

Wayne L Nicholson

List of Publications by Year in descending order

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95
papers

6,113
citations

81889

39
h-index

71682

76
g-index

97
all docs

97
docs citations

97
times ranked

5244
citing authors

#	ARTICLE	IF	CITATIONS
1	Resistance of <i>Bacillus</i> Endospores to Extreme Terrestrial and Extraterrestrial Environments. <i>Microbiology and Molecular Biology Reviews</i> , 2000, 64, 548-572.	6.6	1,656
2	A New Analysis of Mars "Special Regions" Findings of the Second MEPAG Special Regions Science Analysis Group (SR-SAG2). <i>Astrobiology</i> , 2014, 14, 887-968.	3.0	317
3	Role of the Spore Coat Layers in <i>Bacillus subtilis</i> Spore Resistance to Hydrogen Peroxide, Artificial UV-C, UV-B, and Solar UV Radiation. <i>Applied and Environmental Microbiology</i> , 2000, 66, 620-626.	3.1	251
4	The solar UV environment and bacterial spore UV resistance: considerations for Earth-to-Mars transport by natural processes and human spaceflight. <i>Mutation Research - Fundamental and Molecular Mechanisms of Mutagenesis</i> , 2005, 571, 249-264.	1.0	155
5	Artificial and Solar UV Radiation Induces Strand Breaks and Cyclobutane Pyrimidine Dimers in <i>Bacillus subtilis</i> Spore DNA. <i>Applied and Environmental Microbiology</i> , 2000, 66, 199-205.	3.1	143
6	The <i>Bacillus subtilis</i> ydjL (bdhA) Gene Encodes Acetoin Reductase/2,3-Butanediol Dehydrogenase. <i>Applied and Environmental Microbiology</i> , 2008, 74, 6832-6838.	3.1	143
7	Role of Dipicolinic Acid in Survival of <i>Bacillus subtilis</i> Spores Exposed to Artificial and Solar UV Radiation. <i>Applied and Environmental Microbiology</i> , 2001, 67, 1274-1279.	3.1	142
8	Role of DNA Repair by Nonhomologous-End Joining in <i>Bacillus subtilis</i> Spore Resistance to Extreme Dryness, Mono- and Polychromatic UV, and Ionizing Radiation. <i>Journal of Bacteriology</i> , 2007, 189, 3306-3311.	2.2	139
9	UV Resistance of <i>Bacillus anthracis</i> Spores Revisited: Validation of <i>Bacillus subtilis</i> Spores as UV Surrogates for Spores of <i>B. anthracis</i> Sterne. <i>Applied and Environmental Microbiology</i> , 2003, 69, 1327-1330.	3.1	136
