



Genomic and Proteomic Approaches to Complex Heart, Lung, Blood, & Sleep Disorders

August 3 – August 11, 2007

For more information please contact: Laura.Lelansky@jax.org

Friday, August 3rd
Evening Registration and Optional Tutorials

4:00-7:00p.m. **Registration and Dinner Buffet** (*The Regency, Stone House*)

7:00-9:00 **Introduction to Molecular Genetics** (*The Regency, Stone House*)
Greg Hawkins, Ph.D., Wake Forest University

Saturday, August 4th
Introductions and Linkage Analysis in Humans
All lectures and workshops are in the Stone House

7:30-8:30 a.m. **Breakfast** (*The Regency, Proctor Ballroom*)

Lecture Location: The Regency, Proctor Ballroom

8:30-8:35 **Welcome and Announcements**
Luanne Peters, Ph.D., The Jackson Laboratory

8:35-8:45 **Course Evaluations**
Suzanne Hart, University of Maine

8:45 –10:00 **Using Mouse Genetics to Find Human Disease Genes**
Beverly Paigen, Ph.D., The Jackson Laboratory

10:00-10:15 **Group Photo**

10:15-10:30 **Break**

10:30-12:00p.m. **Assessing Whether the Disease is Genetic**
Terri Beaty, Ph.D., Johns Hopkins University

12:00-1:00 **Lunch** (*The Regency, Proctor Ballroom*)

- 1:00 - 2:00** **Linkage Analysis: Parametric and Non-parametric**
Deborah Meyers, Ph.D., Wake Forest University
- 2:00-3:15** **Gene-environment Interactions**
Terri Beaty Ph.D., Johns Hopkins University
- 3:15-3:30** **Break**
- 3:30-4:30** **Genetic Epidemiology-Tutorial and Discussion**
Terri Beaty, Ph.D., Johns Hopkins University
- 4:30-6:00** **Free Time**
- 6:00-7:00** **Dinner** (*The Regency, Vanderbilt Suite – Room 1001*)
- 7:00-9:00** **Introductions - Students and Faculty** (*The Regency, Vanderbilt Suite - Room 1001*)
Eugene Bleecker, M.D., Wake Forest University

Sunday, August 5th

Gene Mapping in Humans

All lectures and workshops are in the Stone House

- 7:30-8:30 a.m.** **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

- 8:30-9:30** **Gene Identification in Family Studies (Linkage Disequilibrium and Haplotype Mapping)**
Deborah Meyers Ph.D., Wake Forest University
- 9:30-10:15** **Introduction to Association Studies**
Jianfeng Xu MD, Dr.PH, Wake Forest University
- 10:15-10:30** **Break**
- 10:30-12:00** **Association Studies, Cont.**
Jianfeng Xu MD, Dr.PH, Wake Forest University
- 12:00-1:00 p.m.** **Lunch** (*Stone House*)
- 1:00-1:45** **Introduction to Genome Wide Association and Family Studies**
Deborah Meyers Ph.D., Wake Forest University
- 1:45-2:30** **Technologies for Genome Wide Association Studies**
Debbie Nickerson, Ph.D., University of Washington
- 2:30-2:45** **Break**

- 2:45-4:00** **Association Case Study: C-reactive protein**
Debbie Nickerson, Ph.D., University of Washington
- 4:15** Shuttle to Carriage Roads for Biking or Hiking
- 4:30-6:00** **Free Time – Hike or Bike:**
Guided Bike Tour: Witch Hole Pond Carriage Road
(Transportation to Duck Brook Bridge will be provided)
- 6:00** Shuttle Back to The Regency
- 6:00-7:00** **Dinner** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

- 7:00-7:45** **Study Design Workshop**
Eugene Bleecker, M.D., Wake Forest University
Deborah Meyers Ph.D., Wake Forest University
- 7:45-9:00** **Computer Tutorial: choosing TagSNPs, Haploview, Genome Variation Server** - Debbie Nickerson

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| <p>Monday, August 6th QTL Mapping in Animal Models and Computer Resources <i>All lectures and workshops are in the Stone House</i></p> |
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- 7:30-8:30 a.m.** **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

- 8:30-8:45** **Review**
Deborah Meyers Ph.D., Wake Forest University
- 8:45-9:15** **Basic Mouse Genetics**
Luanne Peters, Ph.D., The Jackson Laboratory
- 9:15-10:15** **Complex Trait Analysis with Inbred Line Crosses**
Gary Churchill, Ph.D., The Jackson Laboratory
- 10:15-10:30** **Break**
- 10:30-12:00** **QTL Analysis in Mice**
Beverly Paigen, Ph.D., The Jackson Laboratory
- 12:00-1:00 p.m.** **Lunch** (*Stone House or outside*)
- 1:00-2:15** **Introduction to NCBI/Entrez/dbSNP**
Donna Maglott, Ph.D., National Center for Biotechnology Information

2:15-3:30 **Bioinformatics Resources for Complex Trait Analysis**
Carol Bult, Ph.D., The Jackson Laboratory

3:30-3:45 **Break**

Computer Workshop – The Regency, Stone House

3:45-6:00 **Mouse Genome Informatics (MGI) Tutorial, NCBI, Entrez, dbSNP**
David Shaw, Donna Maglott, Carol Bult

6:00-7:00 **Dinner** (*The Regency, Vanderbilt Suite – Room 1001*)

Computer Workshop: The Regency, Stone House

7:00-9:00 **Computer Workshops - Continued**
David Shaw, Donna Maglott, Carol Bult

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| <p>Tuesday, August 7th Finding QTL Genes and Computer Resources <i>All lectures and workshops are in the Stone House</i></p> |
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7:30-8:30 a.m. **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

