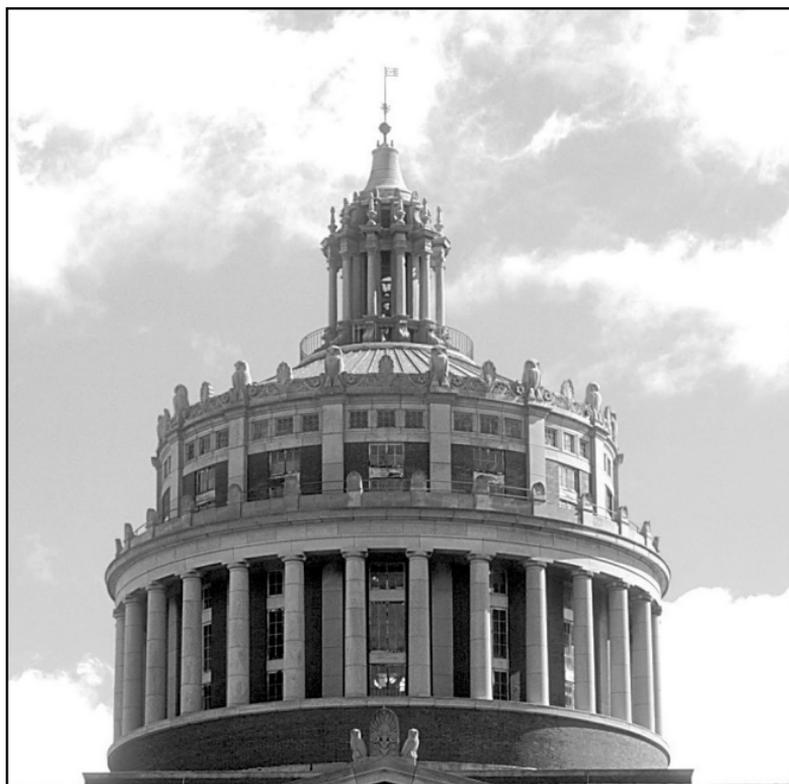


TWENTY-SECOND ANNUAL

UNIVERSITY OF ROCHESTER



GENETICS DAY

Friday, May 7th, 2010

Flaum Atrium

University of Rochester Medical Center

10:00 AM – 5:00 PM

22nd Annual Genetics Day Lectures

Class of '62 Auditorium

Morning session: 10:00 – 12:45pm

Dr. Alan V. Smrcka

Professor, Department of Pharmacology and Physiology

“Small Molecule Modulation of Protein-Protein Interactions In G Protein Signaling”

Dr. Bradford Berk

CEO, University of Rochester Medical Center

Senior Vice President for Health Sciences

Professor - Department of Medicine

“Genetics of Vascular Remodeling”

Dr. Rudi Fasan

Assistant Professor, Department of Chemistry

“Molecular Discovery with Engineered P450 Enzymes”

Dr. Charles Thornton

Professor, Department of Neurology

“Antisense Therapeutics for Genetic Disease: New Luster on Old Magic Bullet”

Afternoon session: 4:00 – 5:00

8th Annual Fred Sherman Lecture

Dr. Stuart L. Schreiber

Harvard University

Howard Hughes Medical Institute

“Relating the genetic features of cancers to drug efficacies using small-molecule probes”

The Fred Sherman Lecture



Dr. Fred Sherman, Ph.D. served as Chairman of the Department of Biochemistry and then of the Department of Biochemistry & Biophysics between 1982-1999. During this period and before he led international efforts to firmly establish yeast as the premier genetic eukaryotic model system. The NIH has funded Fred for a remarkable 44 years, during which time he has published over 280 papers, with more on the way. In 1970 Fred initiated the famous yeast course at Cold Spring Harbor, which has trained scores of today's leading investigators. He served as an instructor in this course for 17 years. Fred's many landmark contributions to several fields of molecular biology were recognized by his election to National Academy of Sciences in 1985. A few of his recent awards include the Arthur Kornberg Research Award (1999); Honorary Doctorate degree, University of Minnesota (2002); AAAS Fellow (2006); George W. Beadle Award, Genetic Society of America (2006); and the Lifetime Achievement Award, Genetic Society of America (2006). We are proud to acknowledge Fred's leadership role at the University of Rochester by establishing this named lecture in his honor.

Past Sherman Lecturers

- 2009 Robert Tjian
- 2008 Michael Snyder
- 2007 C. David Allis
- 2006 Ruth Lehmann
- 2005 Rudolf Jaenisch
- 2004 Cynthia Kenyon
- 2003 Fred Sherman

10:00 – 10:15
opening remarks
Dr. David Goldfarb

10:15 - 10:45
Dr. Alan V. Smrcka
Small Molecule Modulation of Protein-Protein
Interactions in G Protein Signaling

G proteins are critical transducers of signals downstream of G protein coupled receptors. G protein $\beta\gamma$ subunits mediate many of these signals and have potential as therapeutic targets for treatment of a number of diseases. Compounds that bind to and inhibit G protein $\beta\gamma$ subunit protein-protein interactions were identified by small molecule library screening using purified $G\beta\gamma$ as the target. Select compounds were shown to alter G protein $\beta\gamma$ subunit signaling to modify GPCR signals and have efficacy in animal models of disease. To understand how these compounds alter protein-protein interactions, biochemical and biophysical techniques, coupled with structure-activity analysis were employed to reveal multiple mechanisms for inhibition and potentiation of protein-protein interactions. Co-crystallization reveals a binding mode in the protein-protein interaction “hot spot” and suggests a mechanism by which compounds alter the activity of $G\beta\gamma$. These data will be important for directing future compound design and screening efforts as well as reveal novel mechanisms for modulating $G\beta\gamma$ signaling.

