



Does prenatal and early postnatal treatment with testosterone affect aggressive behavior in SF-1 knock out mice?

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Aggressive behavior

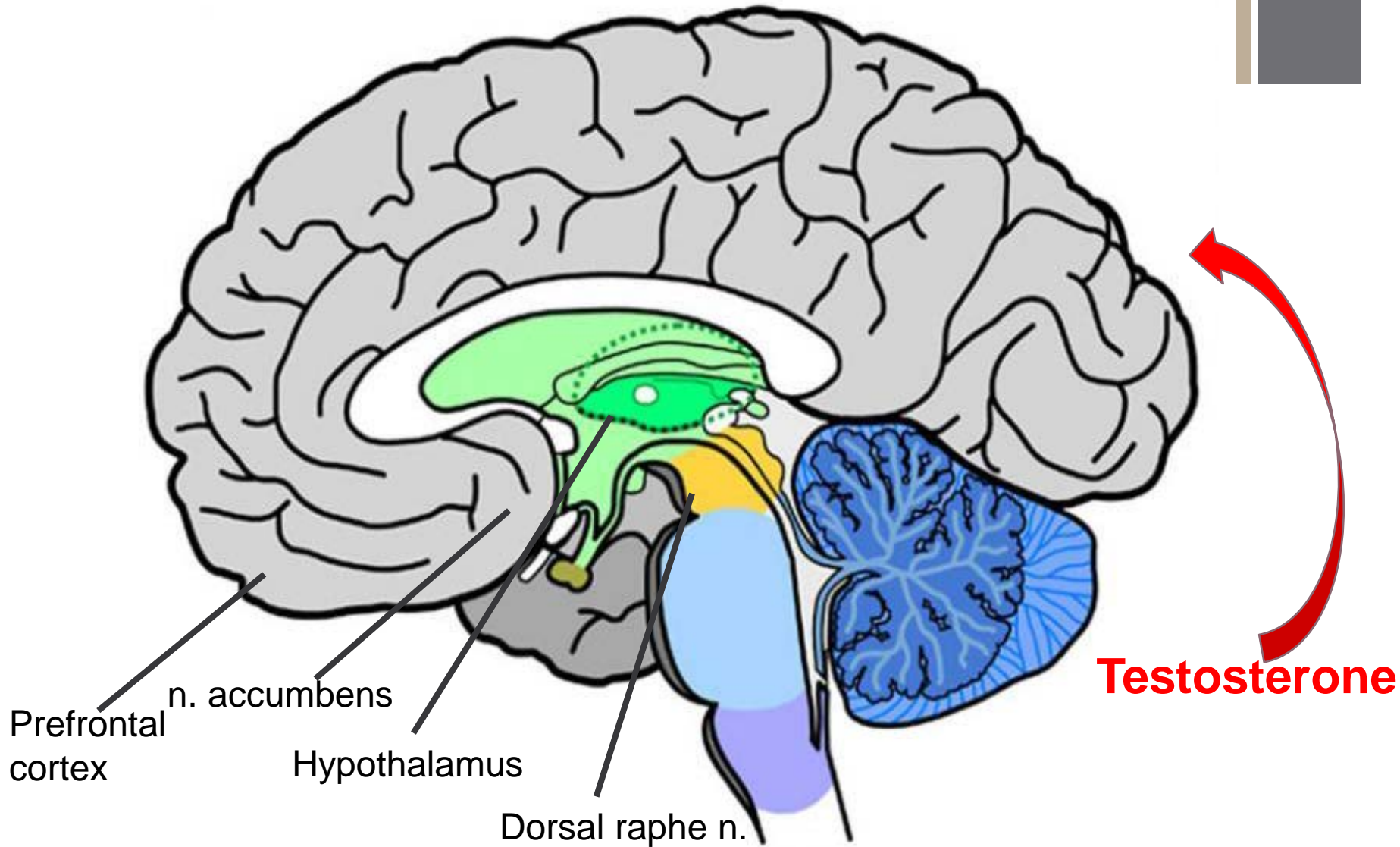


- Various behavioral patterns
- Kinds of aggression
 - impulsive–reactive–hostile–affective,
 - controlled–proactive–instrumental–predatory
 - dominance, territorial, female
- Different animal species
- Male mice – territorial aggression
 - Intermale
 - Offensive - defensive



