MOLTOX®

Molecular Toxicology, Inc.

Genetic Toxicology

MOLTOX®

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Founded in 1986, MOLTOX® is a leading manufacturer of products used in mutagenicity tests. MOLTOX® minimal glucose agar plates, top agars, Salmonella and *E. coli* tester strains, frozen and lyophilized S9, MUTAZYME™, NADPH-regenerating systems and positive control chemicals are distributed worldwide. MOLTOX® offers Salmonella and *E. coli* test kits in plate incorporation and fluctuation test formats.

MOLTOX® media are manufactured with the best materials:

- Petri dishes are highest quality polystyrene. Dishes stack well and exhibit excellent optical clarity and dimensional uniformity.
- Many different containers including PETG, PET, natural polypropylene or polycarbonate containers with PTFE or white rubber closure liners are used. All containers are noncontaminating.
- Prepared media are formulated with industry standard Alpha Biosciences, Becton Dickinson, HiMedia as well as customer specified agars.
- Each lot of media is tested for sterility and, if appropriate, its ability to support the growth of the appropriate microorganism. Other customer specified criteria may be employed.
- All media are accompanied by GLP-compliant formulation and QC certificates.

The MOLTOX® production facility is equipped with modern manufacturing equipment including:

- On-Line Engineering™ plate pouring machines
- Automated media preparators
- Automated bottle and tube filling assemblies

MOLTOX® will manufacture media formulated and packaged to your specifications. Please contact us if you need media with non-standard agars, special salts or buffers, mixtures of antibiotics, chemically defined amino acid compositions or a particular compound of interest. We will be happy to supply you with a quote corresponding to your Custom Media requirement.

Get Social With Us!

MOLTOX® Distributors

Brazil

Interlab

www.interlabdist.com.br

Canada

Cedarlane Labs

www.cedarlanelabs.com

China

Shanghai Bioplus Biotech Col, Ltd.

www.bioplus-biotech.com

Europe

Trinova Biochem

www.trinova.de

India

Krishgen Biosystems

www.krishgen.com

Japan

Falma

www.falma.co.jp

North America

Fisher Scientific

www.fishersci.com

VWR Scientific

www.vwr.com

Puerto Rico

Instrumed

www.instrumed.net

Singapore

Vector Biomed

www.vbm.com.sg

South Korea

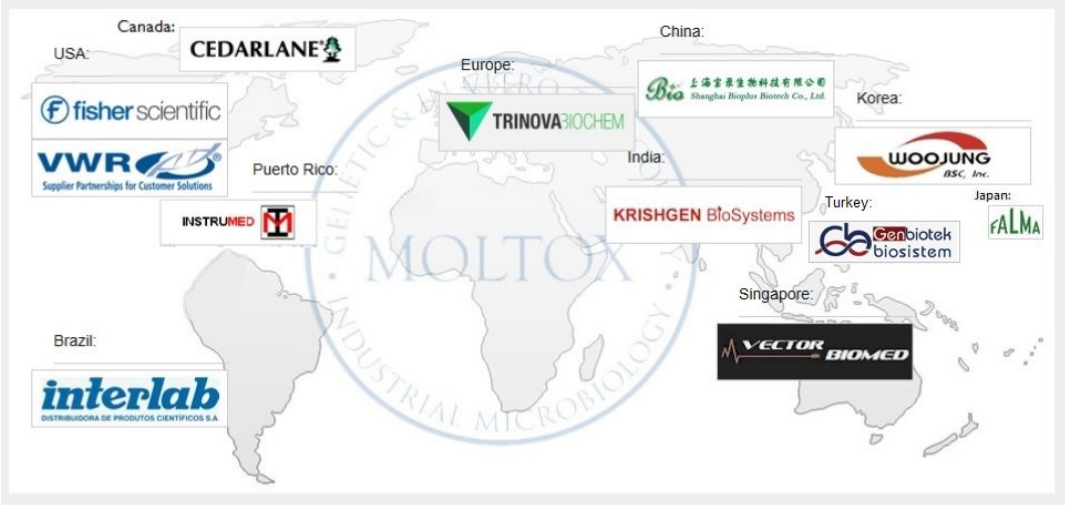
Woo Jung BSC, Inc.

www.woojungbsc.co.kr

Turkey

Genbiotek Biosistem

www.genbiotek.com



MOLTOX®

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TERMS

Terms are Net 30 for approved account holders. Payment in USD only; drafts drawn against US banks. Please contact our office for wire transfer instructions. Expenses pursuant to international monetary transactions are the responsibility of the buyer. Additional shipping and processing charges may apply.

PRODUCTS

All MOLTOX® products are manufactured for research purposes only.

ORDERING

Orders are processed, manufactured and shipped in the order they are received, based on raw material availability and scheduling requirements. Ship dates on Sales Order confirmations are estimates only. MOLTOX® reserves the right to change any ship date based on weather, raw materials, manufacturing conditions, storage conditions, etc. without penalty. Allow 24 hours for processing orders in the US and 48 hours for international orders.

SHIPPING

Freight: Freight is Prepay & Add to invoice, CIF from Boone, NC. All orders requested to ship on collect accounts are FOB Boone, NC. Additional packaging charges apply to dry ice and blue ice shipments. Shipping methods are based on transit time, storage conditions and viability of the product. MOLTOX® reserves the option to change any shipment to 2nd day delivery or reconfigure standard packaging scenarios based on weather, storage temperature, transit time, etc., to ensure optimal delivery of goods. All dry ice shipments ship Overnight Priority.

Hazardous Goods: MOLTOX® is fully compliant with the packaging provisions set forth by sections 2.6.5 and 2.6.6 of the IATA Dangerous Goods Regulations and the US DOT CFR 173.4 & 173.4b of the Electronic Code of Federal Regulations. As a result, a Hazardous Goods Handling fee of $25 will be imposed on all orders for those goods that fall under these regulations outlined in IATA 2.6 Dangerous Goods in Excepted Quantities.

Returns/Replacements/Credits: All made-to-order, custom or non-restockable items are non-returnable. Any returns must be authorized by MOLTOX® and shipped at the expense of returnee. Freight damage must be reported within 7 days of receipt. All packaging must be kept for freight company inspection and photos of the packaging and damaged product must be obtained and sent to MOLTOX® for claims processing. Products functionality and/or quality issues must be made known to MOLTOX® as soon as possible for credit and/or replacement authorization. Products suspected or known to have been stored, used or implemented improperly are not subject to replacement or credit.

STANDING ORDERS

MOLTOX® encourages standing orders. Please contact our customer service department for more information.

CUSTOM ORDERS

MOLTOX® specializes in custom manufacturing. Please contact customer service for more information.

Please review our full terms and conditions on our website at

www.MOLTOX.com

To Order:

CALL:

M-F 8;30am –5:00pm (EST)

US/Canada:

828.264.9099 or 800.536.7232

INTL: 001.828.264.9099

FAX

US/CAN/INTL:

828.264.0103

EMAIL

SALES: sales@MOLTOX.com

INFO: info@MOLTOX.com

CUSTOMER SERVICE

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Boone, NC 28607 USA

BACTERIAL MUTAGENESIS ASSAY

Estimations of the mutagenic potentials of chemicals, pesticides, drugs in commerce and in development play an important role in the process of safety assessment. Of the numerous test systems that have been developed over the past four decades, those employing variants of *Salmonella typhimurium* LT-2 and *Escherichia coli* WP2 have been most widely accepted.

The Salmonella mutagenicity assay, developed by Bruce Ames and his co-workers, has obtained world wide acceptance since its description in 1973 (Ames, et. al., PNAS, 69:2281. 1973). The popularity of what has come to be known as, the "Ames Assay" is reflected in the fact that the 1983 revised methods paper (Maron, D., and Ames, B., Mutat. Res., 113:173. 1983), has been cited over 8221 times to date (NCBI, 2018). Applied in several formats (e.g., spot test, preincubation assay and plate incorporation assay), the "Ames Assay" provides data bearing on questions of product safety and environmental health without a requirement for sophisticated equipment and costly specialized training. With the largest data base in the area of genetic toxicology, the assay has been codified via OECD 471 and is applied in product development and operations in many industrial and environmental contexts.

