Tamio Yamakawa Award 2016

Tamio Yamakawa Award, to honor the distinguished career of Prof. Tamio Yamakawa and his outstanding contributions to the field of Glycoscience, is presented every two years to a glycoscientist who has made widely recognized and major contributions to the field of Glycoscience and is, in principle, a currently active researcher. JCGG has decided to award Tamio Yamakawa Award 2016 to Dr. Markus Aebi, Professor of Mycology, Institute of Microbiology, ETH Zurich (Swiss Federal Institute of Technology), who has made an outstanding contribution to the field by elucidating glycoprotein glycan synthesis. The awardee will deliver the Tamio Yamakawa Award Lecture at the 14th JCGG symposium planned on Nov. 1- 2, 2016 in Tokyo.

The selection committee of Tamio Yamakawa Award 2016 was composed of Drs. Harry Schachter, Hans Kamerling, Mark von Itzstein, Sandro Sonnino, Naoyuki Taniguchi, Tamao Endo, and Akemi Suzuki (chair), and the selection has been approved by the executive board members of the JCGG.

Awardee of Tamio Yamakawa Award 2016

Dr. Markus Aebi

Professor of
Mycology, Institute of Microbiology, ETH Zurich
(Swiss Federal Institute of Technology)

Call for Nominations of Tamio Yamakawa Award 2018 will be announced on the Website of JCGG (http://www.jcgg.jp/).

第2回 山川民夫賞の公募は 2017 年に実施いたします。
詳細の案内は JCGG のホームページ (http://www.jcgg.jp/) に掲載いたします。

Markus Aebi

Present position

Professor of Mycology Institute of Microbiology
ETH Zurich (Swiss Federal Institute of Technology)

Degree/Higher education

- ETH Zurich, Switzerland Diploma in Natural Sciences 1979
- ETH Zurich, Switzerland, Ph.D. 1983 (Microbiology)

Professional career

- Research Associate, University of Zurich, Switzerland, 1983 -1985
- Senior Research Associate, University of Zurich, Switzerland, 1985 -1987
- Research Associate, California Institute of Technology, Pasadena, 1987-1988
- “START fellow” of the Swiss National Science Foundation, University of Zurich, Switzerland, 1988-1993
- Associate Professor of Mycology, ETH Zurich, Switzerland, 1994-1997
- Professor of Mycology, ETH Zurich, Switzerland, 1998-present
- Dean of Student Affairs and Vice Head of the Department of Biology, ETH Zurich, 1999 - 2003
- Chair, Institute of Microbiology, ETH Zurich, Switzerland, 2002-2006
- Chair, Life Science Zurich Graduate School, 2009 - 2014

Professional activities

- Editorial Boards
- Journal of Biological Chemistry, 2005 – 2010
- Glycobiology, 2006 - present

(since 2013 associate editor)

- Consultant, Lonza, 2006 - 2012
- Consultant, Merck Serono, 2014

Honors and awards

- ETH medal for the thesis "Die Struktur des TRP3 Gens von S. cerevisiae." 1983
- Postdoctoral fellowship, Swiss National Science Foundation, 1987
- START fellowship, Swiss National Science Foundation, 1988 - 1993
- Körber Preis, 2004
- IGO (International Glycoconjugate Organisation) Award 2009
- Karl Mayer Award (Society of Glycobiology) (2013)

Memberships (in societies)

- American Society of Glycobiology
- American Society of Biochemistry and Molecular Biology
- Science AAAS membership

Committees (ETH)

- Delegate of the President for Professorial Elections 2002 - 2007
- ETH Selection Committees for various Professorships

Research (keywords)

My laboratory is currently working on research topics addressing microbial glycobiology:

- N-linked protein glycosylation in pro- and eukaryotes
- The role of N-linked glycans in the quality control of protein folding
- Glycoengineering
- The role of lectins in fungal defense

山川民夫賞受賞講演

■ 座 長:鈴木明身（東北薬科大）

16:25 - 17:15

Tamio Yamakawa Award 2016
Award lecture

The making of N-glycoproteins

Markus Aebi

N-linked protein glycosylation is the most frequent post-translation modification in eukaryotic cells. The essential process initiates in the Endoplasmic Reticulum (ER), where an oligosaccharide is assembled on the lipid carrier, dolichylpyrophosphate. Oligosaccharyltransferase transfers the oligosaccharide to selected AsN-X-Ser/Thr sequons (X = any amino acid residue except proline) of polypeptides that enter the lumen of the ER. N-linked glycans then serve as signaling molecules that display the folding status of the attached protein. This signal directs the folding and quality control machinery to the client glycoproteins. Properly folded secretory glycoproteins are directed towards the Golgi compartment where trimming and remodeling of N-linked glycans occurs in a species-, protein- and site specific manner.

Based on experimental approaches in pro- and eukaryotic model systems, the underlying molecular concepts of the N-glycosylation process and the quality control process in the ER as well as the remodeling of the N-linked glycan in the Golgi will be discussed. It is proposed that in the ER, N-linked glycans are major determinants for the folding of glycoproteins whereas the interaction of the glycan with the folded protein has a strong impact on the remodeling of the N-glycan in the Golgi.