Revision 3

Store at -20C

#55104

FKBP1A/FKBP12 Antibody

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355) orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, W-S	H M R	Endogenous	12	Rabbit	#P62942	2280

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. *Do not aliquot the antibody.*

Specificity/Sensitivity

FKBP1A/FKBP12 Antibody recognizes endogenous levels of total FKBP1A/FKBP12 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Phe49 of human FKBP1A/FKBP12 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

FKBP12 (FKBP1A) is a prototypical member of the FKBP (FK506 binding protein) family of immunophilins, so named because of the ability of FKBP12 to bind to the immunosuppressive drug FK506 (tacrolimus) (1). The protein is the smallest member in the family and contains only one peptidylprolyl isomerase (PPIase) core domain (FK domain) responsible for its PPIase activity and its binding to FK506 and other compounds (e.g., rapamycin). When bound to FK506 or rapamycin, the protein:drug complex further binds and inhibits two important signaling molecules: calcineurin, a key enzyme in T cell activation, and the metabolic enzyme mTOR. The inhibition of these pathways has been functionally linked to immunosuppression (1,2). Through its binding properties, FKBP12 also plays regulatory roles in other pathways. For example, the ryanodine receptor (RyR), a type of Ca^{2+} release channel, exhibits leakiness in the absence of FKBP12 binding, leading to reduced muscle contractility (3). FKBP12 can also bind TGFBR1 and prevent ligand independent activation (4). The protein also mediates MDM2 degradation by binding and disrupting MDM2/MDM4 association, thereby inducing MDM2 self-ubiquitination and enhancing the sensitivity of cells to chemotherapy induced cellular apoptosis (5).

Background References

1. Kolos, J.M. et al. (2018) *Front Pharmacol* 9, 1425.
2. Tong, M. and Jiang, Y. (2015) *Curr Mol Pharmacol* 9, 48-65.
3. Gonano, L.A. and Jones, P.P. (2017) *Channels (Austin)* 11, 415-25.
4. Wang, T. et al. (1996) *Cell* 86, 435-44.
5. Liu, T. et al. (2017) *Oncogene* 36, 1678-86.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **W-S:** Simple Western™

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

Trademarks and Patents

Limited Uses

force or effect.

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