Kerwyn Casey Huang

List of Publications by Year
in descending order

144 papers	10,518 citations	41323 49 h-index	45285 90 g-index
185 all docs	185 docs citations	185 times ranked	11211 citing authors

#	Article	IF	Citations
1	Physical properties of the bacterial outer membrane. Nature Reviews Microbiology, 2022, 20, 236-248.	13.6	111
2	Extracting phylogenetic dimensions of coevolution reveals hidden functional signals. Scientific Reports, 2022, 12, 820.	1.6	12
3	Bacterial respiration during stationary phase induces intracellular damage that leads to delayed regrowth. IScience, 2022, 25, 103765.	1.9	6
4	Establishment and characterization of stable, diverse, fecal-derived inÂvitro microbial communities that model the intestinal microbiota. Cell Host and Microbe, 2022, 30, 260-272.e5.	5.1	58
5	Optimization of the 16S rRNA sequencing analysis pipeline for studying inÂvitro communities of gut commensals. IScience, 2022, 25, 103907.	1.9	9
6	The CIAMIB: a Large and Metabolically Diverse Collection of Inflammation-Associated Bacteria from the Murine Gut. MBio, 2022, , e0294921.	1.8	11
7	Competition for fluctuating resources reproduces statistics of species abundance over time across wide-ranging microbiotas. ELife, 2022, 11, .	2.8	37
8	The Tabula Sapiens: A multiple-organ, single-cell transcriptomic atlas of humans. Science, 2022, 376, eabl4896.	6.0	289
9	The Effects of Temperature on Cellular Physiology. Annual Review of Biophysics, 2022, 51, 499-526.	4.5	29
10	Three-dimensional biofilm colony growth supports a mutualism involving matrix and nutrient sharing. ELife, 2021, 10, .	2.8	14
11	Precise regulation of the relative rates of surface area and volume synthesis in bacterial cells growing in dynamic environments. Nature Communications, 2021, 12, 1975.	5.8	32
12	Functional genetics of human gut commensal Bacteroides thetaiotaomicron reveals metabolic requirements for growth across environments. Cell Reports, 2021, 34, 108789.	2.9	82
13	Effects of fixation on bacterial cellular dimensions and integrity. IScience, 2021, 24, 102348.	1.9	18
14	Rapid ordering of barcoded transposon insertion libraries of anaerobic bacteria. Nature Protocols, 2021, 16, 3049-3071.	5.5	23
15	Chemical-genetic interrogation of RNA polymerase mutants reveals structure-function relationships and physiological tradeoffs. Molecular Cell, 2021, 81, 2201-2215.e9.	4.5	10
16	Starvation induces shrinkage of the bacterial cytoplasm. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	28
17	Variations of intracellular density during the cell cycle arise from tip-growth regulation in fission yeast. ELife, 2021, 10, .	2.8	35
18	Entropy-driven translocation of disordered proteins through the Gram-positive bacterial cell wall. Nature Microbiology, 2021, 6, 1055-1065.	5.9	13

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19	Toward Point-of-Care Detection of Mycobacterium tuberculosis: A Brighter Solvatochromic Probe Detects Mycobacteria within Minutes. Jacs Au, 2021, 1, 1368-1379.	3.6	24
20	Hyperosmotic Shock Transiently Accelerates Constriction Rate in Escherichia coli. Frontiers in Microbiology, 2021, 12, 718600.	1.5	5
21	Quantifying rapid bacterial evolution and transmission within the mouse intestine. Cell Host and Microbe, 2021, 29, 1454-1468.e4.	5.1	27
22	Morphological and Transcriptional Responses to CRISPRi Knockdown of Essential Genes in Escherichia coli. MBio, 2021, 12, e0256121.	1.8	38
23	Bacterial Filamentation Drives Colony Chirality. MBio, 2021, 12, e0154221.	1.8	1
24	Environmental and Physiological Factors Affecting High-Throughput Measurements of Bacterial Growth. MBio, 2020, 11, .	1.8	34
25	The inner membrane protein YhdP modulates the rate of anterograde phospholipid flow in Escherichia coli. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 26907-26914.	3.3	36
26	Straightening up for life in a biofilm. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 31573-31574.	3.3	0
27	AimB Is a Small Protein Regulator of Cell Size and MreB Assembly. Biophysical Journal, 2020, 119, 593-604.	0.2	3
28	Bacterial Evolution in High-Osmolarity Environments. MBio, 2020, 11, .	1.8	12
29	Limits and Constraints on Mechanisms of Cell-Cycle Regulation Imposed by Cell Size-Homeostasis Measurements. Cell Reports, 2020, 32, 107992.	2.9	7
30	Pictures of Tongues Sticking Out. Trends in Endocrinology and Metabolism, 2020, 31, 805-807.	3.1	1
31	Chiral twisting in a bacterial cytoskeletal polymer affects filament size and orientation. Nature Communications, 2020, 11, 1408.	5.8	24
32	Biosurfactant-Mediated Membrane Depolarization Maintains Viability during Oxygen Depletion in Bacillus subtilis. Current Biology, 2020, 30, 1011-1022.e6.	1.8	41
33	Bellymount enables longitudinal, intravital imaging of abdominal organs and the gut microbiota in adult Drosophila. PLoS Biology, 2020, 18, e3000567.	2.6	23
34	Klebsiella michiganensis transmission enhances resistance to Enterobacteriaceae gut invasion by nutrition competition. Nature Microbiology, 2020, 5, 630-641.	5.9	67
35	Colons or semi-colons: punctuating the regional variation of intestinal microbialâ€“immune interactions. Nature Reviews Gastroenterology and Hepatology, 2020, 17, 319-320.	8.2	2
36	SiCTeC: An inexpensive, easily assembled Peltier device for rapid temperature shifting during single-cell imaging. PLoS Biology, 2020, 18, e3000786.	2.6	4

