

Peter W Zandstra

List of Publications by Citations

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135
papers

11,974
citations

56
h-index

109
g-index

146
ext. papers

13,685
ext. citations

11.3
avg, IF

6.32
L-index

#	Paper	IF	Citations
135	Growth factors, matrices, and forces combine and control stem cells. <i>Science</i> , 2009 , 324, 1673-7	33.3	2065
134	TAZ controls Smad nucleocytoplasmic shuttling and regulates human embryonic stem-cell self-renewal. <i>Nature Cell Biology</i> , 2008 , 10, 837-48	23.4	482
133	A 17-gene stemness score for rapid determination of risk in acute leukaemia. <i>Nature</i> , 2016 , 540, 433-437	50.4	369
132	Control of human embryonic stem cell colony and aggregate size heterogeneity influences differentiation trajectories. <i>Stem Cells</i> , 2008 , 26, 2300-10	5.8	361
131	Cord blood expansion. Pyrimidoindole derivatives are agonists of human hematopoietic stem cell self-renewal. <i>Science</i> , 2014 , 345, 1509-12	33.3	339
130	Reproducible, ultra high-throughput formation of multicellular organization from single cell suspension-derived human embryonic stem cell aggregates. <i>PLoS ONE</i> , 2008 , 3, e1565	3.7	329
129	Niche-mediated control of human embryonic stem cell self-renewal and differentiation. <i>EMBO Journal</i> , 2007 , 26, 4744-55	13	327
128	Efficiency of embryoid body formation and hematopoietic development from embryonic stem cells in different culture systems. <i>Biotechnology and Bioengineering</i> , 2002 , 78, 442-53	4.9	301
127	A microfabricated platform to measure and manipulate the mechanics of engineered cardiac microtissues. <i>Tissue Engineering - Part A</i> , 2012 , 18, 910-9	3.9	289
126	An alternative splicing switch regulates embryonic stem cell pluripotency and reprogramming. <i>Cell</i> , 2011 , 147, 132-46	56.2	253
125	Scalable production of embryonic stem cell-derived cardiomyocytes. <i>Tissue Engineering</i> , 2003 , 9, 767-78		252
124	Controlled, scalable embryonic stem cell differentiation culture. <i>Stem Cells</i> , 2004 , 22, 275-82	5.8	245
123	The systematic production of cells for cell therapies. <i>Cell Stem Cell</i> , 2008 , 3, 369-81	18	240
122	Design and formulation of functional pluripotent stem cell-derived cardiac microtissues. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, E4698-707	11.5	209
121	Shear-controlled single-step mouse embryonic stem cell expansion and embryoid body-based differentiation. <i>Stem Cells</i> , 2005 , 23, 1333-42	5.8	203
120	A mass spectrometric-derived cell surface protein atlas. <i>PLoS ONE</i> , 2015 , 10, e0121314	3.7	199
119	Rapid expansion of human hematopoietic stem cells by automated control of inhibitory feedback signaling. <i>Cell Stem Cell</i> , 2012 , 10, 218-29	18	194