Assays utilizing *E. coli* WP2 strains (tryptophan requiring strains) have also been applied to questions of product safety (e.g., Mohn, G., et. al., Mutat. Res. 25:187. 1974 and Green, M.H.L. and Muriel, W.J., Mutat. Res. 38:3. 1976). WP2-based assay systems have also been codified in regulation (e.g., T. Sofuni, Environ. Mol. Mutagen. 21:2. 1993) and they are often used in conjunction with the "Ames Assay".

MOLTOX® mutagenesis assay kits contain the specialized materials required to perform Salmonella and *E. coli* assays in a convenient and economical format. Kit contents are complete with GLP-compliant documentation and each kit is accompanied by an application and instruction manual written with the first time user in mind.

Please note: Bacterial mutagenesis assay kits are sold only to qualified laboratories. Because of the inclusion of potentially infectious and hazardous components, kits are not available for instructional applications below the collegiate level or to individuals. For research only.

S9

MOLTOX® S9 preparations and cofactor reagents for use in metabolic activation studies are manufactured to rigorous standards of quality and performance and are used by leading research, government and academic laboratories worldwide. S9 and associated cofactors supply metabolic activation otherwise not present in genetic toxicology test systems. Use in any assay that requires an exogenous source of metabolic activation.

Minimal Glucose Agars

Our Minimal Glucose Agars are specifically formulated for use in bacterial mutagenicity assays. Along with the standard formulation as described by Maron & Ames, Mutat. Res. 113:173, 1983, and Mortelmans, K., and E. Zeiger (2000) The Ames Salmonella/microsome mutagenicity assay, Mutation Res., 455, 29–60, MOLTOX® offers various other formulations such as histidine and biotin supplemented bottom agar. Our MGA's are offered in case quantities or individual sleeves.

Top Agars

MOLTOX® prepared media and media components are specifically formulated for use in bacterial mutagenicity assays. Minimal Glucose agars, top agars, master plates, nutrient broth and phenotype confirmation media are prepared with various formulations for specialized laboratory needs. If your laboratory uses a specifically modified formulation or packaging, contact us.

Bacterial Tester Strains

Most commonly employed bacterial strains for use in mutagenicity testing are provided in convenient lyophilized disc format. Some strains are not amenable to freeze drying and are offered either suspended in transport medium or frozen. Strains are periodically characterized and verified for diagnostic phenotypes. Confirmed strains are lyophilized in modified ATCC Reagent 18, suspended in transport medium (TA1535psk), or frozen (TAMix). After preservation, samples are cultured and their phenotypes and responses to diagnostic mutagens again determined. Strains are accompanied by Quality Control statements that include the results of phenotypic confirmation, diagnostic mutagen response and viability assessment. Culture instructions are included with the QC Statement. Note: The bacterial strains contained in STDiscs™ and ECDiscs™ are potential etiologic agents and are intended for use only by those skilled in the safe handling of potentially infectious agents. Not offered below college level or to individuals. For research only.

Control Chemicals

CONTROLCHEM™ chemicals are obtained from major suppliers of research chemicals and are employed without further characterization or purification. Packaged quantities are precise within 1%. Please Note: CONTROLCHEM™ chemicals are known mutagens/carcinogens/toxins and are sold only to those experienced in the safe handling and disposal of hazardous materials. Consult your Institutional Safety Officer before ordering.

Phenotype & Growth Media

MOLTOX® prepared media and media components are specifically formulated for use in bacterial mutagenicity assays. Minimal Glucose agars, top agars, master plates, nutrient broth and phenotype confirmation media are prepared with various formulations for specialized laboratory needs. If your laboratory uses a specifically modified formulation or packaging, contact us.

Mutagenicity Assay Kits & Reagents

Applied in several formats, (e.g., spot test, preincubation assay, plate incorporation assay and fluctuation test), the "Ames Assay" provides data bearing on questions of product safety and environmental health. MOLTOX® mutagenicity assay kits contain the specialized materials required to perform such tests in a convenient and economical format. Kits are complete with GLP-compliant documentation and accompanied by an application and instruction manual written for the first time user in mind.

S9 & Regenerating Systems

MOLTOX® S9 preparations and cofactor reagents for use in metabolic activation studies are manufactured to rigorous standards of quality and performance and are used by leading research, government and academic laboratories worldwide. S9 and associated cofactors supply metabolic activation otherwise not present in genetic toxicology test systems. Use in any assay that requires an exogenous source of metabolic activation.

Frozen S9 preparations require ultra low storage conditions, ideally at -80°C. This type of S9 requires expedited shipping on dry ice and careful temperature considerations during the thaw process. Once thawed your S9 is ready for use with cofactors.

Frozen S9 (-80°C)

Phenobarbital/5,6-Benzoflavone

Sprague Dawley **Post mitochondrial supernatants prepared from Sprague Dawley male rat liver. Prepared using the treatment schedule of Matushima, et. al. 1976. In: de Serres, F.J, et. al., editors. In Vitro Metabolic Activation in Mutagenesis Testing. Amsterdam (NL) Elsevier/North Holland p. 85-88.**

2 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-105.2
5 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-105.5

This is also a commonly used S9. This induction shows similar activity and performance to Aroclor-1254 induced S9.

Frozen S9 (-80°C)

5,6-Benzoflavone

Sprague Dawley **Special Order - Contact customer service for minimum**

5 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-117.5

Prepared from treated tissue dosed with 200 mg/kg 5,6-benzoflavone for three consecutive days. Results in 50 to100 fold inductions of P450IAI (IA2) activities.

Frozen S9 (-80°C)

Phenobarbital

Sprague Dawley **Special Order - Contact customer service for minimum**

5 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-116.5

Prepared from treated tissue with 3 daily doses of 80 mg/kg phenobarbital. Levels of specific P450IIB activities are elevated 20 to 40 fold.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Frozen S9 (-80°C)						
Ethanol						
Sprague Dawley	**Special Order - Contact customer service for minimum**					
	2 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-115.2
	5 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-115.5
Prepared from tissue treated with 15% v/v ethanol in drinking water for 72 hours. Exhibits 4-5-fold induction of specific P450IIE1 activities.						
Frozen S9 (-80°C)						
Uninduced						
Sprague Dawley						
	2 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-102.2
	5 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	11-102.5
For use in control experiments. This S9 is prepared with untreated tissue.						
Frozen S9 (-80°C)						
Uninduced						
Fisher 344 Rat	**This product is similar to 11-102 except prepared from Fisher 344 male rat liver. Special Order - Contact customer service for minimum**					
	2 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	12-109.2
	5 ml	Frozen	1 each	Male Rat liver in 0.15 M KCl	Ultra Low (-80°C)	12-109.5
For use in control experiments. This S9 is prepared with untreated tissue.						
Frozen S9 (-80°C)						
Uninduced						
Golden Syrian Hamster	**For use in control experiments or for application in the "reductive" protocol as described by Prival & Mitchell, Mutat. Res. 97:103, 1982. Special Order - Contact customer service for minimum**					
	5 ml	Frozen	1 each	Male Hamster liver in 0.15 M KCl	Ultra Low (-80°C)	15-104.5
For use in control experiments. This S9 is prepared with untreated tissue.						
Frozen S9 (-80°C)						
Phenobarbital/5,6-Benzoflavone						
Golden Syrian Hamster	**Post mitochondrial supernatants specifically prepared for use in the "Modified" Ames test for petroleum oils.**					
	5 ml	Frozen	1 each	Male Hamster liver in 0.15 M KCl	Ultra Low (-80°C)	15-205.5
This is also a commonly used S9. This induction shows similar activity and performance to Aroclor-1254 induced S9.						

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Frozen S9 (-80°C)						
Uninduced						
B6C3F1 Mice	**Special Order - Contact customer service for minimum**					
	2 ml	Frozen	1 each	Male Mouse liver in 0.15 M KCl	Ultra Low (-80°C)	16-202.2
	5 ml	Frozen	1 each	Male Mouse liver in 0.15 M KCl	Ultra Low (-80°C)	16-202.5
For use in control experiments. This S9 is prepared with untreated tissue.						
Frozen S9 (-80°C)						
Uninduced						
CD-1 Mice	**Special Order - Contact customer service for minimum**					
	2 ml	Frozen	1 each	Male Mouse liver in 0.15 M KCl	Ultra Low (-80°C)	16-402.2
	5 ml	Frozen	1 each	Male Mouse liver in 0.15 M KCl	Ultra Low (-80°C)	16-402.5
For use in control experiments. This S9 is prepared with untreated tissue.						

