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Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Anti-hapten 5 [17E8] Standard Size Ab04119-23.0

Isotype and Format: Rabbit IgG, Kappa

Clone Number: 17E8

Alternative Name(s) of Target: Noracine phosphonate; Norleucine phenyl phosphonate analog 1; Diphenyl [1-(1-N-Succinylamino)pentyl]phosphonate; Phosphonate transition state analog (hapten)

UniProt Accession Number of Target Protein:

Published Application(s): Catalytic assays, crystallization, ELISA

Published Species Reactivity: Species independent

Immunogen: The original antibody was generated by immunizing Balb/c mice with the KLH conjugate of hapten 5 (norleucine phenyl phosphonate analog 1; Diphenyl [1-(1-N-Succinylamino)pentyl]phosphonate).

Specificity: This antibody is specific for norleucine and methionine phenyl esters enantiomers that possess the natural S configuration (L) at the α -carbon.

Application Notes: This antibody efficiently catalyzes the hydrolysis of N-formyl norleucine phenyl ester and N-formyl methionine phenyl ester, with a preference for N-formyl esters over N-acetyl esters while demonstrating a superior catalytic activity for ester hydrolysis compared to other catalytic antibodies. The catalytic efficiency is influenced by the structural dissimilarity of the substrate to the antigen at specific positions. Notably, the original format of this antibody (mouse IgG2b) exhibits a higher affinity for ester substrates with norleucine side chains than methionine side chains. This original antibody's catalytic activity showed a bell-shaped pH dependence, reaching its maximum at pH 9.5. This pH optimum is attributed to the specific ionizable groups in the antibody's active site, contributing to efficient catalysis. Importantly, this antibody does not display significant product inhibition in kinetics experiments; although weak product inhibition is observed at higher conversion levels, it does not affect the initial rate measurements. Mechanistic studies suggest that this antibody likely forms a potentially rate-limiting covalent acyl intermediate during catalysis, supported by evidence from hydroxylamine partitioning studies (Guo et al., 1994). Crystallization of the Fab-5 complex of this antibody has been accomplished. The structure showed that it has similar active site features to natural triad-based hydrolases. Additionally, the structure showed that hapten five is buried deeply in the antigen-combining site, and there are separate and well-defined binding pockets for the phenyl group and n-butyl side chain of hapten 5 (Zhou et al., 1994; PMID: 8066444) (Wade and Scanlan, 1996).

Antibody First Published in: Guo et al. Kinetic and Mechanistic Characterization of an Efficient Hydrolytic Antibody: Evidence for the Formation of an Acyl Intermediate *Journal of the American Chemical Society*, 116(14), 6062-6069. <https://doi.org/10.1021/ja00093a002> PMID:

Note on publication: The original publication presents the generation and mechanistic characterization of

a highly active catalytic antibody that exhibits hydrolytic activity towards norleucine and methionine esters.

Product Form

Size: 100 µg 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.