Curriculum Vitae

Name	Markus Weingarth
Date of birth	02 June 1982 (in Mainz, Germany)
2002-07	Biochemistry, Greifswald University (Germany)
2007-10	PhD fellow, ENS rue d'Ulm (France) and EPFL (Switzerland), with Prof. G. Bodenhausen
2011-15	Post-doc fellow, Utrecht University, with Prof. M. Baldus
2015-19	Group Leader, Assistant Professor, Utrecht University
2019	Associate Professor, tenured, Utrecht University

Selected Recent Publications

A. Jekhmane, S., Prachar, M., Fontana, F., Medeiros-Silva, J., Pugliese, R., Gelain, F., Weingarth, M. (2019) Angew. Chem., accepted, *Design parameters of tissue engineering scaffolds at atomic scale*

B. Jekhmane, S., Medeiros-Silva, J., Li, J., Kümmerer, F., Müller-Hermes, C., Baldus, M., Roux, B., Weingarth, M. (2019) Nature Comm., 10, 12, *Shifts in the selectivity filter dynamics cause modal gating in K^+ channels*

C. Medeiros-Silva, J., Jekhmane, S., Lucini Paioni, A., Gawarecka, K., Baldus, M., Swiezewska, E., Breukink, E., Weingarth, M. (2018) Nature Comm., 9, 3963, *High-resolution NMR studies of antibiotics in cellular membranes*

D. Pinto, C., Mance, D., Sinnige, T., Daniëls, M., Weingarth, M., Baldus, M. (2018) Nature Comm., 9, 4135, *The beta-barrel assembly machinery exhibits Conformational Flexibility in lipid bilayers as seen by high-sensitivity solid-state NMR*

Awards

As Principal Investigator & Applicant	**Amount**	**Year of award**
Netherlands Center for One Health (NCOH) grant	300.000 €	2019
NWO ECHO grant	260.000 €	2017
NWO VIDI award *Most prestigious funding for young group leaders in the Netherlands*	800.000 €	2015
FEBS Distinguished Young Investigator Award *For outstanding performance during the post-doc*	5.000 €	2014
NWO VENI award *Most prestigious funding for young PIs in the Netherlands*	250.000 €	2012
FEBS Long-Term fellowship *Highly competitive European post-doc fellowship*	100.000 €	2010
PhD fellowship of the French Research Ministry	65.000 €	2007
German Chemical Society (GDCh) Award for the best Pre-diploma	/	2004
Total	**1.780.000 €**	

Full publication list

44. Lau, Y.J.L., Fontana, F., Mandemaker, L., Wezendonk, D., Vermeer, B., Bonvin, A., de Vries, R., Zhang, H., Remaut, K., van den Dikkenburg, J., Hassan, A., Perrone, B., Kuemmerle, R., Gelain, F., Hennink, W., Weingarth, M.,* Enrico Mastrobattista, E.* *Multiscale analysis of the supramolecular self-assembly of modularly engineered surfactant-like peptides*, submitted

43. Bear, B., Veldhuizen, J.A.E., Molchanova, N., Jekhmane, S., Weingarth., M., Jenssen, H., Lin, J.S., Barron, A.E., Yamashita, C., Veldhuizen, R. *Exogeneous Surfacant as a Pulmonary Delivery Vehicle for Chicken Cathelicidin-2,* submitted

42. Sarkar, D., Chakraborty, I., Condorelli, M., Baijayanti, G., Maass, T., Weingarth, M., Mandal, A.K., La Rosa, C., Subramanian, V., Bhunia, A. (2019) ChemMedChem, *Self-assembling and neurotoxicity of amyloid-beta peptide: The crucial role of GXXXG motifs*

41. Jekhmane, S., Prachar, M., Fontana, F., Medeiros-Silva, J., Pugliese, R., Gelain, F., Weingarth, M. (2019) Angew. Chem., *Design parameters of tissue engineering scaffolds at atomic scale*, 58, 1694

40. Damman, R., Schütz, S., Luo, Y., Prachar, M., Weingarth, M., Sprangers, R., Baldus, M. (2019) Nature Comm., 10, 4536 *Atomic-level insight into the maturated state of mRNA processing bodies by combining solid and solution-state NMR spectroscopy*

