

Supporting Information Table S1

Detailed list of cell wall glycan-directed monoclonal antibodies (mAbs) used for glycome profiling analyses. The groups of antibodies are based on a hierarchical clustering of ELISA data generated from a screen of all mAbs against a comprehensive panel of plant polysaccharide preparations [1, 2] that clusters mAbs according to the predominant polysaccharides recognized. The majority of listings link to the *WallMabDB* plant cell wall monoclonal antibody database (<http://www.wallmabdb.net>) that provides detailed descriptions of each mAb, including immunogen, antibody isotype, epitope structure (to the extent known), supplier information, and related literature citations.

<u>Glycan Group Recognized</u>	<u>mAb Names</u>	<u>Epitope (If Known)</u>
Non-Fucosylated Xyloglucan-1	CCRC-M95 CCRC-M101	
Non-Fucosylated Xyloglucan-2	CCRC-M104 CCRC-M89 CCRC-M93 CCRC-M87 CCRC-M88	
Non-Fucosylated Xyloglucan-3	CCRC-M100 CCRC-M103	
Non-Fucosylated Xyloglucan-4	CCRC-M58 CCRC-M86 CCRC-M55 CCRC-M52 CCRC-M99	
Non-Fucosylated Xyloglucan-5	CCRC-M54 CCRC-M48 CCRC-M49 CCRC-M96 CCRC-M50 CCRC-M51 CCRC-M53	

Non-Fucosylated Xyloglucan-6	CCRC-M57
Fucosylated Xyloglucan	CCRC-M102 CCRC-M39 CCRC-M106 CCRC-M84 CCRC-M1 (α -Fuc-(1,2)- β -Gal) epitope in fucosylated xyloglucan [3]
Xylan-1/XG	CCRC-M111 CCRC-M108 CCRC-M109
Xylan-2	CCRC-M119 CCRC-M115 CCRC-M110 CCRC-M105
Xylan-3	CCRC-M117 CCRC-M113 CCRC-M120 CCRC-M118 CCRC-M116 CCRC-M114
Xylan-4	CCRC-M154 Arabinosylated xylan epitopes [4] CCRC-M150 Both homo- and arabinosylated xylan epitopes [4]
Xylan-5	CCRC-M144 CCRC-M146 CCRC-M145 Methyl GlcA substituted xylan (Hahn, M.G, unpublished data)

	CCRC-M155	Methyl GlcA substituted xylan (Hahn, M.G, unpublished data)
Xylan-6	CCRC-M153	Homoxylyan epitopes DP>4 [4]
	CCRC-M151	Homoxylyan epitopes DP>4 [4]
	CCRC-M148	Homoxylyan epitopes DP>4 [4]
	CCRC-M140	Homoxylyan epitopes DP>4 [4]
	CCRC-M139	Homoxylyan epitopes DP>4 [4]
	CCRC-M138	Homoxylyan epitopes DP>4 [4]
Xylan-7	CCRC-M160	Homoxylyan epitopes DP>3 [4]
	CCRC-M137	Homoxylyan epitopes DP>3 [4]
	CCRC-M152	Homoxylyan epitopes DP>3 [4]
	CCRC-M149	Homoxylyan epitopes DP>3 [4]
Galactomannan-1	CCRC-M75	
	CCRC-M70	
	CCRC-M74	
Galactomannan-2	CCRC-M166	
	CCRC-M168	
	CCRC-M174	
	CCRC-M175	
Acetylated Glucomannan	CCRC-M169	[5]
	CCRC-M170	
β -Glucan	LAMP	1,3 β -glucan [6]
	BG1	1,3; 1,4 β -glucan [7]

HG
Backbone-1

CCRC-M131

CCRC-M38 de-esterified α -1,4 linked homogalcturonan (HG) epitope [1]
JIM5 Partially methyl esterified or de-esterified α -1,4 linked homogalcturonan (HG) epitope [8]

HG
Backbone-2

JIM136

JIM7 Partially methyl esterified α -1,4 linked homogalcturonan (HG) epitope [8]

RG-I
Backbone

CCRC-M69 [4)- α -D-GalpA-(1,2)- α -L-Rhap-(1,_n) of RG-I backbone (Hahn, M.G, unpublished data)
CCRC-M35 [4)- α -D-GalpA-(1,2)- α -L-Rhap-(1,) of RG-I backbone [9]
CCRC-M36 [4)- α -D-GalpA-(1,2)- α -L-Rhap-(1,) of RG-I backbone (Hahn, M.G, unpublished data)
CCRC-M14 [4)- α -D-GalpA-(1,2)- α -L-Rhap-(1,) of RG-I backbone (Hahn, M.G, unpublished data)
CCRC-M129 [4)- α -D-GalpA-(1,2)- α -L-Rhap-(1,) of RG-I backbone (Hahn, M.G, unpublished data)
CCRC-M72 [4)- α -D-GalpA-(1,2)- α -L-Rhap-(1,) of RG-I backbone (Hahn, M.G, unpublished data)

