

# 2008 LRI STAR Award Winners

This program recognizes individuals who have taken special initiative to help others and enrich the workplace

- Rebecca Mitchell, GMI  
*Commit10 program*
- Patricia Pritchard, GMI  
*Above & beyond Patient Service Representation*



There were **58** nominations submitted for 2007.

Of the **8** winners chosen, GMI had **2** STARs – we're very proud!

# New “GMI Employee Appreciation” Award

This award will be given to recognize GMI individuals who have taken special initiative to help co-workers, enrich the workplace, and further patient care delivery by GMI.



Nominations will be solicited bi-annually and reviewed by GMI management. The first award will be presented September 2008.



# State of the Genomic Medicine Institute

2007 Annual Report

Charis Eng, MD, Ph.D., FACP, Chair & Director

April 23, 2008



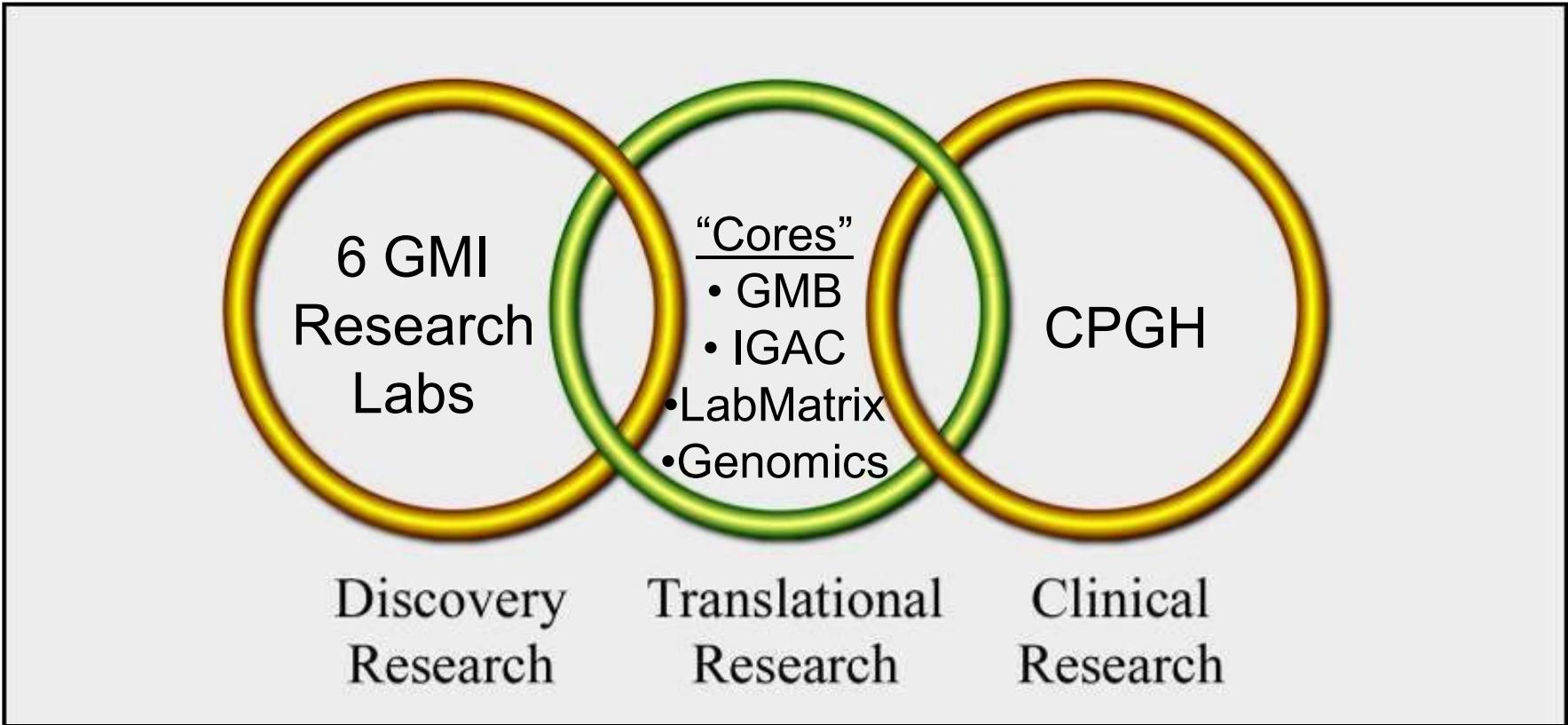
State of the GMI

# Mission Statement

- To be the expert base for the principles and practice of genomic medicine
- Scholarly activity (research), academic clinical practice and education
- Ultimately directed at personalized genomic-based healthcare



# The Research Triad



GMI’s interdisciplinary design as a one-stop shop is aligned with the LRI’s Research Triad Mission and CCF’s Tripartite academic mission

## “Changes around us” from Healthcare to CCF to LRI to GMI

- Genetic Medicine → Genomic Medicine
- Reduced patient health insurance → increased uncompensated procedures
- Increased uncompensated procedures → increased patient financial responsibility
- Long patient wait time → reduced patient wait time
- Reduced NIH funding → obtain non-NIH funding
- Growth in personnel → need for more infrastructure

“Changes around us”  
from Healthcare to CCF to LRI to GMI

Change can produce anxiety....

