John Shanklin

List of Publications by Year
in descending order

103 papers	8,066 citations	53789 45 h-index	53222 85 g-index
122 all docs	122 docs citations	122 times ranked	7389 citing authors

#	Article	IF	Citations
1	DESATURATION AND RELATED MODIFICATIONS OF FATTY ACIDS. Annual Review of Plant Biology, 1998, 49, 611-641.	14.3	808
2	Eight Histidine Residues Are Catalytically Essential in a Membrane-Associated Iron Enzyme, Stearoyl-CoA Desaturase, and Are Conserved in Alkane Hydroxylase and Xylene Monooxygenase. Biochemistry, 1994, 33, 12787-12794.	2.5	723
3	A fatty acid desaturase modulates the activation of defense signaling pathways in plants. Proceedings of the National Academy of Sciences of the United States of America, 2001, 98, 9448-9453.	7.1	377
4	Catalytic Plasticity of Fatty Acid Modification Enzymes Underlying Chemical Diversity of Plant Lipids. , 1998, 282, 1315-1317.		235
5	<i>Defective Pollen Wall</i>Is Required for Anther and Microspore Development in Rice and Encodes a Fatty Acyl Carrier Protein Reductase Â Â. Plant Cell, 2011, 23, 2225-2246.	6.6	226
6	The Arabidopsis stearoyl-acyl carrier protein-desaturase family and the contribution of leaf isoforms to oleic acid synthesis. Plant Molecular Biology, 2006, 63, 257-271.	3.9	223
7	Triacylglycerol Metabolism, Function, and Accumulation in Plant Vegetative Tissues. Annual Review of Plant Biology, 2016, 67, 179-206.	18.7	220
8	Oil accumulation is controlled by carbon precursor supply for fatty acid synthesis in Chlamydomonas reinhardtii. Plant and Cell Physiology, 2012, 53, 1380-1390.	3.1	210
9	Resonance Raman Evidence for an Fe-O-Fe Center in Stearoyl-ACP Desaturase. Primary Sequence Identity with Other Diiron-Oxo Proteins. Biochemistry, 1994, 33, 12776-12786.	2.5	206
10	<i>Male Sterile2</i> Encodes a Plastid-Localized Fatty Acyl Carrier Protein Reductase Required for Pollen Exine Development in Arabidopsis Â Â Â. Plant Physiology, 2011, 157, 842-853.	4.8	188
11	50Âyears of Arabidopsis research: highlights and future directions. New Phytologist, 2016, 209, 921-944.	7.3	186
12	Redesign of soluble fatty acid desaturases from plants for altered substrate specificity and double bond position. Proceedings of the National Academy of Sciences of the United States of America, 1997, 94, 4872-4877.	7.1	183
13	Desaturases: Emerging Models for Understanding Functional Diversification of Diiron-containing Enzymes. Journal of Biological Chemistry, 2009, 284, 18559-18563.	3.4	159
14	Trehalose 6-Phosphate Positively Regulates Fatty Acid Synthesis by Stabilizing WRINKLED1. Plant Cell, 2018, 30, 2616-2627.	6.6	156
15	Desaturation and Hydroxylation. Journal of Biological Chemistry, 2002, 277, 15613-15620.	3.4	151
16	Identification of amino acid residues involved in substrate specificity of plant acyl-ACP thioesterases using a bioinformatics-guided approach. BMC Plant Biology, 2007, 7, 1.	3.6	149
17	<i>Arabidopsis</i> Lipins, PDAT1 Acyltransferase, and SDP1 Triacylglycerol Lipase Synergistically Direct Fatty Acids toward Î²-Oxidation, Thereby Maintaining Membrane Lipid Homeostasis. Plant Cell, 2014, 26, 4119-4134.	6.6	148
18	Metabolic engineering of sugarcane to accumulate energyâ€dense triacylglycerols in vegetative biomass. Plant Biotechnology Journal, 2016, 14, 661-669.	8.3	143

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19	Modulating seed Â-ketoacyl-acyl carrier protein synthase II level converts the composition of a temperate seed oil to that of a palm-like tropical oil. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 4742-4747.	7.1	133
