The Future of Genomic Medicine V Conference
Scripps Seaside Forum - Scripps Institution of Oceanography
Robert Paine Scripps Forum for Science, Society and the Environment
Samuel H. Scripps Auditorium
La Jolla, California
Thursday, March 01 and Friday, March 02, 2012

Course Overview
The fifth Future of Genomic Medicine conference will focus on the extraordinary advances that are occurring in the field, which include whole genome and exome sequencing, pharmacogenomics, and advances in cancer treatment as an outgrowth of genomics. The 2012 conference will include an in depth session on “idiopathic diseases”, an area in which there has been particularly remarkable progress. We will feature sessions on hot topics from non-scientists to speakers who are journalists, regulatory experts, and lawyers. Our overarching goal is to spearhead efforts to change medicine using genomics.

Overall Course Educational Objectives:
- Demonstrate the unmet needs of medicine today with respect to more targeted, individualized prevention and treatments.
- Discuss the opportunities of the genome, proteome, metabolome discovery to change medical practice as it exists today.
- Assess how changes and advances in technology are rapidly ushering in a whole array of new pathways for individualized medicine of the future.
- Explore specific strategies in cancer, idiopathic and pharmacogenomic futuristic interventions.

Faculty 2012

Course Director

Eric J. Topol, MD
Director, Scripps Translational Science Institute
Chief Academic Officer, Scripps Health
Professor of Genomics, The Scripps Research Institute
The Gary and Mary West Chair of Innovative Medicine
La Jolla, California

Planning Committee

Samuel Levy, PhD
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Scripps Health
Director of Biostatistics and Bioinformatics
The Scripps Translational Science Institute
Professor, Department of Molecular and Experimental Medicine, The Scripps Research Institute
La Jolla, California
Conference Faculty

Joe, Retta, Alexis & Noah Beery

Note: Joe Beery is the Senior Vice President, Chief Information Officer at Life Technologies

Aravinda Chakravarti, PhD
Director, Center for Complex Disease Genomics
McKusick-Nathans Institute of Genetic Medicine
Johns Hopkins University
Baltimore, Maryland
Director, Institute of Molecular Medicine
Delhi, India

Evan Eichler, PhD
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Professor of Genome Sciences
University of Washington
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St. Jude Children's Research Hospital
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University of Tennessee Colleges of Medicine and Pharmacy
Memphis, Tennessee

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And Political Science
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Laboratory of Genetics
Salk Institute for Biological Studies
La Jolla, California

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University Killam Professor
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Senior Editor, Forbes Magazine

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Medical College of Wisconsin
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Director of the Center for Pharmacogenomics
University of Florida, Colleges of Pharmacy and Medicine
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Children’s Hospital and Harvard Medical School
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Director, i2b2 national Center for Biomedical Computing
Co-Director, HMS Center for Biomedical Informatics
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Daniel MacArthur, PhD  
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Analytic and Translational Genetics Unit  
Massachusetts General Hospital  
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Elaine R. Mardis, PhD  
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Co-Director of The Genome Institute  
Washington University School of Medicine at Washington University Medical Center  
St. Louis, Missouri

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Director of Research and Academic Affairs  
Institute for Systems Biology (ISB)  
Seattle, Washington

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Division of Cardiovascular Diseases  
Scripps Clinic  
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Hakan Sakul, PhD  
Executive Director and Head of Diagnostics  
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University of Cambridge, Addenbrooke's Hospital  
Cambridge, United Kingdom

Christofer Toumazou, FRS, FREng  
Winston Wong Chair in Biomedical Circuits  
Chief Scientist, Institute of Biomedical Engineering  
Director, Centre for Bio-Inspired Technology

Jeffrey M. Trent, PhD  
President and Research Director  
Translational Genomics Research Institute (TGen)  
Phoenix, Arizona

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Executive Vice President and Chief of Medical Affairs  
UnitedHealth Group

Chris Van Gorder, FACHE  
President and Chief Executive Officer  
Scripps Health  
San Diego, California

Daniel D. Von Hoff, MD  
Physician-in-Chief, Distinguished Professor  
Translational Genomics Research Institute (TGen)  
Professor of Medicine, Mayo Clinic and Chief Scientific Officer  
Scottsdale Healthcare and US Oncology

Joseph C. Wu, MD, PhD  
Associate Professor of Medicine & Radiology  
Institute of Stem Cell Biology  
Stanford University School of Medicine  
Stanford, California