10:45 – 11:15

Dr. Bradford Berk

Genetics of Vascular Remodeling

Research in the Berk lab focuses on defining the mechanisms by which cells in the vascular wall respond to hemodynamic and hormonal stimuli. The four major research projects ongoing in the laboratory include 1) Mechanisms by which blood vessels sense changes in blood flow and modulate vessel size and tone. 2) The cellular mechanisms that cause hypertension are being investigated by analysis of the role of the renin angiotensin system and the kinases that regulate intracellular sodium. 3) The mechanisms by which changes in cellular redox state alter blood vessel function 4) A genetic model of vascular remodeling in the rat has been established. We recently demonstrated significant mouse strain-specific variation in the inflammatory response during carotid intimal (arterial) thickening in response to low flow. Our hypothesis is that the carotid inflammation leading toward intimal thickening is a genetically regulated trait. We identified three novel quantitative trait loci (QTLs) on chromosomes (chr) 2, 11, and 18 that control intimal formation in a genetic cross between C3HeB/FeJ (C3H) and SJL mice. We tested our hypothesis by applying a whole genome approach using infiltration of leukocytes to the carotid intima as a quantitative trait. We conclude that the genetic regulation of leukocyte infiltration in the carotid localizes to a previously published Im2 locus (chr 11) by our group. This observation reveals an important mechanistic relationship between leukocyte infiltration and intimal proliferation in response to decrease blood flow.

11:15 – 11:45 *Coffee Break, Flaum Atrium*

11:45 – 12:15

Dr. Rudi Fasan

“Molecular Discovery with Engineered P450 Enzymes”

The ubiquitous nature of aliphatic C-H bonds in biologically active natural and synthetic compounds make them most attractive sites for the chemical manipulation of organic molecules in order to improve or modulate their pharmacological properties. Selective functionalization of unreactive, aliphatic C-H bonds remains however one of the most challenging transformations in chemistry. Our approach to this problem involves the use of engineered P450 enzymes and P450-mediated aliphatic C-H bond oxidation as an alternative and concise synthetic strategy for functionally elaborating organic molecules of medical interest. This strategy was applied for the selective fluorination of various small-molecule pharmacophores. Fluorination is a useful tool for fine-tuning the pharmacokinetic and pharmacological properties of drugs and lead compounds but current fluorination methods are limited in scope. P450-based chemoenzymatic synthesis enabled the rapid identification of fluorinated drug derivatives with enhanced membrane permeability and increased resistance against metabolic breakdown. Our current efforts focus on probing the versatility of this method for manipulating complex structures and accelerating the discovery of natural product derivatives with improved or even novel biological activities.

12:15 – 12:45

Dr. Charles Thornton

*Antisense Therapeutics for Genetic Disease:
New Luster on Old Magic Bullet*

Now that we have detailed genetic information about Mendelian disorders, the expectation to “do something about it” becomes more urgent. Genetic diagnosis and counseling are critically important, but ultimately these cannot eradicate genetic disease. What, then, are the options for helping people who currently have or soon will develop symptoms of a genetic disorder? The field of neurogenetics can furnish some recent examples, both in terms of spectacular failures and hopeful signs of future success. This presentation will focus on treating genetic disease by using antisense oligonucleotides (ASOs) to target RNA. The general approach is not new, but the technology is maturing and the design is getting more sophisticated and diverse. Extensive analysis of the human transcriptome, coupled with the application of bio-organic chemistry to modify the hybridization and metabolic properties of oligonucleotides, has led to the development of ASOs with improved efficacy, toxicology and pharmacology. By using ASOs to modulate RNA processing or translation, or to block RNA-protein interactions, some promising results have been achieved in preclinical testing and early clinical trials.

