

Equations S4. Power-Law terms in Equations S3

$$l_{1,2} = v_{1,2} \times L_1 / X_1$$

$$l_{2,3}^a = v_{2,3} \times L_2 / X_2^*$$

$$l_{2,3}^b = v_{2,3} \times L_{23} / X_{23}$$

$$l_{2,3}^c = v_{2,3} \times (L_2 U_{23} + U_2 L_{23} + L_2 L_{23}) / (X_2 X_{23})$$

$$l_{2,4} = v_{2,4} \times L_2 / X_2$$

$$l_{2,5} = v_{2,5} \times L_2 / X_2$$

$$l_{3,2} = v_{3,2} \times L_3 / X_3$$

$$l_{3,7} = v_{3,7} \times L_3 / X_3$$

$$l_{3,8}^a = v_{3,8} \times L_3 / X_3$$

$$l_{3,8}^b = v_{3,8} \times L_{15} / X_{15}$$

$$l_{3,8}^c = v_{3,8} \times (L_3 U_{15} + U_3 L_{15} + L_3 L_{15}) / (X_3 X_{15})$$

$$l_{4,2} = v_{4,2} \times L_4 / X_4$$

$$l_{4,17} = v_{4,17} \times L_4 / X_4$$

$$l_{5,6} = v_{5,6} \times L_5 / X_5$$

$$l_{5,7}^a = v_{5,7} \times L_5 / X_5$$

$$l_{5,7}^b = v_{5,7} \times L_{23} / X_{23}$$

$$l_{5,7}^c = v_{5,7} \times (L_5 U_{23} + U_5 L_{23} + L_5 L_{23}) / (X_5 X_{23})$$

$$l_{6,5} = v_{6,5} \times L_6 / X_6$$

$$l_{6,17} = v_{6,17} \times L_6 / X_6$$

$$l_{7,5} = v_{7,5} \times L_7 / X_7$$

$$l_{7,8}^a = v_{7,8} \times L_7 / X_7$$

$$l_{7,8}^b = v_{7,8} \times L_{15} / X_{15}$$

$$l_{7,8}^c = v_{7,8} \times (L_7 U_{15} + U_7 L_{15} + L_7 L_{15}) / (X_7 X_{15})$$

$$l_{7,143} = v_{7,143} \times L_7 / X_7$$

$$l_{8,3} = v_{8,3} \times L_8 / X_8$$

$$l_{8,7} = v_{8,7} \times L_8 / X_8$$

$$l_{8,18} = v_{8,18} \times L_8 / X_8$$

$$l_{8,20} = v_{8,20} \times L_8 / X_8$$

$$l_{9,10} = v_{9,10} \times L_9 / X_9$$

$$l_{9,15} = v_{9,15} \times L_9 / X_9$$

$$l_{10,156} = v_{10,156} \times L_{10} / X_{10}$$

$$l_{11,9} = v_{11,9} \times L_{11} / X_{11}$$

$$l_{18,3} = v_{18,3} \times L_{18} / X_{18}$$

$$l_{18,7} = v_{18,7} \times L_{18} / X_{18}$$

$$l_{18,19}^a = v_{18,19} \times L_{18} / X_{18}$$

$$l_{18,19}^b = v_{18,19} \times L_{15} / X_{15}$$

$$l_{18,19}^c = v_{18,19} \times (L_{18} U_{15} + U_{18} L_{15} + L_{18} L_{15}) / (X_{18} X_{15})$$

$$l_{18,21} = v_{18,21} \times L_{18} / X_{18}$$

$$l_{19,3} = v_{19,3} \times L_{19} / X_{19}$$

$$l_{19,7} = v_{19,7} \times L_{19} / X_{19}$$

$$l_{19,22} = v_{19,22} \times L_{19} / X_{19}$$

$$l_{20,8} = v_{20,8} \times L_{20} / X_{20}$$

$$l_{21,18} = v_{21,18} \times L_{21} / X_{21}$$

$$l_{22,19} = v_{22,19} \times L_{22} / X_{22}$$

$$l_{24,12}^a = v_{24,12} \times L_{24} / X_{24}$$

$$l_{24,12}^b = v_{24,12} \times L_{25} / X_{25}$$

$$l_{24,12}^c = v_{24,12} \times (L_{24} U_{25} + U_{24} L_{25} + L_{24} L_{25}) / (X_{24} X_{25})$$

