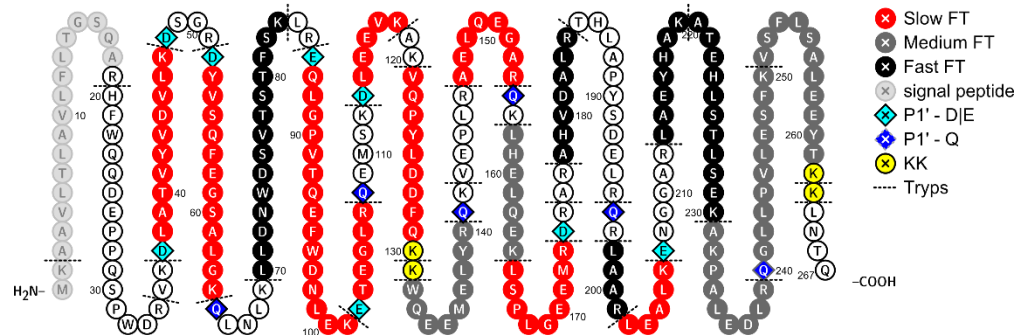


Presentation: Mass Spectrometry Applications to the Clinical Laboratory, 2014

Kinetic Evaluation of Trypsin Digests of Apolipoprotein -A1: Implications for Quantitative Mass Spectrometry

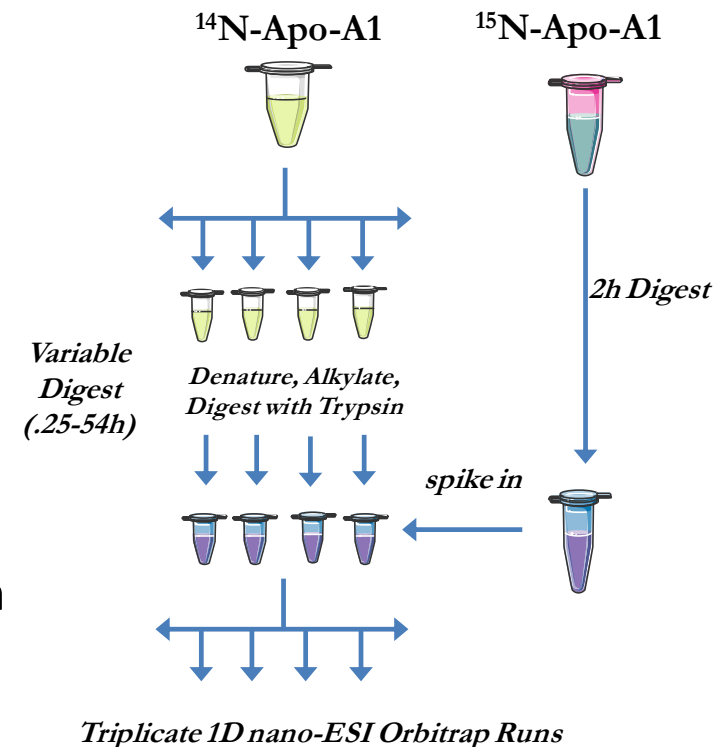
Scott Walmsley¹; Xinjian Yan²; Yuxue Liang²; Stephen Stein²; Alexey Nesvizhskii¹

¹University of Michigan, Dept. of Pathology, Ann Arbor, MI; ²NIST, Gaithersburg, MD



