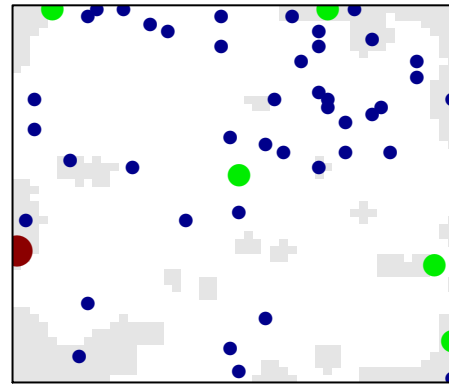


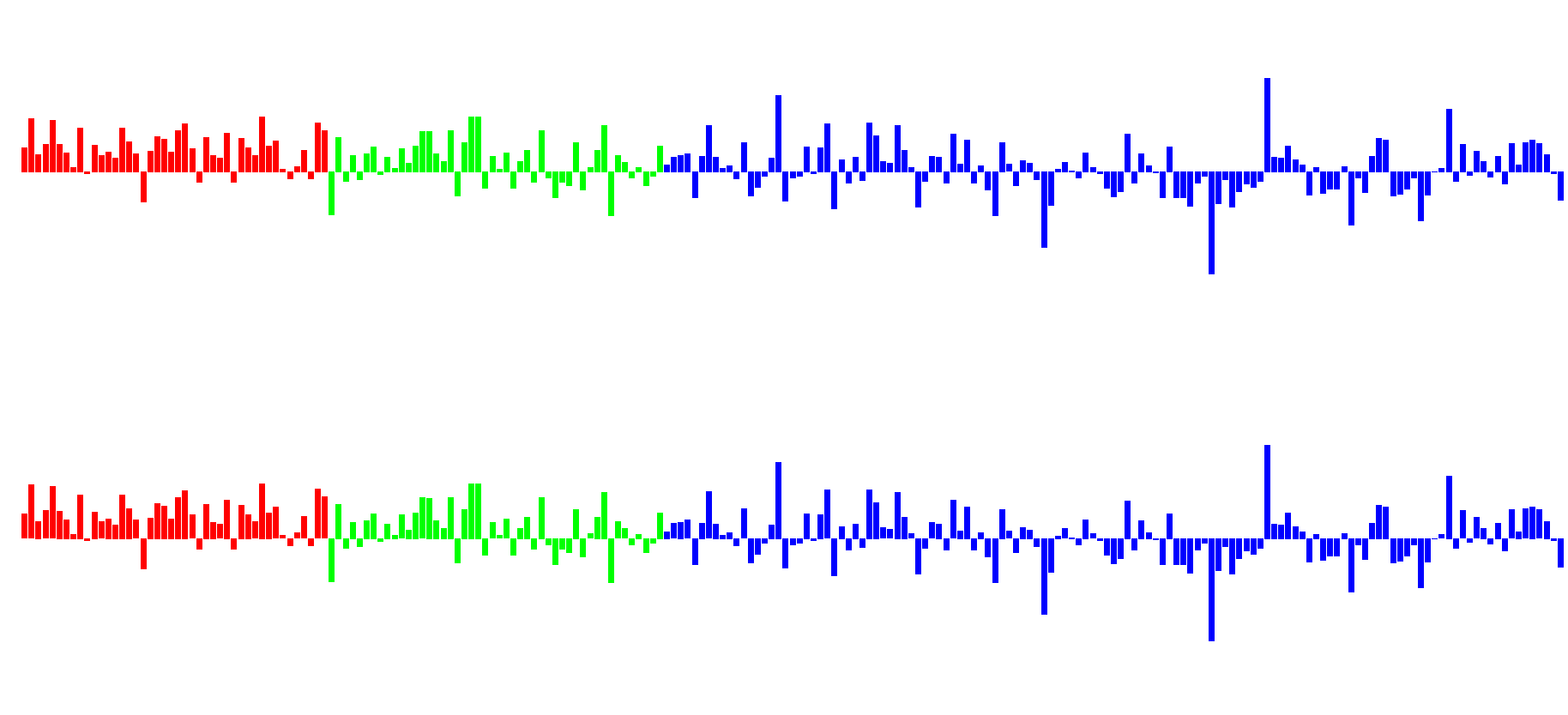
Pyruvate metabolism

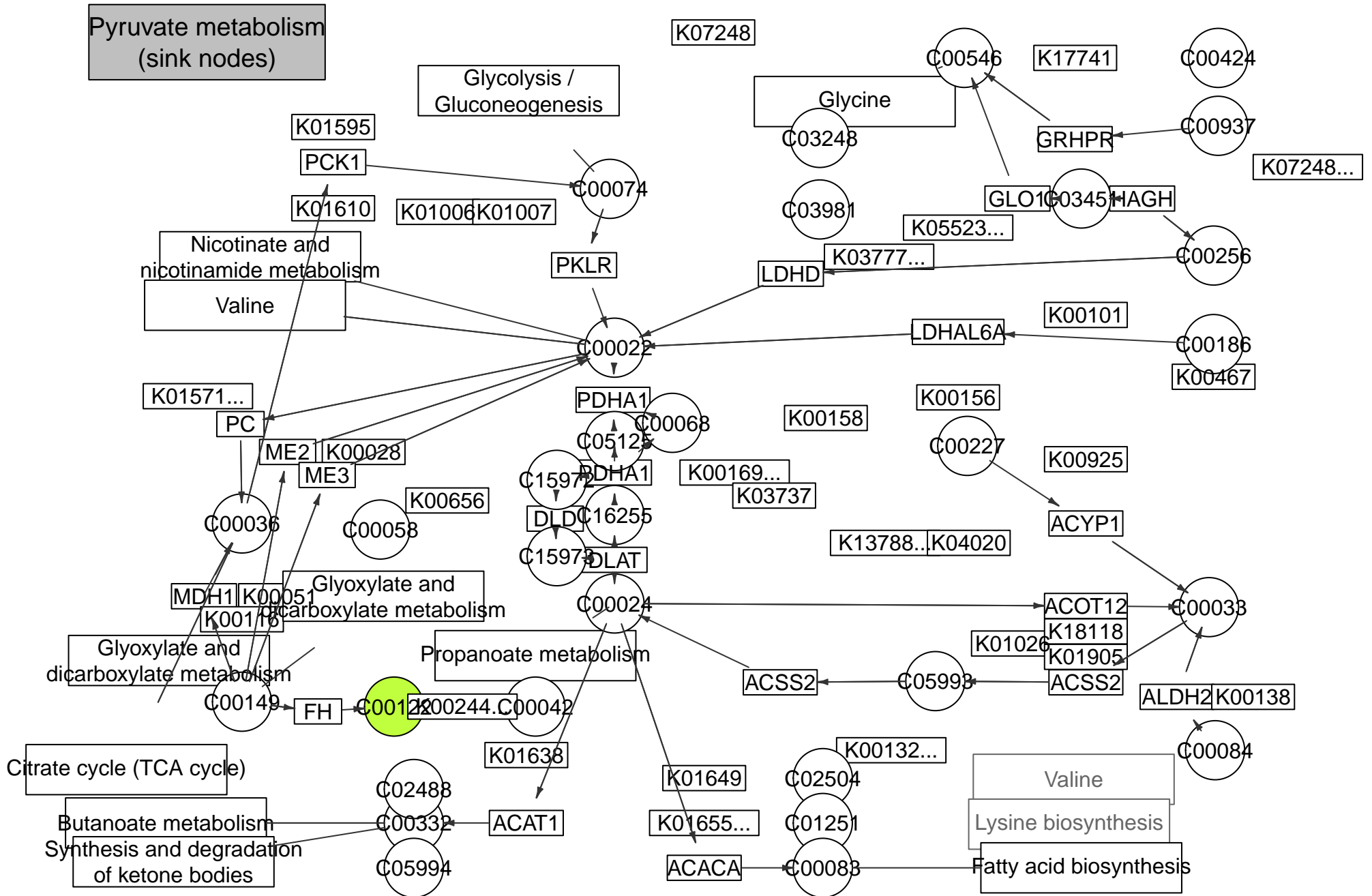
all genes

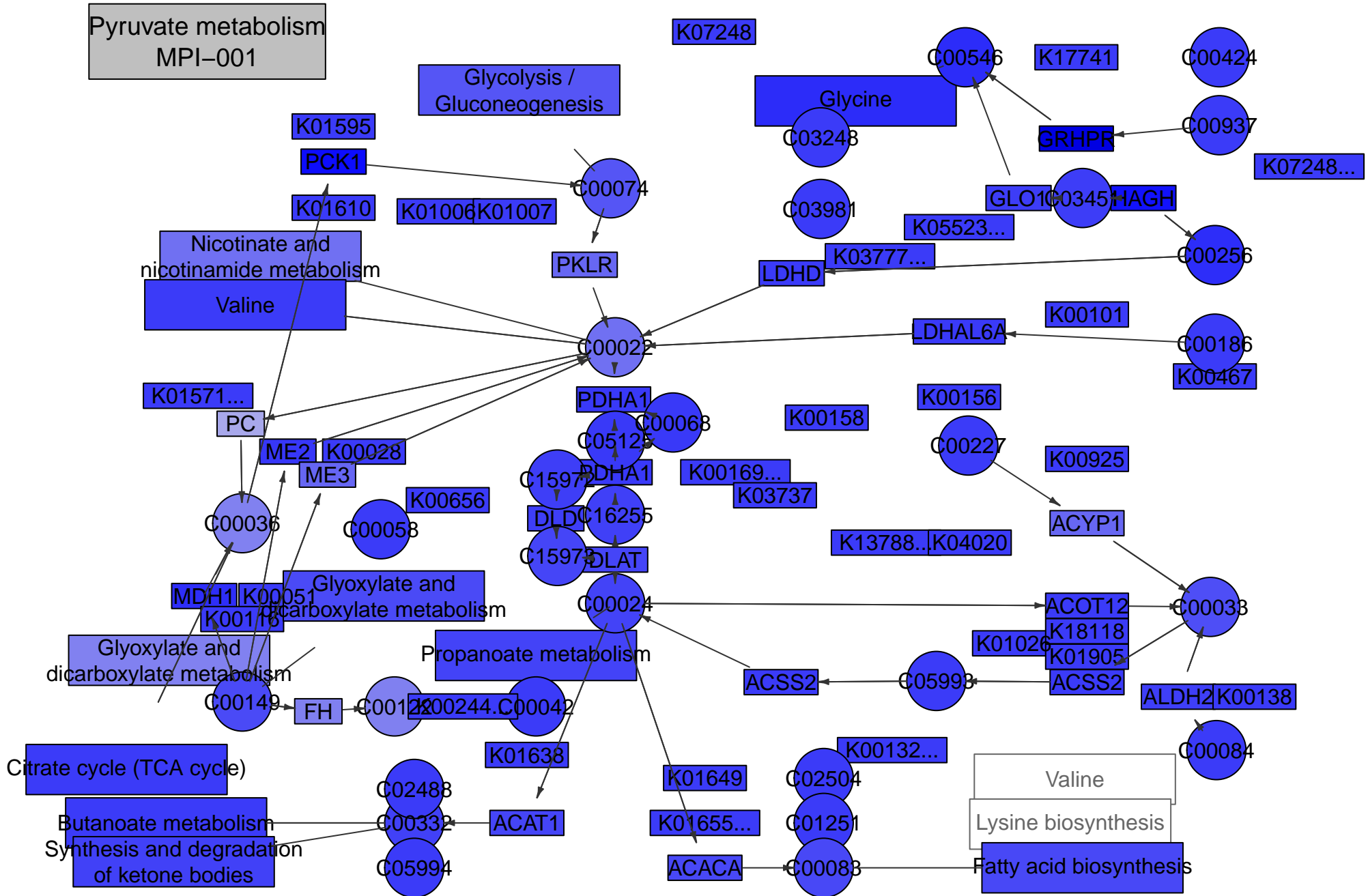


$\langle \log_{10} S \rangle$

$\log_{10} S_{\max}$







Pyruvate metabolism
MPI-003

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

PC

ME2

MDH1

Glyoxylate and
dicarboxylate metabolism

Citrate cycle (TCA cycle)

Butanoate metabolism

Synthesis and degradation
of ketone bodies

Propanoate metabolism

K07248

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PCK1

K01610

K01006
K01007

PKLR

LDHD

LDHAL6A

C00022

K00101

C00186

K00467

PDHA1

C00068

K00158

K00156

C00227

K00925

K01571...

ME3

K00028

C00058

K00656

C15972

BDHA1

C05125

DLDC

C16255

DLAT

C15973

C00024

K13788..
K04020

ACYP1

ACOT12

K18118

K01905

ACSS2

C00033

K01026

C05993

ACSS2

ALDH2

K00138

C00084

K01638

K01649

C02504

K00132...

Valine

Lysine biosynthesis

Fatty acid biosynthesis

C02488

C00332

C05994

ACAT1

K01655...

ACACA

C01251

C00083

Valine

Lysine biosynthesis

Fatty acid biosynthesis

K17741

C00424

GRHPR

C00937

K07248...

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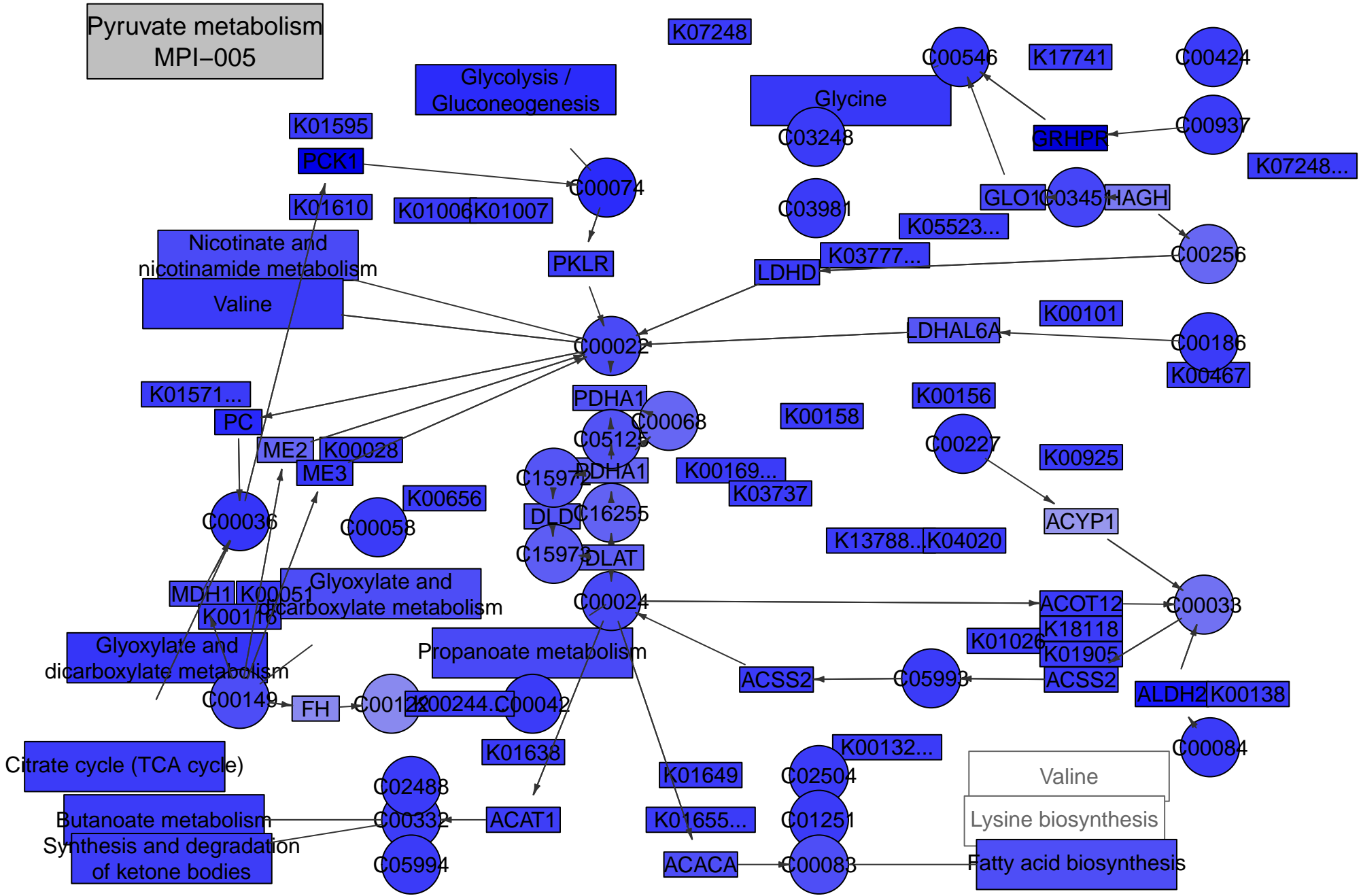
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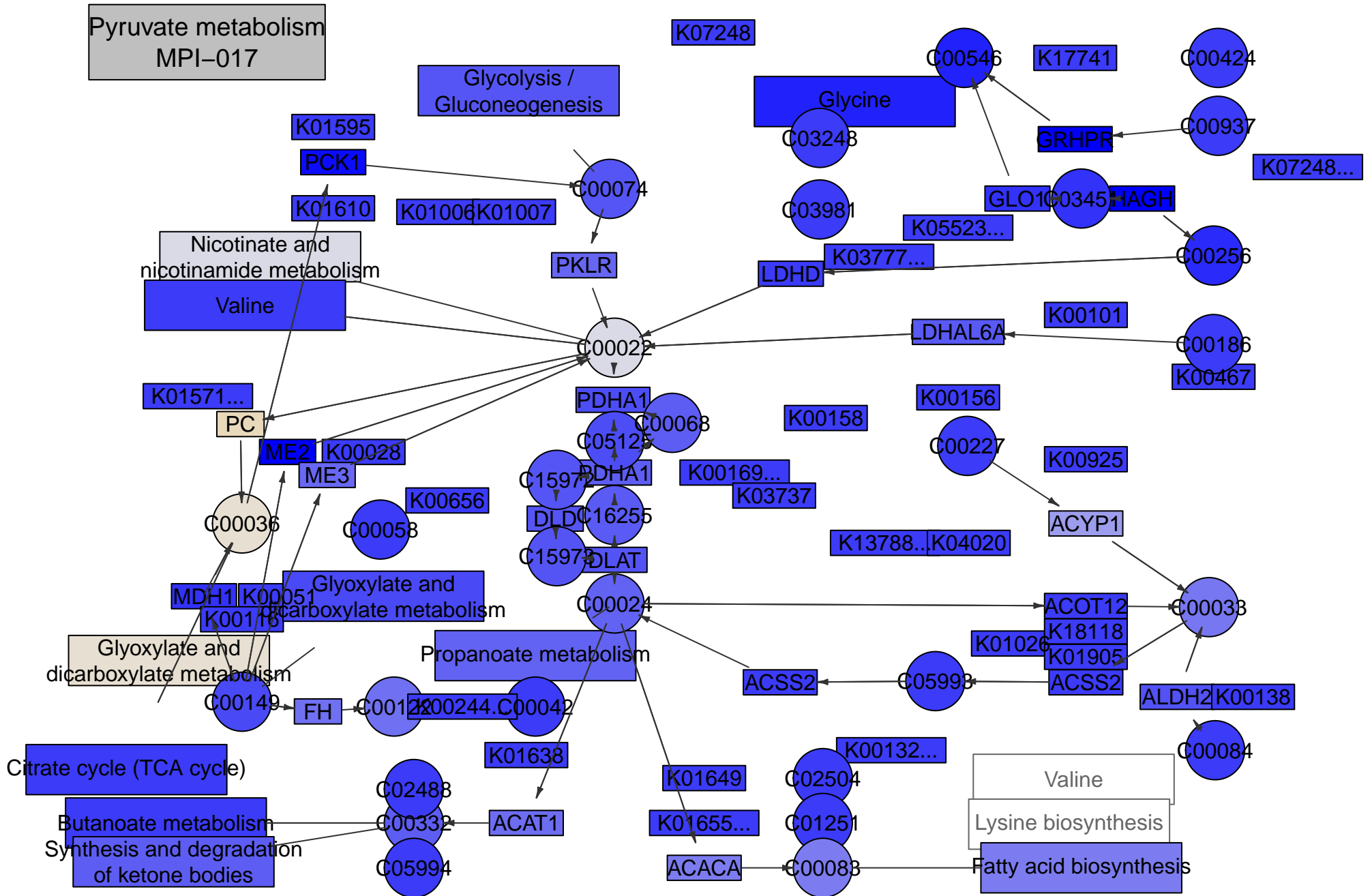
Lysine biosynthesis

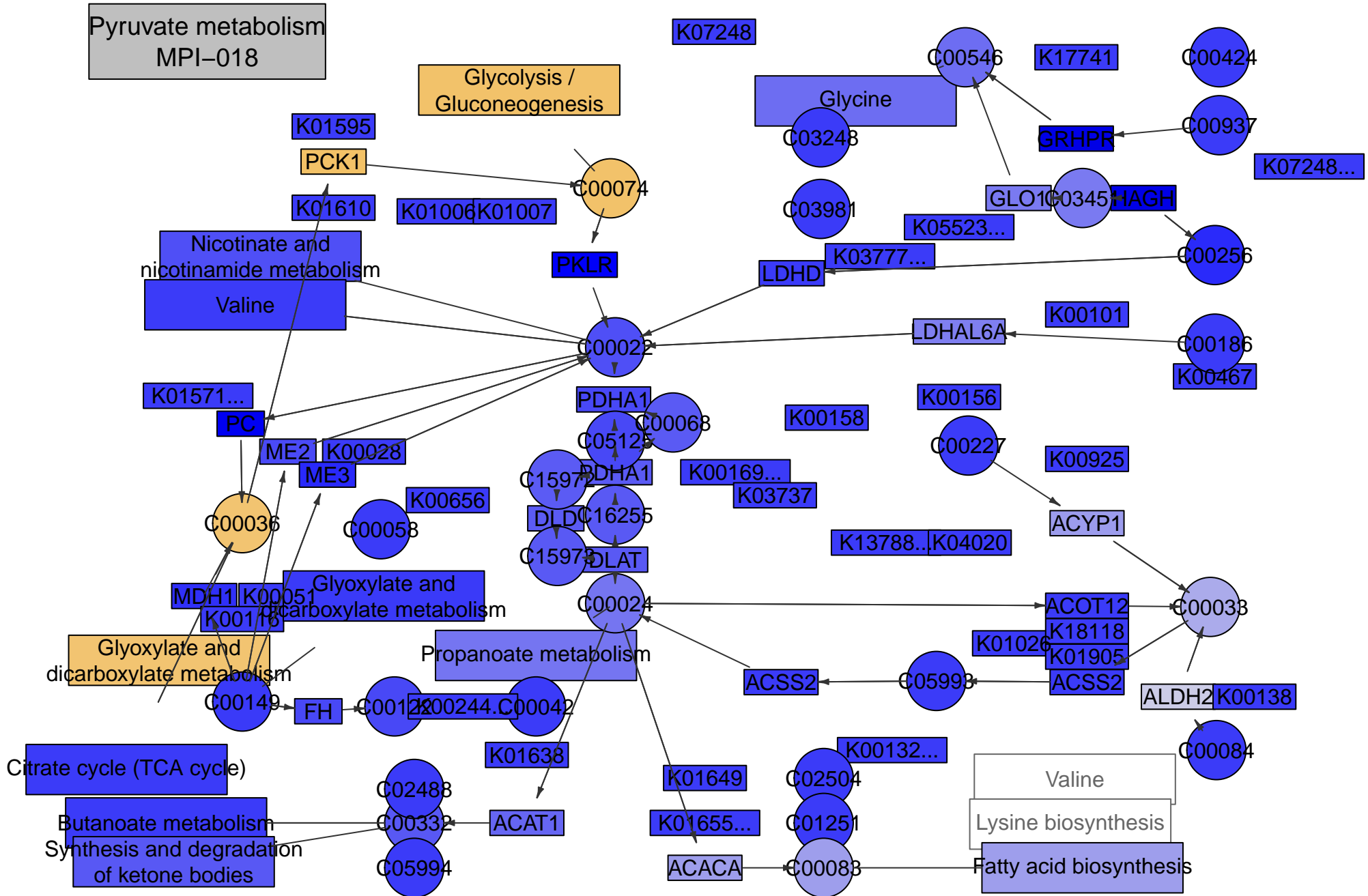
Fatty acid biosynthesis

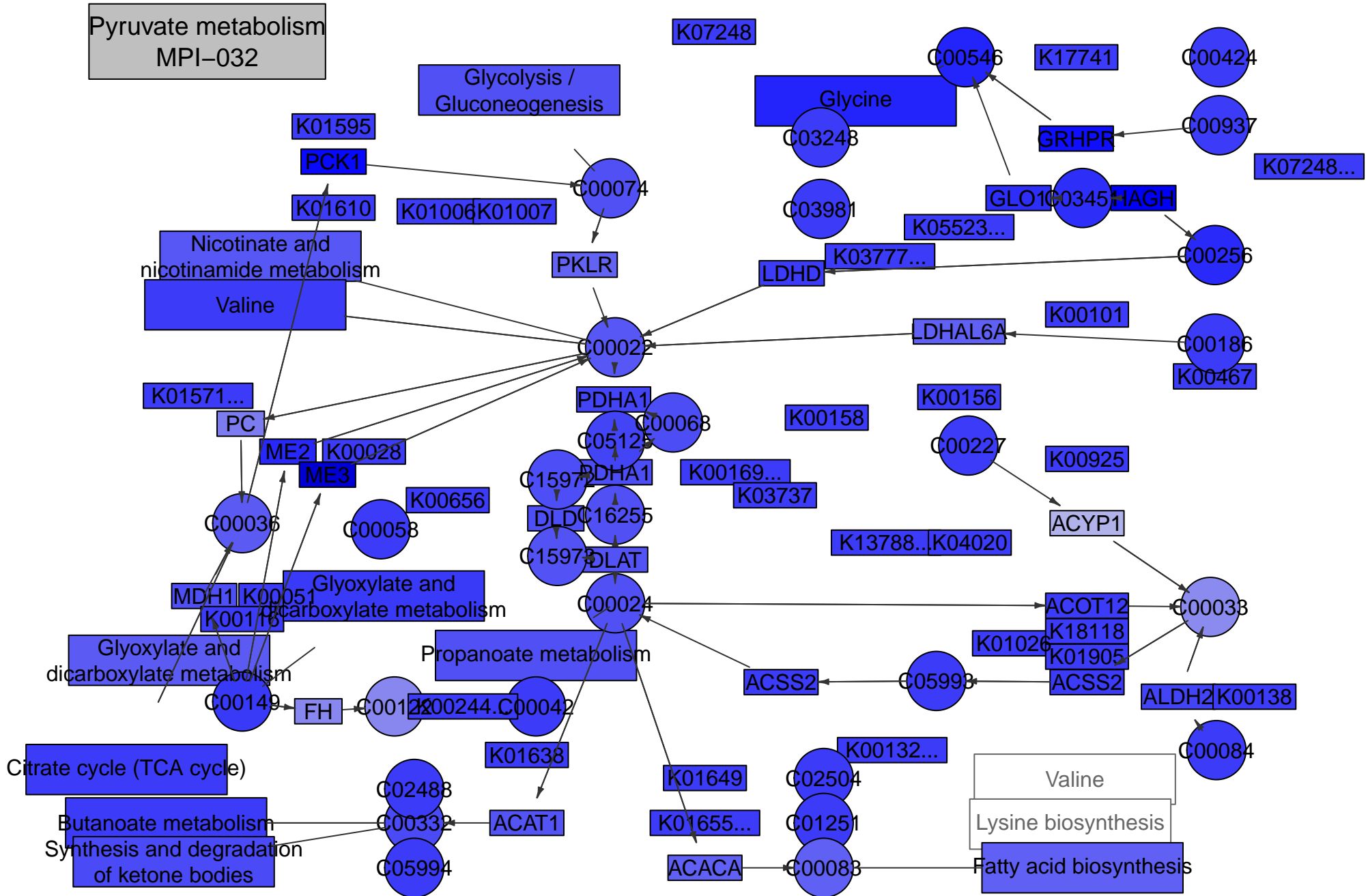
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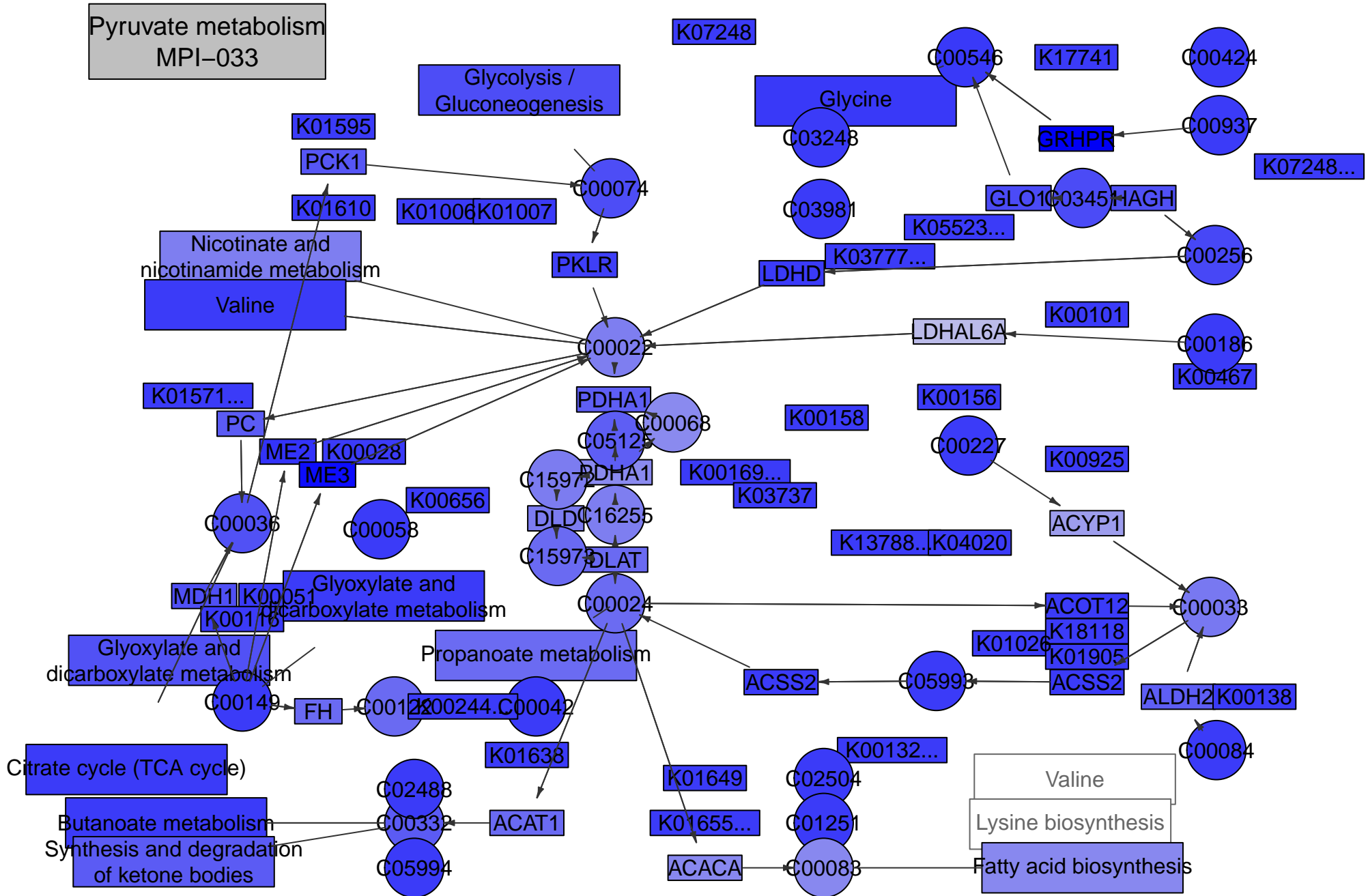
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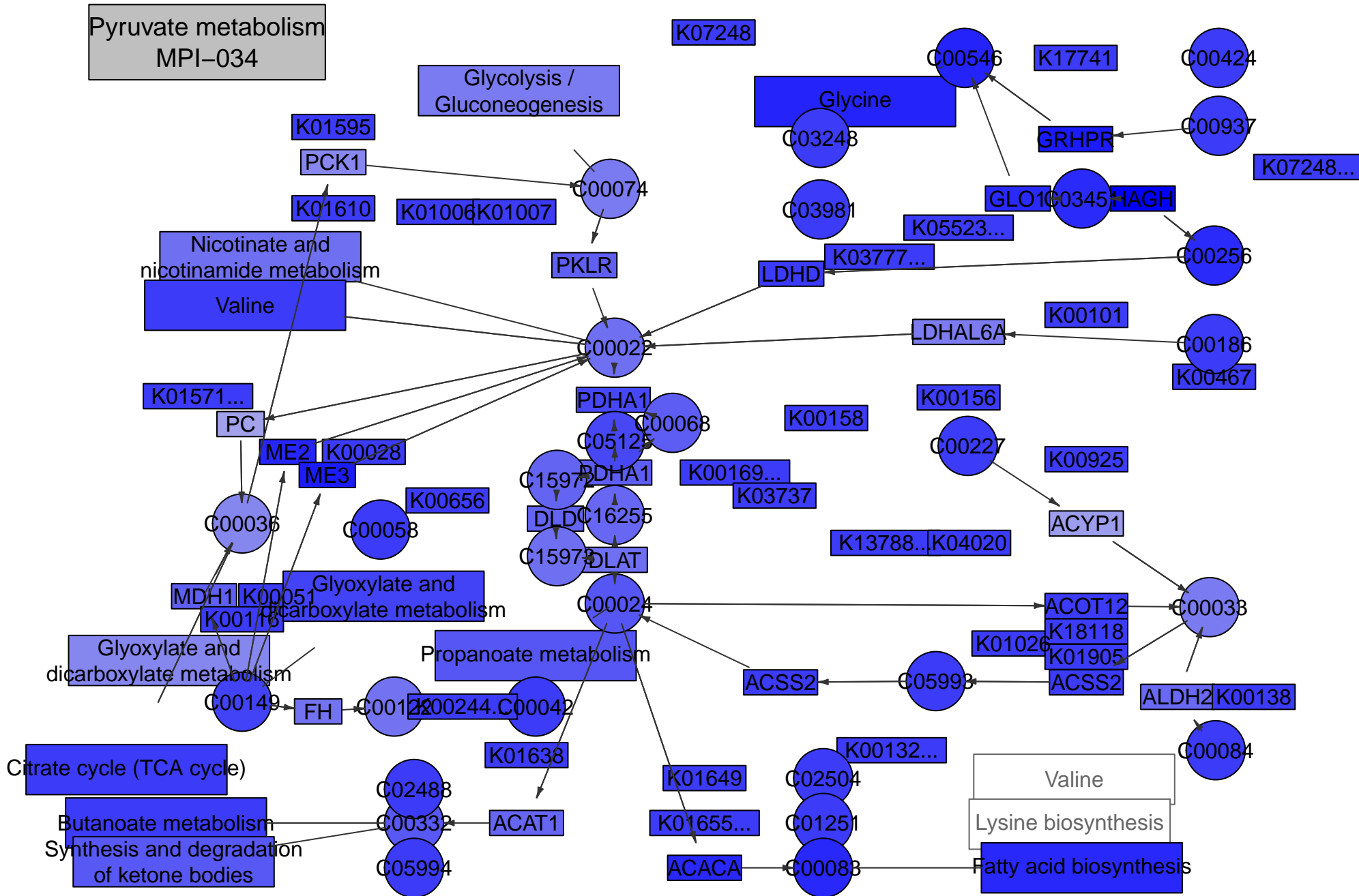


