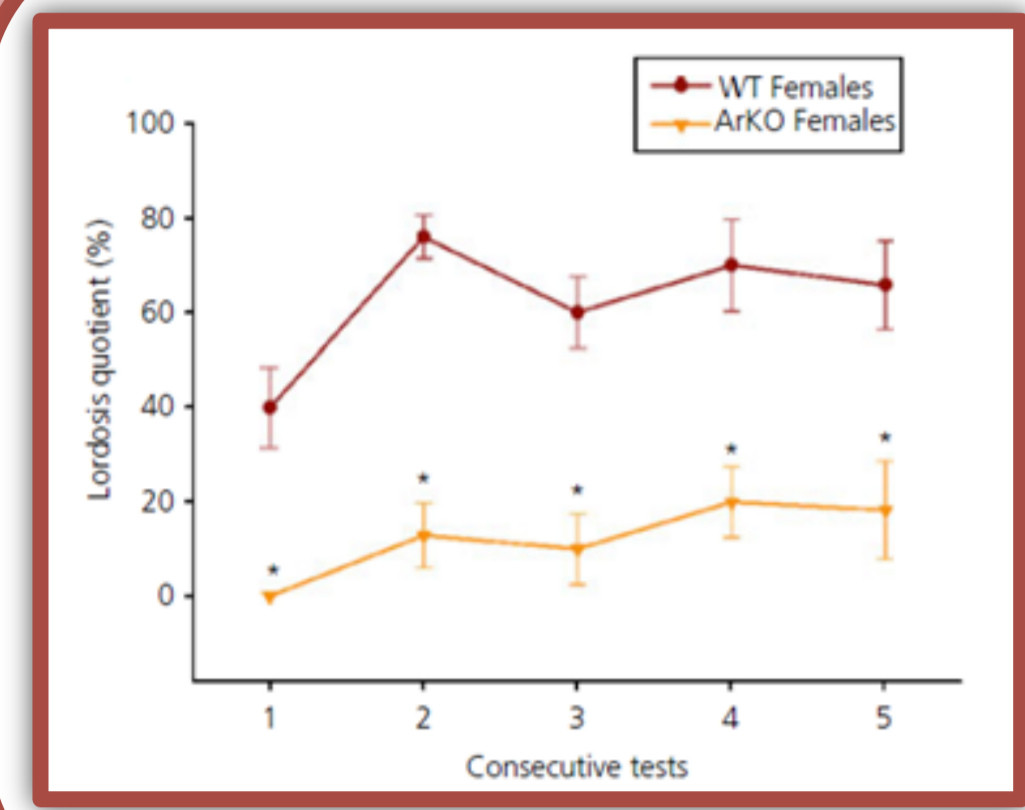
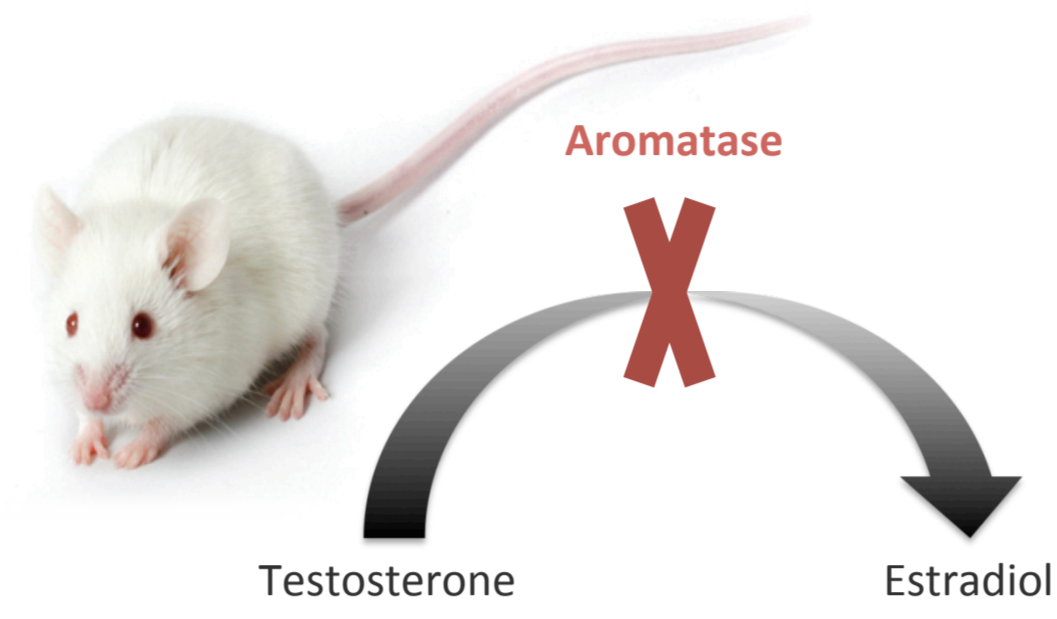


