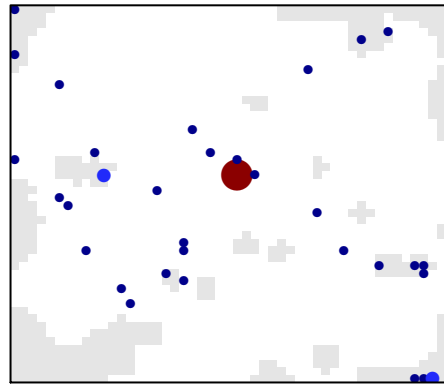
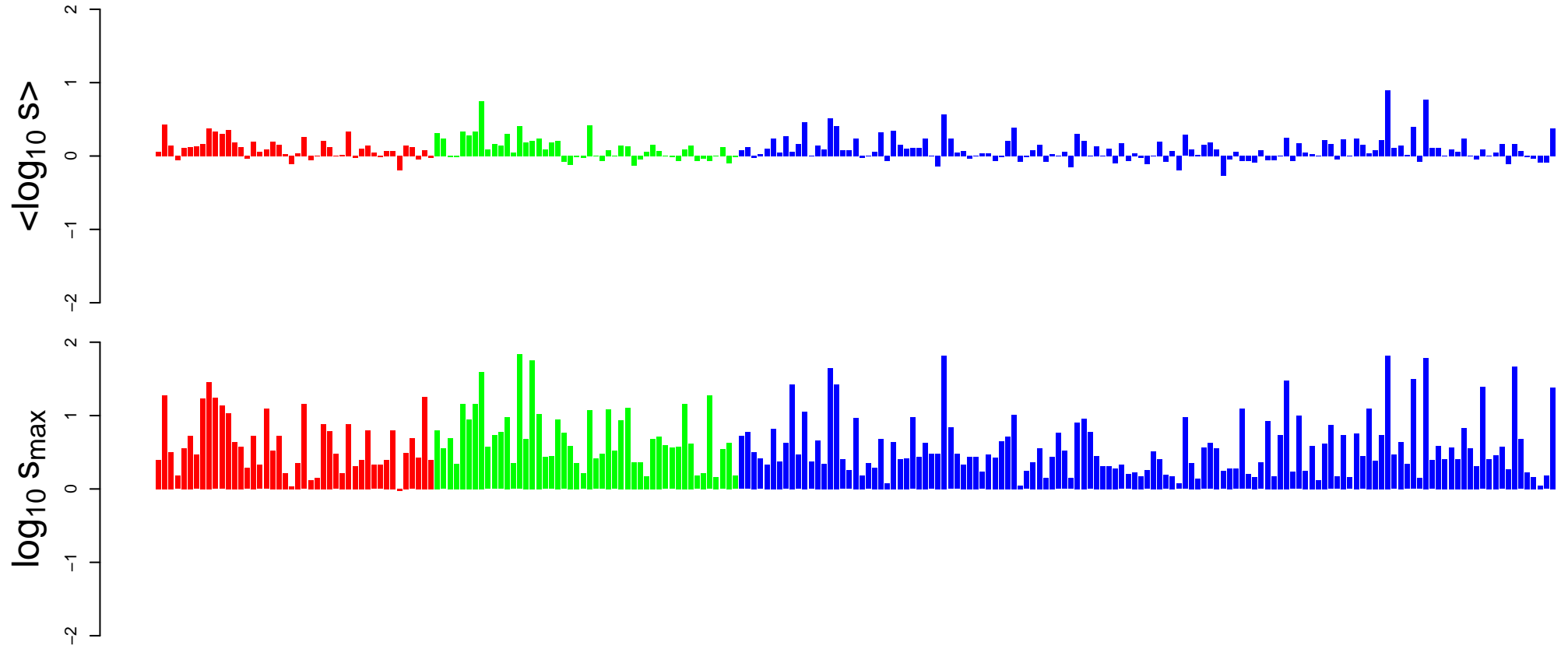


