

# Matthias P Lutolf

## List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

76 papers	10,815 citations	46 h-index	81 g-index
81 ext. papers	12,859 ext. citations	15.8 avg, IF	6.79 L-index

#	Paper	IF	Citations
76	Designing materials to direct stem-cell fate. <i>Nature</i> , <b>2009</b> , 462, 433-41	50.4	1162
75	Repair of bone defects using synthetic mimetics of collagenous extracellular matrices. <i>Nature Biotechnology</i> , <b>2003</b> , 21, 513-8	44.5	730
74	Designer matrices for intestinal stem cell and organoid culture. <i>Nature</i> , <b>2016</b> , 539, 560-564	50.4	715
73	NAD <sup>+</sup> repletion improves mitochondrial and stem cell function and enhances life span in mice. <i>Science</i> , <b>2016</b> , 352, 1436-43	33.3	645
72	Cell-demanded release of VEGF from synthetic, biointeractive cell ingrowth matrices for vascularized tissue growth. <i>FASEB Journal</i> , <b>2003</b> , 17, 2260-2	0.9	466
71	Bioengineered 3D platform to explore cell-ECM interactions and drug resistance of epithelial ovarian cancer cells. <i>Biomaterials</i> , <b>2010</b> , 31, 8494-506	15.6	455
70	Progress and potential in organoid research. <i>Nature Reviews Genetics</i> , <b>2018</b> , 19, 671-687	30.1	354
69	Artificial niche microarrays for probing single stem cell fate in high throughput. <i>Nature Methods</i> , <b>2011</b> , 8, 949-55	21.6	343
68	Heparin-binding domain of fibrin(ogen) binds growth factors and promotes tissue repair when incorporated within a synthetic matrix. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2013</b> , 110, 4563-8	11.5	335
67	Metabolic control of adult neural stem cell activity by Fasn-dependent lipogenesis. <i>Nature</i> , <b>2013</b> , 493, 226-30	50.4	320
66	Protein delivery from materials formed by self-selective conjugate addition reactions. <i>Journal of Controlled Release</i> , <b>2001</b> , 76, 11-25	11.7	312
65	Biopolymeric delivery matrices for angiogenic growth factors. <i>Cardiovascular Pathology</i> , <b>2003</b> , 12, 295-310	10	295
64	Three-dimensional extracellular matrix-directed cardioprogenitor differentiation: systematic modulation of a synthetic cell-responsive PEG-hydrogel. <i>Biomaterials</i> , <b>2008</b> , 29, 2757-66	15.6	264
63	In situ cell manipulation through enzymatic hydrogel photopatterning. <i>Nature Materials</i> , <b>2013</b> , 12, 1072-87	15.6	244
62	Biomolecular hydrogels formed and degraded via site-specific enzymatic reactions. <i>Biomacromolecules</i> , <b>2007</b> , 8, 3000-7	6.9	234
61	The effect of matrix characteristics on fibroblast proliferation in 3D gels. <i>Biomaterials</i> , <b>2010</b> , 31, 8454-64	15.6	230
60	Microdrop printing of hydrogel bioinks into 3D tissue-like geometries. <i>Advanced Materials</i> , <b>2012</b> , 24, 391-6	24	197

