Widespread anti-CRISPR proteins in virulent bacteriop

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Citation Report

#	ARTICLE	IF	CITATIONS
1	Applications of CRISPR-Cas in Bioengineering, Biotechnology, and Translational Research. CRISPR Journal, 2018, 1, 379-404.	1.4	17
2	Synthetic Oligonucleotides Inhibit CRISPR-Cpf1-Mediated Genome Editing. Cell Reports, 2018, 25, 3262-3272.e3.	2.9	28
3	Anti-CRISPR-Based and CRISPR-Based Genome Editing of Sulfolobus islandicus Rod-Shaped Virus 2. Viruses, 2018, 10, 695.	1.5	25
4	Potent Cas9 Inhibition in Bacterial and Human Cells by AcrIIC4 and AcrIIC5 Anti-CRISPR Proteins. MBio, 2018, 9, .	1.8	80
5	A Unified Resource for Tracking Anti-CRISPR Names. CRISPR Journal, 2018, 1, 304-305.	1.4	94
6	Systematic discovery of natural CRISPR-Cas12a inhibitors. Science, 2018, 362, 236-239.	6.0	174
7	Antiâ€CRISPR AcrIIC3 discriminates between Cas9 orthologs via targeting the variable surface of the HNH nuclease domain. FEBS Journal, 2019, 286, 4661-4674.	2.2	27
8	Long reads reveal the diversification and dynamics of CRISPR reservoir in microbiomes. BMC Genomics, 2019, 20, 567.	1.2	9
9	Antiâ€CRISPRs: The natural inhibitors for CRISPRâ€Cas systems. Animal Models and Experimental Medicine, 2019, 2, 69-75.	1.3	25
10	Cas9 Allosteric Inhibition by the Anti-CRISPR Protein AcrIIA6. Molecular Cell, 2019, 76, 922-937.e7.	4.5	44
11	Anti-CRISPR AcrIIA5 Potently Inhibits All Cas9 Homologs Used for Genome Editing. Cell Reports, 2019, 29, 1739-1746.e5.	2.9	35
12	Structural insight into multistage inhibition of CRISPR-Cas12a by AcrVA4. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 18928-18936.	3.3	21
13	Tissue-restricted genome editing in vivo specified by microRNA-repressible anti-CRISPR proteins. Rna, 2019, 25, 1421-1431.	1.6	71
14	Hostâ€“transposon interactions: conflict, cooperation, and cooption. Genes and Development, 2019, 33, 1098-1116.	2.7	209
15	Phage Therapy with a focus on the Human Microbiota. Antibiotics, 2019, 8, 131.	1.5	83
16	Inhibition of Type III CRISPR-Cas Immunity by an Archaeal Virus-Encoded Anti-CRISPR Protein. Cell, 2019, 179, 448-458.e11.	13.5	70
17	A mutation in the methionine aminopeptidase gene provides phage resistance in Streptococcus thermophilus. Scientific Reports, 2019, 9, 13816.	1.6	17
18	Bioinformatics Identification of Anti-CRISPR Loci by Using Homology, Guilt-by-Association, and CRISPR Self-Targeting Spacer Approaches. MSystems, 2019, 4, .	1.7	38

#	ARTICLE	IF	CITATIONS
19	Adeno-associated virus vector as a platform for gene therapy delivery. Nature Reviews Drug Discovery, 2019, 18, 358-378.	21.5	1,267
20	Bacteriophage-host arm race: an update on the mechanism of phage resistance in bacteria and revenge of the phage with the perspective for phage therapy. Applied Microbiology and Biotechnology, 2019, 103, 2121-2131.	1.7	137
22	Discovery and Characterization of Cas9 Inhibitors Disseminated across Seven Bacterial Phyla. Cell Host and Microbe, 2019, 25, 233-241.e5.	5.1	63
23	Inhibition of CRISPR-Cas9 ribonucleoprotein complex assembly by anti-CRISPR AcrIIC2. Nature Communications, 2019, 10, 2806.	5.8	50
