Anti-Human TREM2 Antibody [PSH09-83] - BSA and Azide free (Capture/Detector)

HA723149

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human
Applications:	ELISA(Cap), ELISA(Det)
Clone number:	PSH09-83

Description: Forms a receptor signaling complex with TYROBP which mediates signaling and cell activation following ligand binding. Acts as a receptor for amyloid-beta protein 42, a cleavage product of the amyloid-beta precursor protein APP, and mediates its uptake and degradation by microglia. Binding to amyloid-beta 42 mediates microglial activation, proliferation, migration, apoptosis and expression of pro-inflammatory cytokines, such as IL6R and CCL3, and the anti-inflammatory cytokine ARG1. Acts as a receptor for lipoprotein particles such as LDL, VLDL, and HDL and for apolipoproteins such as APOA1, APOA2, APOB, APOE, APOE2, APOE3, APOE4, and CLU and enhances their uptake in microglia. Binds phospholipids (preferably anionic lipids) such as phosphatidylserine, phosphatidylethanolamine, phosphatidylglycerol and sphingomyelin. Regulates microglial proliferation by acting as an upstream regulator of the Wnt/beta-catenin signaling cascade. Required for microglial phagocytosis of apoptotic neurons. Also required for microglial activation and phagocytosis of myelin debris after neuronal injury and of neuronal synapses during synapse elimination in the developing brain. Regulates microglial chemotaxis and process outgrowth, and also the microglial response to oxidative stress and lipopolysaccharide. It suppresses PI3K and NF-kappa-B signaling in response to lipopolysaccharide; thus promoting phagocytosis, suppressing pro-inflammatory cytokine and nitric oxide production, inhibiting apoptosis and increasing expression of IL10 and TGFB. During oxidative stress, it promotes anti-apoptotic NF-kappa-B signaling and ERK signaling. Plays a role in microglial MTOR activation and metabolism. Regulates age-related changes in microglial numbers. Triggers activation of the immune responses in macrophages and dendritic cells. Mediates cytokine-induced formation of multinucleated giant cells which are formed by the fusion of macrophages. In dendritic cells, receptor of SEMA6D with PLEXNA1 as coreceptor and mediates up-regulation of chemokine receptor CCR7 and dendritic cell maturation and survival. Involved in the positive regulation of osteoclast differentiation.

Immunogen:	Recombinant protein within Human TREM2 Protein aa 19-174 (HA210647).
Positive control:	Recombinant Human TREM2 Protein (HA210647).
Subcellular location:	Secreted, Cell membrane.
Database links:	SwissProt: Q9NZC2 Human

Recommended Dilutions:

ELISA(Cap)	Use at an assay dependent concentration. Can be paired for Sandwich ELISA with Rabbit monoclonal [PSH09-85] to Human TREM2 antibody (Detector) (HA723151) and Recombinant Human TREM2 protein (HA210647) as the standard. The reference range value is 39-5,000pg/ml.
ELISA(Det)	Use at an assay dependent concentration. Can be paired for Sandwich ELISA with Rabbit monoclonal [PSH09-84] to Human TREM2 antibody (Capture) (HA723150) and Recombinant Human TREM2 protein (HA210647) as the standard. The reference range value is 39-5,000pg/ml.

Storage Buffer:	PBS (pH7.4).
Storage Instruction:	Store at +4℃ after thawing. Aliquot store at -20℃. Avoid repeated freeze / thaw cycles.
Purity:	Protein A affinity purified.

Images

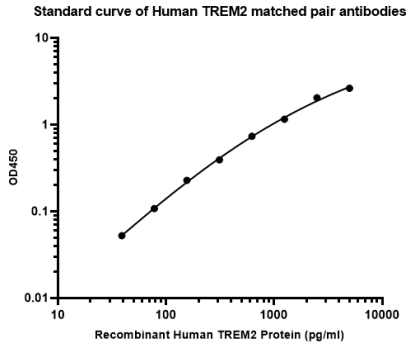

Fig1: Sandwich ELISA analysis of Human TREM2 matched pair antibodies

Elisa assay was performed by coating wells of a 96-well plate with 100 µl per well of capture antibody (HA723149) diluted in carbonate/bicarbonate buffer, at a concentration of 2ug/ml overnight at 4℃. Wells of the plate were washed, blocked with 150 µl 0.05% tween-20 1% BSA blocking buffer, and incubated with serial diluted Recombinant Human TREM2 protein (HA210647) starting from 5,000 pg/ml to 0 pg/ml and detect antibody (HA723151, Biotin, 0.2 µg/ml) for 1 hour at 30℃ with shaking. Then the plate was washed and incubated with 100 µl per well of SA-HRP for 0.5 hour at 30℃ with shaking. Detection was performed using an Ultra TMB Substrate for 10 minutes at room temperature in the dark. The reaction was stopped with sulfuric acid and absorbances were read on a spectrophotometer at 450 nm.

