

Risk Assessment

SH-SY5Y

Background

The PC12 cell line originate from human bone marrow tissue. These are epithelial cells from a neuroblastoma patient (female). These cells are cultured in mixed conditions: adherent and suspension. This particular line is purchased from ATCC (CRL-2266)

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 1 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

There is negligible risk of exposure of SH-SY5Y to workers in the lab as these cells require very specific growth conditions (e.g. temperature, humidity, growth serum, cell density). However, care must be given to prevent contact with skin as these cells originate from aggressive cancers. 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 and gloves, should be worn at all times in the laboratory. Eye protection should be implemented when handling large volumes of liquid or using samples with infectious agents.

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 1 good laboratory practices of decontamination of all work surfaces daily and appropriate chemical disinfection (eg. 70% ethanol) 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