John C Chaput

List of Publications by Year
in descending order

82 papers	4,186 citations	172207 29 h-index	118652 62 g-index
86 all docs	86 docs citations	86 times ranked	2761 citing authors

#	Article	IF	Citations
1	Synthetic Genetic Polymers Capable of Heredity and Evolution. Science, 2012, 336, 341-344.	6.0	635
2	Analysis of aptamer discovery and technology. Nature Reviews Chemistry, 2017, 1, .	13.8	566
3	Darwinian evolution of an alternative genetic system provides support for TNA as an RNA progenitor. Nature Chemistry, 2012, 4, 183-187.	6.6	235
4	TNA Synthesis by DNA Polymerases. Journal of the American Chemical Society, 2003, 125, 9274-9275.	6.6	141
5	A general strategy for expanding polymerase function by droplet microfluidics. Nature Communications, 2016, 7, 11235.	5.8	137
6	The structural diversity of artificial genetic polymers. Nucleic Acids Research, 2016, 44, 1007-1021.	6.5	134
7	A biologically stable DNAzyme that efficiently silences gene expression in cells. Nature Chemistry, 2021, 13, 319-326.	6.6	121
8	DNA Polymerase-Mediated DNA Synthesis on a TNA Template. Journal of the American Chemical Society, 2003, 125, 856-857.	6.6	110
9	Kinetic Analysis of an Efficient DNA-Dependent TNA Polymerase. Journal of the American Chemical Society, 2005, 127, 7427-7434.	6.6	93
10	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.	6.6	85
11	An Efficient and Faithful in Vitro Replication System for Threose Nucleic Acid. Journal of the American Chemical Society, 2013, 135, 3583-3591.	6.6	82
12	Fluorescence-Activated Droplet Sorting for Single-Cell Directed Evolution. ACS Synthetic Biology, 2019, 8, 1430-1440.	1.9	82
13	What Is XNA?. Angewandte Chemie - International Edition, 2019, 58, 11570-11572.	7.2	78
14	Improving Polymerase Activity with Unnatural Substrates by Sampling Mutations in Homologous Protein Architectures. ACS Chemical Biology, 2016, 11, 1210-1219.	1.6	77
15	The Emerging World of Synthetic Genetics. Chemistry and Biology, 2012, 19, 1360-1371.	6.2	73
16	Generating Biologically Stable TNA Aptamers that Function with High Affinity and Thermal Stability. Journal of the American Chemical Society, 2020, 142, 7721-7724.	6.6	73
17	Evaluating TNA stability under simulated physiological conditions. Bioorganic and Medicinal Chemistry Letters, 2016, 26, 2418-2421.	1.0	66
18	Evolution of a General RNA-Cleaving FANA Enzyme. Nature Communications, 2018, 9, 5067.	5.8	65

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19	REVEALR: A Multicomponent XNAzyme-Based Nucleic Acid Detection System for SARS-CoV-2. Journal of the American Chemical Society, 2021, 143, 8957-8961.	6.6	64
20	Experimental Evidence That GNA and TNA Were Not Sequential Polymers in the Prebiotic Evolution of RNA. Journal of Molecular Evolution, 2007, 65, 289-295.	0.8	61
21	A Scalable Synthesis of Î±-<scp>l</scp>-Threose Nucleic Acid Monomers. Journal of Organic Chemistry, 2016, 81, 2302-2307.	1.7	57
22	Beyond guanine quartets: cation-induced formation of homogenous and chimeric DNA tetraplexes incorporating iso-guanine and guanine. Chemistry and Biology, 1997, 4, 899-908.	6.2	45
23	Reverse Transcription of Threose Nucleic Acid by a Naturally Occurring DNA Polymerase. ChemBioChem, 2016, 17, 1804-1808.	1.3	45
24	Engineering polymerases for applications in synthetic biology. Quarterly Reviews of Biophysics, 2020, 53, e8.	2.4	45
25	Structural basis for TNA synthesis by an engineered TNA polymerase. Nature Communications, 2017, 8, 1810.	5.8	43
26	Synthesis of Two Mirror Image 4-Helix Junctions Derived from Glycerol Nucleic Acid. Journal of the American Chemical Society, 2008, 130, 5846-5847.	6.6	40
27	Redesigning the Genetic Polymers of Life. Accounts of Chemical Research, 2021, 54, 1056-1065.	7.6	36
28	A Tool for the Import of Natural and Unnatural Nucleoside Triphosphates into Bacteria. Journal of the American Chemical Society, 2018, 140, 1447-1454.	6.6	34
29	Elucidating the Determinants of Polymerase Specificity by Microfluidic-Based Deep Mutational Scanning. ACS Synthetic Biology, 2019, 8, 1421-1429.	1.9	33
30	Structural Insights into Conformation Differences between DNA/TNA and RNA/TNA Chimeric Duplexes. ChemBioChem, 2016, 17, 1705-1708.	1.3	31
31	Crystal structures of a natural DNA polymerase that functions as an XNA reverse transcriptase. Nucleic Acids Research, 2019, 47, 6973-6983.	6.5	31
32	Evolutionary Optimization of a Nonbiological ATP Binding Protein for Improved Folding Stability. Chemistry and Biology, 2004, 11, 865-874.	6.2	30
33	Programmed Allelic Mutagenesis of a DNA Polymerase with Single Amino Acid Resolution. ACS Synthetic Biology, 2020, 9, 1873-1881.	1.9	30
34	Allele-Specific RNA Knockdown with a Biologically Stable and Catalytically Efficient XNAzyme. Journal of the American Chemical Society, 2021, 143, 4519-4523.	6.6	30
35	Synthesis and Polymerase Recognition of Threose Nucleic Acid Triphosphates Equipped with Diverse Chemical Functionalities. Journal of the American Chemical Society, 2021, 143, 17761-17768.	6.6	30
36	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, 4014-4017.	6.6	27

