

CURRICULUM VITAE

Prof. Dr. Jürgen Groll

* 25.05.1976

Married, 2 children

PROFESSIONAL EXPERIENCE

since 08/10

Affiliation

University of Würzburg, Würzburg, Germany

Research interest

Applied polymer chemistry, nanobiotechnology, biomimetic scaffolds, immunomodulatory materials and scaffolds, biofabrication

Function

Full professor (W3) and chair for functional materials in medicine and dentistry (www.fmz.uni-wuerzburg.de)

08/04 – 07/10

Affiliation

DWI at the RWTH Aachen e.V., Aachen, Germany

Function

Group leader: polymer chemistry, biomaterials, nanotechnology

02/05 – 12/08

Affiliation

Sustech GmbH & Co KG, Darmstadt, Germany

Function

Senior Researcher nanotechnology, functional materials and coatings

STUDIES AND EDUCATION

11/00 – 08/04

Supervisor

PhD thesis at the RWTH Aachen (summa cum laude)

Martin Möller

Title

Specific and Directed Biomolecular Recognition on Star PEG Coatings

10/95 – 10/00

Major

Chemistry studies at the University of Ulm (Diploma excellent)

Macromolecular chemistry, organic chemistry and biochemistry

06/1999 – 12/1999

Research internship with Virgil Percec (University of Pennsylvania)

AWARDS

11/2014

Unilever Prize of the Polymer Networks Group

11/2013

ERC Consolidator Grant Design2Heal (contract no° 617989)

10/2010

Reimund-Stadler Award of the German Chemical Society - Section Macromolecular Chemistry

10/2009

Bayer Early Excellence in Science Award

11/2007

Henkel Innovation Award

06/2005

Borchers-Plakette of the RWTH Aachen University

10/2004

PhD thesis award of the German Society for Biomaterials

06/2004

2nd Price at the DSM Awards for Chemistry and Technology

1996 - 2000

Fellowship of the German National Academic Foundation

ACTIVITIES & MEMBERSHIPS

Consortium coordinator

Large IP HydroZONES (EU FP7; contract 309962; www.hydrozones.eu)

Editorial board member

Biofabrication (<http://iopscience.iop.org/1758-5090/>)

Board member

International Society of Biofabrication (ISBF),

Musculoskeletal Center Würzburg (MCW)

Member

German Chemical Society (GDCh), American Chemical Society (ACS),

German Society for Biomaterials (DGBM)

Referee (funding bodies)

DFG, SNF, FWO, NWO, Carl Zeiss Foundation, Humboldt foundation

Referee (selected journals)

Angewandte Chemie, Advanced Materials, Nano Letters, Advanced Functional Materials, Biomacromolecules, Small, Soft Matter, Macromolecular Bioscience, Progress in Polymer Science