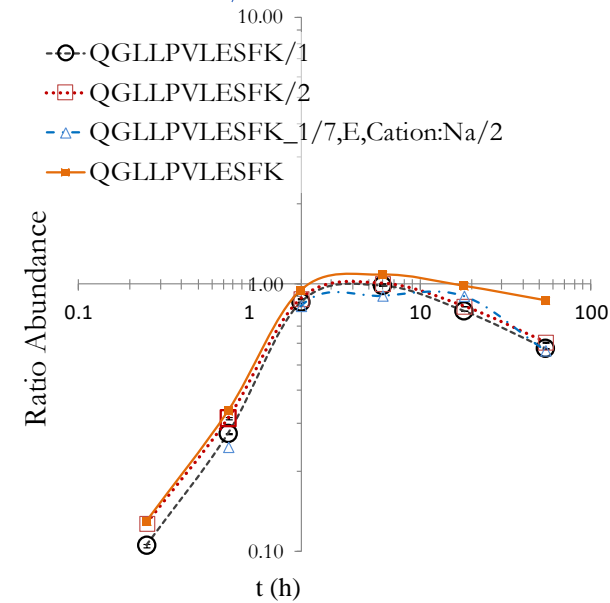
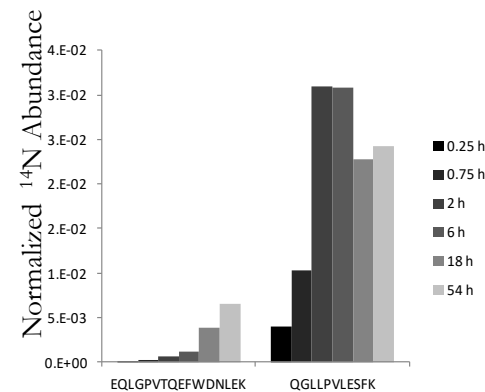
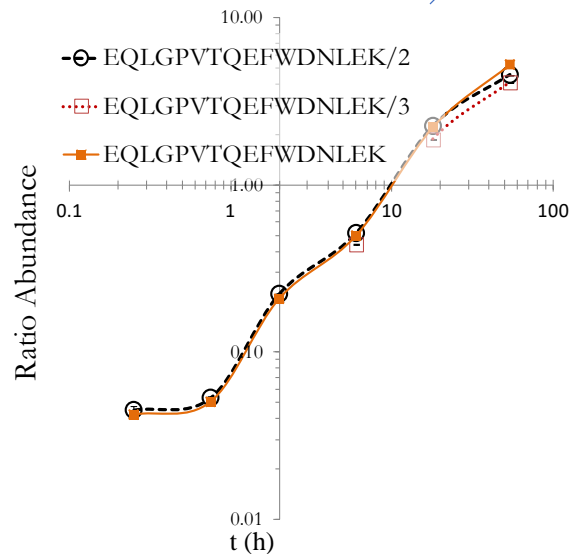
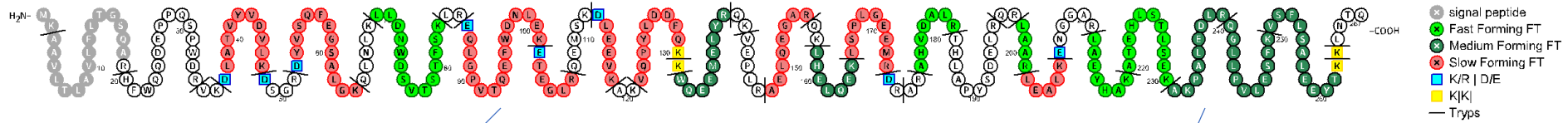
Trypsin Digests of Apo-A1

- ❑ Trypsin digestion can be highly variable
- ❑ Apo-A1 as a test bed for trypsin digestion
- ❑ Comprehensive Apo-A1 spectral library
- ❑ Reference material: ^{15}N -rApo-A1
- ❑ Comprehensive results indicating sequence specific effects on the rate of peptide formation



