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The Imperative Authentication of Cell Lines

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The elegant paper on the preclinical characterization of PC786, an inhaled inhibitor of respiratory syncytial virus (RSV) (1), adds new hope for the treatment of RSV infection and disease.

The selection of the Hep-2 cell line derived from larynx epithelial cells seems appropriate considering that the authors were working with a respiratory virus. However, these results must be analyzed with some caution in view of the fact that the Hep-2 cell line is no longer considered a human larynx epithelial cell line. This cell line was originally thought to be derived from an epidermoid carcinoma of the larynx but has since been unequivocally identified as a cross-contaminant of the cervix adenocarcinoma HeLa cell line, based on isoenzyme, HeLa marker chromosome, and DNA fingerprinting analyses. This situation is clearly stated on the ATCC webpage. As a model, it is likely that a cervix epithelium cannot fully reproduce the complexity of the human airway epithelium.

Cross-contamination, in which the contaminant is another cell line, was first recognized in the 1950s but, disturbingly, remains a serious issue today. This problem seriously compromises the quality of research, considering that the incidence of research papers flawed by the use of misidentified and cross-contaminated cell culture is estimated to be between 15% and 20%. However, the problem is still expanding and affects many cell lines used as classical *in vitro* models in many areas of current biomedical research (2, 3).

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