# 58th EASD Annual Meeting

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Dear Members and Guests,

As the current President of the European Association for the Study of Diabetes, I have the pleasure of welcoming you to the 58th EASD Annual Meeting.

After two years of online meetings during the pandemic, we finally have the chance to get together again and I look forward to seeing as many of you in Stockholm, Sweden as possible. It will be a fantastic experience to reconnect with your peers, mingle with other attendees, run from one hall to another and to sit for a discussion with your collaborators. Nonetheless, we know many of you may still have limitations to travel. Don’t worry, we will not miss the chance to reach out to you, and therefore, the 58th EASD Annual Meeting will be a hybrid event, making sure all the novel information that will be presented during the Meeting can be readily available to all.

A significant effort has been made by the Scientific Programme Committee to develop a programme covering the most recent developments and breaking news in the various fields of research in diabetes and its related complications. Across up to nine parallel tracks, a wide range of topics will be discussed during exciting symposia, thought-provoking debates, prize lectures, numerous oral and short oral discussion sessions, and a dedicated e-Learning track. New formats will characterize the 58th EASD Annual Meeting. Please, check out the short oral discussion presentations online beforehand and join the live discussion during the sessions to actively participate in debating the many new research findings. But there is even more than that. We are embarking on more ecologic sustainability of the EASD Annual Meeting and with the 58th edition this year we will start our green strategy with less traveling, less paper, and less waste.

For all these reasons the 58th EASD Annual Meeting will represent a unique opportunity for the global diabetes community. On behalf of the EASD Board and the entire EASD team, I invite you to join us in person or online - in both cases, it will be a new experience.

We look forward to welcoming all of you! Let’s get together and continue fighting diabetes!

Stefano Del Prato
President EASD/EFSD
Dear Colleagues and Friends,

On behalf of the 2022 Scientific Programme Committee, I have the pleasure of welcoming you to the 58th EASD Annual Meeting in my home town Stockholm.

This year we will merge onsite and online participation into a new vibrant hybrid experience to offer a unique opportunity for interdisciplinary scientific exchange, dialogue and debate.

Regardless of whether you are a clinician, basic scientist, nurse, healthcare professional, or young academic, the Scientific Programme of the EASD Annual Meeting 2022 will deliver an abundance of new knowledge covering the latest innovations and developments in the treatment of type 1 and type 2 diabetes and their associated complications.

This will be my last year serving as the EASD Honorary Secretary and it has been both an honour and a challenge to work with the scientific programme over the last few years. I want to give my wholehearted thanks to all the talented colleagues in the programme committees as well as the EASD staff in helping setting up strong and exciting scientific sessions year after year.

Let me therefore take this opportunity to introduce my distinguished colleague Prof Tina Vilsbøll as the incoming EASD Honorary Secretary. I am convinced you will all agree that Prof Vilsbøll is an excellent choice to develop an outstanding programme for the EASD Annual Meeting next year together with the 2023 Scientific Programme Committee.

Please join me in welcoming Prof Tina Vilsbøll and I look forward to seeing you – onsite or online – in September 2022.

Mikael Rydén
Honorary Secretary EASD
About EASD

The European Association for the Study of Diabetes e.V. (EASD) is a non-profit, medical scientific association with the aim to encourage and support research in the field of diabetes, the rapid diffusion of acquired knowledge and to facilitate its application.

EASD is one of the largest networks for diabetologists worldwide. Membership is open to health care professionals, scientists, nurses and students from all over the world who are interested in the field of diabetes.

The EASD Annual Meeting is one of the largest diabetes-related conferences in the world, the scientific programme includes more than 1,200 talks and presentations on the latest results in basic and clinical diabetes research.

EASD is also actively involved in postgraduate education with a portfolio ranging from e-Learning activities to basic hands-on training courses including workshops to focused meetings on specific topics of diabetes research and care to collaborations with national associations across the globe.

In 2000, EASD increased its commitment to stimulate diabetes research in Europe by creating the European Foundation for the Study of Diabetes (EFSD). Since its inception, the EFSD has committed over €100 million to diabetes research in Europe by various funding means.

EASD is the publisher of the journal Diabetologia, a major monthly international diabetes journal with a high and rising impact factor.

For more information, please visit: www.easd.org.
**EASD Academy**

The EASD Academy is an initiative that aims to support, train, mentor, and create opportunities for scientists, clinicians, and students who are at an early or intermediate stage of their career, with an interest in diabetes research and/or clinical practice.

Join our inaugural session at this year’s EASD Annual Meeting, to launch the EASD Academy.

You will hear about the goals and initiatives of the Academy from the board members, contribute to an interactive Q&A session with two inspirational EASD prize-winning speakers, and have the opportunity to network with the EASD Academy team, other early-career researchers and clinicians, and EASD board members.

**Tuesday, 20 September 2022, 17:45 - 19:15  EASD Member Lounge**

**Launch of the EASD Academy: time to kick start your career**

17:45 - 18:00  Introduction from the EASD Academy Board outlining the goals of the initiative

18:00 - 18:10  Inspirational career-focused talk from an EASD prizewinner (clinician)

18:10 - 18:20  Interactive Q&A, chaired by members of the Academy board

18:20 - 18:30  Inspirational career-focused talk from an EASD prizewinner (scientist)

18:30 - 18:40  Interactive Q&A, chaired by members of the Academy board

18:40 - 19:15  Networking
About EFSD

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.

For more information, please visit: www.europeandiabetesfoundation.org.

EFSD is greatly indebted to the following companies and organisations for their most generous support of European diabetes research

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.
**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 magnitude and burden 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.

**EFSD/Lilly EXPLORING AND APPLYING NEW STRATEGIES IN DIABETES (EXPAND) Programme**
This Programme aims to assess with dedicated research projects, potential strategies that could be implemented in Europe and rolled out in low-and middle income countries to favour the improvement of quality of care for all people living with diabetes.

**Merck Sharp & Dohme:**

**EFSD European Research Programme on “New Targets for Diabetes or Obesity-related Metabolic Diseases” 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 or obesity-related metabolic diseases.

**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 post-doctoral/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.

**EFSD/Novo Nordisk Foundation Precision Diabetes Medicine Award Programme**
This Programme is based on scientific quality, innovation potential and a clear translational focus; bringing basic knowledge to use at the patient level in terms of e.g. disease prognosis, treatment prediction or patient stratification.

**Sanofi:**

**EFSD/Sanofi “Outlook to the next 100 years of insulin: Innovative insulin delivery and monitoring systems”**
The Programme is intended to stimulate and accelerate European research aimed at understanding and improving insulin delivery and action.

**EFSD/Sanofi European Diabetes Research Programme in diabetes associated with cardiovascular disease**
This Programme is intended to stimulate and accelerate European research aimed at improving understanding of cardiovascular disease associated with diabetes. Grants are offered for basic and clinical studies.

In addition, the **EFSD Albert Renold Travel Fellowships** enables 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](http://www.europeandiabetesfoundation.org)
EFSD
European Foundation for the Study of Diabetes

FUNDING
DIABETES RESEARCH
SINCE 2000

GRANTS & FELLOWSHIPS
AVAILABLE THROUGHOUT THE YEAR

www.EuropeanDiabetesFoundation.org
**General Information**

**Format**

The 58th EASD Annual Meeting will take place as a hybrid event from 19 to 23 September 2022, offering in person and virtual attendance for registered delegates.

All sessions in the scientific programme will take place onsite at the meeting venue in Stockholm at the time indicated in the programme and will be live-streamed for delegates attending the meeting virtually. Recordings of all sessions will be available afterwards, access to session recordings will be limited to registered delegates until 21 October 2022.

**Meeting venue**

The in person meeting will take place at:

**Stockholmsmässan**

Mässvägen 1, Älvsjö
12580 Stockholm, Sweden
[www.stockholmsmassan.se](http://www.stockholmsmassan.se)

The virtual meeting platform for online attendance is available from EASD’s website [www.easd.org](http://www.easd.org).

**Registration**

Children under the age of 18 are not permitted to access the 58th EASD Annual Meeting.

EASD offers two types of registration for the Annual Meeting 2022:

**In person attendance** to join onsite at the meeting venue in Stockholm, Sweden. In person registration includes:

- Name Badge
- Access to the Scientific Programme
- Access to the Exhibition
- Public transportation ticket valid for 5 days (starting from the day the ticket is activated)
- Access to the Virtual Meeting platform (incl. live and on demand sessions, Industry content)
- Certification based on the in person and / or virtual attendance

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**Advisory Note**

Please be aware of “fraudulent” third party companies offering EASD services e.g. registration or hotel accommodation.

EASD is the official registration provider and all EASD activities are handled via the official EASD website: [www.easd.org](http://www.easd.org).

Interplan is the official accommodation provider handling all hotel requests. Booking platform: [easd22.interplan.de/Booking.html](http://easd22.interplan.de/Booking.html)
Virtual attendance to follow the Annual Meeting online. Virtual registration includes:

- Access to the Virtual Meeting platform (incl. live and on demand sessions, Industry content)
- Certification based on the delegates watch time monitored via their personal MyEASD account

All registrations prior to the EASD Annual Meeting dates have to be made by means of the secured online registration system. For more information, please visit: [www.easd.org/annual-meeting/easd-2022.html](http://www.easd.org/annual-meeting/easd-2022.html).

During the EASD Annual Meeting dates, in person registrations can be made by the online registration system or at the onsite registration counter at the venue in Stockholm, Sweden.

Virtual registrations can only be made by the online registration system.

Certificates

The 58th EASD Annual Meeting is currently under review by the European Accreditation Council for Continuing Medical Education (EACCME®) to provide Continuing Medical Education credits.

Certificates will be available for download via your MyEASD account. It will be mandatory to complete the congress evaluation survey to receive certification.

The Certificate of Attendance will be available online from 26 September 2022.

The EACCME Certificate will be available online from 24 October 2022.

Information for in person attendance onsite in Stockholm

Face Masks:

EASD strongly recommends wearing a mask at all times when inside the congress venue.

Registration counters are open:

- **Sunday** 18 September 2022 12:00 - 18:00
- **Monday** 19 September 2022 08:00 - 18:00
- **Tuesday** 20 September 2022 07:00 - 19:00
- **Wednesday** 21 September 2022 07:00 - 19:00
- **Thursday** 22 September 2022 07:00 - 19:00
- **Friday** 23 September 2022 07:00 - 14:00
Badges:
The delegates’ name badges serve as an admission pass to all scientific sessions and the exhibition. Delegates are asked to keep their name badges displayed at all times during the meeting. Badges can be replaced and will be charged for.

First Aid:
The First Aid Centre is located between the A-Gallery and the B-Gallery, behind the Kiosk “Pressbyrån”. In case of emergency, please contact the nearest security or staff member.

Restaurants:
Stockholmsmässan offers 10 different restaurants, bistros and cafés, located all over the venue.

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

Suitcases (except cabin trolleys) are not allowed in the halls.

Silence Room:
To get access to the silence room, please contact the Stockholmsmässen Information Desk in the Entrance Hall.

EASD Community Plaza:
The EASD Community Plaza is located in Hall A and provides the EASD Member Lounge, the EASD/EFSD Booth, the Diabetologia Booth, Virtual Meeting Tower, EASD TV Studio, seating areas and charging stations for mobile devices.
Opening hours EASD Booth and Member Lounge:

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Exhibition - Opening Hours:

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<tr>
<td>Thursday</td>
<td>22 September 2022</td>
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Hotels:

INTERPLAN Congress, Meeting & Event Management AG

Phone: +49 89 54 82 34 818
Email: hotels.easd@interplan.de
Booking platform: easd22.interplan.de/Booking.html

Security:

Any suspicious or unidentified items onsite at the meeting venue 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 insurance especially with regards to travel.

Transportation

Free public transportation during the Meeting within Stockholm (except Airport Train).

Registered (in person) delegates receive a public transportation ticket, which is valid for 5 days (starting from the day the ticket is activated / used for the first time). The ticket will be handed out together with the name badge.
Stockholm - Spårtrafikkarta

Tunnelbana
Metro

10 11
Blue Line
13 14
Red Line
17 18 19
Green Line

Pendeltåg
Commuter rail

40 43 44

Spårvagn/Lokalbana
Tram/Light rail

7
Spårvagn City Tram
12
Nockebybanan Tram
21
Lidingöbanan Tram
30 31
Tvärbanan Tram
25 26
Sättra banan Light rail
27 28 29
Rebbagatan Light rail

Forklaringar
Key to symbols

✈ Flygplats
Airport

SL Kundtjänst
SL Customer Services

Bytepunkt
Interchange station

Bytepunkt med gångavstånd
Interchange station within walking distance

Trafikinformation
Service information

För information om SL:s linjesnabran, besök sl.se eller ring 08-600 30 80.

Biljettar
Tickets

För information om biljett och förbrukningsregler, välj SL-appen eller besök pass.nordSL.se.

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#EASD2022
By taxi:

<table>
<thead>
<tr>
<th>Service</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Taxi Stockholm</td>
<td>+46 88-15 00 00</td>
</tr>
<tr>
<td>Sverige Taxi</td>
<td>+46 20-20 20 20</td>
</tr>
<tr>
<td>Taxi Kurir</td>
<td>+46 88-30 00 00</td>
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<tr>
<td>TopCab</td>
<td>+46 8 33 33 33</td>
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By commuter trains (public transport):

The commuter trains stop at Älvsjö Station, which is right next to Stockholmsmässan. The journey by commuter train from Stockholm City to Stockholmsmässan takes 10 minutes and the trains depart 8 - 14 times per hour. Fast and environmental friendly!

Airport Express Train:

EASD Annual Meeting 2022 delegates will get a 15% discount on online tickets for the airport train between Arlanda airport and Stockholm city. Please use the discount code EASD22 when purchasing your tickets online at [www.arlandaexpress.com](http://www.arlandaexpress.com).

Note: The discount code will be applicable 90 days ahead of the EASD Annual Meeting 2022

By car:

Follow the signs towards Älvsjö/Mässan by E4/E20.

Information for online attendance via the virtual meeting platform

Registered delegates can access the virtual meeting platform via their personal MyEASD account by using the personalised link or login details (both provided on the registration confirmation). In person delegates can find their login details also on the name badge. There are two options to access the virtual meeting platform:

- You can use your personal link provided in the registration confirmation or
- Access by clicking the ACCESS HERE banner on the EASD website [www.easd.org](http://www.easd.org).

In both cases you will be asked to login with your MyEASD account. In case you do not have an account, please create your account first.

Please note: If you have been registered by a group or a third party you will need to connect your personal MyEASD account with your registration when accessing the virtual meeting platform for the first time. You will be asked to enter your Family Name and Registration Number (Reg. No.) as shown on your registration confirmation / name badge during the onboarding process.
Technical requirements:

Delegates must ensure at their own expense that they meet the technical requirements necessary for following the EASD Annual Meeting virtually. In addition to the necessary hardware, the following requirements will be needed:

- A stable internet connection with a minimum of 5 MBITs (data speed) to follow the online programme,
- A browser in an up-to-date version e.g. Chrome®, Firefox® or Safari®.

EASD recommends the participation via PC/Mac Computers and a resolution of Full HD 1920x1080 pixels or higher. Cookie and Pop-Up blocking measures may lead to problems. On smart phone/tablet devices only basic viewing features are being supported. It is recommended to use the Safari® browser for Apple® devices.

EASD is not responsible if delegates are unable to successfully access the virtual meeting platform if they do not fulfil the technical requirements.

Speakers and Chairpersons

All speakers and chairpersons are expected to attend the EASD Annual Meeting in Stockholm, Sweden, in person to participate live at the time indicated in the programme.

Speakers’ Lounge:

The Speakers’ Lounge is located behind the Entrance Area. All speakers are asked to check their presentations at the Speakers’ Lounge at least two hours before the scheduled presentation time. If the presentation is scheduled in the morning, speakers are kindly asked to check their presentation at the Speakers’ Lounge the day before.

Opening hours Speakers’ Lounge:

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<tr>
<th>Day</th>
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<tbody>
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<td>Sunday</td>
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Short Oral Discussions Events:

Short Oral Discussions rank equally with Oral Presentations. A short PowerPoint presentation without audio must be uploaded to the presentation management platform latest by Monday, 19 September 2022, noon.

All Short Oral Discussions will take place during six events which will be held on Tuesday, Wednesday and Thursday:

<table>
<thead>
<tr>
<th>Event A</th>
<th>Tuesday 11:45 - 12:45</th>
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<tr>
<td>Event B</td>
<td>Tuesday 13:00 - 14:00</td>
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<td>Event C</td>
<td>Wednesday 12:00 - 13:00</td>
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<td>Event F</td>
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Disclaimer

All efforts will be made to adhere to the programme as provided. 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.
EXPLORE SCIENTIFIC CONTENT OF EASD ANNUAL MEETINGS!

The EASD Virtual Meeting has changed the face of scientific meetings as we know it and is now one of the world’s leading platforms for showcasing scientific excellence.

In our effort to spread knowledge and to promote excellence in diabetes care, EASD makes this available to all. Up-to-date science which influences day-to-day health care around the world is a priority for all and not only the privileged few.

Point the browser on your desktop or mobile device to easdvirtualmeeting.org to access this invaluable resource. You can also scan the code below.

Easy to navigate, the EASD Virtual Meeting contains 1000’s of presentations from recent years and is updated hourly during the Annual Meeting with the newest content.

www.easd.org
www.easdvirtualmeeting.org
Programme Committee

Chaired by Mikael Rydén, Honorary Secretary EASD

Francesca Amati, Switzerland  Christian Herder, Germany
Karim Bouzakri, France  Stephan Herzig, Germany
Sofia Carlsson, Sweden  Maria Paula Macedo, Portugal
Leszek Czupryniak, Poland  Anne Peters, USA
Lena Eliasson, Sweden  John Petrie, UK
Amalia Gastaldelli, Italy  Patrick Schrauwen, Netherlands
Luigi Gnudi, Italy  Lena Thorn, Finland
Gabriella Gruden, Italy  Allan A Vaag, Denmark
Abstracts

1221 abstracts were received by the Association and 878 abstracts were accepted for inclusion. All abstracts were considered anonymously and were scored by the Abstract Review Committee members.

The Programme Committee members designed the programme and created Oral and Short Oral Discussion Sessions upon the anonymous abstracts.

Publication of Abstracts

Accepted abstracts are published in the Abstract Volume by Diabetologia. Abstracts are also available online.

Embargo Policies

Information contained in abstracts may not be released until 1 July 2022 when the abstracts are published online. Oral Presentations are under embargo until the commencement of the speaker’s presentation. Short Oral Discussion Presentations are under embargo until 11:45 CEST on Tuesday, 20 September 2022.

Abstract Review Committee

In addition to the members of the Programme Committee, the Abstract Review Committee comprises the following members:

- Myriam Aouadi, Sweden
- Caroline Bonner, France
- Simon Dankel, Norway
- Charna Dibner, Switzerland
- Tine Willum Hansen, Denmark
- Matthijs Hesselink, Netherlands
- Tsvetalina Tankova, Bulgaria
- Martin Prazny, Czech Republic
- Anna Krook, Sweden
- Ruth Loos, Denmark
- Gema Medina, Spain
- Timo Mueller, Germany
- Mototsugu Nagao, Japan
- Tunde Peto, UK
- Giuseppe Pugliese, Italy
- Martin Prazny, Czech Republic
- Niina Sandholm, Finland
- Matthias Schulze, Germany
- Anna Solini, Italy
- Tine Willum Hansen, Denmark
- Daniel Witte, Denmark
- Anne Wojtusciszyn, Switzerland

- Anna Krook, Sweden
- Ruth Loos, Denmark
- Gema Medina, Spain
- Timo Mueller, Germany
- Mototsugu Nagao, Japan
- Tunde Peto, UK
- Giuseppe Pugliese, Italy
- Martin Prazny, Czech Republic
- Niina Sandholm, Finland
- Matthias Schulze, Germany
- Anna Solini, Italy
- Tine Willum Hansen, Denmark
- Daniel Witte, Denmark
- Anne Wojtusciszyn, Switzerland
Tuesday, 20 September 2022

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<td>EASD/ADA Symposium: Precision medicine in type 2 diabetes: How far can we get?</td>
<td>Diabetologia Symposium: Remission of type 2 diabetes – fact or fiction?</td>
<td>COVID-19 and diabetes</td>
<td>A New Hope (© Star Wars) or Strange New Worlds (© Star Trek): submerging diabetes into emerging technologies</td>
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<td>17:30</td>
<td>EFSD/Novo Nordisk Foundation Future Leaders Symposium</td>
<td>Modulators of glucotoxicity and lipotoxicity</td>
<td>Debate: Insulin-free type 2 diabetes treatment is...</td>
<td>The heat is on! Diabetes and climate change</td>
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# EASD2022
## Wednesday, 21 September 2022

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<td>From models to clinic: much more than just a catwalk</td>
<td>Cell biology for diabetologists: A piece of cake?</td>
<td>Overcoming challenges in obesity medicine: The SURMOUNT Clinical Development Program</td>
<td>UKPDS 44-year follow-up</td>
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**Short Oral Discussion Sessions - Event C**

- EASD e-Learning: Dual incretin receptor agonists: Is GIP receptor agonism the key for success?

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**Short Oral Discussion Sessions - Event D**

- EASD e-Learning: Diabetic kidney disease and KDIGO guidelines

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<th>Epigenetic regulation and diabetes</th>
<th>EASD/JDRF Symposium: Prevention of type 1 diabetes, is it possible?</th>
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**EASD EFSD**

**GENERAL INFO**

**PROGRAMME**

**TUESDAY**

**WEDNESDAY**

**THURSDAY**

**FRIDAY**

**SHORT ORAL DISCUSSIONS**

**PRESENTER INDEX**

**SATTELITE SYMPOSIA**

**INDUSTRY**

**PROGRAMME**

**EXHIBITION**

WWW.EASD.ORG 27
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<td>Juggling with lipids to find new targets for managing diabetes and comorbidities</td>
<td>New insights to prevention of microvascular complications</td>
<td>Delivering the best of diabetes care in under-resourced populations – how much of the wishful thinking?</td>
<td>Metabolic insights from single-cell studies: clinical implications</td>
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<td>The 3 P’s of large vessels in type 1 diabetes</td>
<td>Is it the genes or the epigenetics behind diabetic kidney disease?</td>
<td>Debate: “… and CGM for all”</td>
<td>Thermogenic activation of adipose tissue: the holy grail in the treatment of diabesity?</td>
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<td>57th Minkowski Lecture</td>
<td>EASD-Lilly Centennial Anniversary Prize Lecture</td>
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<td>The 3 P’s of large vessels in type 1 diabetes</td>
<td>Is it the genes or the epigenetics behind diabetic kidney disease?</td>
<td>Debate: “… and CGM for all”</td>
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### Thursday, 22 September 2022

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<td>Flexing muscle metabolism to battle diabetes: What can we learn from omics?</td>
<td>Cells talk in fatty liver disease</td>
<td>Re-inventing the insulin experience: exploring the prospects of once-weekly insulins</td>
<td>Mineralocorticoid receptor overactivation: novel approach to treatment of multi-organ impact with finerenone</td>
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<td>A clinical perspective on the Krebs cycle and insulin sensitivity</td>
<td>New little players in beta cell function</td>
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<td>EASD/ESC Symposium: New perspectives on heart function and failure in diabetes</td>
<td>Diabetic nephropathy or diabetic kidney disease? In search of a phenotype</td>
<td>How much can people with type 1 diabetes benefit from adjunct therapies?</td>
<td>Diabetes in old age: myths and fact</td>
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## Friday, 23 September 2022

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<tr>
<td>Fasting and feeding: the most important F-words in metabolism</td>
<td>Three reasons for why non-coding RNAs are important in metabolic control</td>
<td>Hepatokines: Do they play a role in diabetes and NAFLD?</td>
<td>10th East-West Forum: Care through the eyes of the patient (08:30 - 10:00)</td>
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08:30 - 09:00  

**Presidential Address**

**Speaker:** Stefano Del Prato, Italy  
President EASD/EFSD

09:00 - 09:45  

**54th Claude Bernard Lecture**

**Chair:** Stefano Del Prato, Italy  
**Speaker:** Michael A Nauck, Germany  
**An updated incretin concept for tomorrow**

Professor **Michael A. Nauck**, MD, Dr. h.c. is Head of Clinical Research at the Diabetes, Endocrinology and Metabolism Section, Medical Department 1, St. Josef-Hospital and teaches at the Ruhr-University Bochum, Bochum, Germany.

He was trained in gastroenterology and endocrinology with Werner Creutzfeldt and since has had a particular research interest in the role of gastrointestinal peptide hormones (incretins: glucose-dependent insulinitropic polypeptide, GIP, and glucagon-like peptide-1, GLP-1) in the physiological regulation of metabolism and in the pathophysiology of type 2 diabetes. He has contributed pivotal studies proving a definite therapeutic potential of GLP-1 in patients with type 2 diabetes. Since, he has been involved in the development of incretin-based glucose-lowering medications such as GLP-1 receptor agonists and, more recently, co-agonists able to stimulate other receptors besides the GLP-1 receptor (e.g., tirzepatide), and inhibitors of dipeptidyl peptidase-4. Additional areas of interest include diagnostic challenges regarding insulinomas, cardiovascular complications of type 2 diabetes, and the modification this risk in type 2-diabetic patients by using beneficial glucose-lowering pharmacotherapy.

Michael Nauck’s scientific contributions have been honoured with several awards, including the Ferdinand-Bertram Award (1993), the Werner-Creutzfeldt Award (2007) and the Paul Langerhans Medal (2012) of the German Diabetes Association. In 2017, he was appointed Doctor honoris causa by the University of Copenhagen, Denmark.

Michael Nauck is member of the German, European, and American Diabetes Associations, and of the International Diabetes Federation. He has served as reviewer for all major diabetes journals and has published more than 240 original articles and 150 reviews or book chapters. His publications have been quoted > 65000 times, his “H-index” is 107, and he has been identified as a “highly-cited researcher” (among the top 1 %) in recent years (Web of Knowledge).
The Claude Bernard Medal and Lectureship is the EASD's highest award in recognition of contributions to the advancement of knowledge in the field of diabetes and related metabolic diseases.

The aim of the Lectureship is to honour an individual’s innovative leadership and lifetime achievements in diabetes research.

The Claude Bernard Prize is generously supported by Sanofi.

**EASD Claude Bernard Lecturers**

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<td>D.A. Pyke</td>
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<td>W. Creutzfeldt</td>
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<td>K. Lundbaek</td>
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<td>E.W. Sutherland</td>
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</table>
10:00 - 11:30

**OP 01  Diet: from plants to cans**

**Chair:** M.B. Schulze, Germany

1 Diet and all-cause mortality in individuals with type 2 diabetes: a systematic review and meta-analysis of prospective studies
J. Barbaresko, A. Lang, E. Szczzerba, C. Baechle, L. Schwingshackl, M. Neuenschwander, S. Schlesinger, Germany

2 Appropriate consumption of different animal-based foods to reduce type 2 diabetes risk: an umbrella review of meta-analyses of prospective studies
A. Giosuè, I. Calabrese, G. Riccardi, O. Vaccaro, M. Vitale, Italy

3 Ultra-processed food consumption and risk of type 2 diabetes: results from three prospective cohort studies in the US
Z. Chen, N. Khandpur, C. Monteiro, S. Rossato, T. Fung, J.E. Manson, W. Willett, E.B. Rimm, F.B. Hu, Q. Sun, J.-P. Drouin-Chartier, USA, Brazil, Canada

4 The association between plant-based diet indices and obesity and metabolic diseases in Chinese adults: longitudinal analyses from the China Health and Nutrition survey
B. Chen, J. Zeng, M. Qin, W. Xu, Z. Zhang, X. Li, S. Xu, China

5 Longitudinal serum branched-chain amino acids, lifestyle intervention and the risk of type 2 diabetes in the Finnish Diabetes Prevention study
J. Kivelä, J. Meinilä, M. Uusitupa, J. Tuomilehto, J. Lindström, Finland, Saudi Arabia

6 Fasting ketone bodies and incident type 2 diabetes in the general population
10:00 - 11:30

Minkowski Hall

**OP 02  SGLT2 inhibitors: promiscuous pleiotropy**

*Chair:* A. Solini, Italy

7 Effect of SGLT2 inhibitor dapagliflozin on skeletal muscle fatty acid metabolism in patients with type 2 diabetes

8 The effect of SGLT2 inhibitor dapagliflozin on substrate metabolism in humans with prediabetes

9 Metabolome analysis of the effects by SGLT2 inhibitor ipragliflozin and metformin on human metabolites, and relationship with clinical data in a randomised controlled study
M. Koshizaka, A. Tsukagoshi, R. Ishibashi, Y. Maezawa, K. Yokote, Japan

10 Effect of Dapagliflozin on renal and hepatic glucose kinetics in type 2 diabetes and NGT subjects
D. Tripathy, C. Solis-Herrera, X. Chen, A. Hansas-Diarte, R. Chilton, R. DeFronzo, E. Cersosimo, USA

11 Different effects of SGLT-2 inhibitors on subcutaneous and epicardial adipose tissue metabolome in severe heart failure subjects

12 Empagliflozin-induced metabolic changes and cardiac function in patients with type 2 diabetes: a randomised cross-over MRI study with insulin as comparator
10:00 - 11:30       Golgi Hall

**OP 03  Risk for CVD and CKD**

*Chair:* J.W. Eriksson, Sweden

13 **CSII is associated with lower NAFLD indices in patients with type 1 diabetes**
L. Bozzetto, G. Della Pepa, E. Raso, R. Boccia, S. Gianfrancesco, A.A. Rivellese, G. Annuzzi, Italy

14 **Increased prevalence of NAFLD in adults with glomerular hyperfiltration: a 8 year cohort study based on 147,162 Koreans**
D.-J. Koo, S. Park, Republic of Korea

15 **Increased risk for microvascular outcome in NAFLD: a nationwide, population-based cohort study**
T. Ebert, L. Widman, P. Stenvinkel, H. Hagström, Germany, Sweden

16 **Fatty liver index is an independent risk factor for all-cause mortality and major cardiovascular events in type 1 diabetes: a 10-year observational study**
G. Penno, M. Garofolo, D. Lucchesi, E. Gualdani, P. Falcetta, M. Giambalvo, P. Francesconi, S. Del Prato, Italy

17 **Sub-optimal glycaemic control and insulin resistance in young adults with type 1 diabetes increases platelet expression of P-selectin and phosphatidylinerine**
R.C. Sagar, S.M. Pearson, N. Kietsiriroje, M. Hindle, K. Naseem, R. Ajjan, UK

18 **Non-invasive fibrosis scores as prognostic biomarkers of liver and cardiovascular events and all-cause mortality in adults with type 2 diabetes in the UK: a longitudinal study**
10:00 - 11:30  Nobel Hall

**OP 04  Walking with diabetes**

*Chair:*  P. Vas, United Kingdom

19 *Prevalence, incidence and risk factors for Charcot foot in patients with diabetes: a nationwide Swedish study*
G. Tsatsaris, N. Rajamand Ekberg, T. Fall, S. Catrina, Sweden

20 *Genome wide association meta study of diabetic foot ulcers*

21 *Bone morphogenetic protein-7 promotes diabetic wound healing by decreasing inflammation and matrix metalloproteinase-9 expression*
E.C. Leal, J. Da Silva, A. Figueiredo, Y.-H. Tseng, E. Carvalho, Portugal, USA

22 *Novel topical esmolol hydrochloride for diabetic foot ulcer: phase 3, randomised, double-blind, placebo-controlled, multi-centre study*
A. Rastogi, S.A. Kulkarni, S.K. Deshpande, S. Agarwal, V. Vishwanathan, A.G. Unnikrishnan, Galnobax Study Group, India

23 *Flexor tendon tenotomy treatment of the diabetic foot: a multicentre randomised controlled trial*
J. Askø Andersen, A. Rasmussen, S. Engberg, J. Bencke, M. Frimodt-Møller, K. Kirketerp-Møller, P. Rossing, Denmark

24 *Saving the foot: simple orthopaedic intervention to adjust the mechanics of the ulcerated neuropathic foot improves outcomes by reducing sepsis, amputation and mortality*
10:00 - 11:30   Doniach Hall

**OP 05  How to become a fat cell**

*Chair: G. Medina-Gomez, Spain*

25 *Fas (CD95) activation inhibits browning of white adipose tissue in obesity*
S. Wueest, P.P. Van Krieken, N.K. Konrad, C. Koch, M.S. Wiedemann, M. Borsigova, S. Boettcher, M. Blüher, D. Konrad, Switzerland, Germany

26 *Aripiprazole, but not olanzapine, directly inhibits human adipocyte differentiation and glucose metabolism*

27 *Senescent adipose stromal cells-derived CCL5 induces endothelial dysfunction, a key step in the onset of atherosclerosis*
L. Le Pelletier, K. Ngono Ayissi, J. Gorwood, F. Boccara, M. Auclair, M. Atlan, B. Fève, J. Capeau, C. Lagathu, V. Béréziat, France

28 *Requirement of plakoglobin during the early stages of adipogenesis*
F. Abou Azar, S. Allali, M. Abayomi, S. Yuen, S. Del Veliz, Y. Mugabo, F. Paré, G. Lavoie, P.P. Roux, G.E. Lim, Canada

29 *Ampk γ2 is an essential player in adipogenesis and adipocyte function*
Y. Cheng, X. Hui, Hong Kong

30 *Estrogen receptor beta knockdown reduces differentiation of preadipocytes from postmenopausal women*
OP 06  Intracellular regulation of insulin release

Chair:  K. Bouzakri, France

31 Glucose metabolites upstream of glyceraldehyde 3-phosphate dehydrogenase trigger activation of the mechanistic target of rapamycin complex 1 pathway in diabetic islets

32 Deletion of Carboxypeptidase E in beta cells disrupts proinsulin processing and accelerates streptozotocin-induced hyperglycaemia in mice
Y.-C. Chen, A.J. Taylor, K. Fok, M. Komba, X.-Q. Dai, J.M. Fulcher, A. Swensen, A.E. Patterson, R.I. Klein Geltink, W.-J. Qian, P.E. MacDonald, C.B. Verchere, Canada, USA

33 Identification of TBL1 and TBLR1 as novel regulators of insulin transcription in beta cells
A.A. Walth, R. Terron Exposito, A.-C. König, S.M. Hauck, A. Feuchtinger, P.E. MacDonald, M. Rohm, Germany, Canada

34 Single-cell-resolution imaging of alpha/beta cell metabolic response to glucose stimulation in living human-derived Langerhans islets
F. Cardarelli, F. Azzarello, L. Pesce, V. De Lorenzi, G. Ferri, M. Tesi, S. Del Guerra, P. Marchetti, Italy

35 Mitochondrial AASS-mediated l-lysine degradation is required to maintain beta cell function
L. Cataldo, Q. Gao, K. Trost, M. Fex, H. Mulder, T. Moritz, Denmark, Sweden

36 Quantification of the dynamics of Ins2 gene activity
J.C. Chu, H. Modi, S. Skovsø, C. Ellis, N.A. Krentz, Y.B. Zhao, H. Cen, N. Noursadeghi, E. Panzhinskiy, Y. Xia, S. Xuan, M.O. Huising, T.J. Kieffer, F.C. Lynn, J.D. Johnson, Canada, USA
# Short Oral Discussions Event A

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<td>SO 07</td>
<td>SARS-CoV2 and other viruses</td>
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<td>It’s getting complicated</td>
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<td>Insulin sensitivity: lessons from cellular and animal models</td>
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<td>Pregnancy and diabetes</td>
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<td>SO 08</td>
<td>Benefits of a healthy lifestyle</td>
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<td>SO 14</td>
<td>COVID-19 around the globe</td>
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<td>SO 44</td>
<td>Lessons from trials</td>
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<td>Is longer better? Looking for different basal insulin approaches</td>
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<td>Diversity of life with diabetes</td>
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<td>SO 62</td>
<td>Brain, nerve, and heart interaction</td>
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<td>SO 68</td>
<td>From brain circulation to cognitive dysfunction</td>
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<tr>
<td>SO 74</td>
<td>Weighing risks of cardiovascular complications</td>
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EASD e-Learning Sessions

In these sessions you will be able to interact live with the EASD e-Learning authors and ask all you ever wanted to know but never dared to ask.

We invite you to join the discussion.

