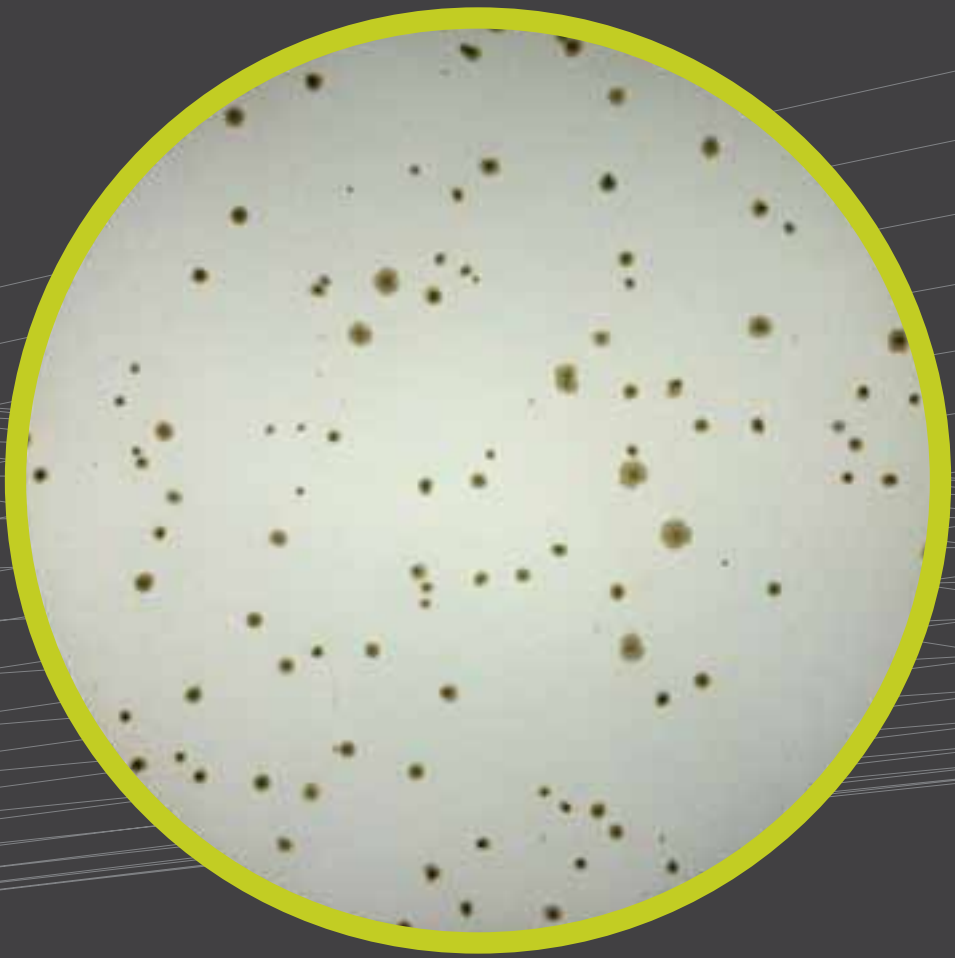
MOLTOX®

Molecular Toxicology, Inc.

GENETIC TOXICOLOGY



MOLTOX®

Molecular Toxicology, Inc.

Molecular Toxicology, Inc. is the leading manufacturer of products used in the *Salmonella* and *E. coli* WP2 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 and distributes the BioReliance™ Ames II assay system. Our SOS/*umu* assay kit is designed for use with solid and aqueous environmental samples.

- MOLTOX® products are manufactured using the highest quality raw materials available and are subjected to rigorous performance testing.
- Each MOLTOX® product is supplied with GLP-compliant Production, Formulation and Quality Assurance Certificates.
- Our technicians will gladly work with you to resolve application issues and to develop custom products on your behalf.
- MOLTOX® products are unconditionally guaranteed to perform as represented. *Your satisfaction is assured.*

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MOLTOX® Distributors

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www.krishgen.com

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www.brandnu.com

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www.fishersci.com

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www.vwrsp.com

MOLTOX®
Molecular Toxicology, Inc.

To Place an Order:

TERMS

Net 30. Freight prepaid. Packing charges apply to dry and blue ice shipments. 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 costs may apply.

RETURN POLICY

Items sent to you due to our error are immediately returnable at our expense. Items found to be unsatisfactory will be credited to your account or replaced free of charge. Shipments damaged in transit should be retained and reported within 7 days of receipt to the Customer Service Department at 1.800.536.7232. Spoiled or damaged products will be replaced or a credit issued. *Your satisfaction is guaranteed.*

GENERAL CONDITIONS OF SALES AND WARRANTY

Products purchased directly from Molecular Toxicology, Inc (MOLTOX®) are shipped in accordance with the specifics of your purchase order. It is the responsibility of the customer to determine the suitability of the product or products for their application: MOLTOX® products are sold for research purposes only.