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37	Bacterial interspecies interactions modulate pH-mediated antibiotic tolerance. ELife, 2020, 9, .	2.8	56
38	Chromosome Organization: Making Room in a Crowd. Current Biology, 2019, 29, R630-R632.	1.8	1
39	Mechanically resolved imaging of bacteria using expansion microscopy. PLoS Biology, 2019, 17, e3000268.	2.6	43
40	Recovery of the Gut Microbiota after Antibiotics Depends on Host Diet, Community Context, and Environmental Reservoirs. Cell Host and Microbe, 2019, 26, 650-665.e4.	5.1	166
41	FtsZâ€Independent Mechanism of Division Inhibition by the Small Molecule PC190723 in Escherichia coli. Advanced Biology, 2019, 3, 1900021.	3.0	6
42	Conservation of conformational dynamics across prokaryotic actins. PLoS Computational Biology, 2019, 15, e1006683.	1.5	4
43	tRNA Methylation Is a Global Determinant of Bacterial Multi-drug Resistance. Cell Systems, 2019, 8, 302-314.e8.	2.9	41
44	Cell geometry and leaflet bilayer asymmetry regulate domain formation in plasma membranes. Physical Review E, 2019, 99, 012401.	0.8	0
45	Decoupling of Rates of Protein Synthesis from Cell Expansion Leads to Supergrowth. Cell Systems, 2019, 9, 434-445.e6.	2.9	56
46	Differential modes of crosslinking establish spatially distinct regions of peptidoglycan in Caulobacter crescentus. Molecular Microbiology, 2019, 111, 995-1008.	1.2	19
47	How to Build a Bacterial Cell: MreB as the Foreman of E.Âcoli Construction. Cell, 2018, 172, 1294-1305.	13.5	144
48	RodZ modulates geometric localization of the bacterial actin MreB to regulate cell shape. Nature Communications, 2018, 9, 1280.	5.8	56
49	Marine Mammal Microbiota Yields Novel Antibiotic with Potent Activity Against Clostridium difficile. ACS Infectious Diseases, 2018, 4, 59-67.	1.8	22
50	Regulation of microbial growth by turgor pressure. Current Opinion in Microbiology, 2018, 42, 62-70.	2.3	110
51	When a physicist wanders into biologyâ€¦: an interview with KC Huang. BMC Biology, 2018, 16, 130.	1.7	0
52	Who's Your DadA? d -Alanine Levels Regulate Bacterial Stiffness. MBio, 2018, 9, .	1.8	3
53	Lateral interactions between protofilaments of the bacterial tubulin homolog FtsZ are essential for cell division. ELife, 2018, 7, .	2.8	34
54	A Gut Commensal-Produced Metabolite Mediates Colonization Resistance to Salmonella Infection. Cell Host and Microbe, 2018, 24, 296-307.e7.	5.1	329

