Gerald F Joyce

List of Publications by Citations

79 papers	9,677 citations	37 h-index	88 g-index
88 ext. papers	10,707 ext. citations	17.4 avg, IF	6.75 L-index

#	Paper	IF	Citations
79	Selection in vitro of an RNA enzyme that specifically cleaves single-stranded DNA. *Nature*, **1990**, 344, 467-8	50.4	1097
78	A DNA enzyme that cleaves RNA. *Chemistry and Biology*, **1994**, 1, 223-9		1045
77	A 1.7-kilobase single-stranded DNA that folds into a nanoscale octahedron. *Nature*, **2004**, 427, 618-21	50.4	807
76	The antiquity of RNA-based evolution. *Nature*, **2002**, 418, 214-21	50.4	749
75	RNA evolution and the origins of life. *Nature*, **1989**, 338, 217-24	50.4	509
74	Self-sustained replication of an RNA enzyme. *Science*, **2009**, 323, 1229-32	33.3	466
73	Directed evolution of nucleic acid enzymes. *Annual Review of Biochemistry*, **2004**, 73, 791-836	29.1	433
72	Mechanism and utility of an RNA-cleaving DNA enzyme. *Biochemistry*, **1998**, 37, 13330-42	3.2	369
71	A DNA enzyme with Mg(2+)-dependent RNA phosphoesterase activity. *Chemistry and Biology*, **1995**, 2, 655-60		343
70	RNA cleavage by a DNA enzyme with extended chemical functionality. *Journal of the American Chemical Society*, **2000**, 122, 2433-9	16.4	325
69	The origins of the RNA world. *Cold Spring Harbor Perspectives in Biology*, **2012**, 4,	10.2	294
68	Forty years of in vitro evolution. *Angewandte Chemie - International Edition*, **2007**, 46, 6420-36	16.4	232
67	A self-replicating ligase ribozyme. *Proceedings of the National Academy of Sciences of the United States of America*, **2002**, 99, 12733-40	11.5	194
66	Evolution in vitro of an RNA enzyme with altered metal dependence. *Nature*, **1993**, 361, 182-5	50.4	180
65	Continuous in vitro evolution of catalytic function. *Science*, **1997**, 276, 614-7	33.3	171
64	Amplification, mutation and selection of catalytic RNA. *Gene*, **1989**, 82, 83-7	3.8	150
63	Crystal structure of an 82-nucleotide RNA-DNA complex formed by the 10-23 DNA enzyme. *Nature Structural Biology*, **1999**, 6, 151-6		138

62	Amplification of RNA by an RNA polymerase ribozyme. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 9786-91	11.5	129
61	A cross-chiral RNA polymerase ribozyme. *Nature*, **2014**, 515, 440-2	50.4	129
60	Minimal self-replicating systems. *Current Opinion in Chemical Biology*, **2004**, 8, 634-9	9.7	112
59	Protocells and RNA Self-Replication. *Cold Spring Harbor Perspectives in Biology*, **2018**, 10,	10.2	104
58	Selective derivatization and sequestration of ribose from a prebiotic mix. *Journal of the American Chemical Society*, **2004**, 126, 9578-83	16.4	95
57	Cross-catalytic replication of an RNA ligase ribozyme. *Chemistry and Biology*, **2004**, 11, 1505-12		93
56	A ribozyme composed of only two different nucleotides. *Nature*, **2002**, 420, 841-4	50.4	85
55	A ribozyme that lacks cytidine. *Nature*, **1999**, 402, 323-5	50.4	82
54	The effect of cytidine on the structure and function of an RNA ligase ribozyme. *Rna*, **2001**, 7, 395-404	5.8	81
53	The expanding view of RNA and DNA function. *Chemistry and Biology*, **2014**, 21, 1059-65		70
52	Highly efficient self-replicating RNA enzymes. *Chemistry and Biology*, **2014**, 21, 238-45		65
51	Microfluidic serial dilution circuit. *Analytical Chemistry*, **2006**, 78, 7522-7	7.8	57
50	Autocatalytic aptazymes enable ligand-dependent exponential amplification of RNA. *Nature Biotechnology*, **2009**, 27, 288-92	44.5	51
49	Microfluidic compartmentalized directed evolution. *Chemistry and Biology*, **2010**, 17, 717-24		49
48	Continuous in vitro evolution of a ribozyme that catalyzes three successive nucleotidyl addition reactions. *Chemistry and Biology*, **2002**, 9, 585-96		46
47	Binding of a structured D-RNA molecule by an L-RNA aptamer. *Journal of the American Chemical Society*, **2013**, 135, 13290-3	16.4	45
46	RNA cleavage by the 10-23 DNA enzyme. *Methods in Enzymology*, **2001**, 341, 503-17	1.7	43
45	Self-incorporation of coenzymes by ribozymes. *Journal of Molecular Evolution*, **1995**, 40, 551-8	3.1	41

