

[¹⁸F]UCB-H BINDING QUANTIFICATION IN RAT BRAIN: FROM MODELLING TO SUV

Serrano M.E., Bahri M.A., Becker G., Warnier C., Mievis F., Giacomelli F., Lemaire C., Luxen A., Plenevaux A.

GIGA-CRC In vivo Imaging, University of Liège, Belgium

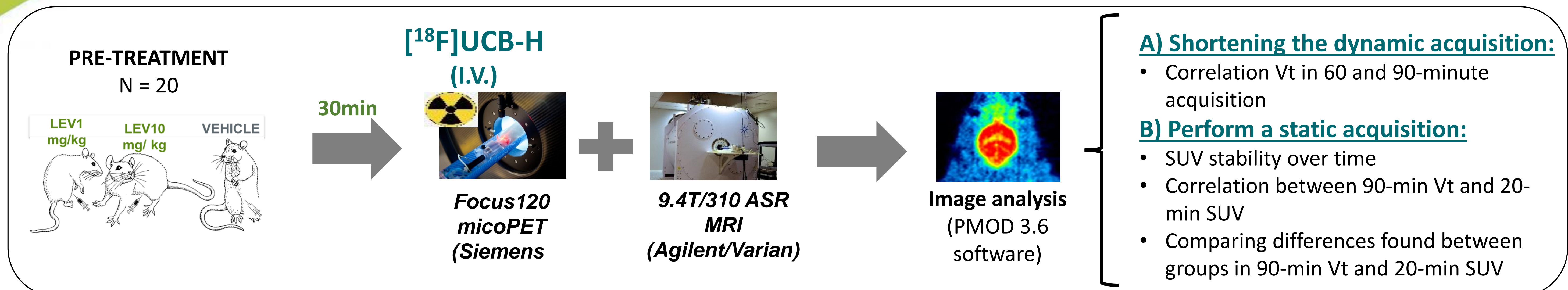
Introduction

QUANTIFICATION IN PET

- Usually necessary the arterial blood sampling: Vt obtained from Arterial input function
 - Alternative methods have been proposed (e.g.: SUV, reference region)
 - Validation of the reliability of their results is necessary.

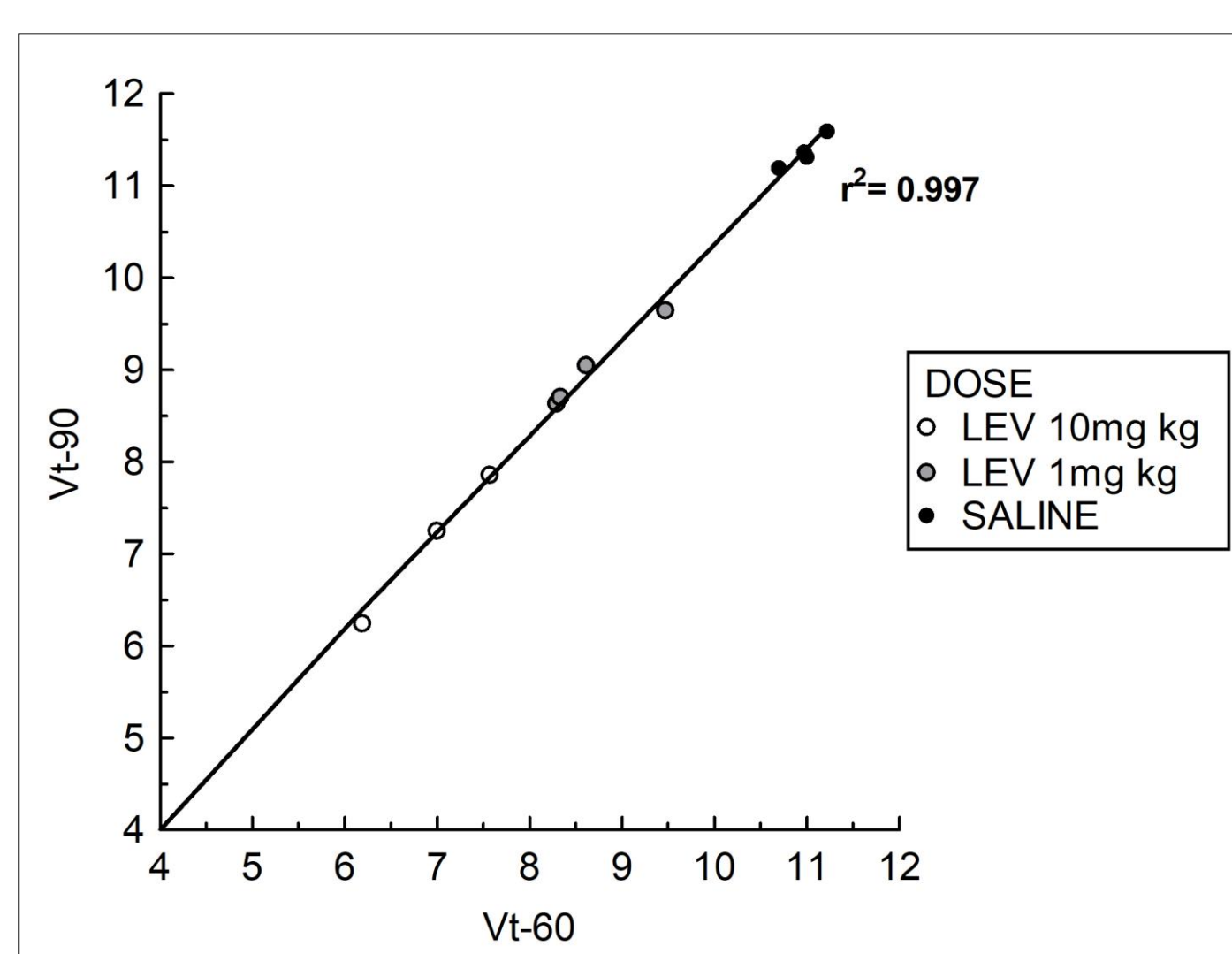
OBJECTIVE: Improving the acquisition and data analysis with [¹⁸F]UCB-H, a specific biomarker for the Synaptic Vesicle protein 2A (SV2A) protein.

