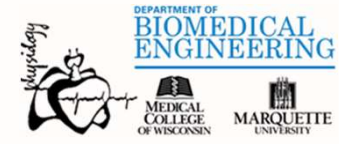




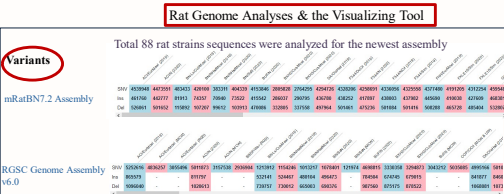
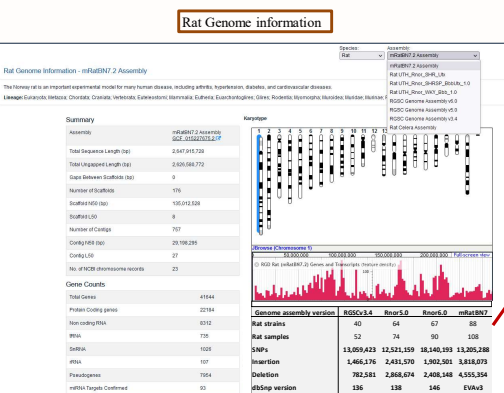
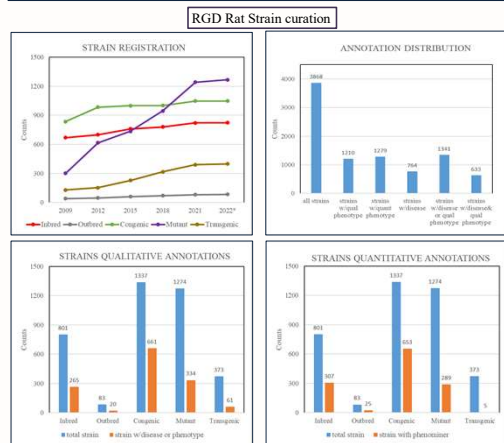
Rat strain curation updates at the Rat Genome Database

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Abstract
Rattus norvegicus is a model of choice for studying complex human diseases such as cardiovascular disease, diabetes, and metabolic syndrome. The use of rats as disease models has progressed from selection of spontaneous variations among breeds to selective breeding for a disease related trait to targeted genomic mutations. The Rat Genome Database (RGD), the primary rat data repository, started organizing and standardizing collected rat data using controlled vocabularies in 2000 and is the source of truth for gene, QTL, and rat strain nomenclature. Currently, rat resources, providers, and researchers regularly register new strains with RGD for official symbols and unique identifiers (IDs) which RGD curators regularly annotate with disease and phenotype terms from the literature and integrate with available genome data from public resources or user submissions. These integrated genome and phenotype data are available in the Phenotypes and Models Portal, specific Disease Portals, or individual strain pages. Out of 3868 registered strains (Aug 2022), about one third (1341 strains) are annotated with qualitative disease or phenotype annotations and about the same percentage (1279/3868) with quantitative measurements. The quantitative measurements stored in the PhenoMiner tool provide measurement values of phenotypes in studied rats and can be used as references when selecting rat strains for comparison. If available, the sequence variations of selected strains are listed in the Variant Visualizer tool. The provision of rat strain phenotype data linked to the genome variations has further enhanced the contribution of RGD to the disease research community.



Search

Analysis and Visualization

- JBrowse Genome Browser
- Variant Visualizer
- OLGA Gene List Generator
- MOET Multi-Ontology Enrichment
- Disease Portals
- OntoMate Advanced Literature Search
- Pathway Explorer
- Interviewer Protein-Protein Interactions
- Genome Information
- Phenotypes and Models
- GA Tool Gene Annotator
- Ratmine

Rat Genetic Models

Model ID	Strain	Gene	Allele	Method	Availability	Phenotype	Physiology	Age and Sex
00001	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
00002	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
00003	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
00004	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
00005	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult

Variant Visualizer

Select an Assembly: mRatBN7.2 Assembly

Select Strains: [] Limit by Genes: []

Select Sequence Tracks: [] Search by Gene Position based on an individual gene or gene list

Limit by Position: [] Search by Function: []

A region can be defined using a genomic position or 2 gene/CDSP tracks located on the same chromosome

Build a gene list based on one or more ontology annotations

Variant Distribution

Chromosome: [] Gene Position: [] Step Position: [] Region Size: [] Position: []

Phenotypes and Models

Welcome to the Phenotypes & Models Portal within RGD. This portal contains data related to rat strains and phenotypes, as well as essential information for conducting physiological research, identifying disease models, and community forums for gathering feedback from the scientific community. Please feel free to contact us with suggestions for additional data or tools that would help advance your research.

Phenominer

Find Models of Disease or Phenotype

All Rat Genetic Models

Hybrid Rat Diversity Panel Portal

Phenotypes in other animal models

Autism Rat Model Resource

Phylogenetics

Rat Models Results

Model ID	Strain	Gene	Allele	Method	Availability	Phenotype	Physiology	Age and Sex
00001	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
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00003	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
00004	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult
00005	Wistar-Kyoto	Angiotensinogen	129/Ola	Genetic	2/16	High blood pressure	Cardiovascular	Adult

PhenoMiner Database

Select a Category to filter in the table, then select values from categories of interest and select "Generate Report" to build report

Rat Strains

Clinical Measurements

Measurement Methods

Experimental Conditions

Measurements

Display mean arterial blood pressure

Color by selected 3 conditions

Grouped by strains

Strains

Display three phenotypes by colors

Grouped by sex

Conditions

Display three phenotypes by colors

Grouped by sex