Glycosphingolipid biosynthesis – lac

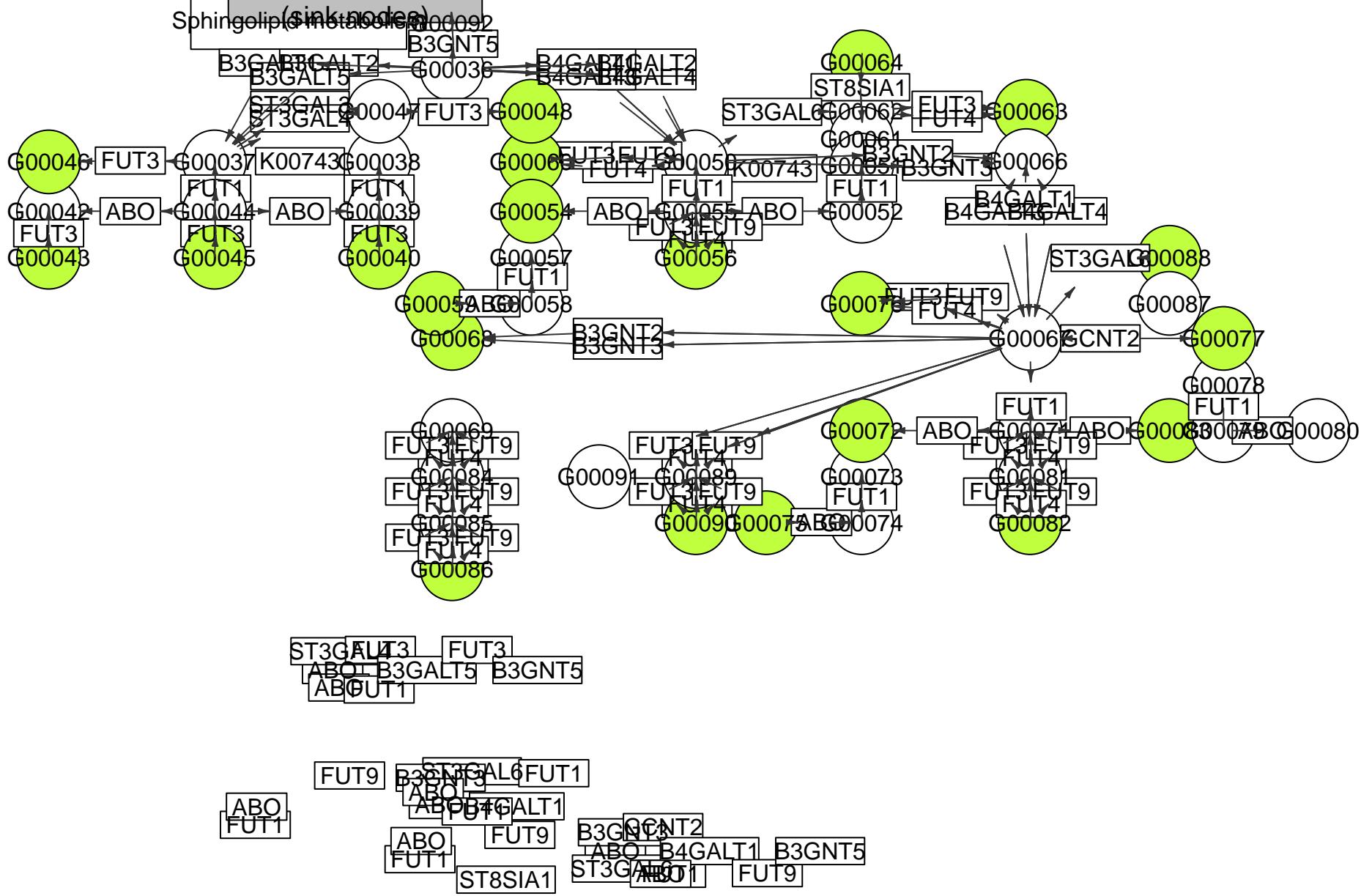
all genes



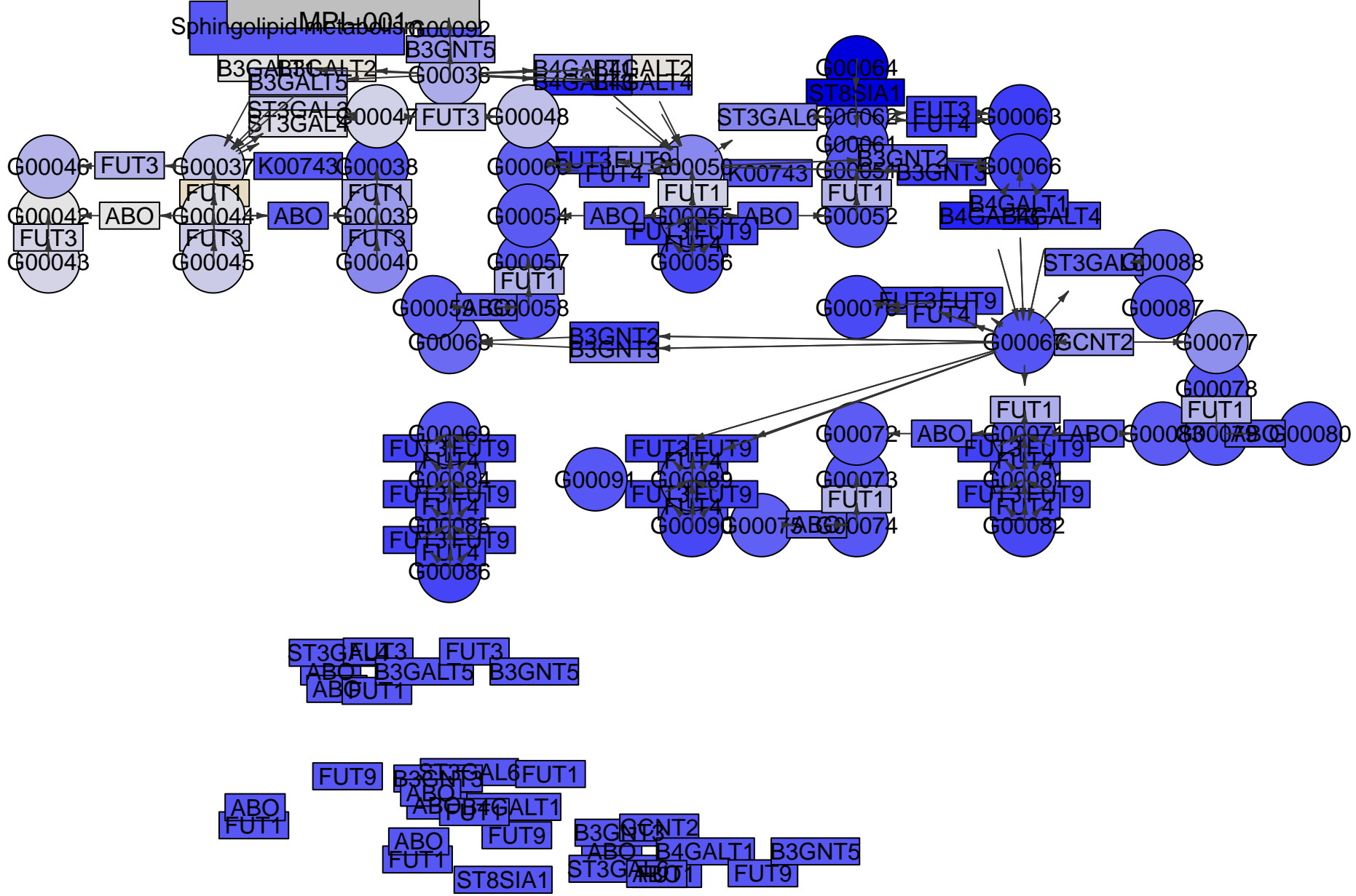
maximum = 6



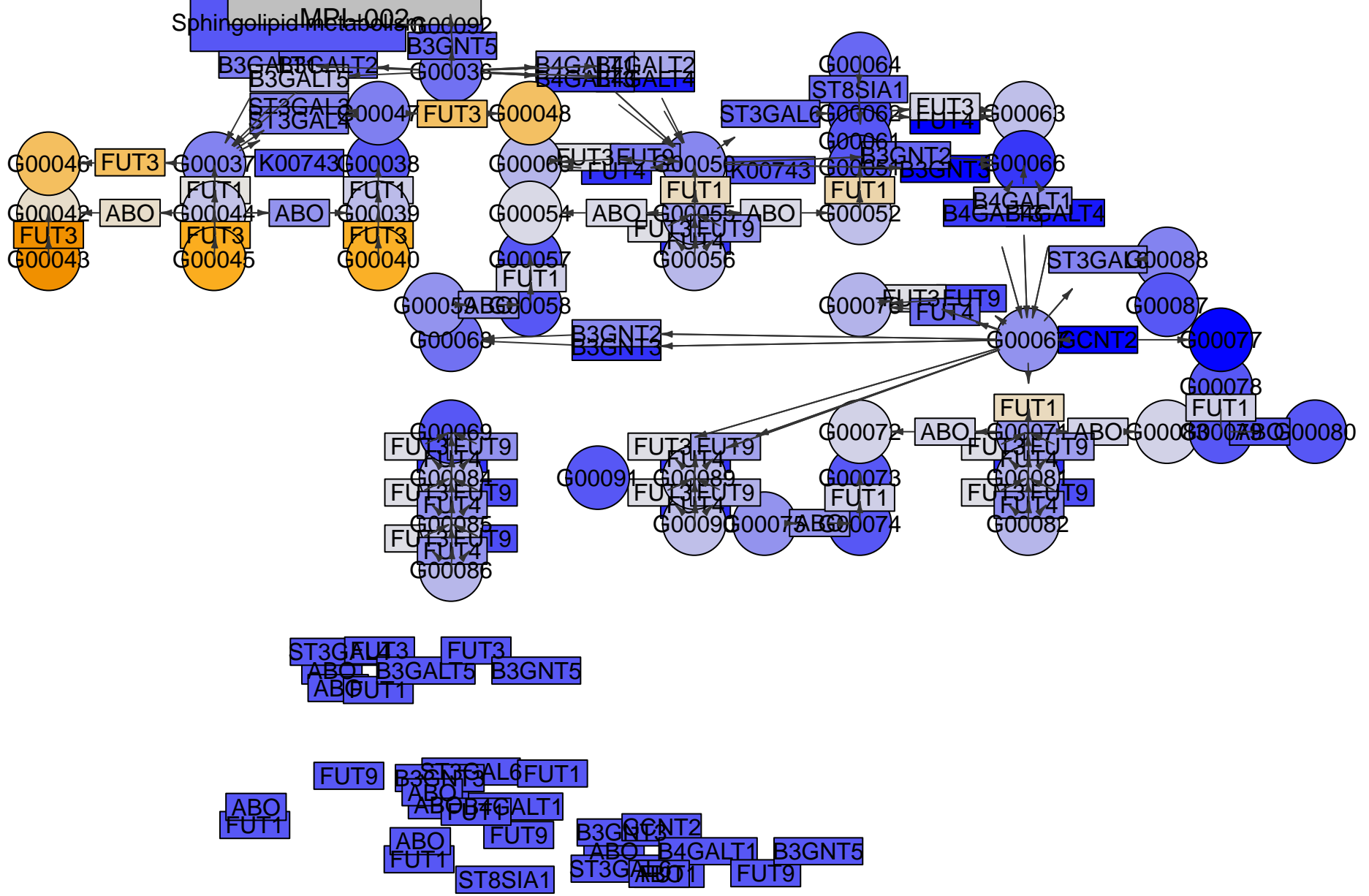
Glycosphingolipid biosynthesis – lacto and neolacto series



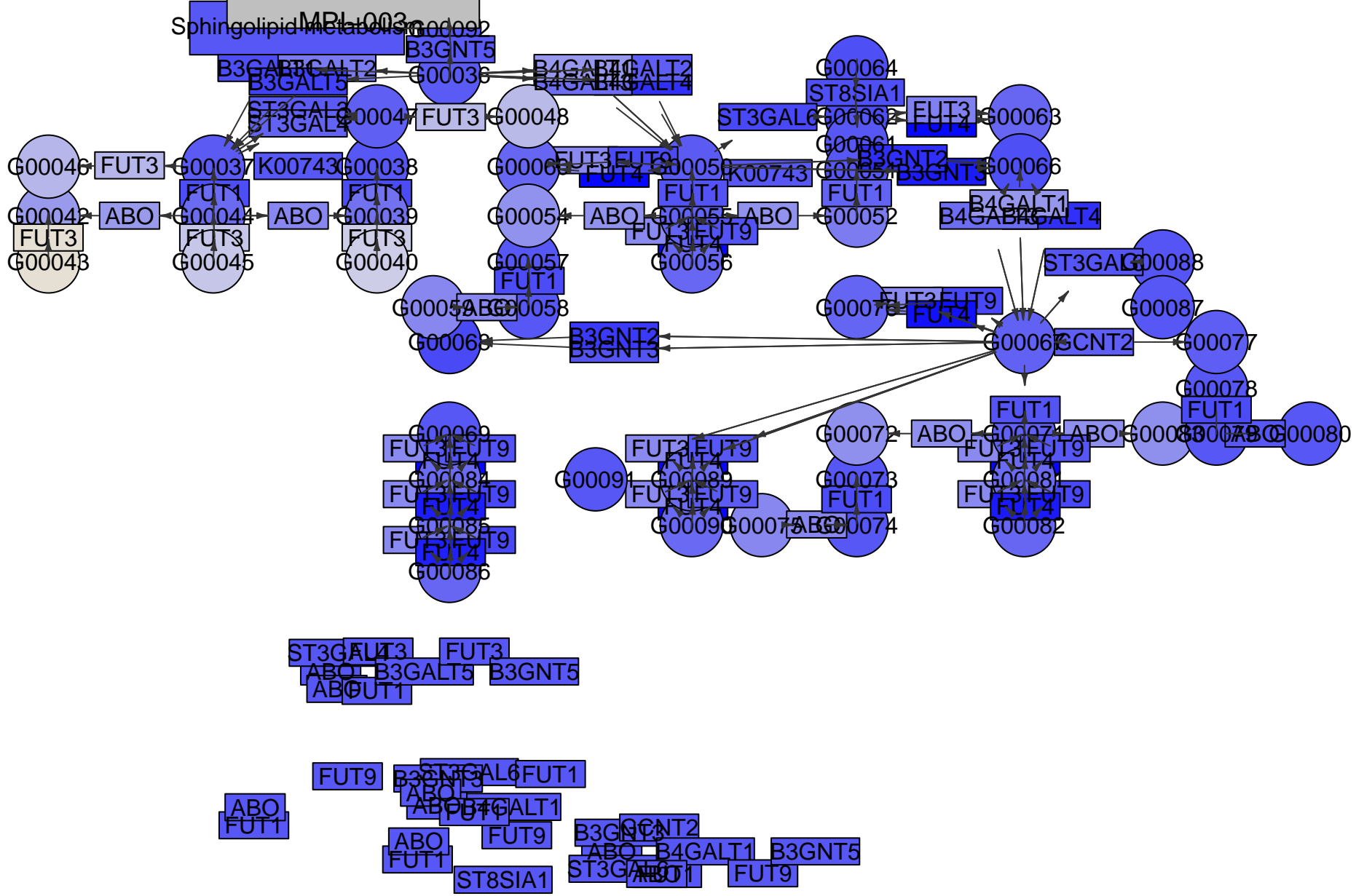
Glycosphingolipid biosynthesis – lacto and neolacto series



