



# PNIRS

PsychoNeuroImmunology  
Research Society

## #PNIRS2022

# 2022 Annual Meeting

June 15-18  
Zurich, Switzerland  
ETH Main Building

*From Psychoneuroimmunology  
to Immunopsychiatry*



[www.PNIRS.org](http://www.PNIRS.org)

# Message from the President

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On behalf of the Executive Committee and Board of Directors it is my great pleasure to welcome you to the 28<sup>th</sup> meeting of the PsychoNeuroImmunology Research Society in Zurich, Switzerland!

Over recent years, our research field has delivered major advances in our understanding of the bidirectional interactions between the immune system and the brain and highlighted the importance of these processes for both health and a range of diseases. In recognition of this, the PNIRS Executive, Program and Local Organising Committees have developed an outstanding scientific program centred on the theme of this year's meeting: **'PNI in Translation: From Psychoneuroimmunology to Immunopsychiatry'**.

This theme is reflected throughout the meeting including the opening half-day educational short course, chaired by Urs Meyer, which will highlight preclinical PNI models for studying human neuropsychiatric disorder. It is also at the forefront of our four member-sponsored symposia focussed on topics including neuroimmune mechanisms linking early life stress & adolescent mental health, emerging targets in cancer & cancer-treatment associated behavioural co-morbidities, the rise of immunometabolic depression and the cumulative cost of discrimination and marginalisation on PNI-related health. The presidential symposium 'PNI in translation', which includes three outstanding speakers from diverse industry and academic backgrounds, will further highlight how advances in PNI are beginning to be translated for real-world patient benefit and will include a panel discussion on the opportunities and challenges in this process.

Complementing this we have an outstanding line-up of Award talks including Staci Bilbo who will be giving the 2022 Norman Cousins Memorial Lecture titled 'Microglia, microbes, and the developing brain'; Julie Lasselin who will give the Robert Ader Lecture 'Back to the future of PNI: what do we know, and need to learn, about inflammation-induced sickness behaviour in humans?'; and Jonathan (Jony) Kipnis who will present our keynote Ronald Glaser 'Frontiers in Psychoneuroimmunology Lecture' on "Brain borders as psychoneuroimmune interface". Closing the meeting I am honoured to have been nominated to give the George Solomon Memorial Lecture titled 'Inflammation, Depression and the Human Brain'.

Organising an International Scientific Conference is a team sport. This has never been more true than during a global pandemic, and I am indebted to the hard work and dedication of the PNIRS Executive, Program, Trainee, Communication, EDI and Local Organising Committees as well as our new Executive Director Meg Gorman, who have worked tirelessly to bring this meeting to fruition. I would also like to thank our outgoing Secretary-Treasurer Lisa Christian and outgoing Board members Ning Quan, Shamgar Ben-Eliyahu and Nic Rohleder and welcome in our newly elected officers including incoming President-Elect Chris Engeland, incoming Secretary-Treasurer Michael Bailey, and our new Board Members Leah Pyter, Mark Hutchinson and Mandy Kentner who will assume their positions at the close of the meeting.

Special thanks also go to our local Organising Team of Urs Meyer, Ulrike Weber and Tina Notter who have done an outstanding job, to our meeting sponsors: The Werner Siemens Foundation, Elsevier, Boehringer Ingelheim and Rahn+Bodmer for their generous financial support for our meeting and to ETH for allowing us the use of their stunning ETH main building conference facilities. Finally, I would like to thank you, our members for your ongoing support of PNIRS, for your submissions of more than 20 member-sponsored symposia proposals and 160 abstract submissions and for helping ensure that our first in-person meeting for three years will be as vibrant as we have all come to expect from a PNIRS annual meeting.

I am very much looking forward to seeing you all again in person in Zurich in June.

**Neil Harrison**

PNIRS President

Chair, Scientific Affairs Committee

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## Meeting Location

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**ETH Zurich Main Building**, Rämistrasse 101, 8092 Zürich, Switzerland

## COVID Considerations

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Switzerland and ETH Zurich have dropped all Covid related restrictions as of April 1. While masking is no longer required, we encourage you to continue to do what's best for your individual situation. For up-to-date information regarding Switzerland and COVID, [see here](#).

If you require a COVID test for your departure travel, below are a few local options. Please confirm any requirements specific to your travel in order to be prepared when departing Zurich.

**Bellevue Apotheke** – <https://termine.bazh.ch>

No need to make an appointment. Tests are done between 10 am – 5 pm.

**Zürcher COVID Testcenter** – <https://deintest.ch>

No need to make an appointment, right next to Zurich main station.

**Corona Zentrum UZH Zürich** – <https://coronazentrum.uzh.ch/en/testing/>

Appointment required, right below ETH venue.

**TopPharm Apotheke** – <https://www.apotheke.ch/europaallee/news/coronatests-unserer-apotheke>

Appointment required, located at the Zurich main station.

## Acknowledgements and Sponsors

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We appreciate the generous support of the following sponsors of PNIRS 2022 and it's activities!

# WSS

WERNER SIEMENS-STIFTUNG



## ELSEVIER

We gratefully appreciate the support of **Elsevier, Inc.** for sponsoring the *Brain, Behavior, and Immunity* Editorial Board luncheon and supporting the activities of PNIRS.

## Rahn+Bodmer

BANQUIERS SEIT 1750



## Boehringer Ingelheim

## About PNIRS

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The **PsychoNeuroImmunology Research Society** (PNIRS) is an international organization for researchers in a number of scientific and medical disciplines, including psychology, neurosciences, immunology, physiology, pharmacology, psychiatry, behavioral medicine, infectious diseases, endocrinology and rheumatology, who are interested in interactions between the nervous and immune systems, and the relationship between behavior and health. An important goal is to conduct basic research that can be translated into clinically relevant health applications.

The **PNIRS** was incorporated in the state of Pennsylvania in 1993 after a meeting in April of that year and is a nonprofit organization. During the meeting the founding members determined that the purpose of the Society is to promote the study of interrelationships among behavioral, neural, endocrine and immune processes and to encourage collaborations among immunologists, neuroscientists, clinicians, health psychologists and behavioral neuroscientists.

### Executive Committee

Neil Andrew Harrison, President  
*Cardiff University*

Lisa M Christian, Secretary-Treasurer  
*The Ohio State University*

Julienne Bower, Past President  
*University of California, Los Angeles*

Carmine Pariante, *Ex-Officio Member*  
Editor-in-Chief, *Brain, Behavior, and Immunity*  
*King's College London*

Jeff Woods, President-Elect  
*University of Illinois*

Meg Gorham  
*Executive Director*

### Board Members

Ruth Barrientos  
*The Ohio State University*

Sophie Laye  
*National Research Institute for Agriculture, Food  
and the Environment (INRAE)*

Shamgar Ben-Eliyahu  
*Tel Aviv University*

Ning Quan  
*Florida Atlantic University*

Jennifer Felger  
*Emory University*

Nicolas Rohleder  
*Friedrich-Alexander-Universität  
Erlangen-Nürnberg*

Peter Michael Grace  
University of Texas MD Anderson Cancer Center

### PNIRS Central Office

6728 Old McLean Village Drive | McLean VA 22101 USA

[pnirs@pnirs.org](mailto:pnirs@pnirs.org) | [www.pnirs.org](http://www.pnirs.org)

Managed by Degnon Associates, Inc.

# PNIRS Committees

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## **Communications Committee**

Luba Sominsky, Chair  
Danielle Santana Coelho  
Julie Lasselin  
Leah Pyter

## **Constitution and Bylaws Committee**

Julienne Bower, Chair, Past President  
Neil Andrew Harrison, President  
Jeff Woods, President-Elect

## **Equity, Diversity and Inclusion (EDI) Working Group**

Sarah Spencer, Chair  
Melanie Flint  
Lois Harden  
Mark Hutchinson  
Dominique Piber  
Melissa Rosenkranz  
Luba Sominsky

## **Financial Committee**

Lisa M. Christian, Secretary-Treasurer, Chair  
Neil Andrew Harrison, President  
Julienne Bower, Past President  
Jeff Woods, President-Elect  
Adrienne Antonson  
Jennifer C. Felger  
Manfred Schedlowski  
Eric Wohleb  
Susan Keran Solomon

## **Membership Committee**

Jeff Woods, Chair, President-Elect  
Ruth Barrientos  
Peter Grace  
Amanda Kentner  
Keely Muscatell  
Jonathan Savitz  
Catherine Walsh

## **Nominating Committee**

Julienne Bower, Chair, Past President  
Monika Fleshner  
Annemieke Kavelaars  
Geoffroy Laumet  
Andrew Hebb Miller  
Carmine Pariante  
Melissa Rosenkranz

## **Scientific Affairs Committee**

Neil Andrew Harrison, Chair, President  
Julienne Bower, Past President  
Jeff Woods, President-Elect  
Lisa M. Christian, Secretary-Treasurer  
Jennifer Felger, Board Member  
Peter Grace, Board Member  
Jonathan Godbout  
Mats Lekander  
Valeria Mondelli  
Aric Prather  
Asaya Rolls  
Leah Rosenkrantz  
Eric Wohleb  
Zoe Tapp, Trainee Member  
Soniya Xavier, Trainee Member

## **Local Organizing Committee**

Harald Engler  
Urs Meyer  
Tina Notter  
Manfred Schedlowski  
Ulrike Weber

## **Training Committee**

Teresa Reyes, Chair  
Neil Andrew Harrison, President  
Lisa M. Christian, Secretary-Treasurer  
Jennifer Knight  
Urs Meyer  
Christoph Rummel

# General Meeting Information

## Registration Desk

The registration desk is located in **HG E-Vestibule**, ETH Main Building. Please check in to receive your name badge and conference materials. Name badges are required at all times in order to access sessions and events. The registration desk will be open during the following hours:

Wednesday, June 15	12:00 – 18:00	Friday, June 17	8:00 – 17:00
Thursday, June 16	8:00 – 17:00	Saturday, June 18	8:00 – 17:00

## Meeting Code of Conduct

The PNIRS Annual Meeting aims to provide a forum for the exchange of ideas in a collaborative and collegial environment. All delegates, speakers, sponsors and volunteers at the Conference are required to abide by the following Code of Conduct.

- All individuals have the right to expect they will be treated with respect regardless of gender, sexual orientation, disability, physical appearance, body size, race, nationality, or religion.
- PNIRS will not tolerate harassment of participants in any form. Harassment and sexist, racist, or exclusionary comments or jokes are not appropriate. Harassment includes sustained disruption of talks or other events, inappropriate physical contact, sexual attention or innuendo, deliberate intimidation, stalking, and photography or recording of an individual without consent. It also includes offensive comments related to gender, sexual orientation, disability, physical appearance, body size, race, or religion.
- All communication should be appropriate for a professional audience including people of many different backgrounds. Sexual language and imagery is not appropriate.
- Alcoholic beverages may be provided at some PNIRS events. Should excessive alcohol consumption result in behaviour that is not respectful, PNIRS reserves the right to ask the attendee to leave the PNIRS sponsored event.
- PNIRS aims to ensure that conferences are characterised by a collegial, collaborative, supportive environment. At all times, commentary and critique should be of a constructive and respectful nature.
- Any participant who wishes to report a violation of this policy is asked to speak, in confidence, to any of the local organizing committee (LOC) members.
- We value your attendance. That is why we expect all participants to follow these rules at all conference venues or related social events.

## PNIRS Commitment to Equity and Diversity.

PNIRS is committed to equity and diversity. The society will promote inclusivity and transparency, to improve diversity across all categories of membership and to increase representation of members from underrepresented groups in the society and attending the PNIRS annual conference.

The Annual Meeting will aim to fulfil its commitment to equity and diversity in the following ways:

- Every facet of the conference is committed to facilitating gender balance and cultural diversity
- There is a range of diverse speakers in terms of gender, culture, age and seniority.
- Abstracts will be solicited from a diverse range of people, particularly in areas where those groups are in a minority, and that the gender distribution of the final selected spectra, when compared to the distribution of the submissions, should strive to be similar.
- Where possible, travel support is made available to attendees from under-represented groups who would otherwise not be able to attend the conference.
- All conference materials are accessible, including promotion, signage and abstract submission processes.
- A question on the registration form informs of any support or access requirements that participants may have.
- An equity report will be made accessible on our website for measuring change over time which will include information such as the gender and cultural balance of speakers, participants, and session chairs.

# General Meeting Information

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## Chairs/Co-Chairs

Sessions Chairs should be in the designated room at least 15 minutes before the session starts in order to assist the speakers. Every effort should be made to keep the session on schedule.

## Symposium and Oral Session Speakers

Speakers should be in the designated room at least 15 minutes before the session starts. Please introduce yourself to the Chair of your session and strictly adhere to your allocated time. All slide presentations should have been provided to PNIRS prior to the meeting. If you have any last minute updates, please go to the PNIRS registration desk no later than two hours before the start of your session.

## Poster Presenters

The Poster Sessions will be held in the **Foyer EO Süd & ETH Lobby**. Push pins for mounting the posters will be provided. Poster size is limited to a width of 92 cm and height of 121 cm. Look for your poster number in this Program Book. Please remove your poster promptly following your poster session, remaining posters may be discarded.

### **PNIRS Poster Session 1:** Thursday, June 16, 15:00 - 16:30

You may begin to hang your posters at 8:30 on Thursday, June 16th. Please remove your posters at the conclusion of the poster session.

### **PNIRS Poster Session 2:** Saturday, June 18, 14:00 - 15:30

You may begin to hang your posters at 8:30 on Saturday, June 18th. Please remove your posters at the conclusion of the poster session.

## PNIRS Trainee Social

PNIRS Trainee Social is on Friday, June 17 from 18:00 - 20:00 at **bQm-Bar** located on the ETH campus. Conference name badge will be required for entrance.

## Guests

Guests accompanying registrants are welcome to attend the Opening Reception and Banquet as long as they have registered. Guest tickets for both events can be purchased at the registration desk for \$175.

## Phones and WiFi

As a courtesy to presenters, speakers, and attendees, please switch cell phones to silent mode during events. Please leave the session if you must answer a call. WiFi will be available at the meeting, [click here](#) for details.

## Lost and Found

If you find articles left behind by other conference attendees, please bring items to the PNIRS registration desk for safe-keeping.

## Certificates of Attendance and Participation

Please e-mail [pnirs@pnirs.org](mailto:pnirs@pnirs.org) to request a certificate. It will be e-mailed to you after the meeting.

## Photo Release

By registering for the PNIRS Annual Meeting, attendees consent to be photographed during the course of the meeting, with the understanding that these images will be used in PNIRS documents and publications only. If anyone prefers to not have their photo used by PNIRS, please contact [pnirs@pnirs.org](mailto:pnirs@pnirs.org).



# General Meeting Information

## Live-Streaming/Recording Prohibited

The use of live-streaming devices and other recording devices during the PNIRS Meeting is prohibited.

## Exploring Zurich!

We hope you have time to explore the beauty of Zurich, here are few things to consider.

### Transportation:

Most of the city center is in walking distance from ETH and many of the local hotels (see Map). There are also plenty of buses and trams around town. The tram stop nearest ETH is "ETH/Universitätsspital" with several tram lines connecting ETH with city center/old town. The fastest direct connection with city center and main train station is the famous Polybahn (<https://www.polybahn.ch>), which is included in tickets for Zurich public transport. Whilst you can use an app for buying tickets for public transport (SBB App), you can also pay with cash at ticket vending machines at most of the tram- and bus-stops. Another option is buying the Zurich Card, which aside from covering Zurich public transportation, also offers reduced admission to museums and Zurich experiences (<https://www.zuerich.com/en/zurichcard>). You can also find a ticket shop at Zurich main station.

### To/from Zurich Airport:

The cheapest and most efficient way to get from Zurich Airport to Zurich is with the train. There are trains connecting the airport and main station every few minutes and takes around 15 minutes. There is also a direct connection between the airport and ETH via Tram No. 10 (direction Bahnhofplatz/HB), which leaves every ten minutes and takes around 35 minutes to reach ETH. For both options, tickets are available at counters or vending machines at the airport and cost approximately 7 CHF. Taxis are also available at the airport, though will cost around 80 CHF and take roughly 30 minutes, depending on traffic.

