Prof. Adriano Aguzzi – MD, PhD hc, DVM hc, FRCP, FRCPath

Born December 1, 1960 in Pavia, Italy
Citizen of Italy (Pavia) and of Switzerland (Rorbas); married, 2 daughters

***Institutional Address*:**

Institute of Neuropathology
University Hospital of Zurich
Schmelzbergstrasse 21
CH-8091 Zürich, Switzerland
Tel +41 44 255 2107
Fax: +41 44 255 4402
E-mail : adriano.aguzzi@usz.ch

Education and academic degrees

1980-86	University of Freiburg Medical School (D): M.D. degree and German state license
1985	Foreign medical graduates Exam in Medical Sciences USA: ECFMG
1993	University of Zurich: Venia legendi in Neuropathology
1996	Royal College of Pathologists (London): FRCPath
2000	Royal College of Physicians (London): FRCP
2002	Doctor medicinae honoris causa, University of Liége, Belgium
2002	Doctor scientiae (PhD) honoris causa, University of Bologna, Italy
2005	Doctor medicinae veterinariae (DVM) honoris causa, University of Teramo, Italy

Positions

1993 Attending physician (Oberarzt) and Lecturer (Privat-Dozent) in Pathology and Neuropathology, University of Zürich

1995 Director of the Swiss National Reference Center for Prion Diseases

1997 Ordinarius (Full Professor, tenured) of Neuropathology and Director of the Institute of Neuropathology, University of Zürich.

1998 Joint Professor of the Medical Faculty and Faculty of Natural Sciences, University of Zurich.

2004 Chairman, Department of Pathology, University Hospital of Zurich.

Professional Memberships

1998 Swiss Society of Neuropathology (President: 1998-2002)
1998 EMBO Member (European Molecular Biology Organization)
1996 Royal College of Pathology (MRCPath) and German Society of Neuropathology
1999 International Society of Neurovirology (Member of the Board of Directors)
1997 International Society of Neuropathology (Councilor 1997-99)
1997 SEAC (Spongiform Encephalopathy Advisory Committee, UK)
2000 Swiss Academy of the Medical Sciences (SAMW): individual member
Verein Forschung für Leben (President since 1999)
Italian Society of Virology: Honorary Member
2001 Österreichische Akademie der Wissenschaften
2001 Deutsche Akademie der Naturforscher Leopoldina
2002 Fellow of the Royal College of Physicians of London (FRCP)

Honors

1995 Ernst Th. Jucker Prize, Zürich
1997 Pfizer Award for Neurobiology, Zürich
1998 EMBO Gold Medal of the European Molecular Biology Organization, Lisbon
1998 Cloëtta Award, Zürich
1999 Ernst-Jung Prize for Medicine, Hamburg
1999 Tibor Greenwalt Lecturer, San Francisco
2000 Aschoff Medal, Freiburg
2000 Cameron Lecturer, Birmingham
2000 Biotec Award, Milano
2001 German Academy of Science (Leopoldina) Prize, Halle
2001 Medal of the Royal Swedish Academy of Medicine, Stockholm
2001 ICAAC Award and Lecture, Chicago
2002 Doctor medicinae honoris causa, University of Liége
2002 Doctor rerum naturae honoris causa, University of Bologna
2003 Robert-Koch-Prize, Berlin
2004 Marcel-Benoist-Prize, Zurich
2004 Sheikh Hamdan Bin Rashid Al Maktoum Award for Medical Sciences, Dubai
2004 Glaxo Award for Translational Neuroscience,Lisbon
2009 Premio A. Feltrinelli, Accademia Nazionale dei Lincei, Rome
2013 Hartwig Piepenbrock-DZNE Preis, Berlin
2014 Coopted by the Accademia di Scienze e Lettere (Istituto Lombardo)

Editorial activities

Member of the Editorial Board of the following journals:

- Science, Board of Reviewing Editors (BoRE) since 2009
- Brain Pathology: Deputy editor 1994-95, now Member of the Editorial Board.
- Nature, Nature Medicine, Lancet, J. Neurosci.: referee on a regular basis

