The Origin and Development of the NIH Pharmacogenetics Research Network (PGRN)

From a Gleam in the Eye to Graduation

1998 - 2020

Ronald Krauss, UCSF
and the last Chair of the NIH PGRN

PGRN – Fertilization (Workshop, 1998)

Understanding Individual Variations in Drug Responses: From Phenotype to Genotype

Location: NIH Campus, Bethesda, MD

Start Date: 6/9/1998 8:00 AM

End Date: 6/10/1998 4:30 PM

Executive Summary

The working group recommended that NIGMS stimulate research in the area of pharmacogenetics/pharmacogenomics by: 1.) soliciting grant applications to examine the fundamental mechanisms underlying individual variations in drug responses, and 2.) establishing a resource database of polymorphic variants for proteins known to be essential in determining individual responses to drugs. The group emphasized the importance of relating a phenotype for a drug response to a genotype, in order to determine the functionally important sequence variants.

PGRN - Conception (RFA, 1999)

PHARMACOGENETIC RESEARCH NETWORK AND DATAE

Release Date: December 22, 1998

RFA: GM-99-004

National Institute of General Medical Sciences
National Heart, Lung, and Blood Institute
National Human Genome Research Institute
National Institute of Environmental Health Sciences
National Institute of Mental Health
National Institute on Alcohol Abuse and Alcoholism

Public Briefing Date: March 19, 1999
Letter of Intent Receipt Date: April 30, 1999
Application Receipt Date: July 27, 1999

PURPOSE

The purpose of this request for applications (RFA) is to stimulate formation of a network of Research Groups of investigators and development of a public Pharmacogenetic Database, which will become available to the scientific community for use as a research tool. The study of pharmacogenetics and pharmacogenomics presents opportunities to researchers working at levels ranging from the most molecular to the most clinical, in the fields of pharmacology, physiology, genetics, genomics, medicine, epidemiology, statistics, bioinformatics, and computational biology. It would be desirable to bring investigators with these backgrounds together in a research framework, so that functional variation in proteins and genes that play essential roles in determining drug responses can be studied, interpreted, and related to clinical research situations in a rapid and efficient manner.

PGRN Birth Announcement

First Awards Made in NIH Effort to Understand How Genes Affect People's Responses to Medicines

Tuesday, April 4, 2000, 12:00 p.m. EDT

Diet, environment, and lifestyle can all influence how a person responds to medicines--but another key factor is genes. The National Institute of General Medical Sciences, the National Institute of Environmental Health Sciences and other components of the National Institutes of Health are sponsoring a nationwide research effort to understand how a person's genetic make-up determines the way a medicine works in his or her body, as well as what side effects the person might be prone to developing.

"The outcome of pharmacogenetics research has the potential to improve the health of all Americans, by making the medicines of today and tomorrow safer and more effective for everyone," said Dr. Rochelle Long, a pharmacologist at NIGMS who spearheaded the pharmacogenetics initiative.

PGRN-I Getting to know each other

2002

2004

PGRN-I First Report Card 2005

Project Period: April 2000 to August 2005
Funding: $140 million (funded largely by the National Institute of General Medical Sciences and the National Heart, Lung, and Blood Institute, with additional support from the National Cancer Institute, the National Library of Medicine, the National Institute of Environmental Health Sciences, and the National Human Genome Research Institute).

Number of Centers: 12
Number of Individual Research Grants: 1
Publications in Scientific Journals: more than 380
Genetic Variations (Single Nucleotide Polymorphisms or SNPs) in Database: more than 1 million

PGRN-II 2005-2010: Growing up

SPONSORS:

NIGMS
NHLBI
NHGRI
NCI
NIEHS
NLM

Primary Sites:

Brigham and Women's Hosp.

Children's Hosp. Oakland

Indiana Univ.

Mayo Foundation

Stanford Univ.

St. Jude Children's Hosp.

UCSF

Univ. of Chicago

Univ. of Florida

Univ. of Maryland

Vanderbilt Univ.

Washington Univ.

