas control glucagon secretion by increasing alpha cell [Ca^{2+}]_c and via somatostatin
B. Singh, F. Khattab, P. Gilon, Belgium

Glucagon-like peptide 2 is produced from isolated human islets
W. He, O. Rebello, K. Maedler, Germany

Paracrine regulation of somatostatin secretion in pancreatic islets
B. Svendsen, J.J. Holst, Denmark

The glucagonotropic effect of sulfonylureas
E.-H. Früh, C. Elgert, K. Grupe, M. Asuaje-Pfeifer, I. Rustenbeck, Germany

Glucagon secretion is mediated by Stathmin-2 through the endosomal pathway
F. Asadi, S. Dhanvantari, Canada
522 Mild physiologic hyperglycaemia impairs insulin-mediated suppression of plasma glucagon in healthy normal glucose tolerant subjects
D. Tripathy, A. Merovci, X. Chen, R. DeFronzo, USA

523 Pancreatic alpha-IDE ablation leads to hyperglucagonaemia and impaired glucagon secretion
B. Merino, C.M. Fernández-Díaz, K.H. Kaestner, M.A. Leissring, G. Perdomo, I. Cózar-Castellano, Spain, USA

524 A population-based model of glucagon kinetics to enable measurement of glucagon secretion by deconvolution
M.C. Laurenti, C. Dalla Man, J.D. Adams, A. Egan, C. Cobelli, A. Vella, USA, Italy

Poster Event F, Thursday, 13:15 - 14:15

PS 030 How to optimise exercise
Chair: C. Weigert, Germany

525 The role of endogenous and exogenous testosterone (T) therapy in regulating resistance exercise-induced modulation of glycaemic control in young and older men, respectively

526 Flexible insulin therapy: untethered insulin regimen using insulin degludec and continuous subcutaneous insulin infusion in exercising adults with type 1 diabetes: FIT untethered
R. Aronson, A. Li, R.E. Brown, S. Mcgaugh, L. Yavelberg, M.C. Riddell, Canada

527 Glycaemic impact of pre- and post exercise insulin aspart adjustments in individuals with type 1 diabetes treated with insulin degludec: a cross over randomised trial
528 Resistance exercise training improves glucose tolerance and beta cell function in C57BL/6 mice

529 Lower cardiorespiratory response to HIIT exercise programme in type 1 diabetes sedentary individuals
S. Murillo, L. Brugnara, L. Alvarado, A. Novials, Spain

530 Reproducibility of glucose trajectories during fixed exercise in type 1 diabetes
P.L. Kristensen, G.T. Notkin, S. Mølsted, U. Pedersen-Bjergaard, Denmark

531 Type 2 diabetes remission one year after an intensive lifestyle intervention: a secondary analysis of a randomised controlled trial
M. Ried-Larsen, M. Yun Johansen, C. MacDonald, K. Hansen, R. Christensen, A.-S. Wedell-Neergaard, N. Pilmark, H. Langberg, A. Vaag, B. Pedersen, K. Karstoft, Denmark, Sweden

532 The effects of growth hormone and anabolic androgenic steroids on carbohydrate metabolism in men involved in recreational activity
M.P. Lykhonosov, A.Y. Babenko, V.A. Makarin, Y.N. Fedotov, Russian Federation

Poster Event A, Tuesday, 12:00 - 13:00

PS 031 Sugar on the run
Chair: P.R. Flatt, UK

533 The effect of diabetes-associated genetic variation in TCF7L2 on postprandial glucose metabolism independent of islet cell secretion
A.M. Egan, J.D. Adams, C. Cobelli, C. Dalla Man, A. Vella, USA, Italy

534 Reduced insulin clearance relates to increased liver fat content in recent-onset type 2 diabetes and to impaired glucose control in recent-onset type 1 diabetes
535 Inhibition on macrophage inflammatory protein 1b retards the progression of hyperglycaemia in experimental diabetes
T.-T. Chang, L.-Y. Lin, J.-W. Chen, Taiwan

536 When there is no haemolysis, plasma C-peptide levels are stable up to 5 days at 4°C
A. Niwaha, W. Nakanga, J.-C. Katte, B. Shields, A. Jones, M. Nyirenda, T. McDonald, UK, Uganda

537 Factors that influence estimated renal threshold for glucose in subjects with newly diagnosed diabetes, pre-diabetes and normal glucose tolerance
J. Chen, Z. Sun, China

538 Direct effects of glucagon on human adipocytes
M.J. Pereira, K. Thombare, P.G. Kamble, A. Sarsenbayeva, P. Lundkvist, K.E. Almby, J.W. Eriksson, Sweden

539 Sex dimorphic role of estrogen receptor α in physiological regulation of hepatic metabolism

540 Sodium nitrate attenuates high fat diet-induced glucose intolerance and skeletal muscle mitochondrial ADP insensitivity
H. Brunetta, H. Petrick, K. Dennis, V. Politis-Barber, A. Kirsh, P.-A. Barbeau, E. Nunes, G. Holloway, Brazil, Canada

541 Antidiabetic and glucose lowering effects of [S4K] substituted analogue of CPF-AM1 peptide from Xenopus amieti in db/db mice
Y.H. Abdel Wahab, V. Musale, C.R. Moffett, P.R. Flatt, UK

Poster Event B, Tuesday, 13:15 - 14:15

PS 032 A mixed bag of metabolism
Chair: C. Schalkwijk, Netherlands

542 Methylglyoxal activates p53 in human endothelial cells but not in renal tissue of diabetic BTBR\textsuperscript{Ob/Ob} mice
X. Zhang, A. Rodriguez, J. Qiu, H.-P. Hammes, B. Krämer, B. Yard, Germany
543 Differences in HbA_1c and glucose 3-year trajectories in recently diagnosed type 2 diabetic patients: an IMI-DIRECT study
A. Mari, C. Jennison, A. Jones, E.R. Pearson, R. Bizzotto, for the IMI-DIRECT Consortium, Italy, UK

544 ChREBP is a mediator of dexamethasone-induced intestinal Glut5 expression
A.-R. Oh, J. Kim, J. Lee, Y.-S. Kang, H.-J. Lee, J.-Y. Cha, Korea, Republic of

545 Contribution of the liver in hyperammonaemia caused by HI/HA gain of function mutation of glutamate dehydrogenase
K. Luczkowska, P. Maechler, Switzerland

546 Fructose contributes more than glucose to hepatic de novo synthesis of saturated fatty acids and oleate
J. Jones, J. Silva, F. Martins, I. Viegas, C. Marques, M. Macedo, Portugal

547 Glucose uptake and its metabolism in microvascular endothelial cells
S. Yazdanikivi, A. Klip, Canada

548 Metabolic activity of valvular interstitial cells under diabetic conditions
J.I. Selig, D.M. Ouwens, A. Lichtenberg, P. Akhyari, M. Barth, Germany

549 DNAJB3/HSP-40 cochaperone as a novel target of α-lipoic acid: significance for metabolic stress and insulin signalling
A. Diane, N. Mahmoud, I. Bensmail, N. Khattab, M. Dehbi, Qatar

550 Pentose pathway oxidation of glucose is a significant source of NADPH for de novo lipogenesis as evidenced by extensive transfer of glucose hydrogens into fatty acid position 3
Poster Event C, Wednesday, 12:00 - 13:00

PS 033 The many roles of other hormones

Chair: K. Maedler, Germany

551 Lack of melatonin type 1A receptor results in dysregulated whole-body metabolism characterised by hyperglucagonaemia, glucose intolerance and enhanced insulin secretion

552 Hormonal factors and type 2 diabetes risk in women: a 22 year follow-up study on more than 83,000 women from the E3N cohort study
S. Tatulashvili, G. Gusto, B. Balkau, E. Cosson, F. Bonnet, H. Bihan, G. Fagherazzi, France

553 Comparison of the metabolic benefits of chronic apelin-13 peptide analogue administration versus incretin mimetics in diabetic db/db mice
F.P. O'Harte, V. Parthsarathy, P.R. Flatt, UK

554 Serum MR-proADM and leptin predict cardiovascular disease in middle-aged patients with type 2 diabetes
C. Vavruch, S. Chisalita, C.J. Östgren, F.H. Nystrom, Sweden

555 11beta-HSD type 1 inhibitor ameliorates glucose impairment associated with hypercortisolaemia: an investigator-initiated phase I/IIa clinical trial

556 Gender differences in the effect of ghrelin on pancreatic islet survival
N.V. Hewawasam, A.L. Austin, A. King, M. Patterson, S. Reeves, A.C. Hauge-Evans, UK

557 The efficacy of GIP(3-30)NH₂ as a GIP receptor antagonist in humans
L.S. Gasbjerg, E.J. Bari, S. Stensen, B. Hoe, A.R. Lanng, D.S. Mathiesen, M.B. Christensen, B. Hartmann, J.J. Holst, M.M. Rosenkilde, F.K. Knop, Denmark
558 The role of peripheral serotonin in obese and diabetic Wistar rats studied by using of LP533401
I. Bogomilov, V. Mihneva, R. Nikolov, N. Boyadjieva, Bulgaria

559 Sclerostin resistance improves glucose metabolism and protects bone mass in a mouse model of type 1 diabetes
G. Leanza, F. Fontana, Y. Alippe, S.-Y. Lee, R. Strollo, P. Pozzilli, M. Remedi, R. Civitelli, N. Napoli, Italy, USA

560 Endogenous glucose-dependent insulinotropic polypeptide exerts diverging and tissue specific in obese patients with type 2 diabetes

Poster Event D, Wednesday, 13:15 - 14:15

PS 034 Surgery: What we need to learn
Chair: M. Gotthardt, Netherlands

561 Individual effects of gastric bypass surgery on longitudinal blood protein profiles: an IMI DIRECT study

562 Metabolic outcomes in obese type 2 diabetes patients after bariatric embolisation of the left gastric artery
Z. Ramazanova, M. Darsigova, E. Pashkova, A. Ametov, Russian Federation

563 Pituitary GLP-1 receptor expression in the pathology of type 2 diabetes and metabolic syndrome in patients undergoing bariatric surgery
M. Boss, L. Deden, M. Brom, F. Berends, S. Van Lith, E. Hazebroek, M. Gotthardt, Netherlands

564 Changes in parathyroid sensitivity after bariatric surgery in patients with type 2 diabetes: role of magnesium
565 Lowered serum FGF21 level with restored FGF21 signalling in liver and white adipose tissue contributes to the improved lipid metabolism after bariatric surgeries
Q. Liu, M. Wei, X. Huang, Y. Cheng, Y. Shao, S. Wang, M. Zhong, S. Liu, G. Zhang, S. Hu, China

566 Glucose absorption via SGLT1 is important for incretin hormone secretion after gastric bypass surgery
C. Martinussen, S. Veedfald, C. Dirksen, K.N. Bojsen-Møller, M.S. Svane, G.V. Hall, V.B. Kristiansen, J.J. Holst, S. Madsbad, Denmark

567 Early effects of RYGB on hormone regulation and autonomic nerve activity in patients with obesity and type 2 diabetes

568 Optimal model of insulin therapy in patients after pancreatectomy: open, prospective, randomised, intervention study: characteristics of the study group
J. Jurczynska, W. Korcz, S. Hammoud, W. Pawłowski, M. Słodkowski, L. Czupryniak, Poland

569 The colon is a source of extra-pancreatic glucagon: demonstration in a mouse model of pancreatectomy
M. Le Gall, A.-C. Jarry, J. Le Beyec, A. Mevel, J.-P. Riveline, J.-F. Gautier, A. Bado, B. Blondeau, G. Guillemain, France

Poster Event E, Thursday, 12:00 - 13:00

PS 035 The obesity battle
Chair: I. Dahlman, Sweden

570 The impact of bariatric surgery on incident cardiovascular disease and mortality in patients with and without type 2 diabetes in the UK: matched controlled cohort study
P. Singh, A. Subramanian, R. Singhal, S. Bellary, K. Nirantharakumar, A. Tahrani, UK
571 Pre-operative circulating succinate levels as a biomarker for diabetes remission after bariatric surgery
V. Ceperuelo-Mallafré, G. Llauradó, N. Keiran, E. Benaiges, B. Astiarraga, L. Martínez, S. Pellitero, J. González-Clemente, A. Megía, N. Vilarrasa, J. Vendrell, S. Fernández-Veleido, Spain

572 Influence of CGM-derived variables on DJBL anthropometric and metabolic outcomes
A. Colás, M. Varela, M. Mraz, D. Novak, D. Cuesta-Frau, L. Vigil, M. Haluzik, B. Vargas, Spain, Czech Republic

573 Regulation of insulin clearance is altered after Roux-en-Y gastric bypass and sleeve gastrectomy
H. Honka, R.A. DeFronzo, A. Gastadelli, M. Salehi, USA, Italy

574 Altered intestinal sensing and handling of dietary lipids after Roux-en-Y gastric bypass

575 Effect of liraglutide 3.0 mg on glycaemic parameters in adults with overweight/obesity and type 2 diabetes treated with basal insulin: SCALE insulin trial
D. Dicker, A.L. Birkenfeld, T. Garvey, G. Mingrone, S.D. Pedersen, A. Satylganova, D. Skovgaard, D. Sugimoto, N. Zeuthen, O. Mosenzon, Israel, Germany, USA, Italy, Canada, Denmark

576 Efficacy and safety of liraglutide 3.0 mg in individuals with overweight or obesity and type 2 diabetes treated with basal insulin: the SCALE Insulin trial

577 Wrist circumference is a biomarker of adipose tissue inflammation and cardiovascular risk in non-diabetic obese children
C. Luordi, E. Maddaloni, C. Bizzarri, S. Pedicelli, S. Zampetti, L. D’Onofrio, C. Moretti, M. Cappa, R. Buzzetti, Italy
Poster Event F, Thursday, 13:15 - 14:15

PS 036 Diabetic complications of the mind

Chair: J.W. Eriksson, Sweden

578 Glimepiride attenuates diabetes-induced tau hyperphosphorylation in vivo and in vitro by up-regulating OGT-involved O-GlcNAcylation
R. Huang, S. Tian, H. Zhang, S. Wang, China

579 Glucagon-like peptide-1 alleviated carboxymethyl lysine induced neuronal apoptosis via peroxisome proliferation activated receptor-γ
H. Zhang, B. Song, R. Huang, S. Tian, S. Wang, China

580 Effects of the bile acid TUDCA on glucose metabolism of mice with Alzheimer’s disease

581 The interplay between glucometabolic markers, incretins, AGEs and cognition in an elderly population
E. Dybjer, G. Engström, K. Nägga, C. Helmer, P.M. Nilsson, Sweden, France

582 Glycine ameliorates cognitive impairment by attenuating oxidative stress in STZ-induced diabetic rats
Z. Wang, J. Zhang, L. Liu, L. Chen, J. Li, X. Guo, China

583 Effects of linagliptin (LINA) versus glimepiride (GLIM) on cognitive performance in type 2 diabetes: the CAROLINA COGNITION study

584 Insulin sensitivity predicts cognitive decline in prediabetes
585 Effects of INS1-E hIAPP-derived exosomes on hippocampal cells: amylin’s toxicity as a link between type 2 diabetes and Alzheimer’s disease

586 Dementia incidence from combinations of diabetes, hypertension, dyslipidaemia and body mass index: Japan Gerontological Evaluation Study
H. Yokomichi, K. Kondo, Y. Nagamine, Z. Yamagata, M. Mochizuki, N. Kondo, Japan

587 Gamma-glutamyl transferase variability and the risk of dementia in diabetes: a nationwide population-based cohort study
S.-H. Hong, K. Han, S. Park, S. Kim, N. Kim, K. Choi, S. Baik, Y. Park, H. Yoo, Korea, Republic of

Poster Event A, Tuesday, 12:00 - 13:00
PS 037 Diet, bugs and drugs
Chair: M. Stumvoll, Germany

588 Consumption of fermented dairy products modulates gut microbiota and reduces cardiometabolic risk factors in diet-induced obese mice

589 Changes in intestinal microbiota effect islet function via controlling inflammation in a mice model of vitamin A deficiency
Y. Zhou, Z. Sun, Y. Zhang, Y. Chen, X. Wang, China

590 Composition and function of gut microbiome in a murine model of metabolic syndrome associated to catch-up growth
591 Obesity associated subclinical inflammation is reflected in the blood bacterial signature
R. Chakaroun, L. Scheffler, M. Blüher, M. Stumvoll, A. Crane, A. Dietrich, P. Kovacs, Germany

592 Gut microbiota during obesity is sufficient to impair insulin clearance in mice
J.D. Schertzer, K.P. Foley, S. Zlitni, B. Duggan, N. Barra, F. Anhê, J. Cavallari, B. Henriksbo, T. Lau, Y. Chen, T. Wu, M. Huang, Canada, USA

593 Rhyolite alleviates systemic inflammation and insulin resistance concomitant with the modulation of gut microbiota in high-fat diet induced obese mice
H. Mifune, Y. Sakai, Y. Tajiri, Japan

594 Oligofructose alters small intestinal microbiota to improve intestinal nutrient-sensing mechanisms
F.A. Duca, E.T. Beauchemin, S.N. Weninger, A.I. Lane, G.J. Caporaso, USA

595 Liraglutide shows better weight-loss and cardiometabolic benefits than lorcaserin and pioglitazone in a novel diet-induced obese rat model
F. Briand, E. Brousseau, C. Dubroca, J. Maupoint, C. Costard, T. Sulpice, France

596 Dulaglutide in type 2 diabetic elderly patients: a real world study
M. Occhipinti, A. Turco, F. Baccetti, S. Cosimi, I. Cuccuru, E. Lacaria, C. Lencioni, P. Orsini, S. Bertoli, A. Di Carlo, G. Gregori, G. Di Cianni, Italy

597 Pro-autophagy, anti-aging effects of metformin in patients with prediabetes
M.R. Burge, K. Aldrete, Y. Gu, L. VanDyke, Y. Zhu, M. Myla, M. Mudd, V. Deretic, USA

Poster Event B, Tuesday, 13:15 - 14:15

PS 038 Hungry like the wolf: What’s in it for the brain?
Chair: J.P.H. Wilding, UK

598 Associations of BACE1 C786G gene polymorphism and plasma BACE1 level with cognitive functions in type 2 diabetic patients
S. Tian, R. Huang, D. Guo, H. Lin, J. Wang, K. An, S. Wang, China
599 Insomnia increases risk of future development of cognitive impairments in patients with type 2 diabetes: a prospective study
C. O, B.W. Siu, C. Ding, A.O. Luk, E.Y. Chow, R.C. Ma, J.C. Chan, A.P. Kong, Hong Kong

600 Role of LRP in regulating leptin transport in the choroid plexus
Y.-B. Kim, J. Seo, M.-C. Kang, N. Mendes, T. Araujo, W.-M. Yang, USA

601 Hypothalamic JAZF1 control of hepatic glucose metabolism through PI3K-Akt and AMPK pathway
X. Xu, L. Li, G. Yang, China

602 Vagus nerve activation attenuates hyperglycaemia induced barrier dysfunction in mouse gut and brain by antioxidative stress and antiapoptosis reactions
C. Feng, L. Xu, W. Wu, Y. Jiang, X. Xu, X. Zhu, China

603 Alx3 expressed in the hypothalamic arcuate nucleus regulates food intake and body composition
M. Mirasierra, A. Fernández-Pérez, M. Vallejo, Spain

604 KBP-088 improves food preference in high fat diet fed rats
N. Sonne, A.T. Larsen, M.A. Karsdal, K. Henriksen, Denmark

605 Lemborexant, a novel orexin receptor antagonist for insomnia, improves glucose metabolism in type 2 diabetic mice
H. Tsuneki, K. Sato, K. Kon, T. Wada, T. Sasaoka, Japan

606 Insulin modulates dopaminergic tone in the human brain: a combined PET/MRI study
S. Kullmann, D. Blum, A. Jaghutriz, B. Bender, H.-U. Häring, C. La Fougère, H. Preissl, A. Fritsche, M. Reimold, M. Heni, Germany

607 Neuroprotective effects of HM15211, a novel long-acting GLP-1/GIP/Glucagon triple agonist in the neurodegenerative disease models
W. Kim, J. Kim, S.-H. Lee, S. Bae, I. Choi, Y. Kim, Korea, Republic of
Poster Event C, Wednesday, 12:00 - 13:00

PS 039 Metabolic adaptations and outcomes

Chair: P. Marchetti, Italy

608 Incidence and risk as well as protective factors regarding diabetic ketosis in people with type 1 diabetes: a secondary analysis of the PRIMAS and INPUT studies
B. Kulzer, D. Ehrmann, C. Albrecht, T. Haak, N. Hermanns, Germany

609 Healthspan expansion in old mice by an AAV-mediated FGF21 gene therapy

610 Apolipoprotein CIII silencing: a novel strategy to combat metabolic disorders
P. Recio-López, P.-O. Berggren, L. Juntti-Berggren, I. Valladolid-Acebes, Sweden

611 The alternative complement pathway is associated with an adverse lipid profile: the CODAM study

612 Effect of central SFRP5 on hepatic glucose fluxes and VLDL-triglyceride secretion
H. Shen, L. Li, China

613 Sustainable remission of type 2 diabetes requires maintenance of low level of intrapancreatic fat and is dependent on decreased hepatic VLDL-TG export

614 Characterisation of the gene expression of pancreatic preadipocytes and adipocytes from patients with different metabolic status
615 Serine palmitoyl transferase 2 deficiency in mice hepatocytes improves glucose tolerance and protect against obesity
J. Lallement, E. Foppen, F. Lachkar, N. Kassis, H. Le Stunff, C. Magnan, C. Cruciani-Guglielmacci, France

616 Pancreatic steatosis in non-diabetic and type 2 diabetic subjects and relationships with islet morphometry
M. Suleiman, C. De Luca, P. De Simone, U. Boggi, F. Grano, M. Bugliani, D. Campani, P. Marchetti, L. Marselli, Italy

Poster Event D, Wednesday, 13:15 - 14:15

PS 040 Diabetic staging
Chair: N. Stefan, Germany

617 Relationship between sarcopenia and frailty on pre-diabetic and diabetic older patients

618 Fasting glucose and cardiovascular disease and mortality in Korean older adults with diabetes: a nationwide population-based study
J. Huh, J. Lee, Korea, Republic of

619 Frailty is associated with reduction of circulating stem cells in elderly diabetic patients
B. Bonora, R. Cappellari, A. Avogaro, G. Fadini, Italy

620 Development of type 2 diabetes from normal glucose tolerance and prediabetes
F. Lexman, B. Daka, U. Lindblad, M. Hellgren, Sweden

621 Novel clusters of adult-onset diabetes: casuistic from an endocrinology department

622 Skeletal muscle oxidative capacity is poorer in the presence of type 2 diabetes in older adults of European, but not South Asian or African Caribbean origin
S. Jones, T. Tillin, S. Williams, J. Wang, S. Eastwood, A.D. Hughes, N. Chaturvedi, UK
623 Circulating palmitoleic acid is associated with insulin sensitivity, beta cell function and glucose tolerance in non-diabetic individuals
D. Trico, A. Mengozzi, L. Nesti, A. Mari, A. Natali, Italy

624 Identification of novel genes regulating fat distribution and their functional relevance in adipose biology
E. Guiu-Jurado, D. Holstein, L. Jacob, N. Garcia-Cubero, J. Klein, A. Dietrich, M. Stumvoll, P. Kovacs, M. Bühler, Germany

625 Leptin: a new marker for development of post-transplant diabetes?

626 Retinal microperimetry: a useful tool for detecting insulin-resistance related cognitive impairment in morbid obesity
A. Ciudin, A. Ortiz Zuñiga, E. Fidilio, D. Romero Godoy, M. Sanchez Perez, M. Comas Martinez, O. Simó- Servat, C. Hernández Pascual, R. Simó Canonge, Spain

Poster Event E, Thursday, 12:00 - 13:00

PS 041 From mice to men?
Chair: E. Hatziagelaki, Greece

627 A dominant negative PPARγ isoform at the crossroad between adipogenesis and obesity
S. Cataldi, M. Aprile, P. Italiani, K. Dumas, S. Giorgetti- Peraldi, J.-F. Tanti, A. Ciccodicola, V. Costa, Italy, France

628 Targeting Cyr61-mediated adipose angiogenesis to treat obesity
S. Metz, T.O. Kilpeläinen, M.P. Gillum, Denmark

629 Functional exploration of subcutaneous adipose stem cells in programming of metabolic disease
C. Lefevre, C. Pinteur, B. Morio, H. Vidal, A. Mey, France

630 Liver IDE deficiency is a risk factor for nonalcoholic fatty liver disease and prediabetes development
D.O. Borges, R.T. Ribeiro, C. Penha-Gonçalves, M.P. Macedo, Portugal
631 Extended indirect calorimetry with isotopic CO₂ sensors allows real time quantification of substrate oxidation in mice: fat oxidation levels depend on body fat mass

632 The organ cross talk in the regulation of glucose homeostasis through heat shock protein 72 expression
T. Kondo, S. Kitano, N. Miyakawa, T. Watanabe, R. Goto, M. Igata, J. Kawashima, H. Motoshima, T. Matsumura, E. Araki, Japan

633 The germ free humanised mouse: a new model of insulin resistance inherited over generation
R. Burcelin, A. Waget, P. Chaillie, E. Brousseau, P. Gourdy, B. Lelouvier, T. Sulpice, F. Briand, Y. Barreira, France

634 Pancreatic beta cell imaging probe accounting for in-vivo GLP1R agonist’s efficacy
T. Murakami, H. Fujimoto, N. Fujita, K. Hamamatsu, D. Yabe, N. Inagaki, Japan