Extracurricular activities

- President, Board of Trustees, The Neuropath Foundation (since 2006)
- Chairman, Scientific Advisory Board, Institut Suisse de Recherche Expérimentale sur le Cancer, Epalinges, Switzerland (2002-2007)
- Chairman, Scientific Advisory Board, Synapsis Foundation, Zurich, CH
- Director, Board of the European Brain Research Institute (since 2003)
- Program Director, MD-PhD program, University of Zürich (since 2004)
- Member of the following Scientific Advisory Boards:
    - *Italian Institute of Technology (since 2009)*
    - *Center for Molecular Biology ZMBH, Heidelberg, D (2001-2009)*
    - *Wellcome Trust Neurosciences Committee, UK (2004-5)*
    - *Interdisciplinary Center for Neurosciences, Heidelberg, D (since 2002)*
    - *Julius-Klaus Foundation, Zürich (2001-2006)*
    - *Charles-Rodolphe Brupbacher Foundation, Zürich (1998-2008)*
    - *European Mouse Mutant Archive, Monterotondo, I (since 2000)*
    - *Giovanni Armenise-Harvard Foundation, Boston MA (2004-2008)*

    - *Vienna Fund for Science and Technology, WWTF (since 2003)*
- Board of Governors (ETH-Rat), Swiss Federal School of Technology (ETH) (2003-2007)
- Board of Referees, Human Frontiers Science Program (1997-2001)
- Board of Directors, Roche Research Foundation (2003-2008)
- Patronage committees:
    - *Postgraduate Program of the Universities of Zürich and Basel*
    - *Gen-Suisse Foundation, Berne*
    - *Sonnweid Alzheimer Foundation, Wetzikon CH*
- Board of Trustees, International Forum for TSE and Food Safety, Berne CH
- Board of Trustees, Walter and Gertrud Siegenthaler Foundation
- TSE/BSE ad hoc Group, European commission, Brussels (1997-2002)
- Technical Steering Committee, Functional Genomics Center Zürich
- Prions Study Group, International Committee on Taxonomy of Viruses (1999 – 2002)
- Swiss Federal Committee for Biological Safety (2000-2001)
- Associate Dean for Research, University of Zurich Medical School (2000-2002)
- Visiting Professor at the Institute of Psychiatry, King's College, London UK (2000-2002)
- Scientific Advisory Board, Istituto di Ricerche Biomediche, Bellinzona (since 2005)

Patents

- Aguzzi, A., Klein, M.A., Raeber, A.J., Weissmann, C., Zinkernagel, R.: Diagnostics and therapeutics for transmissible spongiform encephalopathy and method for the manufacture of non-infective blood products and tissue derived products. European Patent Application 97122186.6-1270 / WO9930738A2. Filed Dec. 8, 1997
- Aguzzi A., Fischer M.B. : Prion-binding activity in serum and plasma. Filed Sept. 28, 1999
- Aguzzi A., Genoud N., Räber A.J.: Soluble hybrid prion proteins and their use in the diagnosis, prevention, and treatment of transmissible spongiform encephalopathies. EP27008-03117. Filed March 14th, 2003
- Aguzzi, A.; Miele G.: Surrogate marker for early diagnostic of prion disease. Filed July 7th, 2004
- Aguzzi A.; O'Connor T: Blockers of prion proteins to treat neuropathies. Filed June, 2010

Career achievements: After high school in Italy, I studied Medicine in Freiburg (Germany). Three years into medical school, I took a leave to do a thesis at Columbia Univ. (NY, USA). This work resulted in 5 peer-reviewed publications. During my subsequent specialty training in Neuropathology, I developed models of glioma induction by gene transfer to telencephalic grafts – a technique that I still teach and use in my current lab. In 1989, I joined Erwin Wagner at the Institute of Molecular Pathology (Vienna), where I continued my studies of neurooncogenesis and neurovirology. Results from this research were published, inter alia, in *Nature*, *Science*, and *Cell*. In 1992 I was recruited as PI to the Institute of Neuropathology at the University Hospital of Zurich, and I had the good fortune to meet Charles Weissmann, thence Director of the Institute of Molecular Biology at the University of Zurich. The first result of our collaboration was the demonstration that the *Prnp* gene is required for prion replication (*Büeler, Aguzzi, Sailer, Greiner, Autenried, Aguet and Weissmann* **Cell** 73:1339-47, '93).
I then showed that PrPC expression is necessary for development of disease using a system that I had invented a few years earlier (*Aguzzi, Kleihues, Heckl and Wiestler* **Oncogene** 6:113-118, '91): neuronal cells from transgenic mice overexpressing the normal prion protein were grafted into the brain of *Prnp* knockout mice. The manuscript describing these experiments (*Brandner, Isenmann, Raeber, Fischer, Sailer, Kobayashi, Marino, Weissmann and Aguzzi* **Nature** 379:339-43, '96) has garnered >385 citations to date. My interest then shifted to the mechanism by which prions reach the brain. Prions typically enter the body from extracerebral sites, notably in BSE and variant Creutzfeldt-Jakob Disease (CJD). My lab has shown that neuroinvasion (the process by which prions travel through the body and reach the nervous system) relies on expression of PrPC in non-hematopoietic extracerebral cells (*Blättler, Brandner, Raeber, Klein, Voigtländer, Weissmann and Aguzzi* **Nature** 389:69-73, '97). I proposed that neuroinvasion takes place in distinct steps: first the epithelium is trespassed (*Heppner, Christ, Klein, Prinz, Fried, Kraehenbuhl and Aguzzi* **Nat Med** 7:976-7, '01), then the lymphoreticular system is colonized by the agent, and finally infectivity progresses from lymphoreticular organs to the central nervous system (*Aguzzi and Weissmann* **Nature** 389:795-798, '97) via peripheral nerves(*Glatzel, Heppner, Albers and Aguzzi* **Neuron** 31:25-34., '01).

