

glycolysis_pathway_1997

1 “global_variables” component

This component has no equations.

2 “Glc” component

$$\frac{d(\text{Glc})}{d(\text{time})} = \text{delta_Glc_rxn1}$$

3 “Glc_C” component

$$\frac{d(\text{Glc_C})}{d(\text{time})} = (\text{delta_Glc_C_rxn1} + \text{delta_Glc_C_rxn2})$$

4 “G6P” component

$$\frac{d(\text{G6P})}{d(\text{time})} = (\text{delta_G6P_rxn2} + \text{delta_G6P_rxn3} + \text{delta_G6P_rxn14a})$$

5 “F6P” component

$$\frac{d(\text{F6P})}{d(\text{time})} = (\text{delta_F6P_rxn3} + \text{delta_F6P_rxn4})$$

6 “GAP” component

$$\frac{d(GAP)}{d(time)} = (delta_GAP_rxn5 + delta_GAP_rxn6 + delta_GAP_rxn7)$$

7 “PEP” component

$$\frac{d(PEP)}{d(time)} = (delta_PEP_rxn7 + delta_PEP_rxn8)$$

8 “Pyr” component

$$\frac{d(Pyr)}{d(time)} = (delta_Pyr_rxn8 + delta_Pyr_rxn9 + delta_Pyr_rxn14b)$$

9 “Pyr_M” component

$$\frac{d(Pyr_M)}{d(time)} = delta_Pyr_M_rxn13$$

10 “ALD” component

$$\frac{d(ALD)}{d(time)} = (delta_ALD_rxn9 + delta_ALD_rxn10 + delta_ALD_rxn11)$$

11 “Ac” component

$$\frac{d(Ac)}{d(time)} = delta_Ac_rxn11$$

12 “FBP” component

$$\frac{d(FBP)}{d(time)} = (delta_FBP_rxn4 + delta_FBP_rxn5)$$

13 “DHAP” component

$$\frac{d(DHAP)}{d(time)} = (delta_DHAP_rxn5 + delta_DHAP_rxn6 + delta_DHAP_rxn12)$$

14 “GLYC” component

$$\frac{d(GLYC)}{d(time)} = delta_GLYC_rxn12$$

15 “ETOH” component

$$\frac{d(ETOH)}{d(time)} = delta_ETOH_rxn10$$

16 “AMP” component

$$\frac{d(AMP)}{d(time)} = delta_AMP_rxn17$$

17 “NADH” component

$$\frac{d(NADH)}{d(time)} = (delta_NADH_rxn7 + delta_NADH_rxn10)$$

18 “NADH_M” component

$$\frac{d(NADH_M)}{d(time)} = delta_NADH_M_rxn13$$

19 “NAD” component

$$\frac{d(NAD)}{d(time)} = delta_NAD_rxn7$$

20 “NAD_M” component

$$\frac{d(NAD_M)}{d(time)} = \text{delta_NAD_M_rxn13}$$

21 “ATP” component

$$\frac{d(ATP)}{d(time)} = (\text{delta_ATP_rxn2} + \text{delta_ATP_rxn8} + \text{delta_ATP_rxn14a} + \text{delta_ATP_rxn14b} + \text{delta_ATP_rxn15} + \text{delta_ATP_rxn17} + \text{delta_ATP_rxn20})$$

22 “ATP_M” component

$$\frac{d(ATP_M)}{d(time)} = \text{delta_ATP_M_rxn15}$$

23 “ATP_G” component

$$\frac{d(ATP_G)}{d(time)} = \text{delta_ATP_G_rxn20}$$

24 “ADP” component

$$\frac{d(ADP)}{d(time)} = (\text{delta_ADP_rxn2} + \text{delta_ADP_rxn8} + \text{delta_ADP_rxn15} + \text{delta_ADP_rxn17})$$

25 “ADP_M” component

$$\frac{d(ADP_M)}{d(time)} = \text{delta_ADP_M_rxn15}$$

26 “Monomeric_building_blocks” component

$$\frac{d(Monomeric_building_blocks)}{d(time)} = (\text{delta_Monomeric_building_blocks_rxn14a} + \text{delta_Monomeric_building_blocks_rxn14b})$$

27 “PERM” component

This component has no equations.

