

In vitro tests protocols

Protocols are available free of charge, on request from invittox@frame-uk.demon.co.uk

A list of available protocols with brief descriptions is given below.

Most of the protocols may be viewed in part at Invittox On-Line.

Other in vitro toxicity test protocols are available from the Industrial In Vitro Toxicology Group.

INVITTOX PROTOCOLS

Protocol number: 1

Title: BOVINE ISOLATED CORNEA TEST

This test is designed to detect damage to the eye after application of the test substance to the cornea.

Update: 1989-06-21

Contact name: Dr. B. Northover

Validation:

Keys : BOVINE, CORNEA, CORNEAL OPACITY, CORNEAL THICKNESS, EYE, IRRITANCY, MICROMETER, OPACITOMETER,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 2

Title: RABBIT ISOLATED TERMINAL ILEUM

This test is designed to detect the potential of a test compound to damage the eye after application to the conjunctiva.

Update: 1989-06-24

Contact name: Dr. B. Northover

Validation:

Keys : CONTRACTION, EYE, ILEUM, IRRITANCY, ORGAN CULTURE, RABBIT,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 3

Title: THE FRAME MODIFIED NEUTRAL RED CYTOTOXICITY TEST

The cytotoxic effect of chemicals upon cells in culture is measured by cell viability (Neutral Red Uptake).

Update: 1990-09-05

Contact name: Dr. Richard H. Clothier

Validation:

Keys : 3T3-L1, CELL CULTURE, CELL VIABILITY, CELL-LINE CULTURE, CYTOTOXICITY, NEUTRAL RED UPTAKE,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 4

Title: MODEL CAVITY METHOD

This method enables the in vitro cytotoxicity testing of dental restorative materials which may then be related to dental toxicity likely to occur *in vivo*.

Update: 1989-10-31

Contact name: INVITTOX

Validation: British Standard

Keys : BHK21, BIOMATERIALS TESTING, CELL CULTURE, CELL NUMBER, CELL-LINE CULTURE, CYTOTOXICITY, FIBROBLAST, MACROPHAGE, MOUSE, TARGET ORGAN TOXICITY, TOOTH,

Category: DENTAL TOXICITY TEST

Protocol number: 5

Title: ISOLATED RAT GLOMERULI AND PROXIMAL TUBULES

Specific cell types are isolated from the kidney and the cytotoxic effect of chemicals assessed by examining cell glucose and/or fatty acid oxidation and de novo protein synthesis.

Update: 1991-06-30

Contact name: Dr. Peter Bach

Validation:

Keys : 3H-AMINO ACID INCORPORATION, FATTY ACID METABOLISM, GLOMERULUS, GLUCOSE METABOLISM, KIDNEY, PROTEIN SYNTHESIS, PROXIMAL CONVOLUTED TUBULE, RAT, TARGET ORGAN TOXICITY,

Category: NEPHROTOXICITY TEST

Protocol number: 6

Title: HUMAN LYMPHOCYTE CYTOTOXICITY ASSAY

This method measures the leakage of DNA and lactate dehydrogenase from lymphocytes as an indicator of cytotoxicity. It also includes the MTT assay as a measure of cellular activity.

Update: 1991-05-17

Contact name: Professor Jorgen Clausen

Validation:

Keys : CELL CULTURE, CELL LYSIS, CYTOTOXICITY, ENZYME LEAKAGE ASSAY, HUMAN, LACTATE DEHYDROGENASE, LYMPHOCYTE, MEMBRANE INTEGRITY, MTT ASSAY,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 7

Title: THE ISOLATION AND CULTURE OF RAT HEPATIC CELLS

This method enables the isolation of different populations of liver cells and describes their subsequent culture.

Update: 1989-06-30

Contact name: Cell Culture Group

Validation:

Keys : CELL CULTURE, LIVER, RAT,

Category: CELL CULTURE METHOD

Protocol number: 8

Title: ALLIUM TEST

The Allium test provides a rapid screening procedure for chemicals, pollutants, contaminants, etc. which may represent environmental hazards. Root growth inhibition and adverse effects upon chromosomes provide an indication of likely toxicity.

Update: 1989-09-15

Contact name: Dr. Geirid Fiskesjo

Validation:

Keys : CARCINOGENICITY, CHROMOSOMAL DAMAGE, CYTOTOXICITY, HIGHER PLANT, MUTAGENICITY, ROOT, ROOT GROWTH,

Category: ECOTOXICITY TEST

Protocol number: 9

Title: A CYTOTOXICITY TEST USING PERFUSED CELL CULTURES

Membrane permeability of perfused cell cultures, as determined by the efflux of 3H-2-deoxy-D-glucose-6-phosphate, is used as an indication of the cytotoxic effect of chemicals.

Update: 1989-06-21

Contact name: Dr. Erik Walum

Validation:

Keys : 3H-2-DEOXY-GLUCOSE-6P EFFLUX, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, GLIOMA, HUMAN, LIVER, MEMBRANE INTEGRITY, MOUSE, NEUROBLASTOMA, RAT,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 10

Title: REACTIVE METABOLITE FORMATION IN FORTIFIED LIVER MICROSOMES

Reactive metabolite generation by hepatic microsomal fractions is detected by measurement of glutathione depletion.

Update: 1989-02-01

Contact name: Dr. Jeffrey R. Fry

Validation:

Keys : DRUG METABOLISM, GLUTATHIONE DEPLETION, GUINEA-PIG, HAMSTER, LIVER, MICROSOMAL FRACTION, MOUSE, RAT, TARGET ORGAN TOXICITY,

Category: METABOLIC TOXICITY TEST

Protocol number: 11

Title: WHOLE RAT BRAIN REAGGREGATE CULTURE

This culture system allows the testing of neurotoxic compounds during development, differentiation and relative maturity of the brain reaggregate.

Update: 1991-03-20

Contact name: Professor Chris Atterwill

Validation:

Keys : BRAIN, CELL CULTURE, CYTOTOXICITY, DEVELOPMENT, FOETUS, GLIAL CELL, NERVOUS SYSTEM, NEURONE, NEUROTRANSMITTER RELEASE, RAT, REAGGREGATE CULTURE, TARGET ORGAN TOXICITY,

Category: NEUROTOXICITY TEST

Protocol number: 12

Title: POLYMORPHONUCLEAR LEUKOCYTE LOCOMOTION

Chemotaxis and migration of polymorphonuclear leukocytes can be determined in the presence of test chemicals. A change in the chemotactic index provides an indication of the cytotoxicity of compounds.

Update: 1991-11-20

Contact name: Dr. M. Valentino

Validation:

Keys : BOYDEN CHAMBER, CELL MIGRATION, CHEMOTAXIS, CYTOTOXICITY, HUMAN, IMMUNE SYSTEM, POLYMORPHONUCLEAR LEUKOCYTE, TARGET ORGAN TOXICITY,

Category: IMMUNOTOXICITY TEST

Protocol number: 13

Title: HEPATOMA CELL CULTURES AS IN VITRO MODELS FOR HEPATOTOXICITY

Irreversible toxic effects on both cell growth and survival are assessed by evaluation of colony-forming efficiency in rat hepatoma cell lines MH1C1 and HTC.

Update: 1993-09-21

Contact name: INVITTOX

Validation:

Keys : CELL CULTURE, CELL GROWTH, CELL VIABILITY, CELL-LINE CULTURE, COLONY FORMATION, HEPATOMA, HTC, LIVER, MH1C1, TARGET ORGAN TOXICITY,

Category: HEPATOTOXICITY TEST

Protocol number: 14

Title: HEL 30 CYTOTOXICITY TEST

The ability of cultured cells to synthesize protein is used to assess the effect of a test compound on cellular anabolic competence.

