

1 NAME	Ruedi Aebersold
Nominating Society	Swiss Group for MS
Supplementary Information and Description of Achievement	
<p>I. BIOGRAPHICAL DATA</p> <p>Current Position: Professor</p> <p>Place of Birth: Switzerland</p> <p>Date of Birth: September 12, 1954</p> <p>Citizenship: Swiss, Canadian</p> <p>II. EDUCATION</p> <ul style="list-style-type: none"> ▪ 1979 Diploma in Cellular Biology, Biocenter, University of Basel, Switzerland. Title: <i>Induction, expression and specificity of murine suppressor T-cells regulating antibody synthesis in vivo and in vitro.</i> Supervisor: RH Gisler, PhD ▪ 1983 PhD in Cellular Biology, Biocenter, University of Basel, Switzerland. Title: <i>Structure-function relationships of hybridoma-derived monoclonal antibodies against streptococcal A group polysaccharide.</i> Supervisor: Prof DG Braun <p>III. Post-graduate training</p> <p>1984-1986 Division of Biology, California Institute of Technology, Pasadena, CA. Postdoctoral Position.</p> <p>1987-1988 Division of Biology, California Institute of Technology, Pasadena, CA. Senior Research Fellow</p> <p>IV. FACULTY POSITIONS</p> <p>1989 -1993 Assistant Professor, Department of Biochemistry, University of British Columbia, Vancouver, B.C., Canada.</p> <p>1993 -1998 Associate Professor, Department of Molecular Biotechnology, University of Washington, Seattle, WA</p> <p>1998 - 2000 Professor, Department of Molecular Biotechnology, University of Washington, Seattle, WA</p> <p>2000 - 2006 Affiliate Professor, Department of Molecular Biotechnology, University of Washington, Seattle, WA</p> <p>2000 Co-Founder and Professor, Institute for Systems Biology, Seattle, WA</p> <p>2000 - 2009 Professor, Institute for Systems Biology, Seattle, WA</p> <p>2001 - 2004 Professor im Nebenamt, University of Zurich, Zurich, Switzerland</p> <p>2001 - 2006 Affiliate Professor, Department of Genome Sciences, University of Washington, Seattle, WA</p> <p>2002 - 2004 Affiliate Professor, Department of Microbiology, University of Washington, Seattle, WA</p> <p>2002 - 2008 Affiliate Professor, Department of Chemistry, University of Washington, Seattle, WA</p> <p>2002 - present Affiliate Professor, Department of Biochemistry, University of British Columbia, Vancouver</p> <p>2003 - present Adjunct Faculty, Fred Hutchinson Cancer Research Center</p> <p>2004 - present Professor of Systems Biology, Institute for Molecular Systems Biology, ETH Zurich and Faculty of Natural Sciences, University of Zurich.</p> <p>V. TEACHING (CLASSROOM)</p> <p>1990-1991 UBC Biochemistry 300, Medicine 501</p> <p>1991-1992 UBC Biochemistry 300, Biochemistry 402, 403</p> <p>1992-1993 UBC Biochemistry 300, Biochemistry 402</p> <p>1993-1994 UBC Biochemistry 300</p> <p>1994- UW Molecular Biotechnology II</p> <p>1994-2001 UW Molecular Biotechnology 520, annually</p> <p>1996-2001 UW Molecular Biotechnology 599, bi-annually</p> <p>1999 UW Molecular Biotechnology 420</p>	

1998-2000	UW Bioengineering 510, selected topics
1997-2000	UW Medicinal Chemistry 540, selected topics
2002-present	ETH Zurich/University of Zurich, 2 week block course on proteomics
2003-present	ISB PI of quarterly 5-day course software tools for high throughput proteomics
2005-present	ETH Zurich Systems Biology Concept Course

VI. TEACHING (NATIONAL COURSES)

- Protein purification/characterization course at Cold Spring Harbor Laboratories, New York, 1989-1993.
- 2-D electrophoresis database course at Cold Spring Harbor Laboratories, New York, April 1993.
- ABRF 1998, Tutorial on 2D gel electrophoresis, San Diego, CA, Feb 1998
- HPCE 1999, Palm Springs, CA. Tutorial on proteome technology, Jan 1999
- HPCE 2000, Seattle, WA. Tutorial on proteome technology, Feb 2000