Class of '62 Auditorium

Poster Session, Flaum Atrium

Presenter(s) listed in italics

* Student poster competition Δ Post-Doctoral poster competition

1	Electron Microscope Research Core Imaging Applications in Biomedical and Genetics Research <i>Karen L. Bentley</i> , Director Pathology and Laboratory Medicine
2	The Rochester Human Immunology Center and Core Laboratory at the University of Rochester School of Medicine and Dentistry Sally A. Quataert, Jyh-Chiang E. Wang, <i>Shelley Secor-Socha*</i> , Terry Wightman, Cristy Bell, Anne Marie Sessler, F. Eun-Hyung Lee, Deanna Maffett, Jennifer Scantlin, Jonathan Rebhahn and Tim Mosmann David H. Smith Center for Vaccine Biology and Immunology, Department of Microbiology and Immunology
3	Very-high-throughput ("Next Generation") sequencing at the Functional Genomics Center <i>Michelle Zanche, Meghann McBennett, ChinYi Chu, Steve Welle</i> Functional Genomics Center
4	Multi-Photon Core Facility <i>Anita Sun, Gheorghe Salahura, Maria Jepson, Karl Kasischke</i> Department of Neurology, Center for Neural Development and Disease, URM Core Facilities
5	URMC Confocal and Conventional Microscopy Core: Development of a full access state-of-the-art facility <i>Linda M. Callahan</i> Pathology/CNDD/URMC Core Facilities Program
6	The URM Flow Cytometry Core Facility Timothy Bushnell, Matt Cochran, Dave Fuller, Mitchele Au, <i>Matt Balys</i> , Jason Curran and Ashley Adams Center for Pediatric Biomedical Research
7	Mass spectrometry approaches to characterizing proteins in your experimental or clinical system <i>Kevin Welle, Jennifer Hryhorenko, Alan Friedman, and Fred Hagen</i> Biochemistry & Biophysics and Environmental Medicine

We are pleased to note that the URM Core Facilities Program is presenting posters 1-7.

The University of Rochester School of Medicine and Dentistry (URSMD) is committed to provide shared instrumentation and core facilities in support of basic, translational and clinical research across departments and centers. Poster presentations by university core facilities will highlight key shared resources, state of the art instruments and expertise available through the cores to support research.

8	*	Regulation of apoptosis, growth and development by CG3313 in <i>Drosophila</i> <i>Dae-Sung Hwangbo</i> , Benoit Biteau, Sneha Rath, Heinrich Jasper Department of Biomedical Genetics, Department of Biology
9	*	Chemotherapeutic agents negatively affect CNS progenitor cells and behavior in the mouse <i>Nunes, A</i> ; Han, R; Sprentall, K; Santoni, O; Noble, M., Department of Pharmacology and Physiology, and Department of Biomedical Genetics
10	*	Forward Genetic Screens for the Isolation and Characterization of Novel Structural Neonatal Models of Human Disease: A Multi-species Approach <i>GL Coles</i> , X Zhang, L Wiggins, L Baglia, LA Metlay, BI Goldman, J Cassady, JR Miles, GA Rohrer, JL Valet, and KG Ackerman Department of Biomedical Genetics, Pediatrics
11	*	Wilms Tumor 1 contributes to both the mesothelium of the anterior and posterior diaphragm and is associated with a variety of diaphragmatic hernia phenotypes <i>Nicole Paris</i> , Laurel Baglia, Xiaoyun Zhang, William T Pu, Kate G Ackerman Pediatrics and Biomedical Genetics
12	Δ	Interplay of Wnt and Fgf signaling determines the mesenchymal stem cell fate in skeletal development and disease <i>Takamitsu Maruyama</i> , Hsiao-Man Ivy Yu, Anthony J Mirando, Chu-Xia Deng and Wei Hsu Center for Oral Biology
13		Characterization of the human biliverdin reductase gene structure and regulatory elements: Promoter activity is enhanced by hypoxia and suppressed by TNF-alpha-activated NF-kB <i>Peter E.M. Gibbs</i> , Tihomir Miralem and Mahin D. Maines Biochemistry and Biophysics
14	*	Hypersensitivity to contact inhibition as a clue to the extraordinary cancer resistance of Naked Mole-Rats <i>Andrei Seluanov</i> , Christopher Hine, <i>Jorge Azpurua</i> , Marina Feigenson, Michael Bozzella, Zhiyong Mao, Kenneth Catania, Karen L. de Mesy Bentley, and Vera Gorbunova Department of Biology, University of Rochester; Department of Biochemistry and Biophysics, University of Rochester School of Medicine and Dentistry; Department of Biological Sciences, Vanderbilt University

