

Accelerated Lysis and Proteolytic Digestion of Biopsy-
Level Fresh Frozen and FFPE Tissue Samples Using
Pressure Cycling Technology

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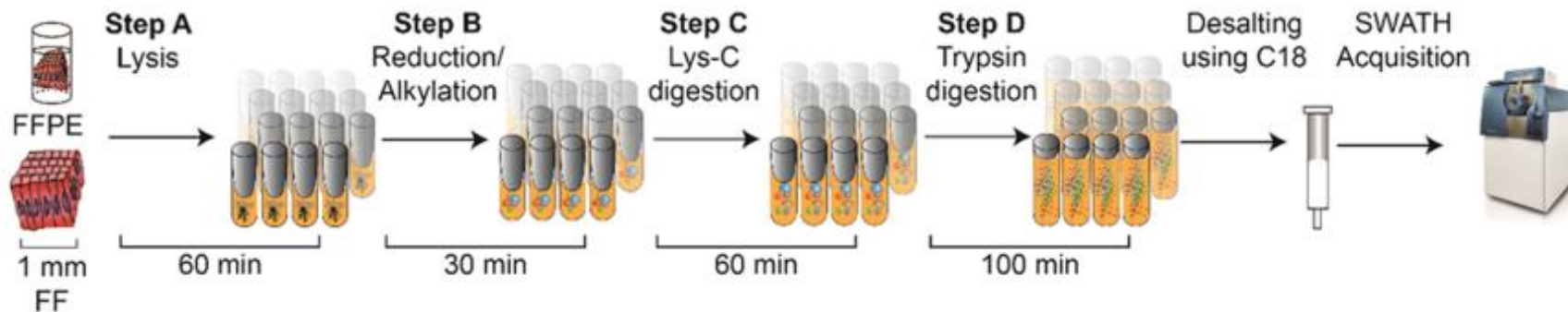
Application of the Accelerated PCT Method

Background

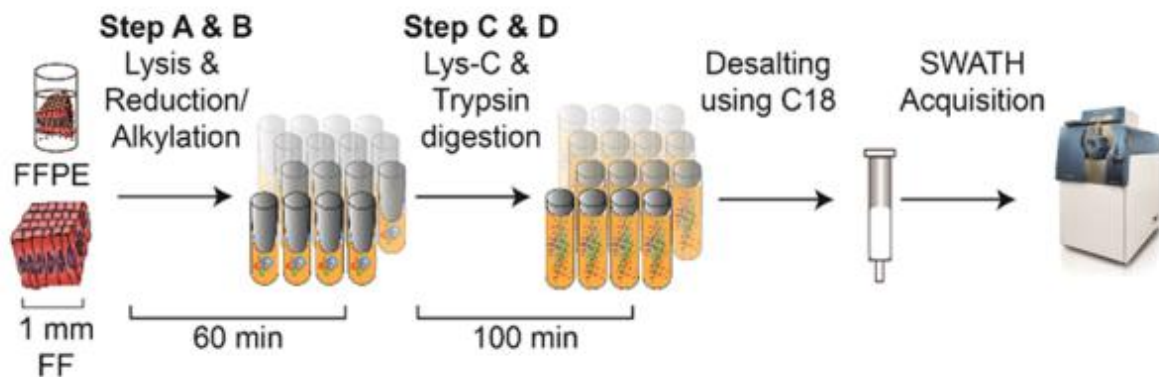
- Precision medicine is largely dependent on high throughput quantitative molecular measurements.
- Limitation on efficient and reproducible methods for protein extraction and digestion.
 - ◆ FASP is limited by its efficacy of processing the biopsy-level and cored tissue sample.
 - ◆ Conventional PCT protocol is limited by its efficacy of four hands-on steps.
 - ◆ Optimized PCT method (ABLE) is limited by its lower peptide yield and without applicability for FFPE tissues.

