The Department of Chemistry, University of Massachusetts Amherst
presents

PROFESSOR JAMES WELLS

University of California, San Francisco
Department of Pharmaceutical Chemistry

Detecting and Attacking Cell Surface Proteomes in Cancer

Thursday, April 12, 2018
11:30 a.m.
Lederle Graduate Research Tower 1634
Refreshments at 11:00 a.m.

Five Colleges, Incorporated is a nonprofit educational consortium established in 1965 to promote the broad educational and cultural objectives of its member institutions, which include four private, liberal arts colleges and the Amherst campus of the state university. The consortium is an outgrowth of a highly successful collaboration in the 1950s among Amherst College, Mount Holyoke College, Smith College, and the University of Massachusetts Amherst, which resulted in the founding of a fifth institution, Hampshire College, in 1970.

Five Colleges promotes and administers long-term forms of cooperation that benefit faculty, students, and staff. These include:

Shared use of educational and cultural resources and facilities, including a joint automated library system, open cross registration, and open theater auditions; Joint departments and programs; and Inter-campus transportation.

Their proximity to one another in the Connecticut River Valley of western Massachusetts favors *Five College* collaboration, as does their commitment to the liberal arts and to undergraduate education. *Five Colleges, Incorporated* is a longstanding member of the Association for Consortial Leadership (ACL), a national organization of consortia.

April 12, 2018
"Born to be Wild" in Industry and Academia
Ruth Hammon Auditorium, Adele Simmons Hall (ASH)
Hampshire College, 4:30 p.m.

April 13, 2018
New Engineered Proteins for Signaling
Merrill Science Center, Lecture Room 4
Amherst College, 3:30 p.m.

JamesWells

James A. Wells, PhD, an internationally recognized biochemist and leader in the development of new technologies for engineering proteins and for identifying small molecules to aid in drug discovery, is a member of the prestigious National Academy of Sciences. He joined UCSF in 2005 as the first holder of the Harry Wm. and Diana V. Hind Distinguished Professorship in Pharmaceutical Sciences, and has been the chair of the Department of Pharmaceutical Chemistry in the UCSF School of Pharmacy since July 1, 2008.

Wells is a professor in his home Department of Pharmaceutical Chemistry and holds a joint appointment as professor in the UCSF School of Medicine's Department of Cellular and Molecular Pharmacology. At UCSF, Wells' research group focuses on the discovery and design of small molecules that trigger or modulate cellular processes in inflammation and cancer. Using small molecules and engineered proteins, the Wells lab is studying how enzymes known as proteases are turned on to cleave particular proteins in cells. The lab is focusing on one set of proteases, known as caspases, that kill virally infected or precancerous cells. These enzymes act as demolition experts and help us understand the essential protein struts that support life. Wells' research spans the multiple disciplines of biophysics, cell biology, molecular biology, biochemistry and chemistry.

Wells also directs the Small Molecule Discovery Center (SMDC), which he founded. The SMDC is located at UCSF's Mission Bay campus in the California Institute for Quantitative Biosciences (QB3), where Wells is a faculty affiliate. Center activities focus on helping UCSF and QB3 researchers identify small molecules that modulate biochemical or cellular processes and have the potential to alter disease states. The ultimate goal of SMDC research is to help pave the way for the development of new small molecule therapeutics.

Before joining UCSF, Wells was a founding scientist in Genentech's Protein Engineering Department. He then founded Sunesis Pharmaceuticals, where he served as president and chief scientific officer and co-invented a novel drug discovery process, called Tethering, to efficiently screen molecules in search of the most potent compounds to block specific protein action.

In addition to his membership in the National Academy of Sciences, Wells is a recipient of many honors, including the Hans Neurath Award by the Protein Society, the Pfizer Award given by the American Chemical Society, the du Vigneaud Award given by the American Peptide Society and the 2006 Hartwell Individual Biomedical Research Award. He earned a PhD degree in biochemistry from Washington State University and completed postdoctoral work at Stanford University School of Medicine.

ABSTRACT: *The cell surface proteome (surface-ome) is the primary hub for cells to communicate with the outside world. Oncogenes are known to cause huge changes in cells (see Figure) and we hypothesize transformation will lead to changes in the cancer surface-ome. Our lab uses proteomic technologies, both mass spectroscopy-based and a new multiplexed antibody methods to systematically understand how cancer cells remodel their membrane proteomes. We then generate recombinant antibodies to detect and then attack these cells by toxifying the antibodies or recruiting immune cells to kill. I will describe our current studies in this area of attacking cancer from the outside.*