Arid1b Flox (Arid1b<sup>em2Hzhu</sup>) mice have a CRISPR/cas9-generated, Cre-conditional knock-out allele. These mice may be useful in studying the SWI/SNF chromatin-remodeling complex, autism spectrum disorder, intellectual disability, corpus callosum agenesis and Coffin-Siris syndrome.

Donating Investigator
Hao Zhu, University of Texas Southwestern Medical Center [UTSW]
ARID1B is a SWI/SNF chromatin-remodeling subunit. ARID1B haploinsufficiency in humans is associated with autism spectrum disorder, intellectual disability, corpus callosum agenesis and short stature. In addition, ARID1B mutation is the most common cause of Coffin-Siris syndrome.

The Arid1b Flox allele (Arid1b\textsuperscript{Fl}) has \textit{loxP} sites flanking exon 5. Mice homozygous for this floxed allele are viable and fertile, with no reported gross phenotypic or behavioral abnormalities.

Upon exposure to Cre recombinase, the floxed sequences are deleted - resulting in a null allele (Arid1b\textsuperscript{Δ}).

For example, when Arid1b Flox are bred to Nestin-Cre transgenic mice (e.g., Stock No. 003771), the resulting brain-specific ARID1B haploinsufficiency (Nestin-Cre; Arid1b\textsuperscript{Fl/Δ}) leads to growth impairment and reduced plasma insulin-like growth factor (IGF1) levels with inappropriate lack of growth hormone (GH) increase - characteristics of ARID1B mutation in humans. [Celen et al. 2017 Elife 6:e25730]

Furthermore, breeding Arid1b Flox to mice with liver-specific or skeletal muscle-specific Cre-expression (Stock Nos. 003574 or 006475, respectively) generates mice with tissue-specific ARID1B haploinsufficiency. In the resulting offspring, neither Albumin-Cre; Arid1b\textsuperscript{Fl/Δ} nor Ckmm-Cre; Arid1b\textsuperscript{Fl/Δ} showed growth or morphological defects. [Celen et al. 2017 Elife 6:e25730]

In addition, breeding Arid1b Flox to germline Cre-expressing mice (e.g., Sox2-Cre; Stock No. 008454) should generate mice with the ARID1B global knock-out allele. Mice homozygous or heterozygous for the global knock-out allele can be expected to have the same phenotype as other ARID1B whole-body knock-out alleles. That is, homozygotes are perinatal lethal, while heterozygotes are viable and fertile with social behavior impairment, altered vocalization, anxiety-like behavior (increased self-grooming), neuroanatomical abnormalities and growth impairment. Approximately 7% of mice heterozygous for a whole-body knock-out of the gene also have hydrocephaly.
Mice homozygous for the Arid1b Flox allele are viable and fertile, with no reported gross phenotypic or behavioral abnormalities. When maintaining a live colony, heterozygous mice may be bred together, to wildtype mice from the colony or to C57BL/6J inbred mice (Stock No. 000664). Alternatively, homozygous mice may be bred together.

Additional Breeding and Husbandry Support
Mating System
Heterozygote x Heterozygote

Citation
When using the Arid1b Flox (Arid1b$^{\text{floxed exon 5}}$) mouse strain in a publication, please cite the originating article(s) and include JAX stock #032061 in your Materials and Methods section.

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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**LICENSING INFORMATION**

Phone: 207-288-6470
Email: TechTran@jax.org

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### Related Strains

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