ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Rat/Mouse Myelin-oligodendrocyte glycoprotein (MOG) Peptides

Cat # MOG3555-P-1	Rat/Mouse MOG 35-55 peptide	**SIZE**: 1 mg	**Form**: Powder
Cat # MOG3555-P-5	Rat/Mouse MOG 35-55 peptide	**SIZE**: 5 mg	**Form**: Powder
Cat # MOG3555-P-10	Rat/Mouse MOG 35-55 peptide	**SIZE**: 10 mg	**Form**: Powder

Myelin-oligodendrocyte glycoprotein (MOG) is a member of the immunoglobulin (Ig) superfamily, exclusively expressed in the central nervous system (CNS). MOG is an intrinsic membrane protein characterized by a N-terminal extracellular immunoglobulin-like variable (Ig-like V-type) domain, two hydrophobic transmembrane domains and a cytoplasmic C-terminal region. The N-terminal MOG domain has strong homology with the N-terminus of butyrophilin, a protein expressed in the lactating mammary gland. Human MOG gene is localized to chromosome 6p22-p21.3 (band C of mouse chromosome 17) at the distal end of the MHC class Ib region. **Despite the similar names, oligodendrocyte-myelin glycoprotein (OMG) is a separate protein encoded within a large intron of the NF1 gene.** The 2 glycoproteins are associated specifically with oligodendrocytes and myelin, but have quite different roles in myelinogenesis and are structurally unrelated. MOG is an intrinsic membrane molecule with 2 transmembrane domains, whereas OMG is anchored in the outer leaflet of the plasma membrane through a glycophospholipid tail. OMG belongs to the family of proteins with a series of tandem leucine-rich repeats, while MOG is a member of the Ig superfamily.

MOG contains nine exons and eight separating introns, giving rise to at least eight alternatively spliced variants encoding for the MOG-alpha1-4 and MOG-beta 1-4 isoforms (16-26 kDa). The different MOG isoforms may interact to form homo- and heterodimers and trimers (55 and 78 kDa). During the last step of myelinogenesis, MOG is expressed in the CNS on the outermost surface (external lamella) of mature myelin sheaths and on the cell surface of myelinating oligodendrocytes. MOG has a variety of functions including a role as a cellular adhesion molecule. It may be involved also in the completion and/or maintenance of the myelin sheath and in cell-cell communication. MOG is also thought to function as a regulator of oligodendrocyte microtubule stability and as a mediator of interactions between myelin and the immune system in the complement cascade. Although MOG is a relatively minor component of the myelin membrane, it is a primary auto-antigen target involved in the pathogenesis of immune-mediated demyelinating diseases including experimental autoimmune encephalomyelitis (EAE) and multiple sclerosis.

The MOG 35-55 peptide is an immunodominant epitope of MOG that induces strong T and B cell responses. A single injection of this peptide fragment can produce an exacerbating-remitting neurologic disease with extensive plaque-like demyelination, which may serve as a model for investigating multiple sclerosis.

Specificity

Rat and mouse MOG35-55 peptide is 100% conserved common marmoset, 95% in chimp, bovine, Pongo pygmaeus (Orangutan), pig, and human MOG. MOG35-55 sequence is found in MOG isoforms alpha-1, alpha-2, beta-2, beta-3, beta-4, and isoforms 9.

This product is for In vitro research use only.

Human MOG Isoforms, Accession #	Comments
Alpha-1, Q16653-1	Membrane protein 1-247 aa (1-29 signal; mature chain 30-247), 30-154 Extracellular; 32-145 Ig-like V-type; 155-175 TM1; 176-210 cytoplasmic domain1; 211-231 TM2; 232-247 EC2
Alpha-2, Q16653-2	198-236 missing
Alpha-3, Q16653-3	198-236 DPHFLRVPCWKITLFVIVPVLGPLVAL IICYNWLHRRLA -> ESFGVLGPQVKEPKKT (in isoform 3 and isoform 7
Alpha-4, Q16653-4	30-145 missing;
beta-1, Q16653-5	Membrane proteins; 244-247 RNPF -> LFHLEALSG
beta-2, Q16653-6	198-236 missing; 244-247 RNPF -> LFHLEALSG
beta-3, Q16653-7	198-236 DPHFLRVPCWKITLFVIVPVLGPLVAL IICYNWLHRRLA -> ESFGVLGPQVKEPKKT (in isoform 3 and isoform 7; 244-247 RNPF -> LFHLEALSG
beta-4, Q16653-8	198-243 missing; 244-247 RNPF -> LFHLEALSG; 244-247 RNPF -> LFHLEALSG
Q16653-9	Not functionally active; 198-203 DPHFLR -> GKFRHV; 209-247 missing;

Sources of Peptides

Cat # MOG3555-P-1, -5, -10
Sequence:
MEVGWYRSPFSRVVHLYRNGK
Mol Wt: 2582
Formula: C118H177N35O29S
Form: Powder
Solubility: Water (1 mg/ml)
Storage: Store powder at -20oC for up to 6 months.

After reconstitution in water, store solution in small aliquots at -20oC for 3-6 months. Do not freeze and thaw or store diluted solutions.

General References: Pham-Dinh, D (1995) Genomics 29: 345-352; Pham-Dinh, D. (1995) Immunogenetics 42: 386-391; Pham-Dinh, D (1993) PNAS 90: 7990-7994; Roth, M.-P (1995) Genomics 28: 241-250; Ichikawa M (1996) J. Immunol. 157, 919-926; Bernard CC (1997) J. Mol. Med. 75, 77-87; Slavin A (1998) Autoimmunity 28, 109-120

Antibodies to MOG35-55, and MOG autoantibodies detection kit
MOG3555-P-1, -5, -10 70318A

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