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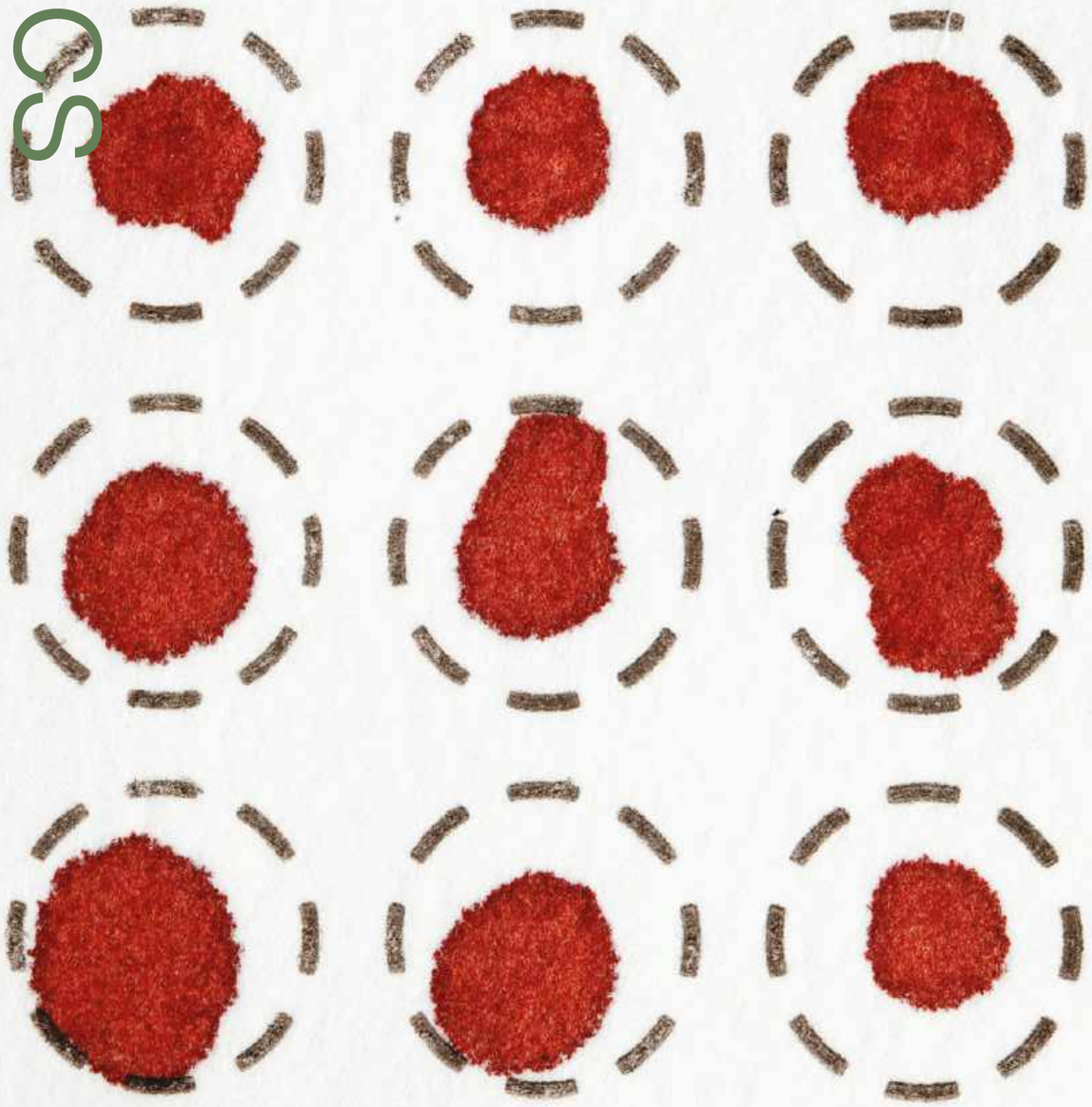
Forensics



