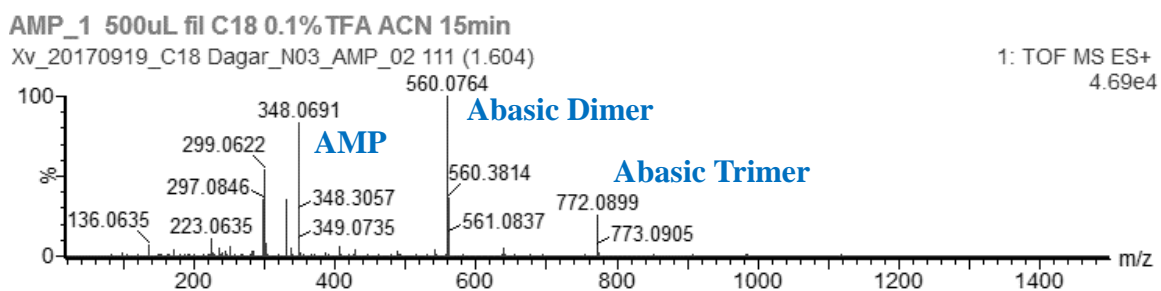


## APPENDIX

Following mass spectra were acquired at ELSI, Japan in collaboration with Dr. Hongo. Samples were analyzed as described in Section 3.1 and 3.2.

A.1 : Mass spectrum of AMP oligomerization reaction

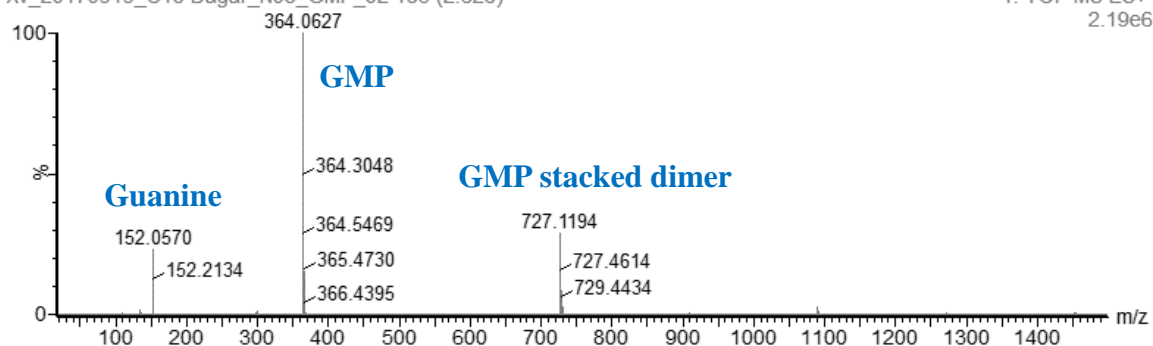


## A.2 : Mass spectrum of GMP oligomerization reaction

GMP\_1 500uL fil C18 0.1% TFA ACN 15min

Xv\_20170919\_C18 Dagar\_N08\_GMP\_02 183 (2.628)

