

# Joseph A Piccirilli

## List of Publications by Year in Descending Order

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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.

113  
papers

4,260  
citations

34  
h-index

63  
g-index

117  
ext. papers

4,772  
ext. citations

10.9  
avg, IF

5.4  
L-index

#	Paper	IF	Citations
113	Structural basis for substrate binding and catalysis by a self-alkylating ribozyme.. <i>Nature Chemical Biology</i> , <b>2022</b> ,	11.7	1
112	Sub-3-Å cryo-EM structure of RNA enabled by engineered homomeric self-assembly.. <i>Nature Methods</i> , <b>2022</b> , 19, 576-585	21.6	0
111	The Varkud Satellite Ribozyme: A Thirty-Year Journey through Biochemistry, Crystallography, and Computation. <i>Accounts of Chemical Research</i> , <b>2021</b> , 54, 2591-2602	24.3	0
110	The hammerhead self-cleaving motif as a precursor to complex endonucleolytic ribozymes. <i>Rna</i> , <b>2021</b> , 27, 1017-1024	5.8	1
109	The SARS-CoV-2 Programmed -1 Ribosomal Frameshifting Element Crystal Structure Solved to 2.09 Å Using Chaperone-Assisted RNA Crystallography. <i>ACS Chemical Biology</i> , <b>2021</b> , 16, 1469-1481	4.9	7
108	Structures of artificially designed discrete RNA nanoarchitectures at near-atomic resolution. <i>Science Advances</i> , <b>2021</b> , 7, eabf4459	14.3	0
107	Synthesis of Oligoribonucleotides Containing a 2'SAmino-5'S-phosphorothiolate Linkage. <i>Journal of Organic Chemistry</i> , <b>2021</b> , 86, 13231-13244	4.2	2
106	The Positively Charged Active Site of the Bacterial Toxin RelE Causes a Large Shift in the General Base p. <i>Biochemistry</i> , <b>2020</b> , 59, 1665-1671	3.2	2
105	Branched kissing loops for the construction of diverse RNA homooligomeric nanostructures. <i>Nature Chemistry</i> , <b>2020</b> , 12, 249-259	17.6	20
104	Confluence of theory and experiment reveals the catalytic mechanism of the Varkud satellite ribozyme. <i>Nature Chemistry</i> , <b>2020</b> , 12, 193-201	17.6	14
103	The L-platform/L-scaffold framework: a blueprint for RNA-cleaving nucleic acid enzyme design. <i>Rna</i> , <b>2020</b> , 26, 111-125	5.8	10
102	Synthetic Antibody Binding to a Preorganized RNA Domain of Hepatitis C Virus Internal Ribosome Entry Site Inhibits Translation. <i>ACS Chemical Biology</i> , <b>2020</b> , 15, 205-216	4.9	5
101	Evidence for a Catalytic Strategy to Promote Nucleophile Activation in Metal-Dependent RNA-Cleaving Ribozymes and 8-17 DNAzyme. <i>ACS Catalysis</i> , <b>2019</b> , 9, 10612-10617	13.1	17
100	Reinvestigating the synthesis and efficacy of small benzimidazole derivatives as presequence protease enhancers. <i>European Journal of Medicinal Chemistry</i> , <b>2019</b> , 184, 111746	6.8	2
99	An Ontology for Facilitating Discussion of Catalytic Strategies of RNA-Cleaving Enzymes. <i>ACS Chemical Biology</i> , <b>2019</b> , 14, 1068-1076	4.9	25
98	Comparison of the Structures and Mechanisms of the Pistol and Hammerhead Ribozymes. <i>Journal of the American Chemical Society</i> , <b>2019</b> , 141, 7865-7875	16.4	29
97	A conserved RNA structural motif for organizing topology within picornaviral internal ribosome entry sites. <i>Nature Communications</i> , <b>2019</b> , 10, 3629	17.4	9

