

## Publications of the Week

## Functional Metagenomics-Guided Discovery of Potent Cas9 Inhibitors in the Human Microbiome

First Author: Kevin Forsberg | Senior Author: Harmit Malik (pictured)  
eLife | Fred Hutch and Seattle University



Phages and other mobile genetic elements use small anti-CRISPR (Acr) proteins to overcome CRISPR-Cas immunity. The authors developed a high-throughput functional selection to isolate ten DNA fragments from human oral and fecal metagenomes that inhibit *Streptococcus pyogenes* Cas9 (SpyCas9) in *E. coli*. The most potent Acr from this set, AcrIIA11, was recovered from a *Lachnospiraceae* phage. AcrIIA11 inhibited SpyCas9 in bacteria and in human cells. **Abstract**

Suppression of Monosodium Urate Crystal-Induced Inflammation by Inhibiting TGF- $\beta$ -Activated Kinase 1-Dependent Signaling: Role of the Ubiquitin Proteasome System

First Author: Anil Singh | Senior Author: Salahuddin Ahmed (pictured)  
Cellular & Molecular Immunology | UW and Washington State University



The authors investigated the intracellular signaling mechanisms involved in monosodium urate (MSU)-induced activation of THP-1 macrophages and human nondiseased synovial fibroblasts, and the *in vivo* efficacy of an inhibitor of tumor growth factor- $\beta$  (TGF- $\beta$ )-activated kinase 1, 5Z-7-oxozeonol, in MSU-induced paw inflammation in C57BL/6 mice. **Abstract**

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## Awards

## NIH Awards Contracts to Advance Tuberculosis Immunology Research

National Institutes of Health



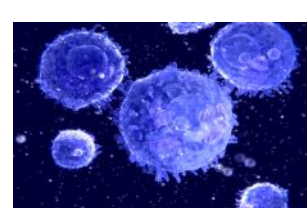
The National Institute of Allergy and Infectious Diseases has awarded \$30 million in first-year funding to establish new centers for immunology research to accelerate progress in tuberculosis vaccine development. Two of the three institutions awarded contracts are in Seattle (the Infectious Disease Research Institute and Seattle Children's Hospital), where the projects will be led by Drs. Rhea Coler (pictured) and Kevin Udahl. **Read More**

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## Local News

## Failed Alzheimer's Drug Boosts CAR T-Cell Therapy

Fred Hutch



They may not have made a dent against Alzheimer's, but it turns out that experimental drugs called gamma secretase inhibitors, or GSIs, sure can bedevil cancer. Scientists at Fred Hutch have found that GSIs can disable cancer's cloaking device. GSIs and engineered immune cells can form a potent one-two punch. Flushed back out into the open by the drugs, myeloma cells are easily spotted by CAR T cells, which can launch their attack. **Read More**

## Fred Hutch Spinout SEngine Raises \$5.1M to Test Cancer Treatment Drugs against a Patient's Tumors

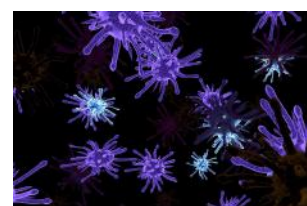
GeekWire



Seattle startup SEngine Precision Medicine, which spun out of Fred Hutch in 2015, has raised \$5.1 million in fresh funding as it looks to commercialize a platform that can match cancer patients to the right drug and aid in drug discovery. SEngine's PARIS test grows a patient's tumor cells in a lab, then analyzes them to determine the safest and most effective medications. **Read More**

## Age-Old Arms Race Points Way to New-and-Improved Antiviral Protein

UW Medicine



Our evolutionary history is not merely a record of where our species has been. It may well hold clues that could improve our future, according to work from scientists at Fred Hutch. The team has shown they could use insights from the ancient tug-of-war between viruses and their hosts to evolve a better antiviral protein in the lab. **Read More**

## Genetic Study Evolves Understanding of Common Birth Defects of the Brain

Seattle Children's Hospital



In the largest genetic study of the most common birth defects of the brain diagnosed during pregnancy, researchers from Seattle Children's Research Institute say that their findings evolve our understanding of brain development. The findings will also change the information given to expecting parents when cerebellar malformations, such as Dandy-Walker malformation and cerebellar hypoplasia, are detected prenatally. **Read More**

## Adaptive and Illumina to Make Immune Sequencing Kits for Labs, Streamlining the Detection of Disease

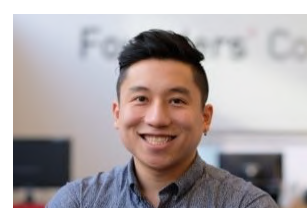
GeekWire



Adaptive Biotechnologies has signed a deal with Illumina, the largest genetic sequencing firm in the U.S., to produce kits that can read the human immune system to detect diseases at labs across the country. The idea is to make Adaptive's immune sequencing tech easier to access for clinicians and patients. This partnership is the latest big-name agreement for Seattle-based Adaptive. **Read More**

## Stem Cell Startup Silene Biotech Acquired by NanoSurface Biomedical in All-Seattle Deal

GeekWire



NanoSurface Biomedical has snapped up Silene Biotech in a union of two Seattle startups that bets on the growing importance of stem cells in drug development. With the acquisition, NanoSurface is hoping to solve an essential problem in medicine, which is that the cells used to test new drugs typically don't come from humans. Silene's CEO, Alex Jiao (pictured), and NanoSurface's Chief Business Officer, trace their roots back to UW. **Read More**