### Restaurants:

- **Zunfthaus zur Zimmerleuten** (Zurich classics and fondue, \$\$)
- **Kronenhalle** (Zurich classics, \$\$\$\$)
- **Zeughauskeller** (Zurich classics, \$\$)
- **Zum alten Löwen** (Tavolata, \$\$)
- **Öpfelkammere** (historical restaurant, favorite restaurant of Gottfried Keller, \$\$)
- **Marktküche** (good and fresh food from the market, \$\$)
- **Hittl** (vegetarian and vegan, \$)
- **Eisenhof** (meet on the hot stone, \$\$)
- **La Bodega** (Spanish tapas and other, \$\$)
- **Barfüsser** (sushi, \$\$)
- **Sternen Grill** (have a quick sausage at Bellevue, \$)
- **Lily's** (Asian, \$)
- **Rosso** (Italian, \$\$)

### Bars:

- **Rimini** (bar at the riverside)
- **Frauenbadi** (bar in a old bath at the lake, only open for men after 19.00 o'clock)
- **Les Halles**
- **Gerolds Garten** (enjoy a beer in an urban garden)
- **Kronenhalle Bar** (classic drinks at Bellevue)

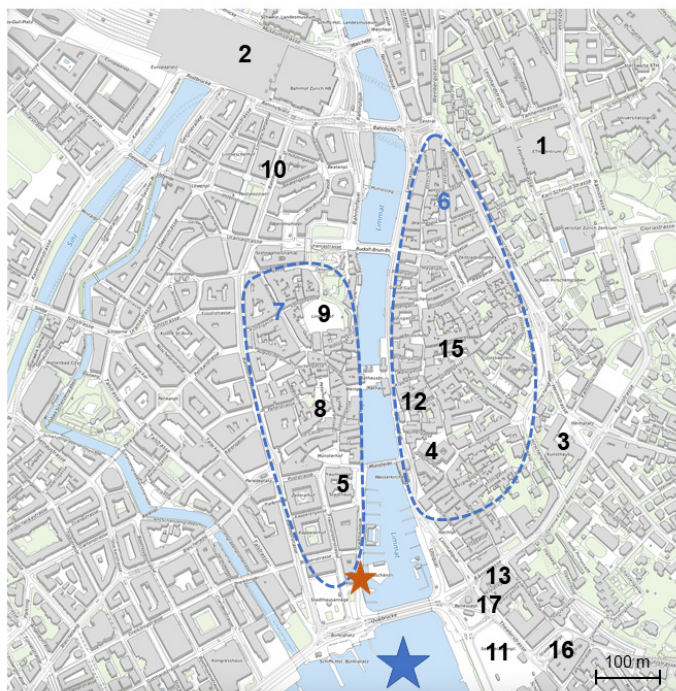
### Places to visit:

- **Kunsthhaus** (famous for its collection of Middle Ages to contemporary art, a 5 minute walk away from ETH)
- **Swiss national museum** (right next to the main station of Zurich)

- **Grossmünster** (Romanesque-style built church built between 1100-1200, in the middle of the historical area on the right side of the river)
- **Fraumünster** (women's minister founded in 853, stained glass windows designed by artist Marc Chagall, in the historical area on the left side of the river)
- **St. Peter** (completed around 1000, with largest church clock face in Europe, in the historical area on the left side of the river)
- **Bürkliplatz and Bellevue** (hang out at the lake, next to the opera)
- **Bahnhofstrasse** (famous shopping street)
- **Lindenhof** (great view of the historical area on the right side of the river)
- **Niederdorf** (popular promenade in Zurich's old town)
- **Zoo Zurich** (visit the great zoo on top of the „Zürichberg“, easy reachable with Tram Nr. 6 from venue)
- **Letten, Werd Insel** (Enjoy a jump in the river)
- **Seebad Mythenquai“, „Seebad Engi“, or „Chinawiese“** (take a bath in the Lake of Zurich)
- **Langstrasse quarter** (great place for the later hours in the night, the place for parties and drinks)

### Outside Zurich:

- **Uetliberg:** Take the S10 at main station (leaving every 20 minutes) for half an hour to reach the top of Uetliberg for a spectacular view of the city, lake, and alps (<https://www.zuerich.com/en/visit/attractions/uetliberg/>).
- **Luzern:** Take a train from main station and within an hour you can reach the famous city of Luzern with the legendary Kapellbrücke and offering great views on Lake Lucerne and Pilatus.
- **Luzern** is also the starting point for the famous Golden Round Trip, which takes you to the most spectacular spots on the Pilatus and to the summit by boat, cogwheel railway, aerial cableway and Panorama Gondolas (<https://www.pilatus.ch/entdecken/goldene-rundfahrt/>).
- **Lindt Chocolate Museum:** Take a 10-minute train ride to Kilchberg ZH and visit the chocolate museum to learn about the world of chocolate! Journey back to the origins of chocolate and experience how cocoa conquered Europe. Meet the Swiss chocolate pioneers who sweetened our lives with their inventions. Tickets should be booked in advance. (<https://tickets.lindt-home-of-chocolate.com/>).
- **Rhine Falls:** Take the train to Neuhausen Rheinfall or to Schloss Laufen am Rheinfall (50 minutes travel) and visit the spectacular Rhine Falls. Huge volumes of water fall over the rocks across a width of 150m. Don't miss the journey and climb to the central rock. From Schloss Laufen, a footpath leads you past the thundering waters to the Fischetz platform. (<https://rheinfall.ch/en/>).



- 1 ETH main building (meeting venue)
- 2 Zurich main station (Zurich HB)
- 3 Kunsthaus
- 4 Grossmünster
- 5 Fraumünster
- 6 Historical area right side of river (Niederdorf)
- 7 Historical area left side of river
- 8 St Peter
- 9 Lindenhof
- 10 Bahnhofstrasse
- 11 Bellevue/Oper
- ★ Lake of Zurich
- ★ Bauschänzli (Closing Banquet)

#### Restaurants:

- 12 Zunfthaus zur Zimmerleuten (Fondue, \$\$)
- 13 Kronenhalle (Zurich, classics, \$\$\$\$)
- 14 Zeughauskeller (Zurich classics, \$\$)
- 15 Öpfelkammer (historical restaurant, \$\$)
- 16 Hiltl (vegetarian, vegan, \$)
- 17 Sternen Grill (sausage to go, \$)

## Award Lectures

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### The Norman Cousins Award Lecture



The **Norman Cousins Award** is the highest honor given by the PsychoNeuroImmunology Research Society to an individual for outstanding contributions to research in psychoneuroimmunology. Norman Cousins was an articulate spokesman and advocate for psychoneuroimmunology, whose support and generosity has facilitated the career development of many investigators in this interdisciplinary field of endeavor. To contribute to the advancement of knowledge in psychoneuroimmunology, Ellen Cousins, Norman's wife, created the Norman Cousins Memorial Fund, and the California Wellness Foundation provided the endowment for the Norman Cousins Memorial Award and Lecture to be delivered as a highlight of the annual meeting of the PsychoNeuroImmunology Research Society.

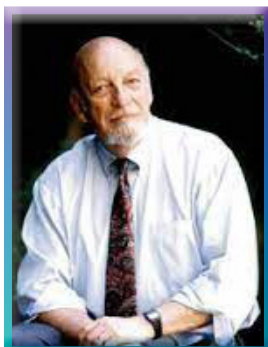
#### **2022 Norman Cousins Award Lecture**

*Microglia, microbes, and the developing brain*

**Staci Bilbo, PhD**

Duke University  
Durham, NC USA

### The Robert Ader New Investigator Award



In honor of Dr. Robert Ader, a pioneer in the field of psychoneuroimmunology, the PsychoNeuroImmunology Research Society presents the **Robert Ader New Investigator Award**. This prestigious award is presented to an outstanding new research scientist who has made exciting basic science or clinical contributions to the field of PNI. The award honors Dr. Ader's innovation and creativity as a scientist and recognizes his contributions to the instantiation of PNI as a meaningful endeavor dedicated to the betterment of health and the prevention of disease.

#### **2022 Robert Ader New Investigator Award Lecture**

*Back to the future of PNI: what do we know, and need to learn, about inflammation-induced sickness behavior in humans?*

**Julie Lasselin, PhD**

Karolinska Institutet  
Stockholm, Sweden

## Award Lectures

### The Ronald Glaser Frontiers in PNI Lecture



The **Ronald Glaser Frontiers in Psychoneuroimmunology Lecture**, formerly the **Frontiers in Psychoneuroimmunology Lecture**, is supported in part by generous donations to the Ronald Glaser Fund. The Ronald Glaser Fund was established in 2017 to honor Ron for all his contributions to the field of psychoneuroimmunology. As a pioneer in our field, Ron made contributions that have advanced

psychoneuroimmunology in many ways. His efforts provided exemplary support for colleagues, trainees and patients around the world with stress-associated illnesses. The "Frontiers" lecture will serve as recognition of Ron's influence across a broad spectrum of biology and medicine and honor those contributions. To make a donation, please [click here](#).

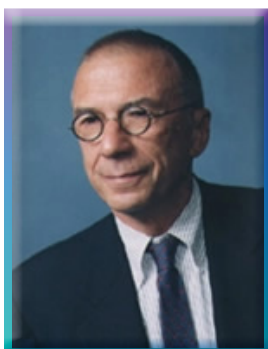
#### **2022 Ronald Glaser Frontiers in Psychoneuroimmunology Lecture**

*Brain borders as psychoneuroimmune interface*

**Jonathan (Jony) Kipnis, PhD**

Washington University  
St. Louis, MO USA

### The George Solomon Memorial Lecture



The **George Solomon Memorial Lecture** was newly established in 2014 and is named for a most prominent figure in the history of PNI. George Solomon was truly a visionary; very early in his career, he came to believe that certain diseases, such as autoimmune diseases, were modified by psychological factors. His formal investigations into the connections between the mind and body, as well as their implications for health and disease date back to his first published reports in the early 1960's. Throughout his illustrious career, Dr. Solomon was a strong leader of our field, an outspoken advocate for our science, and a warm and generous collaborator, mentor and friend. This lecture has been endowed by his wife, Susan Keran Solomon, to honor the history of PNI and the Society, and to provide an annual forum for discussion of the important interconnections between psychological and physical processes for health and illness.

#### **2022 George Solomon Memorial Lecture**

*Inflammation, depression and the human brain*

**Neil Harrison, MD, PhD**

Cardiff University  
Cardiff, Wales, United Kingdom

## Awards

### The BBI Impact Award



Professor Keith W. Kelley, spouse Sara and daughter Megan established the **Brain, Behavior, and Immunity Impact Award**. The goal is to promote submission and publication of high-quality, cutting-edge research in *Brain, Behavior, and Immunity* and to increase visibility and participation in the Psychoneuroimmunology Research Society. The winner is the corresponding author of the paper with the most citations from those articles published three and four years prior to the award. For example, the 2019 award winner, announced in 2018, is the corresponding author of the paper that achieved the highest level of citations in 2017 to papers published in 2016 and 2015. The Kelley Family provides an annual gift of \$5,000 per year and a commemorative plaque for the PNIRS to present to the winner of the Brain, Behavior, and Immunity Impact Award at the annual PNIRS meeting.

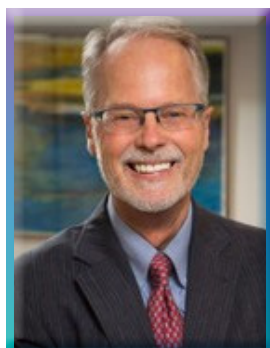
#### 2022 BBI Impact Award

*Neuroprotective effects of fecal microbiota transplantation on MPTP-induced Parkinson's disease mice: Gut microbiota, glial reaction and TLR4/TNF- signaling pathway*

**Yan-Qin Shen , PhD**

Wuxi Medical School, Jiangnan University, Wuxi China

### Michael Irwin Equity and Diversity Travel Awards



PNIRS is committed to increasing the number of academics/researchers from underrepresented groups and supporting research excellence dedicated to issues of equity, diversity, and inclusion. In support of this commitment, PNIRS has established the Michael Irwin Equity and Diversity Travel Awards that are made possible by a generous donation from Professor Michael Irwin, Cousins Distinguished Professor of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA and the Cousins Center for Psychoneuroimmunology at the UCLA Semel Institute for Neuroscience.

The intent of these travel awards is to facilitate attendance by academics/researchers at the annual PNIRS conference who are a) from underrepresented groups and/or b) conduct research dedicated to issues related to equity and diversity. The goal of these awards is to facilitate greater awareness about the public health issues related to diverse communities, and to support and encourage psychoneuroimmunology research that is dedicated to having a significant impact on diverse and underrepresented communities.

**Robert Jan Pawlik**

*Ruhr-University Bochum, Germany*

**Bart Ford**

*OSU Center for Health Sciences, USA*

**Lydia Chung**

*Rice University, USA*

**Jennifer Liu**

*West Virginia University, USA*

**Naghmeh Nikkheslat**

*King's College London, UK*

**Ismary Blanco**

*Georgetown University, USA*

## Awards

### PNIRS Trainee Scholar Travel Awards



The intent of the **PNIRS Trainee Scholar Travel Awards** is to facilitate attendance by trainee members at the PNIRS annual meeting. To be eligible for an award, awardees must be a PNIRS trainee member, register for the annual meeting, submit an abstract and attend the PNIRS annual meeting for the current year. Awardees will be selected by the scientific affairs committee using the

abstract scoring process as a guide. Awards will vary annually and are to be used to contribute to the trainees' cost of attendance at the PNIRS annual meeting.

**Leonie JT Balter**

*Karolinska Institutet/Stockholm University*

**Alexa Blanchard**

*University of Maryland School of Medicine*

**Juliette Giacobbe**

*King's College London*

**Neeti Mehta**

*Emory University*

**Stephanie Muscat**

*The Ohio State University*

**Lior Naggan**

*The Hebrew University of Jerusalem*

**Eva Periche Tomas**

*CUBRIC-Cardiff University*

**Itay Ricon-Becker**

*Tel-Aviv University*

**Elad Robinson**

*The Hebrew University of Jerusalem*

**Eva Schramm**

*University Medical Center Mainz*

# Schedule at a Glance

## From Psychoneuroimmunology to Immunopsychiatry

Sessions will be held in **Lecture Hall HG F 7** unless otherwise indicated.

	Wednesday June 15th	Thursday June 16th	Friday June 17th	Saturday June 18th
8:00		Registration Opens	Registration Opens	Registration Opens
8.30-9.00	Financial Committee Meeting*	Welcome	Presidential Symposium PNI in Translation	Symposium 3 <i>The rise of immunometabolic depression</i>
9.00-9.30		Symposium 1 <i>Neuroimmune mechanisms linking early life stress &amp; adolescent mental health</i>		
9.30-10.00	Scientific Affairs Comm. Meeting*			Break
10.00-10.30			Break	
10.30-11.00	Membership Committee Meeting*	Break	Break	Symposium 4 <i>The cumulative cost of discrimination and marginalization on PNI-related health</i>
11.00-11.30	Nominating Committee Meeting*	Norman Cousins Award Lecture <b>Staci Bilbo</b>	Oral Session 2 - From Psychoneuroimmunology to Immunopsychiatry	
11.30-12.00	Communication Committee Meeting*			Lunch Provided (ETH Lobby)
12.00-12.30				
12.30-13.00	Board of Directors Meeting (with lunch)*	PNIRS <sup>Asia-Pacific</sup> Meeting (HG F 33.5)	Lunch on your own	Award Ceremony & Business Meeting
13.00-13.30		BBI Editorial Lunch (HG F 33.1)		
13.30-14.00				
14.00-14.30	<i>*all committee meetings will be held in HG F 33.5</i>	Oral Session 1 - Psychoneuroimmunology in Translation		Poster Session 2 (Foyer EO Süd & ETH Lobby)
14.30-15.00			Symposium 2 <i>Cancer &amp; cancer-treatment associated behavioural co-morbidities: Emerging targets</i>	BREAK (15 minutes)
15.00-15.30	Educational Short Course <i>Preclinical PNI models for human neuropsychiatric disorders</i> <b>Urs Meyer, Marie Labouesse, Sina-Maria Schalbetter, Christopher Pryce, Bruno Weber</b>	Poster Session 1 (Foyer EO Süd & ETH Lobby)		
15.30-16.00				
16.00-16.30			BREAK	George Solomon Lecture <b>Neil Harrison</b>
16.30-17.00		BREAK	Frontiers in PNI <b>Jonathan Kipnis</b>	
17.00-17.30		Robert Ader Award Lecture <b>Julie Lasselín</b>		
17.30-18.00				
18.00-18.30	Trainee-Mentor Speed-mentoring (ETH Lobby)	Welcome Reception (ETH Polyterrasse)	Trainee Mixer Social (bQm-Bar on the campus of ETH)	Closing Banquet (Bauschänzli)
18.30-19.00				
19.00-19.30				
19.30-20.00				
20.00-20.30				
21.00-				

**8:30 - 14:30**

## **PNIRS Committee Meetings**

*Room HG F 33.5*

- 8:30 Financial Committee
- 9:30 Scientific Affairs Committee
- 10:30 Membership Committee
- 10:30 Membership Committee
- 11:00 Nominating Committee
- 11:30 Communications Committee
- 12:30 Board of Directors Lunch Meeting

**12:00 - 18:00**

## **Registration**

*HG E-Vestibule*

**15:00 - 17:30**

## **Educational Short Course**

### ***Preclinical PNI models for human neuropsychiatric disorders***

Chair: Urs Meyer, PhD, Professor of Pharmacology, University of Zurich

*Lecture Hall HG F 7*

*Modeling brain region-specific and transient microglia depletion in mice*

Dr. Sina-Maria Schalbetter, Institute of Pharmacology and Toxicology, Vetsuisse Faculty, University of Zurich

Dr. Schalbetter will present a novel mouse model that allows for a brain region-specific and transient depletion of microglia at specific stages of postnatal development. This model is based on stereotaxic injections of clodronate disodium salt (CDS) into brain regions of interest, leading to a cell-specific and transient depletion of microglia in the target area. Using this model, Dr. Schalbetter will show that prefrontal microglia deficiency during adolescence is sufficient to induce an adult emergence of cognitive impairments and alterations in synaptic remodeling relevant to psychiatric disorders.