28 “HK” component

This component has no equations.

29 “PGI” component

This component has no equations.

30 “PFK” component

This component has no equations.

31 “ALDO” component

This component has no equations.

32 “PK” component

This component has no equations.

33 “PDC” component

This component has no equations.

34 “ALDH” component

This component has no equations.

35 “ADH” component

This component has no equations.

36 “TIS” component

This component has no equations.

37 “ADK” component

This component has no equations.

38 “TR_ATP” component

This component has no equations.

39 “TR_ADP” component

This component has no equations.

40 “PDH” component

This component has no equations.

41 “RES2” component

This component has no equations.

42 “RES1” component

This component has no equations.

43 “glucose_transport_system” component

$$r_{influx} = \frac{rmax_perm * \frac{Glc}{k_Glc_1}}{\left(1.0 + \frac{Glc}{k_Glc_1} + \frac{\left(1.0 + \frac{Glc}{k_Glc_1}\right)}{\left(1.0 + \frac{Glc_C}{k_Glc_1}\right)} * \left(1.0 + \frac{Glc_C}{k_Glc_1} + \frac{G6P}{k_I_G6P_1} + \frac{Glc_C * G6P}{k_Glc_1 * k_II_G6P_1}\right)\right)}$$
$$r_{efflux} = \frac{rmax_perm * \frac{Glc_C}{k_Glc_1}}{\left(1.0 + \frac{Glc_C}{k_Glc_1} + \frac{\left(1.0 + \frac{Glc_C}{k_Glc_1}\right)}{\left(1.0 + \frac{Glc}{k_Glc_1}\right)} * \left(1.0 + \frac{Glc}{k_Glc_1} + \frac{G6P}{k_I_G6P_1} + \frac{Glc_C * G6P}{k_Glc_1 * k_II_G6P_1}\right)\right)}$$

44 “glucose_phosphorylation” component

This component has no equations.

45 “phosphoglucose_isomerisation” component

This component has no equations.

46 “fructose_6_phosphate_phosphorylation” component

$$k_{ATP_4} = k_{ATPS_4} * \left(1.0 + \frac{ADP}{k_{ADPC_4}} \right)$$
$$L4 = \frac{LO_4}{\left(\left(1.0 + \frac{F6P}{k_{F6P_4}} \right) \right)^{8.0}}$$
$$k_{F6P_4} = k_{F6PS_4} * \frac{\left(8.0 + \frac{ATP}{k_{ATP1_4}} + \frac{ADP}{k_{ADP2_4}} + \frac{AMP}{k_{AMP2_4}} \right)}{\left(8.0 + \frac{ADP}{k_{ADP1_4}} + \frac{AMP}{k_{AMP1_4}} \right)}$$

47 “FBP_splitting” component

This component has no equations.

48 “glycerol_synthesis” component

This component has no equations.

49 “PEP_synthesis” component

$$A = \left(1.0 + \frac{NAD}{k_{NAD_7}} + \frac{NADH}{k_{NADH_7}} \right)$$
$$B = \left(1.0 + \frac{NAD}{k_{NAD_7_}} + \frac{NADH}{k_{NADH_7_}} \right)$$

50 “PEP_dephosphorylation” component

This component has no equations.

51 “pyruvate_decarboxylation” component

This component has no equations.

52 “monomeric_building_block_synthesis” component

This component has no equations.

53 “alcohol_dehydrogenation” component

This component has no equations.

54 “acetaldehyde_dehydrogenation” component

This component has no equations.

55 “ATP_synthesis” component

This component has no equations.

56 “triosephosphate_isomerisation” component

This component has no equations.

57 “ATP_ADG_translocation” component

This component has no equations.

58 “ATP_for_biosynthesis” component

This component has no equations.

59 “pyruvate_dehydrogenation” component

This component has no equations.