

# The HPP Guide to HUPO2018 Orlando, 30 Sept-4 Oct, 2018

Venue: *Loews Royal Pacific (Universal Studios) in Orlando*

(Last updated September 12, 2018)

## Sunday HPP Investigators Program

Sept 30, 2018

The investigators of the HUPO Human Proteome Project will hold their annual workshops to assess and accelerate progress on the major components of the Project: Chromosome-centric HPP teams (C-HPP), Biology and Disease-based HPP teams (B/D-HPP), and the Resource Pillars for Antibody Profiling, Mass Spectrometry, Knowledge bases/Bioinformatics, and Pathology. Specific foci are identification of PE2,3,4 Missing Proteins, generation of functional annotations for uncharacterized uPE1 proteins, and connecting C-HPP and B/D-HPP teams. We aim to complete the “protein parts list” (C-HPP), to stimulate applications of targeted proteomics to organ-specific biological studies (B/D-HPP), and to address many bioinformatics and antibody profiling challenges, as well as the “uncovered proteome”.

This meeting is open to all Congress registrants; all are welcome.

There is a USD \$60 fee to attend the Sunday workshop to defray the catering costs. You can add the workshop ticket via your Congress registration.

**07:30-8:50 C-HPP EC (Room: Banda Sea 2) and B/D-HPP EC (Room: Gardenia 2) breakfast working meetings.** *Coffee will be available for general participants from 8:40.*

**9:00-9:15 HPP Overview: Gil Omenn** (Room: Banda Sea 1)

**9:15-10:15 HPP Reports** (8 min + 4 min Q&A each): **Chair: Gil Omenn**

1. C-HPP (Young-Ki Paik)
2. B/D-HPP (Fernando J. Corrales)
3. Knowledge Base Pillar (Eric Deutsch & Lydie Lane)
4. MS Pillar (Sue Weintraub)
5. Pathology Pillar (Dan Chan/Ed Nice)

**10:15-12:00 Featured HPP Session: Chair: Mark Baker**

1. C-HPP 2.0 Future Plans (Chris Overall; 20 min including questions)
2. B/D-HPP, Prioritization of Popular Proteins (Kun-Hsing Yu; 20 min including questions)
3. Antibody Validation Initiative (52 min) (Jochen Schwenk, Introduction and Revised Antibody Validation Pillars; Cecilia Lindskog Bergström, Validation in HPA/WB and Plasma; Heng Zhu, Antibodies to Transcription Factors; Lydie Lane, Use of Antibody Data in neXtProt; Cristina Al-Khalili Szigyarto, Antibodypedia)

**12:00-13:00 Lunch and Informal Discussion**

**13:00-13:40 RoundTable 1: Major Public DBs and MS Data Analysis (Lydie Lane, Eric Deutsch)**

Leaders of neXtProt, PeptideAtlas, and ProteomeXchange will highlight developments at each DB and invite comments and inquiries from end users

**13:40-14:20 RoundTable 2: Exploring the Undiscovered “Dark” Proteome (Young-Ki Paik/ Fernando Corrales)**

Accelerating progress to identify PE2-4 Missing Proteins  
Generating functional annotations for uPE1 Proteins  
Mobilizing/connecting C-HPP and B/D-HPP teams

**14:20-15:40 Two Breakout Sessions: B/D-HPP PI Meeting (Banda Sea 1) and C-HPP PIC Meeting (Banda Sea 2)**

**B/D-HPP: Open session on Popular Proteins with specific presentations by the PIs of the following initiatives: Rheumatoid Diseases, PediOme, Glycoproteomics, Kidney/Urine-HPP, Diseaseome**

**C-HPP: Organizational/Collaborative and Scientific Strategies (PIs of C-HPP teams)**

**15:40-17:00 Reception (everyone invited)**

*15:45 HUPO Council Meeting for Councilors (Baker, Pennington, Overall, Weintraub, Martens, Hui Zhang)*

# Bioinformatics Hub at HUPO 2018

(Chairs: Eric Deutsch, Andy Jones)

Date: Sept 30-Oct 3, 2018

Venue: *Poster Hall in Loews Royal Pacific*

## Programs are planned in the Bioinformatics Hub each day Sunday-Wednesday.

Sunday access the Bioinformatics Hub (Pacifica 11-12) via the side foyer (look for signs). Monday - Wednesday the hub will be open and accessible via the Poster-Exhibit Hall.