In order to enable therapeutical and prophylactic approaches, progress in the understanding of pathogenesis should go hand-in-hand with the development of diagnostic procedures. With this in mind, my lab has screened plasma proteins that bind the prion protein. We identified plasminogen as the first such protein (*Fischer, Roeckl, Parizek, Schwarz and Aguzzi* **Nature** 408:479-83., '00; *Maissen, Roeckl, Glatzel, Goldmann and Aguzzi* **Lancet** 357:2026-8., '01). We then found that soluble dimeric prion protein binds selectively PrPSc and potently inhibits prion replication, and clarified the molecular mechanism of this therapeutic effect: the modified prion protein attaches to the pathological prions, but cannot be converted into a pathological form itself. Therefore, infectious prions are sequestered in an inactive form and cannot replicate (*Meier, Genoud, Prinz, Maissen, Rulicke, Zurbriggen, Raeber and Aguzzi* **Cell** 113:49-60, '03; *Aguzzi and Heikenwalder* **Nature** 423:127-9, '03). More recently, we have established a completely novel prion strain differentiation procedure based on fluorescence spectroscopy (*Sigurdson, Nilsson, Hornemann, Manco, Polymenidou, Schwarz, Leclerc, Hammarstrom, Wuthrich and Aguzzi* **Nat Methods** 4:1023-30, '07), which may lead to sensitive diagnostics of prion diseases.

We then dissected how prions subvert the immune system to gain access to the brain. We demonstrated that B-lymphocytes are required for the spread of the agent (*Klein, Frigg, Flechsig, Raeber, Kalinke, Bluethmann, Bootz, Suter, Zinkernagel and Aguzzi* **Nature** 390:687-90, '97) irrespectively of the presence of the normal prion protein (*Klein, Frigg, Raeber, Flechsig, Hegyi, Zinkernagel, Weissmann and Aguzzi* **Nat Med** 4:1429-33, '98). With Charles Weissmann, we showed that the mechanism of action of B-lymphocytes consist of presentation of lymphotoxin-ß to follicular dendritic cells (FDCs), and that inhibition of this signal transduction pathway can deplete lymphoreticular organs of prions (*Montrasio, Frigg, Glatzel, Klein, Mackay, Aguzzi and Weissmann* **Science** 288:1257-9, '00). This discovery paved the way to post-exposure prophylaxis strategies (*Aguzzi and Collinge* **Lancet** 350:1519-20, '97) exploiting soluble lymphotoxin-ß receptors. We then showed that positioning of FDCs controls the speed of prion neuroinvasion (*Prinz, Heikenwalder, Junt, Schwarz, Glatzel, Heppner, Fu, Lipp and Aguzzi* **Nature** 425:957-62, '03). But what are the mechanisms by which prions target FDCs? We studied these mechanism and showed that prion uptake is mediated by components of the complement system (*Klein, Kaeser, Schwarz, Weyd, Xenarios, Zinkernagel, Carroll, Verbeek, Botto, Walport, Molina, Kalinke, Acha-Orbea and Aguzzi* **Nat**

Med 7:488-92., '01). We also found that neutralizing antibodies can protect against prions (*Heppner, Musahl, Arrighi, Klein, Rulicke, Oesch, Zinkernagel, Kalinke and Aguzzi* **Science** 294:178-82, '01) suggesting the feasibility of antiprion vaccinations. My interest in follicular dendritic cells led me to study their pathogenesis, and I discovered that they are derived from ubiquitous perivascular cells (*Kraeutler et al.*, **Cell** 2012).

