The therapeutic effect of intranasal administration of exogenous cholesterol in the R6 / 2 mouse model of Huntington's disease

21st July 2022

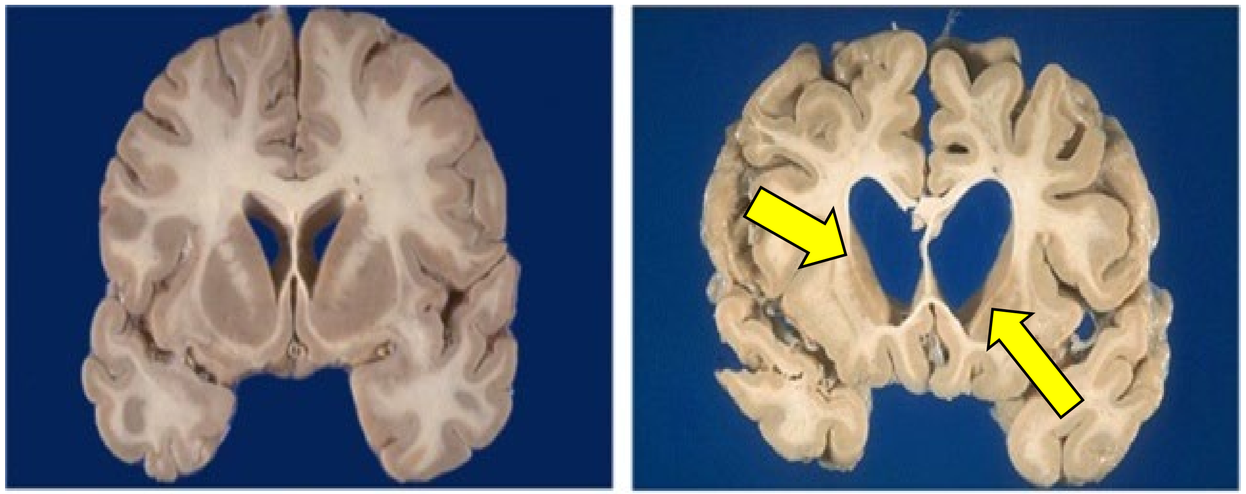
By K. Ahmed, S. Gillio Tos , S. Varisco

Huntington Disease

ISTITUTO DI RICERCHE
