

# CURRICULUM VITAE

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## PERSONAL INFORMATION

Nationality: Swiss  
Date of Birth: 3 May 1965  
Place of Birth: Basel, Switzerland  
Marital Status: Married

### Language:

German: Native  
English: Excellent oral/written  
French: Basic oral/written

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## EDUCATION

**Habilitation**, University of Basel, Switzerland, 2000 – present.

**Ph.D. in Biochemistry**, Biozentrum, University of Basel, Switzerland, 1993 – 1996. *Summa cum laude* graduation.

**Diploma in Biochemistry**, Biozentrum, University of Basel, Switzerland. 1986 – 1992.  
Thesis at Friedrich Miescher Institut, Basel, Switzerland.

**Matura Typus B**, Gymnasium Münchenstein, Münchenstein, Switzerland. 1980 – 1984.

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## PROFESSIONAL EXPERIENCE

**Group Leader**, Laboratory of Biomolecular Research, Paul Scherrer Institut, Villigen PSI, Switzerland. From January 2014.

**Senior Scientist, Head of the Gene to Structure Pipeline and the PSI Protein Production Platform**, Laboratory of Biomolecular Research, Paul Scherrer Institut, Villigen PSI, Switzerland. October 2010-December 2014.

**Reader**, Faculty of Life Sciences, University of Manchester, United Kingdom, 2007-2010.

**Wellcome Trust Senior Research Fellow in Basic Biomedical Science**, Cells to Tissues Section, Faculty of Life Sciences, University of Manchester, United Kingdom, 2004-2010.

**Wellcome Trust Research Career Development Fellow**, Division of Matrix Biology, Faculty of Life Sciences, University of Manchester, United Kingdom, 2000-2004.

**Post Doctoral Research Associate**, Department of Biophysical Chemistry, Biozentrum, University of Basel, Switzerland. 1996 – 2000.

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## **AWARDS**

**2004:** Wellcome Trust Senior Research Fellowship in Basic Biomedical Science

**1999:** Wellcome Trust Research Career Development Fellowship

**1999:** Ammerbach-Prize of the University of Basel, Switzerland, for outstanding research achievements.

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## LIST OF PUBLICATIONS

### 2017

91. Vercellino, I, Rezabkova, L, Olieric, V, Polyhach, Y, Weinert, T, **Kammerer, RA**, Jeschke, G and Korkhov, VM (2017) Role of the nucleotidyl cyclase helical domain in catalytically active dimer formation. *Proc Natl Acad Sci USA*, in press.
90. Rezabkova, L, Jiang, K, Capitani, G, Prota, AE, Akhmanova, A, Steinmetz, MO and **Kammerer, RA** (2017) Structural basis of katanin p60:p80 complex formation. *Sci Rep*, in press.
89. Kumar, A, Manatschal, C, Rai, A, Grigoriev, I, Degen, MS, Jaussi, R, Kretschmar, I, Prota, AE, Volkmer, R, **Kammerer, RA**, Akhmanova, A and Steinmetz, MO (2017) Short linear sequence motif LxxPTPh targets diverse proteins to growing microtubule ends. *Structure* 25, 924-932.
88. Burnett, A, Gomez, I, De Leon, DD, Ariaans, M, Progas, P, **Kammerer, RA**, Velasco, G, Marron, M, Hellewell, P and Ridger, V (2017) Angiopoietin-1 enhances neutrophil chemotaxis in vitro and migration in vivo through interaction with CD18 and release of CCL4. *Sci Rep* 7, 2332.
87. Jiang, K, Rezabkova, L, Hua, S, Liu, Q, Capitani, G, Altelaar, AF, Heck, AJR, **Kammerer, RA**, Steinmetz, MO and Akhmanova A (2017) Microtubule minus-end regulation at spindle poles by an ASPM-katanin complex. *Nat Cell Biol* 19, 480-492.
86. Benoit, RM, Schärer, MA, Wieser, MM, Li, X, Frey, D and **Kammerer, RA** (2017) Crystal structure of the BoNT/A2 receptor-binding domain in complex with the luminal domain of its neuronal receptor SV2C. *Sci Rep* 7, 43588.
85. Kaplan, AR, Brady, MR, Maciejewski, MW, **Kammerer, RA** and Alexandrescu AT (2017) Nuclear magnetic resonance structures of GCN4p are largely conserved when ion pairs are disrupted at acidic pH but show a relaxation of the coiled coil superhelix. *Biochemistry* 56, 1604-1619.

