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Guidelines at Karolinska Institutet for handling of SARS-CoV-2, as well as blood and other human samples with suspected/confirmed infection with SARS-CoV-2

The Swedish Work Environment Authority has classified SARS-CoV-2 as a risk group 3 pathogen. The virus is highly infectious and transmits through droplets, aerosol and contact. To avoid laboratory-acquired infection, great care must be taken during work with SARS-CoV-2 or human samples infected with the virus. Depending on the sample and the intended handling, work in BSL-3 containment for airborne pathogens may be required. In order to clarify this and help with the individual risk assessment, the Biosafety Committee would like to point out the following:

Cultures of SARS-CoV-2 and handling of cultured material must be done in BSL-3.

Sorting cells with known or suspected SARS-CoV-2 infection must be done in BSL-3.

Handling of human fluid from lavage or aspirate such as BAL and nasopharynx aspirate must be done in BSL-3.

PBMC prepared from infected blood put into culture must be handled in BSL-3.

All handling of blood and other human samples with suspected/confirmed infection with SARS-CoV-2 must take place inside a microbiological safety cabinet class II until the material is inactivated. After that, work with inactivated material can be done in BSL-2 outside the safety cabinet. Preparation of PBMC from blood and handling of PBMC for flow cytometry must be done at a minimum in BSL-2 inside a safety cabinet. After fixation/inactivation with e.g. PFA for 2 hours the material can be handled outside the safety cabinet. The use of safety goggles/visors or respiratory protection should be considered in the risk assessment under PPE. Aerosol minimizing protective measures such as the use of sealed centrifuge cups for centrifugation should also be considered in the risk assessment.

Decontamination of surfaces and equipment must be carried out by a validated method for inactivation of enveloped viruses. Ethanol, hydrogen peroxide, quaternary ammonium compounds and chlorine- and phenol-based solutions are examples of active disinfectants.

Clinical samples (excluding strains/isolates) are transported as category B (UN3373). Strains and isolates are transported as category A (UN2814).

These guidelines apply until further notice and may change with increased knowledge of the virus.