Docket #: S23-332

Esr1-Flpo knock-in mice - Jackson Labs 037009

Esr1Flpo CRISPR-derived knock-in mice are designed to have 2A-flpo sequence inserted into the 3' UTR of the estrogen receptor 1 (alpha) (Esr1) gene. Esr1 encodes a nuclear hormone receptor that is predominantly expressed in the uterus, mammary glands, pituitary, hypothalamus, and ovarian theca cells and is important for hormone binding, DNA binding, and activation of transcription. The protein localizes to the nucleus where it may form a homodimer or a heterodimer with estrogen receptor 2 (Esr2). Estrogen and its receptors are essential for sexual development and reproductive function, but also play a role in other tissues such as bone. Estrogen receptors are also involved in pathological processes including breast cancer, endometrial cancer, and osteoporosis. The presence of 2A-flpo cassette in the 3' UTR allows for expression of ESR1 and flpo. Homozygous mice are viable and fertile. When these mice are bred with mice containing FRT-flanked sequence, flpo-mediated recombination will result in deletion of the FRT-flanked sequences in flpo-expressing cells.

Applications

- These mice can be used for developing or testing modulators of circuits or cells in health or disease for peripheral reproductive tissues (uterus, ovary, breast, vagina such as infertility, uterine cancer, ovarian cancer, breast cancer, endometriosis, pregnancy, preeclampsia, menopausal atrophy; testis, epididymis, seminal veiscles such as testicular tumors and infertility), sexual behavior and libido (hyposexual desire disorder, menopause, other causes of abnormal libido), cardiovascular system (such as blood vessel vasodilation), hot flashes and sweats in menopause, and cognitive symptoms in various conditions (such as migraine, seizures, mood, appetite, emotional changes in menopause or across the menstrual cycle).

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