Esteban Domingo

List of Publications by Year
in descending order

409 papers	27,193 citations	4641 85 h-index	10424 139 g-index
431 all docs	431 docs citations	431 times ranked	11414 citing authors

#	Article	IF	Citations
1	RNA VIRUS MUTATIONS AND FITNESS FOR SURVIVAL. Annual Review of Microbiology, 1997, 51, 151-178.	2.9	1,335
2	Viral Quasispecies Evolution. Microbiology and Molecular Biology Reviews, 2012, 76, 159-216.	2.9	811
3	Biological and biomedical implications of the co-evolution of pathogens and their hosts. Nature Genetics, 2002, 32, 569-577.	9.4	729
4	Nucleotide sequence heterogeneity of an RNA phage population. Cell, 1978, 13, 735-744.	13.5	570
5	The quasispecies (extremely heterogeneous) nature of viral RNA genome populations: biological relevance â€" a review. Gene, 1985, 40, 1-8.	1.0	484
6	Basic concepts in RNA virus evolution. FASEB Journal, 1996, 10, 859-864.	0.2	416
7	Lack of evidence for proofreading mechanisms associated with an RNA virus polymerase. Gene, 1992, 122, 281-288.	1.0	382
8	Rapid fitness losses in mammalian RNA virus clones due to Muller's ratchet.. Proceedings of the National Academy of Sciences of the United States of America, 1992, 89, 6015-6019.	3.3	353
9	Viral quasispecies. Virology, 2015, 479-480, 46-51.	1.1	319
10	Multiple genetic variants arise in the course of replication of foot-and-mouth disease virus in cell culture. Virology, 1983, 128, 310-318.	1.1	285
11	Exponential increases of RNA virus fitness during large population transmissions.. Proceedings of the National Academy of Sciences of the United States of America, 1995, 92, 5841-5844.	3.3	273
12	Evolution of foot-and-mouth disease virus. Virus Research, 2003, 91, 47-63.	1.1	273
13	The structure and antigenicity of a type C foot-and-mouth disease virus. Structure, 1994, 2, 123-139.	1.6	259
14	The proportion of revertant and mutant phage in a growing population, as a function of mutation and growth rate. Gene, 1976, 1, 27-32.	1.0	256
15	Mutation Frequencies at Defined Single Codon Sites in Vesicular Stomatitis Virus and Poliovirus Can Be Increased Only Slightly by Chemical Mutagenesis. Journal of Virology, 1990, 64, 3960-3962.	1.5	252
16	Evolution of Cell Recognition by Viruses. Science, 2001, 292, 1102-1105.	6.0	242
17	Pol gene quasispecies of human immunodeficiency virus: mutations associated with drug resistance in virus from patients undergoing no drug therapy. Journal of Virology, 1995, 69, 23-31.	1.5	240
18	Nucleotide sequence heterogeneity of the RNA from a natural population of foot-and-mouth-disease virus. Gene, 1980, 11, 333-346.	1.0	227

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19	Viruses as Quasispecies: Biological Implications. Current Topics in Microbiology and Immunology, 2006, 299, 51-82.	0.7	225
20	Genetic Lesions Associated with Muller's Ratchet in an RNA Virus. Journal of Molecular Biology, 1996, 264, 255-267.	2.0	224
21	Viral quasispecies. PLoS Genetics, 2019, 15, e1008271.	1.5	220
22	Response of Foot-and-Mouth Disease Virus to Increased Mutagenesis: Influence of Viral Load and Fitness in Loss of Infectivity. Journal of Virology, 2000, 74, 8316-8323.	1.5	219
23	A large-scale evaluation of peptide vaccines against foot-and-mouth disease: lack of solid protection in cattle and isolation of escape mutants. Journal of Virology, 1997, 71, 2606-2614.	1.5	209
24	A single amino acid substitution affects multiple overlapping epitopes in the major antigenic site of foot-and-mouth disease virus of serotype C. Journal of General Virology, 1990, 71, 629-637.	1.3	199
25	Structure of Foot-and-Mouth Disease Virus RNA-dependent RNA Polymerase and Its Complex with a Template-Primer RNA. Journal of Biological Chemistry, 2004, 279, 47212-47221.	1.6	198
26	Rapid selection of genetic and antigenic variants of foot-and-mouth disease virus during persistence in cattle. Journal of Virology, 1988, 62, 2041-2049.	1.5	184
