Validation data for β-GlcCer

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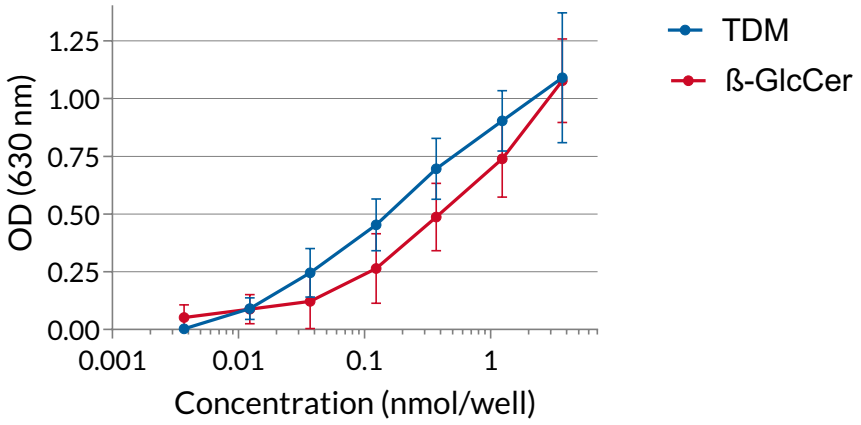
Version 19H05-MM

Beta-glucosylceramide (β-GlcCer) is a glycolipid that activates the macrophage-inducible C-type lectin (Mincle) receptor. Mincle is a member of the Dectin-2 family, that recognizes a variety of exogenous and endogenous stimuli, such as mycobacteria, certain fungi, and necrotic cells. β-GlcCer, an intracellular metabolite, is recognized as a damage-associated molecular pattern (DAMP) and associated with cell death.

Using InvivoGen's HEK-Blue™ Mincle reporter cells, which co-express an NF-κB-inducible SEAP (secreted embryonic alkaline phosphatase) reporter protein and Mincle, β-GlcCer was identified as an endogenous Mincle agonist and compared to the mycobacteria-derived trehalose-6,6-dimycolate (TDM), an extensively studied exogenous Mincle agonist[1]. Stimulation of InvivoGen's HEK-Blue™ hMincle reporter cells with β-GlcCer results in a dose-dependent induction of the NF-κB signaling pathway (data shown below). Upon β-GlcCer recognition, Mincle interacts with the Fc receptor common γ-chain (FcRγ) triggering Syk-dependent signaling resulting in NF-κB, NFAT, and AP-1 activation[1].

1. Nagata M. *et al.*, 2017. Intracellular metabolite β-glucosylceramide is an endogenous Mincle ligand possessing immunostimulatory activity. PNAS. 114(16): E3285-E3294.

Evaluation of β-GlcCer in HEK-Blue™ hMincle cells



Response of HEK-Blue™ hMincle cells to β-GlcCer and TDM.
HEK-Blue™ hMincle cells were stimulated with increasing concentrations of β-GlcCer and TDM. After overnight incubation, the NF-κB response was determined using QUANTI-Blue™ Solution, a SEAP detection reagent, and by reading the optical density (OD) at 630 nm.

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