Daniel J Cosgrove

List of Publications by Year
in descending order

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128 papers	17,517 citations	16437 64 h-index	14197 128 g-index
179 all docs	179 docs citations	179 times ranked	12372 citing authors

#	Article	IF	Citations
1	Growth of the plant cell wall. Nature Reviews Molecular Cell Biology, 2005, 6, 850-861.	16.1	2,685
2	Loosening of plant cell walls by expansins. Nature, 2000, 407, 321-326.	13.7	1,335
3	The expansin superfamily. Genome Biology, 2005, 6, 242.	13.9	564
4	Plant cell wall extensibility: connecting plant cell growth with cell wall structure, mechanics, and the action of wall-modifying enzymes. Journal of Experimental Botany, 2016, 67, 463-476.	2.4	427
5	ASSEMBLY AND ENLARGEMENT OF THE PRIMARY CELL WALL IN PLANTS. Annual Review of Cell and Developmental Biology, 1997, 13, 171-201.	4.0	420
6	Regulation of Root Hair Initiation and Expansin Gene Expression in Arabidopsis[W]. Plant Cell, 2002, 14, 3237-3253.	3.1	397
7	Re-constructing our models of cellulose and primary cell wall assembly. Current Opinion in Plant Biology, 2014, 22, 122-131.	3.5	362
8	Wall extensibility: its nature, measurement and relationship to plant cell growth. New Phytologist, 1993, 124, 1-23.	3.5	344
9	The Growing World of Expansins. Plant and Cell Physiology, 2002, 43, 1436-1444.	1.5	339
10	Plant expansins: diversity and interactions with plant cell walls. Current Opinion in Plant Biology, 2015, 25, 162-172.	3.5	337
11	Xyloglucan and its Interactions with Other Components of the Growing Cell Wall. Plant and Cell Physiology, 2015, 56, 180-194.	1.5	337
12	A Revised Architecture of Primary Cell Walls Based on Biomechanical Changes Induced by Substrate-Specific Endoglucanases Â Â Â. Plant Physiology, 2012, 158, 1933-1943.	2.3	331
13	Lignin-polysaccharide interactions in plant secondary cell walls revealed by solid-state NMR. Nature Communications, 2019, 10, 347.	5.8	320
14	Comparative structure and biomechanics of plant primary and secondary cell walls. Frontiers in Plant Science, 2012, 3, 204.	1.7	317
15	Wall Structure and Wall Loosening. A Look Backwards and Forwards: Fig. 1.. Plant Physiology, 2001, 125, 131-134.	2.3	272
16	Adaptation of roots to low water potentials by changes in cell wall extensibility and cell wall proteins. Journal of Experimental Botany, 2000, 51, 1543-1553.	2.4	269
17	Diffuse Growth of Plant Cell Walls. Plant Physiology, 2018, 176, 16-27.	2.3	257
18	Rapid Suppression of Growth by Blue Light. Plant Physiology, 1981, 67, 584-590.	2.3	241