FARMACOLOGICHE
MARIO NEGRI · IRCCS

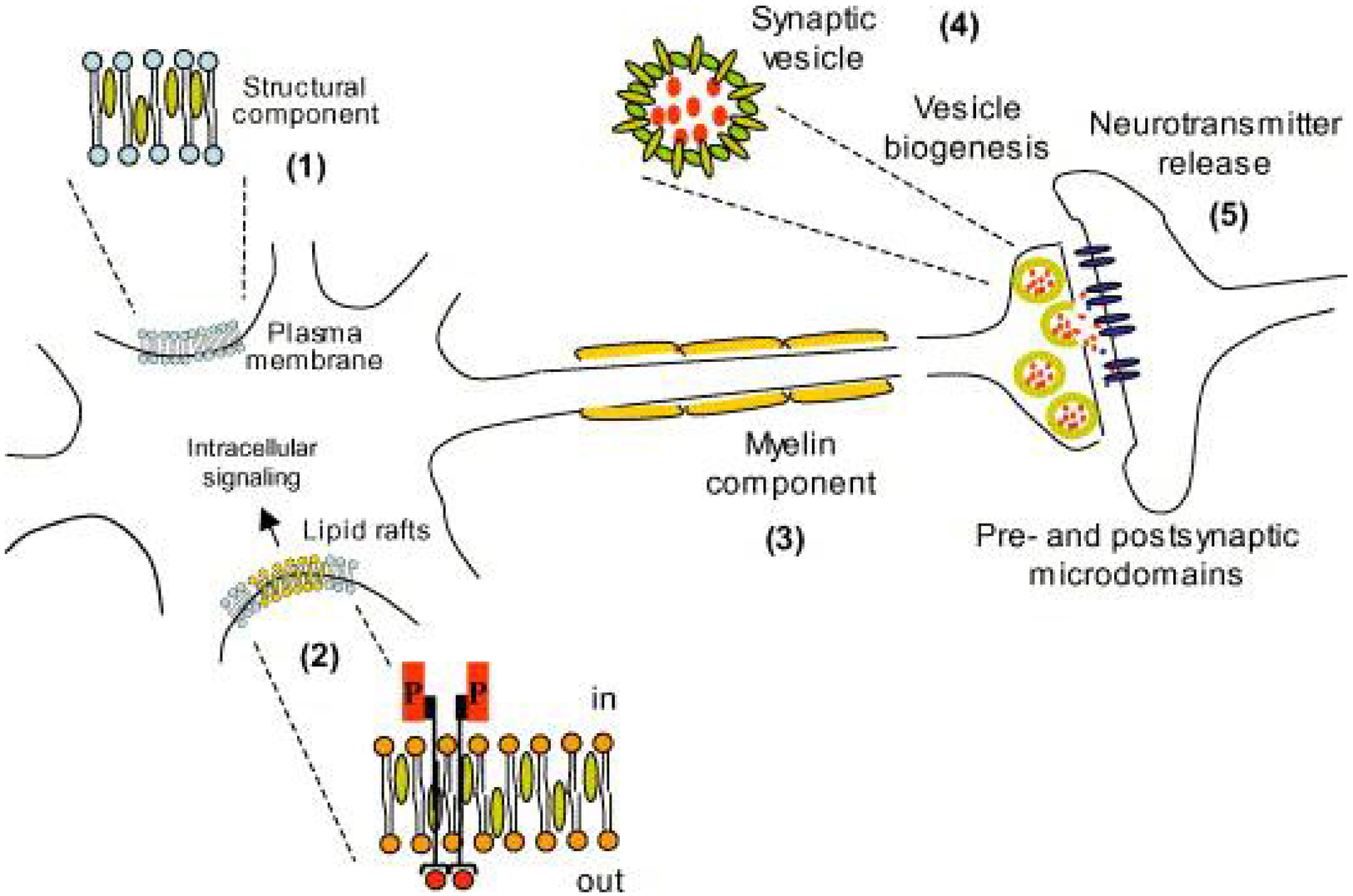
Huntington’s Chorea

- **Neurodegenerative** disease that causes brain atrophy
- A stretch of the **HTT protein** is expanded
- **Rare** diseases (1/10 000)
- Motor, cognitive, psychiatric **symptoms**



