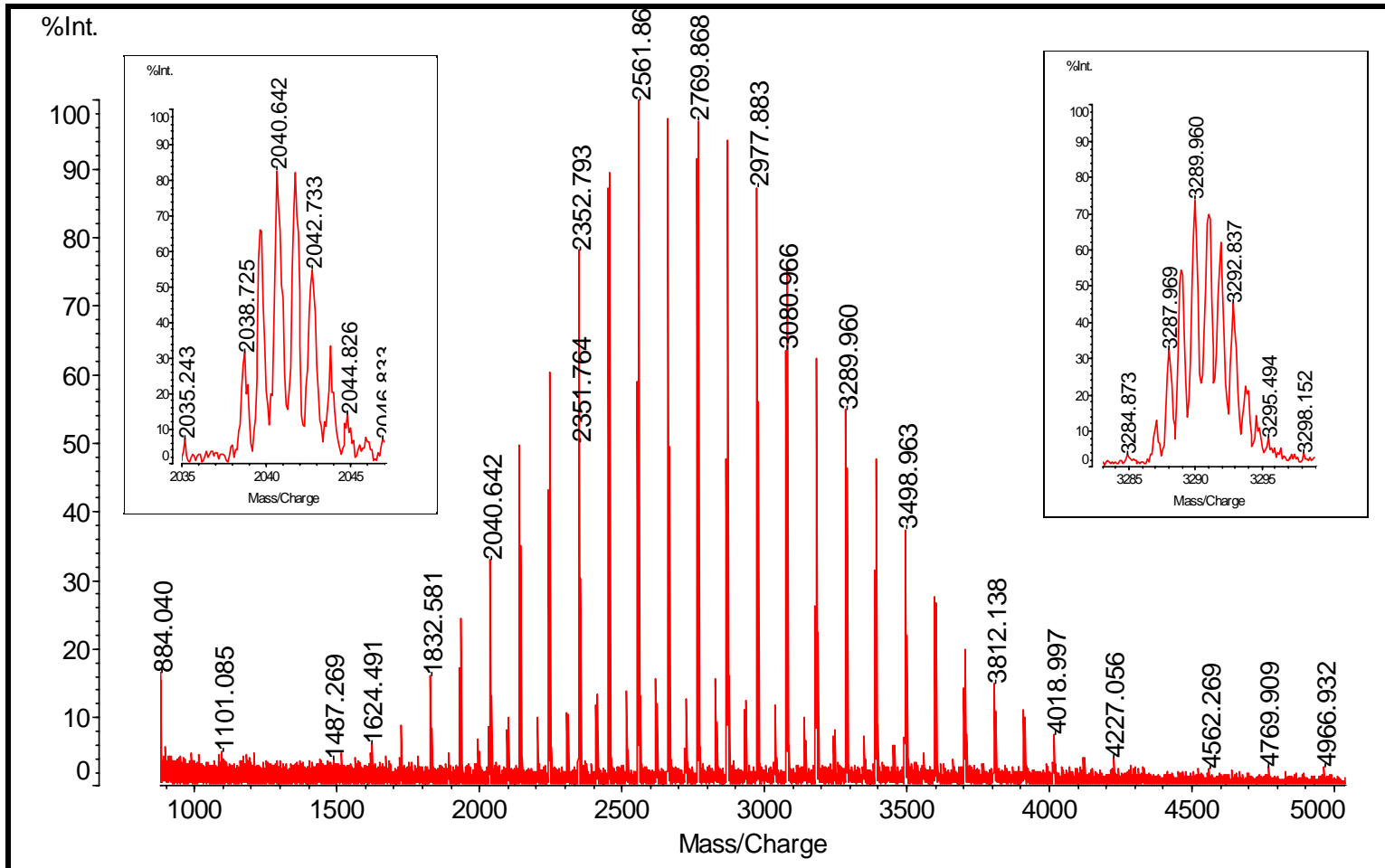


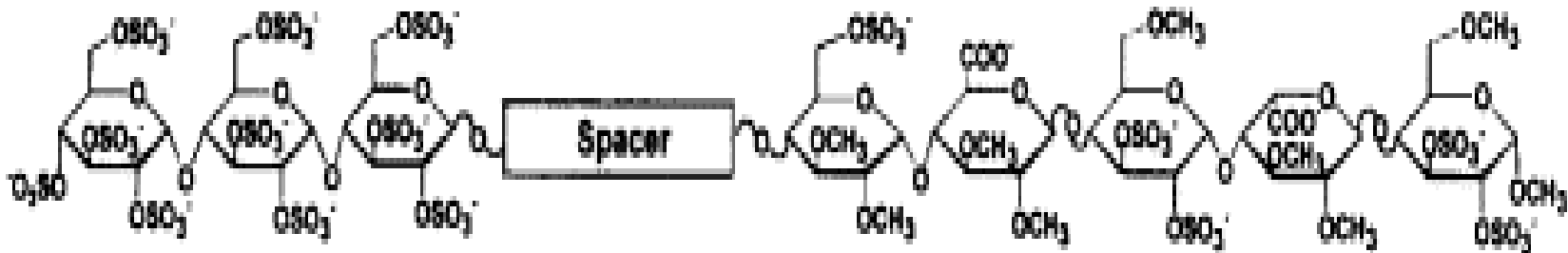
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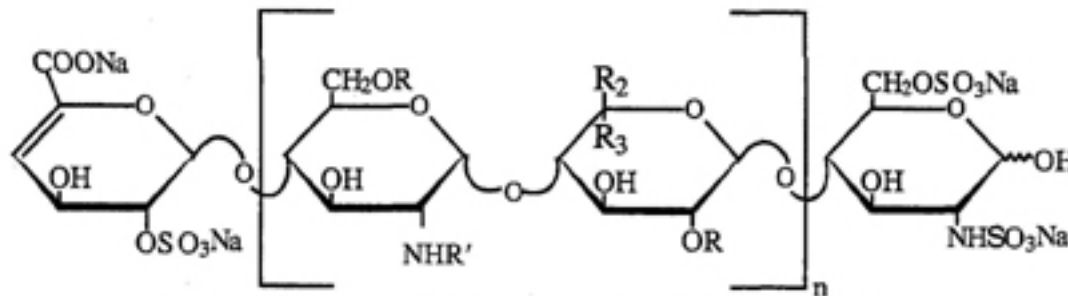
a synthetic glycoconjugate mimic of heparin, having a rigid polyglucose or a flexible polyethylene type spacer





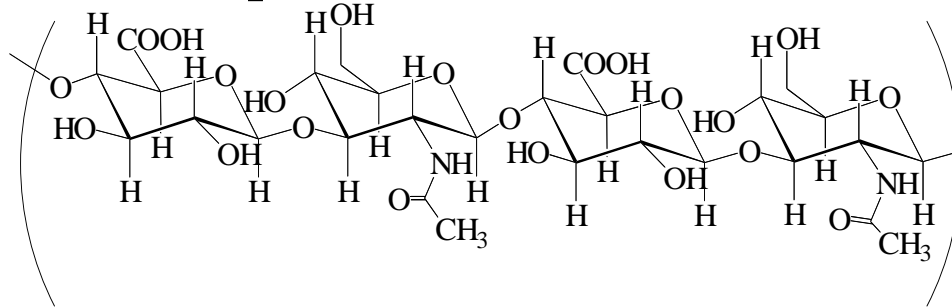
A clinical LMWH: Tinzaparin

Composed of a 2-O-sulpho-4-enepyranosuronic acid structure at the non-reducing end and a 2-N,6-O-disulpho-D-glucosamine structure at the reducing end of the chain