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Aggressive behavior





Steroidogenic factor -1

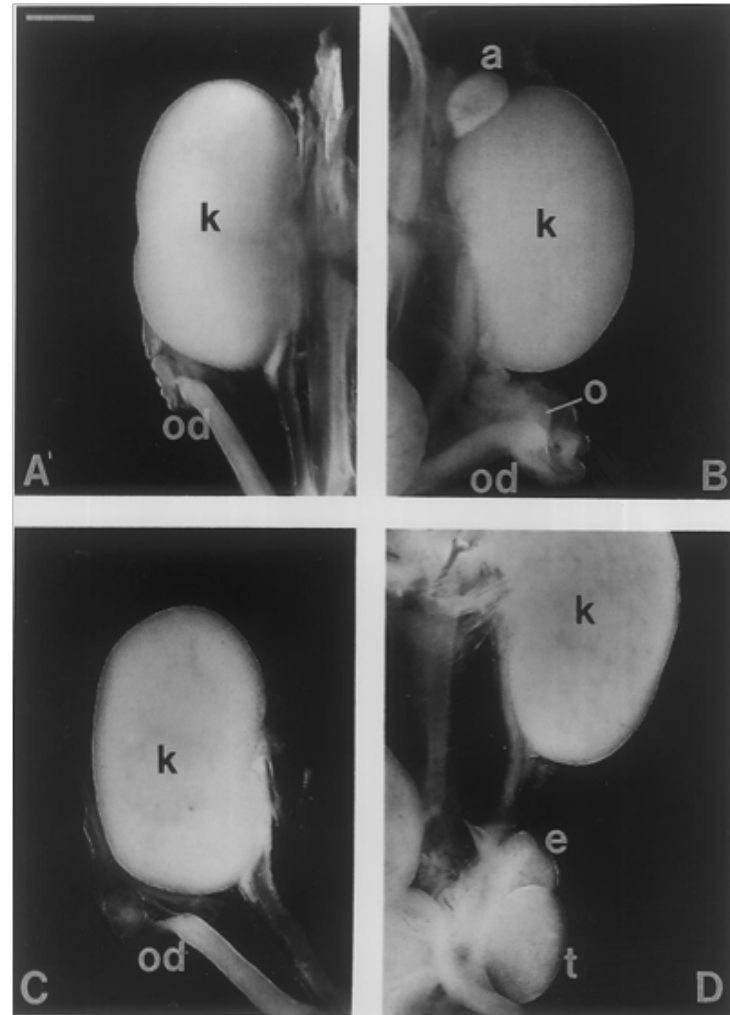


- Nuclear hormone receptor family
- Regulator of the cytochrome P450 steroid hydroxylases
- Key factor in steroidogenesis



+ *SF-1* KO mice

- without adrenal glands and gonads
- impaired function of pituitary gonadotropes and VMN in hypothalamus is not developed as a compact nucleus
- die shortly after birth
- *SF-1* KO mice are born phenotypically female





Hypothesis



- Administering testosterone before and shortly after birth to mice which are not exposed to endogenous steroids induces intermale aggressive behavior.