VII. HONORS AND AWARDS

- Swiss National Science Foundation Postdoctoral Fellowship (1984-85)
- EMBO Postdoctoral Fellowship (1985-1986)
- Swiss National Science Foundation Scholarship (1986-88)
- MRC Canada Scholarship (1990-95)
- Killam Research Prize (1993)
- Pehr Edman Award (1994)
- Boomer Lectures, University of Alberta, Edmonton (2000)
- American Society of Mass Spectrometry, Biemann Medal (2002)
- Michael Widmer Award (2002)
- World Technology Network Award, Biotechnology (2002)
- Genome Technology All-Stars, First place, Proteomics (2002)
- Genome Technology All-Star, First place, Proteomics (2003)
- HUPO Award for Achievement in Proteomics (2005)
- Barnett Lectures, Northeastern U, Boston
- FEBS Büchner Medal (2006)
- Seitz Lectures, University Chicago
- EMBO Member (2006)
- ABRF Award (2008)
- Pierce Affinity Award (2009)
- ISI Highly Cited Research (2009)
- ASBMB Herbert A. Sober Lectureship (2010)

VIII. ORGANIZATIONAL MEMBERSHIPS

- The Protein Society
- American Society for Biochemistry and Molecular Biology (ASBMB)
- American Association for the Advancement of Science (AAAS)
- Biotechnology Alliance of British Columbia
- New York Academy of Sciences
- American Chemical Society (ACS)
- American Association for Mass Spectrometry (ASMS)
- Honorary Fellow, Royal Society of Chemistry (RCS)
- Founding Member of the European Research Institute for Integrated Cellular Pathology (ERI-ICP)
- American Association for Cancer Research (AACR)

IX. EDITORIAL APPOINTMENTS

- Member, Editorial Board *Electrophoresis* 1989 -1993

- Member, Editorial Board Analytical Biochemistry 1991 - 2000
- Member, Editorial Board Protein Science 1992 - 1998
- Member, Editorial Board Functional and Integrative Genomics 1999 - present
- Member, Editorial Board Proteomics 1999 - present
- Senior Editor, Physiological Genomics 1999 - 2004
- Associate Editor, Molecular Cellular Proteomics, 2001 - present
- Member, Advisory Board Genome Biology, 2003 – present
- Member, Editorial Board The Protein Journal, 2004 – present
- Member, Editorial Board Molecular Systems Biology, 2004 – present
- Member, Editorial Advisory Board, Current Analytical Chemistry, 2005-present
- Member, Editorial Board, Molecular Biosystems, 2005-2007
- Member, Editorial Board, Journal of Biochemical and Biophysical Methods, 2005-2008

IX. NATIONAL COMMITTEES AND CONSULTANCIES

- Member, Resource Advisory Committee for QUEST Protein Database Center, Cold Spring Harbor Laboratory 1989 -1995
- Member, NIH (USA) Special Study Section 1990
- Member, NCI (Canada) Grant Review Panel H, 1990-1992
- Member, CODATA - Task Force for the Generation and Distribution of 2D Electrophoresis Protein Databases, 1992
- Member, Advisory Board for NIH Mass Spectrometry Resource Center at Rockefeller University, New York, 1991 - present
- Member, NCI panel to review intramural programs, 1997
- Member, MPSA organizing committee, 1998 – present
- HPCE Executive Committee, 1999 – present
- Pacific Rim Conference on Functional Genomics, Executive Committee, 1999 – present
- Program Chair, ASMS Asilomar Conference, 1999.
- Program Chair, ABRF conference, 2000
- Member, Science Advisory Committee, Genome Canada (SIAC), 2000-2003
- Member, Divisional Advisory Committee, Pacific Northwest National Laboratory, 2000- 2006
- Member, Scientific Advisory Board, University of Zurich, Functional Genomics Center, 2001-present
- Member, Scientific Advisory Board, National University of Singapore, Functional Genomics Initiative, 2002-present
- Panel member, National Academy of Sciences, Proteomics Symposium, February 2002
- Panel member, National Cancer Institute, Gynecological Cancers Progress Review Group, August 2002
- Panel member, National Human Genome Research Institute, 2002-present
- Co-Chair, Proteomic Technologies for Early Cancer Detection, National Cancer Institute, April 2003
- Chair, Keystone Symposia, Proteomics: Technologies and Applications, March 2003
- Co-Chair, Proteomics In Diabetes, National Institutes of Health, April 2003
- Member, Scientific Advisory Board, Pacific Rim Biodefense Center at OHSU, 2003 – 2006
- Co-chair, HUPO PSI initiative, 2003 –2007
- Member, Scientific Advisory Board, National University of Singapore, Structural Biology and Proteomics Programme, 2003 – present
- Member, Advisory Committee, University of California, Los Angeles - Department of Energy, Institute for Genomics and Proteomics, 2003 –present
- Co-Chair, NIH workshop on standards in proteomics, Bethesda, Jan 05.
- Member of EMBO Publication Committee, Heidelberg, Oct 06.
- Keystone Symposia, SAB, 2005 - 2009
- Co-chair EU-NCI Conference on Systems Biology of Cancer, Bruxelles, Belgium 2008
- Vice-chair, ESF Symposium on Systems Biology, Barcelona Spain, 2008
- Co-chair, HUPO World Congress, Amsterdam the Netherlands, 2008
- Member National Science and Technology Development Agency (NSTDA), Bangkok, Thailand, 2007-present