10	Resistance of Bacterial Endospores to Outer Space for Planetary Protection Purposes"Experiment PROTECT of the EXPOSE-E Mission. <i>Astrobiology</i> , 2012, 12, 445-456.	3.0	124
11	Ancient micronauts: interplanetary transport of microbes by cosmic impacts. <i>Trends in Microbiology</i> , 2009, 17, 243-250.	7.7	123
12	Paradoxical DNA Repair and Peroxide Resistance Gene Conservation in <i>Bacillus pumilus</i> SAFR-032. <i>PLoS ONE</i> , 2007, 2, e928.	2.5	118
13	Inactivation of Vegetative Cells, but Not Spores, of <i>Bacillus anthracis</i> , <i>B. cereus</i> , and <i>B. subtilis</i> on Stainless Steel Surfaces Coated with an Antimicrobial Silver- and Zinc-Containing Zeolite Formulation. <i>Applied and Environmental Microbiology</i> , 2003, 69, 4329-4331.	3.1	111
14	Spore Photoproduct Lyase from <i>Bacillus subtilis</i> Spores Is a Novel Iron-Sulfur DNA Repair Enzyme Which Shares Features with Proteins such as Class III Anaerobic Ribonucleotide Reductases and Pyruvate-Formate Lyases. <i>Journal of Bacteriology</i> , 1998, 180, 4879-4885.	2.2	99
15	Roles of Small, Acid-Soluble Spore Proteins and Core Water Content in Survival of <i>Bacillus subtilis</i> Spores Exposed to Environmental Solar UV Radiation. <i>Applied and Environmental Microbiology</i> , 2009, 75, 5202-5208.	3.1	98
16	Spore UV and Acceleration Resistance of Endolithic <i>Bacillus pumilus</i> and <i>Bacillus subtilis</i> Isolates Obtained from Sonoran Desert Basalt: Implications for Lithopanspermia. <i>Astrobiology</i> , 2003, 3, 709-717.	3.0	94
17	Bacterial endospores and their significance in stress resistance. <i>Antonie Van Leeuwenhoek</i> , 2002, 81, 27-32.	1.7	89
18	Roles of the Major, Small, Acid-Soluble Spore Proteins and Spore-Specific and Universal DNA Repair Mechanisms in Resistance of <i>Bacillus subtilis</i> Spores to Ionizing Radiation from X Rays and High-Energy Charged-Particle Bombardment. <i>Journal of Bacteriology</i> , 2008, 190, 1134-1140.	2.2	81

