David R Liu

List of Publications by Year
in descending order

127 papers	36,177 citations	11235 73 h-index	12940 136 g-index
149 all docs	149 docs citations	149 times ranked	26220 citing authors

#	Article	IF	Citations
1	Programmable editing of a target base in genomic DNA without double-stranded DNA cleavage. Nature, 2016, 533, 420-424.	13.7	3,662
2	Programmable base editing of Aâ€¢T to Gâ€¢C in genomic DNA without DNA cleavage. Nature, 2017, 551, 464-471.	13.7	2,807
3	Search-and-replace genome editing without double-strand breaks or donor DNA. Nature, 2019, 576, 149-157.	13.7	2,662
4	High-throughput profiling of off-target DNA cleavage reveals RNA-programmed Cas9 nuclease specificity. Nature Biotechnology, 2013, 31, 839-843.	9.4	1,303
5	Genome editing with CRISPRâ€“Cas nucleases, base editors, transposases and prime editors. Nature Biotechnology, 2020, 38, 824-844.	9.4	1,277
6	Evolved Cas9 variants with broad PAM compatibility and high DNA specificity. Nature, 2018, 556, 57-63.	13.7	1,195
7	Cationic lipid-mediated delivery of proteins enables efficient protein-based genome editing in vitro and in vivo. Nature Biotechnology, 2015, 33, 73-80.	9.4	1,180
8	Base editing: precision chemistry on the genome and transcriptome ofÂliving cells. Nature Reviews Genetics, 2018, 19, 770-788.	7.7	1,072
9	CRISPResso2 provides accurate and rapid genome editing sequence analysis. Nature Biotechnology, 2019, 37, 224-226.	9.4	891
10	CRISPR-Based Technologies for the Manipulation of Eukaryotic Genomes. Cell, 2017, 168, 20-36.	13.5	783
11	Fusion of catalytically inactive Cas9 to FokI nuclease improves the specificity of genome modification. Nature Biotechnology, 2014, 32, 577-582.	9.4	740
12	Methods for the directed evolution of proteins. Nature Reviews Genetics, 2015, 16, 379-394.	7.7	699
13	Improving cytidine and adenine base editors by expression optimization and ancestral reconstruction. Nature Biotechnology, 2018, 36, 843-846.	9.4	644
14	Sequence Determinants of Intracellular Phase Separation by Complex Coacervation of a Disordered Protein. Molecular Cell, 2016, 63, 72-85.	4.5	622
15	Increasing the genome-targeting scope and precision of base editing with engineered Cas9-cytidine deaminase fusions. Nature Biotechnology, 2017, 35, 371-376.	9.4	609
16	Improved base excision repair inhibition and bacteriophage Mu Gam protein yields C:G-to-T:A base editors with higher efficiency and product purity. Science Advances, 2017, 3, eaao4774.	4.7	582
17	Prime genome editing in rice and wheat. Nature Biotechnology, 2020, 38, 582-585.	9.4	544
18	A system for the continuous directed evolution of biomolecules. Nature, 2011, 472, 499-503.	13.7	518

