

## Authentication of Key Resources

In the current study, we propose to use neuroendocrine (NE) cancer cell lines including carcinoids (e.g., BON gastrointestinal, and H727 and UMC11 pulmonary) and medullary thyroid cancers (e.g., TT and MZ-CRC-1). We plan to determine the identity and uniqueness of these cell lines following the methods described below that are recommended by the American Type Culture Collection (ATCC):

1. **Genetic profiling using polymorphic short tandem repeat (STR) loci.** At least eight STR loci (TH01, TPOX, vWA, CSF1PO, D16S539, D7S820, D13S317 and D5S818) will be simultaneously amplified. The pattern of repeats will result in a unique STR identity profile for each cell line analyzed. The profile can be used as a baseline for comparison with future tests. We will use the Promega PowerPlex® 1.2 system and the Applied Biosystems Genotyper 2.0 software for analysis of the amplicons.
2. **Species verification by Isoenzymology.** As isoenzyme analysis is used to verify the species of origin, we will determine the distribution patterns of a group of enzymes that are characteristic of a particular species. This method simultaneously confirms the species identity and reveals contamination by another line of different species. We will perform this isoenzyme testing using a kit format - Authentikit™ system (Innovative Chemistry).
3. **Morphology check by microscope.** We will use this simple and direct method to identify the state of cells as morphology can vary between cell lines depending on the health of the cells and the differentiation state. Moreover, during periodic morphology checks we will maintain cell morphology images for comparisons.
4. We will be also periodically checking the database of cross-contaminated or misidentified cell lines to verify that proposed cell lines are not on this list.  
([http://standards.atcc.org/kwspub/home/the\\_international\\_cell\\_line\\_authentication\\_committee-iclac/Database\\_of\\_Cross\\_Contaminated\\_or\\_Misidentified\\_Cell\\_Lines.pdf](http://standards.atcc.org/kwspub/home/the_international_cell_line_authentication_committee-iclac/Database_of_Cross_Contaminated_or_Misidentified_Cell_Lines.pdf) )