96	Hachimoji DNA and RNA: A genetic system with eight building blocks. <i>Science</i> , <b>2019</b> , 363, 884-887	33.3	193
95	Affinity maturation of a portable Fab-RNA module for chaperone-assisted RNA crystallography. <i>Nucleic Acids Research</i> , <b>2018</b> , 46, 2624-2635	20.1	12
94	Evidence That Nucleophile Deprotonation Exceeds Bond Formation in the HDV Ribozyme Transition State. <i>Biochemistry</i> , <b>2018</b> , 57, 3465-3472	3.2	4
93	Structural basis for activation of fluorogenic dyes by an RNA aptamer lacking a G-quadruplex motif. <i>Nature Communications</i> , <b>2018</b> , 9, 4542	17.4	25
92	RNA-Puzzles Round III: 3D RNA structure prediction of five riboswitches and one ribozyme. <i>Rna</i> , <b>2017</b> , 23, 655-672	5.8	118
91	Prolactin Receptor-Mediated Internalization of Imaging Agents Detects Epithelial Ovarian Cancer with Enhanced Sensitivity and Specificity. <i>Cancer Research</i> , <b>2017</b> , 77, 1684-1696	10.1	7
90	Structural Basis for Substrate Helix Remodeling and Cleavage Loop Activation in the Varkud Satellite Ribozyme. <i>Journal of the American Chemical Society</i> , <b>2017</b> , 139, 9591-9597	16.4	18
89	Synthesizing topological structures containing RNA. <i>Nature Communications</i> , <b>2017</b> , 8, 14936	17.4	18
88	Synthesis of 5Sthio-3SO-ribonucleoside Phosphoramidites. <i>Journal of Organic Chemistry</i> , <b>2017</b> , 82, 12003-12013		
87	Kinetic Isotope Effect Analysis of RNA 2SO-Transphosphorylation. <i>Methods in Enzymology</i> , <b>2017</b> , 596, 433-457	1.7	1
86	Reverse transcriptases lend a hand in splicing catalysis. <i>Nature Structural and Molecular Biology</i> , <b>2016</b> , 23, 507-9	17.6	11
85	Isotope effect analyses provide evidence for an altered transition state for RNA 2SO-transphosphorylation catalyzed by Zn(2+). <i>Chemical Communications</i> , <b>2016</b> , 52, 4462-5	5.8	8
84	Molecular Analysis of Lipid-Reactive V $\alpha$ 11 T $\beta$ Cells Identified by CD1c Tetramers. <i>Journal of Immunology</i> , <b>2016</b> , 196, 1933-42	5.3	48
83	An active site rearrangement within the Tetrahymena group I ribozyme releases nonproductive interactions and allows formation of catalytic interactions. <i>Rna</i> , <b>2016</b> , 22, 32-48	5.8	5
82	Drug conjugated nanoparticles activated by cancer cell specific mRNA. <i>Oncotarget</i> , <b>2016</b> , 7, 38243-38256	5.3	16
81	Specific Recognition of a Single-Stranded RNA Sequence by a Synthetic Antibody Fragment. <i>Journal of Molecular Biology</i> , <b>2016</b> , 428, 4100-4114	6.5	8
80	Efficient Synthetic Approach to Linear Dasatinib-DNA Conjugates by Click Chemistry. <i>Bioconjugate Chemistry</i> , <b>2016</b> , 27, 2575-2579	6.3	6
79	Laboratory evolution of artificially expanded DNA gives redesignable aptamers that target the toxic form of anthrax protective antigen. <i>Nucleic Acids Research</i> , <b>2016</b> , 44, 9565-9577	20.1	48

