

Why do cell lines need to be authenticated?

A growing number of high impact journals including *biotechniques*, *Cancer Research* and *Nature* now require information on the authentication of any human cell line used in a scientific study prior to accepting the submitted paper. There is also increasing evidence that funding bodies will require evidence of cell line authentication as part of their grant application review process. Short Tandem Repeat (STR) profiling is the industry's preferred method for human cell line identification.

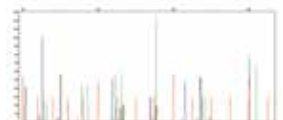
LGC Standards has years of experience in STR profiling through our forensic science activities combined with cell biology expertise, gained through our collaboration with ATCC®. This experience enables us to offer a unique, fully supported Cell Line Authentication program.

Our Cell Line Authentication program, is supported by an expert team who are available to provide advice and support with any questions you may have from sample preparation through interpretation of results and their implications. LGC Standards has access to thousands of cell line reference profiles. We produce a clearly laid out comprehensive report which provides the analysis of your cell sample*.

* YOUR report will contain:

- A summary page which allows you to review your results at a glance and prioritise any cell lines which may need your attention.
- A clearly laid out design with a single sample per page detailing;
 - Your sample's STR profile,
 - Reference profile,
 - Electropherogram,
 - Analysis and guidance notes.
- Your report will adhere to definitions outlined in ASN0002: Authentication of Human Cell Lines: Standardisation of STR profiling. This is expected to become the industry standard for authentication of human cell lines.

Authenticating your cells couldn't be easier, follow our quick and simple steps:



For sample shipment we offer the option of a Transport Buffer, the greener shipping alternative. Transport Buffer is a proprietary technology from LGC, which eliminates the need and hassle of transporting cells on dry ice, saving you from expensive shipping costs. It works by lysing the cell sample and stabilising the DNA allowing your samples to be shipped safely to our facility at room temperature.

Whether you are starting a new project or have been culturing your cells for a while, get them authenticated and know what you're really working with. Contact your local sales office or visit the website for more information.

FAQ

How often should we authenticate our cell lines?

Increasingly, publishing and funding bodies are requesting specific information on the authentication of any human cell line used in research. The emerging trend seems to be that cells are required to be authenticated within 6 months prior to the date of article submission. For good laboratory practice, it is advised to authenticate at the beginning and during a project rather than only at the end. This ensures you truly know what you are working with.

What if I don't want to authenticate my cells?

Many journals still have no formal requirement for information on the authenticity of human cell lines used in original research. However, we are seeing increasing numbers of researchers who have chosen journals which do not require authentication, only to have one of their reviewers specifically request that the cell line be authenticated. LGC Standards expects this trend to continue and believe that it will become increasingly difficult to publish data generated using unauthenticated human cell lines.

I'm working with a primary cell culture and I think there are multiple cell types.

Can you tell me the types of cells I am working with?

Cell Line Authentication service creates STR profiles which are genetic fingerprints of the cell sample supplied. All cells from an individual (bar a few unusual instances) have the same genetic make-up. STR profiling will enable the genetic origin of the cell sample to be identified, however it cannot determine the phenotype of the cells in the sample. Phenotypic characterisation tests, such as expression of cell markers would be required to answer this question.

I have two cell lines which are recorded as being related, however the records may not be reliable.

Can we determine if these were isolated from the same individual?

The STR profiles generated from the two cell samples can be compared and our analysis team can advise on the likely relatedness of these cell samples. Examples include; a cancer biopsied at both the primary and a metastatic sites; or a parental cell line and a sub-clone/stable transfectant.

What percentage of cell lines are misidentified or contaminated?

There have been a number of publications over recent years reporting approximately 15-20% of human cell lines in culture are either contaminated or misidentified. Our experience aligns with these published figures.

What if we don't have a reference for our cell line?

We can still generate an STR profile and search the database to see if your cell line matches one of the common contaminants. If your cell line doesn't match a cell in the database, and the profile has good attributes it is reasonable to conclude that it is a unique cell line. We do advise that you have all your unidentified cell lines profiled at the same time to ensure that the STR profiles they generate are either unique or related where previously documented.

For more information contact your local LGC Standards office:

France

LGC Standards S.a.r.l.
Tel: +33 (0)3 88 04 82 82
Fax: +33 (0)3 88 04 82 90
fr@lgcstandards.com

Germany

LGC Standards GmbH
Tel: +49 (0)281 9887 230
Fax: +49 (0)281 9887 239
atcc.de@lgcstandards.com

Italy

LGC Standards S.r.l.
Tel: +39 02 2412 6830
Fax: +39 02 2412 6831
it@lgcstandards.com

Poland

LGC Standards Sp. z o.o.
Tel: +48 (0)22 751 31 40
Fax: +48 (0)22 751 58 45
pl@lgcstandards.com

Spain

LGC Standards S.L.U.
Tel: +34 933 08 41 81
Fax: +34 933 07 36 12
es@lgcstandards.com

Sweden

LGC Standards AB
Tel: +46 (0)33 20 90 60
Fax: +46 (0)33 20 90 79
atcc.se@lgcstandards.com

United Kingdom

LGC Standards
Tel: +44 (0)20 8943 8489
Fax: +44 (0)20 8943 8405
atcc@lgcstandards.com

