Ichiro Hirao

List of Publications by Year
in descending order

72 papers	4,448 citations	94381 37 h-index	106281 65 g-index
75 all docs	75 docs citations	75 times ranked	2271 citing authors

#	Article	IF	Citations
1	Generation of high-affinity DNA aptamers using an expanded genetic alphabet. Nature Biotechnology, 2013, 31, 453-457.	9.4	443
2	An unnatural base pair for incorporating amino acid analogs into proteins. Nature Biotechnology, 2002, 20, 177-182.	9.4	270
3	An unnatural hydrophobic base pair system: site-specific incorporation of nucleotide analogs into DNA and RNA. Nature Methods, 2006, 3, 729-735.	9.0	229
4	Most compact hairpin-turn structure exerted by a short DNA fragment, d(GCGAAGC) in solution: an extraordinarily stable structure resistant to nucleases and heat. Nucleic Acids Research, 1994, 22, 576-582.	6.5	203
5	An unnatural base pair system for efficient PCR amplification and functionalization of DNA molecules. Nucleic Acids Research, 2009, 37, e14-e14.	6.5	165
6	Highly specific unnatural base pair systems as a third base pair for PCR amplification. Nucleic Acids Research, 2012, 40, 2793-2806.	6.5	147
7	Unnatural base pair systems for DNA/RNA-based biotechnology. Current Opinion in Chemical Biology, 2006, 10, 622-627.	2.8	142
8	Extraordinarily stable mini-hairpins: electrophoretical and thermal properties of the various sequence variants of d(GCFAAAGC)and their effect on DNA sequencing. Nucleic Acids Research, 1992, 20, 3891-3896.	6.5	140
9	GNA Trinucleotide Loop Sequences Producing Extraordinarily Stable DNA Minihairpinsâ€. Biochemistry, 1997, 36, 4761-4767.	1.2	138
10	Natural versus Artificial Creation of Base Pairs in DNA: Origin of Nucleobases from the Perspectives of Unnatural Base Pair Studies. Accounts of Chemical Research, 2012, 45, 2055-2065.	7.6	130
11	A Two-Unnatural-Base-Pair System toward the Expansion of the Genetic Code. Journal of the American Chemical Society, 2004, 126, 13298-13305.	6.6	117
12	An Unnatural Hydrophobic Base Pair with Shape Complementarity between Pyrrole-2-carbaldehyde and 9-Methylimidazo[(4,5)-b]pyridine. Journal of the American Chemical Society, 2003, 125, 5298-5307.	6.6	114
13	High-Affinity DNA Aptamer Generation Targeting von Willebrand Factor A1-Domain by Genetic Alphabet Expansion for Systematic Evolution of Ligands by Exponential Enrichment Using Two Types of Libraries Composed of Five Different Bases. Journal of the American Chemical Society, 2017, 139, 324-334.	6.6	114
14	An Efficient Unnatural Base Pair for PCR Amplification. Journal of the American Chemical Society, 2007, 129, 15549-15555.	6.6	112
15	Site-Specific Fluorescent Labeling of RNA Molecules by Specific Transcription Using Unnatural Base Pairs. Journal of the American Chemical Society, 2005, 127, 17286-17295.	6.6	102
16	Extraordinary stable structure of short single-stranded DNA fragments containing a specific base sequence: d(GCGAAAGC). Nucleic Acids Research, 1989, 17, 2223-2231.	6.5	86
17	Genetic alphabet expansion technology by creating unnatural base pairs. Chemical Society Reviews, 2020, 49, 7602-7626.	18.7	74
18	A Unique Fluorescent Base Analogue for the Expansion of the Genetic Alphabet. Journal of the American Chemical Society, 2010, 132, 4988-4989.	6.6	67