78	Synthesis of 2SO-photocaged ribonucleoside phosphoramidites. <i>Nucleosides, Nucleotides and Nucleic Acids</i> , <b>2015</b> , 34, 114-29	1.4	7
77	Effect of Zn <sup>2+</sup> binding and enzyme active site on the transition state for RNA 2SO-transphosphorylation interpreted through kinetic isotope effects. <i>Biochimica Et Biophysica Acta - Proteins and Proteomics</i> , <b>2015</b> , 1854, 1795-800	4	15
76	Heavy atom labeled nucleotides for measurement of kinetic isotope effects. <i>Biochimica Et Biophysica Acta - Proteins and Proteomics</i> , <b>2015</b> , 1854, 1737-45	4	8
75	Determination of hepatitis delta virus ribozyme N(-1) nucleobase and functional group specificity using internal competition kinetics. <i>Analytical Biochemistry</i> , <b>2015</b> , 483, 12-20	3.1	6
74	Transition State Features in the Hepatitis Delta Virus Ribozyme Reaction Revealed by Atomic Perturbations. <i>Journal of the American Chemical Society</i> , <b>2015</b> , 137, 8973-82	16.4	9
73	Spinach RNA aptamer detects lead(II) with high selectivity. <i>Chemical Communications</i> , <b>2015</b> , 51, 9034-7	5.8	42
72	Integration of kinetic isotope effect analyses to elucidate ribonuclease mechanism. <i>Biochimica Et Biophysica Acta - Proteins and Proteomics</i> , <b>2015</b> , 1854, 1801-8	4	18
71	Crystal structure of the Varkud satellite ribozyme. <i>Nature Chemical Biology</i> , <b>2015</b> , 11, 840-6	11.7	83
70	A Crystal Structure of a Functional RNA Molecule Containing an Artificial Nucleobase Pair. <i>Angewandte Chemie</i> , <b>2015</b> , 127, 9991-9994	3.6	4
69	Innenfunktionalbild: A Crystal Structure of a Functional RNA Molecule Containing an Artificial Nucleobase Pair (Angew. Chem. 34/2015). <i>Angewandte Chemie</i> , <b>2015</b> , 127, 10173-10173	3.6	
68	A Crystal Structure of a Functional RNA Molecule Containing an Artificial Nucleobase Pair. <i>Angewandte Chemie - International Edition</i> , <b>2015</b> , 54, 9853-6	16.4	12
67	Evidence for a group II intron-like catalytic triplex in the spliceosome. <i>Nature Structural and Molecular Biology</i> , <b>2014</b> , 21, 464-471	17.6	86
66	Origins of life: RNA made in its own mirror image. <i>Nature</i> , <b>2014</b> , 515, 347-8	50.4	5
65	Altered (transition) states: mechanisms of solution and enzyme catalyzed RNA 2SO-transphosphorylation. <i>Current Opinion in Chemical Biology</i> , <b>2014</b> , 21, 96-102	9.7	28
64	A G-quadruplex-containing RNA activates fluorescence in a GFP-like fluorophore. <i>Nature Chemical Biology</i> , <b>2014</b> , 10, 686-91	11.7	213
63	Synthesis and incorporation of the phosphoramidite derivative of 2SO-photocaged 3Ss-thioguanosine into oligoribonucleotides: substrate for probing the mechanism of RNA catalysis. <i>Journal of Organic Chemistry</i> , <b>2014</b> , 79, 3647-52	4.2	6
62	Synthesis of stereopure acyclic 1,5-dimethylalkane chirons: building blocks of highly methyl-branched natural products. <i>Tetrahedron</i> , <b>2013</b> , 69, 9633-9641	2.4	9
61	Highly stereocontrolled total synthesis of D-mannosyl phosphomycoketide: a natural product from <i>Mycobacterium tuberculosis</i> . <i>Journal of Organic Chemistry</i> , <b>2013</b> , 78, 5970-86	4.2	25

