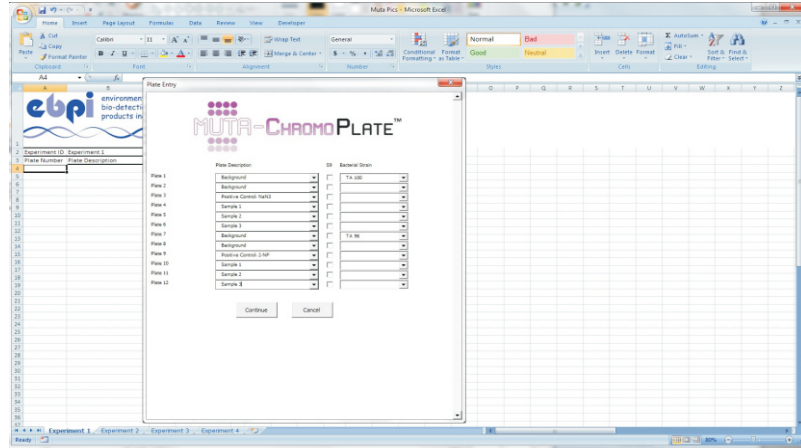


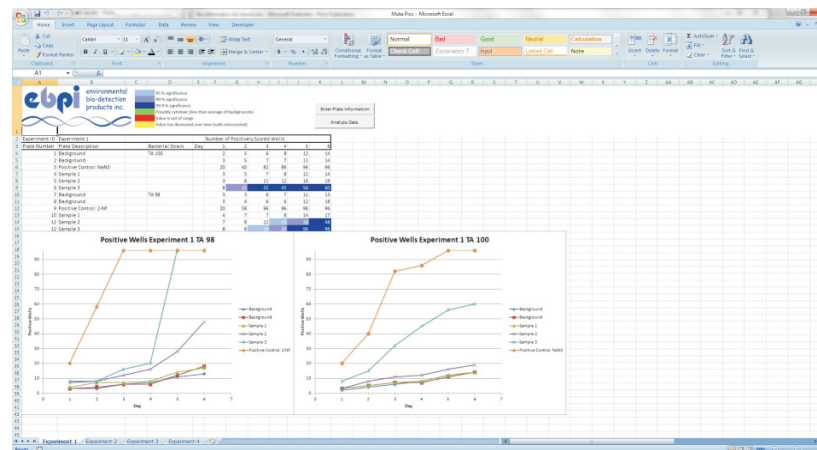
## Bioinformatics Tool kit

Available with each kit is our Bioinformatics Tool kit which includes an analytical spreadsheet for result interpretation.

The Ames Test spreadsheet features a simple interface which allows you to easy enter sample information and organize data.



Once you have entered sample information, the Bioinformatics Tool Kit will analyze your results, colour-code each plate response according to significance and generate graphs for each bacterial strain tested..

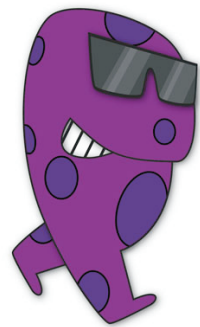


Measuring the **Health of the Environment**

The EBPI Line of Ames Test Kits



6800 Campobello Rd  
Mississauga, Ont, Canada  
905.826.TEST ph  
844.700.EBPI toll-free  
905.794.2338 fax  
www.Biotoxicity.com

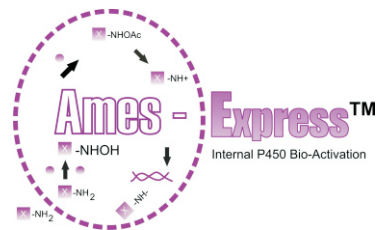


# MUTA-CHROMOPLATE™

## MUTA-CHROMOPLATE Reverse Mutation 'Ames Test' KIT

The **Muta-ChromoPlate™** is a 96-well microplate version of the *Salmonella typhimurium* 'Ames Test,' used for the detection of mutagenic activity in a wide range of sample sources. Environmental air and water samples, personal care products and industrial effluents can all be assessed using the Ames assay.

The **Muta-ChromoPlate™** provides a clear colour endpoint. Reagents, cultures and other consumable components are supplied ready-to-use in a non-specialized laboratory.



## AMES EXPRESS™ BACTERIAL STRAINS

EBPI is proud to officially announce the release of our NEW Ames bacterial strains, the **Ames-Express™** strains.

**Ames-Express™** strains are constructed from normal Ames bacterial strains (TA100, TA98, TA1535, TA97a, TA1538), but have been engineered to express either human P450 or GST-theta liver enzymes internally, which promotes bioactivation of xenobiotic molecules into DNA reactive species in the absence of an S9 mix.

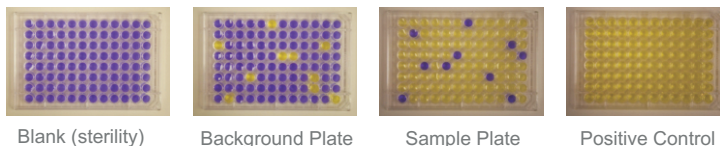
### A few of the benefits of the Ames-Express™ strains:

- Short-lived, reactive metabolites are created within the bacterial cell in close proximity to target DNA.
- Eliminates the need to incorporate S9 liver extract. Improvements in sensitivity and selectivity compared to traditional Ames assays.
- Response suppression from interactions with S9 lysate mix is eliminated.
- The system expresses recombinant human proteins rather than rat liver extract, which improves extrapolation of mutagenicity data to human health endpoints.