118	Generation of human embryonic stem cell-derived mesoderm and cardiac cells using size-specified aggregates in an oxygen-controlled bioreactor. <i>Biotechnology and Bioengineering</i> , 2009 , 102, 493-507	4.9	188
117	Functional immobilization of signaling proteins enables control of stem cell fate. <i>Nature Methods</i> , 2008 , 5, 645-50	21.6	180
116	High-throughput combinatorial cell co-culture using microfluidics. <i>Integrative Biology (United Kingdom)</i> , 2011 , 3, 653-62	3.7	162
115	High-throughput generation of hydrogel microbeads with varying elasticity for cell encapsulation. <i>Biomaterials</i> , 2011 , 32, 1477-83	15.6	162
114	Genome-wide characterization of the routes to pluripotency. <i>Nature</i> , 2014 , 516, 198-206	50.4	153
113	Quality cell therapy manufacturing by design. <i>Nature Biotechnology</i> , 2016 , 34, 393-400	44.5	150
112	A Myc enhancer cluster regulates normal and leukaemic haematopoietic stem cell hierarchies. <i>Nature</i> , 2018 , 553, 515-520	50.4	142
111	Incorporation of biomaterials in multicellular aggregates modulates pluripotent stem cell differentiation. <i>Biomaterials</i> , 2011 , 32, 48-56	15.6	134
110	Enabling stem cell therapies through synthetic stem cell-niche engineering. <i>Journal of Clinical Investigation</i> , 2010 , 120, 60-70	15.9	132
109	Development of a perfusion fed bioreactor for embryonic stem cell-derived cardiomyocyte generation: oxygen-mediated enhancement of cardiomyocyte output. <i>Biotechnology and Bioengineering</i> , 2005 , 90, 452-61	4.9	132
108	Human Embryonic Stem Cell-Derived Cardiomyocytes Regenerate the Infarcted Pig Heart but Induce Ventricular Tachyarrhythmias. <i>Stem Cell Reports</i> , 2019 , 12, 967-981	8	127
107	miR-126 Regulates Distinct Self-Renewal Outcomes in Normal and Malignant Hematopoietic Stem Cells. <i>Cancer Cell</i> , 2016 , 29, 214-28	24.3	118
106	Stem cell bioengineering. <i>Annual Review of Biomedical Engineering</i> , 2001 , 3, 275-305	12	110
105	Dynamic interaction networks in a hierarchically organized tissue. <i>Molecular Systems Biology</i> , 2010 , 6, 417	12.2	104
104	Multivariate proteomic analysis of murine embryonic stem cell self-renewal versus differentiation signaling. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2004 , 101, 2900-5	11.5	99
103	Signaling Networks among Stem Cell Precursors, Transit-Amplifying Progenitors, and their Niche in Developing Hair Follicles. <i>Cell Reports</i> , 2016 , 14, 3001-18	10.6	98
102	A ligand-receptor signaling threshold model of stem cell differentiation control: a biologically conserved mechanism applicable to hematopoiesis. <i>Blood</i> , 2000 , 96, 1215-1222	2.2	94
101	Cell-cell interaction networks regulate blood stem and progenitor cell fate. <i>Molecular Systems Biology</i> , 2009 , 5, 293	12.2	92

100	Convenience versus Biological Significance: Are PMA-Differentiated THP-1 Cells a Reliable Substitute for Blood-Derived Macrophages When Studying Polarization?. <i>Frontiers in Pharmacology</i> , 2018 , 9, 71	5.6	84
99	A stepwise model of reaction-diffusion and positional information governs self-organized human peri-gastrulation-like patterning. <i>Development (Cambridge)</i> , 2017 , 144, 4298-4312	6.6	84
98	Derivation, expansion and differentiation of induced pluripotent stem cells in continuous suspension cultures. <i>Nature Methods</i> , 2012 , 9, 509-16	21.6	84
97	PERT: a method for expression deconvolution of human blood samples from varied microenvironmental and developmental conditions. <i>PLoS Computational Biology</i> , 2012 , 8, e1002838	5	84
96	Prediction and testing of novel transcriptional networks regulating embryonic stem cell self-renewal and commitment. <i>Cell Stem Cell</i> , 2007 , 1, 71-86	18	81
95	Ligand/receptor signaling threshold (LIST) model accounts for gp130-mediated embryonic stem cell self-renewal responses to LIF and HIL-6. <i>Stem Cells</i> , 2002 , 20, 119-38	5.8	79
94	Engineering a humanized bone organ model in mice to study bone metastases. <i>Nature Protocols</i> , 2017 , 12, 639-663	18.8	74
93	Interrogating functional integration between injected pluripotent stem cell-derived cells and surrogate cardiac tissue. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2010 , 107, 3329-34	11.5	74
92	LIF signaling in stem cells and development. <i>Development (Cambridge)</i> , 2015 , 142, 2230-6	6.6	73
91	Expansion of hematopoietic progenitor cell populations in stirred suspension bioreactors of normal human bone marrow cells. <i>Nature Biotechnology</i> , 1994 , 12, 909-14	44.5	73
90	Geometric control of cardiomyogenic induction in human pluripotent stem cells. <i>Tissue Engineering - Part A</i> , 2011 , 17, 1901-9	3.9	71
89	Progenitor T-cell differentiation from hematopoietic stem cells using Delta-like-4 and VCAM-1. <i>Nature Methods</i> , 2017 , 14, 531-538	21.6	70
88	Sustained in vitro expansion of bone progenitors is cell density dependent. <i>Stem Cells</i> , 2004 , 22, 39-50	5.8	67
87	Hematopoietic stem cell transplantation using single UM171-expanded cord blood: a single-arm, phase 1-2 safety and feasibility study. <i>Lancet Haematology</i> , 2020 , 7, e134-e145	14.6	67
86	The use of vascular endothelial growth factor functionalized agarose to guide pluripotent stem cell aggregates toward blood progenitor cells. <i>Biomaterials</i> , 2010 , 31, 8262-70	15.6	60
85	Manipulation of signaling thresholds in "engineered stem cell niches" identifies design criteria for pluripotent stem cell screens. <i>PLoS ONE</i> , 2009 , 4, e6438	3.7	60
84	LIF-mediated control of embryonic stem cell self-renewal emerges due to an autoregulatory loop. <i>FASEB Journal</i> , 2007 , 21, 2020-32	0.9	59
83	Seeding bioreactor-produced embryonic stem cell-derived cardiomyocytes on different porous, degradable, polyurethane scaffolds reveals the effect of scaffold architecture on cell morphology. <i>Tissue Engineering - Part A</i> , 2008 , 14, 369-78	3.9	57