CALL

M-F 8:30am- 5pm (EST)
US/CAN:
828.264.9099 or 800.536.7232
INTL: 001.828.264.9099

FAX

US/CAN/INTL: 828.264.0103

EMAIL

SALES: sales@moltox.com
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CUSTOMER SERVICE

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Metabolic Activation

Post-mitochondrial supernatants (S9's) contain families of cytochrome P450's that are characterized by broad substrate affinities (Oguri, et al., Annu Rev Pharm Tox, 34:251, 1994) and that are present in amounts that are species-, sex-, and tissue-dependent. The P450 activities in S9's can be modified by treatments of donor animals with pure chemicals that may act to increase the abundance of specific P450 gene products (Soucek & Gut, Xenobiotica, 1:83, 1992). In contrast, treatments with Aroclor 1254 result in a more general increase in P450-dependent activities (Alvares, et al., PNAS, 70:1321, 1971; Ames, et al., PNAS, 70:2281, 1973). Metabolic activation systems based on S9 derived from the livers of Aroclor 1254-Induced male Sprague Dawley rats are in general use for the conduct of *in vitro* studies; e.g., in the Salmonella mutagenicity test (Ames, et al., Mutat Res, 31:347, 1975; Maron & Ames, Mutat Res, 113:173, 1983).

MOLTOX® S9 preparations and NADPH regenerating system reagents are manufactured to rigorous standards of quality and performance and are used by leading industrial, government and academic laboratories worldwide.

Each lot of MOLTOX® S9 is analyzed for each of the following properties:

- Total Protein
- P450 Isozyme Activities: e.g., IA-, IIB-, IIIB- and IIE- model substrates are employed
- Bioassay: Salmonella mutagenesis tests – dose responses in TA98 with ethidium bromide (IA-) and in TA1535 with cyclophosphamide (IIB-) and S9 titrations using benzo(α)pyrene and 2- aminoanthracene with TA100. Sterility is assured by thorough testing using various nutrient media.

NADPH regenerating system components are tested for their ability to support promutagen activation in plate incorporation assays *(ibid.)*.

S9

Lyophilized S9 Products

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

PRODUCT	SIZE	PART #
Aroclor 1254 Induced male Sprague Dawley rat liver S9, in 0.15M KCl		
	2 ml	11-01L.2
Phenobarbital/5,6 Benzoflavone Induced male Sprague Dawley rat liver S9, in 0.15M KCl		
	2 ml	11-05L.2
Aroclor 1254 Induced male Golden Syrian hamster liver S9, in 0.15M KCl		
	5 ml	15-03SL.5

Frozen S9 Preparations

11-101 – Aroclor 1254 Induced male Sprague Dawley rat liver S9, in 0.15M KCl. This is the most commonly used S9. Prepared using 50 mg/kg Aroclor 1254-inductions after Maron & Ames (Mutat res, 113:173, 1983).	1 ml	11-101.1
	2 ml	11-101.2
	5 ml	11-101.5
11-102 – Uninduced male Sprague Dawley rat liver S9, in 0.15M KCl		
	2 ml	11-102.2
	5 ml	11-102.5

11-105 – Phenobarbital/5,6 Benzoflavone Induced male Sprague Dawley rat liver S9, in 0.15M KCl. Prepared using the treatment schedule of Matsushima, et. al., In: In vitro metabolic activation in mutagenesis testing (F.J. de Serres, et al., eds.) Elsevier/North Holland, 1976, p. 58.

2 ml	11-105.2
5 ml	11-105.5

11-111 – Aroclor 1254-Induced male Sprague Dawley rat liver S9. In 0.25M sucrose. *Special order*.

2 ml	11-111.2
5 ml	11-111.5

11-115 – Ethanol-Induced male Sprague Dawley rat liver S9. *Special order*.

11-116 – Phenobarbital-Induced male Sprague Dawley rat liver S9. *Special order*.

11-117 – 5,6-Benzoflavone-Induced male Sprague Dawley rat liver S9. *Special order*.

12-107 – Aroclor 1254-Induced male Fisher 344 rat liver S9. *Special order*.

12-109 – Uninduced male Fisher 344 rat liver S9. *Special order*.

14-103 – Pooled Human liver S9, in 0.15M KCl.

15-03S – Aroclor 1254 Induced male Golden Syrian hamster liver S9, in 0.15M KCl. Specifically prepared for use in the "Modified" Ames test for petroleum oils. Quality Control data includes triplicate plate assay against the standard reference oil.

5 ml	15-03S.5

15-104 – Uninduced male Golden Syrian Hamster liver S9. In 0.15M KCl. For use in control experiments or for application in the "reductive" protocol (Prival & Mitchell, Mutat res, 97:103, 1982).

16-201 – B6C3F1 male mouse liver S9. Aroclor 1254-Induced. In 0.15M KCl. *Special order*.

16-202 – B6C3F1 male mouse liver S9. Uninduced. In 0.15M KCl. *Special order*.

16-401 – CD-1 male mouse liver S9. Aroclor 1254-Induced. *Special order*.