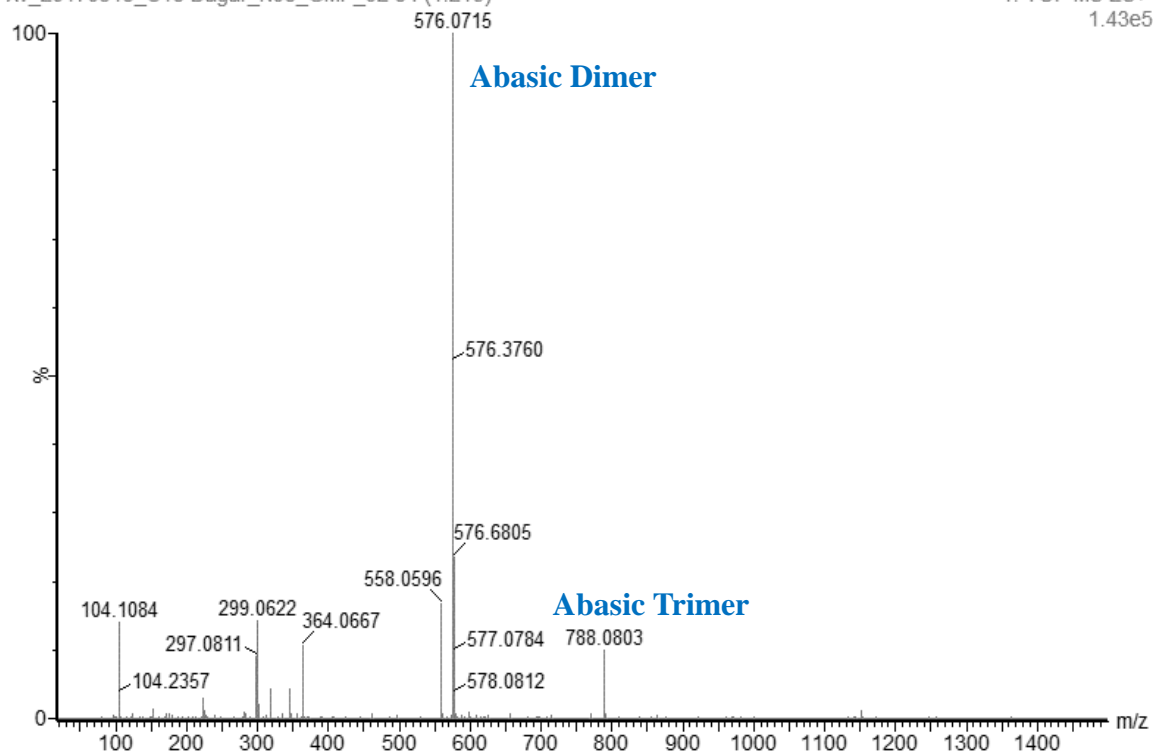
1: TOF MS ES+  
2.19e6



GMP\_1 500uL fil C18 0.1% TFA ACN 15min

Xv\_20170919\_C18 Dagar\_N08\_GMP\_02 84 (1.215)

1: TOF MS ES+  
1.43e5

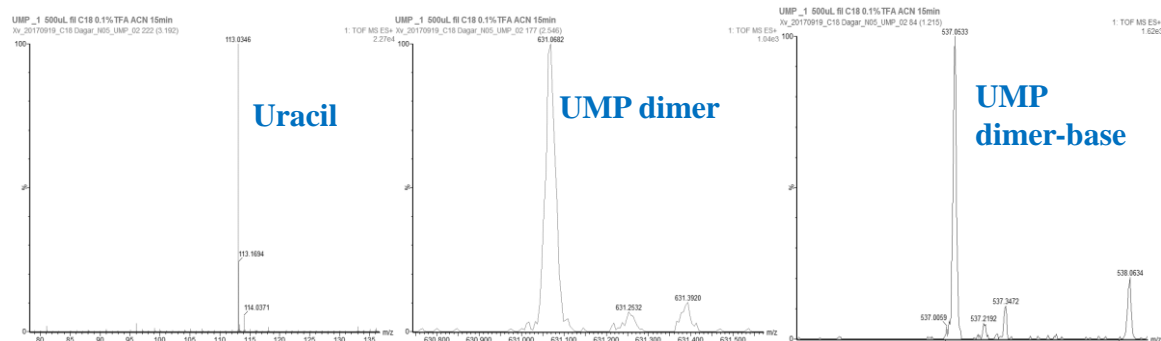
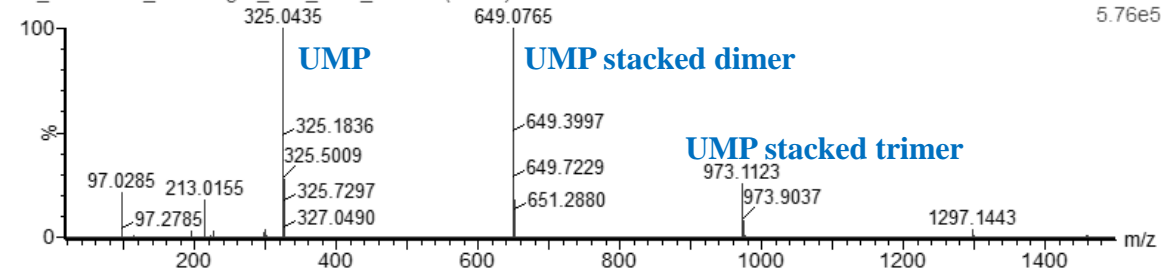


### A.3 Mass spectrum of UMP oligomerization reaction

UMP\_1 500uL fil C18 0.1% TFA ACN 15min

Xv\_20170919\_C18 Dagar\_N05\_UMP\_02 102 (1.471)

