

# David R Liu

## 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.

130  
papers

21,500  
citations

60  
h-index

146  
g-index

149  
ext. papers

29,141  
ext. citations

24.3  
avg, IF

7.73  
L-index

#	Paper	IF	Citations
130	Programmable editing of a target base in genomic DNA without double-stranded DNA cleavage. <i>Nature</i> , <b>2016</b> , 533, 420-4	50.4	2264
129	Programmable base editing of A:T to G:C in genomic DNA without DNA cleavage. <i>Nature</i> , <b>2017</b> , 551, 464-471	50.4	1643
128	Search-and-replace genome editing without double-strand breaks or donor DNA. <i>Nature</i> , <b>2019</b> , 576, 149-157	51.7	1318
127	High-throughput profiling of off-target DNA cleavage reveals RNA-programmed Cas9 nuclease specificity. <i>Nature Biotechnology</i> , <b>2013</b> , 31, 839-43	44.5	1078
126	Cationic lipid-mediated delivery of proteins enables efficient protein-based genome editing in vitro and in vivo. <i>Nature Biotechnology</i> , <b>2015</b> , 33, 73-80	44.5	904
125	Evolved Cas9 variants with broad PAM compatibility and high DNA specificity. <i>Nature</i> , <b>2018</b> , 556, 57-63	50.4	836
124	Base editing: precision chemistry on the genome and transcriptome of living cells. <i>Nature Reviews Genetics</i> , <b>2018</b> , 19, 770-788	30.1	635
123	Fusion of catalytically inactive Cas9 to FokI nuclease improves the specificity of genome modification. <i>Nature Biotechnology</i> , <b>2014</b> , 32, 577-582	44.5	624
122	CRISPR-Based Technologies for the Manipulation of Eukaryotic Genomes. <i>Cell</i> , <b>2017</b> , 168, 20-36	56.2	545
121	Methods for the directed evolution of proteins. <i>Nature Reviews Genetics</i> , <b>2015</b> , 16, 379-94	30.1	487
120	Genome editing with CRISPR-Cas nucleases, base editors, transposases and prime editors. <i>Nature Biotechnology</i> , <b>2020</b> , 38, 824-844	44.5	466
119	Increasing the genome-targeting scope and precision of base editing with engineered Cas9-cytidine deaminase fusions. <i>Nature Biotechnology</i> , <b>2017</b> , 35, 371-376	44.5	437
118	Sequence Determinants of Intracellular Phase Separation by Complex Coacervation of a Disordered Protein. <i>Molecular Cell</i> , <b>2016</b> , 63, 72-85	17.6	395
117	A system for the continuous directed evolution of biomolecules. <i>Nature</i> , <b>2011</b> , 472, 499-503	50.4	383
116	Improved base excision repair inhibition and bacteriophage Mu Gam protein yields C:G-to-T:A base editors with higher efficiency and product purity. <i>Science Advances</i> , <b>2017</b> , 3, eaao4774	14.3	380
115	Efficient delivery of genome-editing proteins using bioreducible lipid nanoparticles. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2016</b> , 113, 2868-73	11.5	367
114	A general strategy for the evolution of bond-forming enzymes using yeast display. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2011</b> , 108, 11399-404	11.5	358

