STOCK *Akap12* ^{tm1Ihg} *Rb1* ^{tm2Brn} Tg(Pbsn-cre)4Prb/J

Stock No: **026229** | Akap12 $^{-/-}$;Rb $^{PE-/-}$

Targeted Mutation, Transgenic

Please contact Technical Support for more information

CONTACT TECHNICAL SUPPORT

studies. Single strains are available as follows: Stock No. 026662 STOCK Tg(Pbsn-cre)4Prb/J; Stock No. 026563 STOCK Rb1^{tm2Brn}/J; Stock No. 026228 STOCK Akap12^{tm1Ihg}/J

Akap12$^{-/-}$;Rb$^{PE-/-}$ mice develop prostatic intraepithelial neoplasia by 2 months of age and are a model for early prostate intraepithelial neoplasia metastasis to lymph nodes.

Donating Investigator

Irwin H. Gelman, Roswell Park Cancer Institute

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GENETIC OVERVIEW

Genetic Background	Generation

Rb1^{tm2Brn}

Allele Type	Gene Symbol	Gene Name
Targeted (Conditional ready (e.g. floxed), No functional change)	*Rb1*	RB transcriptional corepressor 1

Tg(Pbsn-cre)4Prb

Allele Type
Transgenic (Recombinase-expressing)

Akap12^{tm1Ihg}

Allele Type	Gene Symbol	Gene Name
Targeted (Null/Knockout)	*Akap12*	A kinase (PRKA) anchor protein (gravin) 12

VIEW GENETICS

RESEARCH APPLICATIONS

Internal/Organ Research
Cancer Research

VIEW ALL RESEARCH APPLICATION

Details

Detailed Description

These mutant mice carry a knock-out allele for *Akap12* and prostate epithelium specific deletion of *Rb1*. In human prostate cancer, *AKAP12* and *RB1* are downregulated.
Mice that are homozygous for the *Akap12*^{tm1Ihg} allele, homozygous for the *Rb1*^{tm2Brn} allele, and hemizygous for the Tg(Pbsn-cre)4Prb transgene, develop low grade prostatic intraepithelial neoplasia (PIN) in all prostate lobes by 2 months of age. By 5 months of age, 29% of these mice develop high-grade PIN. No adenocarcinoma is detected in mutant mice up to 24 months of age. 83% of mice exhibiting focal high-grade PIN lesions develop pelvic or inguinal lymph node metastases.
Mice that are heterozygous for the *Akap12*^{tm1Ihg} allele, homozygous for the *Rb1*^{tm2Brn} allele, and hemizygous for the Tg(Pbsn-cre)4Prb transgene, are viable and fertile. 3-4% of single mutant mice homozygous for the *Akap12*^{tm1Ihg} allele die spontaneously as early as 4 months of age, and 10-25% of *Akap12*^{tm1Ihg} homozygotes are infertile or show delayed fertility (the Donating Investigator reports that breeding pairs may need to be housed for up to 3 weeks). To maintain prostate specific cre recombination, the Tg(Pbsn-cre)4Prb transgene must be inherited from the male only.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Rb1^{tm2Brn}

Tg(Pbsn-cre)4Prb

Akap12^{tm1Ihg}

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Standard PCR:Rb1 Alternate1
Standard PCR:Akap12-Alternate 2
Separated PCR:Rb1-Cre recombined
Standard PCR:Generic Neo
Standard PCR:Generic LacZ Melt Curve Analysis
Standard PCR:Tg(Pbsn-cre)4Prb
Probe:Generic Neo
Probe:Generic LacZ Probe
Probe:Rb1 Probe
Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, these mice can be bred as heterozygous for the *Akap12*^{tm1Ihg} allele, homozygous for the *Rb1*^{tm2Brn} allele, and hemizygous for the Tg(Pbsn-cre)4Prb transgene.

3-4% of single mutant mice homozygous for the *Akap12*^{tm1Ihg} allele die spontaneously as early as 4 months of age, and 10-25% of *Akap12*^{tm1Ihg} homozygotes are infertile or show delayed fertility requiring breeding pairs to be housed for up to 3 weeks. To maintain prostate specific cre recombination, the Tg(Pbsn-cre)4Prb transgene must be inherited from the male only.

Additional Breeding and Husbandry Support

Mating System

Wild Akap12tm1lhg, Wild Rb1tm2Brn, Noncarrier Tg(Pbsn-cre)4Prb x Heterozygous Akap12tm1lhg, Heterozygous Rb1tm2Brn, Hemizygous Tg(Pbsn-cre)4Pr

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LICENSING INFORMATION

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By Allele

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Yes No