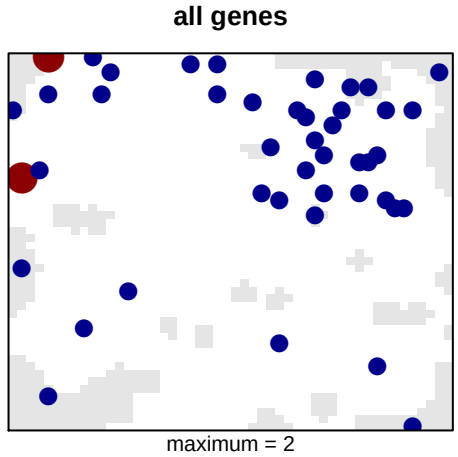
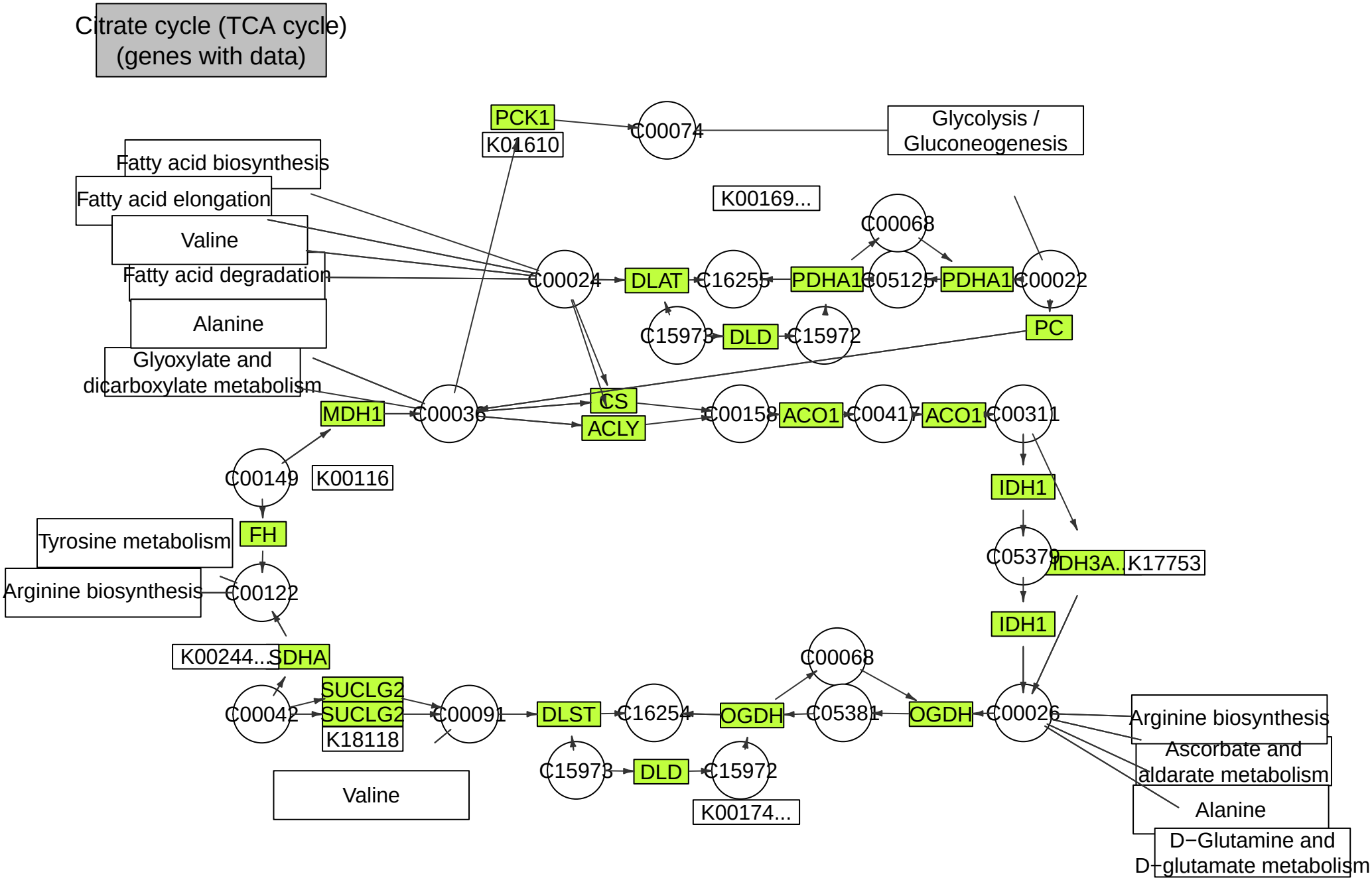
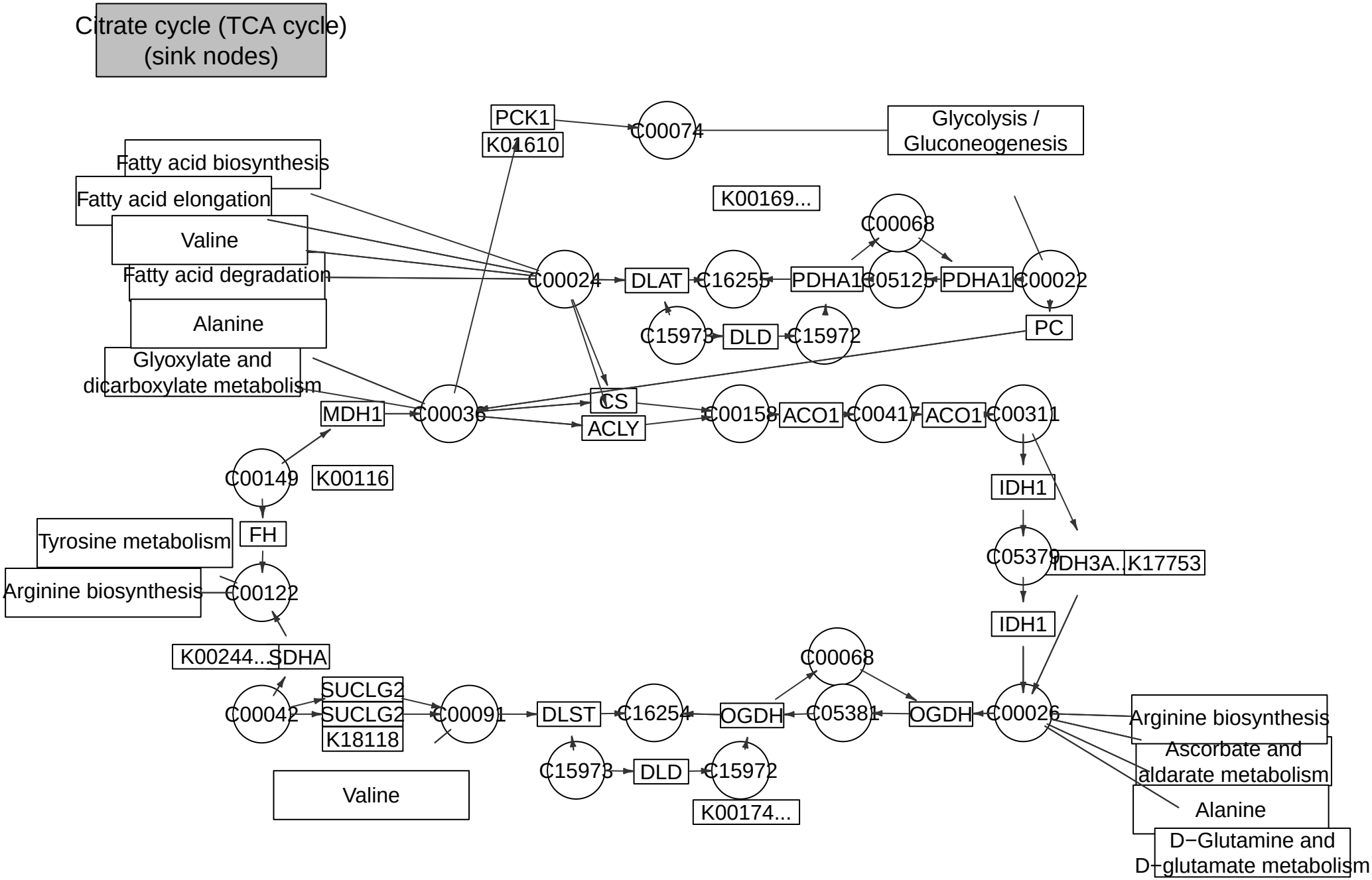
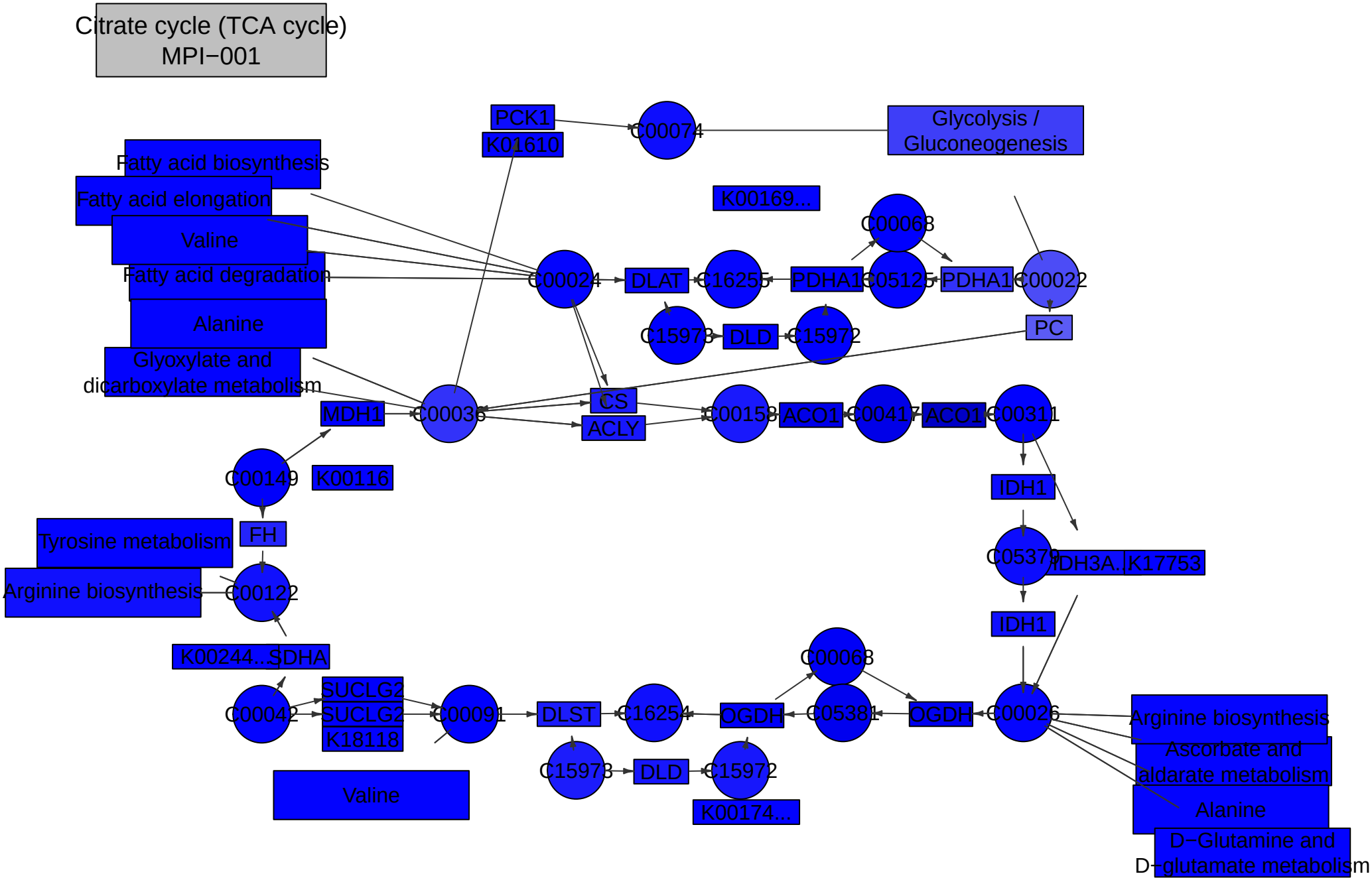
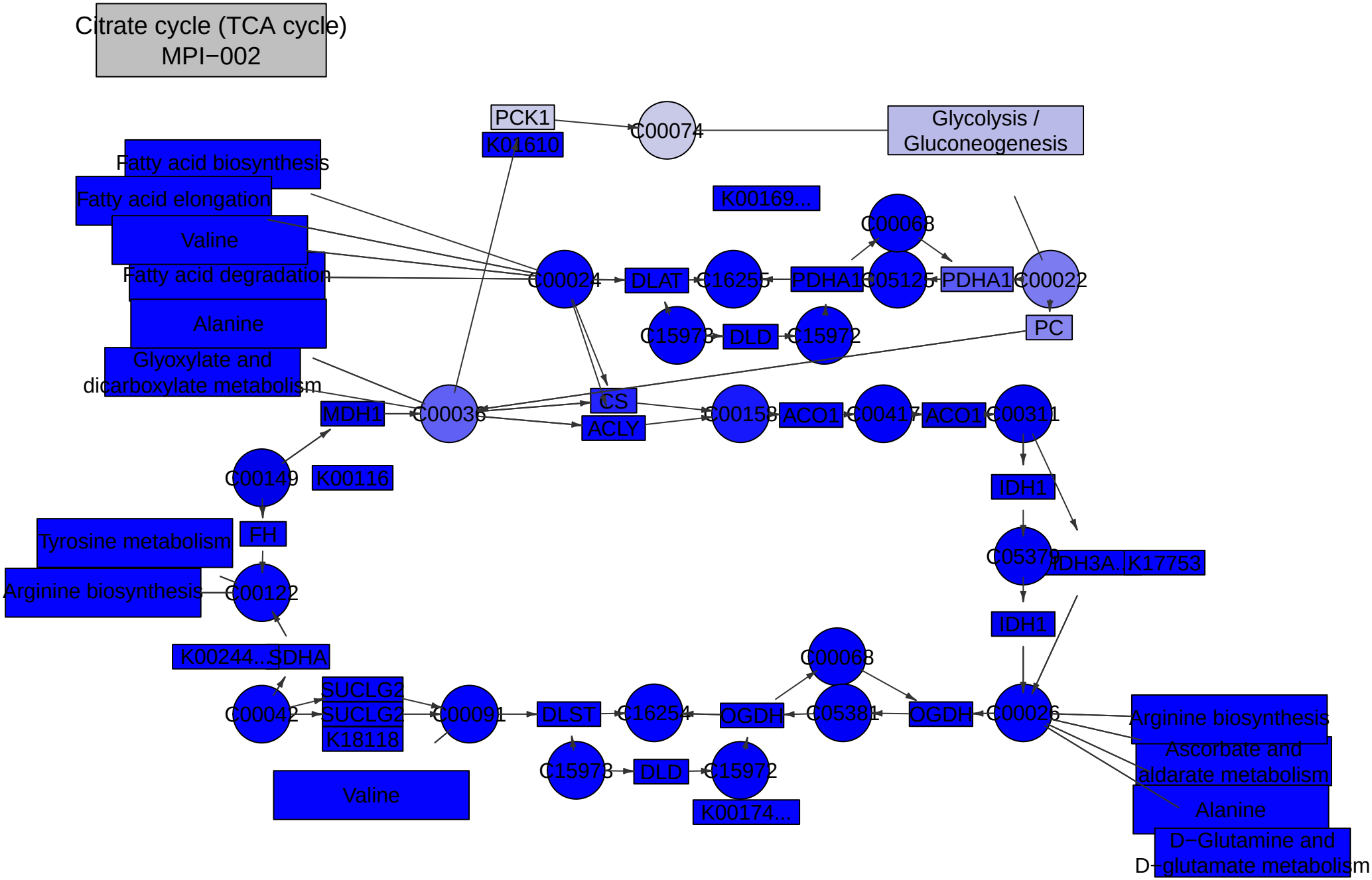
Citrate cycle (TCA cycle)

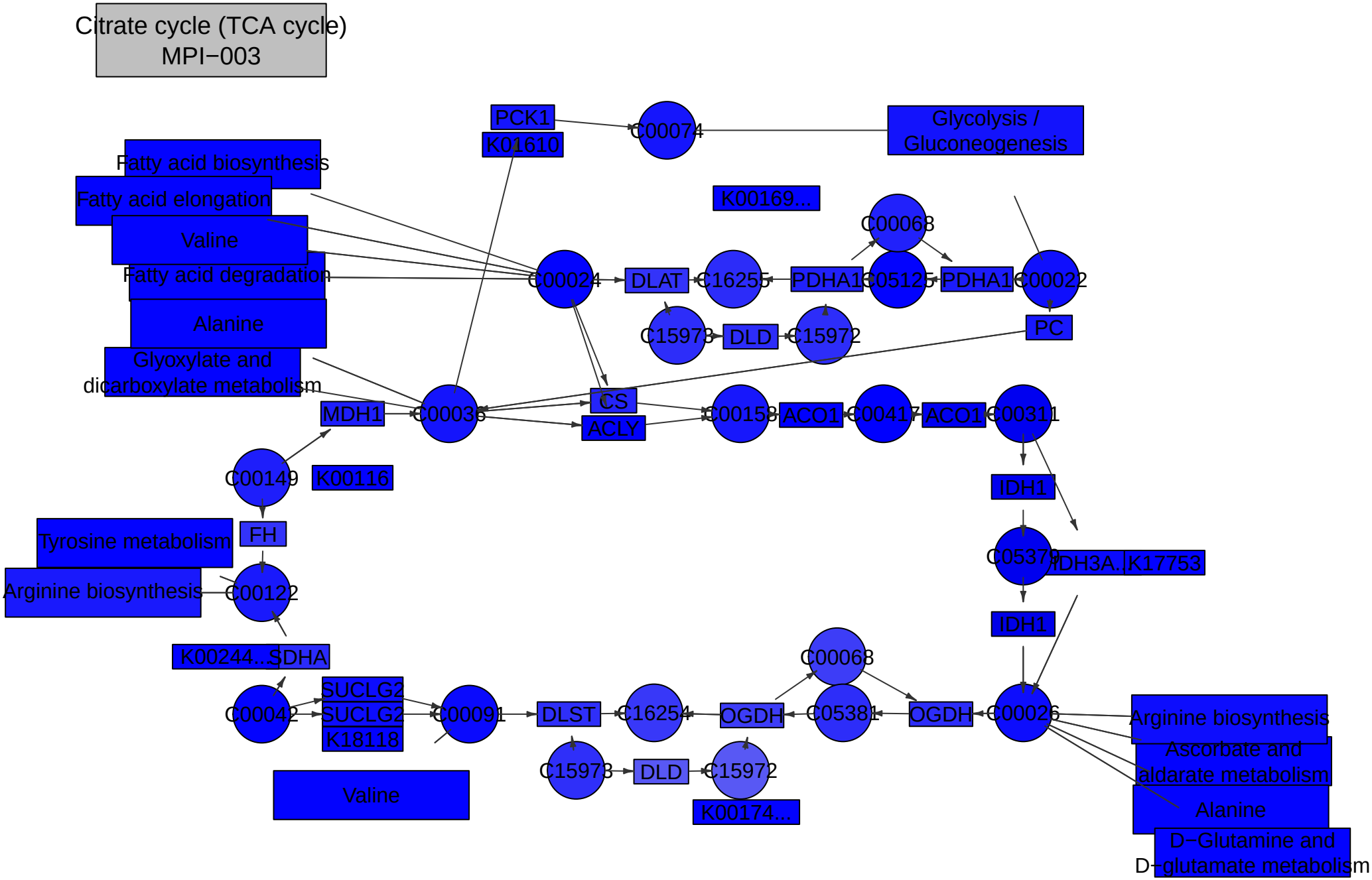


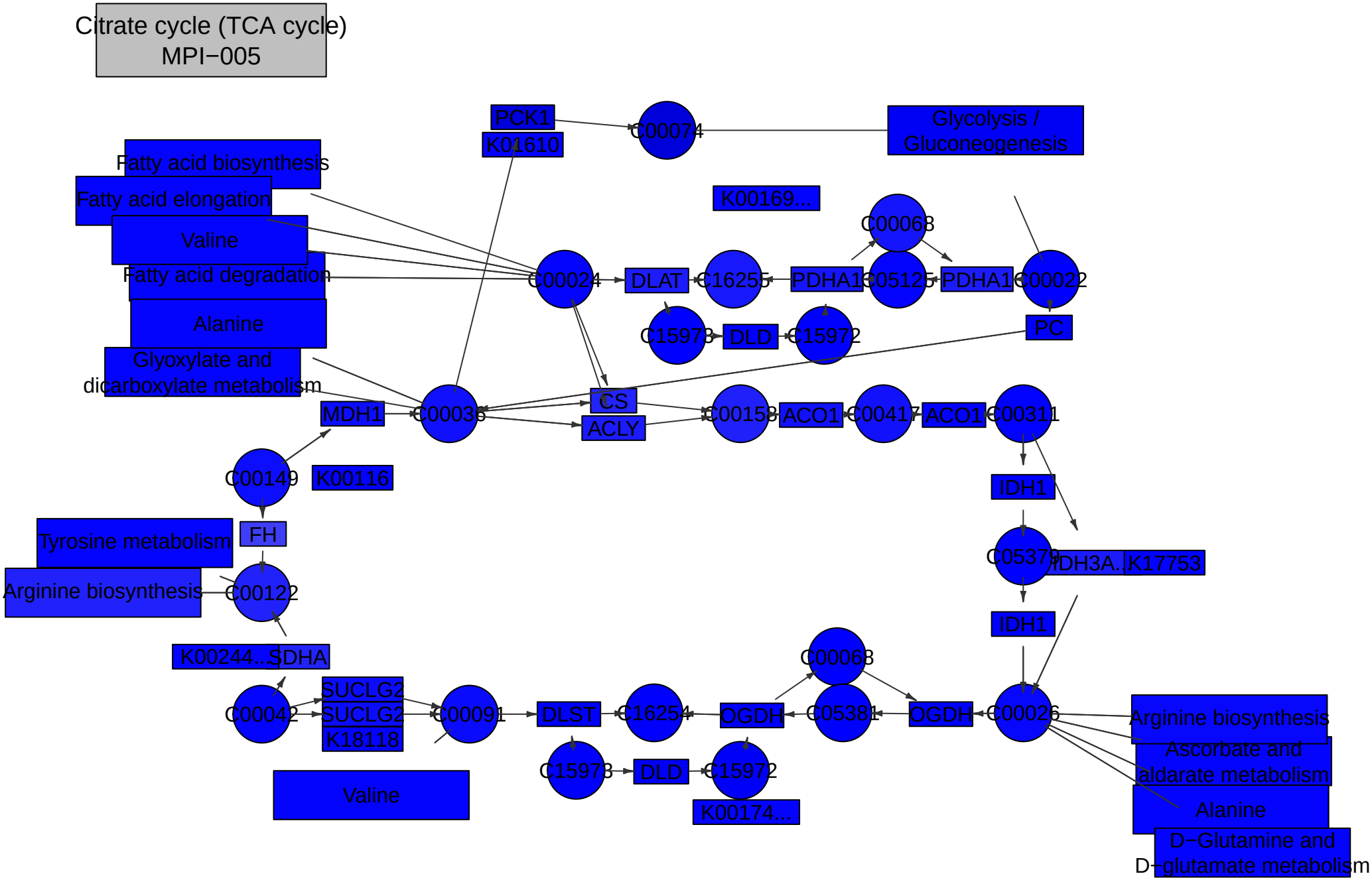

Citrate cycle (TCA cycle)
(genes with data)
PCK1
K01610
C00074
Glycolysis /
Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and
dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
C05379
IDH3A..
K17753
Arginine biosynthesis
C00122
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and
aldarate metabolism
Alanine
D−Glutamine and
D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...

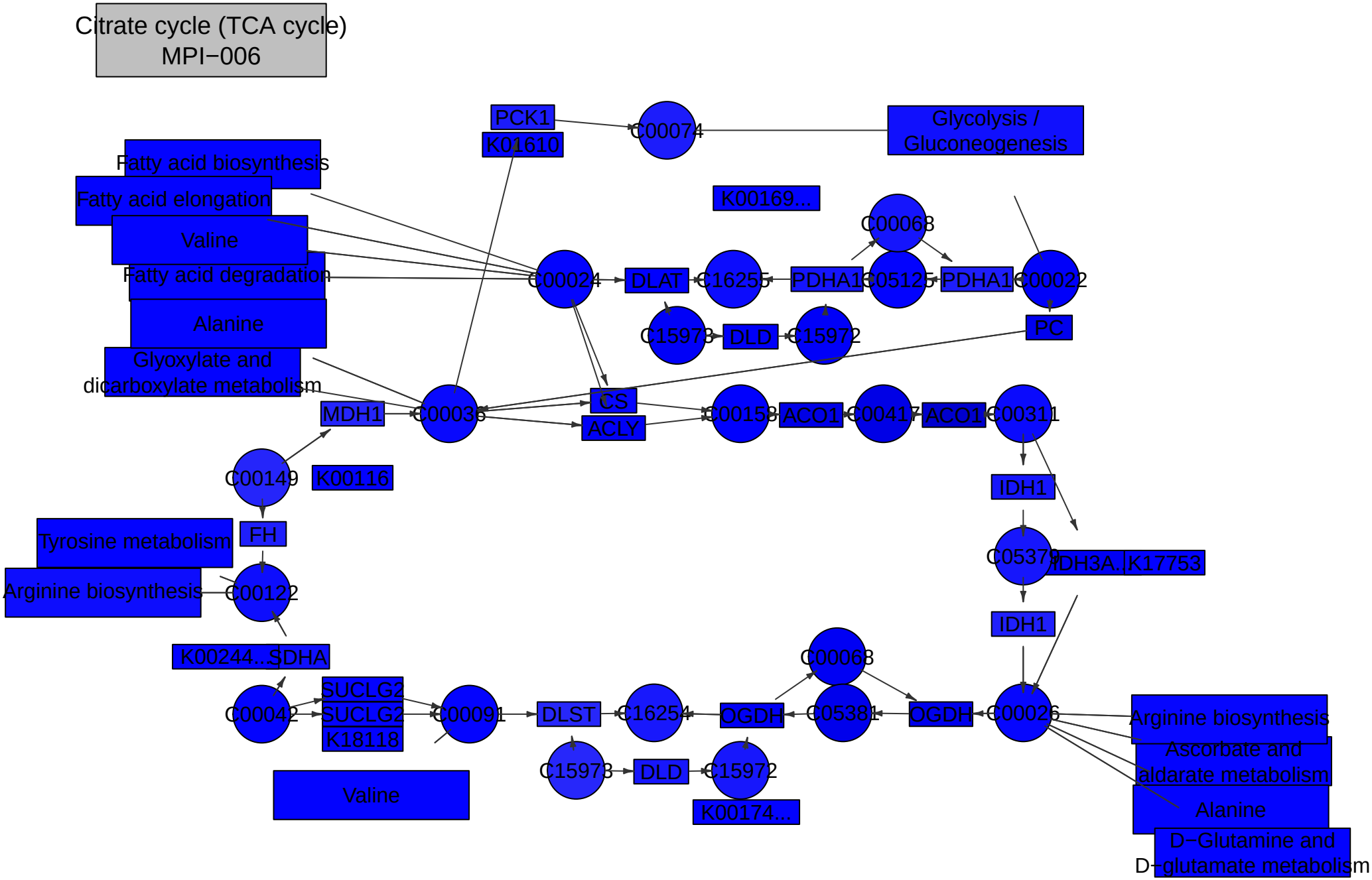

Citrate cycle (TCA cycle)
(sink nodes)
PCK1
K01610
C00074
Glycolysis /
Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and
dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and
aldarate metabolism
Alanine
D−Glutamine and
D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine

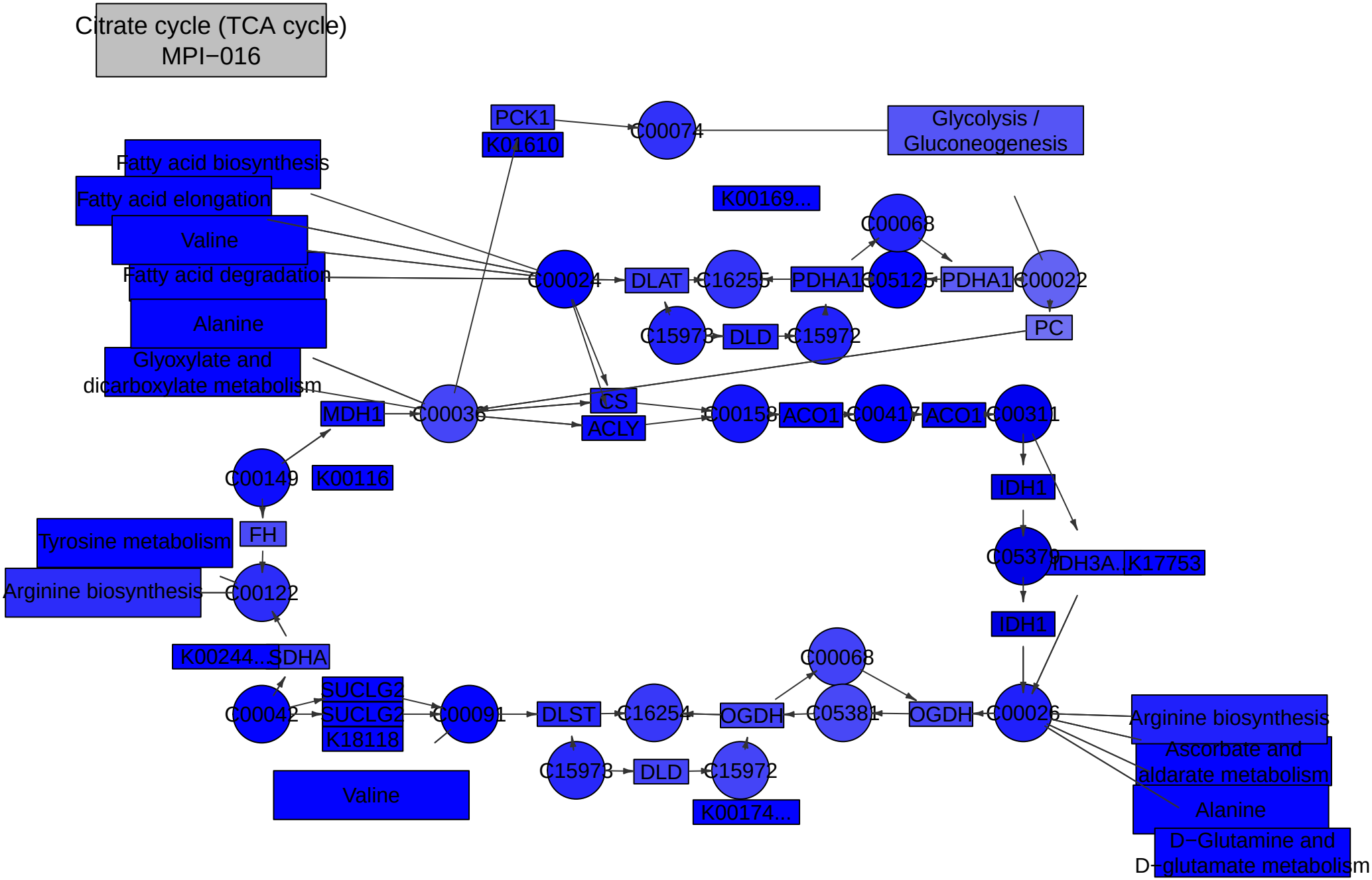

Citrate cycle (TCA cycle)
MPI−001
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...

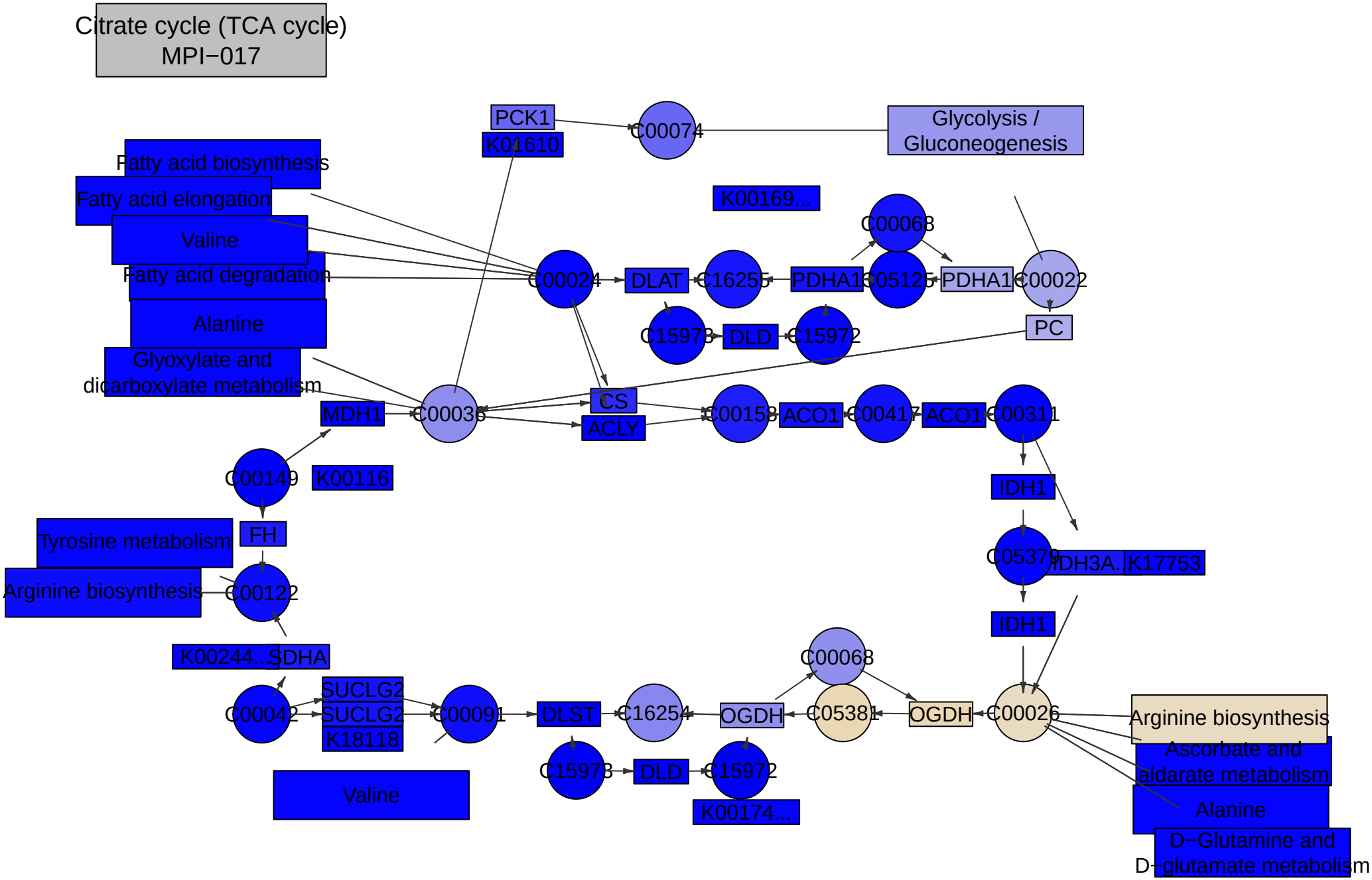

Citrate cycle (TCA cycle)
MPI−002
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−003
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−005
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−006
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−016
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−017
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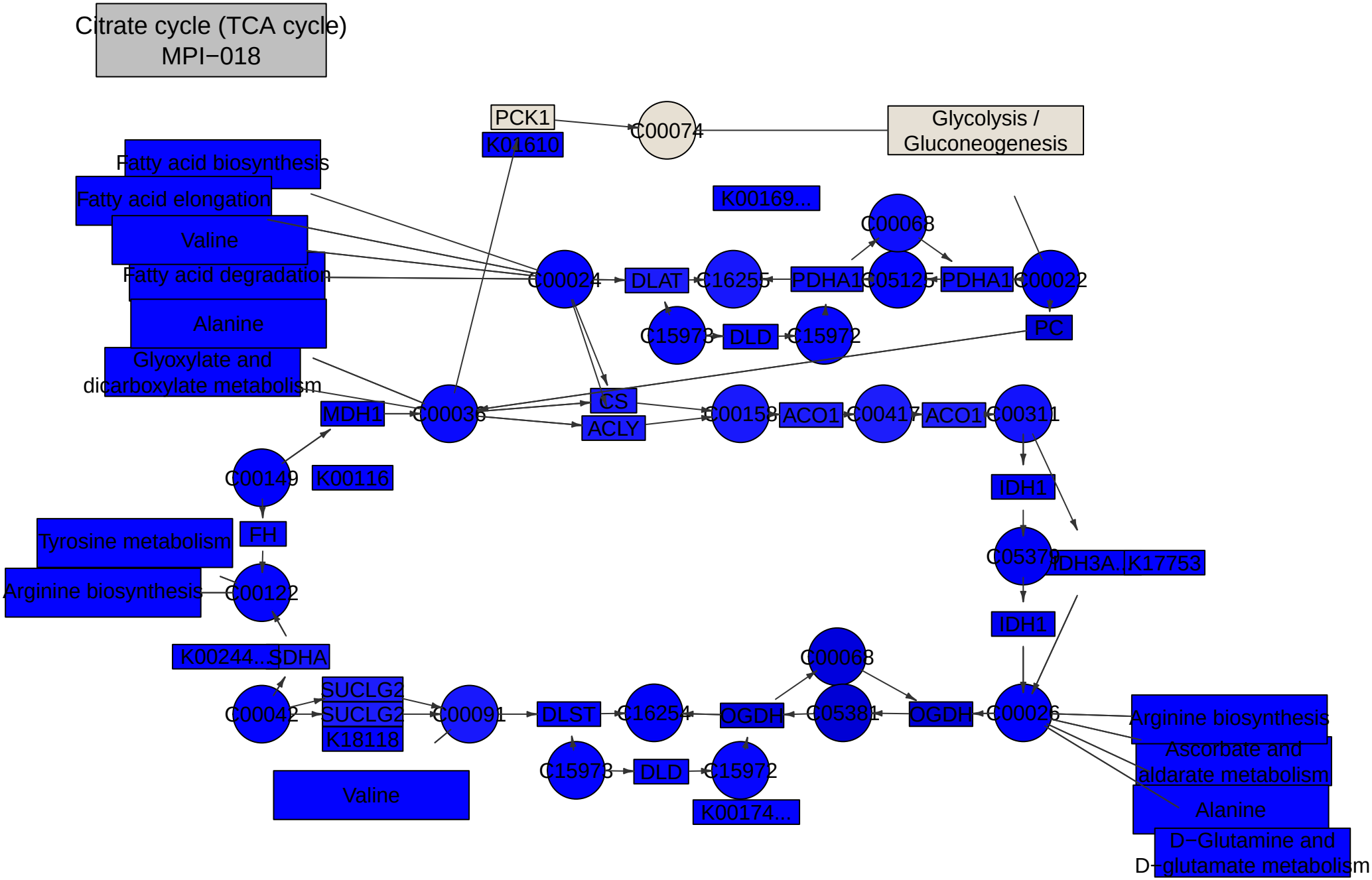
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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PCK1
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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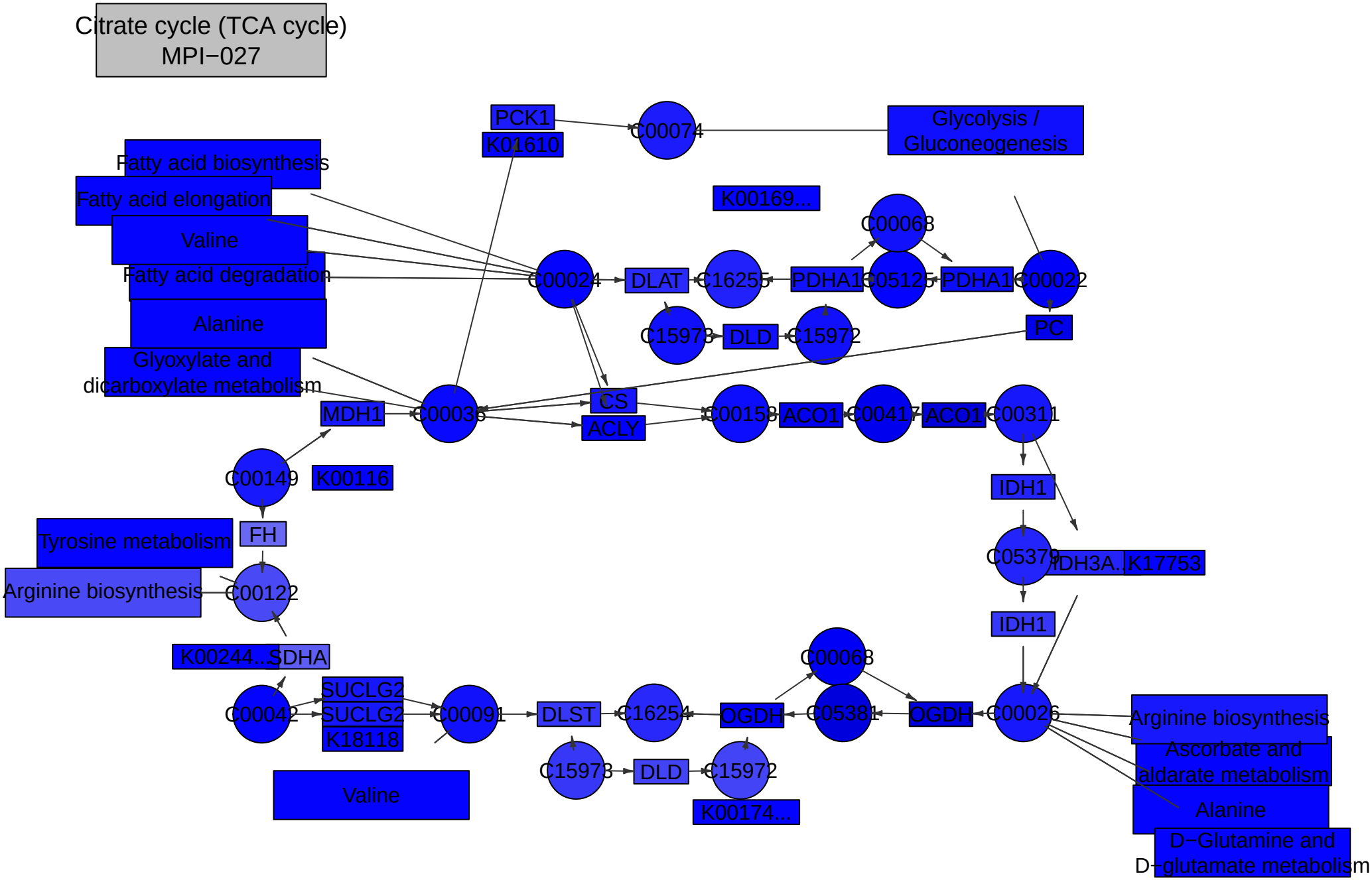
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
DLD
C15972
PC
MDH1
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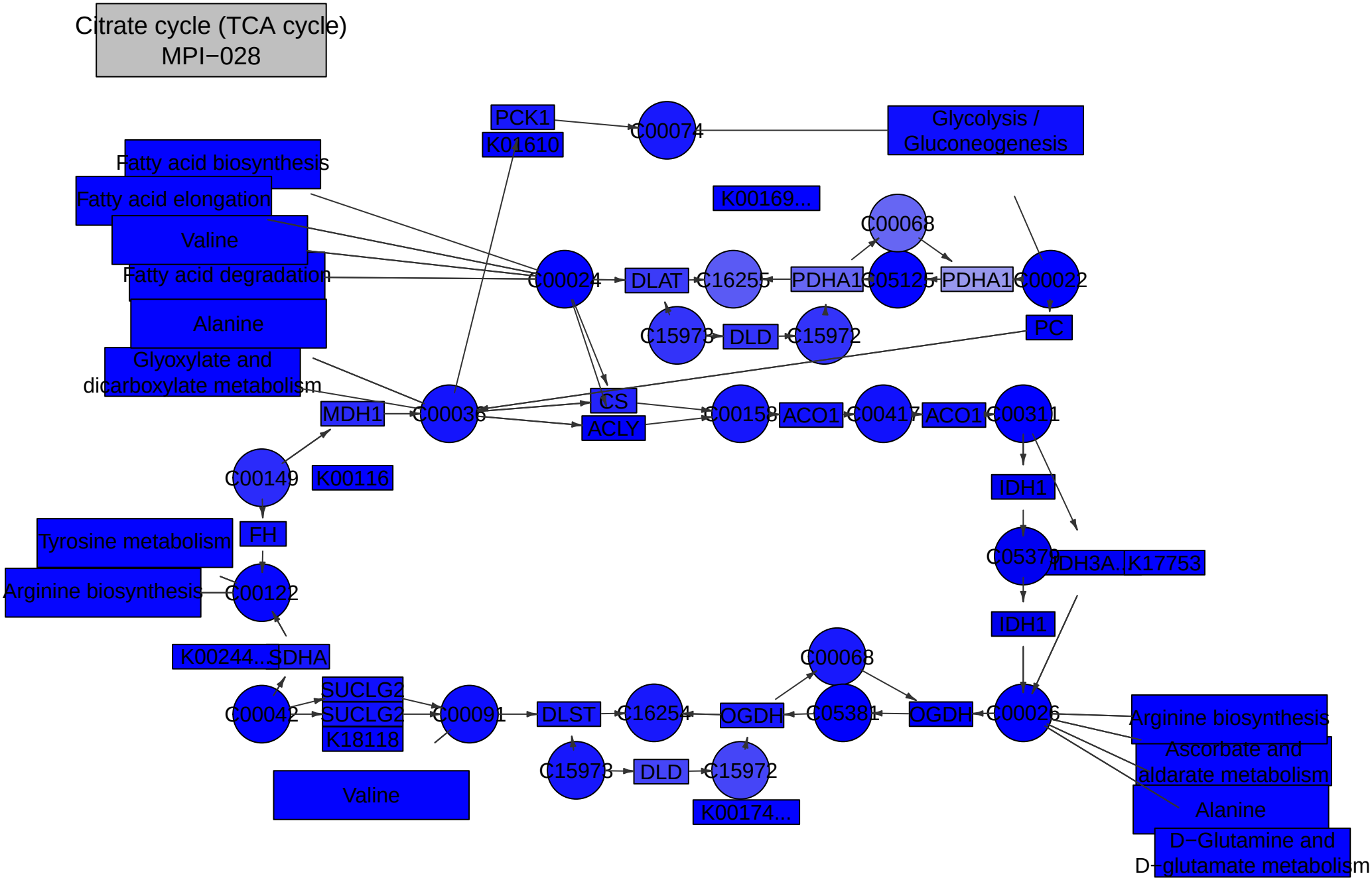
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−028
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
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MDH1
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CS
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ACO1
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ACO1
C00311
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K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
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C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
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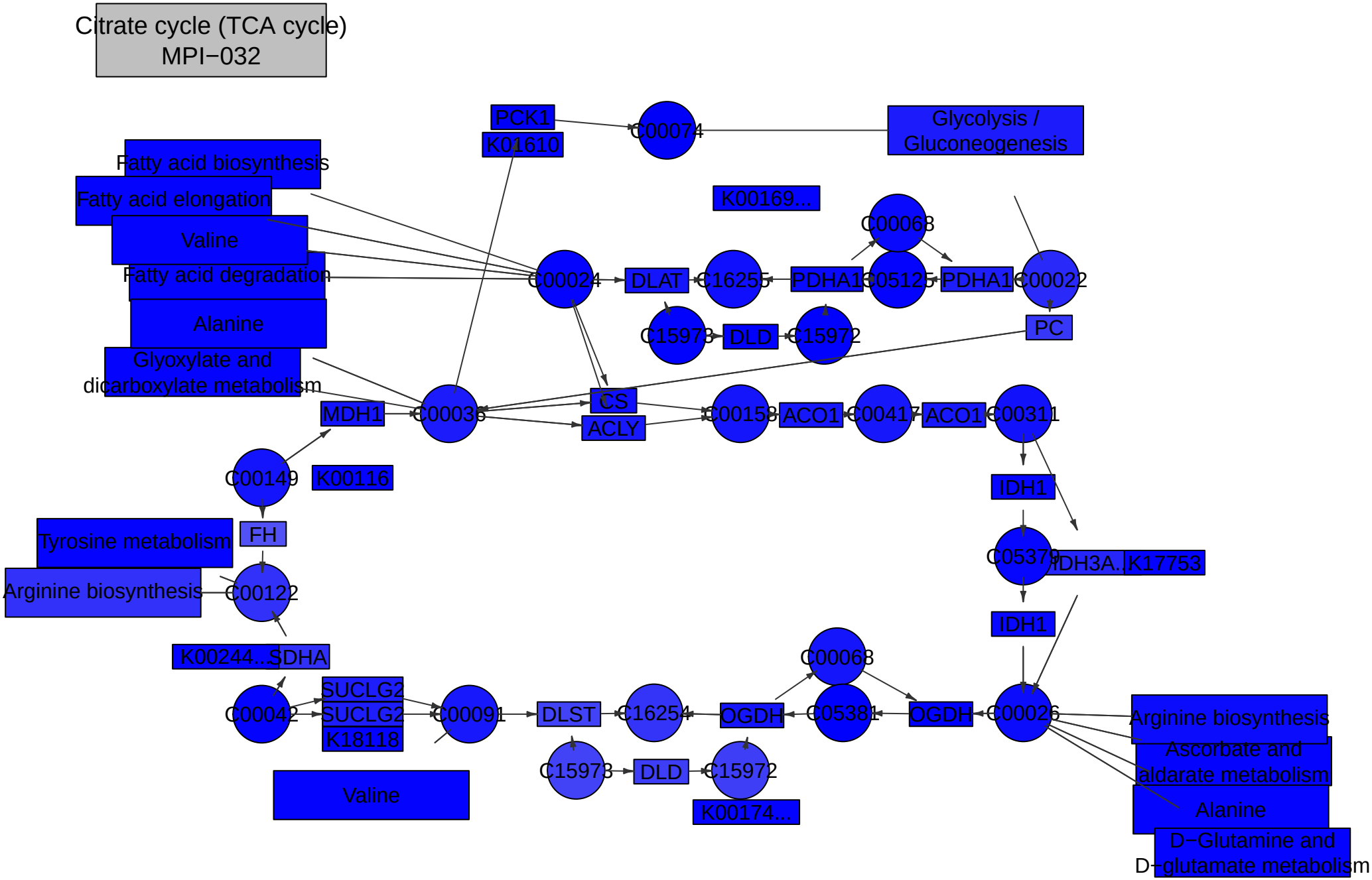
K00174...


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
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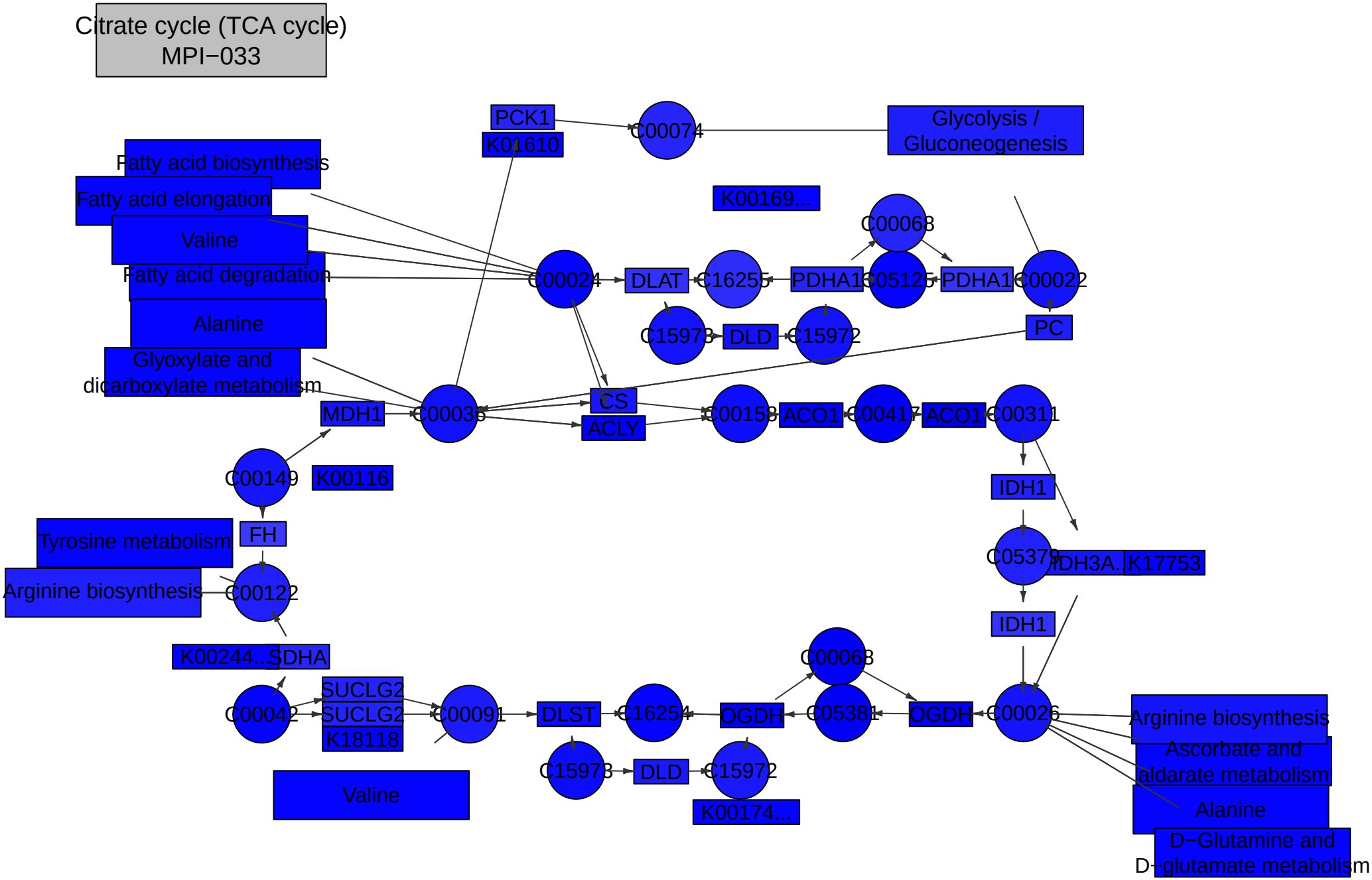
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C00068
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−033
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
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DLAT
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PDHA1
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PDHA1
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ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
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SUCLG2
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C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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DLD
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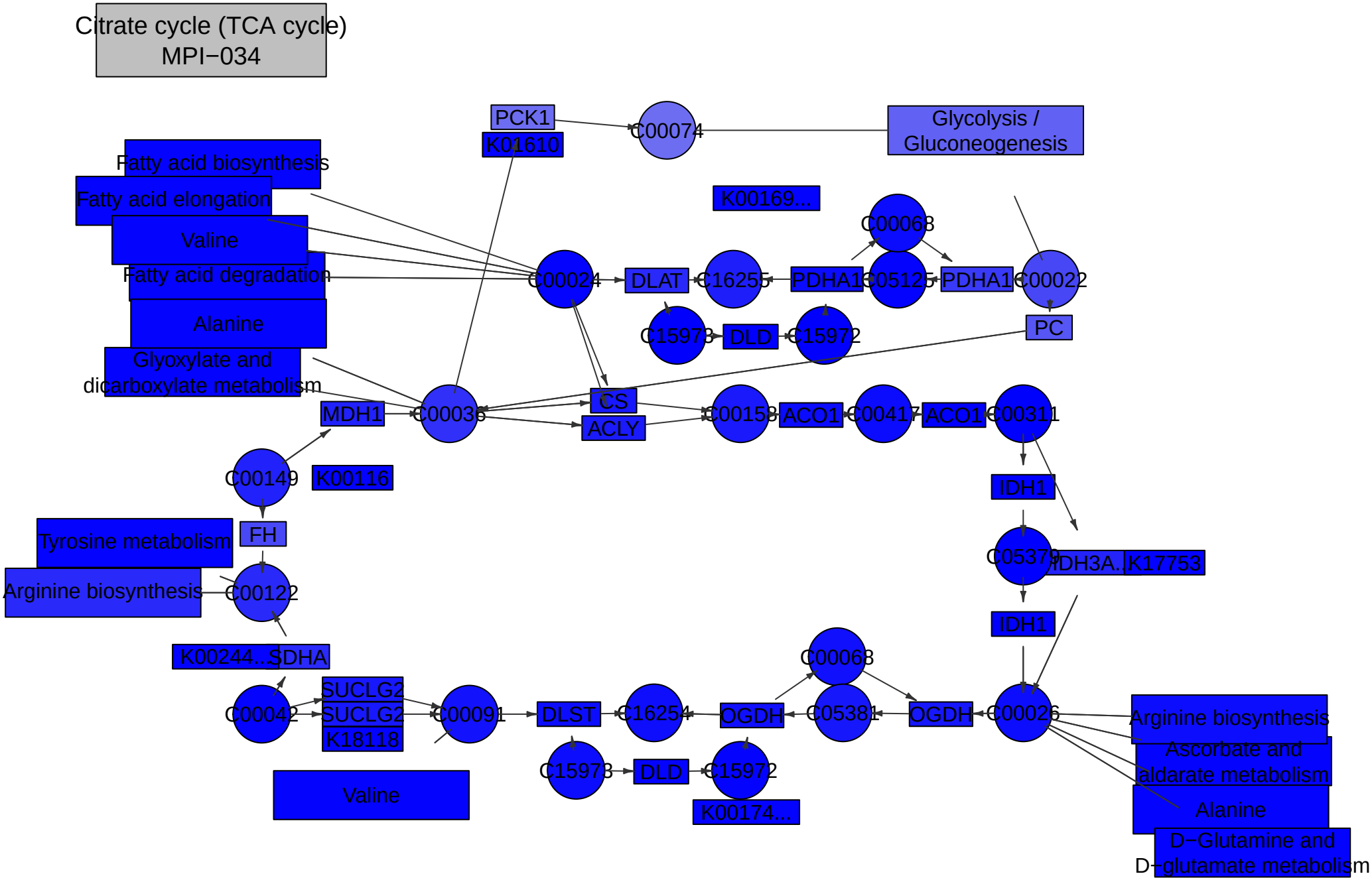
K00174...
Valine


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
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DLD
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
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SUCLG2
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C00091
DLST
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OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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DLD
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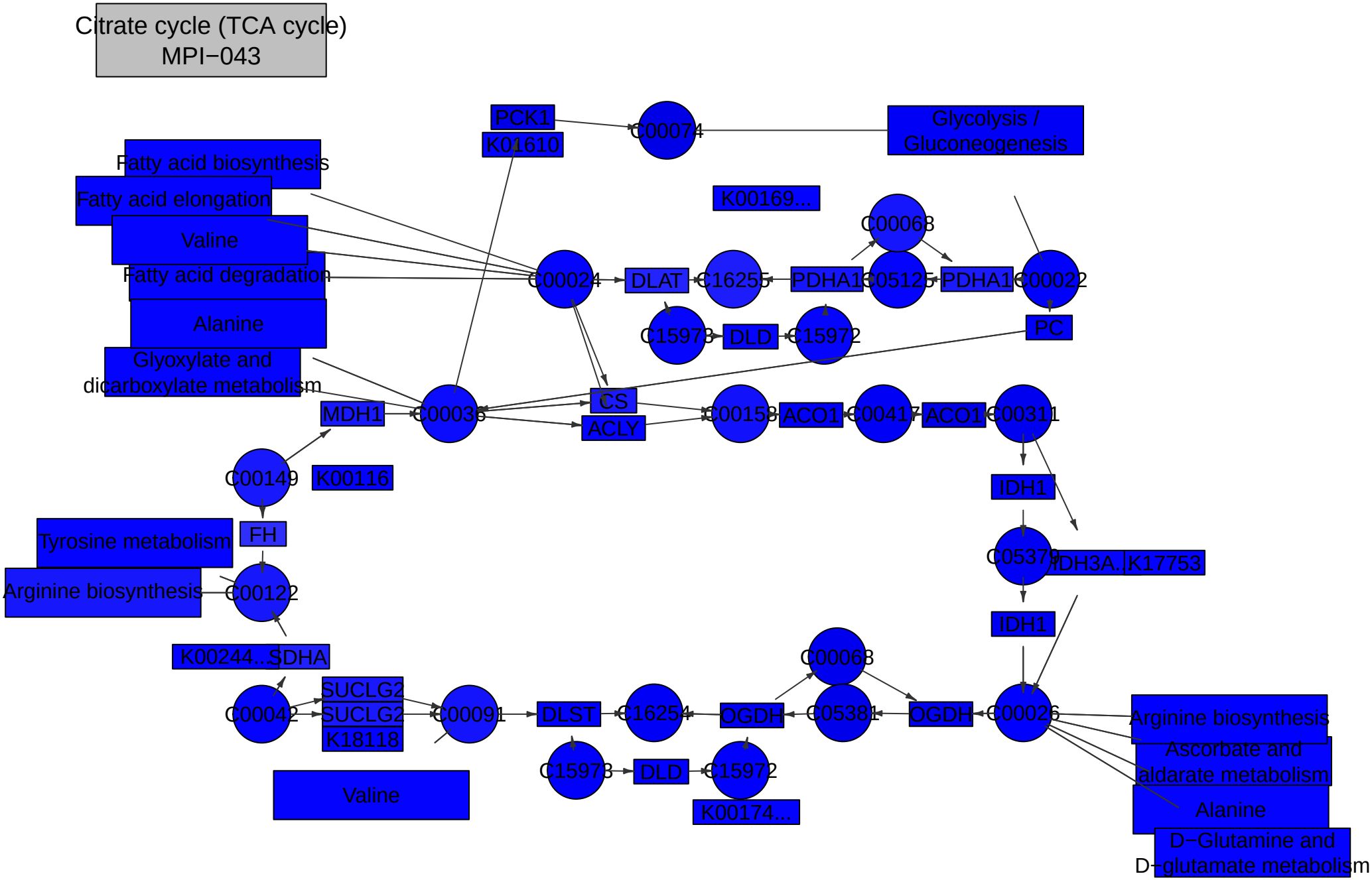
K00174...
Valine


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
DLD
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ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..SDHA
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SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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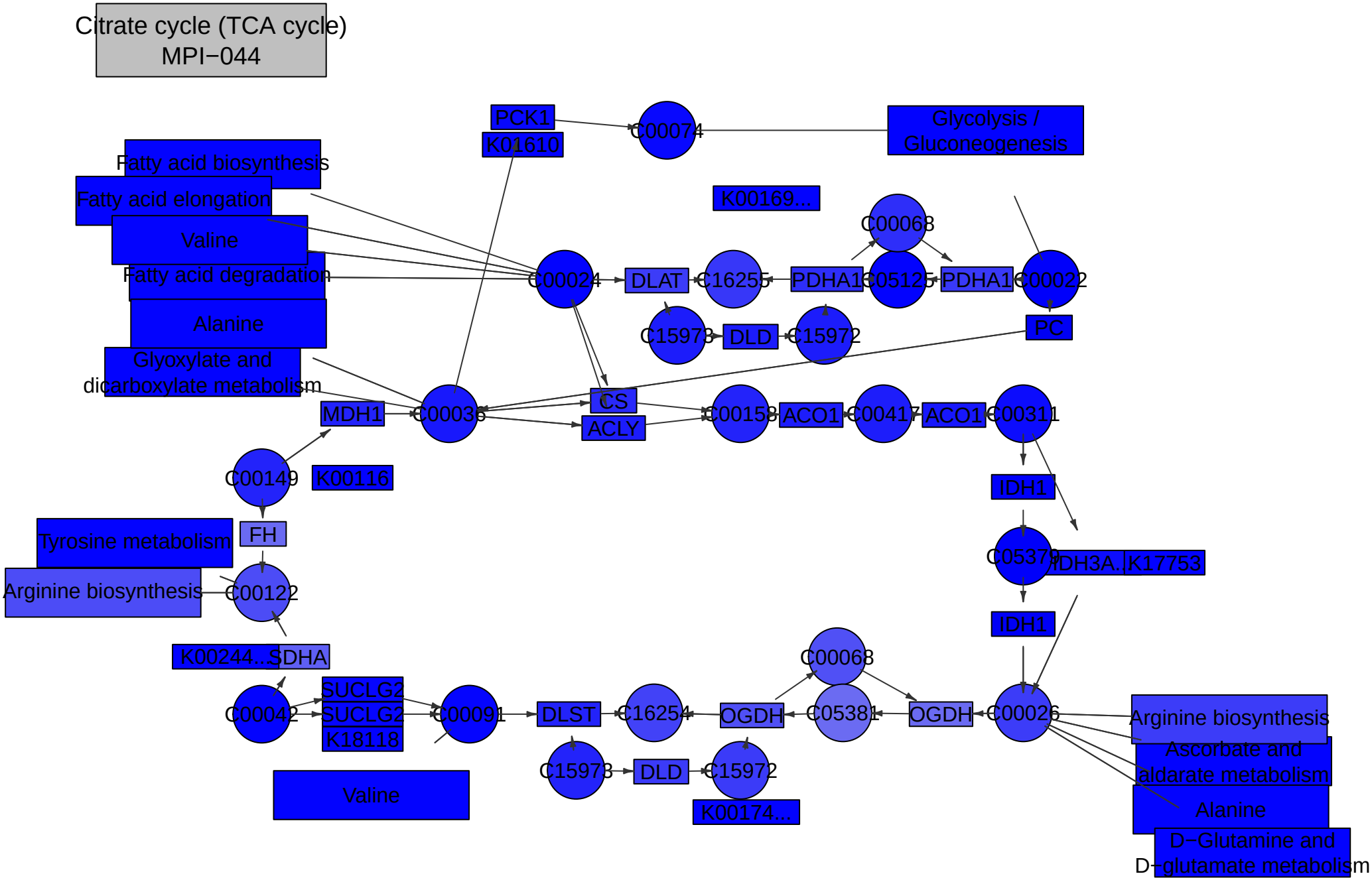
Valine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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
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K17753
IDH1
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Alanine
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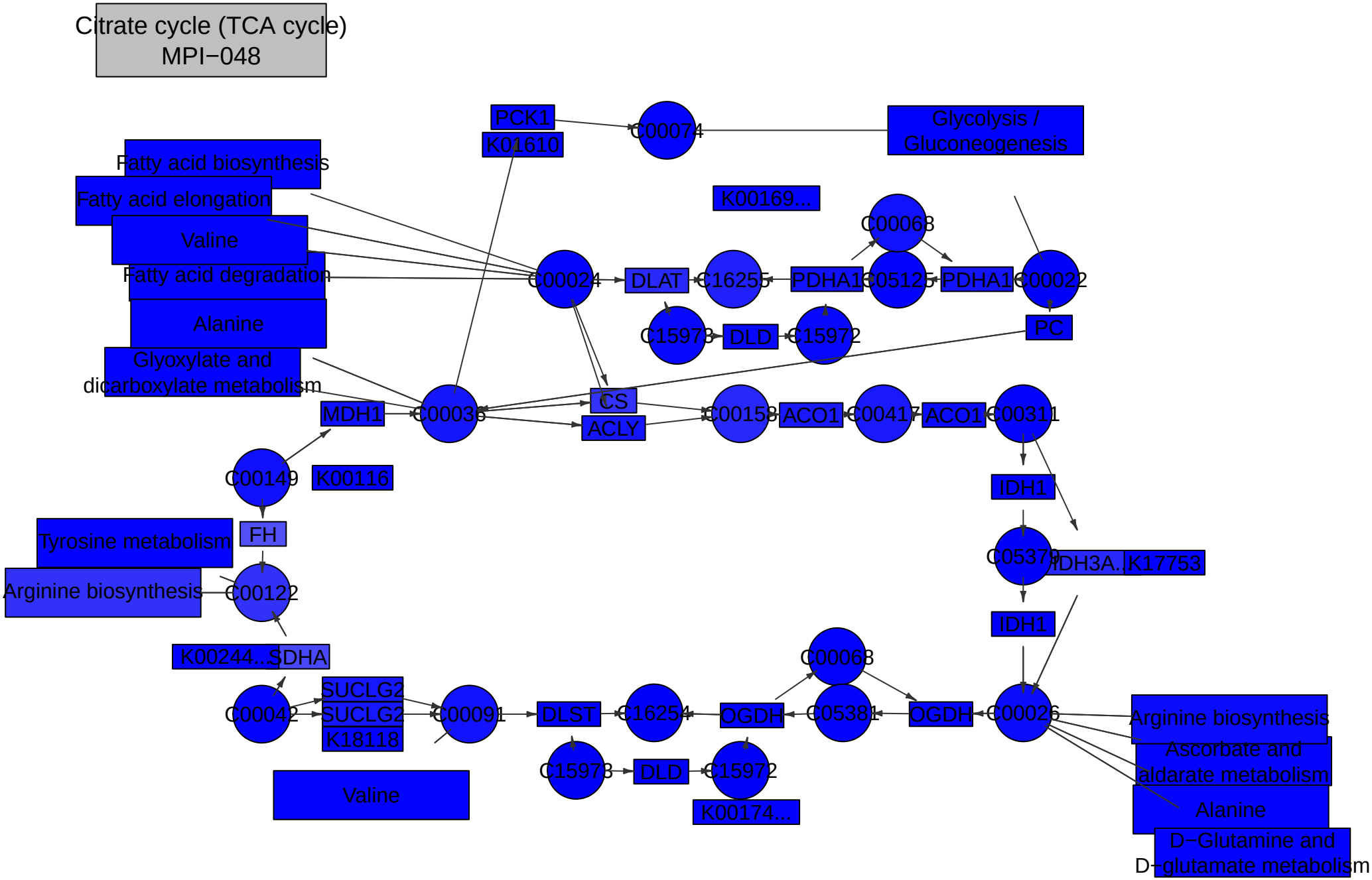
Valine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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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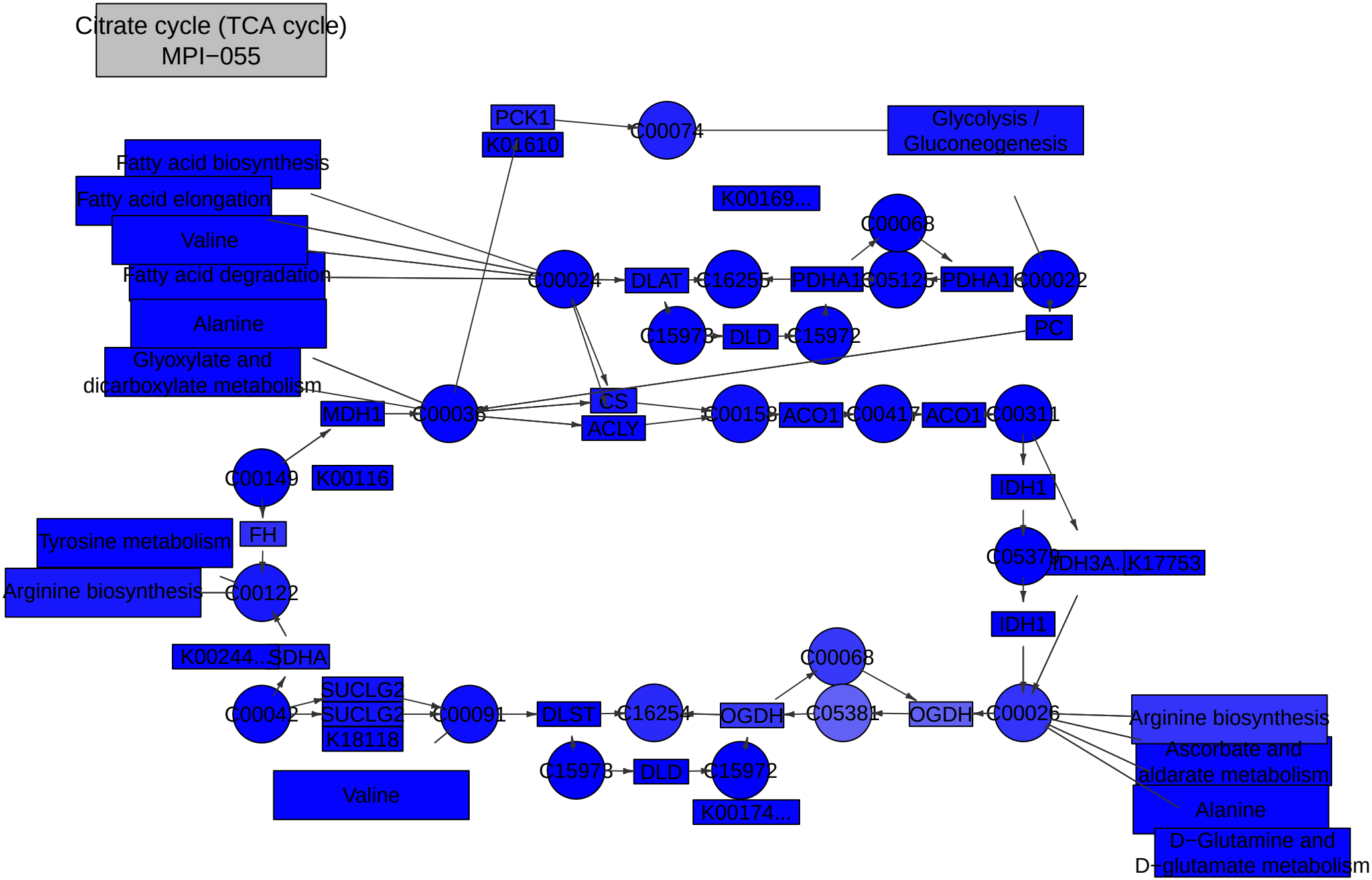
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Tyrosine metabolism
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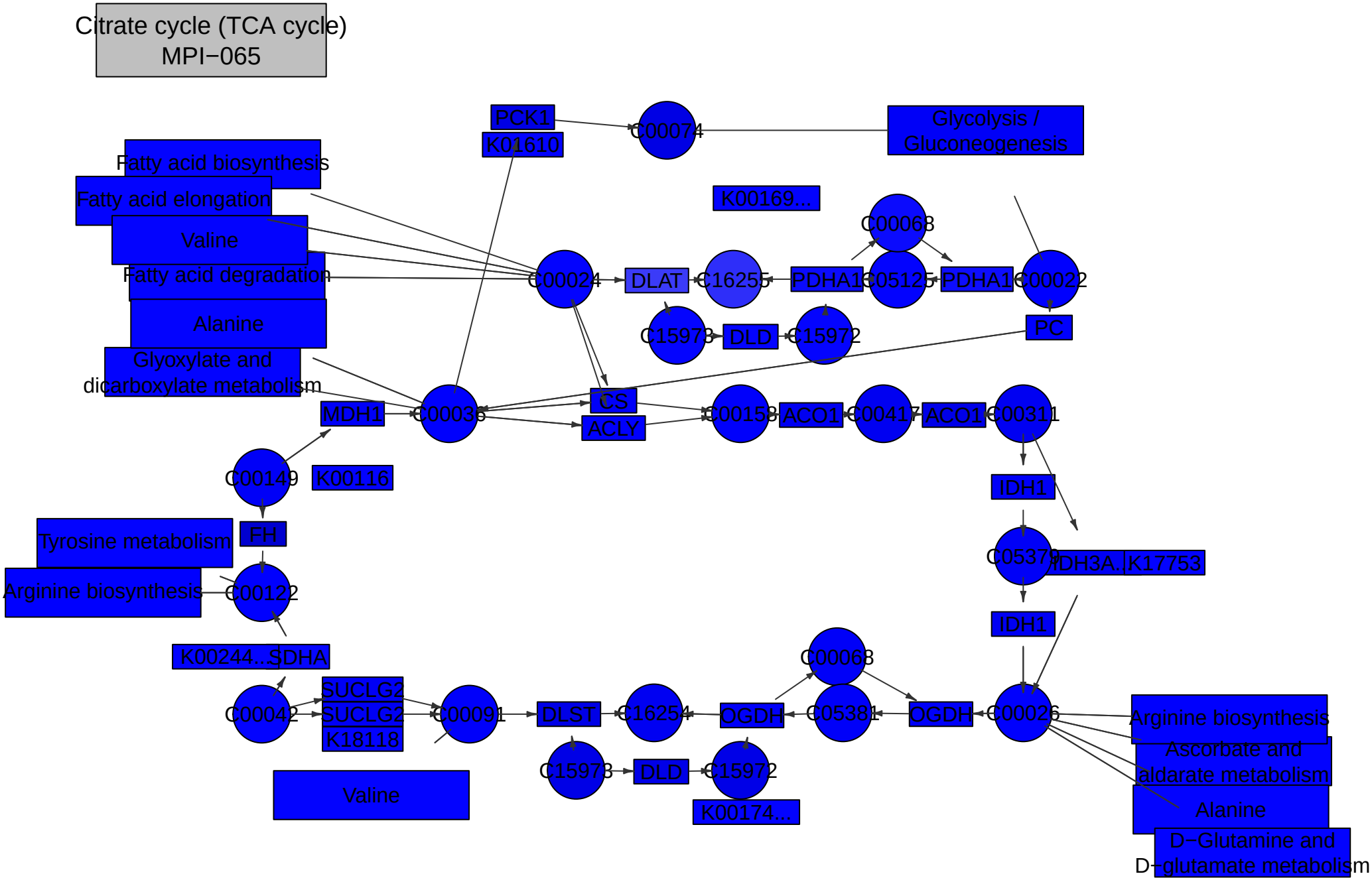
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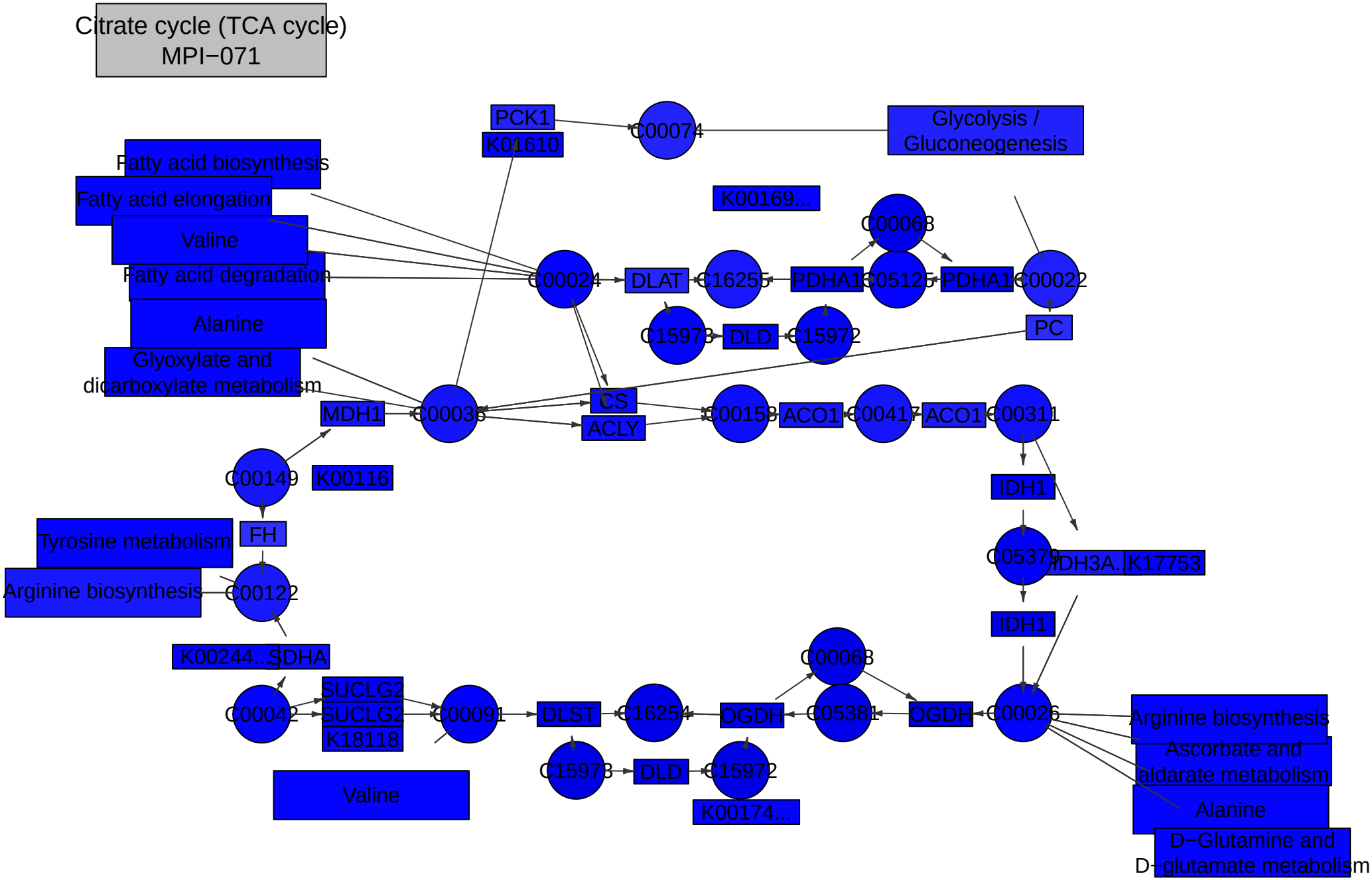
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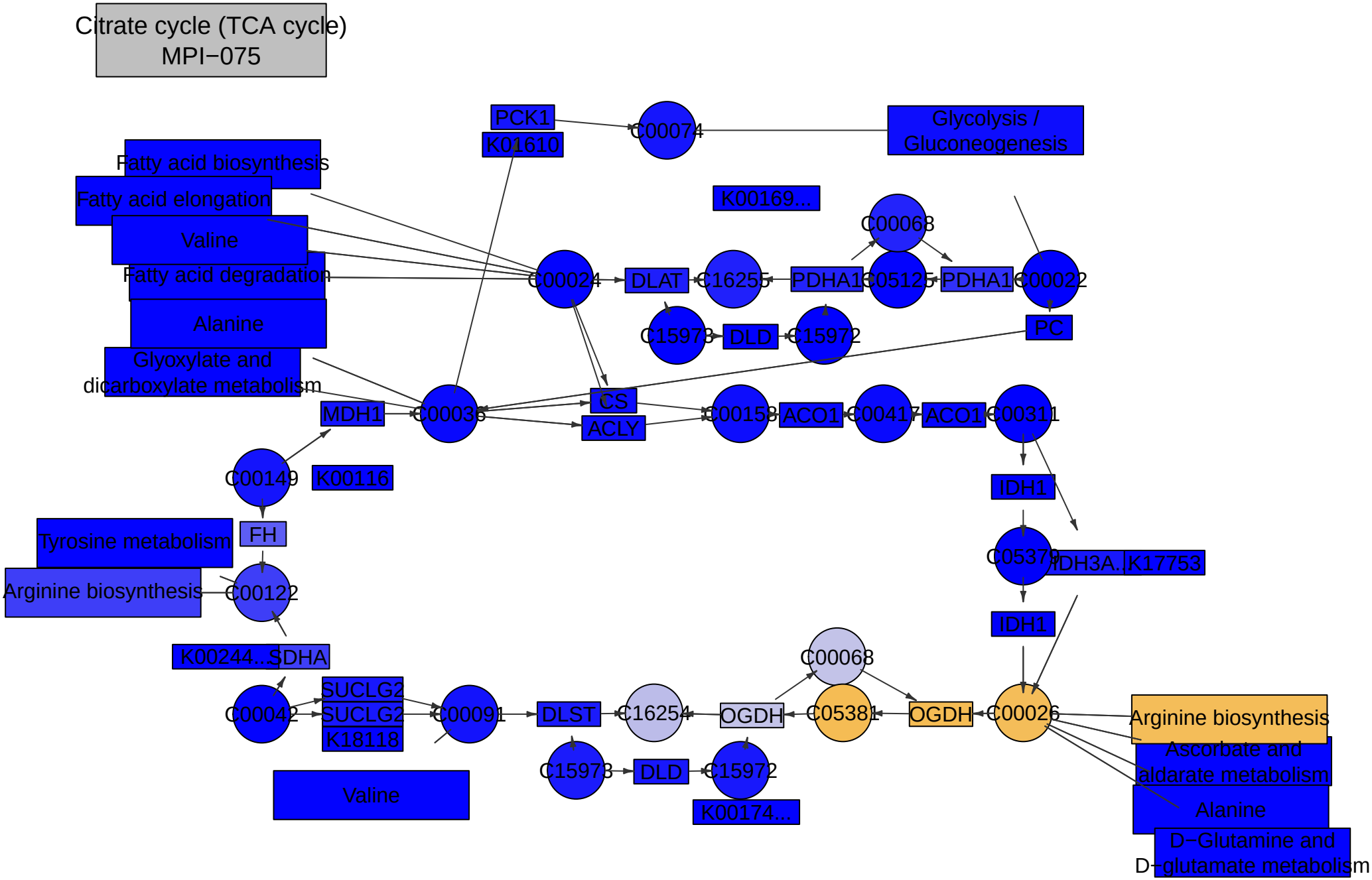
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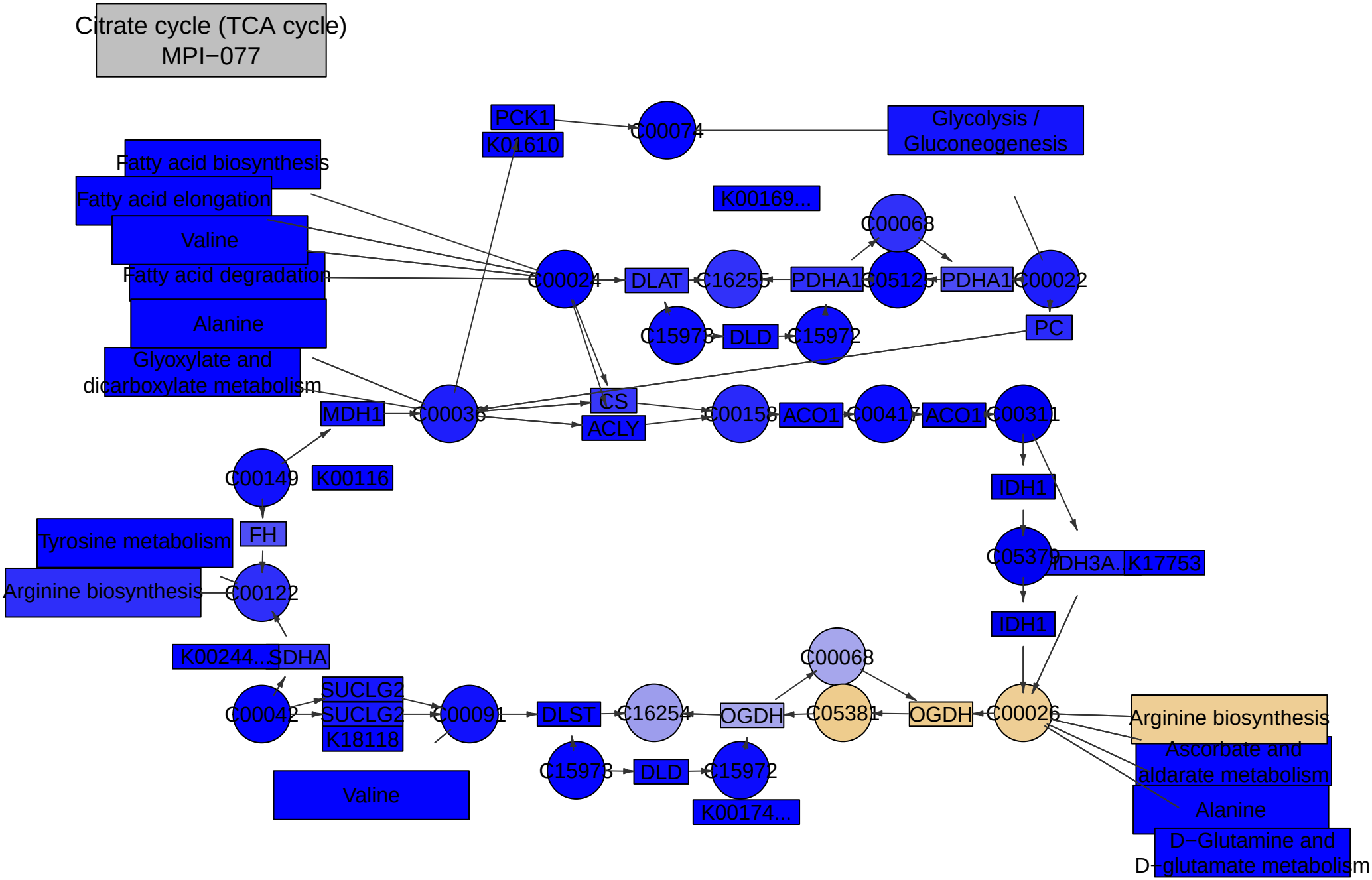
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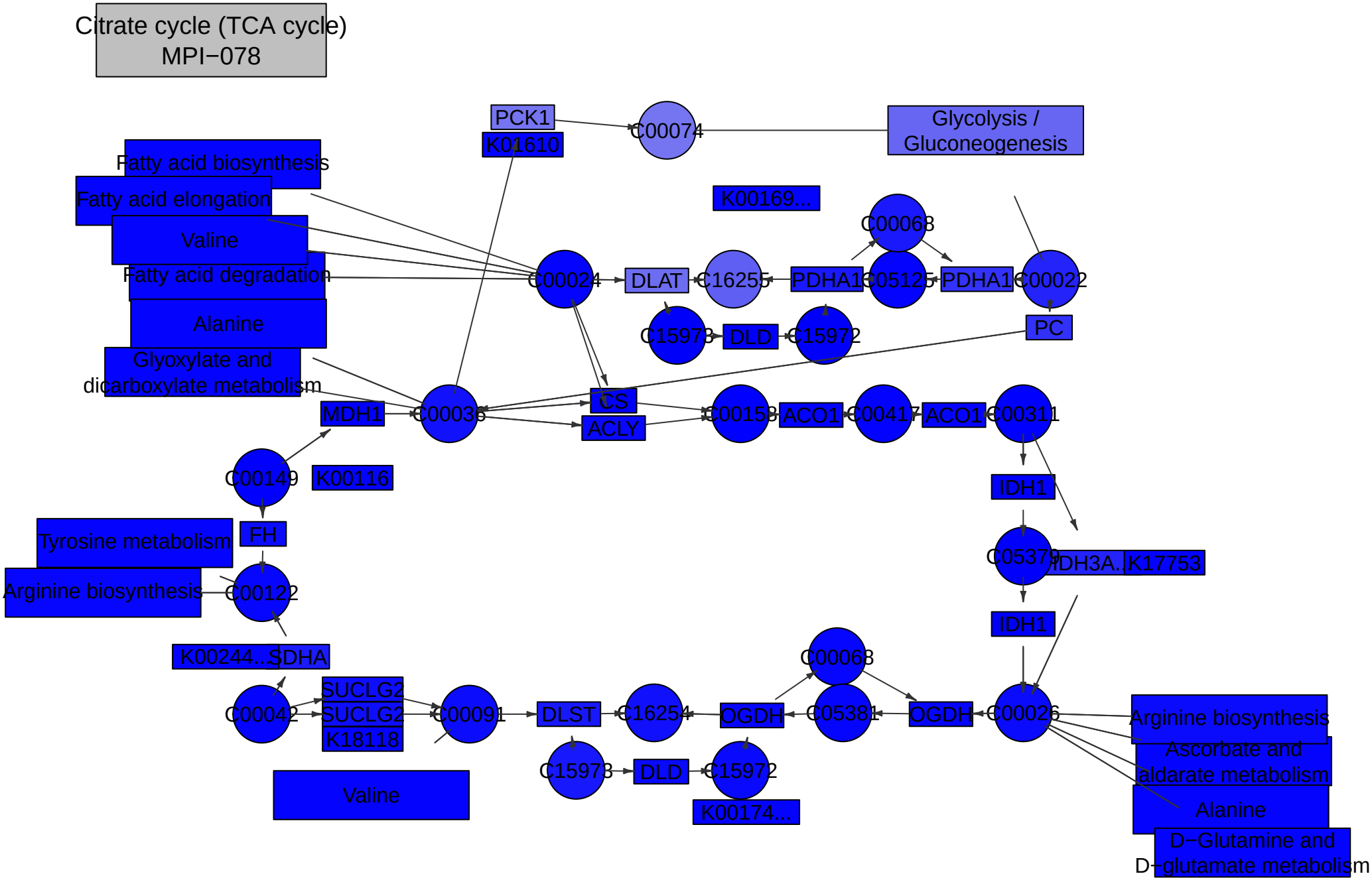
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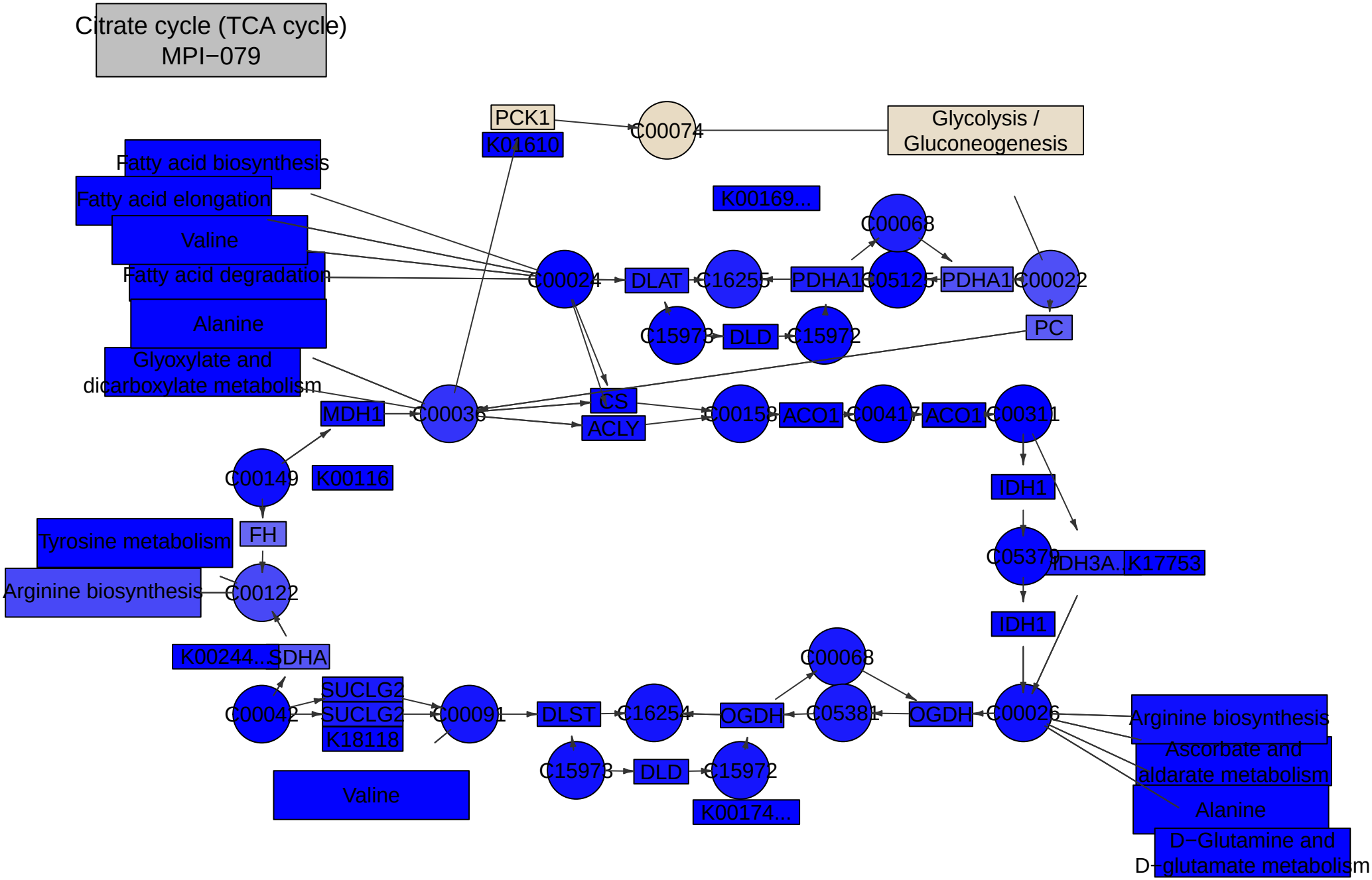
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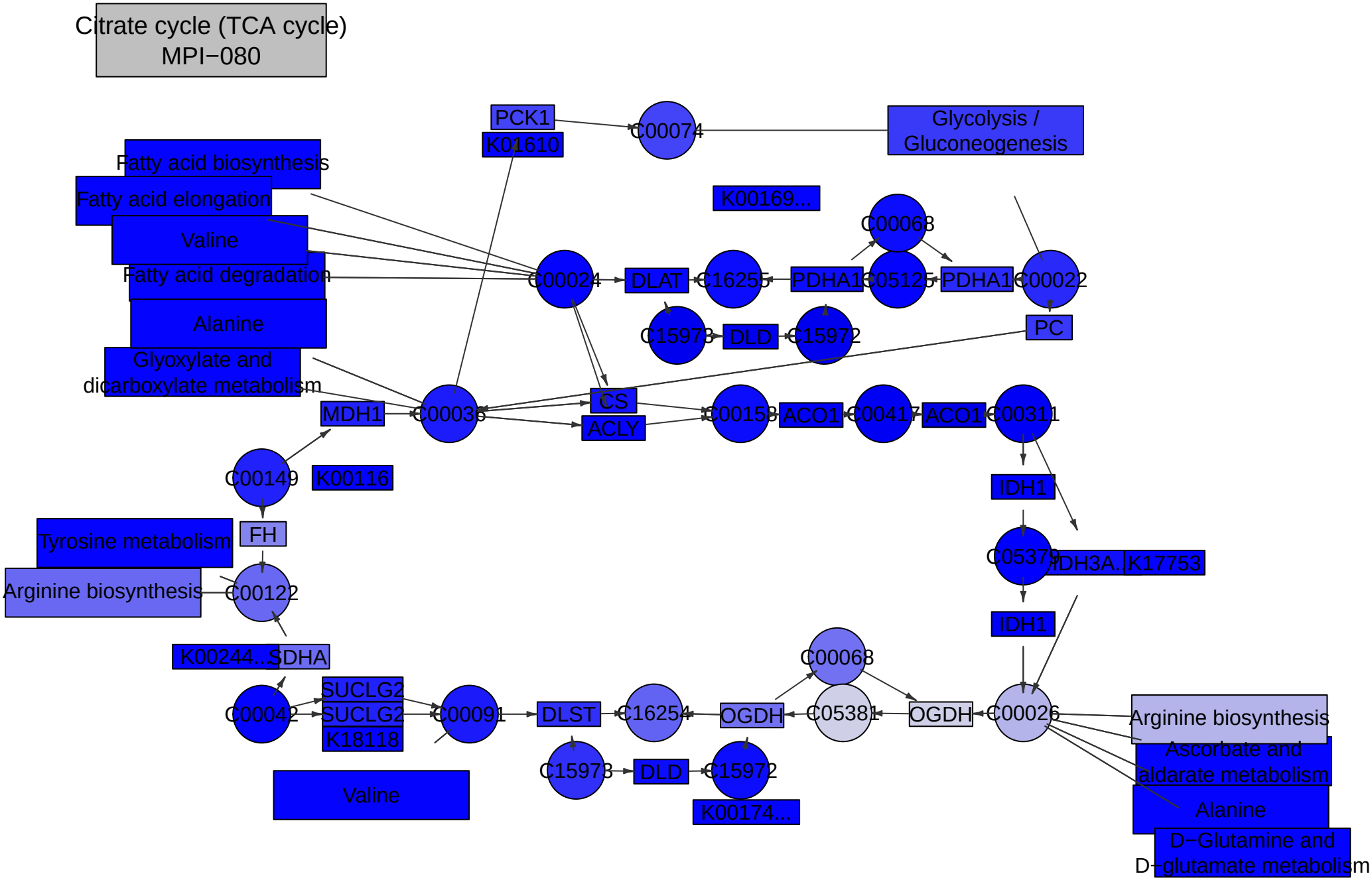
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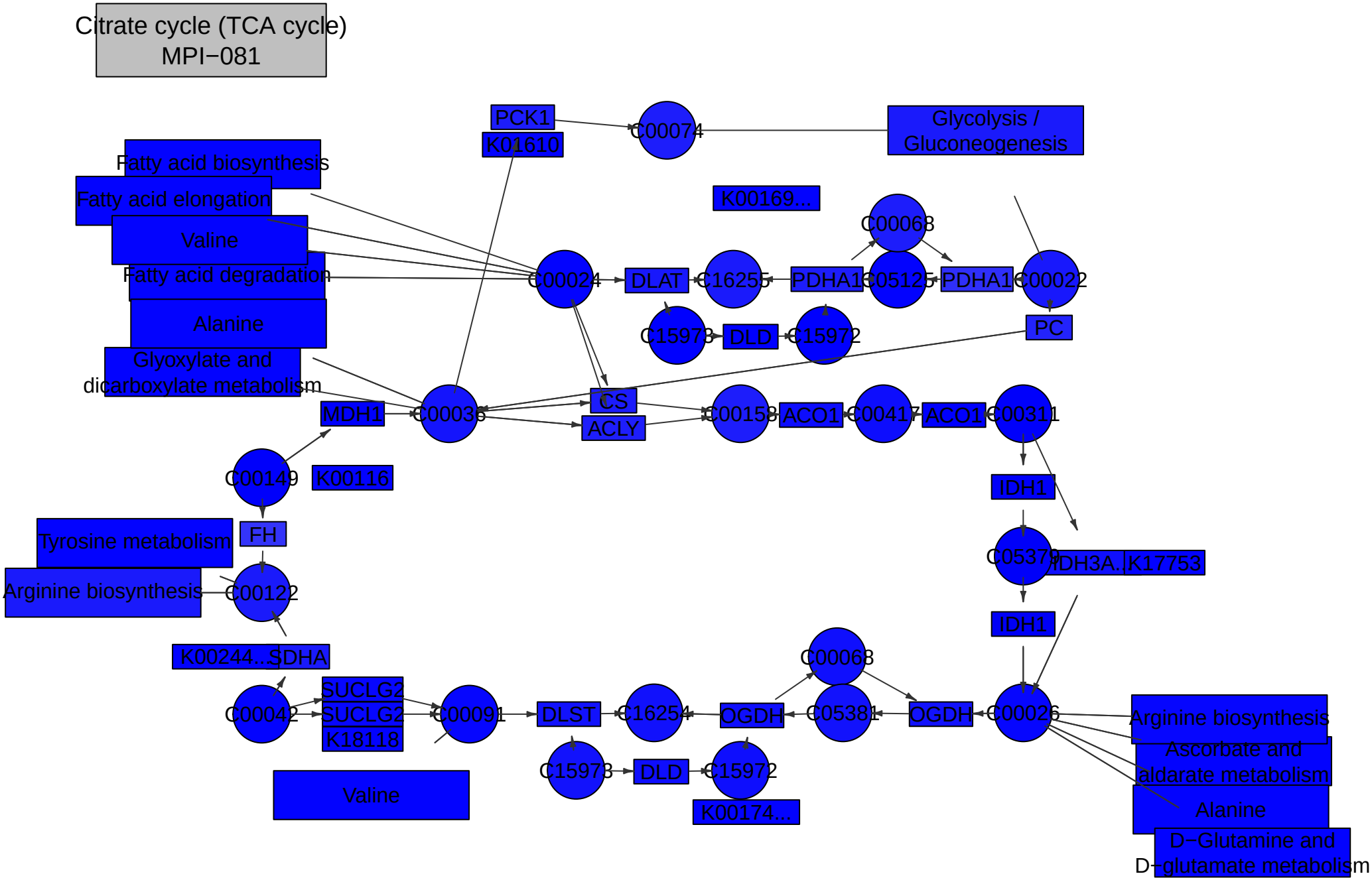
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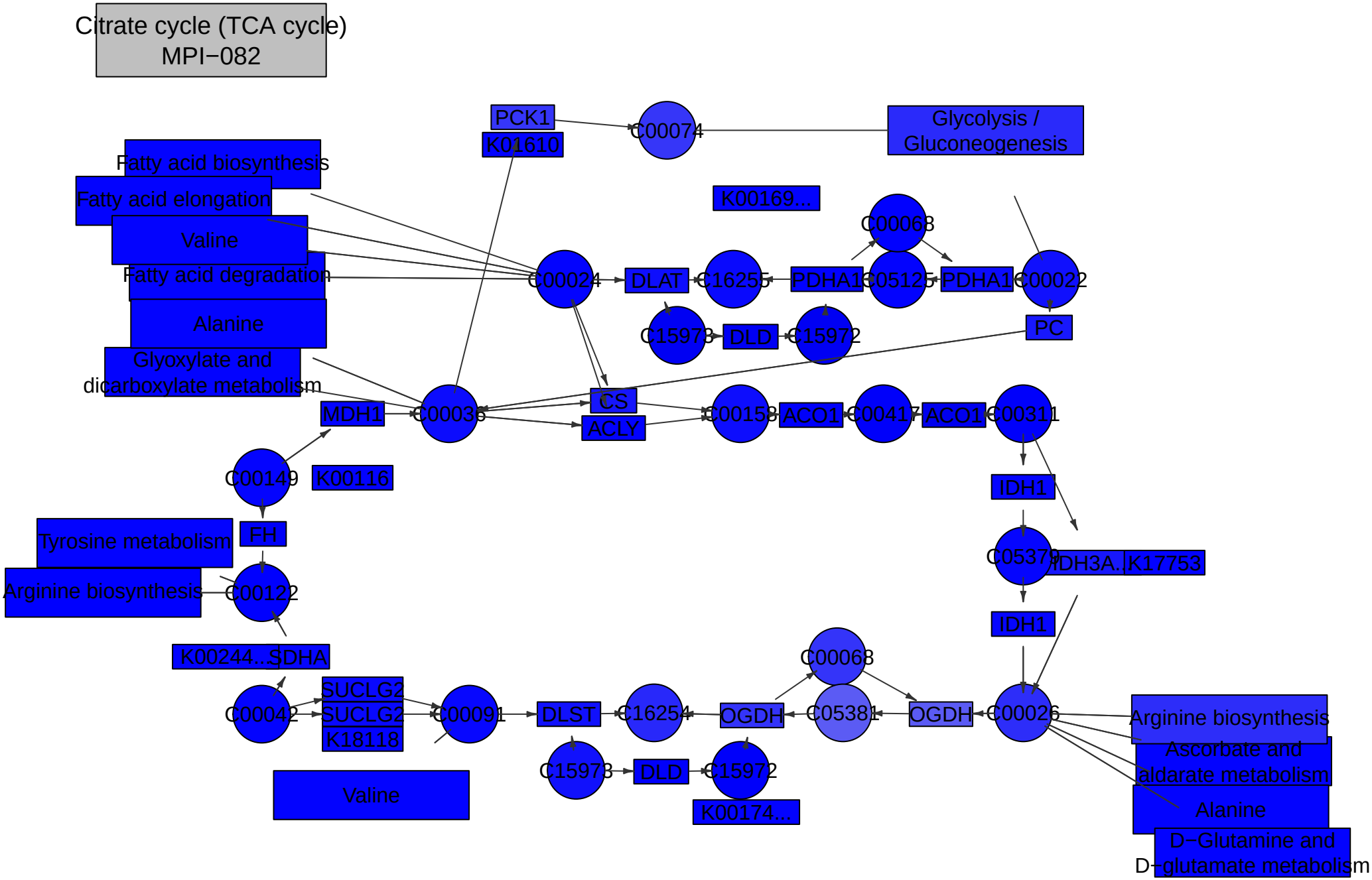
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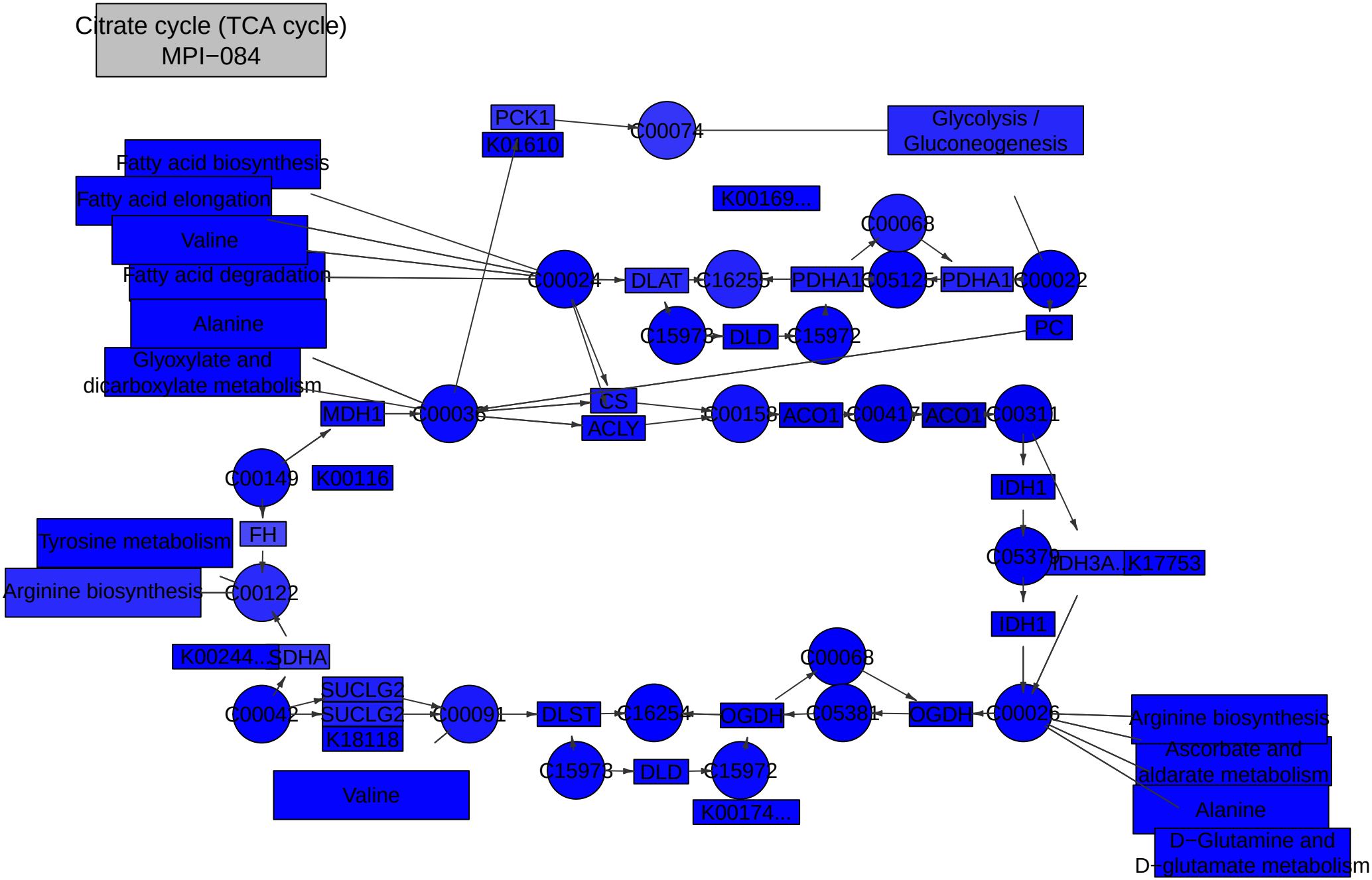
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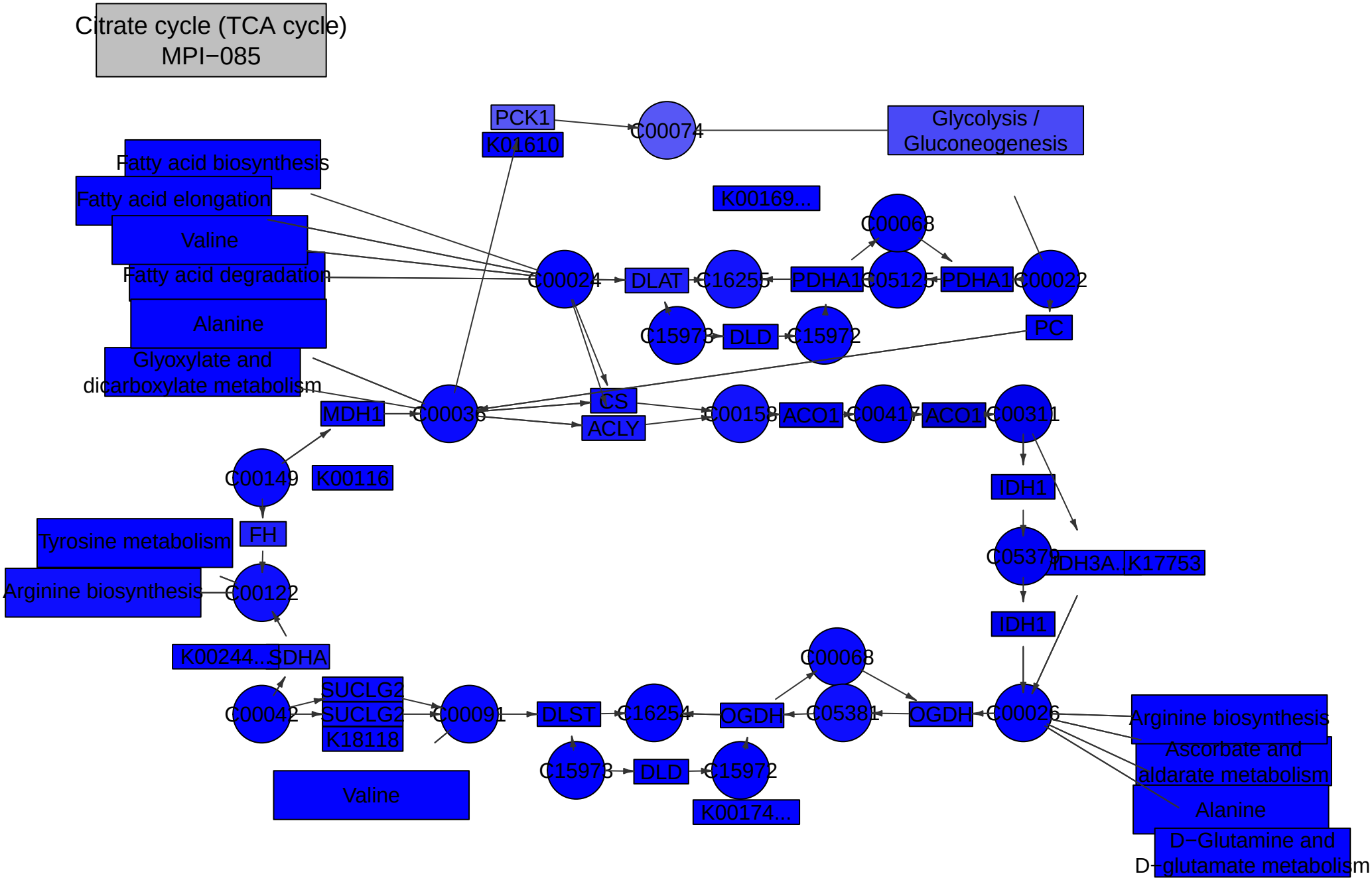
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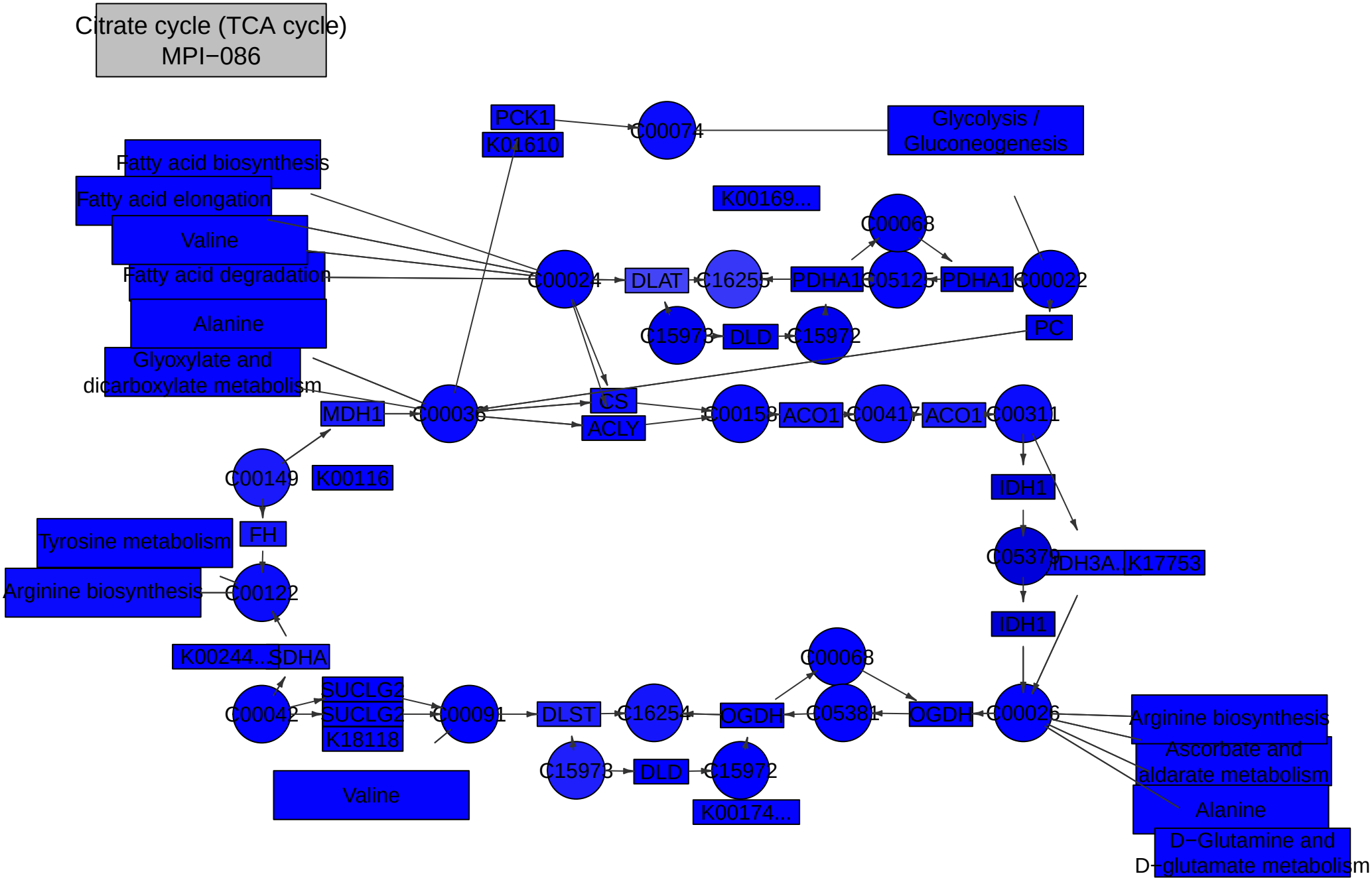
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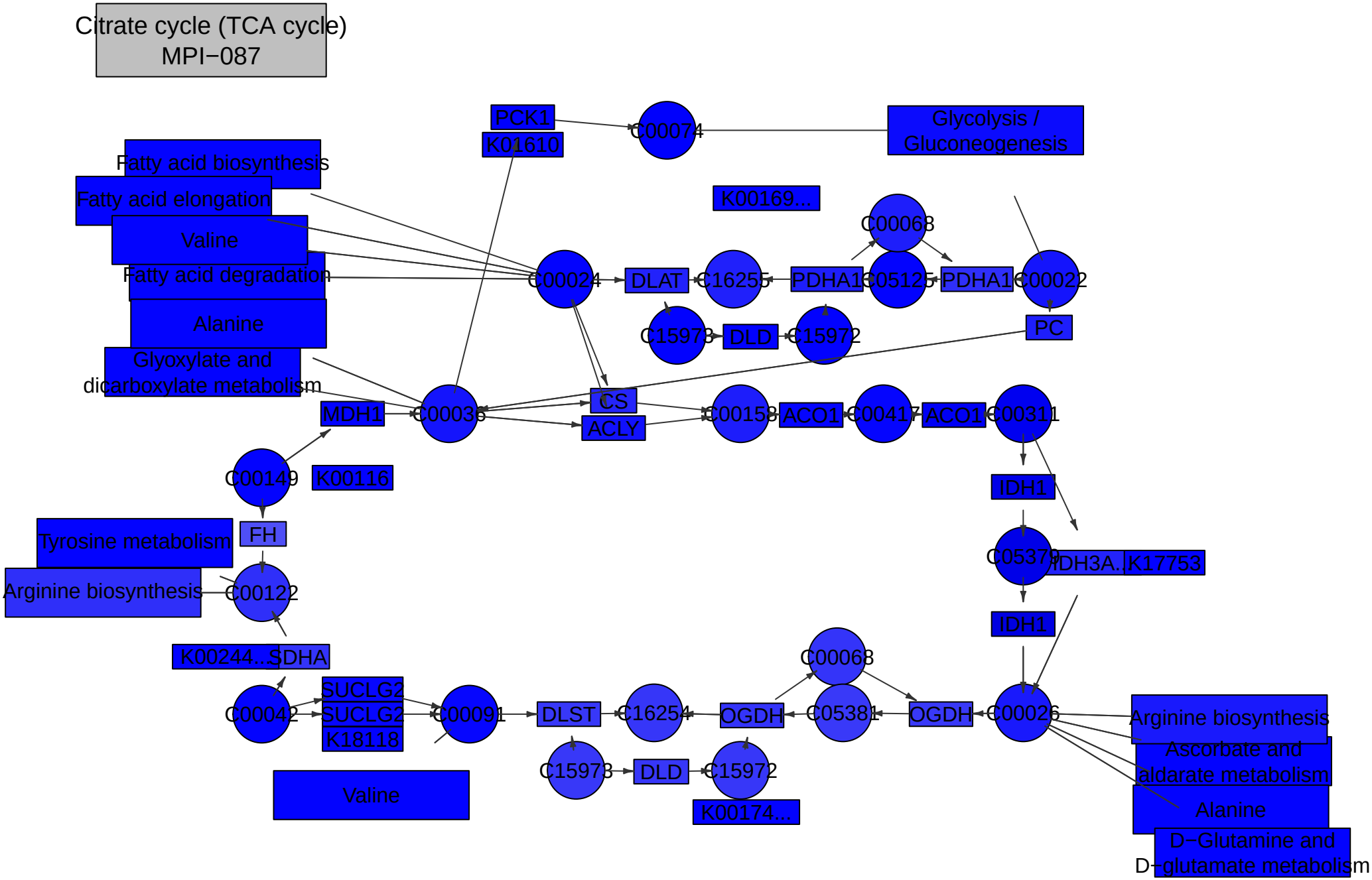
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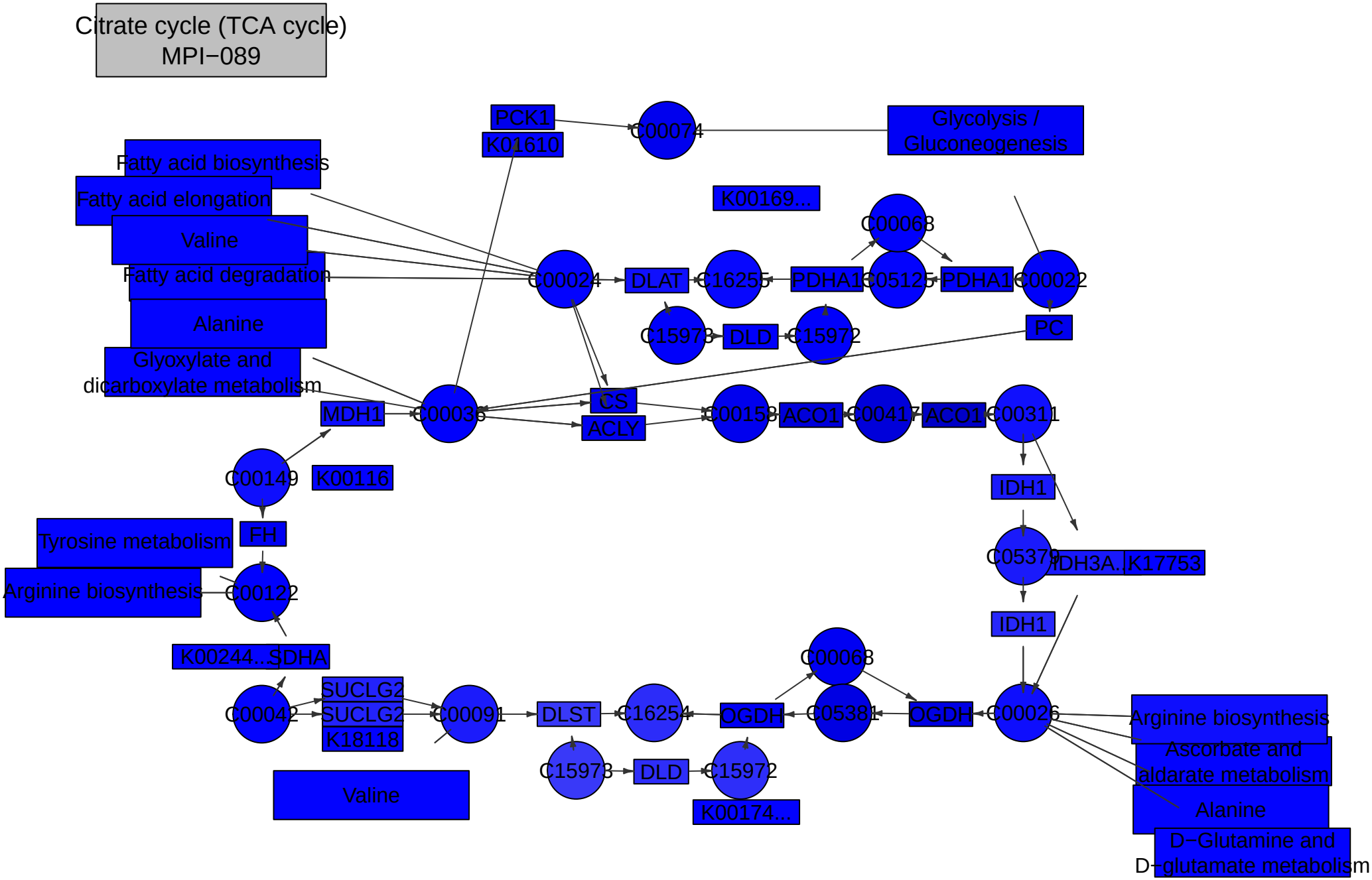
Valine


