

Dr. STEFAN M. SCHILLER

CENTER FOR BIOSYSTEMS ANALYSIS (ZBSA)

Albert-Ludwigs-Universität Freiburg

Habsburgerstraße 49

79104 Freiburg, Germany

Email: [Stefan.Schiller@FRIAS.Uni-Freiburg.de](mailto:Stefan.Schiller@FRIAS.Uni-Freiburg.de)

Homepage: [www.biotectonic.de](http://www.biotectonic.de)

Tel. (+49) 761 203 97405

Fax. (+49) 761 203 97451

### COMPLETE LIST OF PUBLICATIONS

\* CORRESPONDING AUTHOR

#### in preparation:

- Huber, M. C., **\*Schiller, S. M.** “*Biofabrication of ultrapotent bioactives utilizing de novo organelles in prokaryotic systems*”
- Yao, Chunyan, Schreiber, A., Schätzle, Michael, Conradt, David, Lucas, Xavier, Günther, Stefan, Müller, Michael, **\*Schiller, S. M.** “*Cofactor-Redesign in Enzymes: Site-Selective covalent immobilization of Cofactors in Alcohol Dehydrogenase (ADH) utilizing unnatural amino acids*”
- Matthias Kollek, Gesina Voigt, Fabronia Murad, Daniela Bertele, Christopher Felix Krombholz, Verena Labi, **Stefan M. Schiller**, Mirjam Kunze, Stephan Geley, Charlotte M. Niemeyer, Ana Garcia-Saez, Miriam Erlacher “*Transient apoptosis inhibition in donor stem cells improves the outcome of hematopoietic stem cell transplantation without increasing the risk of leukemogenesis*”
- Wild, W., Huber, M. C., Kowar, S., Borries, M., Busch, H., **\*Schiller, S. M.** “*Nanobiomaterial Protein-Tectons Based on an Elastine like protein (ELP) building block library: Cell-based Biointeraction Schemes of a Small Matrix-Protein Library*”

#### under review or in revision:

- Kramer, M., Huber, M. C., Schaaf, A., **\*Schiller, S. M.** “*Expression of oligomerized biopharmaceuticals in E. coli and P. patens*”
- Hege, Cordula S., Dolderer, Jürgen H., Axel-Siegel, Dorothea, Kohler, Konrad, Delorme, Nicolas, Le Houerou, Vincent, **\*Schiller, S. M.** “*Biopolymer Systems in Soft Tissue*”

*Engineering - Cell Compatibility Studies Including Material-, Catalyst- and Surface Properties” submitted*

## 2017

1. Pham, T. A., Schreiber, A., \*Schiller, S. M., \*Cölfen, H. “Toroidal Protein Adaptor Assembles Ferromagnetic Nanoparticle Fibres With Constructive Magnetic Coupling” *Advanced functional Materials* **2017**, 1604532, DOI: 10.1002/adfm.201604532

## 2016

2. Quast, R. B., Ballion, B., Sonnabend, A., Varga, B. R., Wüstenhagen, D. A., Kele, P., **Schiller, S. M.**, \*Kubick, S. “Cell-free synthesis of functional human epidermal growth factor receptor: Investigation of ligand independent dimerization in Sf21 microsomal membranes using non-canonical amino acids” *Nature Scientific Reports* **2016** | 6:34048 | DOI: 10.1038/srep34048 IF 5.228
3. García-Masso, X., Huber, M. C., Friedmann, J., Gonzalez, L. M., **Schiller, S. M.**, \*Toca-Herrera, J. L. “Automated detection of protein unfolding events in atomic force microscopy force curves” *Microscopy Research and Technique (Microsc. Res. Tech., Wiley)* **2016** DOI 10.1002/jemt.22764 IF 1.13
4. Poh, P.S.P., Hege, C., Chhaya, M.P., Balmayor, E.R., Foehr, P., Burgkart, R. H., Schantz, J.-T., **Schiller, S.**, Schilling A.F. and \*Hutmacher, D.W. “Evaluation of Polycaprolactone-Poly-D,L-lactide copolymer as biomaterial for Breast Tissue Engineering” *Polymer International (Wiley)* **2016** DOI 10.1002/pi.5181 IF 2.414
5. Pham, T. A., Schreiber, A., Sturm, E. V. (née Rosseeva), \*Schiller, S. M., \*Cölfen, H. “Hemolysin coregulated protein 1 as a molecular gluing unit for the assembly of nanoparticle hybrid structures” *Beilstein J. Nanotechnol.* **2016**, 7, 351–363. IF 2.778

