Welcome to the Jikei University School of Medicine in Tokyo. We are honored to be given the chance to organize and host the IFPA 2018 Conference. Our university is located in the center of Tokyo, a city ripe with a rich academic atmosphere, Japanese tradition, and the liveliness of an economic and cultural mecca. Although your days will filled with exciting academic discourse, we are sure that you will find time to enjoy delicious Japanese meals, traditions, and culture at night.

Although I am a gynecologic oncologist, I was charmed by the fascinating work being done in placenta research. It is my hope that the basic research on the placenta shared at this conference will soon be translated into clinical practice. That is why I designated the theme for IFPA 2018 to be “Clinical Growth via Placenta”.

We think we have been able to design a program in which you will be very satisfied. A Keynote Lecture will be delivered by Professor Dennis Lo. Professor Lo is the Director of the Li Ka Shing Institute of Health Sciences and the Li Ka Shing Professor of Medicine at The Chinese University of Hong Kong and recipient of the prestigious Future Science prize. He will present on “Non-invasive Prenatal Testing (NIPT)”. We have also arranged for a Keynote Lecture to be given by Dr. Akihiro Umezawa, the director of Regenerative Medicine Center, and vice director of National Center for Child Health and Development. Dr. Umezawa will present on his ground-breaking work in stem cell research. We have organized multiple symposiums covering topics ranging from genomic sequencing of placental tissue to tissue engineering. We have also set up 9 workshops entitled, “Extracellular vesicles in pregnancy”, “Pre-eclampsia and the placenta”, “Drug delivery in pregnancy”, “Reproduction and placentation among ocean-living species”, “Abnormally Invasive Placenta”, “Impact of infection on placental biology”, “Imaging of the Placenta”, “Epigenetics” and “Gestational Trophoblastic Disease (GTD)”. Additionally, we have arranged a “Trophoblast Research Award Lecture”, “NIH Award Lecture”, “IFPA Andree Gruslin Award Lecture”, “IFPA Senior Award Lecture”, “Gabor Than Award Lecture”, “New Investigator Presentations”, “Early Career Session”, and a newly designed “Mid Career session”.

In addition to scientific content, we have prepared a fantastic Japanese style Welcome Reception, Early Career Researcher’s (ECR) Social Meeting, and Gala Dinner. We hope you will make a lot of discoveries, learn valuable knowledge, and exchange interesting opinions among many researchers from many countries.

For those also interested in some sightseeing, Tokyo is full of charms. From the Jikei University, you can visit attractive areas including Ginza, Roppongi, Akihabara, Shibuya, Asakusa and Shinjuku etc., very easily. You can arrive at the Jikei University from Haneda Airport within 30 min., and from Narita Airport in 80 min. We hope that the IFPA 2018 Tokyo conference will be one you will never forget.
It is with great pleasure that I welcome you to IFPA 2018 in Tokyo. IFPA meets in Japan just every six years so it is wonderful to be here once again. This year the Japan Placenta Association is hosting the meeting and we meet with members of the Japan Trophoblastic Diseases Society.

The placenta was known in Ancient times. We are likely familiar with the image of the Pharoah in ancient Egypt with his attendants carrying placentas with umbilical cords attached atop long stakes in a ceremonial procession or with accounts of Aristotle’s view of the nutritive function of the placenta. We are far less familiar with ancient knowledge of the placenta in Japan. Clearly the importance of the placenta was known and it was revered. For example, the Hakozaki Shrine, a Shinto shrine in Fukuoka City, was founded in 921. The placenta and umbilical cord of the shrine’s guardian deity, the spirit of Emperor Ojin, born in Umimachi, Fukuoka Prefecture, were placed in a box (hako) and buried in Hakozaki. A pine tree was planted on the site as a symbol of it. It is now known as the Box Pine and is adjacent to the Shrine.

We now live in exciting times for placenta research. Technological innovations in recent years are enabling unprecedented acquisition of data. Placental differentiation, growth and function are being explored using state of the art cellular, molecular and imaging modalities. Non-invasive screening of the placenta in real time is becoming a reality and will be increasingly used to identify and monitor pregnancies at risk.

At this meeting we look forward to the opportunity to hear from senior Japanese scientists on the best of placenta research in this country, as well as from senior and new investigators from around the world. I look forward, as always, to hearing from our New Investigators and Early Career Researchers who will be the future leaders in placenta research around the world.

Finally, I take this opportunity to thank Professor Aikou Okamoto and his team for organising this wonderful meeting. I look forward to seeing old friends, making new friends and greeting the IFPA community in Tokyo, Japan.
# Scientific Program Overview

## September 21 (Fri)

<table>
<thead>
<tr>
<th>Room 1</th>
<th>Meeting Room 1</th>
<th>Meeting Room 2</th>
<th>Meeting Room 3</th>
<th>Poster Social Events</th>
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<tbody>
<tr>
<td>Bldg. No. 2 (Auditorium 1/1F)</td>
<td>Meeting Room 1 (901/9F)</td>
<td>Meeting Room 2 (801/8F)</td>
<td>Meeting Room 3 (802/8F)</td>
<td>Room 2 (Auditorium 2/1F, Bldg. No. 2)</td>
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<td>Room 4 (3F, Bldg. No. 1)</td>
<td>Room 7 (6F, Bldg. No. 1)</td>
<td>Room 8 (7F, Bldg. No. 1)</td>
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### Room 1
- **IFPA Executives Meeting (INVITED ONLY)**
- **Executive Lunch (INVITED ONLY)**
- **Placenta/TR Editorial Meeting (INVITED ONLY)**

### Room 2
- **Keynote Lecture 1**
  - Noninvasive prenatal testing: progress through genomics, epigenomics and transcriptomics
  - Time: 15:00-15:45
- **Keynote Lecture 2**
  - Stem Cell-based Therapy in Japan: Current State of the Art
  - Time: 16:00-16:30
- **Trophoblast Research Award Lecture**
  - Time: 16:30-17:00

### Room 3
- **Welcome Reception**
  - Time: 19:30-21:00

### Poster Sessions
- **Room 2 (Auditorium 2/1F, Bldg. No. 2)**
  - Anatomy and pathology
  - Angiogenesis/vascularity
  - Cell culture/cell lines
- **Room 4 (3F, Bldg. No. 1)**
  - Cell signaling
  - Comparative/animal models
  - Diabetes/obesity
- **Room 7 (6F, Bldg. No. 1)**
  - Fetal growth restriction
  - Gene expression
  - Genomics/Epigenomics
  - Hormones/growth factors
  - Imaging
- **Room 8 (7F, Bldg. No. 1)**
  - Immunology
  - Implantation and invasion
  - Infection and inflammation
  - Metabolism/mitochondria
  - Metabolomics/proteomics
  - Oxidative stress
  - Placental dysfunction
  - Preeclampsia
  - Prenatal diagnosis
  - Preterm labour and birth
  - Stem cells
  - Transport
  - Trophoblast biology

*Please refer to page P53~P79 for finding your poster number.*
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Room 1</th>
<th>Room 2</th>
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<th>Room 6</th>
<th>Room 7</th>
<th>Room 8</th>
<th>Room 9</th>
<th>Poster</th>
<th>Social Events</th>
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<tbody>
<tr>
<td>8:30-10:00</td>
<td>New Investigator Presentation 1</td>
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<td>9:30-17:00 Poster Viewing</td>
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<td>Coffee Break</td>
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<td>10:00-10:30 Board of Councilors Meeting (JPA)</td>
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<td>13:15-14:45</td>
<td>Workshop 1: Extracellular vesicles in pregnancy</td>
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<td>13:15-14:45 Workshop 5 Abnormally Invasive Placenta (APF): An interactive, international perspective</td>
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<td>ECR Social Meeting</td>
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日本専門医機構認定講演 (for Japanese participants)
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<thead>
<tr>
<th>Time</th>
<th>Room 1 (Auditorium 1/1F)</th>
<th>Room 2 (3F)</th>
<th>Room 3 (5F)</th>
<th>Room 4 (6F)</th>
<th>Meeting Room 5 (802/8F)</th>
<th>Meeting Room 6 (803/8F)</th>
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<th>Social Events</th>
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<td>A word from our journal: Placenta</td>
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<td>Symposium 2 Making better placentas and healthy pregnancies FGR DM</td>
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<td>Workshop 6 Impact of infection on placental biology</td>
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<td>Workshop 7 Imaging of the Placenta</td>
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<td>13:30–15:00</td>
<td>Workshop 8 Epigenetics</td>
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<td>Workshop 9 Gestational Trophoblastic Disease (GTD)</td>
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<td>15:30–16:30</td>
<td>TR Award Poster Finalists (Room 4)</td>
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<td>16:00</td>
<td>Early Career Session</td>
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<td>16:00–17:15</td>
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<td>17:00–17:15</td>
<td>Gala Dinner and Dance at Tokyo Prince Hotel (2F)</td>
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</tbody>
</table>

日本専門医機構認定講習 (for Japanese participants)
September 24 (Mon)

8:00
Mid Career Session (New session)

9:00
Gabor Than Award Lecture

10:15
Coffee Break

10:30
Symposium 3 DOHaD and the placenta

12:00
NIH Award Lecture

12:45
Closing of IFPA Meeting

日本専門医機関認定講習 (for Japanese participants)
GENERAL INFORMATION

Dates and Venue

● Dates: September 21 (Fri) - 24 (Mon), 2018
● Venue: The Jikei University School of Medicine, Building No.1 & No.2
  3-25-8, Nishi-Shimbashi, Minato-ku, Tokyo, 105-8461, Japan
  Tel: +81-(0)3-3433-1111 (Main)

Official Website of the Congress
http://ifpa2018.umin.jp/

Registration
Registration Desk is open as follows:

<table>
<thead>
<tr>
<th>Sep. 21 (Fri)</th>
<th>Sep. 22 (Sat)</th>
<th>Sep. 23 (Sun)</th>
<th>Sep. 24 (Mon)</th>
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<tr>
<td>13:00 - 19:00</td>
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<td>8:00 - 18:00</td>
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</table>

- Registration includes access to all IFPA 2018 sessions/exhibition.
- All registrants are invited to the Welcome Reception on September 21 (Fri).

PC Preview Opening Time
PC Preview Desks are open as follows:

<table>
<thead>
<tr>
<th>Sep. 21 (Fri)</th>
<th>Sep. 22 (Sat)</th>
<th>Sep. 23 (Sun)</th>
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</table>

- There are two different locations for PC Preview.
- PC Preview ① is only for the speakers who present at Room 1.

Lunch
Lunch boxes are provided free of charge at all luncheon seminars. Lunch boxes are served at each Room for each luncheon seminar on a first-come, first-served basis.

Catering
Complimentary tea, coffee, and water will be served in the same area during the scheduled breaks.

Prayer Room
A prayer room is available on request. Please contact the General Information Desk at Registration Area.

Information for Participants
1) Participants are responsible for making their own travel arrangement. If there are any questions regarding travel arrangements, please contact our official travel agency, JTB.
  ifpaa2018@gmt.jtb.jp
2) If there are any questions regarding the congress and its scientific program, please contact the Congress Secretariat.
  ifpaa2018@macc.jp
3) Visa may be necessary for citizens of certain countries to enter Japan. Please refer to your local embassy or travel agency.
Wi-Fi
Free Wi-Fi is available ONLY in Room 1 and Room 2 (Auditorium/1F, Bldg. No.2).

Social Events
[Welcome Reception]
· Date and Time: 19:30 - 21:00, Sep. 21 (Fri)
· Venue: Magnolia Hall, 2F, Tokyo Prince Hotel
  3-3-1 Shiba-koen, Minato-ku Tokyo, 105-8560, Japan
  Tel: +81-(0)3-3432-1111

· Dress code: Informal (A buffet style dinner will be served.)
· All registrants are invited to the Welcome Reception with free of charge.

[ECR Social Meeting]
※ Only pre-registered delegates can participate.
· Date and Time: 19:30 - 21:00, Sep. 22 (Sat)
· Venue: Japanese style bar/Sake to Nagomi to Niku to Yasai Shimbashi
Please contact the General Information Desk at Registration Area to get detail.

[Gala Dinner and Dance]
※ Only pre-registered delegates can participate.
· Date and Time: 19:00 - 22:30, Sep. 23 (Sun)
· Venue: Providence Hall, 2F, Tokyo Prince Hotel
  3-3-1 Shiba-koen, Minato-ku Tokyo, 105-8560, Japan
  Tel: +81-(0)3-3432-1111

· Dress code: Informal (A Seated style dinner will be served.)
The official IFPA 2018 Congress App is available as a free download for iPhone, Android and all tablets, and in a web version for all other devices.

- View all meeting information on your mobile device (program, abstracts, speakers, etc.)
- Browse the program by date and time, theme, and track
- Search for individual abstracts, sessions and speakers
- View full abstracts without the abstract booklet
- Build a personalized schedule with built-in reminders
- Receive important conference-related notifications and updates

**Works across devices**

- Mobile App for iPhone, Android and tablets
- Web App for all other devices
- Multi-device sync

**Download the IFPA 2018 Congress App**

- To download Mobile App, search IFPA 2018 in your Mac App store/Google Play store.

  ![Download on the Mac App Store](image)

  ![Get it on Google Play](image)

- Web version is linked from our official website.

  ![QR Code](image)

http://ifpa2018.umin.jp/
[Speaker Presentation Guidelines]
Due to strict time constraints between sessions, it will not be possible to amend slides in the meeting rooms. All speakers must ensure that any amendments are completed at PC Preview prior to the start of their session.

1) All speakers are requested to bring their presentation data on USB Flash Drive, CD-R or their own computer to PC Preview (See details below) and to upload their presentation data at least 60-min before their session.

2) All speakers are requested to be seated at the Next Speaker’s seats located in the left front row 30-min before their session starts.

Guidelines for PowerPoint Presentations

- Accepted application format is Windows PowerPoint 2007/2010/2013/2016.
- Recommended typefaces are Century, Century Gothic, Arial, and Times New Roman. Please avoid special characters.
- To clearly identify your presentation, please save it with your given & family name as part of the file name i.e. jane_smith.ppt.; with any additional information required following EG: john_smith_paper2.ppt
- Please ensure your first slide is a title slide stating-your name, presentation title and affiliation.
- Please choose the “On screen show” output within the "slide set up" menu when creating your presentation: this option will be checked by the preview technician and may alter the formatting or layout of your slides.
- Video files should ideally be saved within PPT if you have 2010 or later otherwise it should be saved to the same storage media as the main ".ppt" file.
- Non-standard codecs used to render and playback video files should also be included with the presentation.
- Graphics, written or tabular material must be of adequate size to be clearly visible to all delegates, even at the back of the hall. In general, it should not exceed 5-6 lines of bold print containing 6-7 words per line. If a larger amount of information needs to be presented, it should be split into several slides.
- Keep your material simple.
- Essential information and font should be large and bold.
- Line graphs and simple drawings are more effective than tables of figures.
- Keep slide transitions simple and consistent.
- Slides are easier to read when there is a high contrast between the text and the background (e.g. white/yellow letters on a black/dark blue/dark green background). Avoid using black text.

Notes:
- Speakers will not be permitted to use their own laptops for their presentations, as there will be insufficient time between papers to connect and disconnect individual computers: speakers must use the supplied computer hardware.
- The presentation will be saved to the show computer during check-in at the preview room.
- If you create your presentation using a Macintosh and/or moving images, please bring your own computer.
- The presentation laptop will be connected at the lectern and the room technician will have a back up to switch to if needed.
- A technician will be available at PC Preview to assist with any final enquiries, please attend at least 60-min prior to the session start.
INSTRUCTIONS REGARDING SCIENTIFIC PROGRAM

Information for Chairs of Oral sessions
All chairs of oral sessions are requested to be seated at the Next Chair’s seats located in the right front row 30-min before their session starts.

[Poster Preparation Guidelines]
All posters should be on display from 14:00, Sep. 21 (Fri) until 19:00, Sep. 22 (Sat). Posters left in-situ after 14:30, Sep. 23 (Sun) will be discarded unless collected.

IMPORTANT: PLEASE NOTE THAT YOUR FINAL ABSTRACT NUMBER IS THE SAME AS YOUR POSTER BOARD NUMBER. THIS NUMBER WILL BE AFFIXED TO THE BOARD ALLOCATED TO YOU AT THE CONFERENCE.

Please stay in front of your poster within the time Poster Session in order to encourage sufficient discussion.

Poster Finalists
The finalists will be announced by the morning, Sep. 23 (Sun). If you are nominated as a finalist, please bring your poster to Room 4 before 14:30, Sep. 23 (Sun) by yourself.

Poster Scheme of Presentation
1) Each abstract will be allocated one numbered board. The boards are covered in fabric to which the display material must be affixed using Velcro: this will be affixed to the poster-boards by the Secretariat. No drawing pins, staples, sticky pads or any other form of adhesive should be used.
2) A presentation number to be placed at the top left of the poster will be provided by the Secretariat. Each author is requested to indicate the “Title”, “Authors’ names” and “Authors’ affiliations”, “City, Country” at the top right of the panel within an area measuring 70 cm wide by 20 cm high.
3) The poster contents should be arranged to describe the “Objective”, “Methods”, “Results” and “Conclusion” of the presentation.
4) The usable area of the contents is the size measuring 90 cm wide by 180 cm high. The layout of the presentation contents is at the authors’ discretion.
5) Drawings, diagrams and photos are extremely helpful and often necessary to display results and conclusions. Make sure that your illustrations are easy to understand; do not overload any chart or drawing with information.
6) If the first author is not able to attend the Meeting, then a co-author will be able to represent on your behalf.
7) The Secretariat will be responsible for providing the poster board number and the presenter will be responsible for preparing their title, which must correspond with the title already submitted. Please allow 20cm wide by 20cm high approx. for the poster board number, which will be placed in the top left-hand corner of the board. The title should be placed alongside the number.
8) Adequate lighting will be provided. Film projectors, video-tapes and recorders, computer equipment and any other free standing exhibits will not be permitted.
INSTRUCTIONS REGARDING SCIENTIFIC PROGRAM

Recommended Font Sizes And Styles:
You should use dark text colours on a light background, or vice versa. Recommended fonts are Times New Roman, Calibri, Ventana and Arial, as these are easy to read.
Title: 80-100 pt (font size).
Authors and institutions: 30-40 pt.
Main text: 32-40 pt, although 28 pt or even 24 pt could be used in isolated areas, or if you have a very large amount of text.
References/Bibliography: 24-32 pt.

Disclaimer/Liability
The Organizing Committee cannot accept liability for injuries or losses of whatever nature incurred by participants, nor for loss of or damage to their luggage and/or personal belongings. Please check the validity of your own travel insurance.

All reasonable endeavors will be made to hold IFPA 2018 and to present its program as scheduled under circumstances which assure the comfort and safety of all participants. However, neither IFPA nor its committees, representatives or agents, shall be held liable by any person as a result of the cancellation of IFPA 2018 or of any of the arrangements, programs or plans connected therewith, or for any injury, damage or inconvenience which may be suffered by any person while travelling to or from, or during such person’s presence in Japan in connection with this Meeting.

Participants are fully liable for damages caused to third parties and property.

All delegates shall have a valid, fully comprehensive third party travel and/or liability insurance.

Emergency Phone Numbers
In an emergency, please dial 110/119, from any phone, dial 110 is to contact the police, dial 119 is to fire or ambulance services. Any emergencies that occur whilst onsite at IFPA 2018 must be reported to the Congress at Registration Desk.
**First Aid Room**
If you are in need of medical attention, please make yourself known to any member of the Congress Secretariat.

**Recording**
Recording by any means (photograph, audio or video) of any presentations or sessions at IFPA 2018 is strictly forbidden. First Authors who wish to photograph their own poster presentations are allowed to do so.

**Security**
Please wear your name badge at all times. Entrance will not be permitted to delegates who are not wearing their badge.

**Smoking Policy**
This is a non-smoking event. Designated smoking areas will be situated outside of the venue.

**General Information about Japan**

**Passport & Visa**
To visit Japan, visitors must have a valid passport. A visa is required for citizens of countries that do not have visa exemption agreements with Japan. Please contact your nearest Japanese Embassy or Consulate for visa requirements.

**Duty Free Imports**
Personal effects and professional equipment can be brought into Japan duty free as long as the items and quantities are deemed reasonable by the customs officer. Visitors can also bring in 400 cigarettes, 500g of tobacco or 100 cigars; 3 bottles of alcoholic beverages; 2oz of perfume; and gifts and souvenirs with a total market price of less than 200,000 yen or equivalent. There is no allowance for tobacco or alcoholic beverages for persons aged 19 years or younger. Firearms and other types of weapons and narcotics are strictly prohibited.

**Insurance**
The organizer accepts no responsibility for accidents that might occur. Delegates are encouraged to purchase travel insurance before leaving their home countries. Insurance plans typically cover accidental loss of belongings, medical costs in case of injury or illness, and other risks of international travel.

**Climate**
Heat exceeding 30 degrees can linger into September, and this time of year is punctuated by typhoons meaning that travel and outdoor events can be disrupted, however, the temperature and humidity gradually drops ushering in gloriously crisp and comfortable autumn.

**Currency Exchange**
Only Japanese yen (¥) is acceptable at regular stores and restaurants. Certain foreign currencies may be accepted at a limited number of hotels, restaurants and souvenir shops. You can buy yen at foreign exchange banks on presentation of your passport.
Credit Cards
VISA, MasterCard, Diners Club and American Express are widely accepted at hotels, department stores, shops, restaurants and nightclubs.

Tipping
In Japan, tips are not necessary anywhere, even at hotels and restaurants.

Electricity
Electric current is uniformly 100 volts AC throughout Japan. However, electricity is provided at either 50 or 60 cycles, depending on location: 50 cycles in eastern Japan (including Sendai and Tokyo); and 60 cycles in western Japan.
Leading hotels in major cities often provide two types of electrical outlets (100 volts and 220 volts), but their sockets usually accept only two pronged plugs.

Travel IC Card
Suica/PASMO
Purchase a Suica/PASMO card from one of the JR or other lines’ station ticket machines—500 yen deposit is required. After charging it up, you can begin using it immediately. It is generally accepted all over Tokyo and throughout Japan. Suica/PASMO cards are accepted on most buses in the Tokyo area and also some taxis, vending machines, coin lockers, convenience stores and in other retailers. Return your card at the end of your stay to reclaim your deposit.
日本人参加者の皆さまへ

1. 専門医等の出席証明について（e医学会カードでの受付）
・日本産科婦人科学会会員の方は、研修出席証明の単位が付与されます。（会期中1 回）
・日本産婦人科医会会員の方は、研修参加証が発行されます。（1 日1 枚）

2. 日本専門医機構 単位付与講習について
IFPA2018では、下記のセッションにおいて日本専門医機構の単位を付与いたします。

<table>
<thead>
<tr>
<th>9月21日（金）</th>
<th>15:00 - 16:30</th>
<th>第1会場（2号館 1階講堂）</th>
<th>Keynote Lecture 1&amp;2</th>
<th>産婦人科領域講習（1単位）</th>
</tr>
</thead>
<tbody>
<tr>
<td>9月22日（土）</td>
<td>10:30 - 12:00</td>
<td>第1会場（2号館 1階講堂）</td>
<td>Symposium 1</td>
<td>産婦人科領域講習（1単位）</td>
</tr>
<tr>
<td>9月23日（日）</td>
<td>10:30 - 12:00</td>
<td>第1会場（2号館 1階講堂）</td>
<td>Symposium 2</td>
<td>産婦人科領域講習（1単位）</td>
</tr>
<tr>
<td>9月24日（月）</td>
<td>10:30 - 12:00</td>
<td>第1会場（2号館 1階講堂）</td>
<td>Symposium 3</td>
<td>産婦人科領域講習（1単位）</td>
</tr>
</tbody>
</table>

各講習会場で対象セッション開始の10分前から講習参加受付を開始します。
開始時間10分を過ぎた場合、聴講は可能ですが、機構専門医単位付与はされません。
・e医学会カードで参加登録を行いますので必ずお持ちください。
・ご出席の先生はご自身の責任でe医学会カードで参加登録を行ってください。

関連会議一覧

<table>
<thead>
<tr>
<th>9月20日（木）</th>
<th>16:30 - 17:30</th>
<th>会議室1（2号館 9階901）</th>
<th>日本産婦人科学会 会議室1</th>
<th>日本臨床会議室 世話人会</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17:30 - 18:30</td>
<td>会議室1（2号館 9階901）</td>
<td>日本臨床会議室 会議室1</td>
<td>日本臨床会議室 理事会</td>
</tr>
</tbody>
</table>

| 9月22日（土） | 10:00 - 10:30 | 第9会場（2号館 10階1001） | 日本臨床会議室 評議員会 |
|----------------|----------------|-----------------|---------------------|---------------------|
| 16:10 - 16:25 | 第1会場（2号館 1階講堂） | 日本産婦人科学会 総会 |
| 16:25 - 16:40 | 第1会場（2号館 1階講堂） | 日本臨床会議室 総会 |
Welcome Reception       19:30 - 21:00, Sep. 21 (Fri)
Gala Dinner and Dance  19:00 - 22:30, Sep. 23 (Sun)
## Subway

<table>
<thead>
<tr>
<th>Line</th>
<th>Station</th>
<th>Exit</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toei Subways</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Toei Mita Line</strong></td>
<td>Onarimon Sta.</td>
<td>Exit A5</td>
<td>Approx. 3 minutes on foot</td>
</tr>
<tr>
<td></td>
<td>Uchisaiwaicho Sta.</td>
<td>Exit A3</td>
<td>Approx. 10 minutes on foot</td>
</tr>
<tr>
<td><strong>Toei Asakusa Line</strong></td>
<td>Shimbashi Sta.</td>
<td>Exit 8</td>
<td>Approx. 12 minutes on foot</td>
</tr>
<tr>
<td><strong>Toei Asakusa Line, Toei Oedo Line</strong></td>
<td>Daimon Sta.</td>
<td>Exit A2</td>
<td>Approx. 13 minutes on foot</td>
</tr>
<tr>
<td><strong>Tokyo Metro</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hibiya Line</strong></td>
<td>Kamiyacho Sta.</td>
<td>Exit 3</td>
<td>Approx. 7 minutes on foot</td>
</tr>
<tr>
<td><strong>Ginza Line</strong></td>
<td>Toranomon Sta.</td>
<td>Exit 1</td>
<td>Approx. 10 minutes on foot</td>
</tr>
<tr>
<td></td>
<td>Shimbashi Sta.</td>
<td>Exit 8</td>
<td>Approx. 12 minutes on foot</td>
</tr>
<tr>
<td><strong>Marunouchi Line, Chiyoda Line</strong></td>
<td>Kasumigaseki Sta.</td>
<td>Exit C3</td>
<td>Approx. 13 minutes on foot</td>
</tr>
</tbody>
</table>

## Train (JR)
- 12 minutes on foot from JR Shimbashi Station. (5 minutes by taxi)
- 15 minutes on foot from JR Hamamatsucho Station. (8 minutes by taxi)
- 12 minutes by taxi from JR Tokyo Station.

## From Haneda Airport

### By Tokyo Monorail

- Haneda Airport
  - Terminal 1 Sta.
  - Terminal 2 Sta.
  - Int’l Terminal Sta.
- Tokyo Monorail
- Hamamatsucho Sta. (transfer to JR Yamanote Line)
  - 8 minutes by taxi from Hamamatsucho Sta. to the venue.
- JR Shimbashi Sta.
  - 5 minutes by taxi from Shimbashi Sta. to the venue.

### By Train (Keikyu Line & Toei Mita Line)

- Haneda Airport
  - Domestic Terminal Sta.
  - Int’l Terminal Sta.
- Keikyu Line
- Mita Sta.
- Toei Mita Line
- Onarimon Sta.

