Matthias P Lutolf

List of Publications by Year in Descending Order

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	Synthetic dynamic hydrogels promote degradation-independent in vitro organogenesis. *Nature Materials*, **2021**,	27	15
75	Bioengineering in vitro models of embryonic development. *Stem Cell Reports*, **2021**, 16, 1104-1116	8	8
74	Capturing Cardiogenesis in Gastruloids. *Cell Stem Cell*, **2021**, 28, 230-240.e6	18	62
73	Engineering organoids. *Nature Reviews Materials*, **2021**, 1-19	73.3	112
72	Next-generation cancer organoids. *Nature Materials*, **2021**,	27	13
71	Robust Phase Unwrapping via Deep Image Prior for Quantitative Phase Imaging. *IEEE Transactions on Image Processing*, **2021**, 30, 7025-7037	8.7	7
70	A Single Metabolite which Modulates Lipid Metabolism Alters Hematopoietic Stem/Progenitor Cell Behavior and Promotes Lymphoid Reconstitution. *Stem Cell Reports*, **2020**, 15, 566-576	8	4
69	Machine Learning of Hematopoietic Stem Cell Divisions from Paired Daughter Cell Expression Profiles Reveals Effects of Aging on Self-Renewal. *Cell Systems*, **2020**, 11, 640-652.e5	10.6	5
68	The Effect of Thiol Structure on Allyl Sulfide Photodegradable Hydrogels and their Application as a Degradable Scaffold for Organoid Passaging. *Advanced Materials*, **2020**, 32, e1905366	24	26
67	Low-Defect Thiol-Michael Addition Hydrogels as Matrigel Substitutes for Epithelial Organoid Derivation. *Advanced Functional Materials*, **2020**, 30, 2000761	15.6	14
66	High-throughput automated organoid culture via stem-cell aggregation in microcavity arrays. *Nature Biomedical Engineering*, **2020**, 4, 863-874	19	86
65	Antiangiogenic immunotherapy suppresses desmoplastic and chemoresistant intestinal tumors in mice. *Journal of Clinical Investigation*, **2020**, 130, 1199-1216	15.9	19
64	Mechano-modulatory synthetic niches for liver organoid derivation. *Nature Communications*, **2020**, 11, 3416	17.4	49
63	Homeostatic mini-intestines through scaffold-guided organoid morphogenesis. *Nature*, **2020**, 585, 574-578	38.4	162
62	Mammary epithelial morphogenesis in 3D combinatorial microenvironments. *Scientific Reports*, **2020**, 10, 21635	4.9	2
61	Engineered signaling centers for the spatially controlled patterning of human pluripotent stem cells. *Nature Methods*, **2019**, 16, 640-648	21.6	69
60	Engineering Stem Cell Self-organization to Build Better Organoids. *Cell Stem Cell*, **2019**, 24, 860-876	18	128