*In vivo two-photon imaging: Towards quantitation*

Prof. Bruno Weber, Institute of Pharmacology and Toxicology, Faculty of Medicine, University of Zurich

Two-photon fluorescence microscopy has become one of the most important research tools in modern neuroscience. A lot of efforts have gone into the development of (1) longitudinal and (2) deep tissue imaging as well as into (3) engineering a wide array of genetically encoded sensors. Another equally important branch of research has focused on (4) bringing two-photon derived imaging data to a quantitative level.

*Mouse models of stress-related neurobehavioural pathologies*

Prof. Christopher Pryce, Department of Psychiatry, Psychotherapy and Psychosomatics, University of Zurich

Activation of immune systems is a component of the stress response, and it is important to understand to what extent it might contribute to major symptoms of the stress-related psychiatric disorders of anxiety and major depression. To this end, mouse studies have been conducted to investigate and compare the effects of (1) chronic stress and (2) specific immune-inflammation challenges on neuro-behavioural processing of aversion and reward. The overall evidence is that: with respect to aversion learning and memory, whereas chronic stress leads to increases, immune-system challenges lead to decreases; with respect to reward learning and motivation, chronic stress leads to decreases and this is also the case to some extent for immune-system challenges.

*Emerging technologies: in vivo imaging of dopamine release and their applications for neuropsychiatric research*

Dr. Marie Labouesse, Department of Health Sciences and Technology, ETH Zurich

Measuring the real-time dynamics of neuromodulator release in the brain with subcellular resolution is a long-sought goal in neuroscience, due to immense implications for basic science and medicine. The past few years have brought this goal within reach, with the appearance of a new class of genetically-encoded fluorescent sensors for neuromodulators constructed using native neuromodulator receptors (GPCRs) as their backbone. For example, the dopamine sensor dLight1 has proven the ability to track



dopamine release dynamics at a subsecond resolution in freely moving animals performing complex behavioral tasks. Although dopamine sensors are already very efficient, the ability to track dopamine release in regions with sparse dopamine innervation, like the prefrontal cortex, remains a challenge due to low dopamine levels. In this talk we will present our newly developed strategy to allow high-definition dopamine imaging with enhanced sensitivity. We will also discuss other existing GPCR sensors available and how their usage can illuminate neuropsychiatric and psychoneuroimmunological applications in the years to come.

**18:00 - 20:00**

### **Trainee-Mentor Speed-mentoring**

*ETH Lobby*

Beginning with a short talk on how to maximize your mentoring relationships, Trainees will then have the opportunity to chat informally with more senior PNIRS members for 10 minutes at a time, meeting with up to 5 different scientists. Drinks and light dinner will be provided throughout the event which will begin immediately after the Educational Short course.

## **Schedule Day 2**

Thursday, June 16

8:30 - 20:00

**8:00 - 17:00**

### **Registration**

*HG E-Vestibule*

**8:30 - 9:00**

### **PNIRS 2022 Annual Meeting Welcome**

*Lecture Hall HG F 7*

Neil Harrison, MD, PhD, University of Cardiff, PNIRS President

**9:00 - 10:30**

### **Member Sponsored Symposium 1: Neuroimmune mechanisms linking early life stress & adolescent mental health**

*Lecture Hall HG F 7*

Chair: Kate Ryan Kuhlman

Early life experiences, such as neglect, maltreatment, and unpredictability, have long been associated with the development of affective dysregulation and disorders. Yet, this at-risk population continues to show less benefit from existing interventions, suggesting that the underlying mechanisms perpetuating their symptoms may differ. Both preclinical and clinical studies have implicated dysregulated neuroimmune processes in the perpetuation of risk in this population. This symposium will highlight recent advances in understanding the causal role of different types of early experience in the development of neuroimmune communication, as well as the potential neurodevelopmental and clinical implications of these processes during adolescence, a developmental phase characterized by increasing risk for affective disorder onset. Five investigators from multiple regions will present their work across the preclinical to clinical translational spectrum, 4 of whom are junior, and 3 of whom are female investigators (including the two co-chairs). Drs. Bolton and Kaffman will present data from preclinical investigations in rodents, followed by translational and intervention studies in humans presented by Drs. Kuhlman, Ho, and Kirlic. First, Dr. Jessica Bolton (Georgia State University) will speak to the role of an unpredictable caregiving environment in microglial function and their role in shaping stress-related neurocircuitry throughout development. Dr. Arie Kaffman (Yale University) will then compare the effects of simple and complex adversity exposures on microglia-mediated pruning in the developing hippocampus. Dr. Kuhlman (UC Irvine, UCLA) will present on the role of stress-induced inflammatory reactivity and reward sensitivity among adversity-exposed adolescents. Dr. Tiffany Ho (UCSF) will then present the results of a structural imaging study exploring the role of circulating inflammation in fronto-cingulate-limbic tracts among depressed and non-depressed adolescents. Finally, Dr. Kirlic (Laureate Institute for Brain Research) will report the results of a clinical trial testing the effect of mindfulness-based stress reduction on depressive symptoms and inflammatory markers in a sample of adolescents, as well as the relationship between inflammatory markers in functioning within the default mode network. Together, these talks highlight the specific and pleiotropic sequelae of early life experience and their clinical implications during adolescence. This series of studies may inspire active discussion around the methodological challenges faced across the translational spectrum in this field and ways in which the advances in knowledge gained through these projects can be leveraged into interventions for this at-risk population. The results of this work has the potential to mitigate the well-established mental health disparities that occur within marginalized populations who are disproportionately exposed to multiple forms of early life adversity.



*Early-stress induced impairment of microglial pruning of excitatory synapses on developing CRH-expressing neurons exacerbates adult stress reactivity*  
 Jessica Bolton, PhD, Georgia State University



*Effects of simple and complex adversities on microglial-mediated synaptic pruning in the developing hippocampus*  
 Arie Kaffman, MD, PhD, Assistant Clinical Professor, Yale University



*Early life adversity and psychological responses to acute social stress among adolescents: The role of inflammatory reactivity in reward motivation and sensitivity*  
 Kate Ryan Kuhlman, PhD, Assistant Professor, University of California Irvine



*Immune and neural function in adolescents with early life stress undergoing mindfulness training*  
 Namik Kirlic, PhD, Associate Investigator, Laureate Institute for Brain Research

**10:30 - 11:00**

**Break**  
*ETH Lobby*

**11:00 - 12:00**

**Norman Cousins Memorial Lecture: *Microglia, microbes, and the developing brain***

*Lecture Hall HG F 7*

**Staci Bilbo, PhD**

Professor of Psychology and Neuroscience, Neurobiology, and Cell Biology, Duke University, Durham, NC USA

Chair: Julienne E. Bower, PhD

Nominators: Julienne E. Bower, PhD, Deborah M. Hodgson, PhD, Steven F. Maier, PhD, Linda R. Watkins, PhD

The immune system is our interface with the environment, and immune molecules such as cytokines and chemokines and the cells that produce them within the brain, notably microglia, are critical for normal brain development. This recognition has in recent years led to the working hypothesis that inflammatory events during pregnancy or the early postnatal period, e.g. in response to infection, may disrupt the normal developmental trajectory of microglia and consequently their interactions with neurons, thereby contributing to the risk for neurological disorders. This talk will outline recent findings on the impact of diverse, pervasive environmental challenges, beyond infection, maternal stress, and changes in diet, and their impact on microglial development and its broad implications for neural pathologies.

**12:00 - 13:30**

**Lunch**  
*ETH Lobby*

**PNIRS <sup>Asia-Pacific</sup> Lunch**  
*HG F 33.5*

Chair: Keith W. Kelley, PhD, Professor Emeritus of Immunophysiology, University of Illinois  
 Speaker: Ebrahim Haroon, MD, Associate Professor of Psychiatry and Behavioral Sciences, Emory University; Attending Psychiatrist, Emory Healthcare.

Dr. Haroon, at Emory University, completed his medical residency at Madurai University Medical College in India. He will highlight his experiences growing up in India, the approaches he used to develop a very successful career in the USA and his continuing commitment to maintaining and growing collaboration with biomedical scientists in the entire Asia-Pacific region.



**12:00 - 13:30**

**BBI Editorial Board Lunch** (*invitation only*)

*HG F 33.1*

**13:30 - 15:00**

**Oral Session 1 - Psychoneuroimmunology in Translation**

*Lecture Hall HG F 7*

Chairs: Mats Lekander and William Walker

*Interleukin-6 decreases dopamine availability and gene pathways related to vesicular transport and release in human induced pluripotent stem cell-derived dopaminergic neurons.*  
Andrew Miller, MD; Michael Lucido, MD; Chongchong Xu, PhD; Weibo Niu, PhD; Zhexing Wen, PhD, Emory University School of Medicine

*The effects of low-grade inflammation and sleep loss on model-based and model-free control: results of an experimental double hit model*

Leonie JT Balter, PhD, Karolinska Institutet / Stockholm University; John Axelsson, Professor, Stockholm University / Karolinska Institutet

*The role of mast cells in shaping neonatal hippocampal development*

Alexa Blanchard, BS; Erin Reinl, PhD; Margaret McCarthy, PhD, University of Maryland School of Medicine

*Cortisol decreases production of depression-associated cytokines in human microglia*

Juliette Giacobbe, MSc; Alessandra Borsini, PhD; Nicole Mariani, MSc; Deepak Srivastava, PhD; Carmine Pariante, MD PhD, King's College London

*Perioperative psychological intervention in breast cancer patients aiming to reduce stress responses and improve cancer outcomes: A pilot clinical trial*

Tsipi Hanalis-Miller, M.A.\* (equal contribution); Itay Ricon-Becker, M.A.\* (equal contribution); Estherina Trachtenberg, M.A.; Nahida Sakis, B.A., Tel-Aviv University; Ada Magen, M.D., Sourasky Medical Center; Gil Goldzweig, Ph.D., Academic College of Tel Aviv-Yafo; Yehudit Birnboim-Hazan, M.D.; Frida Ohayon, R.N. M.A.; Sonya Wadhawker, M.D.; Eran Sharon, M.D., Rabin Medical Center; Rebecca Jacoby, Ph.D., Academic College of Tel Aviv-Yafo; Shamgar Ben-Eliyahu, Ph.D., Tel-Aviv University

*Preliminary evidence of an interaction between sleep quality and inflammatory response on COVID19 vaccine immunogenicity in adults with a history of mood disorder*

Bart Ford, Ph.D., Oklahoma State University Center for Health Science; T. Kent Teague, Ph.D., University of Oklahoma School of Community Medicine; Kyle Simmons, Ph.D., Oklahoma State University Center for Health Science; Martin Paulus, M.D.; Jonathan Savitz, Ph.D., Laureate Institute for Brain Research

**15:00 - 16:30**

**Poster Session 1 – please see page 25 for a listing of posters**

*Foyer EO Süd & ETH Lobby*

**16:30 - 17:00**

**Break**

*ETH Lobby*



17:00 - 17:30

**Robert Ader Lecture: *Back to the future of PNI: what do we know, and need to learn, about inflammation-induced sickness behavior in humans?***

*Lecture Hall HG F 7*

**Julie Lasselin, PhD**

Researcher, Department of Clinical Neuroscience, Karolinska Institutet and Department of Psychology, Stockholm University, Sweden

Chair: Mats Lekander, PhD

Nominators: Mats Lekander, PhD, Manfred Schedlowski, PhD, Neil Harrison, MD, PhD



Researchers in PNI have studied inflammation-induced sickness behavior in humans for 30 years, notably using the model of experimental endotoxemia. In this model, the bacterial endotoxin lipopolysaccharide is injected intravenously to healthy volunteers, to transiently and safely activate the immune system and induce a state of sickness. I have myself used this model to investigate sickness behavior in more detail. Based on my work, I will argue in this lecture that features of inflammation-induced sickness behavior in humans include: 1) subjective changes, such as fatigue, negative mood, and anxiety; 2) objective behavioral changes, such as changes in motivated behaviors and in cognitive functions; and 3) overt manifestations of sickness, such as gait changes, sighs/moans and yawns, and changes in facial cues and body odors. Importantly, overt manifestations of sickness can be recognized by peers, and may thus affect social interactions including avoidance and caring of the sick individual. However, the different aspects of sickness behavior are complex, do not necessarily correlate, and are not observed in all sick individuals. There is also a high variability between individuals, and many variables, such as psychosocial variables and context, can interact with cytokines to affect sickness behavior. The number of questions that remain regarding inflammation-induced sickness behavior may come as a surprise, but highlights the need to return towards basic science of sickness behavior.

18:00 - 20:00

**Welcome Reception**

*ETH Polyterrasse*

Enjoy time with friends and colleagues in a casual setting.



8:00 - 17:00

**Registration**  
*HG E-Vestibule*

8:30 - 10:30

**Presidential Symposium: PNI in Translation**  
*Lecture Hall HG F 7*

Chair: Neil Harrison, MD, PhD, PNIRS President

Since the Society's inception in 1993 there has been dramatic progress in our understanding of the diverse mechanisms through which the immune and central nervous systems interact and the functional consequences of these relationships in both health and disease. In this symposium our three speakers who come from diverse Industry and Academic backgrounds will discuss how these advances in psychoneuroimmunology may be translated for real-world patient benefit. The symposium will be structured as three 30-minute talks followed by an interactive 30-minute round table discussion.



*Role of the P2X7-NLRP3 inflammasome pathway in CNS disorders*

Anindya Bhattacharya, PhD, Senior Director & Global Head, Janssen Neuroimmunology, San Diego, CA USA



*Understanding and targeting neuroinflammation in Alzheimer's disease*

Diego Gomez-Nicola, PhD, Associate Professor, University of Southampton



*Human Endogenous retrovirus in mental disorders: from diagnosis to treatment?*

Marion Leboyer, MD, PhD, Professor of Psychiatry, University of Paris Est Créteil (UPEC), France

10:30 - 11:00

**Break**  
*ETH Lobby*

11:00 - 12:30

**Oral Session 2 - From Psychoneuroimmunology to Immunopsychiatry**  
*Lecture Hall HG F 7*

Chairs: Ruth Barrientos and Zoe Tapp

*Amplification of neuropathology and acceleration of cognitive decline in asthma*

Melissa Rosenkranz, PhD; Ajay Kumar Nair, PhD; Doug Dean, PhD; Carol Van Hulle, PhD; Barbara Bendlin, PhD, University of Wisconsin-Madison; Ivonne Suridjan, Ph.D., Roche Diagnostics International Ltd; Gwendlyn Kollmorgen, PhD; Norbert Wild, PhD, Roche Diagnostics GmbH; Henrik Zetterberg, MD, PhD, University of Gothenburg; William Busse, MD, University of Wisconsin-Madison

*Impact of acute inflammation on the extinction of conditioned visceral pain-related fear in healthy humans*

Robert Jan Pawlik, M.Sc.; Liubov Petrakova, Dr., Department of Medical Psychology and Medical Sociology, Ruhr University Bochum, Germany; Alexandra Cueillette, Dr.; Katharina Krawczyk, M.Sc., Institute of Medical Psychology and Behavioral Immunobiology, University Hospital Essen, Germany; Nina Theysohn, Dr., Institute of Diagnostic and Interventional Radiology and Neuroradiology, University Hospital Essen; Sigrid Elsenbruch, Prof. Dr., Department of Medical Psychology and Medical Sociology, Ruhr University Bochum, Germany; Harald Engler, Prof. Dr., Institute of Medical Psychology and Behavioral Immunobiology, University Hospital Essen, Germany

*Microglial LAG3 checkpoint as a target for antidepressant therapeutics*

Elad Robinson, M.A.; Neta Rimmerman, Ph.D; Hodaya Verdiger, M.A.; Hagar Goldenberg, M.A.; Lior Naggan, M.Sc.; Ewa Kozela, Ph.D; Sivan Gelb, M.Sc.; Ron Refaeli, M.Sc.; Eyal Dinur, M.A.; Ayal Ben Zvi, Ph.D; Raz Yirmiya, Ph.D, The Hebrew University of Jerusalem

*Indoleamine-2,3-dioxygenase 1 (Ido1) deficiency in myeloid-derived cells, not microglia, attenuates LPS-induced depression-like behaviors*

Robert H McCusker, PhD; Zoe A MacDowell Kaswan, B.S.; Emily Y Chen, N.A., The University of Illinois at Urbana-Champaign

*Inflammation is associated with lower right amygdala to ventromedial prefrontal functional connectivity and higher right amygdala reactivity in patients with depression*

Neeti Mehta, BA, Emory University Neuroscience Graduate Program; Mandakh Bekhbat, PhD; Ebrahim Haroon, MD; Zhihao Li, PhD; Andrew Miller, MD; Jennifer Felger, PhD, MS, Emory University School of Medicine, Department of Psychiatry and Behavioral Sciences

*Diffusion-weighted MR spectroscopy (DW-MRS): A novel in-vivo method for imaging inflammation and age-associated changes in glial morphology*

Eva Periche Tomas, PhD candidate, CUBRIC-Cardiff University; Itamar Ronen, PhD, Birghton and Sussex medical school; Claire MacIver, MD, CUBRIC-Cardiff Univeristy; Dmitri Sastin, MD; Jon Underwood, PhD, CUBRIC-Cardiff University; James Coulson, MD, School of Medicine-Cardiff University; Helena Leach, BSc; Claudia Bone, MSc; Mara Cercignani, PhD; Neil Harrison, MD, PhD, CUBRIC-Cardiff University

**12:30 - 14:30**

**Lunch on Your Own**

**14:30 - 16:00**

**Member Sponsored Symposium 2: Cancer- and Cancer Treatment-Associated Behavioral Co-Morbidities – Emerging Targets**

*Lecture Hall HG F 7*

Chair: Jeremy C. Borniger

Patients with cancer and cancer survivors frequently experience behavioral co-morbidities that can have debilitating effects on their lives. These include, but are not limited to, chronic fatigue/sleep disruption, cognitive impairment, depression, anxiety, and alterations in energy balance and food intake. Emerging evidence suggests that these are not simply unpleasant side-effects of having cancer or its treatment, but can have large influences on overall prognosis and subsequent survival. Given the heterogeneity of cancer, patient populations, social factors, and treatment regimens, defining the mechanisms underlying these behavioral co-morbidities has remained challenging. This symposium aims to bring together new and exciting research aimed at delineating causal mechanisms and conceptual advances in this domain. To present these findings, we have brought together young independent scientists that are nearly all at the early career stage. Dr. Leah Pyter will speak on the role the gut microbiota plays in paclitaxel-induced cognitive impairment. Dr. Aaron Grossberg will follow by highlighting a new (non-immune) mechanism for cancer-induced fatigue, and what this means for systemic energy balance. Dr. Elisabeth Vichaya will speak on cisplatin-induced fatigue and how we can disentangle the physical vs. motivational aspects of fatigue using an operant conditioning task. Finally, Dr. Jeremy Borniger will discuss the predictive power of sleep disruption in a mouse model of colon adenocarcinoma with anorexia/cachexia. [Statement on Diversity]: We are committed to fostering an inclusive, equitable, and diverse community at PNIRS. To accomplish this, we have brought together a group of emerging leaders in the field of psychoneuroimmunology to discuss cancer and cancer-associated behavioral comorbidities, which disproportionately affect people of color and women. Therefore, it is critical to provide a forum to discuss the basic biology driving these phenomena in order to identify potential research avenues that could benefit all communities impacted by cancer and its treatment.