12:00 - 12:45  Virchow Hall

EASD e-Learning: Lifestyle intervention

Chair: Caterina Conte, Italy
Speaker: Roy Taylor, UK, Richard Bracken, UK and Dominik Pesta, Germany:
Lifestyle intervention

13:00 - 13:45  Virchow Hall

EASD e-Learning: Comorbidities in type 1 and type 2 diabetes

Chair: Miriam Cnop, Belgium
Speaker: Bruce Wolffenbuttel, Netherlands and Cees Tack, Netherlands:
Comorbidities in type 1 and type 2 diabetes
Improve your diabetes knowledge with the world’s leading academics

- Access is FREE
- Modules added monthly
- Multimedia and interactive content

EASD has a long and proud history of postgraduate education and the organisation is delighted now to be able to offer online learning as part of this. We are building a suite of e-learning modules designed to educate, inform and engage healthcare professionals around the world.

The wide range of diabetes modules that will populate this platform have been designed with international experts in the field and they use innovative multimedia and challenging knowledge checks to help you to learn more about this fast-moving area.

Create your free account at easd-elearning.org/register
14:15 - 15:45

**Bernard Hall**

**OP 07 Finding a phenotype for diabetic kidney disease**

*Chair:* N. Sandholm, Finland

37 Genome-wide analysis of treatment-resistant hypertension in individuals with and without diabetes
A.A. Antikainen, H. Sánez Tähtisalo, S. Mutter, R. Lithovius, P.-H. Groop, K. Kontula, T. Hiltunen, N. Sandholm, Finland

38 DNA methylation is a risk factor for kidney failure in individuals with type 1 diabetes

39 The genetic background predicts the type of renal lesions and the progression of fibrosis in patients with type 2 diabetes
P. Pontrelli, C. Cinefra, F. Conserva, M. Fiume, A. Gallone, F. Pesce, F. Giorgino, L. Gesualdo, Italy

40 Loss of the transcription factor Tcf21 in adult podocytes leads to susceptibility in diabetic kidney disease
N. Teramoto, Y. Maezawa, T. Minamizuka, M. Koshizaka, Y. Endo, Y. Akimoto, K. Yokote, Japan

41 Empagliflozin attenuates obesity-related kidney dysfunction and NLRP3 inflammasome activity through the HO-1/adiponectin axis
T. Ye, J. Zhang, J. Shi, C. Kan, F. Han, N. Hou, X. Sun, China

42 Identification of markers for predicting the onset of chronic kidney disease in older people with type 2 diabetes by metabolomic profiling: Edinburgh Type 2 Diabetes Study
J. Krasauskaite, B.R. Conway, C.J. Weir, Z. Huang, J.F. Price, UK
14:15 - 15:45 Minkowski Hall

OP 08 Cardiovascular disease mechanisms: something new on the table?

Chair: A.A. Vaag, Sweden

43 C-reactive protein, C-peptide, and risk of cardiovascular events and mortality after type 2 diabetes diagnosis: a Danish cohort study

44 Mechanistic insights into the effects of empagliflozin in patients with type 2 diabetes and heart failure

45 Effect of semaglutide on MACE by baseline kidney function in participants with type 2 diabetes and high risk of cardiovascular disease: SUSTAIN 6 and PIONEER 6 post hoc analysis
P. Rossing, S. Bain, H. Bosch-Traberg, O. Frenkel, H.L. Heerspink, S. Rasmussen, L. Mellbin, Denmark, UK, Netherlands, Sweden

46 Overexpression of miR-210 attenuates endothelial dysfunction in a mouse model of obesity and type 2 diabetes

47 Inhibition of microRNA-181c rescues diabetes-impaired angiogenesis through activation of key angiogenesis mediators

48 Association between microangiopathic complications and cardiac structure and function in asymptomatic patients with type 2 diabetes
M. Nguyen, S. Pinto, P. Poignard, P. Valensi, France
14:15 - 15:45  
Golgi Hall

**OP 09  Fighting diabetes with tubes, scanners, and catheters**

*Chair:* L. Czupryniak, Poland

49 Advances in diabetes management: has pregnancy glycaemic control in women with type 1 diabetes changed in the last decades?
F. Citro, F. Nicoli, M. Aragona, L. Battini, C. Bianchi, S. Del Prato, A. Bertolotto, Italy

50 Fully automated closed-loop insulin delivery vs standard insulin therapy in adults with type 2 diabetes: an open-label, single-centre randomised crossover trial
C.K. Boughton, A.B. Daly, M. Nwokolo, S. Hartnell, M.E. Wilsinska, A. Cezar, M.L. Evans, R. Hovorka, UK

51 Important decrease of hospitalisations for acute diabetes events before and after FreeStyle Libre® system initiation in type 2 diabetes with basal insulin therapy in France

52 Accuracy of a real-time continuous glucose monitoring system during cardiac surgery with hypothermic extracorporeal circulation
D. Herzig, M. Vettoretti, D.P. Guensch, A. Melmer, A.C. Goerg, A. Kadner, A. Facchinetti, A. Vogt, L. Bally, Switzerland, Italy

53 Evidence of significant reduction in pain and sensory symptoms of diabetic neuropathy with 10kHz spinal cord stimulation: 24-month RCT outcomes
E. Petersen, T.G. Stauss, J.A. Scowcroft, J.L. White, S.M. Sills, K. Amirdelfan, M.N. Guirguis, J. Xu, C. Yu, A. Nairizi, D. Patterson, V. Galan, R.S. Taylor, D. Caraway, N.A. Mekhail, USA, UK

54 Duodenal jejunal bypass liner (DJBL) treatment for type 2 diabetes and obesity: glycaemic and CVD risk factor improvements vs risks in patients treated worldwide
14:15 - 15:45  
**Nobel Hall**

**OP 10 Beta cells: protecting what is precious**

*Chair:* C. Bonner, France

55 **Early effects of treatment with intralymphatic administration of rhGAD65 in LADA appear similar to those observed in type 1 diabetes**
I. Hals, A. Björklund, C.N. Balasuriya, R. Casas, J. Ludvigsson, V. Grill, Norway, Sweden

56 **Loss of beta cell Scn9a Na\(^+\) channel activity is protective in the context of type 1 diabetes while suppressing glucose stimulated insulin secretion**
P. Overby, S. Provenzano, G. Sun, N. Nahirney, J. Kolic, S. Skovsø, J.D. Johnson, Canada

57 **Tirzepatide improves multiple aspects of beta cell function**
K. Mather, A. Mari, J. Li, S. Urva, T. Heise, J. DeVries, E. Pratt, R. Heine, M. Thomas, Z. Milicevic, USA, Italy, Germany

58 **Shotgun proteomics unveils mechanisms behind metformin-induced protection against pro-inflammatory cytokine-induced human islet cell damage**

59 **Irisin administration restores beta cell functional mass in a mouse model of type 2 diabetes**
N. Marrano, G. Biondi, A. Borrelli, M. Rella, L. Roberto, A. Cignarelli, S. Perrini, L. Laviola, F. Giorgino, A. Natalicchio, Italy

60 **Non-invasive evaluation of the preservation effect of imeglimin on pancreatic beta cell mass using \(^{111}\)In-labeled exendin-4 SPECT/CT imaging**
M. Fauzi, T. Murakami, H. Fujimoto, A. Botagarova, K. Sakaki, S. Kiyobayashi, N. Inagaki, Japan
14:15 - 15:45  Doniach Hall

OP 11  Adipose tissue profiling and cardio-metabolic risk

Chair:  M. Blüher, Germany

61 The effect of ovariectomy and estradiol substitution on metabolic parameters and transcriptomic profile of adipose tissue in a prediabetic model
I. Markova, M. Huttl, D. Miklankova, L. Sedova, O. Seda, H. Malinska, Czech Republic

62 Mir-15b mediates the obesity-induced adipocyte insulin resistance by targeting insulin receptor
L. Xingjing, China

63 Impact of rare heterozygous mutations of PCSK1 on obesity: implication for treatment with MC4R agonists
L. Folon, M. Baron, M. Derhourhi, B. Balkau, G. Charpentier, S. Franc, R. Roussel, M. Canouil, P. Froguel, A. Bonnefond, France, UK

64 Obesity specific N6-methyladenosine (m6A) RNA modification in human adipose tissue
T. Rønningen, Y. Zeng, M. Visnovska, M.B. Dahl, J. Wang, L. La Cour Poulsen, J.A. Kristinsson, T. Mala, J.K. Hertel, J. Hjelmesæth, T.G. Valderhaug, H.H. He, Y. Böttcher, Norway, Canada

65 Waist-to-hip ratio is a stronger, more consistent predictor of all-cause mortality than BMI

66 Single-cell RNA sequencing of human visceral adipose tissue identifies new macrophage clusters in health and obese type 2 diabetes
Y. Yuan, H. Wang, H. Sun, Y. Bi, China
14:15 - 15:45 Peltonen Hall

**OP 12 GWAS and more**

*Chair:* S. Carlsson, Sweden

67 **Genetics of serum C-peptide in type 1 diabetes**
A.D. Paterson, D. Roshandel, A. Spiliopoulou, S. McGumaghan, S.B. Bull, P.M. McKeigue, H.M. Colhoun, Canada, UK

68 **Genome-wide association study on stroke in type 1 diabetes**

69 **Identification of novel type 1 and type 2 diabetes genes by colocalisation of human islet eQTL and GWAS variants**
A. Piron, M.L. Colli, M. Defrance, D.L. Eizirik, J.M. Mercader, M. Cnop, Belgium, USA

70 **The impact of rare pathogenic variants of GLIS3 on type 2 diabetes**
S. Meulebrouck, M. Canouil, M. Derhourhi, B. Balkau, G. Charpentier, S. Franc, M. Michel, R. Roussel, M. Vaxillaire, P. Froguel, A. Bonnefond, France, USA

71 **Sequencing of 448 Greenlandic individuals uncovers a novel splice-affecting HNF1A variant with large population impact on diabetes**

72 **A common variant in the ketohepxokinase gene is associated with fructosuria and cardiometabolic outcomes**
16:00 - 17:00  

**37th Camillo Golgi Lecture**

**Chair:**  Stefano Del Prato, Italy  
**Speaker:**  Michael Horowitz, Australia  
*TBA*

**Michael Horowitz** graduated in Medicine from the University of Adelaide in 1977 and obtained both his PhD and Fellowship of the Royal Australasian College of Physicians in 1984. He was appointed to a Personal Chair at the University of Adelaide in 1995 and as the Director of the Endocrine and Metabolic Unit at the Royal Adelaide Hospital in 1997. In 2014 he became an inaugural Fellow of the Australian Academy of Health and Medical Sciences and in 2022 was awarded the degree of Doctor of Science by the University of Adelaide.

His research activities focus on gastrointestinal motor, sensory, and hormonal function, particularly gastric emptying, in relation to diabetes, appetite regulation and critical illness. He has led the Centre of Research Excellence (CRE) in Translating Nutritional Science to Good Health at the University of Adelaide since its inception in 2007 – the training and sustained mentorship of clinician-scientists represents a focus of his career.

Professor Horowitz’s research, facilitated by the development and application of novel investigative techniques, has revealed the significance of gastric emptying (GE) (both normal and disordered) to upper gastrointestinal symptoms and the glycaemic, appetite and blood pressure responses to a meal in diabetes. Accordingly, gastric emptying is now appreciated to be integral to the pathogenesis and personalised management of type 1, type 2 and type 3c diabetes. His research has been supported by continuous funding from the National Health and Medical Research Council of Australia since 1980, including a current L3 Investigator Grant (2020-24)

Professor Horowitz is a current member of the editorial boards of 7 international journals, an Editor of Nutrients and Editor-in-Chief of the World Journal of Diabetes. He is an author of 754 peer-reviewed papers, 42 book chapters and 2 books.
EASD Camillo Golgi Prize

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, which have been carried out in Europe by a member of EASD normally resident in Europe.

Publications in internationally recognized scientific journals over the last 5 years should demonstrate continuing activity, originality and excellence in the field.

The Camillo Golgi Prize is generously supported by Novo Nordisk.

EASD Camillo Golgi Lecturers

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16:00 - 17:00  Minkowski Hall

16th Albert Renold Lecture

Chair: Chantal Mathieu, Belgium

Speaker: Maike Sander, USA

Deconstructing development to reconstruct beta cells from stem cells

Dr. Maike Sander is the Director of the Pediatric Diabetes Research Center and Co-Director of the Center for Diabetes in the Institute of Engineering in Medicine at the University of California, San Diego.

Over the past 25 years, Dr. Sander’s research has centered on understanding the molecular mechanisms that control the formation and function of insulin-producing pancreatic beta cells with the goal to identify novel therapeutic approaches for diabetes. Her recent work has focused on stem cell-derived islet models, which she has utilized to study genetic causes of diabetes and to uncover mechanisms of human beta cell development and maturation.

Her honours include the Grodsky Award from the Juvenile Diabetes Research Foundation, the Humboldt Foundation Research Award, a Berlin Institute of Health Einstein Visiting Professorship, and election to the American Society for Clinical Investigation, the Association of American Physicians, and the German National Academy of Sciences.

Dr. Sander graduated with a medical degree from the University of Heidelberg Medical School in Germany and conducted postdoctoral training at the University of California, San Francisco. Before joining the University of California, San Diego in 2008, she held faculty positions at Hamburg Medical School, Germany and the University of California, Irvine.
EASD Albert Renold Prize

Prize for an EASD member’s outstanding achievements in research on the islets of Langerhans.

The Albert Renold Prize honours the memory of Albert Renold, the distinguished diabetologist, researcher and also one of the founding members of EASD.

The Albert Renold Prize is generously supported by Lilly.

EASD Albert Renold Lecturers

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<td>2019</td>
<td>T. Otonkoski</td>
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<td>2018</td>
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<td>2008</td>
<td>J.-C. Henquin</td>
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<tr>
<td>2007</td>
<td>F. Ashcroft</td>
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Rising Star Symposium

Chair: Mikael Rydén, Sweden
Speaker: Diego Balboa, Spain:
Genome regulation of human beta cell development and function

John Dennis, UK:
Precision medicine in type 2 diabetes: modelling individual-level outcomes to target treatment

Matthew B Johnson, UK:
The power of rare disease: insights into beta cell autoimmunity from monogenic autoimmunity

Salwan Magdasy, Sweden:
Perturbed glutamine turnover in adipocytes drives white adipose tissue dysfunction

RISING STAR SYMPOSIUM AND FELLOWSHIP

The EASD Rising Star Symposium and EFSD Rising Star Fellowship Programme aims to identify promising and innovative young researchers who are developing their research activities in Europe.

The Rising Star Symposium and Fellowship is generously supported by Novo Nordisk.
The European Association for the Study of Diabetes e.V. (EASD) is a membership based academic non-profit organisation with more than 4,000 members worldwide. It was founded in 1965 and is based in Düsseldorf, Germany.

The aims of the Association are to encourage and support research in the field of diabetes, the rapid diffusion of acquired knowledge and to facilitate its application.

The EASD Annual Meeting is one of the largest diabetes related conferences in the world with more than 15,000 participants from over 130 countries.

EASD is also an active player in postgraduate education inside and outside of Europe. Since 1972, EASD has trained over 30,000 health care professionals through postgraduate training courses and online education activities.

In 2000, EASD increased its commitment to stimulate diabetes research in Europe by creating the European Foundation for the Study of Diabetes (EFSD). Since its inception, EFSD has committed over Euro 100 million to diabetes research in Europe by various funding means.

EASD’s official journal is Diabetologia, a major monthly international diabetes publication.

For more information, please visit: www.easd.org.
08:30 - 10:00  **Bernard Hall**

**EASD/ADA Symposium: Precision medicine in type 2 diabetes: How far can we get?**

*Chair:* Christian Herder, Germany  
Robert A Gabbay, USA

*Speaker:*  
Paul Franks, Sweden:  
**Chances and opportunities with precision medicine**

Robert Wagner, Germany:  
**Precision medicine in prediabetes and prevention**

Phong BH Nguyen, Germany:  
**Systems biology and artificial intelligence in precision medicine**

08:30 - 10:00  **Minkowski Hall**

**Diabetologia Symposium: Remission of type 2 diabetes – fact or fiction?**

*Chair:* Hindrik Mulder, Sweden

*Speaker:*  
Amy E Rothberg, USA:  
**Diabetes remission – definition, diagnosis and monitration**

Michael Lean, UK:  
**Diabetes remission – how is it achieved? (lifestyle, pharmacotherapy, surgery)**

Blandine Laferrère, USA:  
**Diabetes remission – why it may not last**
08:30 - 10:00  Golgi Hall

COVID-19 and diabetes

Chair: John Petrie, UK

Speaker: Barbara Ludwig, Germany:
Risk phenotypes of diabetes associated with severe COVID-19

Martin K Rutter, UK:
Impact of COVID-19 on diagnoses, monitoring, and mortality in people with type 2 diabetes

Stefan R Bornstein, Germany:
Obesity, diabetes and post-COVID-19 syndrome

08:30 - 10:00  Nobel Hall

A New Hope (© Star Wars) or Strange New Worlds (© Star Trek): submerging diabetes into emerging technologies

Chair: Lutz Heinemann, Germany

Speaker: Moshe Phillip, Israel:
Are we becoming robots? AID systems for everyone with type 1 diabetes: strengths and limitations

Richard IG Holt, UK:
“I just called to say I love you...” Diabetes tools for telemedicine: What we learned from COVID-19 and beyond?

Steven J Russell, USA:
Betting for the next best thing in digital diabetes technology
08:30 - 10:00  Doniach Hall

From models to clinic: much more than just a catwalk

Chair: M Paula Macedo, Portugal

Speaker: João F Raposo, Portugal:
The path from clustering in type 2 diabetes to health-based value

Paola Tognini, Italy:
Neural plasticity, nutrition and metabolic diseases

Jan Boren, Sweden:
Models to unveil metabolic diseases molecular mechanisms

08:30 - 10:00  Peltonen Hall

Cell biology for diabetologists: A piece of cake?

Chair: Maria Rohm, Germany

Speaker: Anja Zeigerer, Germany:
Endocytosis and systemic energy homeostasis

Luca Scorrano, Italy:
Targeting mitochondrial dynamics and the urea cycle to treat obesity

Bart van de Sluis, Netherlands:
From endosomes to arteriosclerosis
08:30 - 10:00  Heding Hall

Overcoming challenges in obesity medicine: The SURMOUNT Clinical Development Program

Chair: TBA
Speaker: TBA

08:30 - 10:00  Jacobsohn Hall

UKPDS 44-year follow-up

Chair: TBA
Speaker: TBA
10:15 - 11:45  Bernard Hall

**OP 13  Beyond type 1 and type 2**

*Chair:*  H. Maalmi, Germany

**73 Clusters of prediabetes and type 2 diabetes stratify all-case mortality in a cohort of participants undergoing invasive coronary diagnostics**  

**74 Novel clusters of prediabetes and their association with progression and regression: a 3-year follow-up study**  
Y. Liu, M. Sang, S. Qiu, Z. Sun, China

**75 Incidence of HbA\(_1c\)-defined prediabetes and progression to type 2 diabetes: a nationwide study with routine care laboratory data**  
S.K. Nicolaisen, R.W. Thomsen, D. Witte, H.T. Sørensen, L. Pedersen, Denmark

**76 Antibody positive patients with type 2 diabetes who rapidly progress to insulin have similar characteristics and type 1 genetic risk scores as patients with type 1 diabetes**  
V. Simpson, N. Thomas, A.V. Hill, B.M. Shields, S. Deshmukh, T.J. McDonald, A.G. Jones, StartRight Study Group, UK

**77 Children with newly-diagnosed diabetes but no autoantibodies should be genetically tested**  
M. Harsunen, J.L. Kettunen, T. Härkönen, P. Vähäsalo, R. Veijola, J. Ilonen, P.J. Miettinen, M. Knip, T. Tuomi, Finland

**78 Penetrance of MODY is substantially lower in clinically unselected cohort: important implications for opportunistic genomic testing**  
10:15 - 11:45

**Minkowski Hall**

**OP 14 Exercising your tissues in shape**

*Chair:* F. Amati, Switzerland

79 Does exercise matter? The effects of different volumes of exercise on beta cell function in patients with newly diagnosed type 2 diabetes
M. Lyngbaek, G. Legaard, N. Nielsen, T. Almdal, M. Ried-Larsen, K. Karstoft, Denmark

80 Improved beta cell function following eight weeks high-intensity interval training combining rowing and cycling in type 2 diabetes
M.H. Petersen, M.E. De Almeida, E.K. Wentorf, J.V. Stidsen, N. Ørtenblad, K. Højlund, Denmark

81 Exercise-responsive non-coding RNAs in the regulation of skeletal muscle metabolism

82 Exercise-induced crosstalk between immune cells and adipocytes in humans: role of oncostatin-M

83 High intensity interval training improves whole-body insulin sensitivity and skeletal muscle oxidative capacity and favourably affects hepatic fat storage
M. Bergman, R. Mancilla, P. Veeraiah, V.H. De Wit-Verheggen, Y.M. Bruls, J. Hoeks, V.B. Schrauwen-Hinderling, M.K. Hesselink, Netherlands

84 The plasma and tissue metabolomics responses to high intensity interval training and its importance in insulin resistance in obesity and type 2 diabetes
P.M. Møller, M.H. Petersen, M.E. De Almeida, N. Ørtenblad, J. Havelund, N.J. Færgeman, K. Højlund, Denmark
10:15 - 11:45

**OP 15**  **Preserving kidney function**

*Chair:* J. Karalliedde, UK

85 Effects of treatment with semaglutide, empagliflozin and the combination on kidney function in type 2 diabetes: impact of oxygenation and perfusion

S. Gullaksen, L. Vernstrøm, S.S. Sørensen, K.L. Funck, P.L. Poulsen, E.G. Laugesen, Denmark

86 Low blood oxygen saturation is associated with microvascular complications in individuals with type 1 diabetes


87 Development in eGFR trajectories in people with diabetic nephropathy


88 Shifts in KDIGO CKD risk groups with empagliflozin: Renoprotection from SGLT2 inhibition across the spectrum of risk

S.E. Inzucchi, B. Zinman, M. Mattheus, D. Steubl, A.P. Ofstad, C. Wanner, USA, Canada, Germany, Norway

89 Sotagliflozin, a dual SGLT1 and SGLT2 inhibitor, reduces the risk of cardiovascular and renal disease as assessed by Steno Risk Engines in adults with type 1 diabetes

E.B. Stougaard, P. Rossing, D. Vistisen, P. Banks, M. Girard, M.J. Davies, F. Persson, Denmark, USA

90 Morphological and functional ultrasound features of diabetic kidney disease phenotypes in people with type 2 diabetes

M. Garofolo, V. Napoli, D. Lucchesi, S. Accogli, M. Mazzeo, P. Rossi, P. Falcetta, M. Giambalvo, E. Neri, G. Penno, S. Del Prato, Italy
OP 16  Flames and scars in the liver

Chair:  J. Jones, Portugal

91 Role of the constitutive androstane receptor CAR in sex- and gut microbiota-dependent non-alcoholic fatty liver disease

92 Hepatic fat and macrophages are increased in livers of diabetic patients without NAFLD
A. Korn, C. Nadeem, E. Bos, H.W. Niessen, S. Simsek, P.A. Krijnen, Netherlands

93 Ubiquitin-proteasome system dysfunction in the liver of severely obese men with and without type 2 diabetes
B. Stocks, E. Näslund, J.R. Zierath, A.S. Deshmukh, Denmark, Sweden

94 Liver inflammation increases the proliferation of oval cells during non-alcoholic fatty liver disease
S. Calero Pérez, I. Barahona, P. Valdecantos, Á.M. Valverde, Spain

95 Phthalate exposure is associated with NAFLD, but not with liver fibrosis in the United States
S. Ciardullo, E. Muraca, R. Cannistraci, G. Lattuada, G. Perseghin, Italy

96 The fibrotic NASH index: a simple non-invasive score to screen for liver disease in individuals with metabolic risk factors
OP 17  Toying with monitoring: from Present Continuous to Future Perfect

Chair:  D. Zozulinska-Ziolkiewicz, Poland

97 Gaps remain in achieving target type 1 diabetes glycaemic goals despite advanced technologies

98 Intermittently scanned continuous glucose monitoring is associated with a long-term glucose-lowering effect for type 1 diabetes patients in poor glycaemic control
M.H. Jensen, S.L. Cichosz, P. Gustenhoff, A. Nikontovic, O. Hejlesen, P. Vestergaard, Denmark

99 Conversion from FreeStyle Libre to FreeStyle Libre 2 is associated with improvements in continuous glucose monitoring metrics
F.W. Gibb, R.H. Stimson, R.J. Wright, S. Forbes, M.W. Strachan, A. Dover, UK

100 Efficacy and safety of real-time continuous glucose monitoring guiding insulin administration in the hospital: a randomised clinical trial

101 Cutaneous reactions associated with diabetes adhesives devices: results of the CutaDiab study

102 Impact of treatment costs on the cost-effectiveness of real-time continuous glucose monitoring vs self-monitoring of blood glucose in type 1 diabetes patients in the United Kingdom
H. Alshannaq, G. Cogswell, G.J. Norman, P.M. Lynch, S. Roze, USA, France
10:15 - 11:45  Peltonen Hall

OP 18  Cross-talk communication in the pancreas

Chair:  L. Eliasson, Sweden

103 Chronic hyperglycaemia leads to dysregulated δ-cell metabolism and reduced glucose-stimulated somatostatin secretion from the pancreatic islets

104 Paracrine signalling in delta cells is disturbed in human type 2 diabetes
L. Matuseviciene, O.M. Hmeadi, P.-E. Lund, S. Barg, Sweden

105 The requirement of beta cells to the glucose responsiveness of alpha cells depends on the depolarisation status of alpha cells
F. Khattab, P. Gilon, Belgium

106 Antecedent hypoglycaemia enhances intra-islet α-δ-cell paracrine feedback loop to impair α-cell glucagon secretion
R. Gao, S. Acreman, P. Rorsman, Q. Zhang, UK

107 Insulin-like growth factor binding protein 7 reduces glucose stimulated insulin secretion and downregulates key beta cell transcription factors
E. Westholm, A. Karagiannopoulos, A. Wendt, L. Eliasson, Sweden

108 Role of tRNA-derived fragments in the cross-talk between immune cells and beta cells during type 1 diabetes pathogenesis
F. Brozzi, C. Cosentino, C. Jacovetti, K. Wu, V. Menoud, M.B. Bayazit, C. Guay, R. Regazzi, Switzerland
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# Short Oral Discussions Event D

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<td>Cancer and type 2 diabetes: interconnections and mortality</td>
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**EASD e-Learning Sessions**

In these sessions you will be able to interact live with the EASD e-Learning authors and ask all you ever wanted to know but never dared to ask. We invite you to join the discussion.

12:00 - 12:45  **Virchow Hall**

**EASD e-Learning: Dual incretin receptor agonists: Is GIP receptor agonism the key for success?**

*Chair:* Chantal Mathieu, Belgium  
*Speaker:* Michael Nauck, Germany, Stefano Del Prato, Italy, Baptist Gallwitz, Germany and Clifford Bailey, UK:  
**Dual incretin receptor agonists: Is GIP receptor agonism the key for success?**

13:00 - 13:45  **Virchow Hall**

**EASD e-Learning: Diabetic kidney disease and KDIGO guidelines**

*Chair:* TBA  
*Speaker:* Peter Rossing, Denmark and Hiddo Lambers Heerspink, Netherlands:  
**Diabetic kidney disease and KDIGO guidelines**
14:30 - 16:00

**Bernard Hall**

**OP 19**  **GLP1 agonists: from here to eternity**

*Chair:* M. Haluzik, Czech Republic

109 Dulaglutide in youth with type 2 diabetes: results of the AWARD-PEDS randomised, placebo-controlled trial
S. Arslanian, T. Hannon, P. Zeitler, L. Chao, C. Boucher-Berry, M. Barrientos-Pérez, E. Bismuth, S. Dib, J. Cho, D. Cox, USA, Mexico, France, Brazil

110 Beta cell function and sensitivity to incretins before and after Roux-en-Y gastric bypass in patients with type 2 diabetes
M.S. Svane, M. Hindsø, C. Martinussen, C. Dirksen, N.B. Jørgensen, B. Hartmann, V.B. Kristiansen, J.J. Holst, K.N. Bojsen-Møller, S. Madsbad, Denmark

111 Ly3437943 (LY), a novel triple GIP/GLP-1/glucagon receptor agonist, provides glucose lowering and weight loss in patients with type 2 diabetes after 12 weeks of treatment

112 Effect of liraglutide on muscle fat infiltration in adults with overweight or obesity: a randomised clinical trial
K.V. Patel, A. Pandey, C. Ayers, J. Linge, O.D. Leinhard, P.H. Joshi, I.J. Neeland, USA, Sweden

113 Glucagon-like peptide 1 receptor agonists and gallbladder or biliary diseases: data from the FDA Adverse Event Reporting System
H. Zhang, L. He, J. Wang, N. Yang, W. Li, L. Xu, Y. Li, F. Ping, China

114 Once-daily oral small molecule GLP-1R agonist PF-07081532 robustly reduces glucose and body weight within 4-6 weeks in adults with type 2 diabetes and non-diabetic adults with obesity
C. Buckeridge, N. Tsamandouras, S. Carvajal-Gonzalez, L.S. Brown, K.L. Chidsey, A.R. Saxena, USA
OP 20  NAFLD and treatment

Chair: A. Holleboom, Netherlands

115 One night of prolonged fasting improves nocturnal substrate oxidation without modulating hepatic glycogen in individuals with NAFL and healthy age-matched individuals
K.H. Roumans, A. Veelen, C. Andriessen, J. Mevenkamp, P. Veeraiah, B. Havekes, H.P. Peters, L. Lindeboom, P. Schrauwen, V.B. Schrauwen-Hinderling, Netherlands

116 Therapeutic benefits of 17a-estradiol in hepatic fibrosis
S. Ali Mondal, R. Sathiaseelan, B. Miller, M. Stout, USA

117 The effect of a 16-week diet intervention with or without differing amounts of exercise volume on hepatic fat content in people with type 2 diabetes

118 Ezetimibe combination therapy with statin for non-alcoholic fatty liver disease: a randomised controlled trial (ESSENTIAL study)
Y. Kim, Republic of Korea

119 Time-restricted feeding and obeticholic acid/semaglutide drug combination have a different impact on non-alcoholic steatohepatitis in diet-induced obese mice
F. Briand, N. Breyner, E. Grasset, T. Sulpice, France

120 Cellular resistance to reactive metabolites is reversely affected by acute glucose stress and caloric restriction in type 2 diabetes patients with complications
A. Sulaj, E. Von Rauchhaupt, C. Rodemer, R. Bulkescher, E. Kliemank, S. Kopf, P.P. Nawroth, J. Szendroedi, J. Zemva, Germany
14:30 - 16:00       Golgi Hall

OP 21  Retinopathy future vision

Chair: T. Nyström, Sweden

121 An early window of opportunity: risk factors for diabetic retinopathy are associated with early retinal neurodegenerative changes: The Maastricht Study

122 Transcriptome analysis reveals that retinal neuromodulation is the main underlying mechanism of the neuroprotective effect of sitagliptin in diabetic retina
H. Ramos, P. Bogdanov, J. Huerta, A. Deàs-Just, C. Hernández, R. Simó, Spain

123 Presence of retinopathy and kidney and cardiovascular events in type 2 diabetes and normoalbuminuria: a post-hoc analysis of The PRIORITY study
T. Hansen, V. Rotbain Curovic, N. Tofte, M.K. Lindhardt, C. Delles, M. Frimodt-Møller, H. Mischak, F. Persson, H. Von der Leyen, P. Rossing, on the behalf of the PRIORITY Study Group, Denmark, UK, Germany

124 Stroke incidence increases with severity of diabetic retinopathy and maculopathy in people with type 1 diabetes

125 Fenofibrate use and diabetic retinopathy progression in patients with type 2 diabetes: a propensity-matched cohort study
N. Kim, J. Kim, K. Kim, J. Bae, K. Kim, S. Kim, Republic of Korea

126 Blocking haemopexin with specific antibodies: a new experimental strategy for treating diabetic retinopathy
R. Simó, P. Bogdanov, A. Duarri, A. Salas, D. Sabater, H. Ramos, H. Isla, C. Hernández, Spain
**14:30 - 16:00**

**Nobel Hall**

**OP 22  Giving birth with diabetes**

*Chair:*  J. Puder, Switzerland

127 Glycaemic control and complication rate through pregnancy and thirteen-years post-partum in women with microalbuminuria (type 1 diabetes)
N. Asatiani, R. Kurashvili, E. Inashvili, E. Shelestova, T. Akhobadze, Georgia

128 Glucose response patterns based on 75g OGTTs during pregnancy and their association with the risk of macrosomia: a latent class analysis of three cohort studies

129 Changes in body fat partitioning and insulin resistance between preconception and postpartum in Singaporean women: the SPRESTO study

130 Maternal diabetes and attention-deficit/hyperactivity disorder in childhood

131 Pregestational diabetes and risk of congenital heart defects in the offspring: French nationwide study using the French PMSI-MCO database
M. Lemaitre, G. Bourdon, A. Bruandet, X. Lenne, D. Subtil, T. Rakza, A. Vambergue, France

132 Beta cell function, hepatic insulin clearance and insulin sensitivity in South Asian and Nordic women after gestational diabetes
A. Sharma, I. Nermoen, E. Qvigstad, C. Sommer, N. Sattar, J. Gill, H. Gulseth, S. Sollid, K. Birkeland, S. Lee-Ødegård, Norway, UK
OP 23  Are we too slow to outlaw the low?

Chair: T. Battelino, Slovenia

133 Severe hypoglycaemia presenting to a hospital emergency department: clinical characteristics and mortality outcomes
S.H. Song, B.M. Frier, UK

134 Determining the incidence and clinical predictors of severe hypoglycaemia in patients receiving insulin and sulphonylureas for type 2 diabetes

135 Dishabitation with high intensity exercise improves hormonal and symptom responses to hypoglycaemia in people with type 1 diabetes and impaired awareness of hypoglycaemia
C.M. Farrell, A.D. McNeilly, S.M. Hapca, T.W. Jones, P.A. Fournier, D. West, R.J. McCrnimmon, UK, Australia

136 Decreased branched-chain amino acids and elevated fatty acids during antecedent hypoglycaemia in type 1 diabetes
R. She, N. Al-Sari, I. Mattila, P. Henriksen, J. Pedersen, A.-S. Sejling, C. Legido-Quigley, U. Pedersen-Bjergaard, Denmark, UK

137 Recurrent low glucose exposure (RLG) induces intrinsic metabolic adaptations in pancreatic alphaTC1.9 cells
K.M. Partridge, N.G. Morgan, K.L. Ellacott, C. Beall, UK

138 The impact of CGM with a predictive hypoglycaemia alert function on hypoglycaemia in physical activity for people with type 1 diabetes: PACE study
S. Rilstone, N. Oliver, B. Tanushi, N. Hill, UK
14:30 - 16:00

**OP 24 How to burn energy**

*Chair:* B. Cannon, Sweden

139 The oxidative phenotype of abdominal and femoral adipose tissue in women with normal weight or obesity

140 Pdgfra-specific deletion of Alms1 in mice recapitulates the obesity and insulin resistance of global Alms1 KO and this cannot be explained by discoordinated ciliary dynamics

141 A larger brown fat volume and lower mean radiodensity are related to a greater cardiometabolic risk, especially in young men
F. Acosta, G. Sanchez-Delgado, B. Martinez-Tellez, F. Osuna-Prieto, A. Mendez-Gutierrez, C. M. Aguilera, A. Gil, J. Llamas Elvira, J. Ruiz Ruiz, Finland, Spain, USA, Netherlands

142 Brown adipose tissue content of triglycerides, but not SUV, is associated with cardiovascular risk markers in volunteers from a tropical region
M. Monfort-Pires, G.R. Silva, P. Dadson, G.A. Nogueira, M. U-Din, K.A. Virtanen, L.A. Velloso, Finland, Brazil

143 Humans with metabolically active brown fat demonstrate higher capacity to catabolise branched chain amino acids

144 Hepatocyte PPARα is required for the sensing of adipose-derived fatty acids and for full brown adipose tissue activation during lipolysis
16:15 - 17:15

EASD-Novo Nordisk Foundation Diabetes Prize for Excellence

Chair: Stefano Del Prato, Italy

Speaker: Anette-Gabriele Ziegler, Germany

Starting the clock to type 1 diabetes

A specialist in internal medicine, endocrinology, and diabetes, Prof. Dr. Anette-Gabriele Ziegler leads the Institute of Diabetes Research at Helmholtz Munich, and is Chair of Diabetes at the Faculty of Medicine, Technical University Munich, Germany. She is also speaker of the Global Platform for the Prevention of Autoimmune Diabetes (GPPAD), and an academy head of the German Center for Diabetes Research DZD e.V.