113	Supercharging proteins can impart unusual resilience. <i>Journal of the American Chemical Society</i> , <b>2007</b> , 129, 10110-2	16.4	357
112	Revealing off-target cleavage specificities of zinc-finger nucleases by in vitro selection. <i>Nature Methods</i> , <b>2011</b> , 8, 765-70	21.6	355
111	Improving cytidine and adenine base editors by expression optimization and ancestral reconstruction. <i>Nature Biotechnology</i> , <b>2018</b> , 36, 843-846	44.5	348
110	CRISPResso2 provides accurate and rapid genome editing sequence analysis. <i>Nature Biotechnology</i> , <b>2019</b> , 37, 224-226	44.5	326
109	Prime genome editing in rice and wheat. <i>Nature Biotechnology</i> , <b>2020</b> , 38, 582-585	44.5	299
108	Small molecule-triggered Cas9 protein with improved genome-editing specificity. <i>Nature Chemical Biology</i> , <b>2015</b> , 11, 316-8	11.7	286
107	Treatment of autosomal dominant hearing loss by in vivo delivery of genome editing agents. <i>Nature</i> , <b>2018</b> , 553, 217-221	50.4	286
106	Predictable and precise template-free CRISPR editing of pathogenic variants. <i>Nature</i> , <b>2018</b> , 563, 646-651	50.4	250
105	Improving the DNA specificity and applicability of base editing through protein engineering and protein delivery. <i>Nature Communications</i> , <b>2017</b> , 8, 15790	17.4	240
104	A bacterial cytidine deaminase toxin enables CRISPR-free mitochondrial base editing. <i>Nature</i> , <b>2020</b> , 583, 631-637	50.4	175
103	Phage-assisted evolution of an adenine base editor with improved Cas domain compatibility and activity. <i>Nature Biotechnology</i> , <b>2020</b> , 38, 883-891	44.5	171
102	Anti-diabetic activity of insulin-degrading enzyme inhibitors mediated by multiple hormones. <i>Nature</i> , <b>2014</b> , 511, 94-8	50.4	164
101	Potent delivery of functional proteins into Mammalian cells in vitro and in vivo using a supercharged protein. <i>ACS Chemical Biology</i> , <b>2010</b> , 5, 747-52	4.9	159
100	Broad specificity profiling of TALENs results in engineered nucleases with improved DNA-cleavage specificity. <i>Nature Methods</i> , <b>2014</b> , 11, 429-35	21.6	157
99	Evaluation and minimization of Cas9-independent off-target DNA editing by cytosine base editors. <i>Nature Biotechnology</i> , <b>2020</b> , 38, 620-628	44.5	142
98	Cytosine and adenine base editing of the brain, liver, retina, heart and skeletal muscle of mice via adeno-associated viruses. <i>Nature Biomedical Engineering</i> , <b>2020</b> , 4, 97-110	19	134
97	A DNA-based molecular probe for optically reporting cellular traction forces. <i>Nature Methods</i> , <b>2014</b> , 11, 1229-32	21.6	133
96	Aptazyme-embedded guide RNAs enable ligand-responsive genome editing and transcriptional activation. <i>Nature Communications</i> , <b>2017</b> , 8, 15939	17.4	127