Consult the wiki for details: <https://github.com/CompMS/Overview/wiki/HUPO-2018>

## Overview

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The Bioinformatics Hub is a place where bioinformaticians gather together with three aims: (i) to provide their advice, knowledge, and support to anyone with a relevant question; (ii) to discuss current issues and challenges in proteomics informatics with the entire community; and (iii) to work on interesting, synergistic projects and to freely exchange tools, algorithms and know-how with each other, across all labs, seniorities and levels of experience.

This is achieved by specific sessions in the agenda. The Ask the Experts sessions (every day between 16h00 and 17h00) explicitly open the space to all with questions, and leverages the combined experience and expertise of all Hub participants to answer those questions. The Special Interest Topic sessions address a current problem or issue in proteomics informatics in a short (max 20 min) presentation, followed by an open discussion of the topic by all participants, moderated by the organizers. The last type of session, the workshop style sessions, allow participants to work on synergistic topics of their choice, or to exchange know-how, tools and algorithms with the other participants.

The Bioinformatics Hub operates under an open door policy, and that anyone is free to walk in at any time and participate in the work or the discussions, ask a question of someone, or just listen in on what is going on! The bioinformatics hub is meant to be inclusive, low threshold, and aimed at knowledge exchange across all levels of experience.

## Hashtags for Twitter

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[#BioinformaticsHub](#) [#HUPO2018](#)

## Bioinformatics Hub Schedule:

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### Sunday September 30:

- **08h30-09h00:** Arrival
- **09h00-9h30:** Introduction and concept by organizers and stand-up introductions (Andy Jones et al.)
- **9h30-12h00:** Pitches: up to 15 minutes for anyone who wants to propose a topic to work on, for instance:
  - a tool, library or approach that could be useful for someone
  - a problem they want address (during the meeting) and can use some help on
  - a currently neglected question that they think is important to the field
  - a tool that is currently missing and which they possibly would like to (help) develop
- **12h00-13h00:** Lunch break.
- **13h00-17h45:** Split up into smaller groups and proceed workshop style

### Monday October 1:

- **09h15-09h30:** Arrival

- **09h30-10h30:** Special Interest Topic #1 - Analyzing the HPP MS Pillar 96-phosphopeptides standard assay results (Ulrike Kusebauch, Magnus Palmblad, Michael Hoopmann, Susan Weintraub)
- **10h30-12h20:** Special Interest Topic #2 - "Stranded peptides" in silico approach
- **12h20-12h45:** Lunch break
- **12h45-13h45:** Special Interest Topic #3 - Computational predictions for uPE1
- **14h00-16h00:** Special Interest Topic #4 - PSI/ProteomeXchange session
- **16h00-17h00:** Ask the Experts session

## Tuesday October 2:

- **09h15-09h30:** Arrival
- **09h30-10h30:** Special Interest Topic #5 - How to handle exceptions to the HPP Guidelines
- **10h30-12h20:** Special Interest Topic #6 - How to handle exceptions to the HPP Guidelines (cont)
- **12h20-12h45:** Lunch break
- **12h45-13h45:** Special Interest Topic #7 - Bioinformatics Guidance for Use of Popular Proteins
- **14h00-16h00:** Special Interest Topic #8 - Free time (computational session)
- **16h00-17h00:** Ask the Experts session

