

## Muscarine Receptor (M<sub>2</sub>) Polyclonal Antibody

### Product Specifications

|                            |  |         |   |             |  |         |                             |         |                    |
|----------------------------|--|---------|---|-------------|--|---------|-----------------------------|---------|--------------------|
| <b>Catalog Number:</b>     | 905-797-100  |         |   |             |  |         |                             |         |                    |
| <b>Host:</b>               | Rabbit   |         |   |             |  |         |                             |         |                    |
| <b>Species Reactivity:</b> | Rat (predicted to react with human and mouse based on epitope sequence identity)<br>Other species not tested   |         |   |             |  |         |                             |         |                    |
| <b>Applications:</b>       | <b>WB:</b> Yes<br><b>Membrane ELISA*:</b> Yes<br><br>Other applications not tested.<br><i>The optimal dilution for a specific application must be determined by the investigator.</i><br><i>*Under certain conditions, this antibody has been shown to display activation-state specificity. The dilution required to achieve activation-state specificity will vary, and should be optimized by the researcher<sup>5</sup>.</i> |         |   |             |  |         |                             |         |                    |
| <b>Predicted M.W.:</b>     | ~51 kDa. Higher m.w. species (~150 and ~70 kDa) also observed which may reflect post-translational modification and heterodimerization of the receptor <sup>4</sup> .  |         |   |             |  |         |                             |         |                    |
| <b>Concentration:</b>      | See product label  |         |   |             |  |         |                             |         |                    |
| <b>Purification:</b>       | Peptide Affinity   |         |   |             |  |         |                             |         |                    |
| <b>Format:</b>             | PBS, 50% glycerol, 0.01% sodium azide  |         |   |             |  |         |                             |         |                    |
| <b>Storage:</b>            | Store at -20°C<br><i>Shipping conditions may differ from the recommended storage temperature.</i>  |         |   |             |  |         |                             |         |                    |
| <b>Immunogen:</b>          | Synthetic peptide derived from sequence near the amino-terminus of rat Muscarine Receptor (M <sub>2</sub> )  |         |   |             |  |         |                             |         |                    |
| <b>Related Products:</b>   | <table border="0"> <tr> <td>SAB-300</td> <td>Goat anti-Rabbit IgG Polyclonal Antibody, HRP Conjugate</td> </tr> <tr> <td>905-796-100</td> <td>Muscarine Receptor (M<sub>1</sub>) Polyclonal Antibody</td> </tr> <tr> <td>900-066</td> <td>cyclic AMP (direct) EIA Kit</td> </tr> <tr> <td>900-067</td> <td>cyclic AMP EIA Kit</td> </tr> </table>  | SAB-300 | Goat anti-Rabbit IgG Polyclonal Antibody, HRP Conjugate | 905-796-100 | Muscarine Receptor (M <sub>1</sub> ) Polyclonal Antibody | 900-066 | cyclic AMP (direct) EIA Kit | 900-067 | cyclic AMP EIA Kit |
| SAB-300                    | Goat anti-Rabbit IgG Polyclonal Antibody, HRP Conjugate  |         |   |             |  |         |                             |         |                    |
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| 900-066                    | cyclic AMP (direct) EIA Kit  |         |   |             |  |         |                             |         |                    |
| 900-067                    | cyclic AMP EIA Kit   |         |   |             |  |         |                             |         |                    |

