

DESCRIPTION

Source Chinese Hamster Ovary cell line, CHO-derived human MICA protein
Ala23-Gln308, with a C-terminal 6-His tag
Accession # Q29983

N-terminal Sequence Analysis Ala23

Predicted Molecular Mass 34 kDa

SPECIFICATIONS

SDS-PAGE 50-70 kDa, under reducing conditions

Activity Measured by its binding ability in a functional ELISA.
When Recombinant Human NKG2D/CD314 Fc Chimera (Catalog # 1299-NK) is immobilized at 1.0 µg/mL, 100 µL/well, the concentration of Recombinant Human MICA His-tag (Catalog # 10153-MA) that produces 50% of the optimal binding response is 0.1-0.5 µg/mL.

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in MOPS, NaCl with trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 250 µg/mL in sterile water

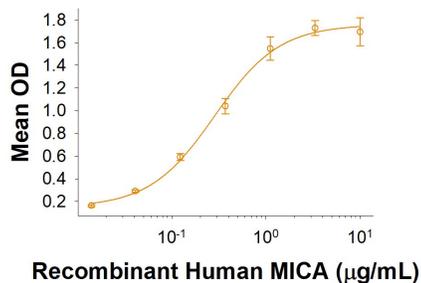
Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

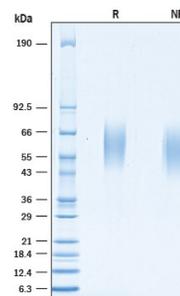
DATA

Binding Activity



When Recombinant Human NKG2D Fc Chimera (Catalog # 1299-NK) is immobilized at 1.0 µg/mL, 100 µL/well, the concentration of Recombinant MICA His-tag (Catalog # 10153-MA) that produces 50% of the optimal binding response is approximately 0.1-0.5 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human MICA His-tag (Catalog # 10153-MA) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 50-70 kDa.

BACKGROUND

Major Histocompatibility Complex Class I Chain-related Gene A (MICA) is a transmembrane glycoprotein that functions as a ligand for human Natural-Killer Group 2 Member D (NKG2D) (1). MICA, along with MICB, which shares 91% sequence identity (2), are members of the non-classical MHC class I family. The domain structure of MICA is similar to classical MHC class I proteins: three extracellular Ig-like domains ($\alpha 1$, $\alpha 2$, and $\alpha 3$) in the extracellular domain (ECD), a transmembrane segment, and a carboxy-terminal cytoplasmic tail (2). Despite structural similarities, MICA shares only 27% amino acid (aa) identity with human MHC class I proteins (3). Both MICA and MICB display a significant degree of polymorphism within the ECD and these allow MICA to be reconfigured and bind with NKG2D rather than binding with $\beta 2$ -microglobulin (4, 5). MICA genes occur in most mammalian species, but are absent from mouse and rat (2, 4). The genes encoding MICA and MICB are found within the MHC on the short arm of human chromosome 6 (2, 3). MICA is a ligand for human NKG2D, an activating receptor expressed on NK cells, NKT cells, $\gamma \delta$ T cells, and CD8+ alpha beta T cells (6). Recognition of MICA by NKG2D results in the activation of cytolytic activity and/or cytokine production by these effector cells (4, 7). MICA recognition is involved in tumor surveillance, viral infections, and autoimmune diseases (8).

References:

1. Huang, C. *et al.* (2018) *Sci. Rep.* **8**:15821.
2. Bahram, S. *et al.* (1994) *Proc. Natl. Acad. Sci. USA* **91**:6259.
3. Cosman, D. *et al.* (2001) *Immunity* **14**:123.
4. Stephens, H. A. F. *et al.* (2001) *Trends in Immunology* **22**:378.
5. Groh, V. *et al.* (1996) *Proc. Natl. Acad. Sci. USA* **93**:12445.
6. Bauer, S. *et al.* (1999) *Science* **285**:727.
7. Kawabata, Y. *et al.* (2000). *Human Immunology*. **61**: 624.
8. Bahram, S. *et al.* (1994) *Proc. Natl. Acad. Sci. USA* **91**:6259.