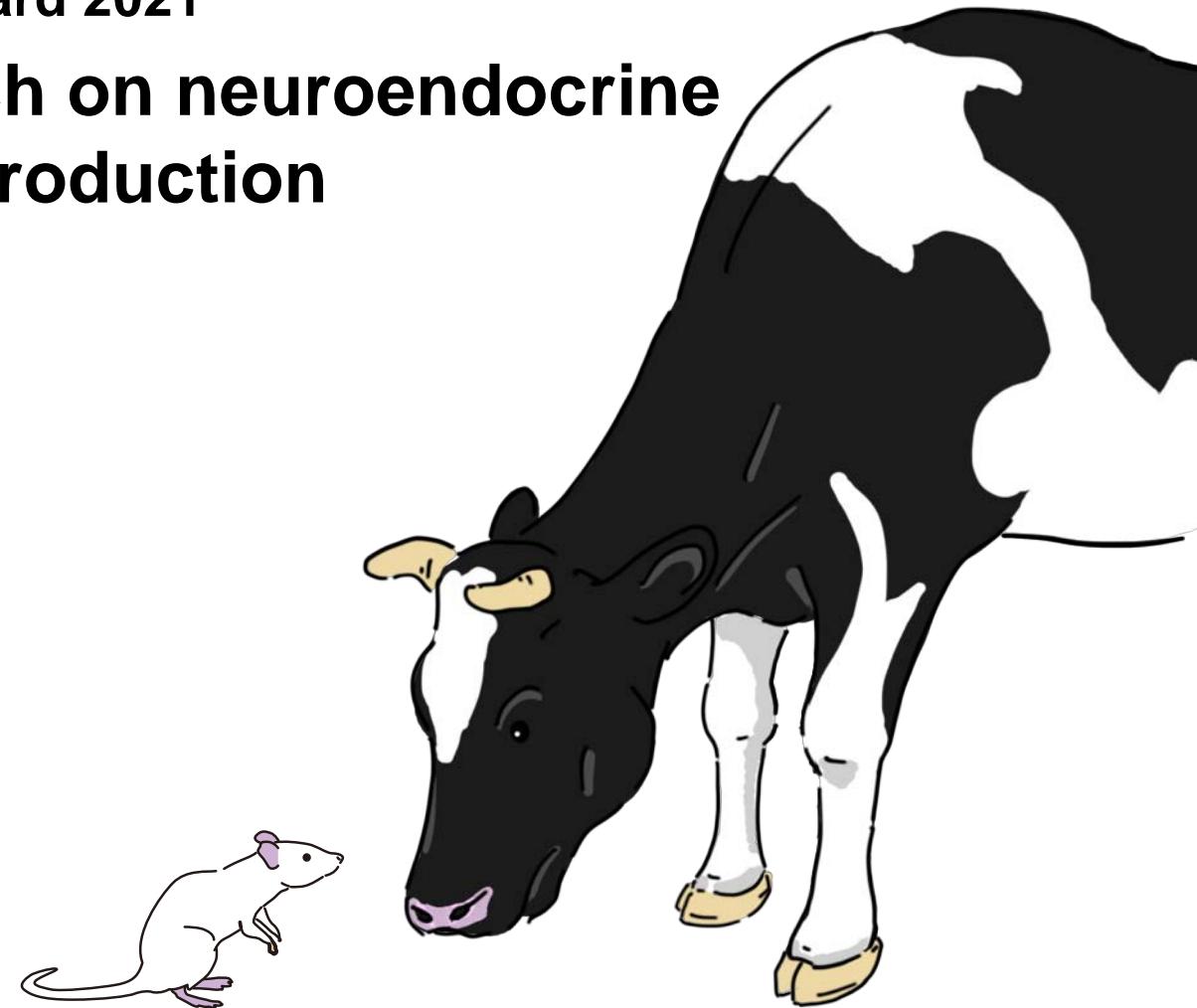
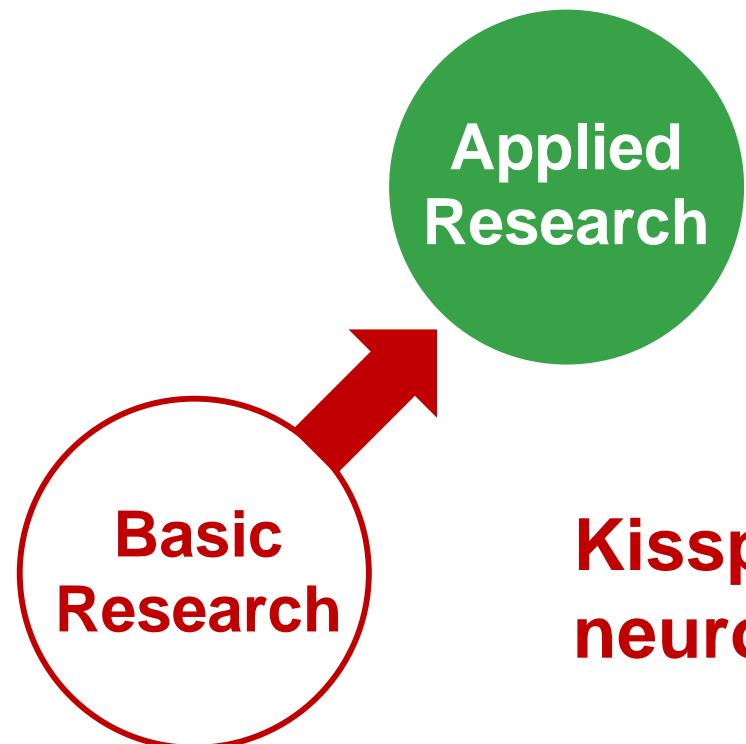


Kei-ichiro Maeda Memorial Ise Award 2021

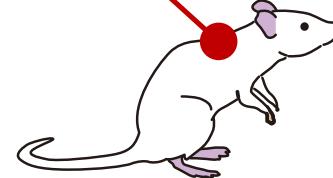
**Basic and applied research on neuroendocrine
control of mammalian reproduction**

