

"OMICS" PROFILING OF PLASMA-DERIVED EXOSOMES: THE SEARCH OF BIOMARKERS FOR EARLY-STAGE ALS

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Funding and acknowledgement

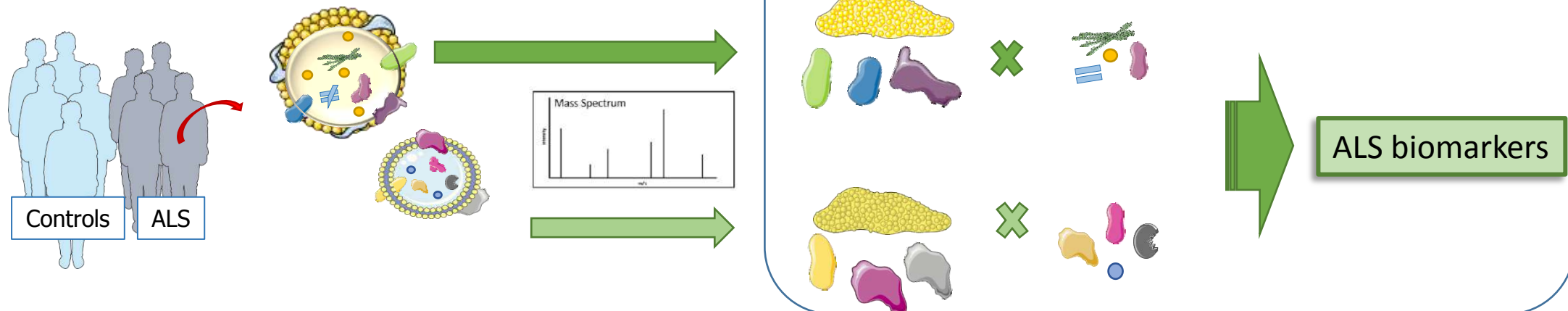
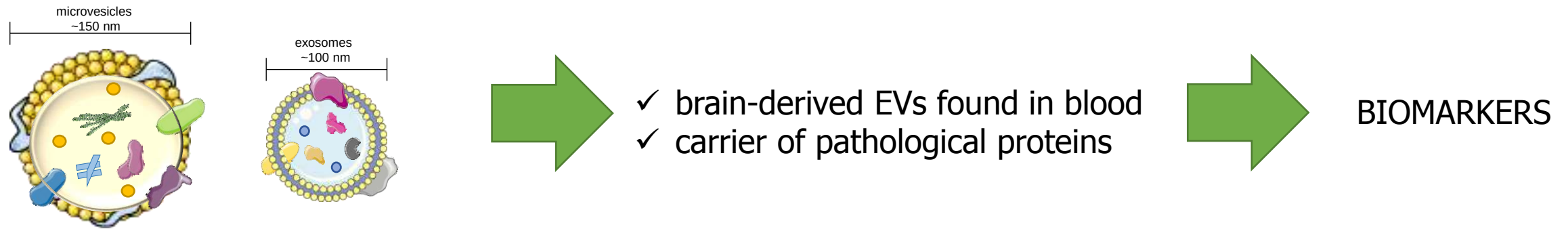