60	Experimental and computational analysis of the transition state for ribonuclease A-catalyzed RNA 2SO-transphosphorylation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2013</b> , 110, 13002-7	11.5	52
59	Arginine as a general acid catalyst in serine recombinase-mediated DNA cleavage. <i>Journal of Biological Chemistry</i> , <b>2013</b> , 288, 29206-14	5.4	24
58	Characterization of the reaction path and transition states for RNA transphosphorylation models from theory and experiment. <i>Angewandte Chemie - International Edition</i> , <b>2012</b> , 51, 647-51	16.4	43
57	Inside Back Cover: Characterization of the Reaction Path and Transition States for RNA Transphosphorylation Models from Theory and Experiment (Angew. Chem. Int. Ed. 3/2012). <i>Angewandte Chemie - International Edition</i> , <b>2012</b> , 51, 823-823	16.4	
56	Innenrücktitelbild: Characterization of the Reaction Path and Transition States for RNA Transphosphorylation Models from Theory and Experiment (Angew. Chem. 3/2012). <i>Angewandte Chemie</i> , <b>2012</b> , 124, 847-847	3.6	
55	General acid-base catalysis mediated by nucleobases in the hairpin ribozyme. <i>Journal of the American Chemical Society</i> , <b>2012</b> , 134, 16717-24	16.4	65
54	Efficient synthesis of 2SC-aminomethyl-2Sdeoxynucleosides. <i>Chemical Communications</i> , <b>2012</b> , 48, 8754-58	6.8	3
53	Characterization of the Reaction Path and Transition States for RNA Transphosphorylation Models from Theory and Experiment. <i>Angewandte Chemie</i> , <b>2012</b> , 124, 671-675	3.6	3
52	Metal-ion rescue revisited: biochemical detection of site-bound metal ions important for RNA folding. <i>Rna</i> , <b>2012</b> , 18, 1123-41	5.8	31
51	A portable RNA sequence whose recognition by a synthetic antibody facilitates structural determination. <i>Nature Structural and Molecular Biology</i> , <b>2011</b> , 18, 100-6	17.6	56
50	2SFluoro substituents can mimic native 2SHydroxyls within structured RNA. <i>Chemistry and Biology</i> , <b>2011</b> , 18, 949-54		10
49	Synthesis, properties, and applications of oligonucleotides containing an RNA dinucleotide phosphorothiolate linkage. <i>Accounts of Chemical Research</i> , <b>2011</b> , 44, 1257-69	24.3	113
48	Tightening of active site interactions en route to the transition state revealed by single-atom substitution in the guanosine-binding site of the Tetrahymena group I ribozyme. <i>Journal of the American Chemical Society</i> , <b>2011</b> , 133, 7791-800	16.4	5
47	Synthesis of 2SN-methylamino-2Sdeoxyguanosine and 2SN,N-dimethylamino-2Sdeoxyguanosine and their incorporation into RNA by phosphoramidite chemistry. <i>Journal of Organic Chemistry</i> , <b>2011</b> , 76, 8718-25	4.2	1
46	Crystal structure of an RNA polymerase ribozyme in complex with an antibody fragment. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , <b>2011</b> , 366, 2918-28	5.8	7
45	A general and efficient approach for the construction of RNA oligonucleotides containing a 5Sphosphorothiolate linkage. <i>Nucleic Acids Research</i> , <b>2011</b> , 39, e31	20.1	14
44	Nucleobase-mediated general acid-base catalysis in the Varkud satellite ribozyme. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2010</b> , 107, 11751-6	11.5	67
43	Kinetic isotope effects for RNA cleavage by 2SO- transphosphorylation: nucleophilic activation by specific base. <i>Journal of the American Chemical Society</i> , <b>2010</b> , 132, 11613-21	16.4	41