82	CD24 tracks divergent pluripotent states in mouse and human cells. <i>Nature Communications</i> , 2015 , 6, 7329	17.4	56
81	Predictive microfluidic control of regulatory ligand trajectories in individual pluripotent cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012 , 109, 3264-9	11.5	56
80	Dynamic changes in cellular and microenvironmental composition can be controlled to elicit in vitro human hematopoietic stem cell expansion. <i>Experimental Hematology</i> , 2005 , 33, 1229-39	3.1	56
79	The microwell-mesh: A novel device and protocol for the high throughput manufacturing of cartilage microtissues. <i>Biomaterials</i> , 2015 , 62, 1-12	15.6	52
78	Cell competition during reprogramming gives rise to dominant clones. <i>Science</i> , 2019 , 364,	33.3	51
77	Stem cell bioengineering: building from stem cell biology. <i>Nature Reviews Genetics</i> , 2018 , 19, 595-614	30.1	51
76	High-throughput fingerprinting of human pluripotent stem cell fate responses and lineage bias. <i>Nature Methods</i> , 2013 , 10, 1225-31	21.6	51
75	Spatial organization of embryonic stem cell responsiveness to autocrine gp130 ligands reveals an autoregulatory stem cell niche. <i>Stem Cells</i> , 2006 , 24, 2538-48	5.8	51
74	Immobilization of growth factors on solid supports for the modulation of stem cell fate. <i>Nature Protocols</i> , 2010 , 5, 1042-50	18.8	49
73	Sensitivity analysis of intracellular signaling pathway kinetics predicts targets for stem cell fate control. <i>PLoS Computational Biology</i> , 2007 , 3, e130	5	48
72	Clinically relevant expansion of hematopoietic stem cells with conserved function in a single-use, closed-system bioprocess. <i>Biology of Blood and Marrow Transplantation</i> , 2006 , 12, 1020-30	4.7	46
71	Supplementation-dependent differences in the rates of embryonic stem cell self-renewal, differentiation, and apoptosis. <i>Biotechnology and Bioengineering</i> , 2003 , 84, 505-17	4.9	42
70	Intercellular network structure and regulatory motifs in the human hematopoietic system. <i>Molecular Systems Biology</i> , 2014 , 10, 741	12.2	41
69	Systematic engineering of 3D pluripotent stem cell niches to guide blood development. <i>Biomaterials</i> , 2012 , 33, 1271-80	15.6	41
68	Towards predictive models of stem cell fate. <i>Cytotechnology</i> , 2003 , 41, 75-92	2.2	40
67	Quantitative screening of embryonic stem cell differentiation: endoderm formation as a model. <i>Biotechnology and Bioengineering</i> , 2004 , 88, 287-98	4.9	36
66	High density continuous production of murine pluripotent cells in an acoustic perfused bioreactor at different oxygen concentrations. <i>Biotechnology and Bioengineering</i> , 2013 , 110, 648-55	4.9	35
65	A 96-well culture platform enables longitudinal analyses of engineered human skeletal muscle microtissue strength. <i>Scientific Reports</i> , 2020 , 10, 6918	4.9	34

