

MALDI -TOF SAMPLE PREPERATION GUIDE

20080130

1) General prep for non-water soluble organic and aromatic polymer samples:

Matrix preparation: (note that these should be made daily)

1. **2,5-dihydroxybenzoic acid** (2,5-DHB, MW 154.03 Da).
 - Weight out 20 to 50 mg 2,5-DHB in a glass vial. Add 1.0 ml of MeOH , acetone, or whichever organic solvent in which both the matrix and sample are soluble). Vortex one minute till fully dissolved.
2. **Dithranol** (MW 226.06 Da):
 - Weight out 10 mg in a glass vial. Add 1.0 ml of THF (tetrahydrofuran). Vortex till fully dissolved.

Sample solution and final mix:

1. If you are starting with an NMR solution. Make two additional sample dilutions with solvent at ratios of 1:10 and 1:100. Then mix the three samples (the normal NMR concentration and the two diluted concentrations) with matrix at a ratio of 1:10 (sample to matrix).
2. If you are starting with a GC/MS sample, prepare concentrations at a sample to matrix ration of 1: 1, 1: 3 and 1:10.

2) General prep for peptides and proteins:

Matrix preparation:

1. **α -cyano-4-hydroxycinnamic acid** (CHCA, MW189.04 Da), a good matrix choice for samples with MW <10,000Da
 - Weight out 10 to 20 mg of CHCA in an Eppendorf[®], then add 1.0 ml of matrix solution **A** (see description below).
2. **Sinapinic Acid** (MW224.07Da), a good choice for samples with MW >10,000Da.
 - Weight out 10 to 20 mg of sinapinic acid in an Eppendorf[®] then add 1.0 ml of matrix solution **B** (see description below) or matrix solution **A** if the sample is contaminated.

After mixing either matrix with the matrix solution, vortex 1 minute to dissolve (this is a saturated solution, hence some undissolved matrix will remain). Next, centrifuge for 20 second, then transfer the clear solution part to another Eppendorf[®].

Matrix Solution A: a 50:50 water/acetonitrile with 0.1% TFA (trifloroacetic acid) final concentration

Matrix Solution B: a 70:30 water/acetonitrile with 0.1% TFA final concentration

Sample solution and final mix:

Dilute your sample with either matrix solution A or B at about 10 ~ 100pmol/ μ l, then mix with matrix at sample to matrix ratios of 1:10, 1:20 or 1:30.

3) Internal standard:

If an internal calibration is desired, add 1-3 μ l of proper standard solution into the final mix.

4) Crystallization:

Deposit 0.5 - 1.0 μ l of final mix onto target and allow to air dry. A heat gun set to “cool” may be used for samples containing DMSO.