NORMALE **HD**

Cholesterol



Cholesterol

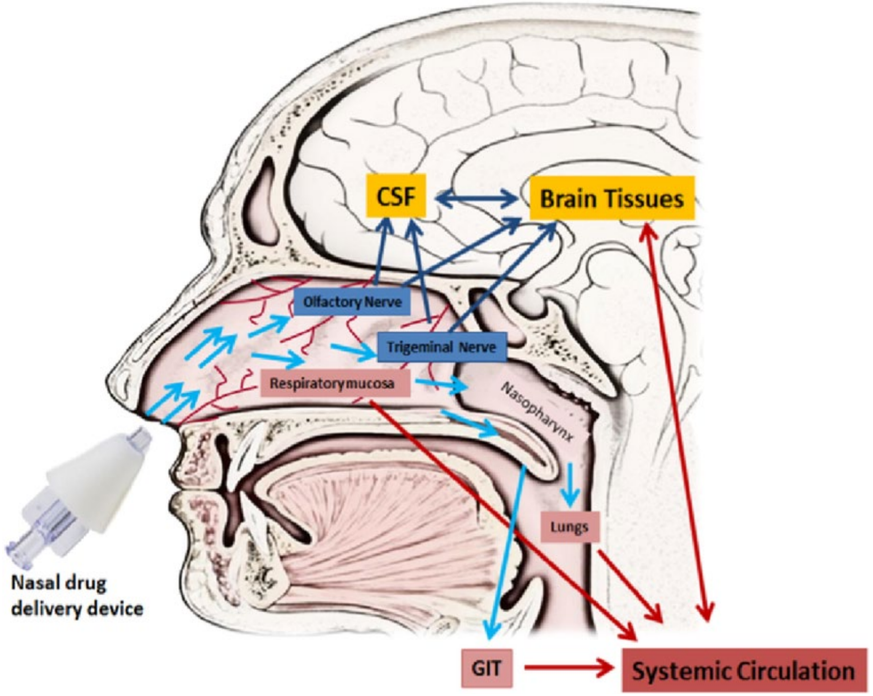
Myelin

HD

Nose-to-Brain Delivery

ISTITUTO DI RICERCHE
FARMACOLOGICHE
MARIO NEGRI · IRCCS

Nose-to-Brain Therapy and Liposomes

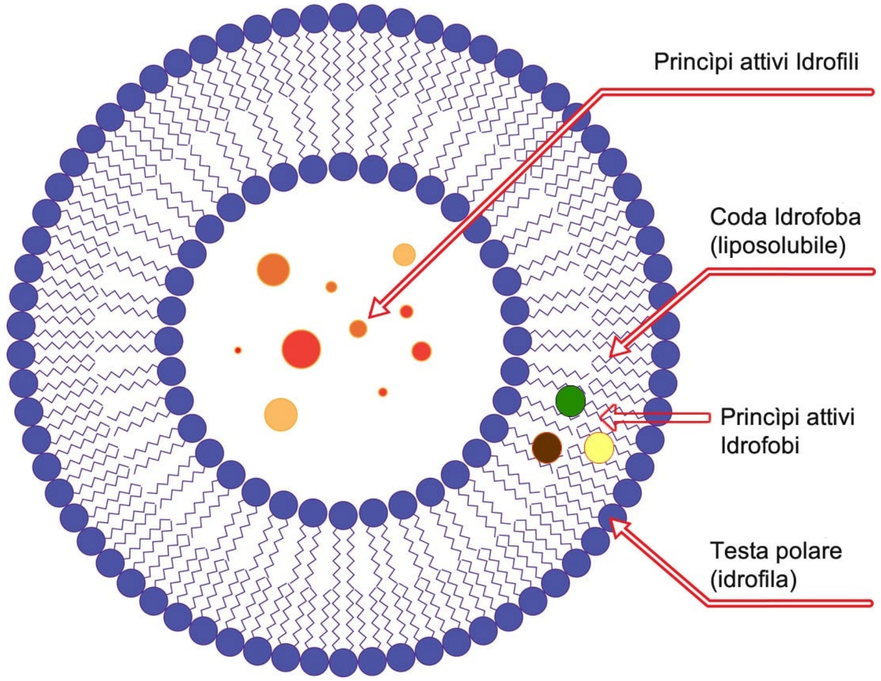


DISADVANTAGES

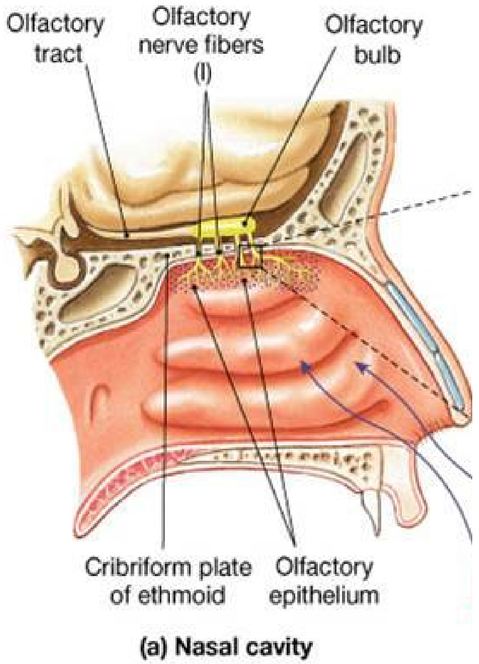
- Limited injection volume
- Risk of irritation or interference with inflammatory agents
- Possibility of a quick elimination

