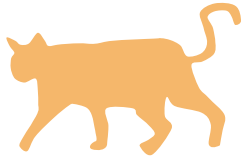


核醫技術實驗

--動物實驗設計



B9603221 陳穎柔

B9603223 許睿珊

B9603224 陶常欣

B9603225 李滿芳

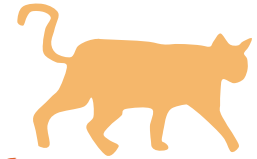
B9603226 林遠忠

B9603227 李承翰

B9603228 王維萱

B9603229 張煦人

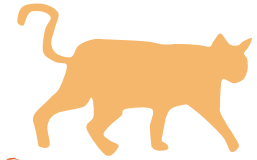
Outline



- × Aim
- × Introduction
- × Material
- × Method
- × Results
- × Discussion
- × Reference



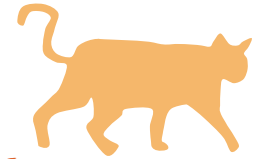
Aim



- × Training the transgenic mouse model of Alzheimer's Disease to release A β plaque in the brain



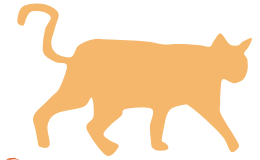
Introduction



- × 患有AD的病人的腦部會有A β 的沉澱，而PIB可以binding到A β ，利用PET的造影可以看出腦部A β 的沉澱，協助診斷AD。



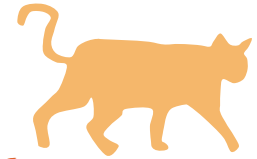
Material



- × 從長庚動物實驗中心取得12隻公的小老鼠
- × micro PET
- × F18-PIB
- × warm instrument



Method



12 transgenic mouse model of Alzheimer's Disease

- injection, 第一次造影(6個月大)

- 6 training(走迷宮)

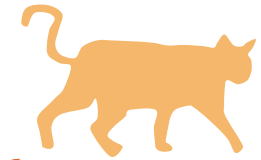
- 6正常飼養

- injection, 第二次造影(一週後)

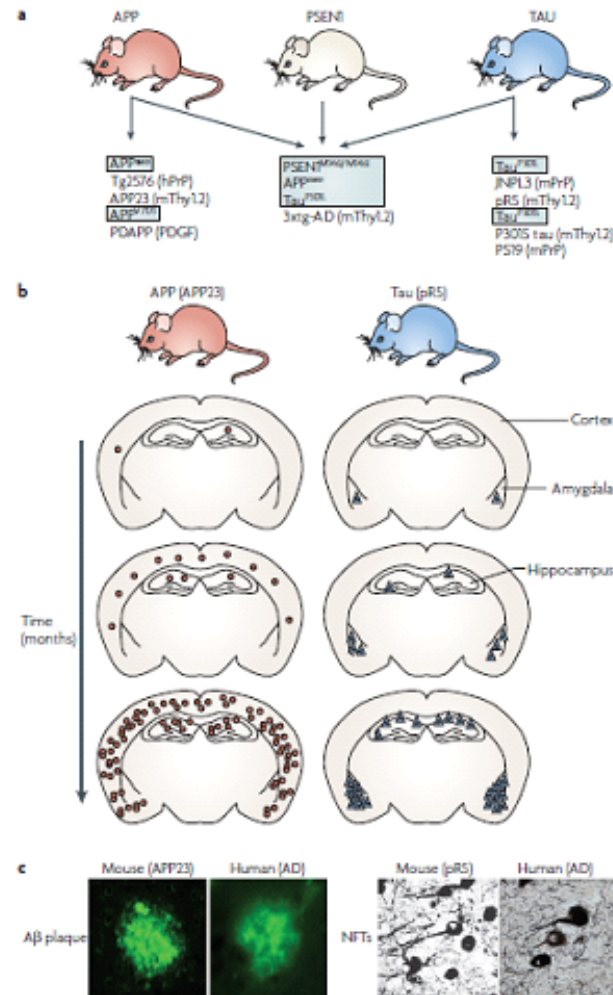
- 結果(SUV)



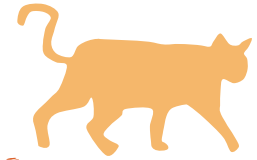
ransgenic mouse model



與生科系合作，取得
基因轉殖的老鼠
(Tg2576)



