The Impact of Cell Line Authentication

Imagine devoting years of your life to the study of a particular type of cancer, only to find out the cells you were using as part of your research weren't the cells you thought they were. It's an all-too-common occurrence in research labs around the world.

How big a problem is cell line contamination?

The National Center for Biotechnology Information estimates that between 18–36% of cell lines are contaminated, with the International Cell Line Authentication Committee (ICLAC) listing 475 known cross-contaminated or misidentified cell lines in existence today.

"We receive contaminated cell lines each week and it can be disconcerting news to deliver to a researcher when it represents years of research work," says Bob Livingston, Head of IDEXX BioAnalytics, Scientific Affairs. "In many cases it is countless hours of time and untold amounts of money all potentially washed away in an unfortunate case of mistaken identity."

There is more attention than ever on this topic with the recent publication of **NIH Notification #NOT-OD-16-011 calling for grant applicants to include an authentication plan for key biological materials with new and competitive renewal grant applications.** Adoption of the new standards to authenticate cell lines and other key biological materials is "…intended to enhance the reproducibility of research findings through increased scientific rigor and transparency," according to the NIH.

How do researchers know when contamination has occured?

IDEXX BioAnalytics offers cost-effective solutions to make cell line mistaken identity a thing of the past. A fundamental underpinning of scientific research is being able to describe your study to others and have them replicate the same results using the same techniques. When a scientist isn't able to do this, a common culprit is often cross-contaminated cell lines. However, more often in the samples IDEXX BioAnalytics analyzes, we find contamination is present without the researcher having any hint that contamination had occurred. This underscores the need for routine monitoring to confirm cell line identity.

How are markers utlitized in generating a genetic profile?

Cell line authentication consists of a standardized procedure for the identification of human cell lines utilizing short tandem repeat (STR) markers. A consistent, standardized worldwide set of markers is utilized to generate a genetic profile for the sample being analyzed. The genetic profile generated for the sample is then compared to the established cell line reference profile. The use of a consistent set of markers allows the genetic profiles of samples from any laboratory in the world to be compared to the profile established in any laboratory.

CellCheck is the solution

IDEXX BioAnalytics's gold standard CellCheck™ testing service provides comprehensive cell line authentication, consisting of both STR testing to confirm the identity of the human cell line coupled with species testing to confirm the sample is not cross contaminated with either another human cell line or another species origin cell line such as mouse. Additionally, we'll provide you with a comparative analysis and data interpretation, and even help you develop a contamination recovery plan, if needed. Authentication services are also available for Mouse, Rat, and Canine.

For your solution to meeting NIH Authentication requirements contact:

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