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19	Growth of <i>Serratia liquefaciens</i> under 7 mbar, 0Å°C, and CO ₂ -Enriched Anoxic Atmospheres. <i>Astrobiology</i> , 2013, 13, 115-131.	3.0	79
20	Growth of <i>Carnobacterium</i> spp. from permafrost under low pressure, temperature, and anoxic atmosphere has implications for Earth microbes on Mars. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 666-671.	7.1	78
21	Resistance of <i>Bacillus subtilis</i> Spore DNA to Lethal Ionizing Radiation Damage Relies Primarily on Spore Core Components and DNA Repair, with Minor Effects of Oxygen Radical Detoxification. <i>Applied and Environmental Microbiology</i> , 2014, 80, 104-109.	3.1	67
22	<i>Bacillus subtilis</i> Spores on Artificial Meteorites Survive Hypervelocity Atmospheric Entry: Implications for Lithopanspermia. <i>Astrobiology</i> , 2005, 5, 726-736.	3.0	66
23	Migrating microbes and planetary protection. <i>Trends in Microbiology</i> , 2009, 17, 389-392.	7.7	65
24	The O/OREOS Mission: First Science Data from the Space Environment Survivability of Living Organisms (SESLO) Payload. <i>Astrobiology</i> , 2011, 11, 951-958.	3.0	64
25	Novel <i>rpoB</i> Mutations Conferring Rifampin Resistance on <i>Bacillus subtilis</i> : Global Effects on Growth, Competence, Sporulation, and Germination. <i>Journal of Bacteriology</i> , 2004, 186, 2481-2486.	2.2	63
26	Survival and Germinability of <i>Bacillus subtilis</i> Spores Exposed to Simulated Mars Solar Radiation: Implications for Life Detection and Planetary Protection. <i>Astrobiology</i> , 2006, 6, 592-605.	3.0	57
27	Transcriptomic Responses of Germinating <i>Bacillus subtilis</i> Spores Exposed to 1.5 Years of Space and Simulated Martian Conditions on the EXPOSE-E Experiment PROTECT. <i>Astrobiology</i> , 2012, 12, 469-486.	3.0	54
28	Interactive effects of hypobarica, low temperature, and CO ₂ atmospheres inhibit the growth of mesophilic <i>Bacillus</i> spp. under simulated martian conditions. <i>Icarus</i> , 2006, 185, 143-152.	2.5	52
29	Method for purification of bacterial endospores from soils: UV resistance of natural Sonoran desert soil populations of <i>Bacillus</i> spp. with reference to <i>B. subtilis</i> strain 168. <i>Journal of Microbiological Methods</i> , 1999, 35, 13-21.	1.6	51
30	Comparison of <i>Bacillus subtilis</i> transcriptome profiles from two separate missions to the International Space Station. <i>Npj Microgravity</i> , 2019, 5, 1.	3.7	51
31	The Spectrum of Spontaneous Rifampin Resistance Mutations in the <i>rpoB</i> Gene of <i>Bacillus subtilis</i> 168 Spores Differs from That of Vegetative Cells and Resembles That of <i>Mycobacterium tuberculosis</i> . <i>Journal of Bacteriology</i> , 2002, 184, 4936-4940.	2.2	49
32	Cultivation of <i>Staphylococcus epidermidis</i> in the Human Spaceflight Environment Leads to Alterations in the Frequency and Spectrum of Spontaneous Rifampicin-Resistance Mutations in the <i>rpoB</i> Gene. <i>Frontiers in Microbiology</i> , 2016, 7, 999.	3.5	49
33	Twenty Species of Hypobarophilic Bacteria Recovered from Diverse Soils Exhibit Growth under Simulated Martian Conditions at 0.7â€%kPa. <i>Astrobiology</i> , 2016, 16, 964-976.	3.0	48
34	<i>Bacillus subtilis</i> Spore Survival and Expression of Germination-Induced Bioluminescence After Prolonged Incubation Under Simulated Mars Atmospheric Pressure and Composition: Implications for Planetary Protection and Lithopanspermia. <i>Astrobiology</i> , 2005, 5, 536-544.	3.0	45
35	Spore Photoproduct (SP) Lyase from <i>Bacillus subtilis</i> Specifically Binds to and Cleaves SP (5-Thyminy-5,6-Dihydrothymine) but Not Cyclobutane Pyrimidine Dimers in UV-Irradiated DNA. <i>Journal of Bacteriology</i> , 2000, 182, 6412-6417.	2.2	44
36	Transcriptome Divergence and the Loss of Plasticity in <i>Bacillus subtilis</i> after 6,000 Generations of Evolution under Relaxed Selection for Sporulation. <i>Journal of Bacteriology</i> , 2009, 191, 428-433.	2.2	44

