

Rat Genome Database

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Photography permitted



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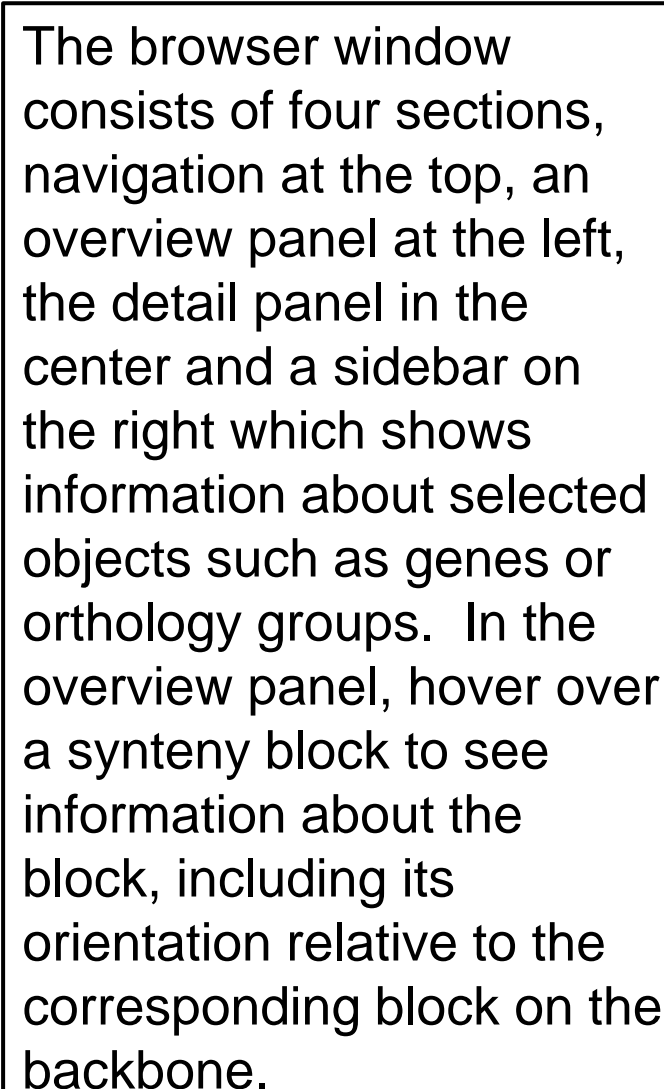


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Rat Genome Database (RGD, <https://rgd.mcw.edu>), a cross-species knowledgebase and the premier online resource for rat genetic and physiologic data, has recently added an updated and expanded version of the Virtual Comparative Map tool (VCMap) to its suite of innovative analysis tools. VCMap was originally developed as a web application using rat and human radiation hybrid maps. An intermediate Java applet version included early genome assemblies of rat, mouse and human, and added agricultural species cow, pig, horse and chicken. The current version uses a synteny algorithm and multiple earlier and current genome assemblies of six species: rat, human, mouse, pig, bonobo and green monkey, with the addition of more species and genome assemblies in development. Substantial improvements have been made to performance and navigation. Examining syntenic regions across up to six species at the same time is possible, and comparing additional species, as well as comparing different assemblies of the same species will be possible in the future. A use case scenario is presented involving interspecies gene synteny determination and analysis. In addition to genes, tracks for data such as genomic variant densities can be added to the display. The improved and expanded VCMap tool provides valuable functionality for researchers engaging in comparative genomics and translational medicine.



Select a backbone species and a genomic region to view, then choose one or more comparator species. The region can be specified by entering a gene, a chromosomal position or two flanking genes.

