

# Protein analysis of glioblastoma formalin-fixed paraffin-embedded tissues

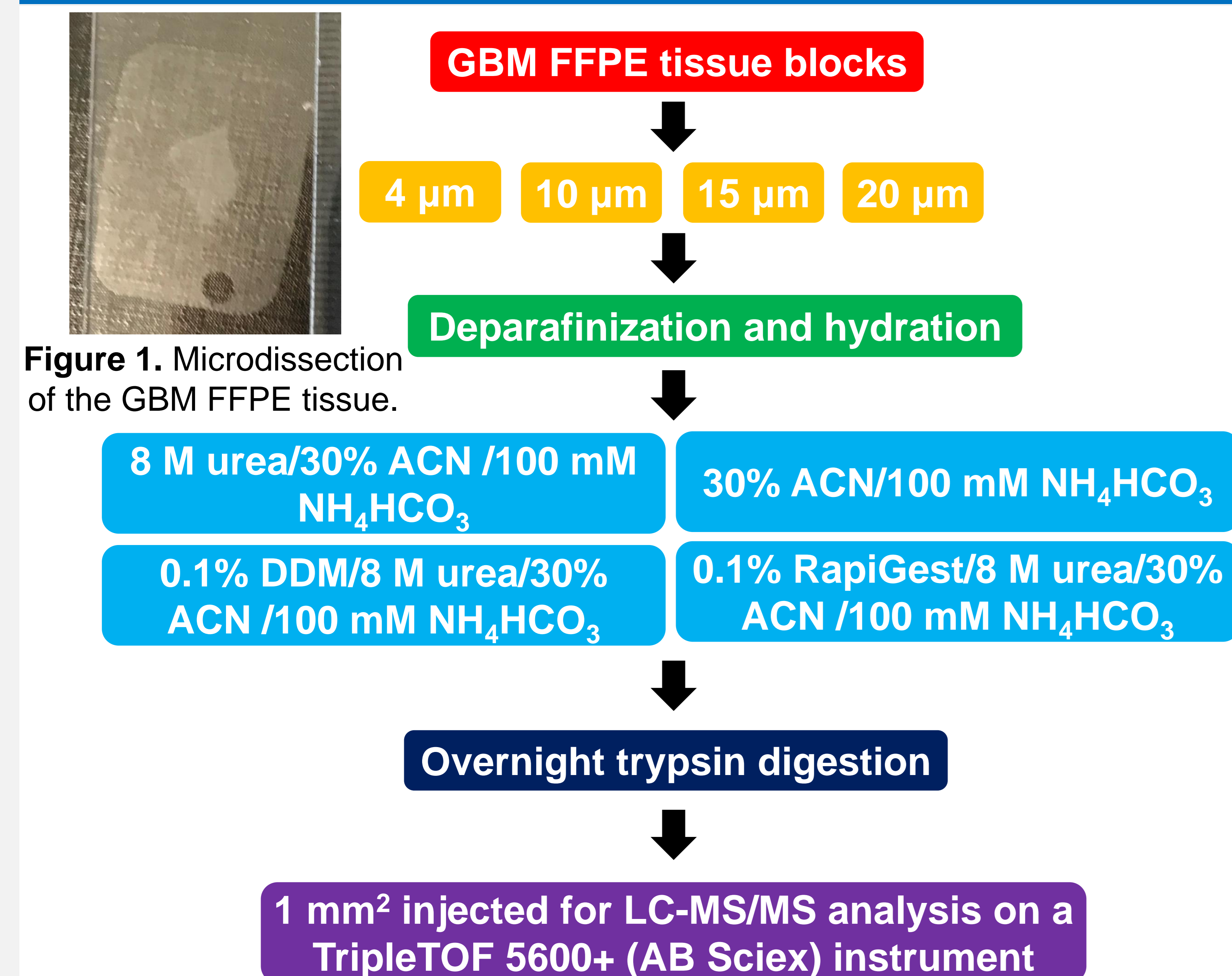
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## Introduction

