

Some guidelines & publications for handling COVID-19 (SARS-Cov-2 containing) specimens

Several organization have published guideline on how to work with biospecimens from COVID-19 patients. The documents are based on what is/was known about **coronavirus disease 2019 (COVID-19)** at the time of publication and will be updated at the respective websites as additional information becomes available.

In addition, local regulations can apply.

GUIDELINES

- **Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Coronavirus Disease 2019 (COVID-19)**

Interim guideline (31 March 2020) ... [open](#)

- **FAQs about Laboratory Biosafety & SARS-CoV-2 from the Centers for Disease Control & Prevention (CDC)**

View details on specimen handling <https://www.cdc.gov/coronavirus/2019-ncov/lab/biosafety-faqs.html>



<https://www.cdc.gov/coronavirus/2019-ncov/lab/lab-biosafety-guidelines.html>

- **WHO Laboratory biosafety guidance related to the novel coronavirus**

Interim guidance (12 Feb 2020) .. [open>>](#)



- **Dealing with COVID-19 contaminated waste**

from Austrian Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology ... [open guideline \(German\)](#)



- **Air Transport of COVID-19 Contaminated Samples**

Novel Coronavirus (Covid-19)

Dangerous goods (including alcohol based sanitizers) guidance for Operators – 07 March 2020 ... [open guidance](#)



“... Based on the experience of shipping specimens of SARS, swine flu, MERS and other similar types of viruses, WHO and national health authorities such as the US Centers for Disease Control (CDC) are advising health authorities to ship specimens of Covid-19 as **UN 3373, Biological substance, Category B**. To ensure that the global response to suspected cases of Covid-19 is as rapid as possible, it is important that specimens can be transported to laboratories for analysis without delay. ...”

LOCAL REGULATIONS - Examples

Austria: Styria

“Steirischer Seuchenplan”>> ... requires autopsies to be performed in BLS-3 laboratories

DEDICATED PUBLICATIONS - Examples

[Overview on COVID-19 related publications at WHO website ... open >>](#)

Some examples:

They provide results on SARS-CoV persistence on surfaces, during disinfection routine FFPE tissue processing. Many findings are from related SARS-CoV virus studies as publications on SARS-CoV-2 are limited.

Biospecimens containing SARS-Cov-2:

·Wenting Wang (11 March 2020); Detection of SARS-CoV-2 in Different Types of Clinical Specimens [doi:10.1001/jama.2020.3786](https://doi.org/10.1001/jama.2020.3786)

PCR test on specimens from COVID-19 patients with fever, dry cough, and fatigue revealed that the virus was present in the following specimens ;

- Highest rates: in **bronchoalveolar lavage fluid** (14 positive results of 15 samples; 93%),
- followed by **sputum** (72 of 104; 72%),
- **nasal swabs** (5 of 8; 63%),
- **fibrobronchoscope brush biopsy** (6 of 13; 46%),
- **pharyngeal swabs** (126 of 398; 32%),
- and **feces** (44 of 153; 29%).
- Lower positive rates were found in and **blood** (3 of 307; 1%).
- None in **urine** (0 of 72; 0%)

- Anthony F. Henwood (2020) Coronavirus disinfection in histopathology, Journal of Histotechnology, DOI: [10.1080/01478885.2020.1734718](https://doi.org/10.1080/01478885.2020.1734718)

This technical note presents disinfection procedures and histotechnology processes for corona virus containing specimens and using data obtained from similar coronaviruses, e.g. severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS).

- Darnell ME et al. (2004); Inactivation of the coronavirus that induces severe acute respiratory syndrome, SARS-CoV. J Virol Methods. 2004 Oct 1;121(1):85–91.

In older studies on SARS-CoV viruses, it was determined that **formalin and glutaraldehyde inactivated SARS-CoV in a temperature- and time-dependent manner**. Formalin fixation performed at 37°C or room temperature, significantly decreased the infectivity of the virus on day 1, while glutaraldehyde inactivated SARS-CoV after incubations of 1–2 days.

- Duan et al. (2003); Stability of SARS coronavirus in human specimens and environment and its sensitivity to heating and UV irradiation. Biomed Environ Sci. 2003 Sep;16(3):246–255.

The authors found that **several coronaviruses were made non-infectious after the following exposure times and temperatures: 90 min at 56°C, 60 min at 67°C, and 30 min at 75°C. Paraffin infiltration** in most histopathology laboratories uses a temperature of 60–65°C for 2 h or more. It is, therefore, appropriate to consider that the formalin-fixed paraffin-embedded tissue block would have a low risk of coronavirus infectivity.

COVID-19 TESTS

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- Sheridan C. et al., Fast, portable tests come online to curb coronavirus pandemic. Nat Biotechnol. 2020 Mar 23. doi: [10.1038/d41587-020-00010-2](https://doi.org/10.1038/d41587-020-00010-2)