General

FACS sorters are aerosol producing machines, these aerosols contain cells and particles from the sorted samples. To minimize the risk for the operating personnel and other people in the FACS lab, it is crucial to stick to the following rules.

Please note that in some cases your samples may need to be handled at a higher biosafety level for the duration of the sort due to the increased risk from aerosol formation.

General safety guidelines

- Wear gloves when operating the Aria, **do not** wear gloves when operating the computer
  *You may wear gloves when touching the mouse and keyboard only if you **spray your gloves with 70% EtOH every time** before touching the mouse and keyboard.*
- After your sort: switch off the stream, clean the whole sorting area with 70% EtOH according to the biosafety concept.
  Don't forget keyboard, mouse, general desk space and outer parts of the sorter you touch like doors of sample loading and collection area.

Waste decontamination

- First user of the day sorting BSL-2 samples:
  Add approximately 100ml of 14% bleach to the **empty** waste tank prior to sorting.
- Last user of the day using the cell sorter:
  Disconnect the full waste tank from the instrument and attach a spare empty waste tank.
  Transfer waste container to the cell culture and add additional bleach according to the fill level (**100 ml = full waste tank**, 50 ml = half tank etc., see SOP "BSL-2 Waste Decontamination").
  The deactivated waste can be discarded by the first user of the next day into the normal sink.

Use the AMO (aerosol management option) for all BSL-2 sorts

- Switch on the AMO and run it at 20% engine power when sorting following samples:
  - Established human cell lines
  - Human cells from tested buffy coats from the blood bank
  - Human cells from patients in a clinical study which excludes all signs of infectious diseases
  - Human cells originating from healthy known donors (known to the user who wants the cells to be sorted).
  - Virally transduced cell lines

  Double check that the AMO is actually running on its gauge on the side.
  → Needle not at 0!

  If your sample does not fulfill these criteria above, contact the facility staff to arrange sorting under higher biosafety conditions. (BSL-3 lab sorter)

Emergency shutdown and cleaning

- If you observe processes causing aerosol formation like:
  - Aerosol formation can be seen in the side stream camera window
    ➔ random drops or horizontal line instead of individual streams
  - Partial nozzle clog
    ➔ central stream bent towards one side,
  - Full nozzle clog
    ➔ no stream visible due to blockage
- If the stream has not switched off automatically, stop sorting immediately. Switch off the stream in the software or use the emergency stop button
- **Do not** open the sorting chamber
- Increase the AMO power to 100% and evacuate the room for 10 min
- After 10 min clean the sorting chamber and sample collection area with 70% EtOH avoiding any further aerosol generation. Do not spray into spills!
- Decontaminate the nozzle in FACS clean for 5 seconds
  Never sonicate the nozzle in FACS clean!
- Rinse nozzle with ddH_2O and sonicate the nozzle in ddH_2O for 30 seconds
- Reduce AMO power back to 20%

Biosafety Note: The nozzle has to be handled as if contaminated with biosafety class II level hazardous material and is to be transported in a closed tube as described in the biosafety concept.

This instrument is supervised by the Cytometry Facility.
Please contact the staff if you have any questions regarding biosafety info@cytometry.uzh.ch
or call 044 635 02 17 or 044 635 53 36 for help and further assistance.