Validation data for ADP-Heptose

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Version 21F08-ED

InvivoGen has synthesized and purified ADP-D-*glycero*-β-D-*manno*-heptose (ADP-Heptose; D isomer), an intermediary sugar in the biosynthesis of lipopolysaccharide (LPS), an essential component of the outer mebrane of Gram-negative bacteria. ADP-Heptose has been identified as a potent pathogen associated molecular pattern (PAMP) that binds to the cytosolic pattern recognition receptor (PRR) ALPK1 and activates the ALPK1-TIFA signaling pathway. Ultimately, ADP-Heptose induces a pro-inflamamtory NF-κB-dependent response in host cells **(Figure 1)**.

Functional validation of ADP-Heptose

Stimulation of InvivoGen's HEK-Blue™ Null1-v cells (red), which express a NF-κB-inducible secreted embryonic alkaline phosphatase (SEAP), with ADP-Heptose results in a clear dose-dependent response. Furthermore, this activation is dependent upon ALPK1 and TIFA, with no response observed in the dervied knockout (KO) cell lines, HEK-Blue™ KO ALPK1 (yellow) and HEK-Blue™ KO-TIFA (blue) cells.

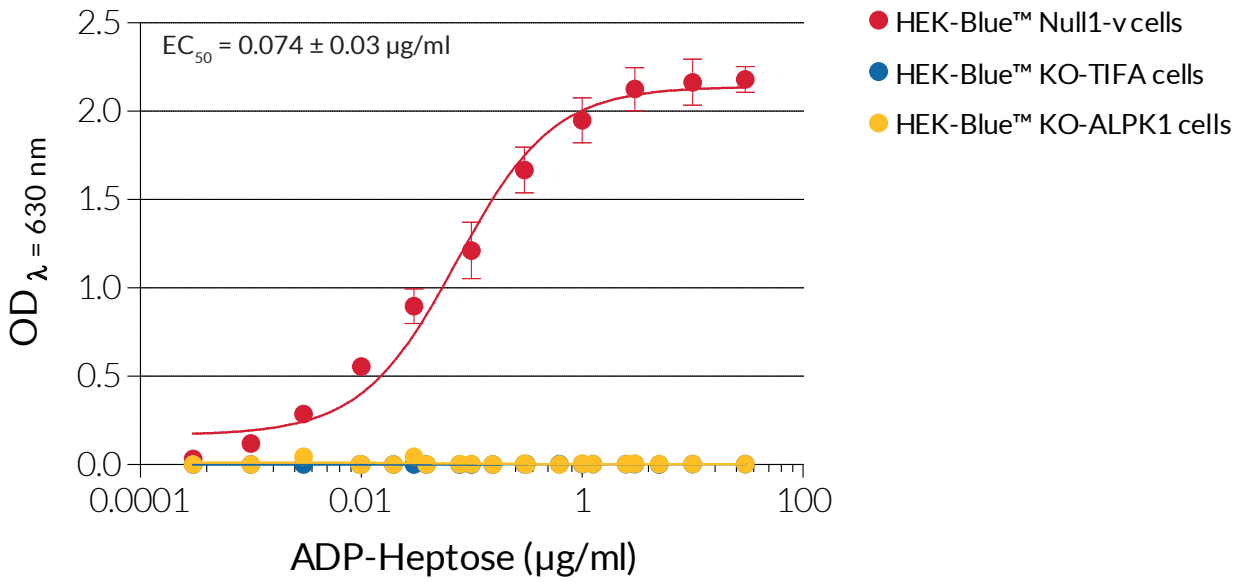

Figure 1: ADP-Heptose induced NF-κB response. HEK-Blue™ Null1-v, HEK-Blue™ KO-ALPK1, and HEK-Blue™ KO-TIFA cells were incubated with increasing concentrations of ADP-Heptose (0 - 30 µg/ml). After overnight incubation, the NF-κB response was assessed by measuring the activity of SEAP in the supernatant using QUANTI-Blue™ Solution, a SEAP detection reagent. Data are presented as optical density (OD) at 630 nm (mean ± SEM). EC_{50} value is indicated (± std error).

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