Vanderbilt Genome Editing Resource

SUMMER 2022 NEWSLETTER

Cite our Research Resource ID

Please include our Research Resource ID (RRID), **SCR_018826**, within the Materials and Methods or Acknowledgements section of your future publications. This unique identifier enables us to find publications that have utilized mouse or human iPSC models produced by VGER. Many thanks go to Ron Emeson and John Kuchtey for being the first to cite our RRID!

Human iPSC editing and gene repression

We encourage you to work with us to perform CRISPR genome-editing in human iPSCs or to develop CRISPR inhibition models. We have acquired line AICS-0090 from the Allen Cell Collection. These human iPSCs constitutively express dCas9-KRAB, enabling gene repression upon the introduction of gRNAs. CRISPRi iPSCs can be differentiated towards a variety of cell lineages. In this manner, the function of genes, distal and proximal *cis*-regulatory factors, and lncRNAs can be determined in a cell-based system.

VGER and TransnetYX

In a pilot project supported by the Division of Animal Care, we are testing TransnetYX automated genotyping services and colony management software. If you use TransnetYX to perform your genotyping, we are happy to work with the company to design a genotyping assay for any new strain we produce.

Mouse models for human mutations in non-coding DNA

The human genome contains over 20,000 coding genes that are controlled by hundreds of thousands of distal regulatory elements, many of which are evolutionarily conserved. These distal enhancers may contain variants associated with complex polygenic traits and diseases (https://www.ebi.ac.uk/gwas/). The use of an animal model may be necessary to identify the gene(s) impacted and associated phenotypes of these variants. We can help you identify human GWAS associations of interest and to identify the syntenic locus in the mouse. DNA deletions or point mutations at these loci are produced very efficiently in mice using CRISPR/Cas9. Contact us for more information.

As always, please contact Leesa Sampson at leesa.sampson@vanderbilt.edu or Jennifer Skelton at jennifer.skelton@vanderbilt.edu to discuss and initiate a project.

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