Lyophilized S9 & MUTAZYME™

Freeze dried using a proprietary process that confers exceptional stability. Especially useful where an ultra low freezer is not available and where dry ice shipments are difficult or prohibitively expensive. Ready for use after reconstitution with the labeled volume of cold, sterile, purified water.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Lyophilized						
Phenobarbital/5,6-Benzoflavone						
	Post mitochondrial supernatants prepared from Sprague Dawley male rat liver. Prepared using the treatment schedule of Matushi ma, et. al. 1976. In: de Serres, F.J, et. al., editors. In Vitro Metabolic Activation in Mutagenesis Testing. Amsterdam (NL) Elsevier/North Holland p. 85-88.					
Sprague Dawley						
	1 ml	Lyophilized	1 each	Male Rat liver in 0.15 M KCl	Freezer	11-05L.1
	2 ml	Lyophilized	1 each	Male Rat liver in 0.15 M KCl	Freezer	11-05L.2
	5 ml	Lyophilized	1 each	Male Rat liver in 0.15 M KCl	Freezer	11-05L.5
This is also a commonly used S9. This induction shows similar activity and performance to Aroclor-1254 induced S9. .						
Golden Syrian Hamster	**Post mitochondrial supernatants specifically prepared for use in the "Modified" Ames test for petroleum oils.**					
	5 ml	Lyophilized	1 each	Male Syrian Hamster liver in 0.15 M KCl	Freezer	15-205L

MUTAZYME™ is complete and ready to use after reconstitution with cold sterile purified water. No secondary reagents/ solutions required. MUTAZYME™ can be stored in an ordinary –20˚C freezer - an ultra low is not required. MUTAZYME™ is completely characterized and contains the S9 and NADPH - regenerating system recommended by Maron and Ames (Mutat res. 113:173 –215, 1983) . MUTAZYME™ is recommended for use in Chromosome Aberration and In Vitro Micronucleus Assays.

MUTAZYME™ consists of PB/BNF induced male SD rat liver S9 mix. After reconstitution, the resultant S9 Mix is as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85).

Offerings include 5% and 10% for use in the Ames Assay (standard, micro, pre-incubation) and 30% for use in microtiter fluctuation tests (e.g., MOLTOX® FT™ tests).

MUTAZYME™ products are subjected to the same Quality Control analyses as MOLTOX® frozen and lyophilized S9. Each lot is accompanied by product data sheets which include the results of bioassay and biochemical analyses such as alkoxyresorufin-0-dealkylase activities, total protein content, S9 titrations vs. treatments of TA100 with B(a)P and 2-AA, and TA1535 and TA98 responses to CP and EtBr respectively.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Lyophilized						
MUTAZYME®						
	20 ml	Lyophilized	1 each	10% S9 Mix, PB/PNF Induced	Freezer	11-404L
	20 ml	Lyophilized	1 each	5% S9 Mix, PB/PNF Induced	Freezer	11-405L
	3.25 ml	Lyophilized	1 each	30% S9 Mix, PB/PNF Induced	Freezer	11-406.3L

Phenobarbital/5, 6-Benzoflavone induced Sprague Dawley male rat liver S9 lyophilized with NADPH-regenerating system cofactors and phosphate buffer. To use, simply reconstitute with the labeled volume of ice-cold, sterile, purified water. Available as 5%,10% and 30% S9 Mix.

Regenerating System Reagents

Convenient preformulated filter sterilized and prepackaged S9 mix components for preparation of 4 - 10% S9 mix. Regensys™ "A" is formulated as described by Maron & Ames, Mut. Res. 113: 173, 1983. Size refers to final volume of S9 mix. Regensys™ "B" consists of accurately weighed aliquots of crystalline NADP to add to corresponding Regensys™ "A" for completion of the Regensys™ system.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Regensys™ 'A'						
	15 ml (final volume)	"A"	1 each	Glucose-6-Phosphate, Mg/KCl in 0.1 M Phosphate Buffer, pH 7.4	Refrigerate	60-200.15
	40 ml (final volume)	"A"	1 each	Glucose-6-Phosphate, Mg/KCl in 0.1 M Phosphate Buffer, pH 7.4	Refrigerate	60-200.4
	50 ml (final volume)	"A"	1 each	Glucose-6-Phosphate, Mg/KCl in 0.1 M Phosphate Buffer, pH 7.4	Refrigerate	60-200.5
For use with corresponding Regensys™ "B"						
Regensys™ 'B'						
	46 mg (15 ml final volume)	"B"	1 each	Lyophilized NADP	Freezer	60-201.15L
	123 mg (40 ml final volume)	"B"	1 each	Lyophilized NADP	Freezer	60-201.4L
	153 mg (50 ml final volume)	"B"	1 each	Lyophilized NADP	Freezer	60-201.5L
For use with corresponding Regensys™ "A"						

Minimal Glucose Agars

Our Minimal Glucose Agars are specifically formulated for use in bacterial mutagenicity assays. Along with the standard formulation as described by Maron & Ames, Mutat. Res. 113:173, 1983, MOLTOX® offers various other formulations such as different glucose concentrations. Our MGA's are offered in case quantities or individual sleeves.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Minimal Glucose Agar						
CASE QUANTITES						
	30 ml	100 mm	500 plates/case	2% Glucose	Room Temp	21-400.5
	25 ml	100 mm	500 plates/case	0.4% Glucose	Room Temp	21-40S10
	25 ml	100 mm	500 plates/case	2% Glucose	Room Temp	21-40S21
	25 ml	100 mm	500 plates/case	0.4% Filter Sterilized Glucose	Room Temp	21-40S29
	28 ml	100 mm	500 plates/case	0.4% Glucose	Room Temp	21-40S65

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Minimal Glucose Agar						
SINGLE UNITS						
	30 ml	100 mm	20 plates/sleeve	2% Glucose	Room Temp	21-400.2
	25 ml	100 mm	20 plates/sleeve	0.4% Glucose	Room Temp	21-40S10.2
	3 ml well	12 well	2 plates/sleeve	2% Glucose	Room Temp	21-40S18.138
	5 ml well	6 well	2 plates/sleeve	2% Glucose	Room Temp	21-40S19.138
	4 ml	35 mm	10 plates/sleeve	2% Glucose	Room Temp	21-40S232
	5 ml/well	6 well	2 plates/sleeve	0.4% Glucose	Room Temp	21-40S284
	4 ml	35 mm	10 plates/sleeve	0.4% Glucose w/His/Bio	Refrigerate	21-40S286
	1.3 ml/well	24 well	2 plates/sleeve	0.4% Glucose	Refrigerate	21-40S294
	5 ml/well	6 well	2 plates/sleeve	BBL Select/0.25% Glucose	Room Temp	21-40S299
	1.25 ml/well	24 well	2 plates/sleeve	0.25 % Glucose	Refrigerate	21-40S300
	1 ml/well	24 well	2 plates/sleeve	2% Glucose	Refrigerate	21-40S307
	5 ml/well	6 well	2 plates/sleeve	L-Histidine & D-Biotin/ 2% Glucose	Room Temp	21-40S313
	5 ml/well	6 well	2 plates/sleeve	L-Histidine & D-Biotin/ 0.4% Glucose	Room Temp	21-40S314
	4 ml	35 mm	10 plates/sleeve	0.4% Glucose	Room Temp	21-40S324
	1 ml/well	24 well	2 plates/sleeve	0.4% Glucose	Refrigerate	21-40S72
	600 ml	Glass Bottle	1 each	0.25 % Glucose	Room Temp	26-686

Top Agars

MOLTOX® prepared media and media components are specifically formulated for use in bacterial mutagenicity assays. Minimal Glucose agars, top agars, master plates, nutrient broth and phenotype confirmation media are prepared with various formulations for specialized laboratory needs. If your laboratory uses a specifically modified formulation or packaging, contact us.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Top Agar						
	100 ml	Glass Bottle	1 each	0.7% Agar	Room Temp	26-501.1
	250 ml	Glass Bottle	1 each	0.7% Agar	Room Temp	26-501.25
	300 ml	Glass Bottle	1 each	0.7% Agar	Room Temp	26-501.3
	500 ml	Glass Bottle	1 each	0.7% Agar	Room Temp	26-501.5
	600 ml	Glass Bottle	1 each	0.7% Agar	Room Temp	26-501.6
	300 ml	Glass Bottle	1 each	BBL Select, 0.8% Agar	Room Temp	26-525.3
	600 ml	Glass Bottle	1 each	BBL Select, 0.8% Agar	Room Temp	26-525.6
	500 ml	Glass Bottle	1 each	0.6% Agar	Room Temp	26-632.5
For use with Minimal Glucose Agar, S. typhimurium and *E. coli* WP2 strains in the Ames assay. Requires supplementation.						
Top Agar						
Histidine/Biotin/Tryptophan						
	100 ml	Glass Bottle	1 each	Histidine/Biotin/Tryptophan; 0.05 mM	Room Temp	26-721.1
	250 ml	Glass Bottle	1 each	Histidine/Biotin/Tryptophan; 0.05 mM	Room Temp	26-721.25
	500 ml	Glass Bottle	1 each	Histidine/Biotin/Tryptophan; 0.05 mM	Room Temp	26-721.5
	750 ml	Glass Bottle	1 each	Histidine/Biotin/Tryptophan; 0.05 mM	Room Temp	26-721.75
For use with Minimal Glucose Agar, S. typhimurium and *E. coli* WP2 strains in the Ames assay.						

