Identification of the most plausible metabolic pathways in perturbed metabolic systems

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A synergetical implementation of accelerated branch-and-bound method and graph-theoretic method based on P-graphs to metabolic pathway networks tends to yield the most plausible stoichiometrically feasible pathways. An effective approach has been proposed based on an available accelerated branch-and-bound to rank the growth rate maximization and minimization of the set of genetic perturbations of such stochiometrically feasible pathways. The approach's efficacy has been ascertained by applying to various biological systems.

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