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(54) Title: SYSTEM AND METHOD FOR MODELING GENETIC, BIOCHEMICAL, BIOPHYSICAL AND ANATOMICAL INFORMATION

(57) Abstract

Genetic, biochemical, biophysical and anatomical information is integrated at the cellular and subcellular level. At least one database containing biological information is used to generate at least one data structure having at least one attribute associated therewith. An interface interactively views and links together attributes of a plurality of data structures to create at least one hierarchical description of subcellular and cellular function. A computational engine generates at least one data structure from the hierarchical description. Genetic information is accessed, tabulated and combined with functional information on the biochemical and physiological role of gene products. Computational models of genetic, biochemical and biophysical processes within cells are automatically formulated, solved and analyzed based on combination of genetic and functional information adduced. A dynamic tool is thereby provided for achieving objectives, such as increased understanding of biological processes, identification of new drug targets for therapeutic intervention and predictions involving the outcome of drug screening.