Timothy K Lu

List of Publications by Year
in descending order

144 papers	15,311 citations	23567 58 h-index	20358 116 g-index
164 all docs	164 docs citations	164 times ranked	15193 citing authors

#	Article	IF	Citations
1	Dispersing biofilms with engineered enzymatic bacteriophage. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 11197-11202.	7.1	728
2	Sequence-specific antimicrobials using efficiently delivered RNA-guided nucleases. Nature Biotechnology, 2014, 32, 1141-1145.	17.5	577
3	Synthetic circuits integrating logic and memory in living cells. Nature Biotechnology, 2013, 31, 448-452.	17.5	569
4	Synthetic Gene Networks That Count. Science, 2009, 324, 1199-1202.	12.6	528
5	Synthetic analog computation in living cells. Nature, 2013, 497, 619-623.	27.8	467
6	Engineered bacteriophage targeting gene networks as adjuvants for antibiotic therapy. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 4629-4634.	7.1	446
7	Multiplexed and Programmable Regulation of Gene Networks with an Integrated RNA and CRISPR/Cas Toolkit in Human Cells. Molecular Cell, 2014, 54, 698-710.	9.7	417
8	An ingestible bacterial-electronic system to monitor gastrointestinal health. Science, 2018, 360, 915-918.	12.6	380
9	Strong underwater adhesives made by self-assembling multi-protein nanofibres. Nature Nanotechnology, 2014, 9, 858-866.	31.5	370
10	Synthesis and patterning of tunable multiscale materials with engineered cells. Nature Materials, 2014, 13, 515-523.	27.5	329
11	Next-generation synthetic gene networks. Nature Biotechnology, 2009, 27, 1139-1150.	17.5	321
12	Development and Challenges of Antimicrobial Peptides for Therapeutic Applications. Antibiotics, 2020, 9, 24.	3.7	318
13	Tunable and Multifunctional Eukaryotic Transcription Factors Based on CRISPR/Cas. ACS Synthetic Biology, 2013, 2, 604-613.	3.8	315
14	Genetically Engineered Phages: a Review of Advances over the Last Decade. Microbiology and Molecular Biology Reviews, 2016, 80, 523-543.	6.6	310
15	Engineering Modular Viral Scaffolds for Targeted Bacterial Population Editing. Cell Systems, 2015, 1, 187-196.	6.2	294
16	A Synthetic Biology Framework for Programming Eukaryotic Transcription Functions. Cell, 2012, 150, 647-658.	28.9	293
17	The next generation of bacteriophage therapy. Current Opinion in Microbiology, 2011, 14, 524-531.	5.1	278
18	3D Printing of Living Responsive Materials and Devices. Advanced Materials, 2018, 30, 1704821.	21.0	277

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19	Peptide Design Principles for Antimicrobial Applications. Journal of Molecular Biology, 2019, 431, 3547-3567.	4.2	273
20	Programming a Human Commensal Bacterium, Bacteroides thetaiotaomicron, to Sense and Respond to Stimuli in the Murine Gut Microbiota. Cell Systems, 2015, 1, 62-71.	6.2	267
21	Genomically encoded analog memory with precise in vivo DNA writing in living cell populations. Science, 2014, 346, 1256272.	12.6	253
22	Corynebacterium glutamicum Metabolic Engineering with CRISPR Interference (CRISPRi). ACS Synthetic Biology, 2016, 5, 375-385.	3.8	222
23	Stretchable living materials and devices with hydrogelâ€“elastomer hybrids hosting programmed cells. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 2200-2205.	7.1	212
24	Multiplexed barcoded CRISPR-Cas9 screening enabled by CombiGEM. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 2544-2549.	7.1	210
25	Engineering Phage Host-Range and Suppressing Bacterial Resistance through Phage Tail Fiber Mutagenesis. Cell, 2019, 179, 459-469.e9.	28.9	208
26	Synthetic Biology: An Emerging Engineering Discipline. Annual Review of Biomedical Engineering, 2012, 14, 155-178.	12.3	205
27	Permanent genetic memory with >1-byte capacity. Nature Methods, 2014, 11, 1261-1266.	19.0	202
28	Programmable and printable Bacillus subtilis biofilms as engineered living materials. Nature Chemical Biology, 2019, 15, 34-41.	8.0	202
29	Microbiome therapeutics â€” Advances and challenges. Advanced Drug Delivery Reviews, 2016, 105, 44-54.	13.7	198
30	Synthetic recombinase-based state machines in living cells. Science, 2016, 353, aad8559.	12.6	196
31	Materials design by synthetic biology. Nature Reviews Materials, 2021, 6, 332-350.	48.7	190
32	Continuous genetic recording with self-targeting CRISPR-Cas in human cells. Science, 2016, 353, .	12.6	186
33	In silico optimization of a guava antimicrobial peptide enables combinatorial exploration for peptide design. Nature Communications, 2018, 9, 1490.	12.8	179
34	Single-molecule detection of protein efflux from microorganisms using fluorescent single-walled carbon nanotube sensor arrays. Nature Nanotechnology, 2017, 12, 368-377.	31.5	172
35	Living materials with programmable functionalities grown from engineered microbial co-cultures. Nature Materials, 2021, 20, 691-700.	27.5	151
36	Engineering living therapeutics with synthetic biology. Nature Reviews Drug Discovery, 2021, 20, 941-960.	46.4	142

