

MUTA-CHROMOPLATE TEST KIT

Fast and Easy to Perform Colorimetric Detection of Mutagenic activity



Muta-ChromoPlate Test Kit

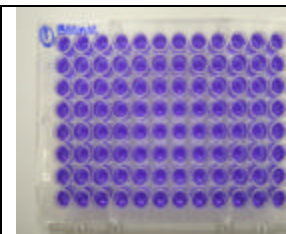
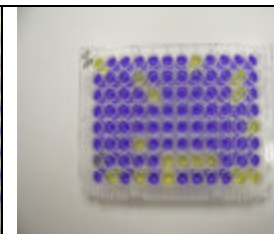
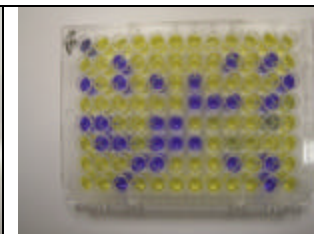
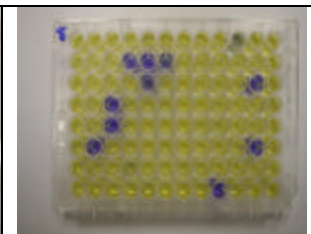
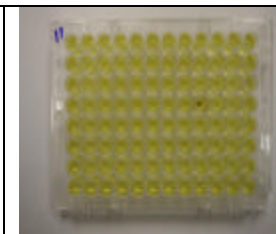
Overview

The Muta-ChromoPlate kit is a convenient approach for the detection of mutagenic activity and mutagenic materials in chemical water, sediment, air, chemicals, food components, cosmetics and biological fluids. The Muta-ChromoPlate is a 96-well microplate version of the *Salmonella typhimurium* ‘Ames Test’, and provides a clear colour endpoint. Reagents, cultures and other consumable components are ready-to-use in a non-specialized laboratory.

Principle

The Muta-ChromoPlate kit is based on the most generally used and validated bacterial reverse-mutation test, known as the ‘Ames Test’ (Ames *et al.*, 1975, Mutation Research 31: 347). The test employs a mutant strain, or several strains, of *Salmonella typhimurium*, carrying mutation(s) in the operon coding for histidine biosynthesis. When these bacteria are exposed to mutagenic agents, under certain conditions reverse mutation occurs conferring on the bacteria the ability to again produce the amino acid histidine.

Traditionally, reverse-mutation assays have been performed using agar plates. An alternate assay performed entirely in liquid culture is the ‘Fluctuation Test’, based on multiple yes/no colour endpoints. This test principle is being applied in the Muta-ChromoPlate. The Muta-ChromoPlate kit allows for up to 75% sample incorporation into the assay and can therefore detect genotoxic compounds at much lower concentrations. This modified test has been in research and proven to be sensitive enough to detect mutagens in nonconcentrated river and wastewater samples making it a much more attractive method for a genotoxicity analysis.

A	B	C	D	E.
				
<p>Above is a photo of a “Blank Plate” used to show that proper laboratory techniques and sterility techniques were used.</p>	<p>Photo B is a photo of a typical Background plate. This is an indication of a rate of natural reverse mutation.</p>	<p>Photo C shows an unknown sample that is showing a mutagenic response significantly above the background rate.</p>	<p>Photo D shows the same unknown sample as in photo C but at a higher concentration with a rate of reverse mutation even more significantly higher than the background.</p>	<p>Photo E is of the “Positive Control” plate of a known mutagenic material which is also included with the kit.</p>

Each well is considered a colony and is scored using table 2.0 in the manual.

The Muta-ChromoPlate Basic kit contains enough reagents and plastics for 12 plates: 1 Blank Plate, 1 Background Plate, 1 Positive Control leaving 9 Analysis plates to be run.

The Muta-ChromoPlate Bacterial Test kit contains two strains of bacteria and enough reagents and plastics for 24 plates: 1 Blank Plate, 2 Background Plates, 2 Positive Control Plates and 19 Analysis Plates.

The Muta-ChromoPlate kits can be run with or without the S9 activation enzymes; as some chemicals do not become mutagenic until they are metabolized by the body, a mixture of rat liver enzymes called S9 can be added to the analysis to better predict the mutagenic properties of a sample within a living system.

Tester Strains: Multiple tester strains can be used to determine the different types of mutation effects. The TA100 bacterial strain detects base pair substitution mutations within the DNA (the substitution of one amino acid for another in the protein made by the gene). The TA98 strain detects a frameshift mutation where the shifting of a gene’s reading frame changes the coding for the amino acid. The ability to use more strains while testing allows for a wider screening analysis of mutagens. Strains currently carried by EBPI include the TA97a, TA98, TA100, TA102 and the TA1535. The Muta-ChromoPlate Basic Kit includes the TA100 Strain where the Bacterial Strain Kit includes the TA100 and TA98 Strains unless other wise requested.

For more information on the Muta-ChromoPlate kits or Bacterial Strains please contact EBPI at <mailto:ebpi@ebpi-kits.com>.