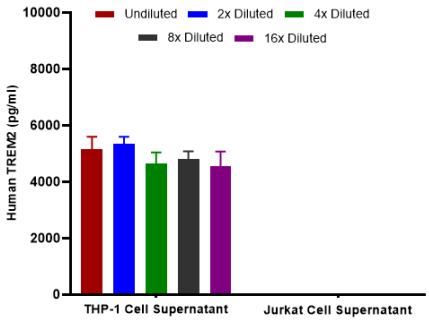

Fig2: Interpolated concentrations of native TREM2 in human cell culture supernatant samples.

Interpolated concentration of native TREM2 was measured in duplicate at different sample concentrations and interpolated from the TREM2 standard curves. Undiluted samples were 50% cell supernatant. The interpolated dilution factor corrected values were plotted (mean +/- SD, n=2). The mean TREM2 concentration was determined to be 4,912 pg/mL in THP-1 cell culture supernatant, undetectable in Jurkat cell culture supernatant.

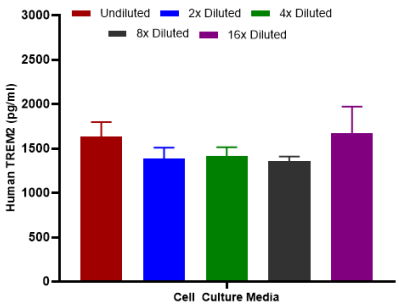

Fig3: Interpolated concentrations of spiked TREM2 in cell culture media samples.

The concentrations of TREM2 were measured in duplicates, interpolated from the TREM2 standard curves and corrected for sample dilution. Undiluted samples are as follows: cell culture media 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).

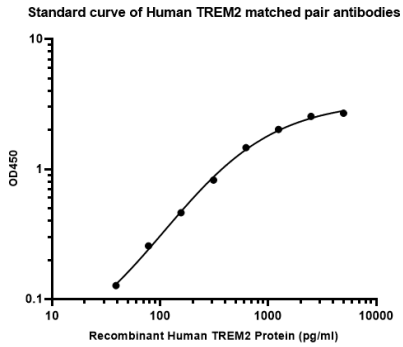

Fig4: Sandwich ELISA analysis of Human TREM2 matched pair antibodies

Elisa assay was performed by coating wells of a 96-well plate with 100 µl per well of capture antibody (HA723150) diluted in carbonate/bicarbonate buffer, at a concentration of 2ug/ml overnight at 4℃. Wells of the plate were washed, blocked with 150 µl 0.05% tween-20 1% BSA blocking buffer, and incubated with serial diluted Recombinant Human TREM2 protein (HA210647) starting from 5,000 pg/ml to 0 pg/ml and detect antibody (HA723149, Biotin, 0.2 µg/ml) for 1 hour at 30℃ with shaking. Then the plate was washed and incubated with 100 µl per well of SA-HRP for 0.5 hour at 30℃ with shaking. Detection was performed using an Ultra TMB Substrate for 10 minutes at room temperature in the dark. The reaction was stopped with sulfuric acid and absorbances were read on a spectrophotometer at 450 nm.

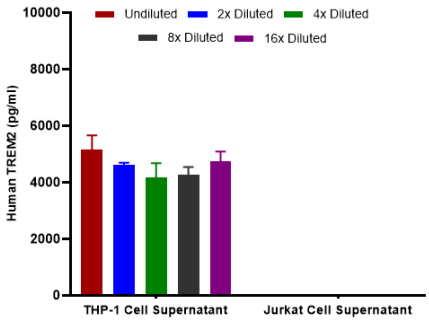

Fig5: Interpolated concentrations of native TREM2 in human cell culture supernatant samples.

Interpolated concentration of native TREM2 was measured in duplicate at different sample concentrations and interpolated from the TREM2 standard curves. Undiluted samples were 50% cell supernatant. The interpolated dilution factor corrected values were plotted (mean +/- SD, n=2). The mean TREM2 concentration was determined to be 4,597 pg/mL in THP-1 cell culture supernatant, undetectable in Jurkat cell culture supernatant.

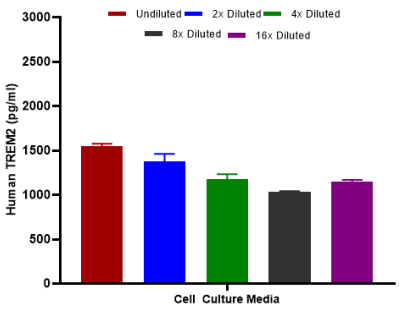

Fig6: Interpolated concentrations of spiked TREM2 in cell culture media samples.

The concentrations of TREM2 were measured in duplicates, interpolated from the TREM2 standard curves and corrected for sample dilution. Undiluted samples are as follows: cell culture media 50%. The interpolated dilution factor corrected values are plotted (mean +/- SD, n=2).

Background References

1. Qin Q et al. TREM2, microglia, and Alzheimer's disease. Mech Ageing Dev. 2021 Apr
2. Binnewies M et al. Targeting TREM2 on tumor-associated macrophages enhances immunotherapy. Cell Rep. 2021 Oct