This Esr1 mutant strain is a functional knock out of ERα. Female mice homozygous for this mutation are infertile, exhibit cystic ovaries that lack corpora lutea and hypoplastic uteri that are unresponsive to estrogen. Homozygous males show reduced testis weight associated with diminished sperm count. These mice may be suitable for use in studies related to estrogen signaling, estrous cycle, obesity, metabolic syndrome and hormonal regulation of a variety of organ systems.

Please note: Mice carrying this Esr1<sup>tm1Ksk</sup> allele (Stock No. 004744), express a low level of a truncated form of ERα, the result of alternate splicing of the transcript. In contrast, mice carrying the Esr1<sup>tm4.2Ksk</sup> allele (Stock No. 026176) have no tissue responses to estrogen and no estrogen receptor alpha activity.

Donating Investigator
Kenneth Korach, LRDT, NIEHS, NIH
The targeted Esr1 gene encodes a ligand-activated transcription factor and nuclear estradiol hormone receptor. In the ERKO line (Stock #004744) multiple transcript variants may form due to alternative cryptic splicing of the endogenous mouse Esr1 gene. These mice carry an insertional disruption mutation of the Esr1 gene in which exon 2 has been deleted and a series of stop codons have been inserted. Two truncated mutant transcripts and a truncated protein (approximately 61kDa in size) having a deleted N-terminus are detected in uterine tissue from homozygous female mice by RT-PCR and Western blot analysis.

At birth, mice homozygous for the targeted allele are viable and normal in size and appearance. Female homozygous mice are infertile, exhibit cystic ovaries that lack corpora lutea and have hypoplastic uteri that are unresponsive to estrogen. Homozygous males are infertile, low normal testis weight as adults and diminished sperm count (10% of normal. Homozygous females have more than 4-fold higher level of serum estradiol and elevated androgen levels compared to wildtype controls, indicative of estrogen insensitivity. There is approximately 3% of the Estradiol binding in uterine tissue from homozygotes compared to levels observed in wildtype controls; no estradiol binding is detected in other tissues (brain, kidney, and liver) from homozygotes. Female neuroendocrine estrogen negative feedback is disrupted with highly elevated LH, normal FSH levels but no prolactin.

Please note: Mice carrying this Esr1\textsuperscript{tm1Ksk} allele (Stock No. 004744), express a low level of a truncated form of ERα, the result of alternate splicing of the transcript. In contrast, mice carrying the Esr1\textsuperscript{tm4.2Ksk} allele (Stock No. 026176) have no tissue responses to estrogen and no estrogen receptor alpha activity.
Genotyping Protocols
Standard PCR: Esr1-Alternative 2
Genotyping resources and troubleshooting

Breeding Considerations
When maintaining a live colony, heterozygous mice may be bred to wildtype siblings, or to C57BL/6J inbred mice (Stock No. 000664). Homozygous females are infertile. The fertility of homozygous males is greatly reduced, but not abolished. The expected coat color is black.

Additional Breeding and Husbandry Support

Citation
When using the ERα KO mouse strain in a publication, please cite the originating article(s) and include JAX stock #004744 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions

Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200

Pricing & Availability

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.
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