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Top Agar						
L-Histidine/D-Biotin Agar						
	2 ml	Glass Tube	10 tubes/box	0.05 mM His/Bio; 0.7% Agar	Room Temp	22-123
	100 ml	Glass Bottle	1 each	0.05 mM His/Bio; 0.7% Agar	Room Temp	26-503.1
	300 ml	Glass Bottle	1 each	0.05 mM His/Bio; 0.7% Agar	Room Temp	26-503.3
	500 ml	Glass Bottle	1 each	0.05 mM His/Bio; 0.7% Agar	Room Temp	26-503.5
	500 ml	Glass Bottle	1 each	0.05 mM His/Bio; 0.6% Agar	Room Temp	26-545
For use with Minimal Glucose Agar and *S. typhimurium* strains in the Ames assay.						
Top Agar						
Tryptophan Agar						
	100 ml	Glass Bottle	1 each	0.05 mM Tryptophan; 0.7% Agar	Room Temp	26-502.1
	300 ml	Glass Bottle	1 each	0.05 mM Tryptophan; 0.7% Agar	Room Temp	26-502.3
	100 ml	Glass Bottle	1 each	0.05 mM Tryptophan; 0.7% Agar	Room Temp	26-546
For use with Minimal Glucose Agar and *E. coli* WP2 strains in the Ames assay.						

Bacterial Tester Strains

Most commonly employed bacterial strains for use in mutagenicity testing are provided in convenient lyophilized disc format. Some strains are not amenable to freeze drying and are offered either suspended in transport medium or frozen. Strains are periodically characterized and verified for diagnostic phenotypes. Confirmed strains are lyophilized in modified ATCC Reagent 18, suspended in transport medium (TA1535psk), or frozen (TAMix). After preservation, samples are cultured and their phenotypes and responses to diagnostic mutagens were determined. Strains are accompanied by Quality Control statements that include the results of phenotypic confirmation, diagnostic mutagen response and viability assessment. Culture instructions are included with the QC Statement. Note: The bacterial strains contained in STDiscs™ and ECDiscs™ are potential etiologic agents and are intended for use only by those skilled in the safe handling of potentially infectious agents. Not offered below college level or to individuals. For research only.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
STDisc™ *Salmonella typhimurium* strains for use in the bacterial mutagenesis assay described by Maron & Ames, Mutat. Res. 113: 173, 1983.						
Lyophilized STDisc						
TA97a	10 discs	Lyophilized	1 each	[*hisD6610, hisO1242, uvrB, rfa*, pKM101]	Refrigerate	71-097L
TA98	10 discs	Lyophilized	1 each	[*hisD3052, uvrB, rfa*, pKM101]	Refrigerate	71-098L
TA100	10 discs	Lyophilized	1 each	[*hisG46, uvrB, rfa*, pKM101]	Refrigerate	71-100L
TA102	10 discs	Lyophilized	1 each	[*hisG428, rfa*, pKM101, pAQ1]	Refrigerate	71-102L
TA1535	10 discs	Lyophilized	1 each	[*hisG46, uvrB, rfa*]	Refrigerate	71-1535L
TA1535/pSK	1 ml	Frozen	1 each	[*hisG46, uvrB, rfa, psk1002*]	Ultra Low (-80°C)	73-1535PSK
TA1537	10 discs	Lyophilized	1 each	[*hisC3076, uvrB, rfa*]	Refrigerate	71-1537L
TA1538	10 discs	Lyophilized	1 each	[*hisD3052, uvrB ,rfa*]	Refrigerate	71-1538L
ECDisc™ *Escherichia coli* strains (WP2 derivatives) for use in the bacterial mutagenesis assay described by Green & Muriel, Mutat. Res. 38: 3, 1976.						
Lyophilized ECDisc						
	10 discs	Lyophilized	1 each	WP2 [*trpE*, pKM101]	Refrigerate	72-002L
	10 discs	Lyophilized	1 each	WP2 [*trpE, uvrA*, pKM101]	Refrigerate	72-003L
	10 discs	Lyophilized	1 each	WP2 [*trpE*]	Refrigerate	72-187L
	10 discs	Lyophilized	1 each	WP2 [*trpE, uvrA*]	Refrigerate	72-188L
TAMix consists of an equivocal mixture of *S.typhimurium* strains TA7000 through TA7006. The TA7000 series strains are responsive to each of the several possible base-pair substitution events.						
	1ml	Frozen	1 each	*Salmonella Typhimurium* TA Mix Cells	Ultra Low (-80°C)	32-71001F

Control Chemicals

CONTROLCHEM™ chemicals are obtained from major suppliers of research chemicals and are employed without further characterization or purification. Packaged quantities are precise within 1%.
Please Note: CONTROLCHEM™ chemicals are known mutagens/carcinogens/toxins and are sold only to those experienced in the safe handling and disposal of hazardous materials. Consult your Institutional Safety Officer before ordering.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	STORAGE	PART #
Direct Acting (-S9)					
Direct acting mutagens do not require the use of S9 metabolic activation.					
Mitomycin C					
(CAS# 1404-00-8)					
	5.0 mg	Dry	5 vials/pack	Refrigerate	60-100
	50 µg	Dry	5 vials/pack	Refrigerate	60-100.6
	150 µL/vial; 40 µg/ml	in dH2O	5 vials/pack	Refrigerate	60-100.7
	10 µg	Dry	5 vials/pack	Refrigerate	60-100.10
	100 µg	Dry	5 vials/pack	Refrigerate	60-100.11
	20 µg	Dry	5 vials/pack	Refrigerate	60-100.20
	100 µL/vial; 1mg/ml	in DMSO	5 vials/pack	Ultra Low (-80°C)	60-100A100D
	1.0 ml/vial; 500 µg/ml	in dH2O	5 vials/pack	Freezer	60-123
For use in Ames test with TA102 tester strain. Dose 0.5 µg/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.					
ICR 191					
(CAS# 17070-45-0)					
	10 µg	Dry	5 vials/pack	Refrigerate	60-101
	60 µg	Dry	5 vials/pack	Refrigerate	60-102
For use in Ames test with TA98 & TA1538 tester strains. Dose 60 µg/plate. Reconstitute with organic solvents such as DMSO or sterile dH2O as applicable.					