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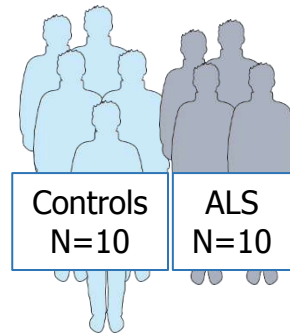
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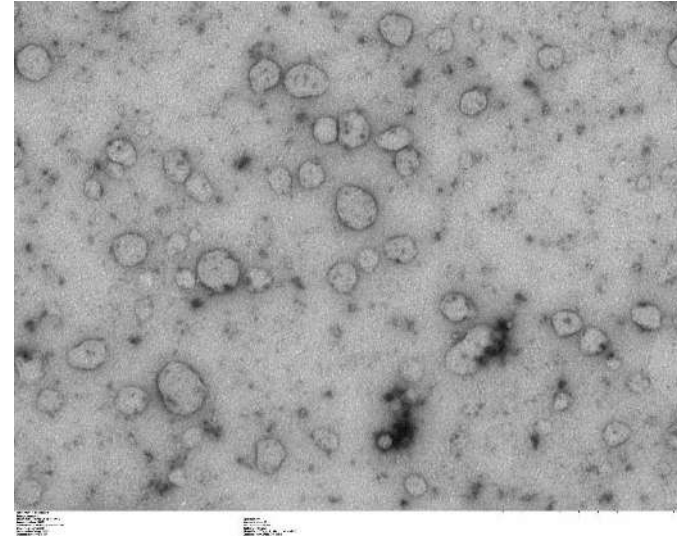
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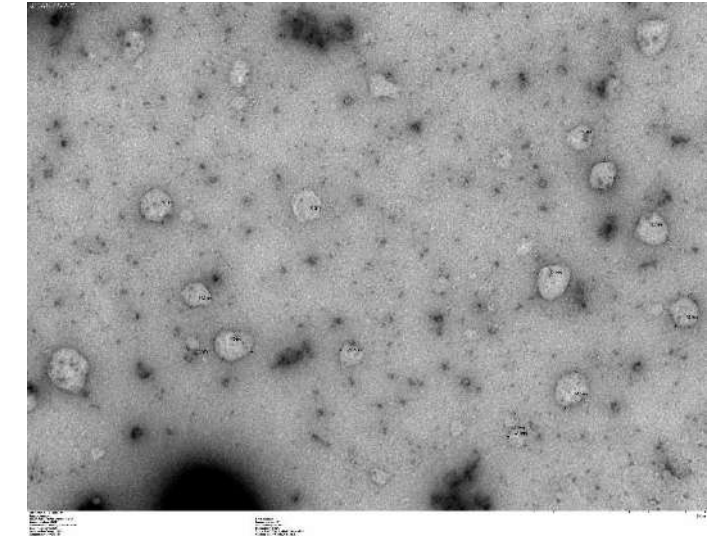
Data	Controls	ALS	p
Age	56.9 ± 19.2	65.9 ± 9.9	0.0793
Sex (men)	8/20 (40%)	8/17 (47%)	0.746*
Weight (kg)	69.4 ± 13.6	64.2 ± 15.8	0.299
BMI (kg/m ²)	24.9 ± 3.8	23.5 ± 4.0	0.3024
Age at onset (years)	-	65.0 ± 9.5	
Disease duration (from onset; months)	-	11.1 ± 6.8	
Diagnosis delay (from onset; months)	-	9.3 ± 4.7	
Spinal onset	-	64.7%	
FVC at diagnosis (%)	-	98.0 ± 7.1	
ALSFRS-r at diagnosis	-	34.7 ± 7.2	