The screenshot shows the UCSC Genome Browser interface for chromosome 1. The top track displays genomic coordinates (158,355,000 to 158,355,100) and gene models for *Ptort*, *LOC101217*, *LOC101218*, *LOC101219*, *LOC101220*, *LOC101221*, *LOC101222*, *LOC101223*, *LOC101224*, *LOC101225*, *LOC101226*, *LOC101227*, *LOC101228*, *LOC101229*, *LOC101230*, *LOC101231*, *LOC101232*, *LOC101233*, *LOC101234*, *LOC101235*, *LOC101236*, *LOC101237*, *LOC101238*, *LOC101239*, *LOC101240*, *LOC101241*, *LOC101242*, *LOC101243*, *LOC101244*, *LOC101245*, *LOC101246*, *LOC101247*, *LOC101248*, *LOC101249*, *LOC101250*, *LOC101251*, *LOC101252*, *LOC101253*, *LOC101254*, *LOC101255*, *LOC101256*, *LOC101257*, *LOC101258*, *LOC101259*, *LOC101260*, *LOC101261*, *LOC101262*, *LOC101263*, *LOC101264*, *LOC101265*, *LOC101266*, *LOC101267*, *LOC101268*, *LOC101269*, *LOC101270*, *LOC101271*, *LOC101272*, *LOC101273*, *LOC101274*, *LOC101275*, *LOC101276*, *LOC101277*, *LOC101278*, *LOC101279*, *LOC101280*, *LOC101281*, *LOC101282*, *LOC101283*, *LOC101284*, *LOC101285*, *LOC101286*, *LOC101287*, *LOC101288*, *LOC101289*, *LOC101290*, *LOC101291*, *LOC101292*, *LOC101293*, *LOC101294*, *LOC101295*, *LOC101296*, *LOC101297*, *LOC101298*, *LOC101299*, *LOC101300*, *LOC101301*, *LOC101302*, *LOC101303*, *LOC101304*, *LOC101305*, *LOC101306*, *LOC101307*, *LOC101308*, *LOC101309*, *LOC101310*, *LOC101311*, *LOC101312*, *LOC101313*, *LOC101314*, *LOC101315*, *LOC101316*, *LOC101317*, *LOC101318*, *LOC101319*, *LOC101320*, *LOC101321*, *LOC101322*, *LOC101323*, *LOC101324*, *LOC101325*, *LOC101326*, *LOC101327*, *LOC101328*, *LOC101329*, *LOC101330*, *LOC101331*, *LOC101332*, *LOC101333*, *LOC101334*, *LOC101335*, *LOC101336*, *LOC101337*, *LOC101338*, *LOC101339*, *LOC101340*, *LOC101341*, *LOC101342*, *LOC101343*, *LOC101344*, *LOC101345*, *LOC101346*, *LOC101347*, *LOC101348*, *LOC101349*, *LOC101350*, *LOC101351*, *LOC101352*, *LOC101353*, *LOC101354*, *LOC101355*, *LOC101356*, *LOC101357*, *LOC101358*, *LOC101359*, *LOC101360*, *LOC101361*, *LOC101362*, *LOC101363*, *LOC101364*, *LOC101365*, *LOC101366*, *LOC101367*, *LOC101368*, *LOC101369*, *LOC101370*, *LOC101371*, *LOC101372*, *LOC101373*, *LOC101374*, *LOC101375*, *LOC101376*, *LOC101377*, *LOC101378*, *LOC101379*, *LOC101380*, *LOC101381*, *LOC101382*, *LOC101383*, *LOC101384*, *LOC101385*, *LOC101386*, *LOC101387*, *LOC101388*, *LOC101389*, *LOC101390*, *LOC101391*, *LOC101392*, *LOC101393*, *LOC101394*, *LOC101395*, *LOC101396