My interest now focuses onto what happens after prions reach the brain. My laboratory has therefore developed a conditional microglial paralysis model (*Heppner, Greter, Marino, Falsig, Raivich, Hovelmeyer, Waisman, Rulicke, Prinz, Priller, Becher and Aguzzi* **Nat Med** 11:146-52, '05) which was adapted to long-term organotypic brain slices and has enabled us to identify a potent "priolytic" activity of microglia (*Falsig and Aguzzi* **Nat Protoc** 3:555-62, '08; *Falsig, Julius, Margalith, Schwarz, Heppner and Aguzzi* **Nature Neurosci** 11:109-17, '08). Maybe we can only understand what goes wrong in prion diseases by learning the function of the normal prion protein, PrPC. I have long argued that the toxicity of amino terminally truncated ΔPrPC (*Shmerling, Hegyi, Fischer, Blattler, Brandner, Gotz, Rulicke, Flechsig, Cozzio, von Mering, Hangartner, Aguzzi and Weissmann* **Cell** 93:203-14, '98) offers a window of entry, since it can be competed by full-length PrPC – which implies the existence of a common PrPC receptor (*Weissmann and Aguzzi* **Science** 286:914-5, '99). This area is vigorously pursued at present in my laboratory (*Baumann, Tolnay, Brabeck, Pahnke, Kloz, Niemann, Heikenwalder, Rulicke, Burkle and Aguzzi* **EMBO J** 26:538-47, '07; *Behrens, Genoud, Naumann, Rulicke, Janett, Heppner, Ledermann and Aguzzi* **EMBO J** 21:3652-3658, '02).
My team also monitors prion epidemiology in Switzerland, and has identified a hitherto unexplained rise in CJD incidence in Switzerland (*Glatzel, Rogivue, Ghani, Streffer, Amsler and Aguzzi* **Lancet** 360:139-41., '02). In this context he found surprisingly frequent deposits of PrPSc in spleen and skeletal muscle of sporadic CJD victims (*Glatzel, Abela, Maissen and Aguzzi* **N Engl J Med** 349:1812-20, '03). This finding is significant for public health, and has instructed prion biosafety regulations. Finally, we have reported a crucial link between prion infections and inflammatory diseases (*Heikenwalder, Zeller, Seeger, Prinz, Klohn, Schwarz, Ruddle, Weissmann and Aguzzi* **Science** 307:1107-10, '05; *Heikenwalder, Kurrer, Margalith, Kranich, Zeller, Haybaeck, Polymenidou, Matter, Bremer, Jackson, Lindquist, Sigurdson and Aguzzi* **Immunity** 29:998-1008, '08). Our subsequent discovery that secretory and excretory organs of mice (*Seeger, Heikenwalder, Zeller, Kranich, Schwarz, Gaspert, Seifert, Miele and Aguzzi* **Science** 310:324-6, '05) and sheep (*Ligios, Sigurdson, Santucciu, Carcassola, Manco, Basagni, Maestrale, Cancedda, Madau and Aguzzi* **Nat Med** 11:S, '05) shed prions when inflamed suggests that chronic inflammation is a decisive cofactor for the horizontal spread of scrapie, chronic wasting disease, and other natural prion infections.

Mentoring: Former students and postdocs who were awarded tenured professorships include S. Brandner (Institute of Neurology, London), M. Glatzel (Hamburg), M. Prinz (Freiburg), F. Heppner (Berlin), A. Behrens (Senior Scientist, Cancer Research UK, London), M. Heikenwälder (Munich). For the past 10 years I have directed the MD-PhD program at the University of Zurich. In an outcome analysis carried out by the Swiss Academy of Medical Sciences, >90% of MD-PhD students trained during my program directorship have pursued successful academic careers within exceptionally short time frames. I have always been always attentive to gender issues in order to actively promote women in science, e.g. through appropriate maternity arrangements.

Public understanding of science: I am convinced that public support of science is best secured if scientists take public outreach seriously. Therefore, I have always dedicated a sizeable slice of my time to the public understanding of science. As the president of "Forschung für Leben", a Swiss society dedicated to science popularization, I fostered a "mobile gene lab". In the mid 1990s, when "mad cow disease" galvanized public opinion, I served as an advisor to the Swiss, Italian, and British Governments, and helped shaping prion biosafety regulations. I contributed to public education with newspaper editorials, >30 appearances in TV and radio talk shows, and by organizing "café scientifiques" throughout Switzerland. Also, I intervened in societal discussions around synthetic biology, and played a key role in organizing the scientists' response to the referendum on the "Gene Protection Initiative" (1998), whose stated goal was to interdict all genetic research in Switzerland. Through these efforts, which culminated when I proposed and successfully organized a demonstration of >3'000 scientist in Zurich's main shopping street, I contributed to explaining life science's goal to the broad public and to defeating the prohibitionist referendum. My recollections of these events are laid out in an autobiographical essay published upon conferral of the EMBO Gold Medal 1998 (*Aguzzi* **Embo J** 17:6107-14, '98).