44	Emergence of a fast-reacting ribozyme that is capable of undergoing continuous evolution. *Proceedings of the National Academy of Sciences of the United States of America*, **2007**, 104, 15288-93	11.5	40
43	RNA-catalyzed RNA ligation on an external RNA template. *Chemistry and Biology*, **2002**, 9, 297-307		40
42	Mapping a Systematic Ribozyme Fitness Landscape Reveals a Frustrated Evolutionary Network for Self-Aminoacylating RNA. *Journal of the American Chemical Society*, **2019**, 141, 6213-6223	16.4	36
41	An RNA polymerase ribozyme that synthesizes its own ancestor. *Proceedings of the National Academy of Sciences of the United States of America*, **2020**, 117, 2906-2913	11.5	34
40	Conversion of a ribozyme to a deoxyribozyme through in vitro evolution. *Chemistry and Biology*, **2006**, 13, 329-38		34
39	Ligand-dependent exponential amplification of a self-replicating L-RNA enzyme. *Journal of the American Chemical Society*, **2012**, 134, 8050-3	16.4	33
38	Bit by bit: the Darwinian basis of life. *PLoS Biology*, **2012**, 10, e1001323	9.7	33
37	Evolution. Toward an alternative biology. *Science*, **2012**, 336, 307-8	33.3	31
36	Continuous in vitro evolution of ribozymes that operate under conditions of extreme pH. *Journal of Molecular Evolution*, **2003**, 57, 292-8	3.1	30
35	A reverse transcriptase ribozyme. *ELife*, **2017**, 6,	8.9	30
34	Nucleoglycoconjugates: Design and Synthesis of a New Class of DNACarbohydrate Conjugates. *Angewandte Chemie - International Edition*, **2000**, 39, 3660-3663	16.4	28
33	Specific Inhibition of MicroRNA Processing Using L-RNA Aptamers. *Journal of the American Chemical Society*, **2015**, 137, 16032-7	16.4	27
32	The promise and peril of continuous in vitro evolution. *Journal of Molecular Evolution*, **2005**, 61, 253-63	3.1	27
31	Kinetic properties of an RNA enzyme that undergoes self-sustained exponential amplification. *Biochemistry*, **2013**, 52, 1227-35	3.2	26
30	A DNA-templated aldol reaction as a model for the formation of pentose sugars in the RNA world. *Angewandte Chemie - International Edition*, **2005**, 44, 7580-3	16.4	25
29	Niche partitioning in the coevolution of 2 distinct RNA enzymes. *Proceedings of the National Academy of Sciences of the United States of America*, **2009**, 106, 7780-5	11.5	24
28	An isothermal system that couples ligand-dependent catalysis to ligand-independent exponential amplification. *Journal of the American Chemical Society*, **2011**, 133, 3191-7	16.4	23
27	Darwinian evolution on a chip. *PLoS Biology*, **2008**, 6, e85	9.7	23