Dr. Ziegler’s primary research goal is understanding the pathogenesis of type 1 diabetes and finding a preventive treatment for a world without type 1 diabetes. Her main research focuses on identification of genetic, immune and environmental determinants of the disease, the introduction of polygenic risk scores, and the translation of findings into predictive staging that enables trials to prevent type 1 diabetes. She initiated the landmark and worldwide first birth cohort study in diabetes, BABYDIAB, with seminal discoveries on the precocious start of islet autoimmunity in the first year of life, and insulin as the initial target of autoantibodies. The success of the BABYDIAB study led to the multinational birth-cohort initiative TEDDY (The Environmental Determinant of Diabetes in the Young), of which she is Principal Investigator for the German Clinical Center.

She cofounded GPPAD, which introduced polygenic risk score-based newborn screening and also started the first population-based screening for early stage type 1 diabetes in childhood, the Fr1da-study, which has paved the way for prevention trials in a public health setting. She is a member of the TRIALNET, TEDDY, INNODIA, and GPPAD consortia.
The EASD-Novo Nordisk Foundation Diabetes Prize for Excellence awards an internationally recognised researcher who has contributed significantly to advances in the understanding, prevention or treatment of diabetes or its complications.

The awardee’s research may focus on prevention, treatment and/or basic research in physiological biochemistry.

The EASD-Novo Nordisk Foundation Diabetes Prize for Excellence is generously supported by the Novo Nordisk Foundation.

### EASD-Novo Nordisk Foundation Diabetes Prize for Excellence Lecturers

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<td>2020</td>
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<td>D.J. Drucker (CA)</td>
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<td>2018</td>
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<td>A. Hattersley (UK)</td>
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<td>2015</td>
<td>S. O’Rahilly (UK)</td>
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EASD Morgagni Prize

The Morgagni Prize is awarded to young scientists in the field of clinical research, clinical physiology and metabolism who are EASD members and based at a research institution in Europe.

The Morgagni Prize was instituted in 1984 by a group of distinguished researchers working at the University of Padova Medical School (Italy) and since 2020, the prize will be awarded during the EASD Annual Meeting every two years.

The Morgagni Prize is generously supported by Servier.
17:30 - 18:30  Bernard Hall

EFSD/Novo Nordisk Foundation Future Leaders Symposium

Chair: Fatima Bosch, Spain
Speaker: Claire Meek, UK:
An unwelcome inheritance: childhood obesity after gestational diabetes

Trine Moholdt, Norway
Before the beginning: preconception lifestyle interventions to improve future metabolic health

Atul S Deshmukh, Denmark:
Discovery of exerkines by mass spectrometry based proteomics

17:30 - 18:30  Minkowski Hall

Modulators of gluco- and lipotoxicity

Chair: John Jones, Portugal
Speaker: Jules Griffin, UK:
The contribution of the liver

Gilles Mithieux, France:
The contribution of the intestine

17:30 - 18:30  Golgi Hall

Debate: Insulin-free type 2 diabetes treatment is…

Chair: Leszek Czupryniak, Poland
Speaker: Bruce HR Wolffenbuttel, Netherlands:
...nonsense

Apostolos Tsapas, Greece:
...coming
17:30 - 18:30  **Nobel Hall**

**The heat is on! Diabetes and climate change**

**Chair:** Amalia Gastaldelli, Italy

**Speaker:** Fiona Adshead, UK: *Diabetes, climate change and global health*

Lutz Heinemann, Germany: *The need for less waste and more recycling in diabetes technology*

Raffaella Bosurgi, UK: *Limiting global temperature increases to protect health*

17:30 - 18:30  **Doniach Hall**

**Epigenetic regulation and diabetes**

**Chair:** Miriam Cnop, Belgium

**Speaker:** Charlotte A Ling, Sweden: *Can epigenetics be of clinical use in diabetes?*

Lori Sussel, USA: *Epigenetics and IncRNA in diabetes development*

17:30 - 18:30  **Peltonen Hall**

**EASD/JDRF Symposium: Prevention of type 1 diabetes, is it possible?**

**Chair:** Sofia Carlsson, Sweden
Sanjoy Dutta, USA

**Speaker:** Anette G Ziegler, Germany: *New avenues in the prevention of type 1 diabetes*

Lars C Stene, Norway: *Genes vs environment in the development of type 1 diabetes*
17:30 - 18:30  Virchow Hall

Intended self-injury and suicide amongst people with diabetes: tackling this public health challenge

Chair: TBA
Speaker: TBA
08:30 - 10:00  

**Bernard Hall**

**Juggling with lipids to find new targets for managing diabetes and comorbidities**

*Chair:* Amalia Gastaldelli, Italy  
*Speaker:* Scott Summers, USA: 
**Scary lipids in diabetes**

Panu K Luukkonen, Finland:  
**Horrendous lipids for the liver**

Reijo Laaksonen, Finland:  
**Monstruous lipids for the cardiovascular system**

08:30 - 10:00  

**Minkowski Hall**

**New insights to prevention of microvascular complications**

*Chair:* Paola Fioretto, Italy  
*Speaker:* Frederik Persson, Denmark:  
**What is the residual risk after adapting current multifactorial prevention modalities?**

Rafael Simó, Spain:  
**What can we still do for prevention of diabetic retinopathy?**

Anna Solini, Italy:  
**What can we still do for prevention of diabetic kidney disease?**
08:30 - 10:00  Golgi Hall

Delivering the best of diabetes care in under-resourced populations – how much of the wishful thinking?

Chair: Anne Peters, USA
Speaker: Shivani Agarwal, USA:
How can we approach healthcare inequities in the US?

Tzvetalina Tankova, Bulgaria:
European perspective: challenges beyond access

Somia Iqtadar, Pakistan:
Asia is where it all happens! News from the world diabetes capitals

08:30 - 10:00  Nobel Hall

Metabolic insights from single-cell studies: clinical implications

Chair: Niklas Mejhert, Sweden
Speaker: Elin Grundberg, USA:
The cellular landscape and the link to insulin sensitivity / type 2 diabetes in: white adipose tissue

Nils Wierup, Sweden:
The cellular landscape and the link to insulin sensitivity / type 2 diabetes in: pancreas

Niels Jessen, Denmark:
The cellular landscape and the link to insulin sensitivity / type 2 diabetes in: skeletal muscle
08:30 - 10:00  Doniach Hall

**Flexing muscle metabolism to battle diabetes: What can we learn from omics?**

*Chair:* Patrick Schrauwen, Netherlands  
*Speaker:* Michael Snyder, USA:  
**Molecular choreography of exercise: Can it be used to treat diabetes?**

- David James, Australia:  
  **Phosphoproteomics from exercise to diabetes**

- Romain R Barrès, Denmark:  
  **Epigenetic rewiring of skeletal muscle after exercise training**

08:30 - 10:00  Peltonen Hall

**Cells talk in fatty liver disease**

*Chair:* Karim Bouzakri, France  
*Speaker:* Philipp Kaldis, Sweden:  
**At the crossroads of lipid and glucose metabolism**

- Charlotte L Scott, Belgium:  
  **Macrophage and lipid metabolism**

- Antonio Vidal-Puig, UK:  
  **Triglyceride storage in macrophage**
08:30 - 10:00  Heding Hall

Re-inventing the insulin experience: exploring the prospects of once-weekly insulins

Chair:  Tina Vilsbøll, Denmark

**Speaker:**  Athena Philis-Tsimikas, USA:  
*Why do we need once-weekly insulins?*

Juan P Frias, USA:  
*The scientific innovation behind once-weekly insulins*

Chantal Mathieu, Belgium:  
*The clinical evidence to date*

Athena Philis-Tsimikas, USA:  
*Pathways to the future*

Stefano Del Prato, Italy:  
*Commentary: Taking once-weekly insulins to the real world*

followed by Q&A

08:30 - 10:00  Jacobsohn Hall

Mineralocorticoid receptor overactivation: novel approach to treatment of multi-organ impact with finerenone

Chair:  TBA

Speaker:  TBA
10:15 - 11:45

Bernard Hall

**OP 25** Lipid in and out of the liver

*Chair:* J. Haas, France

145 Skeletal muscle derived myokine affects insulin sensitivity and lipogenesis in a human hepatocyte spheroid model  
J.-B. Potier, A. Dumond, A. Fardellas, M. Pinget, M. Aouadi, K. Bouzakri, France, Sweden

146 The PNPLA3 I148M variant increases intrahepatic lipolysis and beta oxidation and decreases de novo lipogenesis and hepatic mitochondrial function in vivo in humans  

147 Effect of tirzepatide on fasting lipids in patients with type 2 diabetes: meta-analysis of randomised controlled trials  
T. Karagiannis, I. Avgerinos, A. Tsapas, E. Bekiari, Greece, UK

148 Lipidomic and metabolomics profiling in low birth weight men reveals a dysmetabolic phenotype associated with increased liver fat  

149 3-hydroxybutyrate infusion suppresses free fatty acid concentrations in type 1 diabetes patients and healthy men  
M. Bangshaab, M.V. Svart, N. Rittig, M.G. Pedersen, N. Møller, Denmark

150 Inhibition of VEGF-B signalling prevents non-alcoholic fatty liver disease development and progression  
A. Falkevall, A. Mehlem, E. Folestad, M. Zeitelhofer, P. Scotney, U. Eriksson, Sweden, Australia
10:15 - 11:45  Minkowski Hall

**OP 26**  The dark side of diabetes

*Chair:* A. Rawshani, Sweden

**151 Risk of incident diabetes after hysterectomy: results from the E3N cohort study**
F. Bonnet, P. Vaduva, N. Laouali, G. Fagherazzi, M. Kvaskoff, France, USA, Luxembourg

**152 Association between endometriosis and risk of type 2 diabetes: results of the E3N prospective cohort study**
P. Vaduva, N. Laouali, G. Fagherazzi, F. Bonnet, M. Kvaskoff, France, USA, Luxembourg

**153 Cardiovascular and metabolic morbidity in women with previous gestational diabetes: a nationwide register-based cohort study**
M.H. Christensen, K.H. Rubin, T.G. Petersen, E.A. Nohr, C.A. Vinter, M.S. Andersen, D.M. Jensen, Denmark

**154 Association of type 2 diabetes, according to the number of risk factors within target range, with incident major depressive disorder and incident depressive symptoms**

**155 Pre(diabetes) and a higher level of glycaemia are continuously associated with corneal neurodegeneration: The Maastricht Study**

**156 Multimorbidity in type 1 diabetes is common and associated with increased mortality**
10:15 - 11:45  Golgi Hall

**OP 27  Improving your insulin sensitivity: lessons from human studies**

*Chair: E. Phielix, Netherlands*

157 *Circulating microRNA signatures in prepubertal children with obesity and insulin resistance*
D. Santos, P. Porter-Gill, S. Bennuri, G. Good, L. Delhaey, A.E. Sørensen, R. Shannon, L.T. Dalgaard, B. Elisabet, E. Carvalho, Portugal, USA, Denmark

158 *Insulin resistance and visceral or ectopic fat deposition may independently determine metabolic and cardiovascular complications in type 1 diabetes*
J.R. Snaith, D.J. Holmes-Walker, J.R. Greenfield, Australia

159 *Circulating succinate response is associated with insulin sensitivity and glucose tolerance*

160 *Repeated exposure to cold-induced shivering thermogenesis improves glucose homeostasis in overweight and obese adults*

161 *Thromboxane is elevated in men after exercise and improves skeletal muscle glucose uptake and whole-body glucose homeostasis*
A.M. Abdelmoez, M. Borg, L. Dollet, J.A. Smith, A. Chibalin, A. Krook, J.R. Zierath, N.J. Pillon, Sweden, Denmark

162 *High dietary fat intake increases glucagon levels and the glucagon-to-insulin-ratio in healthy lean subjects*
B. Schuppelius, R. Schüler, O. Pivovarova-Ramich, S. Hornemann, A. Busjahn, J. Machann, M. Kruse, A.F. Pfeiffer, Germany
10:15 - 11:45
Nobel Hall

**OP 28  Desirable diets**

*Chair:* C. Conte, Italy

**163 Undesired side effects of a formula diet on erythropoietic parameters: data from two randomised controlled trials**

**164 An isoenergetic multifactorial diet reduces pancreatic fat and increases postprandial insulin response in patients with type 2 diabetes: a randomised controlled trial**

**165 The role of glucagon in type 2 diabetes remission by weight loss**
E. Lalama, K. Ruether, J. Zhang, B. Schuppelius, N. Kraenkel, M. Csanalosi, S. Kabisch, E. Latz, A. Christ, A.F. Pfeiffer, Germany

**166 Determinants of blood glucose concentrations after a high carbohydrate meal in type 2 diabetes: a multiple linear regression analysis**
C. Xie, R.J. Jalleh, W. Huang, Y. Sun, K.L. Jones, M. Horowitz, C.K. Rayner, T. Wu, Australia

**167 The ‘early’ postprandial glucagon response to a mixed meal is dependent on the rate of gastric emptying in type 2 diabetes**
W. Huang, C. Xie, N.J. Albrechtsen, K.L. Jones, M. Horowitz, C.K. Rayner, T. Wu, Australia, Denmark

**168 Disparities in blood glucose and incretin responses to intraduodenal glucose infusion in healthy young males and females**
T. Wu, C. Xie, W. Huang, Y. Sun, M. Horowitz, K.L. Jones, C.K. Rayner, Australia
10:15 - 11:45

**OP 29 Saving sweet souls**

*Chair:* D. Pongrac Barlovic, Slovenia

169 Psychological resilience is predictive of future HbA₁c and mental health status in adults with new onset type 1 diabetes
S.M. Brackley, N. Thomas, A. Hill, B. Shields, T. McDonald, C. Fox, J. Huber, A. Jones, UK

170 Caregiver-report adherence in diabetes questionnaire is predictive of 10-year HbA₁c trajectories in children and adolescents with type 1 diabetes: a population-based study

171 Associations between generalised anxiety disorder, glycaemic management, and demographic factors among adults with diabetes in Europe
E. Cox, E. Ye, R. Wood, C. Pang, USA

172 Relationship between elevated diabetes distress and DSM-5 personality traits: evidence from the Czech validation sample
J. Konecna, D. Lacko, K.D. Riegel, Czech Republic

173 High burden of depression, anxiety and severe obesity in young women with newly diagnosed type 2 diabetes: reports from a Swedish multicentre study of 1027 patients

174 Let the patient choose! Patient preferences for type 2 diabetes therapy in the trimaster double-blind three-way randomised crossover trial
**OP 30  Novel ways of beta cell replacement**

*Chair:* M. Fex, Sweden

175 A highly oxygenated hydrogel enhanced the survival of human islets encapsulated within macroencapsulation devices

176 Microsphere-based bioartificial islet with beta cells and mesenchymal stem cells co-encapsulation for diabetes treatment
J. Sun, L. Li, China

177 Parallel single cell RNA sequencing and spatial transcriptomics analysis of the developing human pancreas

178 Elucidating the role of TFB1M genetic variants in diabetogenic mechanisms using genome-edited stem cell models

179 Stem cell-derived islets display functional and metabolic maturation post-engaftment
T. Barsby, E. Vähäkangas, H. Montaser, J. Ustinov, J. Saarimäki-Vire, T. Otonkoski, Finland

180 MicroRNAs predictive of islet graft function in islet transplant recipients
### Short Oral Discussions Event E

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# Short Oral Discussions Event F

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EASD e-Learning Sessions

In these sessions you will be able to interact live with the EASD e-Learning authors and ask all you ever wanted to know but never dared to ask. We invite you to join the discussion.

12:00 - 12:45  Virchow Hall

EASD e-Learning: ADA/EASD management of type 1 diabetes consensus report

Chair: Apostolos Tsapas, Greece

Speaker: Richard Holt, UK and Anne Peters, USA: ADA/EASD management of type 1 diabetes consensus report

13:00 - 13:45  Virchow Hall

EASD e-Learning: Technology and type 1 diabetes

Chair: Pratik Choudhary, UK

Speaker: TBA
Free digital learning for healthcare professionals around the world
easd-elearning.org
14:30 - 16:00

**OP 31 Diabetes: size matters**

*Chair:* D. Witte, Denmark

181 IDF diabetes atlas: global prevalence estimates of prediabetes for 2021 and projections for 2045
D.J. Magliano, M. Fang, M. Rooney, K. Ogurtsova, E. Boyko, E. Selvin, Australia, USA, Germany

182 Body size change from childhood to adulthood and type 2 diabetes risk
G.D. Carrasquilla, T.O. Kilpeläinen, R.J. Loos, Denmark

183 Type 2 diabetes, and its modulating effect on the aging body, studied using voxel-wise analysis of whole-body MR images

184 Low birth weight is associated with lower age and BMI at the time of type 2 diabetes diagnosis in the Danish DD2 cohort

185 Four weeks of carbohydrate overfeeding induce widespread dysmetabolic traits in men born with a low birth weight compared to matched normal birth weight controls

186 Efficacy of metformin in preventing progression to diabetes in Chinese subjects with impaired glucose regulation: results from a multicentre, open-label RCT
L. Zhang, Y. Zhang, S. Shen, X. Wang, Q. Li, L. Ji, N. Sun, G. Li, CDPP study group, China
14:30 - 16:00

Minkowski Hall

OP 32  Pain or no pain?

Chair: V. Spallone, Italy

187 Painful diabetic peripheral neuropathy in type 1 diabetes in the Epidemiology of Diabetes Interventions and Complications (EDIC) study

188 Increased functional connectivity of the Thalamus and primary Somatosensory cortex and insular cortex following treatment withdrawal: a potential biomarker of painful-DPN
G. Sloan, D. Selvarajah, K. Teh, I. Wilkinson, S. Tesfaye, UK

189 Better target engagement of opioid receptor systems in responders to neuropathic pain treatment: a neurotransmitter-enriched functional connectivity mapping study
D. Selvarajah, K. Teh, J. Mcallister, A. Anandhanarayanan, J. Fan, G. Sloan, S. Tesfaye, UK

190 Declining incident rates of distal polyneuropathy in a cohort study, but with distinct age-related patterns between diabetes types in the period 1996-2018
H. Mizrak, H. Amadid, P. Rossing, D. Vistisen, C. Hansen, Denmark

191 Type 2 diabetes phenotypes and polyneuropathy: a prevalence study in the DD2 Cohort

192 Environmental risk factors of incident distal sensorimotor polyneuropathy: results from the population-based KORA F4/FF4 study
14:30 - 16:00

**Op 33**  Therapy outside the box

*Chair:* J. Kerr-Conte, France

193 *Discovery of malonic acid as a novel adipocyte beiging molecule*

194 *Hepatic S100A9-TLR4-MTORC1 axis normalises diabetic ketogenesis*

195 *Validation of duodenal targeting by oral pharmacologic duodenal exclusion therapy for treatment of type 2 diabetes*
T. Carlson, A. Nimgaonkar, T. Guerina, K. Colbert, S. Polomoscanik, J. Petersen, T. Jozefiak, M. Fineman, USA

196 *Human engineered skeletal muscle to treat insulin resistance in type 2 diabetes*
H. Shoyhet, Y. Herman, M. Beckerman, E. Karnieli, S. Levenberg, Israel

197 *Oral long-acting menin inhibitor normalises type 2 diabetes in two rat models*
T. Butler, S. Mourya, W. Li, B. Law, T. Archer, T. Kinoshita, P. Somanath, USA

198 *Glp-1/gdf15 dual agonist to treat obesity and hyperglycaemia in mice and non-human primates*
**OP 34  Insulin signalling, novelties from the petri dish!**

*Chair:* J. Ukropec, Slovakia

199 Finnish-specific AKT2 gene variant leads to impaired insulin signalling in human myotubes

200 Role of Diacylglycerol kinase δ in skeletal muscle glucose metabolism in type 2 diabetes
F. Tramontana, M. Kuefner, A. Krook, J.R. Zierath, Sweden

201 Pharmacological inhibition of Integrin α5β1 improves insulin sensitivity in H9C2 cells and cardiac performance in obese mice
A.K. Banah, V. Musale, C.K. Hennayake, C.E. Murdoch, L. Kang, UK

202 Impact of protein kinase D2 in the regulation of hepatic insulin sensitivity
P. Rada, A.B. Hitos, E. Rey, E. Carceller-López, J. Pose-Utrilla, C. García-Monzón, G. Sabio, T. Iglesias, Á. González-Rodríguez, Á.M. Valverde, Spain

203 Alpha-melanocyte stimulatory hormone (αMSH): a novel and potent regulator of glucose tolerance in humans
N.G. Docherty, P. Swan, B. Johnson, S. Samarasinghe, M. Cowley, C.W. Le Roux, A.D. Miras, Ireland, UK, Australia

204 Abrogation of circular dorsal ruffles by hyper insulinemia impairs insulin receptor internalisation and recycling
14:30 - 16:00  Doniach Hall

**OP 35** Different pathways involved in killing the beta cell

*Chair:* M. Cnop, Belgium

205 IER3IP1 mutations lead to ER stress-induced neonatal diabetes
H. Montaser, S. Leppänen, H. Ibrahim, S. Eurola, J. Saarimäki-Vire, T. Otonkoski, Finland

206 Inhibition of the type 1 diabetes candidate gene PTPN2 aggravates tumor necrosis factor alpha-induced human beta cell dysfunction and death
A. Roca Rivada, S. Marín Cañas, M.L. Colli, D.L. Eizirik, Belgium

207 GDF11 improve age-dependent beta cell deterioration in mouse and man
R. Wu, Sweden

208 Insulin, proinsulin and PC1/3 expression heterogeneity and beta cell function in diabetes
P.S. Apaolaza Gallegos, Y.C. Chen, K. Grewal, Y. Lurz, B. Verchere, T. Rodriguez-Calvo, Germany, Canada

209 FFA1/Gq - Gi interaction determines glucose-induced insulin secretion of neonatal beta cells

210 Oral administration of the small molecule cathepsin S inhibitor LY3000328 accelerates disease onset and impairs glucose tolerance in non-obese diabetic mice
14:30 - 16:00 Peltonen Hall

**OP 36 Central aspects of diabetes**

*Chair:* T.D. Mueller, Germany

211 *Involvement of hypothalamic de novo ceramide synthesis in central resistin-induced glucose intolerance: impact on hypothalamic and hepatic inflammation*

J. Guitton, C. Alexandre, M. Taouis, M. López, Y. Benomar, H. Le Stunff, France, Spain

212 *Effect of high fat diet and exendin 4 on inhibitory neurotransmission markers and insulin signalling in the brain in high fat fed mice*

V. Sancho, A. Faraone, A. Dardano, S. Del Prato, M. Mainardi, G. Daniele, Italy

213 *Central action of FGF19 improves energy homeostasis in diet-induced obese mice*

L. Zangerolamo, M. Carvalho, C. Solon, G.M. Soares, L.A. Velloso, H.C. Barbosa, Brazil

214 *Modulation of hypothalamic AMPK phosphorylation by Olanzapine controls energy balance and body weight*


215 *Effect of interesterified fat and its metabolites on inflammation and insulin resistance in hypothalamus*

J.E. Miyamoto, R.M. Santos, B.P. Siqueira, A. Reginato, J. Guitton, P.L. Menta, T.G. Ramalheira, A.S. Torsoni, L.M. Ignácio-Souza, M.A. Torsoni, H. Le Stunff, C. Magnan, M. Milanski, Brazil, France, USA

216 *A role for GIP in the regulation of food intake and body weight in mice*

J.E. Lewis, T. Darwish, F. Reimann, F.M. Gribble, UK
16:15 - 17:00

Bernard Hall

57th Minkowski Lecture

Chair: Stefano Del Prato, Italy
Speaker: Martin Heni, Germany:
The insulin resistant brain: impact on whole-body metabolism and body fat distribution

Martin Heni is a medical doctor with a strong research focus on the pathogenesis, clinical course, and optimized treatment of type 2 diabetes and obesity.

He investigates the inter-organ communication in the control of human metabolism and how these processes are regulated by the brain. He aims to discover fundamental central control mechanisms of body fat distribution and whole-body metabolism, and clarify their clinical impact. As a physician researcher he has a strong translational focus. He works to bridge the gap between basic research and mechanistic studies in humans.

Martin Heni studied Medicine in Greifswald, Germany and Tübingen, Germany where he graduated in 2008. As a research fellow with the DFG Research training group 794, he finished his experimental thesis in 2008. He was board certified for Internal Medicine and Endocrinology and Diabetology in 2015.

Since 01/2016 he worked as an attending physician and was head of the Clinical Research Center for Diabetes at the University Hospital Tübingen, Germany and IDM (Institute for Diabetes Research and Metabolic Diseases of the Helmholtz Center Munich). In 2022, he was appointed as a full professor at Ulm University, Germany and is head of the Division for Endocrinology and Diabetology at Ulm University Hospital.
EASD Minkowski Prize

The Minkowski Prize awards research contributing to the advancement of knowledge concerning diabetes which has been carried out by an EASD member normally residing in Europe.

The prize will be awarded to an outstanding researcher with no more than ten years full time experience as an independent investigator in the year of the nomination.

The Minkowski Prize is generously supported by Lilly.

EASD Minkowski Lecturers

<table>
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<tr>
<th>Year</th>
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<tr>
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16:15 - 17:00 Minkowski Hall

EASD-Lilly Centennial Anniversary Prize Lecture

Chair: Allan Flyvbjerg, Denmark

Speaker: TBA
The EASD-Lilly Centennial Anniversary Prize recognise individual researchers who have significantly contributed through innovative approaches to the development and evolution of treatment and management of diabetes.

Starting in 2022, the award will be bestowed for three consecutive years on the occasion of the EASD Annual Meeting. Each year will identify the awardee among those who have contributed to three different fields:

2022: Innovative pharmacologic therapies
2023: Landmark achievements in the pathogenesis of diabetes
2024: Clinical and diagnostic innovation in the management of diabetes and its complications

The EASD-Lilly Centennial Anniversary Prize is generously supported by Lilly.
17:15 - 18:15  
**Bernard Hall**

**The 3 P´s of large vessels in type 1 diabetes**

*Chair:* Lena Thorn, Finland  
*Speaker:* Andrew D Paterson, Canada:  
**Pathogenesis and genetics underlying cardiovascular disease in type 1 diabetes**  
Helen M Colhoun, UK:  
**Prediction of cardiovascular disease in type 1 diabetes**  
Tina Costacou, USA:  
**Prevention of cardiovascular disease in type 1 diabetes**

17:15 - 18:15  
**Minkowski Hall**

**Is it the genes or the epigenetics behind diabetic kidney disease?**

*Chair:* Niina Sandholm, Finland  
*Speaker:* Jose C Florez, USA:  
**It is the genes**  
Amy J McKnight, UK:  
**It is the epigenetics**

17:15 - 18:15  
**Golgi Hall**

**Debate: “... and CGM for all”**

*Chair:* Asimina Mitrakou-Fanariotou, Greece  
*Speaker:* Maciej T Malecki, Poland:  
**Yes**  
J Hans DeVries, Netherlands:  
**No**
17:15 - 18:15  
**Nobel Hall**

Thermogenic activation of adipose tissue: the holy grail in the treatment of diabesity?

*Chair:* Mikael Rydén, Sweden  
*Speaker:* Christian Wolfrum, Switzerland:  
**Thermogenic activation: What have we learned so far?**

Kirsi A Virtanen, Finland:  
**Is thermogenic activation a feasible therapeutic avenue in humans?**

17:15 - 18:15  
**Doniach Hall**

A clinical perspective on the Krebs cycle and insulin sensitivity

*Chair:* Michael Roden, Germany  
*Speaker:* Shawn C Burgess, USA:  
**Ins and outs of the tricarboxylic acid (TCA) cycle: the central role of anaplerosis**

Esther Phielix, Netherlands:  
**Boosting BCAA oxidation improves metabolic health in humans**

17:15 - 18:15  
**Peltonen Hall**

New little players in beta cell function

*Chair:* Lena Eliasson, Sweden  
*Speaker:* Romano Regazzi, Switzerland:  
**Islet circRNA in diabetes development**

Mariana Igoillo-Esteve, Belgium:  
**tRNA in the pathogenesis of diabetes**
17:15 - 18:15  
DELIVER Trial

Chair: TBA  
Speaker: TBA

Virchow Hall
Cutting-edge articles on all aspects of diabetes, from basic science through translational work to clinical research

Themed issues on timely topics published annually

Web: diabetologia-journal.org  Twitter: @DiabetologiaJnl
08:30 - 09:30

**Bernard Hall**

**EASD/ESC Symposium: New perspectives on heart function and failure in diabetes**

*Chair:* Allan A Vaag, Denmark
Francesco Cosentino, Sweden

*Speaker:* Lars H Lund, Sweden:
**Heart failure in type 2 diabetes: Is it about HFpEF, HFrEF or both? Status and the next step**

Nikolaus Marx, Germany:
**Diabetes and the heart: the most recent advances**

08:30 - 09:30

**Minkowski Hall**

**Diabetic nephropathy or diabetic kidney disease? In search of a phenotype**

*Chair:* Janaka Karalliedde, UK

*Speaker:* Luiza Caramori, USA:
**Diabetic kidney disease vs diabetic nephropathy: What can we learn from kidney biopsies?**

Monika A Niewczas, USA:
**Paradigm shift in clinical practice, eGFR and/or albuminuria as indicator for DKD?**
08:30 - 09:30  Golgi Hall

How much can people with type 1 diabetes benefit from adjunct therapies?

Chair: Chantal Mathieu, Belgium
Speaker: Jerry R Greenfield, Australia:
GLP-1 agonists
Parth Narendran, UK:
SGLT2 inhibitors
Husam A Ghanim, USA:
Combination therapy

08:30 - 09:30  Nobel Hall

Diabetes in old age: myths and facts

Chair: Sarah Wild, UK
Speaker: Alan J Sinclair, UK:
Prognostic indicators in the complex illness of older people
Brenda Bongaerts, Germany:
Intensive glucose-lowering therapy and polypharmacy in older persons with type 2 diabetes

08:30 - 09:30  Doniach Hall

Fasting and feeding: the most important F-words in metabolism

Chair: Joris Hoeks, Netherlands
Speaker: Mauricio Castro-Sepulveda, Chile:
Mitochondrial metabolism regulated by fasting-feeding cycle
Normand Boulé, Canada:
Fasted exercise training in type 2 diabetes
08:30 - 09:30  

Peltonen Hall

Three reasons for why non-coding RNAs are important in metabolic control

Chair: Stephan Herzig, Germany
Speaker: Manuel Gil Lozano, Germany:  
**miRNA as therapeutic tools in diabetes**

Francesco Dotta, Italy:  
**miRNA signatures in diabetes therapy prediction**

Timothy Bowen, UK:  
**How to manipulate miRNAs for diabetes therapy**

08:30 - 09:30  

Heding Hall

Hepatokines: Do they play a role in diabetes and NAFLD?

Chair: M Paula Macedo, Portugal
Speaker: Young-Bum Kim, USA:  
**Apolipoprotein J**

Catherine Postic, France:  
**FGF21 and ANGPTLs**
08:30 - 10:00  
Jacobsohn Hall

10th East-West Forum: Care through the eyes of the patient

Chair: Sean Dinneen, Ireland  
        Toshimasa Yamauchi, Japan

Speaker: Marleen J Kunneman, Netherlands, USA:  
         Making care fit in the lives and loves of people with diabetes

         Hideki Hashimoto, Japan:  
         Eradicating diabetes stigma

         Bastian Hauck, Germany:  
         Changing the world through diabetes advocacy, one tweet at a time
09:45 - 10:45  Bernard Hall

**OP 37  Insulin deficiencies and cardiovascular disease**

*Chair:* L. Thorn, Finland

**217 Incidence of cardiovascular disease in latent autoimmune diabetes in adults**
Y. Wei, E. Ahlqvist, T. Andersson, T. Tuomi, S. Carlsson, Sweden

**218 Endotrophin is a risk marker of complications in a type 1 diabetes cohort**

**219 Predictors of arterial stiffness in patients with type 1 diabetes: importance of long-term glycaemic control and physical activity**
S. Helleputte, P. Calders, J. Marlier, T. De Backer, B. Lapauw, Belgium

**220 Hyperglycaemia and hypoglycaemia exposure are differentially associated with micro- and macrovascular complications in adults with type 1 diabetes**
OP 38  It is always a D-D-Day: diabetes, digital, device

Chair: M. Prazny, Czech Republic

221 Long term weight loss in a primary care-anchored eHealth lifestyle coaching programme in Denmark: a randomised controlled trial
L. Hesseldal, J.R. Christensen, T.B. Olsesen, M.H. Olsen, P.R. Jakobsen, J.T. Lauridsen, D.H. Laursen, J.B. Nielsen, J. Søndergaard, C.J. Brandt, Denmark

222 Telehealth versus in-person standard care in patients with type 1 diabetes treated with multiple doses of insulin: an open-label randomised controlled trial

223 Association between HbA$_1c$ and time in range in adults with type 1 diabetes using sensor-based glucose monitoring: a Swedish National Diabetes Register population-based study

224 Accuracy of continuous glucose monitoring systems during exercise-related hypoglycaemia in patients with type 1 diabetes
K. Maytham, P.G. Hagelqvist, U. Pedersen-Bjergaard, F.K. Knop, A. Andersen, T. Vilsbøll, Denmark
09:45 - 10:45  Golgi Hall

**OP 39 Too little sugar is also bad: understanding hypoglycaemia**

*Chair:* M. Alvarsson, Sweden

**225 Tmem117 in AVP neurons regulates the counterregulatory response to hypoglycaemia**
S. Gaspari, G. Labouèbe, A. Picard, A. Rodriguez Sanchez-Archidona, B. Thorens, Switzerland

**226 Molecular investigations of defective hypoglycaemia counterregulation in a murine model of type-2 diabetes: a multi-omics study**
J. Castillo-Armengol, A. Rodriguez Sanchez-Archidona, C. Fledelius, F. Marzetta, B. Thorens, Denmark, Switzerland

**227 Heart rate variability, an index of autonomic function, is associated with C-peptidogenic index, an index of beta cell function: The Maastricht study**

**228 Agpat5 in AgRP neurons is required for hypoglycaemia-induced glucagon secretion**
A. Strembitska, G. Labouebe, A. Picard, X.P. Berney, D. Tarussio, M. Jan, B. Thorens, Switzerland
09:45 - 10:45

**OP 40  When the clock ticks**

*Chair:* L. Dollet, Sweden

**229 Time-of-day effects of exercise training on multi-tissue metabolome and skeletal muscle proteome profiles in men with type 2 diabetes**

**230 Beta cell functional heterogeneity underpinning coordinated oscillatory activity is not fixed**
K. Suba, B. Hansen, Y. Patel, B.M. Owen, W. Distaso, V. Salem, UK

**231 Time-of-day influences post-exercise metabolism in mouse adipose tissue**

**232 The effects of hyperglycaemia on the circadian clock in TALLYHO/JngJ mice**
S.P. Ashcroft, A.M. Ehrlich, T.S. Nielsen, S. Larsen, J.T. Treebak, J.R. Zierath, Denmark, Sweden
09:45 - 10:45

**Doniach Hall**

**OP 41  Viruses and diabetes: more than COVID-19**

*Chair:  K. Khunti, UK*

233 SARS-CoV-2 infection and subsequent risk of type 1 diabetes in 1.2 million children

234 Relation of incident type 1 diabetes to recent COVID-19 infection: cohort study using e-health record linkage in Scotland

235 Modifiable risk factors including HbA1c and BMI are consistently associated with severe influenza, pneumonia, and Covid-19 infection outcomes in people with type 2 diabetes

236 Enterovirus infection and risk of islet autoimmunity and type 1 diabetes: systematic review and meta-analysis of molecular studies
**OP 42 Moving towards the beta cell plasma membrane**

*Chair: A. Tomas, UK*

- **237 OSBP-mediated PI(4)P-cholesterol exchange at endoplasmic reticulum-secretory granule contact sites controls insulin secretion**
  S. Panagiotou, P.M. Nguyen, A. Wendt, L. Eliasson, A. Tengholm, O. Idevall-Hagren, Sweden

- **238 Presynaptic scaffold protein, liprin, regulates glucose stimulated insulin secretion and the spatial organisation of exocytosis in pancreatic beta cells**
  K. Deng, N. Hallahan, P. Thorn, Australia

- **239 Vamp8 is an endosomal v-SNARE involved in GLP1R trafficking and inhibits insulin exocytosis**
  L. Liu, M. Marshall, J. Saras, S. Barg, Sweden

- **240 Villin interacts with Snap25 and its expression increases in tamoxifen-treated EndoC-βH3 cells**
**OP 43 Microvascular cocktail**

*Chair: L. Gnudi, UK*

**241 Prognostic value of diabetes microvascular complication for 21-years all-cause mortality**
L. Sacchetta, M. Chiriacò, G. Forotti, S. Leonetti, L. Nesti, A. Natali, A. Solini, D. Tricò, Italy