## From Narita Airport

### By Train
- Approx. 80 minutes to Daimon Station, Toei Asakusa Line (via Narita Sky Access Line, Keisei Line, Toei Asakusa Line)

### By Car
- Approx. 90 minutes by taxi during off-peak hours (Express highway, via Shibakoen Ramp)

### By Bus
- Approx. 120 mintues by Airport Limousine Bus (bound for Shiba area)
COMMITTEES

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Daisuke Aoki
Tomoyuki Fujii
Hirosi Fujiwara
Kazuhiko Ino
Atsuo Itakura
Mitsutoshi Iwashita
Naohiro Kanayama
Hidetaka Katabuchi
Kiyoko Kato
Fumitaka Kikkawa
Tadashi Kimura
Ikuo Konishi
Masayasu Koyama
Toshiro Kubota

Yoshiki Kudo
Hideaki Masuzaki
Aikou Okamoto
Norimasa Sagawa
Shigeru Saito
Kouichiro Shimoya
Makio Shozu
Satoru Takeda
Toshiyuki Takeshita
Toshihiro Takizawa
Kazuhiro Tamura
Norio Wake
Tatsuo Yamamoto
Jun Yoshimatsu

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Steven Charnock-Jones (UK)
Pascale Chavatte-Palmer (France)
Chie-Pein Chen (Taiwan)
Vicki Clifton (Australia)
Sally Collins (UK)
Brian Cox (Canada)
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Chair of IFPA Awards Committee

Padma Murthi (Australia)

Chairs of Trophoblast Research Award Committee

Mark Dilworth (UK)  Theresa Powell (USA)
Dennis Lo is the Associate Dean (Research) of the Faculty of Medicine, the Director of the Li Ka Shing Institute of Health Sciences and Chairman of the Department of Chemical Pathology of The Chinese University of Hong Kong. He received his undergraduate education from the University of Cambridge, and his Doctor of Medicine and Doctor of Philosophy degrees from the University of Oxford. He discovered the presence of cell-free fetal DNA in maternal plasma in 1997 and is a key driver of non-invasive prenatal diagnosis. He has also pioneered many non-invasive approaches for detecting cancer-associated molecular aberrations in blood. He is a Fellow of the Royal Society (UK) and a Foreign Associate of the US National Academy of Sciences, and has been awarded the King Faisal International Prize in Medicine in 2014 and the Future Science Prize in 2016.

Akihiro Umezawa

Position:
Deputy Director
Research Institute
National Center for Child Health and Development

Education and Professional Career:
1985 Keio Univ School of Medicine, MD, Japan
1990 Keio Univ School of Medicine, PhD, Japan
1991 Postdoctoral Fellow, UCSD, USA
1992 Postdoctoral Fellow, The Burnham Institute, USA
1995 Assistant Professor, Keio Univ School of Medicine, Japan
1999 Associate Professor, Keio Univ School of Medicine, Japan
2002 Department Head and Chairman, Department of Reproductive Biology, National Center for Child Health and Development, Japan
2011 Deputy Director, National Center for Child Health and Development, Japan
Professor Claire Roberts Bio IFPA 2018

Professor Claire Roberts is the Deputy Director of the Robinson Research Institute at the University of Adelaide and leads its Pregnancy and Birth Theme. She is President of the International Federation of Placenta Associations and past President of the Australian and New Zealand Placenta Research Association. Claire has won over $22 million in research funding. She has significant expertise in cellular and molecular mechanisms in placental development and using the SCOPE Pregnancy cohort has identified genetic, clinical and lifestyle factors that influence pregnancy outcome in women. She has lead the development of patented algorithms for use as screening tools to predict which women in their first pregnancy are at risk of developing the four main complications of pregnancy, preeclampsia, preterm birth, intrauterine growth restriction and gestational diabetes. Claire has NIH Human Placenta Project funding to non-invasively monitor placental health across gestation using multi-omics.

Kenichiro Hata M.D., Ph.D.

Academic Background:
1. Clinical fellow, Department of Gynecology and Obstetrics, Kyushu University, Japan, 1992-1999
2. Postdoctoral research fellow, Massachusetts General Hospital, MA, 1999-2002
3. Assistant professor, National Institute of Genetics, Japan, 2002-2007
4. Director, Department of Maternal-Fetal Biology, National Center for Child Health and Development, Japan (2007-present)
**Wendy Robinson**

Wendy Robinson earned a PhD in Genetics at the University of California, Berkeley CA USA in 1989, specializing in population genetics and genetic epidemiology related to the human histocompatibility complex (HLA) multigene family. Her research as a postdoctoral fellow at the Medical Genetics Institute at the University of Zurich, Switzerland from 1989-1994, focused on the origin and consequences of chromosomal abnormalities in humans and the mechanisms underlying disorders of genomic imprinting, such as Prader-Willi and Angelman syndromes. Since 1994, Dr. Robinson has been a faculty member of the Department of Medical Genetics, University of British Columbia in Vancouver, Canada, where she is currently full professor. She is also a senior scientist at the BC Children’s Hospital Research Institute and is the Asst. Dean of Graduate and Postdoctoral Education in the UBC Faculty of Medicine. Her current research focuses on genetic and epigenetic aspects of placental and fetal development. Areas include the role confined placental mosaicism in pregnancy complications and fetal growth restriction; the application of omics technologies to understand placental pathologies including preeclampsia, fetal growth restriction and acute chorioamnionitis; and an assessment of normal variability in placental development. Dr. Robinson’s research is funded by grants from the Canadian Institutes of Health Research (CIHR) and National Institutes of Health Research (NIH). She has published over 200 manuscripts and book chapters (h-index=57, i10 index=151).

**Daisuke Tachibana**

PROFESSION: Associate Professor, Osaka City University Graduate School of Medicine

OFFICE ADDRESS: Women’s Lifecare Medicine, Department of Obstetrics and Gynecology, Graduate School of Medicine, Osaka City University

BOARD CERTIFICATION

Japan Society of Obstetrics and Gynecology, Board Certified; No.N0111 (October, 2001)

Japan Society of Perinatal and Neonatal Medicine, Board Certified; No 0475 (December, 2006)

EDUCATION: Graduated from Osaka City University Medical School in 1996


PROFESSIONAL ACTIVITIES: Board member of the Japan Society of Nutrition and Metabolism in Obstetrics and Gynecology, the Japan Society of Obstetrical, Gynecological and Neonatal Hematology, Osaka Society of Maternal Health, the Obstetrical Gynecological Society of Kinki District Japan

RESEARCH INTERESTS:

Fetal circulation research of fetal growth restriction
Postpartum hemorrhage and disseminated intra-vascular coagulation in maternal medicine
SPEAKER BIOGRAPHIES

Padma Murthi

Dr. Padma Murthi, MSc., MPhil., PhD

Senior Research Fellow, Monash University & The Ritchie Centre, Hudson Institute of Medical Research

Dr. Murthi’s research interest lies primarily in understanding the molecular mechanisms of placental insufficiency leading to human fetal growth restriction. Her research focusses on comprehensive functional analyses of developmentally important growth control genes called the homeobox genes, their down-stream targets, and novel biological pathways that are abnormal in placentas affected by human fetal growth restriction. Dr. Murthi has produced more than 90 publications in this field. Her current interest is in placental tryptophan metabolism, which is a metabolic pathway regulated by the novel homeobox gene, MEIS2. Using animal models, Dr. Murthi and her team have recently shown that maternal vitamin D deficiency during pregnancy and in embryonic development contributes to disruption in the placental tryptophan metabolic pathway leading to neurocognitive deficiencies in the offspring.

Dr. Murthi also serves on the editorial boards of Scientific Reports, J of Pregnancy and International Journal of Reproductive Sciences. She also serves as secretary of the International Federation of Placental Associations (IFPA), and acts as the Chair of the IFPA award committee.

Vicki Clifton

Professor Vicki Clifton is a National Health and Medical Research Council Senior Research Fellow who is currently the Program leader of Mothers and Babies Theme at Mater Medical Research Institute in Brisbane Australia. Prof Clifton was employed at the Robinson Research Institute, School of Paediatrics and Reproductive Health at the University of Adelaide from January 2008 to April 2015 after many years at the Mothers and Babies Research Centre in Newcastle, Australia. While at the Robinson Research Institute she was Director of Clinical Research at the Lyell McEwin Hospital in Adelaide, Australia (2009-2014) and leader of the Allergy Research Priority. Prof Clifton spent many years as Treasurer and then President of the Endocrine Society of Australia (2004-2013). She is a graduate of the Australian Institute of Company Directors and obtained a Diploma of Management from the University of Adelaide. Prof Clifton is internationally recognized for her research into the human placenta and is currently Editor of the Placenta Journal (2012-present). She is also an Executive member of the International Society of Endocrinology Board that oversees and supports the activities of the national societies of endocrinology in 80 countries around the world. Her current research focusses on the impact of maternal asthma and other health complications during pregnancy on placental function, fetal growth and childhood development. She has a specific interest in the sex specific differences in the fetal-placental response to a complication of pregnancy understanding the different strategies male and female fetuses institute to cope with an adverse event in pregnancy and how this ensures their survival in early life.
**Julienne N. Rutherford**

Dr. Rutherford is an Associate Professor of Women, Children, and Family Health Science in the College of Nursing at the University of Illinois at Chicago (UIC), serving masters level midwifery and women’s health nurse practitioner students as well as PhD students. Dr. Rutherford is a biological anthropologist whose work integrates evolutionary theory with biomedical science. Her research program revolves around a central interest in the dynamic maternal environment in which a fetus develops, with a primary focus on the primate placenta as a signaling interface between mother and fetus. She works predominantly with marmoset monkeys, a litter-bearing nonhuman primate that produces variable intrauterine environments, to address how the period of prenatal development impacts reproductive development and function into adulthood, and that of subsequent generations. Additionally, Dr. Rutherford is part of a four-woman team that published the groundbreaking SAFE study about sexual harassment and assault in the field sciences. She has been a Robert Wood Johnson Future of Nursing mentor, and she is the recipient of many awards including the UIC Researcher of the Year Rising Star in Clinical Sciences, American Society of Primatologists Legacy Award, National Academy of Science Kavli Foundation Fellow, the American College of Nurse Midwives Excellence in Teaching Award and an NIH Loan Repayment Program Award.

**Katsuhiko Naruse**

Katsuhiko Naruse, MD, PhD  
St. Barnabas’ Hospital, Osaka, Japan

Katsuhiko “Katsu” Naruse is one of the well-known obstetricians of his generation in Japan, as well as having a research interest in preeclampsia and placental biology. He graduated from Nara Medical University (NMU) on 1999 and finished his Ph.D. thesis on 2005 alongside his obstetrics, gynecology, and perinatal care training. From 2005 to 2007, he was a visiting lecturer in Newcastle, UK, performing research in trophoblast invasion and spiral artery remodeling in the research group of Drs. Judith Bulmer and Gendie Lash. During that time he received Y.W.Loke travel Award and presented his research on workshops of IFPA meetings (2006, 2007). After his return to Nara, he continued his research in preeclampsia and other pregnancy complications from the view of placenta, inflammation and adipokines. Concurrently he served as the obstetrician-in-chief of NMU hospital, a tertiary center of Prefecture, until 2016. He is currently temporarily seconded to St. Barnabas’ Hospital, Osaka, as a Hospital Director and Mid-wifely School Headmaster to reconstruct the 145th Anniversary maternity hospital. He has published over 50 papers and textbook chapters. He also works as a core member of many research and professional societies in Japan, that write official guidelines or produce international congresses in Japan, such as ISIR 2019 (Nara), ISSHP 2020 (Nara) and FAOPS 2020 (Tokyo).
SPEAKER BIOGRAPHIES

Kent Thornburg

Kent L. Thornburg, Ph.D.
M. Lowell Edwards Chair
Professor of Medicine
Director, Center for Developmental Health, Knight Cardiovascular Institute
Director, Bob and Charlee Moore Institute for Nutrition & Wellness

Kent L. Thornburg, Ph.D., is the M. Lowell Edwards Chair of Cardiovascular Research and Professor of Medicine in the Knight Cardiovascular Institute at the Oregon Health & Science University (OHSU). He holds joint professorships in the Departments of Physiology & Pharmacology, Medical Informatics and Clinical Epidemiology and Obstetrics & Gynecology. He directs the Center for Developmental Health in the Knight Cardiovascular Institute, the OHSU Bob and Charlee Moore Institute for Nutrition & Wellness and co-directs the Epigenetics Consortium. Dr. Thornburg studies how women adapt to pregnancy and the roles of maternal diet and body composition in regulating fetal growth and lifelong health. He oversees clinical studies in rural Oregon and Alaska and collaborates with scientists in 5 countries. Dr. Thornburg serves regularly on advisory panels at the NIH, the American Heart Association and the Children’s Heart Foundation and serves on the scientific advisory board of the Pre-eclampsia Foundation. He served as co-chair for the 10 year vision on programming for the National Institute of Child Health and Human Development and for the recent strategic conference on the genetic and epigenetic underpinnings of child health in the NIH ECHO program. He is committed to community service across the state of Oregon and among Native Americans in Alaska.

Jaime Gutierrez

Jaime Gutiérrez, PhD

Jaime Gutiérrez (1979) graduated in biochemistry (2005) and PhD in Molecular and Cellular Biology (2009) from the Pontificia Universidad Católica de Chile (PUC). My actual position is Assistant Professor at Health Science Faculty, Universidad San Sebastián (USS), Santiago, Chile and Research Associate in the Division of Obstetrics and Gynecology, Faculty of Medicine, School of Medicine, PUC.

After obtaining the PhD degree, I started a postdoctoral position (2010-2013) at the Center of Aging and Regeneration (CARE), PUC with a research grant from the National Agency of Science and Technology FONDECYT (Chile) under the program of Initiation in Research, which was granted for the period of 2011 to 2014. This postdoctoral research focused in the study of cell migration/invasion and survival of intramuscular injected stem cells for the Stem Cell Therapy for the treatment skeletal muscle dystrophies and regarded particularly on the role of RECK, a novel cell membrane associated inhibitor of different matrix metalloproteinases (MMP) and a-disintegrin and metalloproteinases (ADAMs), in these processes. Since 2013 I started a collaboration with Dr. Luís Sobrevia at Faculty of Medicine, School of Medicine, PUC participating in the characterization of pathophysiological mechanisms and detection of common therapeutic targets in placental dysfunction in pathologies of the human pregnancy. This activity, certainly favored the development of my own research line mainly focused in the study of placental development and vascular biology. Thus, I started as a principal investigator a research line focused in the study of the early events associated to the human placental development and preeclampsia. This year (2018) my research proposal was founded for a research grant from the National Agency of Science and Technology FONDECYT (Chile) under the program of Initiation in Research, which was granted for the period of 2018 to 2022, and entitled “Role of RECK in preeclampsia development: as a key regulator of cytotrophoblast invasiveness and spiral arteries remodeling”.

I have communicated the results of my results in national and international conferences (Chile, Argentina, Italy and USA). Within the development of my career as independent researcher I have published 34 articles in specialized journals. Additionally, I have had the opportunity of training students of medical technology and biochemistry (undergraduate thesis direction) from PUC and Universidad San Sebastián (Chile).
Kazuhiko Kajiwara

Kazuhiko Kajiwara graduated from the Jikei University School of Medicine, Japan, in 2007. He is now a medical doctor working as a medical director in the obstetrics and gynecology at the Jikei University. He completed postgraduate course in 2017 and received Ph.D. degree from the Jikei University. He has been at the Center for Regenerative Medicine, National Center for Child Health and Development from 2014-2017. His research used amniotic fluid-derived iPS cells to generate three-dimensional skin for coverage of a skin defect site in patients with myelomeningocele in rat model (Kajiwara, et al., Stem Cell Reports, 2017). He received a Congress Award from the Japan Society of Obstetrics and Gynecology in 2017. His recent work is focused on exploring the placental morphology and vasculature in the developing placenta by maternal retinoic acid exposure in rat model.

Prabha Andraweera

Dr. Prabha Andraweera obtained her medical degree (MBBS) from the University of Colombo, Sri Lanka in 2001. She received her postgraduate training in Clinical Genetics and worked as a lecturer in Anatomy and Human Genetics at the University of Colombo, Sri Lanka from 2006-2008. She received an Australian Leadership Award to pursue Doctoral research and obtained her PhD from the University of Adelaide in 2012 with the thesis by publication entitled: Angiogenesis regulating gene polymorphisms in adverse pregnancy outcomes. Her Doctoral research identified a genetic association between pregnancy complications and later life vascular and metabolic diseases. Her published papers are among the first few to demonstrate a genetic link between pregnancy complications and later life vascular diseases and to show a paternal genetic contribution to pregnancy complications. Dr. Andraweera is currently a NHMRC Australia Peter Doherty Postdoctoral Fellow in the Discipline of Obstetrics and Gynaecology, Adelaide Medical School and the Robinson Research Institute at the University of Adelaide, Australia. Her current research focuses on exploring the risk for cardiovascular disease among women who experience pregnancy complications and their children. Dr. Andraweera has received many research awards including the prestigious Frederick P Zuspan award for her research in preeclampsia and the Dean’s commendation for Doctoral thesis excellence. She has received competitive grant funding > $750,000. She has 21 publications in high impact journals and has presented over 50 conference papers.
Rodolfo Favaro

After graduating in Biomedicine (2000-2004) at the State University of Londrina, Brazil, he received a Ph.D. degree (2005-2011) and postdoctoral training (2012-2017) in Cell and Tissue Biology at the University of São Paulo, Brazil. During this period, he studied the influence of type 1 diabetes on the uterine environment and the role of estrogen and progesterone on endometrial extracellular remodeling. Part of the results has been published in two articles in the Placenta Journal. Currently, he integrates the Placenta Lab at the University Hospital Jena, Germany. His studies are focused on different aspects of endometrial and trophoblast biology, including the functional characterization of non-coding RNAs expressed by endometrial and trophoblast cells as well as the role of extracellular vesicles in intercellular communication.

Andrea Loewendorf

I was born and raised in cold war Berlin, Germany, and studied biology in a small town in former East Germany where my Master’s thesis focused on mRNA trans-splicing in Drosophila melanogaster. I received my PhD in of virology exploring immunomodulatory genes in mouse cytomegalovirus (MCMV) before moving to the United States. At the La Jolla Institute in San Diego, I continued working with MCMV, specifically the atypical immune responses toward and their modulation by the virus. Then, I realized that while herpesviruses cause clinical problems, patients weren’t receiving better treatment due to my personal work. Making a difference in patient’s lives was important to me and thus I decided on a second postdoc working on the immune basis of preeclampsia under the mentorship of Dr. Kahn at UCLA. When Dr. Kahn sadly decided to close his lab, I moved to the Huntington Medical Research Institutes to build my own program.

My Lab of Reproductive and Vascular Immunology focuses on treatments of the main acute and long-term threat of preeclampsia: clot formation. As clot formation involves the immune system and vascular endothelium, successful protection must likely involve both. I believe collaborations are essential to tackle such complex problems; a fluid dynamics engineer, Dr. Pahlevan from USC and radiologist colleague at HMRI, Dr. King are currently part of this endeavor. In my free time, I enjoy cooking, watching standup comedy, and exploring the California State Parks by hiking or on my motorcycle.

Title of the talk
The long-term effects of preeclamptic pregnancy: the search for disease drivers, monitoring strategies and treatments
Francesca Gaccioli

Francesca obtained her Master’s degree in Biology and PhD in Molecular Biology and Pathology from the University of Parma (Italy). She worked as a postdoctoral fellow at Case Western Reserve University (Cleveland) and the University of Texas Health Science Center (San Antonio). She currently works in the Department of Obstetrics and Gynaecology at the University of Cambridge with Profs Gordon Smith and Steve Charnock-Jones. Using multi-omics approaches to study placental and maternal blood samples, her research aims at understanding how altered placental development and function contribute to pregnancy complications, such as fetal growth restriction and preeclampsia. The overarching goal of her work is to identify novel circulating biomarkers for predicting these adverse pregnancy outcomes. Her work is based on the data and samples collected during the Pregnancy Outcome Prediction (POP) study, a prospective cohort study of 4,212 first pregnancies.

Sandra Haider

Sandra Haider studied applied biosciences (1994-1997) and molecular biology at the University of Vienna (2004-2010). In 2010 she received her master’s degree in molecular biology and subsequently obtained her PhD from the Medical University of Vienna in 2015 for her thesis on Notch signalling in placental development. Since 1997 she is working with Prof. Martin Knöfler at the Department of Obstetrics & Gynaecology at the Medical University of Vienna. Her research interests are different areas of human trophoblast biology including signalling pathways regulating trophoblast physiology and establishment of novel trophoblast model systems. Her current research focus is the investigation of mechanisms controlling human trophoblast progenitor development and cell fate determination. So far, she published 6 and 27 articles as first and co-author, respectively. For her investigations on the role of Notch Receptor 1 in extravillous trophoblast lineage formation she received the Society of Reproductive Investigation’s Giorgio Pardi Foundation Junior Scientist Award in 2016 and was recently honoured with the “Researcher of the Month” of the Medical University of Vienna. Besides studying trophoblast development and differentiation, she established 3D organoid culture model systems of human and murine decidual glands to study physiological and pathophysiological processes of the endometrium.
Y. W. (Charlie) Loke New Investigator Awards

Supported by the generous endowment of Y.W. (Charlie) Loke, Emeritus Professor of Reproductive Immunology at the University of Cambridge and member of the IFPA and EPG. It offsets travel expenses for approximately 40 young investigators per meeting.

<table>
<thead>
<tr>
<th>NAME</th>
<th>COUNTRY</th>
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<tbody>
<tr>
<td>Natalia Anahi Juiz</td>
<td>Argentina</td>
<td>Instituto de Investigaciones en Ingeniería Genética y Biología Molecular “Dr. Héctor N. Torres”</td>
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<tr>
<td>Wendi Bacon</td>
<td>UK</td>
<td>University of Cambridge</td>
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<td>Nirav Barapatre</td>
<td>Germany</td>
<td>Ludwig Maximilian University of Munich</td>
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<td>Marie-Eve Brien</td>
<td>Canada</td>
<td>Ste-Justine Hospital Research Center</td>
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<td>Sarah Cartland</td>
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<td>University of Leeds</td>
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<td>Giulia Del Gobbo</td>
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<td>The University of British Columbia</td>
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<td>Joshua Fisher</td>
<td>Australia</td>
<td>Griffith University</td>
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<td>Daiana Fornes</td>
<td>Argentina</td>
<td>Centro de Estudios Farmacológicos y Botánicos</td>
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<td>Kiichiro Furuya</td>
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<td>Osaka University Graduate School of Medicine</td>
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<td>Manjot Gill</td>
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<td>Hildegunn Horne</td>
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<td>University of Oslo</td>
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<td>Andrée-Anne Hudon-Thibeault</td>
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<td>Institut National de la Recherche Scientifique</td>
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<td>Mai Inagaki</td>
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<td>Naoyuki Iwashashi</td>
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<td>Wakayama Medical University</td>
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<td>Neva Kandzija</td>
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<td>University of Oxford</td>
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<td>Shrey Kohli</td>
<td>Germany</td>
<td>Otto-von-Guericke University</td>
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<td>Hager M. Kowash</td>
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<td>The University of Manchester</td>
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<td>Oddrun Kristiansen</td>
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<td>Oslo University Hospital</td>
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<td>Liyang Ma</td>
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<td>Teruyuki Mizutani</td>
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<td>Alexander Mocker</td>
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<td>Friedrich-Alexander University Erlangen-Nuremberg</td>
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<td>Yoko Nagayasu</td>
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<td>Gareth Nye</td>
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<td>Helen Palaiologou</td>
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<td>Lishay Parhi</td>
<td>Israel</td>
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<td>Lewis Renshall</td>
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<td>Magdalena M. Rose</td>
<td>Germany</td>
<td>University Hospital Jena</td>
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<td>Mai Sato</td>
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<td>Kyoto University Graduate School of Medicine</td>
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<td>Marius Schmidt</td>
<td>Germany</td>
<td>Friedrich-Alexander University Erlangen-Nuremberg</td>
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<td>Ortal Tamam</td>
<td>Israel</td>
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<tr>
<td>Yunhui Tang</td>
<td>China</td>
<td>Fudan University</td>
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TRAVEL AWARDS

Lucie Valero  France  Unité de Technologies Chimiques et Biologiques pour la Santé (UTCBS)
Natasha E Walker  UK  University of Aberdeen
Kirsten White  UK  University of Oxford
Hannah Ee Juen Yong  UK  University of Cambridge
Victor Yuan  Canada  The University of British Columbia
Rachel R. Zabel  Germany  University Hospital Jena
Jonas Zaugg  Germany  University of Bern
Joyue Zhang  China  Guangzhou Women and Children’s Medical Center

National Institutes of Health New Investigator Travel Awards

Supported by R13 Conference grant awarded to the International Federation of Placenta Associations by the Eunice Kennedy Shriver National Institute of Child Health and Human Development to enable US-based new investigators in any aspect of placental research to attend the annual IFPA meeting.

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<tr>
<th>NAME</th>
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<td>Sonia C. DaSilva-Arnold</td>
<td>USA</td>
<td>Hackensack University Medical Center</td>
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<td>Marlee Elston</td>
<td>USA</td>
<td>John A. Burns School of Medicine</td>
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<td>Mike Guernsey</td>
<td>USA</td>
<td>Stanford University School of Medicine</td>
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<td>Lauren Johnson</td>
<td>USA</td>
<td>The Ohio State University</td>
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<td>Anna Marie Rowell</td>
<td>USA</td>
<td>University of Wisconsin</td>
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<td>Nicholas Maurice</td>
<td>USA</td>
<td>Fred Hutchinson Cancer Research Center</td>
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<td>Adam Mischler</td>
<td>USA</td>
<td>NC State University</td>
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<tr>
<td>Mancy Tong</td>
<td>USA</td>
<td>Yale School of Medicine</td>
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<tr>
<td>Bryce Wolfe</td>
<td>USA</td>
<td>Wisconsin National Primate Research Center</td>
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Elsevier Travel Awards

Generously supported by Elsevier Ltd., Publishers of Placenta and Trophoblast Research, to allow new investigator in any aspect of placental research to attend the annual IFPA meeting.