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37	P(V) Reagents for the Scalable Synthesis of Natural and Modified Nucleoside Triphosphates. Journal of the American Chemical Society, 2019, 141, 13286-13289.	6.6	27
38	Synthesis and polymerase activity of a fluorescent cytidine TNA triphosphate analogue. Nucleic Acids Research, 2017, 45, 5629-5638.	6.5	26
39	Nonenzymatic Oligomerization on Templates Containing Phosphodiester-Linked Acyclic Glycerol Nucleic Acid Analogues. Journal of Molecular Evolution, 2000, 51, 464-470.	0.8	25
40	Orthogonal Genetic Systems. ChemBioChem, 2020, 21, 1408-1411.	1.3	25
41	Evolution of Functionally Enhanced Î±-<scp>l</scp>-Threofuranosyl Nucleic Acid Aptamers. ACS Synthetic Biology, 2021, 10, 3190-3199.	1.9	24
42	Creating protein biocatalysts as tools for future industrial applications. Expert Opinion on Biological Therapy, 2008, 8, 1087-1098.	1.4	22
43	Reading and Writing Digital Information in TNA. ACS Synthetic Biology, 2020, 9, 2936-2942.	1.9	22
44	5-PropynyluracilÂ·diaminopurine: an efficient base-pair for non-enzymatic transcription of DNA. Chemical Communications, 2002, , 1568-1569.	2.2	21
45	Non-Enzymatic Transcription of an IsoGÂ·IsoC Base Pair. Journal of the American Chemical Society, 2000, 122, 12866-12867.	6.6	20
46	Solution Structure of a Parallelâ€Stranded Oligoisoguanine DNA Pentaplex Formed by d(T(iG)₄T) in the Presence of Cs⁺ Ions. Angewandte Chemie - International Edition, 2012, 51, 7952-7955.	7.2	20
47	Synthesis of Î±-<scp>l</scp>-Threofuranosyl Nucleoside 3â€²-Monophosphates, 3â€²-Phosphoro(2-Methyl)imidazolides, and 3â€²-Triphosphates. Journal of Organic Chemistry, 2017, 82, 5910-5916.	1.7	19
48	RNA-Catalyzed Polymerization of Deoxyribose, Threose, and Arabinose Nucleic Acids. ACS Synthetic Biology, 2019, 8, 955-961.	1.9	19
49	Ligase-Mediated Threose Nucleic Acid Synthesis on DNA Templates. ACS Synthetic Biology, 2019, 8, 282-286.	1.9	19
50	RecA Protein Promotes Strand Exchange with DNA Substrates Containing Isoguanine and 5-Methyl Isocytosine. Biochemistry, 2000, 39, 10177-10188.	1.2	18
51	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	18
52	Evaluating the Rate and Substrate Specificity of Laboratory Evolved XNA Polymerases. Analytical Chemistry, 2017, 89, 12622-12625.	3.2	18
53	A Gram-Scale HPLC-Free Synthesis of TNA Triphosphates Using an Iterative Phosphorylation Strategy. Organic Letters, 2017, 19, 4379-4382.	2.4	17
54	In Vitro Selection of an ATP-Binding TNA Aptamer. Molecules, 2020, 25, 4194.	1.7	17