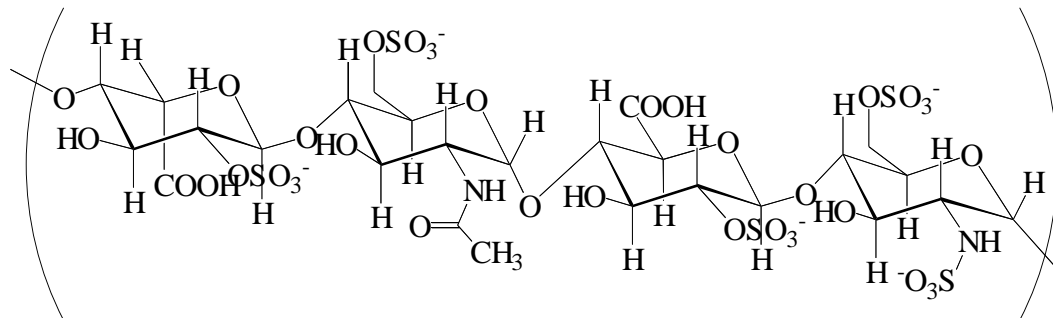
$n = 1$ to 25 , $R = H$ or SO_3Na , $R' = H$ or SO_3Na or $COCH_3$
 $R_2 = H$ and $R_3 = COONa$ or $R_2 = COONa$ and $R_3 = H$

Heparin vs. HA



Hyaluronan (homogeneous)

Unsulfated



Heparin (heterogeneous)

Averages 1.8-2.4 sulfate groups per disaccharide

Structures of UFH and LMWH

- UFH and LMWH have the same basic structure but have differing chain lengths. UFH has an average molecular weight of 16-17 kDa. Most LMWH have average molecular weights in the 3 to 8 kDa range. HB3 binds to UFH and LMWH

