Hybrid Rat Diversity Program (HRDP): Progress report and future plans

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The Hybrid Rat Diversity Program (HRDP) at the Medical College of Wisconsin (MCW) is an NIH Office of Research Infrastructure Program (ORIP) funded resource to establish the 97 strain Hybrid Rat Diversity Panel comprised of 33 classic inbred strains and two panels of recombinant inbred strains (30 HXB/BXH, 34 FXLE/LEXF) through embryo rederivation and importation, to characterize, maintain and distribute the HRDP, and provide genomic and transcriptomic sequencing of the HRPD. Data analysis and dissemination of HRDP strain data is done primarily through the Rat Genome Database (RGD). Currently, 91% of the classic inbred and 75% of the RI strains are available for experiments. Whole genome sequencing of all available classic inbred strains has been completed, while 80% of the RI strains have been sequenced. Strain specific variants are available at the Rat Genome Database through the HRDP Portal, the strain pages, and genomic tools. RNA sequencing of kidney, thymus, gastrocnemius, and retroperitoneal fat pad are underway for the classic inbred strains. Through the revamped HRDP Portal, users can learn more about the diversity of the panel, see which strains are available, and explore and analyze phenotype and genomic data. The HRDP will provide a genetically stable population of rat strains will fully sequenced genomes, transcriptomes for several tissues, and general phenotypic characterization to be used for systems genetics and fine mapping of complex traits. Funding: National Institutes of Health, Office of the Director, R24OD024617.