64	Advances in hematopoietic stem cell culture. <i>Current Opinion in Biotechnology</i> , 1998 , 9, 146-51	11.4	31
63	Understanding cellular networks to improve hematopoietic stem cell expansion cultures. <i>Current Opinion in Biotechnology</i> , 2006 , 17, 538-47	11.4	31
62	Soluble Flt-1 regulates Flk-1 activation to control hematopoietic and endothelial development in an oxygen-responsive manner. <i>Stem Cells</i> , 2008 , 26, 2832-42	5.8	30
61	Modeling signaling-dependent pluripotency with Boolean logic to predict cell fate transitions. <i>Molecular Systems Biology</i> , 2018 , 14, e7952	12.2	29
60	Proneurogenic Ligands Defined by Modeling Developing Cortex Growth Factor Communication Networks. <i>Neuron</i> , 2016 , 91, 988-1004	13.9	28
59	Tissue engineering 2.0: guiding self-organization during pluripotent stem cell differentiation. <i>Current Opinion in Biotechnology</i> , 2012 , 23, 810-9	11.4	28
58	Achieving Efficient Manufacturing and Quality Assurance through Synthetic Cell Therapy Design. <i>Cell Stem Cell</i> , 2017 , 20, 13-17	18	26
57	Distinguishing autocrine and paracrine signals in hematopoietic stem cell culture using a biofunctional microcavity platform. <i>Scientific Reports</i> , 2016 , 6, 31951	4.9	24
56	Scalable production of embryonic stem cell-derived cells. <i>Methods in Molecular Biology</i> , 2005 , 290, 353-64	4.4	24
55	Transforming the promise of pluripotent stem cell-derived cardiomyocytes to a therapy: challenges and solutions for clinical trials. <i>Canadian Journal of Cardiology</i> , 2014 , 30, 1335-49	3.8	23
54	Analysis of the temporal and concentration-dependent effects of BMP-4, VEGF, and TPO on development of embryonic stem cell-derived mesoderm and blood progenitors in a defined, serum-free media. <i>Experimental Hematology</i> , 2008 , 36, 1186-98	3.1	23
53	Blood stem cell fate regulation by Delta-1-mediated rewiring of IL-6 paracrine signaling. <i>Blood</i> , 2014 , 123, 650-8	2.2	21
52	Engineered heart tissue enables study of residual undifferentiated embryonic stem cell activity in a cardiac environment. <i>Biotechnology and Bioengineering</i> , 2011 , 108, 704-19	4.9	20
51	Modulating cell state to enhance suspension expansion of human pluripotent stem cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018 , 115, 6369-6374	11.5	18
50	Synthetic gene circuits and cellular decision-making in human pluripotent stem cells. <i>Current Opinion in Systems Biology</i> , 2017 , 5, 93-103	3.2	17
49	Signal processing underlying extrinsic control of stem cell fate. <i>Current Opinion in Hematology</i> , 2004 , 11, 95-101	3.3	17
48	High-throughput micropatterning platform reveals Nodal-dependent bisection of peri-gastrulation-associated versus preneurulation-associated fate patterning. <i>PLoS Biology</i> , 2019 , 17, e3000081	9.7	17
47	Engineering the haemogenic niche mitigates endogenous inhibitory signals and controls pluripotent stem cell-derived blood emergence. <i>Nature Communications</i> , 2017 , 8, 15380	17.4	16