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37	Bacillus subtilis Spore Resistance to Simulated Mars Surface Conditions. <i>Frontiers in Microbiology</i> , 2019, 10, 333.	3.5	44
38	Using thermal inactivation kinetics to calculate the probability of extreme spore longevity: implications for paleomicrobiology and lithopanspermia. <i>Origins of Life and Evolution of Biospheres</i> , 2003, 33, 621-631.	1.9	42
39	Testing interplanetary transfer of bacteria between Earth and Mars as a result of natural impact phenomena and human spaceflight activities. <i>Acta Astronautica</i> , 2007, 60, 534-540.	3.2	42
40	THE POPULATION GENETICS OF PHENOTYPIC DETERIORATION IN EXPERIMENTAL POPULATIONS OF BACILLUS SUBTILIS. <i>Evolution; International Journal of Organic Evolution</i> , 2006, 60, 686-695.	2.3	41
41	Bacterial Spores in Granite Survive Hypervelocity Launch by Spallation: Implications for Lithopanspermia. <i>Astrobiology</i> , 2009, 9, 647-657.	3.0	40
42	Alterations in the Spectrum of Spontaneous Rifampicin-Resistance Mutations in the Bacillus subtilis rpoB Gene after Cultivation in the Human Spaceflight Environment. <i>Frontiers in Microbiology</i> , 2018, 9, 192.	3.5	36
43	Astrobiological Aspects of the Mutagenesis of Cosmic Radiation on Bacterial Spores. <i>Astrobiology</i> , 2010, 10, 509-521.	3.0	35
44	Exploring the Low-Pressure Growth Limit: Evolution of Bacillus subtilis in the Laboratory to Enhanced Growth at 5 Kilopascals. <i>Applied and Environmental Microbiology</i> , 2010, 76, 7559-7565.	3.1	34
45	Increased Fitness and Alteration of Metabolic Pathways during Bacillus subtilis Evolution in the Laboratory. <i>Applied and Environmental Microbiology</i> , 2011, 77, 4105-4118.	3.1	34
46	Multifactorial Resistance of Bacillus subtilis Spores to High-Energy Proton Radiation: Role of Spore Structural Components and the Homologous Recombination and Non-Homologous End Joining DNA Repair Pathways. <i>Astrobiology</i> , 2012, 12, 1069-1077.	3.0	33
47	Protective Role of Spore Structural Components in Determining Bacillus subtilis Spore Resistance to Simulated Mars Surface Conditions. <i>Applied and Environmental Microbiology</i> , 2012, 78, 8849-8853.	3.1	32
48	Role of altered rpoB alleles in Bacillus subtilis sporulation and spore resistance to heat, hydrogen peroxide, formaldehyde, and glutaraldehyde. <i>Archives of Microbiology</i> , 2012, 194, 759-767.	2.2	30
49	Essential Cysteine Residues in Bacillus subtilis Spore Photoproduct Lyase Identified by Alanine Scanning Mutagenesis. <i>Current Microbiology</i> , 2005, 51, 331-335.	2.2	29
50	Exposure of DNA and Bacillus subtilis Spores to Simulated Martian Environments: Use of Quantitative PCR (qPCR) to Measure Inactivation Rates of DNA to Function as a Template Molecule. <i>Astrobiology</i> , 2010, 10, 403-411.	3.0	29
51	Persistence of Biomarker ATP and ATP-Generating Capability in Bacterial Cells and Spores Contaminating Spacecraft Materials under Earth Conditions and in a Simulated Martian Environment. <i>Applied and Environmental Microbiology</i> , 2008, 74, 5159-5167.	3.1	28
52	Evolution of Bacillus subtilis to Enhanced Growth at Low Pressure: Up-Regulated Transcription of des-desKR, Encoding the Fatty Acid Desaturase System. <i>Astrobiology</i> , 2012, 12, 258-270.	3.0	28
53	Aqueous extracts of a Mars analogue regolith that mimics the Phoenix landing site do not inhibit spore germination or growth of model spacecraft contaminants Bacillus subtilis 168 and Bacillus pumilus SAFR-032. <i>Icarus</i> , 2012, 220, 904-910.	2.5	28
54	Role of the Y-Family DNA Polymerases YqjH and YqjW in Protecting Sporulating Bacillus subtilis Cells from DNA Damage. <i>Current Microbiology</i> , 2010, 60, 263-267.	2.2	26

