Matthew R Parsek

List of Publications by Year
in descending order

136 papers	29,402 citations	9786 73 h-index	15732 125 g-index
177 all docs	177 docs citations	177 times ranked	21423 citing authors

#	Article	IF	Citations
1	The Involvement of Cell-to-Cell Signals in the Development of a Bacterial Biofilm. Science, 1998, 280, 295-298.	12.6	3,019
2	Bacterial competition: surviving and thriving in the microbial jungle. Nature Reviews Microbiology, 2010, 8, 15-25.	28.6	2,085
3	Quorum-sensing signals indicate that cystic fibrosis lungs are infected with bacterial biofilms. Nature, 2000, 407, 762-764.	27.8	1,372
4	Bacterial Biofilms: An Emerging Link to Disease Pathogenesis. Annual Review of Microbiology, 2003, 57, 677-701.	7.3	1,362
5	Regulation of Gene Expression by Cell-to-Cell Communication: Acyl-Homoserine Lactone Quorum Sensing. Annual Review of Genetics, 2001, 35, 439-468.	7.6	1,251
6	Gene expression in Pseudomonas aeruginosa biofilms. Nature, 2001, 413, 860-864.	27.8	1,037
7	Sociomicrobiology: the connections between quorum sensing and biofilms. Trends in Microbiology, 2005, 13, 27-33.	7.7	991
8	A component of innate immunity prevents bacterial biofilm development. Nature, 2002, 417, 552-555.	27.8	923
9	Inhibition of quorum sensing in Pseudomonas aeruginosa biofilm bacteria by a halogenated furanone compound. Microbiology (United Kingdom), 2002, 148, 87-102.	1.8	919
10	Heavy Metal Resistance of Biofilm and Planktonic Pseudomonas aeruginosa. Applied and Environmental Microbiology, 2003, 69, 2313-2320.	3.1	598
11	Alginate Overproduction AffectsPseudomonas aeruginosaBiofilm Structure and Function. Journal of Bacteriology, 2001, 183, 5395-5401.	2.2	584
12	Pseudomonas aeruginosa Anaerobic Respiration in Biofilms. Developmental Cell, 2002, 3, 593-603.	7.0	528
13	Assembly and Development of the Pseudomonas aeruginosa Biofilm Matrix. PLoS Pathogens, 2009, 5, e1000354.	4.7	515
14	The impact of quorum sensing and swarming motility on Pseudomonas aeruginosa biofilm formation is nutritionally conditional. Molecular Microbiology, 2006, 62, 1264-1277.	2.5	498
15	Pel is a cationic exopolysaccharide that cross-links extracellular DNA in the Pseudomonas aeruginosa biofilm matrix. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11353-11358.	7.1	485
16	Pseudomonas aeruginosa uses a cyclicâ€diâ€GMPâ€regulated adhesin to reinforce the biofilm extracellular matrix. Molecular Microbiology, 2010, 75, 827-842.	2.5	450
17	The Pel and Psl polysaccharides provide Pseudomonas aeruginosa structural redundancy within the biofilm matrix. Environmental Microbiology, 2012, 14, 1913-1928.	3.8	447
18	The Exopolysaccharide Alginate Protects Pseudomonas aeruginosa Biofilm Bacteria from IFN-Î³-Mediated Macrophage Killing. Journal of Immunology, 2005, 175, 7512-7518.	0.8	441

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19	The Pel Polysaccharide Can Serve a Structural and Protective Role in the Biofilm Matrix of Pseudomonas aeruginosa. PLoS Pathogens, 2011, 7, e1001264.	4.7	428
20	Alginate is not a significant component of the extracellular polysaccharide matrix of PA14 and PAO1Pseudomonas aeruginosabiofilms. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 7907-7912.	7.1	395
21	Precision-engineering the Pseudomonas aeruginosa genome with two-step allelic exchange. Nature Protocols, 2015, 10, 1820-1841.	12.0	381
22	Identification ofpsl, a Locus Encoding a Potential Exopolysaccharide That Is Essential forPseudomonas aeruginosaPAO1 Biofilm Formation. Journal of Bacteriology, 2004, 186, 4466-4475.	2.2	372