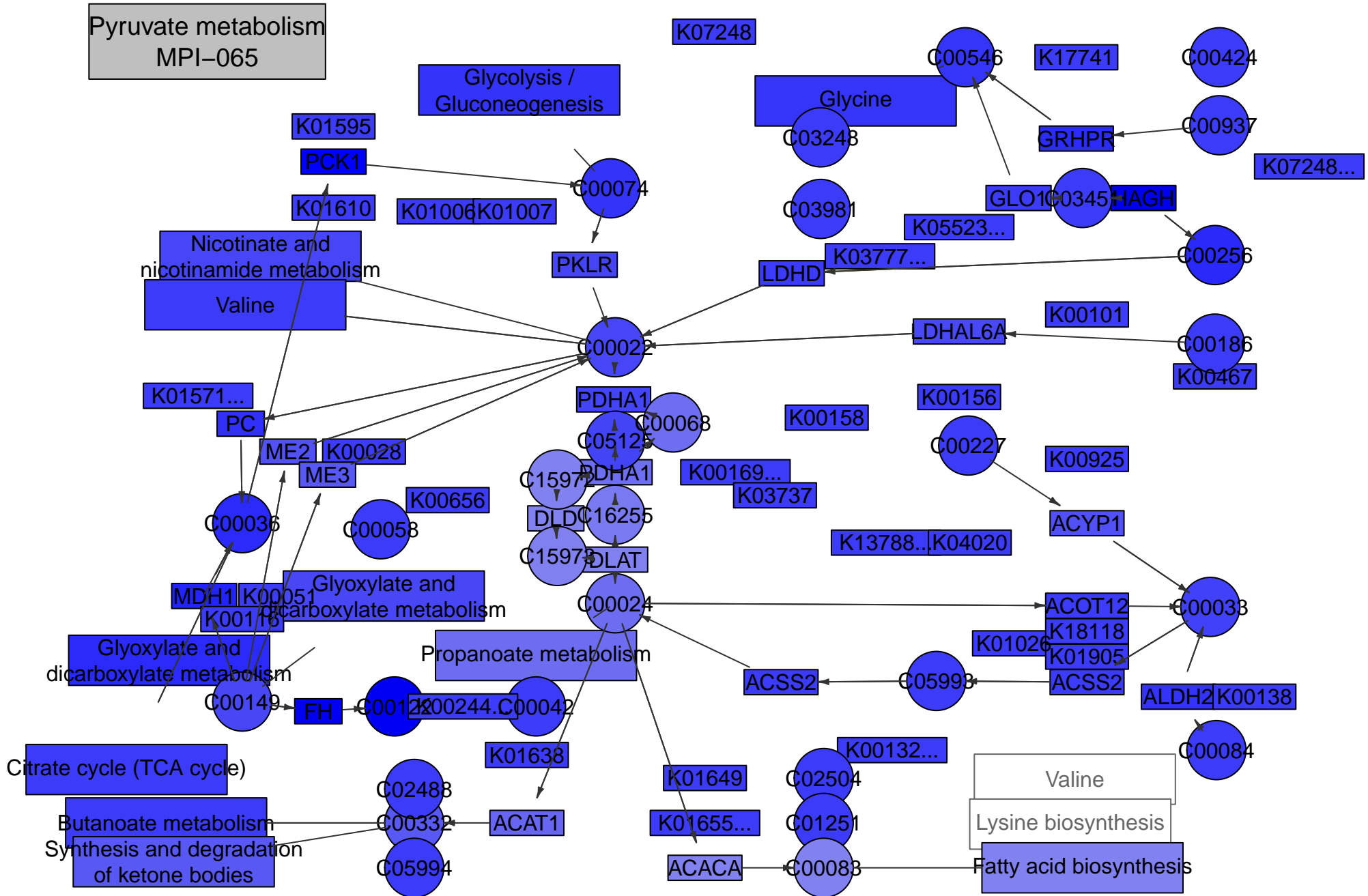


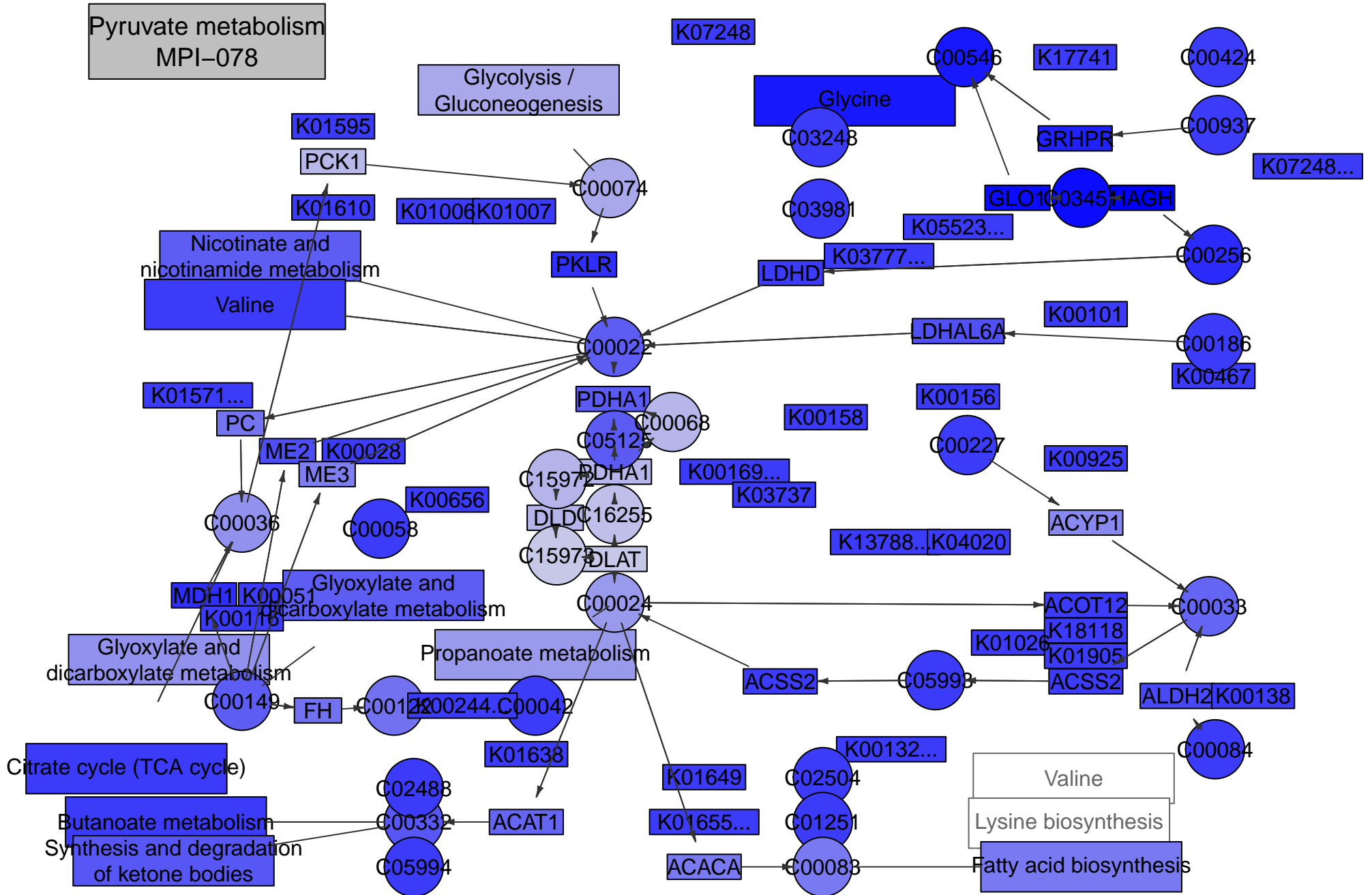


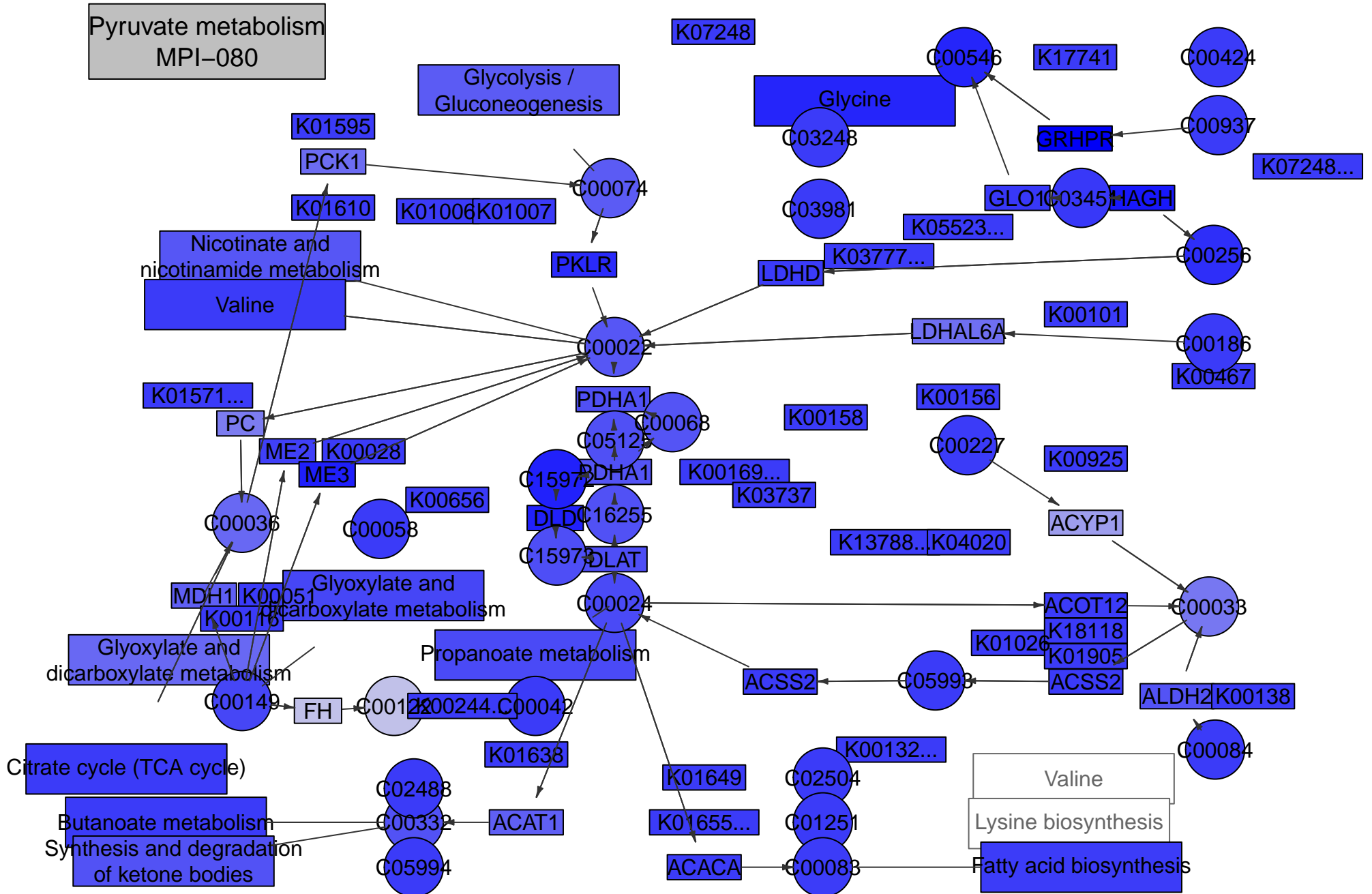


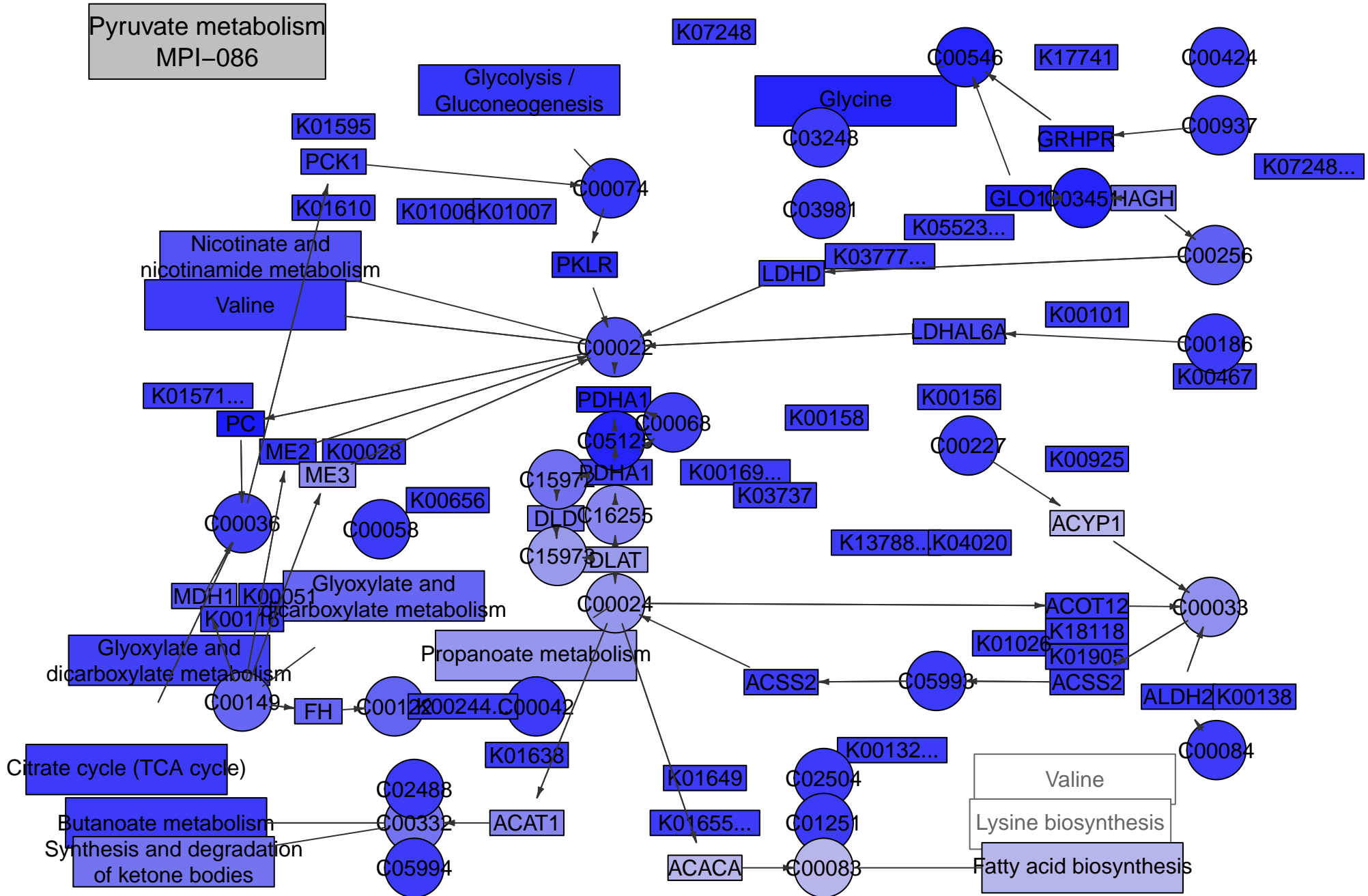


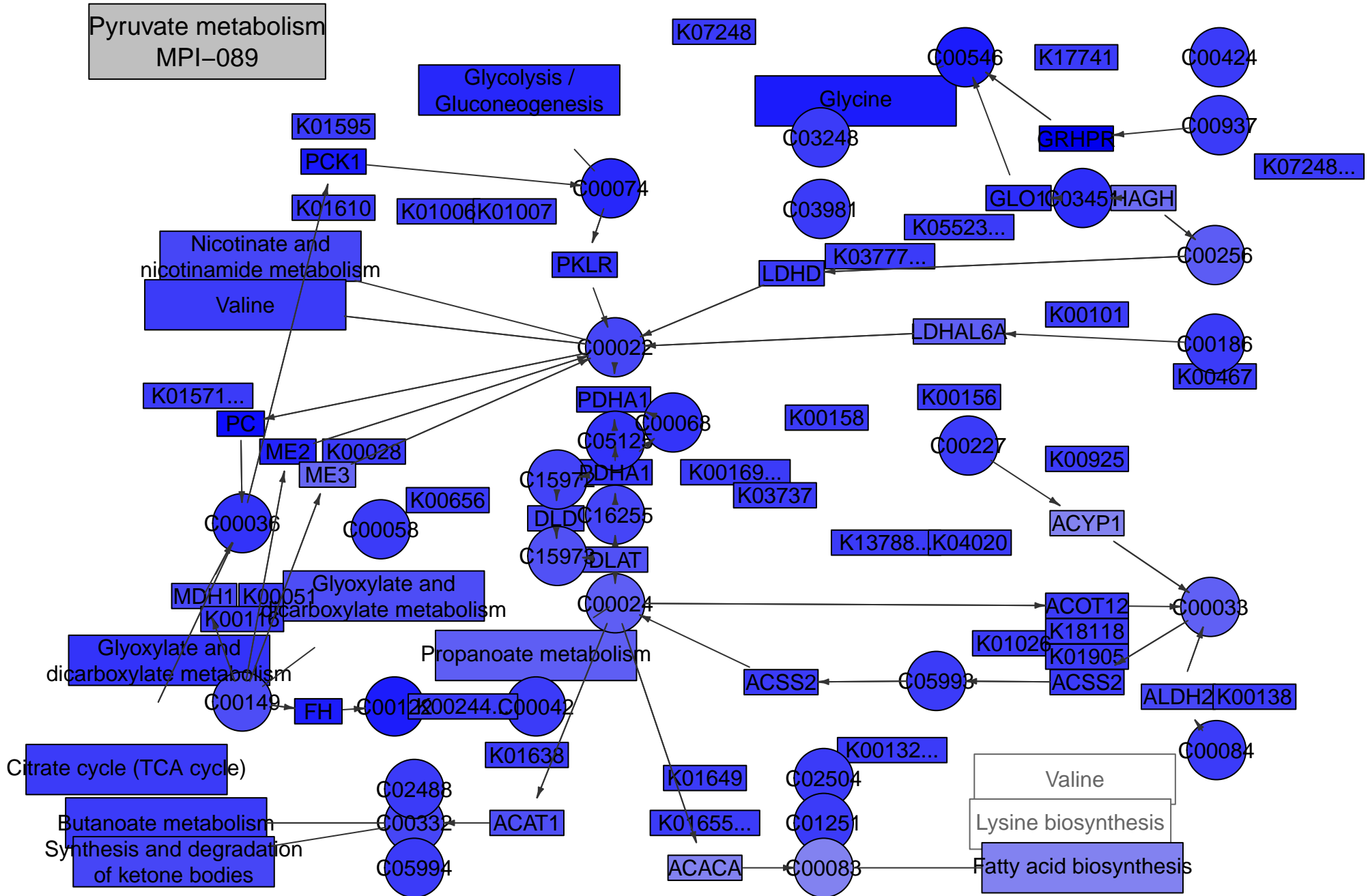


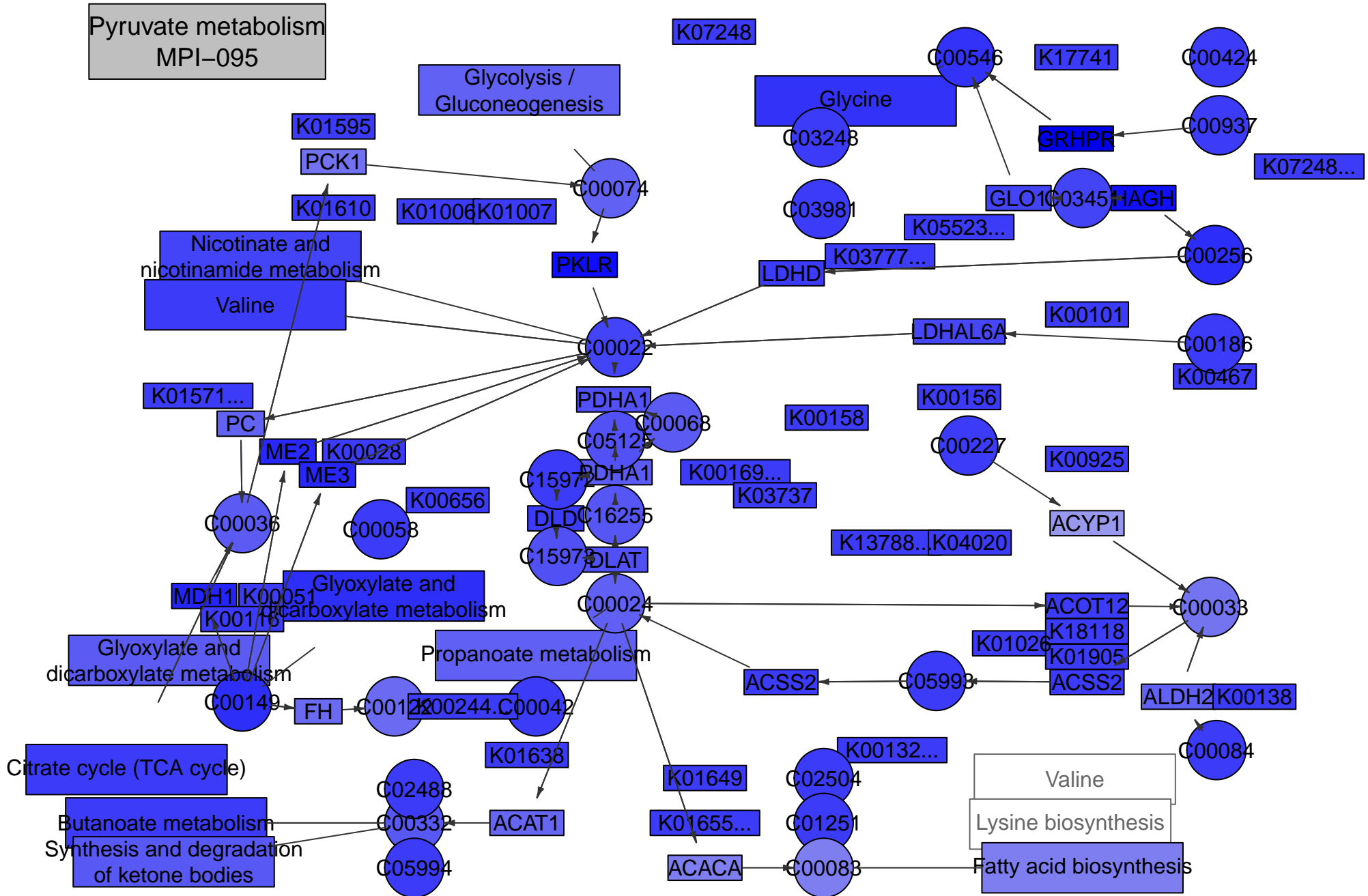


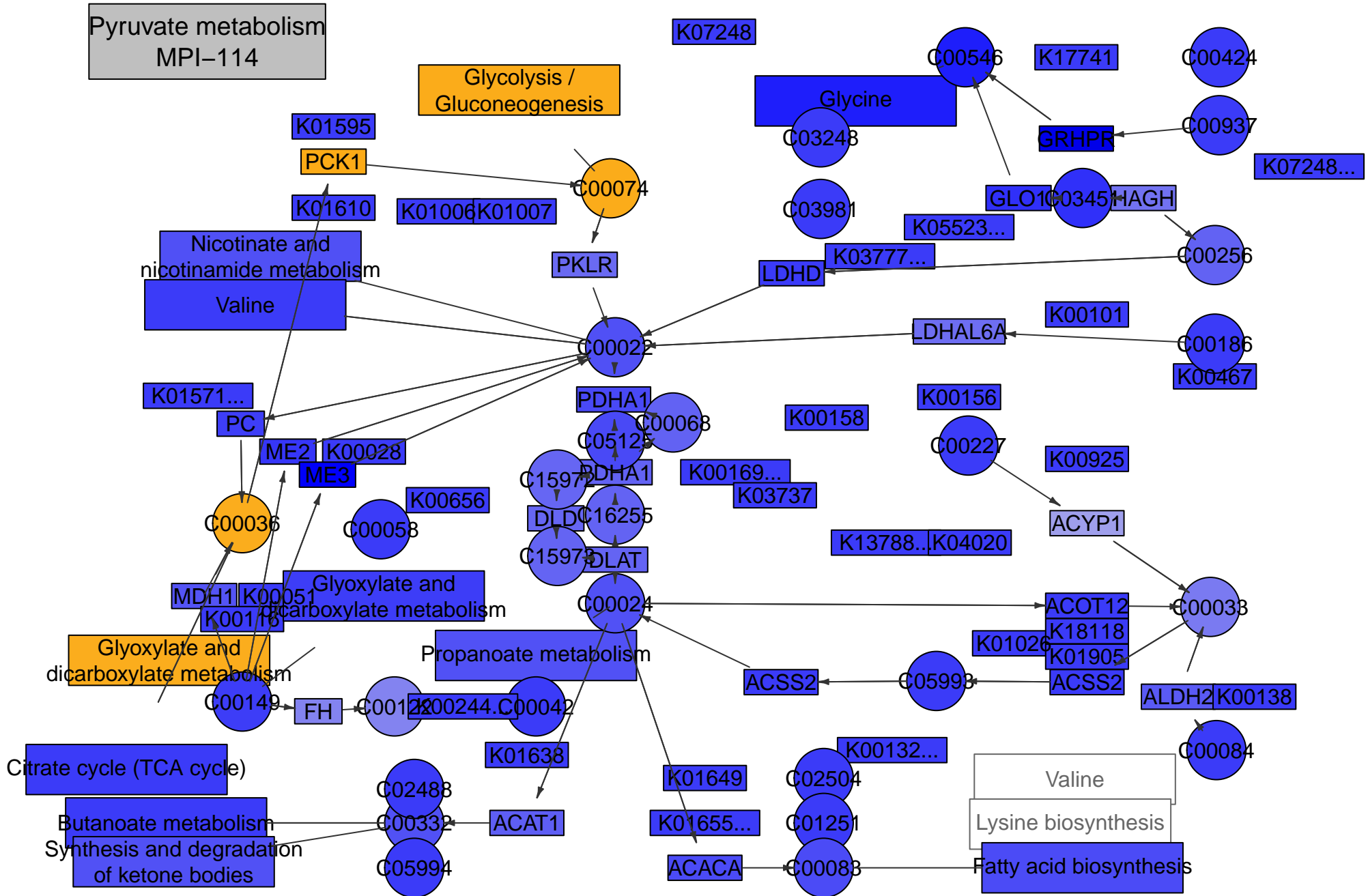


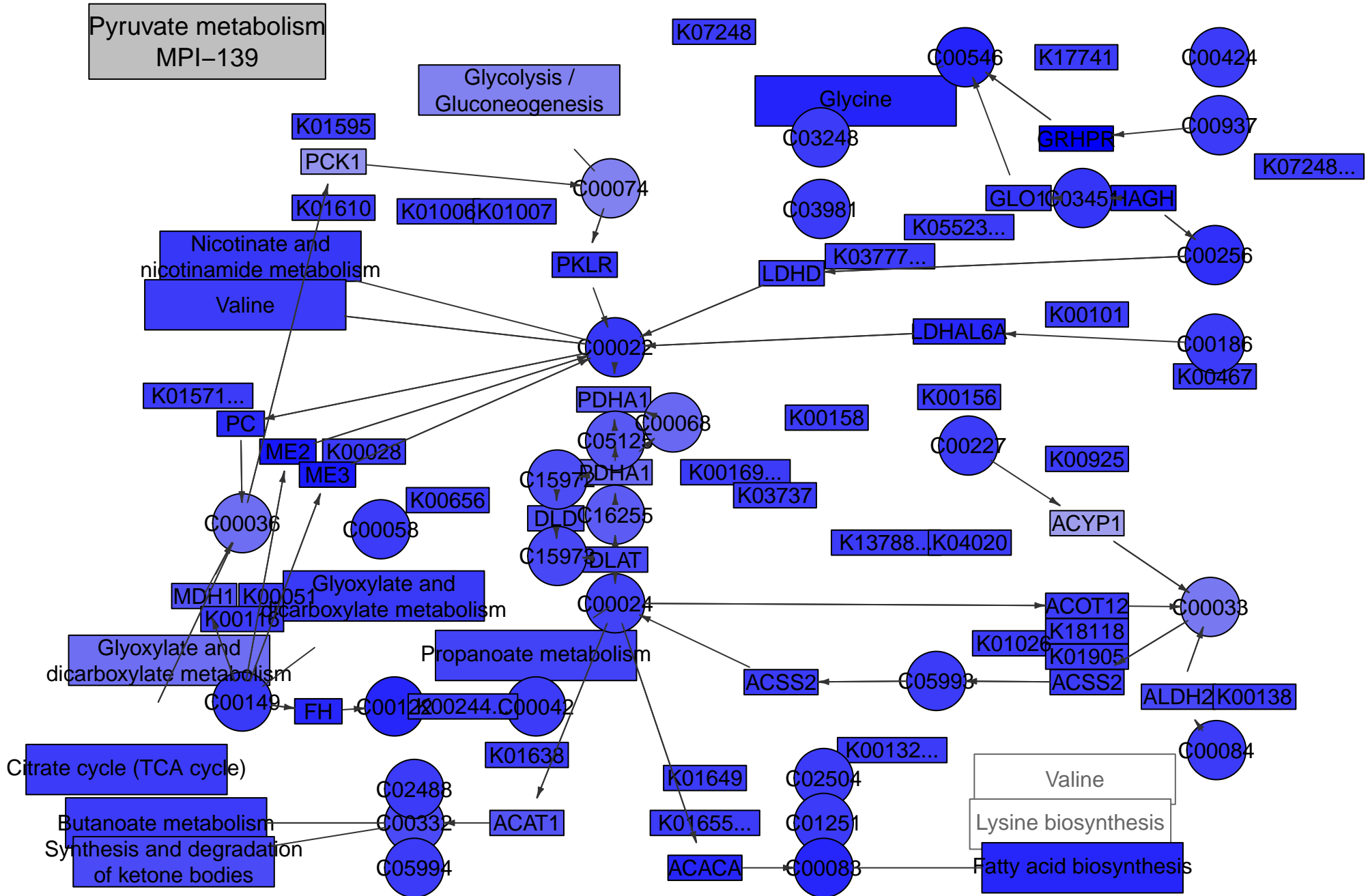


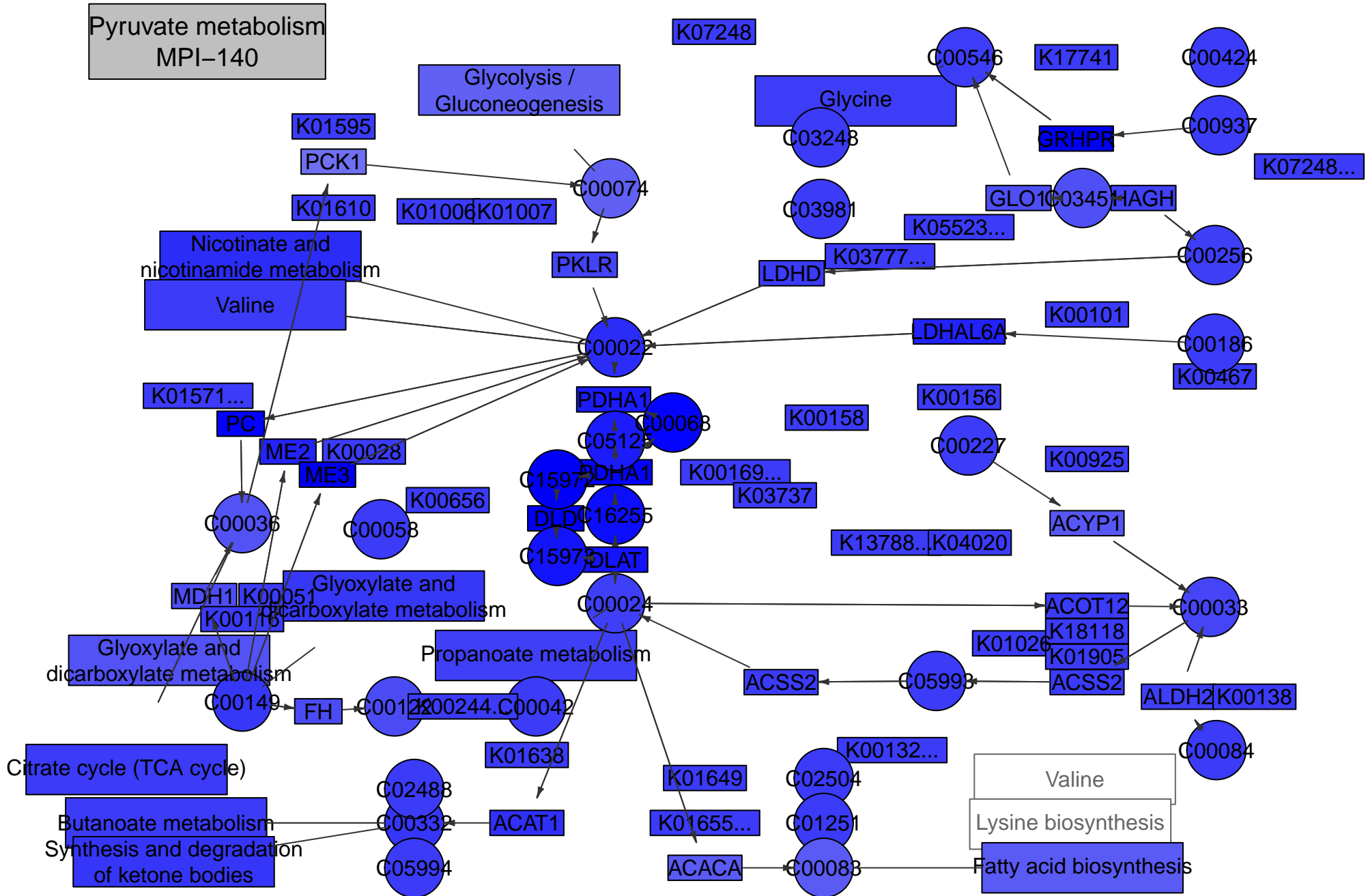


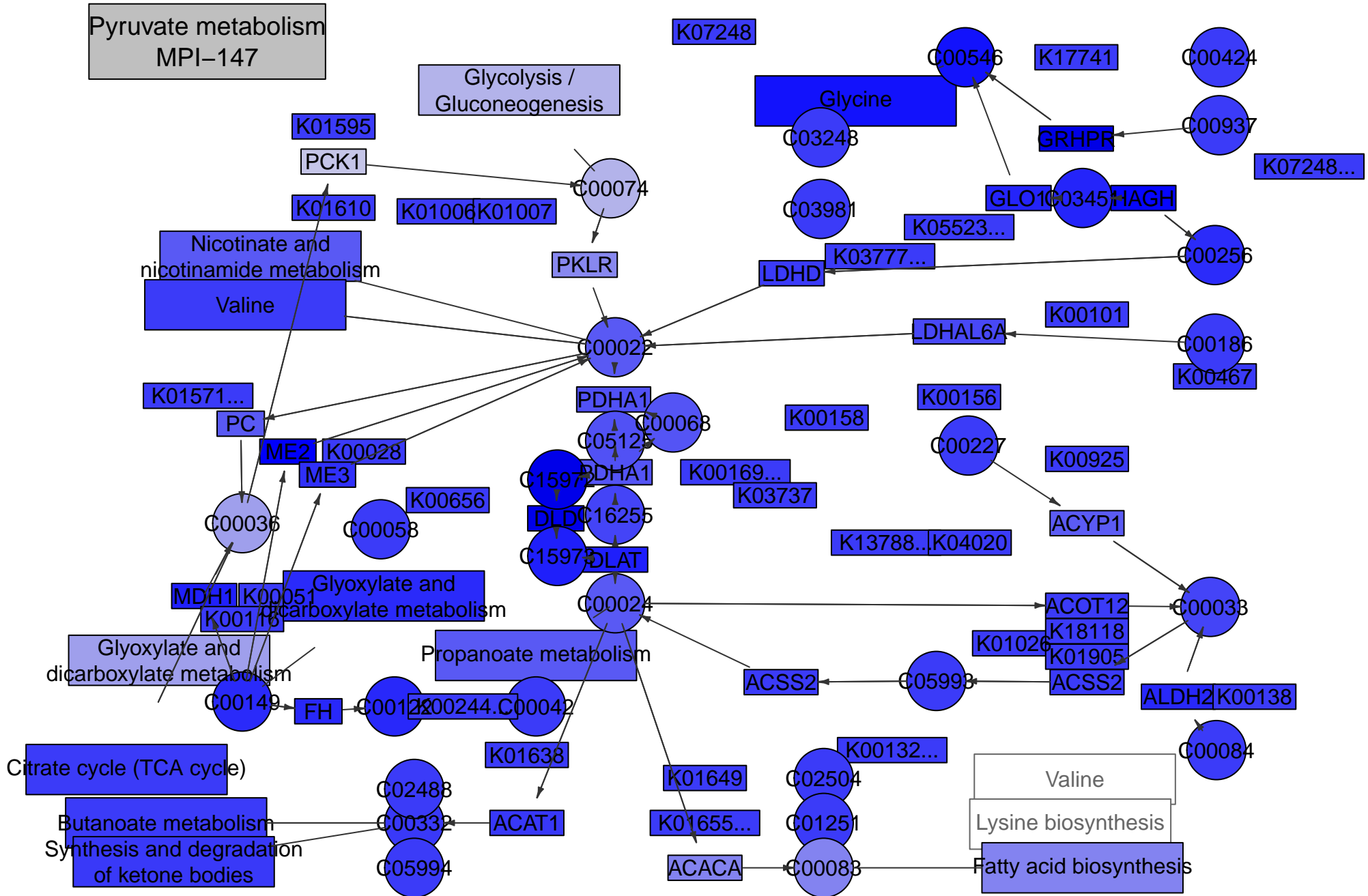


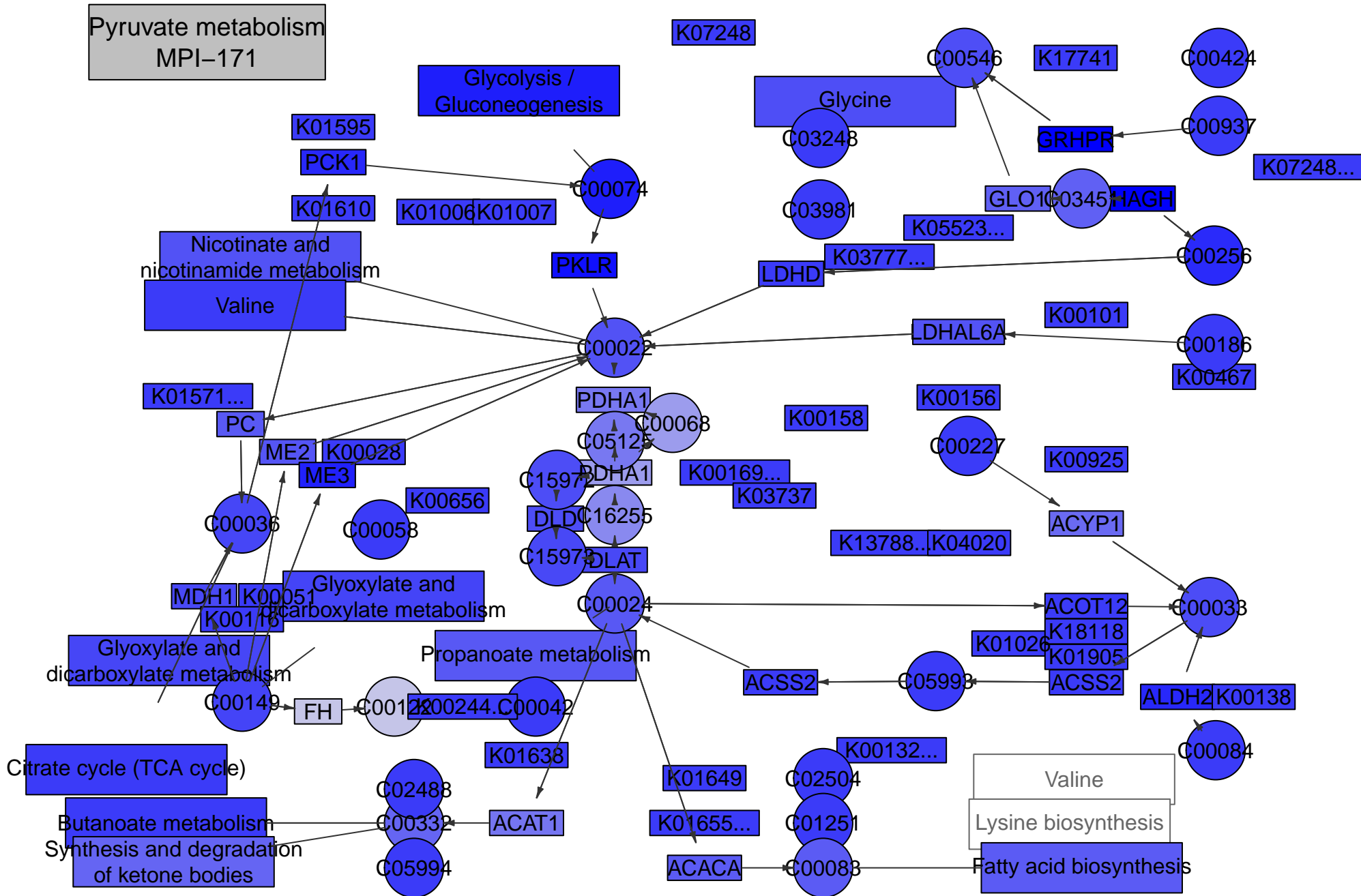


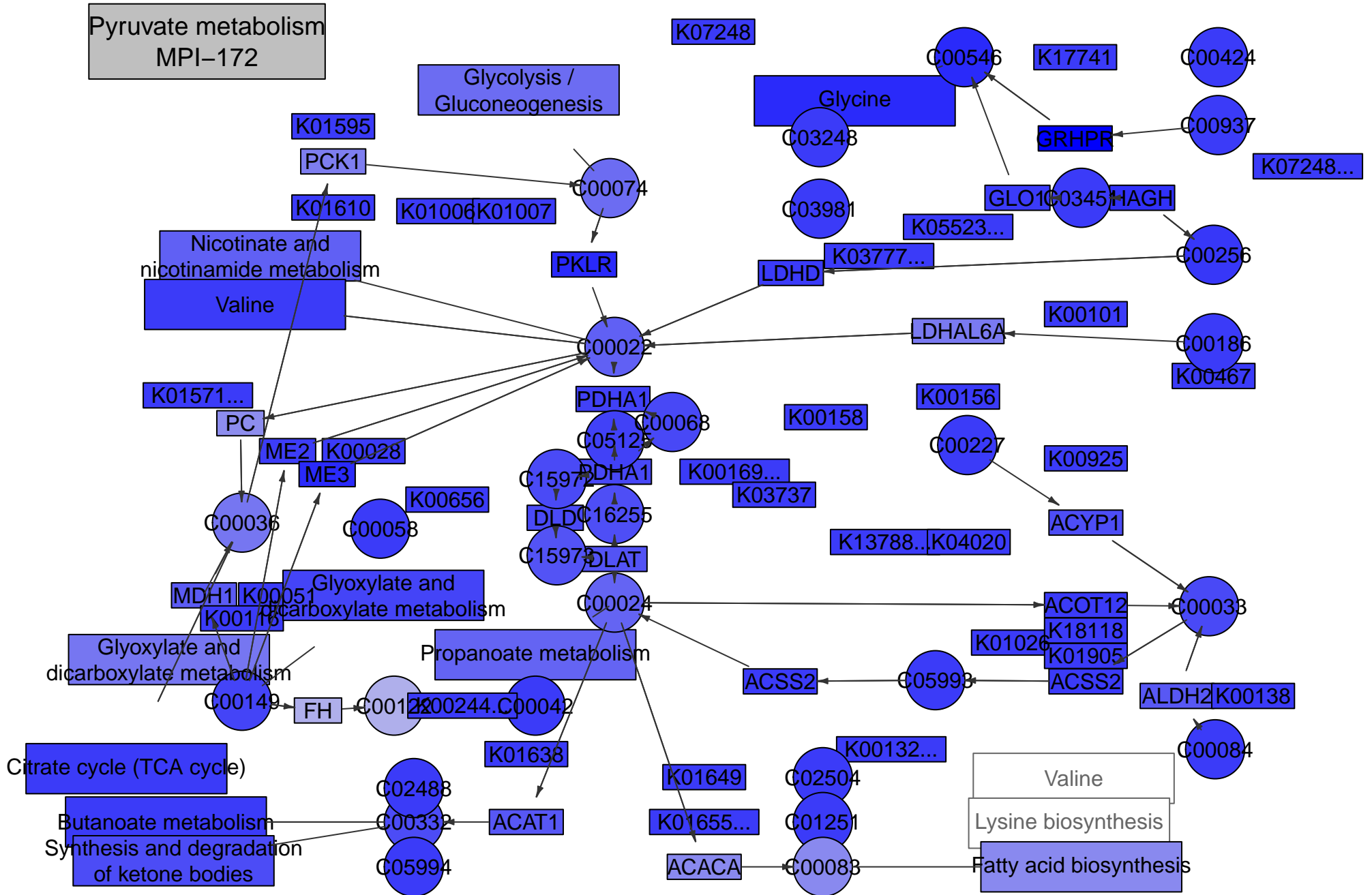


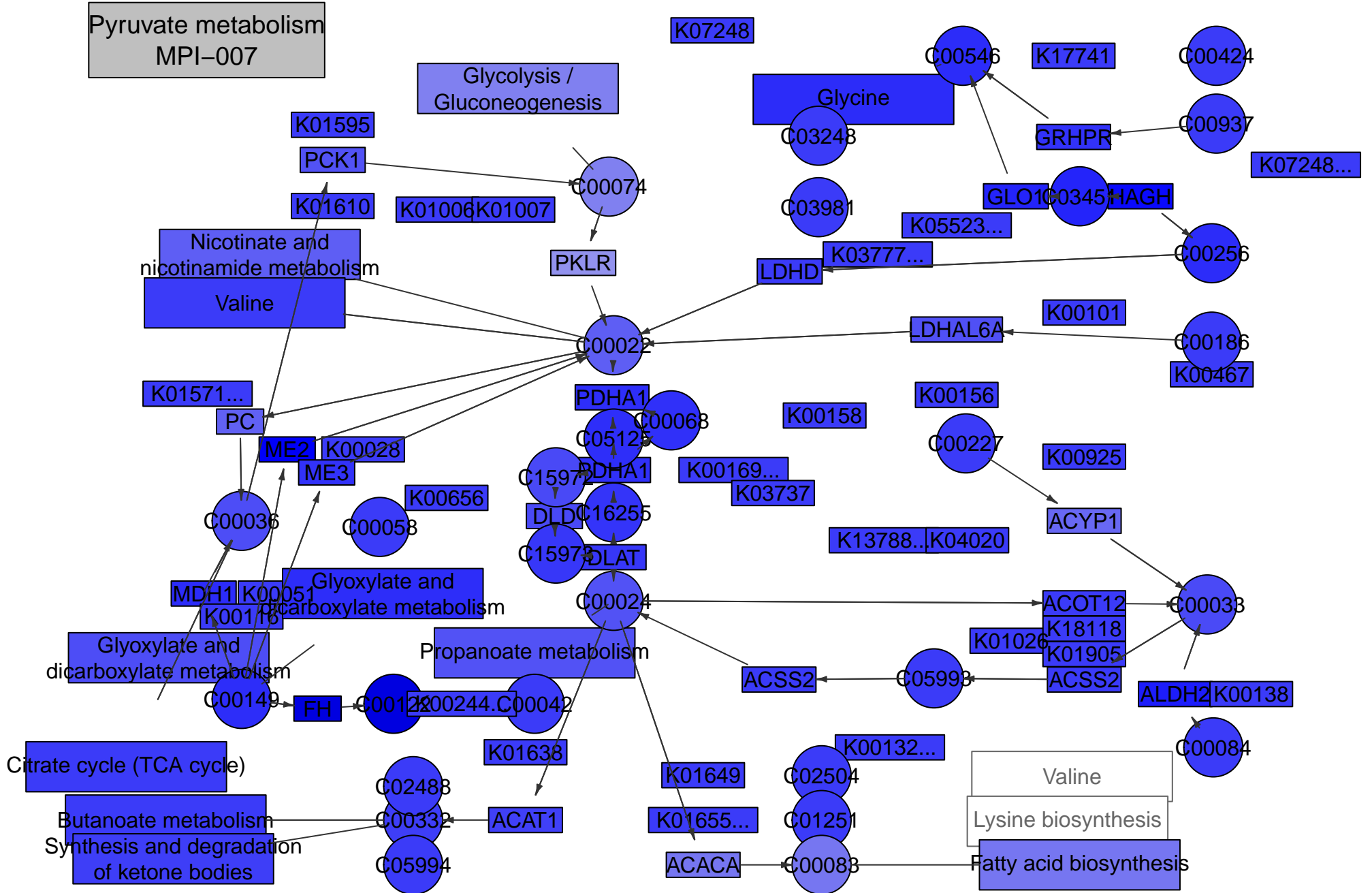


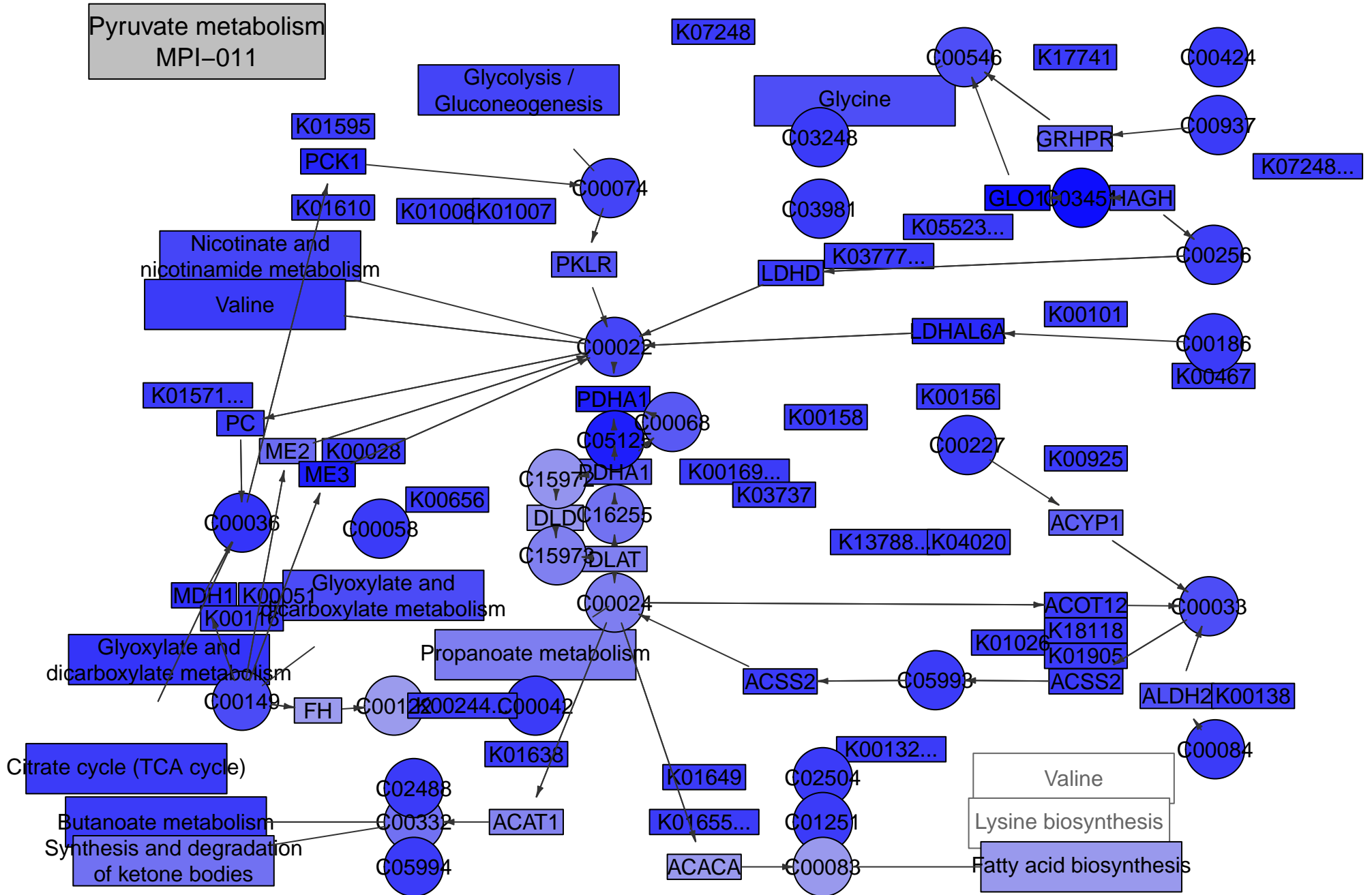


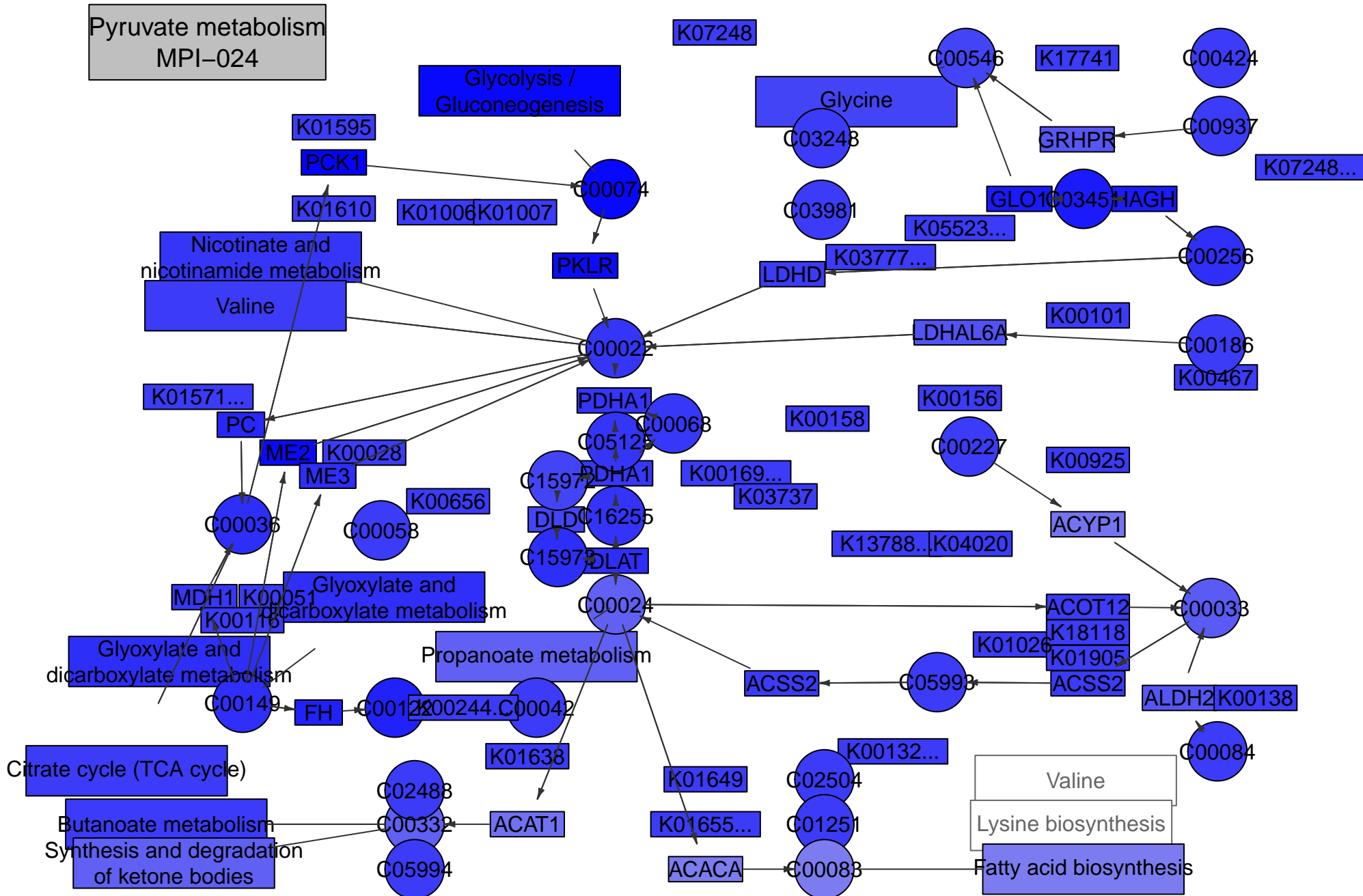


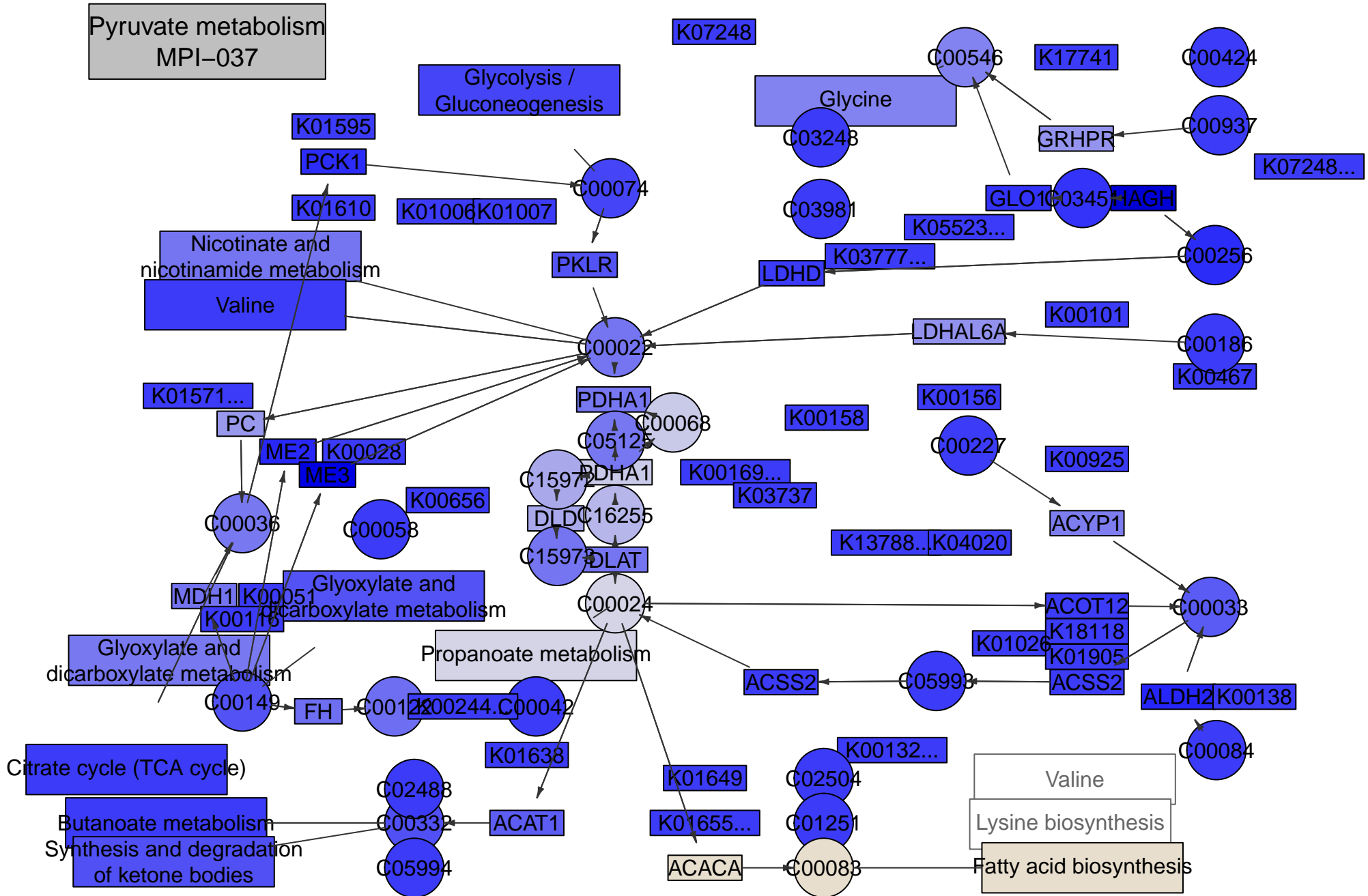


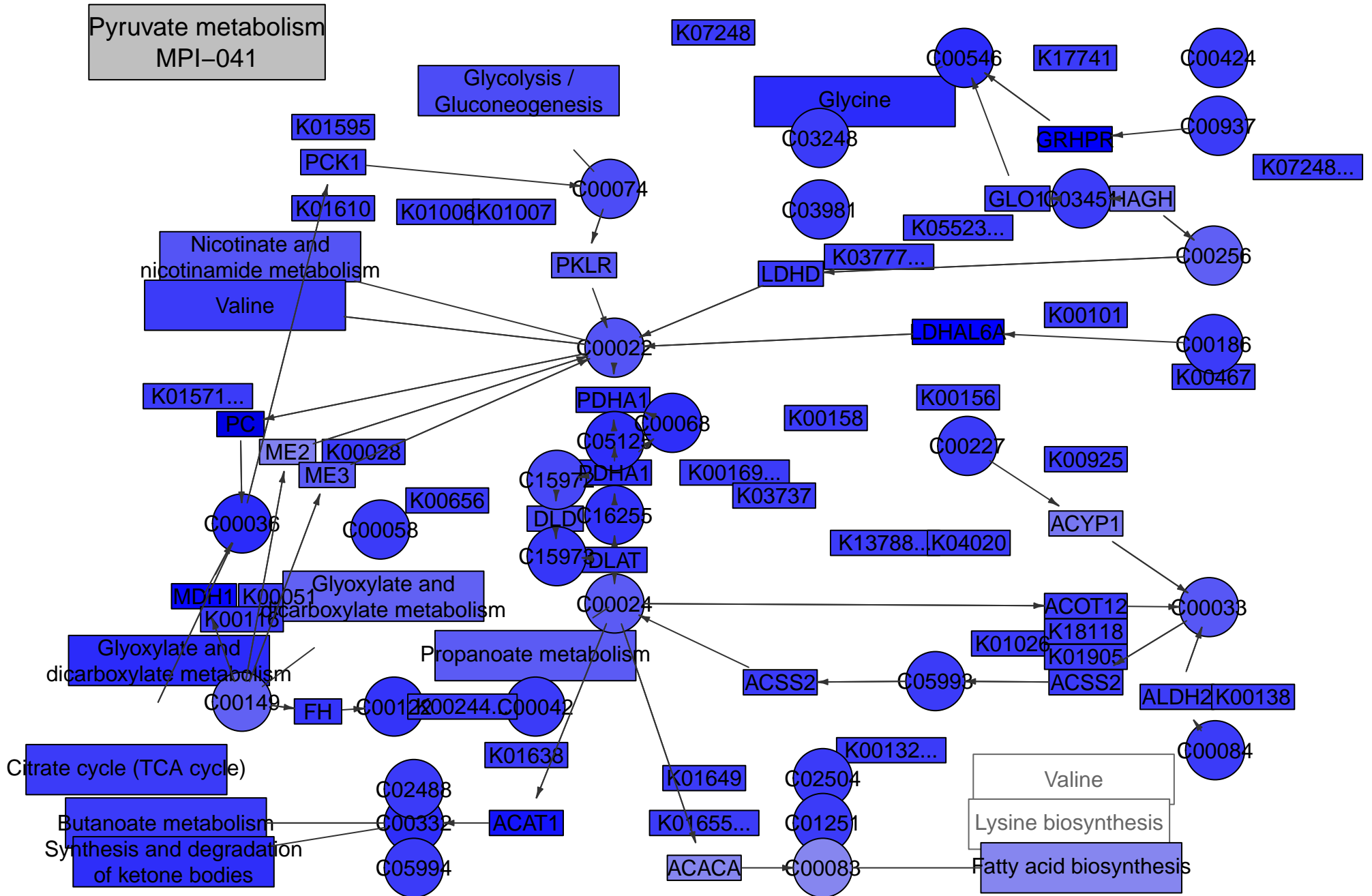


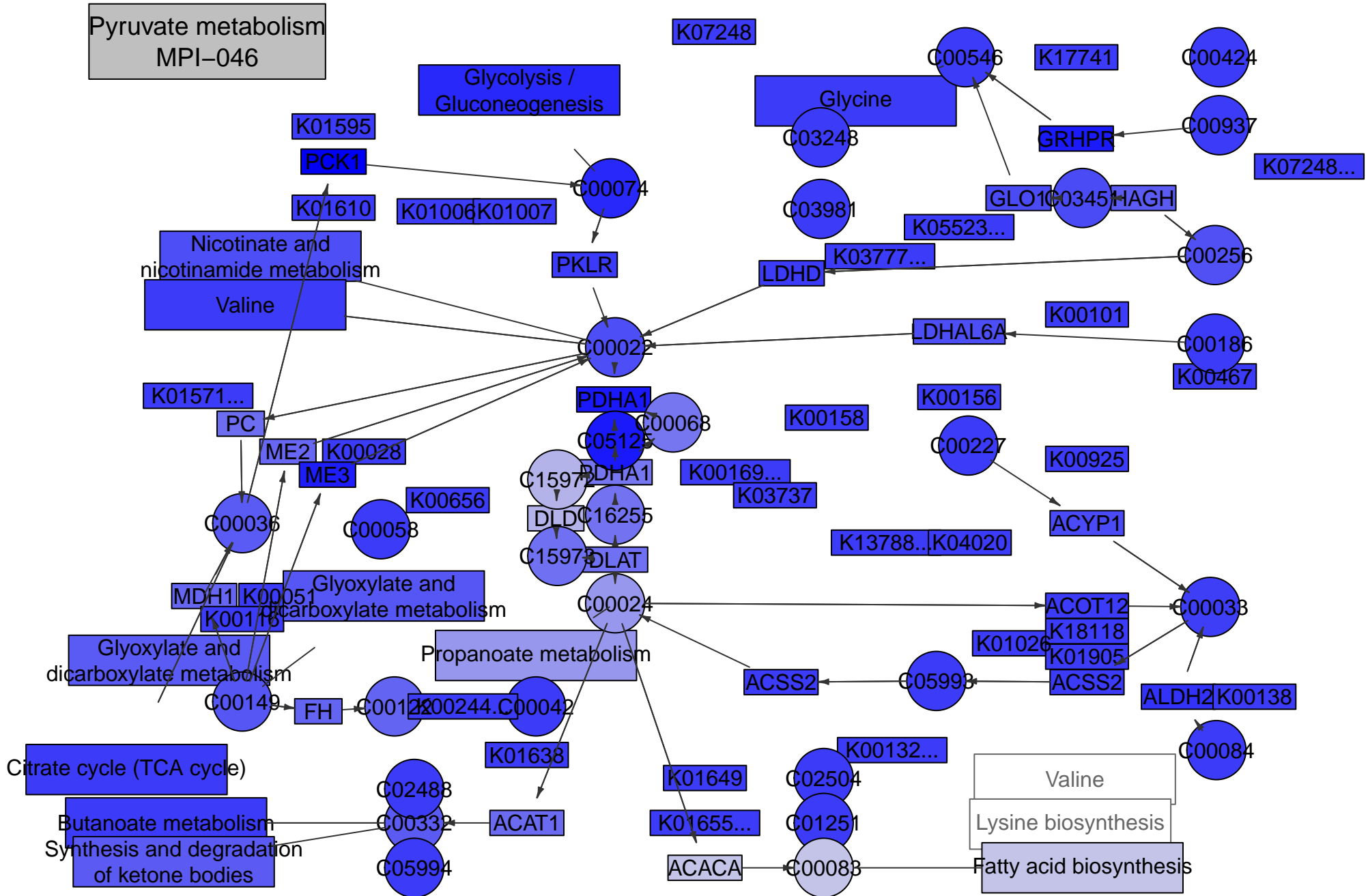


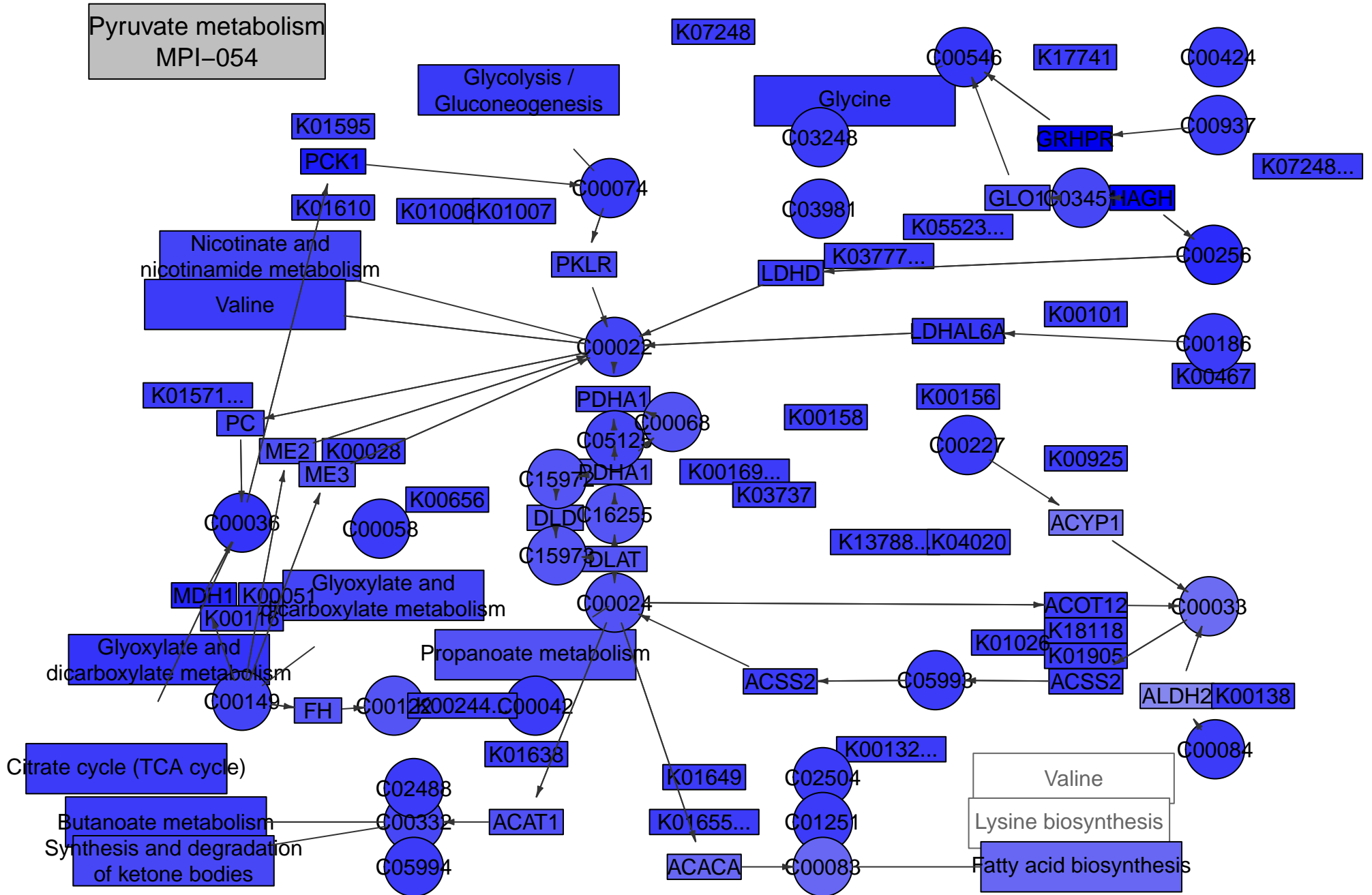


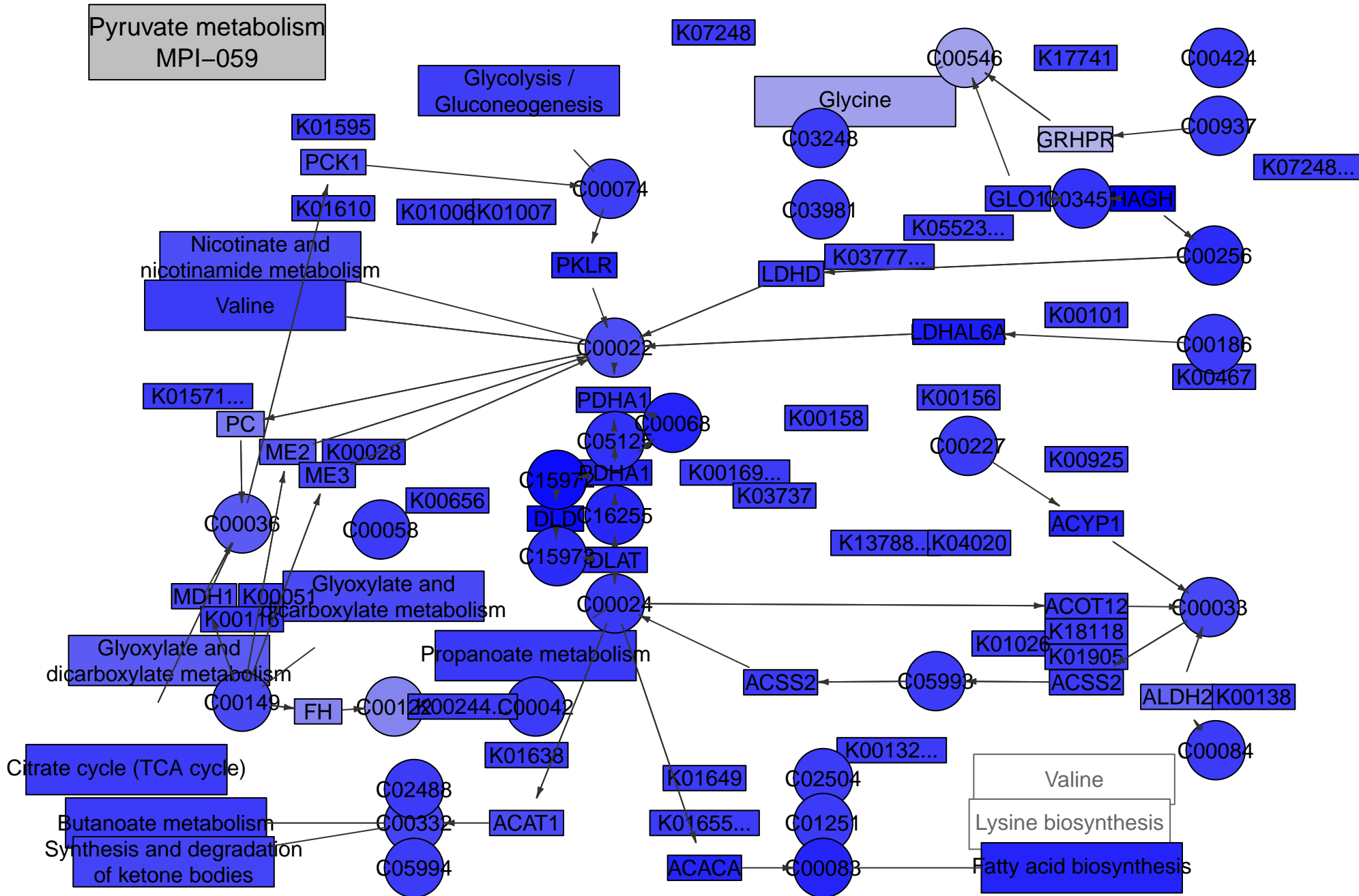


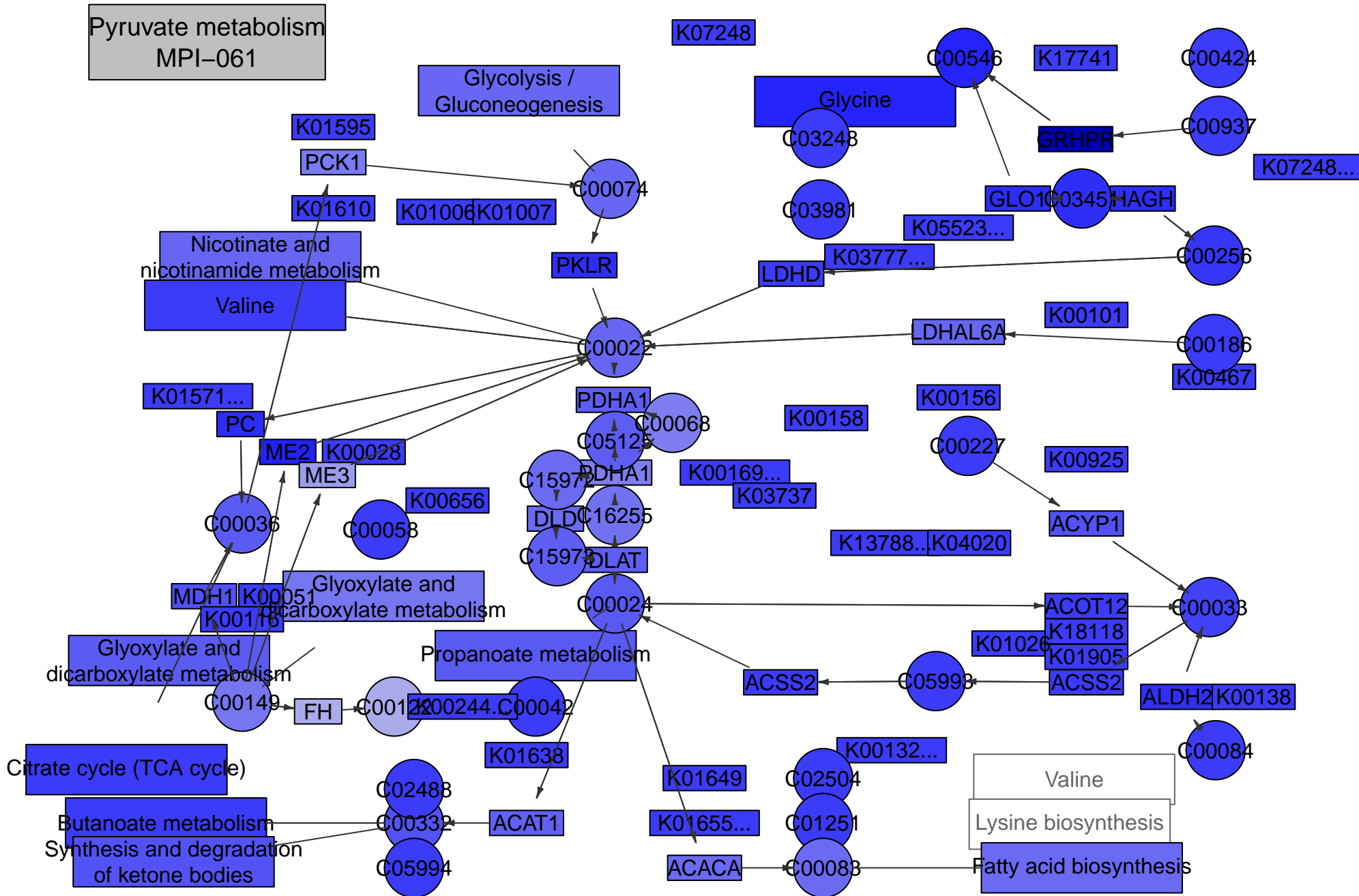


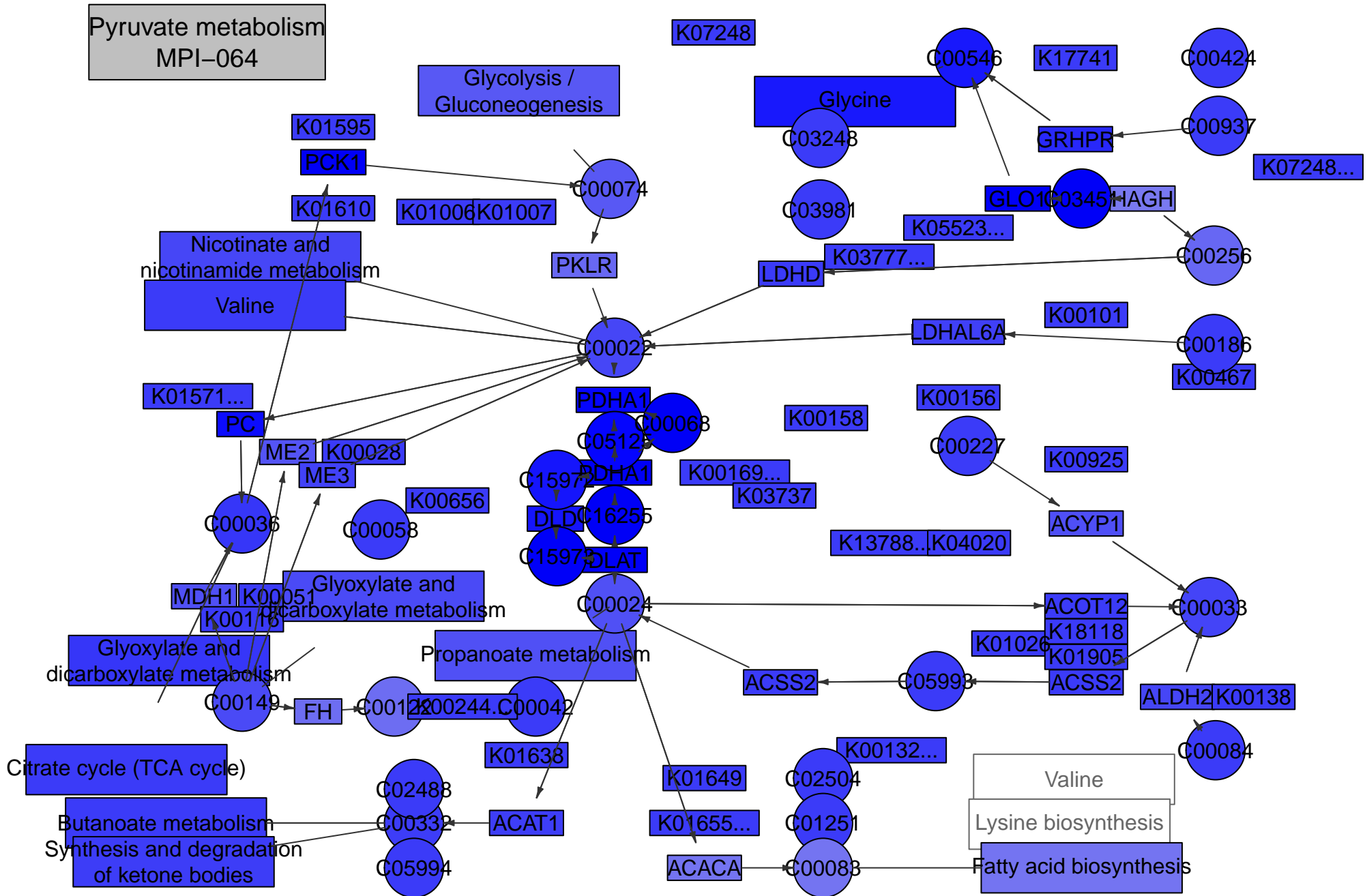












Pyruvate metabolism
MPI-070

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

PC

ME2

ME3

MDH1

K00118

Glyoxylate and
dicarboxylate metabolism

Propanoate metabolism