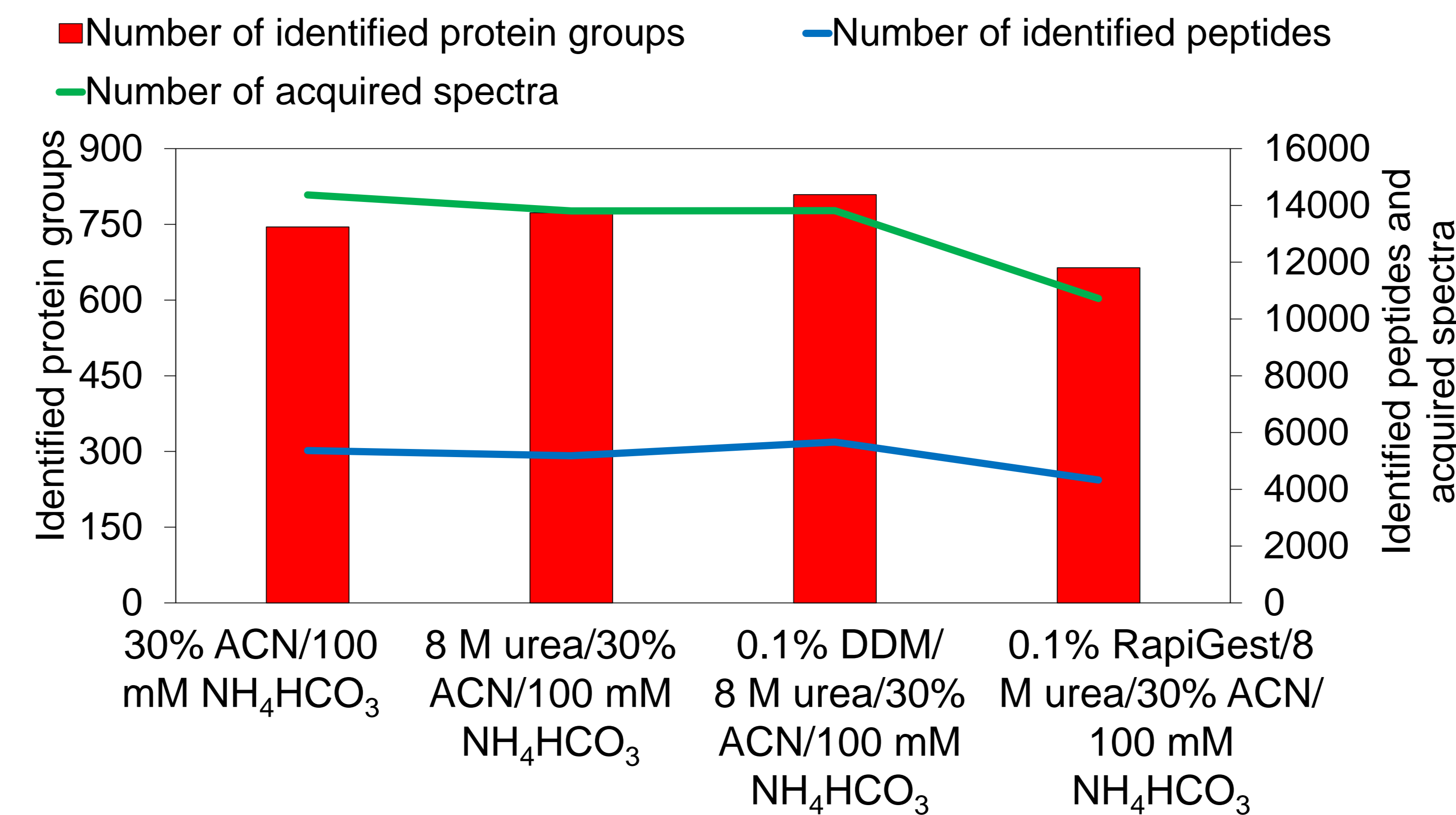
- Glioblastoma (GBM) is the most common and malignant brain tumor in adults and has a poor prognosis with a median survival of 15 months.
- Protein analysis of GBM tissues is urgently needed to identify potential protein biomarkers that may assist in early disease diagnosis and therapy development.
- However, simple and reliable protocols that can be implemented in clinics for proteome detection from minute tissue sections remain lacking.
- Here, we report methods for protein analysis from small quantities (~1 mm<sup>2</sup>) of GBM formalin-fixed paraffin-embedded (FFPE) tissue sections.