39. Weingarth, M. (2019) Spektrum der Wissenschaft, 3, 20, *Angriff auf die Zellmembran*

38. Medeiros-Silva, J., Jekhmane, S., Weingarth, M. (2019) ChemBioChem, 14, 1731*, Towards the native binding modes of Lipid II targeting antibiotics,* invited review for ***special issue 'ChemBioTalents'***

37. Jekhmane, S., Medeiros-Silva, J., Li, J., Kümmerer, F., Müller-Hermes, C., Baldus, M., Roux, B., Weingarth, M. (2019) Nature Comm., 10, 12, *Shifts in the selectivity filter dynamics cause modal gating in K^+ channels*

36. Medeiros-Silva, J., Jekhmane, S., Lucini Paioni, A., Gawarecka, K., Baldus, M., Swiezewska, E., Breukink, E., Weingarth, M. (2018) Nature Comm., 9, 3963, *High-resolution NMR studies of antibiotics in cellular membranes*

35. Pinto, C., Mance, D., Sinnige, T., Daniëls, M., Weingarth, M., Baldus, M. (2018) Nature Comm., 9, 4135, *The beta-barrel assembly machinery exhibits Conformational Flexibility in lipid bilayers as seen by high-sensitivity solid-state NMR*

34. Tikhonova, E., Hariharan, P., Medeiros-Silva, J., Bogdanov, M.V., Dowhan, W., Weingarth, M.,* Guan, L.,* (2018) BMC Biology, 16, 85, *Structural and functional characterization of protein-lipid interactions of the Salmonella typhimurium melibiose transporter MelB*

33. Saracino, A., Fontana, F., Jekhmane, S., Medeiros-Silva, J., Weingarth, M., Gelain, F. (2018) Advanced Science, 5, 1800471, *Elucidating self-assembling peptide aggregation via Morphoscanner: a new tool for protein-peptide structural characterization*

32. Pinto, C., Mance, D., Julien, M., Daniëls, M., Weingarth, M., Baldus, M. (2018) J. Struct. Bio., 17, 1047, *Studying the assembly of the BAM complex in native membranes by cellular solid-state NMR spectroscopy*

31. Visscher, K.M., Medeiros-Silva, J. Mance, D., Rodrigues, J.P.G.L.M., Daniëls, M., Bonvin, A.M.J.J., Baldus, M., Weingarth, M. (2017) Angew. Chem., 56, 13222, *Supramolecular organization and functional implications of K^+ channel clusters in membranes,* ***Frontispiece article***

30. Medeiros-Silva, J., Jekhmane, S., Baldus, M., Weingarth, M. (2017) Solid State Nucl. Magn. Reson., 87, 80, *Identifying very strong hydrogen bonds in membrane proteins by time-resolved ^{1}H-detected solid-state NMR and molecular dynamics simulations*, *invited article special issue 'Ultra-fast MAS*

29. Medeiros-Silva, J., Mance, D., Daniels, M., Jekhmane, S., Houben, K., Baldus, M., Weingarth, M. (2016) Angew. Chem., 55, 13606, *^{1}H- detected solid-state NMR studies of water-inaccessible proteins in vitro and in situ*

28. Chung, S., Angelici, C., Hinterding, S.O.M., Weingarth, M., Baldus, M., Houben, K., Weckhuysen, B.M., Bruijnincx, P.C.A. (2016) ACS Catal., 6, 4034, *On the role of magnesium silicates in wet-kneaded silica-magnesia catalysts for the Lebedev ethanol-to-butadiene process*

27. Mance, D., Sinnige, T., Kaplan, M., Daniels, M., Houben, K., Baldus, M., Weingarth, M. (2015) Angew. Chem., 54, 15799, *A labeling approach to harness backbone and side chain protons in ^{1}H-detected solid-state NMR. Highlighted in NWO Science News*

26. Jantschke, A., Koers, E., Mance, D., Weingarth. M., Brunner, E., Baldus, M. (2015) Angew. Chem., *54, 15069*, *Insight into the Supramolecular Architecture of Intact Diatom Biosilica Using a DNP-Solid-State NMR-Based Approach*