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55	Functional Comparison of Laboratory-Evolved XNA Polymerases for Synthetic Biology. ACS Synthetic Biology, 2021, 10, 1429-1437.	1.9	16
56	A one-pot synthesis of Î±-l-threofuranosyl nucleoside triphosphates (tNTPs). Bioorganic and Medicinal Chemistry Letters, 2016, 26, 3271-3273.	1.0	13
57	Crystal structures of DNA polymerase I capture novel intermediates in the DNA synthesis pathway. ELife, 2018, 7, .	2.8	13
58	Activation of Innate Immune Responses by a CpG Oligonucleotide Sequence Composed Entirely of Threose Nucleic Acid. Nucleic Acid Therapeutics, 2019, 29, 51-59.	2.0	13
59	REVEALR-Based Genotyping of SARS-CoV-2 Variants of Concern in Clinical Samples. Journal of the American Chemical Society, 2022, 144, 11685-11692.	6.6	13
60	Synthesis of Threose Nucleic Acid (TNA) Phosphoramidite Monomers and Oligonucleotide Polymers. Current Protocols in Nucleic Acid Chemistry, 2012, 50, Unit4.51.	0.5	12
61	Expanding the chemical diversity of TNA with tUTP derivatives that are substrates for a TNA polymerase. Chemical Communications, 2018, 54, 1237-1240.	2.2	12
62	Evaluating the Catalytic Potential of a General RNAâ€Cleaving FANA Enzyme. ChemBioChem, 2020, 21, 1001-1006.	1.3	12
63	Transliteration of synthetic genetic enzymes. Nucleic Acids Research, 2021, 49, 11438-11446.	6.5	12
64	Transcription of an RNA aptamer by a DNA polymerase. Chemical Communications, 2009, , 2938.	2.2	11
65	Synthesis of Threose Nucleic Acid (TNA) Triphosphates and Oligonucleotides by Polymeraseâ€Mediated Primer Extension. Current Protocols in Nucleic Acid Chemistry, 2013, 52, Unit 4.54.	0.5	11
66	Following replicative DNA synthesis by time-resolved X-ray crystallography. Nature Communications, 2021, 12, 2641.	5.8	11
67	Was ist XNA?. Angewandte Chemie, 2019, 131, 11694-11696.	1.6	10
68	Structural interpretation of the effects of threo-nucleotides on nonenzymatic template-directed polymerization. Nucleic Acids Research, 2021, 49, 646-656.	6.5	10
69	XNA enzymes by evolution and design. Current Research in Chemical Biology, 2021, 1, 100012.	1.4	10
70	Comparative analysis of eukaryotic cell-free expression systems. BioTechniques, 2015, 59, 149-151.	0.8	9
71	Bacterial Genome Containing Chimeric DNAâ€“RNA Sequences. Journal of the American Chemical Society, 2018, 140, 11464-11473.	6.6	9
72	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.	1.0	8

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73	A parallel stranded Gâ€quadruplex composed of threose nucleic acid (TNA). Biopolymers, 2017, 107, e22999.	1.2	8
74	Synthesis and polymerase recognition of a pyrrolocytidine TNA triphosphate. Biopolymers, 2021, 112, e23388.	1.2	7
75	Synthesis of 2â€²-Deoxy-Î±-<scp>l</scp>-threofuranosyl Nucleoside Triphosphates. Journal of Organic Chemistry, 2018, 83, 8840-8850.	1.7	6
76	Directed evolution of custom polymerases using droplet microfluidics. Methods in Enzymology, 2020, 644, 227-253.	0.4	6
77	A Novel Small RNA-Cleaving Deoxyribozyme with a Short Binding Arm. Scientific Reports, 2019, 9, 8224.	1.6	4
78	Replicating an Expanded Genetic Alphabet in Cells. ChemBioChem, 2014, 15, 1869-1871.	1.3	3
79	Made in translation. Nature Chemistry, 2018, 10, 379-381.	6.6	0
80	Synthesis of a Fluorescent Cytidine TNA Triphosphate Analogue. Methods in Molecular Biology, 2019, 1973, 27-37.	0.4	0
81	Capâ€Independent Translation Initiation Driven by a 13â€nucleotide motif. FASEB Journal, 2018, 32, 651.13.	0.2	0
82	Visualizing primer extension without enzymes. ELife, 2018, 7, .	2.8	0