Poster Event F, Thursday, 13:15 - 14:15

PS 042 The many ways of improving metabolism
Chair: F.K. Knop, Denmark

635 Liraglutide alleviates hepatic steatosis and liver injury in type 2 diabetes rats via a GLP-1R dependent AMPK pathway
L. Yang, C. Lin, R. Zhou, L. Zhao, X. Zhuo, China

636 High fat diet induced weight gain is attenuated by the prevention, but not reversal, of hyperleptinaemia
M.M. Kwon, L. Wang, T.J. Kieffer, Canada

637 Effect of the administration of hydroxytyrosol, an olive oil phenolic compound, on weight and fat loss: preliminary data from a randomised double-blind prospective study
638 Sex steroid hormones related protection against metabolic dysfunction through beiging adaptation

639 Effect of estrogen and its interactions with glucocorticoids on human adipose tissue metabolisms
P.G. Kamble, M.J. Pereira, K. Thombare, K.E. Almby, J.W. Eriksson, Sweden

640 Beneficial effects of troxerutine on ovariectomy-induced postmenopausal metabolic syndrome model
M. Hüttl, M. Poruba, H. Malínská, I. Marková, O. Oliyarnyk, D. Miklánková, L. Kazdová, R. Vecera, Czech Republic

641 Yogurt consumption improves glucose homeostasis in a diet-induced mouse model of diabetes
N. Daniel, R. Nachbar, T.T. Tran, P. St-Pierre, A. Cotillard, L. Quinquis, M.-J. Dubois, H. Koutnikova, A. Marette, Canada, France

642 Nutrigenomic signature of high-sucrose diet effect in non-obese model of metabolic syndrome and prediabetes
O. Seda, H. Malinska, M. Huttl, I. Markova, L. Sedova, L. Kazdova, Czech Republic

643 The combination of atorvastatin with silymarin enhances hypolipidaemic, antioxidant and anti-inflammatory effect in a non-obese model of metabolic syndrome
I. Markova, M. Hüttl, H. Malinska, D. Miklankova, O. Oliyarnyk, L. Kazdova, R. Vecera, Czech Republic

Poster Event A, Tuesday, 12:00 - 13:00

PS 043 Adipose tissue: what, where and how?
Chair: B. Eliasson, Sweden

644 Circular RNA H19 binds with polypyrimidine tract-binding protein 1 to induce adipogenic differentiation in vivo
Y. Zhu, X. Lin, W. Gui, Z. Zhang, H. Li, China
645 Perinodal fat cells differ from other fat cell locations regarding fat accumulation, expression of cytokines, chemoattractants, adhesion molecules and ECM components

646 Adropin modulates white adipogenesis
M. Skrzypski, M. Jasaszwili, T. Wojciechowicz, M. Billert, K.W. Nowak, Poland

647 Insulin receptor isoforms in human adipose tissue and adipose stem cells
V.A. Genchi, A. Cignarelli, S. Perrini, S. Porro, C. Caccioppoli, A. Natalicchio, L. Laviola, F. Giorgino, Italy

648 Inhibition of methionine aminopeptidase 2 enzyme enhances insulin responsiveness in human adipocytes
M.F. Pino, USA

649 PPARγ isoforms as Dr Jekyll and Mr Hyde in insulin sensitivity and adipocyte hypertrophy
M. Aprile, C. Simona, R. Tatè, M. Ambrosio, M. Blüher, A. Ciccodicola, V. Costa, Italy, Germany

650 The secretome from visceral adipose stem cells and mature adipocytes of obese subjects induces apoptosis and insulin resistance in cardiac progenitor cells
S. Porro, S. Perrini, C. Caccioppoli, R. D’Oria, V.A. Genchi, A. Cignarelli, A. Natalicchio, L. Laviola, F. Giorgino, Italy

651 Improvement of glucose homeostasis by SIRT1 and calorie restriction is associated with differential gene network regulation in white adipose tissue
J.A. Villena, R. Pardo, L. Herrero, M. Vilà, Spain

652 Analysis of long noncoding RNA profiles in human adipose tissue highlights the metabolic relevance of adipogenic linc-GALNTL6-4
653 The obesity susceptibility gene TMEM18 promotes adipogenesis through direct activation of PPARG signalling

Poster Event B, Tuesday, 13:15 - 14:15

PS 044 Inflammation and beyond
Chair: P.J. Thornalley, Qatar

654 Plasma from pre-pubertal obese children increases monocytes-endothelial interaction: potential mechanisms linking inflammation and insulin resistance

655 Liver and adipose tissue expression of VDR is associated with adipose tissue inflammation and hepatic fat accumulation in obese subjects with and without type 2 diabetes
F.A. Cimini, I. Barchetta, C. Chiappetta, D. Capoccia, L. Bertocci, V. Ceccarelli, C. Di Cristofano, G. Silecchia, S. Morini, M.G. Baroni, F. Leonetti, M.G. Cavallo, Italy

656 Mechanisms of LXR-mediated control of obesity-induced metaflammation and insulin-resistance
N.A. Letelier, C. Caelles, A.F. Valledor, Spain

657 Up-regulation of RETN, TNFα, and CCL2 mRNAs in adipocytes by intermittent hypoxia via down-regulation of miR-452

658 Serum and adipose tissue chemerin is differentially associated with insulin sensitivity and this effect is modulated by adiposity
M. Karczewska-Kupczewska, A. Nikolajuk, M. Stefanowicz, N. Matulewicz, I. Kowalska, M. Straczkowski, Poland
659 Proinflammatory cytokine HMGB1 increases leptin secretion with a TLR2/TLR4 mechanism in type 2 diabetes related inflammation
A. Coppola, B. Capuani, F. Pacifici, D. Pastore, R. Arriga, S. Rea,
A. Andreadi, A. Bellia, M. Tesauro, D. Della-Morte, G. Sconocchia, D. Lauro,
Italy

660 The glycolytic by-product methylglyoxal is present in monocytes and granulocytes and has pro-inflammatory properties
X. Zhang, K. Wouters, N. Hanssen, J. Scheijen, M. Streeter, J. Van de Gaar,
M. Fontaine, D. Spiegel, E. Biessen, C. Schalkwijk, Netherlands, USA

661 Apabetalone modulates Th1 responses in diabetes and CVD through intrinsic and extrinsic mechanisms: in vitro and in human studies
N.C. Wong, L. Fu, L.M. Tsujikawa, B.D. Rakai, S. Wasiak, M. Sweeney,
J.O. Johansson, E. Kulikowski, Canada, USA

662 Inhibition of AGEs by pyridoxamine prevents diet-induced systemic inflammation and skeletal muscle insulin resistance by restoring SphK/S1P3/RhoA signalling
A.S. Cento, D. Collotta, F. Chiazza, M. Aragno, M. Collino, R. Mastrocola, Italy

663 Pancreatic fat cells and fetuin-A/palmitate stimulate monocyte migration and remodelling of extracellular matrix
D.I. Siegel-Axel, B. Schreiner, R. Wagner, B.A. Jaghutriz, S. Ullrich, F. Fend,
A. Königsrainer, M. Heni, A. Peter, H.-U. Häring, Germany

Poster Event C, Wednesday, 12:00 - 13:00

PS 045 Not all fats are the same...
Chair: H.-U. Häring, Germany

664 Investigation of the fatty-acyl chain profiles of plasma triacylglycerol in patients with type 2 diabetes using SFC/MS
K. Omori, N. Katakami, Y. Yamamoto, N. Taya, H. Ninomiya, M. Takahara,
T. Matsuoka, M. Furuno, Y. Izumi, T. Bamba, E. Fukusaki, I. Shimomura,
Japan

665 Transcription factor ETV5 regulates fatty acid metabolism in the liver
Z. Mao, China

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666 Metabolomic profile in patients with type 2 diabetes and metabolically healthy volunteers

667 The function of PHF20 in adipogenesis by modulating FAS transcription activity
H. Lee, G. Kong, Q. Tran, C. Kim, J. Park, Korea, Republic of

668 Phospholipid transfer protein (PLTP) and metabolic diseases
J. Grober, L. Lebrun, N. Le Guern, J. Pais de Barros, S. Mandard, V. Deckert, I. Dugail, A. Bernard, L. Lagrost, France

669 Low carbohydrate diet elevates blood sphingomyelin in people with type 1 diabetes

670 Daytime-dependent changes of plasma lipidome are associated with insulin sensitivity in humans

671 GPR-10 gene deletion results in alterations of lipid metabolism in the liver and adipose tissue of mice
J. Funda, K. Bardova, B. Neprasova, M. Rossmeisl, J. Kopecky, L. Maletinska, Czech Republic

672 KRIT1/CCM1 loss-of-function affects sphingolipid metabolism inducing hepatosteatosis and predisposing to liver fibrosis and insulin-resistance
R. Mastrocola, A.S. Cento, C. Fornelli, A. Zotta, A. Perrelli, S.F. Retta, Italy
Poster Event D, Wednesday, 13:15 - 14:15

PS 046 Burning down the fat

Chair: M. Rydén, Sweden

673 Losartan induces adipose browning via induction of apelin-APJ pathway
H. Cheon, D. Kim, Korea, Republic of

674 Catalase deficiency facilitates the shuffling of free fatty acids to brown adipose tissue through lipolysis in white adipose tissue during sustained fasting
R. Park, R.K. Dutta, C. Park, Korea, Republic of

675 Thyroid hormone activates adipose tissue thermogenesis independent of UnCoupling Protein 1 (UCP1)
Q. Liu, Y. Gao, T. Feng, X. Hui, A. Xu, Hong Kong

676 Specific lack of p85alpha in brown adipose tissue triggers resistance to high-fat diet-induced obesity and improves the metabolic profile in mice

677 Cell-autonomous light sensitivity via Opsin3 regulates fuel usage in brown adipocytes
M. Sato, K. Yang, X. Ren, K.-W. Yau, Y.-H. Tseng, Japan, USA

678 Carotid body modulation: a therapeutic approach to induce adipose tissue browning and ameliorate metabolism promoting weight loss
B.F. Melo, C.S. Prego, J.F. Sacramento, S.V. Conde, Portugal

679 Decreased browning potential and impaired mitochondrial function of adipose-derived stem cells is associated with insulin resistance and type 2 diabetes
680 Reduction of the mitochondrial i-AAA protease Yme1L induces muscle atrophy via FoxO3a and MuRF1 activation
Y. Lee, G. Kim, S. Park, J. Lim, Korea, Republic of

681 The ROS-inducing mtAtp8 gene polymorphism impairs key genes of mitochondrial metabolism and antioxidative defense during aging
M. Tiedge, M. Wietzke, J. Niemann, S. Baltrusch, Germany

682 CRISPR/Cas9-induced knockout of GPR146 in mouse 3T3-L1 fibroblasts blunted differentiation into adipocytes

Poster Event E, Thursday, 12:00 - 13:00

PS 047 SGLT2 inhibitors and the cardiorenal axis
Chair: N. Marx, Germany

683 The association between long-term glucose variability (GV), cardiovascular (CV) death and heart failure (HF) outcomes in the EMPA-REG OUTCOME trial
A. Ceriello, A. Ofstad, I. Zwiener, S. Kaspers, J.T. George, A. Nicolucci, Italy, Norway, Germany

684 Effects of the SGLT2 inhibitor dapagliflozin on cardiac function evaluated by impedance cardiography in patients with type 2 diabetes: a randomised placebo-controlled trial
S. Vigili de Kreutzenberg, B.M. Bonora, A. Avogaro, G. Fadini, Italy

685 Cardiovascular events, acute hospitalisations and mortality in patients with type 2 diabetes who initiate empagliflozin vs liraglutide: a comparative effectiveness study
R.W. Thomsen, J.S. Knudsen, J. Kahlert, L.M. Baggesen, M. Lajer, P.H. Holmgaard, A. Ustyugova, H.T. Sørensen, Denmark, Germany

686 Consistent cardiovascular (CV) benefits from empagliflozin across the spectrum of CV risk factor control: post hoc analysis from EMPA-REG OUTCOME
S.E. Inzucchi, K. Khunti, D.H. Fitchett, C. Wanner, M. Mattheus, J.T. George, A. Ofstad, B. Zinman, USA, UK, Canada, Germany, Norway
687 The risk of heart failure hospitalisation among routine care patients initiating empagliflozin vs glucagon-like peptide-1 receptor agonists: a substudy from EMPRISE
S. Schneeweiss, A. Pawar, J.M. Franklin, M. Najafzadeh, A. Déruaz-Luyet, K. Brodovicz, L.G. Bessette, M. Kulldorf, E. Patorno, USA, Germany

688 Empagliflozin selected cardiovascular and safety outcomes in routine care: first results from the EMPagliflozin compaRative effectiveness and Safety (EMPRISE) study
E. Patorno, A. Pawar, J.M. Franklin, M. Najafzadeh, A. Déruaz-Luyet, K.G. Brodovicz, S. Sambevski, L. Bessette, M. Kulldorff, S. Schneeweiss, USA, Germany

689 Change in categorical urinary albumin creatinine ratio in the DECLARE-TIMI 58 trial

690 Tubular protection with empagliflozin treatment in subjects with type 2 diabetes and cardiovascular disease: a sub-analysis of the EMPA-HEART CardioLink-6 trial

Poster Event F, Thursday, 13:15 - 14:15
PS 048 Combating diabetes with diet
Chair: P. Schrauwen, Netherlands

691 Efficacy of an intermittent energy restriction diet in a primary care setting on cardiometabolic health and glycaemic control
K.L. Johnston, R. Antoni, C. Steele, D. Carter, M.D. Robertson, M. Capehorn, UK

692 Physiological effects of VLCD with or without resistance exercise training or high intensity interval training in overweight men without diabetes
M.H. Abdul Aziz, B. Phillips, I. Ramzan, I. Idris, P.J. Atherton, UK
693 Dietary intake and hospitalisation due to diabetic ketoacidosis and hypoglycaemia
A.J. Ahola, V. Harjutsalo, T. Merlin, C. Forsblom, P.-H. Groop, Finland, Australia

694 Intuitive eating during and after pregnancy is associated with lower BMI, weight retention and fasting glucose at 1-year postpartum in women with gestational diabetes: a cohort study
J. Puder, D. Quansah, J. Gross, L. Gilbert, A. Horsch, Switzerland

695 Lower carbohydrate diets in type 2 diabetes/pre-diabetes and metabolic improvements in a UK primary care service
A.A. Khalid, R. Golubic, S. Ray, D.J. Unwin, UK

696 Effect of starch digestibility modulation on glycaemic variability and postprandial glycaemic excursions in type 2 diabetic subjects: a pilot randomised controlled trial

697 Comparative effects of intraduodenal glucose and fat on blood pressure and heart rate in type 2 diabetes
M. Horowitz, C. Xie, X. Wang, M.J. Bound, J. Grivell, K.L. Jones, T. Little, C.K. Rayner, T. Wu, Australia, China

698 Nutritional modulation of glucagon response is independent to postprandial release of GIP or GLP-1 in healthy or type 2 diabetic humans
R.L. Barbosa-Yañez, M. Markova, D. Sonnenburg, M. Kemper, S. Rohn, A.F. Pfeiffer, Germany

699 Time-restricted eating is feasible but does not reduce energy intake in adults with type 2 diabetes
E.B. Parr, B.L. Devlin, K.H. Lim, J.A. Hawley, Australia
Poster Event A, Tuesday, 12:00 - 13:00

PS 049 Food, food, food… nutritional interventions

Chair: N. Katsilambros, Greece

700 Changes in gut microbiota in response to a plant-based diet are related to changes in weight, body composition and insulin sensitivity: a 16-week randomised clinical trial
H. Kahleova, E. Rembert, J. Alwarith, W. Yonas, A. Tura, R. Holubkov, N. Barnard, USA, Italy

701 Acute effects of delayed-release hydrolysed pine nut oil as a dual FFA1 and FFA4 agonist on glucose tolerance, incretins, ghrelin and appetite in healthy humans

702 Effects of a guar/whey preload on gastric emptying and glycaemic responses to oral glucose in healthy older people

703 Does the cooling of starch products decrease the postprandial glycaemia in type 1 diabetes?
S. Strozyk, A. Rogowicz-Frontczak, S. Pilacinski, D. Zozulinska-Ziolkiewicz, Poland

704 The effects of formula diet with dapagliflozin on metabolic improvement and body composition in type 2 diabetes (Diet-Dapper Study)

705 Nocturnal blood glucose response to a potato-based mixed evening meal
B.L. Devlin, E.B. Parr, B.E. Radford, J.A. Hawley, Australia

706 The effect of high-fiber diet in combination with metformin therapy in type 2 diabetes
F. Tramontana, E. Maddalone, P. Pozzilli, N. Napoli, Italy
707 Changes of body composition after replacing dietary carbohydrate with a protein supplement for 48 weeks in obese or overweight subjects
Y. Nagai, Y. Yamamoto, T. Nakagawa, Y. Tanaka, Japan

708 Effects of coconut oil on glucose and lipid profile of adults: a systematic review with meta-analysis
A. Duarte, C. De Araujo, V. Colpani, F. Gerchman, Brazil

Poster Event B, Tuesday, 13:15 - 14:15

PS 050 All the roads leading from SGLT2 inhibitors
Chair: G.-H. Schernthaner, Austria

709 Effect of 3-month therapy with empagliflozin on ambulatory blood pressure and pulse wave velocity in patients with type 2 diabetes

710 Comparison of responder and non-responder of ipragliflozin and metformin for visceral fat reduction: a blinded-endpoint, randomised controlled study
H. Kato, M. Koshizaka, K. Ishikawa, Y. Maezawa, K. Yokote, Japan

711 The effects of canagliflozin on uric acid and gout in patients with type 2 diabetes in the CANVAS programme

712 Assessment of liver function in patients with type 2 diabetes receiving ertugliflozin
S. Gallo, R.A. Calle, S.G. Terra, A. Pong, L. Tarasenko, A. Raji, Germany, USA

713 Canagliflozin in patients with type 2 diabetes and macroalbuminuria: data from the CANVAS program
B.L. Neuen, V. Perkovic, T. Ohkuma, B. Neal, D.R. Matthews, D. De Zeeuw, K.W. Mahaffey, G. Fulcher, R. Oh, Q. Li, M. Jardine, Australia, UK, Netherlands, USA
714 Effect of adding dapagliflozin as an adjunct to insulin on urinary albumin-to-creatinine ratio over 52 weeks in adults with type 1 diabetes
J.T. Lahtela, S. Edelman, J. Jendle, P. Dandona, C. Mathieu, F. Thorén, M.F. Scheerer, J. Xu, A. Langkilde, on behalf of the DEPICT-1 and -2 Investigators, Finland, USA, Sweden, Belgium, Germany

715 Two-year effects of ertugliflozin on renal function
M. Maldonado, D. Cherney, H.L. Heerspink, R. Frederick, A. Pong, J. Xu, J. Liu, J.P. Mancuso, I. Gantz, S.G. Terra, UK, Canada, Netherlands, USA

716 An exploration of factors mediating the effects of canagliflozin on heart failure in patients with type 2 diabetes

Poster Event C, Wednesday, 12:00 - 13:00
PS 051 SGLT2 inhibitors in type 1 diabetes: benefits and harms
Chair: F. Persson, Denmark

717 Sotagliflozin reduces glucose variability and risk for hyperglycaemia in adults with type 1 diabetes
B.P. Kovatchev, S. Wang, J. Oliveira, J. Stewart, P. Lapuerta, R. De Cassia Castro, USA, Canada

718 Comparing the effects of dapagliflozin and sitagliptin on glucose variability using FGM in patients with type 2 diabetes: the DIVERSITY-CVR study
A. Fuchigami, F. Shigiyama, T. Hirose, N. Kumashiro, Japan

719 Beneficial metabolic effects of empagliflozin alone and empagliflozin on top of metformin treatment in type 1 diabetes patients
M. Lunder, M. Janić, M. Šabovič, A. Janež, Slovenia
720 Efficacy and safety of dapagliflozin in type 1 diabetes according to baseline body mass index: pooled outcomes from the DEPICT-1 and -2 studies
P. Dandona, C. Mathieu, M. Phillip, M.F. Scheerer, J. Xu, F. Thorén, N. Iqbal, on behalf of the DEPICT-1 & -2 Investigators, USA, Belgium, Israel, Germany, Sweden

721 Efficacy and safety of dapagliflozin in patients with type 1 diabetes by method of insulin administration: subgroup analysis of the DEPICT-1 and -2 studies
C. Mathieu, P. Dandona, M. Phillip, M.F. Scheerer, J. Xu, F. Thorén, N. Iqbal, on behalf of the DEPICT-1 & DEPICT-2 Investigators, Belgium, USA, Israel, Germany, Sweden

722 Analysis of patients in the dapagliflozin DEPICT-1 and -2 trials in type 1 diabetes according to HbA1c subgroup
P. Gillard, P. Dandona, C. Mathieu, M. Phillip, S.R. Heller, M.F. Scheerer, J. Xu, F. Thorén, N. Iqbal, on behalf of the DEPICT-1 & DEPICT-2 Investigators, Belgium, USA, Israel, UK, Germany, Sweden

723 Dapagliflozin in type 1 diabetes: pooled outcomes from DEPICT-1 and -2
L. Hansen, P. Dandona, C. Mathieu, M. Phillip, F. Thorén, M.F. Scheerer, J. Xu, A.-M. Langkilde, on behalf of the DEPICT-1 & DEPICT-2 Investigators, USA, Belgium, Israel, Sweden, Germany

724 Improved treatment satisfaction in patients with type 1 diabetes treated with sotagliflozin plus insulin vs insulin alone
V.N. Joish, T. Danne, R. Preblick, P. Banks, S. Sawhne, P. Lapuerta, J.B. Buse, USA, Germany

725 Real-world efficacy and safety of long-term adjunctive therapy with SGLT-2 inhibitors in adults with type 1 diabetes
J. Ferri, F.J. Ampudia-Blasco, I. Pellicer, I.D. Méndez, B. Moreno, A. Rubio, J.T. Real, Spain

726 Diabetic ketoacidosis in adult patients with type 1 diabetes treated off-label with SGLT2 inhibitors in a US claims database: Can increased awareness reduce risk over time?
C. Wu, L. Li, E.B. Andrews, X. Li, Z. Doder, E. Zalmover, K. Sharma, J.H. Oliveira, J. Juhaeri, USA
Poster Event D, Wednesday, 13:15 - 14:15

PS 052 New avenues in diabetes treatment

Chair: C. De Block, Belgium

727 New diabetes treatment using an innovative FGF1 protein analogue

728 A short course of rifaximin for glycaemic control in patients with poorly controlled type 2 diabetes: a randomised, controlled clinical trial

729 Results from the sentinel and learning phase of the Simplici-T1 study, the first clinical trial to test activation of glucokinase as an adjunctive treatment for type 1 diabetes
C. Valcarce, J. Freeman, I. Dunn, C. Dvergsten, T. Soeder, J. Buse, USA

730 Reduced hypoglycaemic property of glucokinase activator by longitudinal administration in db/db mice

731 Imatinib protects human beta cells against cytokine-induced death via inhibition of mitochondrial function and activation of AMPK

732 Phase Ib clinical trial of IMCY-0098 in young adults with recent-onset type 1 diabetes
J. Van Rampelbergh, C. Boitard, P. Achenbach, R.D. Leslie, C. Dayan, B. Keymeulen, K.R. Owen, B. Lapauw, V. Carlier, R.R. Ahangarani, E. Gebruers, L. Vanderelst, M. Van Mechelen, P. Vandepapelière, Belgium, France, Germany, UK
733 **Weight loss and improved glycaemic control in 324 men with hypogonadism and type 2 diabetes with and without long-term testosterone therapy: real-world registry data**
F. Saad, A. Haider, K.S. Haider, G. Doros, A. Traish, Germany, United Arab Emirates, USA

734 **Effect of tirzepatide, a dual GIP and GLP-1 receptor agonist, on glycaemic control and body weight in Japanese patients with type 2 diabetes**
C.T. Benson, K. Ohwaki, K. Furihata, H. Mimura, T. Oura, T. Imaoka, USA, Japan

735 **Tirzepatide, a dual GIP and GLP-1 receptor agonist, improves markers of beta cell function and insulin sensitivity in type 2 diabetes patients**
M.K. Thomas, A. Nikooienejad, R. Bray, X. Cui, J. Wilson, K. Duffin, Z. Milicevic, A. Haupt, D.A. Robins, USA, Austria

**Poster Event E, Thursday, 12:00 - 13:00**

**PS 053 SGLT2 inhibitors: mechanistic studies**
Chair: H.H. Klein, Germany

736 **SGLT2-inhibitors inhibit tumour necrosis factor-α and interferon-Y-stimulated secretion of IL-6 in human endothelial cells: a potential anti-inflammatory effect**
A.S. Alshnbari, S.A. Millar, S.E. O’Sullivan, I. Idris, UK

737 **Metabolic effect of empagliflozin in methylglyoxal- and high sucrose diet-induced rat model of prediabetes**
H. Malinska, M. Hüttl, I. Markova, D. Miklánkova, J. Trnovska, O. Oliyarnyk, M. Haluzik, Czech Republic

738 **Cardioprotective mechanisms of short-term empagliflozin treatment in db/db mice**
739 Urine antioxidant status in type 2 diabetic patients treated with SGLT2 inhibitors: a pilot study
K. Nabrdalik, P. Stelmach, H. Kwiendacz, P. Główczyński, K. Sedlaczek, S. Kasperczyk, A. Paradysz, J. Gumprecht, Poland

740 Serum CTRP5 are lower in patients with insulin resistance and further reduced after SGLT2 inhibitors treatment
L. Zhang, L. Li, M. Yang, China

741 Amelioration of skeletal muscle insulin sensitivity by the short-term administration of sodium-glucose co-transporter2 inhibitor