So how are we going to continue to think & act as a unit?

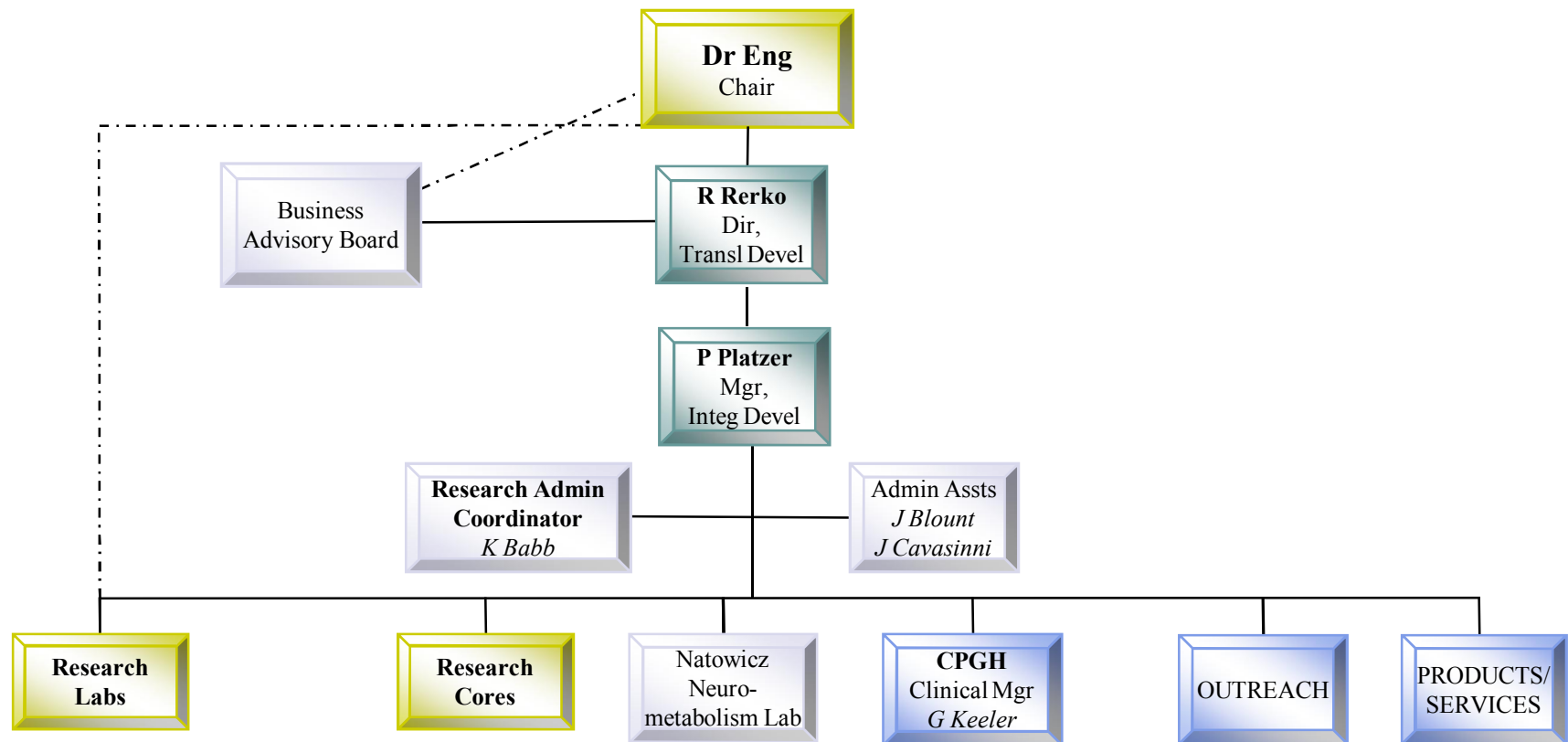
It's not easy, but we must think and communicate together!

*--Toby Cosgrove, State of CCF Address 2008*

# Leadership (New Organizational Infrastructure)

## Objective:

Provide more infrastructure and middle management to address organizational needs after a year of substantial growth

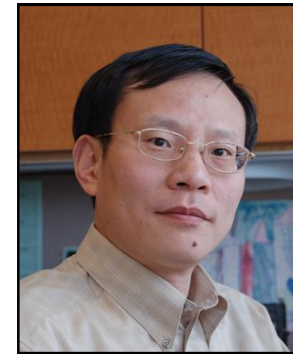


# New Investigators



Bin Zhang, Ph.D.  
*arrived March 12, 2007*

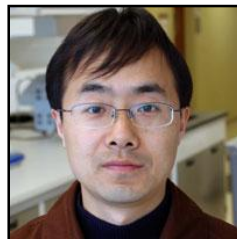
- Research Focus  
The Zhang lab is exploring the intracellular cargo-trafficking mechanism of factor V-VIII combined deficiency using a multidisciplinary genetics, cell biology and murine modeling approach.
- Academic Appointments  
Assistant Professor, Dept of Molecular Medicine, CCLCM
- Funding / Awards  
Submitted an R01 and Searle Scholarship (selected as CCF rep)  
*Awarded the Basil O'Connor New Investigator Award*



Bin Zhang, Ph.D.