27	Genetic bottlenecks and population passages cause profound fitness differences in RNA viruses. Journal of Virology, 1993, 67, 222-228.	1.5	181
28	Foot-and-mouth disease virus. Comparative Immunology, Microbiology and Infectious Diseases, 2002, 25, 297-308.	0.7	180
29	Memory in Viral Quasispecies. Journal of Virology, 2000, 74, 3543-3547.	1.5	174
30	Quasispecies Structure and Persistence of RNA Viruses. Emerging Infectious Diseases, 1998, 4, 521-527.	2.0	171
31	Structure of the major antigenic loop of foot-and-mouth disease virus complexed with a neutralizing antibody: direct involvement of the Arg-Gly-Asp motif in the interaction.. EMBO Journal, 1995, 14, 1690-1696.	3.5	170
32	Suppression of viral infectivity through lethal defection. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 4448-4452.	3.3	170
33	The red queen reigns in the kingdom of RNA viruses.. Proceedings of the National Academy of Sciences of the United States of America, 1994, 91, 4821-4824.	3.3	160
34	Drastic Fitness Loss in Human Immunodeficiency Virus Type 1 upon Serial Bottleneck Events. Journal of Virology, 1999, 73, 2745-2751.	1.5	160
35	Viruses at the Edge of Adaptation. Virology, 2000, 270, 251-253.	1.1	155
36	New observations on antigenic diversification of RNA viruses. Antigenic variation is not dependent on immune selection. Journal of General Virology, 1993, 74, 2039-2045.	1.3	151

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37	Multiple molecular pathways for fitness recovery of an RNA virus debilitated by operation of Mullerâ€™s ratchet 1 1Edited by J. Karn. Journal of Molecular Biology, 1999, 285, 495-505.	2.0	151
38	Lethal mutagenesis of the prototypic arenavirus lymphocytic choriomeningitis virus (LCMV). Virology, 2003, 308, 37-47.	1.1	151
39	Evolution of the capsid protein genes of foot-and-mouth disease virus: antigenic variation without accumulation of amino acid substitutions over six decades. Journal of Virology, 1992, 66, 3557-3565.	1.5	151
40	Cell Recognition by Foot-and-Mouth Disease Virus That Lacks the RGD Integrin-Binding Motif: Flexibility in Aphthovirus Receptor Usage. Journal of Virology, 2000, 74, 1641-1647.	1.5	150
41	Evolutionary Transition toward Defective RNAs That Are Infectious by Complementation. Journal of Virology, 2004, 78, 11678-11685.	1.5	150
42	Viral genetic variation: hepatitis B virus as a clinical example. Lancet, The, 1993, 341, 349-353.	6.3	149
43	Curing of foot-and-mouth disease virus from persistently infected cells by ribavirin involves enhanced mutagenesis. Virology, 2003, 311, 339-349.	1.1	149
44	Size of genetic bottlenecks leading to virus fitness loss is determined by mean initial population fitness. Journal of Virology, 1995, 69, 2869-2872.	1.5	148
45	The Two Species of the Foot-and-Mouth Disease Virus Leader Protein, Expressed individually, Exhibit the Same Activities. Virology, 1993, 194, 355-359.	1.1	147
46	Efficient Virus Extinction by Combinations of a Mutagen and Antiviral Inhibitors. Journal of Virology, 2001, 75, 9723-9730.	1.5	147
47	Coevolution of cells and viruses in a persistent infection of foot-and-mouth disease virus in cell culture. Journal of Virology, 1988, 62, 2050-2058.	1.5	146
48	Multiple Virulence Determinants of Foot-and-Mouth Disease Virus in Cell Culture. Journal of Virology, 1998, 72, 6362-6372.	1.5	141
49	Molecular indetermination in the transition to error catastrophe: Systematic elimination of lymphocytic choriomeningitis virus through mutagenesis does not correlate linearly with large increases in mutant spectrum complexity. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 12938-12943.	3.3	139
50	Foot-and-Mouth Disease Virus Mutant with Decreased Sensitivity to Ribavirin: Implications for Error Catastrophe. Journal of Virology, 2007, 81, 2012-2024.	1.5	138
51	Origin and evolution of viruses. , 1998, 16, 13-21.		137