10-Year Track Record

The primary approach of my laboratory is to genetically manipulate mice and to determine the effects of the resulting mutations onto diseases of the nervous system. From these mutations we then extract basic mechanisms of disease pathogenesis.

Impact of research: I have published >400 scientific papers, 30 of which appeared in *Nature/Science/Cell* and >80 papers in other *Nature* Journals, *PNAS*, and other top journals in their fields. My "h-index" according to Google Scholar is 100, meaning that 100 of my papers were quoted ≥100 times. My H-index calculated by ISI is 92. *Laborjournal* listed me twice as the 1st most cited neuropathologist and the 3rd most cited neuroscientist in German-speaking countries.

Top publications as senior author:

1. Brandner S, Isenmann S, Raeber A, Fischer M, Sailer A, Kobayashi Y, Marino S, Weissmann C, and Aguzzi A. (1996). Normal host prion protein necessary for scrapie-induced neurotoxicity. **Nature** 379:339-343.
2. Blättler T, Brandner S, Raeber A.J, Klein M.A, Voigtländer T, Weissmann C, and Aguzzi A. (1997). PrP-expressing tissue required for transfer of scrapie infectivity from spleen to brain. **Nature** 389:69-73.
3. Klein M.A, Frigg R, Flechsig E, Raeber A.J, Kalinke U, Bluethmann H, Bootz F, Suter M, Zinkernagel R.M, and Aguzzi A. (1997). A crucial role for B cells in neuroinvasive scrapie. **Nature** 390:687-690.
4. Fischer M.B, Roeckl C, Parizek P, Schwarz H.P, and Aguzzi A. (2000). Binding of disease-associated prion protein to plasminogen. **Nature** 408:479-483.
5. Klein MA, Kaeser PS, Schwarz P, Weyd H, Xenarios I, Zinkernagel RM, Carroll MC, Verbeek JS, Botto M, Walport MJ, Aguzzi A. (2001). Complement facilitates early prion pathogenesis. **Nature Medicine** 7:488-492.
6. Heppner FL, Musahl C, Arrighi I, Klein MA, Rulicke T, Oesch B, Zinkernagel RM, Kalinke U, Aguzzi A. (2001). Prevention of Scrapie Pathogenesis by Transgenic Expression of Anti-Prion Protein Antibodies. **Science** 294:178-182.
7. Glatzel M, Abela E, Maissen M, Aguzzi A. (2003). Extraneural pathologic prion protein in sporadic Creutzfeldt-Jakob disease. **New England J Medicine** 349:1812-1820.
8. Meier P, Genoud N, Prinz M, Maissen M, Rulicke T, Zurbriggen A, Raeber AJ, Aguzzi A. (2003). Soluble dimeric prion protein binds PrP(Sc) in vivo and antagonizes prion disease. **Cell** 113:49-60.
9. Prinz M, Heikenwalder M, Junt T, Schwarz P, Glatzel M, Heppner FL, Fu YX, Lipp M, Aguzzi A. (2003). Positioning of follicular dendritic cells within the spleen controls prion neuroinvasion. **Nature** 425:957-962.
10. Heikenwalder M, Polymenidou M, Junt T, Sigurdson C, Wagner H, Akira S, Zinkernagel R, Aguzzi A. (2004). Lymphoid follicle destruction and immunosuppression after repeated CpG oligodeoxynucleotide administration. **Nature Medicine** 10:187-192.
11. Heppner FL, Greter M, Marino D, Falsig J, Raivich G, Hovelmeyer N, Waisman A, Rulicke T, Prinz M, Priller J, Aguzzi A. (2005). Experimental autoimmune encephalomyelitis repressed by microglial paralysis. **Nature Medicine** 11:146-152.
12. Heikenwalder M, Zeller N, Seeger H, Prinz M, Klohn PC, Schwarz P, Ruddle NH, Weissmann C, Aguzzi A. (2005) Chronic lymphocytic inflammation specifies the organ tropism of prions. **Science** 307:1107-1110.
13. Seeger H, Heikenwalder M, Zeller N, Kranich J, Schwarz P, Gaspert A, Seifert B, Miele G, Aguzzi A. (2005). Coincident scrapie infection and nephritis lead to urinary prion excretion. **Science** 310:324-326
14. Heikenwalder M, Kurrer M.O, Margalith I, Kranich J, Zeller N, Haybaeck J, Polymenidou M, Matter M, Bremer J, Lindquist SL, Aguzzi A (2008). Lymphotoxin-dependent prion replication in inflammatory stromal cells of granulomas. **Immunity** 29:998-1008.
15. Krautler NJ, Kana V, Kranich J, Tian Y, Perera D, Lemm D, Schwarz P, Armulik A, Browning JL, Tallquist M, Buch T, Oliveira-Martins JB, Zhu C, Hermann M, Wagner U, Brink R, Heikenwalder M, Aguzzi A. Follicular dendritic cells emerge from ubiquitous perivascular precursors. **Cell**. 2012 Jul 6;150(1):194-206.
16. Aguzzi A, Falsig J. .Prion propagation, toxicity and degradation. **Nature Neurosci**. 2012 Jun 26;15(7):936-9. doi: 10.1038/nn.3120.