742 Empagliflozin decreases plasma concentrations of plasminogen activator inhibitor-1 (PAI-1) in patients with type 2 diabetes
Y. Aso, S. Sakurai, T. Jojima, T. Iijima, I. Usui, Japan

743 Pleiotropic effects under combined therapy with empagliflozin and linagliptin compared to metformin and insulin glargine in patients with type 2 diabetes
S. Jung, C. Ott, D. Kannenkeril, A. Bosch, M. Karg, K. Striepe, P. Bramlage, R.E. Schmieder, Germany

Poster Event F, Thursday, 13:15 - 14:15

PS 054 SGLT2 inhibitors: clinical studies

Chair: E. Serné, Netherlands

744 Dose-dependent glucosuria of DWP16001: a novel selective SGLT2 inhibitor in healthy male Korean subjects
J. Hwang, S.-W. Lee, S. Lee, K.-S. Yu, J. Han, W. Huh, H. Kim, Korea, Republic of

745 Tofogliflozin is a better candidate than glimepiride for the third line oral agent added to the metformin plus DPP-4 inhibitor dual therapy: results of a randomised control trial
746 Pooled analysis of the safety and efficacy of ertugliflozin in the elderly

747 Safety and efficacy of dapagliflozin in the elderly: analysis from the DECLARE TIMI 58 study

748 Diabetes regression and remission following a short-term intensive metabolic intervention with insulin glargine, metformin and dapagliflozin
N. McInnes, S. Hall, Y.Y. Liu, H.C. Gerstein, REMIT-dapa investigators, Canada

749 Diuretics use and risk of amputation among patients with insulin-treated type 2 diabetes
M. Alkharajji, A.S. Alshnbari, I. Idris, UK

750 Genital infections among female patients with type 2 diabetes treated with SGLT2 inhibitors
A. Nakhleh, N. Shehadeh, L. Gabay, G. Koren, E. Haddad, M. Zloczower, Israel

751 Identifying features of sodium-glucose co-transporter 2 inhibitor (SGLT2i)-associated Diabetic Ketoacidosis (DKA)
A. Stirling, J. Rollo, A. Kernohan, D. McGrane, UK

Poster Event A, Tuesday, 12:00 - 13:00

PS 055 Extra-glycaemic effects of GLP-1 receptor agonists

Chair: B. Gallwitz, Germany

752 Liraglutide 0.9 mg improves liver function and fibrosis in type 2 diabetic patients with nonalcoholic fatty liver disease regardless of BMI
M. Shiomi, Y. Tanaka, T. Takada, K. Otori, Japan
753 Oral semaglutide reduces appetite and energy intake and improves control of eating in subjects with type 2 diabetes
J. Blundell, C. Gibbons, S.T. Hoff, S. Lövdahl, K. Dahl, T.A. Bækdal, UK, Denmark

754 Weight loss induced by semaglutide once weekly contributes to improved health-related quality of life and treatment satisfaction

755 Exenatide once weekly in diabetes patients with stage 2/3 chronic kidney disease: a pooled 6-month analysis
C. Sjöström, C. Guja, J.P. Frias, L. Suchower, E. Hardy, J. Holden, S.A. Jabbour, Sweden, Romania, USA

756 Liraglutide and semaglutide improve cardiovascular and renal outcomes across baseline BP categories: analysis of LEADER and SUSTAIN 6

757 The effect of once-weekly semaglutide on MACE, blood pressure and lipids by race and ethnicity: a SUSTAIN 6 post hoc analysis
S.C. Bain, C.V. Desouza, T. Gondolf, T. Hansen, I. Holst, R.R. Rea, J. Seufert, UK, USA, Denmark, Brazil, Germany

758 Impact of microvascular disease on cardiorenal outcomes in type 2 diabetes: an analysis from the LEADER and SUSTAIN 6 clinical trials
B. Zinman, S. Verma, S.C. Bain, J.B. Honoré, J. Mann, M.A. Nauck, R. Pratley, S. Rasmussen, M. Sejersten Ripa, J.B. Buse, Canada, UK, Denmark, Germany, USA

759 The effect of incretin based therapy on preserving cognitive function in type 2 diabetes patients
M. Szabo, Z. Fodor, E. Fabian, J. Szabo, A. Virginas, Romania
Poster Event B, Tuesday, 13:15 - 14:15

PS 056 The future of incretin-based therapies

Chair: L. Czupryniak, Poland

760 Novel oxyntomodulin analogue, OXM-001 reduce body weight and improves glucose tolerance
A. Kayed, K.V. Andreasen, M.A. Karsdal, K. Henriksen, Denmark

761 Efficacy and safety of PEX168, a novel once-weekly GLP-1 RA, for monotherapy in patients with type 2 diabetes: a phase 3a study
W. Yang, Q. Ji, Z. Shan, Q. Zhang, Y. Li, X. Li, G. Qin, China

762 Polyethylene glycol loxenatide (PEX168) in subjects with renal impairment: a pharmacokinetic study
J.-W. Wang, W. Li, S.-Q. Tang, J. Sun, X.-M. Zhang, China

763 Effects of efpeglenatide on weight, BMI, and waist circumference in those with obesity without diabetes stratified by baseline characteristics: subanalysis of BALANCE 205
C.H. Sorli, R.E. Pratley, S. Jacob, J. Kang, M.E. Trautmann, M. Hompesch, O. Han, J. Stewart, I. Ogbaa, K.-H. Yoon, USA, Germany, Korea, Republic of, Canada

764 Relationship between glycaemic control and weight loss with once-weekly efpeglenatide in uncontrolled type 2 diabetes: a subanalysis of EXCEED 203

765 Efficacy of efpeglenatide in patients with obesity and prediabetes: a subanalysis of the BALANCE 205 study
I. Ogbaa, R.E. Pratley, S. Jacob, J. Kang, M.E. Trautmann, M. Hompesch, O. Han, J. Stewart, C.H. Sorli, K.-H. Yoon, USA, Germany, Korea, Republic of, Canada

766 Potential of a novel long-acting glucagon analogue, HM15136, for the treatment of obesity
J. Choi, J. Kim, J. Kim, S. Lee, J. Lee, S.-H. Lee, I. Choi, Korea, Republic of
767 Sustained glucagon effect on blood glucose and improvements of insulin resistance mediated by a novel long-acting glucagon analogue, HM15136, in animal models
S. Lee, J. Choi, J. Kim, J. Lee, Y. Kim, I. Choi, Korea, Republic of

768 Results of the cotadutide Japanese phase 2a study in patients with type 2 diabetes: efficacy and tolerability over 48 days of therapy
M. Asano, A. Sekikawa, H. Kim, D. Robertson, R.A. Gasser Jr, P.D. Ambery, Japan, UK, USA, Sweden

Poster Event C, Wednesday, 12:00 - 13:00

PS 057 Incretin-based therapies: clinical studies
Chair: M. Blüher, Germany

769 Real-world weight change, adherence and discontinuation among type 2 diabetes patients initiating GLP-1 receptor agonists (GLP-1RAs) in the UK
T. Weiss, K. Iglay, R. Carr, A.P. Mishra, L. Yang, S. Rajpathak, USA

770 Liraglutide as add-on to SGLT2 inhibitors in patients with inadequately controlled type 2 diabetes: a 26-week, randomised, double-blind, placebo-controlled trial
R. Rea, L. Blonde, L. Belousova, U. Fainberg, P.A. Garcia-Hernandez, S.M. Jain, M.S. Kaltoft, O. Mosenzon, J. Nafach, M.S. Palle, Brazil, USA, Russian Federation, Denmark, Mexico, India, Israel, United Arab Emirates

771 The effect of dulaglutide in glycaemic control cardiovascular risk factors and qualitative factors in type 2 diabetes patients under treatment with liraglutide
A. Sotiropoulos, A. Koutsovasilis, A. Antoniou, V. Kordinas, M. Pappa, M. Gerogianni, S. Bousboulas, T. Peppas, Greece

772 Safety and efficacy of lixisenatide vs sulphonylurea added to basal insulin in Indian patients with type 2 diabetes who fast during Ramadan in the LixiRam randomised trial
R. Sahay, K. Hafidh, K. Djaballah, S. Azar, N. Shehadeh, W. Hanif, M.M. Hassanein, India, United Arab Emirates, France, Lebanon, Israel, UK
773 Efficacy and safety of semaglutide by baseline BMI in SUSTAIN 1-5 and 7
A. Viljoen, J.P. Frias, T. Gondolf, J. Unger, UK, USA, Denmark

774 Efficacy and safety of once-weekly exenatide after switching from twice-daily exenatide in patients with type 2 diabetes

775 Efficacy and safety of once-weekly semaglutide low dose 0.5 mg vs once-weekly dulaglutide high dose 1.5 mg in type 2 diabetes: a post hoc analysis of SUSTAIN 7
R.E. Pratley, V.R. Aroda, T. Gondolf, T. Hansen, I. Lingvay, J. Lüdemann, T.V. Skjøth, A. Viljoen, USA, Denmark, Germany, UK

776 Efficacy and safety of semaglutide by background sodium-glucose cotransporter-2 inhibitor: a post hoc analysis of SUSTAIN 9
B. Ludvik, V. Bhosekar, R.S. Busch, I. Holst, A. Philis-Tsimikas, J. Thrasher, V.C. Woo, E. Yildirim, B. Zinman, Austria, India, USA, Denmark, Canada

777 Similar efficacy and gastrointestinal tolerability versus exposure for oral and subcutaneous semaglutide
R.V. Overgaard, A. Navarria, C.L. Hertz, S.H. Ingwersen, Denmark

Poster Event D, Wednesday, 13:15 - 14:15

PS 058 Incretin-based therapies: mechanistic studies
Chair: N.M.J. Hanssen, Netherlands

778 Acute administration of lixisenatide diminishes the insulin secretory response to oral glucose by slowing gastric emptying
C.S. Marathe, R.S. Rigda, M. Buttfield, S. Hatzinikolas, H.T. Pham, T. Wu, K. Lange, L.G. Trahair, C.K. Rayner, A. Mari, M. Horowitz, K.L. Jones, Australia, Italy

779 Effect of exenatide once-weekly (QW) on gastric emptying in health: impact on glycaemia and glucose absorption
780 The glucagon-like peptide-1 receptor agonist, liraglutide, does not suppress postprandial cholecystokinin in patients with type 1 diabetes

781 Potent weight loss effects and mechanism of a novel long-acting glucagon analogue, HM15136, in animal models
J. Lee, J. Kim, J. Kim, E. Park, S.-H. Lee, S. Bae, I. Choi, Korea, Republic of

782 Alanine scanning of exenatide reveals key residues responsible for signalling bias via the GLP-1 receptor

783 A positron emission tomography biomarker for in vivo study of the glucagon receptor

784 Effects of dulaglutide and trelagliptin on beta cell function after one year in patients with type 2 diabetes: DUET-beta extension study
Y. Kondo, S. Satoh, Y. Terauchi, Japan

785 Urinary DPP-4 protein is increased by linagliptin and may serve as a novel predictive marker of kidney-protective treatment response in type 2 diabetes
T. Klein, H. Tammen, E. Benetti, V. Brodano, F. Barutta, G. Miglio, C. Schepers, D. Delic, M. Mark, M. von Eynatten, Germany, Italy

Poster Event E, Thursday, 12:00 - 13:00

PS 059 Modern insulin therapy

Chair: H.U. Andersen, Denmark

786 Ultra Rapid Lispro (URLi) accelerates insulin lispro absorption and insulin action vs lispro in patients with type 2 diabetes
787 Greater reduction in postprandial glucose excursions with Ultra Rapid Lispro (URLi) vs lispro in patients with type 2 diabetes at different meal-to-dose timings

788 Ultra Rapid Lispro (URLi) accelerates insulin lispro absorption and insulin action vs lispro in patients with type 1 diabetes

789 Ultra rapid lispro (URLi) improves postprandial glucose control and time in range in type 1 diabetes compared to lispro: PRONTO-T1D continuous glucose monitoring sub-study
M. Malecki, D. Cao, R. Liu, T.A. Hardy, B.W. Bode, J.M. Bue-Valleskey, Poland, USA

790 Compatibility and safety of Ultra Rapid Lispro (URLi) with continuous subcutaneous insulin infusion (CSII) in patients with type 1 diabetes: PRONTO-pump study
B.W. Bode, R. Liu, T.A. Hardy, D.A. Ignaut, USA

791 Ultra rapid lispro (URLi) improves postprandial glucose (PPG) control vs lispro in patients with type 2 diabetes: PRONTO-T2D study
J.P. Frias, Q. Zhang, T. Blevins, H. Jinnouchi, A.M. Chang, USA, Japan

792 A randomised crossover trial evaluating fully closed-loop with faster vs standard aspart in type 2 diabetes

793 Hypoglycaemia, irrespective of the definition used, is reduced when switching to insulin degludec from other basal insulins in routine clinical care: the ReFLeCT study
794 Do measures of glycaemic variability vary between those with and without severe hypoglycaemia?
M.A. Khan, P. Jacob, P. Choudhary, UK

Poster Event F, Thursday, 13:15 - 14:15

PS 060 Applying new technologies in diabetes
Chair: J. Elliot, UK

795 Improved insulin adherence after introduction of a smart connected insulin pen
N.V. Hartvig, J. Hellman, A. Kaas, N. Nygård Knudsen, A.-C. Mårdby, J.B. Møller, P. Adolfsson, Denmark, Sweden

796 Increased time in range observed after introduction of a connected insulin pen
A. Kaas, N.V. Hartvig, J. Hellman, N. Nygård Knudsen, A.-C. Mårdby, P. Adolfsson, Denmark, Sweden

797 The risk of continuous glucose monitoring detected hypoglycaemia is high in type 2 diabetes patients and seems to be unrelated to the degree of metabolic control
E. Szymanska-Garbacz, A. Borkowska, L. Czupryniak, Poland

798 Occurrence and impact of insulin pump dysfunctions requesting replacement: results of a 2-year prospective national registry in Europe
J. Place, E. Renard, France

799 Real-world treatment patterns and glycaemic profiles of 1,428 adults with type 2 diabetes using a tubeless insulin pump system with cloud-based data management
J. Jantz, J. Layne, Y. Zheng, J. He, E. Benjamin, T.T. Ly, USA

800 Glycaemic profiles and treatment patterns: real-world data from 9,383 adults with type 1 diabetes using a tubeless insulin pump system with cloud-based data management
J. Layne, J. Jantz, Y. Zheng, J. He, E. Benjamin, T.T. Ly, USA
801 Glucose Management Indicator results: real-world data of 3,510 patients with type 1 diabetes using a tubeless insulin pump with continuous glucose monitoring
T.T. Ly, J. Jantz, Y. Zheng, J. He, E. Benjamin, J. Layne, USA

802 CSII systems assessment for artificial pancreas: a new Kalman filter measurement method
S. Girardot, F. Mousin, S. Hardy, J.-P. Riveline, France

803 Duodenal Jejunal Bypass Liner (DJBL) for treatment of type 2 diabetes and obesity: the risk benefit ratio from the worldwide EndoBarrier (EB) registry in 871 patients
K. Laubner, J. Seufert, J. Aberle, H. Frydenberg, L. Munro, S. Fishman, R. Cohen, G. Holtmann, C. De Jonge, J. Greve, L. Kow, J. Bessell, H. Sourij, M. Benes, R.E. Ryder, Germany, Australia, Israel, Brazil, Netherlands, Austria, Czech Republic, UK

804 Endoscopic duodenal submucosal laser ablation for the treatment of type 2 diabetes: results of first-in-human pilot study
M. Mraz, B. Levy, I. Lankova, H. Kratochvilova, A. Cinkajzlova, M. Benes, J. Korner, Z. Vlasakova, J. Spicak, T. Pelikanova, M. Haluzik, Czech Republic, Israel, USA

Poster Event A, Tuesday, 12:00 - 13:00

PS 061 Digital health in diabetes: a glimpse into the future
Chair: C.J. Tack, Netherlands

805 Real-world application of Information Ecological Integration Technology (IEIT) in collaborative glycaemic control programme

806 Sharing of real-time continuous glucose monitoring data by adults: associations with device utilisation and glycaemic parameters
M. Derdzinski, A.S. Parker, S.A. Puhr, S. Guerra, J.B. Welsh, K. Leone, T. Walker, USA

807 Investigating the impact of diabetes app use on improving key diabetes self-care components
M.M. Kebede, C.R. Pischke, H. Zeeb, Germany
808 A digitally delivered and remotely supported real food based very low calorie diet improves insulin sensitivity and liver fat content in type 2 diabetes

809 The DiaCert-study: mHealth technology to support physical activity and improve levels of HbA1c in patients with diabetes type 2
S.E. Bonn, Y. Trolle Lagerros, Sweden

810 The effect of the smartphone app DiaCert on health related quality of life in patients with type 2 diabetes: results from a randomised controlled trial
M. Wetterholm, S.E. Bonn, Y. Trolle Lagerros, Sweden

811 Current state of type 1 diabetes in China: an analysis from a mobile health application TangTangQuan based database
P. Ling, J. Yan, D. Yang, S. Luo, X. Zheng, Z. Wu, C. Wang, B. Yao, X. Zeng, J. Weng, China

812 Evaluation of the artificial intelligence-based pattern recognition system for diabetic retinopathy screen in China
Z. Du, Z. Sun, N. Yang, F. Wang, L. Wen, J. Xin, H. Kang, X. Liu, China

813 Efficacious, safe and user friendly glycaemic management of geriatric inpatients with type 2 diabetes by using a computerised basal insulin algorithm

814 Does the implementation of an electronic workflow support system improve quality of routine diabetes care in inpatients with type 2 diabetes?
Poster Event B, Tuesday, 13:15 - 14:15

PS 062 Making diabetes care more cost-effective

Chair: M. Evans, UK

815 Socioeconomic factors associated with poor glycaemic control ($\text{HbA}_1\text{c} \geq 9.0\%$) in people with type 2 diabetes: the DISCOVER study

816 Estimating healthcare resource implications associated with use of dapagliflozin: model predictions using data from the DECLARE-TIMI 58 trial
P. McEwan, H. Bennett, B. Kartman, C. Edmonds, I. Gause-Nilsson, J. Wilding, UK, Sweden

817 DKA, devices, DAFNE and deprivation in the West of Scotland
H.A. Casey, Z.M. Chong, L.M. Hall, A. Kernohan, UK

818 Impact of socioeconomic status on outcomes at hospital discharge for patients with diabetes
T. Robbins, S. Lim Choi Keung, S. Sankar, H. Randeva, T.N. Arvanitis, UK

819 Real-world evaluation of economic burden for diabetic gastroparesis in the United States
Y.J. Chen, Z. Huang, M. Luo, H. Pang, C. Almansa, G. Dukes, H.P. Parkman, USA

820 The cost-effectiveness of the PDM - ProValue Diabetes Management programme in Germany
W. Schramm, F. Sailer, M. Pobiruchin, A. Müller, J. Weissmann, Germany

821 Cost-effectiveness of once-weekly semaglutide versus empagliflozin in people with type 2 diabetes and inadequate glycaemic control in Sweden
M. Londahl, K. Nihlberg, A. Ericsson, Sweden

822 Cost consequences of non-compliance with GLP-1 analogues treatment guidelines in France
S. Safsaf, B. Detournay, R. Roussel, A. Bahloul, B. Charbonnel, France
823 Health care resource utilisation and cost among incident diabetic kidney disease patients identified in Optum CDM administrative claims
K. Folkerts, N. Petruski-Ivleva, A. Kelly, P. Velentgas, M. Blankenburg, T. Evers, D. Oksen, A. Gay, Germany, USA

Poster Event C, Wednesday, 12:00 - 13:00

PS 063 Improving outcomes in diabetes: education and health care delivery
Chair: U. Bjerre-Christensen, Denmark

824 Role of structural protocol based diabetes care programme and blue index in diabetes management
D. Panchal, B. Saboo, S. Phatak, P. Zinzuwadia, India

825 Compare hospital activity provided to people with type 1 and type 2 diabetes with non-diabetes to measure longer term impact on resources and effect of previous glycaemic control

826 Comparable efficacy of a newly developed education programme for CSII-users (INPUT) under routine care conditions compared to the RCT setting
N. Hermanns, D. Ehmann, C. Albrecht, D. Bergis, T. Haak, B. Kulzer, Germany

827 DAFNE (Dose Adjustment for Normal Eating) structured education is associated with lower incidence of DKA and DAFNE uptake is lowest in deprived populations
L.M. Hall, H.A. Casey, Z.M. Chong, A. Kernohan, UK

828 Impact of diabetes education and self-management on attainment of glycaemic targets in people with type 1 diabetes in developing countries: IDMPS study outcomes
J.C. Chan, P. Aschner, J.J. Gagliardino, H. İlkova, F. Lavalle, A. Ramachandran, M. Shestakova, J.-M. Chantelot, J.C. Mbanya, China, Colombia, Argentina, Turkey, Mexico, India, Russian Federation, France, Cameroon
829 Potential over- and under-treatment in glycaemic management of type 2 diabetes in general practice in Norway
A. Tran, B. Gjelsvik, T. Berg, J. Cooper, T. Claudi, S. Sandberg, G. Thue, A. Jenum, Norway

830 Physicians’ educational support with self-monitoring of blood glucose improves glycaemic control in patients with type 2 diabetes: a prospective study

831 Is group education effective in non-insulin treated type 2 diabetic patients and do they differ from insulin-treated patients in factors leading to improved control?
J. Stefankova, A. Jirkovska, A. Adamikova, J. Jirkovska, J. Hradec, K. Cechova, V. Havlova, T. Hrachovinova, Czech Republic

832 Effect of an interdisciplinary care and diabetes education programme on foot care knowledge and foot self-care among persons with a high risk profile for foot ulceration

Poster Event D, Wednesday, 13:15 - 14:15

PS 064 Psychological aspects of diabetes
Chair: S.A. Amiel, UK

833 Amygdala connectivity mediates the association between anxiety and depression in type 2 diabetes
C. He, China

834 Missed insulin bolus doses before and after the introduction of rtCGM: the influence of hypoglycaemic fear
835 Integrated Amrita Meditation (IAM) reduces stress and improves glycaemic control in people with type 2 diabetes
H. Kumar, S. Ks, V. Balakrishnan, S. Kr, India

836 The impact of type 1 diabetes on the manifestations of anxiety-depressive disorders and quality of life in adult patients of middle age with a labile type 1 diabetes
Y. Klitsunova, K. Mylytsya, Ukraine

837 Association of anthropometric, socioeconomic, glycaemic and cardiometabolic parameters with the presence and severity of depressive symptoms in type 2 diabetes
A. Angelidi, S. Vrakas, A. Papazafeiropoulou, C. Verras, A. Ganotopoulou, A. Melidonis, Greece

838 High anxiety and depressive symptoms in partners of type 1 diabetes persons in a Brazilian population
E. Buin, E.J. Pavin, M.V. Silveira, Brazil

839 Eating disorders in a Brazilian sample of females with type 1 diabetes
M.V. Silveira, E. Comparetti, A. Moura Neto, E.J. Pavin, Brazil

840 Physical activity protects women with type 1 diabetes against sexual dysfunctions
J. Flotynska, N. Filip, A. Uruska, A. Araszkiewicz, D. Zozulinska-Ziolkiewicz, Poland

841 The association between insomnia symptoms and incident type 2 diabetes in the general population: the New Hoorn Study
F. Rutters, R. De Kruijk, A.A. Van der Heijden, P. Elders, J.W. Beulens, Netherlands

842 The prevalence of insomnia in people with type 2 diabetes and its association with their metabolic status: the Hoorn Diabetes Care System cohort
Poster Event E, Thursday, 12:00 - 13:00

PS 065 Clinical aspects of hypoglycaemia

Chair: A. Mitrakou-Fanariotou, Greece

843 CRASH: conversations and reactions around severe hypoglycaemia: UK results from a global study

844 Interest among type 1 and type 2 diabetes patients taking insulin in adding a new drug therapy to prevent nocturnal hypoglycaemia
R. Liggins, C. Piche, M. Riddell, R. Wood, C. Pang, M. Lafontaine, M. Midmer, Canada, USA

845 The relationship between HbA$_1c$ and hypoglycaemia in the IMPACT trial
M. Giménez, V. Moscardó, M. Reddy, J. Bolinder, N. Oliver, Spain, UK, Sweden

846 Risk of hypoglycaemia associated with second-line agents in routine care patients with type 2 diabetes treated with metformin
A. Pawar, E. Patorno, H. Lee, M. Munshi, D. Kim, USA

847 Machine learning forecasting nocturnal hypoglycaemia in type 1 diabetes under multiple daily injections using continuous glucose monitoring and physical activity monitor
A. Bertachi, C. Viñals, L. Biagi, I. Contreras, M. Giménez, I. Conget, J. Vehí, Spain, Brazil

848 A predictive model of symptomatic hypoglycaemia in 6 months for type 2 diabetes patients with longer duration
L. Ji, F. Hu, S. Jiang, T. Zhao, X. Liao, X. Sun, X. Li, D. Zhang, China

849 Sotagliflozin leads to lower rates of clinically relevant hypoglycaemic events at any HbA$_1c$ level at week 52 in adults with type 1 diabetes
850 Characteristics of emergency department accesses for hypoglycaemia in patients with diabetes: a single centre experience
M.C. Ponziani, A. Nuzzo, A. Brignoli, L.M. Castello, M. Caputo, F. Prodam, P. Marzullo, G. Aimaretti, Italy