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19	Cell Wall Loosening by Expansins. Plant Physiology, 1998, 118, 333-339.	2.3	225
20	Changes in Cell Wall Biomechanical Properties in the Xyloglucan-Deficient <i>xxt1/xxt2</i> Mutant of Arabidopsis Â Â. Plant Physiology, 2012, 158, 465-475.	2.3	221
21	Crystal structure and activities of EXPB1 (Zea m 1), a beta-expansin and group-1 pollen allergen from maize. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 14664-14671.	3.3	212
22	Spatial organization of cellulose microfibrils and matrix polysaccharides in primary plant cell walls as imaged by multichannel atomic force microscopy. Plant Journal, 2016, 85, 179-192.	2.8	198
23	Cellulose-Pectin Spatial Contacts Are Inherent to Never-Dried Arabidopsis Primary Cell Walls: Evidence from Solid-State Nuclear Magnetic Resonance. Plant Physiology, 2015, 168, 871-884.	2.3	197
24	Sensitivity-enhanced solid-state NMR detection of expansinâ€™s target in plant cell walls. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 16444-16449.	3.3	196
25	Characterization of long-term extension of isolated cell walls from growing cucumber hypocotyls. Planta, 1989, 177, 121-130.	1.6	193
26	Dynamic Coordination of Cytoskeletal and Cell Wall Systems during Plant Cell Morphogenesis. Current Biology, 2009, 19, R800-R811.	1.8	192
27	Characterization of a new xyloglucan endotransglucosylase/hydrolase (XTH) from ripening tomato fruit and implications for the diverse modes of enzymic action. Plant Journal, 2006, 47, 282-295.	2.8	180
28	Catalysts of plant cell wall loosening. F1000Research, 2016, 5, 119.	0.8	179
29	Crystal structure and activity of <i>Bacillus subtilis</i> YoaJ (EXLX1), a bacterial expansin that promotes root colonization. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 16876-16881.	3.3	175
30	Cell Wall Yield Properties of Growing Tissue. Plant Physiology, 1985, 78, 347-356.	2.3	164
31	Modification of Expansin Transcript Levels in the Maize Primary Root at Low Water Potentials. Plant Physiology, 2001, 126, 1471-1479.	2.3	156
32	Cell wall extension results in the coordinate separation of parallel microfibrils: evidence from scanning electron microscopy and atomic force microscopy. Plant Journal, 2005, 43, 181-190.	2.8	151
33	Molecular insights into the complex mechanics of plant epidermal cell walls. Science, 2021, 372, 706-711.	6.0	148
34	Structural basis for entropy-driven cellulose binding by a type-A cellulose-binding module (CBM) and bacterial expansin. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 14830-14835.	3.3	144
35	Xyloglucan Deficiency Disrupts Microtubule Stability and Cellulose Biosynthesis in Arabidopsis, Altering Cell Growth and Morphogenesis. Plant Physiology, 2016, 170, 234-249.	2.3	143
36	Stress relaxation of cell walls and the yield threshold for growth. Planta, 1984, 162, 46-54.	1.6	134

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37	Water Uptake by Growing Cells: An Assessment of the Controlling Roles of Wall Relaxation, Solute Uptake, and Hydraulic Conductance. International Journal of Plant Sciences, 1993, 154, 10-21.	0.6	130
38	Detection of Expansin Proteins and Activity during Tomato Fruit Ontogeny. Plant Physiology, 2000, 123, 1583-1592.	2.3	124
39	Nanoscale movements of cellulose microfibrils in primary cell walls. Nature Plants, 2017, 3, 17056.	4.7	121
40	Analysis and Expression of the Î±-Expansin and Î²-Expansin Gene Families in Maize. Plant Physiology, 2001, 126, 222-232.	2.3	114
41	Waterâ€"Polysaccharide Interactions in the Primary Cell Wall of <i>Arabidopsis thaliana</i> from Polarization Transfer Solid-State NMR. Journal of the American Chemical Society, 2014, 136, 10399-10409.	6.6	111
42	Acid-Growth Response and Î±-Expansins in Suspension Cultures of Bright Yellow 2 Tobacco. Plant Physiology, 1998, 118, 907-916.	2.3	108
43	Structure-Function Analysis of the Bacterial Expansin EXLX1. Journal of Biological Chemistry, 2011, 286, 16814-16823.	1.6	107
44	A Fungal Endoglucanase with Plant Cell Wall Extension Activity. Plant Physiology, 2001, 127, 324-333.	2.3	106
45	Subcellular Localization of Expansin mRNA in Xylem Cells. Plant Physiology, 2000, 123, 463-470.	2.3	104
46	Visualization of the nanoscale pattern of recently-deposited cellulose microfibrils and matrix materials in never-dried primary walls of the onion epidermis. Cellulose, 2014, 21, 853-862.	2.4	98
47	Nanoscale structure, mechanics and growth of epidermal cell walls. Current Opinion in Plant Biology, 2018, 46, 77-86.	3.5	98
48	Analysis of the Dynamic and Steady-State Responses of Growth Rate and Turgor Pressure to Changes in Cell Parameters. Plant Physiology, 1981, 68, 1439-1446.	2.3	97
49	Plant cell enlargement and the action of expansins. BioEssays, 1996, 18, 533-540.	1.2	97
50	Disentangling loosening from softening: insights into primary cell wall structure. Plant Journal, 2019, 100, 1101-1117.	2.8	96
51	Osmotic Properties of Pea Internodes in Relation to Growth and Auxin Action. Plant Physiology, 1983, 72, 332-338.	2.3	95
52	Plant Expansins in Bacteria and Fungi: Evolution by Horizontal Gene Transfer and Independent Domain Fusion. Molecular Biology and Evolution, 2014, 31, 376-386.	3.5	95
53	Bacterial expansins and related proteins from the world of microbes. Applied Microbiology and Biotechnology, 2015, 99, 3807-3823.	1.7	95
54	Wall relaxation in growing stems: comparison of four species and assessment of measurement techniques. Planta, 1987, 171, 266-278.	1.6	93