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37	Quantifying the RNA cap epitranscriptome reveals novel caps in cellular and viral RNA. Nucleic Acids Research, 2019, 47, e130-e130.	14.5	124
38	Engineering Living Functional Materials. ACS Synthetic Biology, 2015, 4, 8-11.	3.8	119
39	Synthetic RNA-Based Immunomodulatory Gene Circuits for Cancer Immunotherapy. Cell, 2017, 171, 1138-1150.e15.	28.9	113
40	Engineering Synthetic Gene Circuits in Living Cells with CRISPR Technology. Trends in Biotechnology, 2016, 34, 535-547.	9.3	111
41	Structure-function-guided exploration of the antimicrobial peptide polybia-CP identifies activity determinants and generates synthetic therapeutic candidates. Communications Biology, 2018, 1, 221.	4.4	111
42	A multi-landing pad DNA integration platform for mammalian cell engineering. Nucleic Acids Research, 2018, 46, 4072-4086.	14.5	110
43	Hydrogel-based biocontainment of bacteria for continuous sensing and computation. Nature Chemical Biology, 2021, 17, 724-731.	8.0	110
44	Next-generation precision antimicrobials: towards personalized treatment of infectious diseases. Current Opinion in Microbiology, 2017, 37, 95-102.	5.1	100
45	Antimicrobial peptides: Role in human disease and potential as immunotherapies. , 2017, 178, 132-140.		92
46	Phage-Based Applications in Synthetic Biology. Annual Review of Virology, 2018, 5, 453-476.	6.7	88
47	Synthetic mixed-signal computation in living cells. Nature Communications, 2016, 7, 11658.	12.8	87
48	A Modular Toolkit for Generating Pichia pastoris Secretion Libraries. ACS Synthetic Biology, 2017, 6, 1016-1025.	3.8	84
49	Synthetic analog and digital circuits for cellular computation and memory. Current Opinion in Biotechnology, 2014, 29, 146-155.	6.6	82
50	Emerging applications for DNA writers and molecular recorders. Science, 2018, 361, 870-875.	12.6	80
51	Lightâ€Controlled, Highâ€Resolution Patterning of Living Engineered Bacteria Onto Textiles, Ceramics, and Plastic. Advanced Functional Materials, 2019, 29, 1901788.	14.9	78
52	Magnetic Living Hydrogels for Intestinal Localization, Retention, and Diagnosis. Advanced Functional Materials, 2021, 31, 2010918.	14.9	77
53	Yeast-Based Synthetic Biology Platform for Antimicrobial Peptide Production. ACS Synthetic Biology, 2018, 7, 896-902.	3.8	76
54	Engineered Living Hydrogels. Advanced Materials, 2022, 34, e2201326.	21.0	75