851 Nasal glucagon successfully reversed insulin-induced hypoglycaemia in adults with diabetes with nadir blood glucose <3.0 mmol/l (54 mg/dl): a pooled analysis
R.P. Wadwa, M. Matsuhisa, N. Zhang, V.T. Thieu, Q. Wang, K. Ohwaki, C.J. Child, R.J. Threlkeld, P. Choudhary, USA, Japan, UK

852 Emergency hospital admissions with hypoglycaemia: analysis of hospital episode statistics in England and a UK tertiary hospital electronic health record
N. Freemantle, D. McNulty, B.M. Frier, UK

Poster Event F, Thursday, 13:15 - 14:15

PS 066 Consequences of hypoglycaemia
Chair: R. McCrimmon, UK

853 Cold exposure as a dishabituating stimulus restores counterregulatory responses in recurrently hypoglycaemic rodents
K. Vickneson, A. McNeilly, J. Gallagher, J. Blackburn, R. McCrimmon, UK

854 Epinephrine is involved in the pathophysiology of hypoglycaemia associated autonomic failure (HAAF)

855 Effects of GLP-1 receptor activation on counterregulatory responses during hypoglycaemia after gastric bypass surgery: no evidence for GLP-1 as a counterregulatory hormone
856 Effect of induced hypoglycaemia on inflammation and oxidative stress in type 2 diabetes and control subjects
S. Atkin, A. Halama, H. Kahal, A. Bhagwat, A. Butler, J. Graumann, K. Suhre, Qatar, UK, Germany

857 Acute and prolonged effects of clamp-induced hypoglycaemia on procoagulatory markers in subjects with type 2 diabetes treated with metformin only

858 Association of hypoglycaemia with cardiovascular events and mortality in patients with type 2 diabetes and acute coronary syndrome
I.C. Schrieks, A. Nozza, D.E. Grobbee, Netherlands, Canada

859 Effects of mild hypoglycaemia on cognitive function in type 2 diabetes: a randomised crossover trial

860 Non-severe hypoglycaemia predicts increased risk of subsequent severe events in patients with type 2 diabetes
S.R. Heller, E. Hachmann-Nielsen, K. Kvist, UK, Denmark

861 The magnitude of acceleration of gastric emptying by acute hypoglycaemia in health is dependent on the level of hypoglycaemia

862 Effect of lactate administration on cerebral blood flow during hypoglycaemia
Poster Event A, Tuesday, 12:00 - 13:00

PS 067 Approaches to improving care in diabetes

Chair: N. Hermanns, Germany

863 Investigating the use and frequency of blood glucose monitoring in hospital inpatients with stable non-insulin dependent diabetes
H. Kumar, T. Tharmaraja, K. Jadoon, UK

864 A real-world retrospective study evaluating glycaemic control with glucagon-like peptide-1 receptor agonists or basal insulin in type 2 diabetes in the UK
X.V. Peng, L. Blonde, L. Shepherd, R. Lubwama, L. Ji, R.J. McCrimmon, USA, UK, China

865 Time to do more: an Indian perspective of addressing clinical inertia in the management of type 2 diabetes

866 Improved transition outcomes in young adults with diabetes using technology: a pragmatic clinical trial
S. Butalia, A. McGuire, S. Crawford, D. Dyjur, J. Mercer, D. Pacaud, Canada

867 Adherence to kidney disease screening guidelines among incident and prevalent type 2 diabetes patients in a US administrative claims data source
M. Blankenburg, N. Petruski-Ivleva, E. Comerford, P. Velentgas, K. Folkerts, T. Evers, D. Oksen, A. Gay, Germany, USA

868 Regular feedback on specific parameters may be required to maintain improvement in diabetic ketoacidosis management: results from a five-year quality improvement project

869 Health related quality of life in type 1 diabetes measured using patient-reported outcomes, experiences and complication risk factors
870 Patterns in general practitioners’ performance of type 2 diabetes procedures and relations with patients’ risk of cardiovascular disease

871 Management of insulin therapy in patients with type 1 diabetes in developing countries: wave 7 of the International Diabetes Management Practices Study (IDMPS)
J.J. Gagliardino, P. Aschner, A. Ramachandran, H. Ilkova, F. Lavalle, J.C. Mbanya, M. Shestakova, J.-M. Chantelot, J.C. Chan, Argentina, Colombia, India, Turkey, Mexico, Cameroon, Russian Federation, France, China

872 Contributions of chronic kidney disease and heart failure to medical costs of type 2 diabetes
G.A. Nichols, A. Ustyugova, A. Deruaz-Luyet, K.G. Brodovicz, USA, Germany

Poster Event B, Tuesday, 13:15 - 14:15

PS 068 Different aspects on type 2 therapies
Chair: J.I. Bagger, Denmark

873 Unmet medical needs in people with type 2 diabetes treated by insulin: results from the International Diabetes Management Practices Survey (IDMPS)
A. Ramachandran, J.C. Mbanya, P. Aschner, J.J. Gagliardino, H. Ilkova, F. Lavalle, M. Shestakova, J.-M. Chantelot, A. Shaunik, A. Alvarez, M. Rollot, J.C. Chan, India, Cameroon, Colombia, Argentina, Turkey, Mexico, Russian Federation, France, China

874 Quality improvement project for improving inpatient glycaemic control in medical patients admitted with type 2 diabetes

875 Continuous intraperitoneal insulin infusion shows a great benefit-risk ratio under long-term real-world use in a vulnerable population with diabetes
B. Gehr, H. Muehlen, E. Renard, D. Hilgard, N. Oliver, W. Mueller-Hoffmann, A. Liebl, Germany, France, UK
876 Impact of disease duration and beta cell reserve on the efficacy of iGlarLixi in patients with type 2 diabetes: the LixiLan-G trial

877 Switching to iGlarLixi vs continuation of glucagon-like peptide-1 receptor agonist in inadequately controlled type 2 diabetes: the randomised LixiLan-G trial
L. Blonde, J. Rosenstock, S. Del Prato, R. Henry, N. Shehadeh, J. Frias, E. Niemoeller, E. Souhami, J. Wu, C. Ji, V.R. Aroda, USA, Italy, Israel, Germany, France, China

878 Efficacy and safety of lobeglitazone versus sitagliptin as an add-on to metformin in patients with type 2 diabetes and metabolic syndrome over 24-weeks
D. Kim, S. Kim, K. Yoon, S. Chun, K. Park, K. Choi, S. Lim, J. Mok, H. Lee, J. Seo, B. Cha, M.-K. Kim, H. Shon, D. Choi, Korea, Republic of

879 Compliance with metformin treatment in subjects with type 2 diabetes: a single diabetes centre cross-sectional study
I. Prokopová, I. Laňková, Š. Franková, D. Kobrová, T. Čajka, J. Hricko, V. Hrádková, Z. Vlasáková, T. Pelikánová, M. Mráz, M. Haluzík, Czech Republic

880 Effects of metformin added to insulin in adolescents with type 1 diabetes: a crossover randomised controlled trial
D. Yang, W. Xu, W. Zhang, H. Deng, M. Hong, J. Yan, B. Yao, China

881 Comparative efficacy and safety of medications for type 2 diabetes: a comprehensive systematic review and network meta-analysis
A. Tsapas, I. Averinos, T. Karagiannis, K. Malandris, P. Andreadis, A. Manolopoulos, A. Liakos, M. Rika, D.R. Matthews, E. Bekiari, Greece, UK

882 Early insulin treatment vs sitagliptin in LADA: no difference on beta cell function in a setting of similar metabolic control and adjustment for varying impact of autoimmunity
I.K. Hals, H. Fiskvik Fleiner, N. Reimers, M. Astor, K. Filipsson, Z. Ma, V. Grill, A. Björklund, Norway, Sweden

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Poster Event C, Wednesday, 12:00 - 13:00

PS 069 Technologies to measure glucose

Chair: E. Renard, France

883 Glucose meters in diabetes research: accuracy evaluation of portable blood glucose meters in mice
Y. Brito Casillas, A.B. Expósito-Montesdeoca, M. Sánchez, L. Rodrigo-González, P. Martín-Rodríguez, A.M. Wägner, Spain

884 Post-market surveillance of the accuracy of 18 blood glucose monitoring systems available in Europe based on ISO 15197:2013
S. Pleus, A. Baumstark, N. Jendrike, J. Mende, C. Haug, G. Freckmann, Germany

885 Continuous glucose monitoring: a longer sampling duration is required for optimal sampling of those with a higher baseline glucose variability
P. Jacob, S. Rama Chandran, M. Khan, P. Choudhary, HYpoREsolve consortium, UK, Singapore

886 Innovative optical transmission absorbance system to realise ±5% high accurate BGMS
T. Moriuchi, H. Satou, Y. Hayashida, F. Chai, R. Aikawa, T. Sugiyama, Japan

887 Change in continuous glucose monitor metrics with real-life long-term use of hybrid-closed loop system

888 Marked improvement in HbA1c following commencement of flash glucose monitoring in type 1 diabetes
A.R. Dover, R.H. Stimson, V. Tyndall, J.A. McKnight, S.A. Ritchie, N.N. Zammitt, F.W. Gibb, UK

889 Time spent in different glucose ranges (“time in range”) varies depending on the continuous glucose monitoring system used
G. Freckmann, A. Stuhr, S. Pleus, M. Link, J. Mende, C. Haug, Germany, USA
890 Six months of long-term implantable sensor use associates with lower glycated haemoglobin and higher time in range in a real life setting
C. Irace, A. Nuzzi, R. Assaloni, G. Picca, G. Citro, A. Cutruzzolà, A. Gnasso, Italy

891 Long-term safety of the Eversense® CGM system: PMCF registry
F.R. Kaufman, K. Tweden, H. Haridas, G. Carlson, USA

892 Efficacy of flash subcutaneous glucose sensing in the prevention of severe hypoglycaemia in patients with a recent confirmed hypoglycaemic episode
T.M. Davis, P. Dwyer, M. England, W.A. Davis, Australia

Poster Event D, Wednesday, 13:15 - 14:15

PS 070 The potential of new basal insulins
Chair: J. DeVries, Netherlands

893 Real-world cost-effectiveness of insulin degludec in type 1 and type 2 diabetes in a Swedish setting

894 Cost-effectiveness of insulin degludec vs insulin glargine U100 in type 1 diabetes in a Swedish setting after one year
A. Ericsson, A.-C. Mardby, Sweden

895 The effectiveness of insulin glargine 300 U/ml among type 2 diabetes patients: analysis of a real world data
C. Melzer Cohen, V. Shalev, G. Chodick, Israel

896 Comparison of patient vs physician-managed algorithm for titrating insulin glargine 300 U/ml in type 2 diabetes: the ITAS study
A. Giaccari, R.C. Bonadonna, R. Buzzetti, G. Perseghin, D. Cucinotta, A. Avogaro, G. Aimaretti, M. Larosa, C. Fanelli, G. Bolli, Italy

897 Predictive modelling suggests subgroup effects for severe hypoglycaemia in type 2 diabetes patients treated with Gla-300 vs IDeg: the LIGHTNING study
B. Eliasson, I. Hramiak, M. Haluzik, J. Westerbacka, Z. Bosnyak, L. Blonde, T. Bailey, Sweden, Canada, Czech Republic, France, USA
898 The forgotten populations: real-world patients with type 2 diabetes not meeting eligibility criteria of the glargine 300 U/ml EDITION and BRIGHT RCTs
D. Mauricio, J. Westerbacka, C. Nicholls, J. Wu, R. Gupta, A.A. Menon, B. Eliasson, Spain, France, UK, USA, Sweden

899 Gender differences in achieving glycaemic control in patients with type 2 diabetes initiated on insulin glargine 300 U/ml (Gla-300): the European REALI pooled database
M. Bonnemaire, R. Bonadonna, N. Freemantle, D. Mauricio, D. Müller-Wieland, G. Bigot, C. Mauquois, A. Ciocca, P. Gourdy, France, Italy, UK, Spain, Germany, Belgium

900 High-hypoglycaemia-risk patients with type 2 diabetes have lower risk of hypoglycaemia following switch to insulin glargine 300U/ml vs 1st generation basal insulins: DELIVER - High Risk
T. Bailey, N. Freemantle, A. Menon, R. Gupta, J. Wu, C. Nicholls, J. Westerbacka, S. Sullivan, USA, UK

901 Differences in HbA1c lowering effect and hypoglycaemia risk between Gla-300 and IDeg according to renal function in the BRIGHT Trial
D. Müller-Wieland, A. Philis-Tsimikas, Z. Bosnyak, M. Haluzik, F. Lauand, L. Melas-Melt, J. Rosenstock, G. Bolli, Germany, USA, France, Czech Republic, Italy

902 HbA1c goal attainment without hypoglycaemia (Gla-300 vs other BIs) in insulin naive type 2 diabetes patients in the ACHIEVE Control real life study: 12 month analysis by age and comorbidities
J. Anderson, D. Hinnen, J. Gill, P. Evenou, R. Raymond, L. Meneghini, USA

Poster Event E, Thursday, 12:00 - 13:00

PS 071 Wide-ranging aspects of pregnancy

Chair: D. Dabelea, USA

903 Gestational diabetes in mothers and long term cardiovascular disease in both parents: results of over a decade follow-up
M. Kabootari, M. Hasheminia, K. Guity, F. Azizi, F. Hadaegh, Iran, Islamic Republic of
904 Impact of the severity of obesity on the live birth rate obtained after in vitro fertilisation
A. Sultan, C. Brunet, T. Mura, A. Avignon, France

905 Impaired fertility in long-standing type 1 diabetes women
S. Tartaglione, C. Tiberti, M. Porpora, M. Di Trani, E. Berardelli, V. Viggiani, T. Filardi, S. Morano, A. Angeloni, E. Anastasi, Italy

906 Longitudinal changes of plasma high-molecular weight adiponectin are associated with developing postpartum glucose intolerance in previous gestational diabetes
D.-H. Lee, J. Lim, T. Oh, J. Kim, H. Jang, S. Choi, Korea, Republic of

907 Four year follow-up of health outcome status of women with previous gestational diabetes
E. O’Shea, H. Awang, L. Culliney, L. O’Mahony, D. Dahly, M. O’Riordan, A. Tuthill, Ireland

908 Preeclampsia is associated with increased preclinical carotid atherosclerosis in women with type 1 diabetes

909 Urinary total inorganic arsenic concentration associated with insulin resistance among gestational diabetes subjects
I.A. Hossain, F. Jebunnesa, R. Zinnat, L. Ali, Bangladesh

910 Progression of autoantibody positive gestational diabetes to type 1 diabetes

911 Novel indices of glucose homeostasis derived from principal components analysis: application for metabolic assessment in pregnancy
Poster Event F, Thursday, 13:15 - 14:15

PS 072 Pregnancy outcomes: neonatal and perinatal

Chair: M. Malecki, Poland

912 Serum fructosamine predicts macrosomia in well controlled hyperglycaemic pregnant women
P. Poupon, N. Foussard, C. Helmer, A. Cougnard-Gregoire, C. Delcourt, M. Haissaguerre, L. Baillet-BLanco, L. Alexandre, K. Mohammedi, V. Rigalleau, France

913 Associations between maternal insulin dose and capillary blood glucose throughout pregnancy with perinatal outcomes in women with type 1 diabetes
A. García-Patterson, A. Chico, M.J. Martínez, J.M. Adelantado, R. Corcoy, Spain

914 Increased free fatty acids, ketone bodies and fasting glucose after nutritional lifestyle intervention in obese pregnant women: a secondary analysis of the DALI study
J. Harreiter, D. Simmons, G. Desoye, R. Corcoy, R. Devlieger, E.R. Mathiesen, P. Damm, D.M. Jensen, F. Dunne, A. Lapolla, M.G. Dalfra, D. Hill, M.N. Van Poppel, A. Kautzky-Willer, on behalf of the DALI Core Investigator group, Austria, Australia, UK, Spain, Belgium, Denmark, Ireland, Italy, Switzerland

915 Gestational diabetes modifies cord blood lipid profile across birth weight categories
A. Megia, F. Algaba-Chueca, E. Maymó-Masip, M. Ballesteros, G. Albert, N. Amigó, S. Näf, S. Fernandez-Veledo, J. Vendrell, Spain

916 The relationship between low carbohydrate diet and pregnancy outcomes in women with pre-gestational diabetes: a historical prospective study
R. Shalit, N. Dayan, R. Yoeli-Ullman, T. Cukierman-Yaffe, Israel

917 Triglyceride and glucose (TyG) index at mid-pregnancy is an effective predictor of large for gestational age newborns in women with gestational diabetes
K.-S. Kim, S.-K. Kim, S. Park, Y.-W. Cho, Korea, Republic of
918 Gestational weight gain but not gestational diabetes associate with altered heart rate variability in 2 year old children
L. Fritsche, J. Hartkopf, J. Hummel, C. Dannecker, R. Wagner, M. Heni, H.-U. Häring, H. Preissl, A. Fritsche, Germany

919 In vitro myoinositol exposure reduces inflammation in human umbilical vein endothelial cells exposed in vivo to chronic hyperglycaemia

Poster Event A, Tuesday, 12:00 - 13:00
PS 073 Gestational diabetes risk and diagnosis
Chair: D.R. McCance, UK

920 Type 2 diabetes genetic risk variants and gestational diabetes
L. Pacal, B. Bednáriková, B. Barátová, V. Bartáková, K. Chalásová, P. Janků, K. Kaňková, Czech Republic

921 Higher risk of gestational diabetes in singleton pregnancies achieved by assisted reproduction techniques compared with spontaneous conceptions: a meta-analysis
P. Anagnostis, J. Bosdou, D.G. Goulis, G. Lainas, B.C. Tarlatzis, G. Grimbizis, E.M. Kolibianakis, Greece

922 Vitamin B₁₂ deficiency is associated with higher risk of gestational diabetes: a systematic review and meta-analysis
E. Kourogloú, P. Anagnostis, A. Daponte, A. Bargiota, Greece

923 Air pollution and gestational diabetes: accumulated evidence from observational studies
J. Zhou, X.-Y. Tang, F.-Q. Luo, Y.-P. Han, L. Qi, China, USA

924 Risk of gestational diabetes in migrants as compared to non-migrants in Italy: a retrospective cohort study
C. Lencioni, E. Gualdani, E. Lacaria, E. Corsi, P. Francesconi, G. Di Cianni, G. Seghieri, Italy
925 First trimester fasting glycaemia as a predictor of gestational diabetes and adverse pregnancy outcomes
G. Sesmilo, P. Prats, S. García, I. Rodríguez, B. Serra, Spain

926 Foetal abdominal overgrowth is already present at 20-24 weeks’ gestation earlier than the time of gestational diabetes diagnosis
Y. Kim, W. Kim, S. Park, Korea, Republic of, USA

927 Contextual and individual social disadvantage among women with hyperglycaemia first-diagnosed during pregnancy: data from 769,576 women who delivered in France in 2015
E. Cosson, E. Moutengou, S. Fosse, Y. Barry, C. Billonniel, A. Weill, J.-J. Altman, A. Vambergue, N. Regnault, France

Poster Event B, Tuesday, 13:15 - 14:15

PS 074 Pregnancy management
Chair: A. Tabák, Hungary

928 Dramatic reduction of costs with Diabgest, a telehealth platform for gestational diabetes
J.-J.A. Altman, F.-X. Sallée, France

929 Demographic and clinical factors for safer pregnancy in diabetes: trends over time in a national primary care study
M. Gaudio, N. Dozio, M.D. Feher, M. Scavini, M. Joy, S. De Lusignan, UK, Italy

930 Comparison of the WHO 2013 and the NICE 2015 gestational diabetes diagnostic criteria (from an obstetrician’s point of view)
A. Kun, J. Tornóczky, E. Szabó, A.G. Tabak, Hungary, UK

931 Predictors for additional insulin use among women with gestational diabetes
E. Anastasiou, S.A. Paschou, P. Konstantakou, K. Pappa, E. Zapanti, Greece

932 Are there differences in maternal and neonatal outcomes among tight controlled pregnancies with gestational diabetes and the general population?
P. Thomakos, O. Kepaptsoglou, C. Barreto, A. Trouva, A. Korantzis, I. Taraoune, D. Trouvas, C. Zoupas, Greece
933 Adaptive insulin secretion despite impaired islet cell proliferation in a pregnant mouse model with impaired glucose tolerance
K. Grupe, M. Liebmann, I. Rustenbeck, A. Schürmann, S. Scherneck, Germany

934 Gut microbiota changes are associated with insulin resistance in women with gestational diabetes
D. Pongrac Barlovic, K. Molan, M. Starcic Erjavec, J. Ambrozic Avgustin, D. Zgur-Bertok, Slovenia

935 Relative significance of fasting versus post-load glucose levels in pregnancy: a population-based study
P. Kaul, A. Savu, R.O. Yeung, L.E. Moore, S.L. Bowker, E.A. Ryan, Canada

Poster Event C, Wednesday, 12:00 - 13:00

PS 075 Nephropathy biomarkers
Chair: J. Karalliedde, UK

936 Renal function dominates the landscape of the metabolome in type 1 diabetes

937 Plasma metabolomics identifies markers of kidney function in 3,064 Europeans with type 2 diabetes

938 Urinary metabolomics: to distinguish diabetic kidney disease from non-diabetic kidney disease
S. Ghosh, S.K. Manna, M. Basu, S. Pulai, M. Banerjee, A. Raychoudhury, N. Bhattacharyya, India

939 Serum adipocyte fatty acid-binding protein levels are associated with rapid renal function decline in patients with type 2 diabetes
S. Kim, D. Seo, M. Jung, Y. Suh, S. Ahn, S. Hong, M. Nam, Korea, Republic of
940 The relationship between telomere length and diabetic kidney disease: the Hong Kong Diabetes Register
F. Cheng, A.C. Ng, A.O. Luk, G. Jiang, C.K. Lim, M. Joglekar, A. Jenkins, J.C. Chan, A.A. Hardikar, R.C. Ma, Hong Kong, Australia

941 MicroRNA 200 as a potential biomarker of kidney complications in type 2 diabetes

942 Tubular biomarkers and renal function decline in macroalbuminuric individuals with type 1 diabetes: a treatment effect analysis with propensity score matching
N. Panduru, E. Valo, C. Forsblom, N. Sandholm, V. Harjutsalo, M. Saraheimo, P.M. Humpert, P.-H. Groop, Finland, Germany

943 SHP-1 as a marker of podocyturia and diabetes kidney disease
P. Geraldes, F. Lizotte, S. Higgins, R. Sabbagh, A.-M. Côté, Canada

Poster Event D, Wednesday, 13:15 - 14:15

PS 076 Diabetic foot: epidemiological studies
Chair: N.C. Schaper, Netherlands

944 Glucose-lowering agents and incidence of amputation in patients with type 2 diabetes: a systematic review and network meta-analysis
E. Bekiari, T. Karagiannis, I. Avgerinos, A. Liakos, K. Malandris, A. Manolopoulos, P. Andreadis, M. Rika, A. Tsapas, Greece, UK

945 20 years with diabetes and amputations: a retrospective population-based cohort study
J. Roeikjer, M. Hasselstroem, P. Vestergaard, N. Ejskjaer, Denmark

946 Prediction models for the risk of diabetic foot in people with type 2 diabetes: a systematic review and external validation study
947 Diabetic patients in the UK necrotising fasciitis study: 15-years’ data shows increasing incidence but no increase in mortality
H. Bodansky, D. Bodansky, UK

948 Regional disparities in the prevalence of amputations in patients with type 2 diabetes: results from the disease management programmes in North Rhine-Westphalia, Germany
S. Groos, J. Bätzing, J. Kretschmann, C. Macare, M. Schulz, A. Weber, B. Hagen, Germany

949 The use of artificial neuronal network for three-month prognosis in individuals with diabetic foot syndrome
A.A. Poradzka, B. Mrozikiewicz-Rakowska, L. Czupryniak, Poland

950 Long-term reduction of major amputations by two-thirds after implementation of a binding multidisciplinary treatment concept in a regular and emergency care hospital
B. Mertes, H. Voß, B. Miokovic, T. Voigtländer, R. Geraldes, M. Piorkowski, Germany

951 Negative pressure wound therapy in diabetic foot wounds: a systematic review and meta-analysis of real world data
P. Rys, S. Borys, J. Hohendorff, A. Zapala, P. Witek, M. Monica, A. Ludwig-Slomczynska, B. Kiec-Wilk, M.T. Malecki, Poland

Poster Event E, Thursday, 12:00 - 13:00
PS 077 Diabetic foot: diagnosis and treatment

Chair: R.A. Malik, UK

952 Bone immunohistochemistry and plasma levels of RANKL, osteoprotegerin and TNFa in acute Charcot foot
I. Eleftheriadou, A. Tentolouris, I. Anastasiou, I. Mourouzis, E. Jude, J. La Fontaine, E. Catrina, C. Papadimitriou, K. Evangelou, N. Tentolouris, Greece, UK, USA, Romania

953 Bedside blind bone biopsy (B4) for diagnosis of diabetic foot osteitis allows similar healing rate than basic bone biopsy (B3)
954 Effect of negative pressure wound therapy on the level of selected circulating signalling molecules in patients with diabetic foot ulcer
S. Borys, J. Hohendorff, A. Drożdż, A. Wróbel, B. Kieć-Wilk, E. Stępień, M.T. Małecki, Poland

955 Monitoring wound healing of diabetic foot ulcers using two-dimensional and three-dimensional wound measurements
L.B. Jørgensen, U. Halekoh, G.B. Jemec, J.A. Sørensen, K.B. Yderstræde, Denmark

956 Protein tyrosine phosphatase 1B inhibition plays a role in the macrophage phenotype under high glucose conditions: potential therapy for diabetic wound healing
A. Figueiredo, E.C. Leal, G. Gasiuniute, M. Delibegovic, E. Carvalho, Portugal, UK