15	Δ	Neonatal Oxygen Treatment Results in an Impaired CD8 ⁺ T-cell Response to a Pulmonary, but not Systemic Influenza Challenge <i>Matthew Giannandrea, Michael A. O'Reilly, Shauna H. Marr, Min Yee, Lisbeth Boule, B. Paige Lawrence</i> Departments of Environmental Medicine, Pediatrics, and Microbiology & Immunology
16	*	A novel bipotential progenitor in the murine olfactory epithelium <i>Mridula Vinjamuri, Catherine Ovitt</i> Biomedical Genetics
17	*	Jabba mediates sequestration of histones on embryonic lipid droplets <i>Zhihuan Li, Michael Welte</i> Department of Biology
18	Δ	Klarsicht interacts with kinesin-1 and cytoplasmic dynein through separable domains <i>Yanxun V. Yu, Sean L. Cotton, Michael A. Welte</i> Dept of Biology
19	*	CG7172 as a putative tumor suppressor gene <i>Su Jun Lim, Pranab Dutta, Willis X. Li</i> Department of Biomedical Genetics
20	*	The role of dCRIF in RNAi and heterochromatin formation <i>Su Jun Lim, Willis X. Li</i> Department of Biomedical Genetics
21	Δ	SIRT6 promotes DNA double strand break repair by mono-ADP-ribosylating PARP1 under oxidative stress <i>Zhiyong Mao, Christopher Hine, Amita Vaidya, Michael Bozzela, Andrei Seluanov and Vera Gorbunova</i> Department of Biology
22	Δ	The determinants of the structure and stability of yeast heterochromatin <i>Qun Yu, Xinmin Zhang, Lars Olsen and Xin Bi</i> Department of Biology
23		Gene Expression Changes in NIH3T3 Fibroblast Cells During Notch Mediated Cellular Transformation <i>Joshua Travers, John Dankert, Jeffrey Kamperman, and Bochiwe Hara-Kaonga*</i> School of Biological and Medical Sciences, Rochester Institute of Technology
24		Using Behavioral Procedures to Test for Genetic Differences <i>Troy Zarccone, Debbie Cory-Slechta</i> Environmental Medicine
25	*	Halo controls lipid-droplet motion via physical interactions with Kinesin-1 and Dynein <i>Michael A. Welte, Susan L. Tran, Gurpreet K. Arora</i>

		Department of Biology
26	Δ	Acetylation of Dna2 and FEN1 by p300 promotes formation of long flaps favoring DNA stability <i>Lata Balakrishnan</i> , Jason A. Stewart, Piotr Polaczek, Judith L. Campbell and Robert A. Bambara Biochemistry and Biophysics
27	*	Cartilage-specific Notch signaling regulates chondrocyte maturation and coordinates osteoblast differentiation <i>Anat Kohn</i> , Yufeng Dong, Alana Jesse, Tasuku Honjo, Regis J O'Keefe, Matthew J Hilton Department of Biomedical Genetics, Department of Orthopedics
28	*	Stimulation of the Primary Pathway of Okazaki Fragment Processing by Components of the Secondary Pathway <i>Ryan A. Henry</i> , Lata Balakrishnan, Stefanie Tan Yin-Ling, Judith L. Campbell, and Robert A. Bambara Department of Biochemistry and Biophysics
29		A Novel Mouse Model of Enhanced NF-κB Activity <i>Kathleen Gillespie</i> ¹ , Mary Hankin ¹ , Eijiro Jimi ² , Jie Dong ² , Sankar Ghosh ² , Brian Poligone ¹ ¹ Department of Dermatology and the James P. Wilmot Cancer Center. University of Rochester School of Medicine. ² Departments of Immunobiology and Dermatology. Yale University School of Medicine. New Haven, CT
30	*	The Redox/Fyn/c-Cbl pathway and its interaction with Cool-1: A novel pathway that regulates chemo-sensitivity in Glioblastoma <i>Brett M. Stevens</i> ^{1,2} , Christopher J. Folts ² , Wanchang Cui ² , Mark Noble ² Department of Pharmacology and Physiology ¹ and Department of Biomedical Genetics ²
31	Δ	Studies of the biology and protection of adverse neurological effects of systemic chemotherapy treatment in an animal model <i>Ruolan Han</i> , Kelcie Sprentall, Margot Mayer-Pröschel and Mark Noble Biomedical Genetics
32	Δ	Core neuronal circuitry modulates the behavioral output of sex-specific neurons in <i>C. elegans</i> <i>Renee M. Miller</i> , William R. Mowrey, and Douglas S. Portman Center for Neural Development and Disease, Department of Biomedical Genetics
33		Insulin signaling pathway genes facilitating the maintenance of thermotolerance and protein homeostasis <i>Andrew V. Samuelson</i> , Christopher Carr, and Gary Ruvkun Department of Biomedical Genetics

