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Anti-Domain II of the DENV-2 envelope protein (E) [1A5] Ab03613-13.5-BT

This chimeric human antibody was made using the variable domain sequences of the original Fab format, for improved compatibility with existing reagents, assays and techniques.

Isotype and Format: Human IgG4-Fc, Kappa

Clone Number: 1A5

Alternative Name(s) of Target: Envelope protein E

UniProt Accession Number of Target Protein: P09866

Published Application(s): IP, neutralization, WB, ELISA

Published Species Reactivity: Dengue Virus

Immunogen: This antibody was generated by panning a $\gamma 1/k$ chimpanzee Fab antibody library against DENV-1, DENV-2 and DENV-3.

Specificity: This antibody is specific for domain II of DENV-2 envelope protein. The dengue virus causes the disease known as dengue fever.

Application Notes: To determine the ability of this antibody to bind to different dengue viruses an ELISA was performed. The ELISA was performed using the chimpanzee fab version of this antibody on DENV-1, DENV-2, DENV-3 and DENV-4, it bound well to all of them. Furthermore the specificity of this antibody was determined using radioimmunoprecipitation on the DENV 1 through 4, it showed binding to the envelope protein in all virus variants. The ability of this antibody to bind other flaviviruses was also determined using western blot, the strains used are DENV-1 strain Hawaii; D2, DENV-2 strain New Guinea B; D3, DENV-3 strain H87; D4, DENV-4 strain 814669; WN/D4, WNV/DENV-4 chimera; JE, JEV strain SA14-14-2; LGT, LGTV strain TP 21. It showed only little reaction with JE, JEV strain SA14-14-2; LGT, and LGTV strain TP 21 and a strong reaction with DENV-1 strain Hawaii; D2, DENV-2 strain New Guinea B; D3, DENV-3 strain H87; D4, DENV-4 strain 814669; WN/D4 and WNV/DENV-4 chimera. Finally, a neutralization assay was performed on DENV-1 strain Hawaii; D2, DENV-2 strain New Guinea B; D3, DENV-3 strain H87; D4, DENV-4 strain 814669; WN/D4, WNV/DENV-4 chimera; JE, JEV strain SA14-14-2; LGT, LGTV strain TP 21 using a humanized IgG1 version of this antibody. The antibody was able to neutralize all DENV strains at higher concentrations (Goncalvez et al, 2004; pmid:15542643). While determining the epitope of this antibody a neutralization assay was performed on DENV-2 and DENV-2/DENV-4 chimeras, substitution of Gly106Val or His317Gln in DENV-2 E caused the antibody to no longer be able to neutralize the virus. To semi quantify the affinity of

the Fab version of this antibody to DENV-2 NGB and its two variants, an ELISA was performed on DENV-2 NGB and its two variants, the second variant showed a strong reduction in binding (Goncalvez et al, 2004; PMID:15542644). An DENV-4 enhancement assay was performed on rhesus monkey primary monocytes using the humanized version of this antibody, at sub neutralizing concentrations the antibody was able to increase the viral load (Goncalvez et al, 2007; PMID:17517625).

Antibody First Published in: Goncalvez et al. Chimpanzee Fab Fragments and a Derived Humanized Immunoglobulin G1 Antibody That Efficiently Cross-Neutralize Dengue Type 1 and Type 2 Viruses. *J Virol.* 2004 Dec; 78(23): 12910–12918. [PMID:15542643](https://pubmed.ncbi.nlm.nih.gov/15542643/)

Note on publication: The phage library constructed from the chimpanzees was used to recover Fab antibodies against the other three DENV serotypes. Serotype-specific neutralizing Fabs were not identified. Instead, we recovered DENV-neutralizing Fabs that specifically precipitated the envelope protein and were cross-reactive with all four DENV serotypes.

Product Form

Size: 1 mg Purified antibody in bulk size.

Purification: Protein A affinity purified

Supplied In: PBS only.

Storage Recommendation: Store at 4°C for up to 3 months. Note, this antibody is provided without added preservatives, it is therefore recommended this antibody be handled under sterile conditions. 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.