**242 Three-years follow up of retinal neurodegeneration and neuropathic characteristics in pediatric type 1 diabetic patients**
M. Menduni, F. Picconi, M.C. Parravano, B. Russo, A. Maiorino, L. Chioma, S. Cianfarani, D. Ylli, P.I. Patera, S. Frontoni, Italy, USA

**243 Progression of diabetic retinopathy in a prospective randomised trial comparing Everolimus versus Mycophenolate therapy in pancreas and kidney transplant recipients**
B. Hagerf (Voglova), Z. Hladikova, L. Nemetova, M. Zahradnicka, K. Kesslerova, T. Sosna, F. Saudek, Czech Republic

**244 Circulating proteins associated with risk of progression to ESKD in type 1 diabetes: results of multi-cohort study**
11:00 - 12:00  
Minkowski Hall

**OP 44  Grading insulin therapy: simple, simpler, the safest**

*Chair:* D. Mauricio, Spain

245 Delayed prandial insulin boluses are frequent and associated with glucose control in type 1 diabetes patients on advanced technologies
R. Triggiani, R. De Angelis, L. Bozzetto, G. Annuzzi, Italy

246 With which dose of NPH insulin to start at bedtime? Study in a cohort of 1006 patients with type 2 diabetes and failure of oral antidiabetic drugs
B. Mertes, S. Gödde, G. Egidi, T. Uebel, G. Kramer, N. Kuniß, Germany

247 Comparison of the basal insulin analogues Gla-300 and IDeg 100 using continuous glucose monitoring in people with type 1 diabetes: the InRange randomised controlled trial
T. Battelino, T. Danne, S. Edelman, P. Choudhary, E. Renard, J. Westerbacka, B. Mukherjee, P. Picard, V. Pilorget, R. Bergenstal, Slovenia, Germany, USA, UK, France

248 Switching from multiple insulin injections to a fixed combination of degludec and liraglutide in patients with type 2 diabetes: Simplify study: results after 3 months
E. Martinka, I. Dravecka, I. Tkac, Slovakia
11:00 - 12:00

**OP 45  Newer agents, better outcomes**

*Chair:* J.P.H. Wilding, UK

249 Effect of empagliflozin on left ventricular contractility and peak oxygen uptake in subjects with type 2 diabetes without heart disease: results of the EMPA-HEART trial

L. Nesti, N.R. Pugliese, P. Sciuto, D. Tricò, A. Dardano, I. Fabiani, A. Natali, Italy

250 Novel subgroups of patients with type 2 diabetes show differential cardiovascular and kidney benefits with canagliflozin: a data-driven proteomic cluster analysis

M. Schechter, A. Koshino, N. Jongs, B. Neal, C. Arnott, V. Perkovic, M.K. Hansen, H.J. L. Heerspink, Netherlands, Australia, USA

251 SGLT-2 inhibitors and GLP-1 receptor agonists are associated with lower mortality in younger people with type 2 diabetes and a first myocardial infarction between 2016 and 2020

M. Löndahl, S. Puvaneswaralingam, E. Uddman, K. Filipsson, Sweden

252 Efficacy of ertugliflozin (ERTU) on hospitalisation for heart failure (HHF) across the spectrum of pre-trial ejection fraction (EF): post hoc analyses of VERTIS CV

11:00 - 12:00

**OP 46**  Profiling human diabetes risk

*Chair:* K.I. Birkeland, Norway

**253 Clustering analysis based on parameters of glucose metabolism shows different lipidomic profile among men and women**
A. Pina, M.J. Meneses, R. Ribeiro, R. Patarrão, F. Carli, J. Boavida, J.F. Raposo, A. Gastaldelli, M.P. Macedo, Portugal, Italy

**254 Dynamics of intramyocellular lipid content during the initial course of type 1 and type 2 diabetes**

**255 Diabetes remission by weight loss in ‘normal’ weight people with type 2 diabetes: the ReTUNE study**

**256 Machine-learning prediction of obesity-related multi-morbidities**
11:00 - 12:00  Doniach Hall

**OP 47**  Novel mechanistic insights in peripheral insulin sensitivity

*Chair:*  J. Jendle, Sweden

257 Proteome-wide mechanisms of hyperinsulinemia and sucrose-induced, tissue-specific insulin resistance

258 Impact of human Kallistatin on the metabolic phenotype of diet induced obese mice

259 Down-regulated FXR signalling in the gut in subjects with prediabetes and type 2 diabetes
F. De Vito, E. Suraci, R. Marasco, F. Andreozzi, M.L. Hribal, F. Luzza, G. Sesti, T.V. Fiorentino, Italy

260 Expression, phosphorylation, and oligomerisation of TBC1D1 splice variants from human skeletal muscle cells
A.D. Bedou, T. Stermann, S. Eickelschulte, A. Chadt, H. Al-Hasani, Germany
11:00 - 12:00  Peltonen Hall

**OP 48  How we loose our beta cells**

*Chair:* M. Flodstrom Tullberg, Sweden

261 Glutamate decarboxylase autoantibody characteristics can stratify those at risk of early insulin requirement in adult-onset type 2 diabetes

262 GLP-1R modulates the alloimmune response as a T cells negative costimulatory molecule
V. Usuelli, M. Ben Nasr, A. Seelam, V. Fiorentino, F. D’Addio, C. Loretelli, E. Assi, G. Zuccotti, F. Folli, P. Fiorina, Italy

263 Targeting pancreatic islet NLRP3 improves islet graft revascularisation in an insulin-dependent manner

264 Metabolic stress by high fat diet increased diabetes incidence in the LEW.1AR1-IDDM rat model of autoimmune diabetes without trigger by systemic inflammation
J.-N. Dahmen, T. Schöppe, M. Tiedge, Germany
12:15 - 13:45  Bernard Hall
Management of hyperglycaemia in type 2 diabetes: ADA/EASD Consensus Report 2022

Chair: TBA
Speaker: TBA

12:15 - 13:45  Minkowski Hall
Gut microbiome: a link between autonomic neuropathy and kidney disease in diabetes?

Chair: Luigi Gnudi, UK
Speaker: John R Kirby, USA:
Microbiome and cardiovascular disease and hypertension

Estelle Grasset, France:
Diabetes: role of autonomic neuropathy and gut microbiome

Lior Lobel, Israel:
Kidney function: role of diet, gut and its microbiome

12:15 - 13:45  Golgi Hall
Targeting energy sensing to treat diabetes

Chair: Gabriella Gruden, Italy
Speaker: Frank A Duca, USA:
The gut-brain axis

Gian Paolo Fadini, Italy:
SGLT inhibition

Graham Rena, UK:
NAD⁺, mitochondrial function in metabolic health
12:15 - 13:45  
**Nobel Hall**

The power of dietary policies: evidence from population-based studies

*Chair:* Anette E Buyken, Germany  
*Speaker:* Anette E Buyken, Germany:  
*Nutrition policy: Which instruments are available and how can we assess their effectiveness?*

Laura Cornelsen, UK:  
*The impact of taxation on obesity and diabetes-related behaviours and outcomes in the UK*

Maartje P Poelman, Netherlands:  
*European Union-level policies on food environment*

12:15 - 13:45  
**Doniach Hall**

Lipids all over the place: Are lipid droplets friends or foe?

*Chair:* Matthijs KC Hesselink, Netherlands  
Francesca Amati, Switzerland  

*Speaker:* Orian Shirihai, USA:  
*Mitochondria-lipid droplet contact, are their roles only going one way?*

Rajat Singh, USA:  
*How to use a lipid droplets efficiently - regulation of lipophagy*

K Sreekumaran Nair, USA:  
*Lipodystrophy, when lipid droplets get dysfunctional*
12:15 - 13:45  Peltonen Hall

The Greek alphabet revisited: focus on all pancreatic islet cells

**Chair:** Patrik Rorsman, UK

**Speaker:** Quan Zhang, UK:
*Role of delta cells in islet regulation*

Sebastian Barg, Sweden:
*Understanding exocytosis in islet cells*

Mark O Huising, USA:
*Urocortin3 in islet hormone secretion*

12:15 - 13:15  Heding Hall

Epidemiology of diabetes and COVID-19 hospitalisation in Europe: a European Collaboration

**Chair:** Kamlesh Khunti, UK

**Speaker:** Samy Hadjadj, France:
*Data from France*

Didac Mauricio, Spain:
*Data from Spain*

Rustam Rea, UK:
*Data from UK*

Sarah Wild, UK:
*Challenges of data harmonisation*

followed by discussion
The crucial role of primary care for integrated diabetes management

Chair: Xavier Cos, Spain
Speaker: Stefan Jansson, Sweden:
How continuity of care can enable integration of care and vice versa

Samuel Seidu, UK
Integrated care models: benefit beyond expectation

followed by Q&A and discussion
Short Oral Discussions Event A  Tuesday, 11:45 - 12:45

**SO 01  Epigenetics rules**

*Chair: C.A. Ling, Sweden*

**265** Sorting of human pancreatic islets by flow cytometry into alpha and beta cells reveals unique novel genes expressed in the different cell types  

**266** Impact of type 2 diabetes-associated variants at the SLC30A8 locus on transcriptional activity and function of human b cells and super-enhancer at SLC30A8 gene locus  

**267** Genomic enhancers regulations in type 2 diabetes  

**268** Hyperglycaemia induces endothelial dysfunction via epigenetic regulation driven by histone methyltransferase EZH2  
J. Sánchez-Ceinos, S. Hussain, A. Waheed-Khan, L. Zhang, J. Pernow, F. Cosentino, Sweden, Australia

**269** Altered H3K4me3 profile on TFAM promoter causes preadipocytes and mitochondrial alterations in first-degree relatives of type 2 diabetics  

**270** Could miR-295-3p be a novel epigenetic regulator of GLUT4?  
J.V. Esteves, L.S. Amendola, M.M. Okamoto, U.F. Machado, Brazil

**271** Hyperglycaemia induces Toll-like receptor activation in macrophages  
L. Badillo Garcia, K. Moganti, M. Mossel, V. Ryabov, M. Harmsen, H. Klüter, J. Kzhyshkowska, Germany, Netherlands
Short Oral Discussions Event B  Tuesday, 13:00 - 14:00

**SO 02  Pregnancy and diabetes**

*Chair:* A.G. Tabák, Hungary

**272 The impact of multiple deprivation on gestational diabetes incidence**
S. Jeyaparam, UK

**273 Exposure to non-insulin 2nd-line glucose-lowering medications in early pregnancy and risk of major congenital malformations**

**274 Gestational weight gain in women with pregestational diabetes and risk of small for gestational age newborns**
V. Davila-Batista, B. Vega Guedes, A. González-Lleó, A. Wägner, Spain

**275 Prevalence of gestational diabetes in women with a family history of type 2 diabetes in first- and second-degree relatives**
C. Monod, G. Kotzaeridi, T. Linder, D. Eppel, I. Rosicky, V. Filippi, A. Tura, I. Hoesli, C.S. Göbl, Austria, Switzerland, Italy

**276 Role of histone methyltransferase MLL1-driven H3K4me3 in the transmission of oxidative and inflammatory phenotypes to the offspring of women with gestational diabetes**

**277 Differential epigenetic profile related to carbohydrates metabolism pathways in pregnant women with gestational diabetes**

**278 A genotype-informed gestational diabetes prediction algorithm highlights importance of unified diagnostic criteria**
L. Mendizabal, M. Arregui, J. Valerio, A. Ramos, N. De la Torre, A. Barabash, I. Urrutia, A. Cortazar, S. Gaztambide, L. Castaño, A. Martinez-Martinez, E. Camarillo, L. Simon, M. Zulueta, A. Calle-Pascual, Spain, Mexico
Short Oral Discussions Event C  Wednesday, 12:00 - 13:00

SO 03  Food, drinks and spices

Chair: C. Wittenbecher, USA

279 The association between pre-Ramadan diabetes education and metabolic parameters in Muslims with type 2 diabetes: a retrospective study
P.J. Elders, A.A. Van der Heijden, M. Hassanein, S. Bouchareb, Netherlands, United Arab Emirates

280 A beneficial effect of cinnamon and red capsicum intake on postprandial changes in plasma metabolites evoked by a high-carbohydrate meal in men with overweight/obesity

281 Tea consumption and the risk of type 2 diabetes: a cohort study and updated systematic review and dose-response meta-analysis
X. Li, J. Zeng, B. Chen, Q. Yan, Y. Cui, W. Xu, X. Zhang, S. Xu, China

282 Habitual intake of dietary dicarbonyls is associated with greater insulin sensitivity and lower prevalence of type 2 diabetes: the Maastricht Study

283 Circulating short chain fatty acids as potential new biomarkers for the prediction of type 2 diabetes risk
G. Llaurado, A. Junza, E. Rubinat, O. Yanes, X. Correig, D. Mauricio, J. Vendrell, S. Fernández-Veledo, Spain

284 Interaction between dairy product intake or phospholipid odd chain fatty acids and GAD65 autoantibodies on the incidence of adult onset diabetes
A.-M. Lampousi, S. Carlsson, J.E. Löfvenborg, on behalf of the EPIC-InterAct consortium, Sweden

285 GABA and sitagliptin prevent impairment of beta cell function caused by high-fat diet
Z. Wang, L. Fan, Y. Ni, A. Ma, D. Wu, Y. Zhao, J. Li, Q. Cui, Y. Zhou, L. Zhang, Y.-R. Lou, G. Prud’homme, Q. Wang, China, Canada
Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 04  Starting with autoimmunity

Chair: S. Carlsson, Sweden

286 Childhood screening and interception strategies: an economic cohort simulation model
J.L. Dunne, L. Ferrat, R.B. McQueen, R. Neusner, R.A. Oram, M. Rewers, M.R. Trusheim, USA, UK

287 Family history of type 1 diabetes is associated with incidence of multiple islet autoimmunity but not with progression to clinical type 1 diabetes: the MIDIA study
L. Stene, Norway

288 The incidence of childhood-onset type 1 diabetes, time trends and association to population composition in Sweden: a 40-year follow-up
I. Waernbaum, T. Lind, A. Möllsten, G. Dahlquist, Sweden

289 Prevalence of positivity for diabetes-associated autoantibodies in patients classified and treated as type 2 diabetes and their further characterisation
M. Rončáková, A. Davani, V. Mikušová, P. Novodvorsky, E. Martinka, Slovakia, Czech Republic, UK

290 Interaction between tobacco use and genetic susceptibility in the risk of LADA and type 2 diabetes
J. Edstorp, E. Ahlqvist, L. Alfredsson, V. Grill, B. Rasouli, E.P. Sørgjer, T. Tuomi, B. Åsvold, S. Carlsson, Sweden, Norway, Finland

291 Routine islet autoantibody testing in clinically diagnosed adult-onset type 1 diabetes can help identify misclassification and guide successful insulin cessation

292 Progression of robustly defined adult onset type 1 diabetes is unaffected by onset age suggesting their inclusion in intervention studies is possible
N. Thomas, A. Hill, R. Bolt, P. Tippett, B. Shields, T. McDonald, A. Jones, StartRight Study group, UK
293 Use of HOMA-IR and Matsuda Index as indicators of insulin resistance in autoantibody positive relatives of patients with type 1 diabetes
A. Petrelli, A. Bichisecchi, D. Carnovale, F. Cugnata, A. Stabilini, R. Bonfanti, E. Bosi, L. Piemonti, J. Sosenko, Italy, USA

Short Oral Discussions Event E    Thursday, 12:00 - 13:00

SO 05 Genetics of type 2 diabetes
Chair: A. Chadt, Germany

294 Role of GWAS associated purinergic receptor P2RY1 gene in insulin secretion and the impact of rare variants on type 2 diabetes risk
A. Dance, M. Derhourhi, M. Canouil, M. Marre, G. Charpentier, A. Bonnefond, P. Froguel, France, UK

295 Effects of risk gene variants of type 2 diabetes and fatty liver disease on plasma amino acid levels in middle aged women prone to diabetes

296 Kdelr3 mutation is associated with higher risk for diabetes development in NZO mice
D. Altenhofen, J. Khuong, K. Kaiser, T. Kuhn, S. Görigk, S. Lebek, T. Stermann, B. Knebel, A. Schürmann, A. Chadt, H. Al-Hasani, Germany

297 Allelic editing of the PPARGC1A Gly482Ser shows allele-dependent causal effects on cold-induced UCP-1 expression and PGC-1α protein stability in human brown adipocytes
M. Huang, H. Mulder, S. Kalamajski, P. Franks, Sweden

298 IPSCs derived from insulin resistant offspring of type 2 diabetes patients harbor genetic defects
B. Memon, A. Elsayed, I. Bettahi, N. Suleiman, I. Younis, E. Wehedy, F. El-Ejeh, A. Abou-Samra, E. Abdelalim, Qatar

299 Strong association between variants in MiRNA genes and risk of type 2 diabetes in a Greek population
300 Investigating the effect of the HNF-1a G319S variant on liver and pancreas function under different physiological states
M. Sebastian, T. Morriseau, C. Doucette, Canada

**Short Oral Discussions Event F Thursday, 13:15 - 14:15**

**SO 06 Sometimes one gene is enough**
*Chair:* T. Tuomi, Finland

**301 Monogenic diabetes in Slovakia: mutational spectrum and HNF1A functional studies**

**302 Genetic screening for monogenic diabetes using whole exome sequencing in a single hospital cohort in Japan**
S. Tanaka, H. Akagawa, M. Ogata, N. Iwasaki, Japan

**303 Clinical spectrum associated with variants in the INS gene in patients with suspected monogenic diabetes**
M. Gomes Porras, R. Garcia Moreno, M. Güemes Hidalgo, R. Vallejo Mora, M. Ruiz De Adana, J. Gómez Zumaquero, Á. Campos Barros, Spain

**304 Loss of FOXA2 induces ER stress and hepatic steatosis and alters developmental gene expression in human iPSC-derived hepatocytes**
E.M. Abdelalim, M. Aghadi, R. Elgendy, Qatar, Sweden

**305 Single cell transcriptomics highlights impaired differentiation in stem cell-derived beta cells from a Wolfram syndrome patient**
S. Torchio, R. Chimienti, F. Manenti, M.T. Lombardo, V. Zamarian, S. Pellegrini, V. Sordi, L. Piemonti, Italy

**306 Dach1 associated with familial diabetes decreases insulin secretion if silenced**
V. Schwitzgebel, C. Jimenez Sanchez, R. Dusaulcy, J.-L. Blouin, I. Stankute, R. Verkauskiene, F. Reimann, F. Gribble, P. Maechler, Switzerland, Lithuania, UK

**307 Aetiology and pathogenesis of HNF1A-MODY using human islets deficient of HNF1A and a new heterozygous mouse model (Hnf1a^{eo4-10}) of the human disease**
308 Novel modification of monogenic diabetes gene panel test improves diagnosis of 6q24 methylation related diabetes

309 Genome-wide CRISPR screens identify therapeutic targets for HNF1A-deficient diabetes
M. Cuenca-Ardura, M. De Vas, D. Balboa, J. Ferrer, Spain, UK

310 Low-dose treatment with sulfonylureas improves hyperglucagonemia after a glucose challenge in HNF1A-MODY individuals and Hnf1a−/− mice

**Short Oral Discussions Event A**
**Tuesday, 11:45 - 12:45**

**SO 07 SARS-CoV2 and other viruses**
**Chair:** D. Eriksson Hogling, Sweden

311 Long and short isoforms of SARS-CoV-2 receptor Angiotensin I-Converting Enzyme type 2 (ACE2) are increased in pancreatic islets of type 2 diabetes patients
D. Fignani, G. Licata, E. Aiello, G.E. Grieco, C. Formichi, L. Nigi, L. Marselli, P. Marchetti, G. Sebastiani, F. Dotta, Italy

312 Pre-vaccination glucose time in range positively correlates with antibody response to SARs-CoV2 mRNA vaccine BNT162b2 in patients with type 1 diabetes

313 Association between SARS-CoV-2 infection and presymptomatic type 1 diabetes or celiac autoimmunity in general population children: Autoimmunity Screening for Kids (ASK)
M. Rewers, C. Geno Rasmussen, F. Dong, M. Stahl, L. Yu, B.I. Frohnert, K. Simmons, E. Liu, A.K. Steck, for ASK Study Group, USA
314 Coxsackie virus protease 2A alters the sorting of insulin secretory granule cargoes and induces the premature activation of cathepsins

315 No association between incidence of type 1 diabetes and rotavirus vaccination in Swedish children
A. Rangert, C. Oldin, M. Golsäter, J. Ludvigsson, K. Åkesson, Sweden

316 The influence of glucocorticoid therapy on glucose metrics monitored by continuous glucose monitoring in hospitalised patients with diabetes and infection
M.T. Olsen, C.K. Klarskov, A.K. Jensen, N.A. Windum, B. Lindegaard, P.L. Kristensen, Denmark

Short Oral Discussions Event B Tuesday, 13:00 - 14:00

SO 08 Benefits of a healthy lifestyle
Chair: L. Bennet, Sweden

317 Incidence of type 2 diabetes and factors associated with it in the PPP-Botnia Study
V. Ahuja, L. Hakaste, O.P. Dwivedi, M. Lehtovirta, B. Isomaa, K. Lahti, T. Tuomi, Finland

318 Lifestyle risk factors and metabolic markers of cardiovascular diseases in Bangladeshi rural-to-urban male migrants compared with their non-migrant siblings
S.J. Mumu, D. Merom, Australia

319 Does health-related lifestyle modify the association between type 2 diabetes and dementia risk? Finding from UK Biobank prospective cohort study
J. Boonpor, J. Xing, S.R. Gray, F.K. Ho, C. Celis-Morales, UK, Chile

320 Lifestyle behaviour patterns and incident type 2 diabetes in the Dutch Lifelines cohort study
M.F. Duan, L.H. Dekker, J.-J. Carrero, G. Navis, Netherlands, Sweden

321 DNA methylation patterns reflect individual lifestyle independent from obesity
322 Associations of physical activity and sedentary time with indices of beta cell function and insulin resistance in type 2 diabetes

323 Cluster randomised trial to investigate the impact of applying a diabetes risk score in primary care on change in physical activity

324 Accelerometer-derived physical activity and sedentary time and cardiac biomarkers: the Maastricht Study

**Short Oral Discussions Event C Wednesday, 12:00 - 13:00**

**SO 09 Type 1 diabetes: from molecules to treatment**

*Chair:* T. Klupa, Poland

325 Automatising immune phenotyping of type 1 diabetes samples using a machine learning workflow
J.A. Vera-Ramos, B. Prietl, L. Herbsthofer, P. López-García, V. Pfeifer, T. Pieber, Austria

326 Transcription and splicing regulation by NLRC5 shape the interferon response in human pancreatic beta cells
F. Szymczak, M. Alvelos, S. Marín-Cañas, Â. Castela, S. Demine, M.L. Colli, A. Op de Beeck, L. Marselli, P. Marchetti, D.L. Eizirik, Belgium, USA, Italy

327 Identification of circulating isomiRNAs as predictive biomarkers of beta cell decline in type 1 diabetes
G.E. Grieco, S. Auddino, M. Bruttini, D. Fignani, A. Mori, E. Aiello, G. Licata, G. Sebastiani, F. Dotta, Italy

328 Plasma levels of the miR-193b/365a cluster in combination with clinical parameters predict response to Lactococcus lactis-based antigen-specific combination therapy
G. Sassi, G. Licata, G. Ventriglia, D. Ellis, N. Van Damme, S. Caluwaerts, A. Mori, P. Rottiers, C. Mathieu, F. Dotta, C. Gysemans, G. Sebastiani, Belgium, Italy
329 The effect of type 1 diabetes on lumbar spinal cord transcriptome
K. Zglejc-Waszak, A. Korytko, M. Banach, J. Juranek, Poland

330 Submicron ultrasound contrast agents as therapeutic vehicles in type 1 diabetes
M. Ciccaglione, E. Abenojar, K. McDaniel, M. Sticco-Ivins, A. Michels, A. Exner, R. Benninger, USA

331 Reprogramming gastrointestinal cells: A new strategy to restore endogenous insulin production for diabetes?
C. Ayachi, T. Napolitano, S. Silvano, M. Plaisant, J. Becam, A. Sousa de veiga, E. Pichery, P. Collombat, France

332 Continuous glucose monitoring identifies early dysglycaemia in very young children at risk of type 1 diabetes being followed in the Australian ENDIA pregnancy cohort study

Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 10  Diversity in diabetes
Chair: O.P. Zaharia, Germany

333 Variation in the relationship between fasting glucose and HbA₁celand: implications for the diagnosis of diabetes in different age and ethnic groups
Y. Ram, Y. Xu, T.C. Dunn, R. Ajjan, USA, UK

334 Subclassification of 3,529 individuals with type 2 diabetes

335 Socio-economic inequalities in the prevalence and incidence of pharmacologically-treated diabetes in France in 2020
M. Guion, L. Mandereau-Bruno, E. Cosson, S. Fosse-Edorh, France

336 Gender disparities in time-to-initiation of cardioprotective glucose-lowering drugs in patients with type 2 diabetes and cardiovascular disease: a nationwide cohort study
K.L. Funck, L. Bjerg, A.A. Isaksen, A. Sandbæk, E.L. Grove, Denmark
337 About one-in-three new onset diabetic ketosis cases is caused by ketosis-prone type 2 diabetes in adults: a systematic review and meta-analysis

338 Metabolically healthy obese is actually not healthy but at a risk for developing diabetes: a retrospective study
S. Mizushiri, M. Daimon, Japan

Short Oral Discussions Event E  Thursday, 12:00 - 13:00

SO 11  Novel biomarkers and risk factors
Chair: N. Rajamand Ekberg, Sweden

339 Sphingolipids in type 2 diabetes: a meta-analysis
M. Muilwijk, T. Wong, G. Burchell, S. Remmelzwaal, J.W. Beulens, Netherlands

340 Role of soluble leptin receptor in diabetes prevention?
Combination of cross-sectional, clinical intervention and Mendelian randomisation studies

341 Plasma concentrations of complement C3 explain part of the associations of several measures of adiposity with type 2 diabetes: the Maastricht study

342 Identifying biomarkers of psoriasis-driven metabolic disease
V.S. Gesheva, S. Sayers, E. Evans, G. Bewick, R. Andres-Ejarque, I. Tosi, P. DiMeglio, R. Hannen, P. Caton, UK

343 Night blindness and risk of diabetes in the Chinese population: a multi-centre, cross-sectional study
J. Wang, Y. Liu, Y. Zhou, Y. Ding, S. Qiu, Z. Sun, China

344 Association between periodontitis and undiagnosed glucose intolerance status in apparently healthy young adults aged <40 years
Y. Lyu, J. Kim, S. Kim, Republic of Korea
345 The association between social jetlag and the metabolic syndrome and type 2 diabetes: a systematic review and meta-analysis
E.J. Bouman, J.W. Beulens, L. Groeneveld, R.S. De Kruijk, L. Schoonmade, S. Remmelzwaal, P.J. Elders, F. Rutters, Netherlands

346 The association of vital exhaustion and burnout with (measures of) the metabolic syndrome: a systematic review and meta-analysis

347 Association between cholecystectomy and dysglycaemia: cross-sectional and prospective analyses
M. Sang, C. Xie, Y. Liu, S. Qiu, X. Wang, Z. Sun, T. Wu, China, Australia

Short Oral Discussions Event F Thursday, 13:15 - 14:15

SO 12 Different facets of type 2 diabetes treatment
Chair: N. Lalic, Serbia

348 Prolonged use of proton pump inhibitors and risk of type 2 diabetes: results from a large population-based nested case-control study
G. Perseghin, F. Rea, L. Savaré, G. Morabito, G. Corrao, S. Ciardullo, Italy

349 Risk factors for development of de novo post transplantation diabetes from 8 weeks after kidney transplantation

350 Glycated haemoglobin and diabetes treatment trajectories in type 2 diabetes: the Fremantle Diabetes Study Phase II
W.A. Davis, T.M. Davis, Australia

351 Fracture risk in treatment with GLP-1RA compared to DPP-4i: a Danish nationwide cohort study
Z.K. Al-Mashhadi, R. Viggers, R. Fuglsang-Nielsen, P. Vestergaard, S. Gregersen, J. Starup-Linde, Denmark

352 Metformin affects DNA methylation patterns in newly-diagnosed patients with type 2 diabetes
S. Garcia-Calzon, S. Schrader, A. Perfilyev, C. Ling, Sweden, Spain
353 Transcriptional and epigenetic changes in skeletal muscle of persons with diabetes after bariatric surgery
L. Kovac, M. Ouni, S. Gancheva, S. Kahl, M. Jähnert, M. Roden, A. Schürmann, Germany

**Short Oral Discussions Event A**

**Tuesday, 11:45 - 12:45**

**SO 13  It’s getting complicated**

*Chair:* K. Jandeleit-Dahm, Australia

354 Causes and determinants of mortality in community-based people with type 1 diabetes: The Fremantle Diabetes Study Phase I
T.M. Davis, W.A. Davis, Australia

355 Relationships between CGM-derived metrics and risk factors for hypoglycaemia among patients with type 2 diabetes with TIR more than 70%
J. Lu, D. Chen, W. Xu, D. Yang, Z. Liu, B. Lin, China

356 Incidence and characteristics of hyperosmolar hyperglycaemic state: a Danish cohort study
E.V. Rosager, A.L. Heltø, L. Friis-Hansen, J. Petersen, F.E. Nielsen, S.B. Haugaard, R. Gregersen, Denmark

357 Stress hyperglycaemia is associated with an increased risk of post-acute pancreatitis diabetes
J. Zhang, Y. Lv, L. Li, China

358 Fasting proinsulin independently predicts incident type 2 diabetes in the general population, particularly in subjects with hypertension or kidney dysfunction

359 Differential proportion trends of primary lower limb amputations associated with diabetes or peripheral arterial disease between age groups in Quebec, Canada
S. O’Connor, C. Blais, E.A. Sidi, J. Leclerc, P. Poirier, Canada

360 Cardiovascular outcomes in patients with both diabetes and phenotypic familial hypercholesterolaemia: a nationwide register-based cohort study
361 Costs of major complications in people with and without diabetes in Tasmania, Australia

362 Cause-specific excess risk of hospitalisation in people with type 2 diabetes compared to the general population in Australia, 2010-2017
D. Tomic, A. Salim, J.I. Morton, J.E. Shaw, D.J. Magliano, Australia

Short Oral Discussions Event B Tuesday, 13:00 - 14:00

SO 14 COVID-19 around the globe
Chair: G. Tapia, Norway

363 The role of glycated haemoglobin, body mass index and waist-to-hip ratio in determining the risk of COVID-19 and long COVID

364 Hyperglycaemia, but not previous diagnosis of diabetes, is an independent indicator of poor outcome in patients hospitalised for severe COVID-19
E. Eletto, R. Aldigeri, A. Dei Cas, A. Ticinesi, A. Nouvenne, B. Prati, E. Balestreri, A. Vazzana, M. Antonini, V. Spigoni, S. Schirò, N. Sverzellati, T. Meschi, R. Bonadonna, Italy

365 Prevalence and incidence of treated diabetes during the COVID-19 pandemic: real-world data from the Greek national electronic prescription database
C. Siafarikas, G. Karamanakos, K. Makrilakis, K. Mathioudakis, A. Tsolakidis, S. Liatis, Greece

366 Impacts of the COVID-19 outbreak on glycaemic control and body composition in individuals with glucose intolerance in Japan
S. Yoshiji, T. Murakami, R. Tsukaguchi, M. Ogura, K. Shide, N. Inagaki, Japan

367 The clinical course of Covid-19 in diabetes patients: a nation-wide multistate modelling cohort study
H. Amadid, P. Rønn, L. Diaz, B. Carstensen, P. Rossing, D. Vistisen, Denmark

368 Temporal trends in risk of severe COVID-19 infection in persons with diabetes
J.V. Stidsen, A. Green, L. Rosengaard, K. Højlund, Denmark
369 New-onset hyperglycaemia in nondiabetic patients hospitalised for COVID-19: prevalence, risk factors and post-discharge outcomes

370 Covid-19 associated hyperglycaemia relates to both insulin resistance and beta cell dysfunction
J. Gojda, A. Lang, M. Krbcová, A. Ouřadová, K. Koudelková, V. Šebo, A. Gvozdeva, L. Slagmolen, J. Potočková, F. Karpe, S. Schlesinger, Czech Republic, Germany, Belgium, UK

Short Oral Discussions Event C  Wednesday, 12:00 - 13:00

SO 15 Calcium signalling in the islet: we are still learning
Chair: E. Ilegems, Sweden

371 A-cell Ca\(^{2+}\) oscillations and glucagon secretion depend on Ca\(^{2+}\) release from the endoplasmic reticulum
S. Acreman, G. Denwood, R. Gao, J. Ma, P. Rorsman, Q. Zhang, UK

372 Focal adhesion kinase and the functional consequences of beta cell polarity
D. Jevon, K. Deng, N. Hallahan, N. Flores-Rodriguez, W.J. Gan, P. Thorn, Australia

373 The beta cell primary cilium is an autonomous Ca\(^{2+}\) organelle involved in GABA signalling
T.C. Incedal, G. Sanchez, O. Idevall-Hagren, Sweden

374 Optogenetic stimulation of pancreatic beta cells to investigate gap junction coupling among heterogenous subpopulations
C.H. Levitt, USA

375 Quantifying the relationship between emergent islet function, gap junctions, and beta cell dynamics: a network theory approach
J. Briggs, J. Dwulet, V. Kravets, D. Albers, R. Benninger, USA

376 Illuminating the mechanism for G\(_i/o\) protein-coupled receptor inhibition of beta cell Ca\(^{2+}\) influx and insulin secretion
377 Pancreatic delta cells switched islet Ca\textsuperscript{2+} oscillation modes by inhibiting endogenous glucagon from alpha cells
H. Ren, Y. Li, Y. Yu, T. Chang, W. Qian, X. Yang, L. Chen, C. Tang, China

378 Three-dimensional imaging reveals conserved patterns of calcium wave in the pancreatic islet
Y. Yu, H. Ren, Y. Li, X. Yang, L. Chen, C. Tang, China

Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 16  A new niche to replace beta cells
Chair: I. Artner, Sweden

379 Stem cell-derived, fully differentiated islet cells for type 1 diabetes

380 An improved approach for generation of beta cell like insulin-producing cells from induced pluripotent stem cells
B. Cetin, A.D. Sanlioglu, Turkey

381 Endoc-\textbeta H5 human beta cells: a unique thaw and go model for accelerating diabetes research with highly functional and ready-to-use human beta cells
H. Olleik, B. Blanchi, France

382 Exendin-4 enhances GSIS through upregulation of MAFA and mitochondrial oxidative phosphorylation machinery genes in hPSC-derived beta cells
A. Diane, R. Bin Abdul Mu-u-min, H.H. Al-Siddiqi, Qatar

383 Co-transplantation of pancreatic islets and microvascular fragments effectively restores normoglycaemia in diabetic mice
E. Ampofo, S. Wrublewsky, A. Weinzierl, I. Hornung, M. Menger, M. Laschke, Germany

384 Comparison of different hyaluronic acid-based matrices to maintain human islet survival in macroencapsulation devices
D. Brandhorst, H. Brandhorst, D.A. Domingo-Lopez, E. O’Cearbhaill, L. McDonough, F.B. Coulter, S. Deotti, H. Kelly, G. Duffy, P.R. Johnson, UK, Ireland
385 Proteome profiling of whole plasma and plasma-derived extracellular vesicles facilitates the detection of tissue biomarkers in the NOD mouse
V.M. Stone, I. Diaz Lozano, H. Sork, M. Eldh, M. Pernemalm, S. Gabrielsson, M. Flodström-Tullberg, Sweden, Estonia

**Short Oral Discussions Event E**

**Thursday, 12:00 - 13:00**

**SO 17 Intracellular signalling balancing beta cell survival and death**

*Chair:* L. Eliasson, Sweden

**386 Differential spatiotemporal GLP-1 receptor signalling in primary pancreatic beta cells**
M.A. Ravier, N. Zaïmia, G. Bertrand, France

**387 The expression and function of CLEC11A in human pancreatic islets and human EndoC-βH1 cells**
J. Cen, R. Shi, G. Westermark, Z. Sun, N. Welsh, J. Lau, Sweden, China

**388 CD47/SIRP-alpha: a critical axis that may contribute to beta cell loss in type 1 diabetes**
K. Afi Leslie, S.J. Richardson, N.G. Morgan, M.A. Russell, UK

**389 Peptide X, a promising inhibitor of MP001 protein, which improves human pancreatic islet survival and function**
A. Langlois, M. Kanzaki, G. Bechtluf, M. Pinget, K. Bouzakri, France, Japan

**390 Islet macrophage depletion does not prevent amyloid-induced upregulation of tissue plasminogen activator (tPA)**

**391 Pancreatic beta cells are resistant to RIPK1 kinase-mediated death**
T. Takiishi, P. Xiao, E.A. Gurzov, M. Bertrand, A.K. Cardozo, Belgium

**392 Identification of a human-specific alteration of beta cell function after prolonged culture of pancreatic islets under glucotoxic conditions**

**393 Identifying factors linking hyperglycaemia-induced metabolic dysregulation to loss of insulin biosynthesis in pancreatic beta cells**
M. Lloyd, E. Haythorne, F. Ashcroft, UK
Short Oral Discussions Event F  
Thursday, 13:15 - 14:15

SO 18  Stressing the beta cell into dysfunction

Chair: J. Rieusset, France

394 Gliclazide protects against oxidative stress and mitochondrial toxicity in beta cells exposed to the antiretroviral agent rilpivirine  
S.C. Maandi, J.G. Mabley, UK

395 Alpha4 contributes to the metabolic dysfunction of the pancreatic beta cell under metabolic stress  
A. Kowluru, M. Hali, USA

396 Glutamate dehydrogenase activation elicits biphasic insulin secretion and implicates a metabolic pathway with proline and glutamate in beta cell stimulus-secretion coupling  
S. Gheibi, Sweden

397 The role of luminal H$_2$O$_2$ in ER Ca$^{2+}$ dysregulation and toxicity of palmitate in insulin-secreting INS-1E cells  
I. Mehmeti, S. Sharifi, M. Böger, S. Lortz, Germany

398 Vimentin as a regulator of cell survival and endoplasmic reticulum stress in pancreatic alpha and beta cells  
L. Marroqui, A. Pérez-Serna, R.M. Medina-Gali, R.S. Dos Santos, Spain

399 The IGFBP3/TMEM219 pathway regulates homeostasis of pancreatic endocrine progenitors  
E. Assi, F. D’addio, A. Maestrioni, V. Usuelli, M. Ben Nasr, C. Loretelli, A. Abdelsalam, A. Seelam, L. Loreggian, A. Petrazzulo, G. Zuccotti, P. Fiorina, Italy

400 Mining the transcriptome of target tissues of autoimmune and degenerative pancreatic beta cell and brain diseases to identify novel therapies  
X. Yi, B.M. De Souza, T. Sawatani, F. Szymczak, L. Marselli, P. Marchetti, M. Cnop, D.L. Eizirik, Belgium, Italy

401 Sorla is an endocytic receptor for pro-islet amyloid polypeptide and is protective against islet amyloid formation  
A.Z. Shih, Y.C. Chen, C.B. Verchere, T.E. Willnow, Germany, Canada
Short Oral Discussions Event A  Tuesday, 11:45 - 12:45

SO 19  How complicated is type 1 diabetes?