*, *LOC101397*, *LOC101398*, *LOC101399*, *LOC101400*, *LOC101401*, *LOC101402*, *LOC101403*, *LOC101404*, *LOC101405*, *LOC101406*, *LOC101407*, *LOC101408*, *LOC101409*, *LOC101410*, *LOC101411*, *LOC101412*, *LOC101413*, *LOC101414*, *LOC101415*, *LOC101416*, *LOC101417*, *LOC101418*, *LOC101419*, *LOC101420*, *LOC101421*, *LOC101422*, *LOC101423*, *LOC101424*, *LOC101425*, *LOC101426*, *LOC101427*, *LOC101428*, *LOC101429*, *LOC101430*, *LOC101431*, *LOC101432*, *LOC101433*, *LOC101434*, *LOC101435*, *LOC101436*, *LOC101437*, *LOC101438*, *LOC101439*, *LOC101440*, *LOC101441*, *LOC101442*, *LOC101443*, *LOC101444*, *LOC101445*, *LOC101446*, *LOC101447*, *LOC101448*, *LOC101449*, *LOC101450*, *LOC101451*, *LOC101452*, *LOC101453*, *LOC101454*, *LOC101455*, *LOC101456*, *LOC101457*, *LOC101458*, *LOC101459*, *LOC101460*, *LOC101461*, *LOC101462*, *LOC101463*, *LOC101464*, *LOC101465*, *LOC101466*, *LOC101467*, *LOC101468*, *LOC101469*, *LOC101470*, *LOC101471*, *LOC101472*, *LOC101473*, *LOC101474*, *LOC101475*, *LOC101476*, *LOC101477*, *LOC101478*, *LOC101479*, *LOC101480*, *LOC101481*, *LOC101482*, *LOC101483*, *LOC101484*, *LOC101485*, *LOC101486*, *LOC101487*, *LOC101488*, *LOC101489*, *LOC101490*, *LOC101491*, *LOC101492*, *LOC