Citrate cycle (TCA cycle)

Butanoate metabolism
Synthesis and degradation
of ketone bodies

C03248

C03981

LDHD

K03777...

C00022

PDHA1

C00068

K00158

K00156

K00169...

K03737

K13788..K04020

C00024

ACSS2

C05993

K01026

ACSS2

K01649

C02504

K01655...

C01251

ACACA

C00088

C00546

K17741

C00424

C00937

GRHPR

K07248...

GLO1C0345

HAGH

C00256

K05523...

LDHAL6A

K00101

C00186

K00467

C00227

K00925

ACYP1

ACOT12

K18118

K01905

ACSS2

C00033

K00138

ALDH2

C00084

Valine

Lysine biosynthesis

Fatty acid biosynthesis

K01595

PCK1

C00074

K01610

K01006

K01007

PKLR

C00022

K01571...

PC

C00036

K00028

C00058

K00656

C00024

K00051

C00149

FH

C00122

K00244

C00042

C02488

C00332

ACAT1

C05994

K01638

C00084

C15972

BDHA1

C05125

K00169...

K03737

C15973

DLDC

C16255

DLAT

C00024

ACSS2

C05993

K01026

ACSS2

K01649

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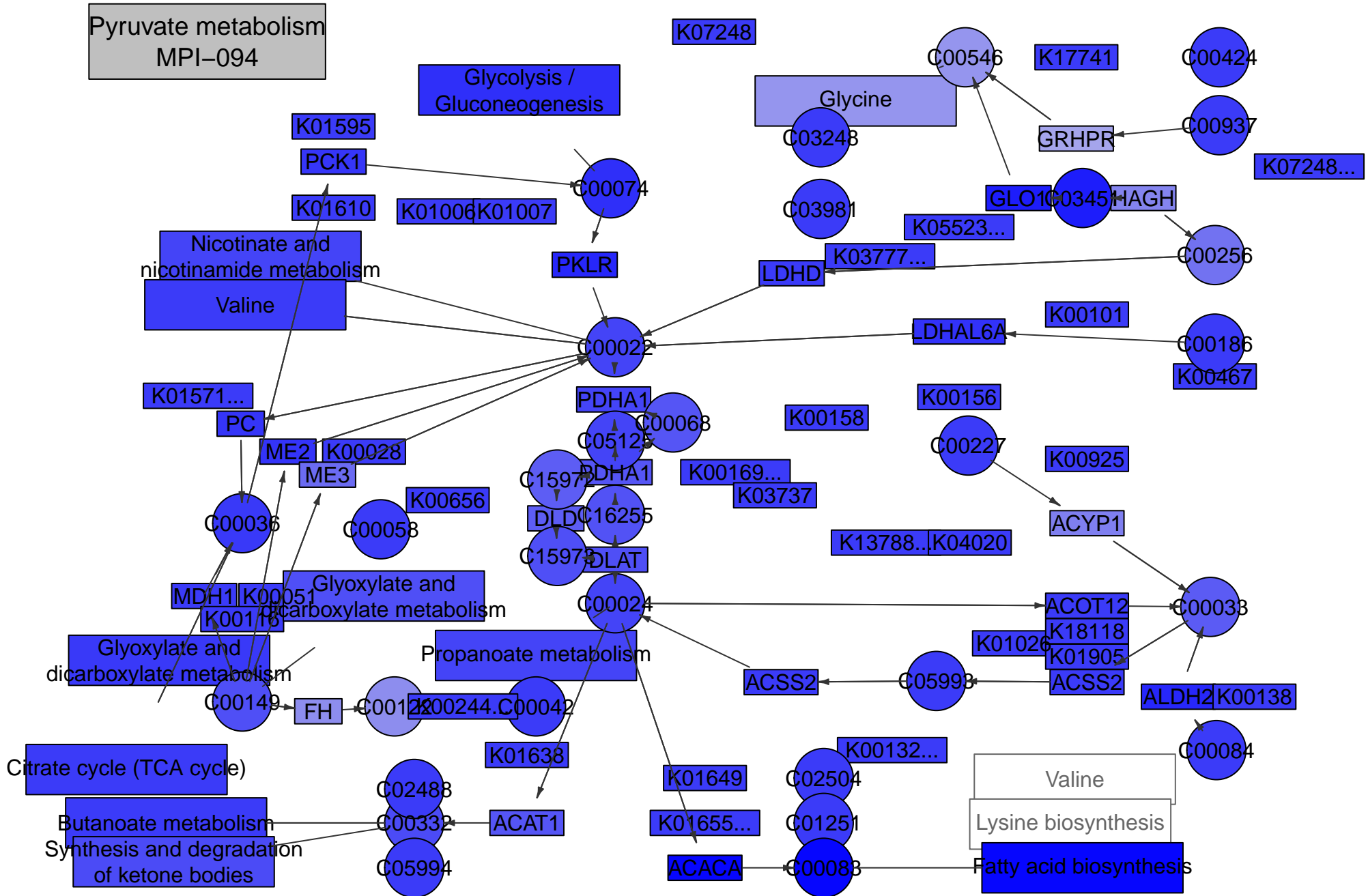
ALDH2

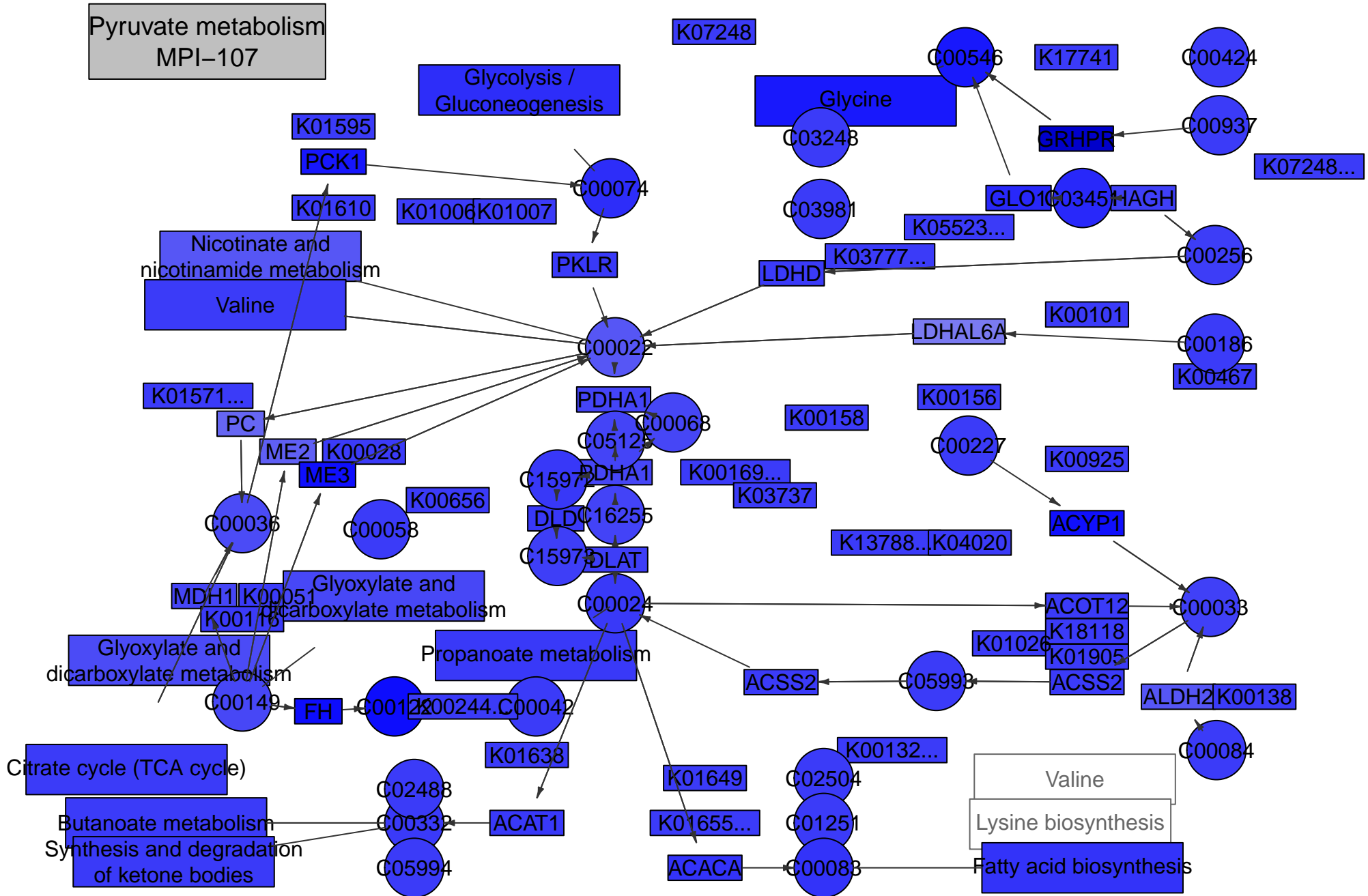
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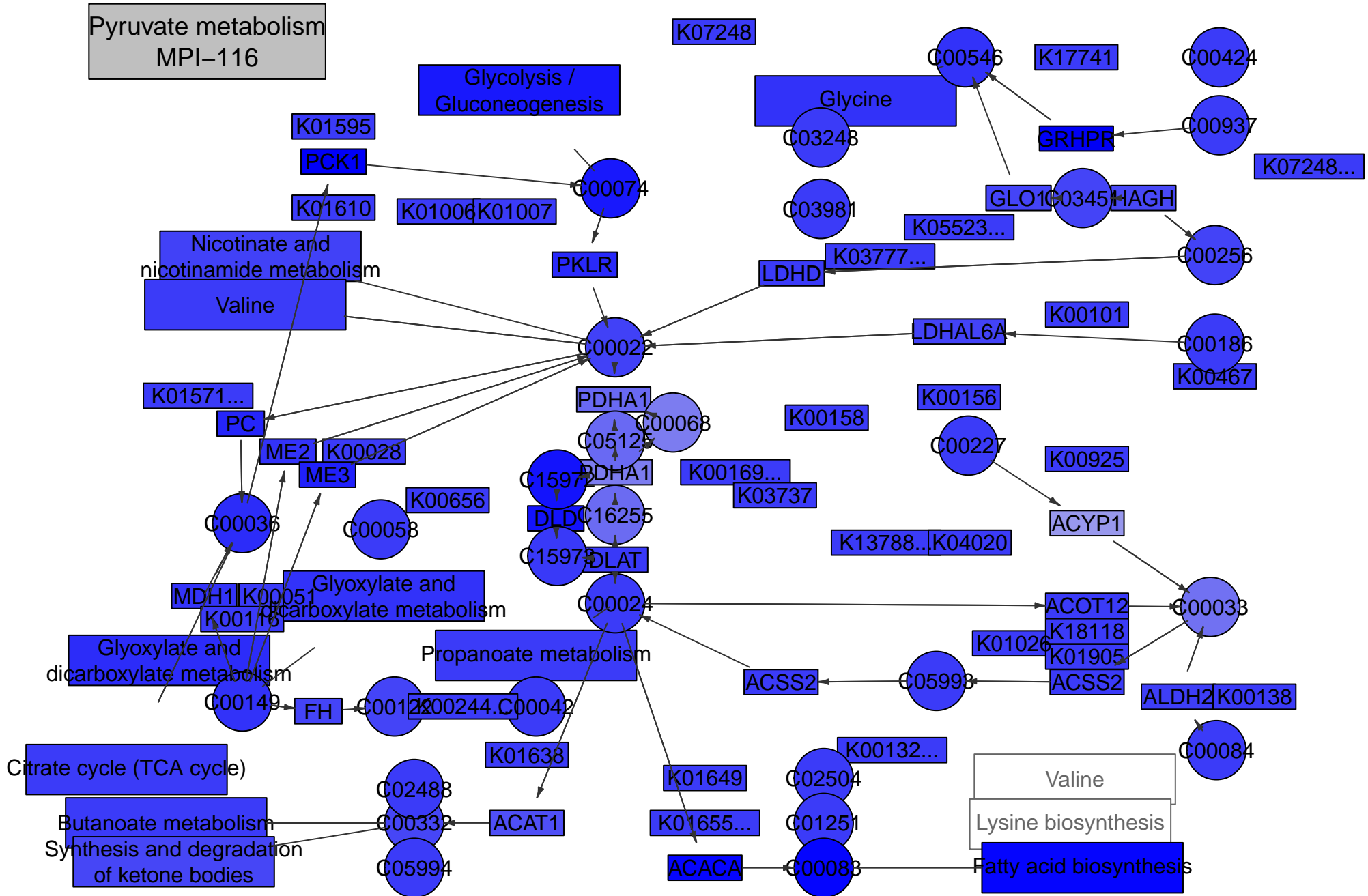
Valine