26	A molecular description of the evolution of resistance. *Chemistry and Biology*, **1999**, 6, 881-9		23
25	Limits of neutral drift: lessons from the in vitro evolution of two ribozymes. *Journal of Molecular Evolution*, **2014**, 79, 75-90	3.1	19
24	3WEnd labeling of nucleic acids by a polymerase ribozyme. *Nucleic Acids Research*, **2018**, 46, e103	20.1	19
23	An L-RNA Aptamer that Binds and Inhibits RNase. *Chemistry and Biology*, **2015**, 22, 1437-1441		16
22	Structural biology. A glimpse of biologyWs first enzyme. *Science*, **2007**, 315, 1507-8	33.3	16
21	Synthetic evolving systems that implement a user-specified genetic code of arbitrary design. *Chemistry and Biology*, **2012**, 19, 1324-32		15
20	Origin and ancestor: separate environments. *Science*, **1999**, 283, 792	33.3	15
19	Substitution of ribonucleotides in the T7 RNA polymerase promoter element. *Journal of Biological Chemistry*, **2002**, 277, 2987-91	5.4	12
18	RNA-Catalyzed Polymerization of Deoxyribose, Threose, and Arabinose Nucleic Acids. *ACS Synthetic Biology*, **2019**, 8, 955-961	5.7	11
17	Deep sequencing analysis of mutations resulting from the incorporation of dNTP analogs. *Nucleic Acids Research*, **2010**, 38, 8095-104	20.1	10
16	Perfectly complementary nucleic acid enzymes. *Journal of Molecular Evolution*, **2003**, 56, 711-7	3.1	10
15	Self-replication. *Current Biology*, **2003**, 13, R46	6.3	10
14	A DNA-Templated Aldol Reaction as a Model for the Formation of Pentose Sugars in the RNA World. *Angewandte Chemie*, **2005**, 117, 7752-7755	3.6	10
13	Thermal Habitat for RNA Amplification and Accumulation. *Physical Review Letters*, **2020**, 125, 048104	7.4	9
12	Real-Time Detection of a Self-Replicating RNA Enzyme. *Molecules*, **2016**, 21,	4.8	8
11	RNA-Catalyzed Cross-Chiral Polymerization of RNA. *Journal of the American Chemical Society*, **2020**, 142, 15331-15339	16.4	6
10	Reflections of a Darwinian Engineer. *Journal of Molecular Evolution*, **2015**, 81, 146-9	3.1	5
9	Amide Cleavage by a Ribozyme: Correction. *Science*, **1996**, 272, 18-19	33.3	3

8	Ligand-dependent exponential amplification of self-replicating RNA enzymes. *Methods in Enzymology*, **2015**, 550, 23-39	1.7	2
7	Nucleoglycoconjugates: Design and Synthesis of a New Class of DNA□Carbohydrate Conjugates. *Angewandte Chemie*, **2000**, 112, 3806-3809	3.6	2
6	Witnessing the structural evolution of an RNA enzyme. *ELife*, **2021**, 10,	8.9	2
5	Leslie Eleazer Orgel. 12 January 1927 □27 October 2007. *Biographical Memoirs of Fellows of the Royal Society*, **2013**, 59, 277-289	0.1	1
4	The counterforce. *Current Biology*, **1999**, 9, R500-1	6.3	1
3	Cross-Chiral, RNA-Catalyzed Exponential Amplification of RNA. *Journal of the American Chemical Society*, **2021**, 143, 19160-19166	16.4	0
2	Kinetic Effects of □Modified Deoxynucleoside 5□Triphosphate Analogues on RNA-Catalyzed Polymerization of DNA. *Biochemistry*, **2021**, 60, 1-5	3.2	0
1	Amide Cleavage by a Ribozyme: Correction. *Science*, **1996**, 272, 18-19	33.3	