

GENSAT

GENSAT (Gene Expression Nervous System ATlas) involves the large-scale creation of transgenic mouse lines expressing green fluorescent protein (GFP) reporters or DNA recombinases in specific neural and glial cell populations. In each mouse line, expression of the reporter or recombinase is controlled by promoter elements derived from a bacterial artificial chromosome (BAC) containing a specific gene of interest, in order to mimic expression patterns of that gene. To date, over 800 transgenic BAC-GFP reporter mouse lines have been generated. Many of these lines have proven to be extremely valuable in experiments requiring identification of specific cell populations and details of cellular morphology. Furthermore, each of these lines is a unique reagent that provides important data regarding the potential utility of its specific BAC targeting vector. In collaboration with the NIMH Intramural Program, GENSAT is also generating BAC-Cre recombinase driver lines to serve as tools for cell-specific genetic manipulations in the CNS. Twenty fully-characterized BAC-Cre recombinase lines have been created so far, targeting selected neuronal or glial populations in the brain and spinal cord.

The BAC-GFP expression data and mouse brain images are available to the public in online, searchable databases (see weblinks below). Since the transgenic BAC mouse lines are powerful tools for neuroscience research, GENSAT distributes the mouse strains generated for the project via the Mutant Mouse Regional Resource Center (MMRRC) <http://www.mmrrc.org/catalog/StrainCatalogSearchForm.jsp>. Nearly 600 BAC mouse lines have been placed in the MMRRC repositories since the beginning of the project and are available for a small processing fee; to date, more than 130 of these lines have been ordered, many of them by multiple investigators. Researchers can nominate genes for the GENSAT project by completing an online gene nomination form at <http://www.gensat.org/GeneNominationForm.jsp>. In addition, researchers can register interest for specific BAC-Cre recombinase driver lines currently in development at <http://www.gensat.org/CrePipeline.jsp>.

Resources:

BAC Transgenic Mouse GENSAT Database www.gensat.org/index.html

Mutant Mouse Regional Resource Centers www.mmrrc.org (select major collection 'GENSAT' and mutation type 'Transgenic(cre)' or 'Transgenic(BAC)')

In Situ Hybridization GENSAT Database www.stjudebgem.org/web/mainPage/mainPage.php

Submission of gene nominations for the generation of BAC-EGFP reporter and BAC-Cre recombinase mouse lines <http://www.gensat.org/GeneNominationForm.jsp>

NCBI GENSAT Database www.ncbi.nlm.nih.gov/projects/gensat

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