Chair:  J. Lau Boerjesson, Sweden

402 Trace positive GAD65 antibodies in adult onset type 1 diabetes re-associated a wide variety of metabolic phenotypes
K. Wyne, USA

403 Glycaemic parameters measured by CGM alter hypoglycaemia-induced inflammatory responses in people with type 1 diabetes

404 Evidence of atypical non-autoimmune diabetes amongst young people diagnosed with type 1 diabetes in Cameroon: results from young-onset diabetes in sub-Saharan Africa study

405 Net proteome and bioenergetic profile of PMA- and ionomycin-stimulated neutrophils point to metabolic alterations in neutrophils of people with longstanding type 1 diabetes
S. Bissenova, D. Ellis, A. Calliebaut, R. Derua, G. Eelen, M. Buitinga, C. Mathieu, C. Gysemans, L. Overbergh, Belgium, Netherlands

406 The ELSA Study: UK paediatric general population screening for type 1 diabetes: “sooner we screen, sooner we can intervene”
L.M. Quinn, D. Shukla, S.M. Greenfield, T. Barrett, P. Narendran, UK

407 Phase I study investigating PK and PD of highly concentrated insulin aspart AT278 U500

408 Relationships between cytokine storm and stress hyperglycaemia in hospitalised patients with COVID-19
A. Da Porto, G. Colussi, C. Tascini, M. Fabris, E. Sozio, M. Peghin, F. Curcio, C. Catena, L. Sechi, Italy

409 Impact of the COVID-19 lockdown on behaviour, stress, anxiety and glycaemic control in patients with beta cell transplantation for type 1 diabetes
C.P. Landstra, M.M. Ruissen, H. Regeer, M.F. Nijhoff, B.E. Ballieux, P.J. Van der Boog, A.P. De Vries, S.D. Huisman, E.J. De Koning, Netherlands
SO 20  The other diabetes and islet function

Chair: N. Wierup, Sweden

410 Single-cell sequencing reveals preserved pancreatic islet cell identity by administration of metabolite-based diet in autoimmune diabetes

411 Immunoreactivities against different tyrosine-phosphatase 2 (IA-2\(^{(256-760)}\)) epitopes characterise distinct clinical phenotypes in LADA
L. D’Onofrio, C. Tiberti, F. Panimolle, R. Amendolara, S. Zampetti, E. Maddaloni, R. Buzzetti, Italy

412 Progressive pancreatic morphological changes and pro-inflammatory cell density in cystic fibrosis is associated with islet atrophy
Y. Al-Selwi, O. Govaere, Y. Bury, R. Coulthard, D. Tiniakos, G. Klöppel, J.A. Shaw, N. Kattner, UK, Greece, Germany

413 Insulin and glucagon doublepositive cells in islets from pancreatic resections of children with congenital hyperinsulinism
J. Schultz, C. Wolke, R. Waterstradt, F. Dombrowski, W. Bartlen, M. Tiedge, U. Lendeckel, S. Baltrusch, Germany

414 Investigating the role of a novel MODY-associated gain-of-function mutation in TALK-1 in islet dysfunction and glucose intolerance
A.Y. Nakhe, J. Kim, P.K. Dadi, K.E. Zaborska, D.A. Jacobson, USA

415 The glucocorticoid dexamethasone strongly induces ZBTB16 expression in human insulin-secreting beta cells
A. Karagiannopoulos, E. Westholm, J. Ofori, E. Cowan, J. Esguerra, L. Eliasson, Sweden

416 Differential expression of phosphorylated Tau forms in the brain, nerves and pancreas in health and disease

417 Mechanistic investigation into the role of type 2 diabetes-associated STARD10 in insulin secretion and pancreatic beta cells
Short Oral Discussions Event C  Wednesday, 12:00 - 13:00

SO 21  The fat burning the islets

*Chair:* M. Nagao, Sweden

418 Islet autotransplantation/total pancreatectomy vs pancreatoduodenectomy in patients at high risk for POPF: a prospective randomised trial
L. Piemonti, R. Melzi, R. Nano, A. Mercalli, F. Aleotti, G. Capretti, A. Zerbi, G. Balzano, Italy

419 Alterations of human islet G protein-coupled receptor expressomes in response to obesity
Z. Lyu, M. Zhao, D. Hopkins, P. Atanes, S.J. Persaud, UK

420 Islet mRNA expression of GRKs, β-arrestins and RGS proteins in humans and mice under conditions of obesity
J. Starikova, P. Atanes, D. Hopkins, M. Zhao, S.J. Persaud, UK

421 Perilipin 2 protects against lipotoxicity-induced islet fibrosis by restoring islet stellate cells quiescence
Y. Zhou, H. Wang, Y. Wang, Z. Sun, J. Ma, China

422 Short-chain fatty acids receptors modulate the function and plasticity of pancreatic alpha cells

423 Characterisation of visceral adipose tissue-derived Ccl4 on beta cell function
T. Ashik, P. Atanes, N. Haq, G.A. Bewick, S.J. Persaud, UK

424 Oxidative ER stress in beta cells: the role of ERO-1α in palmitate-mediated toxicity
S. Sharifi, I. Mehmeti, Germany

425 Intrapancreatic adipose tissue accumulation is associated to beta cell dedifferentiation in humans
F. Cinti, T. Mezza, C. Cefalo, S. Moffa, F. Impronta, G. Di Giuseppe, U. Capece, G. Ciccarelli, L. Soldovieri, I. Severi, S. Cinti, A. Giaccari, Italy
Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 22  Exercise and diabetes: much to learn!

**Chair:** B. Stocks, Denmark

426 Positive effects of physical activity on prescription on glycaemic control, fitness and quality of life in newly diagnosed type 2 diabetic patients in a randomised control trial
T.N. Nguyen, I. Van der Ploeg, C.J. Sundberg, H.T. Vu, Viet Nam, Sweden

427 Blood glucose response to cycling and running in individuals with type 1 diabetes: a systematic review and meta-analysis
M.L. Eckstein, F. Aziz, F. Aberer, S. Böckel, R.T. Zimmer, M. Erllmann, H. Sourij, O. Moser, Germany, Austria

428 Pulmonary function in uncomplicated type 1 diabetes: blunted during exercise even though normal at rest

429 Barriers to exercise in type 1 diabetes individuals with insulin resistance
A.M. Alobaid, M.A. Zulyniak, M. Hopkins, M.D. Campbell, UK

430 Insulin glargine u300 versus insulin degludec around spontaneous exercise sessions in people with type 1 diabetes: the Ultraflexi-1 study

Short Oral Discussions Event E  Thursday, 12:00 - 13:00

SO 23  Gestational diabetes and pregnancy

**Chair:** K.E. Berntorp, Sweden

431 Impaired pregravid beta cell function is associated with adipose tissue insulin resistance and increased risk of gestational diabetes
432 Analysis of factors determining neonatal birth weight in patients with type 1 diabetes treated with personal insulin pump
M. Zurawska-Klis, M. Kosinski, K. Cypryk, Poland

433 Prolactin levels associate with insulin secretion in pregnancy and are reduced in multi- vs nulliparous women
D. Löffler, J. Hummel, L. Sandforth, A.L. Birkenfeld, H. Preissl, A. Peter, A. Fritsche, R. Wagner, M. Heni, L. Fritsche, Germany

434 Hypoglycaemia increases during pregnancy after gastric bypass: the Bariatric surgery And consequences for Mother and Baby In pregnancy (BAMBI) study

435 Body composition and effect of insulin treatment during pregnancy in Socs2−/− mice with gestational diabetes and macrosomia
L. Hernandez-Baraza, C. Valverde-Tercedor, M. Díaz, A.M. Wägner, L. Fernández-Pérez, B. Guerra, Y. Brito-Casillas, Spain

436 Insulin sensitivity, growth differentiation factor-15 and fetuin-B during pregnancy after assisted reproductive therapy in the STORK cohort
E. Qvigstad, M.-C.P. Roland, K. Godang, T. Lekva, Norway

437 Metabolic syndrome prevalence in women with gestational diabetes
V. Bartakova, K. Chalasova, L. Pacal, P. Janku, K. Kankova, Czech Republic

**Short Oral Discussions Event F**

**Thursday, 13:15 - 14:15**

**SO 24 Life with diabetes from conception to delivery**

*Chair:* TBA

438 Pregnancy in women with hyperglycaemia in pregnancy: impact of multiples vulnerabilities on fetal growth
H. Bihan, C. Nachtargaele, E. Vicaud, M. Sal, N. Berkane, S. Pinto, S. Tatulashvili, M. Fermaut, L. Carbillon, E. Cosson, France

439 The relationship between clinically significant neonatal hypoglycaemia and cord blood C-peptide levels in neonates of mothers with type 1 diabetes
440 The contribution of maternal glucose to birth weight is less in Uganda (sub-Saharan Africa) compared to white and black ethnic groups in the HAPO study

441 The use of intermittently scanned CGM vs sensor augmented pump in a cohort of pregnant women with type 1 diabetes: efficacy on glycaemic control and pregnancy outcomes.
C. Font, N. Seguí, V. Perea, M. Rabassa, D. Roca, J. Bellart, M. Giménez, I. Conget, I. Vinagre, Spain

442 Are pre-pregnancy body mass index and gestational weight gain associated with maternal and infant adverse outcomes in French women with type 1 diabetes?
A. Vambergue, V. Laurent, M. Lemaitre, C. Ternynck, J. Bourry, F. Baudoux, D. Subtil, France

443 Does the prognosis of gestational diabetes differ whether it is diagnosed through fasting and/or post-load high glucose values?

444 Polyhydramnios in early pregnancy with normal OGTT is an indicator for further investigation regarding suboptimal glucose patterns in In Vitro Fertilisation pregnancies

445 Free fatty acid-induced alterations in hepatic glucose metabolism during gestation in prediabetic mice
M. Liebmann, M. Asuaje Pfeifer, S. Scherneck, Germany

Short Oral Discussions Event A Tuesday, 11:45 - 12:45

SO 25 Insulin sensitivity: lessons from cellular and animal models
Chair: M. Trajkovski, Switzerland

446 Development of a 3D innervated human muscle-on-a chip model for diabetes research
J. Son, J. Ahn, O.-K. Hong, S. Lee, S. Chung, Republic of Korea
447 Epithelial insulin signalling: A gatekeeper of the gut barrier function?
S. Guilmeau, D. Gueddouri, M. Cauzac, F. Sicherre, G. Boudry, A.-F. Burnol, France

448 Dietary sugar intake contributes to poor metabolic health and increased NASH-fibrosis risk in mice, regardless of glycaemic index
S.G. Lucic Fisher, A.E. Brandon, M. Huang, S.M. Solon-Biet, K.S. Bell-Anderson, Australia

449 A new role of endoplasmic reticulum-mitochondria calcium coupling in nutrient-induced Glucagon-Like Peptide 1 (GLP-1) secretion by L cells
A. Humbert, J. Rieusset, France

450 Hexokinase-2 linked scheduled glycolysis as a driver of insulin resistance linked dysglycaemia: evidence in the murine C2C12 myotube model in vitro
M. Xue, N. Rabbani, P. Thornalley, Qatar

451 Loss of insulin-degrading enzyme function leads to impaired glucagon signalling and enhanced mitochondrial respiration in hepatocytes
C.M. González-Casimiro, J. Santo-Domingo, I. Cózar-Castellano, G. Perdomo, Spain

452 Effects of protein restriction on glucose tolerance and large intestine morphofunction in C57Bl/6 mice

453 A hepatic vesicular glucose production dependent on Caveolin-1 controls energy and glucose metabolism
L. Da Costa, C. Saint-Béat, C. Bron, A. Duchampt, G. Mithieux, A. Gautier-Stein, France

Short Oral Discussions Event B    Tuesday, 13:00 - 14:00

SO 26   Novel markers and omics signatures
Chair:    T. Nyström, Sweden

454 Increased methylglyoxal formation in plasma and tissues during a glucose tolerance test originates from exogenous glucose and is enhanced in diabetes
455 Skeletal muscle creatine metabolism is altered in type 2 diabetes

456 Reduced incretin effect is an early sign of diabetes appearance.
A study in a human model of beta cell mass reduction

457 Ex vivo and in vivo experimental investigation of miR-148a-3p as a novel therapy for insulin secretion and type 2 diabetes

458 Transcriptional abnormalities in adipose tissue of humans with inherited insulin resistance
R. Kruse, A.B. Hansen, N. Sahebekhtiari, K. Brusgaard, K. Højlund, Denmark

459 Oral D-xylose plasma appearance as a biomarker for intestinal glucose absorption in minipigs

460 Single-cell transcriptomic analysis of human enteroendocrine cells in primary ileal and duodenal organoid culture
R. Bany Bakar, C.A. Smith, V.B. Lu, N. Guccio, D. Goldspink, E. Miedzybrodzka, F.M. Gribble, F. Reimann, UK

Short Oral Discussions Event C  Wednesday, 12:00 - 13:00

SO 27  If you cannot measure it, you cannot improve it: novel methods in diabetes research
Chair: M. Buitinga, Netherlands

461 Do indices from mixed meal tolerance test follow the hyperbolic relationship between insulin sensitivity and insulin secretion?
N. Nielsen, K. Karstoft, H. Ellingsgaard, L. Lehrskov, N. Pilmark, M. Ried-Larsen, Denmark
462 Tissue-specific and whole-body insulin sensitivity by integrated imaging and hyperinsulinaemic euglycaemic clamp: a repeatability study in type 2 diabetes subjects

463 The insulin sensitivity index derived from euglycaemic clamps is correlated to liver fat content determined by magnetic resonance spectroscopy in type 1 diabetes
J. Mertens, S. Francque, M. Spinhoven, F. Vanhevel, C. De Block, Belgium

464 Evaluation of renal glucose uptake with $^{18}$FDG-PET: methodological advancements and clinical outcomes
E. Rebelos, A. Mari, V. Oikonen, H. Iida, P. Nuutila, E. Ferrannini, Finland, Italy

465 Zinc-dependent insulin multimerisation: a study using FRET
R. Fritzen, A.J. Gourley, C.A. Blindauer, J. Penedo, A.J. Stewart, UK

466 Mechanisms underlying nutrient sensing in human glucose-dependent insulinotropic polypeptide secreting cells
N. Guccio, E.L. Miedzybrodzka, C.A. Smith, R. Bany Bakar, F. Reimann, F.M. Gribble, UK

**Short Oral Discussions Event D**  **Wednesday, 13:15 - 14:15**

**SO 28 Understanding insulin sensitivity: lessons from the clinic**

*Chair:* J. Gojda, Czech Republic

467 Comparison of predictive value of insulin resistance indices in young women with polycystic ovary syndrome

468 Identification of myokines potentially involved in the improvement of glucose homeostasis after bariatric surgery

469 Do sex differences in pediatric type 1 diabetes exist? A systematic review
S.A. De Vries, C.L. Verheugt, D. Mul, M. Nieuwdorp, T.C. Sas, Netherlands
470 Effects of Lisosan-G on postprandial hypoglycaemia after bariatric surgery
D. Moriconi, S. Baldi, L. Antonioli, L. Pucci, S. Taddei, M. Nannipieri, Italy

471 Rabson-mendenhall syndrome: a rare cause of severe insulin resistance
R. Helal, T. Muammar, E.G. Fojas, N. Lessan, United Arab Emirates

472 Metformin has dual effects on insulin hypersecretion: opportunity to improve glucose metabolism in children with obesity

473 Changes in insulin sensitivity and the presence of partial clinical remission in type 1 diabetes: Prospective InLipoDiab1 study
A. Grzela-Wozniak, A.S. Januszewski, P. Niedzwiecki, A.J. Jenkins, D. Zozulinska-Ziolkiewicz, A. Uruska, Poland, Australia

Short Oral Discussions Event E Thursday, 12:00 - 13:00

SO 29 Glucose homeostasis regulation beyond insulin
Chair: A. Wojtusciszyn, Switzerland

474 Carotid body: a new intervenient of GLP-1 effects in cardiometabolic homeostasis

475 Insulin resistance is associated with an elevated glucose-dependent cortisol axis response: Impact in type 2 diabetes?
M.H. Lundqvist, M.J. Pereira, J.W. Eriksson, Sweden

476 The ghrelin-NPY system in adipose tissue as a potential therapeutic target in type 2 diabetes

477 Effect of ghrelin infusion on glucose tolerance and appetite after sleeve gastrectomy
478 Pentose phosphate pathway utilisation of gluconeogenic glucose-6-phosphate is increased in mice fed a high-fat/high-fructose diet compared to high-fructose alone
G. Belew, A. Costa, M. Meneses, I. Viegas, L. Tavares, P. Oliveira, M. Macedo, J. Jones, Portugal

**Short Oral Discussions Event F**  
**Thursday, 13:15 - 14:15**

**SO 30 Non-classical regulators of metabolism**
*Chair:* N. Mejhert, Sweden

479 Extracellular miRNAs related to obesity and type 2 diabetes as potential biomarkers for adipose tissue dysfunction
M. Clemente-Postigo, C. Tercero-Alcazar, M. Blasco-Montolio, R. Guzmán-Ruiz, M. Malagon, Spain

480 Investigation of small non-coding RNA modulation in islet macrophages during obesity and diabetes
C. Cosentino, A. Galli, F. Brozzi, R. Regazzi, Switzerland, Italy

481 Cxcl12/sdf-1 regulates skeletal muscle immunometabolism in type 2 diabetes

482 Bax Inhibitor 1 protects against pancreatic beta cell death and metabolic disorders

483 A potential role of liver-expressed ASK1 in body weight regulation
A. Goergen, T.D. Challa, S. Wueest, D. Konrad, Switzerland

484 Effect of maternal age and metabolic syndrome on early embryo development in a mouse model
J. Lilao-Garzon, Y. Brito-Casillas, S. Munoz-Descalzo, A. Wägner, Spain

485 Effect of lipotoxic hepatocyte-derived extracellular vesicles in pancreas inflammation and beta cell functionality
R. Alén, N. Cobo-Vuilleumier, B.R. Gauthier, I. Garcia-Martinez, Á.M. Valverde, Spain
486 Neurometabolic and behavioural alterations in the adolescent offspring upon maternal glycation

487 Exposure to obesogenic environments during perinatal development modulates nutrient-sensing pathways in adipose tissue
D. Sousa, A. Amaro, M.F. Junior, S. Pereira, M. Rocha, C. Barra, R. Mello-Gomes, P. Oliveira, P. Matafome, Portugal

**Short Oral Discussions Event A**
**Tuesday, 11:45 - 12:45**

SO 31  **Gut feelings are good**
Chair: P. Larraufie, France

488 Gut-hormone ghrelin regulates female reproductive function in healthy and high-fat fed rodents
D. Khan, A. Sridhar, P.R. Flatt, R.C. Moffett, UK

489 Relation between intestinal acetate production and plasma glucose levels in healthy subjects
M. Wijdeveld, Netherlands

490 Mechanisms underlying the beneficial effects of bariatric surgery on cardiometabolic risk in a ten-year long cohort study
S. Simati, D. Tsilingiris, A. Angelidi, K. Stefanakis, N. Tentolouris, I. Anastasiou, A. Alexandrou, C. Mantzoros, A. Kokkinos, Greece, USA

491 Analysis of intestinal morphology and incretin-producing cells using tissue optical clearing and 3-D imaging

492 Gut derived extracellular vesicles have high affinity to the liver and their enrichment in lipids is associated to the development of metabolic diseases
R.M. De Oliveira, I. Ferreira, I. Coelho, F. Carli, B. Costa-Silva, A. Gastaldelli, P. Macedo, Portugal, Italy

493 Intestinal dysbiosis and serum metabolites suggest an early progression to type 2 diabetes in patients with extreme obesity
A. Penesova, L. Kubanova, I. Hric, K. Šoltýs, Ž. Rádiková, M. Kolisek, V. Bielik, Slovakia
494 Bile acids after bariatric surgery: a gateway to mitochondrial activation in human adipocytes

495 Different impact of dietary fructose and galactose on metaflammation in rats: protective effects of prebiotic fructooligosaccharides supplementation
R. Mastrocola, D. Collotta, F. El-Masri, C. Murzio, E. Aimaretti, M. Aragno, J. Frank, M. Collino, Italy, Germany

496 Altered glucose tolerance conditions are associated with an activation of ER stress related responses in the gut
T.V. Fiorentino, F. De Vito, R. Marasco, E. Suraci, M.L. Hribal, F. Andreozzi, F. Luzzi, G. Sesti, Italy

Short Oral Discussions Event B Tuesday, 13:00 - 14:00

SO 32 Latest drug avenues to treatment
Chair: K.A. Toulis, Greece/United Kingdom

497 Effect of the early and postponed statin therapy after menopause on metabolic and inflammatory factors in rat model of prediabetes
M. Hüttl, I. Markova, H. Malinska, D. Miklankova, T. Hlinka, J. Pitha, H. Bartuskova, Czech Republic

498 Impact of once-weekly subcutaneous semaglutide 2.4 mg on metabolic syndrome in the 2-year, randomised controlled STEP 5 trial
R.L. Batterham, M. Bhatta, T. Holst-Hansen, K. Kandler, G. Rigas, W.T. Garvey, UK, Denmark, Australia, USA

499 Associations between weight loss and glycaemic control with once-weekly semaglutide 1.0 mg and 2.4 mg in the STEP 2 trial
M. Davies, L. Færch, B. Goldman, A. Pakseresht, S. Pedersen, J. Rosenstock, I. Lingvay, UK, Denmark, Canada, USA

500 Dapagliflozin protects human cardiac progenitor cells from deleterious effects of the secretome from visceral adipose cells of obese subjects
G. Palma, C. Caccioppoli, R. D'Oria, V.A. Genchi, I. Calderoni, A. Braun, G. Santarpino, A.D. Milano, A. Cignarelli, A. Natalichio, L. Laviola, A. Pezzolla, F. Giorgino, S. Perrini, Italy
501 The effects of MS-275, HDAC Class I inhibitor, in diabetic skeletal muscle atrophy
J. Jeon, S.-E. Choi, J. Jeong, S. Park, Y. Kang, T. Kim, S.-Y. Ahn, H. Kin, S. Han, N. Lee, D. Kim, K.-W. Lee, Republic of Korea

502 Svep1-based peptide as a potential therapeutic agent against adipose tissue dysfunction
N. Kislev, D. Benayahu, Israel

503 Effects of the bile acid TUDCA on glucose metabolism and skeletal muscle loss in senile mice
M. Carvalho, L. Zangerolamo, L.B. Santos, H.C. Barbosa, Brazil

504 Empagliflozin effect on renal parameters and metabolism in a prediabetic rat model: urinary proteomic and metabolomic approach
H. Malinska, I. Markova, M. Hüttl, D. Miklankova, J. Stastny, P. Kacer, Czech Republic

505 SGLT2 inhibition prevents high fat diet-induced glucose intolerance, but not weight gain, in C57BL/6 male mice
T. Li, W. Zhu, Z. Sun, C. Rayner, R. Young, T. Wu, China, Australia

506 Metreleptin robustly increases resting-state brain connectivity in patients with lipodystrophy
H. Schlögl, A. Villringer, K. Miehle, M. Stumvoll, K. Mueller, Germany

Short Oral Discussions Event C   Wednesday, 12:00 - 13:00

SO 33   Insulin in action
Chair: M. Sander, USA

507 Different CD36 subcellular localisation in beta cells between diabetes-prone and -resistant mice: possible involvement of CD36 in beta cell dysfunction

508 Preservation of glucose homeostasis in mice with conditional beta cell specific deletion of the dual leucine zipper kinase in a prediabetic condition
J. Duque Escobar, K.A. Köster, M. Dethlefs, S. Schröder, E. Oetjen, Germany
509 Impaired insulin secretion by decreased potassium conductance of beta cells in a prediabetic mouse model
M. Asuaje Pfeifer, K. Grupe, M. Liebmann, I. Rustenbeck, S. Scherneck, Germany

510 Endogenous glucose-dependent insulinotrophic polypeptide (GIP) facilitates postprandial intestinal lipid uptake

511 Inhibition of pyruvate dehydrogenase kinase 4 alleviates insulin resistance through the PI3K/AKT signalling pathway

512 The roles of SCD enzyme and appetite hormones in the associations of plasma cysteine with obesity and insulin resistance: The Maastricht Study

513 Bone morphogenetic protein 4 (BMP4) and its receptor BMPR1A in human adipose tissue and its regulation by insulin and free fatty acids
M. Dobrzycka, M. Stefanowicz, N. Matulewicz, A. Nikolajuk, J. Dadan, P. Mysliwiec, I. Kowalska, M. Karczewska-Kupczewska, Poland

514 Interleukin-33 (IL33) inhibits glucose uptake in human adipocytes and its expression in adipose tissue is elevated in insulin resistance and type 2 diabetes
M.J. Pereira, A. Azim, B.N. Jui, J. Kullberg, M.H. Lundqvist, J.W. Eriksson, Sweden

Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 34 The hepato-skeletal impact on metabolic control
Chair: A. Krook, Sweden

515 Hepatic OPA1 deficiency impacts mitochondrial plasticity, lipoprotein metabolism and liver steatosis
G. Norata, A. Moregola, P. Uboldi, L. Scorrano, L. Da Dalt, Italy
516 Adenosine: a new functional marker and therapeutic target for the link insulin resistance-non-alcoholic fatty liver disease

517 Disturbance of hepatic tight junctions by hypercaloric diets precedes intestinal barrier disruption
M.J. Meneses, B. Patrício, G.D. Belew, F. Carli, J.G. Jones, A. Gastaldelli, M.P. Macedo, Portugal, Italy

518 Fetuin-a promotes lipid induced DPP4 expression in pancreatic beta cells
S. Nag, S. Mandal, R. Kundu, India

519 The effects of deferoxamine (DFO) on DEX-induced muscle atrophy in C57BL/6J mice

520 Meta-inflammation and de novo lipogenesis markers are involved in metabolic associated fatty liver disease progression in BTBR ob/ob mice
S. Mas, Spain

521 Skeletal muscle mitochondrial inertia is associated with carnitine acetyltransferase protein activity and physical function in humans

Short Oral Discussions Event E    Thursday, 12:00 - 13:00

SO 35  Metabolic inflexibility and complications in humans

Chair: J. Jendle, Sweden

522 A genetic polymorphism with structural impact, blood levels, expression in adipose tissue, and engineered adipocytes functionally link Olfactomedin 2 to obesity
A. Lluch, J. Latorre, I. Espadas, J. Moreno-Navarrete, A. Martín-Montalvo, J. Fernández-Real, F. Ortega, Spain

523 Development of a predictive model for short and medium-term weight loss in people with type 2 diabetes attending a weight management programme
L. Al-Abdullah, P. Welsh, J. Logue, UK
524 Metabolic inflexibility in type 2 diabetes is supported by untargeted metabolomics during OGTT
G. Fanni, J.W. Eriksson, M.J. Pereira, Sweden

525 The relationship between obesity and depression is partly dependent on metabolic status: a nationwide inpatient sample database study
Z. Wang, J. Zhao, X. Fan, China

526 Oxytocin correlates with body dysmorphic concerns and predicts weight loss in patients with obesity after a very low carbohydrate ketogenic diet

527 Type 2 diabetes is associated with decreased activation and increased cytokine production by blood lymphocytes: a human flow cytometry study
D. Gašparini, I. Kavazović, Ž. Mijolović, I. Klarić, A. Prunk Drmić, V. Peršić, F.M. Wensveen, T. Turk Wensveen, Croatia

528 Relationship between soluble receptor for advanced glycation end products (sRAGE) and obesity in individuals with type 1 diabetes during a median follow-up of 12 years
K. Adeshara, E.B. Parente, V. Harjutsalo, M. Lehto, P.-H. Groop, on behalf of FinnDiane Study Group, Finland

529 Probing Zn²⁺-HSA interactions using mutagenesis and isothermal titration calorimetry
A.J. Stewart, S.J. Hierons, D. Wu, S. Arya, C.A. Blindauer, U

Short Oral Discussions Event F    Thursday, 13:15 - 14:15

SO 36  Modelling obesity and type 2 diabetes
Chair: B. Merino Antolin, Spain

530 Arrest of long-chain acylcarnitine synthesis prevents inflammation and insulin resistance in adipose tissue of high-fat diet-fed TMLHE knockout mice
E. Liepins, B. Svalbe, H. Cirule, M. Videja, M. Dambrova, Latvia

531 Haematopoietic cell-derived Oncostatin M regulates metabolic responses to high-fat diet in mice
M. Albiero, S. Ciciliot, A. Rodella, L. Migliozzi, F.I. Amendolagine, G. Zuccolotto, A. Rosato, G.P. Fadini, Italy
532 Irisin protects against obesity-related kidney disease by regulating perirenal adipose tissue function in obese mice
X. Sun, F. Han, C. Kan, N. Hou, China

533 The adipocyte-specific deletion of the tumor suppressor gene CDKN2a improves glucose tolerance in high-fat diet-fed mice
Y. Kahoul, J. Montaigne, E. Caron, A. Bongiovanni, F. Oger, P. Froguel, A. Bonnefond, J.-S. Annicotte, C. Breton, France

534 Nbw4 locus on mouse chromosome 4 harbors candidate genes which protect from fat accumulation and obesity
J. Khuong, D. Altenhofen, T. Kuhn, S. Görgik, S. Lebek, B. Knebel, A. Schürmann, A. Chadl, H. Al-Hasani, Germany

535 Identification of candidate genes for metabolic traits in an obese mouse model integrating multiomics data
D. Hesse, M. Delpero, M. Sprechert, D. Arends, G.A. Brockmann, Germany

536 Neurometabolic changes in the hippocampus of type 2 diabetic rats: an imaging perspective towards clinical applications

Short Oral Discussions Event A Tuesday, 11:45 - 12:45

SO 37 Dietary and nutritional interventions
Chair: C. Cavelti-Weder, Switzerland

537 Ketogenic diet administration to mice after a high fat diet regimen promotes histone β-hydroxybutyralion associated to weight loss and improved metabolic fitness
S. Nasser, T. Solé, N. Vega, A. Balcerczyk, M. Strigini, L. Pirola, France, Poland

538 A 36-month high-protein and high-unsaturated fatty-acid dietary intervention improves HbA1c in subjects aged 50-80y: preliminary results of the NutriAct Trial

539 Intermittent fasting by the 5:2 diet is feasible and improves risk factors for cardio-vascular disease equally in type 2 diabetes and overweight subjects without diabetes
540 Short term isocaloric ketogenic diet modulates NLRP3 inflammasome via β-hydroxybutyrate and fibroblast growth factor 21
S. Woo, Republic of Korea

541 Pre-meal low-dose whey protein microgel increases bioavailability of branched chain amino acids in people with type 2 diabetes: a randomised, PBO-controlled crossover study
O. Johansen, B. Ahrén, J. Corthesy, Y. Grzywinski, M. Von Eynatten, I.J. Neeland, Switzerland, Sweden, USA

542 Effects of 10-h time-restricted eating on body weight and cardiometabolic health in individuals at high risk of type 2 diabetes (RESET): a randomised controlled trial

543 Intermittent fasting is safe and improves metabolic parameters in people with insulin treated type 2 diabetes: a randomised controlled trial

544 Vegetable juice preload ameliorates postprandial glucose concentration in healthy women: a randomised cross-over trial
S. Imai, S. Kajiyama, T. Miyawaki, N. Ozasa, S. Kajiyama, Y. Hashimoto, M. Fukui, Japan

Short Oral Discussions Event B  Tuesday, 13:00 - 14:00

SO 38  SGLT2 inhibitors and renal outcomes
Chair: P. Fioretto, Italy

545 Initiation of the SGLT2 inhibitor canagliflozin to prevent kidney outcome guided by HbA₁c and predicted risk of kidney failure
S. Tye, N. Jong, S.G. Coca, J. Sundström, C. Arnott, B. Neal, V. Perkovic, P. Vart, H.J. Lambers Heerspink, Netherlands, USA, Sweden, Australia

546 Effects of dietary sodium and protein intake on early dip of GFR levels in subjects with type 2 diabetes treated with SGLT2 inhibitors
M. Seghieri, C. Colombi, C. Gaudio, C. Merciai, A. Rosati, C.M. Baggiore, Italy
547 Real-world safety of dapagliflozin in elderly patients with type 2 diabetes in China: post-hoc analysis of the DONATE study
L. Guo, J. Wang, L. Li, L. Yuan, S. Chen, H. Wang, T. Li, L. Qi, H. Yang, China

548 To protect the kidney by SGLT2 inhibitors, individualised eGFR slope analysis is needed because of the heterogeneity in each person
K. Kashima, H. Shimizu, M. Yamada, Japan

549 Combination treatment impacts levels of endotrophin in the drug combinations for rewriting trajectories of renal pathologies in type 2 diabetes (DC-Ren) study
F. Genovese, A.L. Møller, S. Thöni, F. Keller, S. Sharifli, D.G. Rasmussen, G. Mayer, Denmark, Austria

550 Sodium-glucose link transporter-2 inhibitors in reduced renal function: cross-class comparison from the Association of British Clinical Diabetologists (ABCD) audits
T.S. Crabtree, A. Bickerton, K. Dhatariya, A. Gallagher, J. Elliott, R. Raghavan, I.W. Gallen, R.E. Ryder, UK

551 Cardiovascular and kidney outcomes with canagliflozin according to type 2 diabetes treatment targets at baseline: data from the CANVAS Program and CREDenCe
J. Seufert, V. Woo, M.A. Tsoukas, S.W. Tobe, A. Slee, W. Rapattoni, F.G. Ang, D.C. Wheeler, Germany, Canada, USA, Australia, UK

552 Albuminuria lowering effect of dapagliflozin, eplerenone and their combination in patients with chronic kidney disease a randomised cross-over clinical trial
M. Provenzano, H.J. L. Heerspink, M. Puchades, C. Garofalo, N. Jongs, M. Adreucci, L. De Nicola, J. Gorriz, Netherlands, Spain, Italy