16-402 – CD-1 male mouse liver S9. Uninduced. *Special order*.

Custom Preparations

Our laboratory has extensive experience preparing S9's and microsomes from various species, tissues and after inductions with a wide range of agents. We would be glad to have the opportunity to work with you to meet your particular requirements. Minimum order may apply.

Microsomes can be prepared according to your specifications.

18-101 – Aroclor 1254 Induced male Sprague Dawley rat liver Microsomes, in Sucrose/Tris/EDTA buffer. Prepared by isoelectric precipitation.

Regensys™ NADPH Regenerating System Reagents

Regenerating Systems

60-200 - NADPH Regensys™ A
Contains Glucose-6-Phosphate, $MgCl_2$/KCl in 0.1 M phosphate buffer, pH 7.4. For preparation of 4 – 10% S9 mix. Formulated as described by Maron & Ames (Mutat. Res. 113:173, 1983). Complete the system with the addition of corresponding Regensys™ B & S9. Fill sizes refer to final volume of S9 mix per package. Store in refrigerator.

15 ml	60-200.15
40 ml	60-200.4
50 ml	60-200.5

60-201L – NADP Regensys™ B
Consists of lyophilized NADPH to complete the Regensys™ system—add Regensys™ B & appropriate volume of S9 to the corresponding Regensys™A. Store in freezer.

46 mg	60-201.15L
123 mg	60-201.4L
153 mg	60-201.5L

MUTAZYME™

Aroclor 1254 – Induced Sprague Dawley male rat liver S9 lyophilized with NADPH-regenerating system cofactors and phosphate buffer. To use, simply reconstitute with the label volume of ice-cold, sterile, purified water. Available as 5%, 10% and 30% S9 Mix.

MUTAZYME™ 30% S9 Mix
Designed for use in microtiter plate-based assays such as the MOLTOX FT™ and UMU assays.

	3.25 ml	11-401.3L
	6.5 ml	11-401.6L
MUTAZYME™ 10% S9 Mix (Reconstitutes to 20 ml)	20 ml	11-402L
MUTAZYME™ 5% S9 Mix (Reconstitutes to 20 ml)	20 ml	11-403L

Miscellaneous Regenerating System Reagents

26-510 – Sodium Phosphate Buffer; 0.1 M, pH 7.4	100 ml	26-510.039
	500 ml	26-510.047
26-511 – Glucose-6-Phosphate; 1.0 M, 2 ml		
26-512 – $MgCl_2$/KCl Solution; 0.4 M $MgCl_2$, 1.65 M KCl		
	10 ml	26-512.010
	20 ml	26-512.020

Media and Reagents

MOLTOX® prepared media and media components are specifically formulated for use in bacterial mutagenicity assays. Minimal Glucose agars, top agars, ampicillin and tetracycline master plates, nutrient broth, phenotype confirmation media (ST Quad and EC Tri dishes) and accessory solutions for use in the *Salmonella typhimurium* and *E. coli* WP2 mutagenicity assays (Maron & Ames, Mutat Res, 113:173, 1983; Green & Muriel, Mutat Res, 38:3, 1976) are stocked.

Plated Media, Broths and Reagents for Genetic Toxicology

Minimal Glucose Agar *(see chart page 7)*

21-400 - Minimal Glucose Agar Dishes. Poured 30 ml/dish. VBE salts. D-glucose and agar as described by Maron and Ames (Mutat res, 113:173, 1983). Packaged in heat sealed polyethylene sleeves.

SIZE	PART #
Case of 500 dishes	21-400.5
Sleeve of 20 dishes	21-400.2

If your laboratory uses specifically modified formulations or packaging, we can provide custom media per your specification at little or no added cost. Among the various formulations available are histidine and biotin supplemented bottom and top agars as well as MGA's manufactured using Davis rather than VBE salts or with modified D-glucose concentrations.

Phenotype Confirmation

21-199 – EC TRI PC™ – For phenotypic confirmation of *E. coli* WP2 strains. Tests for tryptophan auxotrophy and pKM101. 5 plates/sleeve.

21-200 – ST QUAD PC™ – For phenotypic confirmation of *S. typhimurium* Ames strains. Tests for histidine auxotrophy, pKM101, and pAQ1. Includes crystal violet discs. 5 plates/sleeve.

26-804 – Ampicillin Solution. 8 mg/ml. For use as media additive with pKM101 containing strains. 10 ml/tube.