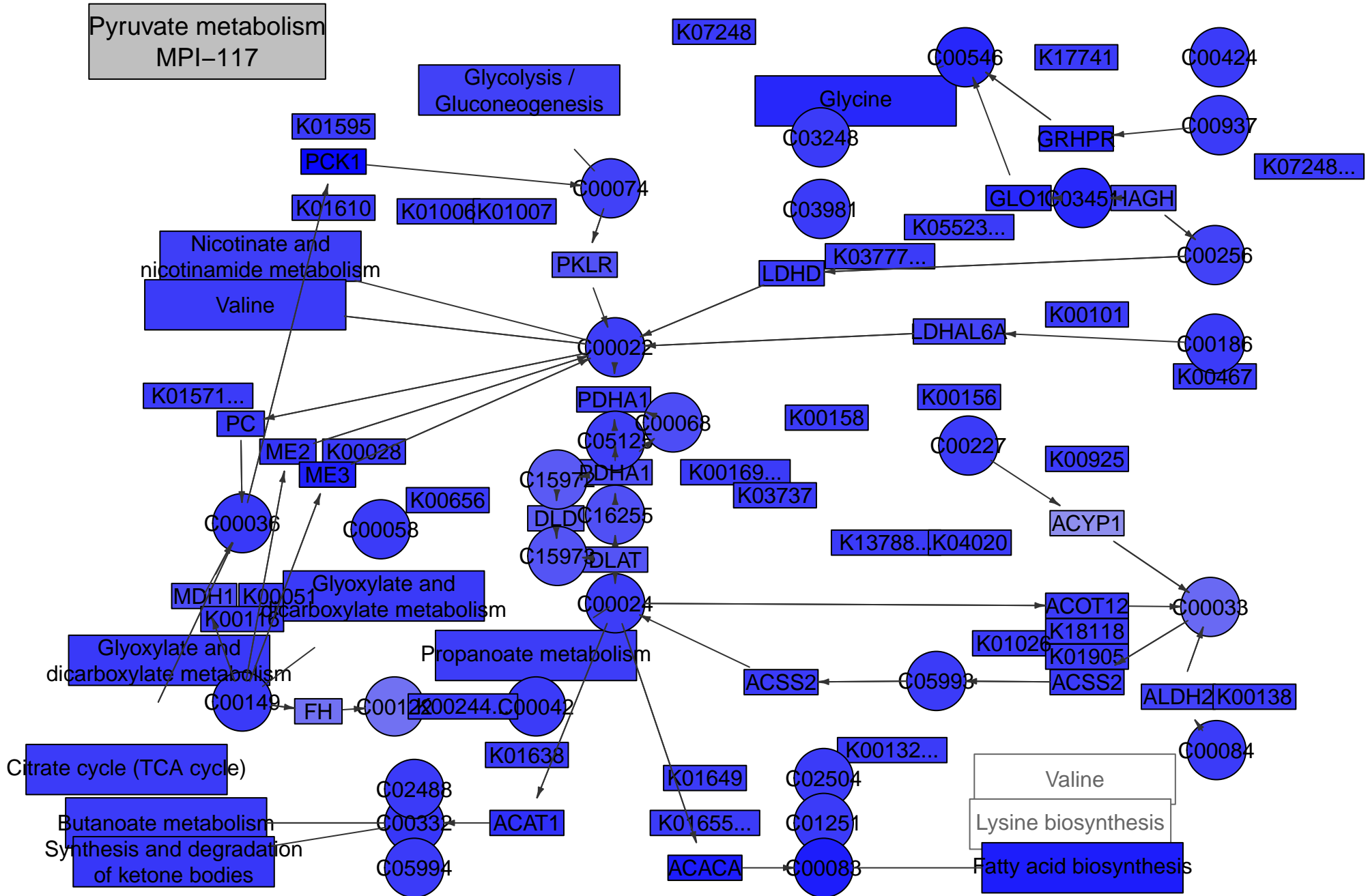
Lysine biosynthesis

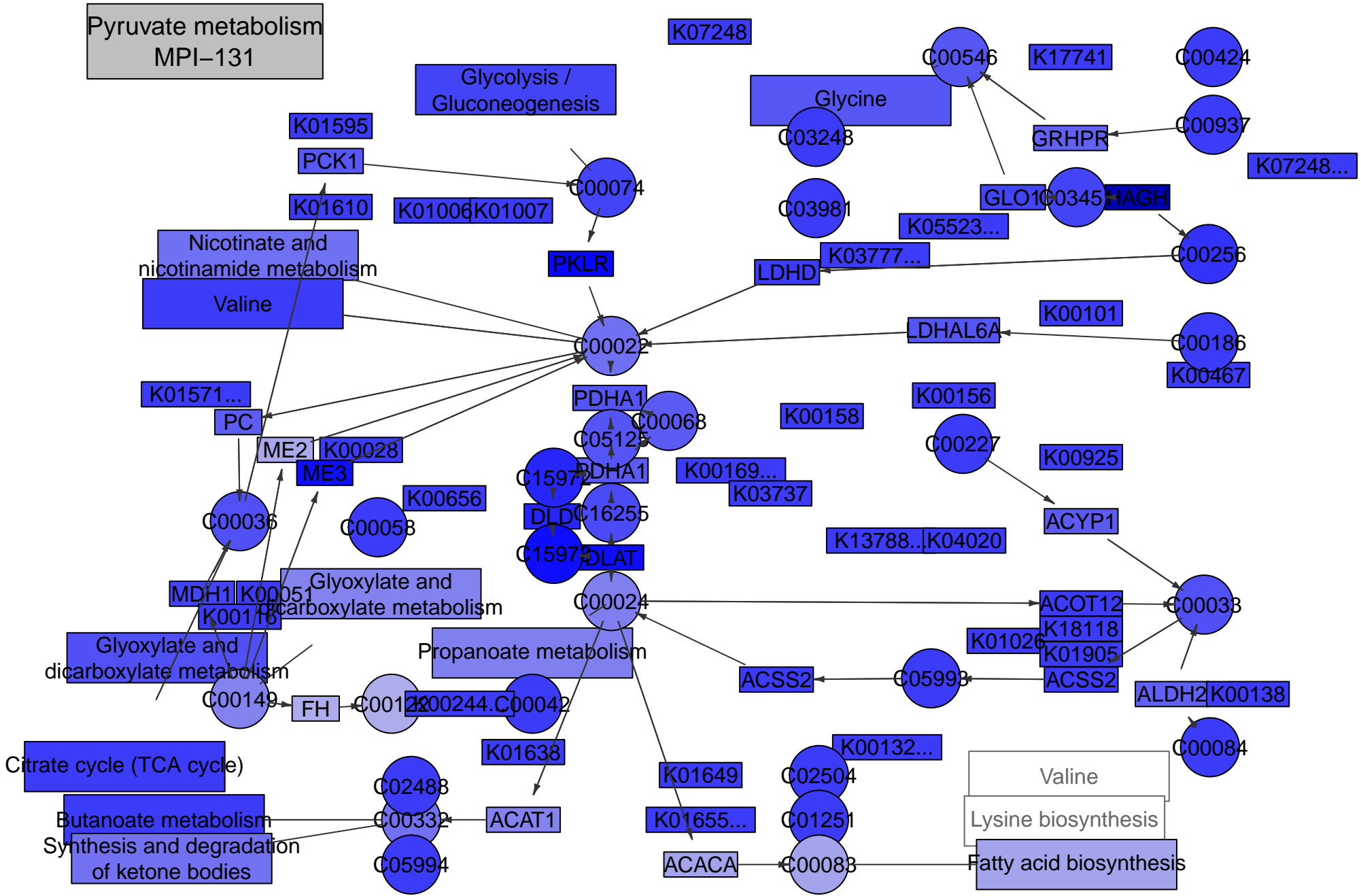
Fatty acid biosynthesis

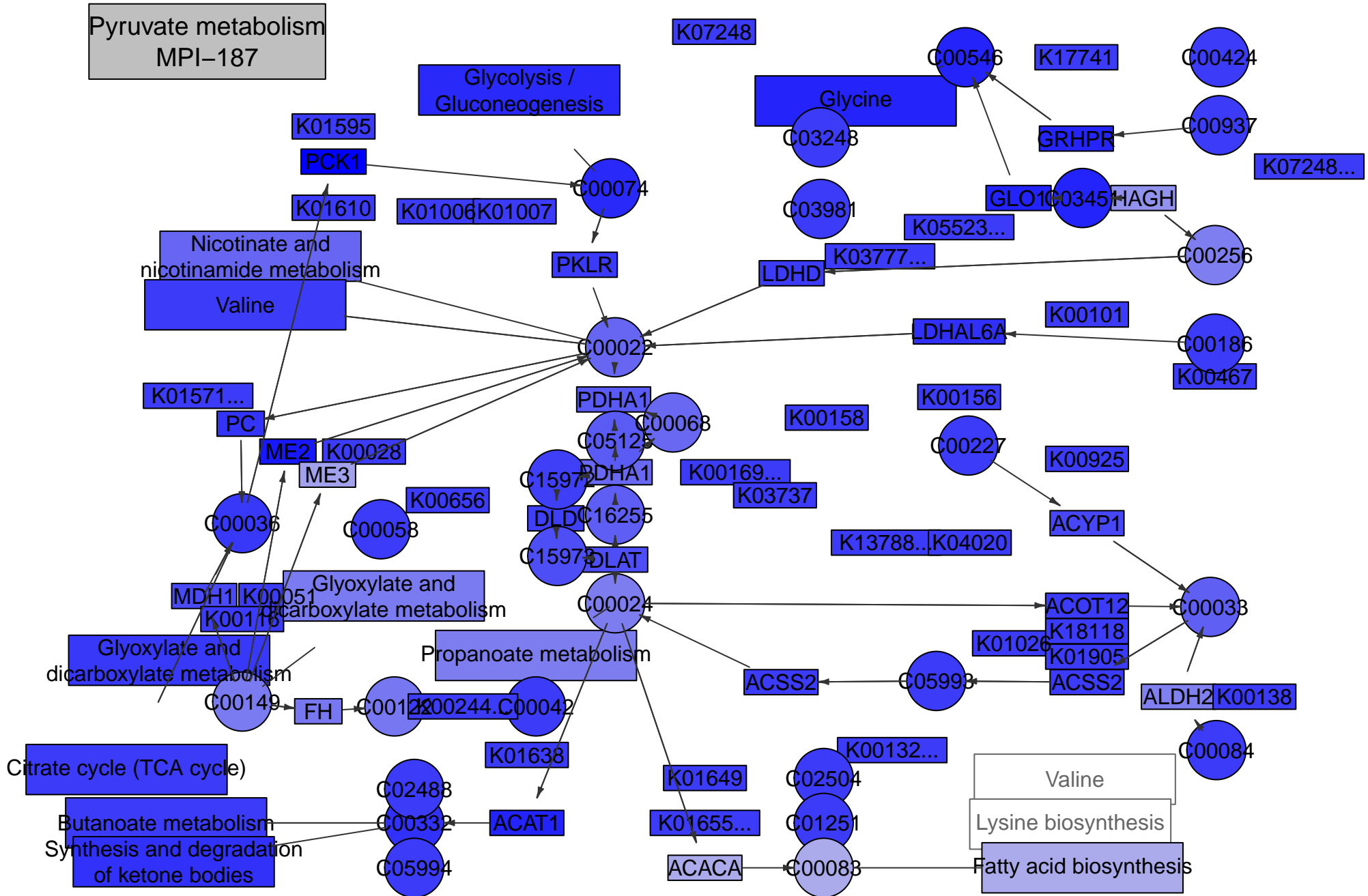


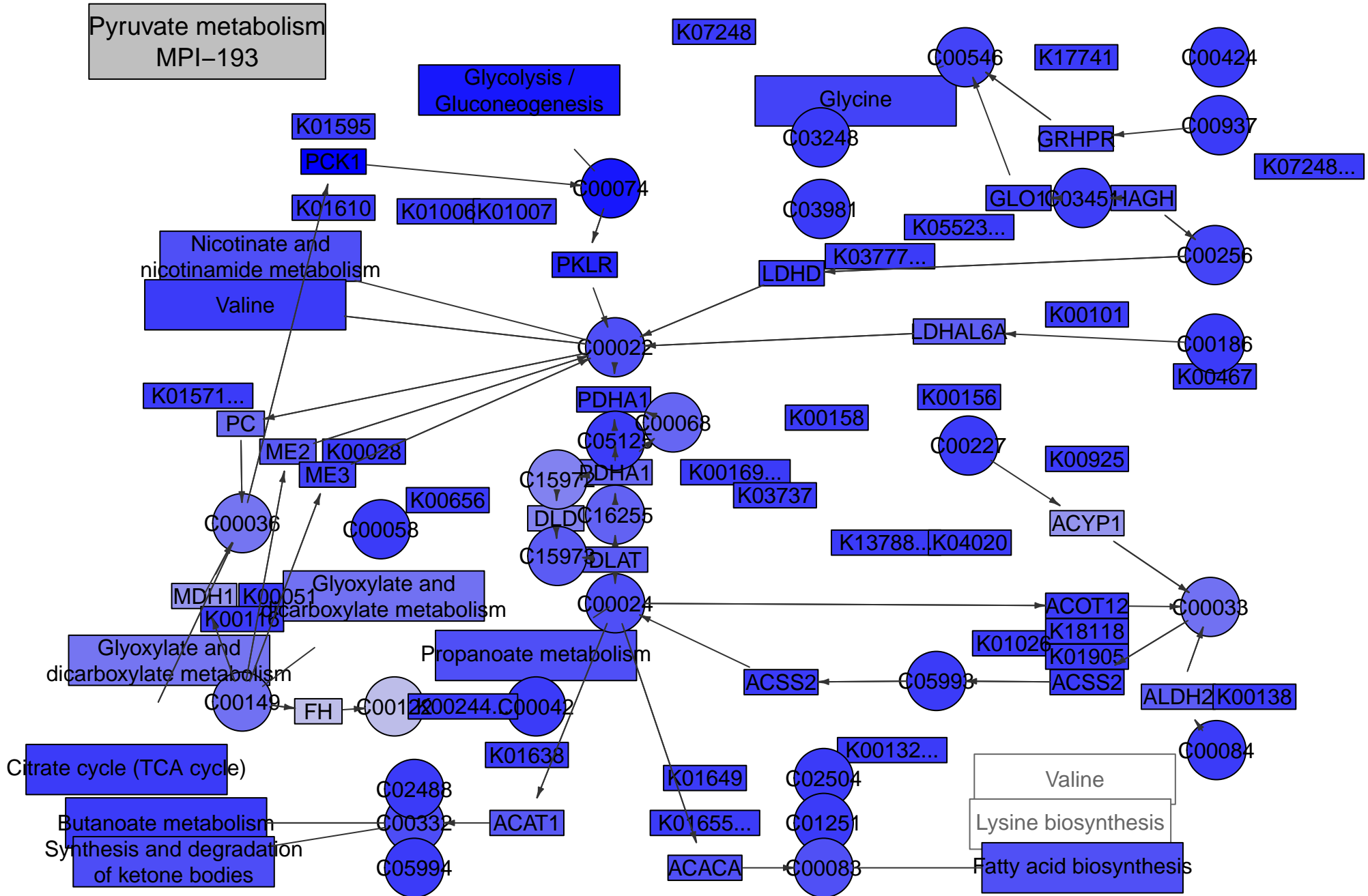


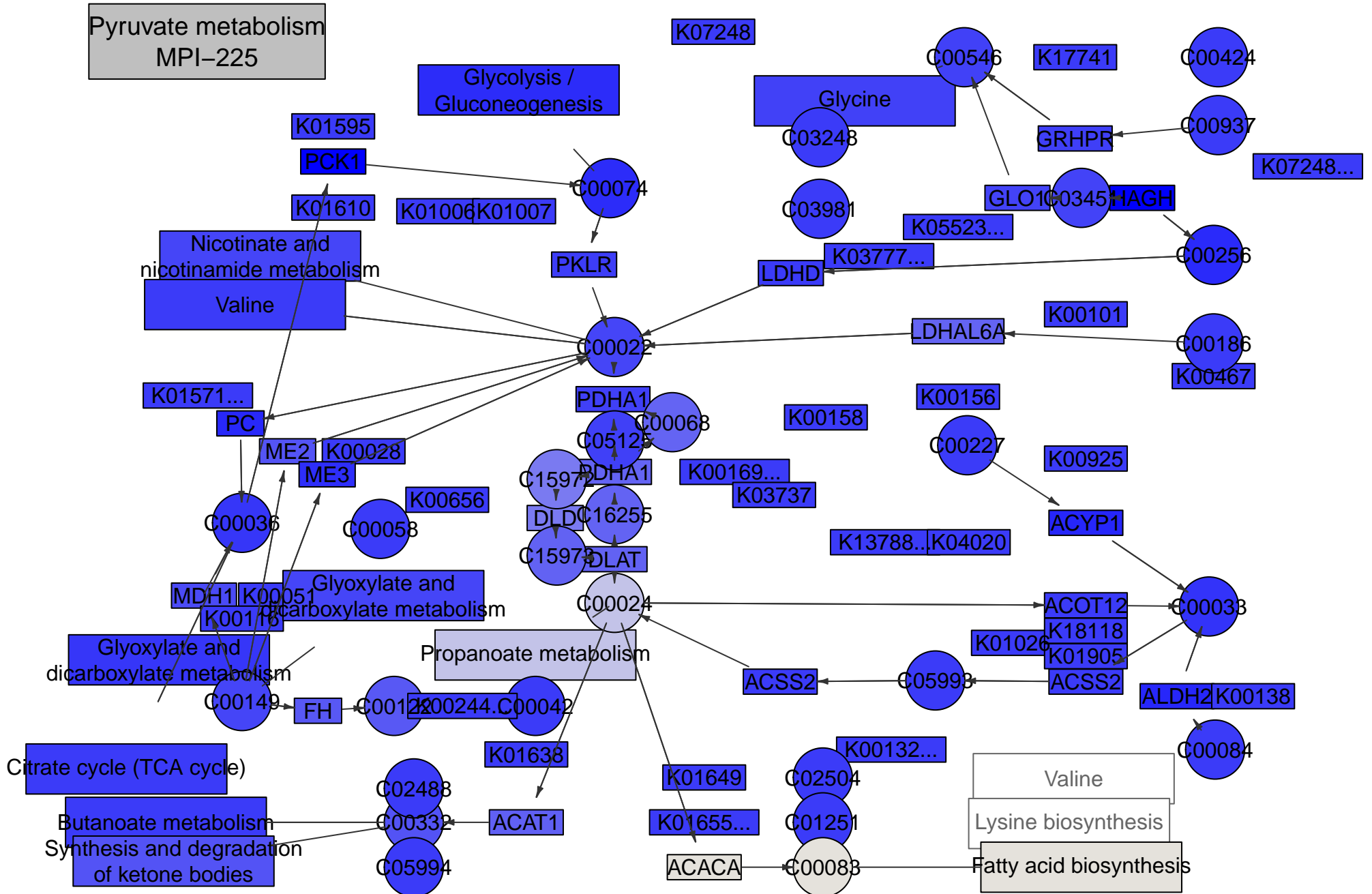


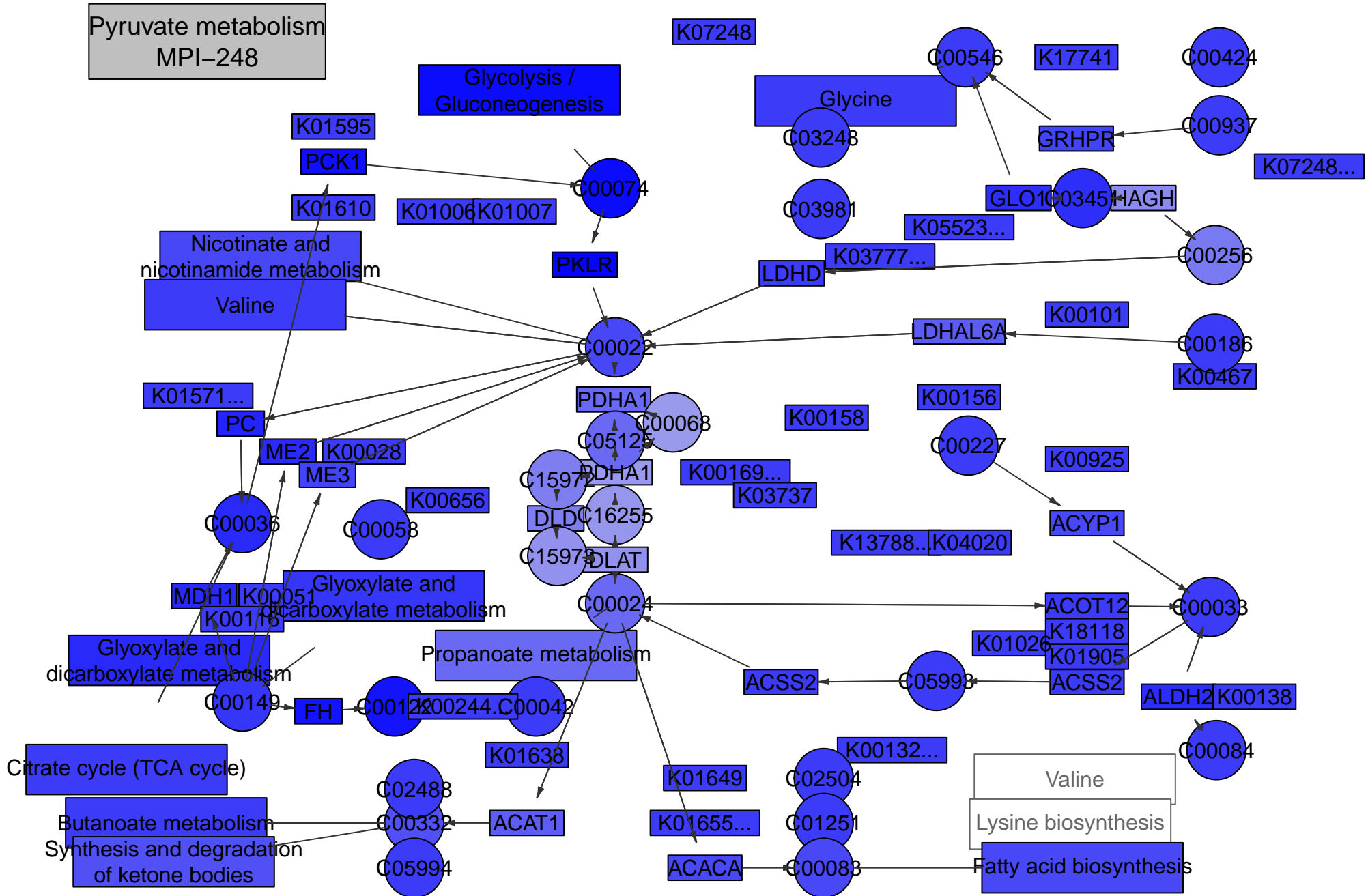


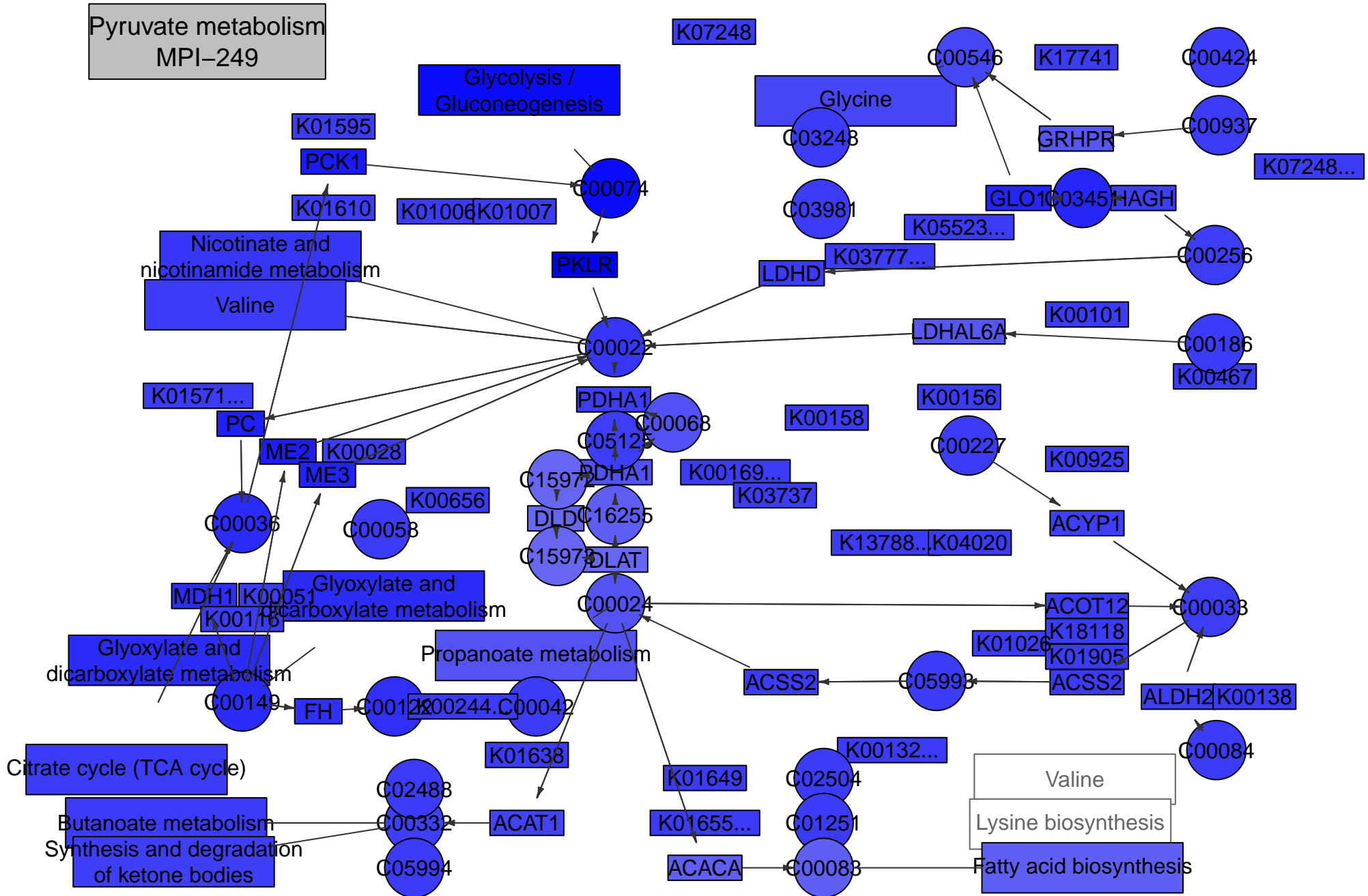


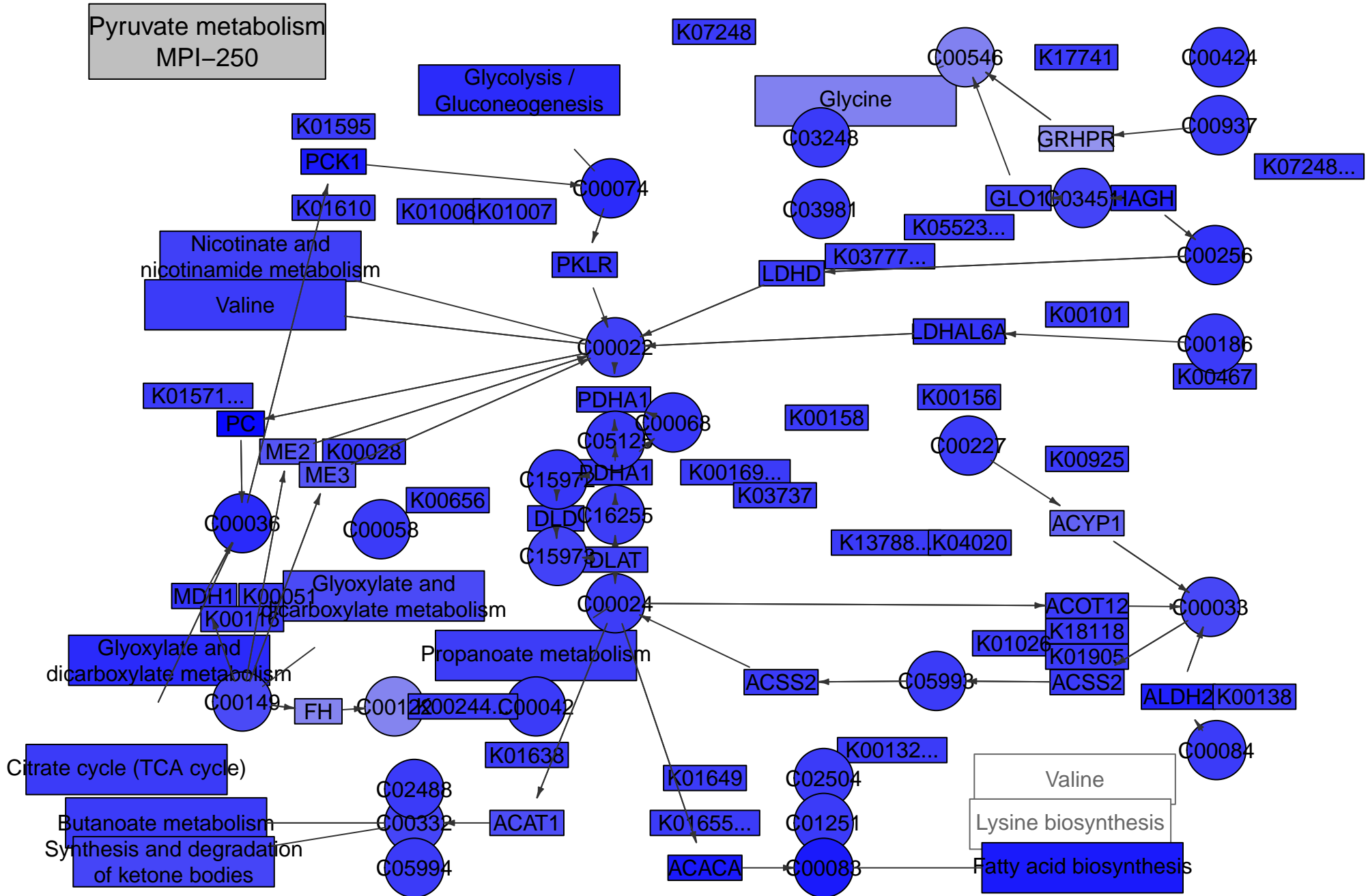


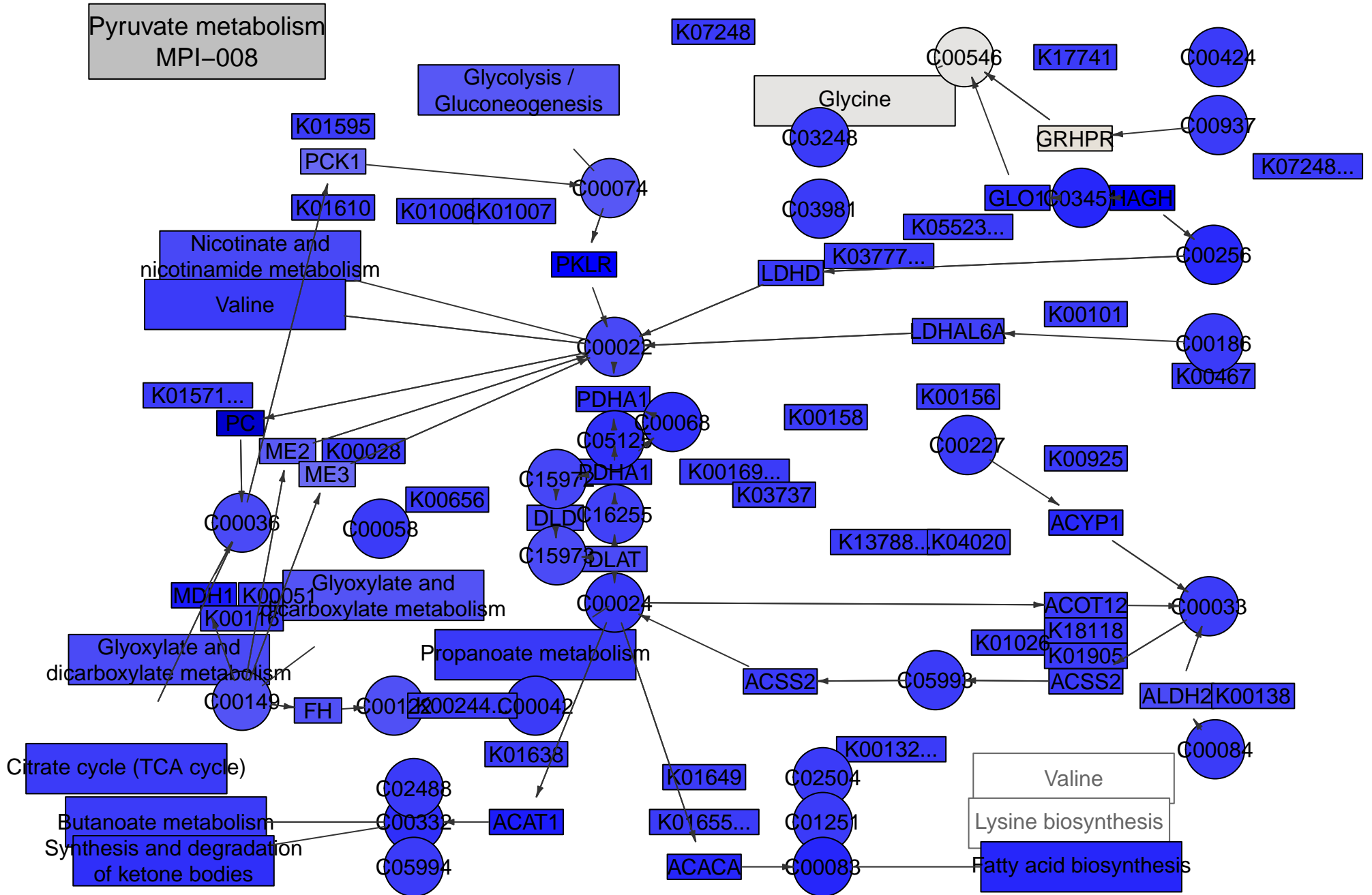


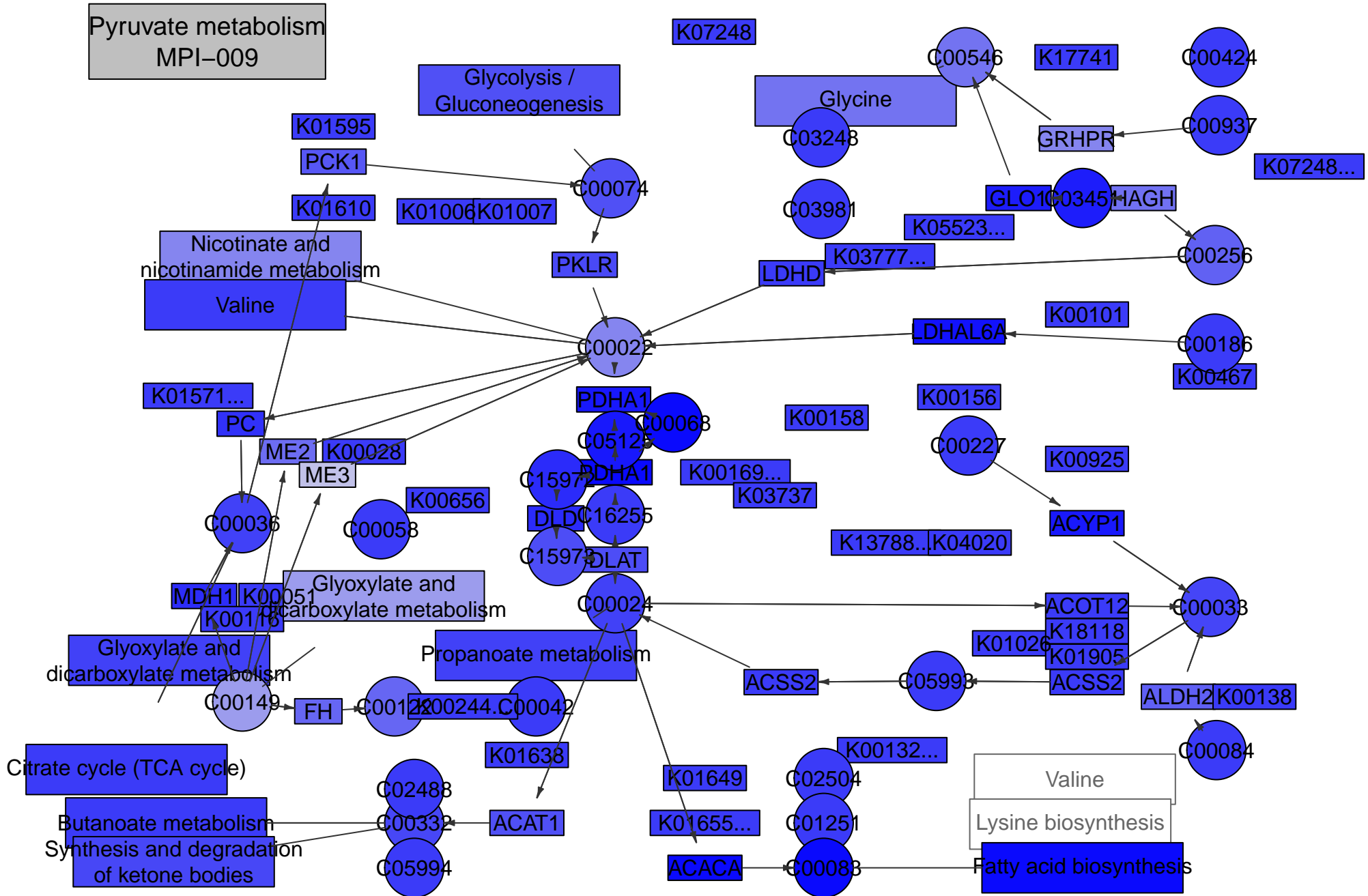












Pyruvate metabolism
MPI-012

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

PC

MDH1

Glyoxylate and
dicarboxylate metabolism

Citrate cycle (TCA cycle)

Butanoate metabolism
Synthesis and degradation
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Propanoate metabolism

K07248

K01595

K01610

K01006
K01007

PKLR

LDHD

K05523...

K03777...

LDHAL6A

K17741

GLO1C0345

K00101

K01571...

ME2

ME3

K00028

K00656

PDHA1

C00068

K00158

BDHA1

C05125

DLDC

C16255

DLAT

C00024

C15972

C15973

C00042

C00122

C00244

C00042

C00042

C00042

C00042

C00042

C00042

C00042

C00042

C00042

C00042

K00169...

K03737

K00156

C00227

K00925

ACYP1

K13788...
K04020

ACOT12

K18118

K01905

ACSS2

C05993

ACSS2

K01026

ALDH2

K00138

C00033

C00084

Valine

Lysine biosynthesis

Fatty acid biosynthesis

C00088

C00088

K07248...

C00186

K00467

C00033

C00033

C00033

C00033

C00033

C00033

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C00033

C00033

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C00937

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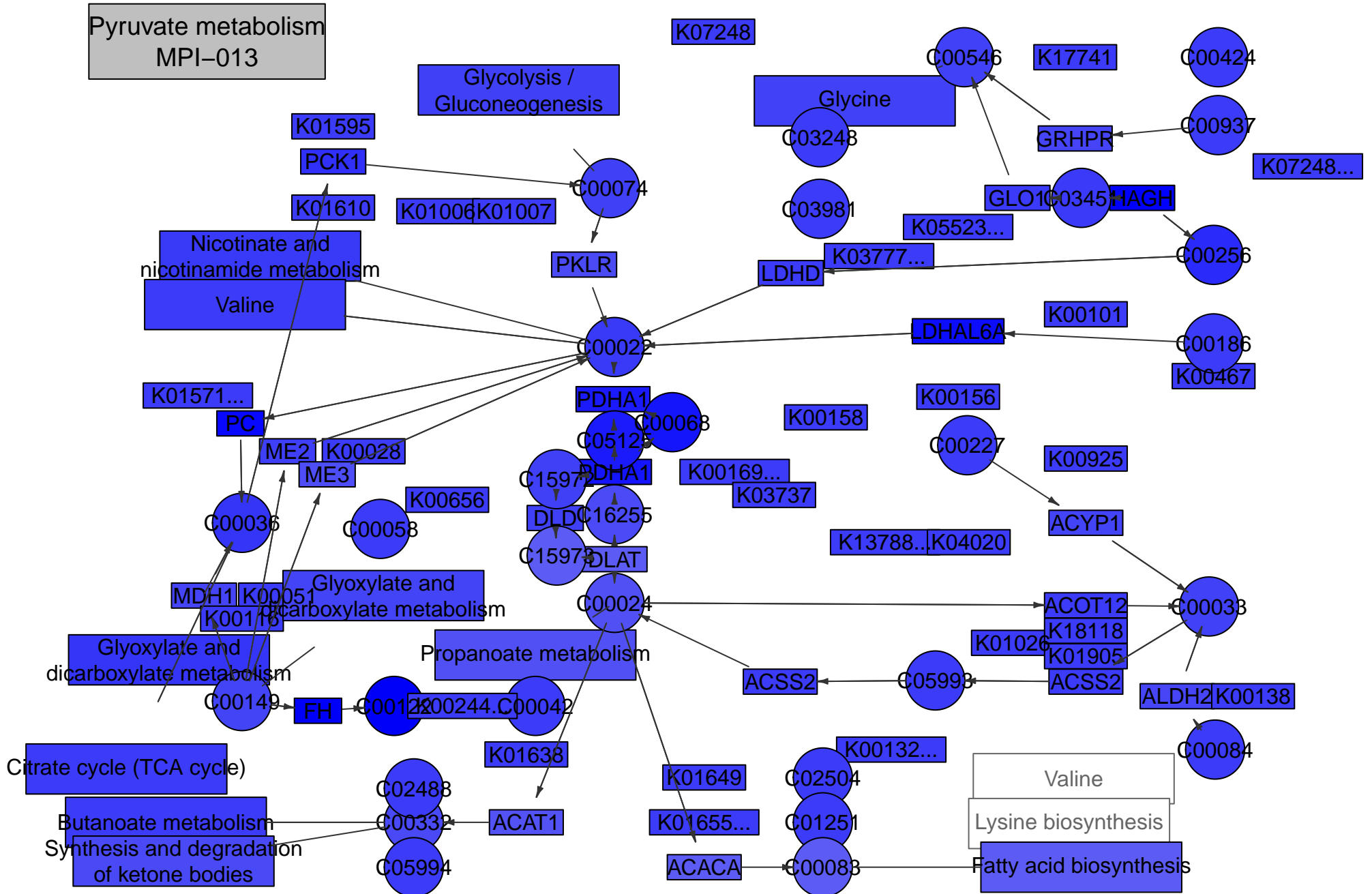
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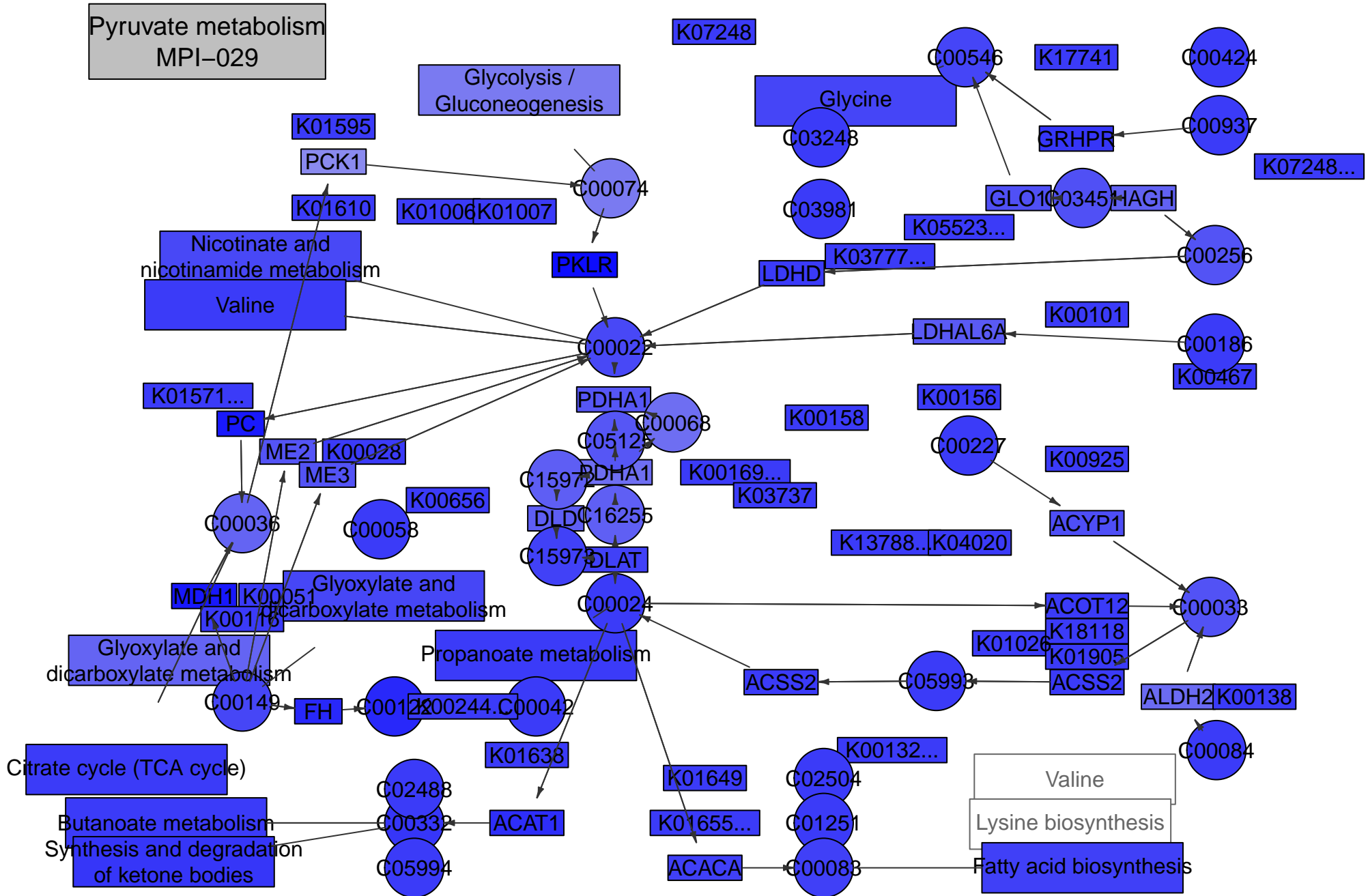
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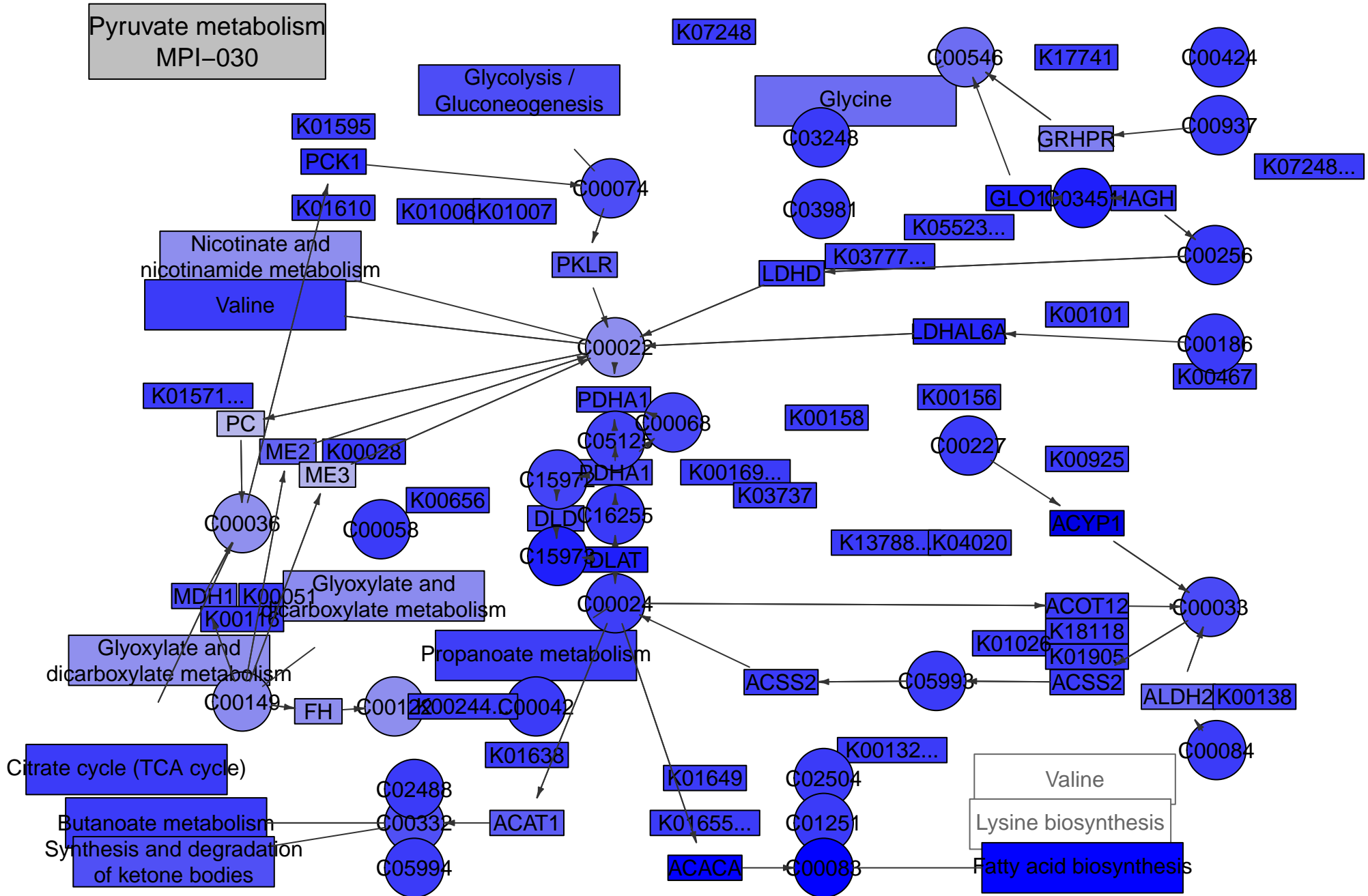
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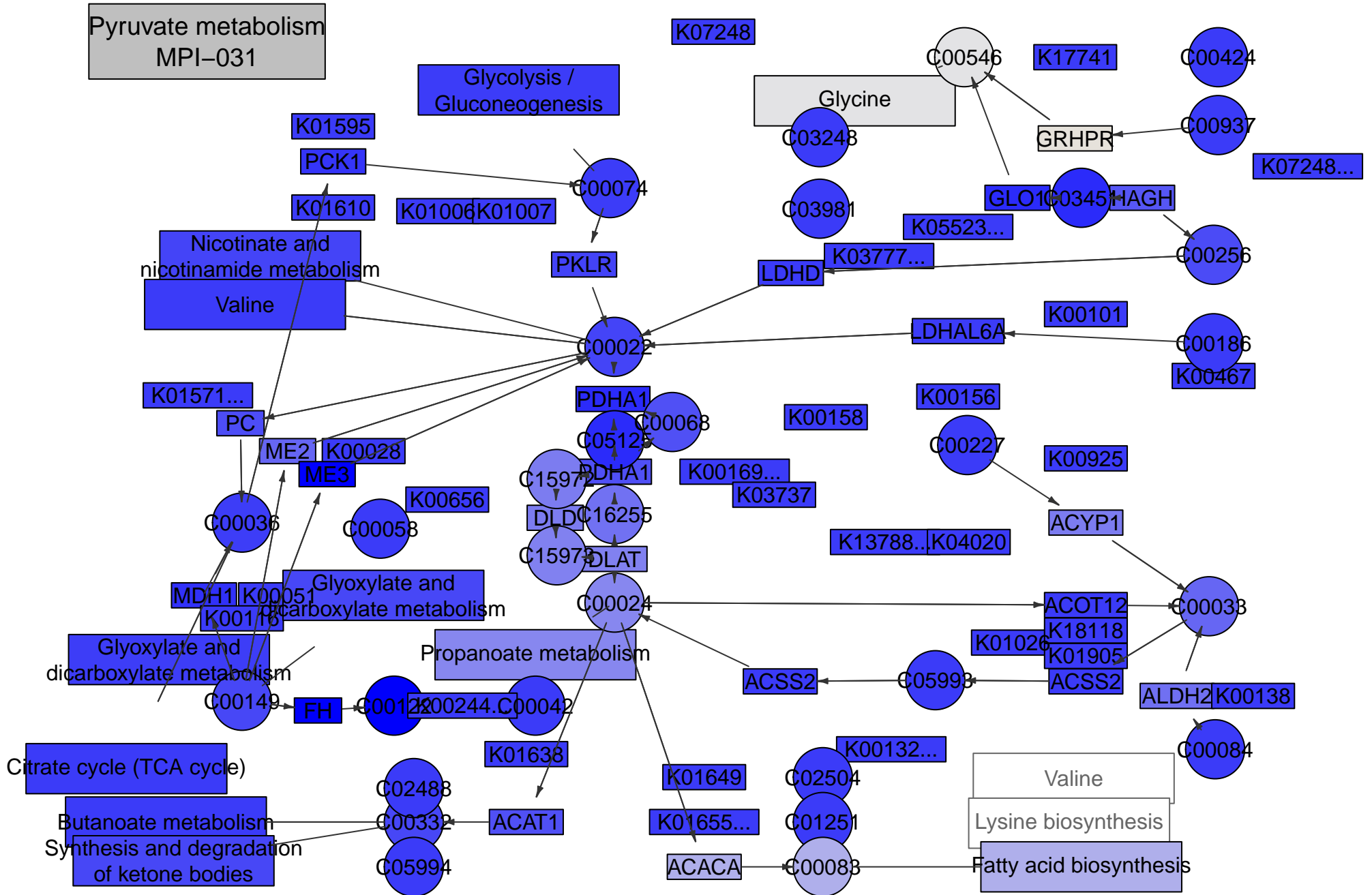
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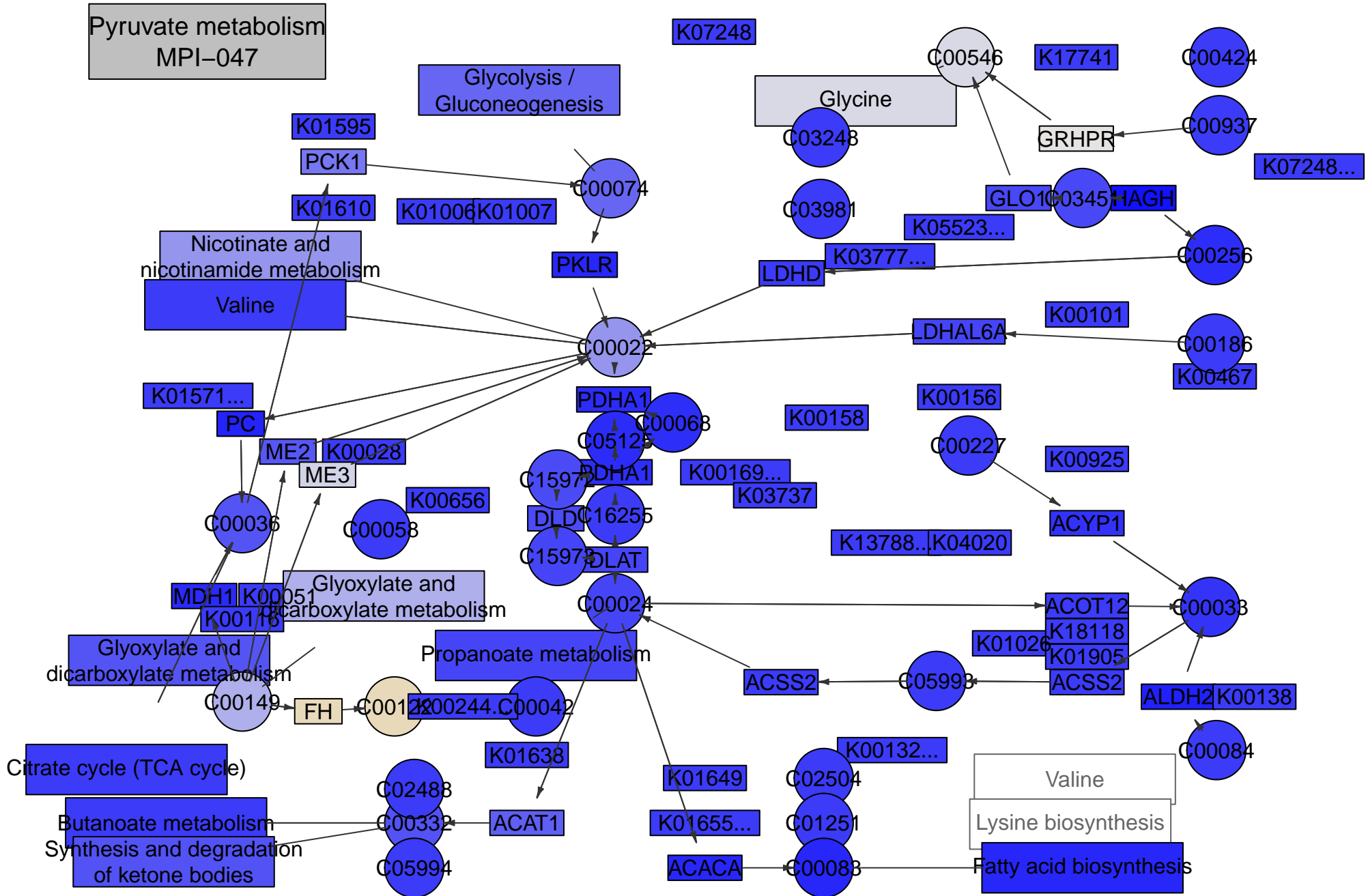
C00937











Pyruvate metabolism
MPI-062

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

PC

MDH1

Glyoxylate and
dicarboxylate metabolism

Glyoxylate and
dicarboxylate metabolism

Propanoate metabolism

Citrate cycle (TCA cycle)

Butanoate metabolism
Synthesis and degradation
of ketone bodies

K01595

PCK1

K01610

K01006 K01007

C00074

PKLR

C00022

PDHA1

C05125

BDHA1

DLDC

DLAT

C00024

C00042

C02488

C00332

C05994

K07248

C03248

C03981

LDHD

C00022

C00068

K00158

K00169...

K03737

ACSS2

C05993

K01649

C02504

K01655...

C01251

ACACA

C00088

C00546

K17741

C00424

C00937

GRHPR

K07248...

GLO1

HAGH

K05523...

C00256

K03777...

LDHAL6A

K00101

C00186

K00467

K00156

C00227

K13788...

K04020

ACOT12

K18118

K01026

K01905

ACSS2

C00033

ACSS2

ALDH2

K00138

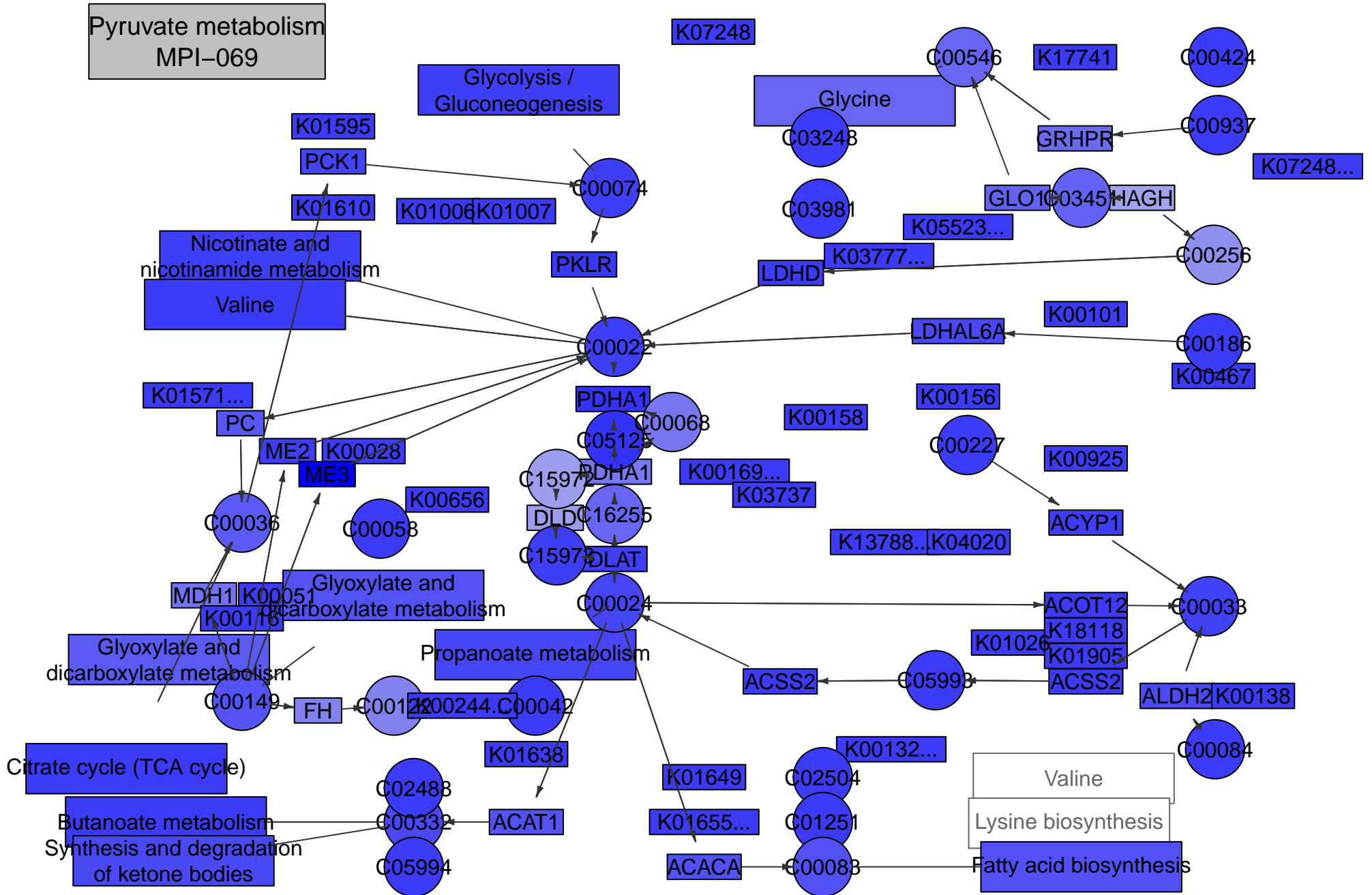
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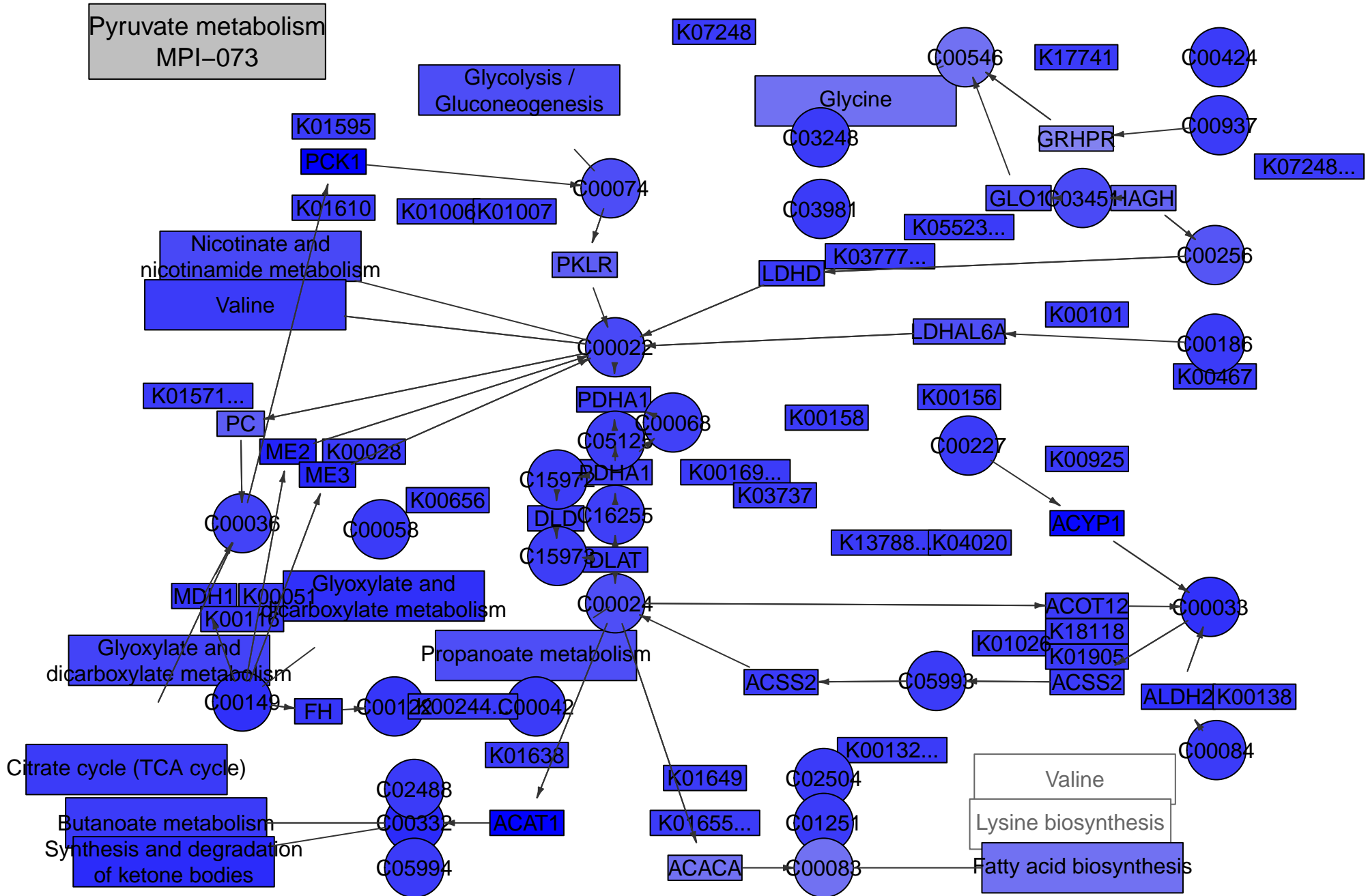
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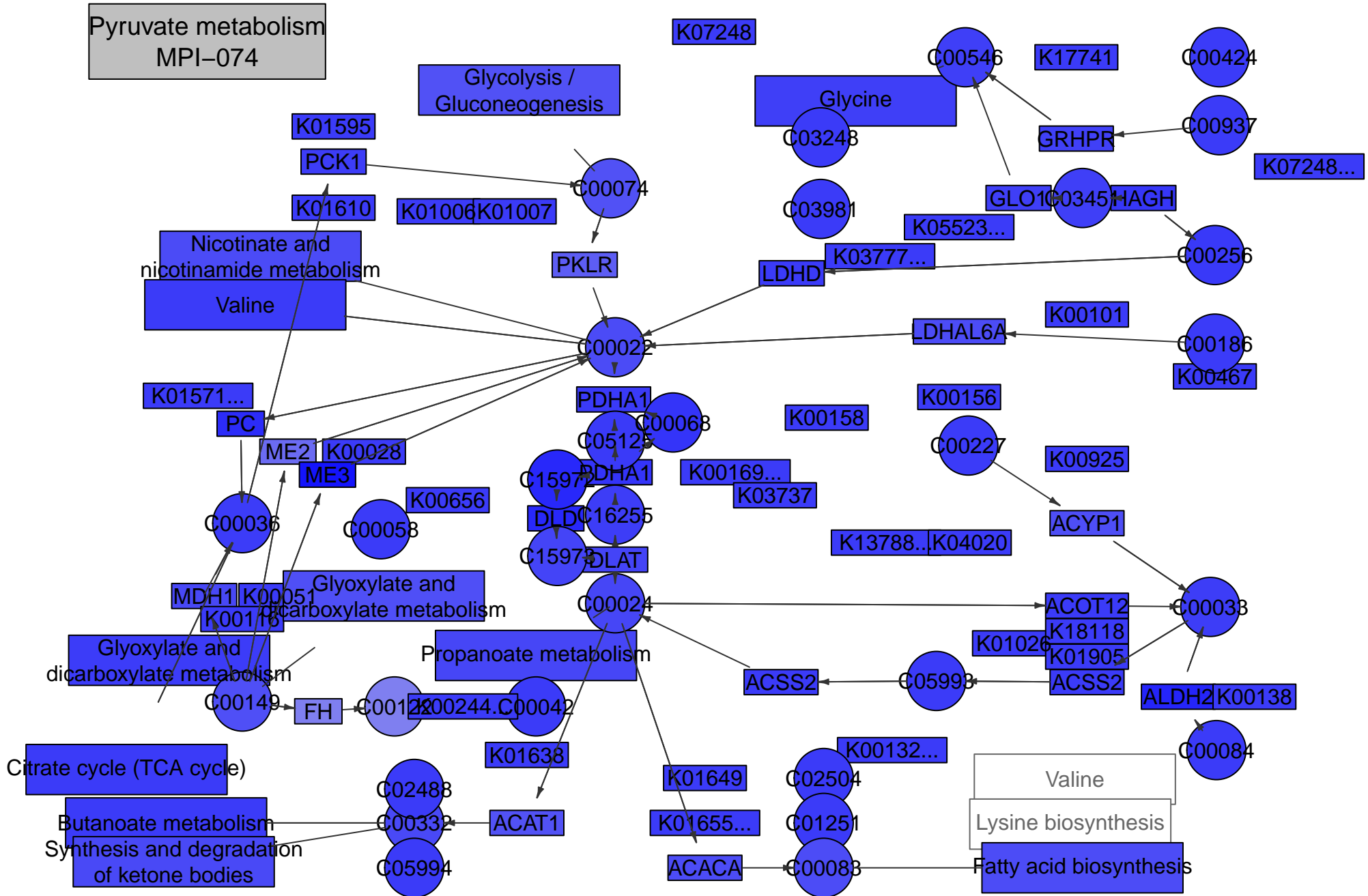
Valine

