

**Label-Free Selective DNA Detection with High Mismatch Recognition
by PNA Beacons and Ion Exchange HPLC.**

ELECTRONIC SUPPORTING INFORMATION (ESI)

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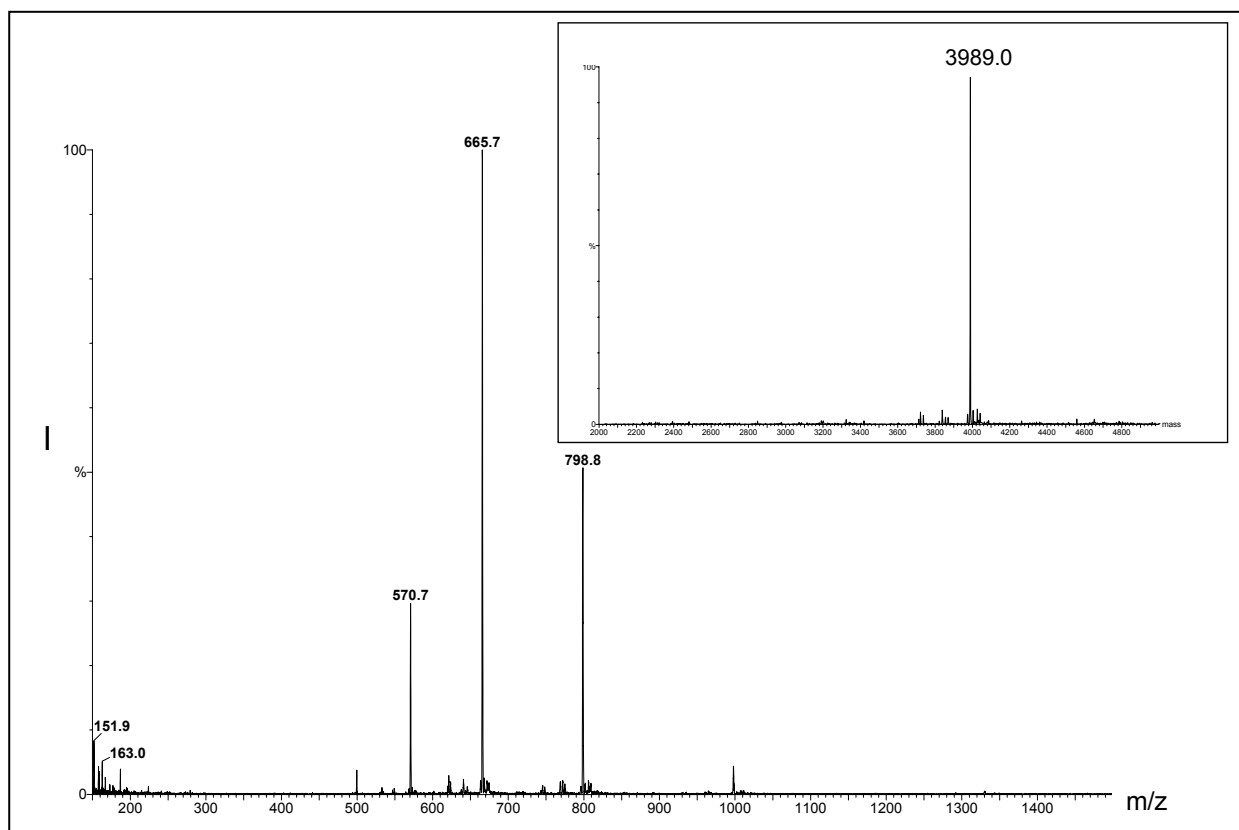
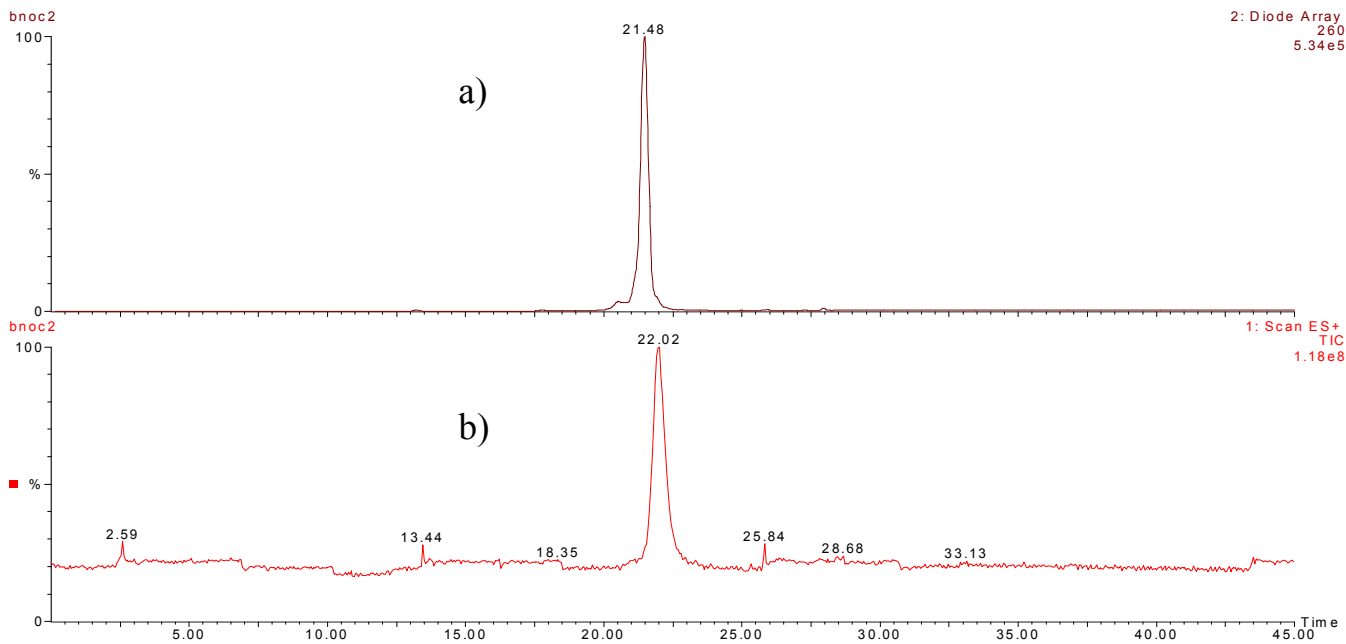