957 Denosumab, compared to standard care alone, reduces disease activity of acute diabetes related Charcot neuropathy
N.S. Lau, M. Malone, S. Schwarzer, A. France, G. Rajarethnam, E. Staunton, H.G. Dickson, Australia

958 Cytoprotective effect of interleukin 4 on fibroblasts in a 3D culture system comprising immune factors of patients with chronic diabetic foot ulcers
M. Mashkova, V. Goranov, T. Mokhort, L. Chvatova, O. Symanovich, Belarus

959 Inhibition of PTP1B for improved diabetic wound healing

Poster Event F, Thursday, 13:15 - 14:15

PS 078 The impact of autonomic neuropathy

Chair: V. Spallone, Italy

960 Autonomic neuropathy in type 1 diabetes: findings from the T1D Exchange
961 Subclinical cardiovascular autonomic neuropathy associates with increased all-cause mortality and incident cardiovascular disease in screen-detected type 2 diabetes
S.T. Andersen, J. Fleischer, M.E. Jørgensen, T.S. Jensen, L. Bjerg, D.R. Witte, A. Sandbæk, M. Charles, Denmark

962 The association between pulse wave velocity, diurnal indices of blood pressure, some vasoactive peptides and cardiovascular autonomic neuropathy
V. Serhiyenko, V. Segin, A. Serhiyenko, Ukraine

963 Cardiovascular autonomic neuropathy correlate with cardiac diastolic dysfunction in patients with type 2 diabetes
J. Won, Y. Kim, J.-H. Park, G. Kim, Korea, Republic of

964 Relationship between heart rate variability indices and laboratory markers in type 1 diabetic adults using canonical correlation analysis
K. Moshenets, N. Pertseva, Ukraine

965 Evaluation of effect of diabetes on intracardiac nervous system by means of laser microdissection
M. Chottova Dvorakova, T. Smrhova, B. Brizova, S. Pandey, Czech Republic

966 The presence of cardiac autonomic neuropathy is associated with improved diabetic foot ulcer healing
F.J. Farrow, N. Fountoulakis, P. Vas, A. Sharma, S. Thomas, J. Karalliedde, UK

967 Lesions of the small fibers of the peripheral autonomic nervous system and gradation of the diabetic foot risk in patients with diabetes

968 Role of cardiac autonomic function impairment and free fatty acids (FFA) on hypertension in overweight patients
A. Rezki, P. Valensi, M. Fysekidis, S. Chiheb, E. Cosson, France

969 Analysis of gastric emptying measurement in a large cohort of patients suspected of diabetic gastroparesis, comparison between type 1 and type 2 diabetic patients
J. Drouhard, G. Prévost, G. Gourcerol, France
Poster Event A, Tuesday, 12:00 - 13:00

PS 079 Neuropathy: biomarkers and diagnostic tools

Chair: B. Mankovsky, Ukraine

970 Circulating miRNAs (miR-155, miR-128a and miR-499) as potential biomarkers of diabetic neuropathies
A. Latini, C. Ciccacci, A. Colantuono, C. Politi, C. D’Amato, M.E. Rinaldi, D. Lauro, G. Novelli, P. Borgiani, V. Spallone, Italy

971 Comparison between multifrequency vibrometry, neurothesiometer and nerve conduction studies in subjects with type 1 diabetes
E. Lindholm, L. Ekman, J. Apelqvist, M. Löndahl, L.B. Dahlin, Sweden

972 Non-invasive measurements of AGEs products in the Crystalline lens of the eye can distinguish subjects with prediabetes and type 2 diabetes
M. Tavakoli, UK

973 Potential of myelin specific circulating mRNA as biomarkers for diabetic peripheral neuropathy

974 Retinal neurodegeneration in pediatric patients with type 1 diabetes
F. Picconi, M. Parravano, L. Chioma, B. Russo, L. Ziccardi, D. Ylli, P. Pasqualetti, I. Patera, S. Frontoni, Italy, USA

975 Corneal nerve fiber loss correlates with other measures of diabetic neuropathy

976 Corneal nerve fibre loss is related to the severity of pain and quality of life in patients with painful diabetic neuropathy
A. Kalteniece, M. Ferdousi, S. Azmi, A. Marshall, A.J. Boulton, H. Soran, R.A. Malik, UK, Qatar
977 Corneal confocal microscopy identifies early and definite cardiac autonomic neuropathy

Poster Event B, Tuesday, 13:15 - 14:15

PS 080 Clinical implications of peripheral neuropathy
Chair: S. Frontoni, Italy

978 Neuropathy of the upper limb: an underestimated complication of diabetes
Z. Kender, J.B. Groener, J. Jende, F.T. Kurz, M. Bendszus, P.P. Nawroth, S. Kopf, Germany

979 Diabetic neuropathy impacts muscle strength measures in patients with type 2 diabetes: a controlled study
B.L. Van Eetvelde, B. Lapauw, P. Proot, K. Vanden Wyngaert, B. Celie, D. Cambier, P. Calders, Belgium

980 The effect of diabetic sensory peripheral neuropathy on mortality: a meta-analysis

981 Early indication of diabetic neuropathy is associated with higher risk of subsequent cardiovascular disease in screen-detected type 2 diabetes

982 Type 2 diabetes patients with peripheral neuropathy display an increased risk of hypertension
S. Pinto, M. Fysekidis, S. Chiheb, Y. Jaber, E. Cosson, P. Valensi, Italy, France

983 Interest of slow breathing test to evaluate therapeutic efficacy and adherence to CPAP treatment in patients with type 2 diabetes and non diabetic obese patients
R. Galiero, L. Bianchi, P. Valensi, L. Bernardi, E. Cosson, F. Duperron, T. Ciunganu, A. Rezki, France, Finland

232
984 Efficacy and safety of a pill containing SOD, ALA, vit. B₁₂ and carnitine after 12 months of administration in patients with diabetic neuropathy
T. Didangelos, E. Karlafti, Z. Kontoninas, C. Margaritidis, E. Margariti, K. Tziomalos, A. Hatzitolios, Greece

985 Biological actions of glucagon gene-derived peptides in the peripheral nervous system of mice

Poster Event C, Wednesday, 12:00 - 13:00

PS 081 Diabetic kidney disease biomarkers and more
Chair: A. Solini, Italy

986 Cell populations and molecular biomarkers in blood and urine characterise nephropathy in type 1 diabetes

987 Differential expression of urinary exosomal MicroRNAs miR-21-5p and miR-30b-5p in individuals with diabetic kidney disease
G.J. McKay, J. Zang, A.P. Maxwell, D.A. Simpson, UK

988 Clinical phenotypes and biomarkers of non-albuminuric and albuminuric patterns of chronic kidney disease in subjects with type 2 diabetes
A.I. Korbut, I.V. Vinogradov, V.V. Klimontov, Russian Federation

989 Serum neprilysin concentration does not outperform NT-pro BNP for renal and cardiac outcomes in patients with type 2 diabetes: the SURDIAGENE cohort
S. Hadjadj, M. Kolli, M. Wargny, E. Gand, S. Ragot, B. Cariou, R. Roussel, V. Rigalleau, P. Zaoui, J.-M. Halimi, P.-J. Saulnier, France

990 Variations of 20-HETE levels are associated with diabetes induced kidney injury and cardiovascular diseases
P. Houeiss, A.F. Hamdy, H. Tamim, A. Rashid, S.A. Azar, A.A. Eid, Lebanon, Qatar
991 Role of gastrointestinal inflammation in diabetic kidney disease
M.M. Mannerla, S.A. Winther, M. Frimodt-Møller, F. Persson, T.W. Hansen,
C. Forsblom, M. Lehto, P.-H. Groop, P. Rossing, Finland, Denmark

992 Unique synergism between obesity and metabolic syndrome as a risk for incident chronic kidney disease: study in a non-diabetic population
K. Yamashita, K. Hirabayashi, H. Koike, T. Aizawa, Japan

993 Association of glucose metabolism and kidney function in middle-aged adults
M. Schröijen, R. De Mutsert, F. Rosendaal, T. Rabelink, O. Dekkers, Netherlands

994 Euglycaemia in patients with type 1 diabetes after pancreas-kidney transplantation is not a guaranty of complications stabilisation: role of oxidative stress
A. Severina, I. Larina, M. Shamkhalova, E. Artemova, D. Egorova,
T. Chistyakov, L. Nikankina, M. Shestakova, I. Dmitriev, A. Pinchuk,
M. Kaabak, G. Musaeva, Russian Federation

995 Active vitamin D treatment does not modify arterial stiffness and markers of cardio-renal risk in patients with type 2 diabetes and stage 3 chronic kidney disease
J. Karalliedde, N. Fountoulakis, S. Ayis, A. Panagiotou, M. Flaquer,
S. Stoilov, G. Maltese, G. Viberti, S. Thomas, L. Gnudi, UK

Poster Event D, Wednesday, 13:15 - 14:15

PS 082 Promising therapeutic options for diabetic kidney disease

Chair: M.E. Cooper, Australia

996 Chronic kidney disease (CKD) outcomes with dulaglutide (DU) versus insulin glargine (IG) in type 2 diabetes and moderate-to-severe CKD by albuminuria status: AWARD-7
K.R. Tuttle, B. Rayner, M.C. Lakshmanan, D.B. Woodward, A. Kwan,
M. Konig, F.T. Botros, USA, South Africa
997 Exenatide once weekly decreases uACR over 26/28 weeks in patients with diabetes and elevated albuminuria: a pooled analysis
H.J. Heerspink, A.B. Van der Aart - van der Beek, C. Guja, D.H. Van Raalte, L.J. Suchower, E. Hardy, C.D. Sjöström, Netherlands, Romania, USA, Sweden

998 Estimated GFR (eGFR) loss with glucagon-like peptide-1 (GLP-1) analogue treatment: data from SUSTAIN 6 and LEADER

999 Renal effects of sodium-glucose co-transporter 2 inhibitors in Japanese type 2 diabetes patients with chronic kidney disease
K. Kobayashi, M. Toyoda, N. Hatori, K. Sato, K. Tamura, M. Miyakawa, Japan

1000 The impact of sotagliflozin on renal function, albuminuria, and blood pressure in adults with type 1 diabetes
D.H. Van Raalte, P. Bjornstad, F. Persson, R. De Cassia Castro, S. Wang, D.R. Powell, H.J. Heerspink, D. Cherney, Netherlands, USA, Denmark, Canada

1001 Risk of renal outcomes according to eGFR and categorical Urinary Albumin Creatinine Ratio (UACR) in the DECLARE-TIMI 58 trial

1002 Glycogen synthase kinase 3 alpha/beta inhibition attenuates progression of diabetic kidney disease beyond standard-of-care with Metformin/Ramipril/Empagliflozin
M. Manga, L. Anguiano, J. Marschner, Germany

1003 SGLT2 inhibitors are renoprotective via minimising tubular hypoxia and protein O-GlcNAcylation
1004 Efficacy on albuminuria and safety of high dose eplerenone in type 2 diabetes: a MIRAD-substudy
N.H. Brandt-Jacobsen, M.-L. Johansen, J. Rasmussen, M. Schou, P. Rossignol, J. Faber, C. Kistorp, Denmark, France

1005 Comparison of renal effects of ezetimibe-statin combination versus statin monotherapy in patients with and without diabetes: a propensity score-matched analysis
J. Bae, I. Lee, B.-W. Lee, E. Kang, C. Ahn, B.-S. Cha, Y.-H. Lee, Korea, Republic of

Posters

Poster Event E, Thursday, 12:00 - 13:00

PS 083 Nephropathy: worldwide incidence and associations
Chair: J. Chan, Hong Kong

1006 Secular trends of chronic kidney disease in people with type 1 and type 2 diabetes in developing countries (2005-2017): the IDMPS study
J.C. Mbanya, P. Aschner, J.J. Gagliardino, H. Ilkova, F. Lavalle, A. Ramachandran, M. Shestakova, J.-M. Chantelot, J.C. Chan, Cameroon, Colombia, Argentina, Turkey, Mexico, India, Russian Federation, France, China

1007 Renal complication and duration of diabetes: an international comparison in persons with type 1 diabetes

1008 Type 2 diabetes and chronic kidney disease: insights from DISCOVER
K. Khunti, B. Charbonnel, D. Cherney, M.B. Gomes, H.J. Heerspink, L. Ji, J. Medina, S. Pocock, W. Rathmann, M.V. Shestakova, I. Shimomura, F. Tang, H. Watada, M. Kosiborod, S.V. Arnold, UK, France, Canada, Brazil, Netherlands, China, Spain, Germany, Russian Federation, Japan, USA

1009 Excess of mortality risk in type 2 diabetes due to stage of chronic kidney disease
O. Vikulova, M. Isakov, A. Zheleznyakova, M. Shamkhalova, M. Shestakova, I. Dedov, Russian Federation
1010 Type 2 diabetes genetic risk score and morbidity and mortality associated with diabetic kidney disease
D. Galuška, M. Janáková, B. Bednáríková, K. Chalásová, L. Pácal, K. Kaňková, Czech Republic

1011 High glomerular filtration rate is associated with impaired arterial stiffness and subendocardial viability ratio in prediabetic subjects
A. Di Pino, R. Scicali, F. Urbano, L. Zanoli, S. Piro, F. Purrello, A. Rabuazzo, Italy

1012 Blood pressure variability and microvascular dysfunction: The Maastricht Study

1013 Factors associated with change in estimated glomerular filtration rate differ between people with and those without diabetes: a 24,621 person-year analysis
S. Katoh, K. Yokoyama, H. Toshima, M. Zeniya, Y. Sakamoto, K. Utsunomiya, R. Nishimura, Japan

1014 Afro-Caribbean ethnicity and HbA1c variability are associated with non-linear eGFR decline in patients with type 2 diabetic kidney disease
S.I. Stoilov, N. Fountoulakis, A. Panagiotou, S. Thomas, J. Karalliedde, UK

Poster Event F, Thursday, 13:15 - 14:15

PS 084 Nephropathy: What can we learn from experimental models?
Chair: L. Gnudi, UK

1015 Advanced 3D imaging for quantitative analyses of renal function in rodent models of diabetic nephropathy and chronic kidney disease
B. Boland, M.V. Østergaard, F.E. Sembach, T. Secher, A.A. Pedersen, P.G. Pedersen, T.X. Pedersen, U. Roostalu, J. Hecksher-Sørensen, J. Jelsing, L.N. Fink, N. Vrang, Denmark

1016 A role for collagen I in regulating connexin-43 mediated hemichannel activity in the proximal region of the diabetic kidney
J.A. Potter, G.W. Price, C.E. Hills, P.E. Squires, UK
1017 The equilibrative nucleoside transporter 2 is a target of insulin and is dysregulated in diabetic nephropathy
R.J. Suárez, C. Jara, S. Alarcón, C. Quezada, R. San Martín, Chile

1018 Liver X receptors activation triggered autophagy suppression contributes to podocyte injury in vitro and in vivo
Z. Zhang, W. Gui, X. Lin, Y. Zhu, F. Zheng, H. Li, China

1019 Complement C5a induces renal injury in diabetic kidney disease via mitochondrial reprogramming

1020 Backcross db gene into CD-1 background results in novel type 2 diabetic mouse model with progressive kidney fibrosis
Y. Mizunuma, K. Kanasaki, Y. Takagaki, K. Nitta, S. Takagi, H. Liu, S. Li, J. Li, Y. Aso, D. Koya, Japan

1021 Purinergic receptor (P2X7) activation contributes to disassembly of adherens and tight junctions in tubular epithelial cells of the diabetic kidney
G.W. Price, E. Siamantouras, J.A. Potter, P.E. Squires, C.E. Hills, UK

1022 Methylglyoxal-modified DNA is increased in urine of type 1 diabetic rats and correlates with early diabetic kidney disease
J.L. Scheijen, N.M. Hanssen, O. Brouwers, C.D. Stehouwer, C.G. Schalkwijk, Netherlands

1023 Cocoa intake ameliorates renal damage by modulating the redox status, autophagy and apoptosis in Zucker diabetic fatty rats
D. Álvarez-Cilleros, M.E. López-Oliva, M.Á. Martín, S. Ramos, Spain

1024 Dual inhibition of cannabinoid-1 receptor and iNOS ameliorates obesity-induced chronic kidney disease
L. Hinden, S. Udi, M. Ahmad, A. Drori, M.R. Iyer, R. Cinar, M. Herman-Edelsteinand, J. Tam, Israel, USA
Poster Event A, Tuesday, 12:00 - 13:00

**PS 085** Diabetic retinopathy in observational studies

Chair: Á. Valverde, Spain

**1025** Effect of glucose-lowering agents on diabetic retinopathy in patients with type 2 diabetes: a systematic review and network meta-analysis

**1026** Glucagon-like peptide 1 receptor agonists, diabetic retinopathy and angiogenesis: Safe or not? The ANGIOSAFE type 2 diabetes study

**1027** The relationship of retinal vessel and image texture characteristics to diabetic nephropathy in Chinese patients with type 2 diabetes
B. Gao, X. Xu, Q. Wang, M. Zhang, Q. Ji, China

**1028** Genome-wide association study for famine-associated diabetic retinopathy

**1029** HbA$_1c$ as a risk factor for retinopathy and nephropathy in persons with type 1 diabetes

**1030** Association of non-diabetic hyperglycaemia and microvascular and macrovascular complications of type 2 diabetes: a retrospective cohort study
E.P. Vamos, R. Palladino, A.G. Tabak, J. Valabhji, K. Khunti, A. Majeed, C. Millett, UK, Italy, Hungary
1031 The association of post-load glucose levels with retinopathy signs in non-diabetic individuals in midlife: the Northern Finland Birth Cohort 1966 study

1032 Carotid stiffness is associated with retinal microvascular dysfunction: the Maastricht study

1033 Association between pulse wave velocity and the severity of diabetic retinopathy in type 2 diabetes
S. Chaung, C. Lee, M. Chien, S. Liu, Taiwan

Poster Event B, Tuesday, 13:15 - 14:15

PS 086 Diabetic retinopathy: screening and diagnosis
Chair: A. Ciudin, Spain

1034 Validation of artificial intelligence eye screening for diabetic retinopathy: analysis from a pivotal multi-centre trial
E. Ipp, B. Bode, V. Shah, K. Solanki, USA

1035 Cost effectiveness of individualised versus annual screening for diabetic retinopathy in the ISDR randomised controlled trial

1036 A genome-wide association study for sight-threatening diabetic retinopathy in Chinese patients with type 2 diabetes: an Asian screening array analysis

1037 Evaluating an algorithm for screening intervals for diabetic retinopathy and the effect of HbA1c and hypertension
S. Byberg, D. Vistisen, M.E. Jørgensen, M. Valerius, J.N. Hajari, H. Lund-Andersen, Denmark
1038 Normal waist circumference identifies type 2 diabetic patients at lower risk of retinopathy
L. Frittitta, M. Graziano, N. Carrubba, F. Furnari, R. Baratta, F. Vinciguerra, A. Tumminia, Italy

1039 Causes of non-attendance at the diabetic eye screening service in Wales, UK: a retrospective population analysis
R.L. Thomas, W.-Y. Cheung, J.M. Rafferty, S.D. Luzio, D.R. Owens, UK

1040 Optical coherence tomography for the detection of diabetic cystoid macular oedema during routine care in seventeen diabetic care units in Germany
T. Forst, G. Michelson, Germany

1041 Evaluation of novel adipokines (omentin-1, apelin and chemerin) as potential biomarkers of presence and severity of diabetic retinopathy in type 2 diabetes patients
M. Yasir, G.P. Senthilkumar, K. Ramesh-Babu, M. Vadivelan, India

Poster Event C, Wednesday, 12:00 - 13:00

PS 087 Diabetic retinopathy: mechanisms and therapeutic insights
Chair: A. Lecube, Spain

1042 RANKL blockade suppresses pathological angiogenesis and vascular leakage in ischaemic retinopathy
S. Ock, J. Lee, J. Kim, Korea, Republic of

1043 Role of ER stress in hypoglycaemia-induced mouse retinal cell death
D. Fresia, E. Cannizzaro, A. Borgo, R. Roduit, Switzerland

1044 Evaluation of fenofibrate action in diabetic retinopathy using a novel retinal triple culture model

1045 Usefulness of liquid biopsy of aqueous humor biomarkers in predicting anti-VEGF response in diabetic macular oedema: results of a pilot study
O. Simo-Servat, C. Hernández, L. Briansó, M. Mesquida, E. Nogoceke, P. Udaondo, R. Simó, Spain, Switzerland
1046 Thyroid stimulating hormone aggravates diabetic retinopathy through TSHR-dependent mitochondrial apoptosis pathway  
D. Lin, L. Guo, China

1047 New insights into the mechanisms of action of topical administration of GLP-1 in an experimental model of diabetic retinopathy  

1048 MicroRNA-124a prevents retinal vasoregression  
J. Lin, A. Schlotterer, L. Yang, N. Dieterich, B. Kraenzlin, S. Hoffmann, N. Gretz, H.-P. Hammes, Germany

1049 Diabetic retinopathy in well-controlled type 2 diabetes: the role of glycaemic memory  
C. Ducos, M. Rigo, A. Larroumet, M.-N. Delyfer, J.-F. Korobelnik, M. Monlun, N. Foussard, P. Poupon, M. Haissaguerre, L. Blanco, K. Mohammedi, V. Rigalleau, France

Poster Event D, Wednesday, 13:15 - 14:15

PS 088 The breadth of diabetes complications

Chair: P.D. Home, UK

1050 Not diabetic polyneuropathy but muscle strength and fasting C-peptide levels are important predictors for falls in subjects with diabetes  

1051 Features of the pancreas shear wave elastography with ultrasonography in Japanese type 2 diabetes  
M. Furuta, H. Yamaoka, H. Furuta, T. Akamizu, Japan

1052 Hypertriglyceridaemia and osteopenia in diabetes: detrimental effect of TG-rich lipoproteins and improving effect of fibrate agent on osteoblastic cells  
M. Eto, F. Kumagai, M. Saito, Japan
1053 Restrictive or liberal red blood cell transfusion in patients with diabetes undergoing cardiac surgery: results from the TRICS III randomised multinational trial
C. Mazer, N. Shehata, P. Carmona, D. Bolliger, R. Hu, K. Thorpe, N. Mistry, G. Hare, P. Jüni, S. Verma, TRICS III investigators, Canada, Spain, Switzerland, Australia

1054 Effect of a novel long-acting GLP-1/GIP/glucagon triple agonist (HM15211) in a dyslipidaemia animal models
H. Jo, J. Kim, J. Choi, S. Lee, S.-H. Lee, I. Choi, Korea, Republic of

1055 The association between urinary N-acetyl-beta-D-glucosaminidase and heart rate variability in patients with type 1 diabetes
M. Choi, J. Jun, G. Kim, S.-M. Jin, K. Hur, M.-K. Lee, J. Kim, Korea, Republic of

1056 The DPP-4 inhibitor sitagliptin impacts the gut microbiota and prevents neuronal damage of hippocampus in type 2 diabetic rats
M. Tian, F. Zhou, J. Liang, China

1057 Application of a collagen-glycosaminoglycan scaffold to a novel model of chronic wounds in diabetic mice
A.C. Panayi, S. Fu, Y. Endo, K. Udeh, B. Mi, D.P. Orgill, USA

1058 Relationships among long-term/daily blood glucose and blood pressure fluctuation
T. Tsuchiya, Y. Saisho, R. Murakami, Y. Watanabe, H. Sasaki, J. Inaishi, H. Itoh, Japan

1059 The course of thyroid autoimmunity in children and adults diagnosed with type 1 diabetes
A. Rogowicz-Frontczak, E. Niechcial, S. Pilacinski, P. Fichna, D. Zozulinska-Ziolkiewicz, Poland
Poster Event E, Thursday, 12:00 - 13:00

PS 089 Diabetes and cardiac complications

Chair: R. Holman, UK

1060 Is cardiac function and exercise capacity impaired in adolescents with type 1 diabetes?
L. Van Ryckeghem, G. Massa, W. Franssen, V. Bito, P. Dendale, D. Hansen, Belgium

1061 Diabetes is the risk factor which runs alongside the STEMI patients who died in hospital or in 1-year follow up period
D. Andric, D. Tesic, M. Petrovic, A. Redzek, S. Andric, M. Tomic, Serbia

1062 Vitamin E and steroid hormones in patients with type 2 diabetes treated with evolocumab
D.J. Blom, J. Chen, J.L. Borges, Z. Yuan, M. Monsalvo, N. Wang, A. Hamer, J. Ge, South Africa, China, Brazil, USA

1063 Insulin and IGF-1 signalling play critical roles for the regulation of cardiac rhythm
J. Kim, S. Ock, W. Lee, Korea, Republic of

1064 Risk factors for heart failure in the ACE trial population
C.A. Scott, J.J. McMurray, L. Rydén, Y. Sun, M. Tendera, R.L. Coleman, R.R. Holman, UK, Sweden, China, Poland

1065 Left ventricular diastolic dysfunction in patients with diabetic chronic kidney disease
B. Han, J. Huh, Korea, Republic of

1066 Glucose impairment and early diastolic dysfunction in a large cohort at cardiovascular risk
C.W. Haudum, E. Kolesnik, N. Schweighofer, C. Colantonio, B. Pieske, A. Schmidt, A. Zirlik, B. Obermayer-Pietsch, T.R. Pieber, Austria

1067 Metabolic inflexibility in patients with type 2 diabetes and heart failure
E. Hošková, J. Kopecký, J. Veleba, K. Velebová, V. Melenovský, T. Pelikánová, Czech Republic
Poster Event F, Thursday, 13:15 - 14:15