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55	The Paradox of the "Ancient" Bacterium Which Contains "Modern" Protein-Coding Genes. <i>Molecular Biology and Evolution</i> , 2002, 19, 1637-1639.	8.9	24
56	Photoreactivation in the genus <i>Bacillus</i> . <i>Current Microbiology</i> , 1995, 31, 361-364.	2.2	23
57	UV Photochemistry of DNA In Vitro and in <i>Bacillus subtilis</i> Spores at Earth-Ambient and Low Atmospheric Pressure: Implications for Spore Survival on Other Planets or Moons in the Solar System. <i>Astrobiology</i> , 2002, 2, 417-425.	3.0	23
58	Genomic bipyrimidine nucleotide frequency and microbial reactions to germicidal UV radiation. <i>Archives of Microbiology</i> , 2010, 192, 521-529.	2.2	23
59	Experimental evolution of <i>Bacillus subtilis</i> . <i>Environmental Microbiology</i> , 2017, 19, 3415-3422.	3.8	21
60	Nanosatellites for Biology in Space: In Situ Measurement of <i>Bacillus subtilis</i> Spore Germination and Growth after 6 Months in Low Earth Orbit on the O/OREOS Mission. <i>Life</i> , 2020, 10, 1.	2.4	20
61	Spore Photoproduct Lyase Operon (<i>splAB</i>) Regulation During <i>Bacillus subtilis</i> Sporulation: Modulation of <i>splB-lacZ</i> Fusion Expression by P1 Promoter Mutations and by an In-Frame Deletion of <i>splA</i> . <i>Current Microbiology</i> , 1997, 34, 133-137.	2.2	19
62	Proposal to rename <i>Carnobacterium inhibens</i> as <i>Carnobacterium inhibens</i> subsp. <i>inhibens</i> subsp. nov. and description of <i>Carnobacterium inhibens</i> subsp. <i>gilichinskyi</i> subsp. nov., a psychrotolerant bacterium isolated from Siberian permafrost. <i>International Journal of Systematic and Evolutionary Microbiology</i> , 2015, 65, 556-561.	1.7	19
63	Exposure of <i>Bacillus subtilis</i> to Low Pressure (5 Kilopascals) Induces Several Global Regulons, Including Those Involved in the SigB-Mediated General Stress Response. <i>Applied and Environmental Microbiology</i> , 2014, 80, 4788-4794.	3.1	18
64	Experimental Evolution of Enhanced Growth by <i>Bacillus subtilis</i> at Low Atmospheric Pressure: Genomic Changes Revealed by Whole-Genome Sequencing. <i>Applied and Environmental Microbiology</i> , 2015, 81, 7525-7532.	3.1	18
65	Complete Genome Sequence of <i>Serratia liquefaciens</i> Strain ATCC 27592. <i>Genome Announcements</i> , 2013, 1, .	0.8	17
66	Cultivation in Space Flight Produces Minimal Alterations in the Susceptibility of <i>Bacillus subtilis</i> Cells to 72 Different Antibiotics and Growth-Inhibiting Compounds. <i>Applied and Environmental Microbiology</i> , 2017, 83, .	3.1	17
67	Meta-analysis of data from spaceflight transcriptome experiments does not support the idea of a common bacterial "spaceflight response". <i>Scientific Reports</i> , 2018, 8, 14403.	3.3	17
68	Role of the Nfo and ExoA Apurinic/Apyrimidinic Endonucleases in Radiation Resistance and Radiation-Induced Mutagenesis of <i>Bacillus subtilis</i> Spores. <i>Journal of Bacteriology</i> , 2011, 193, 2875-2879.	2.2	15
69	Synthetic operon for (R,R)-2,3-butanediol production in <i>Bacillus subtilis</i> and <i>Escherichia coli</i> . <i>Applied Microbiology and Biotechnology</i> , 2016, 100, 719-728.	3.6	14
70	Mechanotransduction in Prokaryotes: A Possible Mechanism of Spaceflight Adaptation. <i>Life</i> , 2021, 11, 33.	2.4	14
71	Isolation of <i>rpoB</i> Mutations Causing Rifampicin Resistance in <i>Bacillus subtilis</i> Spores Exposed to Simulated Martian Surface Conditions. <i>Astrobiology</i> , 2008, 8, 1159-1167.	3.0	13
72	The TRAP-Like SplA Protein Is a trans -Acting Negative Regulator of Spore Photoproduct Lyase Synthesis during <i>Bacillus subtilis</i> Sporulation. <i>Journal of Bacteriology</i> , 2000, 182, 555-560.	2.2	12

