

Guidelines for Contamination Prevention

Pathogens xB / Pathogens xC

V 01, October, 2025.



Personal Protective Equipment (PPE)

- Disposable sleeves
- Disposable gloves
- Laboratory coat
- Recommended:
 - Hair / beard net
 - Surgical mask



Sources of Contamination:

- Skin, especially if not covered (e.g. wrists)
- Hair and face (e.g. danders falling off)
- Breathing / speaking might release aerosols
- Moving fast / erratically causes air streams (carrying dust)

The PPE should not only avoid infections of the technician but also avoid contamination of the sample with microbes from skin, hair and respiratory tract!

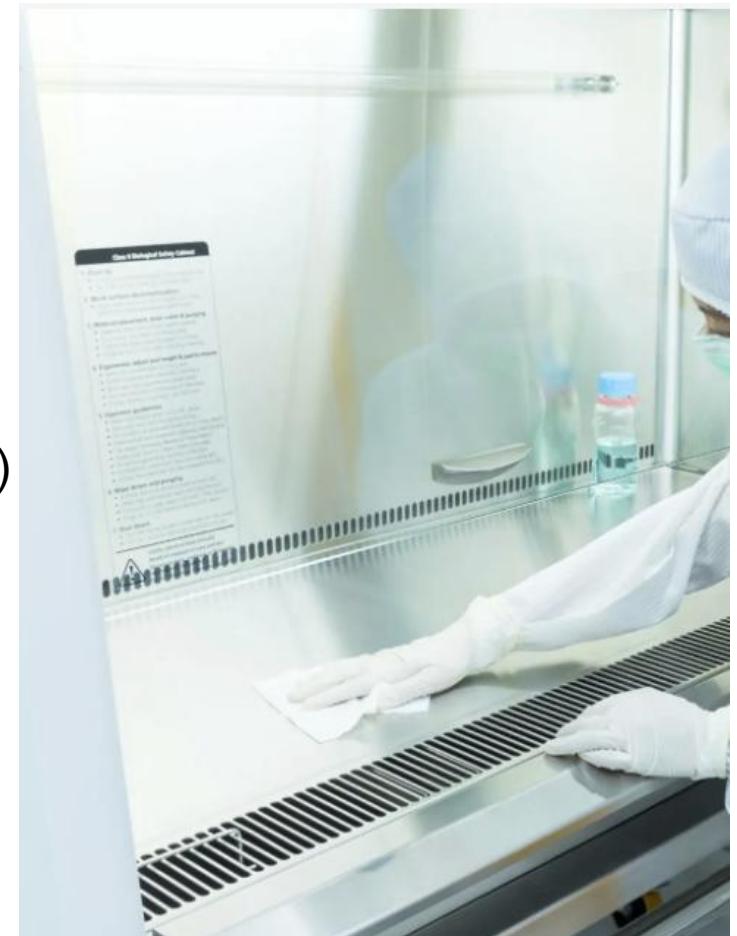
Handling of Personal Protective Gear

- Wear separate lab coats for different zones (pre-PCR, post-PCR).
- Gloves and sleeves should be changed or disinfected in case of:
 - (re-)entering critical areas like the laminar flow hood during sample preparation
 - potentially contaminated surfaces have been touched accidentally



Infrastructure and equipment

- Use separated rooms / areas for
 - **Sample preparation (GINA, RNA/DNA extraction...).**
- Critical: A dedicated laminar flow hood is strongly recommended!**
(E.g. only used for molecular testing)
 - PCR set up and addition of sample eluates
 - Post-PCR / preparation of hyborg tests (handling with amplified DNA)
- Use dedicated equipment in each room / area:
 - Pipettes – use filtered tips – without exception!
 - Vortexers, centrifuge, dry bath
- Equip each room / area with its own consumables and auxiliaries
 - Tubes (sterile / DNA free), bags for waste...
 - Racks, scissors, tweezers...



Disinfection

- Use the appropriate disinfectant for cleaning surfaces and equipment (e.g. pipettes):
 - Ethanol (alcohol) does not destroy / remove DNA
 - We recommend ULTRASOL OXY® WIPES (Dr.Schumacher) or other surface disinfectants based on Peracetic acid and Hydrogen peroxide
 - Or use 0.5 -1% of Sodium-hypochlorite (bleach, NaClO; Caution: this may leave residues)
- Use UV light to decontaminate laminar flow hood / instruments (e.g. geneLEAD VIII from PSS) before/after sessions and on a regular basis.
- Regularly clean the exterior and interior of instruments with suitable surface disinfectants
- Disinfect pipettes before each use!



Laboratory Practice

- Clean workbench before starting
- Clean equipment inside workbench before start (pipettes, tip boxes,...)
- During work under the hood try to avoid...
 - ..talking or coughing/sneezing
 - ..leaning or moving hands over open samples or touching (screw) caps inside.
 - ..touching your own face, hair, phone, etc.
- All reagents, buffers and samples must be disinfected on the outside before being placed into the laminar flow hood!
- Cover / close plates/tubes immediately after use to avoid evaporation or contamination.



Laboratory Practice cont.

- Limit freeze-thaw cycles of reagents to the minimum possible
- Gently homogenize reagents before use
- Mark opened the reagents with the opening date
- Remove all reagents and tools that are not required for the process
- Exchange waste bag before starting



Disposal / Decontamination

- Waste disposal
 - Discard biological samples in biohazard waste
 - Dispose DNA/RNA-containing waste in sealed bags/containers
 - Dispose unused reagents according to manufacturer recommendations
- Decontaminate surfaces in case of accidental soiling and clean before and after use.



Example sample prep (laminar flow hood)

- RNA/DNA Extraction:
 - Disinfect all instruments and workbenches (e.g. lamina) before starting the test.
 - Reagents and samples must be disinfected before being placed in the lamina!
 - Disinfect by wiping around the caps of the samples and around the labels.
 - Remove the buffers from the kit and disinfect their surfaces before placing them in the lamina.
 - Wipe gloves and sleeves with 0,5-1% freshly prepared bleach or ready to use wipes (e.g. ULTRASOL OXY® WIPES)
- Avoid interrupting the workflow.



Recommended Equipment

Cleaning / Disinfection:

- ULTRASOL OXY® WIPES (Dr. Schumacher)
 - Alternative: mikrozid PAA + wipes (Schülke)
 - Or other surface disinfectants based on *peracetic acid* **and** *hydrogen peroxide* as active compounds
- 0,5-1% Sodium hypochlorite solutions
- Alcohol pads 3x3 cm (for wiping the aluminum on top of PSS extraction cartridges; e.g. Meditrade REF 4465)

PPE:

- TYVEK ® ISOCLLEAN ® Sleeves (DuPont)
- Surgical masks (according to EN 14683 or ISO 16972:2020)
- Disposable gloves (according to EN 374 or EN 455)