DATASHEET

S100A8/S100A9 heterodimer (human) ELISA KIT

Cat# A05083

- Broad range of quantification
- QC included
- Sandwich format

S100A8 and S100A9 are Ca^{2+} binding proteins that belong to the S100 family, called calgranulin. **Calgranulins** are endogenous molecules released in response to environmental triggers and cellular damage. Also known as **Damage-Associated Molecular Pattern Molecules** (DAMPs), these proteins play an important role in a diverse range of physiological and pathological processes, such as host defense, wound healing, autoimmunity, oncogenesis and inflammation, among others.

S100A8 (S100 calcium-binding protein A8, calgranulin A, MRP8) and S100A9 (S100 calcium-binding protein A9, calgranulin B, MRP14) subunits are unique within the calgranulin family because they preferentially form a heterodimer. This heterodimer is termed **calprotectin**, based on its role in innate immunity. Human S100A8 and S100A9 are mainly derived from immunocytes, such as neutrophils, macrophages and monocytes. Extracellular S100A8 and S100A9 bind pattern recognition receptors (PRRs) including Toll-like receptors (TLRs) and receptor for advanced glycation end products (RAGE) to activate the **innate immune system** and mediate **inflammation** by influencing monocyte and macrophage behavior.

Given that S100A8 and S100A9 are intensely upregulated during **trauma, infection, heat, stress** and many other **inflammatory processes**, their heterodimer is a valuable candidate as both a diagnostic biomarker and a therapeutic target for inflammation-associated diseases. In particular their prognostic value is studied within septic shock context (Dubois *et al* 2020). Plasma levels of S100A8/S100A9 and S100A12 were found to be higher in septic shock patients than in healthy volunteers. Furthermore, the high level of plasma calgranulins at admission in septic shock, were higher in non-survivors compared to survivors (Dubois *et al* 2019).

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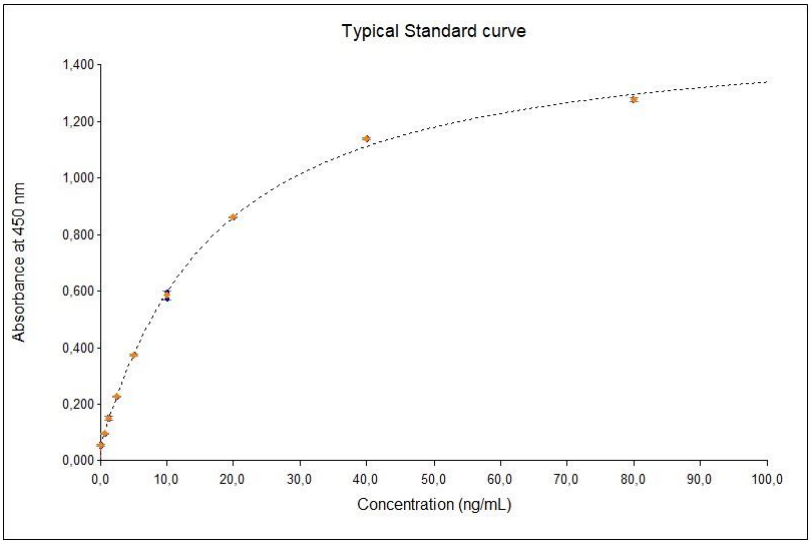
Focus on the kit

This ELISA kit is based on a sandwich technique. The wells of the plate are coated with a **monoclonal** antibody specific to S100A8/S100A9 heterodimer (human) that will bind to S100A8/S100A9 heterodimer (human) introduced into the wells (standard or sample). Then the heterodimer is detected by a second **monoclonal** antibody tagged with biotin also specific of S100A8/S100A9 heterodimer (human).

The two antibodies then form a sandwich by binding on different parts of the S100A8/S100A9 heterodimer (human). The tracer (streptavidin labelled with HRP) will then bind to the biotin. The concentration of S100A8/S100A9 heterodimer (human) is determined by measuring the enzymatic activity of immobilized tracer using TMB as substrate.

Technical features

Validated with human serum samples	Sample preparation: dilution at least at 1:100 in 1x Biotin-free ELISA Buffer
Standard range: 0.6 - 80.0 ng/mL	Limit of detection (LOD): ≤0.6 ng/mL
Inter-assay variation : 6.4% (6.0 ng/mL) – 3.9% (14.7 ng/mL) – 10.0 % (55.4 ng/mL)	Intra-assay variation : 7.1% (6.1 ng/mL) – 4.1% (14.4 ng/mL) – 11.3 % (56.5 ng/mL)
Tracer label : HRP	Alias : calprotectin, MRP8/MRP14
Storage : +4°C	Size: 96 wells



Typical S100A8/S100A9 heterodimer (human) standard curve

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