

# FINDING TRANSGENIC AND GENE-TARGETED MOUSE STRAINS, BEGINNING WITH THE GENE OF INTEREST

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## Mouse Genome Informatics

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**Strains / SNPs**

Variation Type	DBV/ZJ	PV0/PVU	TKO/J/ELJ	Allele Summary (all strains)
SNP	G	G	A	A/G
SNP	C	C	T	C/T

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**News**  
April 13, 2011

- RNA in situ hybridization data from the Brain Gene Expression Map (BGEM) database and the Eurexpress project

In this example, we are interested in locating mice with mutations in App (amyloid precursor protein)



**MGJ** Mouse Genome Informatics

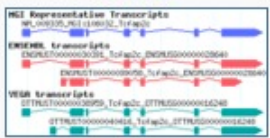
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Click on "Quick Search" or hit Enter after typing in 'App'

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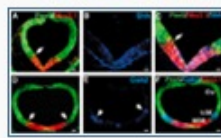
**Genes**




**Phenotypes & Disease Models**




**Expression**



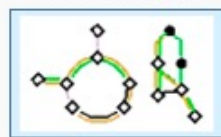
**Recombinases (cre)**



**Function**




**Pathways**



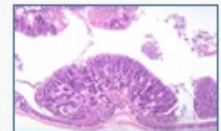
**Strains / SNPs**

Variation Type	DBP/ZJ	FVB/NJ	129/SVJ	Other Strains	Allele Summary (all strains)
SNP	G	G	A		A/G
SNP	C	C	T		C/T

**Orthology**



**Tumors**



**FAQs**

How do I...

- .. search for genes by genomic interval? [FAQ](#)
- .. find mutations for phenotypes or diseases? [FAQ](#)

**News** April 13, 2011

- RNA in situ hybridization data from the Brain Gene Expression Map (BGEM) database and the Eurexpress project are now available in MGI. [Read more...](#)

## Quick Search Results

 for:    Your Input Welcome

Examples: embryo\* develop\* NM\_013627 MGI:97490 Fas<Ipr> Pax\* axial "skeletal dysplasia" Tg(ACTB-cre)2Mrt

See [details](#) for this search.

### Genome Features

 sorted by best match, showing 1-10 of 169 i

Score	Type	Symbol	Name	Chr	Location	Str	Best Match
★★★★	protein coding gene	<a href="#">App</a>	amyloid beta (A4) precursor protein	16	84954688-85173948	-	SYMBOL : <a href="#">App</a> <a href="#">and 8 more...</a>
★★★	QTL	<a href="#">Appd1</a>	APP associated premature death 1	9	40462577-40462701	+	NAME : APP associated premature death 1 <a href="#">and more detail...</a>
★★★	QTL	<a href="#">Appd2</a>	APP associated premature death 2	14	17356225-31206091	+	NAME : APP associated premature death 2 <a href="#">and more detail...</a>
★★★	protein coding gene	<a href="#">Bace1</a>	beta-site APP cleaving enzyme 1	9	45646663-45672482	+	NAME : beta-site APP cleaving enzyme 1 <a href="#">and 4 more...</a>
★★★	protein coding gene	<a href="#">Bace2</a>	beta-site APP-cleaving enzyme 2	16	97578369-97660619	+	NAME : beta-site APP-cleaving enzyme 2 <a href="#">and 4 more...</a>
★★★	Targeted allele	<a href="#">App<sup>tm1Dbo</sup></a>	amyloid beta (A4) precursor protein; targeted mutation 1, David R Borchelt	16	84954688-85173948	-	ALLELE SYNONYM : <a href="#">App</a> <a href="#">and 1 more...</a>
★★★	Targeted allele	<a href="#">App<sup>tm1Cep</sup></a>	amyloid beta (A4) precursor protein; targeted mutation 1, Cephalon Inc	16	84954688-85173948	-	ALLELE SYMBOL : <a href="#">App<sup>tm1Cep</sup></a> <a href="#">and 1 more...</a>
★★★	Targeted allele	<a href="#">App<sup>tm1Ck</sup></a>	amyloid beta (A4) precursor protein; targeted mutation 1, Christoph Kohler	16	84954688-85173948	-	ALLELE SYMBOL : <a href="#">App<sup>tm1Ck</sup></a> <a href="#">and 3 more...</a>
★★★	Targeted allele	<a href="#">App<sup>tm1Cwe</sup></a>	amyloid beta (A4) precursor protein; targeted mutation 1, Charles Weissmann	16	84954688-85173948	-	ALLELE SYMBOL : <a href="#">App<sup>tm1Cwe</sup></a> <a href="#">and 1 more...</a>
★★★	Targeted allele	<a href="#">App<sup>tm1Inl</sup></a>	amyloid beta (A4) precursor protein; targeted mutation 1, Ikuo Nishimoto	16	84954688-85173948	-	ALLELE SYMBOL : <a href="#">App<sup>tm1Inl</sup></a> <a href="#">and 2 more...</a>

