

Supplemental File S3: Matrix θ , derived for the metabolic structures presented in the main manuscript.

$$\theta = \begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \theta_{2,1} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \theta_{3,2} & 0 & \theta_{3,4} & 0 & 0 & 0 & 0 \\ \theta_{4,1} & \theta_{4,2} & \theta_{4,3} & \theta_{4,4} & \theta_{4,5} & \theta_{4,6} & \theta_{4,7} & \theta_{4,8} \\ 0 & 0 & \theta_{5,3} & 0 & 0 & \theta_{5,6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \theta_{6,5} & \theta_{6,6} & 0 & 0 \\ 0 & 0 & \theta_{7,3} & \theta_{7,4} & 0 & 0 & 0 & 0 \\ 0 & 0 & \theta_{8,3} & \theta_{8,4} & 0 & \theta_{8,6} & 0 & 0 \\ 0 & \theta_{9,2} & 0 & \theta_{9,4} & 0 & 0 & 0 & 0 \\ \theta_{10,1} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \theta_{11,7} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \theta_{12,8} \end{pmatrix}$$