INTRODUCTION

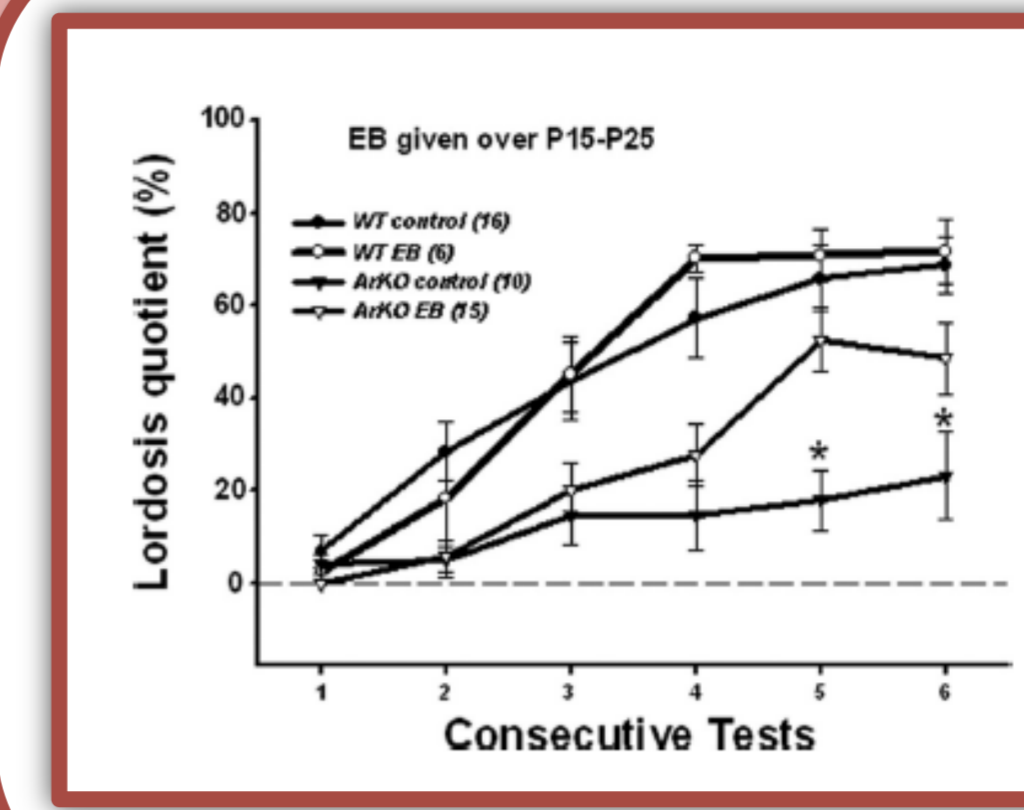


✓ Estradiol is required at some point during development for the expression of lordosis behavior in adulthood

(Bakker et al., J. Neuroscience 2002)



