Chris Whitfield

List of Publications by Citations

96 papers	9,964 citations	45 h-index	99 g-index
186 ext. papers	11,272 ext. citations	8.2 avg, IF	6.63 L-index

#	Paper	IF	Citations
96	Lipopolysaccharide endotoxins. *Annual Review of Biochemistry*, **2002**, 71, 635-700	29.1	3259
95	Biosynthesis and assembly of capsular polysaccharides in Escherichia coli. *Annual Review of Biochemistry*, **2006**, 75, 39-68	29.1	749
94	Structure, assembly and regulation of expression of capsules in Escherichia coli. *Molecular Microbiology*, **1999**, 31, 1307-19	4.1	427
93	Biosynthesis and export of bacterial lipopolysaccharides. *Annual Review of Biochemistry*, **2014**, 83, 99-128	29.1	419
92	Molecular basis for structural diversity in the core regions of the lipopolysaccharides of Escherichia coli and Salmonella enterica. *Molecular Microbiology*, **1998**, 30, 221-32	4.1	296
91	Wza the translocon for E. coli capsular polysaccharides defines a new class of membrane protein. *Nature*, **2006**, 444, 226-9	50.4	273
90	Pivotal roles of the outer membrane polysaccharide export and polysaccharide copolymerase protein families in export of extracellular polysaccharides in gram-negative bacteria. *Microbiology and Molecular Biology Reviews*, **2009**, 73, 155-77	13.2	199
89	Pentamidine sensitizes Gram-negative pathogens to antibiotics and overcomes acquired colistin resistance. *Nature Microbiology*, **2017**, 2, 17028	26.6	155
88	Phosphorylation of Wzc, a tyrosine autokinase, is essential for assembly of group 1 capsular polysaccharides in Escherichia coli. *Journal of Biological Chemistry*, **2001**, 276, 2361-71	5.4	154
87	Structure, biosynthesis, and function of bacterial capsular polysaccharides synthesized by ABC transporter-dependent pathways. *Carbohydrate Research*, **2013**, 378, 35-44	2.9	146
86	ABC transporters involved in export of cell surface glycoconjugates. *Microbiology and Molecular Biology Reviews*, **2010**, 74, 341-62	13.2	140
85	Gene products required for surface expression of the capsular form of the group 1 K antigen in Escherichia coli (O9a:K30). *Molecular Microbiology*, **1999**, 31, 1321-32	4.1	130
84	Structures of lipopolysaccharides from Klebsiella pneumoniae. Elucidation of the structure of the linkage region between core and polysaccharide O chain and identification of the residues at the non-reducing termini of the O chains. *Journal of Biological Chemistry*, **2002**, 277, 25070-81	5.4	128
83	UDP-galactopyranose mutase has a novel structure and mechanism. *Nature Structural Biology*, **2001**, 8, 858-63		127
82	Modulation of the surface architecture of gram-negative bacteria by the action of surface polymer:lipid A-core ligase and by determinants of polymer chain length. *Molecular Microbiology*, **1997**, 23, 629-38	4.1	126
81	The 3D structure of a periplasm-spanning platform required for assembly of group 1 capsular polysaccharides in Escherichia coli. *Proceedings of the National Academy of Sciences of the United States of America*, **2007**, 104, 2390-5	11.5	121
80	Synthesis of lipopolysaccharide O-antigens by ABC transporter-dependent pathways. *Carbohydrate Research*, **2012**, 356, 12-24	2.9	117