Transmission electron microscopy of isolated EVs

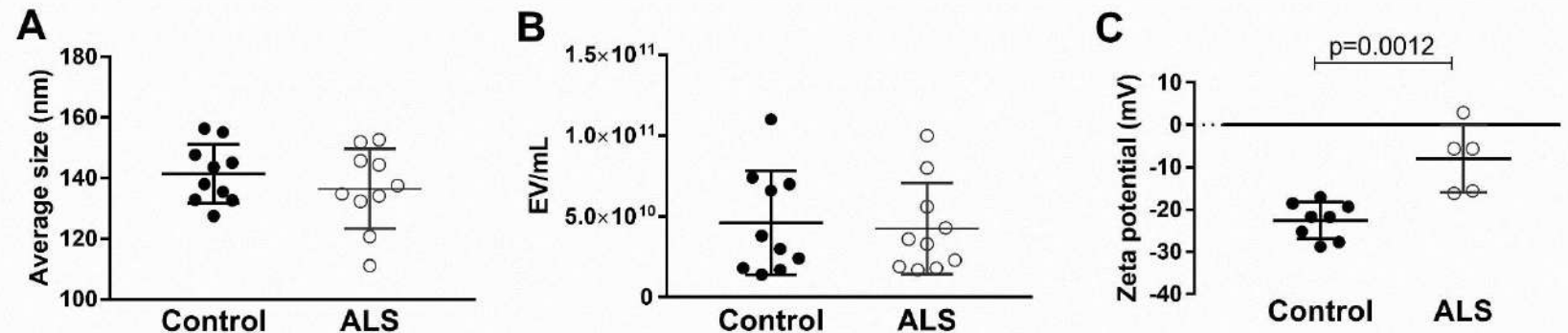
Controls



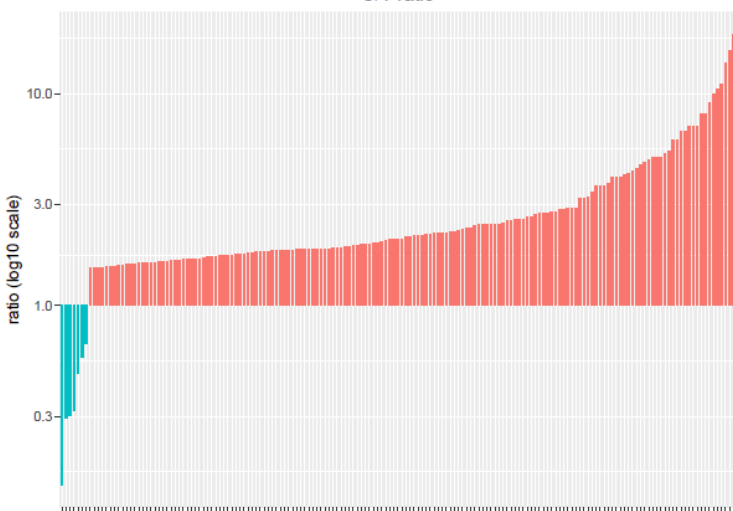
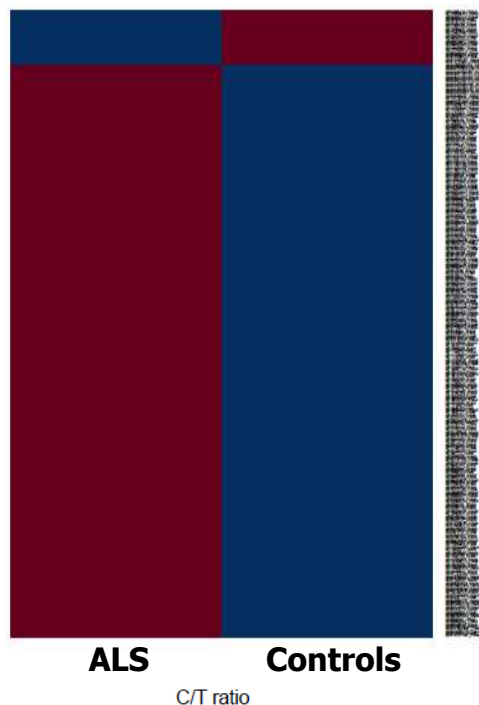
ALS



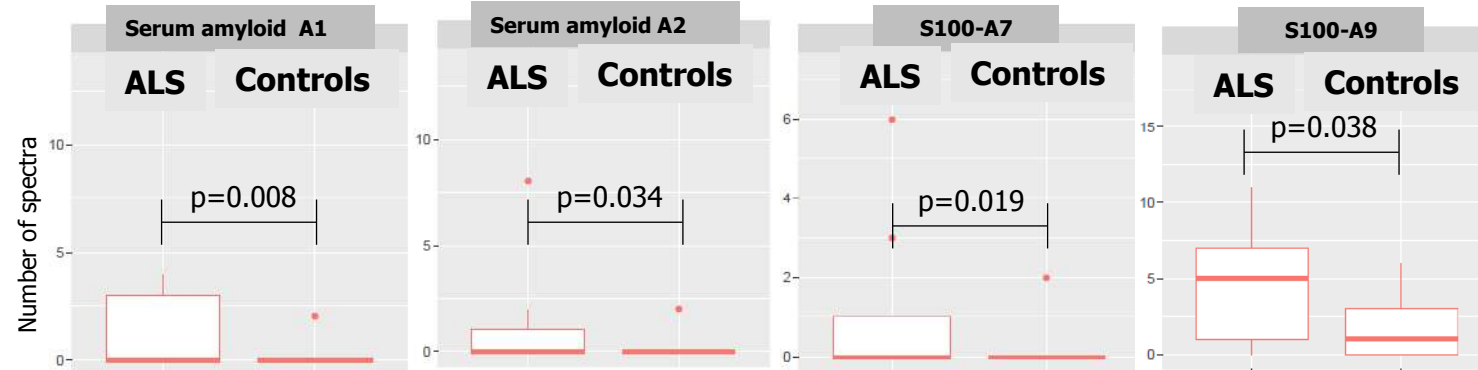
Nanoparticle Tracking Analysis (NTA) analysis



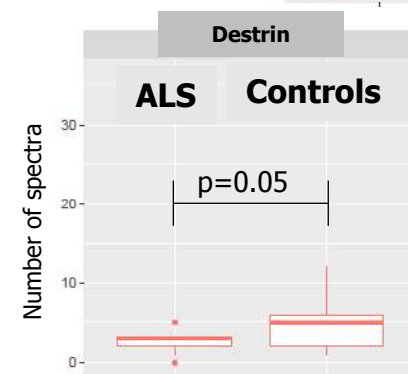
Proteomics analysis revealed 203 proteins significantly different between groups (Padj<0.05).



Analysis with PLGEM algorithm revealed 45 different proteins ($p < 0.05$).



35 increased in ALS



10 decreased in ALS

Conclusions/Perspectives:

- ✓ Proteomics analysis revealed alterations in proteins related to cytoskeleton turnover, inflammatory proteins and apolipoproteins;
- ✓ Western blot, metabolomics and lipidomics analysis are currently being performed to confirm the differences suggested so far between Controls- and ALS-derived plasma EVs;
- ✓ We will further validate the application of the identified molecules or profile of molecules from EVs as putative biomarkers for ALS diagnosis.