59	The NAD-Booster Nicotinamide Riboside Potently Stimulates Hematopoiesis through Increased Mitochondrial Clearance. *Cell Stem Cell*, **2019**, 24, 405-418.e7	18	81
58	The heparin binding domain of von Willebrand factor binds to growth factors and promotes angiogenesis in wound healing. *Blood*, **2019**, 133, 2559-2569	2.2	44
57	High-throughput stem cell-based phenotypic screening through microniches. *Biomaterials Science*, **2019**, 7, 3471-3479	7.4	6
56	Synthetic 3D PEG-Anisogel Tailored with Fibronectin Fragments Induce Aligned Nerve Extension. *Biomacromolecules*, **2019**, 20, 4075-4087	6.9	24
55	3D Inkjet Printing of Complex, Cell-Laden Hydrogel Structures. *Scientific Reports*, **2018**, 8, 17099	4.9	46
54	Artificial niche microarrays for identifying extrinsic cell-fate determinants. *Methods in Cell Biology*, **2018**, 148, 51-69	1.8	4
53	Progress and potential in organoid research. *Nature Reviews Genetics*, **2018**, 19, 671-687	30.1	354
52	The hope and the hype of organoid research. *Development (Cambridge)*, **2017**, 144, 938-941	6.6	191
51	Multiscale microenvironmental perturbation of pluripotent stem cell fate and self-organization. *Scientific Reports*, **2017**, 7, 44711	4.9	25
50	Synthesis and characterization of well-defined hydrogel matrices and their application to intestinal stem cell and organoid culture. *Nature Protocols*, **2017**, 12, 2263-2274	18.8	69
49	Single-cell analyses identify bioengineered niches for enhanced maintenance of hematopoietic stem cells. *Nature Communications*, **2017**, 8, 221	17.4	25
48	Employing Microfluidic Devices to Induce Concentration Gradients **2017**, 429-442		4
47	Designer matrices for intestinal stem cell and organoid culture. *Nature*, **2016**, 539, 560-564	50.4	715
46	Neural tube morphogenesis in synthetic 3D microenvironments. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, E6831-E6839	11.5	130
45	In Situ Patterning of Microfluidic Networks in 3D Cell-Laden Hydrogels. *Advanced Materials*, **2016**, 28, 7450-6	24	112
44	NAD+ repletion improves mitochondrial and stem cell function and enhances life span in mice. *Science*, **2016**, 352, 1436-43	33.3	645
43	Stem cell niche engineering through droplet microfluidics. *Current Opinion in Biotechnology*, **2015**, 35, 86-93	11.4	60
42	Bioengineering approaches to guide stem cell-based organogenesis. *Development (Cambridge)*, **2014**, 141, 1794-804	6.6	100

41	Drug discovery through stem cell-based organoid models. *Advanced Drug Delivery Reviews*, **2014**, 69-70, 19-28	18.5	141
40	Microscale patterning of hydrogel stiffness through light-triggered uncaging of thiols. *Biomaterials Science*, **2014**, 2, 1640-1651	7.4	35
39	A high-capacity cell macroencapsulation system supporting the long-term survival of genetically engineered allogeneic cells. *Biomaterials*, **2014**, 35, 779-91	15.6	46
38	A generic strategy for pharmacological caging of growth factors for tissue engineering. *Chemical Communications*, **2013**, 49, 5927-9	5.8	7
37	In situ cell manipulation through enzymatic hydrogel photopatterning. *Nature Materials*, **2013**, 12, 1072-8	27	244
36	A versatile approach to engineering biomolecule-presenting cellular microenvironments. *Advanced Healthcare Materials*, **2013**, 2, 292-6	10.1	36
35	Metabolic control of adult neural stem cell activity by Fasn-dependent lipogenesis. *Nature*, **2013**, 493, 226-30	50.4	320
34	Predicting stem cell fate changes by differential cell cycle progression patterns. *Development (Cambridge)*, **2013**, 140, 459-70	6.6	98
33	Cell specific ingrowth hydrogels. *Biomaterials*, **2013**, 34, 6797-803	15.6	31
32	Live mammalian cell arrays. *Nature Methods*, **2013**, 10, 550-2	21.6	18
31	Patterning of cell-instructive hydrogels by hydrodynamic flow focusing. *Lab on A Chip*, **2013**, 13, 2099-105	7.2	21
30	Heparin-binding domain of fibrin(ogen) binds growth factors and promotes tissue repair when incorporated within a synthetic matrix. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 4563-8	11.5	335
29	Hydrogel Microwell Arrays Allow the Assessment of Protease-Associated Enhancement of Cancer Cell Aggregation and Survival. *Microarrays (Basel, Switzerland)*, **2013**, 2, 208-27		9
28	Microdrop printing of hydrogel bioinks into 3D tissue-like geometries. *Advanced Materials*, **2012**, 24, 391-6	24	197
27	Biomimetic hydrogels for controlled biomolecule delivery to augment bone regeneration. *Advanced Drug Delivery Reviews*, **2012**, 64, 1078-89	18.5	134
26	High-throughput clonal analysis of neural stem cells in microarrayed artificial niches. *Integrative Biology (United Kingdom)*, **2012**, 4, 391-400	3.7	26
25	High-throughput approaches for the analysis of extrinsic regulators of stem cell fate. *Current Opinion in Cell Biology*, **2012**, 24, 236-44	9	50
24	Biomaterials meet microfluidics: building the next generation of artificial niches. *Current Opinion in Biotechnology*, **2011**, 22, 690-7	11.4	64