79	Biosynthesis and assembly of Group 1 capsular polysaccharides in Escherichia coli and related extracellular polysaccharides in other bacteria. *Carbohydrate Research*, **2003**, 338, 2491-502	2.9	111
78	A novel pathway for O-polysaccharide biosynthesis in Salmonella enterica serovar Borreze. *Journal of Biological Chemistry*, **1996**, 271, 28581-92	5.4	110
77	UDP-galactofuranose precursor required for formation of the lipopolysaccharide O antigen of Klebsiella pneumoniae serotype O1 is synthesized by the product of the rfbDKPO1 gene. *Journal of Biological Chemistry*, **1997**, 272, 4121-8	5.4	104
76	Structure and functional analysis of LptC, a conserved membrane protein involved in the lipopolysaccharide export pathway in Escherichia coli. *Journal of Biological Chemistry*, **2010**, 285, 33529-33539	5.4	99
75	Conserved organization in the cps gene clusters for expression of Escherichia coli group 1 K antigens: relationship to the colanic acid biosynthesis locus and the cps genes from Klebsiella pneumoniae. *Journal of Bacteriology*, **1999**, 181, 2307-13	3.5	99
74	Impact of phosphorylation of specific residues in the tyrosine autokinase, Wzc, on its activity in assembly of group 1 capsules in Escherichia coli. *Journal of Bacteriology*, **2002**, 184, 6437-47	3.5	97
73	Nonreducing terminal modifications determine the chain length of polymannose O antigens of Escherichia coli and couple chain termination to polymer export via an ATP-binding cassette transporter. *Journal of Biological Chemistry*, **2004**, 279, 35709-18	5.4	95
72	Identification of an ATP-binding cassette transport system required for translocation of lipopolysaccharide O-antigen side-chains across the cytoplasmic membrane of Klebsiella pneumoniae serotype O1. *Molecular Microbiology*, **1994**, 14, 505-19	4.1	95
71	Characterization of dTDP-4-dehydrorhamnose 3,5-epimerase and dTDP-4-dehydrorhamnose reductase, required for dTDP-L-rhamnose biosynthesis in Salmonella enterica serovar Typhimurium LT2. *Journal of Biological Chemistry*, **1999**, 274, 25069-77	5.4	86
70	Substrate binding by a bacterial ABC transporter involved in polysaccharide export. *Proceedings of the National Academy of Sciences of the United States of America*, **2007**, 104, 19529-34	11.5	80
69	The assembly system for the outer core portion of R1- and R4-type lipopolysaccharides of Escherichia coli. The R1 core-specific beta-glucosyltransferase provides a novel attachment site for O-polysaccharides. *Journal of Biological Chemistry*, **1998**, 273, 29497-505	5.4	76
68	KpsC and KpsS are retaining 3-deoxy-D-manno-oct-2-ulosonic acid (Kdo) transferases involved in synthesis of bacterial capsules. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 20753-8	11.5	74
67	Transcriptional organization and regulation of the Escherichia coli K30 group 1 capsule biosynthesis (cps) gene cluster. *Molecular Microbiology*, **2003**, 47, 1045-60	4.1	73
66	Conserved glycolipid termini in capsular polysaccharides synthesized by ATP-binding cassette transporter-dependent pathways in Gram-negative pathogens. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 7868-73	11.5	72
65	The C-terminal domain of the nucleotide-binding domain protein Wzt determines substrate specificity in the ATP-binding cassette transporter for the lipopolysaccharide O-antigens in Escherichia coli serotypes O8 and O9a. *Journal of Biological Chemistry*, **2005**, 280, 30310-9	5.4	72
64	Translocation of group 1 capsular polysaccharide in Escherichia coli serotype K30. Structural and functional analysis of the outer membrane lipoprotein Wza. *Journal of Biological Chemistry*, **2003**, 278, 49763-72	5.4	70
63	functional analysis of conserved gene products involved in assembly of Escherichia coli capsules and exopolysaccharides: evidence for molecular recognition between Wza and Wzc for colanic acid biosynthesis. *Journal of Bacteriology*, **2005**, 187, 5470-81	3.5	67
62	Molecular and functional analysis of genes required for expression of group IB K antigens in Escherichia coli: characterization of the his-region containing gene clusters for multiple cell-surface polysaccharides. *Molecular Microbiology*, **1997**, 26, 145-61	4.1	60

