

Publications of the Week

Pandemic Fluoroquinolone Resistant *Escherichia coli* Clone ST1193 Emerged via Simultaneous Homologous Recombinations in 11 Gene Loci

First Author: Veronika Tchesnokova | Senior Author: Evgeni Sokurenko (pictured)
PNAS | UW



The most common mechanism of high resistance to fluoroquinolones is the sequential acquisition of three mutations in two DNA topoisomerases, gyrase (GyrA) and topoisomerase IV (ParC). The authors showed that *E. coli* ST1193 acquired the mutant variants of *gyrA* and *parC* not by a conventional stepwise evolution, but rather all at once. [Profile](#) | [Abstract](#)

Human 5' UTR Design and Variant Effect Prediction from a Massively Parallel Translation Assay

First Author: Paul Sample | Senior Author: Georg Seelig (pictured)
Nature Biotechnology | UW



The authors combined polysome profiling of a library of 280,000 randomized 5' untranslated regions (UTRs) with deep learning to build a predictive model that relates human 5' UTR sequence to translation. Together with a genetic algorithm, they used the model to engineer new 5' UTRs that accurately directed specified levels of ribosome loading, providing the ability to tune sequences for optimal protein expression. [Profile](#) | [Abstract](#)

Genetic Variation, Comparative Genomics, and the Diagnosis of Disease

Evan Eichler (pictured)
The New England Journal of Medicine | UW Medicine and the Howard Hughes Medical Institute



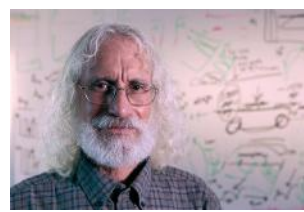
The genome is not akin to a string of fixed length. Many large segments of DNA may be present or absent — a major contributor to pathogenic genomic variation. New technologies in DNA sequencing are helping to uncover this type of variation, which often cannot be detected by standard DNA sequencing. The author outlines strategies for using comparative genomics to discover mutations associated with human genetic disease. [Abstract](#)

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Awards

Immunotherapy Trailblazer Dr. Phil Greenberg to Receive E. Donnell Thomas Lecture and Prize

Fred Hutch



The American Society of Hematology has honored Dr. Phil Greenberg (pictured) of Fred Hutch with the 2019 E. Donnell Thomas Lecture and Prize for his outstanding contributions to the field of immunotherapy. The honor recognizes pioneering research achievements in hematology that represent a paradigm shift or significant discovery in the field. [Read More](#)

Dr. Meghan Koch Named 2019 Rita Allen Foundation Scholar

Fred Hutch



Dr. Meghan Koch (pictured), an immunologist at Fred Hutch, has been named a 2019 Rita Allen Foundation Scholar. She studies how interactions between mother and infant influence infant growth and development. The mission of the Rita Allen Foundation, established in 1953, is to support transformative, human health-promoting ideas in their earliest stages. [Read More](#)

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Local News

Scientists Use Time Travel to Trace How Cancer Evolves

UW Medicine



It's possible to take precancerous cells back in time, so to speak, revealing individual DNA mutations in their earliest state and the likely sequence in which those mutations were acquired, according to Dr. Sergei Doulatov (pictured), an Assistant Professor at the UW School of Medicine. The discovery could shed light on the natural rules that govern how cancers evolve through progressive acquisition of DNA mutations. [Read More](#)

FDA Qualifies Biomarker in Controlled Malaria Infection Trials

UW Medicine



A molecular test, proven more effective than thick blood smears at detecting malaria parasites earlier in an infection, has now received FDA qualification for certain types of clinical trials. The multi-institutional team that developed and assessed the new biomarker was led by Dr. Sean Murphy at the UW School of Medicine and the Seattle Malaria Clinical Trials Center at Fred Hutch. [Read More](#)

ISCRM Researchers to Play Pivotal Roles on NIH-Funded Collaboration with Stanford

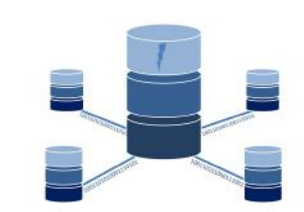
Institute for Stem Cell and Regenerative Medicine



Dr. Mike Regnier (pictured), a UW Professor of Bioengineering and a faculty member at the Institute for Stem Cell and Regenerative Medicine (ISCRM), will be co-leading a collaborative research project funded by a five-year \$10 million grant from the National Institute of General Medical Sciences. They will be studying how alterations in tissue organization and function can arise from often subtle changes in function at the molecular level. [Read More](#)

Microsoft Joins with Pacific Northwest Medical Research Institutions on Data Discovery Platform

GeekWire



Microsoft is teaming up with leading medical research organizations to create a shared network of research data in the Pacific Northwest. Dubbed the Cascadia Data Discovery Initiative, the goal of the collaboration is simple: make it easier to find and share medical data. Started by Microsoft and Fred Hutch, the initiative has added four new members including the UW eScience Institute. [Read More](#)

Johnson & Johnson Announces New Public-Private Partnership with Fred Hutch to Support First Phase III Efficacy Study of Janssen's Investigational Prophylactic HIV Vaccine

Johnson & Johnson



Janssen Vaccines & Prevention B.V., together with a consortium of global partners including the HIV Vaccine Trials Network based at Fred Hutch, are preparing to launch Mosaico, the first large-scale Phase III efficacy study of Janssen's investigational mosaic-based HIV-1 preventive vaccine. Janssen's mosaic vaccine is designed as a global vaccine with the goal of preventing infections from the wide range of viral strains responsible for the HIV pandemic. [Read More](#)

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Interesting Articles

US Senators Call for International Guidelines for Germline Editing

The Scientist



Three senators have introduced a resolution calling for global collaboration in developing guidelines for the use of gene editing technologies in the context of reproduction. The senators specifically pledged their support for the international commission established in May to develop a framework for scientific research into the use of germline editing. [Read More](#)

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Upcoming Events in Seattle

- July 24, 7:00 PM: **Understanding the Genetics of Epilepsy** (Foege Auditorium)
- July 25, 8:00 AM: **Exploring Frontiers: Predicting Biology** (Allen Institute)
- July 26, 8:00 PM: **THEORY** (Pacific Science Center)
- July 30 - 31, 8:00 AM: **Introduction to Clinical Research Boot Camp** (Husky Union Building)
- July 31, 7:00 PM: **Why Do Humans Have Fewer Genes than Corn?** (Foege Auditorium)

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Science Jobs in Seattle

- Scientist, Product Sciences** (Celgene)
- Staff Scientist, Protein Chemist/Analytical Chemist** (Fred Hutchinson Cancer Research Center)
- Resesarch Scientist, Immunology and Inflammation** (Gilead)
- Senior Medical Writer** (Seattle Genetics)
- Research Scientist Engineer Assistant** (UW Institute for Protein Design)

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STEMCELL Jobs

- Senior Process Development Scientist, Nanoparticles, Vancouver** (STEMCELL Technologies)
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- Research Associate, Immune Cell Culture, Vancouver** (STEMCELL Technologies)
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