25. Rad Malekshahi, M., Visscher, K.M., Rodrigues, J.P.G.L.M., de Vries, R., Hennink, W.E., Baldus, M., Bonvin, A.M.J.J., Mastrobattista, E., Weingarth, M. (2015) *J. Am. Chem. Soc., 137, 7775, The supramolecular organization of a peptide based nanocarrier at high molecular detail*

24. van der Cruijsen, E., Koers, E., Sauvée, C., Hulse, R.E., Weingarth, M., Ouari, O., Perozo, E., Tordo, T., Baldus, M., Chemistry, (2015) *Chemistry - A European Journal, 21, 12971, Biomolecular DNP- supported NMR spectroscopy using site directed spin labeling*

23. van Zandvoort, I., Koers, E.J., Weingarth, M., Bruijnincx, P.C.A. Baldus, M., Weckhuysen, B.M., (2015) *Green Chemistry, 17, 4383, Structural Characterization of ^{13}C-Enriched Humins and Alkali-treated ^{13}C Humins by 2D Solid-state NMR*

22. Sinnige, T., Weingarth, M., Daniels, M., Boelens, R., Bonvin, A.M.J.J., Houben, K., Baldus, M., (2015) *Structure, 23, 1317, Conformational plasticity of the POTRA 5 domain in the outer membrane protein assembly factor BamA*

21. Koers, E., van der Cruijsen, E., Rosay, M., Weingarth, M., Prokofyev, A., Sauvée, C., Ouari, O., Pongs, O., Tordo, P., Maas, W., Baldus, M. (2014) *J. Biomol. NMR, 60, 157, NMR-based Structural Biology enhanced by Dynamic Nuclear Polarization at high magnetic field*

20. Sinnige, T., Weingarth, M., Renault, M., Baker, L., Tommassen, J., Baldus, M. (2014) *J. Mol. Bio., 426, 2009. Solid-state NMR studies of full-length BamA in lipid bilayers suggest limited overall POTRA mobility*

19. Sinnige, T., Daniels, M., Baldus, M., Weingarth, M. (2014) *J. Am. Chem. Soc., 136, 4452. Proton clouds to measure non-exchangeable sidechain protons in solid-state NMR,* ***Cover article***

18. Weingarth, M.,* van der Cruijsen, E., Ostmeyer, J., Lievestro, S. Roux, B., Baldus, M.,* (2014) *J. Am. Chem. Soc., 136, 2000, Quantitative analysis of the water occupancy around the selectivity filter of a K^{+} channel in different gating modes *corresponding author*

17. Koers, E. J., Lopez-Deber, M. P., Weingarth, M., Nand, D., Hickman, D. T., MlakiNdao, D., Pfeifer, A., Muhs, A., Baldus, M. (2013) *Angew. Chem., 52, 10905, Dynamic Nuclear Polarization NMR reveals multiple conformations in lipid-anchored Peptide Vaccines*

16. van der Cruijsen, E., Nand, D., Weingarth, M., Prokofyev, A., Hornig, S., Cukkemane, A., Bonvin, A. MMJ, Becker, S., Hulse, R. E., Perozo, E., Pongs, O., Baldus, M. (2013) *Proc. Natl. Acad. Sci. USA*, *110, 13008. The importance of the lipid-pore loop interface for potassium channel structure and function*

15. Weingarth, M., Baldus, M. (2013) *Acc. Chem. Res., 46, 2037. Solid-State NMR-Based Approaches for Supramolecular Structure Elucidation*

14. Weingarth, M., Prokovyef, A., van der Cruijsen, E., Nand, D., Bonvin, A., Pongs, O., Baldus, M. (2013) *J. Am. Chem. Soc., 135, 10. Structural determinants of specific lipid binding to potassium channels*

13. Weingarth, M., Ader, C., Melqiond, A., Nand, D., Becker, S., Bonvin, A., Baldus, M. (2012) *Biophys. J.,* 103, 29. *Supramolecular structure of membrane-associated polypeptides by combining solid-state NMR and MD simulations*

12. Cukkemane, A., Nand, D., Gradmann, S., Weingarth, M., Baldus, M. (2012) *Biomol. NMR Assign. 6, 225, Solid-state NMR [13C,15N] resonance assignments of the nucleotide-binding domain of a bacterial cyclic nucleotide-gated channel*