Update: 1990-04-10

Contact name: Dr. Marina Marinovich

Validation:

Keys : 3H-LEUCINE INCORPORATION, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, HEL 30, PROTEIN SYNTHESIS,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 15

Title: THE FRAME CYTOTOXICITY TEST (KENACID BLUE)

The cytotoxic effect of chemicals upon cells in culture is measured by change in total cell protein (Kenacid Blue R dye binding method).

Update: 1992-08-06

Contact name: Dr. Richard H. Clothier

Validation:

Keys : 3T3-L1, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, KENACID BLUE,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 16

Title: CYTOTOXICITY AND GENOTOXICITY IN PRIMARY CULTURES OF HUMAN HEPATOCYTES

Cytotoxic and genotoxic effects are assessed by measuring the effects of a test compound on cell viability, DNA damage and unscheduled DNA synthesis.

Update: 1992-05-19

Contact name: Professor Giovanni Brambilla

Validation:

Keys : 3H-THYMIDINE UPTAKE, ALKALINE ELUTION, AUTORADIOGRAPHY, CARCINOGENICITY, CELL CULTURE, CELL VIABILITY, CYTOTOXICITY, DNA DAMAGE, DNA STRAND BREAKAGE,

GENOTOXICITY, HUMAN, LIVER, NEUTRAL RED UPTAKE, STAINING, TARGET ORGAN TOXICITY,
UNSCHEDULED DNA SYNTHESIS

Category: GENOTOXICITY TEST

Protocol number: 17

Title: MTT ASSAY

Formation of a coloured product, in a mitochondria-dependent reaction, provides a simple measure of cell number/viability.

Update: 1990-04-06

Contact name: Dr. Rosanna Supino

Validation:

Keys : CELL CULTURE, CELL NUMBER, CELL VIABILITY, MTT ASSAY,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 18

Title: UNSCHEDULED DNA SYNTHESIS IN HEPATOCYTE CULTURES ASSESSED BY THE NUCLEI
PROCEDURE

This method provides a sensitive, rapid means of screening chemicals for genotoxic potential. It is based upon the incorporation of tritiated thymidine into DNA in the cell nuclei.

Update: 1991-06-27

Contact name: Dr. Felix R. Althaus

Validation:

Keys : 3H-THYMIDINE INCORPORATION, CARCINOGENICITY, CELL CULTURE, GENOTOXICITY,
HEPATOCYTE, LIVER, RAT, UNSCHEDULED DNA SYNTHESIS,

Category: GENOTOXICITY TEST

Protocol number: 19

Title: ALKALINE UNWINDING GENOTOXICITY TEST

Mouse lymphoma cells are cultured in the presence of test chemicals with or without a metabolic activating system, and resultant DNA-strand breaks are detected by alkaline unwinding and hydroxyapatite elution.

Update: 1990-01-19

Contact name: Dr. George Bolcsfoldi

Validation:

Keys : 3H-THYMIDINE INCORPORATION, CARCINOGENICITY, CELL CULTURE, CELL-LINE
CULTURE, DNA DAMAGE, DNA STRAND BREAKAGE, GENOTOXICITY, L5178Y, LYMPHOMA,
MOUSE,

Category: GENOTOXICITY TEST

Protocol number: 20

Title: ISOLATION OF RAT HEPATOCYTES

Collagenase perfusion of rat liver yields a hepatocyte suspension which may be exposed to test compounds in order to assess their effects on cell viability and enzyme leakage.

Update: 1991-10-28

Contact name: Prof. Dr. Claus Jurgen Estler

Validation:

Keys : CELL CULTURE, HEPATOCYTE, LIVER, RAT, TARGET ORGAN TOXICITY,

Category: HEPATOTOXICITY TEST

Protocol number: 21

Title: BOVINE SPERMATOOZOA CYTOTOXICITY TEST

Cytotoxicity to sperm is determined by using videomicrography and automatic computer analysis to assess effects of a test compound on sperm motility and velocity and by measurement of sperm ATP content.

Update: 1991-05-24

Contact name: Dr. Hasso Seibert

Contact number: 218

Validation:

Keys : ATP LEVEL, BOVINE, CYTOTOXICITY, HUMAN, LUCIFERASE ASSAY, MALE,
REPRODUCTIVE TOXICITY, SPERM, SPERM MOTILITY, TIME LAPSE MICROKINEMATOGRAPHY,
VIDEO MICROSCOPY,

Category: REPRODUCTIVE TOXICITY TEST

Protocol number: 22

Title: TETRAHYMENA THERMOPHILA OCULAR IRRITANCY TEST

Cytotoxicity, as assessed by the effects of a test chemical on Tetrahymenamotility, may be predictive of ocular irritancy potential.

Update: 1991-06-17

Contact name: Dr. Jerald Silverman

Validation: SDA, CTFA, MEIC

Keys : AQUATIC ORGANISM, EYE, IRRITANCY, PROTOZOA,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 23

Title: RAT HEPATOCYTE FLOW CYTOMETRIC CYTOTOXICITY TEST

Flow cytometry is used to monitor drug-induced changes in DNA and protein contents of hepatocytes cultured at physiological oxygen concentrations.

Update: 1990-06-06

Contact name: Dr. Peter Maier

Validation:

Keys : CELL CULTURE, DNA CONTENT, DRUG METABOLISM, FLOW CYTOMETRY, HEPATOCYTE, LIVER, PROTEIN CONTENT, RAT,

Category: HEPATOTOXICITY TEST

Protocol number: 24

Title: CYTOSKELETAL ALTERATIONS AS A PARAMETER FOR ASSESSMENT OF TOXICITY

Changes in the balance of cytoskeletal proteins after exposure to test compounds can be detected by indirect immunofluorescence microscopy and quantitative biochemical methods.

Update: 1991-07-31

Contact name: INVITTOX

Validation:

Keys : CELL CULTURE, CELL STRUCTURE, CELL-LINE CULTURE, CHO, CYTOSKELETON, CYTOTOXICITY, ENVIRONMENTAL TOXICITY,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 25

Title: LASER DIFFRACTION MEASUREMENT OF TUMOUR SPHEROIDS

Tumour cell lines cultured as aggregates can be utilised for in vitro radio sensitivity and/or chemosensitivity tests. Chemical effects are monitored by studying the changes in spheroid diameter measured by laser diffraction.

Update: 1991-08-14

Contact name: Dr. J.E. Dyson

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, DRUG TESTING, HUMAN, LASER DIFFRACTION, REAGGREGATE CULTURE, TUMOUR CELL,

Category: TUMOUR CELL CYTOTOXICITY TEST

Protocol number: 26

Title: THE ZEIN TEST

The amount of the corn protein, zein, dissolved by a surfactant (the "zein number") can be used to predict the relative mildness of surfactants.

Update: 1991-08-30

Contact name: Dr. Cliff Martin

Validation:

Keys : IRRITANCY, PHYSICOCHEMICAL ASSAY, SKIN, TARGET ORGAN TOXICITY, ZEIN,

Category: SKIN TOXICITY TEST

Protocol number: 27

Title: HUMAN SKIN FIBROBLAST COLLAGEN LATTICE CYTOTOXICITY TEST

Skin fibroblasts are incorporated into 3D collagen lattices with the test compound. Toxicity is indicated by inhibition of lattice contraction and verified by trypan blue exclusion.