ArKO mouse : No estradiol synthesis due to targeted mutation *Cyp19* gene

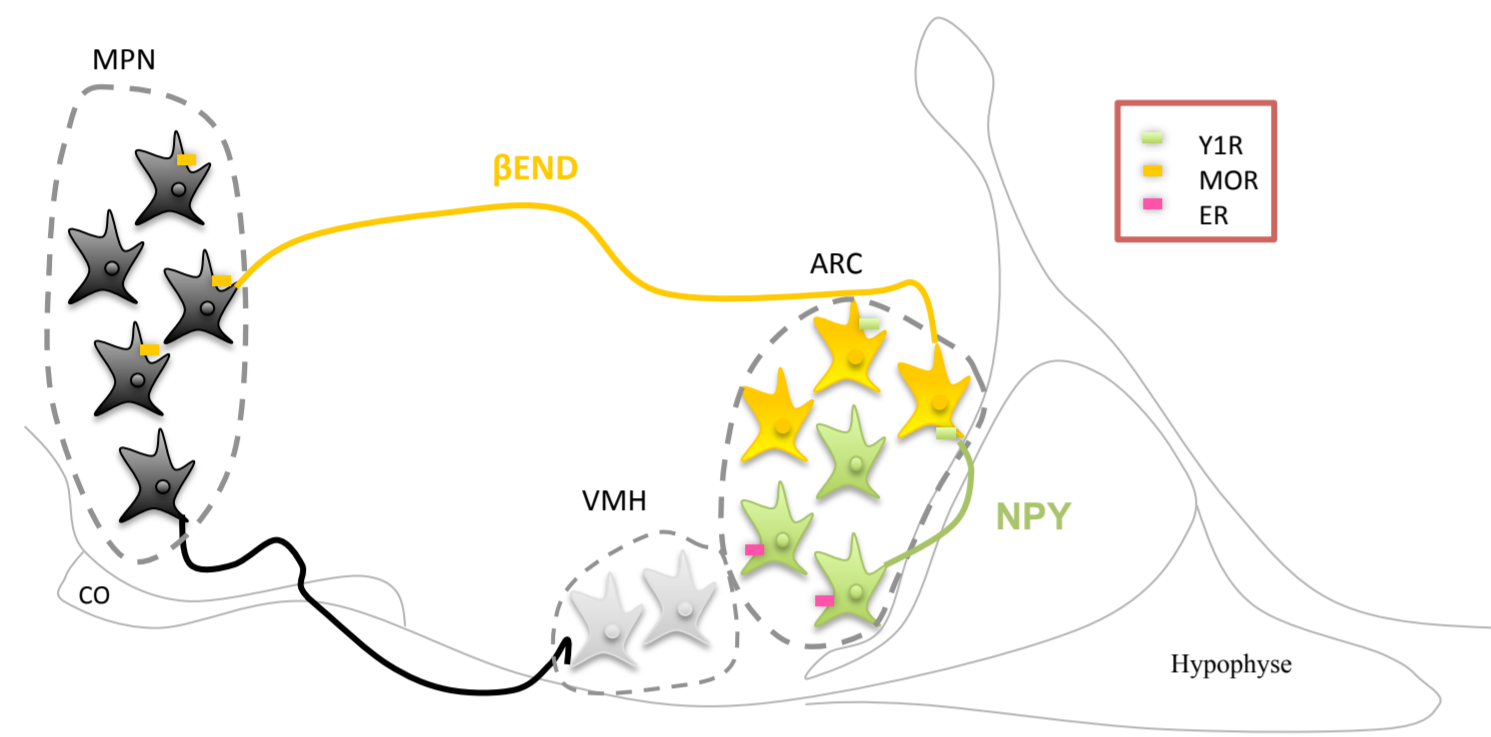


✓ Estradiol feminizes lordosis behavior during a specific prepubertal period (P15-P25)