Establishment of the Accelerated PCT Method

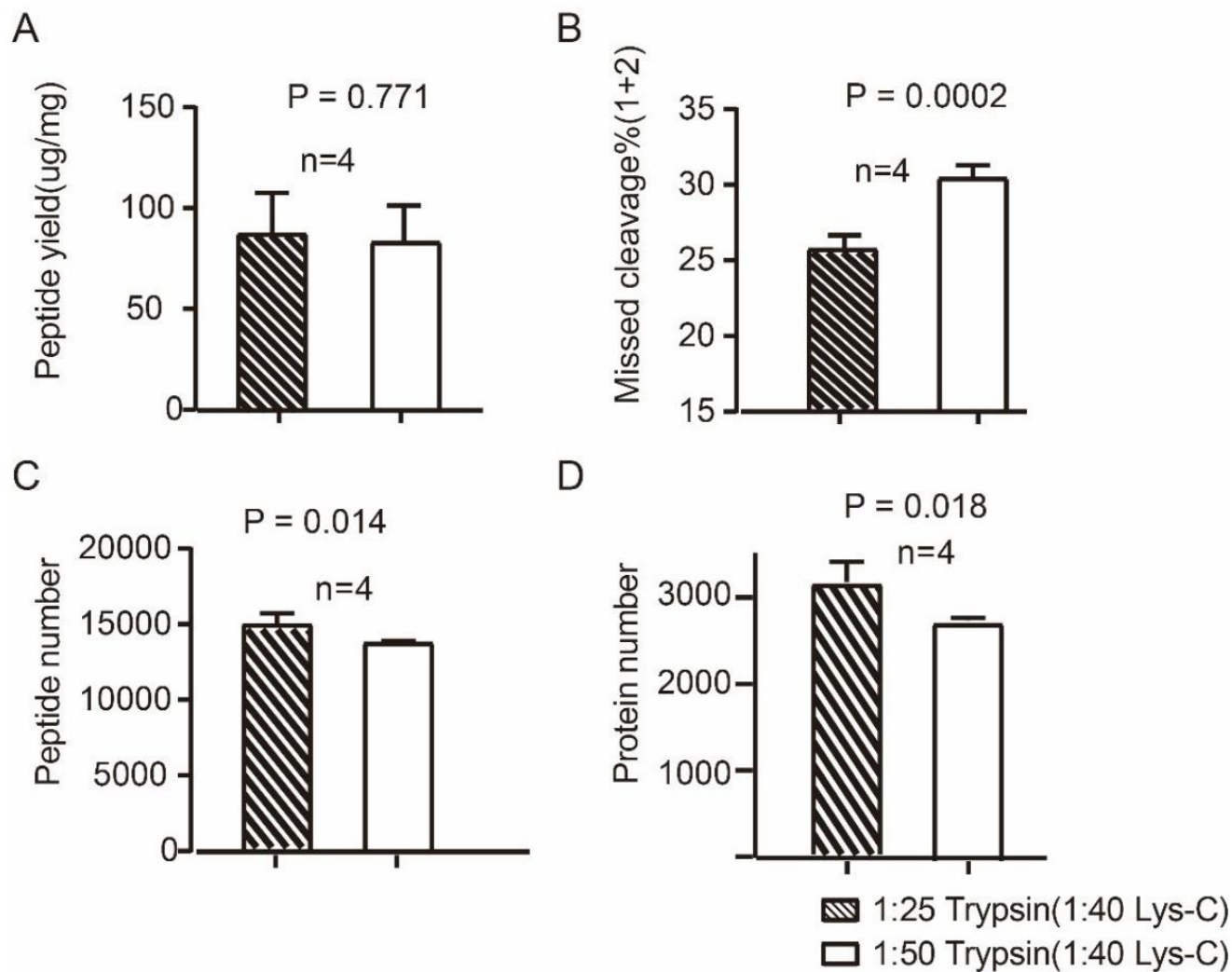
A ~ 6 Hours from Tissue to Peptides (the conventional PCT method)



B ~ 3 Hours from Tissue to Peptides (the accelerated PCT method)



