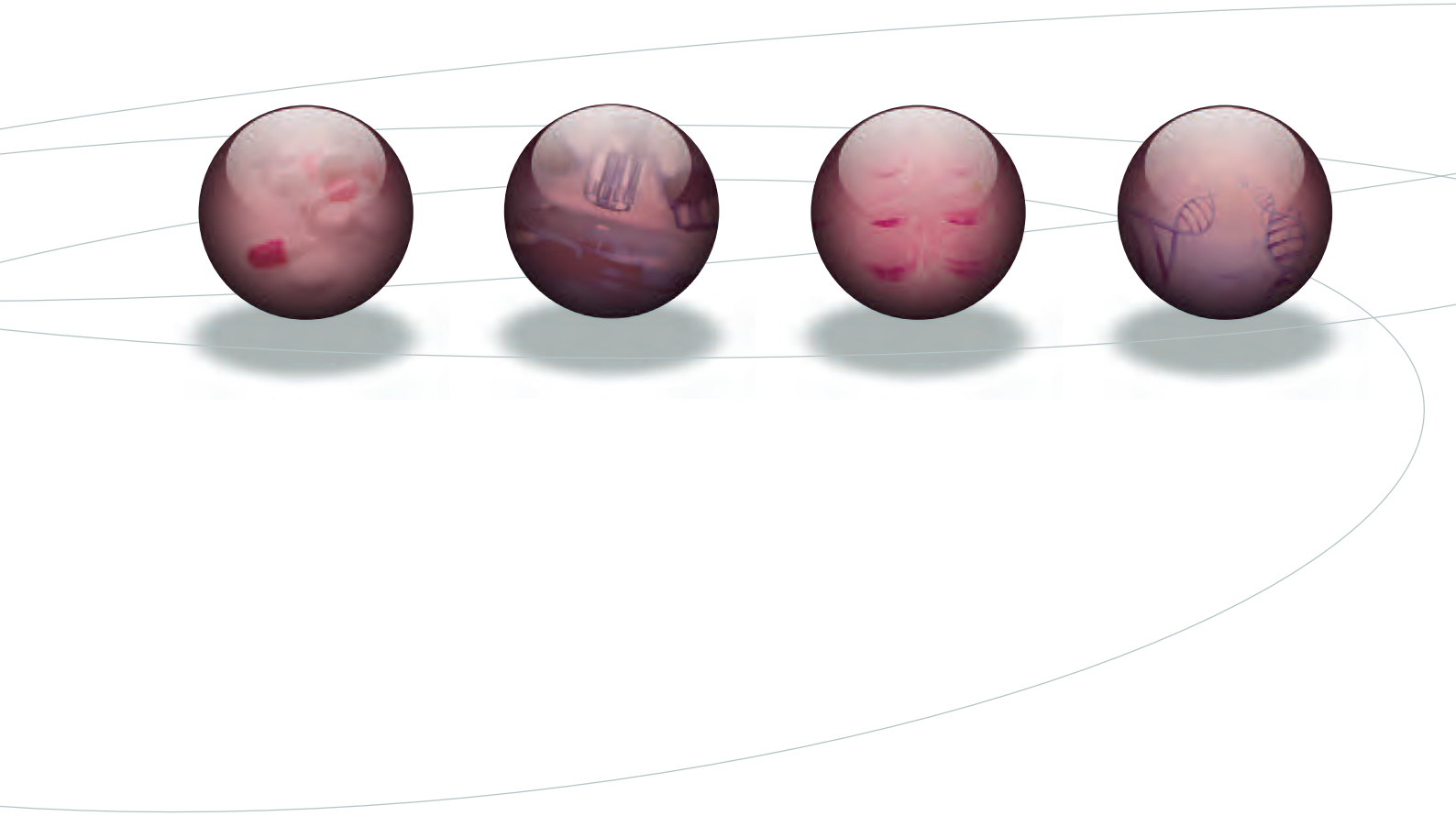
Tools for ADME/Tox

reagents, standards and model systems



LGC Standards

Excellence through measurement

- Metabolite standards
  - Labelled
  - Unlabelled
- Enzyme inducers
- Enzyme and transporter, substrates and inhibitors
- Model systems

How to use this reference guide

The new Tools for ADME/Tox guide has been assembled to make the often time consuming task of finding the right standards, reagents and model systems for your research easier than ever before.

The general product listing on **page 26** is supported by a range of application based index tables focusing on different pathways including:

- Cytochrome P450 isoenzymes
- Phase II metabolising enzymes
- Transporters.

Each index has been produced detailing the metabolising enzyme with the relevant substrate, metabolite, inhibitor or inducer. For easy reference, substrates and metabolites for any single metabolism enzyme have been aligned on opposing pages of the index section.

Index listings

Each metabolism enzyme has relevant substrates, metabolites, inducers and inhibitors relevant to the enzyme listed with reference to FDA Drug Development and Drug interactions:

Table of Substrates, Inhibitors and Inducers (Appendix I).

Example

Substrates: CYP450 metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

CYP450 metabolism enzymes	Substrate	FDA	Unlabelled	Labelled	Fluorescent
CYP1A1	7-ethoxyresorufin		✔		✔
CYP1A2	7-ethoxyresorufin	A	✔		✔
CYP1A2	R-warfarin				
CYP1A2	Phenacetin	P	✔		
CYP1A2	Tacrine	A	✔		

1 2 3 4 5 6

1 Metabolising enzyme name

2 Generic substrate/metabolite/inducer/inhibitor name

3 Reference to FDA preferred (P) and acceptable (A) compounds as found in the Drug Development and Drug Interactions: Table of Substrates, Inhibitors and Inducers. **www.fda.gov** (Appendix I)

4,5,6 Tick refers to presence in the catalogue listing as either an unlabelled, labelled or fluorescent compound. **All compounds appear in the catalogue listing.**

Compound catalogue listing

The catalogue listing includes all products indicated by a tick in the index tables. In addition there are specific quick reference guides for labelled and fluorescent products **(pages 41 and 43)** following the general catalogue listing.

Example

Catalogue (labelled, unlabelled and fluorescent)

Use the 'Index description' found in the 'Enzyme and Transporter' tabs to locate the most suitable product.

Index description	LGC catalogue no.	Product description	Pack size
AAMU (5-acetylamino-6-amino-3-methyluracil)	TRC-A168125	5-Acetylamino-6-amino-3-methyluracil, Hydrate	10 mg
AAMU (5-acetylamino-6-amino-3-methyluracil)	TRC-A168125-100	5-Acetylamino-6-amino-3-methyluracil, Hydrate	100 mg
Acyclovir	TRC-A192400	Acyclovir	250 mg
Acyclovir	TRC-A192400-2.5	Acyclovir	2.5 g
Acyclovir	TRC-A192402	Acyclovir-d4	1 mg
Acyclovir	TRC-A192402-10	Acyclovir-d4	10 mg
Adefovir	TRC-A247500	Adefovir	10 mg

1 2 3 4

1 Generic compound name as found in the index

2 LGC Standards catalogue number

3 Actual product description

4 Pack size available.

About LGC Standards

LGC Standards is recognised by laboratory scientists throughout the world as a leading supplier of analytical standards, products and services to support laboratory quality. The LGC Standards product portfolio includes:

- Comprehensive source of reference materials for a wide range of analyses including food, environmental, pharmaceutical, clinical and industrial;
- Production of pharmaceutical impurities and custom synthesis;
- Proficiency testing schemes;
- Analytical quality training courses;
- Biological standards and controls.

Partnerships

Our partnerships with many of the world's leading standards and reference materials producers combined with our own production capabilities have positioned LGC Standards as an integral supplier to both research and quality control laboratories across a diverse range of industries. Our partnership with ATCC® has helped to facilitate the supply of biological cultures and bioproducts to the European life science research community for almost 10 years.

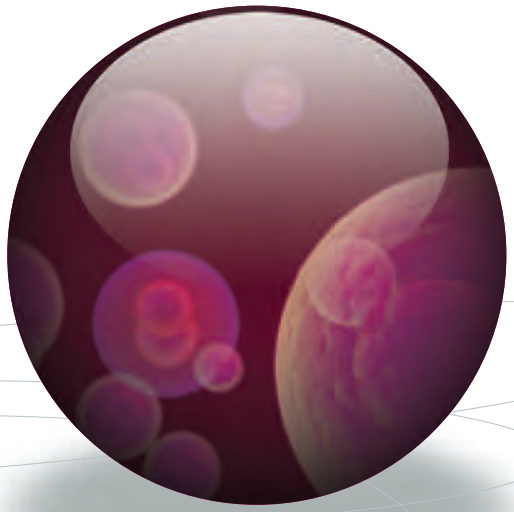
The new Tools for ADME/Tox guide provides a uniquely formatted range of products that have been developed to aid drug discovery and development researchers find the right standards, reagents and model systems to support their research.

Our team of technical support and regulatory specialists are on hand to provide expert advice on sourcing the right materials for your research and assistance with regulatory requirements associated with controlled substances.

LGC Standards - global quality management solutions for the laboratory.

www.lgcstandards.com

Genuine ATCC cultures and bioproducts for the European pharmaceutical community



LGC Standards is the exclusive distributor of ATCC® cultures and bioproducts in Europe. We are committed to providing authentic, high-quality ATCC cultures to support quality control and research activities across the pharmaceutical industry.

With a local stock of all key quality control strains and a wide selection of other cultures, LGC Standards is able to offer:

- Faster delivery of ATCC products
- Expert technical support
- Expedited handling of special forms and paperwork to meet import regulations
- Reduced shipping costs

For further information or to receive any one of our catalogues, please contact your local office or visit our website.

Primary cells

Cell lines and hybridomas

Cell culture media, sera and reagents

Animal and plant viruses

Genomic DNA

Quality control strains

cDNA clones, vectors and libraries

Microbial media and supplements

Cyropreservation products

www.lgcstandards-atcc.org

LGC Standards

Excellence through measurement

Contents

Drug stability

The way in which a compound is metabolised or accumulated in the body is a key determinant of bioavailability. A drug that is rapidly metabolised may require multiple daily dosing or continuous infusion to maintain a concentration in the bloodstream or target organ that is sufficient to elicit a therapeutic effect. However, a slowly metabolised drug may remain in the body for long periods, causing toxic build-up.

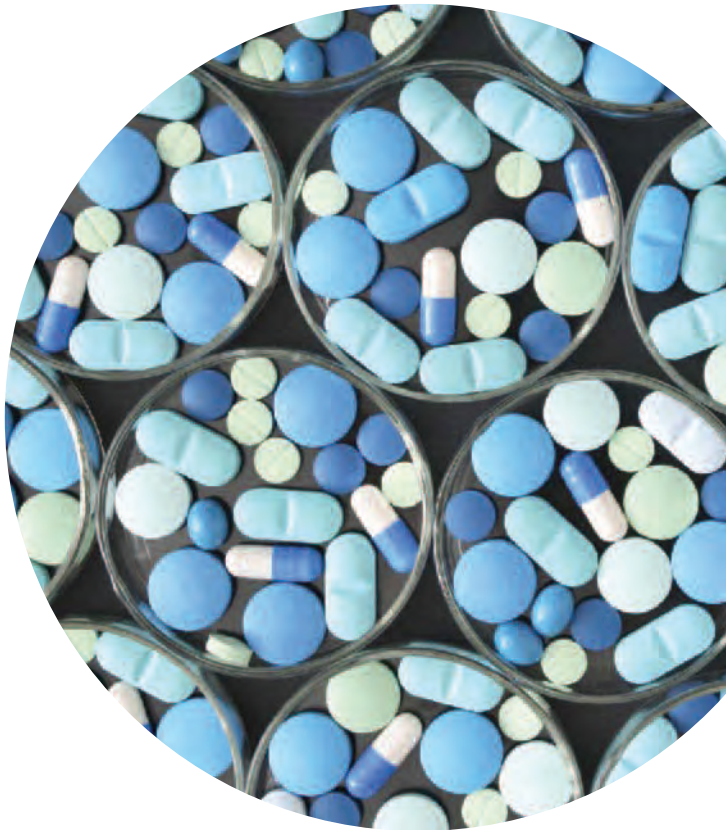
For evaluating oxidative or conjugation metabolism, a variety of model systems are available including:

- Liver microsomes
- Liver S9
- Hepatocytes
- Intestinal microsomes
- Intestinal S9
- Individual CYP isoforms for CYP phenotyping (phase 1 metabolism)
- Individual UGT isoforms for assessing phase 2 metabolism.

The use of hepatocytes may provide a model more representative of the *in vivo* situation because they contain a cell membrane and do not require additional co-factors (as with microsomes). Hepatocytes contain enzymes for both phase I (oxidation, reduction and/or hydrolysis of test compound) and phase II (conjugation of test compounds or metabolites) metabolism.

ADME/Tox analyses

As ADME/Tox analyses become more advanced and reliable in terms of accuracy and prediction, an increase in their usage is expected during the initial development and screening phase of innovative drug development. The approval of new drugs commonly takes between seven and ten years and has been estimated to cost between $700 million and $900 million. Estimates that up to 90 per cent of the clinical candidates are likely to fail due to pharmacokinetics, ADME-related problems, lack of efficacy and side effects make new compound development a high risk business for drug companies. As a result, researchers are realising the importance of screening potential hit compounds for significant ADME and toxicity profiles earlier in their development.



Drug-Drug interaction studies

Metabolism-based drug-drug interactions occur when a drug inhibits or induces the activity of a drug metabolising enzyme, which catalyzes the metabolism of the concomitant drug.

Metabolism-based drug-drug interaction is one of the major factors that cause drug failures during development. Early stage screening of compounds for potential drug-drug interactions using *in vitro* techniques becomes necessary in order to decrease late stage compound attrition. DMPK laboratories provide a wide variety of valuable metabolism-based drug-drug interaction screening assays, such as cytochrome P450 (CYP) inhibition assays and CYP induction assays.

CYP Inhibition assays

Fluorescent dyes: The probe substrates used in these assays are derivatives of coumarin or resorufin, which after dealkylation by CYPs will generate fluorescent products. Because these substrates are generally not highly specific to the individual CYP isozyme confirmation studies are required to identify specific inhibition effects.

The more detailed and confirmative investigation of CYP inhibition should use traditional probe substrates, which are more specific to individual CYP isoforms. For instance, midazolam 1-hydroxylation and testosterone 6β-hydroxylation are pathways catalysed predominantly by CYP2D6. Because these substrates are more specific to individual CYP isoforms, the inhibition assays can be performed with not only the individual recombinant CYP isoform but also the liver microsomes or other tissue preparations, such as hepatocytes, which contain all CYP enzymes (see page 12).

CYP Induction

Some chemicals can induce the activity of CYP enzymes. The chemical inducers will increase the metabolism of concomitant drugs that are the substrates of the induced CYP enzymes, resulting in concomitant drugs losing efficacy. CYP enzymes such as CYP1A2, CYP2B6, and CYP3A4 are susceptible to induction (see page 22).

The induction assays are typically performed using **plateable human or rat hepatocytes** (see page 55).

Evaluating permeability

Drug permeability through cell monolayer has been shown to correlate well with intestinal permeability and oral bioavailability. Drugs with low membrane permeability, i.e. low lipophilicity, are generally absorbed slowly from solution in the stomach and small intestine. Knowing the rate and extent of absorption across the intestinal tract is critical if a drug is to be orally delivered.

One of the most important systems for *in vitro* human experimentation is the Caco-2 cell system for monitoring intestinal absorption and secretion of drugs (see page 53).
Caco-2 / TC7 (ATCC® CRL-2102™ and HTB-37™)

Mandin-Darby canine kidney (MDCK) cells are used as a model for studying drug transport in distal renal epithelia (see page 51).
MDCKII, MDCK (ATCC® CCL-34™)
MDR1-MDCKII

Isotopically labelled products

Due to its high selectivity and sensitivity liquid chromatography-mass spectrometry (LC-MS) with quadrupole mass analysers are replacing traditional UV detection in many bioanalytical laboratories. ESI, APCI and APPI have become the ionization techniques of choice, covering a wide variety of analytes.

The LC-MS methods are usually validated according to the FDA's 2001 Guidance: Bioanalytical Method Validation.

Isotopically labeled (^{2}H or ^{13}C) internal standards have become very popular because they are capable of compensating for losses during sample preparation; LC separation; and differences in ionisation efficiencies or degree of ionisation often caused by co-elution of matrix constituents with the analyte.

The labelled products listing begins on page 43.

Transporters

Current evidence suggests that the role of transporters in the absorption, distribution, and excretion of drugs as well as in pharmacology, toxicology and drug-drug interactions (DDIs) may be significant. Currently, regulatory agencies are focusing on these potential transporter-mediated DDIs.

The molecular and functional characterisation of transport proteins is emerging rapidly and significant numbers of drugs have been shown to be substrates or inhibitors.

Two major groups of proteins are involved in drug transport. The first includes multispecific solute carrier (SLC) transporters, facilitating the cellular entry or exit of a wide range of compounds. In the liver, transport proteins are present on the sinusoidal membrane that can be the rate-limiting step in hepatic clearance for some drugs. Mechanistic studies clearly suggest a key role and broad substrate specificity for the SLC family.

The second major group of transporters are the multidrug resistance (MDR) ATP binding cassette (ABC) proteins. They play an important role in cancer drug resistance, protection against xenobiotics, and in the passage of drugs through cellular and tissue barriers. For absorption, a clear role has emerged for P-glycoprotein (Pgp) in limiting permeability across the gastrointestinal tract. Pgp and MRP2 govern also active biliary excretion. Similarly, at the blood-brain barrier a range of drugs has limited brain penetration due to Pgb-mediated efflux, which can limit therapeutic effectiveness of CNS agents.

In drug discovery, key challenges are to choose the most appropriate and convenient assay, and to implement and validate the results. According to the current guidelines of the FDA, such investigations should be performed in the early stage of drug development, using 'suitable *in vitro* probes'. For predicting *in vivo* drug–transporter interactions, the FDA recommends cell-based transport assays, such as Caco-2 and Pgp-transfected forms of the MDCK or LLC-PK1 cells (see page 51).

Model systems

There are a variety of cell types and other model systems used across many different applications in pre-clinical research. These models, many of which are described on page 6 are used to develop an insight into the efficacy and potential of new drug candidates including applications in pharmacology, toxicology and other assay or study types. ATCC® cells which may be appropriate as model systems can be found on pages 51 - 54.

Fresh hepatocytes

LGC Standards can supply fresh hepatocytes from a variety of species. The use of fresh hepatocytes offers a number of advantages over other model systems particularly in experiments designed to investigate enzyme induction, membrane transport and phase II metabolism. Each batch of cells can be provided with a certificate of analysis and despatched guaranteeing delivery the following day.

Fresh hepatocytes from LGC Standards (page 55)

- Plateable single source hepatocyte preparations
- Availability from a variety of species
- Full enzyme profile maintained allowing assessment of phase II metabolism
- Transport mechanisms and functional integrity maintained allowing increasingly important transport mechanisms to be investigated
- Cells available in suspension or multi-well plated format.

Hepatocytes are available in a range of formats. Discounts are available for large volume users. Contact your local LGC Standards office for further information including isolation schedules
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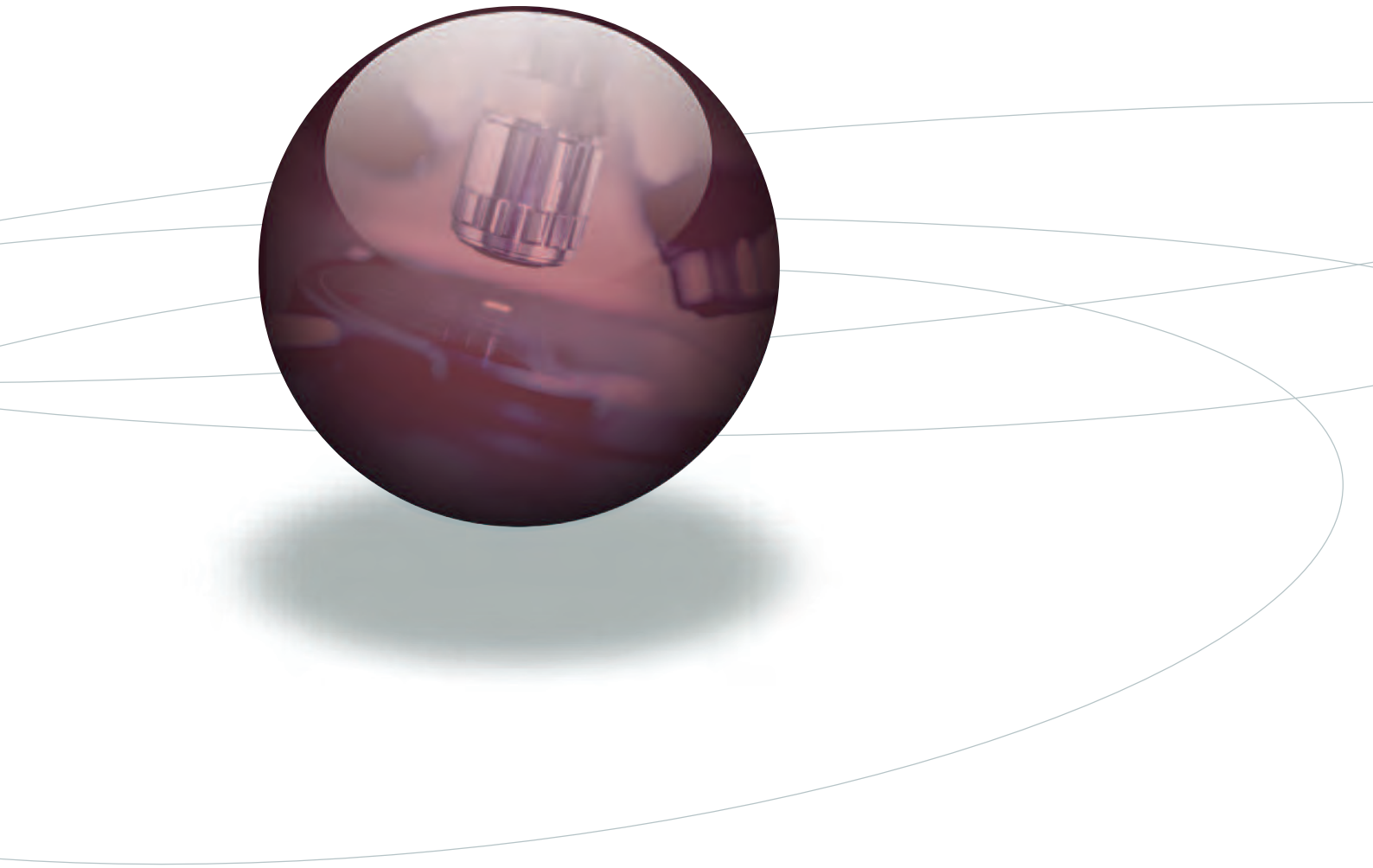
ATCC® Primary Cell Solutions™ (page 54)

Primary cell cultures more closely mimic the physiological state of cells in vivo and generate more relevant data representing living systems. ATCC® Primary Cell Solutions™ are designed to provide all of the components needed to assemble a complete culture system for specific cell types. Backed by the same quality, service, and support that you have come to expect from ATCC, the product offering is comprised of:

- Cryopreserved primary cells of the highest quality from a trusted source;
- Optimised media and growth factor kits to support growth in serum-free or low serum conditions; and,
- Reagents that have been fine-tuned for reliable use with primary cells.

Enzyme and transporter index

- Metabolite standards
- Substrates
- Inhibitors
- Inducers



Substrates: CYP450 metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

CYP450 metabolism enzymes	Substrate	FDA	Unlabelled	Labelled	Fluorescent
CYP1A1	7-ethoxyresorufin		✔		✔
CYP1A2	7-ethoxyresorufin	A	✔		✔
CYP1A2	R-warfarin				
CYP1A2	Phenacetin	P	✔		
CYP1A2	Tacrine	A	✔		
CYP1A2	Theophylline	A	✔		
CYP1A2	Caffeine	A	✔	✔	
CYP1A2	R-warfarin				
CYP1B1	7-benzyloxyresorufin				
CYP2A1	Testosterone		✔	✔	
CYP2A6	Coumarin	P	✔		✔
CYP2A6	Nicotine	P	✔	✔	
CYP2A6	Nicotine		✔	✔	
CYP2B1	Testosterone		✔	✔	
CYP2B6	S-mephenytoin	A	✔		
CYP2B6	Bupropion	P	✔	✔	
CYP2B6	Propofol	A	✔		
CYP2B6	Efavirenz	P	✔	✔	
CYP2C8	Taxol	P	✔		
CYP2C8	Amodiaquine	A	✔	✔	
CYP2C8	Paclitaxel		✔	✔	
CYP2C8	Rosiglitazone	A	✔	✔	
CYP2C9	Naproxen		✔	✔	
CYP2C9	Tolbutamide		✔		
CYP2C9	Diclofenac	P	✔	✔	
CYP2C9	R-warfarin				
CYP2C9	S-warfarin	P			
CYP2C9	Tolbutamide	P	✔		
CYP2C9	Flurbiprofen	A	✔	✔	
CYP2C9	Phenytoin	A	✔	✔	
CYP2C11	Testosterone		✔	✔	
CYP2C11	Testosterone		✔	✔	
CYP2C19	S-mephenytoin	P	✔		
CYP2C19	Omeprazole	A	✔	✔	
CYP2C19	Fluoxetine	A	✔	✔	

FDA Drug development and drug interaction guidance tables (Appendix I)
P = Preferred substrate **A** = Acceptable substrate

Please note: Greyed substrates were not available at date of printing. Please contact your local LGC Standards for current availability.

Metabolites: CYP450 metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

CYP450 metabolism enzymes	Metabolite	Unlabelled	Labelled	Fluorescent
CYP1A1	Resorufin	✔		✔
CYP1A2	Resorufin	✔		✔
CYP1A2	6-hydroxywarfarin	✔		
CYP1A2	Paracetamol (Acetaminophen)	✔	✔	
CYP1A2				
CYP1A2	1-methylxanthine	✔	✔	
CYP1A2	Paraxanthine	✔	✔	
CYP1A2	8-hydroxywarfarin	✔		
CYP1B1	Resorufin	✔		✔
CYP2A1	6α-hydroxytestosterone (rat metabolite)	✔		
CYP2A6	7-hydroxycoumarin	✔	✔	✔
CYP2A6	Cotinine	✔	✔	
CYP2A6	3-hydroxycotinine (secondary)	✔	✔	
CYP2B1				
CYP2B6	S-(+)-N-desmethylmephenytoin (S-Nirvanol)	✔		
CYP2B6	Hydroxybupropion	✔	✔	
CYP2B6	4-hydroxypropofol	✔		
CYP2B6	8-hydroxyefavirenz	✔	✔	
CYP2C8				
CYP2C8	Desethylamodiaquine	✔	✔	
CYP2C8	6α-hydroxypaclitaxel	✔	✔	
CYP2C8	5-hydroxyrosiglitazone	✔		
CYP2C9	O-desmethylnaproxen		✔	
CYP2C9	Carboxytolbutamide	✔	✔	
CYP2C9	4'-hydroxydiclofenac	✔	✔	
CYP2C9	6-hydroxywarfarin	✔		
CYP2C9	7-hydroxywarfarin	✔		
CYP2C9	4-hydroxytolbutamide	✔	✔	
CYP2C9	4'-hydroxyflurbiprofen	✔	✔	
CYP2C9				
CYP2C11				
CYP2C11				
CYP2C19	4-hydroxymephenytoin	✔	✔	
CYP2C19	5-hydroxyomeprazole	✔	✔	
CYP2C19				

Substrates: CYP450 metabolism enzymes

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CYP450 metabolism enzymes	Substrate	FDA	Unlabelled	Labelled	Fluorescent
CYP2D6	Metoprolol		✔	✔	
CYP2D6	Tramadol		✔	✔	
CYP2D6	Bufuralol	**P**	✔	✔	
CYP2D6	Debrisoquin	**A**	✔	✔	
CYP2D6	Dextromethorphan	**P**	✔	✔	
CYP2E1	Lauric acid	**A**	✔		
CYP2E1	Chlorzoxazone	**P**	✔	✔	
CYP2E1	7-ethoxycoumarin		✔	✔	✔
CYP3A2	Testosterone		✔	✔	
CYP3A2	Testosterone		✔	✔	
CYP3A1&2	Felodipine		✔	✔	
CYP3A4/5	Terfenadine	**A**	✔		
CYP3A4	Quinidine		✔	✔	
CYP3A4	Dapsone		✔	✔	
CYP3A4	Oxybutynin		✔	✔	
CYP3A4	Cortisol			✔	
CYP3A4	Terfenadine		✔		
CYP3A4	Paclitaxel		✔	✔	
CYP3A4/5	Testosterone	**P**	✔	✔	
CYP3A4	7-benzyloxyresorufin				
CYP3A4	R-warfarin				
CYP3A4	S-warfarin				
CYP3A4/5	Midazolam	**P**	✔	✔	
CYP3A4/5	Dextromethorphan	**A**	✔	✔	
CYP3A4	Midazolam		✔	✔	
CYP3A4	Terfenadine alcohol metabolite				
CYP3A4/5	Nifedipine	**A**	✔	✔	
CYP3A4/5	Erythromycin	**A**	✔	✔	
CYP3A4/5	Triazolam	**A**	✔	✔	
CYP2J2	Terfenadine alcohol metabolite				
CYP4F12	Terfenadine alcohol metabolite				

FDA Drug development and drug interaction guidance tables (Appendix I)
P = Preferred substrate **A** = Acceptable substrate

Please note: Greyed substrates were not available at date of printing. Please contact your local LGC Standards for current availability.

