

	UCSD INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE	Policy 17.02
	Policy for the Use of Biologicals in Rodents	Issued: 7/12/01 Revised: 09/16/2015

I. Background and Purpose

Many newly developed animal models involve the transfer of cells, serum, or other tissue-derived products into live rodents. These biologicals can serve as repositories for adventitious rodent pathogens that, when used in animal studies can alter research outcomes and result in endemic outbreaks. Usually, contamination occurs by deriving cell lines or other biologicals from infected rodents, by passaging cell lines through infected rodents, or by using infectious agent-contaminated materials (serum, co-culture cells) when maintaining rodent cells in vitro. Many rodent pathogens survive quite well in cell culture environments and can therefore be passed back into other rodents. Outbreaks of lymphocytic choriomeningitis virus (LCMV), mouse hepatitis virus (MHV), Ectromelia virus, *Corynebacterium bovis* and other infectious disease outbreaks have occurred due to unknowing use of infected cell lines or biologicals in rodents. Unfortunately, the major suppliers of cell lines, tumors and rodent biological materials do not generally test for rodent pathogens.

To protect animals and the research data derived from work with them, all use of biologicals in animals or in laboratories using animals must be tested for rodent infectious agents. In addition, it can be advisable for research labs to test the cell lines that they are using in rodents to confirm the species of origin and even the particular cell line. Such testing can be performed by outside reference laboratories. The Animal Care Program Diagnostic Services Laboratory can help to coordinate this testing. The PI is financially responsible for all testing. The use of cell lines and other biologicals in animals at UCSD requires an approved animal protocol, in which that use is described.

II. Who Should Read This Guideline

All personnel who use biologicals in rodents.

III. Definitions

Term	Definition
Biologicals	Materials that have the potential to carry rodent pathogens, including cells, serum and other fluids, or other tissue-derived products. This also includes cells exposed in vitro to potentially infectious agent-contaminated materials (serum, co-culture cells) during in vitro maintenance. <u>Not included</u> in this definition are: 1) pharmaceutical grade products, 2) bacteria, protozoans or metazoans used for infectious disease studies (and carried out in biocontainment conditions) and 3) cells of

	other species that have <u>not</u> come into contact with rodents or rodent biological material.
PCR-based infectious agent testing	Use of PCR to test a cell line or other biological for the presence of one or more infectious agents. These are available from several reference laboratories in the US, and have their own proprietary names.
PCR-based cell line testing	Use of PCR to test a cell line to authenticate its species of origin and/or the specific cell line genotype.

IV. Policy

- 1) Biologicals (see definition) must be tested for adventitial rodent pathogens and all test results must be provided to ACP prior to use in rodents at UCSD. ****See Section VI for specific methods to meet this requirement.**
- 2) The testing must match the pathogen exclusion list for the specific facility where used. (<https://animalcare.ucsd.edu/pages/research-services/services-animal-acquisitions.html>). Current technology makes the use of PCR-based panels the preferred choice for this testing.
- 3) Each biological must be assessed on a case-by-case basis to determine if further testing is needed. Biologicals may not need to be tested if there is significant evidence to prove that they are free from rodent pathogens.

V. Related Documents

VI. Additional information

**The following constitute adequate methods to meet the policy requirement above:

- a) The biologicals have been tested by the ACP diagnostic lab or by an appropriate outside diagnostic lab.
- b) The cell line has been used chronically in animals for several years at UCSD with no positive sentinel results, and the biologicals have not been sent to another facility and then returned.
- c) The cell lines or biologicals stored by the research lab have been stored correctly with documentation regarding the storage condition, date stored, method used, and other quality control tests as applicable.
- d) The supplier of the biologicals can document testing for rodent pathogens, and the biologicals have not been passaged through rodents since that time.
- e) The biologicals have come directly from humans and have been tested for human pathogens.
- f) The research lab can provide a complete history of colony health of all rodent colonies the biological has passed through, and the colony health reports are clean.
- g) The work with untested cell lines and other biologicals in animals is conducted in ABSL-2 or in Quarantine.

Quarantine

An alternative to testing biologicals or providing evidence that biologicals are free of pathogens is to conduct studies utilizing biologicals in a quarantine facility. The UCSD Animal Care Program has quarantine space available in the BSB Rodent Isolation Unit (RIU). Studies utilizing biologicals can be performed under quarantine conditions with the provision that personnel are trained in the policies and procedures for use of the RIU facility.

Please contact the UCSD Animal Care Program for testing incoming biologicals (ACP Diagnostic Services Laboratory - <https://animalcare.ucsd.edu/pages/research-services/services-diagnostic-lab.html>), scheduling use of the RIU (ACP Facility Access - <https://animalcare.ucsd.edu/pages/facilities/facilities-access.html>), or review of evidence that biologicals are pathogen free (ACP Veterinarians - <https://animalcare.ucsd.edu/pages/animal-health/health-vet-consult.html>).

Descriptions of Testing Methods and Services

- http://www.idexxbioresearch.com/radil/Biological_Materials/Biological_Materials_Testing/
- <http://www.criver.com/products-services/basic-research/health-monitoring-diagnostic-services/cell-line-research-biologics-screening>

Related Articles

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