61	A novel outer membrane protein, Wzi, is involved in surface assembly of the Escherichia coli K30 group 1 capsule. *Journal of Bacteriology*, **2003**, 185, 5882-90	3.5	59
60	Architecture of a channel-forming O-antigen polysaccharide ABC transporter. *Nature*, **2018**, 553, 361-365	50.4	57
59	Biochemical and structural analysis of bacterial O-antigen chain length regulator proteins reveals a conserved quaternary structure. *Journal of Biological Chemistry*, **2009**, 284, 7395-403	5.4	55
58	Crystal structures of Wzb of Escherichia coli and CpsB of Streptococcus pneumoniae, representatives of two families of tyrosine phosphatases that regulate capsule assembly. *Journal of Molecular Biology*, **2009**, 392, 678-88	6.5	54
57	Structural variation in the O-specific polysaccharides of Klebsiella pneumoniae serotype O1 and O8 lipopolysaccharide: evidence for clonal diversity in rfb genes. *Molecular Microbiology*, **1993**, 10, 615-25	4.1	51
56	The Klebsiella pneumoniae O2a antigen defines a second mechanism for O antigen ATP-binding cassette transporters. *Journal of Biological Chemistry*, **2009**, 284, 2947-2956	5.4	49
55	Functional analysis of the galactosyltransferases required for biosynthesis of D-galactan I, a component of the lipopolysaccharide O1 antigen of Klebsiella pneumoniae. *Journal of Bacteriology*, **2001**, 183, 3318-27	3.5	48
54	Wzi is an outer membrane lectin that underpins group 1 capsule assembly in Escherichia coli. *Structure*, **2013**, 21, 844-53	5.2	47
53	Assembly of Bacterial Capsular Polysaccharides and Exopolysaccharides. *Annual Review of Microbiology*, **2020**, 74, 521-543	17.5	46
52	A coiled-coil domain acts as a molecular ruler to regulate O-antigen chain length in lipopolysaccharide. *Nature Structural and Molecular Biology*, **2015**, 22, 50-56	17.6	45
51	Functional characterization of the initiation enzyme of S-layer glycoprotein glycan biosynthesis in Geobacillus stearothermophilus NRS 2004/3a. *Journal of Bacteriology*, **2007**, 189, 2590-8	3.5	45
50	A plasmid-encoded rfbO:54 gene cluster is required for biosynthesis of the O:54 antigen in Salmonella enterica serovar Borreze. *Molecular Microbiology*, **1994**, 11, 437-48	4.1	45
49	Cold Stress Makes Escherichia coli Susceptible to Glycopeptide Antibiotics by Altering Outer Membrane Integrity. *Cell Chemical Biology*, **2016**, 23, 267-277	8.2	40
48	Coordination of polymerization, chain termination, and export in assembly of the Escherichia coli lipopolysaccharide O9a antigen in an ATP-binding cassette transporter-dependent pathway. *Journal of Biological Chemistry*, **2009**, 284, 30662-72	5.4	39
47	Biosynthesis of the polymannose lipopolysaccharide O-antigens from Escherichia coli serotypes O8 and O9a requires a unique combination of single- and multiple-active site mannosyltransferases. *Journal of Biological Chemistry*, **2012**, 287, 35078-35091	5.4	37
46	Lipopolysaccharide O antigen size distribution is determined by a chain extension complex of variable stoichiometry in Escherichia coli O9a. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 6407-12	11.5	36
45	Trapped translocation intermediates establish the route for export of capsular polysaccharides across Escherichia coli outer membranes. *Proceedings of the National Academy of Sciences of the United States of America*, **2014**, 111, 8203-8	11.5	33
44	Bacterial Kdo glycosyltransferases represent a new glycosyltransferase family (GT99). *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, E3120-9	11.5	32