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19	Phage-assisted evolution of an adenine base editor with improved Cas domain compatibility and activity. Nature Biotechnology, 2020, 38, 883-891.	9.4	502
20	Efficient delivery of genome-editing proteins using bioreducible lipid nanoparticles. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 2868-2873.	3.3	495
21	A general strategy for the evolution of bond-forming enzymes using yeast display. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 11399-11404.	3.3	479
22	Supercharging Proteins Can Impart Unusual Resilience. Journal of the American Chemical Society, 2007, 129, 10110-10112.	6.6	438
23	Predictable and precise template-free CRISPR editing of pathogenic variants. Nature, 2018, 563, 646-651.	13.7	414
24	Treatment of autosomal dominant hearing loss by in vivo delivery of genome editing agents. Nature, 2018, 553, 217-221.	13.7	412
25	A bacterial cytidine deaminase toxin enables CRISPR-free mitochondrial base editing. Nature, 2020, 583, 631-637.	13.7	409
26	Revealing off-target cleavage specificities of zinc-finger nucleases by in vitro selection. Nature Methods, 2011, 8, 765-770.	9.0	404
27	Small moleculeâ€"triggered Cas9 protein with improved genome-editing specificity. Nature Chemical Biology, 2015, 11, 316-318.	3.9	364
28	Improving the DNA specificity and applicability of base editing through protein engineering and protein delivery. Nature Communications, 2017, 8, 15790.	5.8	343
29	Enhanced prime editing systems by manipulating cellular determinants of editing outcomes. Cell, 2021, 184, 5635-5652.e29.	13.5	332
30	Cytosine and adenine base editing of the brain, liver, retina, heart and skeletal muscle of mice via adeno-associated viruses. Nature Biomedical Engineering, 2020, 4, 97-110.	11.6	293
31	Engineered pegRNAs improve prime editing efficiency. Nature Biotechnology, 2022, 40, 402-410.	9.4	293
32	In vivo base editing rescues Hutchinsonâ€"Gilford progeria syndrome in mice. Nature, 2021, 589, 608-614.	13.7	275
33	Evaluation and minimization of Cas9-independent off-target DNA editing by cytosine base editors. Nature Biotechnology, 2020, 38, 620-628.	9.4	272
34	Engineered virus-like particles for efficient inÂvivo delivery of therapeutic proteins. Cell, 2022, 185, 250-265.e16.	13.5	251
35	Continuous evolution of SpCas9 variants compatible with non-G PAMs. Nature Biotechnology, 2020, 38, 471-481.	9.4	234
36	Programmable deletion, replacement, integration and inversion of large DNA sequences with twin prime editing. Nature Biotechnology, 2022, 40, 731-740.	9.4	230

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37	Continuous evolution of base editors with expanded target compatibility and improved activity. Nature Biotechnology, 2019, 37, 1070-1079.	9.4	215
38	Anti-diabetic activity of insulin-degrading enzyme inhibitors mediated by multiple hormones. Nature, 2014, 511, 94-98.	13.7	207
39	Circularly permuted and PAM-modified Cas9 variants broaden the targeting scope of base editors. Nature Biotechnology, 2019, 37, 626-631.	9.4	207
40	Analysis and minimization of cellular RNA editing by DNA adenine base editors. Science Advances, 2019, 5, eaax5717.	4.7	206
41	Rewritable multi-event analog recording in bacterial and mammalian cells. Science, 2018, 360, .	6.0	193
42	Potent Delivery of Functional Proteins into Mammalian Cells <i>in Vitro</i> and <i>in Vivo</i> Using a Supercharged Protein. ACS Chemical Biology, 2010, 5, 747-752.	1.6	185
43	Continuous directed evolution of aminoacyl-tRNA synthetases. Nature Chemical Biology, 2017, 13, 1253-1260.	3.9	185
44	Broad specificity profiling of TALENs results in engineered nucleases with improved DNA-cleavage specificity. Nature Methods, 2014, 11, 429-435.	9.0	182
45	Massively parallel assessment of human variants with base editor screens. Cell, 2021, 184, 1064-1080.e20.	13.5	175
46	Base editing of haematopoietic stem cells rescues sickle cell disease in mice. Nature, 2021, 595, 295-302.	13.7	175
47	Programmable m6A modification of cellular RNAs with a Cas13-directed methyltransferase. Nature Biotechnology, 2020, 38, 1431-1440.	9.4	173
48	A DNA-based molecular probe for optically reporting cellular traction forces. Nature Methods, 2014, 11, 1229-1232.	9.0	171
49	Aptazyme-embedded guide RNAs enable ligand-responsive genome editing and transcriptional activation. Nature Communications, 2017, 8, 15939.	5.8	169
50	In vivo base editing of post-mitotic sensory cells. Nature Communications, 2018, 9, 2184.	5.8	166
51	Determinants of Base Editing Outcomes from Target Library Analysis and Machine Learning. Cell, 2020, 182, 463-480.e30.	13.5	166
52	Continuous evolution of Bacillus thuringiensis toxins overcomes insect resistance. Nature, 2016, 533, 58-63.	13.7	159
53	Reprogramming the specificity of sortase enzymes. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 13343-13348.	3.3	151
54	Development of potent in vivo mutagenesis plasmids with broad mutational spectra. Nature Communications, 2015, 6, 8425.	5.8	138

