John C Chaput

List of Publications by Citations

82 papers	2,886 citations	25 h-index	52 g-index
86 ext. papers	3,510 ext. citations	9.9 avg, IF	5.89 L-index

#	Paper	IF	Citations
82	Synthetic genetic polymers capable of heredity and evolution. *Science*, **2012**, 336, 341-4	33.3	515
81	Analysis of aptamer discovery and technology. *Nature Reviews Chemistry*, **2017**, 1,	34.6	316
80	Darwinian evolution of an alternative genetic system provides support for TNA as an RNA progenitor. *Nature Chemistry*, **2012**, 4, 183-7	17.6	190
79	TNA synthesis by DNA polymerases. *Journal of the American Chemical Society*, **2003**, 125, 9274-5	16.4	126
78	A general strategy for expanding polymerase function by droplet microfluidics. *Nature Communications*, **2016**, 7, 11235	17.4	108
77	The structural diversity of artificial genetic polymers. *Nucleic Acids Research*, **2016**, 44, 1007-21	20.1	104
76	DNA polymerase-mediated DNA synthesis on a TNA template. *Journal of the American Chemical Society*, **2003**, 125, 856-7	16.4	95
75	Kinetic analysis of an efficient DNA-dependent TNA polymerase. *Journal of the American Chemical Society*, **2005**, 127, 7427-34	16.4	80
74	An efficient and faithful in vitro replication system for threose nucleic acid. *Journal of the American Chemical Society*, **2013**, 135, 3583-91	16.4	71
73	The emerging world of synthetic genetics. *Chemistry and Biology*, **2012**, 19, 1360-71		68
72	Synthesis and Evolution of a Threose Nucleic Acid Aptamer Bearing 7-Deaza-7-Substituted Guanosine Residues. *Journal of the American Chemical Society*, **2018**, 140, 5706-5713	16.4	61
71	Experimental evidence that GNA and TNA were not sequential polymers in the prebiotic evolution of RNA. *Journal of Molecular Evolution*, **2007**, 65, 289-95	3.1	57
70	Improving Polymerase Activity with Unnatural Substrates by Sampling Mutations in Homologous Protein Architectures. *ACS Chemical Biology*, **2016**, 11, 1210-9	4.9	52
69	Evaluating TNA stability under simulated physiological conditions. *Bioorganic and Medicinal Chemistry Letters*, **2016**, 26, 2418-2421	2.9	48
68	Evolution of a General RNA-Cleaving FANA Enzyme. *Nature Communications*, **2018**, 9, 5067	17.4	44
67	Fluorescence-Activated Droplet Sorting for Single-Cell Directed Evolution. *ACS Synthetic Biology*, **2019**, 8, 1430-1440	5.7	43
66	A Scalable Synthesis of □L-Threose Nucleic Acid Monomers. *Journal of Organic Chemistry*, **2016**, 81, 2302-7	4.2	41

65	Generating Biologically Stable TNA Aptamers that Function with High Affinity and Thermal Stability. *Journal of the American Chemical Society*, **2020**, 142, 7721-7724	16.4	40
64	Beyond guanine quartets: cation-induced formation of homogenous and chimeric DNA tetraplexes incorporating iso-guanine and guanine. *Chemistry and Biology*, **1997**, 4, 899-908		40
63	What Is XNA?. *Angewandte Chemie - International Edition*, **2019**, 58, 11570-11572	16.4	38
62	A biologically stable DNAzyme that efficiently silences gene expression in cells. *Nature Chemistry*, **2021**, 13, 319-326	17.6	35
61	Reverse Transcription of Threose Nucleic Acid by a Naturally Occurring DNA Polymerase. *ChemBioChem*, **2016**, 17, 1804-1808	3.8	33
60	Synthesis of two mirror image 4-helix junctions derived from glycerol nucleic acid. *Journal of the American Chemical Society*, **2008**, 130, 5846-7	16.4	33
59	Structural basis for TNA synthesis by an engineered TNA polymerase. *Nature Communications*, **2017** , 8, 1810	17.4	31
58	A Tool for the Import of Natural and Unnatural Nucleoside Triphosphates into Bacteria. *Journal of the American Chemical Society*, **2018**, 140, 1447-1454	16.4	28
57	Structural Insights into Conformation Differences between DNA/TNA and RNA/TNA Chimeric Duplexes. *ChemBioChem*, **2016**, 17, 1705-8	3.8	23
56	Evolutionary optimization of a nonbiological ATP binding protein for improved folding stability. *Chemistry and Biology*, **2004**, 11, 865-74		23
55	Nonenzymatic oligomerization on templates containing phosphodiester-linked acyclic glycerol nucleic acid analogues. *Journal of Molecular Evolution*, **2000**, 51, 464-70	3.1	22
54	Synthesis and polymerase activity of a fluorescent cytidine TNA triphosphate analogue. *Nucleic Acids Research*, **2017**, 45, 5629-5638	20.1	21
53	DNA polymerase-mediated synthesis of unbiased threose nucleic acid (TNA) polymers requires 7-deazaguanine to suppress G:G mispairing during TNA transcription. *Journal of the American Chemical Society*, **2015**, 137, 4014-7	16.4	21
52	Creating protein biocatalysts as tools for future industrial applications. *Expert Opinion on Biological Therapy*, **2008**, 8, 1087-98	5.4	21
51	Crystal structures of a natural DNA polymerase that functions as an XNA reverse transcriptase. *Nucleic Acids Research*, **2019**, 47, 6973-6983	20.1	20
50	P(V) Reagents for the Scalable Synthesis of Natural and Modified Nucleoside Triphosphates. *Journal of the American Chemical Society*, **2019**, 141, 13286-13289	16.4	19
49	Non-Enzymatic Transcription of an IsoG□soC Base Pair. *Journal of the American Chemical Society*, **2000**, 122, 12866-12867	16.4	19
48	Engineering polymerases for applications in synthetic biology. *Quarterly Reviews of Biophysics*, **2020** , 53, e8	7	19