Forensics Scheme Selector

Scheme	Distribution per year	Test	Test Material Matrix*	Analyte Group*
QUARTZ Forensic Blood Toxicology	4	Toxicology and Case Study	Blood and urine.	Alcohol Technical Defense case study.
FAE Forensic Analysis for Explosives	1	Chemical	Range of relevant materials.	Explosive, trace explosives and unknowns.
FIRMS Forensic Isotope Ratio Mass Spectrometry	2	Chemical	Range of products in sealed amber vials.	Variations in isotope ratios.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

QUARTZ
Forensic Blood Toxicology

The LGC QUARTZ scheme is aimed at laboratories undertaking forensic toxicology and coroners work. Test analytes and case scenarios included in the scheme are discussed regularly with the Advisory Group.

The scheme offers the choice of a number of test materials comprising blood and urine spiked with drugs and metabolites. Case scenarios provided for interpretation covered include sudden and suspicious deaths, drug facilitated sexual assaults (DFSA), impaired driving and other relevant cases.

There is an Alcohol Technical Defence (ATD) exercise that allows practitioners to demonstrate competency in performing these types of calculations.

Participation in QUARTZ will provide independent performance assessment and confidence that results are meaningful and accurate. Consistent good performance will allow laboratories to demonstrate to third parties, customers, regulators and accreditation bodies the quality of their results.

The operation of our QUARTZ scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field.

Test Material*	Analyte*
Blood	Forensic drug identification, quantification and case study covering the following: Anaesthetics, Anticholinergics, Anticonvulsants, Antidepressants, Antihistamines, Antipsychotics, Barbiturates, Benzodiazepines, Cannabinoids, Carboxyhaemoglobin, Cardiovascular drugs, Erectile dysfunction, Hypnotic drugs, Non steroidal anti-Inflammatory analgesics, Opioid analgesics, Stimulants. Abuse and prescribed drug quantification of commonly encountered drugs (alternate rounds of drugs of abuse and prescription drugs). Alcohol in blood quantification of Ethanol and fluoride. Interpretation of a case study (with analytical data, and a scenario or witness statement) to determine the potential blood alcohol level in a given time (Alcohol Technical Defence). Quantification of up to 4 New Psychoactive Substances (NPS). Identification of one of the most common synthetic cannabinoids.
Urine	Identification of up to 4 drugs or metabolites relevant to forensic toxicology. Identification of Synthetic Cannabanoids. Identification of New Psychoactive Substances.

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FAE
Forensic Analysis for Explosives

The LGC Forensic Analysis for Explosives (FAE) scheme aims to provide information depicting realistic scenarios and test materials to allow participating laboratories to demonstrate the competent analysis of trace explosives and associated chemicals.

The European Network of Forensic Science Institute (ENFSI) Working Group on Explosives provides technical advice to LGC Proficiency Testing on the organisation of this scheme.

Forensic examination for explosives may include the analysis of raw materials found at a scene, the identification of potentially explosive substances and the forensic identification of post-blast explosive residues.

Participation in FAE will allow laboratories to monitor performance and compare it with that of peers against the international standards ISO/IEC 17025 and ISO/IEC 17020.

Test Material*	Analyte*
Range of relevant test materials	Explosives, trace explosives and unknowns.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

FIRMS

Forensic Isotope Ratio Mass Spectrometry

Isotope Ratio Mass Spectrometry (IRMS) is a specialised technique that precisely measures small differences in the abundances of isotopes such as 2H/1H, 13C/12C, 15N/14N and 18O/16O. Subtle variations to the ‘natural’ abundance of these isotopes may be introduced during biological, chemical and physical processes.

These changes enable the differentiation of materials that otherwise may not be separated such that IRMS is used in many fields, such as archeology, medicine, geology, food authenticity and forensics.

Participation in the LGC FIRMS scheme will help laboratories demonstrate competence in this analytical technique. The scheme is operated by LGC Proficiency Testing and is supported by the FIRMS Network which provides input for the choice of test materials and scheme performance.

Test Material*	Analyte*
Range of products in sealed amber vials	Variations in isotope ratios.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

LGC is the accredited provider of the PT scheme.

