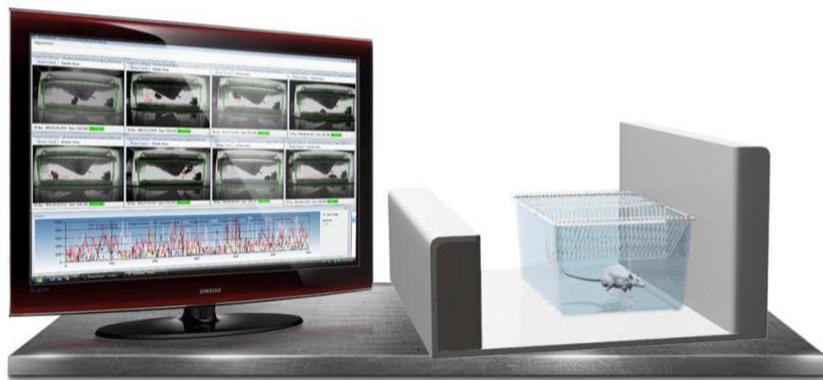


# PHENORACK

High throughput Monitoring of rodents in home cage



**Hi-Tech**

**RACKS**  
Monitor up to 32 cages simultaneously in racks

**PRECISE BEHAVIOR**  
Score behaviors: rearing, hanging, shaking, resting and many others

**Experiment 24/7**  
Record and analyze global activity and locomotion 24 / 7

## PhenoRack 24小時鼠籠觀察系統



格林科技有限公司

GERIN Technology Co.,Ltd.

<http://www.gerin.com.tw/> [office@gerin.com.tw](mailto:office@gerin.com.tw)

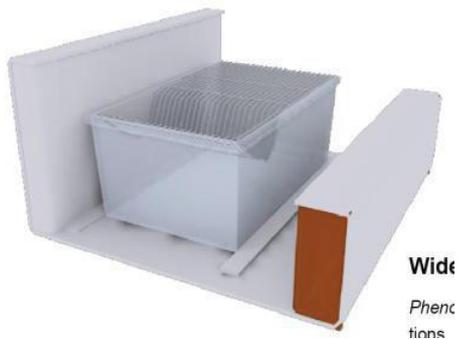
台北 ☎ 02-2651-5827

台北市忠孝東路六段467號2樓

台南 ☎ 06-290-1890

台南市東區崇德路56號4樓

# PhenoRack 是什麼?

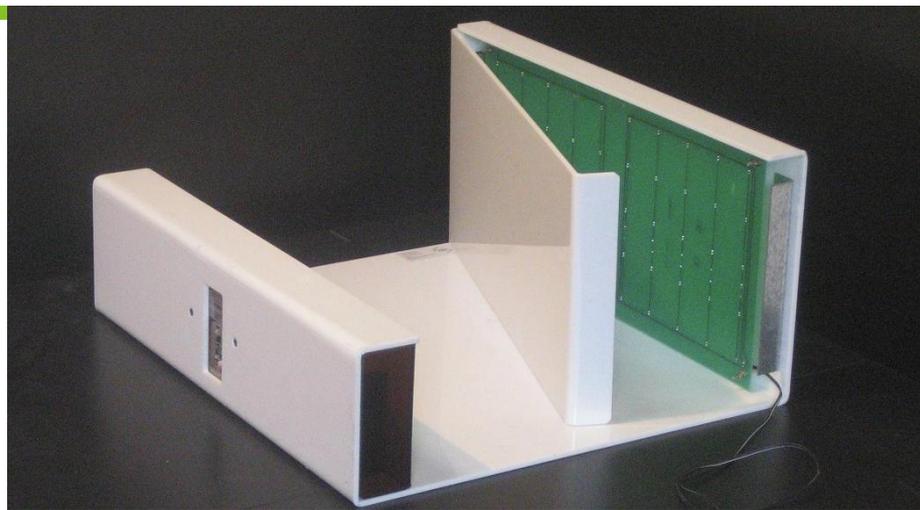
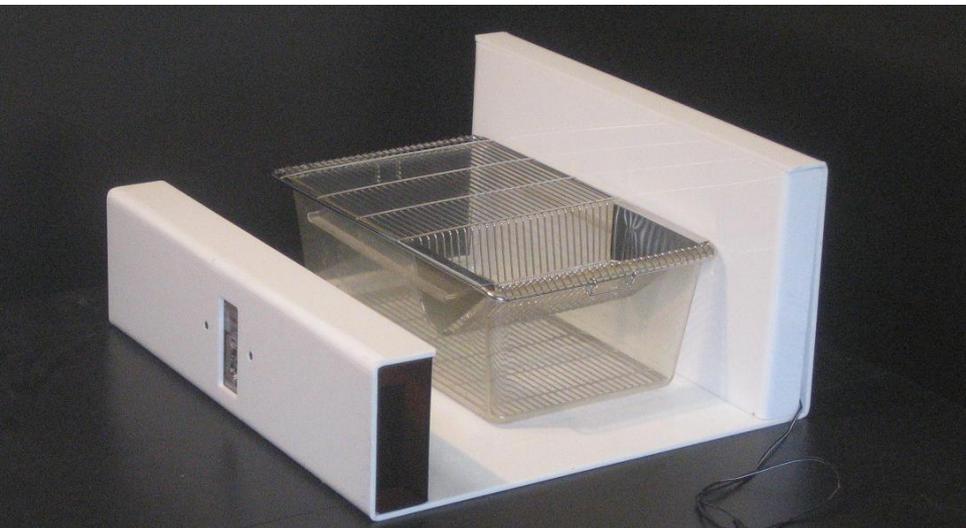


