IBC Policy on the Use of Human Cell Lines

Background

Human cell lines are commonly used in biomedical research; yet appropriate biosafety requirements for handling human cell lines are often left to each individual institution to determine.

In 1991, the Occupational Safety and Health Administration (OSHA) issued the Bloodborne Pathogens (BBP) Standard to protect employees who have occupational exposure to human blood or other potentially infectious materials. While human blood, most body fluids, unfixed human tissues and organs were clearly included within the scope and application of the standard, the inclusion of human cell lines was ambiguous.

In 1994, OSHA issued an interpretation of the applicability of the BBP Standard towards human cell lines. According to the interpretation, human cell lines are considered to be potentially infectious and within the scope of the BBP Standard unless the specific cell line has been characterized to be free of hepatitis viruses, HIV, Epstein-Barr virus, papilloma viruses and other recognized bloodborne pathogens. More recently, the Fifth Edition of the CDC publication, Biosafety in Microbiological and Biomedical Laboratories (BMBL, Appendix H), recommends that human and other primate cells should be handled using Biosafety Level 2 (BSL-2) practices and containment.

In consideration of these guidelines, the EVMS Institutional Biosafety Committee has adopted the following policy in regards to the use of human cell lines.

Policy

All cell and organ cultures of human origin, including cell lines, shall be handled using **BSL-2 practices and containment**. BSL-2 practices include, but are not limited to:

1. Materials must be placed in a durable, leak proof container during collection, handling, processing, storage, or transport within a facility.
2. All procedures involving the manipulation of infectious materials that may generate an aerosol should be conducted within a biosafety cabinet (BSC) or other physical containment device. Procedures may include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.
3. Laboratory equipment should be decontaminated on a routine basis, as well as, after spills, splashes, or other potential contamination.
4. Gloves must be worn to protect hands from exposure to hazardous materials. Protective laboratory coats, gowns, smocks, or uniforms designated for laboratory use must be worn while working with hazardous materials.

Principal Investigators may request an exemption from the IBC in order to utilize BSL-1 practices and procedures with a particular human cell line. Exemptions will be determined on a case-by-case basis by the IBC. In order to qualify for a BSL-2 exemption, cell lines must meet the following two criteria:

- Cell lines were directly obtained from a commercial vendor
- Cell lines are not used with lentiviral or retroviral expression vectors

For exempt consideration, Investigators must e-mail the following information to the IBC Administrator:

1. Name and description of the cell line
2. Supplier or source of the cell line
3. List of any known pathogens
4. Location(s) of cell line storage and use