Showing 1-10 of 169

[Show first 100...](#)

for genome features 1 through

MGI currently lists 169 alleles with "App" in the name

Click here to show the first 100



Keywords, Symbols, or IDs

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# Quick Search Results

for:

Search Again

Reset

Your Input Welcome

Examples: embryo\* develop\* NM\_013627 MGI:97490 Fas<lpr> Pax\* axial "skele

See [details](#) for this search.

Click on "Next" to see 101-169

## Genome Features

Sorted by best match, showing 1 - 100 of 169



[Next](#)

Score	Type	Symbol	Name	Chr	Location	Str	Best Match
★★★★	protein coding gene	<a href="#">App</a>	amyloid beta (A4) precursor protein	16	84954688-85173948	-	SYMBOL : <a href="#">App</a> <a href="#">and 8 more...</a>
★★★	QTL	<a href="#">Appd1</a>	APP associated premature death 1	9	40462577-40462701	+	NAME : APP associated premature death 1 <a href="#">and more detail...</a>
★★★	QTL	<a href="#">Appd2</a>	APP associated premature death 2	14	17356225-31206091	+	NAME : APP associated premature death 2 <a href="#">and more detail...</a>
★★★	protein coding gene	<a href="#">Bace1</a>	beta-site APP cleaving enzyme 1	9	45646663-45672482	+	NAME : beta-site APP cleaving enzyme 1 <a href="#">and 4 more...</a>
★★★	protein coding gene	<a href="#">Bace2</a>	beta-site APP-cleaving enzyme 2	16	97578369-97660619	+	NAME : beta-site APP-cleaving enzyme 2 <a href="#">and 4 more...</a>
★★★	Targeted allele	<a href="#">App<sup>tm1Dbo</sup></a>	amyloid beta (A4) precursor protein; targeted mutation 1,	16	84954688-85173948	-	ALLELE SYNONYM : <a href="#">App-</a> <a href="#">and 1 more...</a>

Here's an interesting transgene insertion. To obtain more information, click on the allele link.

★★★	Transgene	<a href="#">Tg(APP695)3Dbo</a>	transgene insertion 3, David R Borchelt	UN	PHENOTYPE : amyloid beta deposits <a href="#">and more detail...</a>
★★★	Transgene	<a href="#">Tg(APPSWE)2576Kha</a>	transgene insertion 2576, Karen Hsiao Ashe	UN	PHENOTYPE : amyloid beta deposits <a href="#">and more detail...</a>
★★★	Transgene	<a href="#">Tg(APPSwe,tauP301L)1Lfa</a>	transgene insertion 1, Frank M LaFerla	UN	PHENOTYPE : amyloid beta deposits <a href="#">and more detail...</a>
★★★	Transgene	<a href="#">Tg(Camk2a-IDE)1Selk</a>	transgene insertion 1, Dennis J Selkoe	UN	PHENOTYPE : amyloid beta deposits <a href="#">and more detail...</a>
★★★	Transgene	<a href="#">Tg(Camk2a-ITM2B)8.4Ldad</a>	transgene insertion 8.4, Luciano D'Adamio	UN	PHENOTYPE : amyloid beta deposits <a href="#">and more detail...</a>



