

PLANT CELL WALL MONOCLONAL ANTIBODIES

>50 rat antibody hybridoma cell lines

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Notes on the selection and use of our MAbs

The LM- and other series of monoclonal antibodies (MAbs) available from Leeds/PlantProbes and now other outlets (including **Kerafast**, **Megazyme**) is a large resource of probes for the analysis of plant cell wall carbohydrates. If you require a specific antibody/epitope then that can be straightforward. If you wish to study and explore wider aspects of cell walls using a panel of antibodies that can detect a range of glycans then we have series of **recommended MAbs** for polysaccharide classes.

For pectic HG we recommend the combined use of **LM19** (unesterified HG) and **LM20** for high methylester HG. **JIM7** is also always additionally recommended for any analysis as it binds widely to pectin.

For detection of xyloglucan we recommend the high affinity **LM25** and for heteromannan **LM21**.

There is a range of probes for heteroxylan – the core two to use would be **LM11** that binds to 1,4-xylosyl residues and **LM28** to glucuronosyl residues. The often different binding patterns of **LM10** and **LM11** is now known to arise from the specific recognition by **LM10** of the non-reducing end (NRE) of xylans.

It can be hard to predict which AGP MAb to select as these glycan epitopes vary between tissues, organs and species. **JIM13** and **LM2** are a good place to start as they usually detect something in a section or an extract. Do not forget that a single AGP glycan epitope is unlikely to detect all AGPs in an organ. For starting with extensins we suggest the use of **LM1** and **JIM20**.

Pectic polysaccharides

Homogalacturonan (HG) / related

LM19 partially Me-HG / no ester (34)

LM20 partially Me-HG (34)

JIM7 partially Me-HG (6,22,26)

LM7 partially Me-HG / non-blockwise, (24,26)

JIM5 partially Me-HG / no ester (1,6,22,26)

LM18 partially Me-HG / no ester (34)

PAM1 blockwise de-esterified HG (17,22,23,30)

LM8 xylogalacturonan (27)

Rhamnogalacturonan-I

Galactan +

LM5 NRE (1→4)-β-D-galactan (15,18-20,42)

LM26 branched (1,6-Gal) (1→4)-β-D-galactan (45)

Arabinan +

LM6⁺ (1→5)-α-L-arabinan (16,18-20,23,31,34)

LM6-M (1→5)-α-L-arabinan (46)

LM13 linearised (1→5)-α-L-arabinan (33,35)

Other

LM16 processed arabinan/put. galactan stub (35)

LM9 feruloylated (1→4)-β-D-galactan (28)

LM12[‡] ferulic acid, feruloylated pectin (38)

⁺May also bind to AGPs

[‡]Can also bind to feruloylated heteroxylan

Non-cellulosic, non-pectic polysaccharides

Xyloglucan

LM15 XXXG motif of xyloglucan (32,44)

LM24 galactosylated xyloglucan (38)

LM25 XXXG/galactosylated xyloglucan (38)

Heteromannan

LM21 heteromannan (36)

LM22 heteromannan (36)

Heteroxylan

LM10 NRE (1→4)-β-D-xylan (29,44)

LM11 (1→4)-β-D-xylan / arabinoxylan (29)

LM28 glucuronoxylan (40)

LM12[‡] ferulic acid, feruloylated xylan (38)

LM27 unknown epitope assoc. grass xylan (40)

[‡]Can also bind to feruloylated pectin

Plant cell wall proteoglycans/glycoproteins

Arabinogalactan-protein (AGP) glycan

LM2 β-linked-GlcA in AGP glycan (13,14)

LM14 GlcA in AGP glycan (33,38)

LM30 AGP glycan (43)

JIM4 AGP glycan (3,5,13)

JIM13 AGP glycan (7,13)

JIM14 AGP glycan (7,13,44)

JIM15 AGP glycan (7,13)

JIM16 AGP glycan (7,13,44)

MAC207 AGP glycan (2,3,13)

Extensin

LM1 extensin (11)

JIM11 extensin (8)

JIM12 extensin (8)

JIM19 extensin (8,9,10)

JIM20 extensin (8,9)

NRE = epitope at non-reducing end of glycan

Other cell wall related MAbs

LM23 non-acetylated xylosyl in xylogalacturonan, xylan, fucoidan preps (37,38, 39)

LM4 pea amine oxidase, cell walls (21,25)

JIM18 glyco-phospholipid, membranes (9,12)

JIM1 β-linked-galactosyl, plasma membrane (4)

Brown algal cell wall polysaccharides

Fucoidan

BAM1 un-sulfated epitope present in sulfated fucan/fucoidan preparations (39)

BAM2 sulfated epitope present in sulfated fucan/fucoidan preparations (39)

BAM3 possibly sulfated epitope present in sulfated fucan/fucoidan preparations (39)

BAM4 sulfated epitope present in sulfated fucan/fucoidan preparations (39)

Alginate

BAM6 mannuronate-rich epitope (41)

BAM7 mannuronate-guluronate (41)

BAM8 mannuronate-guluronate (41)

BAM9 mannuronate-guluronate (41)

BAM10 mannuronate-guluronate epitope resistant to alginate lyase (41)

BAM11 ~7 guluronate residues (41)

If you have specific questions about our MAb specificities or use please enquire at j.p.knox@leeds.ac.uk or at antibodies@plantprobes.net

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PlantProbes
www.plantprobes.net

MAb selections now also available
from Kerafast

<https://www.kerafast.com/cat/799/paul-knox-phd>

and Megazyme

<https://www.megazyme.com/shop-all-products/antibodies>

Brown algal MAb BAM-series available
from SeaProbes

<http://www.sb-roscoff.fr/en/seaprobes>

Spring 2021