Publications in peer-reviewed journals

- 102) M. Kessler, E. Esser, **J. Groll**, J. Tessmar: Bilateral PLA / alginate membranes for the prevention of postsurgical adhesions.
Journal of Biomedical Materials Research Part B: Applied Biomaterials 2015, published online: DOI: 10.1002/jbm.b.33503.
- 101) M. Kuhlmann, **J. Groll***: Dispersity control of linear poly(glycidyl ether)s by slow monomer addition. *RSC Advances*, 2015, 5, 67323-67326.
- 100) G. Hochleitner, T. Jüngst, T. D. Brown, K. Hahn, C. Moseke, F. Jakob, P. D. Dalton, **J. Groll***: Additive Manufacturing of Scaffolds with Sub-micron Filaments via Melt Electrospinning Writing.
Biofabrication 2015, 7, 035002.
- 99) E. DeSimone, K. Schacht, T. Jüngst, **J. Groll**, T. Scheibel: Biofabrication of 3D Constructs: Fabrication Technologies and Spider Silk Proteins as Bioinks.
Pure and Applied Chemistry 2015, DOI: 10.1515/pac-2015-0106.
- 98) T. Jüngst, M. L. Muerza-Cascante, T. D. Brown, M. Standfest, D. W. Hutmacher, **J. Groll**, P. D. Dalton: Melt Electrospinning onto Cylinders: Effects of Rotational Velocity and Collector Diameter on the Morphology of Tubular Structures.
Polymer International 2015, published online: DOI: 10.1002/pi.4948.
- 97) F. Topuz, M. Möller, **J. Groll**: Covalently layer-by-layer assembled homogeneous nanolayers with switchable wettability.
Polymer Chemistry 2015, 6, 4690-4697.
- 96) M. Geffers, **J. Groll**, U. Gbureck: Reinforcement strategies for load-bearing mineral biocements.
Materials 2015, 8(5), 2700-2717.
- 95) M. V. Beer, K. Hahn, S. Diederichs, M. Fabry, S. Singh, S. J. Spencer, J. Salber, M. Möller, A. G. Shard, **J. Groll***: Quantifying Ligand-Cell Interactions and Determination of the Surface Concentrations of Ligands on Hydrogel Films – The Measurement Challenge.
Biointerphases 2015, 10, 021007.
- 94) M. Schmitz, M. Kuhlmann, O. Reimann, C. P.R. Hackenberger, **J. Groll***: Side Chain Cysteine Functionalized Poly(2-oxazoline)s for Multiple Peptide Conjugation by Native Chemical Ligation.
Biomacromolecules 2015, 16 (4), 1088–1094.
- 93) Theresa Christel, S. Christ, J. E. Barralet, **J. Groll**, U. Gbureck: Chelate Bonding Mechanism in a Novel Magnesium Phosphate Bone Cement.
Journal of the American Ceramic Society 2015, 98 (3), 694–697.
- 92) T. Simón-Yarza, A. Rossi, K.-H. Heffels, F. Prósper, **J. Groll***, M. J. Blanco-Prieto: Polymeric electrospun scaffolds: neuregulin encapsulation and biocompatibility studies in a model of myocardial ischemia.
Tissue Engineering A 2015, 21(9-10), 1654-1661.
- 91) K. Schacht, T. Jüngst, M. Schweinlin, A. Ewald, **J. Groll***, T. Scheibel: Biofabrication of Cell-loaded, 3D Recombinant Spider Silk Constructs.
Angewandte Chemie International Edition 2015, 54 (9), 2816–2820.
Angewandte Chemie 2015, 127 (9), 2858–2862.
- 90) M. Kuhlmann, O. Reimann, C. P.R. Hackenberger, **J. Groll***: Cysteine-functional Polymers via Thiol-Ene Conjugation.

Macromolecular Rapid Communications 2015, 36 (5), 472–476.

89) M. Castilho, J. Rodrigues, I. Pires, B. Gouveia, M. Pereira, C. Moseke, **J. Groll**, A. Ewald, E. Vorndran: Fabrication of individual alginate-TCP scaffolds for bone tissue engineering by means of powder printing.

Biofabrication 2015, 7, 015004.

88) S. Christ, E. Vorndran, **J. Groll**, U. Gbureck: Fiber reinforcement during 3D Printing.

Materials Letters 2015, 139, 165-168.

87) M. Geffers, J. E. Barralet, **J. Groll**, U. Gbureck: Dual setting brushite-silica gel cements.

Acta Biomaterialia 2015, 11, 467-476.

86) P. Schendzielorz, T. Schmitz, C. Moseke, U. Gbureck, K. Frölich, K. Rak, **J. Groll**, R. Hagen, A. Radeloff: Plasma-Assisted Hydrophilization of Cochlear Implant Electrode Array Surfaces Enables Adhesion of Neurotrophin-Secreting Cells.

ORL 2014, 76, 257–265.

85) G. Hochleitner, J. Hümmer, R. Luxenhofer, **J. Groll***: High definition fibrous poly(2-ethyl-2-oxazoline) scaffolds through melt electrospinning writing.

Polymer 2014, 55, 5017-5023.

84) A. Kasten, T. Naser, K. Brüllhoff, J. Fiedler, P. Müller, M. Möller, J. Rychly, **J. Groll**, R. E. Brenner: Guidance of mesenchymal stem cells on fibronectin structured hydrogel films.

Plos ONE 2014; 9(10):e109411.

83) A. M. Greiner, P. Hoffmann, K. Bruellhoff, S. Jungbauer, J. P. Spatz, M. Moeller, R. Kemkemer, **J. Groll***: Stable Biochemically Micro-patterned Hydrogel Layers on PDMS control specific cell adhesion and Allow Long Term Cyclic Tensile Strain Experiments.

Macromolecular Bioscience 2014, 14(11), 1547-1555.

82) T. Schmitz, F. Warmuth, Ewald Werner, Cornelia Hertl, **J. Groll**, U. Gbureck, C. Moseke: Physical and chemical characterization of Ag-doped Ti coatings produced by magnetron sputtering of modular sputter targets.

Materials Science and Engineering C 2014, 44, 126-131.