23	Pseudomonas aeruginosa Rugose Small-Colony Variants Have Adaptations That Likely Promote Persistence in the Cystic Fibrosis Lung. Journal of Bacteriology, 2009, 191, 3492-3503.	2.2	372
24	The extracellular matrix protects <scp>P</scp>seudomonas aeruginosa biofilms by limiting the penetration of tobramycin. Environmental Microbiology, 2013, 15, 2865-2878.	3.8	357
25	Analysis of Pseudomonas aeruginosa Conditional Psl Variants Reveals Roles for the Psl Polysaccharide in Adhesion and Maintaining Biofilm Structure Postattachment. Journal of Bacteriology, 2006, 188, 8213-8221.	2.2	349
26	Genetic and biochemical analyses of the Pseudomonas aeruginosa Psl exopolysaccharide reveal overlapping roles for polysaccharide synthesis enzymes in Psl and LPS production. Molecular Microbiology, 2009, 73, 622-638.	2.5	326
27	Psl trails guide exploration and microcolony formation in Pseudomonas aeruginosa biofilms. Nature, 2013, 497, 388-391.	27.8	308
28	Survival and Growth in the Presence of Elevated Copper: Transcriptional Profiling of Copper-Stressed Pseudomonas aeruginosa. Journal of Bacteriology, 2006, 188, 7242-7256.	2.2	270
29	Self-produced exopolysaccharide is a signal that stimulates biofilm formation in Pseudomonas aeruginosa. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 20632-20636.	7.1	265
30	Statistical Analysis of Pseudomonas aeruginosa Biofilm Development: Impact of Mutations in Genes Involved in Twitching Motility, Cell-to-Cell Signaling, and Stationary-Phase Sigma Factor Expression. Applied and Environmental Microbiology, 2002, 68, 2008-2017.	3.1	259
31	Pseudomonas aeruginosa biofilm matrix polysaccharide Psl is regulated transcriptionally by RpoS and postâ€transcriptionally by RsmA. Molecular Microbiology, 2010, 78, 158-172.	2.5	252
32	Characterization of Colony Morphology Variants Isolated from Pseudomonas aeruginosa Biofilms. Applied and Environmental Microbiology, 2005, 71, 4809-4821.	3.1	250
33	The FleQ protein from Pseudomonas aeruginosa functions as both a repressor and an activator to control gene expression from the pel operon promoter in response to c-di-GMP. Nucleic Acids Research, 2012, 40, 7207-7218.	14.5	244
34	Fluorescence-Based Reporter for Gauging Cyclic Di-GMP Levels in Pseudomonas aeruginosa. Applied and Environmental Microbiology, 2012, 78, 5060-5069.	3.1	234
35	Experimental reproducibility in flow-chamber biofilms. Microbiology (United Kingdom), 2000, 146, 2409-2415.	1.8	224
36	Regulation of Quorum Sensing by RpoS inPseudomonas aeruginosa. Journal of Bacteriology, 2000, 182, 4356-4360.	2.2	213

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37	Exopolysaccharide biosynthetic glycoside hydrolases can be utilized to disrupt and prevent Pseudomonas aeruginosa biofilms. Science Advances, 2016, 2, e1501632.	10.3	201
38	Pseudomonas aeruginosa Psl polysaccharide reduces neutrophil phagocytosis and the oxidative response by limiting complement-mediated opsonization. Cellular Microbiology, 2012, 14, 95-106.	2.1	193
39	Quorum sensing and motility mediate interactions between Pseudomonas aeruginosa and Agrobacterium tumefaciens in biofilm cocultures. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 3828-3833.	7.1	187
40	Mucin-Pseudomonas aeruginosa interactions promote biofilm formation and antibiotic resistance. Molecular Microbiology, 2006, 59, 142-151.	2.5	173
41	Pseudomonas aeruginosa Psl Is a Galactose- and Mannose-Rich Exopolysaccharide. Journal of Bacteriology, 2007, 189, 8353-8356.	2.2	159