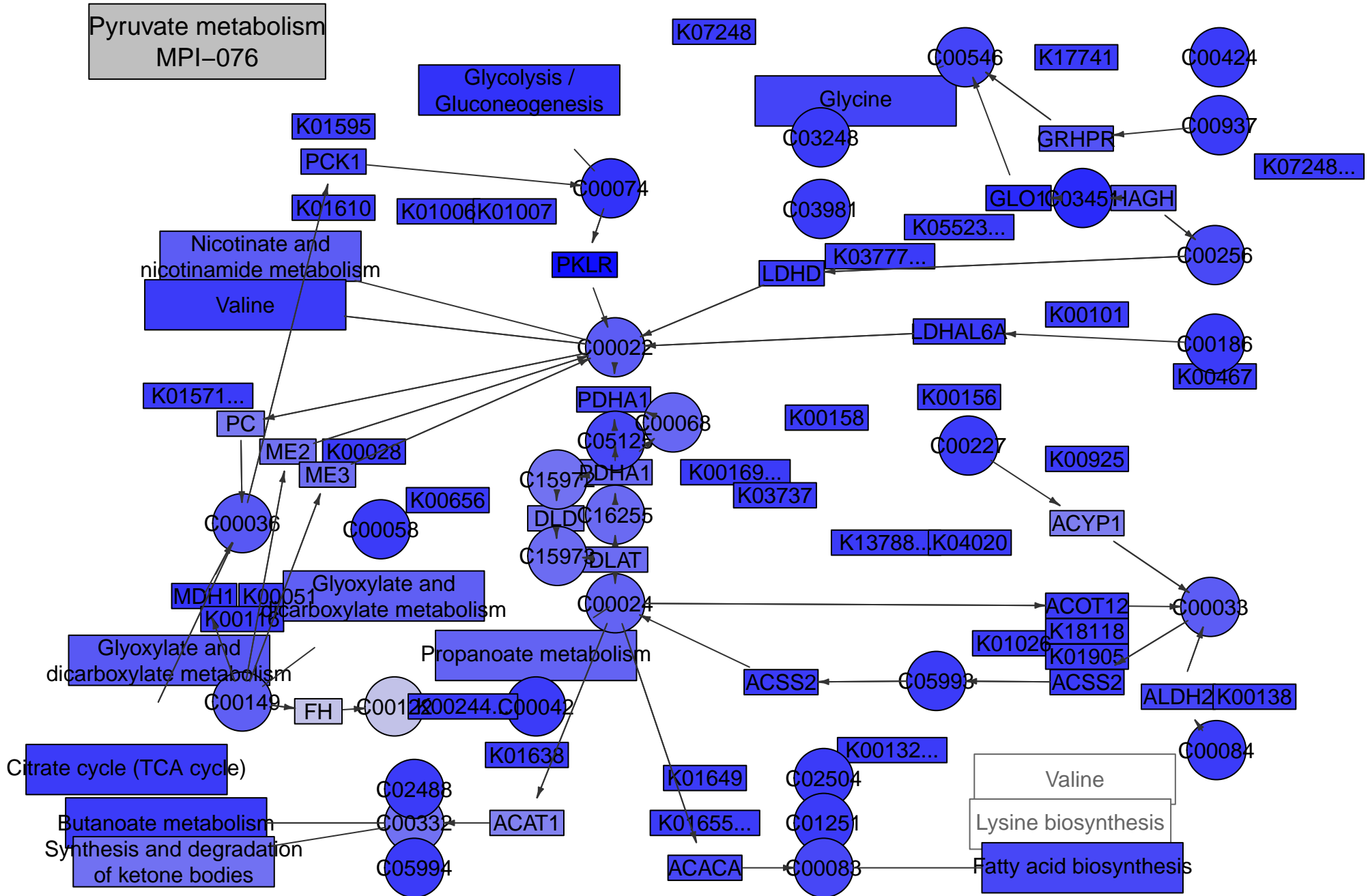
Lysine biosynthesis

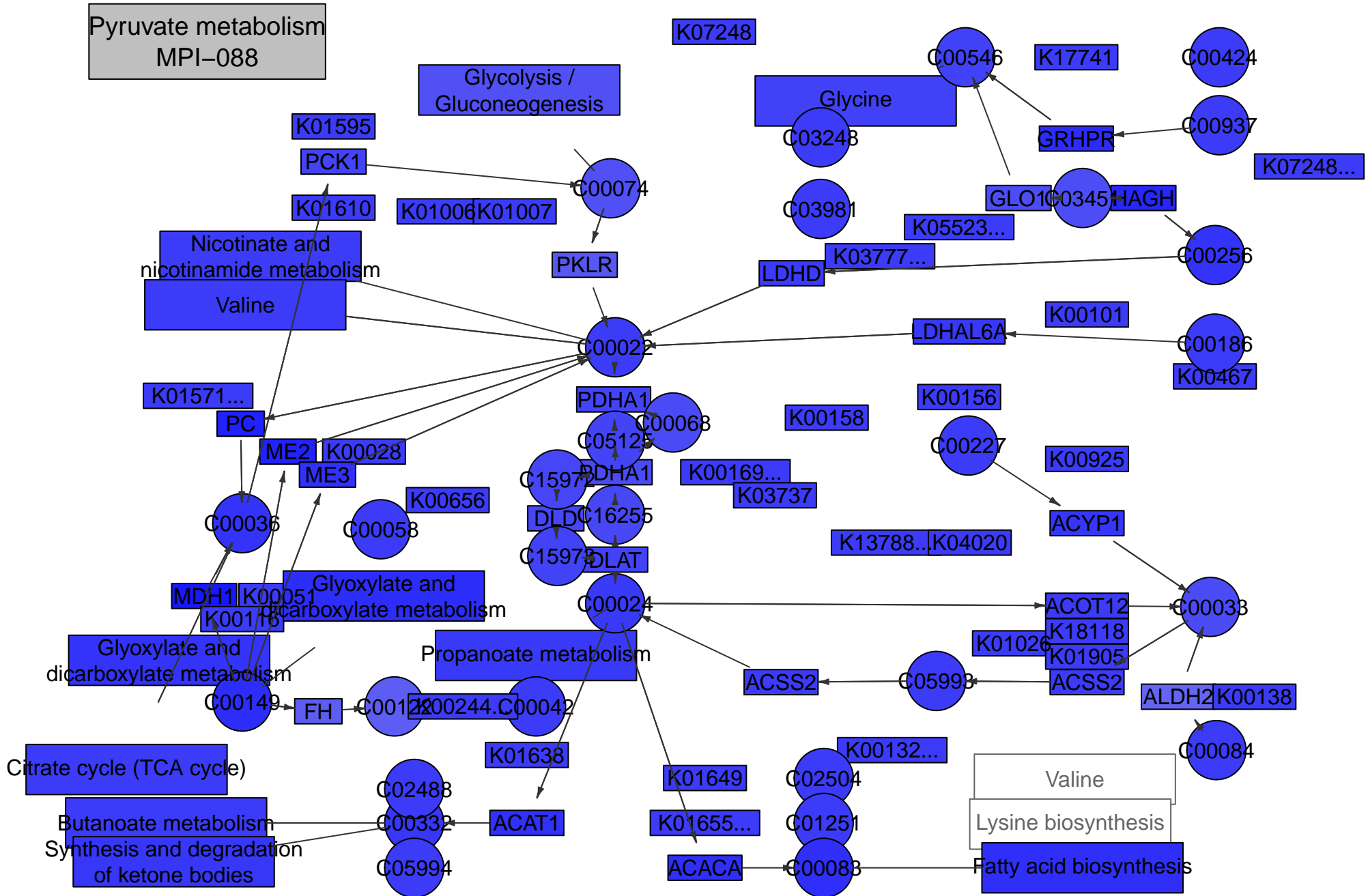
Fatty acid biosynthesis

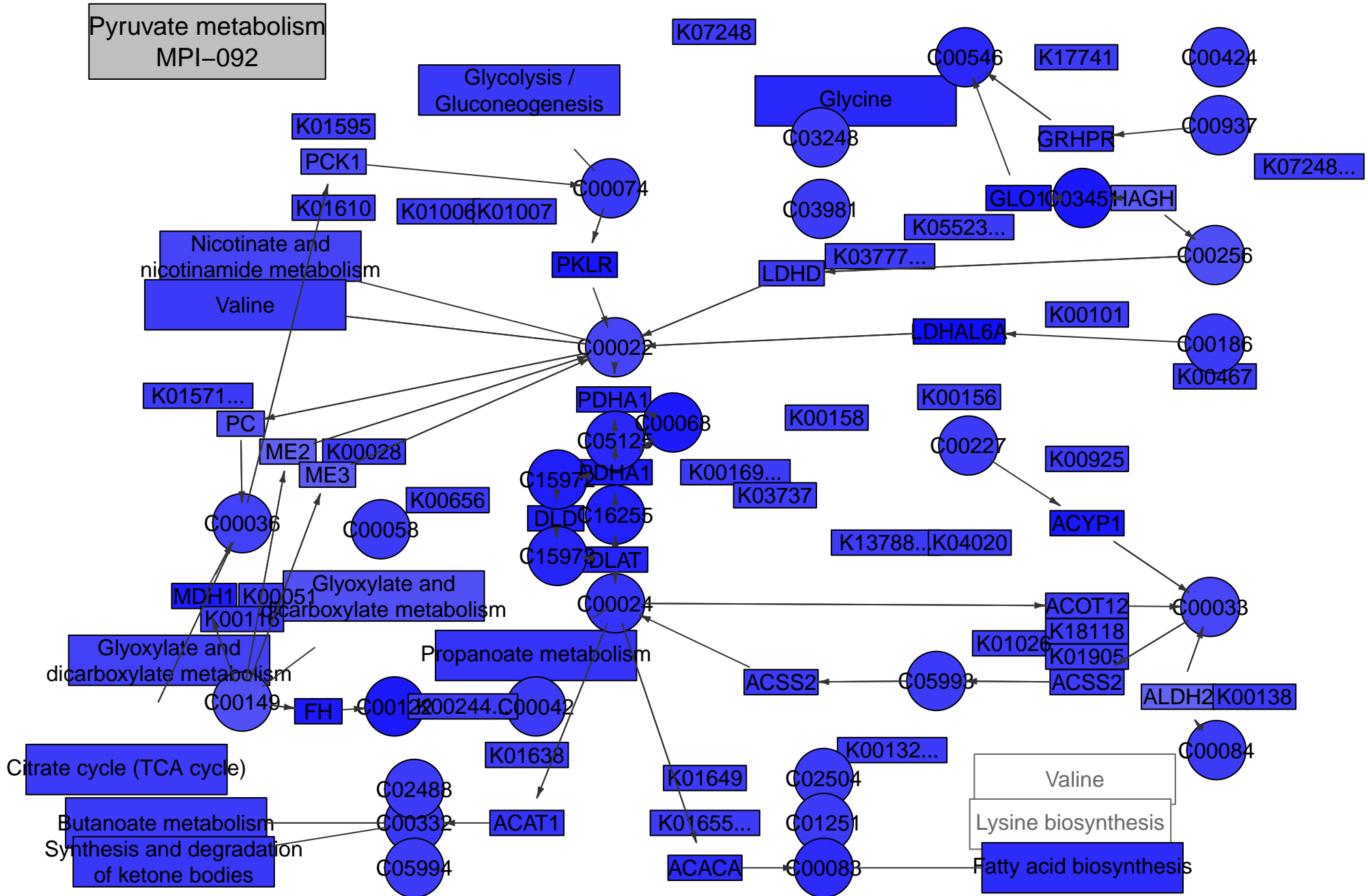


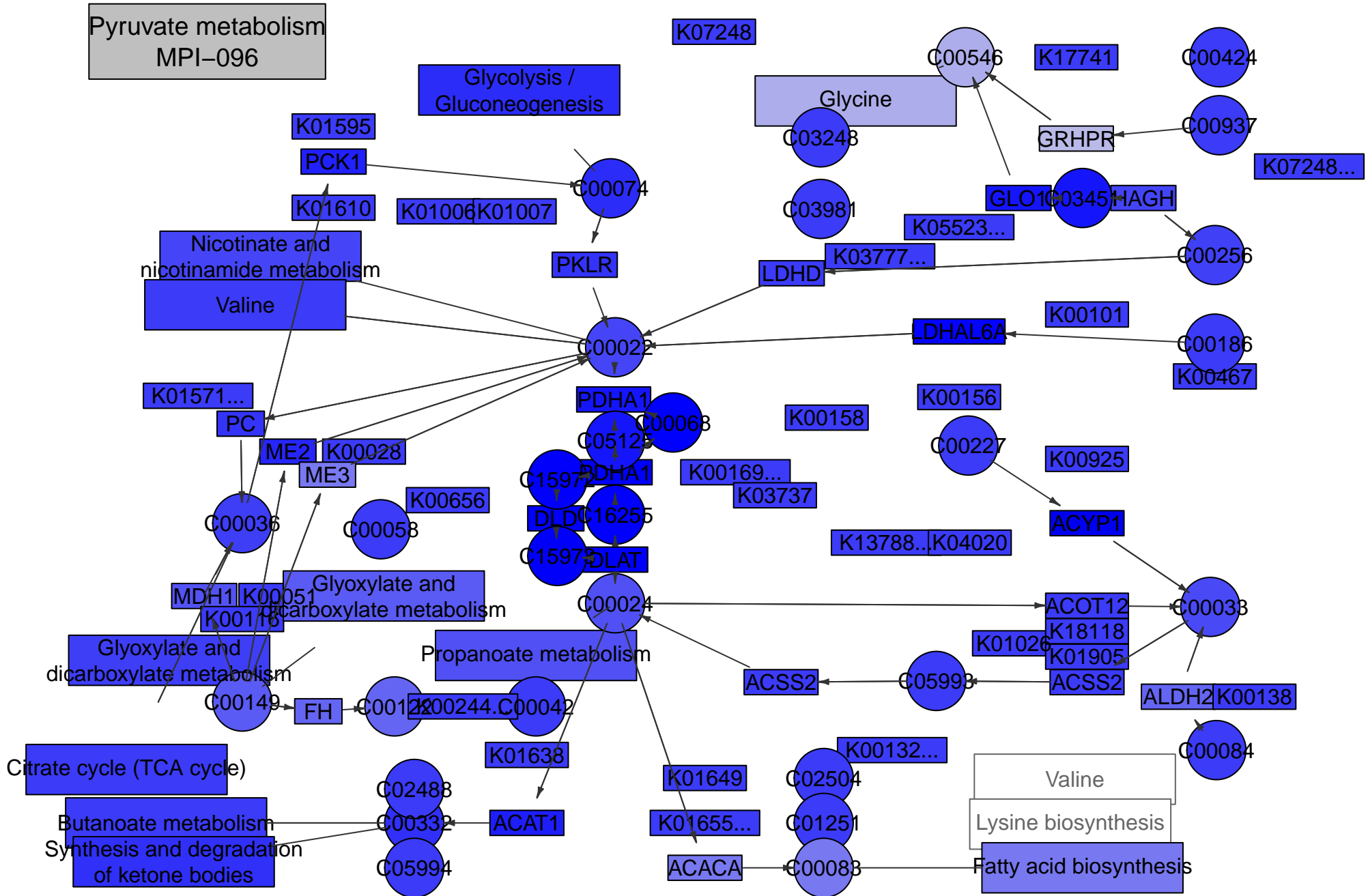


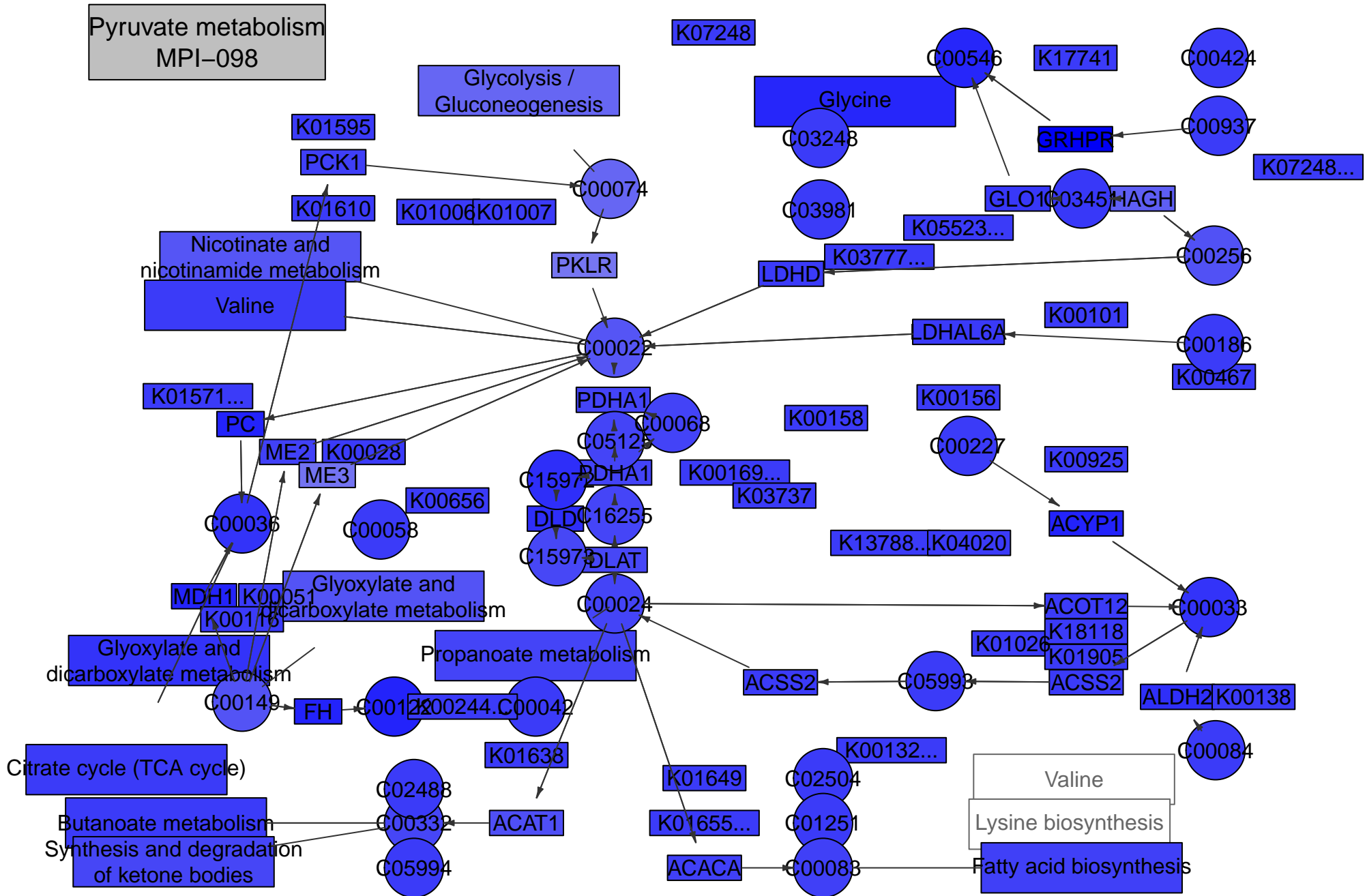


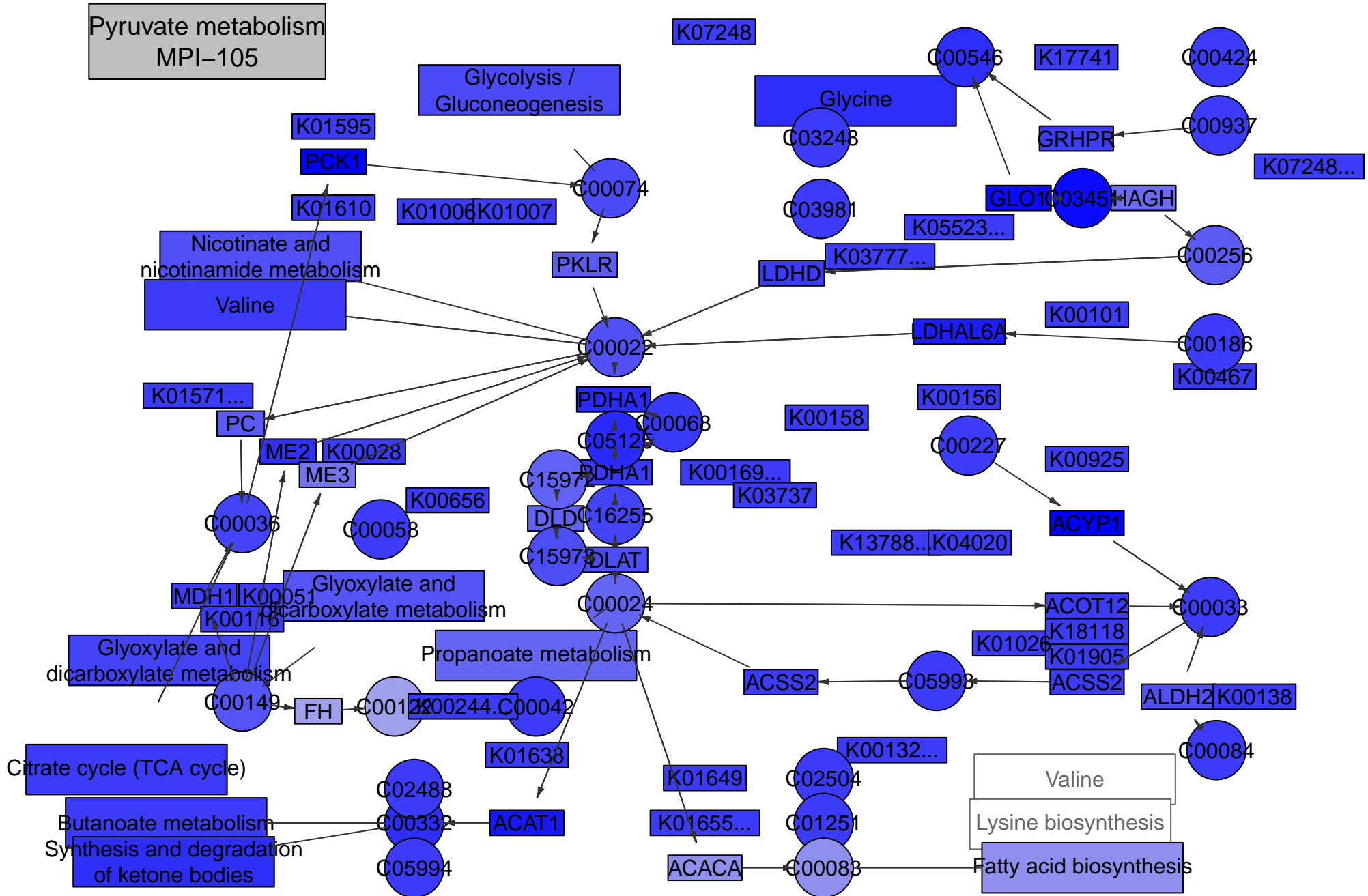


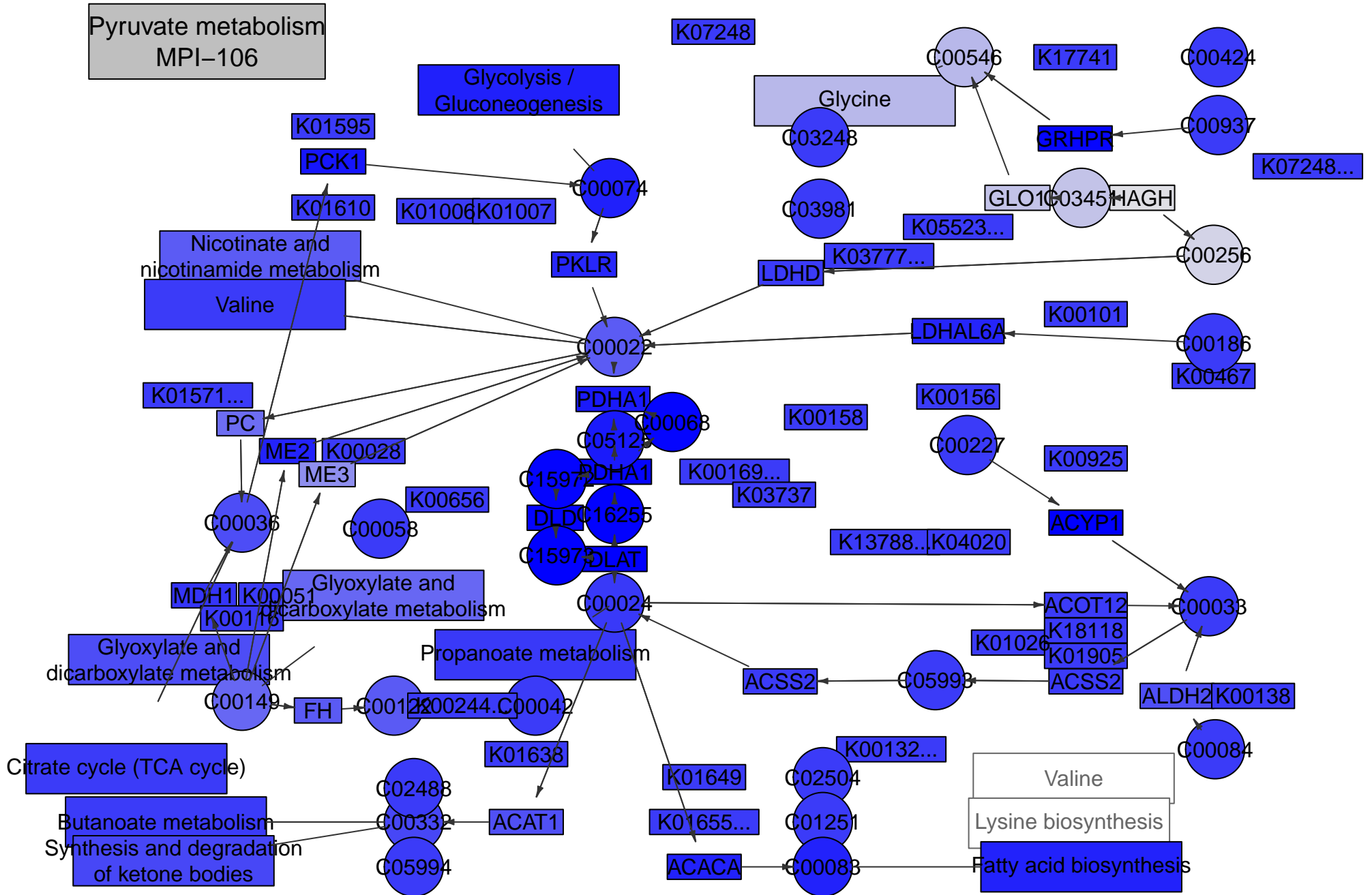


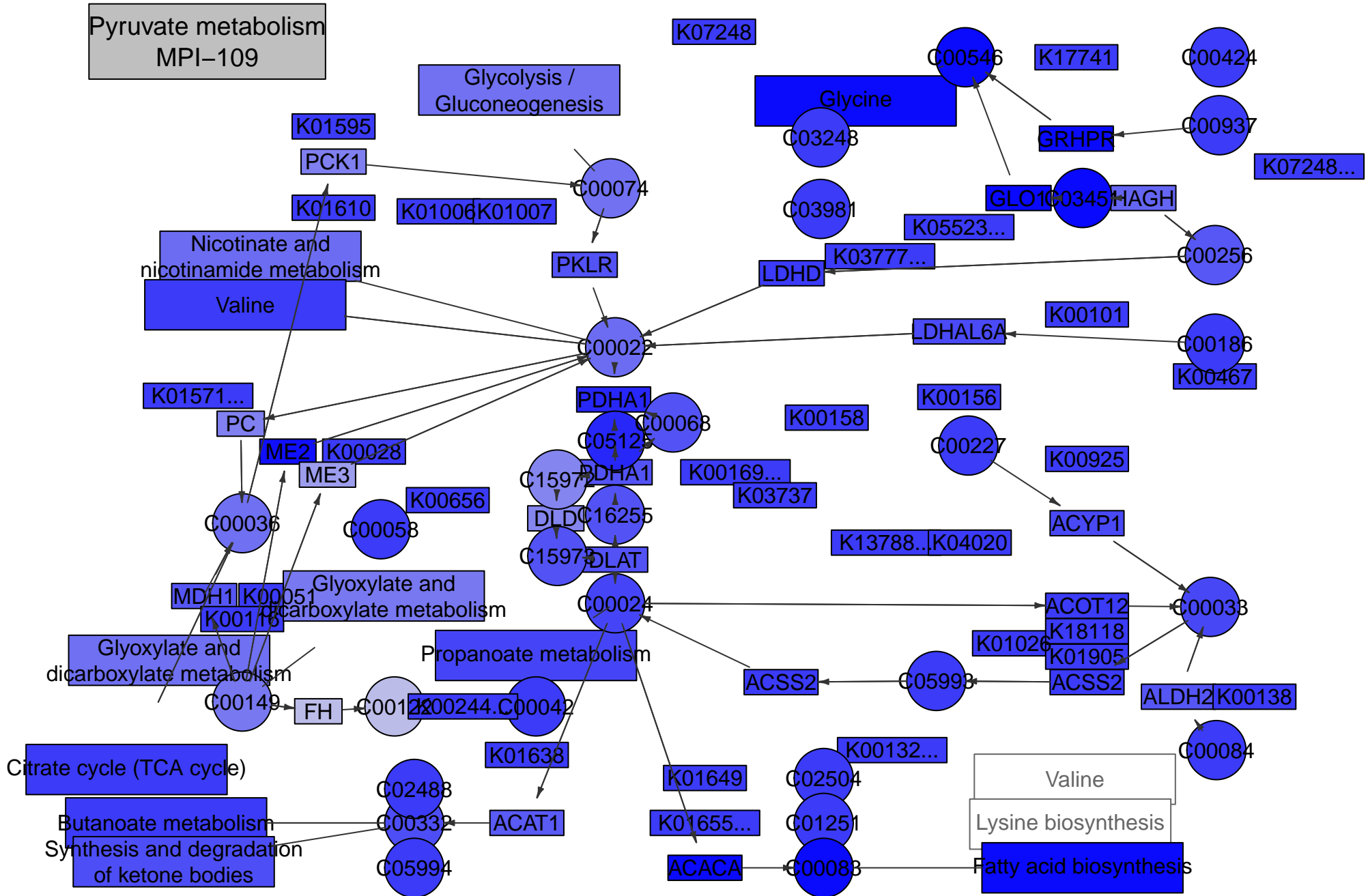


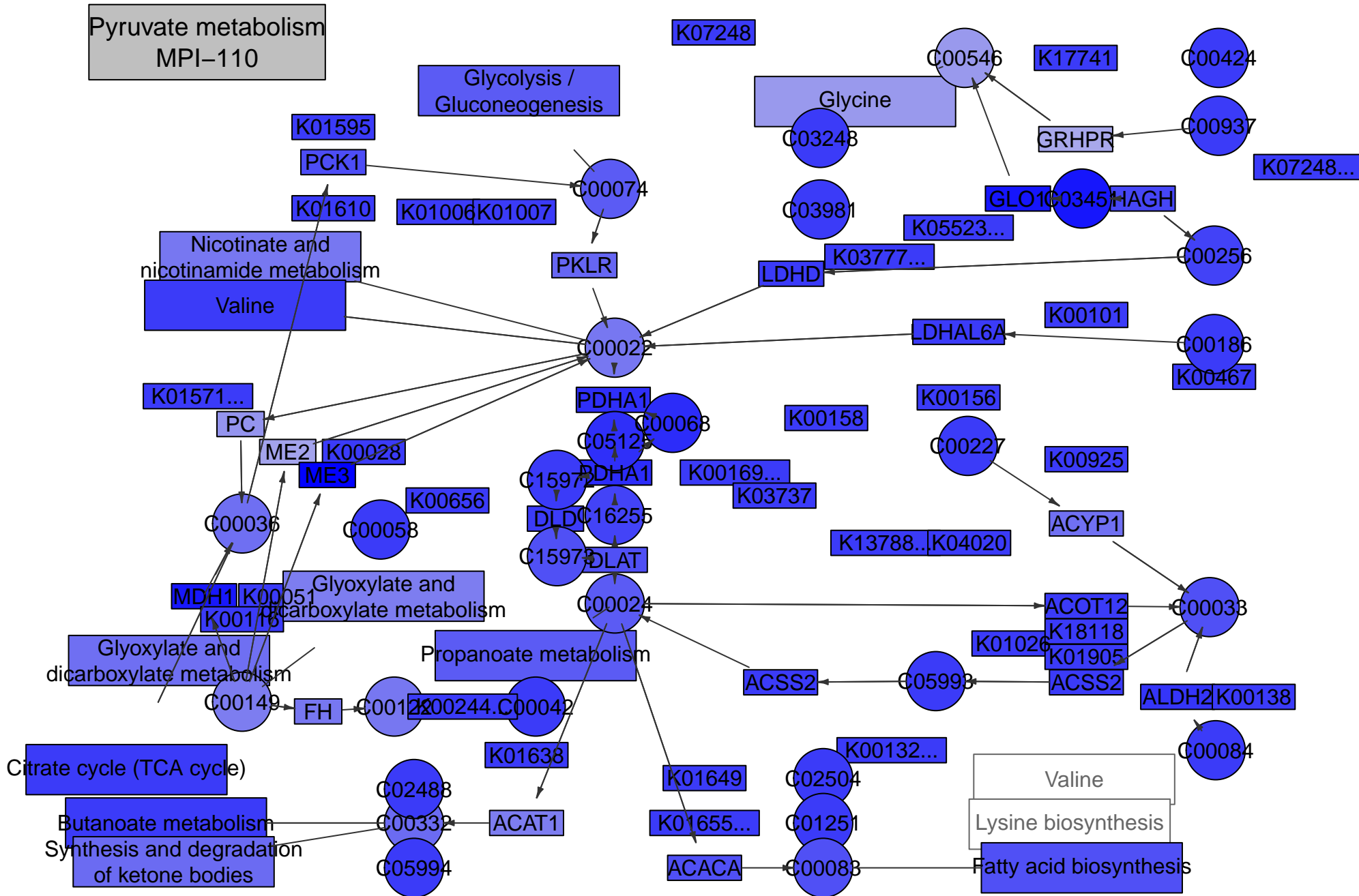


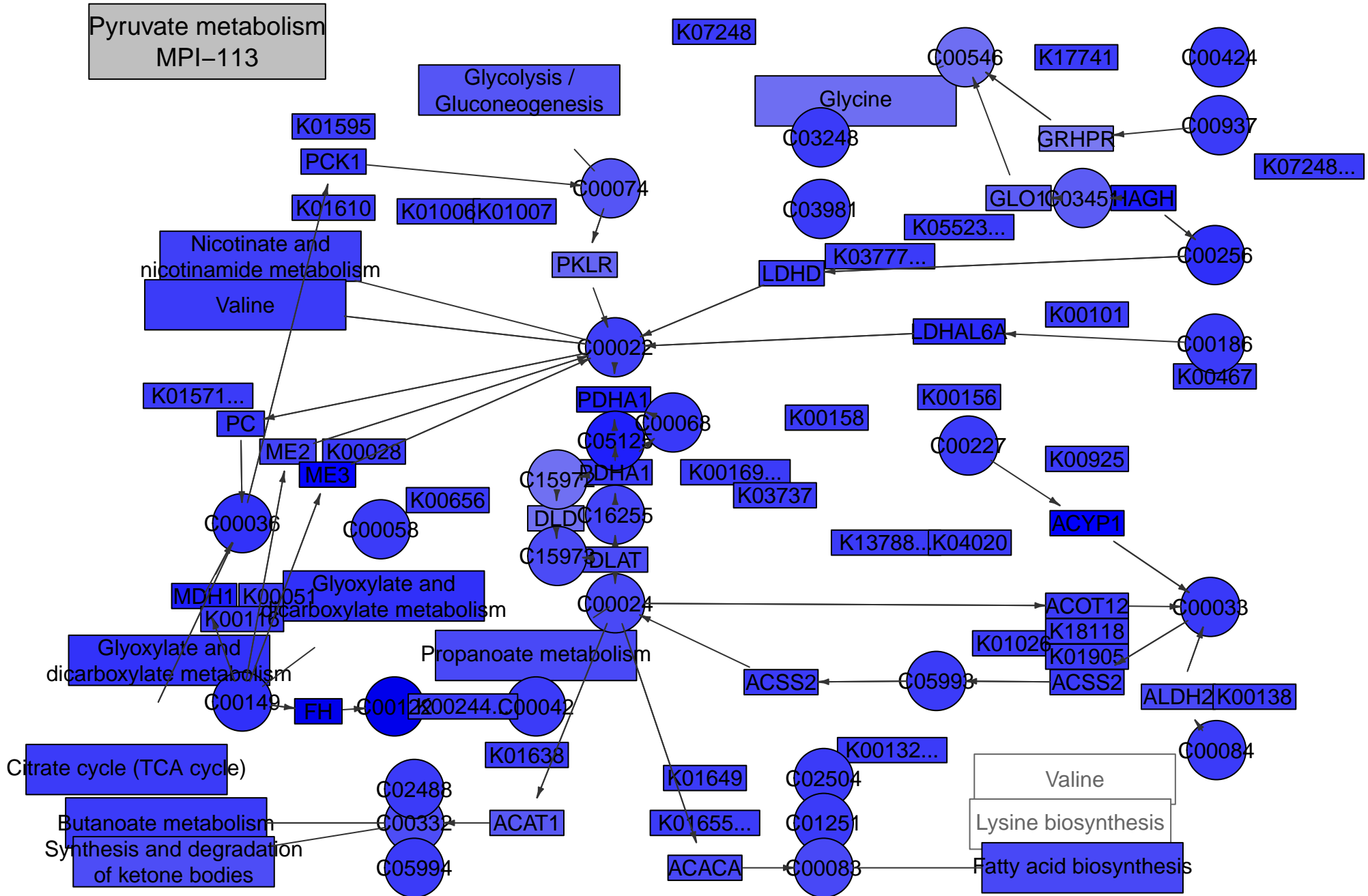


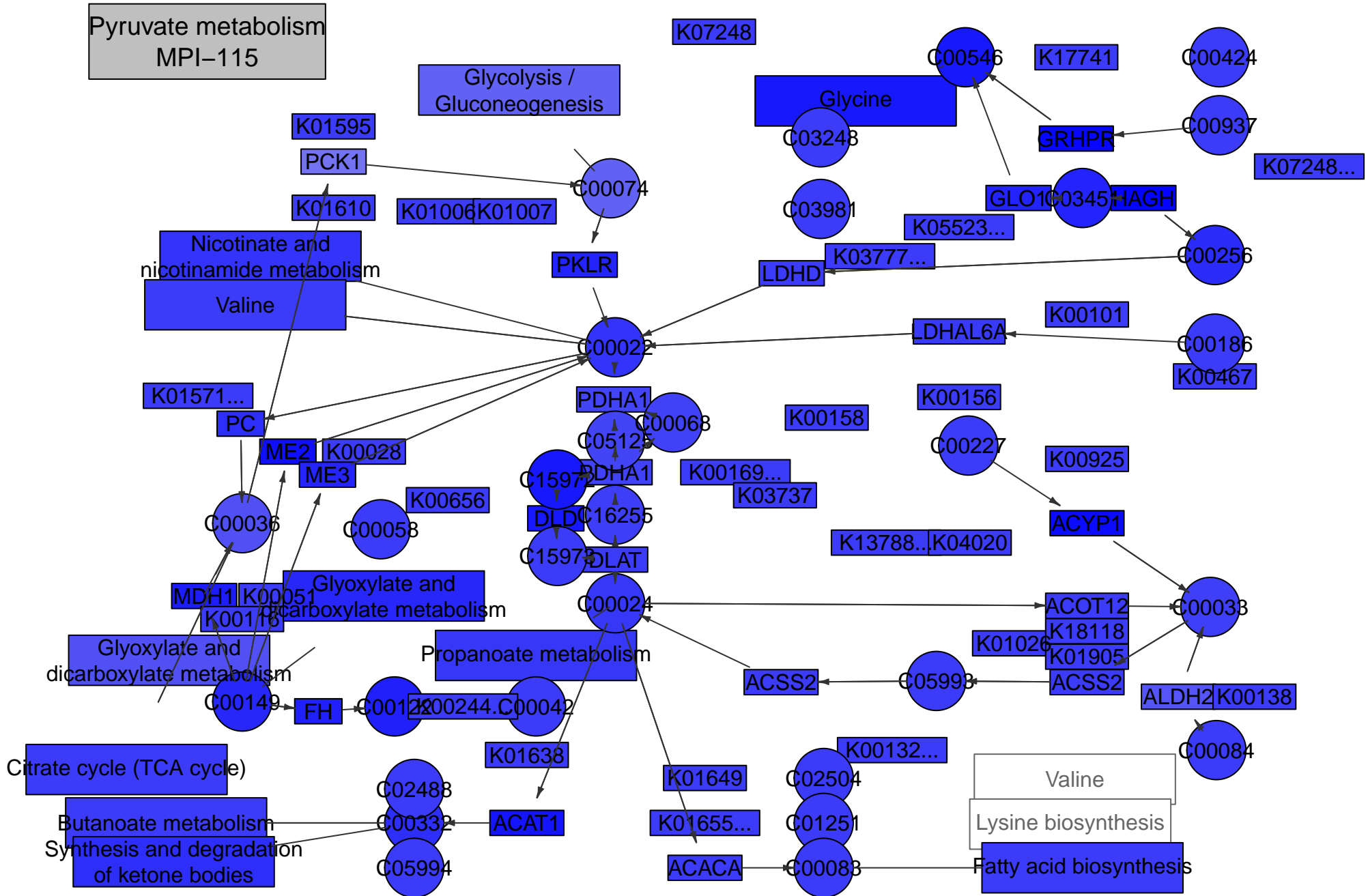


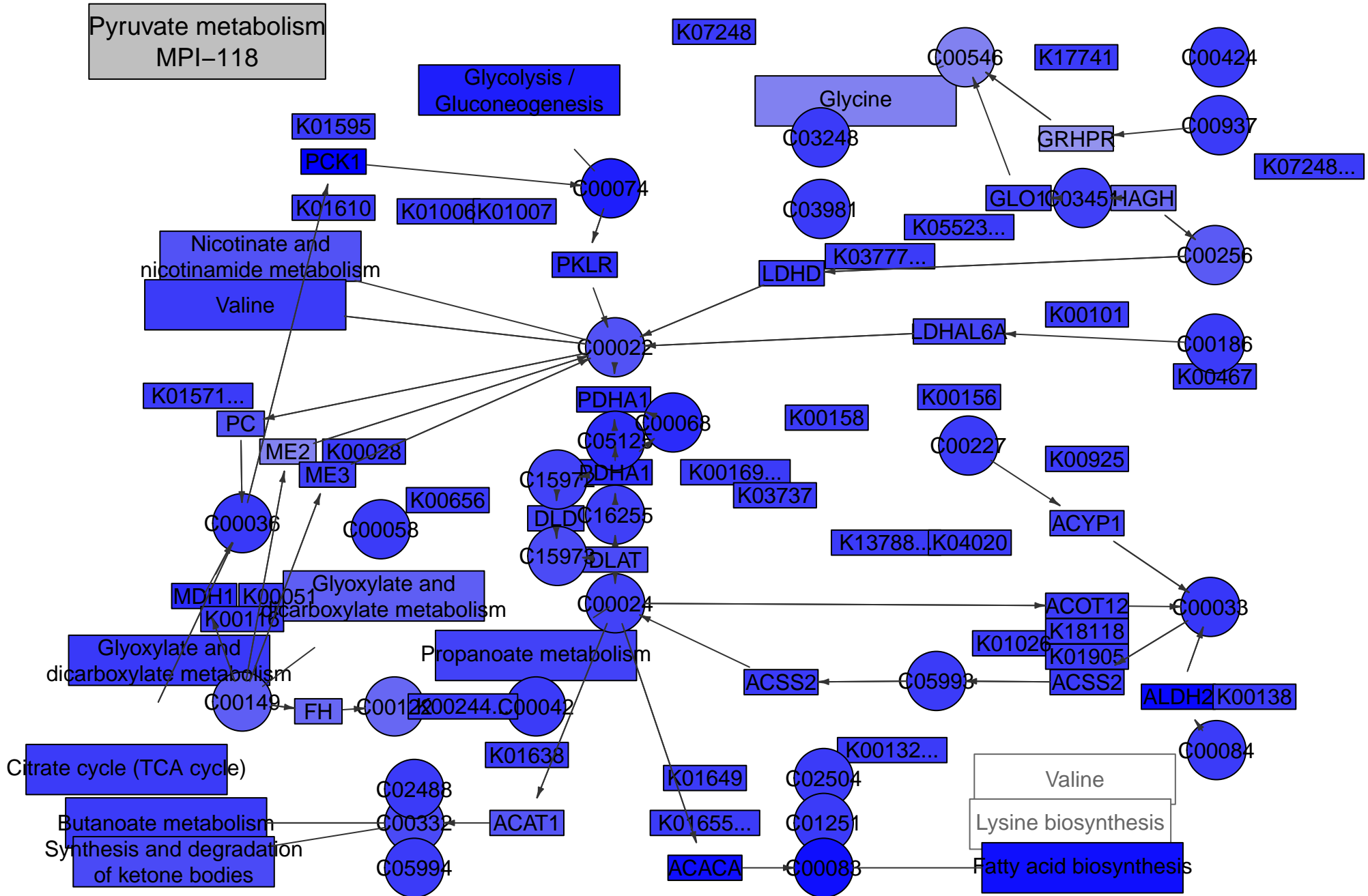


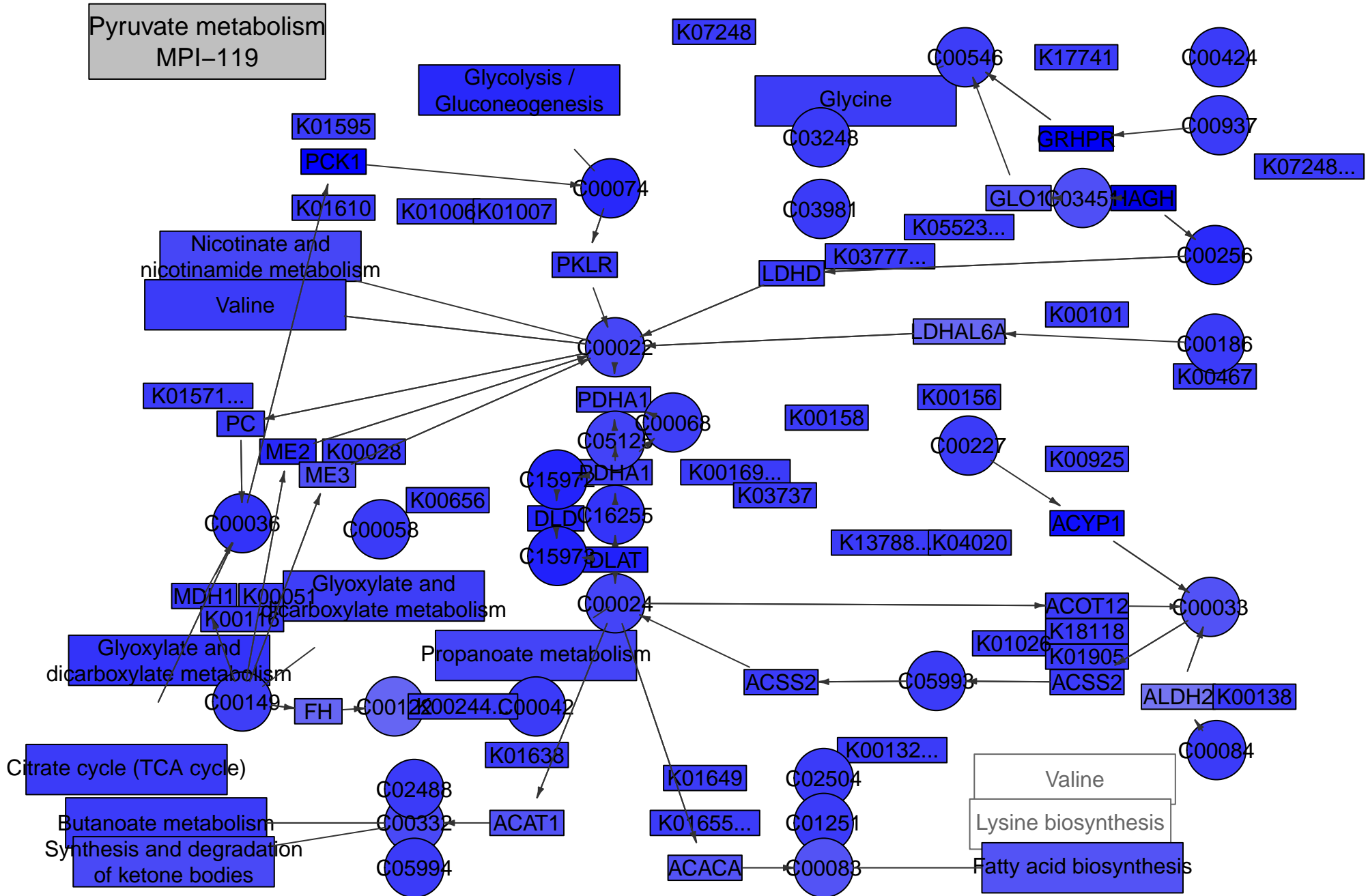


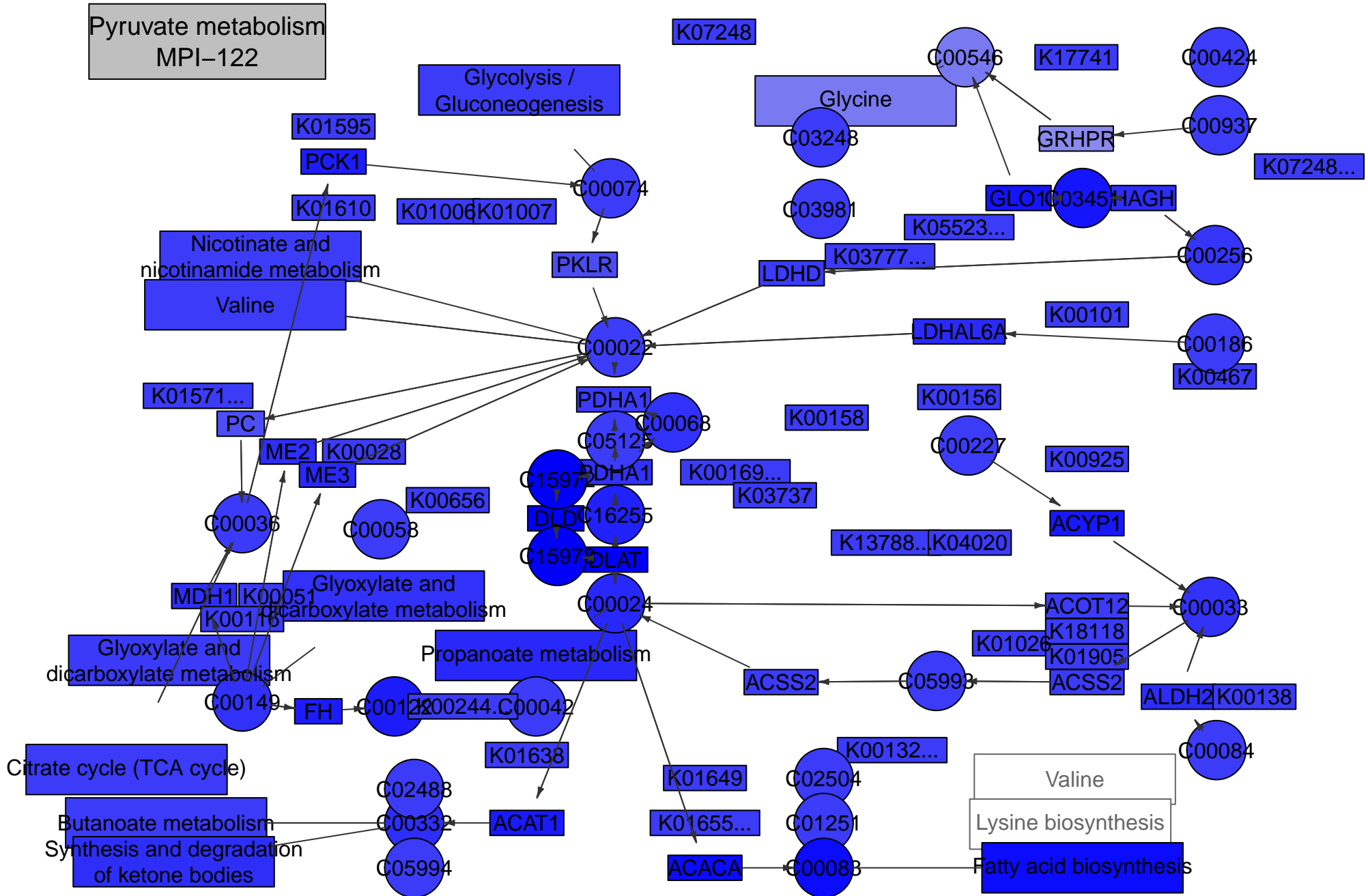


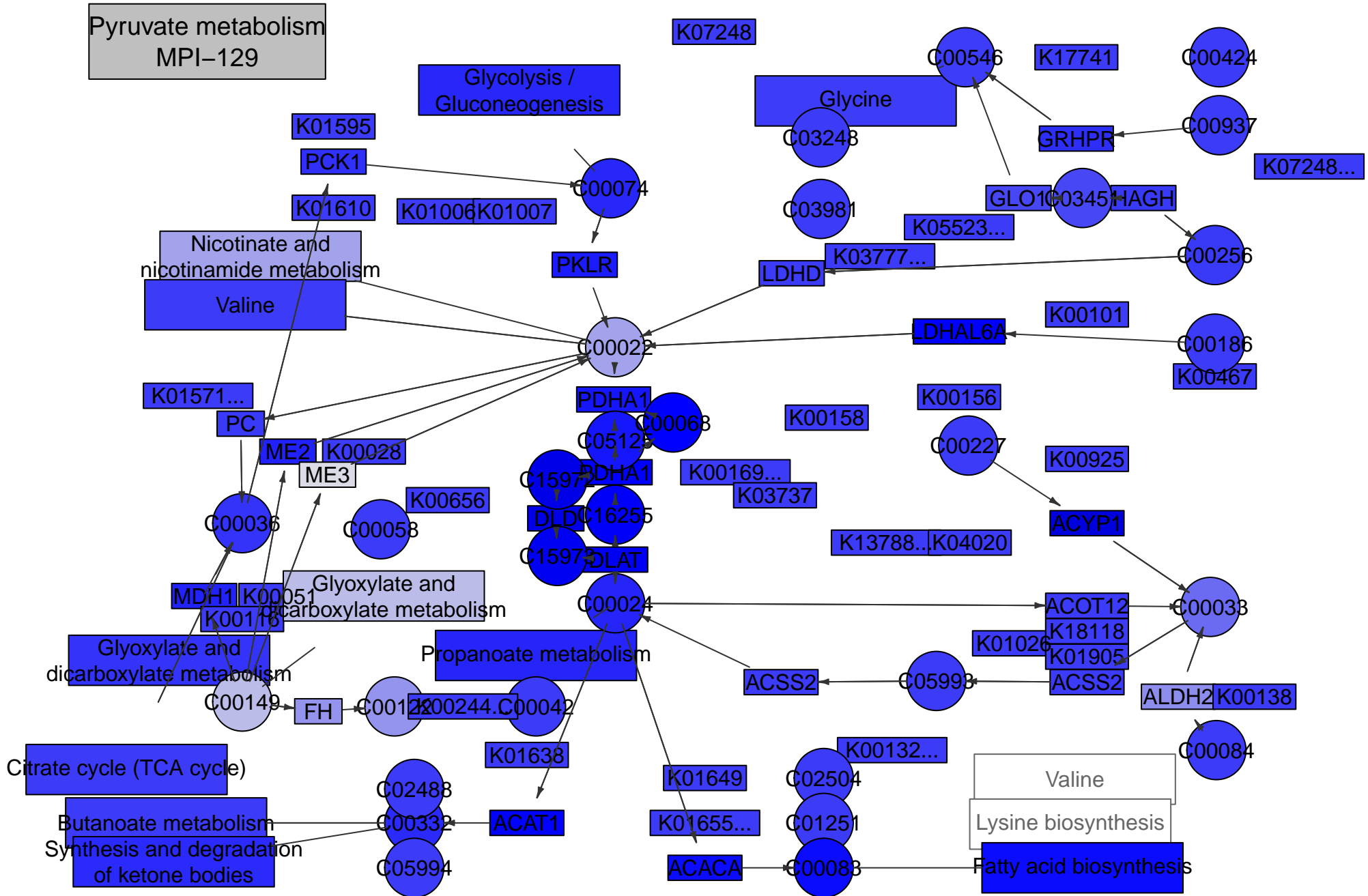


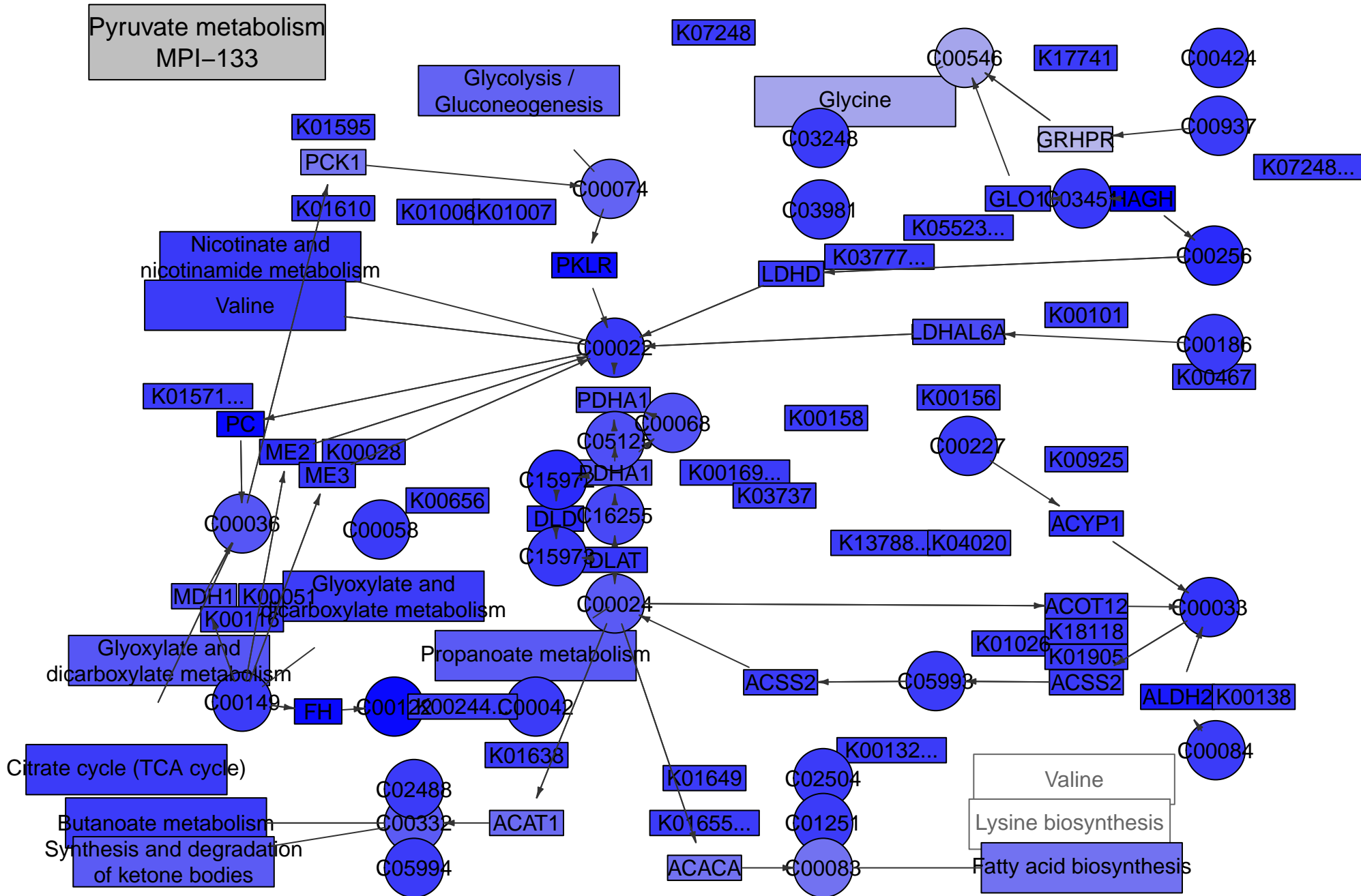


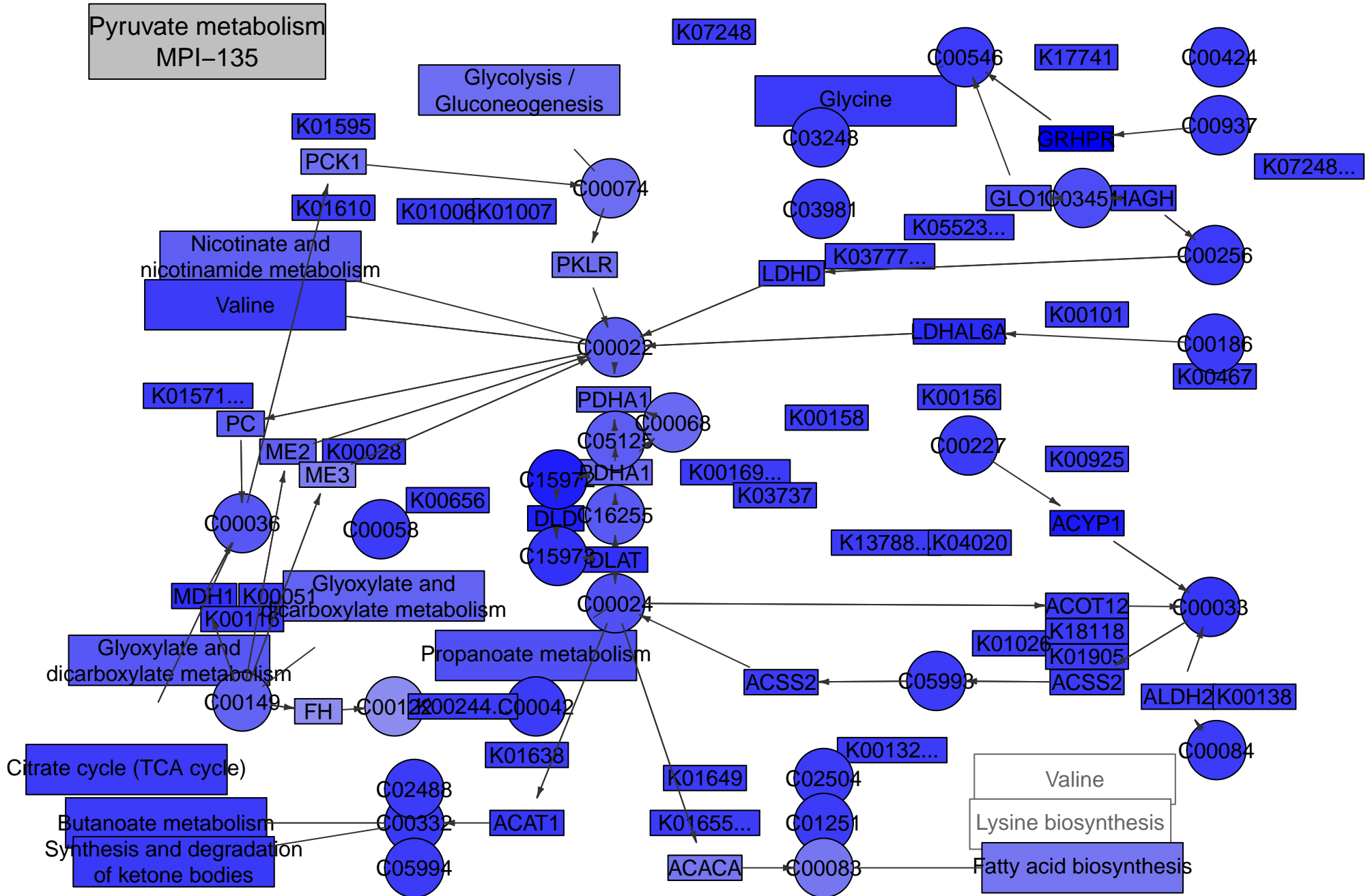


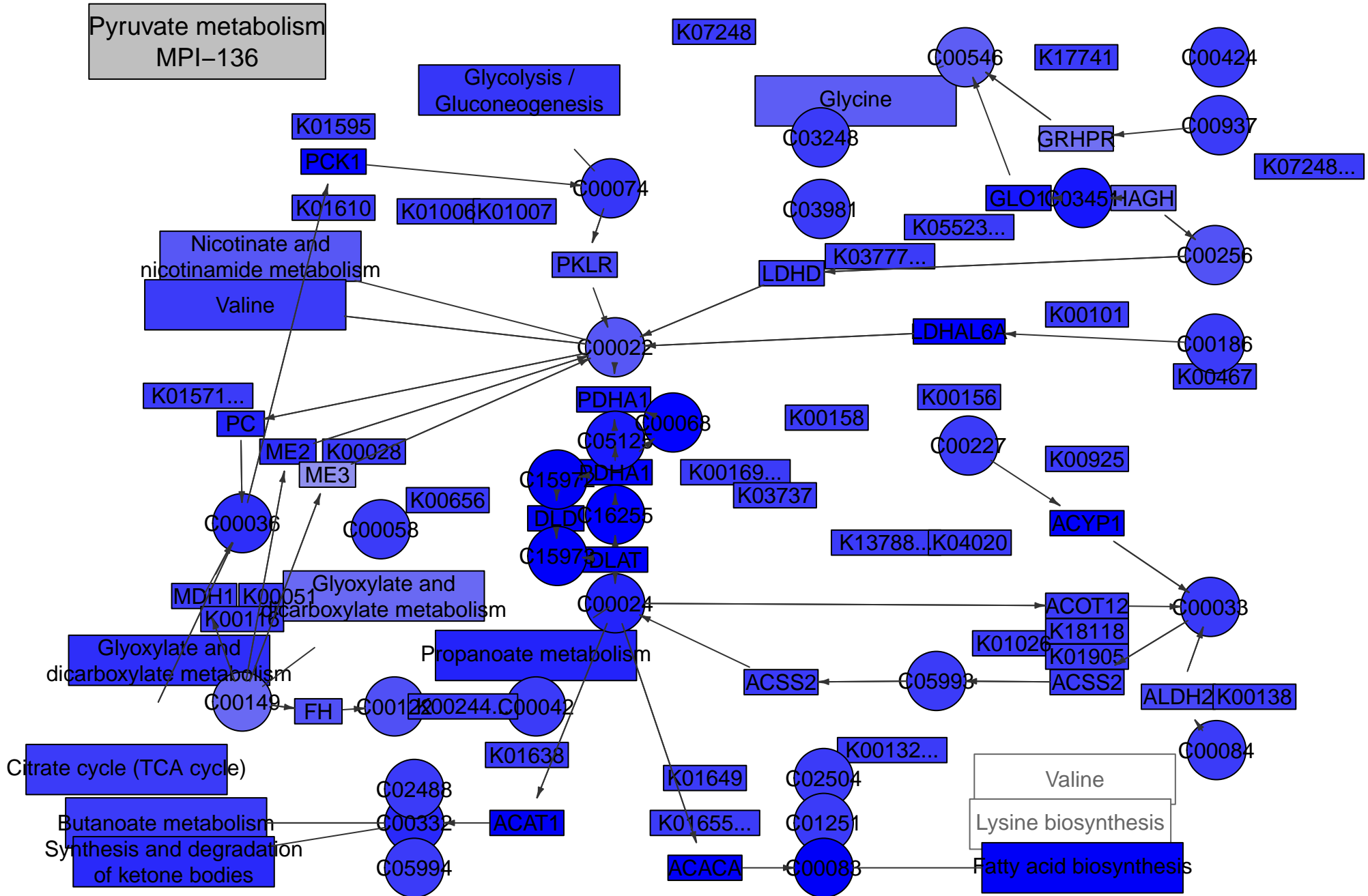












Pyruvate metabolism
MPI-141

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

PC

ME2

ME3

Glyoxylate and
dicarboxylate metabolism

Propanoate metabolism

Citrate cycle (TCA cycle)

Butanoate metabolism
Synthesis and degradation
of ketone bodies

Valine

Lysine biosynthesis

Fatty acid biosynthesis