MOLTOX® Minimal Glucose Agars

Agar		Volume (ml)	Glucose			Plate Stacking Ring		Salts	Comments	Part #
Type	% Conc		%	AC	Filt.	No	Yes			
Bacto	1.5	30	2	X		X		VBE	Standard Ames recipe	21-400
Bacto/BBL	1.5	25	0.2		X		X	VBE	50% each agar	21-40S1C
Oxoid No. 1	1.5	30	2	X			X	VBE		21-40S2
Bacto	1.5	30	0.2					Davis		21-40S3
BD Granulated	1.5	30	0.2	X			X	VBE		21-40S5
Bacto	1.5	30	0.4	X		X		VBE		21-40S10
Noble	1.5	25	2	X		X		VBE		21-40S17
Bacto	1.5	3	2	X		*	*	VBE	*12 well plates	21-40S18
Bacto	1.5	5	2	X		*	*	VBE	*6 well plates	21-40S19
Bacto	1.5	25	2	X		X		VBE		21-40S21
Oxoid	1.5	30	2		X		X	VBE		21-40S23
BBL Select	1.5	25	0.25	X		X		VBE		21-40S26
Bacto	1.5	20	0.4		X	X		VBE		21-40S29
Bacto	1.5	25	0.25	X		X		VBE		21-40S33
BD Granulated	1.5	25	0.25	X		X		VBE		21-40S34
Bacto	1.5	5	2	X		*	*	VBE	*6 well plates	21-40S41
Bacto	1.5	7	2	X		*	*	VBE	*6 well plates	21-40S42
Bacto	1.5	30	0.4		X	X		VBE		21-40S44
GelRite	1.0	30	0.2	X		X		VBE		21-40S47
Bacto	1.5	25	2	X			X	VBE		21-40S51
Oxoid No.1	1.5	30	2	X		X		VBE		21-40S58
Bacto	1.5	30	2	X		*	*	VBE	*glass Petri plate	21-40S59
Bacto	1.5	28	0.4	X			X	VBE		21-40S65
Bacto	1.5	20	1	X			X	VBE		21-40S71
Bacto	1.5	1	0.4	X		*	*	VBE	*24 well plates	21-40S72
BBL Select	1.5	25	0.25	X			X	VBE		21-40S113
Bacto	1.5	5	0.5		X		*	VBE	*6 well plates	21-40S258
Bacto	1.5	30	2	X		X		VBE		21-40S262
Bacto	1.5	30	0.5	X		X		VBE		21-40S276
Bacto	1.5	2	0.4	X		*	*	VBE	*24 well plates	21-40S283
Bacto	1.5	5	0.4	X		*	*	VBE	*6 well plates	21-40S284

26-805 – Tetracycline Solution. 0.8 mg/ml. For use as a media additive with pAQ1 containing strains. 10 ml/tube.

21-203 – Histidine/Biotin Master Plates – Minimal Glucose Agar with excess histidine and biotin. For use with non-pKM101 containing strains. 10/sleeve.

21-201 – Ampicillin Master Plates – Minimal Glucose Agar with excess histidine and biotin plus ampicillin. For use with pKM101 containing strains. 5 plates/sleeve.

21-202 – Tetracycline Master Plates – Minimal Glucose Agar with excess histidine, biotin, ampicillin, and tetracycline. For use with TA102 (pAQ1). 5/sleeve.

26-809 – Crystal Violet Discs. For assessment of the *rfa* genotype found in *S. typhimurium* Ames strains. 10 discs/vial.

Top Agars, Nutrient Agars & Broths and Media Additives

21-100 – Nutrient Agar. Prepared with VBE and Oxoid Nutrient Broth No. 2. For general growth and CFU determinations of Ames *S. typhimurium* and *E. coli* WP2 strains. 20 plates/sleeve.

26-505 – Nutrient Broth, Oxoid No. 2. For culture of *S. typhimurium* and *E. coli* WP2.

50 ml	26-505.05
100 ml	26-505.1
300 ml	26-505.3
500 ml	26-505.5

26-555 – Nutrient Broth, Oxoid No. 2 & VBE. For culture of S. *typhimurium* strains and *E. coli* WP2.

300 ml	26-555.3
100 ml	26-555.5

26-501 – Top Agar. 0.7% Agar. Requires supplementation with histidine/biotin. For use with Minimal Glucose Agar and *S. typhimurium* strains.

100 ml	26-501.1
250 ml	26-501.25
300 ml	26-501.3
600 ml	26-501.6

26-502 – Tryptophan Top Agar, 0.05 mM. For use with Minimal Glucose Agar and *E. coli* WP2 strains.

100 ml	26-502.1
300 ml	26-502.3

26-503 – Histidine/Biotin Top Agar. 0.05 mM. For use with *S. typhimurium* strains in the Ames assay.

100 ml	26-503.1
300 ml	26-503.3
500 ml	26-503.5

26-550 – VBE (Vogel-Bonner) Salts, 50X, non-sterile. For use in the manufacture of Minimal Glucose Agar plates.

100 ml	26-550.039
500 ml	26-550.047

26-541 – VBE (Vogel-Bonner) Salts, 50X, sterile. For use in the manufacture of Minimal Glucose Agar, 140 ml.

26-551 – Glucose, 40%, Steam sterilized. For use in the manufacture of Minimal Glucose Agar.