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55	The outer membrane is an essential load-bearing element in Gram-negative bacteria. Nature, 2018, 559, 617-621.	13.7	388
56	Translating the Physical Code of Life. Cell, 2018, 174, 253-255.	13.5	2
57	Membrane Tension Inhibits Wall Synthesis via Electrical Depolarization to Balance Bacterial Cell Envelope Expansion. Biophysical Journal, 2018, 114, 28a.	0.2	1
58	Cutting the Gordian Knot of the Microbiota. Molecular Cell, 2018, 70, 765-767.	4.5	1
59	Transient Osmotic Perturbation Causes Long-Term Alteration to the Gut Microbiota. Cell, 2018, 173, 1742-1754.e17.	13.5	171
60	tRNA Methylation Controls Bacterial Multiâ€Ðrug Resistance. FASEB Journal, 2018, 32, 105.1.	0.2	0
61	A Periplasmic Polymer Curves Vibrio cholerae and Promotes Pathogenesis. Cell, 2017, 168, 172-185.e15.	13.5	78
62	Staying in Touch while on the Go. Cell, 2017, 168, 15-17.	13.5	91
63	Strain Library Imaging Protocol for high-throughput, automated single-cell microscopy of large bacterial collections arrayed on multiwell plates. Nature Protocols, 2017, 12, 429-438.	5.5	35
64	GTPase activityâ€“coupled treadmilling of the bacterial tubulin FtsZ organizes septal cell wall synthesis. Science, 2017, 355, 744-747.	6.0	410
65	Long-term microfluidic tracking of coccoid cyanobacterial cells reveals robust control of division timing. BMC Biology, 2017, 15, 11.	1.7	50
66	The Gut Microbiome: Connecting Spatial Organization to Function. Cell Host and Microbe, 2017, 21, 433-442.	5.1	453
67	Cell Size: Fat Makes Cells Fat. Current Biology, 2017, 27, R592-R594.	1.8	6
68	Coupling between Protein Stability and Catalytic Activity Determines Pathogenicity of G6PD Variants. Cell Reports, 2017, 18, 2592-2599.	2.9	39
69	Deep Phenotypic Mapping of Bacterial Cytoskeletal Mutants Reveals Physiological Robustness to Cell Size. Current Biology, 2017, 27, 3419-3429.e4.	1.8	72
70	Thinking big: the tunability of bacterial cell size. FEMS Microbiology Reviews, 2017, 41, 672-678.	3.9	37
71	Emergent Phototactic Responses of Cyanobacteria under Complex Light Regimes. MBio, 2017, 8, .	1.8	24
72	Sizing up the bacterial cell cycle. Nature Reviews Microbiology, 2017, 15, 606-620.	13.6	157

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73	Dash-and-Recruit Mechanism Drives Membrane Curvature Recognition by the Small Bacterial Protein SpoVM. Cell Systems, 2017, 5, 518-526.e3.	2.9	30
74	Full color palette of fluorescent<scp>d</scp>-amino acids for in situ labeling of bacterial cell walls. Chemical Science, 2017, 8, 6313-6321.	3.7	111
75	Rapid, precise quantification of bacterial cellular dimensions across a genomic-scale knockout library. BMC Biology, 2017, 15, 17.	1.7	123
76	Plasmon-actuated nano-assembled microshells. Scientific Reports, 2017, 7, 17788.	1.6	10
77	Homeostatic Cell Growth Is Accomplished Mechanically through Membrane Tension Inhibition of Cell-Wall Synthesis. Cell Systems, 2017, 5, 578-590.e6.	2.9	47
78	Cell size and growth regulation in the Arabidopsis thaliana apical stem cell niche. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E8238-E8246.	3.3	162
79	A Comprehensive, CRISPR-based Functional Analysis of Essential Genes in Bacteria. Cell, 2016, 165, 1493-1506.	13.5	593
80	Mechanical Genomics Identifies Diverse Modulators of Bacterial Cell Stiffness. Cell Systems, 2016, 2, 402-411.	2.9	48
81	Single-molecule imaging reveals modulation of cell wall synthesis dynamics in live bacterial cells. Nature Communications, 2016, 7, 13170.	5.8	44
82	FtsZ-Dependent Elongation of a Coccoid Bacterium. MBio, 2016, 7, .	1.8	21
83	Disruption of lipid homeostasis in the Gram-negative cell envelope activates a novel cell death pathway. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E1565-74.	3.3	142
84	The effect of microbial colonization on the host proteome varies by gastrointestinal location. ISME Journal, 2016, 10, 1170-1181.	4.4	29
85	High-throughput, Highly Sensitive Analyses of Bacterial Morphogenesis Using Ultra Performance Liquid Chromatography. Journal of Biological Chemistry, 2015, 290, 31090-31100.	1.6	33
86	How Does the Xenopus laevis Embryonic Cell Cycle Avoid Spatial Chaos?. Cell Reports, 2015, 12, 892-900.	2.9	18
87	Super symmetry in cell division. Nature Nanotechnology, 2015, 10, 655-656.	15.6	0
88	The bacterial tubulin FtsZ requires its intrinsically disordered linker to direct robust cell wall construction. Nature Communications, 2015, 6, 7281.	5.8	67
89	Variations in the Binding Pocket of an Inhibitor of the Bacterial Division Protein FtsZ across Genotypes and Species. PLoS Computational Biology, 2015, 11, e1004117.	1.5	21
90	Mechanical crack propagation drives millisecond daughter cell separation in Staphylococcus aureus. Science, 2015, 348, 574-578.	6.0	98