K01595

PCK1

K01610

K01006

K01007

C00074

PKLR

C00022

PDHA1

C05125

BDHA1

DLDC

DLAT

C00024

C00042

C02488

C00332

C05994

K07248

C03248

C03981

LDHD

LDHAL6A

K00158

K00169...

K03737

ACSS2

ACSS2

K01649

K01655...

ACACA

C00546

K17741

C00424

C00937

GRHPR

K07248...

GLO1

C0345

HAGH

K05523...

K03777...

C00256

C00186

K00467

K00156

C00227

K00925

ACYP1

ACOT12

K18118

K01905

ACSS2

C00033

K01026

ALDH2

K00138

C00084

C02504

C01251

C00088

K00132...

K13788..

K04020

C05993

K01026

K00138

K00138

K00138

K00138

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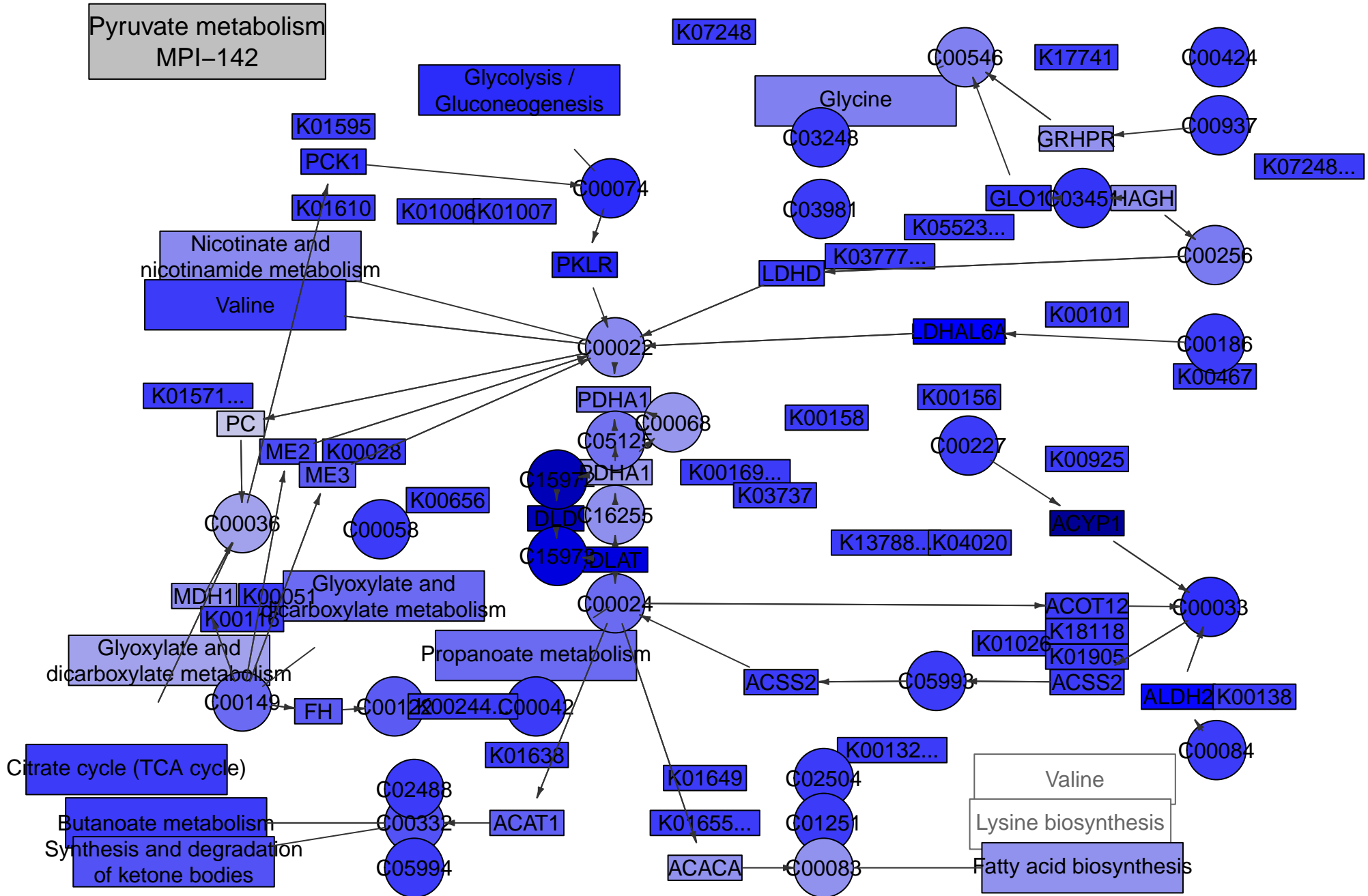
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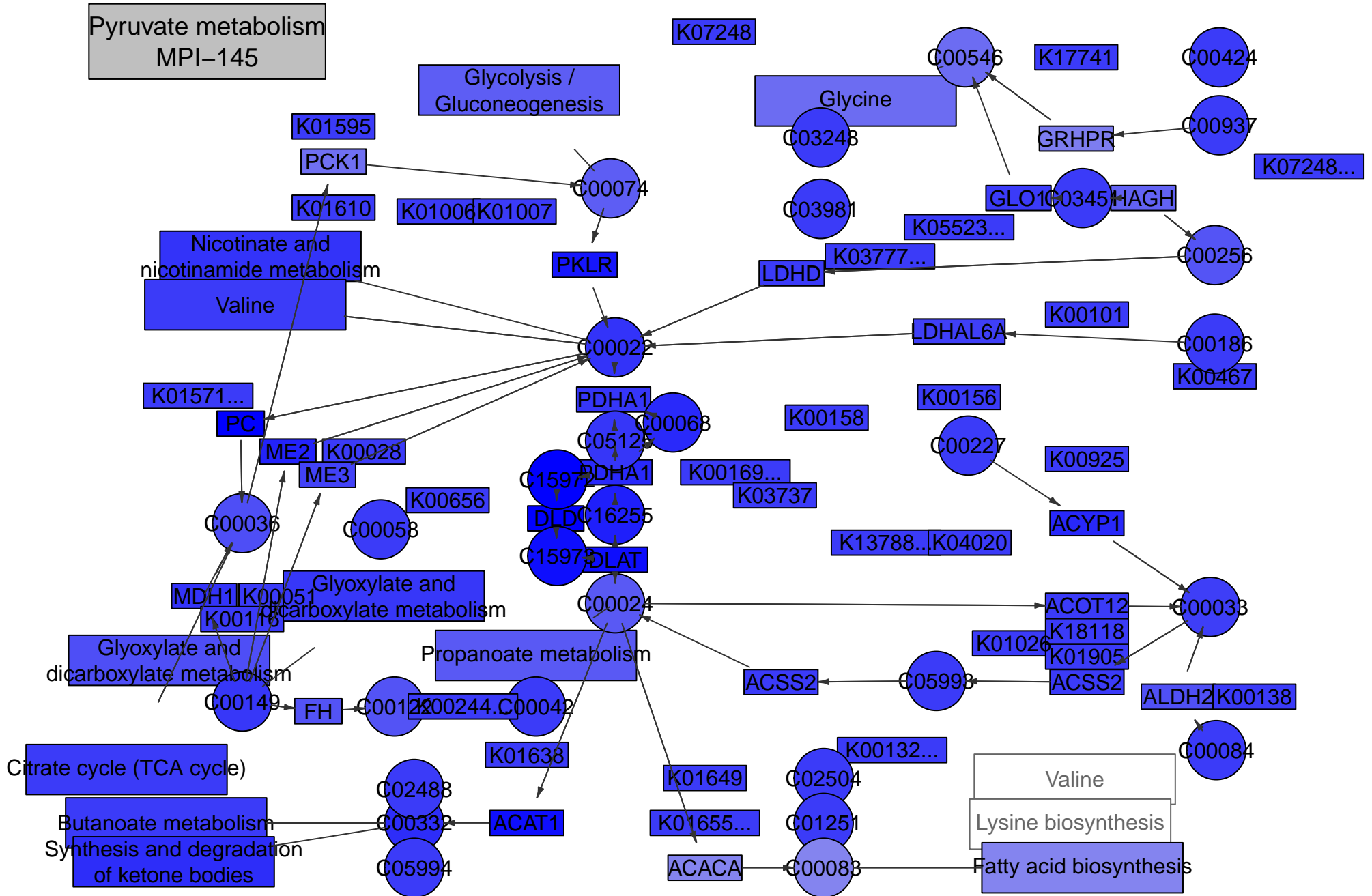
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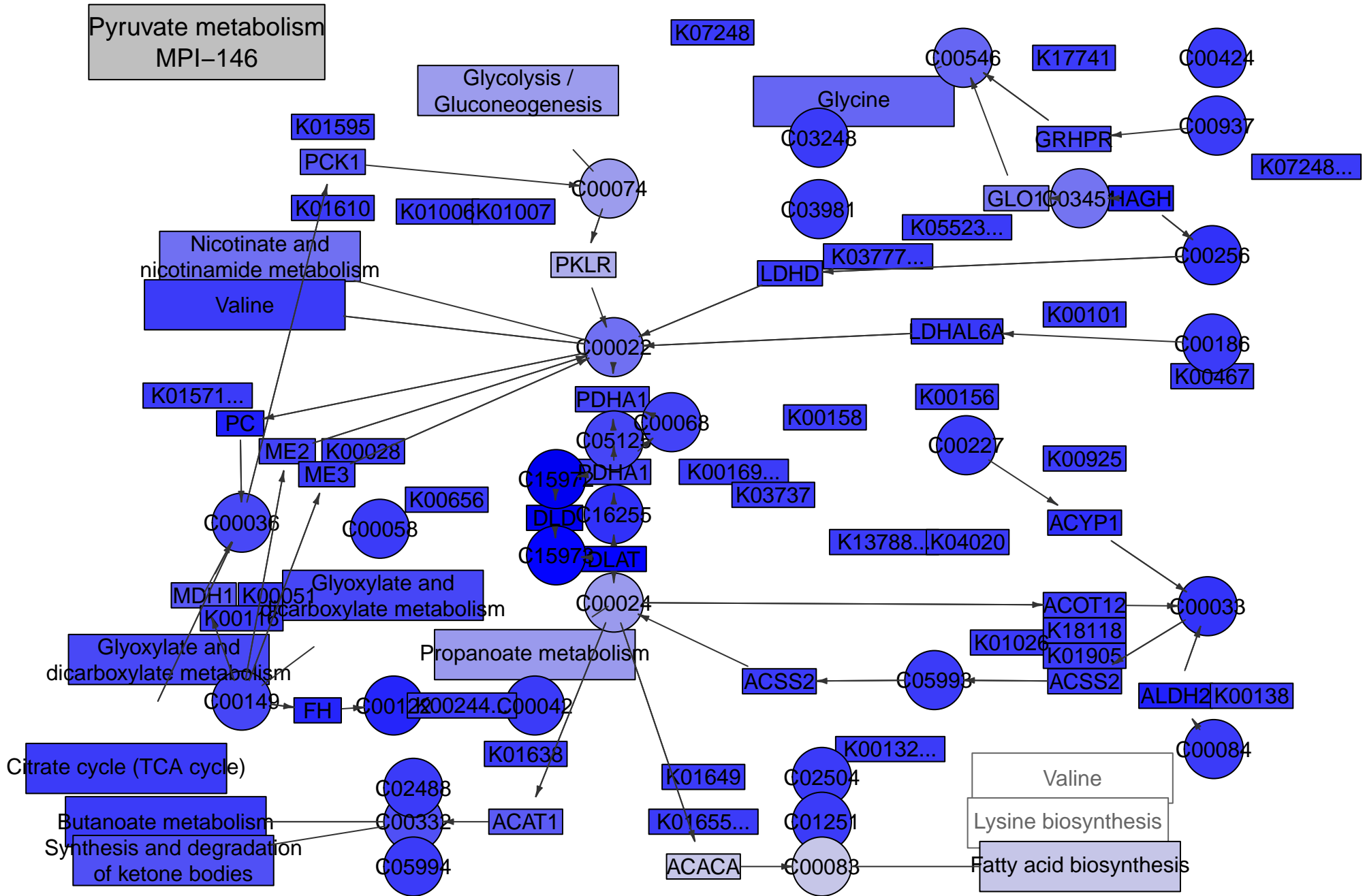
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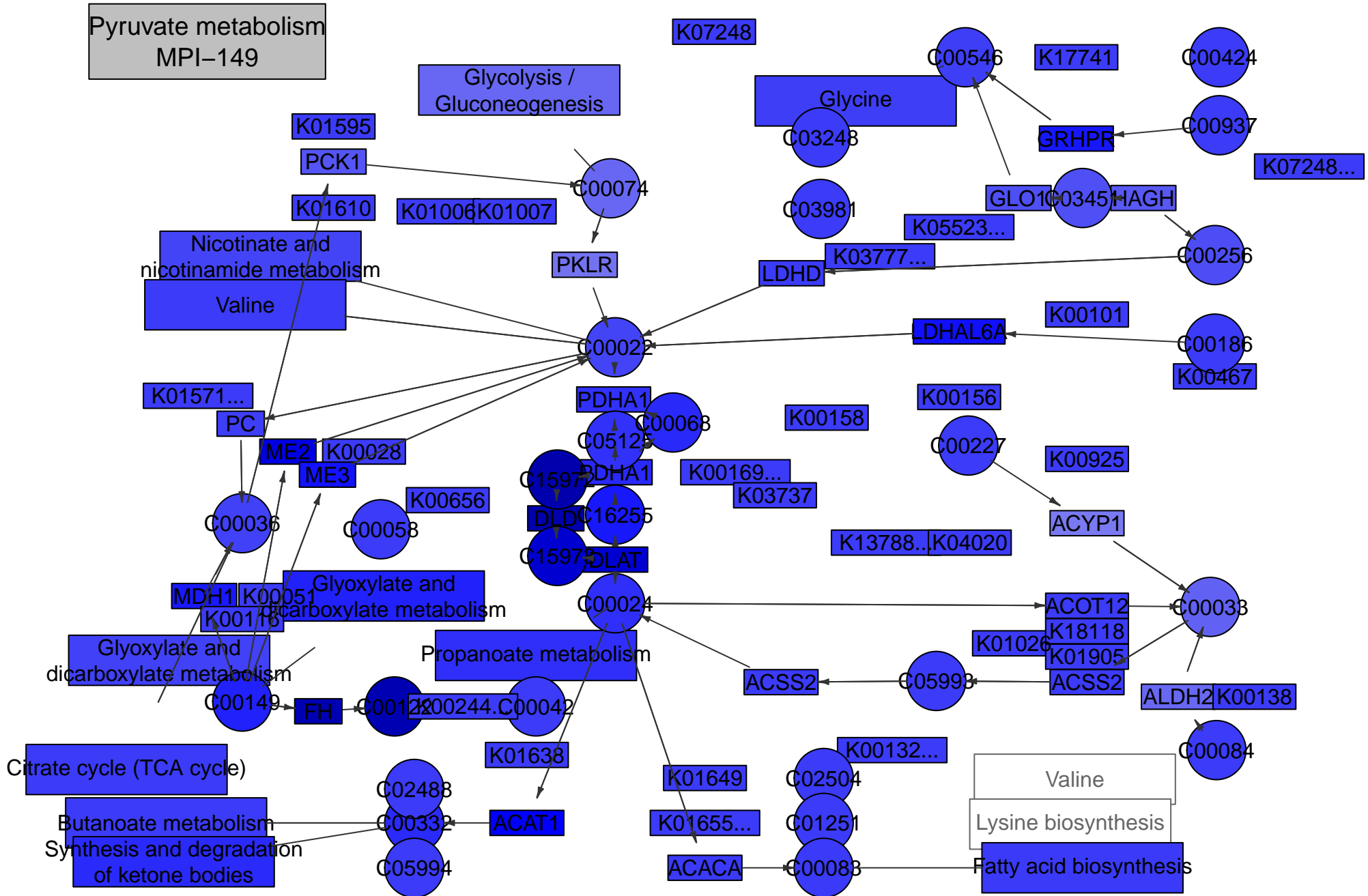
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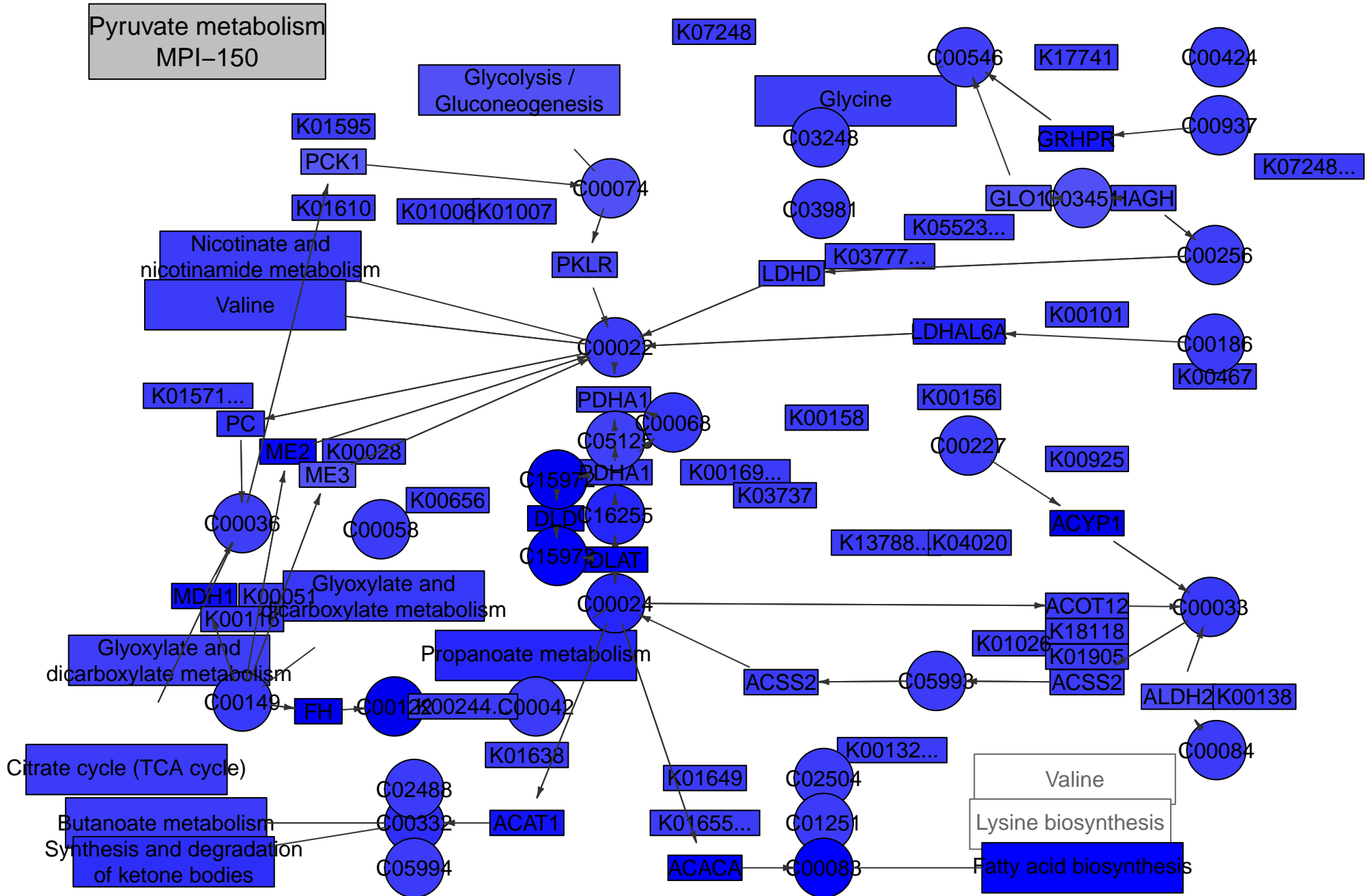
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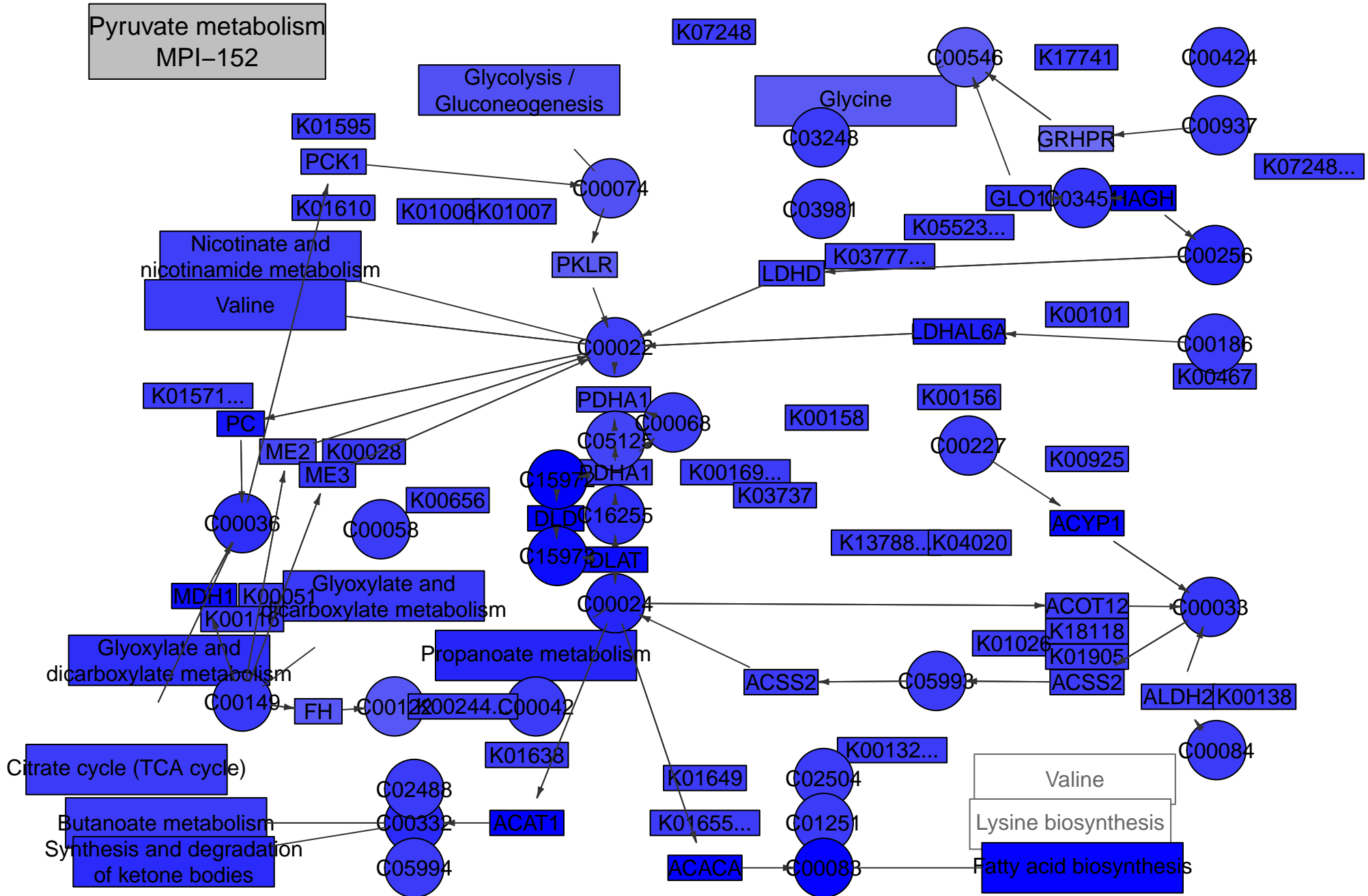