Laboratory  
Members:

Chunlei Zheng  
postdoc



Pritesh Karia,  
technician

# New Investigators



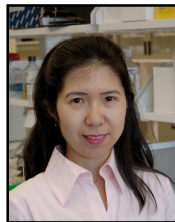
Angela Ting, Ph.D.  
*arrived September 1, 2007*

- Research Focus  
The Ting lab seeks to delineate epigenetic mechanisms in colorectal carcinogenesis and the role of non-coding interfering RNA's in colorectal carcinogenesis
- Academic Appointments  
Assistant Professor, Dept of Molecular Medicine, CCLCM  
Taussig Cancer Center (2<sup>o</sup>) *in process*
- Submitted for AACR Gertrude Elion Award, the PEW Scholarship, and NIH Director's Challenge Young Innovator Award



Angela Ting, Ph.D.

Laboratory  
Members:



Karen Wu  
Research Associate

# New Investigators



## David Serre, Ph.D.

*arrived November 1, 2007*

- Research Focus

The Serre lab is utilizing:

- 1) evolutionary genomic and computational biology approaches to identify and characterize genomic susceptibility in the complex disorders, type 2 diabetes and obesity;
- 2) cheese bacteria and fungi as a model for human populations and evolutionary genomics, the Serre lab is characterizing cheese metabiomes



David Serre, Ph.D.

- Academic Appointments

Assistant Professor, Dept of Molecular Medicine, CCLCM *in process*

- Submitted an R01 and applied for the NIH Director's Challenge Young Innovators grant

# New GMI “Core” Services



## Integrative Genomics Analysis Core

a team of bioinformaticians and biostatisticians working together to provide functional analysis for microarray and genotyping data

<http://www.lerner.ccf.org/gmi/igac/>

### Personnel:

Petra Platzer, Manager

Banu Gopalan, Senior Bioinformatician

Yaomin Xu, Biostatistician

Li Zhang, Biostatistician

*Programmers*



Banu

## LabMatrix

a Research database for bridging Research and Clinical patient information from IRB-approved Research Studies within CPGH and laboratories

### Personnel:

Kim Stanuch, Research Database Coordinator

Tom Oravec, Data Coordinator



Kim



Tom

# New Clinician



Vickie Zurcher, M.D.  
*arrived October, 2007*

- Clinical Consultant in clinic 2 days/week
- Clinical Specialties:
  - Prenatal and pediatric clinical genetics
  - Dysmorphology
- Achievements:
  - Valuable, contributing member to the pediatric genetics group
  - Developing Neurofibromatosis1 clinic



Vickie Zurcher, M.D.

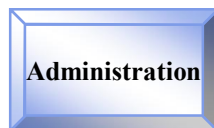
# New Roles



Ron Rerko, M.S.

*shifted focus from Manager of Translational Affairs to Director of Translational Development*

- Objectives:
  - Coordinate efforts to establish a sound foundation for GMI for future stability and growth
  - Liaison and coordinate with key CCF departments & personnel for continued GMI development and advancement
  - Liaison with GMI Business and Development Advisory Board for project development



Petra Platzer, Ph.D.

*shifted focus to Manager of Integrative Development*

- Objectives:
  - Spearhead infrastructure development in GMI
  - Coordinate logistics of personnel, policy, space and standardization development and implementation
  - Coordinate development and integration of electronic GMI processes into CCF
  - Manage the Integrative Genomics Analysis Core

# New Roles



Cheryl Scacheri, M.S., CGC  
*shifted focus from Director of Genetic Counseling Program to  
Head of Genomics Policy and Education*

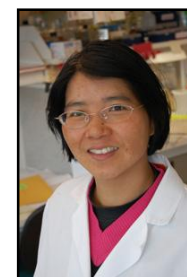
- Objectives:
  - Legislative Reform for Genetic and Genomic Medicine
  - Genetics Education Campaign
  - Helping GMI “get paid better” for medical genetics & genomic medicine
  - Founding Editorial Board member, Nature Education

## Other Recruitment Highlights in 2007

- Doug Bittner, CPGH student
- Jin Lian Chen, Eng lab technician
- Kylie Drake, Aldred lab postdoc
- Greg Gagliano, Research Nurse Coordinator
- Jen Grabaskas, Genomics Core Technician
- Katie Hoffman, Genetic Counselor



Doug



Jin Lian



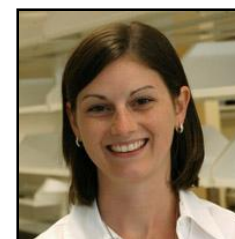
Kylie



Greg



Jen



Katie

## Other Recruitment Highlights in 2007 (cont'd)

- Allison Schreiber, Genetic Counselor
- Dana Leach, GC Assistant
- Mohammed Orloff, Eng lab Project Scientist
- Jun Peng, Eng lab Project Scientist
- Nichole Prescott, GMB Sr. Technician
- Pam Price, Reimbursement Specialist



