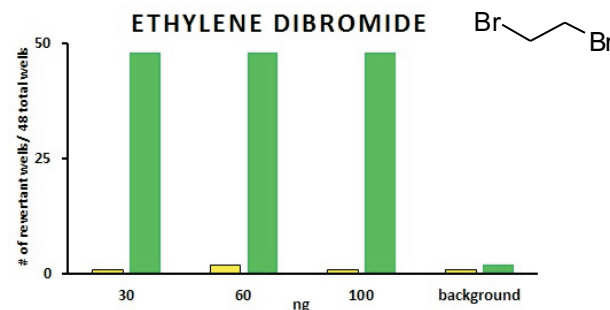


Ames-Express Internal P450 and GST Bioactivation is an ideal teaching tool!

- Illustrates metabolic pathways for environmental contaminants and pharmaceuticals by using individual human enzymes that selectively process different molecules.
- Provides visual evidence of bioactivation processes by transforming inactive starting molecules to reactive intermediates that damage DNA and proteins.
- Test utilizes mutations to provide results. Demonstrates the importance of mutations for disease development while supporting discussions on mutational variability.
- Ames assays are used prominently in healthcare, industry and government regulations. Students become familiar with this essential test system.
- Integrates molecular biology, chemistry and genetics in the study of genotoxicology, an important field of study with diverse employment possibilities.

The Ames-Express™ strains are a NEW, IMPROVED version of a proven industry standard test. EBPI has tailored these tests to express specific metabolic enzymes which can be used to investigate individual molecular interactions. These unique teaching aids illustrate important points about developing genetic diseases like CANCER.

(Right) Mutagenic response for Ethylene Dibromide (EDB) an industrial pollutant tested with traditional Ames test strain TA100 (yellow) and the new Ames Express bacterial strain TA100-GST (green).

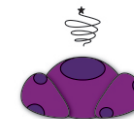


The P450 1A2 is responsible for metabolic bioactivation of several prominent environmental carcinogens including:

**Nitroaromatics
Aromatic amines
Polyaromatic hydrocarbons (PAHs)**

GST T1-1 is a conjugation enzyme that bioactivates SEVERAL important industrial toxicants including:

**Ethylene dibromide (EDB)
1,3-butadiene
Dichloromethane
Quinones**



- STIMULATES interest in science and laboratory methods by utilizing visual endpoints on RELEVANT molecules that are prominent in news and social media.
- DISCOVERY LEARNING is enhanced by providing students with the means to design an assay on topics of their choice.
- Kits are easy to use and include all plastics, reagents, bacteria and controls

EBPI has engineered a new line of bacterial strains that express human metabolic enzymes for reverse mutation assays known as the Ames test

Ames-Express™ Internal P450 1A2 and GST T1-1 Bioactivation

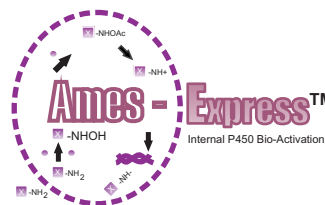
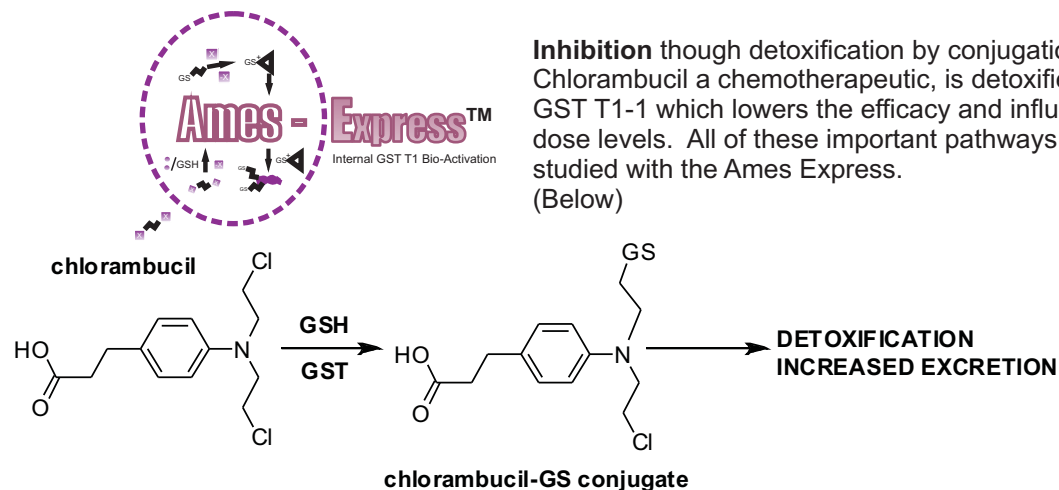
- P450 1A2 is an essential metabolic enzyme that metabolises several important molecules including polyaromatic hydrocarbons (PAH) and nitroaromatics. Students can use the Ames Express assays to directly study these phase 1 metabolic processes.
- GST T1 detoxifies many reactive compounds by conjugating them to glutathione. Students can learn about detoxification while directly observing the beneficial effects of phase 2 enzymes for mammalian systems.
- Students can directly study the factors that influence tissue and blood concentration as well as activation and inhibition of pharmacological action. These factors are essential in drug discovery and development.



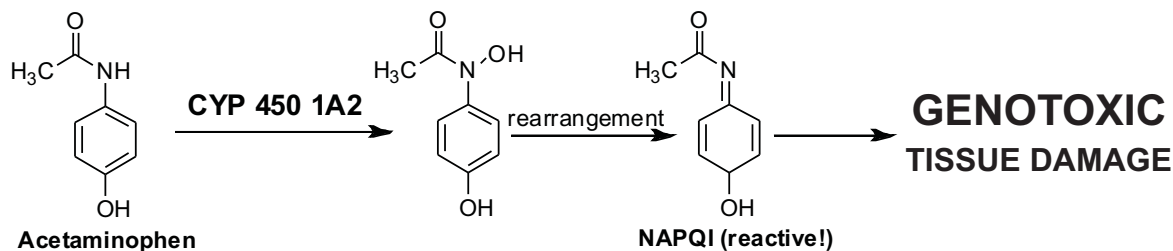
6800 Campobello Rd
Mississauga, Ontario Canada
(905) 487 - 7359



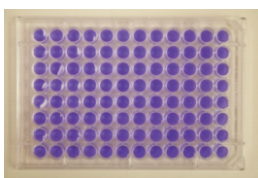
Ames-Express™ Internal Bioactivation System



Activation of P450 1A2: Acetaminophen is metabolized by CYP 1A2 to NAPQI which can cause DNA damage. This process is directly observable using the Ames Express Kit. (below)

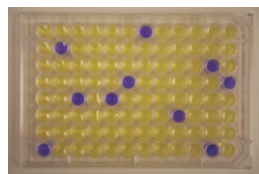


Ames Express strains in the Ames Test



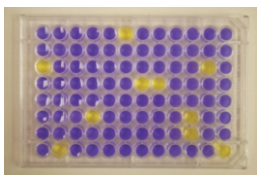
Sterility Control

(Ensure samples are properly sterilized)



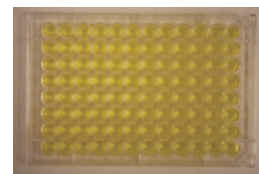
Sample Plate

(Mutagenic response from the bacteria)



Background Plate

(natural rate of background mutation)



Positive Control

(100% response to known mutagen)

The new Ames-Express™ Bacterial strain assays ENCOURAGE student to evaluate environmental, pollutants, pharmaceuticals and new industrial products for mutagenic activity through discovery learning.