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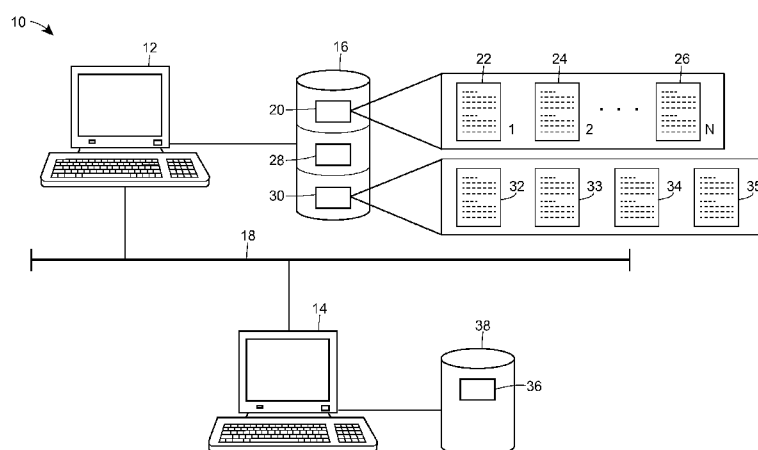
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(54) **Title:** METHODS FOR EVALUATING EFFECTS OF A TREATMENT ON BIOLOGICAL PROCESSES AND PATHWAYS

**FIG. 1**

(57) **Abstract:** Provided are methods, systems and apparatus for identifying mechanisms of actions of agents with desired biological activity. Specifically, the methods, systems, and apparatus identify the target biological processes and pathways through which a beneficial treatment effect is accomplished by an ingredient or compound of interest. For each of a set of target biological processes and pathways, a treatment vector representing the difference in expression of the genes of the biological process or pathway when treated with the ingredient or compound of interest is compared to a clinical vector representing the difference in the expression of genes in the presence or absence of a clinical condition. Vector distance between the two vectors is compared to vector distances for other compounds and/or biological processes and pathways to determine the significance of the effect of the ingredient or compound of interest on the particular biological process or pathway.