Citrate cycle (TCA cycle)
MPI−089
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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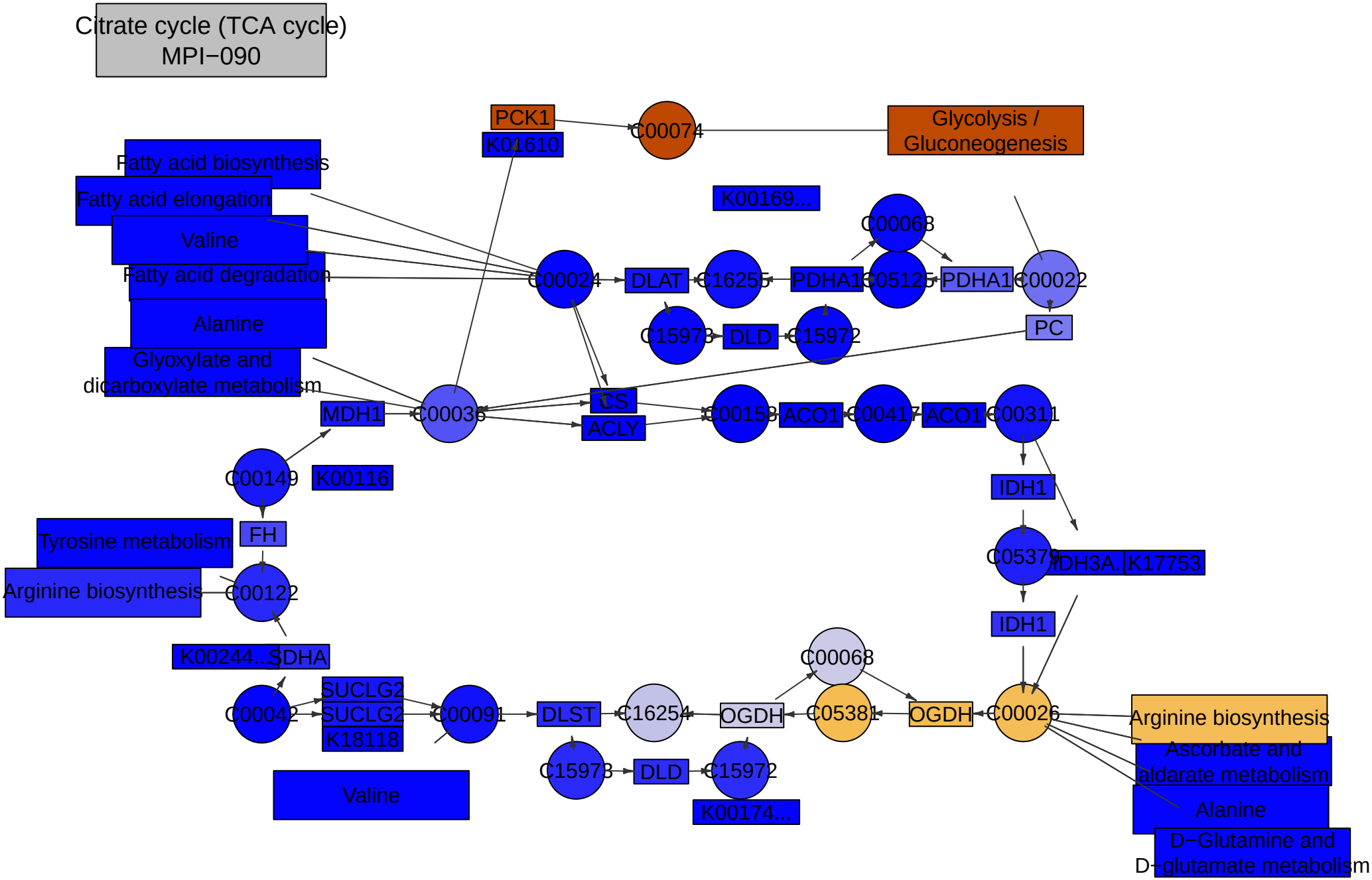
K00174...
Valine


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
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SUCLG2
K18118
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DLST
C16254
OGDH
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OGDH
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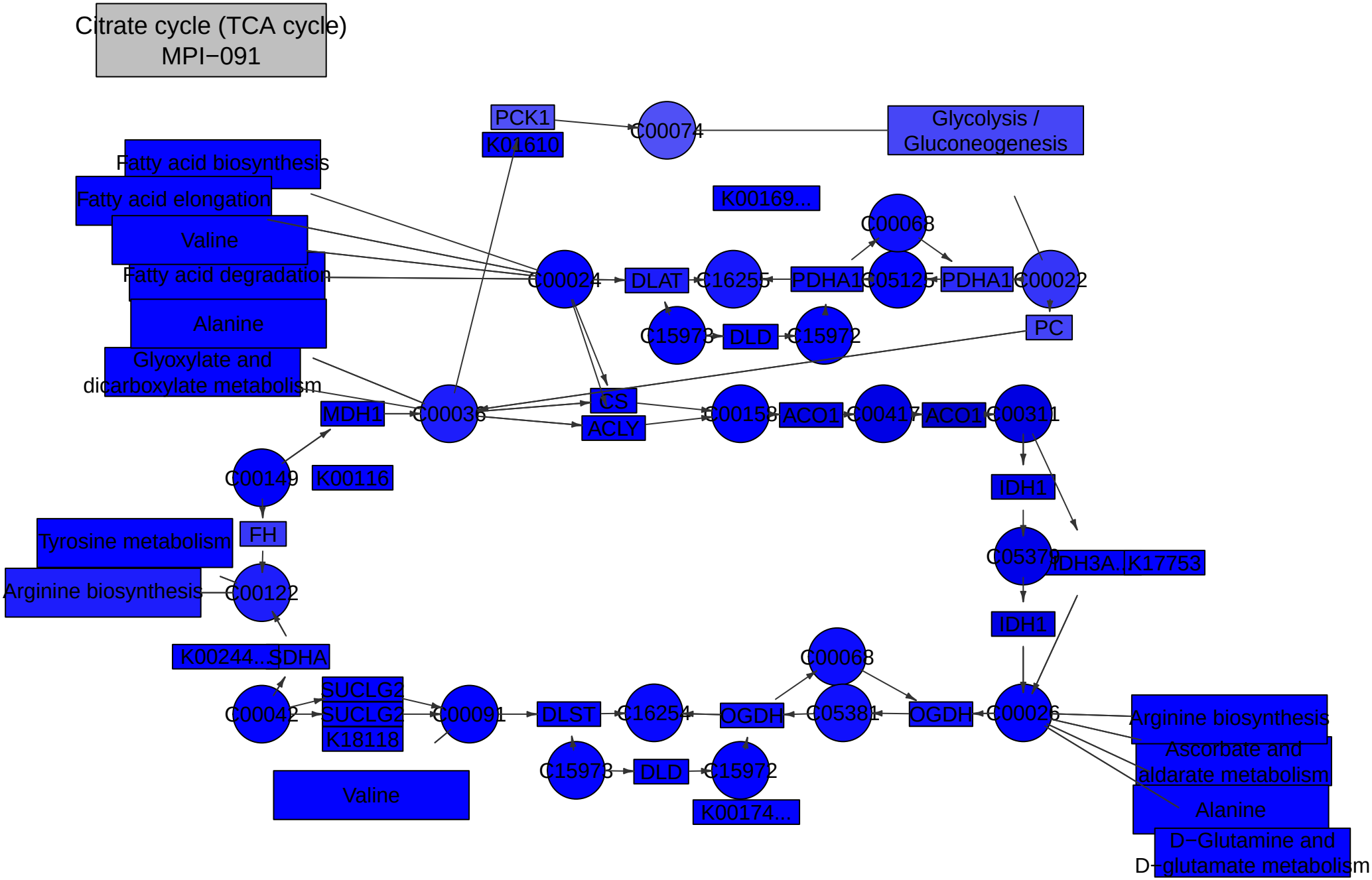
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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C00024
DLAT
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PDHA1
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C15973
DLD
C15972
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
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DLST
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OGDH
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OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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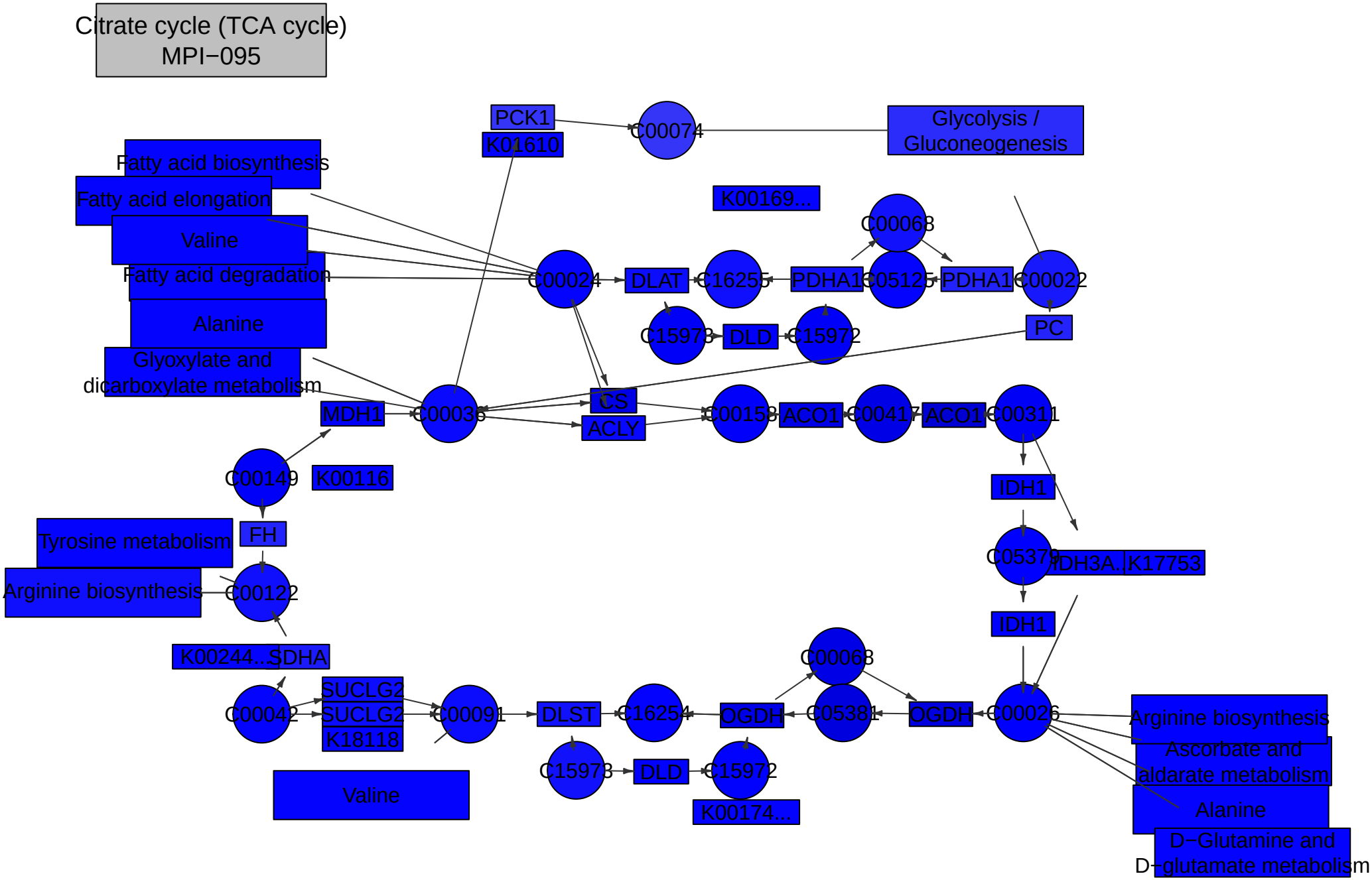
K00174...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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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PDHA1
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DLD
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ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
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IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
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DLST
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OGDH
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OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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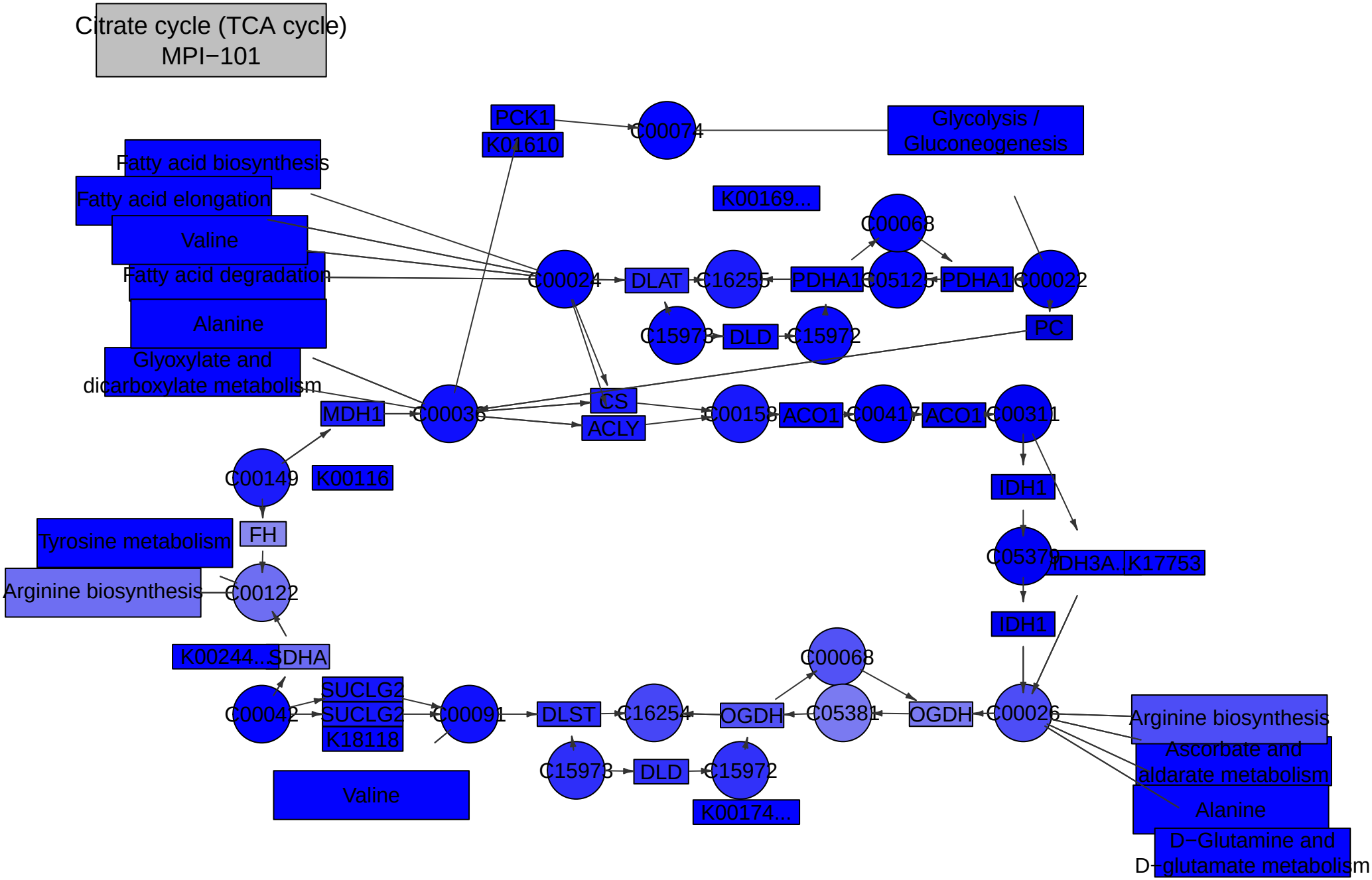
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
C00024
DLAT
C16255
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C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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ACLY
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ACO1
C00417
ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
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DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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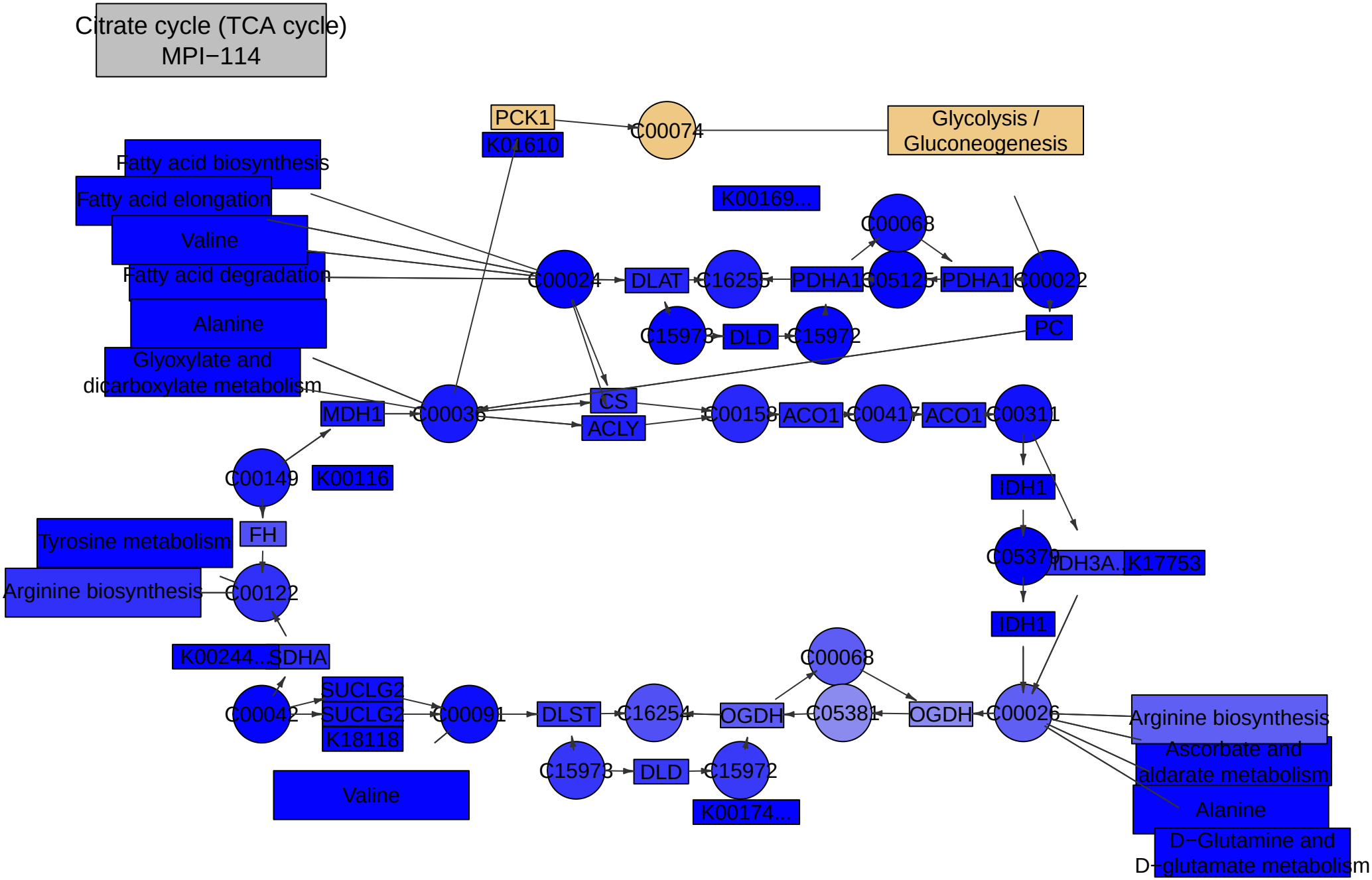
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
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DLAT
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PDHA1
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DLD
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Tyrosine metabolism
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Arginine biosynthesis
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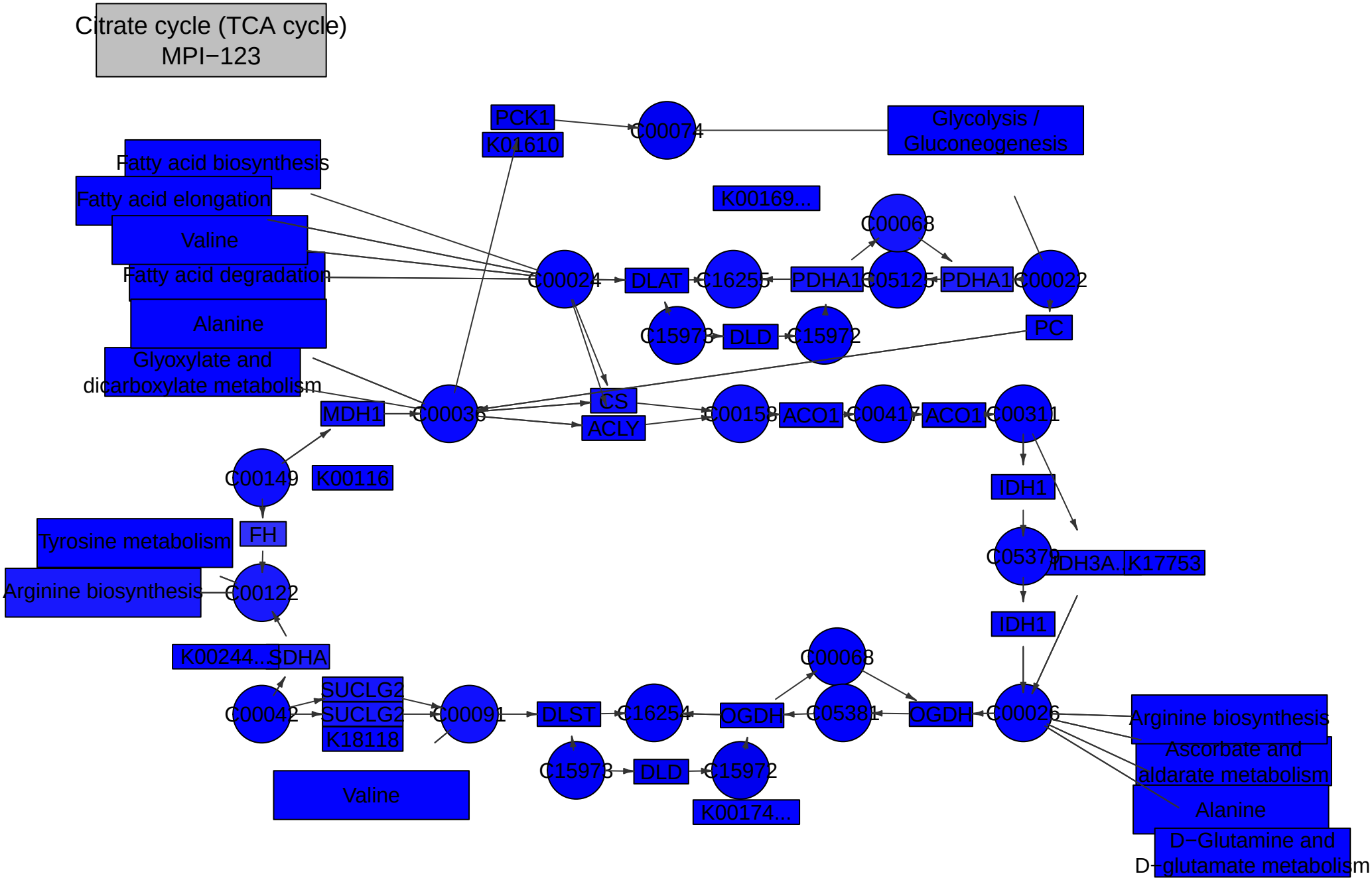
Valine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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00024
DLAT
C16255
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C05125
PDHA1
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C15973
DLD
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PC
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
SDHA
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SUCLG2
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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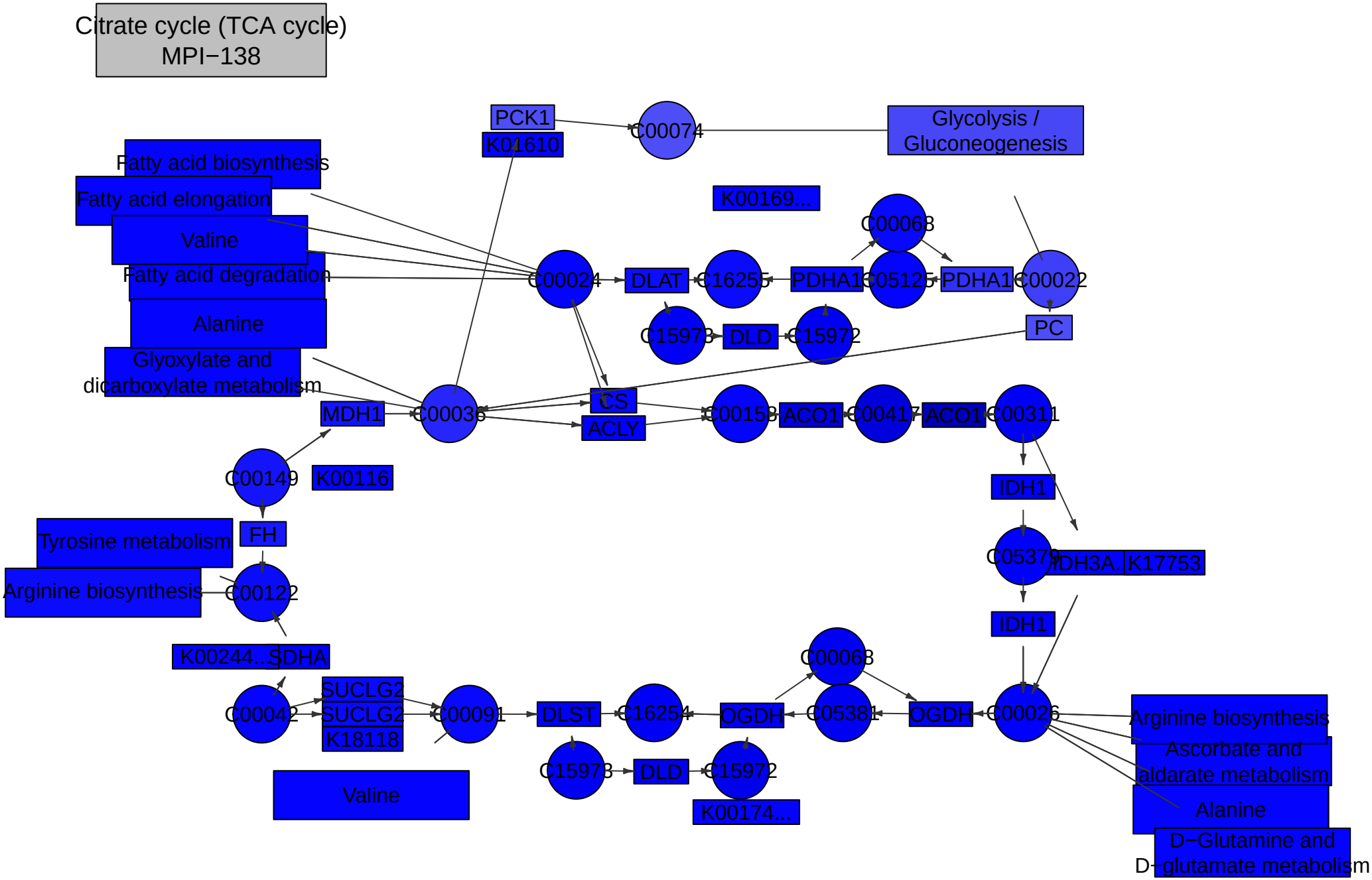
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLAT
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PDHA1
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DLD
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Arginine biosynthesis
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IDH1
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SUCLG2
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DLST
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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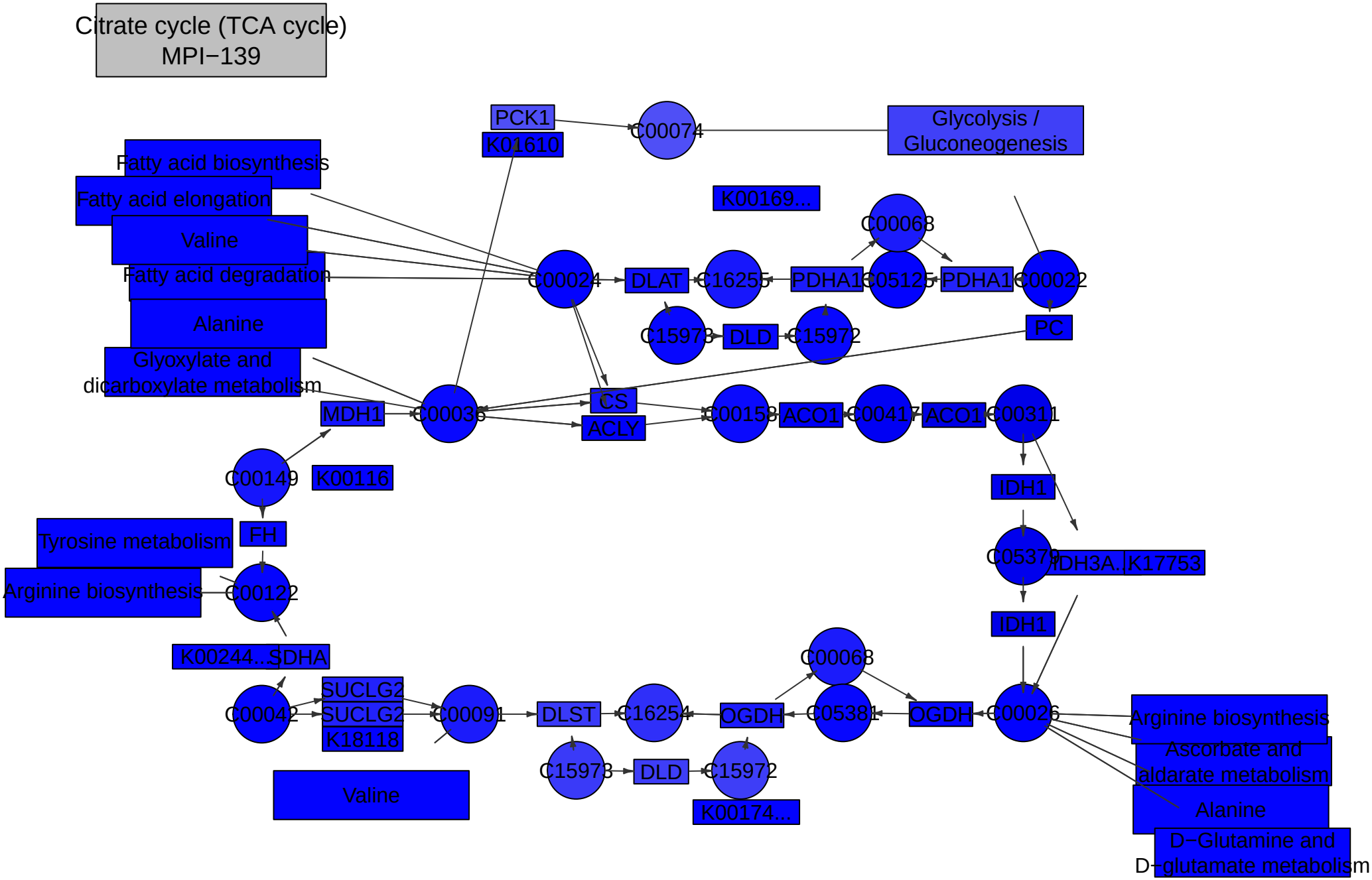
Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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Tyrosine metabolism
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Arginine biosynthesis
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IDH1
K00244..SDHA
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SUCLG2
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OGDH
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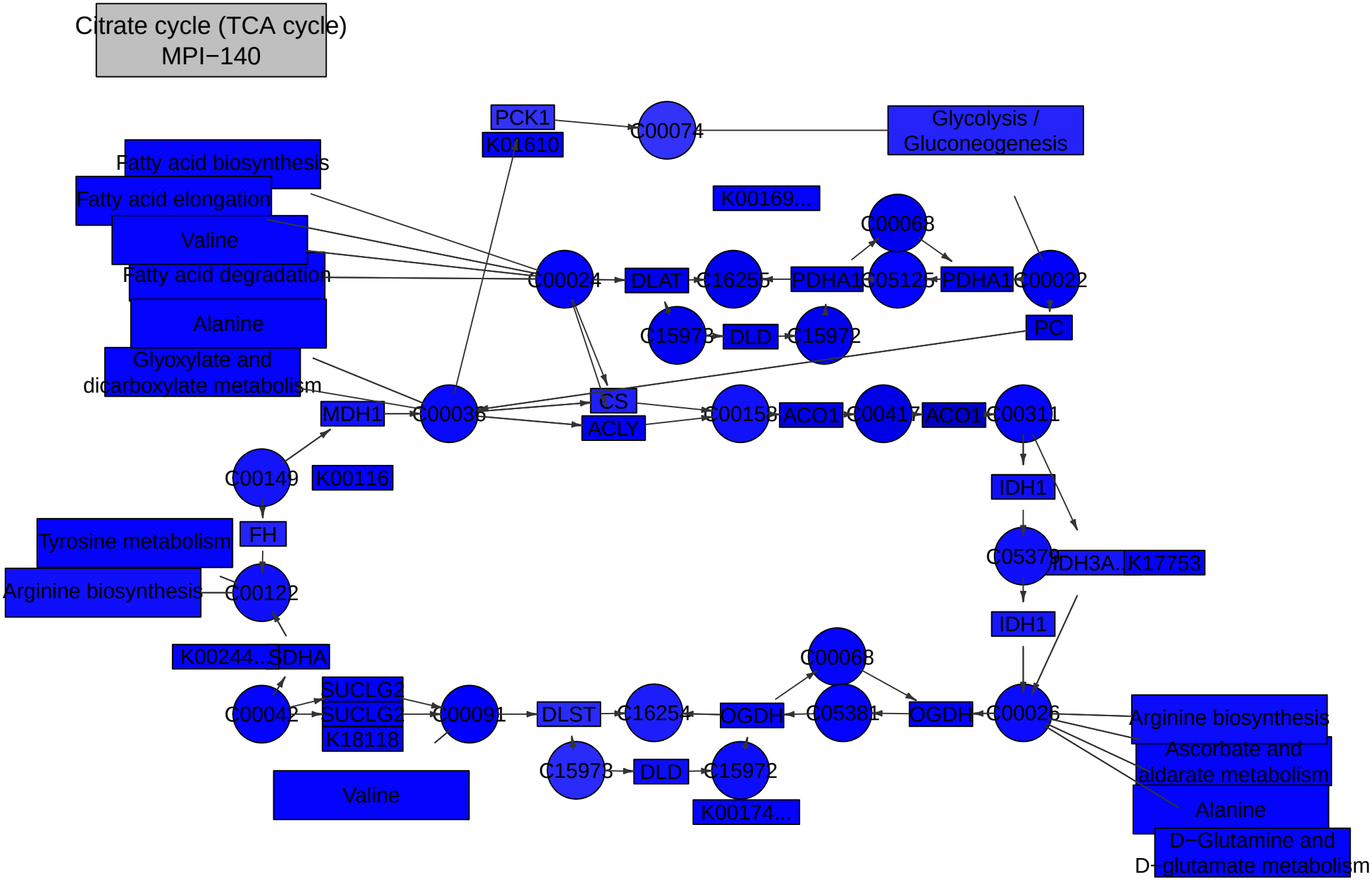
Valine


Citrate cycle (TCA cycle)
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
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SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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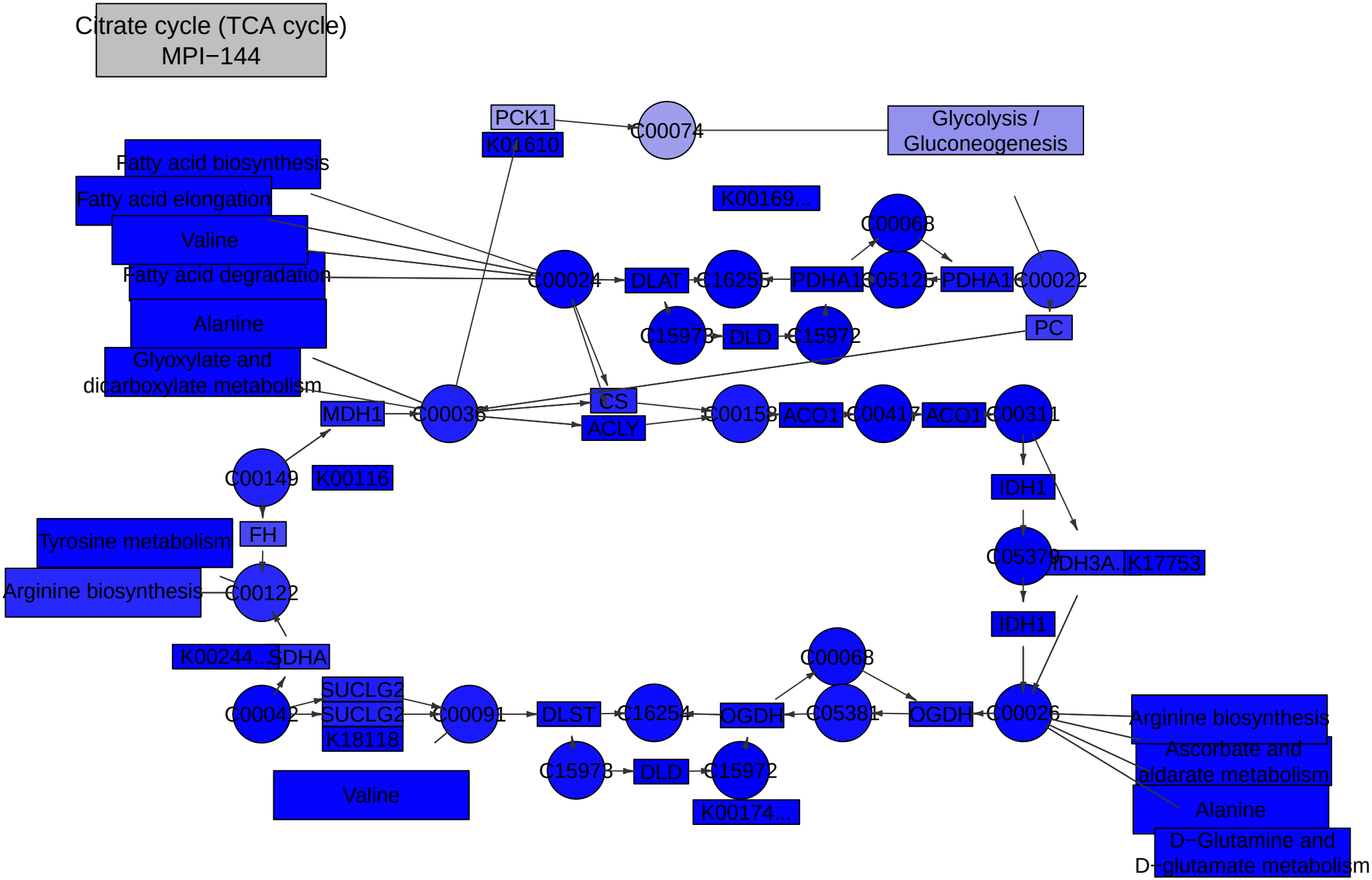
K00174...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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLAT
C16255
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PDHA1
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DLD
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ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
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SUCLG2
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DLST
C16254
OGDH
C05381
OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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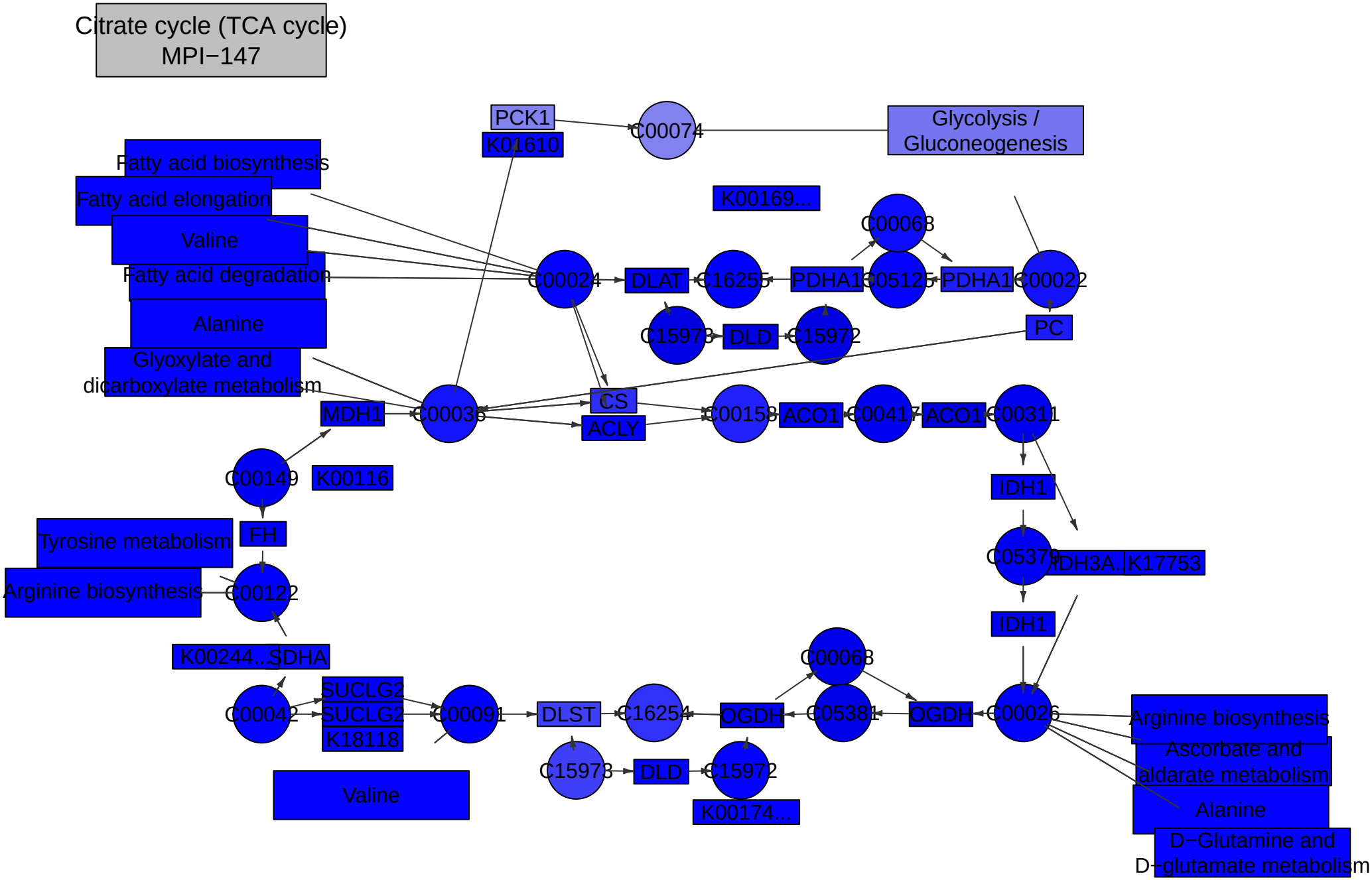
K00174...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Fatty acid degradation
Alanine
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PDHA1
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Tyrosine metabolism
FH
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DLST
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OGDH
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OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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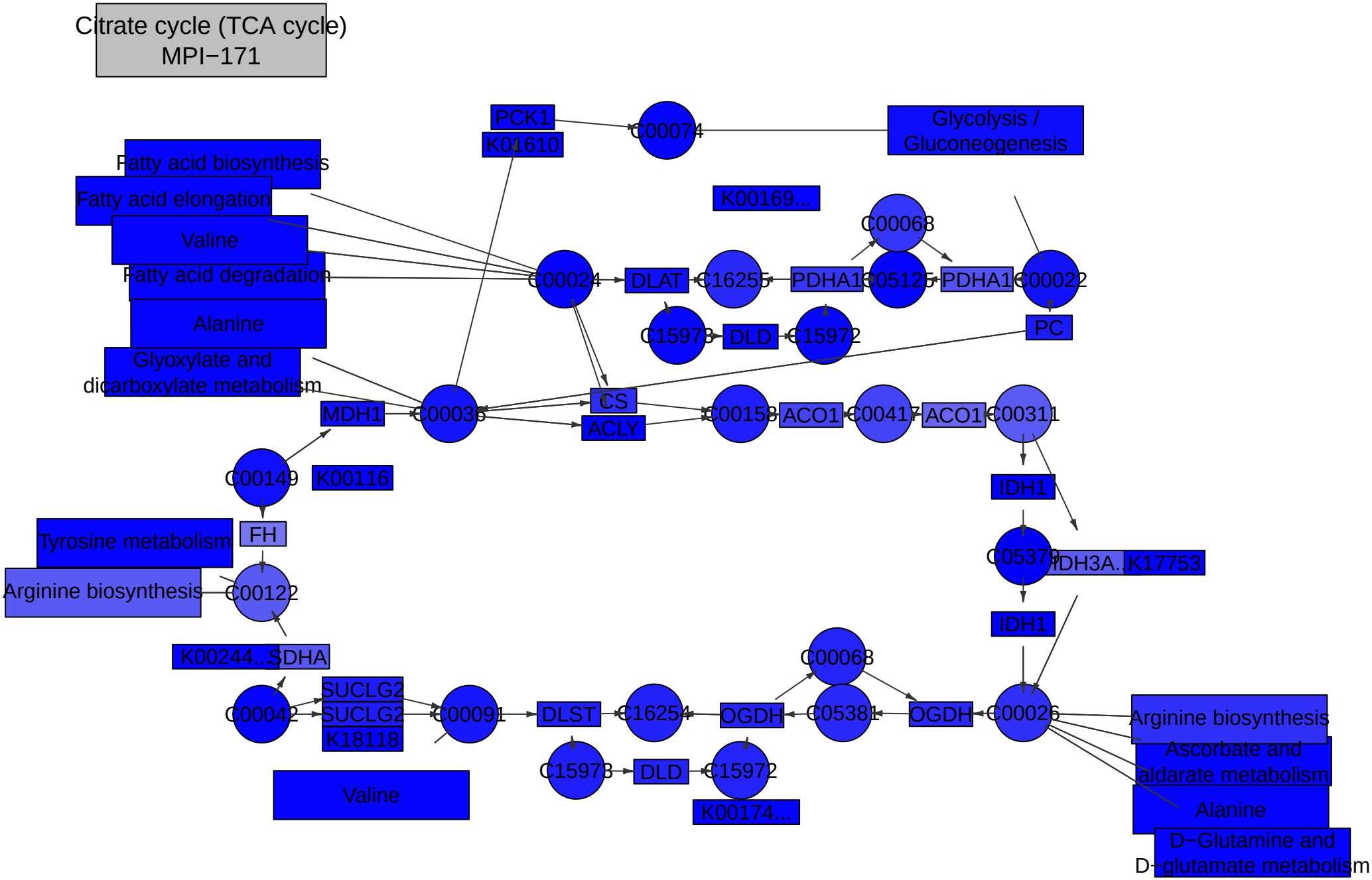
K00174...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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
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SUCLG2
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DLST
C16254
OGDH
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OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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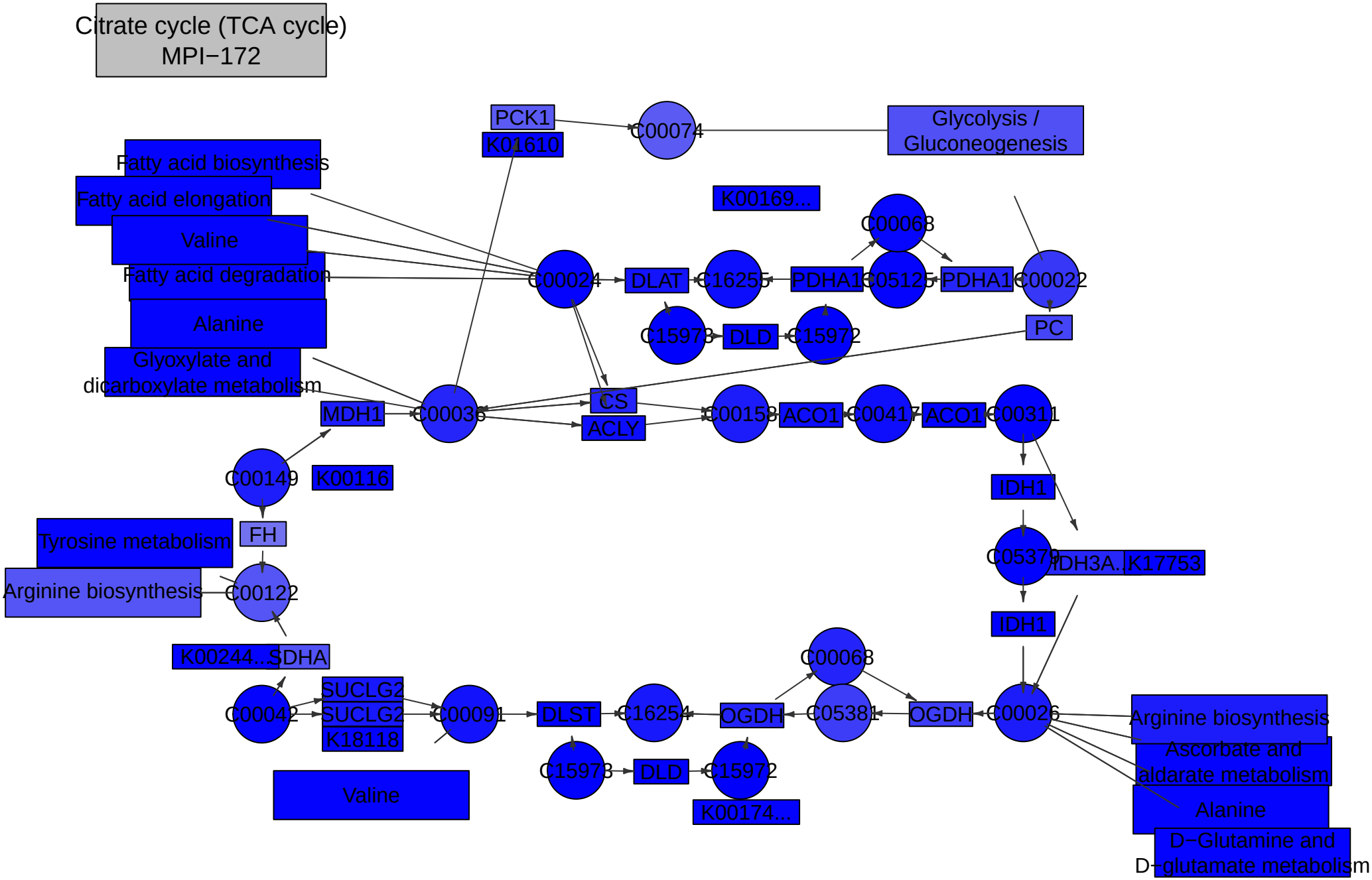
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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ACO1
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K00116
IDH1
Tyrosine metabolism
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IDH1
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SUCLG2
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OGDH
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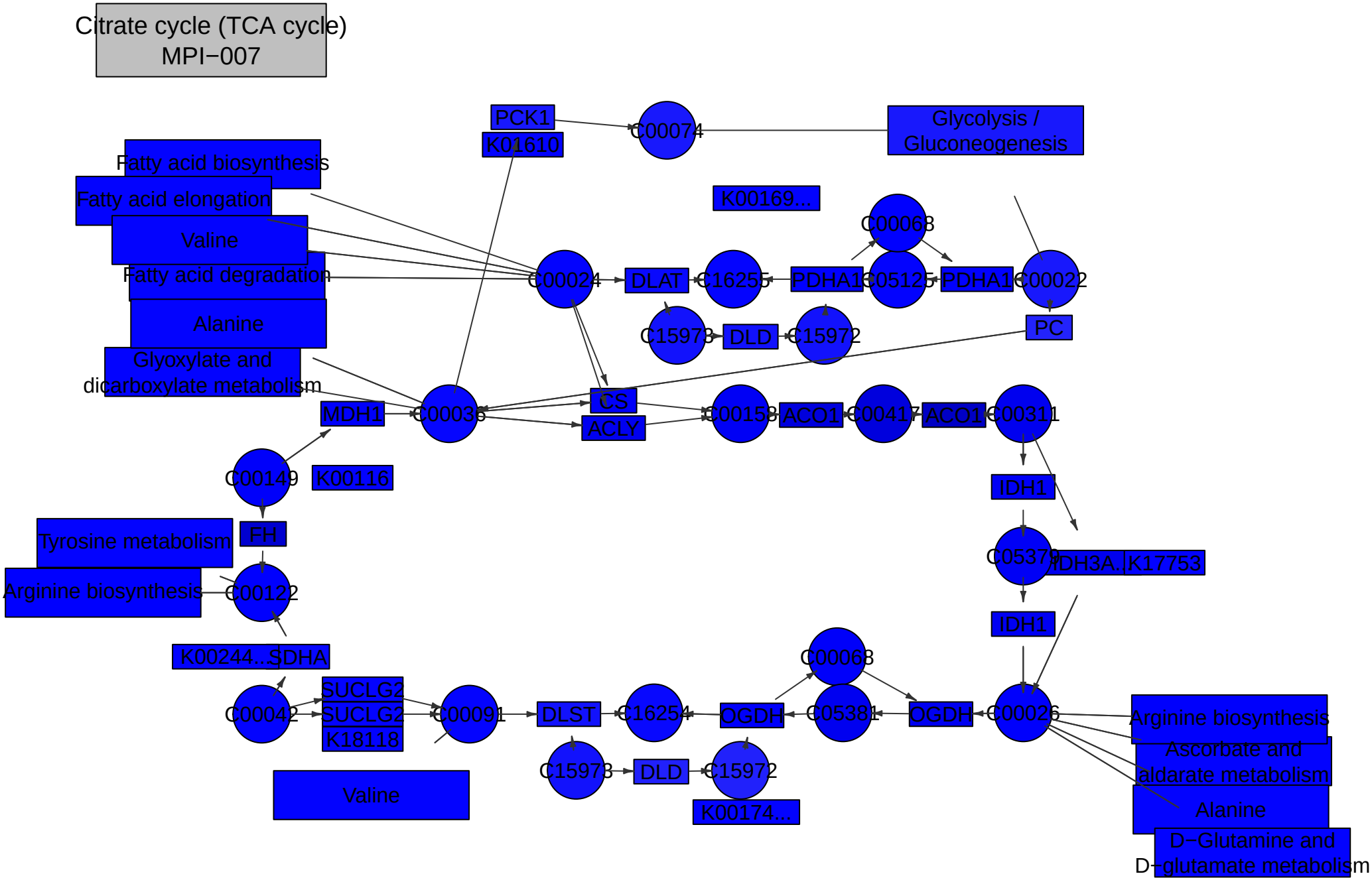
Valine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Fatty acid degradation
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Tyrosine metabolism
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IDH1
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SUCLG2
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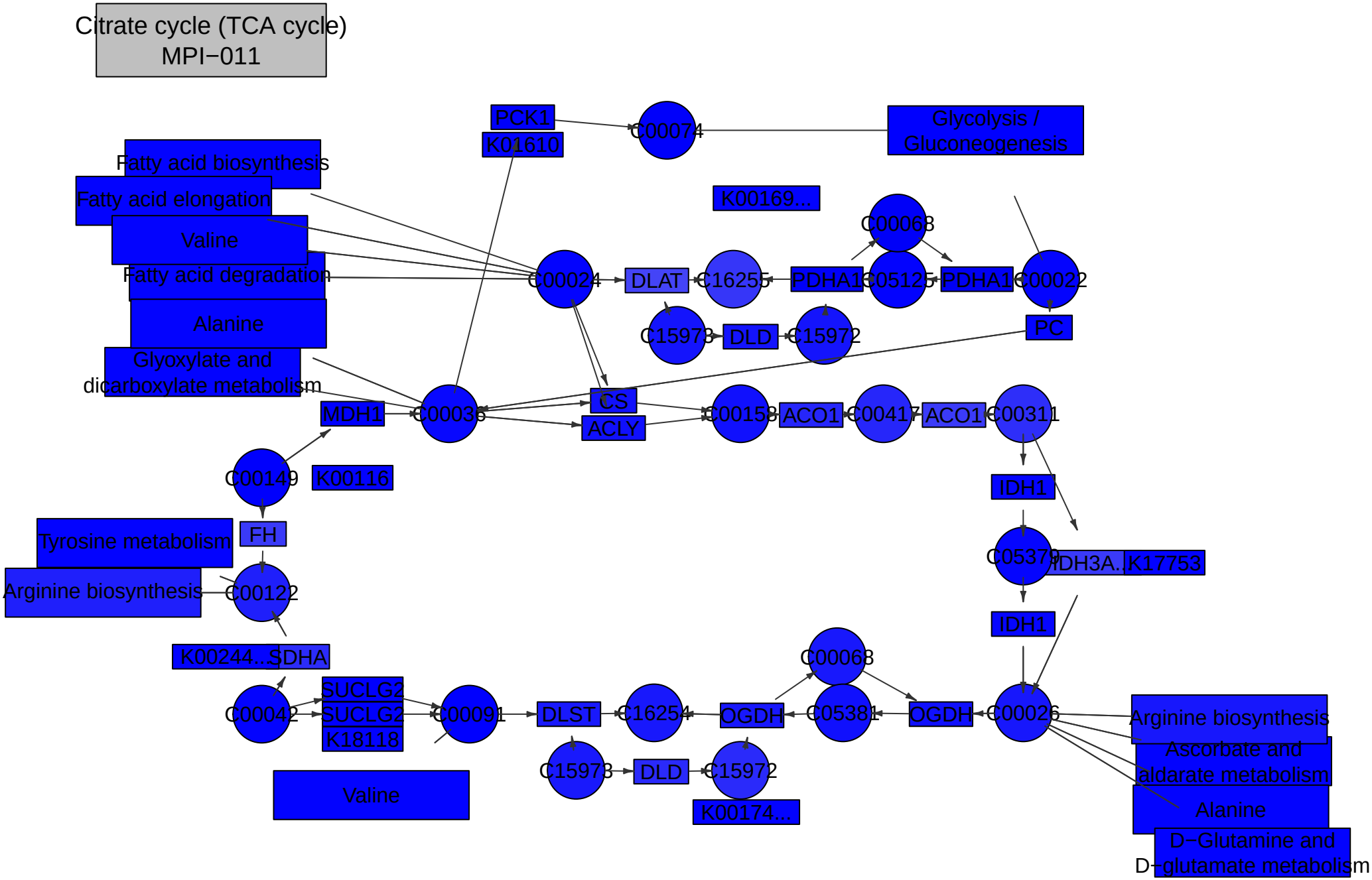
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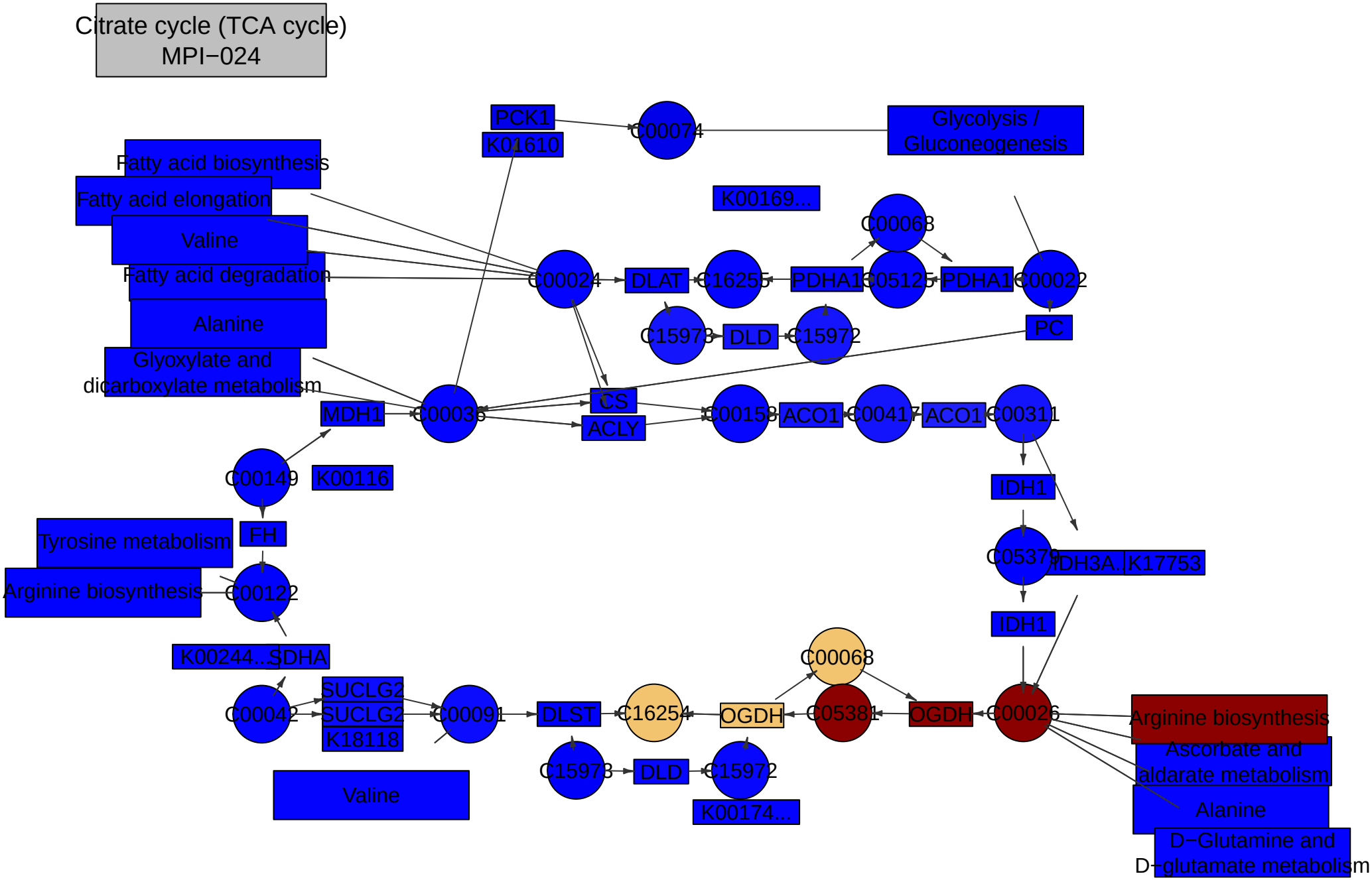
K00174...
Valine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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
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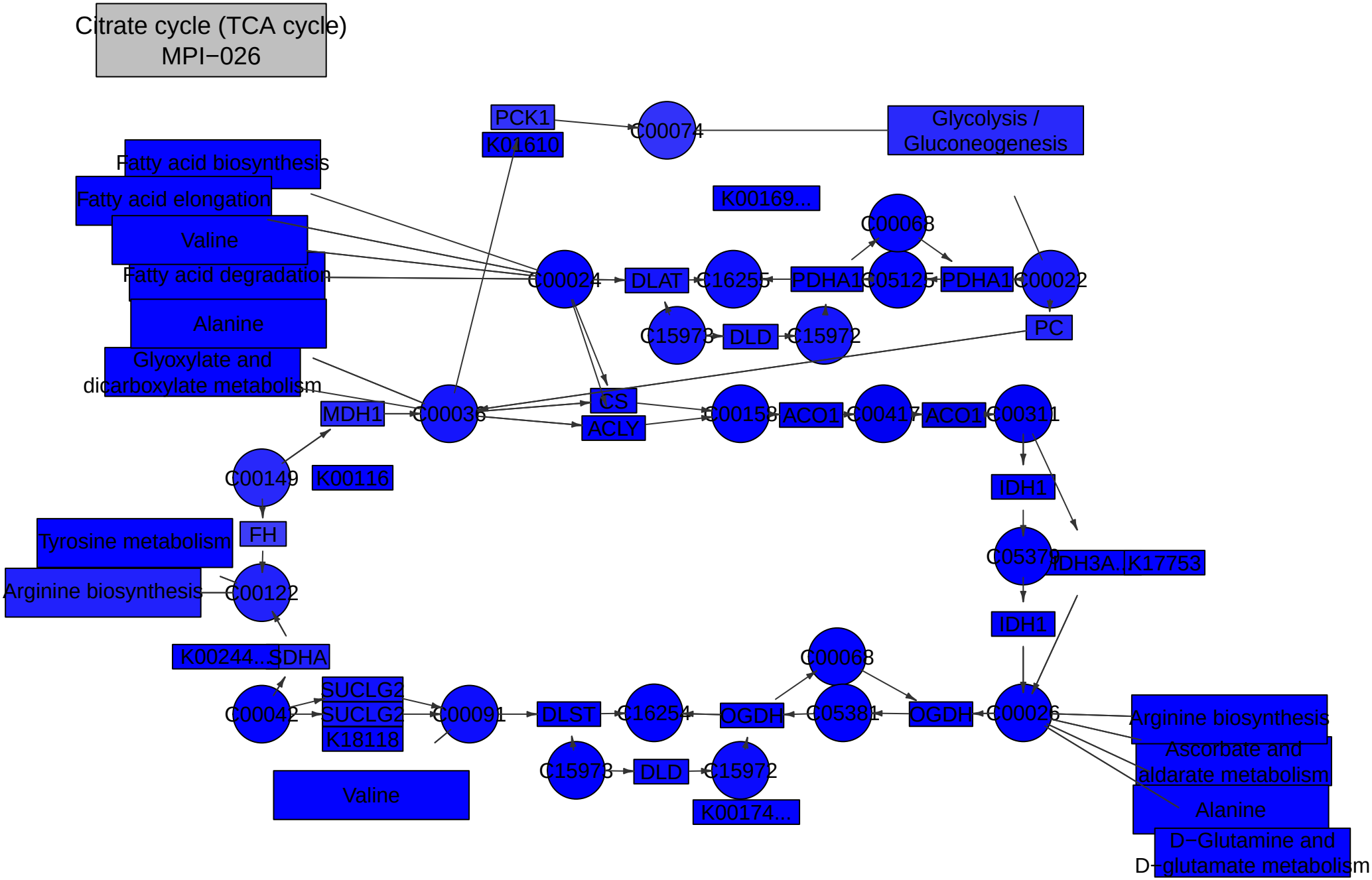
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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PDHA1
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DLD
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Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
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SUCLG2
SUCLG2
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DLST
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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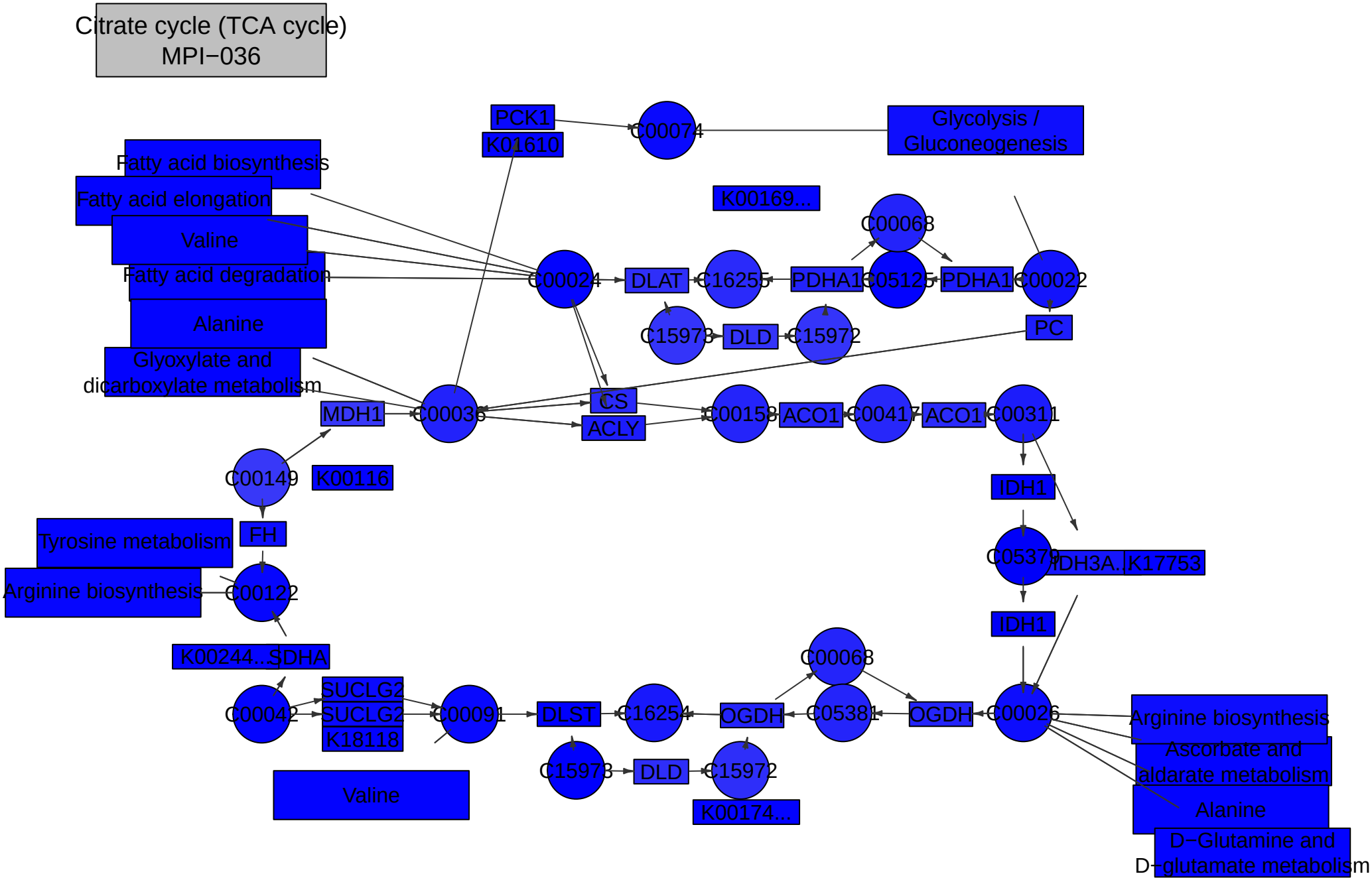
K00174...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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C16255
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DLD
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Tyrosine metabolism
Arginine biosynthesis
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IDH1
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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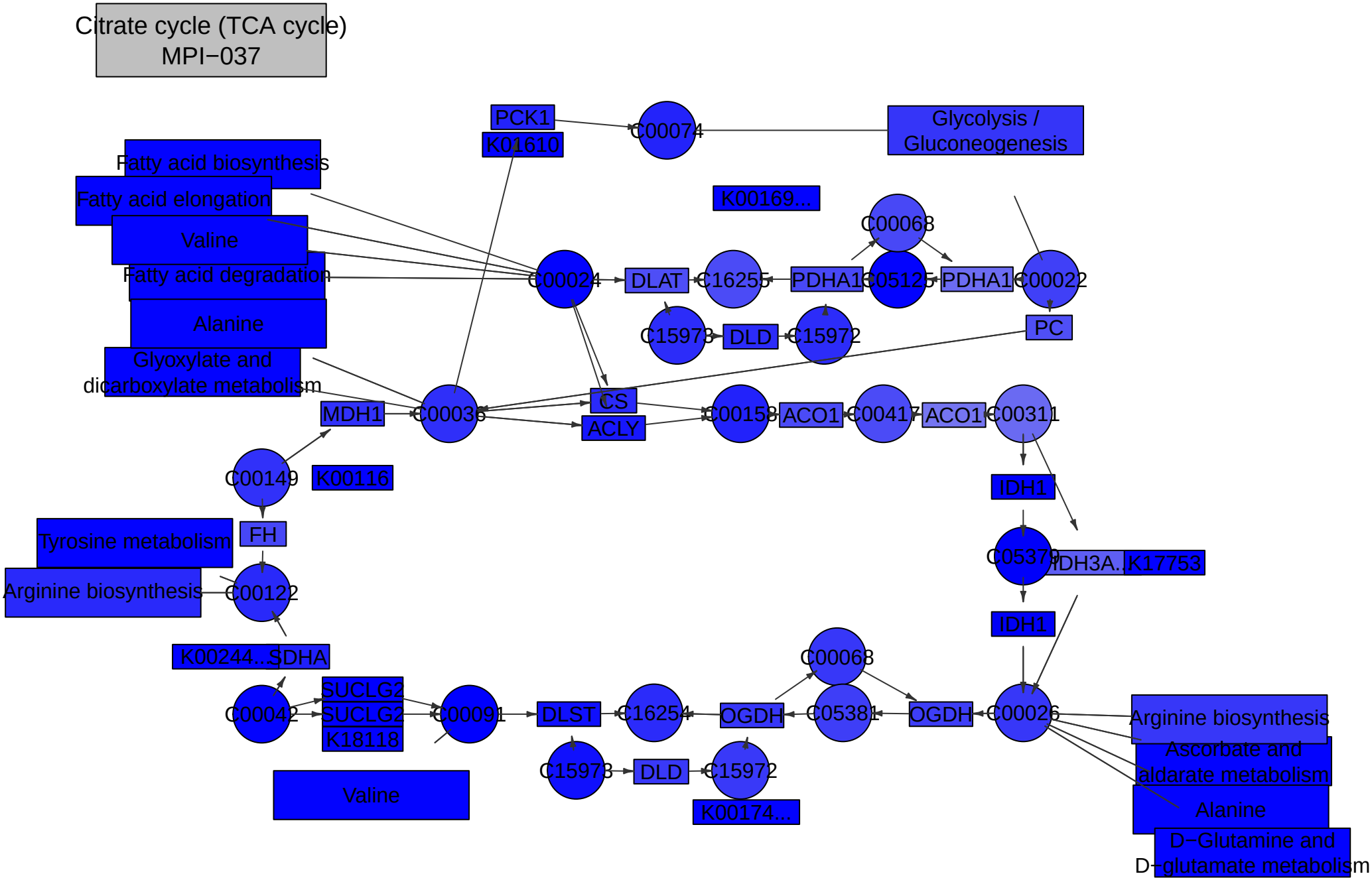
Valine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Alanine
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DLD
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Tyrosine metabolism
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Alanine
D−Glutamine and D−glutamate metabolism
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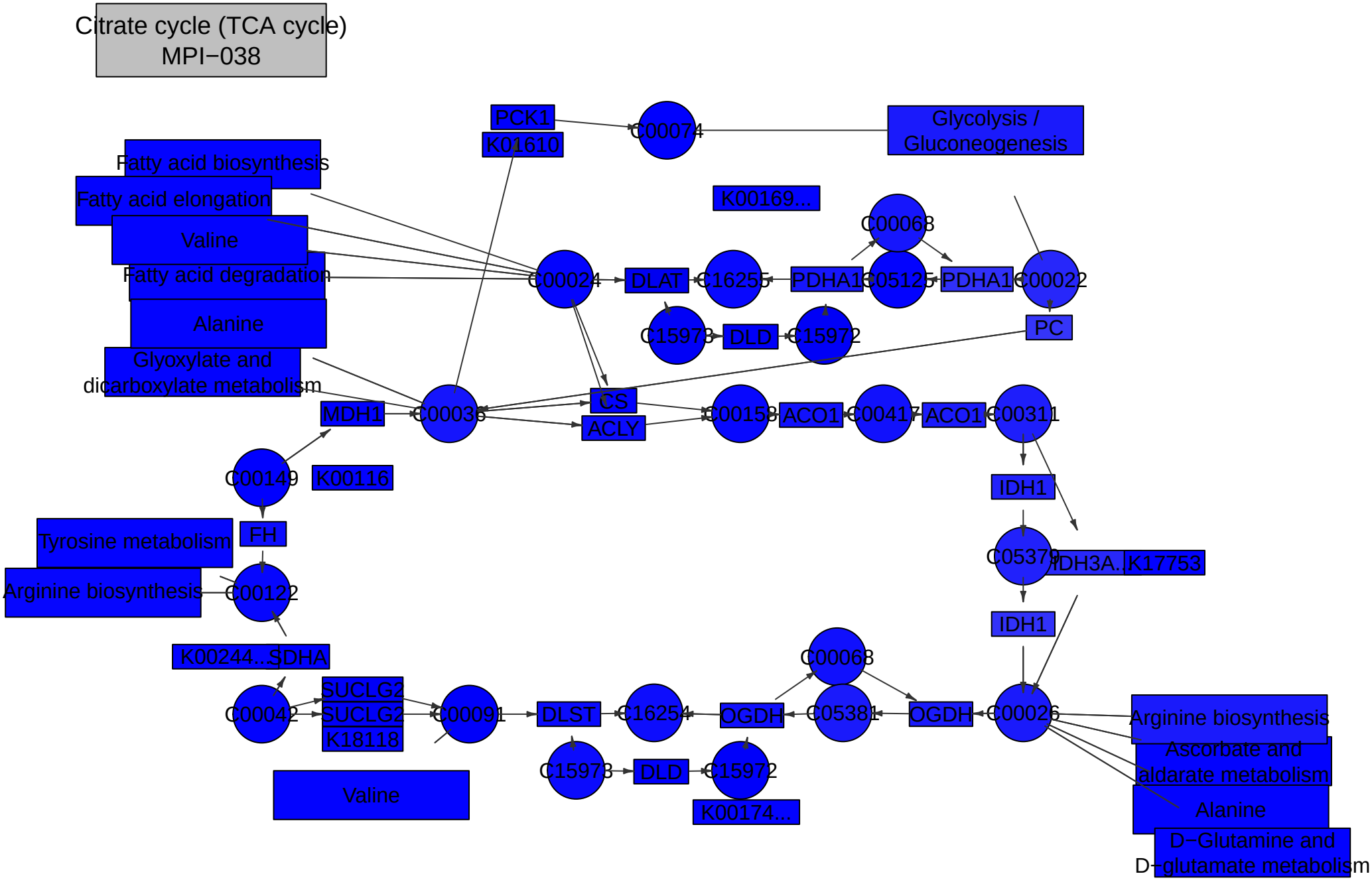
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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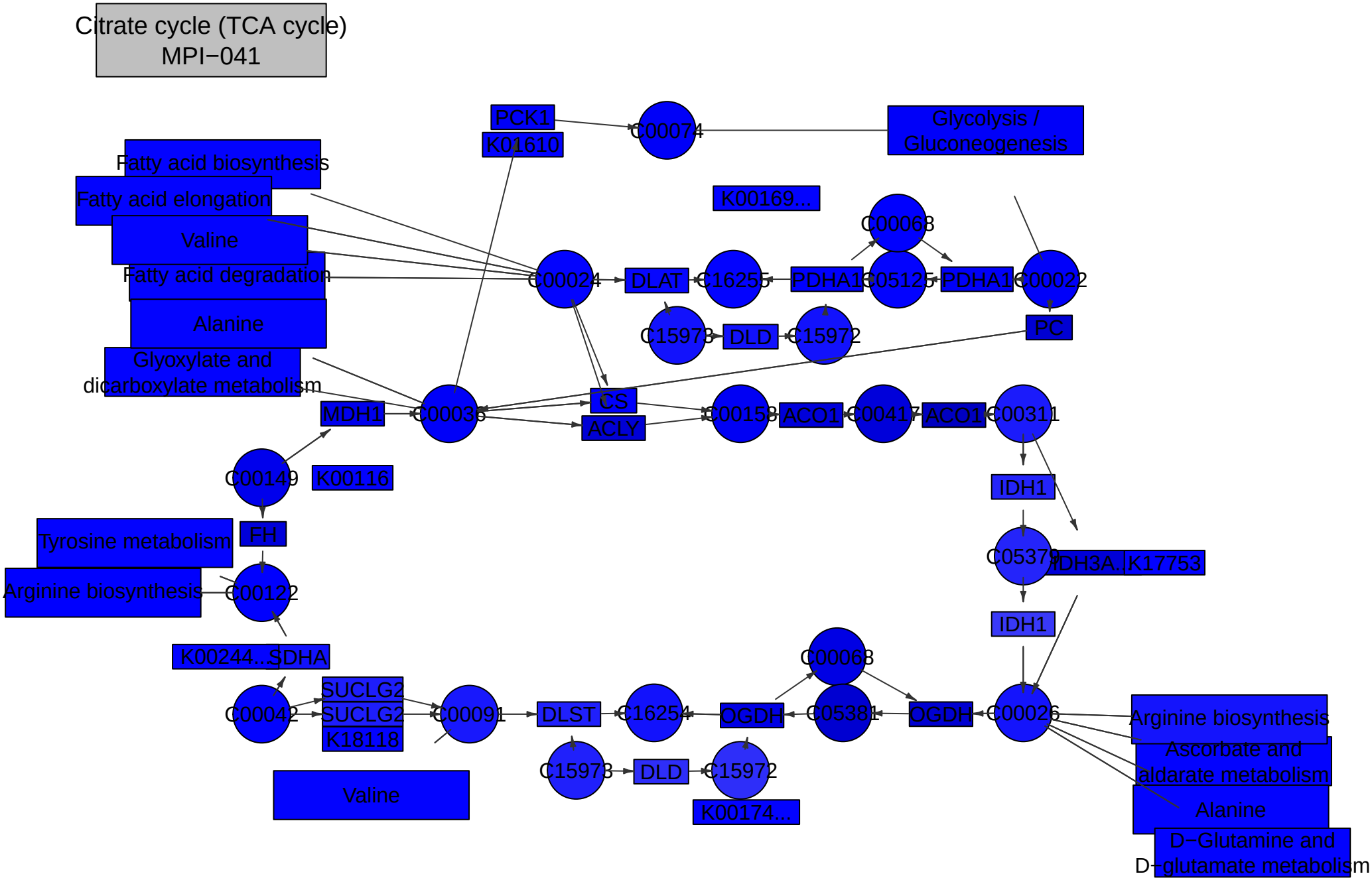
Valine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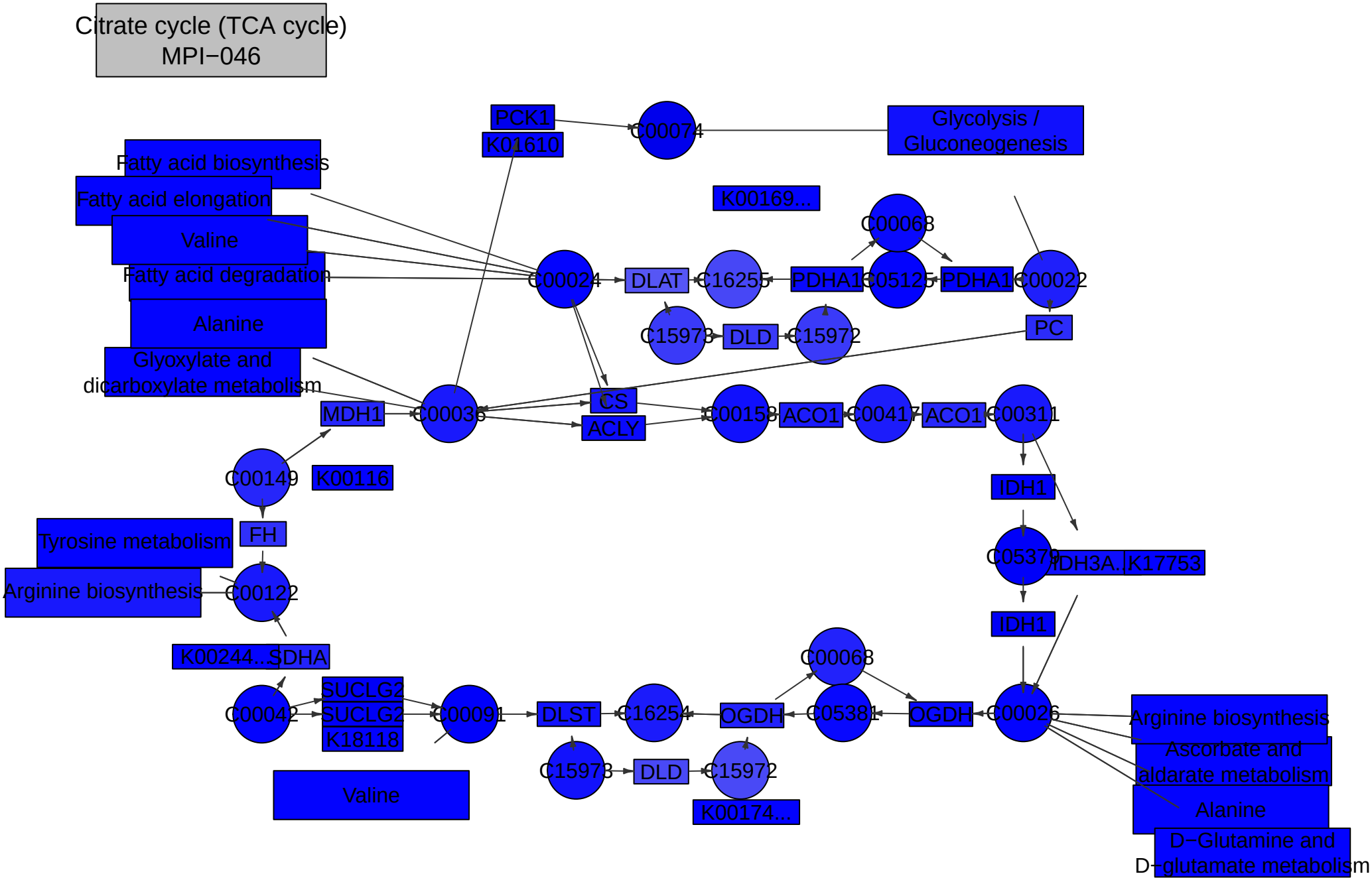
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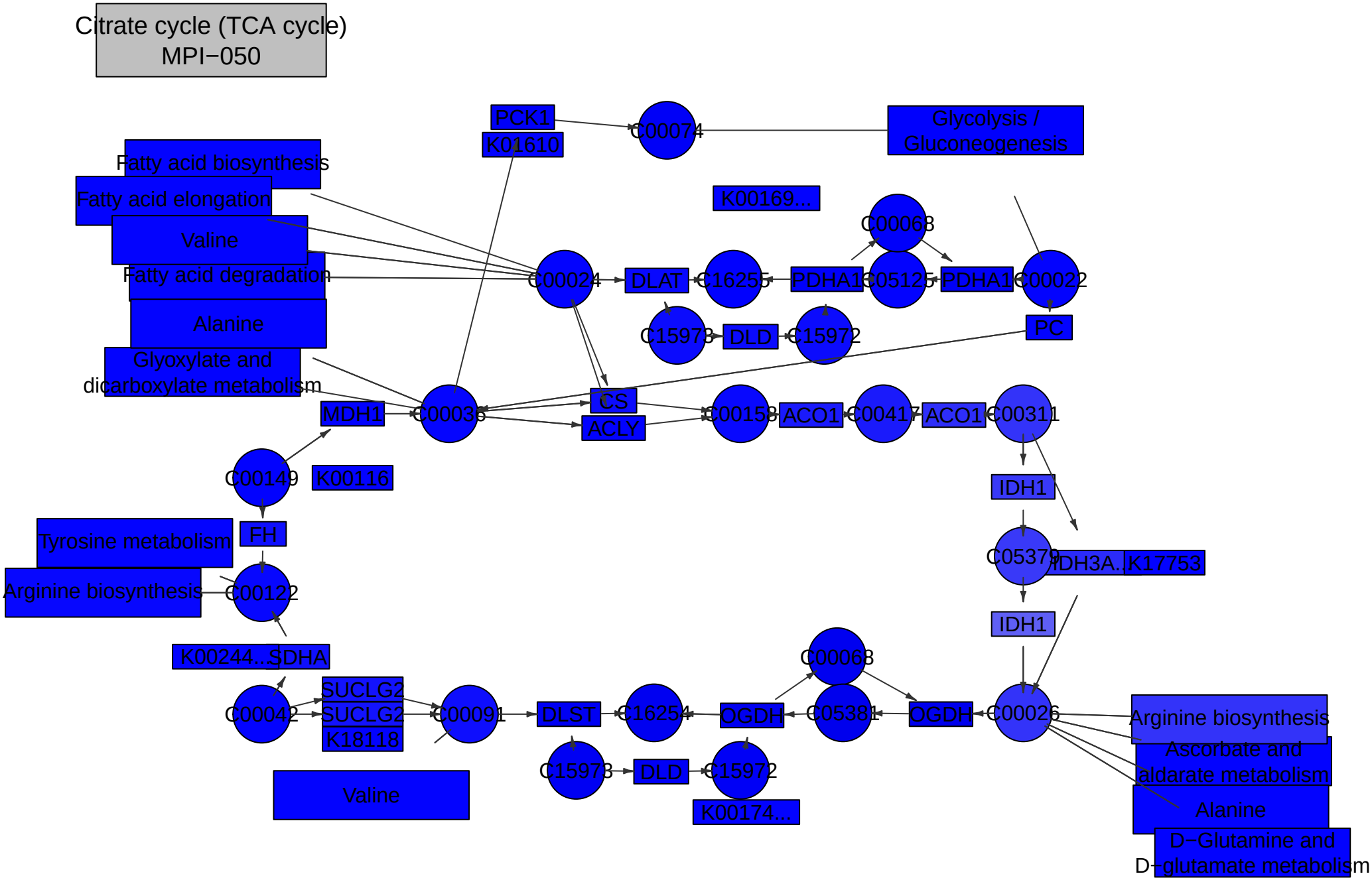
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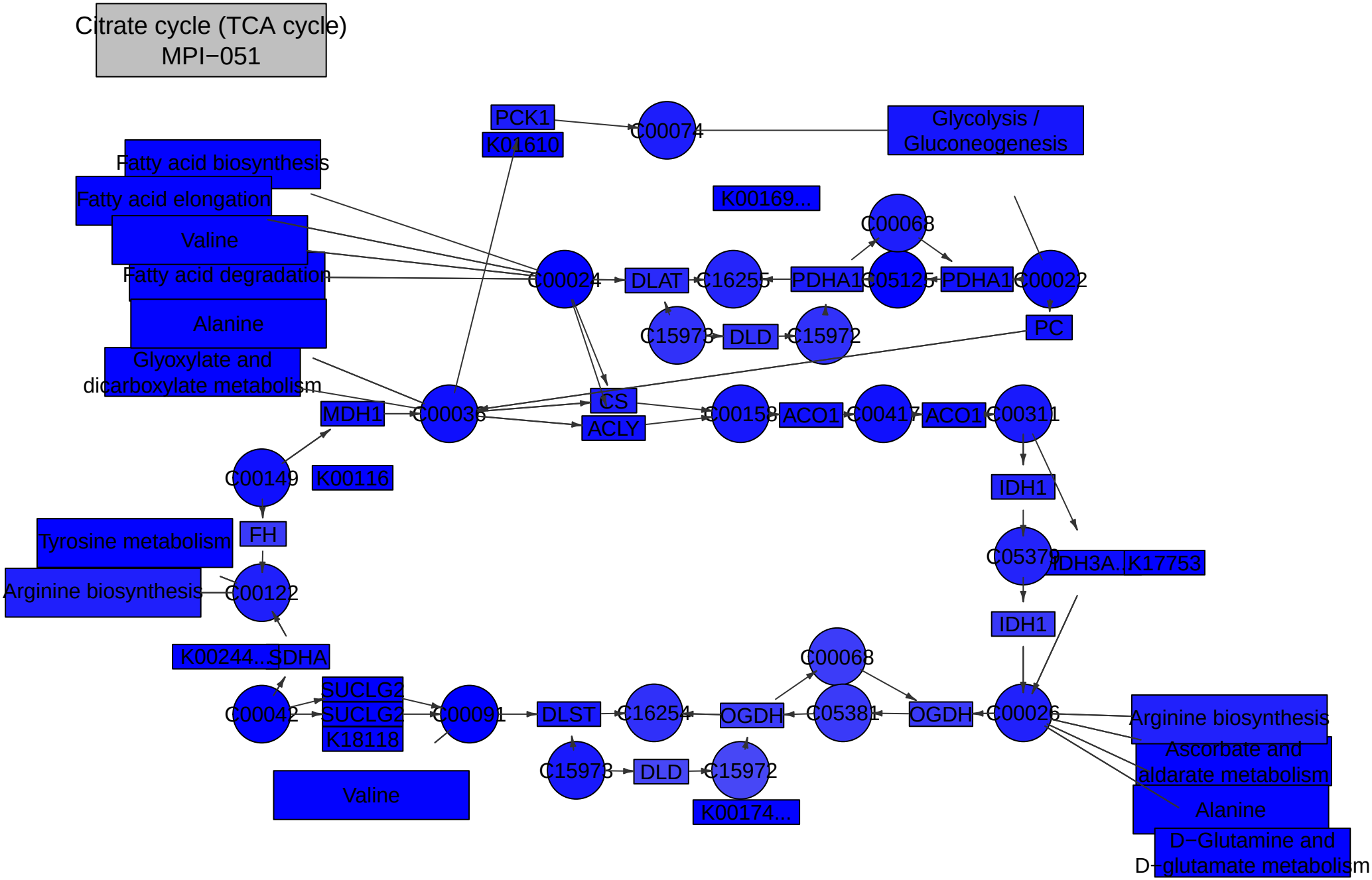
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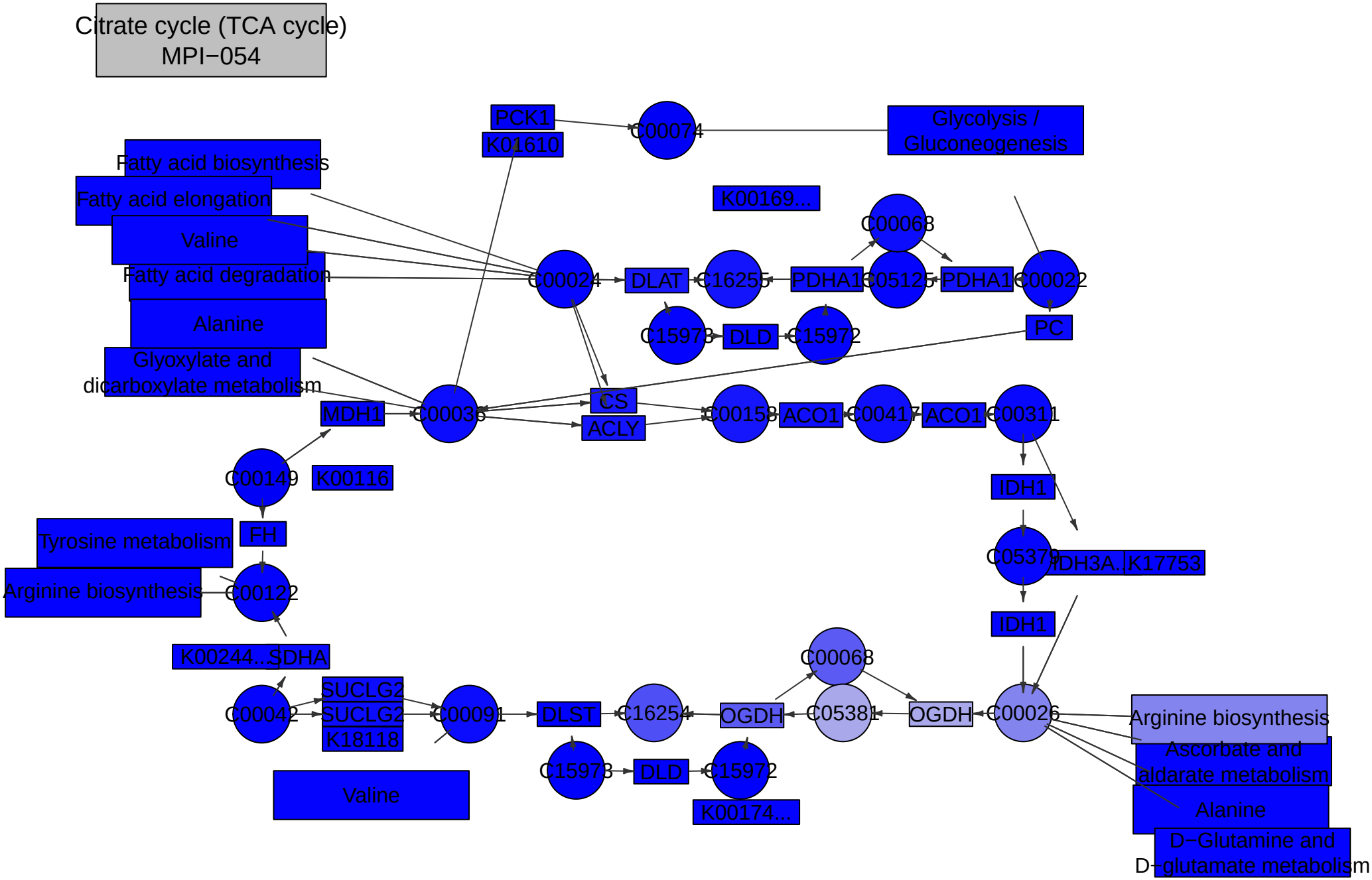
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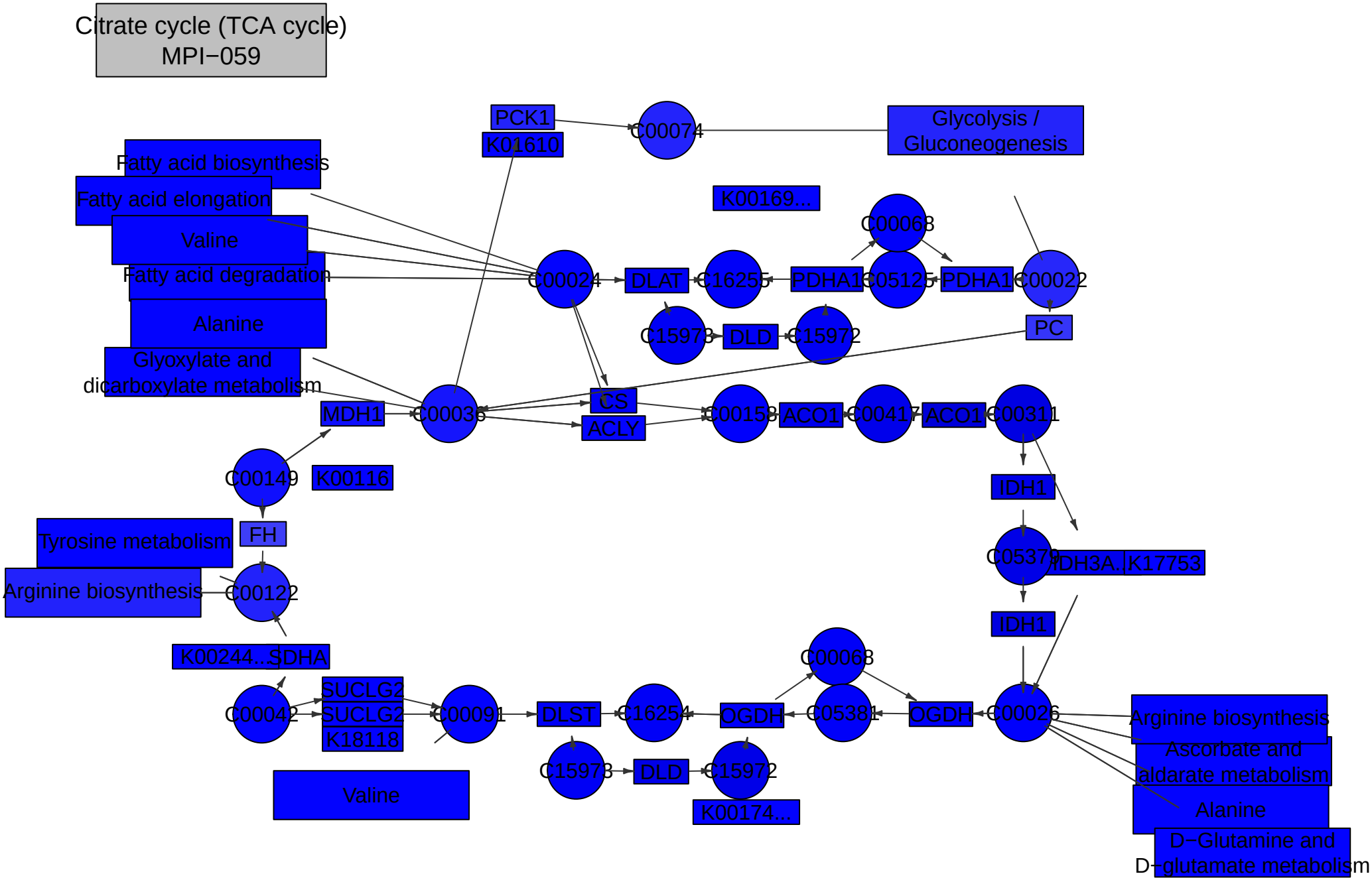
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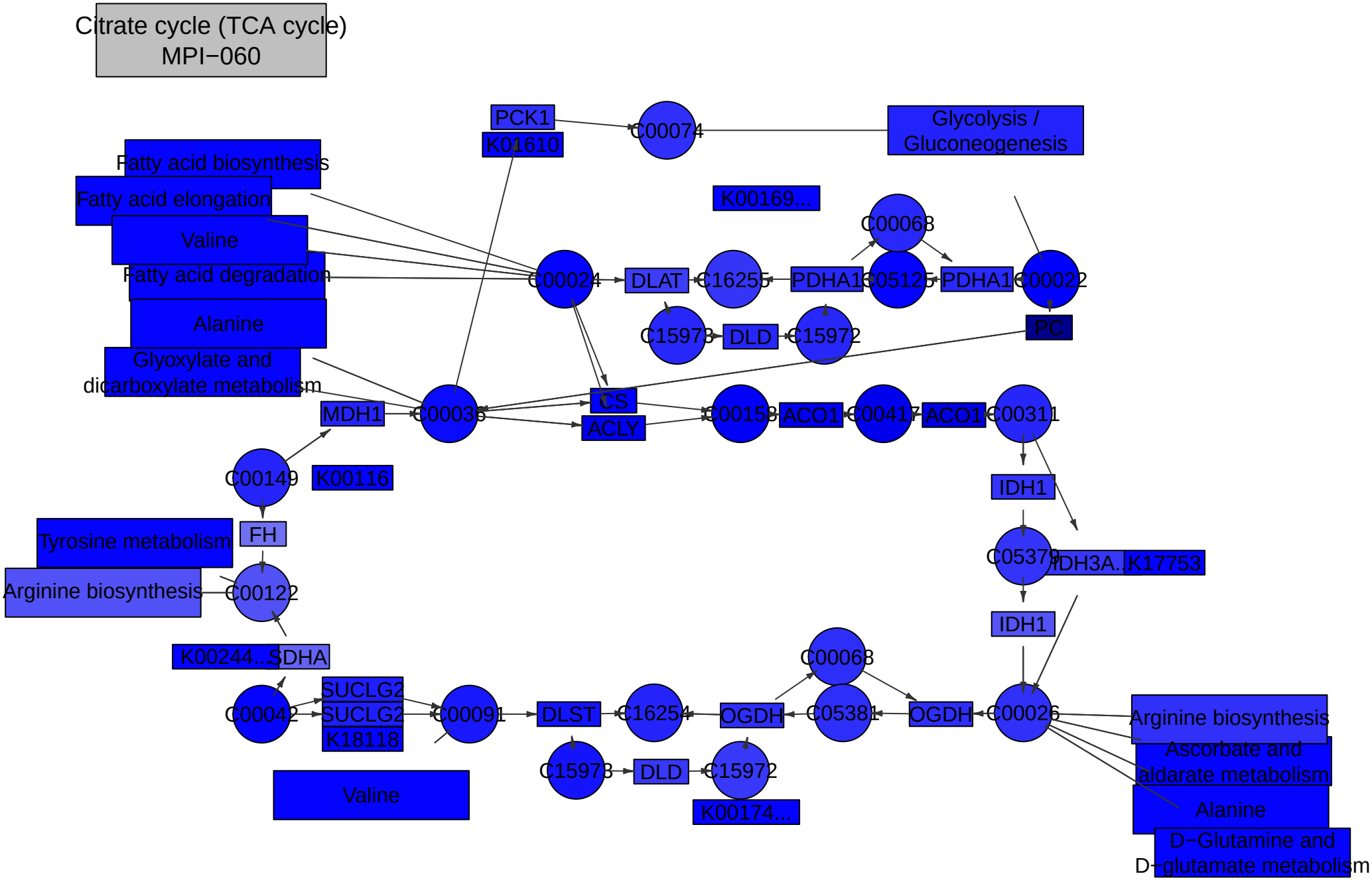
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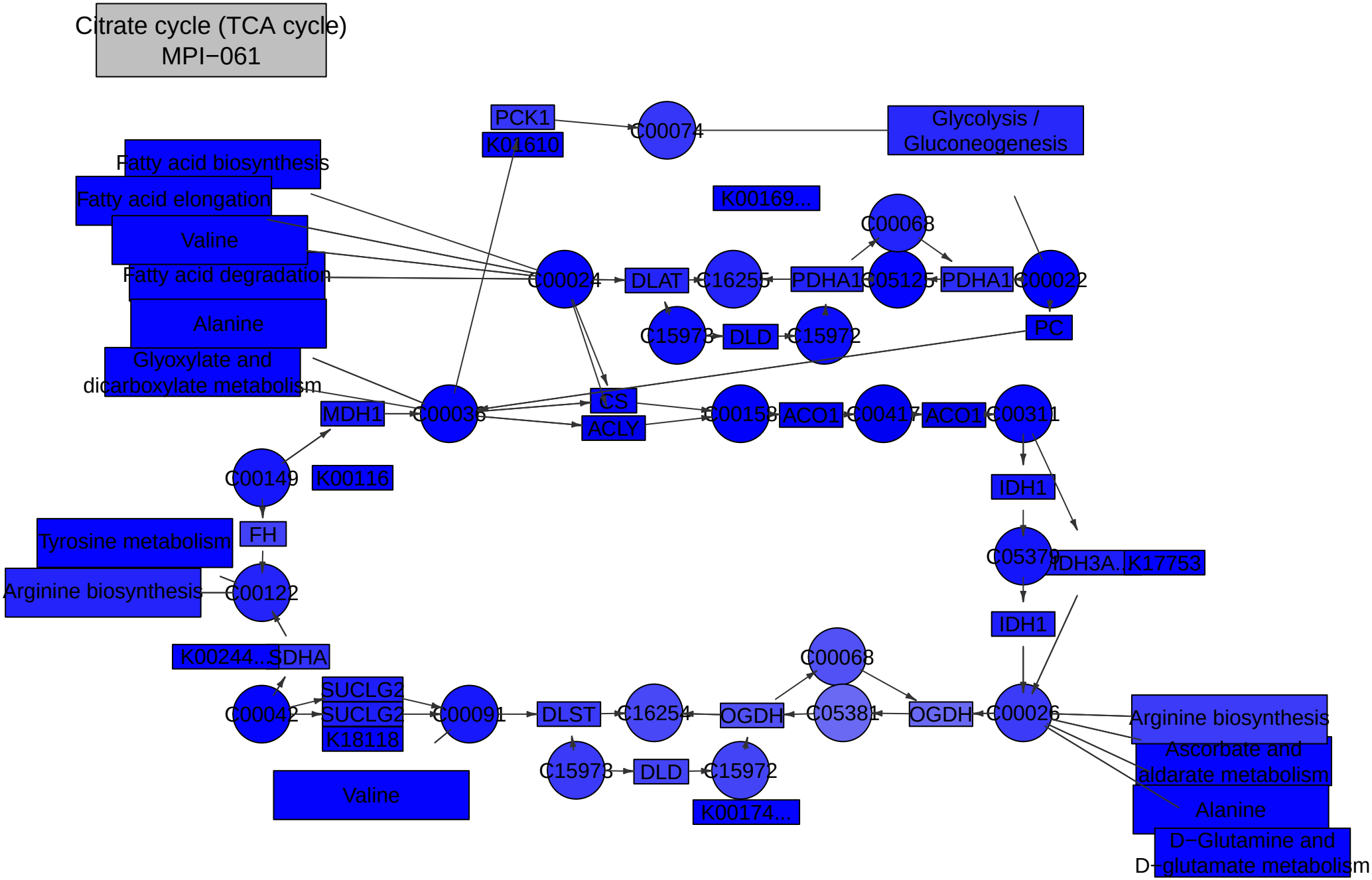
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Fatty acid elongation
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Fatty acid degradation
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Glyoxylate and dicarboxylate metabolism
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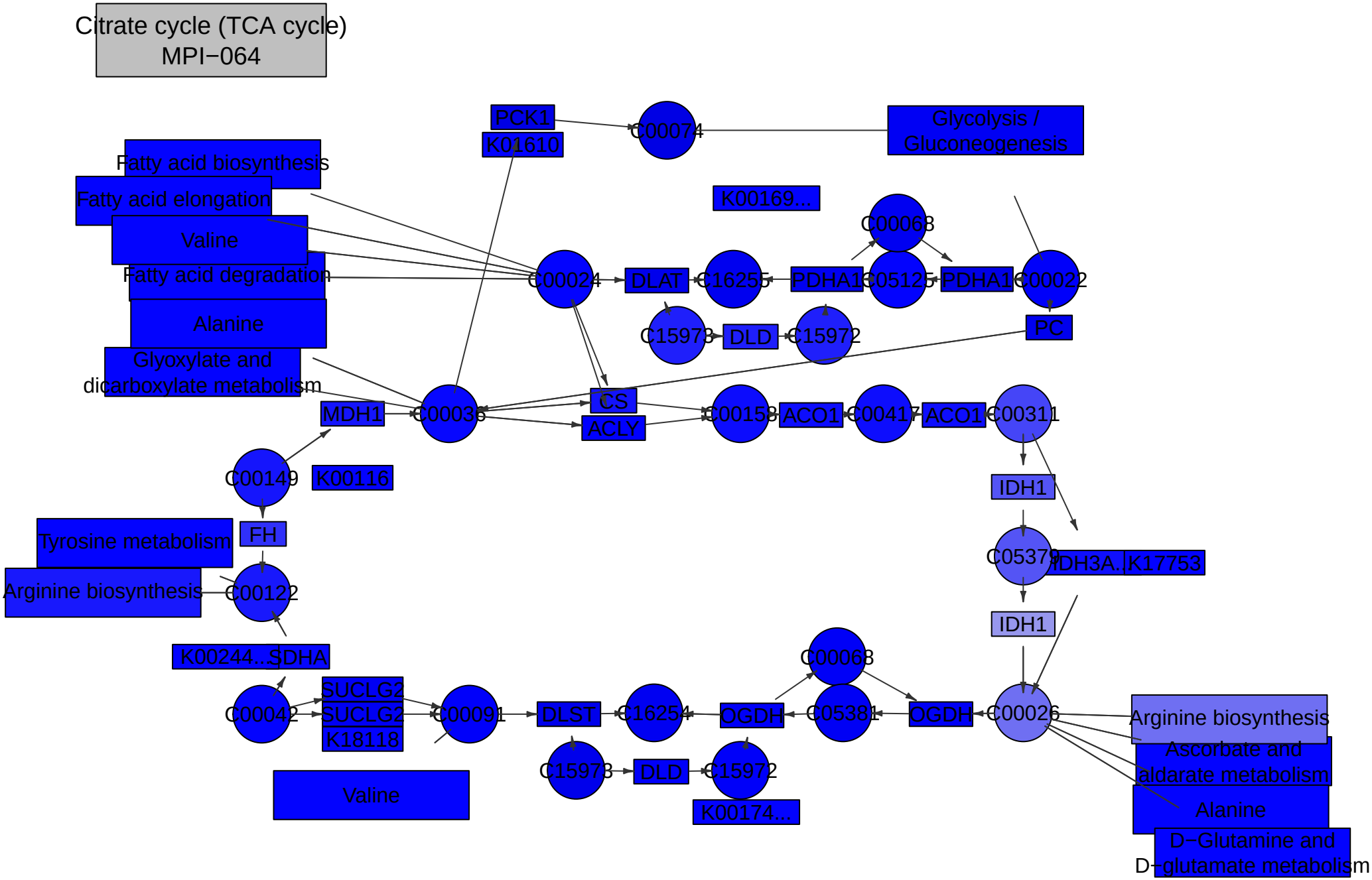
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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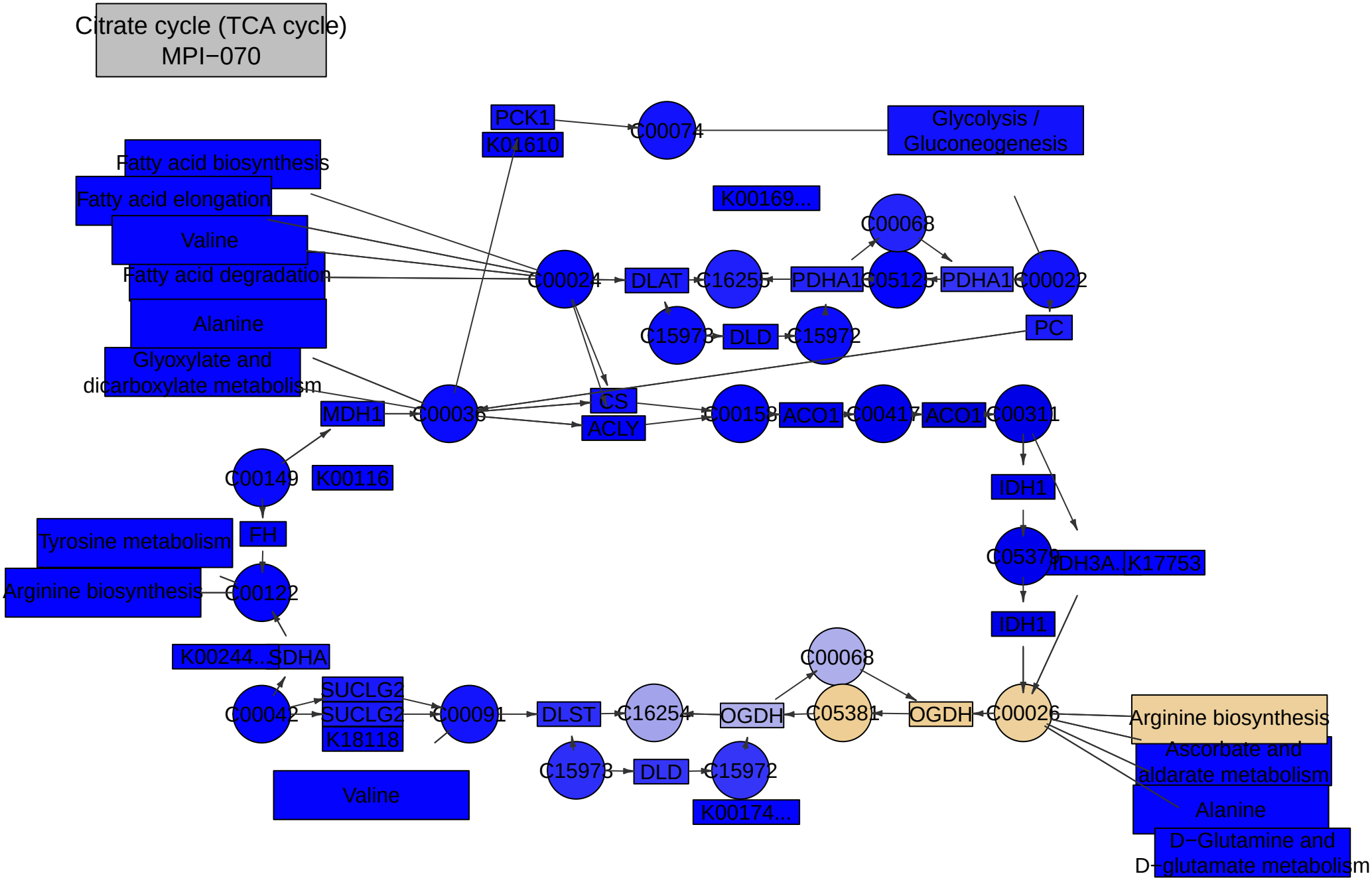
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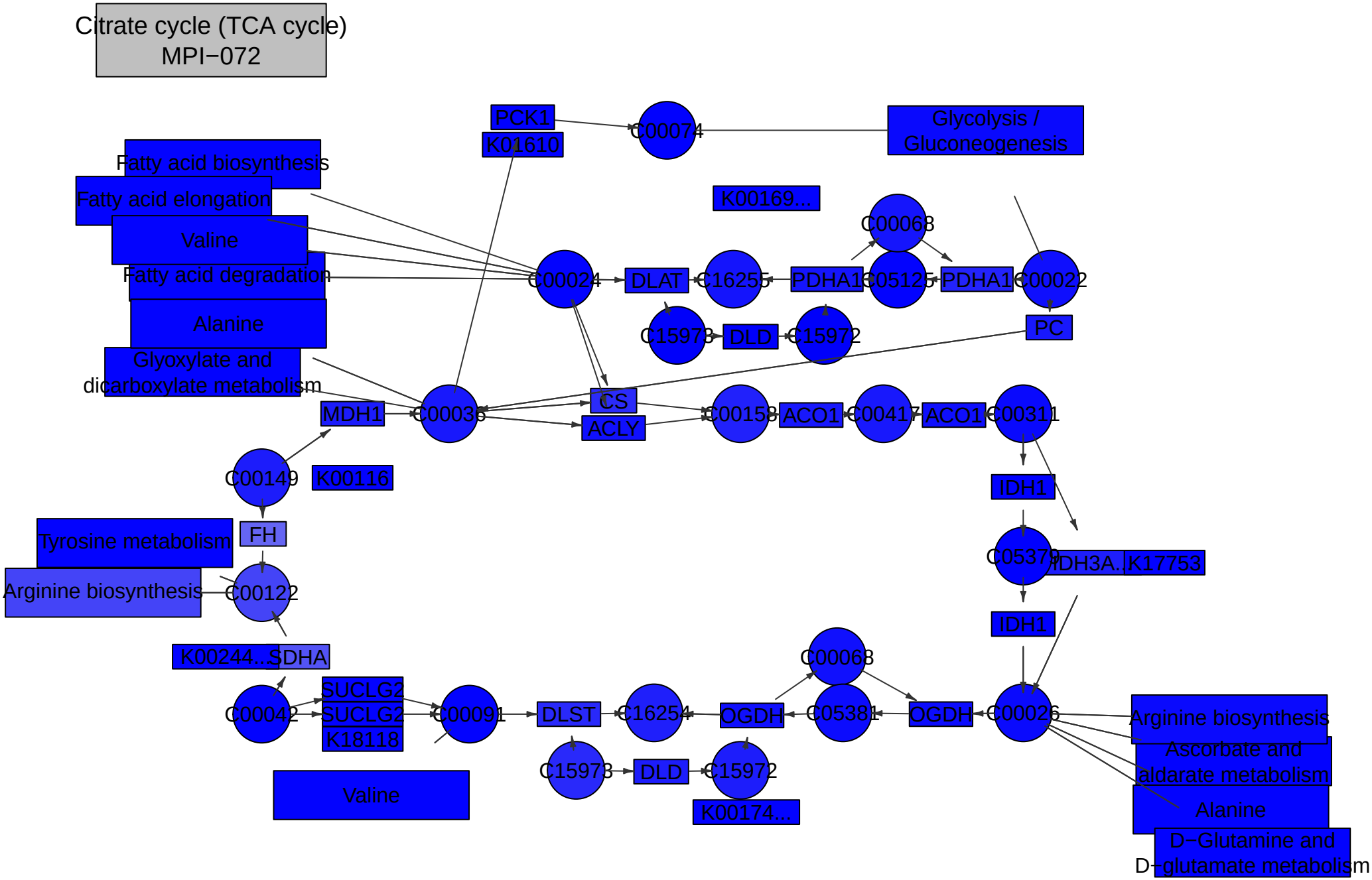
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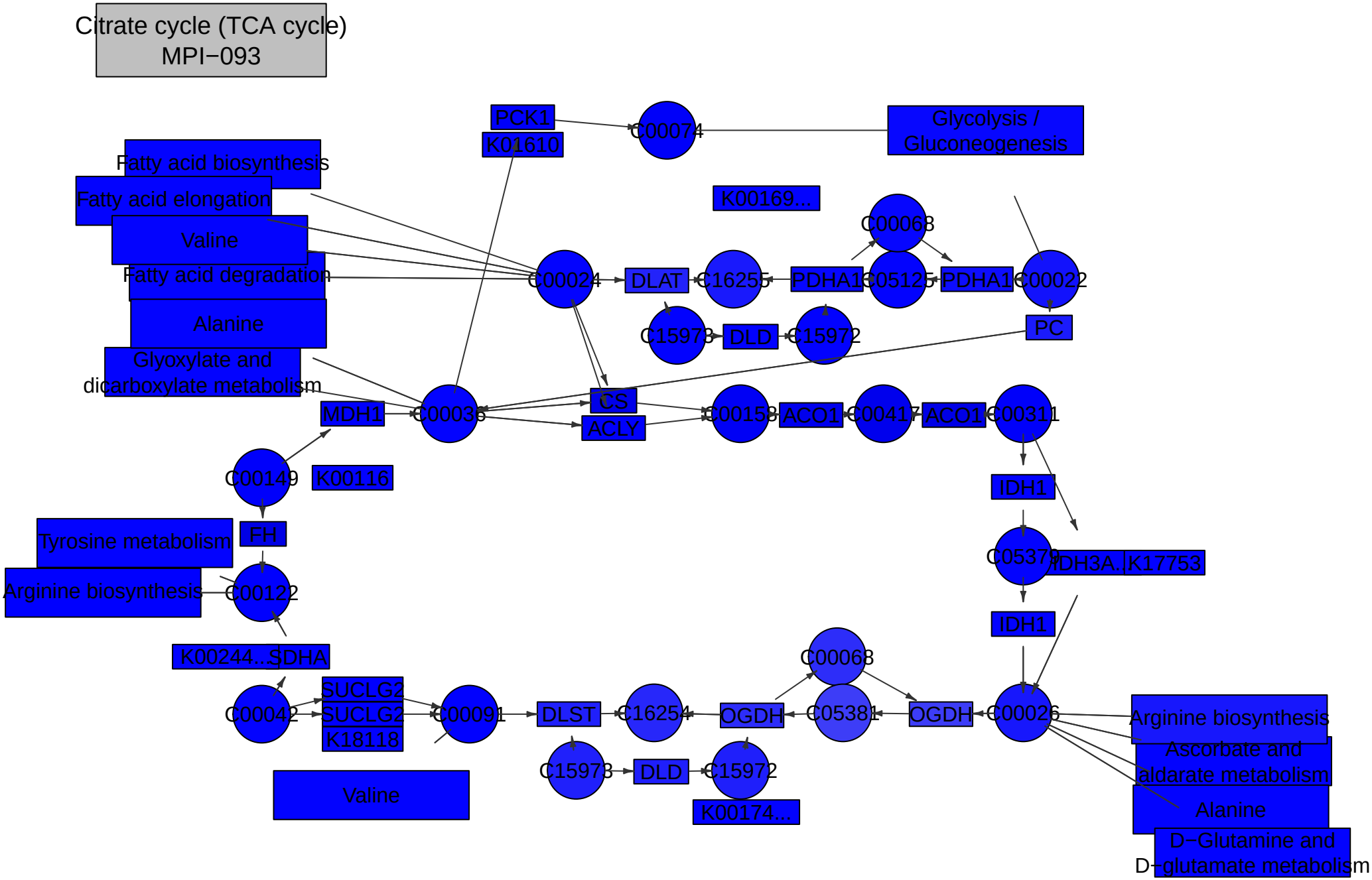
Valine