46	Clonal evolution of stem and differentiated cells can be predicted by integrating cell-intrinsic and -extrinsic parameters. <i>Biotechnology and Applied Biochemistry</i> , 2005 , 42, 119-31	2.8	16
45	Fluorescence activated cell sorting reveals heterogeneous and cell non-autonomous osteoprogenitor differentiation in fetal rat calvaria cell populations. <i>Journal of Cellular Biochemistry</i> , 2003 , 90, 109-20	4.7	16
44	Identifying Extrinsic versus Intrinsic Drivers of Variation in Cell Behavior in Human iPSC Lines from Healthy Donors. <i>Cell Reports</i> , 2019 , 26, 2078-2087.e3	10.6	16
43	FZD4 Marks Lateral Plate Mesoderm and Signals with NORRIN to Increase Cardiomyocyte Induction from Pluripotent Stem Cell-Derived Cardiac Progenitors. <i>Stem Cell Reports</i> , 2018 , 10, 87-100	8	15
42	Enhanced human hematopoietic stem and progenitor cell engraftment by blocking donor T cell-mediated TNF β signaling. <i>Science Translational Medicine</i> , 2017 , 9,	17.5	15
41	Engineering cell fitness: lessons for regenerative medicine. <i>Current Opinion in Biotechnology</i> , 2017 , 47, 7-15	11.4	14
40	Functional arrays of human pluripotent stem cell-derived cardiac microtissues. <i>Scientific Reports</i> , 2020 , 10, 6919	4.9	14
39	Chemically controlled aggregation of pluripotent stem cells. <i>Biotechnology and Bioengineering</i> , 2018 , 115, 2061-2066	4.9	14
38	Blood stem cell products: toward sustainable benchmarks for clinical translation. <i>BioEssays</i> , 2013 , 35, 201-10	4.1	14
37	Phenotypic analysis of human embryonic stem cells. <i>Current Protocols in Stem Cell Biology</i> , 2007 , Chapter 1, Unit 1B.3	2.8	14
36	Local BMP-SMAD1 signaling increases LIF receptor-dependent STAT3 responsiveness and primed-to-naive mouse pluripotent stem cell conversion frequency. <i>Stem Cell Reports</i> , 2014 , 3, 156-68	8	13
35	Real-time monitoring and control of soluble signaling factors enables enhanced progenitor cell outputs from human cord blood stem cell cultures. <i>Biotechnology and Bioengineering</i> , 2014 , 111, 1258-64	4.9	12
34	Microenvironment-mediated reversion of epiblast stem cells by reactivation of repressed JAK-STAT signaling. <i>Integrative Biology (United Kingdom)</i> , 2012 , 4, 1367-76	3.7	12
33	Integrative network analysis of signaling in human CD34(+) hematopoietic progenitor cells by global phosphoproteomic profiling using TiO ₂ enrichment combined with 2D LC-MS/MS and pathway mapping. <i>Proteomics</i> , 2013 , 13, 1325-33	4.8	12
32	Synthetic peptide arrays for pathway-level protein monitoring by liquid chromatography-tandem mass spectrometry. <i>Molecular and Cellular Proteomics</i> , 2010 , 9, 2460-73	7.6	12
31	Steric Hindrance Assay for Secreted Factors in Stem Cell Culture. <i>ACS Sensors</i> , 2017 , 2, 495-500	9.2	11
30	The AC133+CD38-, but not the rhodamine-low, phenotype tracks LTC-IC and SRC function in human cord blood ex vivo expansion cultures. <i>Blood</i> , 2010 , 115, 257-60	2.2	11
29	An automated system for delivery of an unstable transcription factor to hematopoietic stem cell cultures. <i>Biotechnology and Bioengineering</i> , 2009 , 103, 402-12	4.9	10