43	Lipopolysaccharide O-antigens-bacterial glycans made to measure. *Journal of Biological Chemistry*, **2020**, 295, 10593-10609	5.4	31
42	In vitro reconstruction of the chain termination reaction in biosynthesis of the Escherichia coli O9a O-polysaccharide: the chain-length regulator, WbdD, catalyzes the addition of methyl phosphate to the non-reducing terminus of the growing glycan. *Journal of Biological Chemistry*, **2011**, 286, 41391-41401	5.4	30
41	Domain organization of the polymerizing mannosyltransferases involved in synthesis of the Escherichia coli O8 and O9a lipopolysaccharide O-antigens. *Journal of Biological Chemistry*, **2012**, 287, 38135-49	5.4	29
40	Molecular insights into the assembly and diversity of the outer core oligosaccharide in lipopolysaccharides from Escherichia coli and Salmonella. *Journal of Endotoxin Research*, **2003**, 9, 244-9		29
39	Functional and structural characterization of polysaccharide co-polymerase proteins required for polymer export in ATP-binding cassette transporter-dependent capsule biosynthesis pathways. *Journal of Biological Chemistry*, **2011**, 286, 16658-68	5.4	27
38	Unique lipid anchor attaches Vi antigen capsule to the surface of Salmonella enterica serovar Typhi. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 6719-24	11.5	26
37	Full-length, Oligomeric Structure of Wzz Determined by Cryoelectron Microscopy Reveals Insights into Membrane-Bound States. *Structure*, **2017**, 25, 806-815.e3	5.2	25
36	Structure of WbdD: a bifunctional kinase and methyltransferase that regulates the chain length of the O antigen in Escherichia coli O9a. *Molecular Microbiology*, **2012**, 86, 730-42	4.1	25
35	Dectin-2 Recognizes Mannosylated O-antigens of Human Opportunistic Pathogens and Augments Lipopolysaccharide Activation of Myeloid Cells. *Journal of Biological Chemistry*, **2016**, 291, 17629-38	5.4	24
34	Glycolipid substrates for ABC transporters required for the assembly of bacterial cell-envelope and cell-surface glycoconjugates. *Biochimica Et Biophysica Acta - Molecular and Cell Biology of Lipids*, **2017**, 1862, 1394-1403	5	23
33	A membrane-located glycosyltransferase complex required for biosynthesis of the D-galactan I lipopolysaccharide O antigen in Klebsiella pneumoniae. *Journal of Biological Chemistry*, **2010**, 285, 19668-87	5.4	23
32	Biosynthesis of a novel 3-deoxy-D-manno-oct-2-ulosonic acid-containing outer core oligosaccharide in the lipopolysaccharide of Klebsiella pneumoniae. *Journal of Biological Chemistry*, **2004**, 279, 27928-40	5.4	23
31	Single polysaccharide assembly protein that integrates polymerization, termination, and chain-length quality control. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, E1215-E1223	11.5	22
30	The Klebsiella pneumoniae O12 ATP-binding Cassette (ABC) Transporter Recognizes the Terminal Residue of Its O-antigen Polysaccharide Substrate. *Journal of Biological Chemistry*, **2016**, 291, 9748-61	5.4	22
29	Biosynthesis of a conserved glycolipid anchor for Gram-negative bacterial capsules. *Nature Chemical Biology*, **2019**, 15, 632-640	11.7	19
28	Bacteriophage-mediated Glucosylation Can Modify Lipopolysaccharide O-Antigens Synthesized by an ATP-binding Cassette (ABC) Transporter-dependent Assembly Mechanism. *Journal of Biological Chemistry*, **2015**, 290, 25561-70	5.4	19
27	Peptidoglycan Association of Murein Lipoprotein Is Required for KpsD-Dependent Group 2 Capsular Polysaccharide Expression and Serum Resistance in a Uropathogenic Isolate. *MBio*, **2017**, 8,	7.8	19
26	Periplasmic export machines for outer membrane assembly. *Current Opinion in Structural Biology*, **2008**, 18, 466-74	8.1	19