Metabolites: CYP450 metabolism enzymes

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CYP450 metabolism enzymes	Metabolite	Unlabelled	Labelled	Fluorescent
CYP2D6	α-hydroxymetoprolol	✔	✔	
CYP2D6	O-desmethyltramadol	✔	✔	
CYP2D6	1-hydroxybufuralol	✔	✔	
CYP2D6	(Â±)-4-hydroxydebrisoquin sulfate	✔	✔	
CYP2D6	Dextrorphan	✔	✔	
CYP2E1				
CYP2E1	6-hydroxychlorzoxazone	✔	✔	
CYP2E1	7-hydroxycoumarin	✔	✔	✔
CYP3A2				
CYP3A2				
CYP3A1&2	Dehydrofelodipine	✔	✔	
CYP3A4/5				
CYP3A4	(3S)-3-hydroxyquinidine	✔	✔	
CYP3A4	Dapsonehydroxylamine	✔	✔	
CYP3A4	Desethyloxybutynin	✔	✔	
CYP3A4	6β-hydroxycortisol	✔	✔	
CYP3A4				
CYP3A4	p-3Ý-hydroxypaclitaxel	✔	✔	
CYP3A4/5	6β-hydroxytestosterone	✔	✔	
CYP3A4	Resorufin	✔		✔
CYP3A4	10-hydroxywarfarin	✔		
CYP3A4	4-hydroxywarfarin	✔		
CYP3A4/5	1'-hydroxymidazolam	✔	✔	
CYP3A4/5				
CYP3A4	4-hydroxymidazolam	✔	✔	
CYP3A4	Fexofenadine	✔	✔	
CYP3A4/5				
CYP3A4/5	N-demethylerythromycin	✔		
CYP3A4/5	4-hydroxytriazolam	✔		
CYP2J2	Fexofenadine	✔	✔	
CYP4F12	Fexofenadine	✔	✔	

Substrates: Phase II metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

Phase II Metabolism Enzymes	Substrate	Unlabelled	Labelled	Fluorescent
UGTs	Morphine	✔		
UGTs	4-hydroxymidazolam	✔	✔	
UGTs	Naproxen	✔	✔	
UGTs	Hydromorphone	✔	✔	
UGTs	7-hydroxycoumarin	✔	✔	✔
GSTs	Paracetamol (Acetaminophen)	✔	✔	
SULTs	Paracetamol (Acetaminophen)	✔	✔	
SULTs	7-hydroxycoumarin	✔	✔	✔
NATs	Dapsone	✔	✔	
UGT Isoform				
1A1	SN-38 (Irinotecan metabolite)	✔	✔	
1A1	Estradiol	✔	✔	
1A1	Etoposide	✔		
1A4	Imipramine		✔	
1A4	Olanzapine	✔	✔	
1A4	Trifluoperazine	✔	✔	
1A4	Midazolam	✔	✔	
1A4	Posaconazole	✔	✔	
1A6	Serotonin	✔		
1A6	Deferiprone	✔		
1A6	Diclofenac	✔	✔	
1A8	Hydroxydesloratadine	✔	✔	
1A9	Propofol	✔		
1A9	Sulfinpyrazone	✔		
1A10	Dopamine	✔	✔	
2B7	Carbamazepine	✔	✔	
2B7	21-hydroxyprogesterone	✔		
2B7	Zidovudine (azidothymidine, AZT)	✔		
2B7	Morphine	✔		

Metabolites: Phase II metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

Phase II Metabolism Enzymes	Metabolite	Unlabelled	Labelled	Fluorescent
UGTs	Morphine-3-β-D-glucuronide	✔	✔	
UGTs	4-hydroxymidazolam-β-D-glucuronide	✔		
UGTs	Naproxen acyl-β-D-glucuronide	✔		
UGTs	Hydromorphone-3-glucuronide	✔		
UGTs	7-hydroxycoumarin-glucuronide	✔	✔	✔
GSTs	Paracetamol-glutathione	✔		
SULTs	Paracetamol sulfate	✔	✔	
SULTs	7-hydroxycoumarin sulfate	✔	✔	✔
NATs	Monoacetyldapsone	✔	✔	
UGT Isoform				
1A1				
1A1				
1A1				
1A4				
1A4	Olanzapine-glucuronide	✔	✔	
1A4				
1A4	1'-hydroxymidazolam-β-D-glucuronide	✔		
1A4				
1A6				
1A6	Deferiprone-3-O-β-D-glucuronide	✔		
1A6	Diclofenac acyl-β-D-glucuronide	✔		
1A8	3-hydroxydesloratadine-β-D-glucuronide	✔		
1A9				
1A9				
1A10	Dopamine-3-β-D-glucuronide	✔		
2B7				
2B7				
2B7				
2B7	Morphine-6-β-D-glucuronide	✔	✔	

Substrates: Phase II metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

SULT Isoform	Substrate	Unlabelled	Labelled	Fluorescent
2A1	Raloxifene	✔	✔	
1E1	4-hydroxytamoxifen	✔	✔	
1E1	Ethynylestradiol	✔	✔	
1A3	Troglitazone	✔		
NAT Isoform				
Mouse Nat-1	Isoniazid	✔	✔	
Mouse Nat-2	p-aminobenzoic acid	✔		
NAT-1	p-aminosalicylic acid	✔		
NAT-1	p-aminobenzoic acid	✔		
NAT-2	Sulfamethazine	✔	✔	
NAT-2	Procainamide	✔		
NAT-2	Isoniazid	✔	✔	
NAT-2	7-aminoclonazepam	✔	✔	
NAT-2	AFMU (5-acetylamino-6-formylamino-3-methyluracil)	✔	✔	

Metabolites: Phase II metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

SULT Isoform	Metabolite	Unlabelled	Labelled	Fluorescent
2A1				
1E1				
1E1	Ethynylestradiol-3-sulfate	✔		
1A3				
NAT Isoform				
Mouse Nat-1				
Mouse Nat-2				
NAT-1	N-acetyl-4-aminosalicylic acid	✔		
NAT-1				
NAT-2	N-acetylsulfamethazine	✔	✔	
NAT-2				
NAT-2				
NAT-2				
NAT-2	AAMU (5-acetylamino-6-amino-3-methyluracil)	✔		

Inhibitors: Phase I metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

Phase I metabolism enzymes	Inhibitor	FDA	Unlabelled	Labelled
CYP1A2	Fluvoxamine		✔	✔
CYP1A2	α-naphthoflavone	A	✔	
CYP2A6	Methoxsalen	P	✔	
CYP2A6	Pilocarpine	A	✔	✔
CYP2A6	Tranylcypromine	P	✔	
CYP2A6	Tryptamine	A	✔	
CYP2B6	Ketoconazole		✔	✔
CYP2B6	Clopidogrel	A	✔	✔
CYP2B6	Phencyclidine	A	✔	✔
CYP2B6	Sertraline	A	✔	✔
CYP2B6	Ticlopidine	A	✔	
CYP2B6	Thiotepa	A	✔	
CYP2C8	Gemfibrozil	A	✔	✔
CYP2C8	Quercetin	P	✔	
CYP2C8	Montelukast	P	✔	✔
CYP2C8	Pioglitazone	A	✔	✔
CYP2C8	Trimethoprim	A	✔	✔
CYP2C9	Fluvastatin		✔	✔
CYP2C9	Fluconazole	A	✔	✔
CYP2C9	Fluoxetine	A	✔	✔
CYP2C9	Fluvoxamine	A	✔	✔
CYP2C19	(+/-)-N-3-benzylnirvanol		✔	
CYP2C19	(S)-(+)-N-3-benzylnirvanol		✔	
CYP2C19	(R)-(-)-N-3-benzylnirvanol		✔	
CYP2C19	Ticlopidine	A	✔	
CYP2C19	Tranylcypromine		✔	✔
CYP2C19	Nootkatone	A	✔	
CYP2C19	Oxybutynin		✔	✔
CYP2D6	Quinidine	P	✔	✔
CYP3A4	6',7-dihydroxybergamottin		✔	
CYP3A4	Erythromycin		✔	✔
CYP3A4	Troleandomycin		✔	
CYP3A4/5	Ketoconazole	P	✔	✔
CYP3A4/5	Azamulin	A	✔	
CYP3A4/5	Itraconazole	P	✔	✔
CYP3A4/5	Verapamil	A	✔	✔

Inhibitors: Phase II metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

Phase II metabolism enzymes	Inhibitor	FDA	Unlabelled	Labelled
UGTs	Quercetin		✔	
UGTs	Valproic acid		✔	✔
UGTs	Probenecid		✔	✔
UGT 1A1	Atazanavir		✔	✔
UGT 1A4	Hecogenin		✔	
UGT 2B7	Fluconazole		✔	✔
SULT 1E1	Tricin		✔	
NAT2	Paracetamol(Acetaminophen)		✔	✔
NAT2	Retinoic acid		✔	✔

FDA Drug development and drug interaction guidance tables (Appendix I)

P = Preferred inhibitor

A = Acceptable inhibitor

Inducers: Phase I metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

Phase I metabolism enzymes	Inducer	FDA	Unlabelled	Labelled
CYP1A	β-naphthoflavone (RatCYP1A)		✔	
CYP1A1	Omeprazole		✔	✔
CYP1A2	3-methylcholanthrene	P	✔	
CYP1A2	Lansoprazole	A	✔	✔
CYP1A2	β-naphthoflavone	P	✔	
CYP1A2	Omeprazole	P	✔	✔
CYP2A6	Dexamethasone	P	✔	✔
CYP2B6	Phenobarbital	P	✔	✔
CYP2B6	Phenytoin	A	✔	✔
CYP2B6	Rifampicin	P	✔	✔
CYP2C8	Phenobarbital	A	✔	✔
CYP2C9	Phenobarbital	A	✔	✔
CYP2C9	Rifampicin	P	✔	✔
CYP2C19	Rifampicin	P	✔	✔
CYP3A	Dexamethasone (RatCYP3A)		✔	✔
CYP3A1	Rifampicin		✔	✔
CYP3A2	Rifampicin		✔	✔
CYP3A4	Rifampicin	P	✔	✔
CYP3A4	Dexamethasone	A	✔	✔
CYP3A4	Phenobarbital	A	✔	✔
CYP3A4	Phenytoin	A	✔	✔
CYP3A4	Rifapentine	A	✔	
CYP3A4	Troglitazone	A	✔	

Inducers: Phase II metabolism enzymes

The catalogue tab contains all available compounds. Available unlabelled, labelled and fluorecent compounds are indicated by the '✔'

Phase II metabolism enzymes	Inducer	FDA	Unlabelled	Labelled
UGTs	Phenobarbital		✔	✔
UGTs	Phenytoin		✔	✔
UGTs	Carbamazepine		✔	✔
UGTs	Efavirenz		✔	✔
GST	Sulforaphane		✔	

FDA Drug development and drug interaction guidance tables (Appendix I)

P = Preferred inducer

A = Acceptable inducer

Substrates and inhibitors: Transporters

The catalogue tab contains all compounds listed in substrate and inhibitor columns available as labelled and non-labelled products.

Gene	Aliases	Substrate	Inhibitor
ABCB1	P-gp, MDR1, GP170, PGY1, CLCS	Digoxin, Loperamide, Quinidine, Vinblastine	Cyclosporine A, Elacridar, Ketoconazole, Nelfinavir, Quinidine, Reserpine, Ritonavir, Saquinavir, Tacrolimus, Verapamil
ABCB4	MDR2, MDR3, PGY3, GBD1, PFIC-3	Digoxin, Paclitaxel, Vinblastine	
ABCB11	BSEP, PFIC-2, PGY4, SPGP	Vinblastine	
ABCC1	MRP1, GS-X	Adefovir, Indinavir, Paclitaxel, Flutamide, Etoposide	
abcc2	ratMrp2	Probenecid	
ABCC2	MRP2, CMOAT, DJS	Indinavir, Cisplatin, Probenecid, Estradiol, Bilirubin glucuronide, Etoposide, Doxorubicin	Cyclosporine A
ABCC3	MRP3, cMOAT2, MLP2, MOAT-D	Etoposide (VP-16), Methotrexate, Benzbromarone, Cisplatin	
ABCC4	MRP4, MOAT-B	Methotrexate, Adefovir	
ABCC5	MRP5, MOAT-C, SMRP	6-mercaptopurine, Thioguanine	
ABCC6	MRP6, MLP1, PXE, ARA	Cisplatin, Daunorubicin	
ABCG2	BCRP, MXR, ABCP	Daunorubicin, Doxorubicin, Topotecan, Rosuvastatin, Sulfasalazine, Mitoxantrone, Prazosin, Methotrexate	Elacridar (GF120918), Gefitinib, Lapatinib, Erlotinib, Novobiocin, Ritonavir, Chlorothiazide
slco1a1	ratOatp1a1		Ketoconazole
SLCO1A2	OATP1A2, OATP-A, OAT-P, SLC21A3		
SLCO1B1	OATP1B1, OATP-C, LST-1, SLC21A6	Rifampicin, Rosuvastatin, Methotrexate, Pravastatin, Thyroxine, Atorvastatin, Pitavastatin, Valsartan, Olmesartan, Enalapril, Temocaprilat, Benzylpenicillin, Cerivastatin	Cyclosporine A, Rifamycin

Substrates and inhibitors: Transporters

The catalogue tab contains all compounds listed in substrate and inhibitor columns available as labelled and non-labelled products.

Gene	Aliases	Substrate	Inhibitor
SLCO1B3	OATP1B3, OATP8, SLC21A8	Digoxin, Methotrexate, Rifampicin, Rosuvastatin, Pravastatin, Pitavastatin, Fexofenadine, Digoxin, Paclitaxel, Repaglinide, Telmisartan, Valsartan, Ouabain	Fluvastatin
SLCO2B1	SLC21A9, OATP-B, OATP2B1	Pravastatin, Benzylpenicillin	Fluvastatin
SLCO4C1	OATP4C1, OATP-H, OATPX, SLC21A20	Digoxin, Ouabain	
SLC10A1	NTCP	Rosuvastatin	
SLC15A1	PEPT1, HPECT1, HPEPT1	Ampicillin, Amoxicillin, Captopril, Valacyclovir	
SLC15A2	PEPT2	Ampicillin, Amoxicillin, Captopril, Valacyclovir	Cefadroxil
SLC22A1	OCT-1	Acyclovir, Amantadine, Desipramine, Ganciclovir, Metformin	Disopyramide, Midazolam, Phenformin, Phenoxy-benzamine, Quinidine, Quinine, Ritonavir, Verapamil
SLC22A2	OCT-2	Amantadine, Cimetidine, Memantine	Desipramine, Phenoxy-benzamine, Quinine, Verapamil
SLC22A3	OCT-3, EMT	Cimetidine	Desipramine, Prazosin, Phenoxy-benzamine
SLC22A4	OCTN1, MGC34546	Quinidine, Verapamil	
SLC22A5	OCTN2, SCD, CDSP	Quinidine, Verapamil	
SLC22A6	OAT1, ROAT1, PAHT	Acyclovir, Adefovir, Methotrexate, Zidovudine	Probenecid, Cefamandole, Cefazolin, Benzbromarone
SLC22A7	OAT2, NLT	Zidovudine	
SLC22A8	OAT3	Cimetidine, Methotrexate, Zidovudine	Probenecid, Cefadroxil, Cefamandole, Cefazolin

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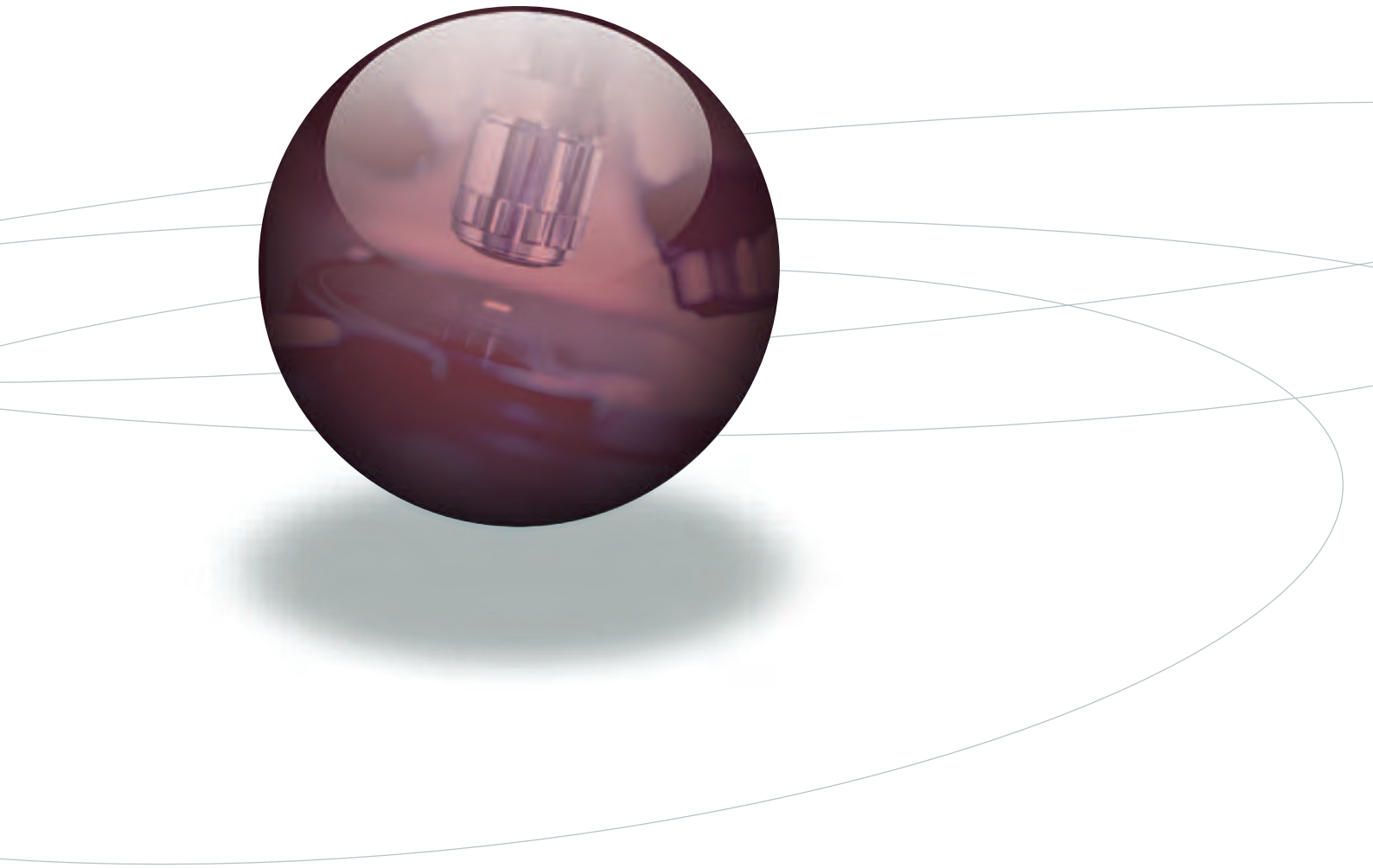
Compound catalogue list

Labelled and unlabelled

- Metabolite standards
- Enzyme substrates
- Enzyme inducers
- Enzyme inhibitors
- Transporter inhibitors
- Transporter substrates



Catalogue (labelled, unlabelled and fluorescent)

Use the 'Index description' found in the 'Enzyme and Transporter' tabs to locate the most suitable product.

Index description	LGC catalogue no.	Product description	Pack size
AAMU (5-acetylamino-6-amino-3-methyluracil)	TRC-A168125	5-Acetylamino-6-amino-3-methyluracil, Hydrate	10 mg
AAMU (5-acetylamino-6-amino-3-methyluracil)	TRC-A168125-100	5-Acetylamino-6-amino-3-methyluracil, Hydrate	100 mg
Acyclovir	TRC-A192400	Acyclovir	250 mg
Acyclovir	TRC-A192400-2.5	Acyclovir	2.5 g
Acyclovir	TRC-A192402	Acyclovir-d4	1 mg
Acyclovir	TRC-A192402-10	Acyclovir-d4	10 mg
Adefovir	TRC-A247500	Adefovir	10 mg
Adefovir	TRC-A247500-100	Adefovir	100 mg
Adefovir	TRC-A247502	Adefovir-d4	2.5 mg
Adefovir	TRC-A247502-25	Adefovir-d4	25 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168210	5-Acetylamino-6-formylamino-3-methyluracil	5 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168210-50	5-Acetylamino-6-formylamino-3-methyluracil	50 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168212	5-Acetyl-d3-amino-6-formylamino-3-methyluracil	1 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168212-10	5-Acetyl-d3-amino-6-formylamino-3-methyluracil	10 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168213	5-Acetylamino-6-formylamino-3-methyluracil-d3	1 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168213-10	5-Acetylamino-6-formylamino-3-methyluracil-d3	10 mg
Amantadine	TRC-A575820	Amantadine Hydrochloride	5 g
Amantadine	TRC-A575820-50	Amantadine Hydrochloride	50 g
Amantadine	TRC-A575822	Amantadine-d15 Hydrochloride	1 mg
Amantadine	TRC-A575822-10	Amantadine-d15 Hydrochloride	10 mg
7-aminoclonazepam	CERA-915	7-Aminoclonazepam, 100 µg/mL, in Acetonitrile	1 mL/ampule
7-aminoclonazepam	CERA-916	7-Aminoclonazepam, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
7-aminoclonazepam	CERA-917	7-Aminoclonazepam-D4, 100 µg/mL, in Acetonitrile	1 mL/ampule
7-aminoclonazepam	TRC-A603610	7-Amino Clonazepam	1 mg
7-aminoclonazepam	TRC-A603610-10	7-Amino Clonazepam	10 mg
Amodiaquine	TRC-A634200	Amodiaquin	10 mg
Amodiaquine	TRC-A634200-100	Amodiaquin	100 mg
Amodiaquine	TRC-A634202	Amodiaquin-d10	1 mg
Amodiaquine	TRC-A634202-10	Amodiaquin-d10	10 mg
Amoxicillin	EPA0800000	Amoxicillin trihydrate	100 mg
Amoxicillin	MM0232.00	Amoxicillin Trihydrate	500 mg
Amoxicillin	TRC-A634237	Amoxicillin-13C6	10 mg
Amoxicillin	TRC-A634238	Amoxicillin-d4	1 mg
Amoxicillin	TRC-A634238-10	Amoxicillin-d4	10 mg
Ampicillin	EPA1100000	Ampicillin Trihydrate	150 mg
Ampicillin	MM0253.15	Ampicillin Trihydrate	500 mg
Ampicillin	TRC-A634302	Ampicillin-d5 (Mixture of Diastereomers)	10 mg
Atazanavir	TRC-A790051	Atazanavir	5 mg
Atazanavir	TRC-A790051-50	Atazanavir	50 mg
Atazanavir	TRC-A790052	Atazanavir-d5	1 mg
Atazanavir	TRC-A790052-10	Atazanavir-d5	10 mg
Atorvastatin	TRC-A791750	Atorvastatin, Calcium Salt	50 mg
Atorvastatin	TRC-A791750-500	Atorvastatin, Calcium Salt	500 mg
Atorvastatin	TRC-A791752	Atorvastatin-d5, Sodium Salt	1 mg
Atorvastatin	TRC-A791752-10	Atorvastatin-d5, Sodium Salt	10 mg
Azamulin	TRC-A801530	Azamulin	5 mg
Azamulin	TRC-A801530-50	Azamulin	50 mg
Benzbromarone	EPY0000775	Benzbromarone	10 mg
Benzbromarone	MM0456.00	Benzbromarone	500 mg
(+/-)-N-3-benzylnirvanol	TRC-B285770	(+/-)-N-3-Benzylnirvanol	10 mg
(+/-)-N-3-benzylnirvanol	TRC-B285770-100	(+/-)-N-3-Benzylnirvanol	100 mg
(S)-(+)-N-3-benzylnirvanol	TRC-B285775	(S)-(+)-N-3-Benzylnirvanol	5 mg
(S)-(+)-N-3-benzylnirvanol	TRC-B285775-50	(S)-(+)-N-3-Benzylnirvanol	50 mg
(R)-(-)-N-3-benzylnirvanol	TRC-B285776	(R)-(-)-N-3-Benzylnirvanol	5 mg
(R)-(-)-N-3-benzylnirvanol	TRC-B285776-50	(R)-(-)-N-3-Benzylnirvanol	50 mg
Benzylpenicillin	EPB0700000	Benzylpenicillin potassium	50 mg
Benzylpenicillin	MM0160.00	Benzylpenicillin Potassium	250 mg
Benzylpenicillin	TRC-B288600	Benzylpenicillinate-d7, Potassium Salt	10 mg
Benzylpenicillin	TRC-B288600-100	Benzylpenicillinate-d7, Potassium Salt	100 mg
Bilirubin glucuronide	TRC-B385310	Bilirubin Acyl-β-D-glucuronide (Mixture of Monoglucuronides)	1 mg

Catalogue (labelled, unlabelled and fluorescent)

Use the 'Index description' found in the 'Enzyme and Transporter' tabs to locate the most suitable product.

Index description	LGC catalogue no.	Product description	Pack size
Bilirubin glucuronide	TRC-B385310-10	Bilirubin Acyl-β-D-glucuronide (Mixture of Monoglucuronides)	10 mg
Bufuralol	TRC-B689540	Bufuralol, Hydrochloride	10 mg
Bufuralol	TRC-B689540-100	Bufuralol, Hydrochloride	100 mg
Bufuralol	TRC-B689542	Bufuralol-d9 Hydrochloride	1 mg
Bufuralol	TRC-B689542-10	Bufuralol-d9 Hydrochloride	10 mg
Bupropion	CERB-034	Bupropion HCl, 1.0 mg/mL (as free base), in Methanol	1 mL/ampule
Bupropion	TRC-B689625	Bupropion Hydrochloride	1 g
Bupropion	TRC-B689625-10	Bupropion Hydrochloride	10 g
Bupropion	TRC-B689627	Bupropion-d9 Hydrochloride	1 mg
Bupropion	TRC-B689627-10	Bupropion-d9 Hydrochloride	10 mg
Caffeine	CERC-051	Caffeine, 1.0 mg/mL, in Methanol	1 mL/ampule
Caffeine	TRC-C080100	Caffeine	5 g
Caffeine	TRC-C080100-50	Caffeine	50 g
Caffeine	TRC-C080102	Caffeine-d9	2.5 mg
Caffeine	TRC-C080102-25	Caffeine-d9	25 mg
Captopril	CDX-00003145-001	Captopril	1 g
Captopril	TRC-C175750	Captopril	10 g
Captopril	TRC-C175752	Captopril-d7	1 mg
Captopril	TRC-C175752-10	Captopril-d7	10 mg
Carbamazepine	CERC-053	Carbamazepine, 1.0 mg/mL, in Methanol	1 mL/ampule
Carbamazepine	TRC-C175840	Carbamazepine	1 g
Carbamazepine	TRC-C175840-10	Carbamazepine	10 g
Carbamazepine	TRC-C175842	Carbamazepine-13C,d2	1 mg
Carbamazepine	TRC-C175842-10	Carbamazepine-13C,d2	10 mg
Carbamazepine	TRC-C175843	Carbamazepine-d2	1 mg
Carbamazepine	TRC-C175843-10	Carbamazepine-d2	10 mg
Carboxytolbutamide	TRC-C183200	4-Carboxy Tolbutamide	5 mg
Carboxytolbutamide	TRC-C183200-50	4-Carboxy Tolbutamide	50 mg
Carboxytolbutamide	TRC-C183202	4-Carboxy Tolbutamide-d9	1 mg
Carboxytolbutamide	TRC-C183202-10	4-Carboxy Tolbutamide-d9	10 mg
Cefadroxil	TRC-C235750	Cefadroxil	10 mg
Cefadroxil	TRC-C235750-100	Cefadroxil	100 mg
Cefadroxil	TRC-C235752	Cefadroxil-d4 (major)	1 mg
Cefadroxil	TRC-C235752-10	Cefadroxil-d4 (major)	10 mg
Cefamandole	TRC-C237500	Cefamandole Sodium Salt	100 mg
Cefamandole	TRC-C237500-1	Cefamandole Sodium Salt	1 g
Cefazolin	TRC-C242500	Cefazolin Sodium Salt	1 g
Cefazolin	TRC-C242500-10	Cefazolin Sodium Salt	10 g
Cerivastatin	TRC-C277000	Cerivastatin, Sodium Salt	2.5 mg
Cerivastatin	TRC-C277000-25	Cerivastatin, Sodium Salt	25 mg
Chlorothiazide	TRC-C380000	Chlorothiazide	250 mg
Chlorothiazide	TRC-C380000-2.5	Chlorothiazide	2.5 g
Chlorothiazide	TRC-C380002	Chlorothiazide-13C,15N2	1 mg
Chlorothiazide	TRC-C380002-10	Chlorothiazide-13C,15N2	10 mg
Chlorzoxazone	TRC-C428700	Chlorzoxazone	10 mg
Chlorzoxazone	TRC-C428700-100	Chlorzoxazone	100 mg
Chlorzoxazone	TRC-C428702	Chlorzoxazone-4,6,7-d3	1 mg
Chlorzoxazone	TRC-C428702-10	Chlorzoxazone-4,6,7-d3	10 mg
Cimetidine	CERC-055	Cimetidine	250 mg
Cimetidine	TRC-C441650	Cimetidine	100 mg
Cimetidine	TRC-C441650-1	Cimetidine	1 g
Cimetidine	TRC-C441652	Cimetidine-d3	1 mg
Cimetidine	TRC-C441652-10	Cimetidine-d3	10 mg
Cisplatin	TRC-C499500	Cisplatin	100 mg
Cisplatin	TRC-C499500-1	Cisplatin	1 g
Clopidogrel	TRC-C587250	(+)-Clopidogrel Hydrogen Sulfate	100 mg
Clopidogrel	TRC-C587250-1	(+)-Clopidogrel Hydrogen Sulfate	1 g
Clopidogrel	TRC-C587252	rac Clopidogrel-d4 Hydrogen Sulfate	1 mg
Clopidogrel	TRC-C587252-10	rac Clopidogrel-d4 Hydrogen Sulfate	10 mg
Cortisol	TRC-C696302	Cortisol-9,11,12,12-d4	0.5 mg
Cortisol	TRC-C696302-5	Cortisol-9,11,12,12-d4	5 mg
Cotinine	CERC-017	S-(±)-Cotinine-D3, 100 µg/mL, in Methanol	1 mL/ampule
Cotinine	CERC-035	S-(±)-Cotinine-D3, 1.0 mg/mL, in Methanol	1 mL/ampule
Cotinine	TRC-C725004	rac Cotinine	5 mg
Cotinine	TRC-C725004-50	rac Cotinine	50 mg
Cotinine	TRC-C725005	rac Cotinine-d3	10 mg

Catalogue (labelled, unlabelled and fluorescent)

Use the 'Index description' found in the 'Enzyme and Transporter' tabs to locate the most suitable product.