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73	Transcriptomic responses of <i>Serratia liquefaciens</i> cells grown under simulated Martian conditions of low temperature, low pressure, and CO ₂ -enriched anoxic atmosphere. <i>Scientific Reports</i> , 2018, 8, 14938.	3.3	12
74	Increased Competitive Fitness of <i>Bacillus subtilis</i> under Nonsporulating Conditions via Inactivation of Pleiotropic Regulators AlsR, SigD, and SigW. <i>Applied and Environmental Microbiology</i> , 2012, 78, 3500-3503.	3.1	11
75	Anaerobic growth of <i>Bacillus subtilis</i> alters the spectrum of spontaneous mutations in the <i>spoB</i> gene leading to rifampicin resistance. <i>FEMS Microbiology Letters</i> , 2015, 362, fnv213.	1.8	10
76	The Photochemistry of Unprotected DNA and DNA inside <i>Bacillus subtilis</i> Spores Exposed to Simulated Martian Surface Conditions of Atmospheric Composition, Temperature, Pressure, and Solar Radiation. <i>Astrobiology</i> , 2018, 18, 393-402.	3.0	10
77	Establishing Standard Protocols for Bacterial Culture in Biological Research in Canisters (BRIC) Hardware. <i>Gravitational and Space Research: Publication of the American Society for Gravitational and Space Research</i> , 2016, 4, 58-69.	0.8	10
78	Impact of two DNA repair pathways, homologous recombination and non-homologous end joining, on bacterial spore inactivation under simulated martian environmental conditions. <i>Icarus</i> , 2011, 215, 204-210.	2.5	9
79	The LysR-type transcriptional regulator (LTTR) AlsR indirectly regulates expression of the <i>Bacillus subtilis</i> <i>bdhA</i> gene encoding 2,3-butanediol dehydrogenase. <i>Applied Microbiology and Biotechnology</i> , 2013, 97, 7307-7316.	3.6	9
80	THE POPULATION GENETICS OF PHENOTYPIC DETERIORATION IN EXPERIMENTAL POPULATIONS OF <i>BACILLUS SUBTILIS</i> . <i>Evolution; International Journal of Organic Evolution</i> , 2006, 60, 686.	2.3	8
81	Single-spore elemental analyses indicate that dipicolinic acid-deficient <i>Bacillus subtilis</i> spores fail to accumulate calcium. <i>Archives of Microbiology</i> , 2010, 192, 493-497.	2.2	7
82	Shelf Life and Simulated Gastrointestinal Tract Survival of Selected Commercial Probiotics During a Simulated Round-Trip Journey to Mars. <i>Frontiers in Microbiology</i> , 2021, 12, 748950.	3.5	6
83	Comparisons of Transcriptome Profiles from <i>Bacillus subtilis</i> Cells Grown in Space versus High Aspect Ratio Vessel (HARV) Clinostats Reveal a Low Degree of Concordance. <i>Astrobiology</i> , 2020, 20, 1498-1509.	3.0	5
84	Differing Responses in Growth and Spontaneous Mutation to Antibiotic Resistance in <i>Bacillus subtilis</i> and <i>Staphylococcus epidermidis</i> Cells Exposed to Simulated Microgravity. <i>Gravitational and Space Research: Publication of the American Society for Gravitational and Space Research</i> , 2014, 2, 34-45.	0.8	5
85	Carbon-13 (¹³ C) Labeling of <i>Bacillus subtilis</i> Vegetative Cells and Spores: Suitability for DNA Stable Isotope Probing (DNA-SIP) of Spores in Soils. <i>Current Microbiology</i> , 2009, 59, 9-14.	2.2	4
86	Evolution in the <i>Bacillaceae</i> . <i>Microbiology Spectrum</i> , 2014, 2, .	3.0	4
87	Evolution in the <i>Bacillaceae</i> . , 0, , 21-58.		3
88	An improved high-quality draft genome sequence of <i>Carnobacterium inhibens</i> subsp. <i>inhibens</i> strain K1T. <i>Standards in Genomic Sciences</i> , 2016, 11, 65.	1.5	2
89	Experimental Evolution to Explore Adaptation of Terrestrial Bacteria to the Martian Environment. <i>Grand Challenges in Biology and Biotechnology</i> , 2018, , 241-265.	2.4	1
90	A Bumpy Pathway to Stationary-Phase Survival in <i>Bacillus subtilis</i> . <i>MBio</i> , 2019, 10, .	4.1	0

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91	Growth at 5â€‰kPa Causes Differential Expression of a Number of Signals in a Bacillus subtilis Strain Adapted to Enhanced Growth at Low Pressure. Astrobiology, 2021, 21, 1076-1088.	3.0	0
92	Spore. , 2014, , 1-4.		0
93	DNA Repair. , 2014, , 1-3.		0
94	DNA Repair. , 2015, , 673-675.		0
95	Spore. , 2015, , 2331-2333.		0