Slow and Fast Forming Peptides Apo-LipoProtein A1

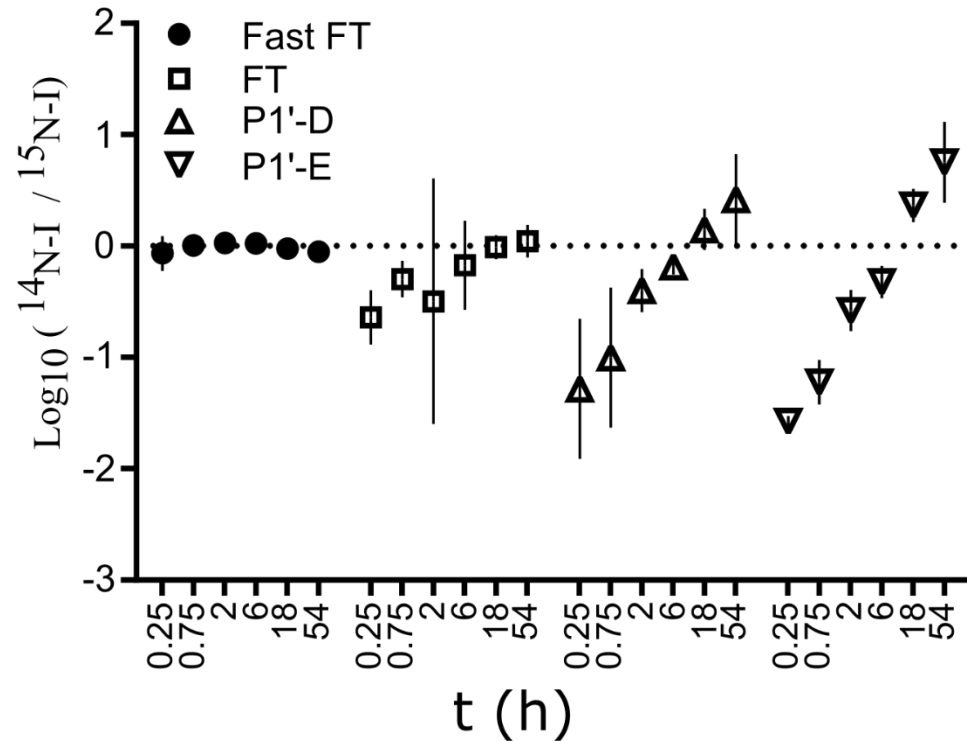
➤ K/R | D/E residues slow rate of formation:



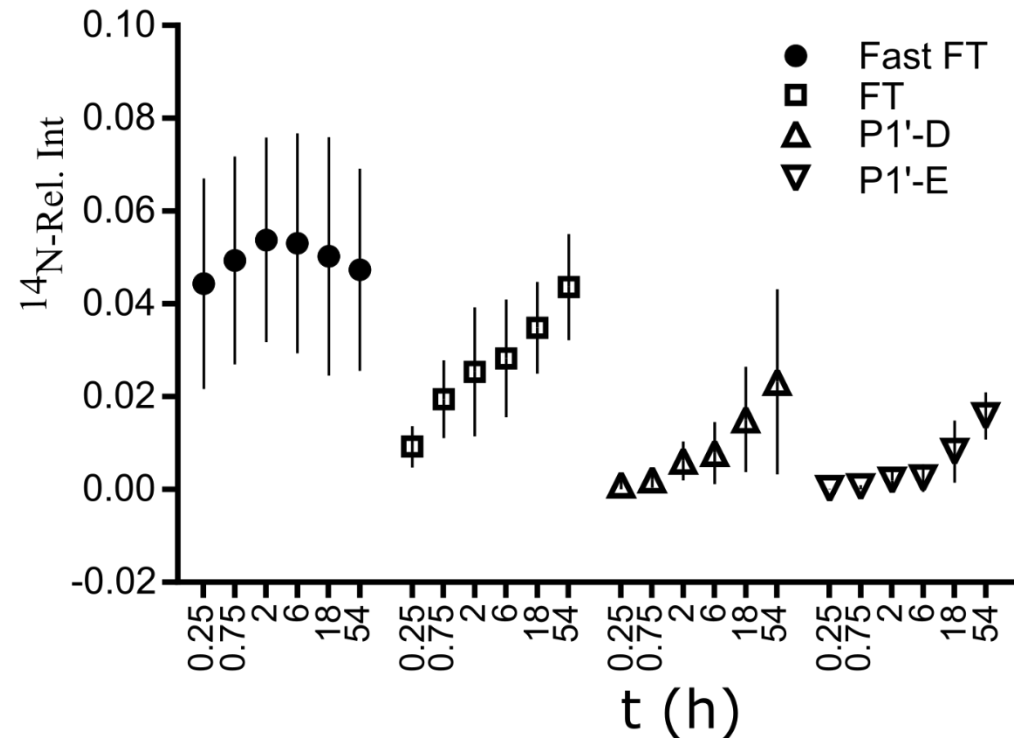
Slow and Fast Forming Peptides Apo-LipoProtein A1