52	In vitro site-directed mutagenesis: Generation and properties of an infectious extracistronic mutant of bacteriophage QÎ². Gene, 1976, 1, 3-25.	1.0	136
53	Subclonal components of consensus fitness in an RNA virus clone. Journal of Virology, 1994, 68, 4295-4301.	1.5	136
54	Implications of a quasispecies genome structure: effect of frequent, naturally occurring amino acid substitutions on the antigenicity of foot-and-mouth disease virus.. Proceedings of the National Academy of Sciences of the United States of America, 1989, 86, 5883-5887.	3.3	134

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55	Establishment of cell lines persistently infected with foot-and-mouth disease virus. Virology, 1985, 145, 24-35.	1.1	133
56	Lack of evolutionary stasis during alternating replication of an arbovirus in insect and mammalian cells. Journal of Molecular Biology, 1999, 287, 459-465.	2.0	132
57	Quasispecies Theory in Virology. Journal of Virology, 2002, 76, 463-465.	1.5	130
58	Mechanisms of viral emergence. Veterinary Research, 2010, 41, 38.	1.1	130
59	Effect of Alternating Passage on Adaptation of Sindbis Virus to Vertebrate and Invertebrate Cells. Journal of Virology, 2005, 79, 14253-14260.	1.5	129
60	Reactivity with monoclonal antibodies of viruses from an episode of foot-and-mouth disease. Virus Research, 1987, 8, 261-274.	1.1	127
61	A single nucleotide substitution in the internal ribosome entry site of foot-and-mouth disease virus leads to enhanced cap-independent translation in vivo. Journal of Virology, 1993, 67, 3748-3755.	1.5	125
62	The structure of a protein primerâ€“polymerase complex in the initiation of genome replication. EMBO Journal, 2006, 25, 880-888.	3.5	124
63	Evolution subverting essentiality: Dispensability of the cell attachment Arg-Gly-Asp motif in multiply passaged foot-and-mouth disease virus. Proceedings of the National Academy of Sciences of the United States of America, 1997, 94, 6798-6802.	3.3	123
64	RNA virus quasispecies: significance for viral disease and epidemiology. Infectious Agents and Disease, 1994, 3, 201-14.	1.2	121
65	Systematic Replacement of Amino Acid Residues within an Arg-Gly-Asp-containing Loop of Foot-and-Mouth Disease Virus and Effect on Cell Recognition. Journal of Biological Chemistry, 1996, 271, 12814-12819.	1.6	118
66	Distinct repertoire of antigenic variants of foot-and-mouth disease virus in the presence or absence of immune selection. Journal of Virology, 1993, 67, 6071-6079.	1.5	117
67	Fixation of mutations in the viral genome during an outbreak of foot-and-mouth disease: heterogeneity and rate variations. Gene, 1986, 50, 149-159.	1.0	116
68	Extensive antigenic heterogeneity of foot-and-mouth disease virus of serotype C. Virology, 1988, 167, 113-124.	1.1	116
69	Foot-and-Mouth Disease Virus Populations Are Quasispecies. Current Topics in Microbiology and Immunology, 1992, 176, 33-47.	0.7	115
70	Antigenic heterogeneity of a foot-and-mouth disease virus serotype in the field is mediated by very limited sequence variation at several antigenic sites. Journal of Virology, 1994, 68, 1407-1417.	1.5	115
71	RNA virus fitness. , 1997, 7, 87-96.		113
72	Sequential structures provide insights into the fidelity of RNA replication. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 9463-9468.	3.3	113

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73	Determinants of RNA-Dependent RNA Polymerase (In)fidelity Revealed by Kinetic Analysis of the Polymerase Encoded by a Foot-and-Mouth Disease Virus Mutant with Reduced Sensitivity to Ribavirin. Journal of Virology, 2008, 82, 12346-12355.	1.5	113
74	RNA virus evolution and the control of viral disease. , 1989, 33, 93-133.		112
75	Extreme fitness differences in mammalian and insect hosts after continuous replication of vesicular stomatitis virus in sandfly cells. Journal of Virology, 1995, 69, 6805-6809.	1.5	112