Index description	LGC catalogue no.	Product description	Pack size
Cotinine	TRC-C725005-100	rac Cotinine-d3	100 mg
Coumarin	CERC-073	Coumarin, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
Coumarin	EPY0000438	Coumarin	80 mg
Cyclosporine A	USP1158504	Cyclosporine	50 mg
Dapsone	TRC-D193250	Dapsone	1 g
Dapsone	TRC-D193250-10	Dapsone	10 g
Dapsone	TRC-D193255	Dapsone-D8 (Major)	1 mg
Dapsone	TRC-D193255-10	Dapsone-D8 (Major)	10 mg
Dapsonehydroxylamine	TRC-D193260	Dapsone Hydroxylamine	10 mg
Dapsonehydroxylamine	TRC-D193260-100	Dapsone Hydroxylamine	100 mg
Dapsonehydroxylamine	TRC-D193262	Dapsone Hydroxylamine-D8 (Major)	1 mg
Dapsonehydroxylamine	TRC-D193262-10	Dapsone Hydroxylamine-D8 (Major)	10 mg
Daunorubicin	TRC-D194500	Daunorubicin, Hydrochloride	5 mg
Daunorubicin	TRC-D194500-50	Daunorubicin, Hydrochloride	50 mg
Daunorubicin	TRC-D194502	Daunorubicin-13C,d3	0.5 mg
Daunorubicin	TRC-D194502-5	Daunorubicin-13C,d3	5 mg
Debrisoquin	TRC-D208700	Debrisoquin Hemisulfate	100 mg
Debrisoquin	TRC-D208700-1	Debrisoquin Hemisulfate	1 g
Debrisoquin	TRC-D208702	Debrisoquin-13C,15N2 Hemisulfate	1 mg
Debrisoquin	TRC-D208702-10	Debrisoquin-13C,15N2 Hemisulfate	10 mg
Deferiprone	TRC-D474000	Deferiprone	1 mg
Deferiprone	TRC-D474000-10	Deferiprone	10 mg
Deferiprone-3-O-ß-D-glucuronide	TRC-D474010	Deferiprone 3-O-ß-D-Glucuronide	1 g
Deferiprone-3-O-ß-D-glucuronide	TRC-D474010-10	Deferiprone 3-O-ß-D-Glucuronide	10 g
Dehydrofelodipine	TRC-D229650	Dehydro Felodipine	1 mg
Dehydrofelodipine	TRC-D229650-10	Dehydro Felodipine	10 mg
Dehydrofelodipine	TRC-D229652	Dehydro Felodipine-d3	1 mg
Dehydrofelodipine	TRC-D229652-10	Dehydro Felodipine-d3	10 mg
Desethylamodiaquine	CERD-039	N-Desethylamodiaquine dihydrochloride, 1.0 mg/mL (as free base), in Methanol	1 mL/ampule
Desethylamodiaquine	CERD-040	N-Desethylamodiaquine-D5 dihydrochloride, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Desethylamodiaquine	TRC-D288825	N-Desethyl Amodiaquine	5 mg
Desethylamodiaquine	TRC-D288825-50	N-Desethyl Amodiaquine	50 mg
Desethylamodiaquine	TRC-D288827	N-Desethyl Amodiaquine-d5	1 mg
Desethylamodiaquine	TRC-D288827-10	N-Desethyl Amodiaquine-d5	10 mg
Desethyloxybutynin	TRC-D289475	rac Desethyl Oxybutynin Hydrochloride	5 mg
Desethyloxybutynin	TRC-D289475-50	rac Desethyl Oxybutynin Hydrochloride	50 mg
Desethyloxybutynin	TRC-D289477	Desethyl Oxybutynin-d11 Hydrochloride	1 mg
Desethyloxybutynin	TRC-D289477-10	Desethyl Oxybutynin-d11 Hydrochloride	10 mg
Desipramine	CERD-903	Desipramine-D3 HCl, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Desipramine	CERD-906	Desipramine HCl, 1.0 mg/mL (as free base), in Methanol	1 mL/ampule
Desipramine	TRC-D290050	Desipramine Hydrochloride	10 mg
Desipramine	TRC-D290050-100	Desipramine Hydrochloride	100 mg
Desipramine	TRC-D290052	Desipramine-2,4,6,8-d4 Hydrochloride	1 mg
Desipramine	TRC-D290052-10	Desipramine-2,4,6,8-d4 Hydrochloride	10 mg
Dexamethasone	TRC-D298800	Dexamethasone	1 g
Dexamethasone	TRC-D298800-10	Dexamethasone	10 g
Dexamethasone	TRC-D298802	Dexamethasone-d3	10 mg
Dexamethasone	TRC-D298802-25	Dexamethasone-d3	25 mg
Dextromethorphan	CERD-013	Dextromethorphan, 1.0 mg/mL, in Methanol	1 mL/ampule
Dextromethorphan	TRC-D299455	Dextromethorphan Hydrobromide Monohydrate	100 mg
Dextromethorphan	TRC-D299455-1	Dextromethorphan Hydrobromide Monohydrate	1 g
Dextromethorphan	TRC-D299457	Dextromethorphan-d3	5 mg
Dextromethorphan	TRC-D299457-50	Dextromethorphan-d3	50 mg
Dextrorphan	CERD-034	Dextrorphan tartrate, 1.0 mg/mL (as free base), 1 mL/ampule in Methanol	1 mL/ampule
Dextrorphan	CERD-041	Dextrorphan-D3, 100 µg/mL, in Methanol	1 mL/ampule
Dextrorphan	TRC-D299485	Dextrorphan, Tartrate Salt	25 mg
Dextrorphan	TRC-D299485-250	Dextrorphan, Tartrate Salt	250 mg
Dextrorphan	TRC-D299487	Dextrorphan-d3, Tartrate Salt	2.5 mg
Dextrorphan	TRC-D299487-25	Dextrorphan-d3, Tartrate Salt	25 mg
Diclofenac	CERD-028	Diclofenac sodium	250 mg
Diclofenac	TRC-D436450	Diclofenac Sodium Salt	10 g
Diclofenac	TRC-D436450-100	Diclofenac Sodium Salt	100 g
Diclofenac	TRC-D436452	Diclofenac-D4 (Major)	1 mg

Catalogue (labelled, unlabelled and fluorescent)

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Index description	LGC catalogue no.	Product description	Pack size
Diclofenac	TRC-D436452-10	Diclofenac-D4 (Major)	10 mg
Diclofenac acyl-β-D-glucuronide	TRC-D436475	Diclofenac Acyl-β-D-glucuronide	1 mg
Diclofenac acyl-β-D-glucuronide	TRC-D436475-10	Diclofenac Acyl-β-D-glucuronide	10 mg
Digoxin	CERD-029	Digoxin, 1.0 mg/mL, in Methanol	1 mL/ampule
Digoxin	TRC-D446575	Digoxin	1 g
Digoxin	TRC-D446575-10	Digoxin	10 g
Digoxin	TRC-D446577	Digoxin-d3	2.5 mg
Digoxin	TRC-D446577-25	Digoxin-d3	25 mg
Disopyramide	TRC-D493450	Disopyramide	100 mg
Disopyramide	TRC-D493450-1	Disopyramide	1 g
Disopyramide	TRC-D493452	Disopyramide-d14 Tosylate Salt	1 mg
Disopyramide	TRC-D493452-10	Disopyramide-d14 Tosylate Salt	10 mg
Dopamine	EPD2960000	Dopamine hydrochloride	50 mg
Dopamine	MM0384.00	Dopamine Hydrochloride	500 mg
Dopamine	TRC-D533782	Dopamine-d4 Hydrochloride	1 mg
Dopamine	TRC-D533782-10	Dopamine-d4 Hydrochloride	10 mg
Dopamine-3-β-D-glucuronide	TRC-D533790	Dopamine 3-β-D-Glucuronide	1 mg
Dopamine-3-β-D-glucuronide	TRC-D533790-10	Dopamine 3-β-D-Glucuronide	10 mg
Doxorubicin	TRC-D558000	Doxorubicin, Hydrochloride	25 mg
Doxorubicin	TRC-D558000-250	Doxorubicin, Hydrochloride	250 mg
Doxorubicin	TRC-D558002	Doxorubicin-13C,d3	0.25 mg
Doxorubicin	TRC-D558002-2.5	Doxorubicin-13C,d3	2.5 mg
Efavirenz	TRC-E425000	Efavirenz	10 mg
Efavirenz	TRC-E425000-100	Efavirenz	100 mg
Efavirenz	TRC-E425002	rac Efavirenz-d4	1 mg
Efavirenz	TRC-E425002-10	rac Efavirenz-d4	10 mg
Elacridar	TRC-E489000	Elacridar	10 mg
Elacridar	TRC-E489000-100	Elacridar	100 mg
Elacridar	TRC-E489002	Elacridar-d4	1 mg
Elacridar	TRC-E489002-10	Elacridar-d4	10 mg
Enalapril	TRC-E555250	Enalapril Maleate	5 g
Enalapril	TRC-E555250-50	Enalapril Maleate	50 g
Enalapril	TRC-E555252	Enalapril-d5 Maleate Salt	1 mg
Enalapril	TRC-E555252-10	Enalapril-d5 Maleate Salt	10 mg
Enalapril	TRC-E555253	Enalapril-d3	1 mg
Enalapril	TRC-E555253-10	Enalapril-d3	10 mg
Erlotinib	TRC-E625000	Erlotinib, Hydrochloride Salt	5 mg
Erlotinib	TRC-E625000-50	Erlotinib, Hydrochloride Salt	50 mg
Erlotinib	TRC-E625002	Erlotinib-d6, Hydrochloride Salt	1 mg
Erlotinib	TRC-E625002-10	Erlotinib-d6, Hydrochloride Salt	10 mg
Erythromycin	TRC-E649950	Erythromycin	1 g
Erythromycin	TRC-E649950-10	Erythromycin	10 g
Erythromycin	TRC-E649952	Erythromycin-13C,D3	1 mg
Erythromycin	TRC-E649952-10	Erythromycin-13C,D3	10 mg
Estradiol	TRC-E888000	17β-Estradiol	5 g
Estradiol	TRC-E888000-50	17β-Estradiol	50 g
Estradiol	TRC-E888002	17β-Estradiol-16,16,17-d3	1 mg
Estradiol	TRC-E888002-10	17β-Estradiol-16,16,17-d3	10 mg
7-ethoxycoumarin (7-EC)	TRC-E891725	7-Ethoxycoumarin	1 g
7-ethoxycoumarin (7-EC)	TRC-E891725-10	7-Ethoxycoumarin	10 g
7-ethoxycoumarin (7-EC)	TRC-E891727	7-Ethoxycoumarin-d5	10 mg
7-ethoxycoumarin (7-EC)	TRC-E891727-100	7-Ethoxycoumarin-d5	100 mg
7-ethoxyresorufin	TRC-E892875	7-Ethoxyresorufin	10 mg
7-ethoxyresorufin	TRC-E892875-100	7-Ethoxyresorufin	100 mg
Ethynylestradiol	TRC-E685100	Ethynyl Estradiol	2.5 g
Ethynylestradiol	TRC-E685100-25	Ethynyl Estradiol	25 g
Ethynylestradiol	TRC-E685102	Ethynyl Estradiol-2,4,16,16-d4	1 mg
Ethynylestradiol	TRC-E685102-10	Ethynyl Estradiol-2,4,16,16-d4	10 mg
Ethynylestradiol 3-sulfate	TRC-E685115	Ethynyl Estradiol 3-Sulfate	1 mg
Ethynylestradiol 3-sulfate	TRC-E685115-10	Ethynyl Estradiol 3-Sulfate	10 mg
Etoposide	CDX-00005365-025	Etoposide	25 mg
Etoposide	TRC-E933750	Etoposide	100 mg
Etoposide	TRC-E933750-1	Etoposide	1 g
Felodipine	TRC-F232375	Felodipine	100 mg
Felodipine	TRC-F232375-1	Felodipine	1 g
Felodipine	TRC-F232377	rac Felodipine-d3	1 mg
Felodipine	TRC-F232377-10	rac Felodipine-d3	10 mg
Fexofenadine	TRC-F322470	Fexofenadine	100 mg

Catalogue (labelled, unlabelled and fluorescent)

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Fexofenadine	TRC-F322470-1	Fexofenadine	1 g
Fexofenadine	TRC-F322490	Fexofenadine, Hydrochloride	100 mg
Fexofenadine	TRC-F322490-1	Fexofenadine, Hydrochloride	1 g
Fexofenadine	TRC-F322500	Fexofenadine-D6	1 mg
Fexofenadine	TRC-F322500-10	Fexofenadine-D6	10 mg
Fluconazole	TRC-F421000	Fluconazole	100 mg
Fluconazole	TRC-F421000-1	Fluconazole	1 g
Fluconazole	TRC-F421002	Fluconazole-d4	1 mg
Fluconazole	TRC-F421002-10	Fluconazole-d4	10 mg
Fluoxetine	CERF-918	Fluoxetine HCl, 1.0 mg/mL (as free base), in Methanol	1 mL/ampule
Fluoxetine	CERF-919	Fluoxetine-D6 Oxalate, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Fluoxetine	TRC-F597100	Fluoxetine, Hydrochloride	100 mg
Fluoxetine	TRC-F597100-1	Fluoxetine, Hydrochloride	1 g
Fluoxetine	TRC-F597102	Fluoxetine-d5 Hydrochloride	1 mg
Fluoxetine	TRC-F597102-10	Fluoxetine-d5 Hydrochloride	10 mg
Flurbiprofen	TRC-F598700	Flurbiprofen	5 g
Flurbiprofen	TRC-F598700-50	Flurbiprofen	50 g
Flurbiprofen	TRC-F598702	Flurbiprofen-d3	5 mg
Flurbiprofen	TRC-F598702-50	Flurbiprofen-d3	50 mg
Flutamide	TRC-F598850	Flutamide	10 mg
Flutamide	TRC-F598850-100	Flutamide	100 mg
Flutamide	TRC-F598852	Flutamide-d7	1 mg
Flutamide	TRC-F598852-10	Flutamide-d7	10 mg
Fluvastatin	TRC-F601250	Fluvastatin, Sodium Salt	500 mg
Fluvastatin	TRC-F601250-5	Fluvastatin, Sodium Salt	5 g
Fluvastatin	TRC-F601252	Fluvastatin-D8 (Major), Sodium Salt	1 mg
Fluvastatin	TRC-F601252-10	Fluvastatin-D8 (Major), Sodium Salt	10 mg
Fluvoxamine	TRC-F603500	(E)-Fluvoxamine Maleate	100 mg
Fluvoxamine	TRC-F603500-1	(E)-Fluvoxamine Maleate	1 g
Fluvoxamine	TRC-F603502	(E)-Fluvoxamine-d3 Maleate	1 mg
Fluvoxamine	TRC-F603502-10	(E)-Fluvoxamine-d3 Maleate	10 mg
Ganciclovir	TRC-G235000	Ganciclovir	1 g
Ganciclovir	TRC-G235000-10	Ganciclovir	10 g
Ganciclovir	TRC-G235002	Ganciclovir-d5	1 mg
Ganciclovir	TRC-G235002-10	Ganciclovir-d5	10 mg
Gefitinib	TRC-G304000	Gefitinib	5 mg
Gefitinib	TRC-G304000-50	Gefitinib	50 mg
Gemfibrozil	TRC-G305750	Gemfibrozil	10 g
Gemfibrozil	TRC-G305750-100	Gemfibrozil	100 g
Gemfibrozil	TRC-G305752	Gemfibrozil-d6	5 mg
Gemfibrozil	TRC-G305752-50	Gemfibrozil-d6	50 mg
Hecogenin	CDX-00008061-100	Hecogenin	100 mg
Hydromorphone	CERH-004	Hydromorphone, 1.0 mg/mL, in Methanol	1 mL/ampule
Hydromorphone	CERH-010	Hydromorphone-D3, 1.0 mg/mL, in Methanol	1 mL/ampule
Hydromorphone	CERH-049	Hydromorphone-D6, 100 µg/mL, in Methanol	1 mL/ampule
Hydromorphone	NMIAD 785B	Hydromorphone HCl*	20 mg
Hydromorphone-3-glucuronide	CERH-051	Hydromorphone-3-β-D-glucuronide, 100 µg/mL, in Methanol:Water (1:1)	1 mL/ampule
1-hydroxybufuralol	TRC-H830480	1'-Hydroxy Bufuralol	1 mg
1-hydroxybufuralol	TRC-H830480-10	1'-Hydroxy Bufuralol	10 mg
1-hydroxybufuralol	TRC-H830482	1'-Hydroxybufuralol-d9 (Mixture of Diastereomers)	0.5 mg
1-hydroxybufuralol	TRC-H830482-5	1'-Hydroxybufuralol-d9 (Mixture of Diastereomers)	5 mg
Hydroxybupropion	CERH-062	(±)-Hydroxybupropion-D6, 100 µg/mL, in Acetonitrile	1 mL/ampule
Hydroxybupropion	CERH-066	(±)-Hydroxybupropion, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
Hydroxybupropion	TRC-H830675	Hydroxy Bupropion	10 mg
Hydroxybupropion	TRC-H830675-100	Hydroxy Bupropion	100 mg
Hydroxybupropion	TRC-H830677	Hydroxy Bupropion-d6	1 mg
Hydroxybupropion	TRC-H830677-10	Hydroxy Bupropion-d6	10 mg
6´,7´-dihydroxybergamottin	TRC-D452230	6',7'-Dihydroxy Bergamottin	10 mg
6´,7´-dihydroxybergamottin	TRC-D452230-100	6',7'-Dihydroxy Bergamottin	100 mg
6-hydroxychlorzoxazone	CERH-063	6-Hydroxychlorzoxazone, 100 µg/mL, in Methanol	1 mL/ampule

Catalogue (labelled, unlabelled and fluorescent)

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6-hydroxychlorzoxazone	CERH-064	6-Hydroxychlorzoxazone-D2,15N, 100 µg/mL, in Methanol	1 mL/ampule
6-hydroxychlorzoxazone	TRC-H825120	6-Hydroxy Chlorzoxazone	5 mg
6-hydroxychlorzoxazone	TRC-H825120-50	6-Hydroxy Chlorzoxazone	50 mg
6-hydroxychlorzoxazone	TRC-H825122	6-Hydroxy Chlorzoxazone-13C6	0.25 mg
6-hydroxychlorzoxazone	TRC-H825122-2.5	6-Hydroxy Chlorzoxazone-13C6	2.5 mg
6β-hydroxycortisol	TRC-H922300	6β-Hydroxy Cortisol	5 mg
6β-hydroxycortisol	TRC-H922300-25	6β-Hydroxy Cortisol	25 mg
6β-hydroxycortisol	TRC-H922302	6β-Hydroxy Cortisol-d4	1 mg
6β-hydroxycortisol	TRC-H922302-10	6β-Hydroxy Cortisol-d4	10 mg
3-hydroxycotinine	TRC-H924500	(3'R,5'S)-3'-Hydroxycotinine	10 mg
3-hydroxycotinine	TRC-H924500-100	(3'R,5'S)-3'-Hydroxycotinine	100 mg
3-hydroxycotinine	TRC-H924505	(3S,5S)-3'-Hydroxycotinine	5 mg
3-hydroxycotinine	TRC-H924505-50	(3S,5S)-3'-Hydroxycotinine	50 mg
3-hydroxycotinine	TRC-H924510	trans-3'-Hydroxycotinine, Methyl-d3	1 mg
3-hydroxycotinine	TRC-H924510-10	trans-3'-Hydroxycotinine, Methyl-d3	10 mg
7-hydroxycoumarin	CERH-060	7-Hydroxycoumarin, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
7-hydroxycoumarin	CERH-061	7-Hydroxycoumarin-13C6, 100 µg/mL, in Acetonitrile	1 mL/ampule
7-hydroxycoumarin	TRC-H924875	7-Hydroxy Coumarin	2.5 g
7-hydroxycoumarin	TRC-H924875-25	7-Hydroxy Coumarin	25 g
7-hydroxycoumarin	TRC-H924877	7-Hydroxy Coumarin-13C3	0.25 mg
7-hydroxycoumarin	TRC-H924877-2.5	7-Hydroxy Coumarin-13C3	2.5 mg
7-hydroxycoumarin	TRC-H924878	7-Hydroxy Coumarin-13C6	0.25 mg
7-hydroxycoumarin	TRC-H924878-2.5	7-Hydroxy Coumarin-13C6	2.5 mg
7-hydroxycoumarin sulfate	TRC-H924890	7-Hydroxy Coumarin Sulfate Potassium Salt	5 mg
7-hydroxycoumarin sulfate	TRC-H924890-50	7-Hydroxy Coumarin Sulfate Potassium Salt	50 mg
7-hydroxycoumarin sulfate	TRC-H924892	7-Hydroxy Coumarin-13C6 Sulfate Potassium Salt	0.25 mg
7-hydroxycoumarin sulfate	TRC-H924892-2.5	7-Hydroxy Coumarin-13C6 Sulfate Potassium Salt	2.5 mg
7-hydroxycoumarin-glucuronide	TRC-H924880	7-Hydroxy Coumarin β-D-Glucuronide Sodium Salt	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924880-10	7-Hydroxy Coumarin β-D-Glucuronide Sodium Salt	10 mg
7-hydroxycoumarin-glucuronide	TRC-H924882	7-Hydroxy Coumarin-d5 β-D-Glucuronide Sodium Salt	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924882-10	7-Hydroxy Coumarin-d5 β-D-Glucuronide Sodium Salt	10 mg
7-hydroxycoumarin-glucuronide	TRC-H924883	7-Hydroxy Coumarin-13C6 β-D-Glucuronide	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924883-10	7-Hydroxy Coumarin-13C6 β-D-Glucuronide	10 mg
(Â±)-4-hydroxydebrisoquin sulfate	TRC-H933875	rac 4-Hydroxydebrisoquine Hemisulfate	10 mg
(Â±)-4-hydroxydebrisoquin sulfate	TRC-H933875-100	rac 4-Hydroxydebrisoquine Hemisulfate	100 mg
(Â±)-4-hydroxydebrisoquin sulfate	TRC-H933877	rac 4-Hydroxydebrisoquine-13C,15N2 Hemisulfate	1 mg
(Â±)-4-hydroxydebrisoquin sulfate	TRC-H933877-10	rac 4-Hydroxydebrisoquine-13C,15N2 Hemisulfate	10 mg
Hydroxydesloratadine	TRC-H936750	3-Hydroxy Desloratadine	5 mg
Hydroxydesloratadine	TRC-H936750-50	3-Hydroxy Desloratadine	50 mg
Hydroxydesloratadine	TRC-H936752	3-Hydroxy Desloratadine-d4	1 mg
Hydroxydesloratadine	TRC-H936752-10	3-Hydroxy Desloratadine-d4	10 mg
3-hydroxydesloratadine-β-D-glucuronide	TRC-H936760	3-Hydroxy Desloratadine β-D-Glucuronide	1 mg
3-hydroxydesloratadine-β-D-glucuronide	TRC-H936760-10	3-Hydroxy Desloratadine β-D-Glucuronide	10 mg
4'-hydroxydiclofenac	CERH-052	4'-Hydroxydiclofenac, 100 µg/mL, in Acetonitrile	1 mL/ampule
4'-hydroxydiclofenac	CERH-053	4'-Hydroxydiclofenac-13C6, 100 µg/mL, in Methanol	1 mL/ampule
4'-hydroxydiclofenac	TRC-H825225	4'-Hydroxy Diclofenac	1 mg
4'-hydroxydiclofenac	TRC-H825225-10	4'-Hydroxy Diclofenac	10 mg
4'-hydroxydiclofenac	TRC-H825227	4'-Hydroxy Diclofenac-D4 (Major)	1 mg
4'-hydroxydiclofenac	TRC-H825227-10	4'-Hydroxy Diclofenac-D4 (Major)	10 mg
4'-hydroxydiclofenac	TRC-H825228	4'-Hydroxy Diclofenac-13C6	1 mg
4'-hydroxydiclofenac	TRC-H825228-10	4'-Hydroxy Diclofenac-13C6	10 mg
8-hydroxyefavirenz	TRC-H941825	rac 8-Hydroxy Efavirenz	1 mg
8-hydroxyefavirenz	TRC-H941825-10	rac 8-Hydroxy Efavirenz	10 mg
8-hydroxyefavirenz	TRC-H941827	rac 8-Hydroxy Efavirenz-d4	1 mg
8-hydroxyefavirenz	TRC-H941827-10	rac 8-Hydroxy Efavirenz-d4	10 mg
4'-hydroxyflurbiprofen	TRC-H942440	4'-Hydroxy Flurbiprofen	5 mg
4'-hydroxyflurbiprofen	TRC-H942440-50	4'-Hydroxy Flurbiprofen	50 mg
4'-hydroxyflurbiprofen	TRC-H942442	4'-Hydroxy Flurbiprofen-d3	1 mg
4'-hydroxyflurbiprofen	TRC-H942442-10	4'-Hydroxy Flurbiprofen-d3	10 mg

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4-hydroxymephenytoin	TRC-H944875	(+/-) - 4'-HydroxyMephenytoin	25 mg
4-hydroxymephenytoin	TRC-H944875-250	(+/-) - 4'-HydroxyMephenytoin	250 mg
4-hydroxymephenytoin	TRC-H944877	(+/-)-4'-Hydroxy Mephenytoin-d3	2.5 mg
4-hydroxymephenytoin	TRC-H944877-25	(+/-)-4'-Hydroxy Mephenytoin-d3	25 mg
α-hydroxymetoprolol	TRC-H948390	α-Hydroxy Metoprolol (Mixture of Diastereomers)	5 mg
α-hydroxymetoprolol	TRC-H948390-50	α-Hydroxy Metoprolol (Mixture of Diastereomers)	50 mg
α-hydroxymetoprolol	TRC-H948392	α-Hydroxy Metoprolol-d5 (Mixture of Diastereomers)	1 mg
α-hydroxymetoprolol	TRC-H948392-10	α-Hydroxy Metoprolol-d5 (Mixture of Diastereomers)	10 mg
1'-hydroxymidazolam	CERH-902	α-Hydroxymidazolam, 100 µg/mL, in Methanol	1 mL/ampule
1'-hydroxymidazolam	CERH-921	α-Hydroxymidazolam-D4, 100 µg/mL, in Methanol	1 mL/ampule
1'-hydroxymidazolam	TRC-H948420	1'-Hydroxy Midazolam	5 mg
1'-hydroxymidazolam	TRC-H948420-50	1'-Hydroxy Midazolam	50 mg
1'-hydroxymidazolam	TRC-H948422	1'-Hydroxymidazolam-13C3	1 mg
1'-hydroxymidazolam	TRC-H948422-10	1'-Hydroxymidazolam-13C3	10 mg
1'-hydroxymidazolam-β-D-glucuronide	TRC-H948430	1'-Hydroxymidazolam-β-D-glucuronide	1 mg
1'-hydroxymidazolam-β-D-glucuronide	TRC-H948430-10	1'-Hydroxymidazolam-β-D-glucuronide	10 mg
4-hydroxymidazolam	TRC-H948425	4-Hydroxy Midazolam	5 mg
4-hydroxymidazolam	TRC-H948425-50	4-Hydroxy Midazolam	50 mg
4-hydroxymidazolam	TRC-H948427	4-Hydroxy Midazolam-d5	0.5 mg
4-hydroxymidazolam	TRC-H948427-5	4-Hydroxy Midazolam-d5	5 mg
4-hydroxymidazolam-β-D-glucuronide	TRC-H948435	4-Hydroxymidazolam β-D-Glucuronide	1 mg
4-hydroxymidazolam-β-D-glucuronide	TRC-H948435-10	4-Hydroxymidazolam β-D-Glucuronide	10 mg
21-hydroxyprogesterone	CDX-00008685-010	21-Hydroxyprogesterone	10 mg
5-hydroxyomeprazole	TRC-H948863	5-Hydroxy Omeprazole Sodium Salt	1 mg
5-hydroxyomeprazole	TRC-H948863-10	5-Hydroxy Omeprazole Sodium Salt	10 mg
5-hydroxyomeprazole	TRC-H948864	5-Hydroxy Omeprazole-d3 Sodium Salt	0.5 mg
5-hydroxyomeprazole	TRC-H948864-10	5-Hydroxy Omeprazole-d3 Sodium Salt	5 mg
4-hydroxypropofol	TRC-H950770	4-Hydroxy Propofol	1 mg
4-hydroxypropofol	TRC-H950770-10	4-Hydroxy Propofol	10 mg
(3S)-3-hydroxyquinidine	TRC-H953230	(3S)-3-Hydroxy Quinidine	1 mg
(3S)-3-hydroxyquinidine	TRC-H953230-10	(3S)-3-Hydroxy Quinidine	10 mg
(3S)-3-hydroxyquinidine	TRC-H953232	(3S)-3-Hydroxy Quinidine-vinyl-d3	1 mg
(3S)-3-hydroxyquinidine	TRC-H953232-10	(3S)-3-Hydroxy Quinidine-vinyl-d3	10 mg
5-hydroxyrosiglitazone	TRC-H953440	5-Hydroxy Rosiglitazone	1 mg
5-hydroxyrosiglitazone	TRC-H953440-10	5-Hydroxy Rosiglitazone	10 mg
5-hydroxyrosiglitazone	TRC-H953450	5-Hydroxy Rosiglitazone Sulfate	1 mg
5-hydroxyrosiglitazone	TRC-H953450-10	5-Hydroxy Rosiglitazone Sulfate	10 mg
4-hydroxytamoxifen	TRC-H954730	4'-Hydroxy Tamoxifen	1 mg
4-hydroxytamoxifen	TRC-H954730-10	4'-Hydroxy Tamoxifen	10 mg
4-hydroxytamoxifen	TRC-H954757	4-Hydroxy Tamoxifen Ethyl-d5	10 mg
4-hydroxytamoxifen	TRC-H954757-100	4-Hydroxy Tamoxifen Ethyl-d5	100 mg
6α-hydroxytestosterone	TRC-H956755	6α-Hydroxy Testosterone	1 mg
6α-hydroxytestosterone	TRC-H956755-10	6α-Hydroxy Testosterone	10 mg
6β-hydroxytestosterone	CERH-059	6β-Hydroxytestosterone, 100 µg/mL, in Methanol	1 mL/ampule
6β-hydroxytestosterone	CERT-034	6β-Hydroxytestosterone-D3, 100 µg/mL, in Methanol	1 mL/ampule
6β-hydroxytestosterone	TRC-H956750	6β-Hydroxy Testosterone	5 mg
6β-hydroxytestosterone	TRC-H956750-50	6β-Hydroxy Testosterone	50 mg
6β-hydroxytestosterone	TRC-H956752	6β-Hydroxy Testosterone-d3	1 mg
6β-hydroxytestosterone	TRC-H956752-10	6β-Hydroxy Testosterone-d3	10 mg
4-hydroxytolbutamide	CERH-054	4-Hydroxytolbutamide, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
4-hydroxytolbutamide	CERH-055	4-Hydroxytolbutamide-D9, 100 µg/mL, in Acetonitrile	1 mL/ampule
4-hydroxytolbutamide	TRC-H969850	Hydroxy Tolbutamide	5 mg
4-hydroxytolbutamide	TRC-H969850-50	Hydroxy Tolbutamide	50 mg
4-hydroxytolbutamide	TRC-H969852	Hydroxy Tolbutamide-d9	1 mg
4-hydroxytolbutamide	TRC-H969852-10	Hydroxy Tolbutamide-d9	10 mg
4-hydroxytriazolam	TRC-H971330	4-Hydroxy Triazolam	1 mg
4-hydroxytriazolam	TRC-H971330-10	4-Hydroxy Triazolam	10 mg
4-hydroxywarfarin	TRC-H996100	4'-Hydroxy Warfarin	5 mg
4-hydroxywarfarin	TRC-H996100-50	4'-Hydroxy Warfarin	50 mg
6-hydroxywarfarin	TRC-H996120	6-Hydroxy Warfarin	5 mg
6-hydroxywarfarin	TRC-H996120-50	6-Hydroxy Warfarin	50 mg
7-hydroxywarfarin	TRC-H996130	7-Hydroxy Warfarin	5 mg
7-hydroxywarfarin	TRC-H996130-50	7-Hydroxy Warfarin	50 mg

