Illuminating the Druggable Genome (IDG)

Out of the nearly 20,000 protein-coding genes in the human genome, approximately 3,000 are estimated to be part of the druggable genome, the subset of genes expressing proteins with the ability to bind drug-like molecules. Yet, less than ten percent of the druggable proteins are currently targeted by FDA-approved drugs.

The overall goal of the IDG Program is to catalyze research in areas of biology that are currently understudied but that have high potential to impact human health by (1) identifying biochemical, cellular, or animal model phenotypes for understudied proteins from druggable gene families, (2) enabling further investigation of those proteins by providing reagents and tools, and (3) generating, maintaining, and facilitating the use of a minable knowledge base.

Three protein families, the non-olfactory G Protein-Coupled Receptors, kinases, and ion channels, are the focus of the IDG program. These three families contain a number of understudied members and are well-established druggable families with high potential to impact human health if disease associations can be made.

The IDG program is planning to reissue RFA-RM-18-021 "Pilot Projects Investigating Understudied G Protein-Coupled Receptors, Ion Channels, and Protein Kinases (R03 Clinical Trial Not Allowed)".

These awards will support pilot projects on IDG-eligible understudied proteins, and/or validate and demonstrate the utility of IDG reagents, data and approaches. The intent of these pilot projects is to elucidate the function of these proteins in the context of human disease and obtain sufficient preliminary/validation data for subsequent R01 applications or drug discovery projects.

Data collected by these projects will enhance the overall goals of the IDG Program by demonstrating the quality and utility of IDG-generated data and reagents to the scientific community, increasing awareness of the IDG Program through use of IDG-generated resources, and extending the characterization of IDG-eligible proteins.

83 applications were received in response to the first solicitation and there were 16 highly meritorious (PS <30) of which we will only be able to fund 6-7. These one-year small awards (100K direct costs) are quite consistent with the goals of the program: increasing research on understudied proteins and demonstrating the value of program-generated resources. The second solicitation with an application due date of October 2019 will support an additional 9-11 awards with $1.75M funds available