PS 090 Factors contributing to macrovascular disease

Chair: N. Tentolouris, Greece

1068 Factors associated with sclerostin levels, a calcification inhibitor, in patients with type 2 diabetes: Is autonomic neuropathy the missing link?
A. Tentolouris, I. Eleftheriadou, I. Anastasiou, I. Mourouzis, D. Tsilingiris, O. Kosta, P. Grigoropoulou, N. Tentolouris, Greece

1069 Serum levels of calponin 1, relaxin and l-citrulline in subjects with type 2 diabetes: the relationships with carotid atherosclerosis parameters
E.A. Koroleva, R.S. Khapaev, A.P. Lykov, V.V. Klimontov, Russian Federation

1070 Relationship between ABO blood groups and cardiovascular disease in type 1 diabetes according to diabetic nephropathy status
E.B. Parente, V. Harjutsalo, M. Lehto, C. Forsblom, P.-H. Groop, Finland, Brazil

1071 Predictive value of triglyceride glucose index for subclinical atherosclerosis: the Korean genome and epidemiology study
N. Kim, D. Lee, J. Yu, J. Seo, S. Lee, C. Shin, Korea, Republic of

1072 Skin autofluorescence measurement improves CVD risk prediction in the general population
M.M. Van der Klauw, H.E. Boersma, A.J. Smit, R. Graaff, B.H. Wolffenbuttel, Netherlands

1073 Impact of masked and white coat hypertension on clinical outcomes in patients with type 2 diabetes
L. Remonti, G. Pulz, L.C. Pinto, L.H. Canani, C.B. Leitão, Brazil

1074 Neuroprotective action of liraglutide in experimental brain ischaemia is independent on its influence on glucose metabolism

1075 Circulating TNFRII levels correlate with incidence of ischaemic heart disease in male patients with type 2 diabetes
M. Johansson, C. Vavruch, C. Östgren, Sweden
1076 Carotid ultrasonography as a strategy to optimise the management of cardiovascular risk in patients with type 1 diabetes

1077 Tissue sodium concentration correlates with hypertrophic vascular remodelling in type 2 diabetes
D. Kannenkeril, S. Jung, J. Harazny, K. Striepe, C. Ott, P. Linz, A. Nagel, M. Uder, R. Schmieder, Germany, Poland

Poster Event A, Tuesday, 12:00 - 13:00

PS 091 NAFLD: diagnosis and metabolic factors
Chair: A. Gastaldelli, Italy

1078 Missed opportunities for timely diagnosis and referral of type 2 diabetic patients at high risk for fatty liver disease
K. Grdinovac, D.C. Robbins, USA

1079 Non-invasive scores of liver fibrosis in morbidly obese patients
E. Muraca, S. Ciardullo, S. Perra, G. Manzoni, A. Oltolini, F. Zerbini, R. Cannistraci, E. Bianconi, A. Gastaldelli, G. Lattuada, G. Perseghin, Italy

1080 The opposite effects of serum lipoprotein(a) level and insulin resistance on fatty liver disease in 2,536 Korean adults
I. Jung, H. Kwon, S. Park, C.-Y. Park, W.-Y. Lee, K.-W. Oh, S.-W. Park, E.-J. Rhee, Korea, Republic of

1081 Factors affecting hepatic steatosis in adult Caucasian patients with type 2 diabetes

1082 Negative correlation between the early glucagon response and intrahepatic content of lipid (IHCL) in individuals with PNPLA3 rs738409 CCgenotype
A. Nadasdi, V. GáI, K. Rosta, J. Harreiter, A. Kautzky-Willer, A. Somogyi, G. Firneisz, Hungary, Austria
1083 Role of prolactin rhythm in regulating hepatic lipid metabolism
P. Zhang, W. Feng, D. Zhu, Y. Bi, China

1084 Hepatic insulin resistance in NAFLD is associated to reduced glycine and HDL concentrations
C. Barbieri, M. Gaggini, F. Carli, C. Rosso, R. Younes, G. Mingrone, E. Bugianesi, A. Gastaldelli, Italy

1085 Correlation between serum proinsulin levels and fatty liver disease: a population-based study

Poster Event B, Tuesday, 13:15 - 14:15

PS 092 Bones and microvascular disease

Chair: S. Madsbad, Denmark

1086 Alteration of cerebral and peripheral microcirculation in type 2 diabetes and obesity
M. Káplár, Z. Képes, M. Emri, M. Mikó, J. Varga, S. Somodi, R. Esze, L. Rajnai, I. Garai, Hungary

1087 Prediabetes stage negatively impacts in sleep respiratory function: data from the ILERVAS project

1088 Increased nocturnal blood pressure is associated with cerebral small-vessel disease in type 1 diabetes

1089 Exercise training is associated with reduced pain from the musculoskeletal system in patients with type 2 diabetes
1090 Glycaemic control and renal complications in Korean Veterans Affairs Diabetes (KVAD) cohort
Y. Kim, Y. Lee, J. Seo, Korea, Republic of

1091 Effect of type 1 diabetes remission on fracture risk
C. Conte, S. Frara, S. Costantini, E. Falbo, C. Socci, P. Maffi, M. Scavini, A. Secchi, Italy, Switzerland

1092 The impact of type 2 diabetes on bone density and quality in Chinese postmenopausal women and the role of fibroblast growth factor 21 in diabetic bone disease

1093 Diabetes Severity SCOre (DISSCO) improves hospitalisation and mortality prediction: model development and validation in 139,626 people with type 2 diabetes

1094 Hormonal: metabolic indicators of diabetes-associated osteoarthritis
V. Orlenko, M. Tronko, O. Magomedov, Ukraine

Poster Event C, Wednesday, 12:00 - 13:00

PS 093 Liver disease: diagnosis and management
Chair: C.D.T. Byrne, UK

1095 Mediation of intrahepatic triglyceride content on the association of physical activity and diabetes risk
J. Van der Velde, H. Lamb, F. Rosendaal, R. De Mutsert, Netherlands

1096 Baseline characteristics of patients with and without diabetes in trials for advanced fibrosis/cirrhosis due to nonalcoholic steatohepatitis (NASH)
1097 Liraglutide improves nonalcoholic fatty liver disease by regulation of sestrin2-mediated activation of AMPK/Nrf2/HO-1 pathway in obese mice
X. Han, F. Han, R. Pan, N. Hou, Y. Liu, X. Sun, China

1098 Effect of SGLT2 inhibitors on clinical course of non-alcoholic fatty liver disease in Hong Kong Chinese patients with type 2 diabetes
A.P. Kong, H. Lee, A.O. Luk, G.L. Wong, E.Y. Chow, H.L. Chan, R.C. Ma, J.C. Chan, V.W. Wong, Hong Kong

1099 Human REPIN1 gene variant: Potential tool to inhibit NAFLD progression?
C. Berger, K. Abshagen, A. Dietrich, T.E. Schütz, M. Blüher, N. Klöting, Germany

1100 Effect of a novel long-acting GLP-1/GIP/Glucagon triple agonist (HM15211) in NASH and liver fibrosis animal models
J. Kim, J. Lee, D. Kim, E. Park, Y. Kim, I. Choi, Korea, Republic of

1101 Impact of antidiabetic therapy on the prevalence of NASH and liver fibrosis in a cohort of 820 patients with type 2 diabetes and liver biopsy

1102 Effects of cenicriviroc in adults with NASH on inflammatory cytokines and metabolic parameters
R. Charlton, N. Alkhouri, A. Coviello, E. Martins, J. Yuan, M. Abdelmalek, USA

1103 Effect of inhibition of the protein tyrosine phosphatase 1B in lipotoxicity in liver progenitor oval cells
I. Barahona, M.P. Valdecantos, P. Rada, A. Astudillo, J. Balsinde, A. Sánchez, Á.M. Valverde, Spain
Poster Event D, Wednesday, 13:15 - 14:15

PS 094 The interplay of NAFLD and micro- and macrovascular disease

Chair: S. Hadjadj, France

1104 Insulin sensitivity, fatty liver and cardiovascular disease after 10 years in youngster with prepubertal type 1 diabetes onset
M. Manco, A. Petrelli, M. Mancabitti, L. Ravà, A. Mascal, M. Massoud, S. Di Carlo, N. Di Daniele, S. Cianfarani, Italy

1105 Risks and influencing factors of arterial plaques and fatty liver of type 2 diabetes in China
Y. Ding, Q. Fu, M. Sun, China

1106 Nonalcoholic fatty liver disease and sarcopenia are independently associated with atherosclerotic cardiovascular risks: a nationwide survey (KNHANES 2008-2011)
Y.-H. Lee, E. Han, J. Bae, I. Lee, B.-W. Lee, E. Kang, C. Ahn, B.-S. Cha, Y. Kim, S. Kim, Korea, Republic of

1107 Prevalence of nonalcoholic fatty liver disease in patients with type 2 diabetes and association with micro- and macrovascular complications

1108 Meta-analysis regression reveals the usefulness of epicardial fat thickness as a non-invasive marker of the presence and severity of non-alcoholic fatty liver disease
K. Gariani, Switzerland

1109 Elevated plasma copeptin levels identify non-alcoholic fatty liver disease in obese individuals with and without type 2 diabetes
I. Barchetta, S. Enhörning, F.A. Cimini, D. Capoccia, C. Chiappetta, C. Di Cristofano, G. Silecchia, F. Leonetti, O. Melander, M.G. Cavallo, Italy, Sweden

1110 High prevalence of NAFLD in patients with obesity and type 2 diabetes
E. Repetto, D. Barb, M. Stokes, S. Shankar, K. Cusi, USA
1111 Pooled cohort analysis of non-alcoholic fatty liver disease in patients with and without type 2 diabetes: time to take action

Poster Event E, Thursday, 12:00 - 13:00

PS 095 Treatment of cardiovascular disease in animal models
Chair: T. Nyström, Sweden

1112 Pyridoxamine prevents increased atherosclerosis by intermittent methylglyoxal spikes in the aortic arches of ApoE−/−mice
N.M. Hanssen, C. Tikellis, M.C. Flynn, R. Pickering, D. Dragoljevic, K. Wouters, C.D. Stehouwer, M.E. Cooper, A.J. Murphy, M.C. Thomas, C.G. Schalkwijk, Netherlands, Australia

1113 Glucose-dependent insulinotropic polypeptide ameliorates cardiac hypertrophy and fibrosis in diabetic db/db mice

1114 Glucose-dependent insulinotropic peptide remarkably suppresses macrophage foam cell formation in mice and humans

1115 Pioglitazone suppresses macrophage proliferation in apolipoprotein-E deficient mice by activating PPARγ

1116 Vildagliptin induces vasorelaxation by activation of SERCA pump and K+ channels in aortic smooth muscle
J. An, S. Na, W. Park, Korea, Republic of

1117 A sodium-glucose cotransporter-2 inhibitor suppresses arterial remodelling by improving perivascular fat deposition in high-fat-fed mice
1118 Empagliflozin, a sodium-glucose cotransporter 2 inhibitor, improved heart remodelling and endothelial and vascular dysfunction in ZSF1 rats with metabolic syndrome

1119 AT-001 significantly reduces cardiac damage in an animal model of diabetic cardiomyopathy
S. Shendelman, R. Ramasamy, R. Perfetti, USA

Poster Event F, Thursday, 13:15 - 14:15

PS 096 Biomarkers of macrovascular disease in type 2 diabetes
Chair: K.I. Birkeland, Norway

1120 Type 2 diabetes as a predictor of cardiovascular events in peripheral artery disease versus coronary artery disease

1121 The usefulness of cystatin C to detect carotid plaque and arterial stiffness in patients with type 2 diabetes
A. Khang, Korea, Republic of

1122 Increased plasma concentrations of NT-proBNP are associated with impaired myocardial flow reserve in patients with type 2 diabetes and high cardiovascular risk
M. Jürgens, M. Schou, P. Hasbak, A. Kjær, E. Wolsk, B. Zerahn, N.H. Brandt-Jacobsen, P. Gæde, J. Faber, F. Gustafsson, C.M. Kistorp, Denmark

1123 Prediction of major cardiac, cerebrovascular events (MACCE) in diabetic patients using a multi component neural network model
J. Sarkar, K. George, L. Joo, Y. Chee, A. Seneviratna, D. Chew, R. Dalan, Singapore
1124 Microvascular complications as predictor of all-cause mortality, major vascular outcomes and ESRD in type 2 diabetes
G. Penno, M. Garofolo, E. Gualdani, R. Giannarelli, P. Falcetta, D. Lucchesi, F. Campi, R. Miccoli, P. Francesconi, S. Del Prato, Italy

1125 To evaluate the relationship between HSCRP and NT-proBNP in 200 type 2 diabetes patients optimised for conventional cardiovascular and renal risk factors at the end of 2 years
V. Gupta, V. Teli, India

1126 Exploring AGE and sRAGE regulation in response to oral and intravenous glucose loads in individuals with recently diagnosed type 2 diabetes

1127 Metabolic imaging of erythrocyte plasma membrane fluidity for a quantitative biological evaluation of cardiovascular risk score in type 2 diabetes
G. Bianchetti, C. Cefalo, F. Di Giacinto, M. Daniele, T. Mezza, M. De Spirito, A. Giaccari, G. Maulucci, Italy

1128 Macrophage-derived microvesicles is associated with vulnerable plaques in the coronary arteries of patients with type 2 diabetes and non-diabetic controls

1129 Type 1 diabetes: the association between $^1$H-NMR plasma glycoproteins and subclinical atherosclerosis
Poster Event A, Tuesday, 12:00 - 13:00

PS 097 Pathogenic mechanisms of complications

Chair: O. Schnell, Germany

1130 Reduced oxidative phosphorylation can be protective against complications in patients with long-standing type 1 diabetes

1131 DNA-damage: a common soil for diabetic complications
S. Kopf, M. Hoeffgen, Z. Kender, J.B. Groener, V. Kumar, T. Fleming, P.P. Nawroth, Germany

1132 Impaired adaptive hypoxia responses in patients with diabetes
X. Zheng, A.D. Toro, S. Eliasson, C. Xu, I.R. Botusan, N.R. Ekberg, Y. Li, C. Ma, J. Grünler, V. Alferova, A. Zhao, N. Widen, A.I. Catrina, L. Bernardi, S.-B. Catrina, Sweden, Italy, China

1133 Higher levels of daily physical activity are associated with better skin microvascular function in type 2 diabetes: The Maastricht Study

1134 IGFBP2 disrupts colonic stem cell growth and facilitates the onset of diabetic enteropathy

1135 Long-chain inorganic polyphosphates inhibit interferon type I pathway activity in LPS-stimulated human leukocytes

1136 Does diabetes increase the risk of venous thromboembolism?

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1137 Male hypogonadism and CAG repeat number: 14 year prospective outcome in up to 550 men with type 2 diabetes: CAG number modulates testosterone effects

1138 Clinical profile and risk factors of new onset diabetes after transplantation (NODAT): a single centre experience
R. Rajasekharan Nair, V.R. Nair, S. Sreedharan, Z. Paul, A. Mathew, G. Kurian, India

1139 Experiences with microvascular complications in cystic fibrosis-related diabetes from a large cohort in the United Kingdom

Poster Event B, Tuesday, 13:15 - 14:15

PS 098 Endothelial dysfunction: causes and consequences
Chair: J. Petrie, UK

1140 Distinct prevalence of endothelial markers (CD133, CD34, CD31, vWF) in skin of patients with type 2 diabetes complicated by Charcot neuroarthropathy
A. Adamska, S. Pilacinski, D. Zozulinska-Ziolkiewicz, A. Gandecka, J. Soska, A. Konwerska, A. Malinska, M. Nowicki, A. Araszkiewicz, Poland

1141 Alterations of endothelial function during the first 5 years after diabetes diagnosis

1142 The role of acute incretin therapy on endothelium-dependent and endothelium-independent postprandial vasodilation in humans with prediabetes
1143 Coronary artery disease patient microparticles up-regulate sodium-glucose cotransporters 1 and 2 expression to promote atherosclerotic responses in endothelial cells

1144 Mst1 deletion reduces hyperglycaemia-mediated endothelial apoptosis via attenuating mitochondrial fission
R. Qin, L. Guo, China

1145 Effects of the GLP-1 (9-36) metabolite on coronary and peripheral vascular function in obese adults
M. Nilsson, K. Bové, E. Suhrs, T. Hermann, J. Rungby, S. Madsbad, B. Hartmann, J.J. Holst, E. Prescott, M. Zander, Denmark

1146 Short-term physical inactivity, with increased sedentary behaviour, causes a decline in endothelial function

1147 Metabolic health, rather than obesity status, contributes to endothelial dysfunction: a comparison of obesity/metabolic health related phenotypes
V.S. Sprung, K.A. Bowden Davies, J.A. Norman, K.L. Mitchell, J.P. Wilding, G.J. Kemp, D.J. Cuthbertson, UK

Poster Event C, Wednesday, 12:00 - 13:00

PS 099 Lessons from animal models of complications

Chair: H. Al-Hasani, Germany

1148 Circulating levels and tissue expressions of cartilage intermediate layer protein 2 are elevated in coronary heart disease and associated with atherogenesis
J. Chen, L. Li, G. Yang, China

1149 Blockade of renin angiotensin system ameliorates the cardiac arrhythmias and sympathetic neural remodelling in hearts of type 2 diabetes rat model
A. Hussein, Y. Yehya, K. Ezam, M. Sarhan, E. Ibraheim, A. Elsayed, E. Eid, Egypt
1150 Absence of TBC1D4/AS160 impairs cardiac substrate metabolism and increases ischaemia/reperfusion-induced myocardial damage

1151 Glucose overload induces metabolic alterations in cardiomyoblasts
Y. Mattern, B. Stratmann, D. Tschoepe, Germany

1152 Impaired myocardial chaperone-mediated mitochondrial copper transport in diabetic rats

1153 Cocoa diet prevents aortic stiffening and remodelling in type 2 diabetic rats via SIRT-1/NOX-4 mechanisms

1154 Overexpression of HSL restores PPARα-regulated gene expression and inhibits lipotoxic cardiomyopathy in ATGL-deficient mice

1155 Prep1 regulates angiogenesis through a PGC-1α-mediated mechanism
I. Cimmino, G. Perruolo, F. Prisco, O. Paciello, V. D’Esposito, R. Spinelli, G. Ferraro, C. Miele, F. Beguinot, P. Formisano, F. Oriente, Italy

1156 Lactate accelerates diabetic vascular calcification through NR4A1 activation
Y. Zhu, China

1157 Fractalkine/CX3CR1 contributes to STZ-induced mechanical allodynia in the spinal cord of mice
L. Xu, C.-M. Ni, H.-P. Sun, X. Xu, H. Cao, Y.-Q. Zhang, China
Poster Event D, Wednesday, 13:15 - 14:15

PS 100 Treatment of cardiovascular disease

Chair: P. Kempler, Hungary

1158 Impaired insulin-induced myocardial microvascular recruitment is restored by exercise and Iloprost in type 2 diabetes

1159 Rivaroxaban compared to low dose aspirin in type 2 diabetic patients with high cardiovascular risk: effects on platelet activation and vascular biomarkers

1160 Differential vascular effects of aspirin in patients with type 2 diabetes without cardiovascular disease and matched controls without diabetes

1161 The dual GIP/GLP-1 receptor agonist tirzepatide improves lipoprotein biomarkers associated with insulin resistance and cardiovascular risk in patients with type 2 diabetes

1162 Effect of liraglutide vs empagliflozin treatment on cardiovascular biomarkers in type 2 diabetic patients
M.P. Baldassarre, S. Coluzzi, C. Tinari, F. Febo, P. Lanuti, E. Ercolino, G. Formoso, A. Consoli, Italy

1163 Effects of a 3-month treatment with liraglutide and empagliflozin combination on myocardial work and vascular function indices in type 2 diabetic patients
1164 Liraglutide and semaglutide improve cardiovascular and renal outcomes across most BMI categories in type 2 diabetes: results of the LEADER and SUSTAIN 6 trials

1165 Short-term effect of empagliflozin on endothelial function in patients with type 2 diabetes and cardiovascular diseases: a placebo-controlled randomised trial (EMBLEM)

1166 Sotagliflozin reduces markers of arterial stiffness in type 1 diabetes: pooled analysis from in Tandem1 and in Tandem2 clinical trials
H. Wachslicht Rodbard, A. Giaccari, M. Davies, S. Sawhney, S. Wang, S.K. Garg, B. Cariou, USA, Italy, France

Poster Event E, Thursday, 12:00 - 13:00
PS 101 Cancer: prevalence and mechanisms
Chair: M. Dabrowski, Poland

M. Tuhackova, P. Krollova, M. Kvapil, K. Benesova, J. Jarkovsky, L. Dusek, Czech Republic

1168 Occurrence of advanced adenoma as a precancerous colorectal lesion is significantly higher in people with prediabetes and type 2 diabetes: a multicentre prospective study
J. Jirkovska, O. Ngo, T. Grega, G. Veprekova, S. Solar, O. Majek, M. Zavoral, S. Suchanek, Czech Republic

1169 Association of serum glucose levels with disease free survival in soft tissue sarcoma patients
1170 Impact of metabolic syndrome on the incidence of thyroid cancer
E. Kim, J. Han, S. Moon, K. Han, H.-S. Kwon, Korea, Republic of

1171 Does obesity-related cancer risk differ between gliclazide and other sulphonylureas?
J. Du, N. Kleefstra, H. Van Hateren, D. Schrijnders, J.A. Johnson, G.H. De Bock, G.W. Landman, Netherlands, Canada

1172 Insulin hypersecretion promotes pancreatic cancer development via increased fibrosis
A.M. Zhang, J. Magrill, T.J. De Winter, X. Hu, S. Skovso, D.F. Schaeffer, J.L. Kopp, J.D. Johnson, Canada

1173 Association of serum branched-chain amino acids with cancer risk: the Hong Kong Diabetes Register (HKDR)
L.-L. Lim, H.-M. Lee, E. Lau, A. Luk, E. Chow, R. Ma, J. Chan, A. Kong, Hong Kong, Malaysia

1174 Differential metabolic rewiring is driven by distinct oncogenic alterations
V. Costa, C. Perfetto, S. Cataldi, Italy

1175 Metformin suppressed DPP-4 inhibitor-induced breast cancer EMT and lung metastasis via suppression of mTOR signalling
E. Kawakita, F. Yang, A. Kumagai, K. Kanasaki, D. Koya, Japan

1176 Metformin is taken up in tumor tissue in breast cancer patients in vivo: a 11C-metformin PET/CT study

Poster Event F, Thursday, 13:15 - 14:15

PS 102 Associations and predictors of mortality
Chair: B.H.R. Wolffenbuttel, Netherlands

1177 Arterial pulse wave reflections predict all-cause mortality in type 1 diabetes
A. Tynjälä, C. Forsblom, V. Harjutsalo, P.-H. Groop, D. Gordin, the FinnDiane Study Group, Finland
1178 Combined and additive effect of diabetic retinopathy and diabetic kidney disease on mortality in patients with type 2 diabetes: a real-world longitudinal study
T. Takao, K. Takahashi, K. Kimura, M. Suka, H. Yanagisawa, M. Kasuga, Japan

1179 Mitochondrial peptide MOTS-c plasma levels in patients with type 2 diabetes are associated with resistance to clopidogrel and increased mortality

1180 Effect of oral hypoglycaemic agent adherence on cardiovascular disease and mortality in patients with newly diagnosed type 2 diabetes
J. Choi, S. Nam, D.-H. Lee, J. Kim, H. Jeon, T. Oh, Korea, Republic of

1181 Visit-to-visit variability of HbA$_{1c}$ and systolic BP as risk markers for cardiovascular events, end stage renal disease, renal function decline and mortality in type 1 diabetes

1182 hsTroponin and NT-proBNP in type 1 diabetes: association with all-cause and cardiovascular disease (CVD) mortality
T. Costacou, T.J. Orchard, USA

1183 The ceramide-based coronary event risk test predicts cardiovascular mortality in cardiovascular disease patients with and without type 2 diabetes

1184 A retrospective study of mortality in adults with schizophrenia and diabetes
D. Morrison, C.A. Sainbury, R. Frize, R. Wilson, G.C. Jones, UK

1185 Skin autofluorescence predicts incident CVD and mortality in people without type 2 diabetes
H.E. Boersma, A.J. Smit, R. Graaff, M.M. Van der Klauw, B.H.R. Wolffenbuttel, Netherlands
Poster Event A, Tuesday, 12:00 - 13:00

PS 103 Clinical aspects of macrovascular disease

Chair: A. Natali, Italy

1186 High risk of cardiovascular episodes and low adherence to risk factors guidelines in a population with diabetes

1187 Are Europeans living with type 2 diabetes aware of CVD and its risk factors? Findings from the IDF Taking Diabetes to Heart survey
M. Prystupiuk, I. Petersohn, P. Salpea, P. Saeedi, S. Karuranga, L. Hammond, L. Piemonte, B. Malanda, Ukraine, Belgium

1188 Impact of ACC/AHA guidelines for coronary artery disease in asymptomatic type 2 diabetic patients at low risk of cardiovascular disease
D. Moriconi, L. Nesti, A. Mengozzi, D. Tricò, A. Natali, S. Taddei, M. Nannipieri, Italy

1189 Long-term cardiovascular outcome after intensive versus standard screening of diabetic complications: a real-word observational study
M. Morieri, E. Longato, M. Mazzuccato, B. Di Camillo, A. Cocchiglia, L. Gubian, G. Sparacino, A. Avogaro, S. Vigili de Kreutzenberg, G. Fadini, Italy

1190 Visit-to-visit HbA1c variability is associated with cardiovascular diseases and microvascular complications in patients with newly diagnosed type 2 diabetes
S. Li, I. Nemeth, L. Donnelly, K. Zhou, E.R. Pearson, China, UK

1191 Prediction of macrovascular events and mortality in people with type 2 diabetes using dynamic modelling of systolic blood pressure: the Hoorn Diabetes Care System cohort
1192 The Steno T1 Risk Engine is more useful to identify type 1 diabetes patients with advanced carotid atherosclerosis than classical risk factors

1193 Weekly physical activity patterns are associated with aortic stiffness (estimated by carotid-femoral pulse wave velocity): the Maastricht study

1194 Pacific-specific CETP genetic variant associates with increased HDL and low LDL in Polynesian populations

1195 Atrial fibrillation detected by home monitoring in patients with diabetes: cardiovascular disease and prevention of stroke in an outpatient cohort
A. Christiansen, J. Koefoed Tingsgaard, D. Andersen, H. Søholm, M. Taskiran, T. G. Bock, M. Malby Schoos, Denmark
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The European Foundation for the Study of Diabetes (EFSD) was created by the European Association for the Study of Diabetes (EASD) in order to support more actively diabetes research in Europe and to serve the goals of EASD. The EFSD began its work in 2000 and has become a significant European funding agency for diabetes research, and is continually striving to enhance diabetes awareness in Europe.