34	*	<p>Multicolor Flow Cytometry-based Analysis of the Glial Lineage in the Developing Spinal Cord</p> <p><i>Jonathan D. Cherry, Frederick G. Strathmann, Brendan C. Carlin, Ollivier Hyrien, Margot Mayer-Pröschel</i></p> <p>Department of Biomedical Genetics, Department of Statistics and Computational Biology, University of Rochester, Rochester, New York USA 14625, Department of Laboratory Medicine Chemistry Division, University of Washington, Seattle 98195.</p>
35		<p>R2 Retrotransposons Encode a Self-Cleaving Ribozyme</p> <p><i>Danna Eickbush and Thomas Eickbush</i></p> <p>Biology</p>
36	*	<p><i>fs5</i>: A Mutant that Disrupts Development of the Ray Sensory Neurons in <i>C. elegans</i></p> <p><i>Margaret Casazza and Douglas Portman</i></p> <p>Biomedical Genetics</p>
37	Δ	<p>GPR56 Inhibits VEGF Secretion and Suppresses Melanoma Angiogenesis</p> <p><i>Liquan Yang¹, Guangchun Chen¹, Glynis Scott², Sonali Mohanty¹, Shahinoor Begum³, Richard O. Hynes³, Lei Xu^{1,2}</i></p> <p>¹Department of Biomedical Genetics, ²Department of Dermatology, University of Rochester Medical Center, Rochester, NY 14642, ³Howard Hughes Medical Institute and Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, Cambridge, MA 02193</p>
38	*	<p>Modulation of IL-8 Activity Upon Lipid Raft Disruption and Nanoparticle Exposure</p> <p><i>Chia T. Thach and Jacob N. Finkelstein</i></p> <p>Environmental Medicine</p>
39	*	<p>SUMO-like domain containing Esc2p regulates global protein sumoylation and transcriptional silencing</p> <p><i>Holly Kuzmiak-Ngiam, Lars Olsen, and Xin Bi</i></p> <p>Biology</p>
40	Δ	<p>Identification of a novel gene, Rpl17, in vascular remodeling using integrative transcriptomic and genomic approaches</p> <p><i>Elaine M. Smolock^{1,2}, Vyacheslav A. Korshunov^{1,2}, Galina Glazko³, Xing Qiu³, Keith Connolly⁴, and Bradford C. Berk¹</i></p> <p>Aab Cardiovascular Research Institute¹, Departments of Medicine² and Biostatistics and Computational Biology³, University of Rochester School of Medicine and Dentistry and Department of Biochemistry⁴, University of Rochester</p>

41	Δ	<p>Reciprocal regulation of Wnt and Gpr177/mouse Wntless is required for embryonic axis formation</p> <p><i>Jiang Fu, Ming Jiang, Anthony J. Mirando, Hsiao-Man Ivy Yu, and Wei Hsu</i></p> <p>Center for Oral Biology, Department of Biomedical Genetics</p>
42	*	<p>Extracellular Matrix Protein CCN1 (Cyr61) Promotes Neutrophil Recruitment to the Lung</p> <p><i>Katherine Ringo, Rosemary Norman, and Jennifer L. Young</i></p> <p>Department of Pediatrics, Division of Neonatology</p>
43	Δ	<p>The T1α promoter mediates nuclear import of plasmid DNA into alveolar epithelial type I cells</p> <p><i>Lynn F. Gottfried and David A. Dean</i></p> <p>Department of Pediatrics</p>
44	*	<p>Design, Synthesis and Biological Activity of Small Molecules Targeting CUG^{exp} repeat RNA</p> <p><i>Leslie O. Ofori, Jason Hoskins, Charles A. Thorton and Benjamin L. Miller</i></p> <p>Chemistry, Dermatology, Neurology</p>
45	Δ	<p>SUMO-specific protease 2 is essential for trophoblast development</p> <p><i>Eri O Maruyama, Shang-Yi Chiu, Naoya Asai, Frank Costantini, Wei Hsu</i></p> <p>Department of Biomedical Genetics, Center for Oral Biology, James P Wilmot Cancer Center</p>
46	*	<p>Long-term CNS Sequelae of Gestational Iron Deficiency</p> <p><i>Dawn L. Lee¹, Frederick G. Strathmann IV², Jacob Mitchell³, Mahlon Johnson¹, Joseph Walton⁴, Margot Mayer-Pröschel²</i></p> <p>¹Department of Pathology and Laboratory Medicine, ²Department of Biomedical Genetics, ³Department of Neuroscience-UR, ⁴Department of Surgery</p>
47	*	<p>Cisplatin negatively affects CNS progenitor cells and behavior in the adult mouse</p> <p><i>Nunes, A; Han, R; Sprentall, K; Santoni, O; Noble, M.</i></p> <p>Department of Pharmacology and Physiology, and Department of Biomedical Genetics</p>
48	*	<p>Metabolic differences between Cancer Stem Cells and the non-stem cell tumor population</p> <p><i>Julie Babulski¹, Brett Stevens^{1,2}, Christopher Folts¹, Mark Noble¹</i></p> <p>¹Biomedical Genetics, ²Department of Pharmacology and Physiology</p>
49	*	<p>Understanding the mechanism of chemo-resistance in breast cancer</p> <p><i>Hsing-Yu Chen, Yin Yang, Brett Stevens, and Mark Noble</i></p> <p>Biomedical Genetics, Pathology, Pharmacology and Physiology</p>