23	Artificial niche microarrays for probing single stem cell fate in high throughput. *Nature Methods*, **2011**, 8, 949-55	21.6	343
22	Extracellular matrix bioengineering and systems biology approaches in liver disease. *Systems and Synthetic Biology*, **2011**, 5, 11-20		6
21	Biomimetic PEG hydrogels crosslinked with minimal plasmin-sensitive tri-amino acid peptides. *Journal of Biomedical Materials Research - Part A*, **2010**, 93, 870-7	5.4	21
20	The effect of matrix characteristics on fibroblast proliferation in 3D gels. *Biomaterials*, **2010**, 31, 8454-64	15.6	230
19	Bioengineered 3D platform to explore cell-ECM interactions and drug resistance of epithelial ovarian cancer cells. *Biomaterials*, **2010**, 31, 8494-506	15.6	455
18	Integration column: artificial ECM: expanding the cell biology toolbox in 3D. *Integrative Biology (United Kingdom)*, **2009**, 1, 235-41	3.7	66
17	Tailoring hydrogel degradation and drug release via neighboring amino acid controlled ester hydrolysis. *Soft Matter*, **2009**, 5, 440-446	3.6	55
16	Micropatterning of hydrogels by soft embossing. *Langmuir*, **2009**, 25, 8774-9	4	51
15	Integration column: microwell arrays for mammalian cell culture. *Integrative Biology (United Kingdom)*, **2009**, 1, 625-34	3.7	118
14	Perturbation of single hematopoietic stem cell fates in artificial niches. *Integrative Biology (United Kingdom)*, **2009**, 1, 59-69	3.7	156
13	Designing materials to direct stem-cell fate. *Nature*, **2009**, 462, 433-41	50.4	1162
12	Synthetic Biomaterials as Cell-Responsive Artificial Extracellular Matrices **2008**, 255-278		
11	Three-dimensional extracellular matrix-directed cardioprogenitor differentiation: systematic modulation of a synthetic cell-responsive PEG-hydrogel. *Biomaterials*, **2008**, 29, 2757-66	15.6	264
10	Enhancing the reliability and throughput of neurosphere culture on hydrogel microwell arrays. *Stem Cells*, **2008**, 26, 2586-94	5.8	68
9	Biomolecular hydrogels formed and degraded via site-specific enzymatic reactions. *Biomacromolecules*, **2007**, 8, 3000-7	6.9	234
8	Enzymatic formation of modular cell-instructive fibrin analogs for tissue engineering. *Biomaterials*, **2007**, 28, 3856-66	15.6	184
7	Bovine primary chondrocyte culture in synthetic matrix metalloproteinase-sensitive poly(ethylene glycol)-based hydrogels as a scaffold for cartilage repair. *Tissue Engineering*, **2004**, 10, 515-22		176
6	Repair of bone defects using synthetic mimetics of collagenous extracellular matrices. *Nature Biotechnology*, **2003**, 21, 513-8	44.5	730

5	Biopolymeric delivery matrices for angiogenic growth factors. *Cardiovascular Pathology*, **2003**, 12, 295-310	3.8	295
4	Cell-demanded release of VEGF from synthetic, biointeractive cell ingrowth matrices for vascularized tissue growth. *FASEB Journal*, **2003**, 17, 2260-2	0.9	466
3	Protein delivery from materials formed by self-selective conjugate addition reactions. *Journal of Controlled Release*, **2001**, 76, 11-25	11.7	312
2	Embryonic organoids recapitulate early heart organogenesis		3
1	Gastruloids asin vitromodels of embryonic blood development with spatial and temporal resolution		1