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55	A novel Bxb1 integrase RMCE system for high fidelity siteâ€specific integration of mAb expression cassette in CHO Cells. Biotechnology and Bioengineering, 2017, 114, 1837-1846.	3.3	74
56	Single-Nucleotide-Resolution Computing and Memory in Living Cells. Molecular Cell, 2019, 75, 769-780.e4.	9.7	72
57	Engineered Bacillus subtilis biofilms as living glues. Materials Today, 2019, 28, 40-48.	14.2	72
58	Enhancing phage therapy through synthetic biology and genome engineering. Current Opinion in Biotechnology, 2021, 68, 151-159.	6.6	72
59	Synthetic Biogenesis of Bacterial Amyloid Nanomaterials with Tunable Inorganicâ€“Organic Interfaces and Electrical Conductivity. ACS Synthetic Biology, 2017, 6, 266-275.	3.8	71
60	Synthetic biology and microbioreactor platforms for programmable production of biologics at the point-of-care. Nature Communications, 2016, 7, 12211.	12.8	69
61	Digital CRISPR-based method for the rapid detection and absolute quantification of nucleic acids. Biomaterials, 2021, 274, 120876.	11.4	65
62	Identification of Novel Cryptic Multifunctional Antimicrobial Peptides from the Human Stomach Enabled by a Computationalâ€“Experimental Platform. ACS Synthetic Biology, 2018, 7, 2105-2115.	3.8	63
63	Sequence-to-function deep learning frameworks for engineered riboregulators. Nature Communications, 2020, 11, 5058.	12.8	63
64	Towards a whole-cell modeling approach for synthetic biology. Chaos, 2013, 23, 025112.	2.5	62
65	Fast cochlear amplification with slow outer hair cells. Hearing Research, 2006, 214, 45-67.	2.0	59
66	Bacteriophage-based synthetic biology for the study of infectious diseases. Current Opinion in Microbiology, 2014, 19, 59-69.	5.1	56
67	Advancing bacteriophage-based microbial diagnostics with synthetic biology. Trends in Biotechnology, 2013, 31, 325-327.	9.3	55
68	High-throughput 5â€² UTR engineering for enhanced protein production in non-viral gene therapies. Nature Communications, 2021, 12, 4138.	12.8	55
69	High-throughput functional variant screens via in vivo production of single-stranded DNA. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	53
70	Small-molecule control of antibody N-glycosylation in engineered mammalian cells. Nature Chemical Biology, 2019, 15, 730-736.	8.0	52
71	Synthetic Biology and Computer-Based Frameworks for Antimicrobial Peptide Discovery. ACS Nano, 2021, 15, 2143-2164.	14.6	51
72	Massively parallel high-order combinatorial genetics in human cells. Nature Biotechnology, 2015, 33, 952-961.	17.5	50

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73	Neuromicrobiology: How Microbes Influence the Brain. ACS Chemical Neuroscience, 2018, 9, 141-150.	3.5	50
74	Repurposing a peptide toxin from wasp venom into antiinfectives with dual antimicrobial and immunomodulatory properties. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 26936-26945.	7.1	48
75	Digital and analog gene circuits for biotechnology. Biotechnology Journal, 2014, 9, 597-608.	3.5	47
76	CRISPR-Cas9 technology: applications in genome engineering, development of sequence-specific antimicrobials, and future prospects. Integrative Biology (United Kingdom), 2017, 9, 109-122.	1.3	47
77	Emerging Frontiers in Microbiome Engineering. Trends in Immunology, 2019, 40, 952-973.	6.8	47
78	Engineering advanced cancer therapies with synthetic biology. Nature Reviews Cancer, 2019, 19, 187-195.	28.4	46
79	Roadmap on semiconductorâ€“cell biointerfaces. Physical Biology, 2018, 15, 031002.	1.8	45
80	A high-throughput screening and computation platform for identifying synthetic promoters with enhanced cell-state specificity (SPECS). Nature Communications, 2019, 10, 2880.	12.8	42
81	Diverse Supramolecular Nanofiber Networks Assembled by Functional Low-Complexity Domains. ACS Nano, 2017, 11, 6985-6995.	14.6	41
82	Programming Living Glue Systems to Perform Autonomous Mechanical Repairs. Matter, 2020, 3, 2080-2092.	10.0	41
83	Human cathelicidin peptide LL-37 as a therapeutic antiviral targeting Venezuelan equine encephalitis virus infections. Antiviral Research, 2019, 164, 61-69.	4.1	40
84	Ciprofloxacin-nitroxide hybrids with potential for biofilm control. European Journal of Medicinal Chemistry, 2017, 138, 590-601.	5.5	38
85	Selective antibacterial activity of the cationic peptide PaDBS1R6 against Gram-negative bacteria. Biochimica Et Biophysica Acta - Biomembranes, 2019, 1861, 1375-1387.	2.6	38
86	Short Cationic Peptide Derived from Archaea with Dual Antibacterial Properties and Anti-Infective Potential. ACS Infectious Diseases, 2019, 5, 1081-1086.	3.8	37
87	Comparison of Integrases Identifies Bxb1-GA Mutant as the Most Efficient Site-Specific Integrase System in Mammalian Cells. ACS Synthetic Biology, 2019, 8, 16-24.	3.8	37
88	Designing P. aeruginosa synthetic phages with reduced genomes. Scientific Reports, 2021, 11, 2164.	3.3	37
89	Engineering genetic circuits that compute and remember. Nature Protocols, 2014, 9, 1292-1300.	12.0	36
90	Synthetic Biology of Antimicrobial Discovery. ACS Synthetic Biology, 2013, 2, 358-372.	3.8	35