100 ml	26-551.039
500 ml	26-551.047

26-701 – L-Tryptophan Solution 0.5 mM, 100 ml

26-700– L-Histidine Solution/D-Biotin Solution 0.5 mM, 100 ml

Positive Control Chemicals

CONTROLCHEM™ Products

CONTROLCHEM™ chemical mutagens and promutagens are packaged in natural polypropylene vials fitted with "O" ring gasketed closures. Chemicals are obtained from major suppliers of research chemicals and are employed without further characterization or purification. Organic solvents, if employed, meet A.C.S. standards. Packaged quantities are precise within 1%. CONTROLCHEM™ packages are supplied with formulation and source certificates and Material Safety Data Sheets provided by each chemical's supplier.

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.

Chemical	Fill Size/Vial	Tester Strain	w/o Activation	with Activation	# Vials/Pack	Part #
N^{4}-Aminocytidine (57294-74-3)	2.5 mg	TA100, TA1535	X		1	60-160
2-Aminoanthracene (613-13-8)	100 µg 2 mg 50 µg	All *S.typhimurium* & *E.Coli* WP2 strains		X	5 1 1	60-107 60-157.2 60-164
2-Aminofluorene (153-78-6)	100 µg	TA98		X	5	60-104
2-Nitrofluorene (607-57-8)	20 µg 50 µg 50 µg	TA100	X		5 5 1	60-111 60-126 60-161
4-Nitroquinoline-*N*-oxide (56-57-5)	50 µg 100 µg 1 mg 50 µg 12.5 µg	TA98, TA100, TA102	X		5 5 5 1 1	60-121.1 60-127 60-128 60-159 60-163
9-Aminoacridine (52417-22-8)	1 mg 500 µg	TA97a, TA1537		X	5 1	60-147 60-158
Benzo(a) pyrene (50-32-8)	200 µg	TA98, TA100		X	5	60-114
Cyclophosphamide (6055-19-2)	1 mg 0.1 mg 0.15 mg 80 mg	TA1535		X	5 5 5 1	60-113 60-119 60-133 60-145
Danthron (117-10-2)	500 µg	TA102		X	5	60-122
Daunomycin (23541-50-6)	60 µg	TA98, TA1538	X		5	60-102
Ethylmethanesulfonate (62-50-0)	20 µL	All *E.Coli* WP2 strains	X		5	60-115
ICR 191 Acridine (17070-45-0)	10 µg	TA97a, TA1537	X		5	60-101
Methylmethanesulfonate (66-27-3)	25 µL	All *E.Coli* WP2 strains	X		5	60-108
Mitomycin C (50-07-7)	5 µg	TA102	X		5	60-100
Sodium Azide (26628-22-8)	15 µg 200 µg 100 µg	TA1535, TA100	X		5 5 1	60-103 60-120 60-124

Bacterial Tester Strains

Genotoxicity Assay Tester Strains

Most commonly employed bacterial strains for use in mutagenicity testing are provided in convenient dried disc format. A few strains are not amenable to freeze drying and are offered suspended in our proprietary transport medium. Strains were obtained from their primary source or from established repositories; for example, Salmonella strains were obtained from Dr. Bruce Ames, University of California, Berkeley; *E. coli* strains were obtained from the National Collections of Industrial and Marine Bacteria Limited, Aberdeen; Scotland, UK. Strains were characterized for their diagnostic phenotypes upon receipt. Confirmed strains were lyophilized, dried and stabilized using a modification of the method of Obara, et. al., J. Clinical Microbiology, 14:61-66, 1981 or suspended and frozen in transport medium. After preservation, samples were cultured and their phenotypes and responses to diagnostic mutagens again determined. Strains are accompanied by application and Quality Control statements that include the results of phenotypic confirmation and diagnostic mutagen response studies.

Please 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.

STDiscs™

Salmonella typhimurium strains for use in the bacterial mutagenesis assay described by Maron, D. and Ames., B., Mutation Research, 113:173-215, 1983.

PRODUCT		SIZE	PART #
STDisc™ TA97a	(*hisD6610*, *hisO1242*, *uvrB*, *rfa*, pKM101)	10 discs	71-097aL
STDisc™ TA98	(*hisD3052, uvrB, rfa,* pKM101)	10 discs	71-098L
STDisc™ TA100	(*hisG46, uvrB, rfa,* pKM101)	10 discs	71-100L
STDisc™ TA102	(*hisG428*, *rfa*, pKM101, pAQ1)	10 discs	71-102L
STDisc™ TA1535	(*hisG46, uvrB, rfa*)	10 discs	71-1535
STDisc™ TA1537	(*his3076, uvrB, rfa*)	10 discs	71-1537
STDisc™ TA1538	(*hisD3052, uvrB, rfa*)	10 discs	71-1538

ECDiscs™

Escherichia coli strains (WP2 derivatives) for use in the bacterial mutagenesis assay described by Green, M.H.L. and Muriel, W.J., Mutation Research, 38:3-32, 1976.