## Methods



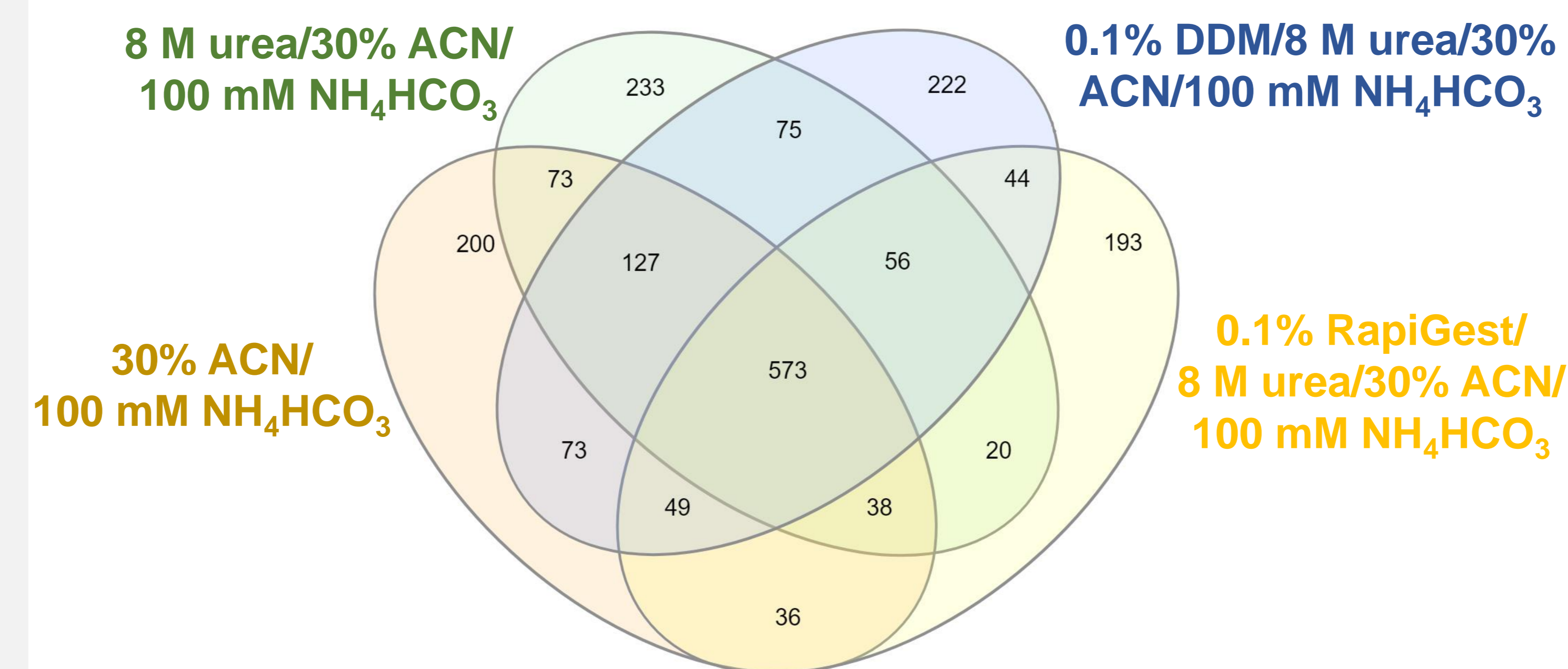
## Results

### Comparison of extraction buffers in identified protein groups, identified peptides, and acquired spectra



**Figure 2.** Protein identifications, identified peptides and acquired spectra for 15 μm thick GBM FFPE tissue using the different extraction buffers.