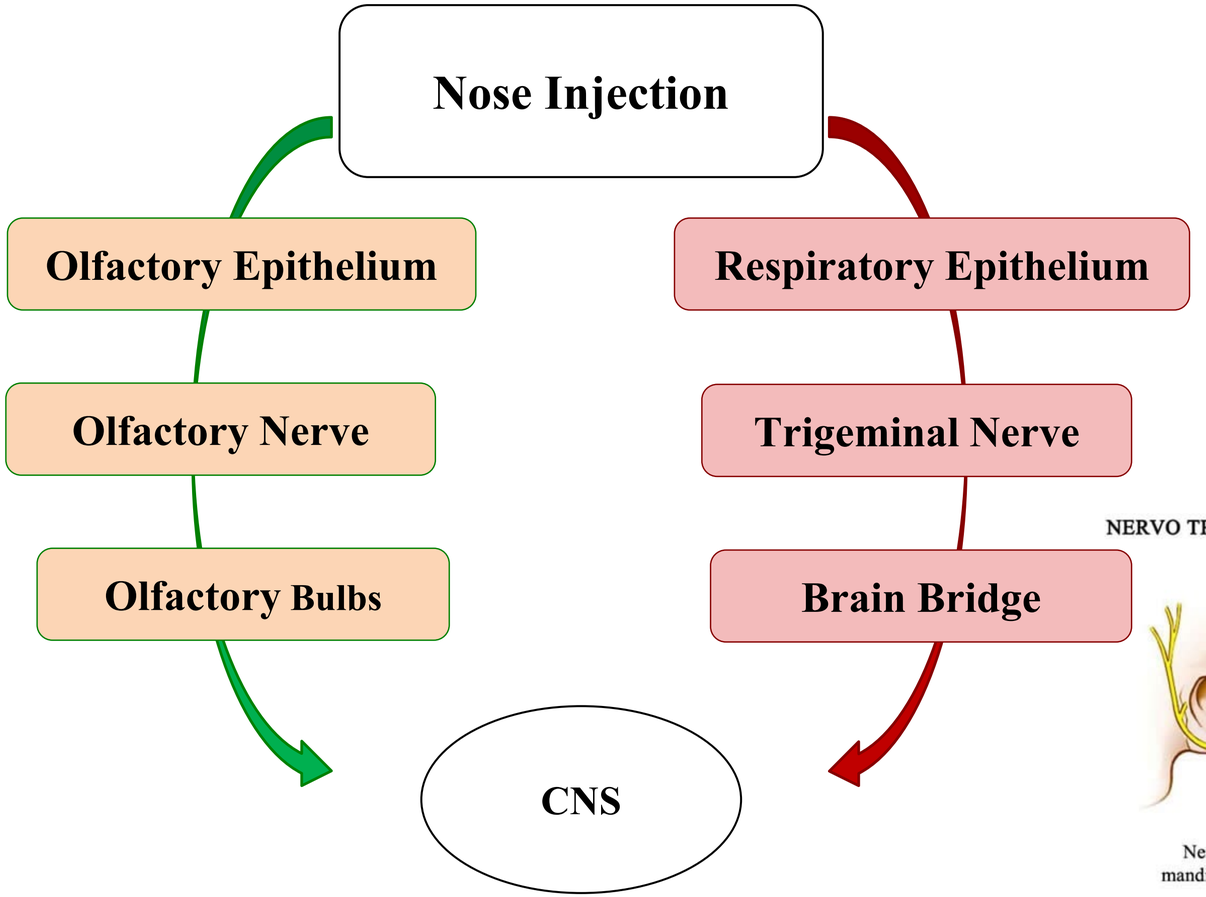
ADVANTAGES

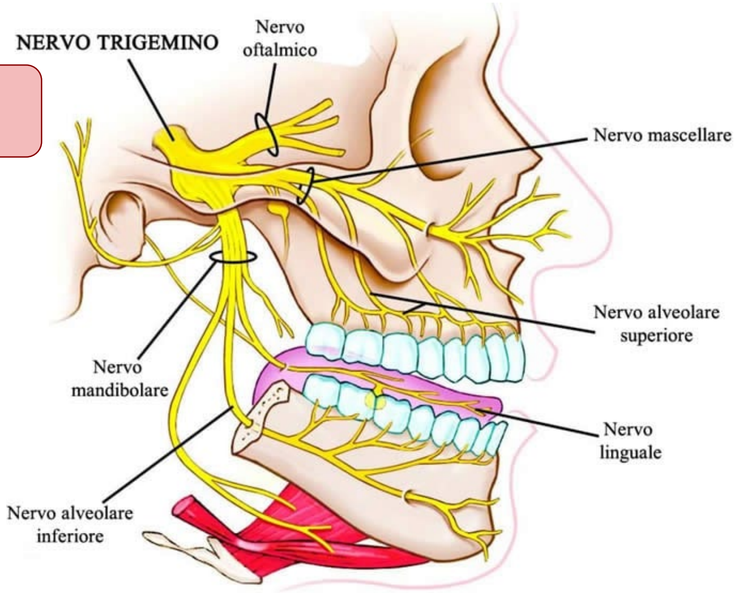
- Crossing of the BBB
- Fast onset of action
- Possibility of self-injection