ECDisc™ WP2	(*trp*)	10 discs	72-187L
ECDisc™ WP2	(*trp, uvrA*)	10 discs	72-188L
ECDisc™ WP2	(*trp,* pKM101)	10 discs	72-002L
ECDisc™ WP2	(*trp, urvA* pKM101)	10 discs	72-003L

UMU

Salmonella strain for use in the SOS/umu-test described by Oda, Y., S. Nakamura, J. Oki and T. Kato, Mutation Research, 147:219-119, 1985. Offered in proprietary transport medium (PTM™).

PTM™ TA1535pSK	(*hisG46, uvrB, rfa,* pSK1002)	per PTM™	73-1535pSK

Mutagenicity Assay Kits

Estimations of the mutagenic potentials of chemicals, pesticides, drugs in commerce and in development play an important role in the process of safety assessment. The Salmonella mutagenicity assay, developed by Bruce Ames and his co-workers, has obtained world-wide acceptance since its description in 1983 (Ames, et al., PNAS, 69:228, 1973). 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 without a requirement for sophisticated equipment and costly specialized training. Assays utilizing *E. coli* WP2 strains have also been applied to questions of product safety (e.g., *see*, Green and Muriel, Mutat res, 38:3, 1976). Both assay systems have been codified in regulation (e.g., OECD 471).

MOLTOX® mutagenicity assay kits contain the specialized materials required to perform *Salmonella* and *E. coli* Ames Assays in a convenient and economical format. Kits 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.

Ames Plate Incorporation Assay Kits
CONSISTENT WITH 0ECD471 GUIDELINES

31-100.2 – Salmonella Mutagenicity Complete Test Kit

Includes the materials needed to perform the Ames Mutagenicity Plate Incorporation assay.

- STDisc™ TA97a, TA98, TA1535 & TA1537
- Lyophilized S9 (11-01L.2 x 2)
- NADPH REGENSYS™ (60-200.4 & 60-201.4L; 40 ml sizes)
- ControlChem™ Mitomycin C (60-100), ICR191 (60-101), Daunomycin (60-102), Sodium Azide (60-103) & 2-Aminoanthracene (60-107)
- Nutrient Broth (26-505.1; 100 ml)
- Histidine/Biotin Top Agar (26-503.1; 4 x 100 ml)
- ST Quad PC™ plates (21-200)
- Minimal Glucose Agar plates (21-400.2 x 8; 160 dishes)
- Nutrient Agar plates (21-100; 20 dishes)
- Application and Instruction Manual

31-101 – *E. coli* Mutagenicity Test Kit

Similar to the Salmonella Mutagenicity Complete Test Kit but with *E. coli* WP2 strains.

- ECDisc™ WP2 trp pKM101 (72-002L) and WP2 trp uvrA (72-188L)
- Lyphophilized S9 (11-01L.2)
- NADPH REGENSYS™ (60-200.15 & 60-201.15L; 15 ml sizes)
- ControlChem™ Methyl methanesulfonate (60-108) & 2-Aminoanthracene (60-107)
- Nutrient Broth (26-505.1; 100 ml)
- Tryptophan Top Agar (26-502.1; 2 x 100 ml)
- EC Tri PC™ plates (21-199)
- Nutrient Agar plates (21-100; 20 plates)
- Minimal Glucose Agar plates (21-400.2 x 4)
- Application and Instruction Manual

Microtiter Fluctuation Assay Kits

MOLTOX FT™ microplate fluctuation tests estimate the mutagenic potential of a test material by measuring its ability to induce reversion of *his⁻ Salmonella typhimurium* or *trp⁻ E. coli* auxotrophs to their respective prototrophic conditions. The bacterial strains used in these assays are identical to those used in conventional plate incorporation assays (Mortelmans & Zeiger, Mutat res, 455:29, 2000 and Mortelmans & Riccio, Mutat res, 455:61, 2000). The experimental design used in the MOLTOX FT™ tests is based on Gatehouse's adaptation of the design reported by Luria & Delbruck (see, Mutat res, 53:289, 1978 and Genetics, 28:491, 1943). *Trp⁻* or *his⁻* target cells are treated in 24-well plates using media containing limiting L-tryptophan or L-histidine. After the treatments, the cells are transferred to 48 well sectors of 384 well microtiter dishes in L-tryptophan or L-histidine free medium containing a pH indicator. After 48 hours incubation, mutant cells able to grow in the absence of L-tryptophan or L-histidine will have proliferated resulting in media acidification and the appearance of yellow wells. These wells are counted and the number for each treatment condition compared to their negative control (Gilbert, Mutat res, 74:283, 1980).

31-300 – MOLTOX FT™ TA98 & TA100 Mutagenicity Assay Kit

Consists of materials to perform a microtiter fluctuation test using *Salmonella typhimurium* strains TA98 and TA100. Includes sufficient material to perform triplicate analyses of 6 concentrations of a test material, positive and negative controls, with and without S9.