42	Synthesis of 2'-C-Branched Nucleosides. <i>Organic Preparations and Procedures International</i> , <b>2010</b> , 42, 191-283	1.1	6
41	A rearrangement of the guanosine-binding site establishes an extended network of functional interactions in the Tetrahymena group I ribozyme active site. <i>Biochemistry</i> , <b>2010</b> , 49, 2753-62	3.2	19
40	The 2.5 Å structure of CD1c in complex with a mycobacterial lipid reveals an open groove ideally suited for diverse antigen presentation. <i>Immunity</i> , <b>2010</b> , 33, 853-62	32.3	90
39	Constraining errors in splice site choice. <i>FASEB Journal</i> , <b>2010</b> , 24, 305.3	0.9	
38	Structure and function converge to identify a hydrogen bond in a group I ribozyme active site. <i>Angewandte Chemie - International Edition</i> , <b>2009</b> , 48, 7171-5	16.4	14
37	2-Samino-modified ribonucleotides as probes for local interactions within RNA. <i>Methods in Enzymology</i> , <b>2009</b> , 468, 107-25	1.7	4
36	Separation of RNA phosphorothioate oligonucleotides by HPLC. <i>Methods in Enzymology</i> , <b>2009</b> , 468, 289-309	3.9	32
35	Identification of catalytic metal ion ligands in ribozymes. <i>Methods</i> , <b>2009</b> , 49, 148-66	4.6	63
34	Biochemistry. Toward understanding self-splicing. <i>Science</i> , <b>2008</b> , 320, 56-7	33.3	1
33	The 2'-Hydroxyl group of the guanosine nucleophile donates a functionally important hydrogen bond in the tetrahymena ribozyme reaction. <i>Biochemistry</i> , <b>2008</b> , 47, 7684-94	3.2	18
32	Functional identification of ligands for a catalytic metal ion in group I introns. <i>Biochemistry</i> , <b>2008</b> , 47, 6883-94	3.2	39
31	Synthetic antibodies for specific recognition and crystallization of structured RNA. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2008</b> , 105, 82-7	11.5	103
30	Synthesis and biochemical application of 2'-SO-methyl-3'-thioguanosine as a probe to explore group I intron catalysis. <i>Bioorganic and Medicinal Chemistry</i> , <b>2008</b> , 16, 5754-60	3.4	6
29	Syntheses of (2'- <sup>35</sup> S)-15N-amino-(2'- <sup>35</sup> S)-deoxyguanosine and determination of their pK <sub>a</sub> values by 15N NMR spectroscopy. <i>Organic Letters</i> , <b>2007</b> , 9, 3057-60	6.2	8
28	The mechanism of RNA strand scission: an experimental measure of the Brønsted coefficient, beta <sub>nuc</sub> . <i>Angewandte Chemie - International Edition</i> , <b>2007</b> , 46, 3714-7	16.4	23
27	A second divalent metal ion in the group II intron reaction center. <i>Chemistry and Biology</i> , <b>2007</b> , 14, 607-12		60
26	Modulation of individual steps in group I intron catalysis by a peripheral metal ion. <i>Rna</i> , <b>2007</b> , 13, 1656-67	3.8	11
25	Reactions of phosphate and phosphorothiolate diesters with nucleophiles: comparison of transition state structures. <i>Organic and Biomolecular Chemistry</i> , <b>2007</b> , 5, 2491-7	3.9	19