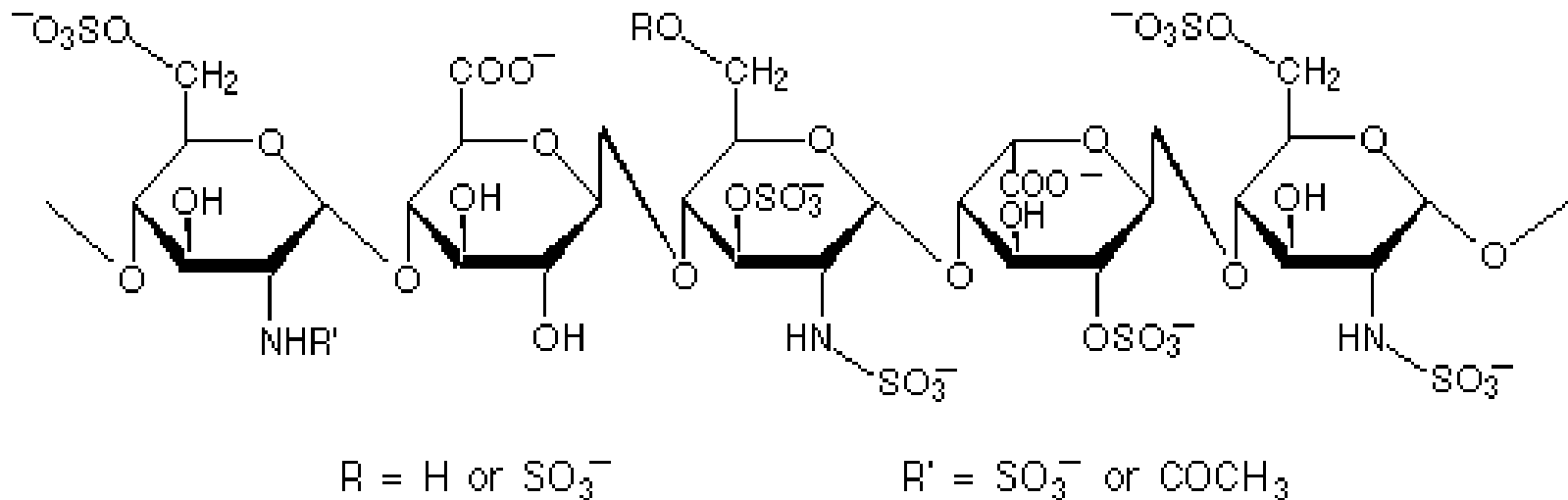
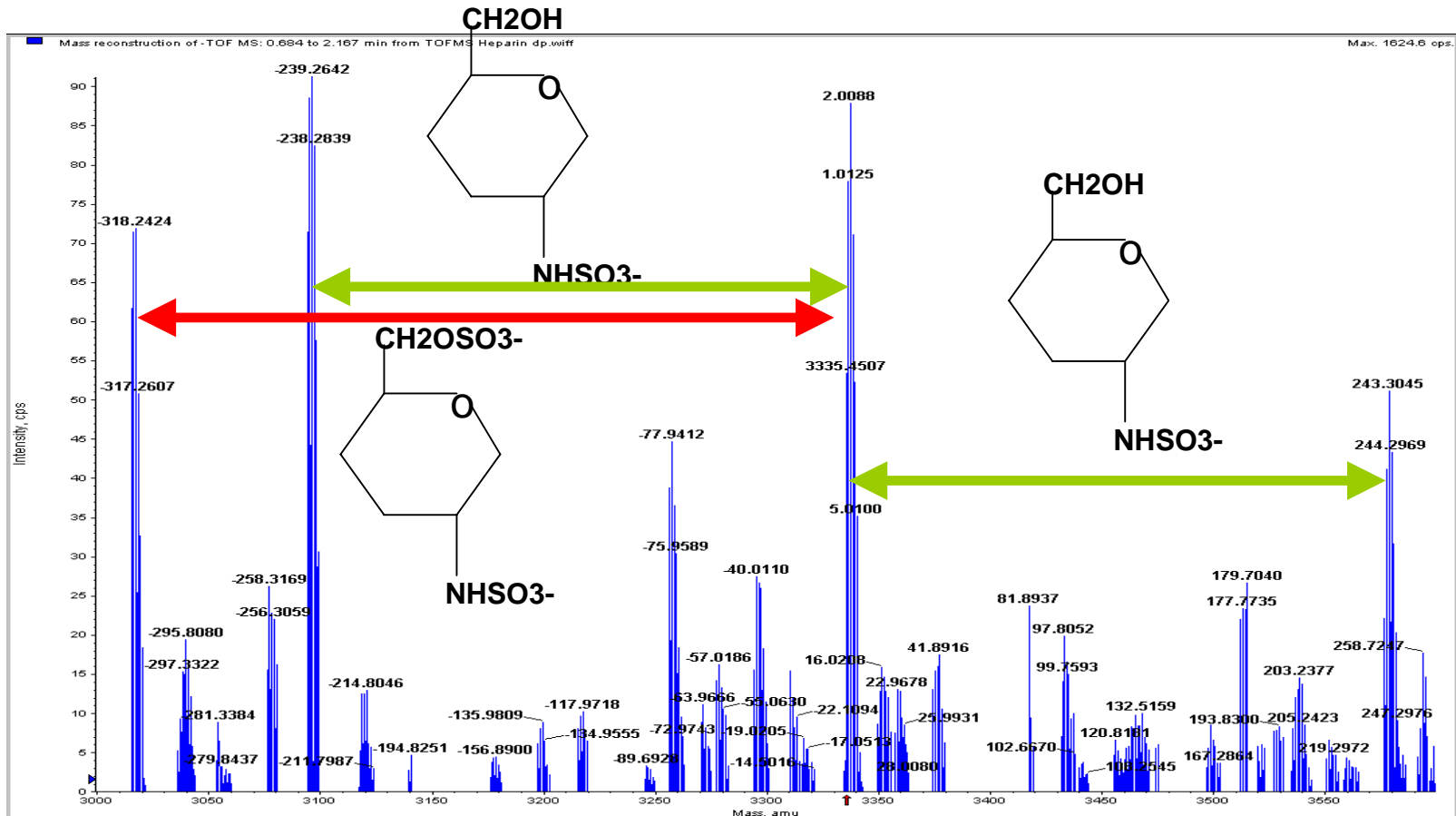
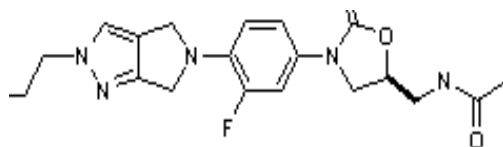
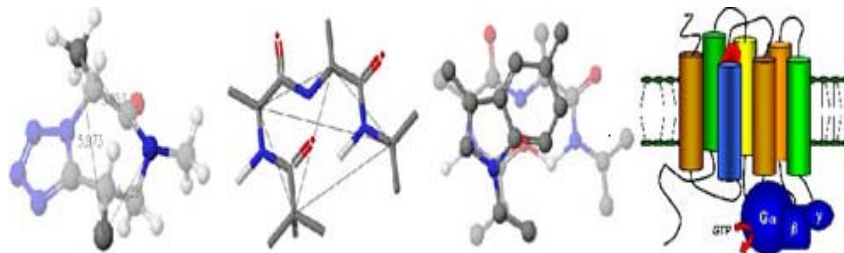
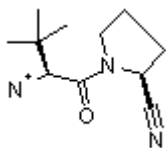