11. Weingarth, M., Trebosc, J., Amoureux, J.P., Bodenhausen, G., Tekely, P. (2011) *Solid State Nucl. Magn. Reson.* 40, 21. *Efficiency at high spinning frequencies of heteronuclear decoupling methods designed to quench rotary resonance*

10. Weingarth, M., Masuda, Y., Takegoshi, Bodenhausen, G., Tekely, P. (2011) *J. Biol. NMR* 50, 129. *Sensitive (13)C- (13)C correlation spectra of amyloid fibrils at very high spinning frequencies and magnetic fields*

9. Weingarth, M., Bodenhausen, G. and Tekely, P. (2010) *Chem. Phys. Lett.* 502, 259, *Probing the quenching of rotary resonance by PISSARRO decoupling*

8. Weingarth, M., Bodenhausen, G., Tekely, P. (2010) *Chem. Phys. Lett.* 488, 10, *Broadband magnetization transfer using moderate radio-frequency fields for NMR with very high static fields and spinning speeds, Editor's choice article.*

7. Weingarth, M., Tekely, P., Brüschweiler, R., Bodenhausen, G. (2010) *Chem. Comm.* 46, 952. *Improving the quality of 2D solid-state NMR spectra of microcrystalline proteins by covariance analysis*

6. Weingarth, M., Bodenhausen, G., Tekely, P. (2009) *J. Am. Chem. Soc.* 131, 13937. *Broadband carbon-13 correlation spectra of microcrystalline proteins in very high magnetic fields*

5. Weingarth, M., Bodenhausen, G., Tekely, P. (2009) *J. Magn. Reson.* 199, 238. *Low-power decoupling at high spinning frequencies in high static fields*

4. Weingarth, M., Demco, D., Bodenhausen, G., Tekely, P. (2009) *Chem. Phys. Lett.* 469, 342. *Improved magnetization transfer in solid-state NMR with fast magic angle spinning*

3. Rettig, M.*, Weingarth, M.*, Langel, W., Kamal, A., Kumar, P., Weisz, K. (2009) *Biochemistry* 48, 12223. **co-first authors, Solution structure of a covalently bound pyrrolo-benzodiazepine-benzimidazole hybrid to a 10mer DNA duplex*

2. Weingarth, M., Tekely, P., Bodenhausen, G. (2008) *Chem. Phys. Lett.* 466, 247. *Efficient heteronuclear decoupling by quenching rotary resonance in solid-state NMR*

1. Weingarth, M., Raouafi, N., Duma, L., Bodenhausen, G., Boujlel, K., Schöllhorn, B., Tekely, P. (2008) *Chem. Comm*. 45, 5981. *Revealing molecular self-assembly and geometry of non-covalent halogen bonding by solid-state NMR spectroscopy*

Talks

44. Solid State NMR of Metal containing compounds -LE STUDIUM conference, Orléans (France) 2020, invited talk

43. NCOH-AMR meeting, Utrecht (Netherlands) 2020, invited talk

42. Chianti workshop 'Opening New Doors for Magnetic Resonance in Life Sciences', Grosetto (Italy), 2020, invited talk

41. 26th National Magnetic Resonance Society of India meeting, Gujarat (India), 2020, invited talk

40. 9th International meeting on antimicrobial peptides (IMAP), Utrecht (the Netherlands), 2019, invited talk

39. Ecole Normale Supérieure, Paris (France) 2019, invited talk
'High-Resolution NMR Studies of Peptide-Antibiotics in Cell Membranes'

38. 4st FEBS fellows meeting, Krakow (Poland) 2019, invited talk

37. 10th International Peptide Symposium, Kyoto (Japan), 2018
'High-Resolution NMR Studies of Peptide-Antibiotics in Cell Membranes'

36. Ultra-High-Field NMR spectroscopy workshop, Lille (France), 2018, invited talk
'Magic bullets to fight antimicrobial resistance'

35. Biochemisches Kolloquium, Leipzig (Germany), 2018, invited talk
'Magic bullets to fight antimicrobial resistance'

34. FGMR meeting (Fachgruppe Magnetic Resonance), Leipzig (Germany), 2018
'Molecular determinants of spontaneous mode shifts of K^+ channels'

33. Vrije Universiteit Amsterdam (the Netherlands), 2018, invited Seminar
'High-resolution NMR studies of antibiotics in cellular membranes'