25	Molecular basis for the structural diversity in serogroup O2-antigen polysaccharides in. *Journal of Biological Chemistry*, **2018**, 293, 4666-4679	5.4	17
24	Identification of the methyl phosphate substituent at the non-reducing terminal mannose residue of the O-specific polysaccharides of Klebsiella pneumoniae O3, Hafnia alvei PCM 1223 and Escherichia coli O9/O9a LPS. *Carbohydrate Research*, **2012**, 347, 186-8	2.9	17
23	Biochemical Characterization of Bifunctional 3-Deoxy-□d-manno-oct-2-ulosonic Acid (□Kdo) Transferase KpsC from Escherichia coli Involved in Capsule Biosynthesis. *Journal of Biological Chemistry*, **2016**, 291, 21519-21530	5.4	16
22	A widespread three-component mechanism for the periplasmic modification of bacterial glycoconjugates. *Canadian Journal of Chemistry*, **2016**, 94, 883-893	0.9	16
21	Domain interactions control complex formation and polymerase specificity in the biosynthesis of the Escherichia coli O9a antigen. *Journal of Biological Chemistry*, **2015**, 290, 1075-85	5.4	15
20	A bifunctional O-antigen polymerase structure reveals a new glycosyltransferase family. *Nature Chemical Biology*, **2020**, 16, 450-457	11.7	15
19	High-Throughput "FP-Tag" Assay for the Identification of Glycosyltransferase Inhibitors. *Journal of the American Chemical Society*, **2019**, 141, 2201-2204	16.4	14
18	The UDP-glucose dehydrogenase of Escherichia coli K-12 displays substrate inhibition by NAD that is relieved by nucleotide triphosphates. *Journal of Biological Chemistry*, **2013**, 288, 23064-74	5.4	14
17	Periplasmic depolymerase provides insight into ABC transporter-dependent secretion of bacterial capsular polysaccharides. *Proceedings of the National Academy of Sciences of the United States of America*, **2018**, 115, E4870-E4879	11.5	14
16	Glycosyltransferases involved in biosynthesis of the outer core region of Escherichia coli lipopolysaccharides exhibit broader substrate specificities than is predicted from lipopolysaccharide structures. *Journal of Biological Chemistry*, **2007**, 282, 26786-26792	5.4	13
15	O1 and O2ac antigens provide prototypes for an unusual strategy for polysaccharide antigen diversification. *Journal of Biological Chemistry*, **2019**, 294, 10863-10876	5.4	9
14	Structural Insight into a Novel Formyltransferase and Evolution to a Nonribosomal Peptide Synthetase Tailoring Domain. *ACS Chemical Biology*, **2018**, 13, 3161-3172	4.9	8
13	Structural and Functional Variation in Outer Membrane Polysaccharide Export (OPX) Proteins from the Two Major Capsule Assembly Pathways Present in Escherichia coli. *Journal of Bacteriology*, **2019**, 201,	3.5	6
12	The molecular basis of regulation of bacterial capsule assembly by Wzc. *Nature Communications*, **2021**, 12, 4349	17.4	6
11	Analysis of the Topology and Active-Site Residues of WbbF, a Putative O-Polysaccharide Synthase from Salmonella enterica Serovar Borreze. *Journal of Bacteriology*, **2020**, 202,	3.5	4
10	Substrate recognition by a carbohydrate-binding module in the prototypical ABC transporter for lipopolysaccharide O-antigen from O9a. *Journal of Biological Chemistry*, **2019**, 294, 14978-14990	5.4	4
9	Lipopolysaccharides (Endotoxins) **2019**,		4
8	Bioinformatics analysis of diversity in bacterial glycan chain-termination chemistry and organization of carbohydrate-binding modules linked to ABC transporters. *Glycobiology*, **2019**, 29, 822-838	5.8	3

List of Publications

7	Capsules and Extracellular Polysaccharides in Escherichia coli and Salmonella.. *EcoSal Plus*, **2021**, 9, eESP00332020	7.7	2
6	Utilization of Fluorescently Tagged Synthetic Acceptor Molecules for In Vitro Characterization of a Dual-Domain Glycosyltransferase Enzyme, KpsC, from Escherichia coli. *Methods in Molecular Biology* , **2019**, 1954, 151-159	1.4	1
5	Investigation of core machinery for biosynthesis of Vi antigen capsular polysaccharides in Gram-negative bacteria.. *Journal of Biological Chemistry*, **2021**, 101486	5.4	0
4	In Vitro Characterization of a Multidomain Glycosyltransferase Using Fluorescently Tagged Synthetic Acceptors. *Methods in Molecular Biology*, **2019**, 1954, 245-253	1.4	
3	Periplasmic Events in the Assembly of Bacterial Lipopolysaccharides214-234		
2	Capsules and Secreted Extracellular Polysaccharides **2018**, 604-604		
1	Correction for Sande and Whitfield, "Capsules and Extracellular Polysaccharides in Escherichia coli and Salmonella".. *EcoSal Plus*, **2022**, eesp00072022	7.7	