17. Sonati T, Reimann RR, Falsig J, Baral PK, O'Connor T, Hornemann S, Yaganoglu S, Li B, Herrmann US, Wieland B, Swayampakula M, Rahman MH, Das D, Kav N, Riek R, Liberski PP, James MN, Aguzzi A.The toxicity of antiprion antibodies is mediated by the flexible tail of the prion protein. **Nature**. 2013 Jul 31. doi: 10.1038/nature12402.

Invited Presentations to peer-reviewed, internationally established conferences: I have been invited to give >400 public lectures on my research including many keynote lectures. In addition to scientific seminars, I have lectured on public policies to political assemblies, and I gave lectures to children and high-school students. Some recent lectures are:

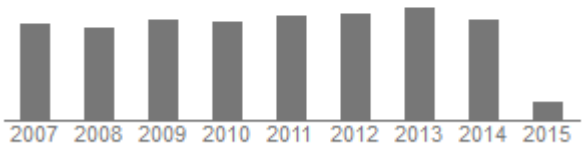
- Keynote Address, Xiangshan Science Conference, Beijing, 2014
- FENS Plenary Lecture (ca. 6'000 attendants), Milano, 2014
- Nobel Forum on Machines, Molecules and Mind, Stockholm 2011
- Adler Symposium, The Salk Institute, 2011
- CNNR Lecture, Yale, USA, 2009
- Cologne Spring Meeting 'Mouse Models of human Disease', 2008
- Research Lectures at Nobel Forum, Stockholm, Sweden, 2008
- Cohn Lecture, Harvard Medical School, Boston, USA, 2006
- Ernst Friedheim Lecture, Rockefeller University, New York 2005

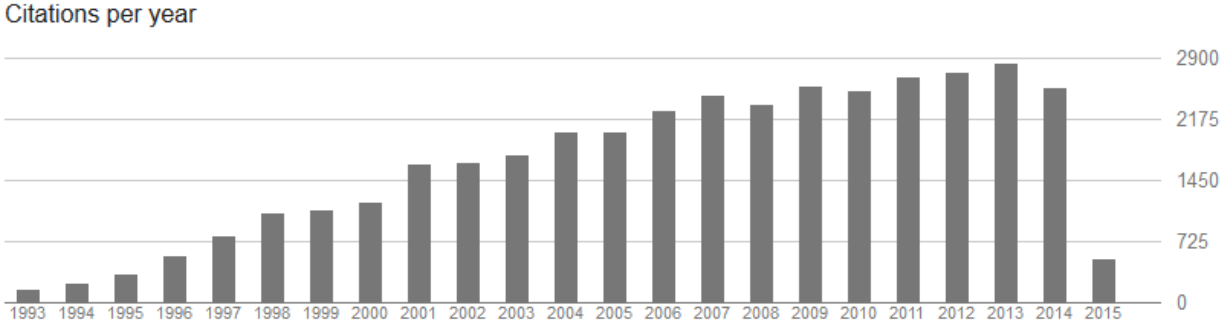
Organisation of international conferences: In addition to serving on the scientific committees of many conferences, I have been the main scientific organizer of the following conferences:

- Ernst Klenk Symposium, Center for Molecular Medicine Cologne, 2008
- Prion Diseases, Keystone Symposia, Snowbird, USA, 2005
- International Neuropathology Winter Meeting, St. Moritz, Switzerland, every 2nd year 1994-2008
- The new Prion Biology, Istituto Veneto di Scienze, Venice, Italy, every 3rd year 2002-2009
- Course in Neurodegenerative Diseases, Cold Spring Harbor, USA, 1998
- Prion biology and biochemistry in vitro and in vivo, EMBO Practical Course, 2003