NIH Pharmacogenetics Research Network

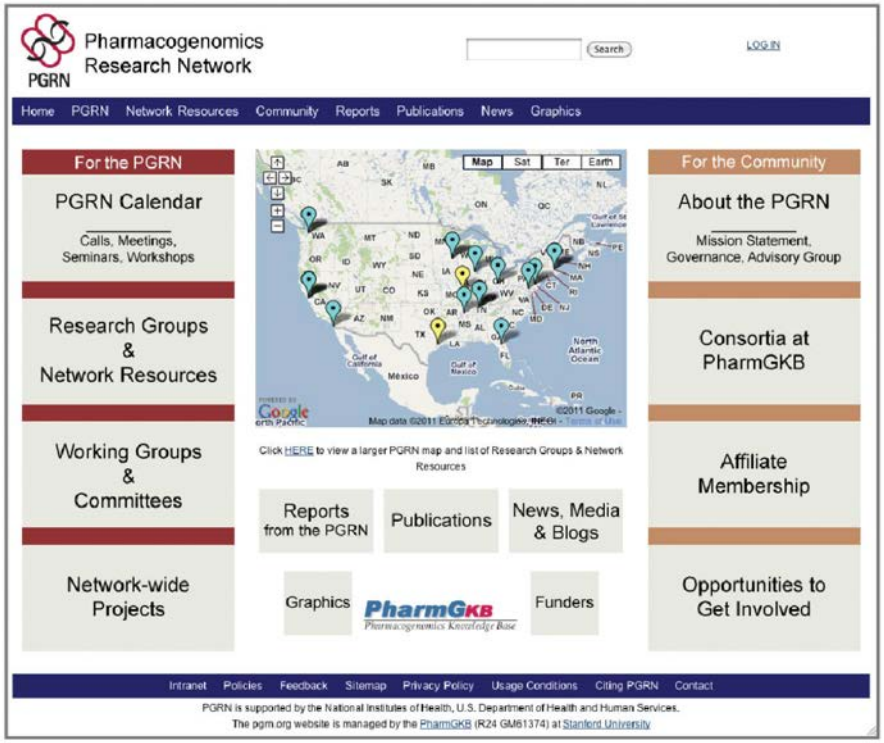
www.nigms.nih.gov/pharmacogenetics
www.pharmgkb.org

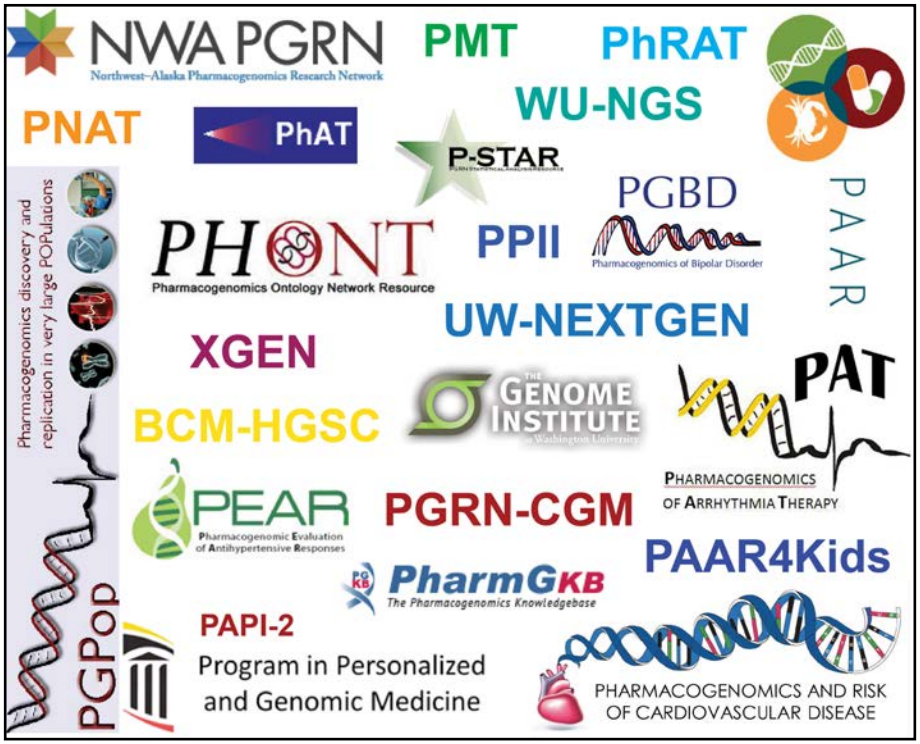
2008

PharmGKB
The Pharmacogenetics and Pharmacogenomics Knowledge Base

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA
NATIONAL INSTITUTES OF HEALTH