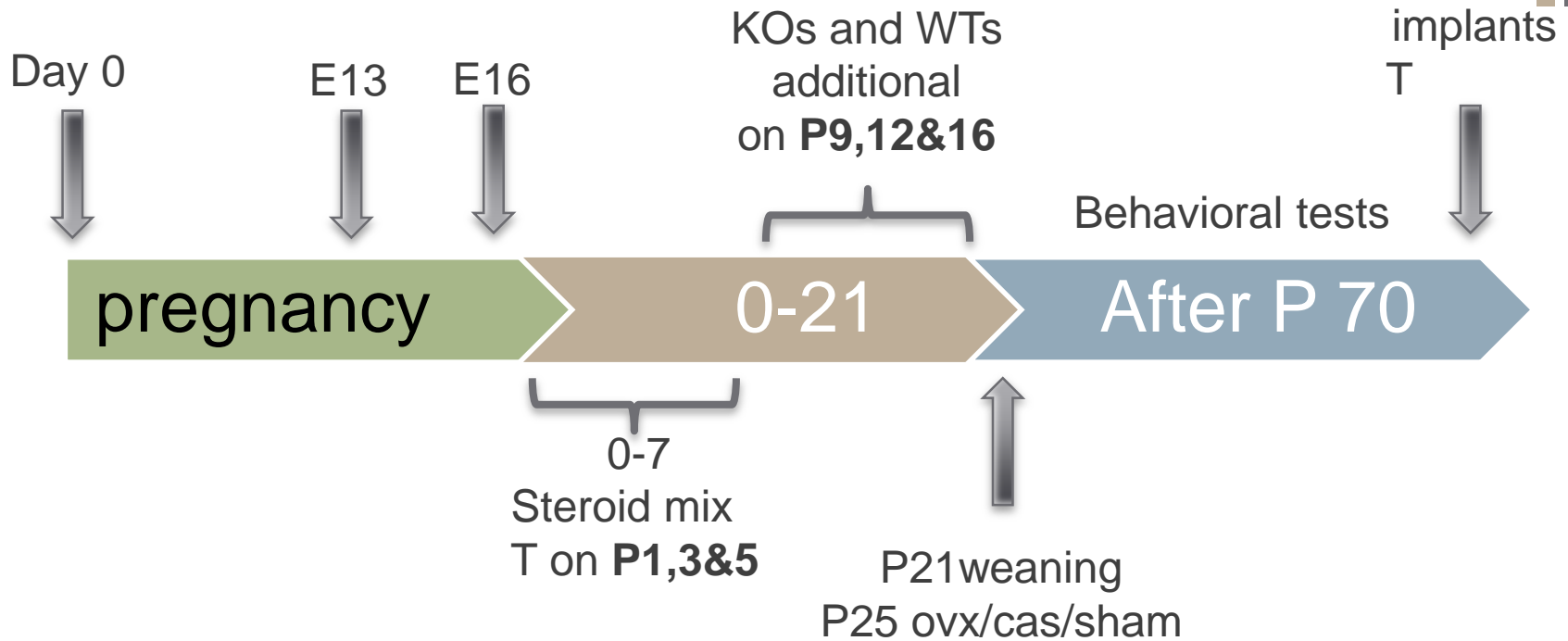
Experimental design



- SF-1 heterozygous male and female mice (C57BL/6J)
- Plug – day 0
- Treated prenatally on E 13 and E 16
- Postnatally regular steroid mix with TP on P 1, 3, 5