81) M. Hütten, A. Dhanasingh, R. Hessler, T. Stöver, K.-H. Esser, M. Möller, T. Lenarz, C. Jolly, **J. Groll***, V. Scheper: In- Vitro and In- Vivo Evaluation of a Hydrogel Reservoir as a Continuous Drug Delivery System for Inner Ear Treatment.

Plos One 2014, 9(8), e104564.

80) T. Christel, M. Geffers, U. Klammert, B. Nies, A. Höß, **J. Groll**, A. C. Kübler, U. Gbureck: Fabrication and cytocompatibility of spherical magnesium ammonium phosphate granules.

Materials Science and Engineering C 2014, 42, 130–136.

79) V.A. Schulte, K. Hahn, A. Dhanasingh, K.-H. Heffels, **J. Groll***: Hydrogel-fibre composites with independent control over cell adhesion to gel and fibres as an integral approach towards a biomimetic artificial ECM.

Biofabrication 2014, 6, 024106.

78) D. Projahn, S. Simseyilmaz, S. Singh, I. Kanzler, B. K. Kramp, M. Langer, A. Burlacu, J. Bernhagen, D. Klee, A. Zerneck, T. M. Hackeng, **J. Groll**, C. Weber, E. A. Liehn, R. R. Koenen: Controlled intramyocardial release of engineered chemokines by biodegradable hydrogels as a treatment approach of myocardial infarction.

Journal of Cellular and Molecular Medicine 2014, 18(5), 790-800.

77) M. J. Kettel, K. Schaefer, **J. Groll**, M. Moeller: Nanogels with high active β -cyclodextrin content as physical coating system with sustained release properties.

ACS Applied Interfaces 2014, 6, 2300–2311.

76) K. Stuckensen, A. Ewald, **J. Groll**, U. Gbureck: In situ formation of multilayer biocomposite with anisotropic crystal orientation.

Materials Letters 2014, 120, 111–114.

75) P. Fernández-Robredo, A. Sancho, S. Johnen, S. Recalde, N. Gama, G. Thumann, **J. Groll**, A. García-Layana: Current Treatment Limitations in Age-Related Macular Degeneration and Future Approaches Based on Cell Therapy and Tissue Engineering.

Journal of Ophthalmology 2014, Article ID 510285, 13 pages.

74) M. Castilho, C. Moseke, A. Ewald, U. Gbureck, **J. Groll**, I. Pires, J. Teßmar, E. Vorndran: Direct 3D powder printing of biphasic calcium phosphate scaffolds for substitution of complex bone defects.

Biofabrication 2014, 6, 015006.

73) S. Singh, F. Topuz, K. Albrecht, **J. Groll**, M. Möller: Stimuli Sensitive Microgels from Native Elastin – an Easy Approach for a Drug Release System.

Advances in polymer science 2013, 262, 415-430.

72) D. Tanaka, D. Buenger, H. Hildebrandt, M. Moeller, **J. Groll***: Unidirectional Control of Anisotropic Wetting through Surface Modification of PDMS Microstructures.

Langmuir 2013, 29(40), 12331–12336.

71) M. Bartneck, K.-H. Heffels, M. Bovi, **J. Groll**, G. Zwadlo-Klarwasser: The role of substrate morphology for the cytokine release profile of immature human primary macrophages.

Materials Science and Engineering C 2013, 33, 5109–5114.

70) M. Castilho, M. Dias, U. Gbureck, **J. Groll**, P. Fernandes, I. Pires, B. Gouveia, J. Rodrigues, E. Vorndran: Fabrication of computationally designed scaffolds by low temperature 3D printing.

Biofabrication 2013, 5, 035012.

69) J. Malda, J. Visser, F.P. Melchels, T. Jüngst, W.E. Hennink, W.J.A. Dhert, **J. Groll**, D.W. Hutmacher: Engineering Hydrogels for Biofabrication.

Advanced Materials 2013, 65(4), 581-603.

68) C. Neuerburg, S. Recknagel, J. Fiedler, **J. Groll**, M. Moeller, K. Bruellhoff, H. Reichel, A. Ignatius, R. E. Brenner: Ultrathin sP(EO-stat-PO) hydrogel coatings are biocompatible and preserve functionality of surface bound growth factors in vivo.

Journal of Materials Science: Materials in Medicine 2013, 24(10), 2417-27.

67) S. Singh, F. Topuz, K. Hahn, K. Albrecht, **J. Groll***: Embedding of Active Proteins and Living Cells in Redox-Sensitive Hydrogels and Nanogels through Enzymatic Cross-Linking.

