Volume 2.37: September 23, 2019

Publications of the Week

Innate Immunity Limits Protective Adaptive Immune Responses against Pre-Erythrocytic Malaria Parasites

First Author: Nana Minkah | Senior Author: Stefan Kappe *(pictured)*
Nature Communications | Seattle Children's Research Institute and UW

Immunization with attenuated whole *Plasmodium* sporozoites constitutes a promising vaccination strategy. The authors showed that type I IFN signaling-deficient mice immunized with replication-competent sporozoites exhibited superior protection against malaria infection. This correlated with superior CD8 T cell memory, and increased numbers of memory CD8 T cells in the liver. **Profile | Abstract**

A Pooled Single-Cell Genetic Screen Identifies Regulatory Checkpoints in the Continuum of the Epithelial-to-Mesenchymal Transition

First Author: José McFaline-Figueroa *(pictured)* | Senior Author: Cole Trapnell
Nature Genetics | UW, the Brotman Baty Institute for Precision Medicine, and the Allen Discovery Center for Cell Lineage Tracing

Pseudospatial trajectory analysis identified continuous waves of gene regulation as opposed to discrete 'partial' stages of epithelial-to-mesenchymal transition (EMT). Inhibiting the KRAS effector MEK and its upstream activators EGFR and MET demonstrated that interruption of key signaling events revealed regulatory 'checkpoints' in the EMT continuum that mimicked discrete stages, and reconciled opposing views of the program that controls EMT. **Profile | Abstract**

Mechanisms of Interplay between Transcription Factors and the 3D Genome

First Author: Seungsoo Kim | Senior Author: Jay Shendure *(pictured)*
Molecular Cell | UW

Despite considerable effort, our understanding of the mechanistic relation between transcription factors (TFs) and 3D genome organization remains limited, in large part due to their interdependency. The authors summarized the evidence for the diverse mechanisms by which TFs and their activity shape the 3D genome and vice versa. They further highlight outstanding questions and potential approaches for untangling the complex relation between TF activity and the 3D genome. **Abstract**

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Awards

Dr. Zhe Ying Receives Award to Study How Head and Neck Cancers Overcome Newly Discovered Tumor-Blocking Mechanism

Fred Hutch

Dr. Zhe Ying *(pictured)*, a postdoctoral fellow at Fred Hutch, has received a prestigious, five-year Pathway to Independence Award from the National Institute of Dental and Craniofacial Research, a branch of the National Institutes of Health, to study how certain mutations allow cells to overcome the differentiation barrier in head and neck cancer as he lays the foundation for his independent career. **Read More**

Researchers Receive $12 Million Grant to Develop Flu Vaccine against Many Viral Strains

The University of Chicago Medicine

A group of researchers, including Dr. Jesse Bloom *(pictured)* at Fred Hutch, have received a Grand Challenge for Universal Influenza Vaccine Development grant – a $12 million initiative funded by the Bill & Melinda Gates Foundation and Flu Lab. The group will receive up to $2 million over two years to pursue an innovative research project that will help develop a flu vaccine that protects broadly against many strains of the virus. **Read More**

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Local News

Mystery Solved: How Graft-versus-Host Disease Starts in the Gut

Fred Hutch

Drs. Motoko Koyama *(pictured)* and Geoffrey Hill of Fred Hutch have identified the complex chain of events that triggers graft-versus-host disease in the gut. It involves a large cast of cells and molecules, including some from a surprising source: the trillions of tiny organisms that live in and on us known as the microbiome. They also identified interleukin-12 as one of the key players in that pathway. **Read More**

New Type of Viral Anti-CRISPR Found in Human Microbiome

Fred Hutch

Drs. Kevin Forsberg, Harmit Malik and their collaborators at Fred Hutch have described a new type of anti-CRISPR. Using a method to screen DNA extracted from human microbiomes for activity against CRISPR, the team discovered an anti-CRISPR that blocks CRISPR in an as-yet unknown way. Results from research like this into the evolutionary arms race between bacteria and viruses may have wide applications in genome editing and therapeutics. **Read More**

Woman Has Part of Her Living Brain Removed for Science

AOL

Epilepsy sufferers in Seattle are giving researchers a rare opportunity to study the inner-workings of brain cells – while they are still breathing. After an operation to improve her condition, Rihanna Kortlever agreed to hand over a small section of her neocortex - the wrinkly, outer layer of the brain usually discarded as medical waste – to scientists at the Allen Institute for Brain Research. **Read More**

Q&A with the Allen Institute for Immunology's First Employee

Allen Institute for Immunology

Ernie Coffey *(pictured)* started his career in science with a bang. It was 1997 and he landed a job at one of the institutes participating in the sequencing of the first complete human genome as part of the Human Genome Project. The Allen Institute for Immunology sat down with Coffey to learn more about his career path, how operations can help science, and what he finds most exciting about his job. **Read More**

Fred Hutch President Dr. Gary Gilliland to Step Down

The Seattle Times

Dr. Gary Gilliland *(pictured)*, President and Director of Fred Hutch, has announced that he will be leaving his post next year. Gilliland said he'll stay on until a successor is in place and he will remain involved with Fred Hutch in some capacity after he relinquishes his leadership role. He said he felt the time was right to step aside, and that it is important for a leader to make room for a new generation of diverse leadership. **Read More**

Diabetes Institute Celebrates Opening

UW Medicine

The UW Medicine Diabetes Institute has opened new UW Medicine South Lake Union facilities that bring basic science, clinical research, education, and patient care into proximity. Members of the Institute are from many different fields. Among their varied goals are understanding how the different forms of diabetes emerge, why the condition harms many parts of the body, and what might be done better to prevent or treat diabetes and its serious complications. **Read More**

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Interesting Articles

U.S. EPA to Eliminate All Mammal Testing by 2035

Science Insider

The U.S. Environmental Protection Agency (EPA) in Washington, D.C., has announced that it will stop conducting or funding studies on mammals by 2035. The move, which is already eliciting strong reactions from groups supporting or opposing experiments on animals, makes EPA the first federal agency to put a hard deadline on phasing out animal research. **Read More**

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Upcoming Events in Seattle

September 26 7:30 PM	**The Story Collider – Outside the Box** The Royal Room	
September 28 6:00 PM	**Science Night: An Evening of Drunken Science Experiments** Palladium Theater	
October 1 8:30 AM	**3D Quantitative Visualization of Fluorescently Labeled Cells** Allen Institute	
October 2 - 4 8:00 AM	**BioImage Informatics 2019** Allen Institute	
October 5 - 6 11:00 AM	**SciFi // Curiosity Expo** Pacific Science Center	

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Science Jobs in Seattle

Director, Functional Genomics
UW Genome Sciences

Associate Director, Antibody Drug Conjugate Process Development
Zymeworks

Scientist, Protein Engineering
Stratos Genomics

Postdoctoral Fellow, HIV-1 Vaccines
Seattle Children's

Postdoctoral Fellow, Epithelial Growth in Development and Cancer
Fred Hutchinson Cancer Research Center

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