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Clinical

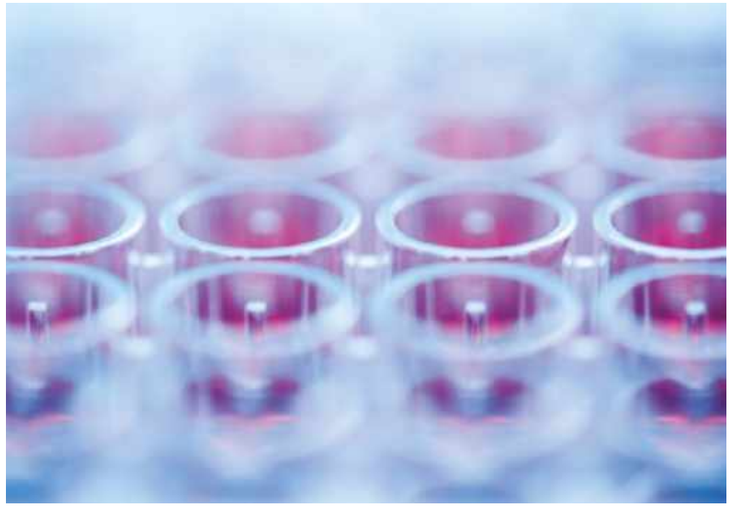
Clinical
Scheme Selector

Scheme (Apr-Mar)	Distribution per year	Test	Test Material Matrix*	Analyte Group*
IPT Immunosup-pressant	12	Clinical	Blood and plasma.	Routine quantification of Immunosuppressant drugs including Ciclosporin; Tacrolimus; Sirolimus; Everolimus; Mycophenolic Acid.
TDM Therapeutic Drugs	12	Clinical	Blood, serum and urine.	Routine quantification of therapeutic drugs including Anti-epileptics; Cardiac; Analgesics; Substance abuse treatments; Psychoactives; Antibiotics; Smoking-related.
TOX Toxicology	12	Clinical	Blood, serum and urine.	Drug and alcohol determination; case studies.
DAU Drugs of Abuse in Urine	4	Clinical	Urine from volunteers and known drug users.	Mixtures of drugs and/or their metabolites from six major classes.
DOF Drugs in Oral Fluid	4	Clinical	Oral fluid from volunteers and known drug users.	Mixtures of drugs and/or their metabolites from six major classes.
DAH** Drugs of Abuse in Hair	4	Clinical	Human hair.	Mixtures of drugs and/or their metabolites from six major classes.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed. For accredited and non-accredited status please see current application form/scheme description.

** Please note that the DAH scheme is currently not included in our scope of accreditation.

IPT
Immunosuppressant



The LGC Immunosuppressant proficiency testing scheme provides independent performance assessment for laboratories performing quantification of immunosuppressant drugs in blood and plasma.

Immunosuppressant drugs are a class of drugs that suppress, or reduce, the strength of the body's immune system.

In addition to being used to prevent organ rejection, they are often used to treat autoimmune disorders such as lupus, psoriasis, and rheumatoid arthritis.

Regular blood tests are essential for monitoring therapeutic levels and whether dosage changes are needed.

To successfully make these informed decisions laboratories need to demonstrate that drug measurements are reliable, reproducible and accurate.

The operation of the LGC IPT scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field.

The scheme reports on the performance of U.K. participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

Test Material*	Analyte*
Human blood	Ciclosporin/Tacrolimus, Everolimus, Sirolimus.
Plasma	Mycophenolic acid.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed.
For accredited and non-accredited status please see current application form/scheme description.

TDM
Therapeutic Drugs Monitoring

The LGC Therapeutic Drugs Monitoring (TDM) proficiency testing scheme provides independent performance assessment for the routine quantification of a wide range of anti-epileptic and other therapeutic drugs.

TDM is a measurement of specific drug concentration levels at timed intervals in patients, usually through blood/serum samples, and is necessary where control of drug concentrations is required to achieve optimum treatment for the patient, or where there is a narrow range between the therapeutic and toxic levels.

