# Cell Line Checklist for Manuscripts and Grant Applications

This checklist is designed as a resource for scientists who write or review manuscripts and grant applications that use cell lines. Some cell lines will give unreliable results if used for research – for example, cross-contaminated cell lines no longer correspond to donor tissue and so may not represent the correct species, tissue type or disease state. Such misidentified or false cell lines produce unreliable research data and we urge reviewers to highlight their use wherever possible.

This checklist will help the author or reviewer to look for obvious cell line quality concerns. The checklist may also be used to communicate any quality concerns to be addressed prior to publication or funding.

## Manuscript or Grant Information

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| *Title or Manuscript/Grant ID:* |  |
| *Cell Lines used:* |  |
| *Cell Lines used with Quality Concerns:* |  |

## Cell Line Information

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| **Reporting Requirement** | **Yes or No (No includes Not Known)**  **Add further comment if required** |
| *Cell line is known to be cross-contaminated or otherwise misidentified:*  See the [ICLAC website](http://iclac.org/databases/cross-contaminations) for a database of known misidentified cell lines and Recommendation 1) below. |  |
| *Authentication testing has been performed:*  The method and results should be listed.  See Recommendation 2) below. |  |
| *Human cell lines: STR profile is available with the manuscript/grant application:*  See Recommendation 2) below. |  |
| *Mycoplasma testing has been performed:*  The method and results should be listed. |  |
| *Source for cell line is listed:*  The catalogue number should be included if obtained from a cell line repository.  See Recommendation 3) below. |  |
| *Sufficient information is given to replicate experiments using the cell line:*  See Recommendation 4) below. |  |

### Recommendations

1. ICLAC recommends that false cell lines (misidentified cell lines with no known authentic stock) should not be used. ICLAC’s database of misidentified cell lines can be found at <http://iclac.org/databases/cross-contaminations>.
2. ICLAC recommends that authentication testing should always be performed on established cell lines regardless of the application, and the test method and results included in the Materials and Methods section. Testing should be done, at minimum, at the beginning and end of experimental work.

For human cell lines, short tandem repeat (STR) profiling should be performed and compared to results from donor tissue, or to online databases of human cell line STR profiles.

More information can be found in the published Standard: ANSI/ATCC ASN-0002-2011 Authentication of Human Cell Lines: Standardization of STR Profiling. [ANSI eStandard Store](http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI%2FATCC+ASN-0002-2011).

For non-human cell lines, best practice will vary with the species being tested. At minimum, species should be confirmed using an appropriate method such as karyotyping, isoenzyme analysis, or mitochondrial DNA typing (DNA barcoding).

More information on authentication testing can be found at <http://iclac.org/references/>.

1. It will be helpful for the reader if authors can include a reference, to provide more information on the cell line’s establishment and characterization. However, not all cell lines have this information available in the public domain.
2. This information may include the growth medium used, including additives; any additional growth requirements, including special substrates and gas mixtures; and the passage number or population doubling level (PDL) used for experimental work.

Passage number is important when working with early passage or finite cultures, or cell lines where changes in phenotype have been documented with increasing passage. ICLAC recommends that laboratories freeze down stocks when they first receive a cell line and set a limit (e.g. 20 passages) to avoid overpassaging. More information can be found at  
<http://iclac.org/resources/advice-scientists/>

## Notes or Further Comments

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