# Data Sheet (Cat.No.TMPY-00808)

TargetMol

## FKBP12 Protein, Human, Recombinant (His)

### General Information

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|---|---|
| Synonyms: | FKBP12;FKBP1;FKBP-1A;PKCI2;FK506 binding protein 1A;PPIASE;PKC12;FKBP-12 |
| Protein Construction: | A DNA sequence encoding the human FKBP12 (NP_463460) (Met 1-Glu 108) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Met 1 |
| Species: | Human |
| Expression Host: | E. coli |
| Accession: | P62942 |
| Molecular Weight: | 12.9 kDa (predicted); 12.9 kDa (reducing conditions) |

### QC Testing

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|---|---|
| Biological Activity: | Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first. |
| Purity: | > 96 % as determined by SDS-PAGE |
| Endotoxin: | Please contact us for more information. |
| Formulation: | Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, 10% glycerol, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization. |

### Preparation and Storage

Reconstitution:

Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. 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

FK506 binding protein 12 (FKBP12), also known as FKBP1, along with cyclophilin, are two major members of the immunophilin protein family who serve as receptors for the immunosuppressant drugs cyclosporin A and FK506. As a conserved molecule in many eukaryotes, FKBP12 has been characterized as a peptidyl-prolyl isomerase that catalyzes the transition between cis- and trans-proline residues, and is involved in several biochemical processes including protein folding, receptor signaling, protein trafficking and transcription. FKBP12 has attracted immense

attention and its role in mediating the immunosuppressive functions. FKBP12 serves a dual role as a peptidyl-prolyl cis-trans isomerase and as a modulator of several cell signaling pathways. In one such role, FKBP12 interacts with and regulates the functional state of the ryanodine Ca2+ channel receptor by altering protein conformation and coordinating multi-protein complex formation. Another physiological role of FKBP12 is an interactor and a regulator of the type I serine/threonine kinase receptors of TGF-beta superfamily. Current data, derived from detailed biochemical studies as well as from functional studies in various systems, suggest that FKBP12 functions as a "guardian" for the type I receptors to prevent them from leaky signaling under sub-optimal ligand concentrations, thereby providing a molecular "gradient reader" for TGF-beta family morphogens. This aspect of FKBP12 function may be critical for cellular responsiveness to morphogenetic gradients of the TGF-beta family members during early development, serving to assure the translation of different ligand concentrations into different signaling readouts. In addition, FKBP12 may be involved in neuronal or astrocytic cytoskeletal organization and the abnormal metabolism of tau protein in Alzheimer's disease (AD) damaged neurons.

Reference

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Scaramello CB,et al.. (2009) FKBP12 depletion leads to loss of sarcoplasmic reticulum Ca(2+) stores in rat vas deferens. J Pharmacol Sci. 109(2): 185-92.



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