The operation of the LGC TDM scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of U.K. participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

Test Material*	Analyte*
Therapeutic drug mixture (lyphilised human serum)	Amikacin, Carbamazepine, Carbamazepine+CBZ-epoxide, Caffeine, CBZ-epoxide, Clonazepam, Digoxin, Ethosuximide, Gentamicin, Lamotrigine, Lithium, Methotrexate, Phenobarbitone, Phenytoin, Primidone, Theophylline, Tobramycin, Vancomycin, Valproate.
Anti-epileptic drugs (lyophilised human serum)	Brivaracetam, Felbamate, Gabapentin, Lacosamide, Levetiracetam, OH-oxcarbazepine, Pregabalin, Perampanel, Retigabine (Ezogabine), Rufinamide, Tiagabine, Topiramate, Vigabatrin, Zonisamide.
Cardiac drugs (lyophilised human serum)	Amiodarone, Desethylamiodarone, Flecainide.
Analgesic mixture (lyophilised human serum)	Diclofenac, Ibuprofen, Tramadol.
Substance abuse & treatment (lyophilised human serum)	Buprenorphine, EDDP, Methadone, Norbuprenorphine.
Psychoactive drugs (lyophilised human serum, new born calf serum)	Amisulpride, Amitriptyline/Nortriptyline, Aripiprazole/Dehydroaripiprazole, Citalopram/Norcitalopram, Clomipramine/Norclomipramine, Clozapine/ Norclozapine, Doxepin/Nordoxepin, Dothiepin/Northiaden, Duloxetine, Escitalopram, Fluphenazine, Fluvoxamine, Haloperidol, Imipramine/Desipramine, Fluoxetine/Norfluoxetine, Maprotiline/Normaprotiline, Mianserin, Mirtazapine/ Normirtazapine, Olanzapine, Paroxetine, Perphenazine, Quetiapine/Norquetiapine, Risperidone/HO-risperidone, Sertraline/ Norsertraline, Sulpiride, Thioridazine, Trazodone, Trimipramine/Nortrimipramine, Venlafaxine/ Norvenlafaxine, Ziprasidone, Zuclopenthixol.
Non-smoking compliance (lyophilised human serum)	Cotinine, Nicotine.
Antibiotics (liquid human serum)	Amikacin, Gentamicin, Teicoplanin, Tobramycin, Vancomycin. Atomoxetine, Methylphenidate. Ritalinic Acid.
Clobazam and Norclobazam	Clobazam, Norclobazam.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed.
For accredited and non-accredited status please see current application form/scheme description.

TOX
Toxicology

The LGC Toxicology (TOX) proficiency testing scheme is designed to provide an independent performance assessment of laboratories undertaking clinical and/or forensic toxicological analytical services.

Toxicological analyses may be undertaken on biological specimens, predominantly blood, serum and urine. In general, analyses are undertaken for a range of substances including prescription and non-prescription drugs, illicit drugs and alcohol.

For laboratories performing these analyses, participation in TOX can provide confidence that results are meaningful and accurate.

The operation of our TOX scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of U.K. participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

Test Material*	Analyte*
Human serum	Ethanol, Paracetamol (Acetaminophen), Salicylic acid.
Human blood	Carboxyhaemoglobin, Ethanol, Paracetamol (Acetaminophen), Salicylic acid.
Urine	Ethanol.
Lyophilised urine	Gammahydroxybutyrate.
Whole blood	Acetone, Ethanol, Ethylene glycol, Isopropyl alcohol, Methanol.
Human serum and urine	Toxicology case studies include various analytes with clinical or forensic scenario.
Whole blood toxicology	Test materials contain analytes which are pre-defined by our Advisory Group and the requests of participants.
Lyophilised human serum	Diazepam, Nitrazepam, Nordazepam, Oxazepam, Temazepam. Zaleplon, Zolpidem, Zopiclone. Alprazolam, Bromazepam, Clonezepam, Lorazepam, Midazolam.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed.
For accredited and non-accredited status please see current application form/scheme description.