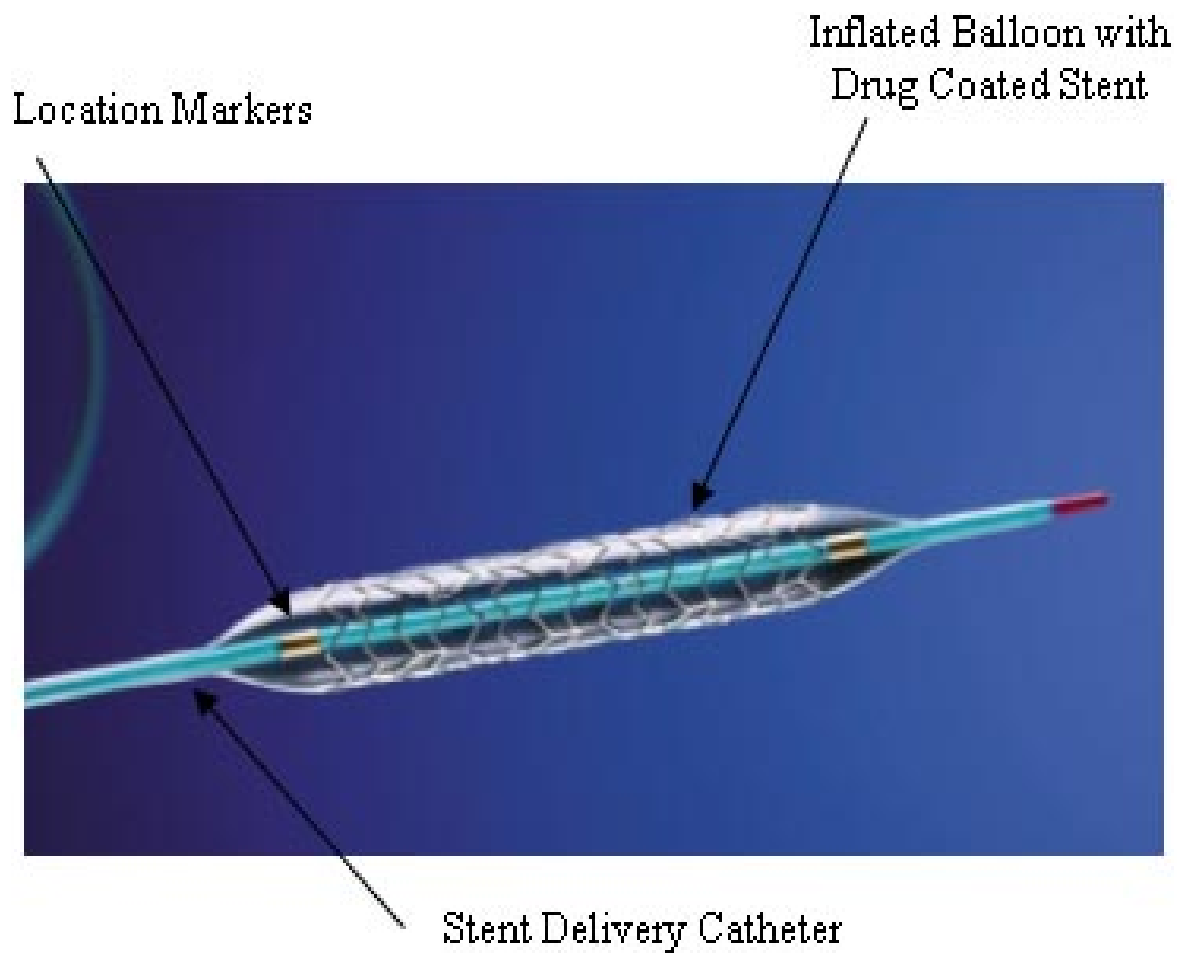
Figure 9 This figure shows a zoom-in of the deconvolution result mass graph in Figure 6 of the TOFMS spectrum for LMWH. The masses of the peaks are labeled relative to the mass at 3335.45. The mass differences correspond to various sugar residues



