

## 2021

S. Nellinger, M. A. Rapp, A. Southan, V. Wittmann, and **P. J. Kluger**. An Advanced 'clickECM' that Can be Modified by the Inverse-Electron Demand Diels-Alder Reaction; *ChemBioChem* 10.1002/cbic.202100266

S. Dani, T. Ahlfeld, F. Albrecht, S. Duin **P. J. Kluger**, A. Lode and M. Gelinsky; Homogeneous and Reproducible Mixing of Highly Viscous Biomaterial Inks and Cell Suspensions to Create Bioinks; *Gels* 2021, 7, 227. <https://doi.org/10.3390/gels7040227>

## 2020

S. Nellinger, I. Schmidt, S. Heine, A.-C. Volz, **P. J. Kluger**. Adipose stem cell-derived extracellular matrix represents a promising biomaterial by inducing spontaneous formation of prevascular-like structures by mvECs; *Biotechnology and Bioengineering*. 2020;117:3160–3172. DOI: 10.1002/bit.27481

S. Keller, A. Liedek, D. Shendi, M. Bach, G. E. M. Tovar, **P. J. Kluger** and A. Southan. Eclectic characterisation of chemically modified cell-derived matrices obtained by metabolic glycoengineering and re-assessment of commonly used methods; *RSC Adv.*, 2020, 10, 35273 DOI: 10.1039/d0ra06819e

F. F. Schmidt, S. Nowakowski and **P. J. Kluger**. Improvement of a Three-Layered in vitro Skin Model for Topical Application of Irritating Substances; *Front. Bioeng. Biotechnol.*, 08 May 2020 <https://doi.org/10.3389/fbioe.2020.00388>

A. Leucht, A.-C. Volz, J. Rogal, K. Borchers & **P. J. Kluger**. Advanced gelatin-based vascularization bioinks for extrusion-based bioprinting of vascularized bone equivalents. *Sci Rep* 10, 5330 (2020). <https://doi.org/10.1038/s41598-020-62166-w>

S. Keller, K. Wörgötter, A. Liedek, **P. J. Kluger**, M. Bach, G. E. M. Tovar, and A. Southan. Azide-Functional Extracellular Matrix Coatings as a Bioactive Platform for Bioconjugation; *ACS Applied Materials & Interfaces* 2020 12 (24), 26868-26879 DOI: 10.1021/acsami.0c04579

S. Keller, T. Bakker, B. Kimmel, L. Rebers, T. Götz, G. E. M. Tovar, **P. J. Kluger**, A. Southan. Azido-functionalized gelatin via direct conversion of lysine amino groups by diazo transfer as a building block for biofunctional hydrogels; *J Biomed Mater Res*. 2021;109:77–91. <https://doi.org/10.1002/jbm.a.37008>

**P. J. Kluger**, S. Nellinger, S. Heine and A.-C. Volz. Cell-derived Extracellular Matrix as maintaining Biomaterial for adipogenic differentiation; *Current Directions in Biomedical Engineering*, vol. 6, no. 3, 2020, pp. 410-413. <https://doi.org/10.1515/cdbme-2020-3106>

## 2019

S. Nellinger, S. Keller, A. Southan, **P.J. Kluger**. Generation of an azide-modified extracellular matrix by adipose-derived stem cells using metabolic glycoengineering. *Current Directions in Biomedical Engineering*, 5(1), pp. 393-395. 2019, <https://doi.org/10.1515/cdbme-2019-0099>

A.-C. Volz, B. Omengo, S. Gehrke, **P. J. Kluger**. Comparing the use of differentiated adipose-derived stem cells and mature adipocytes to model adipose tissue in vitro; *Differentiation*, Volume 110, 2019, Pages 19-28, ISSN 0301-4681, <https://doi.org/10.1016/j.diff.2019.09.002>.