PRODUCT	FILL SIZE	FORMAT	PACKAGING	STORAGE	PART #
Sodium Azide					
(CAS# 26628-22-8)					
	15 µg	Dry	5 vials/pack	Refrigerate	60-103
	10 µg	Dry	5 vials/pack	Refrigerate	60-103.1
	100 µg	Dry	5 vials/pack	Refrigerate	60-103.3
	200 µg	Dry	5 vials/pack	Refrigerate	60-120
	100 µg	Dry	1 vial/pack	Refrigerate	60-124
For use in Ames test with TA100 & TA1535 tester strains. Dose 1.5 - 5.0 µg/plate. Reconstitute dry products with sterile dH2O as applicable.					
9-aminoacridine- HCL					
(CAS# 52417-22-8)					
	1.0 mg	Dry	5 vials/pack	Refrigerate	60-147
	500 µg	Dry	5 vials/pack	Refrigerate	60-147.5
	500 µg	Dry	1 vial/pack	Refrigerate	60-158
For use in Ames test with TA1537 & TA97a tester strains. Dose 50 µg/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.					
Methyl methanesulfonate					
(MMS; CAS# 66-27-3)					
	25 µL	Neat	5 vials/pack	Refrigerate	60-108
	77 µL (100 mg)	Neat	5 vials/pack	Refrigerate	60-108.1
	1.0 mL/vial; 25 µL	in DMSO	5 vials/pack	Ultra Low (-80˚C)	60-108A25
For use in *E. coli* mutagenicity test with *E. coli* WP2 tester strains. Dose 2.5 µL/plate. Dilute with organic solvents such as DMSO or sterile dH2O as applicable.					
N4-Aminocytidine					
(CAS# 57294-74-3)					
	2.5 mg	Dry	1 vial/pack	Refrigerate	60-160
For use in Ames test with TA98 & TA1538 tester strains. Dose 1 - 2 µg/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.					
2-Nitroflourene					
(CAS#607-57-8)					
	20 µg	Dry	5 vials/pack	Refrigerate	60-111
	100 µg	Dry	5 vials/pack	Refrigerate	60-111.1
	1 mg	Dry	5 vials/pack	Refrigerate	60-111.4
	50 µg	Dry	1 vial/pack	Refrigerate	60-161
For use in Ames test with TA98 & TA1538 tester strains. Dose 1 - 2 µg/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.					

PRODUCT	FILL SIZE	FORMAT	PACKAGING	STORAGE	PART #
Ethyl methane- sulfonate					
(EMS; CAS# 62-50-0)					
	20 µg	Dry	5 vials/pack	Refrigerate	60-115
For use in *E. coli* mutagenicity test with *E. coli* WP2 tester strains. Dose 2.0 µL/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.					
4-Nitroquinoline–N-oxide					
(4-NQO; CAS# 56-57-5)					
	50 µg	Dry	5 vials/pack	Refrigerate	60-121.1
	10 µg	Dry	5 vials/pack	Refrigerate	60-121.3
	100 µL; 25 µg/mL	in DMSO	5 vials/pack	Ultra Low (-80˚C)	60-128A100
	1.0 mg	Dry	1 vial/pack	Refrigerate	60-128
	50 µg	Dry	1 vial/pack	Refrigerate	60-159
	12.5 µg	Dry	1 vial/pack	Refrigerate	60-163

For use in bacterial reverse mutation assays with all Ames strains as well as WP2 tester strains. Dose 0.5 - 4 µg/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.

Indirect Acting (+S9)

Indirect acting mutagens require the use of S9 metabolic activation.

2-Aminofluorene					
(CAS# 153-78-6)					
	100 µg	Dry	5 vials/pack	Refrigerate	60-104
For use in bacterial reverse mutation assays with all Ames strains as well as WP2 tester strains. Dose 10 - 20 µg/plate. Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.					
2-aminoanthracene					
(CAS# 613-13-8)					
	100 µg	Dry	5 vials/pack	Refrigerate	60-107
	200 µg	Dry	5 vials/pack	Refrigerate	60-107.2
	20 µg	Dry	5 vials/pack	Refrigerate	60-107.21
	500 µg	Dry	5 vials/pack	Refrigerate	60-107.5
	100 µg	Dry	1 vial/pack	Refrigerate	60-157
	2.0 mg	Dry	1 vial/pack	Refrigerate	60-157.2
	50 µg	Dry	1 vial/pack	Refrigerate	60-164

For use in Ames test with the following corresponding tester strains and dosage:

- TA1538. Dose 2 - 10 µg/plate.
- TA97a, TA98, TA100. Dose 1 - 5 µg/plate.
- TA102. Dose 5 - 10 µg/plate.
- *E. coli* WP2, *E. coli* WP2 *uvrA*, *E. coli* WP2 pKM101, *E. coli* WP2 *uvrA* pKM101. Dose 20 µg/plate.

Reconstitute dry products with organic solvents such as DMSO or sterile dH2O as applicable.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	STORAGE	PART #
Danthron					
(CAS# 117-10-2)					
	1.0 ml; 500 µg/ml	in DMSO	5 vials/pack	Freezer	60-122
For use in Ames test with TA102 tester strain. Dose 50 µg/plate. Reconstitute with organic solvents such as DMSO or sterile dH2O as applicable.					
Cyclophosphamide					
(CAS# 6055-19-2)					
	1.0 mg	Dry	5 vials/pack	Refrigerate	60-113
	1.5 mg	Dry	5 vials/pack	Refrigerate	60-113.15
	1.75 mg	Dry	5 vials/pack	Refrigerate	60-113.75
	100 µL; 1.0 mg/mL	in DMSO	5 vials/pack	Ultra Low (-80°C)	60-113A100
	100 µL; 1.0 mg/mL	in DMSO	5 vials/pack	Refrigerate	60-119
For use in Ames test with TA1535 & TA100 tester strains. Dose 100 µg/plate. Reconstitute in organic solvent such as DMSO or sterile dH2O as applicable.					
Benzo (a) pyrene					
(CAS# 50-32-8)					
	200 µg	Dry	5 vials/pack	Refrigerate	60-114
	2.5 mg	Dry	1 vial/pack	Refrigerate	60-114.2
	60 µg	Dry	5 vials/pack	Refrigerate	60-114.6
	60 mg	Dry	5 vials/pack	Refrigerate	60-114.7
For use in Ames test with TA1535, TA1538, TA100 & TA98 tester strains. Dose 20 µg/plate. Reconstitute in organic solvent such as DMSO or sterile dH2O as applicable.					
7,12 Dimethylbenzanthracene					
(DMBA; CAS# 76543-88-9)					
	150 µg	Dry	5 vials/pack	Refrigerate	60-135
For use in Ames test with TA100 & TA1535 tester strains. Dose 5 - 10 µg/plate. Reconstitute in organic solvent such as DMSO or sterile dH2O as applicable.					

Phenotype & Growth Media

MOLTOX® prepared media and media components are specifically formulated for use in bacterial mutagenicity assays. Minimal Glucose agars, top agars, master plates, nutrient broth and phenotype confirmation media are prepared with various formulations for specialized laboratory needs. If your laboratory uses a specifically modified formulation or packaging, contact us.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Nutrient Agar						
	30 ml	100 mm plate	20 plates/sleeve	Oxoid #2	Room Temp	21-100
	30 ml	100 mm plate	10 plates/sleeve	Oxoid #2	Room Temp	21-100.1
	5 ml/well	6 well	2 plates/sleeve	Oxoid #2 w/VBE	Room Temp	21-40S304

Nutrient Agar is a general purpose medium for the cultivation and maintenance of nonfastidious organisms. It can be used for the cultivation and enumeration of organisms in water, sewage, feces and other materials. Nutrient agars prepared with Oxoid Nutrient Broth No. 2, specified by Maron & Ames, Mutat. Res. 113: 173, 1983, are used for general growth and CFU determinations of Ames *S. typhimurium* and *E. coli* WP2 strains.

Nutrient Broth						
	25 ml	Plastic Bottle	1 each	Oxoid #2	Room Temp	26-505.025
	50 ml	Plastic Bottle	1 each	Oxoid #2	Room Temp	26-505.05
	100 ml	Glass Bottle	1 each	Oxoid #2	Room Temp	26-505.1
	300 ml	Glass Bottle	1 each	Oxoid #2	Room Temp	26-505.3
	500 ml	Glass Bottle	1 each	Oxoid #2	Room Temp	26-505.5
	300 ml	Glass Bottle	1 each	Oxoid #2 w/ VBE	Room Temp	26-555.3
	500 ml	Glass Bottle	1 each	Oxoid #2 w/ VBE	Room Temp	26-555.5