20	Feedback regulation of plastidic acetyl-CoA carboxylase by 18:1-acyl carrier protein in <i>Brassica napus</i>. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 10107-10112.	7.1	132
21	Fusing catalase to an alkane-producing enzyme maintains enzymatic activity by converting the inhibitory byproduct H ₂ O ₂ to the cosubstrate O ₂. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 3191-3196.	7.1	109
22	Phosphorylation of WRINKLED1 by KIN10 Results in Its Proteasomal Degradation, Providing a Link between Energy Homeostasis and Lipid Biosynthesis. Plant Cell, 2017, 29, 871-889.	6.6	109
23	A Determinant of Substrate Specificity Predicted from the Acyl-Acyl Carrier Protein Desaturase of Developing Cat's Claw Seed1. Plant Physiology, 1998, 117, 593-598.	4.8	103
24	The Stroma of Higher Plant Plastids Contain ClpP and ClpC, Functional Homologs of Escherichia coli ClpP and ClpA: An Archetypal Two-Component ATP-Dependent Protease. Plant Cell, 1995, 7, 1713.	6.6	102
25	Redirection of metabolic flux for high levels of omegaâ€7 monounsaturated fatty acid accumulation in camelina seeds. Plant Biotechnology Journal, 2015, 13, 38-50.	8.3	89
26	Engineering Î”9-16:0-Acyl Carrier Protein (ACP) Desaturase Specificity Based on Combinatorial Saturation Mutagenesis and Logical Redesign of the Castor Î”9-18:0-ACP Desaturase. Journal of Biological Chemistry, 2001, 276, 21500-21505.	3.4	88
27	Switching desaturase enzyme specificity by alternate subcellular targeting. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 10266-10271.	7.1	87
28	Identification of the Arabidopsis Palmitoyl-Monogalactosyldiacylglycerol Î”7-Desaturase Gene FAD5, and Effects of Plastidial Retargeting of Arabidopsis Desaturases on the fad5 Mutant Phenotype. Plant Physiology, 2004, 136, 4237-4245.	4.8	85
29	Stearoyl-acyl carrier protein desaturases are associated with floral isolation in sexually deceptive orchids. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 5696-5701.	7.1	84
30	Substrate-dependent mutant complementation to select fatty acid desaturase variants for metabolic engineering of plant seed oils. Proceedings of the National Academy of Sciences of the United States of America, 2000, 97, 12350-12355.	7.1	80
31	FAD2 and FAD3 Desaturases Form Heterodimers That Facilitate Metabolic Channeling in Vivo. Journal of Biological Chemistry, 2014, 289, 17996-18007.	3.4	80
32	Mechanisms and functions of membrane lipid remodeling in plants. Plant Journal, 2021, 107, 37-53.	5.7	78
33	Mutations in a Î”⁹â€“Stearoylâ€ACPâ€Desaturase Gene Are Associated with Enhanced Stearic Acid Levels in Soybean Seeds. Crop Science, 2008, 48, 2305-2313.	1.8	69
34	Metabolic Engineering of Seeds Can Achieve Levels of Ï‰-7 Fatty Acids Comparable with the Highest Levels Found in Natural Plant Sources. Plant Physiology, 2010, 154, 1897-1904.	4.8	69
35	Structural basis for SARS-CoV-2 envelope protein recognition of human cell junction protein PALS1. Nature Communications, 2021, 12, 3433.	12.8	69
36	Half-of-the-Sites Reactivity of the Castor Î”9-18:0-Acyl Carrier Protein Desaturase. Plant Physiology, 2015, 169, 432-441.	4.8	63

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37	Evidence linking the Pseudomonas oleovorans alkane Ï‰-hydroxylase, an integral membrane diiron enzyme, and the fatty acid desaturase family. FEBS Letters, 2003, 545, 188-192.	2.8	62
38	Azide and Acetate Complexes Plus Two Iron-depleted Crystal Structures of the Di-iron Enzyme Î”9 Stearoyl-Acyl Carrier Protein Desaturase. Journal of Biological Chemistry, 2003, 278, 25072-25080.	3.4	62
39	Remote control of regioselectivity in acyl-acyl carrier protein-desaturases. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 16594-16599.	7.1	59