Nose-to-brain pathways

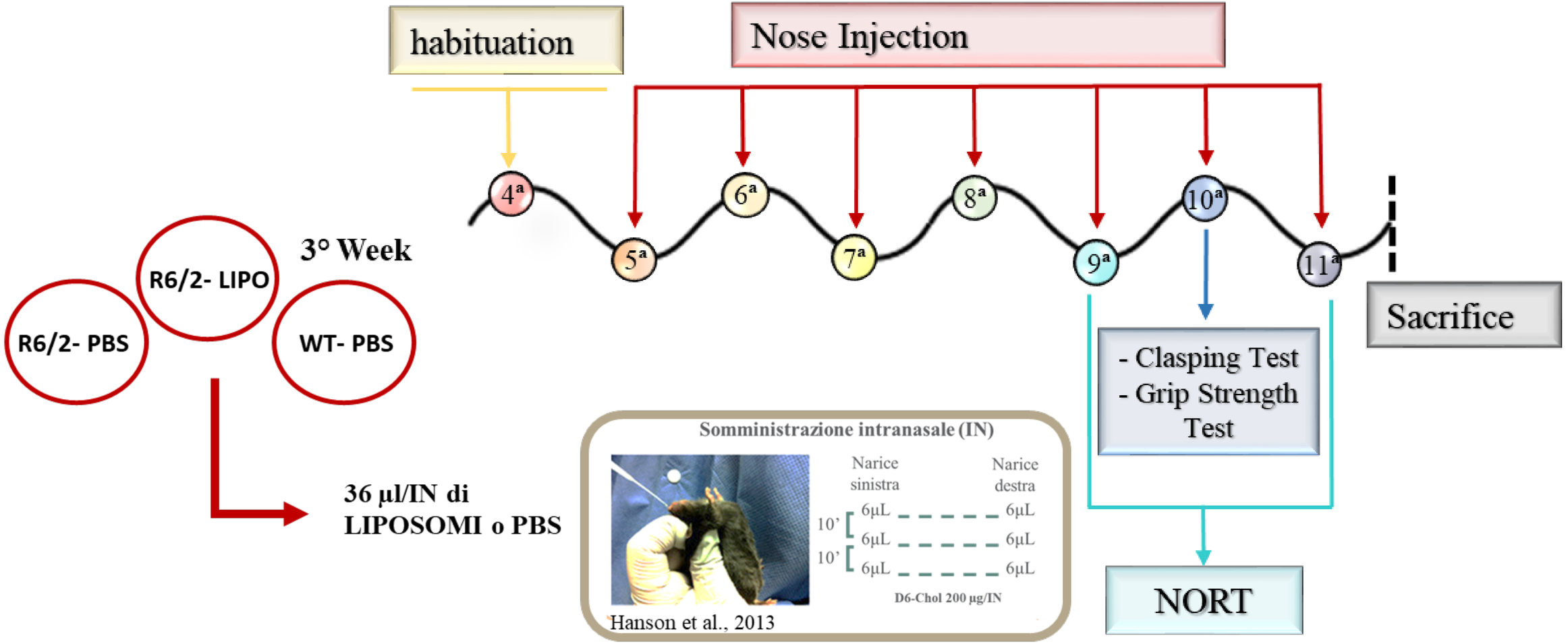






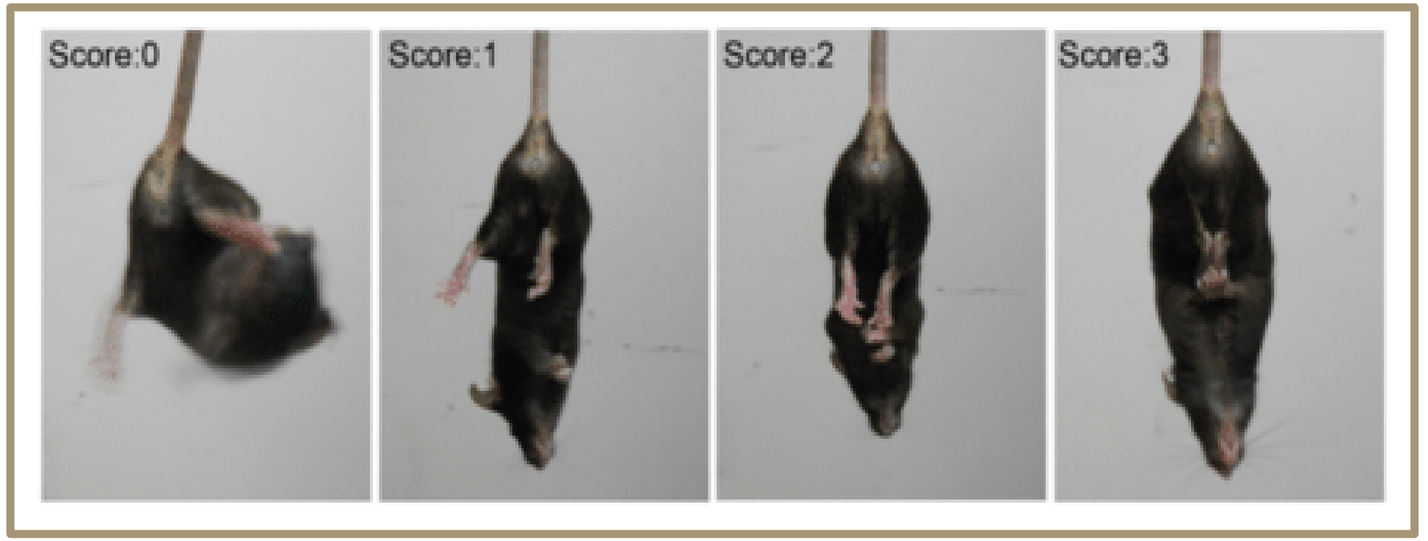
Chronic Treatment

Repeated Treatment

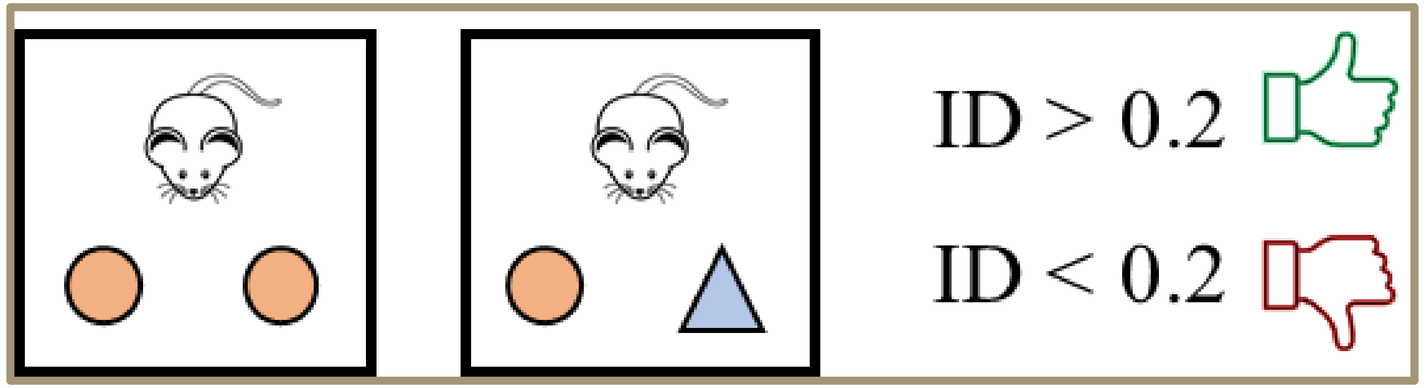


Behavioral tests

