Volume 2.30: August 5, 2019

Publications of the Week

A Pro-Inflammatory CD8$^+$ T-Cell Subset Patrols the Cervicovaginal Tract

First Author: Laura Pattacini | Senior Author: Jennifer Lund *(pictured)*
Mucosal Immunology | Fred Hutch and UW

The immune system of the cervicovaginal tract (CVT) must balance immunosurveillance and active immunity against pathogens with maintenance of tolerance to resident microbiota and to fetal and partner antigens for reproductive purposes. The authors found that CVT CD8$^+$ T-cells had unique transcriptional profiles, particularly in their cytokine signature, compared to that reported for CD8$^+$ T-cells in other tissue sites. **Abstract**

DUX4 Suppresses MHC Class I to Promote Cancer Immune Evasion and Resistance to Checkpoint Blockade

First Authors: Guo-Liang Chew and Amy Campbell | Senior Author: Robert Bradley *(pictured)*
Developmental Cell | Fred Hutch and UW

The authors report that DUX4, an early embryonic transcription factor that is normally silenced in somatic tissues, is re-expressed in diverse solid cancers. Although many DUX4 target genes encoded self-antigens, *DUX4*-expressing cancers were paradoxically characterized by reduced markers of anti-tumor cytolytic activity and lower major histocompatibility complex (MHC) class I gene expression. **Abstract**

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Awards

Dr. Tyler Starr Named a 2019 Damon Runyon Foundation Fellow

Fred Hutch

Dr. Tyler Starr *(pictured)* has been named a 2019 Damon Runyon Postdoctoral Fellow. He is among 15 new Fellows to receive this prestigious, four-year award. The Fred Hutch postdoc, who is co-mentored by Hutch computational biologists Drs. Jesse Bloom and Erick Matsen, will study how DNA mutations affect the function of antibodies, a type of specialized immune protein, during the course of an immune response. **Read More**

Seattle Scientists Awarded Gilliam Fellowships to Support Diversity and Inclusion in Science

Howard Hughes Medical Institute

The Howard Hughes Medical Institute has awarded grants to 44 doctoral adviser-student pairs to improve faculty mentoring skills, support new scientific leaders, and foster diversity and inclusion in science. Among the recipient pairs were Jamie Hernandez *(pictured, left)* and Dr. Kim Woodrow *(right)*, and Román Ramos Báez and Dr. Jennifer Nemhauser from UW. **Read More**

Dr. Sita Kugel Receives Grant to Study Aggressive Form of Pancreatic Cancer

Fred Hutch

Recent molecular analyses of pancreatic ductal adenocarcinoma (PDA) has shown that a patient's prognosis changes depending on their tumor's molecular characteristics. A new research grant will enable pancreatic cancer researcher Dr. Sita Kugel *(pictured)* to tackle this challenge. Kugel's new funding from the National Cancer Institute will enable her to better understand the disease and help address the lack of effective treatments for patients with quasi-mesenchymal-PDA. **Read More**

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Local News

Researchers Discover the Science Behind Giving Up

UW Medicine

What happens when we give up? Investigators at UW have found that inside the brain, a group of cells known as nociceptin neurons get very active before a mouse's breakpoint. They emit nociceptin, a complex molecule that suppresses dopamine, a chemical largely associated with motivation. The findings offer new insight into the complex world of motivation and reward. **Read More**

Designed Switch Allows Unprecedented Control Over Cells

UW Medicine

Scientists at the UW Medicine Institute for Protein Design have created the first completely artificial protein switch that can work inside living cells to modify—or even commandeer—the cell's complex internal circuitry. The switch is dubbed LOCKR, short for Latching, Orthogonal Cage/Key pRotein. LOCKR can be "programmed" to modify gene expression, redirect cellular traffic, degrade specific proteins, and control protein binding interactions. **Read More**

Targeting a Blood Stem Cell Subset Shows Lasting, Therapeutically Relevant Gene Editing

Fred Hutch

Researchers at Fred Hutch have used CRISPR-Cas9 to edit long-lived blood stem cells to reverse the clinical symptoms observed with several blood disorders, including sickle cell disease and beta-thalassemia. It's the first time that scientists have specifically edited the genetic makeup of a specialized subset of adult blood stem cells that are the source of all cells in the blood and immune system. **Read More**

New Study Reveals Weakness in Emerging Type of Aggressive Prostate Tumor

Fred Hutch

Researchers at Fred Hutch have discovered that when aggressive prostate tumors turn off the androgen receptor, their source for growth-fueling hormones, they ramp up a different growth-promoting system. When the scientists targeted this pathway in mouse models of prostate cancer, the mice lived longer. In the short term, the findings could help explain why a certain class of experimental drugs has so far failed to produce results in clinical trials. **Read More**

Seattle Scientists Teach Tibetan Monks Modern Cell Biology

Seattle Children's Hospital

At Seattle Children's, Dr. Philip Morgan and his fellow scientist and wife, Dr. Margaret Sedensky, study mitochondria. The two began traveling to India in 2017 as part of the Emory-Tibet Science Initiative founded by Emory University to bring faculty from western universities to teach science to the monks. In addition to biology, the monks receive crash courses in physics, neuroscience and philosophy. **Read More**

From Omaha to a Seattle Lab, with Two Side Trips to Hell

Fred Hutch

Like all good internships, Lauren Hacker's *(pictured)* summer stint in the lab of Dr. Soheil Meshinchi has been hands-on. But while the Meshinchi Lab at Fred Hutch looks like a standard scientific setting, it's not. It is one of the few places in the world trying to unlock the molecular mysteries of pediatric acute myeloid leukemia, primarily by studying tumor DNA donated by patients. Patients who include Lauren, who is a two-time survivor of acute myeloid leukemia. **Read More**

Spotlight on Caroline Cannistra, ISB Systems Research Scholar

Institute for Systems Biology

Caroline Cannistra *(pictured)* joined the Institute for Systems Biology (ISB) in 2018 as a Systems Research Scholar. She is working on developing a multi-scale spatial model of the immune microenvironment in glioblastoma, and seeing how it responds to treatment with surgery and checkpoint inhibitors. In this Q&A, Cannistra describes her experiences at ISB, research interests, future aspirations, and much more. **Read More**

A Scientist's Guide to the 'Exploring Frontiers Symposium: Predicting Biology' at the Allen Institute

UW Medicine Memory and Brain Wellness Center

Franklin Faust, a research team member of UW Alzheimer's Disease Research Center, has summarized some of the neuroscience talks presented in Day 1 of Exploring Frontiers: Predicting Biology hosted by the Allen Institute for Brain Science. These talks featured brain researchers from around the world who discussed the use of modeling to better understand the brain. **Read More**

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Upcoming Events in Seattle

August 6
5:30 PM
Women in Bio Annual Summer Social & Networking Mixer
1551 Eastlake Ave. E.

August 15
9:00 AM
Innovations in Imaging for Life Sciences Symposium
UW NanoEngineering & Sciences Building, Room 181

August 15
4:00 PM
Life Science Washington 2019 Summer Social
Life Science Washington

August 20
7:00 PM
Recompose: Innovation in Death Care
Pacific Science Center

August 21
7:00 PM
Medical Angels
Seattle Public Library

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Science Jobs in Seattle

Director, Process Development
NanoString

Staff Scientist, Protein Chemist/Analytical Chemist
Fred Hutchinson Cancer Research Center

Scientist, Therapeutic AAV Testing
Allen Institute for Brain Science

Senior Research Associate, Raw Material Testing
Celgene

Research Associate, Medicinal Chemistry
Gilead

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