Short Oral Discussions Event C   Wednesday, 12:00 - 13:00

SO 39  Newer agents - cardiovascular outcomes
Chair: J.P.H. Wilding, United Kingdom

553 Interleukin-6 and cardiovascular outcome in patients with type 2 diabetes: new insights from CANVAS
554 Cardiovascular effectiveness of SGLT-2 inhibitors and GLP-1 receptor agonists in routine care of frail people with type 2 diabetes
A. Kutz, C. Gopalakrishnan, D.H. Kim, E. Patorno, USA

555 Precision medicine in type 2 diabetes: integrating trial and real-world evidence can provide accurate estimates of heart failure benefit when initiating SGLT2-inhibitors

556 GIP infusion acutely decreases blood pressure and increases heart rate in men with type 2 diabetes, concomitantly with increased pro-atrial natriuretic peptide levels

557 Sustainability of HbA1c control of tirzepatide vs insulin glargine in people with type 2 diabetes and increased cardiovascular risk: SURPASS-4
S.E. Kahn, S. Del Prato, I. Pavo, D.R. Franco, Z. Yang, R.J. Wiese, E.R. Pearson, USA, Netherlands, Brazil, UK

558 Systolic blood pressure reduction with tirzepatide across SURPASS programme: a mediation analysis using weight loss as a factor
O. Mosenzon, I. Lingvay, K. Brown, X. Cui, L. Fernández Landó, H. Patel, Israel, USA

559 Dapagliflozin improves arterial stiffness, myocardial performance and endothelial glycocalyx in patients with type 1 diabetes after four months treatment

560 Impact of empagliflozin on insulin use in patients with heart failure with preserved ejection fraction (HFpEF) and type 2 diabetes: sub-analysis from EMPEROR-Preserved trial
J. Butler, J.B. Green, J. Rosenstock, on behalf of the EMPEROR Trial Committees and Investigators, USA
Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 40  Incretins: impact on BMI

Chair:  S. Bain, United Kingdom

561 Tirzepatide shows beneficial effects on body fat distribution pattern in people with type 2 diabetes
J. Linge, B. Cariou, I.J. Neeland, O. Dahlqvist Leinhard, M. Petersson, L. Fernandez, R. Bray, A. Rodriguez, Sweden, France, USA

562 Semaglutide 2.4 mg reduces the 10-year type 2 diabetes risk in people with overweight or obesity
T.W. Garvey, T. Holst-Hansen, P.N. Laursen, A.R. Rinnov, L. Wilkinson, USA, Denmark

563 Semaglutide 2.4 mg improved glucose metabolism and reverted prediabetes to normoglycaemia in adults with overweight or obesity vs liraglutide 3.0 mg (STEP 8)
D.M. Rubino, T.W. Garvey, B. Goldman, U. Khalid, J. Rosenstock, R. Sørrig, USA, Denmark

564 Tirzepatide reduces appetite, energy intake and fat mass in people with type 2 diabetes

565 Changes in abdominal fat and clinical/analytical parameters in tirzepatide- or insulin degludec-treated patients with type 2 diabetes (SURPASS-3 MRI)
A. Gastaldelli, K. Cusi, L. Fernández Landó, R. Bray, A. Torcello-Gómez, B. Brouwers, Á. Rodríguez, Italy, USA

566 Tirzepatide induces weight loss in patients with type 2 diabetes regardless of baseline BMI: a post hoc analysis of SURPASS-1 through SURPASS-5 studies
J.P. Wilding, A.Y. Kwan, J.M. Maldonado, H. Wang, N. Rasouli, UK, USA

567 Effect of once-weekly semaglutide 2 mg vs 1 mg on HbA$_{1c}$ and body weight by baseline demographic subgroups: SUSTAIN FORTE post hoc analysis
J.P. Frias, L. Bardtrum, Y. Hansen, I. Lingvay, S. Macura, N. Tentolouris, J.B. Buse, USA, Denmark, Greece
568 Tirzepatide-induced weight loss in type 2 diabetes is independent of nausea, vomiting, or diarrhoea
H. Patel, K. Khunti, H.W. Rodbard, H.S. Bajaj, R. Bray, Z. Kindracki, Á. Rodríguez, USA, UK, Canada

Short Oral Discussions Event E    Thursday, 12:00 - 13:00

SO 41  Incretins: basic science
Chair:  A. Andersen, Denmark

569 Comprehensive characterisation of the human gain-of-function GLP-1r variant Ala316Thr in pancreatic beta cells
L. El Eid, R.-M. Rujan, G. Deganutti, B. Jones, C. Reynolds, A. Tomas, UK

570 Bi 456906, structural properties and pharmacology of the novel glucagon and glucagon-like peptide-1 receptor (GCGR/GLP-1R) dual agonist

571 Using a BRET based high throughput screening approach to identify previously approved drugs that can be repurposed to ameliorate type 1 diabetes
S. He, G. Lim, Canada

572 A novel oral cannabinoid receptor-1 inverse agonist induces additive weight loss and improves metabolic biomarkers in DIO mice in combination with semaglutide or tirzepatide
M. Morningstar, S. Ferreira, A. Kolodziej, T. Blumen, Z. Jin, H. Deng, B. White, R. Brake, USA

573 Liraglutide treatment attenuates inflammation markers in the cardiac, cerebral and renal microvasculature in streptozotocin-induced diabetic rats

574 Dual amylin and calcitonin receptor agonist treatment in type 2 diabetic rats protects against cardiovascular and renal complications
A.T. Larsen, S.A. Melander, M.A. Karsdal, K. Henriksen, Denmark, Switzerland
575 Deorphanisation of black widow spider GLP-1: validation of GLP-1 receptor agonist action relevant to human islet insulin secretion in vitro
G.G. Holz, A.N. Liles, R.P. Doyle, C.A. Leech, O.G. Chepurny, USA

576 Empagliflozin protects from diet-induced obesity, insulin resistance and hepatic steatosis in mice

Short Oral Discussions Event F    Thursday, 13:15 - 14:15

SO 42   Clinical epidemiology and pharmacotherapy
Chair:  S. Wild, UK

577 Patients with type 2 diabetes present similar immunological response to COVID-19 BNT162b2 mRNA vaccine with healthy subjects: a prospective cohort study

578 Clinically relevant predictors of cardiovascular events in patients with type 2 diabetes: a pooled analysis from clinical studies
A. Malhotra, G. Bader, India, Switzerland

579 Dramatic changes in use of glucose-lowering drugs in Denmark from 2005 through 2021: a nationwide study
T. Vilsbøll, J.H. Andersen, J. Søndergaard, R.W. Thomsen, A. Pottegaard, Denmark

580 Higher adherence and persistence for dulaglutide compared to oral semaglutide at 6-months follow-up with U.S. real-world data
R. Paczkowski, M.M. Hoog, J. Peleshok, M. Yu, A. Huang, B. Limone, J. Manjelievskaja, USA

581 Use of metformin in pregnant women with polycystic ovarian syndrome (PCOS): a cohort study in the United Kingdom
K. Brand, C. Foch, E. Boutmy, Germany

582 Metformin and B12 deficiency: a retrospective study of the prevalence of B12 deficiency in patients on metformin
L. Young, R. Rasheed, H. Bibi, UK
583 HbA\textsubscript{1c} and weight changes with semaglutide at 6- and 12-months post commencement: updated results from the ABCD semaglutide audit
B.C. Field, T.S. Crabtree, K. Adamson, D. Barnes, S. Sivapriyan, A. Bickerton, A. Gallagher, I.W. Gallen, I. Idris, R.E. Ryder, UK

584 Costs associated with healthcare resources utilisation among empagliflozin vs GLP-1RAs initiators in routine clinical care in Denmark
R.W. Thomsen, L.W. Christensen, J. Kahlert, J.S. Knudsen, A. Ustyugova, S. Sandgaard, P. Holmgaard, L.H. Ehlers, H.T. Sørensen, Denmark, Germany

**Short Oral Discussions Event A**  
*Tuesday, 11:45 - 12:45*

**SO 43  Glucose lowering agents**

*Chair:*  
I. Idris, UK

585 Achievement of HbA\textsubscript{1c} ≤6.5% (47.5 mmol/mol), with ≥10% weight loss, without hypoglycaemia in patients treated with tirzepatide vs comparators in SURPASS program
J.A. Levine, A. Cheng, P. Choudhary, I. Lingvay, E. Gomez Valderas, S.E. Allen, K. Ranta, V.T. Thieu, USA, Canada, UK

586 Tirzepatide leads to significant improvement in postprandial glycaemic control in people with type 2 diabetes (SURPASS 1-5)
C.J. Lee, E. Spanakis, R. Bray, K. Brown, L.K. Billings, K. Chivukula, A. Rodriguez, F. Giorgino, USA, Italy

587 Results from a 12-week proof-of-concept study of a novel oral non-peptide GLP-1 receptor agonist in patients with type 2 diabetes
E. Pratt, X. Ma, R. Liu, D. Robins, K. Sloop, A. Haupt, C. Benson, Singapore, USA

588 Efficacy, safety and tolerability of danuglipron (PF-06882961) over 12 weeks in adults with type 2 diabetes
D.N. Gorman, A.R. Saxena, J. Frias, R.N. Lopez, N. Tsamandouras, M.J. Birnbaum, UK, USA

589 Oral small molecule GLP-1 receptor agonist danuglipron (PF-06882961) results in glucose lowering and body weight loss over 16 weeks in adults with type 2 diabetes
A.R. Saxena, J. Frias, L.S. Brown, D.N. Gorman, N. Tsamandouras, M.J. Birnbaum, USA, UK
590 Oral menin inhibitor, BMF-219, displays a significant and durable reduction in HbA$_{1c}$ in a type 2 diabetes rat model
P. Somanath, S. Mourya, W. Li, T. Archer, B. Law, D. Lu, T. Rughwani, L. Kumar, T. Kinoshita, M. Balakrishnan, T. Butler, USA

591 Patients with type 2 diabetes reach glycaemic targets faster with tirzepatide compared to semaglutide and titrated insulin degludec
A. Viljoen, K.M. Pantalone, R.J. Galindo, X. Cui, R. Huh, L. Fernández Landó, H. Patel, UK, USA

592 Oxyntomodulin analog LY3305677 (LY) improves glycaemic control and weight loss in healthy volunteers and subjects with type 2 diabetes
C. Benson, L. Tham, Y. Du, S. Gurbuz, K.J. Mather, C. Tang, D.A. Robins, M.K. Thomas, USA, Singapore

**Short Oral Discussions Event B Tuesday, 13:00 - 14:00**

**SO 44 Lessons from trials**

Chair: M. Blüher, Germany

593 Finerenone in patients across the spectrum of CKD and type 2 diabetes by GLP-1RA use
M.L. Caramori, P. Rossing, S. Anker, G. Filippatos, B. Pitt, V. Fonseca, G.E. Umpierrez, M. Lambelet, P. Viswanathan, R. Lawatscheck, A. Joseph, G. Bakris, USA, Denmark, Germany, Greece

594 Effect of semaglutide versus placebo on cardiovascular outcomes by baseline HbA$_{1c}$: SUSTAIN 6 and PIONEER 6 post hoc analysis

595 Tirzepatide reduces serum triglyceride concentrations irrespective of concomitant fibrate use in SURPASS-4 participants with type 2 diabetes at high cardiovascular risk
T. Várkonyi, S. Del Prato, I. Pavo, C. Nicolay, R.J. Wiese, S.E. Kahn, Hungary, Italy, USA

596 Anti-drug antibodies do not impact pharmacokinetics, efficacy, and safety of Tirzepatide: analysis of data from seven phase 3 studies
597 Greater time spent in glycaemic control with oral semaglutide vs oral comparators
F.K. Knop, B. Cariou, J. Eliasson, G. Frappin, M.S. Kaltoft, E. Montanya, J. Rosenstock, Denmark, France, Spain, USA

598 Patient characteristics associated with achievement of normoglycaemia following treatment with tirzepatide in the SURPASS 1-4 trials
L. Vázquez, J. Rosenstock, S. Del Prato, D. Reis Franco, B. Dai, G. Weerakkody, L. Fernández-Landó, B.K. Bergman, A. Rodríguez, Spain, USA, Italy, Brazil

599 Long-term efficacy and safety of evogliptin add-on therapy to dapagliflozin plus metformin combinations in poorly controlled patients with type 2 diabetes

600 Glycaemic effect of tirzepatide by duration of diabetes
J. Kiljanski, C. De Block, C. Mathieu, H. Sapin, J. Peleshok, USA, Belgium

Short Oral Discussions Event C   Wednesday, 12:00 - 13:00

SO 45  Beta cell function and glucose control
Chair: S. Misra, UK

601 Empagliflozin improves beta cell function independently of relief of glucotoxicity in patients with type 2 diabetes

602 Fasting 32-33 split proinsulin and intact proinsulin levels are reduced by liraglutide and metformin in combination. A randomised double-blind trial

603 Tirzepatide improved markers of islet cell function and insulin sensitivity compared to semaglutide in people with type 2 diabetes
K. Brown, L. Fernández Landó, B. Bergman, M.K. Thomas, B. Liu, C. Lee, USA
604 Association between variants in TCF7L2, CTRB1/2 and GLP-1R genes and response to therapy with glucagon-like peptide-1 receptor agonists in patients with type 2 diabetes

605 Post-prandial glucose reduction with YG1699 compared to dapagliflozin in subjects with type 1 diabetes
P. Lapuerta, S. Urbina, A. Wittle, J. He, C. Li, T. Li, China, USA

606 Greater improvement in insulin sensitivity per unit weight loss with tirzepatide compared to selective GLP-1 receptor agonism
M.K. Thomas, K.J. Mather, A. Mari, J. Li, T. Heise, J. DeVries, S. Urva, T. Coskun, Z. Milicevic, A. Haupt, USA, Italy, Germany, Netherlands

607 Dipeptidyl peptidase-4 inhibitors and gallbladder or biliary disease in type 2 diabetes: systematic review and meta-analysis of randomised controlled trials
L. He, J. Wang, N. Yang, L. Xu, W. Li, F. Ping, J. Huang, Y. Li, H. Zhang, China

608 Glycaemic response to meals with a high glycaemic index consumed in the morning and evening among students with early and late chronotype-ChroNu Study
B. Stutz, B. Krueger, J. Goletzke, N. Jankowicz, C. Herder, U. Alexy, A.E. Buyken, Germany

Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 46  Incretins everywhere
Chair: M.P. Macedo, Portugal

609 Multifactorial risk reduction with oral semaglutide vs comparators in the treatment of type 2 diabetes
V.R. Aroda, J. Eliasson, B. Malling, J.J. Meier, L.L. Nielsen, T. Vilsbøll, K. Khunti, USA, Denmark, Germany, UK

610 Reduced risk of kidney function loss in patients with type 2 diabetes treated with GLP-1 receptor agonists versus basal insulin

611 Chronic administration of the novel hypoglycaemic peptide exhibits robust efficacy in a diet-induced model of obesity and type 2 diabetes
N. Mitkin, V. Pavshintsev, I. Doronin, G. Babkin, A. Malyshev, USA
612 Effectiveness and tolerability of once-weekly GLP-1 receptor agonists in clinical practice: a focus on switching between once-weekly molecules in type 2 diabetes
G. Formoso, G. Di Dalmazi, S. Coluzzi, M.P. Baldassarre, A. Ghit, G. Graziano, M.C. Rossi, B. Ciappini, M. Milo, F. Carrieri, A. Nicolucci, A. Consoli, Italy

613 Multiple dose-ranging study of the novel glucagon/GLP-1 receptor dual agonist BI 456906 vs placebo and open-label weekly semaglutide reference control in type 2 diabetes
J. Rosenstock, M. Blüher, B. Schmid, J. Hoefler, A. Hennige, USA, Germany

614 Glycaemic control with tirzepatide in people with type 2 diabetes by baseline HbA$_1c$ ≤ 69.4 mmol/mol or >69.4 mmol/mol
C. De Block, G. Aleppo, J.A. Levine, E.G. Valderas, B.D. Benneyworth, Belgium, USA

615 The real-world observational prospective study of health outcomes with dula and lixivintide in type 2 diabetes patients (TROPHIES): 24-m clinical characteristics and treatment patterns
A. Dib, B. Guerci, F. Giorgino, K. Boye, M. Füchtenbusch, E. Heitmann, J. Lebrec, M. Orsini Federici, M. Yu, L.-E. García-Pérez, France, Italy, USA, Germany, Canada, Spain

616 Effects of a novel long acting GIP/GLP-1/Glucagon tri-receptor agonist, HISHS-3001, on HbA$_1c$, body weight and lipid metabolism
R. Thennati, V. Burade, A. Garcia-Ocana, R. Pratley, G. Rutter, T. Vilsbøll, B. Thorens, India, USA, Canada, Denmark, Switzerland

**Short Oral Discussions Event E Thursday, 12:00 - 13:00**

**SO 47 Treatments, molecules and outcomes: a smorgasbord**

Chair: A.A. Vaag, Denmark

617 Effects of tirzepatide versus insulin glargine 100 U/mL on kidney outcomes in participants with type 2 diabetes in SURPASS-4
618 Cardiorenal and safety outcomes with finerenone in patients with obesity, CKD and type 2 diabetes
L.K. Billings, S.D. Anker, G.L. Bakris, G. Filippatos, B. Pitt, L. Ruilope, J. Green, O. Mosenzon, K.M. Pantalone, C. Ahlers, A. Lage, R. Lawatscheck, A. Scalise, P. Rossing, USA, Germany, Greece, Spain, Israel, Brazil, Denmark

619 Betaine: a regulator of mitochondria and endoplasmic reticulum contact points (MAMs) of the hepatocytes
A. Alves, F. Lamarche, E. Meugnier, S. Pesenti, R. Lefebvre, A. Bassot, E. Loizon, C. Moinard, B. Morio, France, Canada

620 Effects of finerenone in patients with chronic kidney disease and type 2 diabetes are independent of HbA$_{1c}$ at baseline, HbA$_{1c}$ variability and duration of diabetes

621 Effects of ertugliflozin on uric acid and gout-related outcomes: post hoc analyses from VERTIS CV

622 Interactions between early DPP-4is initiation and HbA$_{1c}$ variability with risk of insulin requirement in type 2 diabetes: real-world evidence from a prospective cohort
A. Yang, J. Cheung, H. Wu, E.S. Lau, R.C. Ma, A.P. Kong, W.Y. So, A.O. Luk, J.C. Chan, E. Chow, Hong Kong

623 Effects of acute and sub-chronic treatment with metformin on postprandial blood pressure and heart rate in diet-controlled type 2 diabetes

624 Caffeine ameliorates diet-induced insulin resistance by impacting brown adipose tissue function
**SO 48  Hypoglycaemia: hip hip hooray yet to come**

*Chair:*  B.H.R. Wolffenbuttel, Netherlands

625 Hypo-metrics: associations between hypoglycaemia awareness, blood glucose range and patient-reported hypoglycaemia symptoms in type 1 diabetes

626 Persistence of impaired awareness of hypoglycaemia, severe hypoglycaemic events and suboptimal glycaemic control despite advanced diabetes technologies

627 The prevalence of hypoglycaemia remains unchanged despite advances in the management of type 1 diabetes

628 Patterns of sensor-detected hypoglycaemia in long-duration CGM data from a diabetes registry
P.M. Baumann, D.A. Hochfellner, M. Cigler, L. Roubik, T. Pöttler, J.K. Mader, on behalf of the Hypo-RESOLVE Consortium, Austria

629 Real-world estimates of severe hypoglycaemia and associated healthcare utilisation in the US: prospective, longitudinal results of the iNPHORM study
A. Ratzki-Leewing, J. Black, A. Kahkoska, B. Ryan, S. Harris, Canada, USA

630 Level of physical activity and risk of severe hypoglycaemia in type 1 diabetes
P.L. Kristensen, S. Caunt, R.F. Johansen, S.E. Sander, E. Søndergaard, S. Heller, S. Mølsted, Denmark, UK

631 Glycaemic events during exercise can be effectively predicted with machine learning using only start glucose and duration
C.L. Russon, R.C. Andrews, R.M. Pulsford, N. Vaughan, M. Allen, UK

632 Sustained pro-inflammatory effects following hypoglycaemia in people with type 1 or type 2 diabetes
633 Impact of polymorphism in the beta-2 receptor gene on the metabolic response to epinephrine before and after repeated hypoglycaemia in healthy humans

**Short Oral Discussions Event A**

**SO 49  Is newer (insulin) always better?**

*Chair:* J. Gumprecht, Poland

634 Ado09, a co-formulation of pramlintide and insulin A21G, improves body weight and treatment satisfaction compared to insulin lispro in people with type 1 diabetes (PwT1D)
R. Eloy, M. Gaudier, E. Baumgaertner, C. Seroussi, C. Mégret, B. Kronshage, Y.-P. Chan, O. Soula, T. Heise, G. Andersen, France, Germany

635 Tertiary CGM endpoints comparing second-generation basal insulin analogues glargine 300 U/mL and degludec 100 U/mL in people with type 1 diabetes: inrange randomised controlled trial
R. Bergenstal, S. Edelman, P. Choudhary, T. Danne, E. Renard, J. Westerbacka, B. Mukherjee, P. Picard, V. Pilorget, T. Battelino, USA, UK, Germany, France, Slovenia

636 Congenital malformations among offspring of women with type 1 diabetes using insulin pump: a prospective cohort study

637 Patient and physician experience of hypoglycaemia during basal insulin titration in type 2 diabetes in the US
S. Harris, K. Mohammedi, M. Bertolini, V. Walker, M. Carlyle, F. Liz Zhou, J. Seufert, J. Anderson, Canada, France, USA, Germany

638 Impact of hypoglycaemia on insulin titration and fasting plasma glucose in basal insulin-treated type 2 diabetes: a subanalysis of the SoliMix trial
R. Ritzel, R.J. McCrimmon, J. Rosenstock, O. Deyneli, A. Alvarez, E. Souhami, L. Melas-Melt, F. Giorgino, Germany, UK, USA, Turkey, Argentina, France, Italy
639 Once-weekly insulin icodec: comparable total exposure following administration in different subcutaneous injection regions
L. Plum-Mörschel, L.R. Andersen, S. Hansen, U. Hövelmann, P. Krawietz, N.R. Kristensen, L.L. Lehrskov, H. Haahr, Germany, Denmark

640 A novel once weekly basal insulin Fc achieved similar glycaemic control with a comparable safety profile versus insulin degludec in patients with type 1 diabetes

641 Comparison of day and night closed-loop with faster-acting insulin aspart vs insulin aspart mimicking under-estimation of carbohydrates or missed meal bolus

**Short Oral Discussions Event B**

**Tuesday, 13:00 - 14:00**

**SO 50** Is longer better? Looking for different basal insulin approaches

*Chair:* I.N. Migdalis, Greece

642 Effect of insulin degludec vs insulin glargine U100 on continuous glucose monitoring recorded metrics in people with type 1 diabetes and nocturnal severe hypoglycaemia

643 Efficacy and safety of insulin icodec in patients with type 2 diabetes: a meta-analysis of randomised phase II trials
D. Dimayuga, M. Villa, M. Maningat-Goco, Philippines

644 Iglarlixi vs basal plus rapid-acting insulin in adults with type 2 diabetes advancing from basal insulin therapy: the SoliSimplify real-world study
R.J. McCrimmon, A.Y. Cheng, G. Galstyan, K. Djaballah, X. Li, M. Coudert, J. Frias, UK, Canada, Russian Federation, France, USA
645 Indirect treatment comparison (ITC) of efficacy and safety of insulin glargine 300 U/mL with once-daily-insulin premix in type 2 diabetes
R. Malik, S. Ghosh, R. Emral, R. Malek, L. Zeng, Y. Huang, M.A. Mabunay, W. Landgraf, P. Guyot, E. Schenk, D. Pushkarna, R. Ritzel, Qatar, India, Turkey, Algeria, China, Singapore, Germany, France, Canada

646 Three types of technology for insulin delivery and their effects on glycaemic related outcomes in patients with type 1 diabetes
L.B. Pedersen, N. Drøjdahl-Ryg, C.B. Juhl, K. Schousboe, Denmark

647 Hypoglycaemia frequency and physiological response to double or triple doses of once-weekly insulin icodec versus once-daily insulin glargine in type 2 diabetes

648 Glycaemic control in people with type 2 diabetes (T2D) switching from NPH to insulin glargine 300 U/mL (Gla-300):
REALI pooled database
D. Müller-Wieland, N. Freemantle, R. Bonadonna, C. Mauquoi, G. Bigot, M. Bonnemaire, P. Gourdy, D. Mauricio, Germany, UK, Italy, Belgium, France, Spain

649 Once weekly basal insulin Fc demonstrated similar glycaemic control to once daily insulin degludec in insulin-naïve patients with type 2 diabetes

Short Oral Discussions Event C Wednesday, 12:00 - 13:00

SO 51 Even “old dogs” can learn new tricks
Chair: D. Rahelic, Croatia

650 Efficacy of therapeutic patient education interventions in metabolic disorders: a systematic review and meta-analysis
J.C. Correia, A. Waqas, K. Gariani, F.R. Jornayvaz, Z. Pataky, Switzerland, UK

651 Patients find online education programmes helpful, but many feel they learn more from face to face programmes
R. Asir, N. Burt, E. Waite, K.D. Ganapathy, P. Narendran, R.C. Andrews, UK
652 What are people’s preferences for the ‘choice talk’ in the diabetes treatment decision-making process?
A. Tichler, D.F. Hertroijs, M.C. Brouwers, D. Ruwaard, M.J. Hiligsmann, J.D. De Jong, A.M. Elissen, Netherlands

653 Comprehensive diabetes education in care homes: 1 year analysis of impact from the CARES diabetes in care homes national programme
A. Puttanna, J. Ridgeway, L. Willcocks, S. Gregory, L. Heggs, UK

654 Legacy effects of sleep education programme in people with type 2 diabetes and short sleep duration: a prospective follow-up study
J. Cheung, K. Woo, R. Cheung, M. Lee, E. Lau, C. Chiu, E. Chow, A. Luk, R. Ma, J. Chan, Y. Wing, A. Kong, Hong Kong

655 The importance of education for diabetes control in patients with type 1 diabetes using intermittently scanned continuous glucose monitoring

656 Resources used by HCPs to educate PWD about TIR
A. Sommi, N. Sainz, E. Asamoa, E. Shoger, R. Wood, C. Alexander, USA

657 Healthcare professionals’ knowledge, usage, and attitudes towards the use of time in range in diabetes management: an online survey across seven countries
A.Y. Cheng, A. Ginovker, T.B. Christensen, U.R. Patted, Y.M. Kothawade, C. De Block, Canada, USA, Denmark, India, Belgium

**Short Oral Discussions Event D  Wednesday, 13:15 - 14:15**

**SO 52  Money isn’t everything?**
*Chair:* N. Sattar, United Kingdom

658 Speed of recovery of testing for management of diabetes in the aftermath of COVID-19 is slower in areas of greater social deprivation: findings from a UK study
D. Holland, A. Heald, F. Hanna, P. Wu, A. Fryer, UK

659 Direct and indirect costs of peripheral artery disease in type 2 diabetes: a matched case-control study
660 Early death and loss of life expectancy years in type 2 diabetes are linked to the effective management of health comorbidities
M. Whyte, M. Stedman, A.H. Heald, I. Laing, UK

661 Socioeconomic status and metabolic control in Swedish children with type 1 diabetes
O. Pekkari, J. Ludvigsson, K. Åkesson, Sweden

662 Early death and loss of life expectancy years in type 2 diabetes are linked to local population demographics and lifestyle
M. Stedman, A.H. Heald, M. Whyte, UK

663 Direct and indirect costs of atherosclerotic CVD in type 2 diabetes: a matched case-control study in 160,000 individuals

664 Cumulative cardiovascular or renal disease (CVRD) hospital costs for type 2 diabetics free of CVRD at baseline: a 5-year cohort study in the SNDS nationwide claims database

665 Real world healthcare costs among patients using self-monitoring blood glucose compared to continuous glucose monitoring in non-intensively treated type 2 diabetes
F. Giorgino, E. Repetto, J. Rötschke, E. Acmet, G. Bergman, R. Maroun, A. Wu, I. Duncan, D. Kerr, Italy, USA, Germany, Netherlands, Switzerland

666 Smart insulin pen caps versus standard of care: a Canadian cost-effectiveness analysis
K. Quansah, K. Hansen, K. Chan, S. Muratov, S. Khoudigian, M. Lamotte, Canada, Belgium

Short Oral Discussions Event E Thursday, 12:00 - 13:00

SO 53 Pumping, looping, freeing
Chair: TBA

667 Predictors of time in target glucose range in real-world users of the MiniMed™ 780G system
J. Castaneda, A. Arrieta, T. Van den Heuvel, O. Cohen, Netherlands, Switzerland
668 New ex-vivo method to assess subcutaneous absorption events during basal administration through pump: proof of concept

669 Recently diagnosed with type 1 diabetes: glycaemic outcomes with the Omnipod® 5 Automated Insulin Delivery System

670 Glycaemic outcomes over 15 months in people with type 1 diabetes with the Omnipod® 5 Automated Insulin Delivery System
A. Criego, A.L. Carlson, T.T. Ly, Omnipod 5 Research Group, USA

671 Advanced hybrid closed-loop system rapidly achieves and maintains good glycaemic control in type 1 diabetes adults despite of previous treatment
C. Quiros, A.-C. Nuria, R. Silvia, P. Verónica, Spain

672 Comparison of hybrid closed-loop systems, AndroidAPS and Control-IQ in patients with type 1 diabetes: the CODIAC study
D.Q. Dat, A. Hásková, L. Radovnická, E. Horová, G. Grunberger, C.G. Parkin, M. Prázný, J. Šoupal, Czech Republic, USA

673 Exploring characteristics and real-world experiences using the software updatable t:slim X2 insulin pump in people with diabetes living with disabilities
H. Singh, G. Alencar, M. Manning, H. Sanchez, S. Habif, USA

674 Differences in the efficacy of an advanced hybrid closed-loop system in type 1 diabetes subjects with previous pump therapy experience compared to MDI
P.I. Beato-Vibora, A. Ambrojo-López, M. Fernández-Bueso, E. Gil-Poch, I. Martín-Romo, F.J. Arroyo-Díez, Spain
Short Oral Discussions Event F  Thursday, 13:15 - 14:15

SO 54  Making sense out of sensors and data
Chair:  A. Janez, Slovenia

675 Patient-reported outcome measures during the first year at a virtual clinic for type 1 diabetes
O. Tamir, T. Kolobov, E. Tarshish, R. Nissanholtz-Gannot, Israel

676 A pragmatic health informatics systems approach for aiding clinical prioritisation in a hospital based cohort of 4013 people with diabetes

677 Efficacy and safety of an open-source automated insulin delivery system over 48 weeks of use in the CREATE randomised controlled trial

678 Perceived benefits of TIR varies between patient CGM users vs HCPs
N. Sainz, A. Sommi, E. Asamo, E. Shoger, R. Wood, C. Alexander, USA

679 Introduction of isCGM with glucose alarms to regular isCGM users under real-life conditions: What is the benefit?
D.A. Hochfellner, P.M. Baumann, A.K. Reinhard, J.K. Mader, Austria

680 Continuous glucose monitoring metrics and pregnancy outcomes in insulin treated diabetes: a post-hoc analysis of the GlucoMOMS trial
A. Van der Wel, D. Rademaker, R. Van Eekelen, GlucoMOMS Study Group, I. Evers, A. Franx, S. Siegelaar, B. Van Rijn, H. DeVries, R. Painter, Netherlands

681 Comparison between duration and nadir of symptomatic and asymptomatic sensor-detected hypoglycaemia in people with type 1 diabetes

682 Glycaemic control using intermittently scanned CGM in severe COVID-19 patients with diabetes requiring methylprednisolone therapy: a retrospective observational study
M. Uchihara, N. Kodani, R. Bouchi, S. Saito, Y. Miyazato, N. Ihana-Sugiyama, M. Ohsugi, A. Tanabe, K. Ueki, M. Hojo, H. Kajio, Japan
**Short Oral Discussions Event A**  
**Tuesday, 11:45 - 12:45**

**SO 55  From low to high and back: the many faces of insulin therapy**

*Chair:* S.A. Paschou, Greece

683 **Comparing the rates and duration of sensor detected hypoglycaemia and patient reported hypoglycaemia based on diabetes type and awareness status:** Hypo-METRICS trial  

684 **Indirect Treatment Comparison (ITC) of three ready-to-use glucagon treatments for severe hypoglycaemia:** nasal glucagon, glucagon injection, and dasiglucagon injection  
M. Giménez, K. Khunti, K. Syring, L. Baker, S. Chenji, R. Threlkeld, Y. Yan, M. Matsuhisa, Spain, UK, USA, Japan

685 **Incretin hormone and glucoregulatory responses to nutrients in individuals with and without post-bariatric hypoglycaemia: a systematic review**  

686 **Predictive value of fasting C-peptide levels and continuous glucose monitoring-defined coefficient of variation for hypoglycaemia in each stage of chronic kidney disease**  
S. Kwon, J. Park, S. Cho, S. Park, Y.-B. Lee, G. Kim, K. Hur, J. Kim, S.-M. Jin, Republic of Korea

687 **Adjustment of insulin Degludec to Reduce post-Exercise (nocturnal) hypoglycaemia in people with diabetes:** the ADREM study  

688 **Glycaemic control with Ultra Rapid Lispro (URLi) vs lispro in children and adolescents with type 1 diabetes:** PRONTO-Peds  
D.R. Franco, R. Wadwa, L.M. Laffel, M.A. Dellva, R.K. Pollom, Brazil, USA

689 **Titration patterns of insulin glargine 300 U/mL in insulin-naive people with type 2 diabetes and clinical outcomes:** a subgroup analysis of ATOS study  
A. Tirosh, A. Singh, H. Vargas-Uricoechea, M.A. Mabunay, G. Bigot, M. Naqvi, G. Galstyan, Israel, India, Colombia, Singapore, France, Russian Federation
690 Early deescalation with IDegLira in patients with type 2 diabetes using short-term intensive insulin therapy to correct severe hyperglycaemia

**Short Oral Discussions Event B**

**Tuesday, 13:00 - 14:00**

**SO 56**  **Diversity of life with diabetes**

*Chair:* K. Strojek, Poland

691 Impact of the first COVID-19 wave in the Netherlands on glycaemic control in persons with type 2 diabetes

692 Depression in type 1 diabetes and type 2 diabetes: linking patient experience with clinical records

693 Effects on metabolic control and body composition of insulin therapy optimisation in patients with Cystic Fibrosis Related Diabetes (CFRD)
V. Grancini, L. Porcaro, A. Gaglio, V. Resi, L. Giarratana, E. Orsi, Italy

694 Retrospective analysis of daily basal bolus insulin requirement in people with type 2 diabetes in non-ICU care
S. Krishnamoorthy, L. Balakrishnan, A. Ravi, India

695 Burden of hypoglycaemia and impaired awareness of hypoglycaemia in people with diabetes on peritoneal dialysis
H. Eid, M. Onyema, S. Haboosh, J. Dick, D. Moutzouris, P. Vas, N. Paray, J. Williams, J. Karalliedde, UK

696 The impact of fasting Ramadan on glycaemic indices in people with type 1 diabetes using flash glucose monitoring: an observational study
E.Y. Alyusuf, A. Alrajeh, M.E. Al-Sofiani, A.M. Alguwaihes, Saudi Arabia

697 Empathy and linguistics in digital health interactions to prevent gestational diabetes in women at risk: a pilot study
E. Rey Velasco, H. Sæderup Pedersen, T.C. Skinner, Denmark
698 Correlation between the regression of microalbuminuria, blood pressure reduction and remission of type 2 diabetes: results of six month RCCT with whole-body digital twin technology

**Short Oral Discussions Event C  Wednesday, 12:00 - 13:00**

**SO 57  Type 1 diabetes: still the challenge number one**
*Chair:* B. Mankovsky, Ukraine

699 Effect of 24 months of optimised glucose control on residual C-peptide secretion in youth with new onset type 1 diabetes
J. Ware, C.K. Boughton, J.M. Allen, M.E. Wilinska, A. Thankamony, T. Randell, A. Ghatak, R.E. Besser, D. Elleri, N. Trevelyan, F.M. Campbell, R. Bailey, G. Dunseath, R. Hovorka, on behalf of the CLOuD Consortium, UK, USA

700 Sociodemographic differences in physical activity in people with type 1 diabetes
S. Elton Sander, S. Molsted, S. Caunt, E. Søndergaard, R.F. Johansen, S. Heller, P.L. Kristensen, Denmark, UK

701 Which patient-reported outcomes should be measured in routine diabetes care?

702 Continuous monitoring in-vivo with an islet-based microfluidic biosensor
M. Raoux, E. Puginier, A. Pirog, F. Poulletier de Gannes, J. Gaitan, A. Hurtier, M. Monchablon, J. Cieslak, S. Renaud, J. Lang, France

703 Development of non-invasive saliva glucose measuring device (D-SaLife) and clinical evaluation according to ISO 15197:2013 criteria
K. Han, I.-S. Jang, M.-S. Kwon, J.-W. Kye, E. Shim, D.-C. Kim, K. Min, Republic of Korea
704 Cognitive assessment in elderly with type 1 diabetes on insulin pump: a cross-sectional observational study

705 Reduction of basal insulin to prevent exercise induced hypoglycaemia during two types of exercise in adults and adolescents with type 1 diabetes using insulin pump therapy
J. Molveau, É. Myette-Côté, S. Tagougui, C. Suppère, E. Heyman, V. Messier, L. Legault, R. Rabasa-Lhoret, Canada, France

706 Efficacy and safety of ultra-rapid lispro compared to insulin lispro in adults with type 1 diabetes
Z. Zhou, J. Ma, T. Lei, Z. An, Y. Xue, F.P. Manghi, P. Garcia, J. Xu, Y. Yuan, X. Yan, China, Argentina, Mexico, USA

Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 58  Autonomic rhythm
Chair:  G. Rayman, United Kingdom

707 Prevalence of peripheral and cardiovascular autonomic neuropathy in Greenlanders with diabetes and prediabetes based on national normative reference data
M.M. Christensen, C.S. Hansen, D. Vistisen, J. Fleischer, D.R. Witte, M.E. Jørgensen, Denmark, Greenland

708 Diabetic cardiovascular autonomic neuropathy: link between arterial stiffness, insulin resistance, melatonin and some vasoactive peptides
V.A. Serhiyenko, V.B. Segin, A.A. Serhiyenko, L.M. Serhiyenko, Ukraine

709 Collagen turnover is associated with cardiovascular autonomic and peripheral neuropathy in type 1 diabetes: Novel pathophysiological mechanism?