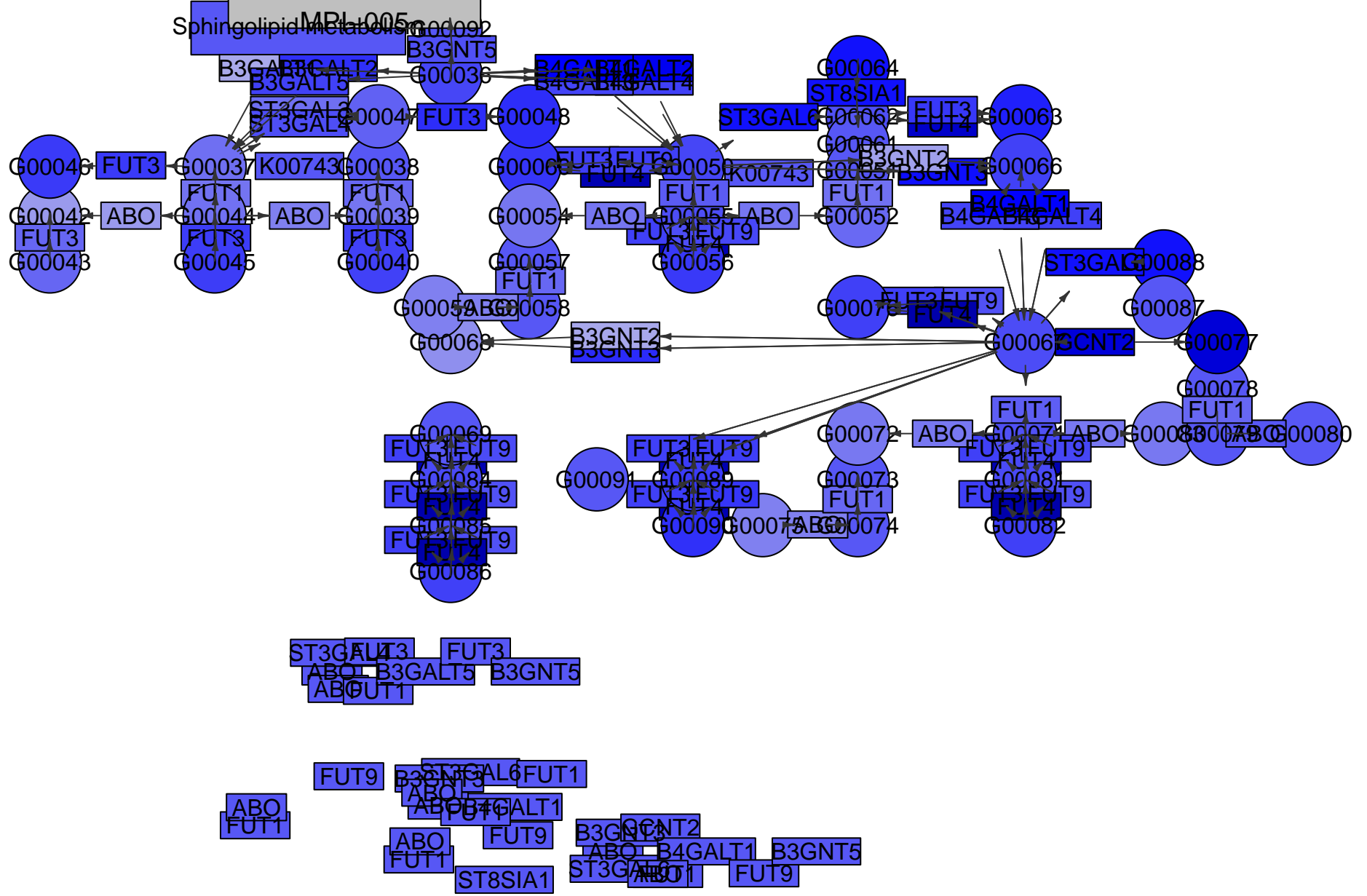
Glycosphingolipid biosynthesis – lacto and neolacto series



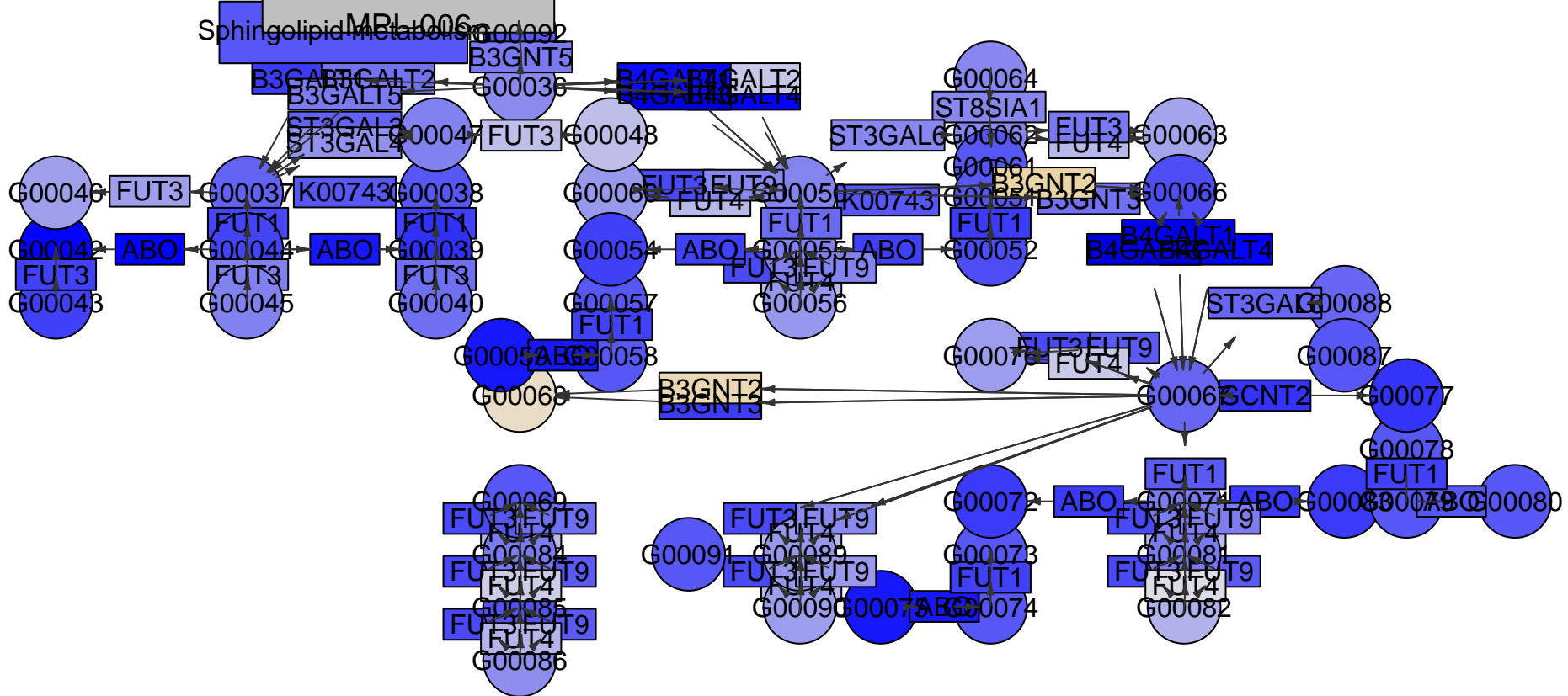
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