24	Structural Basis for the Inhibition of CRISPR-Cas12a by Anti-CRISPR Proteins. Cell Host and Microbe, 2019, 25, 815-826.e4.	5.1	63
25	A comparative genomics approach for identifying host-range determinants in Streptococcus thermophilus bacteriophages. Scientific Reports, 2019, 9, 7991.	1.6	26
26	Keeping<scp>crispr</scp>in check: diverse mechanisms of phage-encoded anti-<scp>crisprs</scp>. FEMS Microbiology Letters, 2019, 366, .	0.7	76
27	Cell-specific CRISPRâ€“Cas9 activation by microRNA-dependent expression of anti-CRISPR proteins. Nucleic Acids Research, 2019, 47, e75-e75.	6.5	79
28	Three New Cs for CRISPR: Collateral, Communicate, Cooperate. Trends in Genetics, 2019, 35, 446-456.	2.9	34
29	Variability in the durability of CRISPR-Cas immunity. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20180097.	1.8	25
30	Origins and evolution of CRISPR-Cas systems. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20180087.	1.8	258
31	Genome-wide correlation analysis suggests different roles of CRISPR-Cas systems in the acquisition of antibiotic resistance genes in diverse species. Philosophical Transactions of the Royal Society B: Biological Sciences, 2019, 374, 20180384.	1.8	46
32	Meet the Anti-CRISPRs: Widespread Protein Inhibitors of CRISPR-Cas Systems. CRISPR Journal, 2019, 2, 23-30.	1.4	68
33	AcrIIA5 Inhibits a Broad Range of Cas9 Orthologs by Preventing DNA Target Cleavage. Cell Reports, 2019, 29, 2579-2589.e4.	2.9	24
34	Phage AcrIIA2 DNA Mimicry: Structural Basis of the CRISPR and Anti-CRISPR Arms Race. Molecular Cell, 2019, 73, 611-620.e3.	4.5	74
35	Temperature-Responsive Competitive Inhibition of CRISPR-Cas9. Molecular Cell, 2019, 73, 601-610.e5.	4.5	67
36	CRISPR RNA-guided autonomous delivery of Cas9. Nature Structural and Molecular Biology, 2019, 26, 14-24.	3.6	27
37	Novel isolates of Streptococcus thermophilus bacteriophages from group 5093 identified with an improved multiplex PCR typing method. International Dairy Journal, 2019, 91, 18-24.	1.5	1

#	ARTICLE	IF	CITATIONS
38	Anti-CRISPR-mediated control of gene editing and synthetic circuits in eukaryotic cells. Nature Communications, 2019, 10, 194.	5.8	118
39	An enhanced assay to characterize anti-CRISPR proteins using a cell-free transcription-translation system. Methods, 2020, 172, 42-50.	1.9	21
40	Biochemical characterization of RNA-guided ribonuclease activities for CRISPR-Cas9 systems. Methods, 2020, 172, 32-41.	1.9	0
41	Antiâ€CRISPR proteins targeting the CRISPRâ€Cas system enrich the toolkit for genetic engineering. FEBS Journal, 2020, 287, 626-644.	2.2	25
42	Versatile and robust genome editing with <i>Streptococcus thermophilus</i> CRISPR1-Cas9. Genome Research, 2020, 30, 107-117.	2.4	51
43	Dairy lactococcal and streptococcal phageâ€"host interactions: an industrial perspective in an evolving phage landscape. FEMS Microbiology Reviews, 2020, 44, 909-932.	3.9	33
44	Gene Editing by Extracellular Vesicles. International Journal of Molecular Sciences, 2020, 21, 7362.	1.8	30
45	A Type I-F Anti-CRISPR Protein Inhibits the CRISPR-Cas Surveillance Complex by ADP-Ribosylation. Molecular Cell, 2020, 80, 512-524.e5.	4.5	33