50	*	A Role for the Redox/Fyn/c-Cbl Pathway in Modulating Oxidant-Induced Cell Cycle Arrest in Oligodendrocyte Precursor Cells <i>Christopher J. Folts</i> , Mark Noble Department of Biomedical Genetics!
51		The sequences in U3 of Human Immunodeficiency Virus 3' LTR contribute to efficient minus strand transfer in the cell <i>Dorota Piekna-Przybylska</i> , Carrie Dykes, Lisa M. Demeter, Robert A Bambara Department of Biochemistry and Biophysics, and Infectious Diseases Division, Department of Medicine
52	*	Regulation of Polyamine Metabolism Essential for Malignant Transformation <i>Aslihan Petenkaya</i> and Hartmut Land Department of Biomedical Genetics
53	*	Deregulation of the Cholesterol Transporter ABCA1 as a Causal Factor in Malignant Transformation <i>B. Smith</i> , H. McMurray, E. Sampson, H. Land Department of Biomedical Genetics
54	*	Microtubule Acetylation Enhances Binding of Plasmid DNA in Gene Transfer <i>MA Badding</i> , EE Vaughan, and DA Dean Departments of Environmental Medicine and Pediatrics
55	*	The Odd-skipped Family Transcription Factors Osr1 and Osr2 Control Synovial Joint Development <i>Yang Gao</i> , Yu Lan, Han Liu, Catherine E. Ovitt, Rulang Jiang Department of Biomedical Genetics and Center for Oral Biology
56		The <i>Mds1-Evi1</i> locus regulates hematopoietic stem cell dormancy in the mouse <i>Yi Zhang</i> , Charles Wuertzer, Fernando Camargo, and Archibald S. Perkins Department of Pathology and Laboratory Medicine
57		Regulation of ICAM-1 Expression in Endothelial Cells via Syk-Dependent Recruitment of p300 and Acetylation of RelA/p65 <i>Kaiser M. Bijli</i> , Fabeha Fazal, Mohammad Minhajuddin and Arshad Rahman Pediatrics
58	*	Role of Small Maf in CncC/dKeap1 (Nrf-2/Keap1) Mediated Stress Response and Aging <i>M. Mahidur Rahman</i> ¹ , Gerasimos Sykiotis ² , Dirk Bohmann ¹ ¹ Department of Biomedical Genetics, University of Rochester Medical Center, Rochester, NY 14642, ² Reproductive Endocrine Unit, Massachusetts General Hospital, Boston, MA 02114

59	*	<i>Drosophila</i> as a genetic model to study the effects of cigarette smoke <i>Olga Stolpnik</i> , Nirmalya Chatterjee and Dirk Bohmann Department of Biomedical Genetics
60	*	Identification of Cancer Initiating Cells in Malignant Melanoma <i>Shweta Tiwary</i> , Sonali Mohanty, Brad Martin, Xuan Li, Lei Xu Department of Biomedical Genetics
61	Δ	Mechanisms by which yeast Trm7 methylation of tRNA regulates cell growth <i>Michael P. Guy</i> and Eric M. Phizicky Department of Biochemistry and Biophysics
62	*	Definitive erythroid precursors with extensive self-renewal capacity emerge from the early mammalian embryo <i>Samantha England</i> , Kathleen E. McGrath, Jenna Frame, James Palis Department of Biomedical Genetics and the Department of Pediatrics and the Center for Pediatric Biomedical Research
63	*	Expression analysis of leukemia stem cells (LSCs) in acute myeloid leukemia (AML) with chromosome 5q deletion <i>Tzu-chieh Ho</i> and Michael W. Becker, M.D. Pathology
64	*	Regulation of DNA double-strand break repair by NPAT <i>Michael DeRan</i> , Mary Pulvino, Jiyong Zhao Department of Biomedical Genetics, Department of Biochemistry and Biophysics
65	Δ	Small molecules that affect yeast replicative lifespan and reduce inflammation in mammalian models <i>Matan Rapoport</i> , Boris Zybaylov and David S. Goldfarb Department of Biology
66	*	An integrated <i>in vivo</i> and cell-based approach to study oxidative stress-responsive signaling in <i>Drosophila melanogaster</i> <i>Nirmalya Chatterjee</i> , Kerstin Spirohn, Michael Boutros and Dirk Bohmann Department of Biomedical Genetics, University of Rochester Medical Center, Division Signaling and Functional Genomics, German Cancer Research Center
67	Δ	STAT and heterochromatin protect genome stability <i>Shian-Jang Yan</i> , Su Jun Lim, Amy Tsurumi, Song Shi, Anthony Scott, Pranabananda Dutta, and Willis X. Li Department of Biomedical Genetics
68	*	Fluorescence Competition Assay Measurements for Free Energies of RNA Pseudoknots and Multibranch Loops <i>Biao Liu</i> , Douglas H. Turner Department of Chemistry