Update: 1990-03-09

Contact name: Dr. Graham Priestley

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, FIBROBLAST, HSF22, HSF27, HUMAN, SKIN,

Category: SKIN TOXICITY TEST

Protocol number: 28

Title: HUMAN OESOPHAGEAL CULTURE

Inhibition of cell outgrowth in short-term cultures of oesophageal mucosa indicates the potential toxicity of radiation or test substances.

Update: 1990-11-06

Contact name: Dr. C. Mothersill

Validation:

Keys : CELL GROWTH, EPITHELIUM, EXPLANT CULTURE, GASTRO-INTESTINAL TRACT, HUMAN, OESOPHAGUS, TARGET ORGAN TOXICITY,

Category: CELL CULTURE METHOD

Protocol number: 29

Title: HUMAN THYROID CULTURE

Thyroid cells may be cultured without loss of differentiation and without changing medium. The system may be used for long-term studies of drug effects on the thyroid.

Update: 1990-11-06

Contact name: Dr. C. Mothersill

Validation:

Keys : CELL CULTURE, HUMAN, TARGET ORGAN TOXICITY, THYROID,

Category: CELL CULTURE METHOD

Protocol number: 30

Title: THE AMES TEST

Mutagenicity is assessed by the effect of test substances on strains of Salmonella typhimurium in the presence and absence of a rat liver metabolising system.

Update: 1990-05-16

Contact name: INVITTOX

Validation:

Keys : AMES TEST, MUTAGENICITY, GENOTOXICITY

Category: GENOTOXICITY TEST

Protocol number: 31

Title: AGAR OVERLAY ASSAY

L929 mouse fibroblasts cultured in an agarose overlay system may be used to predict irritancy of surfactant-based products.

Update: 1991-11-05

Contact name: Ms Manoj Dixit & Ms Penny Jones

Validation:

Keys : AGAROSE OVERLAY, EYE IRRITANCY, L929 CELLS, MTT, NEUTRAL RED UPTAKE,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 32

Title: DUST TOXICITY IN RAT ALVEOLAR MACROPHAGE CULTURES

Effects of particulate matter on macrophage viability are assessed by vital dye exclusion and enzyme leakage assays.

Update: 1990-01-19

Contact name: Prof. Dr. Yrjo Collan

Validation:

Keys : CELL CULTURE, ENZYME LEAKAGE ASSAY, LACTATE DEHYDROGENASE, LUNG, MACROPHAGE, RAT, STAINING, TARGET ORGAN TOXICITY,

Category: ECOTOXICITY TEST

Protocol number: 33

Title: YEAST GROWTH RATE CYTOTOXICITY TEST

Inhibition of yeast cell proliferation, as measured by cell density, is an indicator of cytotoxicity.

Update: 1991-08-30

Contact name: Dr. Ingolf Cascorbi

Validation:

Keys : CELL PROLIFERATION, CYTOTOXICITY, YEAST,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 34

Title: YEAST PLASMA MEMBRANE H⁺-ATPASE TOXICITY TEST

Toxic effects of chemicals may be predicted by their effects on the activity of plasma-membrane H⁺-ATPase isolated from yeast cells.

Update: 1991-08-30

Contact name: Dr. Ingolf Cascorbi

Validation:

Keys : ENZYME ACTIVITY, ENZYME ASSAY, MEMBRANE INTEGRITY, MEMBRANE TRANSPORT, YEAST,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 35

Title: CHO ATPASE CYTOTOXICITY TEST

Toxic effects of chemicals may be predicted by their effects on plasma-membrane Na/K-ATPase isolated from CHO cells.

Update: 1991-11-15

Contact name: Dr. Ingolf Cascorbi

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, CHO, ENZYME ACTIVITY, ENZYME ASSAY, MEMBRANE INTEGRITY, MEMBRANE TRANSPORT,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 36

Title: CHO CELL PROLIFERATION CYTOTOXICITY TEST

Inhibition of CHO cell proliferation provides an overall assessment of the toxicity of the test substance.

Update: 1991-11-15

Contact name: Dr. Ingolf Cascorbi

Validation:

Keys : CELL CULTURE, CELL PROLIFERATION, CELL-LINE CULTURE, CHO, CYTOTOXICITY,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 37

Title: RED BLOOD CELL TEST SYSTEM

The irritation potential of tensides and detergents may be predicted from their effects on erythrocytes. This assay can differentiate between membrane damage (haemolysis) and protein damage (denaturation).

Update: 1992-12-23

Contact name: Dr Wolfgang Pape

Validation:

Keys : ERYTHROCYTE, EYE, HAEMOLYSIS, IRRITANCY, SKIN, SPECTROPHOTOMETRY, TARGET ORGAN TOXICITY,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 38

Title: LS-L929 CYTOTOXICITY TEST

This simple test of cytotoxicity in cultured cells, in which cell viability is assessed by uptake of the dyes ethidium bromide and fluorescein acetate, has been developed as a general test for acute toxicity.

Update: 1992-07-31

Contact name: Dr. R.B. Kemp

Validation:

Keys : CELL CULTURE, CELL VIABILITY, CELL-LINE CULTURE, CYTOTOXICITY, ETHIDIUM BROMIDE, EYE, FIBROBLAST, FLUORESCHEIN UPTAKE, FLUORESCENCE, IRRITANCY, LS 929, MOUSE, STAINING,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 39

Title: V79 CYTOTOXICITY TEST FOR MEMBRANE DAMAGE

The cytotoxic effect of test chemicals in V79 cell culture can be determined by assessing damage to the plasma membrane as determined by a nucleic acid leakage assay

Update: 1990-06-15

Contact name: Professor Vera Bianchi

Validation:

Keys : 3H-NUCLEOTIDE LEAKAGE, CELL CULTURE, CELL LINE CULTURE, FIBROBLAST, HAMSTER, LUNG, MEMBRANE INTEGRITY, V79,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 40

Title: SIRC CYTOTOXICITY TEST

Rabbit-derived corneal cells are cultured in the presence of test compounds, and toxicity is assessed by Neutral Red uptake.

Update: 1990-08-20

Contact name: Dr. Odile Blein

Validation: OPAL

Keys : CELL CULTURE, CELL-LINE CULTURE, CORNEA, EYE, IRRITANCY, NEUTRAL RED UPTAKE, RABBIT, SIRC,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 41

Title: RABBIT ARTICULAR CHONDROCYTE FUNCTIONAL TOXICITY TEST

Rabbit articular chondrocytes are cultured in the presence of test compound, and toxicity is determined by effects on proteoglycan production, as detected by the dye Alcian blue.

Update: 1990-08-20

Contact name: Dr. Odile Blein

Contact number: 274

Validation:

Keys : ALCIAN BLUE, CELL CULTURE, CHONDROCYTE, PROTEOGLYCAN SYNTHESIS, RABBIT, STAINING, TARGET ORGAN TOXICITY, EMBRYOTOXICITY

Category: EMBRYOTOXICITY TEST

Protocol number: 42

Title: LIVER SLICE HEPATOTOXICITY SCREENING SYSTEM

Leakage of lactate dehydrogenase and alanine aminotransferase from rat and mouse liver slices exposed to the test compound is used as a measure of hepatotoxicity.

Update: 1992-01-08

Contact name: Dr Uri Wormser

Validation:

Keys : LIVER, ORGAN CULTURE, TARGET ORGAN TOXICITY,

Category: HEPATOTOXICITY TEST

Protocol number: 43

Title: COLORIMETRIC CYTOTOXICITY ASSAYS FOR ANCHORAGE DEPENDENT CELLS

Potential cytotoxicity is determined under hypoxic conditions.