Angewandte Chemie International Edition 2013, 52(10), 3000–3003.

Angewandte Chemie 2013, 125(10), 3074–3077.

66) F. Jakob, R. Ebert, A. Ignatius, T. Matsushita, Y. Watanabe, **J. Groll**, H. Walles: Bone tissue engineering in osteoporosis.

Maturitas 2013, 75(2), 118-124.

65) K. Harras, R. Krueger, M. Moeller, K. Albrecht, **J. Groll***: Mechanically strong hydrogels with reversible behaviour under cyclic compression with MPa loading.

Soft Matter 2013, 9 (10), 2869 – 2877.

64) S. Wächter, C. Moseke, **J. Groll**, U. Gbureck: Emulsion synthesis of dicalcium phosphate particles for the preparation of calcium phosphate cements with improved compressive strengths and reduced setting times.

BioNanoMat 2013, 14 (1-2), 81-88.

- 63) S. Singh, I. Zilkowski, A. Ewald, T. Maurell-Lopez, M. Moeller, K. Albrecht, **J. Groll***: Mild oxidation of thiofunctional polymers to cytocompatible and stimuli-sensitive hydrogels and nanogels.
Macromolecular Bioscience 2013, 13(4), 470–482.
- 62) C. Moseke, C. Lehmann, T. Schmitz, F. Reinert, **J. Groll**, U. Gbureck: Nanostructuring of Refractory Metal Surfaces by Electrochemical Oxidation: Nb and the Binary Systems Ti-Ta and Nb-Ta.
Current Nanoscience, 2013, 9, 132-138.
- 61) R. Krüger, J.-M. Seitz, A. Ewald, F.-W. Bach, **J. Groll***: Strong and Tough Magnesium Wire Reinforced Phosphate Cement Composites for Load-Bearing Bone Replacement.
Journal of the Mechanical Behavior of Biomedical Materials 2013, 20, 36–44.
- 60) T. Christel, M. Kuhlmann, E. Vorndran, **J. Groll**, U. Gbureck: Dual setting α -tricalcium phosphate cements.
Journal of Materials Science: Materials in Medicine 2013, 24(3), 573-581.
- 59) C. Moseke, M. Gelinsky, **J. Groll**, U. Gbureck: Chemical characterization of hydroxyapatite obtained by wet chemistry in the presence of V, Co, and Cu ions.
Materials Science and Engineering C 2013, 33(3), 1654–1661.
- 58) M. Hoss, T. Šarić, B. Denecke, G. Peinkofer, M. Bovi, **J. Groll**, K. Ko, J. Salber, M. Halbach, H. R. Schöler, M. Zenke, S. Neuss: Expansion and differentiation of germline-derived pluripotent stem cells on biomaterials.
Tissue Engineering Part A 2013, 19(9-10), 1067-1080.
- 57) T. Schmitz, C. Hertl, E. Werner, U. Gbureck, **J. Groll**, C. Moseke: Oxygen diffusion hardening of tantalum coatings on cp-titanium for biomedical applications.
Surface & Coatings Technology 2013, 216, 46–51.
- 56) M. V. Beer, C. Rech, P. Gasteier, B. Sauerzapfe, J. Salber, A. Ewald, M. Möller, L. Elling, **J. Groll***: The Next Step in Biomimetic Material Design: Poly-LacNAc Mediated Reversible Exposure of Extra Cellular Matrix Components.
Advanced Healthcare Materials 2013, 2(2), 306–311.
- 55) B. M. Holzapfel, J. C. Reichert, J.-T. Schantz, U. Gbureck, L. Rackwitz, U. Nöth, F. Jakob, M. Rudert, **J. Groll**, D. W. Hutmacher: How smart do biomaterials need to be? – a translational science and clinical point of view.
Advanced Drug Delivery Reviews 2013, 65(4), 581–603.
- 54) D. Buenger, F. Topuz, **J. Groll***: Hydrogels in Sensing Applications.
Progress in Polymer Science 2012, 37, 1678-1719.
- 53) M. Bartneck, Matthias; T. Ritz, H. Keul, M. Wambach, J. Bornemann, U. Gbureck, J. Ehling, T. Lammers, Twan; F. Heymann, N. Gassler, T. Luedde, C. Trautwein, **J. Groll**, F. Tacke: Peptide-Functionalized Gold Nanorods Increase Liver Injury in Hepatitis.
ACS Nano 2012, 6(10), 8767–8777.
- 52) M. J. Kettel, H. Hildebrandt, K. Schaefer, M. Moeller, **J. Groll***: Tenside Free Preparation of Nanogels with High Functional β -Cyclodextrin Content.
ACS Nano 2012, 6(9), 8087–8093.
- 51) C. Moseke, C. Bayer, E. Vorndran, J. E. Barralet, **J. Groll**, U. Gbureck: Low temperature fabrication of spherical brushite granules by cement paste emulsion.
Journal of Materials Science: Materials in Medicine 2012, 23(11), 2631-2637.