DAU
Drugs of Abuse in Urine

The LGC Drugs of Abuse in Urine (DAU) scheme is designed to provide an independent performance assessment of laboratories and clinics that provide routine services for detection of drugs of abuse in urine.

Human urine has been used for many years to detect the presence of illicit drugs. Urine testing may be requested for a variety of reasons, including health care, occupational monitoring, insurance screening, legal and forensic purposes. Errors in tests could have severe consequences, such as dismissal from work or miscarriage of justice.

Laboratories and clinics are encouraged to participate in suitable PT/EQA schemes to ensure the highest standard of drug testing is achieved through independent assessment of measurement quality.

The operation of the LGC DAU scheme is supported by an Advisory Group consisting of members of professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of U.K. participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

Test Material*	Analyte*
Urine test materials obtained from volunteers and known drug users which regularly contain mixtures of drugs and their metabolites	Amfetamines and stimulants, Cannabinoids, Cocaine and metabolites, Ethyl glucuronide, Ethyl sulfate, Gamma-Hydroxybutyrate (GHB), Minor tranquillizers, Non-opiate narcotics, Opiates. Other current drugs and/or metabolites may also be included.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed.
For accredited and non-accredited status please see current application form/scheme description.

DOF
Drugs in Oral Fluid

The LGC Drugs in Oral Fluid (DOF) scheme provides performance assessment for laboratories and clinics who provide analytical services for drugs in oral fluid. Samples are provided as real human oral fluid.

Advances in technology have enabled oral fluid testing for the presence of many drugs. Oral fluid collection is often less invasive, relatively easy to perform, and, in forensic situations, can be achieved under close supervision to prevent adulteration or substitution of the samples.

Drug testing is extremely accurate and reliable when all aspects of the testing process are carried out correctly. However, if poor procedures and inadequate testing methods are utilised, the information obtained may be very misleading and inaccurate.

To minimise this risk, laboratories should perform routine quality control tests and participate in suitable PT/EQA schemes.

The operation of our DOF scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field. The scheme reports on the performance of U.K. participants (who have clinical responsibilities) to the National Quality Assurance Advisory Panels for Chemical Pathology.

Test Material*	Analyte*
Oral fluid test materials obtained from volunteers and known drug users which regularly contain mixtures of drugs and their metabolites from six major classes	Amfetamines and stimulants, Cannabinoids, Cocaine and metabolites, Minor tranquillizers, Non-opiate narcotics, Opiates, Other current drugs and/or metabolites may also be included.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed.
For accredited and non-accredited status please see current application form/scheme description.

DAH**
Drugs of Abuse in Hair

The LGC Drugs of Abuse in Hair (DAH) scheme is suitable for laboratories performing forensic analysis of hair for drugs of abuse and provides an independent assessment of measurement quality.

Drugs and their metabolites become incorporated in hair when ingested. An analysis for these drug residues can provide a useful assessment of an individual's intake of drugs over a prolonged period of time.

The detection time of drugs in hair is significantly greater than other samples commonly tested such as blood, urine and saliva.

Advantages of analysing hair samples for the presence of drugs include a large window of detection, the assessment of the regularity of drug use (or continued abstinance) and sample stability.

Test materials provided consist of real cut (2–3mm pieces) human hair that has been declared free from common drugs of abuse.

The analytes are then incorporated by a method that includes soaking. Drugs (and/or metabolites) from six major classes are included during the scheme year.

The operation of our DOF scheme is supported by an Advisory Group consisting of members of the professional bodies, scheme participants, and others experienced in the field.

Test Material*	Analyte*
Human hair	Identification and quantification of Amfetamines and stimulants, Benzodiazepines, Cannabinoids Cocaine and metabolites, Opiates. Other current drugs and/or metabolites may also be included.

* The full range and availability of test materials and analytes is determined on an annual basis and may be added or removed.
For accredited and non-accredited status please see current application form/scheme description.

