International Molecular Pathological Epidemiology Meeting

IMPEM Series

The Second International Molecular Pathological Epidemiology (MPE) Meeting

December 4-5, 2014

Jimmy Fund Auditorium,

Dana-Farber Cancer Institute

A Welcome from IMPEM Chair

December 4th, 2014

Dear Colleagues,

WELCOME to The Second International Molecular Pathological Epidemiology (MPE) Meeting!

As the Conference Chair, I welcome you to this unique meeting! The number of registrants has exceeded 100, from about 15 countries, and 15 US States! I hope that you find this transdisciplinary meeting to be an active and informative forum for exchanging viewpoints and generating new ideas. I hope that you will talk to many attendees, who are experts and have great visions for our future.

On April 24 (my ?th birthday), 2013, The First International MPE Meeting was held in Boston as a closed meeting. We regret that we could not invite most of you at that time. The purpose of the first meeting was to discuss and get a consensus on how to make a strategic plan in this emerging area. It was agreed that we would launch the open meeting series. We have been working to realize the open meeting since then.

For this second meeting, you can see that discussion topics span from pathology, epidemiology, biostatistics and bioinformatics. It is increasingly common to characterize molecular features of disease (particularly, cancer) in routine clinical practice and epidemiologic research. It provides us with challenges as well as enormous opportunities. We hope that, even if we cannot be an expert in all of these areas, we can work together to address the challenges and take advantages of the opportunities.

As one specific project which will be discussed, there is no research guideline specific in this MPE field. I have started working with the STROBE group, which has been successful in publishing the STROBE guideline and STROBE-ME (molecular epidemiology) guideline. Over the next few meetings, we can consider to make the "STROBE-MPE" guideline.

I would like to thank all of the members of the Program Committee, all of the speakers, moderators and discussants, the members of my MPE laboratory, and the Dana-Farber Cancer Institute (which provides the Jimmy Fund Auditorium as our venue). Without the supports of all of these contributors, this meeting would not have been possible. In particular, I would thank Dr. Zhi Rong (Ziron) Qian , Dr. Tingting Li and Ms. Tracy Baker, who compiled this program book.

Wishing you a very productive and enjoyable meeting for the two days!

Best regards,

Shuji Ogino
Conference Chair
The Second International Molecular Pathological Epidemiology (MPE) Meeting\

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Enzymatics for sponsoring coffee and water for the meeting

Program Committee

Shuji Ogino	Andrew Beck	Colin Begg
Peter Campbell	Kathryn Fitzgerald	Edward Giovannucci
Kentaro Inamura	Rafael Irizarry	Karin Jirström
Karl Kelsey	Sun A Kim	Aya Kuchiba
Paul Lochhead	Nadine McCleary	Hongmei Nan
Akihiro Nishi	Reiko Nishihara	Amanda Phipps
Elizabeth Poole	Zhi Rong Qian	Donna Spiegelman
Eric Tchetgen Tchetgen	Piet van den Brandt	Molin Wang
Kana Wu	Xuehong Zhang	

Poster Referees

Peter Campbell, Paul Lochhead, Hongmei Nan, Amanda Phipps, Zhi Rong Qian

Meeting Secretary: Tracy Baker (tracy_baker@dfci.harvard.edu)

Program book design: Zhi Rong Qian, Tingting Li, Tracy Baker

Conference Introduction

The Second International Molecular Pathological Epidemiology (MPE) Meeting is a meeting open to research community around the world, with free registration. We expect the implementation of Annual (or "1.5 year-nual") International MPE Meeting. The First International MPE Meeting was held as a closed meeting in Boston, MA on April 24, 2013, and it went very successfully.