## Three Collaborative Studies Launch on 'OpenScope,' a Shared Observatory for Neuroscience

Allen Institute for Brain Science



OpenScope is now open for round two. The Allen Institute's "shared observatory" for neuroscience has selected three new research projects to pursue this year, following a successful launch of the program with three inaugural projects in 2018. The new projects will explore how flashing light might alleviate symptoms of Alzheimer's disease, how the visual system distinguishes different types of motion, and how context matters for vision. **Read More**

## NIH to Fund Hubs to Accelerate Development of Biomedical Health Technologies

National Institutes of Health



The National Institutes of Health (NIH) has awarded \$20 million to fund five additional hubs designed to speed up the translation of biomedical discoveries into commercially viable diagnostics, devices, therapeutics, and tools to improve patient care and enhance health. Among these is the Washington Entrepreneurial Research Evaluation and Commercialization Hub, which will be headed by UW and Seattle Children's. **Read More**

## Potent Antibody Curbs Nipah and Hendra Virus Attack

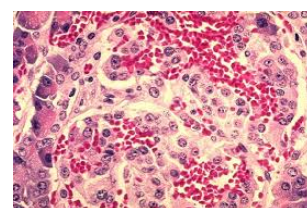
UW Medicine



Researchers at UW have shown that a new monoclonal antibody can impede the fusion machinery henipaviruses use to merge with the membrane of cells they are attempting to breach. They hope that these types of laboratory discoveries will pave the way toward preventing Nipah virus and Hendra virus infections, or provide a solution for post-exposure therapy. **Read More**

## Improved Method for Converting Stem Cells into Pancreatic Islet Progenitor Cells

Institute for Stem Cell & Regenerative Medicine



Cell replacement therapy offers one of the most promising prospects for treating or even curing type 1 diabetes. However, current protocols for differentiating stem cells into rare cell types, including pancreatic islet cells, remain inefficient. An Institute for Stem Cell & Regenerative Medicine research team has detailed how promoting the function of a protein, known as Cx43, has helped them to more efficiently convert stem cells into pancreatic islet progenitor cells. **Read More**

## Mitochondria Studies Critical to Search for Heart Failure Cure

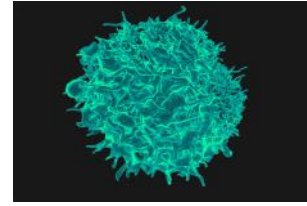
UW Medicine



For a long time, mitochondria were viewed only as the energy suppliers of cells. A working group co-chaired by researchers at UW Medicine, including Dr. Rong Tian (pictured), has said that the power of mitochondrial science has the potential to unlock new solutions for heart failure. In a report, the group outlined the top gaps in knowledge and methods that could be priorities for upcoming research. **Read More**

## ElevateBio Finds HighPassBio to Develop Fred Hutch Cell Therapy

Fierce Biotech



ElevateBio has founded HighPassBio to advance T-cell immunotherapies based on research from Fred Hutch. HighPassBio starts life with a Phase I leukemia cell therapy and the support of a founder that recently raised \$150 million to build a portfolio of startups. The company plans to hoover up cell and gene therapy programs from academic sites and medical centers and pair them with its process development and manufacturing company, ElevateBio BaseCamp. **Read More**

## 20 Things You Didn't Know about Adaptive Biotechnologies

Money Inc.



Several biotechnology companies are working towards unlocking the secrets of the immune system of the body and finding correlations that will aid in the improvement of health and the prevention and cure for certain diseases. Adaptive Biotechnologies is one such company that is at the forefront of the battle. If you're not yet familiar with the company, read these 20 things that you didn't know about Adaptive Biotechnologies that you might find worth knowing. **Read More**

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## Interesting Articles

## Three Percent of NIH Grants Involved a Direct Financial Conflict of Interest

Science Insider



A report has found that financial conflicts of interest that could bias researchers funded by the National Institutes of Health (NIH) are rare. About 3% of the 55,600 grants the agency awarded in 2018 involved at least one researcher reporting such a conflict. But some experts question whether the data are capturing all relevant conflicts. **Read More**

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## Upcoming Events in Seattle

October 7 - 9 8:00 AM	<b>GeekWire Summit 2019</b> The Hyatt Regency Seattle
October 8 7:00 PM	<b>Science in the City – Cervical Cancer Elimination: A New World Health Goal</b> Pacific Science Center
October 9 3:30 PM	<b>Women in Bio Seattle: Imagine the Future of Bioscience</b> Allen Institute
October 17 5:00 PM	<b>Life Science Industry Networking Event</b> Life Science Washington
October 18 7:00 PM	<b>Brewology</b> Pacific Science Center

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## Science Jobs in Seattle

<b>Assistant Professor, Biochemistry</b> UW Department of Biochemistry
<b>Senior Director, Translational Sciences Team Leader</b> Seattle Genetics
<b>Principal Development Scientist</b> AGC Biologics
<b>Post-Doctoral Research Fellow, HIV</b> Fred Hutchinson Cancer Research Center
<b>Research Associate, Molecular Biology</b> Allen Institute for Immunology

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## STEMCELL Jobs

<b>Scientist, Pulmonary (Vancouver, BC)</b> STEMCELL Technologies
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<b>Scientific Sales Representative, Cell Separation Products (Los Angeles, CA)</b> STEMCELL Technologies

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