## 2015

6. Huber, M. C., Schreiber, A., von Olshausen, P., Varga, B. R., Kretz, O., Joch, B., Barnert, S., Schubert, R., Eimer, S., Kele, P., \*Schiller, S. M. “Designer amphiphilic proteins as building blocks for the intracellular formation of organelle-like compartments” *Nature Materials* **2015**, 14(1), 125-132 IF 38.891
7. Schreiber, A., Huber, M. C., Cölfen, H., \*Schiller, S. M. “Protein Adaptor with Genetically Encoded Interaction-Sites Guiding the Hierarchical Assembly of Plasmonically Active Nanoarchitectures” , DOI: 10.1038/ncomms7705 *Nature Communications*, **2015**, 6, article number 6705 IF 11.329
8. Longo, J.<sup>‡</sup>, Yao, C.,<sup>‡</sup> Rios, C., Boulmedais, F., Hemmerlé, J., Lavalle, P., \*Schiller, S. M., \*Schaaf, P., Jierry, L. “Reversible biomechano-responsive surface based on Green Fluorescent Protein genetically modified with unnatural amino acids” *Chemical Communications* **2015**, 51, 232-235 IF 6.567
9. Hege, C. S., \*Schiller, S. M. “New Bio-inspired Materials for Regenerative Medicine“ in “Molecular Biology of Skeletal Tissue Engineering” Section Editor: Dietmar W. Hutmacher, DOI 10.1007/s40610-015-0015-1 *Current Molecular Biology Reports* **2015** 1:77-86

## **2014**

---

10. Huber, M., Schreiber, A., Benz, K., \*Schiller, S. M. “Introducing a combinatorial DNA-toolbox platform constituting defined protein-based biohybrid materials” **Biomaterials** **2014**, 35, 31, 8767-79 IF 8.387
11. Hege, C., \*Schiller, S. M. “Non-toxic catalysts for ring-opening polymerizations of biodegradable polymers at room temperature for biohybrid materials” **Green Chem.**, **2014**, 16 (3), 1410-1416 IF 8.506
12. \*Schiller, Stefan M., “Protein Tectons in Synthetic Biology: The expansion of cellular functionality combining chemical biology of small organic molecules with protein tectons – unnatural amino acids, protein based biohybrid materials & de novo organelles”, in **Synthetic Biology**, ed. Giese, B., von Gleich, A., Pade, C., Wigger, H. (Springer, **2014**, ISBN 978-3-319-02782-1)

## **2013**

---

13. Schreiber, A., \*Schiller, S. M “Nanobiotechnology of Protein Compartments: Steps towards Nanofactories” **Bioinspired, Biomimetic and Nanobiomaterials (ICE Virtual Library)** **2013**, 4, 2, 157-164 IF 0.532
14. Schiller, S., Huber, M. C. “Protein Assembler” **2013 PCT/EP2013/060957, WO** 2013/178627
15. Kissler, S., Zimmermann, T., Pierrat, S., Klein, B., Schiller, S., Kraft, M., “A new real time biomimetic membrane biosensor based on a capacitive readout ASIC for antibiotics” **Solid-State Sensors, Actuators and Microsystems (Transducers & Eurosensors XXVII)**, **2013** Transducers & Eurosensors XXVII: doi: 10.1109/Transducers.2013.6626774 The 17th International Conference on, 16-20 June 2013, pp.349-352
16. \*Schiller, Stefan M., *Biomimetic systems: the tethered bilayer lipid membrane*, in **Handbook of Biofunctional Surfaces**, ed. Wolfgang Knoll (Singapore: Pan Stanford Publishing, **2013**), pp. 639-683