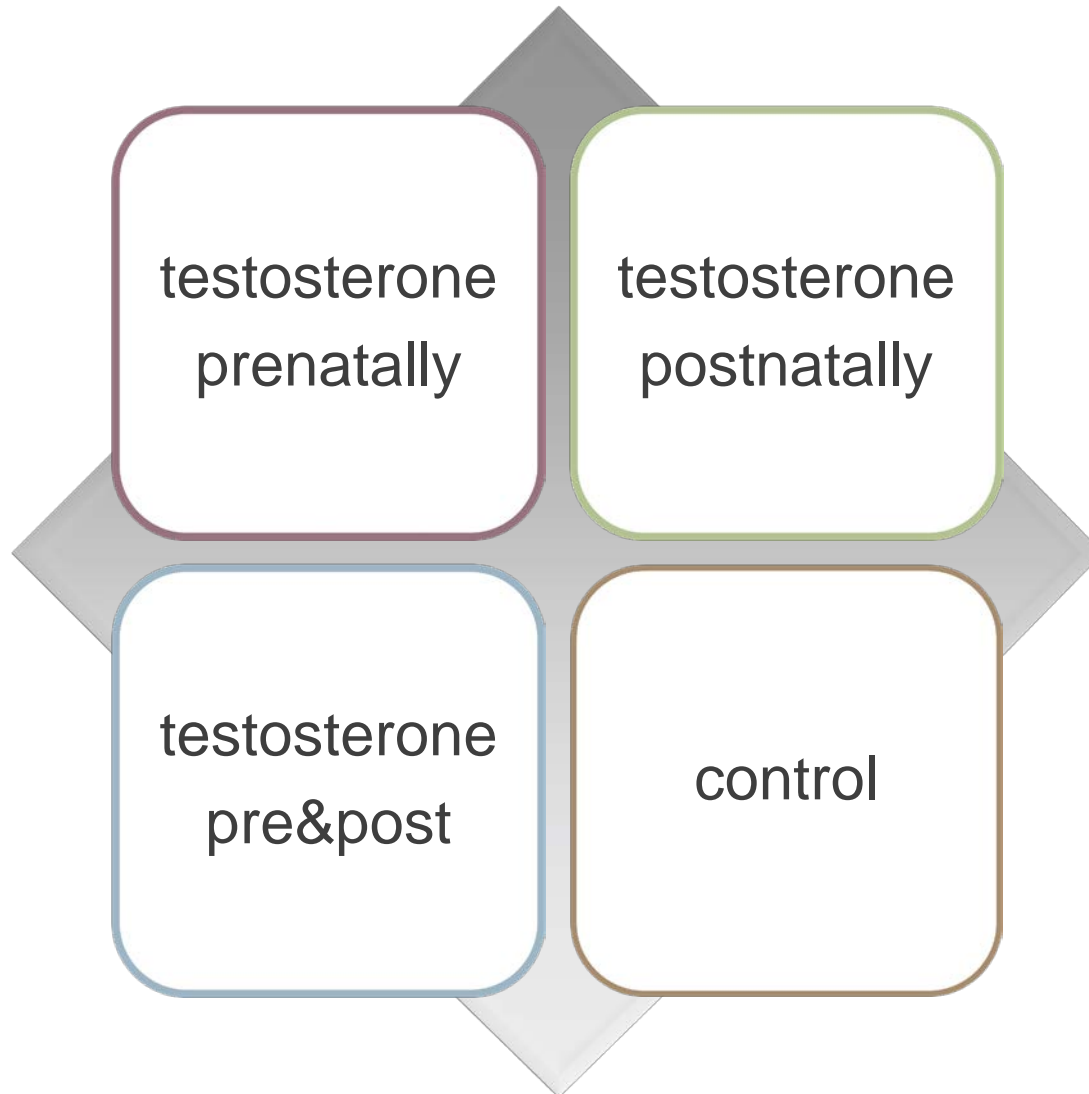
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Experimental design