- 50) M. Kuhlmann, S. Singh, **J. Groll***: Controlled ring-opening polymerization of substituted episulfides for side-chain functional polysulfide-based amphiphiles.
Macromolecular Rapid Communications 2012, 33(17), 1482-1486.
- 49) R. Krüger, **J. Groll**: Fiber Reinforced Calcium Phosphate Cements – On the Way to Degradable Load Bearing Bone Substitutes?
Biomaterials 2012, 33, 5887-5900.
- 48) F. Rudnitzki, M. Bever, R. Rahmzadeh, K. Brieger, E. Endl, **J. Groll**, G. Huettmann: Bleaching of Plasmon Resonance Absorption of Gold Nanorods Decreases Efficiency of Cell Destruction.
Journal of Biomedical Optics 2012, 17(5), 058003.
- 47) F. Topuz, A. Henke, W. Richtering, **J. Groll***: Magnesium ions and alginate do form hydrogels: a rheological study.
Soft matter 2012, 8, 4877-4881.
- 46) M. Bartneck, K.-H. Heffels, Y. Pan, M. Bovi, G. Zwadlo-Klarwasser, **J. Groll***: Inducing healing-like human primary macrophage phenotypes by 3D hydrogel coated nanofibres.
Biomaterials 2012, 33, 4136-4146.
- 45) M. Bartneck, H. A. Keul, M. Wambach, J. Bornemann, U. Gbureck, N. Chatain, S. Neuss, F. Tacke, **J. Groll**, G. Zwadlo-Klarwasser: Effects of nanoparticle surface coupled peptides, functional endgroups and charge on intracellular distribution and functionality of human primary reticuloendothelial cells.
Nanomedicine: Nanotechnology, Biology, and Medicine 2012, 8(8), 1282-1292.
- 44) M. Beer, C. Rech, S. Diederichs, K. Hahn, K. Bruellhoff, M. Moeller, L. Elling, **J. Groll***: A hydrogel-based versatile screening platform for specific biomolecular recognition in well plate format.
Analytical and Bioanalytical Chemistry 2012, 403(2), 517-526.
- 43) A. Dhanasingh, **J. Groll***: Polysaccharide based covalently linked multi-membrane hydrogels.
Soft matter 2012, 8(5), 1643-1647.
- 42) T. Luhmann, O. Germershaus, **J. Groll**, L. Meinel: Bone targeting for the treatment of osteoporosis.
Journal of Controlled Release 2012, 161, 198-213.
- 41) F. Jakob, R. Ebert, M. Rudert, U. Nöth, H. Walles, D. Docheva, M. Schieker, L. Meinel, **J. Groll**: In Situ guided tissue regeneration in musculoskeletal diseases and aging.
Cell and Tissue Research 2012, 347(3), 725-35.
- 40) J. Geistlinger, W. Du, **J. Groll**, F. Liu, J. Hoegel, K.J. Foehrl, A. Pasquarelli, M. Schneider: P2RX7 genotype association in severe sepsis identified by anovel multi-array for rapid screening and replication of risk SNPs.
Clinica Chimica Acta 2012, 413(1-2), 39-47.
- 39) Y. Hijikata, S. Horike, D. Tanaka, **J. Groll**, M. Mizuno, J. Kim, M. Takatade, S. Kitagawa: Differences of crystal structure and dynamics between a soft porous nanocrystal and a bulk crystal.
ChemComm 2011, 47, 7632-7634.
- 38) G. Boehm, Y. Ushakova, H.P. Alizai, T. Braunschweig, C. Lente, K.-H. Heffels, **J. Groll**, U.P. Neumann, K. Junge: Biocompatibility of PLGA / sP(EO-stat-PO)-coated mesh surfaces under constant shearing stress.
European Surgical Research 2011, 47(3), 118–129.
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- 37) S. Sinn, M. Eichler, L. Müller, D. Bünger, **J. Groll**, F. K. Gehring, F. Rupp, J. Geis-Gerstorfer, G. Ziemer, H. P. Wendel: NCO-sP(EO-stat-PO) coatings on gold sensors – a QCM study of hemocompatibility.
Sensors 2011, 11(5), 5253-5269.
- 36) D. Grafahrend, K.-H. Heffels, M.V. Beer, P. Gasteier, M. Moeller, G. Boehm, P.D. Dalton, **J. Groll***: Degradable polyester scaffolds with controlled surface chemistry combining minimal protein adsorption with specific bioactivation.
Nature Materials 2011, 10, 67-73.
- 35) A. Ewald, B. Lochner, U. Gbureck, **J. Groll**, R. Krüger: Structural optimization of macroporous magnesium phosphate scaffolds and their cytocompatibility,
Key Engineering Materials 2012; 493-494: 813-819.
- 34) J. Fiedler, **J. Groll**, E. Engelhardt, P. Gasteier, C. Dahmen, H. Kessler, M. Moeller, R. E. Brenner: NCO-sP(EO-stat-PO) surface coatings preserve biochemical properties of RGD peptides.
International Journal of Molecular Medicine 2011, 27(1), 139-145.
- 33) K. Albrecht, M. Moeller, **J. Groll***: Nano- and microgels through addition reactions of functional oligomers and polymers.
Advances in Polymer Science 2010, 234, 65-93.
- 32) A. Kasten, P. Müller, U. Bulnheim, **J. Groll**, K. Bruellhoff, U. Beck, G. Steinhoff, M. Möller, J. Rychly: Mechanical integrin stress and magnetic forces induce biological responses in mesenchymal stem cells which depend on environmental factors.
Journal of Cellular Biochemistry 2010, 111 (6), 1586–1597.
- 31) K. Bruellhoff, J. Fiedler, M. Moeller, **J. Groll**, R. E. Brenner: Surface coating strategies to prevent biofilm formation on implant surfaces.
International Journal of Artificial Organs 2010, 33(9), 646-653.
- 30) **J. Groll***, M. Moeller: Star Polymer Surface Passivation for Single Molecule Detection.
Methods in Enzymology 2010, 472, 1-18.
- 29) K. Klinkhammer, J. Bockelmann, C. Simitzis, G. A. Brook, D. Grafahrend, **J. Groll**, M. Möller, J. Mey, D. Klee: Functionalization of electrospun fibers of poly(ϵ -caprolactone) with star shaped NCO-poly(ethylene glycol)-stat-poly(propylene glycol) for neuronal cell guidance.
J Mater Sci Mater Med. 2010, 21(9), 2637-2651.
- 28) M. Bartneck, H. A. Keul, S. Singh, K. Czaja, J. Bornemann, M. Bockstaller, M. Möller, G. Zwadlo-Klarwasser and **J. Groll***: Rapid uptake of gold nanorods by primary human blood phagocytes and immunomodulatory effects of surface chemistry.
ACS Nano 2010, 4 (6), 3073–3086.
- 27) D. Grafahrend, K.-H. Heffels, M. Möller, D. Klee, **J. Groll**: Electrospun, Biofunctionalized Fibers as Tailored in vitro Substrates for Keratinocyte Cell Culture.
Macromolecular Bioscience 2010, 10(9), 1022-1027.
- 26) K. Gavenis, U. Schneider, **J. Groll**, B. Schmidt-Rohlfing: BMP-7-loaded PGLA microspheres as a new delivery system for the cultivation of human chondrocytes in a collagen type I gel: the common nude mouse model.
International Journal of Artificial Organs 2010, 33(1), 45-53.
- 25) D. Tanaka, A. Henke, K. Albrecht, M. Moeller, K. Nakagawa, S. Kitagawa, **J. Groll***: Rapid Preparation of Flexible Porous Coordination Polymer Nanocrystals with Accelerated Guest Adsorption Kinetics.
Nature Chemistry 2010, 2, 410-416.