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<tr>
<td>Sruthi Alahari</td>
<td>Canada</td>
<td>Lunenfeld-Tanenbaum Research Institute</td>
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<td>Hanna Allerkamp</td>
<td>Germany</td>
<td>University of Veterinary Medicine</td>
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<td>Minji Choi</td>
<td>Korea</td>
<td>Samsung Medical Center</td>
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<td>Teena KJB Gamage</td>
<td>New Zealand</td>
<td>The University of Auckland</td>
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<tr>
<td>Ramin Khanabdali</td>
<td>Australia</td>
<td>The Royal Women’s Hospital</td>
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<tr>
<td>Name</td>
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<td>Chaini Konwar</td>
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<td>BC Children’s Hospital Research Institute</td>
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<td>Daniel McKeating</td>
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<td>Sydney Nguyen</td>
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<td>Wisconsin National Primate Research Center</td>
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<td>Samantha Rodrigues</td>
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<td>Julien Sallais</td>
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<td>Taisuke Sato</td>
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<td>Daisuke Suzuki</td>
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<td>Tokyo University of Agriculture</td>
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<tr>
<td>Amy Valent</td>
<td>USA</td>
<td>Oregon Health and Science University</td>
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<tr>
<td>Lisa Vrooman</td>
<td>USA</td>
<td>University of Pennsylvania</td>
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8:00—12:00  Meeting Room 1 (901/9F, Bldg. No. 2)
IFPA Executives Meeting (INVITED ONLY)

12:00—13:00  Meeting Room 1 (901/9F, Bldg. No. 2)
Executive Lunch (INVITED ONLY)

13:00—14:00  Meeting Room 1 (901/9F, Bldg. No. 2)
Placenta/TR Editorial Meeting (INVITED ONLY)

13:00—19:00  Lobby, 1F, Bldg. No. 2
Registration

14:00—14:30  Meeting Room 2 (801/8F, Bldg. No. 2)
Poster Judging Meeting

14:00—14:30  Meeting Room 3 (802/8F, Bldg. No. 2)
Oral Judging Meeting

15:00—15:45  Room 1 (Auditorium 1/1F, Bldg. No. 2)
Keynote Lecture 1
Cell free DNA
Chair: Aikou Okamoto (Tokyo, Japan)
- Noninvasive prenatal testing: progress through genomics, epigenomics and transcriptomics
- Y. M. Dennis Lo (Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, New Territories, Hong Kong, China)

15:45—16:30  Room 1 (Auditorium 1/1F, Bldg. No. 2)
Keynote Lecture 2
Stem cell research
Chair: Aikou Okamoto (Tokyo, Japan)
- Stem Cell-based Therapy in Japan: Current State of the Art
- Akihiro Umezawa (National Center for Child Health and Development, Tokyo, Japan)

16:30—17:00  Room 1 (Auditorium 1/1F, Bldg. No. 2)
Trophoblast Research Award Lecture
Moderator: Alicia Jawerbaum (Buenos Aires, Argentina)
- Stephanie Worton (Manchester, UK)

17:00—19:00  Room 2, Room 4, Room 7, Room 8 (Auditorium 2/1F, Bldg. No. 2 · Poster 2-4/3F, 6F, 7F, Bldg. No. 1)
Poster Session 1

19:30—21:00
Welcome Reception at Tokyo Prince Hotel (Magnolia Hall, 2F)
PROGRAM: September 22 (Sat)

8:30−10:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

New Investigator Presentation 1

Moderators: Larry Chamley (Auckland, New Zealand) & Kazuhiro Tamura (Tokyo, Japan)

NI1.1 Maternal circulating levels of syncytiotrophoblast vesicles expressing Dipeptidyl Peptidase IV (DPPIV) are increased in Gestational Diabetes Mellitus
    Neva Kandzija (University of Oxford, Oxford, UK)

NI1.2 Convergence and divergence: The story of placenta evolution as told by Poeciliopsis fishes
    Mike Guersey (Stanford University School of Medicine, CA, USA)

NI1.3 Evaluation of liposomes as gene silencing vectors for the treatment of preeclampsia
    Lucie Valero (Unité de Technologies Chimiques et Biologiques pour la Santé (UTCBS), Université Paris Descartes, Paris, France)

NI1.4 Vitamin D mediates morphological changes in vascular smooth muscle cells during early spiral artery remodeling in human pregnancy
    Joyce Zhang (Guangzhou Women and Children’s Medical Center, Guangzhou, China)

NI1.5 Placental oxygen consumption as a determinant of oxygen gradient within the perfused intervillous space
    Gareth Nye (University of Manchester, Manchester, UK)

NI1.6 Endoplasmic reticulum molecular chaperone calreticulin plays a key role in human placentation
    Naoyuki Iwashashi (Department of Obstetrics and Gynecology, Wakayama Medical University, Wakayama, Japan)

10:00−10:30  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Coffee Break

10:30−12:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Symposium 1

Sequencing the placenta

Moderators: Yoel Sadovsky (PA, USA) & Tadashi Kimura (Osaka, Japan)

SYM1.1 Placental Non-coding RNA expression changes dynamically across gestation
    Claire T. Roberts (Robinson Research Institute/Adelaide Medical School, Adelaide, Australia)

SYM1.2 Assessing genomic variation in the human placenta: potential and limitations
    Wendy Robinson (University of British Columbia/BC Children’s Hospital Research, Vancouver, Canada)

SYM1.3 Genetic and epigenetic analysis of the placenta
    Kenichiro Hata (National Research Institute for Child Health and Development, Tokyo, Japan)

12:00−13:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Luncheon Seminar 1

Moderator: Makio Shouz (Department of Reproductive Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan)

Management of oligohydramnios in the late gestation and during labor
~The effectiveness of the amnioinfusion~

Hirokazu Tanaka (Department of Obstetrics and Gynecology, International University of Health and Welfare, Chiba, Japan)

Co-sponsor: Toitu Co., Ltd.
**PROGRAM** : September 22 (Sat)

12:00—13:00  Room 3 (3F, Bldg. No. 1)

**Luncheon Seminar 2**

**Moderator:** Kiyoko Kato (Department of Gynecology and Obstetrics Kyushu University Graduate School of Medical, Fukuoka, Japan)

Vascular promotion and normalization in the tumor microenvironment for drug delivery and immune-therapy

**Nobuyuki Takakura** (Department of Signal Transduction, Research Institute for Microbial Diseases, Osaka University, Osaka, Japan)

Combination approaches of immunotherapy and targeted therapy in cancer treatment

**Kosei Hasegawa** (Department of Gynecologic Oncology, Saitama Medical University International Medical Center, Saitama, Japan)

Co-sponsor: Chugai Pharmaceutical Co., Ltd.

13:15—14:45  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

**Workshop 1**

Extracellular vesicles in pregnancy

**Organizers:** Carlos Salomon (Brisbane, Australia) & Hirotaka Nishi (Tokyo, Japan)

Please refer to page 47 for further information about this workshop

13:15—14:45  Room 3 (3F, Bldg. No. 1)

**Workshop 2**

Pre-eclampsia and the Placenta: What’s new?

**Organizers:** Christopher Redman (Oxford, UK) & Mitsutoshi Iwashita (Tokyo, Japan)

Please refer to page 47 for further information about this workshop

13:15—14:45  Room 5 (5F, Bldg. No. 1)

**Workshop 3**

Drug delivery in pregnancy: overcoming problems and developing new technologies

**Organizers:** Lynda Harris (Manchester, UK) & Masatoshi Tomi (Tokyo, Japan)

Please refer to page 48 for further information about this workshop

13:15—14:45  Room 6 (6F, Bldg. No. 1)

**Workshop 4**

Reproduction and placentation among ocean-living species

**Organizers:** Anthony M. Carter (Copenhagen, Denmark) & Hiroaki Soma (Saitama, Japan)

Please refer to page 48 for further information about this workshop

13:15—14:45  Room 9 (1001 / 10F, Bldg. No. 2)

**Workshop 5**

Abnormally Invasive Placenta (AIP): An interactive, international perspective

**Organizers:** Sally Collins (Oxford, UK) & Kiyotake Ichizuka (Kanagawa, Japan)

Please refer to page 49 for further information about this workshop

14:45—15:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

**Coffee Break**
PROGRAM : September 22 (Sat)

10:00—10:30 Room 9 (1001 / 10F, Bldg. No. 2)
Board of Councilors Meeting (JPA)

15:00—16:00 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)
IFPA Senior Award Lecture
Moderator: Claire Roberts (Adelaide, Australia)
Hiroaki Soma (Saitama, Japan)

16:00—17:00 Room 3 (3F, Bldg. No. 1)
Regional Association Business Meeting (ANZPRA)

16:00—17:00 Room 5 (5F, Bldg. No. 1)
Regional Association Business Meeting (EPG)

16:00—17:00 Room 6 (6F, Bldg. No. 1)
Regional Association Business Meeting (PAA)

16:10—16:25 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)
Regional Association Business Meeting (JTD)

16:25—16:40 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)
Regional Association Business Meeting (JPA)

17:00—19:00 Room 2, Room 4, Room 7, Room 8 (Auditorium 2 / 1F, Bldg. No. 2 · Poster 2 - 4 / 3F, 6F, 7F, Bldg. No. 1)
Poster Session 2

19:30—21:00
ECR Social Meeting at Japanese style bar, “Sake to Nagomi to Niku to Yasai Shimbashi”
※Only pre-registered delegates can participate.
8:30-10:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

New Investigator Presentation 2

Moderators: Lynda Harris (Manchester, UK) & Kirsty Pringle (Newcastle, Australia)

NI2.1 The distance between nuclei of neighboring villous trophoblasts is a highly sensitive measure of 3D microscopic placental architecture
Nirav Barapatre (LMU Munich, Faculty of Medicine, Institute of Anatomy II, Chair of Neuroanatomy, Munich, Germany)

NI2.2 Gal-GalNAc - Fap2 interactions mediate placenta colonization by Fusobacterium nucleatum
Lishay Parhi (Institute of Dental Sciences, The Hebrew University- Faculty of Dental Medicine, Jerusalem, Israel)

NI2.3 Thrombomodulin regulates platelet and extracellular vesicle mediated sterile inflammation in the placenta
Shrey Kohli (Otto-von-Guericke University, Magdeburg, Germany)

NI2.4 Establishment of advanced maternal age model mice: analysis of placental senescence
Kiichiro Furuya (Osaka University Graduate School of Medicine, Department of Obstetrics and Gynecology, Osaka, Japan)

NI2.5 Maternal adiponectin is inversely correlated to syncytiotrophoblast basal plasma membrane GLUT 1 expression
Oddrun Kristiansen (Department of Obstetrics, Division of Obstetrics and Gynecology, Oslo University Hospital/Institute of Clinical Medicine, Faculty of Medicine, University of Oslo, Oslo, Norway)

NI2.6 Abnormal placental development in a mouse model of Assisted Reproductive Technologies (ART)
Lisa Vrooman (University of Pennsylvania, PA, USA)

10:00-10:05  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

A word from our journal: Placenta

10:05-10:30  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Coffee Break

10:30-12:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Symposium 2

Making better placentas and healthy pregnancies FGR DM

Moderators: Helen Jones (OH, USA) & Tomoyuki Fujii (Tokyo, Japan)

SYM2.1 The metabolic components of serotonin synthesising pathway is expressed across gestation and are altered in human fetal growth restriction
Padma Murthi (Monash University/Hudson Institute of Medical Research, Melbourne, Australia)

SYM2.2 The role of placental sex steroid receptors in modulating the fetal response to a stress in pregnancy
Vicki Clifton (Mater Medical Research Institute - University of Queensland, Brisbane, Australia)

SYM2.3 Time interval analysis of ductus venous flow velocity waveforms in growth restricted fetuses
Daisuke Tachibana (Osaka City University Graduate School of Medicine, Osaka, Japan)

12:00-13:00  Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Luncheon Seminar 3

Moderator: Mikio Momoeda (Department of Integrated Women’s Health, St. Luke’s International Hospital, Tokyo, Japan)

Beyond infertility: Obstetrical Complications associated with endometriosi and adenomyosis
Kaori Koga (Department of Obstetrics and Gynecology, Graduate School of Medicine and Faculty of Medicine, The University of Tokyo, Japan)

Co-sponsor: Mochida Pharmaceutical Co., Ltd.
PROGRAM: September 23 (Sun)

12:00—13:00 Room 3 (3F, Bldg. No. 1)

Luncheon Seminar 4
Moderator: Nobuhiro Suzumori (Department of Obstetrics and Gynecology, Nagoya City University Graduate School of Medical Sciences, Aichi, Japan)

Clinical application of genome-wide cfDNA screening
Ron McCullough (Sequenom Laboratories, CA, USA)
Co-sponsor: GeneTech, Inc.

12:00—13:00 Meeting Room 4 (803 / 8F, Bldg. No. 2)

Soma Award Meeting

13:00—13:30 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

IFPA Annual Meeting

13:30—15:00 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Workshop 6
Impact of infection on placental biology
Organizers: Gendie Lash (Guangzhou, China) & Shigeru Saito (Toyama, Japan)
Please refer to page 50 for further information about this workshop

13:30—15:00 Room 3 (3F, Bldg. No. 1)

Workshop 7
Imaging of the Placenta
Organizers: Ganesh Acharya (Stockholm, Sweden) & Junichi Hasegawa (Kanagawa, Japan)
Please refer to page 51 for further information about this workshop

13:30—15:00 Room 5 (5F, Bldg. No. 1)

Workshop 8
Epigenetics
Organizers: Leslie Myatt (OR, USA) & Kiyonori Miura (Nagasaki, Japan)
Please refer to page 52 for further information about this workshop

13:30—15:00 Room 6 (6F, Bldg. No. 1)

Workshop 9
Gestational Trophoblastic Disease (GTD)
Organizers: Kazuhiko Ino (Wakayama, Japan) & Eiko Yamamoto (Aichi, Japan)
Please refer to page 52 for further information about this workshop

15:00—15:30 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Coffee Break

15:00—16:30 Room 4 (3F, Bldg. No. 1)

TR Award Poster Finalists
Development of a 3D in vitro model for the assessment endometrium-trophoblast interactions

EC.1 Preeclampsia associates with increased RECK expression in trophoblast and reduced migration, invasion, and endothelial-like differentiation of first trimester human trophoblast cells
Jaime Gutierrez (Cellular Signaling and Differentiation Laboratory (CSDL), Faculty of Health Sciences, Universidad San Sebastián/Cellular and Molecular Physiology Laboratory (CMPL), Division of Obstetrics and Gynaecology, School of Medicine, Faculty of Medicine, Pontificia Universidad Católica de Chile, Santiago, Chile)

EC.2 Maternal birthweight, early pregnancy body mass index and risk of pregnancy complications
Prabha Andraweera (Adelaide Medical School and The Robinson Research Institute, The University of Adelaide, Adelaide, Australia)

EC.3 Retinoic acid-induced placental vascular hypoplasia with Patched-1 up-regulation in rats
Kazuhiro Kajiwara (Department of Obstetrics and Gynecology, The Jikei University School of Medicine/Department of Reproductive Biology, Center for Regenerative Medicine, National Research Institutes for Child health and Development, Tokyo, Japan)

EC.4 Development of a 3D in vitro model for the assessment endometrium–trophoblast interactions
Rodolfo R. Favaro (University Hospital Jena, Jena, Germany)

IFPA Andree Gruslin Award Lecture

Moderator: Isabella Caniggia (Toronto, Canada)

Volume & vascularity: using ultrasound to unlock the secrets of the first trimester placenta
Sally Collins (Oxford, UK)

Gala Dinner and Dance at Tokyo Prince Hotel (Providence Hall, 2F)

*Only pre-registered delegates can participate.
PROGRAM : September 24 (Mon)

8:30—9:30 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Mid Career Session (New session)
Moderators: Natalie Hannan (Melbourne, Australia) & Gen Ishikawa (Chiba, Japan)

MC.1 The hypertensive pregnancy disease preeclampsia causes lingering vascular stiffening and brain abnormalities indicative of neuronal damage
Andrea Loewendorf (Reproductive and Vascular Immunology, Huntington Medical Research Institutes, CA, USA)

MC.2 Placental antecedents of preeclampsia and small for gestational age
Francesca Gaccioi (University of Cambridge, Cambridge, UK)

MC.3 Derivation of mouse and human uterine organoids
Sandra Haider (Department of Obstetrics and Gynecology, Medical University of Vienna, Vienna, Austria)

9:30—10:15 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Gabor Than Award Lecture
Moderator: Nick Illsley (NJ, USA)

New diagnostics for placenta insufficiency
Tu’uhevaha Kaitu’u-Lino (Melbourne, Australia)

10:15—10:30 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Coffee Break

10:30—12:00 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Symposium 3
DOHaD and the placenta
Moderators: Rohan Lewis (Southampton, UK) & Keiichi Isaka (Tokyo, Japan)

SYM3.1 Paternal-maternal-fetal genetic conflict on placenta: Imprinting disorders may effect on generation-wide hypertensive disorders
Katsuhiko Naruse (Nara Medical University, Nara, Japan/St. Barnabas’ Hospital, Osaka, Japan)

SYM3.2 What does cardiovascular disease have to do with the placenta?
Kent Thomburg (Oregon Health & Science University, OR, USA)

SYM3.3 Womb to Womb: Programming Reproductive Development in the Female Common Marmoset Monkey
Julienne Rutherford (University of Illinois at Chicago, IL, USA)

12:00—12:45 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

NIH Award Lecture
Moderator: Leslie Myatt (OR, USA)

Placental epigenetic regulation in development and under adverse environmental conditions
Marisa Bartolomei (PA, USA)

12:45—13:00 Room 1 (Auditorium 1 / 1F, Bldg. No. 2)

Closing of IFPA Meeting
Keynote Lecture 1

Noninvasive prenatal testing: progress through genomics, epigenomics and transcriptomics

Y. M. Dennis Lo
Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, New Territories, Hong Kong, China

Noninvasive prenatal testing (NIPT) is now globally adopted and used by millions of pregnant women every year. In this lecture, I shall review recent developments in this field using genomics, epigenomics and transcriptomics approaches. In the area of genomics, my group has constructed a second generation noninvasive fetal genome through very deep genome sequencing of maternal plasma DNA. Through this effort, we have shown that fetal de novo mutations can be detected noninvasively from maternal plasma. Furthermore, we have identified the presence of preferred DNA ends for circulating DNA of fetal and maternal origin. In the area of epigenomics, we have developed a technology that we have called plasma DNA tissue mapping that allows one to elucidate the tissue of origin of circulating DNA species. In the area of transcriptomics, we have shown that single cell transcriptomics can be used to develop plasma RNA markers for NIPT. These synergistic developments in the field of NIPT have enhanced our understanding of the biology of circulating nucleic acids and have increased the spectrum of diagnostics applications.

Keynote Lecture 2

Stem Cell-based Therapy in Japan: Current State of the Art

Akihiro Umezawa
National Center for Child Health and Development, Tokyo, Japan

Regenerative medicine has started by using epidermal cells, chondrocytes and mesenchymal stem cells in Japan, and cell sources as a raw material of cellular products include bone marrow, skeletal muscle, skin, amnion and umbilical cord. Regenerative medicine using human pluripotent stem cells has also been developed, and the public anticipates the regenerative medicine using these pluripotent stem cells. iPS cell research has indeed progressed rapidly to reach clinical application, and outcome is expected from patient groups. Two different systems to review a protocol of clinical trial of regenerative medicine, that are "Act on the Safety of Regenerative Medicine" and "Pharmaceuticals, Medical Devices and Other Therapeutic Products Act (PMD Act)", are present and commercial products, i.e. products of epidermal cells, chondrocytes, skeletal myocytes and mesenchymal stem cells, have been approved under the PMD Act at present in Japan. I herewith introduce novel strategies such as organoid formation and compound device using different types of stem cells for future clinical application.
Workshop 1

Extracellular vesicles in pregnancy

Organizers: Carlos Salomon (Brisbane, Australia) & Hirotaka Nishi (Tokyo, Japan)

During the past decade, there has been an extraordinary explosion of research in the field of extracellular vesicles (EVs), especially in a specific type of EVs originating from endosomal compartments called exosomes. EVs are released from a wide range of cell including the human placenta and are capable of transferring their contents (e.g., proteins and miRNAs) to other cells, a process that is thought to be essential to several biological processes including immune response, cell metabolism and intercellular communication during pregnancy. Unfortunately, even with the high focus on the EVs field in the recent years, progress in the field has been hindered by a lack of standardised protocols relating to the taxonomy and isolation of exosomes. This has confounded data interpretation within the current body of literature. This workshop will discuss the Heterogeneity, Isolation, Purification, and Characterisation of placental exosomes and their capacity to interact and deliver bioactive molecules to target cells during pregnancy.

Workshop 2

Pre-eclampsia and the Placenta: What’s new?

Organizers: Christopher Redman (Oxford, UK) & Mitsutoshi Iwashita (Tokyo, Japan)

Aims of the workshop

Pre-eclampsia is caused by the presence of the placenta although maternal factors are critical for development of the maternal syndrome. In this workshop four speakers describe new developments which enlarge the bigger picture of this complex disorder.

Four presentations

1. Early onset pre-eclampsia is associated with poor placentation and deficient spiral artery remodeling. Dr Akitoshi Nakashima (Toyama, Japan) describes use of a trophoblast-specific, mouse-knock out model for a key autophagosome factor (Atg7). The ensuing inhibition of trophoblast autophagy affects trophoblast invasion, vascular remodeling and causes maternal hypertension. Human studies suggest that these autophagy mechanisms are also involved in human pre-eclampsia.

2. Maternal anti-phospholipid autoantibodies are rare but a potent risk factor for pre-eclampsia that can be easily studied in model systems. Professor Chamley (Auckland, New Zealand) describes how autoantibodies interact with the syncytiotrophoblast mitochondria and activate the cell death machinery. However, the syncytiotrophoblast does not die. Instead dangerous extracellular microvesicles are released into the maternal circulation that activate maternal endothelial cells, a hallmark of preeclampsia.

3. Dr Manu Vatish (Oxford, UK) then reviews the complexity and variety of human syncytiotrophoblast derived microvesicles and their potential to communicate with maternal systems under physiological or pathological conditions. His view is based on omic analyses of preparations from dual perfusion of isolated, normal and pre-eclampsia placental lobes.

4. Finally Professor Charnock-Jones (Cambridge, UK) introduces a new aspect of trophoblast metabolism, namely of polyamines, and its contribution to pre-eclampsia. Placental specific escape from X-chromosome inactivation of spermine synthase reveals a novel maternal biomarker with divergent associations with pre-eclampsia and fetal growth restriction.
Drug delivery in pregnancy: overcoming problems and developing new technologies

Organizers: Lynda Harris (Manchester, UK) & Masatoshi Tomi (Tokyo, Japan)

The aim of this workshop is to raise awareness of the technical problems and barriers associated with drug delivery in pregnancy, and to discuss current advances in the field. The workshop is designed for delegates who are considering undertaking drug delivery-based research projects, and those who wish to troubleshoot current strategies. We will offer advice and share best practise through a combination of short presentations and group discussion. We will have 10-15 minute presentations on a variety of topics, including:

- Physiological changes in pregnancy that affect drug delivery
- The placenta as a barrier to drug delivery
- Transporter mediated-drug transfer across the placenta
- Novel therapies and drug repositioning
- Methods for targeted drug delivery

The workshop organisers will moderate the session, making sure that the discussions remain on topic and that audience questions and concerns are sufficiently addressed. Delegates are encouraged to submit additional ideas for discussion by contacting the organisers prior to the workshop.

Workshop 4

Reproduction and placentation among ocean-living species

Organizers: Anthony M. Carter (Copenhagen, Denmark) & Hiroaki Soma (Saitama, Japan)

Many teleosts and a majority of sharks are viviparous. This workshop will explore various strategies for the supply of nutrition to the embryos of marine vertebrates. They range from histotrophic nutrition - as in the brood pouch of male sea horses and pipefish and the uterus of the great white shark - to true placentation as in requiem sharks. The maintenance of an adequate oxygen supply to the developing embryo will be discussed with reference to remarkable findings in dogfish and other sharks.

1) The Sea Horse Brood Pouch and the Evolution of Male Pregnancy
2) Reproduction in Pipe Fish and Sea Horses
3) Acquired Immunization and Placentation in the Requiem Shark Carcharhinus
4) Ultrasound Findings of the Respiratory System in Embryonic Sharks
5) Reproduction in the Great White Shark Carcharodon carcharias
   a) Lipid histotrophy in early gestation
   b) Fine structure of the pregnant uterus
   c) Oxygen supply to the embryo
Abnormally Invasive Placenta (AIP): An interactive, international perspective

Organizers: Sally Collins (Oxford, UK) & Kiyotake Ichizuka (Kanagawa, Japan)

Synopsis: This is a fully interactive workshop therefore the audience are requested to bring their smartphones or tablets. Using Mentimeter (https://www.mentimeter.com/) we will enable the audience to ask and answer questions in real-time on their smartphones with the results immediately displayed. This will allow the workshop to engage with the participants and move in a direction guided by them. The aim will be to bring together both clinicians and basic science researchers to discuss difficult issues surrounding this rare but growing pathology.

There will be four parts to the workshop:

1. A starting poll of the participants to establish the skills mix present. Followed by a short introduction to the International Society for AIP (http://www.is-aip.org/). This is an organisation which was formed from the European Working Group on AIP (EW-AIP) and currently consists of 42 Obstetricians, Gynecologists, Pathologists, Anaesthesiologists and Basic-Science Researchers from 13 European countries. The aim of the group is to establish international co-operation in the study AIP, to improve knowledge and management, and to inform healthcare decision makers worldwide on the importance of the condition.

The discussion around it will focus on the relevance of this society for the audience present and any questions or suggestions regarding its future direction.

2. A short talk regarding diagnostic techniques used for AIP both imaging based (Ultrasound and MRI) and clinical diagnosis at the time of delivery.

The audience based discussion will include potential difficulties that they have experienced including any questions they wish to pose to the speaker or suggestions for alternative diagnostic techniques.

3. A short talk on surgical techniques and methods used to manage AIP at delivery.

The audience based discussion will include discussing different surgical techniques including possible expectant management and any interesting cases, or questions they wish to pose to the speakers.

4. A short talk on lab-based research into the pathology behind AIP.

The audience will lead the discussion potentially in the direction of what are we looking for in cell-based or animal models, how clinicians and researchers interact to advance this work and discussion of ideas behind ways forward.
Impact of infection on placental biology

Organizers: Gendie Lash (Guangzhou, China) & Shigeru Saito (Toyama, Japan)

Objectives: The establishment of a successful pregnancy involves invasion of the maternal uterine tissues by fetal extravillous trophoblast cells (EVT) and remodeling of the uterine spiral arteries. Both of these processes are tightly regulated by a range of cell types, most notably the uterine natural killer (uNK) cells and uterine macrophages, which play important ‘non-immune’ roles in establishment of pregnancy. But what happens when the pregnancy is compromised by an infectious agent? Do the immune cells become repurposed so that they are no longer able to perform their tissue remodeling roles? Does the immunosuppressed environment of the fetal-maternal interface allow for a greater degree of viral/bacterial infection? On infection is placental function compromised?

This workshop will explore some of these questions using emerging knowledge from studies on viral (Zika, CMV) and bacterial (Listeria) infection during pregnancy. Speakers will be limited to 3 information and 1 discussion points slides to facilitate wide ranging discussion. It is hoped that new avenues of study and new research collaborations will emerge from such discussions.
Imaging of the Placenta

Organizers: Ganesh Acharya (Stockholm, Sweden) & Junichi Hasegawa (Kanagawa, Japan)

Aim: Different modalities of placental imaging are used to study its structure and function from molecular/subcellular to organ/system level. Some of them are emerging new techniques, whereas others are refinement of conventional imaging modalities that has been possible with the advancement in technology. This workshop aims to present recent advances in some of the most important aspects of placental imaging (ultrasound, magnetic resonance imaging and microscopy) applicable to basic, clinical and translational research in placentology.

Following topics will be introduced:

1. Placental blood flow and morphometry: How do they correlate?
2. Application of superb micro-vascular imaging (SMI) with high frequency ultrasound transducer in placental evaluation.
3. T2* weighted placental MRI - a promising marker of placental dysfunction.
4. Investigation of human placental and fetal brain oxygenation during maternal hyperoxia using functional magnetic resonance imaging (fMRI).
5. Application of high resolution live cell imaging in placental research.

Structure: The workshop will be interactive. All the participants will have opportunity and are expected to contribute to the discussion after the speakers have introduced the topics using short presentations. Critical analysis of the added value and limitations of these imaging modalities compared to alternative methods/approaches with regards to their potential application to help understand placental pathophysiology will be the focus of discussion.