Catalogue (labelled, unlabelled and fluorescent)

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Index description	LGC catalogue no.	Product description	Pack size
8-hydroxywarfarin	TRC-H996140	8-Hydroxy Warfarin	5 mg
8-hydroxywarfarin	TRC-H996140-50	8-Hydroxy Warfarin	50 mg
10-hydroxywarfarin	TRC-H996160	10-Hydroxy Warfarin	5 mg
10-hydroxywarfarin	TRC-H996160-50	10-Hydroxy Warfarin	50 mg
Imipramine	TRC-I465983	Imipramine-d6	2.5 mg
Imipramine	TRC-I465983-25	Imipramine-d6	25 mg
Indinavir	TRC-I525000	Indinavir Sulfate	5 mg
Indinavir	TRC-I525000-50	Indinavir Sulfate	50 mg
Indinavir	TRC-I525002	Indinavir-d6	1 mg
Indinavir	TRC-I525002-10	Indinavir-d6	10 mg
Isoniazid	EPI0500000	Isoniazid	100 mg
Isoniazid	TRC-I821452	Isoniazid-d4	1 mg
Isoniazid	TRC-I821452-10	Isoniazid-d4	10 mg
Isoniazid	USP1349706	Isoniazid	200 mg
Itraconazole	TRC-I937500	Itraconazole	50 mg
Itraconazole	TRC-I937500-500	Itraconazole	500 mg
Itraconazole	TRC-I937502	Itraconazole-d5	1 mg
Itraconazole	TRC-I937502-10	Itraconazole-d5	10 mg
Ketoconazole	TRC-K186000	Ketoconazole	500 mg
Ketoconazole	TRC-K186000-5	Ketoconazole	5 g
Ketoconazole	TRC-K186002	Ketoconazole-d8	2.5 mg
Ketoconazole	TRC-K186002-25	Ketoconazole-d8	25 mg
Lansoprazole	CERL-012	Lansoprazole	250 mg
Lansoprazole	TRC-L175000	Lansoprazole	1 g
Lansoprazole	TRC-L175000-10	Lansoprazole	10 g
Lansoprazole	TRC-L175002	Lansoprazole-d4	2.5 mg
Lansoprazole	TRC-L175002-25	Lansoprazole-d4	25 mg
Lapatinib	TRC-L175800	Lapatinib Ditosylate	5 mg
Lapatinib	TRC-L175800-50	Lapatinib Ditosylate	50 mg
Lapatinib	TRC-L175802	Lapatinib-13C2,15N Ditosylate	0.5 mg
Lapatinib	TRC-L175802-5	Lapatinib-13C2,15N Ditosylate	5 mg
Lauric acid	CDX-00012080-010	Lauric Acid	10 mg
Lauric acid	CDX-00012080-100	Lauric Acid	100 mg
Loperamide	TRC-L469450	Loperamide, Hydrochloride	25 mg
Loperamide	TRC-L469450-250	Loperamide, Hydrochloride	250 mg
Loperamide	TRC-L469452	Loperamide-d6 Hydrochloride	1 mg
Loperamide	TRC-L469452-10	Loperamide-d6 Hydrochloride	10 mg
Memantine	TRC-M218000	Memantine, Hydrochloride	100 mg
Memantine	TRC-M218000-1	Memantine, Hydrochloride	1 g
Memantine	TRC-M218002	Memantine-d6, Hydrochloride	1 mg
Memantine	TRC-M218002-10	Memantine-d6, Hydrochloride	10 mg
6-mercaptopurine	TRC-M225450	6-Mercaptopurine Monohydrate	2.5 g
6-mercaptopurine	TRC-M225450-25	6-Mercaptopurine Monohydrate	25 g
Metformin	TRC-M258812	Metformin-d6, Hydrochloride	1 mg
Metformin	TRC-M258812-10	Metformin-d6, Hydrochloride	10 mg
Metformin	TRC-M258815	Metformin, Hydrochloride	100 g
Methotrexate	TRC-M260675	Methotrexate	1 g
Methotrexate	TRC-M260675-10	Methotrexate	10 g
Methotrexate	TRC-M260677	Methotrexate-methyl-d3	5 mg
Methotrexate	TRC-M260677-50	Methotrexate-methyl-d3	50 mg
Methoxsalen	TRC-M260795	Methoxsalen	10 mg
Methoxsalen	TRC-M260795-100	Methoxsalen	100 mg
3-methylcholanthrene	TRC-M294460	3-Methylcholanthrene	200 mg
3-methylcholanthrene	TRC-M294460-2	3-Methylcholanthrene	2 g
1-methylxanthine	TRC-M338575	1-Methylxanthine	10 mg
1-methylxanthine	TRC-M338575-100	1-Methylxanthine	100 mg
1-methylxanthine	TRC-M338577	1-Methylxanthine-d3	1 mg
1-methylxanthine	TRC-M338577-10	1-Methylxanthine-d3	10 mg
Metoprolol	CERM-123	Metoprolol Tartrate, 1.0 mg/mL (as free base), in Methanol	1 mL/ampule
Metoprolol	TRC-M338790	rac Metoprolol Hemi (+)-Tartrate	100 mg
Metoprolol	TRC-M338790-1	rac Metoprolol Hemi (+)-Tartrate	1 g
Metoprolol	TRC-M338792	rac Metoprolol-d7	1 mg
Metoprolol	TRC-M338792-10	rac Metoprolol-d7	10 mg
Midazolam	CERM-908	Midazolam, 1.0 mg/mL, in Methanol	1 mL/ampule
Midazolam	CERM-918	Midazolam-D4 maleate, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Midazolam	TRC-M343000	Midazolam	100 mg

Catalogue (labelled, unlabelled and fluorescent)

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Index description	LGC catalogue no.	Product description	Pack size
Midazolam	TRC-M343000-1	Midazolam	1 g
Midazolam	TRC-M343002	Midazolam-d5 (Major)	1 mg
Midazolam	TRC-M343002-10	Midazolam-d5 (Major)	10 mg
Mitoxantrone	TRC-M373425	Mitoxantrone	100 mg
Mitoxantrone	TRC-M373425-1	Mitoxantrone	1 g
Mitoxantrone	TRC-M373427	Mitoxantrone-d8	1 mg
Mitoxantrone	TRC-M373427-10	Mitoxantrone-d8	10 mg
Monoacetyldapsone	TRC-A168435	N-Acetyl Dapsone	10 mg
Monoacetyldapsone	TRC-A168435-100	N-Acetyl Dapsone	100 mg
Monoacetyldapsone	TRC-A168437	N-Acetyl Dapsone-D8 (Major)	1 mg
Monoacetyldapsone	TRC-A168437-10	N-Acetyl Dapsone-D8 (Major)	10 mg
Montelukast	TRC-M568000	Montelukast Sodium Salt	10 mg
Montelukast	TRC-M568000-100	Montelukast Sodium Salt	100 mg
Montelukast	TRC-M568002	Montelukast-d6, Sodium Salt	1 mg
Montelukast	TRC-M568002-10	Montelukast-d6, Sodium Salt	10 mg
Morphine	MM0037.00	Morphine Hydrochloride Trihydrate [Controlled Substance]	250 mg
Morphine-3-β-D-glucuronide	CERM-017	Morphine-3-β-D-glucuronide-D3	1 mL/ampule
Morphine-3-β-D-glucuronide	CERM-018	Morphine-3-β-D-glucuronide (0.1 mg/ml)	1 mL/ampule
Morphine-3-β-D-glucuronide	CERM-031	Morphine-3-β-D-glucuronide (1.0 mg/ml) in Methanol	1 mL/ampule
Morphine-6-β-D-glucuronide	TRC-M652310	Morphine 6-β-D-Glucuronide	1 mg
Morphine-6-β-D-glucuronide	TRC-M652310-10	Morphine 6-β-D-Glucuronide	10 mg
Morphine-6-β-D-glucuronide	TRC-M652312	Morphine-d3 6-β-D-Glucuronide	1 mg
Morphine-6-β-D-glucuronide	TRC-M652312-10	Morphine-d3 6-β-D-Glucuronide	10 mg
N-acetyl-4-aminosalicylic acid	TRC-A168325	N-Acetyl-4-aminosalicylic Acid	1 g
N-acetyl-4-aminosalicylic acid	TRC-A168325-10	N-Acetyl-4-aminosalicylic Acid	10 g
N-acetylsulfamethazine	TRC-A187850	N-Acetyl Sulfamethazine	10 mg
N-acetylsulfamethazine	TRC-A187850-100	N-Acetyl Sulfamethazine	100 mg
N-acetylsulfamethazine	TRC-A187852	N-Acetyl Sulfamethazine-d4	1 mg
N-acetylsulfamethazine	TRC-A187852-10	N-Acetyl Sulfamethazine-d4	10 mg
Naproxen	CERN-042	Naproxen, 1.0 mg/mL, in Methanol	1 mL/ampule
Naproxen	TRC-N377520	(S)-Naproxen	25 g
Naproxen	TRC-N377527	rac Naproxen-d3	1 mg
Naproxen	TRC-N377527-10	rac Naproxen-d3	10 mg
Naproxen acyl-b-D-glucuronide	TRC-N377530	Naproxen Acyl-β-D-glucuronide	1 mg
Naproxen acyl-b-D-glucuronide	TRC-N377530-10	Naproxen Acyl-β-D-glucuronide	10 mg
α-naphthoflavone	CDX-00014014-001	α-Naphthoflavone	1 g
α-naphthoflavone	CDX-00014014-010	α-Naphthoflavone	10 mg
β-naphthoflavone	CDX-00014015-001	β-Naphthoflavone	1 g
β-naphthoflavone	CDX-00014015-010	β-Naphthoflavone	10 mg
N-demethylerythromycin	TRC-D230930	N-Demethyl Erythromycin	5 mg
N-demethylerythromycin	TRC-D230930-50	N-Demethyl Erythromycin	50 mg
Nelfinavir	TRC-N389750	Nelfinavir, Mesylate	10 mg
Nelfinavir	TRC-N389750-100	Nelfinavir, Mesylate	100 mg
Nelfinavir	TRC-N389752	Nelfinavir-d3	1 mg
Nelfinavir	TRC-N389752-10	Nelfinavir-d3	10 mg
Nicotine	CERN-048	(±)-Nicotine-D4, 100 µg/mL, in Acetonitrile	1 mL/ampule
Nicotine	TRC-N412420	(+/-)-Nicotine	250 mg
Nicotine	TRC-N412420-2.5	(+/-)-Nicotine	2.5 g
Nicotine	TRC-N412423	(+/-)-Nicotine-3'-d3	10 mg
Nicotine	TRC-N412423-100	(+/-)-Nicotine-3'-d3	100 mg
Nicotine	TRC-N412427	Nicotine-d4	2.5 mg
Nicotine	TRC-N412427-25	Nicotine-d4	25 mg
Nifedipine	TRC-N457000	Nifedipine	10 mg
Nifedipine	TRC-N457000-100	Nifedipine	100 mg
Nifedipine	TRC-N457002	Nifedipine-d6	1 mg
Nifedipine	TRC-N457002-10	Nifedipine-d6	10 mg
Nootkatone	CDX-00014497-001	Nootkatone	1 g
Novobiocin	USP1475008	Novobiocin	200 mg
O-desmethylnaproxen	TRC-D292127	rac O-Desmethyl Naproxen-d3	1 mg
O-desmethylnaproxen	TRC-D292127-10	rac O-Desmethyl Naproxen-d3	10 mg
O-desmethyltramadol	TRC-D294740	O-Desmethyl Tramadol Hydrochloride	2.5 mg
O-desmethyltramadol	TRC-D294740-25	O-Desmethyl Tramadol Hydrochloride	25 mg
O-desmethyltramadol	TRC-D294742	rac O-Desmethyl Tramadol-d6	1 mg
O-desmethyltramadol	TRC-D294742-10	rac O-Desmethyl Tramadol-d6	10 mg
Olanzapine	TRC-O253750	Olanzapine	100 mg
Olanzapine	TRC-O253750-1	Olanzapine	1 g

Catalogue (labelled, unlabelled and fluorescent)

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Index description	LGC catalogue no.	Product description	Pack size
Olanzapine	TRC-O253752	Olanzapine-methyl-d3	1 mg
Olanzapine	TRC-O253752-10	Olanzapine-methyl-d3	10 mg
Olanzapine Glucuronide	TRC-O253755	Olanzapine Glucuronide	1 mg
Olanzapine Glucuronide	TRC-O253755-10	Olanzapine Glucuronide	10 mg
Olanzapine Glucuronide	TRC-O253757	Olanzapine-methyl-d3 Glucuronide	0.25 mg
Olanzapine Glucuronide	TRC-O253757-2.5	Olanzapine-methyl-d3 Glucuronide	2.5 mg
Olmesartan	TRC-O550001	Olmesartan Acid	10 mg
Olmesartan	TRC-O550001-100	Olmesartan Acid	100 mg
Olmesartan	TRC-O550002	Olmesartan-d6	1 mg
Olmesartan	TRC-O550002-10	Olmesartan-d6	10 mg
Omeprazole	CERO-021	Omeprazole, 1.0 mg/mL, in Methanol	1 mL/ampule i
Omeprazole	TRC-O635000	Omeprazole	500 mg
Omeprazole	TRC-O635000-5	Omeprazole	5 g
Omeprazole	TRC-O635002	Omeprazole-d3	1 mg
Omeprazole	TRC-O635002-10	Omeprazole-d3	10 mg
Ouabain	EPO0200000	Ouabain	150 mg
Oxybutynin	TRC-O868525	Oxybutynin Chloride	2.5 g
Oxybutynin	TRC-O868525-25	Oxybutynin Chloride	25 g
Oxybutynin	TRC-O868527	Oxybutynin-d11 Chloride	1 mg
Oxybutynin	TRC-O868527-10	Oxybutynin-d11 Chloride	10 mg
6α-hydroxypaclitaxel	TRC-H948890	6α-Hydroxy Paclitaxel	1 mg
6α-hydroxypaclitaxel	TRC-H948890-10	6α-Hydroxy Paclitaxel	10 mg
6α-hydroxypaclitaxel	TRC-H948892	6α-Hydroxy Paclitaxel-d5	0.5 mg
6α-hydroxypaclitaxel	TRC-H948892-5	6α-Hydroxy Paclitaxel-d5	5 mg
p-3V-hydroxypaclitaxel	TRC-H948895	3'-p-Hydroxy Paclitaxel	1 mg
p-3V-hydroxypaclitaxel	TRC-H948895-2.5	3'-p-Hydroxy Paclitaxel	2.5 mg
p-3V-hydroxypaclitaxel	TRC-H948897	3'-p-Hydroxy Paclitaxel-d5	1 mg
p-3V-hydroxypaclitaxel	TRC-H948897-2.5	3'-p-Hydroxy Paclitaxel-d5	2.5 mg
Paclitaxel	CDX-00016011-001	Paclitaxel C13 Labeled (for Non-Human use only)	1 mg
Paclitaxel	CDX-00016011-005	Paclitaxel C13 Labeled (for non-human use only)	5 mg
Paclitaxel	TRC-P132500	Paclitaxel	25 mg
Paclitaxel	TRC-P132500-250	Paclitaxel	250 mg
Paclitaxel	TRC-P132502	Paclitaxel-d5	1 mg
Paclitaxel	TRC-P132502-5	Paclitaxel-d5	5 mg
p-aminobenzoic acid	MM 0094.03	4-Aminobenzoic Acid	100 mg
p-aminosalicylic acid	USP1026401	Aminosalicylic Acid	125 mg
Paracetamol (Acetaminophen)	CERA-064	Acetaminophen, 1.0 mg/mL, in Methanol	1 mL/ampule
Paracetamol (Acetaminophen)	CERP-909	Acetaminophen-D4, 100 µg/mL, in Methanol	1 mL/ampule
Paracetamol (Acetaminophen)	CERP-917	Acetaminophen-D4, 1.0 mg/mL, in Methanol	1 mL/ampule
Paracetamol (Acetaminophen)	TRC-A161220	Acetaminophen	5 g
Paracetamol (Acetaminophen)	TRC-A161220-50	Acetaminophen	50 g
Paracetamol (Acetaminophen)	TRC-A161222	Acetaminophen-D4 (Major)	10 mg
Paracetamol (Acetaminophen)	TRC-A161222-100	Acetaminophen-D4 (Major)	100 mg
Paracetamol sulfate (Acetaminophen sulfate)	TRC-A161230	4-Acetaminophen Sulfate Potassium Salt	10 mg
Paracetamol sulfate (Acetaminophen sulfate)	TRC-A161230-100	4-Acetaminophen Sulfate Potassium Salt	100 mg
Paracetamol sulfate (Acetaminophen sulfate)	TRC-A161232	4-Acetaminophen-d3 Sulfate Potassium Salt	1 mg
Paracetamol sulfate (Acetaminophen sulfate)	TRC-A161232-10	4-Acetaminophen-d3 Sulfate Potassium Salt	10 mg
Paracetamol-glutathione (Acetaminophen-glutathione)	TRC-A161223	Acetaminophen Glutathione	1 mg
Paracetamol-glutathione (Acetaminophen-glutathione)	TRC-A161223-10	Acetaminophen Glutathione	10 mg
Paraxanthine	TRC-P192500	Paraxanthine	200 mg
Paraxanthine	TRC-P192500-2	Paraxanthine	2 g
Paraxanthine	TRC-P192502	Paraxanthine-1-methyl-d3	1 mg
Paraxanthine	TRC-P192502-10	Paraxanthine-1-methyl-d3	10 mg
Phenacetin	CERP-061	Phenacetin, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
Phenacetin	U-RCC-216	Phenacetin	100 mg
Phencyclidine	CERNMID748	Phencyclidine hydrochloride	50 mg
Phencyclidine	CERP-003	PCP-D5 (Phencyclidine-D5), 100 µg/mL, in Methanol	1 mL/ampule
Phencyclidine	CERP-006	PCP-D5 (Phencyclidine-D5), 1.0 mg/mL, in Methanol	1 mL/ampule
Phencyclidine	CERP-007	PCP (Phencyclidine), 1.0 mg/mL, in Methanol	1 mL/ampule
Phencyclidine	TRC-P295500	Phencyclidine Hydrochloride	10 mg
Phenformin	TRC-P296900	Phenformin Hydrochloride	10 g
Phenformin	TRC-P296900-100	Phenformin Hydrochloride	100 g
Phenobarbital	CERP-008	Phenobarbital, 1.0 mg/mL, in Methanol	1 mL/ampule

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Phenobarbital	CERP-017	Phenobarbital-D5 (deuterium label on side chain), 1.0 mg/mL, in Methanol	1 mL/ampule
Phenobarbital	CERP-019	Phenobarbital-D5 (deuterium label on ring), 1.0 mg/mL, in Methanol	1 mL/ampule
Phenobarbital	TRC-P316760	Phenobarbital	100 mg
Phenobarbital	TRC-P316760-1	Phenobarbital	1 g
Phenobarbital	TRC-P316762	Phenobarbital-ethyl-d5	5 mg
Phenobarbital	TRC-P316762-50	Phenobarbital-ethyl-d5	50 mg
Phenoxy-benzamine	USP1526007	Phenoxybenzamine HCl	250 mg
Phenytoin	CERP-063	Phenytoin, 1.0 mg/mL	1 mL/ampule
Phenytoin	TRC-D491652	5,5-Diphenyl-d10-hydantoin	2.5 mg
Phenytoin	TRC-D491652-25	5,5-Diphenyl-d10-hydantoin	25 mg
Pilocarpine	TRC-P441500	Pilocarpine Hydrochloride	10 mg
Pilocarpine	TRC-P441500-100	Pilocarpine Hydrochloride	100 mg
Pilocarpine	TRC-P441502	Pilocarpine-d3 Hydrochloride	1 mg
Pilocarpine	TRC-P441502-10	Pilocarpine-d3 Hydrochloride	10 mg
Pioglitazone	TRC-P471000	Pioglitazone Hydrochloride	100 mg
Pioglitazone	TRC-P471000-1	Pioglitazone Hydrochloride	1 g
Pioglitazone	TRC-P471002	Pioglitazone-d4	1 mg
Pioglitazone	TRC-P471002-10	Pioglitazone-d4	10 mg
Pitavastatin	TRC-P531000	Pitavastatin Calcium	10 mg
Pitavastatin	TRC-P531000-100	Pitavastatin Calcium	100 mg
Posaconazole	TRC-P689600	Posaconazole	1 mg
Posaconazole	TRC-P689600-10	Posaconazole	10 mg
Posaconazole	TRC-P689602	Posaconazole-d4	1 mg
Posaconazole	TRC-P689602-10	Posaconazole-d4	10 mg
Pravastatin	TRC-P702000	Pravastatin Sodium	100 mg
Pravastatin	TRC-P702000-1	Pravastatin Sodium	1 g
Pravastatin	TRC-P702002	Pravastatin-D3 Sodium Salt	1 mg
Pravastatin	TRC-P702002-10	Pravastatin-D3 Sodium Salt	10 mg
Prazosin	TRC-P702325	Prazosin Hydrochloride	10 mg
Prazosin	TRC-P702325-100	Prazosin Hydrochloride	100 mg
Probenecid	TRC-P755000	Probenecid	100 g
Probenecid	TRC-P755002	Probenecid-d14	1 mg
Probenecid	TRC-P755002-10	Probenecid-d14	10 mg
Procainamide	EPP3050000	Procainamide hydrochloride	100 mg
Procainamide	USP1563502	Procainamide HCl	200 mg
Propofol	MM0461.00	Propofol	250 mg
Quercetin	CDX-00017030-025	Quercetin	25 mg
Quercetin	CDX-00017030-100	Quercetin	100 mg
Quinidine	TRC-Q685000	Quinidine	10 g
Quinidine	TRC-Q685000-100	Quinidine	100 g
Quinidine	TRC-Q685002	Quinidine-d3	1 mg
Quinidine	TRC-Q685002-10	Quinidine-d3	10 mg
Quinine	TRC-Q694000	Quinine	1 g
Quinine	TRC-Q694000-10	Quinine	10 g
Quinine	TRC-Q694002	Quinine-d3	1 mg
Quinine	TRC-Q694002-10	Quinine-d3	10 mg
Raloxifene	TRC-R100000	Raloxifene, Hydrochloride	1 g
Raloxifene	TRC-R100000-10	Raloxifene, Hydrochloride	10 g
Raloxifene	TRC-R100001	Raloxifene-d4	1 mg
Raloxifene	TRC-R100001-10	Raloxifene-d4	10 mg
Repaglinide	TRC-R144500	Repaglinide	100 mg
Repaglinide	TRC-R144500-1	Repaglinide	1 g
Repaglinide	TRC-R144502	Repaglinide-ethyl-d5	1 mg
Repaglinide	TRC-R144502-10	Repaglinide-ethyl-d5	10 mg
Reserpine	CDX-00018040-025	Reserpine	25 mg
Reserpine	CDX-00018040-100	Reserpine	100 mg
Resorufin	TRC-R146500	Resorufin sodium salt, 90%	1 g
Retinoic acid	TRC-R250200	all-trans Retinoic Acid	1 g
Retinoic acid	TRC-R250200-10	all-trans Retinoic Acid	10 g
Retinoic acid	TRC-R250202	all-trans Retinoic Acid-d5	1 mg
Retinoic acid	TRC-R250202-10	all-trans Retinoic Acid-d5	10 mg
Rifampicin	TRC-R508000	Rifampicin	2.5 g
Rifampicin	TRC-R508000-25	Rifampicin	25 g
Rifampicin	TRC-R508002	Rifampicin-d3	1 mg
Rifampicin	TRC-R508002-10	Rifampicin-d3	10 mg
Rifapentine	TRC-R508500	Rifapentine	10 mg

Catalogue (labelled, unlabelled and fluorescent)

Use the 'Index description' found in the 'Enzyme and Transporter' tabs to locate the most suitable product.