Citrate cycle (TCA cycle)
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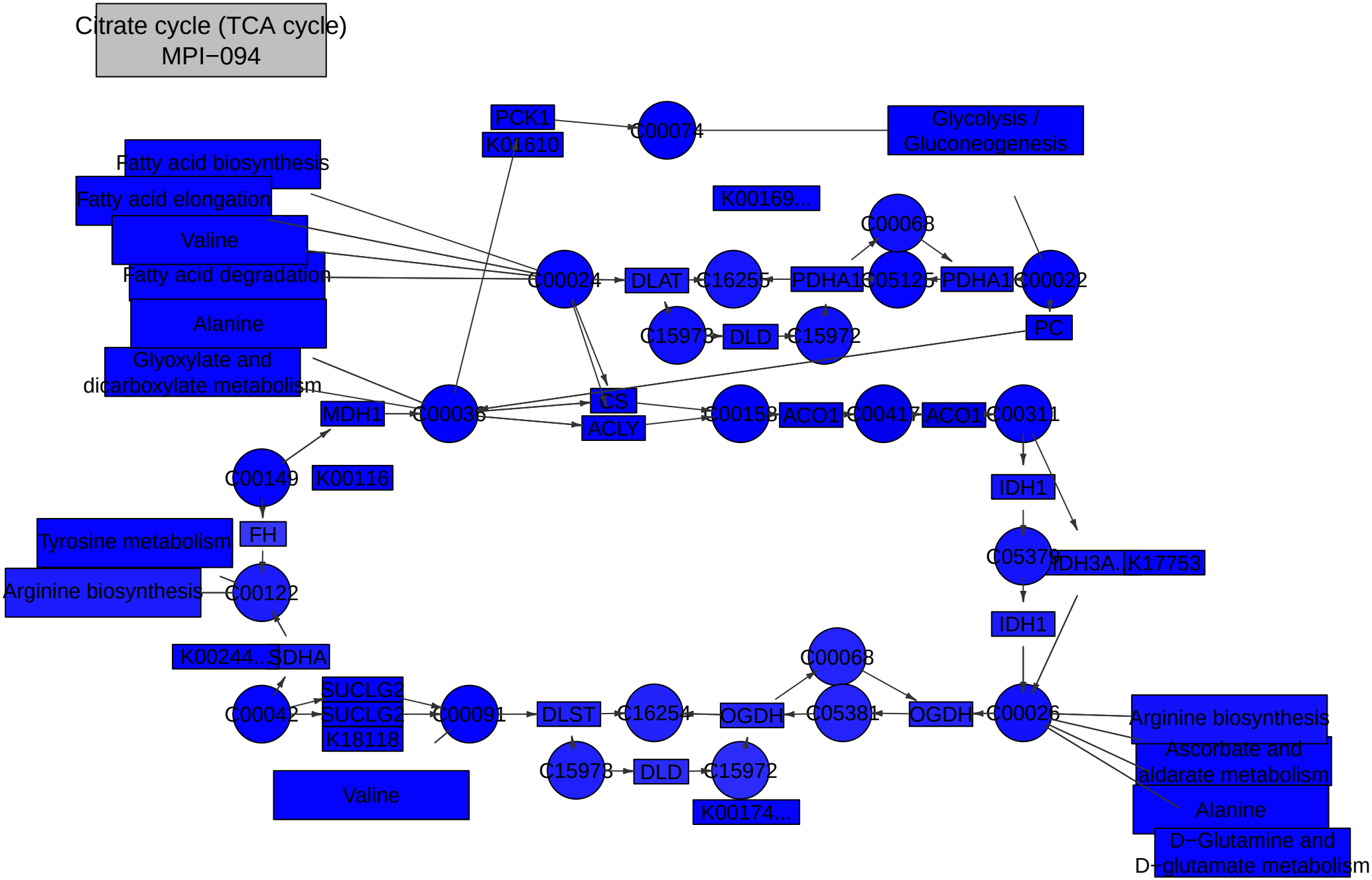
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−094
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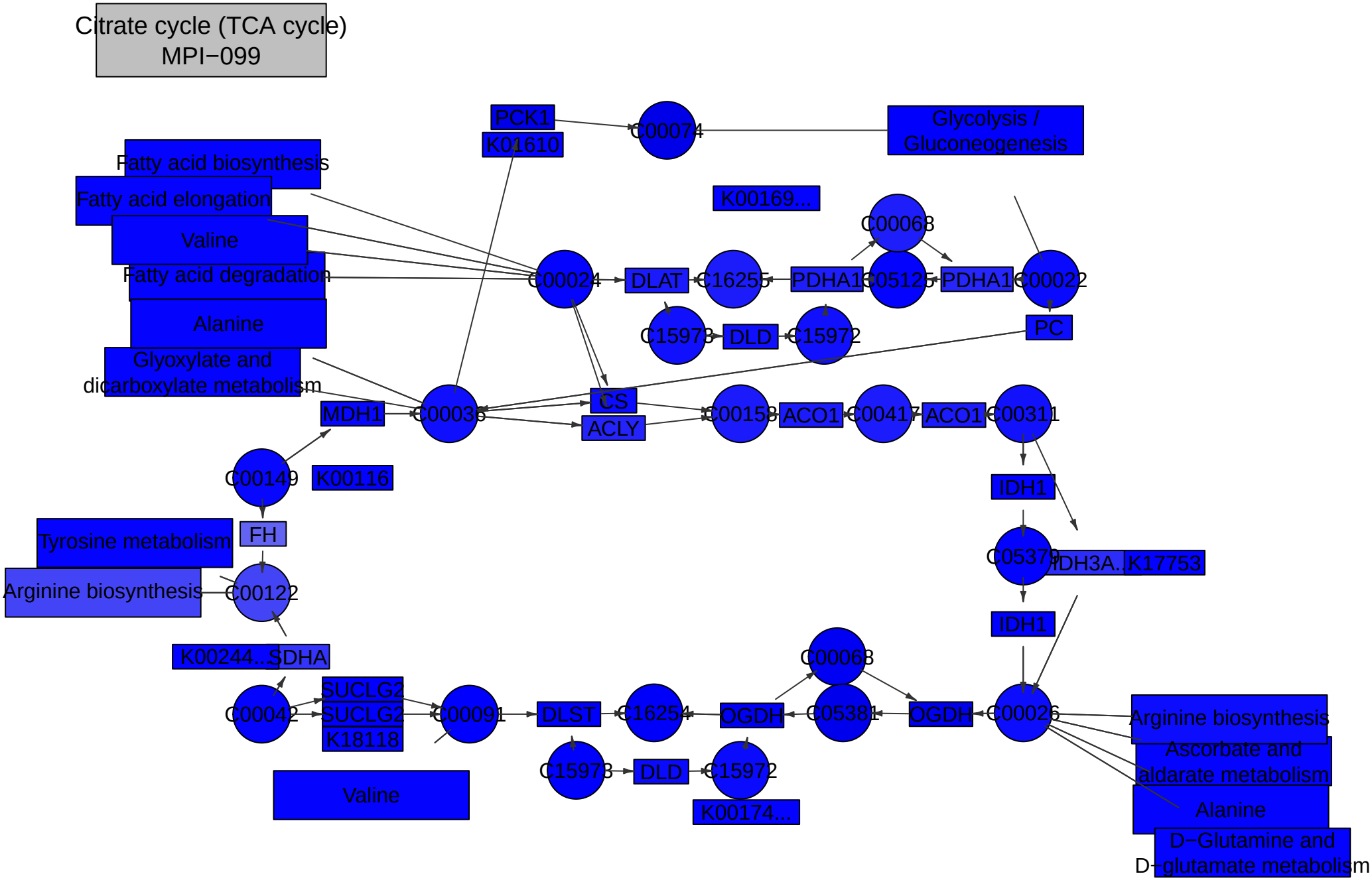
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
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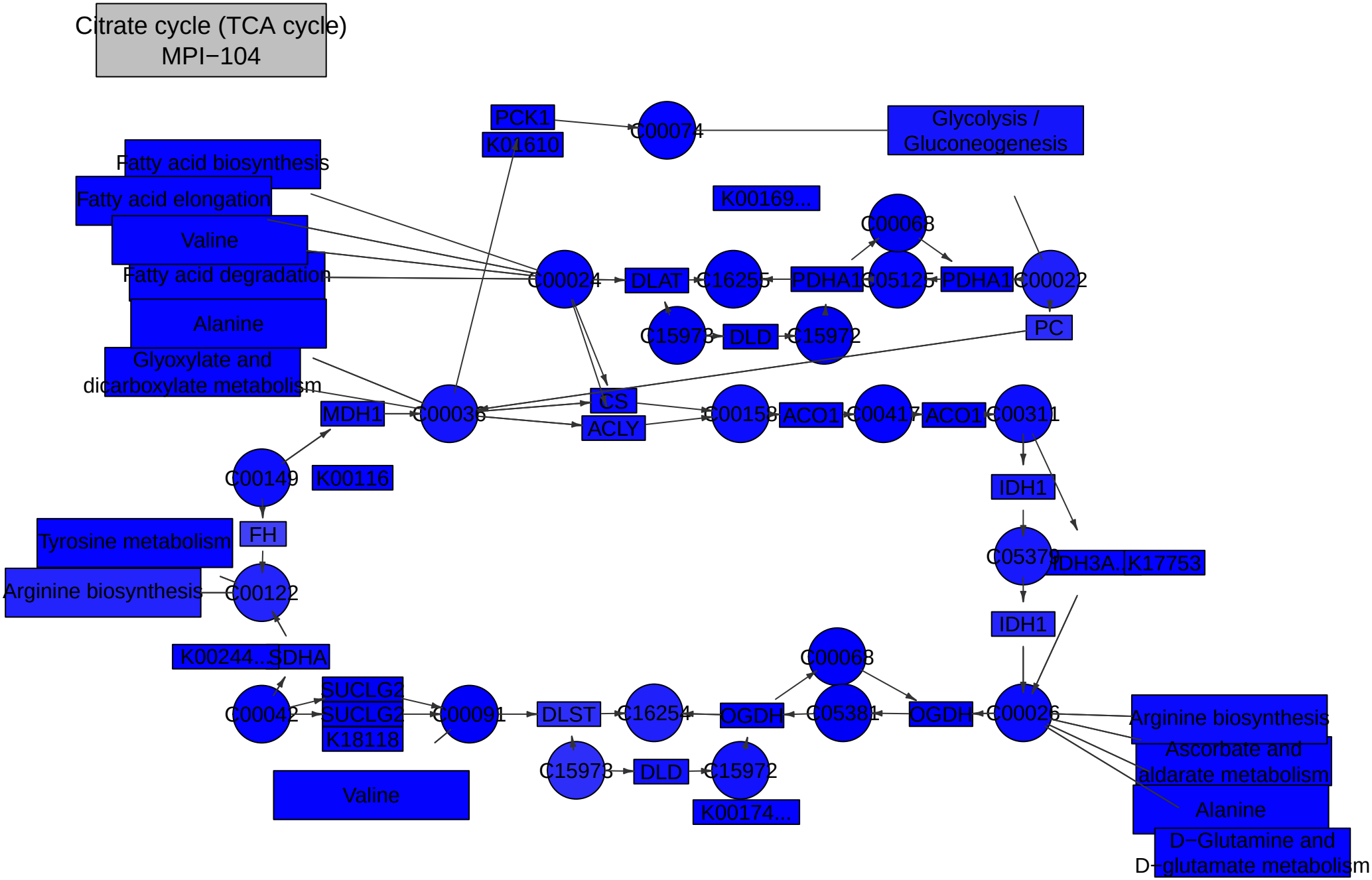
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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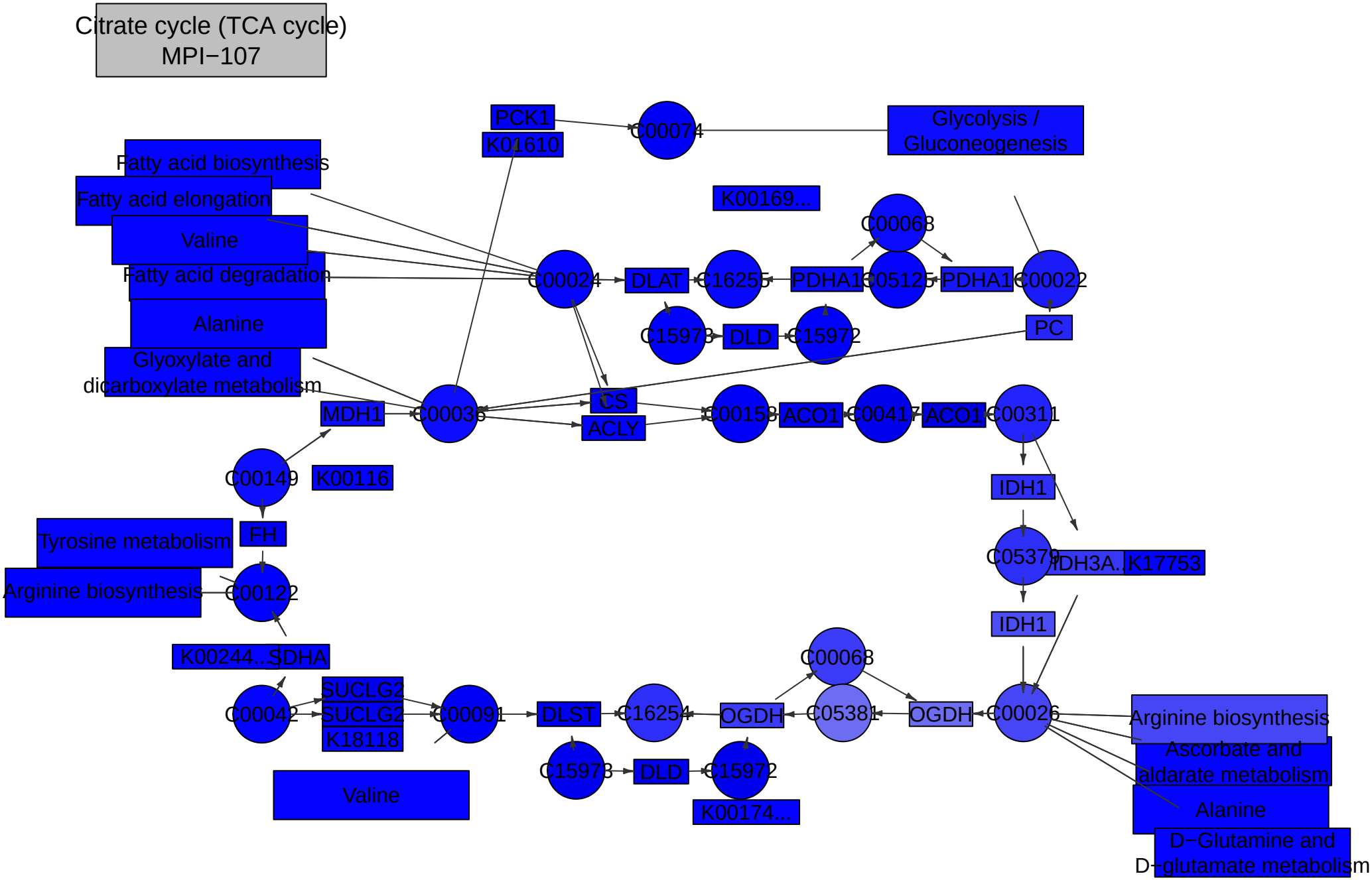
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−107
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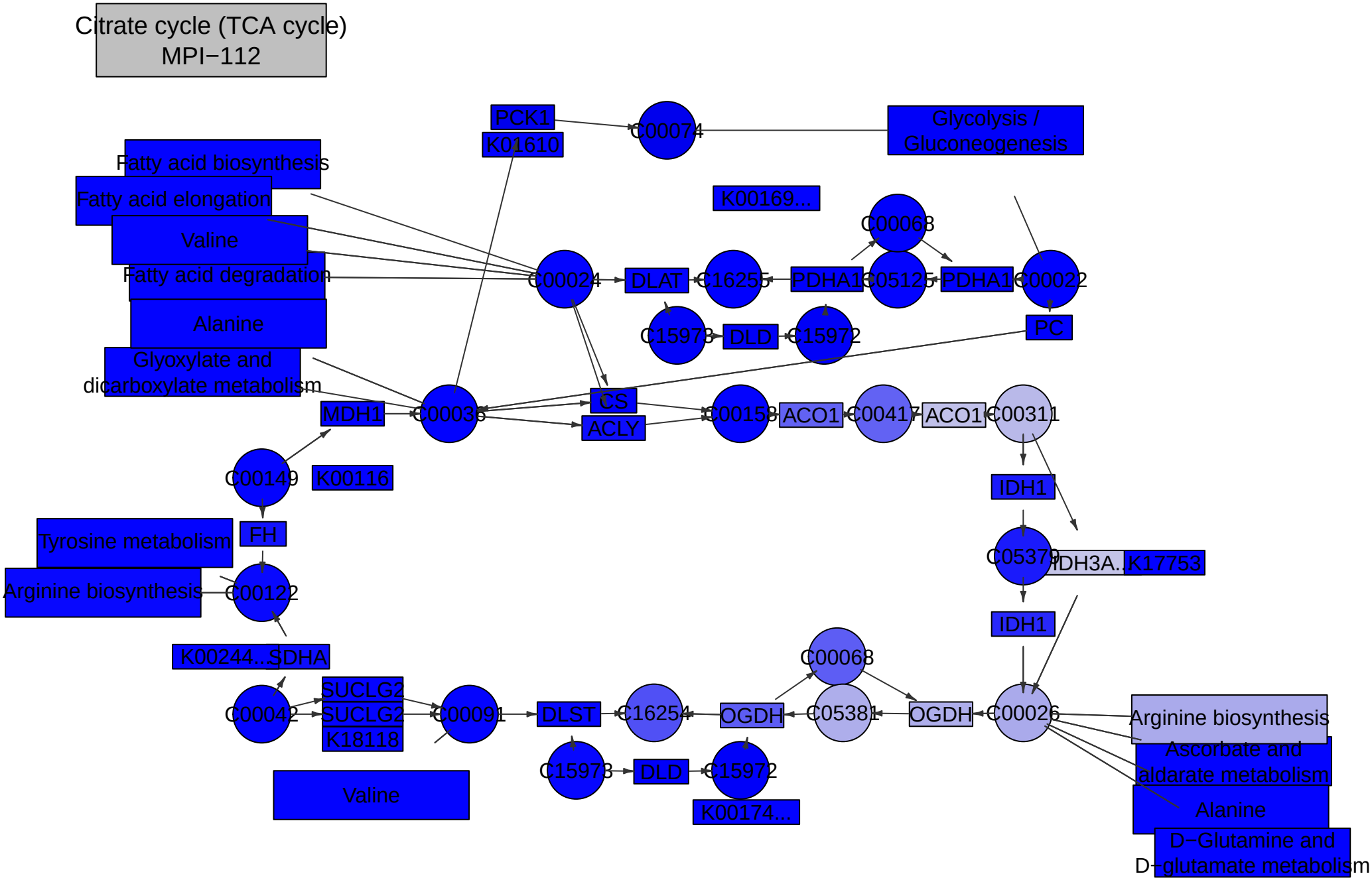
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−112
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
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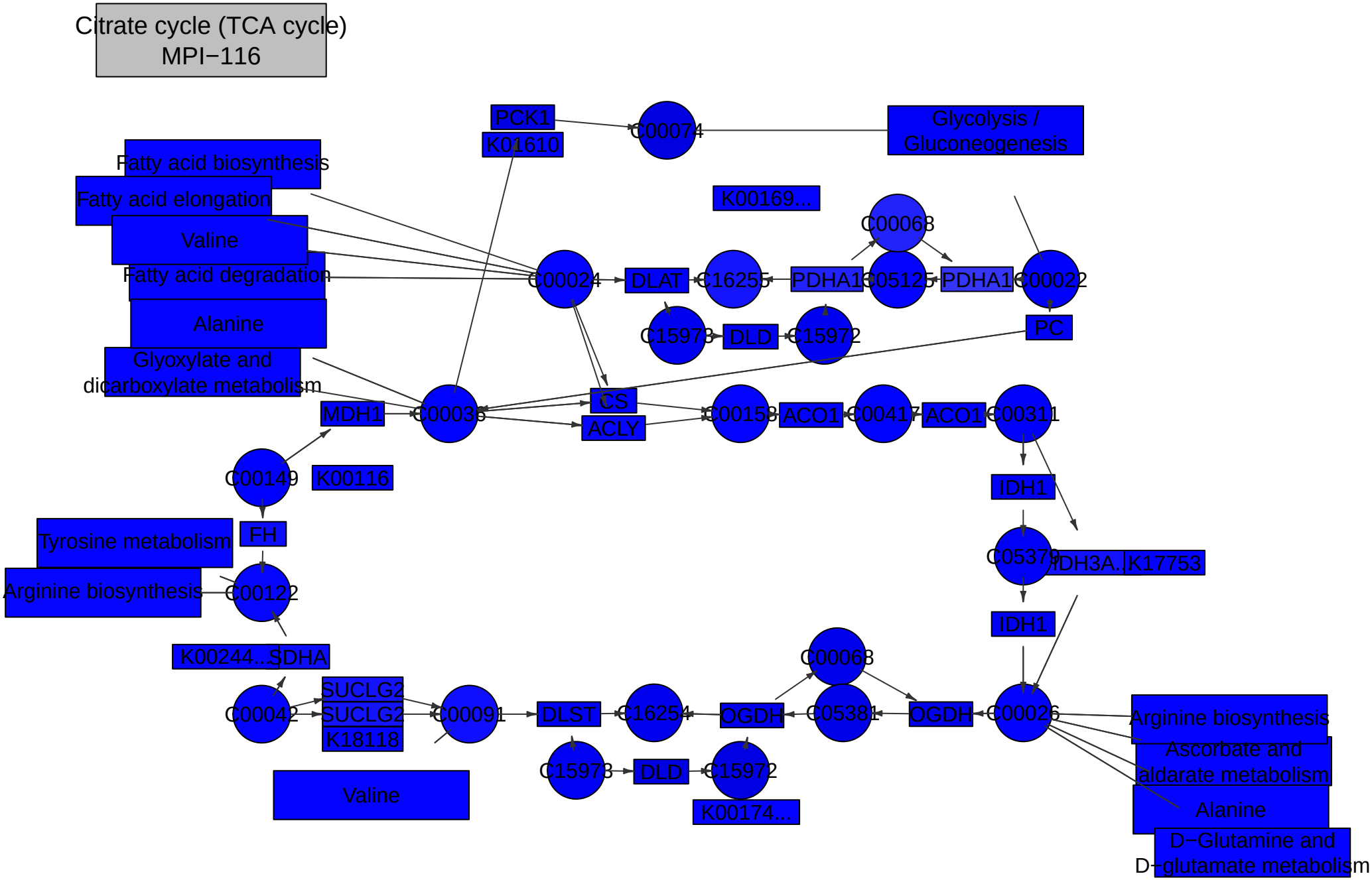
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−116
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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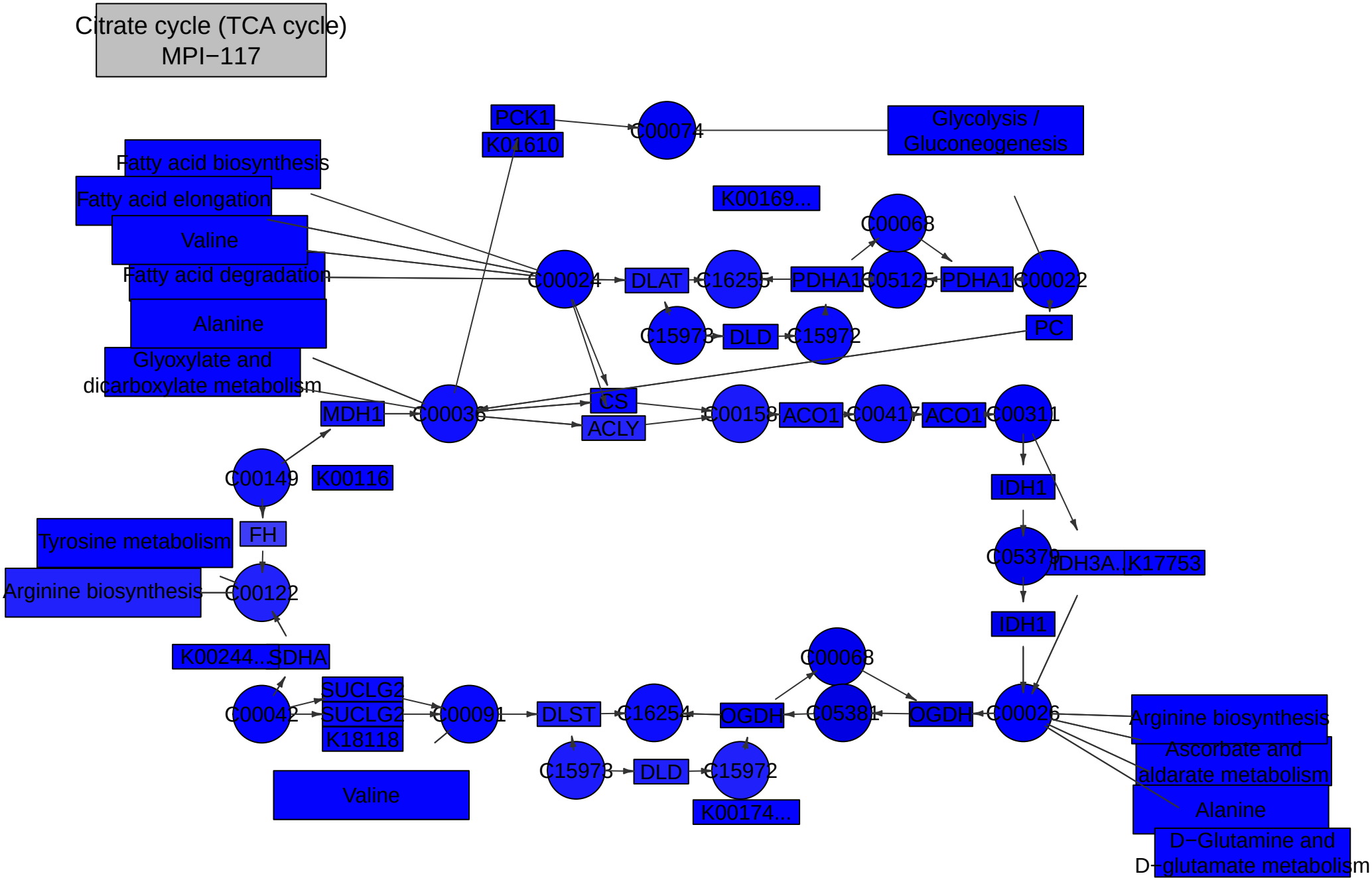
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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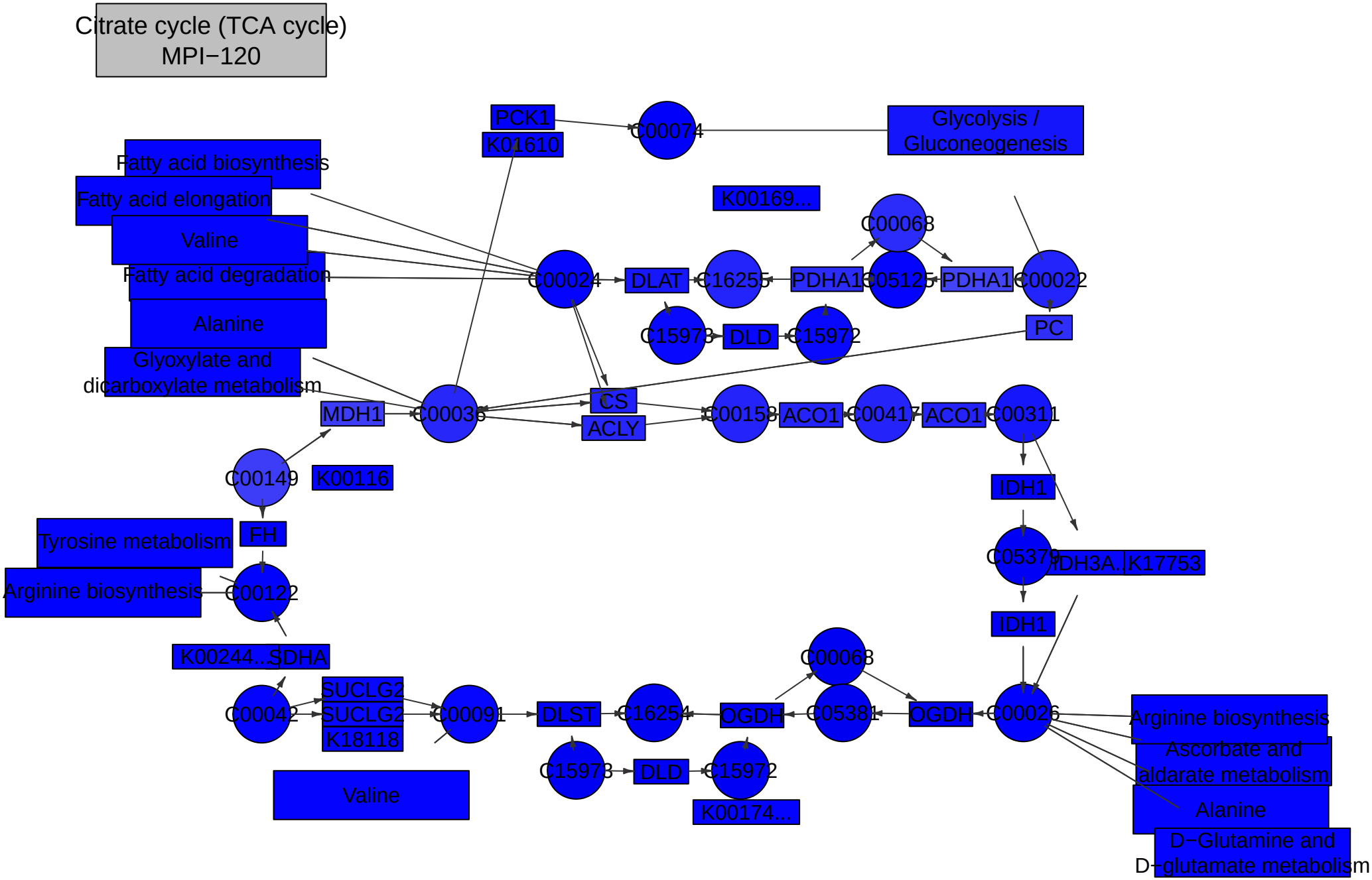
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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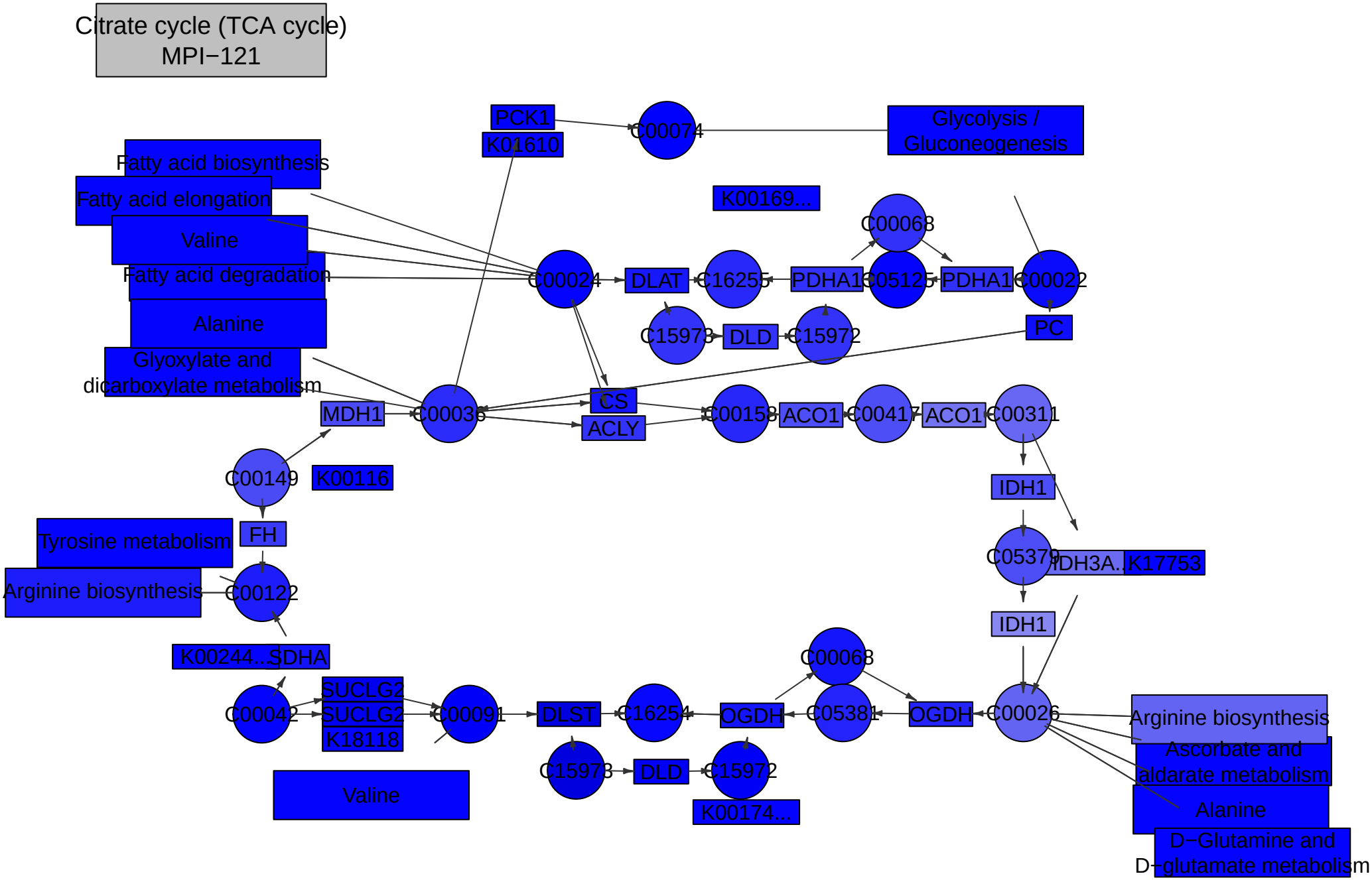
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
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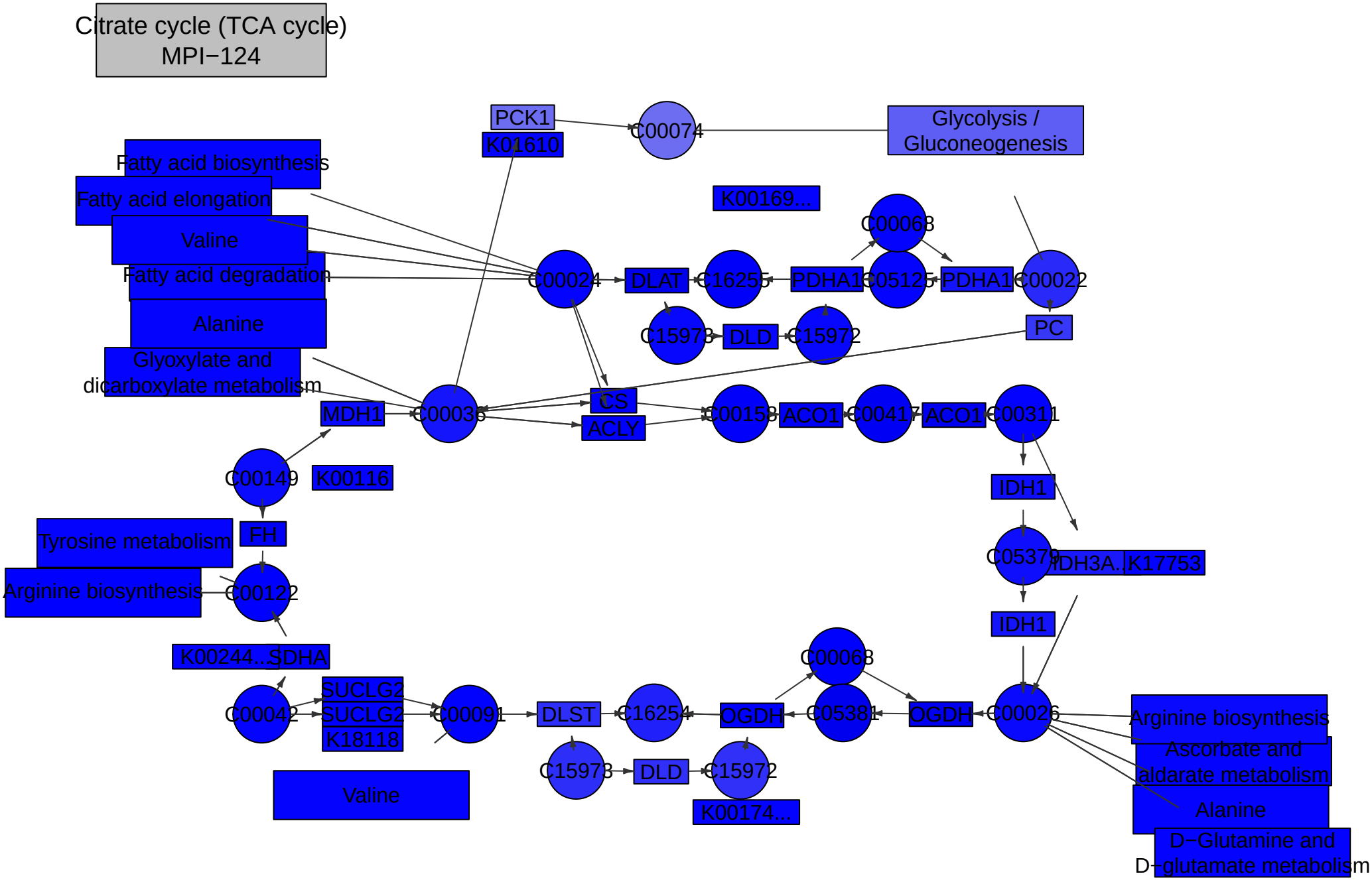
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
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C05378
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IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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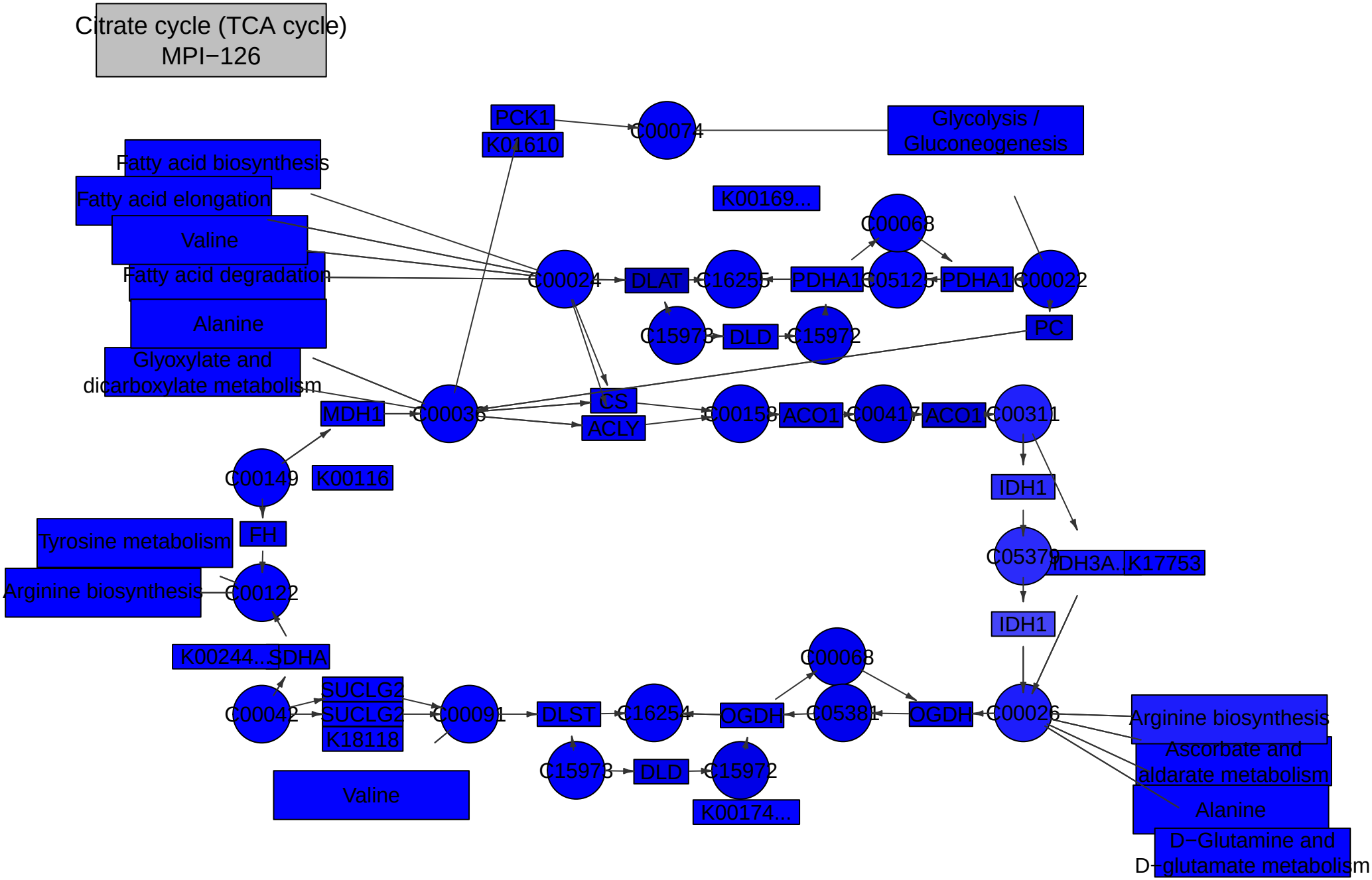
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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MDH1
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ACLY
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ACO1
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ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH3A..
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IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
K18118
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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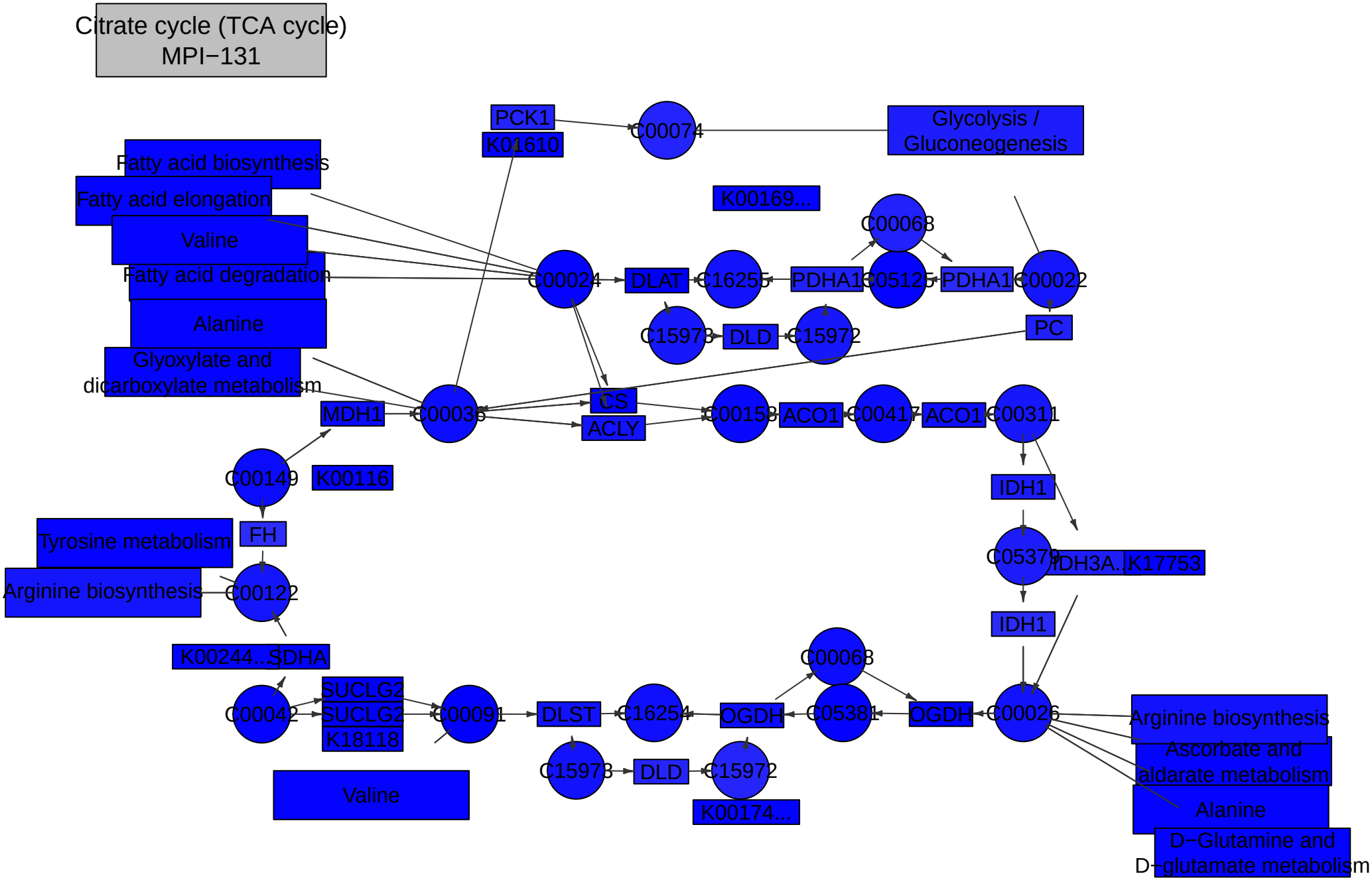
K00174...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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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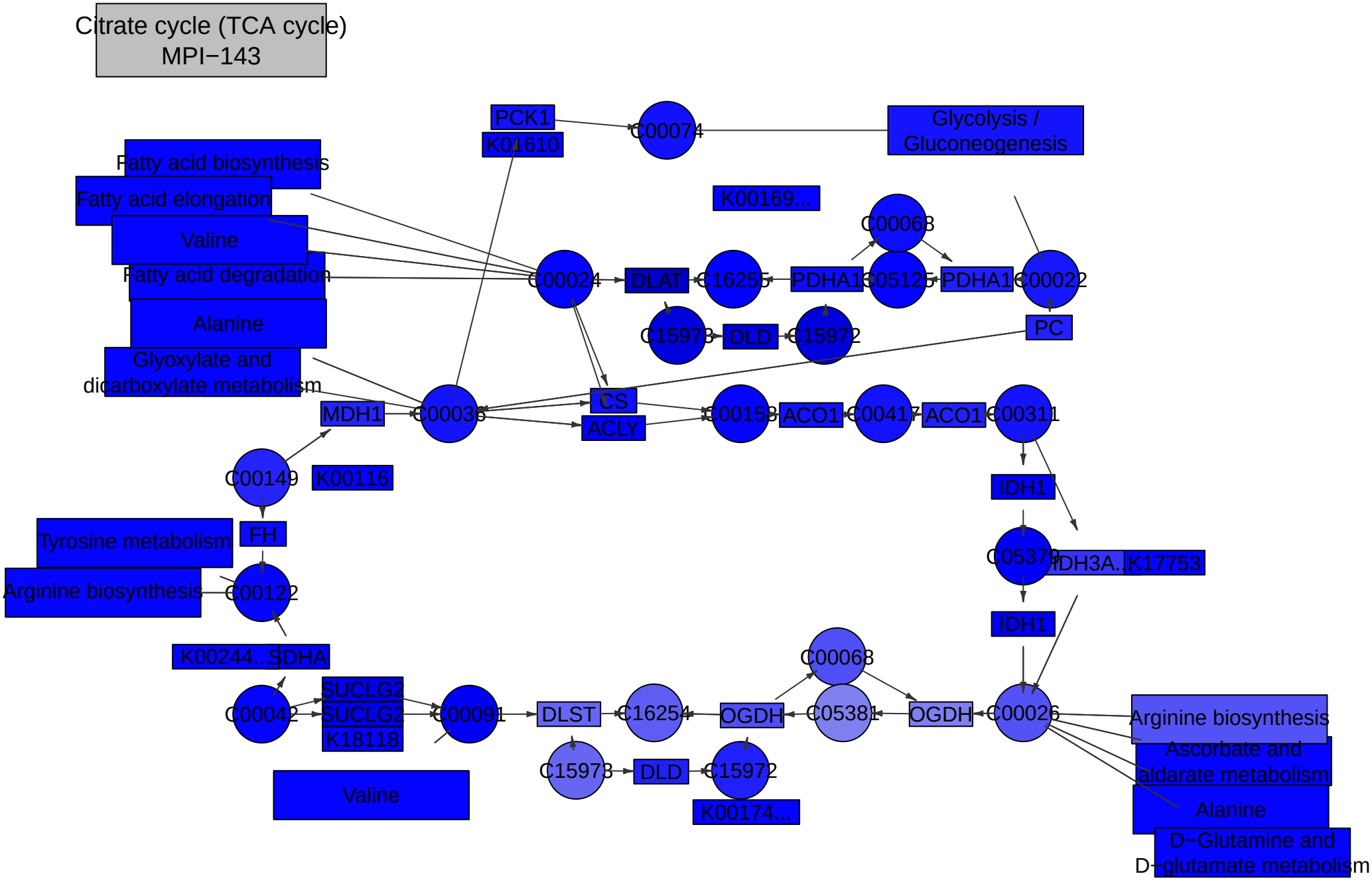
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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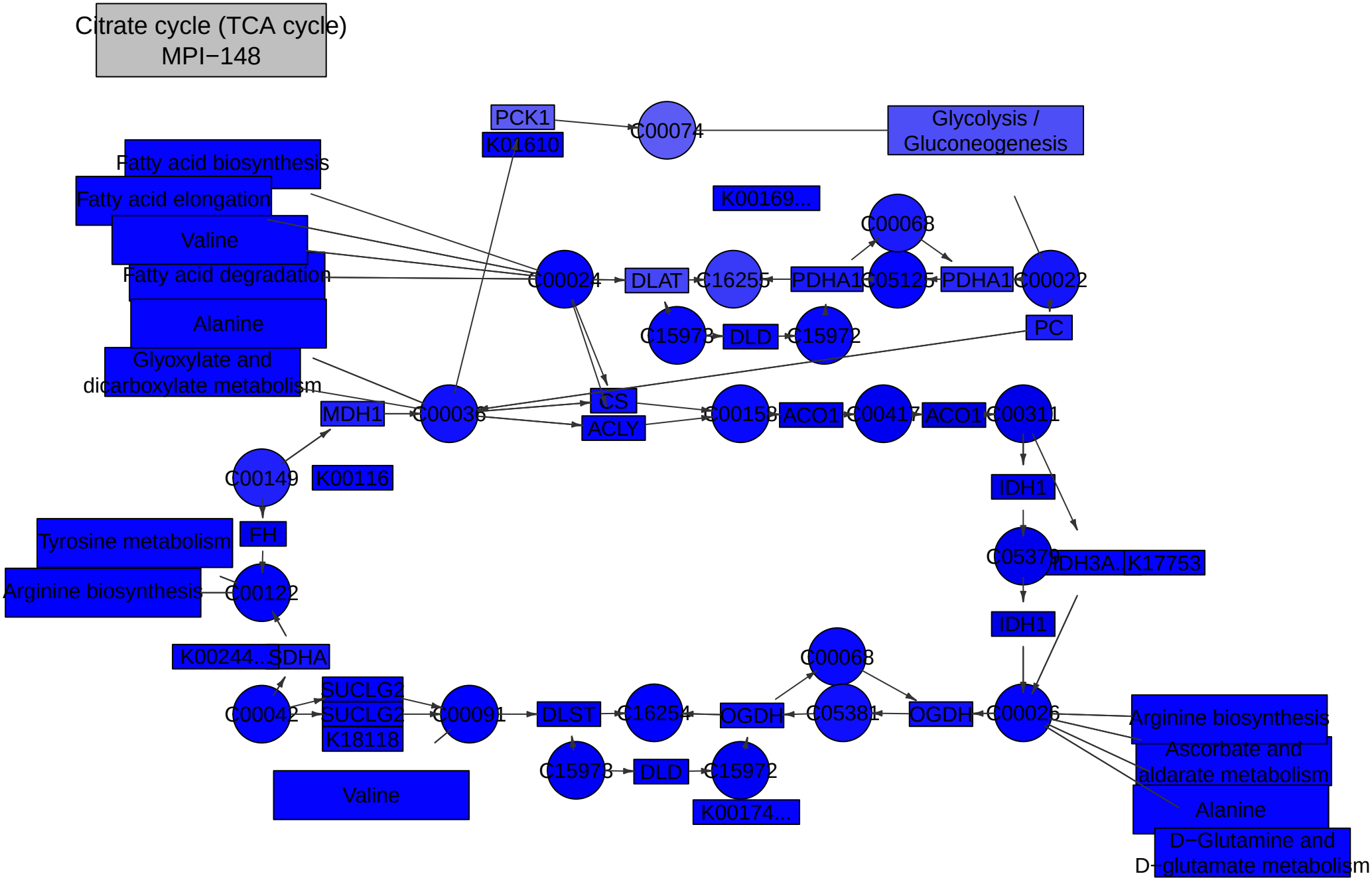
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−148
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..SDHA
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SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
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OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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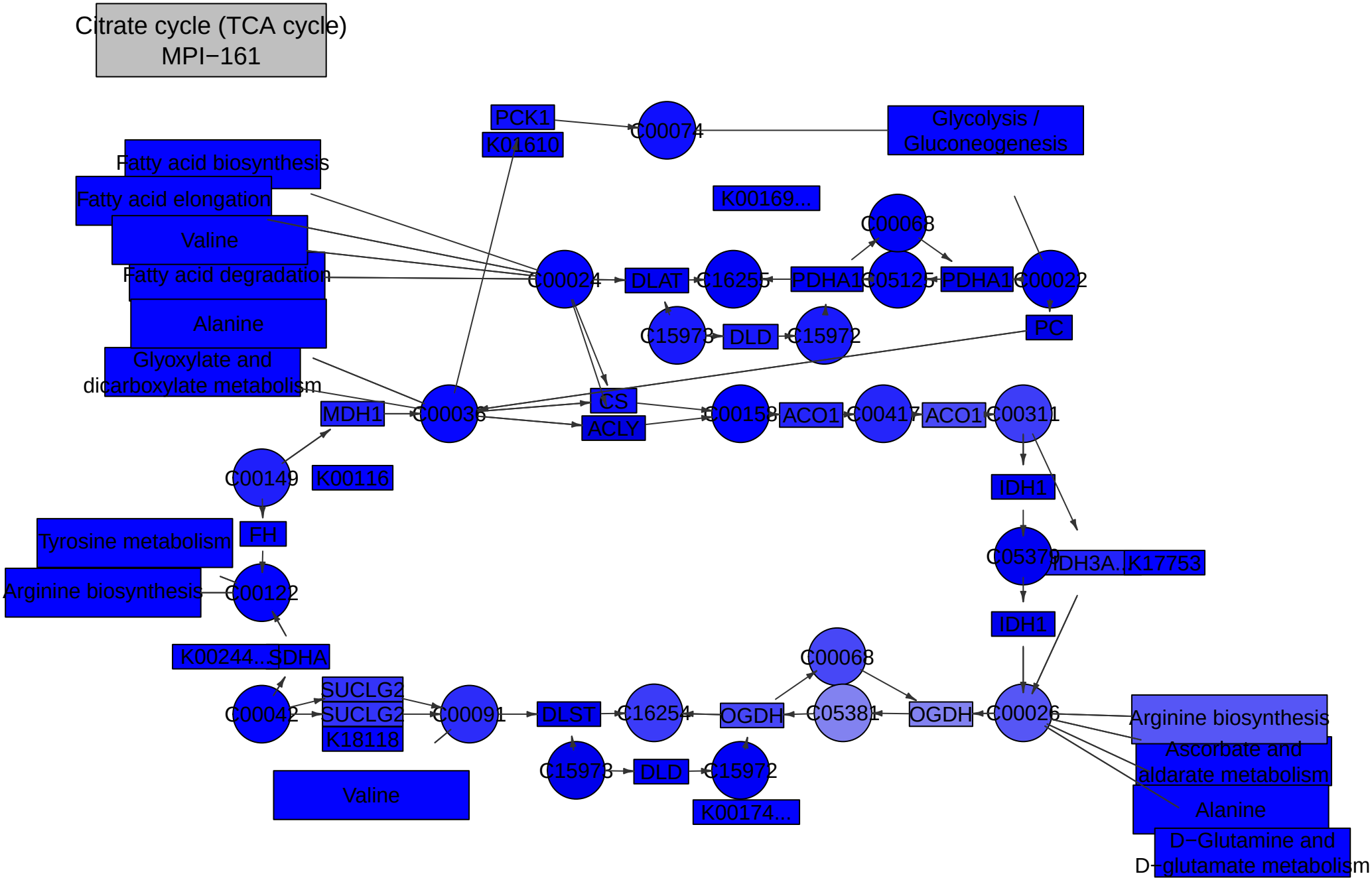
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
IDH3A..
K17753
IDH1
K00244..SDHA
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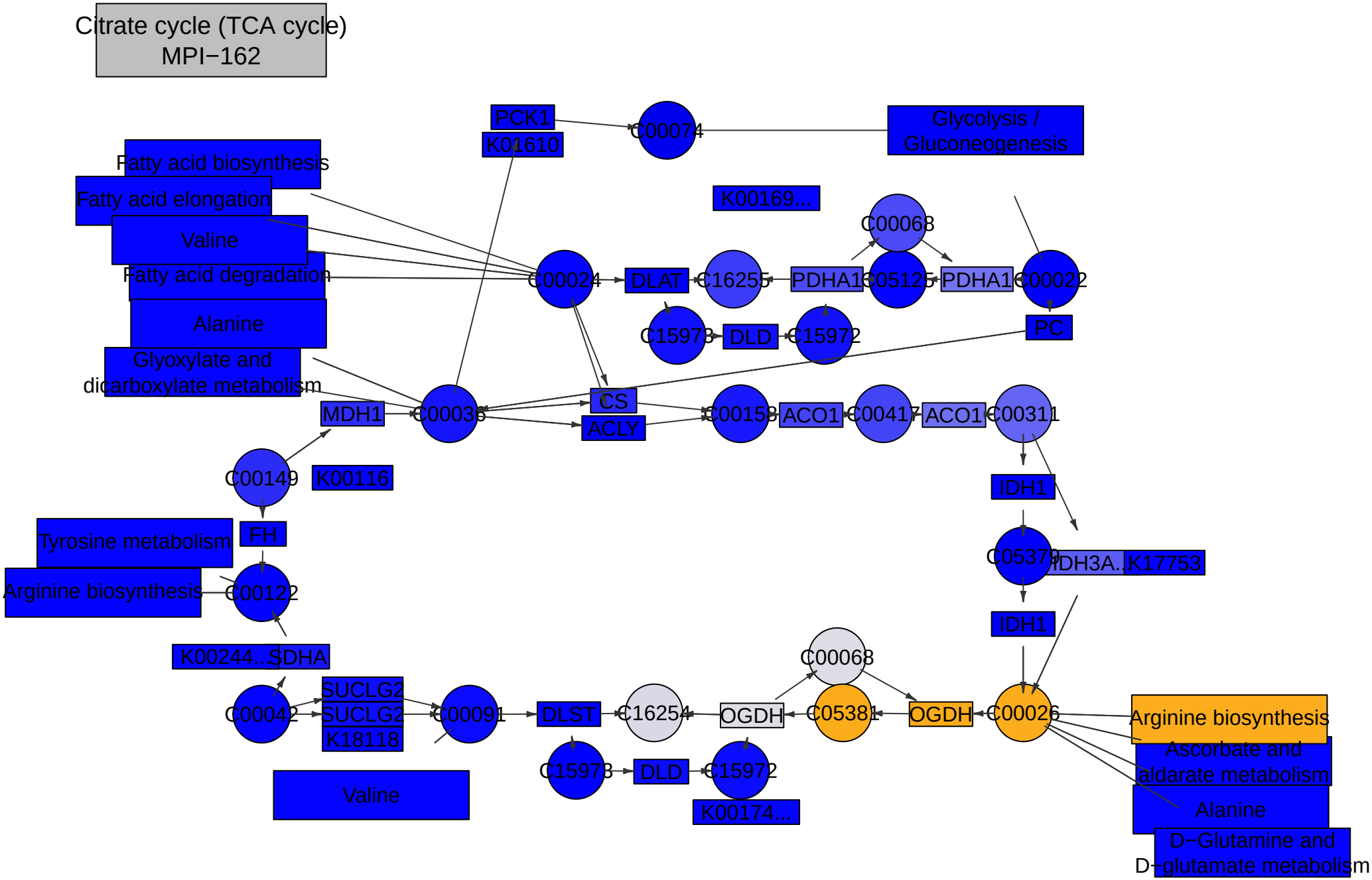
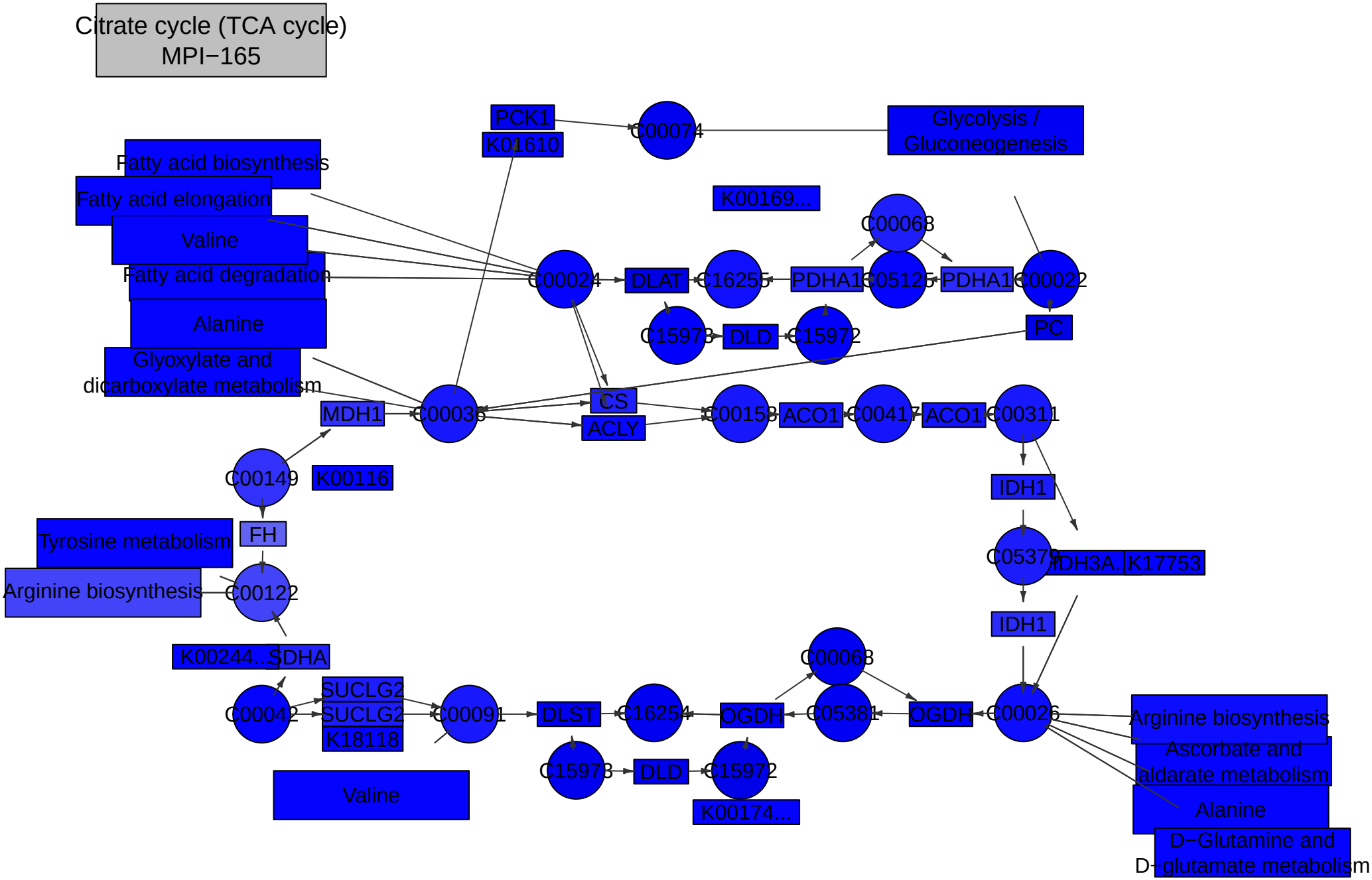
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−162
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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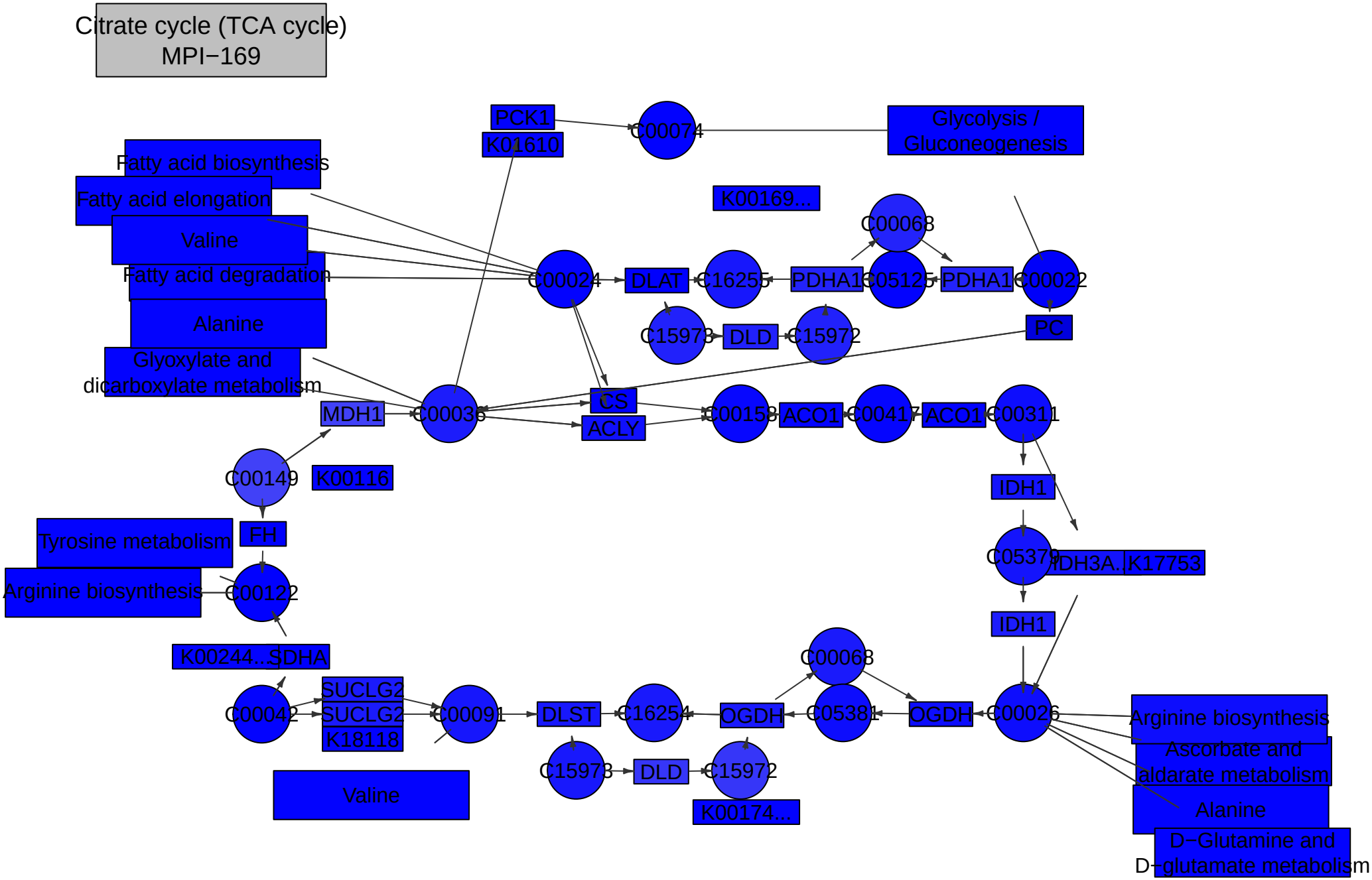
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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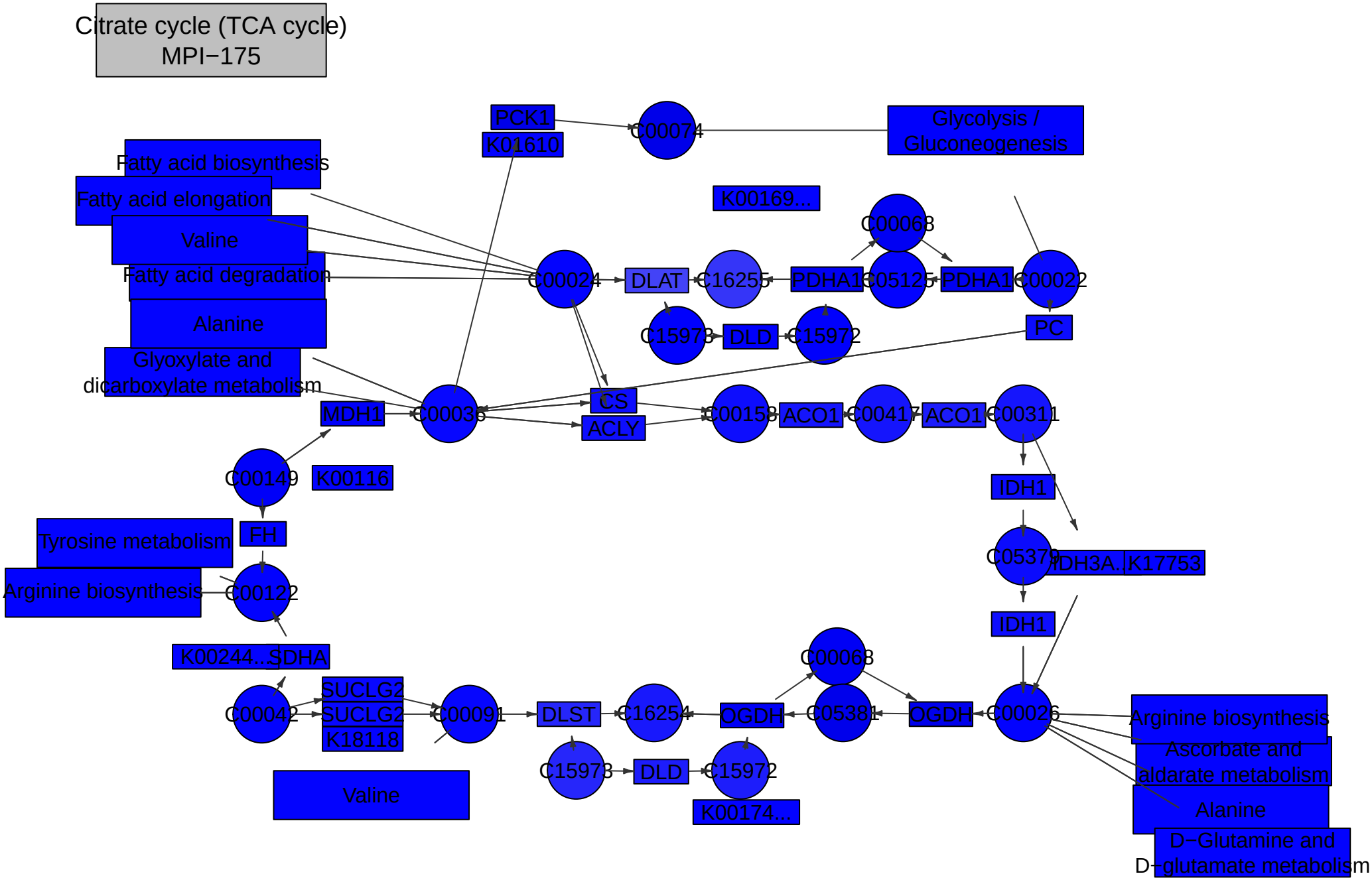
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C00068
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−175
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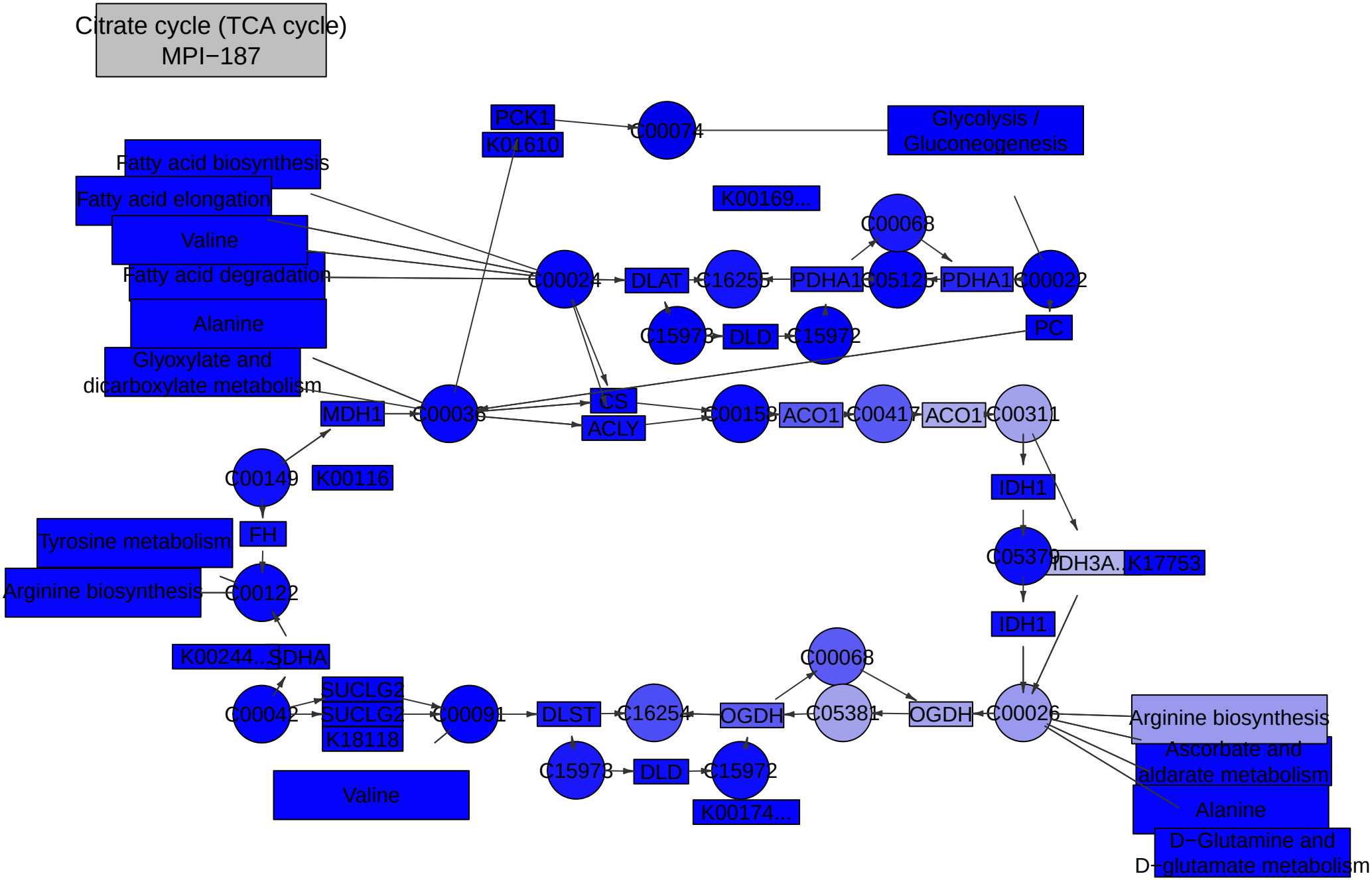
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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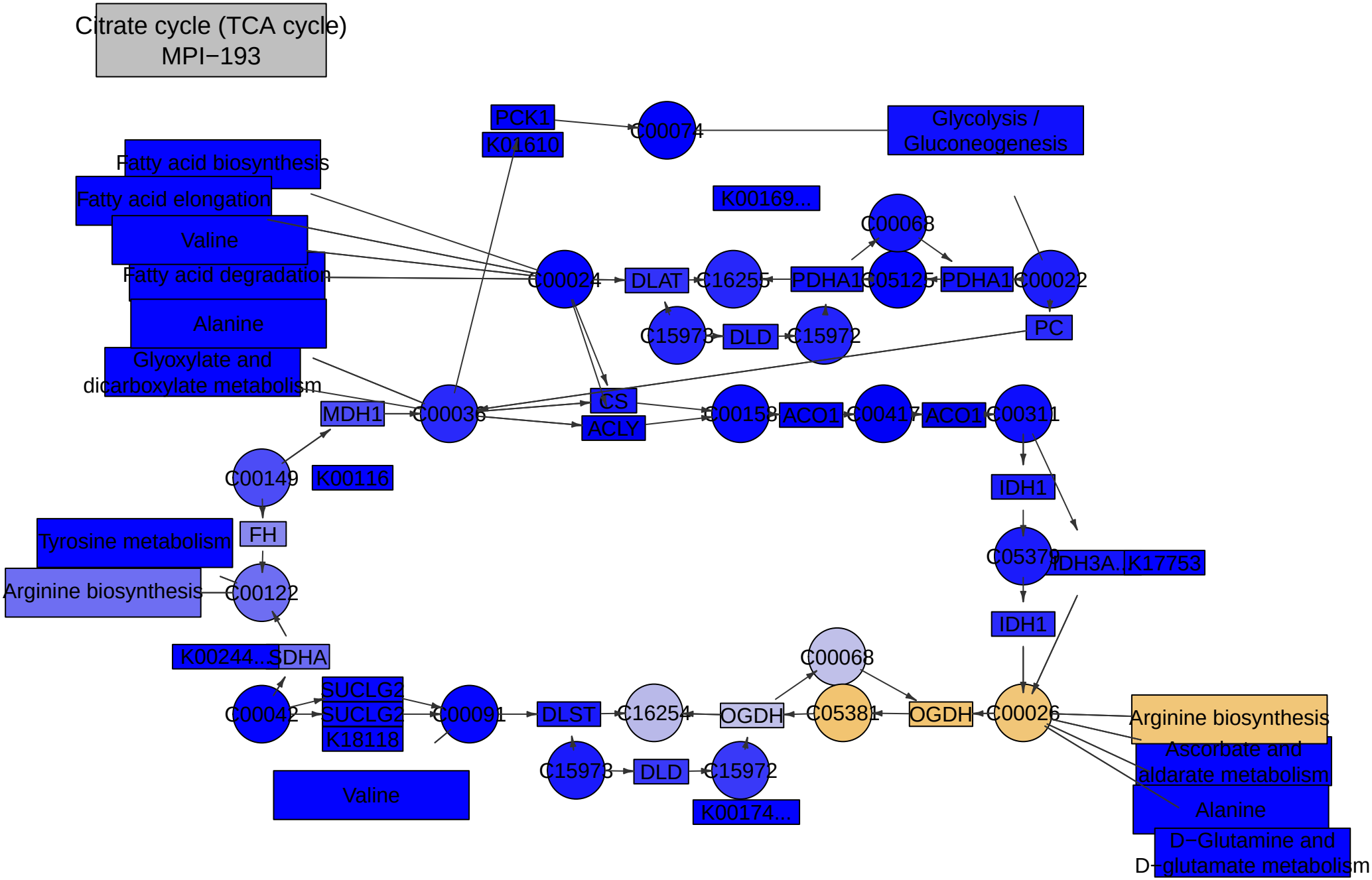
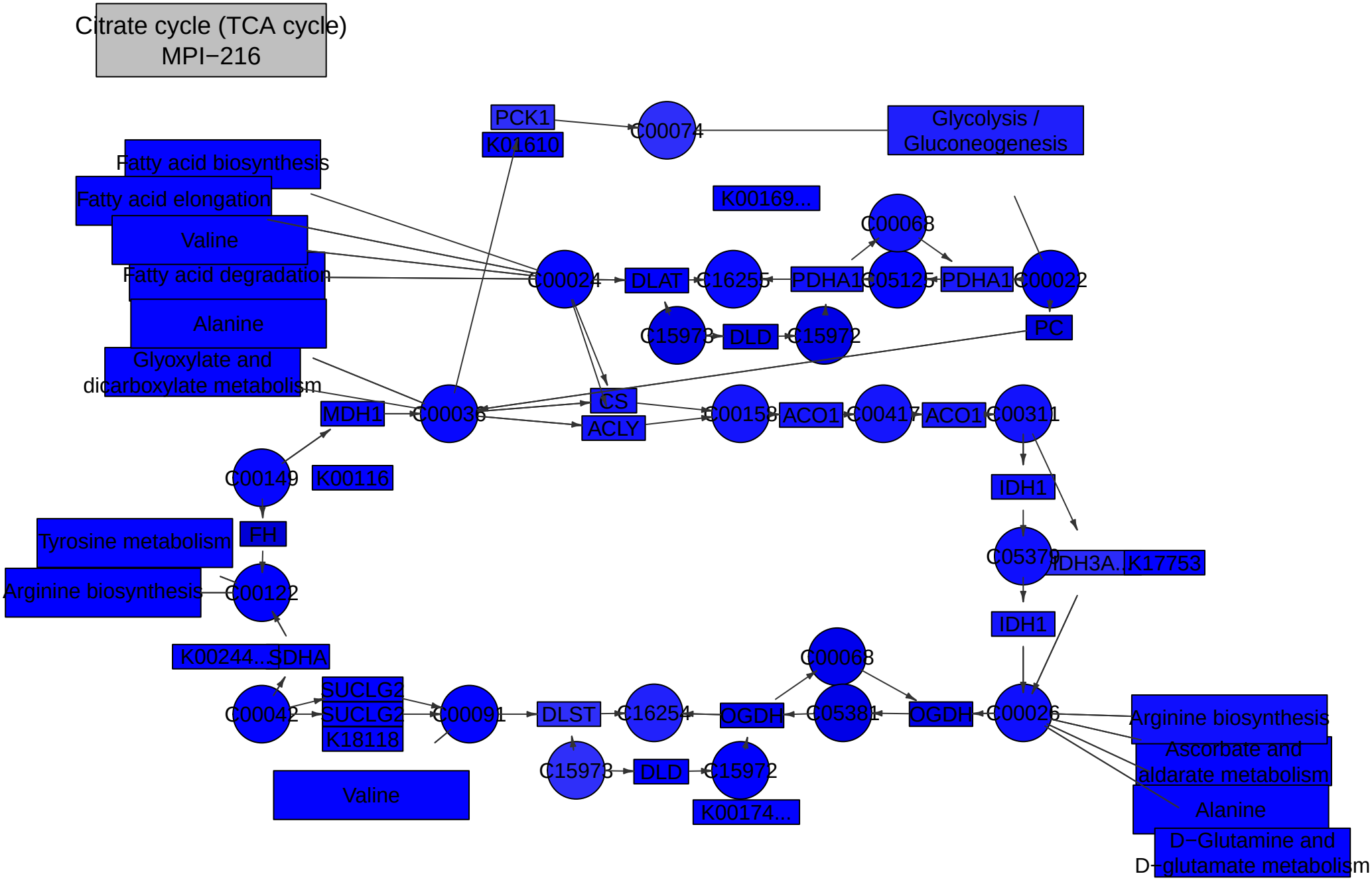
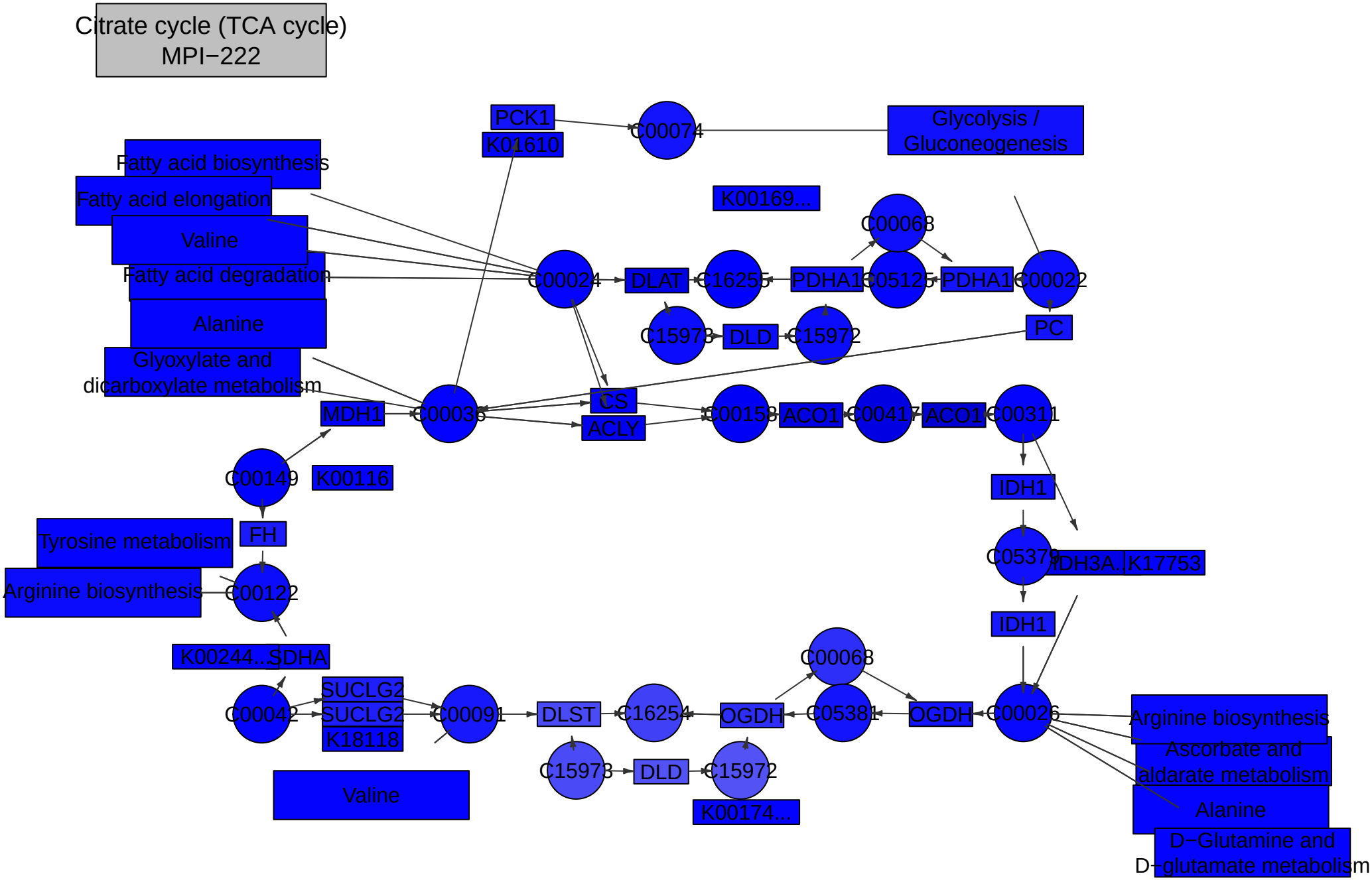
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−193
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−216
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−222
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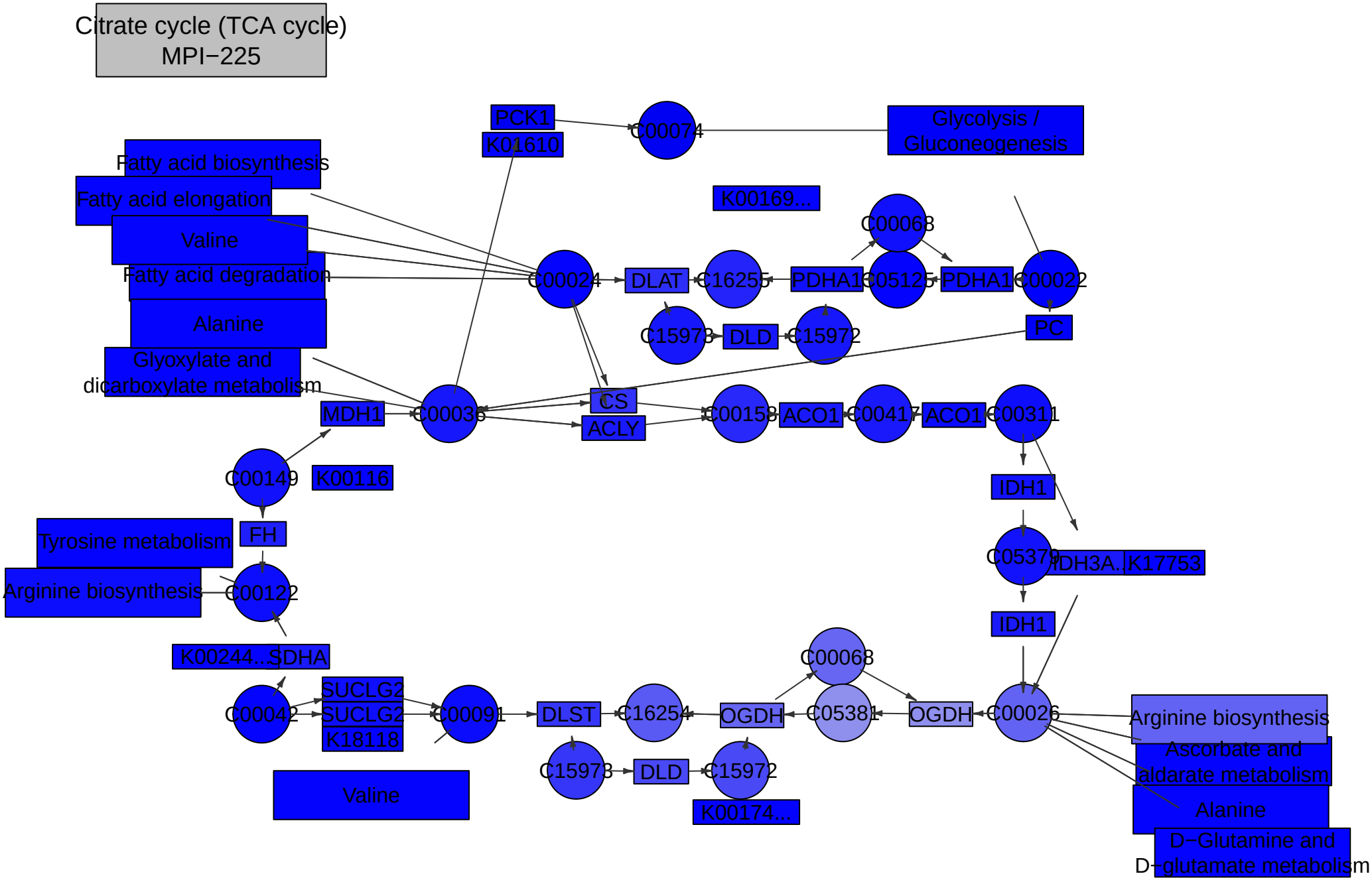
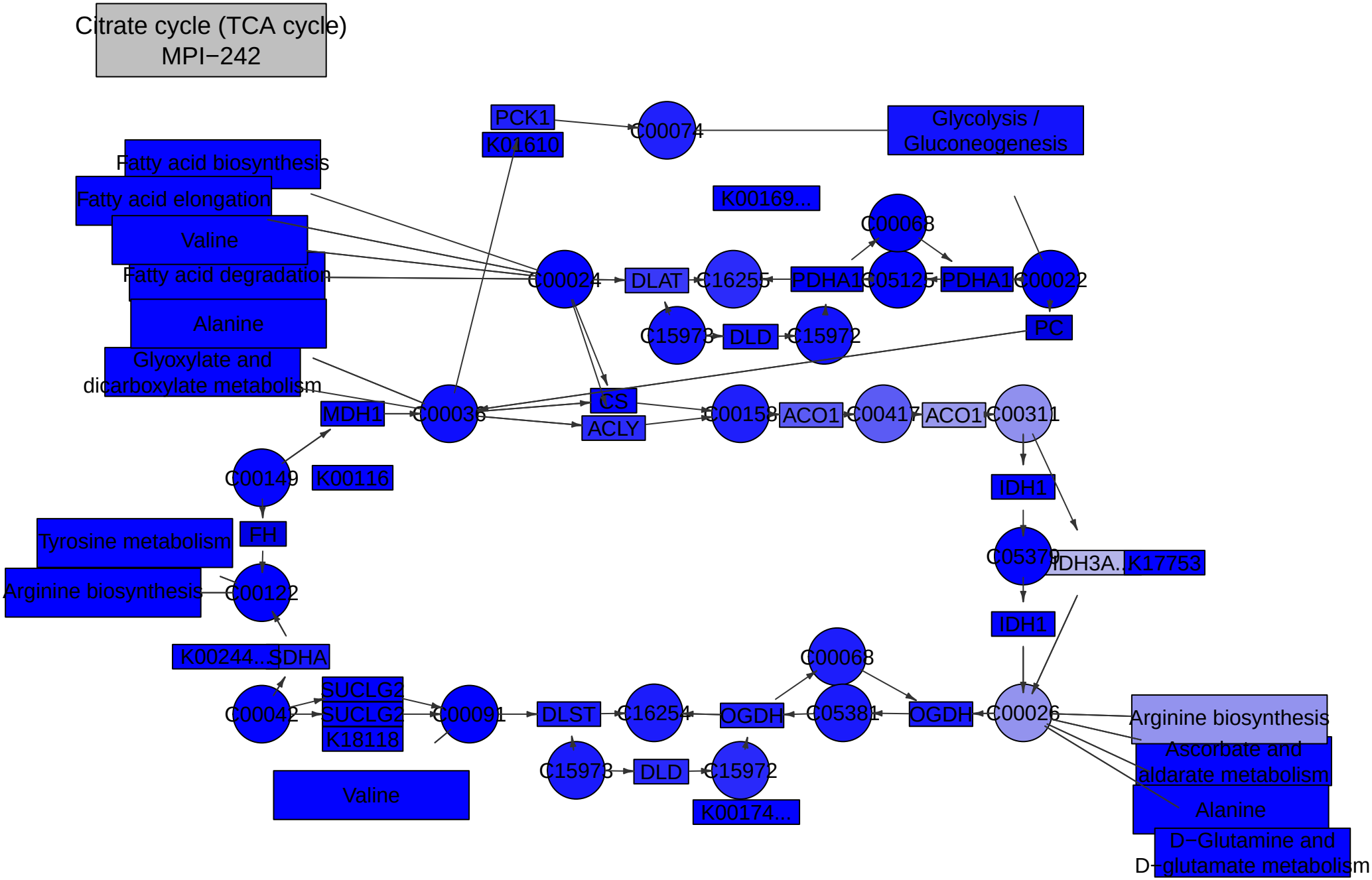
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−225
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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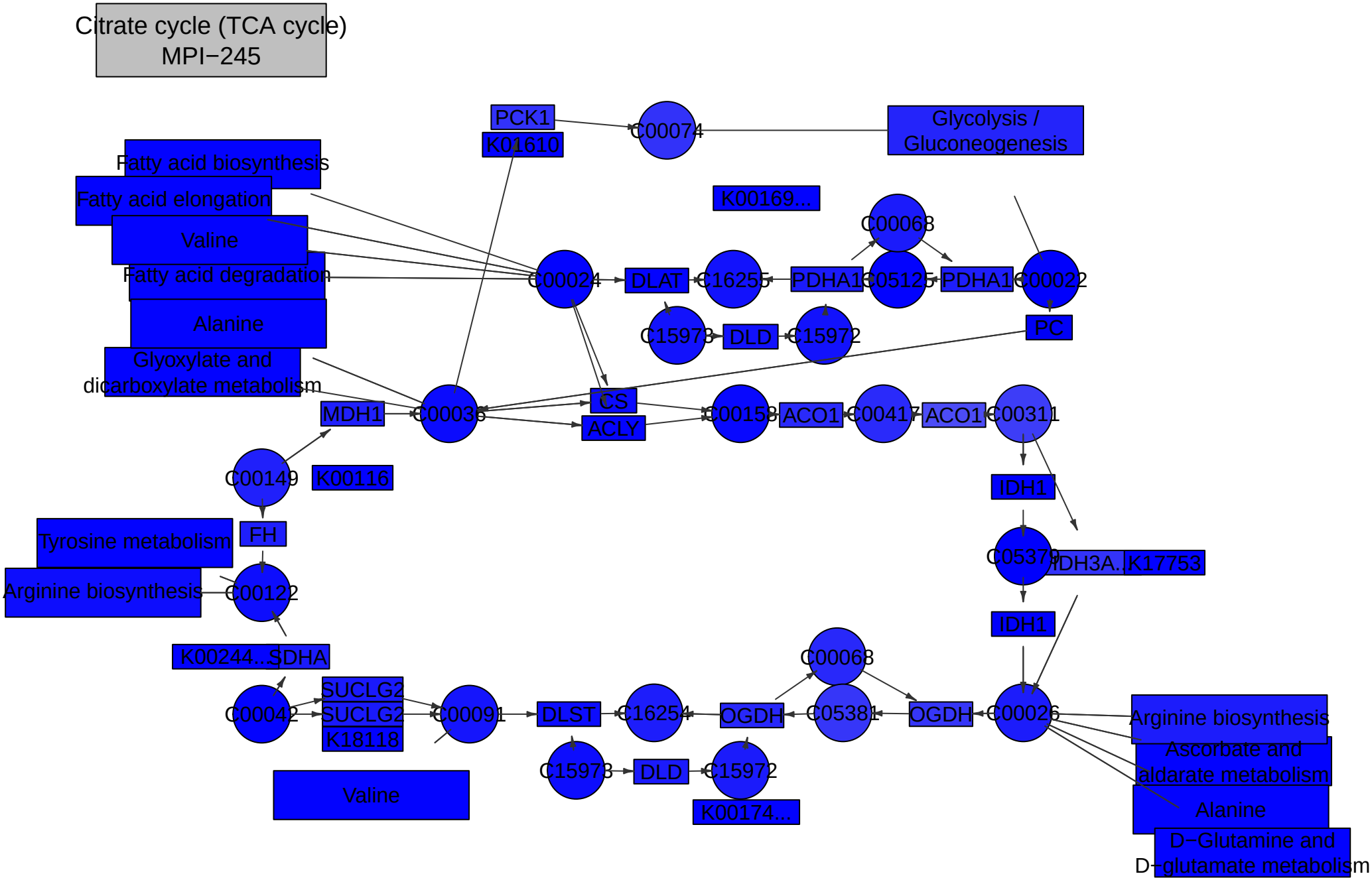
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
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MDH1
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ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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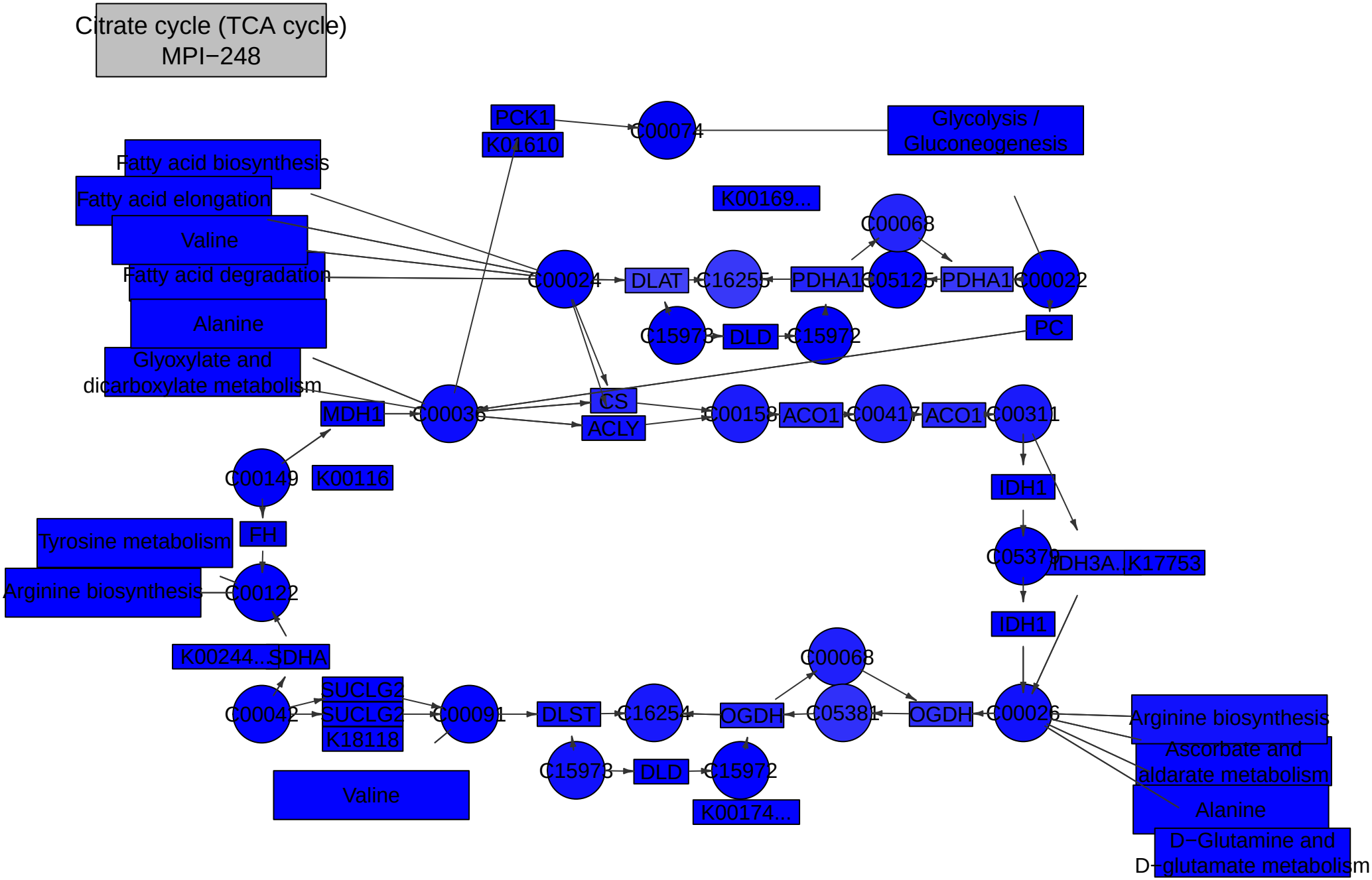
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
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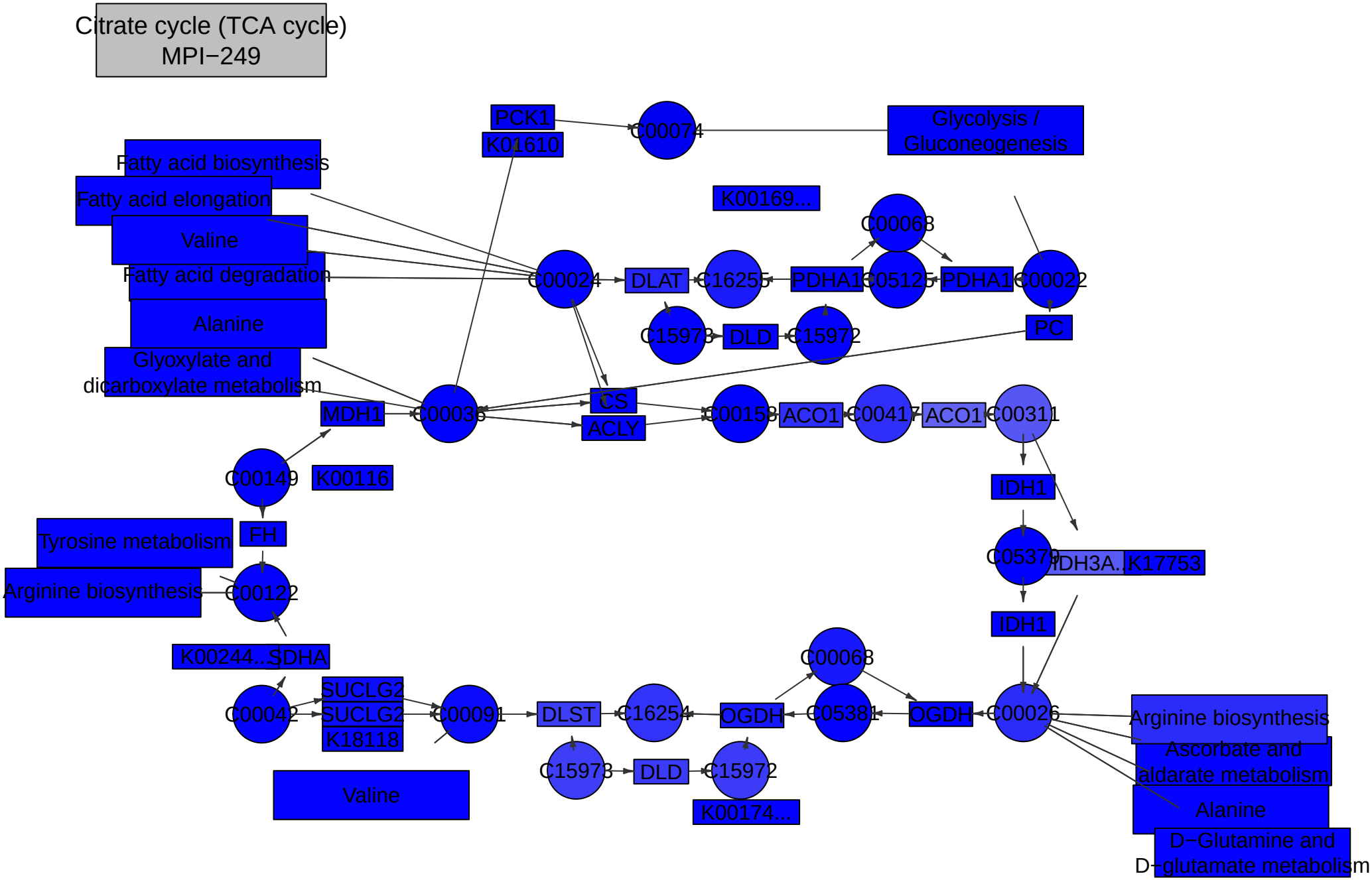
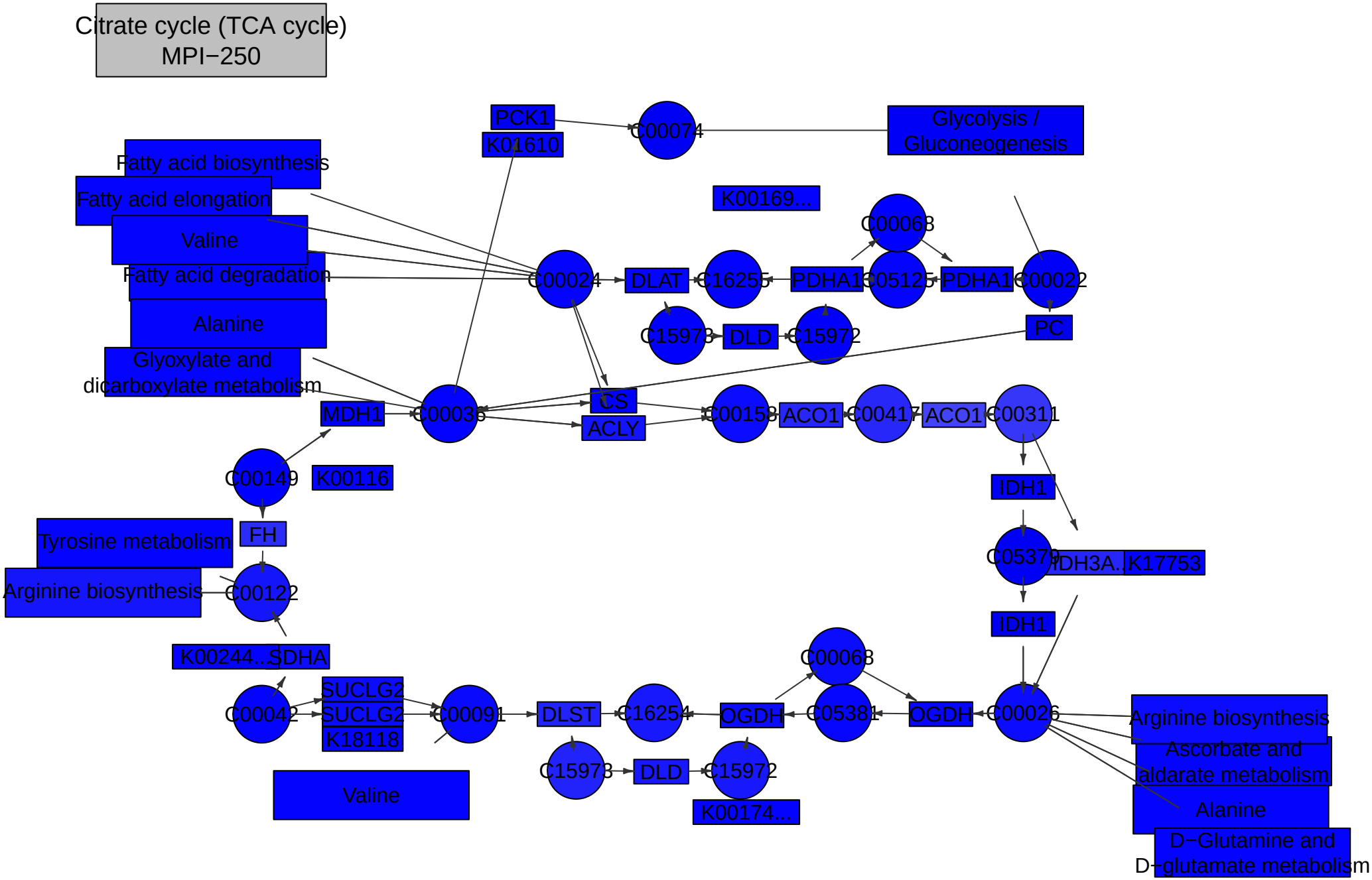
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−249
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−250
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
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ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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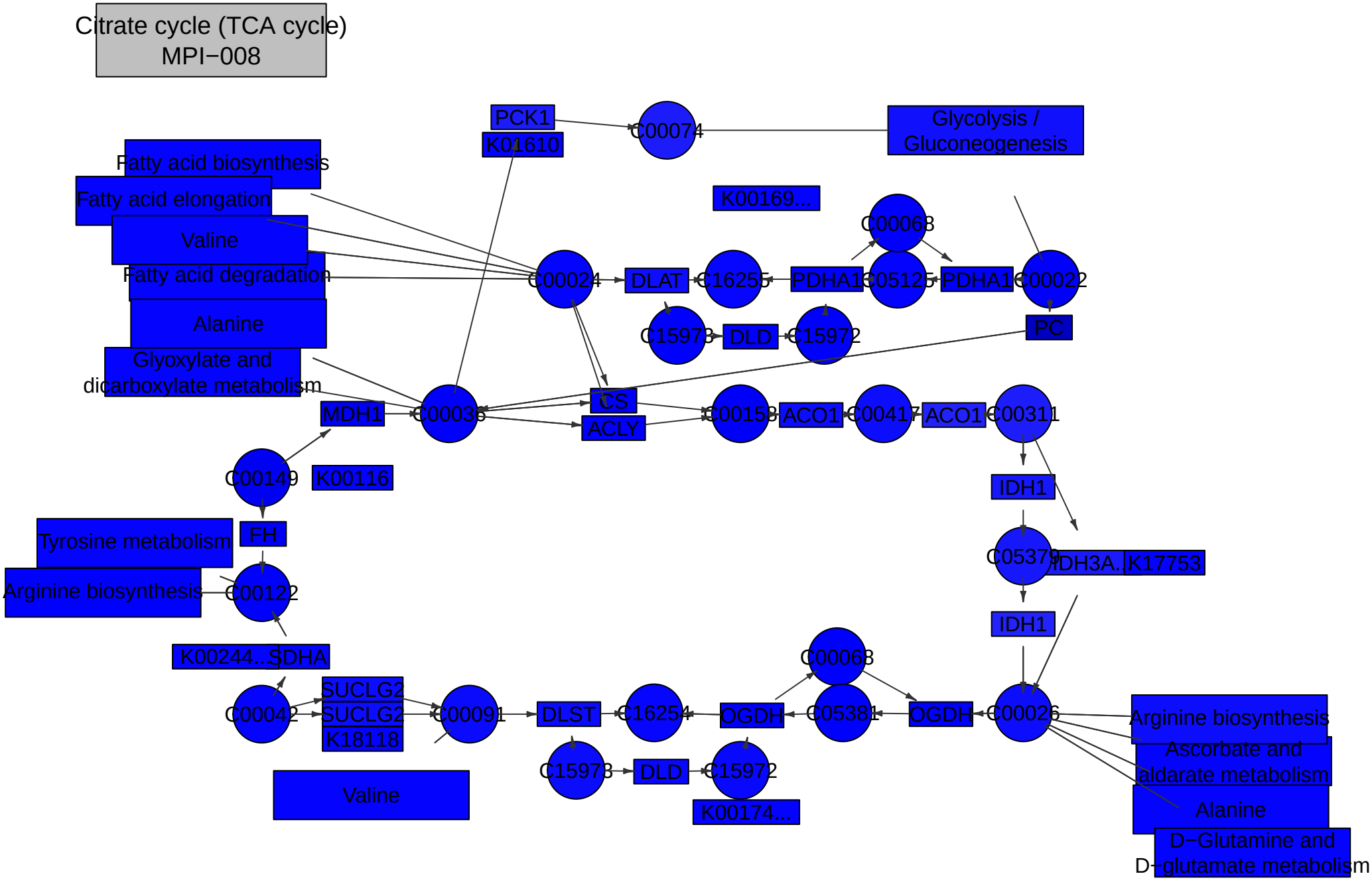
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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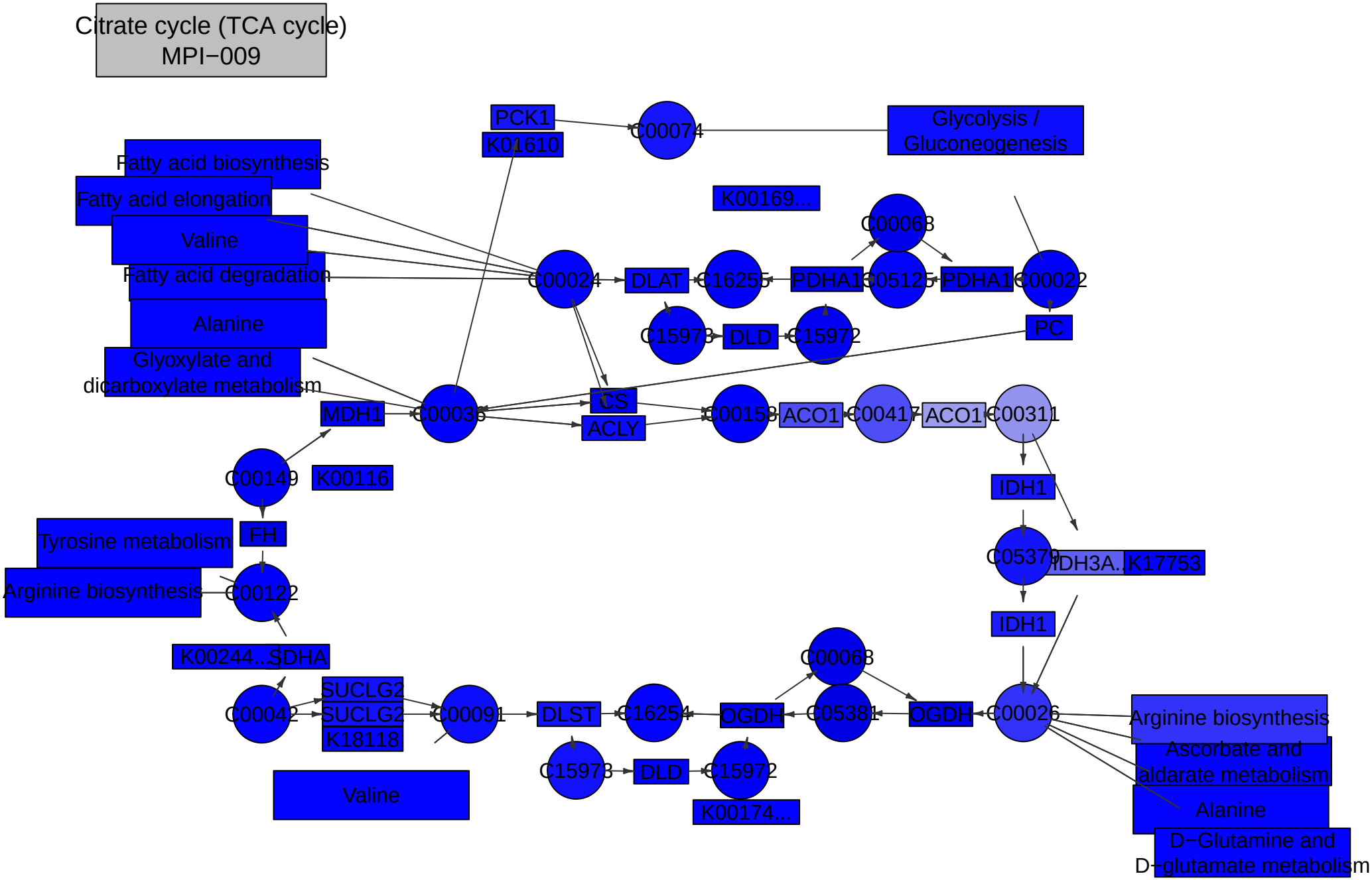
Valine