Update: 1990-12-01

Contact name: Dr. Margaret E. Watts

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, HAMSTER, HT-1080, HUMAN, LOVO, METHYLENE BLUE UPTAKE, MTT ASSAY, TUMOUR CELL, V79,

Category: TUMOUR CELL CYTOTOXICITY TEST

Protocol number: 44

Title: CELL CULTURE PHOTOTOXICITY TEST

Human A431 cells and mouse 3T3 cells are exposed to UV light in the presence and absence of test compound. Cell viability is determined by the MTT assay.

Update: 1990-07-16

Contact name: Dr. P.A. Duffy

Validation:

Keys : 3T3, A431, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, EPIDERMIS, FIBROBLAST, HUMAN, MOUSE, MTT ASSAY, PHOTOTOXICITY,

Category: PHOTOTOXICITY TEST

Protocol number: 45

Title: DUNALIELLA TERTIOLECTA ENVIRONMENTAL TOXICITY TEST

The toxicity of contaminated sea water may be assessed by its effects in inhibiting marine algal growth.

Update: 1992-02-26

Contact name: Dr Bucci and Dr Sbrilli

Validation:

Keys : AQUATIC ORGANISM, DUNALIELLA TERTIOLECTA, ENVIRONMENTAL TOXICITY,

Category: ECOTOXICITY TEST

Protocol number: 46

Title: BALB/C 3T3 CYTOTOXICITY TEST

Cytotoxicity in Balb/c 3T3 cells is assessed by effects on cell viability (Neutral Red Uptake) and total cell protein (Kenacid Blue R dye binding method).

Update: 1992-01-22

Contact name: Dr. Horst Spielmann

Validation: BGA

Keys : 3T3, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, FIBROBLAST, KENACID BLUE TEST, MOUSE, NEUTRAL RED UPTAKE,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 47

Title: HET-CAM TEST

Potential ocular irritancy may be predicted by observing adverse changes occurring in the chorioallantoic membrane of the egg after exposure to test chemicals.

Update: 1992-01-22

Contact name: Dr. Horst Spielmann

Validation: BGA

Keys : CHICKEN, EGG, EYE, HET-CAM TEST, IRRITANCY,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 48

Title: LUNG CELL ASSAY

Effects on synthesis of protein, collagen and DNA in human foetal lung fibroblasts and rat lung epithelial cells may be used to predict potential embryotoxicity.

Update: 1992-02-19

Contact name: Dr F. Barile

Validation:

Keys : 3H-PROLINE INCORPORATION, 3H-THYMIDINE INCORPORATION, CELL CULTURE, CELL-LINE CULTURE, COLLAGEN SYNTHESIS, DNA SYNTHESIS, EMBRYOTOXICITY, EPITHELIUM, FIBROBLAST, FOETUS, HFL1, HUMAN, L2, LUNG, PROTEIN SYNTHESIS, RAT, TARGET ORGAN TOXICITY,

Category: EMBRYOTOXICITY TEST

Protocol number: 49

Title: H-4-II-E RAT HEPATOMA CELL BIOASSAY

This bioassay utilizes cultured H-4-II-E rat hepatoma cells to assess the aryl hydrocarbon hydroxylase (AHH) inducing potencies of planar aromatic hydrocarbons and/or contaminated environmental samples.

Update: 1992-06-26

Contact name: Dr. T.W. Sawyer, Dr. J.A. Bradlaw

Validation:

Keys : CELL CULTURE, FLUORESCENCE, HEPATOMA, LIVER, RAT, TUMOUR CELL,

Category: ECOTOXICITY TEST

Protocol number: 50

Title: HEP-2 CYTOTOXICITY TEST FOR IMPLANT MATERIALS

Two cytotoxicity tests are used in parallel to investigate the toxicity of implant materials used in medicine and dentistry.

Update: 1992-07-21

Contact name: Dr M. Cervinka

Validation:

Keys : BIOMATERIALS TESTING, CELL CULTURE, CELL MORPHOLOGY, CELL PROLIFERATION, CELL-LINE CULTURE, CYTOTOXICITY, DNA SYNTHESIS, HEP-2, HUMAN,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 51

Title: LLC-RK1 CELL SCREENING TEST FOR NEPHROTOXICITY

Cytotoxicity in kidney-derived cells, as assessed by the Neutral Red method, may be used to evaluate potential nephrotoxicity.

Update: 1990-01-19

Contact name: Dr. A.N. Toseland

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, KIDNEY, LLC-RK1, NEUTRAL RED UPTAKE, RABBIT,

TARGET ORGAN TOXICITY,
Category: NEPHROTOXICITY TEST

Protocol number: 52

Title: QUANTITATIVE VIDEO MICROSCOPY OF INTRACELLULAR MOTION AND MITOCHONDRIA-SPECIFIC FLUORESCENCE

AVEC-DIC microscopy in combination with mitochondria-specific fluorescence allows a quantitative analysis of cell organelle dynamics and fine structure in cells exposed to test compounds.

Update: 1992-02-29

Contact name: Dr. Toni Lindl

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, FLUORESCENCE, FIBROBLAST, HUMAN, IMR-90, L929, LYSOSOME, MITOCHONDRIA, MOUSE, VIDEO MICROSCOPY,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 53

Title: AUTOMATED IN VITRO DERMAL ABSORPTION (AIDA) PROCEDURE

The AIDA system can be used under precisely controlled environmental conditions to predict the dermal absorption of the test substance in vivo.

Update: 1992-07-27

Contact name: Dr R. Moody

Validation:

Keys : ENVIRONMENTAL TOXICITY, SKIN, TARGET ORGAN TOXICITY, TISSUE-FRAGMENT CULTURE,

Category: SKIN ABSORPTION TEST

Protocol number: 54

Title: THE FRAME NEUTRAL RED RELEASE ASSAY

Short-term toxicity and irritancy of a test compound may be determined by measurement of the release of vital dye from cultured cells.

Update: 1992-08-06

Contact name: Dr. Richard Clothier

Validation: CTFA, SDA, EEC

Keys : 3T3, CELL CULTURE, CELL-LINE CULTURE, EYE, FIBROBLAST, IRRITANCY, MEMBRANE INTEGRITY, MOUSE, NEUTRAL RED RELEASE, SKIN,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 55

Title: POLLEN TEST SYSTEM

Toxicity is determined by measuring inhibition of pollen tube growth.

Update: 1990-02-12

Contact name: Prof. Dr. Udo Kristen, Dr. Rolf Kappler

Validation:

Keys : ALCIAN BLUE, CYTOTOXICITY, EYE, HIGHER PLANT, IRRITANCY, PLANT, POLLEN, POLLEN TUBE GROWTH,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 56

Title: HEN'S EGG TEST - YOLK-SAC BLOOD VESSEL ASSAY

Toxicity is scored according to the severity of acute and late reactions in the blood vessel system of the yolk sac of the presentient chick embryo.

Update: 1992-08-26

Contact name: Dr. M. Rosenbruch

Contact number: 400

Validation:

Keys : BLOOD VESSEL, CHICKEN, EMBRYO, IRRITANCY,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 57

Title: HUMAN AND BOVINE LENS EPITHELIAL CULTURE

This procedure describes a method for routinely establishing finite but abundant primary explant cultures of human (and bovine) lens epithelial cells.