46	Modulating gene regulation to treat genetic disorders. Nature Reviews Drug Discovery, 2020, 19, 757-775.	21.5	41
47	Type II anti-CRISPR proteins as a new tool for synthetic biology. RNA Biology, 2021, 18, 1085-1098.	1.5	7
48	Phage lysisâ€lysogeny switches and programmed cell death: Danse macabre. BioEssays, 2020, 42, e2000114.	1.2	23
49	It is unclear how important CRISPR-Cas systems are for protecting natural populations of bacteria against infections by mobile genetic elements. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 27777-27785.	3.3	32
50	Meta-analysis of cheese microbiomes highlights contributions to multiple aspects of quality. Nature Food, 2020, 1, 500-510.	6.2	60
51	Anti-CRISPR Proteins in Archaea. Trends in Microbiology, 2020, 28, 913-921.	3.5	19
52	PaCRISPR: a server for predicting and visualizing anti-CRISPR proteins. Nucleic Acids Research, 2020, 48, W348-W357.	6.5	37
53	Structures and Strategies of Anti-CRISPR-Mediated Immune Suppression. Annual Review of Microbiology, 2020, 74, 21-37.	2.9	62
54	Intrinsic disorder is essential for Cas9 inhibition of anti-CRISPR AcrIIA5. Nucleic Acids Research, 2020, 48, 7584-7594.	6.5	12
55	IncC conjugative plasmids and SXT/R391 elements repair double-strand breaks caused by CRISPRâ€"Cas during conjugation. Nucleic Acids Research, 2020, 48, 8815-8827.	6.5	33

#	Article	IF	Citations
56	Anti-CRISPR protein applications: natural brakes for CRISPR-Cas technologies. Nature Methods, 2020, 17, 471-479.	9.0	158
57	Anti-CRISPRs: Protein Inhibitors of CRISPR-Cas Systems. Annual Review of Biochemistry, 2020, 89, 309-332.	5.0	91
58	Broad-spectrum anti-CRISPR proteins facilitate horizontal gene transfer. Nature Microbiology, 2020, 5, 620-629.	5.9	79
59	Potent CRISPR-Cas9 inhibitors from<i>Staphylococcus</i>genomes. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 6531-6539.	3.3	47
60	How Crisp is CRISPR? CRISPR-Cas-mediated crop improvement with special focus on nutritional traits. , 2020, , 159-197.		5
61	Characterization of Bacteriophage Peptides of Pathogenic Streptococcus by LC-ESI-MS/MS: Bacteriophage Phylogenomics and Their Relationship to Their Host. Frontiers in Microbiology, 2020, 11, 1241.	1.5	12
62	Allosteric inhibition of CRISPR-Cas9 by bacteriophage-derived peptides. Genome Biology, 2020, 21, 51.	3.8	21
63	A cell wallâ€associated polysaccharide is required for bacteriophage adsorption to the <i>Streptococcus thermophilus</i> cell surface. Molecular Microbiology, 2020, 114, 31-45.	1.2	22
64	CRISPR-Cas13 Inhibitors Block RNA Editing in Bacteria and Mammalian Cells. Molecular Cell, 2020, 78, 850-861.e5.	4.5	65
65	Computational design of anti-CRISPR proteins with improved inhibition potency. Nature Chemical Biology, 2020, 16, 725-730.	3.9	14
66	Novel Genus of Phages Infecting Streptococcus thermophilus: Genomic and Morphological Characterization. Applied and Environmental Microbiology, 2020, 86, .	1.4	22
67	Listeria Phages Induce Cas9 Degradation to Protect Lysogenic Genomes. Cell Host and Microbe, 2020, 28, 31-40.e9.	5.1	54
68	Inhibition mechanisms of AcrF9, AcrF8, and AcrF6 against type I-F CRISPRâ€“Cas complex revealed by cryo-EM. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 7176-7182.	3.3	35