## **2012**

---

17. Schreiber, A., Yuan, Y., Huber, M. C., Thomann, R., Ziegler, A., Cölfen, H., Dengjel, J., Krüger, M., \*Schiller, S. M. “From Bioconjugation to Selfassembly in Nanobiotechnology: Quantum Dots Trapped and Stabilised by Toroid Protein Yoctowells” **Advanced Engineering Materials** **2012**, 14, 6, B344-B350 IF 1.758
18. \*Dolderer, J. H., Medved, F., Haas, R., Schiller, S. M., Siegel-Axel, D., Kohler, K., Schaller, H. E. „Angiogenese und Vaskularisation beim Tissue Engineering von Fettgewebe”. *HaMiPla (Handchirurgie - Mikrochirurgie - Plastische Chirurgie, Journal des Thieme Verlags)* **2012**, 45(02): 99-107 IF 0.692

19. **Schiller, S.**, Huber, M. C. “*Protein Assembler*” **2012 EP12** 169 717.1, 2 668 962
20. \*Dolderer, J. H., **Schiller, S. M.**, Medved, F., Haas, R., Schröder, U., Kohler, K., Prantl, L., Häring, L. H., Siegel-Axel, D., Schaller, H. E. „*Angiogenetische und Adipogenetische Stimulation beim Tissue Engineering von vaskularisiertem Fettgewebe in einer Wachstumskammer*“ **Senologie - Zeitschrift für Mammadiagnostik und -therapie** 06/2012; 9(02). DOI:10.1055/s-0032-1313397 IF 5.49

## **2011**

---

21. Schreiber, A., Zaitseva, E., Thomann, Y., Thomann, R., Dengjel, J., Hanselmann, R., \***Schiller, S. M.** „*Protein Yoctowell Nanoarchitectures: Assembly of Donut Shaped Protein Containers and Nanofibres*” **Soft Matter** **2011**, 7 (6), 2875-2878 IF 4.34
22. \*Dolderer, J.H., Schiller, S.M., Valina, S., Schröder, U., Kohler, K., Wilhelmi, E., Häring, H.U., Siegel-Axel, D., Schaller, H.E. „*Möglicher autologer Weichteilersatz zur Brustrekonstruktion durch de-novo Generierung von transplantablem vaskularisiertem Fettgewebe*“ **Senologie - Zeitschrift für Mammadiagnostik und -therapie** 05/2011; 8(02). DOI:10.1055/s-0031-1278036 IF 5.49

## **2010**

---

23. Armen, R. S., \***Schiller, S. M.**, \*Brooks III, C. L. „*Steric and Thermodynamic Limits of Design for the Incorporation of Large Un-Natural Amino Acids in Aminoacyl-tRNA Synthetase Enzymes*” **Proteins** **2010**, 78, 1926-1938 IF 2.499
24. \*Dolderer, J. H., Kehrer, A., **Schiller, S. M.**, Schröder, U. H., Kohler, K., Schaller, H.-E., Siegel-Axel, D. „*De-novo generation of vascularized tissue using different configurations of vascular pedicles in perforated and closed chambers*” **Wiener Medizinische Wochenschrift** **2010** (1946), 160(5-6), 139-46 IF 0.56
25. \*Knoll, W., Bender, K., Foerch, R., Frank, C., Goetz, H., Heibel, C., Jenkins, T., Jonas, U., Kibrom, A., Kuegler, R., Naumann, C., Naumann, R., Reisinger, A., Ruehe, J., **Schiller, S.**, Sinner, E.-K. “*Polymer-tethered biomolecular lipid membranes*” **Advances in Polymer Science** **2010**, 224(Polymer Membranes/Biomembranes), 87-111 IF 3.89
26. \***Schiller, S. M.**, Kambhampati, D., Stengel, G., Dolderer, J., Nielsen, P. E., Förch, R., Knoll, W., “*Plastic Trash goes Biohybrid - Rapid & Selective Functionalization of Inert Plastic Surfaces with Biomolecules*” **Macromolecular Chemistry and Physics** **2010**, 211, 222-228 IF 2.616