Experimental design

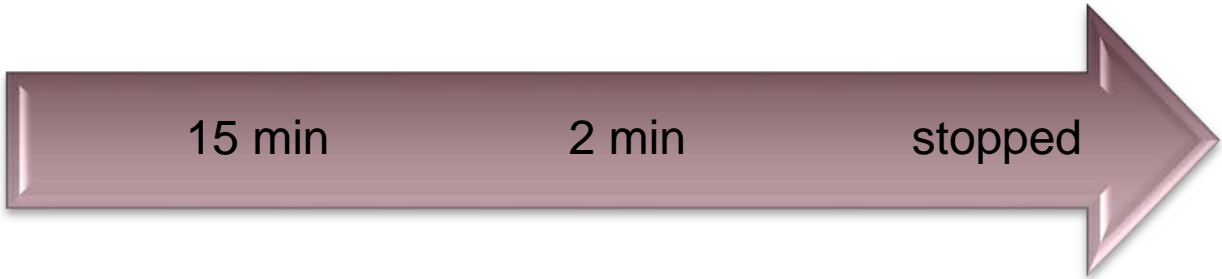
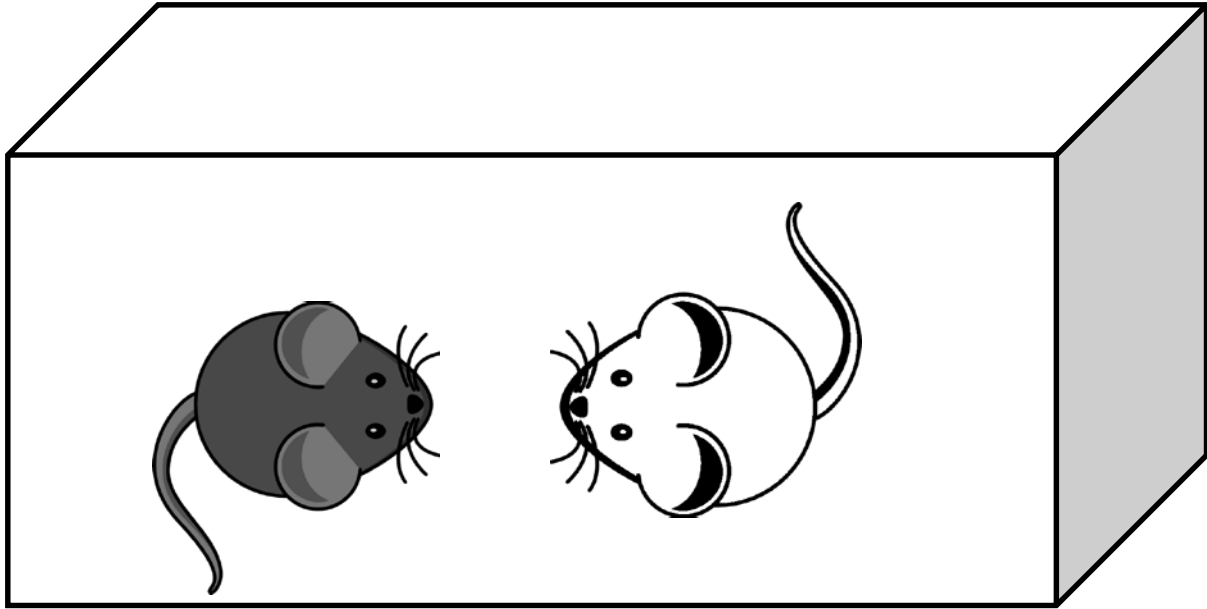




Experimental design



- AGGRESSIVE BEHAVIOR:
- Resident-intruder paradigm for intermale aggression
 - A/J male stimulus
 - 3 consecutive days
 - Scores:
 - Bite
 - Attack
 - Aggressive grooming
 - Tail rattling
 - Chase
 - Filmed