Optimization of trypsin to substrate ratio of the accelerated PCT Method

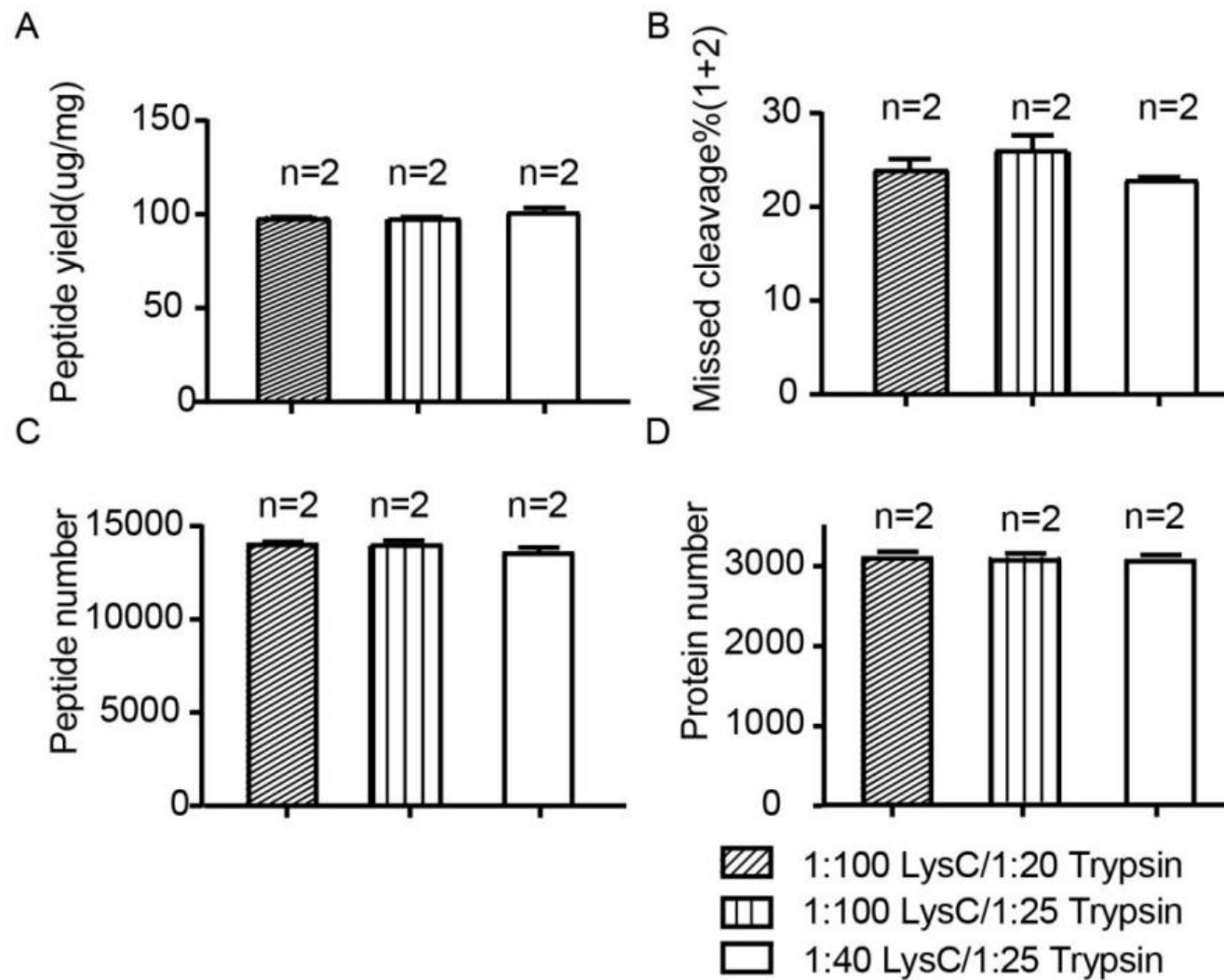


Sample type:
fresh frozen mouse liver

Instrument:
Q Exactive HF-X

Acquisition method:
30 min DDA

Optimization of Lys-C to substrate ratio of the accelerated PCT Method