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91	Enhanced killing of antibiotic-resistant bacteria enabled by massively parallel combinatorial genetics. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 12462-12467.	7.1	35
92	Microbes as Biosensors. Annual Review of Microbiology, 2020, 74, 337-359.	7.3	35
93	Randomized CRISPR-Cas Transcriptional Perturbation Screening Reveals Protective Genes against Alpha-Synuclein Toxicity. Molecular Cell, 2017, 68, 247-257.e5.	9.7	31
94	Engineering the Modular Receptor-Binding Proteins ofKlebsiellaPhages Switches Their Capsule Serotype Specificity. MBio, 2021, 12, .	4.1	31
95	A Computationally Designed Peptide Derived from Escherichia coli as a Potential Drug Template for Antibacterial and Antibiofilm Therapies. ACS Infectious Diseases, 2018, 4, 1727-1736.	3.8	30
96	Versatile and on-demand biologics co-production in yeast. Nature Communications, 2018, 9, 77.	12.8	28
97	Coatable and Resistance-Proof Ionic Liquid for Pathogen Eradication. ACS Nano, 2021, 15, 966-978.	14.6	28
98	Rule-Based Design of Synthetic Transcription Factors in Eukaryotes. ACS Synthetic Biology, 2014, 3, 737-744.	3.8	26
99	Gene networks that compensate for crosstalk with crosstalk. Nature Communications, 2019, 10, 4028.	12.8	26
100	Magnetic Surfactant Ionic Liquids and Polymers With Tetrahaloferrate (III) Anions as Antimicrobial Agents With Low Cytotoxicity. Colloids and Interface Science Communications, 2018, 22, 11-13.	4.1	24
101	Advancing therapeutic applications of synthetic gene circuits. Current Opinion in Biotechnology, 2017, 47, 133-141.	6.6	23
102	Emerging Paradigms for Synthetic Design of Functional Amyloids. Journal of Molecular Biology, 2018, 430, 3720-3734.	4.2	23
103	Cell-based biosensors for immunology, inflammation, and allergy. Journal of Allergy and Clinical Immunology, 2019, 144, 645-647.	2.9	23
104	Illuminating Host-Mycobacterial Interactions with Genome-wide CRISPR Knockout and CRISPRi Screens. Cell Systems, 2020, 11, 239-251.e7.	6.2	23
105	Directing curli polymerization with DNA origami nucleators. Nature Communications, 2019, 10, 1395.	12.8	22
106	Synthetic molecular evolution of antimicrobial peptides. Current Opinion in Biotechnology, 2022, 75, 102718.	6.6	21
107	Foundations and Emerging Paradigms for Computing in Living Cells. Journal of Molecular Biology, 2016, 428, 893-915.	4.2	19
108	Computer-Aided Design of Mastoparan-like Peptides Enables the Generation of Nontoxic Variants with Extended Antibacterial Properties. Journal of Medicinal Chemistry, 2019, 62, 8140-8151.	6.4	19