Expected outcome: The participants of this workshop will improve their knowledge in different aspects of placental imaging by interacting with experts in the respective fields. This will also help them to identify strengths, limitations and pit-falls of using different imaging techniques. The workshop is also expected to help identify interest groups and experts who may wish to get involved in developing consensus guidelines on use of certain imaging modalities in research and clinical practice.
Epigenetics

Organizers: Leslie Myatt (OR, USA) & Kiyonori Miura (Nagasaki, Japan)

Placental function is known to be affected significantly by the intrauterine environment that is generated by the mother. That environment is influenced in several ways, by amount and type of nutrition, by maternal stress, hormonal and inflammatory milieu among many others. These varying environmental signals are known to influence the placenta epigenome but as yet we lack detailed information related to effects on specific placental cell types, differences across gestational age and whether or how the changes seen at the epigenetic level relate mechanistically to differences in transcription and ultimately in placental function. In this workshop we will discuss in an interactive manner between featured presentations and audience participation our current knowledge related to interpretation of epigenetic data, and the influence of sex, ethnicity, cellular composition, gestational age and different environmental conditions on placental epigenetics and how this relates to placental function.

Workshop 9

Gestational Trophoblastic Disease (GTD)

Organizers: Kazuhiko Ino (Wakayama, Japan) & Eiko Yamamoto (Aichi, Japan)

Gestational trophoblastic disease (GTD) is a group of diseases characterized by abnormal cellular proliferation of atypical trophoblasts, including hydatidiform mole, invasive mole, choriocarcinoma, placental site trophoblastic tumor (PSTT) and epithelial trophoblastic tumor (ETT). Hydatidiform mole is an abnormal pregnancy caused by genetic fertilization disorders, which have higher potential to develop to gestational trophoblastic neoplasia (GTN) than normal trophoblasts. However, the involvement of the genetic origin of trophoblastic cells in the characteristics of GTN remains unclear. PSTT and ETT are rare tumors occurred from extravillous trophoblasts and have poor prognosis in metastatic cases because of low sensitivity to chemotherapy. Approximately 15% of choriocarcinomas become chemo-resistant and the factors for developing malignant potential of trophoblasts should be identified.

In this workshop, we will discuss novel therapeutic strategies for GTN in terms of management, diagnosis and treatment for achieving 100% survival.

1) Clinical features of gestational trophoblastic diseases in Japan
2) Application of DNA polymorphisms for gestational trophoblastic disease
3) Glycosyltransferases regulate malignant potential of trophoblasts
4) Laeverin as a possible marker of PSTT
POSTER SESSION

Anatomy and pathology

Room 2 (1F, Bldg. No. 2)

P.1.1 Intrauterine growth retardation extinguishes sexual dimorphism of human villous trophoblast
Eva Häußöller1, Nirav Barapate2, David Grynspun3, Christoph Schmitz4, Franz Edler von Koch5, Hans-Georg Frank6
1LMU Munich, Faculty of Medicine, Institute of Anatomy II, Chair of Neuroanatomy, Munich, Germany. 2University of Ottawa, Department of Pathology and Laboratory Medicine, Ottawa, Canada. 3Clinic for Obstetrics and Gynecology Dritter Orden, Munich, Germany

P.1.2 Study on effect of severity of maternal iron deficiency anaemia on morphology and regulators of angiogenesis in placenta
Mullapudi Venkata Surekha, Putcha Uday Kumar, Sapna Singh, M Srinivas, K Sharada, N Balakrishna, G Sailaja
National Institute of Nutrition, Hyderabad, India

P.1.3 Increased placental venous vessel diameters in pre-gestational diabetes
Matina Hakim, John Aplin, Susan Greenwood, Tristan Lowe, Jenny Myers
The University of Manchester, Manchester, UK

P.1.4 Histological assessment of a developing placenta in utero - what we can learn from archival first trimester material
Gerit Moser, Monika Sündl, Desiree Forstner, Martin Gauster, Berthold Huppertz
Medical University of Graz, Graz, Austria

P.1.5 A case of complete hydratidiform mole coexistent with a fetus treated by simple hysterectomy
Tomona Matsouka, Hiroaki Aoki, Ritsuko Kobayashi, Natsuki Matsumoto, Akihiro Ikenaga, Wakiko Shimomai, Kana Hirayama, Keiko Yabuzaki, Tatsuke Sato, Michihiro Yamamura, Haruhiko Udagawa, Kazuhiro Kajiwara, Yuki Ito, Taizan Kamide, Osamu Samura, Akikou Okamoto
The Jikei University School of Medicine, Tokyo, Japan

P.1.6 Placental pathology predicts infantile physical development during first 18 months in Japanese population
Chizuko Yaguchi, Naomi Isomura, Masako Matsumoto, Yoshimasa Horikoshi, Kazuhiro Sugihara, Hiroaki Itoh, Naohiro Kanayama
Hamamatsu University School of Medicine, Shizuoka, Japan

P.1.9 Development of urogenital system in the Spix cavy: a model for studies on sexual differentiation
Amilton Santos1, Alan Conley2, Moacir Oliveira2, Antonio Assis Neto1
1University of Sao Paulo, Sao Paulo, Brazil, 2University of California, CA, USA, 3Universidade Federal Rural do Semiárido, Mossoro, Brazil

P.1.10 Clinicopathological features of chronic histiocytic intervillositis
Yuichiro Sato, Kazunari Maekawa, Atsushi Yamashita, Yujiro Asada, Hiroshi Sameshima
University of Miyazaki, Miyazaki, Japan

Angiogenesis/vasculature

Room 2 (1F, Bldg. No. 2)

P.1.11 Piezo1 mechanosensitive ion channels are required for shear stress sensing in placental vasculature
Lara Morley1, Jian Shi1, Hannah Gaunt2, Adam Hyman1, Peter Webster1, Karen Forbes1, James Walker1, Nigel Simpson1, David Beech1
1Leeds Institute of Cardiovascular and Metabolic Medicine, University of Leeds, 2Academic Unit of Obstetrics and Gynaecology, Leeds Teaching Hospitals Trust, Leeds, UK

P.1.12 Evaluation of optoacoustic imaging for analysis of placental villous vascularization
H. Huebner1, F. Kneilting1, F. Faschingbauer1, M. Ruebner1, S. Kehl1, M.W. Beckmann1, W. Rascher2, A. Hartner2, F.B. Fahrbusch1
1Department of Gynaecology and Obstetrics/Comprehensive Cancer Center Erlangen-EMN, Friedrich-Alexander University Erlangen-Nuremberg, 2Department of Pediatrics and Adolescent Medicine, Friedrich-Alexander University Erlangen-Nuremberg, Erlangen, Germany

P.1.13 Nondestructive biomechanical testing of chorionic plates using vibrational optical coherence tomography
Ruchit Shah1, Carolyn Salafia2, Anubha Arora3
1Placental Analytics, LLC, New Rochelle, 2Queens Hospital Center, NY, USA
P1.14 Does feto-placental micro-vascular shear stress negatively impact on vascular structure in fetal growth restriction?
Win Tun1, Joanna James1, Alys Clark1
1Auckland Bioengineering Institute, University of Auckland, 2Obstetrics & Gynaecology, University of Auckland, Auckland, New Zealand

P1.15 Extracellular matrix of canine placenta as biomaterial for use in regenerative medicine
Paula Fratini1, Nathia Nathaly Rigoglio1, Gustavo de Sá Schiavo Matias1, Ana Claudia Oliveira Carreira1,2, Rose Eli Grassi Rici1, Maria Angelica Miglino1
1School of Veterinary Medicine and Animal Science, University of São Paulo, 2School Medicine, Nucel (Cell and Molecular Therapy Center, São Paulo, Brazil

P1.16 Hypoxia and preeclampsia increase RECK expression in umbilical vein endothelial cells
Leila Fernandez1, Jorge Maldonado1,2, Luis Sobrevia3,4, Jaime Gutierrez2,2
1Cellular Signaling and Differentiation Laboratory (CSDL), Faculty of Health Sciences, Universidad San Sebastián, Santiago, Chile, 2Cellular and Molecular Physiology Laboratory (CMPL), Division of Obstetrics and Gynaecology, School of Medicine, Faculty of Medicine, Pontificia Universidad Católica de Chile, Santiago, Chile, 3Department of Physiology, Faculty of Pharmacy, Universidad de Seviilasa, Sevilla, Spain, 4University of Queensland Centre for Clinical Research (UQCCCR), Faculty of Medicine and Biomedical Sciences, University of Queensland, Queensland, Australia

Cell culture/cell lines

Room 2 (1F, Bldg. No. 2)

P1.17 Optimization of culturing conditions to maintain mononuclear human trophoblast cells in in vitro culture
Frances Wong, Brian Cox
University of Toronto, Toronto, Canada

P1.18 Effect of glycosaminoglycans on growth factor-stimulated trophoblast invasion
Imeong Antia1, Zoe Rodd1, Frank Hills1
1Middlesex University, 2Imperial College, London, UK

Cell signaling

Room 4 (3F, Bldg. No. 1)

P1.19 Expression of extracellular signal-regulated kinases 1/2, p38 mitogen-activated protein kinase and p90 ribosomal protein S6 kinase in HIV associated pre-eclampsia
Margaret Olutayo Alese1, Jagidesa Moodley1, Thajasvirae Naicker1
1Optics and Imaging Center, Nelson R Mandela School of Medicine, University of KwaZulu-Natal, 2Women’s Health and HIV Research Group, Nelson R Mandela School of Medicine, University of KwaZulu-Natal, Durban, South Africa

P1.20 Activating protein-1 (AP-1) signaling pathway in trophoblastic cells: characterization of a novel isomerase protein on its regulation
Maria Fernanda Carnisay1, Sonia De Leo1, Gisela Mazaíra1, Vanina Fontana1, Mario Galigniana2, Alejandra Erlejman1
1Department of Biological Chemistry, School of Sciences, University of Buenos Aires. IQUIBICEN-CONICET, 2Department of Biological Chemistry, School of Sciences, University of Buenos Aires. IByMe-CONICET, Buenos Aires, Argentina

P1.21 Proteomic analysis of cell- and size-specific extracellular vesicles isolated by high resolution flow cytometry compared with density gradient ultracentrifugation
Maya Morita, Terry Morgan
OHSU, OR, USA

Comparative/animal models

Room 4 (3F, Bldg. No. 1)

P1.22 Mouse placental scaffolds: A three-dimensional environment model for recellularization
Patricia Romagnoli1, Rodrigo da Silva Nunes Barreto2, Paula Fratini1, Andrea Maria Mess1, Maria Angelica Miglino2
1Federal University of South Frontier, Realeza, Brazil, 2University of Sao Paulo, Sao Paulo, Brazil

P1.23 Concentration of testosterone and estradiol in pregnancy and steroidogenesis in the placenta, ovaries and testes of Spix cavies conceptus
Amilton Cesar Santos1, Moacir Franco Oliveira1, Antônio Chaves Assis-neto1
1University of Sao Paulo, Sao Paulo, Brazil, 2Federal Rural University of Semiarid, Mossoro, Brazil
POSTER SESSION

P1.24 Effects of dietary arginine supplementation to primiparous mares in the last third of gestation on foal birthweight and placental function
Emilie Derisoud1, Morgane Robles1, Geveerding Audrey1, Josiane Aloun1, Cédric Dubois1, Christophe Richard1, Michèle Dahirel1, Julianne Calvez2, Delphine Ralliard-Rousseau3, Laurence Wirm3, Anne Couturier-Tamade3, Pascale Chavatte-Palmer1
1UMR BDR, INRA, ENVA, Université Paris Saclay, Jouy en Josas, France, 2IFCE, Station Experimentale de la Valade, Chamberet, France, 3AgroParisTech, Paris, France

Diabetes/obesity Room 4 (3F, Bldg. No. 1)

P1.25 Maternal diets enriched in olive oil prevent lipid accumulation in the fetal liver
Daiana Fones, Veronica White, Evangelina Capobianco, Alicia Jawerbaum
CEFYBO - UBA - CONICET, Buenos Aires, Argentina

P1.26 Impaired decidual PPAR signaling in diabetic rats at early pregnancy
Sabra Roberti, Hugo Sato, Florencia Heinecke, Romina Higa, Alicia Jawerbaum
CEFYBO - UBA - CONICET. School of Medicine, University of Buenos Aires, Buenos Aires, Argentina

Fetal growth restriction Room 7 (6F, Bldg. No. 1)

P1.27 Coup de T-Cell: defective placentation impedes neonatal immunity
Wendi Bacon1, 2, Jens Kieckbush1, 2, Russell Hamilton1, Delia Hawkins1, Ziyi Yu1, Chris Abell2, Francesco Colucci1, 2, D. Stephen Charnock-Jones1, 2
1Department of Obstetrics & Gynaecology, University of Cambridge, 2Centre for Trophoblast Research, University of Cambridge, 3Department of Chemistry, University of Cambridge, UK

P1.28 Reduced numbers of side-population trophoblasts in fetal growth restriction provide clues to placental dysfunction
Teena KJB Gamage, Lawrence W Chamley, Joanna L James
The University of Auckland, Auckland, New Zealand

P1.30 A single neonatal death in an MCD twin gestation complicated by TAPS and a giant chorioangioma: A case report
Seika Nagae1, Hiroaki Aoki2, Miki Muto1, Keisuke Tomita2
1Chigasaki Municipal Hospital, 2Chigasaki Municipal Hospital, Kanagawa, Japan

P1.31 Drug repositioning for searching the drug to support placental growth
Masatake Nomoto, Tomorn Kotani, Teruyuki Mizutani, Yoshinori Moriyama, Takefumi Ushida, Kenji Imai, Tomoko Nakano, Fumitaka Kikkawa
Naogoya University, Aichi, Japan

P1.32 Ezrin deficiency induces inflammatory markers in mouse placenta
Tomohiro Nishimura, Masaya Takahashi, Hikari Araki, Saki Noguchi, Masatoshi Tomi
Keio University, Tokyo, Japan

P1.33 Is there a sex specific difference in placental pathology of pregnancies complicated with small for gestational age?
Lilya Tamayev, Letizia Schreiber, Jacob Bar, Michal Kovo
Wolfson Medical Center, Holon, Israel

Gene expression Room 7 (6F, Bldg. No. 1)

P1.34 Placental and yolk sac growth is reduced and associated with altered system L amino acid transporter gene expression in a rat model of maternal immune activation
Hager M. Kowash1, Xie Yinou1, Harry G. Potter2, Syeda T.M. Munni1, Reinmar Hager1, Joanna C. Neil1, Jocelyn D. Glazier1
1Division of Developmental Biology and Medicine, Faculty of Biology, Medicine and Health, University of Manchester, 2Division of Evolution and Genomic Sciences, Faculty of Biology, Medicine and Health, University of Manchester, 3Division of Pharmacy & Optometry, Faculty of Biology, Medicine and Health, University of Manchester, Manchester, UK
P1.35 Minimally invasive, in vivo gene expression modification in the placenta by ultrasound sonoporation
Marlee Elston, Haide Razavy, Kainalu Matthews, Johann Urschitz
John A. Burns School of Medicine, HI, USA

P1.36 Differentiated potential of trophoblast stem cells derived from androgenetic embryos
Daisuke Suzuki, Hiromu Morimoto, Tomohiro Kano, Hidehiko Ogawa
Department of Bioscience, Tokyo University of Agriculture, Tokyo, Japan

P1.37 Kruppel-like factor (KLF) 5 is involved in miscarriage and decidualization
Shigeo Hayashi
Tokyo Medical University, Tokyo, Japan

P1.38 Oxygen-induced regulation of placental microRNA and renin-angiotensin system expression in first trimester chorionic villi
Sarah Delforce, Anya Arthus, Hannah Drury, Rikki Quinn, Eugenie Lumbres, Kirsty Pringle
University of Newcastle, Newcastle, Australia

P1.39 Withdraw

P1.40 Expression of retinoic acid-inducible gene I (RIG-I)-like receptors (RLRs) following vesicular stomatitis virus infection in third-trimester chorionic villi and decidua
Agnieszka Jabłońska1, Mirosława Studzińska, Jarosław Kalinka2, Edyta Paradowska1
1Laboratory of Molecular Virology and Biological Chemistry, Institute of Medical Biology of the Polish Academy of Sciences, 2Department of Perinatology, First Chair of Gynecology and Obstetrics, Medical University of Lodz, Lodz, Poland

P1.41 The role of genetic imbalances in intrauterine growth restriction: Investigations of confined placental mosaicism and placental copy number variation
Giulia Del Gobbo1,2, Ryan Yuen1,3, Wendy Robinson1,3
1Department of Medical Genetics, University of British Columbia, Vancouver, Canada, 2BC Children’s Hospital Research Institute, Vancouver, Canada, 3Department of Molecular Genetics, University of Toronto, Toronto, Canada, 4The Centre for Applied Genomics, The Hospital for Sick Children, Toronto, Canada

P1.42 Accounting for population structure in placental DNA methylation studies: a novel method for inferring ethnicity from microarray data
Victor Yuan1,2, Magda Price1,2, Giulia Del Gobbo1,2, Alexandra Binder3, Karin B. Micheis4, Brian Cox5, Carmen Marsit6, Wendy Robinson1,3
1Department of Genome Sciences, University of British Columbia, Vancouver, Canada, 2BC Children’s Hospital Research Institute, Vancouver, Canada, 3Department of Medical Genetics, Vancouver, Canada, 4Department of Epidemiology, Fielding School of Public Health, University of California, LA, USA, 5Department of Physiology, University of Toronto, Toronto, Canada, 6Department of Environmental Health, Rollins School of Public Health, Emory University, GA, USA

P1.43 The possibility of using placenta-specific interindividual differences in genome-wide DNA methylation profiles to assess intrauterine environments
Taisuke Sato1,2, Tomoko Kawai3, Kohei Kashima4, Isaku Omori5, Mitsumasa Shimizu6, Riki Nishimura7, Hironobu Hyodo8, Koji Kugit9, Takeshi Nagamatsu10, Tomoyuki Fuji11, Naoto Takahashi12, Aikou Okamoto13, Kenichiro Hata14
1Department of Obstetrics and Gynecology, The Jikei University School of Medicine, 2Department of Maternal-Fetal Biology, National Research Institute for Child Health and Development, 3Department of Pediatrics, The University of Tokyo Hospital, 4Department of Neonatology, Tokyo Metropolitan Bokutoh Hospital, 5Department of Obstetrics and Gynecology, Tokyo Metropolitan Bokutoh Hospital, 6Department of Obstetrics and Gynecology, The University of Tokyo Hospital, Tokyo, Japan

P1.44 Altered transcriptome and methylome profiles in placenta from complicated pregnancies
Cynthia Duval1,2, Ines Bouafeld3, Lisa-Marie Legault4,5, Maxime Caron15,6, Serge McGraw15,7, Daniel Sinnett15,8, Sylvie Girard15,2
1Université de Montréal, 2CHU Sainte-Justine Research Center, Montreal, Canada

P1.45 On the cross-road of soil and placental microbiome
Natalia Schlabritz-Loutevitch1, Stacy Martinez2, Kameswara Rao Kottapalli3, Hannah Kodeih4, Gary Ventolinii, James Maher1
1TTUHSC at the PB, 2TTU, TX, USA

Genomics/Epigenomics

Room 7 (6F, Bldg. No. 1)
Hormones/growth factors

Room 7 (6F, Bldg. No. 1)

P1.47 Influence of intrauterine growth restriction on the neuroplacental corticosterone axis in the low protein rat model
Marius Schmidt1, Manfred Rauh1, Hanna Huebner1, Rainer Wachtveitl1, Nada Cordasic1, Wolfgang Rascher1, Carlos Menendez-Castro1, Andrea Hartner1, Fabian Fahlbusch1
1Department of Pediatrics and Adolescent Medicine, Friedrich-Alexander University Erlangen-Nuremberg, 2Department of Gynaecology and Obstetrics/Comprehensive Cancer Center Erlangen-EMN, Erlangen, Germany

P1.48 Synergistic effects of tumor necrosis factor-α and insulin-like growth factor I on BeWo cells survival
Kei Tanaka, Yoichi Kobayashi, Mitsutoshi Iwashita
Kyorin University School of Medicine, Tokyo, Japan

P1.49 Placental androgen receptor AR45 variant may be central to mediating male growth
Ashley Meakin, Zarqa Saif, Vicki Cifto
Mater Medical Research Institute - University of Queensland, Brisbane, Australia

Imaging

Room 7 (6F, Bldg. No. 1)

P1.50 LC-MS/MS analysis of 11 beta-hydroxysteroid dehydrogenase type 2 (11bHSD2) steroid metabolism in placentas from spontaneous birth versus cesarean section
Fabian Fahlbusch1, Marius Schmidt1, Hanna Huebner1, Kirsten Heusner1, Matthias Ruebner1, Matthias Schmid2, Jennifer Nadal1, Wolfgang Rascher1, Andrea Hartner1, Sven Kehl1, Florian Faschingbauer1, Manfred Rauh1
1Department of Pediatrics and Adolescent Medicine, University of Erlangen-Nürnberg, Erlangen, Germany, 2Department of Gynecology and Obstetrics, University of Erlangen-Nürnberg, Erlangen, Germany, 3Institute of Medical Biometry, Informatics and Epidemiology (IMBIE), Rheinische Friedrich-Wilhelms-University, Bonn, Germany

P1.51 Extracellular vesicles comprise 5% of the villous stromal volume in terminal villi from term human placenta
Helen Palaiologou, Rohan Lewis
University of Southampton, Southampton, UK

P1.52 Relationship between placenta occupancy ratio in the uterine isthmus and the amount of bleeding during Cesarean section
Yoko Nagayasu, Daisuke Fujita, Misa Nunode, Atsuko Okamoto, Takumi Sano, Yoshito Terai, Masahide Ohmichi
Osaka Medical College, Osaka, Japan

P1.53 A case study on low-lying placenta and previa with cesarean section
Yuichi Shoburu1, Keiji Morimoto1, Miwako Shimazaki1, Akari Nakajima1, Ryusuke Saito1, Noriko Yamaguchi1, Ryusuke Kaya1, Hiroko Takanashi1, Seiji Isomishi1, Aiko Okamoto1
1The Jikei University Daisan Hospital, 2The Jikei University Hospital, Tokyo, Japan

P1.54 Optic tissue clearing in combination with perfusion and immunofluorescence for placental vascular imaging
Maira Carillo1, Marcel Chuecas1, Kushal Gandhi1, Andrey Bednov1,2, Lee David Moore1, James Maher1, Gary Ventolini1, Guangchen Ji1, Natalia Schlabritz-Loutevitch1
1TTUHSC at the PB, 2UTPB, TX, USA

P1.55 Trophoblast and macrophage change their sub-cellular structures in response to externally induced inflammation as shown by structured illumination microscopy and quantitative phase microscopy
Purusotam Basnet1, Rajinder Singh2, Deanna L. Wolfson1, Vishesh Dubey1, Azeem Ahmad1, Ganesh Acharya1, Dalip S. Mehta1, Balpreet S. Ahluwalia1
1Department of Clinical Medicine, UiT-The Arctic University of Norway, Tromsø, Norway, 2Department of Obstetrics and Gynecology, University Hospital of North Norway, Tromso, Norway, 3Department of Physics and Technology, UiT-The Arctic University of Norway, Tromsø, Norway, 4Department of Physics, Indian Institute of Technology, New Delhi, India, 5Department of Clinical Science Intervention and Technology, Karolinska Institutet, Stockholm, Sweden

P1.56 Superb microvascular imaging and magnetic resonance imaging-ultrasound fusion for diagnosis of subchorionic hematoma in a pregnant woman with chronic abruption of the placenta
Masahiro Yamaguchi, Takeshi Umazume, Mamoru Morikawa, Hidemichi Watari
Hokkaido University, Obstetrics, Hokkaido, Japan
### Immunology

**P.1.56**
LPS-exposed fetal membranes activate neutrophils in a TNF-α and p38 MAPK dependent mechanism  
**Mandy Tong, Julie A Potter, Gil Mor, Vikki M Abrahams**  
*Yale School of Medicine, CT, USA*

**P.1.57**
Decidual natural killer cells regulate trophoblast stem cell differentiation  
**Liyang Ma**, Zhihang Li, Guanlin Li, Wentong Jia, Yanlei Liu, Yuxia Li, Yanling Wang  
1 State Key Laboratory of Stem cell and Reproductive Biology, Institute of Zoology, Chinese Academy of Sciences,  
2University of the Chinese Academy of Sciences, Beijing, China

**P.1.58**
Role of core 2,8 1, 6-N acetylglcosaminyl transferase in evasion mechanism through NK cell immunity  
**Kenichi Nakamura**, Kaoru Niiiri, Yoshinori Ikeda, Kimihiro Nishino, Eiko Yamamoto, Fumitaka Kikkawa  
*Nagoya University, Aichi, Japan*

**P.1.59**
Fetal macrophages in amniotic fluid assist the healing of ruptured membranes  
**Yosuke Kawamura**, Haruta Mogami, Yusuke Ueda, Mai Sato, Yoshitsugu Chigusa, Eiji Kondoh, Masaki Mandai  
*Kyoto University, Kyoto, Japan*

**P.1.60**
Histochemical analysis of Scl2a1 (glucose transporter type I) in uterine natural killer cells during mouse pregnancy  
**Chaw Kyi-Thu**, Toshihiro Takizawa  
*Department of Molecular Medicine and Anatomy, Nippon Medical School, Tokyo, Japan*

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**P.1.62**
Regulation of primary trophoblast differentiation by the ZEB2 transcription factor  
**Sonia C. DaSilva-Arnold, Stacy Zamudio, Abdulla Al-Khan, Nicholas P. Iliisley**  
*Hackensack University Medical Center, NJ, USA*

**P.1.63**
Stage-specific downregulation of progesterone receptor membrane component 1 (PGRMC1) during the menstrual cycle stimulates human endometrial stromal cells decidualization  
**Ryo Yonekawa**, Mikihiro Yoshie, Kazuhiro Tamura, Junya Kojima, Hirotaka Nishii, Keiichi Isaka  
1Department of Endocrine and Neural Pharmacology, Tokyo University of Pharmacology and Life Sciences,  
2Department of Obstetrics and Gynecology, Tokyo Medical University, Tokyo, Japan

**P.1.64**
Five cases of cesarean scar pregnancy  
**Shiho Takeuchi**, Makiko Egawa, Nobuyuki Kidera, Ayako Fudono, Asuka Hirose, Takashi Nakasui, Naoyuki Miyasaka  
1Tokyo Medical and Dental University, Tokyo, Japan,  
2Moriya Daiichi General Hospital, Ibaraki, Japan,  
3Denentoshi Ladies Clinic Reproductive Center, Kanagawa, Japan

**P.1.65**
Does oncostatin M affect the invasiveness of primary trophoblasts under normoxia and hypoxia conditions?  
**Hyun Sun Ko**, Jeong Ha Wie, Ahyong Kim, Sae Kyung Choi, In Yang Park, Jong Chul Shin  
*Catholic University of Korea, Seoul, Korea*

**P.1.66**
The regulation of utero-placental blood flow by trophoblast plugs: Insights from computational modelling  
**Joanna James**, Rojan Saghian, Rebecca Perwick, Alys Clark  
1Obstetrics & Gynaecology, University of Auckland,  
2Auckland Bioengineering Institute, University of Auckland,  
3University of Auckland, Auckland, New Zealand
**Pro-inflammatory cytokine inhibition of matrix metalloproteinase-2 activity is mediated by endoplasmic reticulum stress; implications for insufficient trophoblast invasion in pre-eclampsia**

Cheuk-Lun Lee1, Jan H.W. Veerbeek1, Tirtha Rana1, William S.B. Yeung2, Philip C.N. Chiu2, Graham Burton1, Hong Wa Yung1

1University of Cambridge, Cambridge, UK, 2The University of Hong Kong, Hong Kong, 3Utrecht University, Utrecht, Netherlands, 4The University of Hong Kong-Shenzhen Hospital, Shenzhen, China

**Infection and inflammation**

**P1.68** Human endometrial epithelial cells resist Internalin A, but not Internalin B- deficient *Listeria monocytogenes* (Lm) infection in vitro