Figure ESI.1 Upper Panel: HPLC-MS profile of the Beacon 1 after purification: a) diode array detector at 260 nm; b) ESI-MS detector in TIC mode. Lower panel: multicharge and reconstructed (1500-5000 amu inset) ESI-MS spectrum for the peak at 22.02 min. Conditions: column Phenomenex C18 (300Å, 250 x 4.6 mm, 5 µm); eluent A 0.2% formic acid in water; eluent B 0.2 % formic acid in water/acetonitrile = 60:40; gradient elution from 100%A to 100%B in 40 min.

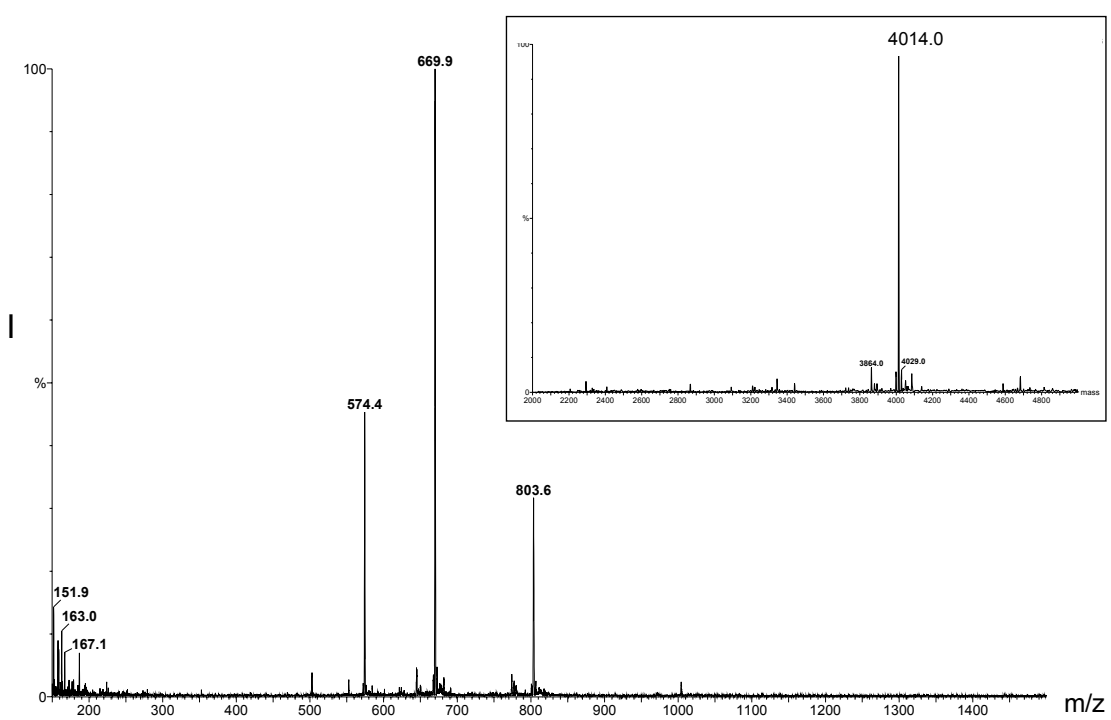
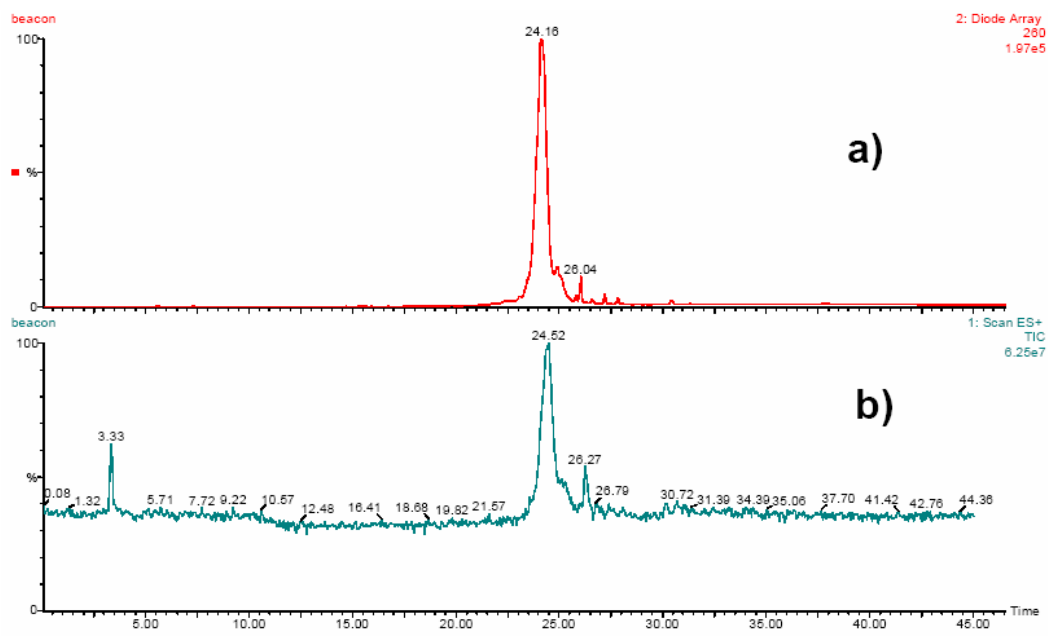
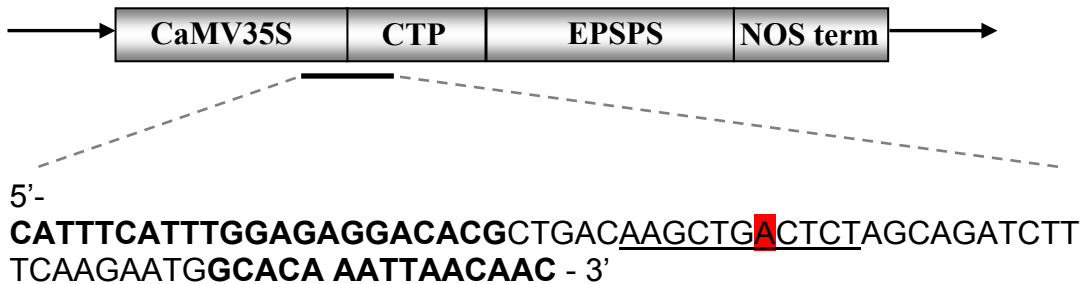


Figure ESI.2 Upper Panel: HPLC-MS profile of the Beacon **2** after purification: a) diode array detector at 260 nm; b) ESI-MS detector in TIC mode. Lower panel: multicharge and reconstructed (inset) ESI-MS spectrum in the range 1500-5000 amu for the peak at 24.52 min. Conditions: column Phenomenex C18 (300Å, 250 x 4.6 mm, 5 µm); eluent A 0.2% formic acid in water; eluent B 0.2 % formic acid in water/acetonitrile = 60:40; gradient elution from 100%A to 100%B in 40 min.

RR-soybean construct tract (79 bp)



Unspecific PCR: *Ara h 2* (ACCESSION NUMBER: L77197) from *Arachis hypogea*

5'GGCGGC AGAGACAGAT ACTAAACACCTATCTCAAAA AAAGAAAAGA AAAGAAAAGA
AAATAGCTTA TATATAAGCT ATTATCTATGGTTATGTTTA GTTTTGGTAA TAATAAAGAT
CATCACTATA TGAATGTGTT GATCGTGTTAACTAAGGCAA GCTTAGGTTA TATGAGCACC
TTTAGAGTGC TTTTATGGCG TTGTC-3'

Figure ESI.3. Upper panel: position and full sequence of the 79mer oligonucleotide corresponding to the PCR product. Lower panel: full sequence of the 201 bp amplicon from peanut DNA used as control in figure 2 (right panel).

The positions of the primer used for PCR are in bold, the target sequence for the PNA beacon is underlined, and the position of the mismatched base used in the synthetic mutated DNA is highlighted in red.