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55	Building an extensible cell wall. Plant Physiology, 2022, 189, 1246-1277.	2.3	90
56	Purification and Characterization of Four Î²-Expansins (Zea m 1 Isoforms) from Maize Pollen. Plant Physiology, 2003, 132, 2073-2085.	2.3	89
57	Molecular dynamics simulation study of xyloglucan adsorption on cellulose surfaces: effects of surface hydrophobicity and side-chain variation. Cellulose, 2014, 21, 1025-1039.	2.4	86
58	Cellulose synthase complexes act in a concerted fashion to synthesize highly aggregated cellulose in secondary cell walls of plants. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 11348-11353.	3.3	86
59	The Shape of Native Plant Cellulose Microfibrils. Scientific Reports, 2018, 8, 13983.	1.6	86
60	A Model of Cell Wall Expansion Based on Thermodynamics of Polymer Networks. Biophysical Journal, 1998, 75, 2240-2250.	0.2	83
61	Gradients in Wall Mechanics and Polysaccharides along Growing Inflorescence Stems. Plant Physiology, 2017, 175, 1593-1607.	2.3	82
62	Use of genomic history to improve phylogeny and understanding of births and deaths in a gene family. Plant Journal, 2005, 44, 409-419.	2.8	81
63	Rapid Suppression of Growth by Blue Light. Plant Physiology, 1981, 68, 1447-1453.	2.3	78
64	Autolysis and extension of isolated walls from growing cucumber hypocotyls. Journal of Experimental Botany, 1994, 45, 1711-1719.	2.4	72
65	Mutations in the Pectin Methyltransferase QUASIMODO2 Influence Cellulose Biosynthesis and Wall Integrity in Arabidopsis. Plant Cell, 2020, 32, 3576-3597.	3.1	72
66	Genome histories clarify evolution of the expansin superfamily: new insights from the poplar genome and pine ESTs. Journal of Plant Research, 2006, 119, 11-21.	1.2	70
67	Quantification of crystalline cellulose in lignocellulosic biomass using sum frequency generation (SFG) vibration spectroscopy and comparison with other analytical methods. Carbohydrate Polymers, 2012, 89, 802-809.	5.1	69
68	Cellulose microfibril orientation in onion (Allium cepa L.) epidermis studied by atomic force microscopy (AFM) and vibrational sum frequency generation (SFG) spectroscopy. Cellulose, 2014, 21, 1075-1086.	2.4	68
69	Biochemical analysis of expansin-like proteins from microbes. Carbohydrate Polymers, 2014, 100, 17-23.	5.1	66
70	Pectin methylesterase selectively softens the onion epidermal wall yet reduces acid-induced creep. Journal of Experimental Botany, 2020, 71, 2629-2640.	2.4	66
71	Rapid alterations in growth rate and electrical potentials upon stem excision in pea seedlings. Planta, 1992, 187, 523-31.	1.6	63
72	The<i>jiaoyao1</i>Mutant Is an Allele of<i>korrigan1</i>That Abolishes Endoglucanase Activity and Affects the Organization of Both Cellulose Microfibrils and Microtubules in<i>Arabidopsis</i>Â Â. Plant Cell, 2014, 26, 2601-2616.	3.1	63