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 from amino acid (histidine) auxotrophy to prototrophy occurs.

Each well of the 96 well plate is considered a colony. If the colony reverts back to the natural state, a mutation has occurred. If a reverse mutation has occurred, the bacteria in the colony have the ability to synthesize histidine and will continue to grow turning the colour in the well from purple to yellow. The Muta-ChromoPlate™ kit (as with EBPI's other Ames Test) compares the background rate of spontaneous reversion events to the reversion rate caused by a test sample.



Above is an example of EBPI's Muta-ChromoPlate™ Ames Test Kit

### EBPI's AMES TESTS INCLUDE:

- Sterile micro-plates with lids
- Sterile multi-channel pipette reagent boats
- Sterile tubes
- Membrane filter (0.22 µm) unit for sample sterilization
- Bacterial Strains
- Controls and Reagents

### S9 ACTIVATION ENZYMES

As required for reverse mutation bacterial tests, bacteria should be tested in the presence and absence of an appropriate metabolic activation system.

**EBPI** employs the most commonly used bioactivation system which includes post-mitochondrial liver fractions isolated from Sprague Dawley male rats supplemented with cofactors.

The rats are treated with the enzyme-inducing agent Aroclor 1254 prior to the extraction of liver S9 fractions.

# AMES - 384 ISO™

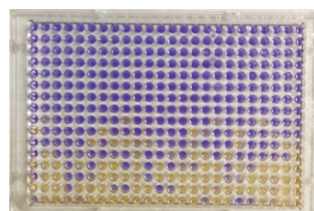
384 Well Format

## AMES 384 ISO Test

**EBPI's Ames ISO** procedure was developed to provide the same reliable assessments of mutagenic activity in environmental samples as the Muta-ChromoPlate with the added benefits of using smaller sample sizes, less reagents and plastics, a pre-exposure period and less waste.

The ISO method provides researchers with a reliable test method which is facile to set up and run, amenable to samples in aqueous solution or suspension and produces an easily-detectable colorimetric endpoint after 2-3 days of incubation at 37 °C.

**NOTE: The Ames ISO is not recommended for samples that may contain volatile compounds.**



An example plate of **EBPI's Ames 384 ISO Test** is located to the left. Each kit contains enough reagents and plastics for a total of 1152 end-points. Note the increased rate of mutagenicity near the bottom of the plate. Tests are designed around a 48 well format, where 2 rows are considered a control or sample.

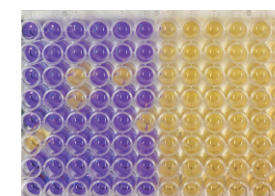
# AMES - MOD ISO™

96 Well Format

## AMES MODIFIED ISO

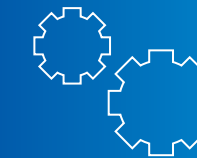
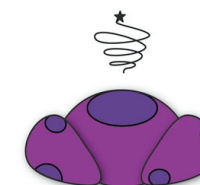
This method combines the benefits of the ISO method while maintaining the ease-of-use of the **Muta-ChromoPlate™** method. Smaller sample sizes are required and less reagents are used which is similar to the ISO, however, reversion media mixtures amounts and 96-well microplates facilitate pipetting and sample transfer to incubation step which mirrors the **Muta-ChromoPlate™** Ames test procedure. Tests employ a 48-well assessment format by dividing standard 96 well micro-plates in half, for each sample or control.

This method is a perfect hybrid between facility and efficiency and will be the preferred method depending on sample constituents. An example plate of the Modified ISO method is shown (right).



### EXAMPLE APPLICATIONS OF EBPI's AMES TEST KITS

- Testing of industrial effluents for presence of possible mutagenic compounds
- Screening of municipal discharges for possible routine presence or spills of mutagenic compounds
- Screening of surface and/or groundwater for mutagenic residues
- Screening of potable water supplies for the presence of chemicals with mutagenic potential
- Screening of water soluble air pollutants for mutagenic reagents
- Testing pharmaceuticals for mutagenic potential
- Evaluating personal care products and metabolites for genotoxicity



### CUSTOM SOLUTIONS

At **EBPI** we strive to meet the demands of our clients and their changing requirements. please contact us at [Sales@Biototoxicity.com](mailto:Sales@Biototoxicity.com) for further information

### Ames Express Bacterial Strains 2015:

- Human GST1-1
- Human P450 1A1
- Human P450 1A2
- Human P450 2E1
- Human P450 3A4

### UNIVERSITY AND COLLEGE SOLUTIONS

The Muta-ChromoPlate kit has been introduced into University and College laboratory classroom over the last 5 years. Due to the success and positive feedback, EBPI has finalized classroom protocols for laboratory instructors, complete with pre-laboratory questions and laboratory writeups. Please contact EBPI for full Protocols.

