

# Daniel J Cosgrove

## List of Publications by Year in descending order

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128  
papers

17,517  
citations

16411

64  
h-index

14156

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

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19	Cell Wall Loosening by Expansins. <i>Plant Physiology</i> , 1998, 118, 333-339.	2.3	225
20	Changes in Cell Wall Biomechanical Properties in the Xyloglucan-Deficient <i>xxt1/xxt2</i> Mutant of <i>Arabidopsis</i> . <i>Plant Physiology</i> , 2012, 158, 465-475.	2.3	221
21	Crystal structure and activities of EXPB1 ( <i>Zea m 1</i> ), a beta-expansin and group-1 pollen allergen from maize. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 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. <i>Plant Journal</i> , 2016, 85, 179-192.	2.8	198
23	Cellulose-Pectin Spatial Contacts Are Inherent to Never-Dried <i>Arabidopsis</i> Primary Cell Walls: Evidence from Solid-State Nuclear Magnetic Resonance. <i>Plant Physiology</i> , 2015, 168, 871-884.	2.3	197
24	Sensitivity-enhanced solid-state NMR detection of expansin's target in plant cell walls. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 16444-16449.	3.3	196
25	Characterization of long-term extension of isolated cell walls from growing cucumber hypocotyls. <i>Planta</i> , 1989, 177, 121-130.	1.6	193
26	Dynamic Coordination of Cytoskeletal and Cell Wall Systems during Plant Cell Morphogenesis. <i>Current Biology</i> , 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. <i>Plant Journal</i> , 2006, 47, 282-295.	2.8	180
28	Catalysts of plant cell wall loosening. <i>F1000Research</i> , 2016, 5, 119.	0.8	179
29	Crystal structure and activity of <i>Bacillus subtilis</i> Yoj (EXLX1), a bacterial expansin that promotes root colonization. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2008, 105, 16876-16881.	3.3	175
30	Cell Wall Yield Properties of Growing Tissue. <i>Plant Physiology</i> , 1985, 78, 347-356.	2.3	164
31	Modification of Expansin Transcript Levels in the Maize Primary Root at Low Water Potentials. <i>Plant Physiology</i> , 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. <i>Plant Journal</i> , 2005, 43, 181-190.	2.8	151
33	Molecular insights into the complex mechanics of plant epidermal cell walls. <i>Science</i> , 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. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012, 109, 14830-14835.	3.3	144
35	Xyloglucan Deficiency Disrupts Microtubule Stability and Cellulose Biosynthesis in <i>Arabidopsis</i> , Altering Cell Growth and Morphogenesis. <i>Plant Physiology</i> , 2016, 170, 234-249.	2.3	143
36	Stress relaxation of cell walls and the yield threshold for growth. <i>Planta</i> , 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. <i>International Journal of Plant Sciences</i> , 1993, 154, 10-21.	0.6	130
38	Detection of Expansin Proteins and Activity during Tomato Fruit Ontogeny. <i>Plant Physiology</i> , 2000, 123, 1583-1592.	2.3	124
39	Nanoscale movements of cellulose microfibrils in primary cell walls. <i>Nature Plants</i> , 2017, 3, 17056.	4.7	121
40	Analysis and Expression of the $\beta$ -Expansin and $\beta$ -Expansin Gene Families in Maize. <i>Plant Physiology</i> , 2001, 126, 222-232.	2.3	114
41	Water- $\beta$ -Polysaccharide Interactions in the Primary Cell Wall of <i>Arabidopsis thaliana</i> from Polarization Transfer Solid-State NMR. <i>Journal of the American Chemical Society</i> , 2014, 136, 10399-10409.	6.6	111
42	Acid-Growth Response and $\beta$ -Expansins in Suspension Cultures of Bright Yellow 2 Tobacco. <i>Plant Physiology</i> , 1998, 118, 907-916.	2.3	108
43	Structure-Function Analysis of the Bacterial Expansin EXLX1. <i>Journal of Biological Chemistry</i> , 2011, 286, 16814-16823.	1.6	107
44	A Fungal Endoglucanase with Plant Cell Wall Extension Activity. <i>Plant Physiology</i> , 2001, 127, 324-333.	2.3	106
45	Subcellular Localization of Expansin mRNA in Xylem Cells. <i>Plant Physiology</i> , 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. <i>Cellulose</i> , 2014, 21, 853-862.	2.4	98
47	Nanoscale structure, mechanics and growth of epidermal cell walls. <i>Current Opinion in Plant Biology</i> , 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. <i>Plant Physiology</i> , 1981, 68, 1439-1446.	2.3	97
49	Plant cell enlargement and the action of expansins. <i>BioEssays</i> , 1996, 18, 533-540.	1.2	97
50	Disentangling loosening from softening: insights into primary cell wall structure. <i>Plant Journal</i> , 2019, 100, 1101-1117.	2.8	96
51	Osmotic Properties of Pea Internodes in Relation to Growth and Auxin Action. <i>Plant Physiology</i> , 1983, 72, 332-338.	2.3	95
52	Plant Expansins in Bacteria and Fungi: Evolution by Horizontal Gene Transfer and Independent Domain Fusion. <i>Molecular Biology and Evolution</i> , 2014, 31, 376-386.	3.5	95
53	Bacterial expansins and related proteins from the world of microbes. <i>Applied Microbiology and Biotechnology</i> , 2015, 99, 3807-3823.	1.7	95
54	Wall relaxation in growing stems: comparison of four species and assessment of measurement techniques. <i>Planta</i> , 1987, 171, 266-278.	1.6	93