- 24) M. Bartneck, H. A. Keul, G. Zwadlo-Klarwasser, **J. Groll***: Phagocytosis Independent Extracellular Nanoparticle Clearance by Human Immune Cells.
NanoLetters 2010, 10, 59-63.
- 23) A. Dhanasingh, J. Salber, M. Moeller, **J. Groll***: Hydrophilic Prepolymer Cross-Linkers for Tailored Hyaluronic Acid Hydrogels.
Soft Matter 2010, 6, 618-629.
- 22) W. Ahmed, T. Wolfram, A. Goldyn, K. Bruellhoff, B. A. Rioja, M. Möller, J. P. Spatz, T. A. Saifa, **J. Groll**, R. Kemkemer: Myoblast morphology and organization on biochemically micropatterned hydrogel coatings under cyclic mechanical strain.
Biomaterials 2010, 31(2), 250-258.
- 21) **J. Groll**, J. Fiedler, K. Bruellhoff, M. Moeller, R. E. Brenner: Novel surface coatings modulating eukaryotic cell adhesion and preventing implant infection.
International Journal of Artificial Organs 2009; 32, 655-662.
- 20) **J. Groll***, S. Singh, K. Albrecht, M. Moeller: Biocompatible and Degradable Nanogels via Oxidation Reactions of Synthetic Thiomers in Inverse Miniemulsion.
Journal of Polymer Science Part A: Polymer Chemistry 2009, 47(20), 5543-5549.
- 19) A. Reska, P. Gasteier, K. Albrecht, P. Schulte, A. Offenhäusser, M. Moeller, **J. Groll***: Ultrathin coatings with reactivity change by time enable functional in vitro networks of insect neurons.
Advanced Materials 2008, 20, 2751-2755.
- 18) P. D. Dalton, C. Hostert, K. Albrecht, M. Moeller, **J. Groll***: Structure and Properties of Urea Crosslinked Star Poly(ethylene oxide-stat-propylene oxide) Hydrogels.
Macromolecular Bioscience 2008, 8, 923-931.
- 17) P. D. Dalton, N. Joergensen, **J. Groll**, M. Moeller: Patterned Melt Electrospun Substrates for Tissue Engineering.
Biomedical Materials 2008, 3, 034109 (11pp).
- 16) K. Albrecht, A. Mourran, X. Zhu, T. Markkula, **J. Groll**, U. Beginn, W. H. de Jeu, M. Moeller: Thin Film Morphologies of Block Copolymers Complexed with Wedge-Shaped Liquid Crystalline Amphiphilic Molecules.
Macromolecules 2008, 41(5), 1728-1738.
- 15) J. Hoffmann, A. Paul, M. Harwardt, **J. Groll**, T. Reeswinkel, D. Klee, M. Moeller, H. Fischer, T. Walker, G. Ziemer, H. P. Wendel: Immobilized DNA Aptamers Used as Potent Attractors for Porcine Endothelial Precursor Cells.
J. Biomed. Mater. Res. Part A 2008, 84A, 614-621.
- 14) J. Salber, S. Gräter, M. Harwardt, M. Hofmann, D. Klee, J. Dujic, H. Jinghuan, J. Ding, S. Kippenberger, A. Bernd, **J. Groll***, J. P. Spatz, M. Möller: Influence of Different ECM Mimetic Peptide Sequences Embedded in a Nonfouling Environment on the Specific Adhesion of Human Skin Keratinocytes and Fibroblasts on Deformable Substrates.
Small 2007, 3(6), 1023-1031.
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Book Chapters