C. Kleinhans, L. Schmohl, J. Barz, **P.J. Kluger**. Low-pressure plasma activation enables enhanced adipose-derived stem cell adhesion. *J Biomed Mater Res.* 2019; 1– 9. <https://doi.org/10.1002/jbm.b.34500>

## 2018

A. Wenz, I. Tjoeng, I. Schneider, **P. J. Kluger**, K. Borchers. Improved vasculogenesis and bone matrix formation through coculture of endothelial cells and stem cells in tissue-specific methacryloyl gelatin-based hydrogels; *Biotechnol Bioeng.* 10/2018; DOI:[10.1002/bit.26792](https://doi.org/10.1002/bit.26792)

A.-C. Volz, L. Hack, **P. J. Kluger**: A Cellulose-based material for vascularized adipose tissue engineering; *J Biomed Mater Res B.* 09/2018; DOI:[10.1002/jbm.b.34235](https://doi.org/10.1002/jbm.b.34235)

B. Huber, E. Hoch, I. Calderon, K. Borchers, **P. J. Kluger**: A versatile perfusion bioreactor and endothelializable photo cross-linked tubes of gelatin methacryloyl as promising tools in tissue engineering; *Biomedizinische Technik. Biomedical engineering.* 08/2018; DOI:[10.1515/bmt-2018-0015](https://doi.org/10.1515/bmt-2018-0015)

E. Novosel; K. Borchers; **P. J. Kluger**; A. Mantalaris; G. Matheis; M. Pistolesi; J. Schneider; A. Wenz; P. I. Lelkes: New Approaches to Respiratory Assist: Bioengineering an Ambulatory Miniaturized Bioartificial Lung; *ASAIO J.* 06/2018; DOI:[10.1097/MAT.0000000000000841](https://doi.org/10.1097/MAT.0000000000000841)

A.-C. Volz, L. Hack, F. B. Atzinger, **P. J. Kluger**: Completely defined co-culture of adipogenic differentiated ASCs and microvascular endothelial cells; *ALTEX* 04/2018; DOI:[10.14573/altex.1802191](https://doi.org/10.14573/altex.1802191)

F. V. Schmid, C. Kleinhans, F. F. Schmid, **P. J. Kluger**: Osteoclast Formation within a Human Co-Culture System on Bone Material as an In Vitro Model for Bone Remodeling Processes; *Journal of Functional Morphology and Kinesiology* 03/2018; DOI:[10.3390/jfmk3010017](https://doi.org/10.3390/jfmk3010017)

A.-C. Volz and **P. J. Kluger**: Completely serum-free and chemically defined adipocyte development and maintenance; *Cytotherapy* 02/2018; DOI:[10.1016/j.jcyt.2018.01.004](https://doi.org/10.1016/j.jcyt.2018.01.004)

S. Shkarina, R. Shkarin, V. Weinhardt, E. Melnik, G. Vacun, **P. J. Kluger**, K. Loza, M. Eppe, S. I. Ivlev, T. Baumbach, M. A. Surmeneva und R. A. Surmenev. 3D biodegradable scaffolds of polycaprolactone with silicate-containing hydroxyapatite microparticles for bone tissue engineering: high-resolution tomography and in vitro study; *Scientific Reports* Volume 8, Article number: 8907 DOI:[10.1038/s41598-018-27097-7](https://doi.org/10.1038/s41598-018-27097-7)

## 2017

A.-C. Volz, B. Huber, A. M. Schwandt, **P. J. Kluger**. EGF and hydrocortisone as critical factors for the co-culture of adipogenic differentiated ASCs and endothelial cells; *Differentiation* 2017 DOI: [10.1016/j.diff.2017.01.002](https://doi.org/10.1016/j.diff.2017.01.002)

A. Wenz, K. Borchers, G. EM Tovar, **P. J. Kluger**. Bone matrix production in hydroxyapatite-modified hydrogels suitable for bone bioprinting *IOP Science* 10.1088/1758-5090/aa91ec