### 2016

84. Bianchi, S, van Riel, WE, Kraatz, SHW, Olieric, N, Frey, D, Katrukha, EA, Jaussi, R, Missimer, J, Grigoriev, I, Olieric, V, Benoit, RM, Steinmetz, MO, Akhmanova, A and **Kammerer, RA** (2016) Structural basis for misregulation of kinesin KIF21A autoinhibition by CFEO1 disease mutations. *Sci Rep* 6, 300668.
83. Rezabkova, L, Kraatz, SH, Akhmanova, A, Steinmetz, MO and Kammerer, RA (2016) Biophysical and Structural Characterization of the Centriolar Protein Cep104 Interaction Network. *J Biol Chem* 291, 18496-18504.
82. Sharma, A, Aher, A, Dynes, NJ, Frey, D, Katrukha, EA, Jaussi, R, Grigoriev, I, Croisier, M, **Kammerer, RA**, Akhmanova, A, Gönczy, P and Steinmetz, MO (2016) Centriolar CPAP/SAS-4 imparts slow processive microtubule growth. *Dev Cell* 37, 362-376.
81. Hilbert, M, Noga, A, Frey, D, Hamel, V, Guichard, P, Kraatz, SHW, Pfreundschuh, M, Hosner, S, Flückiger, I, Jaussi, R, Wieser, MM, Thielges, KM, Deupi, X, Müller, DJ, **Kammerer, RA**, Gönczy, P, Hirono, M and Steinmetz, MO (2016) SAS-6 engineering reveals interdependency between cartwheel and microtubule wall in determining centriole architecture. *Nat Cell Biol* 18, 393-403.

## 2015

80. Benoit, RM, Frey, D, Wieser, MM, Thieltges, KM, Jaussi, R, Capitani, G and **Kammerer, RA** (2015) Structure of the BoNT/A1 - receptor complex. *Toxicon* 107, 25-31.

## 2014

79. Kammerer, RA and Benoit RM (2014) Botulinum neurotoxins: new questions arising from structural biology. *Trends Biochem Sci* 39, 517-526.
78. Weber, S, Stirnimann, CU, Wieser, M, Frey, D, Meier, R, Engelhardt, S, Li, XD, Capitani, G, **Kammerer, RA** and Hilbi, H (2014) A type IV-translocated Legionella cysteine phytase counteracts intracellular growth restriction by phytate. *J Biol Chem* 289, 34175-34188.
77. Stroud, MJ, Nazgiewicz, A, McKenzie, EA, Wang, **Kammerer, RA\*** and Ballestrem, C\* (2014) GAS2-like proteins mediate communication between microtubules and actin through interaction with end-binding proteins. *J Cell Sci* 127, 2672-2682. (\*, joint last authors)
76. Jayachandran, R, Liu, X, BoseDasGupta, S, Mueller, P, Zhang, C-L, Moshous, D, Studer, V, Schneider, J, Genoud, C, Foussoud, C, Gambino, F, Khelifaoui, M, Mueller, C, Bartholdi, D, Rossez, H, Stiess, M, Houbaert, X, Jaussi, R, Frey, D, **Kammerer, RA**, Deupi, X, de Villartay, J-P, Luethi, A, Humeau, Y and Pieters, J (2014) Coronin 1 regulates cognition and behavior through modulation of cAMP/protein kinase A signaling. *PLoS Biol* 12, e1001820.
75. Alfieri, A, Ong, AC, **Kammerer, RA**, Solanky, T, Bate, S, Tasab, M, Brown, NJ, and Brookes ZL (2014) Angiopoietin-1 regulates microvascular reactivity and protects the microcirculation during acute endothelial dysfunction: role of eNOS and VE-cadherin. *Pharmacol Res* 80, 43-51.
74. Benoit, RM, Frey, D, Hilbert, M, Kevenaer, JT, Wieser, MM, Stirnimann, CU, McMillan, D, Ceska, T, Lebon, F, Jaussi, R, Steinmetz, MO, Schertler, GF, Hoogenraad, CC, Capitani, G and **Kammerer, RA** (2014) Structural basis for recognition of synaptic vesicle protein 2C by botulinum neurotoxin A. *Nature* 505, 108-111.

