OBJECTIVES:

1) Understanding brain processing of stressors and the usefulness of different biological markers of neuronal activation.
2) Characterization of the processes and mechanisms involved in adaptation to chronic stress.
3) Study the gender-dependent impact of stress in psychopathology and the underlying neurobiological mechanisms:
   - animal models of depression and of post-traumatic stress disorders
   - impact of early life stress (role of maternal behavior, juvenile stress)

BEHAVIORAL METHODS:

Maternal behavior and early life interventions.
Drug addiction-related behavior: alcohol and cocaine self-administration and conditioned place preference.
Depression-related behavior: Porsolt test and anhedonia-like behavior.
Activity and exploration.

Cognitive tasks: 5CSRTT, delay-discounting, reversal learning, gambling task, Morris Water Maze, two-way active avoidance, contextual and auditory fear memory.

BIOCHEMICAL METHODS:

Hypothalamic-pituitary-adrenal (HPA) axis: the prototypical stress system.
Radiolmmunoassay (RIA) and ELISA: levels of hormones in biological fluids and hair
Western-Blot
RT-PCR
Epigenetics (Histone markers)

HISTOLOGICAL METHODS:

Fos protein + c-fos mRNA
Confocal microscopy
Fos + Arc IHQ
CRH ISH
Fos + VP IF
Fos + CRH IHQ
GR ISH

Others:
IHQ + IF
ISH + FISH

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