

Faculty Club - 6. December 2019

12:00 – 1:30 pm, RWTH Guesthouse

Prof. Ruedi Aebersold, ETH Zurich

Extracting new molecular biology knowledge from BigData

To understand how the molecules of a cell or an organism collectively constitute a living organism is the foremost goal of the molecular life sciences. For most of the 20th century living systems were studied as biochemical systems, where a large number of biochemical reactions are concurrently catalyzed and controlled by proteins that are, in turn, synthesized based on the information of the genome. Scientists implicitly assumed that if they knew all proteins and therefore all activities they would understand living cells, a view that ultimately guided the genome project.

In addition to the actual genomic sequence the genome project also catalyzed the emergence of a range of high throughput measurement techniques that are collectively referred to “OMICS” technologies. Today they are capable of generating enormous data volumes of high quality.

In the presentation we will discuss conceptual and practical challenges of extracting new molecular biology knowledge from OMICS data with special emphasis on translational research.



Ruedi Aebersold is a Swiss and Canadian scientist trained as a cell biologist at the Bio-center of the University of Basel. He completed his education at the California Institute of Technology. He holds an appointment as Professor at the ETH (Swiss Federal Institute of Technology) Zurich, with a joint appointment at the University of Zurich, Switzerland and served as chair of the Biology Department at ETH. Before he was on the faculties of the Universities of British Columbia and Washington and co-founded the Institute for Systems Biology in Seattle, with Lee Hood and Alan Aderem. He participates as a member of Scientific Advisory Boards for a number of academic and private sector research organizations and has served as senior editor for the journals *Molecular and Cellular Proteomics* and *Molecular Systems Biology*. He has co-founded several companies and holds several public service appointments.

The research focus of his group is the proteome. The group has pioneered several important and widely used developments in proteomics, including stable isotope based proteome quantification; open access/open source software and statistical tools supporting proteomic analyses; targeted proteomics for the generation of accurately quantitative, reproducible datasets; and chemical cross linking/mass spectrometry for the analysis of proteins in their cellular context. The work has been recognized with numerous awards and prizes. Ca. 50 trainees of the group have reached faculty status at leading research institutions in the US, Canada, Australia, Europe and China.

Registration

Please register [here](#) by Monday December 2, 2019 or send an email to facultyclub@ers.rwth-aachen.de

Please note that a [contribution](#) of 15 Euro for lunch snack and beverages will be requested on site. Based on your registration, we make a binding order to the catering company. We therefore ask for your understanding that the cost contribution is due unless you cancel your registration by noon of the previous day at the latest.