PGRN-III 2010-2015: Many new faces

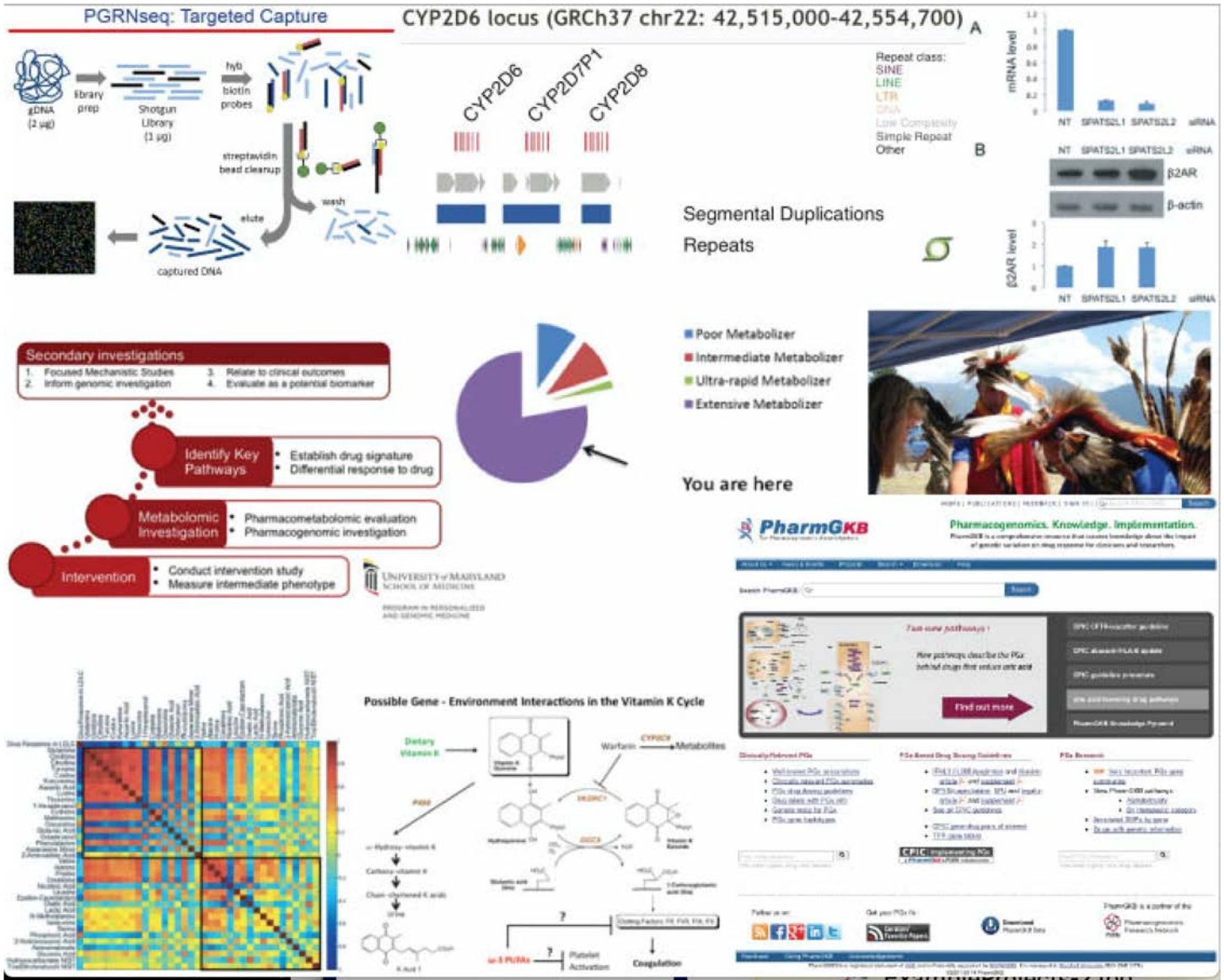




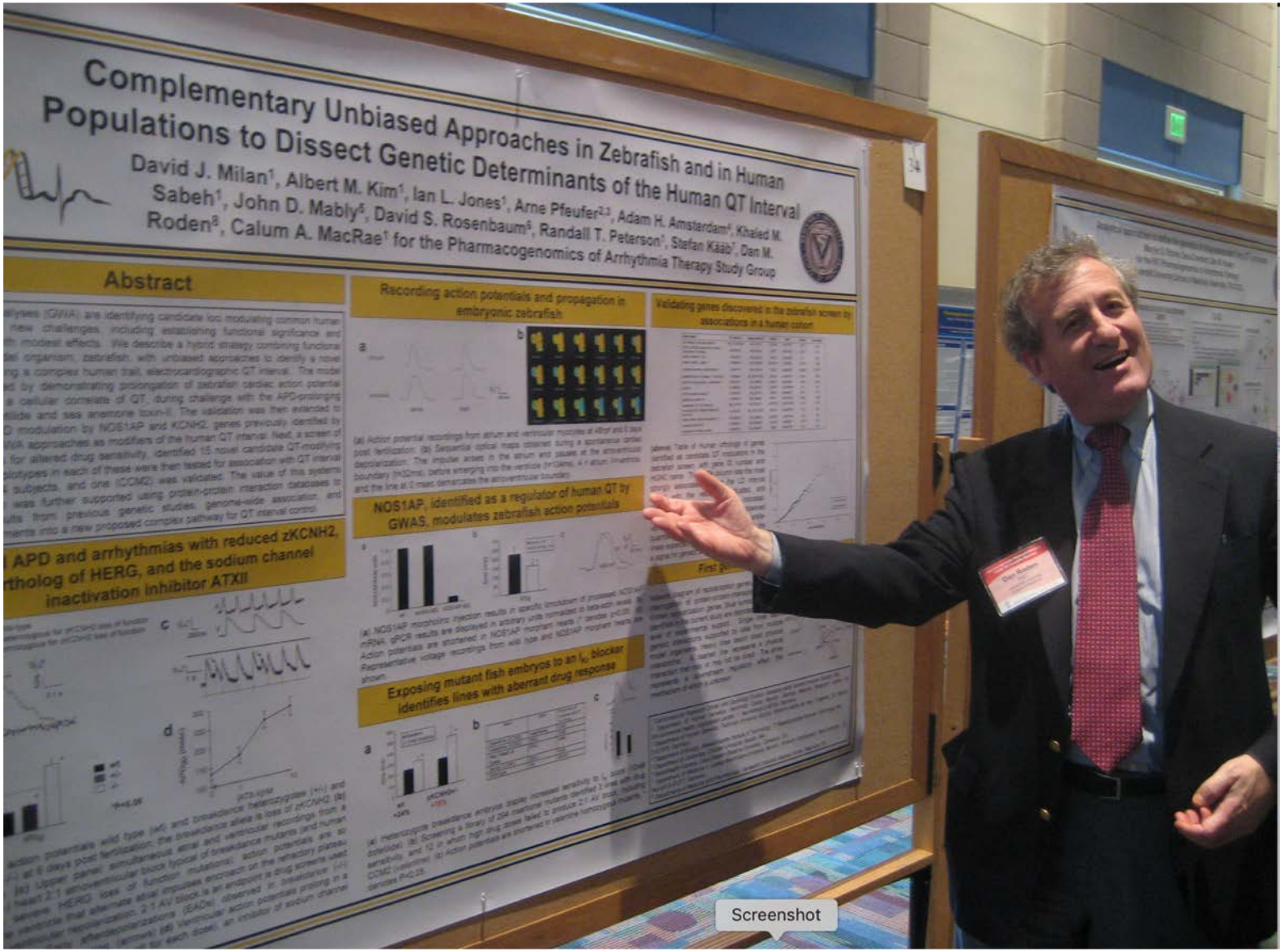
PGRN-III Launch: Retreat 2010

Class of PGRN-III

PGRN-III: Productivity booming!



PGRN-III Show and tell



Further growth and development: moving to PGx Implementation

Pharmacogenomics Research Network

The International Warfarin Pharmacogenomics Consortium

Marshfield, Clinic, WI

Michael Caldwell

Belted Galloway

CPIC®
Clinical Pharmacogenetics Implementation Consortium

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 FEBRUARY 19, 2009 VOL. 360 NO. 8

Estimation of the Warfarin Dose with Clinical and Pharmacogenetic Data

The International Warfarin Pharmacogenetics Consortium*

The Pharmacogenomics Research Network Translational Pharmacogenetics Program: Overcoming Challenges of Real-World Implementation

AR Shuldiner[1,2], MV Relling[3], JF Peterson[4,5], JK Hicks[3], RR Freimuth[6], W Sadee[7], NL Pereira[8], DM Roden[4,9], JA Johnson[10] and TE Klein[11]; for the Pharmacogenomics Research Network Translational Pharmacogenetics Program Group

Pharmacogenetics — Tailoring Treatment for the Outliers

Janet Woodcock, M.D., and Lawrence J. Lesko, Ph.D., F.C.P.