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91	Structural basis for the geometry-driven localization of a small protein. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, E1908-15.	3.3	63
92	Maintenance of Motility Bias during Cyanobacterial Phototaxis. Biophysical Journal, 2015, 108, 1623-1632.	0.2	23
93	Quantitative Imaging of Gut Microbiota Spatial Organization. Cell Host and Microbe, 2015, 18, 478-488.	5.1	359
94	Physics of Intracellular Organization in Bacteria. Annual Review of Microbiology, 2015, 69, 361-379.	2.9	24
95	Cytoskeletal Network Morphology Regulates Intracellular Transport Dynamics. Biophysical Journal, 2015, 109, 1574-1582.	0.2	48
96	Applications of imaging for bacterial systems biology. Current Opinion in Microbiology, 2015, 27, 114-120.	2.3	14
97	The contractile ring coordinates curvature-dependent septum assembly during fission yeast cytokinesis. Molecular Biology of the Cell, 2015, 26, 78-90.	0.9	58
98	Coordination of peptidoglycan synthesis and outer membrane constriction during Escherichia coli cell division. ELife, 2015, 4, .	2.8	154
99	Rod-like bacterial shape is maintained by feedback between cell curvature and cytoskeletal localization. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, E1025-34.	3.3	236
100	Effects of polymerization and nucleotide identity on the conformational dynamics of the bacterial actin homolog MreB. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 3585-3590.	3.3	41
101	A dynamically assembled cell wall synthesis machinery buffers cell growth. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 4554-4559.	3.3	88
102	Systematic Perturbation of Cytoskeletal Function Reveals a Linear Scaling Relationship between Cell Geometry and Fitness. Cell Reports, 2014, 9, 1528-1537.	2.9	61
103	Principles of Bacterial Cell-Size Determination Revealed by Cell-Wall Synthesis Perturbations. Cell Reports, 2014, 9, 1520-1527.	2.9	43
104	Isolation and Preparation of Bacterial Cell Walls for Compositional Analysis by Ultra Performance Liquid Chromatography. Journal of Visualized Experiments, 2014, , e51183.	0.2	42
105	Response of Escherichia coli growth rate to osmotic shock. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 7807-7812.	3.3	170
106	De novo morphogenesis in <scp>L</scp>â€forms via geometric control of cell growth. Molecular Microbiology, 2014, 93, 883-896.	1.2	68
107	How and why cells grow as rods. BMC Biology, 2014, 12, 54.	1.7	62
108	Biological Consequences and Advantages of Asymmetric Bacterial Growth. Annual Review of Microbiology, 2013, 67, 417-435.	2.9	64