95	Continuous evolution of <i>Bacillus thuringiensis</i> toxins overcomes insect resistance. <i>Nature</i> , <b>2016</b> , 533, 58-63	50.4	125
94	Continuous directed evolution of aminoacyl-tRNA synthetases. <i>Nature Chemical Biology</i> , <b>2017</b> , 13, 1253-1260	12.6	124
93	Analysis and minimization of cellular RNA editing by DNA adenine base editors. <i>Science Advances</i> , <b>2019</b> , 5, eaax5717	14.3	124
92	Continuous evolution of SpCas9 variants compatible with non-G PAMs. <i>Nature Biotechnology</i> , <b>2020</b> , 38, 471-481	44.5	120
91	Rewritable multi-event analog recording in bacterial and mammalian cells. <i>Science</i> , <b>2018</b> , 360,	33.3	120
90	In vivo base editing of post-mitotic sensory cells. <i>Nature Communications</i> , <b>2018</b> , 9, 2184	17.4	119
89	Circularly permuted and PAM-modified Cas9 variants broaden the targeting scope of base editors. <i>Nature Biotechnology</i> , <b>2019</b> , 37, 626-631	44.5	118
88	Continuous evolution of base editors with expanded target compatibility and improved activity. <i>Nature Biotechnology</i> , <b>2019</b> , 37, 1070-1079	44.5	111
87	Reprogramming the specificity of sortase enzymes. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2014</b> , 111, 13343-8	11.5	104
86	Development of potent in vivo mutagenesis plasmids with broad mutational spectra. <i>Nature Communications</i> , <b>2015</b> , 6, 8425	17.4	98
85	Negative selection and stringency modulation in phage-assisted continuous evolution. <i>Nature Chemical Biology</i> , <b>2014</b> , 10, 216-22	11.7	98
84	In vivo base editing rescues Hutchinson-Gilford progeria syndrome in mice. <i>Nature</i> , <b>2021</b> , 589, 608-614	50.4	92
83	Discovery and characterization of a peptide that enhances endosomal escape of delivered proteins in vitro and in vivo. <i>Journal of the American Chemical Society</i> , <b>2015</b> , 137, 14084-93	16.4	88
82	Adenine base editing in an adult mouse model of tyrosinaemia. <i>Nature Biomedical Engineering</i> , <b>2020</b> , 4, 125-130	19	86
81	A class of human proteins that deliver functional proteins into mammalian cells in vitro and in vivo. <i>Chemistry and Biology</i> , <b>2011</b> , 18, 833-8		80
80	A High-Throughput Platform to Identify Small-Molecule Inhibitors of CRISPR-Cas9. <i>Cell</i> , <b>2019</b> , 177, 1067-1079.e19	36.7	79
79	Determinants of Base Editing Outcomes from Target Library Analysis and Machine Learning. <i>Cell</i> , <b>2020</b> , 182, 463-480.e30	56.2	75
78	Continuous directed evolution of DNA-binding proteins to improve TALEN specificity. <i>Nature Methods</i> , <b>2015</b> , 12, 939-42	21.6	74

77	Experimental interrogation of the path dependence and stochasticity of protein evolution using phage-assisted continuous evolution. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2013</b> , 110, 9007-12	11.5	71
76	Editing the Genome Without Double-Stranded DNA Breaks. <i>ACS Chemical Biology</i> , <b>2018</b> , 13, 383-388	4.9	69
75	Programmable mA modification of cellular RNAs with a Cas13-directed methyltransferase. <i>Nature Biotechnology</i> , <b>2020</b> , 38, 1431-1440	44.5	66
74	Cellular uptake mechanisms and endosomal trafficking of supercharged proteins. <i>Chemistry and Biology</i> , <b>2012</b> , 19, 831-43		66
73	A system for the continuous directed evolution of proteases rapidly reveals drug-resistance mutations. <i>Nature Communications</i> , <b>2014</b> , 5, 5352	17.4	64
72	High-throughput analysis of the activities of xCas9, SpCas9-NG and SpCas9 at matched and mismatched target sequences in human cells. <i>Nature Biomedical Engineering</i> , <b>2020</b> , 4, 111-124	19	60
71	Analysis of Active Site Residues in Escherichia coli Chorismate Mutase by Site-Directed Mutagenesis. <i>Journal of the American Chemical Society</i> , <b>1996</b> , 118, 1789-1790	16.4	58
70	Identification of ligand-target pairs from combined libraries of small molecules and unpurified protein targets in cell lysates. <i>Journal of the American Chemical Society</i> , <b>2014</b> , 136, 3264-70	16.4	55
69	Evolution of sequence-defined highly functionalized nucleic acid polymers. <i>Nature Chemistry</i> , <b>2018</b> , 10, 420-427	17.6	54
68	Determining the specificities of TALENs, Cas9, and other genome-editing enzymes. <i>Methods in Enzymology</i> , <b>2014</b> , 546, 47-78	1.7	54
67	In vivo base editing restores sensory transduction and transiently improves auditory function in a mouse model of recessive deafness. <i>Science Translational Medicine</i> , <b>2020</b> , 12,	17.5	53
66	Enhanced functional potential of nucleic acid aptamer libraries patterned to increase secondary structure. <i>Journal of the American Chemical Society</i> , <b>2010</b> , 132, 9453-64	16.4	53
65	Development of hRad51-Cas9 nickase fusions that mediate HDR without double-stranded breaks. <i>Nature Communications</i> , <b>2019</b> , 10, 2212	17.4	52
64	Continuous directed evolution of proteins with improved soluble expression. <i>Nature Chemical Biology</i> , <b>2018</b> , 14, 972-980	11.7	52
63	Novel selection methods for DNA-encoded chemical libraries. <i>Current Opinion in Chemical Biology</i> , <b>2015</b> , 26, 55-61	9.7	50
62	Phage-assisted continuous evolution of proteases with altered substrate specificity. <i>Nature Communications</i> , <b>2017</b> , 8, 956	17.4	49
61	Massively parallel assessment of human variants with base editor screens. <i>Cell</i> , <b>2021</b> , 184, 1064-1080.e206.2	20.2	49
60	Discovery of a Covalent Kinase Inhibitor from a DNA-Encoded Small-Molecule Library [Protein Library Selection. <i>Journal of the American Chemical Society</i> , <b>2017</b> , 139, 10192-10195	16.4	48