#	Article	IF	Citations
19	Unnatural base pair systems toward the expansion of the genetic alphabet in the central dogma. Proceedings of the Japan Academy Series B: Physical and Biological Sciences, 2012, 88, 345-367.	1.6	67
20	Fluorescent probing for RNA molecules by an unnatural base-pair system. Nucleic Acids Research, 2007, 35, 5360-5369.	6.5	65
21	Site-specific biotinylation of RNA molecules by transcription using unnatural base pairs. Nucleic Acids Research, 2005, 33, e129-e129.	6.5	61
22	Site-specific labeling of RNA by combining genetic alphabet expansion transcription and copper-free click chemistry. Nucleic Acids Research, 2015, 43, 6665-6676.	6.5	59
23	Nuclease resistance of an extraordinarily thermostable mini-hairpin DNA fragment, d(GCGAAGC) and its application toin vitroprotein synthesis. Nucleic Acids Research, 1994, 22, 2217-2221.	6.5	58
24	Synthesis of 6-(2-thienyl)purine nucleoside derivatives that form unnatural base pairs with pyridin-2-one nucleosides. Bioorganic and Medicinal Chemistry Letters, 2001, 11, 2221-2223.	1.0	57
25	Site-Specific Incorporation of a Photo-Crosslinking Component into RNA by T7 Transcription Mediated by Unnatural Base Pairs. Chemistry and Biology, 2004, 11, 47-55.	6.2	57
26	The limits of specificity: an experimental analysis with RNA aptamers to MS2 coat protein variants. Molecular Diversity, 1998, 4, 75-89.	2.1	56
27	A New Unnatural Base Pair System between Fluorophore and Quencher Base Analogues for Nucleic Acid-Based Imaging Technology. Journal of the American Chemical Society, 2010, 132, 15418-15426.	6.6	55
28	An Efficient Unnatural Base Pair for a Base-Pair-Expanded Transcription System. Journal of the American Chemical Society, 2005, 127, 8652-8658.	6.6	53
29	Synthesis of 3-(2-deoxy-Î²-d-ribofuranosyl)pyridin-2-one and 2-amino-6-(N,N-dimethylamino)-9-(2-deoxy-Î²-d-ribofuranosyl)purine derivatives for an unnatural base pair. Tetrahedron Letters, 2000, 41, 3931-3934.	0.7	52
30	Architecture of high-affinity unnatural-base DNA aptamers toward pharmaceutical applications. Scientific Reports, 2016, 5, 18478.	1.6	52
31	High Fidelity, Efficiency and Functionalization of Dsâ€“Px Unnatural Base Pairs in PCR Amplification for a Genetic Alphabet Expansion System. ACS Synthetic Biology, 2016, 5, 1220-1230.	1.9	52
32	Site-specific functionalization of RNA molecules by an unnatural base pair transcription system via click chemistry. Chemical Communications, 2012, 48, 10835.	2.2	51
33	Post-ExSELEX stabilization of an unnatural-base DNA aptamer targeting VEGF₁₆₅toward pharmaceutical applications. Nucleic Acids Research, 2016, 44, gkw619.	6.5	51
34	Molecular affinity rulers: systematic evaluation of DNA aptamers for their applicabilities in ELISA. Nucleic Acids Research, 2019, 47, 8362-8374.	6.5	47
35	Creation of unnatural base pairs for genetic alphabet expansion toward synthetic xenobiology. Current Opinion in Chemical Biology, 2018, 46, 108-114.	2.8	46
36	Site-specific fluorescent probing of RNA molecules by unnatural base-pair transcription for local structural conformation analysis. Nature Protocols, 2010, 5, 1312-1323.	5.5	45

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37	Visual Detection of Amplified DNA by Polymerase Chain Reaction Using a Genetic Alphabet Expansion System. Journal of the American Chemical Society, 2018, 140, 14038-14041.	6.6	41
38	Genetic Alphabet Expansion Provides Versatile Specificities and Activities of Unnatural-Base DNA Aptamers Targeting Cancer Cells. Molecular Therapy - Nucleic Acids, 2019, 14, 158-170.	2.3	39
39	Site-Specific Incorporation of Functional Components into RNA by an Unnatural Base Pair Transcription System. Molecules, 2012, 17, 2855-2876.	1.7	38
40	Genetic alphabet expansion biotechnology by creating unnatural base pairs. Current Opinion in Biotechnology, 2018, 51, 8-15.	3.3	36
41	An unnatural hydrophobic base, 4-propynylpyrrole-2-carbaldehyde, as an efficient pairing partner of 9-methylimidazo[(4,5)- b]pyridine. Bioorganic and Medicinal Chemistry Letters, 2003, 13, 4515-4518.	1.0	34
42	Characterization of fluorescent, unnatural base pairs. Tetrahedron, 2007, 63, 3528-3537.	1.0	34
43	DNA aptamer generation by ExSELEX using genetic alphabet expansion with a mini-hairpin DNA stabilization method. Biochimie, 2018, 145, 15-21.	1.3	33
44	Structural Basis for Expansion of the Genetic Alphabet with an Artificial Nucleobase Pair. Angewandte Chemie - International Edition, 2017, 56, 12000-12003.	7.2	30
45	High-affinity five/six-letter DNA aptamers with superior specificity enabling the detection of dengue NS1 protein variants beyond the serotype identification. Nucleic Acids Research, 2021, 49, 11407-11424.	6.5	29
46	RNA Aptamers That Bind to and Inhibit the Ribosome-inactivating Protein, Pepocin. Journal of Biological Chemistry, 2000, 275, 4943-4948.	1.6	28
47	Monitoring the site-specific incorporation of dual fluorophore-quencher base analogues for target DNA detection by an unnatural base pair system. Organic and Biomolecular Chemistry, 2011, 9, 7504.	1.5	25
48	In VitroSelection of RNA Aptamers that Bind to Colicin E3 and Structurally Resemble the Decoding Site of 16S Ribosomal RNAâ€. Biochemistry, 2004, 43, 3214-3221.	1.2	24
49	PCR Amplification and Transcription for Site-Specific Labeling of Large RNA Molecules by a Two-Unnatural-Base-Pair System. Journal of Nucleic Acids, 2012, 2012, 1-8.	0.8	24
50	Unnatural base pairs mediate the site-specific incorporation of an unnatural hydrophobic component into RNA transcripts. Bioorganic and Medicinal Chemistry Letters, 2004, 14, 2593-2596.	1.0	23
51	DNA Aptamer Generation by Genetic Alphabet Expansion SELEX (ExSELEX) Using an Unnatural Base Pair System. Methods in Molecular Biology, 2016, 1380, 47-60.	0.4	23
52	Genetic alphabet expansion transcription generating functional RNA molecules containing a five-letter alphabet including modified unnatural and natural base nucleotides by thermostable T7 RNA polymerase variants. Chemical Communications, 2017, 53, 12309-12312.	2.2	21
53	Stabilization of mRNA in an Escherichia coli cell-free translation system. FEBS Letters, 1993, 321, 169-172.	1.3	18
54	DNA Sequencing Method Including Unnatural Bases for DNA Aptamer Generation by Genetic Alphabet Expansion. ACS Synthetic Biology, 2019, 8, 1401-1410.	1.9	17