28	Two-dimensional arrays of cell-laden polymer hydrogel modules. <i>Biomicrofluidics</i> , 2016 , 10, 014110	3.2	10
27	Proportional-Integral-Derivative (PID) Control of Secreted Factors for Blood Stem Cell Culture. <i>PLoS ONE</i> , 2015 , 10, e0137392	3.7	9
26	Engineering cardiac healing using embryonic stem cell-derived cardiac cell seeded constructs. <i>Frontiers in Bioscience - Landmark</i> , 2007 , 12, 3694-712	2.8	9
25	Two-color image analysis discriminates between mineralized and unmineralized bone nodules in vitro. <i>BioTechniques</i> , 2003 , 34, 1188-92, 1194, 1196 passim	2.5	9
24	Context-explorer: Analysis of spatially organized protein expression in high-throughput screens. <i>PLoS Computational Biology</i> , 2019 , 15, e1006384	5	7
23	A global assessment of stem cell engineering. <i>Tissue Engineering - Part A</i> , 2014 , 20, 2575-89	3.9	5
22	Environmental Requirements of Hematopoietic Progenitor Cells in Ex Vivo Expansion Systems 1999 , 245-272		5
21	Human pluripotent stem cell process parameter optimization in a small scale suspension bioreactor. <i>BMC Proceedings</i> , 2015 , 9, O10	2.3	3
20	Stem cells: Chasing blood. <i>Nature</i> , 2015 , 518, 488-90	50.4	3
19	Single UM171 Expanded Cord Blood Permits Transplantation of Better HLA Matched Cords with Excellent Gvhd Relapse Free Survival. <i>Blood</i> , 2018 , 132, 4658-4658	2.2	3
18	A defined platform of human peri-gastrulation-like biological fate patterning reveals coordination between Reaction-Diffusion and Positional-Information		3
17	Functional arrays of human pluripotent stem cell-derived cardiac microtissues		3
16	IQCELL: A platform for predicting the effect of gene perturbations on developmental trajectories using single-cell RNA-seq data.. <i>PLoS Computational Biology</i> , 2022 , 18, e1009907	5	3
15	Microdroplet-based one-step RT-PCR for ultrahigh throughput single-cell multiplex gene expression analysis and rare cell detection. <i>Scientific Reports</i> , 2021 , 11, 6777	4.9	2
14	Mechanics-guided developmental fate patterning. <i>Nature Materials</i> , 2018 , 17, 571-572	27	2
13	Multi-objective optimization reveals time- and dose-dependent inflammatory cytokine-mediated regulation of human stem cell derived T-cell development.. <i>Npj Regenerative Medicine</i> , 2022 , 7, 11	15.8	1
12	Culture Conditions for Generating Human Bone Marrow Stromal Cells Influence Cell Immunophenotype and In Vivo Biodistribution in Immune Deficient Mice.. <i>Blood</i> , 2004 , 104, 2334-2334	2.2	1
11	High-throughput micro-patterning platform reveals Nodal-dependent dissection of peri-gastrulation-associated versus pre-neurulation associated fate patterning		1

10	Modeling signaling-dependent pluripotent cell states with boolean logic can predict cell fate transitions		1
9	Enhanced Human Hematopoietic Stem Cell Self-Renewal Enabled by Controlling Feedback Signaling From Lineage Committed Cells. <i>Blood</i> , 2011 , 118, 1274-1274	2.2	1
8	Endogenous suppression of WNT signalling in human embryonic stem cells leads to low differentiation propensity towards definitive endoderm. <i>Scientific Reports</i> , 2021 , 11, 6137	4.9	1
7	IQCELL: A platform for predicting the effect of gene perturbations on developmental trajectories using single-cell RNA-seq data		1
6	Process evolution in cell and gene therapy from discovery to commercialization. <i>Canadian Journal of Chemical Engineering</i> ,	2.3	1
5	Computational Modeling and Stem Cell Engineering. <i>Science Policy Reports</i> , 2014 , 65-97		
4	Bringing Blood Stem Cell Phenotype, Genotype, and Function Closer Together. <i>Cell Stem Cell</i> , 2015 , 16, 574-5	18	
3	Systematic Approach to the Development of Stem Cell Expansion Cultures 2004 , 663-676		
2	Enhancement of Soluble Transcription Factor (TAT-HOXB4 and TAT-NUP98HOXA10HD) - Mediated Human Hematopoietic Stem Cell Self-Renewal by Minimizing Inhibitory Endogenous Signalling.. <i>Blood</i> , 2009 , 114, 1493-1493	2.2	
1	Engineering the Pluripotent Stem Cell Niche for Directed Mesoderm Differentiation 2012 , 1-26		