- 4) **J. Groll**, M. Möller: Star Polymers as Biofunctional Coatings. In: "Encyclopedia of Polymeric Nanomaterials". Springer 2015. S. Kobayashi and K. Muellen (Editors).
- 3) K. Harrass, H. Hildebrandt, M. Moeller, **J. Groll**: Tailored macromolecules versus nanoparticles as additives for mechanical reinforcement of NCO-sP(EO-stat-PO) hydrogels. In: "Intelligent Hydrogels". Series: Progress in Colloid and Polymer Science, Vol. 140, Page 77pp. Springer 2013. Sadowski, Gabriele and Richtering, Walter (Editors)
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- 7) **J. Groll**, P.D. Dalton: Biokompatibel aus dem Drucker, *Medizin & Technik* 2014, 06, 44-45.
- 6) A. García-Layana, G. Thumann, **J. Groll**: Age Macular Degeneration: Etiology, Prevention, Individualized Therapies, Cell Therapy, and Tissue Engineering. Editorial of the Special Issue "Age Macular Degeneration: Etiology, Prevention, Individualized Therapies, Cell Therapy, and Tissue Engineering", *Journal of Ophthalmology* 2014, Article ID 287893.
- 5) A. Walther, K. Müllen, **J. Groll**: Makromolekulare Chemie 2011. *Nachrichten aus der Chemie* 2012, 60, 332-345.
- 4) F. Jakob, T. Blunk, **J. Groll**, A. Kübler, D. Kurth, R. Meffert, L. Meinel, M. Rudert, H. Walles: The Future of Ageing. *European Science and Technology* 2011, 13, 210-211.
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> 50 Invited lectures