Since inception, EFSD has committed over €100 million to European diabetes research by way of a wide range of grant and fellowship funding initiatives.

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EFSD Grant and Fellowship Programmes

EFSD is greatly indebted to the following companies and organisations for their most generous support of European diabetes research:

**AstraZeneca:**

**EFSD Future Leaders Mentorship Programme for Clinical Diabetologists supported by AstraZeneca**
The major goal of this Programme is to identify and promote the advancement of the next generation of leading clinical diabetologists in Europe by refining their skills, keeping them in the field of diabetes and facilitating their appointment to senior academic positions at major European institutions.

**Boehringer Ingelheim:**

**EFSD/Boehringer Ingelheim European Research Programme on “Multi-System Challenges in Diabetes”**
This Programme is intended to stimulate and accelerate European research on the interrelation and crosstalk of different organs (e.g. heart, kidney, pancreas, gut, liver and brain) and related pathophysiology in diabetes and its complications and the impact of therapeutic interventions for this complex condition.

**Japan Diabetes Society:**

**EFSD/JDS Reciprocal Travel Research Fellowships**
The objective of these Fellowships is to encourage collaborative research between Europe and Japan in the field of diabetes.

**JDRF and Lilly:**

**EFSD/JDRF/Lilly European Programme in Type 1 Diabetes Research**
This Programme aims to increase awareness and promote the highest quality of basic biomedical and clinical research in Europe and its associated countries applicable to type 1 diabetes.
Lilly:

**EFSD/Lilly European Diabetes Research Programme**
This Programme aims to promote increased European diabetes research and to raise public awareness and political understanding of the disease. Grants are offered for any area of basic or clinical diabetes research.

**EFSD/Lilly Young Investigator Research Award Programme**
The objective of these Young Investigator Research Awards is to encourage innovative research in the field of diabetes and its complications, and to promote excellence in medical education.

Merck Sharp & Dohme:

**EFSD European Research Programme on New Targets for Type 2 Diabetes supported by MSD**
This Programme is intended to stimulate and accelerate European research focusing on the identification and molecular understanding of new targets for the treatment of type 2 diabetes.

Novo Nordisk A/S:

**EFSD/Novo Nordisk Programme for Diabetes Research in Europe**
This Programme aims to promote high-quality diabetes research in Europe, and accepts applications from all fields of clinical and basic diabetes research.

**EASD Rising Star Symposium & EFSD Research Fellowship Programme supported by Novo Nordisk**
This combined EASD/EFSD initiative aims to identify promising and innovative young researchers in basic and clinical diabetes research.

Novo Nordisk Foundation:

**EFSD/Novo Nordisk Foundation Future Leaders Award Programme**
This Programme is intended to identify outstanding clinical and basic scientists in European diabetes research in the transition from postdoctoral/clinical fellow to a tenured academic appointment in diabetes research in Europe and support them though significant career development awards over 5 years and fostering their development into the leaders of tomorrow.
Sanofi:

EFSD/Sanofi Pilot Research Grants for Innovative Measurement of Diabetes Outcomes
These grants are intended to help develop innovative means to document and validate novel parameters indicative of long-term benefits for patients with diabetes.

EFSD/Sanofi European Diabetes Research Programme in Macrovascular Complications of Diabetes
This Programme has been created to stimulate and accelerate European research on macrovascular complications of diabetes. Grants are offered for basic or clinical mechanistic studies.

Servier:

EFSD INTENSE Project supported in part by an unrestricted educational grant from Servier
This Project aims to develop novel evidence-based approaches for the enhancement of patient adherence in type 2 diabetes therapy, thus enabling sustained adherence to a mutually agreed treatment plan.

In addition, the EFSD Albert Renold Travel Fellowships are available throughout the year, and enable young scientists to stay at other institutions in order to learn new techniques in basic or clinical diabetes research.

EFSD awards are strictly competitive and decisions are based upon a rigorous and fully independent peer-review process.

Further information on EFSD programmes can be found under:

www.EuropeanDiabetesFoundation.org
SYMPOSIA
ON THE OCCASION
OF THE
55th EASD ANNUAL MEETING
OF THE
EUROPEAN ASSOCIATION
FOR THE STUDY
OF DIABETES
IDF EUROPE EASD 2019 SYMPOSIUM:
FROM 2011 TO 2019: A CRITICAL LOOK TO THE
ACHIEVEMENTS OF NCD AGENDA FOR THE
DIABETES COMMUNITY IN EUROPE

Monday, 16 September 2019 10:00 - 12:30

Pinos Hall

Opening

Cristina Petrut, RO:
Patient perspective on diabetes within NCD agenda

Joao Filipe Raposo, PT:
Burden of diabetes in the European Region: Does the NCD agenda effectively fulfill diabetes policy needs in our region?

Şehnaz Karadeniz, TR:
The content and the implementation of national plans:
What is the room for improvement?

Nebojsa Lalic, RS:
Access and availability of diabetes medicines and technologies in Europe: How does the NCD agenda tackle this problem?

Massimo Massi Bennedetti & Fabrizio Carinci, IT:
Current landscape of diabetes registries in Europe

Open debate:
Synergies between diabetes and its comorbidities and NCDs
Moderated by Niti Pall, UK

Niti Pall, UK:
Take home messages

Closing
COST OF THE DIABETIC FOOT SYNDROME:  
HOW TO OBTAIN  
AND UNDERSTAND COST DATA

Monday, 16 September 2019  12:00 - 14:00

Hall 4.2

Chairs: Andrea Icks, Germany, Nikolaos Papanas, Greece, 
        William Jeffcoate, UK

12:00 - 12:10  Nikolaos Papanas, Greece, Andrea Icks, Germany:  
               Welcome and Introduction

12:10 - 12:35  Marion Kerr, UK:  
               Cost of major amputations in the UK: overview and current situation

12:35 - 13:00  Kristien Van Acker, Belgium:  
               Cost of the diabetic foot syndrome in developed and developing countries: 
               large differences

13:00 - 13:25  Andrea Icks, Germany:  
               Cost of major amputations in people with diabetes compared to those without diabetes

13:25 - 13:50  William Jeffcoate, UK:  
               What is the importance of these findings to clinicians and health care managers?

13:50 - 14:00  William Jeffcoate, UK:  
               Summary and Outlook

Organised by the Study Group on “Health Services Research and Health Economics” in collaboration with the Diabetic Foot Study Group (DFSG)
HYPE AND HOPE FOR PREVENTION OF TYPE 2 DIABETES

Tuesday, 17 September 2019 07:30 - 08:30

Sols Hall

Chairs: Paolo Pozzilli, IT and David Leslie, UK

Linong Ji, CN:
Reverse better than prevent diabetes: a novel and feasible approach

Peter Gaede, DK:
Country personalised diagnosis and treatment of prediabetes

Paolo Fiorina, IT:
The impact of technology in preventing diabetes

Under the auspices of:
University Campus Bio-Medico, Rome, Italy
Queen Mary, University of London, UK
Chinese Foundation for Health Promotion, China
Tuesday, 17 September 2019

11:30 - 13:30

Hall 4.2

11:30 - 12:00  Keynote lecture 1:
D. Dunstan, Australia:
Should I sit or should I stand: how to tackle the sitting problem

12:00 - 12:30  Keynote lecture 2:
R. Bracken, UK:
Professional Road Cycling with Type 1 diabetes:
Team Novo Nordisk

12:30 - 13:15  6 short talks

13:15 - 13:30  Networking
D&CVD SYMPOSIUM:
NOVEL PARADIGMS IN DIABETES AND
CARDIOVASCULAR DISEASE

Tuesday, 17 September 2019 14:00 - 16:00

Hall 4.2

Welcome: Antonio Ceriello, Italy, Study Group Chair

Chairs: Doina Catrinoiu, Romania / Baruch Itzhak, Israel

14:00 - 14:20  Antonio Ceriello, Italy:
New EASD/ESC guidelines 2019 on Diabetes and cardiovascular disease: What is hot, what is really new?
Discussion: 14:20 - 14:30

14:30 - 14:50  Paul Valensi, France:
Heart failure in diabetes and its prevention
Discussion: 14:50 - 15:00

15:00 - 15:20  Oliver Schnell, Germany:
Novel strategies for prevention of cardiovascular disease in diabetes
Discussion: 15:20 - 15:30

15:30 - 15:50  Eberhard Standl, Germany:
Severe hypoglycemia and cardiovascular events revisited in CVOTs on diabetes
Discussion: 15:50 - 16:00

Objective of the Scientific Session
In the era of cardiovascular outcome trials with glucose lowering drugs for type 2 diabetes, a number of unexpected issues have emerged, four of them will be addressed by this symposium.
PCDE SYMPOSIUM:
PRIMARY CARE MANAGEMENT
OF ELDERLY PEOPLE WITH DIABETES

Tuesday, 17 September 2019  16:30 - 18:00

Hall 4.2

Clare Hambling, UK:
PCDE Position Statement

Bertine Hart, Netherlands:
De-intensification of blood glucose lowering medications in people with type 2 diabetes identified as being over-treated: a mixed methods study

Sam Seidu, UK:
De-intensification in older patients with type 2 diabetes: a systematic review of approaches, rates and outcomes

Domingo Orozco, Spain:
Glycaemic control and vascular events and mortality in diabetic population over years of age

Ana Cebrian, Spain:
Diabetes App

Phillippe Domeyer, Greece:
Quality assessment of type 2 diabetes care in Greece: setting indicators from a primary care perspective
Symposia

DESG SYMPOSIUM:
IS THERE A PLACE FOR THERAPEUTIC PATIENT EDUCATION IN THE ERA OF NEW TECHNOLOGIES?

Wednesday, 18 September 2019 10:00 - 12:00

Hall 4.2

Moderator: Florian Toti, Tatjana Milenkovic

10:00 - 10:15  Florian Toti: Therapeutic education and technology – Helping for a better understanding of diabetes

10:15 - 10:35  Massimo Massi Benedetti: The evolution of diabetes care and education. Where are we going?

10:35 - 10:55  Banshi Saboo: Continuous Glucose Monitoring: Can it serve as an educational or motivational tool for type 2 diabetic patients

10:55 - 11:15  Sergio Pillon: Digital technology is the tool of the digital age, not the goal. Care as you live

11:15 - 11:30  Guido Ruffino Prize

11:30 - 11:55  Round Table: Challenges for therapeutic education today. Still a cornerstone of diabetes treatment or an ancient tool?

Moderator: Joao Filipe Raposo, Anna Majchrzak

Tankova, Milenkovic, Massi Benedetti, Patrakeeva, Vlasenko, Sadikot, Hassanein

11:55 - 12:00  Florian Toti, Anna Majchrzak: Final remarks and closure
EUROPEAN GROUP FOR THE STUDY OF INSULIN RESISTANCE (EGIR) SYMPOSIUM

Wednesday, 18 September 2019 12:30 - 14:00

Hall 4.2

Chairs: J. Petrie, UK, A. Natali, Italy

12:30 - 12:50  E. Ferrannini, Italy:  
An overview of results of EGIR

12:55 - 13:15  J. Jones, Portugal:  
How to trace metabolic fluxes

13:20 - 13:40  A. Gastaldelli, Italy:  
The role of the liver in insulin resistance and clearance

13:40 - 14:00  C. Bonner, France:  
The pancreatic alpha and delta cells in the spotlight
**Wednesday, 18 September 2019**  
**14:30 - 16:30**

**Hall 4.2**

Chair: Michael Maresh, UK

14.30 - 14.40  
**Michael Maresh, UK:**  
Presentation of the DPSG Study Group

14.40 - 15.05  
**Rosa Corcoy, Spain:**  
Early pregnancy factors and later complications in type 1 diabetes

15.05 - 15.30  
**Pilar Ramos, Spain:**  
Metabolic alterations in GDM: lessons from animal studies

15.30 - 15.55  
**David McIntyre, Australia:**  
Heterogeneity of GDM

15.55 - 16.20  
**Adam Tabak, Hungary:**  
Long-term consequences of GDM

16.20 - 16.30  
**Michael Maresh, UK:**  
Discussion and conclusions
Wednesday, 18 September 2019 17:00 - 18:30

Hall 4.2

Chair: Naila Rabbani, UK

Jan Škrha, Czech Republic:
Reactive oxygen species as a common pathway in diabetes and its complications

Paul J Thornalley, Qatar:
Hexokinase-2 Glycolytic Overload in Diabetes – how, where and why pathobiology starts

Panel Discussion
Thursday, 19 September 2019  9:30 - 11:30

Hall 4.2

Chair: Solomon Tesfaye, UK / Peter Kempler, Hungary

Peter Kempler, Hungary:
Welcome and introduction: Should diabetic neuropathy be considered as an early and severe complication?

Nikolaos Papanas, Greece:
Praediabetic neuropathy

Dinesh Selvarajah, UK:
Seeing what they are feeling: central mechanisms determining clinical phenotype and treatment response in diabetic neuropathy

Viktor Horváth, Hungary:
The effect of autonomic and sensory neuropathy on all-cause mortality - a 20 year long retrospective cohort study

Dan Ziegler, Germany:
“This house believes that diabetic neuropathy is reversible”
Summary on pathogenetic oriented disease-modifying therapy in diabetic neuropathy

Solomon Tesfaye, UK:
Update on symptomatic treatment of diabetic neuropathy
NAFLD STUDY GROUP SYMPOSIUM: NAFLD AND THE DIABETOLOGIST

Thursday, 19 September 2019 12:00 - 14:00

Hall 4.2

Chairs: H. Yki-Järvinen, Finland, J. Jones, Portugal

12:15 - 12:20  Introduction to the EASD-NAFLD study group

12:20 - 12:40  R. Taylor, UK: NAFLD in the pathogenesis of type 2 diabetes

12:45 - 13:05  C. Byrne, UK: Management of diabetes in patients with cirrhosis: which treatments, which targets?

DNSG SYMPOSIUM:
HOT TOPICS IN CARBOHYDRATE QUALITY
AND DIABETES

Thursday, 19 September 2019  
14:30 - 16:30

Hall 4.2

Chairs: Ulf Risérus (Sweden), Hana Kahleová (Czech Republic)

Anne-Marie Aas, Norway:
"Low-carb" for diabetes: What does the evidence say?

Gabriele Riccardi, Italy:
Importance of carbohydrate quality in diabetes

Ian Rowland, UK:
Replacement of sugars with low calorie sweeteners on microbiome
and glucose tolerance: Evidence vs headlines

Paul Smeets, Netherlands:
Low calorie sweeteners and sweet taste: A cause for calorie confusion
and over consumption?

Panel discussion
Industry Symposia
on the occasion of the
55th EASD Annual Meeting

www.easd-industry.com
## INDUSTRY SYMPOSIA SCHEDULE

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*Status July 2019, details are subject to change.*
## INDUSTRY SYMPOSIA SCHEDULE

### Industry Morning Symposia
**Wednesday, 18 September 2019**

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**Wednesday, 18 September 2019**

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Status July 2019, details are subject to change.
Full Day Session

Co-chairs: John Cunningham (UK) and Juris J Meier (Germany)

09:00 – 11:05 ADVANCING INSULIN INNOVATION FOR PEOPLE WITH DIABETES

09:00 Welcome and introduction
John Cunningham (UK) and Juris J Meier (Germany)

09:10 – 10:45 Why should hypoglycaemia be a compromise?
Athena Philis-Tsimikas (USA)
Lena Landstedt-Hallin (Sweden)

Durability of a dual approach
Liana Billings (USA)

Intensified insulin management around mealtimes
Stephen C Bain (UK)

Practical steps for insulin intensification
All

Keynote: Glucose management beyond HbA1c
Richard Bergenstal (USA)

10:45 – 11:05 Coffee break

11:05 – 13:15 OPTIMISING THE USE OF GLP-1RAS IN PEOPLE WITH TYPE 2 DIABETES

11:05 Welcome back
John Cunningham (UK) and Juris J Meier (Germany)

11:10 – 12:25 Treatment intensification with semaglutide OW
Rory McCrimmon (UK)

Real-world evidence in type 2 diabetes care
Marc Evans (UK)

Clinical implications of evidence from cardiovascular outcomes trials
Subodh Verma (Canada)

Clinical aspects of use of GLP-1RAs
All

12:25 – 13:15 Lunch
MONDAY, 16 SEPTEMBER 2019  09:00 – 15:35
JOSLIN HALL

Full Day Session

13:15 – 14:30 OPTIMISING THE USE OF GLP-1RAS IN PEOPLE WITH OBESITY

13:15 Welcome back
John Cunningham (UK) and Juris J Meier (Germany)

13:20 – 14:10 The role of IBT in weight management
Thomas Wadden (USA)

Weight management in people with type 2 diabetes on insulin
Ofri Mosenzon (Israel)

Integrating weight management into type 2 diabetes care
All

14:10 – 14:30 Coffee break

14:30 – 15:35 FUTURE PERSPECTIVES FOR TYPE 2 DIABETES CARE

14:30 Welcome back
John Cunningham (UK) and Juris J Meier (Germany)

14:35 – 15:30 Oral GLP-1RAs – a new approach to diabetes treatment*
Melanie Davies (UK)

Evaluating clinical relevance of an oral GLP-1RA in different populations
Vanita Aroda (USA)

Patient-centered decision making
All

15:30 – 15:35 Close of the day
John Cunningham (UK) and Juris J Meier (Germany)

*Not marketed in Spain

Organised by: Novo Nordisk
DIABETES JOURNEY:
INNOVATIVE SOLUTIONS FOR INDIVIDUAL NEEDS

Full Day Session

Chairs: Jay Skyler, Leigh Perreault

09:00 – 09:10 Welcome and introduction
Jay Skyler, Leigh Perreault

09:10 – 09:40 Addressing the triple threat: A systemic approach to diabetes and the cardio-renal axis
Mark Cooper

SESSION 1: Selecting insulin options to meet patients' needs

09:40 – 09:45 Session introduction
Leigh Perreault

09:45 – 10:05 Updates and advantages of 2nd-generation basal insulin analogs
Pratik Choudhary

10:05 – 10:25 Renal function and glucose control with basal insulins
Alice Cheng

10:25 – 10:45 Real-life relevance of 2nd-generation basal insulin analogs in high-risk patients
Kamlesh Khunti

10:45 – 10:55 Audience Q&A

SESSION 2: Beyond HbA1c: Individualizing treatment along the cardio-renal axis

10:55 – 11:00 Session introduction
Jay Skyler

11:00 – 11:25 Driving innovation in T1D with dual SGLT-1 and -2 inhibition
Jeremy Pettus

11:25 – 11:50 Advances in therapy: Effects on cardio-renal function with dual SGLT-1 and -2 inhibition
Thomas Danne

11:50 – 12:00 Audience Q&A

12:00 – 13:00 Lunch
DIABETES JOURNEY:
INNOVATIVE SOLUTIONS FOR INDIVIDUAL NEEDS

Full Day Session

SESSION 3: Personalizing outcomes: Optimizing treatment options across the patient spectrum

13:00 – 13:10 Session introduction
Jay Skyler

13:10 – 13:30 Personalizing injectable treatments in T2D
Leigh Perreault

13:30 – 13:50 Emerging strategies to advance GLP-1 receptor agonist therapies in T2D
Julio Rosenstock

14:3:5 – 14:10 Dyslipidemia and diabetes: Personalizing treatment to address CV risk
Jose-Luis Zamorano

14:10 – 14:30 Targeting the right patient: Improving outcomes with PCSK9 inhibitors
Helen Colhoun

14:30 – 14:40 Audience Q&A

SESSION 4: Looking at the big picture: Digital advances in patient care

14:40 – 14:45 Session introduction
Leigh Perreault

14:45 – 15:10 Digital advances in diabetes management: Where can technology take us?

15:10 – 15:20 Diabetes. Your Type.

15:20 – 15:30 Close and wrap-up
Jay Skyler, Leigh Perreault

Organised by: SANOFI
MONDAY, 16 SEPTEMBER 2019  09:00 – 15:00
SERVET HALL

CARDIO-RENA-L-METABOLIC REVOLUTION: ARE YOU READY?

Full Day Session

Chair: Eduard Montanya (Spain) and Jiten Vora (UK)

09:00 – 09:30  Cardiovascular-renal-metabolic management of patients with T2D: The journey so far
John Buse (USA)
Francesco Giorgino (Italy)

09:30 – 09:40  Welcome and introductions
Eduard Montanya (Spain)
Jiten Vora (UK)

09:40 – 10:40  Cardio-renal-metabolic general practitioner consult: Preventing complications in a recently diagnosed patient with T2D
Subodh Verma (Canada)
Mark Petrie (UK)
Roopa Mehta (Mexico)
David Cherney (Canada)
Naresh Kanimilli (UK)

10:40 – 11:15  Five years on: Maintaining glycemic control and maximizing cardio-renal risk reduction
Subodh Verma (Canada)
Mark Petrie (UK)
Francesco Giorgino (Italy)
Roopa Mehta (Mexico)
David Cherney (Canada)

11:15 – 11:30  Coffee Break

11:30 – 12:15  Moving along the risk continuum: Managing multiple vascular complications
Mark Petrie (UK)
Francesco Giorgino (Italy)
Roopa Mehta (Mexico)
David Cherney (Canada)
Naresh Kanimilli (UK)

12:15 – 13:00  Lunch
CARDIO-RENAL-METABOLIC REVOLUTION: ARE YOU READY?

Full Day Session

13:00 – 13:30  Reducing the risk of recurrent CV events, post ACS
Subodh Verma (Canada)
Mark Petrie (UK)
Filip Knop (Denmark)
Roopa Mehta (Mexico)
Hiddo L Heerspink (The Netherlands)

13:30 – 14:00  Preventing further cardio-renal decline
Subodh Verma (Canada)
Mark Petrie (UK)
Filip Knop (Denmark)
Roopa Mehta (Mexico)
Hiddo L Heerspink (The Netherlands)

14:00 – 14:30  Summary and overview: Optimizing therapy for risk mitigation across the cardio-renal-metabolic continuum
John Buse (USA)
Subodh Verma (Canada)
Mark Petrie (UK)
Hiddo L Heerspink (The Netherlands)

14:30 – 14:55  Cardio-renal-metabolic risk minimization in T2D: The revolution
John Buse (USA)
Francesco Giorgino (Italy)

14:55 – 15:00  Summary and close
Eduard Montanya (Spain)
Jiten Vora (UK)

Organised by: AstraZeneca
THE DEADLY DUO OF HEART FAILURE AND DIABETES: CRISIS OR HOPE?

Morning Session

10:00 – 10:03 Welcome and Introduction
Martin R. Cowie (Co-Moderator)

10:03 – 10:13 What Makes Heart Failure and Diabetes the Deadly Duo?
Clifford J. Bailey

Adriaan A. Voors

10:28 – 10:48 Diabetes and Heart Failure: the Specialists’ Perspective!
Melanie Davies
Adriaan A. Voors

10:48 – 11:03 Panel Discussion: Managing Heart Failure in Patients With and Without Diabetes
Martin R. Cowie (Co-Moderator)

11:03 – 11:13 Breaking News in Heart Failure: What Should All Diabetologists Be Aware Of?
Martin R. Cowie

11:13 – 11:28 Panel Discussion and Audience Questions
Melanie Davies (Co-Moderator)

11:28 – 11:30 Concluding Remarks
Melanie Davies (Co-Moderator)

Organised by: Novartis Pharma AG
BEYOND METFORMIN IN PATIENT-CENTRED TREATMENT OF DIABETES: HOW TO MAKE GUIDELINE-DIRECTED TREATMENT DECISIONS IN EVERYDAY PRACTICE?