69	Machine learning predicts new anti-CRISPR proteins. Nucleic Acids Research, 2020, 48, 4698-4708.	6.5	70
70	Social Bacteriophages. Microorganisms, 2020, 8, 533.	1.6	16
71	A short overview of the CRISPR-Cas adaptation stage. Canadian Journal of Microbiology, 2021, 67, 1-12.	0.8	15
72	Optogenetic control of <i>Neisseria meningitidis</i> Cas9 genome editing using an engineered, light-switchable anti-CRISPR protein. Nucleic Acids Research, 2021, 49, e29-e29.	6.5	25
73	Genomic and<i>in vitro</i>properties of the dairy<i>Streptococcus thermophilus</i>SMQ-301 strain against selected pathogens. Food and Function, 2021, 12, 7017-7028.	2.1	2

#	ARTICLE	IF	CITATIONS
74	Causes and Consequences of Bacteriophage Diversification via Genetic Exchanges across Lifestyles and Bacterial Taxa. Molecular Biology and Evolution, 2021, 38, 2497-2512.	3.5	48
75	Thousands of previously unknown phages discovered in whole-community human gut metagenomes. Microbiome, 2021, 9, 78.	4.9	101
76	Precise Regulation of Cas9-Mediated Genome Engineering by Anti-CRISPR-Based Inducible CRISPR Controllers. ACS Synthetic Biology, 2021, 10, 1320-1327.	1.9	10
77	Anti-CRISPRs go viral: The infection biology of CRISPR-Cas inhibitors. Cell Host and Microbe, 2021, 29, 704-714.	5.1	43
79	Structure-based functional mechanisms and biotechnology applications of anti-CRISPR proteins. Nature Reviews Molecular Cell Biology, 2021, 22, 563-579.	16.1	56
80	Controlling CRISPR with small molecule regulation for somatic cell genome editing. Molecular Therapy, 2022, 30, 17-31.	3.7	8
81	The endless battle between phages and CRISPRâ€"Cas systems in Streptococcus thermophilus. Biochemistry and Cell Biology, 2021, 99, 397-402.	0.9	3
82	Biodiversity of Phages Infecting the Dairy Bacterium Streptococcus thermophilus. Microorganisms, 2021, 9, 1822.	1.6	7
86	Making the cut(s): how Cas12a cleaves target and non-target DNA. Biochemical Society Transactions, 2019, 47, 1499-1510.	1.6	35
87	Diversity of molecular mechanisms used by anti-CRISPR proteins: the tip of an iceberg?. Biochemical Society Transactions, 2020, 48, 507-516.	1.6	6
97	Functional metagenomics-guided discovery of potent Cas9 inhibitors in the human microbiome. ELife, 2019, 8, .	2.8	56
99	Evading Evasion. Sciential, 2018, , 25-27.	0.0	0
101	One Anti-CRISPR to Rule Them All: Potent Inhibition of Cas9 Homologs Used for Genome Editing. SSRN Electronic Journal, 0, , .	0.4	1
105	Social Interactions Among Bacteriophages. , 2020, , 103-119.		0
107	Atomic-scale insights into allosteric inhibition and evolutional rescue mechanism of Streptococcus thermophilus Cas9 by the anti-CRISPR protein AcrIIA6. Computational and Structural Biotechnology Journal, 2021, 19, 6108-6124.	1.9	35
109	Targeting Cancer with CRISPR/Cas9-Based Therapy. International Journal of Molecular Sciences, 2022, 23, 573.	1.8	18
110	Interaction of Bare dSpCas9, Scaffold gRNA, and Type II Anti-CRISPR Proteins Highly Favors the Control of Gene Expression in the Yeast <i>S. cerevisiae</i>. ACS Synthetic Biology, 2022, 11, 176-190.	1.9	11
