

Table S1. The cross reactivity of every antibody.

Protein symbol	Product No.	Source	Cross reactivity
β -actin	bs-0061R	Rabbit	Human, Mouse, Rat, Hamster (Predicted: Rabbit, Pig , Sheep, Chicken, Dog, Cat, GuineaPig, Fish, Bee)
MT1	bs-0027R	Rabbit	Human, Mouse, Rat (Predicted: Pig , Sheep, Cow, Chicken, Dog, GuineaPig)
MT2	bs-0963R	Rabbit	Human, Mouse, Rat (Predicted: Dog) (Homology with pigs: 80.06%)
SF1	sc-28740	Rabbit	Mouse, Rat, Human, Equine, Canine, Bovine, Porcine
StAR	sc-25806	Rabbit	Mouse, Rat, Human, Equine, Bovine, Porcine
3 β -HSD	sc-30820	Goat	Mouse, Rat, Human, Equine, Canine, Bovine, Porcine
P450scc	sc-18040	Goat	Human, Mouse, Rat, Canine (Homology with pigs: 79.04%)
CYP19	sc-374176	Mouse	Human (Homology with pigs: 83.89%)

Notes: The β -actin, MT1, MT2, SF1, StAR, 3 β -HSD and P450scc antibodies used in this study had been successfully tested in pig sperm and granulosa cells samples [1,2]. And the CYP19 antibody used in this study had been successfully tested in mouse granulosa cells [3] (Homology with mouse: 79.32%) , horse testis [4] (Homology with horse: 78.33%) and fish testis samples [5] (Homology with fish: 54.08%).

References:

1. Lu N, Li M, Lei H, Jiang X, Tu W, Lu Y, Xia D. Butyric acid regulates progesterone and estradiol secretion via cAMP signaling pathway in porcine granulosa cells. *J Steroid Biochem Mol Biol.* 2017;172:89-97.
2. Lu N, Jiang X, Zhang C, Li B, Tu W, Lei H, Yao W, Xia D. Melatonin mediates via melatonin receptor 1 in a temperature-dependent manner regulating ATP metabolism and antioxidative enzyme activity of boar spermatozoa in vitro. *Theriogenology.* 2022;188:1-12.
3. Hu J, Jin J, Qu Y, Liu W, Ma Z, Zhang J, Chen F. ERO1 α inhibits cell apoptosis and regulates steroidogenesis in mouse granulosa cells. *Mol Cell Endocrinol.* 2020;511:110842.
4. Rouge M, Legendre F, Elkhatab R, Delalande C, Cognié J, Reigner F, Barrière P, Deleuze S, Hanoux V, Galéra P, Bouraïma-Lelong H. Early Castration in Horses Does Not Impact Osteoarticular Metabolism. *Int J Mol Sci.* 2023;24:16778.
5. Santos D, Rocha E, Malhão F, Lopes C, Gonçalves JF, Madureira TV. Multi-Parametric Portfolio to Assess the Fitness and Gonadal Maturation in Four Key Reproductive Phases of Brown Trout. *Animals.* 2021;11:1290.