GENETICS NEWS

Stanford MEDICINE | Department of Genetics

January 2018

Letter from Chair

2017 was a banner year for the Department: Will Greenleaf and Billy Li were "tenured". Hua Tang, Julie Baker, Aaron Gitler and Arend Sidow were promoted to Full Professor. John Pringle and Anne Villeneuve were elected to the National Academy. Carlos Bustamante, Alice Ting, Polly Fordyce and William Greenleaf were Awarded Chan Zuckerberg Biohub Investigatorships and Polly Fordyce and Anshul Kundaje were awarded NIH 'high-risk" New Innovator Awards. Preliminary work was initiated on the new Biomedical Innovation Building that will house much of the Department.

The Department continues to excel in research: our faculty publish their groundbreaking work in top journals and we do very well in NIH funding (ranked number 3 in the country in Genetics). We received numerous gifts thanks to the generosity of donors. This has particularly enabled our graduate program to flourish—we were ranked #1 for the 6th year in a row by US News and World Report and many of our students have received prestigious NSF awards!

2018 presents many new opportunities and challenges as we proceed full force into construction of the new BMI building. We will also hire a new faculty member into Genetics and one or two new faculty in a joint search with Pathology. In spite of our esteemed faculty, we have many fewer endowed chairs relative to our sister institutions. Our patent that has supported many of our programs has now expired and we look forward to work with sponsors and alumni to help support our ambitious graduate and research programs.

Note that in 2018 we will have our 60th Anniversary Reunion in campus to celebrate the many achievements of the Department. Please join us for what promises to be a wonderful event on campus!

Michael Snyder, Ph.D.
Stanford W. Ascherman Professor and Chair, Department of Genetics
Director, Center for Genomics and Personalized Medicine

New Faculty

Howard Chang, (Primary Dermatology) Secondary Genetics
Le Cong, (Primary Pathology) Secondary Asst. Professor of Genetics (coming in January, 2018).
Jon Bernstein, (Primary Pediatric (Genetics)) Courtesy Genetics

Save The Dates for 2018!

SCGPM Symposium, April 6, Quadrus Conf. Center
Genetics 60th, July 26-27, Arrillaga Alumni Center
Genetics Retreat, September 19-21, Monterey

Stanford University - Ranked #1 in Genetics, Genomics and Bioinformatics SIXTH year in a row!

BEST GRAD SCHOOLS U.S.News RANKINGS

Genetics in Numbers:

Graduate Students - 80
Postdoctoral Fellows- 107
Research Associates - 43
Faculty – 48 (Counts Jt Appt)
Staff – 117
Total: 385

HR NEWS

Please give a warm welcome to our following new hires in Genetics:

- Rahwa Abraham-Tesfay, Amir Bahmani, Brooke Enslen, Melanie Ashland, Gou Zhou - Snyder Lab
- Felix Gondwe, Carrie Davis, Keenan Graham, Kyyati Shah, Casey Litton, Nicholas Luther, Zachary Myers & Patrick Ng – Cherry lab
- Cecilia Hollenhurst & Subheksha KC – Brunet Lab
- Lily Leung – Kundaje Lab
- Jon-Michael Knapp – Calos Lab
- Olivia Barry – Pringle lab
- Shadi Shams – Greenleaf lab
- Braedon Ego, Gaelen Hess – Bassik lab
- Christine Reid – Baker Lab
- Emma Lundberg – Visiting Professor

Your HR team - Anita and Khoa

DONATE

Your contributions are valuable for our innovative programs!

Click here how to contribute to departmental activities or kindly send checks to:
Stanford University,Department of Genetics
Attention: Randy Soares, Alway Building, M326
300 Pasteur Drive, Stanford, CA 94305-5120

GENETICS IN THE NEWS

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Laura Attardi and her colleagues have found a mutation in the p53 tumor-suppressor protein that turns it into a "super" suppressor.

Cancer researchers have long hailed p53, a tumor-suppressor protein, for its ability to keep unruly cells from forming tumors. But for such a highly studied protein, p53 has hidden its tactics well.