*The role of gut microbiota in cancer and cancer treatment-induced behavioral comorbidities*

Leah Pyter, PhD, Associate Professor The Ohio State University

*The role of peripheral metabolic reprogramming in cancer associated fatigue*

Aaron Grossberg, MD, PhD, Assistant Professor, Oregon Health & Science University





*Exploring the effect of cisplatin-induced fatigue on habit behavior*  
Elisabeth G. Vichaya, PhD, Assistant Professor, Baylor University



*Ontogeny of sleep disruption and cachexia in a mouse model of colon adenocarcinoma*  
Jeremy C. Borniger, PhD, Assistant Professor, Cold Spring Harbor Laboratory

**16:00 - 16:30**

**Break**  
*ETH Lobby*

**16:30 - 17:30**

**Ronald Glaser Frontiers in Psychoneuroimmunology Lecture: *Brain borders as psychoneuroimmune interface***

*Lecture Hall HG F 7*

**Jonathan (Jony) Kipnis, PhD**

BJC Investigator, Alan A. and Edith L. Wolff Distinguished Professor of Pathology and Immunology and Professor of Neurology, Neuroscience, and Neurosurgery, Washington University School of Medicine in St. Louis, MO USA

Chair: Neil Harrison, MD, PhD



**18:00 - 20:00**

**Trainee Mixer**

*bQm-Bar, ETH Campus, Leonhardstrasse 34, 8092 Zürich, Switzerland*

An opportunity for trainees to meet one another in a casual setting, join us for drinks and light snacks while enjoying a lovely view of Lake of Zurich.



8:00 - 17:00

**Registration**  
HG E-Vestibule

8:30 - 10:00

**Member Sponsored Symposium 3: The rise of Immunometabolic Depression**

Lecture Hall HG F 7

Chairs: Valeria Mondelli and Jennifer Felger

The immune system has been largely recognised to be involved in development of depression, but more recently researchers have started considering a potential role for immune-metabolic mechanisms, rather than exclusively immune ones, in the pathogenesis and treatment of depression. The immune and metabolic systems are highly integrated and metabolic abnormalities have often been reported in patients with depression. In the last few years, the definition of an immunometabolic dimension of depression has emerged that could help dissect the challenging heterogeneity of this disorder and open an avenue to novel treatments.

In this symposium, we will present important recent and novel preclinical and clinical findings contributing to shaping the concept of immunometabolic depression and discuss ways forward for potential clinical identification and treatment. Dr Milaneschi will then present evidence from metabolomics and genomics analyses in epidemiological studies suggesting the presence of an immunometabolic dimension of depression. Dr Mondelli will show novel evidence on immune abnormalities in the link between overweight/obesity and depression. Dr. Mandakh (Mandy) Bekhbat will provide whole-blood gene expression data reflecting immunometabolic shifts toward glycolysis in association with symptoms of anhedonia in depressed patients with high inflammation, which will be complemented by new results from single-cell RNA sequencing and bioenergetic profiling of monocytes. Dr. Susannah Tye will next present results from both animal models of treatment-resistant depression (TRD) and peripheral blood immune cells from TRD patients, both illustrating evidence of immunometabolic dysfunction and its role in response versus resistance to different classes of antidepressant therapies. Prof Capuron will present data on influence of pro-obesogenic diet and metabolic abnormalities on cognitive function and depressive symptoms. The symposium is highly innovative as the concept of immunometabolic depression is still relatively new although having already attracted important attention at both clinical and research level. Drs. Mondelli and Felger will moderate a brief discussion with the panel of presenters and the audience at the end of each talk.

The symposium is also strongly supporting diversity both in terms of origin country (Netherlands, UK, USA, Australia and France), sex, and career level of the speakers, including two early career scientist (Dr Milaneschi and Dr Bekhbat). The symposium would be also enriched by the diverse methodological approaches and data presented (e.g., pre-clinical, clinical, epidemiology, experimental medicine, biomarkers, neuroimaging, genomics).

*Immunometabolic depression: a unique biological and genetic profile*

Dr. Yuri Milaneschi, Assistant Professor (Early Career Scientist), Department of Psychiatry, Amsterdam Public Health and Amsterdam Neuroscience, Amsterdam UMC/Vrije Universiteit, Amsterdam, The Netherlands

*The role of inflammation in the bidirectional relationship between depression and obesity*

Valeria Mondelli, Clinical Reader in Psychoneuroimmunology, Institute of Psychiatry, Psychology and Neuroscience, King's College London, United Kingdom

*Immunometabolic signatures associated with anhedonia in monocytes from depressed patients with high inflammation*

Mandakh Bekhbat, PhD, Postdoctoral Fellow, Emory University, USA







*Immunometabolic regulation of antidepressant response in depression*  
 Susannah Tye, PhD, Senior Research Fellow, Queensland Brain Institute, Australia



*Influence of dietary habits on neuropsychiatric symptoms and their response to treatment: role of inflammatory processes*

Lucile Capuron, Research Director, INRAE - University of Bordeaux, France

**10:00 - 10:30**

**Break**

*ETH Lobby*

**10:30 - 12:00**

**Member Sponsored Symposium 4: *The Cumulative Cost of Discrimination and Marginalization on PNI-Related Health***

*Lecture Hall HG F 7*

Chairs: Melissa Rosenkranz and Dominique Piber

In keeping with PNIRS' commitment to promote an equitable and welcoming environment for all individuals, a better understanding of the impact of environmental pressures on vulnerable groups worldwide is essential. The PNIRS Equity, Diversity, and Inclusion working group therefore proposes a Member-Sponsored Symposium to discuss research on the cumulative cost of discrimination and marginalization on PNI-related health. Our symposium, which supports diversity within the field of PNI, will feature five speakers from multiple geographic locations (the US, Australia, the Netherlands), experience levels (from Assistant Professor to full Professor) and research foci. Our symposium will be chaired by Melissa Rosenkranz, an Assistant Professor from the U.S., and Dominique Piber, an early career researcher from Germany. Together, this group and their work embrace and reflect the range of race, ethnicity, national origin, value systems, sex, gender identity and expression, sexual orientation, and age that are crucial for diversity in science. Our symposium also supports diversity in the focus of research and promotes diversity in the scientific literature. We will address key issues of how adversity, including discrimination and marginalization, can lead to ongoing PNI-related health costs. Annesa Flentje (University of California San Francisco) will speak about psychoneuroimmunological and health challenges in the context of gender and sexual minority status, and the complexities associated with research focused on these groups. John Ruiz (University of Arizona) will discuss the Hispanic health paradox and the mitigating influence of resilience factors. Sarah Spencer (RMIT University) will address sex differences in the interplay among chronic stress, inflammation, and emotion in preclinical models, and Aniko Korosi (University of Amsterdam) will highlight the importance of the early life environment in programming psychoneuroimmunological processes. Together, our speakers will highlight the important research that is currently being undertaken to understand the health issues facing diverse populations worldwide. We will stimulate discussion and provide directions for future PNI-related research in these areas and build awareness of the potential cumulative cost of marginalization on health.



*Early-life stress induced cognitive decline: a role for fatty acids and neuroinflammation*

Aniko Korosi, PhD, Associate Professor, University of Amsterdam



*Challenges ahead in research understanding the biological impacts of minority stress among sexual and gender minority populations*

Annesa Flentje, PhD, Associate Professor, University of California San Francisco



*Child neurodevelopmental outcomes of survivors of invasive Group B Streptococcal disease: findings from high and low income settings*

Jaya Chandna, PhD, Researcher, London School of Hygiene and Tropical Medicine



*Paradoxes, Incongruences, and Precision PNI: Embracing the noise*

John Ruiz, PhD, Associate Professor, University of Arizona

**12:00 - 13:00**

**Lunch**

*ETH Lobby*

**13:00 - 14:00**

**Award Ceremony & Business Meeting**

*Lecture Hall HG F 7*

**14:00 - 15:30**

**Poster Session 2 – please see page 32 for a listing of posters**

*Foyer EO Süd & ETH Lobby*

**15:30 - 15:45**

**Break**

*ETH Lobby*

**15:45 - 16:45**

**George Solomon Lecture: *Inflammation, Depression and the Human Brain***

*Lecture Hall HG F 7*

**Neil Harrison, MD, PhD**

Professor of Psychiatry and Neuroimaging, Cardiff University and Director for Clinical and Translational Neuroimaging, Cardiff University Brain Research Imaging Centre (CUBRIC)

Chair: Andrew Miller, MD



**19:00 - 21:00**

**Closing Banquet**

*Bauschänzli, Stadthausquai 2, 8001 Zürich, Switzerland*

*\*\*please be sure to wear your conference name badge or present your guest ticket for entrance\*\**

Announcement of the 2023 Norman Cousins and Robert Ader New Investigator Awards will be made.



## Poster 1-T

### ***The Immune Fingerprint of Peripartum Anxiety***

Morgan Sherer, PhD, Johns Hopkins; Kristin Voegtline, PhD, Johns Hopkins University School of Medicine; Gayane Yenokyan, PhD; Sabra Klein, PhD, Johns Hopkins School of Public Health; Lauren Osborne, MD, Johns Hopkins University School of Medicine

## Poster 2-T

### ***Microglial synaptic and perineuronal net remodeling in the rat medial prefrontal cortex across the peripartum period and in response to gestational stress***

Courtney Dye, MS; Dominic Franceschelli, BS, The Ohio State University; Amanda Ringland, MS, The Ohio State University; Kathryn Lenz, PhD; Benedetta Leuner, PhD, The Ohio State University

## Poster 3-T

### ***Minocycline attenuates effects of LPS on reward/punishment motivational reorientation***

Riccardo De Marco, MSc; Andrew W Barritt, PhD, Brighton and Sussex Medical School; Mara Cercignani, PhD, Cardiff University Brain Research Imaging Centre (CUBRIC), Cardiff University, Cardiff, UK; Giulia Cabbai, MSc, Sussex Neuroscience, School of Life Sciences, University of Sussex, Brighton, UK; Alessandro Colasanti, PhD, Brighton and Sussex Medical School; Neil A Harrison, MD, PhD, Cardiff University Brain Research Imaging Centre (CUBRIC), Cardiff University, Cardiff, UK

## Poster 4-T

### ***Murine influenza A virus disrupts immune profiles in the maternal gut and placenta during acute infection in a dose-dependent manner***

Ashley Otero, B.S.B.E, University of Illinois at Urbana-Champaign; Meghan Connolly, M.A., University of Illinois at Urbana-Champaign; Rafael Gonzalez-Ricon, M.S.; Selena Wang, B.S.; Adrienne Antonson, Ph.D., University of Illinois at Urbana-Champaign

## Poster 5-T

### ***Olfaction and prejudice: a disease avoidance perspective***

Marta Zakrzewska, MA, Stockholm University; Marco Tullio Liuzza, PhD, "Magna Graecia" University of Catanzaro; Jonas Olofsson, PhD, Stockholm University

## Poster 6-T

### ***Chronic social instability stress increases the arousal and alters the inflammatory response in OF1 female mice***

Alina Díez-Solinska, Psychology; Andrea Lebeña, Psychology; Olatz Goñi-Balentiaga, Psychology; Garikoitz Beitia, Psychology; Eneritz Gómez-Lázaro, Psychology; Maider Muñoz-Culla, Biochemistry; Garikoitz Azkona, Veterinary; Oscar Vegas, Psychology, Basque Country University

## Poster 7-T

### ***Chronic Social Instability Stress in female mice inoculated with melanoma tumor cells: neurochemical and behavioral effects***

Alina Díez-Solinska, Psychology; Amaia Arregi, Psychology; Garikoitz Beitia, Psychology; Ainitze Labaka, Nursing; Garikoitz Azkona, Veterinary; Maider Muñoz-Culla, Biochemistry; Eneritz Gómez-Lázaro, Psychology; Oscar Vegas, Psychology, Basque Country University

## Poster 8-T

### ***Short chain fatty acids prevent stress-induced cardiomyocytes structural, functional and metabolic dysfunction***

Nicole Mariani, MSc, Department of Psychological Medicine, IoPPN, King's College London; Silvia Alboni, PhD, Department of Life Sciences, University of Modena and Reggio Emilia; Carmine Pariante, PhD; Alessandra Borsini, PhD, Department of Psychological Medicine, IoPPN, King's College London

## Poster 9-T

### ***Tetrahydrobiopterin modulates the behavioral neuroinflammatory response to an LPS challenge in mice***

Sylvie Vancassel, Ph.D; Hortense Fanet, Ph.D; Nathalie Castanon, Ph.D; Camille Monchaux de Oliveira, Ph.D; Sofia Cussotto, Ph.D; Lucile Capuron, Pr., INRAe - NutriNeuro

#### **Poster 10-T**

##### ***Alleviating Allergic Skin Responses - Preliminary Data of a Conditioning and Open Label Placebo Paradigm***

Stefanie Hölsken, M. Sc., Institute for Medical Psychology and Behavioral Immunobiology, Essen University Hospital; Eva Holubek, Cand. Med.; Frederik Krefting, MD; Senta Mühlhaus, Cand. Med., Department of Dermatology, Venereology and Allergology, Essen University Hospital; Manfred Schedlowski, PhD, Institute for Medical Psychology and Behavioral Immunobiology, Essen University Hospital; Wiebke Sondermann, MD, Department of Dermatology, Venereology and Allergology, Essen University Hospital

#### **Poster 11-T**

##### ***Omega-3-derived endocannabinoids prevent pro-inflammatory cytokine-induced decreases in human hippocampal neurogenesis and astroglialogenesis, and increase in apoptosis***

Gargi Mandal, BSc (Hons.); Carmine Pariante, FRCPsych, PhD.; Alessandra Borsini, PhD., The Stress, Psychiatry and Immunology Lab, King's College London

#### **Poster 12-T**

##### ***Social deficits induced by pervasive environmental stressors are prevented by microbial or dopaminergic modulation***

Caroline Smith, PhD; Danielle Rendina, PhD, Duke University; Marcy Kingsbury, PhD, Massachusetts General Hospital; Karen Malacon, BS; Dang Nguyen, BS, Duke University; Jessica Tran, BS, Massachusetts General Hospital; Benjamin Devlin, BS; Madeline Clark, BS, Duke University; Ravikiran Raju, MD, PhD, Boston Children's Hospital; Lauren Burgett, BS; Jason Zhang, BS; Staci Bilbo, PhD, Duke University

#### **Poster 13-T**

##### ***The motivational drives of sickness***

Mats Lekander, PhD, Karolinska Institutet / Stockholm University; Martin Janson, MSc, Karolinska Institutet; Tina Sundelin, PhD, Stockholm University; Sofie Paues, MD PhD, Danderyd hospital; Lina S Hansson, MSc, Karolinska Institutet / Stockholm University; Mats J Olsson, PhD, Karolinska Institutet; John Axelsson, PhD, Karolinska Institutet / Stockholm University; Julie Lasselin, PhD, Karolinska Institutet / Stockholm University

#### **Poster 14-T**

##### ***Limited bedding and nesting effects on maternal and offspring behavior and on astrocyte GFAP expression***

Maitê Carolina Augusto, MSc.; Tiberiades Mendes-Lima, Dr.; Maria Martha Bernardi, Dr.; Eduardo Bondan, Dr., University Paulista (UNIP)