32. 8th International meeting on antimicrobial peptides (IMAP), Edinburgh (UK), 2018
'High-resolution NMR studies of antibiotics in cellular membranes'

31. Mini-symposium 'The Future of Magnetic Resonance', Frankfurt (Germany), 2018, invited talk
'Structures of Magic Bullets: How peptide-antibiotics attack the bacterial cell wall'

30. 16th Workshop on Bioactive Peptides, Naples (Italy) 2018
'Towards the native structure of the nisin : Lipid II pore'

29. 42nd FEBS congress, Jerusalem (Israel) 2017
'Structures of Magic Bullets: How peptide-antibiotics attack the bacterial cell wall'

28. 3rd FEBS fellows meeting, Jerusalem (Israel) 2017, invited talk
'Structures of Magic Bullets: How peptide-antibiotics attack the bacterial cell wall'

27. NextGenChem symposium, 2017 Utrecht (The Netherlands)
'Structures of Magic Bullets: How peptide-antibiotics attack the bacterial cell wall'

26. Goethe University Frankfurt (Germany) 2016, invited seminar
'^{1}H-detektion in complex Membrane Proteins and Peptides'

25. CCPN/Biosim joint-conference, Derby (England) 2016, invited talk
'Peptide and Protein assembly by solid-state NMR and MD simulations'

24. 57th Experimental Nuclear Magnetic Resonance Conference (ENC), Pittsburgh (USA) 2016
'New Approaches for ^{1}H-detection in complex Membrane Proteins'

23. Bijvoet Symposium, Soesterberg (Netherlands) 2016, invited talk
'Proton-detected solid-state NMR in complex Membrane Proteins'

22. Polymers and Self- Assembly: From Biology to Nanomaterials (BPS Meeting), Rio de Janeiro (Brazil) 2015
'The supramolecular organization of a peptide based nanocarrier at high resolution'

21. CHAINS 2015 – the Dutch Chemistry conference, Veldhoven (Netherlands) 2015
'Supramolecular Organisation of Membrane Proteins'

20. Membrane Symposium, Chicago (USA) 2015, invited talk
'Supramolecular Organisation of Ion Channels as seen by ssNMR and MD simulations'

19. Conference for W2 professor-position, LMU Munich (Germany) 2015 (selected for short-list)
'Supramolecular Organisation of Ion Channels'

18. 2nd FEBS fellows meeting, Paris (France) 2014, invited to talk & chair a session
'*Toward proteins at atomic resolution in cellular membranes'*

17. Protons & Membrane Reactions, Gordon Conference, Ventura (USA) 2014
'An NMR-Based Study of Water-Protein Contacts During the Gating Cycle of a Membrane-Embedded Potassium Channel'

16. 58th Meeting of the Biophysical Society, San Francisco (USA) 2014
'Ion Channel - Ion Channel Interaction at Atomic Resolution'

15. BIOMOS Symposium on Biomolecular Simulation, Ausserberg (Switzerland) 2014
'Oligomerisation of peptides & proteins'

14. Meeting of the Dutch NMR group, Eindhoven (The Netherlands) 2013, invited talk
'Supramolecular Organisation of Ion Channels'

13. 53rd International Society of Magnetic Resonance (ISMAR), Rio de Janeiro (Brazil) 2013
'Determining supramolecular organisation of ion channels by solid-state NMR and computational methods'

12. BIOMOS Symposium on Biomolecular Simulation, Ausserberg (Switzerland) 2013
'Supramolecular Organisation of Ion Channels'

11. 53rd Experimental Nuclear Magnetic Resonance Conference (ENC), Miami (USA) 2012
'Supramolecular structure of membrane-associated polypeptides by combining solid-state NMR and MD simulations'

10. The Netherlands Society on Biomolecular Modelling meeting, Utrecht (Netherlands) 2012
'Specific lipid binding to potassium channels as seen by coarse grained MD and solid-state NMR'

9. 12th Young Scientist Forum of the IUBMB & FEBS Congress, Sevilla (Spain) 2012
'Supramolecular organisation of membrane proteins by solid-state NMR and Molecular Dynamics simulations'

(2011 – 2008)