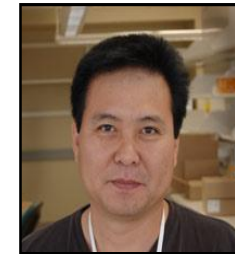
Allison



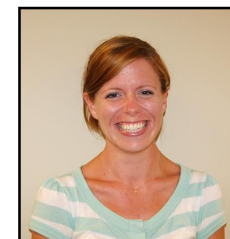
Dana



Mohammed



Jun



Nichole



Pam

## Other Recruitment Highlights in 2007 (cont'd)

- Patty Pritchard, PSR
- Joe Sevier, GMB Technician
- Hui Zhu, Eng lab postdoc



Patty



Joe



Hui

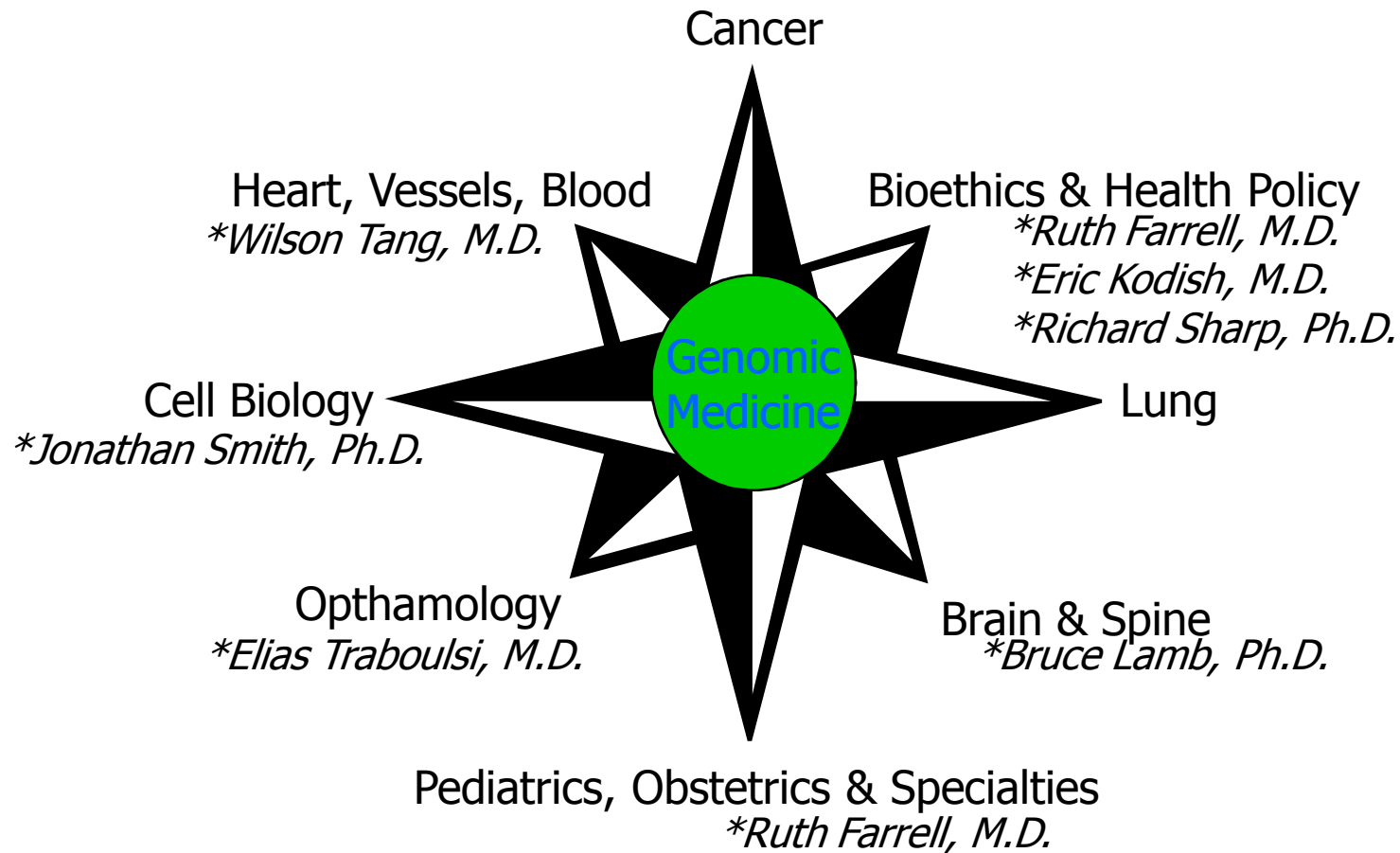
In 2007, we had **24** people join GMI!