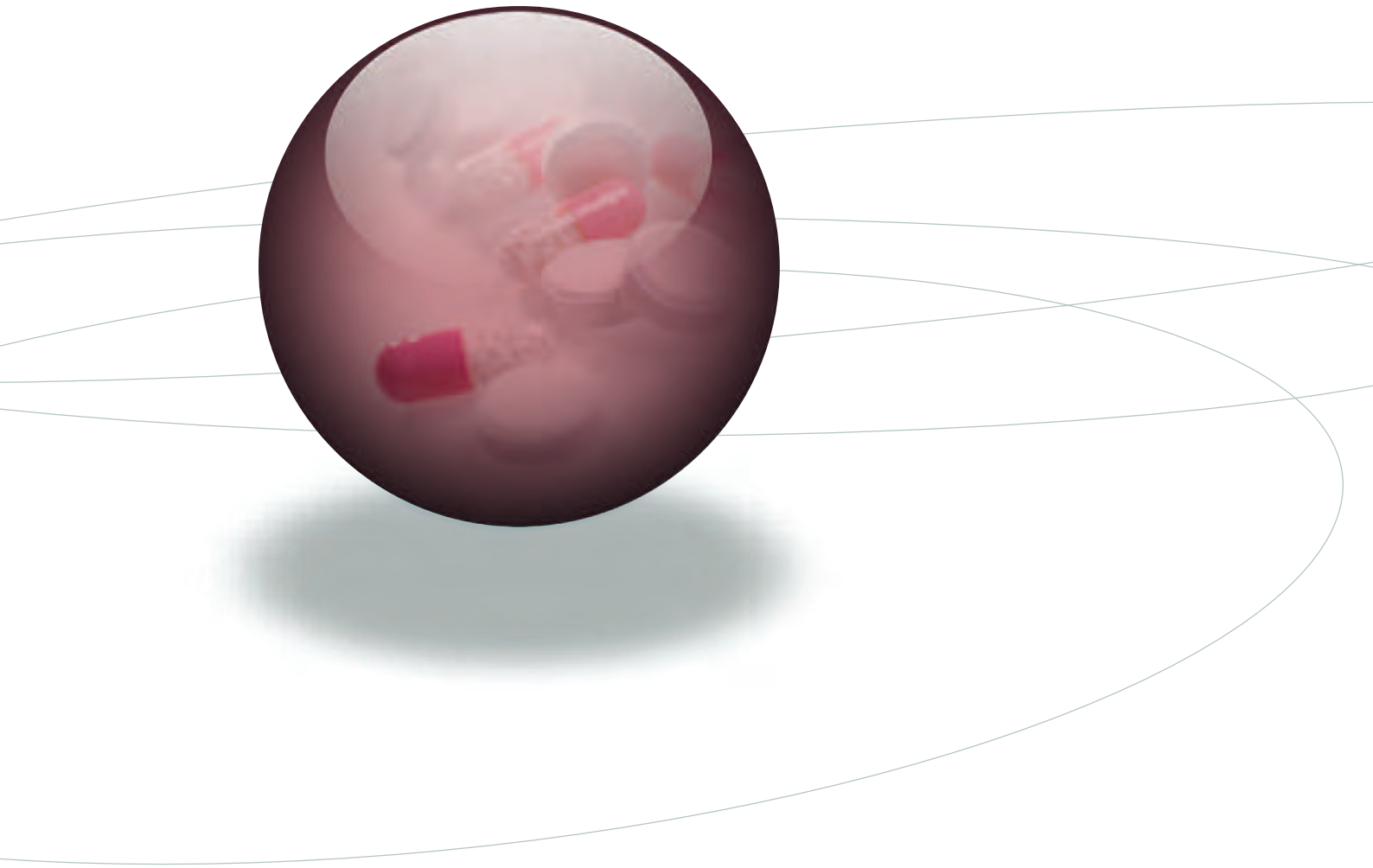
Index description	LGC catalogue no.	Product description	Pack size
Rifamycin	TRC-R508200	Rifamycin SV Sodium	100 mg
Rifamycin	TRC-R508200-1	Rifamycin SV Sodium	1 g
Rifapentine	TRC-R508500-100	Rifapentine	100 mg
Ritonavir	TRC-R535000	Ritonavir	10 mg
Ritonavir	TRC-R535000-100	Ritonavir	100 mg
Ritonavir	TRC-R535002	Ritonavir-d6	0.5 mg
Ritonavir	TRC-R535002-5	Ritonavir-d6	5 mg
Ritonavir	TRC-R535003	Ritonavir-13C3	0.5 mg
Ritonavir	TRC-R535003-5	Ritonavir-13C3	5 mg
Rosiglitazone	TRC-R693500	Rosiglitazone Maleate	25 mg
Rosiglitazone	TRC-R693500-250	Rosiglitazone Maleate	250 mg
Rosiglitazone	TRC-R693502	Rosiglitazone-d3	1 mg
Rosiglitazone	TRC-R693502-10	Rosiglitazone-d3	10 mg
Rosuvastatin	TRC-R700500	Rosuvastatin, Calcium Salt	10 mg
Rosuvastatin	TRC-R700500-100	Rosuvastatin, Calcium Salt	100 mg
Rosuvastatin	TRC-R700502	Rosuvastatin-d6, Sodium Salt	1 mg
Rosuvastatin	TRC-R700502-10	Rosuvastatin-d6, Sodium Salt	10 mg
S-(+)-N-desmethyl mephenytoin	TRC-D292070	S-(+)-N-Desmethyl Mephenytoin	25 mg
S-(+)-N-desmethyl mephenytoin	TRC-D292070-250	S-(+)-N-Desmethyl Mephenytoin	250 mg
Saquinavir	TRC-S135000	Saquinavir, Mesylate	10 mg
Saquinavir	TRC-S135000-100	Saquinavir, Mesylate	100 mg
Saquinavir	TRC-S135002	Saquinavir-d9	1 mg
Saquinavir	TRC-S135002-10	Saquinavir-d9	10 mg
Serotonin	CDX-00019180-100	Serotonin hydrochloride	100 mg
Sertraline	CERS-006	Sertraline, 1.0 mg/mL, in Methanol	1 mL/ampule
Sertraline	TRC-S280000	Sertraline, Hydrochloride	100 mg
Sertraline	TRC-S280000-1	Sertraline, Hydrochloride	1 g
Sertraline	TRC-S280002	rac Sertraline-d3 Hydrochloride	1 mg
Sertraline	TRC-S280002-10	rac Sertraline-d3 Hydrochloride	10 mg
S-mephenytoin	TRC-M225000	(S)-Mephenytoin	10 mg
S-mephenytoin	TRC-M225000-100	(S)-Mephenytoin	100 mg
SN-38 (Irinotecan metabolite)	TRC-S589950	SN-38	5 mg
SN-38 (Irinotecan metabolite)	TRC-S589950-50	SN-38	50 mg
SN-38 (Irinotecan metabolite)	TRC-S589952	SN-38-d3	1 mg
SN-38 (Irinotecan metabolite)	TRC-S589952-10	SN-38-d3	10 mg
Sulfamethazine	TRC-S699072	Sulfamethazine-d4	1 mg
Sulfamethazine	TRC-S699072-10	Sulfamethazine-d4	10 mg
Sulfamethazine	TRC-S699074	Sulfamethazine	10 mg
Sulfamethazine	TRC-S699074-100	Sulfamethazine	100 mg
Sulfasalazine	TRC-S699084	Sulfasalazine	10 g
Sulfasalazine	TRC-S699084-100	Sulfasalazine	100 g
Sulfinpyrazone	EPS2159000	Sulfinpyrazone	30 mg
Sulfinpyrazone	USP1637008	Sulfinpyrazone	200 mg
Sulforaphane	TRC-S699115	D,L-Sulforaphane	1 g
Sulforaphane	TRC-S699115-10	D,L-Sulforaphane	10 g
Tacrine	USP1642700	Tacrine HCl	500 mg
Tacrolimus	USP1642802	Tacrolimus	150 mg
Taxol	CDX-00020070-010	Taxol C	10 mg
Taxol	CDX-00020070-025	Taxol C	25 mg
Telmisartan	EPY0000648	Telmisartan	30 mg
Telmisartan	TRC-T017000	Telmisartan	50 mg
Telmisartan	TRC-T017000-500	Telmisartan	500 mg
Telmisartan	TRC-T017002	Telmisartan-d3	1 mg
Telmisartan	TRC-T017002-10	Telmisartan-d3	10 mg
Temocaprilat	TRC-T017305	Temocaprilat	1 mg
Temocaprilat	TRC-T017305-10	Temocaprilat	10 mg
Terfenadine	TRC-T114500	Terfenadine	10 g
Terfenadine	TRC-T114500-100	Terfenadine	100 g
Testosterone	CERNMID508	Testosterone sulfate	1 mg
Testosterone	CERNMID644	19-d3-Testosterone	1 mg
Testosterone	TRC-T155000	Testosterone	10 g
Testosterone	TRC-T155000-100	Testosterone	100 g
Testosterone	TRC-T155002	Testosterone-d3	5 mg
Testosterone	TRC-T155002-50	Testosterone-d3	50 mg
Theophylline	CERIMPC-051-01	Theophylline, 1.0 mg/mL, in Methanol	1 mL/ampule
Thioguanine	USP1660000	Thioguanine	200 mg
Thiotepa	USP1664000	Thiotepa	500 mg
Thyroxine	TRC-T425600	Thyroxine	1 g

Catalogue (labelled, unlabelled and fluorescent)

Use the 'Index description' found in the 'Enzyme and Transporter' tabs to locate the most suitable product.

Index description	LGC catalogue no.	Product description	Pack size
Thyroxine	TRC-T425600-10	Thyroxine	10 g
Thyroxine	TRC-T425602	Thyroxine-13C6	1 mg
Thyroxine	TRC-T425602-5	Thyroxine-13C6	5 mg
Ticlopidine	TRC-T438325	Ticlopidine, Hydrochloride	5 g
Ticlopidine	TRC-T438325-50	Ticlopidine, Hydrochloride	50 g
Tolbutamide	CERT-036	Tolbutamide, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
Topotecan	TRC-T542500	Topotecan Hydrochloride	1 mg
Topotecan	TRC-T542500-10	Topotecan Hydrochloride	10 mg
Topotecan	TRC-T542502	Topotecan-d6	1 mg
Topotecan	TRC-T542502-10	Topotecan-d6	10 mg
Tramadol	CERT-029	Tramadol-13C, D3 HCl, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Tramadol	TRC-T712480	Tramadol-d6 Hydrochloride	1 mg
Tramadol	TRC-T712480-10	Tramadol-d6 Hydrochloride	10 mg
Tramadol	TRC-T712500	Tramadol Hydrochloride	1 g
Tramadol	TRC-T712500-10	Tramadol Hydrochloride	10 g
Tranylcypromine	TRC-P319680	trans 2-Phenylcyclopropylamine Hydrochloride	100 mg
Tranylcypromine	TRC-P319680-1	trans 2-Phenylcyclopropylamine Hydrochloride	1 g
Tranylcypromine	TRC-P319682	trans 2-(Phenyl-d5)-cyclopropylamine Hydrochloride	1 mg
Tranylcypromine	TRC-P319682-10	trans 2-(Phenyl-d5)-cyclopropylamine Hydrochloride	10 mg
Triazolam	CERT-908	Triazolam-D4, 100 µg/mL, in Methanol	1 mL/ampule
Triazolam	CERT-910	Triazolam, 1.0 mg/mL, in Methanol	1 mL/ampule
Triazolam	TRC-T767380	Triazolam	10 mg
Triazolam	TRC-T767380-100	Triazolam	100 mg
Tricin	CDX-00020640-001	Tricin	1 mg
Trifluoperazine	TRC-T779200	Trifluoperazine Dihydrochloride	10 mg
Trifluoperazine	TRC-T779200-100	Trifluoperazine Dihydrochloride	100 mg
Trifluoperazine	TRC-T779202	Trifluoperazine-d3 Dihydrochloride	1 mg
Trifluoperazine	TRC-T779202-10	Trifluoperazine-d3 Dihydrochloride	10 mg
Trimethoprim	TRC-T795615	Trimethoprim	10 mg
Trimethoprim	TRC-T795615-100	Trimethoprim	100 mg
Trimethoprim	TRC-T795616	Trimethoprim-13C3	1 mg
Trimethoprim	TRC-T795616-10	Trimethoprim-13C3	10 mg
Trimethoprim	TRC-T795617	Trimethoprim-d9 (Major)	1 mg
Trimethoprim	TRC-T795617-10	Trimethoprim-d9 (Major)	10 mg
Trimethoprim	TRC-T795618	Trimethoprim-d3	1 mg
Trimethoprim	TRC-T795618-10	Trimethoprim-d3	10 mg
Troglitazone	TRC-T892500	Troglitazone	10 mg
Troglitazone	TRC-T892500-100	Troglitazone	100 mg
Troleandomycin	USP1697000	Troleandomycin	250 mg
Tryptamine	TRC-T894600	Tryptamine	50 g
Valacyclovir	TRC-V085000	Valacyclovir, Hydrochloride	100 mg
Valacyclovir	TRC-V085000-1	Valacyclovir, Hydrochloride	1 g
Valacyclovir	TRC-V085002	Valacyclovir-d4, Hydrochloride	1 mg
Valacyclovir	TRC-V085002-10	Valacyclovir-d4, Hydrochloride	10 mg
Valproic acid	TRC-V094750	Valproic Acid	10 g
Valproic acid	TRC-V094750-100	Valproic Acid	100 g
Valproic acid	TRC-V094752	Valproic Acid-d6	5 mg
Valproic acid	TRC-V094752-50	Valproic Acid-d6	50 mg
Valsartan	TRC-V095750	Valsartan	10 mg
Valsartan	TRC-V095750-100	Valsartan	100 mg
Valsartan	TRC-V095752	Valsartan-d3	1 mg
Valsartan	TRC-V095752-10	Valsartan-d3	10 mg
Verapamil	CERV-002	Verapamil HCl, 1.0 mg/mL (as free base), in Methanol	1 mL/ampule
Verapamil	TRC-V125000	Verapamil Hydrochloride	5 g
Verapamil	TRC-V125000-50	Verapamil Hydrochloride	50 g
Verapamil	TRC-V125002	Verapamil-d6 Hydrochloride	5 mg
Verapamil	TRC-V125002-50	Verapamil-d6 Hydrochloride	50 mg
Vinblastine	CDX-00022518-005	Vinblastine Sulfate	5 mg
Vinblastine	CDX-00022518-010	Vinblastine Sulfate	10 mg
Vinblastine	TRC-V314000	Vinblastine Sulfate	20 mg
Vinblastine	TRC-V314000-200	Vinblastine Sulfate	200 mg
Zidovudine (azidothymidine, AZT)	EPZ1900000	Zidovudine	60 mg
Zidovudine (azidothymidine, AZT)	USP1724500	Zidovudine	400 mg

Fluorescent products



Fluorescent products only

Quick reference catalogue listing of fluorescent reagents only.

Index description	LGC catalogue no.	Product description	Pack size
Coumarin	CERC-073	Coumarin, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
Coumarin	EPY0000438	Coumarin	80 mg
7-ethoxycoumarin (7-EC)	TRC-E891725	7-Ethoxycoumarin	1 g
7-ethoxycoumarin (7-EC)	TRC-E891725-10	7-Ethoxycoumarin	10 g
7-ethoxycoumarin (7-EC)	TRC-E891727	7-Ethoxycoumarin-d5	10 mg
7-ethoxycoumarin (7-EC)	TRC-E891727-100	7-Ethoxycoumarin-d5	100 mg
7-ethoxyresorufin	TRC-E892875	7-Ethoxyresorufin	10 mg
7-ethoxyresorufin	TRC-E892875-100	7-Ethoxyresorufin	100 mg
7-hydroxycoumarin	CERH-060	7-Hydroxycoumarin, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
7-hydroxycoumarin	CERH-061	7-Hydroxycoumarin-13C6, 100 µg/mL, in Acetonitrile	1 mL/ampule
7-hydroxycoumarin	TRC-H924875	7-Hydroxy Coumarin	2.5 g
7-hydroxycoumarin	TRC-H924875-25	7-Hydroxy Coumarin	25 g
7-hydroxycoumarin	TRC-H924877	7-Hydroxy Coumarin-13C3	0.25 mg
7-hydroxycoumarin	TRC-H924877-2.5	7-Hydroxy Coumarin-13C3	2.5 mg
7-hydroxycoumarin	TRC-H924878	7-Hydroxy Coumarin-13C6	0.25 mg
7-hydroxycoumarin	TRC-H924878-2.5	7-Hydroxy Coumarin-13C6	2.5 mg
7-hydroxycoumarin sulfate	TRC-H924890	7-Hydroxy Coumarin Sulfate Potassium Salt	5 mg
7-hydroxycoumarin sulfate	TRC-H924890-50	7-Hydroxy Coumarin Sulfate Potassium Salt	50 mg
7-hydroxycoumarin sulfate	TRC-H924892	7-Hydroxy Coumarin-13C6 Sulfate Potassium Salt	0.25 mg
7-hydroxycoumarin sulfate	TRC-H924892-2.5	7-Hydroxy Coumarin-13C6 Sulfate Potassium Salt	2.5 mg
7-hydroxycoumarin-glucuronide	TRC-H924880	7-Hydroxy Coumarin β-D-Glucuronide Sodium Salt	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924880-10	7-Hydroxy Coumarin β-D-Glucuronide Sodium Salt	10 mg
7-hydroxycoumarin-glucuronide	TRC-H924882	7-Hydroxy Coumarin-d5 β-D-Glucuronide Sodium Salt	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924882-10	7-Hydroxy Coumarin-d5 β-D-Glucuronide Sodium Salt	10 mg
7-hydroxycoumarin-glucuronide	TRC-H924883	7-Hydroxy Coumarin-13C6 β-D-Glucuronide	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924883-10	7-Hydroxy Coumarin-13C6 β-D-Glucuronide	10 mg
Resorufin	TRC-R146500	Resorufin sodium salt, 90%	1 g

Labelled products

Labelled products only

Quick reference catalogue listing for labelled compounds only.

Index description	LGC catalogue no.	Product description	Pack size
Acyclovir	TRC-A192402	Acyclovir-d4	1 mg
Acyclovir	TRC-A192402-10	Acyclovir-d4	10 mg
Adefovir	TRC-A247502	Adefovir-d4	2.5 mg
Adefovir	TRC-A247502-2.5	Adefovir-d4	25 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168213	5-Acetylamino-6-formylamino-3-methyluracil-d3	1 mg
AFMU (5-acetylamino-6-formylamino-3-methyluracil)	TRC-A168213-10	5-Acetylamino-6-formylamino-3-methyluracil-d3	10 mg
Amantadine	TRC-A575822	Amantadine-d15 Hydrochloride	1 mg
Amantadine	TRC-A575822-10	Amantadine-d15 Hydrochloride	10 mg
7-aminoclonazepam	CERA-917	7-Aminoclonazepam-D4, 100 µg/mL, in Acetonitrile	1 mL/ampule
Amodiaquine	TRC-A634202	Amodiaquin-d10	1 mg
Amodiaquine	TRC-A634202-10	Amodiaquin-d10	10 mg
Amoxicillin	TRC-A634237-10	Amoxicillin-13C6	10 mg
Amoxicillin	TRC-A634238	Amoxicillin-d4	1 mg
Amoxicillin	TRC-A634238-10	Amoxicillin-d4	10 mg
Ampicillin	TRC-A634302	Ampicillin-d5 (Mixture of Diastereomers)	10 mg
Atazanavir	TRC-A790052	Atazanavir-d5	1 mg
Atazanavir	TRC-A790052-10	Atazanavir-d5	10 mg
Atorvastatin	TRC-A791752	Atorvastatin-d5, Sodium Salt	1 mg
Atorvastatin	TRC-A791752-10	Atorvastatin-d5, Sodium Salt	10 mg
Benzylpenicillin	TRC-B288600	Benzylpenicillinate-d7, Potassium Salt	10 mg
Benzylpenicillin	TRC-B288600-100	Benzylpenicillinate-d7, Potassium Salt	100 mg
Bufuralol	TRC-B689542	Bufuralol-d9 Hydrochloride	1 mg
Bufuralol	TRC-B689542-10	Bufuralol-d9 Hydrochloride	10 mg
Bupropion	TRC-B689627	Bupropion-d9 Hydrochloride	1 mg
Bupropion	TRC-B689627-10	Bupropion-d9 Hydrochloride	10 mg
Caffeine	TRC-C080102	Caffeine-d9	2.5 mg
Caffeine	TRC-C080102-25	Caffeine-d9	25 mg
Captopril	TRC-C175752	Captopril-d7	1 mg
Captopril	TRC-C175752-10	Captopril-d7	10 mg
Carbamazepine	TRC-C175842	Carbamazepine-13C,d2	1 mg
Carbamazepine	TRC-C175842-10	Carbamazepine-13C,d2	10 mg
Carbamazepine	TRC-C175843	Carbamazepine-d2	1 mg
Carbamazepine	TRC-C175843-10	Carbamazepine-d2	10 mg
Carboxytolbutamide	TRC-C183202	4-Carboxy Tolbutamide-d9	1 mg
Carboxytolbutamide	TRC-C183202-10	4-Carboxy Tolbutamide-d9	10 mg
Cefadroxil	TRC-C235752	Cefadroxil-d4 (major)	1 mg
Cefadroxil	TRC-C235752-10	Cefadroxil-d4 (major)	10 mg
Chlorothiazide	TRC-C380002	Chlorothiazide-13C,15N2	1 mg
Chlorothiazide	TRC-C380002-10	Chlorothiazide-13C,15N2	10 mg
Chlorzoxazone	TRC-C428702	Chlorzoxazone-4,6,7-d3	1 mg
Chlorzoxazone	TRC-C428702-10	Chlorzoxazone-4,6,7-d3	10 mg
Cimetidine	TRC-C441652	Cimetidine-d3	1 mg
Cimetidine	TRC-C441652-10	Cimetidine-d3	10 mg
Clopidogrel	TRC-C587252	rac Clopidogrel-d4 Hydrogen Sulfate	1 mg
Clopidogrel	TRC-C587252-10	rac Clopidogrel-d4 Hydrogen Sulfate	10 mg
Cortisol	TRC-C696302	Cortisol-9,11,12,12-d4	0.5 mg
Cortisol	TRC-C696302-5	Cortisol-9,11,12,12-d4	5 mg
Cotinine	CERC-017	(±)-Cotinine-D3, 100 µg/mL, in Methanol	1 mL/ampule
Cotinine	CERC-035	(±)-Cotinine-D3, 1.0 mg/mL, in Methanol	1 mL/ampule
Cotinine	TRC-C725005	Cotinine-methyl-d3	10 mg
Cotinine	TRC-C725005-100	Cotinine-methyl-d3	100 mg
Dapsone	TRC-D193255	Dapsone-D8 (Major)	1 mg
Dapsone	TRC-D193255-10	Dapsone-D8 (Major)	10 mg
Dapsonehydroxylamine	TRC-D193262	Dapsone Hydroxylamine-D8 (Major)	1 mg
Dapsonehydroxylamine	TRC-D193262-10	Dapsone Hydroxylamine-D8 (Major)	10 mg
Daunorubicin	TRC-D194502	Daunorubicin-13C,d3	0.5 mg
Daunorubicin	TRC-D194502-5	Daunorubicin-13C,d3	5 mg
Debrisoquin	TRC-D208702	Debrisoquin-13C,15N2 Hemisulfate	1 mg
Debrisoquin	TRC-D208702-10	Debrisoquin-13C,15N2 Hemisulfate	10 mg
Deferiprone-3-O-ß-D-glucuronide	TRC-D474010	Deferiprone 3-O-ß-D-Glucuronide	1 mg
Deferiprone-3-O-ß-D-glucuronide	TRC-D474010-10	Deferiprone 3-O-ß-D-Glucuronide	10 mg
Dehydrofelodipine	TRC-D229652	Dehydro Felodipine-d3	1 mg
Dehydrofelodipine	TRC-D229652-10	Dehydro Felodipine-d3	10 mg
Desethylamodiaquine	CERD-040	N-Desethylamodiaquine-D5 dihydrochloride, 100 µg/mL (as free base), in Methanol	1 mL/ampule

Labelled products only

Quick reference catalogue listing for labelled compounds only.

Index description	LGC catalogue no.	Product description	Pack size
Desethylamodiaquine	TRC-D288827	N-Desethyl Amodiaquine-d5	1 mg
Desethylamodiaquine	TRC-D288827-10	N-Desethyl Amodiaquine-d5	10 mg
Desethyloxybutynin	TRC-D289477	Desethyl Oxybutynin-d11 Hydrochloride	1 mg
Desethyloxybutynin	TRC-D289477-10	Desethyl Oxybutynin-d11 Hydrochloride	10 mg
Desipramine	CERD-903	Desipramine-D3 HCl, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Desipramine	TRC-D290052	Desipramine-2,4,6,8-d4 Hydrochloride	1 mg
Desipramine	TRC-D290052-10	Desipramine-2,4,6,8-d4 Hydrochloride	10 mg
Dexamethasone	TRC-D298802	Dexamethasone-d3	10 mg
Dexamethasone	TRC-D298802-25	Dexamethasone-d3	25 mg
Dextromethorphan	TRC-D299457	Dextromethorphan-d3	5 mg
Dextromethorphan	TRC-D299457-50	Dextromethorphan-d3	50 mg
Dextrorphan	CERD-041	Dextrorphan-D3, 100 µg/mL, in Methanol	1 mL/ampule
Dextrorphan	TRC-D299487	Dextrorphan-d3, Tartrate Salt	2.5 mg
Dextrorphan	TRC-D299487-25	Dextrorphan-d3, Tartrate Salt	25 mg
Diclofenac	TRC-D436452	Diclofenac-D4 (Major)	1 mg
Diclofenac	TRC-D436452-10	Diclofenac-D4 (Major)	10 mg
Digoxin	TRC-D446577	Digoxin-d3	2.5 mg
Digoxin	TRC-D446577-25	Digoxin-d3	25 mg
Disopyramide	TRC-D493452	Disopyramide-d14 Tosylate Salt	1 mg
Disopyramide	TRC-D493452-10	Disopyramide-d14 Tosylate Salt	10 mg
Dopamine	TRC-D533782	Dopamine-d4 Hydrochloride	1 mg
Dopamine	TRC-D533782-10	Dopamine-d4 Hydrochloride	10 mg
Dopamine-3-β-D-glucuronide	TRC-D533790	Dopamine 3-β-D-Glucuronide	1 mg
Dopamine-3-β-D-glucuronide	TRC-D533790-10	Dopamine 3-β-D-Glucuronide	10 mg
Doxorubicin	TRC-D558002	Doxorubicin-13C,d3	0.25 mg
Doxorubicin	TRC-D558002-2.5	Doxorubicin-13C,d3	2.5 mg
Efavirenz	TRC-E425002	rac Efavirenz-d4	1 mg
Efavirenz	TRC-E425002-10	rac Efavirenz-d4	10 mg
Elacridar	TRC-E489002	Elacridar-d4	1 mg
Elacridar	TRC-E489002-10	Elacridar-d4	10 mg
Enalapril	TRC-E555252	Enalapril-d5 Maleate Salt	1 mg
Enalapril	TRC-E555252-10	Enalapril-d5 Maleate Salt	10 mg
Enalapril	TRC-E555253	Enalapril-d3	1 mg
Enalapril	TRC-E555253-10	Enalapril-d3	10 mg
Erlotinib	TRC-E625002	Erlotinib-d6, Hydrochloride Salt	1 mg
Erlotinib	TRC-E625002-10	Erlotinib-d6, Hydrochloride Salt	10 mg
Erythromycin	TRC-E649952	Erythromycin-13C,D3	1 mg
Erythromycin	TRC-E649952-10	Erythromycin-13C,D3	10 mg
Estradiol	TRC-E888002	17β-Estradiol-16,16,17-d3	1 mg
Estradiol	TRC-E888002-10	17β-Estradiol-16,16,17-d3	10 mg
7-ethoxycoumarin (7-EC)	TRC-E891727	7-Ethoxycoumarin-d5	10 mg
7-ethoxycoumarin (7-EC)	TRC-E891727-100	7-Ethoxycoumarin-d5	100 mg
Ethynylestradiol	TRC-E685102	Ethynyl Estradiol-2,4,16,16-d4	1 mg
Ethynylestradiol	TRC-E685102-10	Ethynyl Estradiol-2,4,16,16-d4	10 mg
Felodipine	TRC-F232377	rac Felodipine-d3	1 mg
Felodipine	TRC-F232377-10	rac Felodipine-d3	10 mg
Fexofenadine	TRC-F322500	Fexofenadine-D6	1 mg
Fexofenadine	TRC-F322500-10	Fexofenadine-D6	10 mg
Fluconazole	TRC-F421002	Fluconazole-d4	1 mg
Fluconazole	TRC-F421002-10	Fluconazole-d4	10 mg
Fluoxetine	CERF-919	Fluoxetine-D6 Oxalate, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Fluoxetine	TRC-F597102	Fluoxetine-d5 Hydrochloride	1 mg
Fluoxetine	TRC-F597102-10	Fluoxetine-d5 Hydrochloride	10 mg
Flurbiprofen	TRC-F598702	Flurbiprofen-d3	5 mg
Flurbiprofen	TRC-F598702-50	Flurbiprofen-d3	50 mg
Flutamide	TRC-F598852	Flutamide-d7	1 mg
Flutamide	TRC-F598852-10	Flutamide-d7	10 mg
Fluvastatin	TRC-F601252	Fluvastatin-D8 (Major), Sodium Salt	1 mg
Fluvastatin	TRC-F601252-10	Fluvastatin-D8 (Major), Sodium Salt	10 mg
Fluvoxamine	TRC-F603502	(E)-Fluvoxamine-d3 Maleate	1 mg
Fluvoxamine	TRC-F603502-10	(E)-Fluvoxamine-d3 Maleate	10 mg
Ganciclovir	TRC-G235002	Ganciclovir-d5	1 mg
Ganciclovir	TRC-G235002-10	Ganciclovir-d5	10 mg
Gemfibrozil	TRC-G305752	Gemfibrozil-d6	5 mg
Gemfibrozil	TRC-G305752-50	Gemfibrozil-d6	50 mg
Hydromorphone	CERH-006	Hydromorphone-D3, 100 µg/mL, in Methanol	1 mL/ampule

Labelled products only

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Index description	LGC catalogue no.	Product description	Pack size
Hydromorphone	CERH-010	Hydromorphone-D3, 1.0 mg/mL, in Methanol	1 mL/ampule
Hydromorphone	CERH-049	Hydromorphone-D6, 100 µg/mL, in Methanol	1 mL/ampule
Hydroxybupropion	CERH-062	(±)-Hydroxybupropion-D6, 100 µg/mL, in Acetonitrile	1 mL/ampule
Hydroxybupropion	CERH-066	(±)-Hydroxybupropion, 1.0 mg/mL, in Acetonitrile	1 mL/ampule
1-hydroxybufuralol	TRC-H830482	1'-Hydroxybufuralol-d9 (Mixture of Diastereomers)	0.5 mg
1-hydroxybufuralol	TRC-H830482-5	1'-Hydroxybufuralol-d9 (Mixture of Diastereomers)	5 mg
Hydroxybupropion	TRC-H830677	Hydroxy Bupropion-d6	1 mg
Hydroxybupropion	TRC-H830677-10	Hydroxy Bupropion-d6	10 mg
6β-hydroxycortisol	TRC-H922302	6β-Hydroxy Cortisol-d4	1 mg
6β-hydroxycortisol	TRC-H922302-10	6β-Hydroxy Cortisol-d4	10 mg
3-hydroxycotinine	TRC-H924510	trans-3'-Hydroxycotinine, Methyl-d3	1 mg
3-hydroxycotinine	TRC-H924510-10	trans-3'-Hydroxycotinine, Methyl-d3	10 mg
7-hydroxycoumarin	CERH-061	7-Hydroxycoumarin-13C6, 100 µg/mL, in Acetonitrile	1 mL/ampule
7-hydroxycoumarin	TRC-H924877	7-Hydroxy Coumarin-13C3	0.25 mg
7-hydroxycoumarin	TRC-H924877-2.5	7-Hydroxy Coumarin-13C3	2.5 mg
7-hydroxycoumarin	TRC-H924878	7-Hydroxy Coumarin-13C6	0.25 mg
7-hydroxycoumarin	TRC-H924878-2.5	7-Hydroxy Coumarin-13C6	2.5 mg
7-hydroxycoumarin sulfate	TRC-H924892	7-Hydroxy Coumarin-13C6 Sulfate Potassium Salt	0.25 mg
7-hydroxycoumarin sulfate	TRC-H924892-2.5	7-Hydroxy Coumarin-13C6 Sulfate Potassium Salt	2.5 mg
7-hydroxycoumarin-glucuronide	TRC-H924882	7-Hydroxy Coumarin-d5 β-D-Glucuronide Sodium Salt	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924882-10	7-Hydroxy Coumarin-d5 β-D-Glucuronide Sodium Salt	10 mg
7-hydroxycoumarin-glucuronide	TRC-H924883	7-Hydroxy Coumarin-13C6 β-D-Glucuronide	1 mg
7-hydroxycoumarin-glucuronide	TRC-H924883-10	7-Hydroxy Coumarin-13C6 β-D-Glucuronide	10 mg
(Â±)-4-hydroxydebrisoquin sulfate	TRC-H933877	rac 4-Hydroxydebrisoquine-13C,15N2 Hemisulfate	1 mg
(Â±)-4-hydroxydebrisoquin sulfate	TRC-H933877-10	rac 4-Hydroxydebrisoquine-13C,15N2 Hemisulfate	10 mg
Hydroxydesloratadine	TRC-H936752	3-Hydroxy Desloratadine-d4	1 mg
Hydroxydesloratadine	TRC-H936752-10	3-Hydroxy Desloratadine-d4	10 mg
6-hydroxychlorzoxazone	CERH-064	6-Hydroxychlorzoxazone-D2,15N, 100 µg/mL, in Methanol	1 mL/ampule
6-hydroxychlorzoxazone	TRC-H825122	6-Hydroxy Chlorzoxazone-13C6	0.25 mg
6-hydroxychlorzoxazone	TRC-H825122-2.5	6-Hydroxy Chlorzoxazone-13C6	2.5 mg
4'-hydroxydiclofenac	CERH-053	4'-Hydroxydiclofenac-13C6, 100 µg/mL, in Methanol	1 mL/ampule
4'-hydroxydiclofenac	TRC-H825227	4'-Hydroxy Diclofenac-D4 (Major)	1 mg
4'-hydroxydiclofenac	TRC-H825227-10	4'-Hydroxy Diclofenac-D4 (Major)	10 mg
4'-hydroxydiclofenac	TRC-H825228	4'-Hydroxy Diclofenac-13C6	1 mg
4'-hydroxydiclofenac	TRC-H825228-10	4'-Hydroxy Diclofenac-13C6	10 mg
8-hydroxyefavirenz	TRC-H941827	rac 8-Hydroxy Efavirenz-d4	1 mg
8-hydroxyefavirenz	TRC-H941827-10	rac 8-Hydroxy Efavirenz-d4	10 mg
4'-hydroxyflurbiprofen	TRC-H942442	4'-Hydroxy Flurbiprofen-d3	1 mg
4'-hydroxyflurbiprofen	TRC-H942442-10	4'-Hydroxy Flurbiprofen-d3	10 mg
4-hydroxymephenytoin	TRC-H944877	(+/-)-4'-Hydroxy Mephenytoin-d3	2.5 mg
4-hydroxymephenytoin	TRC-H944877-25	(+/-)-4'-Hydroxy Mephenytoin-d3	25 mg
1'-hydroxymidazolam	CERH-921	α-Hydroxymidazolam-D4, 100 µg/mL, in Methanol	1 mL/ampule
1'-hydroxymidazolam	TRC-H948422	1'-Hydroxymidazolam-13C3	1 mg
1'-hydroxymidazolam	TRC-H948422-10	1'-Hydroxymidazolam-13C3	10 mg
4-hydroxymidazolam	TRC-H948427	4-Hydroxy Midazolam-d5	0.5 mg
4-hydroxymidazolam	TRC-H948427-5	4-Hydroxy Midazolam-d5	5 mg
5-hydroxyomeprazole	TRC-H948864	5-Hydroxy Omeprazole-d3	0.5 mg
5-hydroxyomeprazole	TRC-H948864-10	5-Hydroxy Omeprazole-d3	5 mg
6α-hydroxypaclitaxel	TRC-H948892	6α-Hydroxy Paclitaxel-d5	0.5 mg
6α-hydroxypaclitaxel	TRC-H948892-5	6α-Hydroxy Paclitaxel-d5	5 mg
4-hydroxytamoxifen	TRC-H954757	4-Hydroxy Tamoxifen Ethyl-d5	10 mg
4-hydroxytamoxifen	TRC-H954757-100	4-Hydroxy Tamoxifen Ethyl-d5	100 mg
6β-hydroxytestosterone	CERT-034	6β-Hydroxytestosterone-D3, 100 µg/mL, in Methanol	1 mL/ampule
6β-hydroxytestosterone	TRC-H956752	6β-Hydroxy Testosterone-d3	1 mg
6β-hydroxytestosterone	TRC-H956752-10	6β-Hydroxy Testosterone-d3	10 mg
4-hydroxytolbutamide	CERH-055	4-Hydroxytolbutamide-D9, 100 µg/mL, in Acetonitrile	1 mL/ampule
4-hydroxytolbutamide	TRC-H969852	Hydroxy Tolbutamide-d9	1 mg