Update: 1992-09-30

Contact name: Ms S.F. Webb

Validation:

Keys : BOVINE, CELL CULTURE, EPITHELIAL, EXPLANT CULTURE, EYE LENS, HUMAN,

Category: CELL CULTURE METHOD

Protocol number: 58

Title: UV ABSORPTION AS AN APPROXIMATION FOR CELL NUMBER

Absorption of UV at 260 nm in a fixed volume of solubilised cells is proportional to cell numbers. The resulting cell count is combined with measures of inhibition of DNA synthesis to obtain a cytotoxicity index.

Update: 1992-09-12

Contact name: Dr. Ming J.W. Chang

Validation:

Keys : CELL NUMBER, CYTOTOXICITY, DNA SYNTHESIS,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 59

Title: IN VITRO FERTILIZATION SPERM TOXICITY TEST

In vitro fertilization can be used as a sensitive technique to determine effects of potential testicular toxins on spermatozoal fertilizing capacity which is assessed by morphological, physiological and biochemical parameters.

Update: 1992-10-10

Contact name: Dr. H.D.M. Moore

Validation:

Keys : FERTILISATION, MALE, REPRODUCTIVE TOXICITY, SPERM FUNCTION,

Category: REPRODUCTIVE TOXICITY TEST

Protocol number: 60

Title: EYE LENS ORGAN CULTURE

Effects on refractive index (focal length) and lens transparency may be assessed in long-term bovine whole lens cultures. Endpoints are measured simultaneously by a computer-driven scanning laser system.

Update: 1992-10-15

Contact name: Professor Jacob Sivak

Validation:

Keys : BOVINE, EYE, EYE LENS, ORGAN CULTURE,

Category: CELL CULTURE METHOD

Protocol number: 61

Title: AN IN VITRO MODEL FOR STUDIES OF PROSTAGLANDIN H SYNTHASE (PHS)-MEDIATED GENOTOXICITY OF XENOBIOTICS

This protocol describes the use of SEMV cells (a cell line derived from ram seminal vesicles) in studies into prostaglandin H synthase-mediated metabolism of xenobiotics in intact cells.

Update: 1992-10-26

Contact name: Dr. Gisela H. Degen

Validation:

Keys : CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, GENOTOXICITY, SHEEP, = TESTES,

Category: GENOTOXICITY TEST

Protocol number: 62

Title: SCREENING SYSTEM OF PROMOTERS USING RAS-TRANSFECTED BALB 3T3 CLONE (BHAS 42)

Tumour promoters can be detected by their ability to cause the initiated Bhas 42 cells to lose contact inhibition.

Update: 1992-10-12

Contact name: Dr. Kiyoshi Sasaki

Validation:

Keys : 3T3, CARCINOGENICITY, CELL CULTURE, CELL-LINE CULTURE, TUMOUR PROMOTION,

Category: TUMOUR PROMOTER TEST

Protocol number: 63

Title: ALPHA-METHYL GLUCOSE UPTAKE IN ISOLATED PROXIMAL TUBULAR CELLS

Inhibition of the uptake of alpha-methyl glucose in freshly isolated rat kidney proximal tubular cells is

used as a measure of acute early-stage nephrotoxicity.

Update: 1992-11-15

Contact name: Dr. J.F. Nagelkerke

Validation:

Keys : KIDNEY, PROXIMAL CONVOLUTED TUBULE, RAT, TARGET ORGAN TOXICITY,

Category: NEPHROTOXICITY TEST

Protocol number: 64

Title: THE NEUTRAL RED CYTOTOXICITY ASSAY

The cytotoxic effect of chemicals upon cultured mammalian cells is measured by highest tolerated dose (HTD), cell viability (Neutral Red) and total cell protein (Coomassie Blue).

Update: 1992-12-11

Contact name: Dr. Harvey Babich and Dr. Ellen Borenfreund

Validation: EEC, CTFA, SDA

Keys : BALB-C 3T3, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, HEPG2, NEUTRAL RED RELEASE, S9 FRACTION,

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 65

Title: LUCIFER YELLOW INTERCELLULAR EXCHANGE ASSAY FOR TUMOUR PROMOTERS

The effect of the test substance on the transfer of the dye lucifer yellow between SV-40-transformed hamster fibroblasts is an indication of potential tumour-promoting activity.

Update: 1992-12-12

Contact name: Dr. Irina V. Budunova

Validation:

Keys : FIBROBLAST, HAMSTER, TUMOUR PROMOTION,

Category: TUMOUR PROMOTER TEST

Protocol number: 66

Title: IN VITRO PREDICTION OF THE MAXIMUM TOLERATED DOSE

Cytotoxicity in primary rat hepatocytes, MDBK and McCoy cells can be used to predict the in vivo 4-wk MTD in rats and dogs and also correlates with LD50 values in rats and mice.

Update: 1993-02-17

Contact name: Dr. R. Shrivastava

Validation:

Keys : BOVINE, CELL CULTURE, CELL GROWTH, CELL MORPHOLOGY, CELL-LINE CULTURE, CYTOTOXICITY, EPITHELIUM, HEPATOCYTE, HUMAN, KIDNEY, LIVER, MCCOY, MDBK, RAT,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 67

Title: SERUM-FREE LIVER MITOGEN TEST

The growth response of rat hepatocytes to test compounds is assessed in serum-free primary cultures

Update: 1993-02-12

Contact name: Dr. Wolfram Parzefall

Validation:

Keys : 3H-THYMIDINE INCORPORATION, AUTORADIOGRAPHY, CARCINOGENICITY, CELL DIVISION, CELL GROWTH, DNA SYNTHESIS, HEPATOCYTE, LIVER, MITOGENICITY, RAT, TARGET ORGAN TOXICITY,

Category: HEPATOTOXICITY TEST

Protocol number: 68

Title: EMBRYOTOXICITY TESTING USING A WHOLE EMBRYO CULTURE (W.E.C.) PROCEDURE

Embryotoxic potential is studied in vitro in post-implantation rodent embryos in the presence or absence of a hepatic biotransforming system.

Update: 1993-06-30

Contact name: Dr. Francois Spezia

Validation:

Keys : EMBRYO, EMBRYO CULTURE, MOUSE, RAT, TERATOGENICITY,

Category: EMBRYOTOXICITY TEST

Protocol number: 69

Title: PRIMARY HUMAN HEPATOCYTE CULTURES FROM SMALL SURGICAL BIOPSIES

A two-step collagenase microperfusion method is used to isolate hepatocytes from small biopsies

for culture on fibronectin-coated plates and a micromethod used to measure 7-ethoxy- and pentoxyresorufin O-dealkylase activities.

Update: 1993-09-15

Contact name: Dra. M.J. Gomez-Lechon

Validation:

Keys : CELL CULTURE, HEPATOCYTE, HUMAN, LIVER,

Category: CELL CULTURE METHOD

Protocol number: 70

Title: THE ISOLATED PIG-EAR SKIN PERMEATION MODEL

The uptake of a test substance by percutaneous absorption can be estimated quantitatively using an isolated pig ear perfused with oxygenated autologous blood.

Update: 1993-10-03

Contact name: Dr. Jan de Lange

Validation:

Keys : ORGAN CULTURE, PERFUSION, PIG, SKIN,

Category: SKIN ABSORPTION TEST

Protocol number: 71

Title: THE FLUORESCHEIN LEAKAGE TEST

Damage caused by the test compound to the tight junctions in MDCK monolayers, as determined by fluorescein leakage through the cell layer is used to assess potential ocular irritancy.