#### **Poster 15-T**

##### ***Short-term high-fat diet consumption impairs long-term potentiation in the aged hippocampus***

Brigitte Gonzalez Olmo, BS; Fangli Zhao, PhD; Candice Askwith, PhD; Ruth Barrientos, PhD, The Ohio State University

#### **Poster 16-T**

##### ***Effects of immunoregulatory Mycobacterium vaccae on consequences of early life adversity in combination with chronic psychosocial stress during adulthood***

Giulia Mazzari, M.Sc.; Jessica Schiele, M.Sc., Laboratory for Molecular Psychosomatics, University Clinic Ulm; Christopher A. Lowry, Prof. Dr., University of Colorado Boulder; Dominik Langgartner, PhD; Stefan O. Reber, Prof. Dr., Laboratory for Molecular Psychosomatics, University Clinic Ulm

#### **Poster 17-T**

##### ***Untargeted metabolite and lipid fingerprinting of blood serum reveals biomarker candidates of altered mitochondrial bioenergetics in peripheral blood mononuclear cells of depressed patients***

Alexander Karabatsiakos, Prof. Dr., University of Innsbruck, Institute of Psychology, Department of Clinical Psychology; Juan Salinas-Manrique, Dr., AMEOS Clinics Hildesheim; Thomas Stoll, Dr., University of Queensland, Translational Research Institute; Thomas Hennessy, Dr., Agilent Technologies Austria; Iris-Tatjana Kolassa, Prof. Dr., Ulm University, Institute of Psychology and Education, Dept. of Clinical & Biological Psychology; Michelle M. Hill, Prof. Dr., University of Queensland, Translational Research Institute; Detlef E. Dietrich, Prof. Dr., AMEOS Clinics Hildesheim

#### **Poster 18-T**

##### ***The Role of Subjective and Objective Sleep Disturbance for Transcriptional Inflammatory Signaling in Older Adults***

Dominique Piber, M.D., Charité - Universitätsmedizin Berlin; Joshua Cho, M.D., PhD; Richard Olmstead, PhD; Michael Irwin, M.D., UCLA Cousins Center for Psychoneuroimmunology

#### **Poster 19-T**

##### ***Interleukin-1 signaling in blood-brain barrier endothelial cells in chronic social stress***

Eva Schramm, M.Sc.; Ari Waisman, Ph.D., Institute for Molecular Medicine, University Medical Center Mainz

#### **Poster 20-T**

##### ***Neighborhood Racial Composition: Associations with Macrophage Migration Inhibitory Factor (MIF) and Interferon-gamma among Pregnant African American Women***

Molly A. Wright, B.S., Pennsylvania State University; Carmen Giurgescu, PhD, RN, WHNP, University of Central Florida; Dawn P. Misra, PhD, MHS, Wayne State University; Christopher G. Engeland, PhD, Pennsylvania State University

#### **Poster 21-T**

##### ***Neurovascular mitochondrial susceptibility impacts blood brain barrier function in neuropsychiatric disease***

Alexis Crockett, BS; Hania Kebir, PhD, University of Pennsylvania; Raquel Gur, MD, PhD; Stewart Anderson, MD, PhD, Children's Hospital of Philadelphia; Jorge Alvarez, PhD, University of Pennsylvania

#### **Poster 22-T**

##### ***Dysregulated inflammasome associated polar metabolites in a transdiagnostic cohort of severely ill psychiatric patients***

Ulrika Hylén, RN; Eva Särndahl, Professor; Susanne Bejerot, Professor; Mats B Humble, PhD; Tuulia Hyötyläinen, Professor; Samira Salihovic, PhD; Daniel Eklund, PhD, Örebro University

#### **Poster 23-T**

##### ***Comparative study of effects of in vitro and in vivo lipopolysaccharide-challenges on primary cell cultures of rat dorsal root ganglia***

Franz Nürnberger, Dr. med. vet.; Daniela Ott; Joachim Roth, Dr., Institute of Veterinary Physiology and Biochemistry, Justus Liebig University Giessen; Stephan Leisengang, Dr. med. vet., Institute of Medical Psychology and Behavioral Immunobiology, University Hospital Essen

#### **Poster 24-T**

##### ***Effects of lipopolysaccharide-induced systemic inflammation and fatigue on cognitive effort expenditure***

Britt Lambregts, MSc; Eliana Vassena, dr., Donders Institute for Brain, Cognition and Behaviour; Aron Janssen, MSc; Peter Pickkers, Prof. dr.; Matthijs Kox, dr., Radboud University Medical Center; Esther Aarts, Prof. dr., Donders Institute for Brain, Cognition and Behaviour; Marieke van der Schaaf, dr., Donders Institute for Brain, Cognition and Behaviour

#### **Poster 25-T**

##### ***Long-COVID fatigue is associated with altered reward sensitivity during effort-based decision making***

Judith Scholing, MSc; Britt Lambregts, MSc; Esther Aarts, PhD; Marieke van der Schaaf, PhD, Donders Centre for Cognitive Neuroimaging

#### **Poster 26-T**

##### ***Marginating pulmonary and marginating hepatic NK cells: High cytotoxic capacity that is suppressed following cell harvesting through tissue processing***

Liat Sorski, PhD; Anabel Eckerling, M.Sc.; Elad Sandbank, M.Sc.; Shamgar Ben-Eliyahu, PhD, Tel Aviv University

#### **Poster 27-T**

##### ***Acute and Chronic Biopsychosocial Predictors of Police Lethal Force Errors during Realistic Live-Action Simulations***

Jennifer F. Chan, MA; Paula M. Di Nota, PhD; Judith P. Andersen, PhD, University of Toronto

#### **Poster 28-T**

##### ***Inflammatory Reactivity to Social Stress in Bereaved and Nonbereaved Adults***

E-Lim Wu, B.S.; Michelle Chen, M.A.; Jensine Paoletti, PhD; Ryan Brown, M.A.; Angie LeRoy, PhD, Rice University; Kyle Murdock, PhD, Pennsylvania State University; Cobi Heijnen, PhD; Christopher Fagundes, PhD, Rice University

#### **Poster 29-T**

##### ***The Moderating Role of Residence in High-Crime Neighborhoods in the Association of Interleukin-6 with Social and Non-Social Reward Brain Responses***

Iris Ka-Yi Chat, MA, Temple University; Naoise Mac Giollabhui, M.A., Temple University & Massachusetts General Hospital; Andrew Gepty, MA, George Washington University; Marin Kautz, MA; Zoe Adogli, BA, Temple University; Christopher Coe, PhD; Lyn Abramson, PhD, University of Wisconsin – Madison; Thomas Olino, PhD; Lauren Alloy, PhD, Temple University

### **Poster 30-T**

#### ***Maternal BMI and inflammation during pregnancy: a bi- or unidirectional association?***

Laura Scholaske, Ph.D., German Center for Integration and Migration Research (DeZIM); Emma K. Adam, Ph.D., Northwestern University; Jacob Spallek, Ph.D., Brandenburgische Technische Universität Cottbus-Senftenberg; Sonja Entringer, Ph.D., Charité – Universitätsmedizin Berlin

### **Poster 31-T**

#### ***Defining the Neuroimmune Landscape of Respiratory Infection***

S. Monroe, Neurobiology; Staci Bilbo, PhD, Duke University

### **Poster 32-T**

#### ***Dopamine mediated changes in myeloid cells drive inflammation and HIV neuropathogenesis***

Peter Gaskill, Ph.D.; Stephanie M. Matt, Ph.D.; Breana Channer, BS, Drexel University College of Medicine; Emily A. Nickoloff-Bybel, Ph.D., University of Pennsylvania; Rachel Ann Nolan, M.D., Ph.D., University of Washington Hospital; Philip M. Mackie, B.S., University of Florida College of Medicine; Habibeh Khoshbouei, Ph.D., Pharm. D., University of Florida

### **Poster 33-T**

#### ***Modeling prenatal depression in mice: impact of social isolation stress and fluoxetine treatment on in-utero monoaminergic profiles***

Juliet Richetto, PhD, Institute for Veterinary Pharmacology and Toxicology

### **Poster 34-T**

#### ***Objective and subjective socioeconomic status is associated with alterations in immune cell gene expression in adolescents***

Sarah Rocha, M.A.; Steve Cole, Ph.D.; Andrew Fuligni, Ph.D., University of California, Los Angeles

### **Poster 35-T**

#### ***Clustering of 224 probands with DSM-IV diagnoses reveals two groups of immune-depression***

Jonas Hagenberg, M.Sc.; BeCOME Working Group; OPTIMA Working Group; Elisabeth Binder, MD, PhD; Janine Knauer-Arloth, PhD, Max Planck Institute of Psychiatry

### **Poster 36-T**

#### ***Associations between inflammatory-metabolic response and physical activity in bariatric surgery patients with comorbid major depressive disorder***

Melisa Kose, MSc; Anna Patricia McLaughlin, PhD; Nicole Mariani, MSc; Rebecca Milton, MSc; Ellen Lambert, MSc; Zuzanna Zajkowska, PhD; Clare Liedstrand, BSc; Mantas Kazimieras Malys, BM BCh, King's College London; Francesco Rubino, MD, King's College Hospital; Valeria Mondelli, MD PhD, NIHR BRC, SLaM NHS Foundation Trust and King's College London

### **Poster 37-T**

#### ***Depression in adolescence: imbalanced kynurenine pathway and the link with inflammation***

Naghmeh Nikkheslat, PhD, Institute of Psychiatry, Psychology & Neuroscience, King's College London; Zuzanna Zajkowska, PhD, Institute of Psychiatry, Psychology & Neuroscience, King's College London; Annabel Walsh, PhD, Institute of Psychiatry, Psychology & Neuroscience, King's College London; Pedro Manfro, PhD; Laila Souza, PhD, Universidade Federal do Rio Grande do Sul; Helen Fisher, PhD, Institute of Psychiatry, Psychology & Neuroscience, King's College London; Christian Kieling, MD, PhD, Universidade Federal do Rio Grande do Sul; Valeria Mondelli, MD, PhD, Institute of Psychiatry, Psychology & Neuroscience, King's College London

### **Poster 38-T**

#### ***Effects of anti-inflammatory drug treatment on psychological and bodily sickness symptoms during experimental endotoxemia: A randomized controlled study in healthy volunteers***

Justine Schmidt, Master of Science, Institute for Medical Education, University Hospital Essen; Johanna Reinold, Doctor of Medicine, Institute of Medical Psychology, University Hospital Essen; Oliver Witzke, Professor, Department of Infectious Diseases, University Hospital Essen; Manfred Schedlowski, Professor; Harald Engler, Professor, Institute of Medical Psychology, University Hospital Essen; Sven Benson, Professor, Institute for Medical Education, University Hospital Essen

#### **Poster 39-T**

##### ***Effects of peripheral cytokine blockade on endotoxin-induced cytokines changes in the cerebrospinal fluid***

Lisa Trautmann, M.Sc.; Kirsten Dombrowski, M.Sc.; Manfred Schedlowski, Dr., Institute of Medical Psychology and Behavioral Immunobiology, University Hospital Essen; Lennart Barthel, Dr. med.; Susann Hetze, Dr. med., Department of Neurosurgery, University Hospital Essen; Harald Engler, Dr. rer. nat., Institute of Medical Psychology and Behavioral Immunobiology, University Hospital Essen

#### **Poster 40-T**

##### ***The use of associative learning for optimizing treatment of immune related diseases***

Yasmin Salem, M.Sc. Institute for medical psychology and behavioral immunology

#### **Poster 41-T**

##### ***Perioperative systemic use of CpG-C abrogates postoperative metastatic disease, and promotes macrophage M1-polarization and downregulates CREB activity in primary tumors***

Elad Sandbank, M.Sc; Anabel Ekerling, M.Sc; Liat Sorski, Ph.D, Tel-Aviv University; Steve Cole, Ph.D, University of California; Shamgar Ben-Eliyahu, Ph.D, Tel-Aviv University

#### **Poster 42-T**

##### ***Maternal immune activation attenuates cisplatin-induced fatigue-like behavior in female offspring***

Hailey Rodgers, BS; Kayla Gilley, MA; Pranay Sharma, HSDG; Sindhuja Earagolla, HSDG; Colin Budries, HSDG; Donese Cole, HSDG; Emily Gibson, BS; Elisabeth Good Vichaya, PhD, Baylor University

#### **Poster 43-T**

##### ***Inflammatory Markers of Geriatric Depression Response to Tai Chi or Health Education Interventions***

Helen Lavretsky, MD; Prabha Siddarth, PHD; Adrienne Grzenda, MD PHD, UCLA

#### **Poster 44-T**

##### ***Murine mammary tumors impair microglial activation and sickness behaviors in response to immune challenge***

Lauren Otto, B.S.; Jessica Santos, Ph.D., Institute for Behavioral Medicine Research, The Ohio State University; Corena Grant, Ph.D., The James Cancer Hospital and Solove Research Institute, The Ohio State University; Olivia Wilcox, B.A.; Braedan Oliver, B.S.; Lindsay Strehle, B.S., M.S.; John Sheridan, M.S., Ph.D., Institute for Behavioral Medicine Research, The Ohio State University; Leah Pyter, M.S., Ph.D., Institute for Behavioral Medicine Research, Ohio State University Medical Center

#### **Poster 45-T**

##### ***C-reactive protein across pregnancy in women exposed to childhood maltreatment: the role of psychological and physical sequelae.***

Theresa Kleih, Dipl.-Psych., Charité – Universitätsmedizin Berlin, Department of Medical Psychology; Lauren Keenan-Devlin, PhD, MPH, NorthShore University HealthSystem Department of Obstetrics and Gynecology; Sonja Entringer, PhD, Charité – Universitätsmedizin Berlin, Department of Medical Psychology; Gregory Miller, PhD, Northwestern University Department of Psychology; William Grobman, MD, MBA, Northwestern University Feinberg School of Medicine Department of Obstetrics and Gynecology; Hyagriv Simhan, MD, MS, University of Pittsburgh School of Medicine, Division of Maternal-Fetal Medicine; Ann Borders, MD, MPH, MSc, NorthShore University HealthSystem Department of Obstetrics and Gynecology; Pathik Wadhwa, MD, PhD, University of California, Irvine, Development, Health and Disease Research Program; Claudia Buss, PhD, Charité – Universitätsmedizin Berlin, Department of Medical Psychology

#### **Poster 46-T**

##### ***Distribution and function of neuronal IL-1R1 in the CNS.***

Daniel Nemeth, Ph.D; Xiaoyu Liu, Ph.D; Nuran Kocak, M.S., Florida Atlantic University; Haichen Niu, Ph.D, Department of Genetics, Xuzhou Medical University; Maria Smirnova, B.S.; Samantha McGovern, M.S.; Anu Herd, B.S., Florida Atlantic University; Damon DiSabato, Ph.D, Ohio State University; Trey Floyd, B.S., Florida Atlantic University; Rohit Atluri, B.S.; Alex Nusstein, B.S.; Braedan Oliver, B.S., Ohio State University; Kristina Witcher, Ph.D, Department of Neuroscience, The Ohio State University; Daniel McKim, Ph.D, Department of Animal Science, University of Illinois Urbana-Champaign; Paula Gajewski-Kurziel, Ph.D, Florida Atlantic University; Jonathan Godbout, Ph.D, Ohio State University; Qi Zhang, Ph.D; Randy Blakely, Ph.D, Florida Atlantic University; John Sheridan, Ph.D, Ohio State University; Ning Quan, Ph.D, Florida Atlantic University

#### **Poster 47-T**

##### ***Loss of MyD88 in microglia impacts cognition and parvalbumin cell density in the male brain***

Julia Dziabis, B.S.; Caroline Smith, Ph.D., Duke University; Marcy Kingsbury, Ph.D., Massachusetts General Hospital; Irene Jonathan; Benjamin Horvath; Justin Savage, B.S., Duke University; Richa Hanamsagar, Ph.D., Massachusetts General Hospital; Staci Bilbo, Ph.D., Duke University

#### **Poster 48-T**

##### ***Exposure to Dim Lighting Increases Infarct Size and Alters Neuroimmune Activation***

Jennifer Liu, BS; William Walker, PhD; Hecmarie Meléndez-Fernández, BS; Jacob Bumgarner, BS; James Walton, PhD; Ning Zhang, MD; A. Courtney DeVries, PhD; Randy Nelson, PhD, West Virginia University

#### **Poster 49-T**

##### ***Pramipexole modulates pro-plasticity proteins and attenuates inflammation in Balbc female mice.***

Karli Gilbert, M.S., M.S.; Katherine Conant, M.D., Georgetown University

#### **Poster 50-T**

##### ***J147 is Effective in Prevention of Postoperative Cognitive Dysfunction in a Rat Model***

Klaske Oberman, MSc, University of Groningen; Ernest Villafranca, PhD, Abrexa Pharmaceuticals; Barbara van Leeuwen, Prof. Dr., University Medical Center Groningen; Regien Schoemaker, Dr., University of Groningen

#### **Poster 51-T**

##### ***Investigating the effect of IL-17A on fetal neurodevelopment in germ-free mice***

Selena Wang, BS; Meghan Connolly, MA; Ashley Otero, BS; Rafael Gonzalez-Ricon, MS, Univ of Illinois at Urbana-Champaign; Patricia Brewster, MS, Univ of Illinois; Neil Doherty, BS; Adrienne Antonson, PhD, Univ of Illinois at Urbana-Champaign