$$l_{25,24} = v_{25,24} \times L_{25} / X_{25}$$

$$l_{25,26} = v_{25,26} \times L_{25} / X_{25}$$

$$l_{26,27} = v_{26,27} \times L_{26} / X_{26}$$

$$l_{27,28} = v_{27,28} \times L_{27} / X_{27}$$

$$l_{28,29} = v_{28,29} \times L_{28} / X_{28}$$

$$l_{28,179} = v_{28,179} \times L_{28} / X_{28}$$

$$l_{29,30} = v_{29,30} \times L_{29} / X_{29}$$

$$l_{30,31} = v_{30,31} \times L_{30} / X_{30}$$

$$l_{30,33} = v_{30,33} \times L_{30} / X_{30}^\dagger$$

$$l_{31,32} = v_{31,32} \times L_{31} / X_{31}$$

$$l_{31,34} = v_{31,34} \times L_{31} / X_{31}^\dagger$$

$$l_{32,35} = v_{32,35} \times L_{32} / X_{32}^\dagger$$

$$l_{32,37} = v_{32,37} \times L_{32} / X_{32}$$

$$l_{32,39} = v_{32,39} \times L_{32} / X_{32}$$

$$l_{32,186} = v_{32,186} \times L_{32} / X_{32}$$

$$l_{33,30} = v_{33,30} \times L_{33} / X_{33}$$

$$l_{34,31} = v_{34,31} \times L_{34} / X_{34}$$

$$l_{11,14} = v_{11,14} \times L_{11} / X_{11}$$

$$l_{12,1} = v_{12,1} \times L_{12} / X_{12}$$

$$l_{12,11} = v_{12,11} \times L_{12} / X_{12}$$

$$l_{12,23}^a = v_{12,23} \times L_{12} / X_{12}$$

$$l_{12,23}^b = v_{12,23} \times (L_{24} / X_{24})$$

$$l_{12,23}^c = v_{12,23} \times (L_{12}U_{24} + U_{12}L_{24} + L_{12}L_{24}) / (X_{12}X_{24})$$

$$l_{12,148} = v_{12,148} \times L_{12} / X_{12}$$

$$l_{14,142} = v_{14,142} \times L_{14} / X_{14}$$

$$l_{14,145} = v_{14,145} \times L_{14} / X_{14}$$

$$l_{15,144} = v_{15,144} \times L_{15} / X_{15}$$

$$l_{35,32} = v_{35,32} \times L_{35} / X_{35}$$

$$l_{35,40} = v_{35,40} \times L_{35} / X_{35}$$

$$l_{36,37}^a = v_{36,37}^a \times L_{36} / X_{36}$$

$$l_{36,37}^b = v_{36,37}^b \times L_{36} / X_{36}$$

$$l_{36,37}^c = v_{36,37}^c \times L_{36} / X_{36}$$

$$l_{36,39} = v_{36,39} \times L_{36} / X_{36}$$

$$l_{38,25} = v_{38,25} \times L_{38} / X_{38}$$

$$l_{40,35} = v_{40,35} \times L_{40} / X_{40}$$

$$l_{40,39} = v_{40,39} \times L_{40} / X_{40}$$

$$l_{125,38} = v_{125,38} \times L_{125} / X_{125}$$

([†]) The contribution of labeled palmitoyl-CoA (X₁₂) was not included. See text for explanations.

(*) A superscript indicates deviations from the total pool; the method automatically computes equations for the labeled fractions.