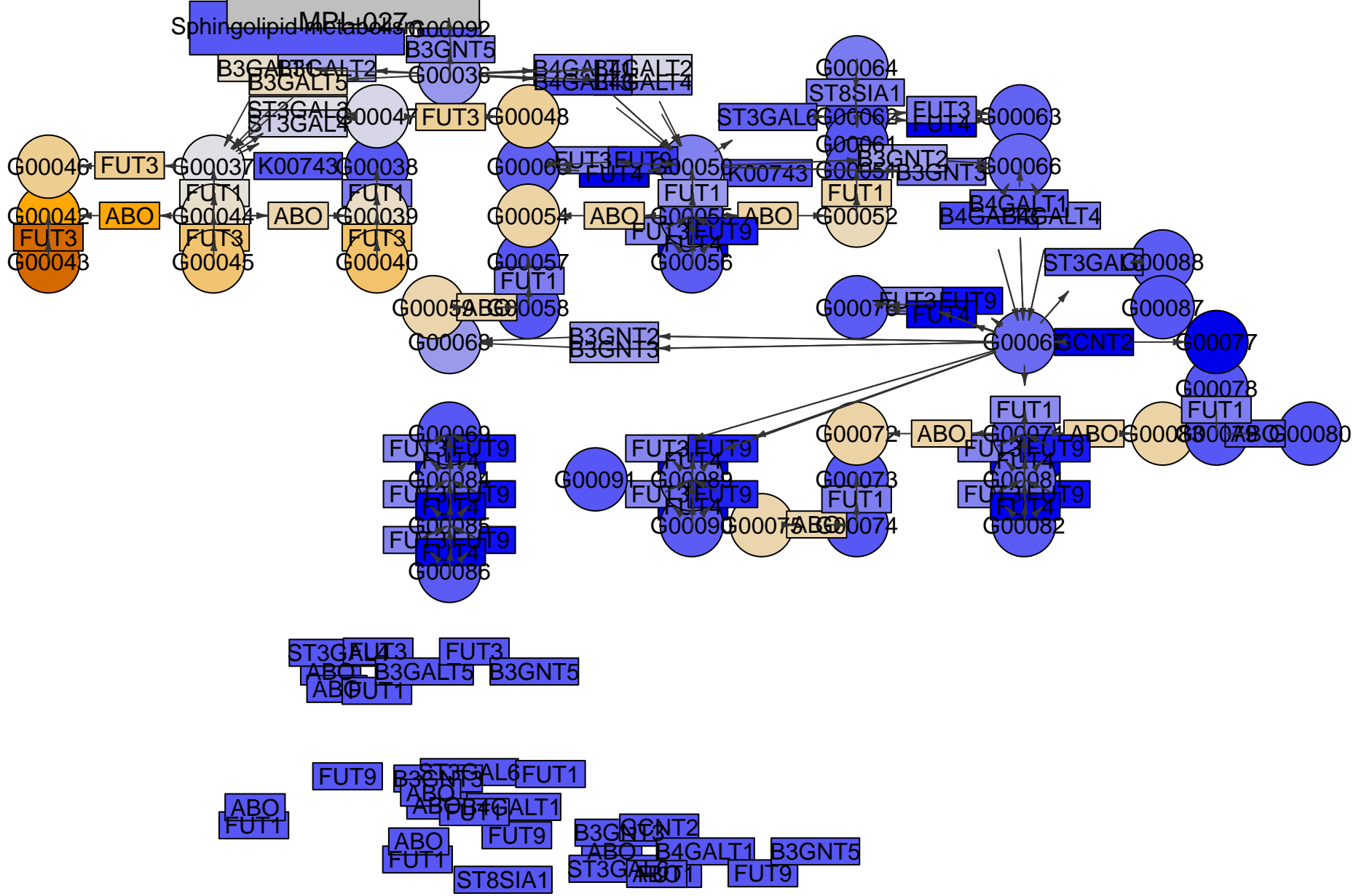


ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

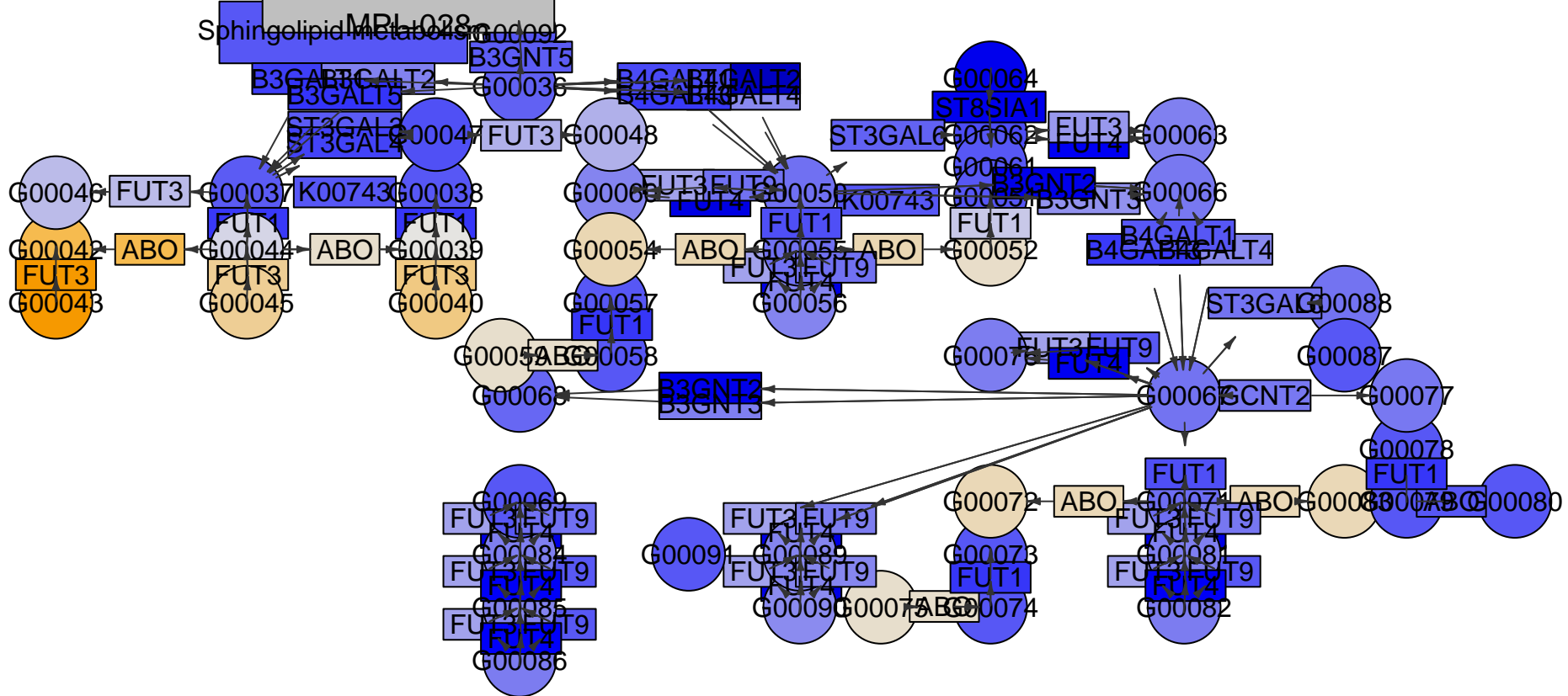
FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

ABO
FUT1

Glycosphingolipid biosynthesis – lacto and neolacto series



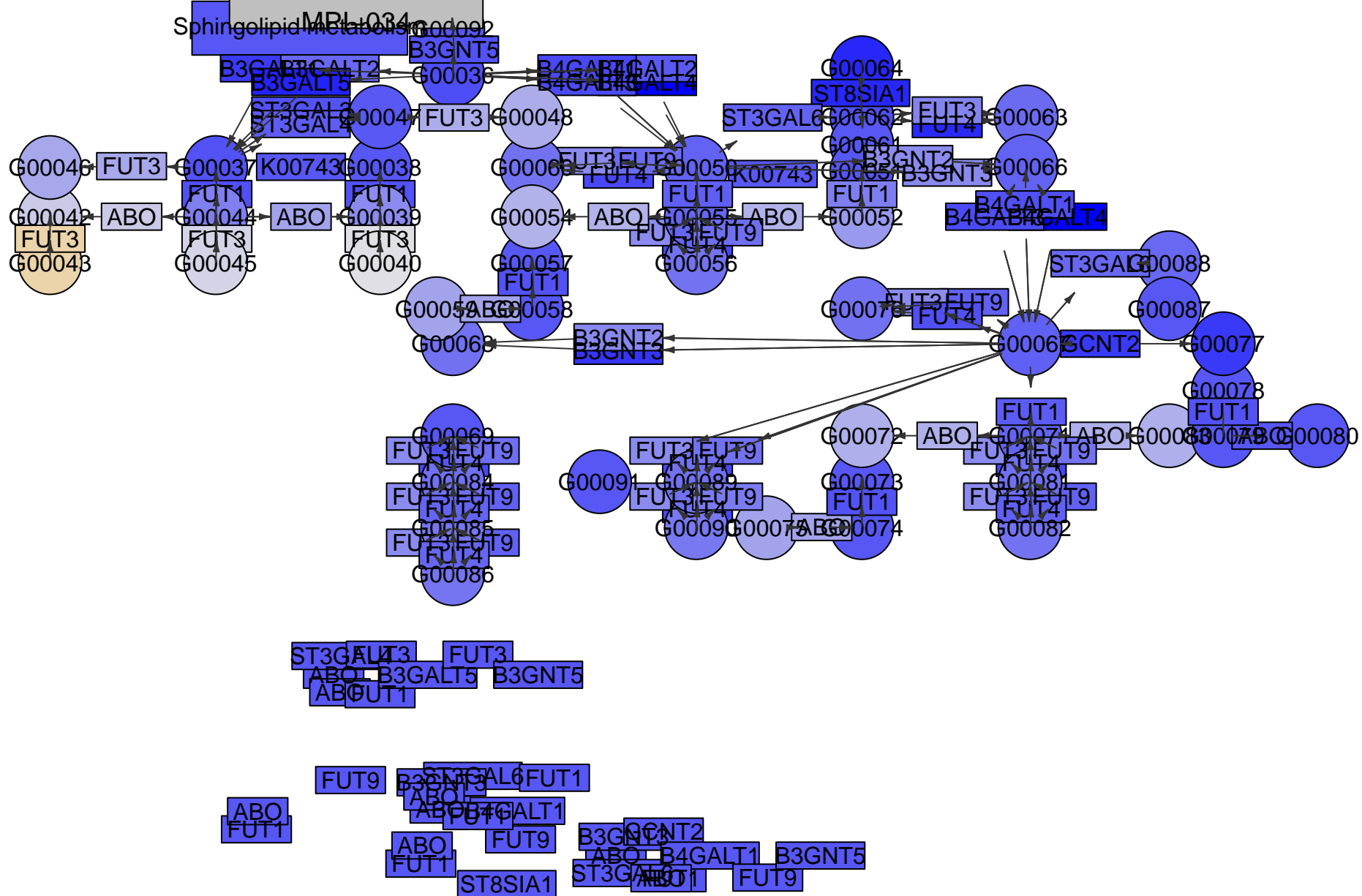
Glycosphingolipid biosynthesis – lacto and neolacto series