# GMI's Disease-Oriented Research Programs

## **Disease Emphasis of GMI Laboratories**

- Cancer
- Cardiovascular
- Pulmonary
- Neuro-Psych
- Type 2 Diabetes

# Adjunct Staff complement GMI's Research and Clinical Programs



*\*Staff members with adjunct appointments in GMI.*

# Outreach to other Research and Clinical Programs

## Multidisciplinary Programs

- Asthma and Pulmonary Hypertension (Erzurum)  
**GMI: Michaela Aldred, Christina Rigelsky**  
CCF: Raed Dweik, Dan Culver, many others
- Barrett Esophagus/Esophageal Adenocarcinoma Consortium (Eng)  
**GMI: Charis Eng, Brandie Leach, Greg Gagliano**  
CCF: Gary Falk, Mary Bronner, many others
- Heritable Colorectal Cancer Multidisciplinary Research Group and High Risk Cancer (Church)  
**GMI: Charis Eng, Brandie Leach**  
CCF: Matt Kalady, Carol Burke, Bob Pelley, many others
- Diabetes Genomics Research Group (Serre)  
**GMI: David Serre**  
CCF: Mario Skugor and other endocrinologists
- Endocrine Neoplasia Genomics Research Group and Multidisciplinary Clinic (Eng)  
**GMI: Charis Eng, Emily Edelman**  
CCF: Mira Milas, Alan Siperstein, Robert Lorenz, Jennifer Brainard, (Jennifer Hunt)

## Outreach to other Research and Clinical Programs (cont'd)

- Head and Neck Neoplasia Genetics & Genomics Research Group & High Risk Clinic  
**GMI: Michaela Aldred, Charis Eng, Emily Edelman**  
CCF: Walter Lee, Robert Lorenz, Jennifer Hunt
- Melanoma Interdisciplinary Research (Borden)  
**GMI: Charis Eng, Kristin Waite, Glenn Lobo**  
CCF: Pierre Triozi, Tatiana Byzova, Qin Wang, several others
- Gorlin Syndrome (Virtual) Clinic (Eng)  
**GMI: Charis Eng, Amy Shealy**  
CCF: Gene Barnett, Bill Bingaman, Allison Vidimos
- Marfan Syndrome Multidisciplinary Clinic (Greenberg)  
**GMI: Rocio Moran, Christina Rigelsky**  
CCF: Roy Greenberg, Lars Svensson
- Tuberous Sclerosis Multidisciplinary Clinic (Gupta)  
**GMI: Rocio Moran, Charis Eng, Amy Shealy**  
CCF: Bill Bingaman, Allison Vidimos
- Von Hippel-Linday Disease Multidisciplinary (Virtual) Clinic (Eng)  
**GMI: Charis Eng, Amy Shealy**  
CCF: Gene Barnett, Arun Singh, Andrew Novick, Steve Campbell

# Publication Highlights

	2006	2007
<b>Total Publications</b>	<b>30</b>	<b>29</b>
Articles	29	22
<i>(Impact Factor &gt;10)</i>	4	7
Books / Chapters	1	2

**JAMA**<sup>®</sup>



 The NEW ENGLAND  
JOURNAL of MEDICINE



# Teaching:

## Cleveland Clinic Lerner College of Medicine

### Course Instructors

#### Primary Personnel

- Michaela Aldred, Ph.D.
- Charis Eng, M.D., Ph.D.
- Pieter Faber, Ph.D.
- Banu Gopalan, M.S.
- Shanna Gustafson, M.S.
- Rocio Moran, M.D.
- Marvin Natowicz, M.D., Ph.D.\*\*
- Mohammed Orloff, Ph.D.
- Amy Shealy, M.S.
- Kristin Waite, Ph.D.

#### Secondary Personnel

- Ruth Farrell, M.D.
- Eric Kodish, M.D.
- Wilson Tang, M.D.
- Elias Traboulsi, M.D.

# Teaching: Molecular Medicine Ph.D. Program

Admissions Committee:

GMI Representative: Michaela Aldred, Ph.D.

Two of nine inaugural class students rotated in the Eng lab and have selected this lab for their thesis work.