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73	Matrix solubilization and cell wall weakening by Î²â€expansin (groupâ€1 allergen) from maize pollen. Plant Journal, 2011, 68, 546-559.	2.8	62
74	Microbial Expansins. Annual Review of Microbiology, 2017, 71, 479-497.	2.9	61
75	Grass group I pollen allergens (Î²-expansins) lack proteinase activity and do not cause wall loosening via proteolysis. FEBS Journal, 2001, 268, 4217-4226.	0.2	59
76	Expansins in growing tomato leaves. Plant Journal, 1995, 8, 795-802.	2.8	58
77	Induction and ionic basis of slow wave potentials in seedlings of Pisum sativum L.. Planta, 1996, 200, 416-25.	1.6	57
78	Portrait of the Expansin Superfamily in Physcomitrella patens: Comparisons with Angiosperm Expansins. Annals of Botany, 2007, 99, 1131-1141.	1.4	57
79	Class B Î²-expansins are needed for pollen separation and stigma penetration. Sexual Plant Reproduction, 2009, 22, 141-152.	2.2	57
80	Mechanism of rapid suppression of cell expansion in cucumber hypocotyls after blue-light irradiation. Planta, 1988, 176, 109-116.	1.6	56
81	Xyloglucan in the primary cell wall: assessment by <scp>FESEM</scp>, selective enzyme digestions and nanogold affinity tags. Plant Journal, 2018, 93, 211-226.	2.8	54
82	Evolutionary divergence of Î²â€“expansin structure and function in grasses parallels emergence of distinctive primary cell wall traits. Plant Journal, 2015, 81, 108-120.	2.8	53
83	The Identification of Two Arabinosyltransferases from Tomato Reveals Functional Equivalency of Xyloglucan Side Chain Substituents Â Â. Plant Physiology, 2013, 163, 86-94.	2.3	45
84	KINETIC SEPARATION OF PHOTOTROPISM FROM BLUE-LIGHT INHIBITION OF STEM ELONGATION. Photochemistry and Photobiology, 1985, 42, 745-751.	1.3	41
85	Cellular mechanisms underlying growth asymmetry during stem gravitropism. Planta, 1997, 203, S130-S135.	1.6	41
86	Investigation of the Cell-Wall Loosening Protein Expansin as a Possible Additive in the Enzymatic Saccharification of Lignocellulosic Biomass. Applied Biochemistry and Biotechnology, 2000, 84-86, 217-224.	1.4	41
87	A Group-1 Grass Pollen Allergen Influences the Outcome of Pollen Competition in Maize. PLoS ONE, 2007, 2, e154.	1.1	41
88	The Target of Î²-Expansin EXPB1 in Maize Cell Walls from Binding and Solid-State NMR Studies. Plant Physiology, 2016, 172, 2107-2119.	2.3	41
89	Preferred crystallographic orientation of cellulose in plant primary cell walls. Nature Communications, 2020, 11, 4720.	5.8	41
90	Effects of Plant Cell Wall Matrix Polysaccharides on Bacterial Cellulose Structure Studied with Vibrational Sum Frequency Generation Spectroscopy and X-ray Diffraction. Biomacromolecules, 2014, 15, 2718-2724.	2.6	39

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91	Plant Cell Growth: Do Pectins Drive Lobe Formation inÂArabidopsis Pavement Cells?. Current Biology, 2020, 30, R660-R662.	1.8	36
92	Dehydration-induced physical strains of cellulose microfibrils in plant cell walls. Carbohydrate Polymers, 2018, 197, 337-348.	5.1	34
93	Arabinose substitution effect on xylan rigidity and self-aggregation. Cellulose, 2019, 26, 2267-2278.	2.4	31
94	High-Resolution Field Emission Scanning Electron Microscopy (FESEM) Imaging of Cellulose Microfibril Organization in Plant Primary Cell Walls. Microscopy and Microanalysis, 2017, 23, 1048-1054.	0.2	30
95	Expansisns. Journal of Plant Research, 1998, 111, 149-157.	1.2	27
96	Resonant soft X-ray scattering reveals cellulose microfibril spacing in plant primary cell walls. Scientific Reports, 2018, 8, 12449.	1.6	26
97	Elusive Structural, Functional, and Immunological Features of Act d 5, the Green Kiwifruit Kiwellin. Journal of Agricultural and Food Chemistry, 2015, 63, 6567-6576.	2.4	25
98	Effects of mechanical stretching on average orientation of cellulose and pectin in onion epidermis cell wall: A polarized FT-IR study. Cellulose, 2017, 24, 3145-3154.	2.4	25
99	Inhomogeneity of Cellulose Microfibril Assembly in Plant Cell Walls Revealed with Sum Frequency Generation Microscopy. Journal of Physical Chemistry B, 2018, 122, 5006-5019.	1.2	23
100	Measuring In Vitro Extensibility of Growing Plant Cell Walls. Methods in Molecular Biology, 2011, 715, 291-303.	0.4	23
101	Automated pressure probe for measurement of water transport properties of higher plant cells. Review of Scientific Instruments, 1986, 57, 2614-2619.	0.6	21
102	Global cellulose biomass, horizontal gene transfers and domain fusions drive microbial expansin evolution. New Phytologist, 2020, 226, 921-938.	3.5	19
103	Cellulose synthase interactive1- and microtubule-dependent cell wall architecture is required for acid growth in Arabidopsis hypocotyls. Journal of Experimental Botany, 2020, 71, 2982-2994.	2.4	18
104	Selaginella moellendorffii has a reduced and highly conserved expansin superfamily with genes more closely related to angiosperms than to bryophytes. BMC Plant Biology, 2013, 13, 4.	1.6	17
105	Investigating Biochemical and Developmental Dependencies of Lignification with a Click-Compatible Monolignol Analog in Arabidopsis thaliana Stems. Frontiers in Plant Science, 2016, 7, 1309.	1.7	17
106	Saccharide analysis of onion outer epidermal walls. Biotechnology for Biofuels, 2021, 14, 66.	6.2	16
107	Leaf morphogenesis: The multifaceted roles of mechanics. Molecular Plant, 2022, 15, 1098-1119.	3.9	15
108	The valine and lysine residues in the conserved FxVTxK motif are important for the function of phylogenetically distant plant cellulose synthases. Glycobiology, 2016, 26, 509-519.	1.3	14