**Okayama University of Science
Sho NAKAMURA**

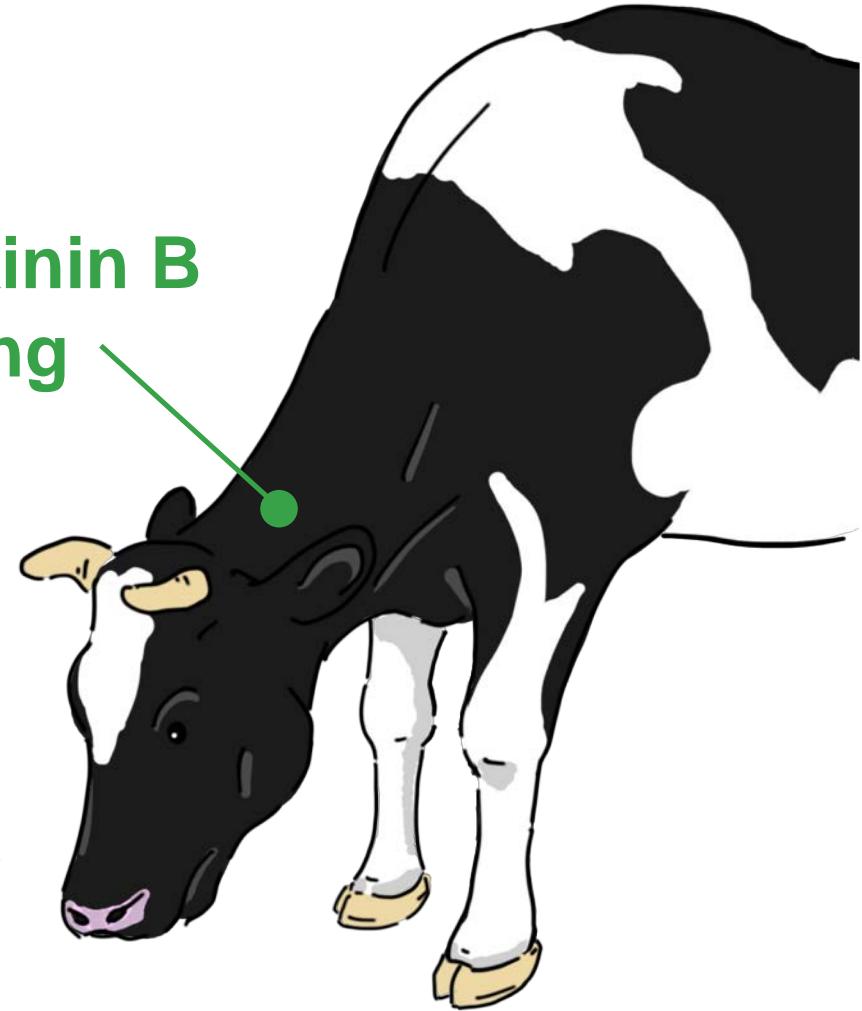




Kisspeptin
neurons

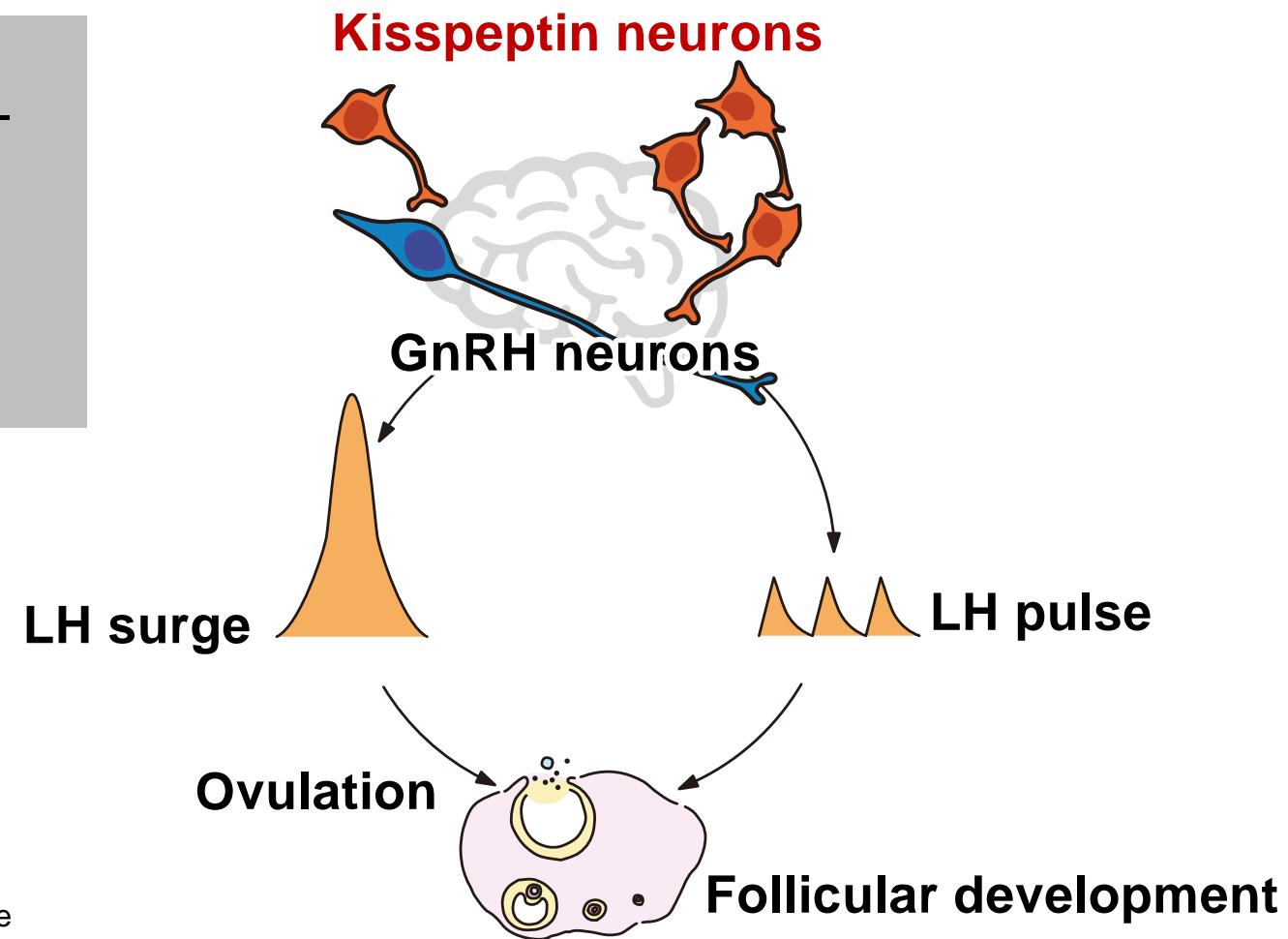


Neurokinin B
signaling



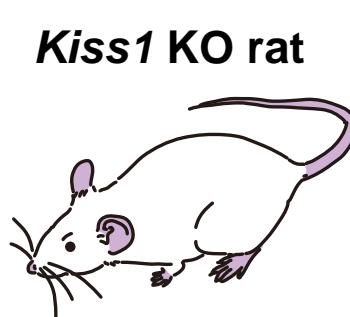
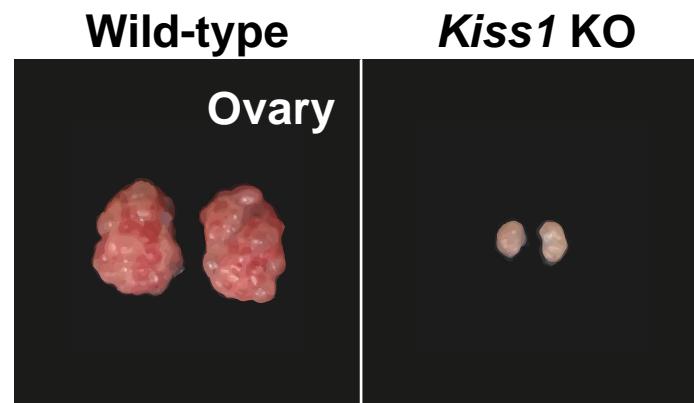
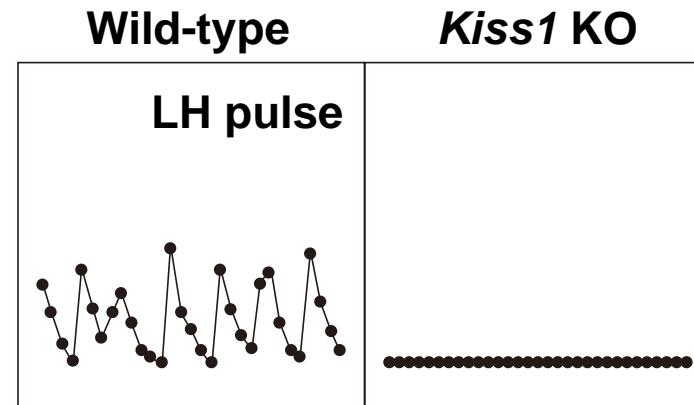
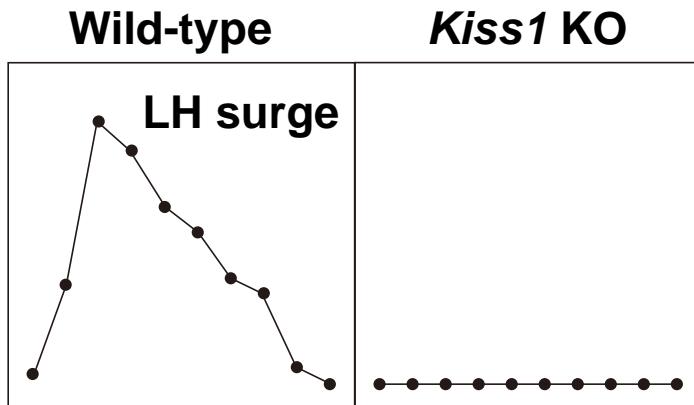
