

Validation data for HEK-Blue™ hTLR7 cells

<https://www.invivogen.com/hek-blue-htr7>

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HEK-Blue™ hTLR7 cells are designed for studying the human TLR7 (hTLR7) signaling by monitoring the activation of NF-κB/AP1. These cells are derived from the human embryonic kidney HEK293 cell line. They express the hTLR7 gene, and an NF-κB/AP1-inducible secreted embryonic alkaline phosphatase (SEAP) reporter gene. Levels of SEAP produced upon TLR7 activation can be easily determined in real-time with HEK-Blue™ Detection cell culture medium which offers a one-step colorimetric monitoring of SEAP levels. HEK-Blue™ hTLR7 cells respond in a dose-dependent manner to synthetic base analogs, such as TLR7-specific base analogs including CL264, Imiquimod, Gardiquimod, or TLR7/8-specific base analogs including R848 (Resiquimod), CL097, and CL075. These cells do not respond to the TLR8-specific agonist TL8-506 (Figure 1). Importantly, HEK-Blue™ hTLR7 cells do not respond to the TLR8-specific agonist ssRNA40 (a single-stranded RNA sequence from HIV-1) (Figure 2). Of note, there are discrepancies in the functional activities between human and mouse TLR7 (Figure 2).

Cellular response to synthetic base analogs

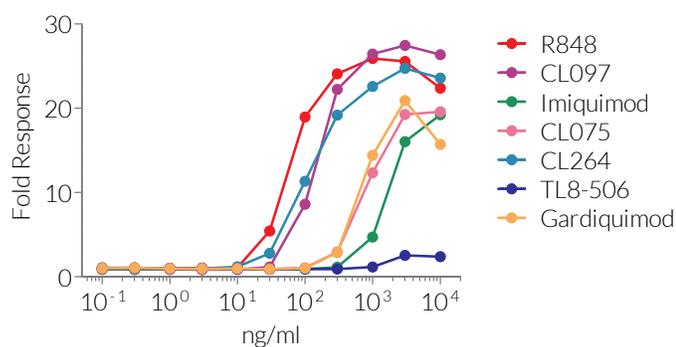


Figure 1: Dose-response of HEK-Blue™ hTLR7 cells to synthetic base analogs. HEK-Blue™ hTLR7 cells were cultured in HEK-Blue™ Detection medium with increasing concentrations of TLR7 agonists (CL264, Imiquimod, Gardiquimod), TLR7/8 agonists (R848, CL097, CL075), or a TLR8 agonist (TL8-506). After 24h incubation, TLR7-induced NF-κB/AP1 responses were assessed by measuring SEAP levels in the supernatant by reading the OD at 630 nm. OD fold increase over non-induced cells is shown.

Human and Mouse TLR7-induced responses

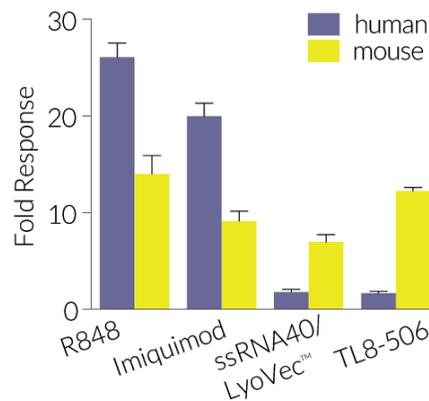


Figure 2: Species-driven TLR7 differential responses. HEK-Blue™ hTLR7 or mTLR7 were cultured in HEK-Blue™ Detection medium with 1 µg/ml R848 (TLR7/8 agonist), 3 µg/ml Imiquimod (TLR7 agonist), 5 µg/ml ssRNA40/LyoVec™ (referred as human TLR8 agonist), or 1 µg/ml TL8-506 (TLR8 agonist, VTX-2337 analog). After 24h incubation, TLR7-induced NF-κB/AP1 responses were assessed by measuring SEAP levels in the supernatant by reading the OD at 630 nm. OD fold increase over non-induced cells is shown.

TECHNICAL SUPPORT

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