24	Improved synthesis of 2Smino-2Sdeoxyguanosine and its phosphoramidite. <i>Bioorganic and Medicinal Chemistry</i> , <b>2006</b> , 14, 705-13	3.4	12
23	Nucleotide analogues to investigate RNA structure and function. <i>Current Opinion in Chemical Biology</i> , <b>2005</b> , 9, 585-93	9.7	34
22	General acid catalysis by the hepatitis delta virus ribozyme. <i>Nature Chemical Biology</i> , <b>2005</b> , 1, 45-52	11.7	201
21	Functional identification of catalytic metal ion binding sites within RNA. <i>PLoS Biology</i> , <b>2005</b> , 3, e277	9.7	61
20	A packing-density metric for exploring the interior of folded RNA molecules. <i>Angewandte Chemie - International Edition</i> , <b>2004</b> , 43, 3033-7	16.4	11
19	New strategies for exploring RNAs: 2SOH expose the importance of solvent during group II intron catalysis. <i>Chemistry and Biology</i> , <b>2004</b> , 11, 237-46		28
18	An atomic mutation cycle for exploring RNAs: 2SHydroxyl group. <i>Journal of the American Chemical Society</i> , <b>2004</b> , 126, 13578-9	16.4	14
17	Synthesis of 2SC-beta-fluoromethyluridine. <i>Organic Letters</i> , <b>2003</b> , 5, 807-10	6.2	17
16	2Smercaptonucleotide interference reveals regions of close packing within folded RNA molecules. <i>Journal of the American Chemical Society</i> , <b>2003</b> , 125, 10012-8	16.4	25
15	Identification of an active site ligand for a group I ribozyme catalytic metal ion. <i>Biochemistry</i> , <b>2002</b> , 41, 2516-25	3.2	45
14	Metal ion coordination by the AGC triad in domain 5 contributes to group II intron catalysis. <i>Nature Structural Biology</i> , <b>2001</b> , 8, 893-8		91
13	Leaving group stabilization by metal ion coordination and hydrogen bond donation is an evolutionarily conserved feature of group I introns. <i>Biochimica Et Biophysica Acta Gene Regulatory Mechanisms</i> , <b>2001</b> , 1522, 158-66		17
12	Defining the catalytic metal ion interactions in the Tetrahymena ribozyme reaction. <i>Biochemistry</i> , <b>2001</b> , 40, 5161-71	3.2	136
11	The role of the cleavage site 2SHydroxyl in the Tetrahymena group I ribozyme reaction. <i>Chemistry and Biology</i> , <b>2000</b> , 7, 85-96		94
10	Metal ion catalysis during the exon-ligation step of nuclear pre-mRNA splicing: extending the parallels between the spliceosome and group II introns. <i>Rna</i> , <b>2000</b> , 6, 199-205	5.8	98
9	Kinetic characterization of the second step of group II intron splicing: role of metal ions and the cleavage site 2SOH in catalysis. <i>Biochemistry</i> , <b>2000</b> , 39, 12939-52	3.2	72
8	A new metal ion interaction in the Tetrahymena ribozyme reaction revealed by double sulfur substitution. <i>Nature Structural Biology</i> , <b>1999</b> , 6, 318-21		66
7	Structures of normal single-stranded DNA and deoxyribo-3SS-phosphorothiolates bound to the 3S5Sexonucleolytic active site of DNA polymerase I from Escherichia coli. <i>Biochemistry</i> , <b>1999</b> , 38, 696-704	2.2	68

6	Synthesis of 3?-Thioribouridine, 3?-Thioribocytidine, and Their Phosphoramidites. <i>Nucleosides &amp; Nucleotides</i> , <b>1997</b> , 16, 1543-1545		6
5	Functional Evidence That the 3'5'Exonuclease Domain of Escherichia coli DNA Polymerase I Employs a Divalent Metal Ion in Leaving Group Stabilization. <i>Journal of the American Chemical Society</i> , <b>1997</b> , 119, 12691-12692	16.4	41
4	Metal ion catalysis during splicing of premessenger RNA. <i>Nature</i> , <b>1997</b> , 388, 801-5	50.4	155
3	Metal ion catalysis in the Tetrahymena ribozyme reaction. <i>Nature</i> , <b>1993</b> , 361, 85-8	50.4	369
2	Ribozyme-catalyzed and nonenzymatic reactions of phosphate diesters: rate effects upon substitution of sulfur for a nonbridging phosphoryl oxygen atom. <i>Biochemistry</i> , <b>1991</b> , 30, 4844-54	3.2	264
1	Sub-3 Cryo-EM structure of RNA enabled by engineered homomeric self-assembly		2