Behavior Technology

- PhenoRack內建紅外線光源、紅外線數位攝影機，可24小時不間斷連續監測動物行為
- PhenoRack可放置標準小鼠鼠籠(每個鼠籠一隻動物)
- 多個PhenoRack連接到電腦，使用Phenorack軟體分析動物行為影像
- 同時多隻動物**24**小時紀錄與分析動物行為差異



# 硬體構造



# PhenoRack可做什麼應用？

- 活動力偵測 Locomotors activity
- 日夜週期 Circadian Rhythms
- 飲食飲水次數
- 偏好實驗 Place preference



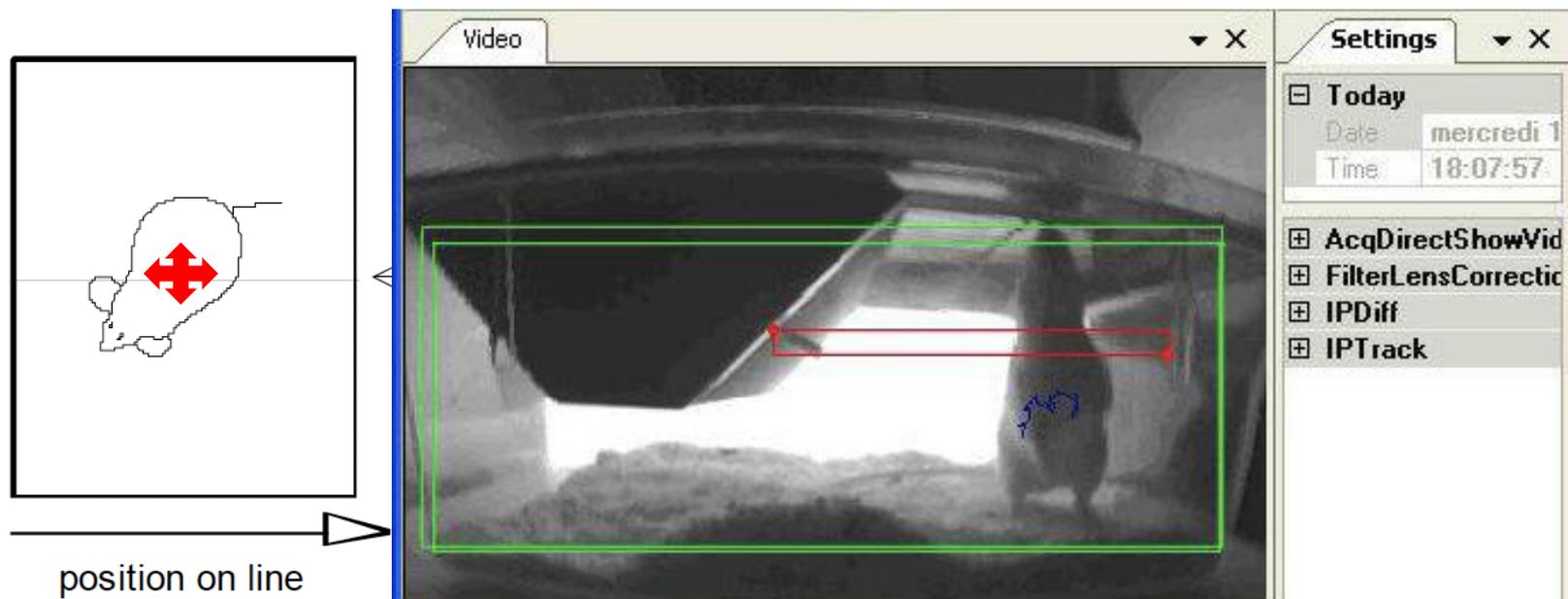
# PhenoRack 應用範圍

- 行為表型辨識 Behavior Phenotyping
- 藥物開發 Drug Screen(Pharma Phenomics)
- 代謝/營養學研究
- 各種可能在24小時有差異的行為