Linseed Mucilage

JIM3

RG-I	CCRC-M40 CCRC-M161 CCRC-M164
Physcomitrella Pectin	CCRC-M98 CCRC-M94
RG-Ia	CCRC-M5 CCRC-M2
RG-Ib	JIM137 JIM101 CCRC-M61 CCRC-M30
RG-Ic	CCRC-M23 CCRC-M17 CCRC-M19 CCRC-M18 CCRC-M56 CCRC-M16
RG-I/Arabinogalactan	CCRC-M60 CCRC-M41 CCRC-M80 CCRC-M79 CCRC-M44 CCRC-M33 CCRC-M32 CCRC-M13 CCRC-M42 CCRC-M24 CCRC-M12 CCRC-M7 β -(1,6)-Gal) DP>3 [10] CCRC-M77 CCRC-M25 CCRC-M9

	CCRC-M128
	CCRC-M126
	CCRC-M134
	CCRC-M125
	CCRC-M123
	CCRC-M122
	CCRC-M121
	CCRC-M112
	CCRC-M21
	JIM131
	CCRC-M22
	JIM132
	JIM1
	CCRC-M15
	CCRC-M8
	JIM16

Arabinogalactan-1	JIM93
	JIM94
	JIM11
	MAC204
	JIM20

Arabinogalactan-2	JIM14
	JIM19
	JIM12
	CCRC-M133
	CCRC-M107

Arabinogalactan-3	JIM4
	CCRC-M31
	JIM17
	CCRC-M26
	JIM15
	JIM8
	CCRC-M85
	CCRC-M81
	MAC266

PN 16.4B4

Arabinogalactan-4
MAC207
JIM133
JIM13
CCRC-M92
CCRC-M91
CCRC-M78

Unidentified
MAC265
CCRC-M97

References

1. Pattathil S, Avci U, Baldwin D, Swennes AG, McGill JA, Popper Z, Bootten T, Albert A, Davis RH, Chennareddy C *et al*: **A comprehensive toolkit of plant cell wall glycan-directed monoclonal antibodies**. *Plant Physiol* 2010, **153**(2):514-525.
2. Pattathil S, Avci U, Miller JS, Hahn MG: **Immunological approaches to plant cell wall and biomass characterization: Glycome Profiling**. *Methods Mol Biol* 2012, **908**:61-72.
3. Puhlmann J, Bucheli E, Swain MJ, Dunning N, Albersheim P, Darvill AG, Hahn MG: **Generation of monoclonal antibodies against plant cell-wall polysaccharides. I. Characterization of a monoclonal antibody to a terminal alpha-(1-->2)-linked fucosyl-containing epitope**. *Plant Physiol* 1994, **104**(2):699-710.
4. Schmidt D, Schuhmacher F, Geissner A, Seeberger PH, Pfrengle F: **Automated synthesis of arabinoxylan-oligosaccharides enables characterization of antibodies that recognize plant cell wall glycans**. *Chemistry* 2015, **21**(15):5709-5713.
5. Zhang X, Rogowski A, Zhao L, Hahn MG, Avci U, Knox JP, Glibert HJ: **Understanding how the complex molecular architecture of mannan-degrading hydrolases contributes to plant cell wall degradation**. *J Biol Chem* 2014, **289**:2002-2012.
6. Meikle PJ, Bonig I, Hoogenraad NJ, Clarke AE, Stone BA: **The location of (1-->3)-beta-glucans in the walls of pollen tubes of *Nicotiana alata* using a (1-->3)-beta-glucan-specific monoclonal antibody**. *Planta* 1991, **185**(1):1-8.
7. Meikle PJ, Hoogenraad NJ, Bonig I, Clarke AE, Stone BA: **A (1-->3,1-->4)-beta-glucan-specific monoclonal antibody and its use in the quantitation and immunocytochemical location of (1-->3,1-->4)-beta-glucans**. *Plant J* 1994, **5**(1):1-9.
8. Clausen MH, Willats WG, Knox JP: **Synthetic methyl hexagalacturonate hapten inhibitors of anti-homogalacturonan monoclonal antibodies LM7, JIM5 and JIM7**. *Carbohydr Res* 2003, **338**(17):1797-1800.

9. Young RE, McFarlane HE, Hahn MG, Western TL, Haughn GW, Samuels AL: **Analysis of the Golgi apparatus in Arabidopsis seed coat cells during polarized secretion of pectin-rich mucilage.** *Plant Cell* 2008, **20**(6):1623-1638.
10. Steffan W, Kovac P, Albersheim P, Darvill AG, Hahn MG: **Characterization of a monoclonal antibody that recognizes an arabinosylated (1-->6)-beta-D-galactan epitope in plant complex carbohydrates.** *Carbohydr Res* 1995, **275**(2):295-307.