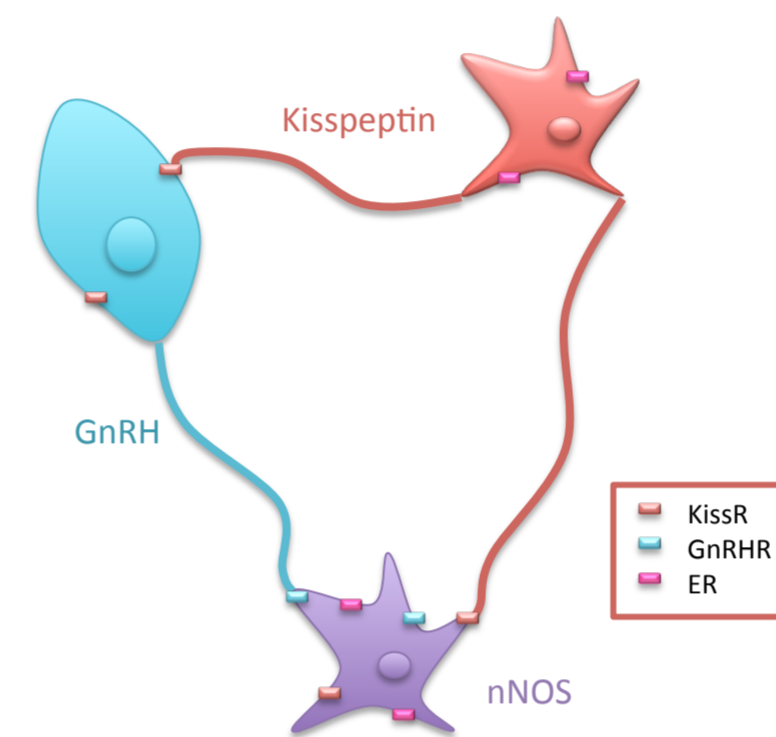
(Brock et al., J. Neuroscience, 2011)

Potential targets of estradiol action in the feminization of the neural lordosis circuit ?

Hypothetical lordosis pathways:



Transmitters involved: NPY and β -endorphin (Micevych and colleagues)



Transmitters involved: GnRH, kisspeptin, NO (Studies from our group)

METHODS



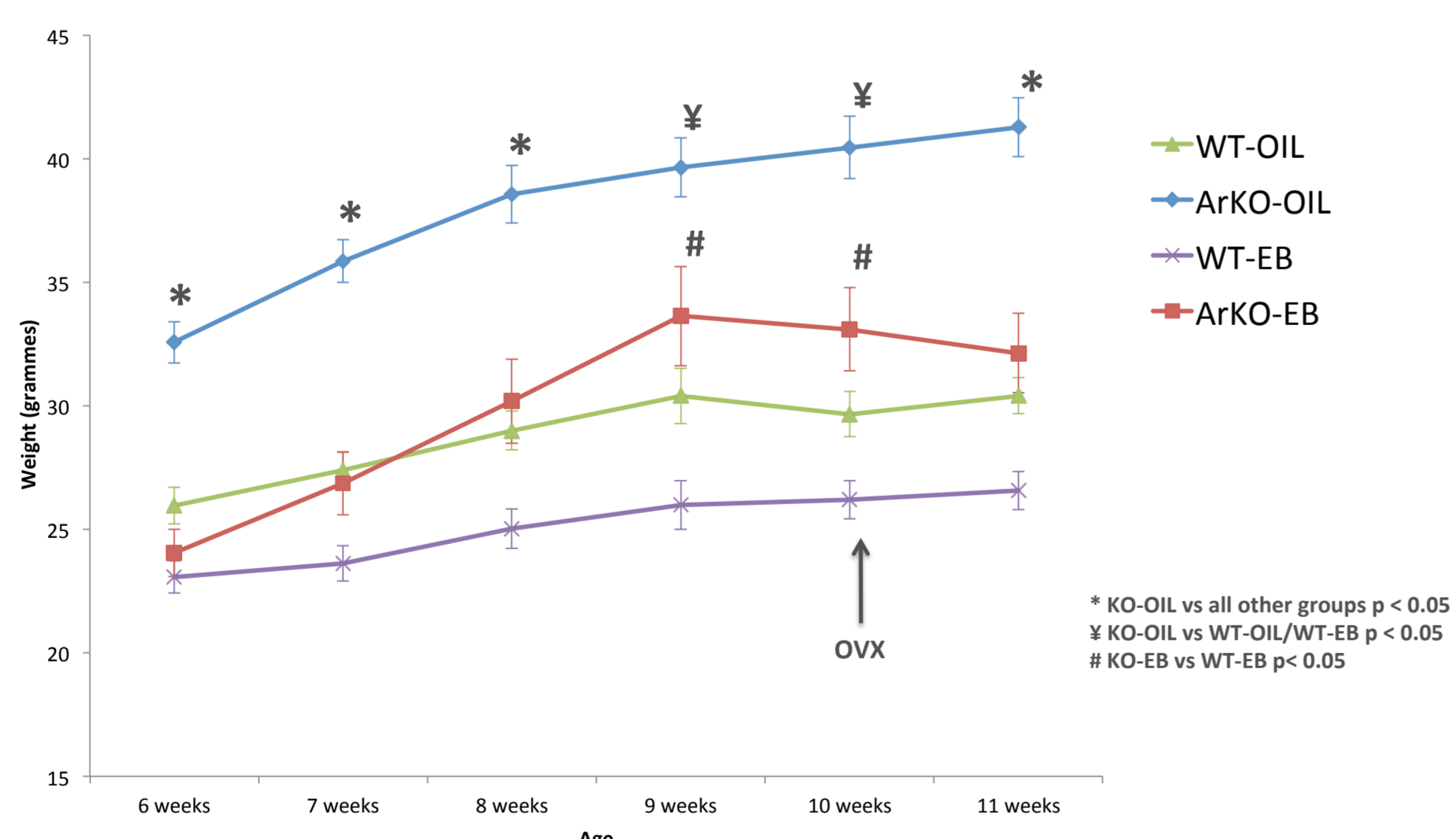
✓ Body weights are checked from 6 weeks of age to euthanasia in adulthood