Grip Strength Test



Clasping Test



Novel Object Recognition Test

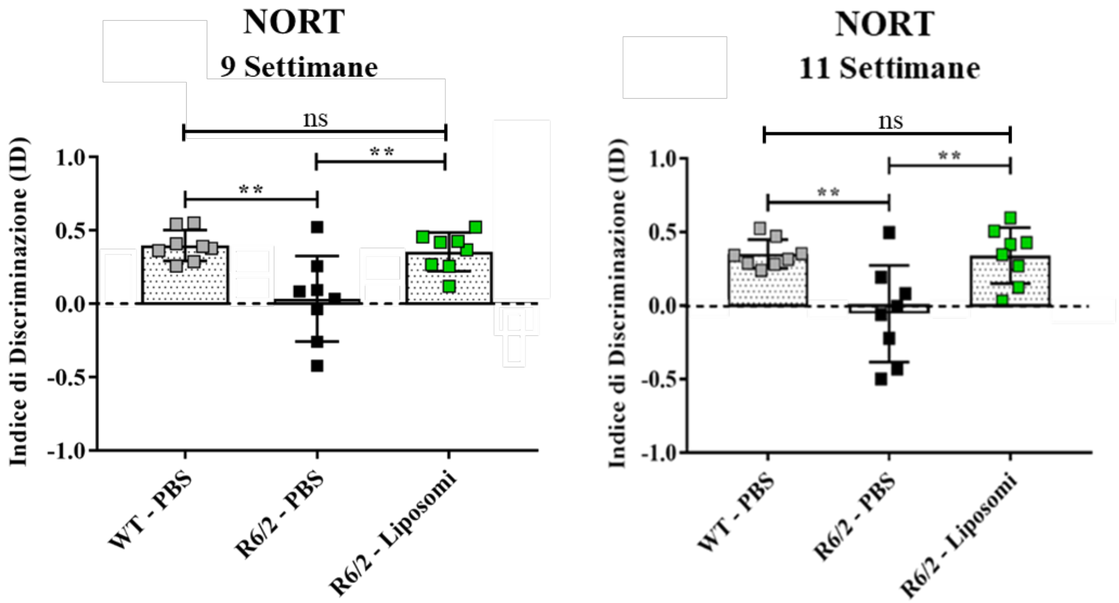
Results

Gruppo	Media ± SD
WT- PBS	88.28 ± 12.65 gr
R6/2 PBS	57.78 ± 10.34 gr
R6/2 LIPOSOMI	75.18 ± 6.00 gr

Grip Strength Test

Gruppo	Media ± SD
WT- PBS	0.14 ± 0.18
R6/2 PBS	2.16 ± 0.34
R6/2 LIPOSOMI	1.22 ± 0.49

Clasping Test



Novel Object Recognition Test

THANK YOU

ISTITUTO DI RICERCHE
FARMACOLOGICHE
MARIO NEGRI · IRCCS