## 2016

B. Huber, A.M. Czaja, **P.J. Kluger**: Influence of epidermal growth factor (EGF) and hydrocortisone on the co-culture of mature adipocytes and endothelial cells for vascularized adipose tissue engineering. *Cell Biology International* 02/2016; 40(5). DOI:10.1002/cbin.10595

A. Wenz, K. Janke, E. Hoch, G. EM Tovar, K. Borchers, **P. J. Kluger**. Hydroxyapatite-modified gelatin bioinks for bone bioprinting. *BioNanoMaterials*. 2016 May 17, (3-4), 179–184

A-C Volz, B Huber, **P. J. Kluger**. Adipose-derived stem cell differentiation as a basic tool for vascularized adipose tissue engineering. *Differentiation*. 2016 Jul-Aug;92(1-2):52-64. doi: 10.1016/j.diff.2016.02.003.

B Huber, S Engelhardt, W Meyer, H Krüger, A Wenz, V Schönhaar, GEM Tovar, **P. J. Kluger**, K Borchers: Blood-Vessel Mimicking Structures by Stereolithographic Fabrication of Small Porous Tubes Using Cytocompatible Polyacrylate Elastomers, Biofunctionalization and Endothelialization.04/2016; 7(2). DOI:10.3390/jfb7020011

B Huber, A Link, K Linke, SA Gehrke, M Winnefeld, **P. J. Kluger**: Integration of mature adipocytes to build-up a functional three-layered full-skin equivalent. *Tissue Engineering Part C Methods* 06/2016; DOI:10.1089/ten.TEC.2016.0141

SM Ruff, S Keller, D Wieland, V Wittmann, GEM Tovar, M Bach, **P. J. Kluger**. clickECM: Development of a cell-derived extracellular matrix with azide functionalities. *Acta biomaterialia*. 2016 Dec 10. pii: S1742-7061(16)30690-0. doi: 10.1016/j.actbio.2016.12.022.

A Wenz, K Janke, E Hoch, GEM Tovar, K Borchers, **PJ Kluger**: Hydroxyapatitemodified gelatin bioinks for bone bioprinting. *BioNanoMaterials* 01/2016; DOI:10.1515/bnm-2015-0018 7

B Huber, A-C Volz, **PJ Kluger**: Understanding the cross-talk of mature adipocytes and endothelial cells in physiological fatty tissue for vascularized adipose tissue engineering. 08/2015, *Cell and Tissue Res*; DOI: 10.1007/s00441-015-2274-9

MA Surmeneva, C Kleinhans, G Vacun, **PJ Kluger**, V Schönhaar, M Müller, SB Hein, A Wittmar, M Ulbricht, O Prymak, C Oehr, RA Surmenev: Nano-hydroxyapatitecoated metal-ceramic composite of iron-tricalcium phosphate: Improving the surface wettability, adhesion and proliferation of mesenchymal stem cells in vitro. *Colloids Surf B Biointerfaces*. 11/2015; 135: 386–393; DOI: 10.1016/j.colsurfb.2015.07.057.

B Huber and **PJ Kluger**: Decelerating mature adipocyte dedifferentiation by media composition. *Tissue Engineering Part C Methods* 09/2015; DOI:10.1089/ten.TEC.2015.0166

B Huber, A-C Volz, **PJ Kluger**: How do culture media influence in vitro perivascular cell behavior? *Cell Biology International* 07/2015; DOI:10.1002/cbin.10515

B Huber, K Borchers, GEM Tovar, **PJ Kluger**: Methacrylated gelatin and mature adipocytes are promising components for adipose tissue engineering. *Journal of Biomaterials Applications* 05/2015; DOI:10.1177/0885328215587450

