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Histochemical Reagents

Aniline blue fluorochrome for callose

An analytical probe for (1→3)-ß-D-glucans (callose). Highly specific for (1→3)-ß-glucans [Evans et al. (1984) *Carbohydrate polymers* **4**: 215-230; Stone et al. (1984) Protoplasma **122**: 191-195]. May be used for the quantitative determination of callose [Kauss (1989) Plant Physiol. **81**: 171-176] and in fluorescence assays for (1→3)-ß-glucan synthase products.

Yariv reagents for arabinogalactan-proteins (AGPs)

Specific probes for the detection of AGPs in tissue sections [Anderson *et al.* (1977) *Aust. J. Plant Physiol.* **4**: 143-158]. May be used to detect and quantify AGPs in tissue extracts [van Holst & Clarke (1985) *Anal Biochem.* **148**: 446-450] and to detect AGPs in crossed-electrophoretic separations. [van Holst & Clarke (1986) *Plant Physiol.* **80**: 786-798].

Gum arabic: an arabinogalactan-protein (AGP)

Gum Arabic AGP is used as a reference standard in many methods involving detection, quantification and analytical analyses of AGP's from plant tissues.

Immunohistochemical Reagents

Monoclonal antibodies (Murine)

To (1→3)-ß-D-glucan

- No cross-reactivity with (1→4)-ß-D-glucans or (1→3,1→4)-ß-D-glucans [Meikle *et al.* (1991) *Planta* **188**: 1-8].

To (1→3,1→4)-ß-D-glucan

- No cross-reactivity with (1→3)-ß-D-glucans or (1→4)-ß-D-glucans [Meikle *et al.* (1994) *The Plant Journal* **5**: 1-9].

To (1→4)-ß-D-mannan and galacto-(1→4)-ß-D-mannan

- [Pettolino *et al.* (2001). *Planta.* **214**: 235-242]

To arabinogalactan-proteins (under licence from University of Leeds, UK)

- Arabinogalactan-proteins, terminal glucuronsyl residues (LM2) [Smallwood *et al.* (1996). *Planta* **198**: 452-459.]
- Arabinogalactan-proteins, ß-GlcA-(1-3)-α-GalA-(1-2)-Rha epitope (JIM13) [Knox *et al.* (1991). *Plant Journal* **1**: 317-326.]

To heteroxylans (under licence from University of Leeds, UK)

- (1-4)-ß-D-xylan (LM11) [McCartney *et al.* (2005). *J. Histochemistry & Cytochemistry* **53(4)**: 543-546.]
- Heteroxylan, glucuronoxylan (LM28) [Cornuault *et al.* (2015). *Planta* **242(6)**: 1321-1334.]

To xyloglucans (LM25) (under licence from University of Leeds, UK)

- [Pedersen *et al.* (2012). *J. Biological Chemistry* **287(47)**: 39429-39438.]

To pectic polysaccharides (under licence from University of Leeds, UK)

- Pectic (1-5)-α-L-arabinan (LM6) [Willats *et al.* (1998). *Carbohydrate Research* **308(1-2)**: 149-152.]
- Branched pectic galactan (LM26) [Torode *et al.* (2018). *Plant Physiology* **176(2)**: 1547-1558.]
- Pectic (1,4)-ß-D-galactan (LM5) [Jones *et al.* (1997). *Plant Physiology* **113(4)**: 1405-1412.]
- Pectic unesterified homogalacturonan (LM19) [Verhertbruggen *et al.* (2009). *Carbohydrate Research* **344(14)**: 1858-1862.]
- Pectic methylesterified homogalacturonan (LM20) [Verhertbruggen *et al.* (2009). *Carbohydrate Research* **344(14)**: 1858-1862.]
- Pectic methylesterified homogalacturonan (JIM7) [Knox *et al.* (1990). *Planta* **181(4)**: 512-521.]

To extensins (under licence from University of Leeds, UK)

- Extensin (JIM20) [Smallwood *et al.* (1994). *The Plant Journal* **5(2)**: 237-246.]
- Extensin (LM1) [Smallwood *et al.* (1995). *Planta* **196(3)**: 510-522]

Each of these antibodies can be used with second stage, gold- or fluorochrome-labelled rabbit, anti-mouse antibody for immunohistochemical studies.

Enzymes

(1→3,1→4)-ß-D-Glucan Hydrolase *from Bacillus subtilis (EC 3.2.1.73)*

Specifically hydrolyses -ß-D-glucans containing both (1→3) and (1→4)-ß-D-glucosidic linkages in linear sequences. Does not hydrolyse (1→4)-ß-D-glucans or (1→3)-ß-D-glucans. [Anderson & Stone (1975) *FEBS Letters* **52**: 202-207].

Substrates

Pachyman [(1→3)-ß-D-glucan] ex *Poria cocus*

Useful as a positive control in fluorescence microscopy studies on callose using the aniline blue fluorochrome or (1→3)-ß-D-glucan specific monoclonal antibody.

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