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55	Building an extensible cell wall. <i>Plant Physiology</i> , 2022, 189, 1246-1277.	2.3	90
56	Purification and Characterization of Four $\beta$ -Expansins (Zea m 1 Isoforms) from Maize Pollen. <i>Plant Physiology</i> , 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. <i>Cellulose</i> , 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. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 11348-11353.	3.3	86
59	The Shape of Native Plant Cellulose Microfibrils. <i>Scientific Reports</i> , 2018, 8, 13983.	1.6	86
60	A Model of Cell Wall Expansion Based on Thermodynamics of Polymer Networks. <i>Biophysical Journal</i> , 1998, 75, 2240-2250.	0.2	83
61	Gradients in Wall Mechanics and Polysaccharides along Growing Inflorescence Stems. <i>Plant Physiology</i> , 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. <i>Plant Journal</i> , 2005, 44, 409-419.	2.8	81
63	Rapid Suppression of Growth by Blue Light. <i>Plant Physiology</i> , 1981, 68, 1447-1453.	2.3	78
64	Autolysis and extension of isolated walls from growing cucumber hypocotyls. <i>Journal of Experimental Botany</i> , 1994, 45, 1711-1719.	2.4	72
65	Mutations in the Pectin Methyltransferase QUASIMODO2 Influence Cellulose Biosynthesis and Wall Integrity in Arabidopsis. <i>Plant Cell</i> , 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. <i>Journal of Plant Research</i> , 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. <i>Carbohydrate Polymers</i> , 2012, 89, 802-809.	5.1	69
68	Cellulose microfibril orientation in onion ( <i>Allium cepa</i> L.) epidermis studied by atomic force microscopy (AFM) and vibrational sum frequency generation (SFG) spectroscopy. <i>Cellulose</i> , 2014, 21, 1075-1086.	2.4	68
69	Biochemical analysis of expansin-like proteins from microbes. <i>Carbohydrate Polymers</i> , 2014, 100, 17-23.	5.1	66
70	Pectin methylesterase selectively softens the onion epidermal wall yet reduces acid-induced creep. <i>Journal of Experimental Botany</i> , 2020, 71, 2629-2640.	2.4	66
71	Rapid alterations in growth rate and electrical potentials upon stem excision in pea seedlings. <i>Planta</i> , 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> .	3.1	63

