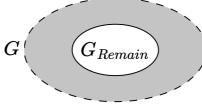
DBgDel

STEP 1

MetNetComp Database

Known gene deletion strategies from the database

Calculate shared remaining genes from maximal gene deletion strategies



Shared remaining genes of the genes given CBM



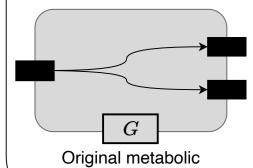
 G_{Remain} as the initial remaining gene pool

 $ig(G_{Remain} = \{g_1, \dots, g_n\}ig)$

STEP 2

Initialization with initial remaining gene pool gDel_minRN
Algorithm

Mixed-integer linear programming-based gene deletion algorithm

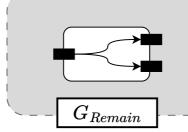


network of

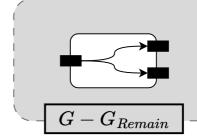
the given CBM

network according to the initial remaining genes

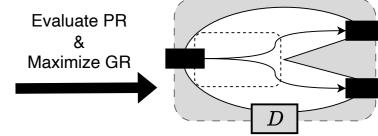
Infer sub-metabolic



The sub-metabolic network enables growth-coupled production of the given CBM



Narrowed search space based on the sub-metabolic network



Desired metabolic network enables growth-coupled production of the target metabolite