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109	Biomechanical Characterization of Onion Epidermal Cell Walls. Bio-protocol, 2017, 7, e2662.	0.2	14
110	Slow wave potentials in cucumber differ in form and growth effect from those in pea seedlings. Physiologia Plantarum, 1997, 101, 379-388.	2.6	13
111	Distinguishing Mesoscale Polar Order (Unidirectional vs Bidirectional) of Cellulose Microfibrils in Plant Cell Walls Using Sum Frequency Generation Spectroscopy. Journal of Physical Chemistry B, 2020, 124, 8071-8081.	1.2	13
112	Preparation of Onion Epidermal Cell Walls for Imaging by Atomic Force Microscopy (AFM). Bio-protocol, 2017, 7, e2647.	0.2	13
113	Expansin gene loss is a common occurrence during adaptation to an aquatic environment. Plant Journal, 2020, 101, 666-680.	2.8	12
114	Does cellulose II exist in native alga cell walls? Cellulose structure of Derbesia cell walls studied with SFG, IR and XRD. Cellulose, 2015, 22, 3531-3540.	2.4	11
115	Expanding wheat yields with expansin. New Phytologist, 2021, 230, 403-405.	3.5	11
116	The effect of a microgravity (space) environment on the expression of expansins from the peg and root tissues of Cucumis sativus. Physiologia Plantarum, 2001, 113, 292-300.	2.6	10
117	Quantum Calculations on Plant Cell Wall Component Interactions. Interdisciplinary Sciences, Computational Life Sciences, 2019, 11, 485-495.	2.2	10
118	Anisotropic Motions of Fibrils Dictated by Their Orientations in the Lamella: A Coarse-Grained Model of a Plant Cell Wall. Journal of Physical Chemistry B, 2020, 124, 3527-3539.	1.2	9
119	Directed in vitro evolution of bacterial expansin BsEXLX1 for higher cellulose binding and its consequences for plant cell wallâ€loosening activities. FEBS Letters, 2019, 593, 2545-2555.	1.3	8
120	Measuring the Biomechanical Loosening Action of Bacterial Expansins on Paper and Plant Cell Walls. Methods in Molecular Biology, 2017, 1588, 157-165.	0.4	7
121	A rich and bountiful harvest: Key discoveries in plant cell biology. Plant Cell, 2022, 34, 53-71.	3.1	7
122	Analysis of Peg Formation in Cucumber Seedlings Grown on Clinostats and in a Microgravity (Space) Environment. Journal of Plant Research, 1999, 112, 507-516.	1.2	6
123	Non-enzymatic action of expansins. Journal of Biological Chemistry, 2020, 295, 6782.	1.6	6
124	Primary walls in second place. Nature Plants, 2018, 4, 748-749.	4.7	5
125	Conservation of endo-glucanase 16 (EG16) activity across highly divergent plant lineages. Biochemical Journal, 2021, 478, 3063-3078.	1.7	5
126	High-Resolution Imaging of Cellulose Organization in Cell Walls by Field Emission Scanning Electron Microscopy. Methods in Molecular Biology, 2020, 2149, 225-237.	0.4	2

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127	Theory and Practice in Measuring In-Vitro Extensibility of Growing Plant Cell Walls. Methods in Molecular Biology, 2020, 2149, 57-72.	0.4	1
128	Plant biology: Peering deeply into the structure ofÂtheÂonion epidermal cell wall. Current Biology, 2022, 32, R515-R517.	1.8	1