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55	Adenine base editing in an adult mouse model of tyrosinaemia. Nature Biomedical Engineering, 2020, 4, 125-130.	11.6	136
56	A High-Throughput Platform to Identify Small-Molecule Inhibitors of CRISPR-Cas9. Cell, 2019, 177, 1067-1079.e19.	13.5	133
57	Therapeutic inÂvivo delivery of gene editing agents. Cell, 2022, 185, 2806-2827.	13.5	131
58	Negative selection and stringency modulation in phage-assisted continuous evolution. Nature Chemical Biology, 2014, 10, 216-222.	3.9	129
59	Efficient Câ€¢G-to-Gâ€¢C base editors developed using CRISPRi screens, target-library analysis, and machine learning. Nature Biotechnology, 2021, 39, 1414-1425.	9.4	118
60	DNA capture by a CRISPR-Cas9â€"guided adenine base editor. Science, 2020, 369, 566-571.	6.0	114
61	In vivo base editing restores sensory transduction and transiently improves auditory function in a mouse model of recessive deafness. Science Translational Medicine, 2020, 12, .	5.8	114
62	Discovery and Characterization of a Peptide That Enhances Endosomal Escape of Delivered Proteins in Vitro and in Vivo. Journal of the American Chemical Society, 2015, 137, 14084-14093.	6.6	109
63	A Class of Human Proteins that Deliver Functional Proteins into Mammalian Cells InÂVitro and InÂVivo. Chemistry and Biology, 2011, 18, 833-838.	6.2	98
64	High-throughput analysis of the activities of xCas9, SpCas9-NG and SpCas9 at matched and mismatched target sequences in human cells. Nature Biomedical Engineering, 2020, 4, 111-124.	11.6	98
65	Experimental interrogation of the path dependence and stochasticity of protein evolution using phage-assisted continuous evolution. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 9007-9012.	3.3	92
66	Restoration of visual function in adult mice with an inherited retinal disease via adenine base editing. Nature Biomedical Engineering, 2021, 5, 169-178.	11.6	90
67	Precision genome editing using cytosine and adenine base editors in mammalian cells. Nature Protocols, 2021, 16, 1089-1128.	5.5	90
68	Editing the Genome Without Double-Stranded DNA Breaks. ACS Chemical Biology, 2018, 13, 383-388.	1.6	89
69	Continuous directed evolution of DNA-binding proteins to improve TALEN specificity. Nature Methods, 2015, 12, 939-942.	9.0	88
70	InÂvivo somatic cell base editing and prime editing. Molecular Therapy, 2021, 29, 3107-3124.	3.7	87
71	Phage-assisted continuous evolution of proteases with altered substrate specificity. Nature Communications, 2017, 8, 956.	5.8	85
72	The NIH Somatic Cell Genome Editing program. Nature, 2021, 592, 195-204.	13.7	84