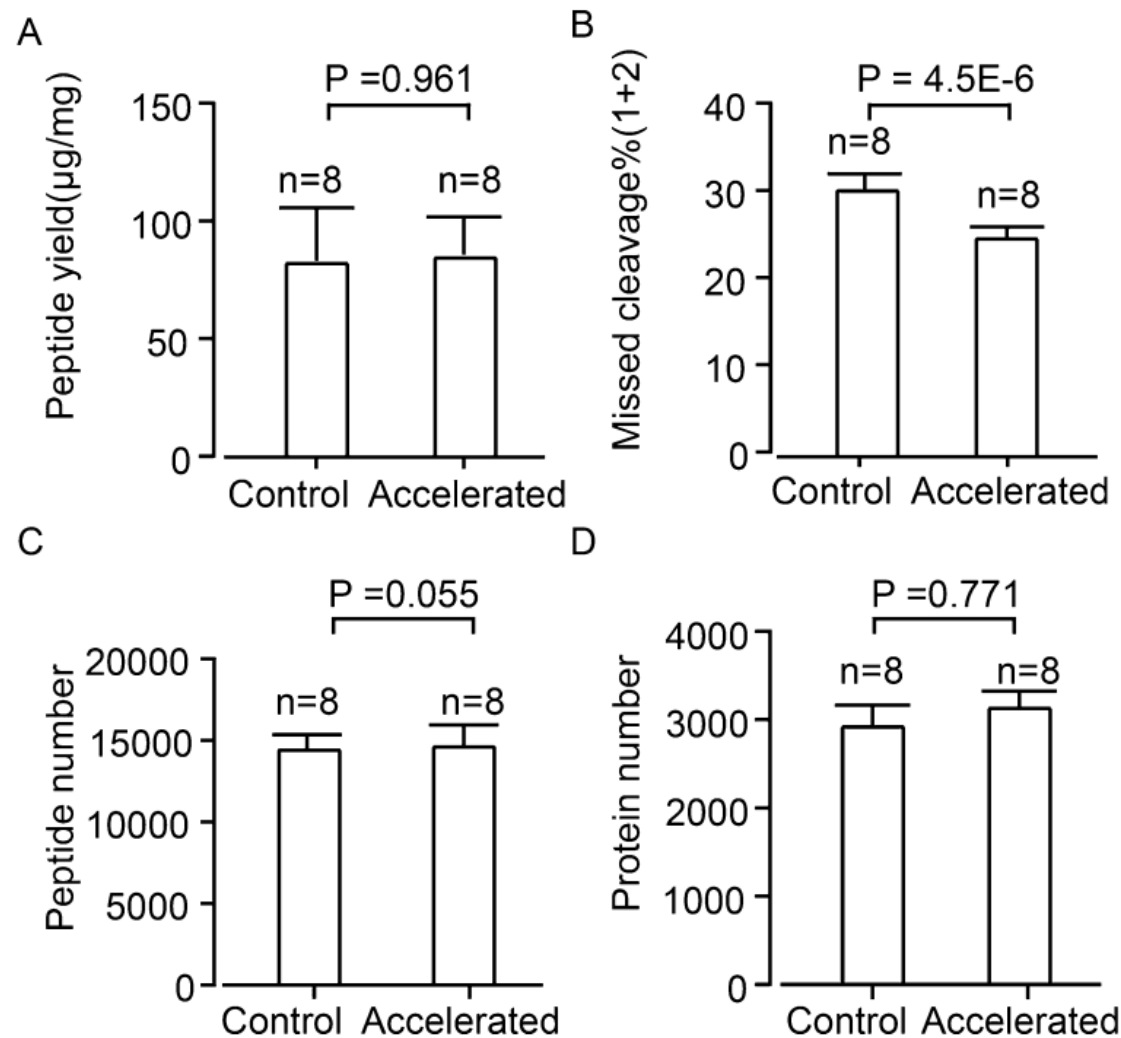


Sample type:
fresh frozen mouse liver

Instrument:
Q Exactive HF-X

Acquisition method:
30 min DDA

Assessment of the accelerated PCT method in protein identifications using FF mouse liver samples