710 Inflammatory markers and cardiovascular autonomic neuropathy in type 1 diabetes
711 Visceral adiposity is associated with autonomic dysfunction in adults with autoimmune diabetes
E. Maddaloni, M. Watanabe, R. Cassano Cassano, D. Masi, R. Amendolara, S. Sterpetti, L. D’Onofrio, C. Moretti, A. Siena, L. Gnessi, R. Buzzetti, Italy

712 Association of premature ejaculation with diabetic peripheral neuropathy among patients with type 2 diabetes attending at a tertiary level hospital of Bangladesh
M. Ahmed, F. Yasmin, A. Morshed, T. Islam, Bangladesh

713 Co-existence of peripheral and autonomic neuropathy in type 1 diabetes with and without pain
C.D. Morch, J. Roeikjer, S. Santhiapillai Croosu, T.M. Hansen, J.B. Frøkjaer, C. Brock, N. Ejskjæer, Denmark

Short Oral Discussions Event E    Thursday, 12:00 - 13:00

SO 59   Getting a grip on nerves
Chair:    D. Selvarajah, UK

714 Retinal neurodegeneration as a marker of diabetic peripheral neuropathy and cognitive impairment in type 2 diabetes
F. Picconi, M. Menduni, A. Maiorino, M. Parravano, B. Russo, N. Lois, R. Simo’ Canonge, S. Frontoni, Italy, Ireland, Spain

715 Serum 25-hydroxyvitamin D levels in relation to the risk of peripheral neuropathy in Chinese patients with type 2 diabetes
Y. Yang, J. Wang, Y. Ding, L. Zhang, China

716 Periodic fasting might delay progression of thermal hypoalgesia in patients with type 2 diabetes and diabetic neuropathy
E. Von Rauchhaupt, S. Kopf, Z. Kender, V. Longo, P.P. Nawroth, J. Szendroedi, A. Sulaj, Germany, USA, Italy

717 Sciatic nerve fractional anisotropy and neurofilament light chain protein are related to sensorimotor deficit of the upper and lower limbs in patients with type 2 diabetes
718 Dynamic contrast enhanced MRI reveals adverse effects of glucose control on perfusion of the sciatic nerve in type 2 diabetes patients with and without diabetic polyneuropathy

719 Circulating metabolites associated with diabetic sensorimotor peripheral neuropathy among individuals with type 1 diabetes

720 Perception threshold tracking: a novel methods for assessing the function of large and small nerve fibers in diabetic peripheral neuropathy
J. Røikjer, S.S. Croosu, J.B. Frøkjær, T.M. Hansen, N. Ejskjaer, C.D. Mørch, Denmark

Short Oral Discussions Event F  Thursday, 13:15 - 14:15

SO 60  Preparing microvascular complications
Chair: R. Simo, Spain

721 Safe and efficient 2-year screening intervals allocated by manual and automated grading in nationwide diabetic retinopathy screening
A.D. Fleming, J. Mellor, W. Jiang, A. Storkey, C.J. Styles, P.M. McKeigue, H.M. Colhoun, UK

722 The use of the IDx-DR software as a simple screening tool for the detection of diabetic retinopathy in patients at the diabetes outpatient clinic
S. Huber, V. Parzer, A. Pollreisz, B. Ludvik, J. Brix, Austria

723 Screening of diabetic retinopathy with Aireen medical device: high sensitivity and agreement with ophthalmologists
M. Prázný, M. Slíva, T. Humel, J. Bayer, M. Šín, R. Ženíšková, D. Fillová, L. Valešová, J. Hlaváček, Czech Republic

724 Why has the incidence of certifications for sight and severe sight impairment due to diabetic retinopathy increased in Wales: Could the National Diabetes Audit hold the key?
725 How a simple clinical scoring system complements COMPASS 31 questionnaire in predicting cardiovascular autonomic neuropathy in type 1 and type 2 diabetes
I. D’Ippolito, M. Menduni, C. D’Amato, C. Greco, M. Leoni, D. Lauro, V. Spallone, Italy

726 Quantitative sensory testing may identify clinical phenotypes with high risk of progression to sensory loss in diabetic neuropathy
D. Tsilingiris, L. Schimpfle, A. Sulaj, E. Von Rauchhaupt, P. Nawroth, J. Szendroedi, S. Kopf, Z. Kender, Germany

727 Minimal resource pre-screening tools for chronic kidney disease in people with type 2 diabetes: a global validation study
R. Sisk, C. Sammut-Powell, J. Budd, R. Cameron, M. Edge, E. Vazquez-Mendez, A. Bedenkov, H. Vasnawala, S.B. Goncalves, UK, Mexico, India, Argentina

Short Oral Discussions Event A Tuesday, 11:45 - 12:45

SO 61 Saving the feet

Chair: N. Papanas, Greece

728 Temporal trends in major, minor and recurrent lower extremity amputations in Belgium from 2009 to 2018

729 Mortality rates after lower extremity amputation in Belgium from 2009 to 2018

730 The association between mortality and use of SGLT-2 inhibitor and GLP-1 receptor agonists younger people with type 2 diabetes and a first PAD diagnosis between 2016 and 2020
E. Uddman, S. Puvaralingam, K. Filipsson, M. Löndahl, Sweden

731 The effectiveness of an affordable Toa Uzito (offloading) device for improving diabetic foot ulcer in the developing world
Z.G. Abbas, J.K. Lutale, L.K. Archibald, Tanzania, United Republic of, USA
732 Exploring MMP9 as a prognostic marker in post debridement wound fluid of diabetes related foot ulcers, and the possibility of a point-of-care test
M.S. Longfield, V. Nube, J.M. White, S.V. McLennan, P. Boughton, D. Min, S.M. Twigg, Australia

733 Effect of human amniotic membrane on umbilical vein endothelial cells of gestational diabetic mothers: new insight in wound healing and diabetic foot ulcer

734 Proteomic signature reveals potential diagnostic biomarkers for chronic diabetic foot ulcerations

735 Nomogram model for predicting the risk of sepsis in diabetic foot patients
P. Huang, X. Zhao, Y. Gu, China

Short Oral Discussions Event B Tuesday, 13:00 - 14:00

SO 62 Brain, nerve, and heart interaction
Chair: R. Pop-Busui, United States

736 Functional brain alterations in regions involved in sensory processing in diabetic peripheral neuropathy and neuropathic pain
S.S. Croosu, J. Røikjer, C.D. Mørch, N. Ejskjaer, J.B. Frøkjær, T.M. Hansen, Denmark

737 Identification of painful diabetic neuropathy subtypes from functional connectivity resting state MRI patterns: a novel data driven machine learning approach

738 Mood disorders are related to thalamic H1-MRS metabolite parameters in type 1 diabetes
M. Greig, G. Sloan, P.R. Shillo, D. Selvarajah, I.D. Wilkinson, S. Tesfaye, UK
739 HMGB1 inhibition protects Schwann cells from high glucose-induced cytotoxicity
M. Shi, J. Song, X. Zheng, Y. Chen, W. Gu, H. Zhang, China

740 Arterial baroreflex vs vascular blood pressure buffering mechanism, potential implication to treat unstable hypertension in diabetes
J. Gmitrov, Slovakia, Japan

741 Impact of reduced eGFR, high HbA1c and cardiovascular disease on mortality in people with Charcot foot
J. Schoug, P. Katzman, M. Löndahl, Sweden

**Short Oral Discussions Event C  Wednesday, 12:00 - 13:00**

**SO 63  Diversity of the diabetic kidney**

*Chair:* E. Bezerra Parente, Finland

742 Chronic kidney disease in a contemporary nationwide register of patients with and without type 2 diabetes

743 Relationship between genetic risk scores for type 2 diabetes and kidney function and adverse diabetes outcomes
L. Pacal, D. Galuška, K. Chalásová, J.A. Hubáček, V. Lánská, K. Kaňková, Czech Republic

744 Trajectories of estimated glomerular filtration rate and their association with ethnicity and the risk of progression of chronic kidney disease in people with type 1 diabetes

745 The inflection point of the estimated glomerular filtration rate is higher in people with an increasing to decreasing trend than in people with different trends
S. Katoh, K. Yokoyama, M. Zeniya, Y. Sakamoto, K. Utsunomiya, R. Nishimura, Japan

746 Concurrence of diabetic kidney disease and metabolic dysfunction-associated fatty liver disease is associated with heart failure
K.-A. Kim, J. Yoo, S. Lee, H. Choi, K. Han, Republic of Korea
747 Association of microvascular complications with death in patients with diabetes and COVID-19: international effort -CORONADO, ABCD-COVID19, AMERICADO studies
S. Hadjadj, P.-J. Saulnier, Y. Ruan, X. Zhu, R. Rea, P. Gourdy, B. Cariou, A. Myers, K. Khunti, for the CORONADO, the ABCD COVID-19 diabetes national audit and AMERICADO investigators, France, UK, USA

748 Glucose and c-peptide peak times are associated with chronic complications in patients with type 2 diabetes
Y.Q. Jiang, X.L. Wang, X.Q. Zhao, Y. Sun, P. Huang, S.H. Ji, R.Y. Hu, Y.J. Gu, China

749 Kidney biopsy in patients with diabetes and nephrotic range-proteinuria; clinical value and correlation with clinical and laboratory findings
T. Stratigou, E. Kardalas, A. Paikopoulou, D.A. Vassiliadi, G. Ioannidis, C. Christodoulidou, S. Tsagarakis, Greece

Short Oral Discussions Event D Wednesday, 13:15 - 14:15

SO 64 New treatment avenues for the diabetic kidney
Chair: L. Thorn, Finland

750 Albuminuria lowering effect of dapagliflozin, exenatide and their combination in patients with type 2 diabetes: a randomised cross-over clinical trial

751 Design of the COmbinatioN effect of Flnerenone anD EmpaglifloziN in participants with chronic kidney disease and type 2 diabetes using an UACR Endpoint study (CONFIDENCE)

752 Optimisation of albuminuria lowering treatment by cross-over rotation to four different drug classes
753 Post approval, observational, concurrent study to assess clinical effectiveness and safety of dapagliflozin in diabetic kidney disease: INTENSE - DAPA study
K. Korukonda, India

754 Anserine is a H$_2$S releasing molecule and therefore a therapeutic agent in diabetic nephropathy
C. Wetzel, T. Pfeffer, J. Zemva, R. Bulkescher, K. Klingbeil, C.P. Schmitt, V. Peters, Germany

755 Therapeutic blocking of NPRC, a podocyte - expressed target, is kidney protective in diabetic nephropathy
D. Dabaghie, E. Charrin, M. Lal, J. Patrakka, Sweden

756 Effect of dapagliflozin on arterial stiffness and biomarkers of arterial ageing in people with type 2 diabetes and kidney disease
D. Stathi, N. Fountoulakis, M. Flaquer, A. Corcillo, A. Panagiotou, A. Mangelis, S. Ayis, L. Gnudi, J. Karalliedde, UK

757 Beneficial effects on metabolic disorders by a long-acting glucagon analogue, HM15136, in pre-clinical models
J. Lee, S. Lee, J. Kim, E. Park, J. Lee, D. Kim, S. Bae, S. Lee, I. Choi, Republic of Korea

Short Oral Discussions Event E    Thursday, 12:00 - 13:00

SO 65  Translating signals in the diabetic kidney

Chair: F. Persson, Denmark

758 Reduced mitochondrial DNA copy number (mtDNA-CN) in type 1 diabetes and kidney damage and correlates thereof and mtDNA-CN changes over time
A.S. Januszewski, L.M. Carroll, Y. Wen-Loh, M.L. Huang, D.N. O'Neal, A.J. Jenkins, Australia

759 Urinary long noncoding RNA to differentiate diabetic kidney disease (DKD) from non-diabetic kidney disease (NDKD)
M. Basu, S. Neogi, P. Mukhopadhyay, N.P. Bhattacharyya, A. Raychaudhury, S. Ghosh, India

760 Renal carnosine and anserine concentrations protect against diabetes induced renal interstitial fibrosis and oxidative stress
761 Association between plasma hypoxanthine and diabetic kidney disease (DKD) in a Japanese population
M. Yamamoto, S. Harada, T. Okamura, K. Fujihara, S. Kodama, T. Yamada, H. Sone, T. Takebayashi, Japan

762 Advanced glycation endproducts in chronic kidney disease in subjects with and without diabetes: AGEs highly responsive to renal function decline and diabetes
N. Rabbani, S. Panagiotopoulos, R.J. Maclsaac, D. Yue, G.R. Fulcher, M.A. Roberts, E. Ekinci, P.J. Thornalley, Qatar, Australia

763 Use of spot urine urea nitrogen to estimate protein intake in patients with diabetic chronic kidney disease

764 Standards of diabetes care in people with diabetes on peritoneal dialysis: an audit at three large university hospital foundation trusts
M. Onyema, H. Eid, N.B. Paray, J. Dick, D. Moutzouris, J. Williams, P. Vas, J. Karalliedde, UK

**Short Oral Discussions Event F Thursday, 13:15 - 14:15**

**SO 66  Mechanisms of diabetic kidney disease**

*Chair:* R.J.M. Coward, UK

765 System\(\chi_{c}\)-overexpression protects renal tubular epithelial cells from oxidative damage by GSH depletion
S. Yoo, M. Kim, J. Bae, J. Choi, J. Bang, H. Chin, G. Koh, Republic of Korea

766 Tunneling nanotubes-mediated lysosome transfer protects podocytes from diabetes-induced injury
F. Barutta, S. Bellini, I. Gesmundo, G. Togliatto, G. Gruden, Italy

767 Accumulation of trimethylamine N-oxide in renal tissue induces mitochondrial dysfunction in insulin-resistant mice
M. Videja, M. Makrecka-Kuka, S. Korzh, E. Sevostjanovs, H. Cirule, E. Liepinsh, M. Dambrova, Latvia

768 Changes in body composition after kidney-pancreas transplantation and its association with 25-OH vitamin D3 in type 1 diabetes
E.B. Parente, S. Mutter, C. Forsblom, V. Harjutsalo, P.-H. Groop, on behalf of the FinnDiane Study Group, Finland
769 Up-regulation of dopamine β-hydroxylase and phenylethanolamine N-methyltransferase by intermittent hypoxia via down-regulation of microRNA-375 in neuronal cells

770 Alternative splicing of the apoptosis gene Bcl-x in diabetic nephropathy
S. Oltean, M. Ayine, M. Stevens, UK

771 Pegph20 attenuates hyaluronan-CD44 mediated renal injury in obesity related glomerulopathy
B. Qi, V. Musale, K. Li, China, UK

772 Functional and morphological renal changes in a Göttingen Minipig model of obesity-related and diabetic nephropathy

Short Oral Discussions Event A  Tuesday, 11:45 - 12:45

SO 67  Flames and scars in NAFLD: pathogenesis and therapy
Chair: R.M. De Oliveira, Portugal

773 The diversity of macrophages and their role during non alcoholic fatty liver disease
R. Thibaut, L. Orliaguet, T. Ejlalmanesh, M. Diedisheim, R. Ballaire, H. Fohrer-Ting, C. Klein, N. Venteclef, F. Alzaid, France

774 Sexually dimorphic metabolic response to an obesogenic diet according to the amino acid source in mice

775 Inflammation may prevent hepatocyte damage promoted by steatosis
G. Perrot, C. Ardon-Zitoun, A. Lang, G. Mithieux, F. Rajas, France
776 Hepatocyte-specific CCN1 gene deletion exacerbates the severity of NASH fibrosis in an established mouse model of high fat feeding and diabetes
S.N. Parry, X. Wang, D. Min, M. Huang, P.F. Williams, A. Leask, S.M. Twigg, Australia, Canada

777 Elevated fibrosis in non-diabetic obese individuals: comparison of liver fibrosis measured by magnetic resonance imaging
A. Askeland, M. Gjela, R.W. Rasmussen, K. Højlund, M. Mellergaard, J.B. Frøkjær, A. Handberg, Denmark

778 Anti-inflammatory and anti-fibrotic effects of a novel long-acting Glucagon/GIP/GLP-1 triple agonist, HM15211, in TAA induced mouse model of liver injury and fibrosis
J. Kim, J. Lee, Y. Kim, S. Lee, H. Kwon, E. Park, J. Choi, S. Bae, D. Kim, S. Lee, I. Choi, Republic of Korea

779 Anti-fibrotic potential of a novel long-acting GLP-1/GCG/FGF21/IL-1RA tetra-specific drug (OGB21502) in preclinical mice models
M. Hwang, J. Kim, N. Chang, M. Kim, Y. Kim, D. Im, S. Park, Republic of Korea

780 The association between changes in fatty liver index and BARD score with cardiovascular disease and mortality in patients with new-onset type 2 diabetes
J. Park, G. Kim, B.-S. Kim, K.-D. Han, S. Kwon, S. Park, Y.-B. Lee, S.-M. Jin, J.-H. Kim, Republic of Korea

Short Oral Discussions Event B Tuesday, 13:00 - 14:00

SO 68 From brain circulation to cognitive dysfunction
Chair: J. Rungby, Denmark

781 Inhibition of NLRP3 ameliorates lipid accumulation in diabetic-associated cognitive dysfunction
W. Zhu, T. Niu, T. Li, H. Zhang, S. Wang, China

782 Cardio-metabolic factors and risk of dementia in people with type 2 diabetes in England: a large retrospective cohort study
783 Insulin resistance and systemic low-grade inflammation reduce risk of developing dementia in a nationwide cohort study of type 2 diabetes patients
J.S. Nielsen, N.J. Jensen, L.W. Christensen, H.T. Sørensen, K. Højlund, R.W. Thomsen, J. Rungby, Denmark

784 Retinal microperimetry: a useful tool to predict and monitor the cognitive decline in patients with type 2 diabetes >65 years: a 3 years follow-up study
A. Ciudin, A. Ortiz-Zuñiga, J. Vasquez-de Sebastian, C. Tejero, O. Simó-Servat, C. Hernandez, R. Simó, Spain

785 Type 2 diabetes and mood, anxiety and stress-related disorders: a genetically informative register-based cohort study

786 Polygenic risk of type 2 diabetes is associated with vascular dementia but not Alzheimer’s disease

787 Cerebral microcirculation and cerebrovascular reactivity in type 2 diabetes and obesity, influence of haptoglobin polymorphism

788 Prevalence of cognitive impairment, functional impairment and paroxysmal atrial fibrillation among middle-aged patients with diabetes
C.M. Khoo, K. Htike, A.M. Reshma, Y.H. Eric, C.S. Raymond, Y. Dong, Y.Y. Dan, Singapore

789 High-mobility group box 1 protein mediates the cross-talk between neuron and microglia results from advanced glycation end products in diabetic mice with neuroinflammation
H. Zhang, Z. Zhang, W. Zhu, T. Niu, China
Short Oral Discussions Event C  Wednesday, 12:00 - 13:00

SO 69  Type 1 diabetes: new findings and complications
Chair: R.I.G. Holt, UK

790 Exercise-related hypoglycaemia induces hypercoagulable changes in patients with type 1 diabetes

791 Increased incidence of neurodegenerative diseases in Finnish individuals with type 1 diabetes

792 Masp-2 deficiency and the development of diabetic kidney disease in a mouse model of type 1 diabetes
C.B. Holt, L. Halkjaer, T. Dudler, W.J. Schwaeble, T.K. Hansen, S. Thiel, J.A. Østergaard, Denmark, USA, UK

793 Non-alcoholic fatty liver disease and type 1 diabetes

794 Evaluation of deep learning prediction models for cardiovascular risk prediction using fundus images from the Scottish Diabetic Retinopathy Screening programme
J. Mellor, W. Jiang, A.D. Fleming, C.J. Styles, A. Storkey, P.M. McKeigue, H.M. Colhoun, Scottish Diabetes Research Network Epidemiology Group, UK

795 The contribution of insulin resistance and glycaemia on fibrin related clot parameters in young adults with type 1 diabetes
S.M. Pearson, N. Kietsiriroje, R.C. Sagar, M.D. Campbell, D.D. Stocken, S. Plein, R.A. Ajjan, UK

796 Sustained QT prolongation 60-min post hypoglycaemic recovery in patients with type 1 diabetes
797 The presence and extent of microvascular disease is independently associated with subclinical atherosclerosis in patients with type 1 diabetes
A. Barmpagianni, A. Kountouri, V. Lambadiari, S. Liatis, Greece

Short Oral Discussions Event D  Wednesday, 13:15 - 14:15

SO 70  Circulating markers of cardiovascular risk

Chair: M. Brouwers, Netherlands

798 Long-chain polyphosphates cause a distinct kidney injury phenotype and exacerbate LPS-induced acute kidney injury in mouse
A. Pirttiniemi, H. Salmenkari, J. Lindén, K. Adeshara, S. Lehtonen, P.-H. Groop, M. Lehto, Finland, Australia

799 Increase in specific ceramides associate to heart and kidney outcomes in type 1 diabetes

800 Plasma mannose and a first myocardial infarction: associations according to glycaemic state
E. Fortin, G. Ferrannini, B. Campi, L. Mellbin, A. Norhammar, P. Näslman, A. Saba, E. Ferrannini, L. Rydén, Sweden, Italy

801 Liver function markers predict cardiovascular and renal outcomes in the CANVAS Program
E. Ferrannini, G. Ferrannini, N. Rosenthal, M.K. Hansen, Italy, Sweden, USA

802 Therapeutic potential of Crispr/Cas-9 gene edited apolipoprotein B-null cells and insulin signalling in lipoprotein metabolism
Q. Su, H. Wade, UK

803 Leptin correlates with pulse wave velocity independently of BMI, inflammation, home blood pressure and HbA\textsubscript{1c} in both men and women in a large population-based cohort
C. Vavruch, C. Östgren, J. Engvall, F.H. Nyström, L. Jonasson, Sweden

804 Low-density lipoprotein-cholesterol levels in migrants and native Danes with type 2 diabetes
A.A. Isaksen, A. Sandbæk, M.V. Skriver, G.S. Andersen, L. Bjerg, Denmark
805 Serum sphingolipidomic profile and high density lipoprotein subfractions in obese dyslipidaemic type 2 diabetic patients
M. Aslan, I. Aslan, D. Aydın, Y. Koca, Ç. Yılmaz, T. Çeker, A. Öztüzün, Turkey

**Short Oral Discussions Event E**  
**Thursday, 12:00 - 13:00**

**SO 71  Prevention and treatment of cardiovascular complications**

*Chair:* C.D.A. Stehouwer, Netherlands

**806 Risk of stroke in patients with type 2 diabetes receiving semaglutide or a dipeptidyl peptidase-4 inhibitor: a real-world US claims database analysis**
M. Evans, M. Husain, O. Frenkel, K. Mangla, A. Srivastava, I. Lingvay, UK, Canada, Denmark, India, USA

**807 Synergistic effects of combination treatment with semaglutide and empagliflozin on 24h and central blood pressure in type 2 diabetes**
L. Vernstrøm, S. Gullaksen, K.L. Funck, E. Laugesen, P.L. Poulsen, Denmark

**808 Lesser improvement of physical activity after a cardiac rehabilitation program in patients at risk of diabetes or increased artery stiffness**
P. Valensi, M. Nguyen, M. Duval, M. Sylva, G. Amah, N. Chaib, S. Gagey, C. Guiti, K. Abdennbi, France

**809 Calcitriol treatment does not improve left ventricular hypertrophy in patients with type 2 diabetes and stage 3 CKD: results of a randomised controlled trial**

**810 Four months treatment with dapagliflozin or dulaglutide improves cardiovascular function in patients with type 2 diabetes and ischaemic stroke**

**811 Using CVD risk scores to select between GLP-1RA or SGLT2i therapy in type 2 diabetes: modelling the combined effects on both major atherosclerotic and heart failure events**
J.W. Sacre, D.J. Magliano, J.E. Shaw, Australia
812 Adherence to antihypertensive and lipid-lowering treatment is associated with better CVD outcomes in individuals with type 1 diabetes and moderate albuminuria
R. Lithovius, S. Mutter, E.B. Parente, V. Harjutsalo, P.-H. Groop, Finland

813 Metformin therapy is associated with higher myocardial perfusion reserve and improved survival in patients with type 2 diabetes: a multicentre study

Short Oral Discussions Event F Thursday, 13:15 - 14:15

SO 72 Diabetes dysmetabolism dialogues with the cardiovascular component
Chair: TBA

814 Oleate prevents palmitate-induced abnormalities in insulin signalling in human cardiac progenitor cells by inhibiting p38 MAPK and c-Jun phosphorylation
L. Laviola, R. D’Oria, I. Calderoni, C. Caccioppoli, V.A. Genchi, G. Santarpino, A.D. Milano, A. Leonardini, A. Natalicchio, S. Perrini, A. Cignarelli, F. Giorgino, Italy

815 The effect of methylglyoxal on the pro-angiogenic function of mouse adipose-derived stem cells (mADSCs)
A. Leone, A. Nicolò, I. Prevenzano, D. Conza, F. Fiory, P. Mirra, L. Ulianich, F. Beguinot, C. Miele, C. Negro, Italy

816 High glucose effects on PCSK9 expression in aortic VSMC: role of PCSK9 inhibitors
C. Barale, E. Melchionda, I. Russo, Italy

817 Cell-specific role of insulin in a model of restenosis under insulin sensitive and insulin resistant conditions
M. Gonzalez Medina, Z. Liu, A. Giacca, Canada

818 Chronic hyperglycaemia inhibits TCA cycle in GLUT4 overexpressing H9C2 cells
B. Stratmann, B. Eggers, Y. Mattern, T. Silva de Carvalho, K. Marcus, D. Tschoepe, Germany
819 O-glcnacylation attenuated ages-induced neuroinflammation by inhibiting nf-Kb p65/nlrp3 inflammatory signalling pathway  
T. Niu, W. Zhu, H. Zhang, S. Wang, China

820 HDL particles’ function of cholesterol efflux capacity in newly diagnosed type 1 diabetes: prospective InLipoDiab1 study  
A. Uruska, A. Rohatgi, A. Grzelka-Wozniak, S. Saldanha, J. Flotynska, A. Cieluch, A. Kaczmarek, A. Pypec, D. Zozulinska-Ziolkiewicz, Poland, USA

821 Serum metabolites and cerebral small-vessel disease in type 1 diabetes  
S. Mutter, J. Inkeri, L. Thorn, G.L. King, H. Shah, P.-H. Groop, J. Putaala, J. Martola, N. Sandholm, D. Gordin, on behalf of the FinnDiane Study Group, Finland, USA

**Short Oral Discussions Event A**  
**Tuesday, 11:45 - 12:45**

**SO 73  Diabetes in the vessels**

*Chair:* TBA

822 Endotrophin as a risk marker of complications in a type 2 diabetes cohort  

823 Mitogenic signalling pathways in valvular interstitial cells and their dependency from diabetic conditions  
J.I. Selig, F.A. Kraft, E. Adler, D.M. Ouwens, A. Lichtenberg, P. Akhyari, M. Barth, Germany

824 Dulaglutide prevents high-glucose induced endothelial senescence and the capture of microvesicles by endothelial cells  
F. Moschovaki Filippidou, N. Sbat, F. Zobairi, F. Toti, L. Kessler, France

825 High glucose concentration-induced dicarbonyl stress in human aortal endothelial cells activates the unfolded protein response and NLRP3 Inflammasome  
P. Thornalley, M. Xue, N. Rabbani, Qatar

826 Alpha-tubulin deacetylation impairs angiogenesis and induces endothelial-to-mesenchymal transition  
J. Kim, W. Ham, W. Lee, Republic of Korea
827 A six-month low-carbohydrate diet high in fat in patients with type 2 diabetes does not affect the vasodilatory reactivity of the brachial artery

828 Perivascular adipose tissue remodelling impairs vasoreactivity in thermoneutral-housed rats

829 One-year treatment with dulaglutide and dapagliflozin improves endothelial function and albuminuria compared to DPP-4 inhibitors

Short Oral Discussions Event B Tuesday, 13:00 - 14:00

SO 74 Weighing risks of cardiovascular complications
Chair: TBA

830 Assessment of skin autofluorescence association with glycated haemoglobin, cardiovascular risk markers and concomitant chronic diseases in children with type 1 diabetes
B. Mianowska, M. Jankowska, I. Pietrzak, J. Chrzanowski, J. Solek, A. Szadkowska, Poland

831 First occurred cardiovascular or renal disease (CVRD) cumulative incidence for type 2 diabetics free of CVRD at baseline: a 5-year SNDS nationwide claims database cohort study

832 The association between hemoglobin A1c and development of cardiovascular disease in males and females without diabetes at baseline: a population inception cohort study
P. Kaul, L. Chu, D.A. Dover, R.O. Yeung, D.T. Eurich, P. Senior, S. Butalia, Canada
833 Association between age at diagnosis of type 2 diabetes and cardiovascular and mortality risks: a nationwide population-based study
D. Seo, M. Kim, Y. Cho, S. Ahn, S. Hong, S. Kim, Republic of Korea

834 The added value of ECG abnormalities in predicting incident cardiovascular disease risk for people with type 2 diabetes: the Hoorn Diabetes Care System cohort

835 Cardiovascular risk factor control in patients with type 2 diabetes and coronary artery disease versus stroke
P. Balasubramanian, W. Kernan, K.N. Sheth, A.P. Ofstad, M. Mattheus, N. Marx, S.E. Inzucchi, USA, Norway, Germany

836 Deviations from the ADA/EASD treatment algorithm is associated with higher cardiovascular events and death in type 2 diabetes under routine care
M.L. Morieri, E. Longato, B. Di Camillo, G. Sparacino, A. Avogaro, G.P. Fadini, Italy

837 High levels of physical activity are associated with a reduced risk of CVD regardless of sedentary time among type 2 diabetes patients
Y. Wu, W. Wang, J. Zhao, The MiDiab Study Group, China

Short Oral Discussions Event C    Wednesday, 12:00 - 13:00

SO 75  Emerging comorbidities in diabetes: clinical associations and mechanisms

Chair: R. Thomsen, Denmark

838 Anti-fibrotic potential of a novel long-acting Glucagon/GIP/GLP-1 triple agonist (HM15211) in preclinical models of idiopathic pulmonary fibrosis
S. Lee, J. Kim, J. Lee, J. Kim, Y.-H. Ban, J. Lee, S. Bae, D. Kim, S. Lee, I. Choi, Republic of Korea

839 Disruption of the intestinal barrier is associated with markers of kidney injury in DSS-induced colitis in mice
840 Sodium/glucose co-transporter-2 inhibitors and the risk of gout in patients with type 2 diabetes: a propensity score matched, prevalent-new user design study
A. Subramanian, C. Sainsbury, K. Gokhale, K. Nirantharakumar, K. Toulis, UK

841 Reactivity to angiotensin II and structural changes of diabetic gut in an early model STZ-induced diabetes
M. Esteves-Monteiro, M. Ferreira-Duarte, D. Menezes-Pinto, P. Dias-Pereira, M. Morato, M. Duarte-Araújo, Portugal

842 Increased glycaemic variability evaluated by continuous glucose monitoring is associated with osteoporosis in type 2 diabetes patients
R. Huang, H. Wang, Z. Shen, T. Cai, Y. Zhou, Y. Wang, J. Wu, J. Ma, China

843 Increased Fibrosis-4 (Fib-4) score reveals low bone mineralisation in obese individuals with or without type 2 diabetes

844 Prognosis in men and women with atrial fibrillation without and with type 1 and type 2 diabetes: a nationwide propensity-matched cohort study
S. Karayiannides, P. Lundman, L. Landstedt-Hallin, L. Friberg, A. Norhammar, Sweden

845 Insulin resistance in obstructive sleep apnea: Is there a role for mitochondrial dysfunction in the liver?

846 The impact of obesity and diabetes chronic complications in COVID-19 patients
A. Andrita, A.-M. Militaru, A. Nica, E. Rusu, C. Dobjanschi, G. Radulian, Romania

Short Oral Discussions Event D   Wednesday, 13:15 - 14:15

SO 76  Cancer and type 2 diabetes: interconnections and mortality

Chair:  J. Hellman, Sweden

847 The impact of diabetes associated risk factors on survival among individuals with type 2 diabetes and breast -, lung-, colorectal- or prostate cancer
T. Laurberg, D.R. Witte, S. Gudbjörnsdottir, B. Eliasson, L. Bjerg, Denmark, Sweden
848 Versican proteoglycan as new link between type 2 diabetes and breast cancer

849 Genetic profiles of whole tumours from individuals with type 3c diabetes indicate immune-mediated mechanisms may not underlie insulin deficiency
J.L. Hill, T.G. Hill, N.G. Morgan, S.J. Richardson, UK

850 A pan-cancer analysis of the oncogenic role of regenerating protein1 alpha (REG1A) in human tumors
H. Wang, L. Li, China

851 Insulin receptors in pancreatic acinar cells contribute to pancreatic cancer development

852 Triglyceride-glucose index and all-cause mortality, and incidence of vascular events in subjects with type 2 diabetes: results from a 13-year follow-up observational study
P. Falcetta, M. Garofolo, D. Lucchesi, E. Gualdani, M. Giambalvo, P. Francesconi, S. Del Prato, G. Penno, Italy

853 The prognostic impact of HbA1c and diabetes on mortality in chronic heart failure
K. Sveen, M. Grundtvig, L. Gullestad, K.I. Birkeland, Norway

854 Age-related difference in the impact of diabetes on all-cause mortality after acute myocardial infarction
P.-S. Song, J.-O. Jeong, Republic of Korea

Short Oral Discussions Event E        Thursday, 12:00 - 13:00

SO 77    Disclosing fatty liver disease mechanisms
Chair: TBA

855 Extracellular vesicle-mediated crosstalk between hepatocytes and endothelial cells in non-alcoholic fatty liver disease condition
856 Impact of phenylacetic acid, a microbiota-derived metabolite, on hepatic endoplasmic reticulum-mitochondria interactions and steatosis
R. Lefebvre, C. Caussy, J. Rieu, France

857 Lower serum PRL is associated with the development of non-alcoholic fatty liver disease
P. Xu, P. Zhang, Y. Zhu, Y. Bi, China

858 Association between visceral adipocyte size and non-alcoholic fatty liver disease in subjects with different degrees of adiposity
H. Sun, T. Gu, D. Fang, Y. Yuan, H. Wang, Y. Bi, China

859 Non-alcoholic fatty liver disease (NAFLD) is an independent risk factor for developing new-onset diabetes after acute pancreatitis
Y. Lv, J. Zhang, T. Yang, L. Li, China

860 A mouse model for metabolic stress-induced nonalcoholic fatty liver disease and subsequent hepatocellular carcinoma

861 Increased hepatic dicarbonyl stress decreases expression of the drug metabolising enzymes cytochrome (CYP) p450 3A4 and carboxylesterase 1
M. Maandi, S.C. Maandi, J.G. Mabley, UK

862 Lipotoxicity-induced hepatocyte injury is prevented by a novel allosteric modulator of the GABA
A receptor
E. Rohbeck, A. Stein, C. Niersmann, A. Romero, B. Knebel, M. Roden, T. Romacho, J. Eckel, Germany, Spain

Short Oral Discussions Event F Thursday, 13:15 - 14:15

SO 78 Screening tools, lipids and novel biomarkers
Chair: TBA

863 Measures of insulin resistance as a screening tool for dysglycaemia in patients with coronary artery disease: a report from the EUROASPIRE V population
864 Impact of RAGE and IL-6 polymorphisms in the progression for angiopathy in patients with type 2 diabetes
M. Bicho, C. Fonseca, A.C. Santos, J.F. Raposo, A. Valente, Portugal

865 Erythrocyte membrane fluidity as a novel biomarker for a quantitative evaluation of residual cardiovascular risk in diabetic patients
G. Bianchetti, C. Cefalo, C. Ferreri, A. Sansone, C. Serantoni, A. Abeltino, T. Mezza, P. Ferraro, M. De Spíritu, A. Giaccari, G. Maulucci, Italy

866 Comparison of effects of canagliflozin, dapagliflozin and empagliflozin on cardio-renal biomarkers in 150 patients with type 2 diabetes
V. Teli, V. Gupta, India

867 Prevalence of lipodystrophy and agreement between clinical and radiological imaging methods in diagnosing lipodystrophy in insulin requiring subjects with diabetes
A. Baidya, S. Dey, R. Bhadra, India

868 Pro-atherosclerotic alterations in lipoprotein particle distribution and size are associated with a high triglyceride to HDL-cholesterol (TG/HDL) ratio
M. Chiriacò, N. Santoro, S. Caprio, D. Tricò, Italy, USA

869 Triglyceride-glucose index as predictor for re-hospitalisation for heart failure after acute myocardial infarction
J.-O. Jeong, P. Song, S. An, Republic of Korea

870 Effects of polyphenols on cholesterol efflux and insulin secretion in MIN6 cells

**Short Oral Discussions Event A**  
**Tuesday, 11:45 - 12:45**

**SO 79  Focus on the heart and beyond**

*Chair:*  J. Raposo, Portugal

871 Metabolism of valvular interstitial cells is glucose dependent and susceptible to different diabetic conditions
M. Barth, J.I. Selig, H.V. Krug, C. Küppers, D.M. Ouwens, A. Lichtenberg, P. Akhyari, Germany
872 Influence of glycaemic status on the risk of cardiovascular events after a myocardial infarction

873 Physical activity and diastolic dysfunction in people with with type 2 diabetes

874 Glycaemic variability is associated with diastolic dysfunction in patients with type 2 diabetes
Y.Y. Dzhun, G.B. Mankovsky, N.M. Rudenko, Y.Y. Marushko, Y.A. Saenko, B.M. Mankovsky, Ukraine

875 Prognostic models for heart failure in patients with type 2 diabetes: a systematic review and meta-analysis
G. Kostopoulos, I. Doundoulakis, K.A. Toulis, T. Karagiannis, A. Tsapas, A.-B. Haidich, Greece, UK

876 Assessment of cardiovascular events in a real-world high-risk cohort with type 2 diabetes or atherosclerotic cardiovascular disease in Germany

877 External validation of SCORE2-OP for predicting 10-year CVD risk in an older population with type 2 diabetes: Edinburgh Type 2 Diabetes study
Z. Huang, J. Krasauskaite, L. Klaric, J.F. Wilson, J.F. Price, UK

878 Weight fluctuation and cardiovascular outcomes: a systematic review and meta-analysis
"Join EASD and you will become a member of the European diabetes family. This way, you can easily improve your knowledge about all aspects of the disease and follow the latest developments in the world of diabetes available from both scientific as well as clinical practice. It’s really worth it!"