Update: 1993-10-06

Contact name: Dr. Richard Clothier

Validation: EEC/Home Office

Keys : CELL CULTURE, CELL-LINE CULTURE, DOG, EYE, FLUORESCHEIN LEAKAGE, IRRITANCY, KIDNEY,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 72

Title: RAT WHOLE EMBRYO CULTURE

Suitable for standardised teratogenicity testing in early organogenesis to supplement in vivo studies on this stage of development.

Update: 1993-10-15

Contact name: Dr. Stephen Klug

Validation:

Keys : BIURET ASSAY, BOVINE, EMBRYO CULTURE, PROTEIN CONTENT, RAT, TERATOGENICITY, YOLK SAC,

Category: EMBRYOTOXICITY TEST

Protocol number: 73

Title: TWO-COMPARTMENT HUMAN TISSUE CYTOTOXICITY TEST

Diffusible cytotoxic metabolites may be identified by separating the target human mononuclear leukocytes from the activating human or rat microsomes by a semi-permeable membrane.

Update: 1994-01-24

Contact name: Dr. M.D. Tingle

Validation:

Keys : CELL CO-CULTURE, CYTOTOXICITY, ERYTHROCYTE, HEPATOCYTE, LIVER, MICRO SOMAL FRACTION,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 74

Title: TETRAHYMENA THERMOPHILA CHEMOSENSORY RESPONSE

The negative chemosensory response of the protozoan is used to assess the toxicity of chemicals in the aquatic environment.

Update: 1994-02-14

Contact name: Dr W Pauli

Validation:

Keys : AQUATIC ORGANISM, CHEMOTAXIS, CYTOTOXICITY, SUB-LETHAL, TETRAHYMENA,

Category: ECOTOXICITY TEST

Protocol number: 75

Title: TETRAHYMENA PROLIFERATION RATE AND MAXIMAL DENSITY

The effect of chemicals on the proliferation rate and maximal cell density of the protozoan,

Tetrahymena thermophila, is a measure of their toxicity.

Update: 1994-02-13

Contact name: Dr W Pauli

Validation:

Keys : AQUATIC ORGANISM, CELL CULTURE, CELL GROWTH, CELL NUMBER, CYTOTOXICITY, MAXIMAL CELL DENSITY, OPTICAL DENSITY, SUB-LETHAL, TETRAHYMENA,

Category: ECOTOXICITY TEST

Protocol number: 76

Title: TETRAHYMENA ASSAY FOR MEMBRANE-STABILISING ACTIVITY

The effect of a chemical on the swimming speed of the ciliated protozoan, Tetrahymena pyriformis, indicates its potential effects on membrane lipid structure and protein ion channels.

Update: 1994-02-21

Contact name: Dr. S.L. Cassidy

Validation:

Keys : CYTOTOXICITY, MEMBRANE INTEGRITY, MICROORGANISM, PROTOZOA, VIDEOMICROGRAPHY,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 77

Title: THE COMPLEMENT PHOTOACTIVATION ASSAY

Complement activation that takes place when human plasma and the test compound are incubated in the presence of light is taken as an indication of potential phototoxicity.

Update: 1994-03-29

Contact name: Dr. Darek Sladowski

Validation: EEC/COLIPA

Keys : COMPLEMENT ACTIVATION, HUMAN, PHOTOTOXICITY,

Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 78

Title: 3T3 NRU PHOTOTOXICITY ASSAY

The cytotoxicity of the test compound is assessed by Neutral Red uptake following exposure in the presence or absence of UVA light.

Update: 1994-03-29

Contact name: Dr. Manfred Liebsch

Validation: EEC/COLIPA

Keys : 3T3, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, FIBROBLASTS, MICE, NEUTRAL RED UPTAKE, PHOTOTOXICITY,

Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 79

Title: THE FRAME MODIFIED PHOTOTOXICITY ASSAY USING HUMAN KERATINOCYTE MONO LAYER CULTURES.

The Neutral Red Uptake assay in keratinocytes is used to determine whether exposure of a test chemical to UVA light results in increased toxicity due to photoactivation.

Update: 1994-05-15

Contact name: Dr Richard Clothier

Validation: EEC/COLIPA

Keys : CELL CULTURE, CYTOTOXICITY, HUMAN, KERATINOCYTE, NEUTRAL RED UPTAKE, PHOTOTOXICITY,

Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 80

Title: CHICKEN ENUCLEATED EYE TEST (CEET)

Eye irritation potential may be assessed by effects on corneal swelling and opacity and fluorescein retention in the isolated chicken eye.

Update: 1994-04-18

Contact name: Dr Menk Prinsen

Validation: EEC/Home Office

Keys : CORNEAL OPACITY, CORNEAL THICKNESS, ENUCLEATED EYE, EX VIVO, EYE, FLUORESCEIN UPTAKE, IRRITANCY,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 81

Title: RBC PHOTO ASSAY - PHOTOHAEMOLYSIS AND HAEMOGLOBIN OXIDATION
Phototoxic potential of a test compound is determined from its ability to disturb the erythrocyte membrane and/or to oxidize haemoglobin under UV and visible light (sunlight).
Update: 1994-05-15
Contact name: Dr. W. Pape and Dr. U. Pfannenbecker
Validation: EEC/COLIPA
Keys : ERYTHROCYTE, HAEMOLYSIS, HUMAN, METHAEMOGLOBIN FORMATION, PHOTOTOXICITY,
Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 82
Title: FIXED DOSE PROCEDURE FOR THE FLUORESCEIN LEAKAGE TEST
Damage caused by a fixed dose of test compound to tight junctions in MDCK monolayers, as determined by leakage of fluorescein through the cell layer, indicates potential eye irritancy.
Update: 1994-05-15
Contact name: Dr. Richard Clothier
Validation:
Keys : CELL CULTURE, CELL-LINE CULTURE, EYE, FLUORESCEIN LEAKAGE, IRRITANCY, MDCK,
Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 83
Title: ATS SKIN2 ZK 1350 PHOTOTOXICITY ASSAY
Cytotoxicity in the presence and in the absence of UVA light is determined in a three-dimensional human skin tissue model, with MTT reduction as endpoint, in order to determine phototoxic potential
Update: 1994-05-15
Contact name: Dr Manfred Liebsch
Validation: EEC/COLIPA
Keys : CELL CULTURE, CYTOTOXICITY, HUMAN, MTT ASSAY, PHOTOTOXICITY, SKIN, TISSUE MODEL,
Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 84
Title: SOLATEX-PI PHOTOTOXICITY TEST
The combined effects of a UV-irradiated test compound on a biomembrane barrier and on a protein matrix can be used to predict its potential for causing UV-induced dermal irritation.
Update: 1994-05-15
Contact name: Dr Manfred Liebsch
Validation: EEC/COLIPA
Keys : PHOTOTOXICITY, SKIN, SOLATEX-PI,
Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 85
Title: THE RABBIT ENUCLEATED EYE TEST
Eye irritation potential may be assessed by effects on corneal swelling and opacity and fluorescein retention in the isolated rabbit eye.
Update: 1994-05-15
Contact name: Dr. Lesley Earl
Validation: EEC/Home Office
Keys : CORNEAL OPACITY, CORNEAL THICKNESS, ENUCLEATED EYE, EX VIVO, EYE, FLUORESCEIN UPTAKE, IRRITANCY, RABBIT, TUMOUR PROMOTION,
Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 86
Title: TRANS-EPITHELIAL PERMEABILITY (TEP) ASSAY
The ocular irritation potential of a product can be evaluated by determining its effect on the permeability of a cell layer, as assessed by the leakage of fluorescein through the layer.
Update: 1994-05-12
Contact name: Katharine Martin and Dr Stephen Koontz
Validation: CTFA(III), COLIPA
Keys : CELL CULTURE, CELL-LINE CULTURE, EYE, FLUORESCEIN LEAKAGE, IRRITANCY, MDCK,
Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 87

Title: ARACHIDONIC ACID RELEASE AS A MEASURE OF MEMBRANE TOXICITY

The rate of release of arachidonic acid from the promonocytic human cell line U937 is used to assess membrane-toxic effects.