Anna Marie Rowell, Troy Thoong, Bryce Wolfe, Greg Wiepz, Ted Golos

University of Wisconsin, WI, USA

**P1.69** Role of cell fusion in protection of the placenta against infection

Lauren Johnson, Siavash Azari, Joanna Marshall, William Ackerman, Stephen Thung, Kara Rood, John Robinson, Stephanie Seaveau

The Ohio State University, OH, USA

**P1.70** Placental histology and neonatal outcome in cases of persistent seropositive immunoglobulin M antibodies against cytomegalovirus

Masako Matsumoto, Chizuko Yasuguchi, Yoshimasa Hikoshi, Naomi Isomura, Kazuhiro Sugihara, Hiroaki Itoh, Naohiro Kanayama

Hamamatsu University School of Medicine, Shizuoka, Japan

**P1.71** Clinical and pathological findings in 28 cases of high grade VUE

Naomi Isomura, Chizuko Yasuguchi

Hamamatsu University School of Medicine, Shizuoka, Japan

**P1.72** Suppression of galectin-3 prevents the preterm-birth induced by odontogenic infection of *Porphyromonas gingivalis*

Hisako Furusho1, Mutsumi Miyachi1, Satoshi Urabe2, Haruhisa Konishi2, Yoshiki Kudo2, Takashi Takata2

1Department of Oral and Maxillofacial and Pathobiology, Hiroshima University, 2Department of Obstetrics and Gynecology, Hiroshima University, Hiroshima, Japan

**P1.73** Placental pathology of congenital cytomegalovirus infection

Mizuki Uenaka1, Mayumi Morizane1, Kenji Tanimura1, Masashi Deguchi1, Maki Kanzawa2, Hideto Yamada3

1Department of Obstetrics and Gynecology, Kobe University Graduate School of Medicine, 2Department of Diagnostic Pathology, Kobe University Graduate School of Medicine, Hyogo, Japan

**Metabolism/mitochondria**

**P1.75** Increased respiration and ATP production in cytotrophoblast compared to syncytiotrophoblast mitochondria

Joshua Fisher1, Daniel McKeating1, Evan Pennell1, Jessica Vanderlee2, James Cuffe1, Olivia Holland1, Anthony Perkins1

1Griffith University, Gold Coast, Australia, 2La Trobe, Melbourne, Australia, 3University of Queensland, Brisbane, Australia

**P1.76** Sexual dimorphism in activation of the placental inflammation/NFkB p50/miR-210 pathway in relation to increasing birthweight centiles

Yu Wang1, Matthew Bucher1, Aline Maloyary1, Leslie Myatt1

1Oregon Health & Sciences University, Obstetrics and Gynecology, 2Oregon Health & Sciences University, Knight Cardiovascular Institute, OR, USA

**Metabolomics/proteomics**

**P1.77** Elemental analysis for the determination of micronutrient status in biological samples: applications for pregnancy research

Daniel McKeating1, William Bennett2, Jessica Vanderlee3, Anthony Perkins1

1Griffith University, Southport, Australia, 2Environmental Futures Centre, Southport, Australia, 3La Trobe University, Melbourne, Australia
### Oxidative stress

**P1.78**

HIF2A, but not HIF1A, mediates regulation of trophoblast syncytialization under hypoxia  
Kaiyu Kubota, Junya Kojima, Osamu Akutagawa, Hirotaka Nishi  
Tokyo Medical University, Tokyo, Japan

**P1.79**

First trimester oxygen rising increases the antioxidant defenses and impacts p38 MAPK activation in human villous cytotrophoblast  
Isabelle Hernandez1,2, Sylvie Pinto1,2, Audrey Chissey2,3, Thierry Fournier1,2, Jean-Louis Beaudeux1,3, Amal Zerrad-Saadi1,2  
1Paris Descartes University, 1INSERM, Paris, France

### Placental dysfunction

**P1.80**

Urban particulate matter PM2.5 exerts negative effects on trophoblast cells in vitro  
Åsa Näläiv1, Lenna Erlandsson1, Christina Isaxon1, Ebba Malmoqvist1, Stefan Hansson1  
1Institute of Clinical Sciences, Department of Obstetrics and Gynaecology, Lund University, 2Faculty of Engineering LTH, Aerosol Technology, Lund University, 3Institute of Laboratory Sciences, Occupational and Environmental Medicine, Lund University, Lund, Sweden

**P1.81**

Impaired expression of CRH, UCN, and WFS1 in pregnant rats with 17α-ethynylestradiol-induced intrahepaticcholestasis under acute hypoxia stress  
Tingting Xu1,2, Fan Zhou1,2, Zhiyi Zhou1,2, Na Liu1,2, Danni Liu1,2, Chunyan Deng1,2, Guiqiong Huang1,2, Xiaodong Wang1,2  
1Department of Obstetrics and Gynecology, West China Second University Hospital, Sichuan University, 2Key Laboratory of Birth Defects and Related Diseases of Women and Children (Sichuan University), Ministry of Education, Chengdu, China

**P1.82**

Histopathological findings of chronic abrasion-oligohydramnios sequence: A clinical report of four cases  
Michihiro Yamamura1, Hiroaki Aoki1, Keiko Yabuzaki1, Akihiro Hasegawa1, Taisuke Sato1, Tomona Matsuoka1, Haruhiko Udagawa1, Yuki Ito1, Kazuhiro Kajiwara1, Taizan Kamide1, Kentaro Matsuoka1, Osamu Sumara1, Aikou Okamoto1  
1Department of Obstetrics and Gynecology, The Jikei University School of Medicine, Tokyo, Japan, 2Dokkyo Medical University Saitama Medical Center, Saitama, Japan

**P1.83**

Fine particulate matter air pollution causes inflammation, ER stress and activates cell death in cultured first trimester trophoblast  
Stefan R. Hansson1, Mary Familari2, Åsa Näläiv1, Lenna Erlandsson1, Robb de Longh1, Christina Isaxon1, Ebba Malmoqvist1  
1Lund University, Skane University Hospital, Division of Obstetrics and Gynecology, Department of Clinical Sciences Lund, Lund, Sweden, 2School of Biosciences, University of Melbourne, Parkville, Australia, 3Lund University, Division of Obstetrics and Gynecology, Department of Clinical Sciences Lund, Lund, Sweden, 4School of BioMedical Sciences, University of Melbourne, Parkville, Australia, 5Department of Ergonomics and Aerosol Technology, Lund University, Lund, Sweden, 6Division of Occupational and Environmental Medicine, Lund University, Lund, Sweden

**P1.84**

Clinicopathological features and genomic/epigenetic aspects of placental mesenchymal dysplasia  
Chisato Kodera1, Saori Aoki1, Takashi Ohba1, Ken Higashimoto1, Hidenobu Soejima1, Hidetaka Katabuchi1  
1Department of Obstetrics and Gynecology, Faculty of Life Sciences, Kumamoto University, Kumamoto, Japan, 2Division of Molecular Genetics and Epigenetics, Department of Biomolecular Sciences, Faculty of Medicine, Saga University, Saga, Japan

**P1.85**

Impact of sickle cell disease (SCD) on gene and protein expression in human placenta  
Anne Gael Cordier1,2, Anne Sophie Bouvier1,2, Francoise Viber1,2, Thierry Fournier1,2, Alexandra Benachi1,2, Sophie Gil1  
1INSERM UMR S 1139, Paris Descartes University, Paris, France, 2Antoine Beclere Hospital, Clamart, France

**P1.86**

Placenta accreta management with uterine artery embolization to preserve the uterus - a case report  
Yuto Tsuruoka1, Yuka Akiyama1, Rie Saitou1, Junki Onishi1, Yuka Tanaka1, Suguru Oda1, Eitarou Suzuki1, Akiko Nakamura1, Akina Tuda1, Hiromi Komatsuki2, Motoaki Saitou1, Shigeki Niimi1, Aikou Okamoto1  
The Jikei University School of Medicine, Tokyo, Japan

**P1.135**

Polymer-based, biodegradable nanoparticles for the treatment of placental dysfunction  
Rebecca Wilson1, Jennifer Courtney1, Kathryn Owens1, Marcel Chuecos2, Maira Carrillo1, Natalia Schlabrictz-Lutsevich2, Helen Jones1  
1Center for Fetal and Placental Research, Cincinnati Children’s Hospital Medical Center, OH, USA, 2Texas Tech University Health Sciences Center at the Permian Basin, TX, USA

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Determination of the diagnosis and management of retained placenta  
Natsumi Furuya1, Junichi Hasegawa1, Nao Suzuki2  
1Department of Obstetrics and Gynecology, St. Marianna University School of Medicine, Kanagawa, Japan
P1.87 Defects in lysosomal degradation contribute to impaired fibronectin matrix assembly in preeclampsia
Sruthi Alahari1,2, Leonardo Ermini1, Isabella Caniggia1,2
1Lureenfield-Tanenbaum Research Institute, Sinai Health System, 2University of Toronto, Toronto, Canada

P1.88 Procoagulant extracellular vesicles impair trophoblast function by a thrombo-inflammatory pathway in preeclampsia
Shrey Kohli, Pauline Markmeyer, Franceska Lochmann, Moh’d Mohanad Al-Dabeit, Satish Ranjan, Berend Isermann
Otto-von-Guericke University, Magdeburg, Germany

P1.89 Chloroquine modifies features of preeclampsia (PE) in phenotype in L-nitro-arginine methyl ester (L-NAME) induced-PE rat model
Minji Choi1,2, Jae Ryong Hwang3, Minji Yoon1,2, Suk-Joo Choi1, Soo-young Oh3, Jung-Sun Kim3, Cheong-Rae Roh1
1Samsung biomedical research institute, Samsung Medical Center, 2Department of Obstetrics and Gynecology, Samsung Medical Center, Sungkyunkwan University School of Medicine, 3Department of Pathology and Translational Genomics, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, Korea

P1.90 Autophagy insufficiency is a novel feature of preeclampsia with fetal growth restriction
Tae Kusabiraki, Akitoshi Nakashima, Aiko Aoki, Shigeru Saito
Department of Obstetrics and Gynecology, University of Toyama, Toyama, Japan

P1.91 Aspirin inhibit hypoxia induced sFlt1 release through Activator Protein-1 in human endothelial and trophoblast
Li Lin1,2, Guanlin Li1,2, Huixia Yang1,2
1Peking University First Hospital, Beijing, China, 2Beijing Key Laboratory of Maternal Fetal Medicine of Gestational Diabetes Mellitus, Beijing, China

P1.92 Trophoblast-specific gene expression driven by endogenous retrovirus LTRs in normal vs pre-eclamptic (PE) pregnancy
Rabia Anwar1, Manvendra Singh1, Florian Herse1, Ralf Dechend1, Zsuzsanna Izsák1
1MDC, 2ECRC, Berlin Buch, Germany

P1.93 Can quantification of serum glycans predict pre-eclampsia?
Imeodong U Antia1, Ajit J Shah1, Darshana R Yagnik2, Argyro Syngelaki3, Kypros Nicolaides4, Frank A Hills2
1Middlesex University, 2King’s College Hospital, London, UK

P1.94 Syncytialisation of primary human trophoblast and BeWo choriocarcinoma cells: do the prorenin receptor and soluble prorenin receptor play a role?
Saile Morosin, Sarah Delforce, Eugenie Lumbers, Kirsty Pringle
Hunter Medical Research Institute and the University of Newcastle, Newcastle, Australia

P1.96 Withdraw

P1.97 Withdraw

P1.98 Expression of placental alpha-1-antitrypsin and high-temperature requirement protein A1 (HTRA1) in the placentas of hypertensive disorders of pregnancy
Kazuhiro Tamura1, Mikihiro Yoshie1, Takako Ohmaru2, Kiyoko Kato2, Gen Ishikawa2, Toshikiyo Takeshita2, Junya Koijima1, Hirotaka Nishi1, Keiichi Itsuka1
1Department of Endocrine and Neural Pharmacology, Tokyo University of Pharmacy and Life Sciences, Tokyo, Japan, 2Department of Obstetrics and Gynecology, Graduate School of Medical Sciences, Kyushu Univ., Fukuoka, Japan

P1.99 Sterile inflammatory molecules: potential biomarkers for preeclampsia
Abhirup Bandhapadhyay1, William May2, Saumaya Bhagat1, Iqbal Alam1, Gausal Khan3,4
1Munshiabad Medical College & Hospital, Berhampore, India, 2Fiji School of Medicine, Fiji National University, Suva, Fiji, 3DIPAS, Delhi, India, 4University of Jamia Hamdard, New Delhi, India

P1.100 Altered regulation of placental sialyltransferases in early-onset preeclampsia
Charlotte Burrell1, Klaudia Toeczyska1,2, Graham Burton1, Hong wa Yung1
1University of Cambridge, Cambridge, UK, 2King College London, London, UK

P1.101 Placental complement activation and antiangiogenic milieu in preeclampsia
Manu Banadakoppa, Meena Balakrishnan, Chandra Yallampalli
Baylor College of Medicine, TX, USA
P1.102  COL17A1 is a syncytial trophoblast extracellular specific marker significantly elevated in preeclampsia
Wei Zhang, Gavin Collett, Adam Cribbs, Dionne Tannetta, Rebecca Dragovic, Sofia Cerdeira, Ian Sargent,
Christopher Redman, Manu Vatish
Oxford University, Oxford, UK

P1.103  SerpinA5, a potential preeclampsia biomarker, may contribute to pathogenesis of disease by inhibiting trophoblast cell invasion
Hong-Ling Yang, Yan Long, Jiang Min, Fang-Ling Zeng, Gendie Lash
Guangzhou Women and Children’s Medical Center, Guangzhou, China

P1.136  Politics and the placenta
Priscilla Boyd, Adamas Kasongo
Kongo University, Kinshasa, Congo

P1.143  Serum levels of nitric oxide synthase, proangiogenic and antiangiogenic factors in HIV infected pre-eclamptic women
I Ajadi1, K Madaray2, S Eche3, I Mackraj4
1Department of Human Physiology, School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal, 2KwaZulu-Natal Research and Innovation Sequence Platform (KRISP), School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal, South Africa

Prenatal diagnosis
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P1.104  Evaluation of risk factors for massive postpartum hemorrhage in placenta previa
Naoya Kitamura1, Madoka Horiya2, Satoru Tsuda3, Kazuhiko Oka4, Shingo Horikawa5, Runiko Ejima6, Yusuke Mori7, Nami Yamamura1, Junya Tabata1, Daito Noguchi1, Yukihiro Hirata1, Hiroshi Kuroda1, Masahiro Ezawa7, Hirokazu Ozone1, Hirokuni Takano1, Aiko Okamoto1
1The Jikei University Kashiwa Hospital, Chiba, Japan, 2The Jikei University School of Medicine, Tokyo, Japan

P1.105  Non-invasive prenatal testing in Japan
Osamu Samura1, Akihiko Sekizawa2, Nobuhiro Suzumori3, Fumiki Hirahara4, Takahiro Yamada5, Kiyonori Miura6, Hideaki Masuzaki7, Yoshimasa Kamei7, Haruhiko Sago8
1Department of Obstetrics and Gynecology, The Jikei University School of Medicine, Tokyo, Japan, 2Department of Obstetrics and Gynecology, Showa University School of Medicine, Tokyo, Japan, 3Division of Clinical and Molecular Genetics, Department of Obstetrics and Gynecology, Nagoya City University, Aichi, Japan, 4Department of Human Genetics, Yokohama City University Graduate School of Medicine, Kanagawa, Japan, 5Department of Obstetrics and Gynecology, Hokkaido University Graduate School of Medicine, Hokkaido, Japan, 6Department of Obstetrics and Gynecology, Nagasaki University Graduate School of Biomedical Sciences, Nagasaki, Japan, 7Departments of Obstetrics and Gynecology, Saitama Medical University School of Medicine, Saitama, Japan, 8Center of Maternal-Fetal, Neonatal and Reproductive Medicine, National Center for Child Health and Development, Tokyo, Japan

Preterm labour and birth
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P1.106  The role of Wnt in placental development and birth timing
Ortai Tamam1,2, Debora Sinner1, Kaulini Burra2, Kelli Ryckman3, Frans Bødker4, Kaare Christensen5, Johniggle5, Ruti Parvari6, Louis J Mughtie7
1The Shraga Segal Department of Microbiology, Immunology & Genetics; Faculty of Health Sciences (A.B.), Ben-Gurion University of the Negev, Beer Sheva, Israel, 2National Institute of Biotechnology in the Negev, Ben-Gurion University of the Negev, Beer Sheva, Israel, 3Center for Prevention of Preterm Birth, Cincinnati Children’s Hospital Medical Center, OH, USA, 4Neonatology and Pulmonary Biology, Perinatal Institute, Cincinnati Children’s Hospital Medical Center, OH, USA, 5Department of Epidemiology; College of Public Health, University of Iowa, IA, USA, 6Univ. of Southern Denmark, Odense, Denmark, 7Department of Pediatrics, Carver College of Medicine, University of Iowa, IA, USA

P1.107  Collagen gel stimulates healing of ruptured amnion in mouse PROM model
Haruta Mogami1, Yosuke Kawamura1, Mai Sato1, Hiroshi Takai1, Eiji Kondoh1, Masaki Mandai1, R. Ann Word1
1Kyoto University Graduate School of Medicine, Kyoto, Japan, 2UT Southwestern Medical Center, TX, USA

P1.108  Complications and fertility after uterine artery embolization for retained products of conception
Takako Ohmaru-Nakanishi, Kazutaka Kuramoto, Haruka Goto, Atsushi Takasugi, Miyako Maehara, Reiko Takeuchi, Hiroki Oishi, Yosuke Ueoka
Hamanomachi Hospital, Fukuoka, Japan
### Stem cells

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<td>P1.109</td>
<td>Sphingosine-1-Phosphatase (S1P) signaling mediated by S1P receptors causes differentiation of human embryonic stem cells to the trophoblast lineage in a completely defined medium</td>
<td>Adam Mischler, Balaji Rao</td>
<td>NC State University, NC, USA</td>
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<td>P1.110</td>
<td>The role of ageing in decidua basalis-derived mesenchymal stem/stromal cells from early term labour, not in labour and late/post term placentas</td>
<td>Ramin Khanabadi1,2, Harry Georgiou1,2, Bill Kallionis1,2</td>
<td>1Department of Maternal-Fetal Medicine, Pregnancy Research Centre, The Royal Women’s Hospital, 2Department of Obstetrics and Gynaecology, The University of Melbourne, Melbourne, Australia</td>
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<td>P1.111</td>
<td>Placenta derived mesenchymal stem cells increase invasion ability of trophoblast (HTR-B/STneo) via alteration of mitochondrial function</td>
<td>Jin Seok, Hyun Sook Jung, Jea Yeon Kim, Gi Jin Kim</td>
<td>Department of Biomedical Science, CHA University, Seongnam, Korea</td>
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<td>P1.112</td>
<td>Amniotic fluid cell-derived Down syndrome induced pluripotent stem cells exhibited reversion to intact disomy 21</td>
<td>Momoko Inoue1,2, Kazuhiro Kajiwara3, Osamu Samura4, Hidenori Akatsu5, Haruhiko Sago6, Akihiro Umezawa7, Aikou Okamoto2</td>
<td>1Department of Reproductive Biology, National Research Institute for Child Health and Development, 2Department of Obstetrics and Gynecology, The Jikei University School of Medicine, 3Maternal-Fetal, Neonatal and Reproductive Medicine, National Research Institute for Child Health and Development, Tokyo, Japan</td>
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<td>P1.113</td>
<td>Characterization and differentiation of placenta-derived mesenchymal stem cells from GDM women into insulin producing cells for personalised medicine</td>
<td>Liyun Chen1, Marwan Merkhan1, Nicholas R. Forsyth1, Pen see Wu1,2</td>
<td>1Guy Hilton Research Centre, Keele University, 2Academic Obstetrics and Gynaecology, University Hospital of North Midlands, Stoke-on-Trent, UK</td>
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### Transport

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<td>P1.114</td>
<td>Sex-specific disturbance of early-mid pregnancy placental transporter protein expression associated with maternal overweight/obesity</td>
<td>Natasha E Walker1, Michelle Bellingham2, Peter J O’Shaughnessy2, Paul A Fowler1, Panagiotis Filis1</td>
<td>1Institute of Medical Sciences, University of Aberdeen, Aberdeen, UK, 2Institute of Biodiversity, Animal Health and Comparative Medicine, University of Glasgow, Glasgow, UK</td>
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<td>P1.115</td>
<td>Mass of cholesterol taken up by the term human fetus in vivo and its relationship to maternal cholesterol levels</td>
<td>Hildegunn Horne1, Ane Moe Holme2, Maia Blomhoff Holm2, Marie Ceciliie Paasche Roland3, Guttorm Haugen4, Tore Henriksen5, Trond Michelsen6</td>
<td>1Institute of Clinical Medicine, University of Oslo, 2Department of Obstetrics, Oslo University Hospital, 3University of Oslo, 4Norwegian Advisory Unit on Women’s Health, Oslo University Hospital, 5Department of Fetal Medicine, Oslo University Hospital, Oslo, Norway</td>
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<td>P1.116</td>
<td>Induction mechanism of MDR1 in mouse trophoblast stem cell differentiation</td>
<td>Minako Tanabe, Sakki Noguchi, Tomohiro Nishimura, Masatoshi Tomi</td>
<td>Faculty of Pharmacy, Keio University, Tokyo, Japan</td>
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<td>P1.117</td>
<td>Transcriptional regulatory element for the placental expression of organic anion transporter 4</td>
<td>Sakki Noguchi, Kanako Furugori, Tomohiro Nishimura, Emi Nakashima, Masatoshi Tomi</td>
<td>Faculty of Pharmacy, Keio University, Tokyo, Japan</td>
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<td>P1.118</td>
<td>Ex vivo effects of valproic acid on the main efflux carriers in human placental barrier: early vs late pregnancy</td>
<td>Nino Tetro1, Tal Imbar2, Debra Wohl3, Iris Eisenberg4, Simcha Yagel5, David Mankuta6, Miri Shmuel7, Sara Eyal8</td>
<td>1Institute for Drug Research, School of Pharmacy, The Hebrew University of Jerusalem, 2The Magda and Richard Hoffman Center for Human Placenta Research, Hadassah Hebrew University Medical Center, 3Department of Obstetrics and Gynecology, Hadassah Medical Center, Jerusalem, Israel</td>
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<td>P1.119</td>
<td>A computational model of placental oxygenation to predict the impact of cord insertion location on exchange</td>
<td>Alys Clark1, Rory McKay1, Mabelle Lin1, Win Tun1, Joanna James2</td>
<td>1Auckland Bioengineering Institute, University of Auckland, 2Obstetrics &amp; Gynaecology, University of Auckland, Auckland, New Zealand</td>
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Expression and function of nucleoside transporters in the placenta; role in materno-fetal disposition of nucleoside-derived antivirals
Lukas Cerveny, Zuzana Ptackova, Sara Karbanova, Lucie Jiraskova, Rona Karahoda, Martina Ceckova, Frantisek Staud
Department of Pharmacology and Toxicology Faculty of Pharmacy in Hradec Králové, Charles University, Hradec Králové, Czech Republic

**Trophoblast biology**

**Room 8 (7F, Bldg. No. 1)**

**P1.120** Expression and function of nucleoside transporters in the placenta; role in materno-fetal disposition of nucleoside-derived antivirals
Lukas Cerveny, Zuzana Ptackova, Sara Karbanova, Lucie Jiraskova, Rona Karahoda, Martina Ceckova, Frantisek Staud
Department of Pharmacology and Toxicology Faculty of Pharmacy in Hradec Králové, Charles University, Hradec Králové, Czech Republic

**P1.121** A novel regulatory mechanism of McI1 stability by sumoylation
Julien Sallais1,2, Isabella Caniggia3
1Lunenfeld Tanenbaum Research Institute, Sinai Health System, 2University of Toronto, Toronto, Canada

**P1.122** Extravillous trophoblasts accumulate cholesterol, upregulate HSD3B1 and secrete progesterone
Victoria Kunis1, Sigrid Vondra1, Peter Hasting1, Sandra Haider1, Martin Knöfler1, Clemens Röhr1, Jürgen Pollheimer1
1Department of Obstetrics and Gynaecology, Reproductive Biology Unit, Medical University of Vienna, 2Center for Pathobiocchemistry and Genetics, Medical University of Vienna, Vienna, Austria

**P1.123** Oxyquinoline derivative activates HIF-1 and increases transepithelial resistance of BeWo b30 monolayer
Evgeny Knyazev1, Andrey Poloznikov1,2, Diana Maltsева1, Anna Khrishtchenko1
1Scientific research center BioClinicum, Moscow, 2D. Rogachev Federal Scientific and Clinical Center for Pediatric Hematology, Oncology, and Immunology, Moscow, Russian Federation

**P1.124** Circulating syncytiotrophoblast-derived extracellular vesicles exhibit variation in release between night and day
William Cooke, Ana Sofia Cerdeira, Carolina Motta Mejia, Neva Kandzija, Manjot Gill, Kirsten White, Boonyakiat Thammasate, Rannya Ri, Wei Zhang, Christopher Redman, Manu Vatish
University of Oxford, Oxford, UK

**P1.125** The health effects of real-life exposure to per- and polyfluoroalkyl substances (PFAS) - Multi-omics analyses of human blood and placenta
Martin Forsthuber1,2, Raimund Widhelm1, Sebastian Granitzer3, Christine Giuffrida3, Bettina Grasi-Kraupp4, Isabella Ellinger5, Karl Zwiauer5, Markus Hengstschläger5, Maria Uhl5, Harald Zeisler5, Hans Salzer5, Hanns Moshhammer6, Claudia Gundacker1
1Center of Biochemistry and Genetics, Medical University of Vienna, Vienna, Austria, 2Center for Public Health, Medical University of Vienna, Vienna, Austria, 3Karl Landsteiner University of Health Science, Krems an der Donau, Austria, 4Institute of Cancer Research, Medical University of Vienna, Vienna, Austria, 5Vienna General Hospital, Vienna, Austria, 6Universitätsklinikum St. Pölten, St. Pölten, Austria, 7Environment Agency Austria, Vienna, Austria, 8Universitätsklinikum Tulln, Tulln, Austria

**P1.126** Circulating sFlt-1 is placentally derived in normal pregnancy circulating sFlt-1 is placentally derived in normal pregnancy
Ana Sofia Cerdeira, Neva Kandzija, Alexandra Burdjan, Wei Zhang, Carolina Motta-Mejia, Kirsten White, Manjot Gill, William Cooke, Boonyakiat Thammasate, Rannya Ri, Pille Pargmae, Tim James, Christopher Redman, Manu Vatish
University of Oxford, Oxford, UK

**P1.127** Molecular signaling controlling syncytiotrophoblast development
Bhaswati Bhattacharya, Soumen Paul
University of Kansas Medical Center, KS, USA

**P1.128** The (un)usual suspects - in situ characterization of human placental iron transport
Isabella Ellinger1, Raimund Widhelm1, Katharina Gelles1, Lena Walch1, Victoria Podgorzak1, Verena Huber1, Kathrin Riegler1, Julia Aigelsreiter1, Markus Hengstschläger1, Claudia Gundacker1
1Institute of Pathophysiology and Allergy Research, Medical University Vienna, 2Institute of Medical Genetics, Medical University Vienna, 3Institute of Pathophysiology and Allergy Research, Medical University Vienna, Vienna, Austria

**P1.129** Consequences of nanoparticle exposure on the integrity and functions of the human placental barrier
Margarida Nedder1, Sonja Boland1, Xavier Coumou1, Karine Andreau1, Amal Zerrad-Saadi1, Audrey Chissey1, Céline Tomkiewicz2, Françoise Vibert2, Thierry Fournier2, Sophie Gil3, Joana Ferescu1
1INSERM UMR-S 1139 Paris Descartes University, 2CNRS UMR 8251 Paris Diderot University, 3INSERM UMR 1124 Paris Descartes University, Paris, France