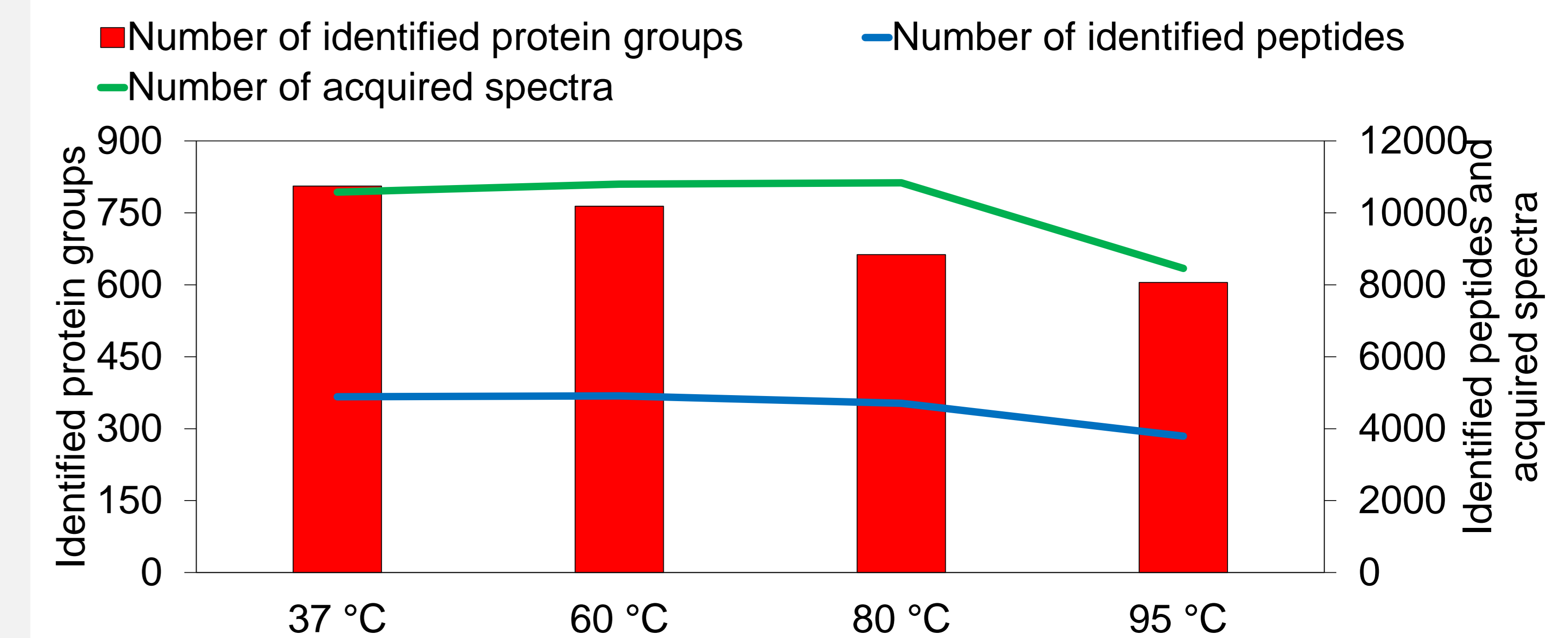
### Overlap in identified protein groups between the different extraction buffers



**Figure 3.** Overlap in protein identifications between the different extraction buffers for 15 μm thick GBM FFPE tissue.

## Results

### Effect of temperature increase on identified protein groups during urea incubation



**Figure 4.** Protein identifications for 15 μm thick GBM FFPE tissue at different temperatures using 8 M urea/30% ACN/100 mM NH<sub>4</sub>HCO<sub>3</sub> as extraction buffer.

### Biomarker candidates for GBM

- Nestin
- Gelsolin
- Cathepsin B
- Peripherin
- Glial fibrillary acidic protein
- Annexin A2
- Neural cell adhesion molecule 2
- Synaptic vesicle membrane protein vav-1 homolog

## Conclusions

- Protein extraction from GBM FFPE tissue blocks was successful.
- Extraction buffer containing DDM yielded the highest number of identified proteins.
- Increasing of temperature during urea incubation resulted in a decrease in identified protein groups.