Update: 1994-06-06

Contact name: Prof. Dr. H.-P. Kl=DCcking

Validation:

Keys : ARACHIDONIC ACID, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, HUMAN, MEMBRANE DAMAGE, U937,

Category: SKIN TOXICITY TEST

Protocol number: 88

Title: DNA BINDING IN BACTERIA

The binding of test compounds to bacterial DNA may be used to elucidate primary genotoxic mechanisms=ECThe binding of test compounds to bacterial DNA may be used to elucidate primary genotoxic mechanisms

Update: 1994-07-07

Contact name: Prof. Dr. E. Eder

Validation:

Keys : BACTERIA, DNA BINDING, GENOTOXICITY, MICROORGANISM,

Category: GENOTOXICITY TEST

Protocol number: 89

Title: DNA BINDING FOR ALKYLATING COMPOUNDS USING ISOLATED PERFUSED RAT LIVER

The perfused rat liver technique is adapted to assess the capacity of directly alkylating compounds to induce DNA-binding and therefore mutagenicity.

Update: 1994-07-07

Contact name: Prof. Dr. E. Eder

Validation:

Keys : DNA BINDING, EX VIVO, GENOTOXICITY, LIVER, PERFUSION, RAT,

Category: GENOTOXICITY TEST

Protocol number: 90

Title: ISOLATION OF RAT TYPE II ALVEOLAR EPITHELIAL CELLS

Density gradient centrifugation on Lymphoprep is used to obtain a cell suspension enriched in type II alveolar epithelial cells from rat lung tissue.

Update: 1994-07-07

Contact name: INVITTOX

Validation:

Keys : ALVEOLUS, CELL CULTURE, EPITHELIUM, LUNG, RAT,

Category: CELL CULTURE METHOD

Protocol number: 91

Title: ALPHA-METHYL GLUCOSE UPTAKE IN PRIMARY CULTURES OF PROXIMAL TUBULAR CELLS

Inhibition alpha-methyl glucose uptake after chronic exposure of proximal tubular cell cultures to low concentrations of a test compound indicates nephrotoxic potential.

Update: 1994-07-07

Contact name: Dr. J.F. Nagelkerke

Validation:

Keys : CELL CULTURE, KIDNEY, METHYL GLUCOSE UPTAKE, PROXIMAL CONVOLUTED TUBULE, RAT, TARGET ORGAN TOXICITY,

Category: NEPHROTOXICITY TEST

Protocol number: 92

Title: CULTURE OF HUMAN CUMULUS GRANULOSA CELLS

Suppression of progesterone production in cultured human granulosa luteal cells is used as a marker of potential reproductive toxicity.

Update: 1994-07-07

Contact name: Dr. Maha M. Mahadevan

Validation:

Keys : CELL CULTURE, HORMONE SECRETION, HUMAN, LUTEAL CELLS, REPRODUCTIVE TOXICITY,

Category: REPRODUCTIVE TOXICITY TEST

Protocol number: 93

Title: SPONTANEOUSLY CONTRACTING CULTURED RAT SKELETAL MUSCLE CELLS FOR TESTING TOXIC EFFECTS ON EXCITABLE TISSUES

Primary cultures of rat myogenic cells are used to model the cytotoxic and sub-cytotoxic effects of test compounds on excitable tissues.

Update: 1994-07-07

Contact name: Dr. Michael Gulden

Validation: MEIC

Keys : CELL CULTURE, CONTRACTION, CREATINE KINASE, ENZYME LEAKAGE, GLUCOSE METABOLISM, HEART, NERVOUS SYSTEM, RAT, STRIATED MUSCLE, TARGET ORGAN TOXICITY,

Category: NEUROTOXICITY TEST CARDIOTOXICITY TEST

Protocol number: 94

Title: PHOTSENSITIZED OXIDATION OF HISTIDINE

The photooxidation of histidine in the presence of the test compound gives a qualitative indication of the phototoxic potential of the latter.

Update: 1994-07-07

Contact name: Dr. William W. Lovell

Validation: EEC/COLIPA

Keys : HISTIDINE, OXIDATION, PHOTOTOXICITY, PHYSICOCHEMICAL ASSAY,

Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 95

Title: PHOTOBINDING TO PROTEIN

The binding of a test compound to human serum albumin in the presence of light is an indication of potential phototoxicity.

Update: 1994-07-07

Contact name: Dr. W.W. Lovell

Validation: EEC/COLIPA

Keys : PHOTOTOXICITY, PHYSICOCHEMICAL ASSAY,

Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 96

Title: THE HEN'S EGG TEST ON THE CHORIOALLANTOIC MEMBRANE (HET-CAM)

The acute irritation potential of a test substance to mucous membranes is reflected in its effects on the chorioallantoic membrane of a fertilized, in cubated hen's egg.

Update: 1994-07-07

Contact name: Dr. W. Steiling

Validation: EEC/Home Office

Keys : EYE, HET-CAM TEST, IRRITANCY,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 97

Title: THE SILICON MICROPHYSIOMETER TOXICITY TEST (MICROBIOLOGICAL ASSOCIATES)

Effects on intracellular metabolism, as reflected by a decreased extracellular acidification rate, can be used as a measure of eye irritation potential. The potential of the cells to recover from the exposure may also be determined.

Update: 1994-09-09

Contact name: Dr. J.W. Harbell

Validation: EEC/Home Office

Keys : CELL CULTURE, CELL-LINE CULTURE, EYE, IRRITANCY, L929, SILICON MICROPHYSIOMETER,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 98

Title: THE BOVINE CORNEAL OPACITY AND PERMEABILITY ASSAY

Effects on the opacity and permeability of a freshly collected bovine cornea can be used as a measure of eye irritancy potential

Update: 1994-09-09

Contact name: Dr. P. Gautheron

Validation: EEC/Home Office

Keys : BOVINE, CORNEAL OPACITY, EX VIVO, EYE, FLUORESCEIN UPTAKE, IRRITANCY,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 99

Title: RED BLOOD CELL LYSIS AND PROTEIN DENATURATION

The membranolytic activity of a test substance and its ability to cause protein denaturation in mammalian erythrocytes is a measure of cytotoxicity and also of potential ocular irritancy.

Update: 1994-09-09

Contact name: Dr. R.W. Lewis

Validation: EEC/Home Office

Keys : ERYTHROCYTE, EYE, HAEMOLYSIS, IRRITANCY,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 100

Title: NEUTRAL RED BIOASSAY USING BALB/C 3T3 CELLS

The potential of a test substance to inhibit neutral red uptake in cultures of BALB/c 3T3 clone A31 cells may be used as a measure of cytotoxicity and also of potential irritancy.

Update: 1994-09-09

Contact name: Dr. J.W. Harbell

Validation: EEC/Home Office

Keys : 3T3, CELL CULTURE, CELL-LINE CULTURE, CYTOTOXICITY, EYE, IRRITANCY, NEUTRAL RED,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 101

VALIDATION STUDY SOP - NOT FOR DISTRIBUTION

Protocol number: 102

Title: THE SILICON MICROPHYSIOMETER TOXICITY TEST (PROCTER & GAMBLE)

Effects on intracellular metabolism, as reflected by a decreased extracellular acidification rate, may be used as a measure of eye irritancy potential. The potential of the cells to recover from exposure may also be determined.