## Wednesday October 3:

- **09h15-09h30:** Arrival
- **09h30-10h30:** Special Interest Topic #9 - TBD
- **10h30-12h20:** Special Interest Topic #10 - TBD
- **12h20** End. Exhibit hall teardown

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## Potential Pitches:

- Analyzing the HPP MS Pillar 96-phosphopeptides standard assay results (Sue Weintraub)
- "Stranded peptides" in silico approach to finding PE2-4 Missing Proteins (Tadashi Yamamoto)
- Computational predictions for uPE1 protein functional annotation with I-TASSER and COFACTOR (Gil Omenn)
- Universal Spectrum Identifier (Eric Deutsch)
- Bioinformatics Guidance for Use of Popular Proteins Research (Kun-Hsing Yu, Maggie Lam, Jenny van Eyk)
- How to handle exceptions to the HPP Guidelines for certain proteins (Eric Deutsch, Lydie Lane, Gil Omenn)
- Ongoing work of the Proteomics Standards Initiative (Andy Jones)
- Status and future work of the ProteomeXchange Consortium (Juan Antonio Vizcaíno)
- Achieving universal implementation of data standards (Andy Jones)
- Implementing the PSI Extended FASTA Format (PEFF) (Eric Deutsch)
- JPR Annual Special Issue on Proteomics Informatics Tools (TBC)
- Gathering evidence for translation of lncRNAs (Eric Deutsch)

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## Attending Organizers:

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| <ul style="list-style-type: none"> <li>• Eric Deutsch</li> <li>• Juan Antonio Vizcaíno</li> <li>• Andy Jones</li> <li>• Nuno Bandeira</li> </ul> | <ul style="list-style-type: none"> <li>• Sue Weintraub</li> <li>• Lennart Martens</li> <li>• EuBIC (<a href="http://proteomics-academy.org">proteomics-academy.org</a>)</li> </ul> |
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## Other Confirmed Participants

- All others are welcome!

## HPP Track M-W of Concurrent/Parallel Sessions within HUPO2018

October 1-3, 2018

Venue: *Loews Royal Pacific (Universal Studios) in Orlando*

The HPP has organized 6 thematic sessions for the Mon-Wed HPP concurrent tracks. Chair and Co-Chair are presently known. Each will present two invited speakers and 5 speakers selected from abstracts submitted. On each of the 3 days of the HUPO2018 Congress, there will be one HPP parallel session in the morning (10:30am) and one parallel session in the afternoon (2:00pm).

### [HPP: PARTNERING WITH PATHOLOGY TOWARD PRECISION MEDICINE \(MonD am\)](#)

Session Chairs: Daniel Chan and Ed Nice

#### Invited Speakers

- Stephen Pennington (University College Dublin)
- Peter Stewart (Royal Prince Alfred Hospital Sydney)

#### Promoted Speakers (selected from abstracts)

- Elena Ponomarenko (Institute of Biomedical Chemistry, Russia)
- Tadashi Yamamoto (Niigata University, Japan)
- Michael Roehrl (Memorial Sloan Kettering, USA)
- Danni Li (University of Minnesota, USA)
- Ruth Hüttenhain (University of California, San Francisco, USA)

### [HPP TARGETING THE PROTEOME IN WOMEN'S HEALTH \(MonD pm\)](#)

Session Chairs: Burcu Ayoglu and Jenny Van Eyk

#### Invited Speaker

- Tony Whetton

#### Promoted Speakers

- Katelyn C Cook (Princeton University, USA)
- Yuan Zhang (Binzhou Medical University)
- Tanja Meyer (University Medicine Greifswald, Germany)

### [HPP: METABOLIC REMODELING AND HUMAN DISEASE \(TuesD am\)](#)

Session Chairs: Ferdinando Cerciello and Fernando Corrales

#### Invited Speakers

- Cristina Alonso (OWL Metabolomics, Spain))
- Matthias Mann (Max Planck Institute for Biochemistry, Germany)

