



## MYPT1 (human; residues 728 - 838), pAb

Alternate Names: Protein Phosphatase 1, Regulatory Subunit 12A, PPP1R12A, Myosin Phosphate target subunit 1

Cat. No. 68-0041-100  
Lot. No. 30280

Quantity: 100 µg  
Storage: -20°C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS

CERTIFICATE OF ANALYSIS

Page 1 of 2

This antibody was developed and validated by the Medical Research Council Protein Phosphorylation and Ubiquitylation Unit (University of Dundee, Dundee, UK).

### Background

Protein ubiquitylation and protein phosphorylation are the two major mechanisms that regulate the functions of proteins in eukaryotic cells. However, these different post-translational modifications do not operate independently of one another, but are frequently interlinked to enable biological processes to be controlled in a more complex and sophisticated manner. Studying how protein phosphorylation events control the ubiquitin system and how ubiquitylation regulates protein phosphorylation has become a focal point of the study of cell regulation and human disease. The mammalian MYPT family consists of the products of five genes, denoted MYPT1, MYPT2, MBS85, MYPT3 and TIMAP (Grassie *et al.*, 2011). Myosin phosphatase (MP) activity, which regulates smooth muscle relaxation, is regulated by the phosphorylation of its regulatory subunit, myosin phosphatase targeting subunit 1 (MYPT1) (Cheng *et al.*, 2013). Cloning of human MYPT1 was first described by Takahashi *et al.* (1997). An example of the interplay between phosphorylation, ubiquitylation, and methylation, has been highlighted in a recent study showing that MYPT1 can be methylated *in vitro* and *in vivo* by histone lysine methyltransferase SETD7 and demethylated by histone demethylase LSD1. LSD1 silencing increased MYPT1 protein levels, decreasing the steady state level of phosphorylated retinoblastoma 1 (RB1; Ser

Continued on page 2

### Physical Characteristics

**Quantity:** 100 µg

**Concentration:** to be provided on shipping

**Source:** sheep polyclonal antibody

**Immunogen:** human MYPT1 (residues 728-838) [GST-tagged]

**Purification:** affinity-purified using immobilized immunogen

**Formulation:** phosphate-buffered saline

**Specificity:** detects MYPT1 at ~ 115 kDa

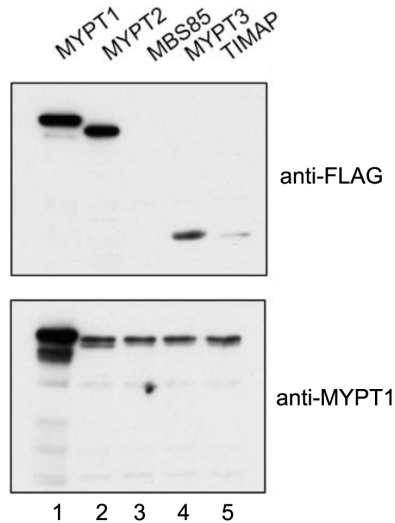
**Reactivity:** human; other species not tested

**Stability/Storage:** 12 months at -20°C; aliquot as required

### Research Applications and Quality Assurance

**Western Immunoblotting:**  
use 1 µg/ml

**Immunoprecipitation:**  
not tested



#### Western Blotting Analysis:

FLAG-tagged MYPT isoforms (Lanes 1-5) were overexpressed in HEK293 cells. By Western blotting using a commercially available anti-FLAG antibody, a band was observed in all lanes except Lane 3, where FLAG-MBS85 did not appear to express. By Western blotting the specific recognition of a band corresponding to MYPT1 was observed in all lanes when probed with the anti-MYPT1 antibody (Cat# 68-0041-100). No antibody cross reactivity was observed between the MYPT isoforms, this antibody recognises HEK293 endogenous MYPT1 as well as recombinant FLAG-tagged version.



www.ubiquigent.com  
Dundee, Scotland, UK

#### ORDERS / SALES SUPPORT

International: +1-617-245-0020  
US Toll-Free: 1-888-4E1E2E3 (1-888-431-3233)  
Email: sales.support@ubiquigent.com

#### UK HQ and TECHNICAL SUPPORT

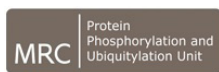
International: +44 (0) 1382 381147 (9AM-5PM UTC)  
US/Canada: +1-617-245-0020 (9AM-5PM UTC)  
Email: tech.support@ubiquigent.com

Email services@ubiquigent.com for enquiries regarding compound profiling and/or custom assay development services.