76	A Single Amino Acid Substitution in Nonstructural Protein 3A Can Mediate Adaptation of Foot-and-Mouth Disease Virus to the Guinea Pig. Journal of Virology, 2001, 75, 3977-3983.	1.5	110
77	Resistance of virus to extinction on bottleneck passages: Study of a decaying and fluctuating pattern of fitness loss. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 10830-10835.	3.3	109
78	Quasispecies and its impact on viral hepatitis. Virus Research, 2007, 127, 131-150.	1.1	109
79	Viral quasispecies complexity measures. Virology, 2016, 493, 227-237.	1.1	109
80	Unique amino acid substitutions in the capsid proteins of foot-and-mouth disease virus from a persistent infection in cell culture. Journal of Virology, 1990, 64, 5519-5528.	1.5	109
81	Genetic variability of Hong Kong (H3N2) influenza viruses: spontaneous mutations and their location in the viral genome. Gene, 1980, 11, 319-331.	1.0	107
82	Fitness alteration of foot-and-mouth disease virus mutants: measurement of adaptability of viral quasispecies. Journal of Virology, 1991, 65, 3954-3957.	1.5	106
83	Structure of the complex of an Fab fragment of a neutralizing antibody with foot-and-mouth disease virus: positioning of a highly mobile antigenic loop. EMBO Journal, 1997, 16, 1492-1500.	3.5	100
84	Role of a dipeptide insertion between codons 69 and 70 of HIV-1 reverse transcriptase in the mechanism of AZT resistance. EMBO Journal, 2000, 19, 5752-5761.	3.5	100
85	Preextinction Viral RNA Can Interfere with Infectivity. Journal of Virology, 2004, 78, 3319-3324.	1.5	100
86	Mutagenesis versus Inhibition in the Efficiency of Extinction of Foot-and-Mouth Disease Virus. Journal of Virology, 2003, 77, 7131-7138.	1.5	95
87	Viral Genome Segmentation Can Result from a Trade-Off between Genetic Content and Particle Stability. PLoS Genetics, 2011, 7, e1001344.	1.5	95
88	Quasispecies dynamics and RNA virus extinction. Virus Research, 2005, 107, 129-139.	1.1	93
89	Insights into RNA Virus Mutant Spectrum and Lethal Mutagenesis Events: Replicative Interference and Complementation by Multiple Point Mutants. Journal of Molecular Biology, 2007, 369, 985-1000.	2.0	93
90	Direct evaluation of the immunodominance of a major antigenic site of foot-and-mouth disease virus in a natural host. Virology, 1995, 206, 298-306.	1.1	89

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91	Response of Hepatitis C Virus to Long-Term Passage in the Presence of Alpha Interferon: Multiple Mutations and a Common Phenotype. Journal of Virology, 2013, 87, 7593-7607.	1.5	88
92	Exponential Fitness Gains of RNA Virus Populations Are Limited by Bottleneck Effects. Journal of Virology, 1999, 73, 1668-1671.	1.5	86
93	Virus mutation frequencies can be greatly underestimated by monoclonal antibody neutralization of virions. Journal of Virology, 1989, 63, 5030-5036.	1.5	85
94	Modifications of the 5' untranslated region of foot-and-mouth disease virus after prolonged persistence in cell culture. Virus Research, 1992, 26, 113-125.	1.1	84
95	High mutation rates, bottlenecks, and robustness of RNA viral quasispecies. Gene, 2005, 347, 273-282.	1.0	84
96	A Multi-Step Process of Viral Adaptation to a Mutagenic Nucleoside Analogue by Modulation of Transition Types Leads to Extinction-Escape. PLoS Pathogens, 2010, 6, e1001072.	2.1	83
97	Evidence for quasispecies distributions in the human hepatitis A virus genome. Virology, 2003, 315, 34-42.	1.1	82
98	Ribavirin Can Be Mutagenic for Arenaviruses. Journal of Virology, 2011, 85, 7246-7255.	1.5	81
99	Genetic and immunogenic variations among closely related isolates of foot-and-mouth disease virus. Gene, 1988, 62, 75-84.	1.0	78
100	Molecular intermediates of fitness gain of an RNA virus: characterization of a mutant spectrum by biological and molecular cloning. Journal of General Virology, 2001, 82, 1049-1060.	1.3	77
101	Negative effects of chemical mutagenesis on the adaptive behavior of vesicular stomatitis virus. Journal of Virology, 1997, 71, 3636-3640.	1.5	77
