

Validation data for THP1-Dual™ hTLR7 KO-TLR8 cells

<https://www.invivogen.com/thp1-dual-htlr7-htlr8>

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Version 23J23-AK

THP1-Dual™ hTLR7 KO-TLR8 cells were generated from the THP1-Dual™ cell line through the stable expression of the human toll-like receptor 7 (hTLR7) and UNC93B1^{mut}. They also feature a complete knockout (KO) of the *hTLR8* gene, as verified by Western blot (Figure 1). Additionally, these cells express two reporter genes allowing the simultaneous study of the NF-κB pathway by monitoring the activity of an inducible SEAP (secreted embryonic alkaline phosphatase), and the IRF pathway by monitoring the activity of an inducible secreted Lucia luciferase. As expected, the THP1-Dual™ hTLR7 KO-TLR8 cells do not respond to TLR8-specific ligands, but do respond to TLR7-specific ligands, contrary to their parental cell line THP1-Dual™ (Figures 2 & 3). Of note, as THP-1 cells express endogenous levels of various TLRs, THP1-Dual™ - derived cells respond to the cognate ligands including Pam3CSK4, LPS, or flagellin.

Validation of hTLR8 knockout

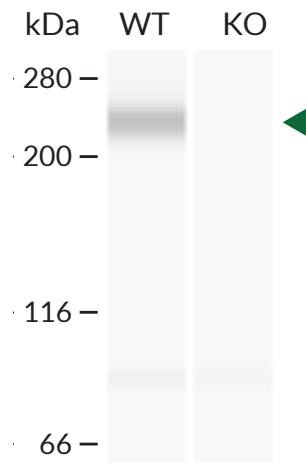


Figure 1. Validation of TLR8 KO in THP1-Dual™ hTLR7 KO-TLR8 cells. PMA-differentiated THP1-Dual™ (WT) and THP1-Dual™ hTLR7 KO-TLR8 cells (KO) were treated overnight with 20 ng/ml interferon (IFN)-γ to induce the expression of TLR8. Lysates from treated WT and KO cells were analyzed using an anti-human TLR8 antibody, followed by an HRP-conjugated anti-rabbit secondary antibody (JESS™). As expected, no band was detected in the IFN-γ treated KO cells lines in comparison with their parental (WT) cells (green arrow).

Functional validation of THP1-Dual™-derived cells (NF-κB responses)

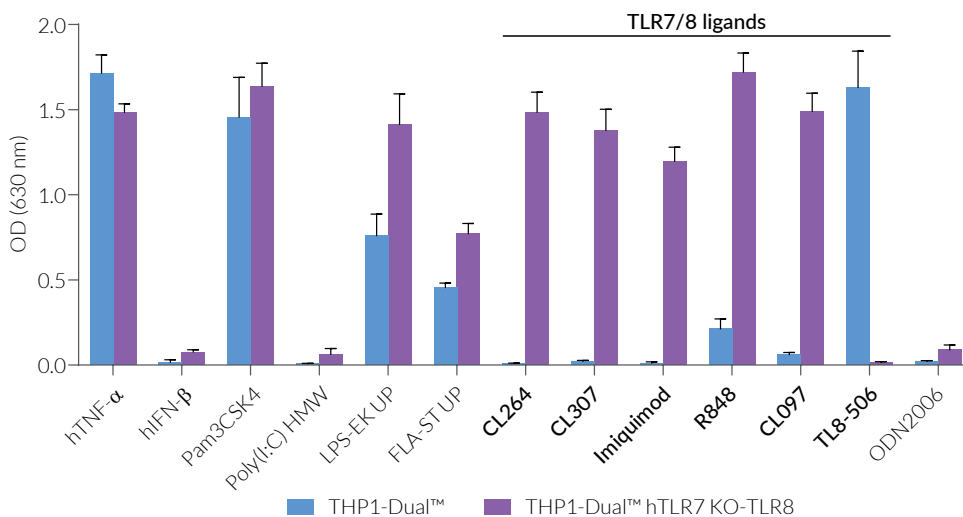


Figure 2. NF-κB responses in THP1-Dual™ -derived cells. THP1-Dual™ and THP1-Dual™ hTLR7 KO-TLR8 cells were incubated for 24 hours with various TLR agonists: Pam3CSK4 (TLR2 ligand, 10 ng/ml), Poly(I:C) HMW (TLR3 ligand, 10 μg/ml), LPS-EK Ultrapure (UP) (TLR4 ligand, 1 ng/ml), FLA-ST UP (TLR5 ligand, 1 μg/ml), CL264 (TLR7 ligand, 1 μg/ml), CL307 (TLR7 ligand, 1 μg/ml), Imiquimod (TLR7 ligand, 10 μg/ml), R848 (TLR7/8 ligand, 1 μg/ml), CL097 (TLR7/8 ligand, 1 μg/ml), TL8-506 (TLR8 ligand, 1 μg/ml), and ODN 2006 (TLR9 ligand, 10 μg/ml). Human TNF-α (1 ng/ml) was used as an NF-κB-positive control. After 24h incubation, the NF-κB-induced SEAP activity was assessed using QUANTI-Blue™. Data are shown as optical density (OD) at 630 nm (mean ± SEM).

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Functional validation of THP1-Dual™-derived cells (IRF response)

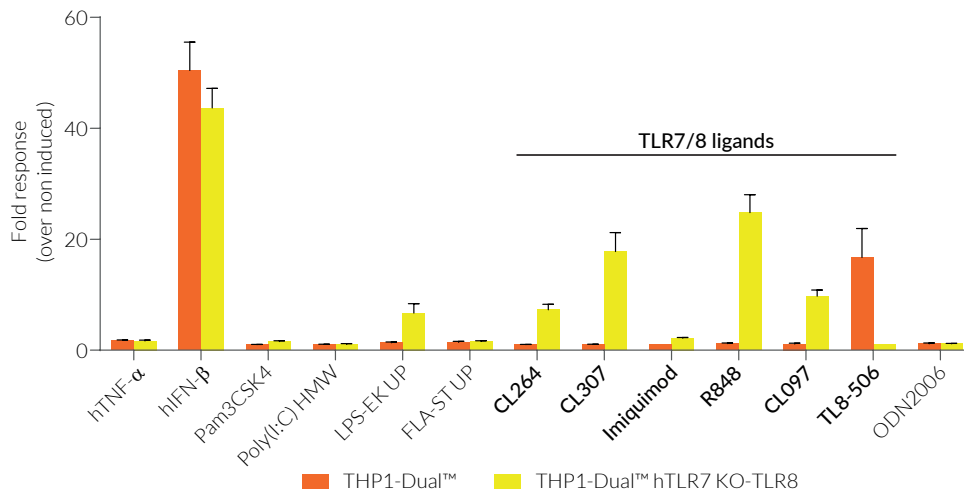


Figure 3. IRF responses in THP1-Dual™-derived cells. THP1-Dual™ and THP1-Dual™ hTLR7 KO-TLR8 cells were treated as described above. Human (h)IFN- β (1000 U/ml) was used as an IRF-positive control. After 24h incubation, the IRF response was assessed by measuring the activity of Lucia luciferase in the supernatant using QUANTI-Luc™. Data are shown in fold response over non-induced cells (mean \pm SEM).

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