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Snap-Frozen Tissue Preparation

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Protocol status: Working
We use this protocol and it's working

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Abstract

This protocol describes preservation of tissue by snap-freezing. Biospecimens preserved with this protocol will be suitable for downstream analysis of DNA, RNA, protein, and morphology endpoints. Multiple workflows can be used for snap freezing including using placing tissue in a vessel either with or without media and exposing it to liquid nitrogen vapor, immersing it in liquid nitrogen, or placing it on dry ice with a cooling device (Micke et al., 2006). The workflow pursued depends on the desired balance between feasibility, time, and cost as well as the possible downstream analyses performed. The snap-freezing protocol detailed below may not be ideal for downstream assays that require intact tissue morphology (Engel, Vaught, & Moore, 2014) (see **NCI Biospecimen Evidence-Based Practices**).

Micke, P., Ohshima, M., Tahmasebpoor, S., Ren, Z.-P., Ostman, A., Pontén, F., & Botling, J. (2006). Biobanking of fresh frozen tissue: RNA is stable in nonfixed surgical specimens.*Laboratory Investigation; a Journal of Technical Methods and Pathology*,*86*(2), 202–211. https://doi.org/10.1038/labinvest.3700372

Engel, K. B., Vaught, J., & Moore, H. M. (2014). National Cancer Institute Biospecimen Evidence-Based Practices: A novel approach to pre-analytical standardization.*Biopreservation and Biobanking*,*12*(2), 148–150. https://doi.org/10.1089/bio.2013.0091

Materials

- Freshly dissected tissue block
- Dry Ice
- 1.5 mL LoBind tubes **Eppendorf Catalog #**022431021
- Access to -80°C ultra-low freezer

Troubleshooting

1 Place pre-weighed piece of tissue in either a 1.5mL Eppendorf tube or 1.5mL cryo tube.

2 Quick freeze by immediately placing tube on dry ice.

3 Transfer tube to a -80°C ultra-low freezer for Biobanking or until ready for downstream processing.