42	Pseudomonas aeruginosa utilizes host polyunsaturated phosphatidylethanolamines to trigger theft-ferroptosis in bronchial epithelium. Journal of Clinical Investigation, 2018, 128, 4639-4653.	8.2	159
43	The effect of the chemical, biological, and physical environment on quorum sensing in structured microbial communities. Analytical and Bioanalytical Chemistry, 2007, 387, 371-380.	3.7	149
44	ChIP-Seq and RNA-Seq Reveal an AmrZ-Mediated Mechanism for Cyclic di-GMP Synthesis and Biofilm Development by Pseudomonas aeruginosa. PLoS Pathogens, 2014, 10, e1003984.	4.7	149
45	Probing Prokaryotic Social Behaviors with Bacterial â€œLobster Trapsâ€• MBio, 2010, 1, .	4.1	137
46	Quorum-Sensing Control of Antibiotic Synthesis in Burkholderia thailandensis. Journal of Bacteriology, 2009, 191, 3909-3918.	2.2	129
47	Does Pseudomonas aeruginosa use intercellular signalling to build biofilm communities?. Cellular Microbiology, 2006, 8, 1841-1849.	2.1	127
48	The promise and peril of transcriptional profiling in biofilm communities. Current Opinion in Microbiology, 2007, 10, 292-296.	5.1	121
49	Going local: technologies for exploring bacterial microenvironments. Nature Reviews Microbiology, 2013, 11, 337-348.	28.6	116
50	Phosphorus Limitation Enhances Biofilm Formation of the Plant Pathogen Agrobacterium tumefaciens through the PhoR-PhoB Regulatory System. Journal of Bacteriology, 2004, 186, 4492-4501.	2.2	113
51	Chromosomal antioxidant genes have metal ionâ€specific roles as determinants of bacterial metal tolerance. Environmental Microbiology, 2009, 11, 2491-2509.	3.8	112
52	New insight into the early stages of biofilm formation. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 4317-4319.	7.1	112
53	The Pseudomonas aeruginosa lectin LecB binds to the exopolysaccharide Psl and stabilizes the biofilm matrix. Nature Communications, 2019, 10, 2183.	12.8	112
54	Detection, purification, and structural elucidation of the acylhomoserine lactone inducer of Vibrio fischeri luminescence and other related molecules. Methods in Enzymology, 2000, 305, 288-301.	1.0	103

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55	Extracellular DNA Impedes the Transport of Vancomycin in Staphylococcus epidermidis Biofilms Preexposed to Subinhibitory Concentrations of Vancomycin. Antimicrobial Agents and Chemotherapy, 2014, 58, 7273-7282.	3.2	102
56	[3] Quorum sensing signals in development of Pseudomonas aeruginosa biofilms. Methods in Enzymology, 1999, 310, 43-55.	1.0	101
57	Structure of the Cytoplasmic Region of PelD, a Degenerate Diguanylate Cyclase Receptor That Regulates Exopolysaccharide Production in Pseudomonas aeruginosa. Journal of Biological Chemistry, 2012, 287, 23582-23593.	3.4	101
58	Oligoribonuclease is a central feature of cyclic diguanylate signaling in Pseudomonas aeruginosa. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11359-11364.	7.1	99
59	Acylhomoserine Lactone Synthase Activity of the Vibrio fischeri AinS Protein. Journal of Bacteriology, 1999, 181, 5766-5770.	2.2	99
60	Influence of the Hydrodynamic Environment on Quorum Sensing in Pseudomonas aeruginosa Biofilms. Journal of Bacteriology, 2007, 189, 8357-8360.	2.2	98
61	A unique regulator controls the activation threshold of quorum-regulated genes in Pseudomonas aeruginosa. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 7916-7921.	7.1	98
62	Heterogeneity in surface sensing suggests a division of labor in Pseudomonas aeruginosa populations. ELife, 2019, 8, .	6.0	96
63	The contribution of cell-cell signaling and motility to bacterial biofilm formation. MRS Bulletin, 2011, 36, 367-373.	3.5	95
