rBC2LCN
recombinant lectins
Undifferentiated human ES/iPS cell recognition

BC2L-C is a soluble lectin expressed by the gram-negative bacteria *Burkholderia cenocepacia*. The N-terminal domain of this lectin (BC2LCN) binds exclusively to undifferentiated pluripotent stem (iPS) cells. Wako’s recombinant BC2LCN (AiLecS1) has been shown to bind to a mucin-type O-glycan comprising an H type 3 structure on the protein podocalyxin. Podocalyxin is a hyperglycosylated transmembrane protein highly expressed in human iPS and embryonic stem (ES) cells. This recombinant lectin serves as an effective and specific ligand for detection of undifferentiated human embryonic stem (ES) and iPS cells in a range of applications.

- *E. coli* expressed *Burkholderia cenocepacia* lectin (BC2LCN)
- Target glycan: Fucα1-2Galβ1-3GalNAc (H type 3), Fucα1-2Gaβ1-3GlcNAc (H type 1)
- Ready to use rBC2LCN solution for glycobiology applications and in-house labelling
- Pre-labelled lectin for cell imaging – choice of green, red or yellow fluorochrome
- Suitable for flow cytometry, cytological staining and live cell imaging

Live cell stain (live Cell Imaging)
Seen opposite human iPS cell line 201B7 stained with (A) rBC2LCN-FITC and pluripotent stem cell markers (B) Tra-1-60, (C) Tra-1-81 and (D) SSEA-4 with corresponding Bright Field (E-H) comparison.

Cytological staining of fixed cells
Seen opposite hiPS cell line 201B7 stained with (A) rBC2LCN-FITC, pluripotent stem cell marker (B) Oct3/4 and (C) nuclear stain DAPI with (D) merged image.

Wako’s range of rBC2LCN reagents for regenerative and developmental biology research were developed in collaboration with the National Institute of Advanced Industrial Science and Technology, Japan.

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Cat. No. | Description | Pack Size
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029-18061 | rBC2LCN Lectin Solution (unlabelled) | 1mg
025-18063 | rBC2LCN Lectin Solution (unlabelled) | 5 x 1mg
180-02992 | rBC2LCN-FITC (λex = 495nm, λem = 520nm) | 100µl
186-02993 | rBC2LCN-FITC (λex = 495nm, λem = 520nm) | 5 x 100µl
185-03161 | rBC2LCN-635 (λex = 634nm, λem = 654nm) | 100µl
181-03163 | rBC2LCN-635 (λex = 634nm, λem = 654nm) | 5 x 100µl
186-03211 | rBC2LCN-547 (λex = 551nm, λem = 565nm) | 100µl
182-03213 | rBC2LCN-547 (λex = 551nm, λem = 565nm) | 5 x 100µl

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The low toxicity of the rBC2LCN lectins enables live cell imaging and presents a valuable tool for monitoring the differentiation status of iPS and ES cultures before, during and after exposure to programming stimuli. The labelled lectin can be added directly to culture media to visualise undifferentiated cells. Wako also offer rBC2LCN stripping solution, allowing removal of the rBC2LCN Lectin post-imaging and continuation of culture. Alternatively, the cells can be re-probed with additional antibodies.

Sub-populations of differentiated and undifferentiated cells may co-exist, as below. These recombinant lectin probes offer potential to visually monitor cultures for sub-populations.

The tumorigenic potential of residual pluripotent stem cells hinders application of stem-cell-based therapy research. Wako have produced a lectin-toxin fusion protein that can be used to selectively eliminate undifferentiated cells with in a culture, helping to address this complication4.

Detection of Mixed Populations
ES (WA01) Cells stained with rBC2LCN-635 and Hoechst33342. Top Panel: ES cells maintained in undifferentiated state. Bottom panel: sup-population of differentiated cells stained with Hoechst but not rBC2LCN.

Elimination of undifferentiated cells
Human iPS 201B7 incubated for 48h in culture media (Top Panel) and with rBC2LCN-PE23 (Bottom Panel).

Ordering Information

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