The use of contaminated cell lines in research is an often under-recognized issue in research today. Since the 1950’s, the identification of contaminated cell lines has been documented. General surveys of cell cultures in the past few decades have identified as many as 14 - 35% of cell lines being contaminated or mis-identified\(^1\). The NIH has issued a notice discussing the importance for cell line authentication in future research\(^2\). A growing number of Journals are likewise requiring cell line authentication prior to publication.

The DNA Core Facility (DNACF) has established a human cell line authentication service to assist researchers in meeting these requirements. Short tandem repeat (STR) analysis will be performed by the PCR amplification of genomic DNA with the AmpFLSTR® Identifier® Plus PCR Amplification Kit. The STR multiplex assay amplifies 15 tetranucleotide repeat loci and the Amelogenin gender-determining marker in a single PCR reaction. The assay as applied to human cell line authentication using STR profiling will allow, 1) verification of human origin; 2) evaluation of profile consistency across cell lines; 3) database comparisons; and 4) detection of human cell cross-contamination. The DNACF’s protocols for cell line authentication are in agreement with standards set forth by the ATCC Standards Development Organization in their publication “Authentication of Human Cell Lines: Standardization of STR Profiling” (ANSI/ATCC-0002-2011).

General practices for testing cell lines are:

- Test cell lines when established or newly acquired.
- Test cell at the beginning of experiments and before publication.
- Cell line performance is inconsistent or unexpected results are obtained.
- Test cells before freezing and every two months while actively growing.

Fees and submission requirements can be found on the DNACF website at dna.missouri.edu/celllineauthentication.html. Contact the DNA Core (dna-core@missouri.edu) if you would like additional information on these services.

The DNA Core would like to thank Dr. Michael Roberts and Dr. Toshihiko Ezashi for cell line samples provided for validation of core protocols and procedures.

Cyrus McConnell Joins the DNA Core Staff

Many have already had the opportunity to welcome Cyrus (Cy) McConnell, the DNA Core’s recently hired technician now performing Sanger sequencing services. Cy is filling the position recently vacated by Emily Brocato who is leaving Missouri for new opportunities. We wish Emily the best of luck and want to thank her for the dedication she has shown in fulfilling the DNA Core’s mission as an outstanding support facility for MU research.

Cy is a graduate of the University of Missouri with extensive experience in molecular techniques including Sanger sequencing and cell lines. Cy is not new to the university as he is a MU graduate and has been working with Dr. Mark Hannink in the Bond Life Science Center since 2012. Please join us in welcoming Cy to the DNA core.