

**CoreSBML**  
Networks/BioModels/curated/B023.xml: Rohwer2001\_Sucrose  
Presented by BioComputing's Network-Graph Tool

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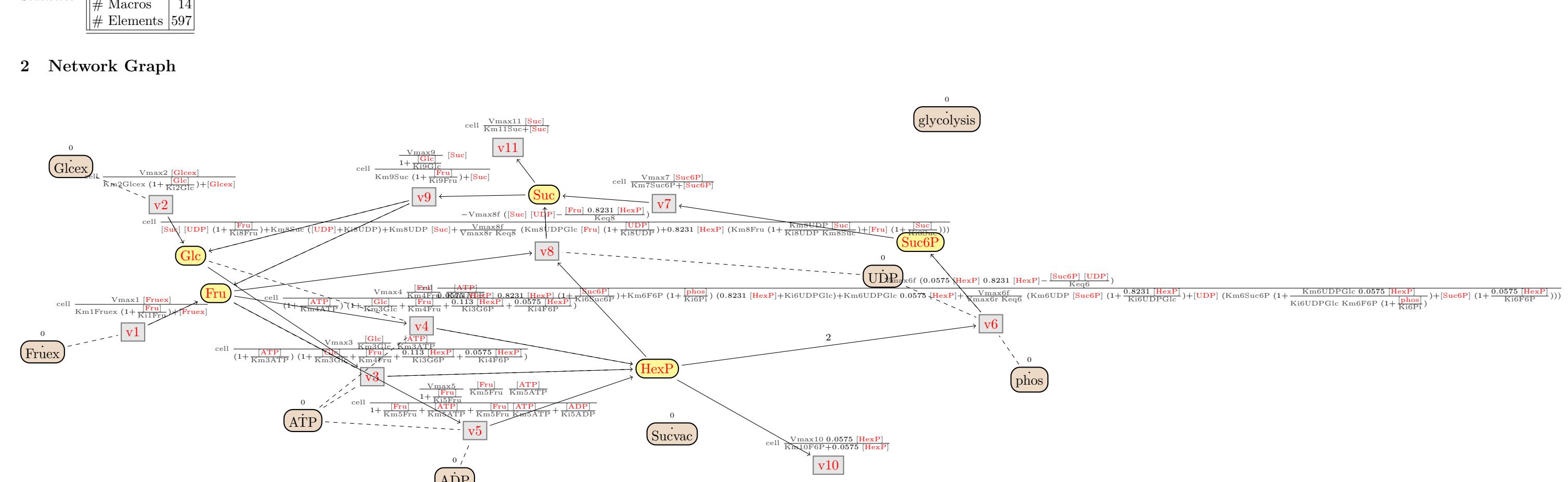
## 1 Reaction Network

Source File: Networks/BioModels/curated/B023.xml from CoreSBML.

Tool: BioComputing's Network-Graph Tool Version 1.99

Application Date: February 21, 2024

## 2 Network Graph



## 3 Initial values

Initial values of species	
[Fru]	= 1
[Glc]	= 1
[HesP]	= 1
[SnfD]	= 1
[Suc]	= 1
[Sucne]	= 0
[glycolysis]	= 0
[phos]	= 0
[UDP]	= 0
[ADP]	= 0
[ATP]	= 0
[ATP]	= 0
[Glex]	= 0
[Fruex]	= 0
[cell]	= 1

## 4 Equations over time

Macro definitions	
[Fru]	= [Fru]
[Glc]	= [Glc]
[HesP]	= [HesP]
[SnfD]	= [SnfD]
[Suc]	= [Suc]
[Sucne]	= [Sucne]
[glycolysis]	= [glycolysis]
[phos]	= [phos]
[UDP]	= [UDP]
[ADP]	= [ADP]
[ATP]	= [ATP]
[ATP]	= [ATP]
[Glex]	= [Glex]
[Fruex]	= [Fruex]
[cell]	= 1

Algebraic and differential variables	
Sucne	= 0
glycolysis	= 0
phos	= 0
UDP	= 0
ADP	= 0
ATP	= 0
Glex	= 0
Fruex	= 0