The most important premise of epidemiology is that individuals with the same disease name have similar causes, and can be expected to exhibit a similar disease evolution. In the past two decades, our knowledge on disease pathogenesis has improved considerably, and disease classification has also transformed, incorporating molecular mechanisms of disease. Most epidemiology studies including molecular epidemiology studies have still relied on disease data from clinical records, which have been collected without detailed assessment of molecular pathology. In a minority of epidemiology studies in the past decades, molecular pathology techniques have been used, typically under the umbrella term of "molecular epidemiology". This has hindered the development of not only specific methodologies to analyze disease heterogeneity and pathogenesis, but also standardized research guidelines. In fact, STROBE-ME (molecular epidemiology) guidelines do not adequately address molecular pathology and heterogeneity of disease.

To advance integrative molecular and population-level health science and address the unique research challenges specific to the field of MPE requires bringing together experts in various fields including molecular pathology, epidemiology, biostatistics, bioinformatics, and nutritional and environmental sciences. This effort of integrating seemingly divergent fields can lead to a greater understanding of heterogeneity of the pathogenic process, and the impact of environmental, dietary, lifestyle, and genetic factors and their interactions on that process. Brainstorming and discussion fostered by the MPE Meeting will lead to the development of new methodologies to address the unique research questions and challenges in this emerging field. Our specific aims of the MPE Meeting are:

1. To develop conceptual and practical framework of MPE
2. To cultivate and expand opportunities in MPE
3. To address challenges in MPE
4. To initiate effort of making guidelines in MPE research ("STROBE-MPE")

This unique meeting can provide an unprecedented opportunity for interdisciplinary collaboration and integration of multiple diverse fields. Eventually, we aim to establish the MPE Meeting as a regular annual science forum, where we can advance population science, and optimize our training and education systems for 21st century medicine and public health.

Meeting Agenda

December 4

7:30-8:20	**Registration**
8:20-9:05	**Overview (moderator: Hongmei Nan)**
8:20-8:35	Meeting aims; opportunities and challenges in MPE **Shuji Ogino**
8:35-8:50	MPE enhances evidence for causality **Edward Giovannucci**
8:50-9:05	Discussion
9:05-9:15	**Break**
9:15-10:15	**Colorectal and breast cancers (moderator: Kana Wu)**
9:15-9:30	MPE of obesity and colorectal cancer **Peter Campbell**
9:30-9:45	Aspirin and risk of colorectal cancer: molecular epidemiological insights **Andrew Chan**
9:45-10:00	Etiologic heterogeneity of breast cancer **Montserrat Garcia-Closas**
10:00-10:15	Discussion
10:15-10:25	**Break**
10:25-11:15	**Special topics session (moderator: Shuji Ogino)**
	Cancer tissue microbiome
10:25-10:40	Association of fusobacterium species with colon cancers **Matthew Meyerson**
10:40-10:50	Discussion
	TCGA
10:50-11:05	TCGA gastric cancer study: using comprehensive genomic data to refine a cancer classification schema **Adam Bass**
11:05-11:15	Discussion
11:15-11:25	**Break**
11:25-11:45	**Breast cancer, continued (moderator: Kana Wu)**
11:25-11:40	Integration of molecular pathology and epidemiology: interdisciplinary approach to understanding the pathogenesis of breast cancer **Rulla Tamimi**
11:40-11:45	Discussion
11:45-12:20	**MPE pooling projects (moderator: Liam Murray)**
11:45-12:00	Pooling data to disentangle the etiologies of lymphoma subtypes **Lindsay Morton**
12:00-12:10	Integration of the Tumor Genome into the Genetics and Epidemiology of Colorectal Cancer Consortium (GECCO) **Ulrike Peters**
12:10-12:20	Panel discussion **Lindsay Morton, Ulrike Peters, Stephanie Smith-Warner,** and **Piet van den Brandt**
12:20-1:15	**Lunch and networking** Speakers, moderators, committee members and up to 10 others can have space at: Mayer 4F Conference Room (20 people) Lab conf room 380H, Amory bldg, 3rd fl. (10-15 people) CMOP conf room Jimmy Fund 2FL (10 people)
1:15-3:00	**Statistical opportunities and challenges in MPE (moderator: Donna Spiegelman)**
1:15-1:30	Etiologic heterogeneity: a conceptual framework for statistical analysis **Colin Begg**
1:30-1:45	Statistical methods to study disease heterogeneity: using categorical, ordinal, and multi-marker classifiers **Molin Wang**
1:45-2:00	Discussion