## **2009**

---

27. \***Schiller, S. M.**, Reisinger-Friebis, A., Goetz, H., Hawker, C. J., Frank, C. W., Naumann, R., Knoll, W. „*Biomimetische Lipo-Glycopolymer-Membranen: photochemische Oberflächenanbindung supramolekularer Architekturen mit definierter Orientierung*“

- Angew. Chem.* **2009**, 121, 7028-7032 („Biomimetic Lipoglycopolymer Membranes: Photochemical Surface Attachment of Supramolecular Architectures with Defined Orientation“ *Angew. Chem. Int. Ed.* **2009**, 48, (37) 6896-6899) IF 11.709
28. Ficht, Simon; Jahnz, Michael; Grunewald, Jan; **Schiller, Stefan**; Schultz, Peter G. „In vivo incorporation of an unnatural amino acid with a 1,2-aminothiol group into proteins using suppressor tRNAs and aminoacyl tRNA synthetase variants“ *PCT Int. Appl.* (**2009**), WO 2009151491 A2 20091217.
29. \*Dolderer, J. H., Kehrer, A., **Schiller, S. M.**, Schröder, U. H., Kohler, K., Schaller, H.-E., Siegel-Axel, D. „Tissue Engineering von vaskularisiertem und transplantationsfähigem Fettgewebe zur Weichteildefektdeckung“ *Zeitschrift für Regenerative Medizin* **2009**, 1, 3-10
30. Sinner, E.-K., Ritz, S., Naumann, R., **Schiller, S.**, Knoll, W. „Self-Assembled Tethered Biomolecular Lipid Membranes“ *Adv. Clin. Chem.* **2009**, 49, 159-79 IF 4.302

## **BEFORE 2008**

---

31. Wang, J., **Schiller, S. M.**, \*Schultz, P. G. „A Biosynthetic Route to Dehydroalanine-Containing Proteins“ *Angew. Chem.* **2007**, 46, 36, 6849-6851 IF 11.709
32. Kunze, J., Leitch, J., Schwan, A. L., Faragher, R. J., Naumann, R., **Schiller, S.**, \*Knoll, W., Dutcher, J. R., \*Lipkowski, J. „New Method to Measure Packing Densities of Self-Assembled Thiolipid Monolayers“ *Langmuir*, **2006**, 22, 5509-5519 IF 3.993
33. Köper, I., **Schiller, S. M.**, Giess, F., Naumann, R., \*Knoll, W. „Functional Tethered Bimolecular Lipid Membranes (tBLMs)“ *Advances in Planar Lipid Bilayers*, **2006**, Vol. 3, 37-53, ISBN-13: 978-0-12-370622-5
34. Atanasov, V., Köper, I., Knoll, W., Schiller, S. „Biomimetic Systems Consisting of Lipid Membranes Bound to Electrically Conducting Substrate“ U.S. Pat. Appl. Publ. (2006), 22 pp. US 2006292637; Jun 7, **2006**, US patent No. 11/448,127, 2006-448127, 2006292637, Accession number AN 2006:1358045
35. He, L. H., Robertson, J. W. F., Li, J., Karcher, I., **Schiller, S. M.**, Knoll, W., \*Naumann, R. „Tethered Bilayer Lipid Membranes Based on Monolayers of Thiolipids Mixed With a Complementary Dilution Molecule. 1. Incorporation of Channel Peptides“ *Langmuir* **2005**, 21, 11666-11172 IF 3.993
36. K. Bender, S. Fraser, R. Förch, A.T.A. Jenkins, I. Köper, R. Naumann, **S. M. Schiller**, \*W. Knoll „Plasma Polymer Supported Lipid Bilayers“ in *Plasma Polymers & Related Materials*, Edited by: M. Mutlu, G. Dinescu, R. Förch, J. M. Martin-Martinez and J. Vyskocil, Hacettepe, University Press **2005**, pp 32-42, (ISBN: 975-491-194-0)
37. **Schiller, S.**, Kambhampati, D., Knoll, W. „Method for Manufacturing a Biosensor via Electrophilic Polymer Layers“ Eur. Pat. Appl. (2004), 14 pp. EP 1435262
38. Fang, K., Zhang, J., Duran, R. S., Raucci, F. J., Long, J. R., Koper, I., **Schiller, S.**, Knoll, W. „Mixed Monolayers of 1,2-Diphytanoyl-sn-Glycero-3-Phosphocholine and a Synthetic Ion Channel-Forming Peptide Oligomer M2: An Isotherm and BAM study“ *Abstr. Pap. Am. Chem. Soc.* 227, U819-U819, **2004**
39. Knoll, W., Koper, I., Naumann, R., **Schiller, S.**, Duran, R. S. „Functional Tethered Bimolecular Lipid Membranes“ *Abstr. Pap. Am. Chem. Soc.* 227, U858-U858, **2004**