Ying Ni

Billy Flavahan

Inaugural Class

# Funding Highlights

## New Grants in 2007

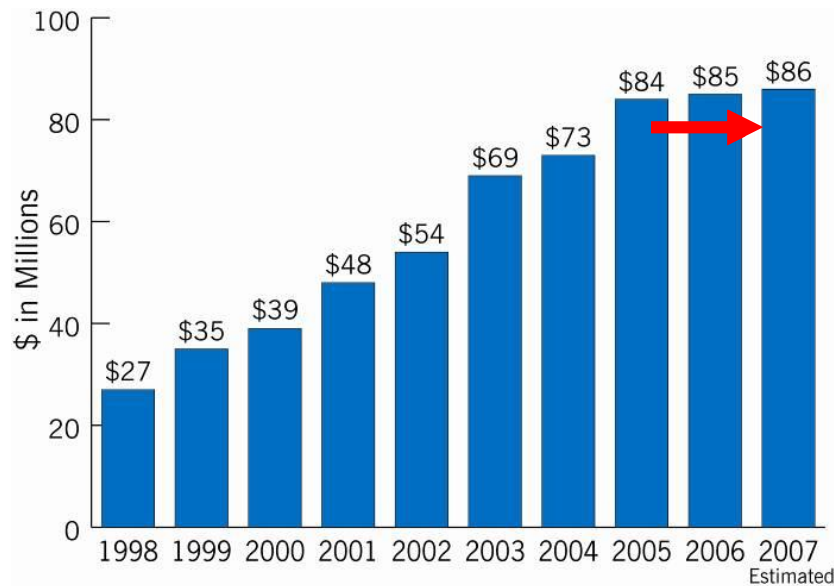
- **Charis Eng, M.D., Ph.D.**, NCI, R01: “PTEN nuclear-cytoplasmic localization in breast cancer” (\$250K ADC); NIH, Cleveland CTSA for pilot programs (\$300K ADC); BCRF: “Genes that affect mitochondrial function as novel mediators of breast cancer susceptibility” (\$225K ADC)
- **Aldred, Michaela, Ph.D.**, AICR: “Identifying a novel Wilms’ tumour suppressor gene at 2q37” (\$82K ADC); CARES award “Identification of novel tumor suppressor genes at 2q37 in head and neck squamous cell carcinoma” (\$100K ADC)
- **Zhang, Bin, Ph.D.**, March of Dimes: “Receptor-mediated ER-to-Golgi transport of Coagulation factors V and VIII: Deficiencies in the early secretory pathway as pathogenic mechanisms of congenital disorders” (\$140K ADC)

New extramural funding in CY 2007 ~\$650K ADC, or ~\$2.6million total funding

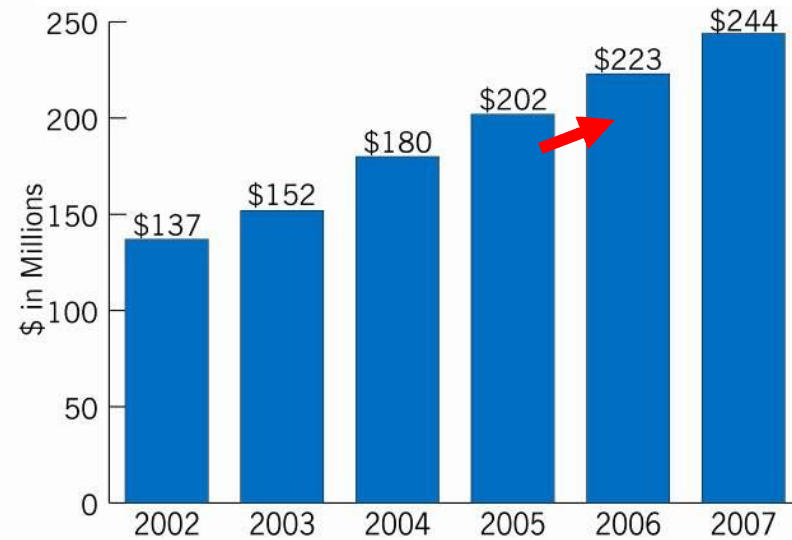
- **Notable:** *since November of 2007*
  - 10 grants have been submitted by GMI staff
  - 4 post-doctoral fellowships have been submitted

# LRI Research Funding

National Institutes of Health Funding  
(New Awards to Cleveland Clinic by Year)



Total Research Funding  
(Internal & External)



***Continued growth support NEEDS to come from non-NIH sources of funding (i.e., State, foundations, associations, industry, etc.)***

# Business Development: GMI External Advisory Board for Business & Development Efforts

## Objective:

- Provide guidance and support on business endeavors developed both internally or externally to the Cleveland Clinic
- Assist in fundraising needed for continued independent success of the GMI
- Advocate for GMI initiatives, both internally with the Cleveland Clinic and externally in the medical community, the public and amongst their peers

## Members

- David McKee, Chair
- Biff Baker
- Anthea Daniels
- Deb Mauro
- Tom Mauro
- Anthony Yen



# Fundraising Highlights

	2006	2007
# of donations	1	2
Amount	\$100,000	\$1.5M+

- **LRI's 1st fundraising concert, *Kai's Challenge***

Organized by Cancer Biology and GMI to generate funding to support cancer research



Kai Johnson

*Special thanks to Greg Gagliano for his work on this concert*

- **Dr. Eng receives first endowed chair in Cancer Genomics**

**Research:**

\$1.5 million endowed chair funded by Sondra and Stephen Hardis to further Cancer Genomics Research

# GMI As-Is Assessment and Business Plan

## **Objective:**

To assess the clinical enterprise and recommend focused strategies for moving GMI into genomic medicine practice.

## **Scope of Effort:**

- Research revenue streams are standard at this time, but the lack of clinical revenue streams into GMI needs to be addressed;
- CPGH infrastructure and processes need to be standardized and streamlined for increased efficiency and patient care volume.

**Deloitte.**

# GMI Business Plan Implementation

## **Consultant Role:**

Art Boll, recommended by Deloitte, assessed the CPGH and formed specific working groups to develop and implement the changes needed to execute the Strategic Initiatives.