Afternoon Session

Co-chairs: Bernard Zinman
José Ramón González Juanatey

14:30 Welcome and introduction
   - The paradigm of diabetes treatment decisions has changed to reflect patient burden with kidney disease and cardiovascular risk
   Bernard Zinman
José Ramón González Juanatey

14:40 Achieving cardiovascular benefits in patients across the spectrum of cardiovascular risk burden
   Kausik Ray

15:05 Opportunities to improve outcomes in patients with kidney impairment
   Per-Henrik Groop

15:25 The role of DPP-4 inhibitors in today’s T2D management – what have we learned from recent cardiovascular outcomes trials?
   Bernard Zinman

15:50 Choose your own topic
   Vote to hear one of three presentations:
   - Mechanism of action of SGLT2 inhibitors
     Per-Henrik Groop
   - Practical management of patients taking SGLT2 inhibitors
     Bernard Zinman
   - Exploring the health economic implications of SGLT2 inhibitors
     Kausik Ray

16:05 Applying guidelines in practice: panel discussion on patient-centred care
   Panel discussion and audience Q&A
   All faculty

16:30 Summary and close
   Bernard Zinman and José Ramón González Juanatey

Organised by: Boehringer Ingelheim & Eli Lilly and Company Alliance
Afternoon Session

Chair: Fernando Gomez-Peralta (Spain)

14:30 – 14:45 The current landscape of sensor-based Continuous Glucose Monitoring (CGM): The rationale and role for technology-based approaches to optimize the efficacy-safety equation for managing diabetes
Fernando Gomez-Peralta (Spain)

14:45 – 15:05 Sensor technology-centric devices and innovations for Continuous Glucose Monitoring: Real world studies and applications in type 1 and type 2 diabetes
Emma G. Wilmot (United Kingdom)

15:05 – 15:25 Translating landmark clinical trials in sensor-based CGM technology to the front lines of type 1 and type 2 diabetes care: Focus on sensor accuracy, device use, and interpretation of data to optimize treatment decisions
Thomas Danne (Germany)

15:25 – 15:45 Identifying type 1 and type 2 diabetic patients who are appropriate candidates for sensor-based CGM technology: All CGM devices are not created equal
William H. Polonsky (United States)

15:45 – 16:15 Real world, interactive case management sessions utilizing audience response system: Case studies focused on Identifying Persons with type 1 and type 2 diabetes: Who can benefit from patient-directed, sensor-based CGM
Fernando Gomez-Peralta (Spain)

16:15 – 16:30 The foundational role of collaborative-physician and patient-assessment of diabetic treatment goals using sensor-based CGM
Fernando Gomez-Peralta (Spain)

Organised by: Abbott
BUILDING THE LATEST SCIENTIFIC AND CLINICAL UNDERSTANDING FOR THE TREATMENT OF PATIENTS WITH TYPE 2 DIABETES

Afternoon Session

14:30 – 14:35 Chair Welcome and Opening Remarks
Co-Chairs: Steven Kahn (USA)
Daniel Drucker (Canada)

14:35 – 14:50 Recent Advancements in the Alpha Cell and the Beta Cell: Scientific Spotlight
Dan Drucker (Canada)

14:50 – 15:05 Why We Should Still Care about Glycemic Lowering Strategies for Type 2 Diabetes
Hertzel Gerstein (Canada)

Juan Frias (USA)

15:25 – 15:45 Clinical Application with Focus on Clinical Inertia – An Interactive Session
Faculty

15:45 – 16:00 The Latest Evidence for Ertugliflozin, an SGLT2 Inhibitor for Patients with Type 2 Diabetes
Sam Dagogo-Jack (USA)

16:00 – 16:15 Highlighting the Combination of DPP-4 Inhibitors and SGLT2 Inhibitors in the Treatment of Patients with Type 2 Diabetes
Michael Nauck (Germany)

16:15 – 16:35 Clinical Application with Focus on Why and When We Should Take the Next Treatment Steps – An Interactive Session
Faculty

16:35 – 16:55 Envisioning the Future of SGLT2 Inhibitors in the Treatment of Patients with Diabetes and Renal Disease: Views from the Nephrology
Community Speaker: Ofri Mosenzon (Israel)

16:55 – 17:00 Final Comments and Summary
Chairpersons

Organised by: MSD
CONNECTING THE DOTS: HOW ALGORITHMS HELP TO ADVANCE DIABETES THERAPY

Afternoon Session

Chairs: Rosa Corcoy (Spain)
        Rolf Hinzmann (Germany)

14:30 – 14:40 Introduction

14:40 – 15:05 Algorithms in medicine: Current use, challenges and the future potential
         Daniel Sonntag (Germany)

15:05 – 15:30 New digital solutions support to seize the benefits of integrated Personalised Diabetes Management
         Ralph Ziegler (Germany)

15:30 – 15:55 How digital solutions can make a difference in daily life with diabetes
         Katarina Braune (Germany)

15:55 – 16:20 Data integration and security: Essential to optimise therapy within an open ecosystem
         Olivier Convard (Spain)

16:20 – 16:45 Latest developments in insulin delivery: What’s new and next?
         Julia Mader (Austria)

16:45 – 17:00 Discussion and closing

Organised by: Roche Diabetes Care GmbH
REDUCING THE RISK OF CHRONIC KIDNEY DISEASE PROGRESSION IN PATIENTS WITH DIABETES WITH CURRENT AND EMERGING THERAPIES

Afternoon Session

Unmet Needs in Patients with CKD and T2D: Strategies to Manage the Disease Risk
Christoph Wanner

Mechanisms of Kidney Disease Progression: Understanding the Role of Inflammation and Fibrosis
Peter Rossing

New Approaches to Mineralocorticoid Receptor Antagonism in Management of CKD in T2D
Rajiv Agarwal

Organised by: Bayer AG
MONDAY, 16 SEPTEMBER 2019
15:00 – 17:30
AVERROES HALL

SCIENCE TO PATIENTS:
CARDIO-RENAL-METABOLIC CONTINUUM

Afternoon Session

Chair: Jiten Vora (UK)

15:00 – 15:10 Welcome
Elisabeth Björk (Sweden)
Jiten Vora (UK)

15:10 – 15:30 Novel anti-diabetes therapies and unmet medical needs
John Buse (USA)

15:30 – 16:00 Metabolic effects of SGLT2i beyond glucosuria
Gary Lopaschuk (Canada)

16:00 – 16:30 Protective cardiovascular effects of SGLT2 inhibitors – how?
Subodh Verma (Canada)

16:30 – 17:00 Broad renal beneficial effects of SGLT2 inhibitors
Volker Vallon (USA)

17:00 – 17:25 Panel discussion
Chair: Jiten Vora (UK)

17:25 – 17:30 Closing remarks
Jiten Vora (UK)
Regina Fritsche-Danielson (Sweden)

Organised by: AstraZeneca
Setting a Path for Success in Type 2 Diabetes: What We Know Now

Afternoon Session

15:30 Coffee break and refreshments

16:00 Welcome and Introduction
    Kamlesh Khunti

16:05 Mechanisms Matter: Using the Data to Differentiate Among Long-Acting GLP-1 RAs in Type 2 Diabetes
    Melanie J. Davies

16:17 Panel Discussion

16:27 Goals Matter: Evaluating the Evidence for Glycaemic Control and Other Targets
    Kamlesh Khunti

16:39 Panel Discussion

16:49 Patients Matter: Setting a Course for Success
    Francesc Xavier Cos

17:15 “Ask the Faculty” and Take-Home Messages
    Entire Panel

Organised by: PeerVoice (This activity is supported by an unrestricted educational grant from Novo Nordisk)
WHY INFLUENZA IS A DANGEROUS DISEASE FOR PEOPLE WITH DIABETES

Morning Session

Benefits of flu vaccination for persons with diabetes mellitus: A review
Marco Goeijenbier

The risk of flu in patients with diabetes
Luc Martinez

Q&A

Description
Influenza is a highly contagious respiratory illness. Anyone can get influenza, but some people have a much higher risk of getting very ill from the infection. People with diabetes are 3-6 times more likely to be hospitalized during influenza epidemics. They also have a much higher rate of death associated with an influenza infection. Moreover, studies have shown that influenza can make diabetes difficult to manage. This is why yearly influenza vaccination is recommended by the World Health Organization for high-risk patients, including those with diabetes.

Organised by: ESWI
WEDNESDAY, 18 SEPTEMBER 2019

VERIFY:
WHAT CHANGE ARE YOU BRINGING TO OVERCOME CLINICAL INERTIA?

Evening Session

Chair: Mark Cooper (Australia)

18:45 – 19:00 The pathophysiology of Diabetes Progression
Mark Cooper (Australia)

19:00 – 19:15 Benefits of early glycaemic control
Kamlesh Khunti (UK)

19:15 – 19:30 Why VERIFY? Clinical Evidence need
Michael Stumvoll (Germany)

19:30 – 19:35 Why VERIFY? Patient unmet needs
Patient video

19:35 – 19:45 How VERIFY is verifying early treatment intensification in diverse populations
Juliana Chan (Hong Kong)

19:45 – 19:55 How VERIFY is verifying early treatment intensification in specific populations
Paola Fioretto (Italy)

19:55 – 20:00 How VERIFY is verifying early treatment intensification in changing patient life
Patient video

20:00 – 20:10 Panel & Q&A session
All

20:10 – 20:15 Closing remarks
Mark Cooper (Australia)

Organised by: Novartis Pharma AG
IMPROVING CV RISK IN PATIENTS WITH OBESITY

Evening Session

Chair: Lars Rydén (Sweden)

18:45 – 18:50 Welcome and introduction
Lars Rydén (Sweden)

18:50 – 19:15 Does weight loss affect CV risk?
John Wilding (UK)

19:15 – 19:35 What do we know from CVOTs in obesity?
Ben Scirica (USA)

19:35 – 19:55 The major threat of our time: the global interrelation between obesity, T2D and CVD
Lars Rydén (Sweden)

19:55 – 20:15 Panel discussion and meeting close
All

Disclaimer: Oral Semaglutide has been studied in a phase 3 clinical trial programme

Organised by: Novo Nordisk
THE INTERPLAY OF DYSGLYCEMIA AND DYSLIPIDEMIA:
MANAGING CARDIOVASCULAR BURDEN IN INDIVIDUALS WITH
HIGH CV RISK

Evening Session
Chair: Luis Masana (Spain)

Welcome and Introduction
Luis Masana (Spain)

Urgency in treating dyslipidemia in individuals with diabetes and high
CV risk
Helen Colhoun (UK)

Individuals with diabetes and high CV risk who may benefit the most
from PCSK9 inhibition in your clinical practice
Luis Masana (Spain)

Evaluating the benefit/risk and safety profile of PCSK9 inhibitors:
Clinical and economic implications
Ann Marie Navar (USA)

Question and answer / panel discussion
All panellists

Conclusion and key take-away messages
Luis Masana (Spain)

Organised by: SANOFI
WEDNESDAY, 18 SEPTEMBER 2019
18:45 – 20:15
AVERROES HALL

REWITING MEDICAL TEXTBOOKS: THE KIDNEY AS A WINDOW TO THE HEART – THE ROLE OF SGLT2 INHIBITORS IN CARDIO-VASCULAR AND RENAL DISEASE IN T2D

Evening Session

Chair: Luca De Nicola (Italy)

18:45 – 18:50 Welcome and objectives
Luca De Nicola (Italy)

18:50 – 19:10 The kidney as a window to the heart
Ralph DeFronzo (USA)

19:10 – 19:30 The interlinking of cardiovascular and renal disease in type 2 diabetes
Per-Henrik Groop (Finland)

19:30 – 19:50 The role of the SGLT2 inhibitors in changing cardiovascular and renal outcomes
Vlado Perkovic (Australia)

19:50 – 20:10 Interactive panel discussion
Luca De Nicola (Italy)
Ralph DeFronzo (USA)
Per-Henrik Groop (Finland)
Vlado Perkovic (Australia)
Francisco Javier Ampudia-Blasco (Spain)

20:10 – 20:15 Meeting close
Luca De Nicola (Italy)

Organised by: Mundipharma
SU's IN THE TREATMENT OF T2DM: 
A FRESH LOOK AND NEW INSIGHTS

Evening Session

Chairs: L. Leiter (Canada)
       A. Al Zaid (Saudi Arabia)

18:45 – 18:50 Introduction
      A. Al Zaid (Saudi Arabia)

18:50 – 19:10 The place of SU's in guidelines:
      Why are there differences?
      A. Amod (South Africa)

19:10 – 19:30 Latest evidence on SU's: what's new in 2019?
      L. Leiter (Canada)

19:30 – 19:50 The place of SU's in the evolving landscape
      of combination therapy
      M. Yu (China)

19:50 – 20:10 Panel discussion

20:10 – 20:15 Conclusion
      L. Leiter (Canada)

Organised by: SERVIER
WEDNESDAY, 18 SEPTEMBER 2019
18:45 – 20:15
SOLS HALL

GETTING TO GLYCEMIC GOALS WITH WEIGHT LOSS AND LOW RISK OF HYPOGLYCEMIA IN TYPE 2 DIABETES

Evening Session
Chair: Jaime A. Davidson (USA)

18:45 – 18:55 Welcome and Introduction
Jaime A. Davidson (USA)

Pablo Aschner (Colombia)

19:15 – 19:35 Preventing the Consequences of Hypoglycemia and Weight Gain
Bartolome Burguera (USA)

19:35 – 19:55 Update on the Cardiovascular Safety Studies
Virginia Bellido Castañeda (Spain)

19:55 – 20:15 Panel Discussion / Question and Answer Session

Symposium to be presented in Spanish.

Organised by: Worldwide Initiative for Diabetes Education
TALKING POINTS IN TYPE 2 DIABETES: AN EXPERT DIALOGUE ON CARDIO-RENAL RISK

Evening Session/Mini Symposium
Chair: Jiten Vora (UK)

19:00 – 19:10  Welcome and introduction

19:10 – 19:50  Talking points in cardio-renal risk:
   • Cardio-renal implications for the endocrinologist
   • The cardiologist’s perspective
   • Insights from nephrology
   • T2D management in the cardio-renal era

   Tina Vilsbøll (Denmark)
   Martin Cowie (UK)
   Samy Hadjadj (France)

19:50 – 20:00  Q&A
   All faculty

Organised by: AstraZeneca
METFORMIN, THE HEART & THE KIDNEY

Evening Session/Mini Symposium

Welcome and introduction
Ian Campbell (UK)

Metformin safety and efficacy in ASCVD
John Petrie (UK)

Metformin safety and efficacy in CKD
Peter Rossing (Denmark)

Organised by: Merck KGaA
FASTING-MIMICKING DIET AS A DIETARY APPROACH AGAINST AGING AND AGING-RELATED DISORDERS

Morning Symposium

07:30 – 08:15  Biological rationale for the use of fasting-mimicking diets as an approach for preventing and potentially for treating aging associated disorders, including cancer, diabetes, CVD and dementia; available clinical data and ongoing clinical studies of fasting-mimicking diets
Alessio Nencioni (Italy)

Organised by:  L-Nutra Italia S.r.l.
UNDERSTANDING NASH AS A METABOLIC DISEASE

Evening Session

18:45 – 18:50  Welcome and introduction
Kenneth Cusi (USA)

18:50 – 19:05  The global burden of NASH
Filip Knop (Denmark)

19:05 – 19:20  Connecting NASH with its metabolic risk factors: understanding the pathophysiology
Michael Roden (Germany)

19:20 – 19:40  NASH in the clinic: overcoming barriers to diagnosis for patients at risk
Rohit Loomba (USA)

19:40 – 20:00  Managing NASH by targeting metabolic risk: current and emerging strategies
Kenneth Cusi (USA)

20:00 – 20:15  Panel discussion and meeting close
Kenneth Cusi (USA)
Michael Roden (Germany)
Rohit Loomba (USA)

Organised by:  Novo Nordisk
SEAS OF CHANGE: EXPLORING DUAL INHIBITION OF SGLT1 AND 2 IN DIABETES MANAGEMENT

THURSDAY, 19 SEPTEMBER 2019
18:45 – 20:15
HORTEGA HALL

Evening Session
Chair: J. Rosenstock (USA)

18:45 – 18:50 Welcome and introduction
J. Rosenstock (USA)

Exploring new destinations for people living with type 1 diabetes
18:50 – 19:10 On the horizon: looking at glycemic control and beyond in T1D
19:10 – 19:30 Sail across time in ranges and beyond
R. Bergenstal (USA)

Setting course for cardio-renal benefits in type 2 diabetes
19:30 – 19:45 Cardio-renal axis: does it matter?
Y. Handelsman (USA)
19:45 – 20:00 Working InSynchrony to evaluate a new approach in T2D

The Coming Horizon
20:00 – 20:10 Discussion and questions
Faculty Panel
20:10 – 20:15 Summary and conclusions
J. Rosenstock (USA)

Organised by: SANOFI
FOCUS ON THE PATIENT:
NEW INSIGHTS FOR CLINICIAN CHOICES IN THE TREATMENT
OF PATIENTS WITH TYPE 2 DIABETES

Evening Session

Co-Chairs: Larry Leiter (Canada)
Alice Cheng (Canada)

18:45 – 18:45 Welcome and Opening Remarks
Larry Leiter (Canada)
Alice Cheng (Canada)

18:45 – 19:05 Understanding the Right Patient for the Right Clinical
Treatment Considerations
Bernie Zinman (Canada)

19:05 – 19:10 Q & A

from the CompoSIT Trials
Juan Frias (USA)

19:25 – 19:30 Q & A

19:30 – 19:45 The Latest Evidence for Ertugliflozin, an SGLT2 Inhibitor
for Patients with Type 2 Diabetes
Richard Pratley (USA)

19:45 – 19:50 Q & A

19:50 – 20:10 How do we Overcome Clinical Inertia after Metformin –
An Interactive Case
Faculty

20:10 – 20:15 Final Comments and Summary
Co-Chairs

Organised by: MSD
GETTING AT THE HEART OF COMPREHENSIVE DISEASE CONTROL IN TYPE 2 DIABETES: WHAT’S NEW?

Evening Session

Moderator: Melanie J. Davies

18:45 – 18:50 Welcome and Introduction
Melanie J. Davies

18:50 – 19:05 Presentation 1:
Patient-centered Management of T2DM
Melanie J. Davies

19:05 – 19:10 Panel Discussion
All Faculty

19:10 – 19:25 Presentation 2:
Preventing Cardiovascular Complications in Patients with Type 2 Diabetes
Juris Meier

19:25 – 19:30 Panel Discussion
All Faculty

19:30 – 19:40 Presentation 3:
Preventing Renal Complications in Patients with Type 2 Diabetes
Janaka Karaliedde

19:40 – 19:45 Panel Discussion
All Faculty

19:45 – 20:05 Presentation 4:
Comprehensive Management of Type 2 Diabetes
All Faculty

20:05 – 20:15 Conclusions and Q&A
Melanie J. Davies
All Faculty

Organised by: Eli Lilly and Company
SUGARBEAT® NON-INVASIVE CGM USER STUDY RESULTS:
DIAGNOSTIC AND MONITORING APPLICATIONS ACROSS
DIFFERENT PATIENT TYPES AND CLINICAL SETTINGS

Evening Session

Welcome and Introduction

Development History – Initial Idea to Key Milestones in SugarBeat®'s Development

SugarBeat® Technology – Overview and how it differs from invasive CGM technologies (electrochemical and fluorescence), MARD, calibration, Glucose Trending®

Clinical Use
a) T2 Oral
b) Insulin Treated Patients
c) Diagnosing Pre-Diabetics
d) Therapy Optimisation & Intensification
e) Weight & Nutrition Management

Patient User-Experience
a) T2 Oral
b) T2 Insulin

Questions & Answers

Closing

Organised by: Nemaura Medical
TYPE 2 DIABETES, HYPOGONADISM AND TESTOSTERONE THERAPY

Evening Session/Mini Symposium

Chairs: Lars Rydén (Sweden)
       Markolf Hanefeld (Germany)

19:00 – 19:05 Opening remarks
       Markolf Hanefeld (Germany)

19:05 – 19:30 Beneficial effects of Testosterone Therapy on Obesity, CV Risk and Mortality in Type 2 Diabetes
       Hugh Jones (UK)

19:30 – 19:55 Testosterone Therapy for Treatment of Type 2 Diabetes
       Sandeep Dhindsa (USA)

19:55 – 20:00 Closing remarks
       Lars Rydén (Sweden)

Organised by: Bayer AG
INDUSTRY “MEET-THE-EXPERT”-SESSIONS

TUESDAY, 17 SEPTEMBER 2019  10:30 – 11:00
NETWORKING HUB

EXPANDING KNOWLEDGE ON GLP-1RAS
IN CARDIOMETABOLIC CARE

Morning Session
10.30 – 10.40  Analysing the current role of GLP-1RAs’ cardiovascular effects: an endocrinologist’s perspective
Filip Knop (Denmark)

10.40 – 10.50  Exploring the future role of GLP-1RAs’ cardiovascular effects: a cardiologist’s perspective
Subodh Verma (Canada)

10.50 – 11.00  Discussion/Q&A
Subodh Verma and Filip Knop

Disclaimer: Oral Semaglutide has been studied in a phase 3 clinical trial programme

Organised by: Novo Nordisk

TUESDAY, 17 SEPTEMBER 2019  11:30 – 12:00
NETWORKING HUB

NON-ALCOHOLIC STEATOHEPATITIS (NASH):
METABOLIC DISEASE OF THE LIVER

Morning Session
11.30 – 12.00  Non-alcoholic steatohepatitis (NASH): Metabolic disease of the liver
Philip Newsome (UK)

Organised by: Novo Nordisk
INDUSTRY “MEET-THE-EXPERT”-SESSIONS

TUESDAY, 17 SEPTEMBER 2019
13:00 – 13:30
NETWORKING HUB

ADDRESSING COMMON CLINICAL CHALLENGES – NEW DATA FROM THE ERTUGLIFLOZIN VERTIS PROGRAM FOR PATIENTS WITH TYPE 2 DIABETES

Lunch Session
Speaker: Sam Dagogo Jack (USA)

Organised by: MSD

TUESDAY, 17 SEPTEMBER 2019
14:00 – 14:30
NETWORKING HUB

Hb A1c: ANALYTICAL ACCURACY AND CHALLENGES IN CLINICAL INTERPRETATION

Lunch Session
Speaker: David B. Sacks (USA)

Organised by: Sebia

WEDNESDAY, 18 SEPTEMBER 2019
10:30 – 11:00
NETWORKING HUB

THE PLACE OF AID (AUTOMATED INSULIN DELIVERY) SYSTEMS IN THE T1D PATIENT TREATMENT TODAY

Morning Session

State of the Art of Artificial Pancreas, 2019
R. Hovorka (UK)

DBLG1 System by Diabeloop: Current clinical evidence & nextcoming studies
P. Y. Benhamou (France)

How technologically advanced mono-hormonal system can do better than bi-hormonal artificial pancreas device?
E. Huneker (France)

Organised by: Diabeloop
Meet the Expert Sessions

INDUSTRY “MEET-THE-EXPERT”-SESSIONS

WEDNESDAY, 18 SEPTEMBER 2019  11:30 – 12:00
NETWORKING HUB

PICTURING THE LIPODYSTROPHY PATIENT – FROM SIGNS AND SYMPTOMS TO DIAGNOSIS AND MANAGEMENT

Morning Session
Speaker: Alessandra Gambineri (Italy)

Organised by: Aegerion

WEDNESDAY, 18 SEPTEMBER 2019  13:00 – 13:30
NETWORKING HUB

EXPLORING NEW DESTINATIONS FOR PEOPLE LIVING WITH TYPE 1 DIABETES

Lunch Session
Speaker: Thomas Danne (Germany)

13:00 – 13:05  Welcome and introduction

13:05 – 13:25  Striving for balance – adjunctive therapies for people living with type 1 diabetes

13:25 – 13:30  Q&A and closing remarks

Organised by: SANOFI

WEDNESDAY, 18 SEPTEMBER 2019  14:00 – 14:30
NETWORKING HUB

FURTHER INSIGHTS FROM THE BRIGHT TRIAL: EVALUATION OF GLYCEMIC OUTCOMES IN PATIENTS WITH RENAL IMPAIRMENT

Lunch Session
Speaker: Alice Cheng

Organised by: SANOFI
INDUSTRY “MEET-THE-EXPERT”-SESSIONS

THURSDAY, 19 SEPTEMBER 2019
10:30 – 11:00
NETWORKING HUB

THE COST OF NOT PRESCRIBING AN SGLT2I: CAN WE AFFORD TO OVERLOOK THE COST OF AVOIDABLE COMPLICATIONS IN T2D?

Morning Session
Speaker: Mikhail Kosiborod (USA)
Organised by: AstraZeneca

THURSDAY, 19 SEPTEMBER 2019
13:00 – 13:30
NETWORKING HUB

SNAPSHOTS FROM PATIENT CASES IN PARTIAL LIPODYSTROPHY
Lunch Session
Speaker: Camille Vatier (France)
Organised by: Aegerion

THURSDAY, 19 SEPTEMBER 2019
14:00 – 14:30
NETWORKING HUB

GETTING TO GOAL: TREATMENT OPTIONS FOR ADULTS WITH T2D AND HIGH HbA$_1^C$
Lunch Session
Speaker: Helmuth Brath (Austria)
Organised by: SANOFI

THURSDAY, 19 SEPTEMBER 2019
15:00 – 15:30
NETWORKING HUB

TYPE 2 DIABETES? THINK LIVER. EXPLORING NON-ALCOHOLIC STEATOHEPATITIS (NASH) IN YOUR DIABETES CLINIC
Afternoon Session
Speaker: Kenneth Cusi, Salvador Augustin
Organised by: Gilead Sciences, Inc.
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Status July 2019, details are subject to change.
WELCOME ADDRESS

On behalf of the EASD Board and the 2020 Scientific Programme Committee, I have the pleasure of welcoming you to the 56th EASD Annual Meeting in Vienna.

I hope that you will enjoy the present EASD meeting and it might be difficult to focus already now on next year’s meeting. Nevertheless, the diabetes field is progressing at a very fast pace and I am sure that next year’s meeting will constitute yet another major leap forward.

Vienna, one of the cultural capitals of Europe, will enable us to meet and discuss science in a city that is still a major cross road in art, music and science. The Scientific Programme Committee will together with your own valuable contributions deliver a meeting that presents cutting edge clinical and preclinical data from both published and unpublished work.

We look forward to seeing you in Vienna.

Mikael Rydén
Honorary Secretary EASD
56th ANNUAL MEETING

EASD

21 - 25 SEPTEMBER
VIENNA 2020

www.easd.org