



Provenance of Unknown Tissue in Mixed Sample Jar Determined through DNA Testing

BACKGROUND

The Director of Operations for a large pathology services provider contacted Strand after his laboratory received a jar containing two specimens that, upon visual inspection, appeared to be completely different tissue types, presumably from different patients. As an existing Strand customer, the facility had specimen source verification kits on hand and was able to send in samples quickly for DNA Specimen Provenance Assignment (DSPA) testing to determine if the specimens were in fact from two different patients.



MATERIALS AND METHODS:

The pathologist at the lab evaluating the biopsies in question suspected immediately that the specimens were likely from two different sources based on their visual appearance. Small samples from the paraffin-embedded tissue blocks were sent to Strand for analysis. DNA Specimen Provenance Assignment (DSPA) testing confirmed that the genetic profiles obtained from each sample did not match—meaning the specimens had not been collected from the same patient.

After consulting with the practice where the samples were taken, it was determined that the first specimen was a skin lesion likely collected from Patient A while the second specimen was cervical tissue likely collected from Patient B. The cervical tissue had been collected approximately four days after the skin lesion, but it was erroneously placed in the same jar and then labeled for Patient B. Following this discovery, a DNA reference sample taken via cheek swab from Patient A was submitted to Strand to confirm a match with the unlabeled tissue (skin lesion) by means of a DSPA test.

RESULTS:

DSPA testing confirmed that the tissue samples in question were from two different patients.* Subsequent testing of the skin lesion and reference sample confirmed that the lesion was a match for Patient A.

The skin lesion was discovered to be positive for cancer, thus making it even more important to assign provenance to the specimens in a timely manner. With both samples properly identified, the patients could be notified of their testing results and did not have to undergo re-biopsy procedures to receive a diagnosis.

CONCLUSION:

Through the relationship with Strand, the laboratory was able to help its client (the practice) solve a potentially serious problem and prevent any inconvenience or harm to the patients involved in the error. While the laboratory uses the **know error® system** on a prospective basis, this particular situation shows the value of having a specimen source verification kit available for retrospective cases when an error is suspected.

*NOTE: The client deemed it unnecessary to perform DSPA testing to confirm a match between the cervical tissue and Patient B because the jar was correctly labeled for that individual. Strand recommended otherwise.