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Index description	LGC catalogue no.	Product description	Pack size
4-hydroxytolbutamide	TRC-H969852-10	Hydroxy Tolbutamide-d9	10 mg
(3S)-3-hydroxyquinidine	TRC-H953232	(3S)-3-Hydroxy Quinidine-vinyl-d3	1 mg
(3S)-3-hydroxyquinidine	TRC-H953232-10	(3S)-3-Hydroxy Quinidine-vinyl-d3	10 mg
Imipramine	TRC-I465983	Imipramine-d6	2.5 mg
Imipramine	TRC-I465983-25	Imipramine-d6	25 mg
Indinavir	TRC-I525002	Indinavir-d6	1 mg
Indinavir	TRC-I525002-10	Indinavir-d6	10 mg
Isoniazid	TRC-I821452	Isoniazid-d4	1 mg
Isoniazid	TRC-I821452-10	Isoniazid-d4	10 mg
Itraconazole	TRC-I937502	Itraconazole-d5	1 mg
Itraconazole	TRC-I937502-10	Itraconazole-d5	10 mg
Ketoconazole	TRC-K186002	Ketoconazole-d8	2.5 mg
Ketoconazole	TRC-K186002-25	Ketoconazole-d8	25 mg
Lansoprazole	TRC-L175002	Lansoprazole-d4	2.5 mg
Lansoprazole	TRC-L175002-25	Lansoprazole-d4	25 mg
Lapatinib	TRC-L175802	Lapatinib-13C2,15N Ditosylate	0.5 mg
Lapatinib	TRC-L175802-5	Lapatinib-13C2,15N Ditosylate	5 mg
Loperamide	TRC-L469452	Loperamide-d6 Hydrochloride	1 mg
Loperamide	TRC-L469452-10	Loperamide-d6 Hydrochloride	10 mg
Memantine	TRC-M218002	Memantine-d6, Hydrochloride	1 mg
Memantine	TRC-M218002-10	Memantine-d6, Hydrochloride	10 mg
Metformin	TRC-M258812	Metformin-d6, Hydrochloride	1 mg
Metformin	TRC-M258812-10	Metformin-d6, Hydrochloride	10 mg
Methotrexate	TRC-M260677	Methotrexate-methyl-d3	5 mg
Methotrexate	TRC-M260677-50	Methotrexate-methyl-d3	50 mg
1-methylxanthine	TRC-M338577	1-Methylxanthine-d3	1 mg
1-methylxanthine	TRC-M338577-10	1-Methylxanthine-d3	10 mg
Metoprolol	TRC-M338792	rac Metoprolol-d7	1 mg
Metoprolol	TRC-M338792-10	rac Metoprolol-d7	10 mg
Midazolam	CERM-918	Midazolam-D4 maleate, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Midazolam	TRC-M343002	Midazolam-d5 (Major)	1 mg
Midazolam	TRC-M343002-10	Midazolam-d5 (Major)	10 mg
Mitoxantrone	TRC-M373427	Mitoxantrone-d8	1 mg
Mitoxantrone	TRC-M373427-10	Mitoxantrone-d8	10 mg
Monoacetyldapsone	TRC-A168437	N-Acetyl Dapsone-D8 (Major)	1 mg
Monoacetyldapsone	TRC-A168437-10	N-Acetyl Dapsone-D8 (Major)	10 mg
Montelukast	TRC-M568002	Montelukast-d6, Sodium Salt	1 mg
Montelukast	TRC-M568002-10	Montelukast-d6, Sodium Salt	10 mg
Morphine-3-β-D-glucuronide	CERM-017	Morphine-3-β-D-glucuronide-D3	1 mL/ampule
Morphine-6-β-D-glucuronide	TRC-M652312	Morphine-d3 6-β-D-Glucuronide	1 mg
Morphine-6-β-D-glucuronide	TRC-M652312-10	Morphine-d3 6-β-D-Glucuronide	10 mg
N-acetylsulfamethazine	TRC-A187852	N-Acetyl Sulfamethazine-d4	1 mg
N-acetylsulfamethazine	TRC-A187852-10	N-Acetyl Sulfamethazine-d4	10 mg
Naproxen	TRC-N377527	rac Naproxen-d3	1 mg
Naproxen	TRC-N377527-10	rac Naproxen-d3	10 mg
Nelfinavir	TRC-N389752	Nelfinavir-d3	1 mg
Nelfinavir	TRC-N389752-10	Nelfinavir-d3	10 mg
Nicotine	CERN-048	(±)-Nicotine-D4, 100 µg/mL, in Acetonitrile	1 mL/ampule
Nicotine	TRC-N412423	(+/-)-Nicotine-3'-d3	10 mg
Nicotine	TRC-N412423-100	(+/-)-Nicotine-3'-d3	100 mg
Nicotine	TRC-N412427	Nicotine-d4	2.5 mg
Nicotine	TRC-N412427-25	Nicotine-d4	25 mg
Nifedipine	TRC-N457002	Nifedipine-d6	1 mg
Nifedipine	TRC-N457002-10	Nifedipine-d6	10 mg
O-desmethylnaproxen	TRC-D292127	rac O-Desmethyl Naproxen-d3	1 mg
O-desmethylnaproxen	TRC-D292127-10	rac O-Desmethyl Naproxen-d3	10 mg
O-desmethyltramadol	TRC-D294742	rac O-Desmethyl Tramadol-d6	1 mg
O-desmethyltramadol	TRC-D294742-10	rac O-Desmethyl Tramadol-d6	10 mg
Olanzapine	TRC-O253752	Olanzapine-methyl-d3	1 mg
Olanzapine	TRC-O253752-10	Olanzapine-methyl-d3	10 mg
Olanzapine	TRC-O253757	Olanzapine-methyl-d3 Glucuronide	0.25 mg
Olanzapine	TRC-O253757-2.5	Olanzapine-methyl-d3 Glucuronide	2.5 mg
Olmesartan	TRC-O550002	Olmesartan-d6	1 mg
Olmesartan	TRC-O550002-10	Olmesartan-d6	10 mg
Omeprazole	TRC-O635002	Omeprazole-d3	1 mg
Omeprazole	TRC-O635002-10	Omeprazole-d3	10 mg
Oxybutynin	TRC-O868527	Oxybutynin-d11 Chloride	1 mg

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Index description	LGC catalogue no.	Product description	Pack size
Oxybutynin	TRC-O868527-10	Oxybutynin-d11 Chloride	10 mg
p-3Ý-hydroxypaclitaxel	TRC-H948897	3'-p-Hydroxy Paclitaxel-d5	1 mg
p-3Ý-hydroxypaclitaxel	TRC-H948897-2.5	3'-p-Hydroxy Paclitaxel-d5	2.5 mg
Paclitaxel	CDX-00016011-001	Paclitaxel C13 Labeled for Non-Human use only	1 mg
Paclitaxel	CDX-00016011-005	Paclitaxel C13 Labeled (for non-human use only)	5 mg
Paclitaxel	TRC-P132502	Paclitaxel-d5	1 mg
Paclitaxel	TRC-P132502-5	Paclitaxel-d5	5 mg
Paracetamol (Acetaminophen)	CERP-909	Acetaminophen-D4, 100 µg/mL, in Methanol	1 mL/ampule
Paracetamol (Acetaminophen)	CERP-917	Acetaminophen-D4, 1.0 mg/mL, in Methanol	1 mL/ampule
Paracetamol (Acetaminophen)	TRC-A161222	Acetaminophen-D4 (Major)	10 mg
Paracetamol (Acetaminophen)	TRC-A161222-100	Acetaminophen-D4 (Major)	100 mg
Paracetamol sulfate (Acetaminophen sulfate)	TRC-A161232	4-Acetaminophen-d3 Sulfate Potassium Salt	1 mg
Paracetamol sulfate (Acetaminophen sulfate)	TRC-A161232-10	4-Acetaminophen-d3 Sulfate Potassium Salt	10 mg
Paraxanthine	TRC-P192502	Paraxanthine-1-methyl-d3	1 mg
Paraxanthine	TRC-P192502-10	Paraxanthine-1-methyl-d3	10 mg
Phencyclidine	CERP-003	PCP-D5 (Phencyclidine-D5), 100 µg/mL, in Methanol	1 mL/ampule
Phencyclidine	CERP-006	PCP-D5 (Phencyclidine-D5), 1.0 mg/mL, in Methanol	1 mL/ampule
Phenobarbital	CERP-017	Phenobarbital-D5 (deuterium label on side chain), 1.0 mg/mL, in Methanol	1 mL/ampule
Phenobarbital	CERP-019	Phenobarbital-D5 (deuterium label on ring), 1.0 mg/mL, in Methanol	1 mL/ampule
Phenobarbital	TRC-P316762	Phenobarbital-ethyl-d5	5 mg
Phenobarbital	TRC-P316762-50	Phenobarbital-ethyl-d5	50 mg
Phenytoin	TRC-D491652	5,5-Diphenyl-d10-hydantoin	2.5 mg
Phenytoin	TRC-D491652-25	5,5-Diphenyl-d10-hydantoin	25 mg
Pilocarpine	TRC-P441502	Pilocarpine-d3 Hydrochloride	1 mg
Pilocarpine	TRC-P441502-10	Pilocarpine-d3 Hydrochloride	10 mg
Pioglitazone	TRC-P471002	Pioglitazone-d4	1 mg
Pioglitazone	TRC-P471002-10	Pioglitazone-d4	10 mg
Posaconazole	TRC-P689602	Posaconazole-d4	1 mg
Posaconazole	TRC-P689602-10	Posaconazole-d4	10 mg
Pravastatin	TRC-P702002	Pravastatin-D3 Sodium Salt	1 mg
Pravastatin	TRC-P702002-10	Pravastatin-D3 Sodium Salt	10 mg
Probenecid	TRC-P755002	Probenecid-d14	1 mg
Probenecid	TRC-P755002-10	Probenecid-d14	10 mg
Quinidine	TRC-Q685002	Quinidine-d3	1 mg
Quinidine	TRC-Q685002-10	Quinidine-d3	10 mg
Quinine	TRC-694002	Quinine methoxy-D3	1 mg
Quinine	TRC-694002-10	Quinine methoxy-D3	10 mg
Quinine	TRC-Q694002	Quinine-d3	1 mg
Quinine	TRC-Q694002-10	Quinine-d3	10 mg
Raloxifene	TRC-R100001	Raloxifene-d4	1 mg
Raloxifene	TRC-R100001-10	Raloxifene-d4	10 mg
Repaglinide	TRC-R144502	Repaglinide-ethyl-d5	1 mg
Repaglinide	TRC-R144502-10	Repaglinide-ethyl-d5	10 mg
Retinoic acid	TRC-R250202	all-trans Retinoic Acid-d5	1 mg
Retinoic acid	TRC-R250202-10	all-trans Retinoic Acid-d5	10 mg
Rifampicin	TRC-R508002	Rifampicin-d3	1 mg
Rifampicin	TRC-R508002-10	Rifampicin-d3	10 mg
Ritonavir	TRC-R535002	Ritonavir-d6	0.5 mg
Ritonavir	TRC-R535002-5	Ritonavir-d6	5 mg
Ritonavir	TRC-R535003	Ritonavir-13C3	0.5 mg
Ritonavir	TRC-R535003-5	Ritonavir-13C3	5 mg
Rosiglitazone	TRC-R693502	Rosiglitazone-d3	1 mg
Rosiglitazone	TRC-R693502-10	Rosiglitazone-d3	10 mg
Rosuvastatin	TRC-R700502	Rosuvastatin-d6, Sodium Salt	1 mg
Rosuvastatin	TRC-R700502-10	Rosuvastatin-d6, Sodium Salt	10 mg
Saquinavir	TRC-S135002	Saquinavir-d9	1 mg
Saquinavir	TRC-S135002-10	Saquinavir-d9	10 mg
Sertraline	TRC-S280002	rac Sertraline-d3 Hydrochloride	1 mg
Sertraline	TRC-S280002-10	rac Sertraline-d3 Hydrochloride	10 mg
SN-38 (Irinotecan metabolite)	TRC-S589952	SN-38-d3	1 mg
SN-38 (Irinotecan metabolite)	TRC-S589952-10	SN-38-d3	10 mg
Sulfamethazine	TRC-S699072	Sulfamethazine-d4	1 mg
Sulfamethazine	TRC-S699072-10	Sulfamethazine-d4	10 mg
Telmisartan	TRC-T017002	Telmisartan-d3	1 mg

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Index description	LGC catalogue no.	Product description	Pack size
Telmisartan	TRC-T017002-10	Telmisartan-d3	10 mg
Testosterone	CERNMID644	19-d3-Testosterone	1 mg
Testosterone	TRC-T155002	Testosterone-d3	5 mg
Testosterone	TRC-T155002-50	Testosterone-d3	50 mg
Thyroxine	TRC-T425602	Thyroxine-13C6	1 mg
Thyroxine	TRC-T425602-5	Thyroxine-13C6	5 mg
Topotecan	TRC-T542502	Topotecan-d6	1 mg
Topotecan	TRC-T542502-10	Topotecan-d6	10 mg
Tramadol	CERT-029	Tramadol-13C, D3 HCl, 100 µg/mL (as free base), in Methanol	1 mL/ampule
Tramadol	TRC-T712480	Tramadol-d6 Hydrochloride	1 mg
Tramadol	TRC-T712480-10	Tramadol-d6 Hydrochloride	10 mg
Tranylcypromine	TRC-P319682	trans 2-(Phenyl-d5)-cyclopropylamine Hydrochloride	1 mg
Tranylcypromine	TRC-P319682-10	trans 2-(Phenyl-d5)-cyclopropylamine Hydrochloride	10 mg
Triazolam	CERT-908	Triazolam-D4, 100 µg/mL, in Methanol	1 mL/ampule
Trifluoperazine	TRC-T779202	Trifluoperazine-d3 Dihydrochloride	1 mg
Trifluoperazine	TRC-T779202-10	Trifluoperazine-d3 Dihydrochloride	10 mg
Trimethoprim	TRC-T795616	Trimethoprim-13C3	1 mg
Trimethoprim	TRC-T795616-10	Trimethoprim-13C3	10 mg
Trimethoprim	TRC-T795617	Trimethoprim-d9 (Major)	1 mg
Trimethoprim	TRC-T795617-10	Trimethoprim-d9 (Major)	10 mg
Trimethoprim	TRC-T795618	Trimethoprim-d3	1 mg
Trimethoprim	TRC-T795618-10	Trimethoprim-d3	10 mg
Valacyclovir	TRC-V085002	Valacyclovir-d4, Hydrochloride	1 mg
Valacyclovir	TRC-V085002-10	Valacyclovir-d4, Hydrochloride	10 mg
Valproic acid	TRC-V094752	Valproic Acid-d6	5 mg
Valproic acid	TRC-V094752-50	Valproic Acid-d6	50 mg
Valsartan	TRC-V095752	Valsartan-d3	1 mg
Valsartan	TRC-V095752-10	Valsartan-d3	10 mg
Verapamil	TRC-V125002	Verapamil-d6 Hydrochloride	5 mg
Verapamil	TRC-V125002-50	Verapamil-d6 Hydrochloride	50 mg
α-hydroxymetoprolol	TRC-H948392	a-Hydroxy Metoprolol-d5 (Mixture of Diastereomers)	1 mg
α-hydroxymetoprolol	TRC-H948392-10	a-Hydroxy Metoprolol-d5 (Mixture of Diastereomers)	10 mg

ATCC® microbiology cultures

ATCC Genuine Cultures®: Direct from the Source

The ATCC Genuine Cultures emblem was designed to help scientists identify authentic ATCC microbial strains that come directly from ATCC. ATCC Genuine Cultures are backed by meticulous laboratory procedures and 80 years of experience and represent ATCC's high standards of quality for microbial strains:

- Full characterisation of each strain to establish identity;
- Utilisation of a seed stock system to minimise subculturing;
- Careful preservation and storage protocols to maintain the culture safely and effectively.

As always, a customer who purchases a genuine ATCC culture from LGC Standards is receiving a culture that is a direct, minimal-passage descendant of the original material deposited with ATCC and has been handled only by ATCC. These products are backed by our warranty and covered by our expert technical support.

Don't take chances on the quality of your cultures. Insist on products that meet ATCC's high standards of full characterisation and low passage number. ATCC Genuine Cultures are only available in Europe through LGC Standards.

ATCC® Genuine Cultures

Bacteria			
ATCC® no.	**Description**	**Designation**	**Common applications include**
29629™	*Salmonella enterica* subsp. *enterica*	TA 1535	Mutation tests (Ames assay), Genotoxicity / Bacterial mutation assays
29630™	*Salmonella enterica* subsp. *enterica*	TA 1537	Mutation tests (Ames assay), Genotoxicity / Bacterial mutation assays
29631™	*Salmonella enterica* subsp. *enterica*	TA 1538	Mutation tests (Ames assay)
49979™	*Escherichia coli*	NCIMB 11188 [WP2 uvrA]	Genotoxicity / Bacterial mutation assays

All ATCC products are sold subject to a material transfer agreement. Appendix II details the complete document.
The full ATCC microbiology collection can be viewed at **www.lgcstandards-atcc.org**.

ATCC® cell biology cultures

The ATCC Cell Biology Collection is the most comprehensive and diverse of its kind in the world, consisting of over 3,400 cell lines from over 80 different species. It holds over 950 cancer cell lines, 1,000 hybridomas and several special collections including stem cells and primary cells. The full collection can be found at **www.lgcstandards-atcc.org**.

Cell lines			
ATCC® no.	**Description**	**Designation**	**Common applications include**
CCL-1™	*Mus musculus* (mouse); areolar fibroblast	NCTC clone 929	Agar overlay, MEM elution
CCL-2™	*Homo sapiens* (human); cervical adenocarcinoma	HeLa	Transactivation assays (hormone-sensitive transcription of reporter genes)
CCL-34™	*Canis familiaris*; kidney	MDCK (NBL-2)	Cytosensor microphysiometer bioassay, P-gp inhibition with calcein AM substrate
CCL-61™	*Cricetulus griseus* (hamster, Chinese); ovary	CHO-K1	Transactivation assays (hormone-sensitive transcription of reporter genes), Genotoxicity / Mammalial cell assays (ICH Guideline), Uptake transporter assays, micronucleus assay, hERG *in vitro* assay
CCL-70™	*Cercopithecus aethiops* (african green monkey); kidney	CV-1	Transactivation assays (hormone-sensitive transcription of reporter genes)
CCL-93™	*Cricetulus griseus* (hamster, Chinese); lung	V79-4	Cytotoxicity
CCL-127™	*Homo sapiens* (human); neuroblastoma	IMR-32	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CCL-136™	*Homo sapiens* (human); rhabdomyosarcoma	RD	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CCL-163™	*Mus musculus* (mouse); embryo fibroblast	BALB/3T3 clone A31	Cell transformation test, Phototoxicity
CCL-185™	*Homo sapiens* (human); lung carcinoma	A549	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CCL-186™	*Homo sapiens* (human); lung fibroblast	IMR-90	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CCL-240™	*Homo sapiens* (human); promyelocytic leukemia	HL-60	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability, Dye transport assays (Calcein and Hoechst 33342 assays)
CCL-243™	*Homo sapiens* (human); leukemia (CML)	K-562	Dye transport assays (Calcein and Hoechst 33342 assays)
CL-187™	*Homo sapiens* (human); colorectal carcinoma	LS 180	Pgp induction / inhibition assay
CRL-1435™	*Homo sapiens* (human); prostate adenocarcinoma	PC-3	Transactivation assays (hormone-sensitive transcription of reporter genes), Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-1469™	*Homo sapiens* (human); pancreatic carcinoma	PANC-1	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-1500™	*Homo sapiens* (human); breast carcinoma	ZR-75-1	Transactivation assays (hormone-sensitive transcription of reporter genes)
CRL-1555™	*Homo sapiens* (human); epidermoid carcinoma	A-431	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability

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The full ATCC collection can be viewed at **www.lgcstandards-atcc.org**.

ATCC® cell biology cultures

Cell lines			
ATCC® no.	**Description**	**Designation**	**Common applications include**
CRL-1573™	*Homo sapiens* (human); embryonic kidney	293 [HEK-293]	Transactivation assays (hormone-sensitive transcription of reporter genes), hERG *in vitro* assay
CRL-1593.2™	*Homo sapiens* (human); histiocytic lymphoma	U-937	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-1650™	*Cercopithecus aethiops* (african green monkey); kidney	COS-1	Transactivation assays (hormone-sensitive transcription of reporter genes)
CRL-1658™	*Mus musculus* (mouse); embryonic fibroblast	NIH/3T3	Phototoxicity assay
CRL-1721™	*Rattus norvegicus* (rat); pheochromocytoma	PC-12	Transactivation assays (hormone-sensitive transcription of reporter genes)
CRL-1722™	*Mus musculus* (mouse); lymphoma	L5178-R (LY-R)	Cell mutation tests, *In vitro* mammalian cell micronucleus test, Genotoxicity / Mammalian cell assays (ICH guideline), Mammalian gene mutation test (MLA)
CRL-1730™	*Homo sapiens* (human); vascular endothelium	HUV-EC-C	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-1740™	*Homo sapiens* (human); prostate carcinoma	LNCaP clone FGC	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-1934™	*Mus musculus* (mouse); stem cell	ES-D3 [D3]	Reproductive toxicity (ES)
CRL-1935™	*Cricetulus griseus* (hamster, Chinese); lung	CHL/IU [CHL-11]	Chromosome aberrations assay
CRL-1990™	*Homo sapiens* (human); acute T cell leukemia	J45.01	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-2026™	*Mus musculus* (mouse); liver hepatoma	Hepa-1c1c7	Transactivation assays (hormone-sensitive transcription of reporter genes)
CRL-2062™	*Homo sapiens* (human); human lung, small cell carcinoma (licence may be required)	DMS 53	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-2064™	*Homo sapiens* (human); lung carcinoma	DMS 153	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-2102™	*Homo sapiens* (human); colon adenocarcinoma	C2BBe1 [clone of Caco-2 (HTB-37™)]	*In vitro* absorption, Active efflux determination, P-gp substrate determination, P-gp inhibition determination
CRL-2103™	*Homo sapiens* (human); normal skin fibroblast	CCD-1086Sk	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-2142™	*Homo sapiens* (human); neuroblastoma	SK-N-F1	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-2266™	*Homo sapiens* (human) neuroblastoma	SH-SY5Y	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-2873™	*Homo sapiens* (human); vascular endothelium	HUVEC-CS	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
CRL-8015™	*Homo sapiens* (human); lymphoblast	TK6	Cytokinesis-blocked micronucleus assay, *in vitro* aneuploidy, Genotoxicity / Mammalian cell assays (ICH guideline)

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ATCC® cell biology cultures

Cell lines			
ATCC® no.	**Description**	**Designation**	**Common applications include**
CRL-11609™	*Homo sapiens* (human); prostate epithelium	RWPE-1	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HB-8065™	*Homo sapiens* (human); hepatocellular carcinoma	Hep G2	Cytotoxicity, Transactivation assays (hormone-sensitive transcription of reporter genes), Phospholipidosisa
HTB-11™	*Homo sapiens* (human); neuroblastoma	SK-N-SH	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-22™	*Homo sapiens* (human); breast adenocarcinoma	MCF7	Induction of hormone-responsive mammalian cell proliferation, Transactivation assays (hormone-sensitive transcription of reporter genes), Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-26™	*Homo sapiens* (human); breast adenocarcinoma	MDA-MB-231	Transactivation assays (hormone-sensitive transcription of reporter genes)
HTB-30™	*Homo sapiens* (human); breast adenocarcinoma	SK-BR-3	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-37™	*Homo sapiens* (human); colon adenocarcinoma	Caco-2	*In vitro* absorption, Active efflux determination, P-gp substrate determination, P-gp inhibition determination
HTB-38™	*Homo sapiens* (human); colon adenocarcinoma	HT-29	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-85™	*Homo sapiens* (human); osteosarcoma	Saos-2	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-112™	*Homo sapiens* (human); uterus adenocarcinoma	HEC-1-A	Transactivation assays (hormone-sensitive transcription of reporter genes)
HTB-133™	*Homo sapiens* (human); endometrial carcinoma	T-47D	Transactivation assays (hormone-sensitive transcription of reporter genes), Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-148™	*Homo sapiens* (human); neuroglioma	H4	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
HTB-153™	*Homo sapiens* (human); rhabdomyosarcoma	Hs 729 [Hs 729T]	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
PCS-100-010	*Homo sapiens* (human); primary umbilical vein endothelial cells; normal	HUVEC	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability
TIB-202™	*Homo sapiens* (human); acute monocytic leukemia	THP-1	Cytotoxicity: Apoptosis, Cellular anabolism, Cellular metabolism, Cellular respiration (ATP/ADP), Proliferation, Viability

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The full ATCC collection can be viewed at **www.lgcstandards-atcc.org**.

Primary cells, media and reagents

Primary cell cultures more closely mimic the physiological state of cells in vivo and generate more relevant data. Traditional attention to quality, research and science makes ATCC your most reliable source for primary cells. Each lot of cells is performance tested for viability and growth potential; sample purity and normal morphology are also assured.

Primary cell line		Recommended culture reagents	
ATCC® no.	Description	Culture reagent catalogue no.	Culture reagent description
PCS-100-010	Primary Umbilical Vein Endothelial Cells; Normal, Human	PCS-100-030 PCS-100-040 PCS-100-041	Vascular Cell Basal Medium; 500ml Endothelial Cell Growth Kit-BBE Endothelial Cell Growth Kit-VEGF
PCS-100-011	Primary Aortic Endothelial Cells; Normal, Human	PCS-100-030 PCS-100-040 PCS-100-041	Vascular Cell Basal Medium; 500ml Endothelial Cell Growth Kit-BBE Endothelial Cell Growth Kit-VEGF
PCS-100-012	Primary Aortic Smooth Muscle Cells; Normal, Human	PCS-100-030 PCS-100-042	Vascular Cell Basal Medium; 500ml Vascular Smooth Muscle Cell Growth Kit
PCS-200-010	Primary Epidermal Keratinocytes; Normal, Human, Neonatal	PCS-200-030 PCS-200-040	Dermal Cell Basal Medium; 485 ml Keratinocyte Growth Kit
PCS-200-011	Primary Epidermal Keratinocytes; Normal, Human, Adult	PCS-200-030 PCS-200-040	Dermal Cell Basal Medium; 485 ml Keratinocyte Growth Kit
PCS-200-012	Primary Epidermal Melanocytes; Normal, Human, Neonatal	PCS-200-030 PCS-200-041	Dermal Cell Basal Medium; 485 ml Melanocyte Growth Kit
PCS-201-010	Dermal Fibroblasts; Normal, Human, Neonatal	PCS-201-030 PCS-201-040 PCS-201-041	Fibroblast Basal Medium Fibroblast Growth Kit-Serum-free Fibroblast Growth Kit-Low serum
PCS-201-011	Dermal Fibroblasts; Normal, Human, Neonatal, Mitomycin-C treated	PCS-201-030 PCS-201-040 PCS-201-041	Fibroblast Basal Medium Fibroblast Growth Kit-Serum-free Fibroblast Growth Kit-Low serum
PCS-201-012	Dermal Fibroblasts; Normal, Human, Adult	PCS-201-030 PCS-201-040 PCS-201-041	Fibroblast Basal Medium Fibroblast Growth Kit-Serum-free Fibroblast Growth Kit-Low serum
PCS-300-010	Primary Bronchial/Tracheal Epithelial Cells; Normal, Human	PCS-300-030 PCS-300-040	Airway Epithelial Cell Basal Medium Bronchial Epithelial Cell Growth Kit
PCS-301-010	Primary Small Airway Epithelial Cells; Normal, Human	PCS-300-030 PCS-301-040	Airway Epithelial Cell Basal Medium Small Airway Epithelial Cell Growth Kit
PCS-400-010	Primary Renal Proximal Tubule Epithelial Cells; Normal, Human	PCS-400-030 PCS-400-040	Renal Epithelial Cell Basal Medium Renal Epithelial Cell Growth Kit
PCS-400-011	Primary Renal Cortical Epithelial Cells; Normal, Human	PCS-400-030 PCS-400-040	Renal Epithelial Cell Basal Medium Renal Epithelial Cell Growth Kit
PCS-400-012	Primary Renal Mixed Epithelial Cells; Normal, Human	PCS-400-030 PCS-400-040	Renal Epithelial Cell Basal Medium Renal Epithelial Cell Growth Kit

Additional culture reagents optimised for culturing primary cells	
Catalogue no.	Culture reagent description
PCS-999-001	Phenol Red
PCS-999-002	Penicillin-Streptomycin-Amphotericin B Solution
PCS-999-003	Trypsin/EDTA Solution for Primary Cells
PCS-999-004	Trypsin Neutralizing Solution
PCS-999-025	Gentamicin - Amphotericin B Solution
PCS-999-027	0.1% Gelatin Solution
30-2200	Dulbecco's Phosphate Buffered Saline (D-PBS)

All ATCC products are sold subject to a material transfer agreement. Appendix II details the complete document.