© Ubiquigent 2014. Unless otherwise noted, Ubiquigent, Ubiquigent logo and all other trademarks are the property of Ubiquigent, Ltd.

Limited Terms of Use: For research use only. Not for use in humans or for diagnostics. Not for distribution or resale in any form, modification or derivative OR for use in providing services to a third party (e.g. screening or profiling) without the written permission of Ubiquigent, Ltd.

Lot-specific COA version tracker: v1.0.0



## MYPT1 (human; residues 728 - 838), pAb

**Alternate Names:** Protein Phosphatase 1, Regulatory Subunit 12A, PPP1R12A, Myosin Phosphate target subunit 1

**Cat. No.** 68-0041-100  
**Lot. No.** 30280

**Quantity:** 100 µg  
**Storage:** -20°C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS

CERTIFICATE OF ANALYSIS

Page 2 of 2

## Background

Continued from page 1

807/811) and reducing E2F activity. Demethylation of MYPT1 has been shown to increase the ubiquitin proteasome pathway-dependent turnover of MYPT1. This study offers a novel cell cycle regulatory mechanism mediated by methylation/demethylation dynamics, and also reveals the significance of LSD1 overexpression in human carcinogenesis (Cho *et al.*, 2011).

### Antibody Production:

Anti-MYPT1 (human) polyclonal antibody was raised in sheep against MYPT1 (residues 728-838 of human MYPT1). The antibodies were purified by the Medical Research Council Protein Phosphorylation and Ubiquitylation Unit (MRC-PPU, University of Dundee, Dundee, U.K.) by affinity purification of the anti-MYPT1 pAbs from the sheep serum using an antigen-agarose column followed by depletion of any anti-GST antibodies using a GST-agarose column. Anti-MYPT1 (human) pAb was sourced by Ubiquigent directly from the MRC-PPU.

### General References:

Cheng JC, Cheng HP, Tsai IC and Jiang MJ (2013) ROS-mediated downregulation of MYPT1 in smooth muscle cells: a potential mechanism for the aberrant contractility in atherosclerosis. *Lab Invest* **93**, 422-433.

Cho HS, Suzuki T, Dohmae N, Hayami S, Unoki M, Yoshimatsu M, *et al.* (2011) Demethylation of RB regulator MYPT1 by histone demethylase LSD1 promotes cell cycle progression in cancer cells. *Cancer Res* **71**, 655-660.

Grassie ME, Moffat LD, Walsh MP and MacDonald JA (2011) The myosin phosphatase targeting protein (MYPT) family: a regulated mechanism for achieving substrate specificity of the catalytic subunit of protein phosphatase type 1delta. *Arch Biochem Biophys* **510**, 147-159.

Takahashi N, Ito M, Tanaka J, Nakano T, Kaibuchi K, Odai H, *et al.* (1997) Localization of the gene coding for myosin phosphatase, target subunit 1 (MYPT1) to human chromosome 12q15-q21. *Genomics* **44**, 150-152.



[www.ubiquigent.com](http://www.ubiquigent.com)  
Dundee, Scotland, UK

### ORDERS / SALES SUPPORT

**International:** +1-617-245-0020  
**US Toll-Free:** 1-888-4E1E2E3 (1-888-431-3233)  
**Email:** [sales.support@ubiquigent.com](mailto:sales.support@ubiquigent.com)

### UK HQ and TECHNICAL SUPPORT

**International:** +44 (0) 1382 381147 (9AM-5PM UTC)  
**US/Canada:** +1-617-245-0020 (9AM-5PM UTC)  
**Email:** [tech.support@ubiquigent.com](mailto:tech.support@ubiquigent.com)

Email [services@ubiquigent.com](mailto:services@ubiquigent.com) for enquiries regarding compound profiling and/or custom assay development services.

© Ubiquigent 2014. Unless otherwise noted, Ubiquigent, Ubiquigent logo and all other trademarks are the property of Ubiquigent, Ltd.

**Limited Terms of Use:** For research use only. Not for use in humans or for diagnostics. Not for distribution or resale in any form, modification or derivative OR for use in providing services to a third party (e.g. screening or profiling) without the written permission of Ubiquigent, Ltd.

Lot-specific COA version tracker: v1.0.0