#### Promoted Speakers (selected from abstracts)

- Michelle Hill (QIMR Berghofer Medical Research Institute and University of Queensland Diamantina Institute, Australia)
- Fernando Corrales (Nacional de Biotecnología, CSIC; CIBEREHD, Spain)
- Ling Lin (Fudan University, China)
- Felix Elortza (CIC bioGUNE and ProteoRed-ISCI, Spain)

[HPP: HARNESSING THE IMMUNE SYSTEM TO FIGHT DISEASE \(TuesD pm\)](#)

Session Chairs: Arie Admon and Ileana Cristea

Invited Speaker

- Etienne Caron (ETH Zurich, Switzerland)
- Aleksandra Nita-Lazar (National Institute for Allergy and Infectious Disease, NIH, USA)

Promoted Speakers

- Arie Admon (Technion-Israel Inst. of Tech, Israel)
- Laura Murray (Princeton University, USA)
- Subhra Chakraborty (National Institute of Plant Genome Research, India)
- Rebekah L. Gundry (Medical College of Wisconsin, USA)
- Pierre Thibault (Universite de Montreal, Canada)

[HPP: HUMAN CHEMOSENSATION: OLFACTION, TASTE, AND SIGHT \(WedD am\)](#)

Session Chairs: Mark Baker and Jong Shin Yoo

Invited Speakers

- Andreas Keller (Columbia University, USA)
- Daniella Reed (Monell Institute, USA)

Promoted Speakers (selected from abstracts)

- Jing Gao (Shanghai Institute of Materia Medica)
- Meleha Ahmad (Wilmer Eye Institute, USA)
- Subash Adhikari (Macquarie University, Australia)
- Heeyoun Hwang (Korea Basic Science Institute, South Korea)
- Speaker Roundtable

[HPP: UNRAVELING TISSUE PATHOLOGY THROUGH CELL SAMPLING \(WedD pm\)](#)

Session Chair: Emma Lundberg

Invited Speakers

- Cecilia L. Bergstrom (Uppsala University, Sweden)
- Bernd Bodenmiller (University of Zurich, Switzerland)

Promoted Speakers

- David Muddiman (North Carolina State University)
- Florian Meier (Max Planck Institute of Biochemistry, Germany)
- TBD
- TBD
- TBD

# Thursday HPP Day Post-Congress Program

October 4, 2018

Venue: *Loews Royal Pacific (Universal Studios) in Orlando*

The HPP Workshop following the main HUPO2018 Congress program will focus on exciting developments in human proteomics and strategic planning for the HPP. We will draw upon insights from the Congress Program, including the Mon-Wed HPP Track and the Bioinformatics Hub. We will have deep dives into the scientific strategy and goals for the components and collaborations of the HPP. There will be feature presentations and discussions about potential new directions and roadmaps for the next few years. The aim is a two-year strategic plan for HPP, including broad engagement of the biology and clinical communities globally.

All are welcome to this important meeting and to participate in building the future of HPP. There is an HPP-subsidized 100 USD fee to attend the Thursday workshop to defray the catering costs. You can add the workshop ticket through your Congress registration.

## **08:30–09:30 (Coffee from 8:15)**

### **What Exciting Prospects Lie Ahead? Insights drawn from the Sunday Investigators Meeting, Bioinformatics Hub, the Congress Tracks, and Discussions**

Moderated by Rob Moritz, supported by Jennifer Watson

4-5 min presentations by Jenny van Eyk, Ileana Cristea, Ferdinando Ceriello, Jochen Schwenk, Chris Overall plus five more young investigators being identified

Lightning presentations with general participation

### **09:30–12:10 HPP Town Hall Meeting: Deep Dive on HPP Goals, Strategy and Deliverables for the next 3 years, and Potential for Big International Translational Projects**

Chairs: Fernando Corrales & Young-Ki Paik

### **0930-1010: How can we accelerate identification of the remaining 2186 PE2,3,4 Missing Proteins?** Siqi Liu, Eric Deutsch, Lydie Lane, Jochen Schwenk, Nuno Bandeira, Chris Overall

Can all proteins be identified at the stringency our Guidelines require?