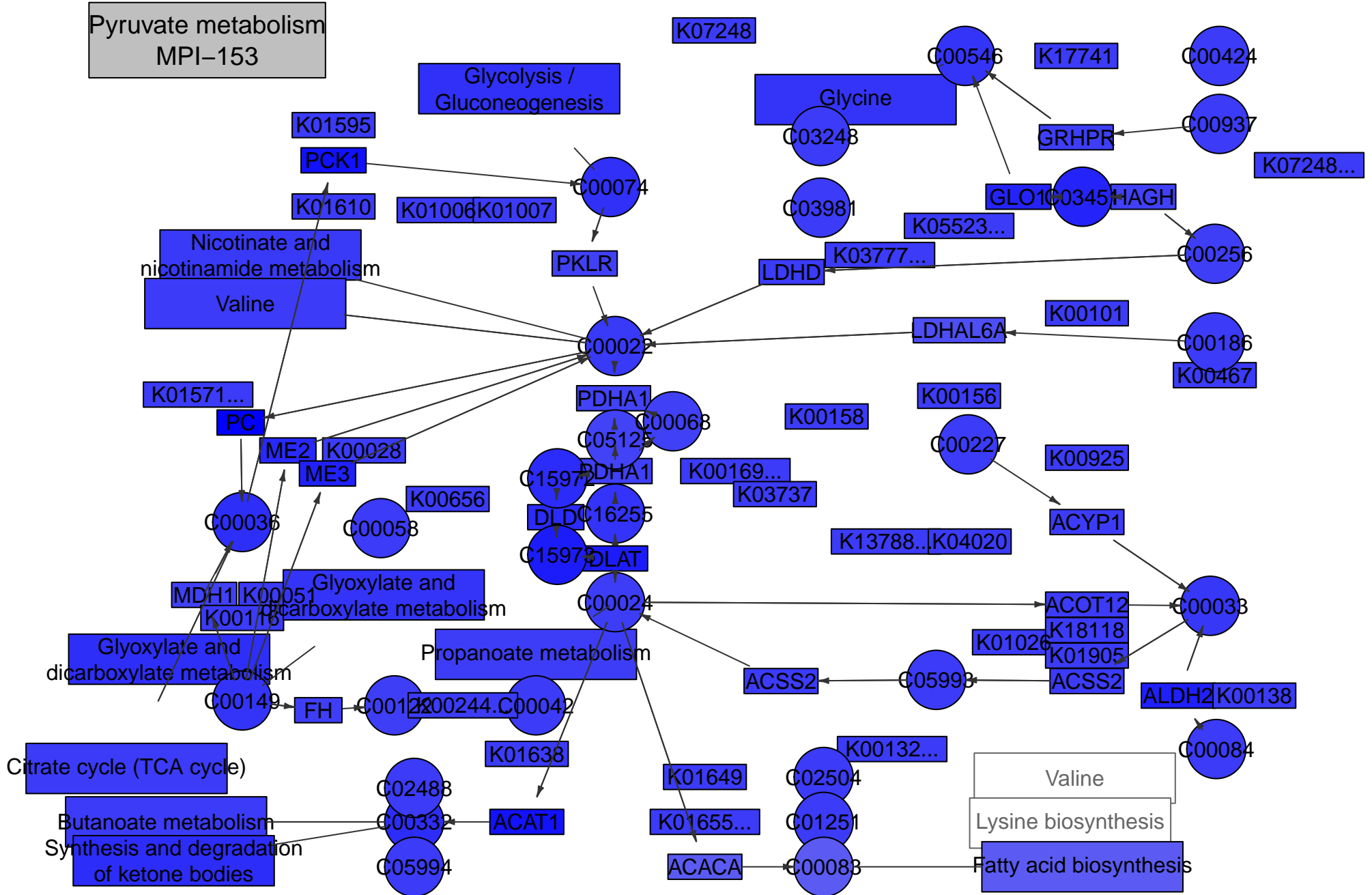


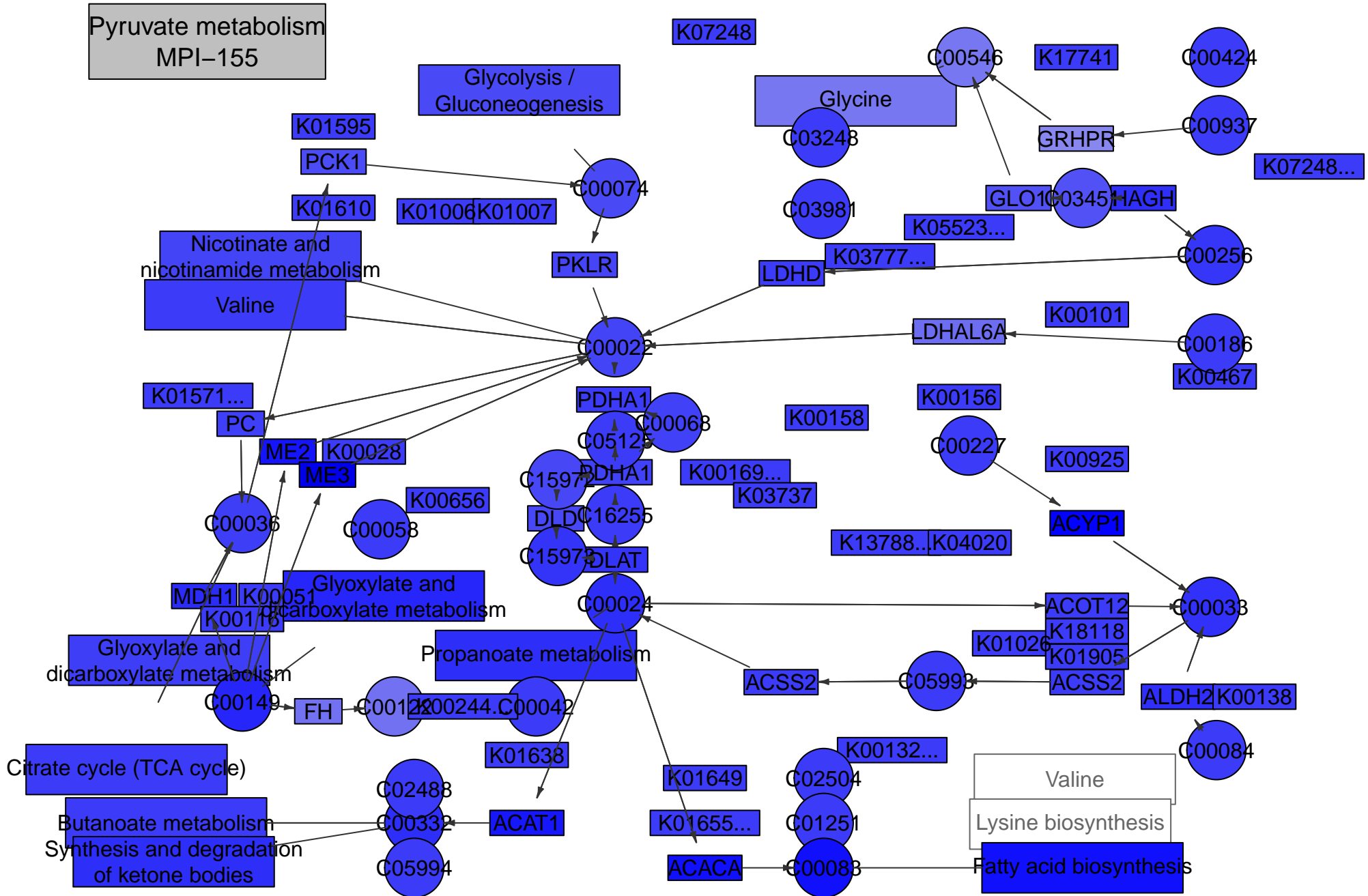


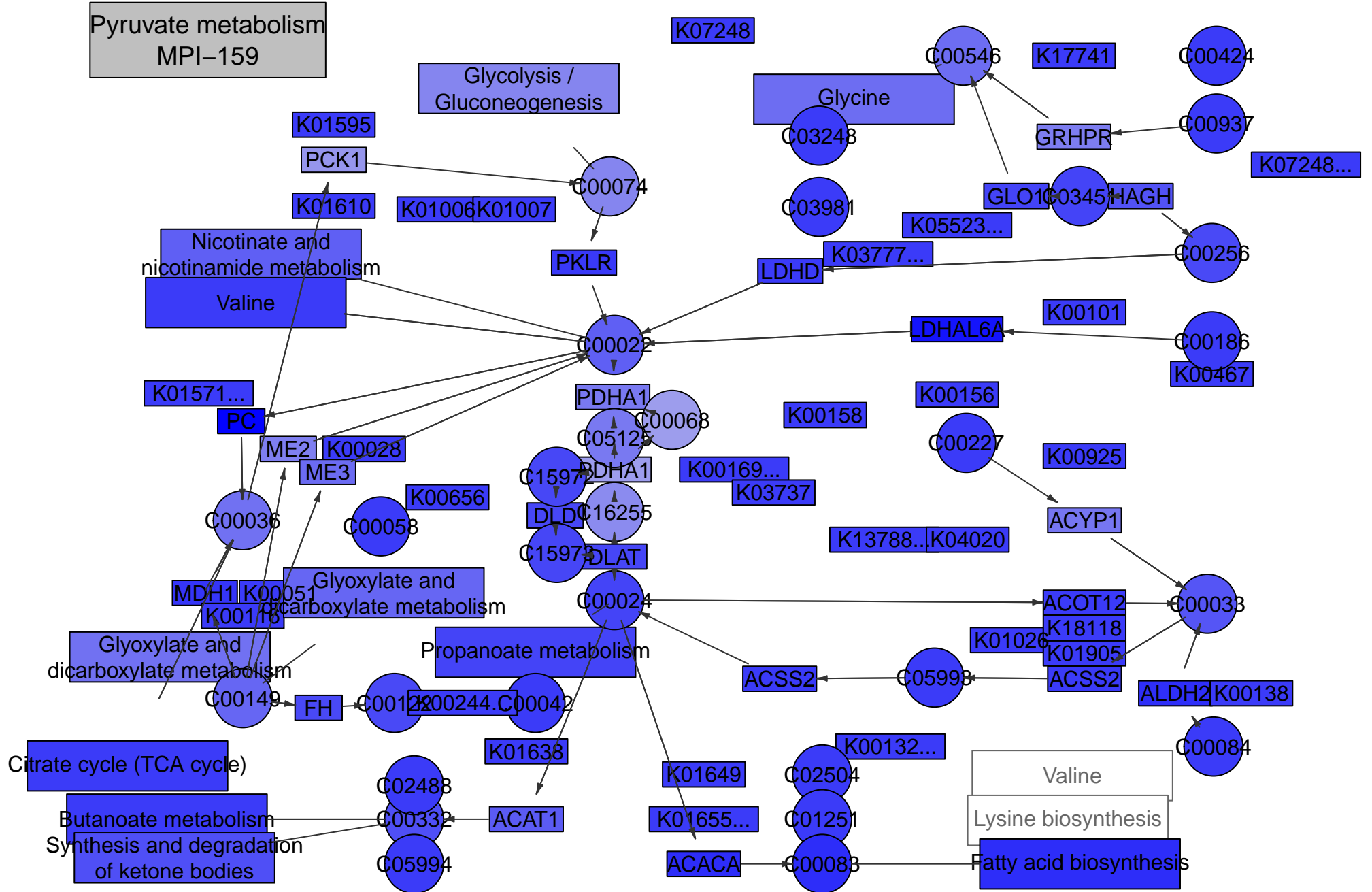


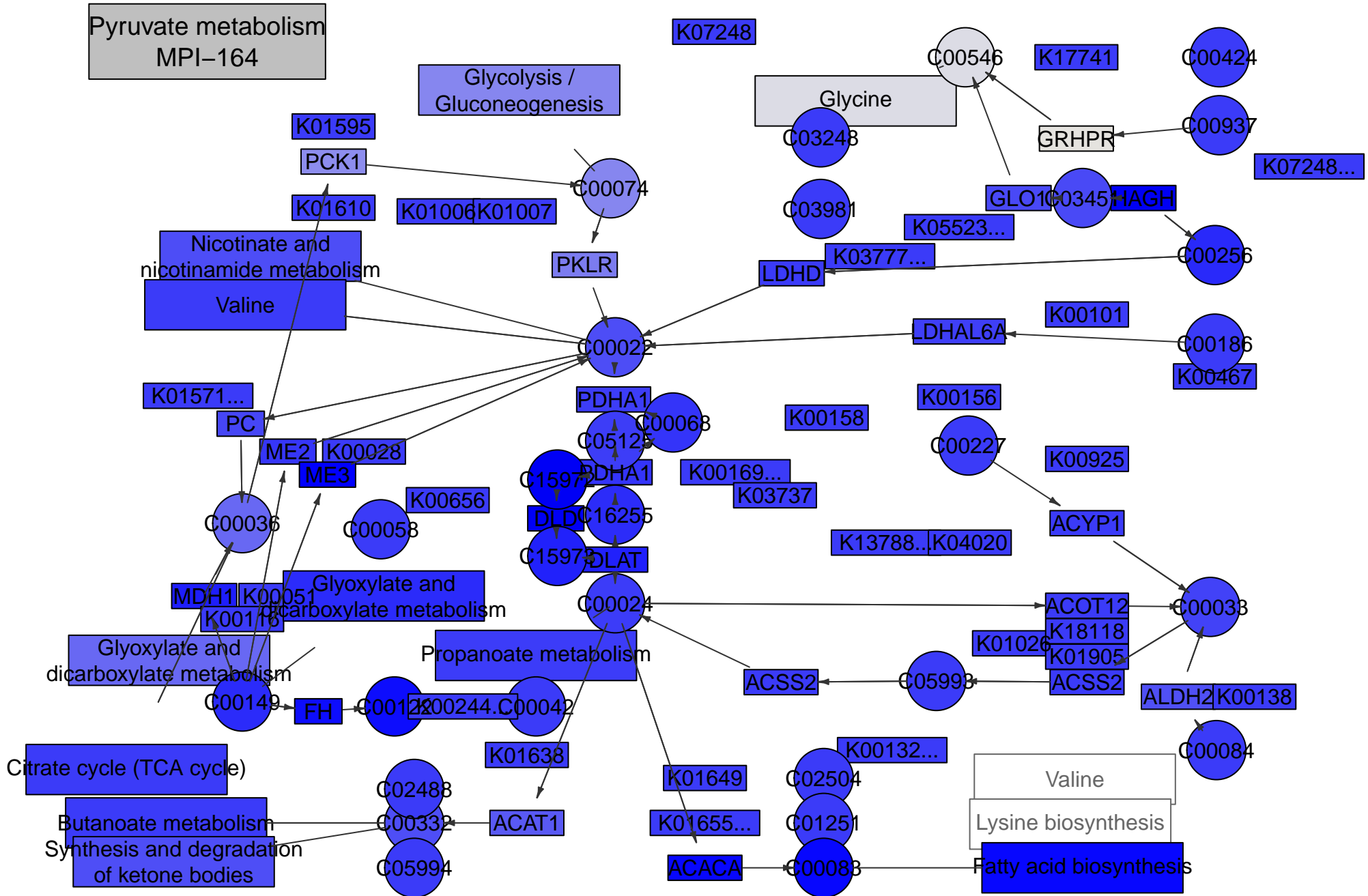


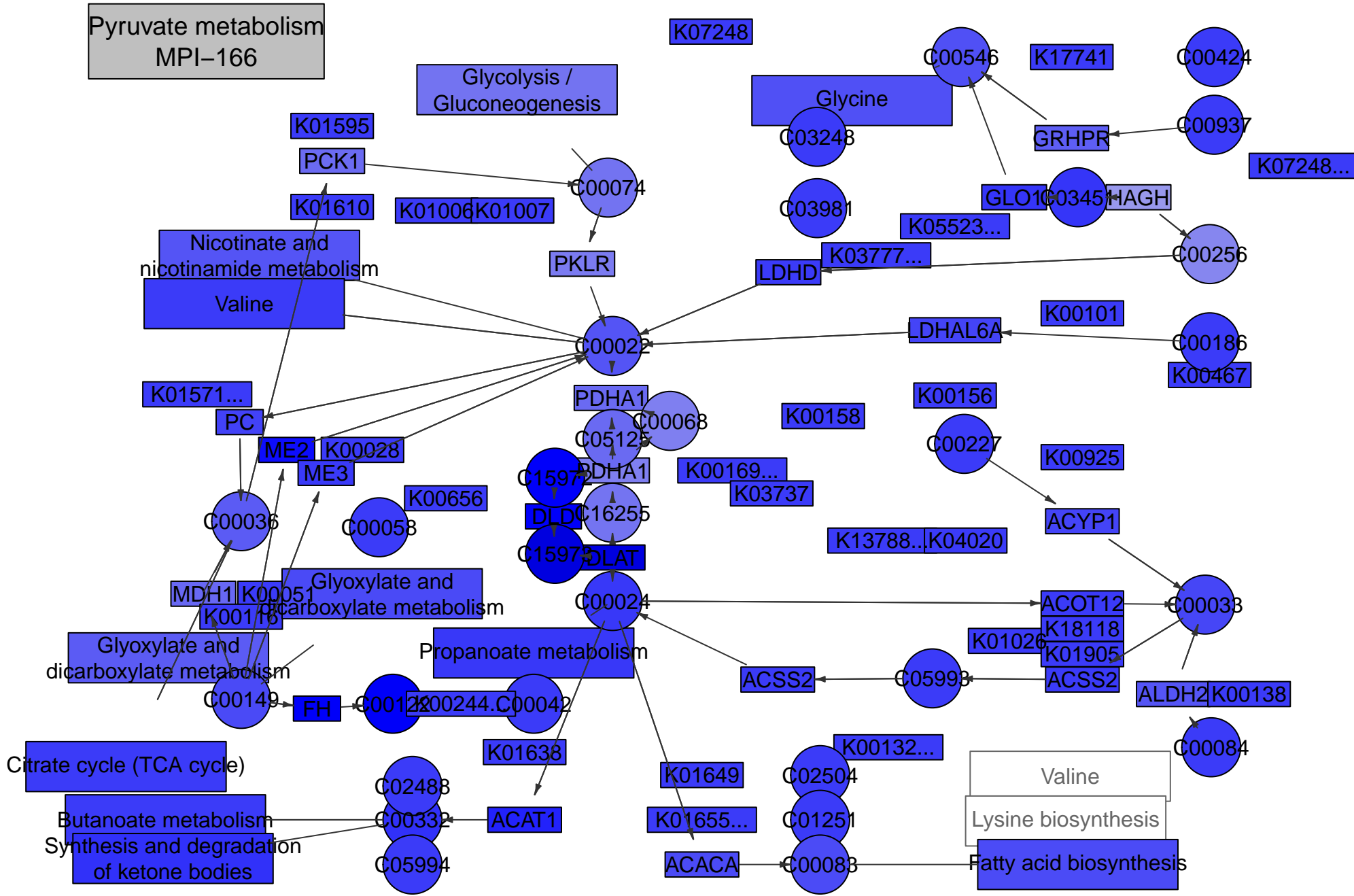


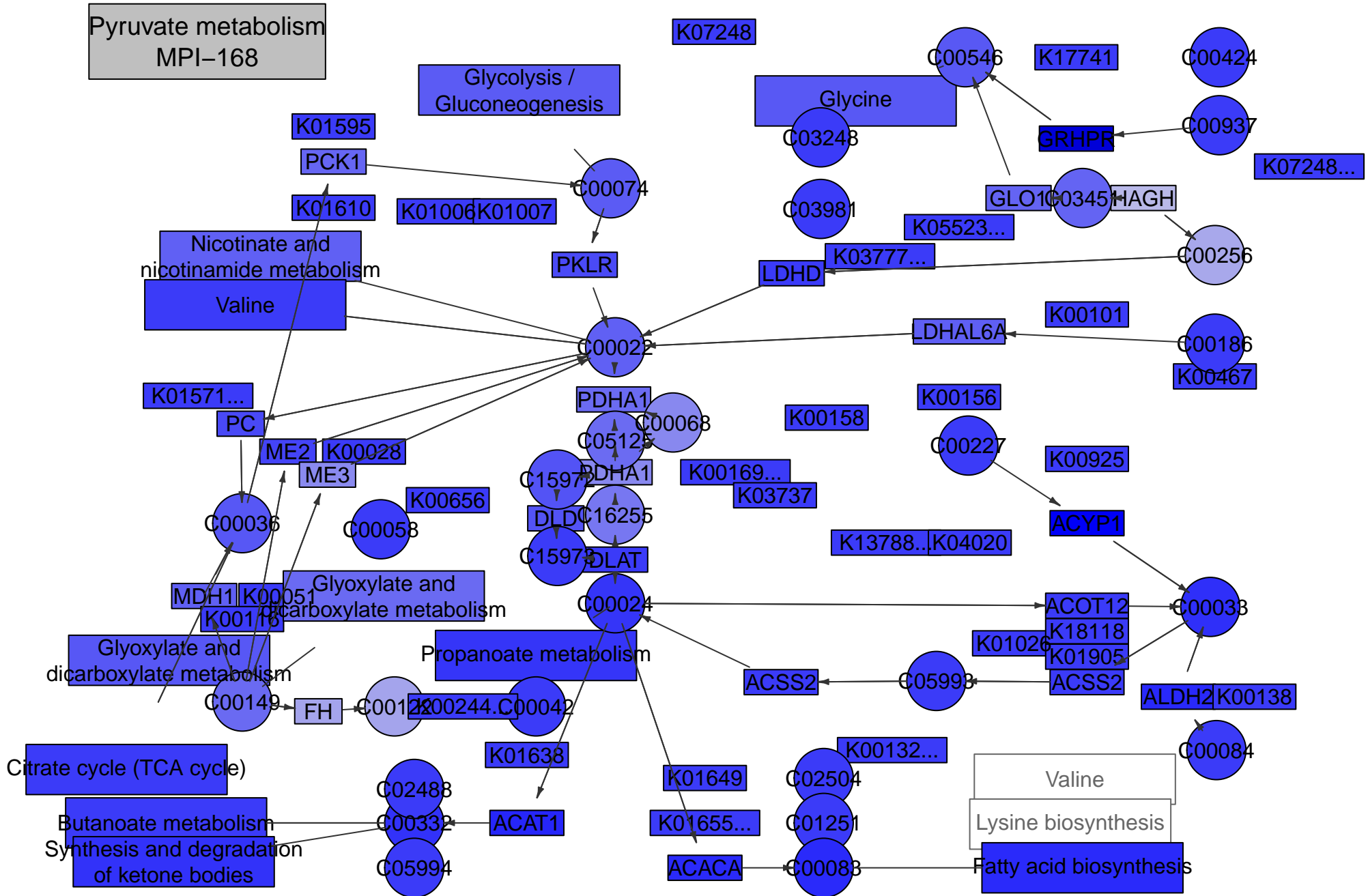


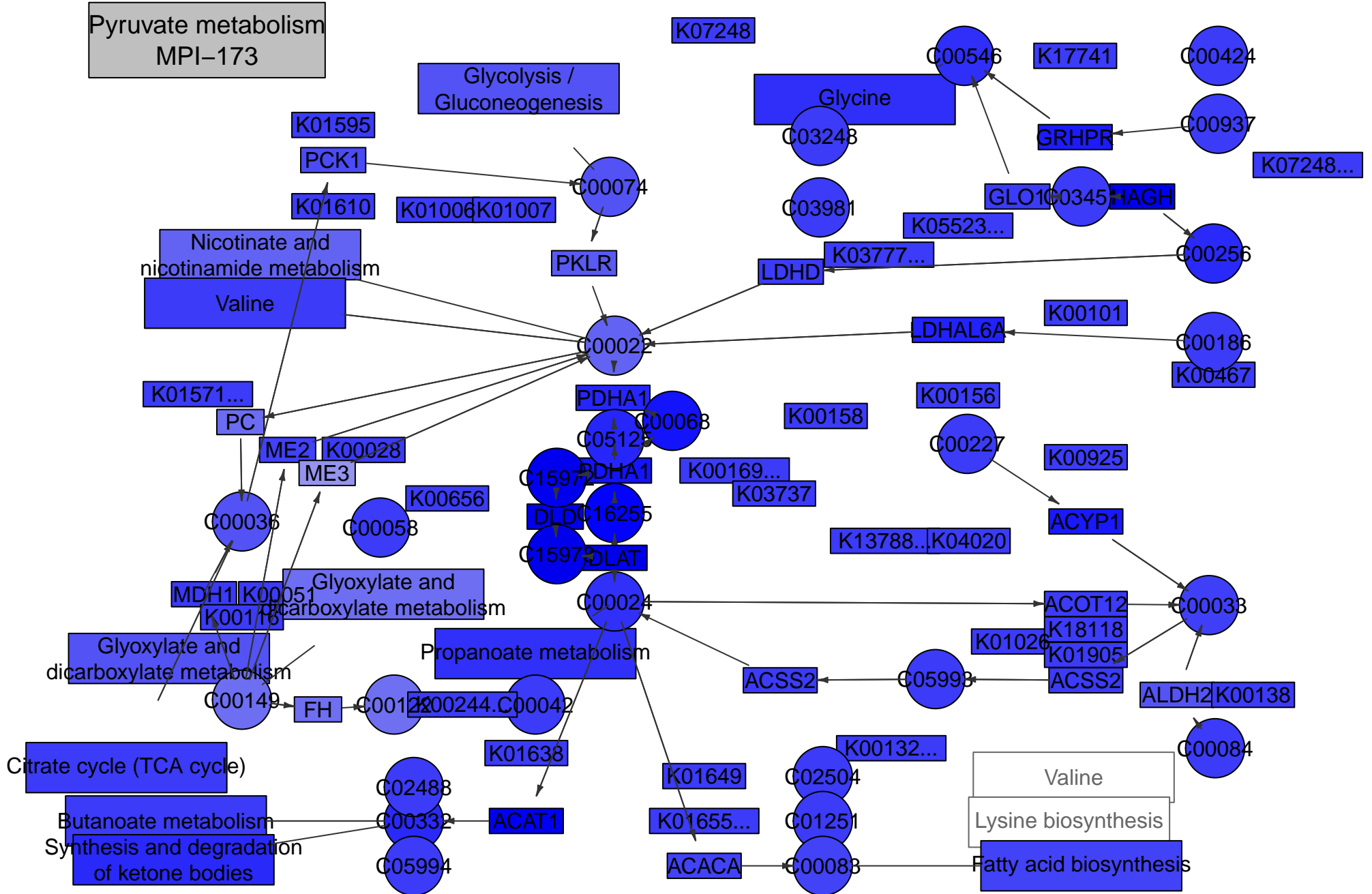


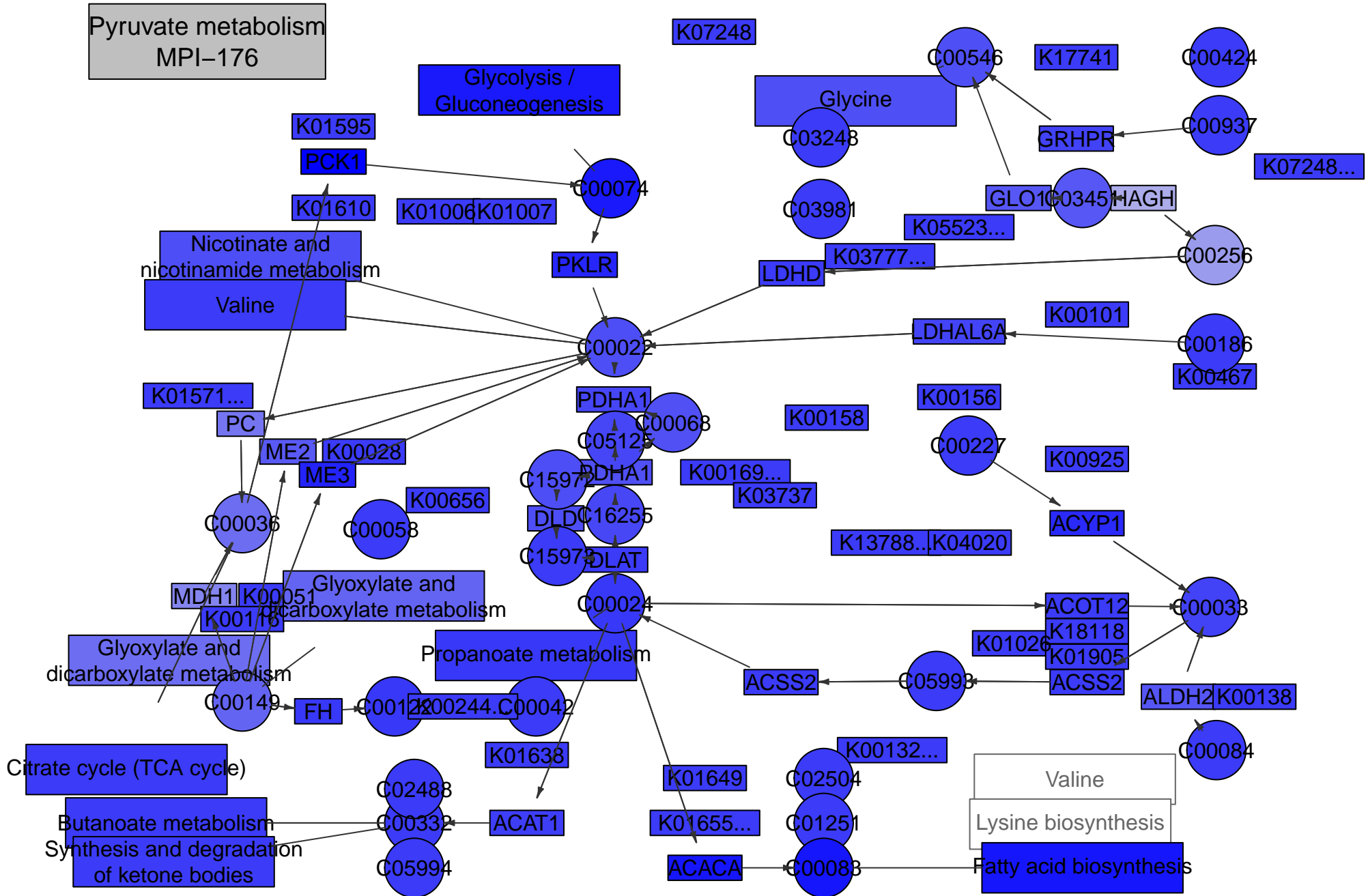












Pyruvate metabolism
MPI-177

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

PC

ME2

ME3

MDH1

Glyoxylate and
dicarboxylate metabolism

FH

Citrate cycle (TCA cycle)

Butanoate metabolism
Synthesis and degradation
of ketone bodies

Propanoate metabolism

ACAT1

ACACA

LDHD

C00022

PDHA1

C05125

BDHA1

DLDC

DLAT

C00024

ACSS2

K01649

K01655...

K07248

C03248

C03981

LDHD

C00022

C00068

K00158

K00169...

K03737

C00227

ACSS2

C05993

C02504

C01251

C00083

C00546

C03248

C03981

GLO1C

LDHD

LDHAL6A

C00227

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

K17741

GRHPR

GLO1C

K05523...

K03777...

LDHAL6A

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

HAGH

C00256

LDHAL6A

C00186

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

C00424

C00937

HAGH

C00256

LDHAL6A

C00186

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

K07248...

C00186

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

Valine

Lysine biosynthesis

Fatty acid biosynthesis

K18118

K01905

ALDH2

K00138

C00084

C00033

C00033

K01595

PCK1

K01610

C00074

PCLR

C00022

ME2

ME3

C00036

MDH1

C00149

C00122

C02488

C00332

C05994

K01006

K01007

C00074

PCLR

C00022

C00058

C00051

C00149

C00122

C00244

C00042

C02488

C00332

C05994

PCLR

C00022

C00068

C05125

BDHA1

DLDC

DLAT

C00024

C00042

C02488

C00332

C05994

C00022

C00068

C05125

BDHA1

DLDC

DLAT

C00024

C00042

C02488

C00332

C05994

LDHD

C00022

C00068

C05125

BDHA1

DLDC

DLAT

C00024

C00042

C02488

C00332

C05994

LDHD

C00022

C00068

C05125

BDHA1

DLDC

DLAT

C00024

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C00332

C05994

LDHD

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C05125

BDHA1

DLDC

DLAT

C00024

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C05994

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GLO1C

LDHD

LDHAL6A

C00227

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

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K17741

GRHPR

GLO1C

K05523...

K03777...

LDHAL6A

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ACYP1

ACOT12

ACOT12

ACSS2

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LDHAL6A

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C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

C00424

C00937

HAGH

C00256

LDHAL6A

C00186

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

K07248...

C00186

C00227

ACYP1

ACOT12

ACOT12

ACSS2

C05993

C02504

C01251

C00083

C00033

C00033

K01595

PCK1

K01610

C00074

PCLR

C00022

ME2

ME3

C00036

MDH1

C00149

C00122

C02488

C00332

C05994

K01006

K01007

C00074

PCLR

C00022

C00058

C00051

C00149

C00122

C00244

C00042

C02488

C00332

C05994

PCLR

C00022

C00068

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C02488

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C05994

C00022

C00068

C05125

BDHA1

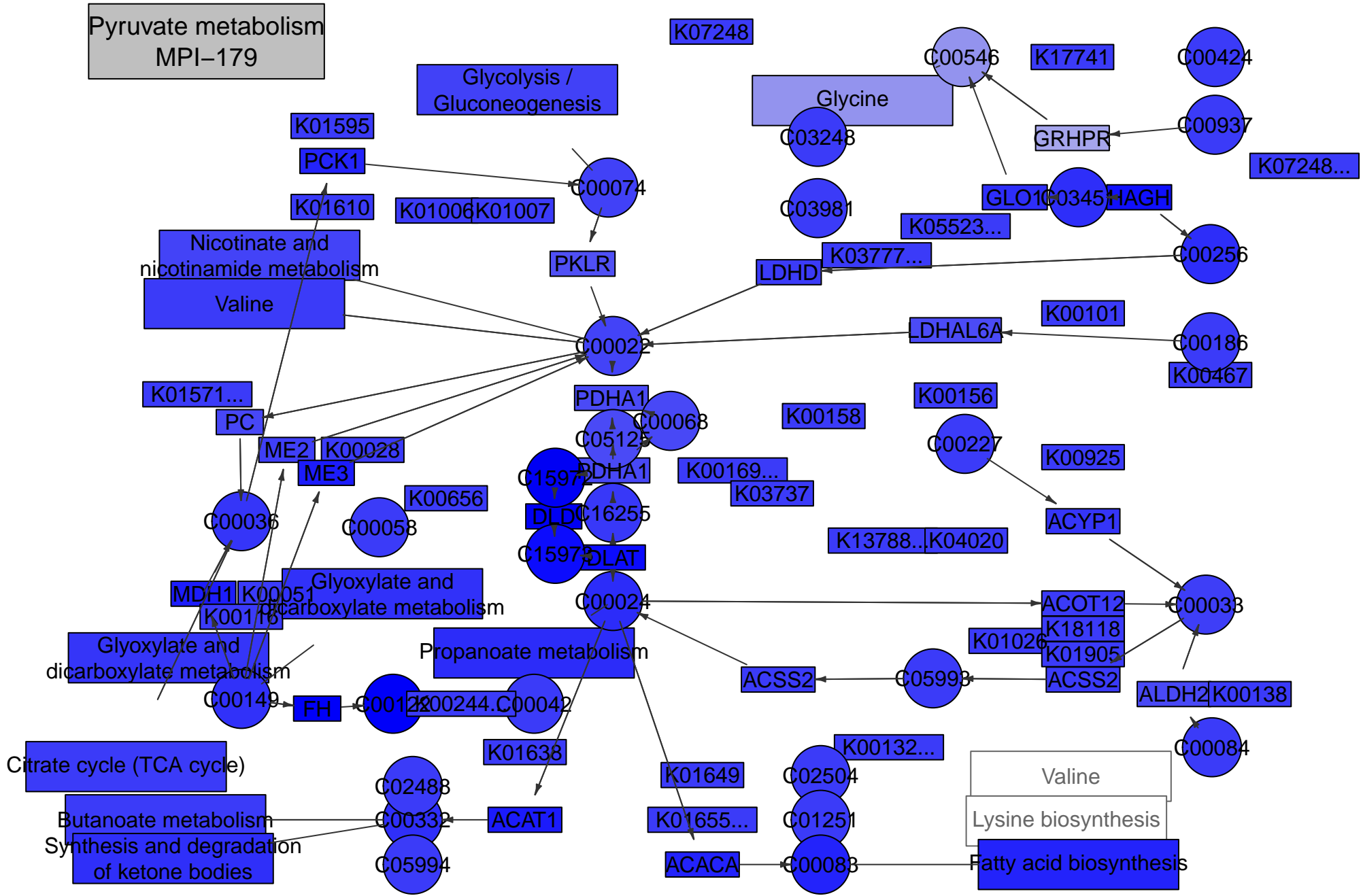
DLDC

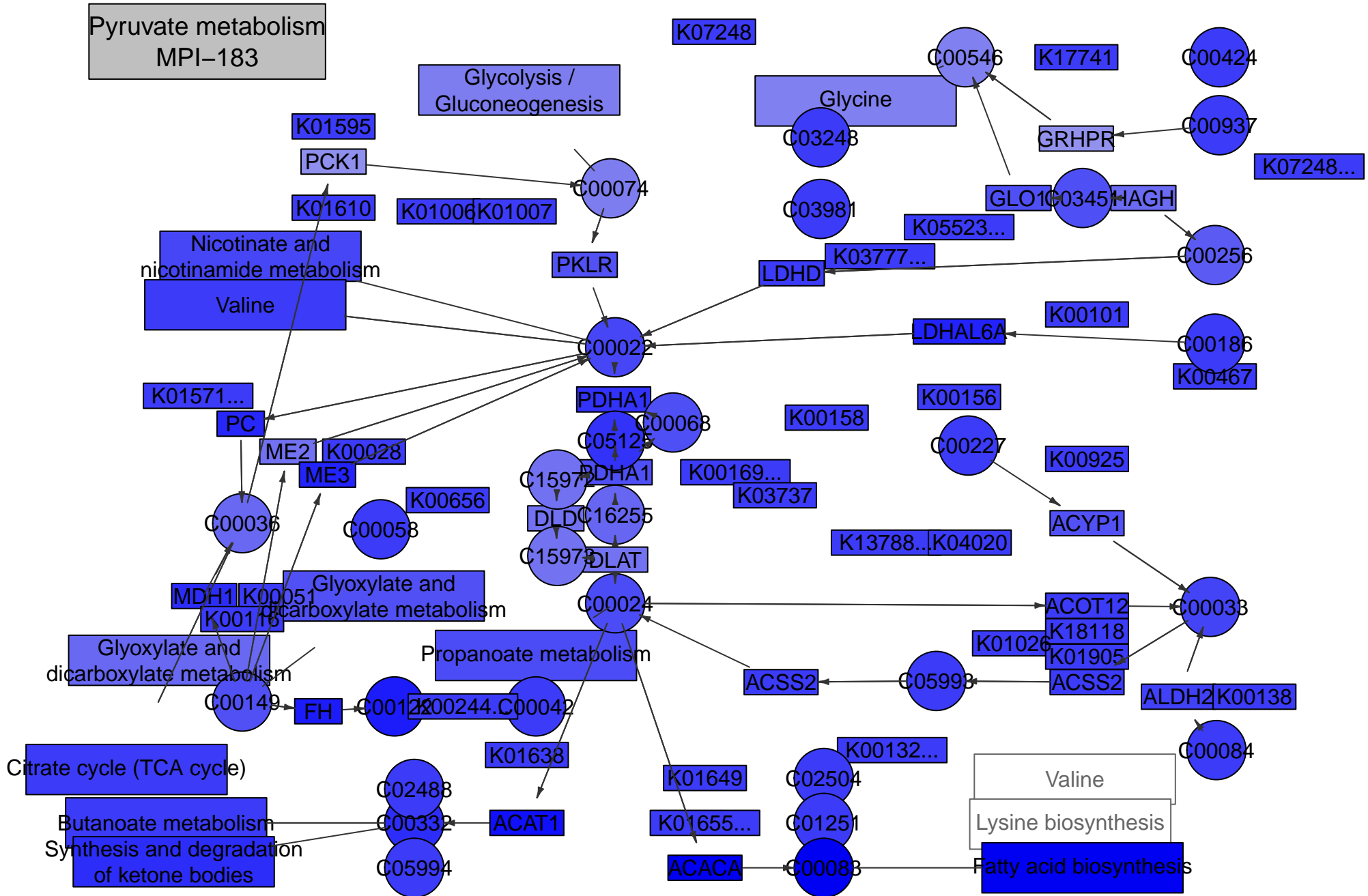
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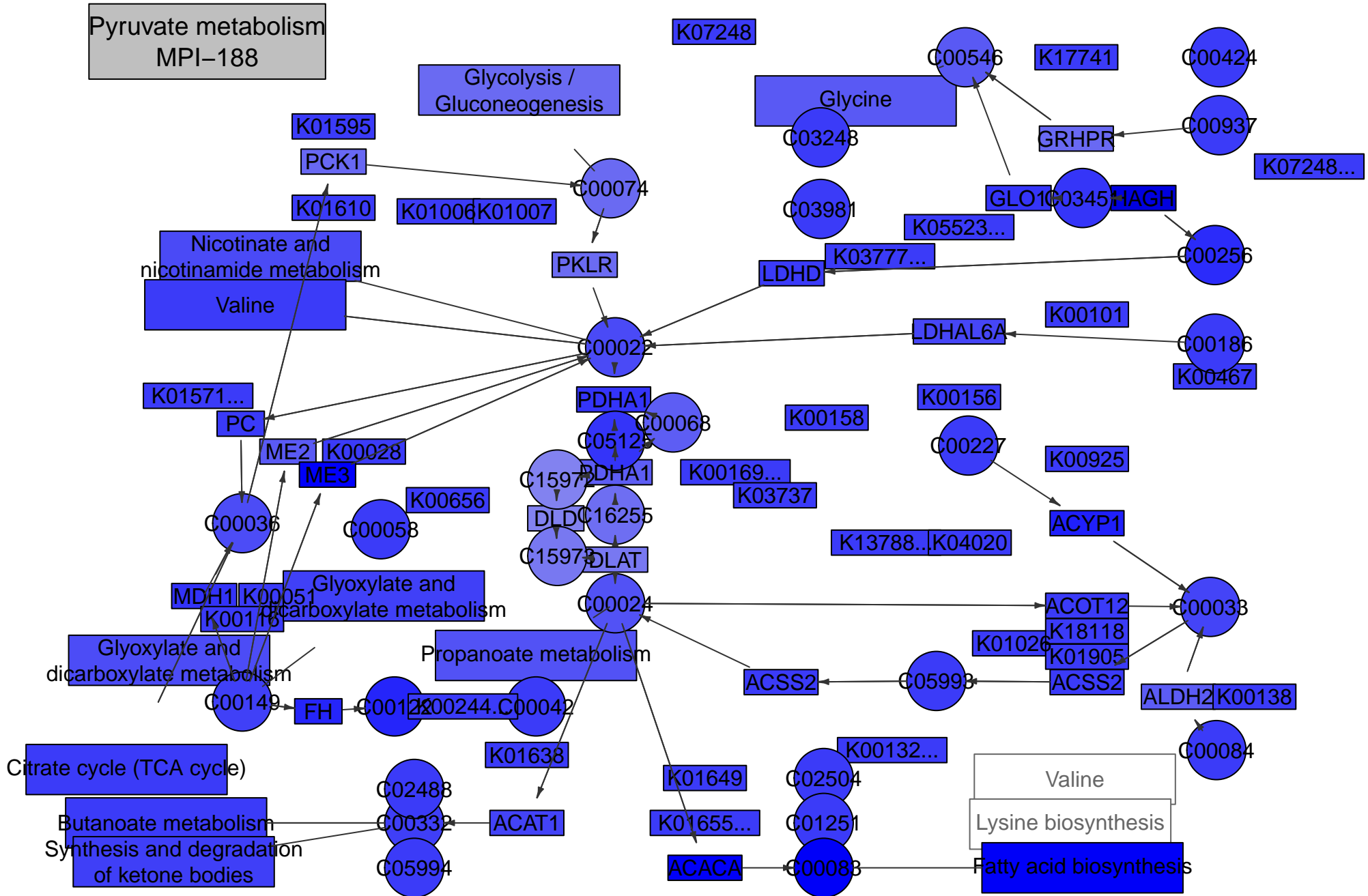
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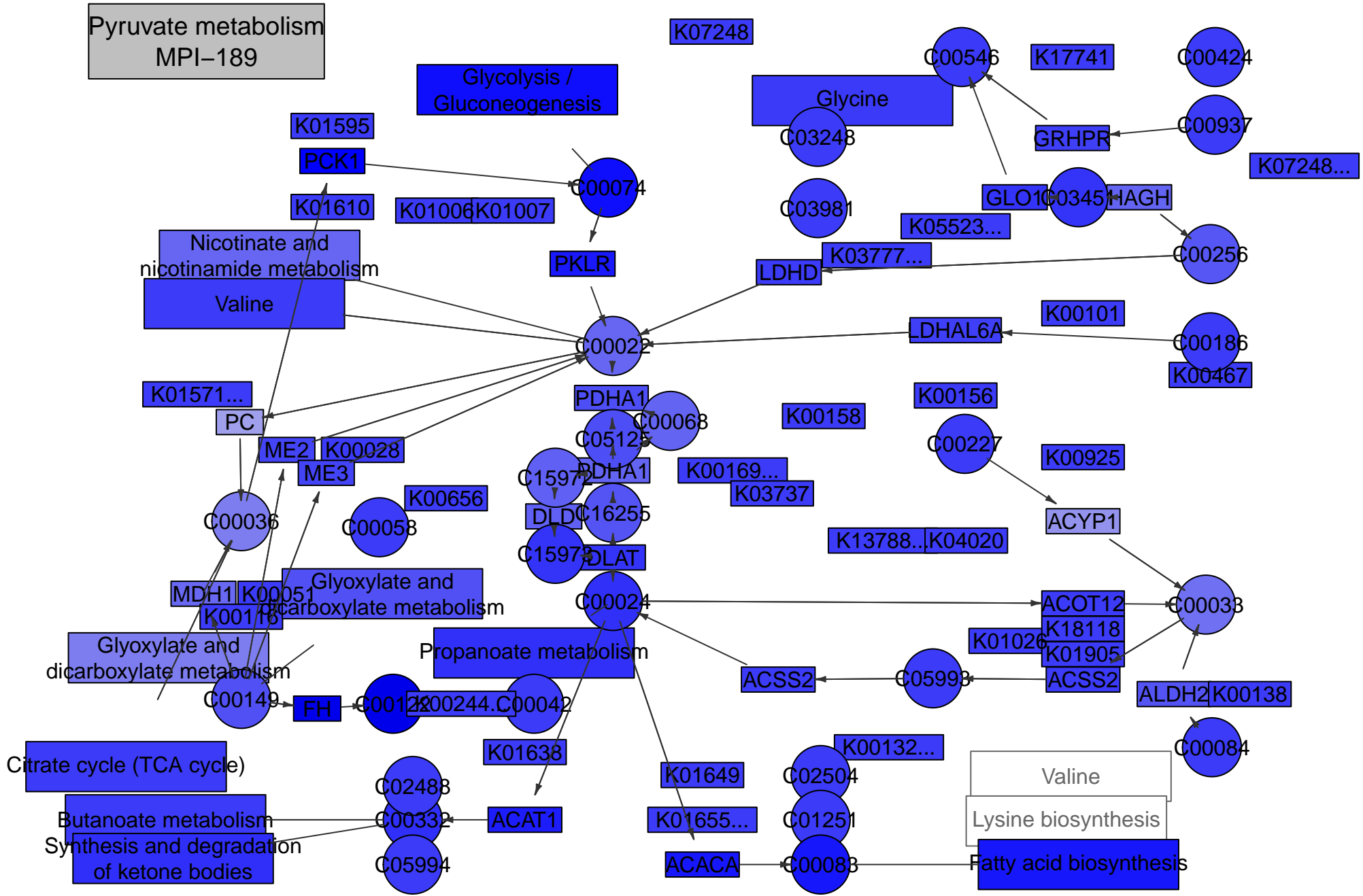
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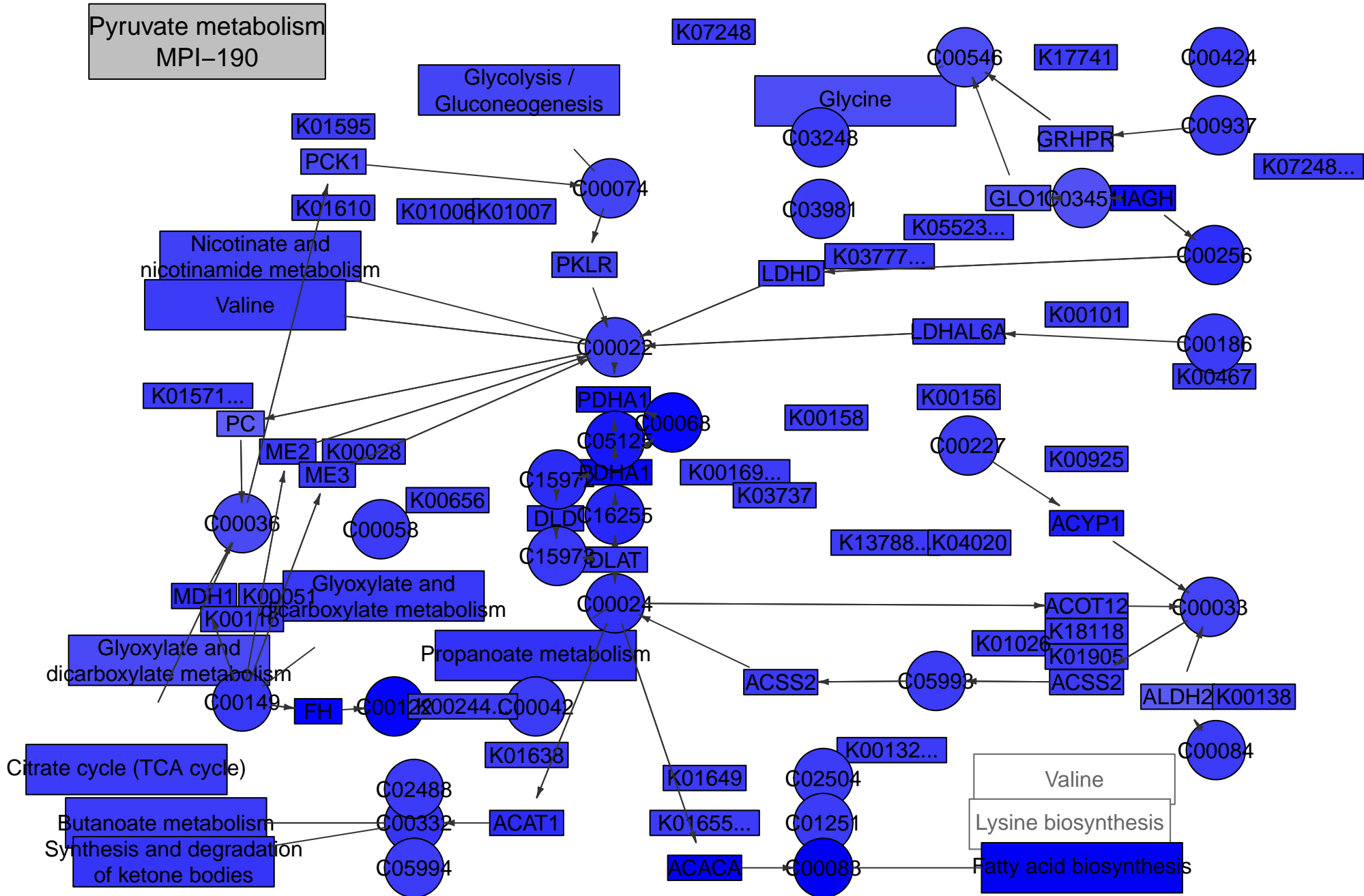
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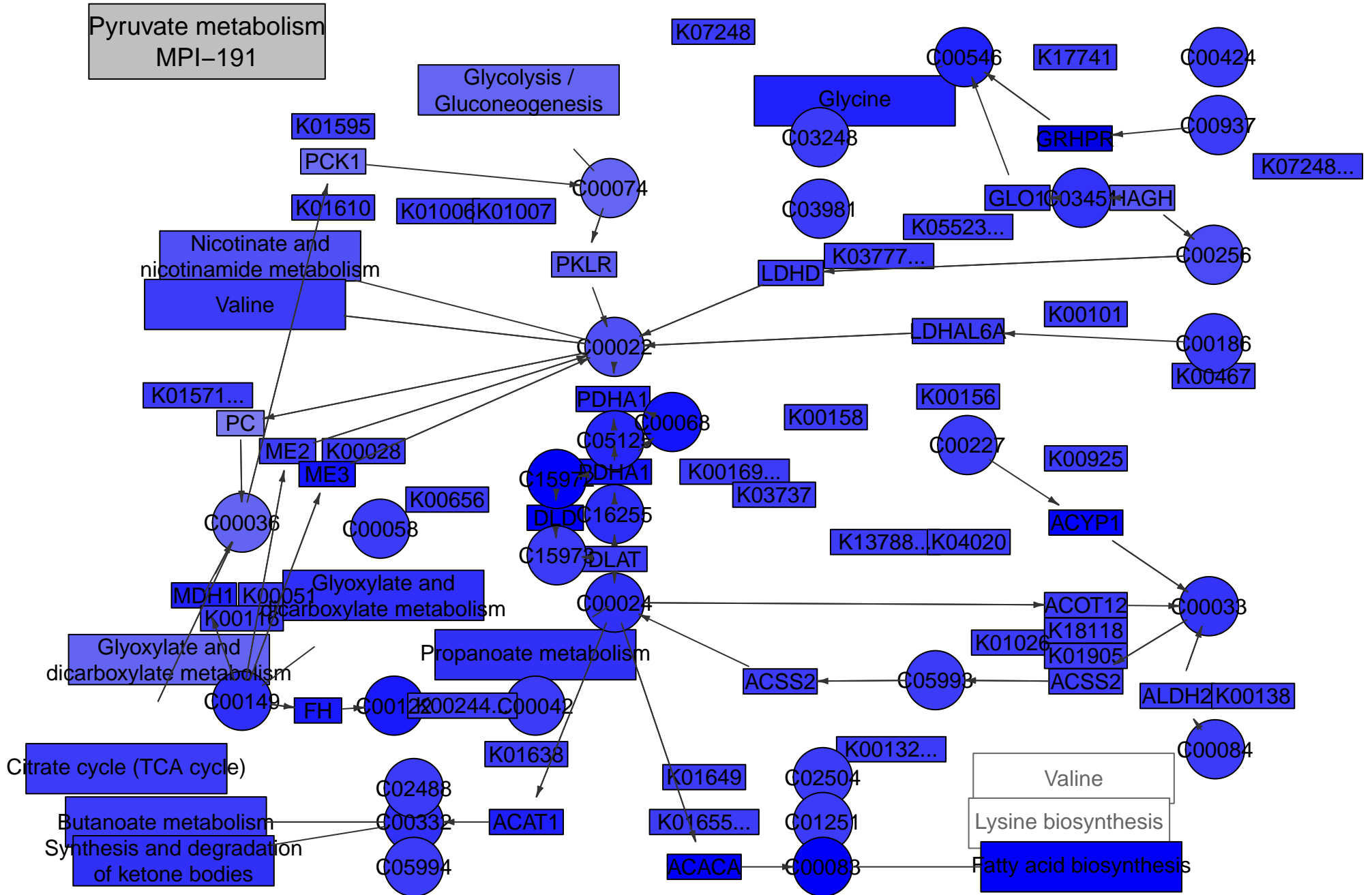