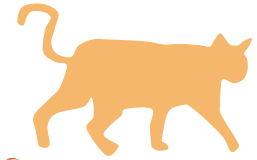
PET image acquisition



- × 每隻小老鼠注射37MBq的PIB，在注射後10-20分鐘進行PET scan，利用10-20min image的總合做為此次實驗的分析。所有影像都有做decay和dead time的correction
- × 在老鼠接受training的前後都要分別做造影

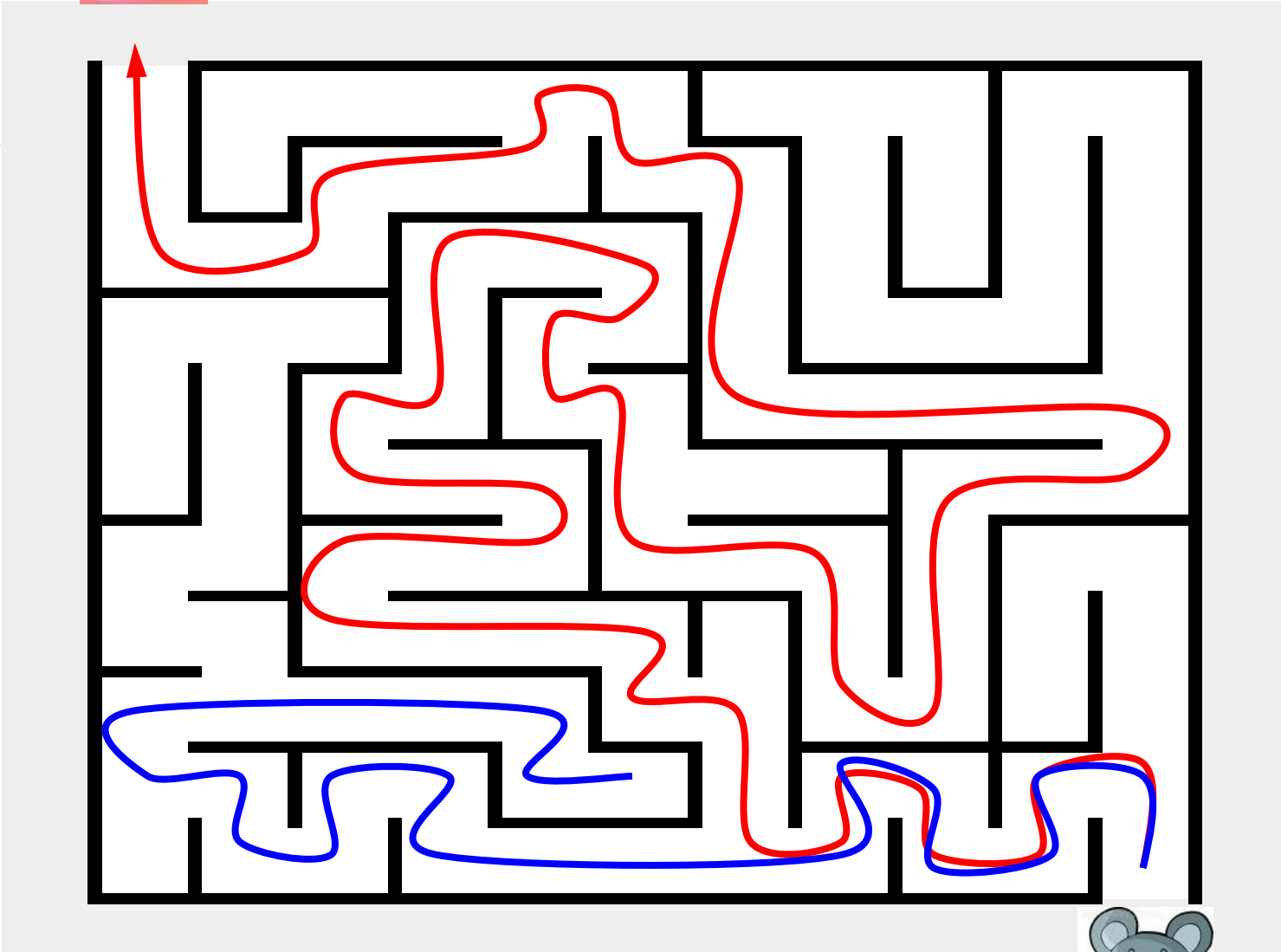


mouse training

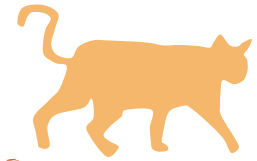


- × GROUP A: 將6個月大已接受第一次造影的小老鼠其中的6隻分別放在有迷宮設計的籠子裡，把老鼠放在迷宮的起始點，食物放在迷宮的終點，接受1個禮拜的訓練
- × GROUP B: 另外6隻就分別放在普通的籠子裡