➤ K/R | D/E residues slow rate of formation:

A.

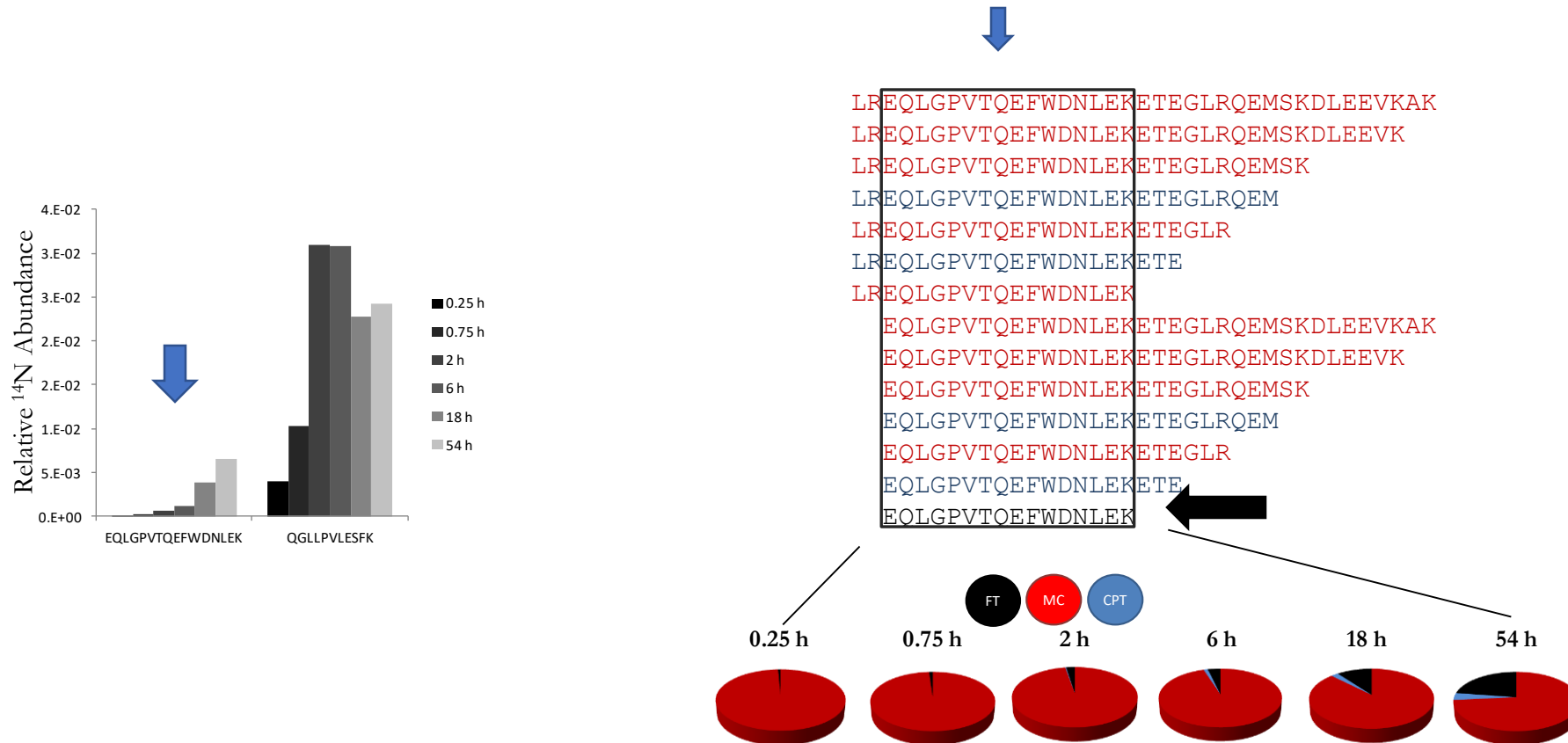


B.