40	Exploring the Hydroxylationâ˘'Dehydrogenation Connection:â€‰ Novel Catalytic Activity of Castor Stearoyl-ACP Î”9 Desaturase. Journal of the American Chemical Society, 2002, 124, 3277-3283.	13.7	58
41	Scanning Transmission Electron Microscopy and Small-Angle Scattering Provide Evidence that Native Escherichia coli ClpP is a Tetradecamer with an Axial Pore. Biochemistry, 1995, 34, 10910-10917.	2.5	56
42	Towards oilcane: Engineering hyperaccumulation of triacylglycerol into sugarcane stems. GCB Bioenergy, 2020, 12, 476-490.	5.6	54
43	The Crystal Structure of the Ivy Î”4-16:0-ACP Desaturase Reveals Structural Details of the Oxidized Active Site and Potential Determinants of Regioselectivity. Journal of Biological Chemistry, 2007, 282, 19863-19871.	3.4	52
44	Characterization and analysis of the cotton cyclopropane fatty acid synthase family and their contribution to cyclopropane fatty acid synthesis. BMC Plant Biology, 2011, 11, 97.	3.6	51
45	A Structural Model of the Plant Acyl-Acyl Carrier Protein Thioesterase FatB Comprises Two Helix/4-Stranded Sheet Domains, the N-terminal Domain Containing Residues That Affect Specificity and the C-terminal Domain Containing Catalytic Residues. Journal of Biological Chemistry, 2005, 280, 3621-3627.	3.4	50
46	Parallel and Competitive Pathways for Substrate Desaturation, Hydroxylation, and Radical Rearrangement by the Non-heme Diiron Hydroxylase AlkB. Journal of the American Chemical Society, 2012, 134, 20365-20375.	13.7	50
47	A family of metal-dependent phosphatases implicated in metabolite damage-control. Nature Chemical Biology, 2016, 12, 621-627.	8.0	48
48	Characterization of a structurally and functionally diverged acyl-acyl carrier protein desaturase from milkweed seed. Plant Molecular Biology, 1997, 33, 1105-1110.	3.9	44
49	A Multifunctional Acyl-Acyl Carrier Protein Desaturase from Hedera helix L. (English Ivy) Can Synthesize 16- and 18-Carbon Monoene and Diene Products. Journal of Biological Chemistry, 2005, 280, 28169-28176.	3.4	44
50	Biotin Attachment Domain-Containing Proteins Irreversibly Inhibit Acetyl CoA Carboxylase. Plant Physiology, 2018, 177, 208-215.	4.8	43
51	Survey of the total fatty acid and triacylglycerol composition and content of 30 duckweed species and cloning of a Î”6-desaturase responsible for the production of Î³-linolenic and stearidonic acids in Lemna gibba. BMC Plant Biology, 2013, 13, 201.	3.6	42
52	Red Light-Induced Accumulation of Ubiquitin-Phytochrome Conjugates in Both Monocots and Dicots. Plant Physiology, 1989, 90, 380-384.	4.8	41
53	Coexpressing <i>Escherichia coli</i> Cyclopropane Synthase with <i>Sterculia foetida</i> Lysophosphatidic Acid Acyltransferase Enhances Cyclopropane Fatty Acid Accumulation Â Â. Plant Physiology, 2014, 164, 455-465.	4.8	41
54	Partial purification and peptide mapping of ubiquitin-phytochrome conjugates from oat. Biochemistry, 1989, 28, 6028-6034.	2.5	38

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55	Sugar Potentiation of Fatty Acid and Triacylglycerol Accumulation. Plant Physiology, 2017, 175, 696-707.	4.8	38
56	Structural basis for Ca2+-dependent activation of a plant metacaspase. Nature Communications, 2020, 11, 2249.	12.8	38
57	Revealing the catalytic potential of an acyl-ACP desaturase: Tandem selective oxidation of saturated fatty acids. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 14738-14743.	7.1	37
58	Overexpression and Purification of the Escherichia coli Inner Membrane Enzyme Acylâ€"Acyl Carrier Protein Synthase in an Active Form. Protein Expression and Purification, 2000, 18, 355-360.	1.3	36