Neuroendocrine control of reproductive function

Hypothalamus-
Pituitary-
Gonadal
axis



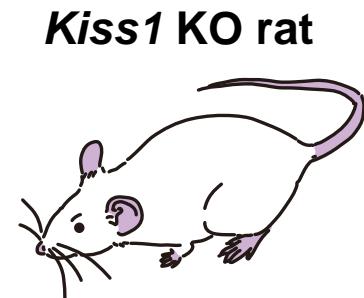
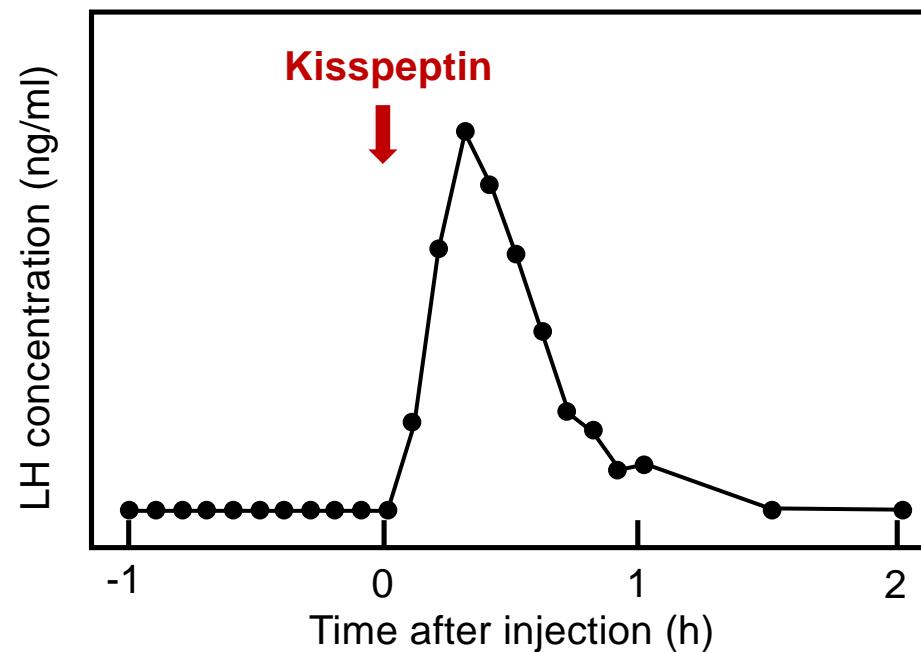
GnRH : Gonadotropin-releasing hormone
LH : Luteinizing hormone

Kisspeptin neurons control reproductive function in mammals.



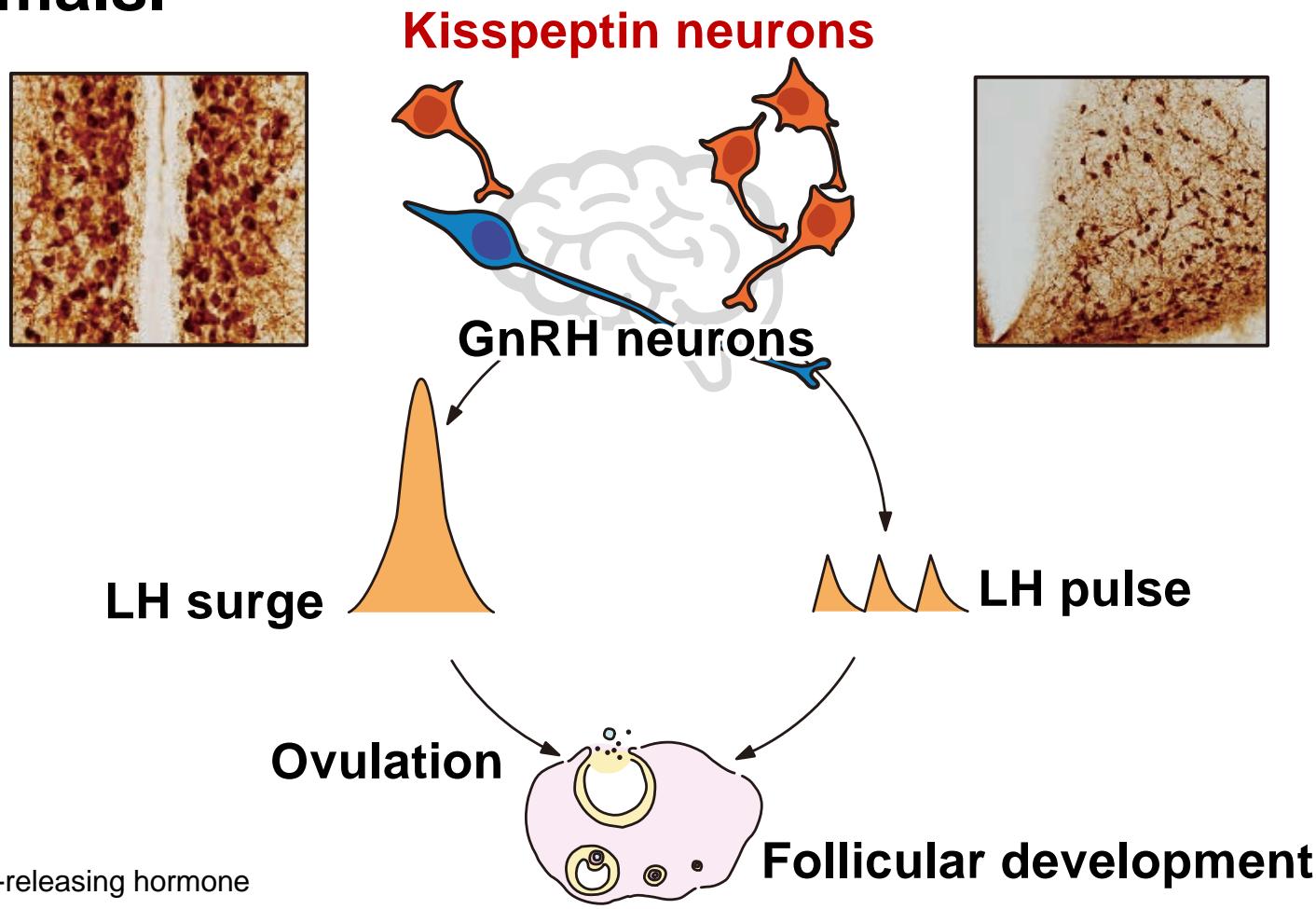
Uenoyama, Nakamura et al., *J Neuroendocrinol*, 2015