What is the upper limit on detectability of predicted proteins by MS?

By MS combined with affinity or physical enrichment methods?

### **1010-1050: Identification and functional annotation of PTMs Chair: Alexey Nesvizhskii**

Ultrafast Methods for Detection of PTMs (Alexey Nesvizhskii)

Results from the 96-phosphopeptide HPP sample community analysis (representative of MS Resource Pillar)

Roles of PTMs in Cardiovascular Disorders (Peggi Angel)

Proteogenomics; splice variants; proteoforms (Neil Kelleher)

### **1050-1130: Functional Studies: Protein-protein interactions; Single-Cell Analyses**

How are protein-protein interaction data being incorporated by neXtProt for missing proteins and functionally unannotated proteins?? (Lydie Lane)

Methods and applications of single-cell analyses of proteins (Bernd Bodenmiller, pending)

### **1130-1210: Translational/Clinical Proteomics Strategies & Priorities**

How can we more effectively incorporate proteomics in clinical research across many specialties? (Steve Pennington)

What lessons can be learned from international collaborations for Cancer Proteomics and applied for other disease categories? (Henry Rodriguez)

**12:10-13:10** Lunch, with HPP Senior **Scientific Advisory Board Discussion**

**Outline of Two-Year Strategic Plan for the HPP** (Mark Baker)

Lead Discussants: Cathy Costello, John Yates (Gil Omenn, moderator)

General Discussion

**13:00-14:00 Emerging Technologies for the HPP** (Chairs: Rob Moritz and John Yates)

**Using CRISPR/Cas9** genome-editing techniques to modify human iPSC and differentiated cells for Hemophilia B treatment/potential impact for proteomics

Bonghee Lee, Gachon University School of Medicine, Incheon, Korea

**Proteogenomics:** Revisiting human protein-coding genome annotation

Janne Lehtiö, Science for Life Laboratory, Karolinska, Stockholm, Sweden

**14:00–15:00 What are the Grand Challenges for the Entire Field of Proteomics?**

Speaker: Mike Snyder

General discussion

**15:00–15:30 Session devoted to Gil Omenn's Leadership of the HPP over the past 8 years**

with Light Reception (Chair: Mark Baker)