64	Synthesis of multiple Pseudomonas aeruginosa biofilm matrix exopolysaccharides is postâ€transcriptionally regulated. Environmental Microbiology, 2012, 14, 1995-2005.	3.8	94
65	Pseudomonas aeruginosa aggregates in cystic fibrosis sputum produce exopolysaccharides that likely impede current therapies. Cell Reports, 2021, 34, 108782.	6.4	92
66	Analysis of random and siteâ€directed mutations in rhlI , a Pseudomonas aeruginosa gene encoding an acylhomoserine lactone synthase. Molecular Microbiology, 1997, 26, 301-310.	2.5	91
67	PelA Deacetylase Activity Is Required for Pel Polysaccharide Synthesis in Pseudomonas aeruginosa. Journal of Bacteriology, 2013, 195, 2329-2339.	2.2	90
68	Pseudomonas aeruginosa rugose small-colony variants evade host clearance, are hyper-inflammatory, and persist in multiple host environments. PLoS Pathogens, 2018, 14, e1006842.	4.7	89
69	Microbial glycoside hydrolases as antibiofilm agents with cross-kingdom activity. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 7124-7129.	7.1	88
70	An Update on the Sociomicrobiology of Quorum Sensing in Gram-Negative Biofilm Development. Pathogens, 2017, 6, 51.	2.8	87
71	Subinhibitory Concentrations of Azithromycin Decrease Nontypeable Haemophilus influenzae Biofilm Formation and Diminish Established Biofilms. Antimicrobial Agents and Chemotherapy, 2008, 52, 137-145.	3.2	86
72	Staphylococcus aureus Protein A Mediates Interspecies Interactions at the Cell Surface of Pseudomonas aeruginosa. MBio, 2016, 7, .	4.1	86

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73	Pattern formation in Pseudomonas aeruginosa biofilms. Current Opinion in Microbiology, 2008, 11, 560-566.	5.1	84
74	Confocal Laser Scanning Microscopy for Analysis of Pseudomonas aeruginosa Biofilm Architecture and Matrix Localization. Frontiers in Microbiology, 2019, 10, 677.	3.5	81
75	Direct Evaluation of Pseudomonas aeruginosa Biofilm Mediators in a Chronic Infection Model. Infection and Immunity, 2011, 79, 3087-3095.	2.2	79
76	CdrA Interactions within the Pseudomonas aeruginosa Biofilm Matrix Safeguard It from Proteolysis and Promote Cellular Packing. MBio, 2018, 9, .	4.1	76
77	Drosophila are protected from Pseudomonas aeruginosa lethality by transgenic expression of paraoxonase-1. Journal of Clinical Investigation, 2008, 118, 3123-3131.	8.2	74
78	The Cyclic AMP-Vfr Signaling Pathway in Pseudomonas aeruginosa Is Inhibited by Cyclic Di-GMP. Journal of Bacteriology, 2015, 197, 2190-2200.	2.2	73
79	A spider web strategy of type <scp>IV</scp> piliâ€mediated migration to build a fibreâ€like Psl polysaccharide matrix in <scp>P</scp>seudomonas aeruginosa biofilms. Environmental Microbiology, 2013, 15, 2238-2253.	3.8	70
80	Elasticity-mediated nematiclike bacterial organization in model extracellular DNA matrix. Physical Review E, 2008, 78, 030701.	2.1	69
81	A Biofilm Matrix-Associated Protease Inhibitor Protects Pseudomonas aeruginosa from Proteolytic Attack. MBio, 2018, 9, .	4.1	63
82	Treatment with the Pseudomonas aeruginosa Glycoside Hydrolase PslG Combats Wound Infection by Improving Antibiotic Efficacy and Host Innate Immune Activity. Antimicrobial Agents and Chemotherapy, 2019, 63, .	3.2	61
83	Spatial Patterns of Carbonate Biomineralization in Biofilms. Applied and Environmental Microbiology, 2015, 81, 7403-7410.	3.1	59
84	Mixed Communities of Mucoid and Nonmucoid Pseudomonas aeruginosa Exhibit Enhanced Resistance to Host Antimicrobials. MBio, 2018, 9, .	4.1	59
85	Quorum Sensing Protects Pseudomonas aeruginosa against Cheating by Other Species in a Laboratory Coculture Model. Journal of Bacteriology, 2015, 197, 3154-3159.	2.2	58
