

## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: RNA sequences and Primer sequences

File Name: Supplementary Data 2

Description: Synthetic DNA oligonucleotides used for MALDI-TOF external calibration

File Name: Supplementary Data 3

Description: MALDI-TOF MS data of amino-acylated microhelix RNA.

File Name: Supplementary Data 4

Description: MALDI-TOF MS data of amino-acylated tRNA(Tyr) (3'-terminal fragment)

File Name: Supplementary Data 5

Description: MALDI-TOF MS data of model peptide (in vitro translation)