** Please note that the DAH scheme is currently not included in our scope of accreditation.

Clinical
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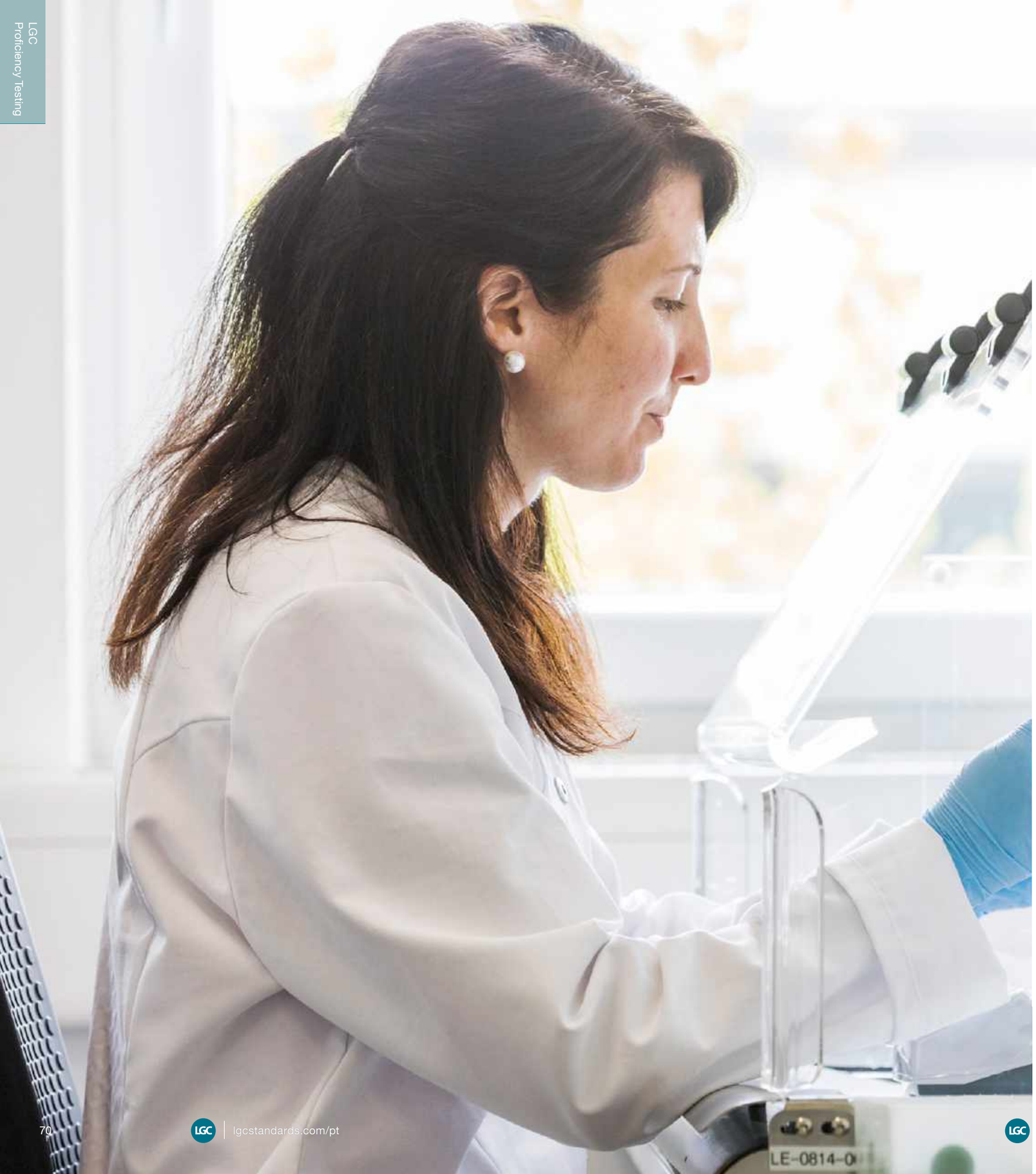

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Proficiency Testing

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2,600 professionals working in

21 countries

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