#### **Poster 52-T**

##### ***Increased Astrocyte Activity in the mPFC induces Cognitive Deficits through Kynurenic Acid***

Sina-Maria Schalbetter, PhD; Ulrike Weber-Stadlbauer, PD. PhD; Kim Ferrari, PhD; Flavia Mueller, PhD; Rene Amport, Msc; Johanna Furrer, Msc; Urs Meyer, Prof PhD, University of Zurich; Tina Notter, PhD, University of Zurich

#### **Poster 53-T**

##### ***Disgusting odors trigger oral immunity***

Mats Lekander, PhD, Karolinska Institutet and Stockholm University; Stephanie Anja Juran, PhD, Karolinska Institutet; Mats J Olsson, PhD, Karolinska Institutet

#### **Poster 54-T**

##### ***Measuring fetal neuroarchitecture in germ-free mice in response to maternal IL-17a administration***

Izan Chalen Paredes, MS; Selena Wang, BS; Joseph Jung; Catherine Best-Popescu, PhD; Adriene Antonson, PhD, Univerisity of Illinois

#### **Poster 55-T**

##### ***Quantifying Neuroanatomical Variations Across Multiple Mouse Models of Multiple Sclerosis***

Jorge Maldonado, BS; Lawrence Best, PhD; Izan Chalen Paredes, MS; Catherine Best-Popescu, PhD, Univerisity of Illinois

#### **Poster 56-T**

##### ***Valence weighting bias curvilinearly predicts longitudinal change in CRP: Evidence from Three Young Adult Samples***

Kendra Wilson, BA; Lexi Keaveney, Ph.D.; Russell Fazio, Ph.D.; Baldwin Way, PhD, The Ohio State University

#### **Poster 57-T**

##### ***A role for tumor secretome in promoting postoperative metastasis through beta-adrenergic and prostaglandin signaling***

Anabel Eckerling, M.Sc.; Elad Sandbank, M.Sc.; Nadav Fogel, B.Sc.; Nahida Sakis, B.Sc.; Rita Haldar, M.Sc.; Ella Rosenne, M.Sc.; Lir Beck, Ph.D.; Gali Yanovich-Arad, Ph.D., Tel Aviv University; Tami Geiger, Ph.D., Weizmann Institute of Science; Steve Cole, Ph.D., University of California, Los Angeles School of Medicine; Shamgar Ben-Eliyahu, Ph.D., Tel Aviv University

#### **Poster 58-T**

##### ***In Utero Response to Prenatal Infection of a Novel Rat-Adapted Zika Virus***

Elise Lemanski, BS; Jack Melchiorre; Mark Parcells, PhD; Jaclyn Schwarz, PhD, University of Delaware



#### **Poster 59-T**

##### ***Extracellular RNA Communication in Immune Cells During Pregnancy Altered in Women Who Develop Postpartum Depression***

Sarven Sabunciyany, PhD; Morgan Sherer, PhD, Johns Hopkins University School of Medicine; Jennifer Payne, MD, University of Virginia; Lauren Osborne, MD, Johns Hopkins University School of Medicine

#### **Poster 60-T**

##### ***Prenatal Opioid Exposure Alters Microglia-Dopamine System Interactions***

Madeline Clark, BS; Caroline Smith, PhD, Duke University; Tania Lintz, BS; Elena Chartoff, PhD, Harvard Medical School and Basic Neuroscience Division, Mclean Hospital; Staci Bilbo, PhD, Duke University

#### **Poster 61-T**

##### ***Microglia are implicated in the development of chemotherapy-associated cognitive impairment in female mice***

Corena Grant, PhD; Kyle Sullivan, PhD, James Comprehensive Cancer Center and Solove Research Institute, The Ohio State University; Kylie Wentworth, BS, Department of Neuroscience, The Ohio State University; Nicklaus Halloy, MS; Lindsay Strehle, MS; Lauren Otto, BS; Leah Pyter, PhD, Institute for Behavioral Medicine Research, The Ohio State University

#### **Poster 62-T**

##### ***Neuron selective tagging, tracing, and capture reveals unique pattern of activation within the prefrontal cortex and hippocampus following social stress***

Rebecca Biltz, MS; Wenyuan Yin, PhD, The Ohio State University, Department of Neuroscience; Braedan Oliver, BS, The Ohio State University, Institute for Behavioral Medicine Research; John Sheridan, PhD, The Ohio State University, Division of Biosciences; Jonathan Godbout, PhD, The Ohio State University, Department of Neuroscience

#### **Poster 63-T**

##### ***Inflammatory mechanisms of antidepressants in HIV infection of myeloid cells***

Stephanie Matt, PhD; Breana Channer, BS; Yash Agarwal, BS; Krisna Mompho, BS; Joanna Canagarajah, MS; Alexis Brantly, MS; Peter Gaskill, PhD, Drexel University College of Medicine

#### **Poster 64-T**

##### ***REM Sleep Disruption Engages Impaired Stress Responses and Compromises Hippocampal Function after Traumatic Brain Injury***

Zoe Tapp, MS; Sam Houle, BS; Zachary Zimomra, MS; Fangli Zhao, PhD; Candice Askwith, PhD; John Sheridan, PhD; Jonathan Godbout, PhD; Olga Kokiko-Cochran, PhD, The Ohio State University

#### **Poster 65-T**

##### ***Neuroimmune activation of the olfactory bulb is regulated by time of day***

Gregory Pearson, M.S.; Brennan Falcy, B.S.; Jennifer Wang, B.S.; Said Akli, PhD; Ilia Karatsoreos, PhD, University of Massachusetts Amherst

#### **Poster 66-T**

##### ***Postoperative Cognitive Dysfunction: Factors beyond neuroinflammation***

Nicholas Deems, B.S., The Ohio State University; Emmanuel Scaria, B.S.; Michael Butler, PhD; Stephanie Muscat, B.S.; Tam Quach, PhD, The Ohio State University; Steve Maier, PhD, University of Colorado Boulder; Giuseppe Cortese, PhD, Northern Michigan University; Ruth Barrientos, PhD, The Ohio State University

#### **Poster 67-T**

##### ***The immunology of food aversion***

Esther Florsheim, PhD, Arizona State University; Nathaniel Bachtel, BS; Jaime Cullen, BS; Bruna Lima, BS; Marcelo Dietrich, MD, PhD; Ruslan Medzhitov, PhD, Yale University School of Medicine

### Poster 1-S

#### ***Differential progenitor responses to maternal inflammation in the developing neocortex***

Navneet A Vasistha, D.Phil; Laura Wolbeck, M.Sc; Konstantin Khodosevich, PhD, Biotech Research and Innovation Center, University of Copenhagen

### Poster 2-S

#### ***Adolescence is a sensitive period for prefrontal microglia to act on cognitive development via synaptic remodeling***

Sina-Maria Schalbetter, PhD, Institute of Pharmacology and Toxicology, University of Zurich-Vetsuisse, Zurich, Switzerland; Anina S. von Arx, MSc, Institute of Pharmacology and Toxicology, University of Zurich-Vetsuisse, Zurich, Switzerland; Natalia Cruz-Ochoa, MSc, Laboratory of Neural Connectivity, Faculties of Medicine and Natural Sciences, Brain Research Institute; Kara Dawson, MSc, Institute of Pharmacology and Toxicology, University of Zurich-Vetsuisse, Zurich, Switzerland; Andranik Ivanov, PhD, Core Unit Bioinformatics, Berlin Institute of Health, Charité-Universitaetsmedizin, Berlin, Germany; Flavia S. Mueller, PhD; Han-Yu Lin, MSc; René Amport, MSc, Institute of Pharmacology and Toxicology, University of Zurich-Vetsuisse, Zurich, Switzerland; Daniele Mattei, PhD, Department of Neurology, Icahn School of Medicine at Mount Sinai, New York, USA; Dieter Beule, PhD, Max Delbrück Center for Molecular Medicine in the Helmholtz Association (MDC), Berlin, Germany; Csaba Földy, PhD, Laboratory of Neural Connectivity, Faculties of Medicine and Natural Sciences, Brain Research Institute; Melanie Greter, PhD, Institute of Experimental Immunology, University of Zurich, Zurich, Switzerland; Tina Notter, PhD; Urs Meyer, PhD, Institute of Pharmacology and Toxicology, University of Zurich-Vetsuisse, Zurich, Switzerland

### Poster 3-S

#### ***The role of adrenergic and inflammatory factors in malignant secretion of IL-6, IL-8, and VEGF: Potential mediators of surgery-induced escape-from-dormancy of residual malignant disease***

Rita Haldar, MA; Anabel Eckerling, MA; Ella rossenne, PhD, Tel-Aviv Unuversity; Lee Shaashua, PhD, Weizmann Institute; Arielle Radin, MA; Steve W. Cole, PhD, UCLA; Shamgar Ben-Elihyahu, PhD, Tel-Aviv Unuversity

### Poster 4-S

#### ***Neuroinflammation in asthma: evidence from brain structural alterations***

Danielle Carrol, BS Neuroscience, University of Wisconsin-Madison; Rachel Hoel, BS; Richard Davidson, PhD; William Busse, MD, UW-Madison; Henrik Zetterberg, PhD, Sahlgrenska Academy at the University of Gothenburg; Amanda Heslegrave, PhD, University College London; Barbara Bendlin, PhD; Melissa Rosenkranz, PhD, UW-Madison

### Poster 5-S

#### ***'Long-COVID' - a neuroinflammatory disease'Long-COVID' - a neuroinflammatory disease***

thor schou, Stud.Cand.Med.; Gregers Wegener, MD; Sâmia Joca, Ph.D.; Cecilie Bay-Richter, Ph.D., Translational Neuropsychiatric Unit, Aarhus University

### Poster 6-S

#### ***Understanding vulnerability to postpartum anhedonia and underlying mechanisms***

Janace Gifford, PhD; Jaclyn Schwarz, PhD, University of Delaware

### Poster 7-S

#### ***Conflicts Hurt: Social Stress Modulates Proinflammatory Cytokines' Link with Pain and Sadness***

Annelise Madison, MA; William Malarkey, MD; Janice Kiecolt-Glaser, PhD, The Ohio State University

### Poster 8-S

#### ***Gut Microbiota Complexity Predicts Accelerated T-Cell Aging in Healthy Adults***

Annelise Madison, MA; William Malarkey, MD; Janice Kiecolt-Glaser, PhD, The Ohio State University

### Poster 9-S

#### ***Sex differences in a double-blind randomized clinical trial with minocycline in treatment-resistant depressed patients: CRP and IL-6 as sex-specific predictors of treatment response***

Giulia Lombardo, MSc, PhD student; Maria Antonietta Nettis, MD, PhD; Caitlin Hastings, MSc; Zuzanna Zajkowska, PhD; Nicole Mariani, MSc; Naghme Nikkheslat, PhD; Courtney Worrell, MSc, PhD student; Daniela Enache, MD; Anna McLaughlin, PhD; Melisa Kose, BSc; Luca Sforzini, MD, PhD student; Anna Bogdanova, MSc; Anthony Cleare, BSc MBBS PhD FRCPsych; Allan H. Young, MB, ChB, MPhil, PhD, FRCP (Edin.), FRCP, FRCPsych; Valeria Mondelli, MD, PhD; Carmine Maria Pariante, MRCPsych, MD, PhD, King's College London

#### **Poster 10-S**

##### ***Direct measurement of mitochondrial coupling efficiency is associated with affective distress and fatigue in a community sample of adults***

Hayley Almes, BS; Lauren Chu, BA; Kyle Murdock, PhD, The Pennsylvania State University

#### **Poster 11-S**

##### ***Activation of the GDF15/GFRAL axis mediates chemotherapy-induced fatigue***

Robert Dantzer, DVM, PhD; Brandon Chelette, PhD, University of Texas MD Anderson Cancer Center

#### **Poster 12-S**

##### ***Social support and diurnal salivary cortisol as predictors of resilience in newly diagnosed women with breast cancer***

Ibane Aizpurua Perez, Psychology, Department of Basic Psychological Processes and their Development, University of the Basque Country; Amaia Arregi, Psychology, Department of Basic Psychological Processes and their Development, University of the Basque Country; David Gonzalez, Nursing; Gurutze Ugartemendia, Nursing, Oncologic Center (Onkologikoa); Ainitze Labaka, Nursing, Department of Nursing II, University of the Basque Country; Olatz Goñi, Psychology, Clinical and Health Psychology and Research Methodology, University of the Basque Country; Joana Camba, Nursing; Joana Perez-Tejada, Psychology, Oncologic Center (Onkologikoa)

#### **Poster 13-S**

##### ***Pain-related Learning and Memory in Patients with Inflammatory Bowel Disease in Comparison to Healthy Volunteers***

Hanna Öhlmann, M.Sc.; Liubov Petrakova, Dr., Department of Medical Psychology and Medical Sociology, Ruhr University Bochum; Harald Engler, Prof. Dr., Institute of Medical Psychology and Behavioral Immunobiology, University of Duisburg-Essen; Jost Langhorst, Prof. Dr., Department for Internal and Integrative Medicine, Sozialstiftung Bamberg; Sigrid Elsenbruch, Prof. Dr., Department of Medical Psychology and Medical Sociology, Ruhr University Bochum

#### **Poster 14-S**

##### ***TLR7-mediated inflammation and behaviour***

Isobel Dunstan, DPhil Pharmacology; Daniel Radford-Smith, DPhil Pharmacology; Daniel Anthony, Professor of Pharmacology, University of Oxford

#### **Poster 15-S**

##### ***A novel microglia-suppressive formulation exerts potent antidepressant and anxiolytic effects***

Eyal Dinur, M.A.; Hagar Goldenberg, M.A.; Elad Robinson, M.A.; Lior Naggan, M.Sc; Ewa Kozela, PhD; Raz Yirmiya, Prof., The Hebrew university of Jerusalem

#### **Poster 16-S**

##### ***Systemic biomarkers and isometric exercise training: Does inflammation underlie the resting blood pressure adaptations?***

Jeanette Bennett, PhD, UNC Charlotte; Benjamin Gordon, PhD, Slippery Rock University; Ebony Gaillard, MS; Maria Alessi, MA; Brittany Price, MA, UNC Charlotte; Jenna Kachmarik, BS, BS, Oregon Health and Science University; Michael Persin, BS, University of Texas at Tyler; Leslie Snapper, MA; Joseph Marino, PhD; Reuben Howden, PhD, UNC Charlotte

#### **Poster 17-S**

##### ***The PMN-MDSC – a key player in glucocorticoid resistance following combined physical and psychosocial trauma***

Elena Kempter, M.Sc.; Sandra Kupfer, PhD; Mattia Amoroso, PhD, Laboratory for Molecular Psychosomatics, University Clinic Ulm; Monika Kustermann, PhD; Jasmin Scheurer, PhD, Department of Pediatrics and Adolescent Medicine, University Medical Center Ulm; Bernd Baumann, PD Dr.; Thomas Wirth, Prof. Dr., Institute of Physiological Chemistry, Ulm University; Harald Gundel, Prof. Dr., Department of Psychosomatic Medicine and Psychotherapy, University Medical Center Ulm; Rainer H. Straub, Prof. Dr., Laboratory of Experimental Rheumatology and Neuroendocrine Immunology, University Hospital Regensburg; Gudrun Strauß, Prof. Dr., Department of Pediatrics and Adolescent Medicine, University Medical Center Ulm; Dominik Langgartner, PhD; Stefan O. Reber, Prof. Dr., Laboratory for Molecular Psychosomatics, University Clinic Ulm

#### **Poster 18-S**

##### ***Social Enrichment Enhances Chemotherapy Induced Monocyte Trafficking in Aged Mice***

William Walker, PhD; Laura May, BS; Randy Nelson, PhD; A. Courtney DeVries, PhD, West Virginia University

#### **Poster 19-S**

##### ***Immune-related gene expression significantly differs between depression cases and controls without increased CRP***

Luca Sforzini, MD, King's College London; Annamaria Cattaneo, PhD, King's College London, IRCCS Fatebenefratelli Brescia, University of Milan; Clarissa Ferrari, PhD, IRCCS Fatebenefratelli Brescia; Lorinda Turner, PhD, University of Cambridge; Nicole Mariani, MSc; Daniela Enache, MD, PhD; Caitlin Hastings, MSc; Giulia Lombardo, MSc; Anna P. McLaughlin, PhD; Maria A. Nettis, MD, PhD; Naghmeh Nikkheslat, PhD; Courtney Worrell, MSc; Zuzanna Zajkowska, PhD; Melisa Kose, BSc, King's College London; Nadia Cattane, PhD, IRCCS Fatebenefratelli Brescia; Nicola Lopizzo, MSc; Monica Mazzelli, MSc, IRCCS Fatebenefratelli Brescia, University of Milan; Linda Pointon, MSc, University of Cambridge; Philip J. Cowen, MD, University of Oxford; Jonathan Cavanagh, MD, University of Glasgow; Neil A. Harrison, MD, PhD, University of Cardiff; Wayne C. Drevets, MD, Janssen Research & Development; Valeria Mondelli, MD, PhD, King's College London; Edward T. Bullmore, MD, PhD, University of Cambridge; Carmine M. Pariante, MD, PhD, King's College London