Kisspeptin treatment immediately induced LH secretion in Kiss1 KO rats.



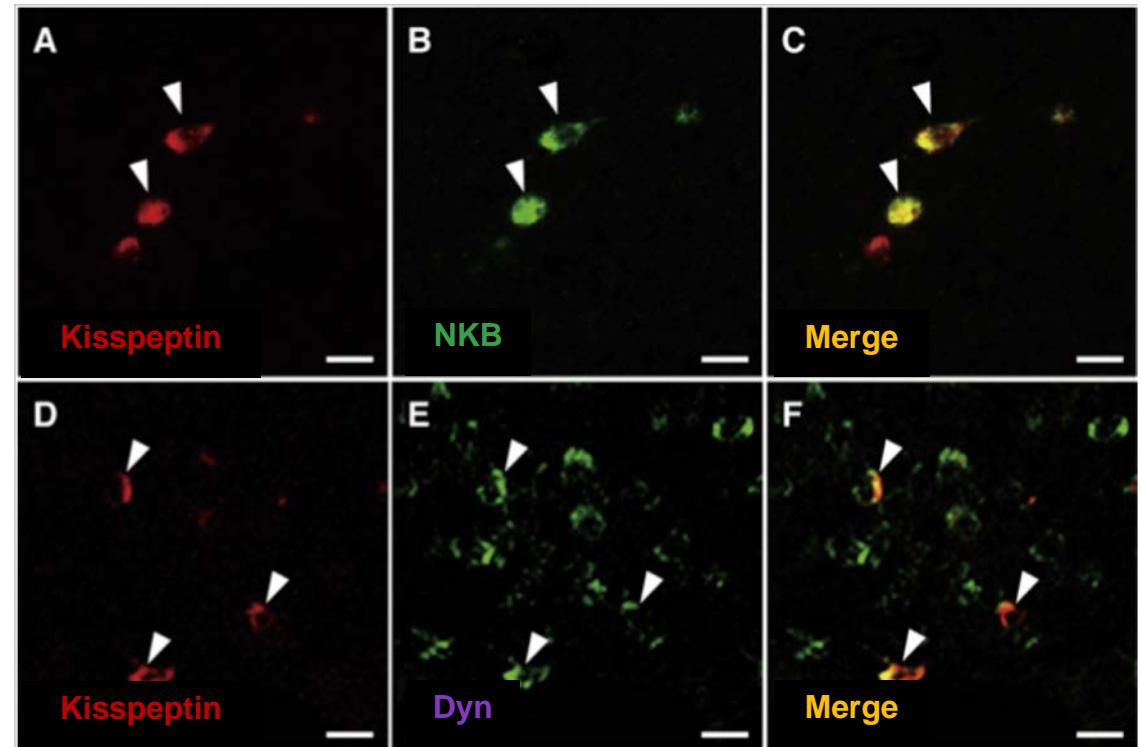
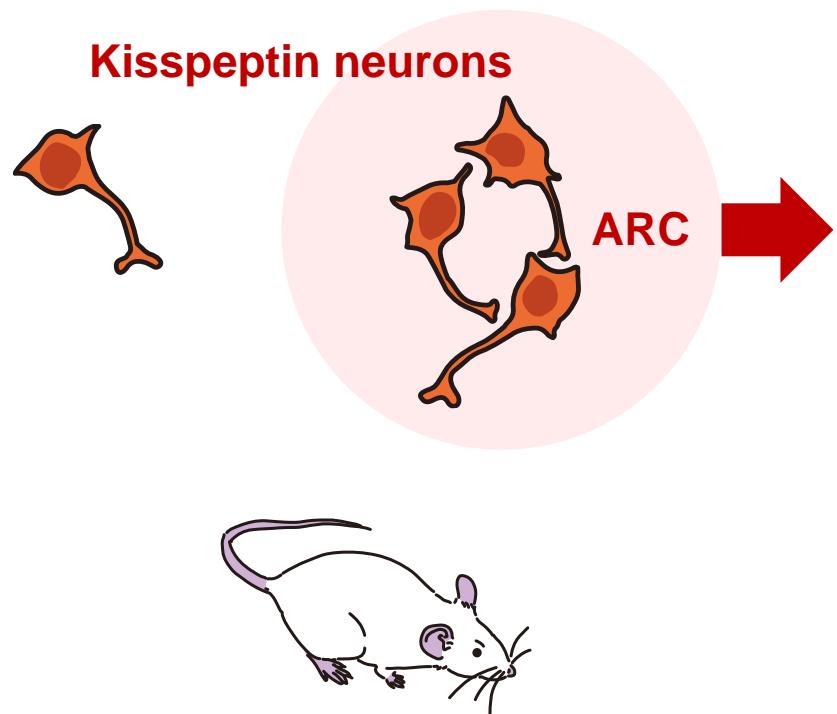
Uenoyama, Nakamura et al., *J Neuroendocrinol*, 2015

Kisspeptin neurons control reproductive function in mammals.