Update: 1996-04-06

Contact name: Dr. R. Osborne

Validation: EEC/COLIPA

Keys : CELL CULTURE, CELL-LINE CULTURE, EYE, IRRITANCY, L929, SILICON MICROPHYSIOMETER,

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 103

Title: CUTANEOUS TOXICITY TESTING USING SKIN ORGAN CULTURE

A 2-compartment model is used to assess dermal toxicity of topically applied substances to rabbit, human or pig skin and can be used for studies on recovery, dermal absorption and metabolism.

Update: 1994-08-08

Contact name: Dr. H. van de Sandt

Contact number: 598

Validation:

Keys : HUMAN, METABOLISM, MTT ASSAY, ORGAN CULTURE, PIG, RABBIT, SKIN, TARGET ORGAN TOXICITY,

Category: SKIN TOXICITY TEST

Protocol number: 104

Title: THE METHYLCELLULOSE CELL CULTURE TEST SYSTEM

The toxicity of biomaterials is assessed over a seven-day exposure to cells in a semi-solid medium.

Update: 1994-08-08

Contact name: Dr. M.J.A. van Luyn

Validation:

Keys : BIOMATERIALS TESTING, CELL CULTURE, CELL MORPHOLOGY, CELL MORPHOLOGY, CELL-LINE CULTURE, FIBROBLAST, HUMAN,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 105

Title: CREATINE KINASE ACTIVITY IN RAT MYOCYTES AS A MODEL FOR ASSESSING MUSCLE IRRITATION

Primary cultures of newborn rat skeletal muscles can be used to evaluate the myotoxicity of various

drugs.

Update: 1994-09-10

Contact name: Dr. I. Kato

Validation:

Keys : RAT, MYOCYTE, STRIATED MUSCLE, TARGET ORGAN TOXICITY, CREATINE KINASE, CELL CULTURE

Category: MYOTOXICITY TEST

Protocol number: 106

Title: EMBRYONIC MYOCARDIAL MYOCYTE REAGGREGATION CULTURES AS A MODEL FOR CARDIOTOXICITY

Reaggregates of isolated chick embryo myocardial muscles are used in a simple tissue culture-based test as a model for the cardiotoxicity of compounds.

Update: 1994-11-15

Contact name: Dr. C.D.N. Toseland, Dr. L.K. Earl

Validation:

Keys : EMBRYO, CHICKEN, MYOCYTE, MYOCARDIUM, TARGET ORGAN TOXICITY, HEART, CELL CULTURE, CELL MORPHOLOGY, LACTATE DEHYDROGENASE,

Category: CARDIOTOXICITY TEST

Protocol number: 107

Title: USE OF STABLE CELL LINES EXPRESSING CYTOCHROMES CYP cDNA IN TOXICITY TESTING

The use of such cell lines means that metabolites of xenobiotics are produced in the target cells, thus obviating problems associated with the use of co-cultures and subcellular fractions.

Update: 1994-11-17

Contact name: Dr. J. Doehmer

Validation:

Keys : CYTOCHROMES P450, CELL CULTURE, CELL-LINE CULTURE, METABOLISM,

Category: BASAL CYTOTOXICITY TEST

Protocol number: 108

Title: CAM-TBS TEST:TRYPAN BLUE AS AN ENDPOINT IN THE HET-CAM TEST

The inclusion of a quick and simple method for quantitative assessment of the HET-CAM test using trypan blue improves the correlation of the HET-CAM to the Draize rabbit eye test.

Update: 1995-02-24

Contact name: Dr. H. Itagaki, Dr. S. Hagino, Dr. S. Kato

Validation: Japan Draize

Keys : HEN, HET-CAM TEST, IRRITANCY, TRYPAN BLUE, EYE

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 109

Title: HAEMOGLOBIN DENATURATION AS A MODEL FOR PREDICTING IRRITANCY

The degree to which a surfactant causes denaturation of haemoglobin can be used to predict its potential to cause ocular irritation.

Update: 1995-02-12

Contact name: Dr. H. Itagaki, Mr. T. Hayashi, Dr. S. Kato

Validation: Japan Draize

Keys : HAEMOGLOBIN, PROTEIN DENATURATION, IRRITANCY, EYE

Category: DRAIZE EYE TEST ALTERNATIVE

Protocol number: 110

Title: EYTEX PROTOCOL

The reduction in light transmission resulting from precipitate caused by the interaction of the test compound with a protein matrix is predictive of the potential of the test compound to cause eye irritancy.

Update: 1995-03-14

Contact name: Dr. V.C. Gordon

Validation: EEC/Home Office

Keys : IRRITANCY, EYE, PROTEIN DENATURATION

Category: DRAIZE EYE TEST ALTERNATIVE - VALIDATION STUDY PROTOCOL

Protocol number: 111

Title: PROTEIN (PHOTO-)BINDING ASSAY

The binding of a test compound to human serum albumin in the presence of light is an indication of potential photoallergenicity.

Update: 1994-08-08

Contact name: Dr. W. Diembeck, Dr. W. Pape

Validation: EEC/COLIPA

Keys : PHOTOTOXICITY, PHYSICOCHEMICAL METHOD, PROTEIN BINDING,

Category: PHOTOTOXICITY TEST - VALIDATION STUDY PROTOCOL

Protocol number: 112

Title: CYP1A1-INDUCING POTENCY AND CYTOTOXICITY TEST IN THE HEPA-1 MOUSE HEPATOMA CELL LINE

Assessments of CYP1A1-induction, as reflected in aryl hydrocarbon hydroxylase and 7-ethoxyresorufin O-deethylase activities, and of cell viability are combined into a rapid screening procedure for chemicals or environmental pollutants.

Update: 1995-10-13

Contact name: Dr. S. Karenlampi, Dr. R. Torronen, Dr. P. Kopponen

Validation: MEIC

Keys : CYTOCHROMES P450 INDUCTION, ENVIRONMENTAL TOXICITY, AHH, EROD, CARCINOGENICITY, MOUSE, HEPATOMA, CELL CULTURE, CELL-LINE CULTURE, HEPA-1

Category: ECOTOXICITY TEST

Protocol number: 113

Title: EMBRYONIC STEM CELL TEST (EST)

The effect of chemicals on 3T3 cells and on ES cells, a permanent cell line derived from mouse embryonic stem cells, can be used to predict teratogenic potential.

Update: 1996-07-11

Contact name: Prof. Dr. H. Spielmann

Validation:

Keys : EMBRYOTOXICITY, CELL DIFFERENTIATION, CELL CULTURE, CYTOTOXICITY, CELL-LINE CULTURE, 3T3, ES, MOUSE

Category: EMBRYOTOXICITY TEST

Protocol number: 114

Title: IN VITRO MICROMASS TERATOGEN ASSAY

The effect of a test compound, in the presence and absence of S-9 mix, on the differentiation and growth of rat limb bud and CNS cells in vitro indicates whether it is potentially a teratogen *in vivo*.

Update: 1996-07-15

Contact name: Mrs P.F. Uphill

Validation: Interlaboratory blind trial. Recognised of value by European Federation Pharmaceutical Industries

Keys : TERATOGENICITY, CELL CULTURE, MICROMASS CULTURE

Category: EMBRYOTOXICITY TEST

Protocols are available free of charge, on request from invittox@frame-uk.demon.co.uk

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