Nuclear magnetic resonance (NMR) of goat follicular fluid shows different metabolic profiles among follicle size and female age

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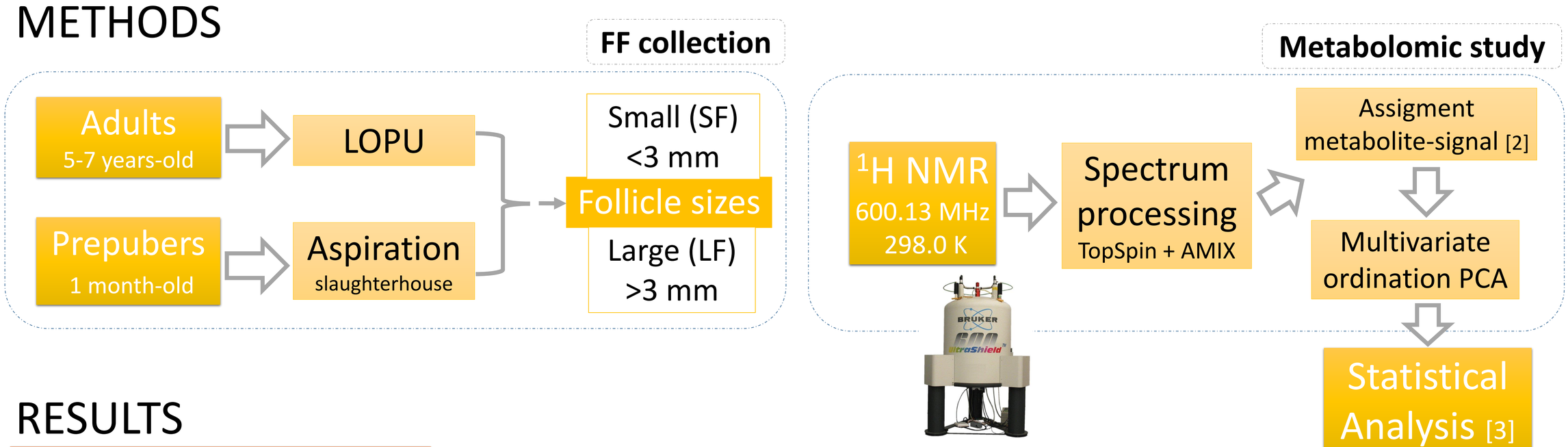
INTRODUCTION

Oocytes from prepubertal goats are very heterogeneous in growth and grade of atresia which makes them unpredictable for IVEP. However, when oocytes of prepubers were obtained from >3 mm follicles, we found the same blastocyst yield than in adults (18% vs 21%). The follicle development and the follicular fluid (FF) content may be more relevant to oocyte competence than the age of the donor [1].

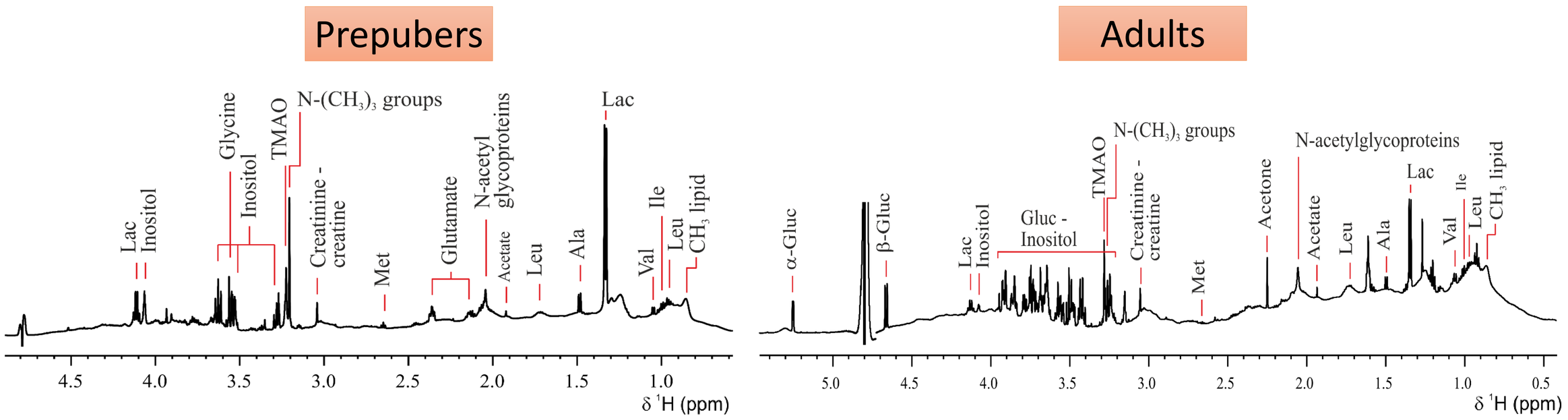
AIM Characterize the FF metabolic profile from different follicular environments using ^{1}H NMR spectroscopy.

METHODS



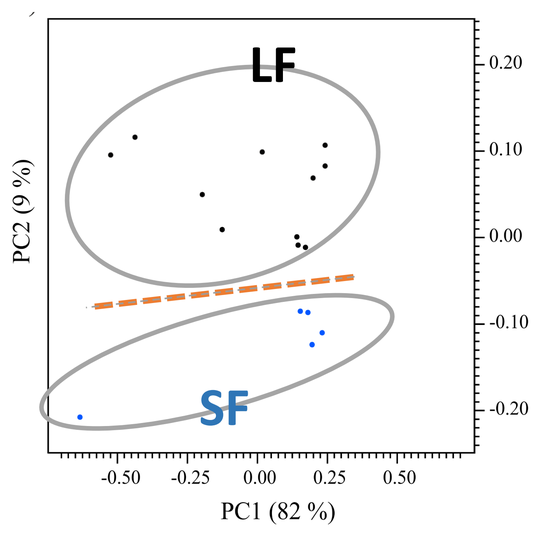
RESULTS

Representative spectra



Differences in the metabolomes

Small vs Large (Prepubers)

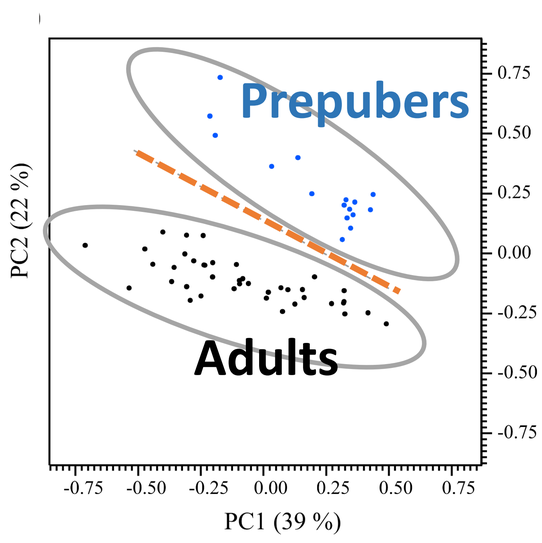


Metabolites responsible for the discrimination

(p-value < 3.60 x 10-4, Bonferroni corrected confidence interval)

Inositol	Lysine
SF>LF	SF>LF

Prepubers vs Adults (All Samples)



α,β-glucose	Lactate
Ø P	P>A

N-CH3 groups	Inositol
P>A	P>A

CONCLUSIONS

Metabolomic profiles are different according to the follicle diameter and the female age.

Some of these metabolites could be related to the acquisition of oocyte competence and might be used as biomarkers of oocyte quality.

REFERENCES

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