59	DNA ligase-mediated translation of DNA into densely functionalized nucleic acid polymers. <i>Journal of the American Chemical Society</i> , <b>2013</b> , 135, 98-101	16.4	48
58	Enhanced prime editing systems by manipulating cellular determinants of editing outcomes. <i>Cell</i> , <b>2021</b> , 184, 5635-5652.e29	56.2	48
57	Targeting fidelity of adenine and cytosine base editors in mouse embryos. <i>Nature Communications</i> , <b>2018</b> , 9, 4804	17.4	48
56	Crystal structures reveal an elusive functional domain of pyrrolysyl-tRNA synthetase. <i>Nature Chemical Biology</i> , <b>2017</b> , 13, 1261-1266	11.7	47
55	One-Pot Dual Labeling of IgG 1 and Preparation of C-to-C Fusion Proteins Through a Combination of Sortase A and Butelase 1. <i>Bioconjugate Chemistry</i> , <b>2018</b> , 29, 3245-3249	6.3	46
54	In vivo continuous directed evolution. <i>Current Opinion in Chemical Biology</i> , <b>2015</b> , 24, 1-10	9.7	45
53	A programmable Cas9-serine recombinase fusion protein that operates on DNA sequences in mammalian cells. <i>Nucleic Acids Research</i> , <b>2016</b> , 44, 9758-9770	20.1	38
52	Phage-Assisted Evolution of Bacillus methanolicus Methanol Dehydrogenase 2. <i>ACS Synthetic Biology</i> , <b>2019</b> , 8, 796-806	5.7	37
51	Engineered pegRNAs improve prime editing efficiency. <i>Nature Biotechnology</i> , <b>2021</b> ,	44.5	37
50	DNA capture by a CRISPR-Cas9-guided adenine base editor. <i>Science</i> , <b>2020</b> , 369, 566-571	33.3	37
49	Chemical Biology Approaches to Genome Editing: Understanding, Controlling, and Delivering Programmable Nucleases. <i>Cell Chemical Biology</i> , <b>2016</b> , 23, 57-73	8.2	35
48	Analytical Devices Based on Direct Synthesis of DNA on Paper. <i>Analytical Chemistry</i> , <b>2016</b> , 88, 725-31	7.8	34
47	A population-based experimental model for protein evolution: effects of mutation rate and selection stringency on evolutionary outcomes. <i>Biochemistry</i> , <b>2013</b> , 52, 1490-9	3.2	33
46	Base Editor Correction of COL7A1 in Recessive Dystrophic Epidermolysis Bullosa Patient-Derived Fibroblasts and iPSCs. <i>Journal of Investigative Dermatology</i> , <b>2020</b> , 140, 338-347.e5	4.3	33
45	Efficient C-to-G base editors developed using CRISPRi screens, target-library analysis, and machine learning. <i>Nature Biotechnology</i> , <b>2021</b> , 39, 1414-1425	44.5	32
44	Chemical modifications of adenine base editor mRNA and guide RNA expand its application scope. <i>Nature Communications</i> , <b>2020</b> , 11, 1979	17.4	31
43	Development of a formaldehyde biosensor with application to synthetic methylotrophy. <i>Biotechnology and Bioengineering</i> , <b>2018</b> , 115, 206-215	4.9	31
42	Base editing of haematopoietic stem cells rescues sickle cell disease in mice. <i>Nature</i> , <b>2021</b> , 595, 295-302	50.4	31