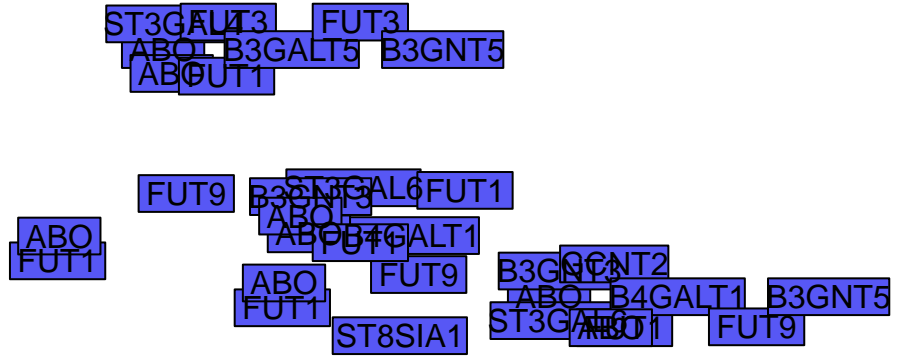
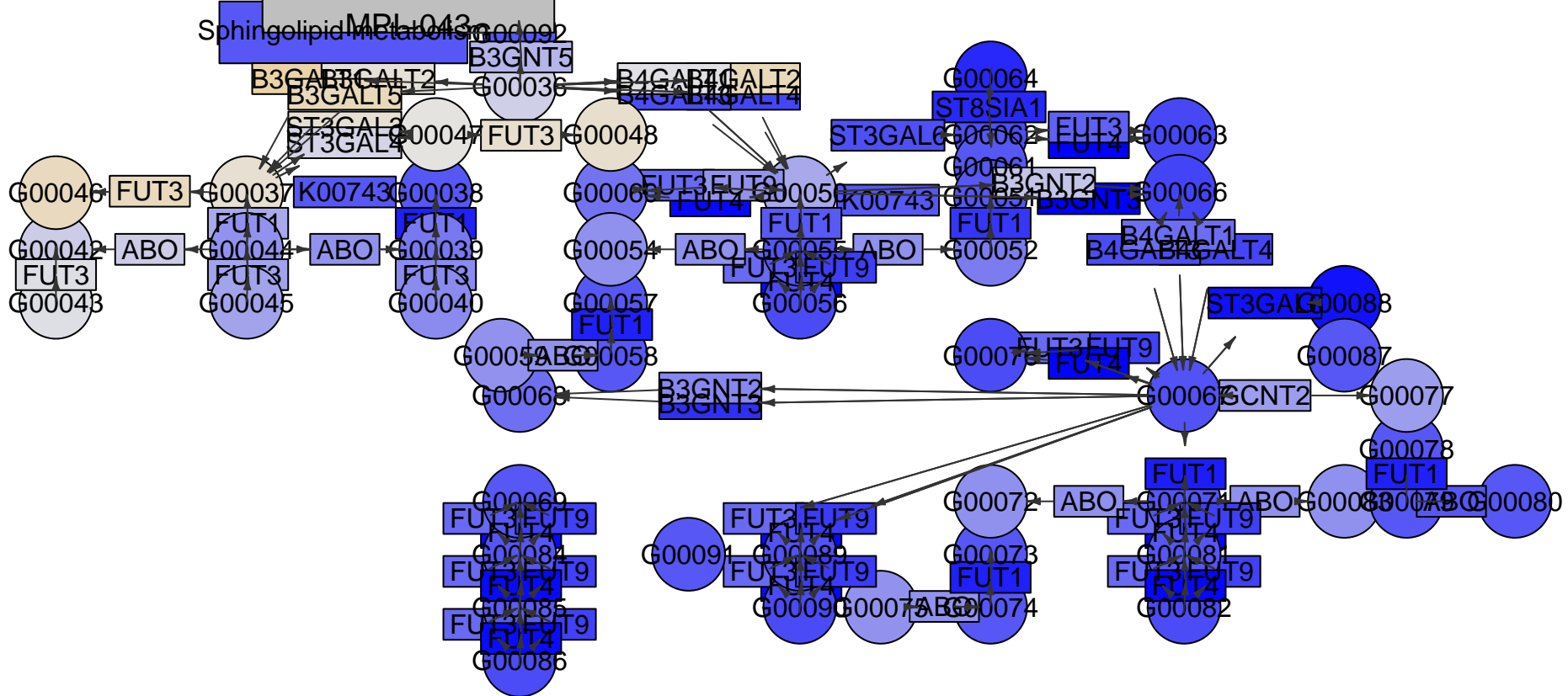
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT5 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

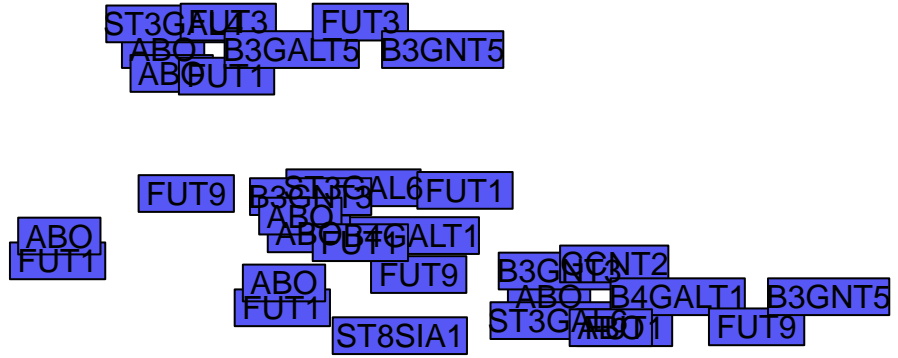
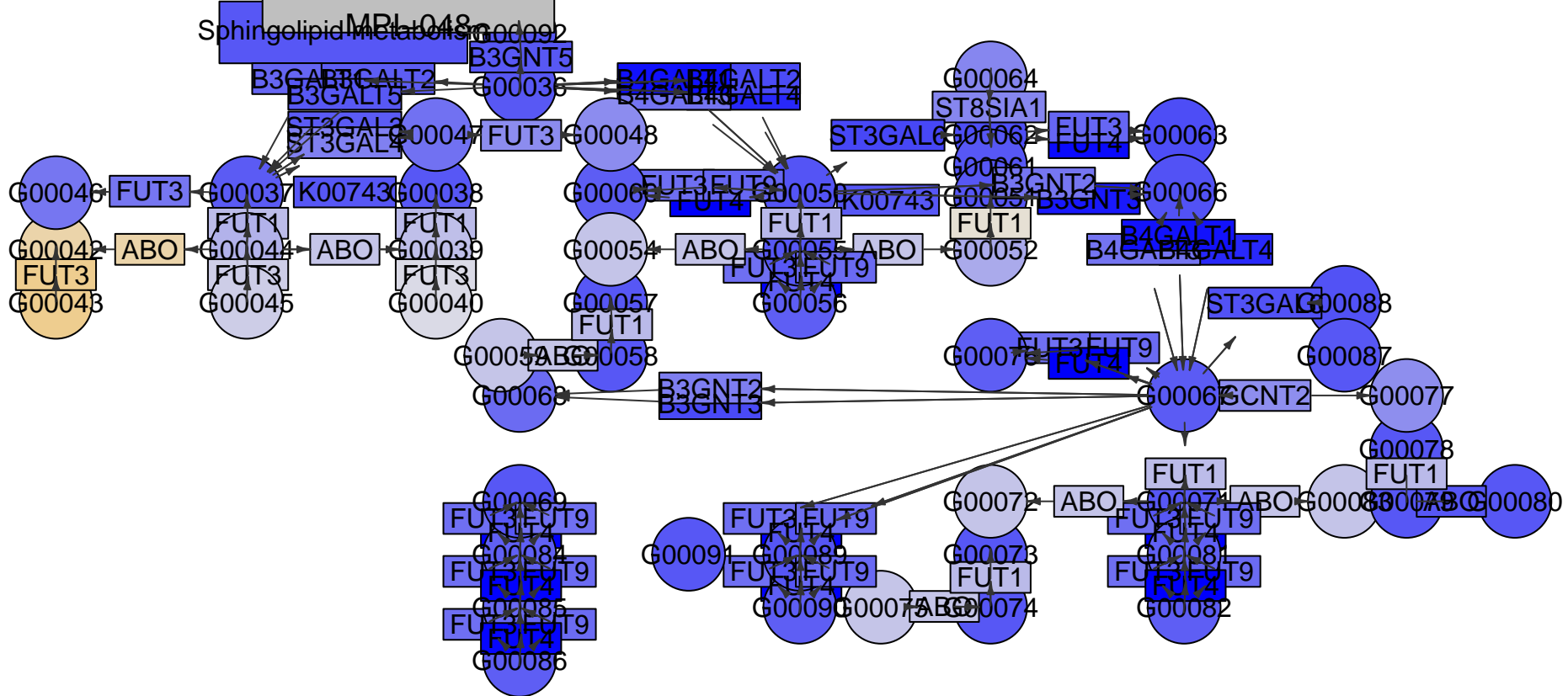
Glycosphingolipid biosynthesis – lacto and neolacto series



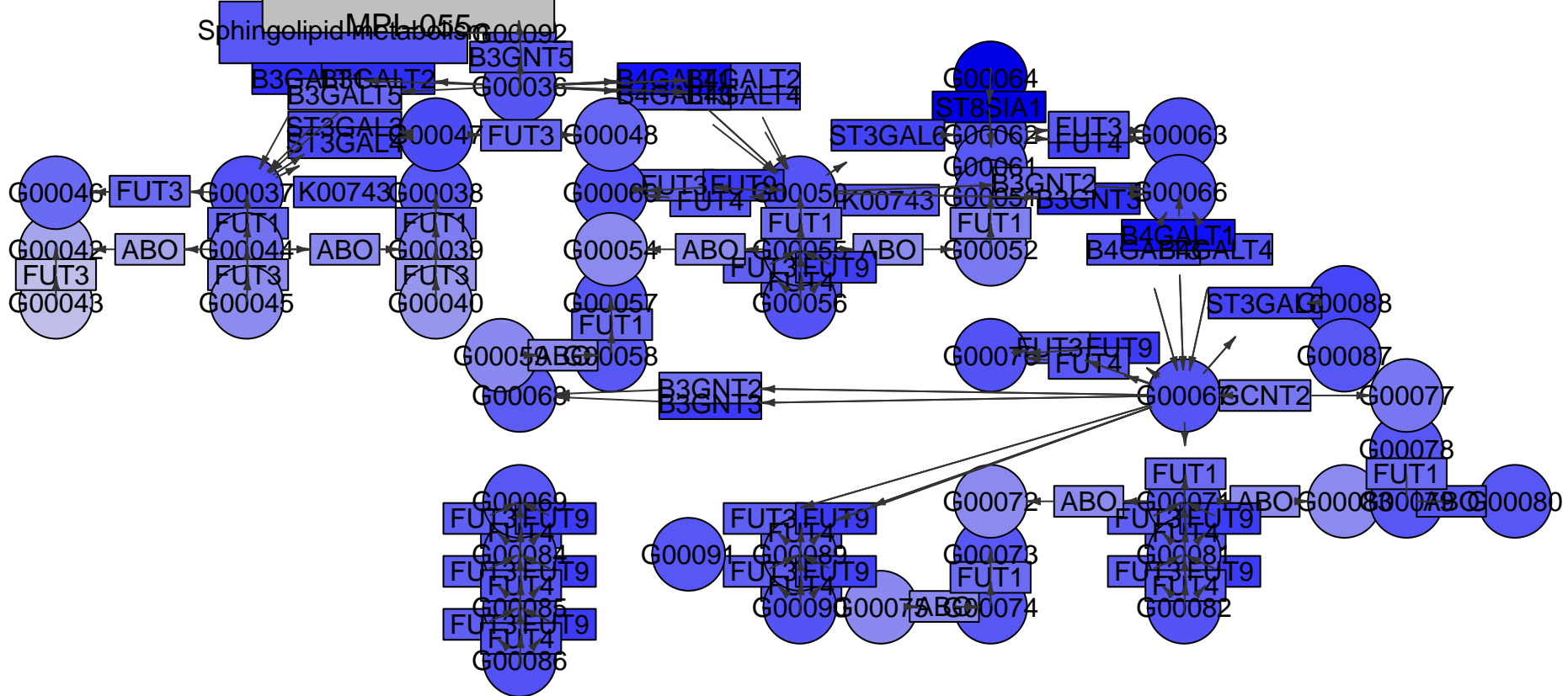
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