X. PRIVATE SECTOR RELATIONSHIPS

- Member, Scientific Advisory Board, Osiris Therapeutics, Baltimore, MD, 1994-1996
- Member, Scientific Advisory Board, Oxford GlycoSciences, Oxford, UK. 1996-2002
- Member, Scientific Advisory Board, Rosetta, BioInpharmatics, Kirkland, WA. 1997-2001
- Member, Scientific Advisory Board, ActivX, La Jolla, CA, 2000-2005
- Founder, MacroGenics (with Drs. Alan Aderem and Lee Hood, Institute for Systems Biology, Seattle, WA.), and Dr. Jeffrey Ravetch, (Rockefeller University, New York, NY) 2000.
- Member, Scientific Advisory Board, Seattle Biomedical Research Institute Proteomics Advisory Committee, 2003 – 2006
- Member, Scientific Advisory Board, Insilicos, Seattle, WA

XI. PEER-REVIEWED PUBLICATIONS

Peer Reviewed Publications:

Instead of listing all peer-reviewed publications (around 550) and all reviews and chapters (41), the impact of Ruedi Aebersold's work can be evaluated by looking at citations for his articles:

Using WEB OF KNOWLEDGE, 479 publications were found that have been cited a total of 49'309 times (46'787 times excluding self-citations) by 31'521 articles (31'104 when excluding self-citations), resulting in an average citations per item of 103.

The calculated h-index for Ruedi Aebersold thus equals 104, which is truly extraordinary!

Ten most-highly cited articles by Ruedi Aebersold (**total citations / average citations per year**):

1. Gygi SP, Rist B, Gerber SA, Turecek F, Gelb MH, and Aebersold R. (1999) Quantitative analysis of complex protein mixtures using isotope-coded affinity tags. *Nature Biotech* 17:994-999. (2732 / 195)
2. Mann M and Aebersold R. (2003) Mass spectrometry-based proteomics. *Nature* 422(6928):198-207. (2500 / 250)
3. Susin SA, Lorenzo HK, Zamzami N, Marzo I, Snow BE, Brothers GM, Mangion J, Jacotot E, Costantini P, Loeffler M, Larochette N, Goodlett DR, Aebersold R, Siderovski DP, Penninger JM, and Kroemer G. (1999) Molecular characterization of mitochondrial apoptosis-inducing factor. *Nature* 397:441-446. (2232 / 159)
4. Gygi SP, Rochon Y, Franza BR, and Aebersold R. 9) Correlation between protein and mRNA abundance in yeast. *Mol Cell Biol* 19(3):1720-1730. (1922 / 137)
5. Keller A, Nesvizhskii A, Kolker E, and Aebersold R. (2002) Empirical statistical model to estimate the accuracy of peptide identifications made by MS/MS and database search. *Anal Chem* 74:5383-5392. (1373 / 125)
6. Oesch B, Westaway D, Wälchli M, McKinley MP, Kent SBH, Aebersold R, Barry RA, Tempst P, Teplow DB, Hood LE, Prusiner SB, and Weissmann C. (1985) A cellular gene encodes scrapie PrP 27-30 protein. *Cell* 40:735-746. (1159 / 41)
7. Ideker T, Thorsson V, Ranish JA, Christmas R, Buhler J, Bumgarner R, Goodlett, DR, Aebersold R, and Hood L. (2001) Integrated genomic and proteomic analyses of a systematically perturbed metabolic network. *Science* 292:929-934. (1104 / 92)
8. Nesvizhskii A, Keller A, Kolker E, and Aebersold R. (2003) A statistical model for identifying proteins by tandem mass spectrometry. *Anal Chem* 75(17):4646-4658. (1079 / 108)
9. Gygi SP, Corthals GL, Zhang Y, Rochon Y, and Aebersold R. (2000) Evaluation of two-dimensional gel electrophoresis-based proteome analysis technology. *Proc Natl Acad Sci, U S A.* 97(17):9390-9395. (797 / 61)
10. Aebersold R, Leavitt J, Saavedra R, Hood LE, and Kent SBH. (1987) Internal amino acid sequence analysis by *in situ* protease digestion on nitrocellulose of proteins separated by one- or two-dimensional gel electrophoresis. *Proc Natl Acad Sci USA* 84:6970-6974. (765 / 29)