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

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91	Plant Cell Growth: Do Pectins Drive Lobe Formation in Arabidopsis Pavement Cells?. <i>Current Biology</i> , 2020, 30, R660-R662.	1.8	36
92	Dehydration-induced physical strains of cellulose microfibrils in plant cell walls. <i>Carbohydrate Polymers</i> , 2018, 197, 337-348.	5.1	34
93	Arabinose substitution effect on xylan rigidity and self-aggregation. <i>Cellulose</i> , 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. <i>Microscopy and Microanalysis</i> , 2017, 23, 1048-1054.	0.2	30
95	Expansins. <i>Journal of Plant Research</i> , 1998, 111, 149-157.	1.2	27
96	Resonant soft X-ray scattering reveals cellulose microfibril spacing in plant primary cell walls. <i>Scientific Reports</i> , 2018, 8, 12449.	1.6	26
97	Elusive Structural, Functional, and Immunological Features of Act d 5, the Green Kiwifruit Kiwellin. <i>Journal of Agricultural and Food Chemistry</i> , 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. <i>Cellulose</i> , 2017, 24, 3145-3154.	2.4	25
99	Inhomogeneity of Cellulose Microfibril Assembly in Plant Cell Walls Revealed with Sum Frequency Generation Microscopy. <i>Journal of Physical Chemistry B</i> , 2018, 122, 5006-5019.	1.2	23
100	Measuring In Vitro Extensibility of Growing Plant Cell Walls. <i>Methods in Molecular Biology</i> , 2011, 715, 291-303.	0.4	23
101	Automated pressure probe for measurement of water transport properties of higher plant cells. <i>Review of Scientific Instruments</i> , 1986, 57, 2614-2619.	0.6	21
102	Global cellulose biomass, horizontal gene transfers and domain fusions drive microbial expansin evolution. <i>New Phytologist</i> , 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. <i>Journal of Experimental Botany</i> , 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. <i>BMC Plant Biology</i> , 2013, 13, 4.	1.6	17
105	Investigating Biochemical and Developmental Dependencies of Lignification with a Click-Compatible Monolignol Analog in Arabidopsis thaliana Stems. <i>Frontiers in Plant Science</i> , 2016, 7, 1309.	1.7	17
106	Saccharide analysis of onion outer epidermal walls. <i>Biotechnology for Biofuels</i> , 2021, 14, 66.	6.2	16
107	Leaf morphogenesis: The multifaceted roles of mechanics. <i>Molecular Plant</i> , 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. <i>Glycobiology</i> , 2016, 26, 509-519.	1.3	14

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109	Biomechanical Characterization of Onion Epidermal Cell Walls. <i>Bio-protocol</i> , 2017, 7, e2662.	0.2	14
110	Slow wave potentials in cucumber differ in form and growth effect from those in pea seedlings. <i>Physiologia Plantarum</i> , 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. <i>Journal of Physical Chemistry B</i> , 2020, 124, 8071-8081.	1.2	13
112	Preparation of Onion Epidermal Cell Walls for Imaging by Atomic Force Microscopy (AFM). <i>Bio-protocol</i> , 2017, 7, e2647.	0.2	13
113	Expansin gene loss is a common occurrence during adaptation to an aquatic environment. <i>Plant Journal</i> , 2020, 101, 666-680.	2.8	12
114	Does cellulose II exist in native alga cell walls? Cellulose structure of <i>Derbesia</i> cell walls studied with SFG, IR and XRD. <i>Cellulose</i> , 2015, 22, 3531-3540.	2.4	11
115	Expanding wheat yields with expansin. <i>New Phytologist</i> , 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 <i>Cucumis sativus</i> . <i>Physiologia Plantarum</i> , 2001, 113, 292-300.	2.6	10
117	Quantum Calculations on Plant Cell Wall Component Interactions. <i>Interdisciplinary Sciences, Computational Life Sciences</i> , 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. <i>Journal of Physical Chemistry B</i> , 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 wall loosening activities. <i>FEBS Letters</i> , 2019, 593, 2545-2555.	1.3	8
120	Measuring the Biomechanical Loosening Action of Bacterial Expansins on Paper and Plant Cell Walls. <i>Methods in Molecular Biology</i> , 2017, 1588, 157-165.	0.4	7
121	A rich and bountiful harvest: Key discoveries in plant cell biology. <i>Plant Cell</i> , 2022, 34, 53-71.	3.1	7
122	Analysis of Peg Formation in Cucumber Seedlings Grown on Clinostats and in a Microgravity (Space) Environment. <i>Journal of Plant Research</i> , 1999, 112, 507-516.	1.2	6
123	Non-enzymatic action of expansins. <i>Journal of Biological Chemistry</i> , 2020, 295, 6782.	1.6	6
124	Primary walls in second place. <i>Nature Plants</i> , 2018, 4, 748-749.	4.7	5
125	Conservation of endo-glucanase 16 (EG16) activity across highly divergent plant lineages. <i>Biochemical Journal</i> , 2021, 478, 3063-3078.	1.7	5
126	High-Resolution Imaging of Cellulose Organization in Cell Walls by Field Emission Scanning Electron Microscopy. <i>Methods in Molecular Biology</i> , 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. <i>Methods in Molecular Biology</i> , 2020, 2149, 57-72.	0.4	1
128	Plant biology: Peering deeply into the structure of the onion epidermal cell wall. <i>Current Biology</i> , 2022, 32, R515-R517.	1.8	1