8. BIOMOS Symposium on Biomolecular Simulation, Ausserberg (Switzerland) 2011
7. 51st Exp. Nuclear Magnetic Resonance Conference (ENC), Daytona (USA) 2010
6. University of Illinois, seminar, invited by Chad Rienstra, Urbana-Champaign (USA) 2010
5. Mass. Inst. of Tech., seminar, invited by Prof. Griffin, Boston (USA) 2010

4. National Institute of Health, seminar, invited by Prof. Tycko, Bethesda (USA) 2010
3. Groupe d'Etude de Résonance Magnétique (GERM), Fréjus (France) 2009
2. Grand Bassin Parisien, Paris (France) 2009
1. Grand Bassin Parisien, Rennes (France) 2008

Teaching Experience

- 2017 – 2019 Director of Bijvoet Summer School 'Exploring Nature's Molecular Machines'
- 2018 – 2019 Lectures 'Advanced NMR', responsible for solid-state NMR part (MSc level)
- 2018 – 2019 Lectures Molecules & Cells (MSc level)
- 2015 – 2019 Lectures & Practical: NMR and Molecular Modelling (BSc level)
- 2015 Lectures: Molecular Machines course (BSc/MSc level)
- 2012 Lectures: Dutch NMR summer school (post-graduate level)

Supervised PhD Students

João Silva (2015 - 2019) Miranda Jekhmane (2016 -) Rhythm Shukla (2019 -)

Maik Derks (2020 -) Federico Fontana (Visiting Researcher)

Supervised MSc Students

Christoph Müller-Hermes	Felix Torres	Felix Kümmerer	Barend Elenbaas
Marek Prachar	Benjamin Vermeer	Bram Vermeulen	Thorben Maass
Francesca D'Amico	Danique Ammerlaan.	Federico Napoli	Vicky Charitou

Recent Reviewer Activities

Nature // Nature Communications // Journal of the American Scientific Society // Angewandte Chemistry // Advanced Science // Biophysical Journal // Journal of Biomolecular NMR // Biomacromolecules // Scientific Reports // Journal of Physical Chemistry B // MedChemComm // ChemBioChem // PLOS One // Infection and Drug Resistance // Protein Engineering, Design, Selection // Journal of Structural Biology // Journal of Molecular Recognition // BBA – proteins and proteomics // Computational Biology and Chemistry // Journal of Fluorine Chemistry // Molecules // etc.

Reviewer for: The Israel Science Foundation // ETH Zurich postdoctoral fellowships // National Science Center of Poland // Agence Nationale de Recherche, France // The Wellcome trust/DBT India Alliance Fellowships //

Book Chapters

1. Weingarth, M., Baldus, M., *Introduction to biological solid-state NMR*, in: *Advances in Biological Solid-State NMR: Proteins and Membrane Active Peptides* (ISBN 978-1-84973-910-8)
2. Mance, D., Weingarth, M., Baldus, M., *Solid-State NMR on Complex Biomolecules: Methods and Applications*, in: *Modern Magnetic Resonance* (DOI: 10.1007/978-3-319-28275-6_33-1)
3. Narasimhan, S., Mance, D., Pinto, C., Weingarth, M., Bonvin, A.M.J.J., Baldus, M., *Rapid Prediction of Multi-dimensional NMR Data Sets using FANDAS,* in: *Protein NMR: Methods and Protocols* (ISBN 978-1-4939-7385-9)
4. Damman, R., Narasimhan, S., Weingarth, M., Baldus, M., *Cellular solid-state NMR Spectroscopy,* RSC Advances, accepted

Patents

'*Efficient heteronuclear decoupling by quenching rotary resonance in solid-state NMR*'; US Patent US2010052673; European Patent EP2159589; with Bruker Biospin, Ecole Normale Supérieure, CNRS, EPF Lausanne

Monographs

1. PhD thesis *'Decoupling and Recoupling in solid-state NMR at very high spinning frequency and static fields'.* Directed by Prof. G. Bodenhausen and Dr. P. Tekely. Grade '*Très honourable'* (best possible grade)

2. Diploma thesis *'Structural investigations of the DNA-pyrrolobenzodiazepine interaction'*. Directed by Prof. K. Weisz and Prof. W. Langel. Grade *'mit Auszeichnung'* (all grades 1.0 / best possible grade).