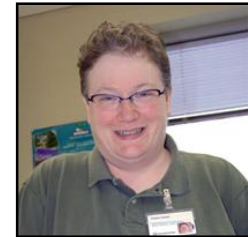
## **Strategic initiatives:**

- Streamline, standardize and improve internal clinical patient care processes
- Develop pedigree drawing and electronic Health Risk Assessment “tools” with eCCF to benefit all CCF patients
- Form strategic alliances within LRI, CCF and with external groups to further GMI mission for genomic medicine

“The world hates change,  
yet it’s the only thing that has brought progress” ....  
*-- Charles Kettering*

# Research Compliance and Lab Safety

- Phyllis Harbor, MS, GMI Safety Officer  
*2008 addition: Diane O'Neill*
- Lab Safety Committee Representative
- COMET Live session for LRI employees



Phyllis Harbor

# Continual Readiness

- Rebecca Mitchell, MSN, RN, Continual Readiness Officer  
*2008 addition: Greg Gagliano*
- JCAHO Compliance
- MAGNET Compliance



Becky Mitchell

# Educational Highlights

- **27th Annual Research Day** October, 2007
- **Research Retreat** September, 2007  
*Poster Award: Authors: M.G. Pezzolesi, K.A. Waite and C. Eng-lab*  
“MICRORNAS: NEGATIVE REGULATORS OF PTEN AND MODIFIERS OF COWDEN SYNDROME”
- **8<sup>th</sup> Lerner Lecture** co-hosted by Drs. DiCorleto and Eng  
*Speaker: Francis Collins, M.D., Ph.D.*
- **Grand Rounds series** (CME credits)  
*Coordinator: Rocio Moran, M.D.*  
17 lectures from April – Dec 2007
- **Integrative Genomic Medicine Series**  
*Co-organizers: Michaela Aldred, Ph.D. & Cheryl Scacheri, M.S., CGC*  
3 seminars from Sept – Dec 2007  
*First GMI Distinguished Speaker: Henry Lynch, M.D.*

## Educational Highlights (Continued)

- **Ohio Department of Health Colon Cancer Awareness Month Outreach Event:** 3.14.07  
*Co-director:* Kate Lynch, M.S., CGC  
“An Update on Colorectal Cancer Genetics”
- **American Society of Colorectal Surgery Annual Meeting:** 6.06.07  
*Invited Panelist:* Kate Lynch, M.S., CGC  
“So What Do I Do Now?”
- **“Genetics Day on the Hill”** 7.26.07  
*Participant:* Cheryl Scacheri, M.S., CGC
- **American Society of Human Genetics Invited Session:** 10.24.07  
*Chair:* Charis Eng, M.D., Ph.D.  
*Speakers:* **Kate Lynch**, M.S., CGC; **Kevin Zbuk**, M.D.
- The CPGH Genetic Counseling Internship program became an affiliated rotation site for the CWRU Genetic Counseling Training Program  
November 2007

# Research Core Services

- Genomic Medicine Biorepository

*Manager: Ross Waite*

By the end of 2007, the GMB successfully:

- processed 2,409 families / 3,168 individuals and had 1,904 attempted initiations (*since Sept. '05*)
- added new services, such as immunohistochemistry, urine collection and tissue sectioning
- grew to a team of five personnel



Ross Waite

- Genomics Core

*Manager: Pieter Faber, Ph.D.*

By the end of 2007, the Genomics Core successfully:

- stabilized the increased sequencing customer base to 3-4 times the previous core levels
- developed a customer base for Illumina microarray and genotyping services
- coordinated efforts between 9 departments to acquire a site license for the Ingenuity Pathways software



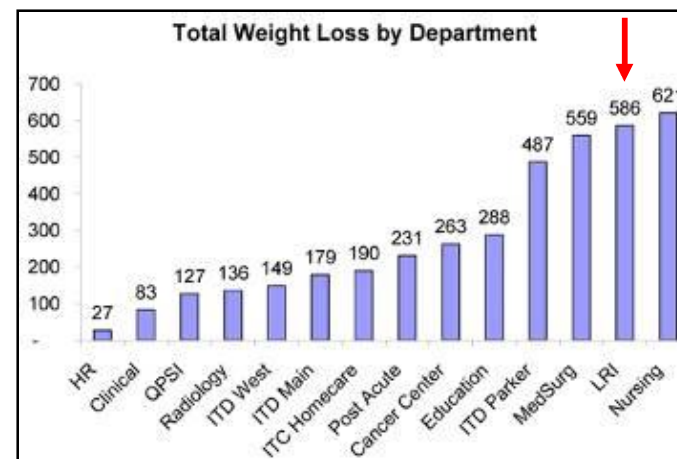
Pieter Faber

# Institute Diversity Program

- GMI Members on Diversity Council  
2007: Charis Eng                      2008: Banu Gopalan, *Coordinator*  
Kylie Drake
- Conversational English Program (CEP)
  - 3 coaches:  
Todd Romigh, Petra Platzer, Emily Edelman
  - 2 participants  
Chunlei Zhao, Xiaolan Zhao