## 2013

73. Bjelic, S, Wieser, M, Frey, D, Stirnimann, CU, Chance, MR, Jaussi, R, Steinmetz, MO and **Kammerer, RA** (2013) Structural basis for the oligomerization-state switch from a dimer to a trimer of an engineered cortexillin-1 coiled-coil variant. *PLoS One* 8, e63370
72. Holland, JP, Kang, A, Cohrs, S, Selivanova, SV, Milicevic Sephton, S, Betzel, T, Frey, D, Wieser, M, Jaussi, R, **Kammerer, RA**, Schibli, R and Fischer, E (2013) Synthesis and evaluation of biphenyl derivatives as kinesin spindle protein inhibitors. *Chem Biodivers* 10, 538-555.
71. Prota, AE, Magiera, MM, Kuijpers, M, Bargsten, K, Frey, D, Wieser, M, Jaussi, R, Hoogenraad, CC, **Kammerer, RA**, Janke, C and Steinmetz, MO (2013) Structural basis of tubulin tyrosination by tubulin tyrosine ligase. *J Cell Biol* 200, 259-270.

## 2012

70. Alfieri, A, Watson, JJ, **Kammerer, RA**, Tasab, M, Progiar, P, Reeves, K, Brown, NJ and Brookes, ZL. (2012) Angiotensin-1 variant reduces LPS-induced microvascular dysfunction in a murine model of sepsis. *Crit Care* 16, R182.
69. Alves-Silva, J, Sánchez-Soriano, N, Beaven, R, Klein, M, Parkin, J, Millard, TH, Bellen, HJ, Venken, KJ, Ballestrem, C, **Kammerer, RA** and Prokop, A (2012) Spectraplakins promote microtubule-mediated axonal growth by functioning as structural microtubule-associated proteins and EB1-dependent +TIPs (tip interacting proteins). *J Neurosci* 32, 9143-9158.
68. Bjelić, S, De Groot, CO, Schärer, MA, Jaussi, R, Bargsten, K, Salzmann, M, Frey, D, Capitani, G, **Kammerer, RA** and Steinmetz, MO (2012) Interaction of mammalian end binding proteins with CAP-Gly domains of CLIP-170 and p150(glued). *J Struct Biol* 177, 160-167.

## 2011

67. Beecher, N, Roseman, AM, Jowitt, TA, Berry, R, Troilo, H, **Kammerer, RA**, Shuttleworth, CA, Kielty, CM and Baldock, C (2011) Collagen VI, conformation of A-domain arrays and microfibril architecture. *J Biol Chem* 286, 40266-40275.
66. Stroud, MJ, **Kammerer, RA\*** and Ballestrem C\* (2011) Characterization of G2L3 (GAS2-like 3), a new microtubule- and actin-binding protein related to spectraplakins. *J Biol Chem* 286, 24987-24995. (\*, joint last authors)

## 2010

65. Ciani, B, Honnappa, S, Bjelic, S, Jawhari, H, Patel, S, Jaussi, R, Payapilly, A, Jowitt, T, Steinmetz, MO and **Kammerer, RA** (2010) Molecular basis of coiled-coil oligomerization state specificity. *Proc Natl Acad Sci USA* 107, 19850-19855.
64. Daly, SB, Urquhart, JE, Hilton, E, McKenzie, EA, **Kammerer, RA**, Lewis, M, Kerr, B, Stuart, H, Donnai, D, Long, DA, Burgu, B, Aydogdu, O, Derbent, M, Garcia-Minaur, S, Reardon, W, Gener, B, Shalev, S, Smith, R, Woolf, AS, Black, GC and Newman WG (2010) Mutations in HPSE2 cause urofacial syndrome. *Am J Hum Genet* 86, 963-969.
63. Lone, M, Kungl, T, Koper, A, Bottenberg, W, **Kammerer, RA**, Klein, M, Sweeney, ST, Auburn, RP, O'Kane, CJ and Prokop, A (2010) The nuclear protein Waharan is required for endosomal-lysosomal trafficking in *Drosophila*. *J Cell Sci* 123, 2369-2374.
62. Macdonald, PR, Lustig, A, Steinmetz, MO and **Kammerer, RA** (2010) Laminin chain assembly is regulated by specific coiled-coil interactions. *J Struct Biol* 170, 398-405.