1: TOF MS ES+  
5.76e5

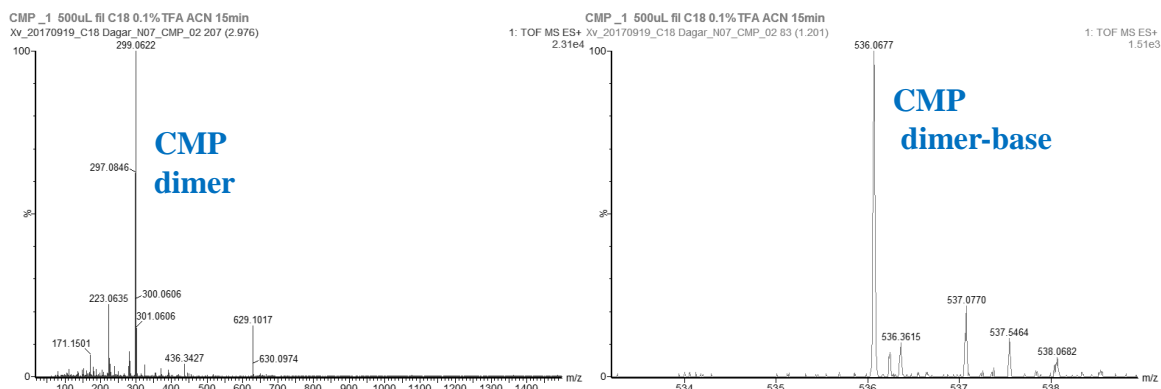
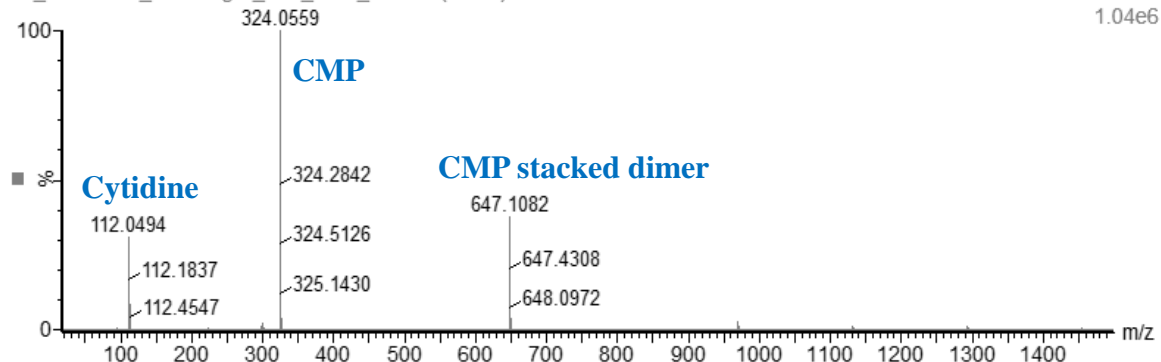


### A.4 Mass spectrum of CMP oligomerization reactions

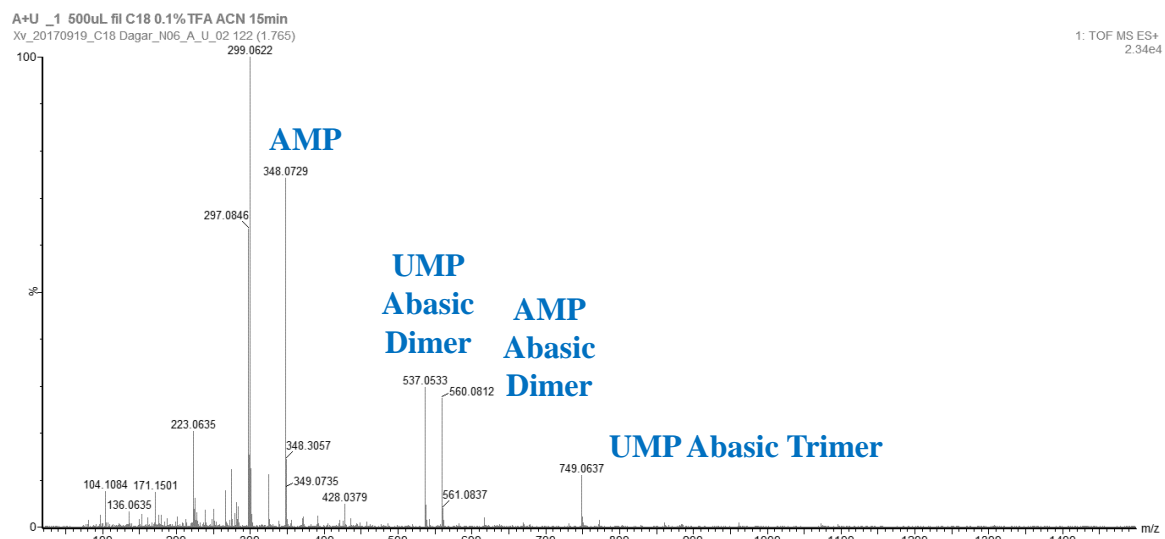
CMP\_1 500uL fil C18 0.1% TFA ACN 15min

Xv\_20170919\_C18 Dagar\_N07\_CMP\_02 109 (1.577)

