AQUATIC
Diagnostics Ltd

# Anti-Stickleback
(*Gasterosteus aculeatus*)
# IgM monoclonal antibody

Product no: F22

# Product Information

## Product Description

This monoclonal antibody (Mab) reacts with Stickleback (*Gasterosteus aculeatus*) immunoglobulin M (IgM). The Mab is of an IgG1 isotype and recognises the light chain of the molecule

## Use of product

The Mab is recommended for use in an Enzyme-Linked Immunosorbent Assay (ELISA) for measuring levels of antigen-induced IgM. The optimal conditions for use of this product vary depending on the procedure used. The user must determine the suitability of the product for a particular procedure. This product is for *in vitro* use only.

## Vial Contents

Each vial contains 200 $\mu$g of lyophilised protein prepared from bovine-free culture medium and contains no animal-derived stabilisers. This is sufficient for three 96-well ELISA plates.

The product should be reconstituted as follows:

¨ Add 1 ml of phosphate buffered saline (PBS) (see buffers) to the vial and store as aliquots. Dilute 1/33 in antibody buffer before use.

# Storage

Store at -20°C prior to reconstitution. For prolonged storage, the Mab solution should be stored at -20°C. Repeated freeze/thawing of the product should be avoided.

# Protocol

## Suggested protocol for the detection of Stickleback IgM by indirect - Enzyme-Linked Immunosorbent Assay (ELISA)

The method outlined here is only a guideline and assay conditions may vary depending on the antigen used to coat the ELISA plate and environmental conditions.

### Procedure

The coating procedure depends on the type of antigen used in the screening.

Plates coated with particulate antigens (e.g. bacteria)

- Coat 96-well ELISA plate with 0.05% (w/v) poly-L-lysine in coating buffer, 50 $\mu$l well$^{-1}$ for 60 min
- Wash plate with 2 washes of low salt wash buffer
- Resuspend bacteria in PBS (1 x10$^{8}$ bacteria ml$^{-1}$) and add to the wells of the ELISA plate at 100 $\mu$l well$^{-1}$. Incubate overnight at 4°C or centrifuge plate at x 200 g for 5 min and incubate for 60 min at 22°C
- Add 50 $\mu$l well$^{-1}$ 0.05% (v/v) gluteraldehyde, diluted in PBS, to the antigen and incubate for a further 20 min at 22°C

Plates coated with soluble antigen (e.g. fish IgM)

- Coat 96 well ELISA plate with 100 $\mu$l well$^{-1}$ antigen [(1-20 $\mu$g ml$^{-1}$) this will need to be optimised by the user] dissolved in coating buffer. Cover and incubate overnight a 4°C.

The remainder of procedure is as follows:

- Wash plate 3 times with low salt wash buffer
- Post-coat plate (to block non-specific binding sites) with either 1% (w/v) bovine serum albumin (BSA) or 3% (w/v) casein (dried milk). Add 250 $\mu$l well$^{-1}$ and incubate for 2 h at 22°C
- Wash plate with 3 washes of low salt wash buffer
- Prepare doubling-dilutions of the fish serum in PBS starting with a 1/2 dilution. Also use doubling-dilutions of pre-immune serum or serum from non-vaccinated/non-diseased fish, and PBS as negative controls. Add serum and control dilutions to the wells (100 $\mu$l well$^{-1}$) and incubate for 3 h at 22°C or overnight at 4°C
- Wash plate with 5 washes of high salt wash buffer, incubating for 5 min on last wash
- Add 100 $\mu$l well$^{-1}$ of the reconstituted anti-fish Mab-HRP and incubate for 60 min at 22°C
- Wash plate with 5 washes of high salt wash buffer, incubating for 5 min on last wash
- Add 100 $\mu$l well-1 conjugate (anti-mouse 1gG-HRP diluted $^{1/1000}$ in conjugate buffer). Incubate for 60 min at 22°C
- Wash plate with 5 washes of high salt wash buffer, incubating for 5 min on last wash
- Add 100 $\mu$l well$^{-1}$ chromogen in substrate buffer and incubate for 10 min at 22°C
- Stop reaction with 50 $\mu$l well$^{-1}$ of stop solution
- Read plate at 450 nm in an ELISA reader. Blank ELISA reader against wells filled with chromogen and stop solution. If an ELISA reader is unavailable compare colour with that of background (i.e. negative control).

NB. WEAR GLOVES WHEN USING CHROMOGEN AND STOP SOLUTION

# Buffers

Coating buffer (Carbonate-bicarbonate solution)

| | |
|---|---|
| $Na_2CO_3$ | 1.59 g |
| $NaHCO_3$ | 2.93 g |

Dissolve in one litre of distilled water. Adjust to pH 9.6.
N.B. prepare fresh coating buffer on each occasion

Phosphate Buffered Saline (PBS)

0.02M Phosphate, 0.15M NaCl

| | |
|---|---|
| $NaH_2PO_4.2H_2O$ | 0.876g |
| $Na_2HPO_4.2H_2O$ | 2.56g |
| NaCl | 8.77g |

Dissolve in one litre of distilled water. Adjust to pH 7.3 with conc. HCl

Wash buffer (x10) (low salt)

| | |
|---|---|
| Trisma base | 24.2 g |
| NaCl | 222.2 g |
| Merthiolate | 1 g |
| Tween 20 | 5 ml |

Dissolve in one litre of distilled water. Adjust to pH 7.3 with conc. HCl

Wash buffer (x10) (high salt)

| | |
|---|---|
| Trisma base | 24.2 g |
| NaCl | 292.2 g |
| Merthiolate | 1 g |
| Tween 20 | 10 ml |

Dissolve in one litre of distilled water. Adjust to pH 7.7 with conc. HCl

Antibody buffer

Add 1 g of BSA to 100 ml of PBS (i.e. 1 % BSA solution)

Conjugate buffer

Add 1g of BSA to 100 ml of low salt wash buffer

Substrate buffer (Sodium acetate/ citric acid buffer)

| | |
|---|---|
| Citric acid | 21.0 g |
| Sodium acetate | 8.2 g |

Dissolve in one litre of distilled water. Adjust to pH 5.4 with 1 M NaOH

Add 5 $\mu$l of $H_2O_2$ to 15 ml substrate buffer

Substrate

Prepare 3'3'5'5'-Tetramethylbenzidine dihydrochloride (TMB) (42 mM) in 1:2 acetic acid: distilled water. Add 150 $\mu$l of this solution to 15 ml substrate buffer

Stop reagent

2M $H_2SO_4$ in distilled water

# Certificate of Analysis

Anti-Stickleback (*Gasterosteus aculeatus*) monoclonal antibody

Product no. F22

Batch no.

Date of expiry

**Absorbance of reconstituted Mabs by indirect ELISA:**

The reconstituted conjugate gives an absorbance of
at 450 nm by ELISA when plate is coated with 10 $\mu$g ml$^{-1}$ purified IgM.

AQUATIC
Diagnostics Ltd

Aquatic Diagnostic Ltd.,
Institute of Aquaculture,
University of Stirling,
Stirling, Scotland,
FK9 4LA

Telephone: +44 (0)1786 466568
Fax: +44 (0)1786 472133
E-mail: aquaticdiagnostics@stir.ac.uk
http://www.aquaticdiagnostics.com