41	Glucose Response by Stem Cell-Derived Cells In Vitro Is Inhibited by a Bottleneck in Glycolysis. <i>Cell Reports</i> , <b>2020</b> , 31, 107623	10.6	29
40	In situ regeneration of bioactive coatings enabled by an evolved <i>Staphylococcus aureus</i> sortase A. <i>Nature Communications</i> , <b>2016</b> , 7, 11140	17.4	28
39	Green fluorescent proteins engineered for cartilage-targeted drug delivery: Insights for transport into highly charged avascular tissues. <i>Biomaterials</i> , <b>2018</b> , 183, 218-233	15.6	28
38	The developing toolkit of continuous directed evolution. <i>Nature Chemical Biology</i> , <b>2020</b> , 16, 610-619	11.7	28
37	Restoration of visual function in adult mice with an inherited retinal disease via adenine base editing. <i>Nature Biomedical Engineering</i> , <b>2021</b> , 5, 169-178	19	28
36	Immobilization of actively thromboresistant assemblies on sterile blood-contacting surfaces. <i>Advanced Healthcare Materials</i> , <b>2014</b> , 3, 30-5	10.1	27
35	Precision genome editing using cytosine and adenine base editors in mammalian cells. <i>Nature Protocols</i> , <b>2021</b> , 16, 1089-1128	18.8	27
34	Ensemble cryoEM elucidates the mechanism of insulin capture and degradation by human insulin degrading enzyme. <i>ELife</i> , <b>2018</b> , 7,	8.9	27
33	Engineered virus-like particles for efficient in vivo delivery of therapeutic proteins.. <i>Cell</i> , <b>2022</b> , 185, 250-265.e166	36.5	16
32	Electrophilic activity-based RNA probes reveal a self-alkylating RNA for RNA labeling. <i>Nature Chemical Biology</i> , <b>2014</b> , 10, 1049-54	11.7	25
31	Prime editing in mice reveals the essentiality of a single base in driving tissue-specific gene expression. <i>Genome Biology</i> , <b>2021</b> , 22, 83	18.3	24
30	Substrate-selective inhibitors that reprogram the activity of insulin-degrading enzyme. <i>Nature Chemical Biology</i> , <b>2019</b> , 15, 565-574	11.7	21
29	The NIH Somatic Cell Genome Editing program. <i>Nature</i> , <b>2021</b> , 592, 195-204	50.4	21
28	In vivo somatic cell base editing and prime editing. <i>Molecular Therapy</i> , <b>2021</b> , 29, 3107-3124	11.7	20
27	Programmable deletion, replacement, integration and inversion of large DNA sequences with twin prime editing. <i>Nature Biotechnology</i> , <b>2021</b> ,	44.5	18
26	CREB5 Promotes Resistance to Androgen-Receptor Antagonists and Androgen Deprivation in Prostate Cancer. <i>Cell Reports</i> , <b>2019</b> , 29, 2355-2370.e6	10.6	17
25	Side chain determinants of biopolymer function during selection and replication. <i>Nature Chemical Biology</i> , <b>2019</b> , 15, 419-426	11.7	15
24	Phage-assisted continuous and non-continuous evolution. <i>Nature Protocols</i> , <b>2020</b> , 15, 4101-4127	18.8	11