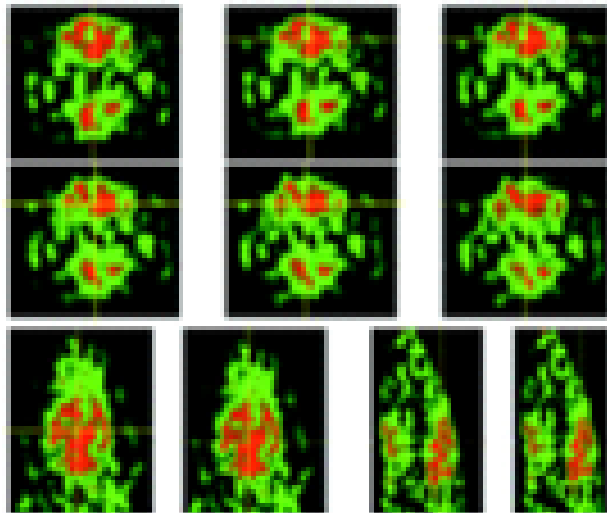


SUV

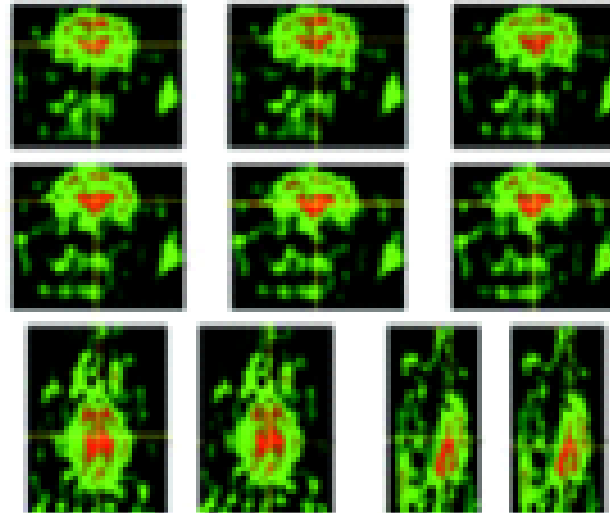


- × 對老鼠腦部的影像圈ROI, 計算SUV, 對GROUP A和GROUP B分別做比較。

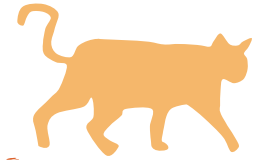
GROUP B



GROUP A



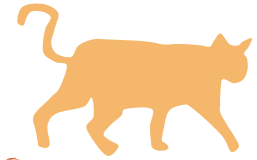
Results



× GROUP A

	1	2	3	4	5	6	AVERAGE	SD
訓練前 SUV	90	86	85	93	87	90	88.5	3.02
訓練後 SUV	110	106	105	100	98	113	105.33	5.72

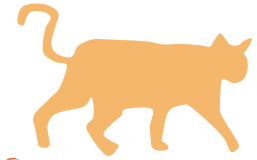
Results



× GROUP B

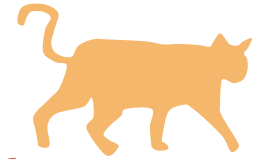
	1	2	3	4	5	6	AVERAGE	SD
正常飼養 前SUV	90	92	88	96	89	93	91.33	2.94
正常飼養 後SUV	125	121	116	126	118	117	120.5	4.23

Discussion



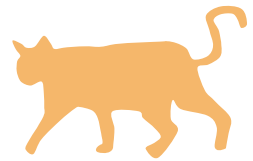
- × 由此實驗結果可以看出有訓練過的小老鼠腦部的 $A\beta$ 增加19%，沒有訓練過的小老鼠增加了32%。
- × 因此可能讓老鼠接受一些訓練可以減緩 $A\beta$ 在腦部的沉澱，但是無法避免 $A\beta$ 的增加。

Reference



- × Biological characters of [18F]O-FEt-PIB in a rat model of Alzheimer's disease using micro-PET imaging1
- × Animal models of Alzheimer's disease and frontotemporal dementia
- × Limitations of Small Animal PET Imaging
- × with [18F]FDDNP and FDG for Quantitative Studies in a Transgenic Mouse Model of Alzheimer's Disease
- × Ab peptide immunization reduces behavioural impairment and plaques in a model of Alzheimer's disease





Thank you !!

2010/06/17