59	Expression of mRNA and steady-state levels of protein isoforms of enoyl-ACP reductase from Brassica napus. Plant Molecular Biology, 1994, 26, 155-163.	3.9	33
60	Identification of bottlenecks in the accumulation of cyclic fatty acids in camelina seed oil. Plant Biotechnology Journal, 2018, 16, 926-938.	8.3	32
61	Metabolic and functional connections between cytoplasmic and chloroplast triacylglycerol storage. Progress in Lipid Research, 2020, 80, 101069.	11.6	32
62	A single mutation in the castor Â9-18:0-desaturase changes reaction partitioning from desaturation to oxidase chemistry. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 17220-17224.	7.1	30
63	Production of long chain alcohols and alkanes upon coexpression of an acyl-ACP reductase and aldehyde-deformylating oxygenase with a bacterial type-I fatty acid synthase in E. coli. Molecular BioSystems, 2015, 11, 2464-2472.	2.9	29
64	Amino Acid Change in an Orchid Desaturase Enables Mimicry of the Pollinatorâ€™s Sex Pheromone. Current Biology, 2016, 26, 1505-1511.	3.9	27
65	Linking enzyme sequence to function using Conserved Property Difference Locator to identify and annotate positions likely to control specific functionality. BMC Bioinformatics, 2005, 6, 284.	2.6	26
66	Sequence of a cDNA fromChlamydomonas reinhardiiencoding a ubiquitin 52 amino acid extension protein. Nucleic Acids Research, 1989, 17, 8377-8377.	14.5	25
67	Preliminary crystallographic data for stearoyl-acyl carrier protein desaturase from castor seed. Journal of Molecular Biology, 1992, 225, 561-564.	4.2	25
68	WRINKLED1 Regulates BIOTIN ATTACHMENT DOMAIN-CONTAINING Proteins that Inhibit Fatty Acid Synthesis. Plant Physiology, 2019, 181, 55-62.	4.8	25
69	Application of KIE and thia approaches in the mechanistic study of a plant stearoyl-ACP Î"9 desaturase. Chemical Communications, 2001, , 401-402.	4.1	24
70	Conjugated Fatty Acid Synthesis. Journal of Biological Chemistry, 2012, 287, 16230-16237.	3.4	24
71	Effect of Substrate on the Diiron(III) Site in Stearoyl Acyl Carrier Protein Î"9-Desaturase as Disclosed by Cryoreduction Electron Paramagnetic Resonance/Electron Nuclear Double Resonance Spectroscopy. Biochemistry, 2005, 44, 1309-1315.	2.5	23
72	Sequence of a Complementary DNA from <i>Cucumis sativus</i> L. Encoding the Stearoyl-Acyl-Carrier Protein Desaturase. Plant Physiology, 1991, 97, 467-468.	4.8	22

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73	Changes in fatty-acid composition and stearoyl-acyl carrier protein desaturase expression in developing Theobroma cacao L. embryos. Planta, 1994, 193, 83.	3.2	22
74	Tissue-specific differences in metabolites and transcripts contribute to the heterogeneity of ricinoleic acid accumulation in Ricinus communis L. (castor) seeds. Metabolomics, 2019, 15, 6.	3.0	21
75	Arabidopsis SnRK1 negatively regulates phenylpropanoid metabolism via Kelch domainâ€containing Fâ€box proteins. New Phytologist, 2021, 229, 3345-3359.	7.3	21
76	Evidence That the Yeast Desaturase Ole1p Exists as a Dimer in Vivo. Journal of Biological Chemistry, 2010, 285, 19384-19390.	3.4	17
77	The Role of Sugar Signaling in Regulating Plant Fatty Acid Synthesis. Frontiers in Plant Science, 2021, 12, 643843.	3.6	15
78	Hydrothermal pretreatment for valorization of genetically engineered bioenergy crop for lipid and cellulosic sugar recovery. Bioresource Technology, 2021, 341, 125817.	9.6	15
79	Cellular Organization of Triacylglycerol Biosynthesis in Microalgae. Sub-Cellular Biochemistry, 2016, 86, 207-221.	2.4	14
80	Diversion of Carbon Flux from Sugars to Lipids Improves the Growth of an Arabidopsis Starchless Mutant. Plants, 2019, 8, 229.	3.5	14