Bibliometric Report (as of March 2015)

Citation indices	All	Since 2010
Citations	38912	13824
h-index	103	61
i10-index	375	253

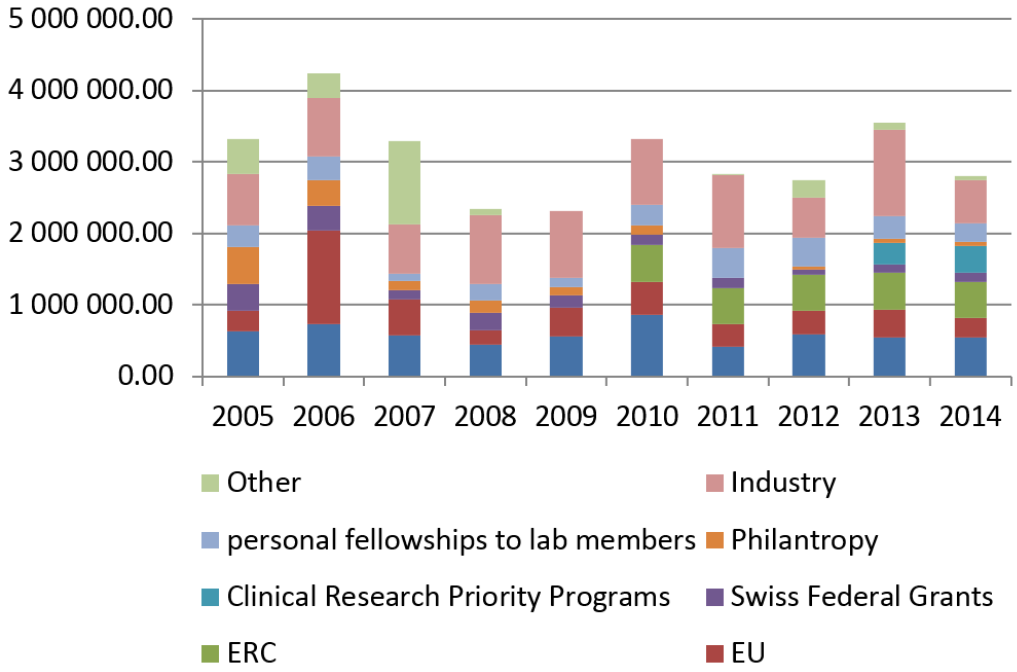




Funding History

My laboratory has enjoyed generous funding in the past 20 years. After 2006, however, appropriation decreased (Fig. 1) partly because BSE was no longer considered a health-care priority. I could largely compensate these losses with intensified industrial collaborations – but I have found that "there is no such thing as a free lunch", and partnerships with industry made it more difficult for me to unconditionally follow my scientific curiosity. The ERC grant awarded in 2010 allowed me to initiate a curiosity-driven science project that would not have been be executable otherwise.

Fig. 1 Non-institutional research funds since 2005 (in CHF)



Current funding:

2015-2018 SystemsX.ch (CHF 1'347'224): Systems Biology of Prion diseases" (Coordinator)
2015-2018 E-Rare JTC/Swiss National Science Foundation (CHF 383603): "Immunotherapy of familial prion diseases" (Coordinator)
2014-2015 Fidelity Biosciences Grant (USD 207'940): "Identification of pathways governing the spread of α-synuclein aggregates" (Coordinator)
2014-2015 Swiss National Science Foundation, R'Equip (CHF 609'632): "High-throughput assays for molecular markers of cytotoxicity"
2013-2016 Swiss National Science Foundation, Sinergia Project (CHF 1'499'779): "Calcium imaging of cellular and circuit dysfunctions in neurodegeneration"
2012-2016 FP7 European Framework Programme (EUR 669'500): Neurinox, "Understanding the role of neuroinflammation in neurodegenerative diseases Understanding the role of neuroinflammation in neurodegenerative diseases"
2010-2015 European Research Council (ERC) Advanced Grant (EUR 2'500'000)
2011-2015 Polish-Swiss Research Programme (PLN 664'376): "Mechanisms of prion neurotoxicity"
2012-2015 Clinical Research Priority Programme, UZH (CHF 554,176): "Small RNAs" (coordinator)
2012-2015 Clinical Research Priority Programme, UZH (CHF 493'640): "Human hemato-lymphatic diseases" (partner)
2012-2015 Swiss National Science Foundation (CHF 930'000): "The role of the prion protein in health and disease"
2012-2015 Federal Office of Public Health (CHF 210'000): National Reference Center for Human Prion Diseases
2012-2015 JPND/Swiss National Science Foundation (CHF 337'380): "DEMTEST - Biomarker based diagnosis of rapid progressive dementias – optimization of diagnostic protocols"