40. Wolfgang Knoll, Kenichi Morigaki, Renate Naumann, Barbara Saccà, **Stefan Schiller**, Eva-Kathrin Sinner **2004**, Springer Series on Chemical Sensors and Biosensors „*Functional Tethered Lipid Bilayer Membranes*“ in Ultrathin electrochemical chemo- and biosensors: Technology and performance. V.M. Mirsky and O.S. Wolfbeis (Hrsg.). Springer-Verlag
41. Moncelli, M. R., Becucci, L., **Schiller, S. M.** „*Tethered Bilayer Lipid Membranes Self-Assembled on Mercury Electrodes*“ *Bioelectrochemistry*, **2004**, 63, 161-167
42. Vitovič, P., Kresák, S., **Schiller, S.M.**, Naumann, R., Lewis, R.N.A.H. McElhaney, R.N., \*Hianik, T. „*The Study of the Interaction of a Model (-Helical Peptide With Lipid Bilayers and Monolayers*“ *Bioelectrochemistry*, **2004**, 63, 169-176 IF 3.87
43. \***Schiller, S. M.**, Naumann, R., Lovejoy, K., Kunz, H. and Knoll, W. „*Archaea-analoge Thiolipide für gestützte Lipiddoppelschichtmembranen auf ultraglaten Goldoberflächen*“ *Angew. Chem.* **2003**, 115, 219-222 („*Novel Archaea Analogue Thiolipids for Tethered Bilayer Lipid Membranes on Ultra Flat Gold Surfaces*“ *Angew. Chem. Int. Ed.* **2003**, 42, 208-211) IF 11.709
44. **Schiller, S.**, Naumann, R., Lovejoy, K., Knoll, W., „*Thiolipids for Tethered Bilayer Membranes*“ *Abstr. Pap. Am. Chem. Soc.* 225, U539-U540: 52-POLY, Part 2 MAR, **2003**
45. Knoll, W., Yu, F., Neumann, T., **Schiller, S.**, \*Naumann, R., „*Supramolecular Functional Interfacial Architectures for Biosensor Applications*“ *Phys. Chem. Chem. Phys.* **2003**, 5, 5169-5175 IF 4.449
46. \*Naumann, R., **Schiller, S. M.**, Gieß, F., Grohe, B., Hartman, K. B., Kärcher, I., Köper, I., Lübken, J., Vasilev, K., Knoll, W. „*Tethered Lipid Bilayers on Ultra Flat Gold Surfaces*“ *Langmuir* **2003**, 19, 5435-5443 IF 3.993
47. Naumann, R., Walz, D., **Schiller, S. M.**, \*Knoll, W. „*Kinetics of Valinomycin-Mediated K<sup>+</sup> Ion Transport Through Tethered Bilayer Lipid Membranes*“ *J. Electroanal. Chem.* **2003**, 550-551, 241-252 IF 2.729
48. **Schiller, S.**, Naumann, R., Knoll, W. „*Biomimetische Systeme aus Lipidmembranen, gebunden an ein Substrat*“ / „*Biomimetic Systems Consisting of Lipid Membranes Bound to a Substrate*“ „*Eur. Pat. Appl.* (**2003**) 19 pp. EP 1364948; DE 102 22 588.5; EP 03 011 554.7(1 364 948 A2); US-2004-0023304-A1
49. Götz, H., Harth, E., **Schiller, S. M.**, Frank, C. W., Knoll, W., \*Hawker, C. J. „*Synthesis of Lipo-Glycopolymer Amphiphiles by Nitroxide Mediated Living Free-Radical Polymerization*“ *J. Pol. Sci. Pol. Chem.* **2002**, 40, 3379-3391 IF 3.113
50. Schaeferling, M., **Schiller, S.**, Paul, H., Pavlickova, P., Kruschina, M., Giammasi, C., \*Kambhampati, D. „*Application of Self Assembly Techniques in the Design of Bio-compatible Protein Microarray Surfaces*“ *Electrophoresis* **2002**, 23, 3097-3105 IF 3.24
51. **Schiller, S.**, Hu, J., Jenkins, A.T.A., Timmons, R.B., Sanchez-Estrada, F. S., Knoll, W., \*Foerch, R. „*Chemical Structure and Properties of Plasma-Polymerized Maleic Anhydride Films*“ *Chem. Mater.* **2002**, 14, 235-242 IF 9.407
52. Götz, H., **Schiller, S.**, Frank, C.W., Knoll, W., \*Hawker, C. D. „*Interfacial Properties and synthesis of Lipo-Glycopolymers and Random Glyco/Lipo-Copolymers by Controlled Free Radical Polymerization*“ *Abstr. Pap. Am. Chem. Soc.* **2000**, 219, U579-U579: 436-COLL, Part 1 MAR 26
53. Jenkins, A.T.A., Hu, J., Wang, Y. Z., **Schiller, S.**, Foerch, R., \*Knoll, W. „*Pulsed Plasma Deposited Maleic Anhydride Thin Films as Supports for Lipid Bilayers*“ *Langmuir* **2000**, 16, 6381-6384 IF 3.993

