Amyloid beta oligomer-specific monoclonal antibody (OMAB)

**Product information**

**Background**
Soluble oligomeric assemblies of the Amyloid-β peptide are today anticipated to be the direct cause regarding the Alzheimer pathology. As a consequence, oligomeric Aβ-assemblies constitute a very interesting therapeutic target. Identification of Aβ-oligomers is however, technically challenging due to their labile nature and low abundance.

**Abeta oligomer-specific OMAB antibody** is based on the IgM isotype and represents a new concept of Aβ-oligomer binders using a combination of high avidity and very low monovalent affinity. This combination creates a selectivity of the antibody towards the oligomeric fraction and minimizes reactivity towards monomeric species.

**Immunogen**

**Host**
Mouse

**Clonality**
Monoclonal

**Subclass/isotype**
IgM

**Purity**
Affinity purified

**Format**
Lyophilized

**Quantity**
50 µg

**Reconstitution**
For reconstitution add 100 µl of sterile water.

**Storage**
Store lyophilized/reconstituted at 4°C. Please, remember to spin tubes briefly prior to opening them to avoid any losses that might occur from lyophilized material adhering to the cap or sides of the tubes.

**Tested applications**
ELISA (ELISA), Immunohistochemistry (IHC)

**Related products**
- AS13 2716 | mAB-M | human Abeta protein (3-10) region, oligomer-specific, mouse monoclonal antibody
- AS13 2715 | mAB-O | human Abeta protein (3-10) region, oligomer specific, mouse monoclonal antibody
- AS10 932B | Amyloid beta oligomer-specific monoclonal antibody (OMAB), Biotinylated

**Agrisera matching secondary antibody:** Goat anti-mouse IgM (µ chain), HRP conjugated, min. cross-reactivity to human IgG/serum, AS10 969

**Additional information**
OMAB antibody has been purified by by ion-exchange chromatography and is supplied in PBS without any additives as carrier proteins or sodium azide.

Binding of OMAB antibody and Abeta oligomers at RT takes about 15 min.

Fibrils are inaccessible for OMAB antibodies therefore if a discrimination between fibrils and oligomers is to be achieved, dot blot can be used. Start with antigen concentration of 500 ng/dot followed by 2X dilution steps.

Blocking: non-fat milk and washes with 0.3 % Tween 20 in TBS pH 7.4.

**Application information**

**Recommended dilution**
Coating antibody at 2 µg/ml (ELISA), 1 : 500 (IHC)

**Expected | apparent MW**
4.5 kDa

**Confirmed reactivity**
Human Abeta oligomers only

**Predicted reactivity**
Rat

**Not reactive in**
No confirmed exceptions from predicted reactivity are currently known.
OMAB antibody is a versatile tool within research of Alzheimer’s disease. A sandwich ELISA illustrates its potential regarding its high selectivity towards Aβ oligomers.

Selected references

Henning-Knechtel et al. (2020). Designed Cell-Penetrating Peptide Inhibitors of Amyloid-beta Aggregation and Cytotoxicity. Cell Reports Physical Science, Volume 1, Issue 2, 26


Application example

Abeta oligomer-specific antibody was adsorbed to Nunc-Immuno MaxiSorp plates (Nunc, Roskilde, Denmark) at 2 µg/ml in PBS. 1 ml of a 10 µM Aβ (1-42) sample containing a small fraction of Aβ-oligomers was separated using a superdex G75 (10/30) column. Aβ-fractions collected from the SEC were allowed to bind to OMAB plates for 20 minutes at 0°C. All fractions were analyzed and bound Aβ was detected using a polyclonal rabbit anti-Aβ antibody (AS08 328). Agrisera AB, Vännäs, Sweden) at a 1:1000 dilution followed by an anti-rabbit HRP-conjugated secondary antibody at a 1:5000 dilution (GE healthcare). ECBBlue (Medicago, Uppsala, Sweden) was used as a substrate for HRP and the signal was detected by measuring the absorbance at 450 nm. Blocking solution and antibody-dilutions were made with 5% Non-fat dry milk in PBST and all washes were performed with PBS containing 0.1% Tween-20 (PBST).

10 µm of coronal sections from fresh-frozen transgenic mouse brain mutant (A) and wild type (B). Post-fixation in 4% formaldehyde solution, 5 min. OMAB antibody diluted 1:500, incubation at 4°C ON. Mouse on mouse HRP-Polymer kit according to company instructions. Biocare Medical: BC-MM510 (Histolab) DAB substrate kit for peroxidase. Vector Laboratories: SK-4100 (ImmunKemi) Counterstained with Mayers HTX.