GADDNET: A Platform for Connecting Researchers via the Genes and Diseases They Studied and Will Study

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Authors, Genes, Diseases, and Drugs in a Network (GADDNET) is a web-based platform that connects researchers and institutions via the genes and diseases they study. GADDNET can help researchers to explore understudied genes and enhance opportunities for collaborations. The platform integrates multiple datasets and presents these datasets to the user as a network centered on a researcher, a gene, a drug, or a disease. The nodes in this network are connected based on published genes and proteins, diseases, and drugs, as well as predicted relevant genes. GADDNET has the potential to dramatically accelerate the progress of drug and target discovery. The goal of the project is to create a web-based and mobile app that dynamically creates networks linking data centered around a specific researcher, a gene, a drug, or a disease. For example, the app uses the researcher's name to look up the genes, the drugs, and the diseases they have published. These genes, drugs and diseases are found in PubMed abstracts. The genes, drugs, and diseases found are used to identify other researchers who have published research about the same genes, drugs, and diseases. The marquee feature of the platform is that the app also provides genes and drugs predicted to be similar in function to the genes and drugs the researcher has published. These predicted genes and drugs are found based on gene-gene and drug-drug similarity matrices constructed from several different resources. These connections may help researchers identify understudied genes that could become key drug targets and drivers of disease mechanisms, as well as identify opportunities for drug repurposing.

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