SANTA CRUZ BIOTECHNOLOGY, INC.

Rae-1 (N-19): sc-20331

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Natural killer (NK) cells attack tumor and infected cells, but the receptors and ligands that stimulate them are poorly understood. Two murine ligands for the lectin-like receptor NKG2D, H60 and retinoic acid early inducible (Rae-1α, β, γ, δ and ε), are distant relatives of major histocompatibility complex class I molecules. These molecules are encoded by Rae-1 and H60 minor histocompatibility antigen genes on mouse chromosome 10 and show weak homology with MHC class I. Expression of the NKG2D ligands is low or absent on normal, adult tissues; however, they are constitutively expressed on some tumors and upregulated by retinoic acid. Ectopic expression of Rae-1 and H60 confers target susceptibility to NK cell attack. NKG2D binds to H60 with approximately 25-fold higher affinity than to Rae-1. Rae-1 and H60 compete directly for occupancy of NKG2D; therefore, NKG2-D can be occupied by only one ligand at a time. Additionally, Rae-1 and H60 ligands of the NKG2-D receptor stimulate tumor immunity.

REFERENCES

1. Diefenbach, A., et al. 2000. Ligands for the murine NKG2-D receptor: expression by tumor cells and activation of NK cells and macrophages. Nat. Immunol. 1: 119-126.
2. Cerwenka, A., et al. 2000. Retinoic acid early inducible genes define a ligand family for the activating NKG2-D receptor in mice. Immunity 12: 721-727.
3. O'Callaghan, C.A., et al. 2001. Molecular competition for NKG2-D: H60 and Rae-1 compete unequally for NKG2-D with dominance of H60. Immunity 15: 201-211.
4. Diefenbach, A., et al. 2001. Rae-1 and H60 ligands of the NKG2-D receptor stimulate tumour immunity. Nature 413: 165-171.
5. Li, P., McDermott, G. and Strong, R.K. 2002. Crystal structures of Rae-1β and its complex with the activating immunoreceptor NKG2-D. Immunity 16: 77-86.
6. Carayannopoulos, L.N., et al. 2002. Ligands for murine NKG2-D display heterogeneous binding behavior. Eur. J. Immunol. 32: 597-605.

SOURCE

Rae-1 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Rae-1β of mouse origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-20331 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Rae-1 (N-19) is recommended for detection of Rae-1α, Rae-1β and Rae-1γ of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2 µg per 100–500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with Rae-1δ or Rae-1ε.

Molecular Weight of mature Rae-1: 25 kDa.

Molecular Weight of precursor Rae-1: 32 kDa.

Positive Controls: F9 cell lysate: sc-2245.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/ 2.0 ml). 3) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.