GnRH : Gonadotropin-releasing hormone
LH : Luteinizing hormone

Kisspeptin neurons in the ARC = KNDy neurons

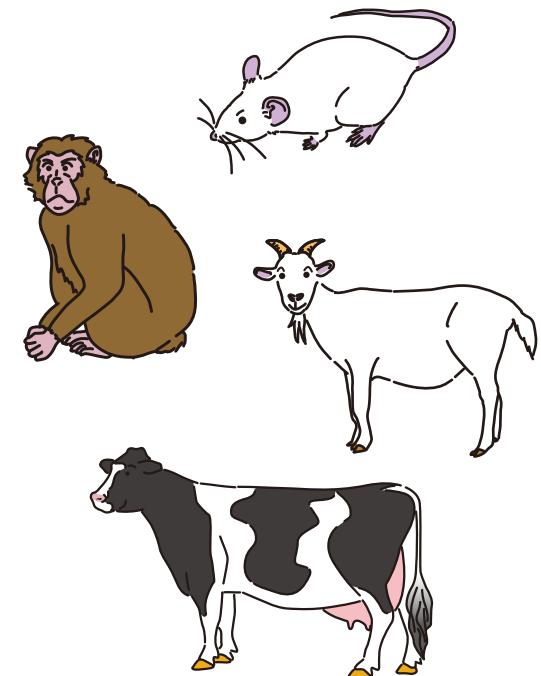
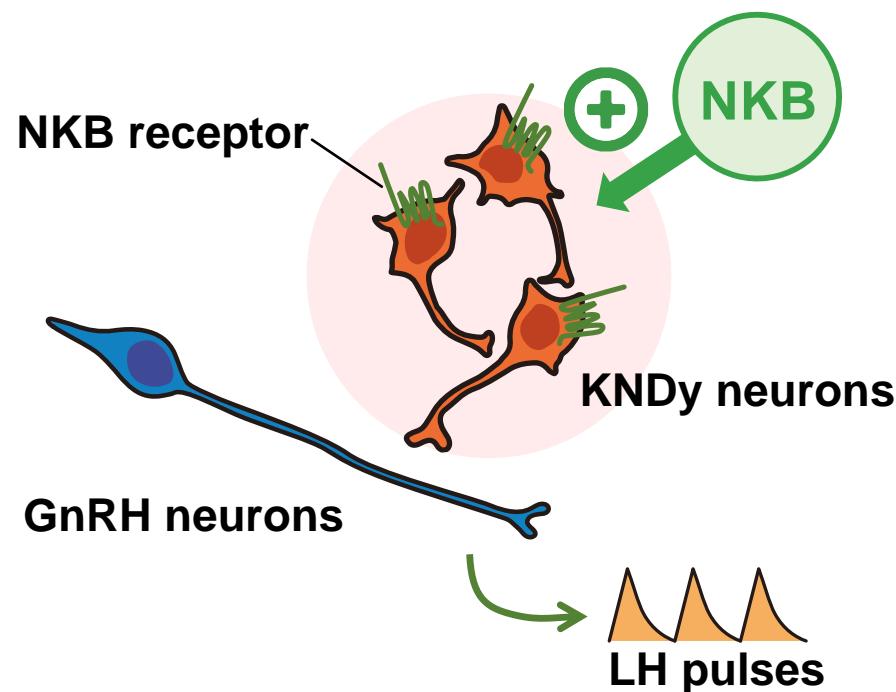


Nakamura et al., *Theriogenology*, 2017

NKB: Neurokinin B
Dyn: Dynorphin A

ARC: Arcuate nucleus

NKB stimulate pulsatile LH secretion by activating KNDy neurons.