86	The Versatile Pseudomonas aeruginosa Biofilm Matrix Protein CdrA Promotes Aggregation through Different Extracellular Exopolysaccharide Interactions. Journal of Bacteriology, 2020, 202, .	2.2	53
87	Elevated exopolysaccharide levels in Pseudomonas aeruginosa flagellar mutants have implications for biofilm growth and chronic infections. PLoS Genetics, 2020, 16, e1008848.	3.5	52
88	Biofilms 2009: New Perspectives at the Heart of Surface-Associated Microbial Communities. Journal of Bacteriology, 2010, 192, 2941-2949.	2.2	50
89	PelA and PelB proteins form a modification and secretion complex essential for Pel polysaccharide-dependent biofilm formation in Pseudomonas aeruginosa. Journal of Biological Chemistry, 2017, 292, 19411-19422.	3.4	47
90	Social Cooperativity of Bacteria during Reversible Surface Attachment in Young Biofilms: a Quantitative Comparison of Pseudomonas aeruginosa PA14 and PAO1. MBio, 2020, 11, .	4.1	47

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91	Blue laser light inhibits biofilm formation in vitro and in vivo by inducing oxidative stress. Npj Biofilms and Microbiomes, 2019, 5, 29.	6.4	40
92	Quorum Sensing Influences Burkholderia thailandensis Biofilm Development and Matrix Production. Journal of Bacteriology, 2016, 198, 2643-2650.	2.2	39
93	The cabABC Operon Essential for Biofilm and Rugose Colony Development in Vibrio vulnificus. PLoS Pathogens, 2015, 11, e1005192.	4.7	37
94	Transcriptional Repression Mediated by LysR-Type Regulator CatR Bound at Multiple Binding Sites. Journal of Bacteriology, 1998, 180, 2367-2372.	2.2	37
95	Bacterial Extracellular Polysaccharides in Biofilm Formation and Function. , 0, , 223-247.		36
96	[4] Acylated homoserine lactone detection in pseudomonas aeruginosa Biofilms by radiolabel assay. Methods in Enzymology, 2001, 336, 41-47.	1.0	35
97	Bacterial cyclic diguanylate signaling networks sense temperature. Nature Communications, 2021, 12, 1986.	12.8	35
98	The Wsp system ofPseudomonas aeruginosalinks surface sensing and cell envelope stress. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2117633119.	7.1	33
99	Oligomeric lipoprotein PelC guides Pel polysaccharide export across the outer membrane of Pseudomonas aeruginosa. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 2892-2897.	7.1	31
100	Role of psl Genes in Antibiotic Tolerance of Adherent Pseudomonas aeruginosa. Antimicrobial Agents and Chemotherapy, 2017, 61, .	3.2	29
101	Pel Polysaccharide Biosynthesis Requires an Inner Membrane Complex Comprised of PelD, PelE, PelF, and PelG. Journal of Bacteriology, 2020, 202, .	2.2	29
102	Adhesins Involved in Attachment to Abiotic Surfaces by Gram-Negative Bacteria. , 0, , 163-199.		27
103	Surface-associated microbes continue to surprise us in their sophisticated strategies for assembling biofilm communities. F1000prime Reports, 2014, 6, 26.	5.9	24
104	Transcriptome Analysis of Acetyl-Homoserine Lactone-Based Quorum Sensing Regulation in Yersinia pestis. PLoS ONE, 2013, 8, e62337.	2.5	24
105	In Situ Biomineralization and Particle Deposition Distinctively Mediate Biofilm Susceptibility to Chlorine. Applied and Environmental Microbiology, 2016, 82, 2886-2892.	3.1	23
106	The Pel polysaccharide is predominantly composed of a dimeric repeat of Î±-1,4 linked galactosamine and N-acetylgalactosamine. Communications Biology, 2022, 5, .	4.4	20
107	LC/MS/MS-Based Quantitative Assay for the Secondary Messenger Molecule, c-di-GMP. Methods in Molecular Biology, 2014, 1149, 271-279.	0.9	19
108	Different Methods for Culturing Biofilms In Vitro. , 2011, , 251-266.		18

