

How Neogen's Test Kits Work

Many of Neogen's food safety test kits use immunoassay technology to rapidly detect target substances. The easy to use and interpret immunoassays rely on test devices coated with antibodies specifically created to capture a target substance that may be present in a sample. Neogen's superior antibodies, the most sensitive and specific available, set Neogen's products apart from all other immunoassay test kits.

Neogen uses one of three formats in its immunoassays—competitive direct enzyme-linked immunosorbent assay (CD-ELISA) in a microwell format, sandwich enzyme-linked immunosorbent assay (S-ELISA) in a microwell, or lateral flow immunochromatographic assay. Each uses antibody-coated test devices and color change in response to the addition of a sample to indicate a positive or negative result for the presence of a target substance.

Competitive Direct Enzyme-Linked Immunosorbent Assays (CD-ELISAs)

(All mycotoxin and histamine microwell test kits)

Each test kit contains antibody-coated microwells with antibodies specific to the kit's target substance.

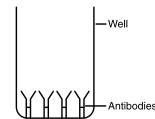
First, samples and controls are added to their respective test wells. Next, an enzyme conjugate (target substance chemically linked with an enzyme) is added. The samples/controls and conjugate are mixed and transferred to antibody wells where they compete for the antibody binding sites. The more target substance in the sample, the less conjugate that binds in the wells.

After an incubation, the wells are washed to remove all unbound materials.

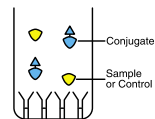
A substrate, which changes color in the presence of the conjugate, is then added to the wells. During an incubation, blue color develops in proportion to the amount of conjugate versus target substance in the wells. The more conjugate bound, the more blue color that develops, indicating less substance present.

Results are read visually in a screening format—the less blue color, or more red, the more target substance detected. In a quantitative format, results are obtained by measuring the wells' color change in a microwell reader and comparing the readings against a standard curve.

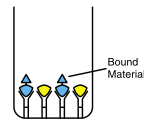
1. Microwells are coated with antibodies specific to the target substance



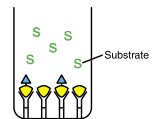
2. Conjugate competes with target substance/controls for antibody binding sites



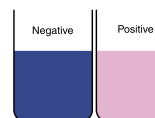
3. Conjugate and target substance/controls remain bound in wells



4. Substrate is added to produce a color change



5. Results are read visually or in a reader—the less blue color, or more red, the more target substance detected



Sandwich Enzyme-Linked Immunosorbent Assays (S-ELISAs)

(All food allergen and GeneQuence E. coli O157:H7 microwell test kits)

Each test kit contains antibody-coated wells with antibodies specific to the kit's target substance.

First, samples and controls are added to their respective wells. During an incubation, the target substance binds to the antibodies. The wells are washed to remove all unbound materials.

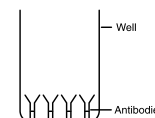
An enzyme conjugate (antibody chemically linked with an enzyme) is then added to all wells. During an incubation, conjugate binds to the already bound target substance, forming a "sandwich." The more target substance in the wells, the more conjugate that binds in the wells.

The wells are washed again to remove all unbound conjugate.

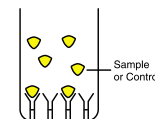
A substrate, which changes color in the presence of the conjugate, is then added to the wells. During an incubation, color develops in proportion to the amount of conjugate in the wells. The more conjugate, the more color, and the more target substance that is detected.

Results are read visually in a screening format—the more blue color, the more target substance detected. In a quantitative format, results are obtained by measuring the wells' color change in a microwell reader and comparing the readings against a standard curve.

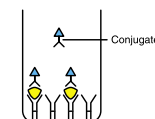
1. Microwells are coated with antibodies specific to the target substance



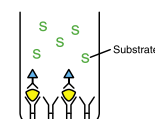
2. Samples and controls are added to their respective wells



3. Conjugate is added, which binds to already bound target substance



4. Substrate is added to produce a color change



5. Results are read visually or in a reader—the more blue color, the more target substance detected