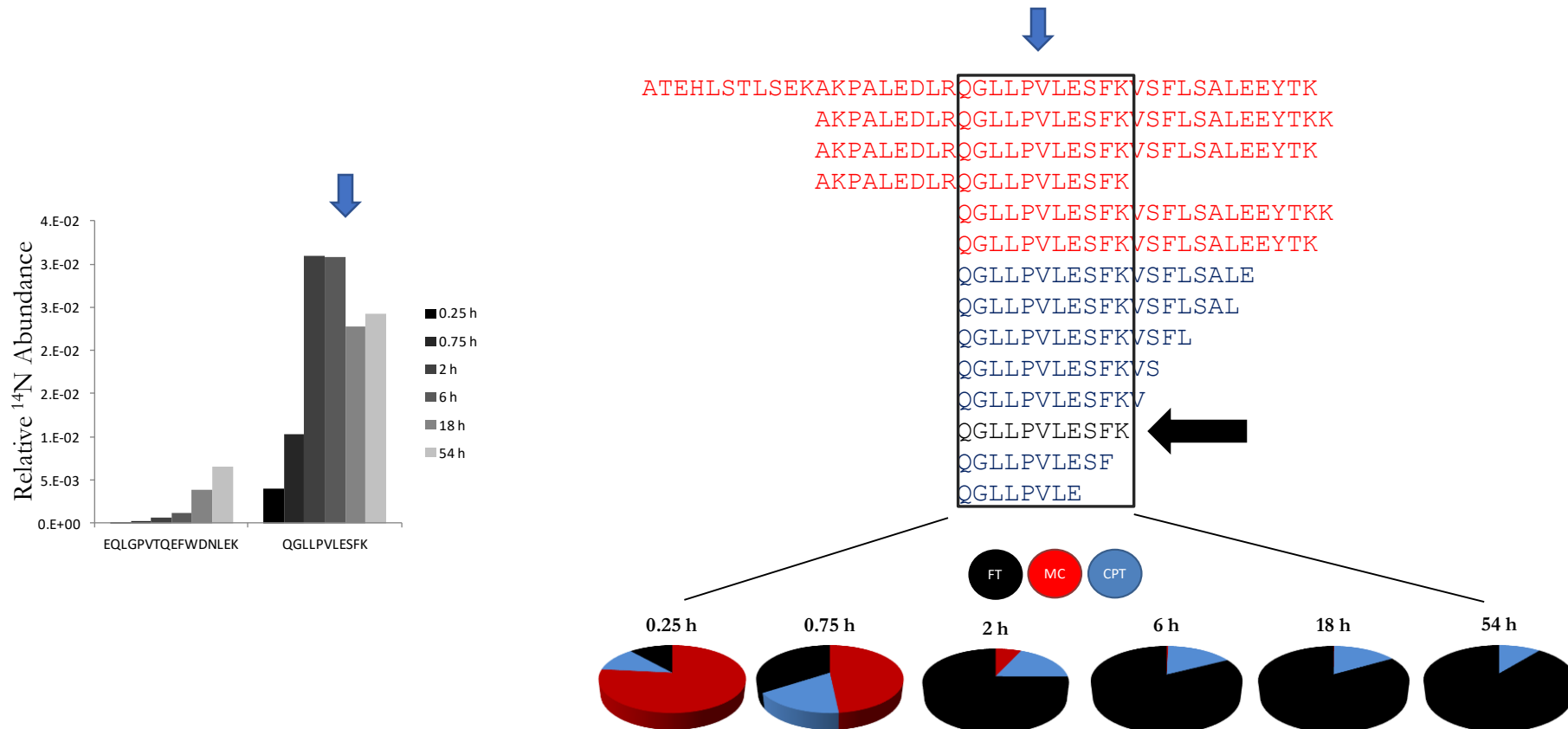
Effect on Quantification

- ❑ Perceived low total abundance when profiling only fully tryptic peptides.
- ❑ Nested sequences reveal total abundance for sequence region of interest.