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73	Evolution of sequence-defined highly functionalized nucleic acid polymers. Nature Chemistry, 2018, 10, 420-427.	6.6	83
74	A system for the continuous directed evolution of proteases rapidly reveals drug-resistance mutations. Nature Communications, 2014, 5, 5352.	5.8	82
75	CRISPR-free base editors with enhanced activity and expanded targeting scope in mitochondrial and nuclear DNA. Nature Biotechnology, 2022, 40, 1378-1387.	9.4	81
76	Cellular Uptake Mechanisms and Endosomal Trafficking of Supercharged Proteins. Chemistry and Biology, 2012, 19, 831-843.	6.2	80
77	The developing toolkit of continuous directed evolution. Nature Chemical Biology, 2020, 16, 610-619.	3.9	80
78	Development of hRad51â€“Cas9 nickase fusions that mediate HDR without double-stranded breaks. Nature Communications, 2019, 10, 2212.	5.8	76
79	Identification of Ligandâ€“Target Pairs from Combined Libraries of Small Molecules and Unpurified Protein Targets in Cell Lysates. Journal of the American Chemical Society, 2014, 136, 3264-3270.	6.6	74
80	Crystal structures reveal an elusive functional domain of pyrrolysyl-tRNA synthetase. Nature Chemical Biology, 2017, 13, 1261-1266.	3.9	73
81	Targeting fidelity of adenine and cytosine base editors in mouse embryos. Nature Communications, 2018, 9, 4804.	5.8	72
82	One-Pot Dual Labeling of IgG 1 and Preparation of C-to-C Fusion Proteins Through a Combination of Sortase A and Butelase 1. Bioconjugate Chemistry, 2018, 29, 3245-3249.	1.8	72
83	Glucose Response by Stem Cell-Derived Î² Cells InÂVitro Is Inhibited by a Bottleneck in Glycolysis. Cell Reports, 2020, 31, 107623.	2.9	72
84	Continuous directed evolution of proteins with improved soluble expression. Nature Chemical Biology, 2018, 14, 972-980.	3.9	71
85	Enhanced Functional Potential of Nucleic Acid Aptamer Libraries Patterned to Increase Secondary Structure. Journal of the American Chemical Society, 2010, 132, 9453-9464.	6.6	70
86	Base Editor Correction of COL7A1 in RecessiveÂDystrophic Epidermolysis Bullosa Patient-Derived Fibroblasts and iPSCs. Journal of Investigative Dermatology, 2020, 140, 338-347.e5.	0.3	69
87	Discovery of a Covalent Kinase Inhibitor from a DNA-Encoded Small-Molecule Library Ã— Protein Library Selection. Journal of the American Chemical Society, 2017, 139, 10192-10195.	6.6	67
88	Chemical modifications of adenine base editor mRNA and guide RNA expand its application scope. Nature Communications, 2020, 11, 1979.	5.8	66
89	Analysis of Active Site Residues inEscherichia coliChorismate Mutase by Site-Directed Mutagenesis. Journal of the American Chemical Society, 1996, 118, 1789-1790.	6.6	65
90	DNA Ligase-Mediated Translation of DNA Into Densely Functionalized Nucleic Acid Polymers. Journal of the American Chemical Society, 2013, 135, 98-101.	6.6	65

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91	In vivo continuous directed evolution. Current Opinion in Chemical Biology, 2015, 24, 1-10.	2.8	65
92	Prime editing in mice reveals the essentiality of a single base in driving tissue-specific gene expression. Genome Biology, 2021, 22, 83.	3.8	62
93	Phage-Assisted Evolution of <i>Bacillus methanolicus</i> Methanol Dehydrogenase 2. ACS Synthetic Biology, 2019, 8, 796-806.	1.9	61
94	Determining the Specificities of TALENs, Cas9, and Other Genome-Editing Enzymes. Methods in Enzymology, 2014, 546, 47-78.	0.4	59
95	Novel selection methods for DNA-encoded chemical libraries. Current Opinion in Chemical Biology, 2015, 26, 55-61.	2.8	54
96	Green fluorescent proteins engineered for cartilage-targeted drug delivery: Insights for transport into highly charged avascular tissues. Biomaterials, 2018, 183, 218-233.	5.7	50
97	A programmable Cas9-serine recombinase fusion protein that operates on DNA sequences in mammalian cells. Nucleic Acids Research, 2016, 44, gkw707.	6.5	46
98	Phage-assisted evolution of botulinum neurotoxin proteases with reprogrammed specificity. Science, 2021, 371, 803-810.	6.0	46
99	Ensemble cryoEM elucidates the mechanism of insulin capture and degradation by human insulin degrading enzyme. ELife, 2018, 7, .	2.8	45
100	CREB5 Promotes Resistance to Androgen-Receptor Antagonists and Androgen Deprivation in Prostate Cancer. Cell Reports, 2019, 29, 2355-2370.e6.	2.9	45
101	Development of a formaldehyde biosensor with application to synthetic methylotrophy. Biotechnology and Bioengineering, 2018, 115, 206-215.	1.7	44
102	Chemical Biology Approaches to Genome Editing: Understanding, Controlling, and Delivering Programmable Nucleases. Cell Chemical Biology, 2016, 23, 57-73.	2.5	42
103	Phage-assisted continuous and non-continuous evolution. Nature Protocols, 2020, 15, 4101-4127.	5.5	42
104	In vivo base editing rescues cone photoreceptors in a mouse model of early-onset inherited retinal degeneration. Nature Communications, 2022, 13, 1830.	5.8	42
105	Analytical Devices Based on Direct Synthesis of DNA on Paper. Analytical Chemistry, 2016, 88, 725-731.	3.2	38
106	A Population-Based Experimental Model for Protein Evolution: Effects of Mutation Rate and Selection Stringency on Evolutionary Outcomes. Biochemistry, 2013, 52, 1490-1499.	1.2	37
107	Substrate-selective inhibitors that reprogram the activity of insulin-degrading enzyme. Nature Chemical Biology, 2019, 15, 565-574.	3.9	36
108	Laboratory evolution of a sortase enzyme that modifies amyloid-Î² protein. Nature Chemical Biology, 2021, 17, 317-325.	3.9	34