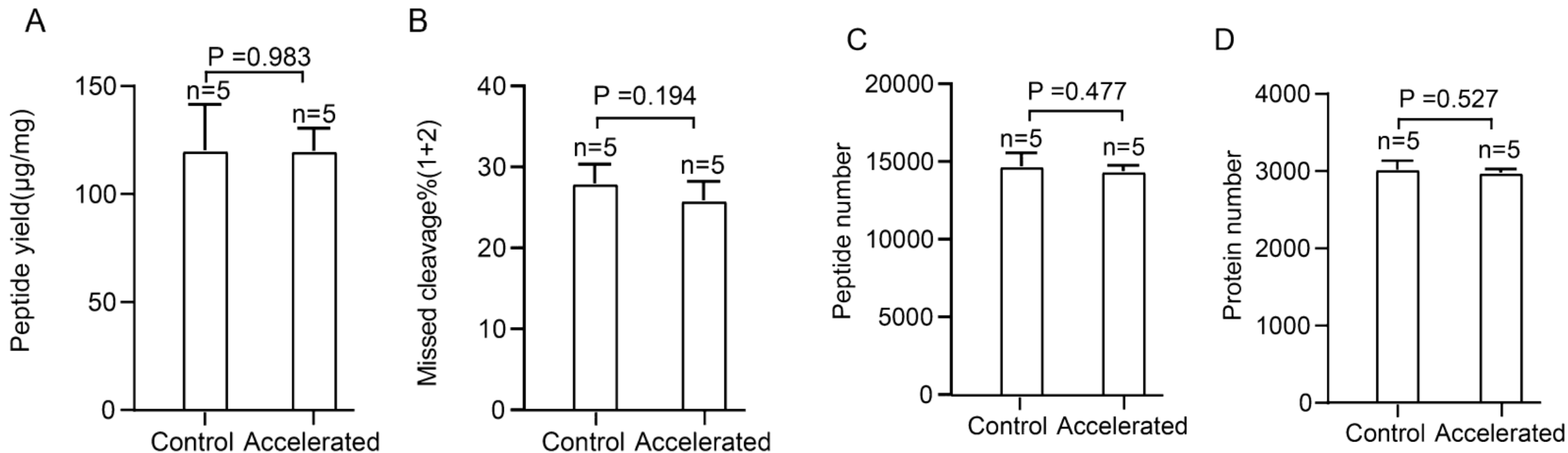


Sample type:
fresh frozen mouse liver

Instrument:
Q Exactive HF-X

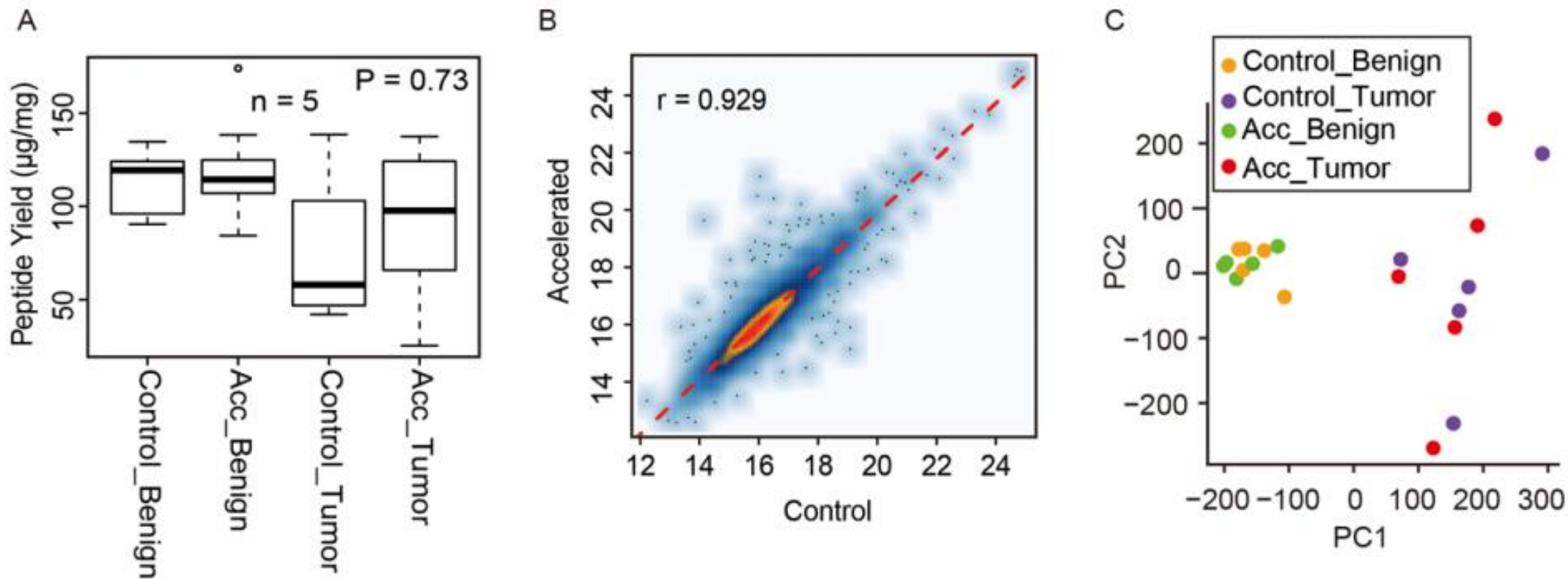
Acquisition method:
30 min DDA

Assessment of the accelerated PCT method in protein identifications using FFPE mouse liver samples



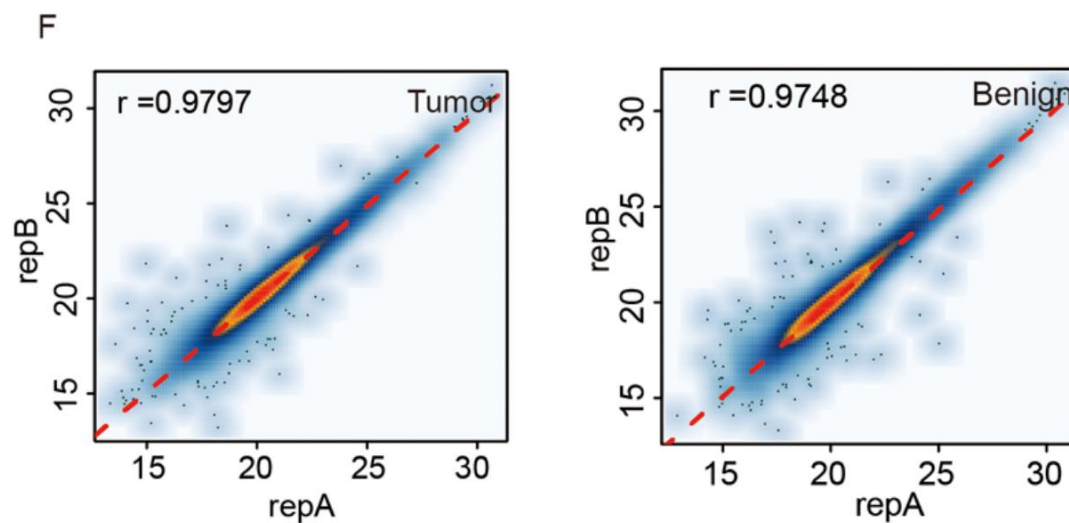