59	The hope and the hype of organoid research. <i>Development (Cambridge)</i> , <b>2017</b> , 144, 938-941	6.6	191
58	Enzymatic formation of modular cell-instructive fibrin analogs for tissue engineering. <i>Biomaterials</i> , <b>2007</b> , 28, 3856-66	15.6	184
57	Bovine primary chondrocyte culture in synthetic matrix metalloproteinase-sensitive poly(ethylene glycol)-based hydrogels as a scaffold for cartilage repair. <i>Tissue Engineering</i> , <b>2004</b> , 10, 515-22		176
56	Homeostatic mini-intestines through scaffold-guided organoid morphogenesis. <i>Nature</i> , <b>2020</b> , 585, 574-578.4	38.4	162
55	Perturbation of single hematopoietic stem cell fates in artificial niches. <i>Integrative Biology (United Kingdom)</i> , <b>2009</b> , 1, 59-69	3.7	156
54	Drug discovery through stem cell-based organoid models. <i>Advanced Drug Delivery Reviews</i> , <b>2014</b> , 69-70, 19-28	18.5	141
53	Biomimetic hydrogels for controlled biomolecule delivery to augment bone regeneration. <i>Advanced Drug Delivery Reviews</i> , <b>2012</b> , 64, 1078-89	18.5	134
52	Neural tube morphogenesis in synthetic 3D microenvironments. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2016</b> , 113, E6831-E6839	11.5	130
51	Engineering Stem Cell Self-organization to Build Better Organoids. <i>Cell Stem Cell</i> , <b>2019</b> , 24, 860-876	18	128
50	Integration column: microwell arrays for mammalian cell culture. <i>Integrative Biology (United Kingdom)</i> , <b>2009</b> , 1, 625-34	3.7	118
49	In Situ Patterning of Microfluidic Networks in 3D Cell-Laden Hydrogels. <i>Advanced Materials</i> , <b>2016</b> , 28, 7450-6	24	112
48	Engineering organoids. <i>Nature Reviews Materials</i> , <b>2021</b> , 1-19	73.3	112
47	Bioengineering approaches to guide stem cell-based organogenesis. <i>Development (Cambridge)</i> , <b>2014</b> , 141, 1794-804	6.6	100
46	Predicting stem cell fate changes by differential cell cycle progression patterns. <i>Development (Cambridge)</i> , <b>2013</b> , 140, 459-70	6.6	98
45	High-throughput automated organoid culture via stem-cell aggregation in microcavity arrays. <i>Nature Biomedical Engineering</i> , <b>2020</b> , 4, 863-874	19	86
44	The NAD-Booster Nicotinamide Riboside Potently Stimulates Hematopoiesis through Increased Mitochondrial Clearance. <i>Cell Stem Cell</i> , <b>2019</b> , 24, 405-418.e7	18	81
43	Synthesis and characterization of well-defined hydrogel matrices and their application to intestinal stem cell and organoid culture. <i>Nature Protocols</i> , <b>2017</b> , 12, 2263-2274	18.8	69
42	Engineered signaling centers for the spatially controlled patterning of human pluripotent stem cells. <i>Nature Methods</i> , <b>2019</b> , 16, 640-648	21.6	69

41	Enhancing the reliability and throughput of neurosphere culture on hydrogel microwell arrays. <i>Stem Cells</i> , <b>2008</b> , 26, 2586-94	5.8	68
40	Integration column: artificial ECM: expanding the cell biology toolbox in 3D. <i>Integrative Biology (United Kingdom)</i> , <b>2009</b> , 1, 235-41	3.7	66
39	Biomaterials meet microfluidics: building the next generation of artificial niches. <i>Current Opinion in Biotechnology</i> , <b>2011</b> , 22, 690-7	11.4	64
38	Capturing Cardiogenesis in Gastruloids. <i>Cell Stem Cell</i> , <b>2021</b> , 28, 230-240.e6	18	62
37	Stem cell niche engineering through droplet microfluidics. <i>Current Opinion in Biotechnology</i> , <b>2015</b> , 35, 86-93	11.4	60
36	Tailoring hydrogel degradation and drug release via neighboring amino acid controlled ester hydrolysis. <i>Soft Matter</i> , <b>2009</b> , 5, 440-446	3.6	55
35	Micropatterning of hydrogels by soft embossing. <i>Langmuir</i> , <b>2009</b> , 25, 8774-9	4	51
34	High-throughput approaches for the analysis of extrinsic regulators of stem cell fate. <i>Current Opinion in Cell Biology</i> , <b>2012</b> , 24, 236-44	9	50
33	Mechano-modulatory synthetic niches for liver organoid derivation. <i>Nature Communications</i> , <b>2020</b> , 11, 3416	17.4	49
32	A high-capacity cell macroencapsulation system supporting the long-term survival of genetically engineered allogeneic cells. <i>Biomaterials</i> , <b>2014</b> , 35, 779-91	15.6	46
31	3D Inkjet Printing of Complex, Cell-Laden Hydrogel Structures. <i>Scientific Reports</i> , <b>2018</b> , 8, 17099	4.9	46
30	The heparin binding domain of von Willebrand factor binds to growth factors and promotes angiogenesis in wound healing. <i>Blood</i> , <b>2019</b> , 133, 2559-2569	2.2	44
29	A versatile approach to engineering biomolecule-presenting cellular microenvironments. <i>Advanced Healthcare Materials</i> , <b>2013</b> , 2, 292-6	10.1	36
28	Microscale patterning of hydrogel stiffness through light-triggered uncaging of thiols. <i>Biomaterials Science</i> , <b>2014</b> , 2, 1640-1651	7.4	35
27	Cell specific ingrowth hydrogels. <i>Biomaterials</i> , <b>2013</b> , 34, 6797-803	15.6	31
26	The Effect of Thiol Structure on Allyl Sulfide Photodegradable Hydrogels and their Application as a Degradable Scaffold for Organoid Passaging. <i>Advanced Materials</i> , <b>2020</b> , 32, e1905366	24	26
25	High-throughput clonal analysis of neural stem cells in microarrayed artificial niches. <i>Integrative Biology (United Kingdom)</i> , <b>2012</b> , 4, 391-400	3.7	26
24	Multiscale microenvironmental perturbation of pluripotent stem cell fate and self-organization. <i>Scientific Reports</i> , <b>2017</b> , 7, 44711	4.9	25