Additional primary cells are being added all the time. Refer to the ATCC primary cell page:
www.lgcstandards-atcc.org/PrimaryCells/tabid/1516/Default.aspx

Fresh hepatocytes from LGC Standards

Species	Description	Quantity	Product code
Rat	**Rat Hepatocytes in Suspension**		
	Suspension (5 million cells) - Minimum order 2 plates	2 plate	ABC-SUSPRH
	Suspension, Pre-induced with 3-Methylcolanthrene	10 plates	ABC-SUSP-RHMC
	Suspension, Pre-induced with Sodium Phenobarbital	2 plates	ABC-SUSP-RHPB
	In vivo Induction Charge		ABC-INDN-CHGE
	Rat Hepatocytes, Pre-plated		
	Pre-plated on 35mm dish - Min 10 plates	10 plates	ABC-35PCC-RH
	Pre-plated on 60mm dish - Min 10 plates	10 plates	ABC-60PCC-RH
	Pre-plated on 100mm dish - Min 5 plates	5 plates	ABC-100PCC-RH
	Pre-plated on 6 well plate	6 well plate	ABC-06WPCCRH
	Pre-plated on 12 well plate	12 well plate	ABC-12WPCCRH
	Pre-plated on 24 well plate	24 well plate	ABC-24WPCCRH
	Pre-plated on 48 well plate	24 well plate	ABC-48WPCCRH
	Pre-plated on 96 well plate	96 well plate	ABC-96WPCCRH
	Rat Hepatocytes Induced (3-Methycholanthrene), Pre-plated on Collagen		
	Induced, Pre-plated on Collagen Coated 6-well Plates	6 well plate	ABC-6WPCC-RHMC
	Induced, Pre-plated on Collagen Coated 12-well Plates	12 well plate	ABC-12WPCC-RHMC
	Induced, Pre-plated on Collagen Coated 24-well Plates	24 well plate	ABC-24WPCC-RHMC
	Induced, Pre-plated on Collagen Coated 48-well Plates	48 well plate	ABC-48WPCC-RHMC
	Induced, Pre-plated on Collagen Coated 96-well Plates	96 well plate	ABC-96WPCC-RHMC
	In vivo Induction Charge		ABC-INDN-CHGE
	Rat Hepatocytes Induced (Sodium Phenobarbital), Pre-plated on Collagen		
	Induced, Pre-plated on Collagen Coated 6-well Plates	6 well plate	ABC- 6WPCC-RHPB
	Induced, Pre-plated on Collagen Coated 12-well Plates	12 well plate	ABC-12WPCC-RHPB
	Induced, Pre-plated on Collagen Coated 24-well Plates	24 well plate	ABC-24WPCC-RHPB
	Induced, Pre-plated on Collagen Coated 48-well Plates	48 well plate	ABC-48WPCC-RHPB
	Induced, Pre-plated on Collagen Coated 96-well Plates	96 well plate	ABC-96WPCC-RHPB
	In vivo Induction Charge		ABC-INDN-CHGE
Mouse	**Mouse Hepatocytes in Suspension**		
	Suspension (5 million cells) - Minimum order 2 plates	10 plate	ABC-SUSPMH
	Mouse Hepatocytes, Pre-plated		
	Pre-plated on 6 Well Plate	6 well plate	ABC-06WPCCMH
	Pre-plated on 12 Well Plate	12 well plate	ABC-12WPCCMH
	Pre-plated on 24 Well Plate	24 well plate	ABC-24WPCCMH
	Pre-plated on 48 Well Plate	48 well plate	ABC-48WPCCMH
	Pre-plated on 96 Well Plate	96 well plate	ABC-96WPCCMH
Rabbit	**Rabbit Hepatocytes, Suspension**		
	Rabbit - Suspension - 10 million cells	1 plate	ABC-SUSPZH
	Rabbit Hepatocytes, Pre-plated		
	Pre-plated on 6 Well Plate	6 well plate	ABC-06WPCCZH
	Pre-plated on 12 Well Plate	12 well plate	ABC-12WPCCZH
	Pre-plated on 24 Well Plate	24 well plate	ABC-24WPCCZH
	Pre-plated on 48 Well Plate	24 well plate	ABC-48WPCCZH
	Pre-plated on 96 Well Plate	96 well plate	ABC-96WPCCZH
Human	**Available on request. Please contact your local LGC Standards office for further information and delivery schedules.**		
Other species	**Available on request.**		

Ultra-pure solvents from LGC Standards

Ultra HPLC (UHPLC) requires solvents of superior quality in order to achieve the optimum performance of the instrument and columns.

UHPLC can provide very significant increases in resolution, speed, and sensitivity, compared to conventional HPLC. To ensure these benefits are realised, and so gain the full benefits of investment in such sophisticated technology, solvents of the highest purity are required.

The range of Optigrade® solvents from LGC Standards has been designed to support high resolution and sensitivity for UHPLC and MS by tightly controlling the trace metal impurities, organic impurities and particle levels. Also available are selected buffers for mobile phase preparation, and several blends of water and acetonitrile with formic acid, acetic acid and trifluoroacetic acid.

LGC Standards Optigrade® solvents combine:

- The highest specification for UV
- Low gradient shift
- Minimal peak impurities
- Lowest ionic background for MS detection

Our Optigrade® solvents for UHPLC and MS:

- Are micro filtered at 0.1 µm
- Have a residue of max 1ppm following evaporation
- Are packed under inert gas for improved shelf life
- Provided with MSDS and certificate of analysis

LGC Standards

Excellence through measurement

Introduction

Optigrade® – High purity solvents for HPLC

High performance liquid chromatography is now an essential analytical tool especially in the areas of research and development, pharmaceutical quality control and analysis in the food and environmental sectors. This technique demands the highest quality solvents to allow reproducible separations. The basic requirements include a high UV-transmission factor, low particle levels, slight acidity and alkalinity coupled with low levels of water and other non-volatile components. In addition there must be consistency between batches.

Solvents for LC/MS

The presence of alkali and alkaline earth metals in the mobile phase when using LC/MS can make the interpretation of the mass spectrum very difficult. LGC Standards offers solvents designed for this technique with extremely low levels of these metals at 0.1 ppm and less.

Solvents for Ultra HPLC (UHPLC)

ULTRA HPLC (UHPLC) requires solvents of superior quality. A new range of high purity Optigrade® solvents from LGC Standards has been designed to allow high resolution and sensitivity. Such Ultra HPLC solvents combine the highest specification for: UV, low gradient shift, minimal peak impurities and lowest ionic background for MS detection. All Ultra HPLC solvents are micro filtered at 0.1 µm, have a residue following evaporation of max 1 ppm and are packed under inert gas for improved shelf life. Also available are selected buffers for mobile phase preparation and several blends of water and acetonitrile with formic acid, acetic acid and trifluoroacetic acid.

Reagents / sorbents

Code	Product	Unit
SC-4592-A005	ICN-Aluminia A - Super I (acid) (50 - 200 µm)	500 g
SC-4568-A005	ICN-Alumina B - Super I (basic) (50 - 200 µm)	500 g
SC-4181-B005	FLORISIL® (Standard), 60 - 100 mesh (150 - 250 µm)	500 g
SC-4181-S010	FLORISIL® (Standard), 60 - 100 mesh (150 - 250 µm)	10 kg
SC-9982-B010	Silica gel 60 (63 - 200 µm)	1 kg
SC-9950-B005	Sodium sulfate anhydrous, for analysis (ACS), powder	500 g
SC-9950-B025	Sodium sulfate anhydrous, for analysis (ACS), powder	2.5 kg
SC-8024-B005	Sodium sulfate anhydrous, for analysis (ACS), in granular form	500 g
SC-8024-B025	Sodium sulfate anhydrous, for analysis (ACS), in granular form	2.5 kg

Ion pair reagents

Code	Product	Unit
SC-5330-F025	1-Butanesulfonic acid sodium salt for HPLC	25 g
SC-5330-F100	1-Butanesulfonic acid sodium salt for HPLC	100 g
SC-5650-F025	1-Decanesulfonic acid sodium salt for HPLC	25 g
SC-5650-F100	1-Decanesulfonic acid sodium salt for HPLC	100 g
SC-5430-F025	1-Dodecanesulfonic acid sodium salt for HPLC	25 g
SC-5430-F100	1-Dodecanesulfonic acid sodium salt for HPLC	100 g
SC-5230-F025	1-Heptanesulfonic acid sodium salt for HPLC	25 g
SC-5230-F100	1-Heptanesulfonic acid sodium salt for HPLC	100 g
SC-5550-F025	1-Hexanesulfonic acid sodium salt for HPLC	25 g
SC-5550-F100	1-Hexanesulfonic acid sodium salt for HPLC	100 g
SC-5150-F025	1-Octanesulphonic acid sodium salt for HPLC	25 g
SC-5150-F100	1-Octanesulphonic acid sodium salt for HPLC	100 g
SC-5730-F025	1-Pentanesulfonic acid sodium salt for HPLC	25 g
SC-5730-F100	1-Pentanesulfonic acid sodium salt for HPLC	100 g

LC-MS additives

Code	Product	Unit
SO-9685-B001	Ammonium acetate ULC-MS Optigrade®	100 g
	CAS number 631-61-8	
	Assay (GC, on anhydrous basis) 99 % min.	
	Water (KF) 0.1 % max.	
	Filter test (1M in water) Passes test	
	pH (1M in water) 6.0-7.5	
	Transmission	
	at 260 nm (1M in water) 96 %	
	at 280 nm (1M in water) 98 %	
	Chloride (Cl) 0.0005% max.	
	Sulfate (SO_4) 001% max.	
	Al 1 ppm max.	
	Ca 5 ppm max.	
	Fe 1 ppm max.	
	K 5 ppm max.	
	Mg 1 ppm max.	
	Na 5 ppm max.	
SO-9679-B001	Formic acid ULC-MS Optigrade®	100 mL
	UN 1779	
	CAS number 64-18-6	
	Assay (T, on anhydrous basis) 99 % min.	
	Water (KF) 1 % max.	
	Residue after evaporation 0.001 % w/w max.	
	Color (APHA) 10 max.	
	Gradient specification	
	HPLC gradient at 254 nm - H. Peak 0.005 AU max.	
	HPLC gradient at 254 nm - Drift 0.02 AU max.	
	Transmission	
	at 260 nm 15 % min.	
	at 270 nm 83 % min.	
	at 280 nm 90 % min.	
	at 300 nm 97 % min.	
	at 320 nm 98 % min.	
SO-9668-B001	Trifluoroacetic acid ULC-MS Optigrade®	100 mL
	UN 2699	
	CAS number 76-05-1	
	Assay (T) 99.95 % min.	
	Water (KF) 0.02 % max.	
	Residue after evaporation 0.001 % w/w max.	
	Color (APHA) 10 max.	
	Gradient specification	
	HPLC gradient at 254 nm - H. Peak 0.002 AU max.	
	HPLC gradient at 254 nm - Drift 0.010 AU max.	
	Fluorescence at 254 nm (25%, as quinine) 1 ppb max.	
	Fluorescence at 365 nm (25%, as quinine) 1 ppb max.	
	Transmission	
	at 260 nm 10 % min.	
	at 270 nm 79 % min.	
	at 280 nm 93 % min.	
	at 300 nm 95 % min.	
	at 320 nm 96 % min.	

High purity solvents and acids

Code	Product	Unit
Acetone		
SO-2435-B010	Acetone HPLC Optigrade®	1 L
SO-2435-B010	Acetone HPLC Optigrade®	2.5 L
SO-2435-B010	Acetone HPLC Optigrade®	4 L
	UN 1090	
	CAS number 67-64-1	
	C_3H_6O	
	Assay ..... 99.5 % min.	
	Water ..... 0.5 % max.	
	Non-volatile matter ..... 0.0005 % max.	
	Filtered through 0.2 µm	
	1 L = 0.792 kg (at 20°C)	
	Optical absorbance — Wavelength	
	1.0 max. ..... 330 nm	
	0.1 ..... 340 nm	
	0.05 ..... 350 nm	
	0.01 ..... 370 nm	
Acetonitrile		
SO-2856-B010	Acetonitrile HPLC Optigrade®	1 L
SO-2856-B025	Acetonitrile HPLC Optigrade®	2.5 L
SO-2856-B040	Acetonitrile HPLC Optigrade®	4 L
	UN 1648	
	CAS number 75-05-8	
	C_2H_3N	
	Assay ..... 99.8 % min.	
	Water ..... 0.02 % max.	
	Non-volatile matter ..... 0.0003 % max.	
	Filtered through 0.2 µm	
	1 L = 0.783 kg (at 20°C)	
	Optical absorbance — Wavelength	
	1.0 max. ..... 190 nm	
	0.1 ..... 200 nm	
	0.05 ..... 210 nm	
	0.02 ..... 220 nm	
	0.01 ..... 230 nm	
	0.005 ..... 235 nm	

High purity solvents and acids

Code	Product	Unit
SO-9340-B010	Acetonitrile for LC-MS Optigrade®	1 L
SO-9340-B025	Acetonitrile for LC-MS Optigrade®	2.5 L

UN 1648

CAS number 75-05-8

C_2H_3N

Assay ..... 99.8 % min.

Water ..... 0.02 % max.

Non-volatile matter ..... 0.0003 % max.

Filtered through 0.2 µm

1 L = 0.783 kg (at 20°C)

Ca ..... 0.1 ppm max.
K ..... 0.1 ppm max.
Mg ..... 0.1 ppm max.
Na ..... 0.1 ppm max.

Transmission
at 195 nm ..... 78 % min.
at 200 nm ..... 95 % min.
at 220 nm ..... 98 % min.
at 240 nm ..... 99 % min.

SO-9640-B010	Acetonitrile ULC-MS Optigrade®	1 L

UN 1648

CAS number 75-05-8

C_2H_3N

Assay (GC, on anhydrous basis) ..... 99.97 % min.

Water (KF) ..... 0.01 % max.

Residue after evaporation ..... 0.0001 % w/w max.

Acidity (as acetic acid) ..... 0.001 % max.

Alkalinity (as ammonia) ..... 0.0001 % max.

Color (APHA) ..... 5 max.

Gradient specification
HPLC gradient at 210 nm - Drift ..... 0.006 AU max.
HPLC gradient at 254 nm - Drift ..... 0.002 AU max.
HPLC gradient at 210 nm - H. Peak ..... 0.001 AU max.
HPLC gradient at 254 nm - H. Peak ..... 0.0003 AU max.

Fluorescence at 254 nm (as quinine) ..... 0.3 ppb max.
Fluorescence at 365 nm (as quinine) ..... 0.3 ppb max.

1 L = 0.792 kg (at 20°C)

Transmission
at 191 nm ..... 30 % min.
at 195 nm ..... 85 % min.
at 200 nm ..... 97 % min.
at 215 nm ..... 98 % min.
at >230 nm ..... 99 % min.

Al ..... 20 ppb max.
Ca ..... 50 ppb max.
Fe ..... 20 ppb max.
K ..... 50 ppb max.
Mg ..... 20 ppb max.
Na ..... 100 ppb max.

Microfiltered through 0.1 µm/bottled under inert gas.

High purity solvents and acids

Code	Product	Unit
SO-4680-B025	Acetonitrile 0.1 % formic acid ULC-MS Optigrade®	2.5 L

UN 1648

CAS number 75-05-8

C_2H_3N

Assay ..... 0.095-0.105 %

Water (KF) ..... 0.02 % max.

Purity of ACN (GC) ..... 99.97 % min.

Purity of formic acid ..... 99.0% min.

Gradient specification
HPLC gradient at 254 nm - H. Peak ..... 0.002 AU max.

Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max.
Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max.

Transmission
at 210 nm ..... 5 % min.
at 230 nm ..... 15 % min.
at 254 nm ..... 90 % min.

Al ..... 30 ppb max.
Ca ..... 100 ppb min.
Fe ..... 50 ppb min.
K ..... 100 ppb min.
Mg ..... 30 ppb min.
Na ..... 100 ppb min.

Microfiltered through 0.1 µm/bottled under inert gas.

SO-4680-B025	Acetonitrile 0.1 % acetic acid ULC-MS Optigrade®	2.5 L

UN 1648

CAS number 75-05-8

C_2H_3N

Assay ..... 0.095-0.105 %

Purity of ACN (GC) ..... 99.97 % min.

Purity of acetic acid (GC) ..... 99.9 % min.

Gradient specification
HPLC gradient at 254 nm - H. Peak ..... 0.002 AU max.
HPLC gradient at 254 nm - Drift ..... 0.010 AU max.

Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max.
Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max.

Transmission
at 210 nm ..... 20 % min.
at 230 nm ..... 50 % min.
at 254 nm ..... 98 % min.

Al ..... 30 ppb max.
Ca ..... 100 ppb max.
Fe ..... 50 ppb max.
K ..... 100 ppb max.
Mg ..... 30 ppb max.
Na ..... 100 ppb max.

Microfiltered through 0.1 µm/bottled under inert gas.

High purity solvents and acids

Code	Product	Unit
SO-4692-B025	Acetonitrile 0.1 % trifluoroacetic acid ULC-MS Optigrade®	2.5 L

UN 1648

CAS number 75-05-8

C_2H_3N

Assay ..... 0.095-0.105 %

Water (KF) ..... 0.02 % max.

Purity of ACN (GC) ..... 99.97 % min.

Purity of trifluoroacetic acid ..... 99.95 % min.

Gradient specification
HPLC gradient at 254 nm - H. Peak ..... 0.0002 AU max.

Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max.
Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max.

Transmission
at 210 nm ..... 20 % min.
at 230 nm ..... 50 % min.
at 254 nm ..... 90 % min.

Al ..... 30 ppb max.
Ca ..... 100 ppb max.
Fe ..... 50 ppb max.
K ..... 100 ppb max.
Mg ..... 30 ppb max.
Na ..... 100 ppb max.

Microfiltered through 0.1 µm/bottled under inert gas.

Chloroform

SO-4443-B010	Chloroform HPLC Optigrade® (alcohol-free. stab. with amylene)	1 L
SO-4443-B010	Chloroform HPLC Optigrade® (alcohol-free. stab. with amylene)	2.5 L
SO-4443-B010	Chloroform HPLC Optigrade® (alcohol-free. stab. with amylene)	4 L

UN 1888

CAS number 67-66-3

$CHCl_3$

Assay ..... 99.9 % min.

Water ..... 0.03 % max.

Non-volatile matter ..... 0.0002 % max.

Filtered through 0.2 µm

1 L = 1.475 kg (at 20°C)

stabilised with 50 - 200 ppm amylene

Optical absorbance	Wavelength
1.0 max	245 nm
0.15	255 nm
0.05	260 nm
0.02	270 nm
0.01	290 nm

High purity solvents and acids

Code	Product	Unit
Cyclohexane		
SO-9052-B010	Cyclohexane HPLC Optigrade®	1 L
SO-9052-B025	Cyclohexane HPLC Optigrade®	2.5 L
	UN 1145 CAS number 110-82-7 C_6H_{12} Assay ..... 99.5 % min. Water ..... 0.02 % max. Non-volatile matter ..... 0.0003 % max. Filtered through 0.2 µm 1 L = 0.779 kg (at 20°C) Optical absorbance — Wavelength 0.700 max ..... 210 nm 0.320 ..... 220 nm 0.125 ..... 230 nm 0.025 ..... 245 nm 0.005 ..... 260 nm	
Cyclopentane		
SO-6157-B010	Cyclopentane HPLC Optigrade®	1 L
	UN 1146 CAS number 287-92-3 C_5H_{10} Assay ..... 75 % min. Water ..... 0.005 % max. Non-volatile matter ..... 0.0001 % max. Filtered through 0.2 µm 1 L = 0.751 kg (at 20°C) Optical absorbance — Wavelength 1.0 max ..... 200 nm 0.3 ..... 215 nm 0.02 ..... 225 nm 0.005 ..... 300 nm	
Dichloromethane		
SO-4879-B010	Dichloromethane HPLC Optigrade® (stab. with amylene)	1 L
SO-4879-B025	Dichloromethane HPLC Optigrade® (stab. with amylene)	2.5 L
SO-4879-B040	Dichloromethane HPLC Optigrade® (stab. with amylene)	4 L
	UN 1593 CAS number 75-09-2 CH_2Cl_2 Assay ..... 99.8 % min. Water ..... 0.02 % max. Non-volatile matter ..... 0.0003 % max. Filtered through 0.2 µm 1 L = 1.335 kg (at 20°C) stabilised with 60 - 100 ppm amylene Optical absorbance — Wavelength 1.0 max ..... 233 nm 0.15 ..... 240 nm 0.01 ..... 254 nm 0.005 ..... 280 nm	

High purity solvents and acids

Code	Product	Unit
Diethyl ether		
SO-9012-B010	Diethyl ether HPLC Optigrade® (stab. with ethanol)	1 L
SO-9012-B025	Diethyl ether HPLC Optigrade® (stab. with ethanol) UN 1155 CAS number 60-29-7 $C_4H_{10}O$ Assay ..... 99.0 % min. Water ..... 0.01 % max. Non-volatile matter ..... 0.0005 % max. Peroxide ..... 5 ppm max. Filtered through 0.2 µm 1 L = 0.713 kg (at 20°C) stabilised with 2 % ethanol Optical absorbance — Wavelength 1.0 max ..... 215 nm 0.3 ..... 230 nm 0.08 ..... 254 nm 0.04 ..... 270 nm 0.02 ..... 280 nm 0.005 ..... 300 nm	2.5 L
SO-2854-B010	Diethyl ether HPLC Optigrade® (not stabilised) UN 1155 CAS number 60-29-7 $C_4H_{10}O$ Assay ..... 99.0 % min. Water ..... 0.01 % max. Non-volatile matter ..... 0.0005 % max. Peroxide ..... 5 ppm max. Filtered through 0.2 µm 1 L = 0.713 kg (at 20°C) not stabilised Optical absorbance — Wavelength 1.0 max ..... 215 nm 0.08 ..... 254 nm 0.02 ..... 280 nm	1 L

High purity solvents and acids

Code	Product	Unit
N.N-Dimethylacetamide		
SO-5407-B025	N.N-Dimethylacetamide HPLC Optigrade®	2.5 L
SO-5407-B040	N.N-Dimethylacetamide HPLC Optigrade®	4 L

CAS number 127-19-5

C_4H_9NO

Assay ..... 99.0 % min.

Water ..... 0.03 % max.

Non-volatile matter ..... 0.0006 % max.

Filtered through 0.2 µm

1 L = 0.937 kg (at 20°C)

Optical absorbance	Wavelength
1.0 max	270 nm
0.3	280 nm
0.15	290 nm
0.05	310 nm
0.01	360 nm

N.N-Dimethylformamide		
SO-5356-B025	N.N-Dimethylformamide HPLC Optigrade®	2.5 L
SO-5356-B040	N.N-Dimethylformamide HPLC Optigrade®	4 L

UN 2265

CAS number 68-12-2

C_3H_7NO

Assay ..... 99.7 % min.

Water ..... 0.05 % max.

Non-volatile matter ..... 0.0006 % max.

Filtered through 0.2 µm

1 L = 0.951 kg (at 20°C)

Optical absorbance	Wavelength
1.0 max	270 nm
0.3	275 nm
0.1	295 nm
0.05	310 nm
0.01	340 nm

High purity solvents and acids

Code	Product	Unit
1.4-Dioxan		
SO-9002-B010	1.4-Dioxan HPLC Optigrade® (not stabilised)	1 L
SO-9002-B025	1.4-Dioxan HPLC Optigrade® (not stabilised)	2.5 L
	UN 1165 CAS number 123-91-1 $C_4H_8O_2$ Assay ..... 99.5 % min. Water ..... 0.05 % max. Non-volatile matter ..... 0.0002 % max. Filtered through 0.2 µm 1 L = 1.034 kg (at 20°C) not stabilised Optical absorbance — Wavelength 0.5 max ..... 225 nm 0.25 ..... 250 nm 0.1 ..... 270 nm 0.05 ..... 280 nm 0.01 ..... 295 nm	
Ethanol		
SO-9063-B010	Ethanol HPLC Optigrade®	1 L
SO-9063-B025	Ethanol HPLC Optigrade®	2.5 L
	UN 1170 CAS number 64-17-5 C_2H_5OH Assay ..... 99.7 % min. Water ..... 0.1 % max. Non-volatile matter ..... 0.0004 % max. Filtered through 0.2 µm 1 L = 0.789 kg (at 20°C) Optical absorbance — Wavelength 0.7 max ..... 210 nm 0.1 ..... 240 nm 0.01 ..... 260 nm	
2-Ethoxyethanol		
SO-2925-B025	2-Ethoxyethanol HPLC Optigrade®	2.5 L
	UN 1171 CAS number 110-80-5 $C_4H_{10}O_2$ Assay ..... 99.5 % min. Water ..... 0.08 % max. Non-volatile matter ..... 0.0002 % max. Filtered through 0.2 µm 1 L = 0.932 kg (at 20°C) Optical absorbance — Wavelength 1.0 max ..... 222 nm 0.75 ..... 225 nm 0.25 ..... 250 nm 0.01 ..... 300 nm	

High purity solvents and acids

Code	Product	Unit
Ethyl acetate		
SO-3442-B010	Ethyl acetate HPLC Optigrade®	1 L
SO-3442-B025	Ethyl acetate HPLC Optigrade®	2.5 L
SO-3442-B040	Ethyl acetate HPLC Optigrade® UN 1173 CAS number 141-78-6 $CH_3COOC_2H_5$ Assay ..... 99.5 % min. Water ..... 0.05 % max. Non-volatile matter ..... 0.0005 % max. Filtered through 0.2 µm 1 L = 0.897 kg (at 20°C) Optical absorbance — Wavelength 1.0 max ..... 255 nm 0.1 ..... 260 nm 0.05 ..... 280 nm 0.01 ..... 300 nm	4 L
SO-9345-B010	Ethyl acetate for LC-MS Optigrade®	1 L
SO-9345-B025	Ethyl acetate for LC-MS Optigrade® UN 1173 CAS number 141-78-6 $CH_3COOC_2H_5$ Assay ..... 99.5 % min. Water ..... 0.05 % max. Non-volatile matter ..... 0.0005 % max. Filtered through 0.2 µm 1 L = 0.897 kg (at 20°C) Ca ..... 0.1 ppm max. K ..... 0.1 ppm max. Mg ..... 0.1 ppm max. Na ..... 0.1 ppm max. Transmission at 260 nm ..... 70 % min. at 280 nm ..... 99 % min.	2.5 L

High purity solvents and acids

Code	Product	Unit
n-Heptane		
SO-5139-B010	n-Heptane HPLC Optigrade®	1 L
SO-5139-B025	n-Heptane HPLC Optigrade®	2.5 L
SO-5139-B040	n-Heptane HPLC Optigrade®	4 L
	UN 1206	
	CAS number 142-82-5	
	C_7H_{16}	
	Assay ..... 95.0 % min.	
	Water ..... 0.02 % max.	
	Non-volatile matter ..... 0.0003 % max.	
	Filtered through 0.2 µm	
	1 L = 0.685 kg (at 20°C)	
	Optical absorbance — Wavelength	
	1.0 max ..... 197 nm	
	0.4 ..... 210 nm	
	0.1 ..... 225 nm	
	0.01 ..... 254 nm	
n-Hexane		
SO-5167-B010	n-Hexane HPLC Optigrade®	1 L
SO-5167-B025	n-Hexane HPLC Optigrade®	2.5 L
SO-5167-B040	n-Hexane HPLC Optigrade®	4 L
	UN 1208	
	CAS number 110-54-3	
	C_6H_{14}	
	Assay (of C_6-isomers) ..... 99.8 % min.	
	Water ..... 0.1 % max.	
	Non-volatile matter ..... 0.0003 % max.	
	Filtered through 0.2 µm	
	1 L = 0.659 kg (at 20°C)	
	Optical absorbance — Wavelength	
	1.0 max ..... 195 nm	
	0.25 ..... 210 nm	
	0.1 ..... 220 nm	
	0.01 ..... 254 nm	
	0.005 ..... 280 nm	
	0.005 ..... 350 nm	
Iso-Hexane		
SO-9043-B025	Iso-Hexane HPLC Optigrade®	2.5 L
	UN 1208	
	CAS number 107-83-5	
	C_6H_{14}	
	Assay (of C_6-isomers) ..... 95.0 % min.	
	Water ..... 0.01 % max.	
	Non-volatile matter ..... 0.0002 % max.	
	1 L = 0.653 kg (at 20°C)	
	Optical absorbance — Wavelength	
	1.0 max ..... 195 nm	
	0.25 ..... 210 nm	
	0.2 ..... 217 nm	
	0.125 ..... 220 nm	
	0.02 ..... 245 nm	

High purity solvents and acids

Code	Product	Unit
Methanol		
SO-3041-B010	Methanol HPLC Optigrade®	1 L
SO-3041-B025	Methanol HPLC Optigrade®	2.5 L
SO-3041-B040	Methanol HPLC Optigrade®	4 L

UN 1230

CAS number 67-56-1

CH_3OH

Assay ..... 99.9 % min.

