

CLEAR PCR Panel

Detect Contamination of Cell Lines with Cells of Another Species

Check the identity of your cell lines with Cell Line Examination and Report (CLEAR) PCR Panel, which can detect inter-species contamination of less than 0.5% using TaqMan® PCR assays (Figure 1). Cells that can be differentiated include those originating from mouse, rat, Chinese hamster, Golden Syrian hamster, human and nonhuman primate (NHP) species.

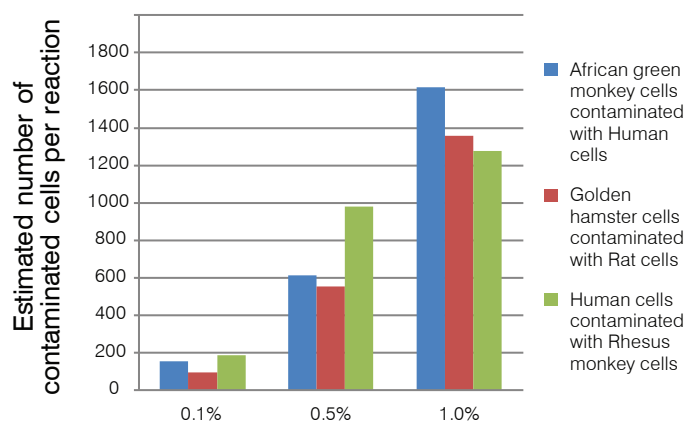


Figure 1: Detection of inter-species contamination using CLEAR PCR Panel. Pure cultures of “test cells” were counted and re-suspended to obtain a concentration of 2×10^7 cells/ml. Pure cultures of “contaminating cells” were also counted and mixed to obtain 0.1%, 0.5% or 1% contamination in the suspension. DNA was extracted from 200 μ l of the cell suspensions and TaqMan® PCR assays were performed. Estimated number of contaminating cells detected per reaction was plotted against percentage of contamination.

Monitoring Cell Lines for Contamination

Cell lines requiring direct or indirect contact with feeder cells, conditioned medium or passage in animals can potentially get contaminated with heterologous cells from a different species. Cell lines can also get contaminated during routine culture. Sharing medium, serum and other reagents among different cell lines increases the risk of cross-contamination. The past few years have brought increased awareness of the magnitude and consequences of cell line contamination; in the worst cases, cells were completely

overtaken by a faster-growing contaminant cell line such as HeLa.^{1,2} Good cell culture techniques, record keeping and routine monitoring of cell lines can save valuable time and resources. The cell lines should be routinely verified for absence of adventitious agents and heterologous cells. Monitoring is particularly advisable during early passage, expansion and when preparing seed stocks.

Sample Submission

CLEAR PCR Panel is offered as a stand-alone test or, to also ensure that your cell lines are free from infectious agents that can adversely affect your *in vivo* research, CLEAR can be added to any rodent or human infectious agent PCR panel or *Mycoplasma* testing. For cell line characterization that includes isoenzyme and karyotype analysis, contact Charles River for details.

When submitting cell lines for CLEAR PCR, please provide two aliquots of 200 μ l each with $1-5 \times 10^7$ cells/ml. If submitting a cell pellet, please send $0.2-1 \times 10^6$ cells/vial. Please note in the “comments” section of the submission form if the cell numbers are outside this range. If possible, samples for *Mycoplasma* testing should be passaged without antibiotics prior to shipping.

Ship vials on dry ice. To ensure that your samples arrive safely at our laboratory, we provide IATA-compliant sample shipping materials (sample submission vials, submission forms, shipping labels and containers) free of charge. To request shipping materials and download the Infectious Disease PCR sample submission form, visit www.crivier.com/info/diagnostic_sample_submission.

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References

1. Nelson-Rees, W. A., Daniels, D. W., & Flandermeyer R. R. Cross-contamination of cells in culture. *Science*. **212 (4493)**, 446-52 (1981).
2. Identity crisis. *Nature*. **457 (7232)**, 935-936 (2009).