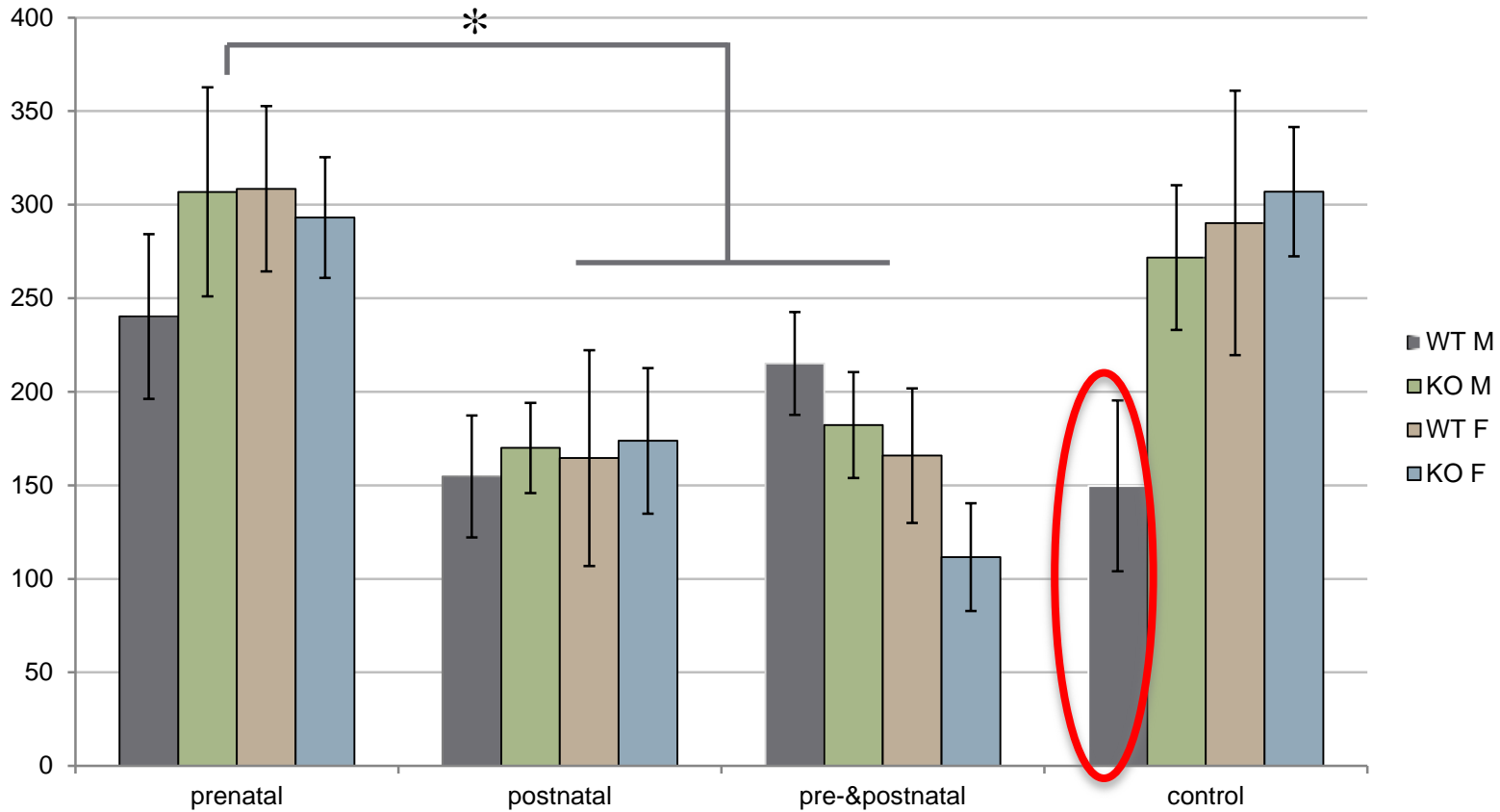
Results



- Analyses of counts, latencies of bites, attacks, aggressive grooming, tail rattles...
- Aggression present in all groups
- Aggression “increased” from 1st to 3rd test – reduced latencies
- WT control males “the most” aggressive



Latency to the first bite



* p < 0.05



Conclusions



- Aggression - present in both sexes and genotypes – testosterone treatment in adulthood
- Administering testosterone early postnatally and pre- and postnatally induces aggressive behavior in SF-1 KO males and females and WT females which is more similar to WT control males.
- Only early postnatal?

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Thank you for your attention.