✓ *icv* injection assessment : vasopressin immunostaining in BNST and lateral septum

✓ Immunohistochemistry: neuropeptides involved in the lordosis pathway NPY, β -Endorphin, μ opioid receptors, kisspeptin, nNOS

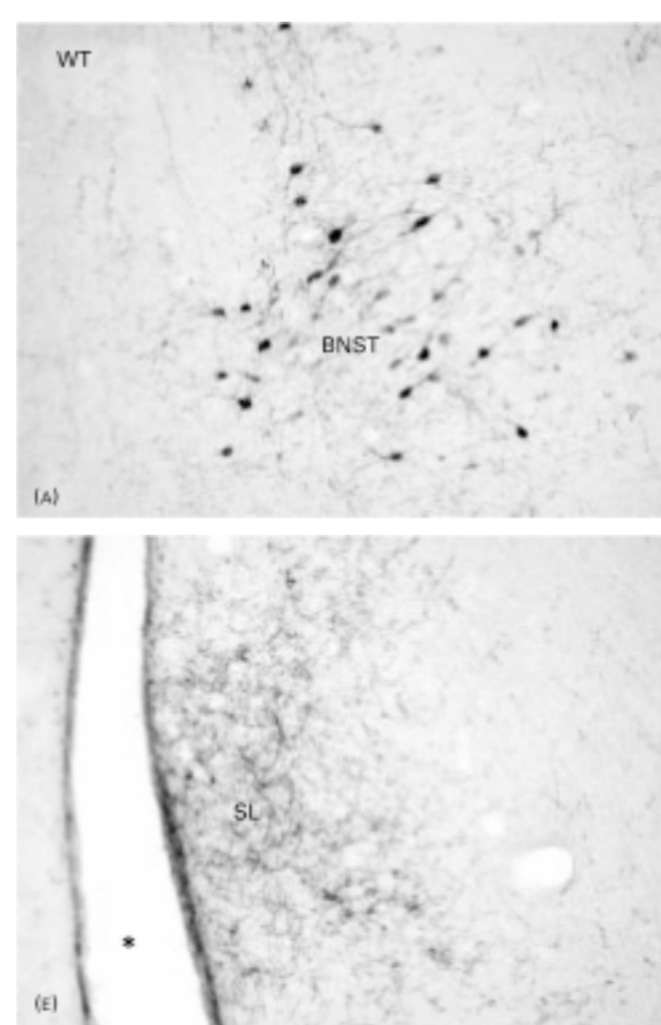
RESULTS

Body weights



✓ Prepubertal estradiol treatment reversed the excessive weight gain of ArKO female mice
→ Estradiol might have an organizational effect on energy balance