Citrate cycle (TCA cycle)
MPI−009
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
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SUCLG2
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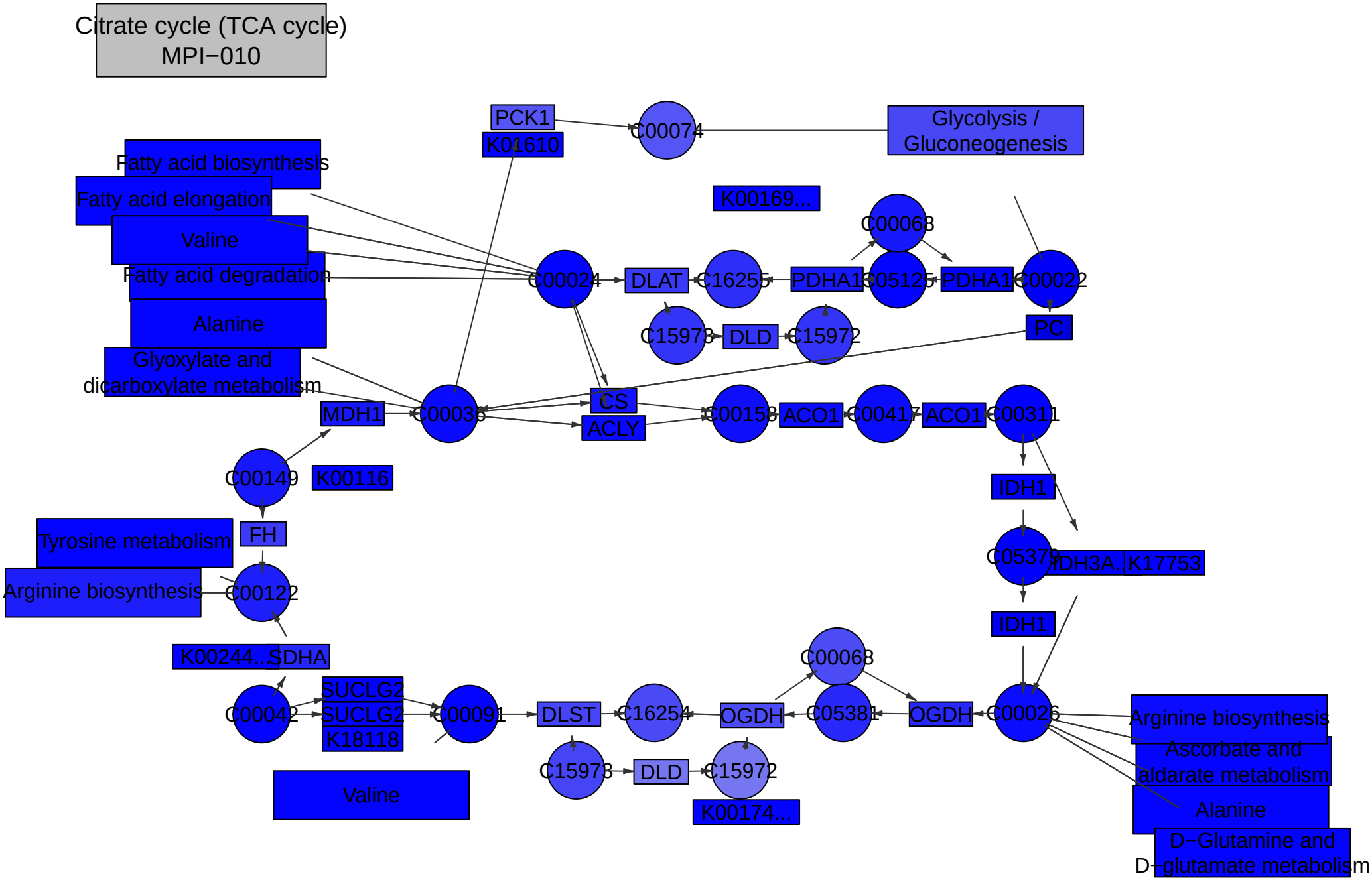
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
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MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
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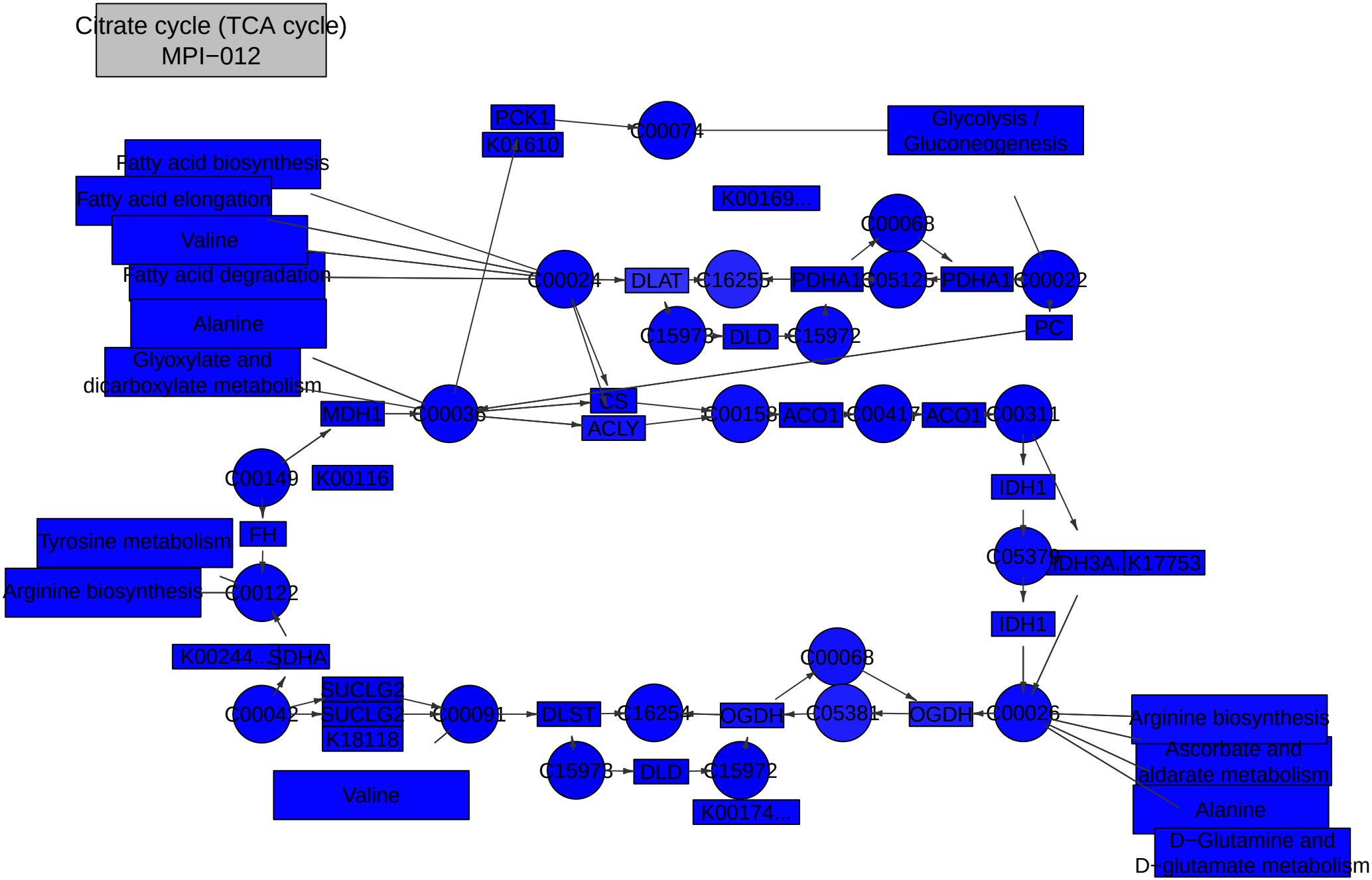
K00174...