47	REVEALR: A Multicomponent XNAzyme-Based Nucleic Acid Detection System for SARS-CoV-2. *Journal of the American Chemical Society*, **2021**, 143, 8957-8961	16.4	19
46	Elucidating the Determinants of Polymerase Specificity by Microfluidic-Based Deep Mutational Scanning. *ACS Synthetic Biology*, **2019**, 8, 1421-1429	5.7	18
45	Solution structure of a parallel-stranded oligoisoguanine DNA pentaplex formed by d(T(iG)4 T) in the presence of Cs+ ions. *Angewandte Chemie - International Edition*, **2012**, 51, 7952-5	16.4	18
44	5-propynyluracil.diaminopurine: an efficient base-pair for non-enzymatic transcription of DNA. *Chemical Communications*, **2002**, 1568-9	5.8	18
43	RecA protein promotes strand exchange with DNA substrates containing isoguanine and 5-methyl isocytosine. *Biochemistry*, **2000**, 39, 10177-88	3.2	17
42	Synthesis of □-Threofuranosyl Nucleoside 3ŦMonophosphates, 3ŦPhosphoro(2-Methyl)imidazolides, and 3ŦTriphosphates. *Journal of Organic Chemistry*, **2017**, 82, 5910-5916	4.3	14
41	Evaluating the Rate and Substrate Specificity of Laboratory Evolved XNA Polymerases. *Analytical Chemistry*, **2017**, 89, 12622-12625	7.8	14
40	Orthogonal Genetic Systems. *ChemBioChem*, **2020**, 21, 1408-1411	3.8	14
39	Engineered Polymerases with Altered Substrate Specificity: Expression and Purification. *Current Protocols in Nucleic Acid Chemistry*, **2017**, 69, 4.75.1-4.75.20	0.5	13
38	Programmed Allelic Mutagenesis of a DNA Polymerase with Single Amino Acid Resolution. *ACS Synthetic Biology*, **2020**, 9, 1873-1881	5.7	12
37	Expanding the chemical diversity of TNA with tUTP derivatives that are substrates for a TNA polymerase. *Chemical Communications*, **2018**, 54, 1237-1240	5.8	12
36	RNA-Catalyzed Polymerization of Deoxyribose, Threose, and Arabinose Nucleic Acids. *ACS Synthetic Biology*, **2019**, 8, 955-961	5.7	11
35	Transcription of an RNA aptamer by a DNA polymerase. *Chemical Communications*, **2009**, 2938-40	5.8	11
34	Ligase-Mediated Threose Nucleic Acid Synthesis on DNA Templates. *ACS Synthetic Biology*, **2019**, 8, 282-286	5.7	11
33	A one-pot synthesis of □-threofuranosyl nucleoside triphosphates (tNTPs). *Bioorganic and Medicinal Chemistry Letters*, **2016**, 26, 3271-3273	2.9	10
32	A Gram-Scale HPLC-Free Synthesis of TNA Triphosphates Using an Iterative Phosphorylation Strategy. *Organic Letters*, **2017**, 19, 4379-4382	6.2	10
31	Evaluating the Catalytic Potential of a General RNA-Cleaving FANA Enzyme. *ChemBioChem*, **2020**, 21, 1001-1006	3.8	10
30	Reading and Writing Digital Information in TNA. *ACS Synthetic Biology*, **2020**, 9, 2936-2942	5.7	10