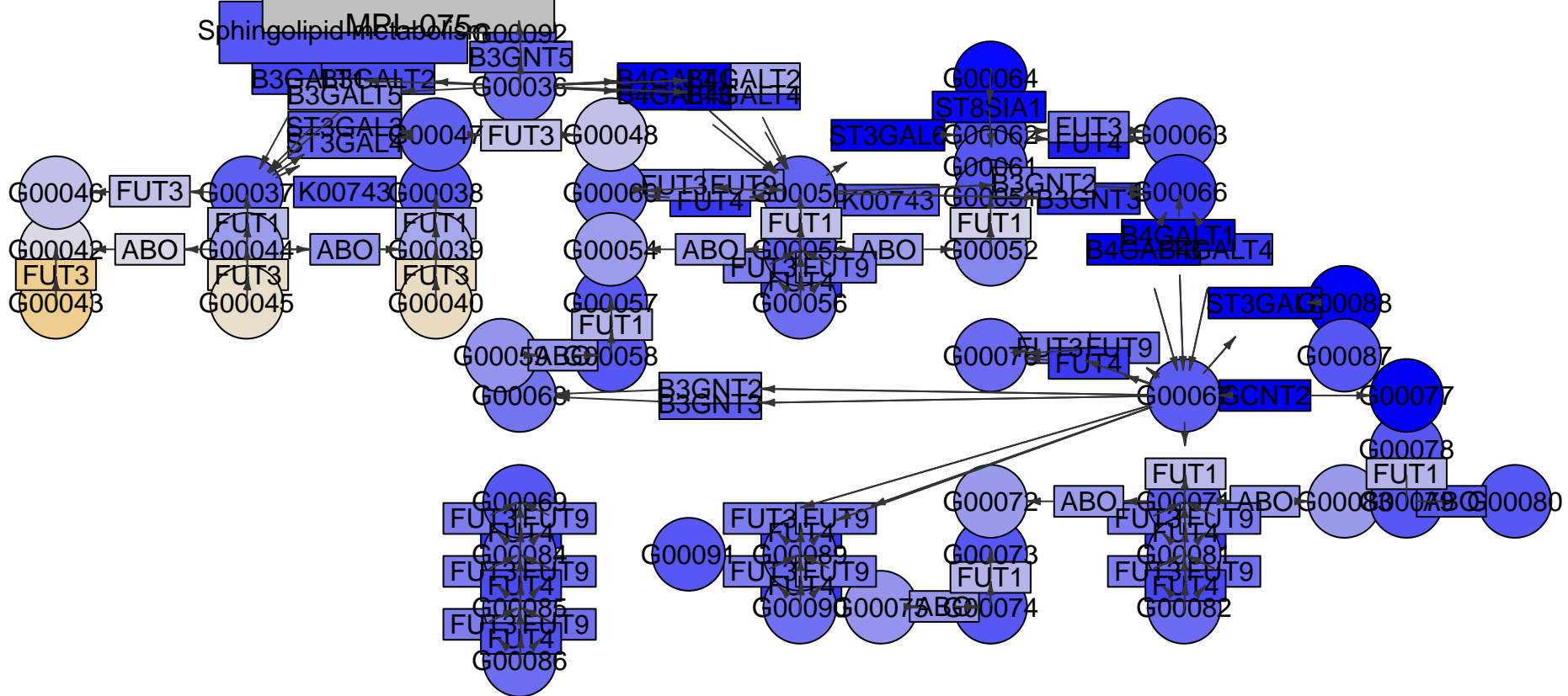
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

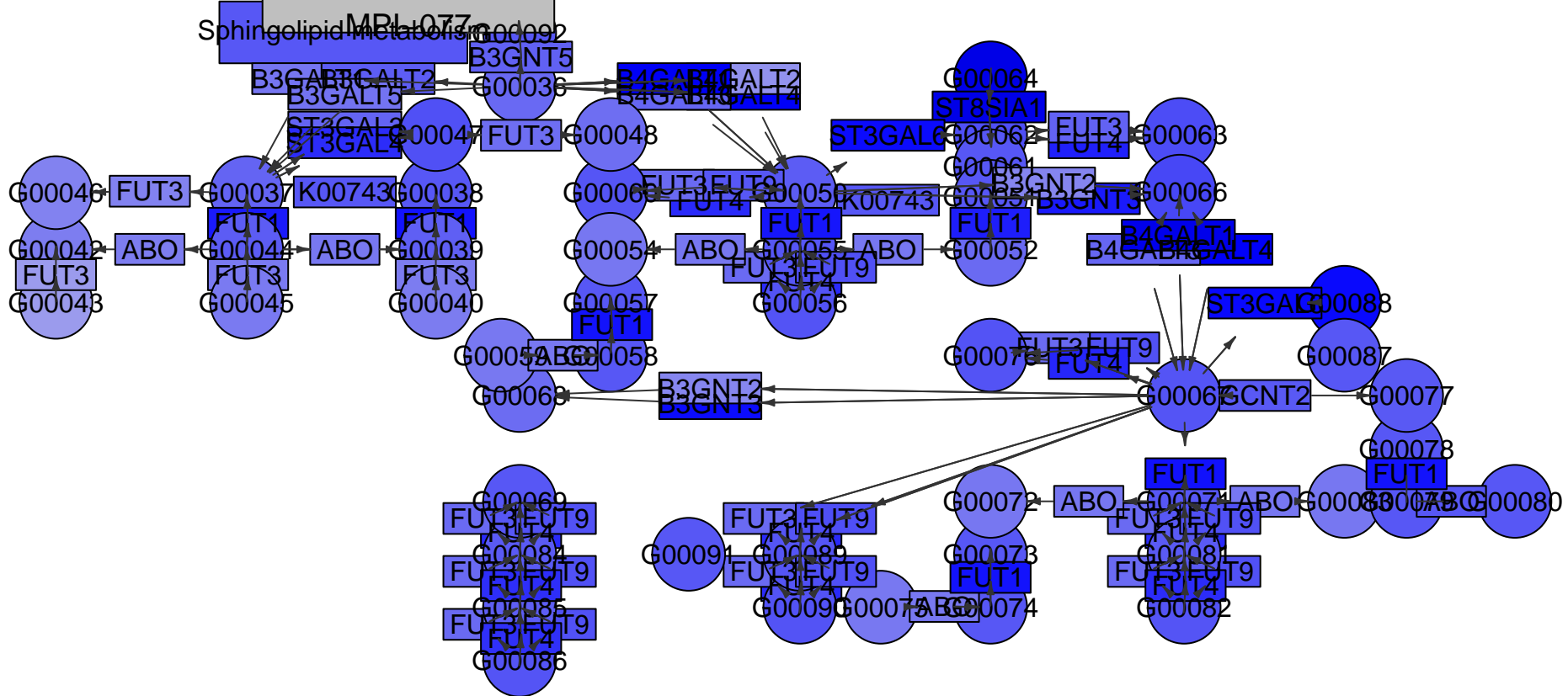
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

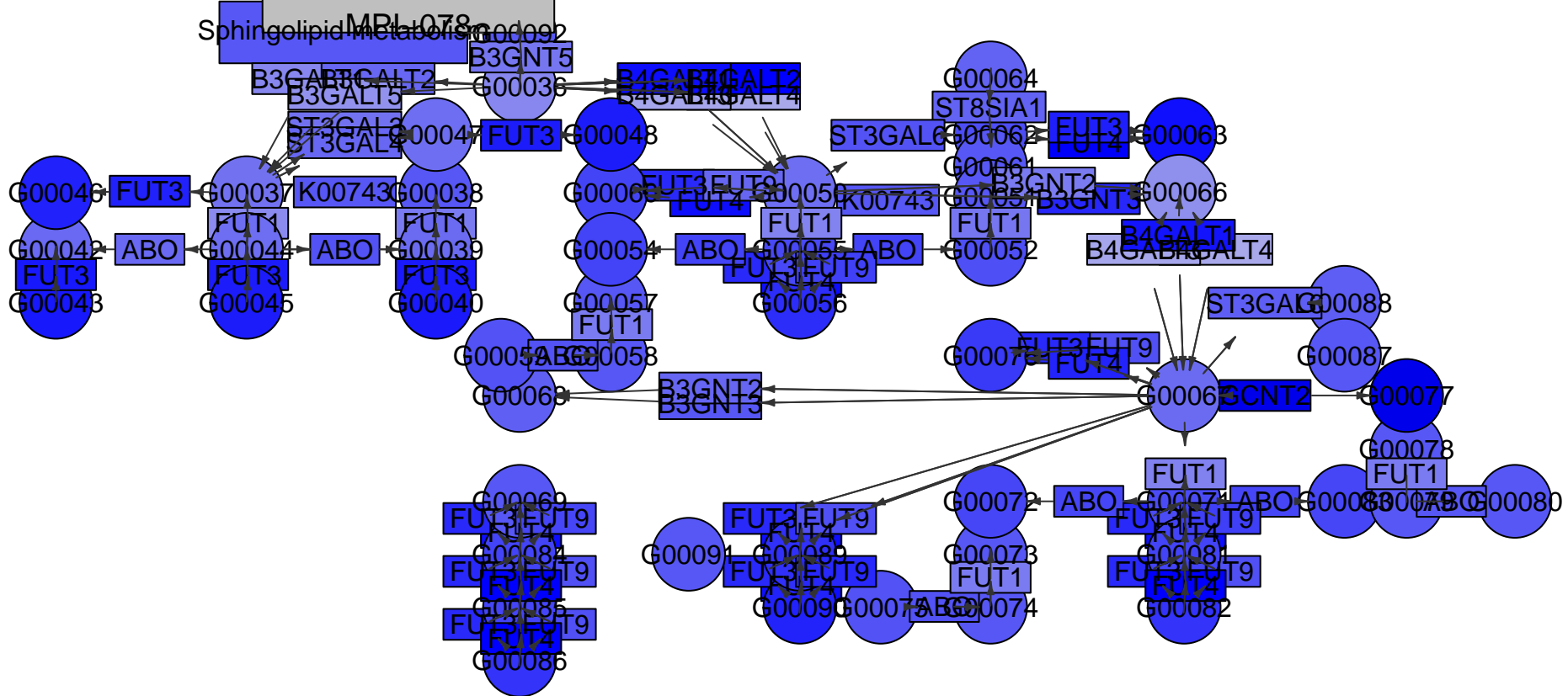
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO1