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109	Cerebrospinal Fluid Shunt Infection: Emerging Paradigms in Pathogenesis that Affect Prevention and Treatment. Journal of Pediatrics, 2019, 206, 13-19.	1.8	18
110	Systematic Analysis of c-di-GMP Signaling Mechanisms and Biological Functions in Dickeya zeae EC1. MBio, 2020, 11, .	4.1	18
111	The role of Psl in the failure to eradicate Pseudomonas aeruginosa biofilms in children with cystic fibrosis. Npj Biofilms and Microbiomes, 2021, 7, 63.	6.4	18
112	Mucoid Pseudomonas aeruginosa Can Produce Calcium-Gelled Biofilms Independent of the Matrix Components Psl and CdrA. Journal of Bacteriology, 2022, 204, e0056821.	2.2	18
113	Antimicrobial Tolerance in Biofilms. , 0, , 269-285.		17
114	Controlling the Connections of Cells to the Biofilm Matrix. Journal of Bacteriology, 2016, 198, 12-14.	2.2	14
115	Division of Labor in Biofilms: the Ecology of Cell Differentiation. , 0, , 67-97.		13
116	c-di-GMP and its Effects on Biofilm Formation and Dispersion: aPseudomonas AeruginosaReview. , 0, , 301-317.		13
117	Biofilm Development. , 0, , 51-66.		12
118	Expression, purification, crystallization and preliminary X-ray analysis ofPseudomonas aeruginosaPelD. Acta Crystallographica Section F: Structural Biology Communications, 2012, 68, 181-184.	0.7	11
119	L-Arabinose Transport and Metabolism in Salmonella Influences Biofilm Formation. Frontiers in Cellular and Infection Microbiology, 2021, 11, 698146.	3.9	11
120	Targeting Quorum Sensing for Treatment of Chronic Bacterial Biofilm Infections. Laboratory Medicine, 2002, 33, 295-306.	1.2	10
121	Biofilm Matrix Proteins. , 0, , 201-222.		10
122	PelX is a UDP-N-acetylglucosamine C4-epimerase involved in Pel polysaccharideâ€“dependent biofilm formation. Journal of Biological Chemistry, 2020, 295, 11949-11962.	3.4	10
123	Mannose Conjugated Polymer Targeting P.Âaeruginosa Biofilms. ACS Infectious Diseases, 2020, 6, 2866-2871.	3.8	9
124	Genomic and Functional Dissections of Dickeya zeae Shed Light on the Role of Type III Secretion System and Cell Wall-Degrading Enzymes to Host Range and Virulence. Microbiology Spectrum, 2022, 10, e0159021.	3.0	8
125	The Pseudomonas aeruginosa homeostasis enzyme AlgL clears the periplasmic space of accumulated alginate during polymer biosynthesis. Journal of Biological Chemistry, 2022, 298, 101560.	3.4	8
126	Effects of an autoinducer analogue on antibiotic tolerance in Pseudomonas aeruginosa. Journal of Antimicrobial Chemotherapy, 2017, 72, 2230-2240.	3.0	6

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127	New Technologies for Studying Biofilms. , 2015, , 1-32.		5
128	Biofilm Formation by Cryptococcus neoformans. , 2015, , 135-147.		4
129	Bilingual bacteria. Nature, 2007, 450, 805-807.	27.8	3
130	Interbacterial Antagonism Mediated by a Released Polysaccharide. Journal of Bacteriology, 2022, 204, e0007622.	2.2	3
131	Bacterial Adaptation in Structured Environments: Lessons from Darwinâ€™s Finches. Trends in Microbiology, 2021, 29, 5-7.	7.7	1
132	Molecular Mechanisms of Quorum Sensing. , 0, , 361-384.		0
133	Chemical Biology Strategies for Biofilm Control. , 0, , 363-372.		0
134	Analysis of Pseudomonas aeruginosa c-di-GMP High and Low Subpopulations Using Flow-assisted Cell Sorting (FACS) and Quantitative Reverse Transcriptase PCR (qRT-PCR). Bio-protocol, 2021, 11, e3891.	0.4	0
135	Choosing the Right Lifestyle: Regulation of Developmental Pathways by Cyclic Di-GMP. , 0, , 97-119.		0
136	Factors That Impact Pseudomonas aeruginosa Biofilm Structure and Function. , 0, , 1-20.		0