#### **Poster 20-S**

##### ***Treatment resistant depression and inflammatory gene expression profiles – investigating the role of childhood trauma***

Courtney Worrell, MSc, King's College London; Annamaria Cattaneo, PhD, King's College London, IRCCS Fatebenefratelli, University of Milan; Clarissa Ferrari, PhD, IRCCS Fatebenefratelli; Lorinda Turner, PhD, University of Cambridge; Nicole Mariani, MSc; Daniela Enache, MD, PhD; Caitlin Hastings, MSc; Giulia Lombardo, MSc; Anna P. McLaughlin, PhD; Maria A. Nettis, MD, PhD; Naghmeh Nikkheslat, PhD; Zuzanna Zajkowska, PhD; Luca Sforzini, MD; Melisa Kose, MSc, King's College London; Nadia Cattane, PhD, IRCCS Fatebenefratelli; Nicola Lopizzo, MSc; Monica Mazzelli, MSc, IRCCS Fatebenefratelli, University of Milan; Linda Pointon, MSc, University of Cambridge; Phillip J. Cowen, MD, University of Oxford; Jonathan Cavanagh, MD, University of Glasgow; Neil A. Harrison, MD, PhD, University of Cardiff; Wayne C. Drevets, MD, Janssen Research & Development; Valeria Mondelli, MD, PhD, King's College London; Edward T. Bullmore, MD, PhD, University of Cambridge; Carmine M. Pariante, MD, PhD, King's College London

#### **Poster 21-S**

##### ***Maternal allergic inflammation has sex-specific effects on oxytocin fiber density in brain regions associated with juvenile social play in rats***

Michaela Breach, BS, MS; Habib Akouri, HSD; Claire Dodson, BS; Kathryn Lenz, PhD, The Ohio State University

#### **Poster 22-S**

##### ***Resolution of cisplatin-induced fatigue does not require endogenous interleukin-10 in mice***

Kiersten Scott, B.S. Neuroscience; Robert Dantzer, D.V.M, Ph.D.; Nabila Boukelmoune, Ph.D., The University of Texas M.D. Anderson Cancer Center; Cobi Heijnen, Ph.D., Rice University

#### **Poster 23-S**

##### ***Trajectories of peripheral inflammatory markers in women with different stress exposure during pregnancy in association to postpartum depression vs resilience***

Emma Fransson, PhD; Emma Bränn, PhD, Uppsala university/Karolinska Institutet; Inger Sundström Poromaa, MD, PhD; Alkistis Skalkidou, MD, PhD, Uppsala University

#### **Poster 24-S**

##### ***Inflammation in the context of early life stress in depression in adolescents – Identifying Depression Early in Adolescence (IDEA) study***

Zuzanna Zajkowska, PhD; Naghmeh Nikkheslat, PhD, King's College London; Pedro Manfro, MD, PhD; Laila Souza, MSc, Universidade Federal do Rio Grande do Sul; Hospital de Clinicas de Porto Alegre; Valentina Zonca, PhD, IRCCS Fatebenefratelli, the Biological Psychiatry Laboratory; Annabel E Walsh, PhD, King's College London; Christian Kieling, MD, PhD, Universidade Federal do Rio Grande do Sul; Hospital de Clinicas de Porto Alegre; Valeria Mondelli, MD, PhD, King's College London

#### **Poster 25-S**

##### ***Astrocyte activation as a mechanism underlying apathy in people with HIV***

Ronald Ellis, MD, PhD, UC San Diego; Mohammad Andalibi, MD, International UNESCO Center for Health Related Basic Sciences & Human Nutrition, Mashhad; Johnny He, PhD, Rosalind Franklin University; David Grelotti, MD; Scott Letendre, MD, UC San Diego

#### **Poster 26-S**

##### ***Maternal diet disrupts the placenta-brain axis in a sex-specific manner***

Alexis Ceasrine, PhD; Benjamin Devlin, BS, Duke University; Jessica Bolton, PhD, Georgia State University; Lauren Green, PhD; Young Chan Jo, BS; Carolyn Huynh, BS; Bailey Patrick, BS; Kamryn Washington, BS; A. Brayan Campos-Salazar, BS, Duke University; Susan Murphy, PhD, Duke University Medical Center; Leigh Ann Simmons, PhD, University of California, Davis; Staci Bilbo, PhD, Duke University

#### **Poster 27-S**

##### ***Peripheral blood cellular immunophenotype in depression: A systematic review and meta-analysis***

Eimear M. Foley, MSc, University of Bristol; Joel T. Parkinson, PhD, University of Glasgow; Ruth E. Mitchell, PhD, University of Bristol; Lorinda Turner, PhD, University of Cambridge; Golam M. Khandaker, PhD, FRCPsych, University of Bristol

#### **Poster 28-S**

##### ***Elevated microglial density and reduced LAG3 checkpoint expression are associated with suicide in bipolar disorder patients***

Lior Naggan, MSc; Elad Robinson, PhD; Hagar Goldenberg, PhD, Hebrew University of Jerusalem; Ewa Kozela, PhD, Weizmann Institute of Sciences; Raz Yirmiya, Prof., Hebrew University of Jerusalem

#### **Poster 29-S**

##### ***Environmental and bio-psychological differences are associated with increased susceptibility to metastasis in inbred rats***

Bar Shvalbo, BA; Nahida Sakis, BSc; Nadav Fogel, BSc; Adi Ovadia, BA; Ella Rosenne, MSc; Liat Sorski, PhD; Estherina Trachtenberg, MSc; Keren Ruzal, BSc; Shamgar Ben Eliyahu, PhD, Tel Aviv University

#### **Poster 30-S**

##### ***The walking sick: what predicts the detection of walking sick individuals?***

Lina S. Hansson, M.Sc; Julie Lasselín, PhD; John Axelsson, PhD, Karolinska Institutet/Stockholm university; Arnaud Tognetti, PhD; Mats J. Olsson, PhD, Karolinska Institutet; Tina Sundelin, PhD, Stockholm university; Mats Lekander, PhD, Karolinska Institutet/Stockholm university

#### **Poster 31-S**

##### ***A novel, high throughput pipeline for automated microglia morphology classification.***

Peter Richardson, MSc; Jack Reddaway, PhD; Nick Clifton, PhD; Kerrie Thomas, PhD, Cardiff University

#### **Poster 32-S**

##### ***Differentially expressed genes associated with presence of depression in patients with obesity undergoing bariatric surgery***

Rebecca Milton, MSc; Anna P McLaughlin, PhD; Ellen Lambert, MSc; Nicole Mariani, MSc; Melisa Kose, MSc; Francesco Rubino, MD; Esperanza Perucha, PhD; Valeria Mondelli, MD PhD, Kings College London

#### **Poster 33-S**

##### ***Identifying the Role of Sleep Disruption in Anti-Tumor Immunity***

Nikita Francis, PhD, Cold Spring Harbor Laboratory

#### **Poster 34-S**

##### ***The Effect of High Fat Diet on Neuroinflammation, Synaptic Plasticity, and Pathology in the 3xTg-AD Mouse Model***

Sabrina Mackey-Alfonso, BS; Alberto Williams-Medina, BS; Michael Butler, PhD; Nicholas Deems, BS; Ashton Taylor, (Undergrad); Ruth Barrientos, PhD, Ohio State University

#### **Poster 35-S**

##### ***Influenza infection promotes relapse and exacerbates CNS pathology in a murine model of relapsing-remitting multiple sclerosis***

Katiria Soto-Diaz, Ph.D. Candidate; Justin S. Kim, Ph.D. Candidate; Aditi Das, Ph.D.; Andrew J. Steelman, Ph.D., University of Illinois at Urbana-Champaign

#### **Poster 36-S**

##### ***Antibiotics induced gut microbiota dysbiosis rescues the behavioral phenotype in a maternal immune-activation (MIA) model of autism spectrum disorder / schizophrenia***

Gustavo Pacheco-López, PhD; Diego Alexander González-Franco, PhD; Marcel Pérez-Morales, PhD, Metropolitan Autonomous University (UAM), Campus Lerma; Sofia Díaz-Cintra, PhD, Instituto de Neurobiología, Universidad Nacional Autónoma de México (UNAM); Jaime García-Mena, PhD, Genetics and Molecular Biology Department, Center for Research and Advances Studies (Cinvestav); Paola Cristina Bello-Medina, PhD, Instituto de Neurobiología, Universidad Nacional Autónoma de México (UNAM)

#### **Poster 37-S**

##### ***Short-term consumption of a high-fat diet makes post-operative cognitive dysfunction persistent & induces anxiety-like behaviors in aged male rats***

Stephanie Muscat, BS; Nicholas Deems, BS; Michael Butler, PhD; Ruth Barrientos, PhD, Ohio State University

#### **Poster 38-S**

##### ***TLR4 antagonism prevents & reverses opiate-induced persistent post-operative cognitive dysfunction in aged male rats***

Stephanie Muscat, BS; Nicholas Deems, BS; Emmanuel Scaria, BS; Michael Butler, PhD; Ruth Barrientos, PhD, Ohio State University

#### **Poster 39-S**

##### ***Rituximab for treatment resistant schizophrenia spectrum disorder and/or obsessive compulsive disorder***

Susanne Bejerot, MD, PhD; Mats Humble, MD, PhD; Sofia Sigrá, MD, PhD student; Ulrika Hylén, PhD student; Daniel Eklund, PhD, Örebro University

#### **Poster 40-S**

##### ***Temporal dynamics and specificity of cytokine changes in blood, cerebrospinal fluid and brain tissue of endotoxemic rats***

Kirsten Dombrowski, M.Sc.; Harald Engler, Prof. Dr.; Manfred Schedlowski, Prof. Dr.; Lennart Barthel, Dr. med.; Susann Hetze, Dr. med.; Lisa Trautmann, M.Sc., University Hospital Essen

#### **Poster 41-S**

##### ***Taste-Immune Conditioning with Fingolimod (FTY720) as an Unconditioned Stimulus***

Marie Jakobs, M.Sc.; Tina Hörbelt-Grünheidt, Dr.; Yasmin Salem, M.Sc.; Stephan Leisengang, Dr.; Martin Hadamitzky, PD Dr.; Manfred Schedlowski, Prof. Dr.; Laura Heiß-Lückemann, Dr., Institute of Medical Psychology and Behavioral Immunobiology, University Hospital Essen

#### **Poster 42-S**

##### ***Differences in microglia morphology and response to LPS between male and female middle-aged mice***

Nikolay Filipov, PhD; Lukas Veltmaat, Undergraduate Student; Jessica Carpenter, PhD; Rachel Dockman, BS; Robert Benbow, DVM, University of Georgia

#### **Poster 43-S**

##### ***A unique role for psychological stress in pro-metastatic processes during the perioperative timeframe: endocrine and molecular mediating pathways***

Nahida Sakis, B.Sc; Nadav Fogel, B.Sc; Bar Bruno Shvalbo, B.A; Ella Rosenne, M.A; Elaad Sandbank, M.A; Meshi Weil, B.A; Sharon Scarlat, M.A; Estherina Trachtenberg, M.A, Tel aviv university; Steven Cole, Ph.D, UCLA school of medicine; Shamgar Ben-Eliyahu, Ph.D, Tel aviv university

#### **Poster 44-S**

##### ***Associations of sleep duration, quality, and timing with infection risk in female and male adults***

Estefania Martinez-Albert, M.Sc.; Luciana Besedovsky, Prof. Dr., Institute of Medical Psychology, Ludwig-Maximilians-Universität München; Munich, Germany.

#### **Poster 45-S**

##### ***Phenotypical Differences in Inflamed Depressed Chronically Ill***

Livia Carvalho, PhD; Christoph Clesse, PhD, Queen Mary University of London; Kam Bhui, MBBS, PhD, University of Oxford; Magdi Yaqoob, MBBS PhD, Queen Mary University of London

#### **Poster 46-S**

##### ***Neuron-Microglia Crosstalk in Development: A new role for the neuron-derived cytokine IL34 in microglial function***

Ben Devlin, B.S.; Alexis Ceasrine, Ph.D.; Madeline Clark, B.S.; Karen Malacon, B.S.; Young Chan Jo, B.S.; Staci Bilbo, Ph.D., Duke University

#### **Poster 47-S**

##### ***Prior trauma exposure predicts decoupling of systemic inflammation and somatic symptoms***

Joshua Schrock, PhD; Robin Nusslock, PhD; Thomas McDade, PhD; Richard D'Aquila, MD; Brian Mustanski, PhD, Northwestern University

#### **Poster 48-S**

##### ***Maternally derived molecules accumulate in the fetal brain during gestational viral infection***

Rafael Gonzalez-Ricon, MSc.; Ashley Otero, BSc.; Selena Wang, BSc.; Meghan Connolly, MSc.; Patricia Brewster, MSc.; Adrienne Antonson, PhD., University of Illinois at Urbana-Champaign

#### **Poster 49-S**

##### ***Influenza infection suppresses myelin transcripts during remyelination in the cuprizone mouse model.***

Allison Louie, MS; Jenny Drnevich, PhD; Andrew Steelman, PhD, University of Illinois at Urbana-Champaign

#### **Poster 50-S**

##### ***Assessing the impact of live influenza A virus infection during pregnancy on glial phenotypes in early life***

Meghan Connolly, MS; Selena Wang, BS; Ashley Otero, BS; Rafael Gonzalez-Ricon, MS; Neil Doherty, BS; Adrienne Antonson, PhD, University of Illinois Urbana Champaign

#### **Poster 51-S**

##### ***MMP-9 inhibition impairs working memory in zebrafish associated with a decrease in the overall excitation of the hippocampus***

Ismary Blanco, PhD, Georgetown University; Samantha Deasy, B.S, Georgetown University; Katherine Conant, M.D, Georgetown University

#### **Poster 52-S**

##### ***Interactions between Perceived Stress and Microbial-Host Immune Components in Pregnancy***

Mary Kimmel, MD, University of North Carolina and Uppsala University; Beatriz (Bea) Penalver Bernabe, PhD, University Illinois Chicago; Pauline Maki, PhD, University of Illinois Chicago; Janet Cunningham, MD, PhD, Uppsala University; Tory Eisenlohr-Moul, PhD; Lisa Tussing-Humphreys, PhD, University of Illinois Chicago; Ian Carroll, PhD; Samantha Meltzer-Brody, MD, MPH, University of North Carolina; Jack Gilbert, PhD, University of California San Diego

#### **Poster 53-S**

##### ***Peripheral and CSF inflammatory biomarkers after COVID-19 vaccination in pregnant individuals***

Vignesh Rajasekaran, B.A.; Frederieke Gigase, MSc; Emma Smith, B.A.; Brett Collins, B.S.; Daniel Katz, M.D.; Joshua Hamburger, M.D.; Andres Ramirez-Zamudio, M.D.; Teresa Janevic, Ph.D; Julie Spicer, Ph.D, Icahn School of Medicine at Mount Sinai; Robert Pietrzak, Ph.D, Yale University; Rebecca Jessel, M.D.; Veerle Bergink, M.D., Ph.D; Siobhan M. Dolan, M.D., Icahn School of Medicine at Mount Sinai; Margaret McClure, Ph.D, Fairfield University; Lotje De Witte, M.D., Ph.D; Mercedes Perez-Rodriguez, M.D., Ph.D, Icahn School of Medicine at Mount Sinai

#### **Poster 54-S**

##### ***Regulation of inflammatory microglia by short-chain fatty acids***

Maria Elisa Caetano-Silva, PhD; Laurie Rund, PhD; Noah Hutchinson, BS; Jeffrey Woods, PhD; Andrew Steelman, PhD; Rodney Johnson, PhD, University of Illinois

#### **Poster 55-S**

##### ***Sex differences in the effect of social isolation on brain circuits and neuroendocrine-immune status in rats***

Estherina Trachtenberg, Ph.D. candidate, Sagol School of Neuroscience Tel Aviv University; Elad Sandbank, Ph.D. candidate, Sagol School of Neuroscience, Tel Aviv University; Anabel Eckerling, MSc, Sagol School of Neuroscience, Tel Aviv University; Keren Ruzal, Msc; Einat Bigelman, Ph.D.; Shamgar Ben-Eliyahu, Prof.; Inbal Ben-Ami Bartal, Ph.D., Sagol School of Neuroscience, Tel Aviv University

#### **Poster 56-S**

##### ***Differential effects of trauma type severity and depression severity on immune-related mRNA expression in adulthood.***

Mollie Brown, MSc; Courtney Worrell, MSc, King's College London; Annamaria Cattaneo, PhD, King's College London, IRCCS Fatebenefratelli, University of Milan; Clarissa Ferrari, PhD, IRCCS Fatebenefratelli; Lorinda Turner, PhD, University of Cambridge; Nicole Mariani, MSc; Daniela Enache, MD, PhD; Caitlin Hastings, MSc, King's College London; Giulia Lombardo, MSc; Anna P. McLaughlin, PhD; Maria A. Nettis, MD, PhD; Naghmeh Nikkheslat, PhD, King's College London; Zuzanna Zajkowska, PhD; Luca Sforzini, MD; Melisa Kose, MSc, King's College London; Nadia Cattane, PhD, IRCCS Fatebenefratelli; Nicola Lopizzo, MSc; Monica Mazzelli, MSc, IRCCS Fatebenefratelli, University of Milan; Linda Pointon, MSc, University of Cambridge; Philip J. Cowen, MD, University of Oxford; Jonathan Cavanagh, MD, University of Glasgow; Neil A. Harrison, MD, PhD, University of Cardiff; Wayne C. Drevets, MD, Janssen Research & Development; Valeria Mondelli, MD, PhD, King's College London; Edward T. Bullmore, MD, PhD, University of Cambridge; Carmine M. Pariante, MD, PhD, King's College London