*Patents listed separately*

- **Schiller, S.**, Huber, M. C. “*Protein Assembler*” **2013** PCT/EP2013/060957, WO 2013/178627
- **Schiller, S.**, Huber, M. C. “*Protein Assembler*” **2012** EP12 169 717.1, 2 668 962
- Ficht, Simon; Jahnz, Michael; Grunewald, Jan; **Schiller, Stefan**; Schultz, Peter G. „*In vivo incorporation of an unnatural amino acid with a 1,2-aminothiol group into proteins using suppressor tRNAs and aminoacyl tRNA synthetase variants*“ PCT Int. Appl. (**2009**), WO 2009151491 A2 20091217.
- Atanasov, V., Köper, I., Knoll, W., **Schiller, S.** “*Biomimetic Systems Consisting of Lipid Membranes Bound to Electrically Conducting Substrate*” U.S. Pat. Appl. Publ. (**2006**), 22 pp. US 2006292637; Jun 7, 2006, US patent No. 11/448,127, 2006-448127, 2006292637, Accession number AN 2006:1358045
- **Schiller, S.**, Kambhampati, D., Knoll, W. „*Method for Manufacturing a Biosensor via Electrophilic Polymer Layers*“ Eur. Pat. Appl. (**2004**), 14 pp. EP 1435262
- **Schiller, S.**, Naumann, R., Knoll, W. „*Biomimetische Systeme aus Lipidmembranen, gebunden an ein Substrat*“ / „*Biomimetic Systems Consisting of Lipid Membranes Bound to a Substrate*“, Eur. Pat. Appl. (**2003**) 19 pp. EP 1364948; DE 102 22 588.5; EP 03 011 554.7(1 364 948 A2); US-2004-0023304-A1