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109	21.1 Nanowatt circuit interface to whole-cell bacterial sensors. , 2017, , .		18
110	Modular genetic design of multi-domain functional amyloids: insights into self-assembly and functional properties. Chemical Science, 2019, 10, 4004-4014.	7.4	18
111	Multiplex CRISPRi System Enables the Study of Stage-Specific Biofilm Genetic Requirements in Enterococcus faecalis. MBio, 2020, 11, .	4.1	18
112	A warm-start digital CRISPR/Cas-based method for the quantitative detection of nucleic acids. Analytica Chimica Acta, 2022, 1196, 339494.	5.4	18
113	Efficient retroelement-mediated DNA writing in bacteria. Cell Systems, 2021, 12, 860-872.e5.	6.2	17
114	Deciphering Combinatorial Genetics. Annual Review of Genetics, 2016, 50, 515-538.	7.6	16
115	Scaling computation and memory in living cells. Current Opinion in Biomedical Engineering, 2017, 4, 143-151.	3.4	16
116	Production of Functional Anti-Ebola Antibodies in Pichia pastoris. ACS Synthetic Biology, 2017, 6, 2183-2190.	3.8	15
117	DNA nanotechnology: new adventures for an old warhorse. Current Opinion in Chemical Biology, 2015, 28, 9-14.	6.1	13
118	Synthetic Genetic Circuits for Self-Actuated Cellular Nanomaterial Fabrication Devices. ACS Synthetic Biology, 2019, 8, 2152-2162.	3.8	13
119	Engineering scalable biological systems. Bioengineered Bugs, 2010, 1, 378-384.	1.7	11
120	Contact guidance and collective migration in the advancing epithelial monolayer. Connective Tissue Research, 2018, 59, 309-315.	2.3	11
121	Scalable recombinase-based gene expression cascades. Nature Communications, 2021, 12, 2711.	12.8	11
122	CRISPR/Cas-based devices for mammalian synthetic biology. Current Opinion in Chemical Biology, 2019, 52, 23-30.	6.1	10
123	Putting Non-coding RNA on Display with CRISPR. Molecular Cell, 2015, 59, 146-148.	9.7	9
124	Multiplexed Sequence Encoding: A Framework for DNA Communication. PLoS ONE, 2016, 11, e0152774.	2.5	9
125	Sense-and-Respond Payload Delivery Using a Novel Antigen-Inducible Promoter Improves Suboptimal CAR-T Activation. ACS Synthetic Biology, 2022, 11, 1440-1453.	3.8	9
126	An Engineered Synthetic Pathway for Discovering Nonnatural Nonribosomal Peptides in EscherichiaÂcoli. MBio, 2017, 8, .	4.1	8

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127	Natural combinatorial genetics and prolific polyamine production enable siderophore diversification in Serratia plymuthica. BMC Biology, 2021, 19, 46.	3.8	8
128	Complete Genome Sequence of Pseudomonas aeruginosa Phage vB_PaeM_CEB_DP1. Genome Announcements, 2015, 3, .	0.8	6
129	Encryption and steganography of synthetic gene circuits. Nature Communications, 2018, 9, 4942.	12.8	6
130	Synthetic Host Defense Peptides Inhibit Venezuelan Equine Encephalitis Virus Replication and the Associated Inflammatory Response. Scientific Reports, 2020, 10, 21491.	3.3	6
131	Advancing CRISPR-Based Programmable Platforms beyond Genome Editing in Mammalian Cells. ACS Synthetic Biology, 2019, 8, 2607-2619.	3.8	5
132	Synthetic Circuit-Driven Expression of Heterologous Enzymes for Disease Detection. ACS Synthetic Biology, 2021, 10, 2231-2242.	3.8	5
133	High-Throughput CRISPR Screens To Dissect Macrophage- Shigella Interactions. MBio, 2021, 12, e0215821.	4.1	4
134	Zero-Crossing-Based Bio-Engineered Sensor. , 2021, , .		3
135	The Era of Synthetic Biology and Genome Engineering: Where No Man Has Gone Before. Journal of Molecular Biology, 2016, 428, 835-836.	4.2	2
136	Ratiometric logic in living cells via competitive binding of synthetic transcription factors. , 2017, , .		2
137	Synthetic biology: at the crossroads of genetic engineering and human therapeuticsâ€”a Keystone Symposia report. Annals of the New York Academy of Sciences, 2021, , .	3.8	2
138	Synthetic gene networks that smell. Nature Chemical Biology, 2017, 13, 245-246.	8.0	1
139	Artificial Repeat-Structured siRNA Precursors as Tunable Regulators for Saccharomyces cerevisiae. ACS Synthetic Biology, 2018, 7, 2403-2412.	3.8	1
140	Designing extensible protein-DNA interactions for synthetic biology. , 2011, , .		0
141	Analog synthetic gene networks. , 2016, , .		0
142	A MICROMECHANICAL MODEL FOR FAST COCHLEAR AMPLIFICATION WITH SLOW OUTER HAIR CELLS. , 2006, , .		0
143	Analog and digital memory in living cells. , 2017, , .		0
144	Predicting Membrane-Active Peptide Dynamics in Fluidic Lipid Membranes. Methods in Molecular Biology, 2022, 2405, 115-136.	0.9	0