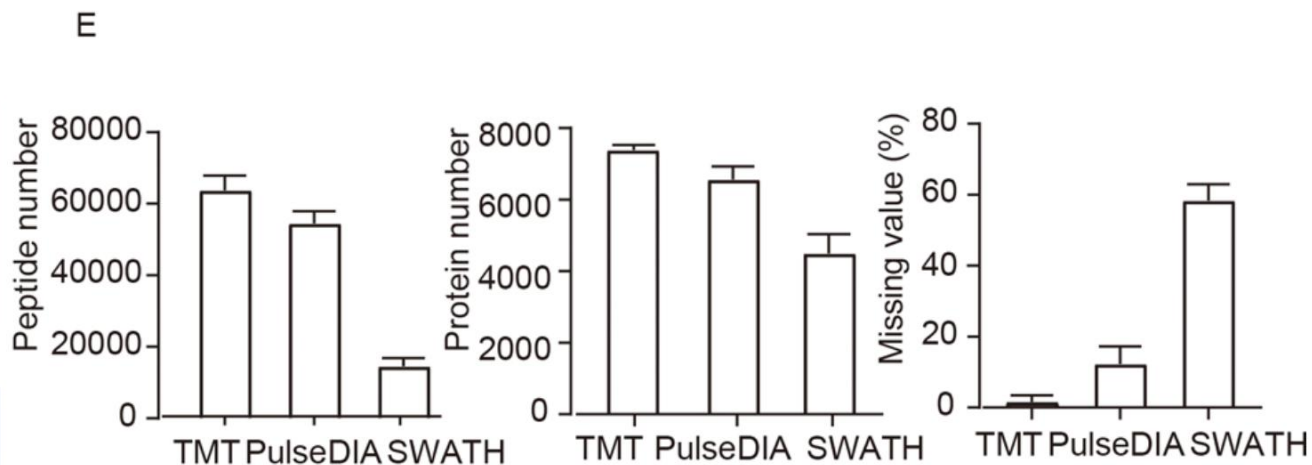
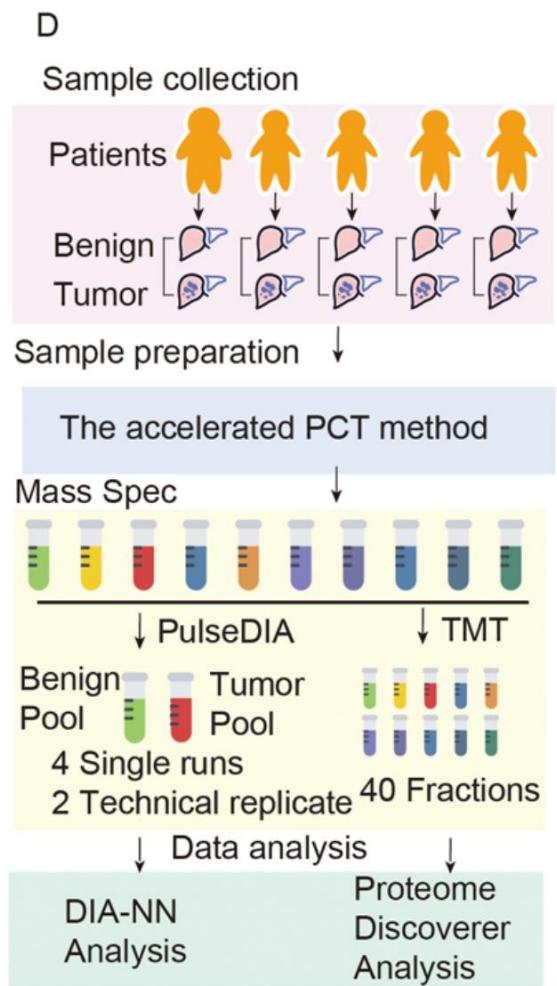
Sample type: FFPE mouse liver
Instrument: Q Exactive HF-X
Acquisition method: 30 min DDA