Citrate cycle (TCA cycle)
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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IDH1
Tyrosine metabolism
FH
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C05378
IDH3A..
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IDH1
K00244..
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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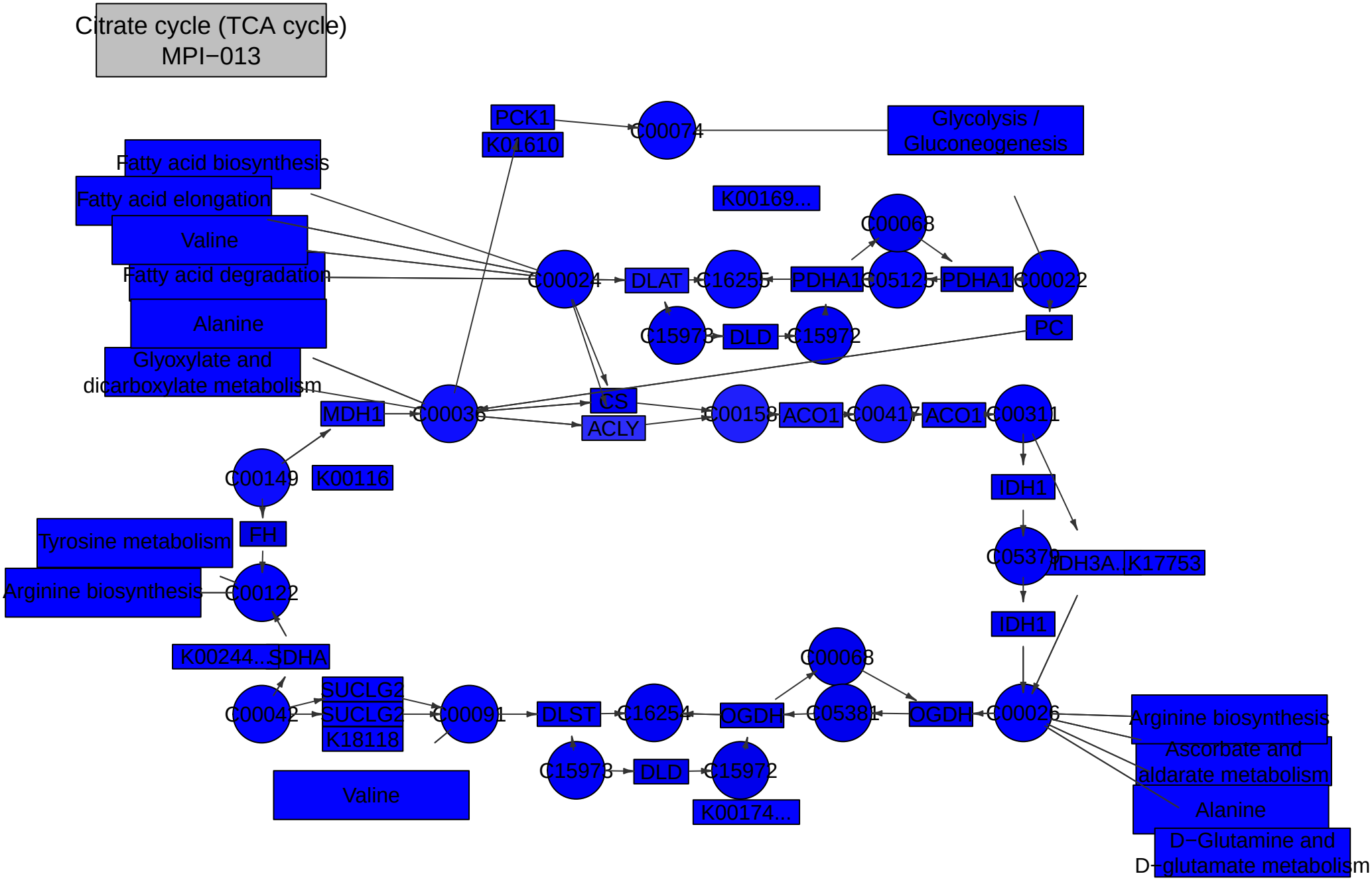
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLD
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Tyrosine metabolism
FH
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C05378
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IDH1
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SDHA
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OGDH
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Alanine
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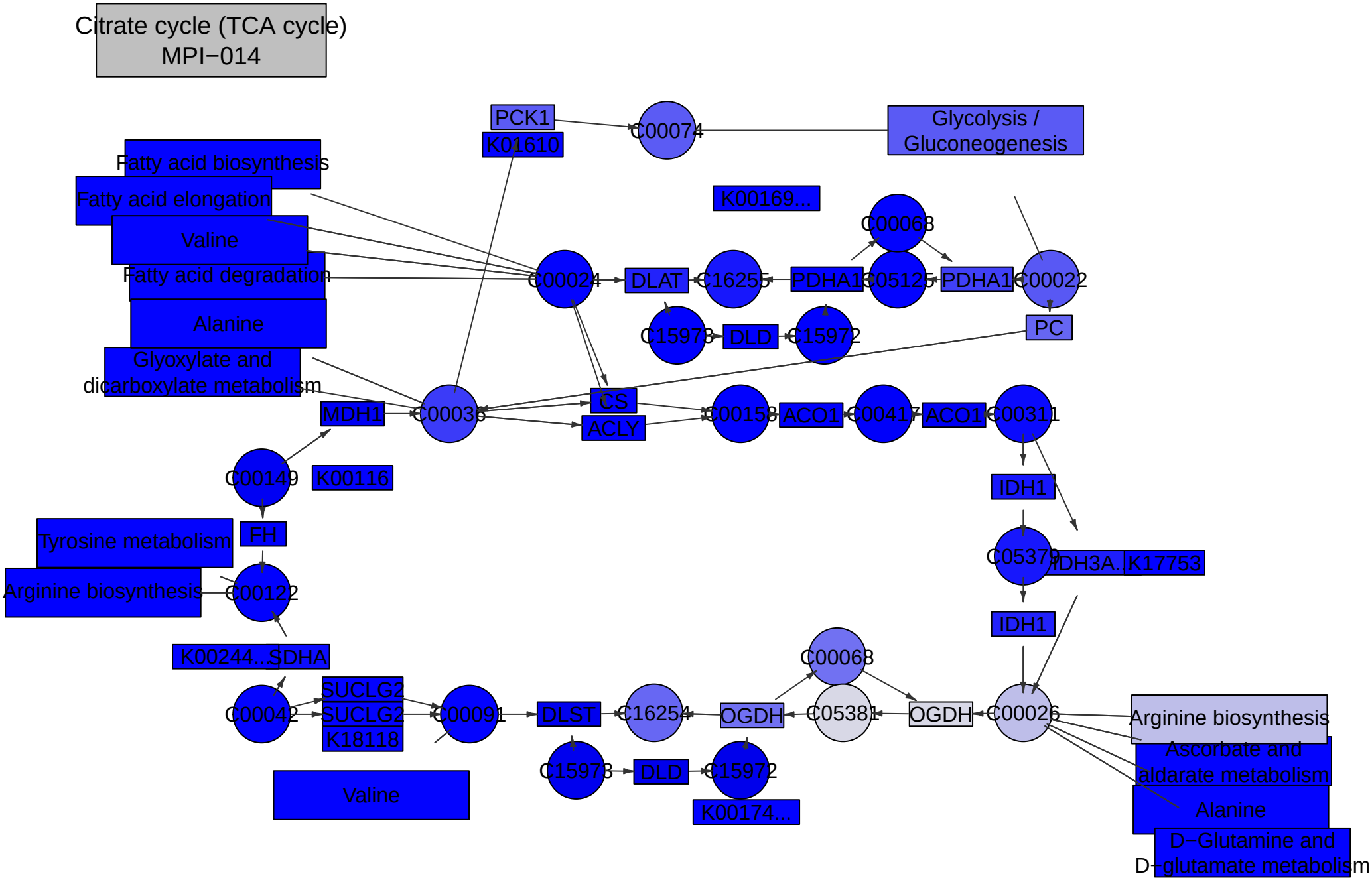
Valine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Fatty acid degradation
Alanine
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IDH1
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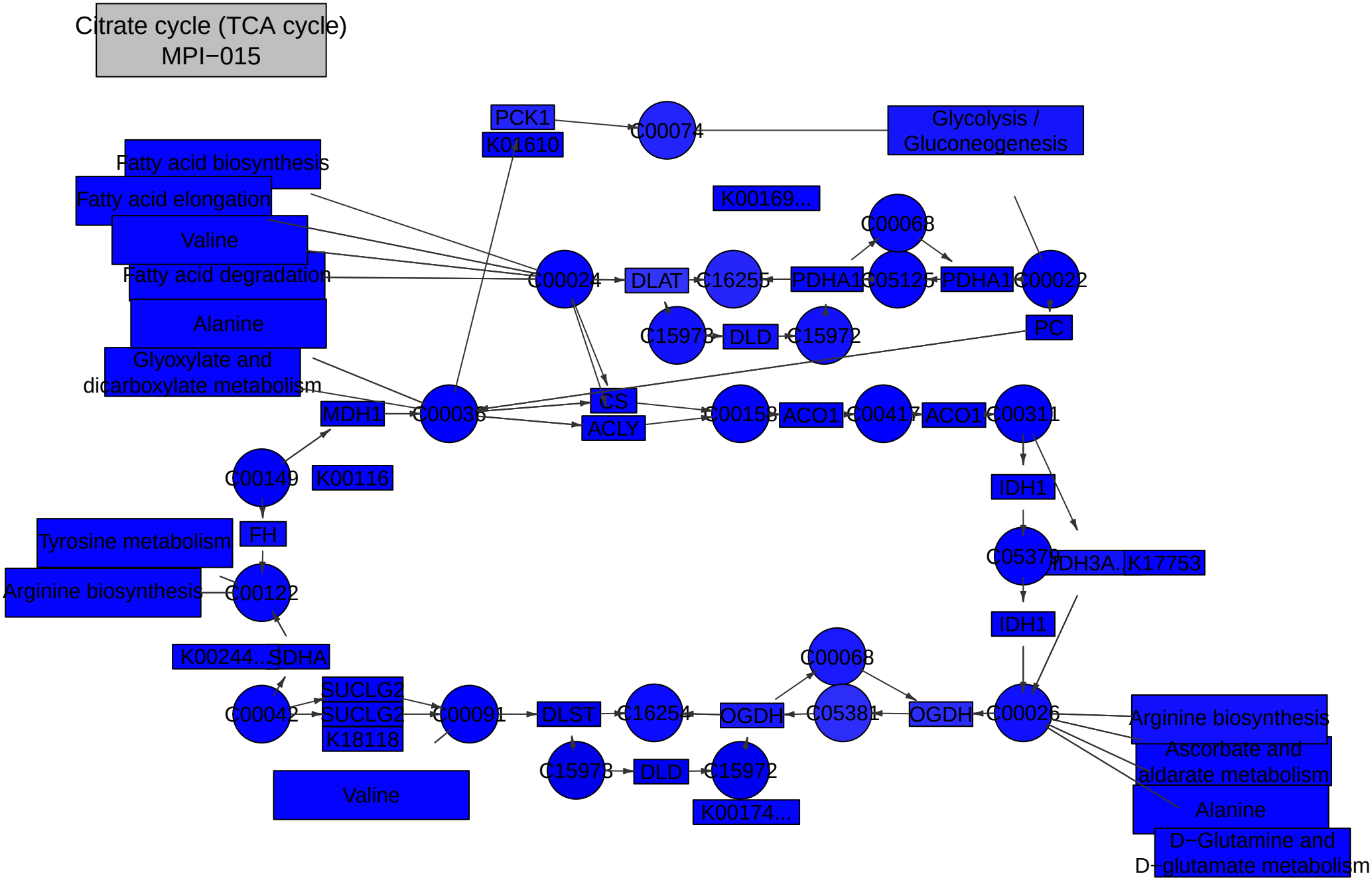
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Fatty acid degradation
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IDH1
K00244..
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SUCLG2
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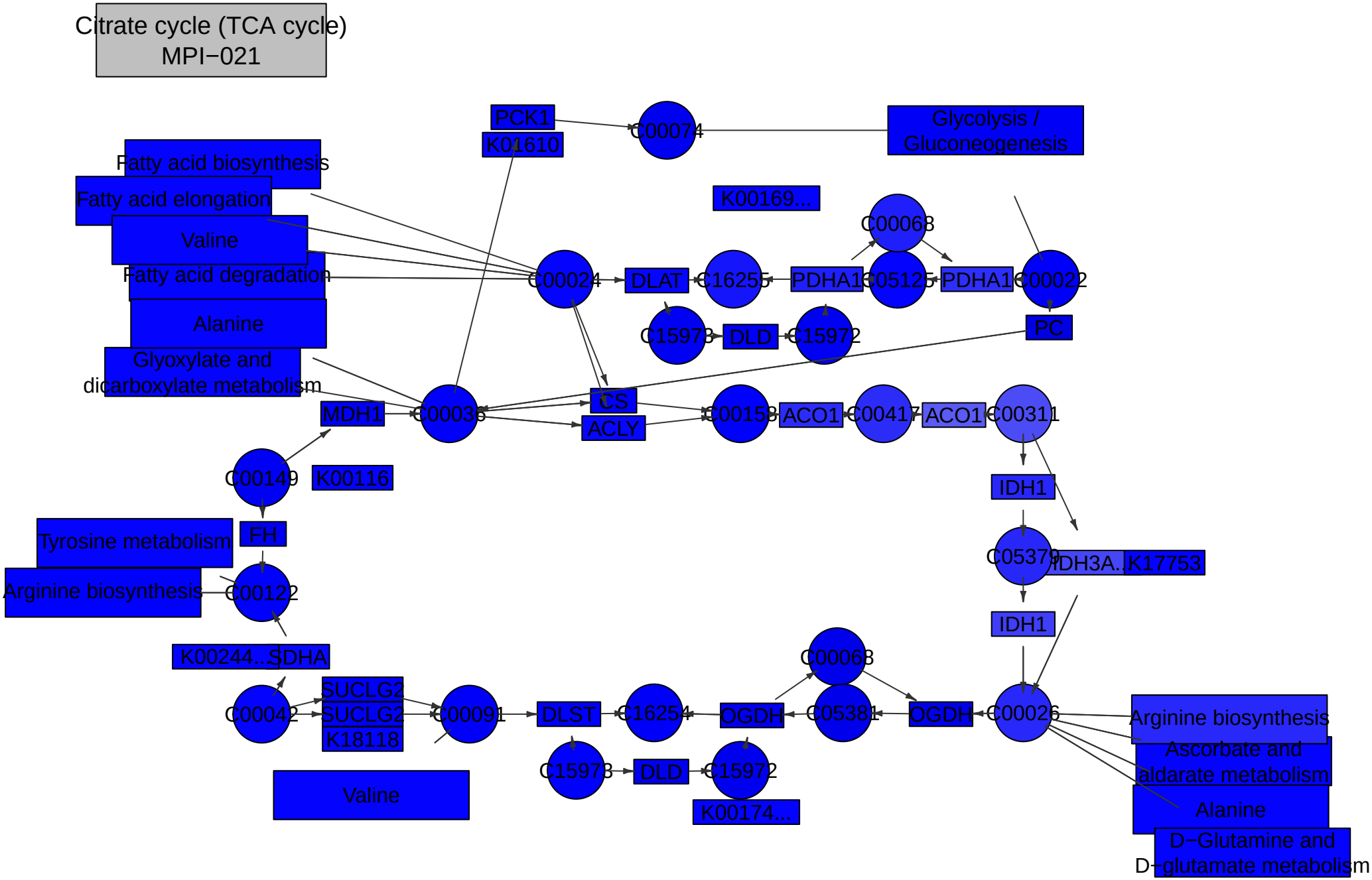
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Fatty acid degradation
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Glyoxylate and dicarboxylate metabolism
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PDHA1
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DLD
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IDH1
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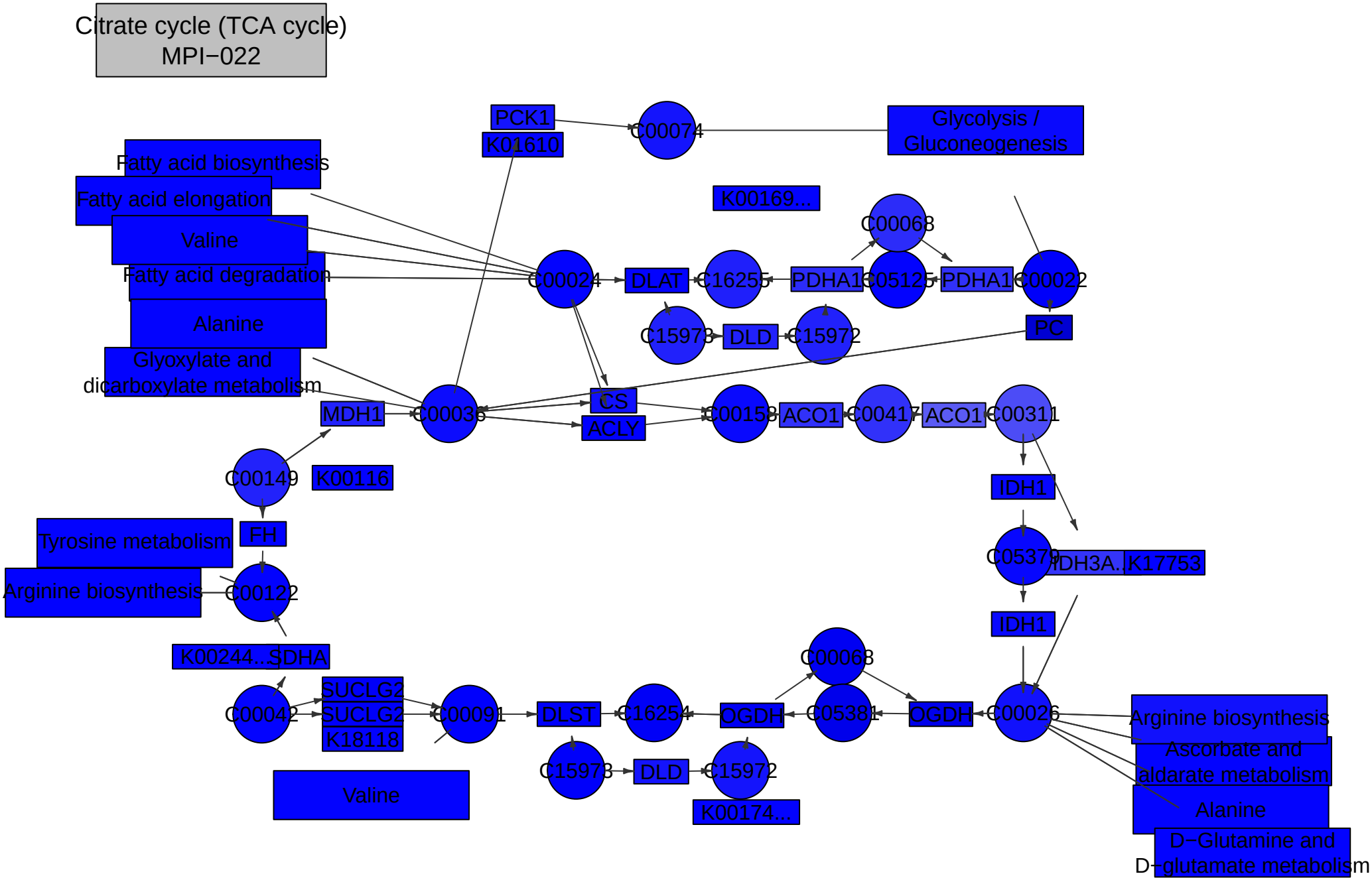
Valine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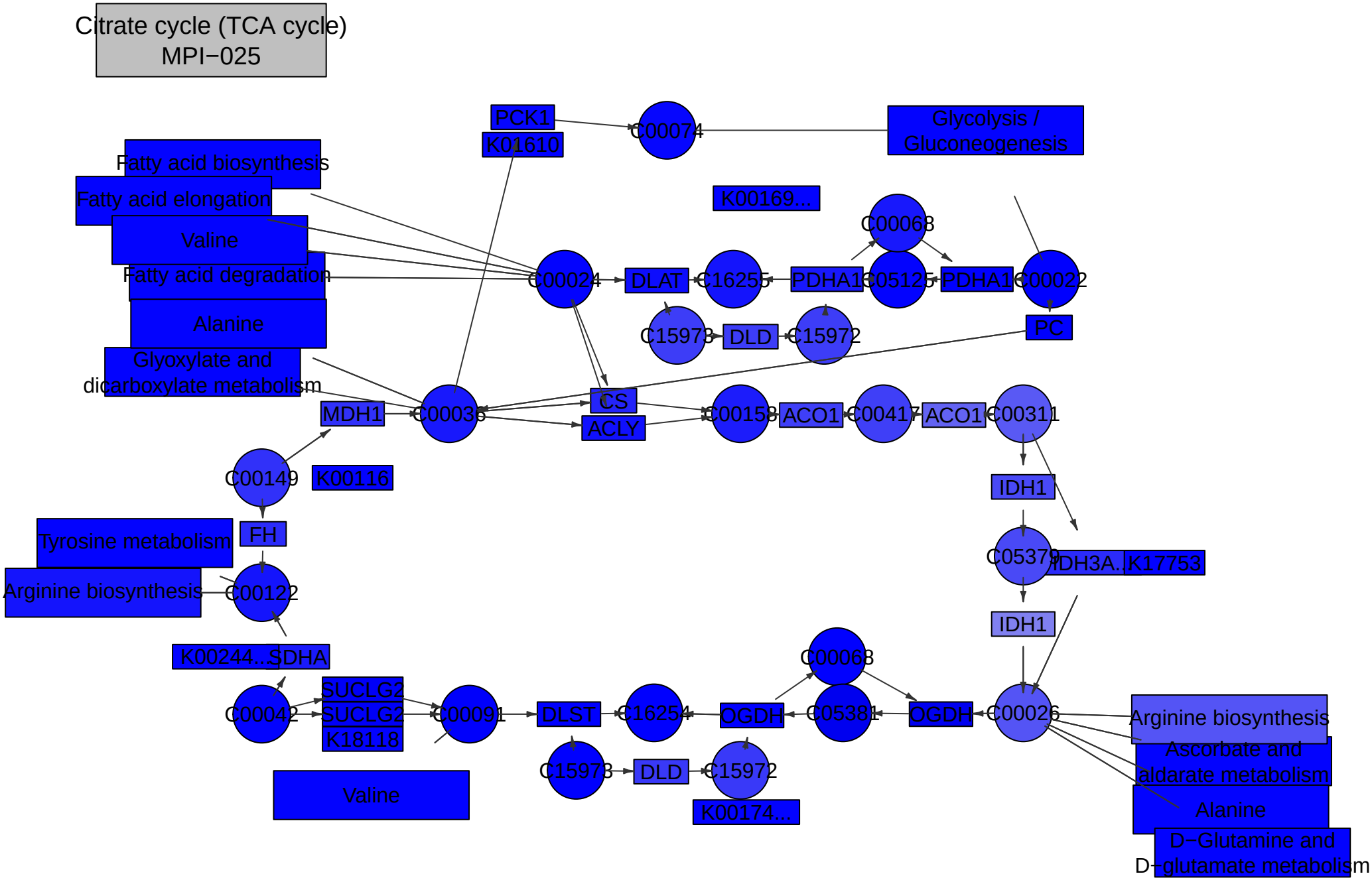
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DLD
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Tyrosine metabolism
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D−Glutamine and D−glutamate metabolism
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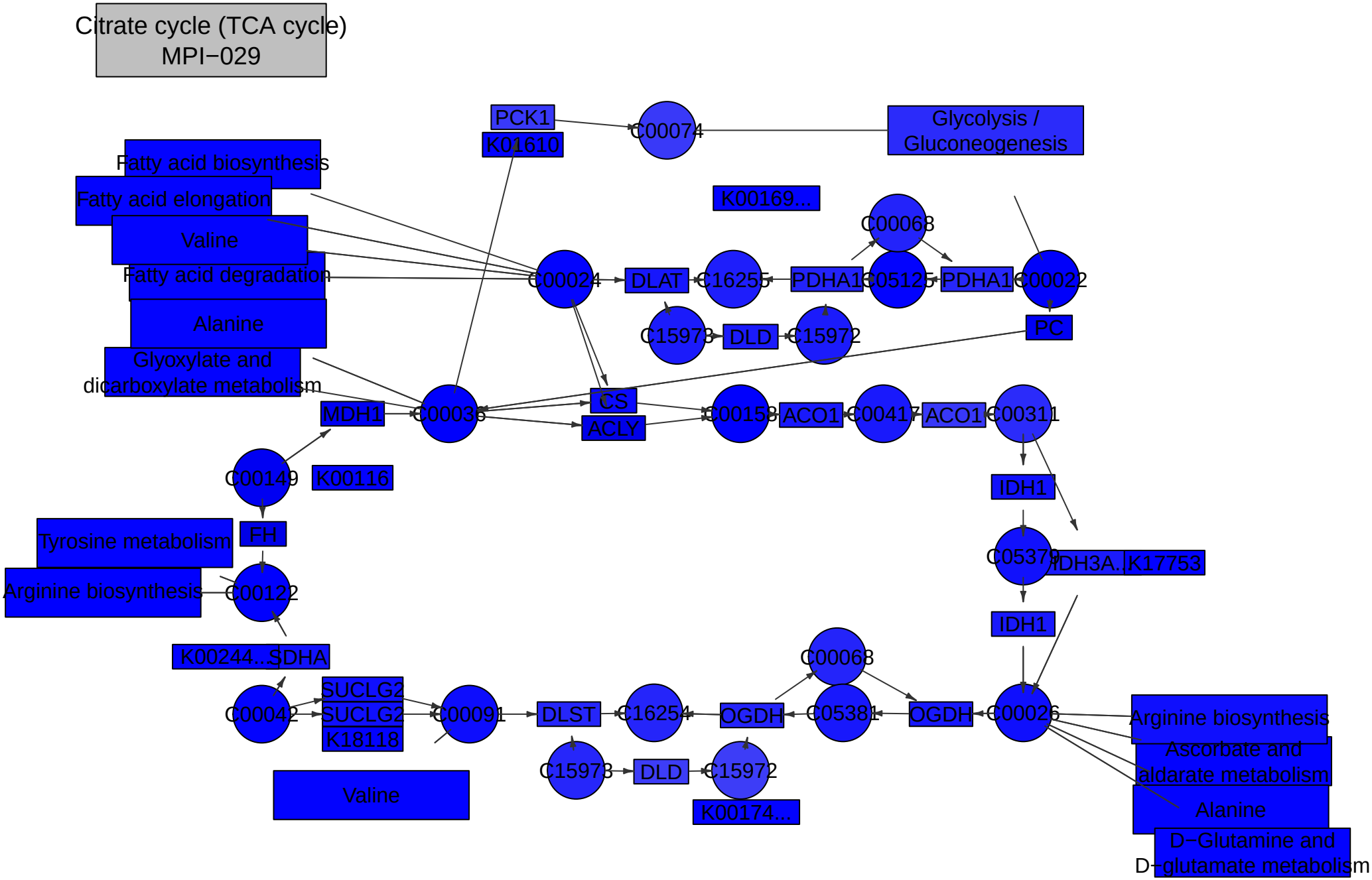
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Alanine
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DLD
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Tyrosine metabolism
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IDH1
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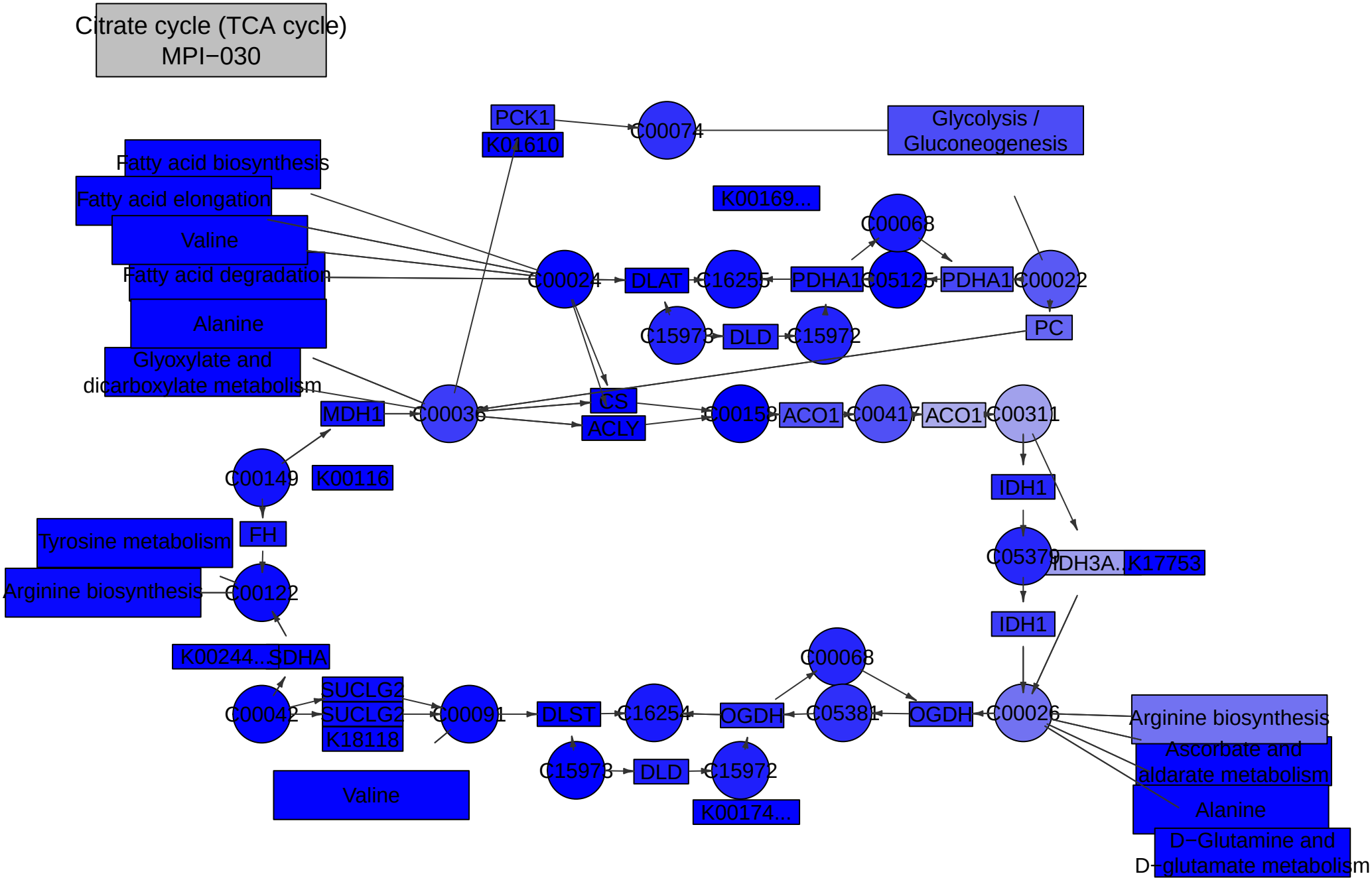
Valine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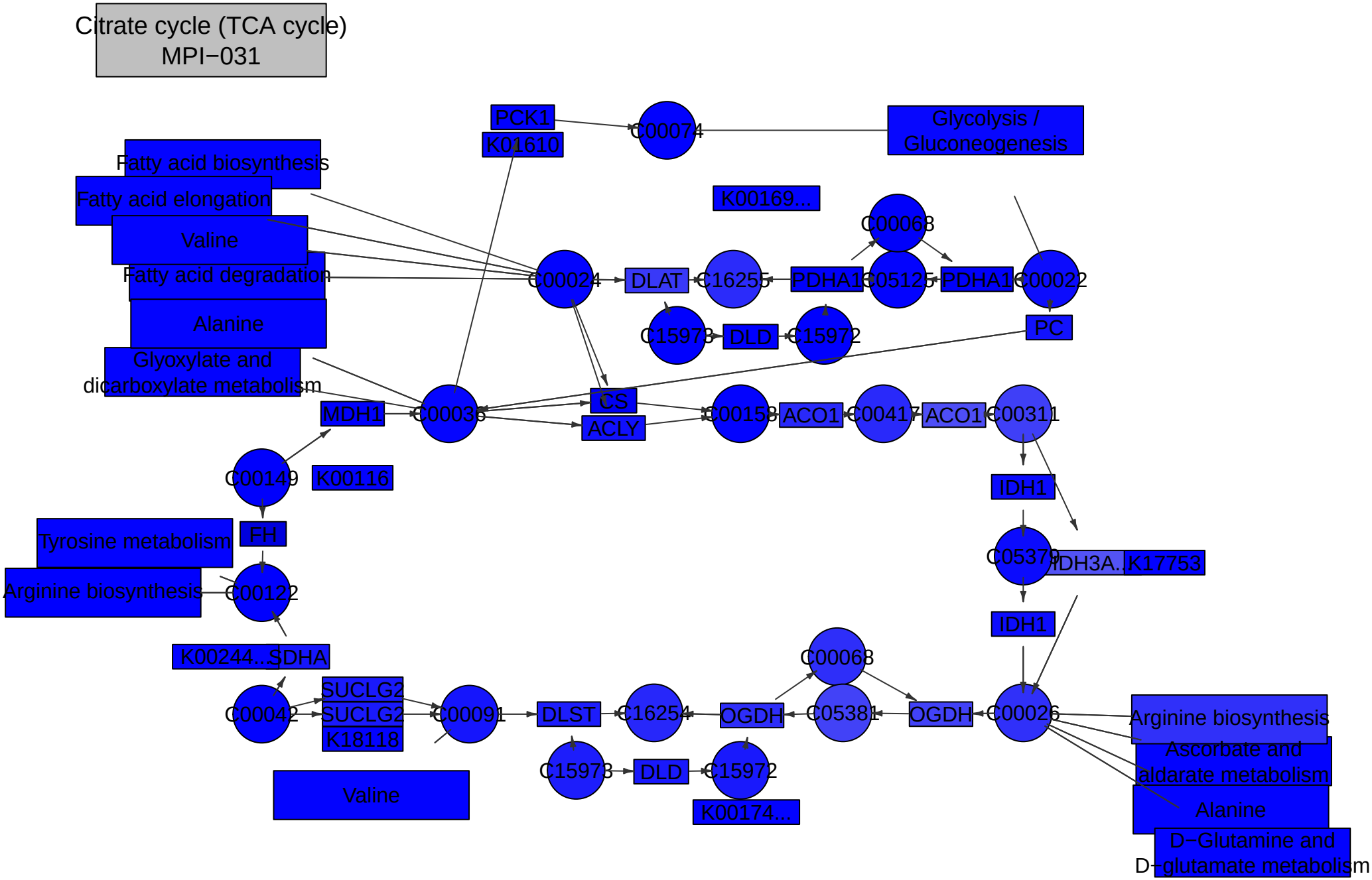
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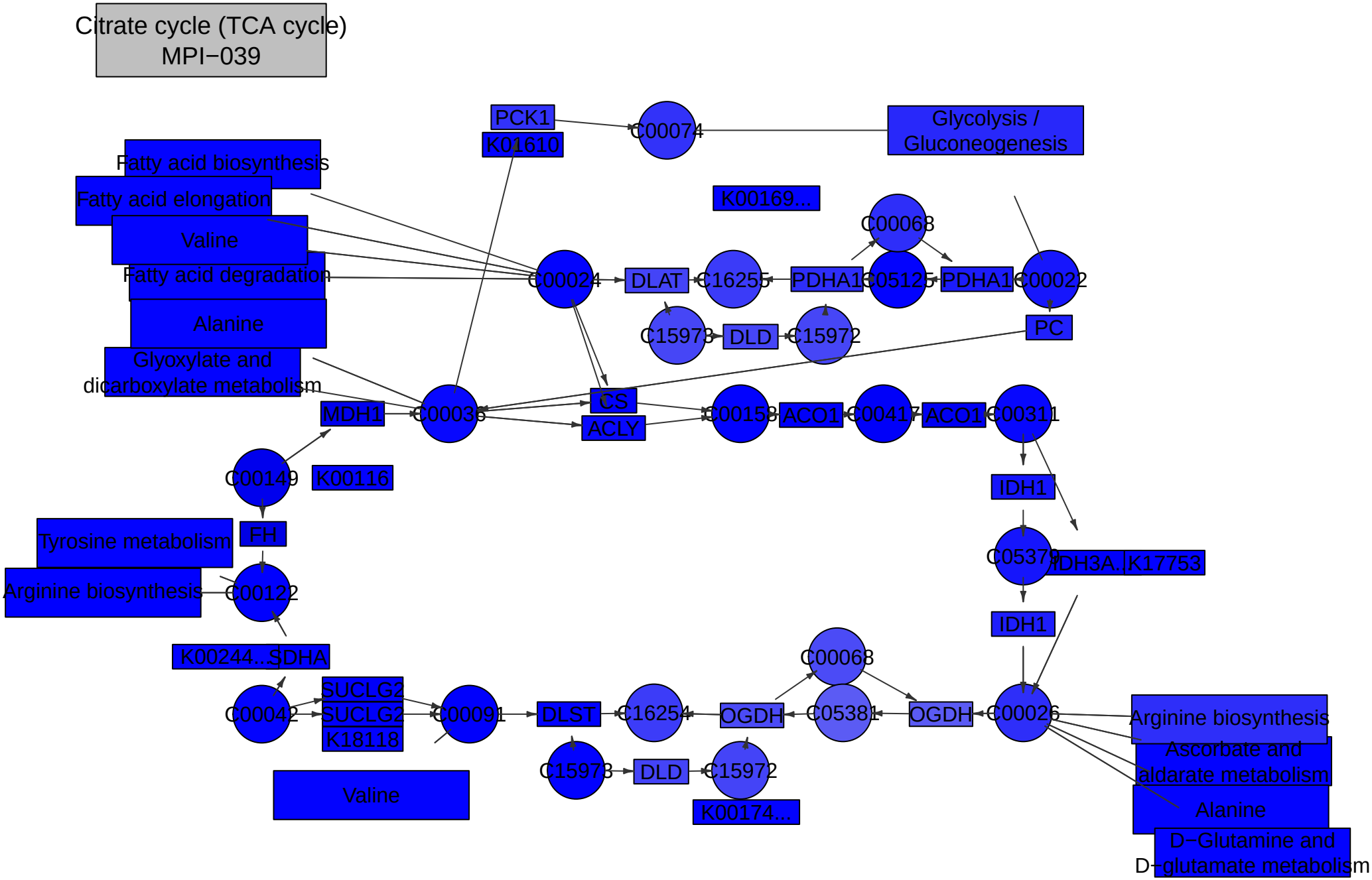
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D−Glutamine and D−glutamate metabolism
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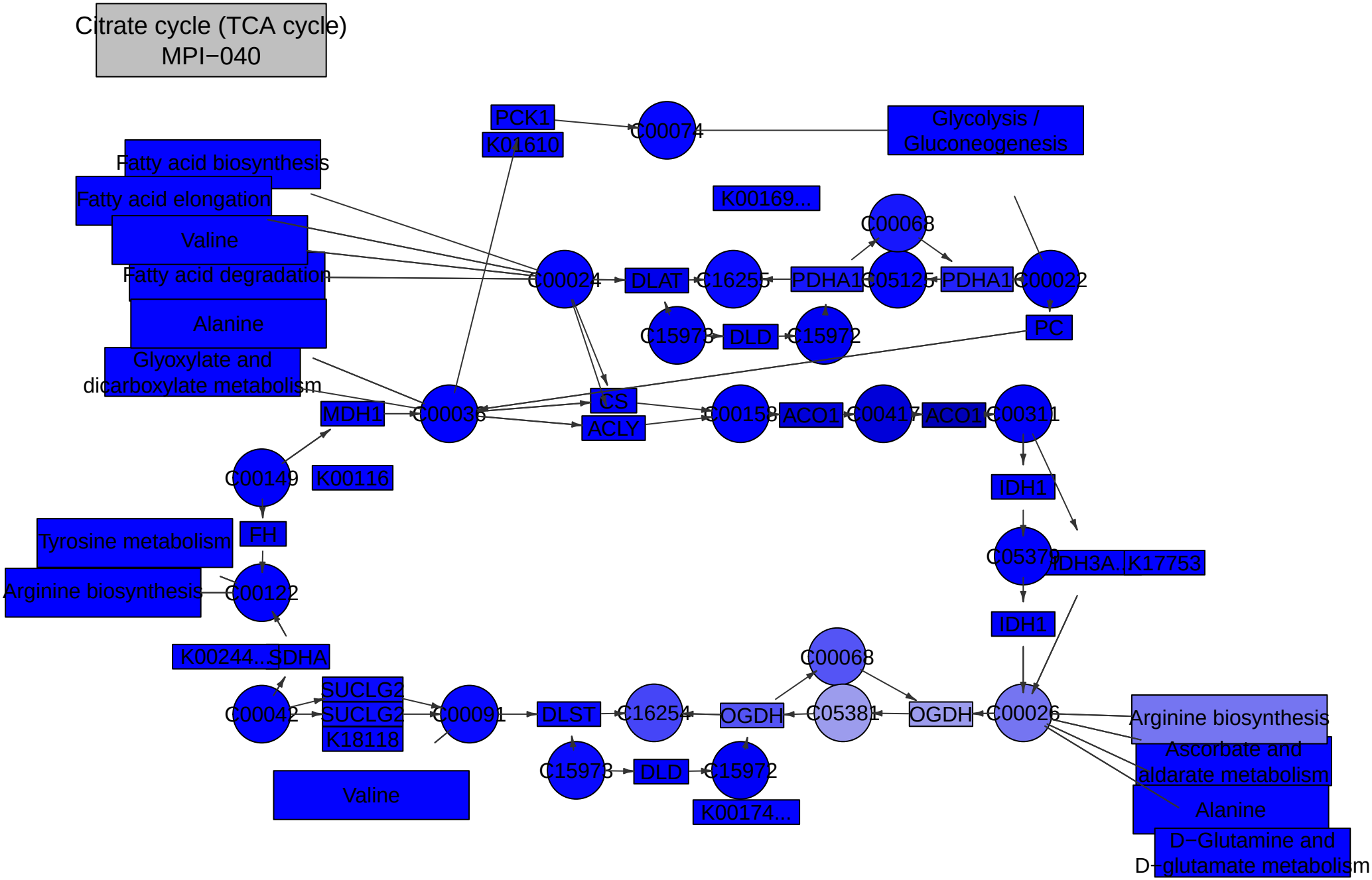
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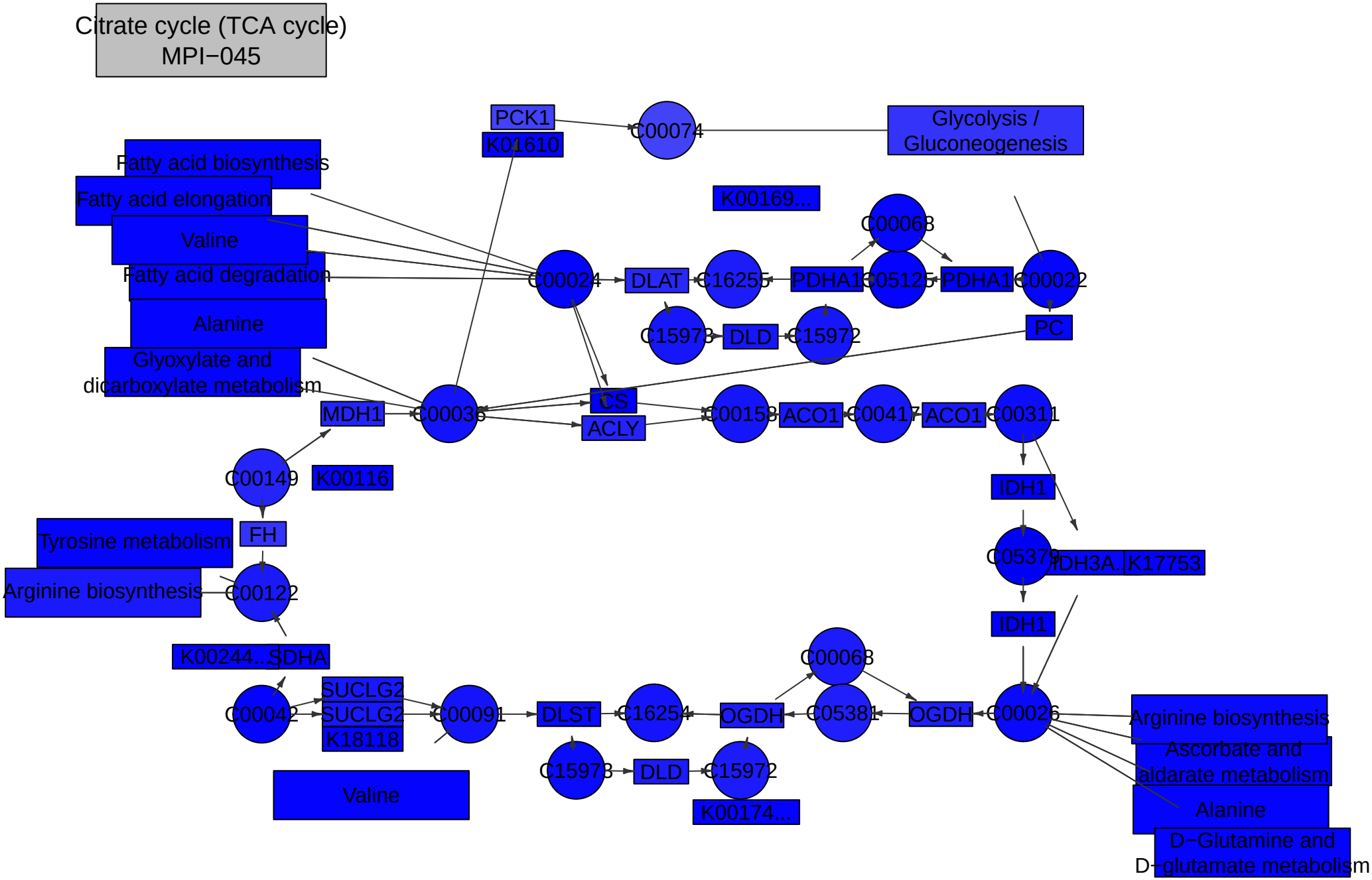
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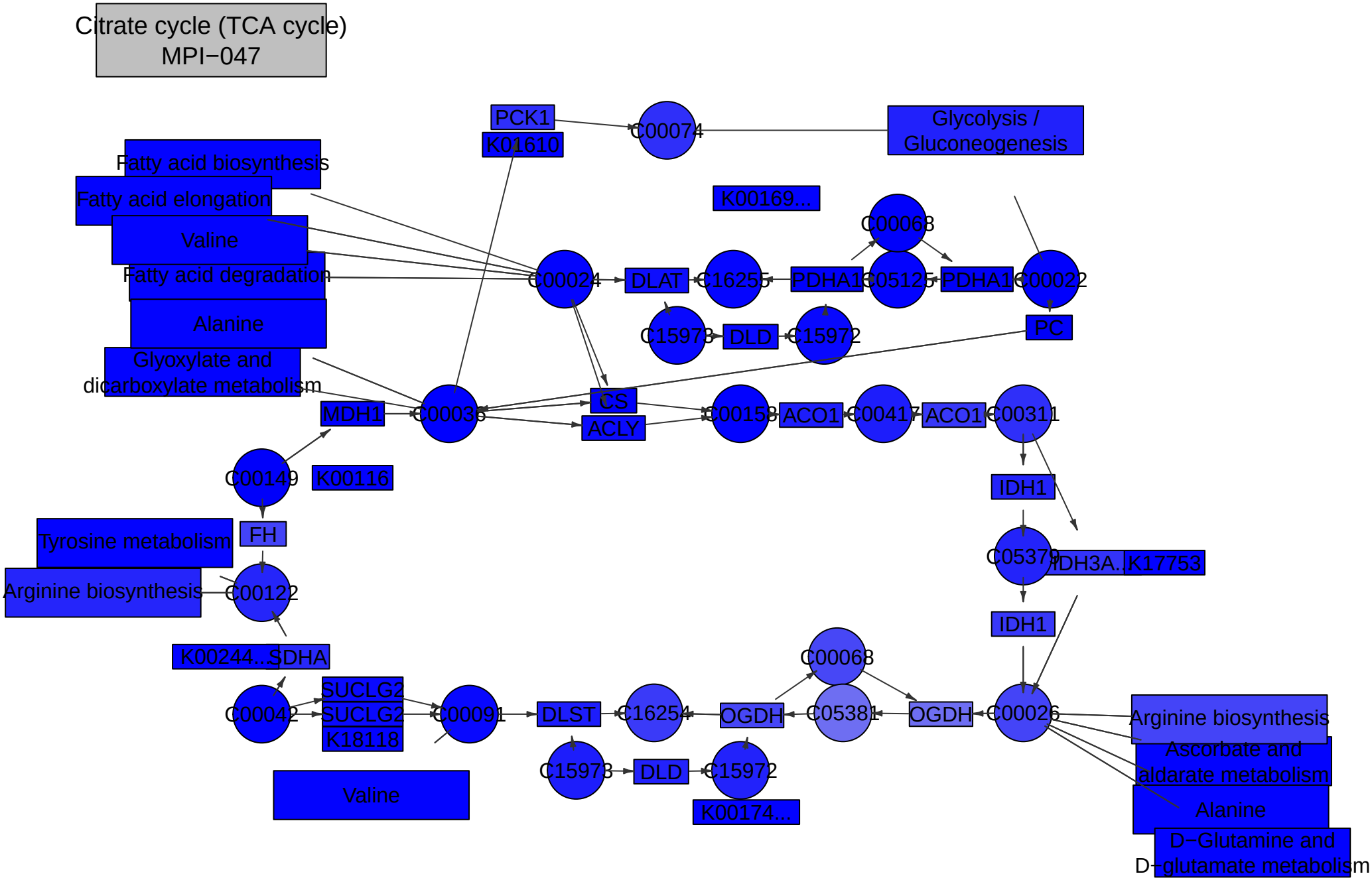
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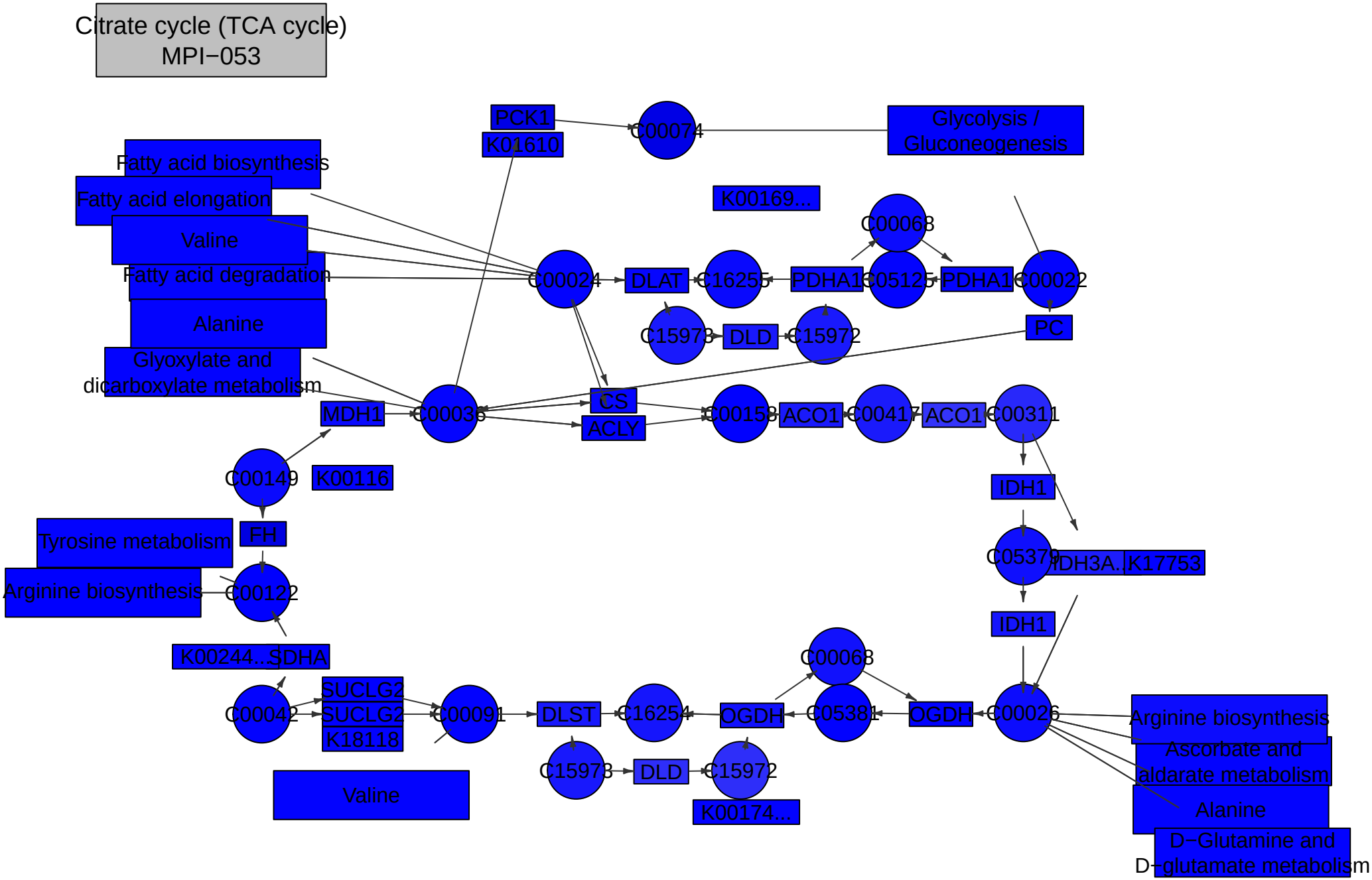
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Fatty acid degradation
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Arginine biosynthesis
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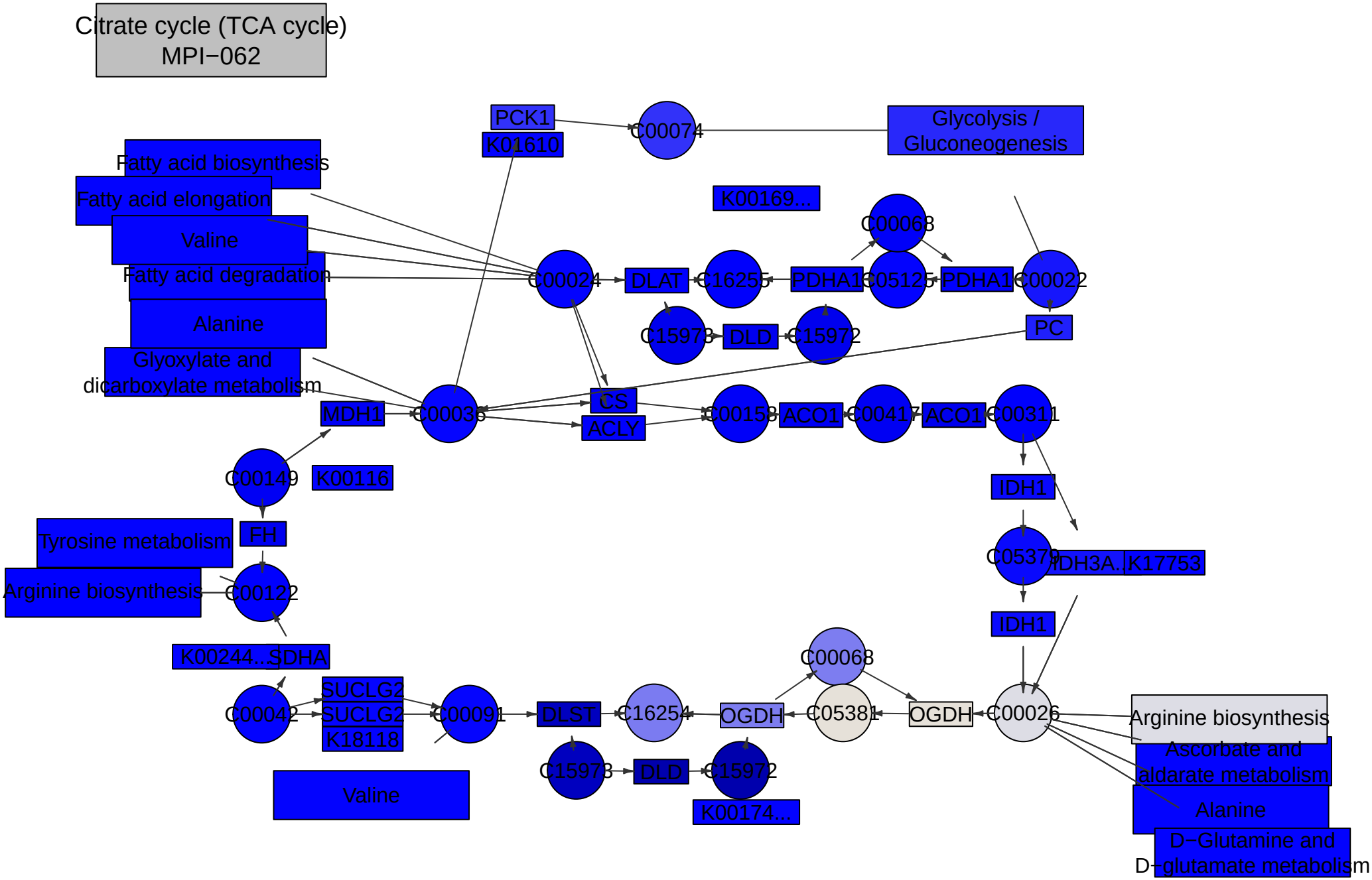
Valine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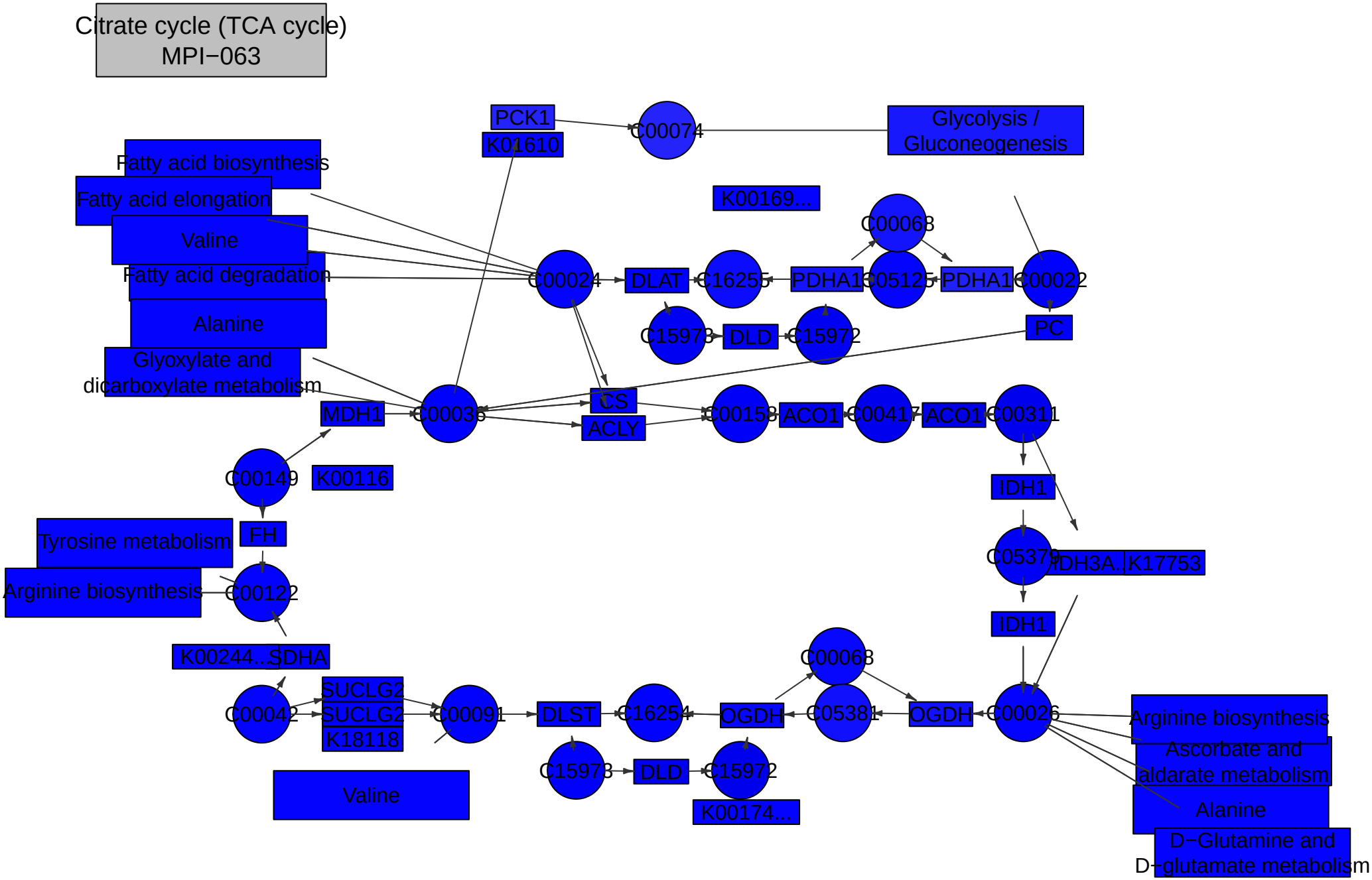
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
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PDHA1
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DLD
C15972
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ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
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DLST
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OGDH
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OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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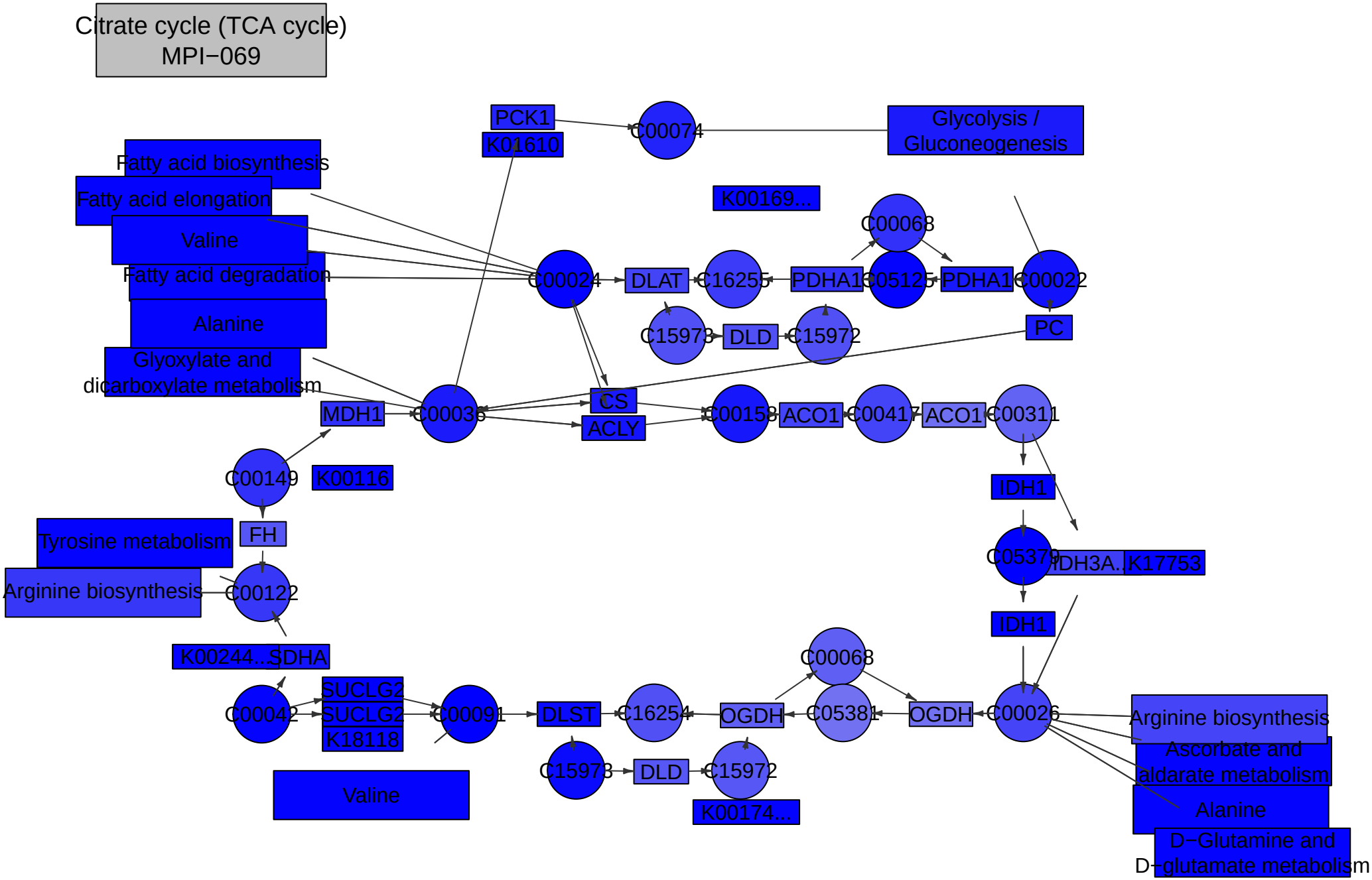
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00024
DLAT
C16255
PDHA1
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C15973
DLD
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Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
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IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
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DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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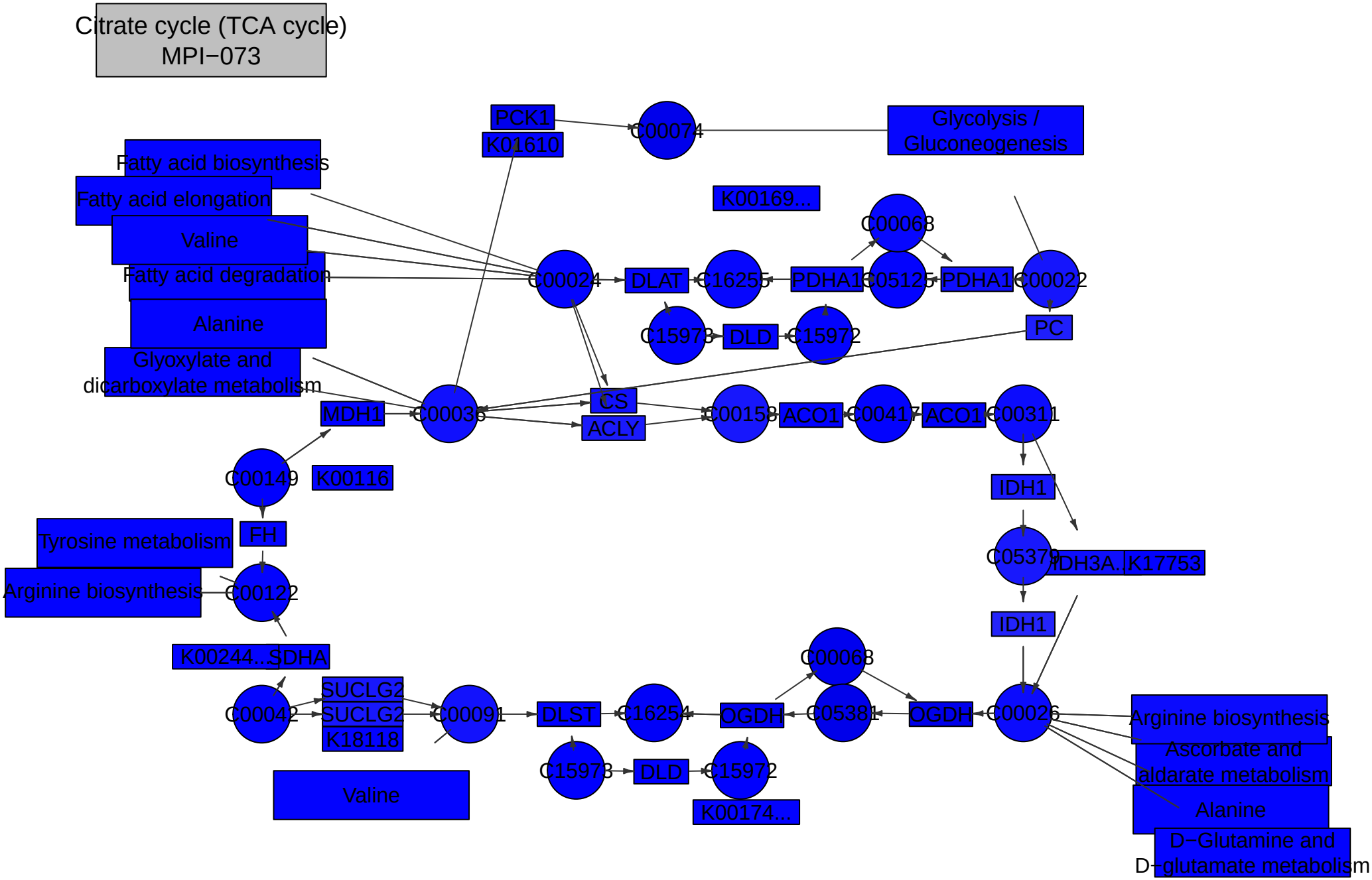
K00174...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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLAT
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C05125
PDHA1
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DLD
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K00116
IDH1
Tyrosine metabolism
FH
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IDH1
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SUCLG2
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
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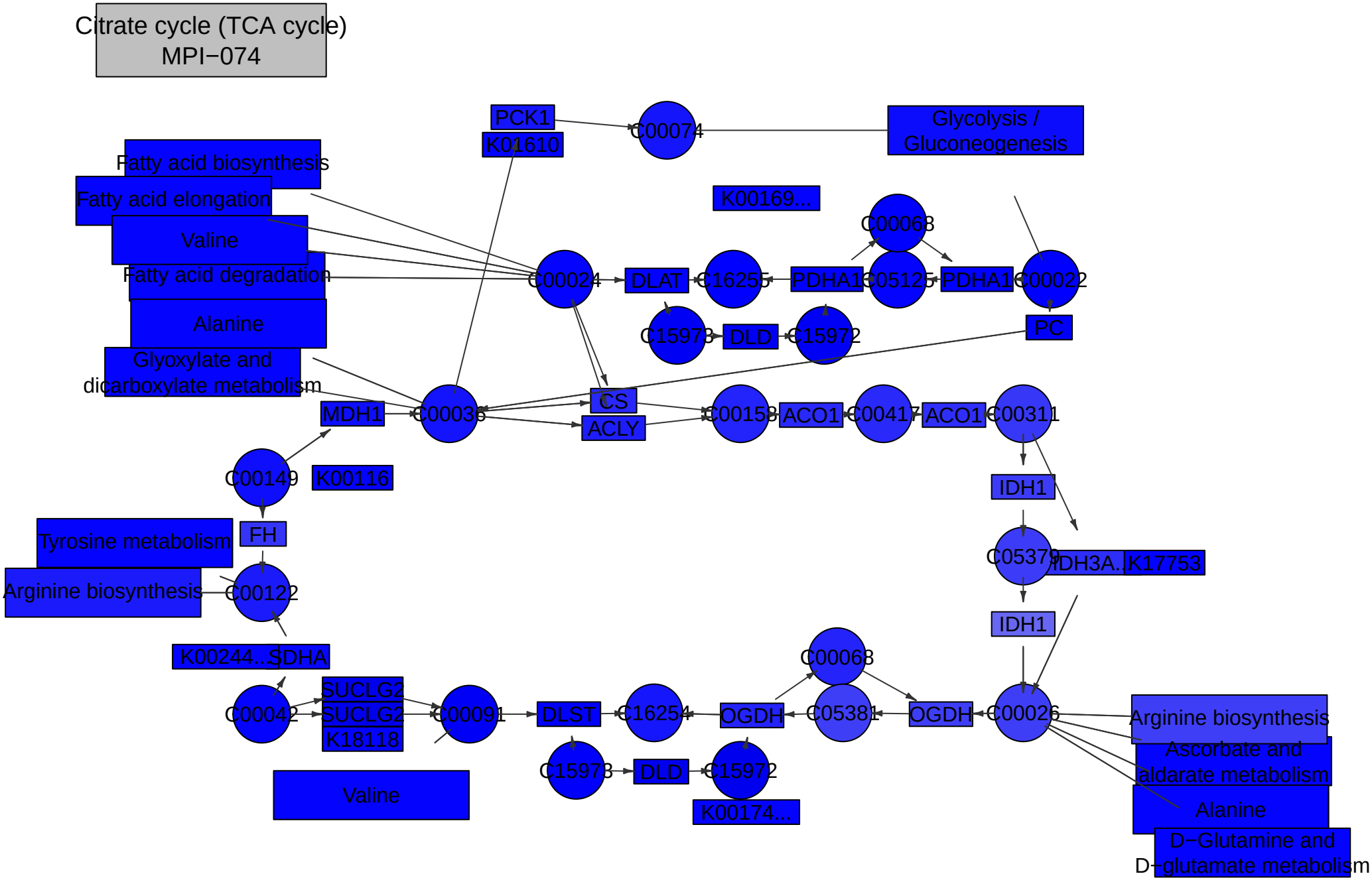
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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IDH1
K00244..SDHA
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Alanine
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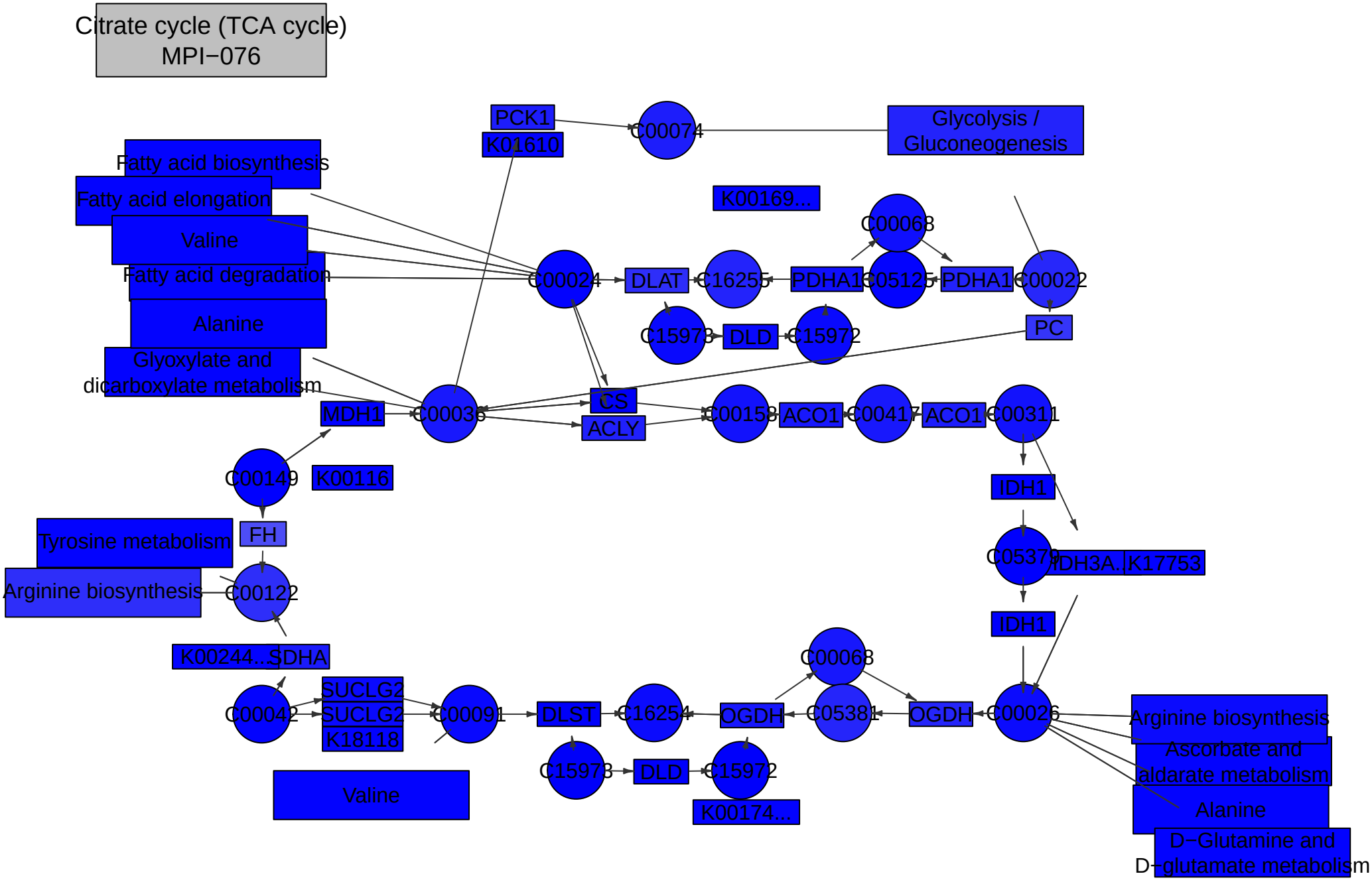
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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Arginine biosynthesis
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IDH1
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Alanine
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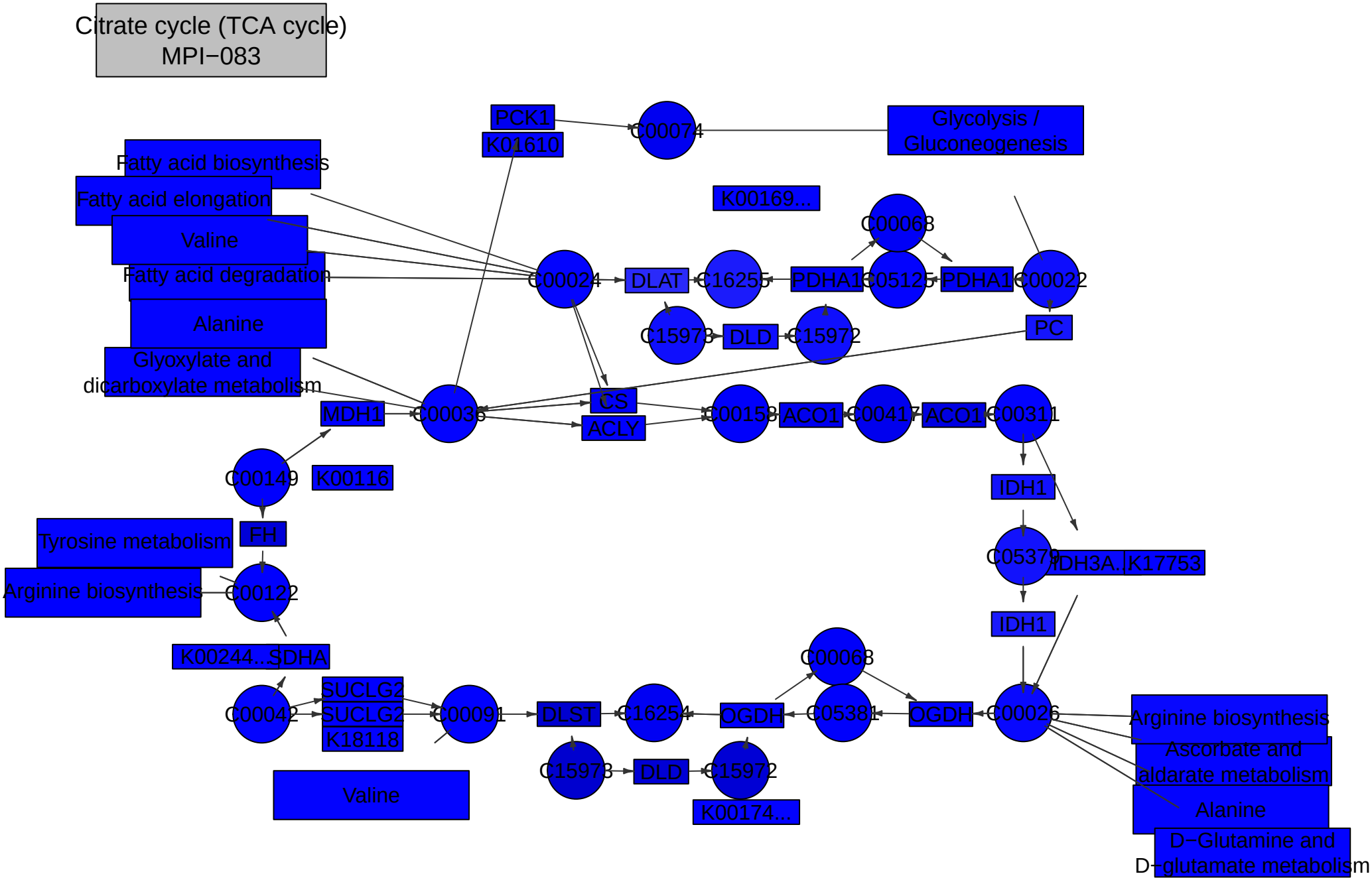
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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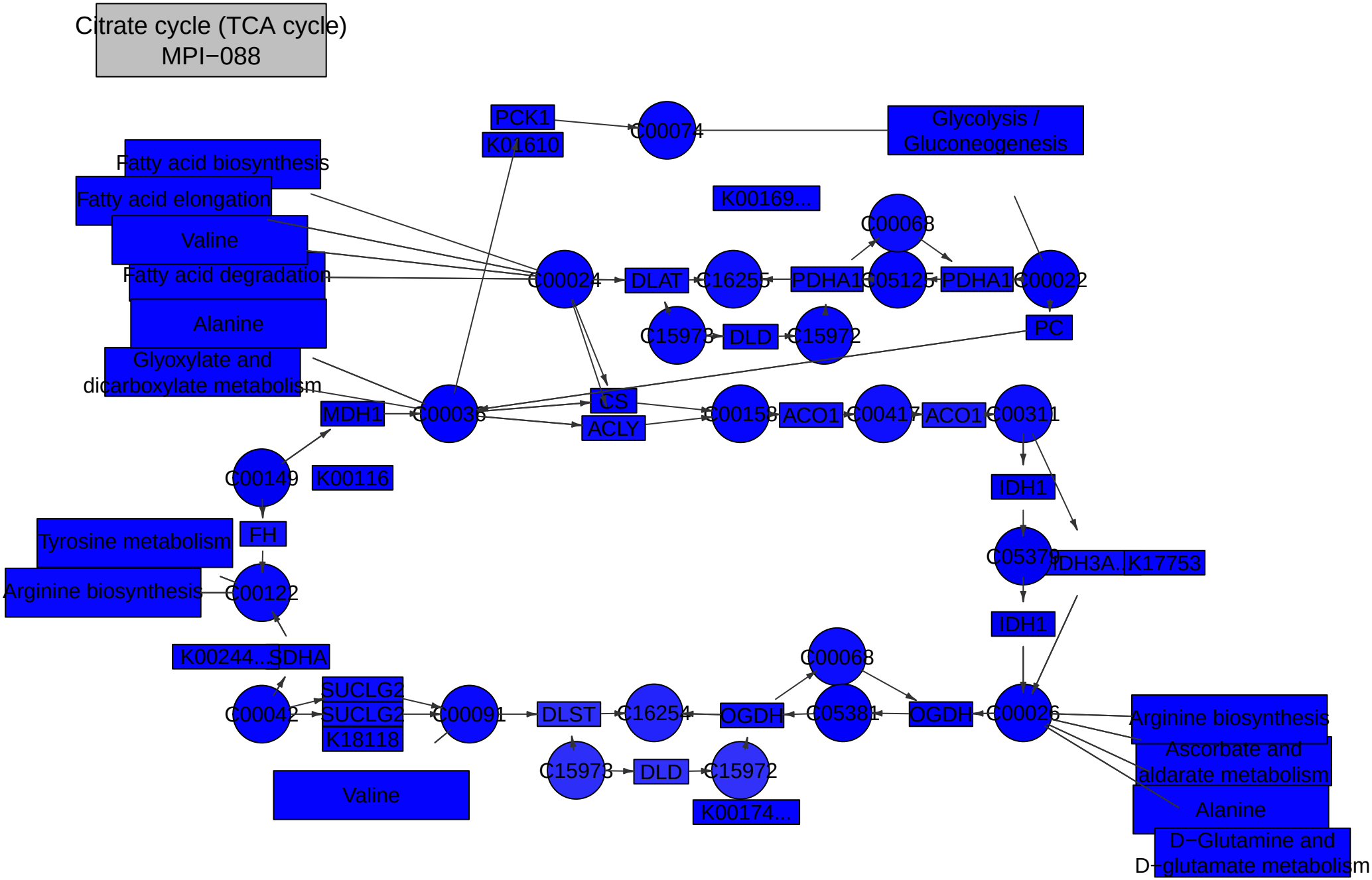
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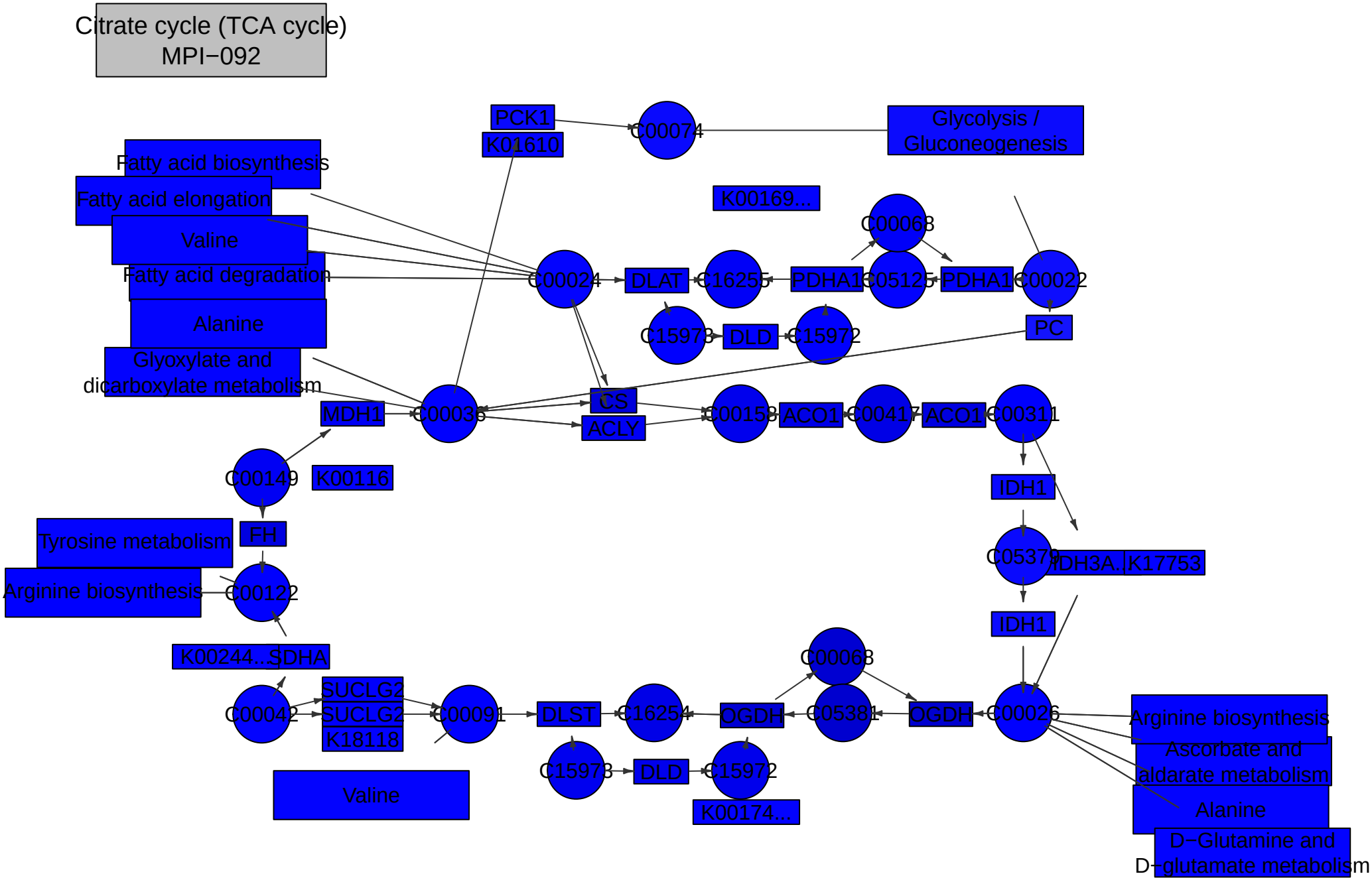
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Fatty acid degradation
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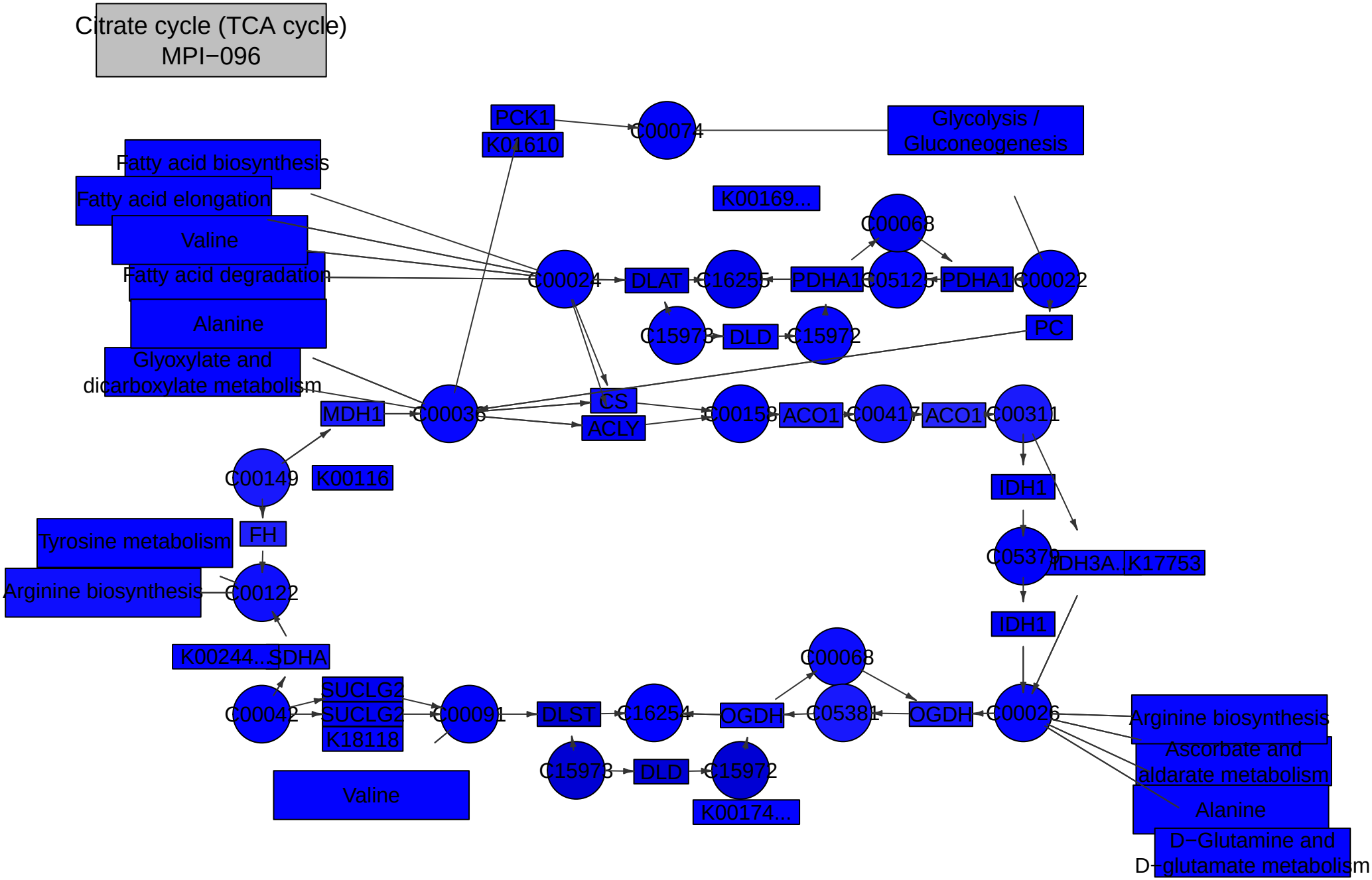
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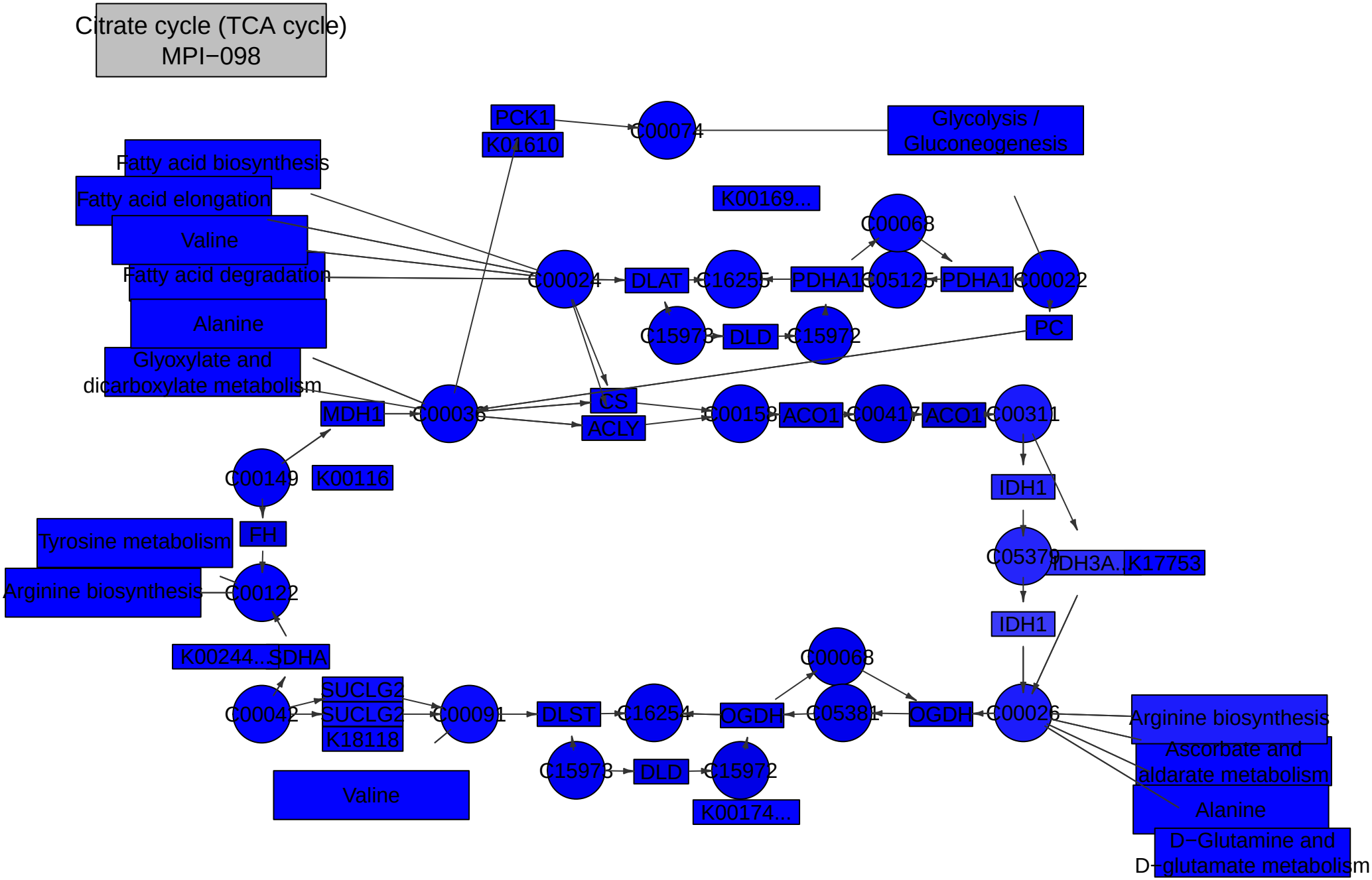
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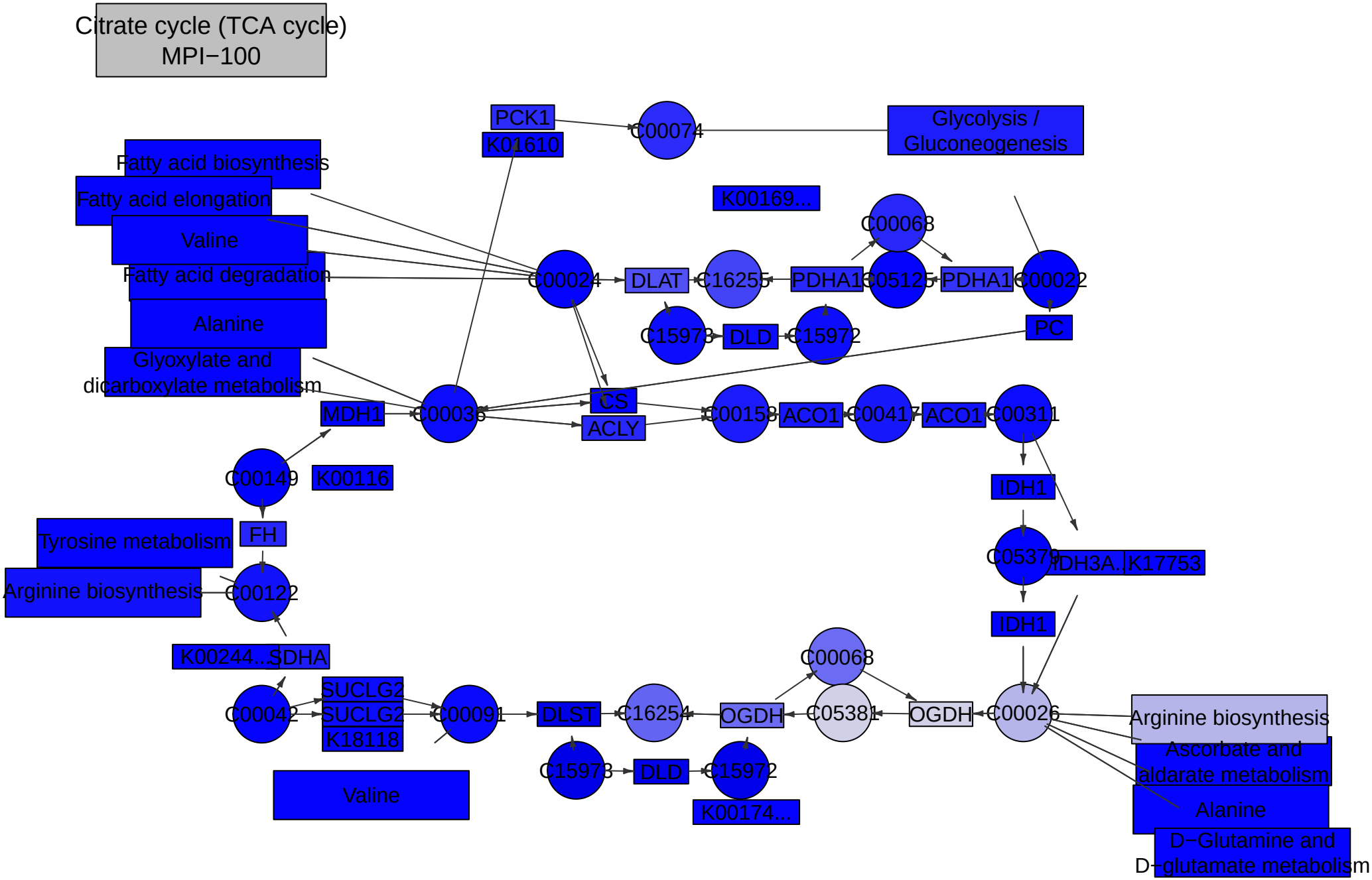
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Alanine
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Alanine
D−Glutamine and D−glutamate metabolism
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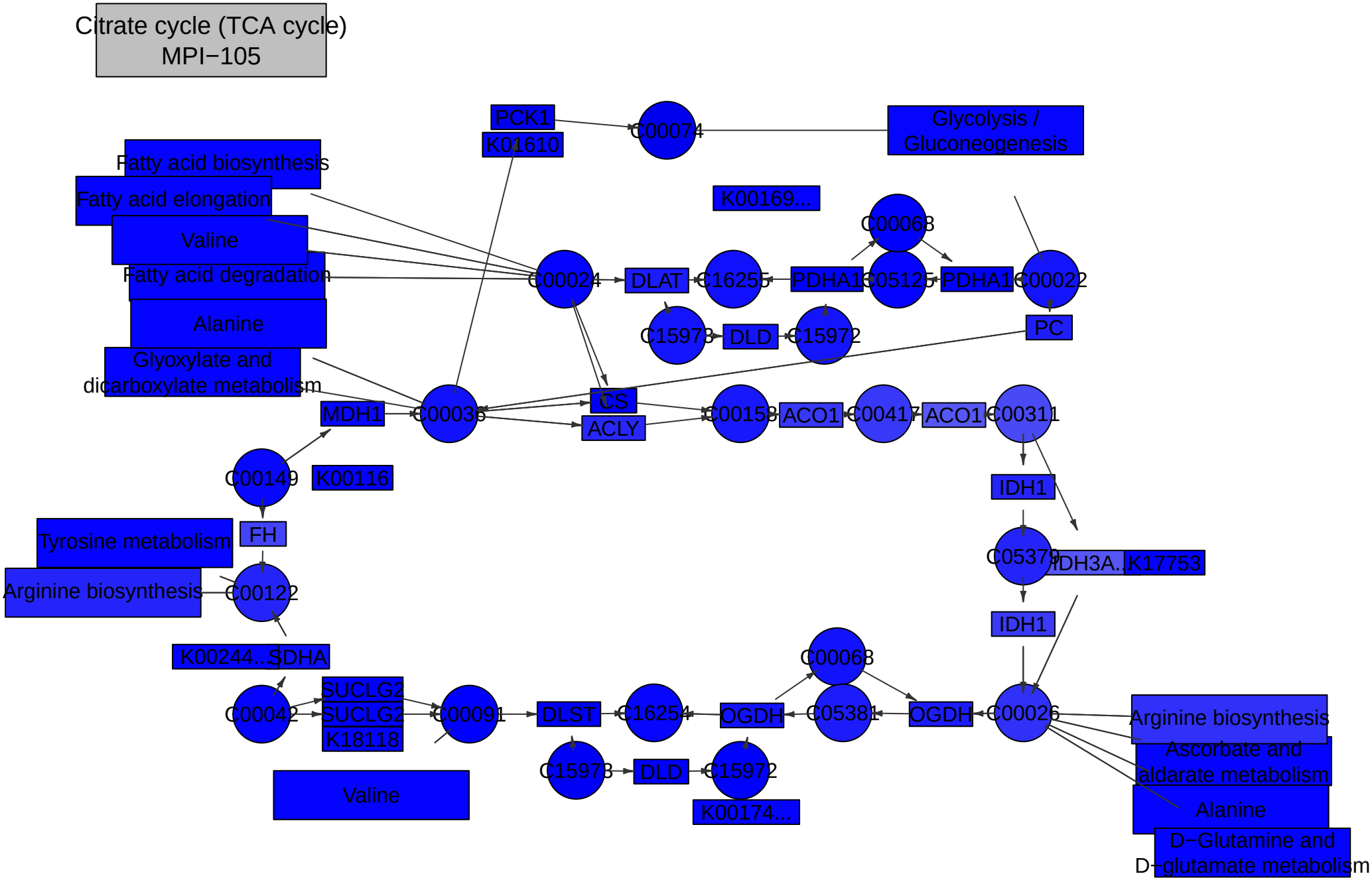
Valine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Fatty acid degradation
Alanine
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Tyrosine metabolism
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Alanine
D−Glutamine and D−glutamate metabolism
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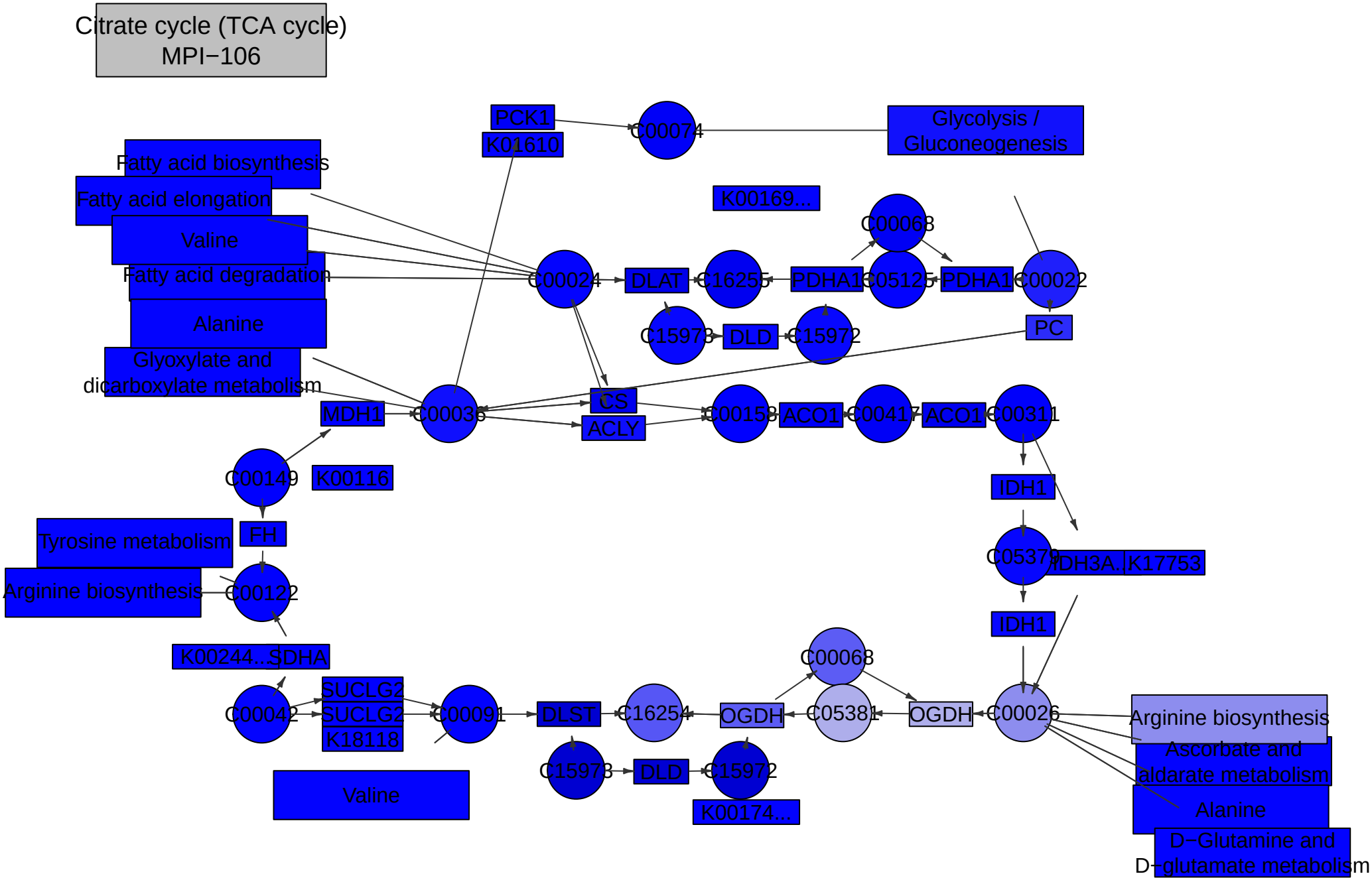
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Fatty acid degradation
Alanine
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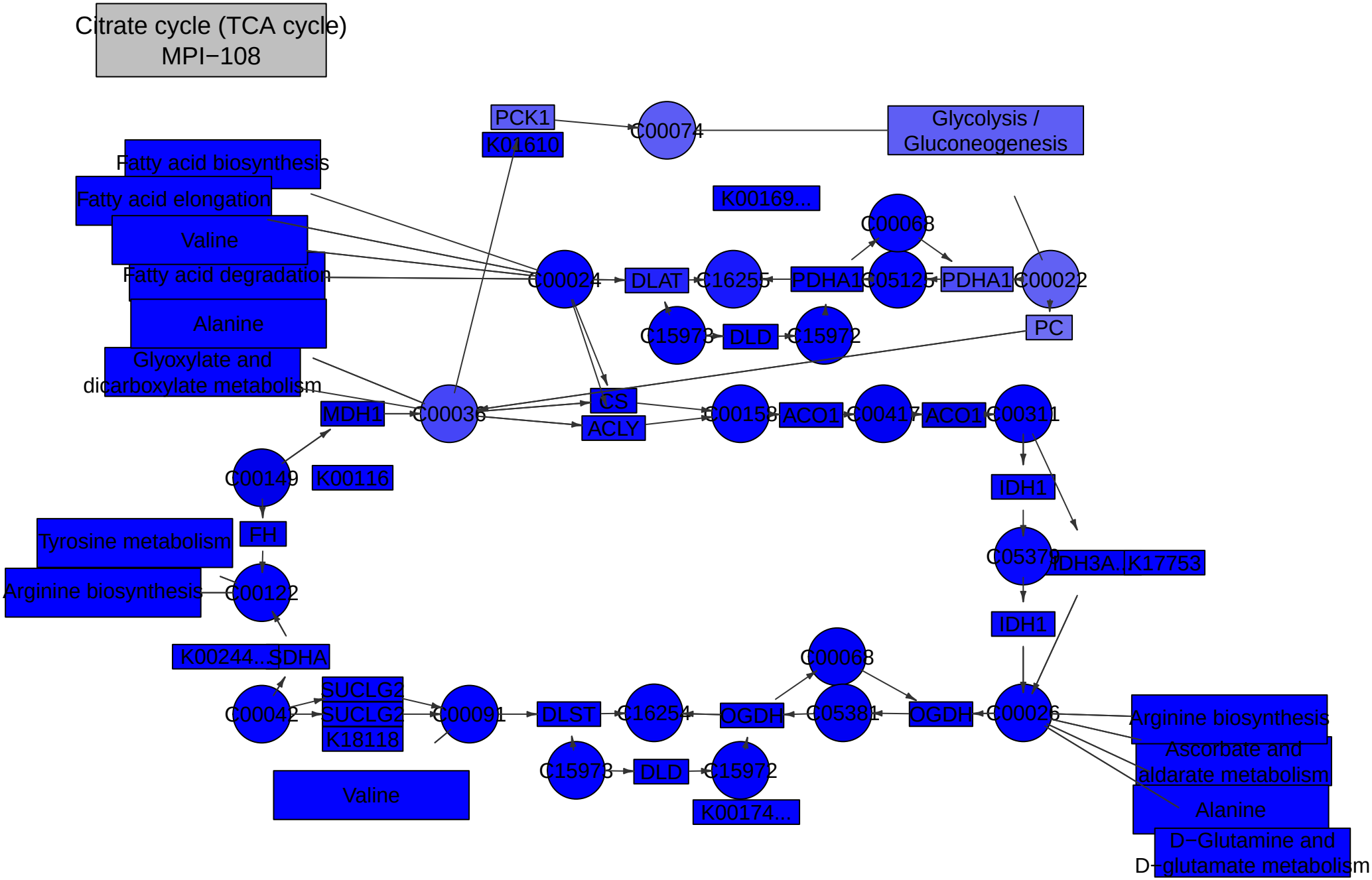
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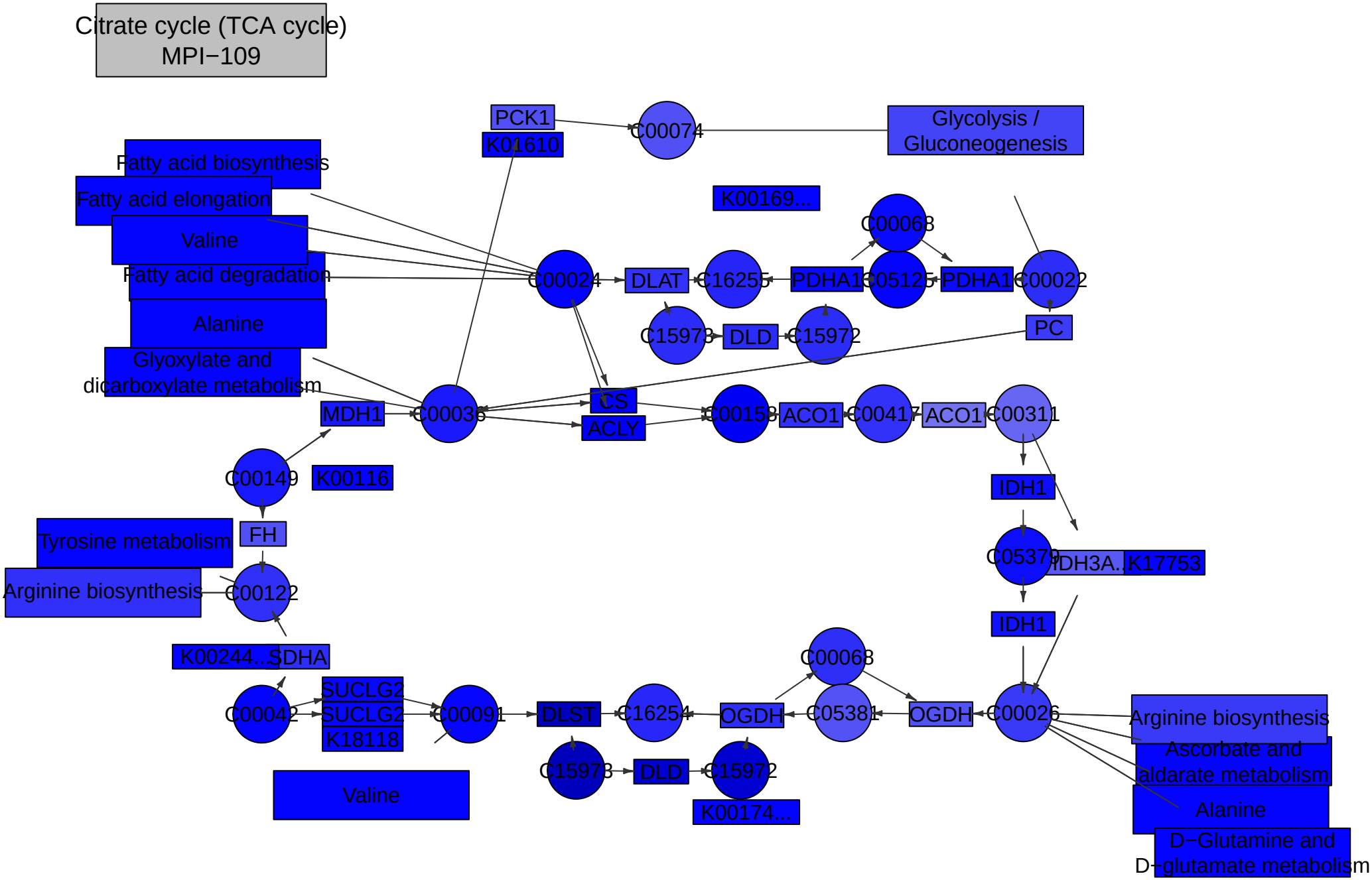
Citrate cycle (TCA cycle)
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Fatty acid degradation
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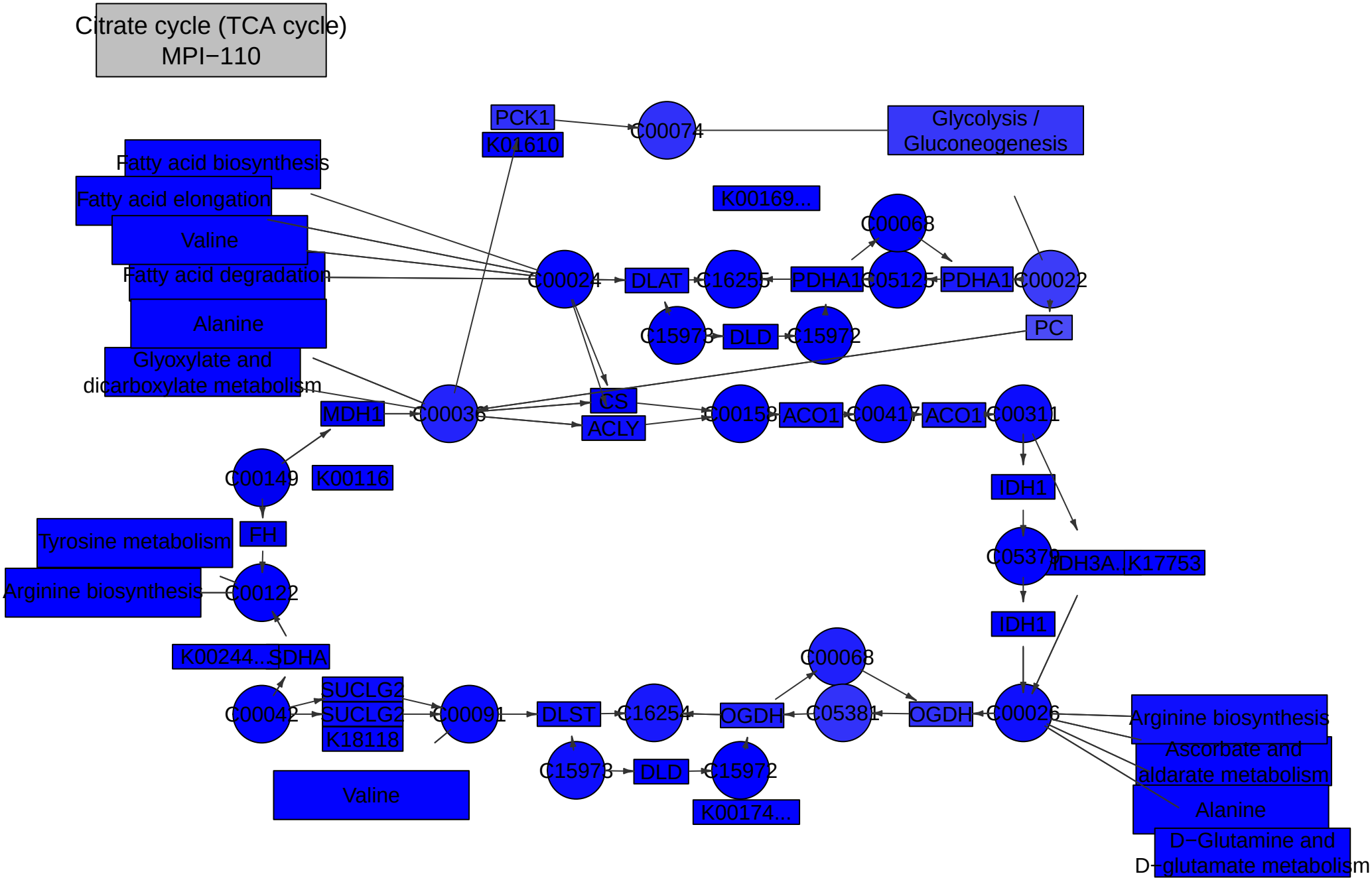
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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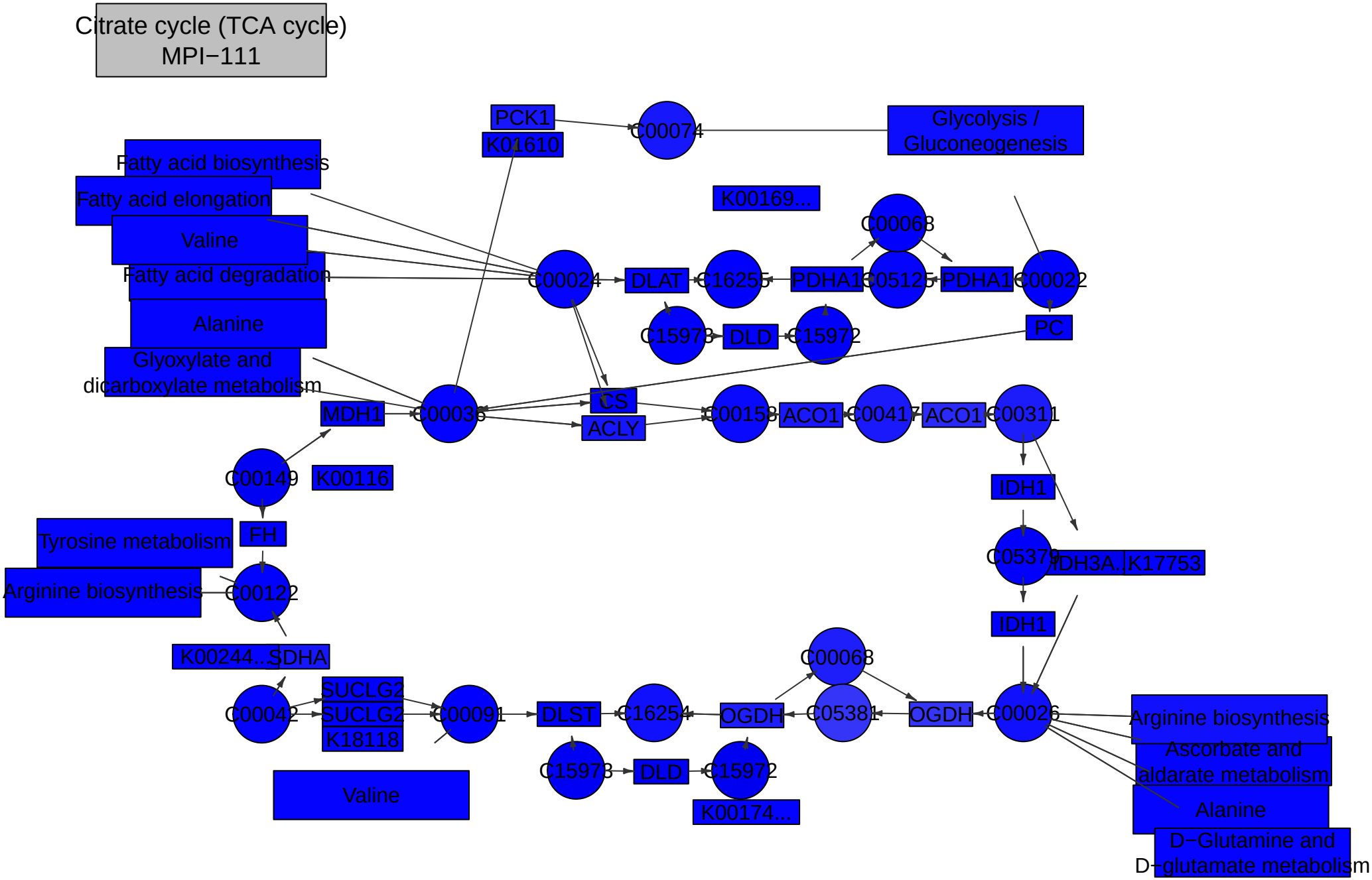
K00174...
Valine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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
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PDHA1
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C15973
DLD
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PC
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CS
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K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
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DLST
C16254
OGDH
C05381
OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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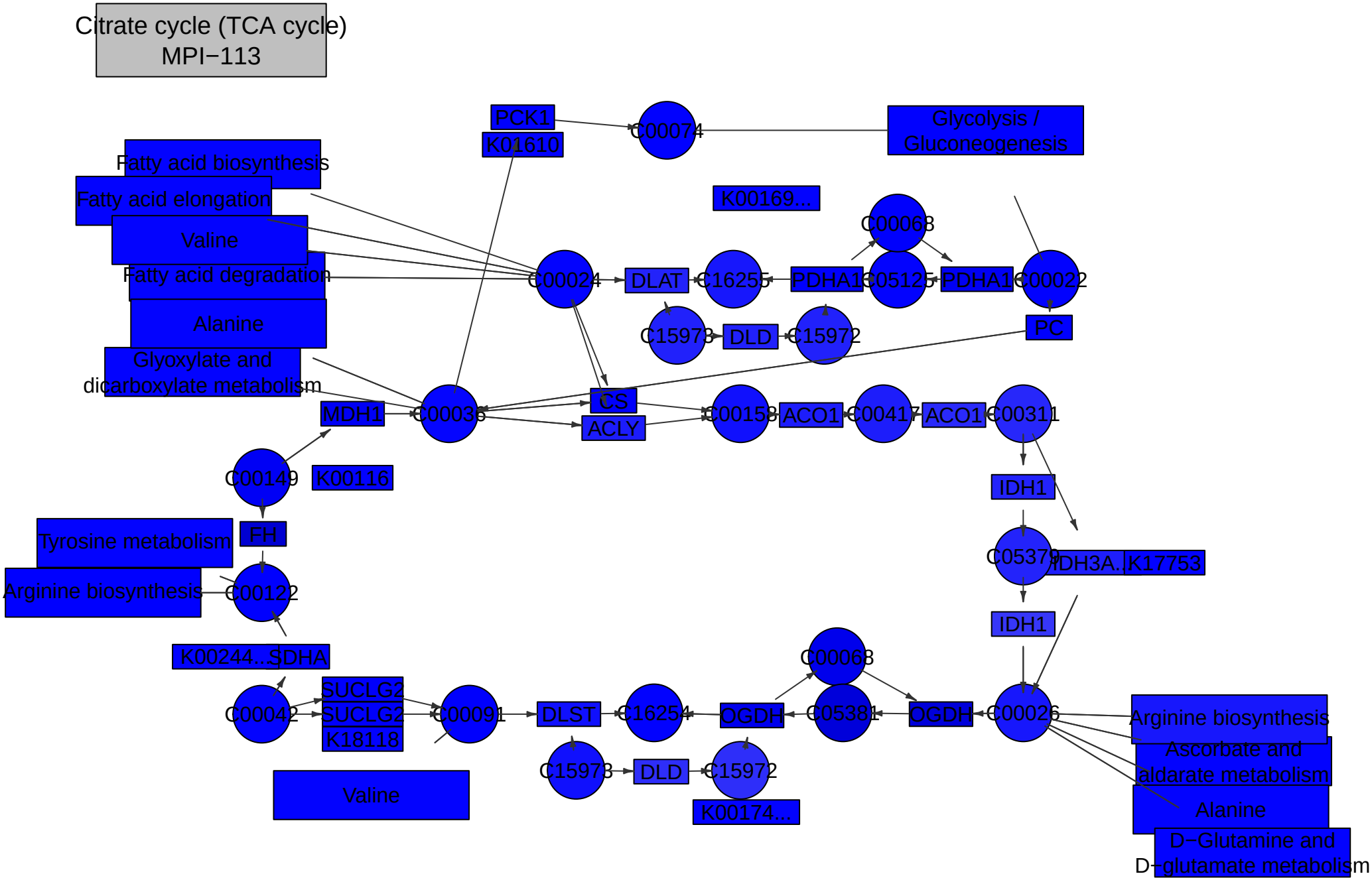
Valine


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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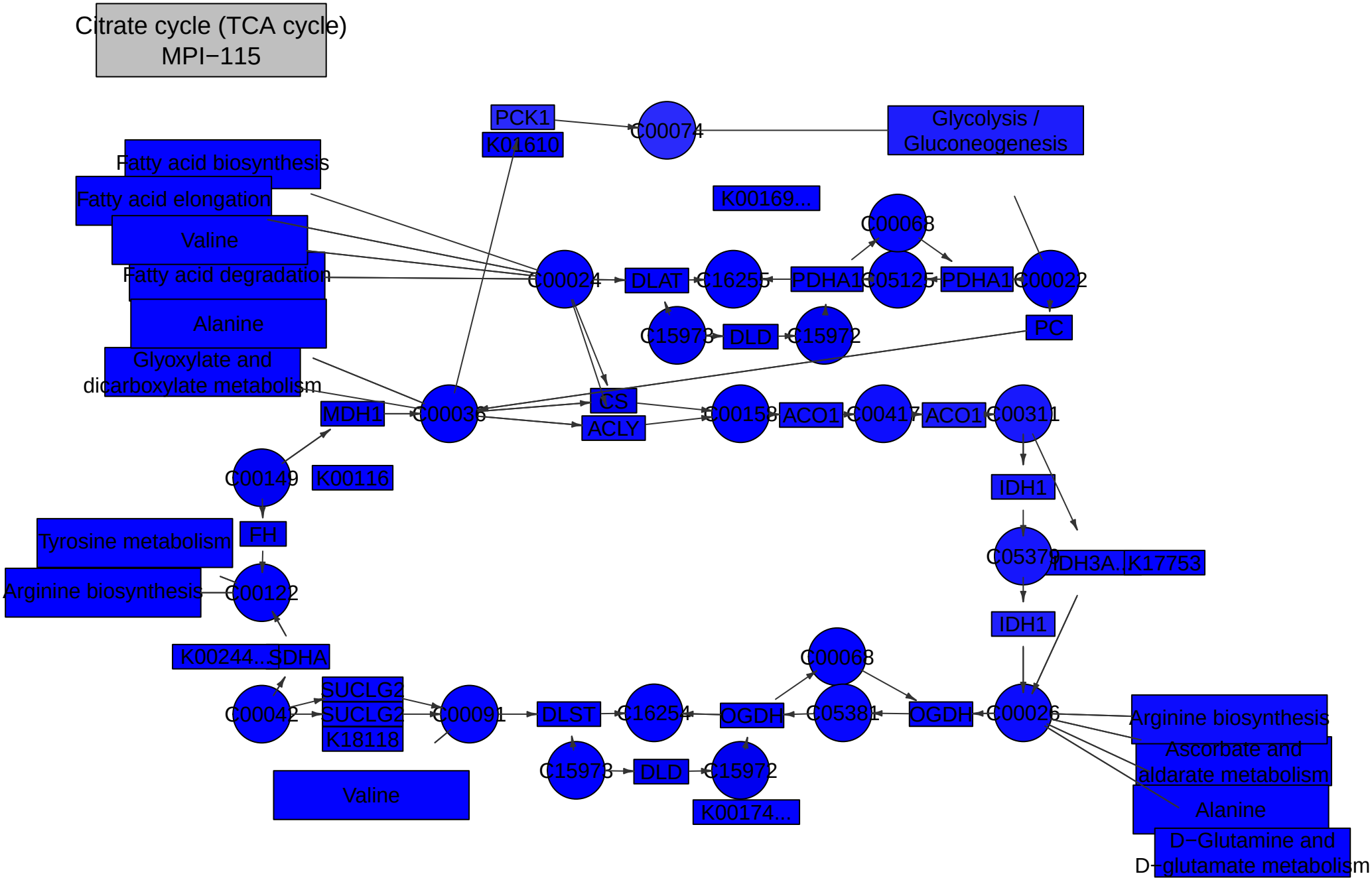
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
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ACO1
C00417
ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
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C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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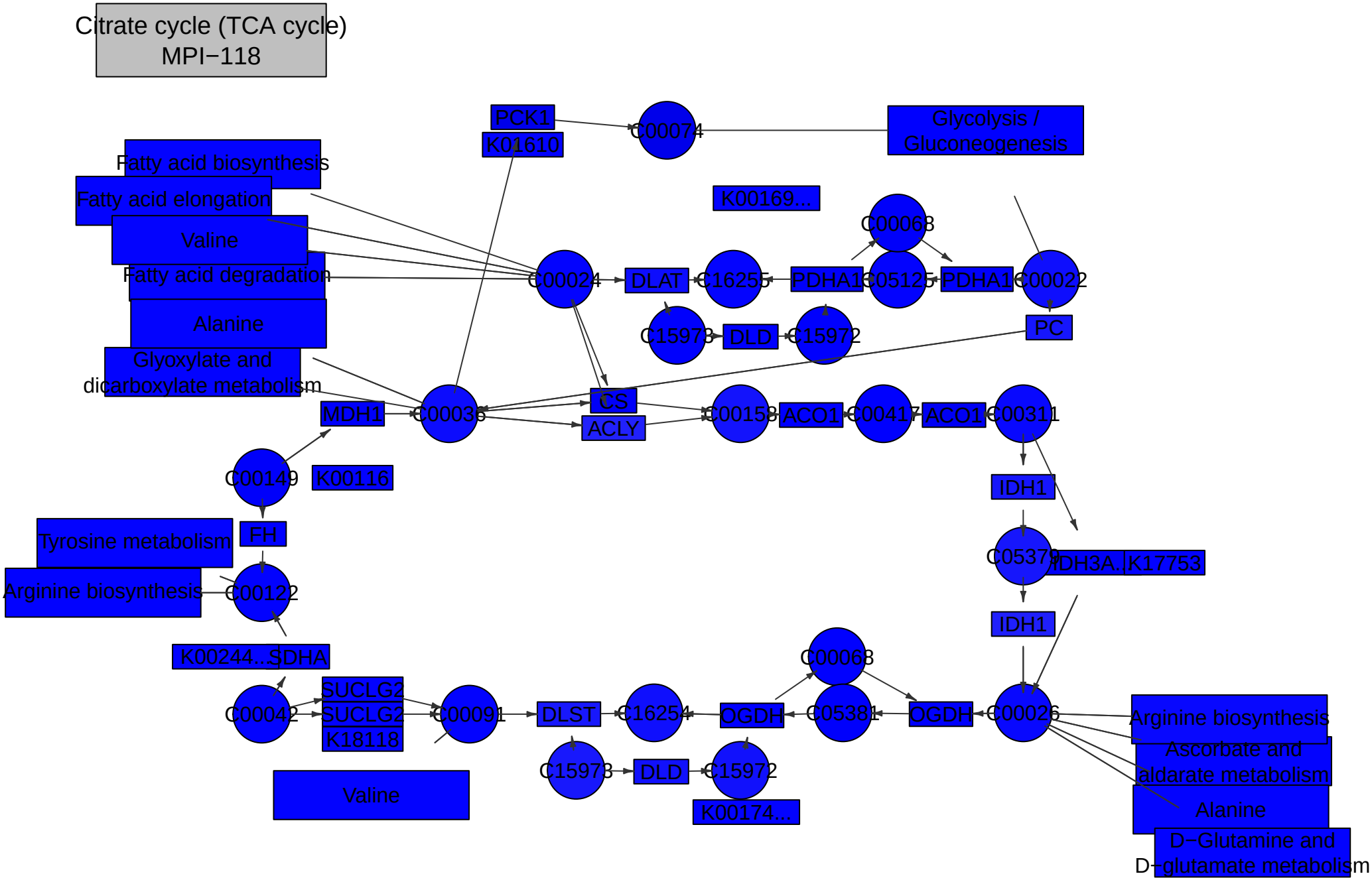
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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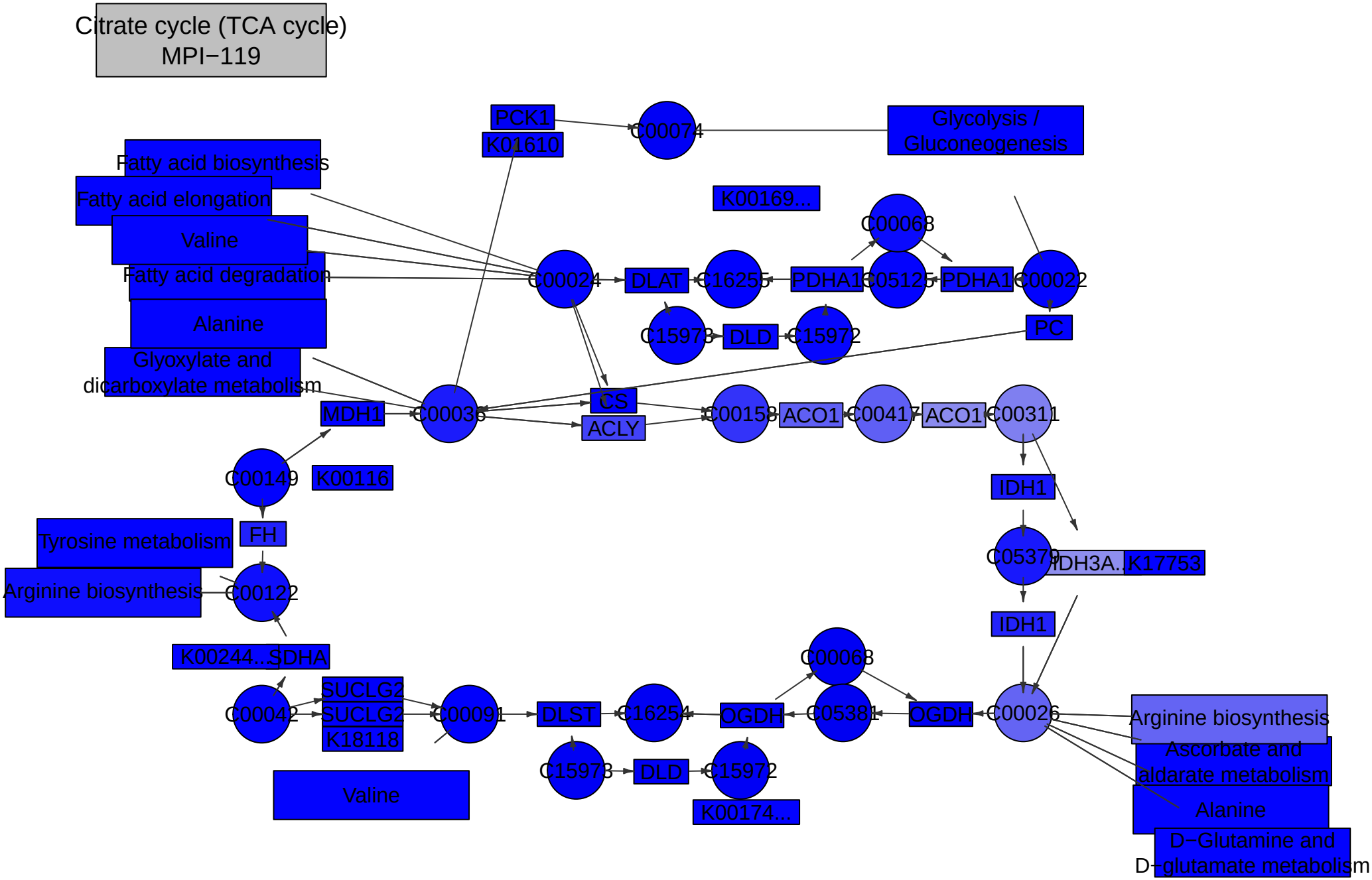
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−119
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
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SUCLG2
SUCLG2
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DLST
C16254
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OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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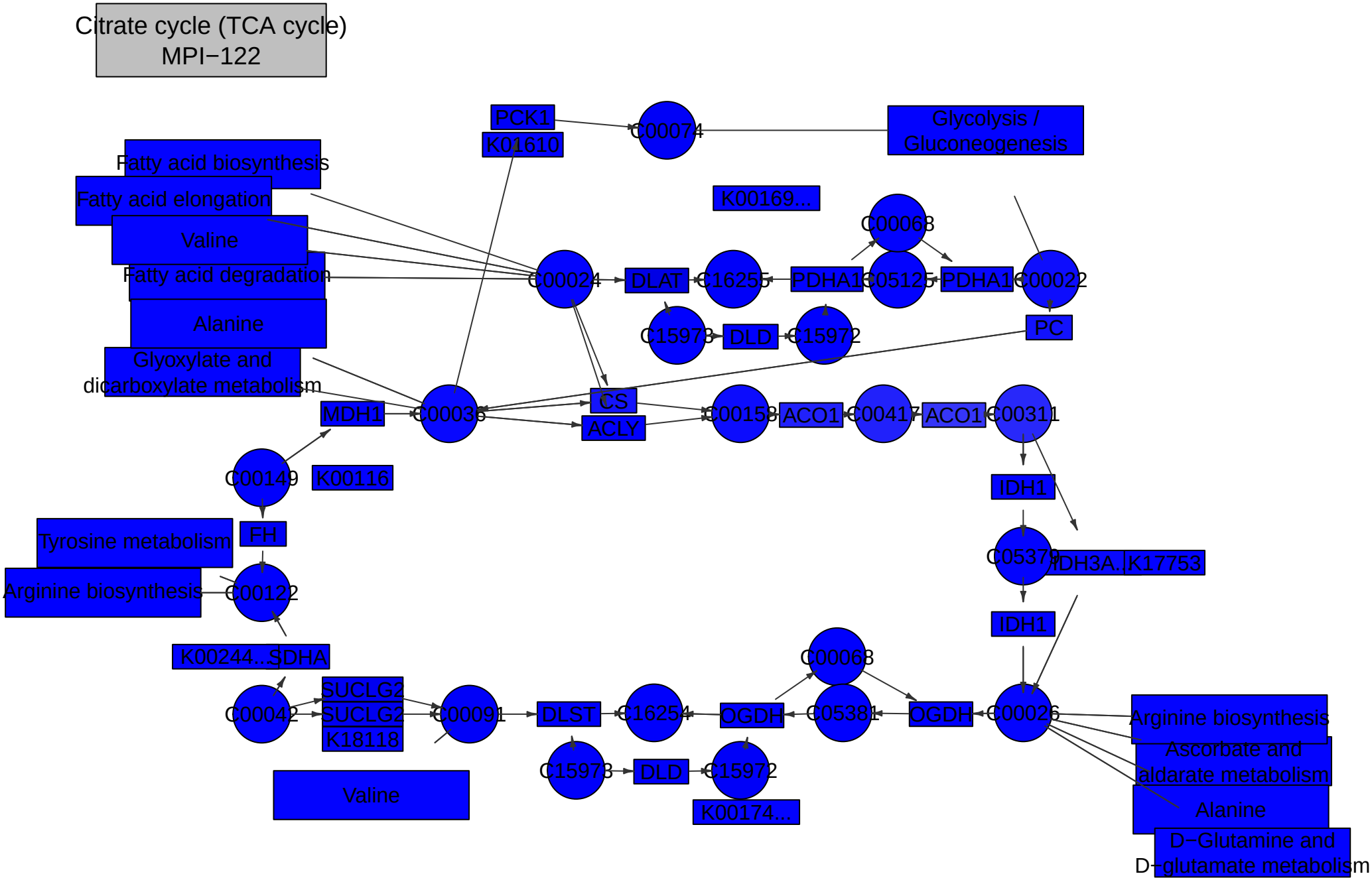
K00174...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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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C00024
DLAT
C16255
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C05125
PDHA1
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C15973
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
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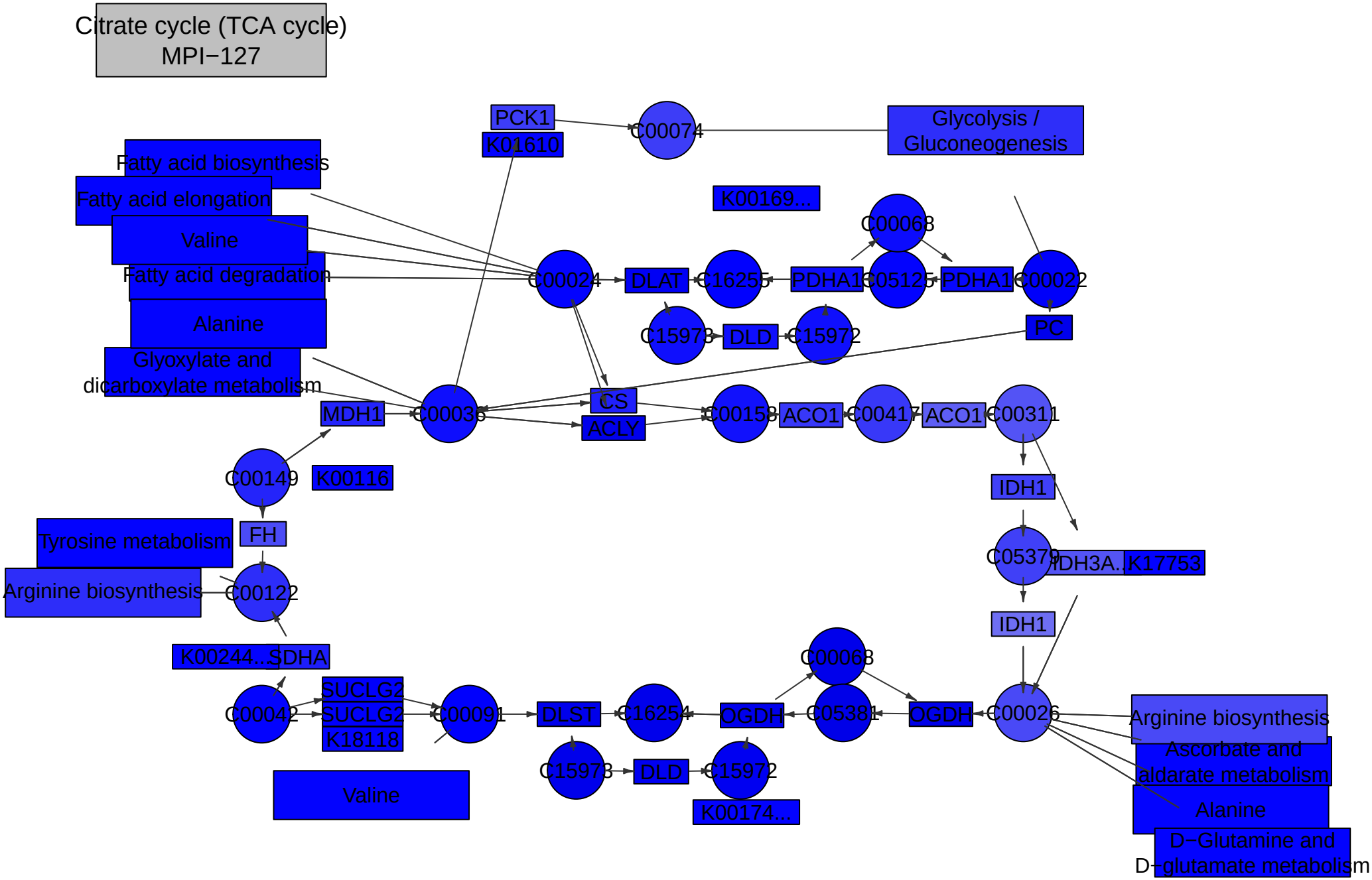
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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DLAT
C16255
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PDHA1
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DLD
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Tyrosine metabolism
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Arginine biosynthesis
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IDH1
K00244...
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SUCLG2
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OGDH
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OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
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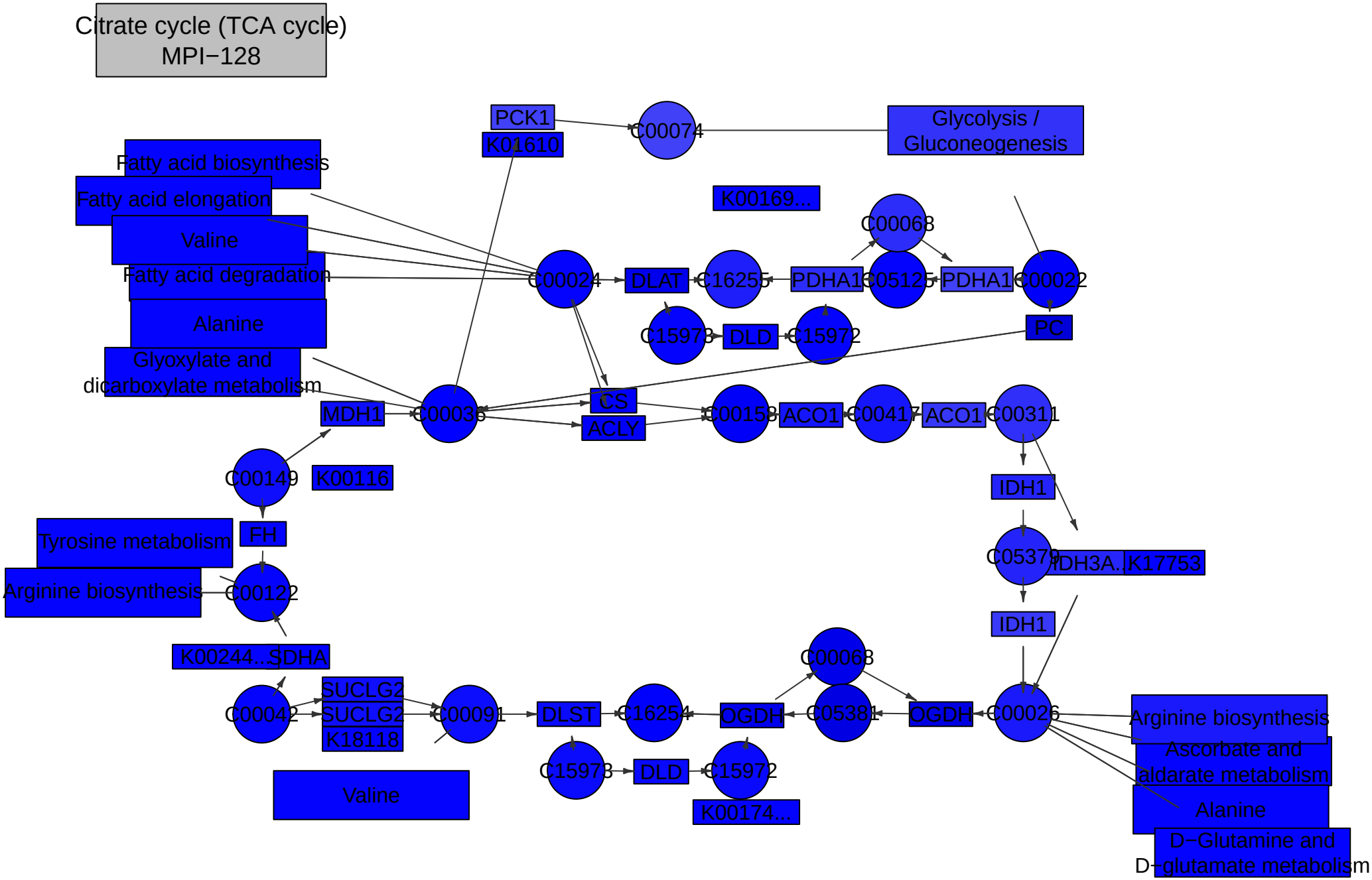
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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PDHA1
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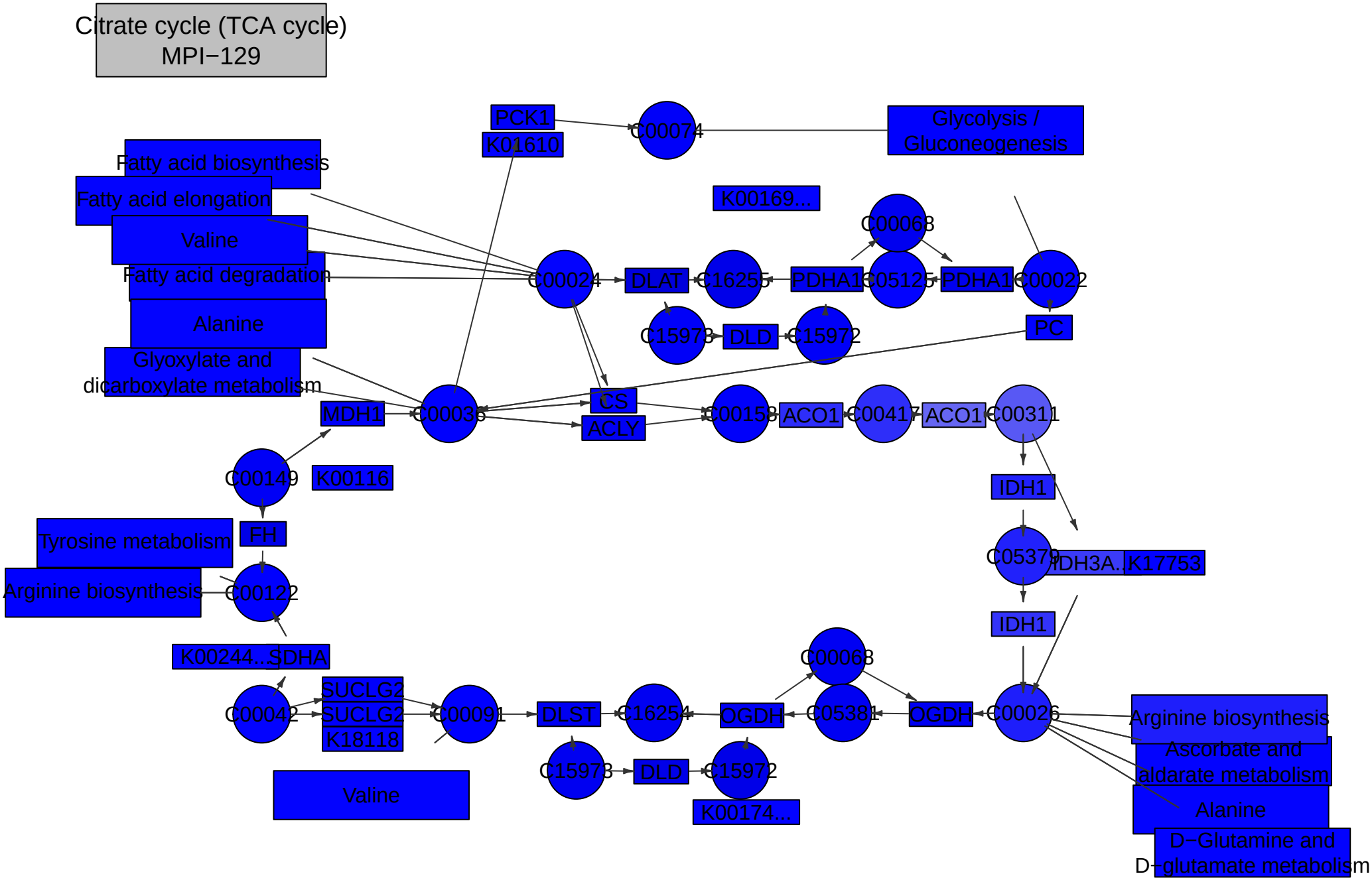
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D−Glutamine and D−glutamate metabolism
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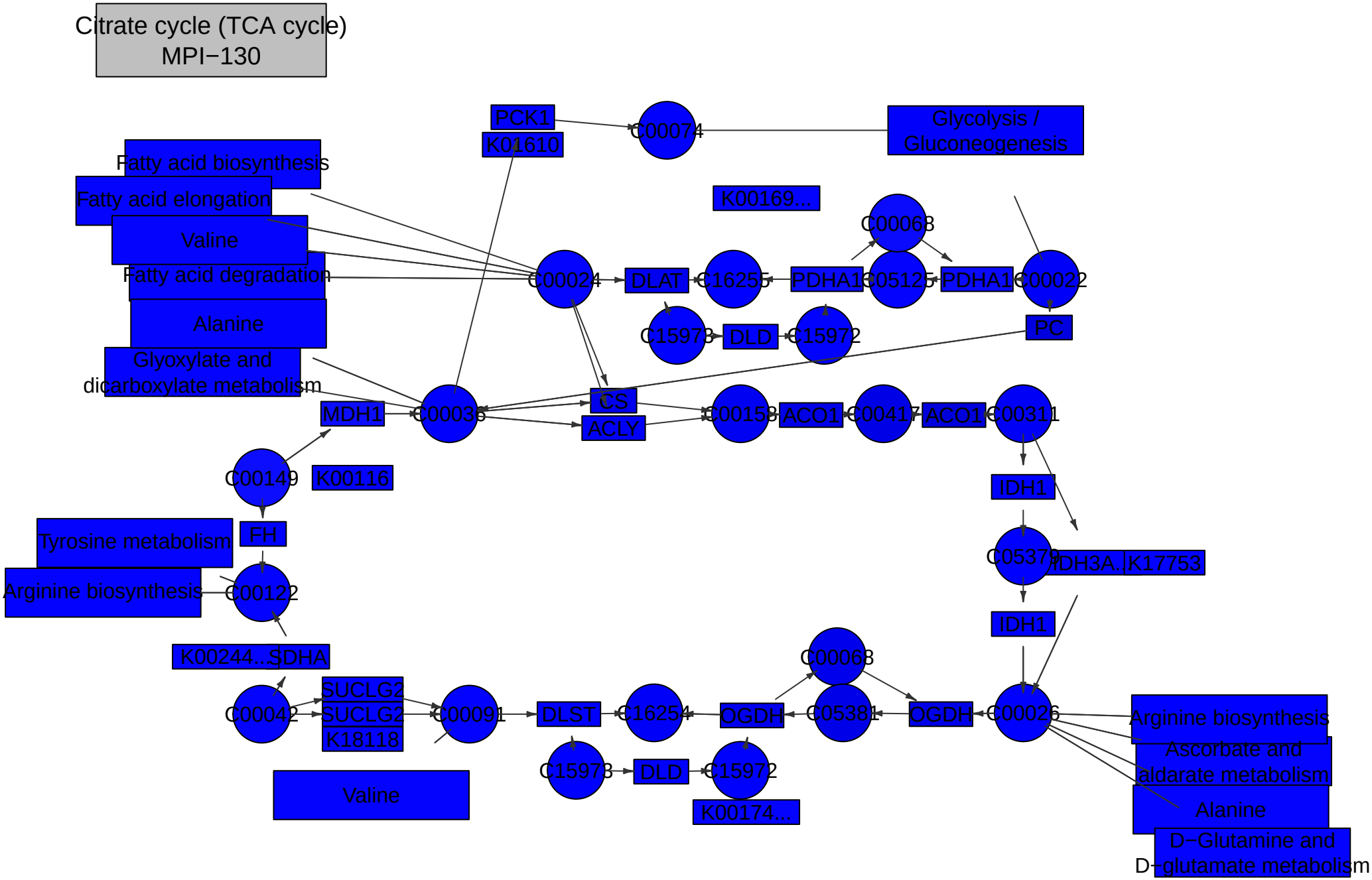
Citrate cycle (TCA cycle)
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Fatty acid degradation
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Glyoxylate and dicarboxylate metabolism
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Tyrosine metabolism
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Arginine biosynthesis
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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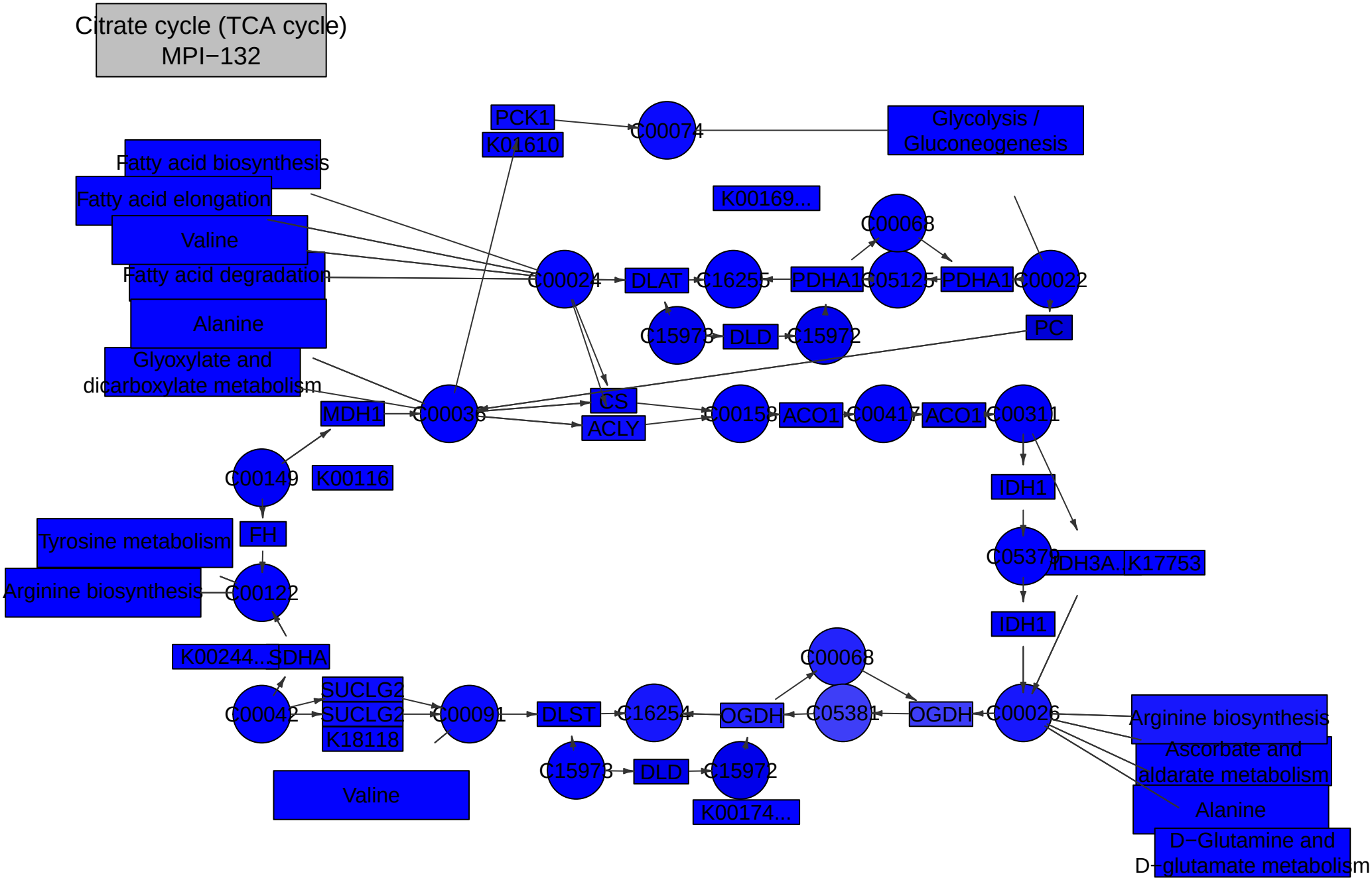
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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ACO1
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K00116
IDH1
Tyrosine metabolism
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IDH1
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OGDH
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OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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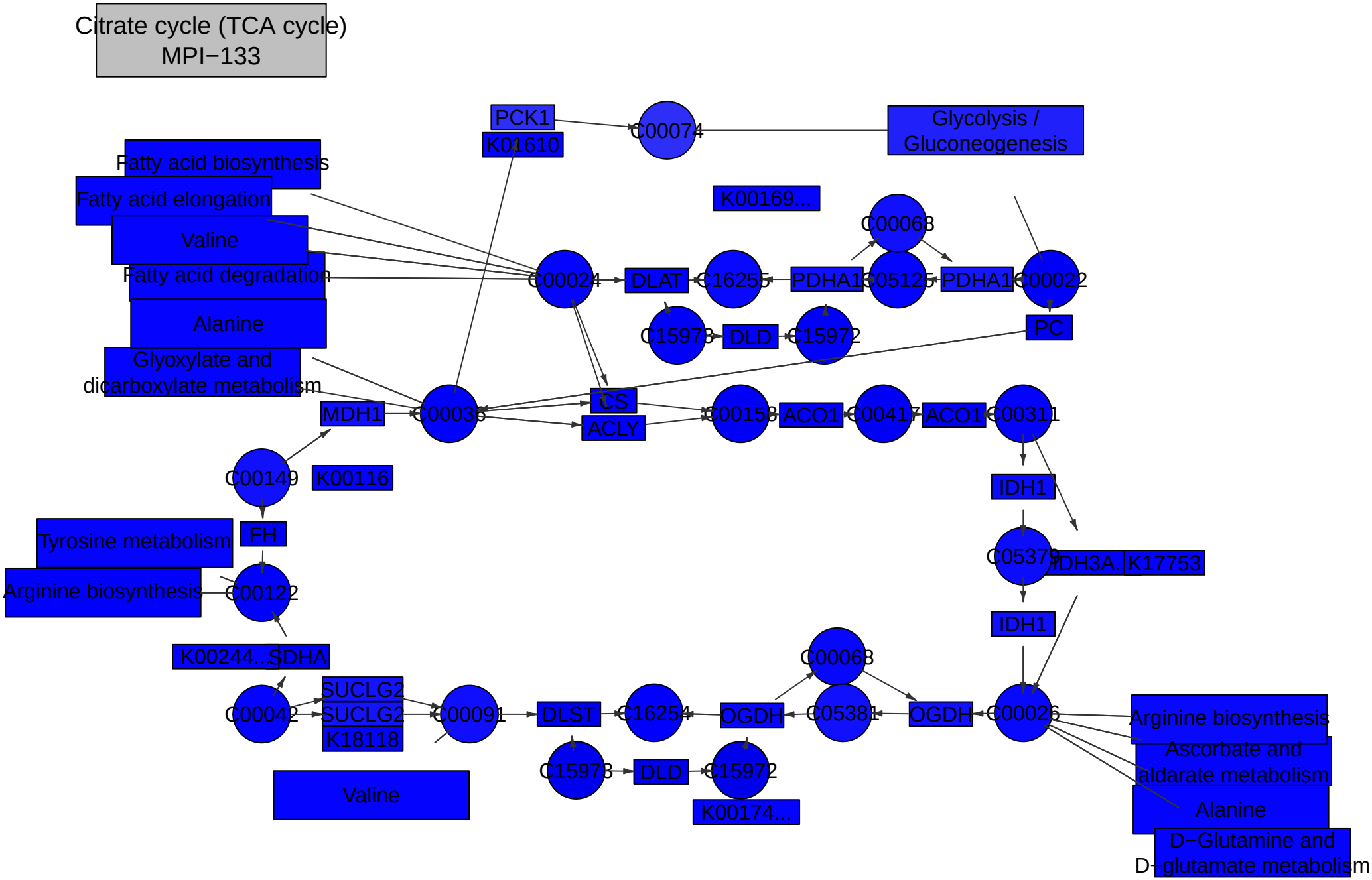
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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Tyrosine metabolism
FH
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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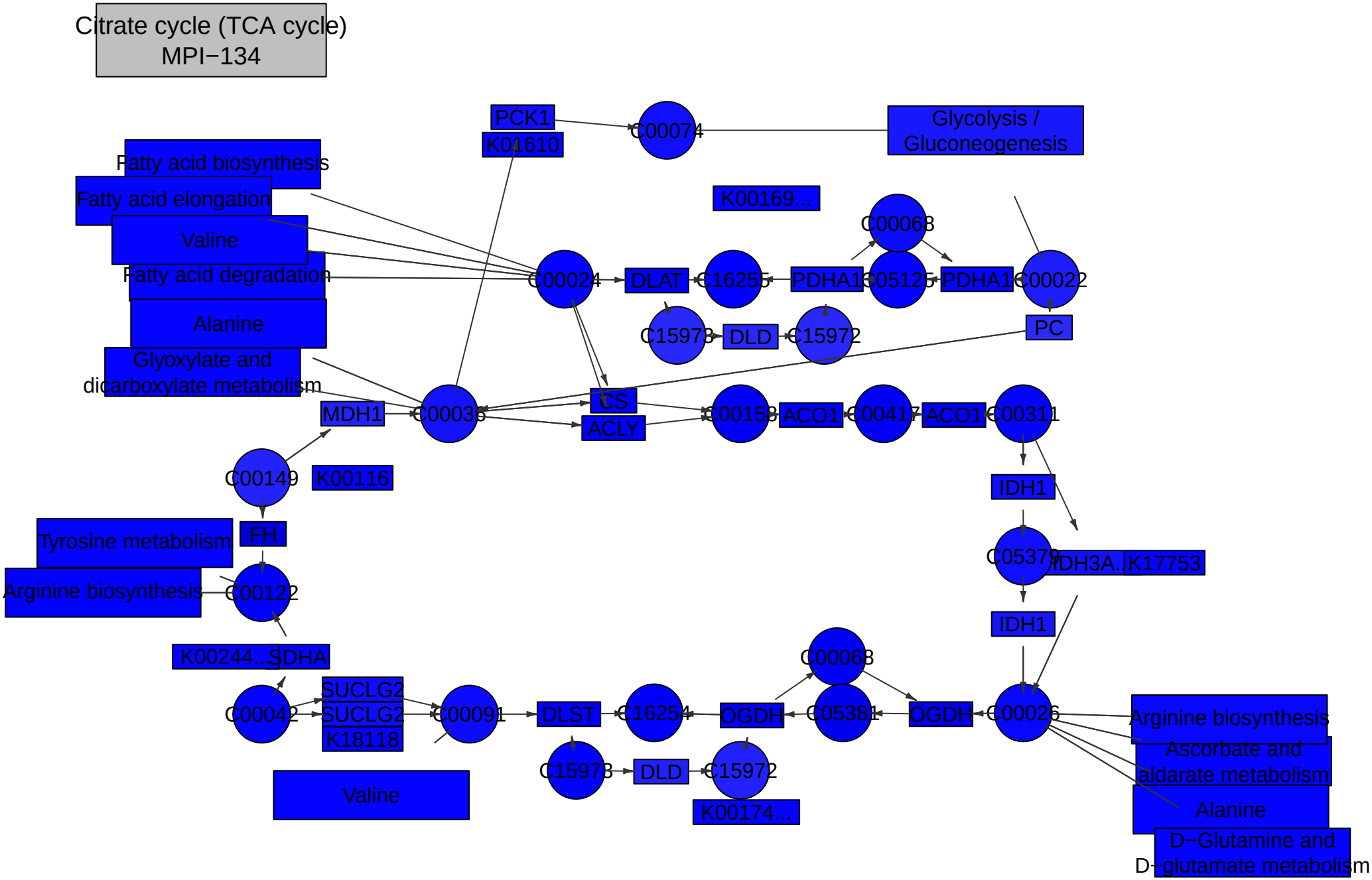
K00174...
Valine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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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ACO1
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K00116
IDH1
Tyrosine metabolism
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IDH1
K00244..
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SUCLG2
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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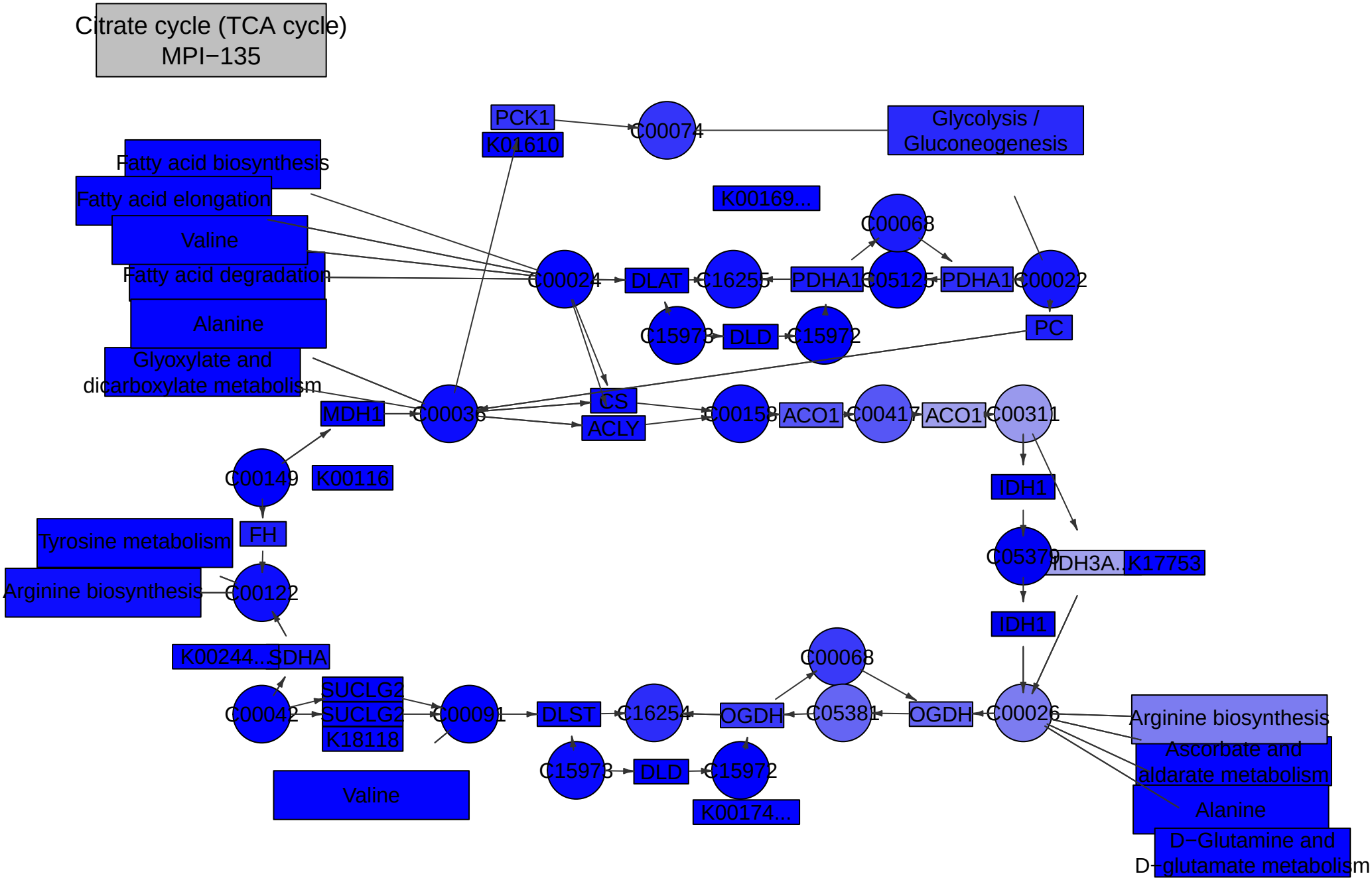
K00174...
Valine