111	Anti-CRISPR proteins as a therapeutic agent against drug-resistant bacteria. Microbiological Research, 2022, 257, 126963.	2.5	9

#	ARTICLE	IF	CITATIONS
112	Discovery of potent and versatile CRISPRâ€“Cas9 inhibitors engineered for chemically controllable genome editing. Nucleic Acids Research, 2022, 50, 2836-2853.	6.5	22
113	Virulence and Antibiotic Resistance Genes in Listeria monocytogenes Strains Isolated From Ready-to-Eat Foods in Chile. Frontiers in Microbiology, 2021, 12, 796040.	1.5	17
114	Insights into the inhibition of type I-F CRISPR-Cas system by a multifunctional anti-CRISPR protein AcrIF24. Nature Communications, 2022, 13, 1931.	5.8	16
116	Understanding the Mechanisms That Drive Phage Resistance in Staphylococci to Prevent Phage Therapy Failure. Viruses, 2022, 14, 1061.	1.5	15
117	A truncated anti-CRISPR protein prevents spacer acquisition but not interference. Nature Communications, 2022, 13, 2802.	5.8	8
118	Anti-CRISPR prediction using deep learning reveals an inhibitor of Cas13b nucleases. Molecular Cell, 2022, 82, 2714-2726.e4.	4.5	17
119	Modulating CRISPR-Cas Genome Editing Using Guide-Complementary DNA Oligonucleotides. CRISPR Journal, 2022, 5, 571-585.	1.4	0
120	CRISPRâ€“Cas9 Based Bacteriophage Genome Editing. Microbiology Spectrum, 0, , .	1.2	7
121	Diversity and dynamics of the CRISPR-Cas systems associated with Bacteroides fragilis in human population. BMC Genomics, 2022, 23, .	1.2	0
122	The Prominent Characteristics of the Effective sgRNA for a Precise CRISPR Genome Editing. , 0, , .		3
124	Anti-CRISPR Discovery: Using Magnets to Find Needles in Haystacks. Journal of Molecular Biology, 2023, 435, 167952.	2.0	4
125	The Many (Inter)faces of Anti-CRISPRs: Modulation of CRISPR-Cas Structure and Dynamics by Mechanistically Diverse Inhibitors. Biomolecules, 2023, 13, 264.	1.8	0
126	é’ˆå¯¹IIåž‹CRISPR-Casç³»ç»Ÿçš„AcråŸºå›çš„å‘çŽ°åŠAcrè›‹ç™½åšæ·åŒ–çš„æŠ‘åˆ¶æœºåˆ¶. Scientia Sinica Vitae, 2023, , .	0.1	0
127	In Silico Approaches for Prediction of Anti-CRISPR Proteins. Journal of Molecular Biology, 2023, 435, 168036.	2.0	3
128	Mechanisms regulating the CRISPR-Cas systems. Frontiers in Microbiology, 0, 14, .	1.5	2
129	Diverse Mechanisms of CRISPR-Cas9 Inhibition by Type II Anti-CRISPR Proteins. Journal of Molecular Biology, 2023, 435, 168041.	2.0	6
130	<scp>Cas9â€Geminin</scp> and Cdt1â€fused <scp>antiâ€CRISPR</scp> protein synergistically increase editing accuracy. FEBS Letters, 2023, 597, 985-994.	1.3	5
131	Temperate bacteriophages infecting the mucin-degrading bacterium <i>Ruminococcus gnavus</i> from the human gut. Gut Microbes, 2023, 15, .	4.3	2

#	Article	IF	Citations
132	Optimization of Cas9 activity through the addition of cytosine extensions to single-guide RNAs. Nature Biomedical Engineering, 2023, 7, 672-691.	11.6	8
133	Distribution and molecular evolution of the anti-CRISPR family AcrIF7. PLoS Biology, 2023, 21, e3002072.	2.6	0
145	Inhibitors of bacterial immune systems: discovery, mechanisms and applications. Nature Reviews Genetics, 2024, 25, 237-254.	7.7	1
147	Can CRISPR/CAS Help Fight Multidrug Resistance (MDR) Bacterial Infections?. , 2024, , 95-111.		0