Now, researchers at the Stanford University School of Medicine have tapped into what makes p53 tick, delineating a clear pathway that shows how the protein mediates anti-tumor activity in pancreatic cancer. The team's research also revealed something unexpected: A particular mutation in the p53 gene amplified the protein's tumor-fighting capabilities, creating a "super tumor suppressor."

A paper describing the work was published online Oct. 9 in Cancer Cell. Attardi is the senior author. Research associate Stephano Mello, PhD, is the lead author.

Biobank, foundation team up to accelerate research into a rare disease

Medical research is a numbers game: Funding often goes to those diseases with the largest number of patients. But what if your child is one of 36 born with a rare genetic disease? In late July, the Grace Science Foundation and a clinical research team from Stanford University piloted a novel way to accelerate research into the rare NGLY1 gene defect. In just a few days, they collected health data and samples from 20 of the 36 living patients

Through meticulous planning, the Wilseys and the Stanford team designed a streamlined process to collect biospecimens and health data in just a few days. Patient recruiting and logistics were orchestrated by the Grace Science Foundation and Shannon Rego, MS, a genetic counselor in the lab of Michael Snyder, PhD, professor and chair of genetics. Leveraging its communications channels, the foundation invited NGLY1 families to its annual scientific conference in July in Palo Alto, with the promise of meeting researchers face-to-face and participating in a study that might accelerate treatments and cures.

At Stanford, Snyder will lead the genetic sequencing of each participant's gut microbiome. Guangwen (Gavin) Wang, PhD, director of the Stem Cell Core Facility in the Department of Genetics, will grow an NGLY1 stem cell line from the tissue biopsies. And Gregory Enns, MB, ChB, professor of pediatric genetics, will be working with researchers from other institutions around the world to analyze the genomic, metabolic and health-questionnaire data. They will be looking for ideas for early diagnosis and potential treatments.

Kristen and Matt Wilsey started a foundation four years ago to support research into NGLY1 deficiency after their daughter, Grace, was diagnosed with the disease. The foundation has joined forces with Stanford to accelerate research into the rare gene defect.
Carrie Chen Photography

Tissue-specific gene expression uncovered, linked to disease

Understanding how a person's DNA sequence affects gene expression in various tissues reveals the molecular mechanisms of disease. Stanford scientists involved in the National Institutes Health's GTEx project have published some of their insights.

The culmination of the GTEx Project is described in a series of eight papers that were published Oct. 12 in Nature, Nature Genetics and Genome Research. The papers show how small variations in an individual's genome sequence govern the expression levels of genes in 44 distinct human tissues.

Researchers at Stanford — including Montgomery; professor of genetics Michael Snyder, PhD; and assistant professor of genetics Jin Billy Li, PhD — are the senior or co-senior authors of four of the eight papers, along with researchers from Johns Hopkins University, the University of Pennsylvania, Princeton University, the University of Chicago and MIT's Broad Institute.

Withholding amino acid depletes blood stem cells

A new study shows that a diet deficient in valine effectively depleted the blood stem cells in mice and made it possible to perform a blood stem cell transplantation on them.

A dietary approach to depleting blood stem cells may make it possible to conduct bone marrow transplantations without the use of chemotherapy or radiation therapy, according to researchers at the Stanford University School of Medicine.

A paper describing the findings was published online Oct. 20 in Science. The lead author is Yuki Taya, a former graduate student at the University of Tokyo. The senior authors are Hiromitsu Nakauchi, MD, PhD, a professor of genetics at Stanford, and Satoshi Yamazaki, PhD, an associate professor at the Center for Stem Cell Biology and Regenerative Medicine at the University of Tokyo.

A 1946 paper by the late Arthur Kornberg led Hiro Nakauchi and his colleagues to discover that removing valine, an essential amino acid, from the diet of mice depleted their blood stem cells.
Wing Hon Films

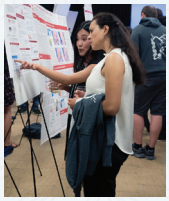
GENETICS FOCUS

Stanford MEDICINE | Department of Genetics

Genetics Retreat, September 13-15, 2017

Genetics had another successful and productive Retreat at Monterey with many interesting student and faculty talks, workshop and keynote by Amy Herr, Lester & Lynne Dewar Lloyd Distinguished Professor of Bioengineering, UC Berkeley.

