Data Sheet (Cat.No.TMPY-00125)

TargetMol

Recombinant Protein A

General Information

Expression Host: E. coli

Molecular Weight: 34kD (predicted)

QC Testing

Biological Activity: Activity has not been tested. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.

Purity: > 90% by SDS-PAGE

Endotoxin: < 1.0 EU/μg of the protein as determined by the LAL method.

Formulation: Please refer to the hard copy document, which been sent along with the products.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Staphylococcal Protein A, or SPA, is a type I membrane protein covalently linked to the cell wall of most strains of the Gram-positive bacterium Staphylococcus aureus. It has high affinity to IgG from various species, for instance human, rabbit and guinea pig but only weak interaction with bovine and mouse. Protein A interacts with antibodies through two distinct binding events: the “classical” binding site on the Fc portion of human IgG1, IgG2, and IgG4, and the “alternate” binding site found on the Fab portion of human IgG, IgM, IgA, and IgE that contain heavy chains of the VH3 subfamily. The most reported molecular weight of protein A from Staphylococcus aureus is about 42,000. The recombinant Streptococci protein A consists of 299 amino acids and has a predicted molecular mass of 33.8 kDa as estimated by SDS-PAGE.

Protein A consists of three regions: S, being the signal sequence that is processed during secretion; five homologous IgG binding domains E, D, A, B and C and a cell-wall anchoring regionXM. The truncated protein lacking region X has a molecular weight of about 31kD. The domains are independently capable to bind to the Fc-part of IgG1, IgG2 and IgG4, but shows only weak interaction with IgG3. In addition, all native protein A domains show comparable Fab binding. The binding site for the Fc part of the IgG molecule has been determined in a study of the B domain.

Reference

Labrijn AF, et al. Efficient Generation of Bispecific Murine Antibodies for Pre-Clinical Investigations in Syngeneic Rodent Models. Sci Rep. 2017 May 30;7(1):2476. doi: 10.1038/s41598-017-02823-9.
Wang D, et al. Low dose of protein A pretreatment can alleviate the inflammatory reaction and the bio-safety was evaluated in vivo. J Chin Med Assoc. 2016 Jul;79(7):400-8. doi: 10.1016/j.jcma.2016.01.010. Epub 2016 Mar 27.
Bujak E, et al. Generation and tumor recognition properties of two human monoclonal antibodies specific to cell surface anionic phospholipids. Invest New Drugs. 2015 Aug;33(4):791-800. doi: 10.1007/s10637-015-0248-0. Epub 2015 May 19.

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