



OPTIMIZATION

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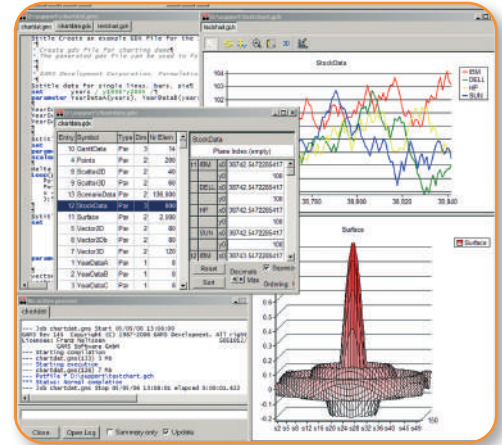
GAMS

High-Level Modeling

The General Algebraic Modeling System (GAMS) is a high-level modeling system for mathematical programming problems. GAMS is tailored for complex, large-scale modeling applications, and allows you to build large maintainable models that can be adapted quickly to new situations. Models are fully portable from one computer platform to another.

State-of-the-Art Solvers

GAMS incorporates all major commercial and academic state-of-the-art solution technologies for a broad range of problem types.



GAMS Integrated Developer Environment for editing, debugging, solving models, and viewing data.

Integer Optimization for Identification of Drug Effects

Understanding the mechanisms of cell function is a major challenge for the scientific community and a cornerstone for drug development. An interdisciplinary team at the National Technical University Athens and the Massachusetts Institute of Technology developed a methodology integrating high-throughput experiments with state-of-the-art combinatorial optimization, building on existing boolean models of signaling pathways.

- Phosphoproteomic experiments are performed in normal and cancer liver cells with and without the influence of drugs.
- The signaling pathways in each case are identified by an integer linear programming formulation.
- The computational time is orders of magnitude faster than previous approaches allowing for larger pathways and data sets.
- Known and unknown drug effects (shown in red) are identified by comparing the two networks.

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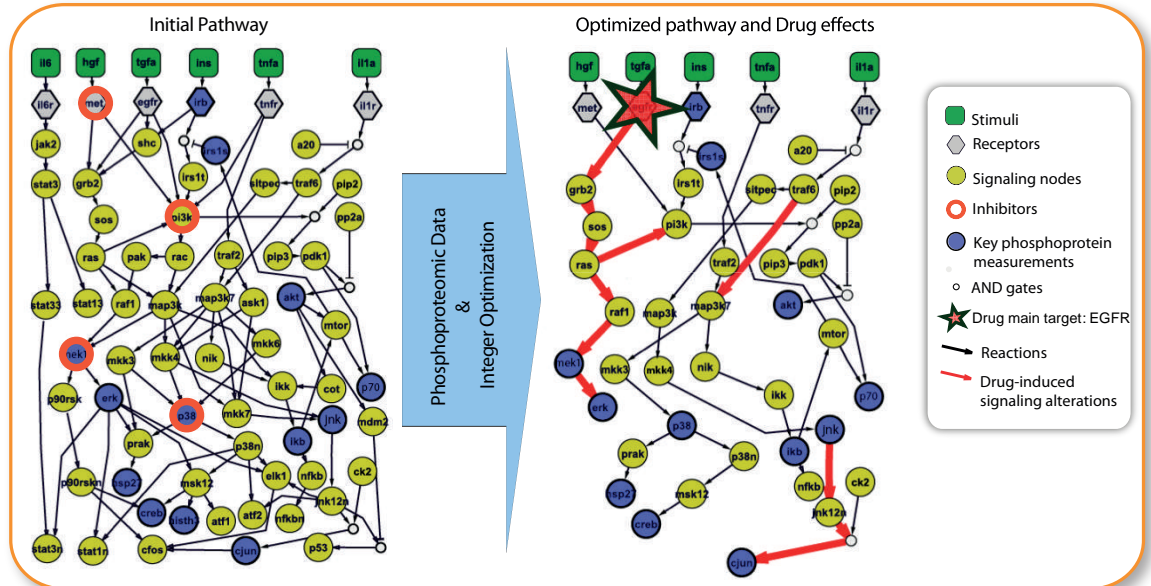
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For more information about this application please contact Alexander Mitsos
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