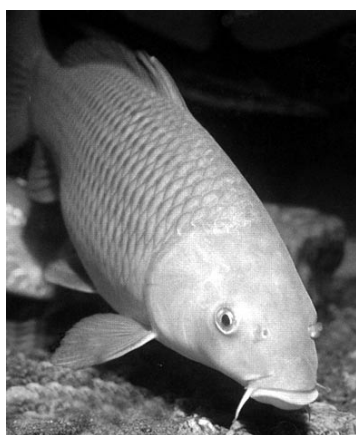


Detection of the egg yolk protein vitellogenin (Vtg) in juvenile and male fish is a simple and sensitive biomarker for endocrine disrupting chemicals (EDCs) with estrogenic effects in fish. Measuring Vtg has become accepted as a routine screening test for estrogenic effects of EDCs in fish. This quantitative Vtg Enzyme-Linked Immunosorbent Assay (ELISA) can easily be combined with standard fish tests according to OECD Guidelines for Testing of Chemicals.



CARP (PHOTO: T. LARSEN)



FATHEAD MINNOW (PHOTO: C. TYLER)

The quantitative Carp Vtg ELISA Kit is developed for a standard OECD test species used in many ecotoxicological testing laboratories throughout the world, the carp (*Cyprinus carpio*). The kit can also be used for quantification of Vtg in samples from fathead minnow (*Pimephales promelas*), another widely used cyprinid test species. The assay is optimised for analysis of blood plasma samples, but can also be used for other sample types (e.g. whole body homogenate).

The analysis is based on a sandwich assay utilizing specific binding between antibodies and Vtg. Microtiter plates are pre-coated with a Vtg-specific capture antibody, which binds Vtg in samples added to the wells. Unbound components are washed out, and a different Vtg-specific antibody (detecting antibody) is added, creating a sandwich of antibodies and Vtg. Unbound detecting antibody is washed out, and an enzyme-labelled secondary antibody is added, binding to the sandwich. After a last wash, the enzyme activity is determined by adding a substrate which gives a coloured product. The enzyme activity (colour intensity) is directly proportional to the concentration of Vtg in the sample, and the assay is calibrated using purified Vtg from carp as standard.

The assay is highly sensitive and robust. The working range of the Vtg standard is normally 0.98–125 ng Vtg/ml and the intra- and inter-assay coefficients of variation (%CV) are between 5.6 and 24% within the working range.

The Carp Vtg ELISA Kit comes in two sizes, with 96 and 480 wells (1 and 5 plates). The kit contains pre-coated microtiter plates, carp Vtg standard, antibodies and reagents necessary for running the assay, as well as an instructive protocol.