NCS

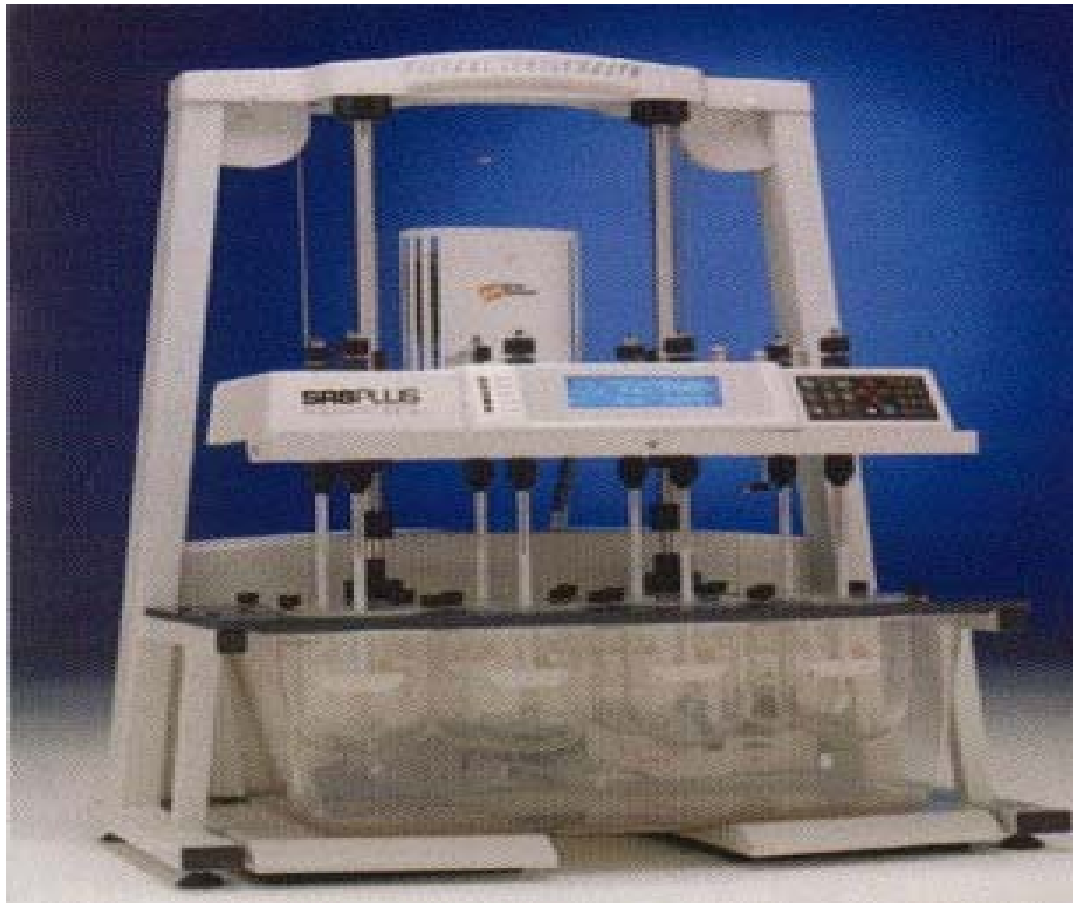
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Dissolution





MS spectrum For Natural Pristane