Issam Zineh, PharmD, MPH  
Associate Director of Genomics  
Office of Clinical Pharmacology  
United States Food and Drug Administration  
Co-Director, Biomarker Qualification Program  
Office of Translational Sciences  
Silver Spring, Maryland
Program 2012
Thursday, March 01, 2012

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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>7:30 a.m.</td>
<td>Registration and Breakfast</td>
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<tr>
<td>8:15 a.m.</td>
<td><strong>Welcome and Opening Remarks</strong>&lt;br&gt;Chris Van Gorder, FACHE, President and Chief Executive Officer, Scripps Health&lt;br&gt;Eric J. Topol, MD, Director, Scripps Translational Science Institute</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td><strong>How Did Sequencing Our Genomes Change Our Lives?</strong>&lt;br&gt;Joe, Retta, Noah and Alexis Beery</td>
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<tr>
<td>9:00 a.m.</td>
<td><strong>Morning Session: Changing Medical Practice – Pharmacogenomics</strong>&lt;br&gt;Moderators: Samuel Levy, PhD and Eric Topol, MD</td>
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<td>9:00 a.m.</td>
<td>Exome sequencing to understand pharmacogenomics&lt;br&gt;Samuel Levy, PhD</td>
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<td>9:20 a.m.</td>
<td>Pharmacogenetic testing to optimize treatment of patients with coronary artery disease&lt;br&gt;Matthew J. Price, MD</td>
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<td>9:40 a.m.</td>
<td>Hypertension pharmacogenomics – Advances and Challenges&lt;br&gt;Julie Johnson, PharmD</td>
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<td>10:00 a.m.</td>
<td>Break, View Exhibits and Networking</td>
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<tr>
<td>10:20 a.m.</td>
<td>Predicting Adverse Events with Commonly Used Drugs&lt;br&gt;Michael R. Hayden MB, ChB, PhD</td>
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<td>10:40 a.m.</td>
<td>Pharmacogenomics to optimize treatment of childhood leukemia&lt;br&gt;William E. Evans, PharmD</td>
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<tr>
<td>11:00 a.m.</td>
<td>Morning Panel Discussion/Q&amp;A&lt;br&gt;Morning Session Speakers and Moderators</td>
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<td>11:25 a.m.</td>
<td><strong>Hot Topics in Genomic Medicine</strong>&lt;br&gt;Moderators: Evan Eichler, PhD and Sarah Murray, PhD</td>
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<td>11:25 a.m.</td>
<td>Title TBA&lt;br&gt;Reed Tuckson, MD</td>
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<td>11:50 a.m.</td>
<td>DNA Transistors and Handheld Sequencing&lt;br&gt;Christofer Toumazou, FRS, FREng</td>
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<td>12:15 p.m.</td>
<td>Lunch, View Exhibits and Networking</td>
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<td>1:00 p.m.</td>
<td>Social Networks and Evolution&lt;br&gt;James Fowler</td>
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<td>1:30 p.m.</td>
<td>Genetic Basis of Autism and Developmental Delay&lt;br&gt;Evan Eichler, PhD</td>
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<tr>
<td>1:50 p.m.</td>
<td><strong>Afternoon Session I: Changing Medical Practice – Chronic Diseases</strong>&lt;br&gt;Moderators: Nicholas Schork, PhD and Bradley Patay, MD</td>
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<td>1:50 p.m.</td>
<td>Genomic Diagnosis of Pediatric Conditions&lt;br&gt;Hakon Hakonarson, MD, PhD</td>
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<td>2:15 p.m.</td>
<td>Infrastructure for clinical genomics</td>
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</table>
2:40 p.m. Genes, pathways, environment and clinical implications in autoimmune diabetes
John A. Todd, FRS, PhD

3:05 p.m. Afternoon Session I Panel Discussion/Q&A
Afternoon Session I Speakers and Moderators

3:25 p.m. Break, View Exhibits and Networking

### Afternoon Session II: Changing Medical Practice – Rare Idiopathic Diseases
Moderators: Eric Topol, MD and Nicholas Schork, PhD

3:45 p.m. Personalized Medicine: Whole genome sequencing in the clinic
Howard J. Jacob, PhD

4:10 p.m. Exome Sequencing in Mendelian Neurodevelopmental Disorders
Joseph G. Gleeson, MD

4:35 p.m. Efficient detection of causative mutations for rare diseases: Rethinking clinical practice
Stanley F. Nelson, MD

5:00 p.m. Whole-genome sequencing and the detection of disease-causing mutations
Lynn Jorde, PhD

5:25 p.m. Afternoon Session II Panel Discussion/Q&A
Afternoon Session I Speakers and Moderators

5:45 p.m. Wrap Up & Adjourn

5:45 – 7:30 p.m.