#### **Poster 57-S**

##### ***Short-term high fat diet consumption impairs learning and memory and increases CNS T cell populations in aged male rats***

Michael Butler, PhD, The Ohio State University; Shouvonik Sengupta, PhD, The Ohio State University; Nicholas Deems, B.S., The Ohio State University; Stephanie Amici, PhD; Mireia Guerau, PharmD; PhD; Ruth Barrientos, PhD, The Ohio State University

#### **Poster 58-S**

##### ***Decreased immunoglobulin G is associated with pediatric obsessive-compulsive disorder***

Emily Troyer, M.D.; Jordan Kohn, Ph.D.; Christopher Pruitt, B.S., University of California San Diego; Phillip Easter, B.A.; Rebecca Neill, B.A.; David Rosenberg, M.D., Wayne State University; Suzi Hong, Ph.D., University of California San Diego

#### **Poster 59-S**

##### ***Cortical and hypothalamic astrogliosis is induced by ivermectin administration during rat puberty***

Eduardo Bondan, Dr.; Carolina Vieira, Dr., University Paulista (UNIP)

#### **Poster 60-S**

##### ***Evaluation of curcumin or resveratrol administration on the gene expression of DNA-modifying enzymes in a doxorubicin-induced chemobrain model***

Eduardo Bondan, Dr.; Thalita Ramos, MSc; Carolina Vieira, Dr.; Rodrigo Augusto Silva, Dr., University Paulista (UNIP)

#### **Poster 61-S**

##### ***Bate palmas mutant mice, a model of Kabuki syndrome, presents hyperactivity due to selective activation of central D1 dopaminergic receptor***

Maria Martha Bernardi, Dr.; Marisa A. Oliveira, MSc.; Paula S. Rodrigues, Dr., Psychoneuroimmunology Laboratory, University Paulista (UNIP); Ana Cláudia Sampaio, MSc., Psychoneuroimmunology Laboratory, University Paulista UNIP); Cláudia C. M. Mori, Dr., School of Veterinary Medicine and Animal Science, University of São Paulo; Thiago B. Kirsten, Dr., Psychoneuroimmunology Laboratory, University Paulista (UNIP); Eduardo Bondan, Dr., University Paulista (UNIP)

#### **Poster 62-S**

##### ***Microglia are implicated in brain region-specific tumor-induced neuroinflammation and behavioral comorbidities***

Lindsay Strehle, MS; Corena Grant, PhD; Lauren Otto, BS; Leah Pyter, PhD, Institute for Behavioral Medicine Research, Ohio State University

#### **Poster 63-S**

##### ***Effects of Broad-spectrum Antibiotic Administration and Germ-free Status on Voluntary Wheel Running Behavior***

Noah Hutchinson, BS; Selena Wang, BS; Martin Lundy; Alec Thompson; Rodney Johnson, PhD; Jacob Allen, PhD; Jeffrey Woods, PhD, UIUC

#### **Poster 64-S**

##### ***Anxiety and depression following pollen exposure in severe seasonal allergy***

Freja Anckers, MSc, Department of Psychology, Uppsala University; Catarina Lensmar, PhD, Department of Clinical Neuroscience, Karolinska Institutet; Bianka Karshikoff, PhD, Department of Social Studies, Stavanger University; Sandra Tamm, PhD, Department of Clinical Neuroscience, Karolinska Institutet; Anna Andreasson, PhD, Department of Psychology, Stockholm University; Mats Lekander, PhD, Karolinska Institutet and Stockholm University



**Poster 65-S*****The Impact of Hyperglycemia on Cognitive and Affective Outcomes in Mice***

Kayla Gilley, MA; Hailey Rodgers, BS; Riley McCready, HSDG; Laura Kusumo, HSDG; Grace Hall, HSDG; Elisabeth Vichaya, PhD, Baylor University

**Poster 66-S*****Norepinephrine inhibits lipopolysaccharide-stimulated TNF- $\alpha$  but not oxylipin induction in n-3 / n-6 PUFA enriched cultures of circumventricular organs***

Fabian Johannes Pflieger, PhD, Institute of Veterinary Physiology and Biochemistry, Justus Liebig University Gießen; Jacqueline Wolf, Dr.; W. Andreas Nockher, Dr. rer. med, Institute for Laboratory Medicine, Pathobiochemistry, and Molecular Diagnostics, UKGM, Marburg; Jessica Hernandez, M.Sc.; Daniela Ott, TA; Christoph Rummel, Dr. vet. med., Institute of Veterinary Physiology and Biochemistry, Justus Liebig University Gießen

**Poster 67-S*****How to find glial cells in lymphatic tissue: The problems of desmin or GFAP expression in stromal cells and oligodendrocytes being out of their element***

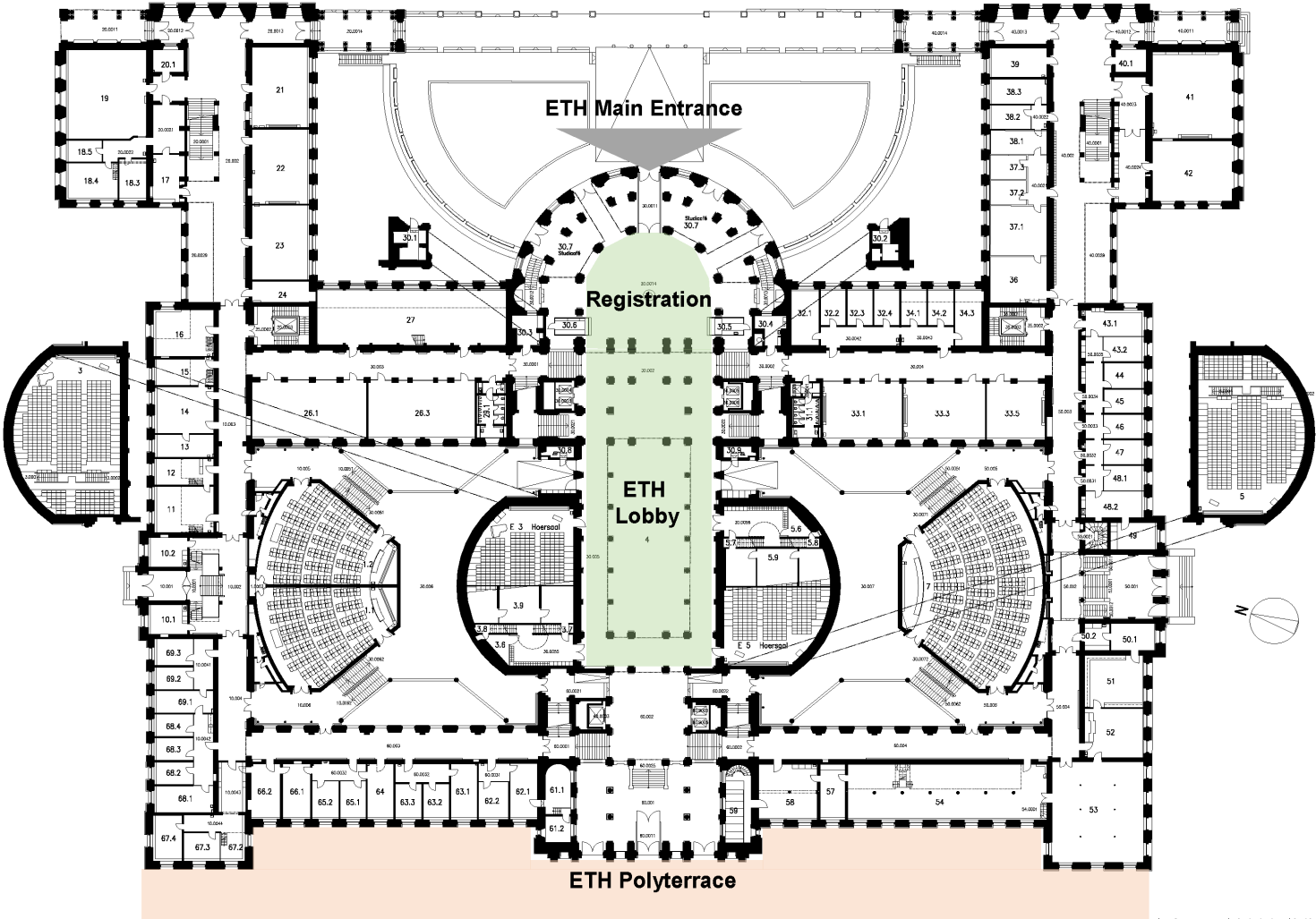
Clemens Wülfing, Group Leader; Hauke Günther, Senior Postdoc; Stephan Henne, Senior Postdoc; Jasmin Oehlmann, Technical Assistance; Julia Urban, M.Sc.; Desiree Pleizier, M.Sc; Niclas Renevier, M.Sc., Group for Interdisciplinary Neurobiology and Immunology, University of Hamburg; Christian Lohr, Group Leader, Division of Neurophysiology, University of Hamburg

**Poster 68-S*****Characterization of an intestinal epithelial cell-specific FFAR2 conditional knockout mouse for investigating communication in the gut-brain axis***

Maria Elisa Caetano-Silva, PhD; Laurie Rund, PhD; Mario Vailati-Riboni, PhD; Katiria Soto-Diaz, BS; Jeffrey Woods, PhD; Andrew Steelman, PhD; Rodney Johnson, PhD, University of Illinois

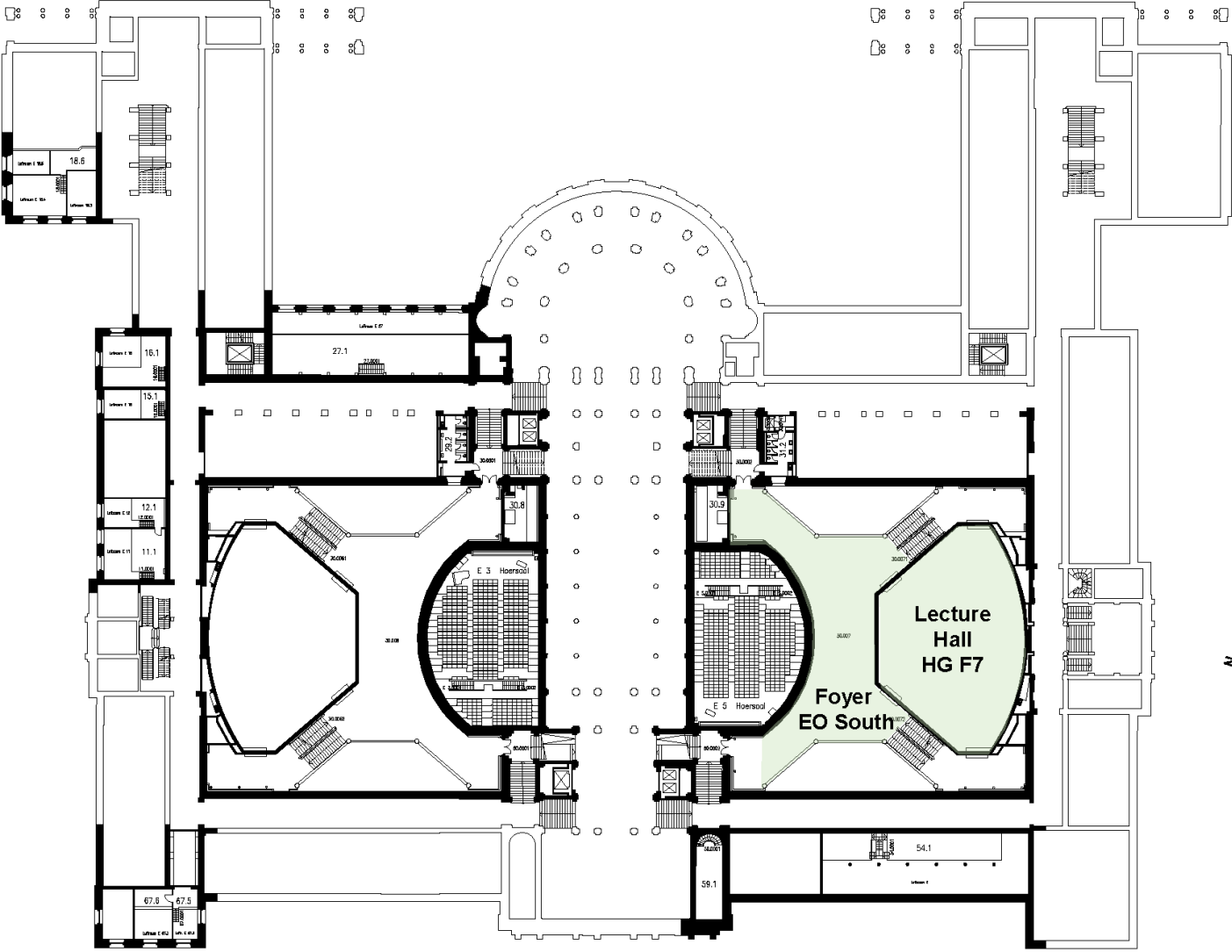
# ETH Floor Plan

## Floor E



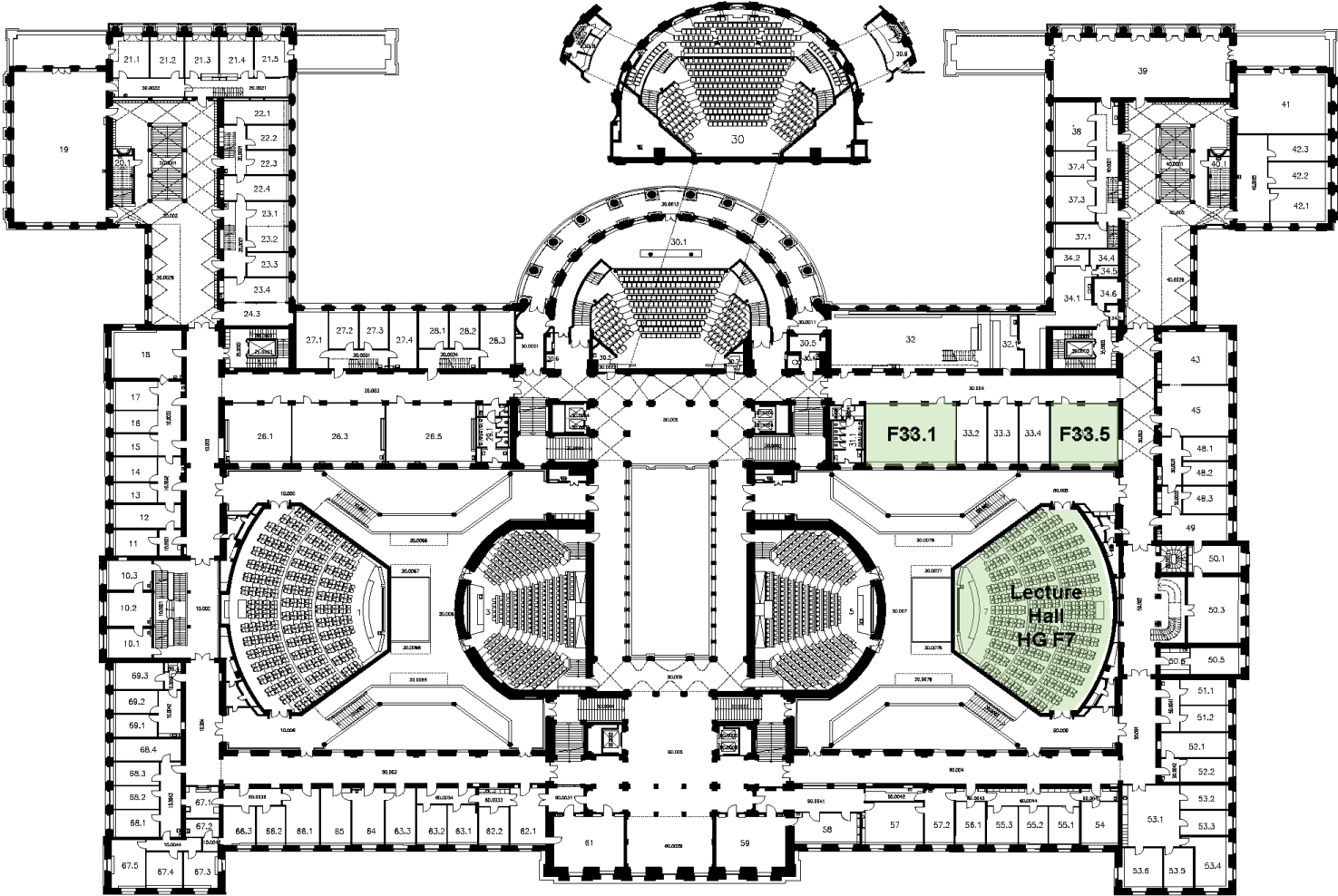
# ETH Floor Plan

## Between Floors E & F



# ETH Floor Plan

## Floor F





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