Assessment of the accelerated PCT in quantitative accuracy using HCC patient cohort



Sample type: FFPE HCC tissue (benign and tumor)
Instrument: TripleTOF 6600
Acquisition method: 15 min SWATH

Assessment of the accelerated PCT in quantitative accuracy using HCC patient cohort



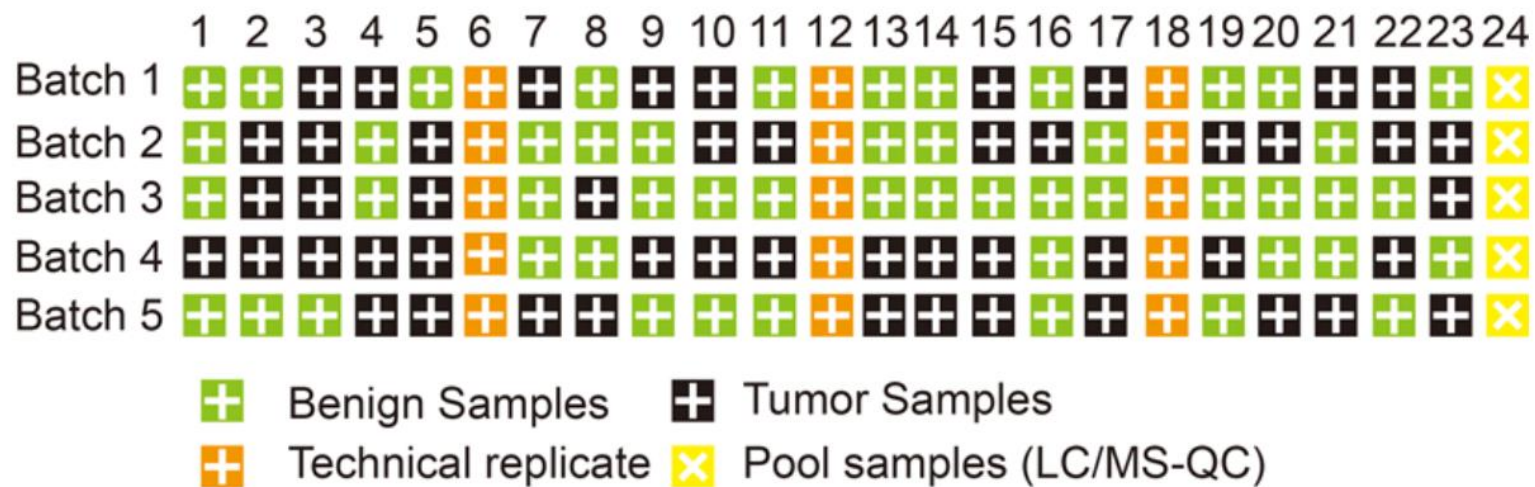
Application to an HCC patient cohort



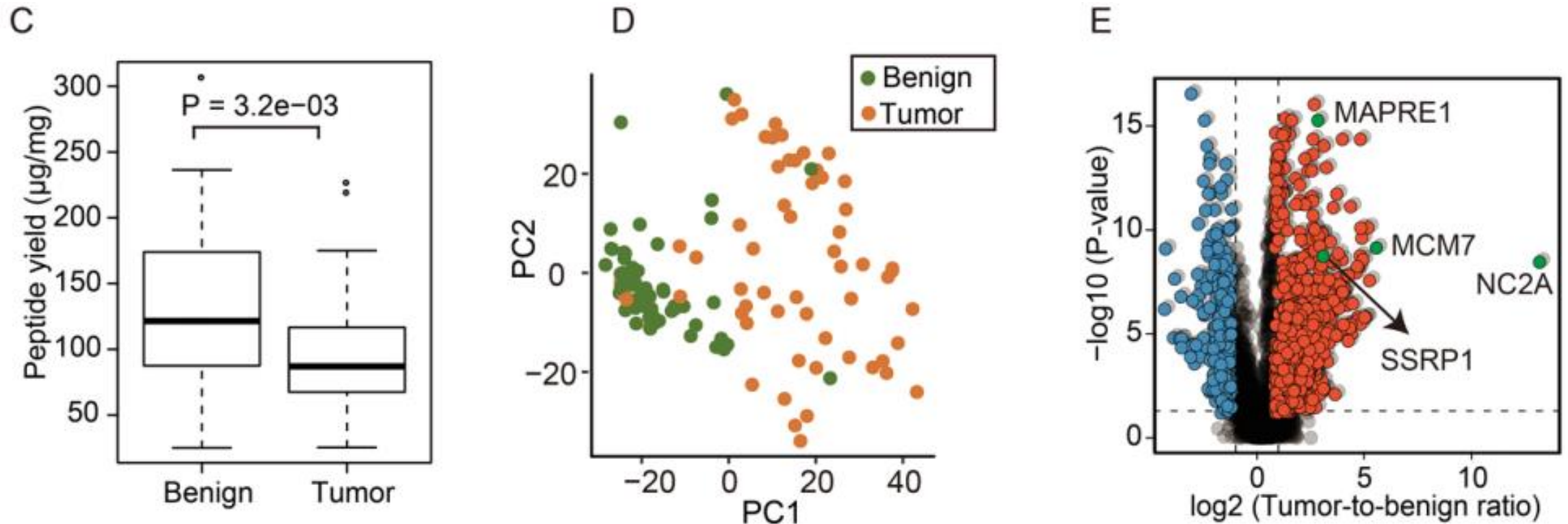
A

Item	Subgroup	Number
Gender	Male	20
	Female	5
Age, yr	> 55	10
	< 55	15
Number of tumors	< 2	11
	≥ 2	14
HBV-DNA, copies/mL	>1000	5
	≤ 1000	13
HBV-infection	Positive	15
	Negative	10

B



Application to an HCC patient cohort



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<https://guomics.com>