## 2009

61. Berry, R, Jowitt, TA, Ferrand, J, Roessle, M, Grossmann, JG, Canty-Laird, EG, Kammerer, RA, Kadler, KE and Baldock C (2009) The role of dimerization and substrate exclusion in the regulation of bone morphogenetic protein-1 (BMP-1) and mammalian tolloid (mTLD). *Proc Natl Acad Sci USA* 106, 8561-8566.
60. Aguilar, HC, Ataman, ZA, Aspericueta, V, Fang, AQ, Stroud, M, Negrete, OA, Kammerer, RA and Lee, B (2009) A novel receptor-induced activation site in the Nipah virus attachment glycoprotein (G) involved in triggering the fusion glycoprotein (F). *J Biol Chem* 284, 1628-1635.

## 2008

59. Verel, R, Tomka, IT, Bertozzi, C, Cadalbert, R, Kammerer, RA, Steinmetz, MO and Meier, BH (2008) Polymorphism in an amyloid-like fibril-forming model peptide. *Angew Chem Int Ed Engl* 47, 5842-5845.
58. Steinmetz, MO, Gattin, Z, Verel, R, Ciani, B, Stromer, T, Green, JM, Tittmann, P, Schulze-Briese, C, Gross, H, van Gunsteren, WF, Meier, BH, Serpell, LC, Müller, SA and Kammerer, RA (2008) Atomic models of de novo designed cc-Met amyloid-like fibrils. *J Mol Biol* 376, 898-912.

## 2007

57. Matousek, WM, Ciani, B, Fitch, CA, Garcia-Moreno, BE, Kammerer, RA and Alexandrescu, AT (2007) Electrostatic contributions to the stability of the GCN4 leucine zipper structure. *J Mol Biol* 374, 206-219.
56. O'Sallum, C, Kammerer, RA and Alexandrescu, AT (2007) Thermodynamic and structural studies of carbohydrate binding by the agrin-G3 domain. *Biochemistry* 46, 9541-9550.
55. Missimer, JH, Steinmetz, MO, Baron, R, Winkler, FK, Kammerer, RA, Daura, X and van Gunsteren, WF (2007) Configurational entropy elucidates the role of salt-bridge networks in protein thermostability. *Protein Sci* 16, 1349-1359.
54. Steinmetz, MO, Jelesarov, I, Matousek, WM, Honnappa, S, Jahnke, W, Missimer, J, Frank, S, Alexandrescu, AT and Kammerer, RA (2007) Molecular basis of coiled-coil formation. *Proc Natl Acad Sci USA* 104, 7062-7067.

## 2006

53. Macdonald, PR, Progiás, P, Ciani, B, Patel, S, Mayer, U, Steinmetz, MO and Kammerer, RA (2006) Structure of the extracellular domain of Tie receptor tyrosine kinases and localization of the angiopoietin-binding epitope. *J Biol Chem* 281, 28408-28414.
52. Kammerer, RA and Steinmetz, MO (2006) De novo design of a two-stranded coiled-coil switch peptide. *J Struct Biol* 155, 146-153.

## 2005

51. Kammerer, RA, Kostrewa, D, Progiás, P, Honnappa, S, Avilla, D, Lustig, A, Winkler, FK, Pieters, J, and Steinmetz, MO (2005) A conserved trimerization motif controls the topology of short coiled coils. *Proc Natl Acad Sci USA* 102, 13891-13896.
50. Kim, K-T, Choi, HH, Steinmetz, MO, Maco, B, Kammerer, RA, Ahn, SY, Kim, HZ, Lee, GM and Koh, GY (2005) Oligomerization and multimerization is critical for angiopoietin-1 to bind and phosphorylate Tie2. *J Biol Chem* 280, 20126-20131.
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48. Mould, AP, Travis, MA, Barton, SJ, Hamilton, JA, Askari, JA, Craig, SE, Macdonald, PR, Kammerer, RA, Buckley, PA and Humphries, MJ (2005) Evidence that monoclonal antibodies directed against the integrin  $\alpha$  subunit PSI domain stimulate function by inducing receptor extension. *J Biol Chem* 280, 4238-4246.