icv injection assessment

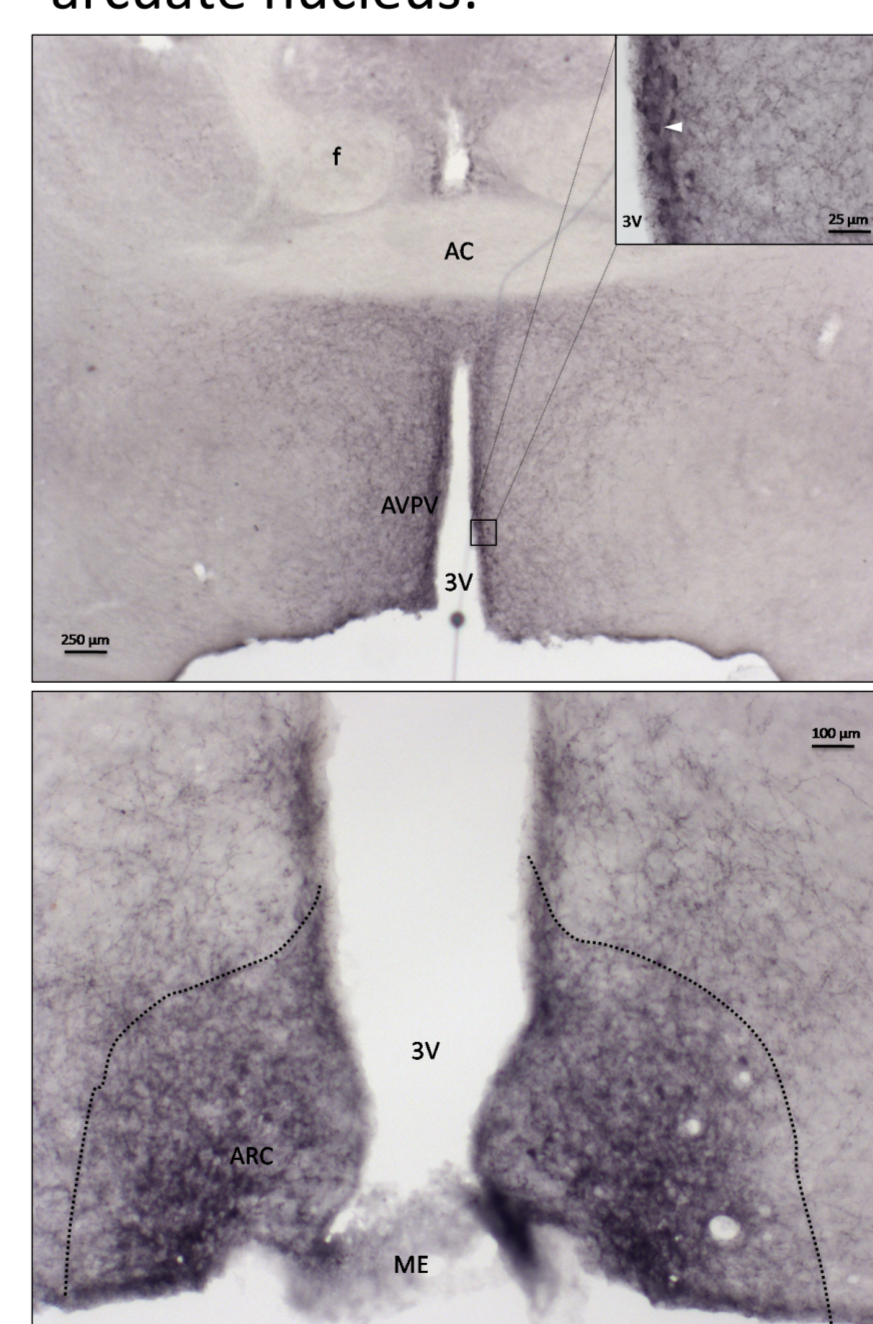


(Extract from Plumari et al., J. Neuroendocrinol. 2002)
BNST : Bed Nucleus of the Stria Terminalis
SL: Lateral Septum