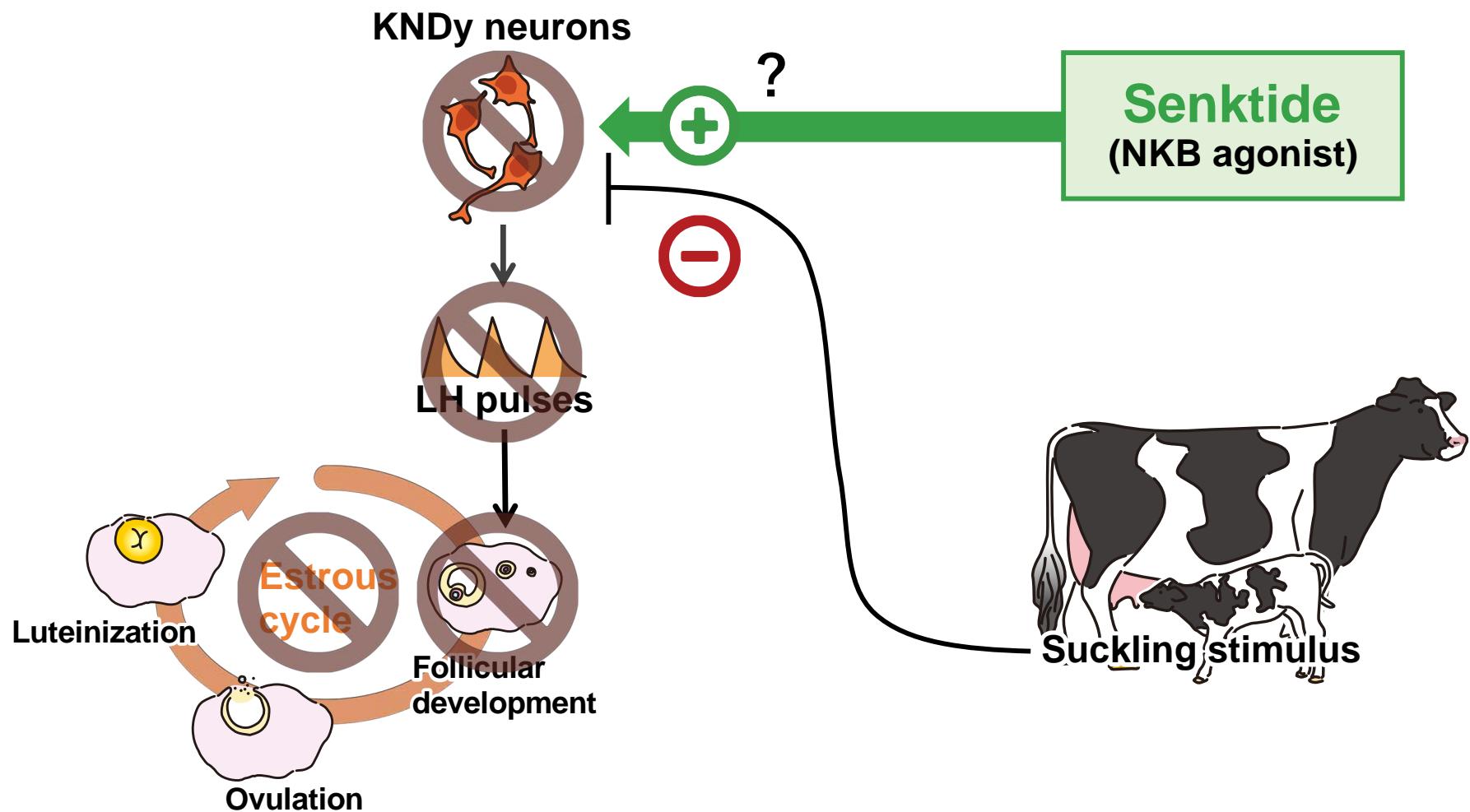


NKB: Neurokinin B

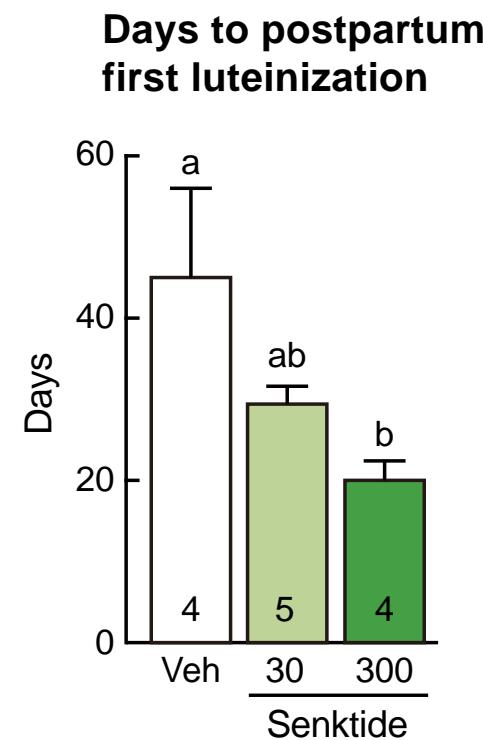
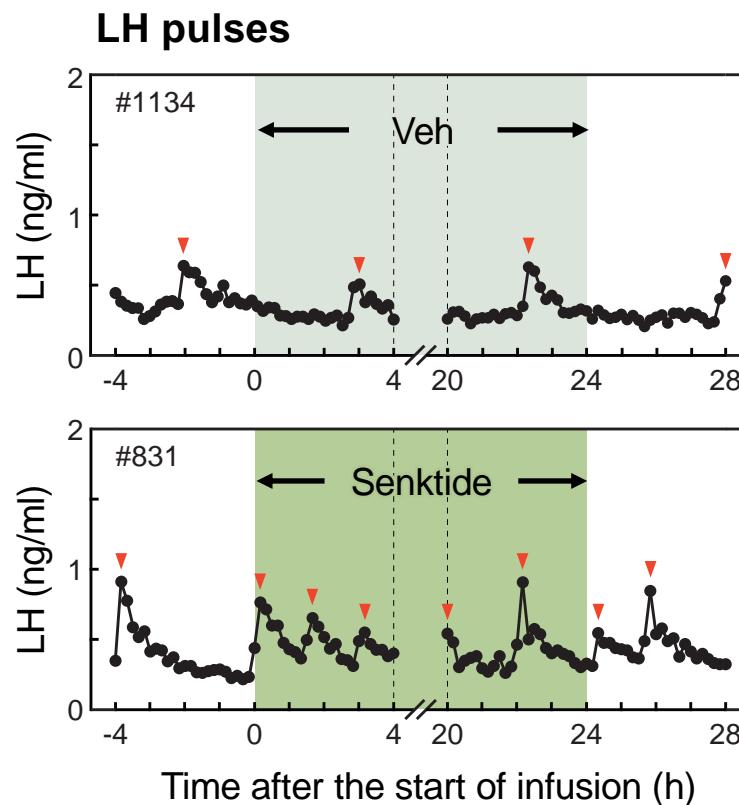
Applied research on reproductive function in cattle using NKB receptor agonist (senktide)



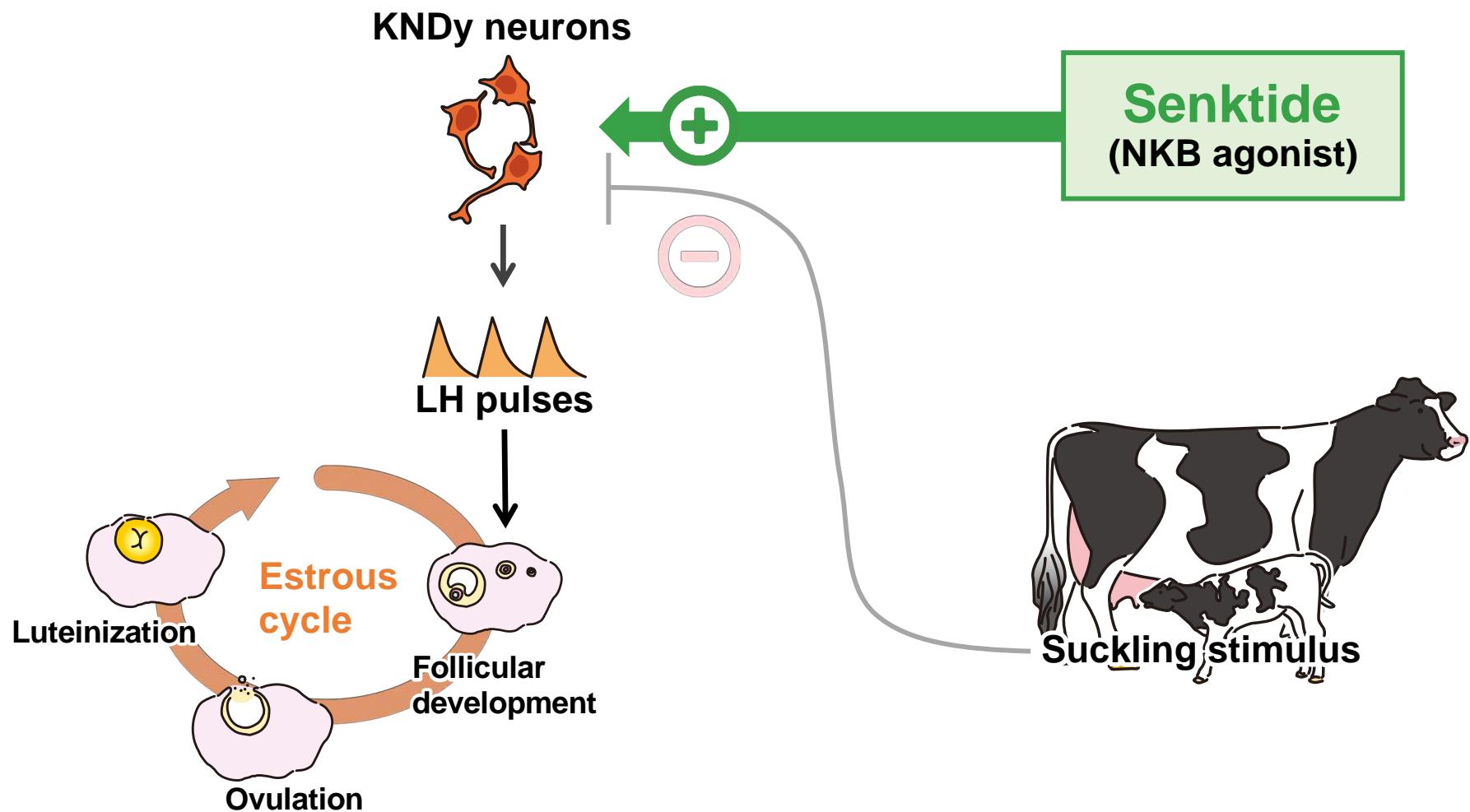
Effect of NKB signaling on LH pulses in postpartum cattle



