

Publications of the Week
Programmable Design of Orthogonal Protein Heterodimers

 First Author: Zibo Chen | Senior Author: David Baker *(pictured)*
 Nature | The Institute for Protein Design and UW


Specificity of interactions between two DNA strands, or between protein and DNA, is often achieved by varying bases or side chains coming off the DNA or protein backbone. By contrast, specificity of protein-protein interactions usually involves backbone shape complementarity, which is less modular and hence harder to generalize. The authors show that protein-protein interaction specificity can be achieved using extensive and modular side-chain hydrogen-bond networks.

[Abstract](#)
Evidence for Minimal Cardiogenic Potential of Stem Cell Antigen 1-Positive Cells in the Adult Mouse Heart

 First Author: Lauren Neidig | Senior Authors: Jop van Berlo and Charles Murry *(pictured)*
 Circulation | Institute for Stem Cell and Regenerative Medicine, Center for Cardiovascular Biology, and UW


Stem cell antigen 1 (Sca-1) has been reported to mark resident cardiac progenitor cells, and a previous study reported frequent contribution of Sca-1-expressing cells to cardiomyocytes. However, the transgenic approach used in this study resulted in more widespread expression than just Sca-1-expressing cells. The authors aimed to test the hypothesis that endogenous Sca-1-expressing cells are progenitors for cardiomyocytes *in vivo* under physiological and pathophysiological conditions. [Abstract](#)

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Awards
Drs. Denise Galloway and Hans-Peter Kiem Receive Endowed Chairs

Fred Hutchinson Cancer Research Center



Barbara Stephanus, a longtime donor to Fred Hutchinson Cancer Research Center, has gifted not one but two endowed chairs to support the center's science. Dr. Denise Galloway *(pictured)*, who studies the role of human viruses in cancer development, is the recipient of the Paul Stephanus Memorial Endowed Chair, and Dr. Hans-Peter Kiem, a pioneer in stem cell and gene therapy, is the recipient of the Stephanus Family Endowed Chair for Cell and Gene Therapy. [Read More](#)

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Local News
A Conversation with Mary-Claire King

The Journal of Clinical Investigation



Few scientists have had a more massive contribution to genetics than Mary-Claire King *(pictured)* of UW. King was the first to show that breast cancer is inherited in some families as a result of mutations in the gene that she named *BRCA1*. She's also been a tireless social justice warrior, protesting wars, fighting the patenting of genes, and pioneering research in using genomic tools to aid in the investigation of human rights abuses. [Read More](#)

Enhancing the Development of Heart Cells Using Materials Derived from Silk

Institute for Stem Cell & Regenerative Medicine



In an exciting breakthrough that may have implications for stem cell-based treatment of heart disease, the lab of Dr. Deok-Ho Kim at the Institute for Stem Cell and Regenerative Medicine has successfully used silk-based materials to enhance the development of stem-cell derived cardiomyocytes. Dr. Kim and his lab set out to promote improved cell development and maturation by creating a more natural environment for cultured cardiomyocytes. [Read More](#)

Researchers Develop a New Houseplant that Can Clean Your Home's Air

UW News



Researchers at UW have genetically modified a common houseplant — pothos ivy — to remove chloroform and benzene from the air around it. The modified plants express a protein, called 2E1, that transforms these compounds into molecules that the plants can then use to support their own growth. The team is currently working to increase the plants' capabilities by adding a protein that can break down another hazardous molecule found in home air: formaldehyde. [Read More](#)

Can New Drugs Be Tested with Computers? Team Explores Possibility for Tuberculosis Drugs

Infectious Disease Research Institute (IDRI)



IDRI is partner in a European Union-funded consortium that is focused on demonstrating how advanced computer modelling and simulation can be used to reduce the costs of the clinical trials to test the efficacy of new therapies for tuberculosis. The consortium includes some of the leading researchers in this field, including IDRI, the Universities of Cantania, Bologna, and Sheffield, Archival Farma, the Stichting Tuberculosis Vaccine Initiative, and the All India Institute of Medical Sciences. [Read More](#)

The Genes that Build Our Brains — and May Drive Neuropsychiatric Diseases

The Allen Institute for Brain Science



In a newly published study, researchers have profiled how all genes turn on and off in the human brain as it develops, from mere weeks after conception through to adulthood, and how some of these genes could play very early roles in the genesis of several major psychiatric and neurological diseases. The study looked at tissue from 60 different postmortem brains, ranging in age from early in the prenatal period to a 64-year-old adult. [Read More](#)

Seattle Team Pivotal to FDA OK on Drug for Rare Skin Cancer

UW Medicine



An immunotherapy clinical trial based in Seattle, among other U.S. sites, was pivotal to the December approval by the Food and Drug Administration (FDA) of the drug pembrolizumab to treat Merkel cell carcinoma, a rare and often fatal skin cancer. The trial was initiated in 2014 by the Cancer Immunotherapy Trials Network, which is based at the Fred Hutchinson Cancer Research Center, and was sponsored by the National Cancer Institute. [Read More](#)

Chow Stresses Need to Identify B-Cell Lymphoma Treatment Options after Progression on CAR T-Cell Therapy

Targeted Oncology



As chimeric antigen receptor (CAR) T-cell therapies become more widespread, more patients with large B-cell lymphomas are relying on this option after relapse; however, a portion of patients will still progress after CAR T-cell treatment. A group at the Fred Hutchinson Cancer Research Center, including Dr. Victor Chow *(pictured)*, sought to explore the outcomes of these patients who progress after treatment with CAR T cells. [Read More](#)

Announcing the Allen Institute for Immunology, a New Research Endeavor Focused on Human Immune Health and Disease

Allen Institute for Immunology



The Allen Institute has announced the launch of the Allen Institute for Immunology, a new division of the Institute that is dedicated to studying the human immune system. Seeded by a generous commitment of \$125 million by Allen Institute founder, the late Paul G. Allen, the new Institute will work to understand the dynamic balancing act of the human immune system, how it senses friend from foe and what goes wrong when we're ill. [Read More](#)

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Year in Science: Genetic Breakthroughs Make Dreams (and Nightmares) Come True

GeekWire



In science, it was the best of times, and the worst of times. 2018 was a year when researchers focused in on ways to head off disease by reprogramming a patient's own cells, but also crossed what many thought were ethical red lines in genetic experimentation. It was the first year in which women won a share of the Nobel Prize for physics as well as for chemistry, but also a year when the #MeToo issue came to the fore in the science community. [Read More](#)

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Upcoming Events in Seattle

- January 9**
 3:30 PM | **ISCRM Public Forum: Repairing the Failing Brain**
 Orin Smith Auditorium
- January 10**
 10:30 AM | **Allen Institute Distinguished Seminar Series**
 Allen Institute
- January 16**
 6:00 PM | **Tech Careers for STEM Graduates**
 Fred Hutchinson Cancer Research Institute
- January 17**
 4:00 PM | **Aus-Trial-Ia Phase I Clinical Trials Down Under**
 Courtyard Seattle Downtown
- January 17**
 5:00 PM | **Life Science Industry Networking Event**
 Agora Conference Center

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Science Jobs in Seattle

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