**P1.130** Risk factors of post-molar gestational trophoblastic neoplasia: prospective observational cohort study
Hirokazu Usui, Asuka Sato, Zijun Pan, Makio Shozu
Department of Reproductive Medicine, Graduate School of Medicine, Chiba University, Chiba, Japan
P1.131 Deciphering the role of iron transporters in the human placenta
Raimund Widhalm¹, Sebastian Granitzer¹,², Christine Glufftida¹, Martin Forsthuber¹, Isabella Ellinger¹,
Markus Hengstschläger¹, Claudia Gundacker¹
¹Medical University Vienna, Vienna, Austria, ²Karl-Landsteiner Privatuniversität, Krems, Austria

P1.133 Mono-2-ethylhexyl phthalate (MEHP) impairs PPARγ activity and human villous cytotrophoblast differentiation in a non-monotonic dose-response manner
Shoaito Hussein¹, Julia Petit¹, Audrey Chissey¹, Nicolas Auzelli², Jean Guibardenche¹, Sophie Gil¹, Olivier Laprévote³,
Thierry Fournier⁴, Severine Degrelle⁴
¹INSERM, UMR-S1139, Faculté de Pharmacie de Paris, ²UMR CNRS 8638, Faculté de Pharmacie de Paris, Paris, France

P1.134 Macrophage Migration Inhibitory Factor (MIF) and CD44 expression in lipopolysaccharide (LPS)-stimulated on Human Trophoblast Derived Cells (JEG-3 and ACH-3P cells): Relevance for Human Feto-Maternal Tolerance
Waleed Alabdulmonem¹, HomaYan Al-HomaYan², Hussain Al Saad³
¹Pathology Department, College of Medicine, Qassim University, Buraydah, Saudi Arabia, ²Family Medicine, College of Medicine, Qassim University, Buraydah, Saudi Arabia, ³School of Biological sciences, University of Essex, Colchester, Colchester, UK
Anatomy and pathology

P2.1 Patological perspectives of abnormal prenatal ultrasound imaging analysis: representative case reports
Eun Na Kim1,2, Jae-Yoon Shim1,2, Chong Jai Kim1,3
1Department of Pathology, University of Ulsan College of Medicine, Asan Medical Center, 2Asan Laboratory of Perinatal Science, Asan Medical Center, 3Department of Obstetrics and Gynecology, University of Ulsan College of Medicine, Seoul, Korea

P2.2 A Twisted Tale - Gross and histological features of equine placentae from abortions attributed to umbilical cord torsion
Jessica Roach1, Matthew Molyneux2, Jill Bryan3, Ken Smith4, Alastair Foote5, Amanda de Mestre6
1Department of Comparative Biomedical Sciences, Royal Veterinary College, London, UK, 2Rossdales Laboratories, Newmarket, UK, 3Department of Pathobiology and Population Sciences, Royal Veterinary College, London, UK

P2.3 From start to end: Linking maternal early life characteristics to placental structure and perinatal mortality
Julienne Rutherford1, Victoria deMartelly1, Corinna Ross2, Lauren Riesche3, Toni Ziegler4, Suzette Tardif5
1University of Illinois at Chicago, IL, USA, 2Texas A&M University San Antonio, TX, USA, 3University of Pennsylvania, PA, USA, 4University of Wisconsin, WI, USA, 5Southwest National Primate Research Center, TX, USA

P2.4 Placenta increta presenting as retained placenta
Stewart F Cramer6, Fadi Hatemi7, Debra S. Heller7
6Rochester General Hospital, NY, USA, 7University of Rochester, NY, USA

P2.5 Serial block-face scanning electron microscopy demonstrates that placental microvesicles form on the tips of microvilli
Rebecca Davis, Helen Palaiologou, Patricia Goggin, David Chatelet, Bram Sengers, Christopher Torrens, Jane Cleal, Anton Page, Rohan Lewis
University of Southampton, Southampton, UK

P2.6 Retrospective analysis of the association of opaque fetal membrane with chorioamnionitis and early neonatal complications: Importance of gross screening of the placenta
Yoshimasa Horikoshi, Masako Matsumoto, Naomi Furuta-Isomura, Kazunao Suzuki, Chizuko Yaguchi, Kazuhiro Sugihara, Hiroaki Itoh, Naohiro Kanayama
Hamamatsu University School of Medicine, Shizuoka, Japan

P2.7 The frequency of fetal inflammatory response syndrome and the intensity of fetal inflammatory response are positively correlated with the severity of chorialnic plate inflammation: another example of evidence showing that chorialnic plate is the playground for the progression of ascending intra-uterine infection in preterm gestation
Chan-Wook Park, Kyung Chul Moon, Joong Shin Park, Jong Kwan Jun
Seoul National University College of Medicine, Seoul, Korea

P2.8 The relationship between the frequency of fetal inflammatory response syndrome or the intensity of fetal inflammatory response and the severity of funisitis in patients with either preterm labor or preterm-PROM
Chan-Wook Park, Kyung Chul Moon, Joong Shin Park, Jong Kwan Jun
Seoul National University College of Medicine, Seoul, Korea

P2.9 Inflammation in the connective-tissue of chorialnic-plate and the Wharton's jelly of umbilical cord is similar in the severity of inflammation in extra-placental membranes and the intensity of intra-amniotic inflammatory response: the role of inflammation in the connective-tissue of chorialnic-plate as another manifestation of final stage in ascending intra-uterine infection
Chan-Wook Park, Kyung Chul Moon, Joong Shin Park, Jong Kwan Jun
Seoul National University College of Medicine, Seoul, Korea

P2.135 Whole slide analysis of placental hematoxylin and eosin stained slides
Harriet Pais1, Ruchit Shah1, Phillip Necaise1, Emily Barrett1, Tom O'Connor2, Carolyn Salafia1,4
1Placental Analytics, LLC, NY, USA, 2Rutgers University, NJ, USA, 3University of Rochester, NY, USA, 4New York State Institute for Basic Research for Developmental Disabilities, NY, USA
P1.7 Isolated acute funisitis in the absence of acute chorioamnionitis. An indicator of non-infectious pathology? Rebecca Baergen1, Tracy Grossman2, Debra Heller2
1Weill Cornell Medicine, NY, USA, 2New York Presbyterian Hospital, NY, USA, 3Rutgers New Jersey Medical School, NJ, USA

P1.8 Chorion laeve accreta - another manifestation of morbid adherence T.Y. Khong1, Stewart F. Cramer2, Debra S. Heller2
1University of Adelaide, Adelaide, Australia, 2Rochester General Hospital, NY, USA, 3University of Rochester, NY, USA, 4Rutgers-New Jersey Medical School, NJ, USA

P2.10 Alterations of placenta and litter in porcine von willebrand disease Hanna Allerkamp1, Stefanie Lehner2, Mahnaz Ekhlas-Hundrieser3, Carsten Detering4, Mario von Dapka Prondzinski2, Christiane Pfrimmer1
1University of Veterinary Medicine Wien, Department of Anatomy, 2Werhof-Institute, Hannover, Germany

P2.11 The status of anti-angiogenesis in the internal uterine os in patients with placenta previa Michiko Yamashita1, Keichi Kumasawa1, Hitomi Nakamura1, Tadashi Kimura1
1Osaka University, Osaka, Japan, 2The University of Tokyo, Tokyo, Japan

P2.12 Fractal dimensions of chorionic surface vessel networks Ruchit Shah, Carolyn Salafia, Theresa Girardi Placental Analytics, LLC, NY, USA

P2.13 Aldosterone reduces sFlt1 secretion in the human dual placenta perfusion system Rahel Klossner1, Markus Mohaupt1, Paula Scafe1, Lesia Kuriak1, Michael Luthi1, Sampada Kallol1, Christiane Albrecht1, Hiten Mistry1
1Department of Internal Medicine, Sonnenhof, Linderhofgruppe, Bern, Switzerland, 2Department of Clinical Research, University of Bern, Bern, Switzerland, 3Division of Child Health, Obstetrics & Gynecology, University of Nottingham, Nottingham, UK, 4Institute for Biochemistry and Molecular Medicine, University of Bern, Bern, Switzerland

P2.14 Uregulation of angiogenic factors via protein kinase C and hypoxia-induced factor-1 α pathways under high-glucose conditions in the placenta Takashi Mitsui, Kazumasa Tani, Jota Maki, Takeshi Eguchi, Shoko Tamada, Eriko Eto, Kei Hayata, Hisashi Masuyama Department of Obstetrics and Gynecology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan

P2.15 Simulations of the placental vascular network growth process for studying placental structure and function Catalina Angel1, Keilie Archer1, Jen-Mei Chang1, Amy Cochran1, Anca Radulescu1, Rebecca Turner1, Karamatou Yacoubou Djima1, Lian Zhong1, Carolyn Salafia1
1University of California Davis, CA, USA, 2The Ohio State University, OH, USA, 3California State University Long Beach, CA, USA, 4University of Michigan, MI, USA, 5SUNY New Paltz, NY, USA, 6The University of Auckland, Auckland, New Zealand, 7Amherst College, MA, USA, 8University of Delaware, DE, USA, 9Placental Analytics, LLC, NY, USA

P2.16 Withdraw

P2.17 The (pro)rexin receptor alters the cell cytoskeleton to promote cell migration and invasion Samantha Rodrigues1, Trisha Al Mazi1, Nikki Verrills1, Eugenie Lumbers1, Kirsty Pringle1
1The University of Newcastle, Newcastle, Australia, 2Hunter Medical Research Institute, New Lambton Heights, Australia

P2.18 A novel 3D cell culture model system for endoglandular trophoblast invasion Gerit Moser, Julia Fuchs, Dagmar Pfeiffer Medical University of Graz, Graz, Austria

P2.19 The transcription factor NFκB is involved in estradiol leptin induction in placental cells Malena Schantoni1, Maria Fernanda Carnisay1, Antonio Pérez-Pérez2, Bernardo Maskin3, Victor Sánchez-Margalef1, Alejandra Elejman1, Cecilia Varone1
1Departamento de Química Biológica, FCEN-UBA, 2IQUBICEN, CONICET, 3Universidad de Sevilla, Sevilla, Spain, 4Hospital Nacional Profesor Alejandro Posadas, Buenos Aires, Argentina

Cell culture/cell lines

Cell signaling
P2.20 Low-density lipoprotein receptor-related protein 5/6 is a novel co-receptor of Protease-activated receptors-1 and 2 in early human placenta formation
Sorina Grisaru Granovsky1, Liat Zakar3, Myriam Maoz5, Jeetendra K. Nag2,5, Dana Kozlova1, Rachel Bar-Shavit1,5
1Shaare Zedek MC, Jerusalem, Israel, 2The Hebrew University, Jerusalem, Israel, 3Tel Aviv MC, Tel Aviv, Israel, 4Tel Aviv University, Tel Aviv, Israel, 5Hadassah Ein Kerem Hospital, Jerusalem, Israel

P2.21 Regulation of retinoic acid receptor responder 1 in a rat model of intrauterine growth restriction
Alexander Mockert1, Marius Schmidt1, Hanna Huebner1, Rainer Wachtveitl1, Nada Cordasic1, Wolfgang Rascher1, Carlos Menendez-Castro2, Andrea Hartner2, Fabian Fahlbusch1
1Department of Pediatrics and Adolescent Medicine, Friedrich-Alexander University Erlangen-Nuremberg, 2Department of Gynaecology and Obstetrics/Comprehensive Cancer Center Erlangen-EMN, Friedrich-Alexander University Erlangen-Nuremberg, Erlangen, Germany

P2.22 Mouse placental scaffolds: A model to culture hepatocyte-like cells induced from mouse embryonic stem cells in a three-dimensional dynamic and rotating system
Patricia Romagnoli1, Rodrigo da Silva Nunes Barreto2, Rose Eli Grassi Rici2, Maria Angelica Migliore2
1Federal University of South Frontier, Realeza, Brazil, 2University of Sao Paulo, Sao Paulo, Brazil

P2.23 Withdraw

P2.141 Evolution of progesterone withdrawal in strepsirrhine primates
Priyadarshini Pantham1, Saravanan Devendran3, Michelle Goettel1, Jonathon Bodnariuc1, Owen Haupt1, Priya Karkhanis1, Martin Malik1, Loni Sneed1, Jason Ridlon1, Louis Muglia1, Erin Ehmke1, Derek Wildman1,6
1Carl R. Woese Institute for Genomic Biology, University of Illinois at Urbana-Champaign, 2Department of Animal Sciences, University of Illinois at Urbana-Champaign, 3Department of Microbiology, University of Illinois at Urbana-Champaign, 4Department of Pediatrics, University of Cincinnati, 5Duke Lemur Center, 6Department of Molecular & Integrative Physiology, University of Illinois at Urbana-Champaign, IL, USA

P2.24 Impact of gestational diabetes mellitus on transplacental iron transport
Jonas Zaug1, Hassan Melhem2, Thuvaram Kalkar2, Malgorzata Wegner1, Xiao Huang2, Marc Baumann2, Daniel Surbek2, Meike Körner2, Christiane Albrecht2
1Institute of Biochemistry and Molecular Medicine, University of Bern, 2Swiss National Centre of Competence in Research (NCCR) TransCure, University of Bern, 3Department of Obstetrics and Gynaecology, University Hospital of Bern, 4Pathologie Länggasse, Bern, Switzerland

P2.25 Effects of trophoblast-derived exosomes produced under high and low glucose conditions upon endometrial epithelial cell behavior
Rachel R. Zabel, Leopold Böhm, Megdalena M. Rose, Diana M. Morales-Prieto, Ekkehard Schleussner, Udo R. Markert, Rodolfo R. Favaro
University Hospital Jena, Jena, Germany

P2.26 A short periconceptional exposure to maternal type-1 diabetes is sufficient to disrupt the feto-placental phenotype in a rabbit model
Delphine Rousseau-Ralliard1, Anne Couturier-Tamade1, René Thieme2,3, Roselyne Brat1, Audrey Rolland1, Pascal Boileau1, Marie-Christine Aubrière1, Nathalie Daniel1, Michèle Dahriel1, Emilie Derisoud1, Natalie Fournier1, Maria Schindler1, Véronique Duranthon1, Bernd Fischer1, Anne Navarete Santos1, Pascale Chavatte-Palmer1
1UMR BDR, INRA, ENVA, Université Paris Saclay, Jouy en Josas, France, 2Department of Anatomy and Cell Biology, Martin Luther University Faculty of Medicine, Halle, Germany, 3Department of Visceral, Transplant, Thoracic and Vascular Surgery, University Hospital Leipzig, Leipzig, Germany, 4UFSQ (University of Versailles-Saint Quentin), Neonatal Medicine-CHIFS, Poissy, France, 5European Georges Pompidou Hospital, Biochemistry unit, Paris, France

P2.27 Targeting the dysfunctional placenta: novel peptides to deliver drugs to specific uteroplacental compartments
Lewis Renshall, Mark Wareing, Paul Brownbill, Frances Beards, Susan Greenwood, Edward Johnstone, Colin Sibley, John Aplin, Lynda Harris
The University of Manchester, Manchester, UK
P2.28 Placental endocrine IGF2 deficiency impairs intrauterine growth with consequences for insulin sensitivity and adiposity in adult offspring
Hannah Ee Juen Yong1, Jorge Lopez-Tello2, Ionel Sandovicii2, Miguel Constancia3, Amanda Sferruzzi-Perri1
1Centre for Trophoblast Research, University of Cambridge, 2Metabolic Research Laboratories, and MRC Metabolic Diseases Unit, Wellcome Trust-Medical Research Council Institute of Metabolic Science, University of Cambridge, 3Department of Obstetrics and Gynaecology, University of Cambridge, Cambridge, UK

P2.29 Neurodevelopmental impact of prenatal exposure to non-infectious inflammation
Marie-Eve Brien1,2, Ines Boufayed1, Sylvie Girard1,2
1Ste-Justine Hospital Research Center, 2Department of Obstetrics and Gynecology, Universite de Montreal, 3Department of microbiology, infectiology and immunology, Universite de Montreal, Montreal, Canada

P2.30 A case report of expectant management after 34 weeks of gestation for monochorionic diamniotic twin after septostomy during fetal laser photocagulation
Akihiro Hasegawa1, Michihiro Yamamura1, Keiko Yabuzaki1, Tomona Matsuoka1, Yuki Ito1, Haruhiko Udagawa1, Kazuhiro Kajiwara1, Taizan Kamide1, Hiroaki Aoki1, Seiji Wada1, Haruhiko Sago1, Osamu Samura1, Aikou Okamoto1
1Department of Obstetrics and Gynecology, The Jikei University School of Medicine, 2National Center of Child Development and Health, Tokyo, Japan

P2.31 The duration of sexual relationship and its effects on adverse pregnancy outcomes
Prabha Andraweera1, Claire Roberts1, Shalem Leemaqz1, Lesley McCowan2, Jenny Myers3, Louise Kenny4, James Walker5
1Lucilla Poston1, Gus Dekker1,7
1Adelaide Medical School and The Robinson Research Institute, The University of Adelaide, Adelaide, Australia, 2Department of Obstetrics and Gynaecology, The University of Auckland, Auckland, New Zealand, 3Maternal and Fetal Health Research Centre, University of Manchester, Manchester, UK, 4The Irish Centre for Fetal and Neonatal Translational Research (INFANT) and Department of Obstetrics and Gynaecology, University College Cork, Cork, Ireland, 5Division of Obstetrics and Gynaecology, Leeds Institute of Biomedical and Clinical Sciences, University of Leeds, Leeds, UK, 6Division of Women’s Health, King’s College London and St Thomas’ Hospital, London, UK, 7Division of Women’s Health, Lyell McEwin Hospital, Elizabeth Vale, Australia

P2.32 Withdraw

**Gene expression**

**Room 7 (6F, Bldg. No. 1)**

P2.33 Antenatal depression and placental function; a protein validated gene expression study
Åsa Edvinsson1, Joceline Olivier2, Charlotte Hellgren3, Theodora Kunovic Kallak1, Helena Akerud1, Alkistis Skalkidou1, Elisabeth Stener Victorin1, Romina Fortes2, Olav Spigset1,2, Susanne Lager1, Inger Sundström Poromaa1
1Department of Women’s and Children’s Health, Uppsala University, Uppsala, Sweden, 2Department of Neurobiology, Unit Behavioral Neuroscience, Groningen Institute for Evolutionary Life Sciences, University of Groningen, Groningen, Netherlands, 3Department of Immunology, Genetics and Pathology, Uppsala University, Uppsala, Sweden, 4Department of Physiology and Pharmacology, Karolinska Institute, Stockholm, Sweden, 5Department of Clinical Pharmacology, St. Olav University Hospital, Trondheim, Norway, 6Department of Clinical and Molecular Medicine, Norwegian University of Science and Technology, Trondheim, Norway

P2.34 Alterations in placental gene expression of pregnant women with chronic chagas disease
Natalia Anahi Juiz1, Irma Torrejon2, Miriam Salvo2, Ana Maria Fernanda Torres2, Tomás Dufy2, Nelly Melina Cayo2, Silvia Andrea Longhi1, Alejandro Gabriel Schijman1, Anahi Tabasco1
1INGLEB-CONICET, Caba, Argentina, 2Universidad Nacional de Jujuy, Jujuy, Argentina, 3Hospital Nacional Profesor Alejandro Posadas, Buenos Aires, Argentina, 4The Scripps Research Institute, CA, USA

P2.35 Aurora Kinase expression is not altered in growth restricted or preeclamptic placentas, and is not changed with placental aging
Natasha Pritchard, Sally Beard, Natalie Binder, Tu’uhevaha Kaitu’u-Lino, Stephen Tong, Natalie Hannan
University of Melbourne, Melbourne, Australia

P2.36 Extracellular vesicles miR-21 derived from trophoblastic cells regulate immune cell and their original cell functions
Wittaya Chaiwaringyen1,2, Diana M. Morales-Prieto1, Ekkehard Schleusner1, Udo R. Markert1
1Placenta Lab, Department of Obstetrics, University Hospital Jena, Jena, Germany, 2Division of Biochemistry and Nutrition, School of Medical Sciences, University of Phayao, Phayao, Thailand

P2.37 Placental miRNAs that target the renin-angiotensin system, and their effect on trophoblast proliferation
Anya L Arthurs1,2, Sarah J Delforce1,2, Eugenie R Lumber3, Kirsty G Pringle1,2
1University of Newcastle, 2Hunter Medical Research Institute, Newcastle, Australia
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<td>P2.38</td>
<td>Global survey of escape from X chromosome inactivation in the human placenta</td>
<td>Irving Aye, Sungsam Gong, Francesca Gaccioli, Michelle Johnson, Justyna Dopierala, D Stephen Charnock-Jones, Gordon Smith University of Cambridge, Cambridge, UK</td>
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<td>P2.39</td>
<td>Insight into the expression of DNA sensors, IF116 and cGAS, in human third-trimester placentas following cytomegalovirus infection</td>
<td>Agnieszka Jabłońska, Mirosława Studzińska, Jarosław Kalinka, Edyta Paradowska. 1Laboratory of Molecular Virology and Biological Chemistry, Institute of Medical Biology of the Polish Academy of Sciences, 2Department of Perinatology, First Chair of Gynecology and Obstetrics, Medical University of Lodz, Lodz, Poland</td>
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<td>P2.40</td>
<td>Gestational changes in placental PRMT1 expression</td>
<td>Anna Sato, Jun-Dai Kim, Akiyoshi Fukamizu, Atsuo Itakura, Satoru Takeda. 1Juntendo University, Tokyo, Japan, 2University of Tsukuba, Ibaraki, Japan</td>
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**Genomics/Epigenetics**

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<td>P2.41</td>
<td>Global DNA methylation levels are comparable between trophoblast populations and many somatic cells</td>
<td>Teena KJB Gamage, William Schierding, Peter Tsai, Jackie L Ludgate, Lawrence W Chamley, Robert J Weeks, Erin C Macaulay, Joanna L James. 1The University of Auckland, Auckland, New Zealand, 2University of Otago, Dunedin, New Zealand, 3The Universality of Auckland, Auckland, New Zealand</td>
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<tr>
<td>P2.42</td>
<td>Epigenetic, genetic and miRNA variation associated with acute chorioamnionitis affected placentas</td>
<td>Chaini Konwar, E Magda Price, Giulia Del Gobbo, Samantha Wilson, Irina Manokhina, Terry Jefferson. 1BC Children's Hospital Research Institute (BCCHRI), Vancouver, Canada, 2Department of Medical Genetics, University of British Columbia (UBC), Vancouver, Canada, 3Department of Pediatrics, University of British Columbia (UBC), Vancouver, Canada, 4Princess Margaret Cancer Centre, Department of Research, Toronto, Canada, 5Department of Pathology, BC Children's Hospital, Vancouver, Canada</td>
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<tr>
<td>P2.43</td>
<td>25(OH)D treatment alters DNA methylation, RNA expression and protein expression in human term placenta</td>
<td>Brogan Ashley, Claire Sinner, Faisal Rezwan, Cory White, Antigoni Manoussopoulou, John Holloway, Spiros Garbis, Rohan Lewis, Nick Harvey, Jane Cleal University of Southampton, Southampton, UK</td>
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<tr>
<td>P2.44</td>
<td>Uptake of trophoblast extracellular vesicles by autologous and heterologous cells</td>
<td>Wittaya Chaiwangny, Priska E Streicher, Ruby N Gutierrez-Samudio, Jose M Murrieta-Coaxca, Udo R Markert, Diana M Morales-Prieto Placenta Lab. Department of Obstetrics. University Hospital Jena, Jena, Germany</td>
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<td>Katarina Mitic Max-Debrück-Center for Molecular Medicine, Berlin, Germany</td>
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**Hormones/growth factors**

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<td>Jorge Lopez-Tello, Hannah Ee Juen Yong, Ionel Sandovici, Miguel Constancio, Amanda Sferruzzi-Perri. 1Centre for Trophoblast Research, University of Cambridge, 2Metabolic Research Laboratories, and MRC Metabolic Diseases Unit, Wellcome Trust-Medical Research Council Institute of Metabolic Science, University of Cambridge, 3Department of Obstetrics and Gynaecology, University of Cambridge, Cambridge, UK</td>
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1Department of Obstetrics and Gynecology, Faculty of Life Sciences, Kumamoto University, 2Department of Medicine, Faculty of Life Sciences, Kumamoto University, Kumamoto, Japan

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Brown University, RI, USA, 2Rhode Island Hospital, RI, USA, 3Research Institute of Tropical Medicine, Manila, Philippines

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1Wisconsin National Primate Research Center, 2University of Wisconsin - Madison, WI, USA

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Keio University, Tokyo, Japan

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Padraig Looney, Gordon Stevenson, Kypros Nicolaides, Walter Plasencia, Malid Molloholli, Stavros Natsis, Sally Collins
1Nuffield Department of Women’s and Reproductive Health, University of Oxford, Oxford, UK, 2School of Women’s and Children’s Health, University of New South Wales, Sydney, Australia, 3Harris Birthright Research Centre of Fetal Medicine, King’s College Hospital, London, UK, 4Fetal Medicine Unit, Hospiten Group, Tenerife, Spain, 5Fetal Medicine Unit, John Radcliffe Hospital, Oxford, UK, 6Department of Obstetrics and Gynaecology, Wexham Park Hospital, Slough, UK

P2.54 Estrogen-progesterin therapy conservatively contributes to expulsion of uterine contents in women with retained products of conception
muneake yamaguchi, Takashi Ohba, Ritsuo Honda, Hidetaka Katabuchi
Kumamoto University, Kumamoto, Japan

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Chiba University, Chiba, Japan

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P2.56 Gene expression analysis of peripheral and decidual natural killer cells in early miscarriage using microarray analysis
Manabu Ogoyama, Akihide Ohkuchi, Tomoko Shima, Shigeru Saito, Toshihiro Takizawa
1Department of Molecular Medicine and Anatomy, Nippon Medical School, Tokyo, Japan, 2Department of Obstetrics and Gynecology, Jichi Medical University, Tochigi, Japan, 3Department of Obstetrics and Gynecology, University of Toyama, Toyama, Japan

P2.57 Effector regulatory T cells in the decidua decrease in labor
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Nagoya University Graduate School of Medicine, Aichi, Japan

P2.58 Expression of IL-36 cytokine family in trophoblastic cells
Murrieta-Coxa José M., Favaro Rodolfo, Market Udo R., Rodriguez-Martinez Sandra, Morales-Prieto Diana M.
1Placenta Lab, Department of Obstetrics, University Hospital Jena, Jena, Germany, 2Laboratory of Innate Immunology, Immunology Department, National School of Biological Sciences-IPN, Mexico, Mexico

P2.59 Defining phenotypes of human placental leukocytes with 30-parameter flow cytometry
Nicholas Maurice, Florian Mair, Stephen McCartney, Jami Erickson, Caitlin Laughney, Hilary Gammill, Martin Pric
1Fred Hutchinson Cancer Research Center: Vaccine and Infectious Disease Division, 2University of Washington: Molecular and Cellular Biology Program, 3University of Washington: Department of Obstetrics and Gynecology, Division of Maternal-Fetal Medicine, WA, USA
P2.60 Distribution and kinetics of immune cells in decidua for extreme to moderate preterm births without acute chorioamnionitis

Yasuyuki Negishi¹, Masahiko Kato¹, Yoshiho Shimai¹, Yoshimi Kuwabara¹, Hideki Takahashi¹, Yoshiyuki Takeshita¹
¹Department of Microbiology and Immunology, Nippon Medical School, Tokyo, Japan, ²Department of Obstetrics and Gynecology, Nippon Medical School, Tokyo, Japan, ³Department of Pediatrics, Nippon Medical School Musashikosugi Hospital, Kanagawa, Japan

