# MECP2 Antibody / Methyl-CpG-binding protein 2 (FY13265)

| Catalog No. | Formulation | Size |
|---|---|---|
| FY13265 | Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml | 100 ug |

**Bulk quote request**

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|---|---|
| **Availability** | 1-2 days |
| **Species Reactivity** | Human, Monkey, Mouse, Rat |
| **Format** | Lyophilized |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Immunogen affinity purified |
| **Buffer** | Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **UniProt** | P51608 |
| **Applications** | Western Blot : 0.25-0.5ug/ml<br>Immunohistochemistry : 2-5ug/ml<br>Immunofluorescence : 5ug/ml<br>ELISA : 0.1-0.5ug/ml |
| **Limitations** | This MECP2 antibody is available for research use only. |

## Description

MECP2 antibody detects Methyl-CpG-binding protein 2, a nuclear chromatin-associated protein that binds methylated DNA and regulates gene expression. The UniProt recommended name is Methyl-CpG-binding protein 2 (MECP2). This transcriptional regulator modulates chromatin compaction and transcriptional repression through its interactions with methylated CpG sites and chromatin remodeling complexes.

Functionally, MECP2 antibody identifies a 486-amino-acid protein composed of a methyl-CpG-binding domain (MBD) and a transcriptional repression domain (TRD). MECP2 binds selectively to methylated DNA sequences and recruits co-repressors such as SIN3A and histone deacetylases (HDACs), leading to histone deacetylation and chromatin condensation. It also regulates non-coding RNA transcription, alternative splicing, and higher-order chromatin organization. MECP2 plays a critical role in neuronal maturation, synaptic development, and activity-dependent gene regulation.

The MECP2 gene is located on chromosome Xq28 and is expressed ubiquitously, but at especially high levels in neurons. Expression is dynamically regulated during postnatal brain development, paralleling synaptogenesis. In neurons, MECP2

controls transcriptional homeostasis by balancing activation and repression of large gene networks essential for synaptic plasticity and neuronal connectivity.

Pathologically, mutations in MECP2 cause Rett syndrome, a severe neurodevelopmental disorder characterized by regression of motor and cognitive abilities in early childhood. Different mutation types (missense, nonsense, deletions) disrupt DNA binding or repressor recruitment, leading to widespread transcriptional dysregulation. Altered MECP2 expression is also implicated in autism spectrum disorder and certain cancers. Research using MECP2 antibody supports studies in epigenetic regulation, neurodevelopment, and chromatin biology.

MECP2 antibody is validated for western blotting, immunofluorescence, and chromatin immunoprecipitation to detect methyl-DNA-binding proteins. NSJ Bioreagents provides MECP2 antibody reagents optimized for studies in transcriptional repression, synaptic regulation, and neuroepigenetics.

Structurally, Methyl-CpG-binding protein 2 contains an MBD that recognizes methylated CpG dinucleotides, a TRD that interacts with SIN3A-HDAC complexes, and a C-terminal domain that binds nucleosomes. This structural modularity allows MECP2 to act as a chromatin architectural protein coordinating DNA methylation and transcriptional silencing. This antibody enables detailed analysis of MECP2's role in gene regulation and neurological disease mechanisms.

## Application Notes

Optimal dilution of the MECP2 antibody should be determined by the researcher.

## Immunogen

E.coli-derived human MECP2 recombinant protein (Position: K36-Q437) was used as the immunogen for the MECP2 antibody.

## Storage

After reconstitution, the MECP2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.