

Use of Human Cell Lines

UC Santa Cruz Institutional Biosafety Committee Guidance on the Safe Handling of Human Cell Lines

Introduction

Human cell lines are commonly used in biomedical research, yet appropriate biosafety requirements for handling human cell lines are often subject to debate within the scientific community. In order to clarify the University's position on this matter, the Institutional Biosafety Committee has created the following guidance.

Background

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.¹ In alignment with this interpretation, the American Type Culture Collection (ATCC) [recommends](#) that all human cell lines be accorded the same level of biosafety consideration as a line known to carry HIV.² Moreover, the Fifth Edition of the CDC publication, *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, recommends that human and other primate cells should be handled using Biosafety Level 2 (BSL2) practices and containment.³

In consideration of the aforementioned regulatory interpretation and consensus guidelines and other factors, the UC Santa Cruz Institutional Biosafety Committee has adopted the following guidance regarding use of human cell lines.

All cell and organ cultures of human origin, including well established cell lines, shall be handled in accordance with the OSHA Bloodborne Pathogens Standard and under Biosafety Level 2 (BSL2) containment. To help comply with these regulations please see the UCSC [Human Cell Line specific Exposure Control Plan](#).

References

1. OSHA Letter of Interpretation, URL:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=21519 [VIEW URL](#)
2. American Type Culture Collection Frequently Asked Questions, URL:
<http://www.atcc.org/CulturesandProducts/TechnicalSupport/FrequentlyAskedQuestions/tabid/469/Default.aspx> [VIEW URL](#)
3. Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, URL:
<http://www.cdc.gov/od/OHS/biosfty/bmb15/bmb15toc.htm> [VIEW URL](#)