# Tg(APP<sup>Swe</sup>,tauP301L)1Lfa

Your Input Welcome

Transgene Detail

[Nomenclature](#) | [Transgene origin](#) | [Transgene description](#) | [Find Mice \(IMSR\)](#) | [Phenotype summary](#) | [Phenotypes by genotype](#) | [Disease models](#) | [References](#)

Nomenclature	<b>Symbol:</b> <b>Tg(APP<sup>Swe</sup>,tauP301L)1Lfa</b>
	<b>Name:</b> transgene insertion 1, Frank M LaFerla
	<b>MGI ID:</b> MGI:2672831
	<b>Synonyms:</b> Tg2576/PSEN1
	<b>Transgene:</b> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa <i>Location:</i> unknown
Transgene origin	<b>Strain of Origin:</b> Not Specified
Transgene	<b>Transgene Type:</b> Transgenic (random, expressed)
	<b>Mutation:</b> Insertion

UCI's Transgenic Mouse Facility co-injected 2 transgenes into fertilized eggs collected from a strain of mice carrying a mutation in the presenilin 1 gene.

One mouse strain is available with this mutation. Click on this link.

(The same allele can be found by starting at the IMSR site.)

Find Mice (IMSR)	Mouse strains and cell lines available from the International Mouse Strain Resource (IMSR)
	<b>Carrying this Mutation:</b> Mouse Strains: <a href="#">1 strain available</a> Cell Lines: 0 lines available

**Phenotype summary**

Phenotype Summary by Mammalian Phenotype terms **Key:**

hm	homozygous	ht	heterozygous
cn	conditional genotype	cx	complex: > 1 genome feature
tg	involves transgenes	ot	other: hemizygous, indeterminate,...
N	normal phenotype	⊗	expected model not found

(show or hide all annotated terms)

Genotypes are listed in the next section.

Affected Systems	Genotypes:	tg1	tg2	tg3	tg4
behavior/neurological	▶			✓	
hematopoietic system	▶		✓		
immune system	▶		✓		
nervous system	▶	N	✓	✓	✓
other phenotype	▶			✓	✓
Disease Models	▶			✓	



International Mouse Strain Resource

[IMSR Home](#)

Search Strains for:



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IMSR Site Hosted By:



The International Mouse Strain Resource (IMSR) is funded by grant [LM009693](#) from the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

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Send questions and comments to [IMSR](#).

last database update  
April 12, 2011  
IMSR 2.45



## IMSR Summary

### Query Summary

State equals live mouse, cryopreserved ovaries, cryopreserved embryos, cryopreserved or freeze-dried sperm  
Gene/Allele Accession ID equals MGI:2672831

1 matching item displayed

- + Name carries approved nomenclature
- Name does not carry approved nomenclature
- ? Name has not been reviewed for nomenclature.

If starting at the IMSR site, you would type your gene of interest here.

N	Strain/Stock Designation	Strain/Stock Synonyms	State <a href="#">Key</a>	Strain Type(s)	Holder Site	Chr	Allele Symbol	Allele Name	Gene Name	Mutation Type(s)
		B6.Cg-Psen1 <sup>tm1Mpm</sup> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa/J, C57BL/6-Psen1 <sup>tm1Mpm</sup> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa/J, C57BL/6-Psen1 <sup>tm1Mpm</sup> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa/J	live	mutant stock	JAX	12	<a href="#">Psen1<sup>tm1Mpm</sup></a>	targeted mutation 1, Mark P Mattson	presenilin 1	targeted mutation
+	<a href="#">B6;129-Psen1<sup>tm1Mpm</sup> Tg(APP<sup>Swe</sup>,tauP301L)1Lfa/J</a>					UN	<a href="#">Tg(APP<sup>Swe</sup>,tauP301L)1Lfa</a>	transgene insertion 1, Frank M LaFerla	transgene insertion 1, Frank M LaFerla	transgenic
						11	MAPT	microtubule-associated protein tau	microtubule-associated protein tau	transgenic
						12	PSEN1	presenilin 1	presenilin 1	transgenic

### State Key

live	live mouse
embryo	cryopreserved embryos
ovaries	cryopreserved ovaries
sperm	cryopreserved or freeze-dried sperm
ES Cell	ES cell lines

This is the official strain name. "B6;129" indicates the background of this strain is a mixture of an unspecified 129 strain and C57BL/6. More details of the background are given at the Jackson Lab website. Clicking on the strain name will take you there. (The "/J" indicates it is available from Jax.)