P2.61 Expression and localization of specific miRNAs in human term placenta by in situ hybridization

Magdalena M. Rose¹, Diana M. Morales-Prieto¹, Ekkehard Schleußner¹, Udo R. Markert¹, Rodolfo R. Favaro¹
¹Placenta-Lab, Department of Obstetrics, University Hospital Jena, ²University Hospital Jena, Jena, Germany

P2.62 Tissue stiffness at the maternal-fetal interface

Yassen Abbas, Alejandro Carnicer, Kristian Franze, Michelle L. Oyen, Graham Burton
University of Cambridge, Cambridge, UK

P2.63 Placental development and tumorigenesis share hypoplasia and invasiveness mechanisms

Nathia Nathaly Rigoglio, Rodrigo da Silva Nunes Barreto, Paula Fratini, Gustavo de Sá Schiavo Matias, Maria Angelica Miglino
School of Veterinary Medicine and Animal Science, University of Sao Paulo, Sao Paulo, Brazil

P2.64 Peptide hormone ELABELA promotes extravillous trophoblast differentiation

Danae Georgiadou¹, Souad Boussata¹, Willemijn Ran zij², Sanne Hillenius², Bruno Reversade²,³, Marie van Dijk¹
¹Academic Medical Center, Amsterdam, Netherlands, ²Institute of Medical Biology, A*STAR, Singapore, Singapore

P2.65 Viral-single stranded RNA (ssRNA) and Lipopolysaccharide (LPS) alter extravillous trophoblast (EVT) function through modulation of Breast Cancer Resistance Protein (BCRP)

Phetcharawan Lye¹, Enrico Bloise³, Lubna Nadeem⁴, Chun Peng⁴, William Gibb⁵, Tania Ortiga-Carvalho⁶, Stephen Lye⁷,⁸, Stephen Matthews⁵,⁶,⁸
¹University of Toronto, Toronto, Canada, ²Department of Morphology, Federal University of Minas Gerais, Belo Horizonte, Brazil, ³Lunenfeld-Tanenbaum Research Institute, Toronto, Canada, ⁴Department of Biology, York University, Toronto, Canada, ⁵Department of Obstetrics and Gynaecology, University of Ottawa, Ottawa, Canada, ⁶Biophysics Institute Carlos Chagas Filho, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil, ⁷Department of Obstetrics and Gynaecology, University of Toronto, Toronto, Canada, ⁸Department of Physiology, University of Toronto, Toronto, Canada

P2.66 Implications of 5α-reductase-mediated progesterone metabolism for decidualization of human endometrial stromal cells

Mikihiro Y. osa¹, Kazuhiro Tamura¹, Tsubasa Chiba¹, Sayaha Nakajima¹, Junya Kojima¹, Hirotaka Nishi¹, Keiichi Isaka¹
¹Department of Endocrine and Neural Pharmacology, Tokyo University of Pharmacy and Life Sciences, ²Department of Obstetrics and Gynaecology, Tokyo Medical University, Tokyo, Japan

P2.67 Paternal short-term alcohol consumption alters mouse embryo-trophoblast differentiation during peri-implantation in vitro via programming embryo death

Lucila Gotfried¹, Gabriela Salamone², Federico Fuentes², Alejandra Erlejman³, Juan Carlos Calvo³, Elisa Cebral³, Vanina Fontana³
¹Departament of Biological Chemistry, School of Science, University of Buenos Aires, ²IMEX-CONICET, ³Departament of Biological Chemistry, School of Science, University of Buenos Aires- IQUIBICEN, CONICET, ⁴Departament of Biological Chemistry, School of Science, University of Buenos Aires- IBYME, CONICET, ⁵IBBEA-CONICET, Buenos Aires, Argentina

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P2.68 Listeria monocytogenes triggers a cellular defense response and impacts pregnancy-specific processes at the maternal-fetal interface in nonhuman primates early in infection

Bryce Wolfe¹, Megan Murphy¹, Greg Wiep⁴, Michele Schotzko¹, Andres Mejia¹, Heather Simmons¹, Charles Czuprynski², Thaddeus Golos³
¹Wisconsin National Primate Research Center, ²University of Wisconsin School of Veterinary Medicine, WI, USA

P2.69 Endothelial activation by peripheral immune cells from women with PE-complicated pregnancies

Cynthia Duval¹,², Ines Boufaied³, Sylvie Girard³
¹Université de Montreal, ²CHU Sainte-Justine Research Center, Montreal, Canada

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Hitoshi Matsui, Nagayoshi Umemura, Satoru Funaki, Megumi Shibata, Michiko Miya, Seiji Wada, Takako Yoshioka, Haruhiko Sago
1National Center for Child Health and Development, 2National Center for Child Health and Development, Tokyo, Japan

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Viral nucleic acids in human placenta and pregnancy complications
Susanne Lager1, Marcus C. de Goffau1, Judith Breuer1, Sharon J. Peacock1, Julian Parkhill2, D. Stephen Charnock-Jones3, Gordon C.S. Smith1
1University of Cambridge, Cambridge, UK, 2Wellcome Trust Sanger Institute, Hinxton, UK, 3University College London, London, UK, 4London School of Hygiene & Tropical Medicine, London, UK

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University of the Ryukyus, Okinawa, Japan

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Amy Valent, Kevin Kolahi, Haeri Choi, Kent Thornburg
Oregon Health and Science University, OR, USA

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Yu Wang1, Matthew Bucher1, Alina Maloyan2, Leslie Myatt1
1Oregon Health & Sciences University, Obstetrics and Gynecology, 2Oregon Health & Sciences University, Knight Cardiovascular Institute, OR, USA

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Yoshinori Moriyama, Seiji Sumigama, Teruyuki Mizutani, Masataka Nomoto, Takafumi Ushida, Kenji Imai, Tomoko Nakano, Tomomi Kotani, Fumitaka Kikawaka
Nagoya University, Aichi, Japan

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Claudette Cantin, Maria Jesús Garchitorena, Bárbara Fuenzalida, Lorena Carvajal, Susana Contreras-Duarte, Andrea Leiva Pontificia Universidad Católica de Chile, Santiago, Chile

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Olivia Holland1, Keith Kwan Cheung1, Marloes Dekker2, Filip Radenkovic2, Anthony Perkins1
1Griffith University, Gold Coast, Australia, 2University of Queensland Centre for Clinical Research, Brisbane, Australia
3University of Queensland Centre Australian Institute for Bioengineering and Nanotechnology, Brisbane, Australia

Placental dysfunction
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Carolina Motta-Mejia1,2, Furogan Baris2, Lubna Kouser3, Manjot Gill4, Ain Neuhaus2, Yvonne Couch2, Wei Zhang2, Neva Kandzija2, Ana-Sofia Cerdeiro1, Christopher Redman1, Uday Kishore1, Manu Vatish2

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Yunhui Tang1, Xiaoying Yao1, Qi Chen1,2
1The Hospital of Obstetrics & Gynaecology, Fudan University, Shanghai, China, 2The University of Auckland, Auckland, New Zealand
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Department of Obstetrics & Gynecology, Kyusyu University, Kitakyushu, Japan

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Catholic University of Korea, Seoul, Korea

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Nagoya University Graduate School of Medicine, Aichi, Japan

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Kawaguchi Municipal Medical Center, Saitama, Japan

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Ditte N Hansen2, Sofie S Poulsen1, Marianne Sinding1, David A Peters1, Jens B Frejkaer1, Anne Sorensen1,2
1Department of Obstetrics & Gynaecology,alborg University Hospital, Aalborg, Denmark; 2Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

P2.140 Striking increase in villous hemosiderosis in placentas of children with high genetic ASD risk
Harriet Pais1,2, Ruchit G Shah1, Phillip Ncease1,2, Craig Newschaffer1, Kristen Lally1, Sanford Lederer3, Carolyn M Salafia1,4
1Placental Analytics LLC, NY, USA; 2Institute for Basic Research, NY, USA; 3AJ Drexel Autism Center, PA, USA; 4New York Presbyterian Brooklyn Methodist Hospital, NY, USA

Preeclampsia

P2.86 Elevated neprilysin in placental vesicles derived from preeclamptic pregnancies
Manjot Gill, Carolina Motta-Mejia, Neva Kandzija, Kirsten White, Boonyakiat Thammasate, Rannya Ri, William Cooke, Sofia Cerdeira, Wei Zhang, Christopher Redman, Manu Vatish
University of Oxford, Oxford, UK

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Kirsten White, Dionne Tannetta, Neva Kandzija, Carolina Motta-Mejia, Manjot Gill, Wei Zhang, William Cooke, Boonyakiat Thammasate, Sofia Cerdeira, Rannya Ri, Christopher Redman, Manu Vatish
University of Oxford, Oxford, UK

P2.88 Endoplasmic reticulum stress occurs in association with the extrusion of toxic extracellular vesicles from human placenta treated with antiphospholipid autoantibodies
Yunhui Tang1,2, Yan Chen1, Katie Groom1, Anthony Hickey1, Larry Chemley2, Qi Chen1,3
1The Hospital of Obstetrics & Gynaecology, Fudan University, Shanghai, China; 2The Department of Obstetrics & Gynaecology, The University of Auckland, Auckland, New Zealand

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Olivia Nonn1, Sabine Maninger,1 Amin El-Heliebi1, Thomas Krones1, Desiree Forstner1, Monika Siwetz1, Florian Herse2, Denise Hoch,1 Gernot Desoyer1, Ulrich Peck3, Berthold Huppertz1, Martin Gauster1
1Department of Cell Biology, Histology and Embryology, Gottfried Schatz Research Centre, Medical University of Graz, Graz, Austria; 2Max Delbrueck Centre for Molecular Medicine, Experimental Clinical Research Centre Campus Buch, Charité Berlin, Berlin, Germany; 3Department of Obstetrics and Gynaecology, Medical University of Graz, Graz, Austria

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Lorena Carvajal\textsuperscript{1}, Claudette Cantin\textsuperscript{1}, Bárbara Fuenzalida\textsuperscript{1}, Susana Contreras-Duarte\textsuperscript{1}, Jaime Gutiérrez\textsuperscript{1}, Eugenia Morselli\textsuperscript{1}, Andrea Leiva\textsuperscript{1}
\textsuperscript{1}Pontificia Universidad Católica de Chile, \textsuperscript{2}Universidad San Sebastián, Santiago, Chile

P2.91 The effect of low dose aspirin on decidual derived mesenchymal stem/stromal cells in preeclampsia
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\textsuperscript{1}Department of Maternal-Fetal Medicine, Pregnancy Centre, The Royal Women’s Hospital, Melbourne, Australia, \textsuperscript{2}Department of Obstetrics and Gynaecology, The University of Melbourne, Melbourne, Australia

P2.92 A pre-eclampsia cell model: effect of hypoxia and hypoxia-reoxygenation in the primary cytotrophoblast
Sampada A. K allotted\textsuperscript{1}, Jonas Zaug\textsuperscript{1,2}, Michael P. Lüthi\textsuperscript{1,2}, Ruedi Moser\textsuperscript{2}, Hiten D. Mistry\textsuperscript{2}, Henning Schneider\textsuperscript{1,2}
\textsuperscript{1}Institute of Biochemistry and Molecular Medicine, University of Bern, Bern, Switzerland, \textsuperscript{2}Swiss National Centre of Competence in Research (NCCR) TransCure, University of Bern, Bern, Switzerland, \textsuperscript{3}Linderhofspitalgruppe, Bern, Switzerland, \textsuperscript{4}Division of Child Health, Obstetrics & Gynaecology, University of Nottingham, Nottingham, UK

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N L Zhang\textsuperscript{1}, Y W Wen\textsuperscript{1}, Q T Huang\textsuperscript{1}, M Zhong\textsuperscript{1}
\textsuperscript{1}Department of Obstetrics and Gynecology, Nanfang Hospital, Southern Medical University, Guangzhou, China

P2.94 Inflammatory factor TFN α induces SerpinF2 upregulation and excessive hyper-coagulation in preeclampsia
Yanlei Liu\textsuperscript{2,3}, Huifen Liu\textsuperscript{2,3}, Wentong Jia\textsuperscript{2,3}, Feihong Dong\textsuperscript{2,3}, Liyang Ma\textsuperscript{2}, Yu-xia Li\textsuperscript{2}, Xuan shao\textsuperscript{2}, Yan-ling Wang\textsuperscript{2,3}
\textsuperscript{1}State Key Laboratory of Stem Cell and Reproductive Biology, Institute of Zoology, Chinese Academy of Sciences, \textsuperscript{2}University of Chinese Academy of Sciences, Beijing, China

P2.95 Hyperandrogenemia induces damage to mitochondrial respiration in placenta: Implications for preeclamptic placental insufficiency
Jay Mishra\textsuperscript{1}, Kathirvel Gopalakrishnan\textsuperscript{2}, Chellakuan Blessson\textsuperscript{2}, Sathish Kumar\textsuperscript{1}
\textsuperscript{1}University of Wisconsin, WI, USA, \textsuperscript{2}Baylor College of Medicine, TX, USA

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\textsuperscript{1}Department of Obstetrics and Gynecology, Faculty of Medicine, University of Toyama, Toyama, Japan, \textsuperscript{2}Department of Pediatrics, Women and Infants Hospital-Warren Alpert Medical School of Brown University, RI, USA

P2.97 HMGB1, a damage-associated molecular pattern produces toxic trophoblastic debris possibly via the autophagy machinery
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\textsuperscript{1}The Hospital of Obstetrics & Gynaecology, Fudan University, Shanghai, China, \textsuperscript{2}The Department of Obstetrics & Gynaecology, The University of Auckland, Auckland, New Zealand

P2.98 Association of steroid hormone imbalance with coagulatory factor SerpinF2 excess in preeclamptic placenta
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\textsuperscript{1}Institute of Zoology, Chinese Academy of Sciences, Beijing, China, \textsuperscript{2}Peking University Third Hospital, Beijing, China, \textsuperscript{3}University of Chinese Academy of Sciences, Beijing, China, \textsuperscript{4}State Key Laboratory of Reproductive Medicine, Nanjing Medical University, Nanjing, China

P2.99 Melatonin and hypoxia/reoxygenation modulate differently autophagy and inflammation in the human placental syncytiotrophoblast
Lucas Sagrillo-Fagundes\textsuperscript{1}, Egüñia Maria Assunção Salustiano\textsuperscript{1}, Ruano Rodrigo\textsuperscript{1}, Regina P. Markus\textsuperscript{1}, Cathy Vaillancourt\textsuperscript{1,2,3}
\textsuperscript{1}INRS-Institut Armand Frappier, QC, Canada, \textsuperscript{2}Mayo Clinic College of Medicine, Maternal-Fetal Medicine Division, MN, USA, \textsuperscript{3}Institute of Bioscience, University of São Paulo, São Paulo, Brazil

P2.100 Gas6/AXL signaling increases placental redox and decreases mitochondrial respiration in the development or a rodent model of preeclampsia
Juan Arroyo
Brigham Young University, UT, USA

P2.101 Serum cell-free DNA in preeclamptic women induces inflammatory responses in human placental cells
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\textsuperscript{1}Tokyo University of Agriculture, Kanagawa, Japan, \textsuperscript{2}Jichi Medical University, Tochigi, Japan
P2.102  Water-soluble extract of *cinnamomum cassia* and *zingiber officinale* increase placental growth factor and decrease sFlt-1 secreted from endothelial and placental cells
Kenji Onda1, Sally Beard2, Rhotarito Shiota1, Masaru Sakamaki3, Stephen Tong3, Toshihiko Hirano1, Natalie J Hannan1
1Tokyo University of Pharmacy and Life Sciences, Tokyo, Japan, 2University of Melbourne, Melbourne, Australia

P2.142  Immunological effects of plasma derived exosomes on BeWo cells under in vitro hypoxic conditions
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University of KwaZulu- Natal, Durban, South Africa

Prenatal diagnosis

P2.103  Inflammatory changes across gestation in relation to pregnancy complications
Marie-Eve Brien1,2,3, Ines Boufaied1,2, Nathalie Bernard1, Jean-Claude Forest4,5, Yves Giguère4,5, Sylvie Girard1,2,3
1Ste-Justine Hospital Research Center, Montreal, Canada, 2Department of Obstetrics and Gynecology, Université de Montréal, Montreal, Canada, 3Department of Microbiology, Infectiology and Immunology, Université de Montréal, Montreal, Canada, 4Centre de recherche du Centre Hospitalier Universitaire de Quebec, Quebec, Canada, 5Department of Molecular Biology, Medical Biochemistry and Pathology, Faculty of Medicine, Université Laval, Quebec, Canada

P2.104  Investigation to the future of placental examination for the mother’s and child's health
Masayoshi Arizawa
Tokyo Metropolitan Ohtsuka Hospital, Tokyo, Japan

P2.136  Fetal cell-free DNA fraction in maternal plasma is affected by fetal trisomy
Nobuhiro Suzumori1, Takeshi Ebara1, Takehiro Yamada1, Osamu Samuel1, Jun Yotsumoto1, Miyuki Nishiyama1, Kiyonori Miura1, Hideaki Masuzaki1, Yoshimasa Kamei1, Jun Munotsuki1, Hideaki Sawai1, Juan-Sebastian Saldivar1, Nilesh Dharaiya1, Haruhiko Sago1, Akiko Sekizawa1,2
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Preterm labour and birth

P2.105  Genetics of pre-term birth suggest a role of a Wnt pathway gene in spontaneous preterm birth
Ortal Tamam1,2, Louis Muglia1
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P2.106  Synergistic induction of 11 β-hydroxysteroid dehydrogenase 1 by serum amyloid A1 and cortisol via STAT3 in human amnion fibroblasts-implications for labor onset
Yi Lu, Wangsheng Wang, Gang Sun
Shanghai Jiao Tong University, Ren Ji Hospital, Shanghai, China

P2.107  The clinical and pathological findings of placental abruption following fetoscopic laser photocoagulation for twin-twin transfusion syndrome using the Soloman technique
Seiji Kanazawa, Rika Sugibayashi, Katsusuke Ozawa, Seiji Wada, Haruhiko Sago
National Center for Child Health and Development, Tokyo, Japan

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University of California San Diego, CA, USA
P2.109  In vivo identification of a novel progenitor in the mesenchymal core of human placental villi  
Anna Boss, Joanna L James, Anna E S Brooks, Larry W Chamley  
University of Auckland, Auckland, New Zealand

P2.110  The FOXO3a axis in trophoblast stem cell differentiation  
Nadejda Capatina,1 Myriam Hemmberger2, Graham Burton1, Hong Wa Yung1  
1Centre for Trophoblast Research, Department of Physiology, Development and Neuroscience, University of Cambridge,  
2The Babraham Institute, Cambridge, UK

P2.111  Angiogenic potentials of mesenchymal stem cells derived from the placenta in preeclampsia  
Noriko Nagata1, Naoki Fuchi1,2, Kiyonori Miura1, Tao-Sheng Li3, Hideaki Masuzaki1  
1Nagasaki University, 2Department of Stem Cell Biology, Atomic Bomb Disease Institute, Nagasaki University, Nagasaki, Japan

P2.112  Are mesenchymal stem/stromal cells from growth restricted placentae poor stimulators of angiogenesis?  
Anandita Umaphy, Aier Chi Lun Lee, Larry Chamley, Joanna James  
University of Auckland, Auckland, New Zealand

P2.113  Signaling pathways activated during hepatic differentiation of amniotic epithelial stem cells  
Rodrigo Riedel1, Antonio Pérez Pérez2, Alejandra Erlejman1, Mariana Jaime3, Ornella Parolini1, Jose Luis Dueñas2, Vicente Sánchez-Margalef4, Julieta Maymó1  
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Mai Inagaki1, Tomohiro Nishimura2, Takeo Nakashima2, Hiroaki Shimada2,3, Saki Noguchi1, Shin-ichi Akanuma1, Masanori Tachikawa1, Emi Nakashima1, Ken-ichi Hosoya1, Ikumi Tamai1, Masatoshi Tomi1  
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P2.115  Effects of human serum albumin compared to plasma proteins on nanoparticle transport at the placental barrier  
Michael Gruber1, Uwe Lang2, Christian Wadsack3  
1Department of Obstetrics and Gynaecology, Medical University of Graz, 2Bio TechMed-Graz, Graz, Austria

P2.116  The inhibitory effect of anti-hepatitis C drugs on the transport of L-carnitine in human placenta  
Rona Karahoda, Martina Ceckova, Frantisek Staud  
Department of Pharmacology and Toxicology, Faculty of Pharmacy in Hradec Kralove, Charles University, Hradec Kralove, Czech Republic

P2.117  Determination of physiological amino acid gradients across the maternofetal barrier  
Jonas Zaugg1,2, Jean-Marc Nuoffer1, Ruedi Moser-Hässig1, Christiane Albrecht1,2  
1Institute of Biochemistry and Molecular Medicine, Faculty of Medicine, University of Bern, 2Swiss National Centre of Competence in Research (NCCR) TransCure, University of Bern, 3Center for Metabolic Analysis, University Hospital, 4Lindenhofspitalgruppe Bern, Bern, Switzerland

P2.118  Clearance of glibenclamide from the fetal circulation of the perfused human placenta is enhanced by bromosulphothalein  
Emma Lofthouse, Bram Sengers, Jane Cleal, Rohan Lewis  
University of Southampton, Southampton, UK

P2.119  Effects of polyunsaturated fatty acids on the expression of transporters in human placental choriocarcinoma cells  
Kanako Ono1, Ayako Furugen1, Yuko Kurosawa1, Naoko Jinno1, Katsuya Narumi1, Masaki Kobayashi1, Ken Iseki1,2  
1Faculty of Pharmaceutical Sciences, Hokkaido University, 2Department of Pharmacy, Hokkaido University Hospital, Hokkaido, Japan
P2.120 Three-dimensional vascularized human placenta from an iPSC-derived organ bud transplant
Mai Sato, Eiji Kondoh, Yasuke Kawamura, Hiroshi Takai, Yoshitsugu Chigusa, Haruta Mogami, Masaki Mandai
Department of Gynecology and Obstetrics, Kyoto University Graduate School of Medicine, Kyoto, Japan

P2.121 Effects of breast cancer treatment on placental tissue
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P2.122 Platelet derived factors impair trophoblast differentiation via activation of Smad3 signaling
Desiree Forstner, Sabine Maninger, Olivia Norn, Gerit Moser, Gerd Leitinger, Elisabeth Pritz, Katharina Schallmoser, Monika Siwez, Gunther Marsche, Akos Heinemann, Denise Hoch, Gernot Desoie, Berthold Huppertz, Martin Gauster
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P2.123 Genetic study on origins of chorioncarcinomas by short tandem repeat analysis
Kimihiko Nishino, Kenichi Nakamura, Yoshihu Ikeda, Kaoru Niimi, Eiko Yamamoto, Toshimichi Yamamoto, Fumitaka Kikkawa
1Department of Obstetrics and Gynecology, Nagoya University, 2Department of Healthcare Administration, Nagoya University, 3Department of Legal Medicine and Bioethics, Nagoya University, Aichi, Japan

P2.124 Placenta in toxicology: Effects of chemotherapy on trophoblast cells
Julia I. Heger, Karolin Froelich, Lisa Uhl, Jana Henning, Ralf Mrowka, Amelie Lupp, Andre Schmidt, Udo R. Markert
1Placenta Laboratories, Department of Obstetrics, Jena University Hospital, 2KIMIIL Department of Experimental Nephrology, Jena University Hospital, 3Institute of Pharmacology and Toxicology, Jena University Hospital, Jena, Germany

P2.125 H2S synthetase cystathionine γ -lyase inhibits trophoblast cells syncytialization through blocking AR dimerization
Juan Liu, Feihong Deng, Ming Liu, Yu-xia Li, Shao Xuan, Yan-Ling Wang
1State Key Laboratory of Stem Cell and Regenerative Biology, Institute of Zoology, Chinese Academy of Sciences, 2University of Chinese Academy of Sciences, Beijing, China

P2.126 Apical secretion of apolipoprotein E: the anti-atherogenic impact of the placenta
Hassan Melhem, Xiao Huang, Sampada Kalloff, Ruedi Moser, Regula Theurillat, Michael Luthi, Wolfgang Thomann, Henning Schneider, Christiane Albrecht
1Institute of Biochemistry and Molecular Medicine, University of Bern, 2Lindenholzspitalgruppe Bern, 3Institute for Infectious Diseases, University of Bern, Bern, Switzerland

P2.127 Fetal and maternal asymmetry in plasma membrane domains of syncytiotrophoblast layer-I cells are maintained by a polarity-regulating factor, KIBRA-like/Wwc2
Kana Tamura-Furukawa, Kazunari Yamashita, Shigeo Ohno
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P2.128 Immunohistochemical analysis of miRNA processing molecules in the syncytiotrophoblast of the human first trimester placenta
Toshihiro Takizawa, Chaw Kyi-Tha-Thru, Hironori Takahashi, Manabu Ogoyama, Akihide Ohkuchi, Toshiyuki Takeshita, Shigeki Matsubara
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P2.129 Identification of a population of placental alkaline phosphatase negative syncytiotrophoblast exosomes using a multiplex exosome kit
Boonyakiat Thammasate, Wei Zhang, Nattiya Hirankarn, Christopher Redman, Manu Vatish
1Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, 2Nuffield Department of Women’s and Reproductive Health, University of Oxford, Oxford, UK
P2.130  Oriented sectioning of human placental blocks- Does it help?
Harriet Pais¹, Carolyn Salafia², Philip Necaise¹, Thomas O’Connor¹, Ruchit Shah³, Emily Barrett¹, Philip Katzmar², Richard K Miller²
¹Placental Analytics, LLC, NY, USA, ²University of Rochester, NY, USA, ³Rutgers University, NJ, USA

P2.131  Automated segmentation of the syncytiotrophoblast and classification of nuclear features: correlations of syncytial aggregate nuclear features and placental histopathology
Harriet Pais, Carolyn Salafia, Ruchit Shah, Philip Necaise
Placental Analytics, LLC, NY, USA

P2.132  The kinetics of mercury in the human placenta: Relationship between genotype and phenotype in healthy and diseased placenta
Sebastian Granitzer¹², Christine Giuffrida¹², Elisabeth Straka¹², Raimund Widhalm³, Isabella Ellinger³, Harald Zeisler³, Hans Salzer³, Markus Hengstschlager³, Claudia Gundacker³
¹Karl-Landsteiner Privatuniversität, Krems, Austria, ²Medical University of Vienna, Vienna, Austria, ³University Hospital Tulln, Tulln, Austria

P2.133  The Usefulness of genetic analysis for differential diagnosis between complete and partial hydatidiform moles
Yuri Hasegawa, Kiyonori Miura, Ai Higashijima, Shuhei Abe, Hideaki Masuzaki
Nagasaki University, Nagasaki, Japan

P2.134  The regulation of gene networks involved in villous trophoblast differentiation and their impairment in preterm preeclampsia
Zsolt Gelereser¹, Roberto Romero², Yi Xu³, Amanda Demeter³, Balazs Gyorffy³, Kata Juhasz³, Janos Palhalm³, Katalin Keke³, Gudrun Meinhardt³, Offer Erez³, Adi Tarca³, Zoltan Papp³, Martin Knöfler³, Nandor Than³
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P2.137  Cervical molar pregnancy: A case report
Masahiko Kato, Tsuguto Notomi, Elka Harigane, Takehiko Fukami, Koichi Yoneyama, Toshiyuki Takeshita
Nippon Medical School, Kanagawa, Japan

P2.138  A case of complete hydatidiform mole coexistent with triplets
Youhei Tsunoda, Koichi Yoneyama, Takehiko Fukami, Toshiyuki Takeshita
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P1.135  
Polymer-based, biodegradable nanoparticles for the treatment of placental dysfunction

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Fetal growth restriction (FGR) is one of the leading causes of stillbirth and neonatal mortality. The majority of these cases are due to placental dysfunction and treatment options for FGR in utero are limited. We aimed to determine the suitability of a polymer-based, biodegradable nanoparticle in delivering DNA to human syncytiotrophoblasts using an ex-vivo perfusion model and an in vitro culture model. Nanoparticles (NP) were created by complexing Texas-Red fluorophore labelled polymer with plasmid (human Insulin-like Growth Factor 1 (hIGF1) under the placenta specific promotor PLAC1). Term, human placenta cotyledons (n=6) were perfused for 3.5hrs including approximately 1hr with nanoparticle. Fluorescence (625nm) was quantified in maternal and fetal perfusate using a fluorescent microplate-reader. For in vitro transgene expression, term, human cytotrophoblasts were isolated from placenta tissue (n=4) and allowed to spontaneously syncytiolise into syncytiotrophoblasts. These were treated with nanoparticle for 48hr and RNA isolated. Collection and use of human placentas was approved by local IRB committees. Maternal perfusate fluorescence significantly increased on addition of nanoparticle and declined by the conclusion of the experiment (mean minimum relative fluorescence units (RFU): baseline: -1.2±1.3 vs. NP addition: 322.4±62.1 vs. conclusion: 74.9±7.2; P<0.001, ANOVA). In contrast, negligible levels of Texas-Red were detected in the fetal perfusate (mean minimum RFU: baseline -0.7±0.6 vs. NP addition 1.5±1.5 vs. conclusion 3.7±2.0; NS). Histological analysis of placenta following perfusion showed Texas-Red localisation within the syncytiotrophoblasts of the placental villi. In vitro, treatment with NP significantly increased hIGF1 expression after 48 hr compared to untreated and DNA-only (mean normalised gene expression: untreated 1.03±0.12 vs. DNA-only 4.97±2.83 vs. NP 362.12±196.13; P<0.001, ANOVA). We demonstrate successful NP-mediated delivery of nucleic acids in multiple models of human syncytiotrophoblast and increased transgene expression under a specific promoter representing a crucial advance in the development of treatment for placental dysfunction.