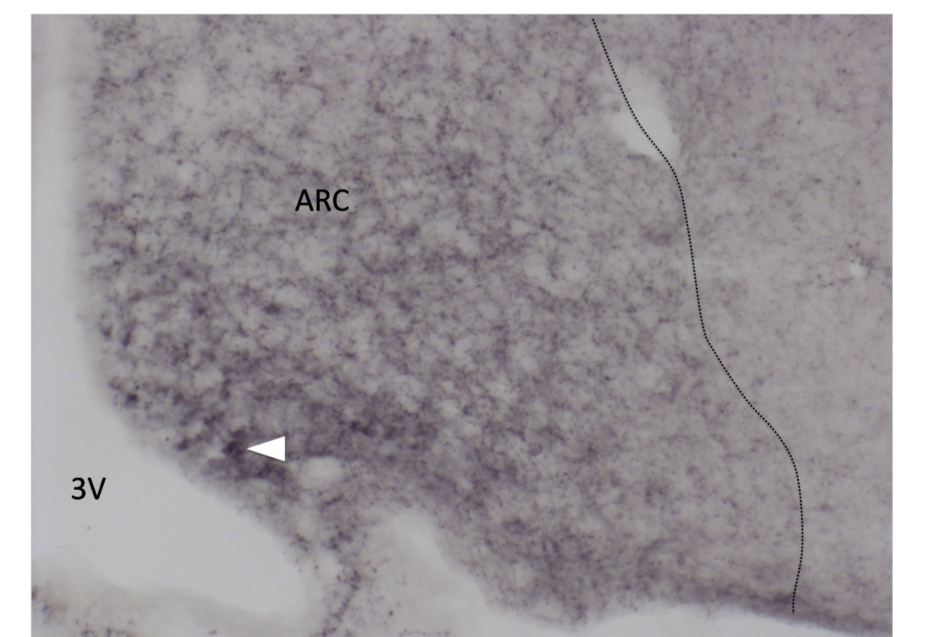
Vasopressin expressing neurons in the BNST and immunoreactive fibers in the lateral septum are only visible after *icv* injection of colchicine

IHC tests

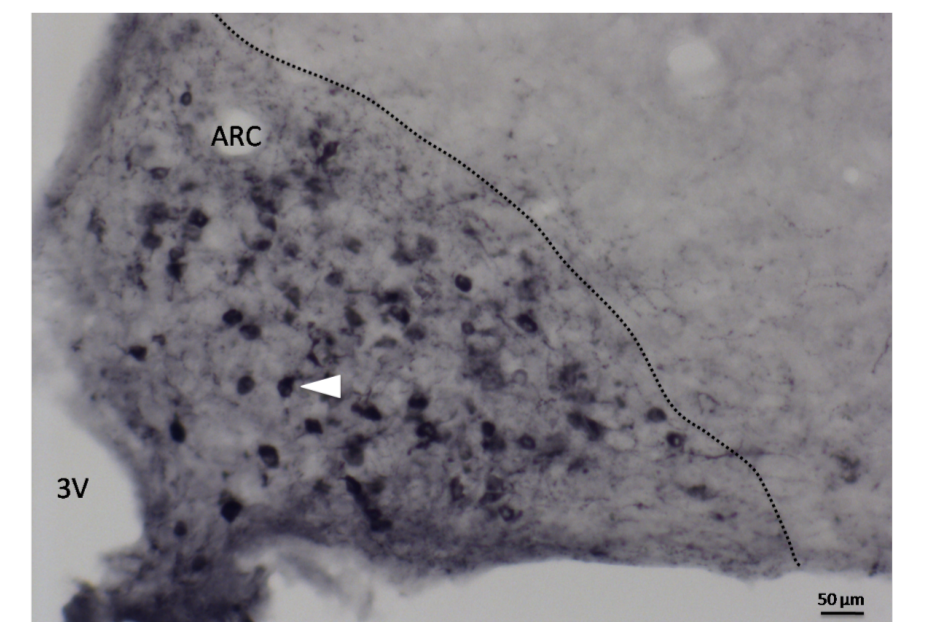
Kisspeptin in the AVPV and arcuate nucleus:



NPY in the arcuate nucleus:



B-END in the arcuate nucleus:



AC: anterior commissure; ARC: arcuate nucleus; AVPV: anteroventral periventricular nucleus; f: fornix; ME: median eminence; 3V: third ventricle; arrow: cell body

PERSPECTIVES

- ✓ Finish the *icv* injections and select the animals well injected
- ✓ Perform the IHC on the neuropeptides implicated in the expression of lordosis behavior
- ✓ Investigate the implication of estradiol in the establishment of the neuronal circuit underlying the regulation of energy balance

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