Risk Assessment HL-60 Cells

Background

HL-60 cells are promyeoloblasts isolated from the peripheral blood by leukopheresis from a 36-year-old, White, female with acute promyelocytic leukemia. This cell line can be used in immune disorder and immunology research. These cells are cultured in suspension. This particular cell line acquired from American Type Culture Collection (ATCC).

Risk Considerations

As per ATCC guidelines for this particular cell type, it should be handled as a potentially biohazardous material under at least Biosafety Level 1 containment, as ATCC determines the biosafety level of a material based on the risk assessment as guided by the current edition of Biosafety in Microbiological and Biomedical Laboratories (BMBL), U.S.

Exposure Risk

There is negligible risk of exposure of HL-60 cells to workers in the lab as these cells require very specific growth conditions (e.g., temperature, humidity, growth medium). 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 (e.g., 70% ethanol). Also, treatment of all liquid cultures with a final 1 % sodium hypochlorite for a minimum of 30 minutes (or use disinfectant and contact time that is based on experimental validation of efficacy for your specific bio agent) before disposal into the sink will successfully remove viable cells. Autoclaving at 121 degrees Celsius for at least 20 minutes for solid waste and laboratory glassware will also 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 them.

Tentative Assessment: BIOSAFETY LEVEL 1