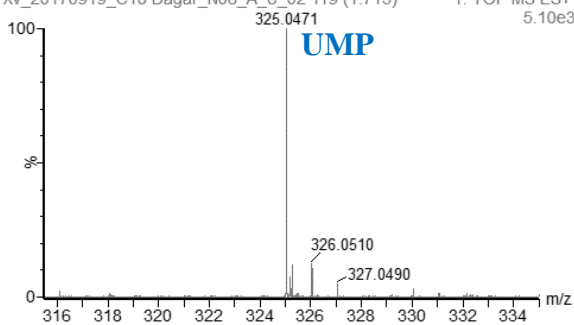
1: TOF MS ES+  
1.04e6



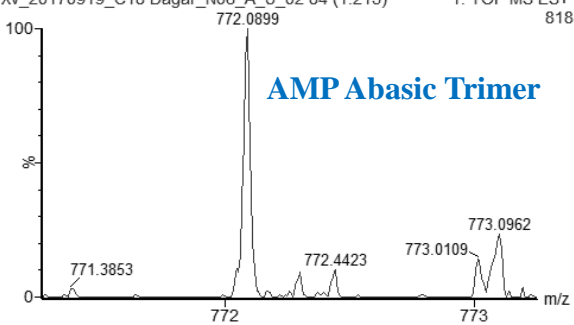
## A.5 : Mass spectrum of AMP+UMP reactions



A+U \_1 500uL fil C18 0.1%TFA ACN 15min  
Xv\_20170919\_C18 Dagar\_N06\_A\_U\_02 119 (1.713)



A+U \_1 500uL fil C18 0.1%TFA ACN 15min  
Xv\_20170919\_C18 Dagar\_N06\_A\_U\_02 84 (1.215)

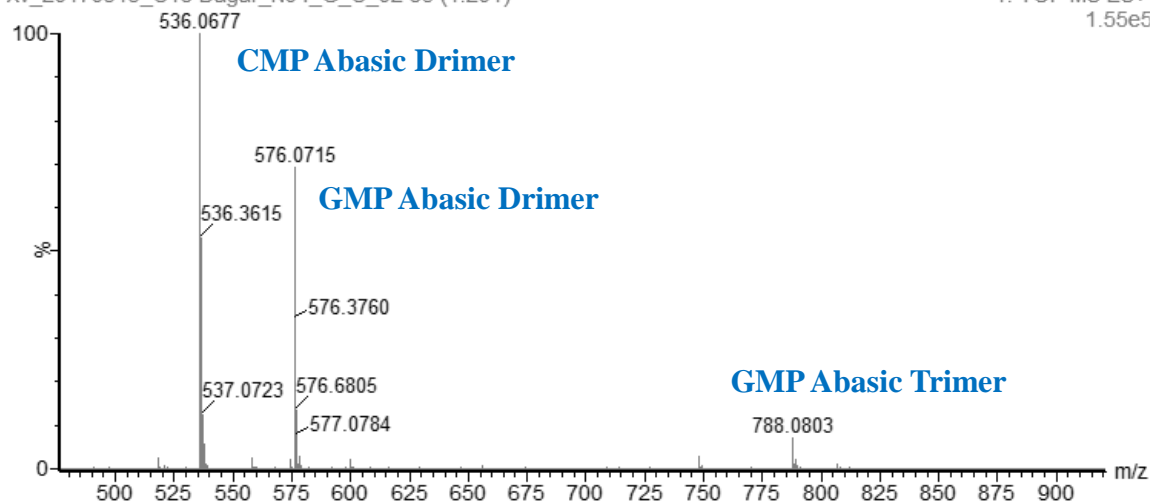


# A.10: Mass spectrum of GMP+CMP reactions

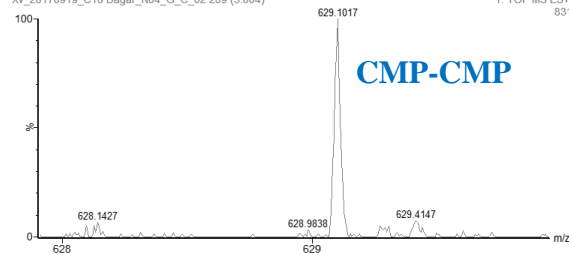
G+C\_1 500uL fil C18 0.1% TFA ACN 15min

Xv\_20170919\_C18 Dagar\_N04\_G\_C\_02 83 (1.201)

1: TOF MS ES+  
1.55e5



G+C\_1 500uL fil C18 0.1% TFA ACN 15min  
Xv\_20170919\_C18 Dagar\_N04\_G\_C\_02 209 (3.004)



G+C\_1 500uL fil C18 0.1% TFA ACN 15min  
Xv\_20170919\_C18 Dagar\_N04\_G\_C\_02 100 (1.443)