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109	Dimer Dynamics and Filament Organization of the Bacterial Cell Division Protein FtsA. Journal of Molecular Biology, 2013, 425, 4415-4426.	2.0	8
110	Mechanical Consequences of Cell-Wall Turnover in the Elongation of a Gram-Positive Bacterium. Biophysical Journal, 2013, 104, 2342-2352.	0.2	60
111	The role of hydrolases in bacterial cell-wall growth. Current Opinion in Microbiology, 2013, 16, 760-766.	2.3	55
112	FtsZ Protofilaments Use a Hinge-Opening Mechanism for Constrictive Force Generation. Science, 2013, 341, 392-395.	6.0	131
113	Motility Enhancement through Surface Modification Is Sufficient for Cyanobacterial Community Organization during Phototaxis. PLoS Computational Biology, 2013, 9, e1003205.	1.5	33
114	Optimal Dynamics for Quality Control in Spatially Distributed Mitochondrial Networks. PLoS Computational Biology, 2013, 9, e1003108.	1.5	54
115	Peptidoglycan at its peaks: how chromatographic analyses can reveal bacterial cell wall structure and assembly. Molecular Microbiology, 2013, 89, 1-13.	1.2	104
116	Design of High-Specificity Nanocarriers by Exploiting Non-Equilibrium Effects in Cancer Cell Targeting. PLoS ONE, 2013, 8, e65623.	1.1	2
117	Analysis of Surface Protein Expression Reveals the Growth Pattern of the Gram-Negative Outer Membrane. PLoS Computational Biology, 2012, 8, e1002680.	1.5	54
118	Helical insertion of peptidoglycan produces chiral ordering of the bacterial cell wall. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, E595-604.	3.3	97
119	The molecular origins of chiral growth in walled cells. Current Opinion in Microbiology, 2012, 15, 707-714.	2.3	12
120	Physical constraints on the establishment of intracellular spatial gradients in bacteria. BMC Biophysics, 2012, 5, 17.	4.4	8
121	Interplay between the Localization and Kinetics of Phosphorylation in Flagellar Pole Development of the Bacterium Caulobacter crescentus. PLoS Computational Biology, 2012, 8, e1002602.	1.5	13
122	Posttranslational Acetylation of Î±-Tubulin Constrains Protofilament Number in Native Microtubules. Current Biology, 2012, 22, 1066-1074.	1.8	144
123	Measuring the stiffness of bacterial cells from growth rates in hydrogels of tunable elasticity. Molecular Microbiology, 2012, 84, 874-891.	1.2	212
124	Bilayer-Mediated Clustering and Functional Interaction of MscL Channels. Biophysical Journal, 2011, 100, 1252-1260.	0.2	87
125	Mechanisms for maintaining cell shape in rodâ€shaped Gramâ€negative bacteria. Molecular Microbiology, 2011, 81, 340-353.	1.2	104
126	Conformational changes, diffusion and collective behavior in monomeric kinesin-based motility. Journal of Physics Condensed Matter, 2011, 23, 374106.	0.7	5

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127	Mechanics of membrane bulging during cell-wall disruption in Gram-negative bacteria. Physical Review E, 2011, 83, 041922.	0.8	28
128	The bacterial actin MreB rotates, and rotation depends on cell-wall assembly. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 15822-15827.	3.3	391
129	Does the Potential for Chaos Constrain the Embryonic Cell-Cycle Oscillator?. PLoS Computational Biology, 2011, 7, e1002109.	1.5	14
130	Macromolecules that prefer their membranes curvy. Molecular Microbiology, 2010, 76, 822-832.	1.2	83
131	Dynamic SpoIIIE assembly mediates septal membrane fission during Bacillus subtilis sporulation. Genes and Development, 2010, 24, 1160-1172.	2.7	60
132	Lipid Localization in Bacterial Cells through Curvature-Mediated Microphase Separation. Biophysical Journal, 2008, 95, 1034-1049.	0.2	99
133	The Min System as a General Cell Geometry Detection Mechanism: Branch Lengths in Y-ShapedEscherichia coliCells Affect Min Oscillation Patterns and Division Dynamics. Journal of Bacteriology, 2008, 190, 2106-2117.	1.0	47
134	Cell shape and cell-wall organization in Gram-negative bacteria. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 19282-19287.	3.3	280
135	Cooperative Gating and Spatial Organization of Membrane Proteins through Elastic Interactions. PLoS Computational Biology, 2007, 3, e81.	1.5	105
136	A Curvature-Mediated Mechanism for Localization of Lipids to Bacterial Poles. PLoS Computational Biology, 2006, 2, e151.	1.5	156
137	Superheating and Induced Melting at Semiconductor Interfaces. Physical Review Letters, 2005, 94, 175702.	2.9	9
138	Pattern Formation withinEscherichia coli: Diffusion, Membrane Attachment, and Self-Interaction of MinD Molecules. Physical Review Letters, 2004, 93, 228103.	2.9	23
139	Min-protein oscillations in round bacteria. Physical Biology, 2004, 1, 229-235.	0.8	43
140	Negative effective permeability in polaritonic photonic crystals. Applied Physics Letters, 2004, 85, 543-545.	1.5	101
141	Field Expulsion and Reconfiguration in Polaritonic Photonic Crystals. Physical Review Letters, 2003, 90, 196402.	2.9	80
142	Dynamic structures in Escherichia coli: Spontaneous formation of MinE rings and MinD polar zones. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 12724-12728.	3.3	258
143	Recovery of the Gut Microbiota after Antibiotics Depends on Host Diet and Environmental Reservoirs. SSRN Electronic Journal, 0, , .	0.4	4
144	Decoupling of Rates of Protein Synthesis from Cell Expansion Leads to Supergrowth. SSRN Electronic Journal, 0, , .	0.4	0