

**Investigating Brown Adipose Tissue Activation in Humans**

**Statistical Analysis Plan**

**Date: 29/05/2014**

**MAIN SPONSOR: Imperial College London**

**FUNDERS: Medical Research Council (MRC)**

**STUDY COORDINATION CENTRE: Imperial College London**

**Research Ethics Committee (REC) reference: 13/LO/0925**

**NCT No. NCT01935791**

## Statistical Analysis

Based on previous studies of the hormonal and cold exposure effects on human BAT activity 1, 2, we calculated that, for an equivalent rise in EE, a sample size of 4 per group (glucagon versus control) would have 95% power to detect a significant difference between the effects of cold exposure and glucagon using <sup>18</sup>F-FDG PET/CT in confirmed BAT-positive volunteers. Because of safety considerations, as PET/CT scans expose healthy patients in this study to ionising radiation, we limited this study to males only and to the smallest possible sample size to answer our initial question about the differential effects of cold exposure and glucagon administration on human BAT activity for a given rise in EE.

All data were analysed using GraphPad Prism 6 software (GraphPad Software, Inc., San Diego, CA, USA). Results are presented as means ± standard error of the mean. One-way repeated measures anova with Tukey's test was used to compare differences between the three intervention groups. A p value < 0.05 was considered to indicate statistical significance.

## REFERENCES

Vosselman MJ, van der Lans AA, Brans B et al. Systemic beta-adrenergic stimulation of thermogenesis is not accompanied by brown adipose tissue activity in humans. *Diabetes* 2012; **61**: 3106– 3113

Lahesmaa M, Orava J, Schalin-Jantti C et al. Hyperthyroidism increases brown fat metabolism in humans. *J Clin Endocrinol Metab* 2014; **99**: E28– E35.