23	Single-cell analyses identify bioengineered niches for enhanced maintenance of hematopoietic stem cells. <i>Nature Communications</i> , <b>2017</b> , 8, 221	17.4	25
22	Synthetic 3D PEG-Anisogel Tailored with Fibronectin Fragments Induce Aligned Nerve Extension. <i>Biomacromolecules</i> , <b>2019</b> , 20, 4075-4087	6.9	24
21	Patterning of cell-instructive hydrogels by hydrodynamic flow focusing. <i>Lab on A Chip</i> , <b>2013</b> , 13, 2099-105.2	10.2	21
20	Biomimetic PEG hydrogels crosslinked with minimal plasmin-sensitive tri-amino acid peptides. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2010</b> , 93, 870-7	5.4	21
19	Antiangiogenic immunotherapy suppresses desmoplastic and chemoresistant intestinal tumors in mice. <i>Journal of Clinical Investigation</i> , <b>2020</b> , 130, 1199-1216	15.9	19
18	Live mammalian cell arrays. <i>Nature Methods</i> , <b>2013</b> , 10, 550-2	21.6	18
17	Synthetic dynamic hydrogels promote degradation-independent in vitro organogenesis. <i>Nature Materials</i> , <b>2021</b> ,	27	15
16	Low-Defect Thiol-Michael Addition Hydrogels as Matrigel Substitutes for Epithelial Organoid Derivation. <i>Advanced Functional Materials</i> , <b>2020</b> , 30, 2000761	15.6	14
15	Next-generation cancer organoids. <i>Nature Materials</i> , <b>2021</b> ,	27	13
14	Hydrogel Microwell Arrays Allow the Assessment of Protease-Associated Enhancement of Cancer Cell Aggregation and Survival. <i>Microarrays (Basel, Switzerland)</i> , <b>2013</b> , 2, 208-27		9
13	Bioengineering in vitro models of embryonic development. <i>Stem Cell Reports</i> , <b>2021</b> , 16, 1104-1116	8	8
12	A generic strategy for pharmacological caging of growth factors for tissue engineering. <i>Chemical Communications</i> , <b>2013</b> , 49, 5927-9	5.8	7
11	Robust Phase Unwrapping via Deep Image Prior for Quantitative Phase Imaging. <i>IEEE Transactions on Image Processing</i> , <b>2021</b> , 30, 7025-7037	8.7	7
10	High-throughput stem cell-based phenotypic screening through microniches. <i>Biomaterials Science</i> , <b>2019</b> , 7, 3471-3479	7.4	6
9	Extracellular matrix bioengineering and systems biology approaches in liver disease. <i>Systems and Synthetic Biology</i> , <b>2011</b> , 5, 11-20		6
8	Machine Learning of Hematopoietic Stem Cell Divisions from Paired Daughter Cell Expression Profiles Reveals Effects of Aging on Self-Renewal. <i>Cell Systems</i> , <b>2020</b> , 11, 640-652.e5	10.6	5
7	A Single Metabolite which Modulates Lipid Metabolism Alters Hematopoietic Stem/Progenitor Cell Behavior and Promotes Lymphoid Reconstitution. <i>Stem Cell Reports</i> , <b>2020</b> , 15, 566-576	8	4
6	Employing Microfluidic Devices to Induce Concentration Gradients <b>2017</b> , 429-442		4

5	Artificial niche microarrays for identifying extrinsic cell-fate determinants. <i>Methods in Cell Biology</i> , <b>2018</b> , 148, 51-69	1.8	4
4	Embryonic organoids recapitulate early heart organogenesis		3
3	Mammary epithelial morphogenesis in 3D combinatorial microenvironments. <i>Scientific Reports</i> , <b>2020</b> , 10, 21635	4.9	2
2	Gastruloids as in vitro models of embryonic blood development with spatial and temporal resolution		1
1	Synthetic Biomaterials as Cell-Responsive Artificial Extracellular Matrices <b>2008</b> , 255-278		