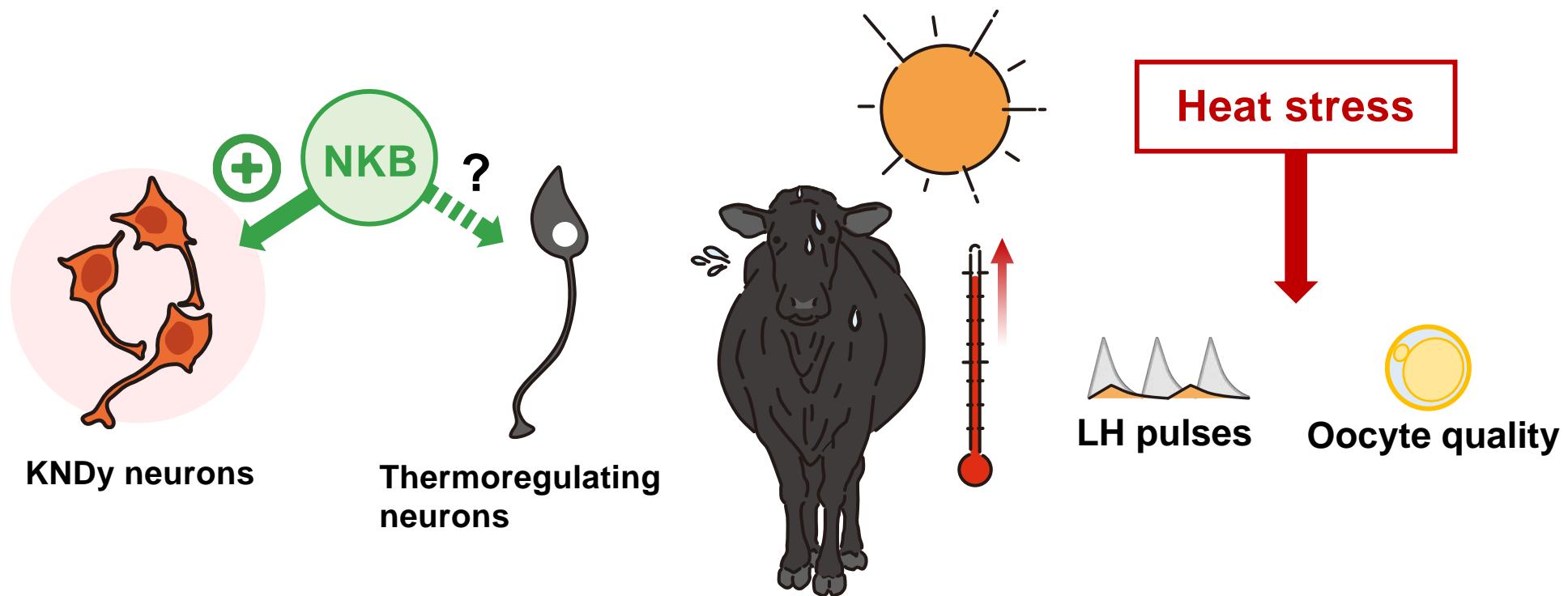
Senktide accelerates LH pulses and shortened the days until postpartum first luteinization.



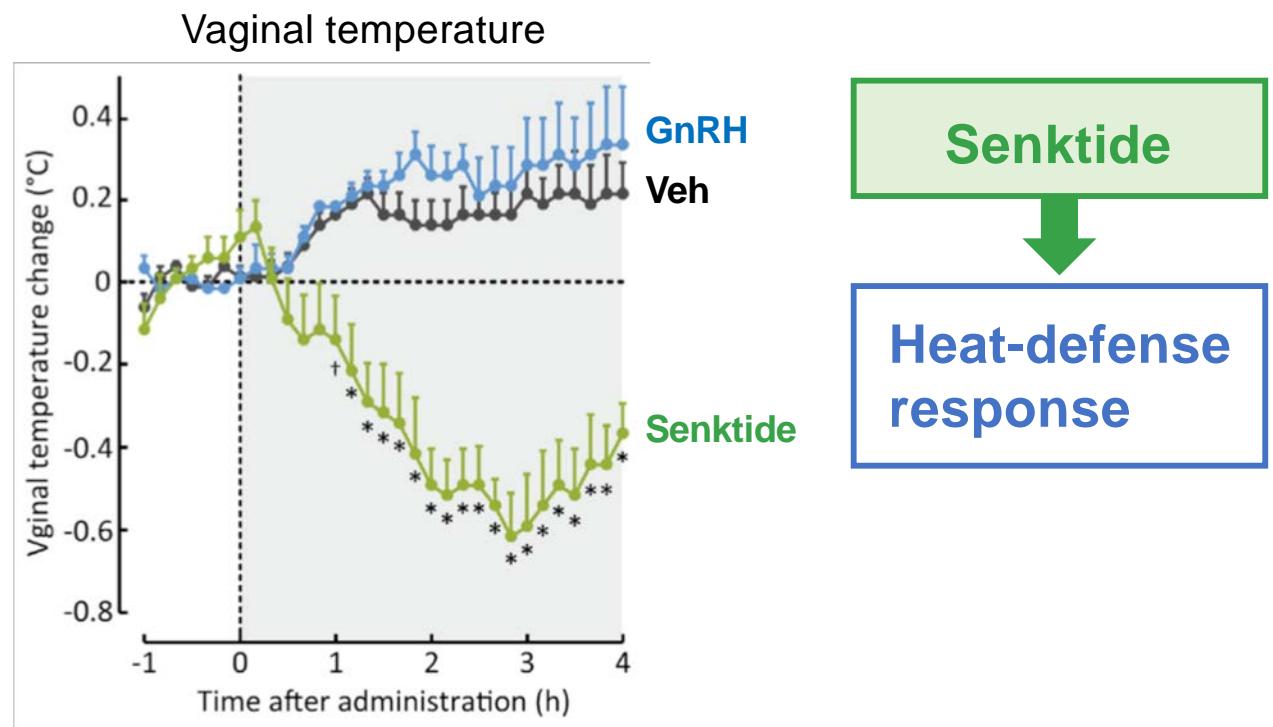
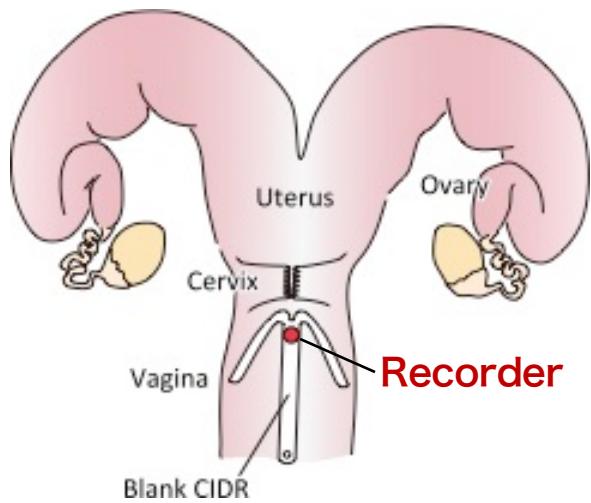
Effect of NKB signaling on LH pulses in postpartum cattle