81	Expression of a Lychee <i>PHOSPHATIDYLCHOLINE:DIACYLGLYCEROL CHOLINEPHOSPHOTRANSFERASE</i> with an <i>Escherichia coli CYCLOPROPANE SYNTHASE</i> Enhances Cyclopropane Fatty Acid Accumulation in Camelina Seeds. Plant Physiology, 2019, 180, 1351-1361.	4.8	14
82	Expression of a Bacterial Trehalose-6-phosphate Synthase otsA Increases Oil Accumulation in Plant Seeds and Vegetative Tissues. Frontiers in Plant Science, 2021, 12, 656962.	3.6	12
83	Stereochemistry of Î”4dehydrogenation catalyzed by an ivy (Hedera helix) Î”9desaturase homolog. Organic and Biomolecular Chemistry, 2007, 5, 1270-1275.	2.8	11
84	Two clusters of residues contribute to the activity and substrate specificity of Fm1, a bifunctional oleate and linoleate desaturase of fungal origin. Journal of Biological Chemistry, 2018, 293, 19844-19853.	3.4	11
85	Oxidation of chiral 9-fluorinated substrates by castor stearoyl-ACP Î”9 desaturase yields novel products. Chemical Communications, 2001, , 765-766.	4.1	10
86	Castor Stearoyl-ACP Desaturase Can Synthesize a Vicinal Diol by Dioxygenase Chemistry. Plant Physiology, 2020, 182, 730-738.	4.8	10
87	Use of19F NMR spectroscopy to probe enzymatic oxidation of fluorine-tagged sulfides. Magnetic Resonance in Chemistry, 2002, 40, 524-528.	1.9	9
88	Altering <i>Arabidopsis</i> Oilseed Composition by a Combined Antisenseâ€Hairpin RNAi Gene Suppression Approach. JAOCS, Journal of the American Oil Chemists' Society, 2009, 86, 41-49.	1.9	9
89	Ectopic Expression of OLEOSIN 1 and Inactivation of GBSS1 Have a Synergistic Effect on Oil Accumulation in Plant Leaves. Plants, 2021, 10, 513.	3.5	9
90	AlphaFold Protein Structure Database for Sequence-Independent Molecular Replacement. Crystals, 2021, 11, 1227.	2.2	9

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91	Rhodoxanthin synthase from honeysuckle; a membrane diiron enzyme catalyzes the multistep conversion of Î²-carotene to rhodoxanthin. Science Advances, 2020, 6, eaay9226.	10.3	7
92	A conserved evolutionary mechanism permits Î”9 desaturation of very-long-chain fatty acyl lipids. Journal of Biological Chemistry, 2020, 295, 11337-11345.	3.4	7
93	Biotin attachment domain-containing proteins mediate hydroxy fatty acid-dependent inhibition of acetyl CoA carboxylase. Plant Physiology, 2021, 185, 892-901.	4.8	7
94	Mobilizing Vacuolar Sugar Increases Vegetative Triacylglycerol Accumulation. Frontiers in Plant Science, 2021, 12, 708902.	3.6	7
95	In vitro enzymatic oxidation of a fluorine-tagged sulfido substrate analogue: a19F NMR investigation. Magnetic Resonance in Chemistry, 2006, 44, 629-632.	1.9	6
96	Stereochemistry of 10-sulfoxidation catalyzed by a soluble Î”9 desaturase. Organic and Biomolecular Chemistry, 2010, 8, 1322.	2.8	5
97	Solving a furan fatty acid biosynthesis puzzle. Journal of Biological Chemistry, 2020, 295, 9802-9803.	3.4	4
98	Enzyme Engineering. Advances in Plant Biochemistry and Molecular Biology, 2008, , 29-47.	0.5	3
99	A consensus-based ensemble approach to improve transcriptome assembly. BMC Bioinformatics, 2021, 22, 513.	2.6	3
100	Regioselectivity mechanism of the <i>Thunbergia alata</i> Î”6-16:0-acyl carrier protein desaturase. Plant Physiology, 2022, 188, 1537-1549.	4.8	3
101	Atomistic insight on structure and dynamics of spinach acyl carrier protein with substrate length. Biophysical Journal, 2021, 120, 3841-3853.	0.5	1
102	Stearoyl-ACP Î”9 desaturase is a newly identified example of an iron-oxo protein oxygenase. Journal of Inorganic Biochemistry, 1993, 51, 150.	3.5	0
103	Expression of MRNA and Steady-State Levels of Protein Isoforms of Enoyl-ACP Reductase From Brassica napus. , 1995, , 90-92.		0