Possible consequences of the COVID-19 pandemic on the use of biospecimens from cancer biobanks for research in academia and bioindustry

To the Editor —The COVID-19 pandemic highlights the risks associated with the collection and processing of human biospecimens with an unknown status for the coronavirus SARS-CoV-2, whether for diagnostic, therapeutic or research purposes. Biosamples from patients with cancer, which continue to be collected and stored in biobanks during the pandemic, are likely to be infected with SARS-CoV-2. Apart from urine, all types of biospecimens (tissues, biofluids and swabs) and organs are potentially affected[1–6]. SARS-CoV-2 is likely to be inactivated in formalin-fixed, paraffin-embedded samples heated to 56 °C (133 °F)[7]. However, as SARS-CoV-2 survives on various types of surfaces, it is unclear whether this could also apply to cassettes containing formalin-fixed, paraffin-embedded samples[8]. For this reason, and because SARS-CoV-2 is highly infective, it is essential to prepare, store, handle and ship human samples to ensure that the people exposed to the biospecimens not only are familiar with the appropriate safety procedures for handling potentially infectious fluids or tissue samples but also are able and willing to implement them.

Universal precautions remain the best practice for the control of potential infection from human samples. Therefore, SARS-CoV-2-positive samples should not be marked accordingly, since these precautions apply to all biospecimens (as in the COVID-19 Biospecimen Guidelines of the University of California, San Francisco: https://research.ucsf.edu/covid-19-biospecimen-guidelines). It is mandatory to work at biosafety level 2 (BSL-2) and to use class II biosafety workbenches (https://www.cdc.gov/coronavirus/2019-ncov/lab/lab-biosafety-guidelines.html). Reproductive work (e.g., viral culture, isolation or neutralization tests) should be carried out in laboratories with inward-directed airflow

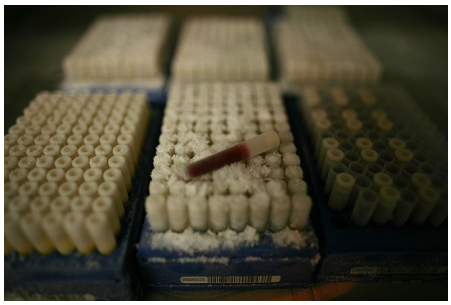

Image credit: Christopher Furlong/Getty Images News.

(BSL-3) (https://www.who.int/publications-detail/laboratory-biosafety-guidance-related-to-coronavirus-disease-2019-(covid-19)).

Many cancer biobanks, but also researchers, do not have access to the security facilities mentioned above. Introducing them would be costly, not only for biobanks but also for researchers from academia and biotech/biopharmaceutical companies requesting these samples and the associated clinical data. Under what conditions should biomaterials be collected from patients with cancer during and after the current COVID-19 pandemic? The relevant ethical and legal consequences of the tests must also be clarified. There is a need to specify which COVID-19-related symptoms, such as dry cough or fever, should be recorded, as well as who should record these data and until when. For avoidance of possible cross-contamination, an immediate and applicable recommendation would be to store separately in biobanks all human samples collected during the COVID-19 outbreak.

Biobanks can identify whether they have an appropriate quality-assurance system in place and demonstrate to end users that this system is being applied, together with standard security guarantees. The quality-assurance system also enables the transparent traceability of the samples requested from academia and from bioindustry. Traceability ultimately allows assessment of the quality of the samples and associated data. However, this comes with financial investment. The present crisis represents a new, critical and urgent challenge in the field of biobanking for cancer research. ❐

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Competing interests

The authors declare no competing interests.