69	Δ	<p><i>Saccharomyces cerevisiae</i> tRNA^{His} undergoes modification changes under different conditions</p> <p><i>Melanie A. Preston</i>¹, <i>Kady Krivos</i>², <i>Patrick A. Limbach</i>², and <i>Eric M. Phizicky</i>¹</p> <p>¹Department of Biochemistry and Biophysics, University of Rochester Medical Center, Rochester, NY, ²Department of Chemistry, University of Cincinnati, Cincinnati, OH</p>
70	Δ	<p>Identification of the enzyme responsible for the 3-methylcytidine modification at position 32 of tRNA^{Threonine} in budding yeast</p> <p><i>Sonia D'Silva</i>, <i>Steffen Haider</i>, and <i>Eric M. Phizicky</i></p> <p>Department of Biochemistry and Biophysics</p>
71	Δ	<p>Reconstitution of Base Excision Repair in a Telomere Environment</p> <p><i>Adam S. Miller</i>, <i>Lata Balakrishnan</i>, <i>Patricia L. Opresko</i>, <i>Robert A. Bambara</i></p> <p>Biochemistry & Biophysics</p>
72	*	<p>Inappropriate aryl hydrocarbon receptor activation during development leads to immune system reprogramming</p> <p><i>Bethany Winans</i>, <i>Shauna Marr</i> and <i>B. Paige Lawrence</i></p> <p>Department of Environmental Medicine</p>
73	*	<p>Coordinated Control of Multiple Features of Malignant Transformation through Cooperation Response Genes, Essential Downstream Targets of Cooperating Oncogenic Lesions</p> <p><i>H. R. McMurray</i>¹, <i>A. Petenkaya</i>¹, <i>L. Newman</i>¹, <i>V. Balakrishnan</i>¹, <i>J. Aldersley</i>¹, <i>B. Smith</i>¹, <i>E.R. Sampson</i>¹, <i>M. Cassazza</i>¹, <i>P. Salzman</i>², <i>H. Land</i>^{1,3}</p> <p>¹Department of Biomedical Genetics, ²Department of Biostatistics and Computational Biology, ³James P. Wilmot Cancer Center, University of Rochester, School of Medicine and Dentistry, Rochester, NY, USA</p>
74	*	<p>Morphological Evolution in <i>Nasonia</i> Species through Multiple Noncoding Changes</p> <p><i>David W. Loehlin</i> and <i>John H. Werren</i></p> <p>Biology</p>
75	*	<p>Notch Signaling is Required for the Generation of Hair Cells and Supporting Cells in the Mammalian Inner Ear</p> <p><i>Wei Pan</i>, <i>Ying Jin</i>, <i>Ben Stanger</i>, and <i>Amy Kiernan</i></p> <p>Department of Ophthalmology</p>
76	Δ	<p>Upregulation of the Nrf-2 antioxidant pathway decreases α-synuclein-dependent neurotoxicity in a <i>Drosophila</i> model of Parkinson's disease</p> <p><i>Maria Cecilia Barone</i> and <i>Dirk Bohmann</i></p> <p>Biomedical Genetics</p>

77	Δ	<p>Osr2 interacts with the Pax9-Bmp4 pathway to pattern the tooth developmental field</p> <p><i>Jing Zhou, Zunyi Zhang, Yuan Zhang, Yang Gao, Jin. A. Baek, Yu Lan, Rena N. D'Souza and Rulang Jiang</i></p> <p>Center for Oral Biology</p>
78		<p>Replicative plasmids as tools for revealing the genes for negative and positive regulation of the metabolic <i>SOUI</i> gene in human pathogen <i>Candida albicans</i></p> <p><i>Ausaf Ahmad, Anatoliy Kravets and Elena Rustchenko</i></p> <p>Department of Biochemistry & Biophysics</p>
79		<p>Importin $\alpha 4$ Mediates Thrombin-Induced ICAM-1 Expression in Endothelial Cells by Facilitating RelA/p65 Nuclear Translocation</p> <p><i>Fabeha Fazal, Kathryn Levy, Mohammad Minhajuddin, Kaiser M. Bijli, Jacob N. Finkelstein and Arshad Rahman</i></p> <p>Department of Pediatrics, Division of Neonatology, Lung Biology and Disease Program</p>
80	*	<p>Schnurri regulates tissue damage response in <i>Drosophila</i></p> <p><i>Ellen Miriam Kelsey, Henri Jasper</i></p> <p>Department of Biomedical Genetics, Department of Biology</p>
81	Δ	<p>IL-22 production by pulmonary natural killer cells and the potential role of IL-22 during primary influenza infection</p> <p><i>Hailong Guo, David J Topham</i></p> <p>Department of Microbiology and Immunology and the David H. Smith Center for Vaccine Biology and Immunology</p>
82	Δ	<p>Development mechanism of Cleft Lip Pathogenesis in the <i>Dancer</i> Mutant Mice</p> <p><i>Shihai Jia, Jeffrey O. Bush, Zunyi Zhang, Rulang Jiang</i></p> <p>Center for Oral Biology</p>
83	*	<p>The Rapid tRNA Decay Pathway Monitors the Structural Integrity of Mature tRNAs</p> <p><i>Joseph M. Whipple, Elizabeth Lane, Sonia D'Silva, Eric M. Phizicky</i></p> <p>Department of Biochemistry and Biophysics</p>
84		<p>Inflammation is a genetically regulated mechanism contributing to the intimal thickening in the SJL/J mouse</p> <p><i>Dietrich E. Machleder, Vyacheslav A. Korshunov, and Bradford C. Berk</i></p> <p>Aab Cardiovascular Research Institute, University of Rochester School of Medicine and Dentistry</p>
85	*	<p>Interactions between adjacent CGA codons affect translation efficiency in <i>Saccharomyces cerevisiae</i></p> <p><i>Kimberly M. Dean, Daniel P. Letzring, and Elizabeth J. Grayhack</i></p> <p>Department of Biochemistry and Biophysics</p>