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Patents

- 10) K. Stuckensen, **J. Groll**, U. Gbureck: Production of materials having an anisotropic structure. *US2014/0350331A1*.
- 9) C. Jolly, R. Hessler, A. Dhanasingh, **J. Groll**: Hydrogel-filled drug delivery reservoirs. *WO2010054308A1*.
- 8) K.-H. Käsler, C. Geismann, R. Wagner, C. Koopmans, G. Hofmüller, M. Möller, **J. Groll**: Hydrophilic Polysiloxane-based coating compositions. *EP2583991A1*.
- 7) M. Moeller, **J. Groll**, M. Eberhardt: Novel biosensor system based on recognition induced birefringence (RIB). *EP2204650A1*.
- 6) H. Rong, P. Greiwe, **J. Groll**, C. Mohr, M. Glesius, M. Moeller: Silyl-functional linear prepolymers production and use thereof. *WO2009024449A1*.
- 5) H. Rong, P. Greiwe, **J. Groll**, C. Mohr, M. Glesius, M. Moeller: Production of multifunctional star prepolymers and mixtures of them for use in coatings, detergents and surface treatment products. *WO2009024450A2*.
- 4) H. Rong, S. Stumpe, M. Lueken, M. Weide, **J. Groll**, P. Greiwe: Cleaning compositions for treating hard surfaces. *WO2008068236A1*.
- 3) H. Rong, **J. Groll**, P. Greiwe, G. Schechner, C. Mohr, M. Möller: Multifunctional star-shaped prepolymers for use in coatings. *WO 2007096056A1*.
- 2) M. Möller, **J. Groll**, T. Ameringer, C. Mourran, H. Rong, S. Levi: Arrays of immobilized biomolecules on hydrogel-forming surfaces, production thereof, and use thereof. *WO2005014695A1*.
- 1) M. Möller, **J. Groll**, H. Rong, S. Levi: Microarrays of immobilized biomolecules, production and use thereof. *WO2005014852A1*.

Third party funded research projects as PI since 08/2010 (sorted by starting date)

German Research Foundation (DFG) funded project GR 3232/1-3

Title: Microheterogeneous and Microporous Hydrogels with improved mechanical stability

Duration: 10/2010 – 12/2012

Funding: 210,000 €

Interdisciplinary Center for Clinical Research (IZKF) funded project D219

Title: Tailored bioactive hydrogels for cartilage regeneration using mesenchymal stem cells

Duration: 01/2011 – 12/2014

Funding: 140,000 €

German-Academic Exchange Service (DAAD) funded PhD-student exchange programme with Prof. Dietmar Hutmacher, QUT Brisbane, Australia (Project ID 54417792)

Title: Bioactive Fibre-Constructs through Melt-Electrospinning

Duration: 01/2012 – 12/2012

Funding: 8,000 €

German Ministry for Science and Education (BMBF) funded project within the collaborative project LAND-CEM (project number 13N11833)

Title: Development of optically addressable nanosystems for cell depletion and drug release

Duration: 07/2012 – 06/2015

Funding: 268,000 €

ERA-NET EuroNanoMed funding within the collaborative project METastase Targeting Aptamers (META, project number 13N12248)

Title: Aptamer-nanoparticle constructs for targeted drug delivery into tumors and metastases

Duration: 08/2012 – 07/2015

Funding: 260,000 €

Coordinator of the EC funded large-IP HydroZONES (FP7, contract number 309962)

Title: Bioactivated hierarchical hydrogels as zonal implants for articular cartilage regeneration

Duration: 01/2013 – 12/2017

project funding: 9,750,000 €

AG Groll funding: 1,440,000 €

EACEA EU ICI-ECP Programme for co-operation in higher education and training (University of Würzburg, University Medical Center Utrecht, University of Brisbane, University of Wollongong)

Title: Biofabrication for future manufacturing

Duration: 10/2013 – 09/2017

project funding 347,500 €

Würzburg funding: 173,750 €

Industry cooperation with Freudenberg

Duration: 01/2014 – 12/2014

Funding: 58,800 €

ERC Consolidator Grant

Title: Design2Heal

Duration: 02/2014 – 01/2019

Funding: 1,994,000 €

German Research Foundation (DFG) funded project GR 3232/3-1

Title: Dual härtende mineralische Zemente mit polymerisierbarer organischer Matrix aus degradierbaren Polymeren

Duration: 07/2014 – 06/2017

Funding: 165,000 €

Total funds raised since 08/2010: 4,717,550 €