

To classify genes by categories and subcategories, we used ChatGPT 4o LLM. Here is the prompt that we used: *'Please classify the genes by their broad categories and subcategories based on their biological functions and roles. Use two layers of classification: categories and subcategories, for example, Immune system genes will be a category and Cytokines will be a subcategory. Don't use Miscellaneous or Other classification. Use up to nine categories for the first layers of classification. Output the results in the data frame: Category - subcategory - gene. Here is the list of genes to classify:...'*