Nutrient Broth is used for the cultivation of various nonfastidious microorganisms. The formulations which include Oxoid Nutrient Broth No. 2 are primarily used in the Ames assay as specified by Maron & Ames, Mutat. Res. 113: 173, 1983 for culture of *S. typhimurium* and *E. coli* WP2.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Ampicillin Masters						
	30 ml	100 mm plate	5 plates/sleeve	MGA w/His/Bio + Amp For use w/R-factor strains	Refrigerate	21-201
	25 ml	100 mm plate	20 plates/sleeve	Ampicillin masters w/ Histidine, Biotin & Tryptophan	Refrigerate	21-40S39
For phenotype confirmation of Ames *S. typhimurium* and *E. coli* WP2 strains. Minimal Glucose Agar supplemented with Histidine, Biotin and Ampicillin. For use with pKM101 strains.						
Ampicillin /Tetracyline Masters						
	20 ml	100 mm plate	5 plates/sleeve	Tetracycline masters : MGA w/ Histidine, Biotin Ampicillin & and Tetracycline For use with TA102 (pAQ1)	Refrigerate	21-202
For phenotype confirmation of *S. typhimurium* Ames strains. Minimal Glucose Agar supplemented with histidine, biotin, ampicillin and tetracycline. For use with pAQ1 strains.						
EC TRI PC™						
	8-9 ml/sector	Tri plate	5 plates/sleeve	MGA (I); MGA+ Tryptophan (II), MGA+ Tryptophan + Ampicillin (III)	Refrigerate	21-199
For phenotype confirmation of *E. coli* WP2. Tests for tryptophan auxotrophy & pKM101 presence in the Ames assay.						
Histidine/Biotin Masters						
	30 ml	100 mm plate	5 plates/sleeve	MGA w/His/Bio For non R-factor strains	Room Temp	21-203
	29 ml	100 mm plate	20 plates/sleeve	MGA w/ His/Bio For non R-factor strains	Room Temp	21-40S69
For phenotype confirmation of *S. typhimurium* Ames strains. Minimal Glucose Agar with excess histidine and biotin. For use with all *S. typhimurium* Ames strains.						

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Phenotype Confirmation Well Plates						
	3.5 ml/well	6 well	2 plates/sleeve		Refrigerate	21-40S296
For phenotype confirmation of *S. typhimurium* and *E. coli* WP2 Ames strains. Use with phenotype test packet, PN 26-300.						
ST QUAD PC™						
	5-6 ml/sector	Quad plate	5 plates/sleeve	MGA (I); MGA w/His/Bio (II), MGA w/His/Bio +Amp (III) MGA w/His/Bio, Amp + Tet (IV)	Refrigerate	21-200
For phenotype confirmation of *S. typhimurium* Ames strains. Tests for histidine auxotrophy, pKM101, & pAQ1 presence. Supplied w/ crystal violet discs.						
Trytophan UV Plates						
	28 ml	100 mm	20 plates/sleeve		Room Temp	21-40S70
Minimal Glucose Agar plates supplemented with excess Tryptophan for use with *E. coli* WP2 strains in mutagenicity assay procedures.						

BACTERIAL MUTAGENESIS ASSAY KITS

31-100 SALMONELLA MUTAGENICITY TEST KIT. Consists of materials for the "Ames Assay" in convenient, easy to use and cost saving format. See full list of kit components on page 25.

31-101 E. Coli MUTAGENICITY TEST KIT. The materials contained in this E. coli Mutagenicity Assay Kit include virtually all of the supplies necessary for the conduct of the assay as described by Green & Muriel, Mutat. Res. 38: 3, 1976.
See full list of kit components on page 26.

31-500 MOLTOX® µAmes Kit. This kit allows the Ames bacterial mutation test described in OECD guideline 471 to be performed in a miniature, 24-well plate format.
See full list of kit components on page 27.

31-301 MOLTOX® FT™ 471 Mutagenicity Assay Kit. MOLTOX® FT™ tests measure the ability of test material treatments to induce reversion of histidine-requiring *Salmonella typhimurium* strains or *Escherichia coli* tryptophan auxotrophs to their respective prototrophic conditions.
See full list of kit components on page 28.

31-302 MOLTOX® FT™ E. coli Mutagenicity Assay Kit. MOLTOX® FT™ tests measure the ability of test material treatments to induce reversion of histidine-requiring *Salmonella typhimurium* strains or *Escherichia coli* tryptophan auxotrophs to their respective prototrophic conditions.
See full list of kit components on page 29.

31-300 MOLTOX® FT™ TA98/TA100 Mutagenicity Assay Kit. MOLTOX® FT™ tests measure the ability of test material treatments to induce reversion of histidine-requiring *Salmonella typhimurium* strains or *Escherichia coli* tryptophan auxotrophs to their respective prototrophic conditions.
See full list of kit components on page 30.

Other Available Kits

31-400 MOLTOX® UMU Genotoxicity Test Kit. MOLTOX® UMU Genotoxicity Test Kit protocol was adapted from ISO 13829 "Water Quality- Determination of the genotoxicity of water and waste water using the UMU test".
See full list of kit components on page 31.

Mutagenicity Assay Kits & Reagents

Applied in several formats, (e.g., spot test, preincubation assay, plate incorporation assay and fluctuation test), the "Ames Assay" provides data bearing on questions of product safety and environmental health. MOLTOX® mutagenicity assay kits contain the specialized materials required to perform such tests in a convenient and economical format. Kits are complete with GLP-compliant documentation and accompanied by an application and instruction manual written for the first time user in mind.

Salmonella Mutagenicity Assay Kit

The materials contained in this Salmonella Mutagenicity Assay Kit include virtually all of the supplies necessary for the conduct of the "Ames Assay" as described by Maron & Ames (Maron, D. M. and B. N. Ames, Revised methods for the *Salmonella* mutagenicity test, Mutation Research, 113: 173-215, 1983) and Mortelmans & Zeiger (Mortelmans, K. and E. Zeiger, The Ames *Salmonella*/microsome mutagenicity assay, Mutation Research, 455: 29-60, 2000). We strongly recommend that you carefully read one of these papers and OECD guideline 471 before you attempt to perform the assay. The MOLTOX® kit contains four tester strains; TA1535, TA1537, TA98, and TA100. Each strain was constructed with a different lesion in the histidine operon. This mutation renders them incapable of synthesizing histidine, i.e. they are histidine auxotrophs requiring exogenous histidine. In addition, TA1535, TA1537, TA98, and TA100 have altered cell walls (*rfa*) that increase the cell's permeability to certain high molecular weight materials. These strains also share a lesion in a DNA repair-coding gene (*uvrB*) which results in an increase in sensitivity to a variety of mutagens [since this lesion extends through the gene for biotin synthesis (*bio*), biotin is also required for growth]. Tester strains TA98 and TA100 carry a plasmid (pKM101) which acts to increase the activity of an error-prone DNA repair system and to confer resistance to the antibiotic ampicillin; TA1535 and TA1537 contain no plasmids. The MOLTOX® Salmonella Mutagenicity Test Kit includes sufficient components for testing 1 unknown sample, in triplicate analysis of 5 concentrations, positive and negative controls, with and without S9. MOLTOX® 30% PB/BNF S9 Mix is a freeze-dried product that contains Phenobarbital/β-Naphthoflavone induced Sprague Dawley rat liver S9 and cofactors as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85). Reconstitute to the label volume using ice cold, sterile, purified water – maintain on ice.

Salmonella Mutagenicity Assay Kit
See list of components below. 31-100.2

DESCRIPTION	PART #	DESCRIPTION	PART #
TA1535; 10 disc/vial	71-1535L	Daunomycin; 60 µg/vial	60-102
TA98; 10 disc/vial	71-098L	Sodium Azide; 15 µg/vial	60-103
TA100; 10 disc/vial	71-100L	2-Aminoanthracene; 100 µg/vial	60-107
TA1537; 10 disc/vial	71-1537L	Nutrient Broth; 100 ml	26-505.1
Lyophilized S9; 2.1mL/vial (2)	11-05L..2	His/Bio Top Agar; 100 ml (4)	26-503.1
Regensys "A"; 40 ml	60-200.4	MGA Plates (160)	21-400
Lyophilized Regensys "B"; 123 mg	60-201.4L	Nutrient Agar Plates (20)	21-100
ICR 191; 10 µg/vial	60-101	ST QUAD PC™ Plates (5)	21-200

E. coli Mutagenicity Assay Kit

The materials contained in this *E. coli* Mutagenicity Assay Kit include virtually all of the supplies necessary for the conduct of the assay as described by Green & Muriel, Mutat. Res. 38: 3, 1976. We strongly recommend that you carefully read this paper before you attempt to perform the assay. The MOLTOX® *E. coli* kit contains two tester strains; WP2 *trp* (72-187L) and WP2 *trp uvrA* (72-188L). Each strain was constructed with a lesion (tryptophan mutation) in the tryptophan operon. WP2 *uvrA* also contains a lesion in a DNA repair-coding gene (*uvrA*) that increases sensitivity to certain mutagenic activities. The MOLTOX® *E. coli* Mutagenicity Test kit includes sufficient components for testing 1 unknown sample, in triplicate analysis of 5 concentrations, positive and negative controls, with and without S9. MOLTOX® 30% PB/BNF S9 Mix is a freeze-dried product that contains Phenobarbital/β-Naphthoflavone induced Sprague Dawley rat liver S9 and cofactors as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85). Reconstitute to the label volume using ice cold, sterile, purified water – maintain on ice.