Citrate cycle (TCA cycle)
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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Tyrosine metabolism
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IDH1
K00244...SDHA
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SUCLG2
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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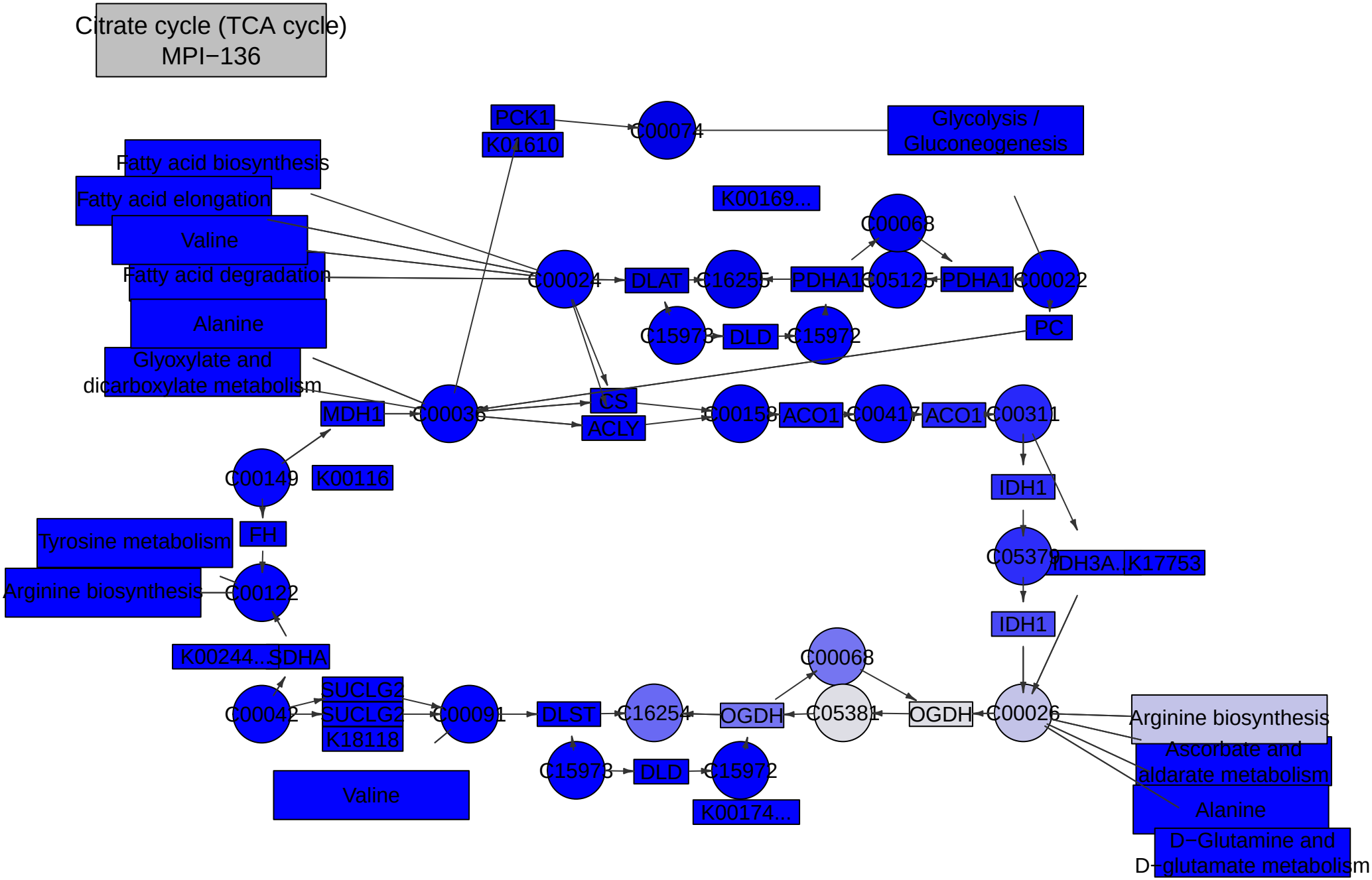
Citrate cycle (TCA cycle)
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00024
DLAT
C16255
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C05125
PDHA1
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ACO1
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ACO1
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K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
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IDH1
K00244..SDHA
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OGDH
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Arginine biosynthesis
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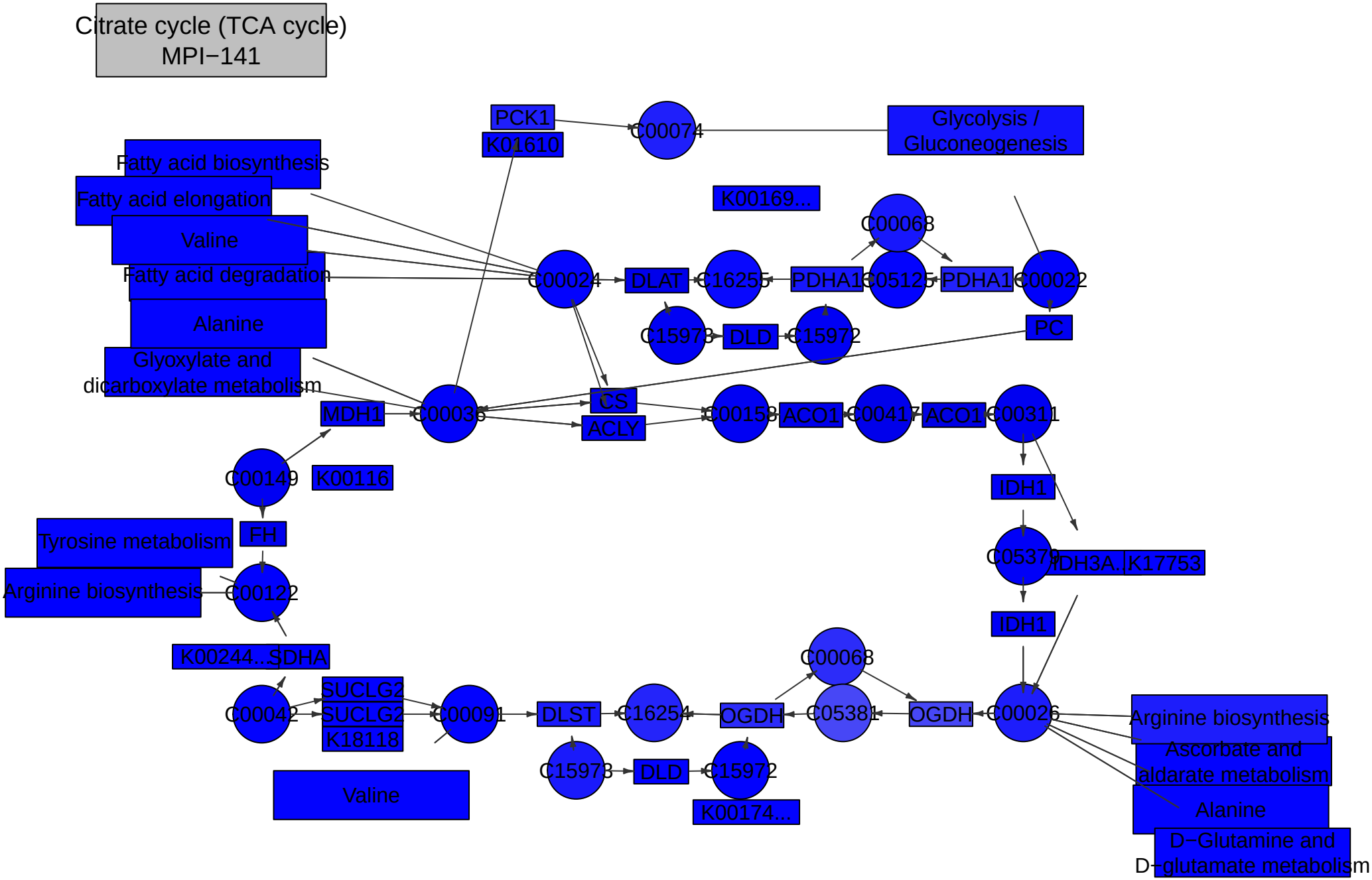
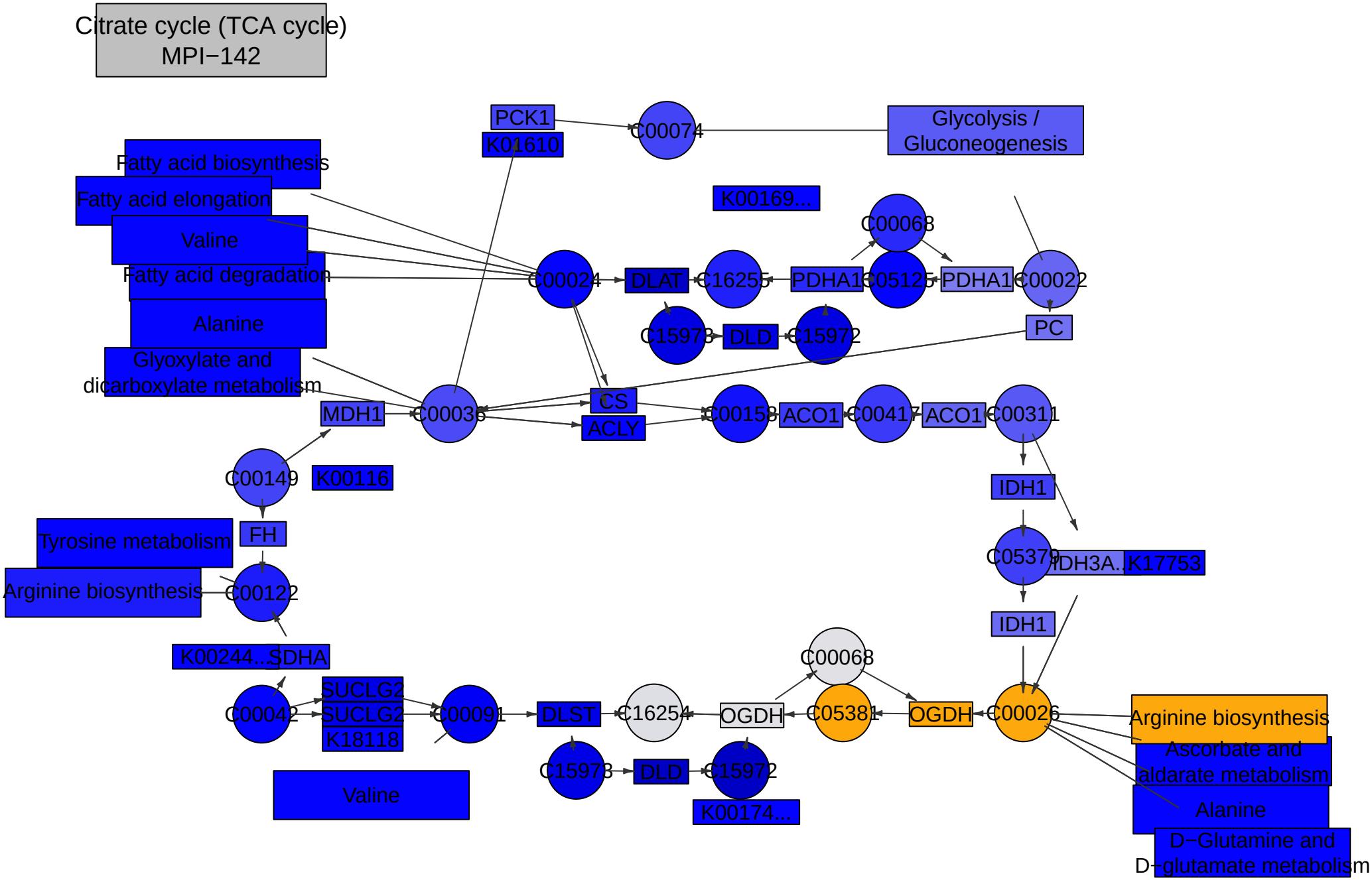
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−141
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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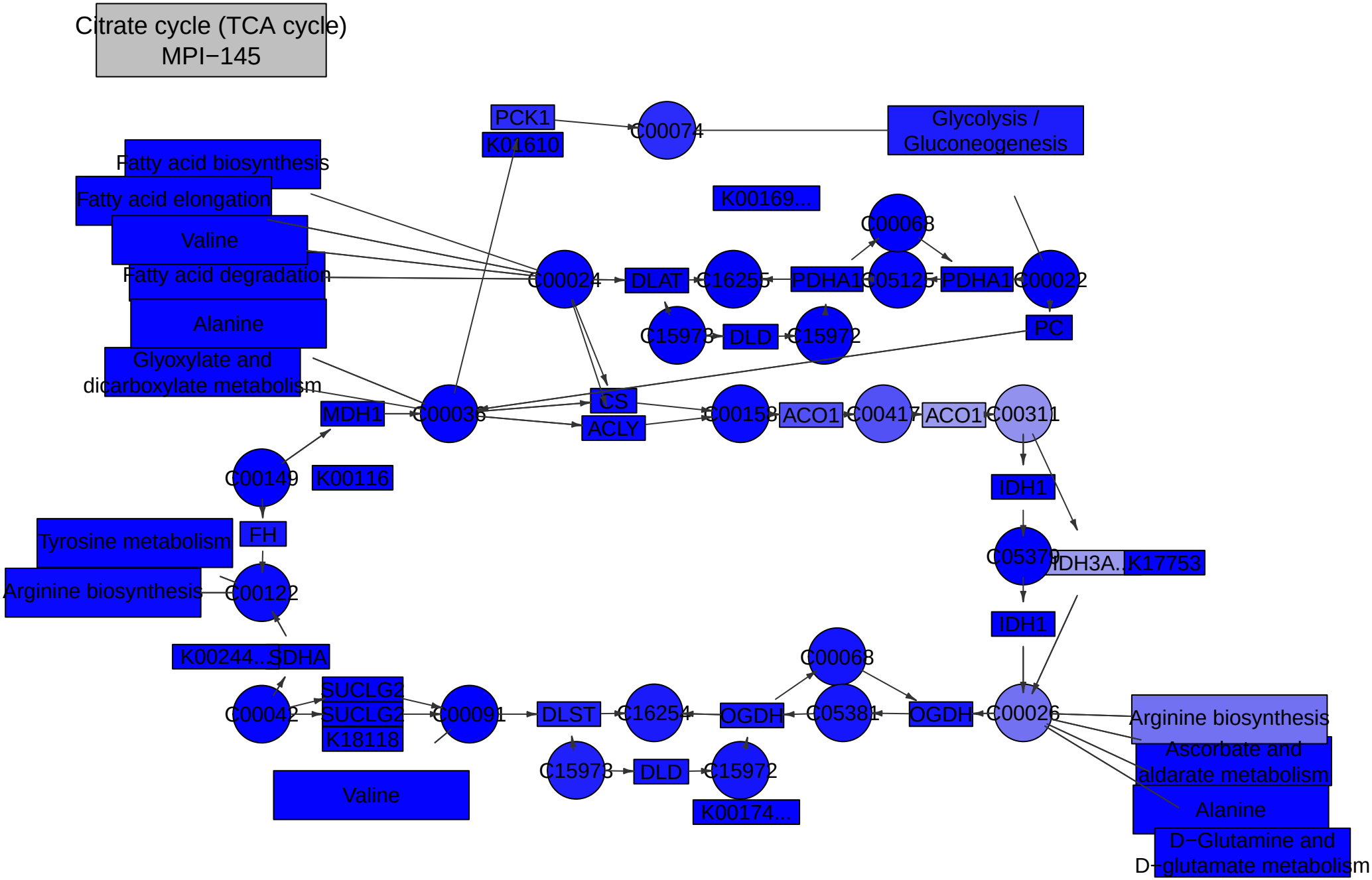
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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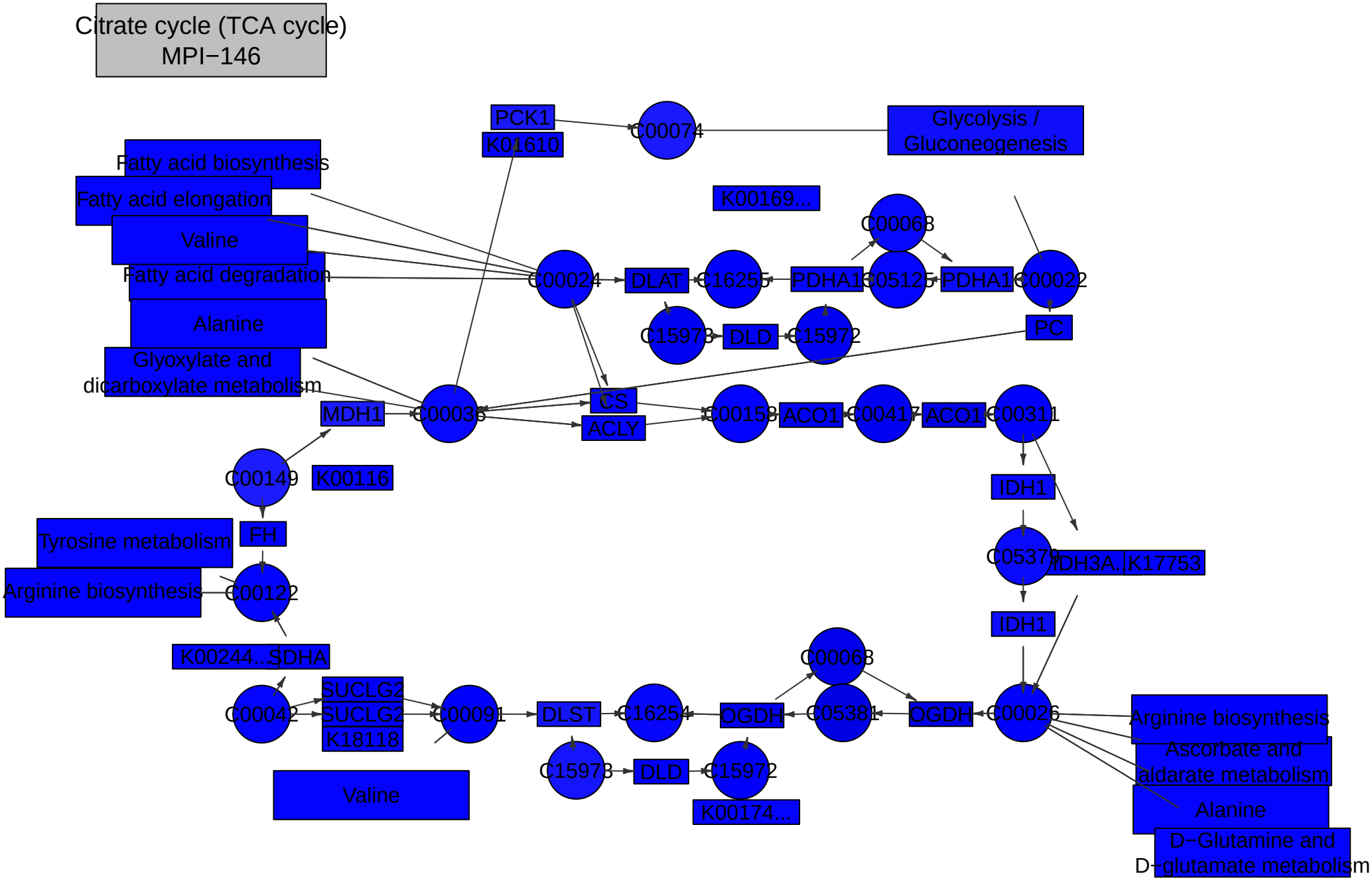
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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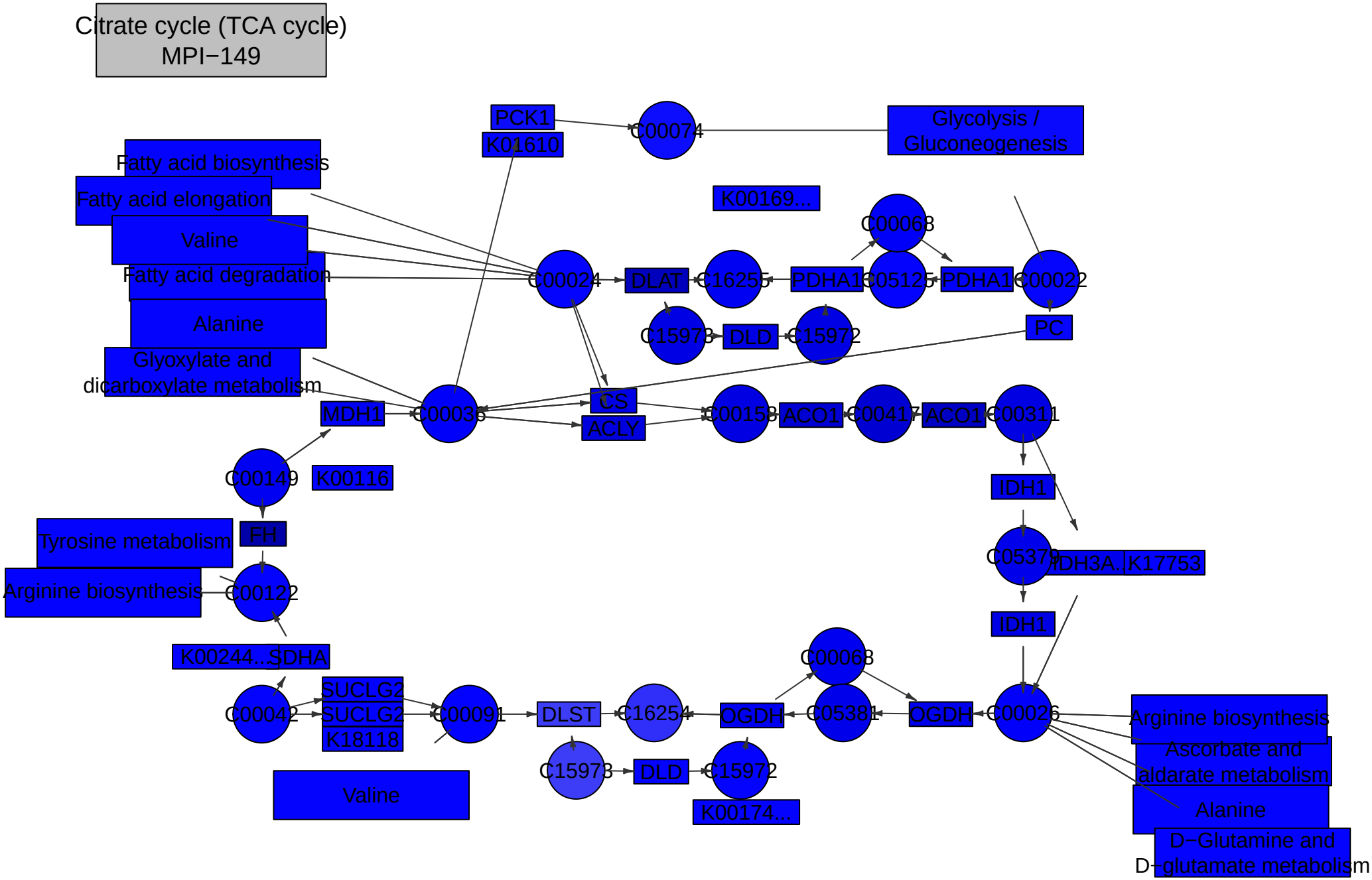
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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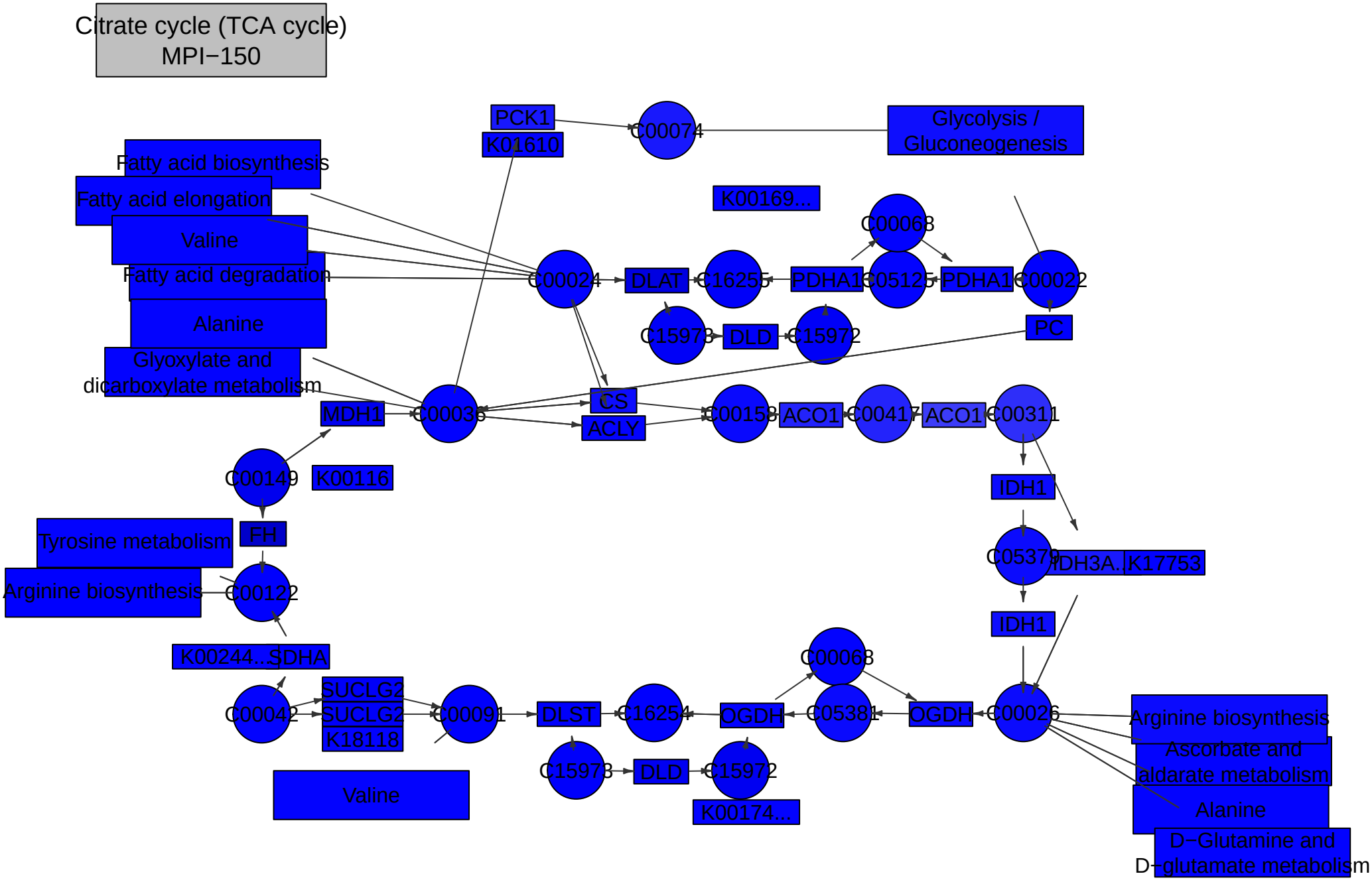
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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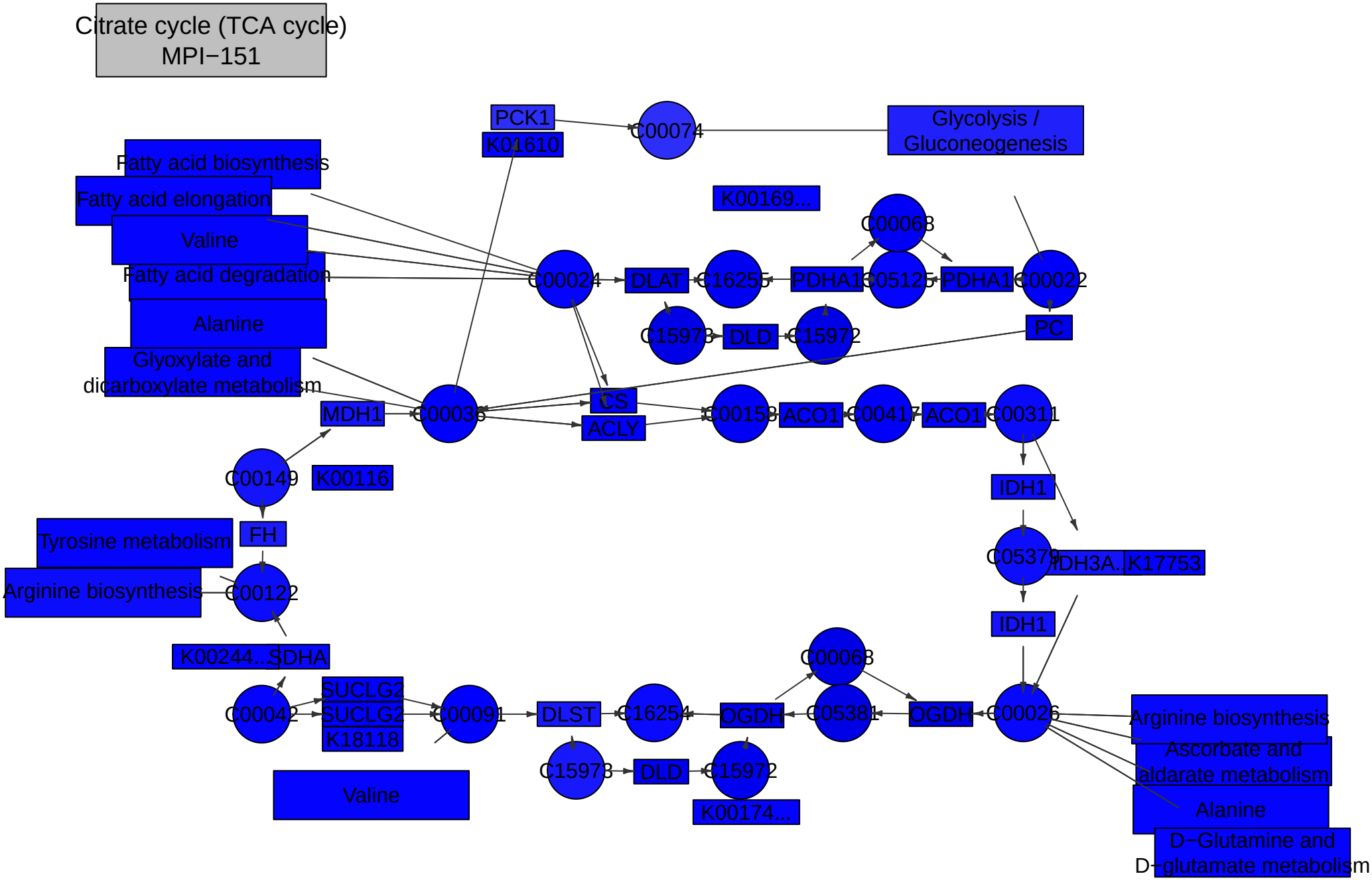
K00174...
Valine


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
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MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
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K17753
IDH1
K00244..SDHA
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SUCLG2
SUCLG2
K18118
C00042
C00091
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OGDH
C05381
OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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DLD
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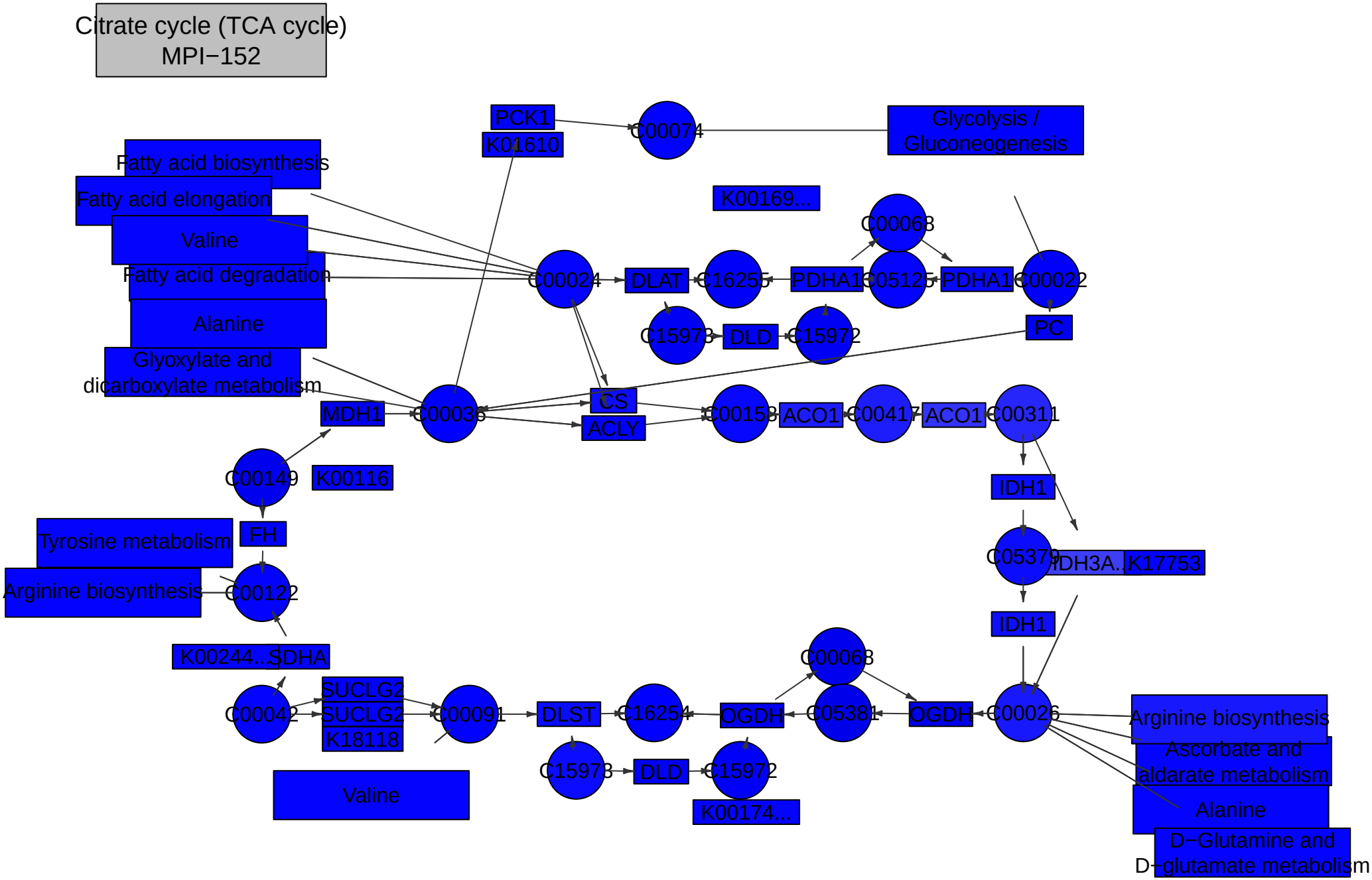
K00174...
Valine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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
DLD
C15972
PC
MDH1
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CS
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ACO1
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K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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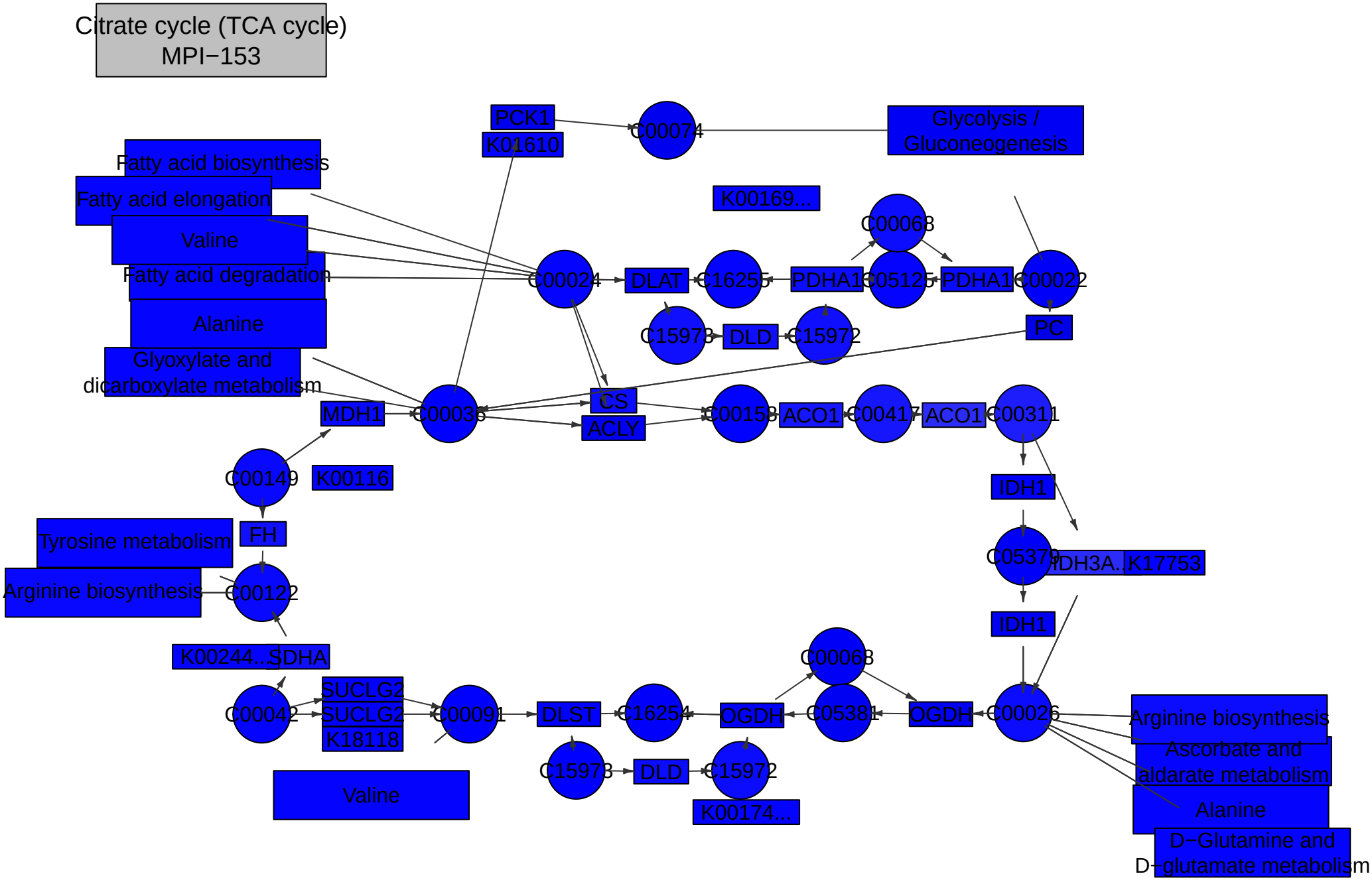
Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
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MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
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K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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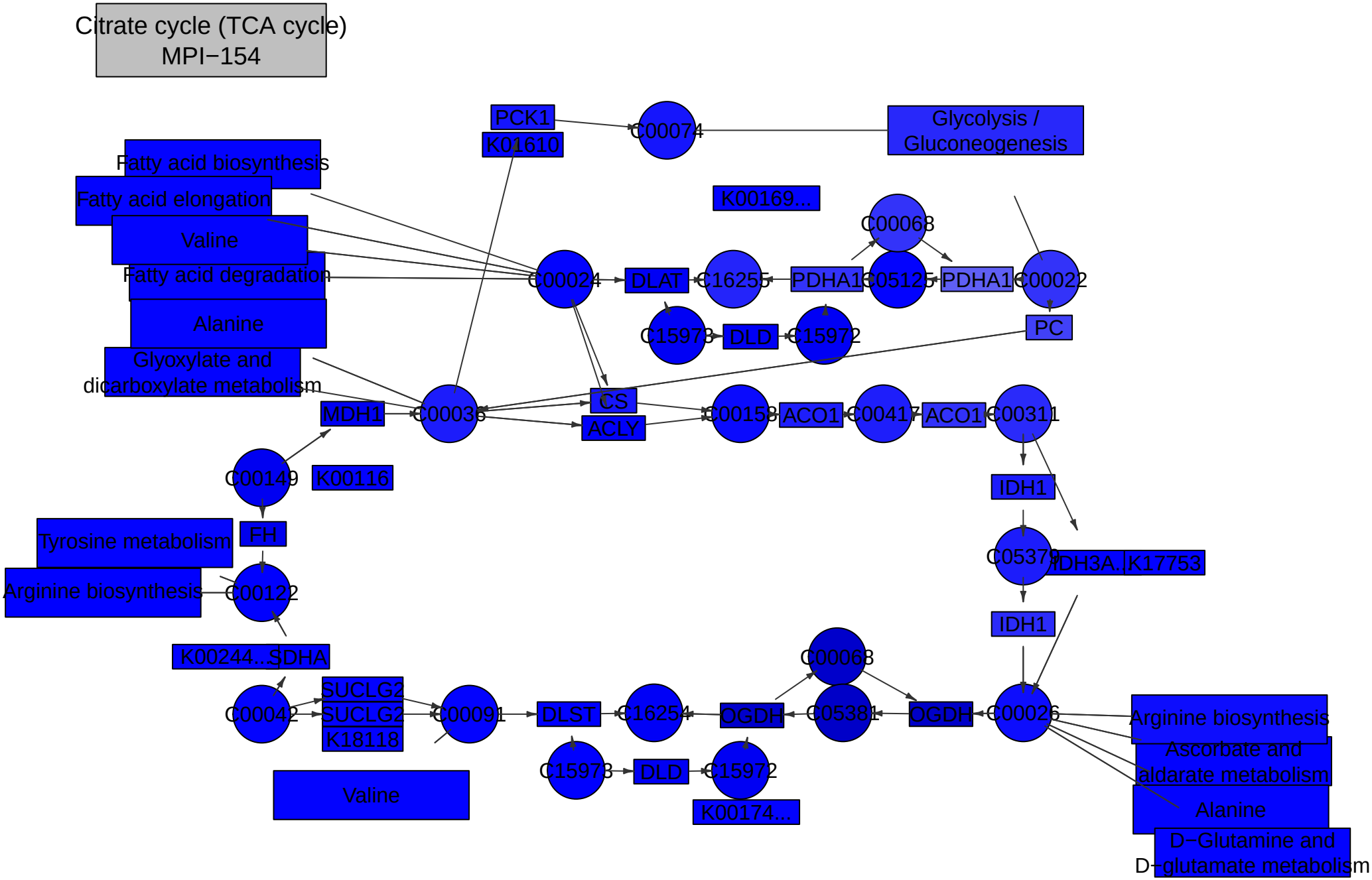
K00174...


Citrate cycle (TCA cycle)
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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DLAT
C16255
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PDHA1
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ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
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K17753
IDH1
K00244..
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SUCLG2
SUCLG2
K18118
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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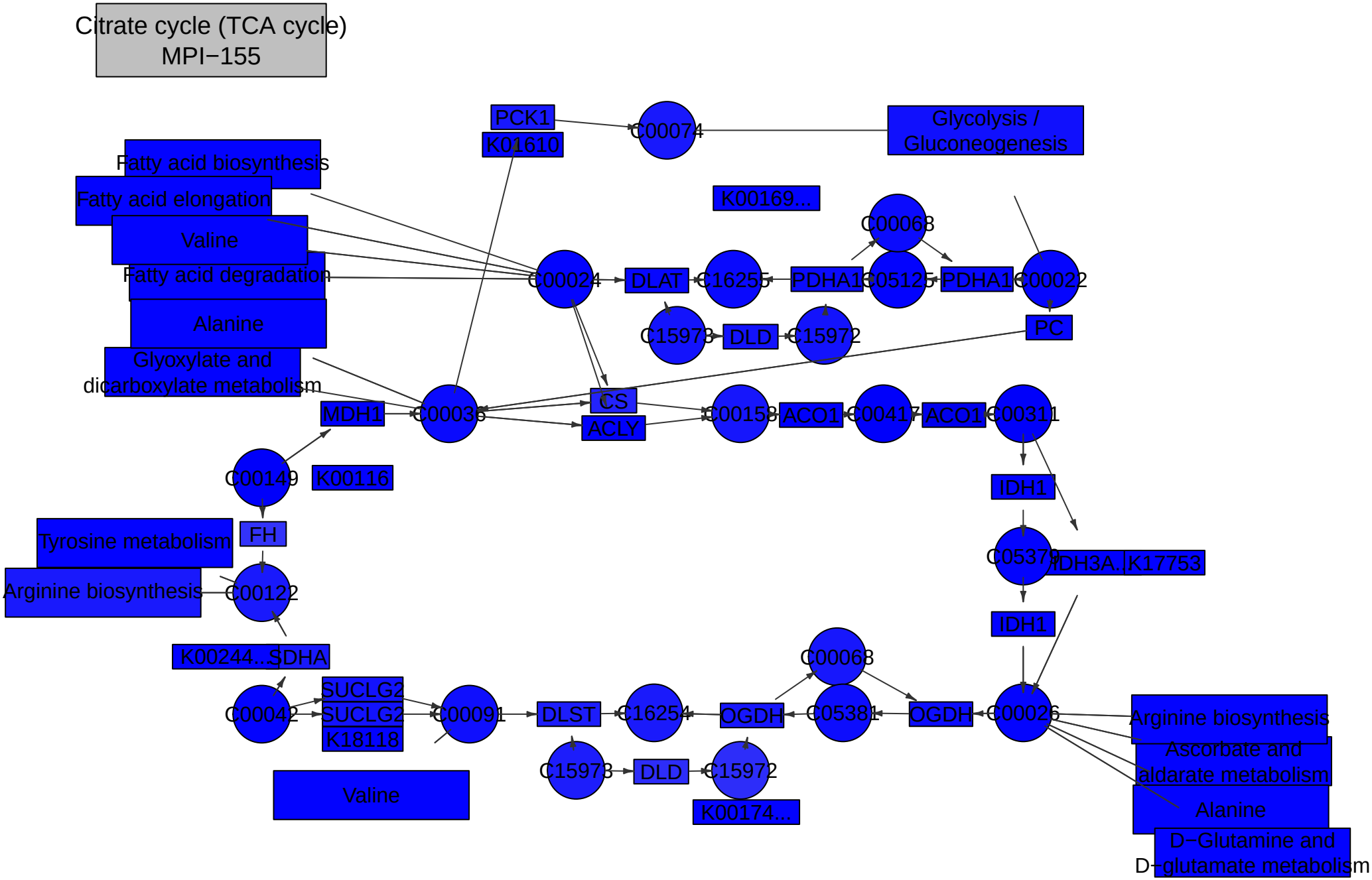
K00174...


Citrate cycle (TCA cycle)
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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IDH1
Tyrosine metabolism
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Arginine biosynthesis
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SUCLG2
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OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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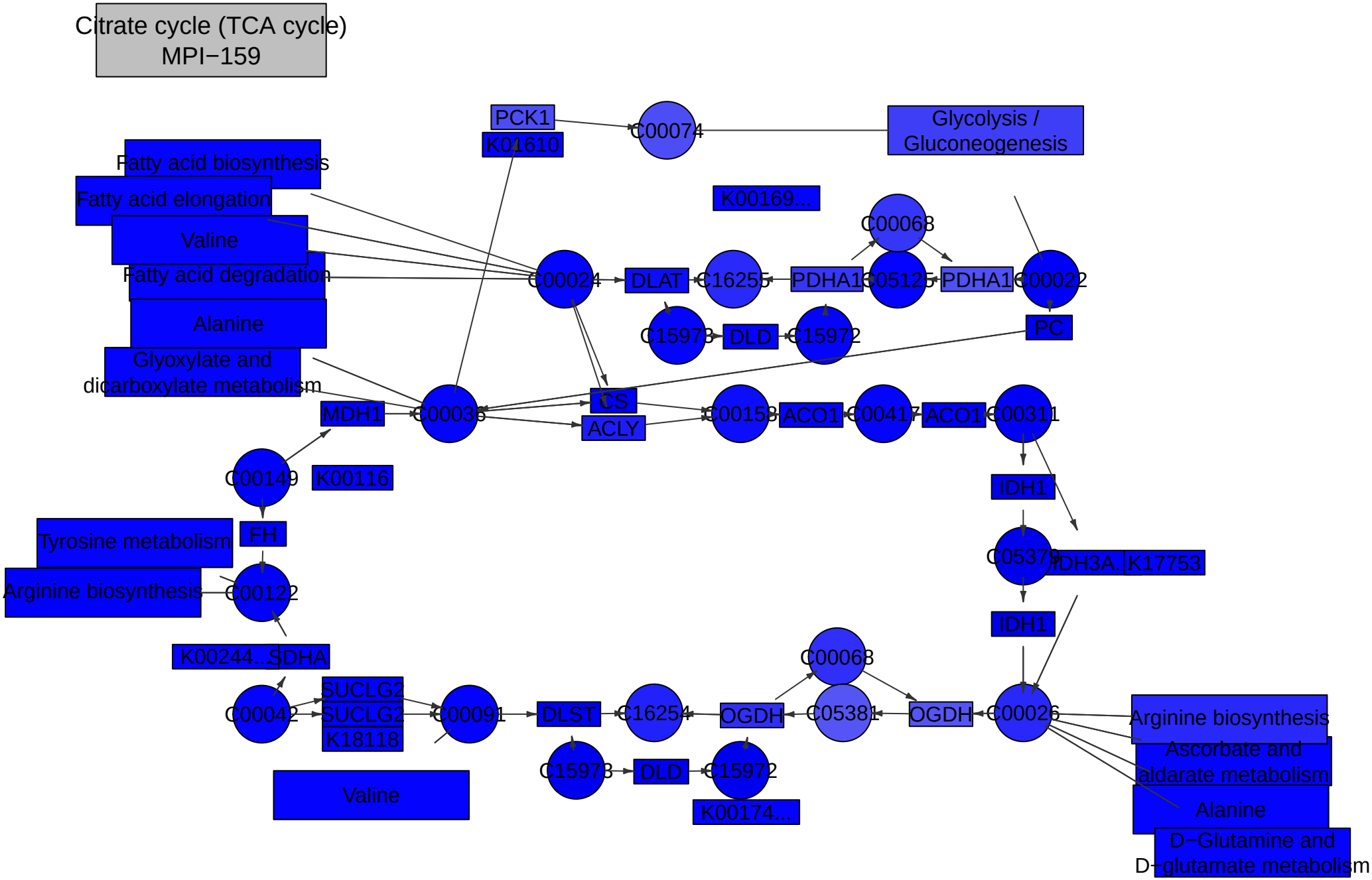
K00174...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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLAT
C16255
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DLD
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ACO1
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ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
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Arginine biosynthesis
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IDH1
K00244..SDHA
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SUCLG2
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C05381
OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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DLD
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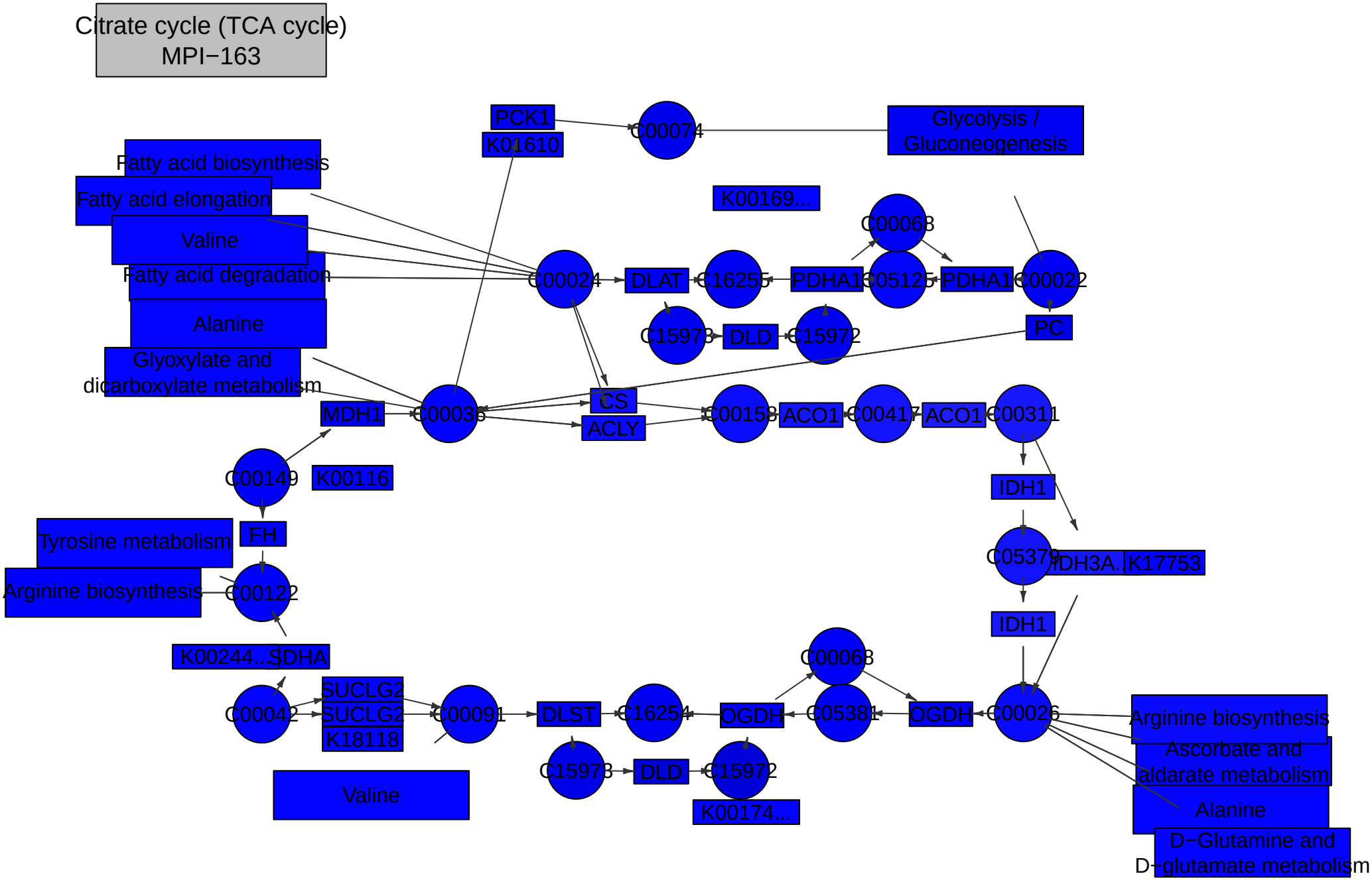
K00174...
Valine


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
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DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
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ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
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IDH1
K00244..
SDHA
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SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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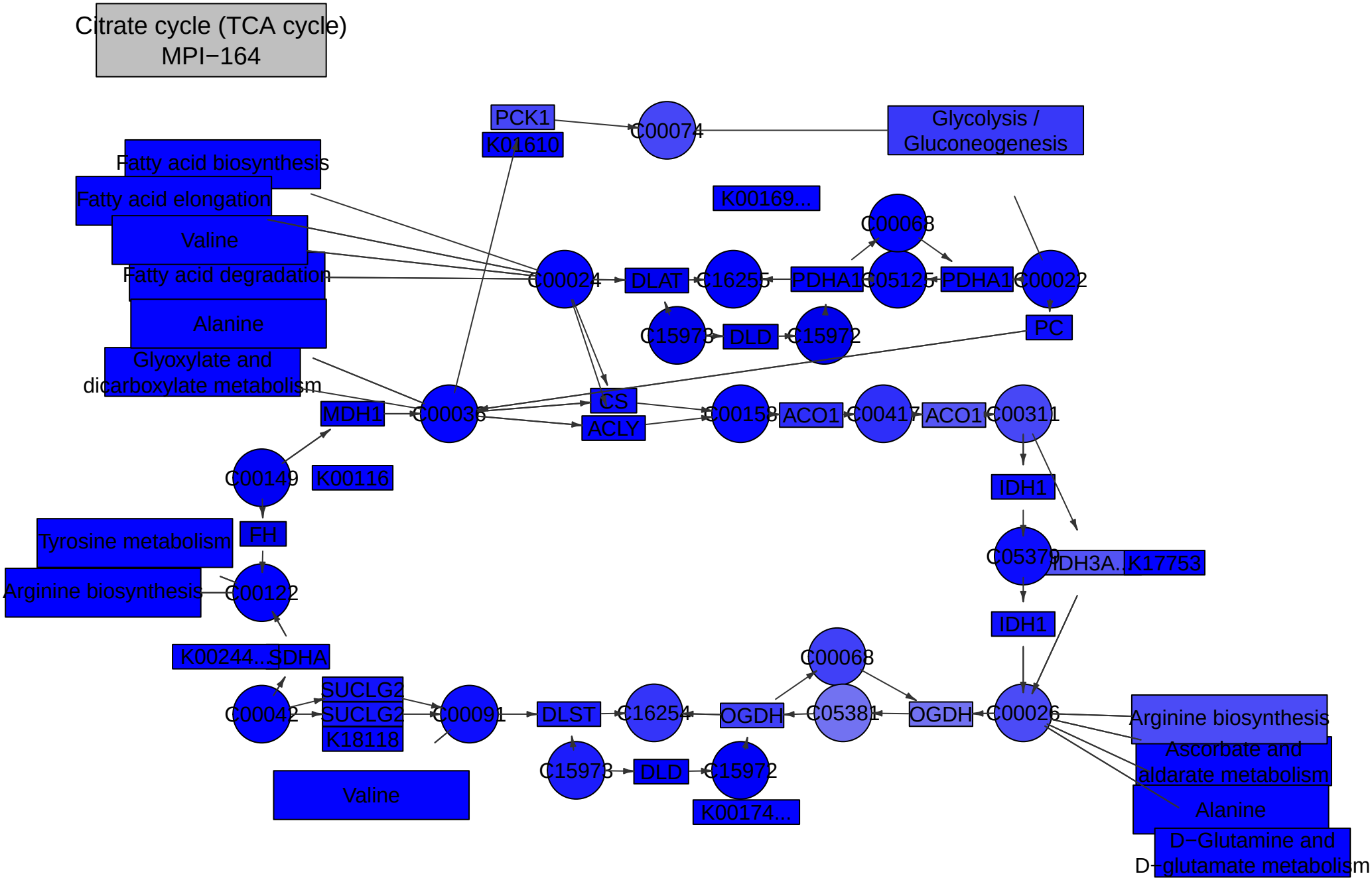
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
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DLAT
C16255
PDHA1
C05125
PDHA1
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DLD
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MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
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K17753
IDH1
K00244...
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C00042
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SUCLG2
K18118
C00091
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C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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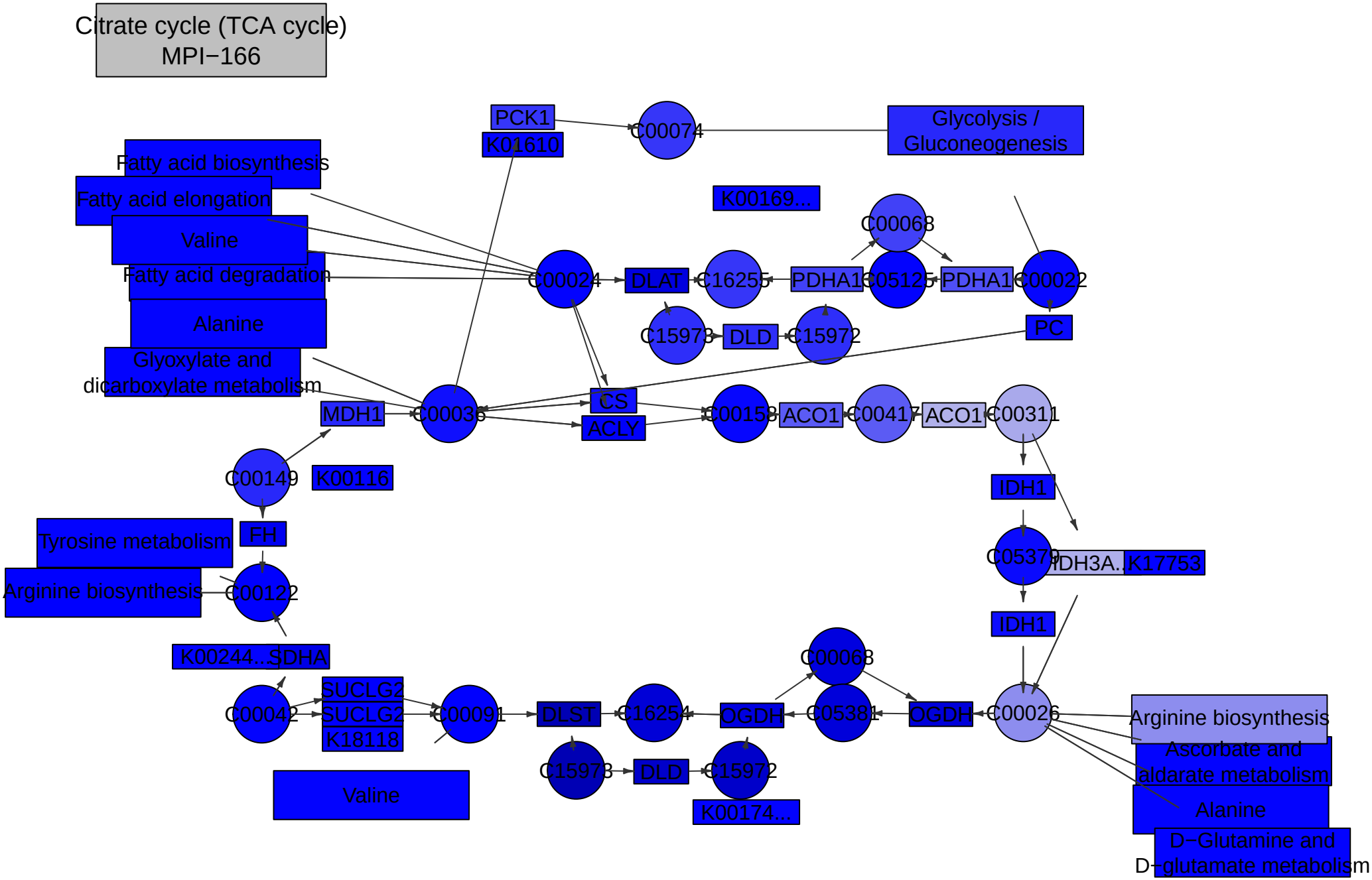
K00174...


