Analysis of fixation conditions on the quantity and quality of accessible chromatin extracted from archived tissues

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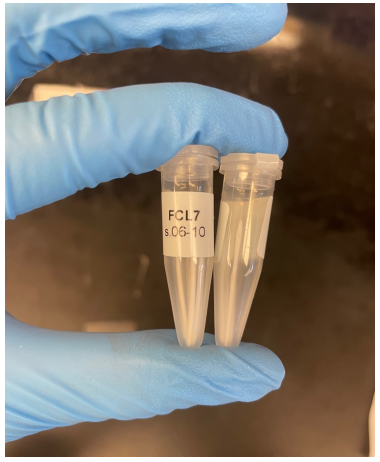

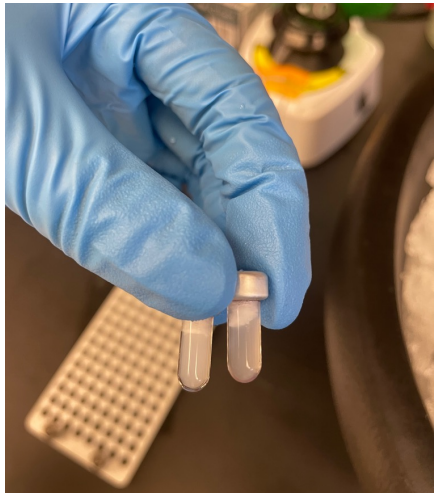

Question:
Does the length of formalin fixation prior to paraffin embedding affect our ability to extract chromatin from our tissues using the FAIRE assay?

Why do we care?
Fixation time is just one part of optimizing the FAIRE assay for the extraction of accessible chromatin from archived (FFPE) tissue. Having an efficient and reproducible protocol for extracting chromatin can help us infer changes in gene expression of different tissues in different states, for example, cancer cells.

Results:
Because I was not able to extract high quantities of high-quality accessible chromatin from tissue samples fixed for any duration (6, 24, or 48 hours), I believe the assay itself requires further optimization before evaluating fixation conditions.

Importance to research community:
Knowing the best duration of fixation for the tissue samples can allow researchers interested in chromatin extraction using the FAIRE assay to extract the highest quality accessible chromatin for analysis and sequencing.

Importance to general audience:
Individual tissue types have very specific patterns of chromatin accessibility, similar to a barcode on a purchased item. If an assay to extract chromatin is optimized, knowing the tissue's chromatin accessibility pattern can aid in clinical diagnostics. For example, knowing how a healthy cell's pattern changes when it becomes diseased, or knowing how a tumor's pattern changes when treated with a drug.