102	Many-trillionfold amplification of single RNA virus particles fails to overcome the Muller's ratchet effect. Journal of Virology, 1993, 67, 3620-3623.	1.5	75
103	Genomic nucleotide sequence of a foot-and-mouth disease virus clone and its persistent derivatives. Virus Research, 1999, 64, 161-171.	1.1	74
104	Duration and fitness dependence of quasispecies memory. Journal of Molecular Biology, 2002, 315, 285-296.	2.0	74
105	Increased Replicative Fitness Can Lead to Decreased Drug Sensitivity of Hepatitis C Virus. Journal of Virology, 2014, 88, 12098-12111.	1.5	74
106	High-Resolution Hepatitis C Virus Subtyping Using NS5B Deep Sequencing and Phylogeny, an Alternative to Current Methods. Journal of Clinical Microbiology, 2015, 53, 219-226.	1.8	74
107	Genetic Variability and Antigenic Diversity of Foot-and-Mouth Disease Virus. , 1990, , 233-266.		74
108	Resistance to extinction of low fitness virus subjected to plaque-to-plaque transfers: diversification by mutation clustering 1 1Edited by J. Karn. Journal of Molecular Biology, 2002, 315, 647-661.	2.0	73

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109	Viral quasispecies and the problem of vaccine-escape and drug-resistant mutants. , 1997, 48, 99-128.		72
110	Two mechanisms of antigenic diversification of foot-and-mouth disease virus. Virology, 1991, 184, 695-706.	1.1	71
111	Human immunodeficiency virus type 1 reverse transcriptase: role of Tyr115 in deoxynucleotide binding and misinsertion fidelity of DNA synthesis.. EMBO Journal, 1996, 15, 4434-4442.	3.5	71
112	Reproducible Nonlinear Population Dynamics and Critical Points During Replicative Competitions of RNA Virus Quasispecies. Journal of Molecular Biology, 1996, 264, 465-471.	2.0	70
113	Rapid Evolution of Viral RNA Genomes. Journal of Nutrition, 1997, 127, 958S-961S.	1.3	70
114	Induced Pocket to Accommodate the Cell Attachment Arg-Gly-Asp Motif in a Neutralizing Antibody Against Foot-and-Mouth-Disease Virus. Journal of Molecular Biology, 1996, 256, 364-376.	2.0	69
115	A Similar Pattern of Interaction for Different Antibodies with a Major Antigenic Site of Foot-and-Mouth Disease Virus: Implications for Intratypic Antigenic Variation. Journal of Virology, 1998, 72, 739-748.	1.5	69
116	Potential Benefits of Sequential Inhibitor-Mutagen Treatments of RNA Virus Infections. PLoS Pathogens, 2009, 5, e1000658.	2.1	68
117	Mutation Rates, Mutation Frequencies, and Proofreading-Repair Activities in RNA Virus Genetics. Viruses, 2021, 13, 1882.	1.5	66
118	Quasispecies as a matter of fact: Viruses and beyond. Virus Research, 2011, 162, 203-215.	1.1	65
119	Quasispecies and the development of new antiviral strategies. , 2003, 60, 133-158.		65
120	Mutagenesis-Induced, Large Fitness Variations with an Invariant Arenavirus Consensus Genomic Nucleotide Sequence. Journal of Virology, 2005, 79, 10451-10459.	1.5	64
121	Competition-colonization dynamics in an RNA virus. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 2108-2112.	3.3	64
122	Evolution of the influenza virus neuraminidase gene during drift of the N2 subtype. Virology, 1983, 130, 539-545.	1.1	63
123	Hidden Virulence Determinants in a Viral Quasispecies In Vivo. Journal of Virology, 2008, 82, 10465-10476.	1.5	63
124	Lethal Mutagenesis of Hepatitis C Virus Induced by Favipiravir. PLoS ONE, 2016, 11, e0164691.	1.1	63
125	Selection of Antigenic Variants of Foot-and-Mouth Disease Virus in the Absence of Antibodies, as Revealed by an in situ Assay. Journal of General Virology, 1989, 70, 3281-3289.	1.3	63
126	Rapid cell variation can determine the establishment of a persistent viral infection.. Proceedings of the National Academy of Sciences of the United States of America, 1994, 91, 3705-3709.	3.3	62

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127	Extinction of West Nile Virus by Favipiravir through Lethal Mutagenesis. Antimicrobial Agents and Chemotherapy, 2017, 61, .	1.4	61
