

Product Information

Monoclonal Anti-dFMR1

Clone 6A15

Purified Mouse Immunoglobulin

Product Number **F 4554**

Product Description

Monoclonal Anti-dFMR1 (mouse IgG1 isotype) is derived from the hybridoma 6A15 produced by the fusion of mouse myeloma cells (SP2/0 cells) and splenocytes from mice immunized with *Drosophila* recombinant dFMR1 protein.¹ The isotype is determined using Sigma ImmunoType™ Kit (Sigma ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma ISO-2).

Monoclonal Anti-dFMR1 recognizes *Drosophila* dFMR1 and does not cross-react with human FMR1 or FXR proteins.¹ The antibody may be used in immunoblotting (approx. 85 kDa),¹ immunoprecipitation,¹ and immunocytochemistry.¹

One out of 4,000 males and one out of 6,000 females suffer from the fragile X syndrome that is an inherited mental disease. Fragile X syndrome is characterized by mental retardation, macroorchidism, typical facial appearance and various degrees of autistic behavior. This syndrome is caused by the expansion of a highly polymorphic CGG repeats present in the untranslated region of the FMR1 gene (also known as FMRP).²⁻⁴ As a consequence, the promoter of the gene is hypermethylated and the *FMR1* gene is not transcribed. The FMR1 protein can bind to RNA. It contains two heterogeneous nuclear ribonucleoprotein K homology (KH) domains and one RGG box. Two proteins named FXR1 and FXR2 interact with FMR1. Both proteins have 60% amino acid identity to FMR1 and both have two KH domains and one RGG box that together with FMR1 bind to RNA. FXR2 gene is located on human chromosome 17 and its protein is localized mainly in the

cytoplasm. The protein is highly expressed in brain and testis.¹⁻³ FXR2 knock-out mice are hyperactive in the open-field test, impaired on the rotarod test, have reduced levels of prepulse inhibition, display less contextual conditioned fear, are impaired at locating the hidden platform in the Morris water task and less sensitive to heat stimulus.⁴ dFMR1 is the *Drosophila melanogaster* homolog of the mammalian FMR1/FXR gene family. The gene has high amino acid sequence identity/similarity in the functional domains of the protein. It binds RNA and is localized in similar sub cellular localization. Its pattern of expression in the *Drosophila* embryo is similar to the pattern of the mammalian FMR1/FXR protein. Over expression of dFMR1 leads to apoptotic cell loss in many drosophila tissues.¹

Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody Concentration: Approx. 2 mg/mL.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

By immunoblotting, a working antibody concentration of 0.5-1 µg/mL is recommended using total cell extract of D. MeL (*Drosophila* embryo epithelial cells).

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration test.

References

1. Wan, L., et al., Mol. Cell. Biol., **20**, 8536-8547 (2000).
2. Zhang, Y., et al., EMBO J., **14**, 5358-5366 (1995).
3. Tamanini, F., et al., Hum. Mol. Genet., **6**, 1315-1322 (1997).
4. Siomi, M.C., et al., Mol. Cell. Biol., **16**, 3825-3832 (1996).
5. Bontekoe, C.J.M., et al., Hum. Mol. Genet., **11**, 487-498 (2002).

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