

## Supplementary data

### High performance liquid chromatography (HPLC) and liquid chromatography mass spectroscopy (LCMS) data

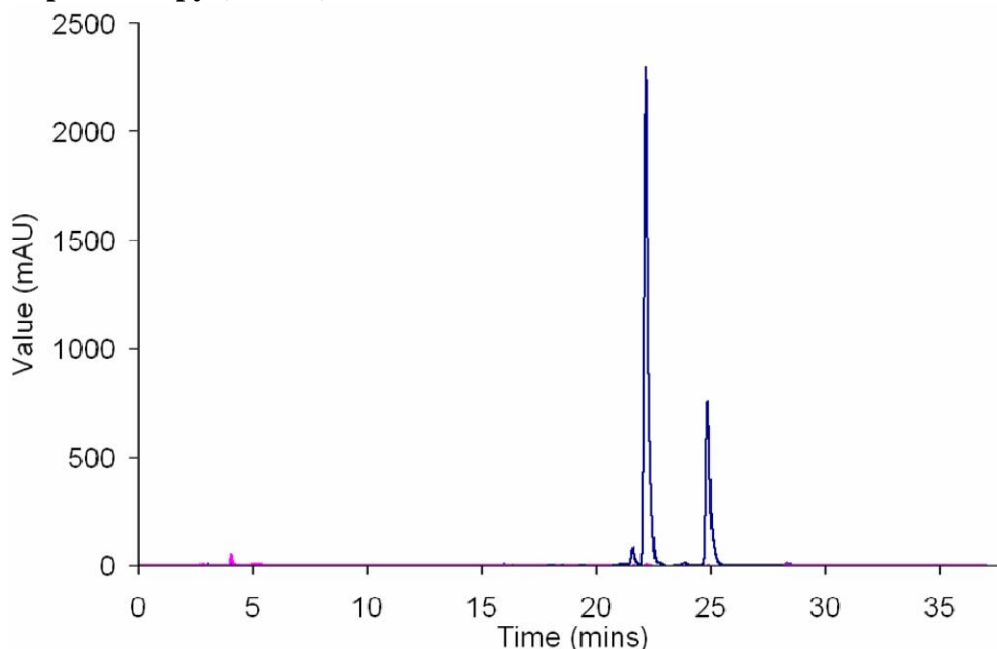


Figure 1. HPLC traces for thermolysin (blue) and chymotrypsin (pink) treated  $\mu$ PEGA functionalised with branched peptide actuators, the ratio of peak areas was 3:1 (22.1 mins: 24.8 mins). Absorbance at 254 nm.

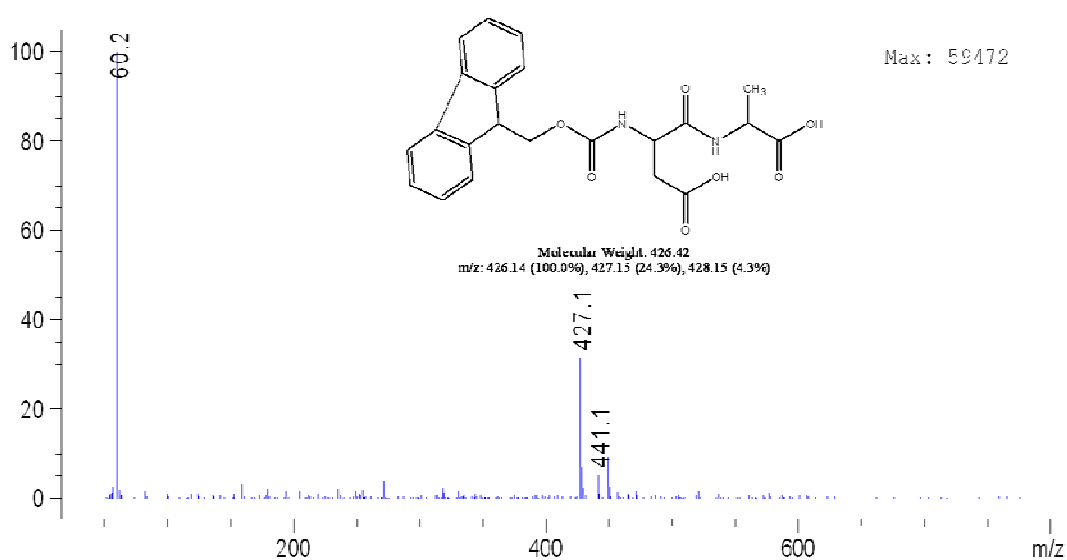


Figure 2. Mass spectra (obtained by LCMS) for the peak obtained at 22.1 minutes for  $\mu$ PEGA functionalised with branched peptide actuators when treated with thermolysin.

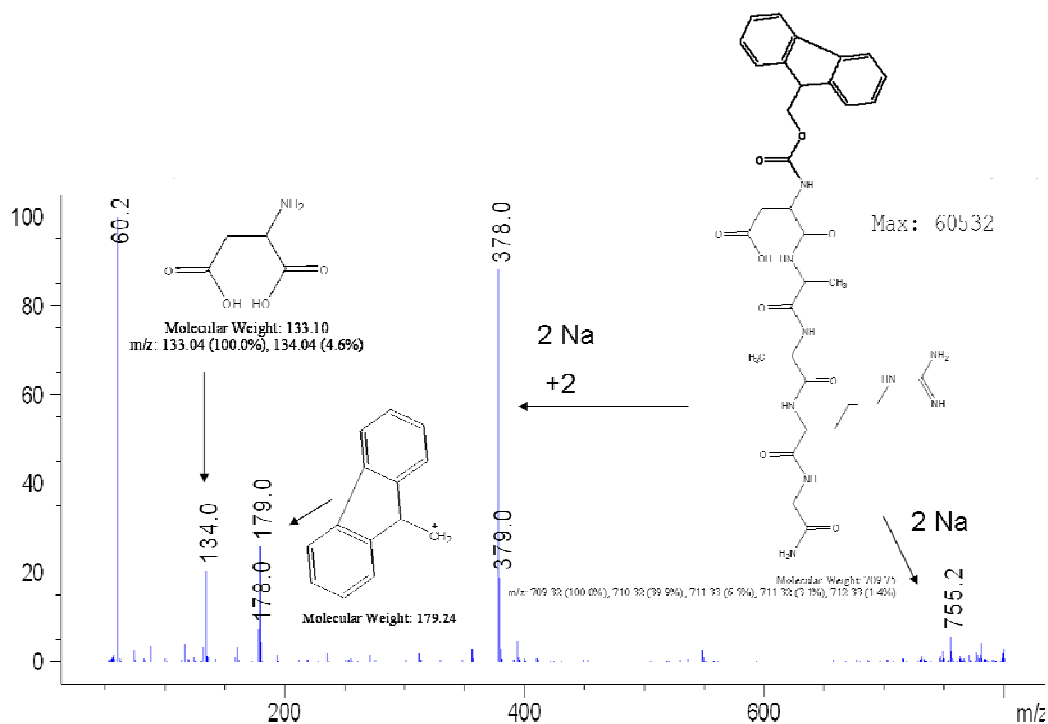


Figure 3. Mass spectra (obtained by LCMS) for the peak obtained at 24.8 minutes for  $\mu$ PGEA functionalised with branched peptide actuators when treated with thermolysin.

When  $\mu$ PGEA functionalised with branched peptide actuators three times more hydrolysis was found at ECP (AA) compared to the diglycine (GG) spacer. No cleavage of the peptide actuator occurred when the functionalised particles were treated with chymotrypsin.