

Safety Guidelines according to GenTSV / BioStoffV



Scope of this directive Institut für Anatomie und Zellbiologie

Project supervisor

Biosafety officer	Dr. Petra Markmeyer-Pieles Dr. Dörte Ortmann	4204 4303
Facility doctor	Dr. Jürgen Pietsch	203-4368 or 270-20110

Scope

Laboratory work in genetic engineering, biosafety level 2 (BSL2)

Dangers for Laboratory workers, Population and Environment



Risk group 2 organisms are handled in this laboratory! Risk group 2 organisms present a low risk for human health and the environment according to current scientific knowledge.

Adenoviral vectors

The recombinant adenovirus employed in this laboratory is not replication-competent. However, they can initiate an abortive infection in human cells and transduce genetic information. Therefore, these recombinant viruses are classified as risk group 2.

According to ZKBS recommendations (2004), a FFP3 protective mask covering mouth and nose should be worn when working with adenoviral vectors expressing genes with oncogenic potential to avoid infection by aerosol transmission. Observe the special instructions when working with such adenoviral vectors.

Route of transmission of adenoviral vectors: By aerosol, wounding/stabbing and smear infection.

Lenti- and retroviral vectors

The recombinant lenti- and retroviruses employed in this laboratory are not replication-competent. However, they can initiate an abortive infection in human cells and transduce genetic information. The inserted genes have no risk potential. Therefore, these recombinant viruses are classified as risk group 2 (RG2). Lenti- or retroviral vectors that are pseudotyped with the VSV-G protein have the additional ability to infect human epithelial cells. Harmful effects on humans have not been reported so far. Observe special protective measures when working with lenti- or retroviral vectors expressing cell cycle regulatory genes.

According to ZKBS recommendations (2007), a protective mask covering mouth and nose should be worn when working with VSV-G pseudotyped lenti- or retroviral vectors expressing genes with oncogenic potential to avoid infection by aerosol transmission

Route of transmission of lenti- or retroviral vectors: by wounding/stabbing and smear infection.

Prevention and Therapy: no vaccine available

Yearly medical examination by the university health service is offered but is not mandatory when working with risk group 2 (RG2) organisms.

Precautions and Safety Instructions

Safety Guidelines according to GenTSV / BioStoffV



- The project supervisor must ensure that laboratory personnel is qualified and receive appropriate instruction and training. Gene technology instructions have to be provided in form of an oral presentation once yearly and additional training in case of changes of the risk potential. Participation in these instructions is mandatory and attendance must be recorded and confirmed by signature. Expectant mothers have to be informed about special dangers during pregnancy and breast feeding. The employer has to be informed as soon as a pregnancy is known (Mutterschutzgesetz).
- Maintenance, cleaning, rebuilding and demolition require written permission of the licensee or the person who is responsible for the facility. Employees have to be instructed beforehand about such activities with specific reference to the consequences for their workplace.
- When work is in progress, laboratory doors and windows must be closed.
- Protective laboratory coats must be worn. Wear protective eyewear when conducting procedures that have the potential to create splashes of microorganisms or other hazardous materials. Use further personal protective equipment if necessary. All protective equipment has to be supplied, washed, cleaned and maintained by the operator.
- Remove protective clothing before leaving for non-laboratory areas, e.g. cafeteria, library, and administrative offices. Do not wear the laboratory coat in the kitchen/social room or in the office. Store protective clothing separate from personal clothing.
- Persons using contact lenses have to wear tightly fitting safety goggles or face protection shields.
- Mouth pipetting is prohibited, mechanical pipetting devices must be used.
- Perform all procedures in such a way to minimize the generation of aerosols. All procedures involving the manipulation of infectious materials or genetically modified organisms that may generate aerosols must be conducted within a Biosafety cabinet or other physical containment devices.
- Decontamination of equipment has to be performed or to be arranged for by the laboratory personnel before it is approved for cleaning, maintenance or modification purposes.
- Decontaminate work surfaces with an appropriate disinfectant after completion of work.
- When a spill or splash of potentially infectious material has occurred, barricade and disinfect the affected area.
- Use needle syringes only when absolutely necessary. Do not try to recap the needle of a syringe. An accidental puncture might occur.
- If necessary decontaminate your hands, wash your hands after finishing work. Oil your hands (Hautschutzplan!) and before leaving the laboratory.
- Eating, drinking, smoking, snuffing, handling contact lenses, applying cosmetics and storage food, tobacco or cosmetics are prohibited in laboratory areas.
- Store genetically modified organisms of risk group 2 (RG2) safely and tightly sealed.
- Keep laboratory tidy and clean.
- Adhere to the disinfection procedures described in the hygiene plan.

The special instructions when working with VSV-G pseudotyped lenti- or retroviral vectors expressing genes with oncogenic potential

- *a protective mask covering mouth and nose should be worn to avoid infection by aerosol transmission.*

Transport and Waste Disposal

Solid and liquid waste contaminated with genetically modified organisms have to be autoclaved (to the hygiene plan). Waste containing genetically modified organisms has to be transported in break- and leakproof containers which have to be appropriately labeled. If the container is contaminated on the outside it has to be disinfected before being transported.

Location of the autoclave: Room

Emergency Regulations

Emergency phone number: 2000

- In the case of a spillage warn your colleagues and report to the project supervisor.
- absorb liquid with tissue paper, soak with disinfectant, absorb disinfectant and again wipe with disinfectant
- Disinfect contaminated clothing or skin with alcoholic disinfectant.
- Rinse eyes and mucous membranes thoroughly (profusely) under running water.

Safety Guidelines according to GenTSV / BioStoffV



- Treat injuries immediately under first aid conditions, if possible (if required, apply disinfectant). See a physician and inform him/her about the handled GMOs.
- location of the next first-aid box
- Report all injuries to the project supervisor and to the BSO without delay.
- Observe fire protection rules and evacuation plans; familiarize with these manuals to prevent unnecessary delays in case of emergency

Stand
07/2011