Water ..... 0.05 % max.

Non-volatile matter ..... 0.0003 % max.

Filtered through 0.2 µm

1 L = 0.792 kg (at 20°C)

Optical absorbance	Wavelength
1.0 max	205 nm
0.25	220 nm
0.05	240 nm
0.015	254 nm
0.005	280 nm
0.005	350 nm

This solvent in glass bottles fulfills the specifications according to chapter 4 of the European Pharmacopoeia.

SO-9658-B010	Methanol ULC-MS Optigrade®	1 L

UN 1230

CAS number 67-56-1

CH_3OH

Assay (GC, on anhydrous basis) ..... 99.98 % min.

Water (KF) ..... 0.03 % max.

Residue after evaporation ..... 0.0001 %w/w max.

Acidity (as acetic acid) ..... 0.002 % max.

Alkalinity (as ammonia) ..... 0.0001 % max.

Color (APHA) 5 max.

Gradient specification

HPLC gradient at 220 nm - Drift ..... 0.01 AU max.

HPLC gradient at 235 nm - Drift ..... 0.005 AU max.

HPLC gradient at 220 nm - H. Peak ..... 0.004 AU max.

HPLC gradient at 235 nm - H. Peak ..... 0.002 AU max.

Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max.

Fluorescence at 365 nm (as quinine) ..... 0.3 ppb max.

1 L = 0.783 kg (at 20°C)

Transmission

at 210 nm ..... 40 % min.

at 220 nm ..... 65 % min.

at 230 nm ..... 80 % min.

at 260 nm ..... 98 % min.

Al ..... 20 ppb max.

Ca ..... 100 ppb max.

Fe ..... 20 ppb max.

K ..... 50 ppb max.

Mg ..... 20 ppb max.

Na ..... 100 ppb max.

Microfiltered through 0.1 µm/bottled under inert gas.

High purity solvents and acids

Code	Product	Unit
SO-9356-B010	Methanol for LC-MS Optigrade®	1 L
SO-9356-B025	Methanol for LC-MS Optigrade®	2.5 L

UN 1230

CAS number 67-56-1

CH_3OH

Assay ..... 99.9 % min.

Water ..... 0.05 % max.

Non-volatile matter ..... 0.0003 % max.

Filtered through 0.2 µm

1 L = 0.792 kg (at 20°C)

Ca ..... 0.1 ppm max.
K ..... 0.1 ppm max.
Mg ..... 0.1 ppm max.
Na ..... 0.1 ppm max.

Transmission
at 210 nm ..... 40 % min.
at 220 nm ..... 60 % min.
at 235 nm ..... 80 % min.
at 260 nm ..... 98 % min.

Methyl-tert-butyl ether

SO-5398-B025	Methyl-tert-butyl ether HPLC Optigrade®	2.5 L

UN 2398

CAS number 1634-04-4

$C_5H_{12}O$

Assay ..... 99.7 % min.

Water ..... 0.05 % max.

Non-volatile matter ..... 0.0006 % max.

Filtered through 0.2 µm

1 L = 0.742 kg (at 20°C)

Optical absorbance	Wavelength
1.0 max	270 nm
0.3	275 nm
0.1	295 nm
0.05	310 nm
0.01	340 nm

n-Nonane

SO-4436-B010	n-Nonane HPLC Optigrade®	1 L

UN 1920

CAS number 111-84-2

C_9H_{20}

Assay ..... 95 % min.

Water ..... 0.01 % max.

Non-volatile matter ..... 0.0003 % max.

Filtered through 0.2 µm

1 L = 0.719 kg (at 20°C)

Optical absorbance	Wavelength
1.0 max	200 nm
0.1	225 nm
0.05	250 nm
0.005	300 nm

High purity solvents and acids

Code	Product	Unit
n-Pentane		
SO-9081-B010	n-Pentane HPLC Optigrade®	1 L

UN 1265

CAS number 109-66-0

C_5H_{12}

Assay ..... 95.0 % min.

Water ..... 0.01 % max.

Non-volatile matter ..... 0.001 % max.

Filtered through 0.2 µm

1 L = 0.626 kg (at 20°C)

Optical absorbance	Wavelength
1.0 max	200 nm
0.7	210 nm
0.3	215 nm
0.05	225 nm
0.01	240 nm

Propan-1-ol		
SO-5351-B025	Propan-1-ol HPLC Optigrade®	2.5 L

UN 1274

CAS number 71-23-8

$CH_3CH_2CH_2OH$

Assay ..... 99.8 % min.

Water ..... 0.05 % max.

Non-volatile matter ..... 0.001 % max.

Filtered through 0.2 µm

1 L = 0.804 kg (at 20°C)

Optical absorbance	Wavelength
0.5 max	225 nm
0.05	250 nm
0.01	270 nm
0.005	300 nm

High purity solvents and acids

Code	Product	Unit
Propan-2-ol		
SO-3043-B010	Propan-2-ol HPLC Optigrade®	1 L
SO-3043-B025	Propan-2-ol HPLC Optigrade®	2.5 L
SO-3043-B040	Propan-2-ol HPLC Optigrade® UN 1219 CAS number 67-63-0 C_3H_8O Assay ..... 99.5 % min. Water ..... 0.05 % max. Non-volatile matter ..... 0.0006 % max. Filtered through 0.2 µm 1 L = 0.786 kg (at 20°C) Optical absorbance — Wavelength 1.0 max ..... 205 nm 0.3 ..... 220 nm 0.15 ..... 230 nm 0.02 ..... 254 nm 0.01 ..... 350 nm	4 L
SO-9352-B010	Propan-2-ol for LC-MS Optigrade®	1 L
SO-9352-B025	Propan-2-ol for LC-MS Optigrade® UN 1219 CAS number 67-63-0 C_3H_8O Assay ..... 99.5 % min. Water ..... 0.05 % max. Non-volatile matter ..... 0.0006 % max. Filtered through 0.2 µm 1 L = 0.786 kg (at 20°C) Ca ..... 0.1 ppm max. K ..... 0.1 ppm max. Mg ..... 0.1 ppm max. Na ..... 0.1 ppm max. Transmission at 220 nm ..... 60 % min. at 250 nm ..... 99 % min.	2.5 L

High purity solvents and acids

Code	Product	Unit
Tetrahydrofuran		
SO-2858-B010	Tetrahydrofuran HPLC Optigrade® (not stabilised)	1 L
SO-2858-B025	Tetrahydrofuran HPLC Optigrade® (not stabilised	2.5 L
SO-2858-B040	Tetrahydrofuran HPLC Optigrade® (not stabilised) UN 2056 CAS number 109-99-9 C_4H_8O Assay ..... 99.8 % min. Water ..... 0.03 % max. Non-volatile matter ..... 0.0007 % max. Filtered through 0.2 µm 1 L = 0.887 kg (at 20°C) not stabilised Optical absorbance — Wavelength 1.0 max ..... 212 nm 0.5 ..... 225 nm 0.17 ..... 250 nm 0.01 ..... 300 nm	4 L
SO-9364-B010	Tetrahydrofuran for LC-MS Optigrade® (not stabilised)	1 L
SO-9364-B025	Tetrahydrofuran for LC-MS Optigrade® (not stabilised) UN 2056 CAS number 109-99-9 C_4H_8O Assay ..... 99.8 % min. Water ..... 0.03 % max. Non-volatile matter ..... 0.0007 % max. Filtered through 0.2 µm 1 L = 0.887 kg (at 20°C) not stabilised Ca ..... 0.1 ppm max. K ..... 0.1 ppm max. Mg ..... 0.1 ppm max. Na ..... 0.1 ppm max. Transmission at 250 nm ..... 80 % min. at 290 nm ..... 99 % min.	2.5 L

High purity solvents and acids

Code	Product	Unit
Toluene		
SO-4483-B010	Toluene HPLC Optigrade®	1 L
SO-4483-B025	Toluene HPLC Optigrade®	2.5 L
SO-4483-B040	Toluene HPLC Optigrade® UN 1294 CAS number 108-88-3 C_7H_8 Assay ..... 99.7 % min. Water ..... 0.03 % max. Non-volatile matter ..... 0.0005 % max. 1 L = 0.866 kg (at 20°C) Optical absorbance — Wavelength 1.0 max ..... 285 nm 0.4 ..... 288 nm 0.15 ..... 300 nm 0.02 ..... 335 nm 0.01 ..... 350 nm	4 L
2,2,4-Trimethylpentane		
SO-6043-B010	2,2,4-Trimethylpentane (Isooctane) HPLC Optigrade®	1 L
SO-6043-B025	2,2,4-Trimethylpentane (Isooctane) HPLC Optigrade®	2.5 L
SO-6043-B040	2,2,4-Trimethylpentane (Isooctane) HPLC Optigrade® UN 1262 CAS number 540-84-1 C_8H_{18} Assay ..... 99.5 % min. Water ..... 0.02 % max. Non-volatile matter ..... 0.0005 % max. Filtered through 0.2 µm 1 L = 0.690 kg (at 20°C) Optical absorbance — Wavelength 1.0 max ..... 205 nm 0.2 ..... 220 nm 0.1 ..... 230 nm 0.01 ..... 254 nm	4 L

High purity solvents and acids

Code	Product	Unit
Water		
SO-6795-B025	Water HPLC Optigrade®	2.5 L
SO-6795-B040	Water HPLC Optigrade®	4 L
	CAS number 7732-18-5 H_2O Fluorescence at 254 nm (as quinine) ..... 0.1 ppb max. Fluorescence at 365 nm (as quinine) ..... 0.1 ppb max. Non-volatile matter ..... 1 mg/L max. Filtered through 0.2 µm pH ..... 5.0 - 8.0 This solvent in glass bottles fulfills the specifications according to chapter 4 of the European Pharmacopoeia.	
SO-9662-B010	Water ULC-MS Optigrade®	1 L
	CAS number 7732-18-5 H_2O Residue after evaporation ..... 0.0001 % w/w max. Acidity (as Acetic acid) ..... 0.002 % max. Alkalinity (as Ammonia) ..... 0.00005 % max. Resistivity (at manuf.) ..... 18.2 Mohm*cm min. Gradient specification HPLC gradient at 210 nm - H. Peak ..... 0.002 AU max. HPLC gradient at 254 nm - H. Peak ..... 0.0005 AU max. Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max. Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max. TOC ..... 10 ppb max. Filter test Passes test Ca ..... 0.1 ppm max. K ..... 0.1 ppm max. Mg ..... 0.1 ppm max. Na ..... 0.1 ppm max. Microfiltered through 0.1 µm/bottled under inert gas.	
SO-4661-B025	Water 0.1 % formic acid ULC-MS Optigrade®	2.5 L
	Assay ..... 0.095-0.105 % Purity of formic acid (GC) ..... 99.0 % min. Gradient specification HPLC gradient at 254 nm - H. Peak ..... 0.002 AU max. HPLC gradient at 254 nm - Drift ..... 0.010 AU max. Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max. Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max. Transmission at 210 nm ..... 5 % min. at 230 nm ..... 45 % min. at 254 nm ..... 99 % min. Al ..... 30 ppb max. Ca ..... 100 ppb max. Fe ..... 50 ppb max. K ..... 100 ppb max. Mg ..... 30 ppb max. Na ..... 100 ppb max. Microfiltered through 0.1 µm/bottled under inert gas.	

High purity solvents and acids

Code	Product	Unit
SO-4667-B025	Water 0.1 % acetic acid ULC-MS Optigrade®	2.5 L
	Assay ..... 0.095-0.105 %	
	pH 3.2-3.4	
	Purity of acetic acid (GC) ..... 99.9 % min.	
	Gradient specification	
	HPLC gradient at 254 nm - H. Peak ..... 0.002 AU max.	
	HPLC gradient at 254 nm - Drift ..... 0.010 AU max.	
	Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max.	
	Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max.	
	Transmission	
	at 210 nm ..... 20 % min.	
	at 230 nm ..... 75 % min.	
	at 254 nm ..... 99 % min.	
	Al ..... 30 ppb max.	
	Ca ..... 100 ppb max.	
	Fe ..... 50 ppb max.	
	K ..... 100 ppb max.	
	Mg ..... 30 ppb max.	
	Na ..... 100 ppb max.	
	Microfiltered through 0.1 µm/bottled under inert gas.	
SO-4673-B025	Water 0.1 % trifluoroacetic acid ULC-MS Optigrade®	2.5 L
	Assay ..... 0.095-0.105 %	
	Purity of trifluoroacetic acid (GC) ..... 99.95 % min.	
	Gradient specification	
	HPLC gradient at 254 nm - H. Peak ..... 0.002 AU max.	
	HPLC gradient at 254 nm - Drift ..... 0.010 AU max.	
	Fluorescence at 254 nm (as quinine) ..... 0.5 ppb max.	
	Fluorescence at 365 nm (as quinine) ..... 0.5 ppb max.	
	Transmission	
	at 210 nm ..... 25 % min.	
	at 230 nm ..... 85 % min.	
	at 254 nm ..... 99 % min.	
	Al ..... 30 ppb max.	
	Ca ..... 100 ppb max.	
	Fe ..... 50 ppb max.	
	K ..... 100 ppb max.	
	Mg ..... 30 ppb max.	
	Na ..... 100 ppb max.	
	Microfiltered through 0.1 µm/bottled under inert gas.	
SO-9368-B010	Water for LC-MS Optigrade®	1 L
SO-9368-B025	Water for LC-MS Optigrade®	2.5 L
	CAS number 7732-18-5	
	H_2O	
	Fluorescence (as quinine at 450 nm) ..... 1x10-7 g max.	
	Non-volatile matter ..... 1 mg/L max.	
	pH ..... 5.0 - 8.0	
	Filtered through 0.2 µm	
	Ca ..... 0.1 ppm max.	
	K ..... 0.1 ppm max.	
	Mg ..... 0.1 ppm max.	
	Na ..... 0.1 ppm max.	
	Transmission	
	at 200 nm - 400 nm ..... 99 % min.	

Appendix I

FDA drug development guidance, reference:
http://www.fda.gov/Drugs/DevelopmentApprovalProcess/DevelopmentResources/DrugInteractionsLabeling/ucm081177.htm

Drug Development and Drug Interactions: Table of Substrates, Inhibitors and Inducers.

CYP Enzymes, *in vitro*

Table 1: Chemical inhibitors for *in vitro* experiments* (9/25/2006)

Table 2: Preferred and acceptable chemical substrates for *in vitro* experiments* (9/25/2006)

Table 3: Chemical Inducers for *in vitro* experiments* (5/1/2006)

P-gp Transporters

Table 9: Acceptable *in vitro* P-gp substrates* (5/1/2006)

Table 10: *In vitro* P-gp inhibitors* (5/1/2006)

* Please note that the FDA states that these lists are not exhaustive. All care has been taken to provide a true representation of the information in these tables within this catalogue.

Appendix II

MATERIAL TRANSFER AGREEMENT ("MTA")

Last updated February 1, 2008

ATCC

IMPORTANT! PLEASE READ CAREFULLY BEFORE SUBMITTING AN ORDER. THIS IS A CONTRACT.

This Material Transfer Agreement ("MTA") is between you ("Purchaser) and the American Type Culture Collection, a not-for-profit organization, having its principal place of business at 10801 University Boulevard, Manassas, VA 20110-2209 ("ATCC"). Purchaser must have an approved, current ATCC account to place an order. This MTA is effective for a period of five (5) years as of the last date of execution by the parties and governs the purchase and use of all ATCC Materials under the terms and conditions set forth below.

TERMS AND CONDITIONS

Definitions

"**ATCC Material(s)**" means materials acquired from ATCC as documented on an ATCC Sales Order.

"**ATCC Sales Order**" means an order submitted for ATCC Materials in a form and format as determined by ATCC from time to time.

"**Biological Material(s)**" means ATCC Materials, Progeny, Unmodified Derivatives and Modifications, either individually or jointly.

"**Commercial Use**" means the sale, license, lease, export, transfer or other distribution of the Biological Materials to a person or entity not party to this MTA for financial gain or other commercial purposes and/or the use of the Biological Material: (a) to provide a service to a person or entity not party to this MTA for financial gain; (b) to produce or manufacture products for general sale or products for use in the manufacture of products ultimately intended for general sale (c) in connection with ADME (Absorption, Distribution, Metabolism and Excretion) testing; (d) in connection with drug potency or toxicity testing which does not include either screening multiple cell lines for potential inclusion in a screening assay system or screening multiple compounds in a system for internal research purposes only; (e) in connection with proficiency testing service(s), including but not limited to, providing the service of determining laboratory performance by means of comparing and evaluating calibrations or tests on the same or similar items or materials in accordance with predetermined conditions; or (f) for research conducted under an agreement wherein a for-profit entity receives a right whether actual or contingent to the results of the research. Commercial Use specifically does not include Industry Sponsored Academic Research.

"**Contributor(s)**" means an organization(s) and/or individual(s) providing original material to ATCC for deposit.

"**Industry Sponsored Academic Research**" means research sponsored by a for-profit organization carried out at a non-profit organization and by the non-profit organization's employees.

"**Investigator**" means the Purchaser's principal scientist or researcher using the Biological Material(s).

"**Modification(s)**" mean substances created by Purchaser which contain and/or incorporate a significant or substantial portion of ATCC Material.

"**Progeny**" means an unmodified descendant from the ATCC Materials, such as virus from virus, cell from cell, or organism from organism.

"**Purchaser(s)**" means the organization purchasing and receiving ATCC Material pursuant to this MTA.

"**Unmodified Derivative(s)**" mean substances created by Purchaser that constitute an unmodified functional sub-unit or product not changed in form or character and expressed by the ATCC Material provided by ATCC. Unmodified Derivatives include, but are not limited to, subclones of unmodified cell lines, purified or fractionated subsets of materials provided by ATCC, proteins expressed by DNA/RNA supplied by ATCC, or monoclonal antibodies secreted by a hybridoma cell line.

Scope of Use

Subject to the terms of this MTA, Purchaser's Investigator may make and use the Biological Materials provided to Purchaser by ATCC *for research purposes only in Purchaser's Investigator's laboratory only.* The Biological Materials are not intended for use in humans. Purchaser agrees that Biological Materials designated as biosafety level 2 or 3 constitute known pathogens and that other Biological Materials not so designated may be pathogenic under certain conditions. Purchaser assumes all risk and responsibility in connection with the receipt, handling, storage, disposal, transfer and Purchaser's use of the Biological Materials including without limitation taking all appropriate safety and handling precautions to minimize health or environmental risk. Purchaser agrees that any activity undertaken with the Biological Materials will be conducted in compliance with all applicable guidelines, laws and regulations, and that Purchaser will obtain all permits, licenses or other approvals required by any governmental authority in connection with purchaser's receipt, handling, storage, disposal, transfer and use of the Biological Materials.

Purchaser shall not distribute, sell, lend or otherwise transfer to a person or entity not party to this MTA the Biological Material, as defined above, for any reason, without ATCC's prior written agreement.

Any Commercial Use of the Biological Material is strictly prohibited without ATCC's prior written consent. Purchaser acknowledges and agrees that Purchaser's use of certain Biological Material may require a license from a person or entity not party to this MTA, or be subject to restrictions that may be imposed by a person or entity not party to this MTA ("Third Party Terms"). To the extent of ATCC's knowledge of the existence of any such applicable rights or restrictions, ATCC will take reasonable steps to identify the same, either in ATCC's catalog of ATCC Materials and/or through ATCC's customer service representatives, and to the extent they are in the possession of ATCC, ATCC shall make information regarding such Third Party Terms reasonably available for review by Purchaser upon request. Purchaser expressly acknowledges that if there is a conflict between this MTA and the Third Party Terms, the Third Party Terms shall govern. Use of the Biological Materials may be subject to the intellectual property rights of a person or entity not party to this MTA, the existence of which rights may or may not be identified in the ATCC catalog or website, and ATCC makes no

representation or warranty regarding the existence or the validity of such rights. Purchaser shall have the sole responsibility for obtaining any intellectual property licenses necessitated by its possession and use of the Biological Materials.

The use permitted under this MTA for Industry Sponsored Academic Research extends only to the academic research carried out at the non-profit organization and the non-profit organization's employees. Any non-profit Purchaser using the Biological Materials in connection with Industry Sponsored Academic Research agrees to notify the industrial sponsor that any use of the Biological Materials by the industry sponsor will require a separate license from ATCC and/or its Contributors and that ATCC and/or its Contributors are under no obligation hereunder to license any Biological Materials to any such industry sponsor.

Warranty; Warranty Disclaimer

ATCC warrants that (a) cells and microorganisms included in the ATCC Material shall be viable upon initiation of culture for a period of thirty (30) days after shipment thereof from ATCC and (b) any ATCC Material other than cells and microorganisms shall meet the specifications on the applicable ATCC Material product information sheet, certificate of analysis, and/or catalog description until the expiration date on the applicable ATCC Material's product label (such thirty (30) day period, or period until the expiration date, referred to herein as the "Warranty Period"). Purchaser's exclusive remedy, and ATCC's sole liability, for breach of the warranties set forth in this paragraph is for ATCC to, at ATCC's sole option, either (i) refund the fee paid to ATCC for such ATCC Material (exclusive of shipping and handling charges), or (ii) replace the ATCC Material. The warranties set forth in this paragraph apply only if Purchaser handles and stores the ATCC Material as described in the applicable ATCC Material product information sheet. To obtain the exclusive remedy, Purchaser must report the lack of viability or non-conformation to specifications to ATCC's Technical Service Department within the applicable Warranty Period. Any expiration date specified on the ATCC Material shipment documentation states the expected remaining useful life, but does not constitute a warranty or extend any applicable Warranty Period. **Except as expressly provided above, the ATCC Material and any technical information and assistance provided by ATCC are provided as-is, without warranties of any kind, express or implied, including but not limited to any implied warranties of merchantability, fitness for a particular purpose, typicality, safety, accuracy and/or non-infringement.**

Compliance With Laws

Purchaser is solely responsible for compliance with all foreign and domestic, federal, state and local statutes, ordinances and regulations applicable to use of the Biological Material. Without limiting the generality of the foregoing, any shipment of Biological Materials to countries outside the United States must comply with all applicable foreign and U.S. laws, including the U.S. export control laws and related regulations. Distribution by ATCC of Budapest Treaty patent deposits are made pursuant to, and in compliance with, all applicable laws and regulations, including the Budapest Treaty and related 37 C.F.R. provisions. If there is any conflict between the terms of this MTA and any applicable law or regulation with respect to Materials that are supplied hereunder by ATCC from the stock of a Budapest Treaty deposit, then the terms of the applicable law or regulation shall govern.

Indemnification

If Purchaser is a for-profit or private non-profit organization:
Purchaser hereby agrees to indemnify, defend and hold harmless ATCC and its Contributors against all person or entity not party to this Agreement claims, losses, expenses and damages, including reasonable attorneys' fees (collectively "Claims") arising out of or relating to Purchaser's use, receipt, handling, storage, transfer, disposal and other activities relating to Biological Materials, provided that Purchaser's liability shall be limited to the extent that any such Claim arises out of ATCC's gross negligence or willful misconduct. All non-monetary settlements of any such Claims are subject to ATCC's prior written consent, such consent not to be unreasonably withheld.

If Purchaser is a Federal or State non-profit organization or a foreign organization that is prohibited by law from entering into the indemnification obligation set forth in the above paragraph:
Purchaser assumes all liability for any and all person or entity not party to this Agreement claims, losses, expenses and damages, including reasonable attorneys' fees (collectively "Claims") arising out of or relating to Purchaser's use, receipt, handling, storage, transfer, disposal and other activities relating to Biological Materials, provided that Purchaser's liability shall be limited to the extent that any such Claim arises out of ATCC's gross negligence or willful misconduct, and provided further that if the Purchaser is the U.S. federal government or a state institution such Purchaser assumes such liability only to the extent provided under the Federal Tort Claims Act, 28 U.S.C. §§ 2671 et seq. or under equivalent applicable State or foreign law.

Limitation of Liability

In no event will ATCC or its Contributors be liable for any indirect, special, incidental or consequential damages of any kind in connection with or arising out of the MTA or Biological Materials (whether in contract, tort, negligence, strict liability, statute or otherwise) even if ATCC has been advised of the possibility of such damages. In no event shall ATCC's cumulative liability exceed the fees paid by Purchaser under this MTA for the twelve (12) month period preceding the date of the event giving rise to the claim. Purchaser agrees that the limitations of liability set forth in this MTA shall apply even if a limited remedy provided hereunder fails of its essential purpose.

Intellectual Property; Identification

As between the parties, ATCC and/or its Contributors shall retain ownership of all right, title and interest in the ATCC Materials, Progeny, Unmodified Derivatives and ATCC Materials contained or incorporated in Modifications. Purchaser retains ownership of: (a) Modifications (except that, as between the parties, ATCC retains ownership rights to ATCC Material included therein) and (b) those substances created through the use of ATCC Material, but which do not contain ATCC Material. Notwithstanding the foregoing,

Purchaser acknowledges and agrees that the Biological Materials are subject to the restrictions noted in the "Scope of Use" section above. Purchaser agrees to acknowledge ATCC and any Contributor indicated by ATCC as the source of the Biological Material in all research, academic or scholarly publications and in patent applications that reference the Biological Material. If required by the Contributor of the ATCC Material, ATCC may inform the Contributor of Purchaser's identity. Purchaser explicitly acknowledges that ATCC retains all right, title and interest in the ATCC trademarks, trade-names, logos, ATCC catalog numbers and ATCC specific designations of ATCC Materials sold by ATCC (including but not limited to ATCC®, UNIPLUS™, YOUR DISCOVERIES BEGIN WITH US®, THE GLOBAL BIORESOURCE CENTER™, Authenticult®, SafeTsource®, ATCC CULTURES™, ATCC BIOPRODUCTS™, ATCC SPECIAL COLLECTIONS™, ATCC SERVICES™, ATCC Genuine Cultures®, ATCC Licensed Derivative®, BioEscrow®, ATCC Standards Resource®, ATCC Proficiency Standard®, ATCC Standard Reference Material™). Purchaser expressly agrees not to use the ATCC trademarks, trade-names, logos, ATCC catalog numbers or ATCC specific designations of ATCC Materials sold by ATCC in any way without ATCC's prior written agreement.

Payment; Taxes; Shipping

Payments may be made by check, wire transfer or credit card. Unless payment in advance is required by ATCC or its exclusive distributors, payments due to ATCC or its exclusive distributors shall be invoiced to Purchaser and due within thirty (30) days after the date of invoice. Any payments not made within such thirty (30) day period will be subject to an interest charge of one percent (1%) per month or the maximum rate allowed by applicable law, whichever is less. Purchaser is responsible for all taxes, duties, tariffs and permit fees assessed in connection with this MTA and the ATCC Material. Purchaser shall, upon demand, pay to ATCC or its exclusive distributors an amount equal to any such tax(es), duties, tariffs and permit fees actually paid or required to be collected or paid by ATCC or its exclusive distributors. ATCC and/or its exclusive distributors shall have no obligation hereunder to accept an order from Purchaser unless Purchaser has satisfied the requirements of ATCC's applicable credit approval process and has satisfied any additional credit requirements imposed by ATCC, which may include providing ATCC with a deposit, letter of credit, or payment in advance, as requested.

ATCC will package the ATCC Material for shipping in accordance with applicable laws and regulations. Purchaser is responsible for ensuring that all permits required for Purchaser to receive its order are obtained and that sufficient proof of such permits is provided to ATCC. ATCC will notify Purchaser when orders are submitted without the necessary permits, and Purchaser will have a two (2) month period after such notification to supply proof of the necessary permit(s) before an order will be cancelled. A processing fee will be charged if special processing or packaging is necessary. All ATCC Materials are shipped Freight on Board (FOB) point of shipment, freight prepaid via carrier of ATCC's choice and added to Purchaser's invoice. If the ATCC Material is lost or damaged during shipment, ATCC will replace such ATCC Material at no additional charge, provided that Purchase has reported lost or damaged shipments to the applicable carrier and notified ATCC's Customer Service Department or exclusive distributor within fourteen (14) days from invoice date. Each invoice will be mailed the following day after ATCC Material is shipped from the point of shipment.

Miscellaneous

Any disputes arising under this Agreement shall be tried exclusively in the United States District Court for the Eastern District of Virginia or if subject matter jurisdiction does not exist in that court, then in the state courts of Virginia for Prince William County, and Purchaser hereby expressly consents to, submits to and waives any objection to the jurisdiction of such courts; provided however, if Purchaser is a US Federal or State non-profit organization; then any disputes arising under this Agreement shall be tried exclusively in a court of competent jurisdiction.

Purchaser agrees that any breach of this Agreement, including but not limited to any breach of the scope of use provisions of this Agreement, will entitle ATCC to immediately cease without notice to Purchaser further shipments of Biological Materials and shall create such irreparable injury as to entitle ATCC to temporary restraining orders and other preliminary or permanent injunctive relief in addition to all other equitable and legal remedies that may be afforded under US or foreign laws.

Purchaser may not assign or otherwise transfer this MTA or any rights or obligations under this MTA, whether by operation of law or otherwise. Any such attempted assignment or transfer will be void and of no force or effect. This MTA, including all documents incorporated herein by reference, constitutes the entire agreement between ATCC and Purchaser with respect to the Biological Material and supersedes all previous agreements or representations (whether written or oral) between ATCC and Purchaser relating to the same subject matter. This MTA may not be modified, waived or terminated except in writing and signed by the parties hereto. No term or provision contained herein shall be deemed waived and no breach excused unless such waiver or consent shall be in writing and signed by the parties. If any provision of this MTA is for any reason found to be unenforceable, the remainder of this Agreement will continue in full force and effect. None of the provisions of this MTA are intended to create, nor shall be deemed or construed to create, any relationship between ATCC or Purchaser other than that of independent entities contracting with each other hereunder solely for the purpose of effecting the provisions of this MTA.

Any correspondence concerning the ATCC Material Transfer Agreement should be addressed to ATCC, Attention: Office of IP, Licensing and Services, P.O. Box 1549, Manassas, VA 20108, Phone: (703) 365-2700 or contact us at licensing@atcc.org

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