

Semi-Quantitative Vtg Salmonid Biomarker ELISA Kit

Detection of the egg yolk protein vitellogenin (Vtg) in juvenile and male fish is a simple and sensitive biomarker for endocrine disrupting chemicals (EDCs) with estrogenic effects in fish. Measuring vitellogenin has become accepted as a routine screening test for estrogenic effects of EDCs in fish. This semi-quantitative Enzyme ImmunoAssay (EIA) can easily be combined with standard fish tests according to OECD Guidelines for Testing of Chemicals (No. 203, 204 and 210).



The semi-quantitative Salmonid ELISA Kit is developed for a group of fish species used in many ecotoxicological testing laboratories throughout the world, the salmonids (*Salmoniformes*). The assay is optimised for analysis of blood plasma samples.

The analysis is based on an antibody capture assay utilizing specific binding between antibody and Vtg for detection of salmonid Vtg in plasma samples. The wells of microtiter plates are coated with diluted plasma samples, and Vtg in the samples is bound by a Vtg-specific antibody. Unbound

antibody is washed out and an enzyme-labelled secondary antibody is added. After a last wash, the enzyme activity is determined by adding a substrate giving a coloured product. The enzyme activity (colour intensity) is proportional to the concentration of Vtg in the sample, and purified Vtg from Atlantic salmon (*Salmo salar*) is used as a positive control.

Note: This assay is a semi-quantitative assay, and it is not suitable for measuring absolute amounts of Vtg.

The assay is based on detection of Vtg by the monoclonal antibody BN-5, raised against Vtg from Atlantic salmon (*Salmo salar*). The antibody cross-reacts reliably with other salmonid species, and the assay may also be used for detection of Vtg in plasma samples from a variety of other species including flatfish (*Pleuronectiformes*), and some *Perciformes* species (see Table 1).

The Salmonid Vtg ELISA Kit comes in two sizes, with 96 and 480 wells (1 and 5 plates). The kit contains salmon Vtg positive control, antibodies and reagents necessary for running the assay, as well as an instructive protocol describing details of the assay and data analysis.

Table 1. Cross-reactivity of the monoclonal antibody BN-5 with Vtg from different fish species in ELISA.

Fish species	Relative cross-reactivity
<i>Salmoniformes</i>	
Atlantic salmon (<i>Salmo salar</i>)	+++
Brown trout (<i>Salmo trutta</i>)	+++
Rainbow trout (<i>Oncorhynchus mykiss</i>)	+++
Arctic charr (<i>Salvelinus alpinus</i>)	+++
<i>Pleuronectiformes</i>	
Turbot (<i>Scophthalmus maximus</i>)	++
Flounder (<i>Platichthys flesus</i>)	++
Halibut (<i>Hippoglossus hippoglossus</i>)	++
<i>Gadiformes</i>	
Atlantic cod (<i>Gadus morhua</i>)	-
<i>Cypriniformes</i>	
Zebrafish (<i>Danio rerio</i>)	+
<i>Perciformes</i>	
Barramundi (<i>Lates calcarifer</i>)	++
Wrasse (<i>Ctenolabrus rupestris</i>)	+
Tilapia (<i>Oreochromis niloticus</i>)	-