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO1 B4GALT1
 ABO1
 ABO1 FUT9 B3GNT2
 ABO1 B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO1 FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

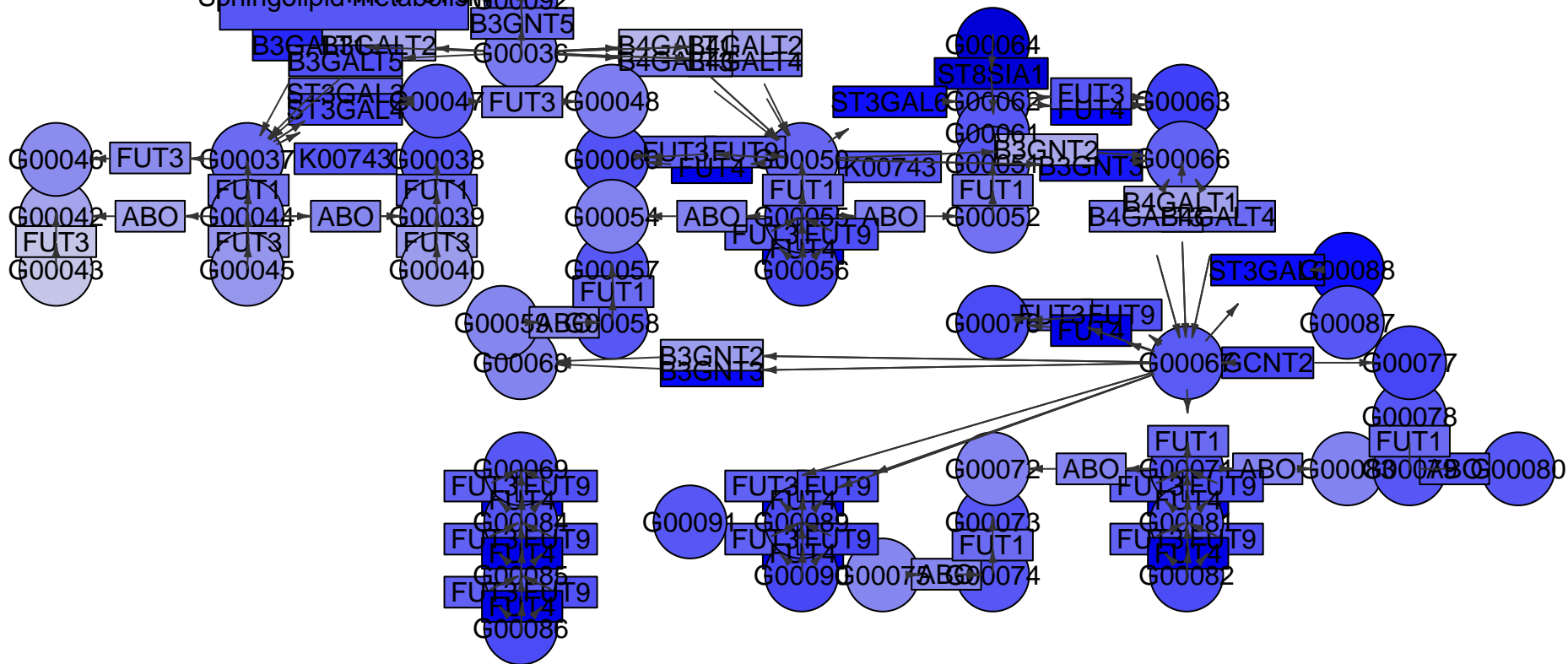


ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

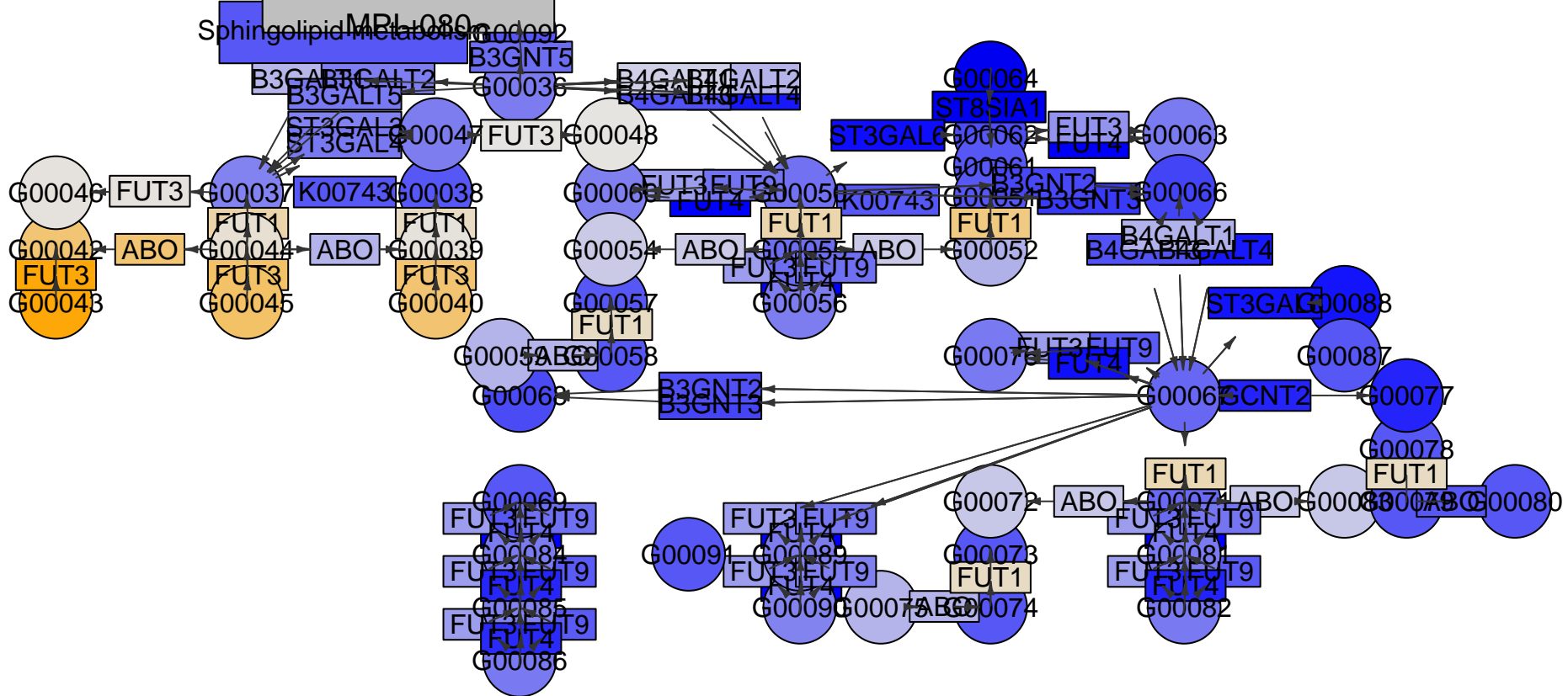
FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