Home > JAX® Mice & Services > Find JAX® Mice > JAX® Mice database

**Strain Name: B6;129-Psen1<sup>tm1Mpm</sup> Tg(APP<sup>Swe</sup>,tauP301L)1Lfa/J**

**Stock Number: 004807**

[Place order](#)

**Availability: Repository- Live**

**Use Restrictions Apply, see [Terms of Use](#)**

Indicates this strain is maintained as a live colony but availability may be limited.

These 3xTg-AD mice harbor a *Psen1* mutation and the co-injected APP<sup>Swe</sup> and tauP301L transgenes (Tg(APP<sup>Swe</sup>,tauP301L)1Lfa)), and may be useful for studying plaque and tangle pathology associated with synaptic dysfunction and Alzheimer's disease.

Description	Phenotype	Genes & alleles	Genotyping	Health & husbandry	References	Purchasing information	Terms of Use
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**Strain Information**

<b>Former Names</b>	B6.Cg-Psen1 <sup>tm1Mpm</sup> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa/J (Changed: 07-AUG-09) C57BL/6-Psen1 <sup>tm1Mpm</sup> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa/J (Changed: 13-MAR-08) C57BL/6-Psen1 <sup>tm1Mpm</sup> Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa/J (Changed: 30-MAR-06)						
<b>Type</b>	Mutant Stock; Targeted Mutation; Transgenic; Additional information on <a href="#">Genetically Engineered and Mutant Mice</a> . Visit our online <a href="#">Nomenclature tutorial</a> .						
<b>Mating System</b>	See Colony Maintenance under the Health & husbandry tab (Female x Male) 18-JUL-09						
<b>Species</b>	laboratory mouse						
<b>Generation</b>	F?+F4 (05-JAN-11) <a href="#">Generation Definitions</a>						
<b>Donating Investigator</b>	Frank LaFerla, University of California, Irvine						

Click here for purchasing information. Orders must be placed through ULAR and you must have an approved IACUC protocol to obtain any research animals.

**Description**

Mice homozygous for all three mutant alleles (3xTg-AD; homozygous for the *Psen1* mutation and homozygous for the co-injected APP<sup>Swe</sup> and tauP301L transgenes (Tg(APP<sup>Swe</sup>,tauP301L)1Lfa)) are viable, fertile and display no initial gross physical or behavioral abnormalities. Translation of the overexpressed transgenes appears to be restricted to the central nervous system, notably in Alzheimer's disease-relevant areas including the hippocampus and cerebral cortex. A progressive increase in amyloid beta peptide deposition is observed, with intracellular immunoreactivity being detected in some brain regions as early as 3-4 months. Synaptic transmission and long-term potentiation are demonstrably impaired in mice 6 months of age. Between 12-15 months aggregates of conformationally altered and hyperphosphorylated tau are detected in the hippocampus. This mutant mouse exhibits plaque and tangle pathology associated with synaptic dysfunction, traits similar to those observed in Alzheimer's disease patients.

**Development**

Single-cell embryos from mice bearing the presenilin PS1M146V knockin mutation on a mixed C7BL/6;129X1/SvJ;129S1/Sv genetic background (B6;129-Psen1<sup>tm1Mpm</sup>) were co-injected with two independent mutant human transgenes; amyloid beta precursor protein (APP<sup>Swe</sup>) and microtubule-associated protein tau (tauP301L). Both transgenes integrated at the same locus and are under the control of the mouse Thy1.2 regulatory element. Founder mice (line B1) were mated to B6;129-Psen1<sup>tm1Mpm</sup> mice. Offspring from this cross were bred together, resulting in mice homozygous for all three alleles (3xTg-AD; homozygous for the *Psen1* mutation and homozygous for the co-injected APP<sup>Swe</sup> and tauP301L transgenes (Tg(APP<sup>Swe</sup>,tauP301L)1Lfa)). Both male and female 3xTg-AD mice on the mixed C7BL/6;129X1/SvJ;129S1/Sv genetic background were sent to The Jackson Laboratory and bred together to establish this colony.