128	Characterization of the Reverse Transcriptase of a Human Immunodeficiency Virus Type 1 Group O Isolate. Virology, 1997, 236, 364-373.	1.1	60
129	Extinction of Hepatitis C Virus by Ribavirin in Hepatoma Cells Involves Lethal Mutagenesis. PLoS ONE, 2013, 8, e71039.	1.1	60
130	Evolution of the nucleotide sequence of influenza virus RNA segment 7 during drift of the H3N2 subtype. Gene, 1983, 23, 233-239.	1.0	59
131	Gene encoding capsid protein VP1 of foot-and-mouth disease virus: a quasispecies model of molecular evolution.. Proceedings of the National Academy of Sciences of the United States of America, 1988, 85, 6811-6815.	3.3	59
132	Ribavirin cures cells of a persistent infection with foot-and-mouth disease virus in vitro. Journal of Virology, 1987, 61, 233-235.	1.5	59
133	Evidence for Positive Selection in the Capsid Protein-Coding Region of the Foot-and-Mouth Disease Virus (FMDV) Subjected to Experimental Passage Regimens. Molecular Biology and Evolution, 2001, 18, 10-21.	3.5	58
134	Modeling Viral Genome Fitness Evolution Associated with Serial Bottleneck Events: Evidence of Stationary States of Fitness. Journal of Virology, 2002, 76, 8675-8681.	1.5	58
135	Evolution of Cell Recognition by Viruses: A Source of Biological Novelty with Medical Implications. Advances in Virus Research, 2003, 62, 19-111.	0.9	58
136	Extracellular vesicles: Vehicles of en bloc viral transmission. Virus Research, 2019, 265, 143-149.	1.1	58
137	Quasispecies and the implications for virus persistence and escape. Clinical and Diagnostic Virology, 1998, 10, 97-101.	1.8	57
138	Pathways to extinction: beyond the error threshold. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 1943-1952.	1.8	57
139	Red Queen Dynamics, Competition and Critical Points in a Model of RNA Virus Quasispecies. Journal of Theoretical Biology, 1999, 198, 47-59.	0.8	56
140	Structural insights into replication initiation and elongation processes by the FMDV RNA-dependent RNA polymerase. Current Opinion in Structural Biology, 2009, 19, 752-758.	2.6	56
141	Inference with viral quasispecies diversity indices: clonal and NGS approaches. Bioinformatics, 2014, 30, 1104-1111.	1.8	56
142	Rapid Selection in Modified BHK-21 Cells of a Foot-and-Mouth Disease Virus Variant Showing Alterations in Cell Tropism. Journal of Virology, 1998, 72, 10171-10179.	1.5	56
143	Arenavirus genetic diversity and its biological implications. Infection, Genetics and Evolution, 2009, 9, 417-429.	1.0	55
144	Footâ€andâ€mouth disease in Europe. EMBO Reports, 2001, 2, 459-461.	2.0	54

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145	Ultra-Deep Pyrosequencing (UDPS) Data Treatment to Study Amplicon HCV Minor Variants. PLoS ONE, 2013, 8, e83361.	1.1	54
146	Structure of the major antigenic loop of foot-and-mouth disease virus complexed with a neutralizing antibody: direct involvement of the Arg-Gly-Asp motif in the interaction. EMBO Journal, 1995, 14, 1690-6.	3.5	54
147	Flexibility of the Major Antigenic Loop of Foot-and-Mouth Disease Virus Bound to a Fab Fragment of a Neutralising Antibody: Structure and Neutralisation. Virology, 1999, 255, 260-268.	1.1	53
148	Evolution of Fitness in Experimental Populations of Vesicular Stomatitis Virus. Genetics, 1996, 142, 673-679.	1.2	53
149	VP1 of serotype C foot-and-mouth disease viruses: long-term conservation of sequences. Journal of Virology, 1988, 62, 1469-1473.	1.5	53
150	Extensive cell heterogeneity during persistent infection with foot-and-mouth disease virus.. Journal of Virology, 1989, 63, 59-63.	1.5	53
151	Identification of an essential region for internal initiation of translation in the aphthovirus internal ribosome entry site and implications for viral evolution. Journal of Virology, 1996, 70, 992-998.	1.5	53
