

Risk Assessment

293T human embryonic kidney cells

Background

The 293T cell line, originally referred as 293tsA1609neo, is a highly transfectable derivative of human embryonic kidney 293 cells, and contains the SV40 T-antigen. This cell line is competent to replicate vectors carrying the SV40 region of replication. It gives high titers when used to produce retroviruses. It has been widely used for retroviral production, gene expression and protein production.

Risk Considerations

(1) These primary cells are not known to harbor an agent recognized to cause disease in healthy adult humans. Handle as a potentially biohazardous material under at least Biosafety Level 2 containment.

(2) Appropriate safety procedures be used when handling all primary cells and cell lines, especially those derived from human or other primate material. Detailed discussions of laboratory safety procedures are provided in *Laboratory Safety: Principles and Practice*, 2nd ed. (ASM Press, Washington, DC) (Fleming et al., 1995) and Caputo, J.L. Biosafety procedures in cell culture. (1988) *J. Tissue Culture Methods* 11:223.

Exposure risk

Although the risk of exposure of 293T to works in the lab are negligible as these cells require very specific growth conditions (e.g. temperature, humidity, growth serum, cell density), care must be given to prevent contact with skin as these cells are highly proliferative.

Good standard laboratory practices of appropriate lab protective equipment, containment and appropriate disinfection/disposal will prevent any accidental external exposure.

Personal Protective Equipment (PPE)

Proper laboratory PPE, including lab coats, eye protection, and gloves, should be worn at all times in the

Laboratory when handling 293T cells.

Any breach of the skin (scratch, cut, wound) needs to be protected from contact with biological agents. Cover open wounds, cuts, scratches, and grazes with waterproof dressings and gloves. If you exhibit any open wounds (broken skin) in areas that cannot be covered by dressings or clothing, re-evaluate the work in process. Suggestions for mitigating the exposure in the case of broken skin that cannot be covered include, for example where the wound is on the face, work with a full-face shield; work in the BSC, or have someone else do the work.

Decontamination/Disposal Procedures

General Level 2 good laboratory practices of decontamination of all work surfaces daily (eg. 70% ethanol) and appropriate chemical disinfection (>10% bleach/sodium hypochlorite) of all liquid cultures and laboratory glassware will successfully remove viable cells.

Summary

While these cells are not known to harbor recognized agents that cause human diseases, it is best to use caution when handling any human cells. We recommend that all human cells be accorded the same level of biosafety consideration as cells known to carry HIV.

Tentative Assessment: BIOSAFETY LEVEL 2