E. coli Mutagenicity Assay Kit
See list of components below. 31-101

DESCRIPTION	PART #	DESCRIPTION	PART #
ECDisc WP2 *trp*;10 disc/vial	72-187L	Nutrient Broth; 100 ml	26-505
ECDisc WP2 *trp uvrA*; 10 disc/vial	72-188L	Tryptophan Top Agar; 100 ml (2)	26-502
Lyophilized S9; 2.1 mL/vial	11-05L.2	MGA plates (80)	21-400
Regensys "A"; 15 ml	60-200.15	Nutrient Agar plates (20)	21-100
Lyophilized Regensys "B"; 46 mg	60-201.15L	EC TRI PC™ plates (5)	21-199
Methyl methanesulfonate; 25 µl/vial	60-108		
2-Aminoanthracene; 100 µg/vial	60-107		

Visit our website, www.Moltox.com for kit instruction manuals and more information.

MOLTOX® µAmes Kit

This kit allows the Ames bacterial mutation test described in OECD guideline 471 to be performed in a miniature, 24-well plate format. This version is ideal for non-GLP evaluation of genotoxicity, as a pre-screen at an early stage of compound development or when test material supply is limited or for training purpose. The microAmes (µAmes) version of the test accurately predicts the outcome of the subsequent GLP study with similar sensitivity, uses a very low amount of test article (often important during early development), and can be performed by an individual on a single day without special equipment. Since both the standard and µAmes method use nearly the same procedures, results from the micro method can be extrapolated to those expected for the standard Ames test. The MOLTOX® µAmes Kit includes sufficient components for testing 1 unknown sample, in triplicate analysis of 8 concentrations, positive and negative controls, with and without S9. MOLTOX® 30% PB/BNF S9 Mix is a freeze-dried product that contains Phenobarbital/β-Naphthoflavone induced Sprague Dawley rat liver S9 and cofactors as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85). Reconstitute to the label volume using ice cold, sterile, purified water – maintain on ice.

MOLTOX® µAmes Kit
See list of components below. 31-500

DESCRIPTION	PART #	DESCRIPTION	PART #
Bacterial Strain Packet 71-098.2L, 71-100.2L, 72-188.2L, 71-1535.2L, 71-1537.2L	71-300	Phenotype Test Packet (26-810, 26-811, 26-812, 26-813)	26-300
Deionized Water; 25 mL	26-682	Phosphate buffer 0.1M pH 7.4; 100 mL	26-543
24-well plates (22)	21-40S294	Top Agar, 0.5mM His/Bio/Tryp; 100 mL	26-721.1
MUTAZYME®; (10% S9 Mix, 20 mL)	11-404L	Ames ControlChem™ Packet (60-103.1, 60-107.21, 60-107.2, 60-111, 60-114.6, 60-121.3, 60-147.5)	60-300
Nutrient Agar plates (20)	21-100	Cuvettes (10)	90-002
Nutrient Broth, Oxoid No.2; 25 ml (6)	26-505.025	Micro centrifuge tubes (10)	90-003
6 well PC plate (6)	21-40S296		

Visit our website, www.Moltox.com for kit instruction manuals and more information.

Microtiter Fluctuation Assay Kits

The fluctuation assay uses the same concept as the Ames plate incorporation assay but is in liquid form. Bacterial strains are exposed to test chemical in media containing trace amounts of histidine, biotin, and tryptophan. After exposure media containing a pH indicator is employed and the resultant mixture pipetted into multi-well plates. If a DNA mutation occurred during exposure the color of the media changes due to acidification by microbial growth. Wells that contain a colony or appear yellow are considered revertants.

MOLTOX® FT™ 471 Mutagenicity Assay Kit

MOLTOX® FT™ tests measure the ability of test material treatments to induce reversion of histidine requiring *Salmonella typhimurium* strains or *Escherichia coli* tryptophan auxotrophs to their respective prototrophic conditions. The bacterial strains used in these assays are identical to those used in conventional plate incorporation assays as described by Mortlemans & Zeiger, Mutat. Res. 455: 29, 2000 and Mortlemans & Riccio, Mutat. Res. 455: 61, 2000. The experimental design used in the MOLTOX® FT™ tests is based on Gatehouses's adaption of the design reported by Luria & Delbruck, Mutat. Res. 53: 289, 1978 and Genetics, 28:491, 1943. The MOLTOX® FT™ "471" Mutagenicity Assay kit contains the products required to perform a microtiter fluctuation test using *Salmonella typhimurium* strains TA98, TA100, TA1535, TA1537 & *E. coli* WP2 *uvrA*. This kit includes sufficient components for 1 test material in triplicate analysis of 6 concentrations, positive and negative controls, with and without S9. Assay is consistent with OEDC 471. MOLTOX® 30% PB/BNF S9 Mix is a freeze-dried product that contains Phenobarbital/β-Naphthoflavone induced Sprague Dawley rat liver S9 and cofactors as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85). Reconstitute to the label volume using ice cold, sterile, purified water – maintain on ice.

MOLTOX® FT™471 Mutagenicity Assay Kit
See list of components below. 31-301

DESCRIPTION	PART #	DESCRIPTION	PART #
TA98; (2 discs/vial)	71-098.2L	MUTAZYME® 30% S9 Mix, 3.25mL (2)	11-406.3L
TA100; (2 discs/vial)	71-100.2L	2-Aminoanthracene; 100 µg/vial	60-157
TA1535; (2 discs/vial)	71-1535.2L	2-Aminoanthracene; 2 mg/vial	60-157.2
TA1537; (2 discs/vial)	71-1537.2L	9-Aminoacridine HCl; 500 µg/vial	60-158
EC WP2 *uvrA*; (2 discs/vial)	72-188.2L	4-Nitroquinoline-*N*-oxide; 50 µg/vial	60-159
Moltox® FT™ Growth Medium; 100 mL	26-712.1	N^4-Aminocytidine; 2.5 mg/vial	60-160
Moltox® FT™ Exposure Medium; 100 mL	26-710.1	2-Nitrofluorene; 50 µg/vial	60-161
Moltox® FT™ Reversion Indicator Medium; 500 mL; (2)	26-711.5	Ampicillin; 55 mg/vial	22-147

Visit our website, www.Moltox.com for kit instruction manuals and more information.

tests measure the ability of test material treatments to induce reversion of histidine requiring *Salmonella typhimurium* strains or *Escherichia coli* tryptophan auxotrophs to their respective prototrophic conditions. The bacterial strains used in these assays are identical to those used in conventional plate incorporation assays as described by Mortlemans & Riccio, Mutat. Res. 455: 61, 2000. The experimental design used in the MOLTOX® FT™ tests is based on Gatehouses's adaption of the design reported by Luria & Delbruck, Mutat. Res. 53: 289, 1978 and Genetics, 28: 491, 1943. The MOLTOX® FT™ E. coli Mutagenicity Assay Kit consists of materials to perform a microtiter fluctuation test using Escherichia coli WP2 (*trp*, pKM101) and WP2 (*trp*, *uvrA*). This assay includes sufficient components for 1 test material in triplicate analysis of 6 concentrations, positive and negative controls, with and without S9. MOLTOX® 30% PB/BNF S9 Mix is a freeze-dried product that contains Phenobarbital/β-Naphthoflavone induced Sprague Dawley rat liver S9 and cofactors as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85). Reconstitute to the label volume using ice cold, sterile, purified water – maintain on ice.