Prof. Krzysztof Strojek, Poland

"Being a diabetologist, a clinical researcher and a basic researcher, becoming a member of the EASD was and is the perfect thing to do: the EASD combines these different facets in its activities in order to promote the best clinical care and excellence in diabetes research. Join the international diabetes community!"

Prof. Miriam Cnop, Belgium

“I originally joined for professional reasons but quickly realised that EASD offers much more. Through EASD I have expanded my professional network and joined a community of passionate peers that is not just shaping the future of diabetes research, care and education but also working to ensure that, one day, a life-changing breakthrough will be made.”

Asst. Prof. Dario Rahelić, Croatia

CONTACT EASD

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# Presenting Authors of Orals and Short Oral Discussions

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Satellite Symposia on the Occasion of the 58th EASD Annual Meeting
DNSG Symposium:
Updated dietary guidelines for the treatment and prevention of diabetes

Monday, 19 September 2022, 09:00 - 11:00, Koch Hall

**Speaker:** Anne-Marie Aas:
- Opening remarks

Andreas Pfeiffer:
- Updating process

Ulf Riserus:
- Recommendations for macronutrients

John Sivenpiper:
- Dietary patterns

Mike Lean:
- Weight management and weight reduction

Matti Uusitupa:
- Prevention of type 2 diabetes

Andreas Pfeiffer and Anne-Marie Aas:
- Discussion
DESG Symposium:
Therapeutic patient education - past, present and future

Monday, 19 September 2022, 11:30 - 13:30, Koch Hall

Speaker: Tatjana Milenkovic, Florian Toti:
Introduction of the symposium

Dario Rahelic:
Insulin therapy – 100 years after discovery

Tatjana Milenkovic:
Insulin and the evolution of diabetes education

M. Hassanein:
Hyperglycemia – ‘The forgotten’ enemy

Questions and Answers

Moderator: Joao Filipe Raposo

Speaker: T. Tankova, A. Majchrzak, I. Vlasenko, I. Shaltout, S. Pico Montesinos, C. Bala:
Round Table: Is therapeutic patient’s education in crisis or not?

Moderator: Florian Toti
DESG Prize – Best Abstract 2022

Speaker: Tiziana Assal, Jean-Philippe Assal:
New strategies to develop therapeutic patient’s education - sensorial passport

Tatjana Milenkovic, Florian Toti:
Closure
HSRHE Symposium:
How can we get patients moving

Monday, 19 September 2022, 14:00 - 15:30, Koch Hall

Chair: Andrea Icks, Germany

Speaker: Andrea Icks, Germany:
Opening remarks

Matthias Sutter, Germany:
Nudging - improving health with simple interventions

Stephanie Bonn, Sweden:
App-technology to increase physical activity among patients with type 2 diabetes

Andrea Icks, Germany:
Closing remarks
**IDF Europe Symposium:**

**Improving the HCP-PwD interaction for better health outcomes, quality of life and resilient health systems**

Monday, 19 September 2022, 16:00 - 17:30, Yalow Hall

*Chair:* Niti Pall, UK

*Speaker:* Niti Pall, UK:  
*Welcome and introduction*

Presentation of the work of IDF Europe’s platform of people living with type 2 diabetes

João Filipe Raposo, Portugal, Elena Shelestova, Georgia, Yvonne Johns, UK, Pinar Topsever, Turkey:

**Panel 1 – The HCP-PwD relationship: how to support a multi-disciplinary approach?**

Naresh Kanumilli, UK, Konstantinos Makrilakis, Greece, Yvonne Johns, UK:

**Panel 2 - Guidelines from theory to point of care; Guardians For Health implementation initiative**

Maartje Roskams, Belgium, Yvonne Johns, UK, Manuel Cabezas, The Netherlands, Tatjana Milenkovic, North Macedonia:

**Panel 3 - How can traditional and new decentralised clinical trials support PwD empowerment and self-management and improve PwD-HCP interaction?**

Nebojsa Lalic, Serbia:  
*Wrap-up and Closing remarks*
DIAB IMAGE Symposium

Monday, 19 September 2022, 16:00 - 18:00, Koch Hall

Chair: Vera Schrauwen
Martin Krssak
Marti Boss
Olof Eriksson

Speaker: Vera Schrauwen, Martin Krssak, Marti Boss, Olof Eriksson:
Welcome address and update on the DIAB IMAGE study group activities

Jan Eriksson, Sweden:
Can imaging define type 2 diabetes? A journey from pathophysiology towards precision medicine

Ladislav Valkovic, UK:
Metabolic imaging of the diabetic heart using magnetic resonance spectroscopy and imaging

Vera Schrauwen, Martin Krssak, Marti Boss, Olof Eriksson:
Concluding remarks

Annual Study Group meeting, election of board members
DPSG Symposium:
Diagnosis and management of gestational diabetes

Tuesday, 20 September 2022, 09:00 - 11:00, Koch Hall

Chair: Adam Tabak
Speaker: Jardena Puder, Switzerland:
Usefulness of the IADPSG criteria for GDM

Christian Göbl, Austria:
The use of continuous glucose monitoring for women with GDM

Eszter Vanky, Norway:
The use of metformin for women with GDM and type 2 diabetes in pregnancy
D&CVD Symposium:
The cardio-renal-metabolic challenge in type 2 diabetes

Tuesday, 20 September 2022, 11:45 - 13:30, Koch Hall

Chair: Doina Catrinoiu, Romania
       Jan Škrha, Czech Republic

Speaker: Eberhard Standl, Germany:
         Cardio-renal-metabolic interplay: Emerging notions and
         basic clinical treatment strategies

         Paul Valensi, France:
         SGLT2-inhibitors: Key treatment option beyond type 2
         diabetes regardless of cardiac ejection fraction

         Oliver Schnell, Germany:
         Finerenone – New magic drug reducing cardio-renal
         disease?

         Mahmoud Ibrahim, USA:
         Envisaging a new interdisciplinary subspecialty training
         in medicine for dealing with the cardio-renal-metabolic
         challenge in type 2 diabetes

All chairs and speakers together with Lars Rydén, Sweden,
Per-Henrik Groop, Finland, Nebojša Lalic, Serbia,
Baruch Itzhak, Israel, Dario Rahelic, Croatia:
Interdisciplinary panel discussion with diabetologists,
cardiologists, nephrologists, primary care physicians
#dedoc° Symposium:

**What we wish you knew - and why**

**Tuesday, 20 September 2022, 14:00 - 15:30, Koch Hall**

**Chair:** Bastian Hauck, Germany  
Renza Scibilia, Australia

**Speaker:** Chantal Mathieu, Belgium:  
*Words of Welcome*

**Novel forms of online peer support developed during Covid**

Andrea Limbourg, France:  
*Online peer support and the DOC’s response to COVID*

Jeff Hitchcock, USA:  
*How children with diabetes coped with, transformed and thrived despite lockdown*

Salih Hendricks, South Africa:  
*Reaching out to build a community for diabetic amputees*

Tom Dean, UK:  
*Introducing the all-new Twitter #DiabetesChat*

Bastian Hauck, Germany:  
*The new hybrid: #docday° and the #dedoc° voices responding to virtual conferences*

Open discussion and questions
**PCDE Symposium**

**Tuesday, 20 September 2022, 16:00 - 17:00, Koch Hall**

**Speaker:** Pinar Topsever, Turkey:

**Introduction**

Phillippe Domeyer, Greece:

**Quality assessment of type 2 diabetes care in Greece: setting indicators from a primary care perspective**

Xavier Cos, Spain:

**Epidemiology of SARS-CoV-2 in persons with diabetes mellitus and obesity in Catalonia - Study epiCOVID19DMO**

Samuel Seidu, UK:

**Association of erectile dysfunction and PDE5 inhibitor usage with the risk of cardiovascular disease and mortality in patients with diabetes: A systematic review and meta-analysis**

Pinar Topsever, Turkey:

**Concluding remarks**
RM-SG Symposium:
Insulin resistance - new insights and nutritional approaches to therapy

Wednesday, 21 September 2022, 09:00 - 11:00, Koch Hall

Chair: Naila Rabbani, Qatar
Paul J Thornalley, Qatar

Speaker: Andreas FH Pfeiffer, Germany:
Nutritional modulation of insulin resistance

Paul J Thornalley, Qatar:
Hexokinase-2 linked unscheduled glycolysis hypothesis of insulin resistance - link of insulin resistance to impaired fasting glucose

Naila Rabbani, Qatar:
Correction of insulin resistance in overweight and obese subjects by dietary supplement Glo1 inducer - Healthy Aging Through Functional Food Study

All speakers and Shahrad Taheri, Qatar:
Panel discussion
ExPAS Symposium:
From molecular insights to exercise prescription: how to improve diabetes and its complications

Wednesday, 21 September 2022, 11:30 - 13:30, Koch Hall

Speaker: Juleen Zierath:
Exerkines and their link to insulin sensitivity in type 2 diabetes

Sheri Colberg:
Exercise for all? How to account for diabetes complications when prescribing exercise

The key notes will be followed by short talks around the respective topic of the symposium.
EUDF Symposium

Meeting the diabetes challenge with data registries, integrated care and digitalisation

Wednesday, 21 September 2022, 14:00 - 16:00, Koch Hall

Chair: C. Mathieu, Belgium
       Stefano Del Prato, Italy

Speaker: Stefano Del Prato, Italy:
         Welcome and introduction

What makes data registries, integrated care, self-care and digitalisation intrinsic parts of diabetes care?

Robert Heine, USA:
Enabling high quality diabetes care

Joao Filipe Raposo, Portugal:
Five priorities for advancing integrated care

Peter Schwarz, Germany:
The promise of digital tools: A roadmap for apps

Casja Lindberg, Sweden, Jeannette Soderberg, Sweden, Juliana Chan, Hong Kong, Katarina Eeg-Olofsson, Sweden, Pinar Topsever, Turkey, Tadej Battelino, Slovenia:
Open discussion and questions

Chantal Mathieu, Belgium:
Closing remarks
IHSG Symposium:
Hypoglycaemia among elderly people with diabetes

Wednesday, 21 September 2022, 16:30 - 17:30, Koch Hall

Chair: Lawrence Leiter, Canada

Speaker: Lawrence Leiter, Canada:
Welcome and introduction

Sophia Zoungas, Australia, Kamlesh Khunti, UK:
Examining epidemiology and unmet needs

Elizabeth Seaquist, USA:
Management of hypoglycaemia

All speakers: Panel discussion

Lawrence Leiter, Canada:
Closing summary
**EDNSG Symposium**

Thursday, 22 September 2022, 08:30 - 10:00, Koch Hall

**Chair:** Luigi Gnudi  
Samy Hadjadj

**Speaker:** Michel Marre:  
*Diabetic nephropathy, a changing and challenging phenotype. A critical view on how the clinician can make a difference.*

Richard Coward:  
*Insulin resistance in diabetic nephropathy. Targeting the podocyte: novel treatments around the corner?*

David Long:  
*Kidney lymphatics from development to disease: a new treatment target for diabetic nephropathy.*
NEURODIAB Symposium:

Challenges in the care of people with diabetic neuropathy: neuropathic pain and autonomic symptoms

Thursday, 22 September 2022, 10:30 – 12:15, Koch Hall

Chair: Vincenza Spallone, Italy
Peter Kempler, Hungary

Speaker: Francois Pouwer, Denmark:
Psychological aspects as therapeutic target: not just the pain but the whole person

Aruna V. Sarma, USA:
Female sexual dysfunction: an overlooked, yet meaningful diabetes complication

Christina Brock, Denmark:
Gastrointestinal neuropathy: the interplay between symptoms and dysmotility

Artur Fedorowski, Sweden:
Orthostatic hypotension: what’s new in causes, consequences, and management
**EGIR Symposium:**

**Diabetes, comorbidities and the importance of inter-organ cross talk**

Thursday, 22 September 2022, 13:00 - 15:00, Koch Hall

**Chair:** John Petrie  
John Jones

**Speaker:** Stefano Romeo:  
NAFLD and susceptibility to diabetes

Paula Macedo:  
NAFLD spectrum in diabetes settings: from clinical to molecular mechanisms

Amalia Gastaldelli:  
The importance of hepatic insulin clearance in NASH and diabetes

Chiara Saponaro:  
Liraglutide enhances insulin secretion only under hyperglycaemic conditions: good or bad news?

Andrea Natali:  
Fat, leptin and insulin clearance
INCSG Symposium:
GLP-1 dual and multi-agonist peptides: which additional activities to dial in?

Thursday, 22 September 2022, 15:30 - 17:30, Koch Hall

Chair: Jens Juul Holst; Denmark
Fiona Gribble, UK

Speaker: Jens Juul Holst, Denmark, Fiona Gribble, UK:
Opening words

Matthias Tschöp, Germany:
Introduction to GLP-1 based dual and triple agonist peptides

Ricardo Samms, USA:
GLP-1 – GIP combination

Elizabeth Killion, USA:
GLP-1 - GIPR-Ab combination

Phil Ambery, Sweden:
GLP-1 – glucagon combination

Thomas Lutz, Switzerland:
GLP-1 with amylin combination

General discussion

Michael Nauck, Germany
Closing remarks
Industry Sessions on the occasion of the 58th EASD Annual Meeting

Organised by INTERPLAN media & service gmbh
## INDUSTRY SESSION SCHEDULE

**Monday, 19 September 2022**

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**Exhibition**

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- **Dexcom**: 13:00 – 14:00
- **AstraZeneca UK Limited**: 16:00 – 17:30
- **Abbott**: 14:30 – 16:00
- **AstraZeneca UK Limited**: 16:00 – 17:30
- **Roche Diabetes Care**: 16:00 – 17:30
- **Nestlé Health Science**: 16:30 – 17:30

**VENUE**

- Bernard Hall
- Golgi Hall
- Nobel Hall
- Doniach Hall
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13:00 – 14:30 |
|               | Roche Diabetes Care  
16:00 – 17:30 | Nestlé Health Science  
16:30 – 17:30 |

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## INDUSTRY SESSION SCHEDULE

### Tuesday, 20 September 2022

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<td>Cori Hall</td>
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### Thursday, 22 September 2022

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<th>Time</th>
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<td>10:00 – 10:30</td>
<td>Eli Lilly and Company</td>
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INDUSTRY PODCASTS

– Boehringer Ingelheim & Eli Lilly and Company
MONDAY, 19 SEPTEMBER 2022

DIABETES, OBESITY AND YOUR PATIENT:
NEW PERSPECTIVES ON PERSON–
CENTRED APPROACHES TO CARE

Chairs: Rachel Batterham (UK)
        Juris Meier (GER)

Clinical challenges in obesity care: innovate, optimise and overcome
09:00 – 09:10 Welcome
Rachel Batterham (UK)
Juris Meier (GER)

09:10 – 09:25 What does a holistic approach to diabetes and obesity care look like?
Rachel Batterham (UK)
Juris Meier (GER)

09:25 – 09:40 Overcoming clinical challenges – optimising outcomes for people with obesity
Rachel Batterham (UK)

09:40 – 10:00 Bridging the gap: recent advances in the clinical management of obesity
Sue Pedersen (CAN)
Carel le Roux (IRL)
Domenica Rubino (USA)

10:00 – 10:15 Evolving therapeutics and approaches in obesity care
Lee Kaplan (USA)

10:15 – 10:30 Panel discussion
All faculty

10:30 – 10:45 Coffee break

Reducing risks: the contribution of GLP-1RAs to holistic diabetes care
10:45 – 10:50 Welcome back
Rachel Batterham (UK)
Juris Meier (GER)

10:50 – 11:05 Getting the full potential out of early diabetes treatment
Tina Vilsbøll (DNK)

11:05 – 11:20 IGNITE the fire: insights from RWE
Vanita Aroda (USA)

11:20 – 11:35 Beyond glycaemic control: the role of GLP-1RAs in lowering cardiovascular risk
Ofri Mosenzon (ISR)
MONDAY, 19 SEPTEMBER 2022

9:00 – 15:30
BERNARD HALL

11:35 – 11:50  Taking a different perspective: a multidisciplinary approach in ASCVD and type 2 diabetes
Mikhail Kosiborod (USA)

11:50 – 12:10  Panel discussion
All faculty

12:10 – 13:05  Lunch break

Diabetes management of the future: once-weekly insulin and digital health solutions

13:05 – 13:10  Welcome back
Rachel Batterham (UK)
Juris Meier (GER)

13:10 – 13:25  Challenges and unmet needs in basal insulin therapy
Andreas Liebl (GER)

13:25 – 13:40  Advancing management with once-weekly insulin
Ildiko Lingvay (USA)

Julia Mader (AUT)

13:55 – 14:20  Panel discussion
All faculty

14:20 – 14:40  Coffee break

Future direction in long-term T1D care with cell therapy

14:40 – 14:45  Welcome back
Rachel Batterham (UK)
Juris Meier (GER)

14:45 – 15:00  Cell therapy: innovation in treating chronic disease
Klara Owen (DNK)

15:00 – 15:20  Going beyond glucose control: a new approach for T1D treatment
Klara Owen (DNK)
Jacob Sten Petersen (DNK)
Julia Mader (AUT)

15:20 – 15:30  Meeting close
Rachel Batterham (UK)
Juris Meier (GER)

Organised by: Novo Nordisk A/S
MONDAY, 19 SEPTEMBER 2022

EXPANDING OUR CLINICAL UNDERSTANDING: NEW INSIGHTS FROM VERTIS CV FOR PATIENTS WITH DIABETES AND CARDIOVASCULAR DISEASE

13:00 – 13:05 Opening Remarks

13:05 – 13:15 New Insights on Heart Failure from the VERTIS CV Study form a Cardiologist’s View

13:15 – 13:20 Q & A

13:20 – 13:35 New Insights re: Incident Obstructive Sleep Apnea and SGLT2is: An Analysis from the VERTIS CV Trial

13:35 – 13:40 Q & A

13:40 – 13:55 What This Latest Information from VERTIS CV Means For Our Patients: A Cross-Specialty Faculty Roundtable Discussion

13:55 – 14:00 Closing Remarks

Organised by: MSD
MONDAY, 19 SEPTEMBER 2022
13:00 – 14:30
JACOBSOHN HALL

SGLT2 INHIBITORS –
THE SCIENCE BEHIND ORGAN BENEFITS

Chair: Jiten Vora (UK)
Co-chair: Nayyar Iqbal (USA)

13:00 – 13:05 Welcome and introductions
Jiten Vora (UK)
Nayyar Iqbal (USA)
Elisabeth Björk (SWE)

13:05 – 13:15 Do metabolic changes explain organ benefits?
Jiten Vora (UK)

13:15 – 13:45 Comparing the effects of SGLT2 inhibitors in HFrEF
and HFpEF – two sides of the same coin?
Lars Lund (SWE)

13:45 – 14:05 The science underlying renal benefits
Volker Vallon (USA)

14:05 – 14:25 Panel discussion
Jiten Vora (UK)
Lars Lund (SWE)
Volker Vallon (USA)

14:25 – 14:30 Closing remarks
Jiten Vora (UK)
Regina Fritsche-Danielson (SWE)

Organised by: AstraZeneca UK Limited
MONDAY, 19 SEPTEMBER 2022
NOBEL HALL

TACKLING THE HIDDEN CV AND KIDNEY DANGERS IN T2D WITH SGLT2 INHIBITORS

16:00 – 16:05   Welcome and Introductions
16:05 – 16:20   Looking beyond T2D – The heart and kidney
16:20 – 16:40   Don’t wait to protect the kidneys
16:40 – 16:50   Let's not forget about the heart
16:50 – 17:00   We are all in this together
17:00 – 17:25   Panel discussion and Q&A
17:25 – 17:30   Closing remarks

Organised by: Education provider – Science Collected. Supported by an unrestricted educational grant from AstraZeneca
MONDAY, 19 SEPTEMBER 2022  
16:30 – 17:30  
JACOBSSOHN HALL

IMPLICATIONS OF ELEVATED POSTPRANDIAL GLUCOSE AND NUTRITIONAL APPROACHES FOR POSTPRANDIAL GLUCOSE MANAGEMENT WITH A FOCUS ON WHEY PROTEINS

Chair: Ian J. Neeland (USA)

16:30 – 16:35 Welcome and Introductions
Ian J. Neeland (USA)

16:35 – 16:55 Implications of Elevated Postprandial Glucose
John Sievenpiper (CAN)

16:55 – 17:15 Nutritional Approaches for Postprandial Glucose Management with a Focus on Whey Proteins
Bo Ahrén (SWE)

17:15 – 17:30 Q & A and Closing Remarks

Organised by: Nestlé Health Science
IMPORTANCE OF WEIGHT MANAGEMENT IN T2D

Discuss with experts the importance of weight management for patients with type 2 diabetes to help elevate conversations around the importance of weight management during visits.

Organised by: Eli Lilly and Company
NASH
MEET THE EXPERT

11:30 – 11:32 Introduction
Onno Holleboom (NLD)
Michael Roden (GER)

11:32 – 11:36 Living with NASH: a marathon, not a sprint
Onno Holleboom (NLD)

11:36 – 11:50 If you want to go far, go together: a comparison between individual and multi-disciplinary management
Onno Holleboom (NLD)
Michael Roden (GER)

11:50 – 11:58 Crossing the finishing line: successful transition to effective NASH management
Michael Roden (GER)

11:58 – 12:00 Summary and conclusion
Onno Holleboom (NLD)
Michael Roden (GER)

Organised by: Novo Nordisk A/S
TUESDAY, 20 SEPTEMBER 2022

12:45 – 13:15

NETWORKING HUB

NON-ALCOHOLIC FATTY LIVER AND T2DM –
THE INTERSECTION OF ENDOCRINOLOGY AND HEPATOLOGY

Faculty: Jörn Schattenberg (GER)
Cyrielle Caussy (FRA)

Organised by: Madrigal Pharmaceuticals
GLYCEMIC TARGETS REVISITED: WHAT HBA1C GOALS SHOULD BE FOLLOWED IN 2022

Discuss with experts the benefits of reaching safely glycemic targets for patients with type 2 diabetes by improving insulin sensitivity and preserving β-cell function. Discuss how this can be applied in clinical practice.

Organised by: Eli Lilly and Company
TUESDAY, 20 SEPTEMBER 2022  
18:00 – 19:00 
JACOBSON HALL

EMPOWERMENT THROUGH NEXT-GEN TECHNOLOGY

Organised by: Abbott
TUESDAY, 20 SEPTEMBER 2022

TARGETING CV RISK FACTORS WITH GLP-1 RAS
IN PEOPLE WITH OBESITY

Chair: Michael Lincoff (USA)

18:00 – 18:05 Welcome and introduction
Michael Lincoff (USA)

18:05 – 18:15 CV risk: What’s weight got to do with it?
John Deanfield (UK)

18:15 – 18:25 Improvements in CV risk factors: STEP by STEP
Benjamin M. Scirica (USA)

18:25 – 18:35 SELECT and STEP-HFpEF: New horizons
Michael Lincoff (USA)

18:35 – 18:55 Panel discussion
All speakers

18:55 – 19:00 Closing
Michael Lincoff (USA)

Organised by: Novo Nordisk A/S
TUESDAY, 20 SEPTEMBER 2022  18:00 – 19:00
HELLERSTRÖM HALL

DON’T WAIT FOR THE FUTURE – BE PROACTIVE FOR YOUR PATIENTS WITH T2D NOW!

Chair:  John Buse (USA)

Faculty:  David Cherney (CAN)
        Xavier Cos (ESP)
        Shelley Zieroth (CAN)

Organised by:  Boehringer Ingelheim & Eli Lilly and Company
CROSS-TALK CONTINUED:
THE HEART, KIDNEYS & THE ENDOCRINE SYSTEM – UNDERSTANDING FOR TYPE 2 DIABETES AND CARDIORENAL DISEASE

18:00 – 18:05 Opening Remarks

18:05 – 18:20 Cross-talk between the Heart, Kidneys & the Endocrine System – Latest Understanding for Type 2 Diabetes and Cardiorenal Disease

18:20 – 18:28 Q & A

18:28 – 18:30 Closing Remarks

Organised by: MSD
WEDNESDAY, 21 SEPTEMBER 2022
07:30 – 08:30
YALOW HALL

METFORMIN 100: PAST, PRESENT AND FUTURE

1. One century with metformin

2. Metformin in Diabetes Complications – Cardiovascular and Renal effects

3. Metformin in Diabetes Prevention – the Chinese Diabetes Prevention Program

4. Metformin in Aging Complications – Cognitive impairment & Alzheimer’s disease

5. A new century for metformin – wrap-up and close out

Organised by:  Merck Healthcare KGaA
SUPPORTING PATIENT EMPOWERMENT AND IMPROVING GLYCEMIC OUTCOMES WITH CONNECTED PENS AND ARTIFICIAL INTELLIGENCE. FROM DBLG1 TO DBL4PEN

Chair: Erik Huneker (FRA)

10:00 – 10:05 Introduction
Erik Huneker (FRA)

10:05 – 10:15 How CGMs & connected pens are improving patient care
Lutz Heinemann (GER)

10:15 – 10:25 “DBL-4pen” first simulator results & our clinical validation program
Pierre-Yves Benhamou (FRA)

10:25 – 10:30 Q&A
All faculty

Organised by: DIABELOOP SA
WEDNESDAY, 21 SEPTEMBER 2022

13:00 – 13:30

NETWORKING HUB

FROM GLUCOSE MONITORING TO PERSONALIZED DIABETES CARE

Organised by: Abbott
WEDNESDAY, 21 SEPTEMBER 2022
14:15 – 14:45
NETWORKING HUB

CONNECTED FOR CARE: DIGITAL HEALTH – MEET THE EXPERT

Chair: Thomas Danne (GER)

Digital health: Current Reality and Challenges
(Unmet needs in glycaemic control: The role of smart devices)
Thomas Pieber (AUT)

Smart digital solutions: Integrating therapy and care for people with diabetes
(Smart insulin pens: advancing digital care for diabetes)
Peter Adolfsson (SWE)

Organised by: Novo Nordisk A/S
WEDNESDAY, 21 SEPTEMBER 2022
16:00 – 16:30
NETWORKING HUB

BETTER UNDERSTANDING OF THE GLUCOSE PATTERN

Organised by: Abbott
WEDNESDAY, 21 SEPTEMBER 2022  18:45 – 20:15
JACOBSSON HALL

FASTER RAPID-ACTING INSULIN AND SMART PENS:
THE FUTURE OF MULTIPLE DAILY INJECTION THERAPY

Chair:  Partha Kar (UK)

18:45 – 18:55  Welcome and Introductions
Partha Kar (UK)

18:55 – 19:25  Lyumjev: A Faster Rapid-Acting Insulin
Andreas Liebl (GER)

Pratik Choudhary (UK)

19:45 – 20:05  Practical Application of Lyumjev and Tempo
Pratik Choudhary (UK)
Andreas Liebl (GER)

20:05 – 20:15  Q&A and Closing Remarks
Partha Kar (UK)

Organised by:  Eli Lilly and Company
WEDNESDAY, 21 SEPTEMBER 2022
18:45 – 20:15
HIRSCH HALL

PATIENT-CENTRIC TREATMENT OF TYPE 2 DIABETES – WHERE AND HOW DOES SEMAGLUTIDE FIT?

Chair: Alice Cheng (CAN)

18:45 – 18:48 Welcome and introduction
Alice Cheng (CAN)

18:48 – 19:01 Early control matters
Kamlesh Khunti (UK)

19:01 – 19:14 A patient centered approach with semaglutide
John Wilding (UK)

19:14 – 19:27 Treatment of ASCVD in T2D
Kim Conelly (CAN)

19:27 – 19:40 Managing T2D later in the disease journey
Filip Knop (DNK)

19:40 – 19:53 Time to overcome the underutilization of GLP-1 RA in clinical practice
Tina Vilsbøll (DNK)

19:53 – 20:13 Panel Discussion and Q&A
All speakers

20:13 – 20:15 Closing remarks
Alice Cheng (CAN)

Organised by: Novo Nordisk A/S
NONSTEROIDAL MRAS IN CKD AND T2D:
CURRENT KNOWLEDGE AND PRACTICAL INSIGHTS

Chair: Peter Rossing (DNK)

18:45 – 18:50 Welcome and introductions
Peter Rossing (DNK)

18:50 – 19:00 The importance of guidelines for identification and treatment of CKD in T2D: Where are we now
Janet McGill (USA)

19:00 – 19:20 The cardiorenal benefits of nonsteroidal MRAs: Insights from across the CKD in T2D patient spectrum
Peter Rossing (DNK)

19:20 – 19:35 Finerenone in clinical practice: Approaches for optimising the patient experience
Magnus Löndahl (SWE)

19:35 – 19:45 Q&A and close
Peter Rossing (DNK)

Organised by: Bayer AG
WEDNESDAY, 21 SEPTEMBER 2022
18:45 – 19:15
SUTHERLAND HALL

BEYOND GLYCAEMIC CONTROL:
HOW FAR HAVE WE COME?

Chair: Jiten Vora (UK)

Faculty: Sarah Davies (UK)

Organised by: Boehringer Ingelheim & Eli Lilly and Company
WEDNESDAY, 21 SEPTEMBER 2022
18:45 – 19:45
CORI HALL

USE OF DIGITAL TOOLS FOR DIABETES HEALTH AND WELLBEING

Chair: Elizabeth Holt (USA)

Our panel of experts will examine the relationships between glycemic outcomes and Blood Glucose Monitoring (BGM) by exploring the role of structured BGM. Learn how digital tools and apps available for BGM can enhance diabetes management and ease the burden for PWDs and their HCPs. Real-world data presented by LifeScan will examine how PWD users engage with the OneTouch Reveal® app and the beneficial impact on their glycemic outcomes.

Organised by: LifeScan Global Corporation
BENEFITS AND DRAWBACKS OF EARLY EFFECTIVE INTERVENTION IN T2D

Discuss with experts the benefits on treating patients with type 2 diabetes early and to intensify therapy in a timely manner. One potential benefit when considering early intervention and treatment is to prevent further complications from T2D.

Organised by: Eli Lilly and Company
WHERE AND HOW DOES SEMAGLUTIDE FIT IN THE TREATMENT OF TYPE 2 DIABETES? – A CASE-BASED DISCUSSION

Chair: Filip Knop (DNK)

11:45 – 11:50 Welcome and Introduction
Overview of semaglutide, PIONEER and SUSTAIN trials
Filip Knop (DNK)

11:50 – 12:00 Case based discussions on clinical evidence
Filip Knop (DNK)
Melanie Davies (UK)

12:00 – 12:05 Patient-centric practicalities
Filip Knop (DNK)
Melanie Davies (UK)

12:05 – 12:15 Panel discussion, Q&A and closing remarks
Filip Knop (DNK)
Melanie Davies (UK)

Organised by: Novo Nordisk A/S
ONCE WEEKLY INSULIN:
REINVENTING THE INSULIN EXPERIENCE

Chair: Tina Vilsbøll (DNK)

First phase 3 evidence for a once-weekly insulin
Stephen Bain (UK)
Athena Philis-Tsimikas (USA)

Advancing diabetes management with once-weekly insulin
Panel discussion and Q&A
All faculty

Organised by: Novo Nordisk A/S
THURSDAY, 22 SEPTEMBER 2022
HEDING HALL

NONSTEROIDAL MRAS IN PATIENTS WITH CKD AND T2D:
WHAT IS NEXT FOR FINERENONE?

Chair: Samy Hadjadj (FRA)

18:30 – 18:35 Welcome and introductions
Samy Hadjadj (FRA)

18:35 – 19:00 Optimising treatment of CKD associated with T2D:
Time for a combination therapy approach?
Hiddo Heerspink (NLD)

19:00 – 19:10 Nonsteroidal MRAs and diabetic retinopathy:
A new field of vision
Paola Fioretto (ITA)

19:10 – 19:20 Finerenone in routine clinical practice:
Looking beyond the data from pivotal trials
Christoph Wanner (GER)

19:20 – 19:30 Q&A and close
Samy Hadjadj (FRA)

Organised by: Bayer AG
THURSDAY, 22 SEPTEMBER 2022
18:30 – 20:00
JACOBSOHN HALL

OMNIPOD® SPONSORED SYMPOSIUM

Organised by: Insulet
THURSDAY, 22 SEPTEMBER 2022

18:30 – 19:00

HELLERSTRÖM HALL

EVA PHARMA SYMPOSIUM

Chair: Péter Kempler (HUN)

18:30 – 18:35 Introduction & Welcoming by EVA Pharma
Riad Armanious (EGY)

18:35 – 18:50 Diabetic Neuroapthy, A therapeutic approach from pathogenetic prospective
Dan Ziegler (GER)

18:50 – 19:00 Q&A and Closing Remarks
Péter Kempler (HUN)
Dan Ziegler (GER)

Organised by: EVA PHARMA
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