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109	In situ regeneration of bioactive coatings enabled by an evolved Staphylococcus aureus sortase A. Nature Communications, 2016, 7, 11140.	5.8	33
110	Electrophilic activity-based RNA probes reveal a self-alkylating RNA for RNA labeling. Nature Chemical Biology, 2014, 10, 1049-1054.	3.9	30
111	Immobilization of Actively Thromboresistant Assemblies on Sterile Bloodâ€Contacting Surfaces. Advanced Healthcare Materials, 2014, 3, 30-35.	3.9	28
112	Functional correction of<i>CFTR</i>mutations in human airway epithelial cells using adenine base editors. Nucleic Acids Research, 2021, 49, 10558-10572.	6.5	25
113	Disruption of HIV-1 co-receptors CCR5 and CXCR4 in primary human TÂcells and hematopoietic stem and progenitor cells using base editing. Molecular Therapy, 2022, 30, 130-144.	3.7	23
114	High-resolution specificity profiling and off-target prediction for site-specific DNA recombinases. Nature Communications, 2019, 10, 1937.	5.8	22
115	An anionic human protein mediates cationic liposome delivery of genome editing proteins into mammalian cells. Nature Communications, 2019, 10, 2905.	5.8	20
116	Side chain determinants of biopolymer function during selection and replication. Nature Chemical Biology, 2019, 15, 419-426.	3.9	17
117	Prioritization of autoimmune disease-associated genetic variants that perturb regulatory element activity in T cells. Nature Genetics, 2022, 54, 603-612.	9.4	15
118	Multimodal small-molecule screening for human prion protein binders. Journal of Biological Chemistry, 2020, 295, 13516-13531.	1.6	14
119	Disulfide-compatible phage-assisted continuous evolution in the periplasmic space. Nature Communications, 2021, 12, 5959.	5.8	13
120	Structural and Biochemical Basis for Intracellular Kinase Inhibition by Src-specific Peptidic Macrocycles. Cell Chemical Biology, 2016, 23, 1103-1112.	2.5	12
121	Simultaneous targeting of linked loci in mouse embryos using base editing. Scientific Reports, 2019, 9, 1662.	1.6	12
122	Mechanisms of angiogenic incompetence in Hutchinsonâ€"Gilford progeria via downregulation of endothelial NOS. Aging Cell, 2021, 20, e13388.	3.0	11
123	A naturally occurring, noncanonical GTP aptamer made of simple tandem repeats. RNA Biology, 2014, 11, 682-692.	1.5	9
124	A rechargeable anti-thrombotic coating for blood-contacting devices. Biomaterials, 2021, 276, 121011.	5.7	8
125	Adenosine Base Editing of Î³-Globin Promoters Induces Fetal Hemoglobin and Inhibit Erythroid Sickling. Blood, 2020, 136, 21-22.	0.6	8
126	Reconstruction of evolving gene variants and fitness from short sequencing reads. Nature Chemical Biology, 2021, 17, 1188-1198.	3.9	8

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127	Base editor treats progeria in mice. Nature, 2021, , .	13.7	4