Looking forward to Retreat 2018 !



Unrest - Film featuring Ron Davis, his son Whitney and wife Janet about Chronic Fatigue Syndrome

Unrest is the film that features Whitney, Ron Davis and his wife Janet. It has won awards at the Sundance Film Festival and other festivals around the world. It is now on the shortlist (15) for an Oscar for best documentary.

Unrest
Follow filmmaker Jennifer Brea's struggle with Chronic Fatigue Syndrome and meet others coping with this often-devastating and little-understood condition in this intimate documentary.

BAAM Bay Area Aging Meeting November 3, 2017 at Stanford

Anne Brunet and her lab did amazing job organizing BAAM at Stanford with over 400 people registering to this event.

Outreach Program

Strong Outreach and Diversity Programs run by Barry Starr and Rahwa Abraham-Tesfay

Bioinformatics for Microbiome Symposium September 11, 2017 at Quadrus

Ami Bhatt and Ramesh Nair hosted hugely successful sold out event for over 200 attendees!

GENETICS STORIES

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Meet our Staff - Randy

Director of Finance and Administration

Randy Soares directs the finances, hiring and administration for Genetics. He joined genetics seven years ago, after serving as the chief financial officer at the Parkinson's Institute and the Ernest Gallo Clinic and Research Center at UC San Francisco.

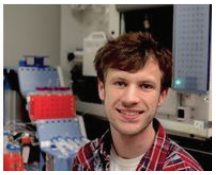
Randy started out as an accountant who could work anywhere, but over time, he found it more rewarding to do finance for basic research. At some point that became his specialty.

Another part of Soares' job is crisis management. For example, when the fire at the Edwards building displaced a number of Stanford researchers, he volunteered temporary space in the genetics labs to accommodate some of the fire "refugees."

He manages all his DFA tasks with the help of a team of finance and administrative professionals. "I'm very lucky to a have such a wonderful team to keep the department running smoothly," Randy says.

Grad Story - Evan

Graduate Student in Greenleaf and Pritchard labs



Now in the fourth year of his PhD studies, Evan Boyle builds methods and technology to understand how hundreds and even thousands of genes collude to control numerous complex traits ranging from human height to schizophrenia risk. His arsenal includes auto-filling Excel spreadsheets, sprayable multi-surface liquid repellant (NeverWet™), a Masters of Medicine degree, and a 3D printer.

"Whatever it takes" is Evan's motto.

While he works with cutting edge techniques like CRISPR-mediated genetic perturbations in the labs of Will Greenleaf and Jonathan Pritchard, Evan remains committed to creaky, oldfangled notions like truth, facts, and open-mindedness. He is known to spontaneously engage unsuspecting colleagues in debate over the latest New York Times editorial or Atlantic long-form. Beware.

Evan has embraced the flow of academic research and has come to appreciate the allure of arduous questing to discover the perfect balance of hard work, experience and brainpower that guarantees success.

But if you think you know a trick to make it easier, he wouldn't mind if you let him in on the secret.

Stanley Cohen named National Academy of Inventors fellows

Three School of Medicine faculty members have been named fellows of the National Academy of Inventors and one of them being Stanley Cohen, MD, the Kwoh-Ting Li Professor and professor of genetics.

His research helped spawn the revolution in genetic engineering. His lab currently studies mechanisms that affect the expression and decay of normal and abnormal mRNAs, and also RNA-related mechanisms that regulate microbial antibiotic resistance.

This year's recipients, announced on Dec. 12, were selected based on their "innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and welfare of society," according to the academy.

Congratulations Stan!

Do you know of a story that we should publish at Genetics Newsletter? If you have a tip or story you would like to share with us, please contact "News Desk": kinnamaa@stanford.edu