

# Sigma Receptor (F-5): sc-166392

## BACKGROUND

Sigma Receptor, also known as opioid receptor, sigma 1 (Opr1), acts as a modulatory system influencing the analgesic activity of opioid drugs. For example, activation of the Sigma Receptor is induced during the early effects of cocaine. At the cellular level, Sigma Receptor agonists modulate intracellular calcium mobilization and extracellular calcium influx, NMDA-mediated responses and acetylcholine release. In addition, Sigma Receptor agonists alter monoaminergic systems. At the behavioral level, the Sigma Receptor is involved in learning and memory processes, response to stress, depression, neuroprotection and pharmacodependence. Pregnenolone, dehydroepiandrosterone and their sulfate esters behave as Sigma Receptor agonists, while progesterone is a potent antagonist. Sigma Receptor is expressed in the endocrine, immune and other peripheral organ systems, and is expressed in a variety of human tumors. The Sigma Receptor is responsible for the pathogenesis of some psychiatric disorders and may be involved in several diseases of the central nervous system. Opioid analgesia is influenced by many factors, including the Sigma Receptor.

## REFERENCES

1. Walker, J.M., et al. 1990. Sigma receptors: biology and function. *Pharmacol. Rev.* 42: 355-402.
2. Ferris, C.D., et al. 1991. Sigma receptors: from molecule to man. *J. Neurochem.* 57: 729-737.
3. Su, T.P. 1991. Sigma receptors. Putative links between nervous, endocrine and immune systems. *Eur. J. Biochem.* 200: 633-642.

## CHROMOSOMAL LOCATION

Genetic locus: SIGMAR1 (human) mapping to 9p13.3; Sigmar1 (mouse) mapping to 4 A5.

## SOURCE

Sigma Receptor (F-5) is a mouse monoclonal antibody raised against amino acids 1-223 representing full length Sigma Receptor of human origin.

## PRODUCT

Each vial contains 200 µg IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Sigma Receptor (F-5) is available conjugated to agarose (sc-166392 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166392 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166392 PE), fluorescein (sc-166392 FITC), Alexa Fluor® 488 (sc-166392 AF488), Alexa Fluor® 546 (sc-166392 AF546), Alexa Fluor® 594 (sc-166392 AF594) or Alexa Fluor® 647 (sc-166392 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166392 AF680) or Alexa Fluor® 790 (sc-166392 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

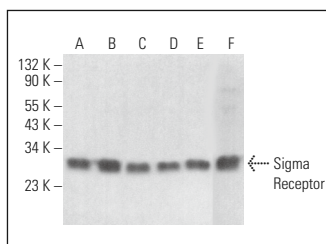
Sigma Receptor (F-5) is recommended for detection of Sigma Receptor of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Sigma Receptor siRNA (h): sc-42250, Sigma Receptor siRNA (m): sc-42251, Sigma Receptor shRNA Plasmid (h): sc-42250-SH, Sigma Receptor shRNA Plasmid (m): sc-42251-SH, Sigma Receptor shRNA (h) Lentiviral Particles: sc-42250-V and Sigma Receptor shRNA (m) Lentiviral Particles: sc-42251-V.

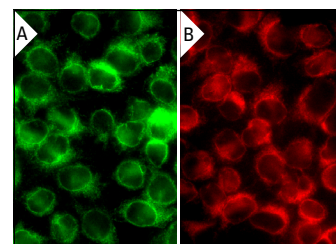
Molecular Weight of Sigma Receptor: 29 kDa.

Positive Controls: SK-N-MC cell lysate: sc-2237, Hep G2 cell lysate: sc-2227 or SW480 cell lysate: sc-2219.

## DATA



Sigma Receptor (F-5): sc-166392. Western blot analysis of Sigma Receptor expression in SK-N-MC (A), Hep G2 (B), SW480 (C), 3T3-L1 (D) and HeLa (E) whole cell lysates and rat liver tissue extract (F).



Sigma Receptor (F-5): sc-166392. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear envelope localization (A, B).

## SELECT PRODUCT CITATIONS

1. Martínez-Pizarro, A., et al. 2016. Endoplasmic reticulum stress and autophagy in homocystinuria patients with remethylation defects. *PLoS ONE* 11: e0150357.
2. Meng, B., et al. 2017.  $\alpha$ -1 receptor stimulation protects against pressure-induced damage through InsR-MAPK signaling in human trabecular meshwork cells. *Mol. Med. Rep.* 16: 617-624.
3. Sharikova, A.V., et al. 2018. Methamphetamine induces apoptosis of microglia via the intrinsic mitochondrial-dependent pathway. *J. Neuroimmune Pharmacol.* 13: 396-411.
4. Wilke, J., et al. 2021. Discovery of a  $\sigma$ 1 receptor antagonist by combination of unbiased cell painting and thermal proteome profiling. *Cell Chem. Biol.* 28: 848-854.e5.
5. Vera-Zambrano, A., et al. 2023.  $\sigma$ -1 receptor modulation fine-tunes KV1.5 channels and impacts pulmonary vascular function. *Pharmacol. Res.* 189: 106684.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.