PGRN-Riken Center for Genomic Medicine
Leveraging the power of GWAS

Cruising with the PGRN

PGRN-IV 2015-2020: - Reaching Maturity:

- Supported research – NIGMS funded 3 P50 Centers, an R01, and a Hub
- Facilitated collaborations and interactions by establishing a **membership** program
- Provided **research resources** to the pharmacogenomics research community
- Held monthly web-based **Research In Progress Seminars**
- Established and maintained new **website**
- Organized biannual **scientific meetings** with ASHG and the American Society for Clinical Pharmacology & Therapeutics

PGRN Resources

PGRN RESOURCES

- PGRN-RIKEN >
- BioBank Japan
- RPGEH
- PGRN Hub
- PharmGKB
- Clinical Implementation
- Pharmacogenomics IPSC Library And Service
- Functional Pharmacogenes

Research In Progress Seminars

2nd Friday of each month
http://www.pgrn.org/rips.html

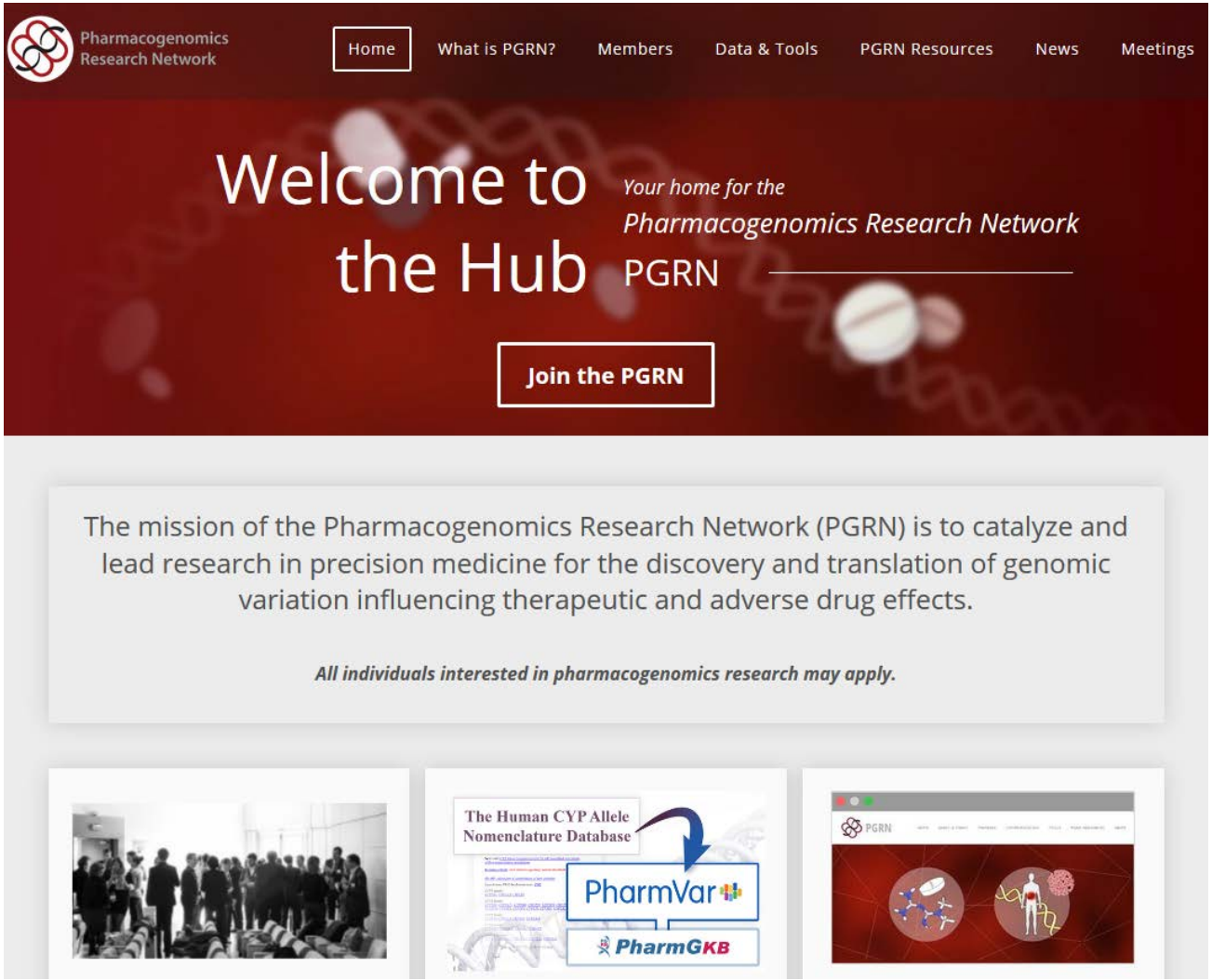
October Featured Investigator

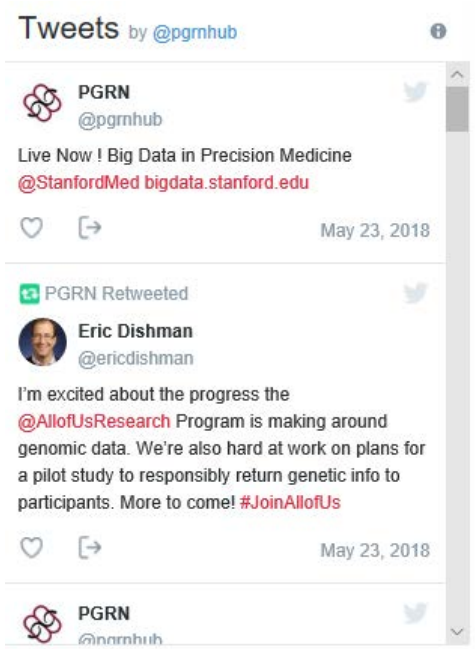
Debbie Nickerson, PhD

Professor of Genome Sciences

Adjunct Professor of Bioengineering

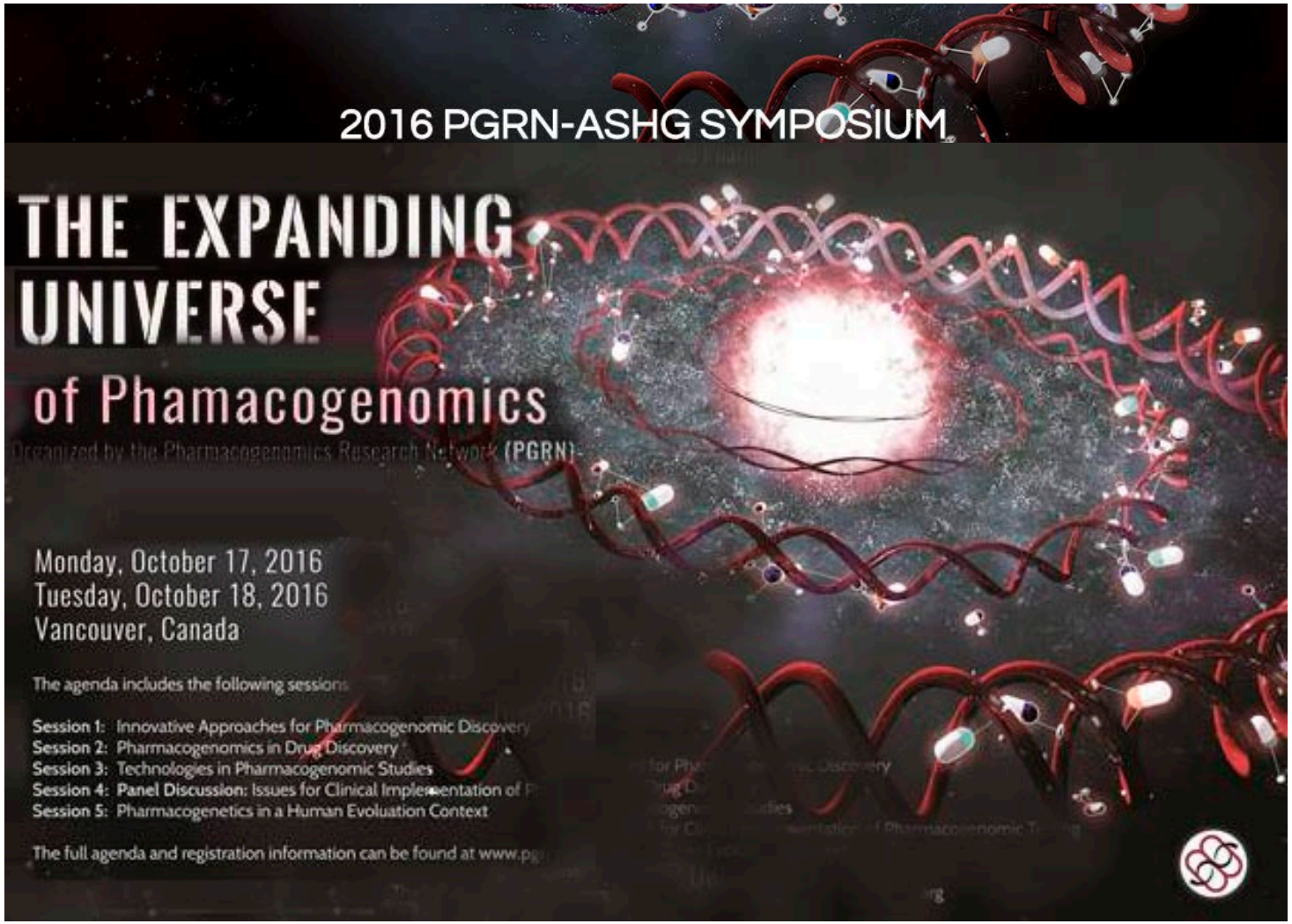
PGRN-IV Hub: the administrative home and transition to the future