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Related topics

Search for cre strains

Search by promoter or anatomical region

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Search for Oak Ridge Collection at JAX

JAX provides cryopreserved stocks from the Oak Ridge National Laboratory

[Go to ORNL database](#)

### JAX<sup>®</sup> Mice Database Quick Query Form

**Search the JAX<sup>®</sup> Mice database on a keyword**

Enter term(s) or part of a term; use \* as a wildcard

**Enter stock number**

Direct link to strain data sheet

[How to search the JAX<sup>®</sup> Mice Database](#)

For additional search query options use our [Advanced Search](#) query form.

Select Shipping Destination

**Include in Results**

**Phenotype of Interest**

**Human Disease of Interest**

**Gene / Allele / Strain / Common Names**

**Gene Symbol**

**Allele Symbol**

**Strain or Cell Line Name**

**Stock Number**

**Stock Type**

**Research Area**

You can also search for strains on the Jax website. Go to [jaxmice.jax.org/query](http://jaxmice.jax.org/query). We'll search for anything with "App" in the name. (Search terms are not case-sensitive.)

Home > JAX® Mice & Services > Find JAX® Mice > JAX® Mice database

## Query Results

**Search Criteria:** Gene / Allele / Strain / Common Name contains "app"

### Query Result Sort Options

currently sorted by Availability

#### IMPORTANT NOTE:

Prices are based on shipping destination.

Select your shipping destination to view pricing on this search result.

- [USA, Canada and Mexico](#)
- [International](#)

Here we see only some of the strains held by Jax that have "app" in the gene/allele/strain name, including the same strain that we located through MGI.

### JAX® Mice Strains

Stock Number Stock Name	Availability	Item	Price	Matched Text
004462 <a href="#">B6C3-Tg(APPswe,PSEN1dE9)85Dbo/J</a>	Level 4	Mice	To view prices, select a shipping destination above.	strain name: B6C3-Tg( <b>APP</b> swe,PSEN1dE9)85Dbo/J
012235 <a href="#">C.129P2(B6)-Igh<sup>tm2Rsky</sup> Igh<sup>tm2Rsky</sup>/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	gene name: immunoglobulin <b>kappa</b> chain complex
004133 <a href="#">B6.129S7-App<sup>tm1Dbo</sup>/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	strain name: B6.129S7- <b>App</b> <tm1Dbo>/J
004662 <a href="#">B6.Cg-Tg(PDGFB-APP)5Lms/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	strain name: B6.Cg-Tg(PDGFB- <b>APP</b> )5Lms/J
004714 <a href="#">B6.129-Bace1<sup>tm1Pcw</sup>/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	gene name: beta-site <b>APP</b> cleaving enzyme 1
004807 <a href="#">B6;129-Psen1<sup>tm1Mpm</sup> Tg(APPswe,tauP301L)1Lfa/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	strain name: B6;129-Psen1<tm1Mpm> Tg( <b>APP</b> swe,tauP301L)1Lfa/J
005300 <a href="#">B6.129-Tg(APPsw)40Btia/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	strain name: B6.129-Tg( <b>APP</b> sw)40Btia/J
005864 <a href="#">B6.Cg-Tg(APPswe,PSEN1dE9)85Dbo/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	strain name: B6.Cg-Tg( <b>APP</b> swe,PSEN1dE9)85Dbo/J
005866 <a href="#">B6.Cg-Tg(APP695)3Dbo Tg(PSEN1dE9)S9Dbo/J</a>	Repository- Live	Mice	To view prices, select a shipping destination above.	strain name: B6.Cg-Tg( <b>APP</b> 695)3Dbo Tg(PSEN1dE9)S9Dbo/J