101493*, *LOC101494*, *LOC101495*, *LOC101496*, *LOC101497*, *LOC101498*, *LOC101499*, *LOC101500*, *LOC101501*, *LOC101502*, *LOC101503*, *LOC101504*, *LOC101505*, *LOC101506*, *LOC101507*, *LOC101508*, *LOC101509*, *LOC101510*, *LOC101511*, *LOC101512*, *LOC101513*, *LOC101514*, *LOC101515*, *LOC101516*, *LOC101517*, *LOC101518*, *LOC101519*, *LOC101520*, *LOC101521*, *LOC1015*

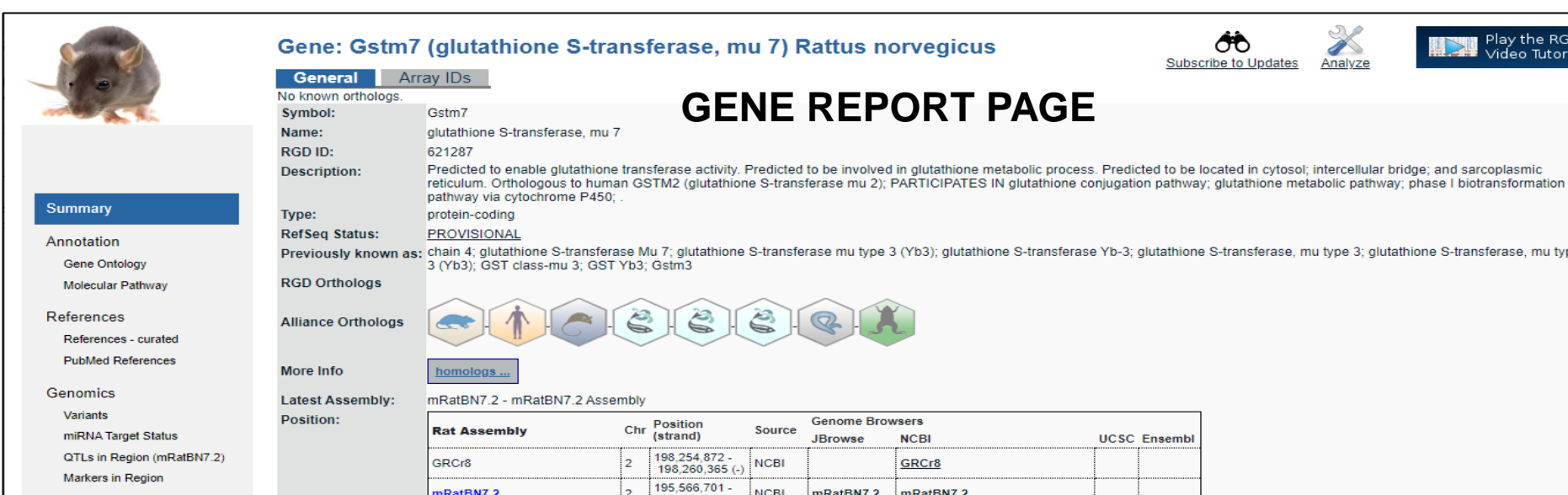
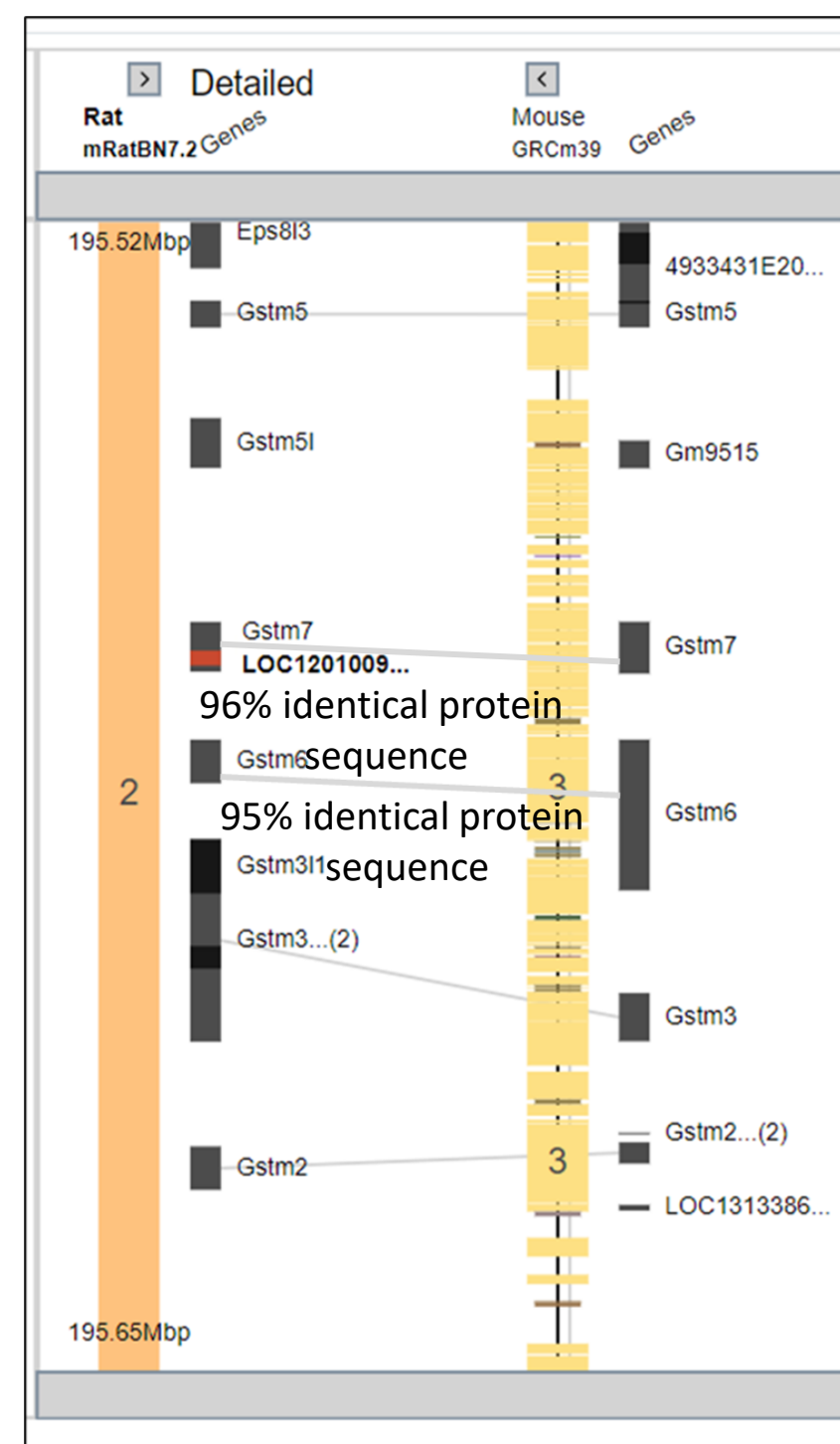
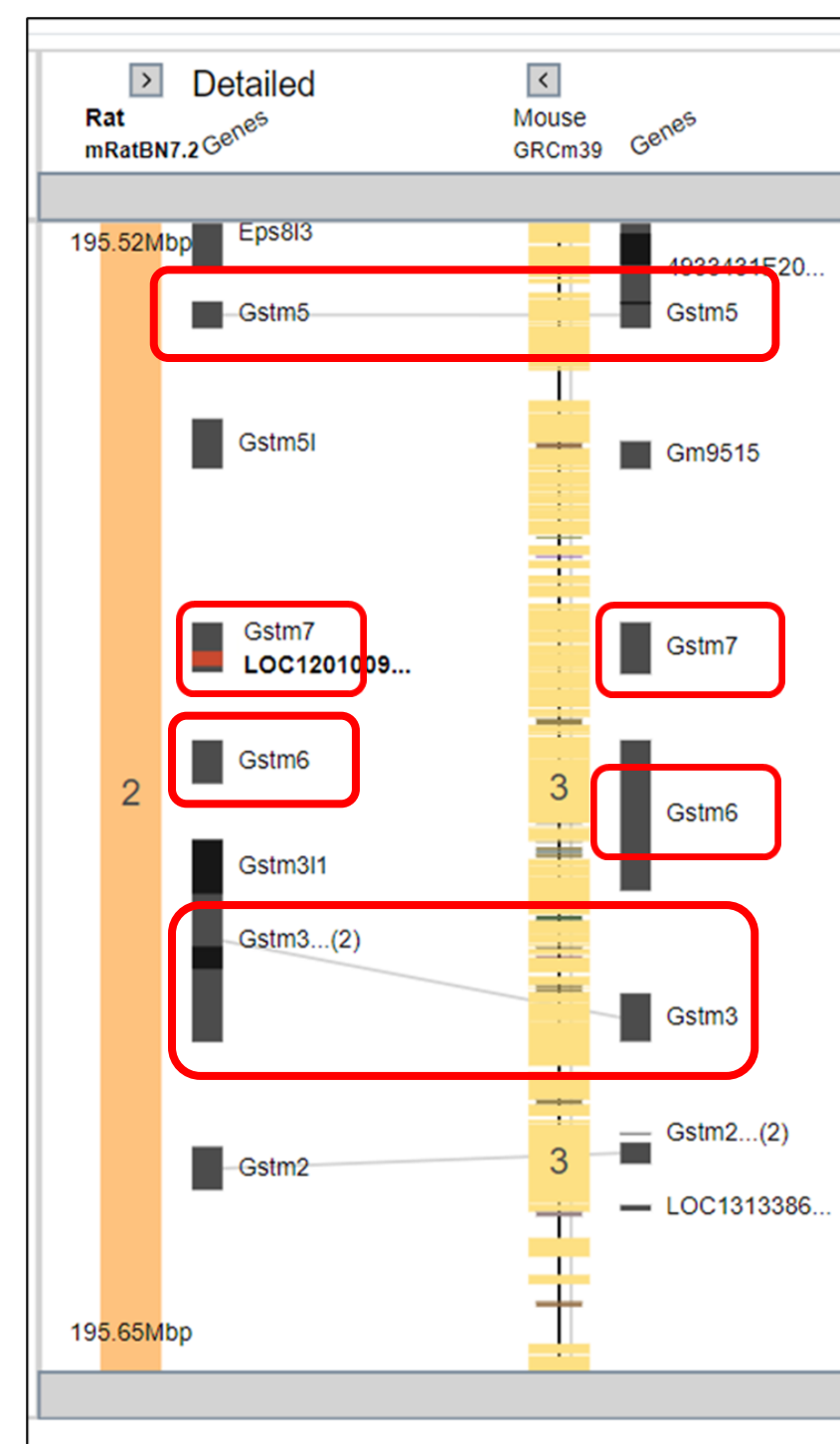
Changing the backbone species from rat to human makes it possible to add additional species to the display based on the synteny data available. As shown in the callout, the "Settings" icon provides access to a popup page where species can be added or removed and additional data tracks, currently variant density tracks, can be added to the display.

```

93.62% identity (98.5% similar)
      20          30          40
EYTDSSYYEKKRYVTMGDAPDQVDGQSWLNEKFK
.....
EYTDSSYYEKKRYVTMGDAPDQDPRDSQWLNEKFK
      30          40          50

62.5 bits: 313.1 E(7) 3.7e-90
94.7% identity (98.1% similar)
      40          50          60
NPMDFVARFELGHAIRLLLEYTSGYEKKRYV
.....
VTLGWDIRGLGHAIRLLLEYTSGYEKKRYV

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