## 2004

47. Bariola, PA, Retelska, D, Stasiak, A, Kammerer, RA, Fleming, A, Hijri, M, Frank, S and Farmer, EE (2004) Remorins form a novel family of coiled coil-forming oligomeric and filamentous proteins associated with apical, vascular and embryonic tissues in plants. *Plant Mol Biol* 55, 579-594.
46. Travis, MA, van der Flier, A, Kammerer, RA, Sonnenberg, A, Mould, AP and Humphries, MJ (2004) Interaction of filamin A with the integrin  $\alpha 7$  cytoplasmic domain: role of alternative splicing and phosphorylation. *FEBS Lett* 569, 185-190.
45. Cho, C-H, Kammerer, RA, Lee, HJ, Yasunaga, K, Kim, K-T, Choi, H-H, Kim, W, Kim, SH, Park, SK, Lee, GM and Koh, GY (2004) A designed angiopoietin-1 variant, COMP-Ang1, protects against radiation-induced endothelial cell apoptosis. *Proc Natl Acad Sci USA* 101, 5553-5558.
44. Cho, C-H, Kammerer, RA, Lee, HJ, Steinmetz, MO, Ryu, YS, Lee, SH, Yasunaga, K, Shin, HS, Kim, I, Kim, K-T, Choi, H-H, Kim, W, Kim, SH, Park, SK, Lee, GM and Koh, GY (2004) COMP-Ang1: A designed angiopoietin-1 variant with non-leaky angiogenic activity. *Proc Natl Acad Sci USA* 101, 5547-5552.
43. Kammerer, RA, Kostrewa, D, Zurdo, J, Detken, A, García-Echeverría, C, Green, J, Müller, SA, Meier, BH, Winkler, FK, Dobson, CM and Steinmetz, MO (2004) Exploring amyloid formation by a de novo design. *Proc Natl Acad Sci USA* 101, 4435-4440.
42. Stetefeld, J, Alexandrescu, AT, Maciejewski, MW, Jenny, M, Rathgeb-Szabo, K, Schulthess, T, Landwehr, R, Frank, S, Rüegg, MA and Kammerer, RA (2004) Modulation of agrin function by alternative splicing and Ca<sup>2+</sup> binding. *Structure* 12, 503-513.

## 2003

41. Alexandrescu, AT and Kammerer, RA (2003) Structure and disorder in the ribonuclease S-peptide tracked by NMR residual dipolar couplings. *Protein Sci*, 12, 2132-2140.
40. Stetefeld, J, Frank, S, Jenny, M, Schulthess, T, Kammerer, RA, Boudko, S, Landwehr, R and Engel, J (2003) Collagen stabilization at atomic level: Crystal structure of designed (GlyProPro)<sub>10</sub>-foldon. *Structure* 11, 339-346.

## 2002

39. Frank, S, Schulthess, T, Landwehr, R, Lustig, A, Mini, T, Jenö, P, Engel, J and Kammerer, RA (2002) Characterization of the matrilin coiled-coil domains reveals seven novel isoforms. *J Biol Chem* 277, 19071-19079.
38. Boudko, S, Frank, S, Kammerer, RA, Stetefeld, J, Schulthess, T, Landwehr, R, Lustig, A, Bächinger, HP and Engel, J (2002) Nucleation and propagation of the collagen triple helix in single-chain and trimerized peptides: transition from 3rd to 1st order kinetics. *J Mol Biol* 317, 459-470.
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## 2001

36. Alexandrescu, AT, Maciejewski, MW, Rüegg, MA, Engel, J and Kammerer, RA (2001) <sup>1</sup>H, <sup>13</sup>C and <sup>15</sup>N backbone assignments for the C-terminal globular domain of agrin. *J Biomol NMR* 20, 295-296.
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33. Kammerer, RA, Frank, S, Mechling, D, Schulthess, T, Landwehr, R, Bann, J, Guo, Y, Lustig, A, Bächinger, HP and Engel, J (2001) Stabilization of short collagen-like triple helices by protein engineering. *J Mol Biol* 308, 1081-1089.
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## 2000

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30. Guo, Y, Kammerer, RA and Engel, J (2000) The unusually stable coiled-coil domain of COMP exhibits cold and heat denaturation in 4-6 M guanidinium chloride. *Biophys Chem* 85, 179-186.
29. Engel, J and Kammerer, RA (2000) What are oligomerization domains good for? *Matrix Biol* 19, 283-288.
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26. Burkhard, P, Kammerer, RA, Steinmetz, MO, Bourenkov, GP and Aebi, U (2000) The coiled-coil trigger site of the rod of cortexillin I unveils a distinct network of interhelical and intrahelical salt bridges. *Structure Fold Des* 8, 223-230.
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## 1999

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## 1998

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