Rat strain curation updates at the Rat Genome Database

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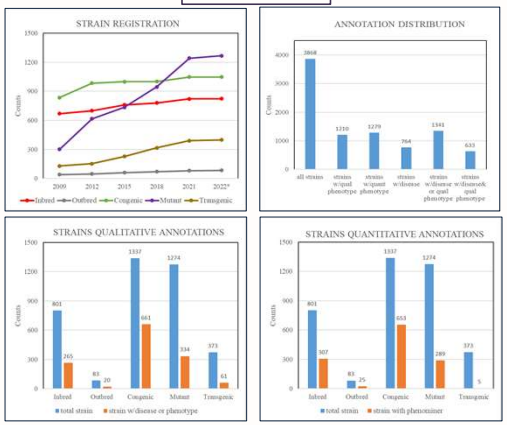
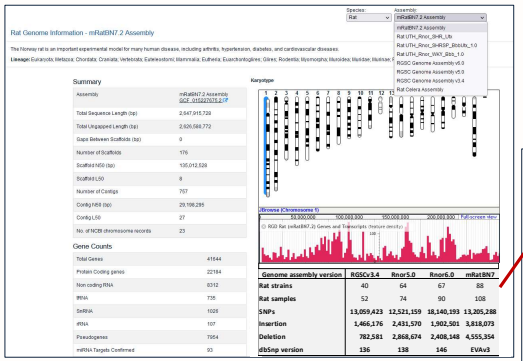
Abstract

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 phenome 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.

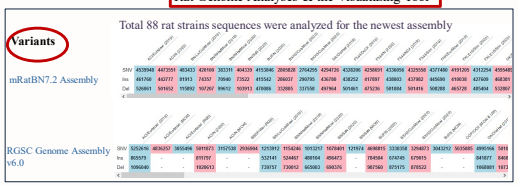
RGD Rat Strain curation

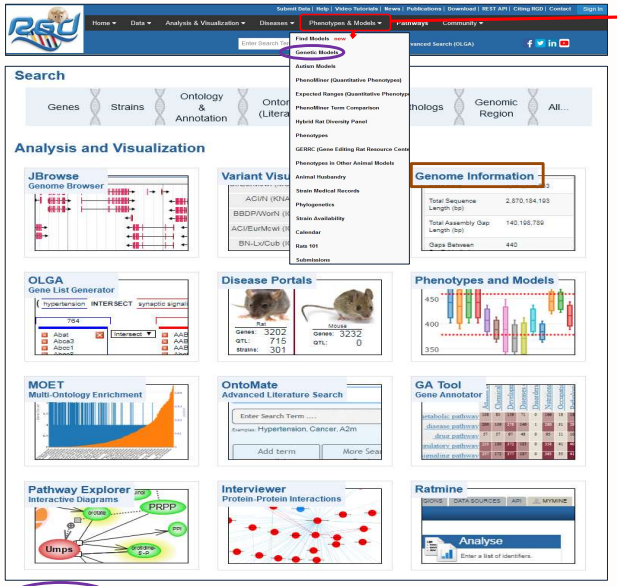


Rat Genome information

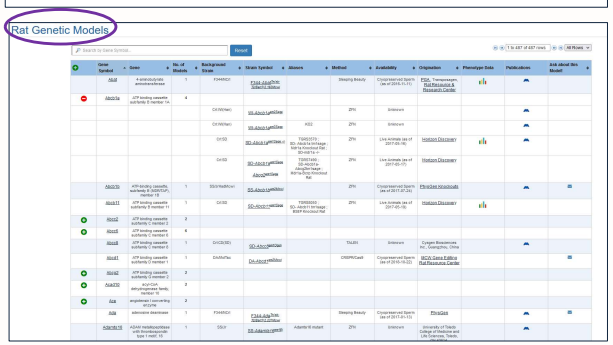


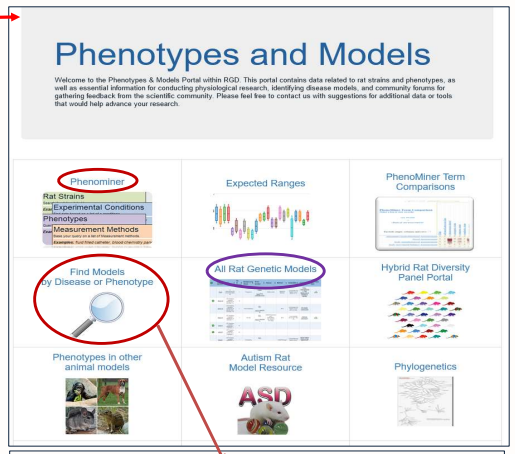
Rat Genome Analyses & the Visualizing Tool

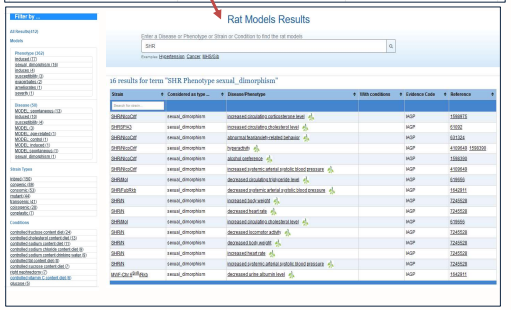


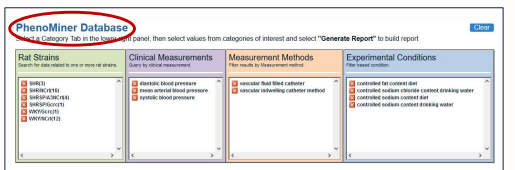


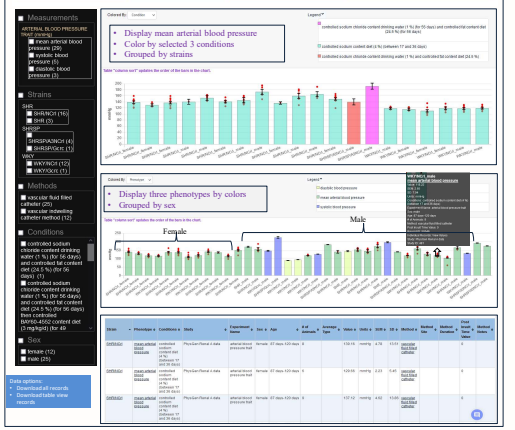
Rat Genetic Models

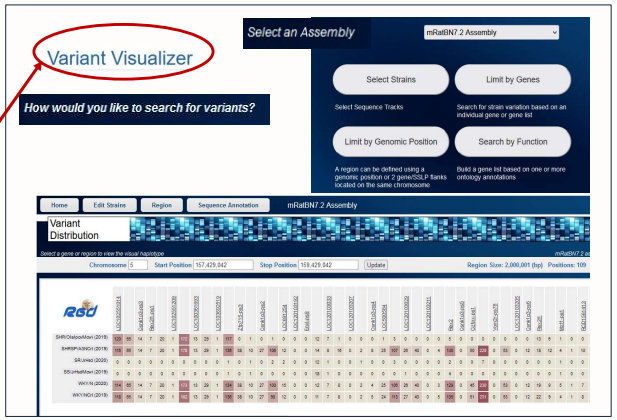












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