152	Memory in Retroviral Quasispecies: Experimental Evidence and Theoretical Model for Human Immunodeficiency Virus. Journal of Molecular Biology, 2003, 331, 213-229.	2.0	52
153	Molecular cloning of cDNA from foot-and-mouth disease virus C1-Santa Pau (C-S8). Sequence of protein-VP1-coding segment. Gene, 1983, 23, 185-194.	1.0	51
154	Mispair extension fidelity of human immunodeficiency virus type 1 reverse transcriptases with amino acid substitutions affecting Tyr115. Nucleic Acids Research, 1997, 25, 1383-1389.	6.5	51
155	Quasispecies and virus. European Biophysics Journal, 2018, 47, 443-457.	1.2	51
156	Dilute passage promotes expression of genetic and phenotypic variants of human immunodeficiency virus type 1 in cell culture. Journal of Virology, 1993, 67, 2938-2943.	1.5	51
157	Minority report: hidden memory genomes in HIV-1 quasispecies and possible clinical implications. AIDS Reviews, 2008, 10, 93-109.	0.5	51
158	Structure of Foot-and-Mouth Disease Virus Mutant Polymerases with Reduced Sensitivity to Ribavirin. Journal of Virology, 2010, 84, 6188-6199.	1.5	50
159	Unusual Distribution of Mutations Associated with Serial Bottleneck Passages of Human Immunodeficiency Virus Type 1. Journal of Virology, 2000, 74, 9546-9552.	1.5	49
160	Ultra-Deep Pyrosequencing Detects Conserved Genomic Sites and Quantifies Linkage of Drug-Resistant Amino Acid Changes in the Hepatitis B Virus Genome. PLoS ONE, 2012, 7, e37874.	1.1	49
161	Genetic variation and quasi-species. Current Opinion in Genetics and Development, 1992, 2, 61-63.	1.5	48
162	The impact of quasispecies dynamics on the use of therapeutics. Trends in Microbiology, 2012, 20, 595-603.	3.5	48

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163	Long-Term, Large-Population Passage of Aphthovirus Can Generate and Amplify Defective Noninterfering Particles Deleted in the Leader Protease Gene. Virology, 1996, 223, 10-18.	1.1	47
164	Evidence of the Coevolution of Antigenicity and Host Cell Tropism of Foot-and-Mouth Disease Virus In Vivo. Journal of Virology, 2003, 77, 1219-1226.	1.5	47
165	Viral Quasispecies and Fitness Variations. , 1999, , 141-161.		46
166	Molecular Basis for a Lack of Correlation between Viral Fitness and Cell Killing Capacity. PLoS Pathogens, 2007, 3, e53.	2.1	46
167	Complications of RNA Heterogeneity for the Engineering of Virus Vaccines and Antiviral Agents. , 1992, 14, 13-31.		46
168	Fixation of mutations at the VP1 gene of foot-and-mouth disease virus. Can quasispecies define a transient molecular clock?. Gene, 1991, 103, 147-153.	1.0	44
169	Foot-and-Mouth Disease Virus Lacking the VP1 G-H Loop: The Mutant Spectrum Uncovers Interactions among Antigenic Sites for Fitness Gain. Virology, 2001, 288, 192-202.	1.1	44
170	Multidrug-resistant HIV-1 Reverse Transcriptase: Involvement of Ribonucleotide-dependent Phosphorolysis in Cross-resistance to Nucleoside Analogue Inhibitors. Journal of Molecular Biology, 2002, 323, 181-197.	2.0	44
171	Invariant aphthovirus consensus nucleotide sequence in the transition to error catastrophe. Infection, Genetics and Evolution, 2005, 5, 366-374.	1.0	44
172	Resistance of Hepatitis C Virus to Inhibitors: Complexity and Clinical Implications. Viruses, 2015, 7, 5746-5766.	1.5	44
173	High Error Rates, Population Equilibrium, and Evolution of RNA Replication Systems. , 2018, , 3-36.		44
174	Large deletions in the 5â€²-untranslated region of foot-and-mouth disease virus of serotype C. Virus Research, 1995, 35, 155-167.	1.1	43
175	Emergence and selection of RNA virus variants: memory and extinction. Virus Research, 2001, 82, 39-44.	1.1	43
176	Dynamics of Mutation and Recombination in a Replicating Population of Complementing, Defective Viral Genomes. Journal of Molecular Biology, 2006, 360, 558-572.	2.0	43
177	Sequence of the viral replicase gene from foot-and-mouth disease virus C1-Santa Pau (C-S8). Gene, 1985, 35, 55-61.	1.0	42
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