

## Anti-trans-sialidase [13G9] Standard Size Ab00762-2.0

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**Isotype and Format:** Mouse IgG2a, Kappa

**Clone Number:** 13G9

**Alternative Name(s) of Target:** TS

**UniProt Accession Number of Target Protein:** Q26966

**Published Application(s):** crystallization, neutralize, IF

**Published Species Reactivity:** Trypanosoma cruzi

**Immunogen:** 13G9 was prepared by immunizing mice with recombinant TS ( $\Delta$ 1443TS), which is fully active but includes a deletion of a non-neutralizing epitope (speeds up production of neutralizing antibodies). The antibody was selected for by screening using a TS-inhibition assay.

**Specificity:** 13G9 is a neutralizing antibody which binds specifically and with high affinity ( $K_D \sim 0.72$  nM) to a conformational epitope on the Trypanosoma cruzi TS protein – the antibody binds to TS in such a way as to prevent the movement of Y119, whose mobility has a key role in the trans-glycosidase mechanism. Specificity of binding was deduced by the absence of reactivity against TS from the closely related Trypanosoma rangeli and Trypanosoma brucei. A Fab fragment of the antibody was generated by digestion with papain - the Fab fragment possesses lower inhibitory activity against T. cruzi TS (Fab  $IC_{50} \sim 1.6$  nM; full-length mAb  $IC_{50} \sim 56$  pM). Trypanosoma cruzi is a protozoan parasite which causes Chagas' disease (or American trypanosomiasis) and its protein TS is a glycosylphosphatidylinositol-anchored non-integral membrane protein and a virulence factor which is involved in host cell invasion/survival, as well as being actively shed in the bloodstream. TS performs a glycosyl-transfer reaction to convert host glycoconjugates into sialic acids (cannot perform de novo synthesis of sialic acids, which are important for life cycle and survival).

**Application Notes:** 13G9 can be used for IF with whole parasites which allows membrane localization of TS to be observed. The antibody can inhibit TS-mediated sialylation of the parasite via the transfer of sialic acid from the environment to the surface of the parasite. Cell invasion (a process in which TS plays a key role) is also inhibited by 13G9 and was shown to greatly reduce the number of T. cruzi-infected cells. Passive transfer of 13G9 to T. cruzi-infected mice provided protection against the deleterious effects that TS has on the immune system and platelets. The 13G9 Fab fragment was also used to crystallize TS for structure studies and this allowed the binding to TS to be seen.

**Antibody First Published in:** Buschiazzi et al. Trypanosoma cruzi trans-sialidase in complex with a neutralizing antibody: structure/function studies towards the rational design of inhibitors. PLoS Pathog. 2012 Jan;8(1):e1002474. [PMID:22241998](https://pubmed.ncbi.nlm.nih.gov/22241998/)

**Note on publication:** Describes the production of 13G9 and functional and structural studies on the mAb.

## Product Form

**Size:** 200  $\mu$ g Purified antibody.

**Purification:**

Protein A affinity purified

**Supplied In:** PBS with 0.02% Proclin 300.

**Storage Recommendation:** Store at 4°C for up to 3 months. For longer storage, aliquot and store at -20°C.

**Concentration:** 1 mg/ml.

Important note – This product is for research use only. It is not intended for use in therapeutic or diagnostic procedures for humans or animals.