

Imaging the smoking effects on CNS using PET- [18F]FDG

AIM

Developing a model of smoke exposition in mouse and imaging and quantifying the effect of an anti-smoking therapy

METHODS

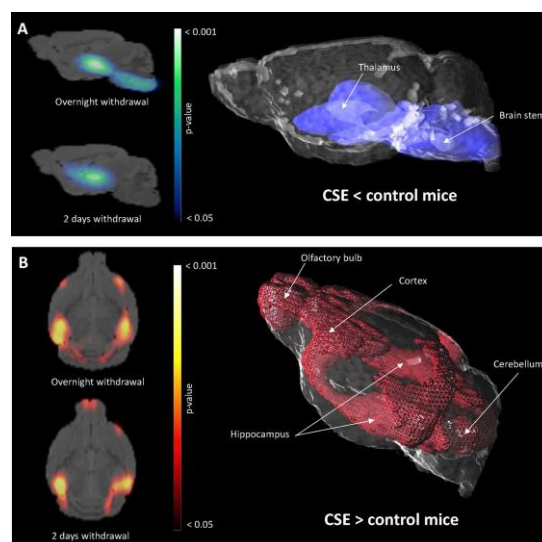
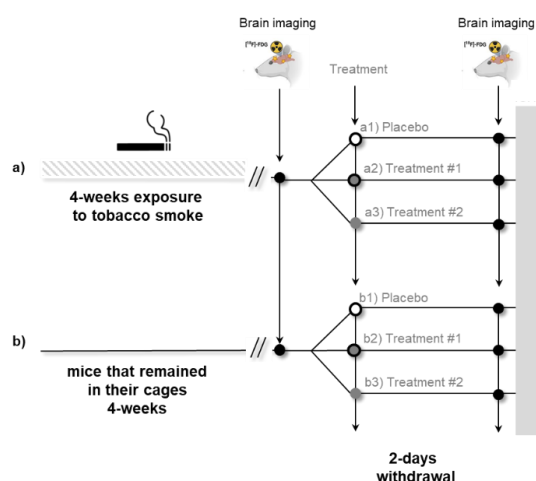
- Exposure to tobacco smoke for 4 weeks under controlled conditions, twice daily, 5 days per week
- Tobacco exposure for 4 weeks & [18F]- FDG-PET brain imaging (glucose metabolism)
- 2 days withdrawal + Treatment (placebo or therapeutics) & [18F]- FDG-PET brain imaging

RESULTS

- A marked decrease in metabolism detected in the thalamus and brain stem of the tobacco-exposed mice
- A glucose metabolism increase in the thalamus and brain stem with treatment compared to the group without treatment

CONCLUSION

- A robust model for exposure to tobacco in mice
- TEP molecular imaging using [18F]-FDG: a relevant biomarker for monitoring the neural substrates of smoking cessation



Effects of cigarette smoke exposure (CSE) on brain glucose metabolism. (A) Regions with a significant decrease in metabolic activity in CSE mice. (B) Regions with a significant increase in [18F]FDG uptake in CSE mice.