2:00-2:15	Discovering and characterizing associations in presence of etiologic heterogeneity **Nilanjan Chatterjee**
2:15-2:30	Assessing associations between breast cancer outcomes and risk factors in a multiple tumor marker setting: the issue of correlated and missing tumor marker data **Bernard Rosner** & **Kathryn Fitzgerald**
2:30-2:45	Some methodological considerations in the face of outcome heterogeneity **Eric Tchetgen Tchetgen**
2:45-3:00	Discussion
3:00-3:15	**Break**
3:15-4:15	**High dimensional data and cellular heterogeneity (moderator: Reiko Nishihara)**
3:15-3:30	Title TBD **Rafael Irizarry**
3:30-3:45	DNA methylation biomarkers of human immune cells **Karl Kelsey**
3:45-4:00	Computational methods for significance testing on 'omics data from heterogeneous populations **Andrew Beck**
4:00-4:15	Discussion
4:15-4:30	**Break**
4:30-5:15	**Pathology and pathogenesis (moderator: Paul Lochhead)**
4:30-4:45	Pregnancy & the postpartum period: etiologic clues and possibilities for breast cancer prevention **Mark Sherman**
4:45-5:00	Molecular characteristics of cancer-adjacent normal: associations with tumor characteristics and survival **Melissa Troester**
5:00-5:15	Discussion
5:15-5:30	**Group photos (all attendees are invited)**
5:45-------	**Group dinner #1, Longwood Grille and Bars, Boston (Bookded for 30)**

December 5

8:30-9:30	**Various cancers (moderator: Amanda Phipps)**
8:30-8:45	Renal cell carcinoma **Piet van den Brandt**
8:45-9:00	Integrating tissue biomarker data in prostate cancer epidemiology studies **Lorelei Mucci**
9:00-9:15	An epidemiological approach to understanding tumor heterogeneity in ovarian cancer **Shelley Tworoger**
9:15-9:30	Discussion
9:30-9:45	**Break**
9:45-11:25	**Open discussions of opportunities and issues relevant to MPE**
9:45-10:10	Interdisciplinary education and training led by **Lorelei Mucci** and **Melissa Troester**
10:10-10:35	Study design and statistical methods led by **Molin Wang** and **Aya Kuchiba**
10:35-11:00	Routine collection of molecular pathology data led by **Andrew Beck** and **Mark Sherman**
11:00-11:25	Issues in pooling MPE data led by **Lindsay Morton**, **Ulrike Peters, Stephanie Smith-Warner**, and **Piet van den Brandt**
11:25-12:25	**Lunch and networking** Speakers, moderators, committee members can have space at: Dana 1130 (30 people) Conference Moderators and Poster Referees (6 people) Mayer 4F Conference Room
11:25-12:30	**Announcements of Award Winners**
12:30-2:30	**Future plans**
12:30-12:50	Research guideline development (STROBE-MPE) led by **Shuji Ogino**
12:50-1:10	Possible collaboration projects led by **Molin Wang** and **Edward Giovannucci**
1:10-1:30	Relationships with other societies led by **Peter Campbell**, **Piet van den Brandt,** and **Liam Murray**
1:30-2:00	Planning Third International MPE Meeting led by **Amanda Phipps**, **Elizabeth Poole**, and **Shuji Ogino**
2:00-2:10	R13 meeting grant led by **Shuji Ogino** and **Peter Campbell**
2:10-2:30	Meeting proceeding writing and publication led by **Reiko Nishihara** and **Shuji Ogino**
2:30	**Meeting Adjourn**
2:30-2:40	**Group photos (speakers, moderators, committee members)**