Preparing Samples for MSI Analysis

The UT Austin Mass Spectrometry Imaging Facility is a BSL2 facility. All submitted samples must conform to BSL2 guidelines.

Tissue

Tissue should be flash frozen as soon as possible after resection. Organs or biopsies should be placed on a piece of aluminum foil/weigh boat and floated on the surface of liquid nitrogen. Once the organ has chilled (about 30 seconds) it can be slowly submerged in the liquid nitrogen. Freezing a tissue specimen too quickly will cause it to crack. Once frozen, the organ can be wrapped in foil or placed in a container. The container should be large enough that the tissue will not be distorted by forcing it through the opening. Organs should NEVER be flash frozen in an eppendorf tube, etc. as they will take on the shape of the tube. Embedding of the sample in OCT or other media should be avoided if possible as this may compromise data quality. Frozen tissue should be stored at -80°C and transported on dry ice.

Biofluids

Biofluids should be frozen as soon as possible after collection and processing (e.g. serum). Samples for research should be aliquoted into about 100 µL per tube prior to freezing. This is a reasonable amount for most studies and prevents repeated freeze/thaw cycles to obtain the correct volume of fluid to analyze. Biofluids should be stored at -80°C and transported on dry ice.

Cell Lines

At the end of the growth cycle, cells should be collected in a tube and pelleted. Care should be taken to not spin the cells so fast that membranes are burst. Supernatant media should be removed. Cells should then be washed twice with a volatile buffer such as ammonium bicarbonate (150 mM) and spun down to remove buffer. The cells should be frozen as a pellet and stored at -80°C. Cell pellets should NOT contain glycerol, DMSO, phosphate, serum, or other additives. The presence of extraneous materials will suppress the signal of analytes of interest. For new projects, the pellet should contain approximately 1,000,000 cells.

If growing cells directly on a slide, ensure that the cells are on the conductive side of the provided indium-tin oxide coated slide. Otherwise, a spectrum cannot be acquired. Cells should be transported on dry ice.

Animals or Large Samples

After sacrifice, the animals should be perfused, and the hair removed if possible (*e.g.* shaving, Nair). The animal can then be frozen by slowly lowering into a hexane/dry ice bath. This is a gentler freezing than liquid nitrogen and will help to prevent cracking. It will take about 1 minute for a mouse to freeze, about 3 minutes for a rat. Once frozen, the surface of the animal should be wiped to remove excess hexane. Frozen animals should be stored at -80°C and transported on dry ice.

For all samples

We are unable to analyze anything that has been treated with radioisotopes. The UT Austin MS Imaging Facility does <u>NOT</u> have the required licenses and restricted areas to handle these types of samples.

<u>Remember!!</u>

NO PHOSPHATE BUFFER

NO DETERGENTS

NO GLYCEROL OR DMSO

NO GROWTH MEDIA OR OTHER MULTI-COMPONENT ADDITIVES