Past funding:

2009-2014 FP7 European Framework Programme (EUR 394'771): PRIORITY, "Protecting the food chain from prions: shaping European priorities through basic and applied research"
2009-2013 FP7 European Framework Programme (EUR 571'000): LUPAS, "Luminescent polymers for in vivo imaging of amyloid signatures"
2009-2012 Swiss National Science Foundation (CHF 800'000): "Dissecting the interplay between immune cells and their stromal niches with innovative transgenic methods"
2006-2012 Swiss National Science Foundation (CHF 1'764'000): Project funding in investigator-driven research: "Understanding peripheral prion pathogenesis".
2008-2012 Novartis Research Foundation (CHF 3'200'000): "Innovative diagnostics of protein aggregation diseases"
2001-2012 Swiss National Science Foundation (CHF 100'000 p.a.): National Centre of Competence in Research: NCCR Neural Plasticity and Repair
2003-2011 Stammbach Foundation (CHF 750'000): Research program on Alzheimer's disease and related pathologies
2008-2010 Swiss Federal Office of Public Health (CHF 120'000): "Characterization of the prion strains present in Swiss CJD patients"
1999-2009 Swiss Federal Office of Public Health (CHF 100'000 p.a.): National Reference Center for Human Prion Diseases
2006-2009 FP6 European Framework Programme (EUR 357'228): ImmunoPrion, Specific Targeted Research or Innovation Projects: "Strains, Species and Immunology in Prion Diseases"
2005-2009 FP5 European Framework Programme "Food Quality and Safety" (CHF 207'200): NeuroPrion, Integrated Project: "Prevention, Control and Management of Prion Diseases"
2006-2008 FP6 European Framework Programme (EUR 692'800): TSEUR, Specific Targeted Project: "An integrated immunological and cellular strategy for sensitive TSE diagnosis and strain discrimination" (Coordinator)
2005-2008 Swiss National Science Foundation (CHF 377'000): Project funding in investigator-driven research: "The role of the cysteine protease inhibitor Cystatin F in neurodegenerative diseases"
2005-2008 DEFRA – Department for Environment, Food and Rural Affairs, UK (GBP 176'430). "Investigation of sheep scrapie transmission via milk from the inflamed mammary gland"
2005-2008 DEFRA UK (GBP 174'124): "Assessment of candidate secreted surrogate biomarkers for early diagnosis of prion disease in farm animals"
2005-2008 DEFRA UK (GBP 176'430) "Application of the transient Scrapie cell assay (TRASCA) for in vitro detection of ovine and bovine prions"
2003-2007 USA Med Research - Department of Defense (USD 1'500'000); Diagnostic, Prognostic, and Therapeutically Relevant Prion Co-Factors: An Approach Based on Functional Genomics
2003-2007 TR-SFB: Transregio-Sonderforschungsbereich Konstanz-Zürich (CHF 427'500): „Function of the normal prion protein, PrPC, and its homologue Doppel"
2003-2007 Swiss National Science Foundation (CHF 958'375): National Research Programme NPF38+: Characterization of the prion strains present in Swiss Creutzfeldt-Jakob Disease patients
2004-2006 FP5 European Framework Programme "Health"(CHF 220'345): APOPIS, Integrated Project: "Abnormal proteins in the pathogenesis of neurodegenerative disorders"
2001-2006 Swiss Federal Office of Public Health (CHF 2'330'000): "Abklärungen zur Verminderung des Risikos der Übertragung von Prion-Erkrankungen"
2003-2005 Volkswagen Foundation (EUR 300'000): "Cell contact-mediated lineage ablation"
2002-2005 FP5 European Framework Programme "Life/Infectious Diseases" (CHF 48'095): PRIOVAX, RTD Project: "Vaccination against Prion Disease"
2001-2005 FP5 European Framework Programme "Life/Infectious Diseases" (CHF 844'583):PRIONS, RTD Project: "Strategies for the Prevention and Treatment of Prion Disease"

International collaborations: We have had multiple international collaborations with groups throughout Europe and the USA, Canada, China, and Japan during the past 20 years. My group has also participated in many EU network grants, i.e. we have become well entrenched into of the European research community. I also have been the coordinator of a FP6 European project termed "TSEUR".