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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C16255
PDHA1
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ACO1
C00417
ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
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C05379
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K17753
IDH1
K00244...
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SUCLG2
K18118
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OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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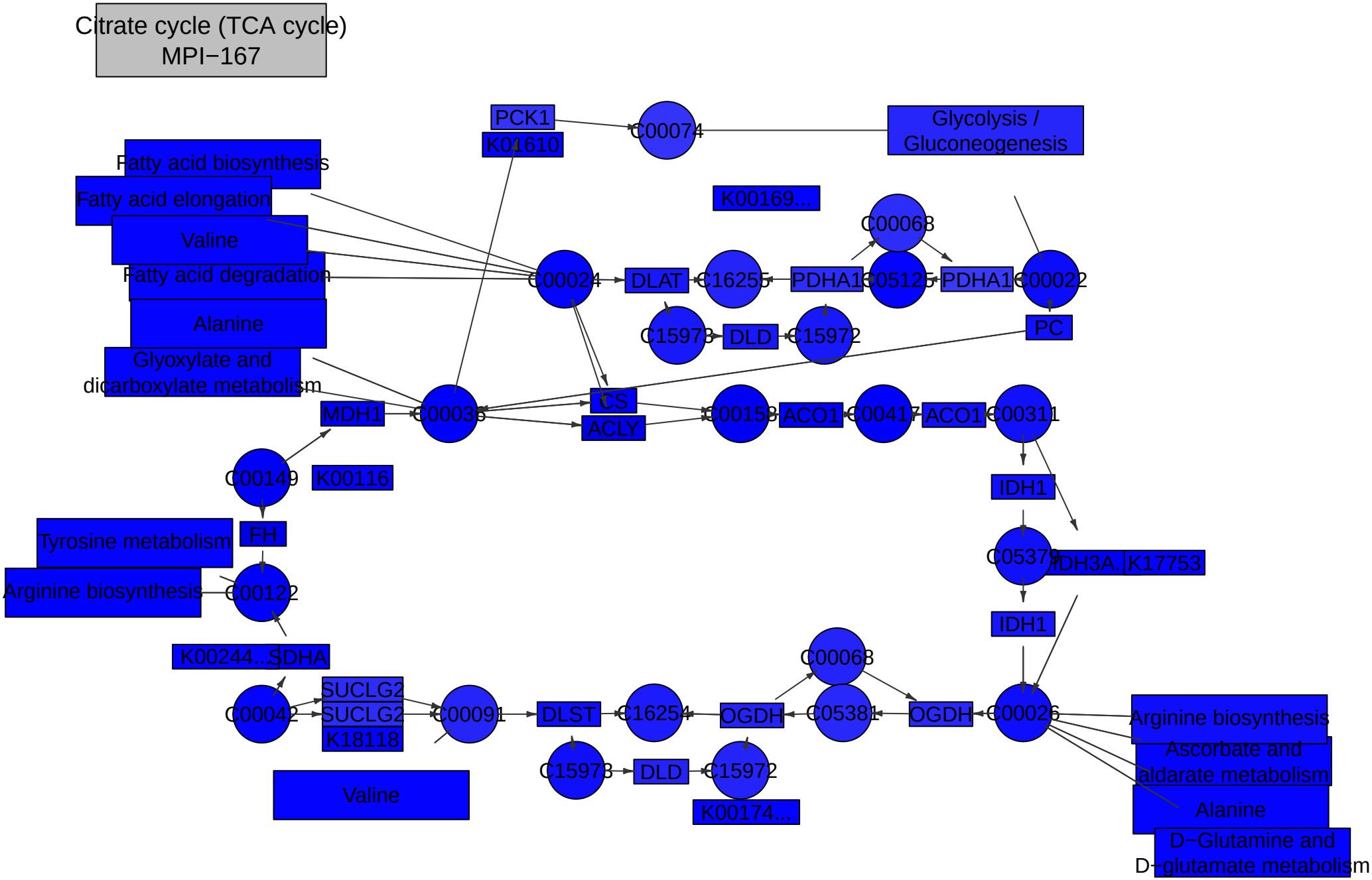
Citrate cycle (TCA cycle)
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C00074
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
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DLAT
C16255
PDHA1
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K00116
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FH
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IDH1
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OGDH
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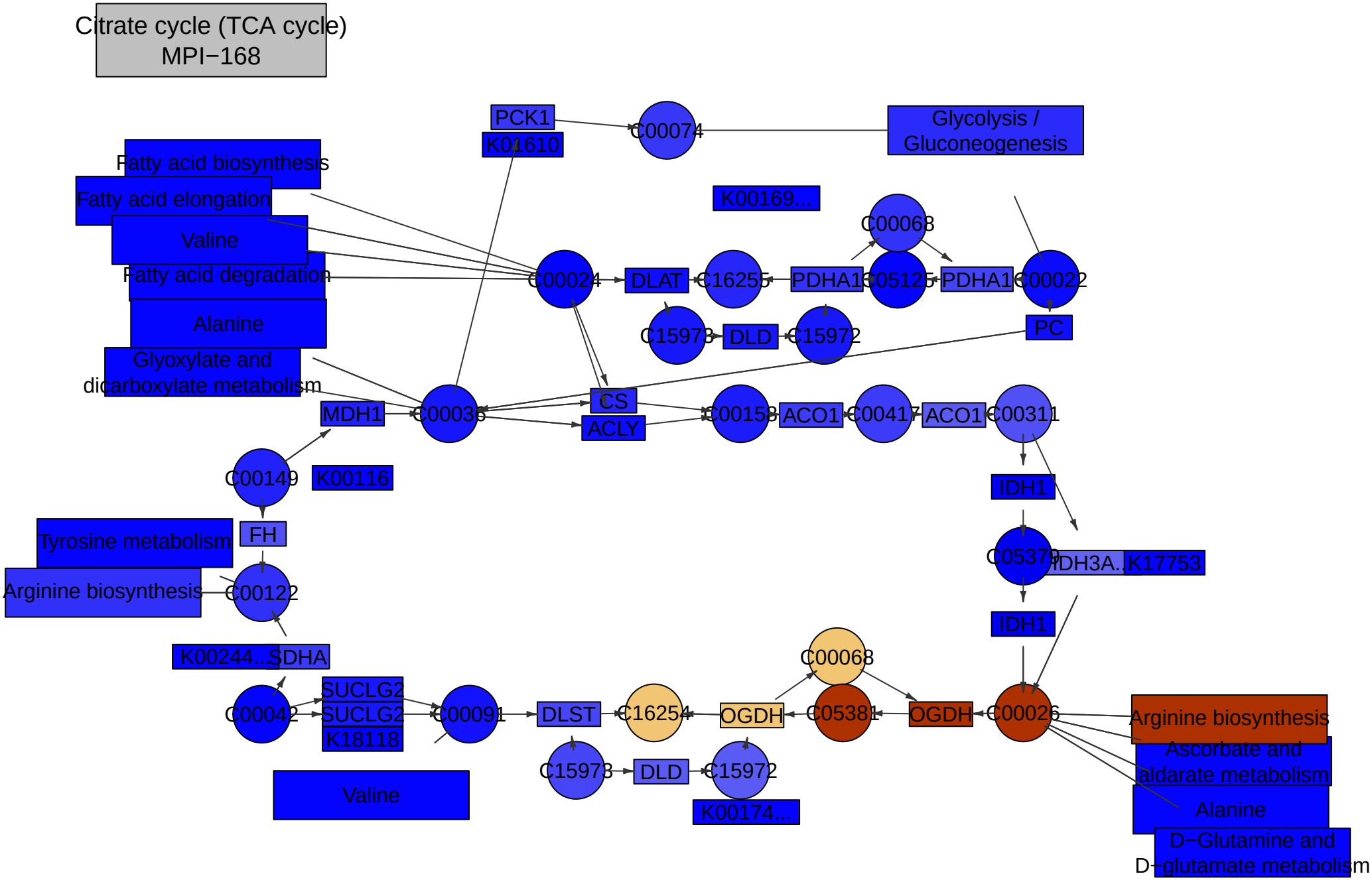
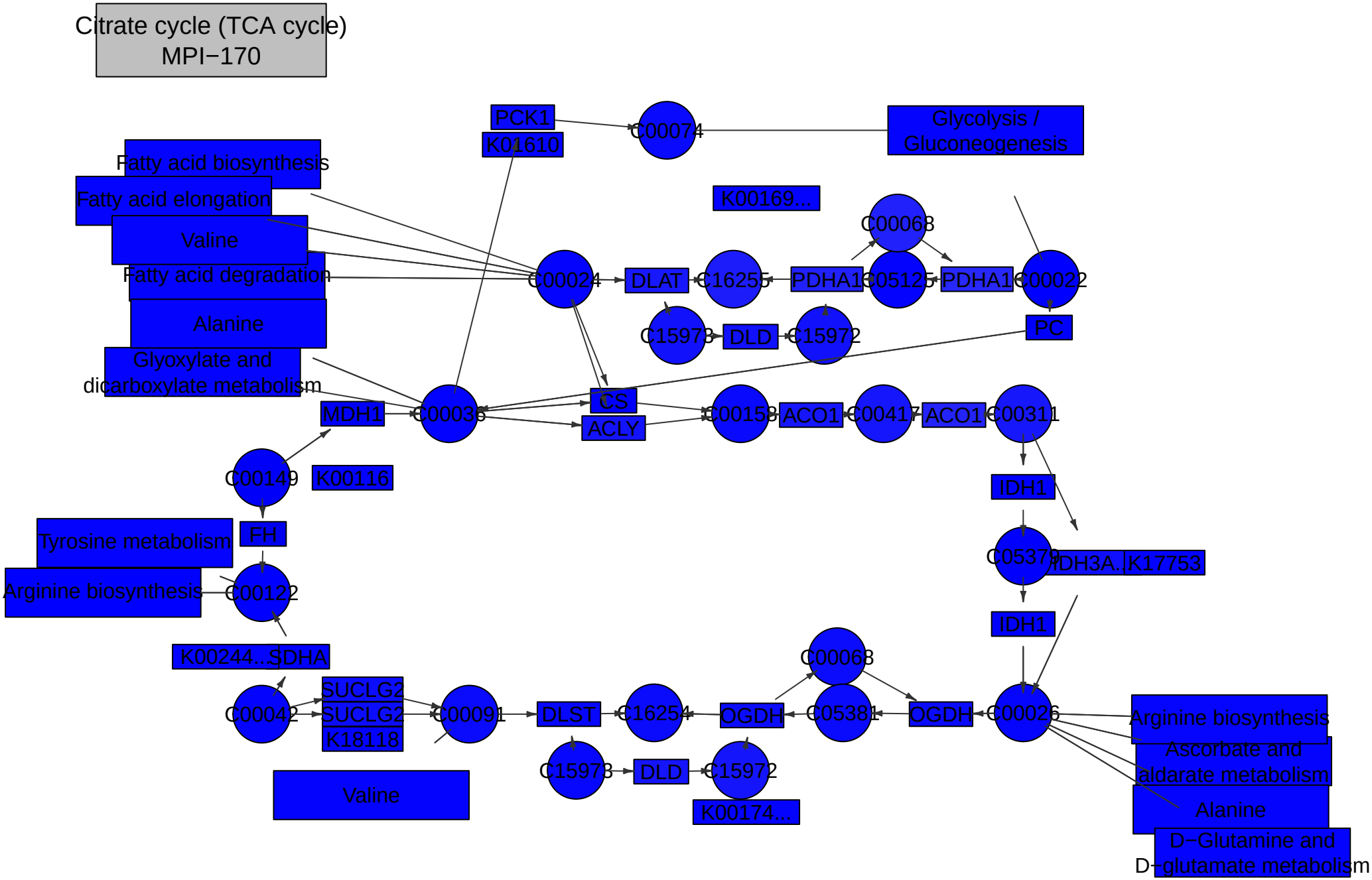
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−168
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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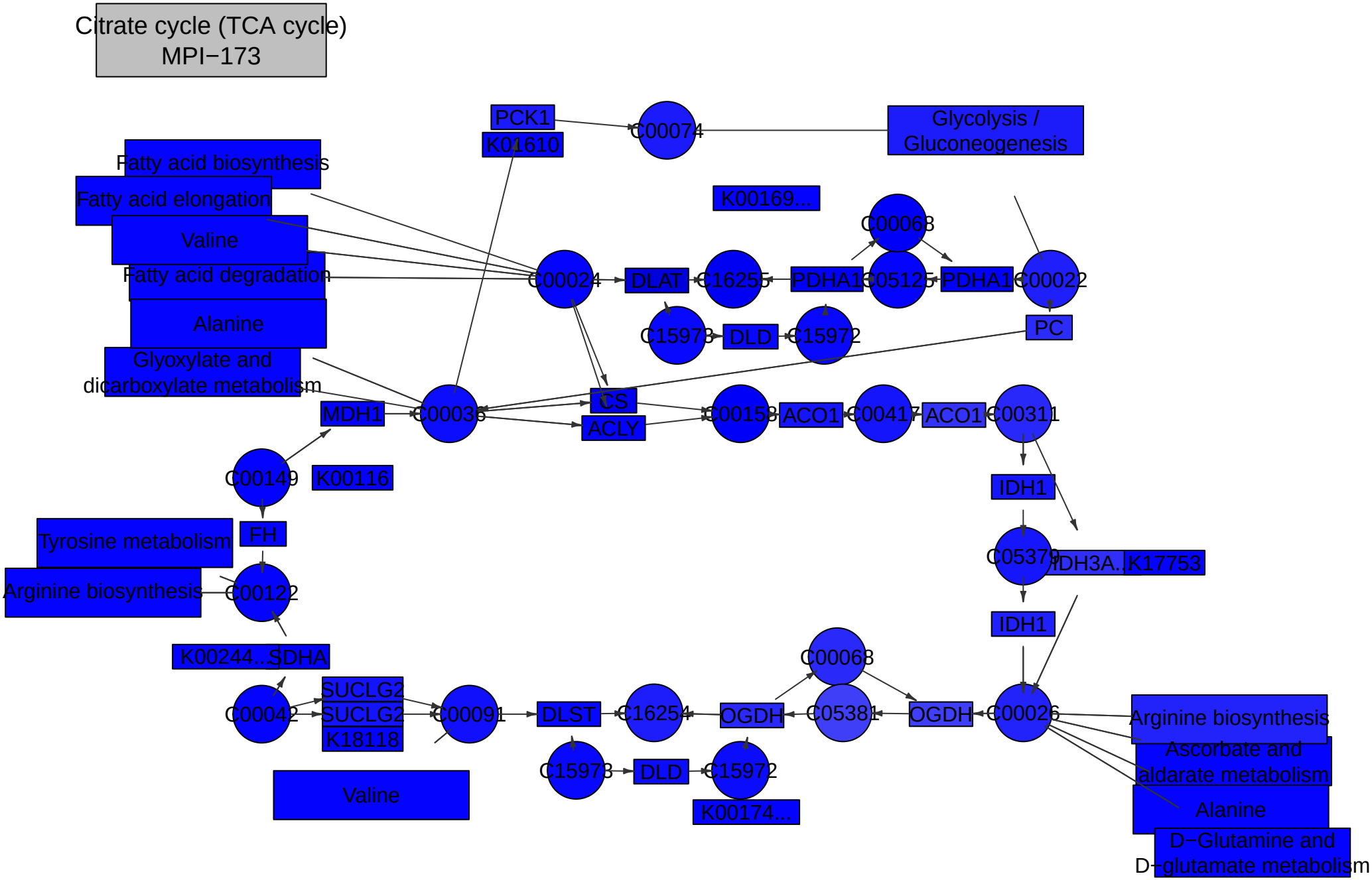
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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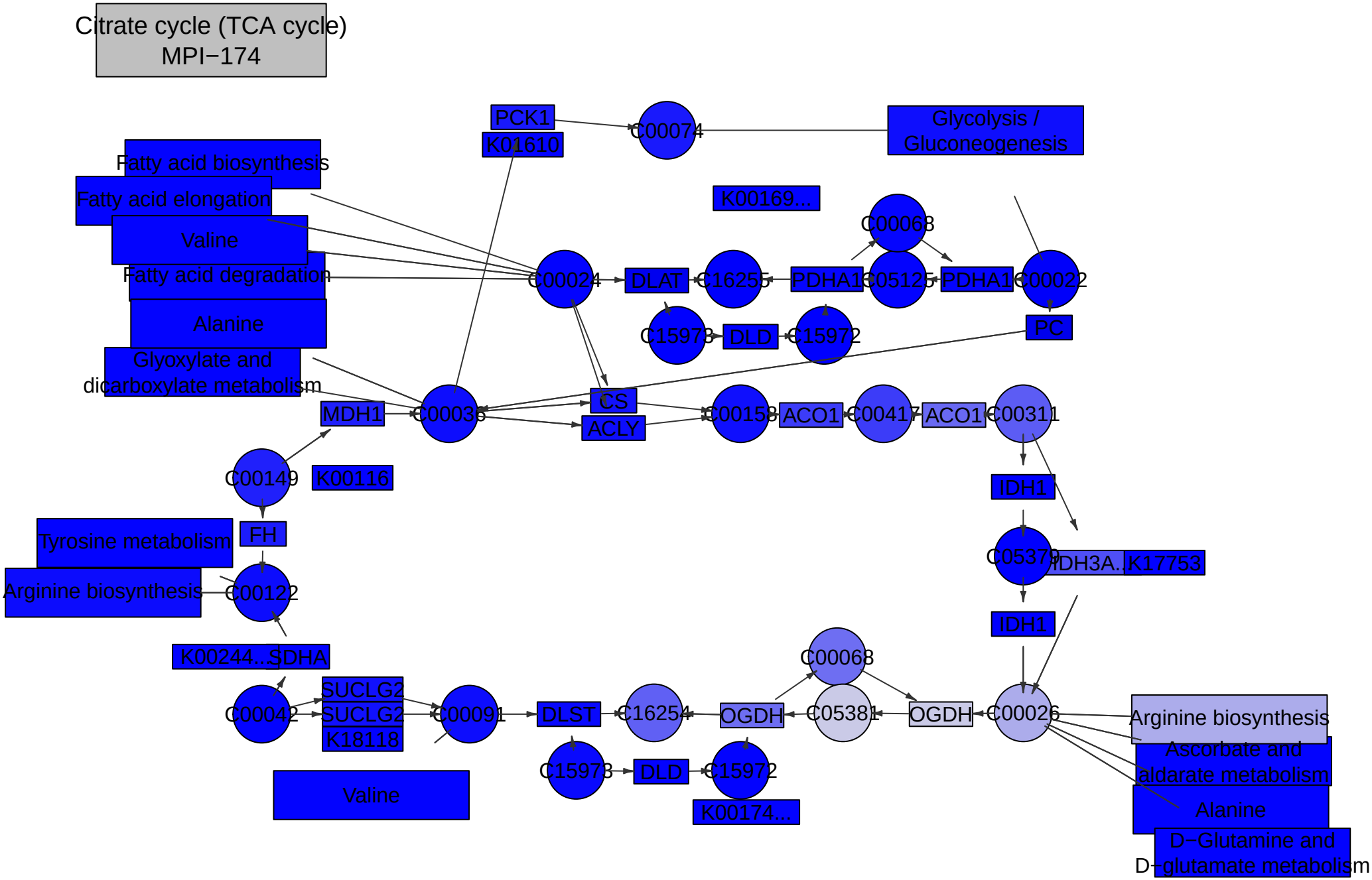
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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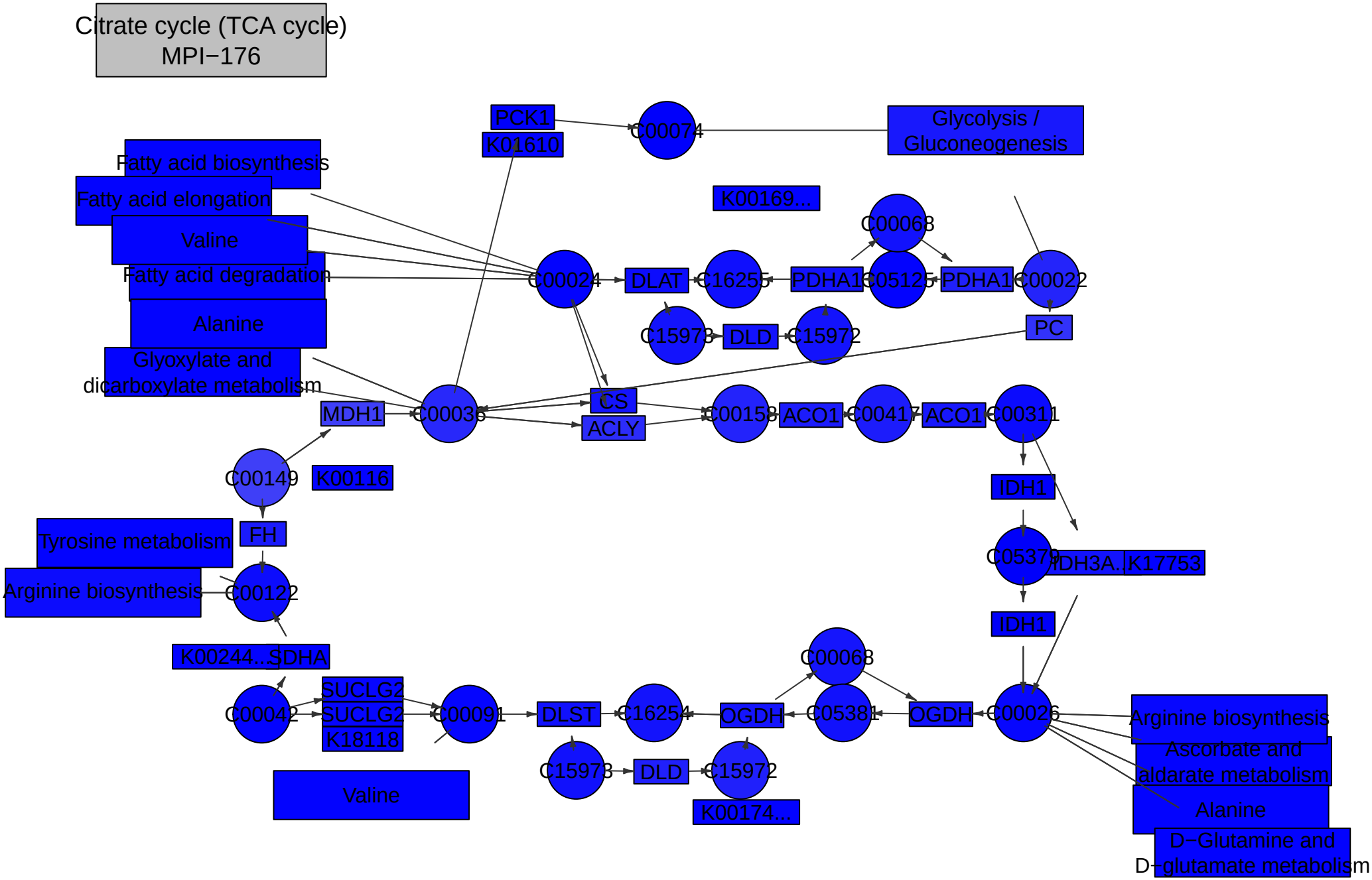
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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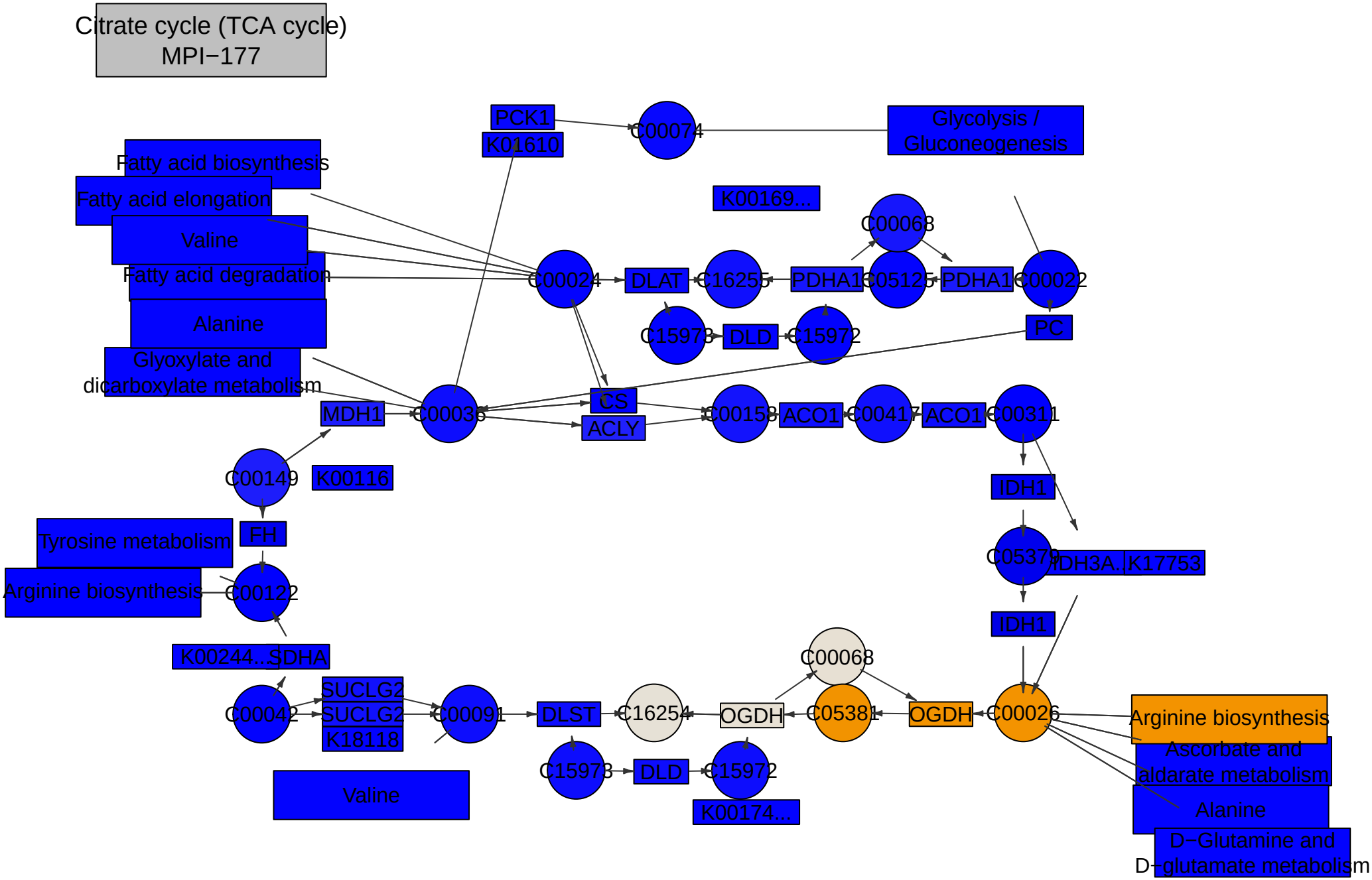
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
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MDH1
C00036
C00158
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C00417
ACO1
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K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
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OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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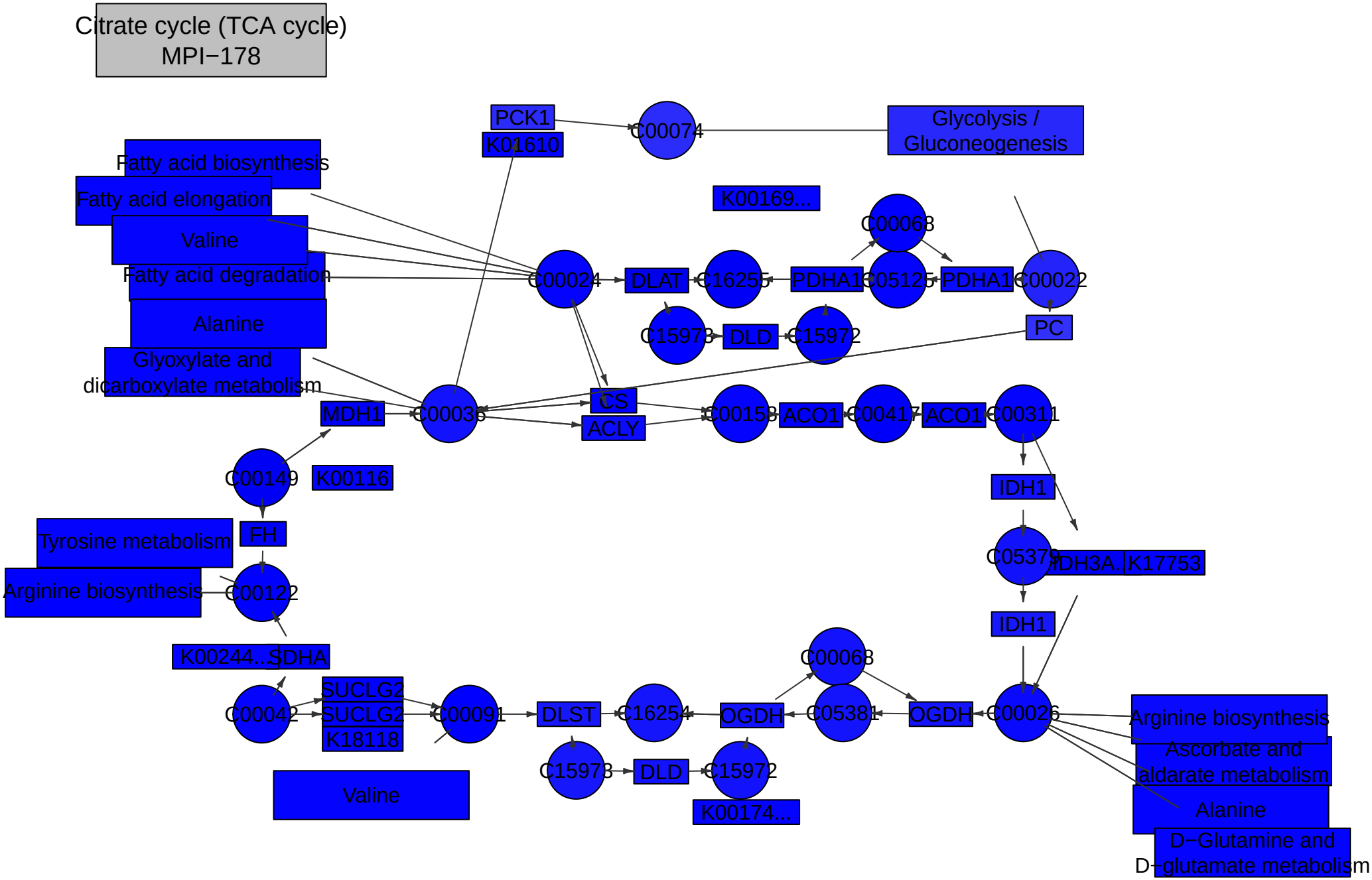
Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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DLAT
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IDH1
K00244..
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D−Glutamine and D−glutamate metabolism
Valine
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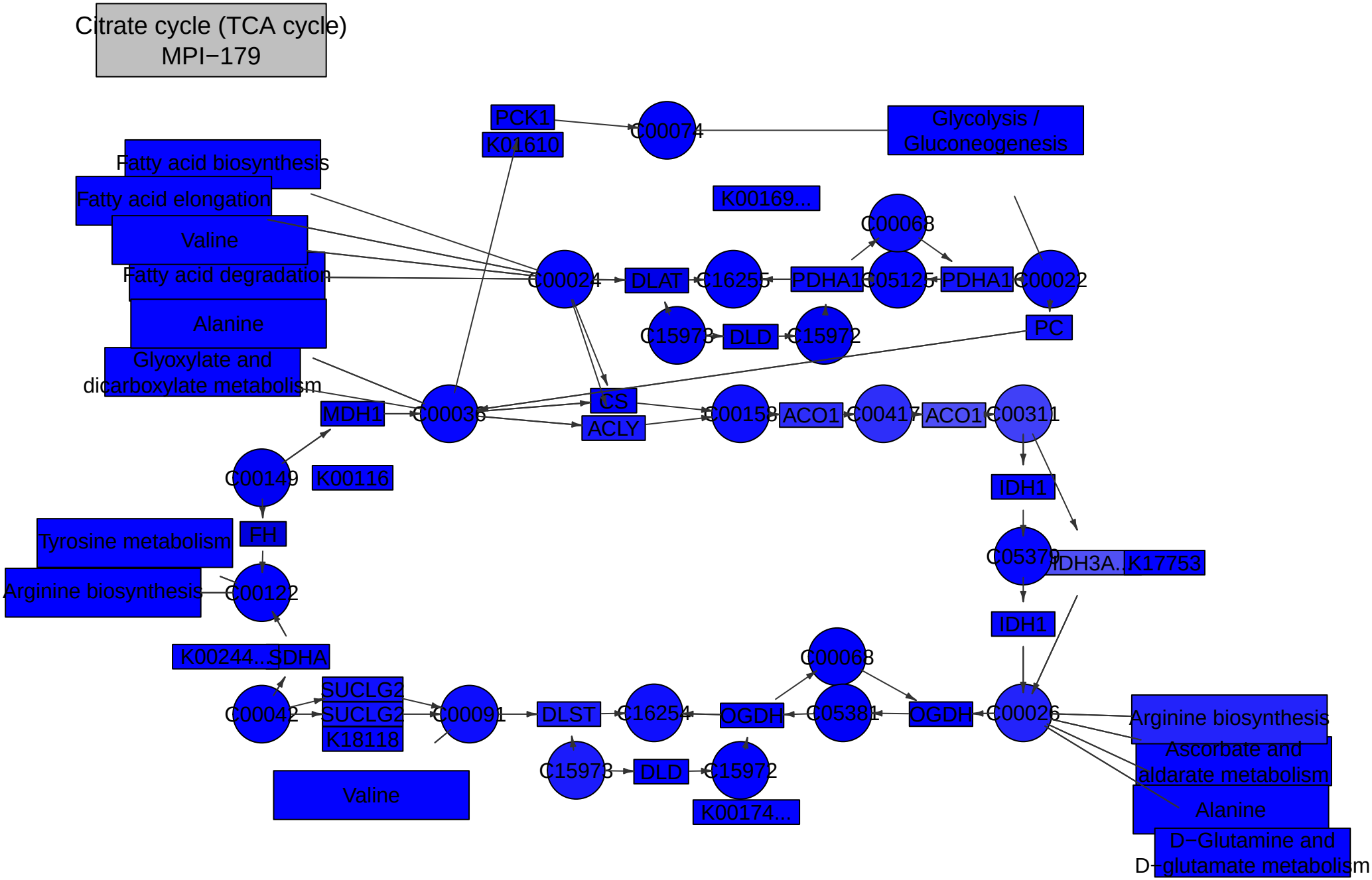
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00024
DLAT
C16255
PDHA1
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PDHA1
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ACO1
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DLST
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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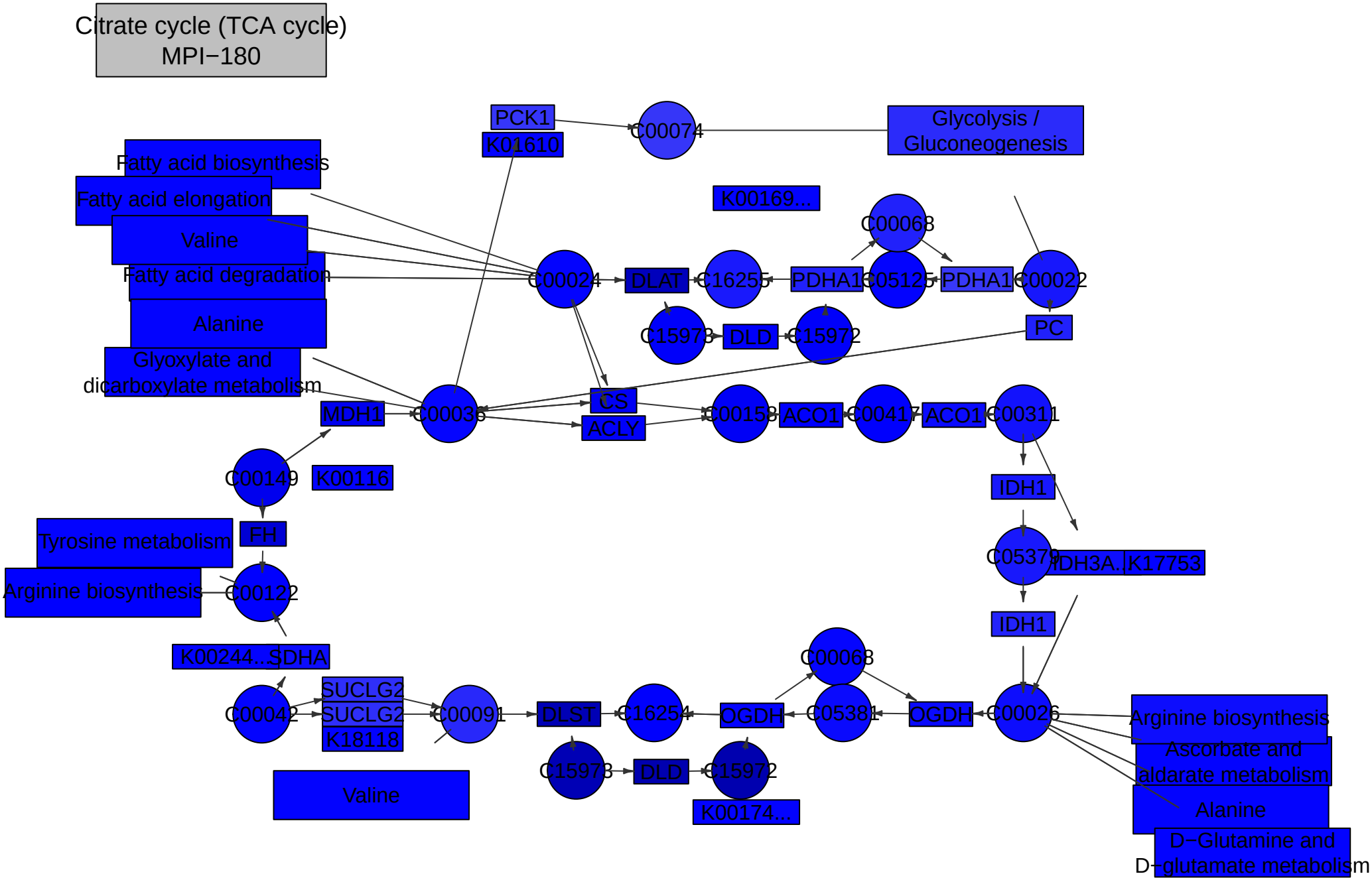
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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C15973
DLD
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MDH1
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ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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K17753
IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
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DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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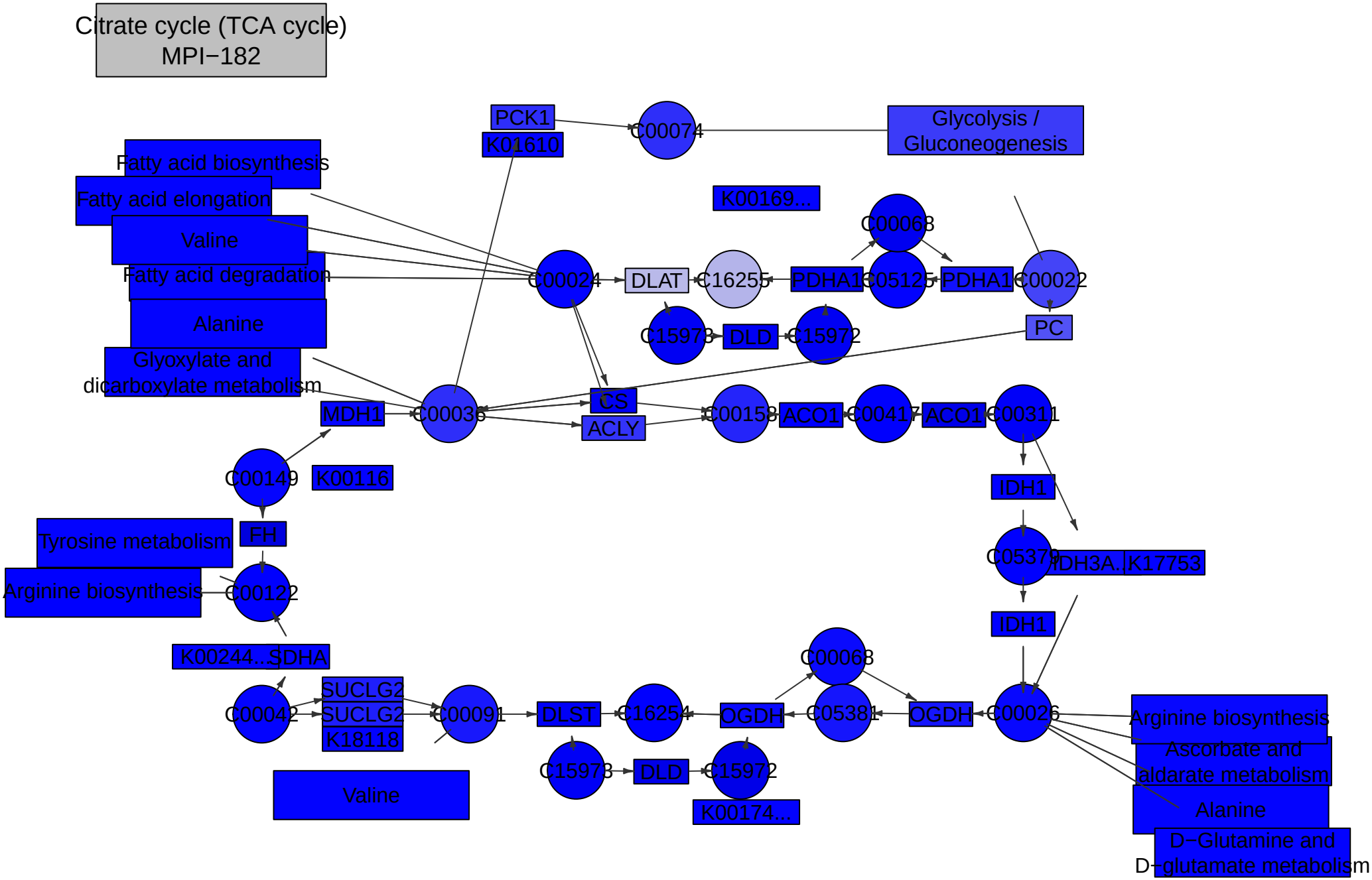
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
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C05125
PDHA1
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C15973
DLD
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ACO1
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ACO1
C00311
C00149
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
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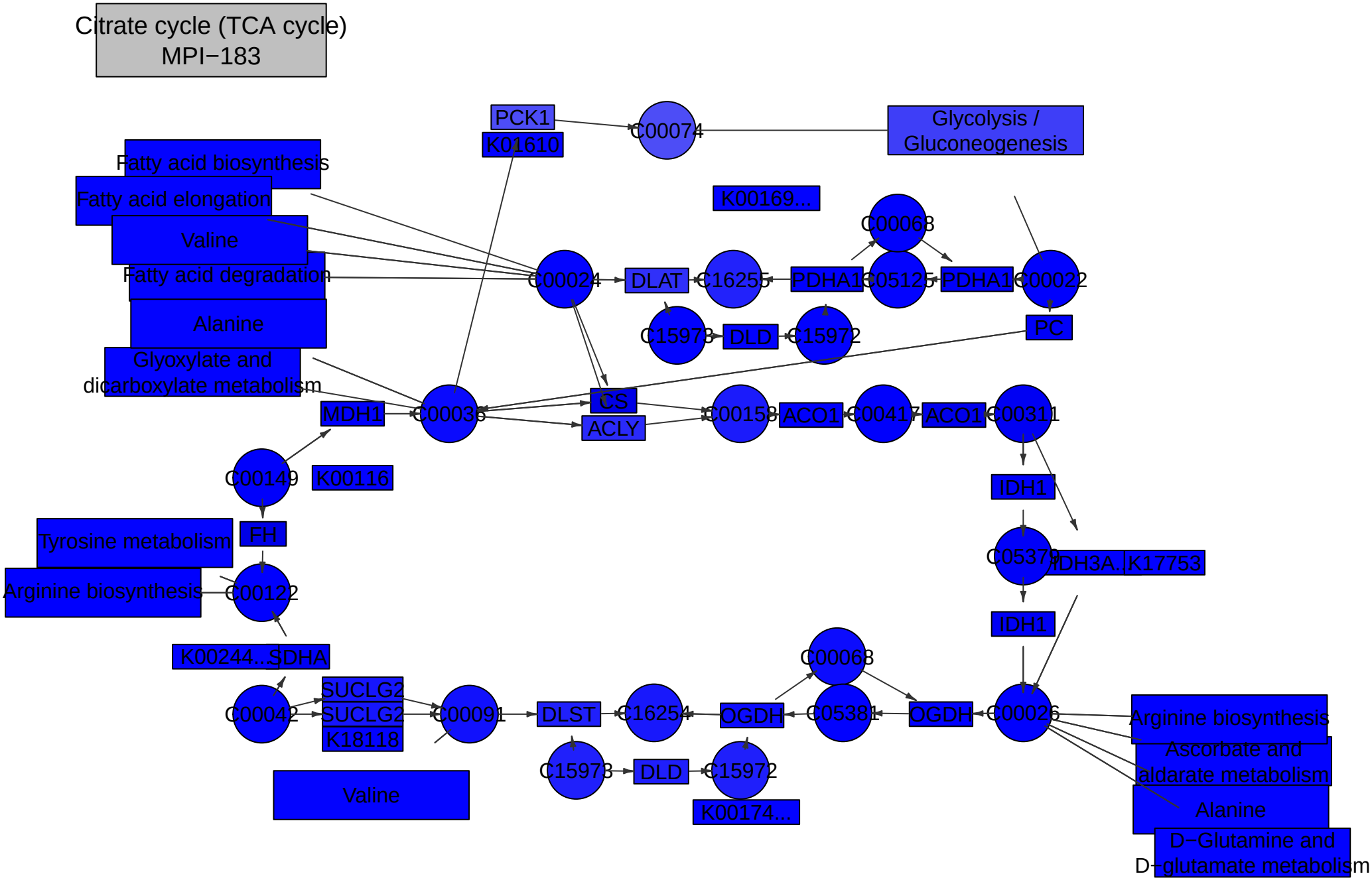
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00024
DLAT
C16255
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C05125
PDHA1
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K00116
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Tyrosine metabolism
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Arginine biosynthesis
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IDH1
K00244..
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SUCLG2
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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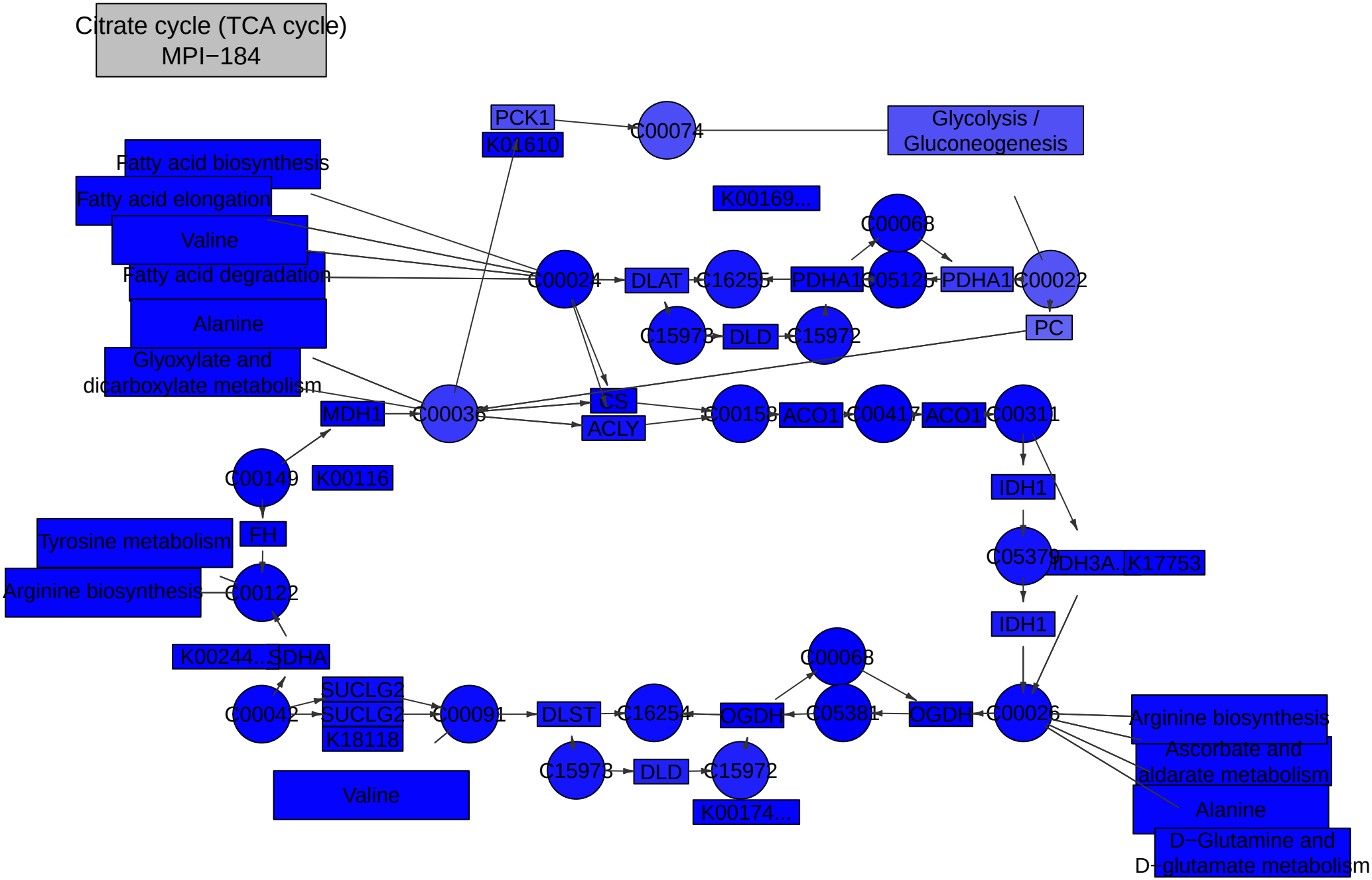
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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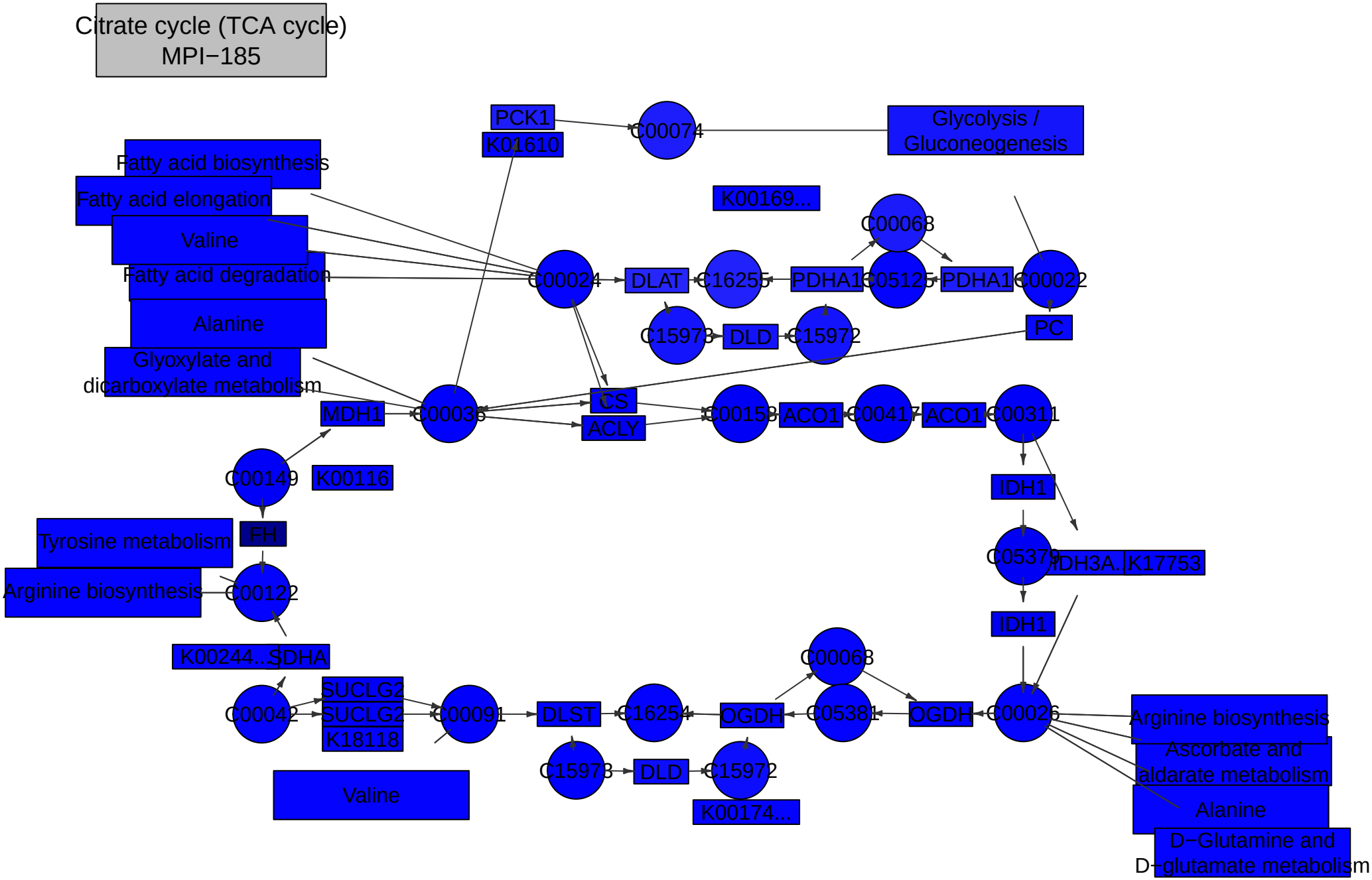
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
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SUCLG2
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C05381
OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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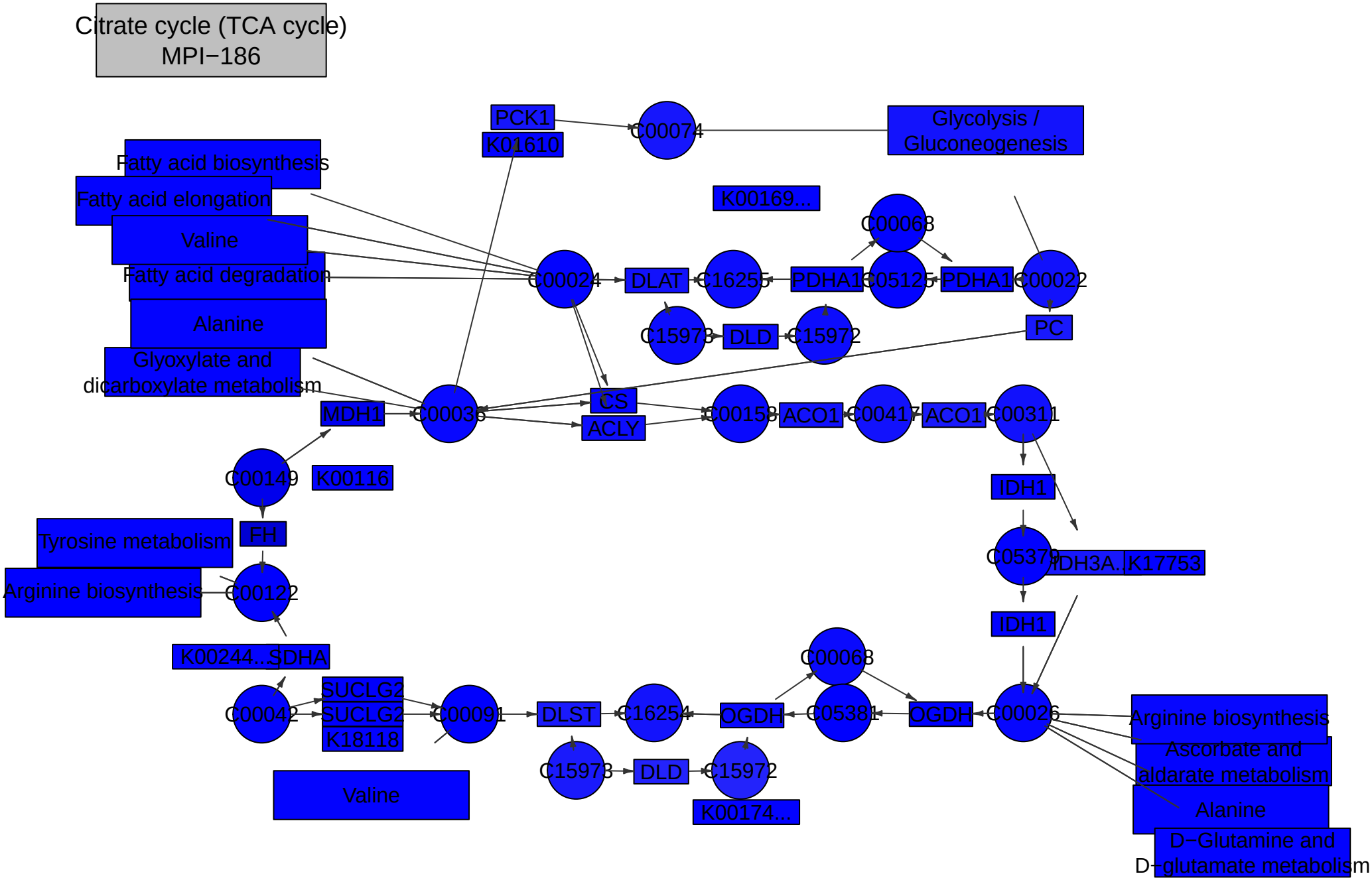
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
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PDHA1
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K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
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C05378
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IDH1
K00244..
SDHA
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SUCLG2
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C00091
DLST
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OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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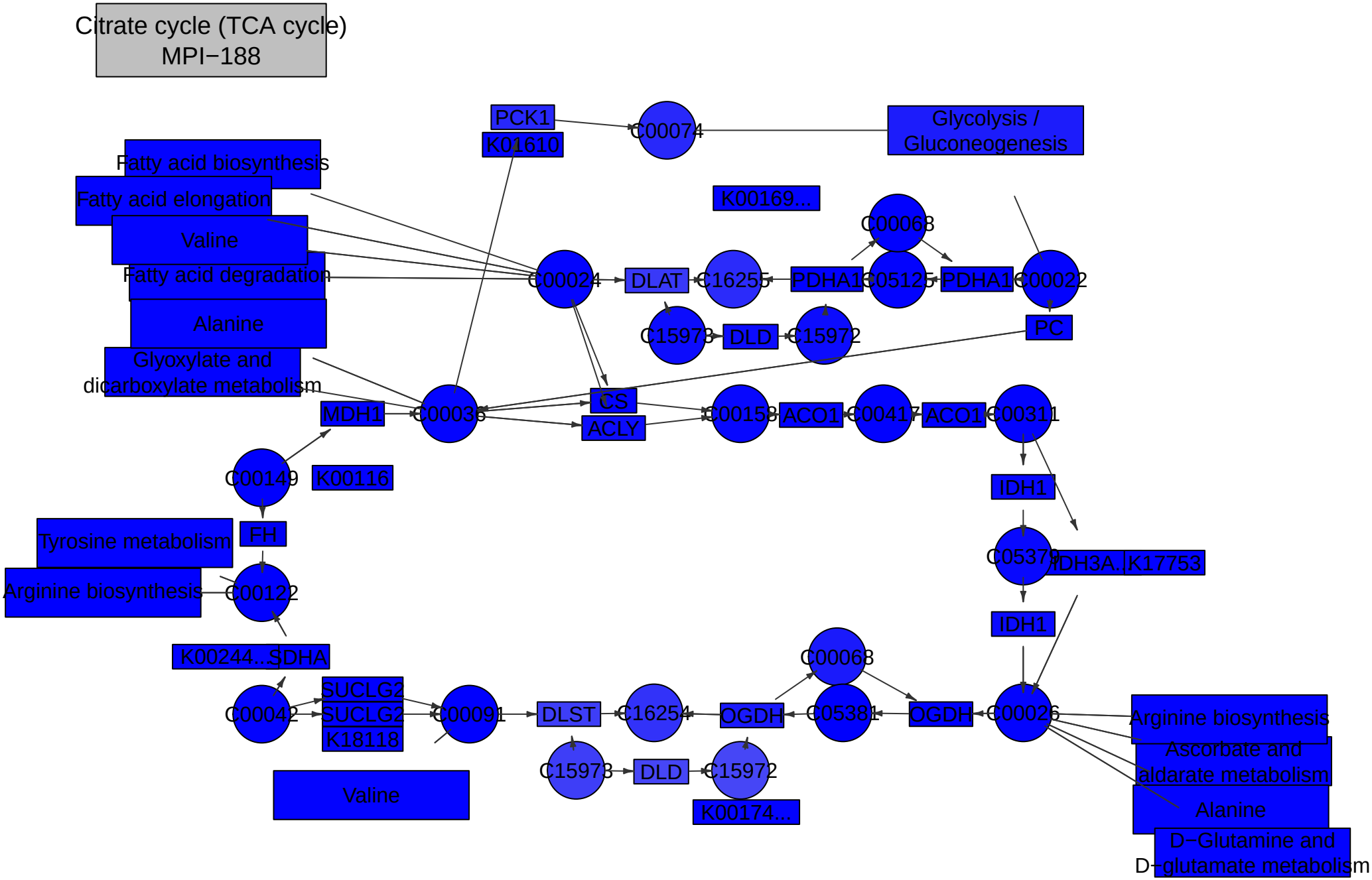
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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DLD
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C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
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K17753
IDH1
K00244..
SDHA
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SUCLG2
K18118
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DLST
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OGDH
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OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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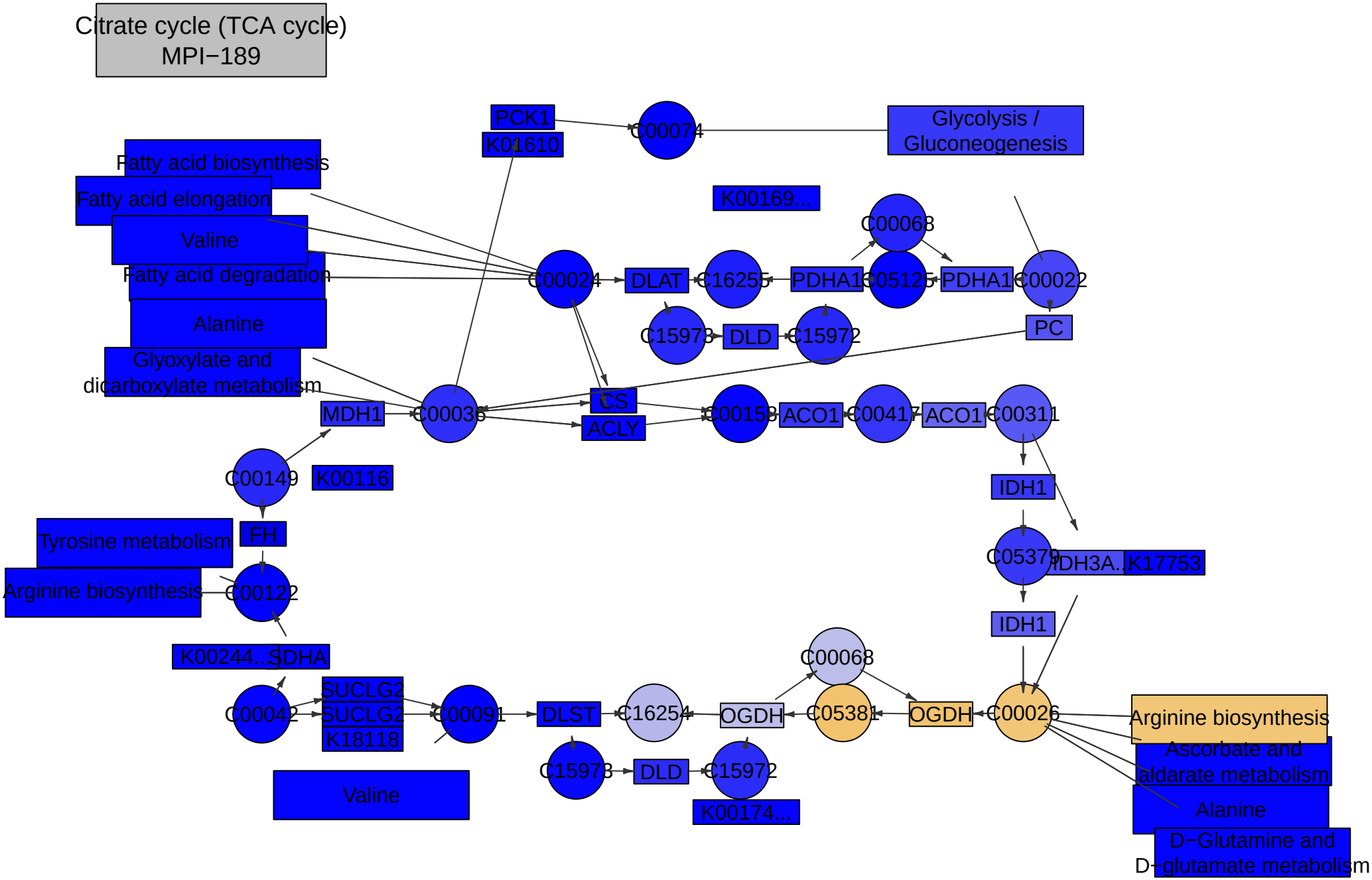
Citrate cycle (TCA cycle)
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C00074
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
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PDHA1
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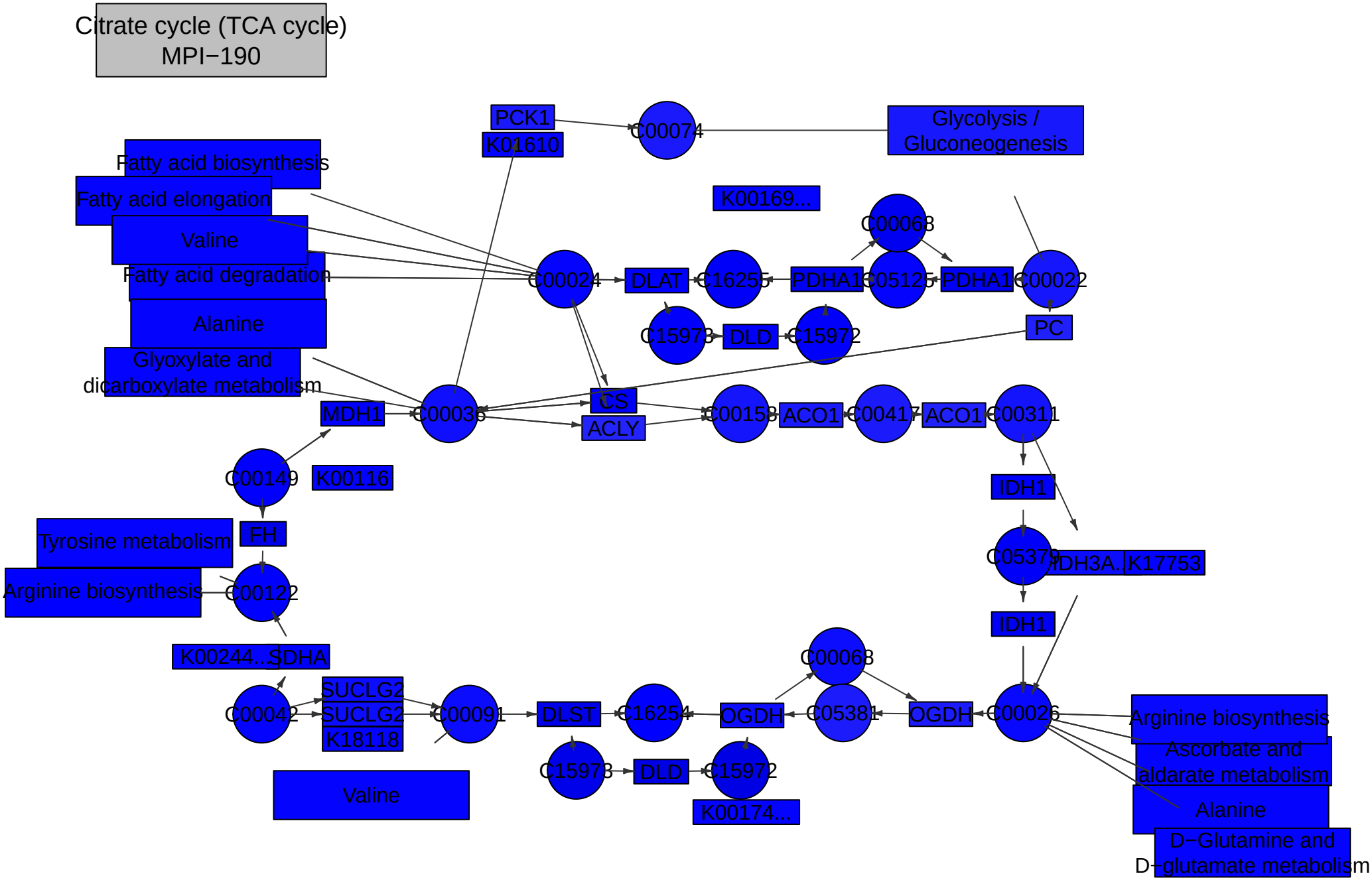
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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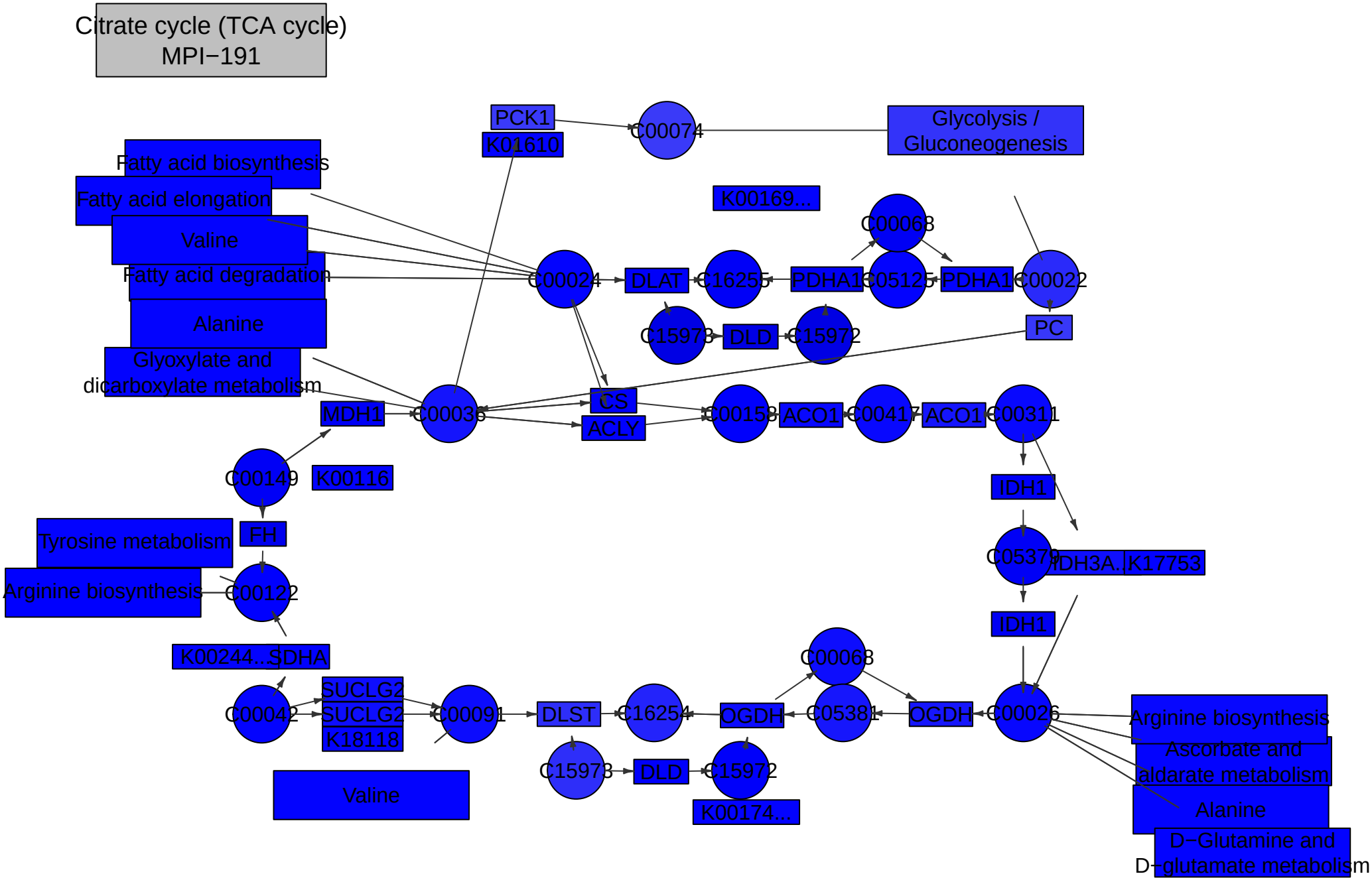
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
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MDH1
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CS
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ACO1
C00417
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C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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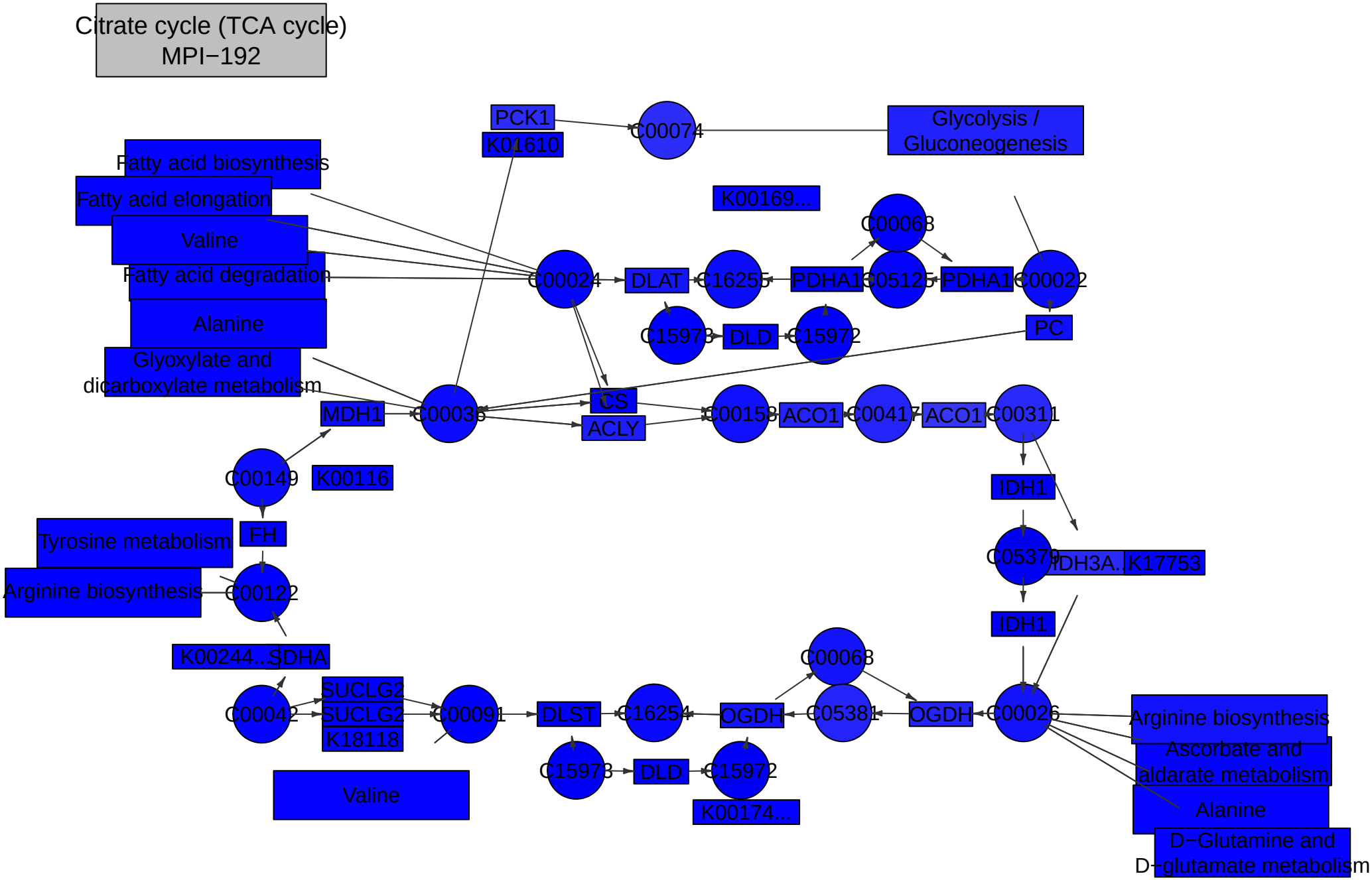
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
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CS
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ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..
SDHA
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C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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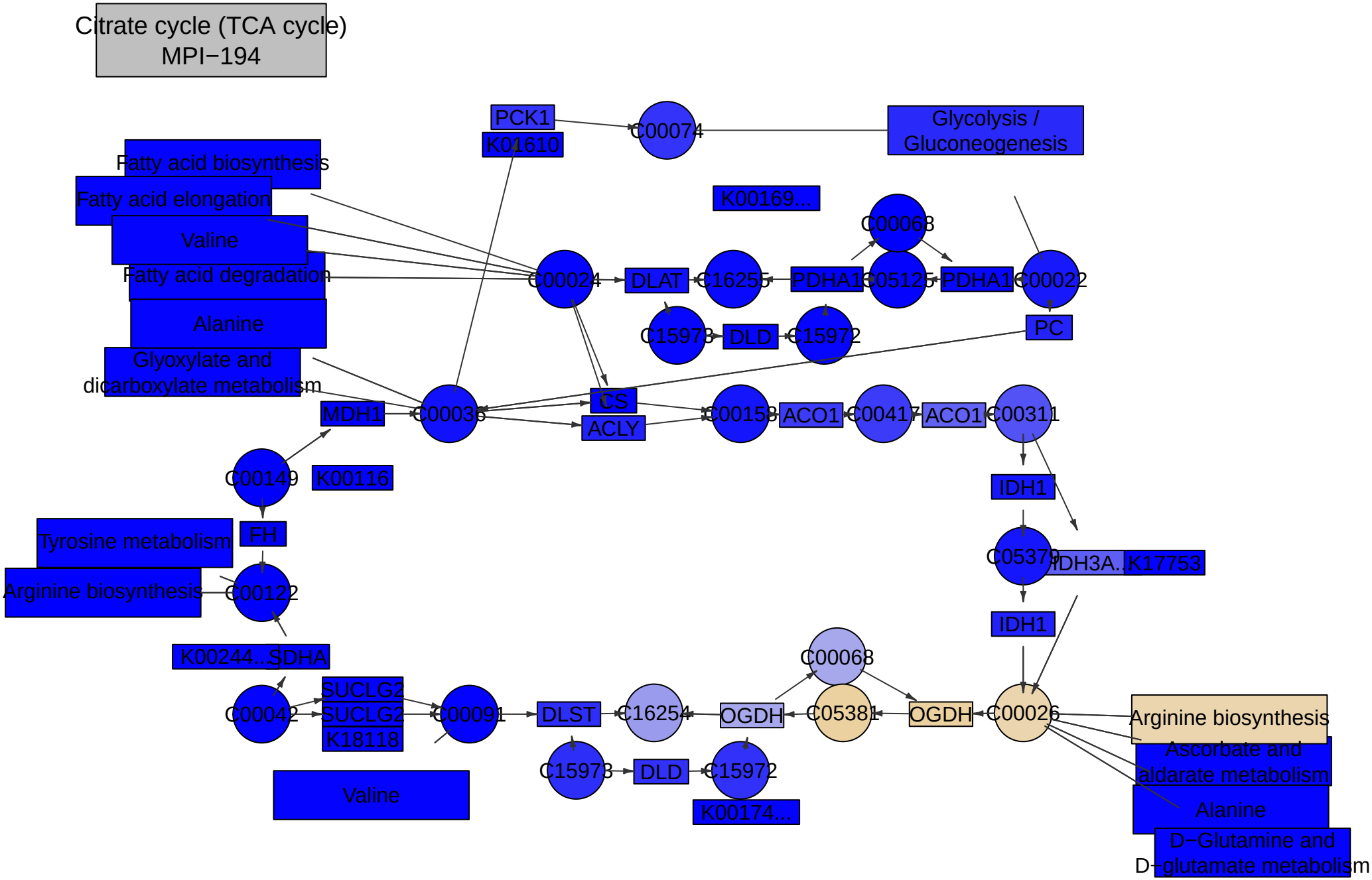
DLD
C15972
K00174...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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
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ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
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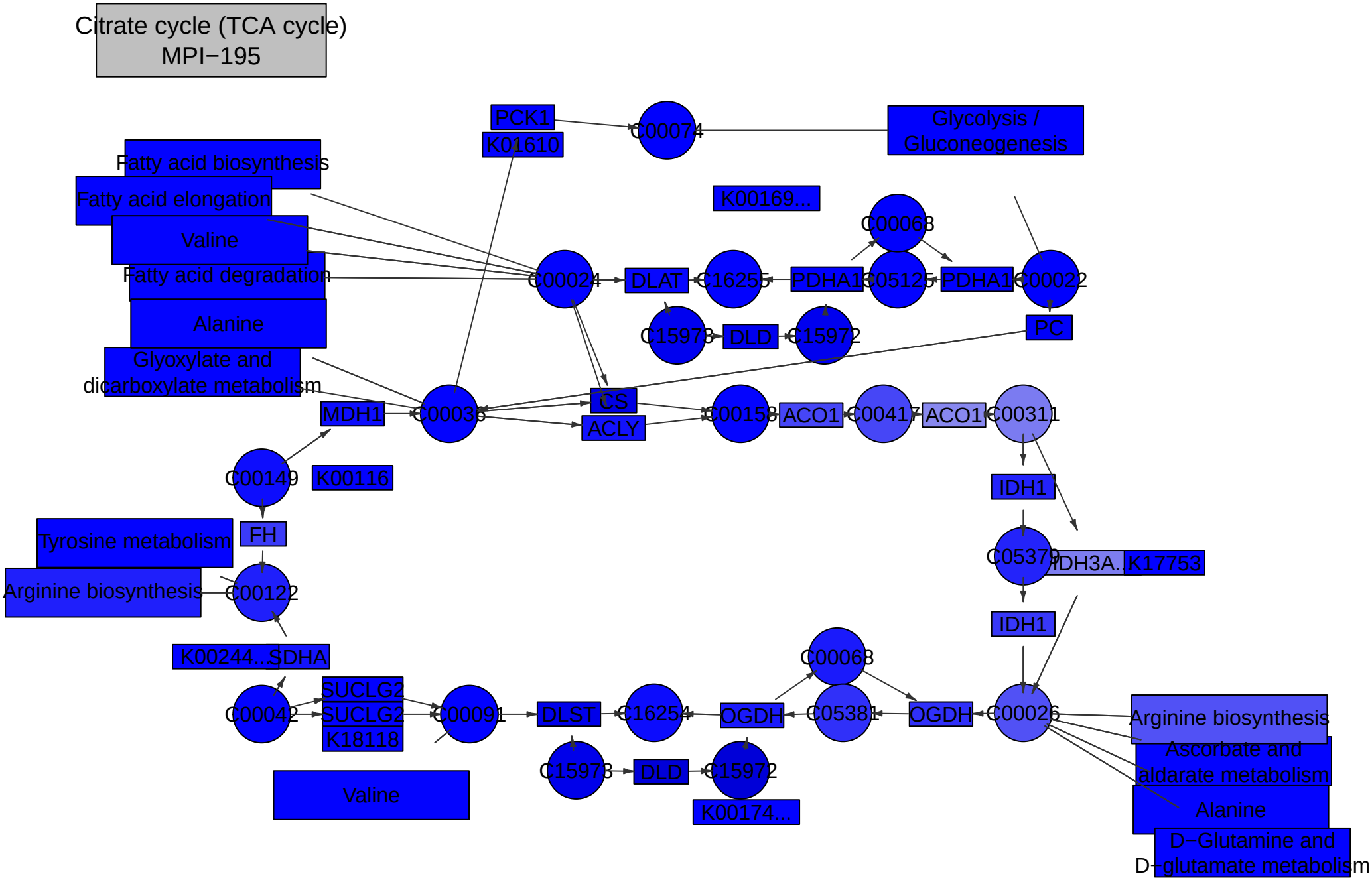
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
PC
C15973
DLD
C15972
MDH1
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CS
ACLY
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ACO1
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C00149
K00116
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Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
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SUCLG2
SUCLG2
K18118
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C00091
DLST
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OGDH
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OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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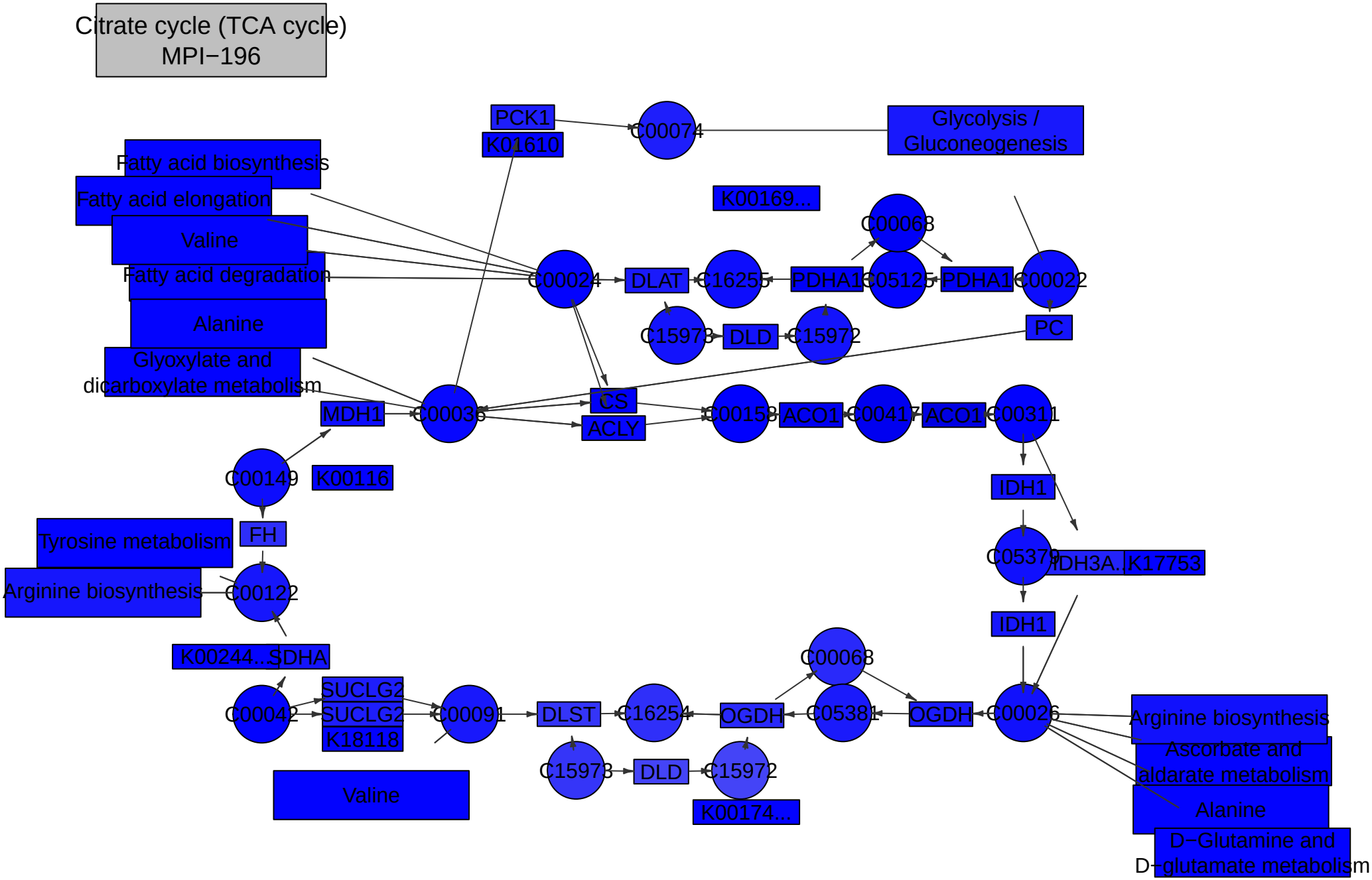
C15972
K00174...


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
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MDH1
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
IDH3A..
K17753
IDH1
K00244..SDHA
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SUCLG2
K18118
C00042
C00091
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OGDH
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
C15973
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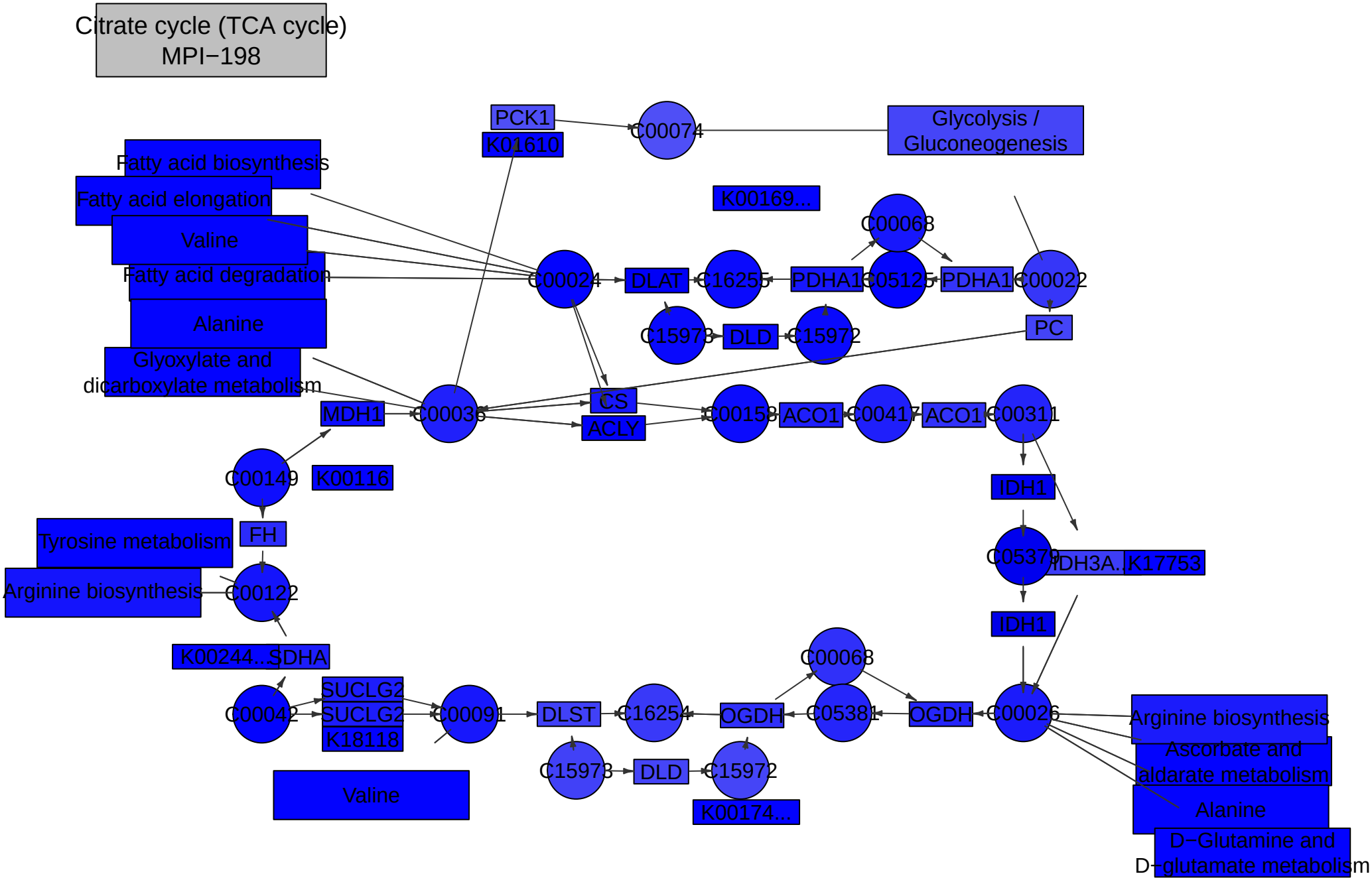
Valine


Citrate cycle (TCA cycle)
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C00074
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
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Arginine biosynthesis
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IDH1
K00244...
SDHA
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OGDH
C05381
OGDH
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Arginine biosynthesis
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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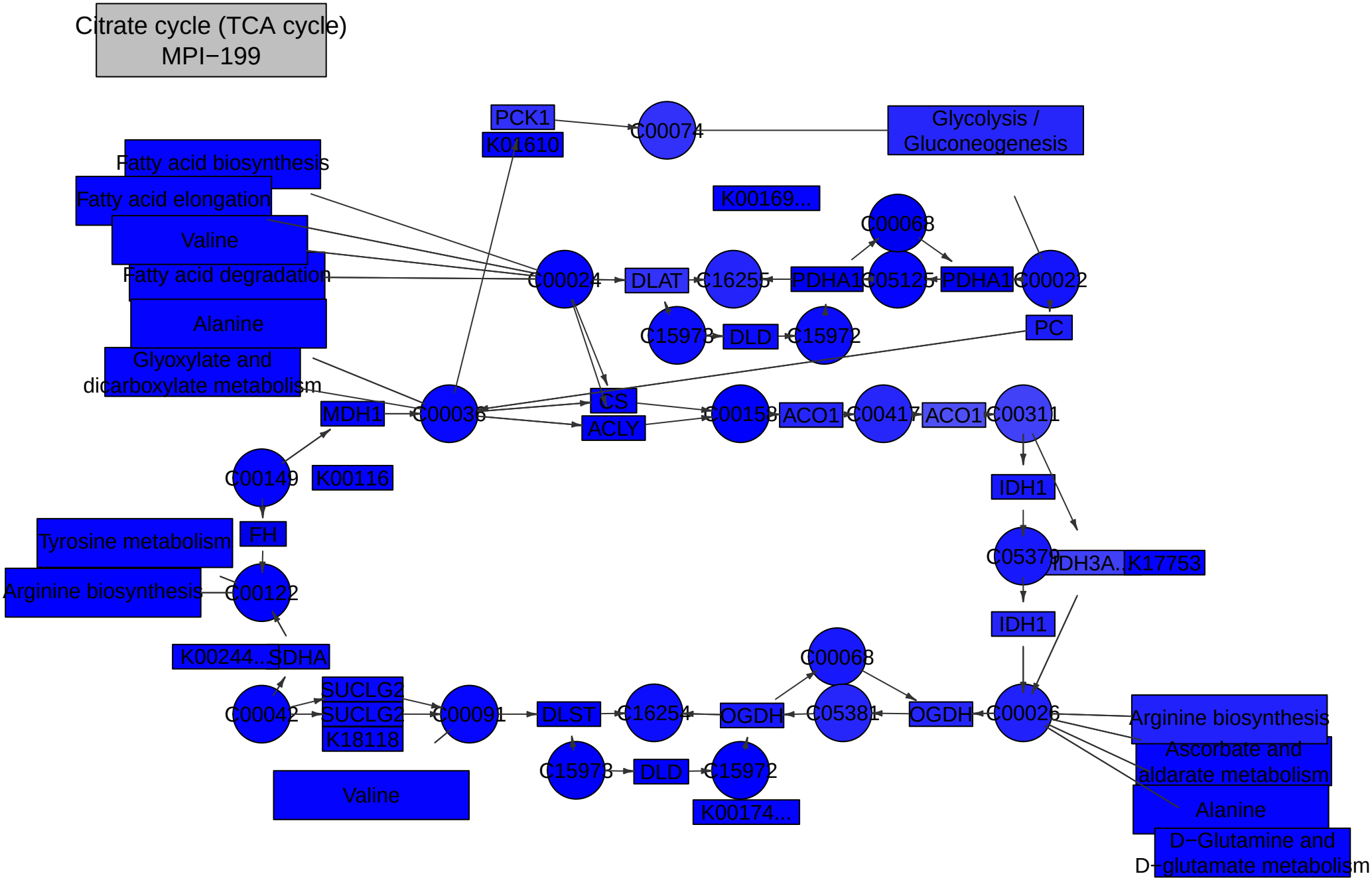
Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
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PDHA1
C00022
C15973
DLD
C15972
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IDH1
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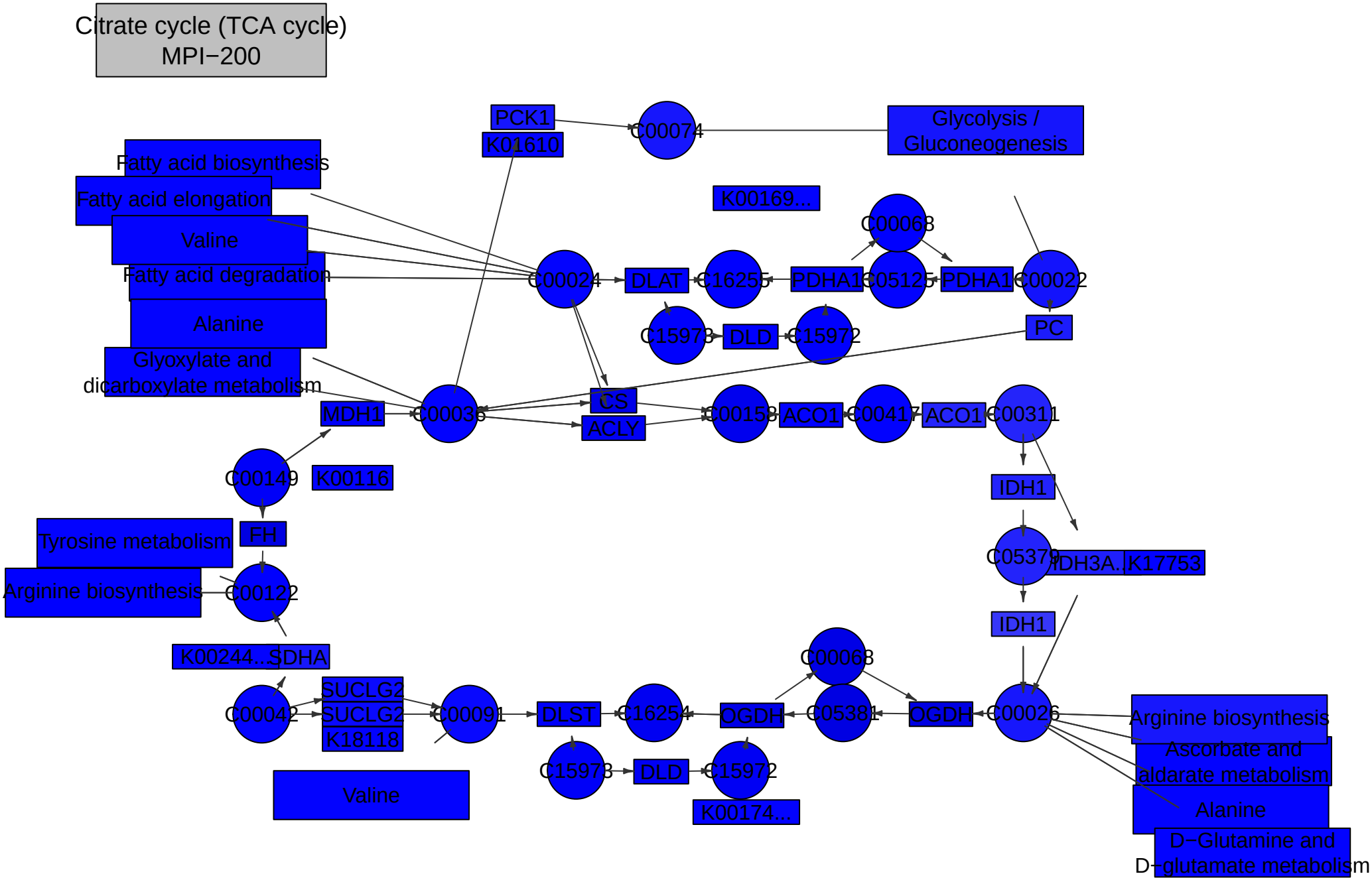
Valine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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLAT
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C05125
PDHA1
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DLD
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ACO1
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ACO1
C00311
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K00116
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Tyrosine metabolism
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C05379
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IDH1
K00244..SDHA
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SUCLG2
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DLST
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OGDH
C05381
OGDH
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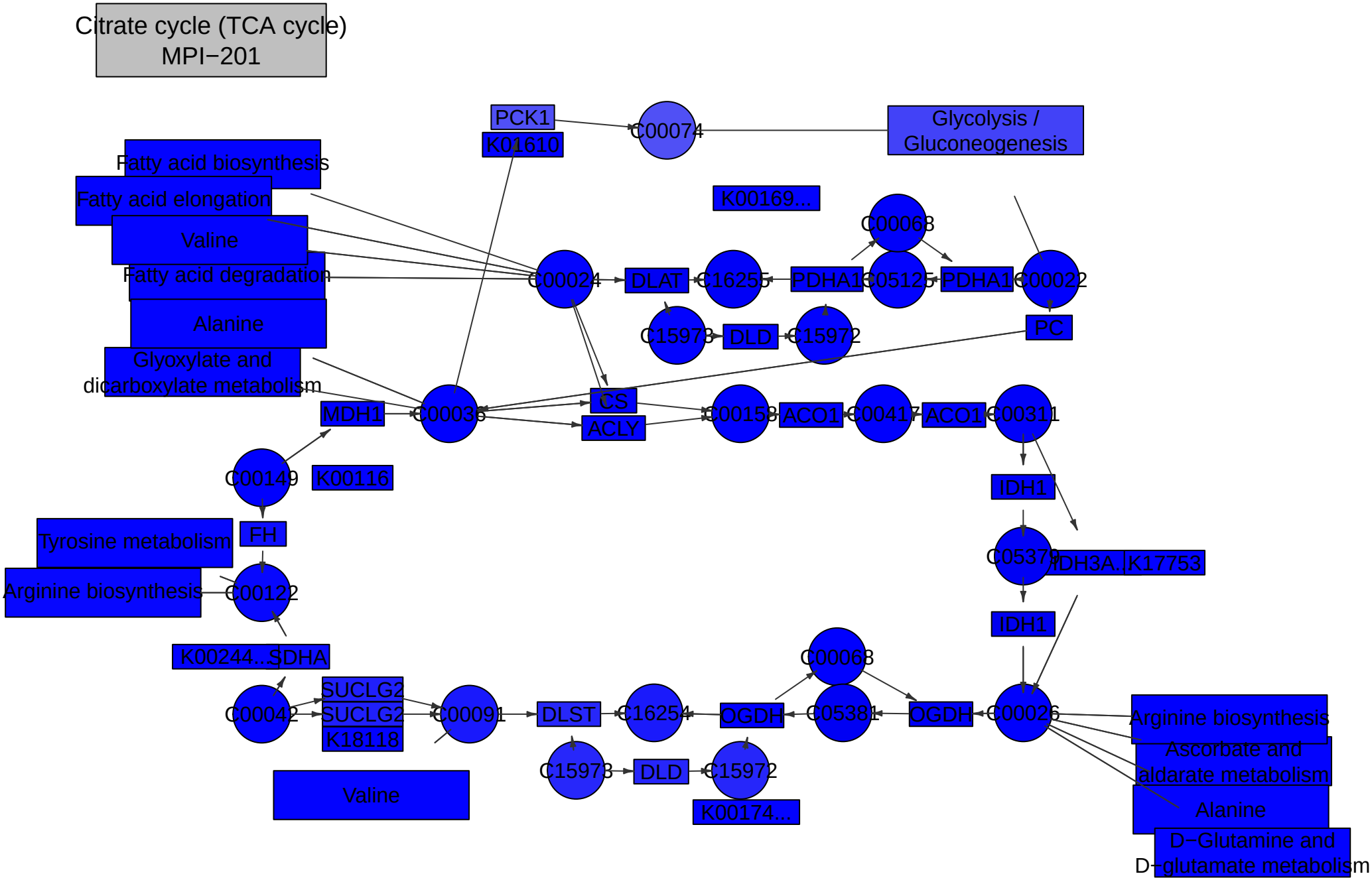
Valine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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLD
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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SUCLG2
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DLST
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OGDH
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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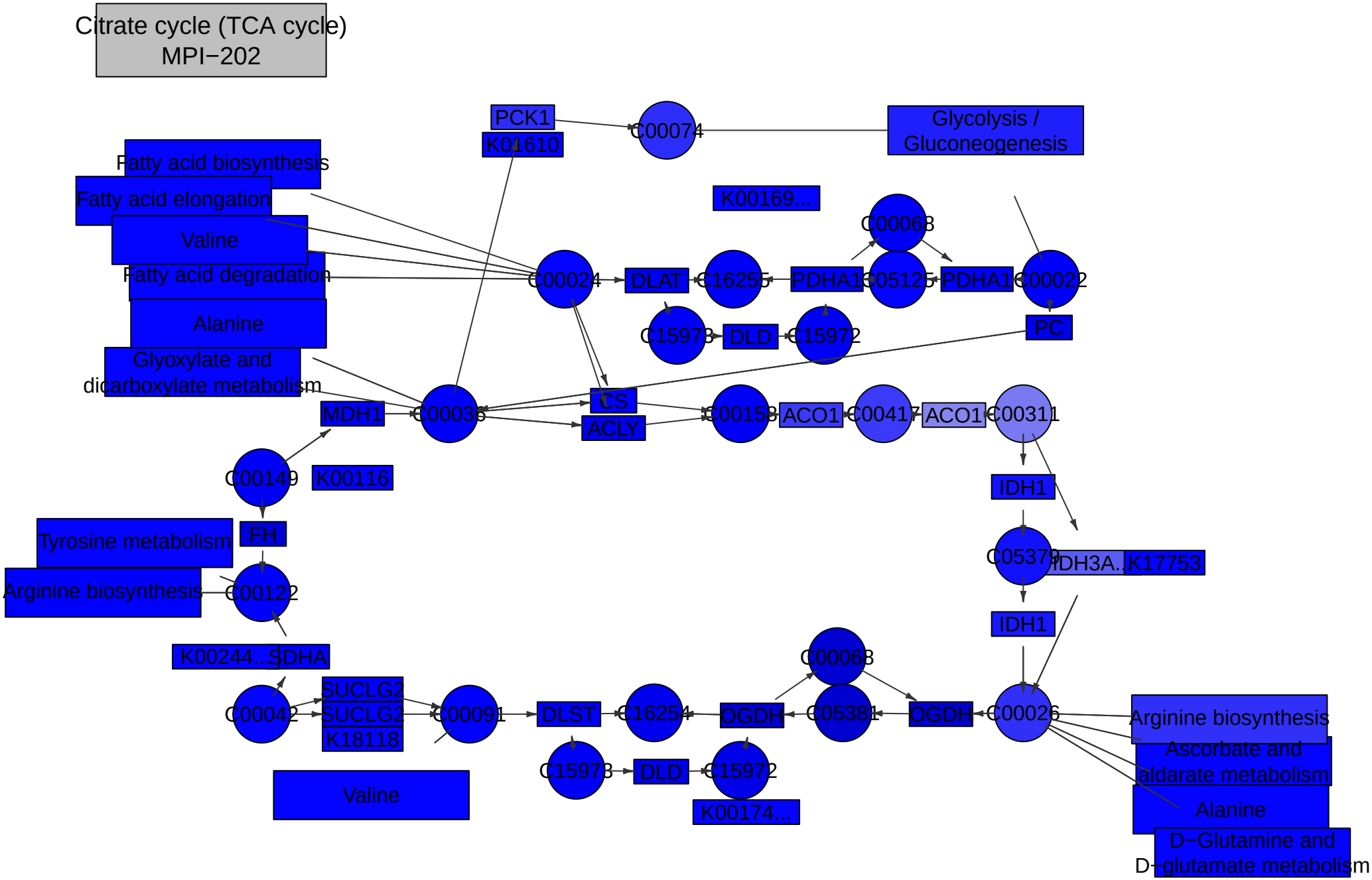
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Alanine
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IDH1
Tyrosine metabolism
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IDH1
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SUCLG2
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
Valine
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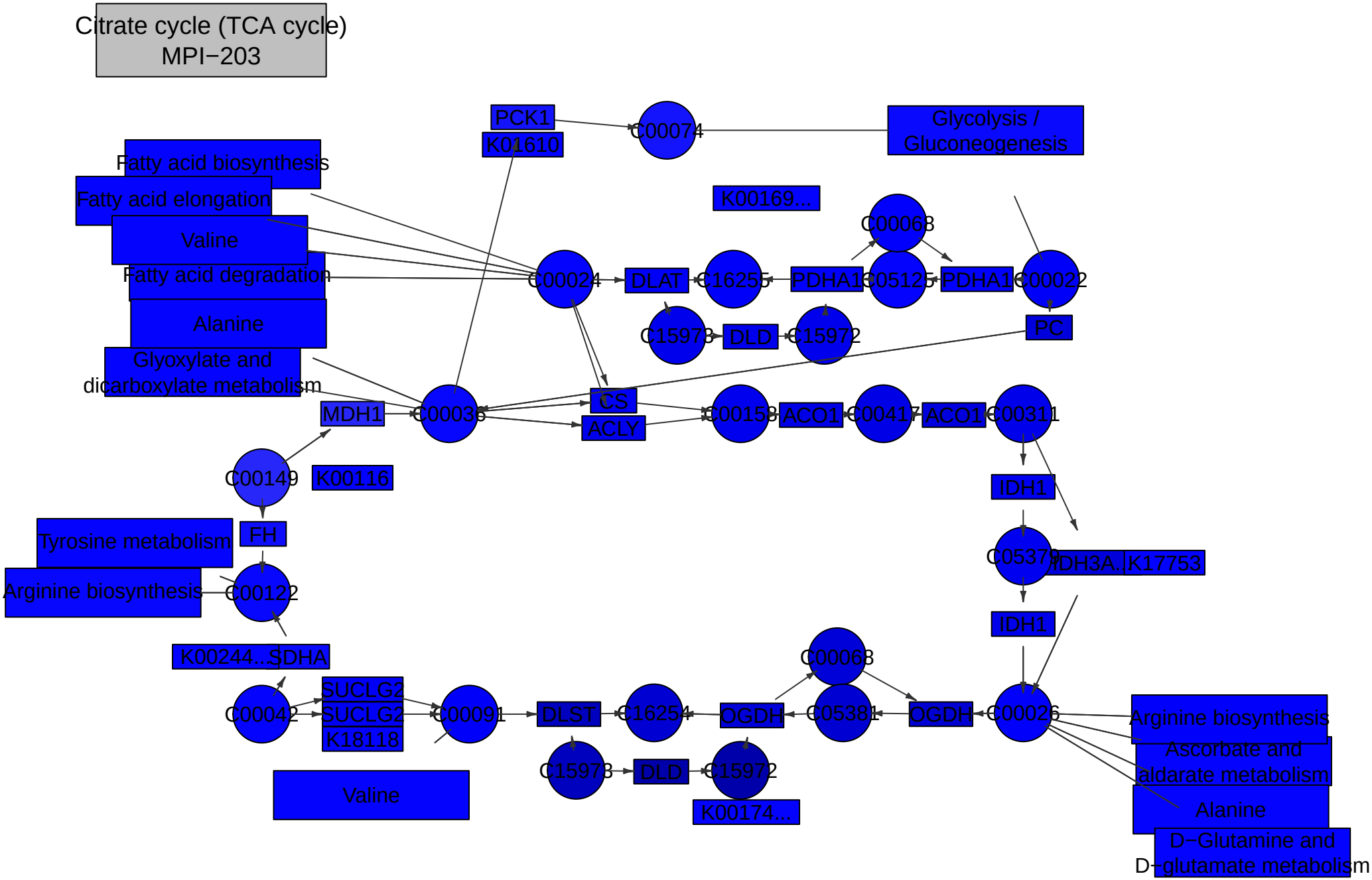
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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Tyrosine metabolism
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IDH1
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OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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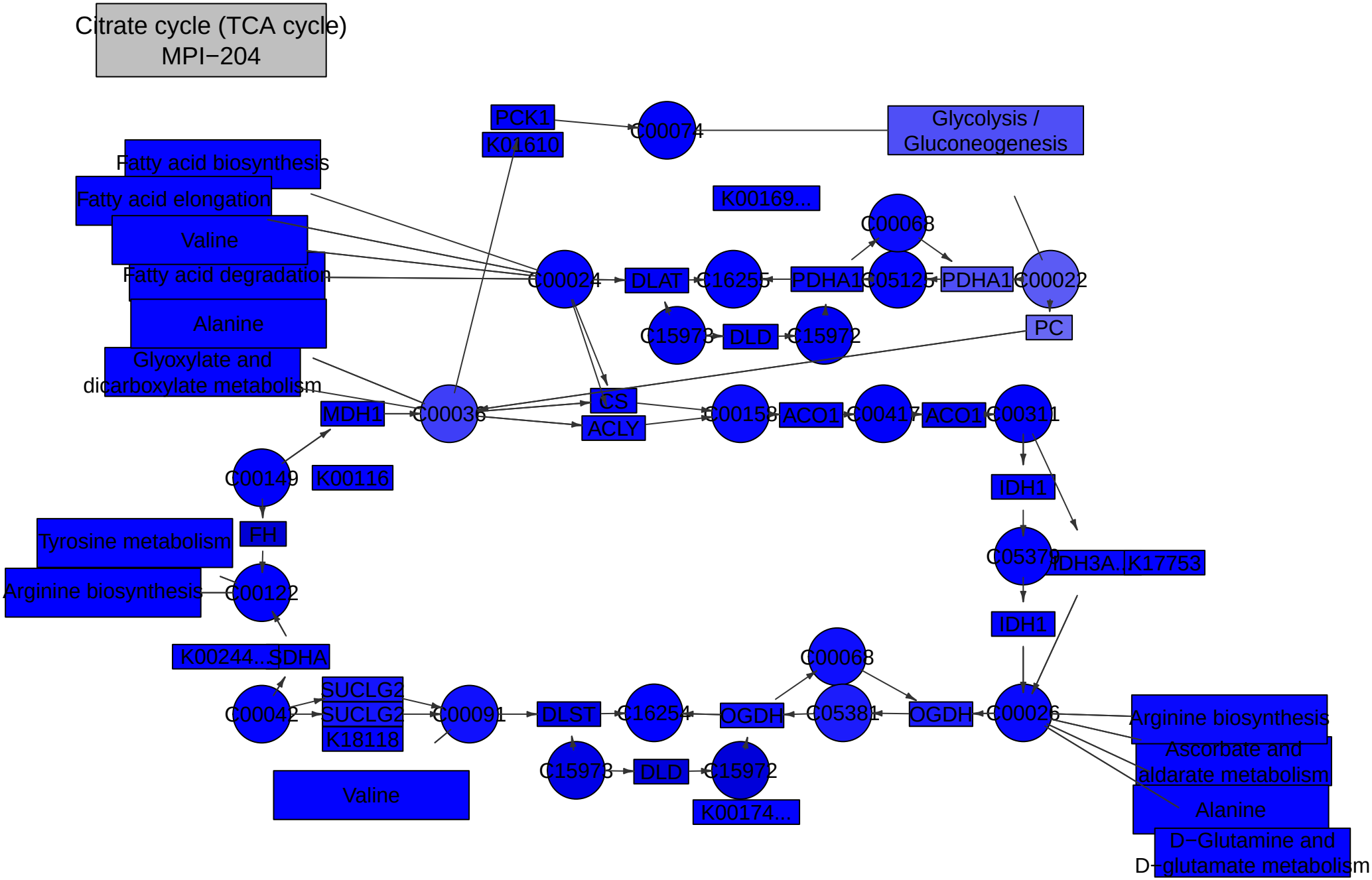
Valine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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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DLAT
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PDHA1
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DLD
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Tyrosine metabolism
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OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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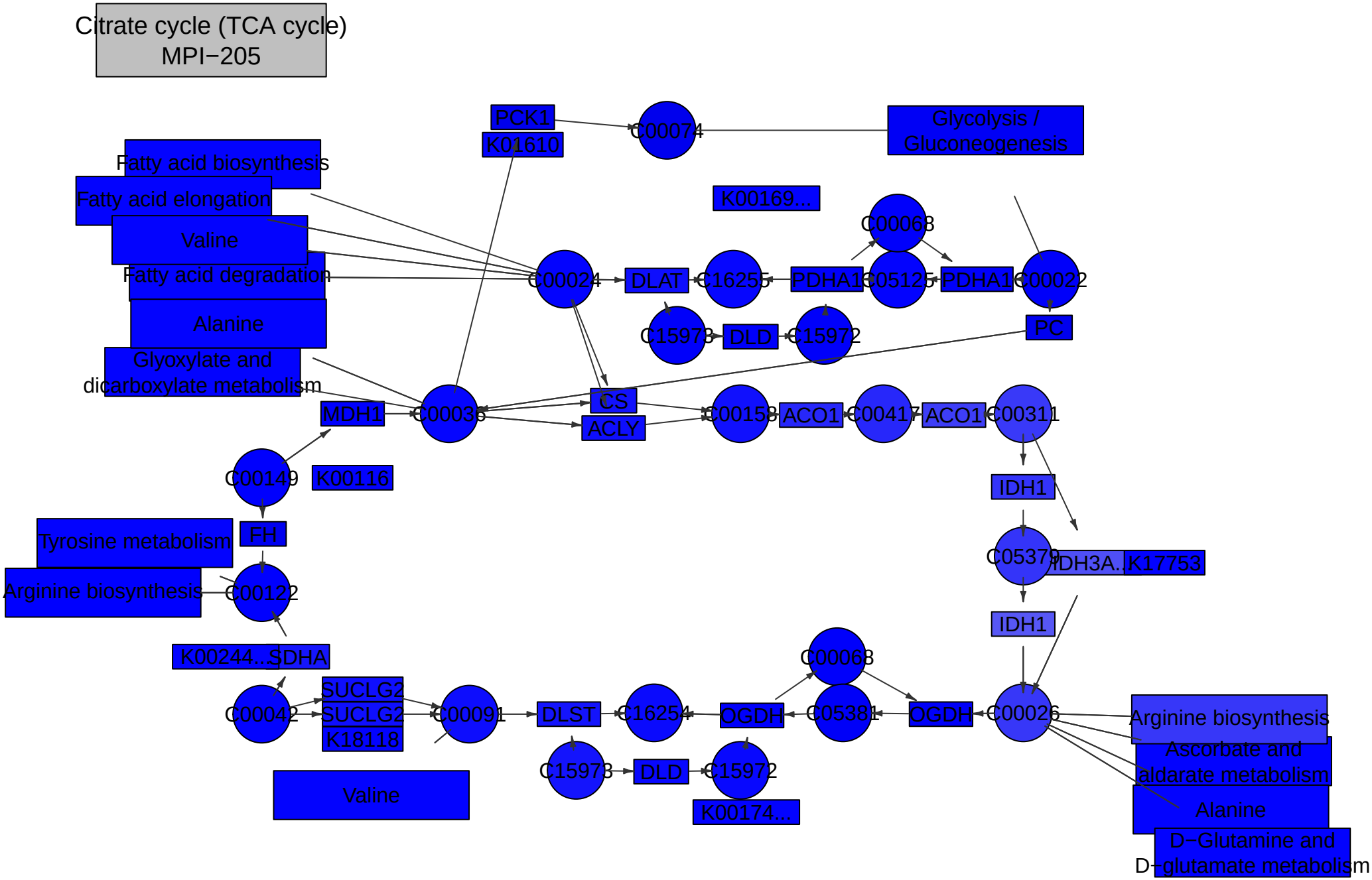
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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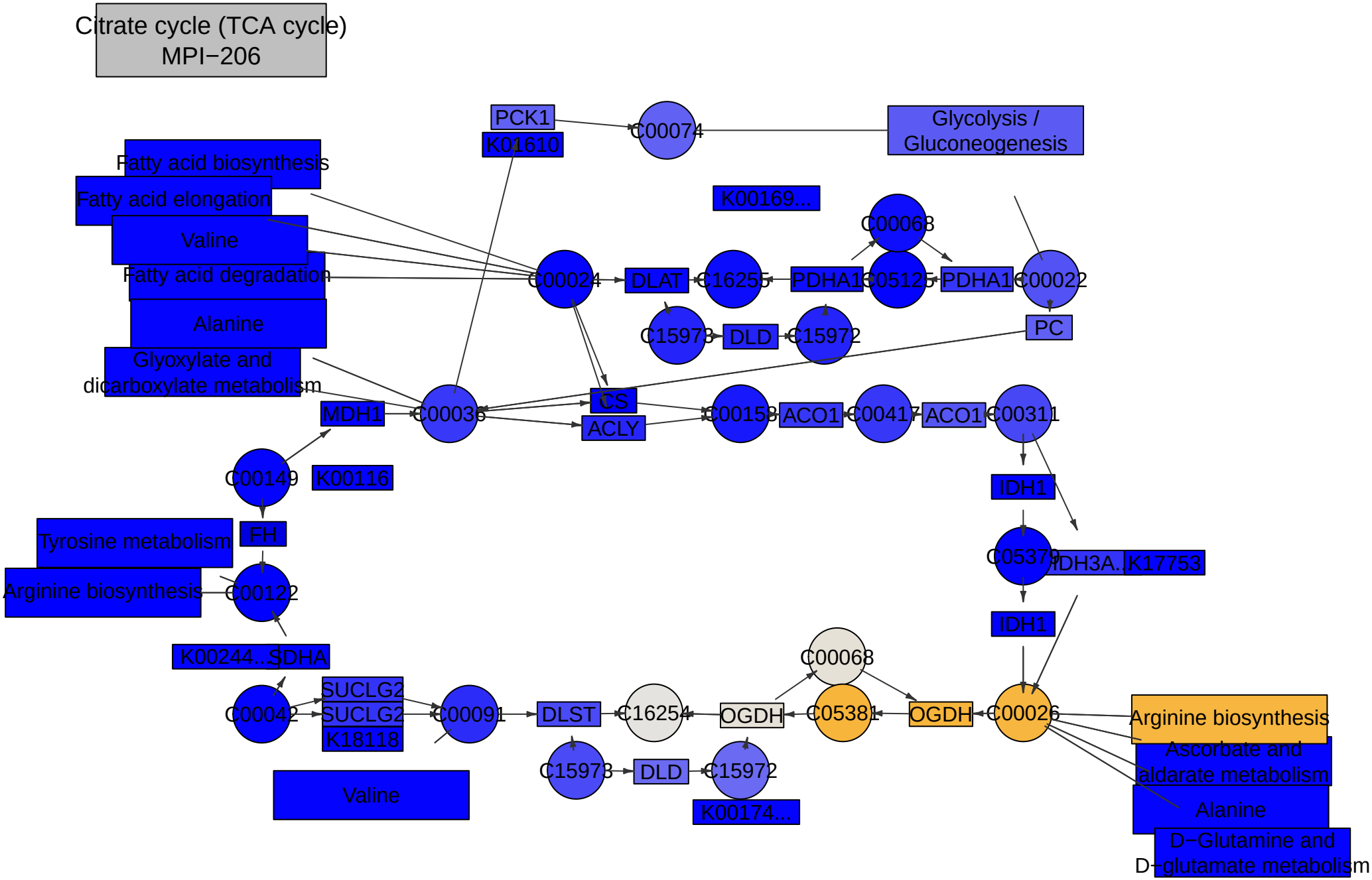
Valine


