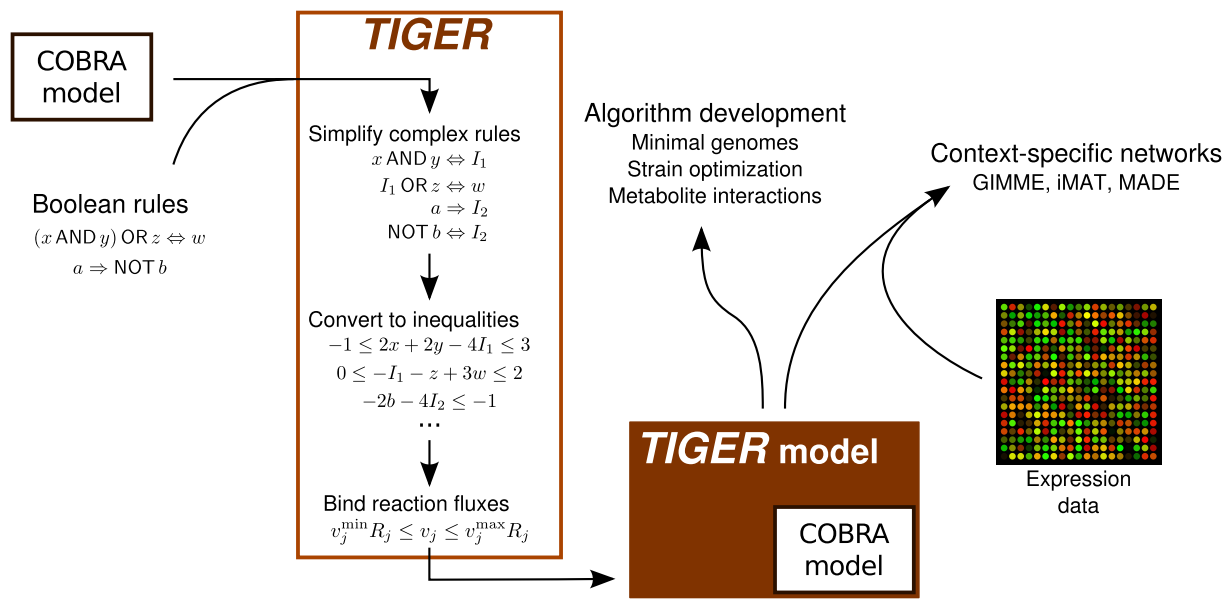
COBRA model
Boolean rules
$(x \text{ AND } y) \text{ OR } z \Leftrightarrow w$
$a \Rightarrow \text{NOT } b$
TIGER
Simplify complex rules
$x \text{ AND } y \Leftrightarrow I_1$
$I_1 \text{ OR } z \Leftrightarrow w$
$a \Rightarrow I_2$
$\text{NOT } b \Leftrightarrow I_2$
Convert to inequalities
$-1 \leq 2x + 2y - 4I_1 \leq 3$
$0 \leq -I_1 - z + 3w \leq 2$
$-2b - 4I_2 \leq -1$
...
Bind reaction fluxes
$v_j^{\min} R_j \leq v_j \leq v_j^{\max} R_j$
Algorithm development
Minimal genomes
Strain optimization
Metabolite interactions
Context-specific networks
GIMME, iMAT, MADE
TIGER model
COBRA model
Expression data