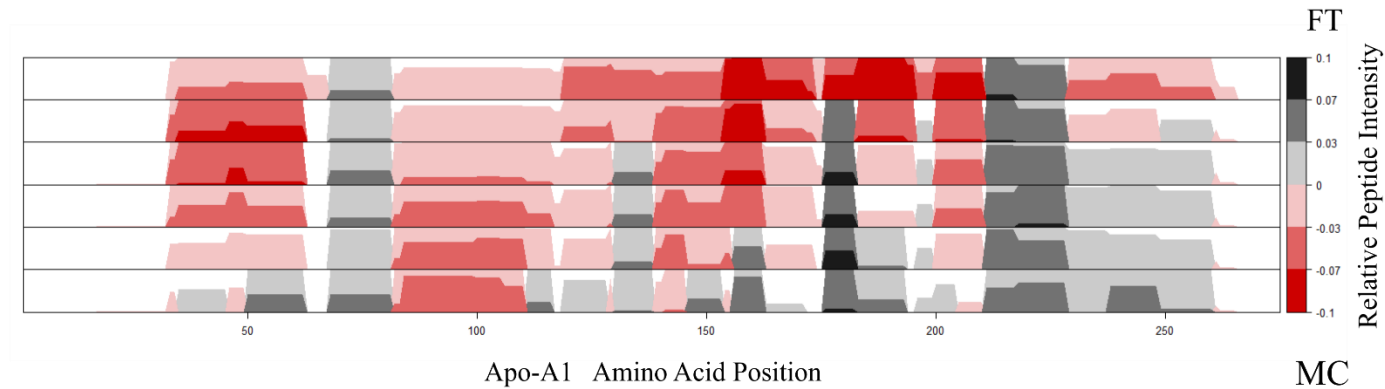
Trypsin Activity and Deleterious Effect on Quantification

- ❑ Perceived low total abundance when profiling only fully tryptic peptides.
- ❑ Nested sequences reveal total abundance for sequence region of interest.

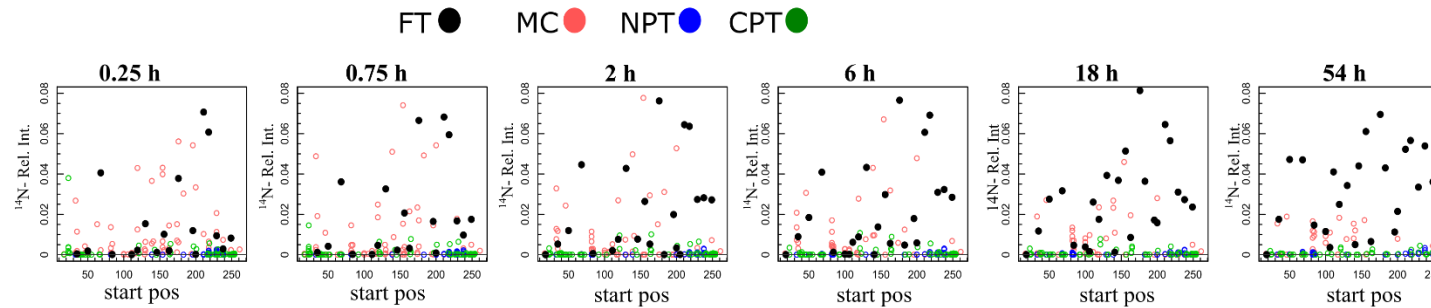


Trypsin Activity and Deleterious Effect on Quantification

A.



B.



C.

