General position statement of the ZKBS
on risk assessment of SARS coronavirus

The family Coronaviridae contains viruses with a single-stranded, positive-sense RNA genome ranging from 27.6 to 31.3 kb in length. Coronaviruses are widespread among animals and humans. Infections can lead to various acute or subacute diseases or take a subclinical course. Most of the known human pathogenic coronaviruses cause mild diseases of the respiratory tract. According to § 5 paragraph 6 of the GenTSV, coronaviruses are generally allocated to risk group 2, excluding specifically named species.

The etiological agent of SARS (severe acute respiratory syndrome) was identified as a new coronavirus variant. According to the WHO (World Health Organization) directives for biological safety, handling of SARS coronavirus, including its amplification and infection of animals, is assigned to containment level 3.

Recommendation
According to § 5 paragraph 1 of the GenTSV in conjunction with the assessment criteria listed in appendix 1 No. 1 of the GenTSV, SARS coronavirus is allocated to risk group 3 as a donor or recipient organism.

Reasons
Infection with SARS coronavirus causes pneumonias accompanied by high fever, muscular pain and headache, cough, shortness of breath or other breathing difficulties. The incubation period ranges from 2 to 10 days. Lethality (number of fatalities / SARS cases) reaches approximately 11%. A vaccine against SARS coronavirus is not yet available.

SARS first appeared in November 2002 in Southern China and rapidly spread worldwide. In Germany, 9 imported non-fatal SARS cases were reported in total. On May 19, 2004, the WHO announced the end of the SARS pandemic. Since then, no further human SARS cases were reported.

SARS coronavirus shows a high tenacity. Depending on environmental conditions, it can remain infectious for several days outside its host.

Transmission of SARS coronavirus predominantly occurs via droplet infection and thus via close contact to an infected person. However, it cannot be excluded that SARS coronavirus can also be spread through the airborne route or through smear infections. There are indications that transmission requires a relatively high infective dose.

In addition to safety measures of containment level 3, the ZKBS recommends wearing respiratory protection with a class P3 retention capacity (e.g. FFP3 masks, respirators with P3 filters or TH3P respiratory protection hoods) when carrying out genetic engineering operations with infectious SARS coronavirus. Since TH3P respiratory protection hoods are known to cause less discomfort to the wearer and show fewer leakage problems, they are considered especially suitable for these genetic engineering operations.