23	High-resolution specificity profiling and off-target prediction for site-specific DNA recombinases. <i>Nature Communications</i> , <b>2019</b> , 10, 1937	17.4	10
22	Simultaneous targeting of linked loci in mouse embryos using base editing. <i>Scientific Reports</i> , <b>2019</b> , 9, 1662	4.9	10
21	Laboratory evolution of a sortase enzyme that modifies amyloid- $\beta$ protein. <i>Nature Chemical Biology</i> , <b>2021</b> , 17, 317-325	11.7	10
20	Structural and Biochemical Basis for Intracellular Kinase Inhibition by Src-specific Peptidic Macrocytes. <i>Cell Chemical Biology</i> , <b>2016</b> , 23, 1103-1112	8.2	9
19	Phage-assisted evolution of botulinum neurotoxin proteases with reprogrammed specificity. <i>Science</i> , <b>2021</b> , 371, 803-810	33.3	9
18	PrimeDesign software for rapid and simplified design of prime editing guide RNAs		8
17	In vivo base editing rescues cone photoreceptors in a mouse model of early-onset inherited retinal degeneration.. <i>Nature Communications</i> , <b>2022</b> , 13, 1830	17.4	8
16	CRISPR-free base editors with enhanced activity and expanded targeting scope in mitochondrial and nuclear DNA.. <i>Nature Biotechnology</i> , <b>2022</b> ,	44.5	7
15	An anionic human protein mediates cationic liposome delivery of genome editing proteins into mammalian cells. <i>Nature Communications</i> , <b>2019</b> , 10, 2905	17.4	6
14	Multimodal small-molecule screening for human prion protein binders. <i>Journal of Biological Chemistry</i> , <b>2020</b> , 295, 13516-13531	5.4	6
13	Targeted Antithrombotic Protein Micelles. <i>Angewandte Chemie</i> , <b>2015</b> , 127, 1481-1485	3.6	5
12	A naturally occurring, noncanonical GTP aptamer made of simple tandem repeats. <i>RNA Biology</i> , <b>2014</b> , 11, 682-92	4.8	5
11	Massively parallel assessment of human variants with base editor screens		5
10	Adenosine Base Editing of $\beta$ Globin Promoters Induces Fetal Hemoglobin and Inhibit Erythroid Sickling. <i>Blood</i> , <b>2020</b> , 136, 21-22	2.2	3
9	Disulfide-compatible phage-assisted continuous evolution in the periplasmic space. <i>Nature Communications</i> , <b>2021</b> , 12, 5959	17.4	3
8	Using DNA to Program Chemical Synthesis, Discover New Reactions, and Detect Ligand Binding <b>2014</b> , 377-415		2
7	Mechanisms of angiogenic incompetence in Hutchinson-Gilford progeria via downregulation of endothelial NOS. <i>Aging Cell</i> , <b>2021</b> , 20, e13388	9.9	2
6	A rechargeable anti-thrombotic coating for blood-contacting devices. <i>Biomaterials</i> , <b>2021</b> , 276, 121011	15.6	2



- 5 Functional correction of CFTR mutations in human airway epithelial cells using adenine base editors. *Nucleic Acids Research*, **2021**, 49, 10558-10572 20.1 2
- 4 Programmable large DNA deletion, replacement, integration, and inversion with twin prime editing and site-specific recombinases 1
- 3 Prime Editing in Mice Reveals the Essentiality of a Single Base in Driving Tissue-Specific Gene Expression 1
- 2 Reconstruction of evolving gene variants and fitness from short sequencing reads. *Nature Chemical Biology*, **2021**, 17, 1188-1198 11.7 0
- 1 Nucleic Acid-Templated Synthesis of Sequence-Defined Synthetic Polymers **2017**, 49-90