Ruedi Aebersold - a pioneer in the field of quantitative proteomics and systems biology

Ruedi Aebersold was born 1954 in Switzerland. He obtained his PhD in Cellular Biology at the Biocenter of the University Basel in 1983. The topic of his thesis was *Structure-function relationships of hybridoma-derived monoclonal antibodies against streptococcal A group polysaccharides* and yielded his first peer-reviewed publication in 1981 (Aebersold et al, *Immunobiology* 160:1). Supported by the Swiss National Science Foundation and EMBO, he then worked at the California Institute of Technology in Pasadena first as a postdoctoral fellow, then as a senior research fellow. Ruedi Aebersold then joined the Biomedical Research Center at the University of British Columbia in Vancouver as an assistant Professor (1989 to 1993). In 1993, he moved to the Department of Molecular Biotechnology at the University of Washington in Seattle as associate Professor in Molecular Biotechnology and was promoted to full Professor in 1998. In 2000, he left the University of Washington and joined the Institute of Systems Biology in Seattle as co-founder and full faculty member. In 2004 he then accepted a position as full Professor at the Institute of Biotechnology at the Swiss Federal Institute of Technology (ETH) in Zurich, where in January 2005 his research group became the first integral part of the newly founded Institute of Molecular Systems Biology.

Ruedi is a pioneer in the field of quantitative proteomics and systems biology. He is a world leader in analytical protein biochemistry and proteomics. His research focuses on developing new methods and mass spectrometry based technologies aimed at detecting and quantifying proteins and their interactions at the level of the complete proteome in order to enhance our understanding of the structure, function, and control of complex biological systems. Specific applications of the technology are directed towards the detection and validation of protein biomarkers for the early detection, diagnosis and classification of diseases. His group pioneered technologies for quantitative mass spectrometry in proteomics, i.e. the Isotope-Coded Affinity Tag (ICAT) technique, and generated a suite of computational tools supporting the analysis of mass spectrometry derived proteomics data (www.protoemecenter.org).

Ruedi Aebersold strongly promoted publication and sharing of proteomics data, enabling other groups to do high-end proteomics. Under his guidance, the PeptideAtlas project was initiated that provides a method and a framework to accommodate proteome information from high-throughput proteomics technologies. More recently, quantitative proteomics moved from relative to absolute quantification of individual proteins in complex mixtures by using stable isotope labelled proteotypic peptides as internal standards and triple quadrupole mass spectrometry, similar to small molecule isotope dilution analysis. Ruedi Aebersold and his team further expanded this technology and implemented new software tools to analyse entire proteomes, such as yeast and in the future human, in a fully quantitative approach. Again, sharing of these data is realised through the SRMATlas project that serves the whole proteomics community for the development of quantitative assays.

Ruedi's contributions to the field were mostly "transforming", not incremental research. At the time of 2D gels he pushed the field to move onto the next shotgun wave. Later he pushed to improve things via the targeted proteomics approach. Now that SRM is taking off he is already on the next wave of "data-independent acquisition", which will further improve the targeting capabilities of SRM-like experiments.

Ruedi Aebersold has published more than 500 papers and 40 book chapters, is associate editor of MCP, senior editor of Molecular Systems Biology and member of the editorial board of additional leading proteomics journals. He serves on the Scientific Advisory Committees of numerous academic and private sector research organizations and has been program chair at international MS conferences.

The SGMS nominates Ruedi Aebersold as candidate for the Thomson Medal Award for his outstanding achievements in the field of mass spectrometry based proteome analysis.



ooo

Marc J-F Suter, PhD
President Swiss Group for Mass Spectrometry