86	Δ	Progenitor cells reversibly exit the cell cycle upon treatment with IFN- γ <i>Daniel C Tanner, Jonathan D Cherry, and Margot Mayer-Pröschel</i> Biomedical Genetics
87		Delineation of chromosome 5 contigs from diploid assembly 19 of <i>C. albicans</i> genomic sequence <i>Anatoliy Kravets, Han Wool John Sung, Elena Rustchenko</i> Biochemistry and Biophysics
88		Identification of Pathways for Carotid Artery Intima Formation: Integration of Mouse Genetics and Global Gene Expression Data <i>Vyacheslav A Korshunov, Galina Glazko, Xing Qiu, Bradford C Berk</i> Aab Cardiovascular Research Institute, Department of Medicine
89	*	Derivation of Astrocytes from Human Embryonic Stem Cell (hESC) for Spinal Cord Injury Therapy <i>Chung-Hsuan Shih</i> ^{1,2} , <i>Matthew Mavissakalian</i> ^{2,3} , <i>Michelle Cooney</i> ² , <i>Mark Noble</i> ^{2,3} , and <i>Christoph Pröschel</i> ^{2,3} ¹ Graduate Program in Pathology, ² Institute for Stem Cell and Regenerative Medicine, ³ Department of Biomedical Genetics, University of Rochester Medical Center
90	*	Development and Analysis of a Mitochondrial-DNA Haplogroup Database <i>Syafrul Azfar Rosly, Eric Stevens, Kyle Dewey, Michael Osier, Dina L. Newman</i> School of Biological and Medical Sciences, Rochester Institute of Technology, Rochester, NY
91		Small Molecule Antagonists of HIV Vif Dimerization, Leads for Anti-HIV Therapeutics <i>Ryan Bennett, Harold Smith</i> Biochemistry Dept.
92		Activating APOBEC3G, a Potent Innate Inhibitor of HIV-1 Infection <i>Prohaska, Kimberly, M.; Smith, Harold, C.</i> Biochemistry and Biophysics
93	*	RNA dependent inhibition of APOBEC3G deaminase activity <i>William M. McDougall, Harold C. Smith</i> Biochemistry and Biophysics

4:00 – 5:00

8th Annual Fred Sherman Lecture

Dr. Stuart L. Schreiber

Harvard University
Howard Hughes Medical Institute

" Relating the genetic features of cancers to drug efficacies using small-molecule probes"

The ability to understand and to modulate cancer genomes provides a radically new foundation for creating the medicines we've only imagined since declaring the war on cancer decades earlier – the ones needed to take out this disease. We've learned the power of linking genetic signatures of cancers to drug sensitivities – and that the extraordinary consequences of exemplars like imatinib/Gleevec are not restricted to this drug and its genetically matched leukemia, CML. Recent studies, for example, show unprecedented response rates with genetically matched drugs targeting extremely challenging cancers such as melanoma. These advances are encouraging, but they still only affect a tiny subset of patients suffering today from cancer. So where do we go from here, how do we exploit our new foundation and insights comprehensively so that all cancer patients are affected?

We must exploit this unprecedented opportunity for treating cancer rapidly and effectively. So, we must be wise in planning our next steps. In my lecture, I will offer one simple idea. I find this idea attractive since it addresses the challenge comprehensively and it is on a direct path to cancer patients. In fact, it's an idea that starts with patients.

Class of '62 Auditorium

SPONSORS

The University Committee for Interdisciplinary Studies (UCIS)

Department of Biomedical Genetics (Hartmut Land, Chair)

Fisher Scientific

Sponsor, post-doctoral poster competition



Frank Meleca, President, Laboratory Product Sales

Sponsor, graduate student poster competition



ACKNOWLEDGEMENTS

David S. Goldfarb and Hartmut Land, UCIS Cluster Co-Chairs

Dirk Bohmann

Benjamin Miller

Post-doc and student poster competition judges

Jill Van Atta, administrative support

PARTICIPATING DEPARTMENTS/CENTERS

Aab Cardiovascular Research Institute
Biochemistry and Biophysics
Biology
Biomedical Genetics
Biostatistics and Computational Biology
Center for Neural Development and Disease
Center for Oral Biology
Center for Pediatric Biomedical Research
Chemistry
David H Smith Center for Vaccine Biology and Immunology
Dermatology
Environmental Medicine
Functional Genomics Center
James P Wilmot Cancer Center
Lung Biology and Disease Program
Medicine
Medicine – Infectious Diseases Division
Microbiology and Immunology
Neuroscience
Neurology
Ophthalmology
Orthopaedics
Pathology/Pathology and Laboratory Medicine
Pediatrics, Pediatrics/Neonatology
Pharmacology and Physiology
School of Biological and Medical Sciences, Rochester Institute of Technology
Surgery
URMC Research Core Facilities

Thank you for your participation!

Please send any comments or suggestions to:
Dr. David S. Goldfarb, Genetics Cluster Co-Chair, or
Jill Van Atta, Department of Biomedical Genetics Administrative Assistant

Telephone: 273-1447, Fax: 273-1450
E-mail: jill_vanatta@urmc.rochester.edu

NOTES