- STDisc™ TA98 & TA100 (71-098L.2 & 71-100L.2; 2 discs per strain/ vial)
- MOLTOX FT™ Growth Medium (26-712.05; 50 ml)
- MOLTOX FT™ Exposure Medium (26-710.05; 50 ml)
- MOLTOX FT™ Reversion Indicator Medium (26-711.15; 150 ml x 2)
- MUTAZYME™ 30% S9 Mix (11-401.3L; 3.25 ml)
- 2-Aminoanthracene (60-157; 100 μg/vial, 1 vial)
- 4-Nitroquinoline-*N*-oxide (60-159; 50 μg/vial, 1 vial)
- 2-Nitrofluorene (60-161; 50 μg/vial, 1 vial)
- User Instructions

31-301 – MOLTOX FT™ "471" Mutagenicity Assay Kit

Contains the products required to perform a microtiter fluctuation test using *Salmonella typhimurium* strains TA98, TA100, TA1535, TA1537, & an *Escherichia coli* WP2 strain. Includes sufficient material to perform triplicate analyses of 6 concentrations of a test material, positive and negative controls, with and without S9. Assay consistent with OECD 471.

- STDisc™ TA98, TA100, TA1535, TA1537, & ECDisc™ EC WP2 (trp, uvrA) (71-098.2L, 71-100.2L, 71-1535.2L, 71-1537.2L, 72-188.2L; 2 discs per strain/vial)
- MOLTOX FT™ Growth Medium (26-712.1; 100 ml)
- MOLTOX FT™ Exposure Medium (26-710.1; 100 ml)
- MOLTOX FT™ Reversion Indicator Medium (26-711.5; 2 x 500 ml)
- MUTAZYME™ 30% S9 Mix (11-401.6L; 6.5 ml)
- 2-Aminoanthracene (60-157; 100 μg/vial, 1 vial)
- 2-Aminoanthracene (60-157.2; 2 mg/vial, 1 vial)
- 9-Aminoacridine hydrochloride (60-158; 500 μg/vial, 1 vial)
- 4-Nitroquinoline-*N*-oxide (60-159; 50 μg/vial, 1 vial)
- N4-aminocytidine (60-160; 2.5 mg/vial, 1 vial)
- 2-Nitrofluorene (60-161; 50 μg/vial, 1 vial)
- User Instructions

31-302 – 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). Includes sufficient material to perform triplicate analyses of 6 concentrations of a test material, positive and negative controls, with and without S9.

- ECDisc™ EC WP2 (trp, pKM101) & EC WP2 (trp, uvrA); 72-002.2L & 72-188.2L (2 discs per strain vial)
- MOLTOX FT™ Growth Medium (26-712.05; 50 ml)
- MOLTOX FT™ Exposure Medium (26-710.05; 50 ml)
- MOLTOX FT™ Reversion Indicator Medium (26-711.15; 150 ml x 2)
- MUTAZYME™ 30% S9 Mix (11-401.3L; 3.25 ml)
- 2-Aminoanthracene (60-157.2; 2 mg/vial, 1 vial)
- 4-Nitroquinoline-*N*-oxide (60-159; 50 μg/vial, 1 vial)
- User Instructions

32-102 – Ames II™ Mutagenicity Assay Kit by BioReliance™

Includes materials required to perform a microtiter plate fluctuation test using *Salmonella typhimurium* TA98 and TAMix (TAMix consists of a mixture of strains TA7000 through TA7006). Mutations arising due to frame shift events are detected by TA98. TAMix includes individual TA7000 series strains responsive to each of the several possible base-pair substitution events.

- STDisc™ TA98 and TAMix (32-71098 and 32-71001, 2 discs/strain/vial)
- Ampicillin (32-26007, 50 mg)
- Growth Medium (32-26003, 100 ml)
- Exposure Medium (32-26001, 100 ml)
- Indicator Medium (32-26005, 300 ml)
- MUTAZYME™– 30% S9 Mix (11-401.3L, 3.25 ml)
- 4-Nitroquinoline-*N*-Oxide (32-60127, 50 μg)
- 2-Nitrofluorene (32-60111, 100 μg)
- 2-Aminoanthracene (32-60107, 125 μg)
- Software disc (32-90002) and instruction manual

31-400 – UMU Genotoxicity Test Kit

Consists of materials to perform the umu genotoxicity assay as described by Reifferscheid, G, et al., "A microplate version of the SOS/umu-test for rapid detection of genotoxins and genotoxic potentials of environmental samples", Mutation Research, 253:215-222, 1991 and codified in ISO 13829.