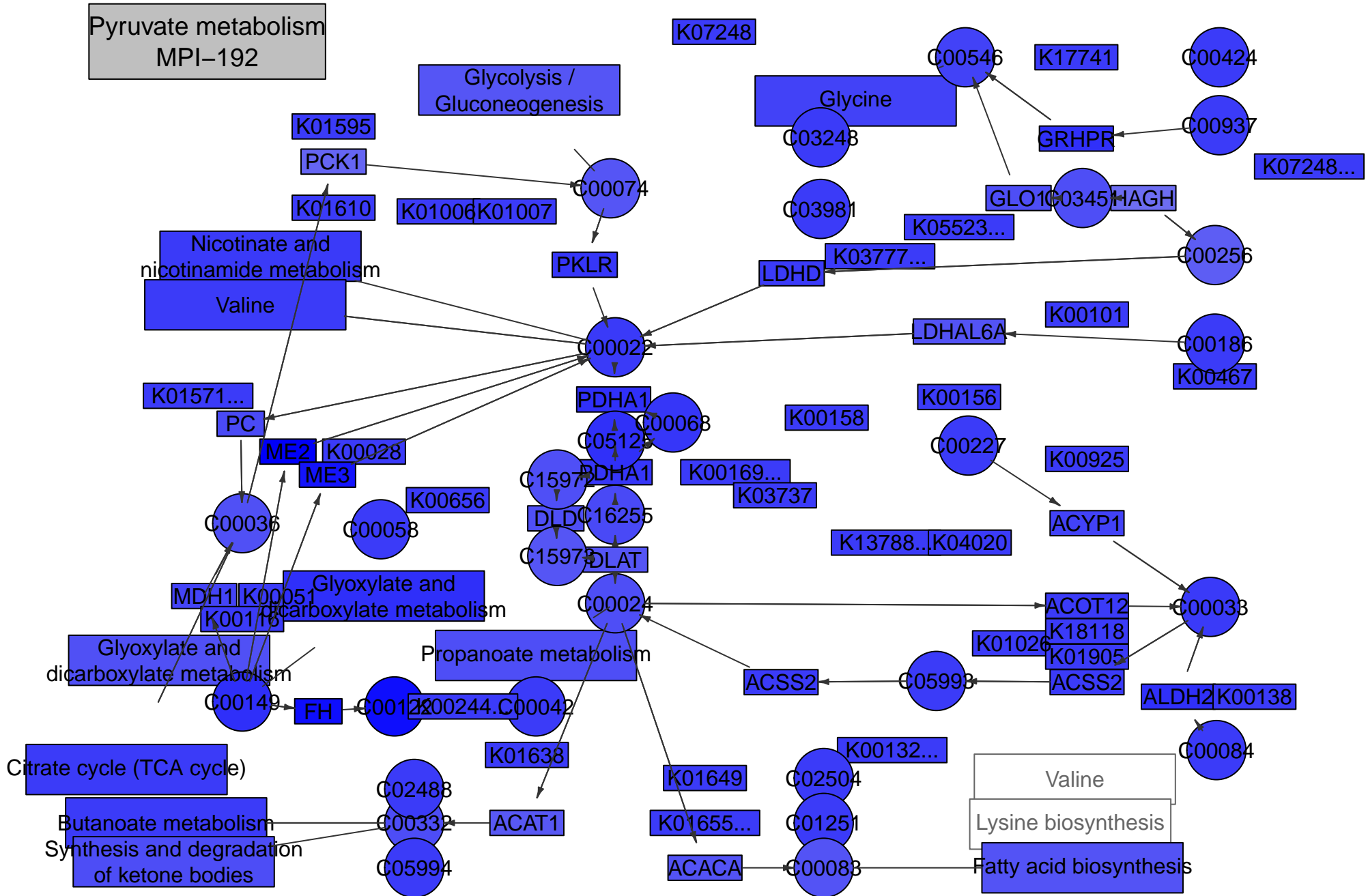


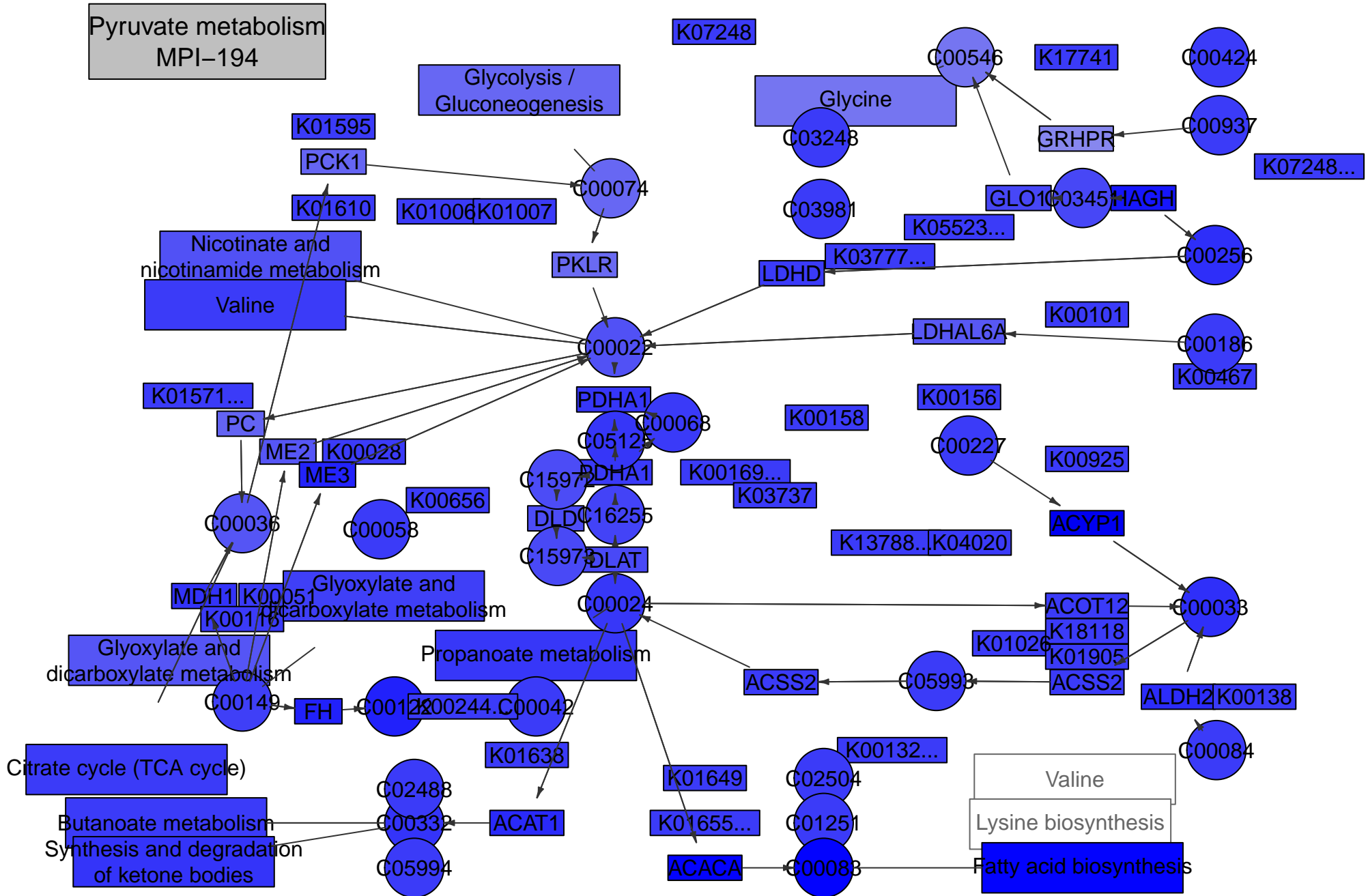


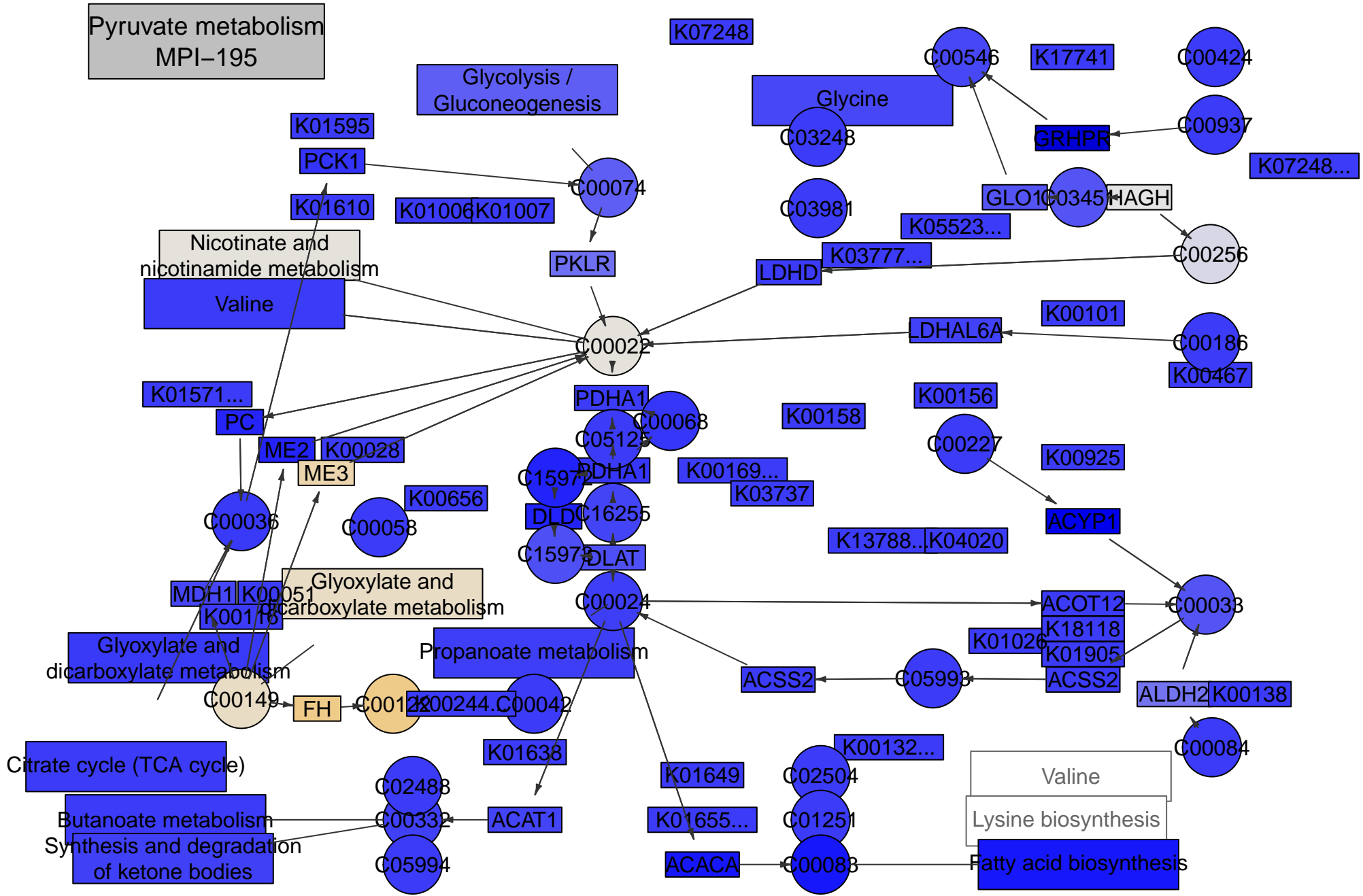


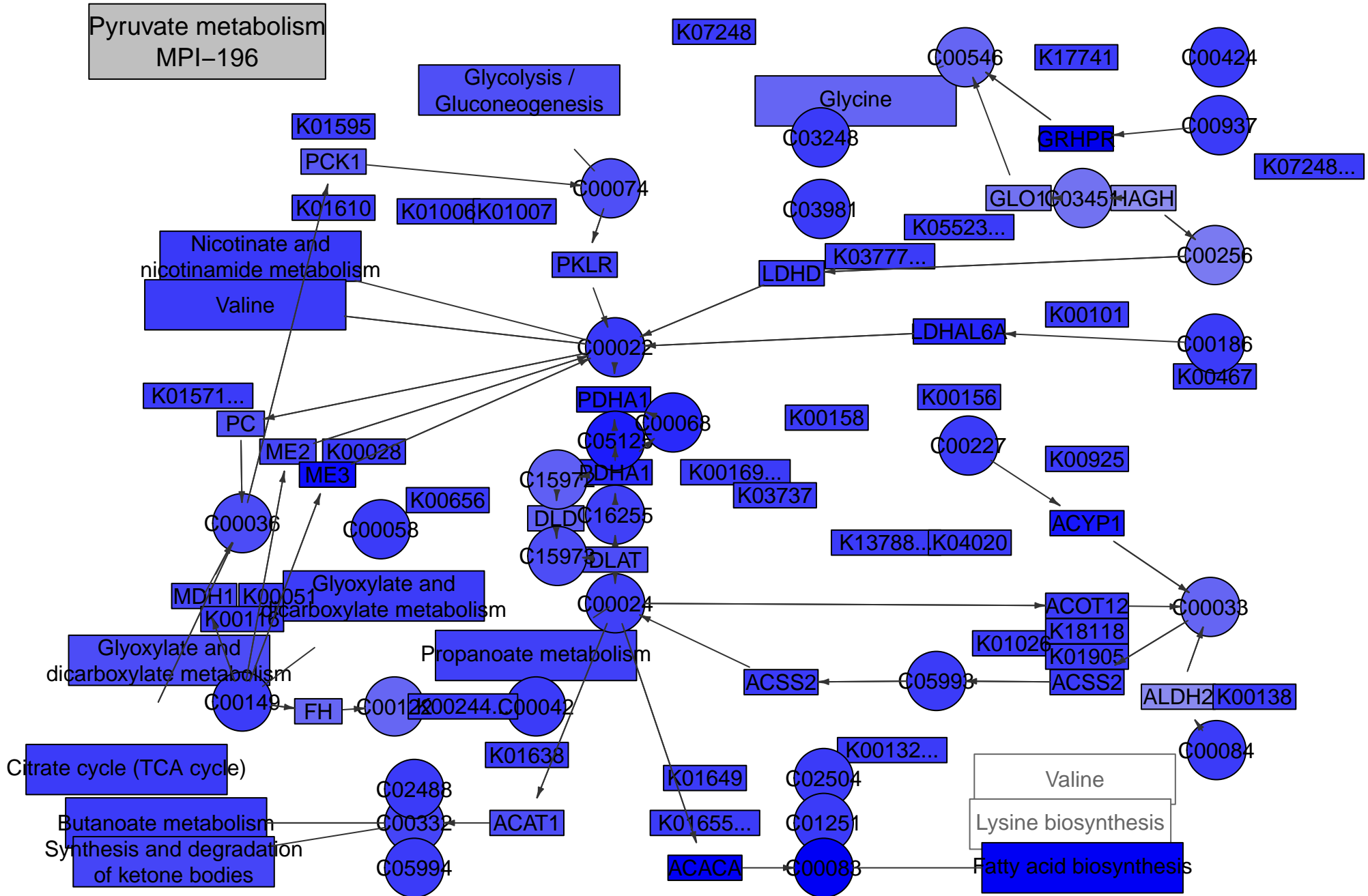


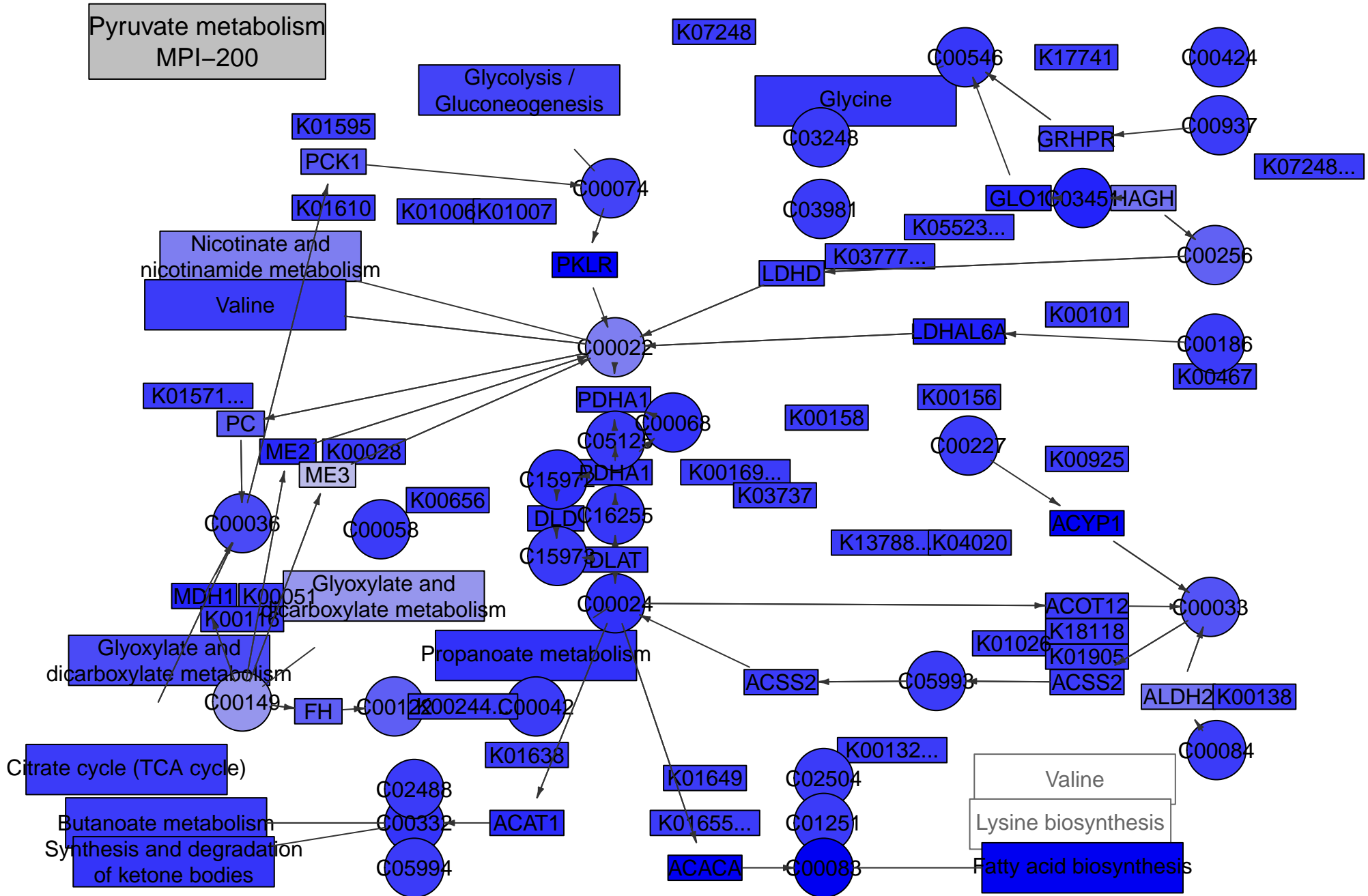


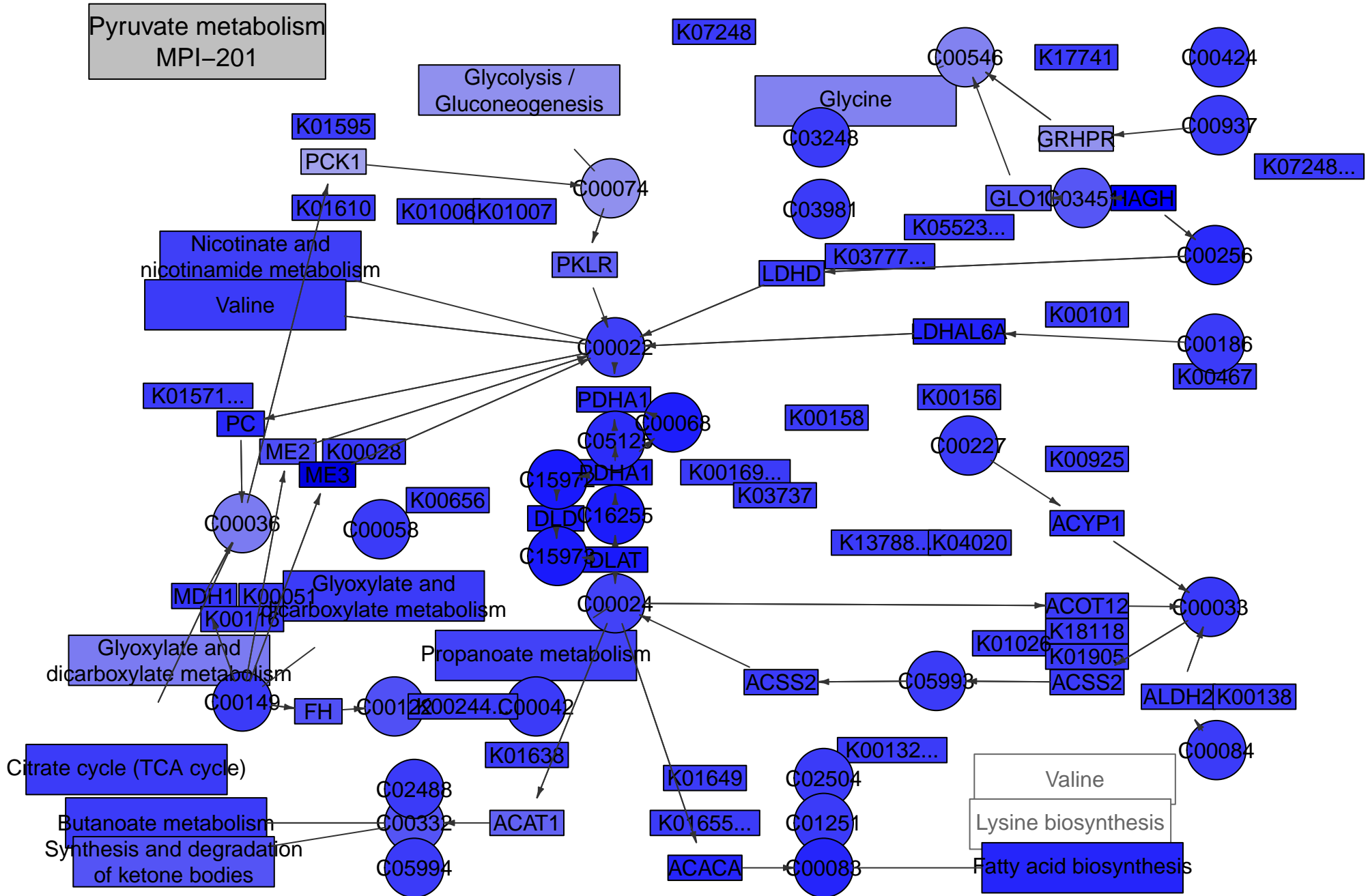


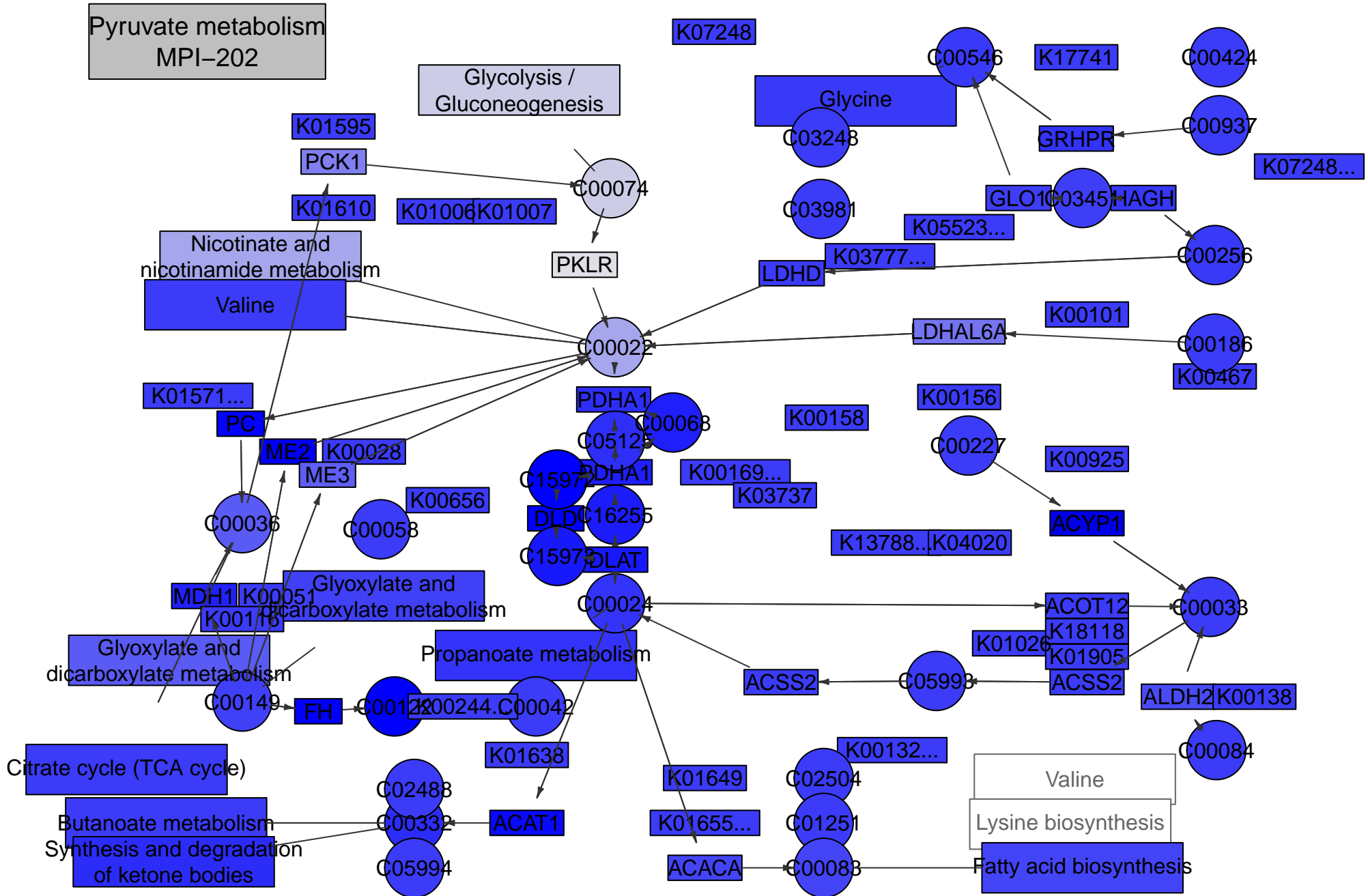


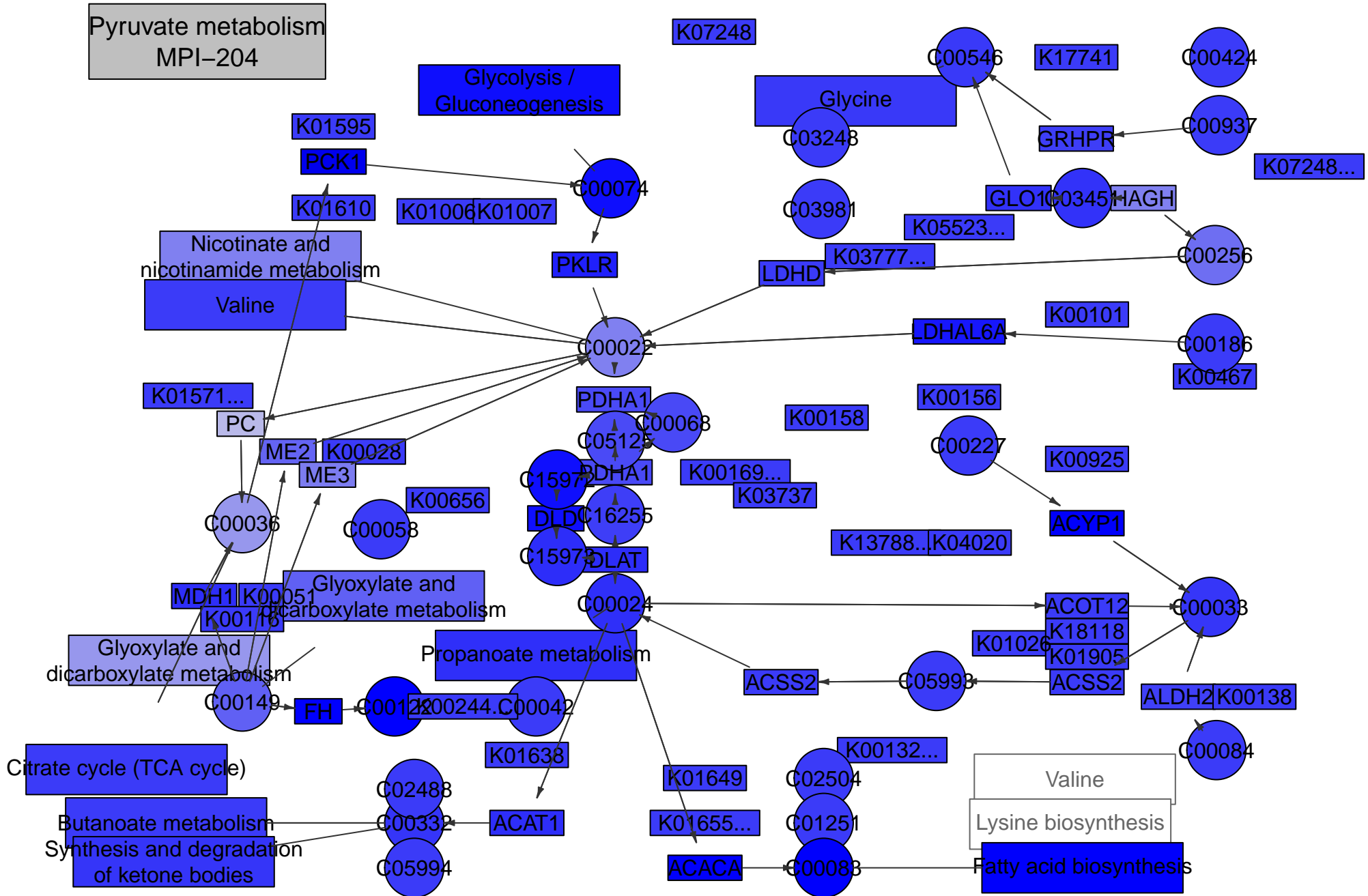


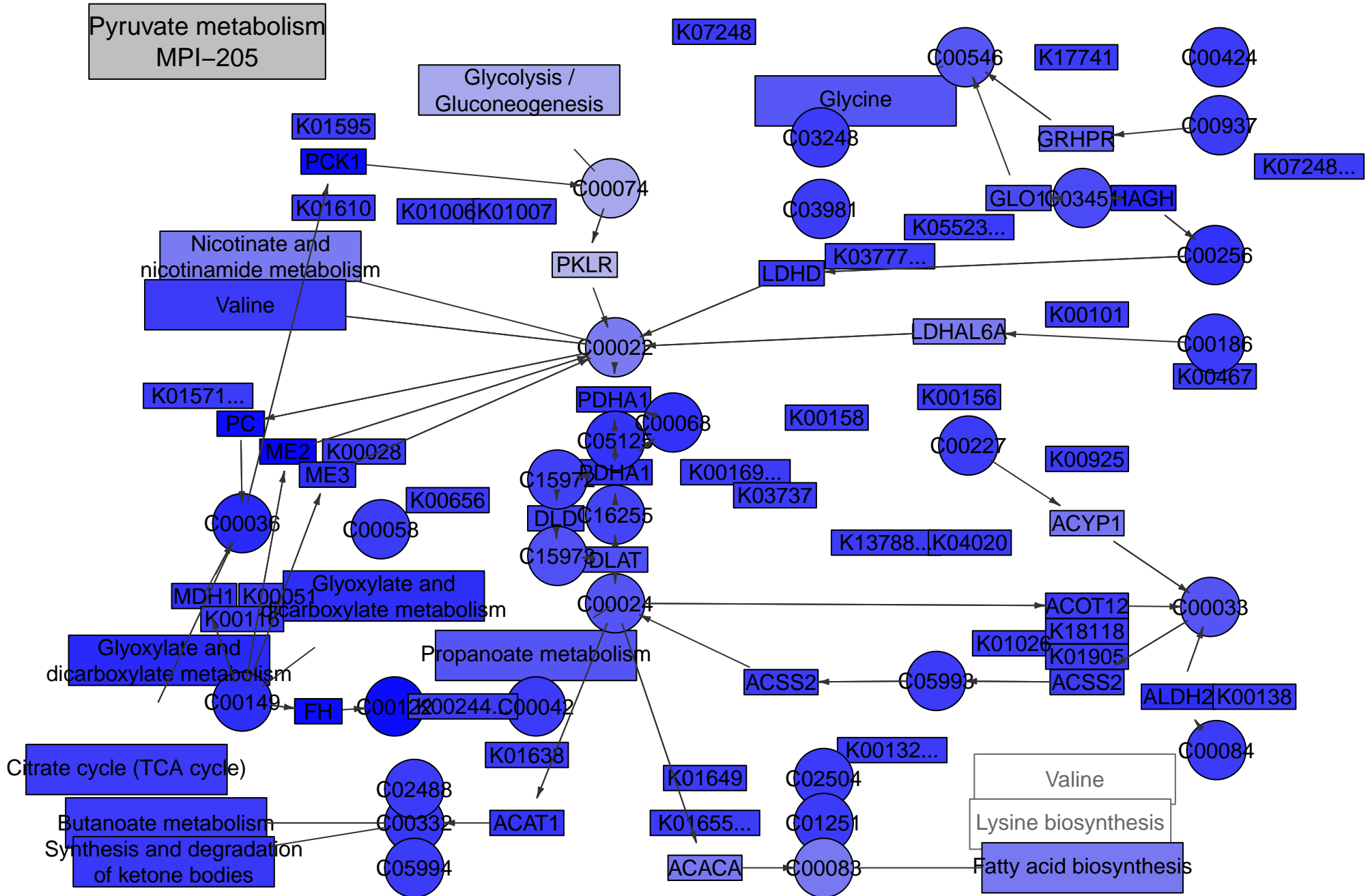


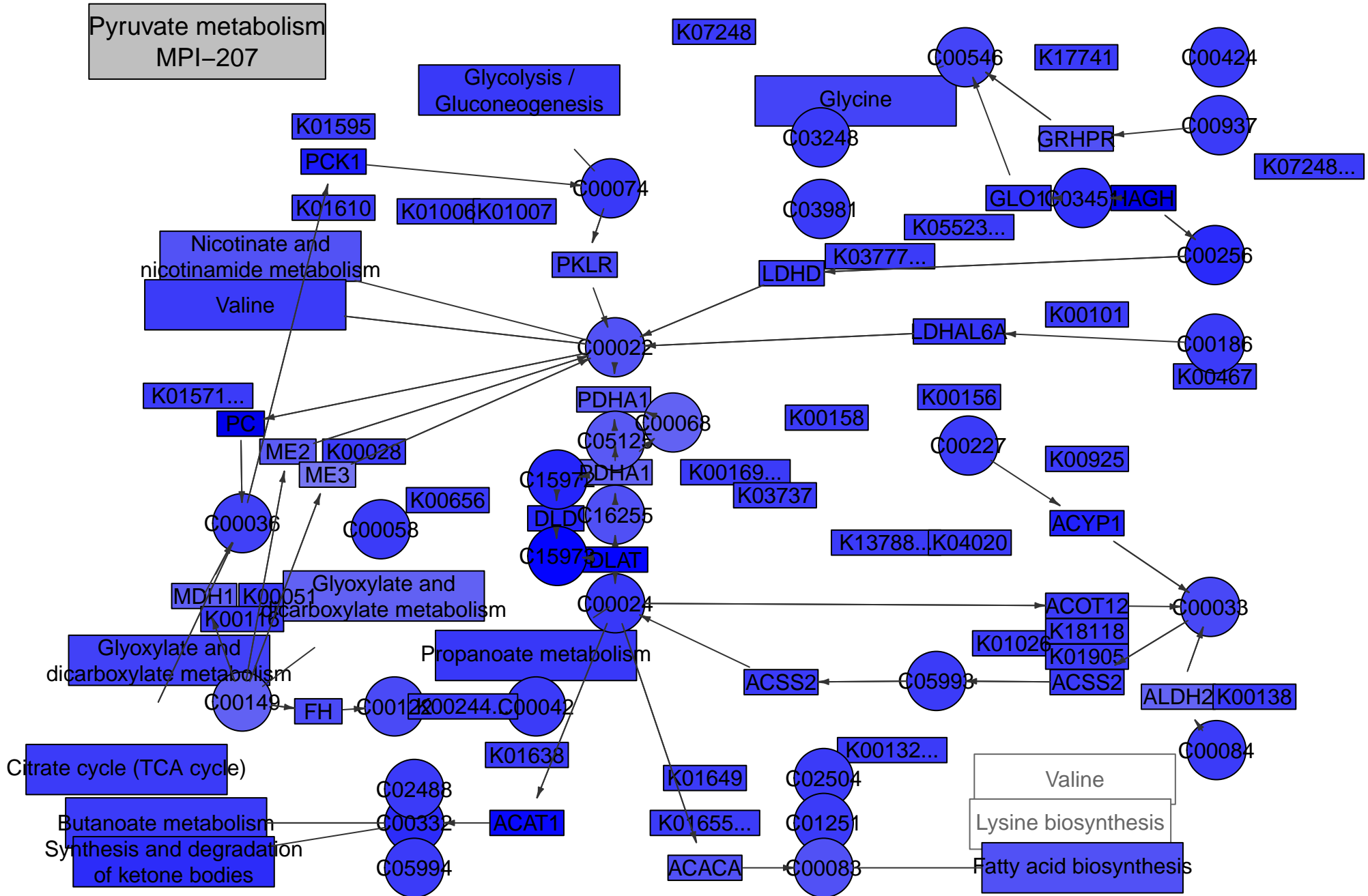


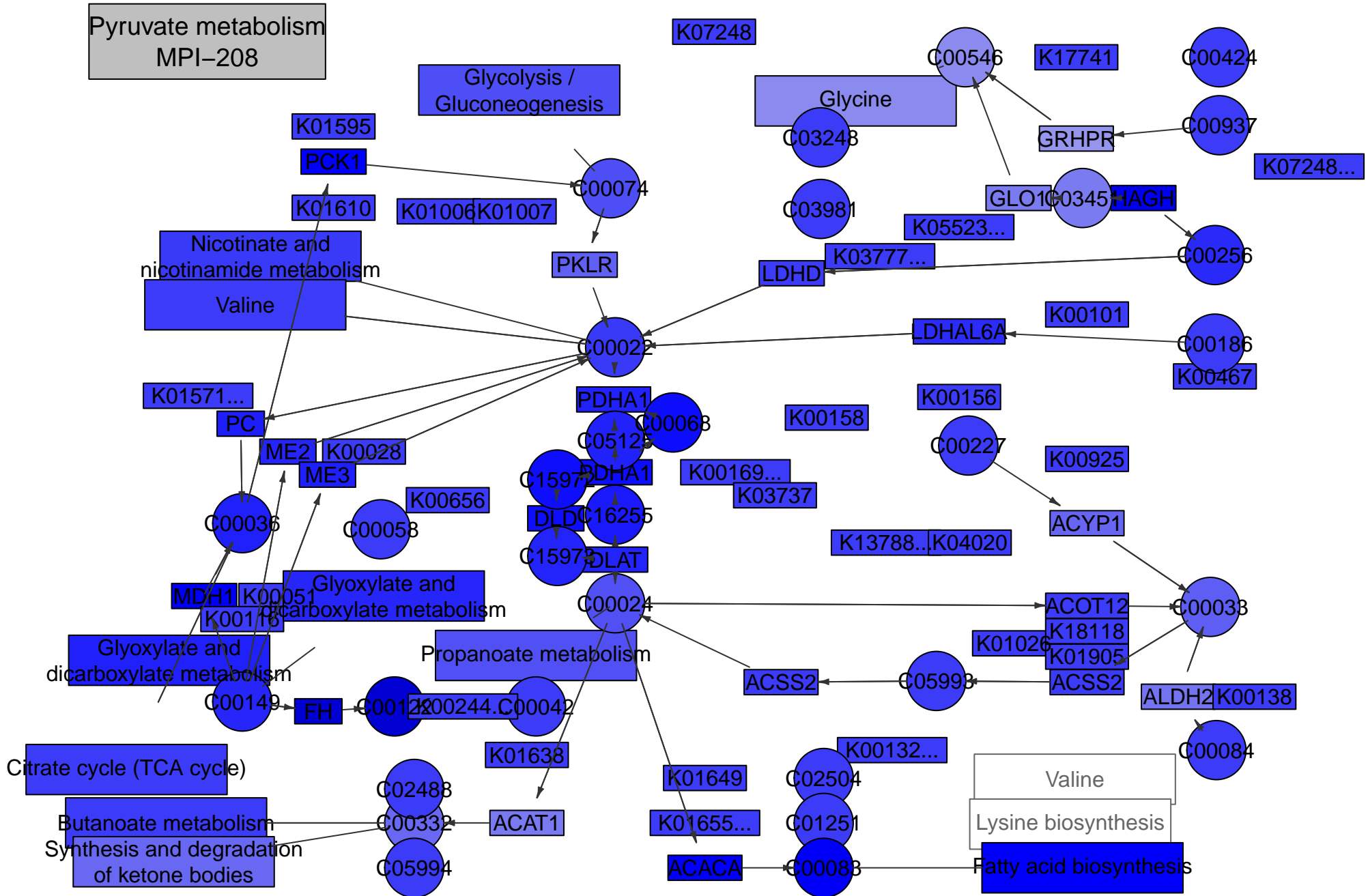


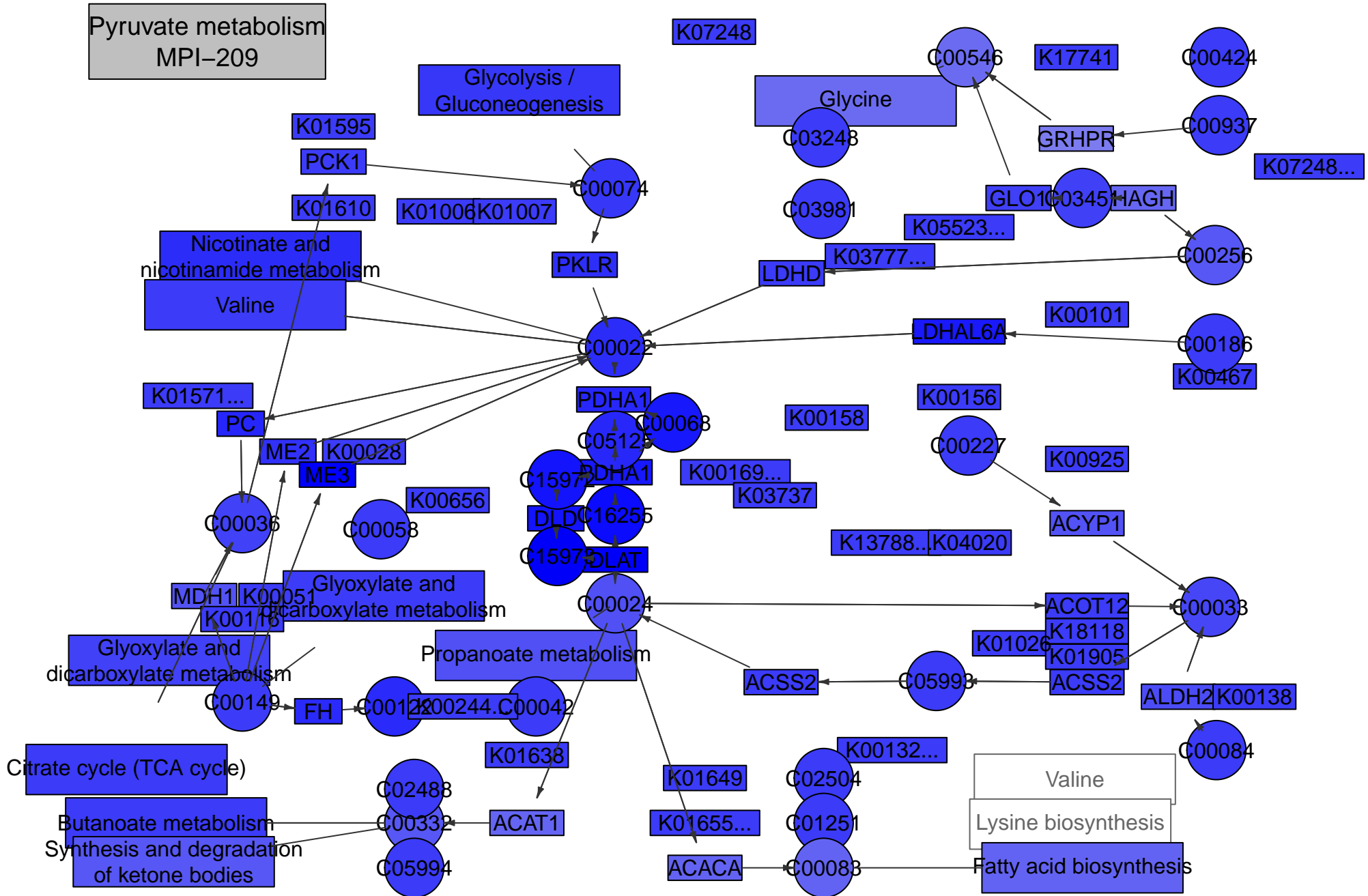


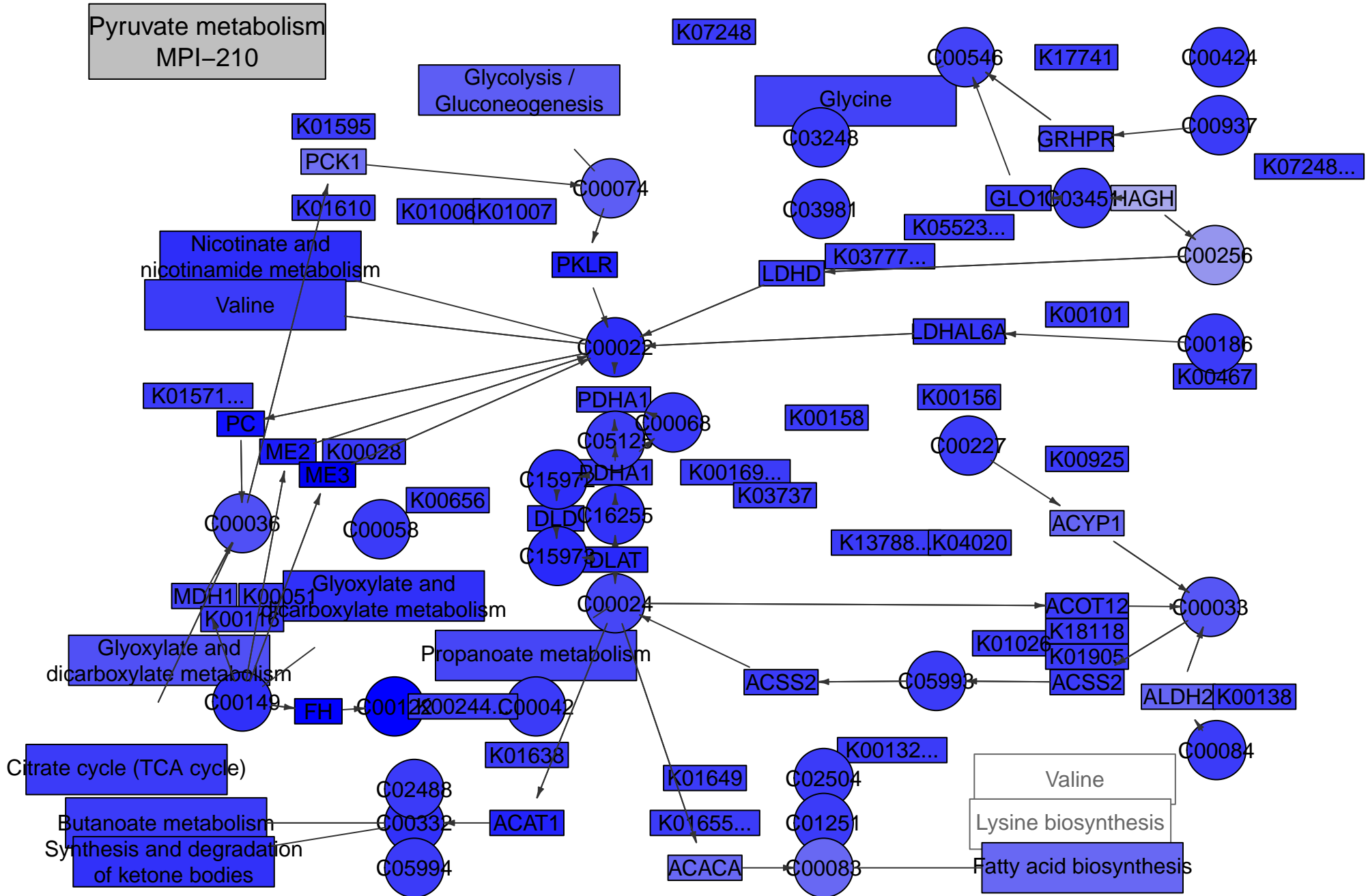












Pyruvate metabolism
MPI-212

Glycolysis /
Gluconeogenesis

Glycine

Nicotinate and
nicotinamide metabolism

Valine

K01571...

PC

ME2

K00028

ME3

C00036

C00058

K00656

C15972

BDHA1

C00068

K00158

C05125

DLDC

C16255

DLAT

C00024

K13788..K04020

C00227

K00925

ACYP1

MDH1

K00051

K00118

C00149

FH

C00122

C00244

C00042

Propanoate metabolism

ACSS2

C05993

ACSS2

K01026

K18118

K01905

ACSS2

ALDH2

K00138

C00084

Citrate cycle (TCA cycle)

K01638

K01649

C02504

K00132...

Valine

Lysine biosynthesis

Fatty acid biosynthesis

Butanoate metabolism

Synthesis and degradation
of ketone bodies

C02488

C00332

C05994

ACAT1

K01655...

ACACA

C01251

C00088

Valine

Lysine biosynthesis

Fatty acid biosynthesis

K01595

PCK1

K01610

K01006

K01007

C00074

PKLR

C00022

PDHA1

C00068

C05125

BDHA1

C15972

DLDC

C16255

DLAT

C00024

C00024

C00042

C00042

K07248

C00546

K17741

C00424

C03248

C03981

GLO1

C03451

HAGH

C00937

GRHPR

K07248...

K05523...

LDHD

K03777...

C00256

LDHAL6A

K00101

C00186

K00467

K01571...

PC

ME2

K00028

ME3

C00036

C00058

K00656

C15972

BDHA1

C00068

K00158

C05125

DLDC

C16255

DLAT

C00024

K13788..K04020

C00227

K00925

ACYP1

MDH1

K00051

K00118

C00149

FH

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C02504

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