Citrate cycle (TCA cycle)
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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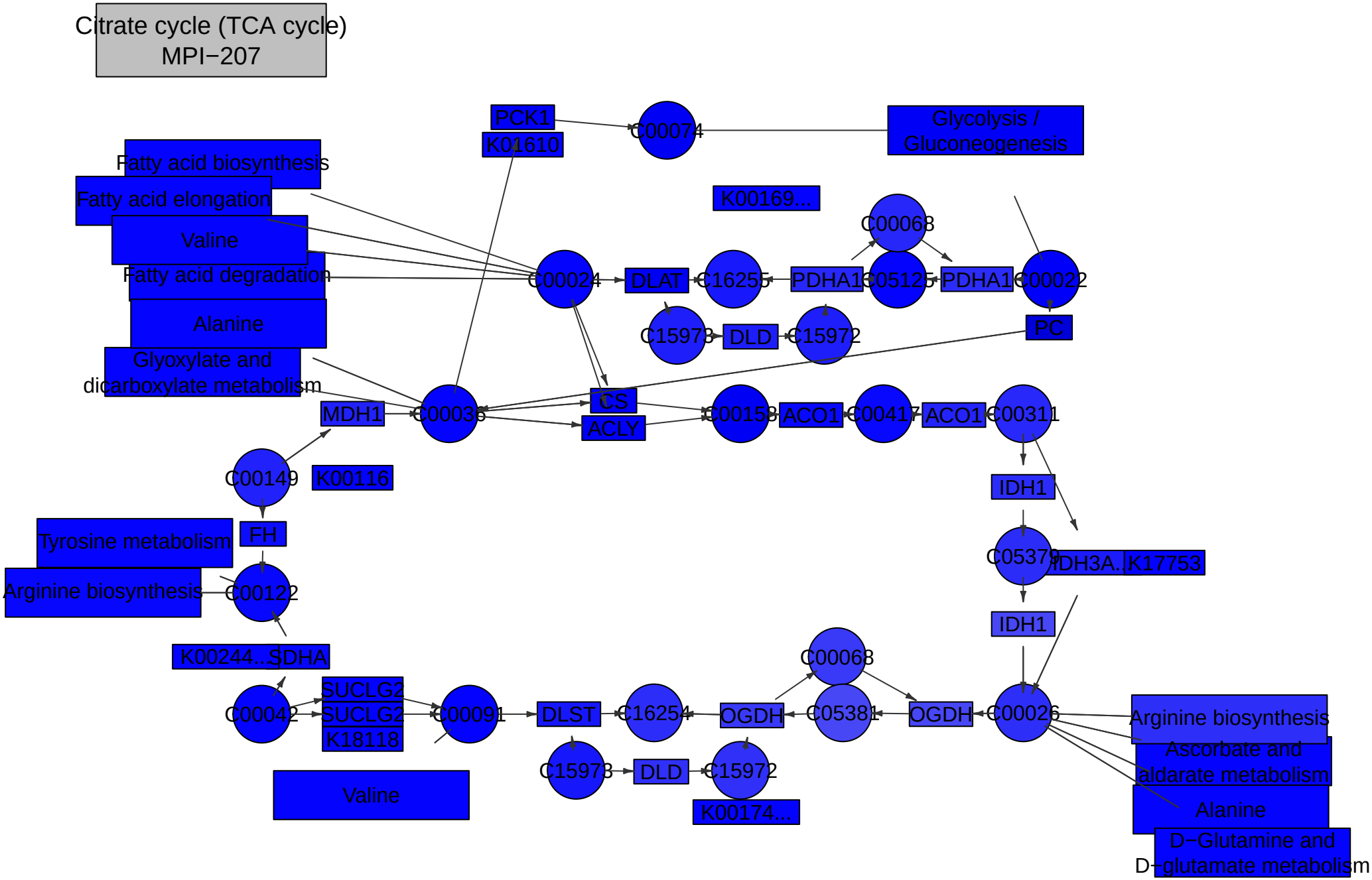
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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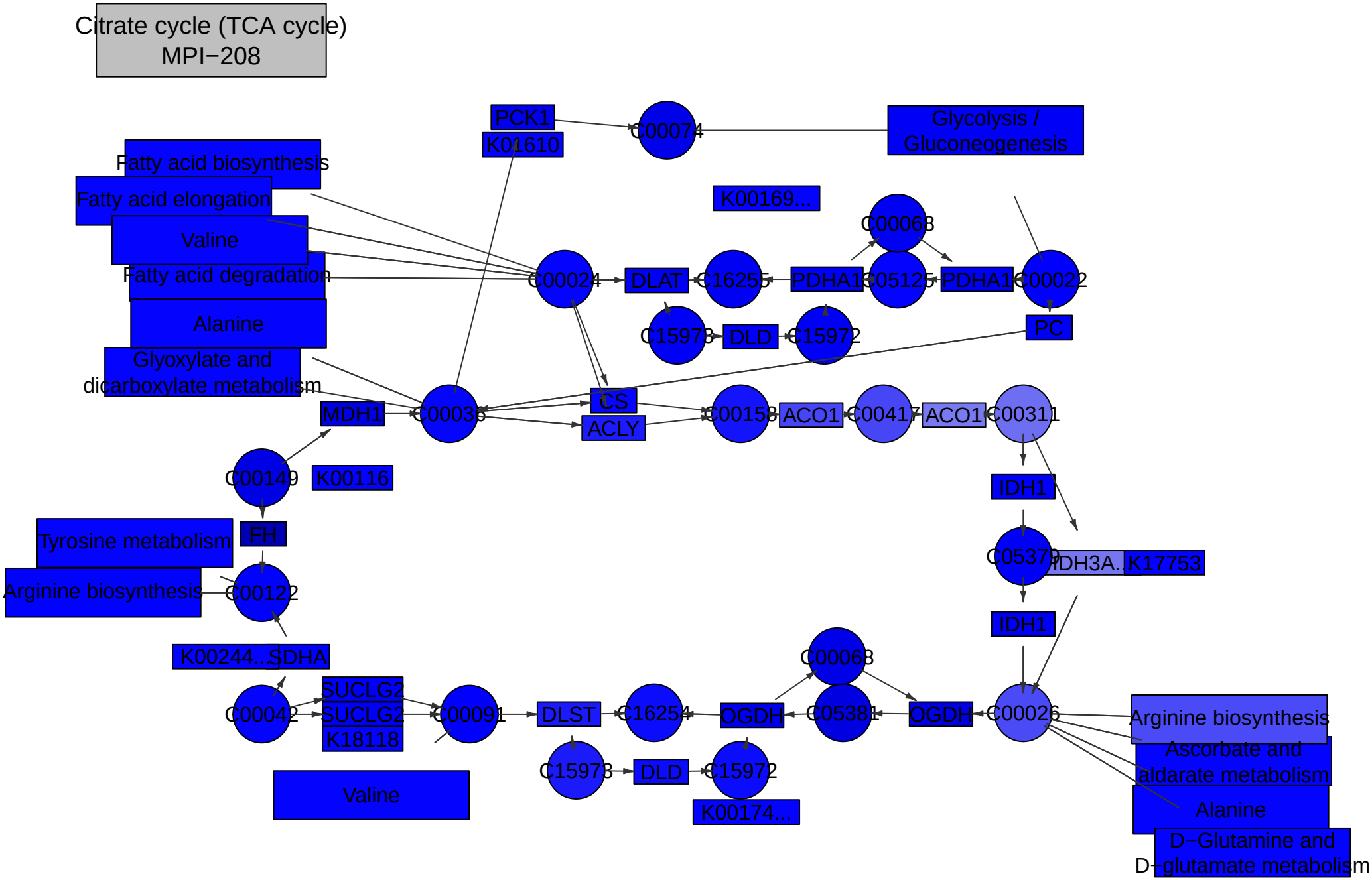
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−208
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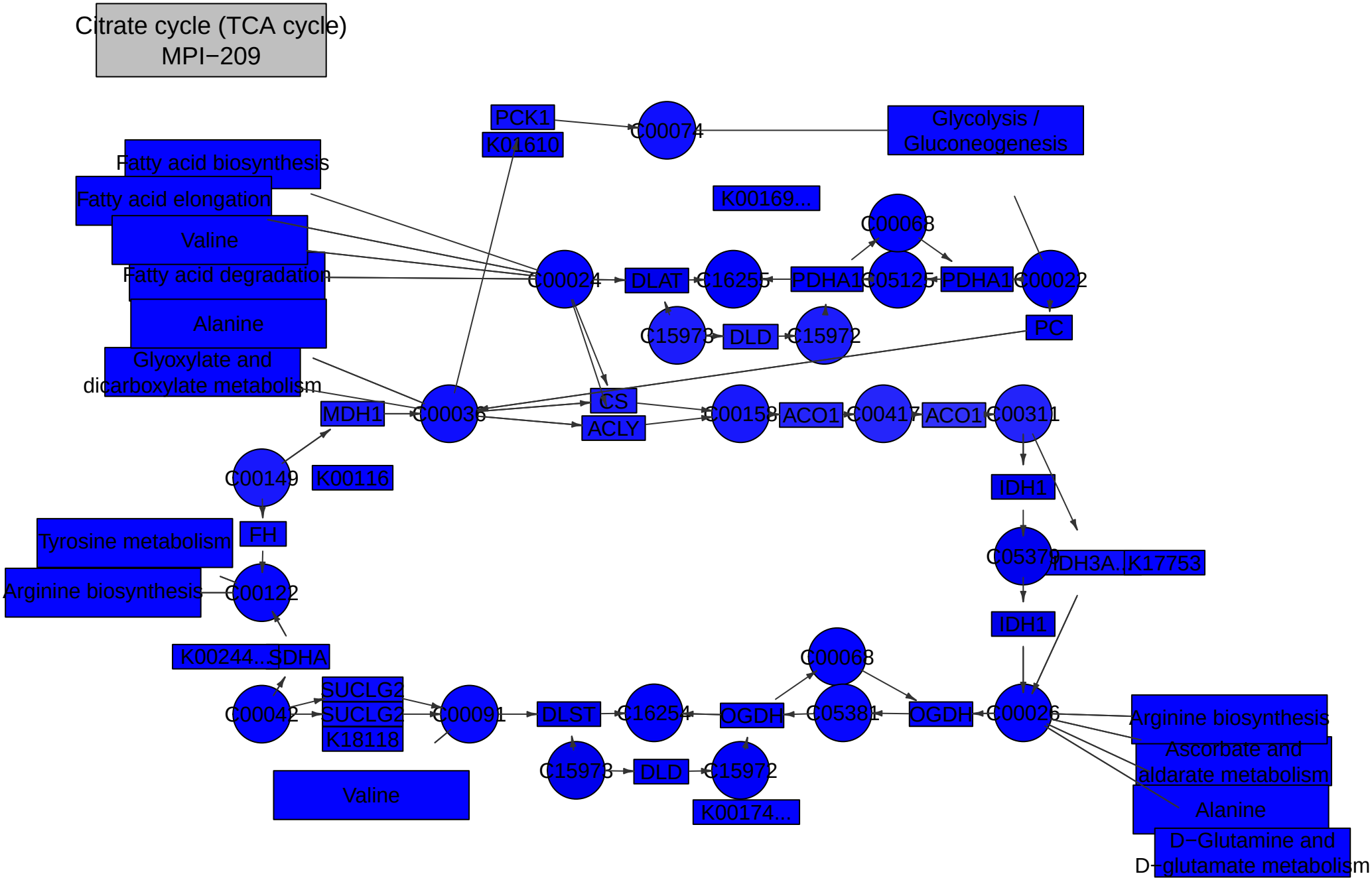
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−209
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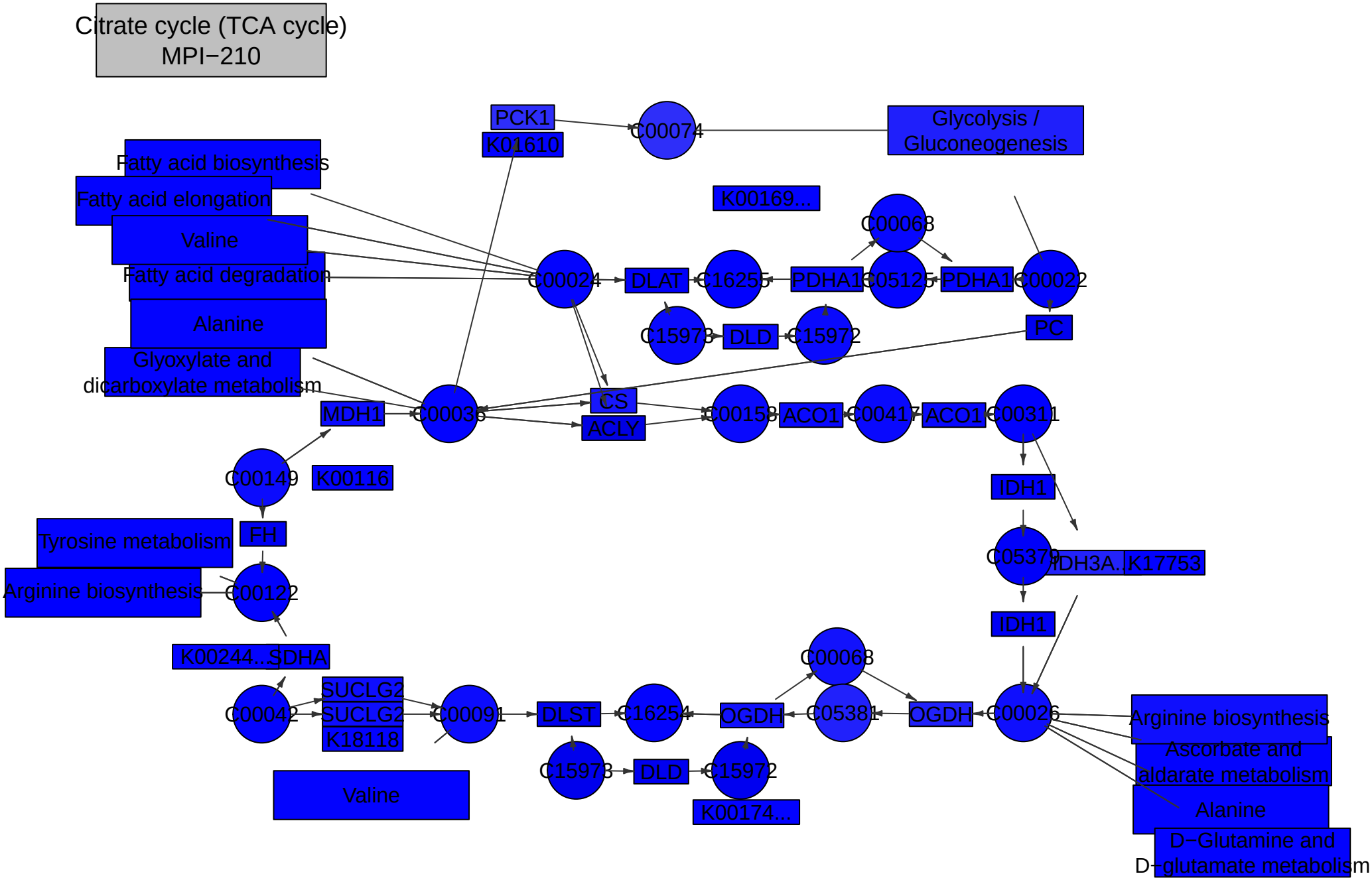
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−210
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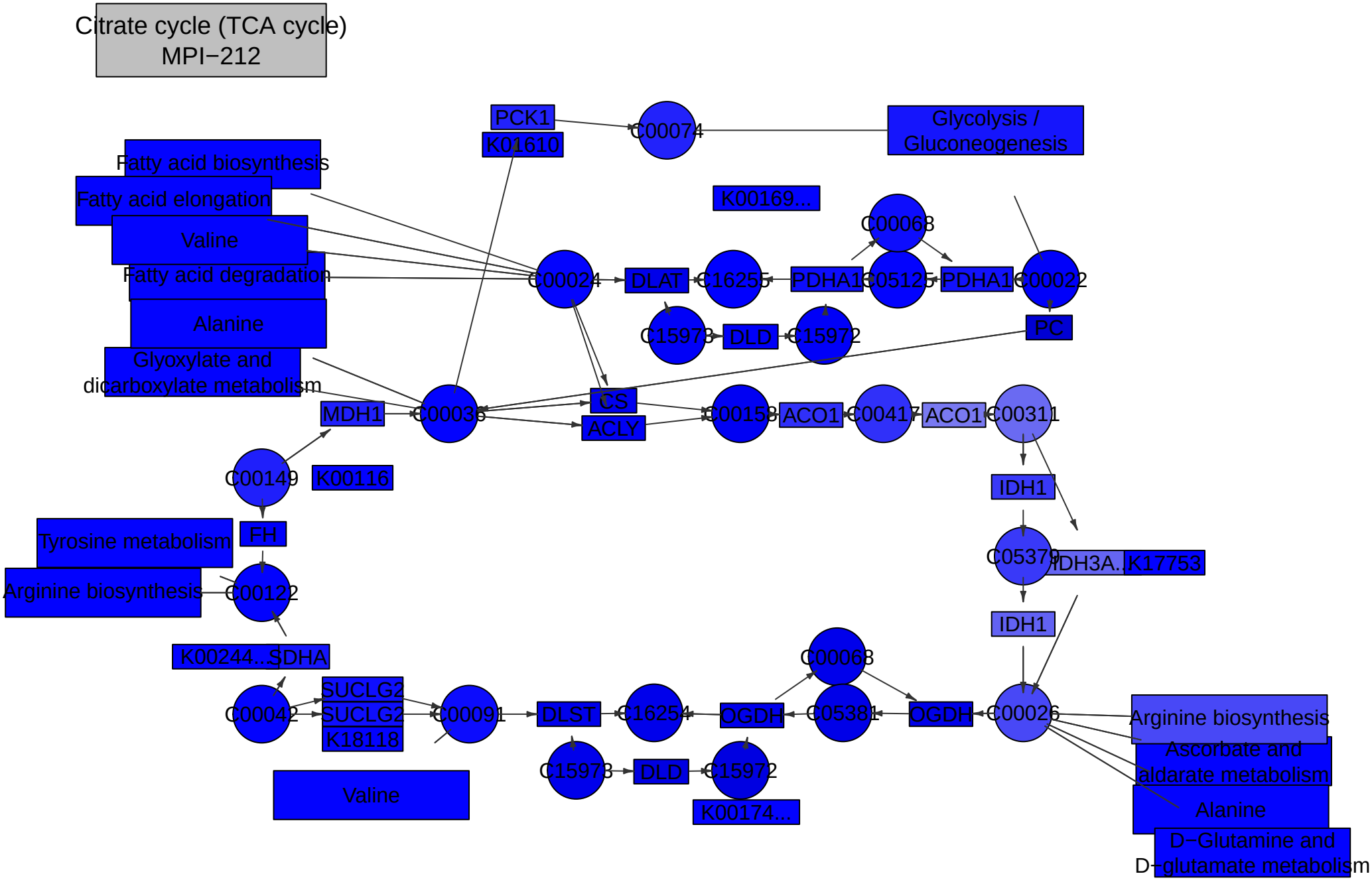
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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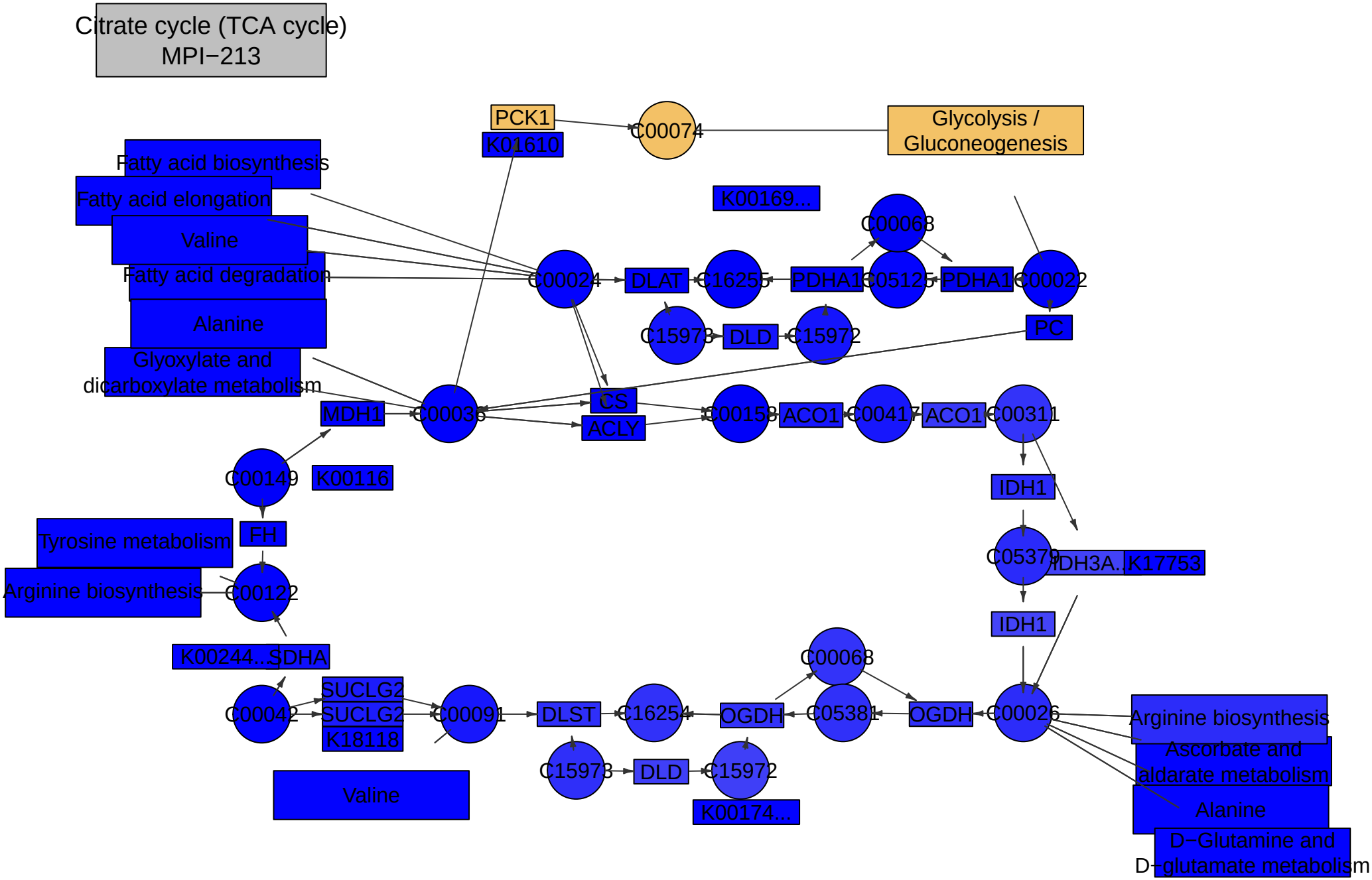
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−213
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
PC
C15973
DLD
C15972
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C00068
C05381
OGDH
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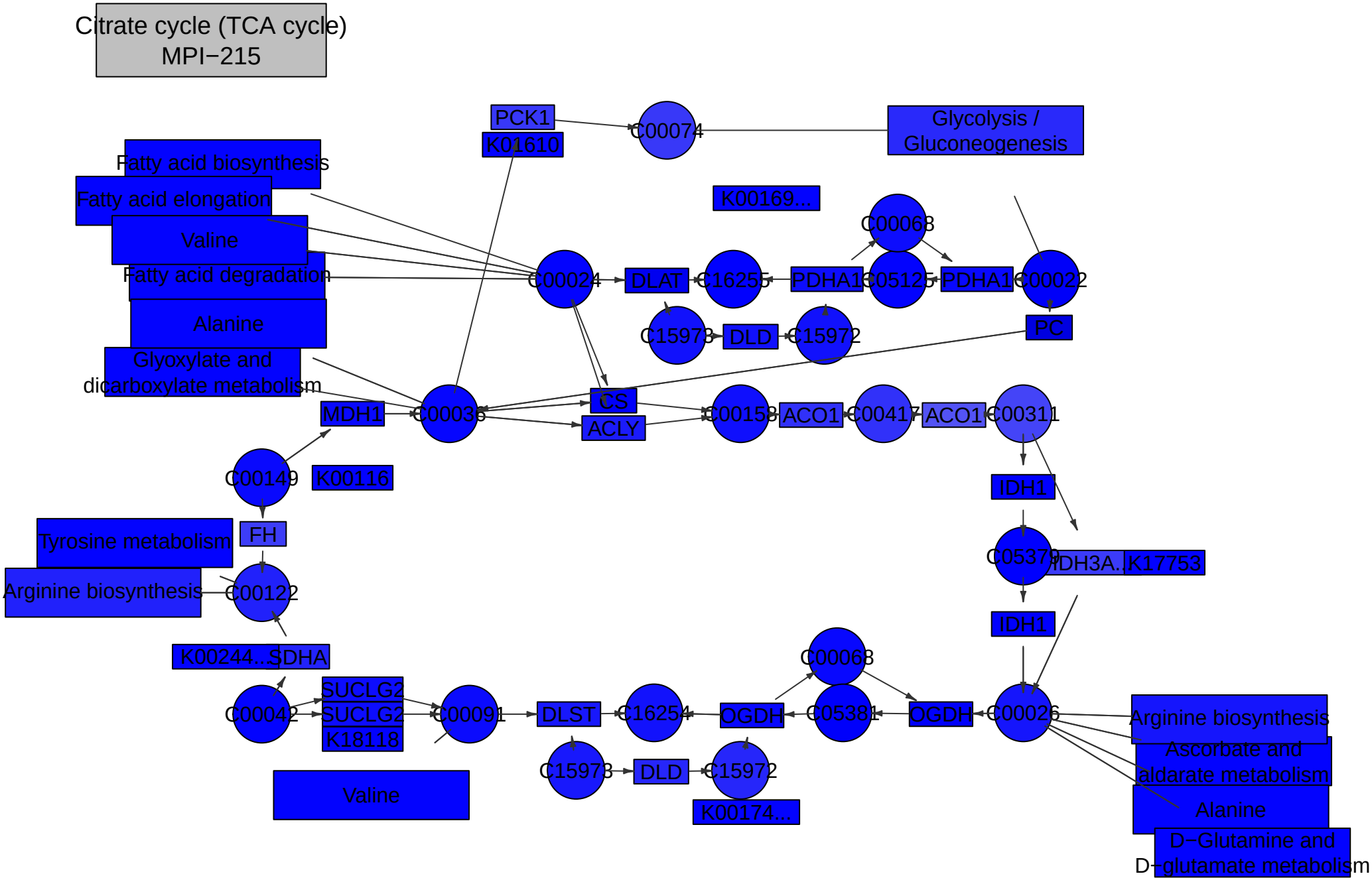
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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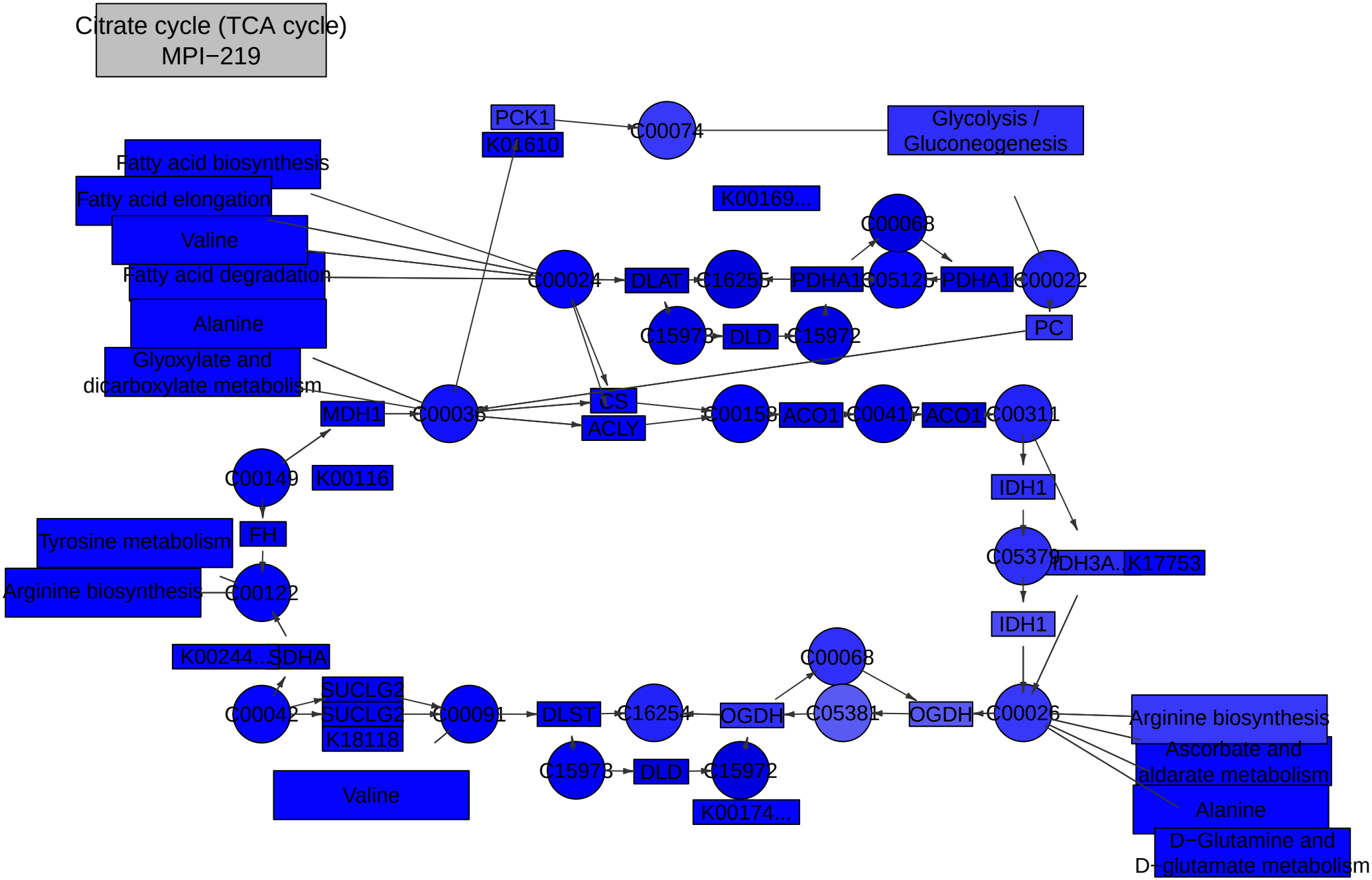
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
IDH3A..
K17753
IDH1
K00244..SDHA
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SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
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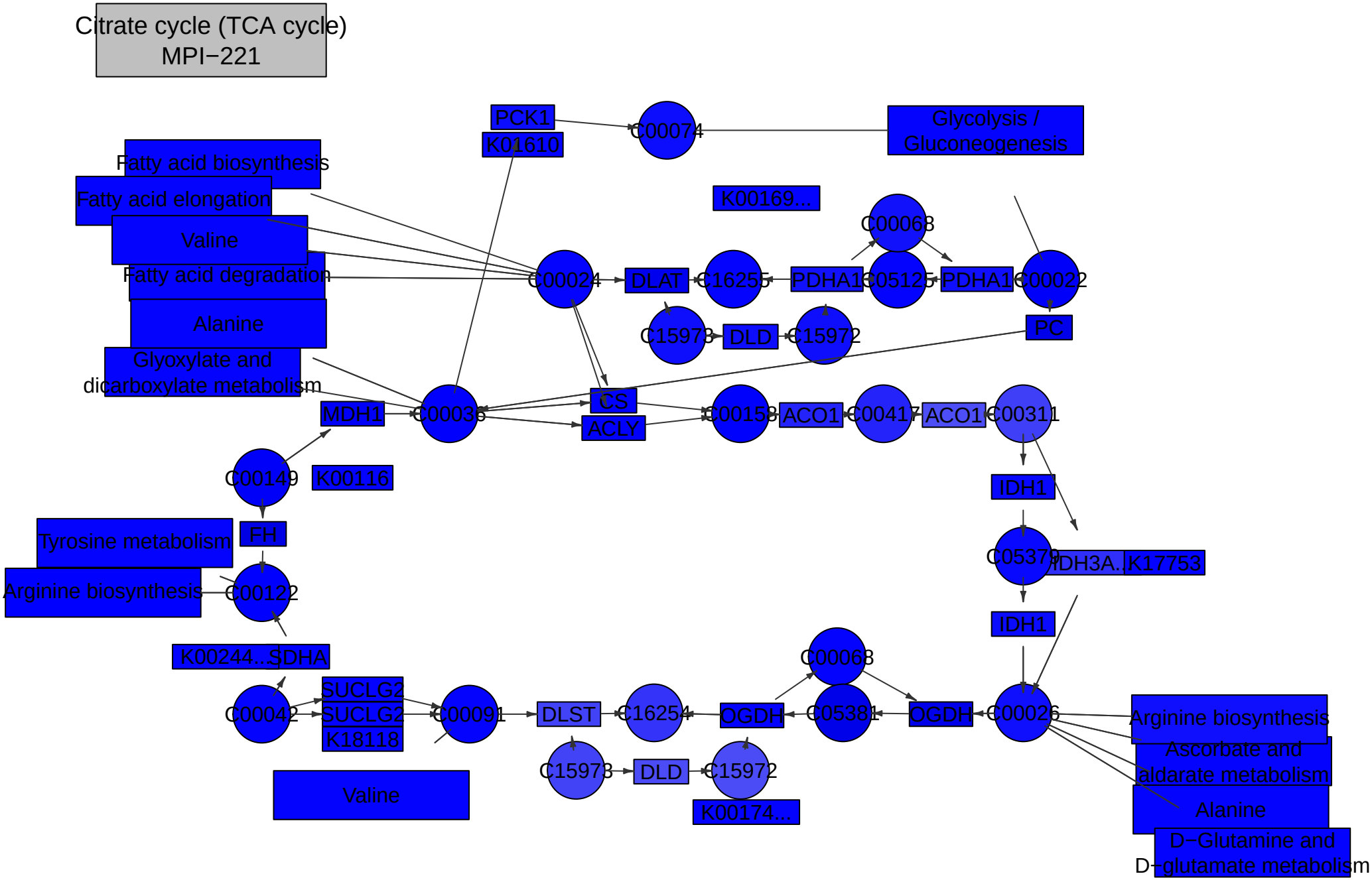
K00174...
Valine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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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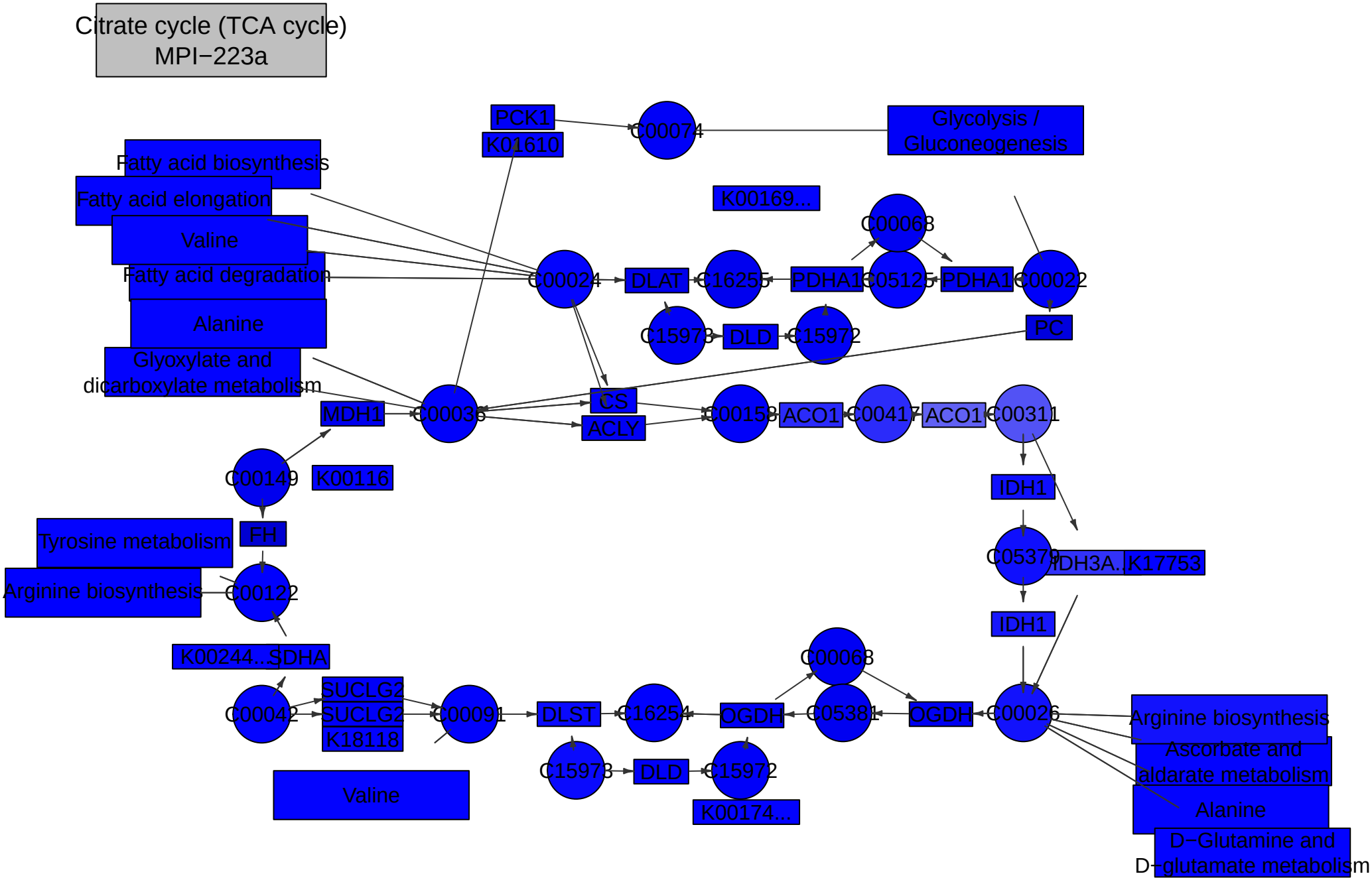
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
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K17753
IDH1
K00244..
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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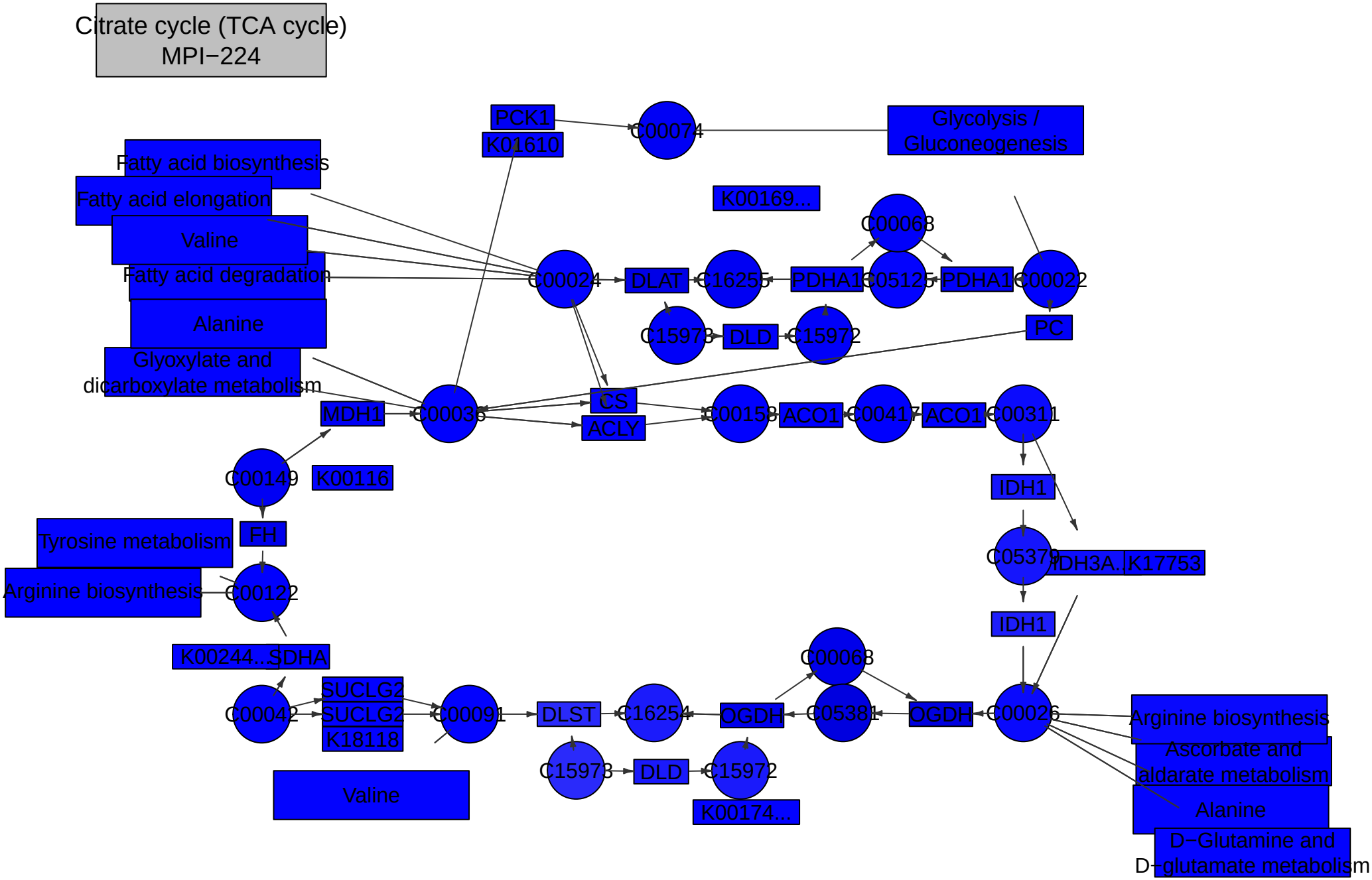
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
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C05125
PDHA1
C00022
C15973
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MDH1
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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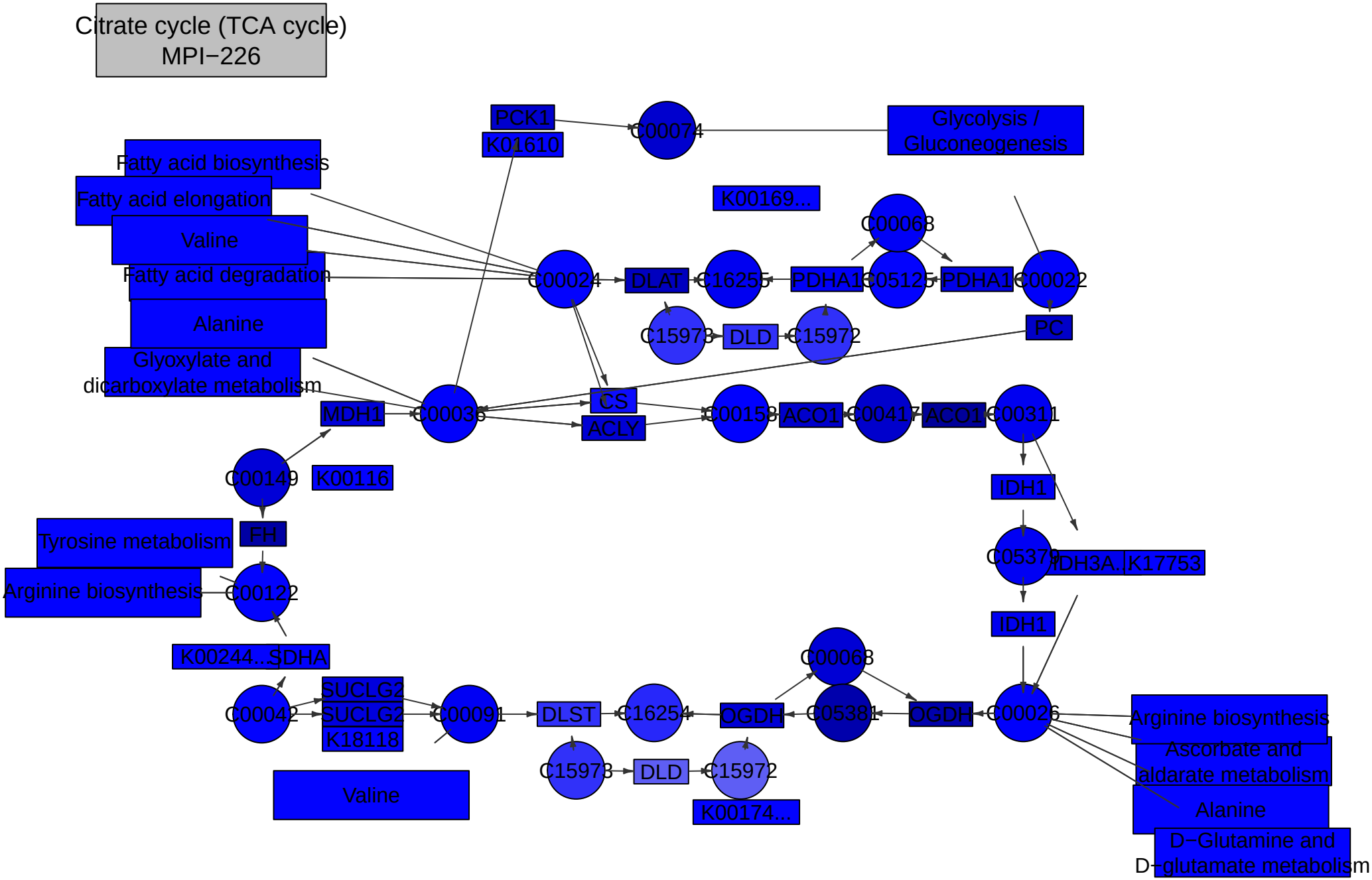
K00174...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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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PDHA1
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DLD
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C00417
ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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K17753
IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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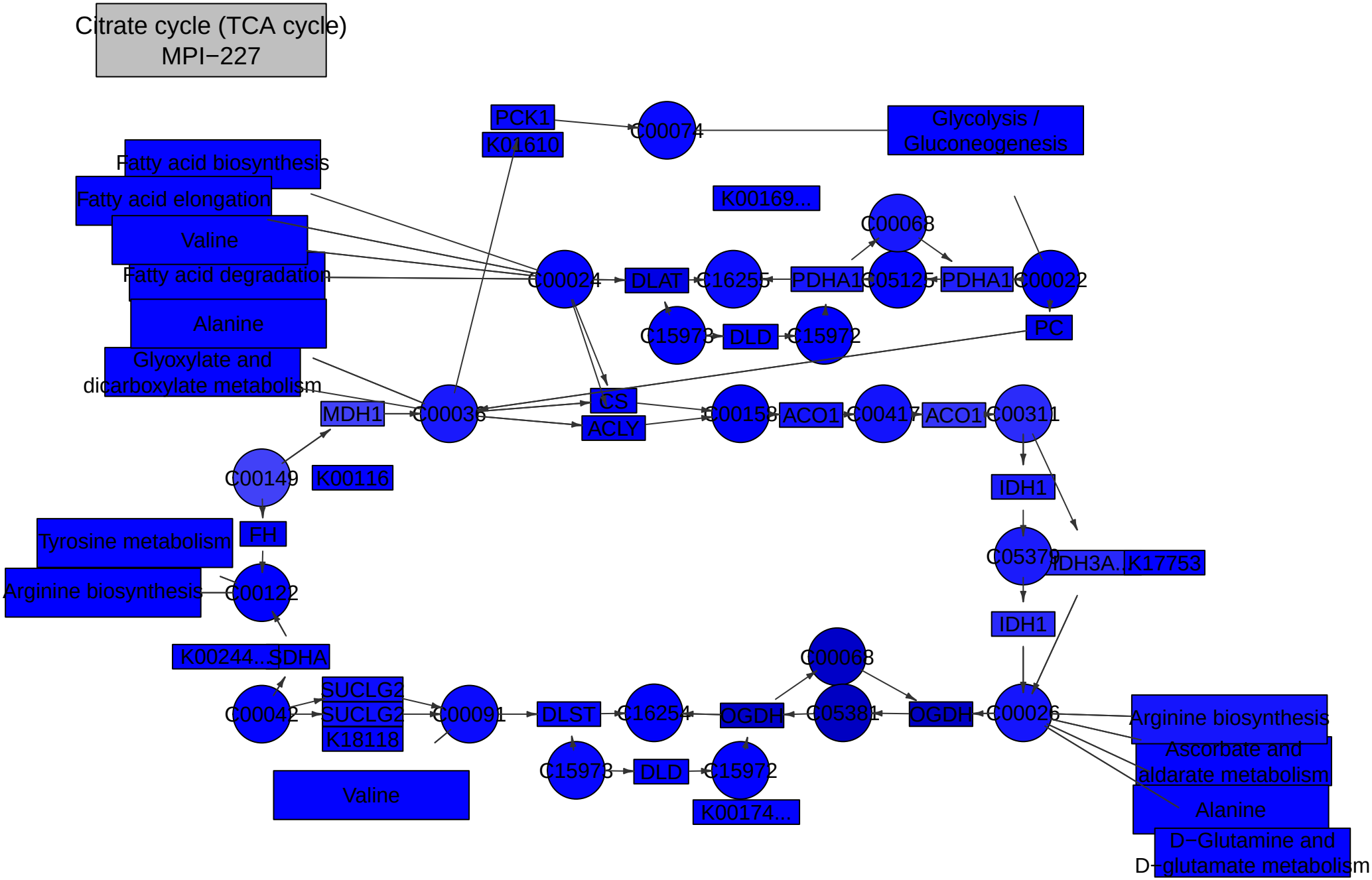
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
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PDHA1
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DLD
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ACO1
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IDH1
Tyrosine metabolism
Arginine biosynthesis
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IDH1
K00244..
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C00042
SUCLG2
SUCLG2
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DLST
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OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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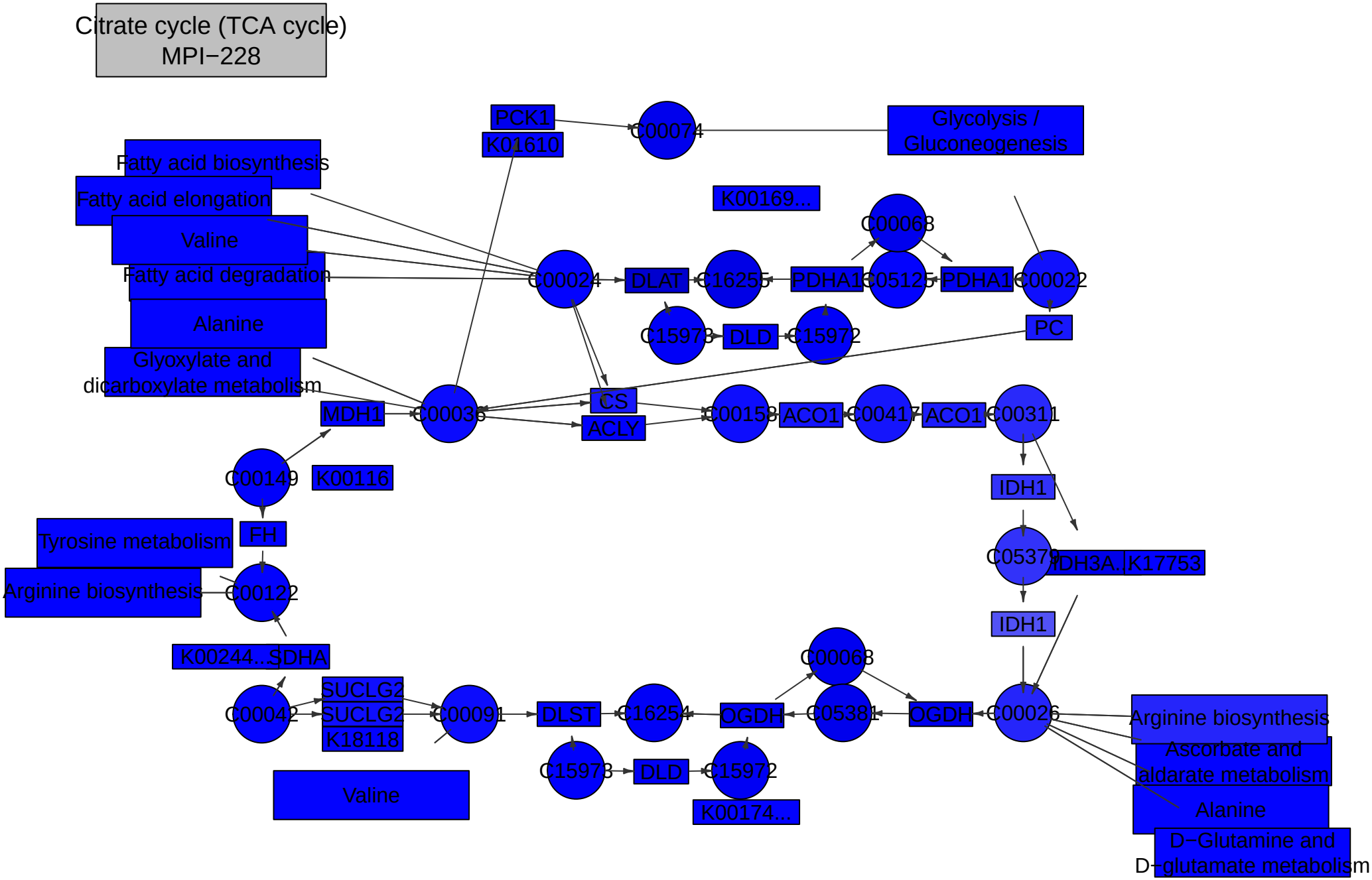
Citrate cycle (TCA cycle)
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
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DLD
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ACLY
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ACO1
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K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
SDHA
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SUCLG2
SUCLG2
K18118
C00042
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DLST
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OGDH
C05381
OGDH
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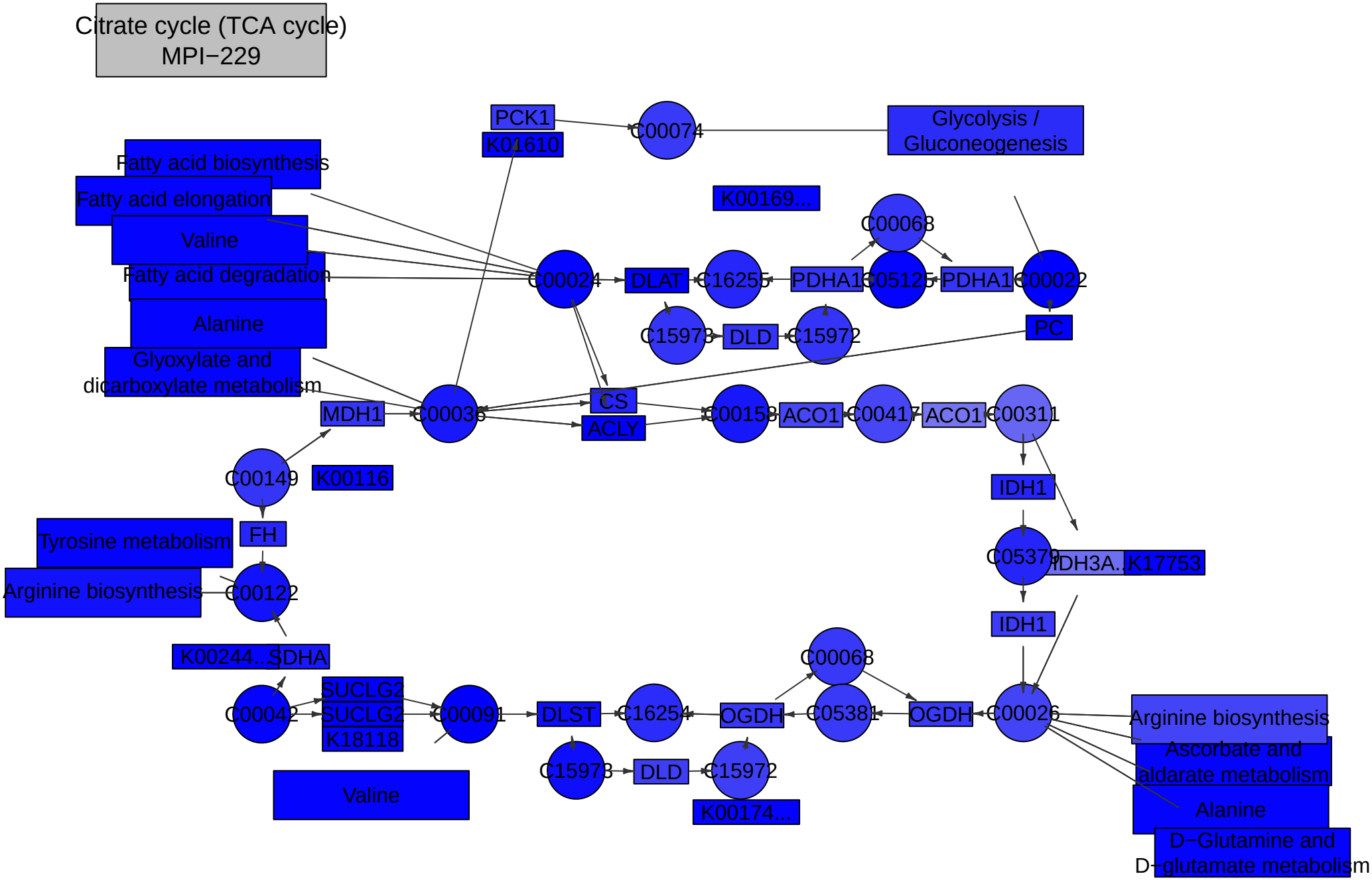
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−229
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K01610
C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
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PDHA1
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C00417
ACO1
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C00149
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IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244...SDHA
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SUCLG2
K18118
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C00091
DLST
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OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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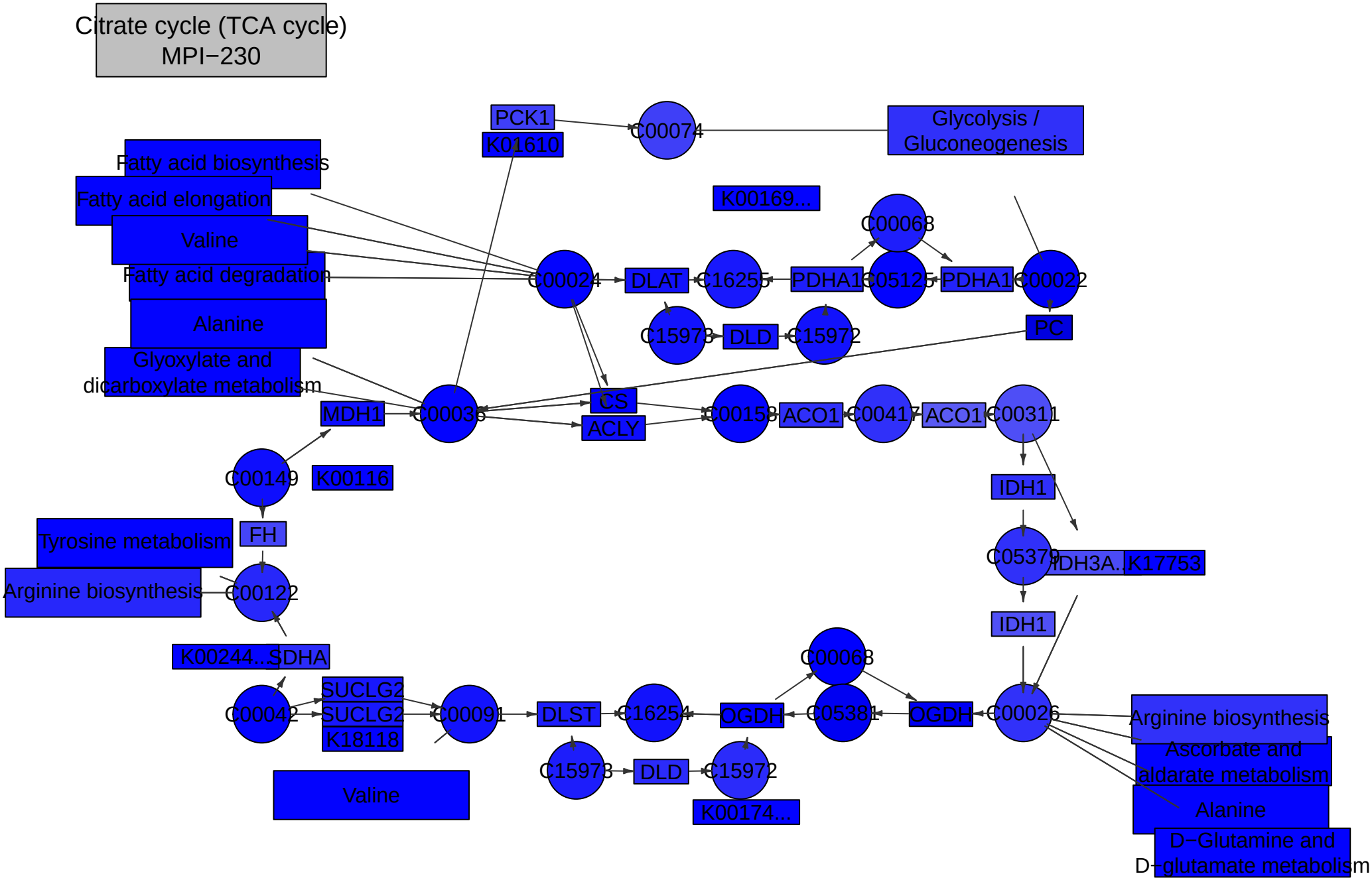
K00174...


Citrate cycle (TCA cycle)
MPI−230
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
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PDHA1
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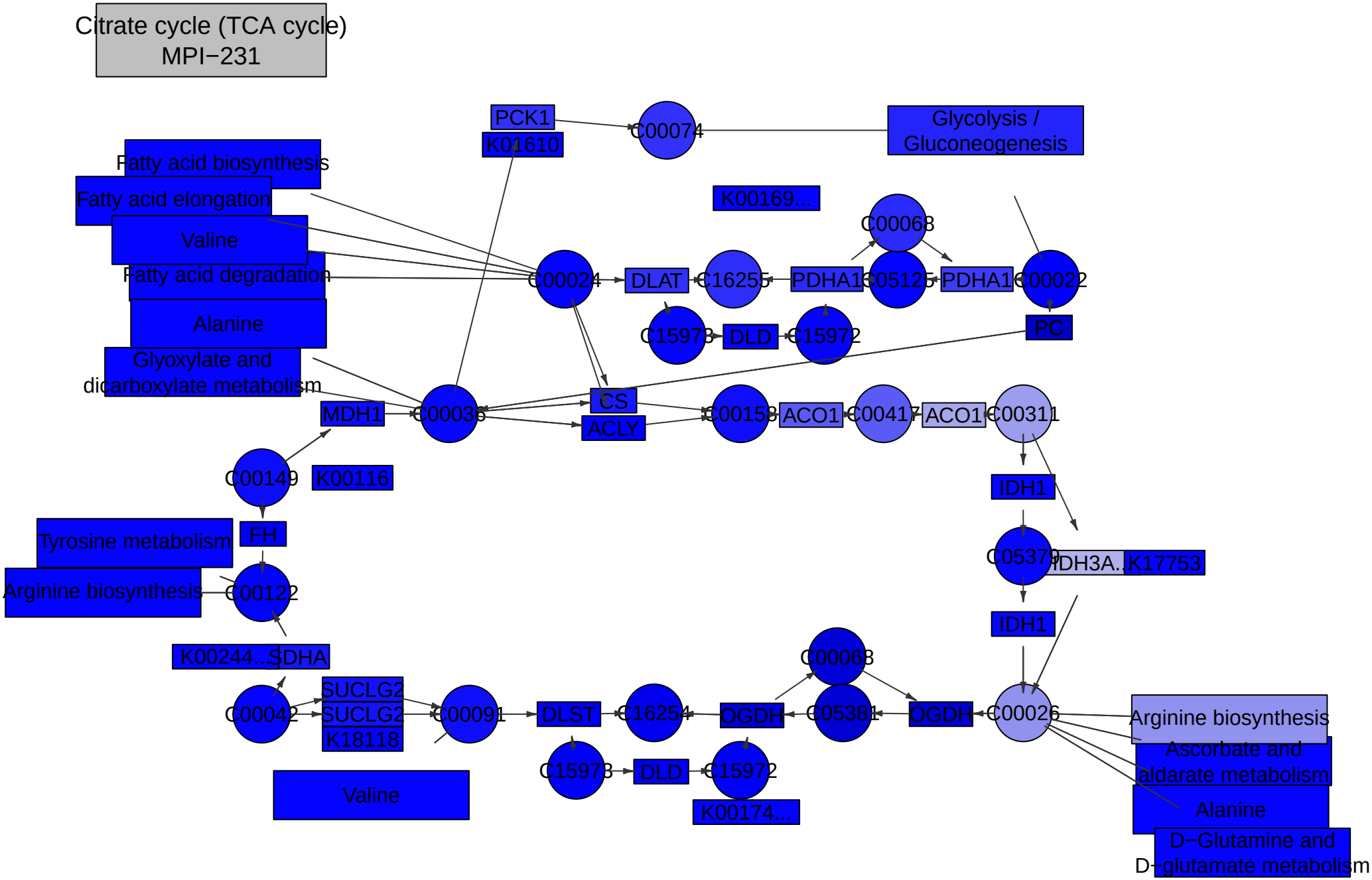
Valine


Citrate cycle (TCA cycle)
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
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DLAT
C16255
PDHA1
C05125
PDHA1
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IDH1
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Arginine biosynthesis
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DLD
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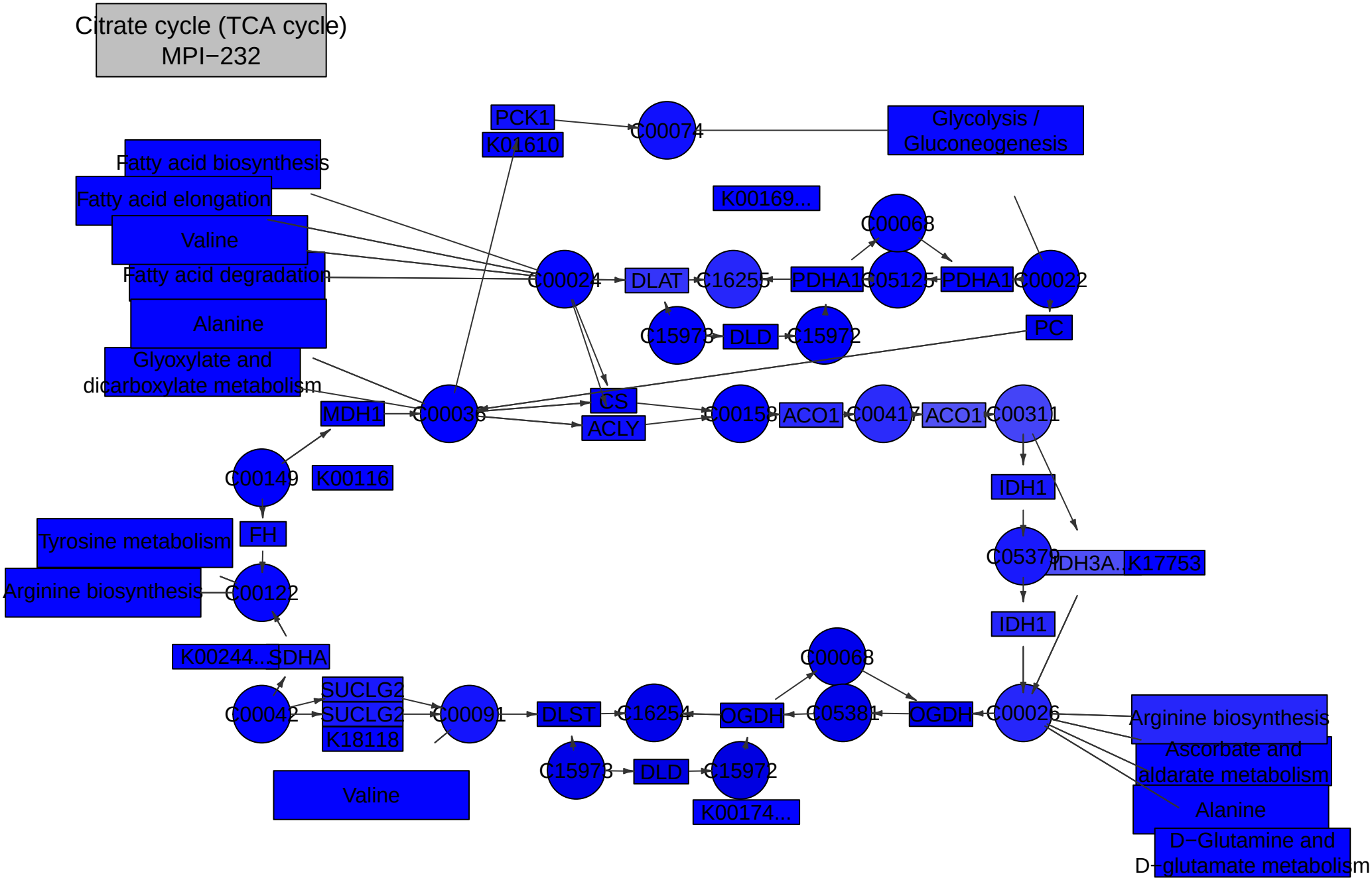
K00174...


Citrate cycle (TCA cycle)
MPI−232
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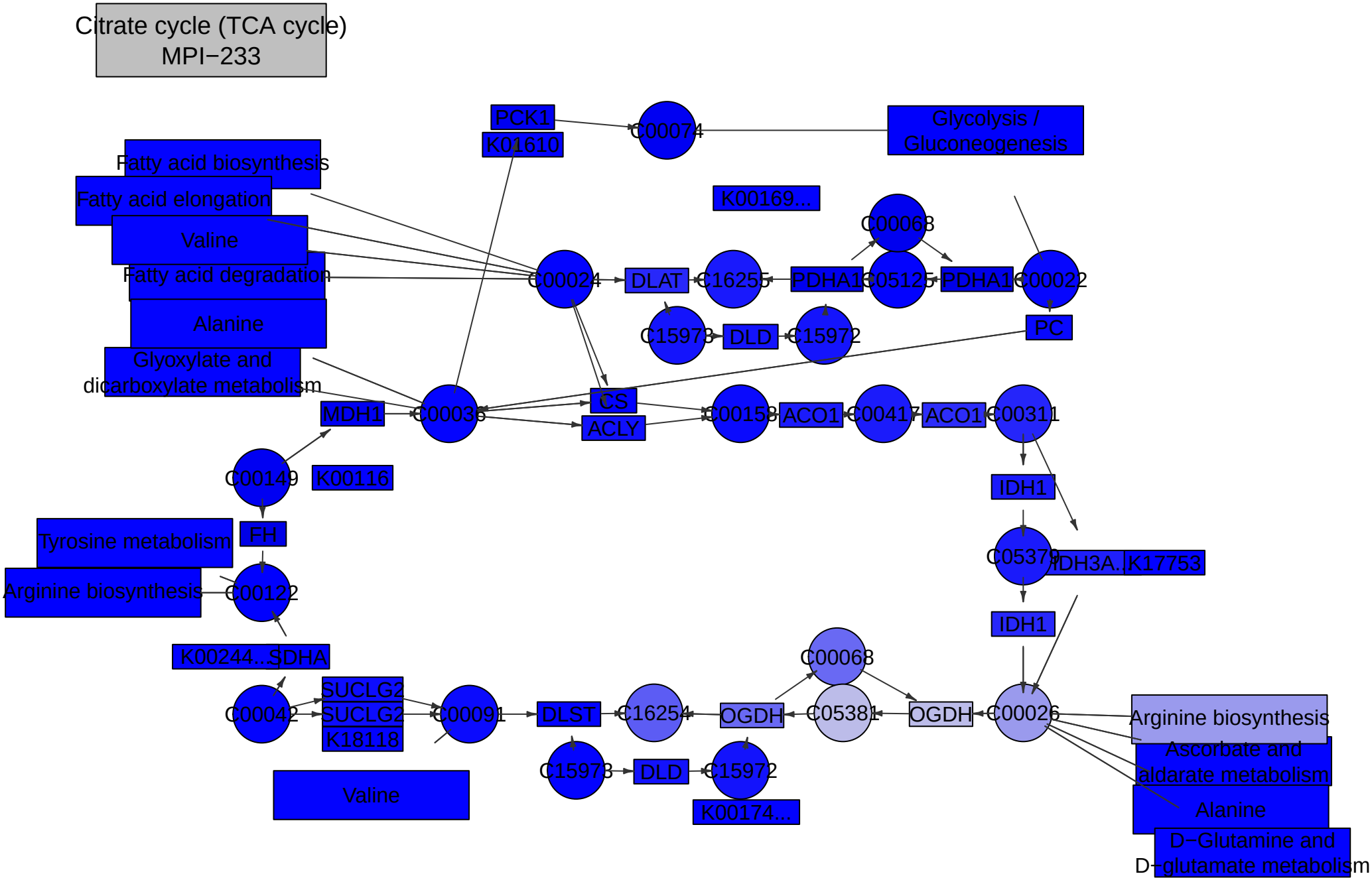
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
MPI−233
PCK1
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
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PC
MDH1
C00036
CS
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C00158
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C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
Arginine biosynthesis
FH
C00122
C05379
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
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C00091
DLST
C16254
OGDH
C05381
OGDH
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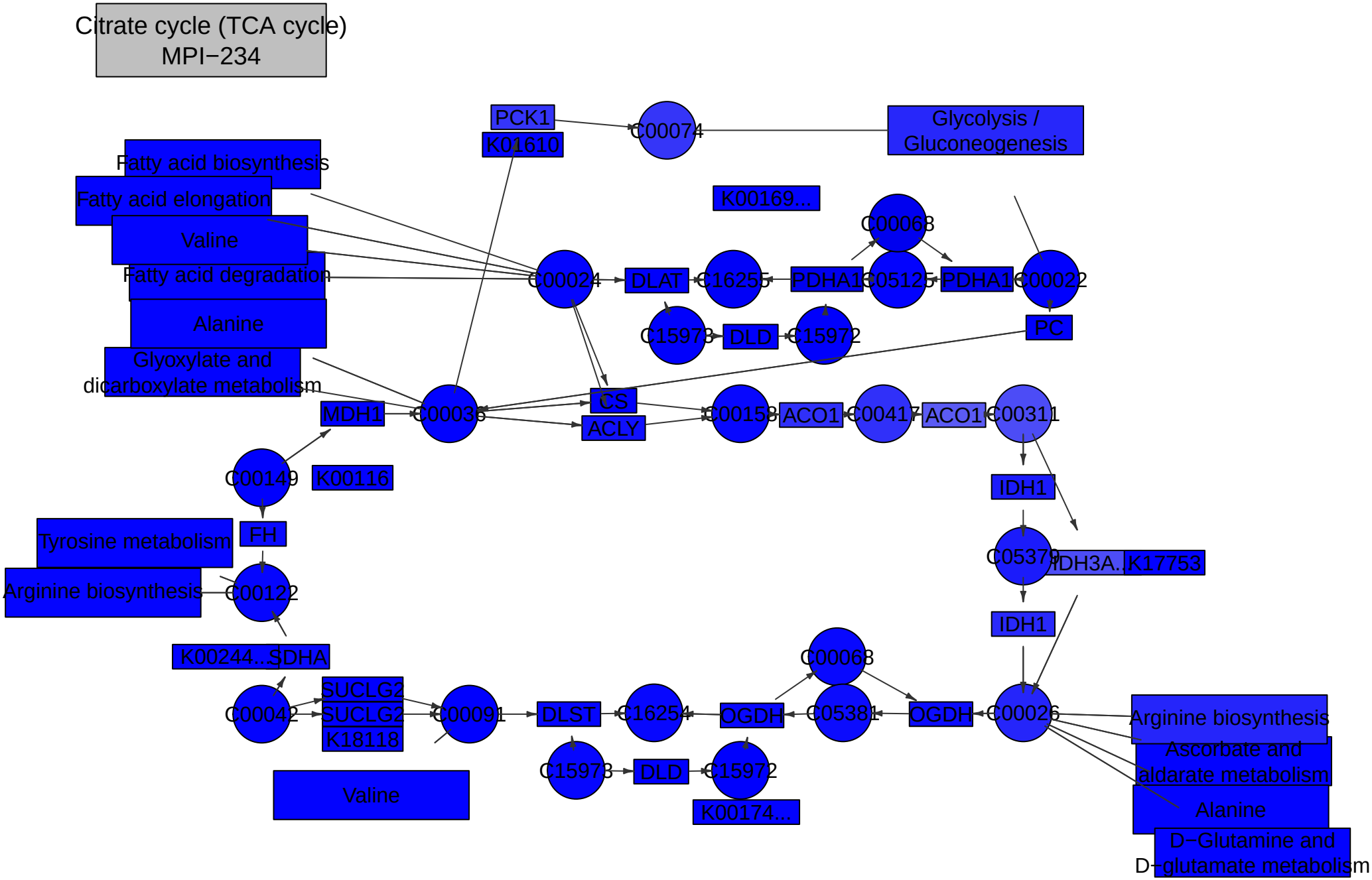
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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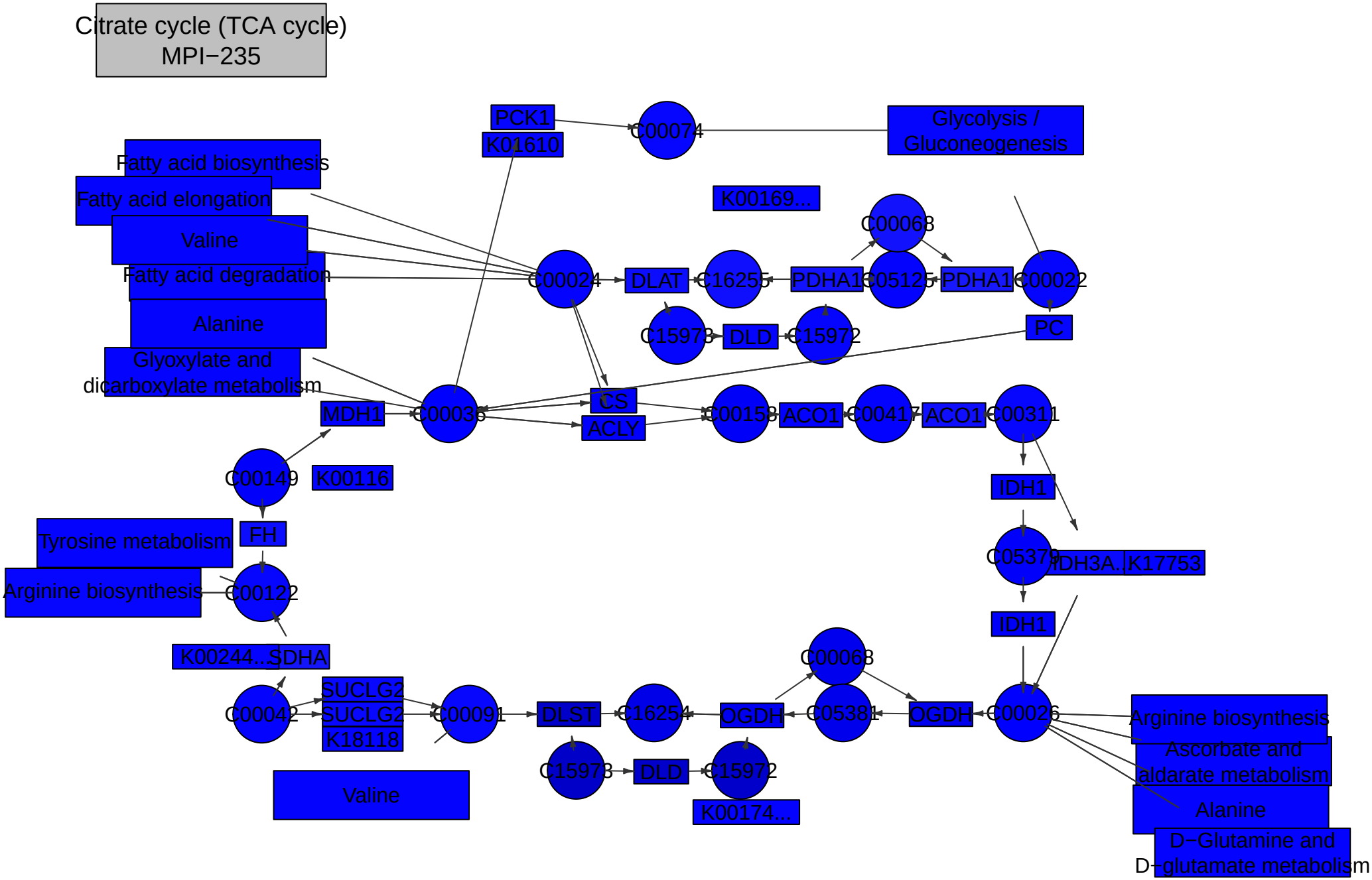
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...


Citrate cycle (TCA cycle)
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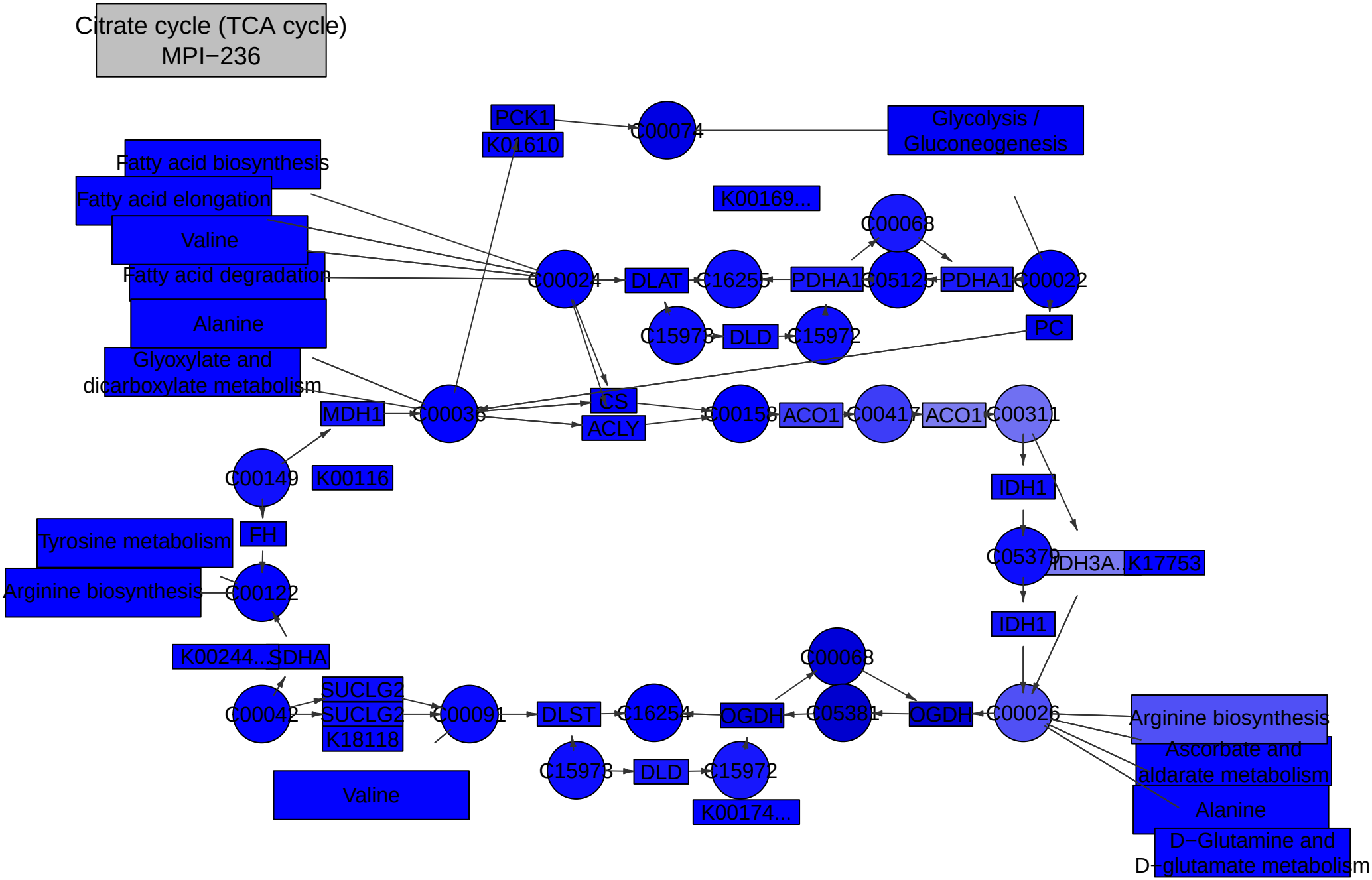
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
C00122
C05378
IDH3A..
K17753
IDH1
K00244..SDHA
C00068
SUCLG2
SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
C00026
Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−236
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C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
IDH3A...
K17753
IDH1
K00244...SDHA
C00068
C00042
SUCLG2
SUCLG2
K18118
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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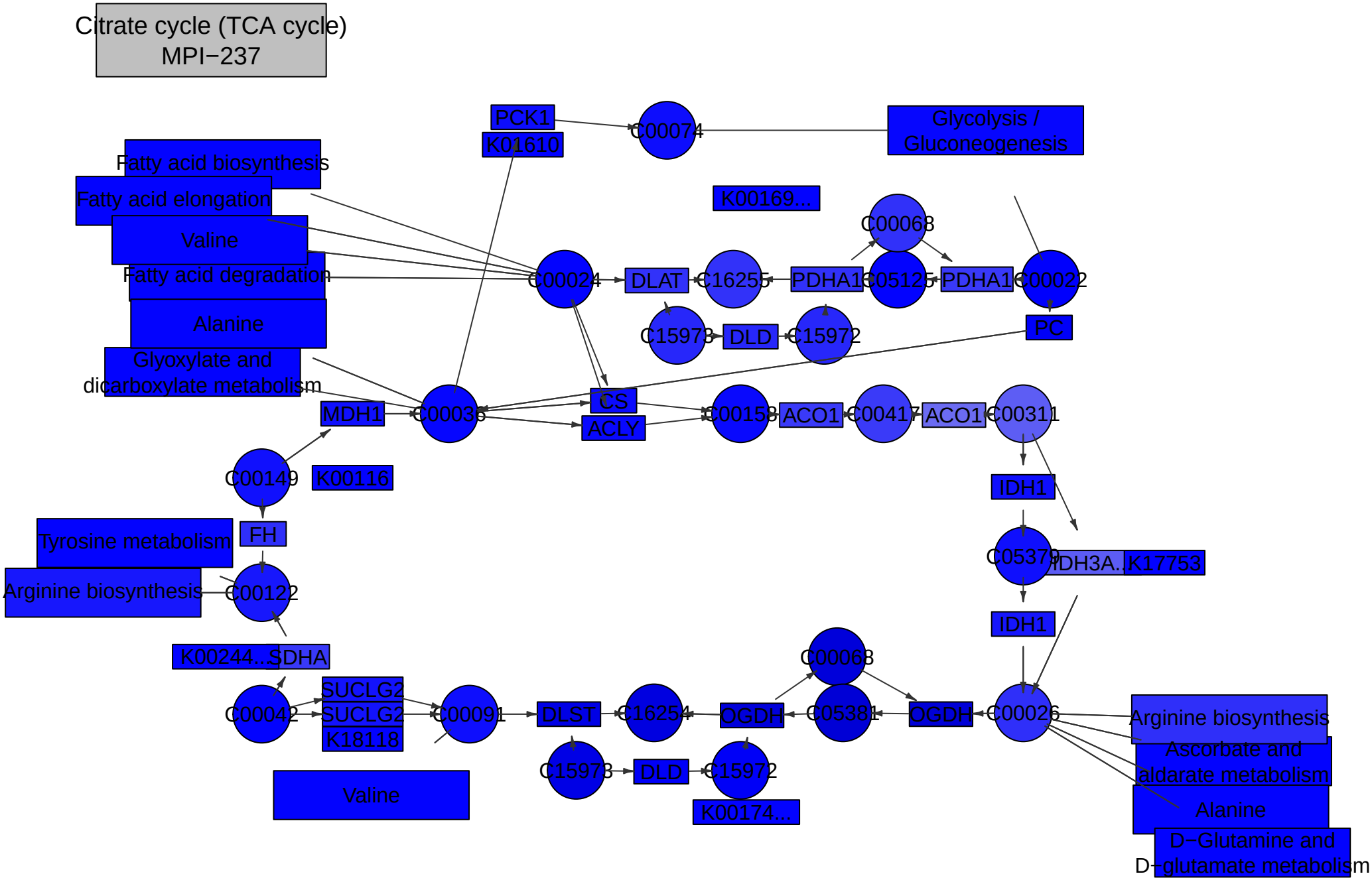
K00174...


Citrate cycle (TCA cycle)
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Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
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Glyoxylate and dicarboxylate metabolism
K00169...
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PDHA1
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ACO1
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C00149
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IDH1
K00244...
SDHA
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C00042
SUCLG2
SUCLG2
K18118
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DLST
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OGDH
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OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
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D−Glutamine and D−glutamate metabolism
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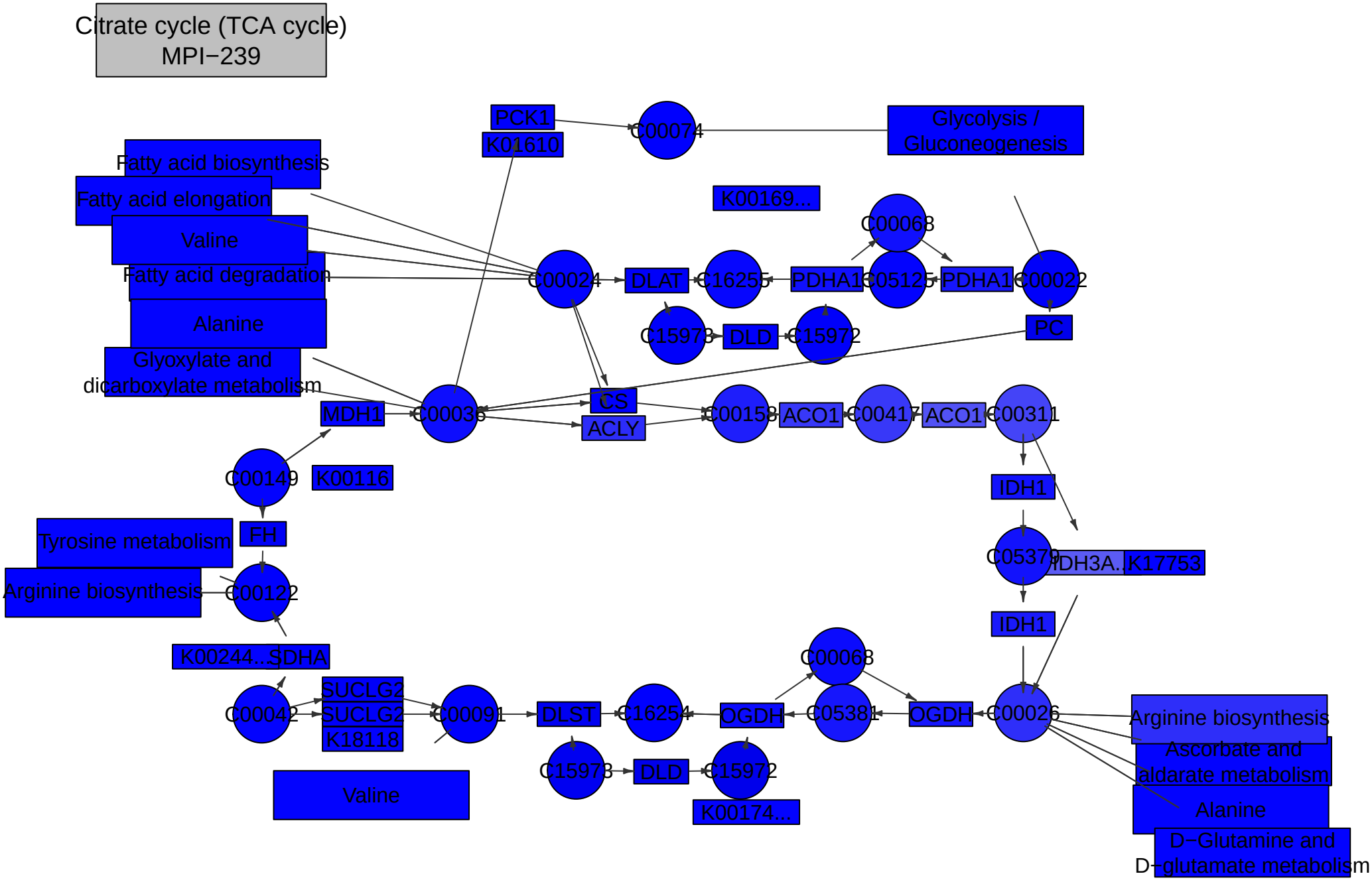
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K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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CS
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ACO1
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C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
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SUCLG2
SUCLG2
K18118
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C00091
DLST
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OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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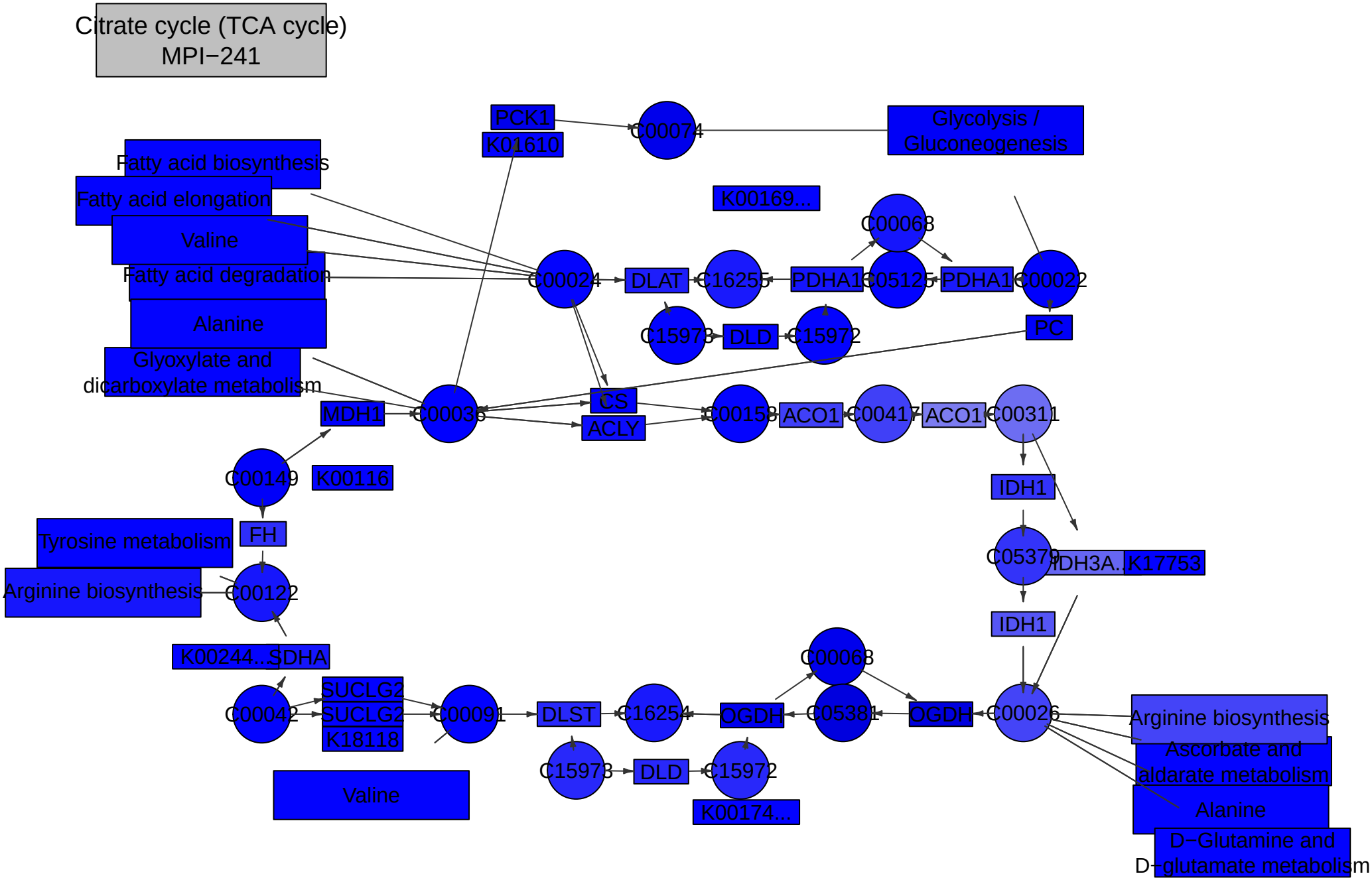
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C00074
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
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ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
IDH3A...
K17753
IDH1
K00244...
SDHA
C00068
SUCLG2
SUCLG2
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C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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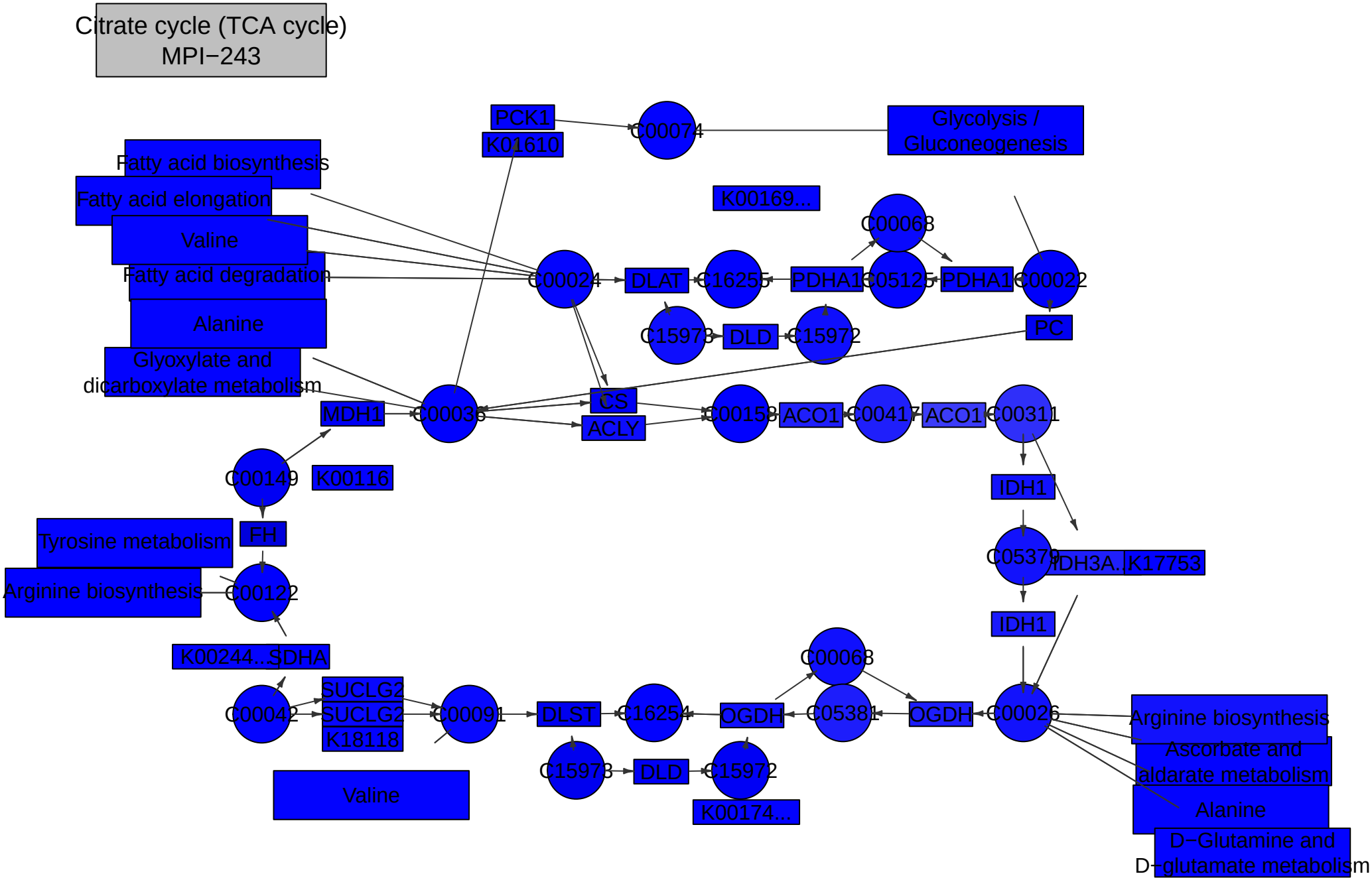
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
MPI−243
PCK1
K01610
C00074
Glycolysis / Gluconeogenesis
Fatty acid biosynthesis
Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
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C00158
ACO1
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ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
SDHA
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C00042
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SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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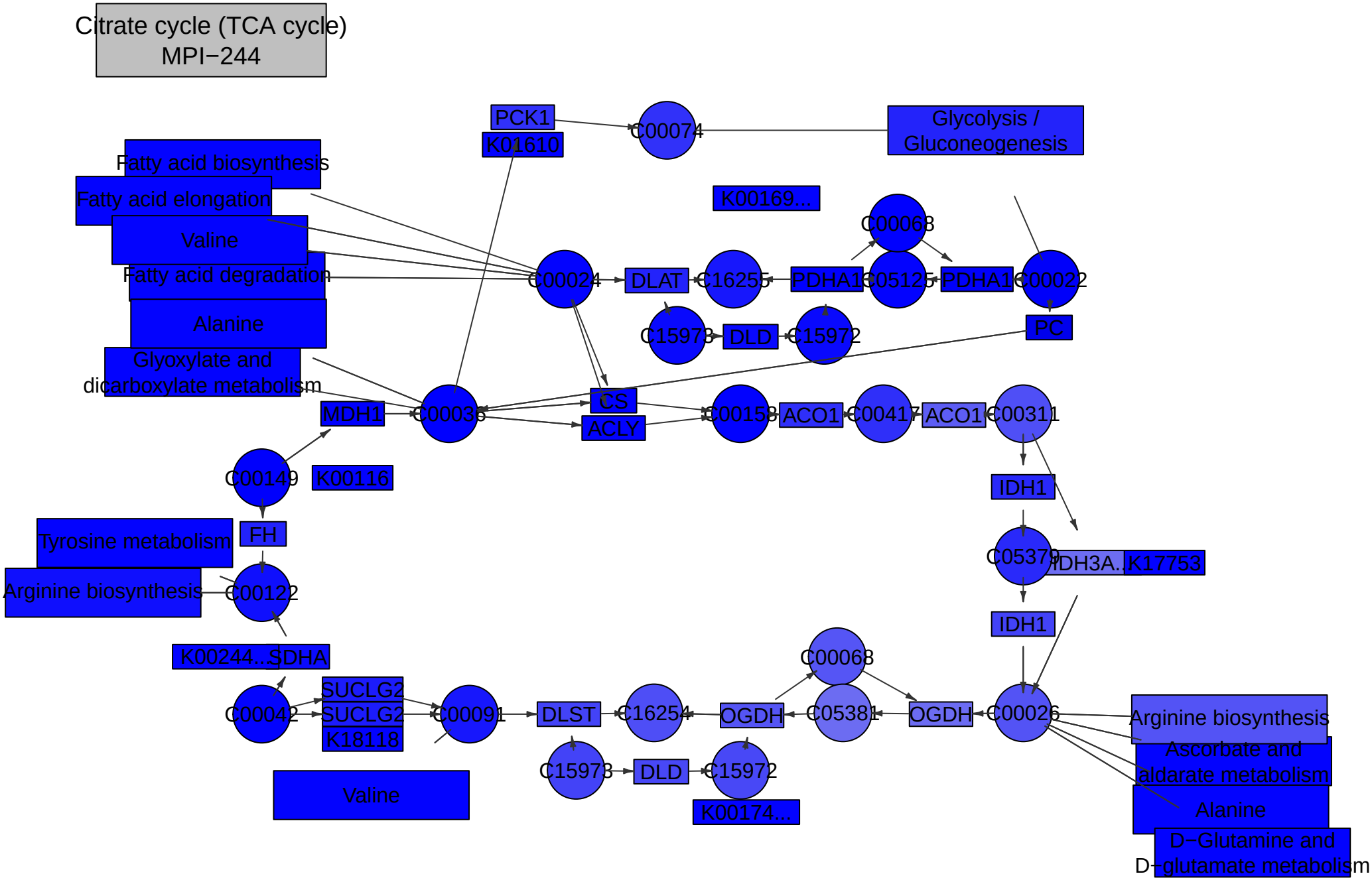
DLD
C15972
K00174...
Valine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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
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DLAT
C16255
PDHA1
C05125
PDHA1
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DLD
C15972
PC
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CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244...SDHA
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SUCLG2
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C00091
DLST
C16254
OGDH
C05381
OGDH
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
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DLD
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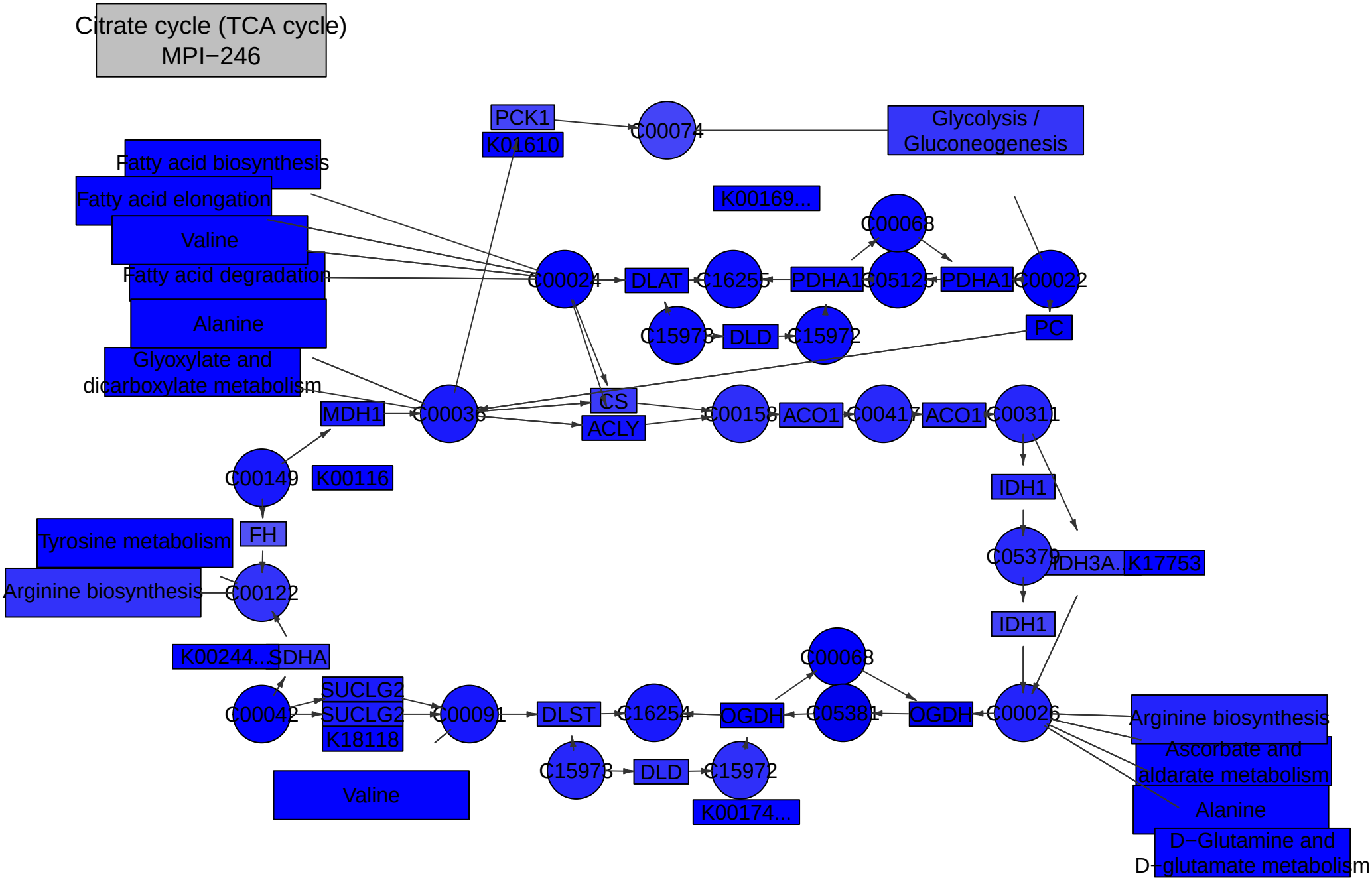
K00174...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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
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DLAT
C16255
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C05125
PDHA1
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C15973
DLD
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MDH1
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C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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IDH1
K00244..
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SUCLG2
SUCLG2
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OGDH
C05381
OGDH
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Alanine
D−Glutamine and D−glutamate metabolism
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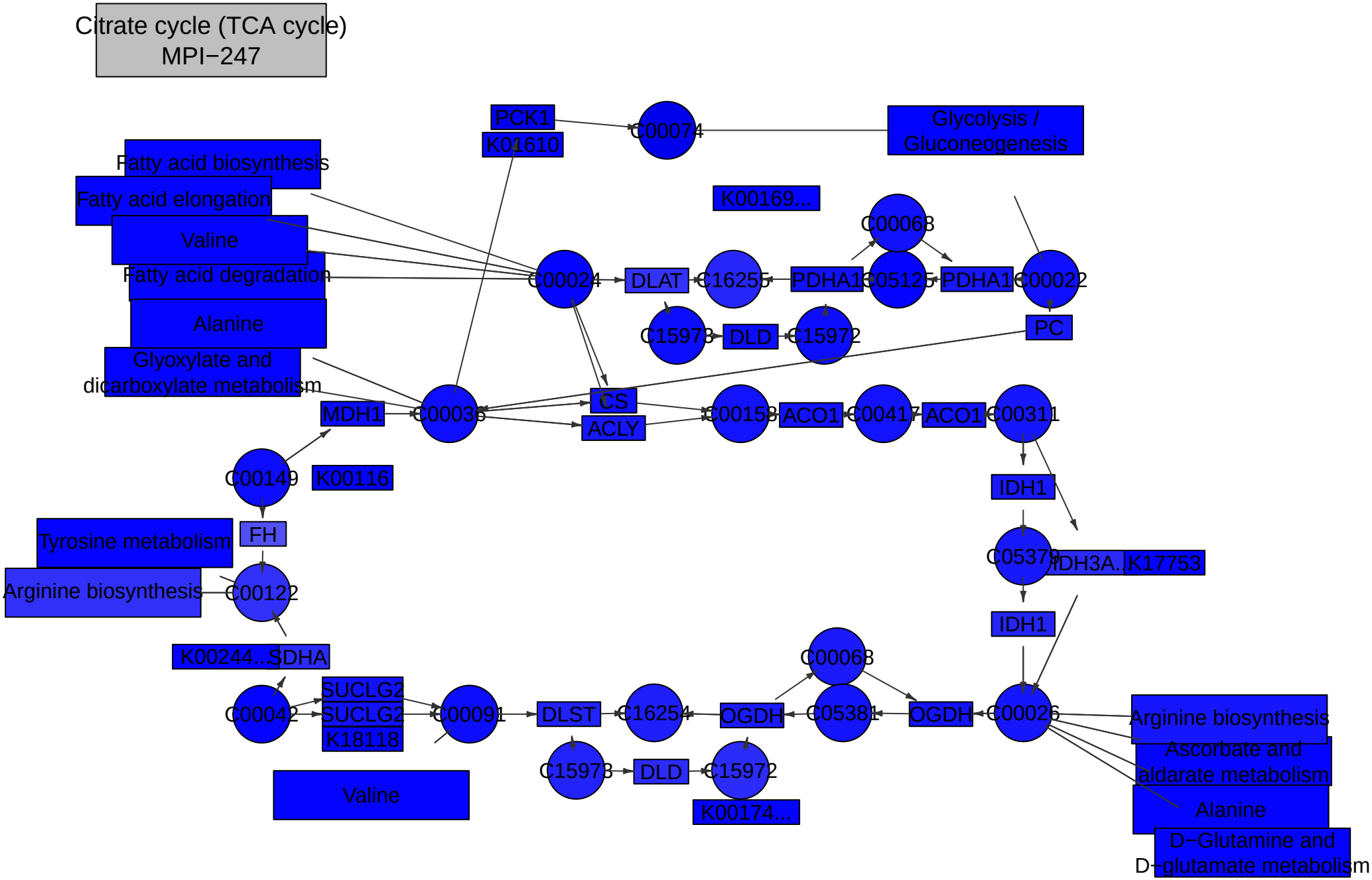
DLD
C15972
K00174...
Valine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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
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DLAT
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DLD
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C00149
K00116
IDH1
Tyrosine metabolism
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IDH1
K00244..
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SUCLG2
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OGDH
C05381
OGDH
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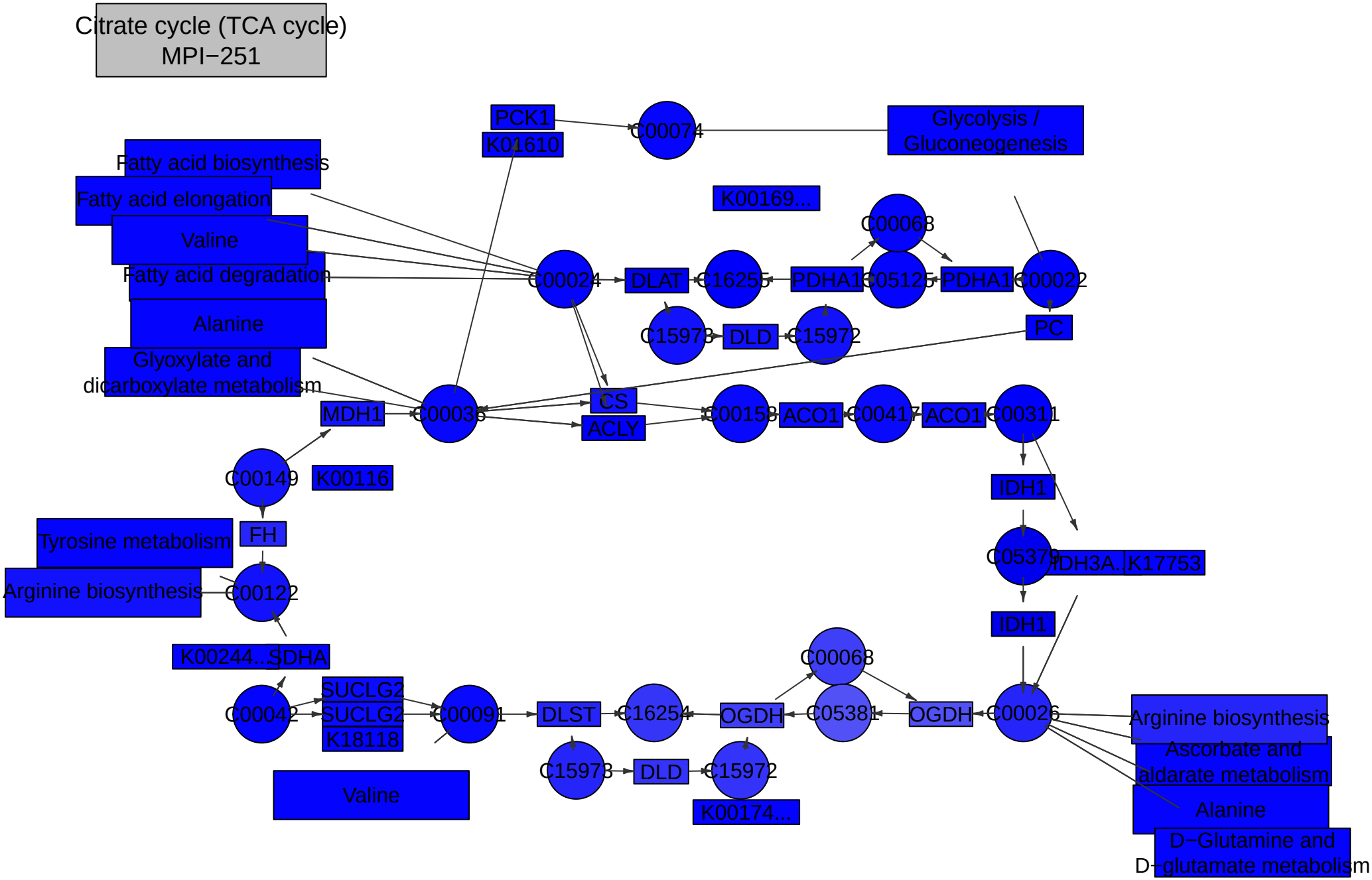
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
C15973
DLD
C15972
K00174...
Valine


Citrate cycle (TCA cycle)
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
K00169...
C00068
C00024
DLAT
C16255
PDHA1
C05125
PDHA1
C00022
C15973
DLD
C15972
PC
MDH1
C00036
CS
ACLY
C00158
ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05378
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K17753
IDH1
K00244..SDHA
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SUCLG2
K18118
C00042
C00091
DLST
C16254
OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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DLD
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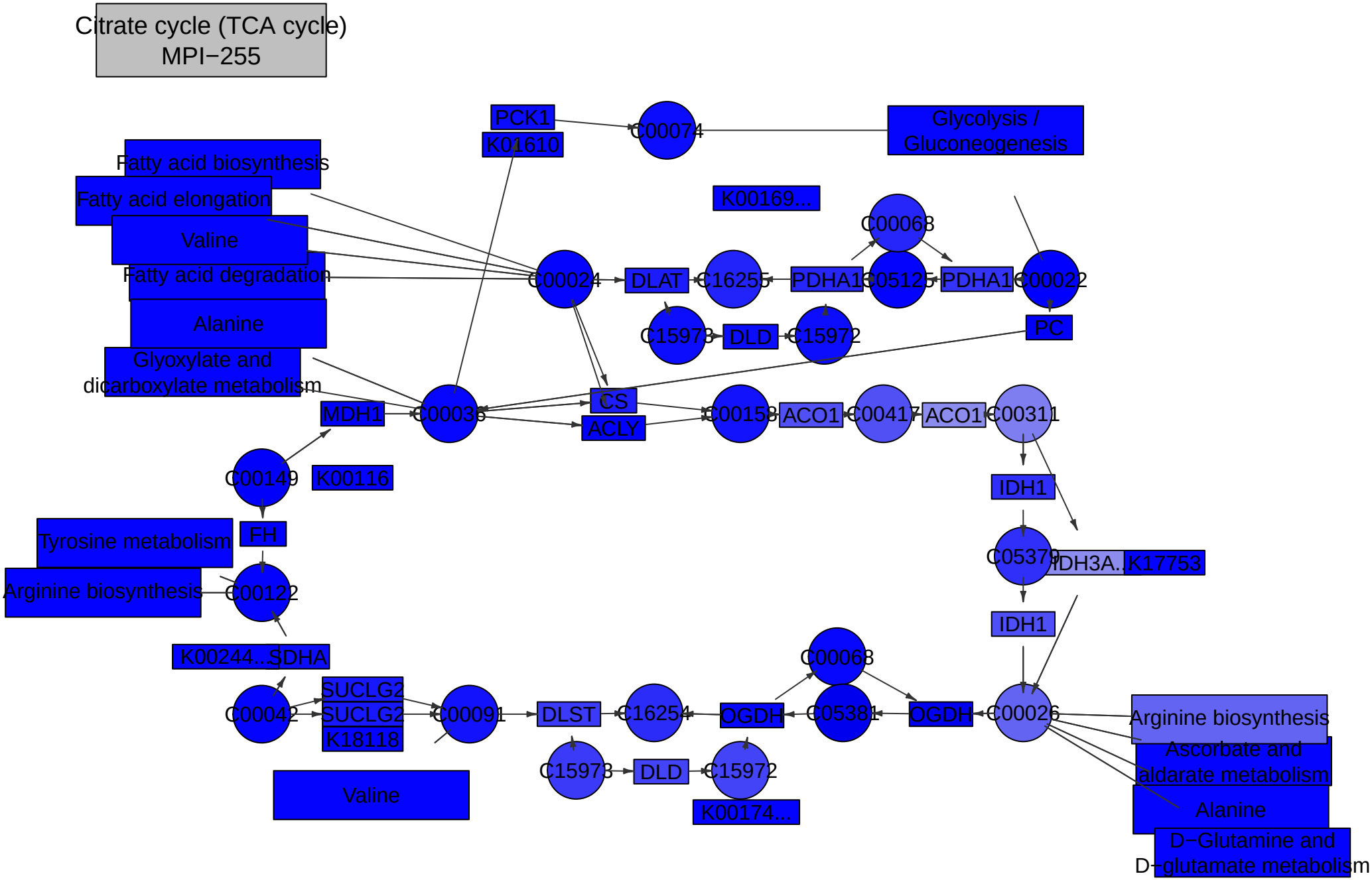
K00174...
Valine


Citrate cycle (TCA cycle)
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C00074
Glycolysis / Gluconeogenesis
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Fatty acid elongation
Valine
Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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C00068
C00024
DLAT
C16255
PDHA1
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ACO1
C00417
ACO1
C00311
C00149
K00116
IDH1
Tyrosine metabolism
FH
Arginine biosynthesis
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C05379
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K17753
IDH1
K00244...
SDHA
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SUCLG2
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C00091
DLST
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OGDH
C05381
OGDH
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Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
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DLD
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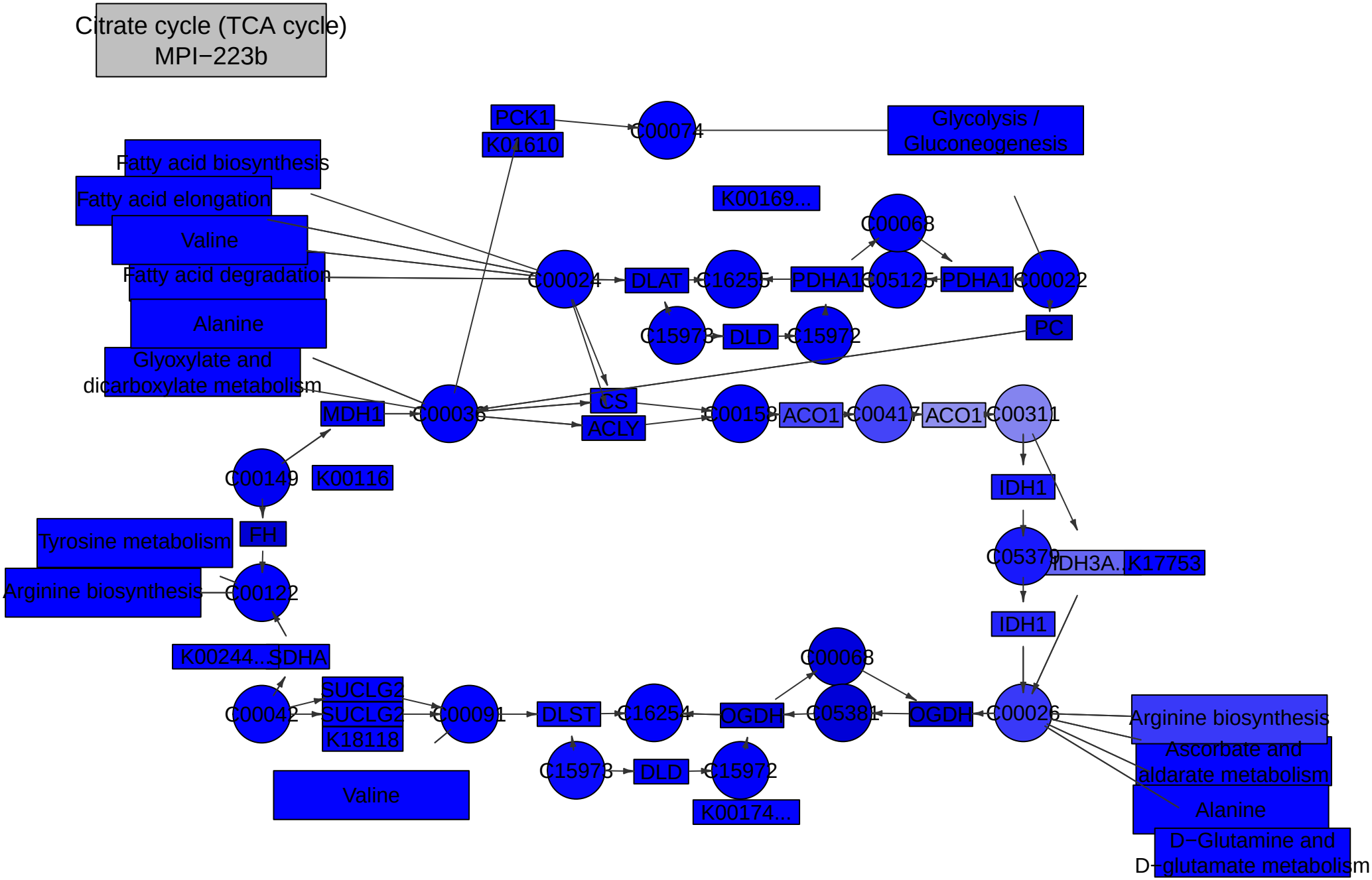
K00174...
Valine


Citrate cycle (TCA cycle)
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Fatty acid elongation
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Fatty acid degradation
Alanine
Glyoxylate and dicarboxylate metabolism
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ACO1
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IDH1
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SUCLG2
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Arginine biosynthesis
Ascorbate and aldarate metabolism
Alanine
D−Glutamine and D−glutamate metabolism
Valine
C15973
DLD
C15972
K00174...