## **APPENDIX**

### **Membership Directory of HPP Leaders**

#### **A. 2018 HPP Executive Committee Members**

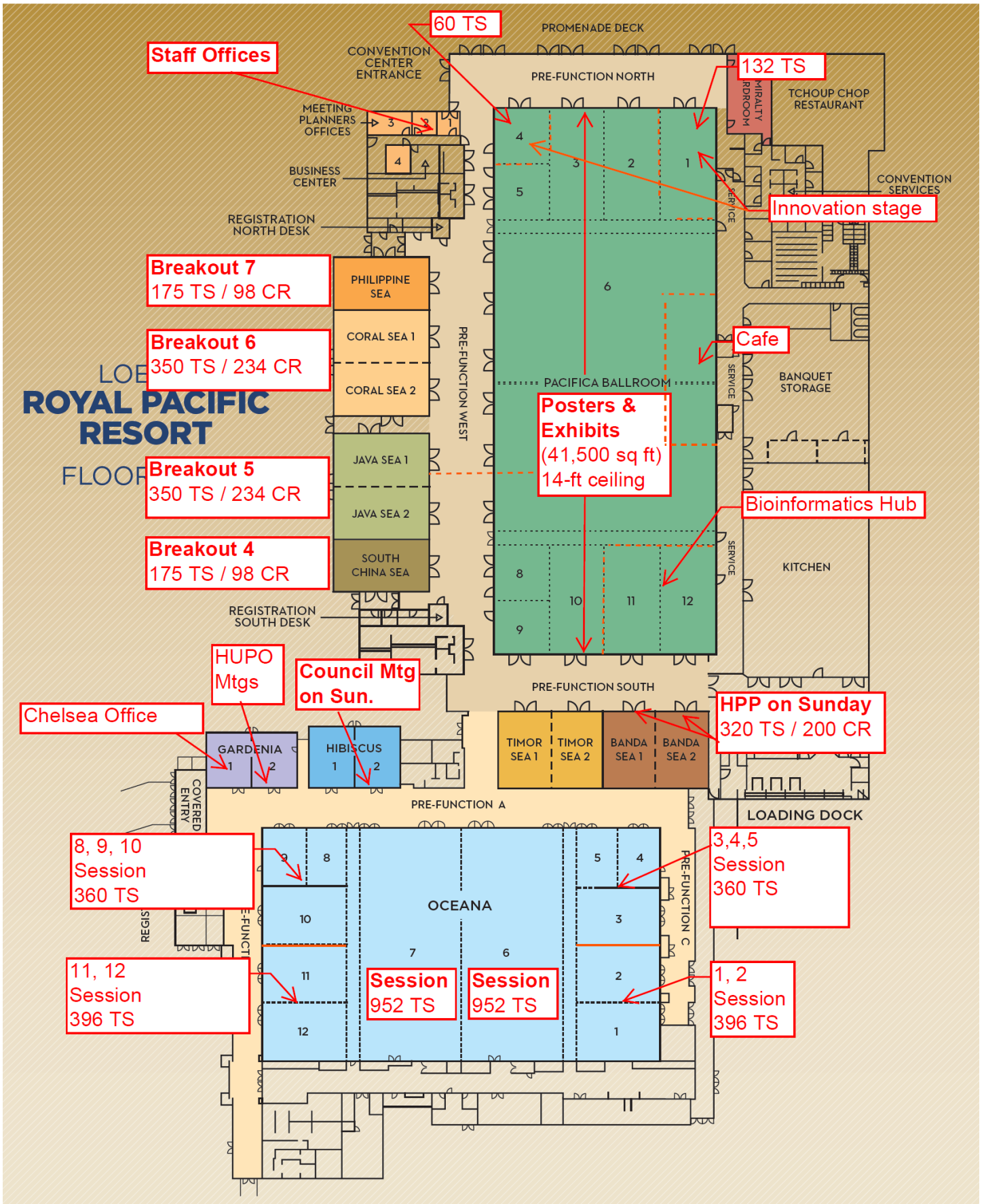
1. Gil Omenn, Chair (USA)
2. Mark Baker, HUPO Past-President and HPP Chair-elect (Australia)
3. Young-Ki Paik, C-HPP Chair (Korea)
4. Fernando Corrales, B/D-HPP Chair (Spain)
5. Eric Deutsch, KB Pillar Chair/PSI Chair (USA)
6. Jochen Schwenk, AB Pillar Chair/Plasma Chair (Sweden)
7. Jennifer Van Eyk, B/D-HPP Past Chair (USA)
8. Lydie Lane, C-HPP Co-Chair (Switzerland)
9. Chris Overall, C-HPP Co-Chair (Canada)
10. Sue Weintraub, MS Pillar Chair (USA)
11. Siqi Liu, China, Member-at-Large, Asia (China)

#### **B. 2018 HPP Senior Scientific Advisory Board**

1. Mike Snyder (Chair; USA)
2. Lee Hood (ISB, USA)
3. Mathias Uhlen (Sweden)
4. Matthias Mann (Germany)
5. John Yates (USA)
6. Cathy Costello (USA)
7. Naoyuki Taniguchi (Japan)
8. Kate Rosenbloom (USA)
9. Kun-Liang Guan (USA)



**Rooms for HUPO Workshops and Scientific Sessions**  
(last updated July 20, 2018)



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