- TGA-Culture Medium (26-714 x 2)
- 10X TGA-Culture Medium (26-715, 10 ml)
- Ampicillin (22-147, 50 mg)
- B-buffer (26-716, 35 ml)
- Stop Reagent (26-718, 30 ml)
- ONPG (22-148L, 4.95 mg x 2)
- 2-Mercaptoethanol (22-149, 100 μl x 2)
- 4-Nitroquinoline-*N*-oxide (60-163, 12.5 μg)
- 2-Aminoanthracene (60-164, 50 μg)
- MUTAZYME™ 30% S9 Mix (11-401.3L, 3.25 ml)
- PTM™ *Salmonella typhimurium* TA1535pSK1002 (73-1535pSK, 2 vials)
- User Instructions

MOLTOX FT™ Culture Media

PRODUCT	SIZE	PART #
MOLTOX FT™ Growth Medium	50 ml 100 ml 500 ml	26-712.05 26-712.1 26-712.5
MOLTOX FT™ Exposure Medium	50 ml 100 ml 500 ml	26-710.05 26-710.1 26-710.5
MOLTOX FT™ Reversion Indicator Medium	100 ml 300 ml 500 ml	26-711.1 26-711.3 26-711.5

Ames II™ by BioReliance Culture Media

Growth Medium	100 ml 1000 ml	32-26003 32-26004
Exposure Medium	100 ml 1000 ml	32-26001 32-26002
Indicator Medium	300 ml 1000 ml	32-26005 32-26006

UMU Genotoxicity Test Culture Media and Reagents

TGA-Culture Medium	100 ml 250 ml 500 ml	26-714 26-714.25 26-714.5
10X TGA-Culture Medium	10 ml 50 ml	26-715 26-715.05
B-Buffer	35 ml 100 ml	26-716 26-716.1
Stop Reagent	30 ml 100 ml	26-718 26-718.1
ONPG (Lyophilized in 0.1 m phosphate buffer, pH 7.4)	1.1 ml	22-148
2-Mercaptoethanol	100 μl	22-149

Genetic Toxicology Index

PRODUCT	PG #
2-Aminoanthracene	9
2-Aminofluorene	9
2-Nitrofluorene	9
4-Nitroquinoline-*N*-oxide	9
9-Aminoacridine Hydrochloride	9
Ampicillin Master Plates	8
Ampicillin Solution, 8 mg/ml	8
Bacteria (see, Tester Strains)	10
Benzo(α)Pyrene	9
Crystal Violet Discs	8
Cyclophosphamide	9
Danthron	9
Daunomycin	9
EC TRI PC™ Plates	8
Ethyl Methanesulfonate	9
Glucose, 40%, sterile	8
Glucose-6-Phosphate, 1.0 M	6
Histidine/Biotin Master Plates	8
Histidine/Biotin Solution, 0.5 mM, sterile	8
ICR 191	9
Methyl Methanesulfonate	9
$MgCl_2$, 0.4 M/KCl, 1.65 M Solution	6
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N_4-Aminocytidine	9
NADPH Regensys™ A	5
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Nutrient Agar	8
Nutrient Broth, Oxoid No. 2	8
Nutrient Broth, Oxoid No. 2 with VBE	8
S9	
Lyophilized :	**4**
Sprague Dawley rat liver. Aroclor 1254-induced	
Sprague Dawley rat liver. 5,6 Benzoflavone/phenobarbital-induced	
Golden Syrian Hamster liver Aroclor 1254-induced	
MUTAZYME® Aroclor 1254-induced SD rat liver S9 + cofactors	6
Frozen:	**4, 5**
Sprague Dawley rat liver. Uninduced	
Sprague Dawley rat liver. 5,6 Benzoflavone/phenobarbital-induced	
Sprague Dawley rat liver. Aroclor 1254-induced	
Sprague Dawley rat liver. Ethanol-induced	
Sprague Dawley rat liver. Phenobarbital-induced	
Sprague Dawley rat liver. 5,6 Benzoflavone-induced	
Golden Syrian Hamster liver. Aroclor 1254-induced	
Golden Syrian Hamster liver. Uninduced	
Custom S9 preparations:	**5**
Sodium phosphate buffer. 0.1M, pH 7.4	6
Tester Strains	**10**
ECDisc™ WP2 (trp)	
ECDisc™ WP2 (trp, pKM101)	
ECDisc™ WP2 (trp, uvrA)	
ECDisc™ WP2 (trp, uvrA, pKM101	
STDisc™ TA1535 (hisG46, uvrB, rfa)	
STDisc™ TA1537 (his3076, uvrB, rfa)	
STDisc™ TA1538 (hisD3052, uvrB, rfa)	
STDisc™ TA97a (hisD6610, hisO1242, uvrB, rfa, pKM101)	
STDisc™ TA98 (hisD3052, uvrB, rfa, pKM101)	
STDisc™ TA100 ((hisG46, uvrB, rfa, pKM101)	
STDisc™ TA102 (hisG428, rfa, pKM101, pAQ1)	
ST QUAD PC™ Plates	8
Tetracycline Master Plates	8
Tetracycline Solution, 0.8 mg/ml	8
Top Agar	8
Tryptophan Top Agar, 0.05 mM	8
Tryptophan Solution, 0.5 mM, sterile	8
VBE (Vogel-Bonner) Salts, 50X, non-sterile	8
VBE (Vogel-Bonner) Salts, 50X, sterile	8

MOLTOX®

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