P1.136  
Politics and the placenta

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The relationship between science and politics has been likened to a marriage1, with the inference being that, to develop, the partners must not become alike but must respect their differences — and that the odd quarrel along the way is no big deal. Recently, however, science has taken the role of the meek, misunderstood spouse that has little influence over their all-powerful partner. Science must become stronger in this relationship; at present it does not have the respect it deserves from most politicians, and so its champions must become louder within the political arena if we are to address the grand challenges of the coming century.

Two recent incidents in the UK suggest that scientists hold little political power, with the real crux of the matter being a lack of science-literate politicians. Although some prominent politicians have science backgrounds (Margaret Thatcher and Angela Merkel were chemists) out of the 650 (pre-2010 election) UK members of parliament (MPs), 27 held science degrees and 584 admitted to having no political interest in science and technology — and taking into account upcoming retirements, it’s about to get worse2. This alarming finding calls into question whether the people responsible for making important policy decisions, either based on scientific research or about its funding, fully understand its importance or crucially the scientific method at its core.
P1.137
Superb microvascular imaging and magnetic resonance imaging/ultrasound fusion for diagnosis of subchorionic hematoma in a pregnant woman with chronic abruption of the placenta

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Introduction:
The new method of superb microvascular Imaging (SMI) can reveal the microscopic and slow blood flow in some organs. Magnetic resonance imaging (MRI)/ultrasound(US) fusion allows displaying and synchronizing the MRI and US images. We diagnosed the subchorionic hematoma (SCH) in a pregnant woman with chronic abruption of the placenta by these methods.

Case Presentation:
A 27-year-old nulliparous Japanese woman with gestational week (GW) 21-1/7 was referred to us for severe fetal growth restriction (FGR) without any other abnormalities. However, SCH were detected at GW 31-4/7 by MRI which was performed to evaluate the fetal central nerve system. The expansion of SCH might be critical, serial and frequent tests were necessary. But the conventional ultrasound examination could not evaluate the hematoma. We used MRI/SMI fusion for revealing the correct location, the extent, and sonographic characteristics of SCH and the placenta. The thin villi vessels branching from the chorionic vessels could be recognized in the parenchyma of placenta by SMI, but not be recognized in SCH.

Non-reassuring fetal status necessitated an emergency cesarean section at GW 36-0/7. A male infant weighing 1126 g was born with 1 min and 5 min Apgar scores of 8 and 9, respectively, and umbilical arterial blood pH of 7.30.
The chronic abruption of the placenta was diagnosed based on the following macroscopic findings; the withered parenchyma of placenta which located on the SCH, and the exposed chorionic vessels on the maternal side of the withered placenta.

Discussion:
MRI has higher contrast resolution than ultrasound in discriminating hematoma. MRI/SMI Fusion may be useful for primary diagnosis of the chronic abruption of the placenta. SMI provide the better information of blood flow signals and the extent of SCH in following-up period.

P1.138
Determination of the diagnosis and management of retained placenta

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[Case 1]
A parous woman (gravid a 2, para 1) who had no previous medical history delivered infant at 39 weeks’ gestation. Since parturient had visited to the hospital due to fever up on 8th day after the delivery. Mild tenderness on the side walls of the uterus, and stinking purulent virginal discharge were observed. Laboratory test results showed: 19900/μL of leukocyte, and 12.54mg/dL of CRP. Ultrasonography revealed irregular echogenic mass with thinning myometrium in all layers. Since diagnosis of intrauterine infection due to the placental remnant but not strongly suspected invasive placenta was made, placenta removal under general anesthesia was decided. Placental tissue was completely removed using placental forceps under the guide of ultrasonography.

[Case 2]
A multiparous woman (gravid a 5, para 2) who had three histories of miscarriage was delivered infant at 38 weeks’ gestation. Fifteen minutes after delivery, vaginal bleeding due to placental separation was investigated. However, placenta could not completely detached from the uterus and vaginal bleeding was increased. Shock index went up gradually to 1.3 at 21 minutes and 1.9 at 29 minutes after delivery. Since 3600g of the total amount of the bleeding was counted, immediately, manual placental removal under the general anesthesia was tried. However, it was failed and massive bleeding was continued, consequently hysterectomy was performed. Total amount of the bleeding was more than 8000g. Pathological examination indicated focal abnormal invasive placental tissue (5cm) in the myometrium.

Conclusion:
Long delay retained placenta may cause uterine infection and sepsis, while partial invasive placenta with partial detachment of the placenta cause hemorrhagic shock. Therefore, such pathologies should be determined and treated as soon as possible, when we encounter retained placenta. In the present report, the management protocol for retained placenta is discussed.
P1.139  
**Three-dimensional visualization of intrauterine conceptus through the uterine wall by tissue clearing method**

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Visualization of specific cells in the three-dimensional organ architecture is one of the key steps to develop our knowledge about pathophysiological mechanisms in various organs. In this study, we successfully obtained stereoscopic whole images of the intrauterine murine embryo and placenta through the uterus using a modified tissue clearing CUBIC method. By this procedure, we can recognize the three-dimensional relationships among various tissues within the pregnant uterus and analyze free-angle images of cross-sections with single-cell resolution using a computer system. Based on these data, we can select optimal cross-section angles and then produce the corresponding tissue slices that are adequate for further immunohistochemical examination. Furthermore, using transgenic mice, distinct images of an EGFP-positive embryo and the placenta can be obtained, confirming the precise three-dimensional location of invading trophoblasts in the fetomaternal interface in the uterus. These results indicate that this procedure will significantly contribute to analyzing pathophysiological mechanisms in reproductive organs.

P1.140  
**The placental pathology in pregnancy with Fontan circulation**

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Background:  
Fontan circulation is a palliative operation for patients with congenital heart diseases (CHD) lacking biventricular circulation. Pregnant women with Fontan circulation have a high risk of miscarriage, premature delivery, and small for date. However, their placental pathology has not been well investigated. The purpose of the current study is to investigate the placental pathology in patients with Fontan circulation.

Methods:  
We retrospectively reviewed obstetric and cardiac data from the medical charts of 5 pregnancies in 5 women with Fontan circulation with various CHD delivered after 22 weeks gestation at our institution between 2006 and 2018. Five placentas were analyzed histopathologically, especially on the point of hypoxia and maternal perfusion.

Results:  
During pregnancy, 1 out of 5 women took antplatelet agent, 2 were commenced on heparin, 2 were administered both. One woman took beta-blocker and diuretic agent. The median gestational age at delivery was 34 (30-37) weeks gestation. Obstetric complications included gestational diabetes mellitus (n=1, 20%), preterm delivery (n=3, 60%) and babies as small for date (n=3, 60%, all < 3rd percentile). SpO2 was 94% (91-96) (median, range), central venous pressure was 10mmHg (9-11) and cardiac output was 4.16L/min (3.20-5.76), fetal/placental ratio was 4.91 (3.85-5.63). Histopathologically, all 5 placentas showed increased syncytial knots, villous branching, villous vascular congestion, and villous stroma fibrosis. Four placentas showed increased perivillous fibrin deposit and chorangiitis. Three placentas showed subchorionic hematoma and hemorrhidrosis. There was no evidence of deficient vasculo-syncytial membrane, increased giant cells, chronic villitis of unknown etiology, and decidual vasculopathy.

Conclusion:  
Patients with Fontan circulation showed low SpO2 and low cardiac output. All placentas with Fontan circulation showed histological findings of placental hypoxia and maternal underperfusion. Both hypoxia and maternal underperfusion could be related to severe fetal growth restriction.
P1.141
Quantitative analysis by image processing of differentiation to extravillous cytotrophoblast in human embryonic stem cell derived trophoblast

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Objectives:
A variety of culture conditions have been explored to differentiate human embryonic stem cells (hESCs) into trophoblasts and its differentiated progeny. Culture conditions for terminal differentiation of hESC-derived trophoblast are often assessed by analysis of biomarker expression, e.g. HLA-G for differentiation to extravillous trophoblast (EVTs). Expression of these markers may exhibit variability in intensity and/or heterogeneity across different conditions, indicative of cell state. Visual analysis is subject to bias; therefore, quantification of biomarker expression is necessary to compare different conditions. Towards this end, we performed quantitative image analysis on immunostained cells cultured under various conditions.

Methods:
We developed a chemically defined culture system that allows differentiation of hESCs to villous cytotrophoblasts (vCTBs), and subsequent differentiation to EVT. We explored the effect of removal of lipid component sphingosine-1-phosphate (S1P), and inhibition of Rho/ROCK signaling, during differentiation of hESCs to vCTBs, on terminal differentiation to EVT. Additionally, we investigated expression level differences amongst clusters versus single cells, with intent to distinguish column and invasive EVT. Differentiated cells were assessed using immunofluorescence and HLA-G expression was quantified using microscopy and image processing.

Results:
We developed image processing algorithms to quantify HLA-G expression in hESC-derived EVT. Our algorithm shows with statistical confidence that HLA-G expression level decreases with Rho/ROCK inhibition, removal of S1P and in cell clusters.

Conclusion:
Our results quantitatively reinforce previous results suggesting that S1P and Rho/ROCK signaling are necessary for trophoblast differentiation from hESCs, in our chemically defined culture conditions. Our results also suggest that HLA-G expression level can correlate to invasive versus proliferative, column cells. More importantly, our image analysis tool can be utilized broadly, to determine relative expression levels of a biomarker from immunofluorescence images. This will enable quantitative assessment of the role of signaling pathways in trophoblast differentiation.

P1.142
Marked time-of-day variation in expression of clock genes near term in the spiny mouse placenta

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Objectives:
The spiny mouse (Acomys cahirinus) is a rodent with a number of biological traits that make it particularly useful for modelling aspects of human reproduction. Similar to humans but unlike most other rodents, the spiny mouse menstruates, and synthesises cortisol as its active glucocorticoid. Furthermore, gestation (39 days) is considerably longer than for other rodents, and the young are born precocial, with advanced development of organs including the kidney and liver. Fetal liver development in utero would be facilitated by daily peaks and troughs in nutrient supply, an effect likely mediated by circadian clock machinery within the placenta. We hypothesised that the term spiny mouse placenta would exhibit time-of-day variation in expression of clock genes.

Methods:
Livers and placenta were collected from pregnant spiny mice on day 37 of gestation at either zeitgeber time (ZT)1 (n=5) or ZT13 (n=5), and placentae were separated into the labyrinth zone (LZ) or spongy zone (SZ). RT-qPCR was used to evaluate levels of clock genes in male and female LZ and SZ. Ethics was obtained.

Results:
Bmal1 expression in the LZ at ZT1 was three-fold higher than at ZT13. In contrast, LZ expression of Per2, Cry2 and Reverb-a was 2-4 fold higher at ZT13 than ZT1. Time-of-day variation was markedly lower in the SZ than the LZ. Clock gene expression was mostly consistent between male and female placentas. Furthermore, the pattern of clock gene expression within the LZ broadly followed that of the maternal liver.

Conclusion:
Considerable time-of-day variation exists for clock genes in the spiny mouse LZ: the zone responsible for maternal-fetal transfer of nutrients. Expression profiles of Bmal1 were opposite of Cry2 and Reverb-a, consistent with a functioning clock gene pathway. Peaks and troughs in nutrient supply, as a result of circadian placental function, could drive maturation of the fetal liver.
P1.143
Serum levels of nitric oxide synthase, proangiogenic and antiangiogenic factors in HIV infected pre-eclamptic women

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Objectives:
In South Africa, pre-eclampsia (PE) and HIV infection are major causes of pregnancy-related deaths. This study aimed to measure the serum levels of endothelin-1; endothelial nitric oxide synthase (eNOS); soluble fms-like tyrosine kinase 1 (sFlt-1); soluble endoglin (sEng) and placental growth factor (PIGF) in HIV infected and HIV uninfected pre-eclamptic and normotensive women.

Method:
mRNA gene expression levels of circulating endothelin-1 and eNOS were determined using real-time PCR, whereas serum levels of sFlt-1, sEng and PIGF were quantified using ELISA kits.

Results:
Mean sFlt-1 levels were significantly upregulated in the pre-eclamptic (HIV uninfected 4.39 ± 1.29; HIV infected 5.10 ± 1.10 ng/ml) compared to the normotensive groups (2.59 ±0.83; 2.20 ±0.85 ng/ml). Results indicated no significant differences in the mean serum sEng levels across the study groups. Mean PIGF levels were significantly lower in the HIV uninfected PE versus the infected normotensive groups (29.69 ±4.47 pg/ml vs 32.86 ±6.46 pg/ml; p = 0.002). Endothelin-1 mRNA expression levels were significantly higher in pre-eclamptic groups compared with the normotensives. mRNA expression levels of eNOS in the HIV infected pre-eclamptic group was significantly reduced compared to the other groups.

Conclusion:
This study shows evidence of sFlt-1, an anti-angiogenic factor being a key role player in the pathogenesis of PE. Higher mRNA expression levels of endothelin-1 observed in the pre-eclamptic groups supports the fact that it is a vasoconstrictor that contributes to increased blood pressure in hypertension. However, the selected biomarkers exhibited no alterations in serum expression levels as a consequence of HIV infection in this study. Thus, we propose that HIV infection may not have an effect on the incidence or disease progression of PE.

P2.135
Whole slide analysis of placental hematoxylin and eosin stained slides

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Objectives:
The analysis of entire tissue samples in a routine Hematoxylin and eosin stained preparation is important because any selection, even "random", may introduce measurement bias unless large numbers of samples are pulled. We have also hypothesized that retaining "orientation" of tissue samples, relative to the chorionic and basal plates and to other landmarks of the placental functional unit, may contribute information as "the company a lesion keeps" may increase or decrease its importance to the fetoplacental unit as a whole. Whole slide analysis provides information on the number and composition of the large fetal stems that contain the arterioles and venules and provide the largest percentage of total peripheral resistance perceived by the fetal cardiovascular system. Analysis of shapes of fetal stem and smaller villi tell us their orientation in this 2D view of the placental disk.

Methods:
Whole slides obtained from the UPSIDE study were acquired at 20x magnification (resolution 0.5um), downsampled to 2.5x (FigureA, resolution 4 um) and thresholded to segment tissue from the background (FigureB). Morphological operations were performed and tissue area was further segmented into three classes based on pixel features: Intervillous space, LowSD Areas and Functional Villi Area (FigureC). Foreground is split into 10x10 pixel squares and those with low intensity variance in R channel are classified as "LowSD Areas" and indicate sparse nuclei, a characteristic of large stem villi, infarcts, large fibrin and chorionic vessel regions. The rest is classified as Functional Villi Area, which is sub-classified based on villus size, shape and other RGB features. Number, Total Area and various shape measures are summarized for the different villi groups.

Results:
Number, Total Area and various shape measures are summarized for the different villi groups.

Conclusion:
Whole slide analysis in conjunction with mapping of 3D shape and 2D surface vascular networks can provide a unique look at placental structure and function.
P2.136
Fetal cell-free DNA fraction in maternal plasma is affected by fetal trisomy

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The purpose of this noninvasive prenatal testing (NIPT) study was to compare the fetal fraction of singleton gestations by gestational age, maternal characteristics, and chromosome specific aneuploidies as indicated by z-scores. This study was a multicenter prospective cohort study. Test data were collected from women who underwent NIPT. Relationships between fetal fractions and gestational age, maternal weight and height, and z-scores for chromosomes 21, 18, and 13 were assessed. A total of 7,740 pregnant women enrolled in the study of which, 6,993 met the study criteria after informed consent. Approximately 95.5% of this study cohort included women of 35 years age or older. As expected, fetal fraction was inversely correlated with maternal weight (p<0.001). The median fetal fraction of samples with euploid result (n=6,850) and trisomy 21 (n=70) were 13.7% and 13.6% respectively. In contrast, median fetal fraction values for samples trisomy 18 (n=35) and 13 (n=9) were 11.0% and 8.0% respectively. The fetal fraction of samples with trisomy 21 NIPT result is comparable to that of samples with euploid result. However, the fetal fractions of samples with trisomy 13 and 18 is significantly lower compared to that of euploid result, which may make detecting these two trisomies more challenging.

P2.137
Cervical molar pregnancy: A case report

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We report a case of cervical molar pregnancy.
34 years old, G1P0, no special notes in past medical history. From the last menstruation 5 weeks 3 days of pregnancy, she came to our hospital for a small amount of genital bleeding and positive for pregnancy reactions. GS was not found in the uterus by transvaginal ultrasonography at the first visit. A 7 - 8 mm white ring was found in the cervix. serum hCG level was 13277 mlU/mL. MRI also confirmed cervical pregnancy contradictorily findings. So we administered MTX 75 mg (50 mg/m 2). The villous tissue was excreted on the 2nd day of MTX administration, no villous component inside the cervix was detected, and continuous bleeding from the uterus also disappeared. Pathological examination of the uterine contents was a diagnosis of the complete hydatidiform mole. serum hCG level quickly became less sensitive and no remnant tissue was found in the cervix. For that reason we did carefully follow serum hCG without doing additional MTX or curator. Thereafter, it has passed outpatient without re-elevation of hCG level until 4 months.
P2.138
A case of complete hydatidiform mole coexistent with triplets
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Complete hydatidiform mole coexistent with a fetus (CHMCF) is very rare. It has also been pointed out that the incidence of secondary disease of CHMCF. It is easy to develop hypertensive disorders of pregnancy when CHMCF exists. We reported a case of complete hydatidiform mole coexistent with triplets following ovulation induction. A 30-year-old woman was referred to our hospital due to a multiple pregnancy. She was administered aspirin because she developed anti-phospholipid antibody syndrome. We administered heparin and monitored her. However, she developed severe hyperemesis and was admitted at 9 weeks of gestation. We discontinued aspirin because she had drug-induced liver injury. Hyperemesis improved and she was discharged at 12 weeks of gestation. However, she developed hypertension at 15 weeks of gestation and was admitted. The next day, she developed acute renal failure and pulmonary edema and was transferred to the intensive care unit. We thought that it would be difficult to continue the pregnancy and decided on pregnancy termination. We recognized a multivesicle pattern in the transabdominal ultrasound image and suspected a hydatidiform mole coexistent with fetuses. We confirmed that the patient and her family no longer expected child birth. We performed hysterectomy after cesarean section. As a result of the pathological examination, we diagnosed the patient as having a complete hydatidiform mole which invaded the myometrium. Serum human chorionic gonadotropin was high at 11 weeks after delivery and we found two metastatic lung lesions in chest CT, bilaterally. Each lesion was less than 2 cm. We diagnosed low risk gestational trophoblastic neoplasia (GTN) and administered methotrexate. We monitored her and there was no recurrence. This case is consistent with past reports in which CHMCF was complicated by preeclampsia, with a high risk of developing GTN.

P2.139
Placental T2* estimated by magnetic resonance imaging and fetal weight estimated by ultrasound in the prediction of birthweight differences in dichorionic twin pairs
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Objectives:
Intertwin birthweight (BW) difference is associated with an increased risk of adverse outcome. Ultrasound estimated fetal weight (EFW) is the current method to predict intertwin BW difference, however, the sensitivity is poor. Therefore, new methods are needed. Placental T2* estimated by magnetic resonance imaging (MRI) reflects placental oxygen environment and thus placental function. This study aimed to investigate placental T2* difference as a new predictor of BW difference, and to compare it to the EFW.

Methods:
We included 25 dichorionic twin pairs at 19-38 weeks’ gestation. Placental T2* was obtained by MRI and EFW by ultrasound. Correlations between each predictor and BW difference were examined by simple linear regression, and the combined model was analyzed by multiple linear regression and likelihood ratio test.

Results:
Strong positive correlations were demonstrated between intertwin differences in placental T2* and BW (r=0.80, p<0.005), and EFW and BW (r=0.64, p<0.005). Placental T2* difference was a strong independent predictor of BW difference (p<0.001), and the combined model performed better than each predictor alone (p<0.0001).

Conclusion:
This pilot study demonstrates that placental T2* difference may be a predictor of intertwin BW difference irrespectively of fetal size. The clinical potential of this method deserves further investigation in a larger clinical study.
P2.140
Striking increase in villous hemosiderosis in placentas of children with high genetic ASD risk
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Background and Goals:
Autism spectrum disorders (ASD) show disordered neuronal connectivity; aberrant angiogenesis (AA), particular intussusceptive (rather than sprouting) is seen in ASD brains. Oxidative stress (OS) may mark/mediate ASD risk. We hypothesized that placentas of Early Autism Risk Longitudinal Investigation (EARLI) high ASD risk sitzs show more fetal-placental bleeding, marking both placental AA and OS given that iron is a potent oxidant.

Methods:
One wax block of placental disk tissue was selected at random from 161 EARLI placentas and one block from 32 cases delivered at New York Presbyterian Brooklyn Methodist Hospital (low ASD risk controls). Study controls were selected to enhance likelihood of abnormal staining, including only cases with placental infarct, intervillous thrombus and chronic villitis. Slides stained Prussian Blue to identify the presence of hemosiderin.

Quantification of Hemosiderin staining on whole tissue slide:
Batch processing of whole slides used the image analysis software Definiens Developer. The whole tissue is extracted at low resolution of 2.5x. Tissue tiles are analyzed at 10x magnification. Intervillous space and villi areas are segmented. In villi areas, blue (hemosiderin) pigment is quantified; stain objects

Results:
Both variables were non-normally distributed. Results differed <10% between the two TH variables; TH/TVA is presented. Mood’s Median test identified a median TH/TVA of 0.296 for EARLI, and 0.045 for controls, with first and third quartile range of 0.333 and 0.010 respectively(p< 0.0001). Figures 1-4 demonstrated both increased trophoblast basement membrane and villous stromal staining in EARLI compared to controls.

Conclusions:
We suggest genetic risk of ASD is associated with abnormal placenta AA and OS.

P2.141
Evolution of progesterone withdrawal in strepsirrhine primates
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Progesterone plays a central role in the maintenance of pregnancy, blocking the onset of parturition, known as the “progesterone block” hypothesis. In several domestic and laboratory species (eg: dog, sheep, rat), parturition is triggered by a drop in maternal progesterone levels, termed systemic progesterone withdrawal. In humans, Old World monkeys, and guinea pigs, placental progesterone production persists during parturition, and regresses upon delivery of the placenta. Parturition in these species may be triggered due to reduced responsiveness of target cells in the uterine myometrium to the labor-blocking actions of progesterone, termed functional progesterone withdrawal. Understanding the evolution of the switch from systemic to functional progesterone withdrawal is central to our understanding of the trigger of parturition, and ultimately obstetric disorders such as preterm birth. We hypothesize that systemic progesterone withdrawal existed in the last common ancestor of primate and non-primate mammals, and the loss of systemic progesterone withdrawal occurred prior to the divergence of haplorhines and strepsirrhines. Currently, there is a lack of data describing longitudinal progesterone measurements across gestation in strepsirrhines. We have utilized liquid chromatography-tandem mass spectrometry (LC-MS/MS) to measure progesterone in fecal samples collected longitudinally throughout pregnancy in four lemur species: Eulemur collaris (n=1 control, n=1 pregnant), Eulemur mongoz (n=1 control, n=1 pregnant), Daubentonia madagascariensis (n=1 control, n=1 pregnant), and Varecia rubra (n=3 control, n=1 pregnant). Eulemur mongoz, Eulemur collaris, and Daubentonia madagascariensis appear to undergo systemic progesterone withdrawal prior to labor, while in Varecia rubra, systemic progesterone levels do not drop until after labor. Preliminary results indicate that diverse mechanisms of progesterone withdrawal in parturition may be operational in different strepsirrhine species, and bodes further investigation in other species from which we have collected fecal samples throughout pregnancy (Lemur catta, Eulemur coronatus, and Propithecus coquerelli).
P2.142
Immunological effects of plasma derived exosomes on BeWo cells under in vitro hypoxic conditions

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Objectives:
Pregnancy-associated hypertension (pre-eclampsia) can lead to severe complications for both mother and fetus, as pre-eclampsia is associated with placental hypoxia, dysfunction and may exhibit differential as well as specific exosome release profiles that may play a role in immune modulation. The aim of this study was to isolate and characterize plasma derived exosomes from pre-eclamptic (early and late onset) and normotensive (< 33 weeks and > 34 weeks) women, and investigate whether these exosomes influence cytokine (IL-8; IL-10 and leptin) levels in BeWo cells under hypoxic exposure.

Method:
This study was institutional approved by the Biomedical Research Ethics Committee of University of KwaZulu-Natal. BeWo cells were plated in twenty-four well plates and treated for 24 hours with cobalt chloride (CoCl2), a chemical hypoxia-inducing agent. Following, co-incubation with characterized and quantified exosomes (100 μg/mL exosomal protein per pregnant group) for 24 hours, IL-8; IL-10 and leptin levels were determined using commercially available immunoassay kits. BeWo cells treated with exosomes under non-hypoxic conditions was used as a control.

Results:
Hypoxic BeWo cells treated with exosomes isolated from < 33 weeks normotensive; > 34 weeks normotensive, early and late onset women showed significantly increased IL-8 (pro-inflammatory) levels compared to the non-hypoxic control groups subjected to the same exosomal treatments (IL-8: 21.26 vs 18.56; 38.37 vs 15.97; 44.16 vs 43.90; 55.12 vs 44.16 pg/mL respectively). Leptin levels increased significantly in the experimental compared to the control. Conversely, IL-10 (anti-inflammatory) levels were decreased in hypoxic BeWo cells treated with exosomes compared to the non-hypoxic control groups.

Conclusion:
In this study, plasma derived exosomes from pre-eclamptic and normotensive pregnancies have differential immunological effects under hypoxic conditions.