29	Redesigning the Genetic Polymers of Life. *Accounts of Chemical Research*, **2021**, 54, 1056-1065	24.3	10
28	Synthesis of threose nucleic acid (TNA) triphosphates and oligonucleotides by polymerase-mediated primer extension. *Current Protocols in Nucleic Acid Chemistry*, **2013**, Chapter 4, Unit 4.54	0.5	9
27	In Vitro Selection of an ATP-Binding TNA Aptamer. *Molecules*, **2020**, 25,	4.8	9
26	Comparative analysis of eukaryotic cell-free expression systems. *BioTechniques*, **2015**, 59, 149-51	2.5	8
25	Synthesis of threose nucleic acid (TNA) phosphoramidite monomers and oligonucleotide polymers. *Current Protocols in Nucleic Acid Chemistry*, **2012**, Chapter 4, Unit4.51	0.5	8
24	Crystal structures of DNA polymerase I capture novel intermediates in the DNA synthesis pathway. *ELife*, **2018**, 7,	8.9	8
23	A parallel stranded G-quadruplex composed of threose nucleic acid (TNA). *Biopolymers*, **2017**, 107, e22999	2.2	7
22	Synthesis and Polymerase Recognition of Threose Nucleic Acid Triphosphates Equipped with Diverse Chemical Functionalities. *Journal of the American Chemical Society*, **2021**, 143, 17761-17768	16.4	7
21	Allele-Specific RNA Knockdown with a Biologically Stable and Catalytically Efficient XNAzyme. *Journal of the American Chemical Society*, **2021**, 143, 4519-4523	16.4	7
20	Synthesis of 2ŦDeoxy-[illegible]-threofuranosyl Nucleoside Triphosphates. *Journal of Organic Chemistry*, **2018**, 83, 8840-8850	4.2	6
19	Activation of Innate Immune Responses by a CpG Oligonucleotide Sequence Composed Entirely of Threose Nucleic Acid. *Nucleic Acid Therapeutics*, **2019**, 29, 51-59	4.8	6
18	Bacterial Genome Containing Chimeric DNA-RNA Sequences. *Journal of the American Chemical Society*, **2018**, 140, 11464-11473	16.4	6
17	Automated solid-phase synthesis of high capacity oligo-dT cellulose for affinity purification of poly-A tagged biomolecules. *Bioorganic and Medicinal Chemistry Letters*, **2014**, 24, 5692-5694	2.9	5
16	Structural interpretation of the effects of threo-nucleotides on nonenzymatic template-directed polymerization. *Nucleic Acids Research*, **2021**, 49, 646-656	20.1	5
15	Synthesis and polymerase recognition of a pyrrolocytidine TNA triphosphate. *Biopolymers*, **2021**, 112, e23388	2.2	5
14	Was ist XNA?. *Angewandte Chemie*, **2019**, 131, 11694-11696	3.6	4
13	Directed evolution of custom polymerases using droplet microfluidics. *Methods in Enzymology*, **2020**, 644, 227-253	1.7	4
12	Functional Comparison of Laboratory-Evolved XNA Polymerases for Synthetic Biology. *ACS Synthetic Biology*, **2021**, 10, 1429-1437	5.7	4

11	A Novel Small RNA-Cleaving Deoxyribozyme with a Short Binding Arm. *Scientific Reports*, **2019**, 9, 8224	4.9	3
10	Replicating an expanded genetic alphabet in cells. *ChemBioChem*, **2014**, 15, 1869-71	3.8	3
9	Solution Structure of a Parallel-Stranded Oligoisoguanine DNA Pentaplex Formed by d(T(iG)4T) in the Presence of Cs+ Ions. *Angewandte Chemie*, **2012**, 124, 8076-8079	3.6	3
8	Evolution of Functionally Enhanced □-Threofuranosyl Nucleic Acid Aptamers. *ACS Synthetic Biology*, **2021**, 10, 3190-3199	5.7	3
7	XNA enzymes by evolution and design. *Current Research in Chemical Biology*, **2021**, 1, 100012		3
6	REVEALR-Based Genotyping of SARS-CoV-2 Variants of Concern in Clinical Samples. *Journal of the American Chemical Society*,	16.4	3
5	Following replicative DNA synthesis by time-resolved X-ray crystallography. *Nature Communications* , **2021**, 12, 2641	17.4	2
4	Transliteration of synthetic genetic enzymes. *Nucleic Acids Research*, **2021**, 49, 11438-11446	20.1	1
3	Synthesis of a Fluorescent Cytidine TNA Triphosphate Analogue. *Methods in Molecular Biology*, **2019**, 1973, 27-37	1.4	
2	Made in translation. *Nature Chemistry*, **2018**, 10, 379-381	17.6	
1	Cap-Independent Translation Initiation Driven by a 13-nucleotide motif. *FASEB Journal*, **2018**, 32, 651.13	0.9	