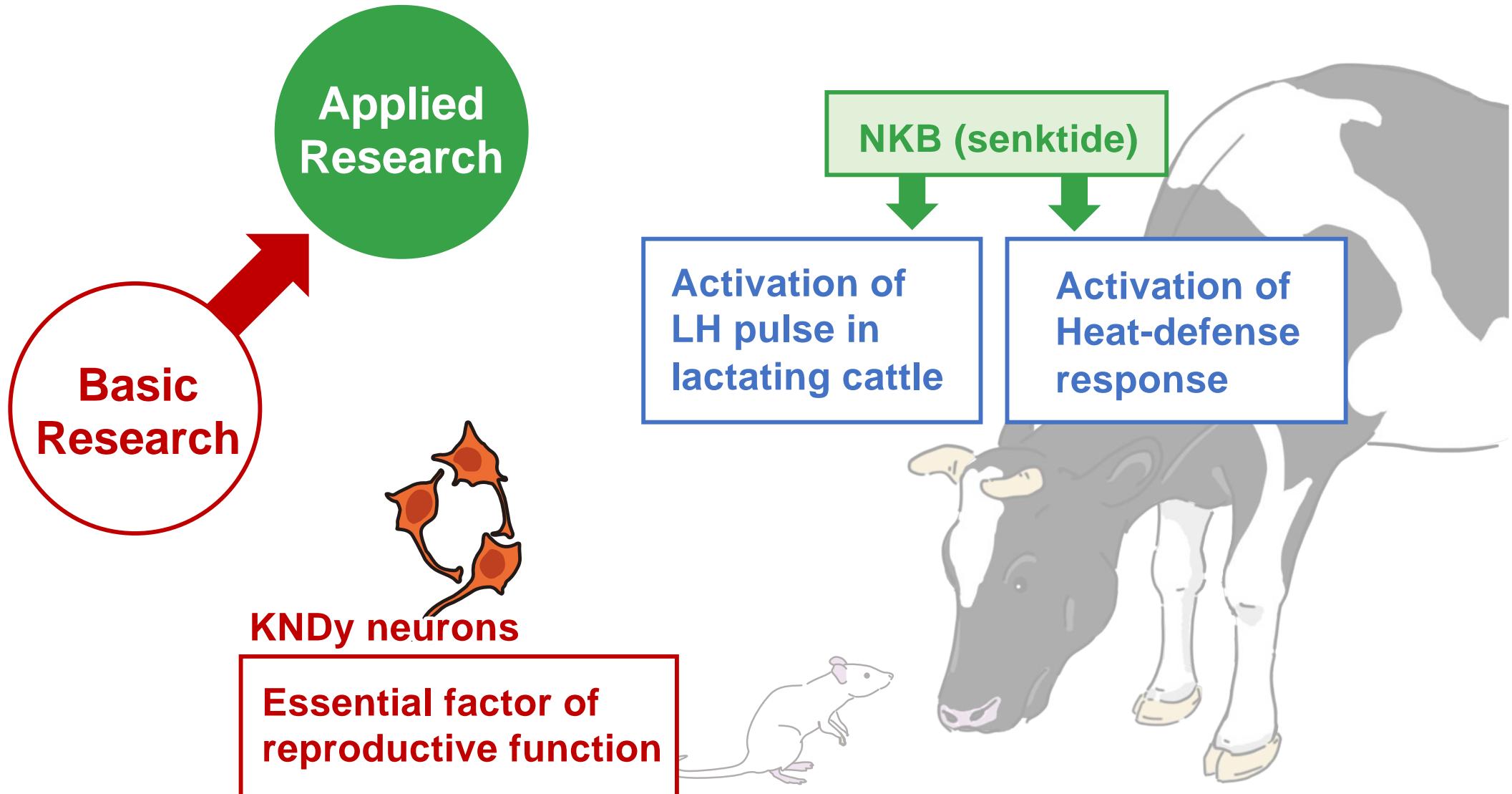


Effects of NKB signaling on core body temperature



Activation of NKB signaling decreased vaginal temperature in cattle





Acknowledgment

Dr. Kei-ichiro Maeda

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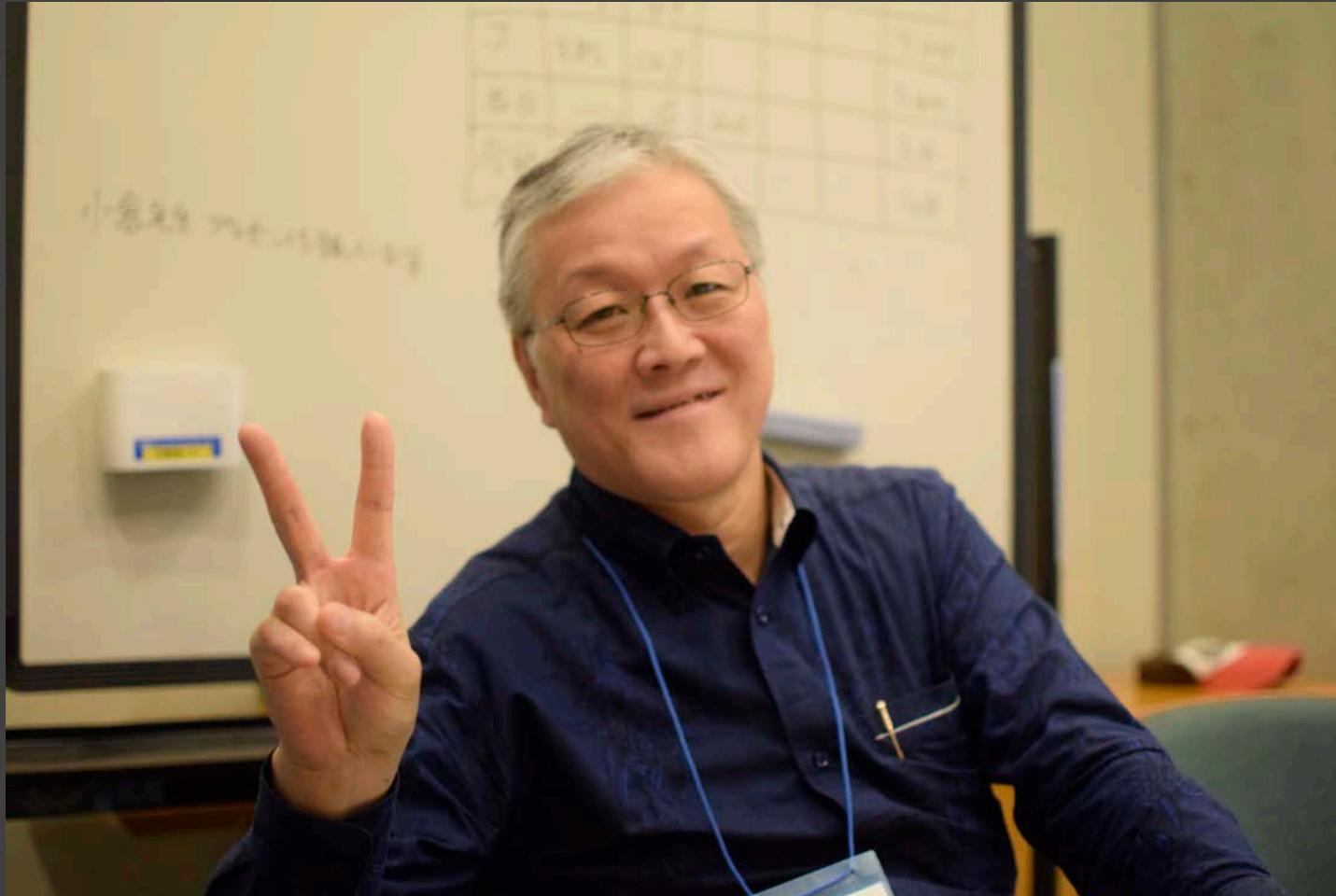
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Dr. Shuichi Matsuyama

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2017