# Institute Wellness Program

- Commit10 Challenge Program  
*To promote healthy weight loss*  
Volunteers:  
Rebecca Mitchell  
Renee Brenneman, *KSU grad student*



# Special Events & Community Benefit

- Mike Roizen's Radio Show 2.03.07  
Dr. Eng & Cheryl Scacheri: "Genes and Cancer Susceptibility"
- The Entrepreneur's Organization-Cleveland 2.13.07  
Cheryl Scacheri & Emily Edelman
- Minority Men's Health Fair 4.19.07  
Dawn Caraballo & Cheryl Scacheri
- World Presidents' Organization 10.05.07  
Joint Calgary & Cleveland Chapters
- School, Library and Support Group talks in 2007  
Over a dozen educational talks given by various GMI personnel in 2007

# Awards

- **Angela Ting**, PhD, Asst Staff, named Future Leader of the Associate Member Council at the 2007 Annual AACR Meeting
- **Charis Eng**, MD, PhD, Chair GMI, named member of the NIH's Board of Scientific Directors of the National Human Genome Research Institute
- **Charis Eng**, MD, PhD, presented one of the Top 10 Innovations for 2008 at the annual Cleveland Clinic Innovations Summit held Oct 1-3, 2007.
- **Charis Eng**, MD, PhD was elected to the 2007-2008 Best Doctors in America database for her work in Clinical Cancer Genetics and Cancer Genomic Medicine.
- **Kevin Zbuk**, MD, Postdoctoral (Translational Research) Trainee Award Finalist, 57th Annual Meeting, American Society of Human Genetics, San Diego, Oct., 2007
- **Kevin Zbuk**, MD, Crile Fellowship
- **Guillaume Assie**, MD, Clinical Research Fellowships from Fondation de France & Centres de Lutttes contre le Cancer
- **Judith Hobert**, PhD, AAAS/Excellence in Science Program, 2007-08 (Postdoctoral Trainee)
- **William A. Flavahan**, BSBE, AAAS/Excellence in Science Program, 2007-08 (Graduate Student)

## World Class Service

- Dawn Caraballo was awarded a STAR Award in 2007



STAR recipients (from left): Connie Gast, Lori Mavrakis, Dawn Caraballo, Ji-Feng Chen

# GMI Challenges and Opportunities

- Stagnant NIH budget
- Growing Federal regulations lead to compliance concerns
- Limited available capital funds for high-throughput genomic sequencers & necessary analysis computing
- Lack of unassigned laboratory, office and clinic space
- Increase GMI Endowment Funds for staff recruitment and retention
- Increased access to philanthropic support
- Integration of genomic medicine into CCF processes and medical specialties
- Scarcity of qualified clinical geneticists or genomic medicine physicians
- Legislative reform for Genetic Medicine

# Continuing Objectives

- Weave laboratory-based research into the fabric of the Cleveland Clinic and move discoveries rapidly to the patient
- Publish in the highest impact journals
- Engage GMI Staff in the Cleveland Clinic Lerner College of Medicine and the new Molecular Medicine Ph.D. Program to train the next generation of biomedical researchers
- Reduce GMI's dependency on Cleveland Clinic operating revenue
- Use space with maximum efficiency
- Develop and implement a genetics and genomics education campaign for the Cleveland Clinic
- Develop and implement electronic methods for genetic processes into Cleveland Clinic patient care



# Space and Infrastructure

## Challenges for 2008:

- Rapidly outgrowing clinical space in T and NE for anticipated growth in providers and patient care volume
- Requirement of purchasing a next generation high-throughput sequencer to maintain our status as “state of the art” genomic research facility
- Additional space requirements for next generation high-throughput sequencer
- Increased computational analysis needs of genomic data require dry office and computing space
- Potential need for relocation of General staff meetings to accommodate all attendees



*Dry lab space is a big challenge for all*

# 2008 GMI Goals

- Establish standards and processes for increased clinical efficiency and delivery of patient care
- Grow patient-oriented research while reducing dependency on clinical operations for funding
- Link GMI with Clinical Institutes to expand research in key programmatic disease areas
- Link CPGH with Clinical Institutes to integrate genetic and genomic practice into their practices
- Collaborate with eCCF to develop and integrate an electronic pedigree and eHRA process into CCF patient care
- Establish better reimbursement guidelines for genetic services delivered
- Increase educational opportunities for physician-scientists
- Expand Genomic Education and Policy Advancement



“He who moves not forward, moves backward”  
-- Goethe

- First 26 Months (*Sept, 2005 – Dec, 2007*)

Phase I Complete: “Good to Great”

**THANKS TO YOU**

- Next 12 months

Phase II: “Built to Last”

**We can do it!**

# THANK YOU for a GREAT YEAR!

“If we don’t set goals that are lofty (but realistic), even frightening to ourselves, then they are not very good goals.”

-- Bernadine Healy, MD



“One for All, & All for One”

- Alexandre Dumas, Pere, *The Three Musketeers*

## Questions?

- First, Peter has something to show us....