MOLTOX®FT™ E. coli Mutagenicity Assay Kit
See list of components below. 31-302

DESCRIPTION	PART #	DESCRIPTION	PART #
EC WP2 *uvrA* discs; (2 discs/vial)	72-188.2L	Deionized Water	26-682
EC WP2 pKM101 discs; (2 discs/vial)	72-002.2L	MUTAZYME® 30% S9 Mix, 3.25 mL	11-406.3L
Moltox® FT™ Growth Media; 50 mL	26-712.05	2-Aminoanthracene; 2 mg/vial	60-157.2
Moltox® FT™ Exposure Media; 50 mL	26-710.05	4-Nitroquinoline-*N*-oxide; 50 µg/vial	60-159
Moltox® FT™ Reversion Indicator Media; 150mL (2)	26-711.15	Ampicillin; 55 mg/vial	22-147

Visit our website, www.Moltox.com for kit instruction manuals and more information.

MOLTOX® FT™ TA98/TA100 Mutagenicity Assay Kit

MOLTOX® FT™ tests measure the ability of test material treatments to induce reversion of histidine requiring *Salmonella typhimurium* strains or *Escherichia coli* tryptophan auxotrophs to their respective prototrophic conditions. The bacterial strains used in these assays are identical to those used in conventional plate incorporation assays as described by Mortlemans & Zeiger, Mutat. Res. 455: 29, 2000. The experimental design used in the MOLTOX® FT™ tests is based on Gatehouses's adaption of the design reported by Luria & Delbruck, Mutat. Res. 53: 289, 1978 and Genetics, 28: 491, 1943. The MOLTOX® FT™ TA98 & TA100 Mutagenicity Assay Kit includes sufficient components for 1 test material in triplicate analysis of 6 concentrations, positive and negative controls, with and without S9. MOLTOX® 30% PB/BNF S9 Mix is a freeze-dried product that contains Phenobarbital/β-Naphthoflavone induced Sprague Dawley rat liver S9 and cofactors as described by Matsushima, et al., (In Vitro Metabolic Activation in Mutagenesis Testing (F.J. de Serres, ed.), Elsevier, 1976, p 85). Reconstitute to the label volume using ice cold, sterile, purified water – maintain on ice.

MOLTOX® FT™ TA98/TA100 Mutagenicity Assay Kit
See list of components below. 31-300

DESCRIPTION	PART #	DESCRIPTION	PART #
TA98; (2 discs/vial)	71-098.2L	MUTAZYME® 30% S9 Mix, 3.25 mL	11-406.3L
TA100; (2 discs/vial)	71-100.2L	2-Aminoanthracene; 100 µg/vial	60-157
Moltox® FT™ Growth Medium; 50 mL	26-712.05	4-Nitroquinoline-*N*-oxide; 50 µg/vial	60-159
Moltox® FT™ Exposure Medium; 50 mL	26-710.05	2-Nitrofluorene; 50 µg/vial	60-161
Moltox® FT™ Reversion Indicator Medium, 150 mL; (2)	26-711.15	Ampicillin; 55 mg/vial	22-147

Visit our website, www.Moltox.com for kit instruction manuals and more information.

Other Kits

MOLTOX® UMU Genotoxicity Test Kit

MOLTOX® UMU Genotoxicity Test Kit protocol was adapted from ISO 13829 "Water Quality Determination of the genotoxicity of water and waste water using the UMU test". The MOLTOX® UMU Kit provides components to perform both aqueous and chemical tests based on the user's needs. This includes sufficient materials to test for 6 unknowns in triplicate analysis of 4 concentrations, with and without S9. *Salmonella typhimurium* TA1535 (*hisG46, rfa, uvrB*) has been modified to contain the plasmid pSK1002. This plasmid contains the gene *umuC* fused to a *lacZ* reporter gene. If genetic lesions are formed when exposed to potentially genotoxic compounds, the *umuC* gene is induced as part of the bacterial SOS response. Due to the *lacZ-umuC* fusion and the accompanying *lacZ*-encoded β-galactosidase activity, genotoxic induction can be detected by the colorimetric change of ONPG substrate (colorless) to 2-nitrophenol (yellow).

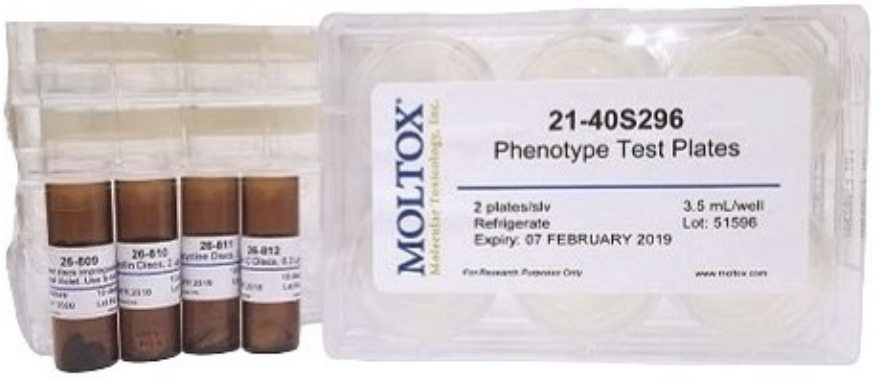
MOLTOX® UMU Genotoxicity Test Kit See list of components below.	31-400		
DESCRIPTION	**PART #**	**DESCRIPTION**	**PART #**
TGA Culture Media; 100 mL (2)	26-714	*S. typhimurium* TA1535/pSK1002 (2)	73-1535pSK
10X TGA Culture Media; 10 mL	26-715	4-NQO; 12.5 µg/vial	60-163
B-Buffer; 35 mL	26-716	2-AA; 50 µg/vial	60-164
Stop Reagent; 30 mL	26-718	Ampicillin; 55 mg/vial	22-147
ONPG; 45 mg/vial (2)	22-148	MUTAZYME® 30% S9 Mix, 3.25 mL	11-406.3L
2-Mercaptoethanol; 0.1 mL/vial (2)	22-149		

Visit our website, www.Moltox.com for kit instruction manuals and more information.

Phenotype Test Kit

The MOLTOX® Phenotype Test Kit has been specially designed to confirm all the phenotype characteristics listed by the OEDC in any of the *E. coli* and Salmonella strains used in the Ames test including: Amino-acid requirement, presence/absence of the pKM101 R-factor plasmid, presence/absence of the pAQ1 plasmid, *rfa* deep mutation, *uvrA* and *uvrB* repair deficiency. This test uses a single plate per strain, takes only a few minutes and can be performed alongside a standard Ames test using any type of agar. This kit provides enough material for 6 tests. Results are available the next day.

The Phenotype Test Kit is manufactured using the highest quality components, material preparation, strain characterization and procedures closely follow formative guidelines. Each batch of materials is thoroughly tested before release and is accompanied by Quality Control and Formulation Statements.



MOLTOX® Phenotype Test Kit	
See list of components below.	31-600
DESCRIPTION	**PART #**
6 well Phenotype plate (3)	21-40S296
Phenotype Test Packet:	26-300
Ampicillin discs, (10) 2 µg/disc	26-810
Tetracycline discs, (10) 1 µg/disc	26-811
Mitomycin C discs, (10) 0.2 µg/disc	26-812
Crystal Violet discs, (10) 10 µg/disc	26-813

Visit our website, www.Moltox.com for kit instruction manuals and more information.

Additional Mutagenicity Assay Reagents

MOLTOX® offers all the components of our kits separately so you can custom design your assays by purchasing the exact amount of materials needed to perform your analysis.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Exposure Media						
	50 ml	Plastic Bottle	1 each	Exposure Medium for use in MOLTOX® FT kit	Room Temp	26-710.05
	100 ml	Plastic Bottle	1 each	Exposure Medium for use in MOLTOX® FT kit	Room Temp	26-710.1
	250 ml	Plastic Bottle	1 each	Exposure Medium for use in MOLTOX® FT kit	Room Temp	26-710.25

For use in select Mutagenicity Assay Kits.

PRODUCT	FILL SIZE	FORMAT	PACKAGING	FEATURES	STORAGE	PART #
Growth Media						
	50 ml	Plastic Bottle	1 each	Growth Media for use in MOLTOX® FT kit	Room Temp	26-712.05
	100 ml	Plastic Bottle	1 each	Growth Media for use in MOLTOX® FT kit	Room Temp	26-712.1
	250 ml	Glass Bottle	1 each	Growth Media for use in MOLTOX® FT kit	Room Temp	26-712.25
	10 ml	Glass Vial	1 each	10X TGA Growth Media or use in MOLTOX® FT kit	Room Temp	26-715

For use in select Mutagenicity Assay Kits.

Citations

Ames Assay

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microAmes Assay

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