Q&A ATCC® Excellence in Research Webinar "*STR DNA Profiling – The Standard for Cell Line Authentication*"

General Questions

1. Will we be able to download the presentation?
   This presentation will be available to watch on demand on the ATCC website, or click here.

2. Can the COI primer sets be shared for the different ATCC species that ATCC uses, or is there a reference for these primer sets?
   Reference: Species identification in cell culture: a two-pronged molecular approach. Jason K Cooper, Greg Sykes, Steve King, Karin Cottrill, Natalia V Ivanova, Robert Hanner, Pranvera Ikonomi, In Vitro Cellular & Developmental Biology - Animal, 2007; 43(10):344-51

3. Can you identify tagged cell lines?
   The GenePrint® and PowerPlex® Systems only amplify a defined set of STR loci and a gender marker (amelogenin). Consequently, they cannot distinguish a tagged cell line from an untagged cell line unless the tag is inserted into the loci being amplified.

4. If the subclone of one cell line has a characteristic trisomy so that one allele is doubled, then is the ratio between alleles as seen by STR analysis consistent enough to be used to differentiate the two?
   It is possible to distinguish cell lines by relative peak height. However, the peak heights may vary from experiment-to-experiment. Consequently, it is preferable to identify unique alleles that can be used to distinguish the subclones.

5. What is your recommended STR profiling frequency for pure research applications?
   Cell lines should be genotyped upon receipt into the laboratory, unless they are sourced from a reputable supplier that has already confirmed the identity of the cell line. Identity should also be confirmed prior to submitting the manuscript for publication. If the laboratory uses multiple cell lines, or the project duration is long, there may be merit to performing genotyping on occasion to avoid wasting valuable research effort using the wrong cell line.

6. Is a signed cell authentication report required for either grant submissions or submission into a journal?
   A few journals and funding agencies are now recommending cell line authentication for publications. For example:

   Journals:

   1. AACR Journals to include:
      a. Cancer Discovery
      b. Cancer Epidemiology, Biomarkers and Prevention
      c. Cancer Immunology Research
      d. Cancer Research
      e. Clinical Cancer Research
      f. Molecular Cancer Research
      g. Molecular Cancer Therapeutics

   2. Springer Journals
      a. Cell Biochemistry and Biophysics
      b. In Vitro Cellular & Developmental Biology – Animal
   3. Nature

   Funding Agencies:

   1. NIH encourages reviewers to consider cell line authentication in their proposals, read more.

   2. Prostate Cancer Foundation (PCF) - All future research funded by the PCF will require cell line authentication, learn more.

7. I think there are multiple cell types in my culture. Can STR profiling distinguish between these types?
   STR systems cannot discriminate cell lines derived from the same individual unless one of the lines has a genomic rearrangement (e.g., loss of heterozygosity). Furthermore, the Promega STR systems utilize human-specific primers and cannot be used to detect non-human cell lines.