The Hub of the Hub – Kathy G.

1st PGRN Symposium with ASHG 2016



Pharmacogenomics
Open Poster Session & Reception

October 19, 2017
Orlando, FL

- 39 posters displayed
- 175 attendees
- 4 trainee award winners

PGRN

2nd PGRN Symposium with ASHG

2019 PGRN Poster Session @ ASHG Annual Meeting

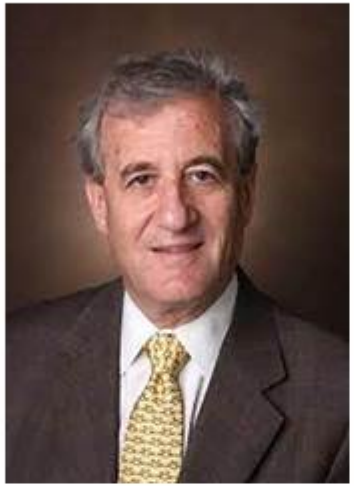
ASHG
American Society of Human Genetics

Congratulations!

Trainee Award Winners

Honorable Mention

2020: Graduation from NIH
Class photos 1





Class Photos 2







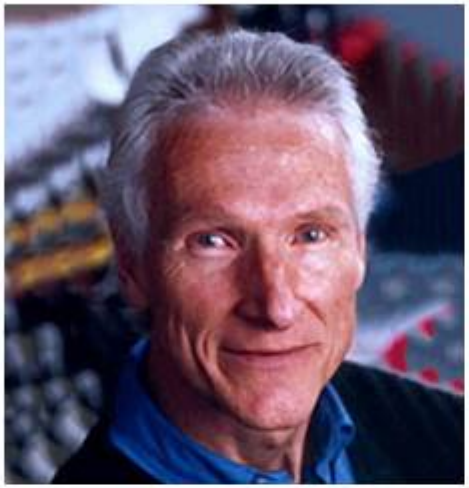

Class Photos 3



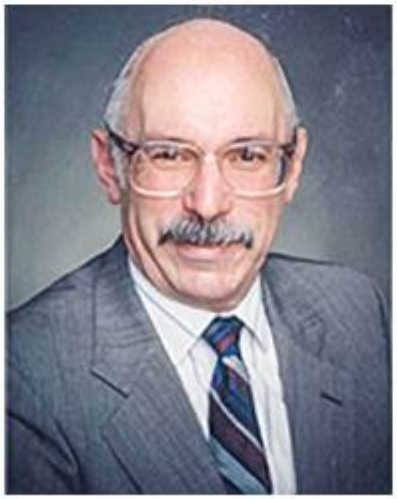





Class Photos 4





With thanks to Dan Roden for photos