Kinetic laws of reactions	
v1 = cell $\frac{V_{max1} [\text{Fruex}]}{Km[\text{Fruex}] (1 + \frac{[\text{Glc}]}{Km[\text{Glc}]} + \frac{[\text{Fru}]}{Km[\text{Fru}]})}$	where $\begin{cases} V_{max1} = 0.296 \\ Km[\text{Fruex}] = 0.2 \\ Km[\text{Glc}] = 1 \\ Km[\text{Fru}] = 1 \end{cases}$
v2 = cell $\frac{V_{max2} [\text{Glex}]}{Km[\text{Glex}] (1 + \frac{[\text{Glc}]}{Km[\text{Glc}]} + \frac{[\text{Fru}]}{Km[\text{Fru}]})}$	where $\begin{cases} V_{max2} = 0.296 \\ Km[\text{Glex}] = 1 \\ Km[\text{Glc}] = 1 \\ Km[\text{Fru}] = 1 \end{cases}$
v3 = cell $\frac{V_{max3} \frac{[\text{ATP}]}{Km[\text{ATP}]} \frac{[\text{Glc}]}{Km[\text{Glc}]} \frac{[\text{Fru}]}{Km[\text{Fru}]}}{(1 + \frac{[\text{ATP}]}{Km[\text{ATP}]} + \frac{[\text{Glc}]}{Km[\text{Glc}]} + \frac{[\text{Fru}]}{Km[\text{Fru}]})}$	where $\begin{cases} V_{max3} = 0.197 \\ Km[\text{ATP}] = 0.07 \\ Km[\text{Glc}] = 0.7 \\ Km[\text{Fru}] = 0.25 \\ Km[\text{ATP}] = 10 \\ Km[\text{Glc}] = 0.1 \\ Km[\text{Fru}] = 10 \\ Km[\text{ATP}] = 10 \end{cases}$
v4 = cell $\frac{V_{max4} \frac{[\text{ATP}]}{Km[\text{ATP}]} \frac{[\text{Glc}]}{Km[\text{Glc}]} \frac{[\text{Fru}]}{Km[\text{Fru}]}}{(1 + \frac{[\text{ATP}]}{Km[\text{ATP}]} + \frac{[\text{Glc}]}{Km[\text{Glc}]} + \frac{[\text{Fru}]}{Km[\text{Fru}]})}$	where $\begin{cases} V_{max4} = 0.25 \\ Km[\text{ATP}] = 0.25 \\ Km[\text{Glc}] = 0.07 \\ Km[\text{Fru}] = 0.1 \\ Km[\text{ATP}] = 10 \end{cases}$
v5 = cell $\frac{V_{max5} \frac{[\text{ATP}]}{Km[\text{ATP}]} \frac{[\text{Glc}]}{Km[\text{Glc}]} \frac{[\text{Fru}]}{Km[\text{Fru}]}}{(1 + \frac{[\text{ATP}]}{Km[\text{ATP}]} + \frac{[\text{Glc}]}{Km[\text{Glc}]} + \frac{[\text{Fru}]}{Km[\text{Fru}]})}$	where $\begin{cases} V_{max5} = 0.164 \\ Km[\text{ATP}] = 0.164 \\ Km[\text{Glc}] = 0.7 \\ Km[\text{Fru}] = 12 \\ Km[\text{ATP}] = 10 \\ Km[\text{Glc}] = 0.1 \\ Km[\text{Fru}] = 10 \\ Km[\text{ATP}] = 10 \end{cases}$
v6 = cell $\frac{V_{max6} (0.0575 [\text{HesP}] 0.8231 [\text{HesP}] - \frac{[\text{SnfD}][\text{UDP}]}{Km[\text{SnfD}]})}{(0.8231 [\text{HesP}] + Km[\text{UDP}][\text{SnfD}] 0.0575 [\text{HesP}] + \frac{[\text{SnfD}][\text{UDP}]}{Km[\text{SnfD}]})}$	where $\begin{cases} V_{max6} = 0.379 \\ Km[\text{SnfD}] = 10 \\ Km[\text{HesP}] = 0.07 \\ Km[\text{UDP}] = 0.6 \\ Km[\text{HesP}] = 3 \\ Km[\text{SnfD}] = 1.4 \\ Km[\text{UDP}] = 1.8 \\ Km[\text{SnfD}] = 0.2 \\ Km[\text{HesP}] = 0.3 \\ Km[\text{SnfD}] = 0.1 \\ Km[\text{HesP}] = 0.4 \end{cases}$
v7 = cell $\frac{V_{max7} [\text{SnfD}]}{Km[\text{SnfD}] [\text{SnfD}]}$	where $\begin{cases} V_{max7} = 0.5 \\ Km[\text{SnfD}] = 0.1 \end{cases}$
v8 = cell $-\frac{V_{max8} ([\text{UDP}] - \frac{[\text{SnfD}][\text{UDP}]}{Km[\text{SnfD}]})}{Km[\text{UDP}] ([\text{UDP}] + Km[\text{UDP}] + Km[\text{UDPGlc}] [\text{Fru}])}$	where $\begin{cases} V_{max8} = 0.379 \\ Km[\text{SnfD}] = 4 \\ Km[\text{UDP}] = 0.3 \\ Km[\text{UDPGlc}] = 0.3 \\ Km[\text{Fru}] = 40 \end{cases}$
v9 = cell $\frac{-V_{max9} [\text{Suc}]}{Km[\text{Suc}] (1 + \frac{[\text{Suc}]}{Km[\text{Suc}]})}$	where $\begin{cases} V_{max9} = 0.372 \\ Km[\text{Suc}] = 15 \\ Km[\text{Suc}] = 10 \\ Km[\text{Suc}] = 15 \\ Km[\text{Suc}] = 10 \end{cases}$
v10 = cell $\frac{V_{max10} 0.0575 [\text{HesP}]}{Km[\text{HesP}] 0.0575 [\text{HesP}]}$	where $\begin{cases} V_{max10} = 0.1 \\ Km[\text{HesP}] = 0.2 \end{cases}$
v11 = cell $\frac{V_{max11} [\text{Suc}]}{Km[\text{Suc}] [\text{Suc}]}$	where $\begin{cases} V_{max11} = 1 \\ Km[\text{Suc}] = 100 \end{cases}$

Differential equations of species	
$\dot{Fru} = v1 - v2 - v5 - v8 + v9$	
$\dot{Glc} = v2 - v3 + v4 - v9$	
$\dot{HesP} = v3 + v4 + v5 - v6 - v6 - v8 - v10$	
$\dot{SnfD} = v6 - v7$	
$\dot{Suc} = v7 + v8 - v9 - v11$	