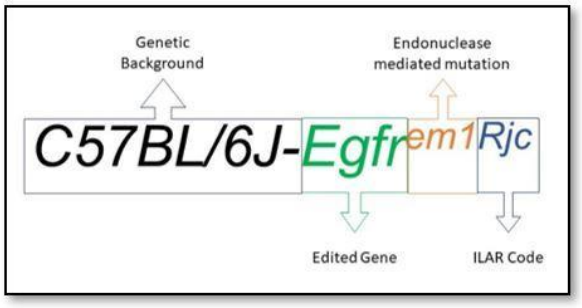
Vanderbilt Genome Editing Resource

WINTER 2023 NEWSLETTER

CRISPR-READI is ready. We previously described the combined use of adeno-associated virus (AAV) and embryo electroporation to introduce gene modification up to 3.9 kb in length (**PMID:31242412**). Since then, we have produced five unique mouse strains using this new approach. We have successfully inserted various combinations of fluorescent reporters, degron tags, cre recombinase, and LoxP sites with 22-60% of all pups screened having the desired gene modification. We are happy to discuss how you can apply this technology to your project(s).

More on CRISPR interference (CRISPRi). We continue to be excited about CRISPRi. The new strains and strategies that have recently been developed enable gene function and regulation to be studied in mice and iPSCs in a fundamentally new way. We have developed a reliable strategy for producing CRISPRi mouse models using *piggyBac* transgenesis, commercially sourced reagents, and readily available constitutive and inducible dCas9-KRAB expressing mice strains. To date, we have produced seven CRISPRi mouse models that target five different genes and have achieved gene repression levels ranging from 50% to 95%. As a new and very flexible technology, CRISPRi can be used in a variety of ways to add novelty to your studies. Again, we are happy to describe how these tools might benefit you.

What's in a name? We can help you obtain an official Mouse Genome Informatics (MGI) allele name and number prior to publishing a description of your new allele. Using precise nomenclature is crucial for accurately naming your new allele in its first publication. Employing the correct terminology ensures lasting recognition of your laboratory's contribution to the development of the strain. Furthermore, we encourage all principal investigators who are deriving new mouse strains to obtain their own ILAR code. This is a 1-5 letter code that is specific to your laboratory or center. If you have questions about how to properly name your mouse strains, or obtain an **ILAR code**, we are pleased to assist.



New websites. We are pleased to announce that both the **Vanderbilt Genome Editing Resource** and the **Vanderbilt Cryopreserved Mouse Repository** have new websites. Please let us know what you think.

As always, please contact Leesa Sampson at **leesa.sampson@vanderbilt.edu** or Jennifer Skelton at **jennifer.skelton@vanderbilt.edu** to discuss or initiate a project. Also, please tell us if you are publishing a new model generated by VGER. Email **Jennifer Skelton** to let us know about your publication.

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Happy Holidays!

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Years in existence	30
Investigators served	341
Unique lines produced since 1993	>3500
CRISPR-edited lines since 2013	160
Lines cryopreserved	955
Lines shared in VCMR	56

Vanderbilt Center for Stem Cell Biology

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