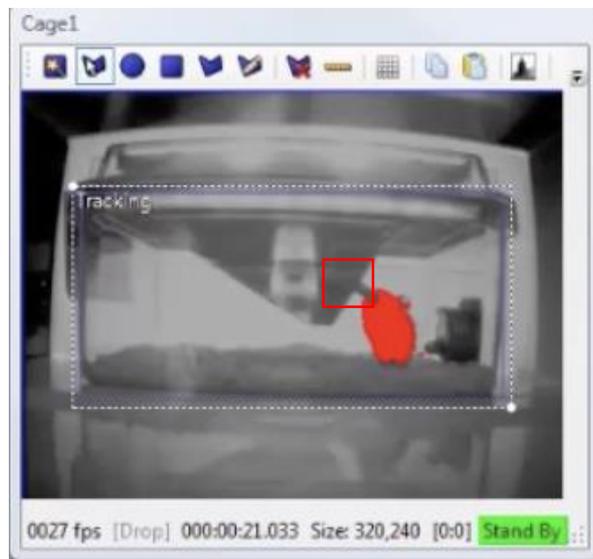
# PhenoRack可偵測什麼？

- 位移量(Locomotion) :  
距離(Distance traveled), 移動速度(speeds & duration of movements)
- 行為(Behaviors)  
站立(Rearing), 飲水( Drinking), 飲食(Eating), 懸掛(hanging/climbing )
- 凍結(Freezing) ; 衝動(Burst movements)
- 特殊行為:需要定義

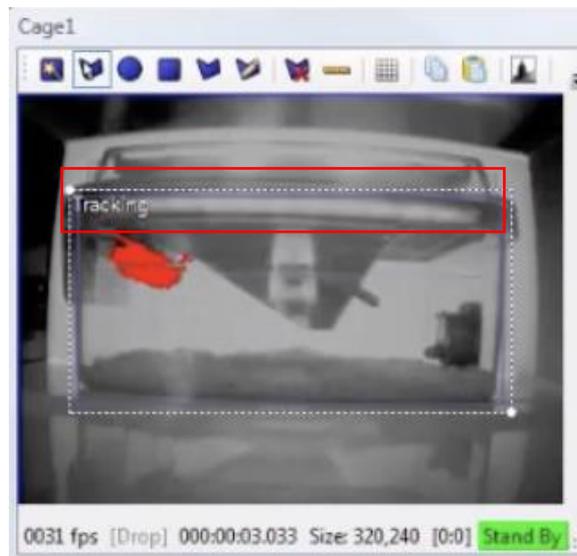
# 如何計算位置：動物的中心點



# 如何偵測動物行為



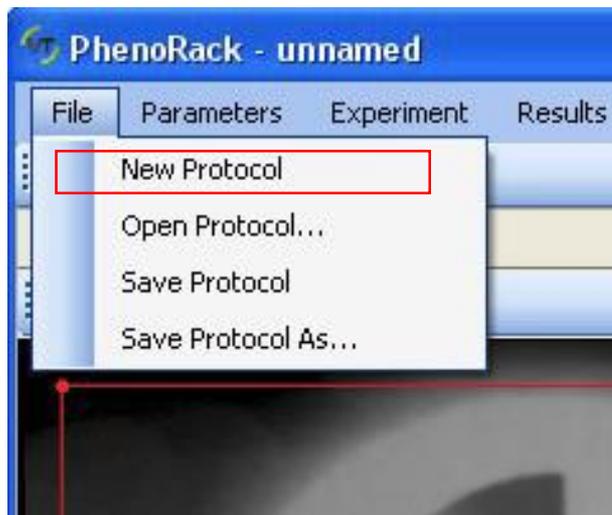
Drinking



Climbing

# PhenoRack設定方式

- 設定New Protocol-



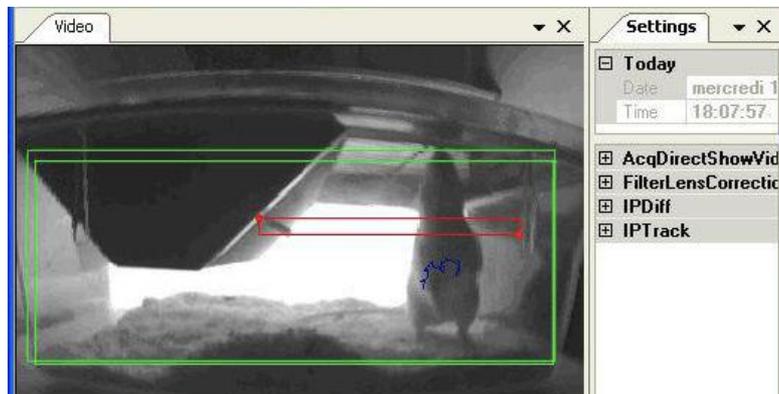
# PhenoRack設定方式

- 設定偵測區域:

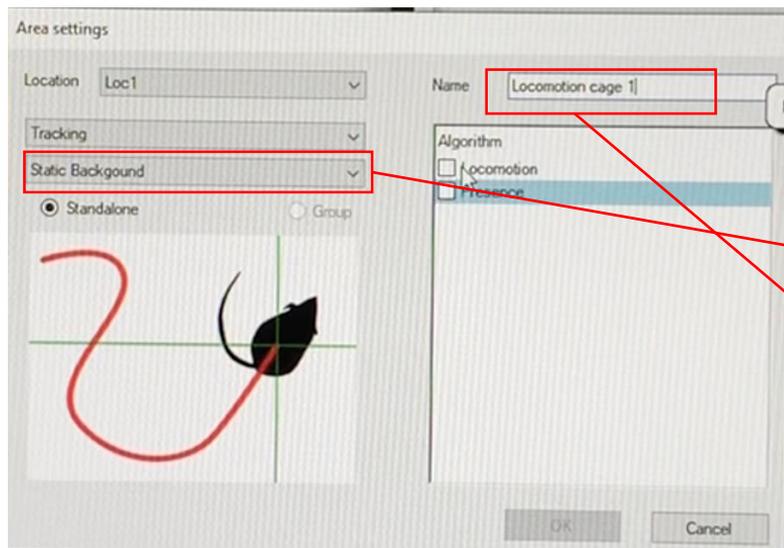


- 使用上方工具列，選擇適合圖形

- 校正尺寸:使用校正工具

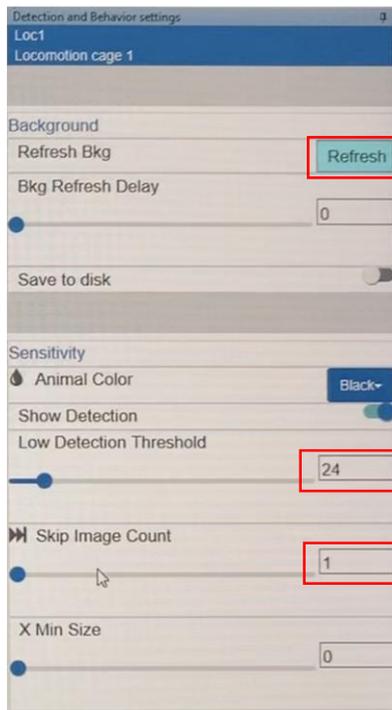


# PhenoRack設定方式



- 追蹤方式設定:
- 區域內要分析活動力選擇 ->Locomotion
- 計算次數與時間:選擇->Presence
- 選擇動態背景(Static Background)
- 命名行為名稱

# PhenoRack設定方式



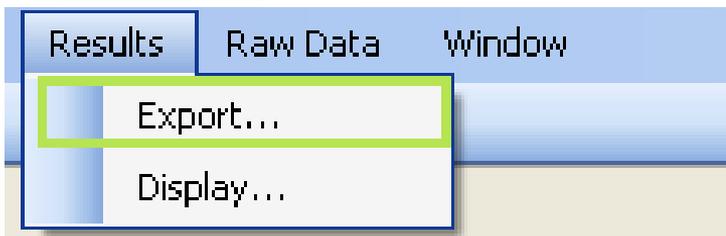
- 右邊參數:Refresh Bkg 在動物放入前按Refresh
- Detection Threshold:20~24 (適合小鼠)
- 排除掉不確實的行為 Drinking

# 開始實驗-同步錄影跟分析數據



	Location	Animal	Start	Stop	Elapsed Time
▶	Cage1		Start	Stop	
	Cage2		Start	Stop	

# 實驗數據輸出-Excel



A screenshot of a 'Result Display' window showing a table of experimental data. The table has 16 columns and 2 rows of data.

sn	datatype	location	animal	aname	pn	start	end	startreason	endreason	freqt	freqd	midct	middd	burct	burdd
1	Quantization	Cage1		Global	1	0.000	44.642			61	53.683	85	5.511	69	9.330
1	Quantization	Cage2		Global	1	0.000	44.721			56	54.913	94	4.745	83	14.947