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55	Site-Specific Incorporation of Extra Components into RNA by Transcription Using Unnatural Base Pair Systems. Methods in Molecular Biology, 2010, 634, 355-369.	0.4	17
56	Cytostatic evaluations of nucleoside analogs related to unnatural base pairs for a genetic expansion system. Bioorganic and Medicinal Chemistry Letters, 2007, 17, 5582-5585.	1.0	15
57	Siteâ€Specific Functional Labeling of Nucleic Acids by In Vitro Replication and Transcription using Unnatural Base Pair Systems. Israel Journal of Chemistry, 2013, 53, 450-468.	1.0	15
58	Crystal structure of Deep Vent DNA polymerase. Biochemical and Biophysical Research Communications, 2017, 483, 52-57.	1.0	12
59	A quantitative, non-radioactive single-nucleotide insertion assay for analysis of DNA replication fidelity by using an automated DNA sequencer. Biotechnology Letters, 2004, 26, 999-1005.	1.1	11
60	Unique Thermal Stability of Unnatural Hydrophobic Ds Bases in Double-Stranded DNAs. ACS Synthetic Biology, 2017, 6, 1944-1951.	1.9	10
61	Evolving Aptamers with Unnatural Base Pairs. Current Protocols in Chemical Biology, 2017, 9, 315-339.	1.7	10
62	Cognate baseâ€pair selectivity of hydrophobic unnatural bases in <scp>DNA</scp> ligation by <scp>T4 DNA</scp> ligase. Biopolymers, 2021, 112, e23407.	1.2	9
63	Dyeâ€Conjugated Spinach RNA by Genetic Alphabet Expansion. Chemistry - A European Journal, 2022, 28, .	1.7	9
64	Competitive ELISA for a serologic test to detect dengue serotype-specific anti-NS1 IgGs using high-affinity UB-DNA aptamers. Scientific Reports, 2021, 11, 18000.	1.6	8
65	Uptake mechanisms of cell-internalizing nucleic acid aptamers for applications as pharmacological agents. RSC Medicinal Chemistry, 2021, 12, 1640-1649.	1.7	8
66	Genetic Code Engineering by Natural and Unnatural Base Pair Systems for the Site-Specific Incorporation of Non-Standard Amino Acids Into Proteins. Frontiers in Molecular Biosciences, 0, 9, .	1.6	8
67	Strukturelle Studie zur Erweiterung des genetischen Codes durch ein artifizielles Nucleobasenpaar. Angewandte Chemie, 2017, 129, 12162-12166.	1.6	5
68	Sanger Gap Sequencing for Genetic Alphabet Expansion of DNA. ChemBioChem, 2020, 21, 2287-2296.	1.3	5
69	Synthesis of Fused Oligoribonucleotides with Trideoxyribonucleotide Containing Phosphorothioate to Stabilize Against Nuclease Activity. Nucleosides & Nucleotides, 1991, 10, 1377-1390.	0.5	4
70	Synthesis and Properties of an Initiation Codon Analog Consisting of 2â€²-O-Methyl Nucleotides. Nucleosides & Nucleotides, 1990, 9, 1113-1122.	0.5	1
71	Titelbild: Strukturelle Studie zur Erweiterung des genetischen Codes durch ein artifizielles Nucleobasenpaar (Angew. Chem. 39/2017). Angewandte Chemie, 2017, 129, 11815-11815.	1.6	0
72	New Research Area, Xenobiology, by Integrating Chemistry and Biology. Yuki Gosei Kagaku Kyokaishi/Journal of Synthetic Organic Chemistry, 2020, 78, 465-475.	0.0	0