8:30-8:45 **Review**
Luanne Peters, Ph.D., The Jackson Laboratory

8:45-9:45 **Genetics of Asthma**
Eugene Bleecker, M.D., Wake Forest University

9:45-10:00 **Break**

10:00-11:00 **CD14 as a Model for Gene-Environment Interaction**
Donata Vercelli, M.D., University of Arizona

11:00-12:00 **Pharmacogenetics**
Eugene Bleecker, M.D., Wake Forest University

12:00-1:00 p.m. **Lunch** (*The Regency, Stone House*)

1:00-2:30 **Candidate Gene Analysis**
Ben King, M.S., The Jackson Laboratory

2:30-2:45 **Break**

2:45-6:00 **Computer Workshops**
Carol Bult, Ph.D., The Jackson Laboratory
David Shaw, M.S., The Jackson Laboratory
Donata Vercelli, M.D., University of Arizona
Ben King, Ph.D., The Jackson Laboratory

6:00 **Free Time/ Dinner on Your Own**
Free Island Explorer Shuttle to town and Acadia National Park

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| <p>Wednesday, August 8th Finding and Proving QTL Genes <i>All lectures and workshops are in the Stone House</i></p> |
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7:30-8:30 a.m. **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

8:30-8:45 **Review**
Eugene Bleecker, M.D., Wake Forest University

8:45-9:45 **Proteomic-Review of Methodologies and Technologies**
Andy Greene, Medical College of Wisconsin

9:45-10:00 **Break**
Back Up Day for Group Photo

10:00-11:00 **Sleep Disorders**
Allan Pack M.B.,Ch.B., Ph.D., University of Pennsylvania

11:00-12:00p.m. **In Vitro Analysis of Gene Function**
Joachim Herz MD, University of Texas, Southwestern

12:00-1:00 **Lunch** (*The Regency, Stone House*)

12:00 – 1:00 *Faculty Meeting / Luncheon – Vanderbilt Suite*

1:00-1:30 **In Vitro Analysis of Gene Function, Cont-**
Joachim Herz MD, University of Texas, Southwestern

1:30-3:00 **Constructing Animal Models – Transgenics and Knockouts**
Joachim Herz MD, University of Texas, Southwestern

3:00-3:15 **Break**

3:15-4:15 **Functional Characterization of a Gene: IL13**
Donata Vercelli, M.D., University of Arizona

4:15-6:00 **Free Time**

6:00-7:00 **Dinner** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

7:15 **Ethics**
Deborah Meyers, Wake Forest University

Thursday, August 9th
Characterizing the QTL Gene and Microarrays
All lectures and workshops are in the Stone House

7:30-8:30 a.m. **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

8:30-10:15 **Narrowing QTLs and Finding Genes**
Beverly Paigen, Ph.D., The Jackson Laboratory

10-10:15 **Break**

10:15 -11:15 **Bioinformatic Toolbox for Narrowing QTLs**
Luanne Peters, Ph.D., The Jackson Laboratory

11:15-12:00 **Haplotype Association Mapping**
Bev Paigen, Ph.D., The Jackson Laboratory

12:00-1:00p.m. **Lunch** (*The Regency, Stone House*)

1:00-2:30 **Proteomic Approaches to Understanding Complex Phenotypes**
Andy Greene, Medical College of Wisconsin

2:30 – 3:30 **Pathway Analysis for Complex Traits**
Benjamin King, Ph.D, The Jackson Laboratory

3:30 – 3:45 **Break**

3:45-6:00 **Options:**
1. Stay and ask questions of Andy Greene
2. Stay and ask questions of Ben King
3. Workshop – Using the JQTL Program (animal QTL mapping)
Randy von Smith, Ph.D., Jackson Laboratory
(workshop will last about 2 hours)
4. Free Time

6:00-7:00 **Dinner** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

7:00-9:00 **Students Present Grant Proposals**

Friday, August 10th
Expression Studies
All lectures and workshops are in the Stone House

7:30-8:30 a.m. **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

- 8:30-9:45** **Transcriptome Maps and Global Expression Assays**
Derry Roopenian, Ph.D., The Jackson Laboratory
- 9:45-10:00** **Break**
- 10:00-11:00** **Statistical design and analysis of gene expression microarray experiments**
Gary Churchill, Ph.D., The Jackson Laboratory
- 11:00-12:00** **Using Microarrays in Complex Trait Analysis**
Naftali Kaminski, M.D., University of Pittsburgh Medical Center
- 12:00-1:00 p.m.** **Lunch** (*The Regency, Stone House*)
- 1:00-3:00** **Workshop on Microarrays: Practical Approaches**
Naftali Kaminski, M.D., University of Pittsburgh Medical Center
- 3:00- 4:00** **Population-Based Causal Inference and Identification of Regulatory and Target Genes for Complex Traits**
Renhua Li, The Jackson Laboratory
- 4:00-6:00** **Free Time**
- 6:00-7:00** **Lobster Dinner** (*The Regency, Stone House*)

Saturday, August 11th

All lectures and workshops are in the Stone House

- 8:00-9:15 a.m.** **Breakfast** (*The Regency, Vanderbilt Suite – Room 1001*)

Lecture Location: The Regency, Stone House

- 9:15-10:45** **Mouse Phenome Database**
Molly Bogue, Ph.D., The Jackson Laboratory
- 10:45-11:00** **Break**
- 11:00-12:00p.m.** **Chemical Mutagenesis – Making New Mutants**
Karen Svenson, The Jackson Laboratory
- 12:00-1:00** **Lunch** (*The Regency, Stone House*)

End of Course