Thursday Evening Welcome Reception at Scripps Seaside Forum
Location: 8610 Kennel Way
La Jolla, California 92037

Friday, March 02, 2012

7:30 a.m. Registration and Breakfast

8:00 a.m. The Creative Destruction of Medicine
Eric Topol, MD

### Morning Session: New Approaches
Moderators: Aravinda Chakravarti, PhD and Hakan Sakul, PhD

8:45 a.m. Understanding and Predicting Sudden Cardiac Death: The View from Genes
Aravinda Chakravarti, PhD

9:05 a.m. Revisiting Lamarck and Mendel: Transgenerational genetic effects on health and disease
Joseph Nadeau, PhD

9:30 a.m. Healthy vs. Unhealthy Genomes: Individual and Population Perspectives
Nicholas Schork, PhD

9:55 a.m. Clinical Development Out of Academia Based on Genetic Stratification
Hakon Hakonarson MD, PhD

10:20 a.m. Morning Panel Discussion/Q&A
Morning Session Speakers and Moderators

10:45 a.m. Break, View Exhibits and Networking
# Broad Perspectives

Moderators: Eric Topol, MD

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<th>Time</th>
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<tr>
<td>11:05 a.m.</td>
<td>The Collision: What Happens When Medicine Gets Genetic?</td>
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<tr>
<td></td>
<td>Matthew Herper</td>
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<td>11:30 a.m.</td>
<td>All Genomes Are Dysfunctional: Gene-Disrupting Variants in Healthy Individuals</td>
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<td>Daniel MacArthur</td>
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<td>11:55 a.m.</td>
<td>Thinking Inside the Box - The Regulatory Science Paradox</td>
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<td>Issam Zineh, PharmD, MPH</td>
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<td>12:20 p.m.</td>
<td>Panel Discussion/Q&amp;A</td>
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<td></td>
<td>5th Annual Scripps Genomic Medicine Award Presentation</td>
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<td>12:30 p.m.</td>
<td>Lunch, View Exhibits and Networking</td>
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# Afternoon Session I: Changing Medical Practice – Cancer

Moderators: Elaine Mardis, PhD and Jeffrey Trent, PhD

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<tr>
<td>1:15 p.m.</td>
<td>Rx/Dx co-development: the Xalkori story</td>
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<td>Hakan Sakul, PhD</td>
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<td>1:40 p.m.</td>
<td>Cancer Genomes and Personalized Medicine</td>
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<td>Thomas J. Hudson, MD</td>
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<td>2:05 p.m.</td>
<td>Using Biointelligence to Search the Cancer Genome: Knowledge Recovery Efforts to Move Towards Precision Medical Genomics (PMG)</td>
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<td>Jeffrey M. Trent, PhD</td>
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<tr>
<td>2:30 p.m.</td>
<td>A Relentless Molecular Pursuit Approach to Take Out Pancreatic Cancer</td>
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<td>Daniel D. Von Hoff, MD</td>
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<td>2:55 p.m.</td>
<td>Cancer Genome Evolution</td>
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<td>Elaine R. Mardis, PhD</td>
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<td>3:20 p.m.</td>
<td>Afternoon Panel I Discussion/Q&amp;A</td>
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<td>Afternoon Session I Speakers and Moderators</td>
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<td>3:45 p.m.</td>
<td>Break, View Exhibits and Networking</td>
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# Afternoon Session II: Diseases-in-a-Dish

Moderators: Samuel Levy, PhD and Fred Gage, PhD

<table>
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<th>Time</th>
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<tr>
<td>4:05 p.m.</td>
<td>Modeling Human Brain Disease with patient specific iPS cells</td>
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<td>Fred H. Gage, PhD</td>
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<tr>
<td>4:30 p.m.</td>
<td>The RASopathies: Studying inherited human disease via iPS</td>
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<td>Bruce D. Gelb, MD</td>
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<td>4:55 p.m.</td>
<td>Clinical Challenges of iPSC Therapy</td>
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<td>Joseph C. Wu, MD, PhD</td>
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<tr>
<td>5:20 p.m.</td>
<td>Afternoon Session II Panel Discussion/Q&amp;A</td>
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<td>Afternoon Session II Speakers and Moderators</td>
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<tr>
<td>5:45 p.m.</td>
<td>Wrap Up &amp; Adjourn</td>
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For additional information contact:

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Email: Medu.Edu@scrippshealth.org

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