C Kleinhans, RR Mohan, G Vacun, T Schwarz, B Haller, Y Sun, A Kahlig, **PJ Kluger**, A FinneWistrand, H Walles, J Hansmann: A perfusion bioreactor system efficiently generates cell-loaded bone substitute materials for addressing critical size bone defects. *Biotechnology Journal* 05/2015; DOI:10.1002/biot.201400813

C Kleinhans, G Vacun, R Surmenev, M Surmeneva, **PJ Kluger**: Testing the in vitro performance of hydroxyapatite coated magnesium (AZ91D) and titanium concerning cell adhesion and osteogenic differentiation. 01/2015; DOI:10.1515/bnm-2015-0002

C Kleinhans, FF Schmid, FV Schmid, **PJ Kluger**: Comparison of osteoclastogenesis and resorption activity of human osteoclasts on tissue culture polystyrene and on natural extracellular bone matrix in 2D and 3D. *Journal of Biotechnology* 01/2015; 205: 101–110 205.  
DOI:10.1016/j.jbiotec.2014.11.039

## 2013

Kleinhans, C.; Barz, J.; Wurster, S.; Willig, M.; Oehr, C.; Müller, M.; Walles, H.; Hirth, T.; **Kluger, P.J.**: Ammonia plasma treatment of polystyrene surfaces enhances proliferation of primary human mesenchymal stem cells and human endothelial cells; *Biotechnology journal* 8 (2013), No.3, pp.327-337

Hagel, V.; Mateescu, M.; Southan, A.; Wegner, S.V.; Nuss, I.; Haraszti, T.; Kleinhans, C.; Schuh, C.; Spatz, J.P.; **Kluger, P.J.**; Bach, M.; Tussetschläger, S.; Tovar, G.E.M.; Laschat, S.; Boehm, H.: Desmosine- inspired cross-linkers for hyaluronan hydrogels; *Scientific Reports* 3 (2013), Art. 2043, 5 pp.

## 2012

Southan, A.; Mateescu, M.; Hagel, V.; Bach, M.; Schuh, C.; Kleinhans, C.; **Kluger, P.J.**; Tussetschläger, S.; Nuss, I.; Haraszti, T.; Wegner, S.V.; Spatz, J.P.; Boehm, H.; Laschat, S.; Tovar, G.E.M.: Toward controlling the formation, degradation behavior, and properties of hydrogels synthesized by Aza-Michael reactions; *Macromolecular chemistry and physics* 214 (2013), No.16, pp.1865-187

## 2011

Schleicher, M.; Hansmann, J.; Elkin, B.; **Kluger, P.J.**; Liebscher, S.; Huber, A.J.T.; Fritze, O.; Schille, C.; Müller, M.; Schenke-Layland, K.; Seifert, M.; Walles, H.; Wendel, H.-P.; Stock, U.A.: Oligonucleotide and parylene surface coating of polystyrene and ePTFE for improved endothelial cell attachment and hemocompatibility *International journal of biomaterials. Online journal* (2012), Art. 397813, 14 S.

Novosel E.C., Meyer W., Klechowicz N., Krüger H., Wegener M., Tovar G.E.M., Walles H., Hirth T. and **Kluger PJ**: “Evaluation of Cell-Material Interactions on Newly Designed, Printable Polymers for Tissue Engineering Applications”, *Advanced Engineering Materials* Vol. 13, Issue 12, S. B467–B475

## 2010

Novosel E.C., Kleinhans C. and **Kluger PJ**: “Vascularization is the Key Challenge in Tissue Engineering”, *Advanced drug delivery reviews*, Vol. 63, Issue.4-5, S.300-311

**Kluger P.J.**, Wyrwa R., Weisser J., Maierle J. Votteler M., Rode C., Schnabelrauch M. Walles H. and Schenke-Layland K.: “Electrospun Non- Woven Matrix of Poly(D/L-lactide-co-L-lactide) – A Suitable Scaffold Material for Soft Tissue Engineering”; *J Mater Sci Mater Med.*; Vol. 21; S. 2665-71