### Background:

The pharmacologic activity of acetylcholine (ACTH) is mediated by the ionotropic nicotinic receptor or via metabotropic muscarinic receptors. Five known acetylcholine (muscarinic) receptors (M<sub>1</sub>-M<sub>5</sub>) are variably expressed in the central nervous system and periphery, mediating motor control, thermoregulation, memory, smooth muscle contraction, glandular secretion, and cardiac function<sup>1</sup>. Although the physiology of the five mammalian muscarinic receptor homologs does not differ significantly in their affinities to a variety of agonists (ACTH, muscarine) and antagonists (e.g., atropine), they can be divided into two sub-groups (M<sub>1</sub>/M<sub>3</sub>/M<sub>5</sub> and M<sub>2</sub>/M<sub>4</sub>) based on G<sub>α</sub> subunit coupling preferences<sup>1</sup>. M<sub>1</sub>/M<sub>3</sub>/M<sub>5</sub> receptors signal primarily via G<sub>q/11</sub> alpha subunits to stimulate phospholipase C, whereas M<sub>2</sub>/M<sub>4</sub> receptors couple to G<sub>i/o</sub> alpha subunits to inhibit adenylyl cyclases and cAMP production<sup>2,3</sup>. Modulation of muscarinic receptor activity holds promise for the treatment of psychiatric and neurological disorders including schizophrenia and Alzheimer's disease.

#### References:

1. Caulfield, M.P. and Birdsall, J.M. (1998) *Pharmacol Rev.* **50**, 279-290.
2. Peralta, E.G., et al. (1988) *Nature* **334**, 434-437.
3. Thomas, R.L., et al. (2008) *J Pharmacol Exp Ther.* Epub July 29, DOI: 10.1124/jpet.10
4. Tränkle, C., et al. (2005) *Mol Pharmacol.* **68**, 1597-1610.
5. Gupta, A., et al. (2007) *J Biol Chem.* **282**, 5116-5124.



Visit the Scientific Resources section of our website for ELISA, IHC, and WB protocols.

Generally reagents are good for one year from the date of receipt, except for conjugates which are good for six months and reagents with an expiration date indicated on the label or other supporting document.

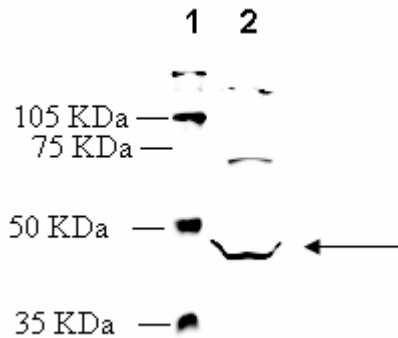
Assay Designs makes every effort to provide a consistent source of high quality polyclonal antibodies. However, due to variations inherent in this technology, investigators are urged to purchase sufficient quantities of a specific lot number if an identical antibody is required throughout a study.

(OVER)

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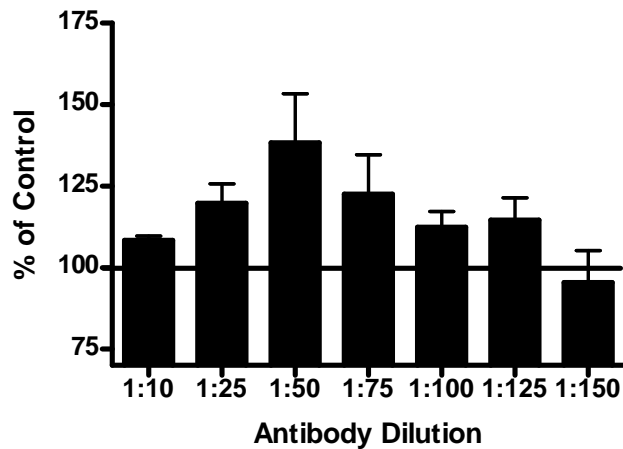
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**Western Blot Analysis:** MW marker (1) and 20  $\mu$ g rat heart extract (2) probed with Muscarine Receptor ( $M_2$ ) Polyclonal Antibody at 4.2  $\mu$ g/mL.

### Heart Membranes



**Membrane ELISA:** Lewis rat heart membranes (5  $\mu$ g/well) were treated with 1  $\mu$ M concentrations of agonist (Bethanechol) and probed with Muscarine Receptor ( $M_2$ ) Polyclonal Antibody (1:10 to 1:150 of a 0.1  $\mu$ g/ $\mu$ L stock solution) by ELISA. Data from vehicle treated cells were taken as 100%. Results are the mean  $\pm$  SEM (n=3).