Methods



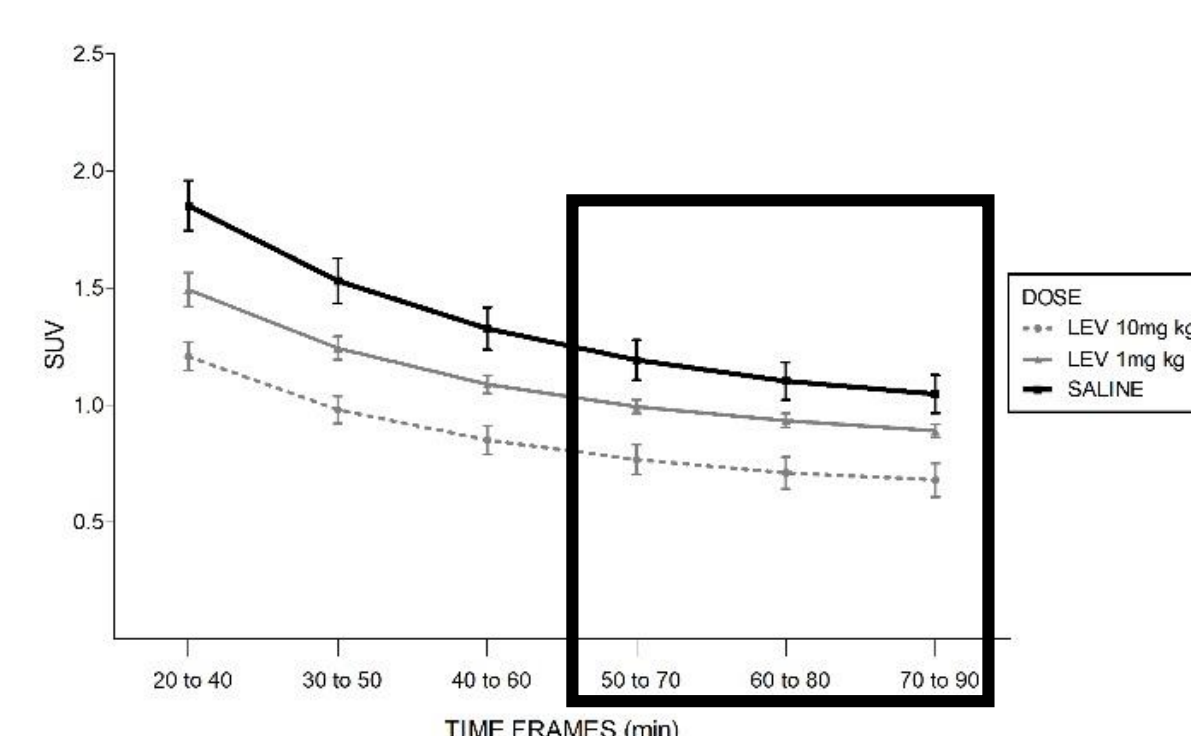
Results

A) SHORTENING THE DYNAMIC ACQUISITION FROM 90 TO 60 MINUTES



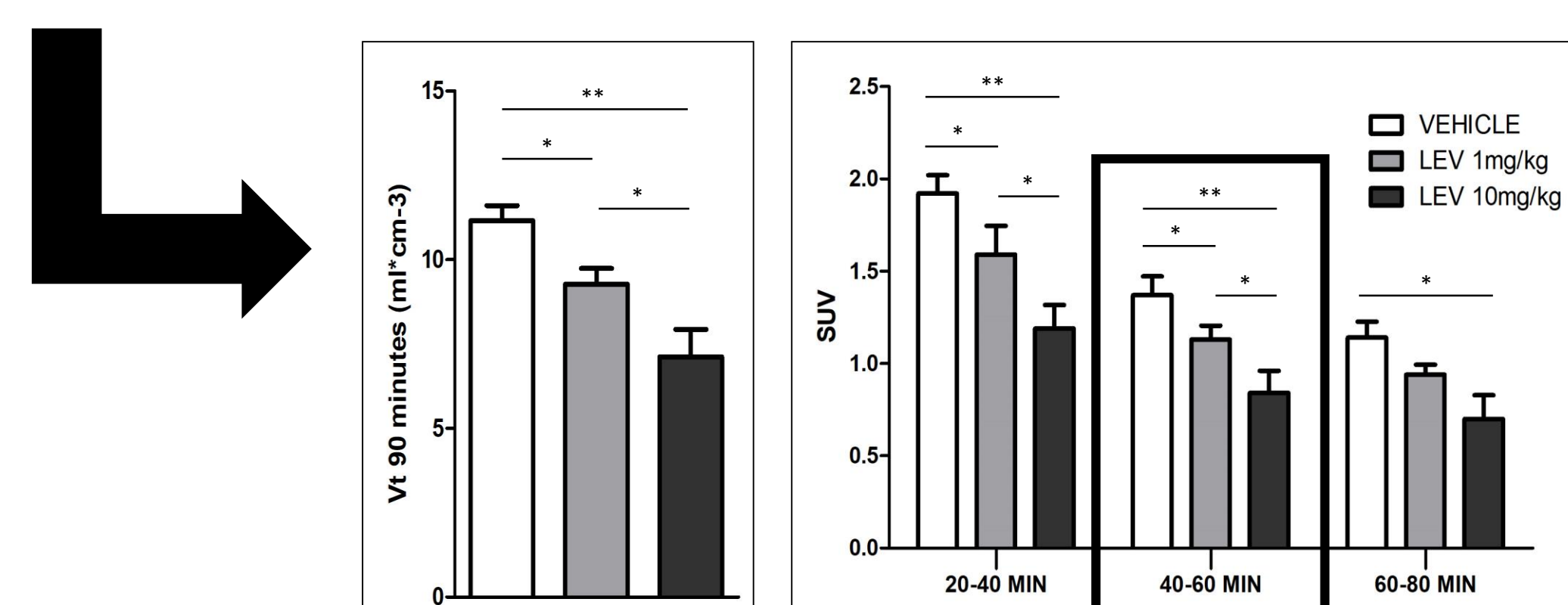
Correlation between Vt-90 and Vt-60 values in the whole brain.

B) POSSIBILITY TO PERFORM A 20 – MINUTE STATIC ACQUISITION



SUV differences in the whole brain, through 20-minute time frames.

CORRELATION	PEARSON VALUE
Vt vs SUV 20-40min	0.958
Vt vs SUV 30-50min	0.943
Vt vs SUV 40-60min	0.921
Vt vs SUV 50-70min	0.908
Vt vs SUV 60-80min	0.881
Vt vs SUV 70-90min	0.855



Differences between groups in Vt and SUV in the whole brain

Conclusion

IN THE CASE OF THE [¹⁸F]UCB-H:

There is a strong correlation between the SUV parameter and the VT based on a PBIF.

- It is possible to do a 60-minute dynamic acquisition or a 20-minute static acquisition (from 40 to 60 minutes) instead of a 90-minute dynamic acquisition

It is feasible the use of the SUV instead of the Vt value, simplifying data analysis and shortening the acquisition time.