Spingolipid metabolism



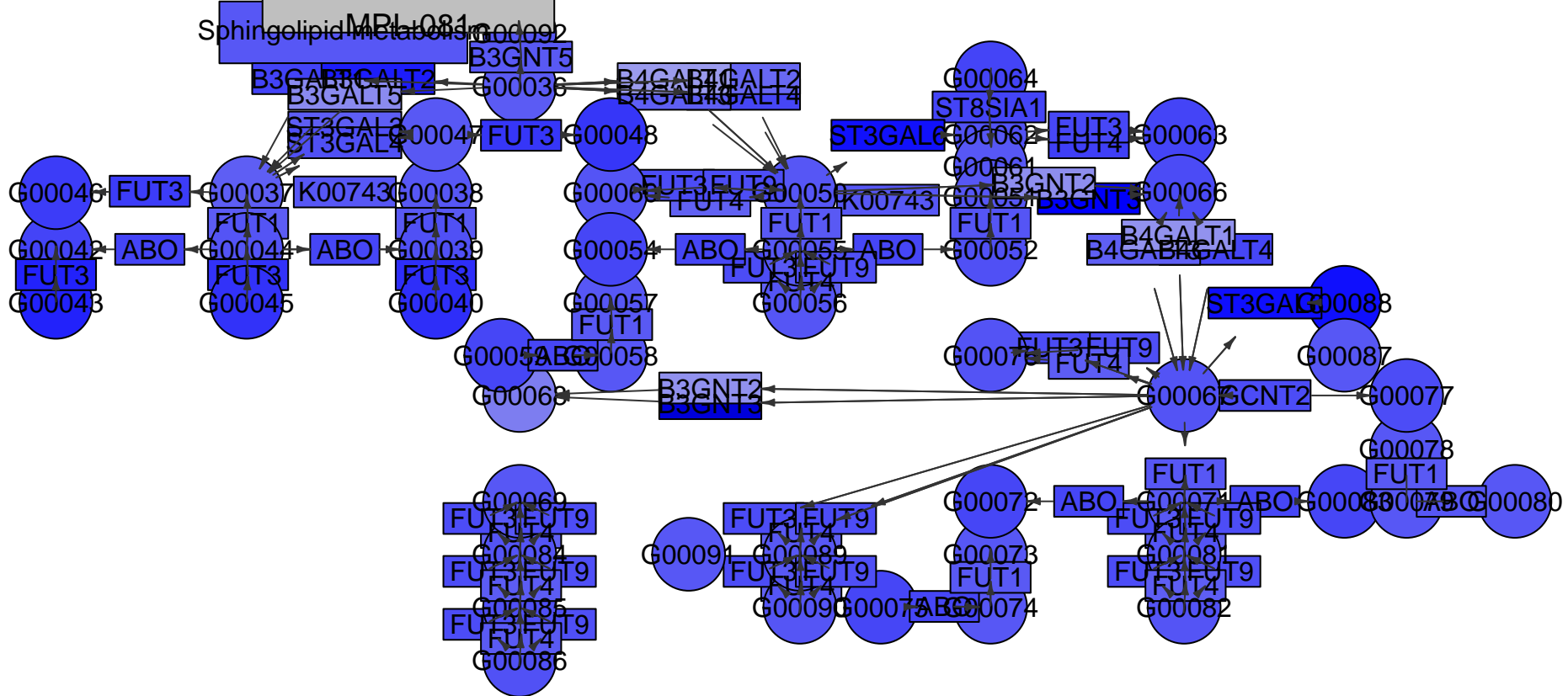
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT2
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST8SIA1 ST3GAL6 ABO FUT9

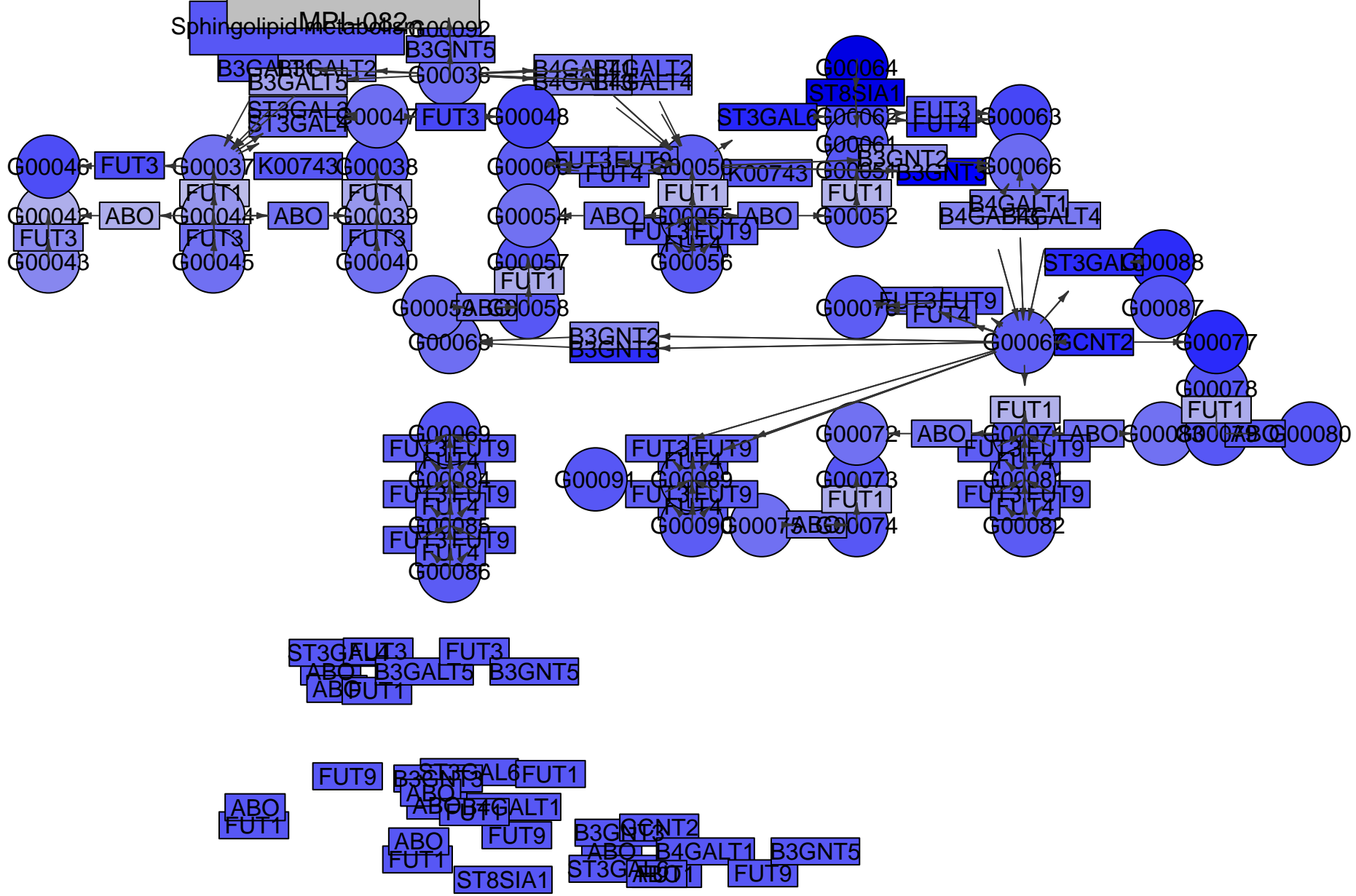
Glycosphingolipid biosynthesis – lacto and neolacto series



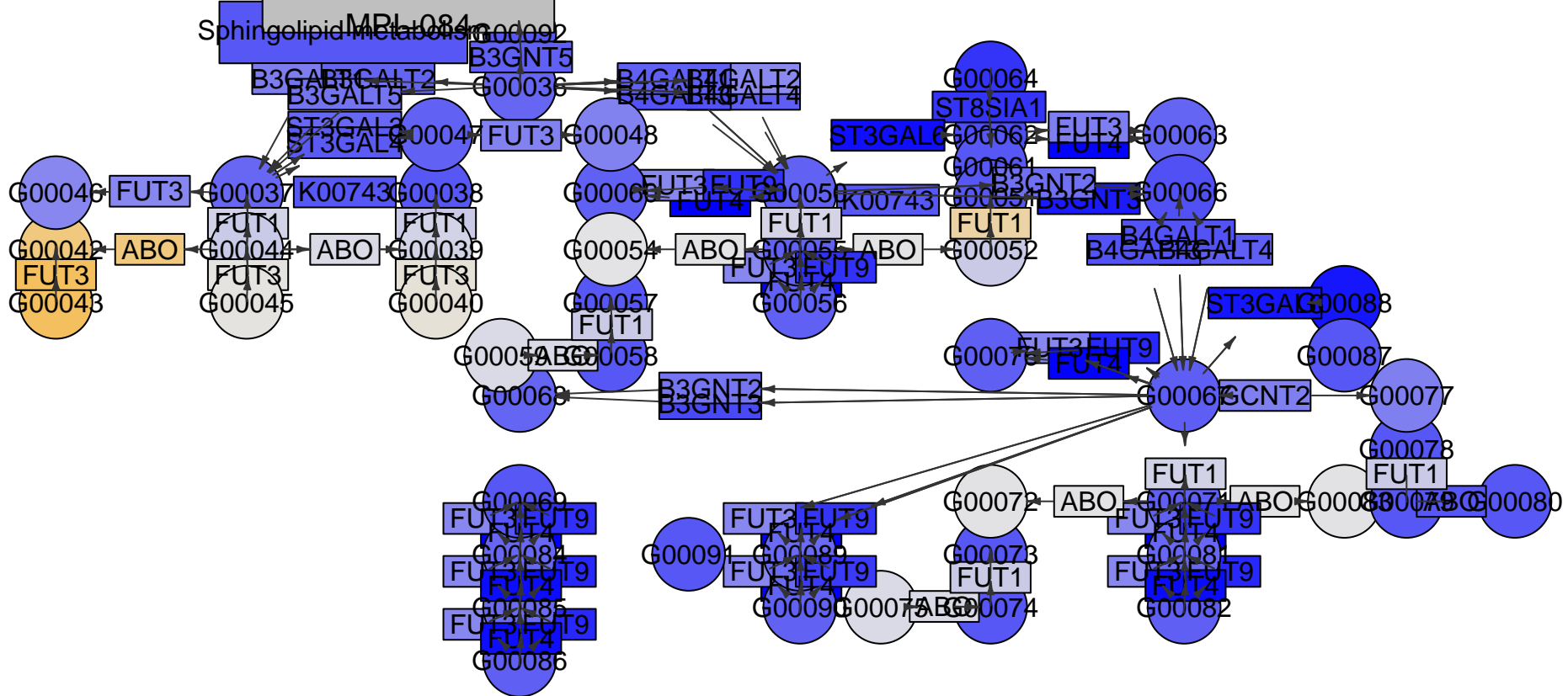
ST3GAL3 FUT3
ABO B3GALT5 B3GNT5
ABO1

FUT9 B3GNT3 ST3GAL6 FUT1
ABO1 B4GALT1
ABO1
ABO1 FUT9 B3GNT2
FUT1 ABO B4GALT1 B3GNT5
ST8SIA1 ST3GAL6 ABO1 FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



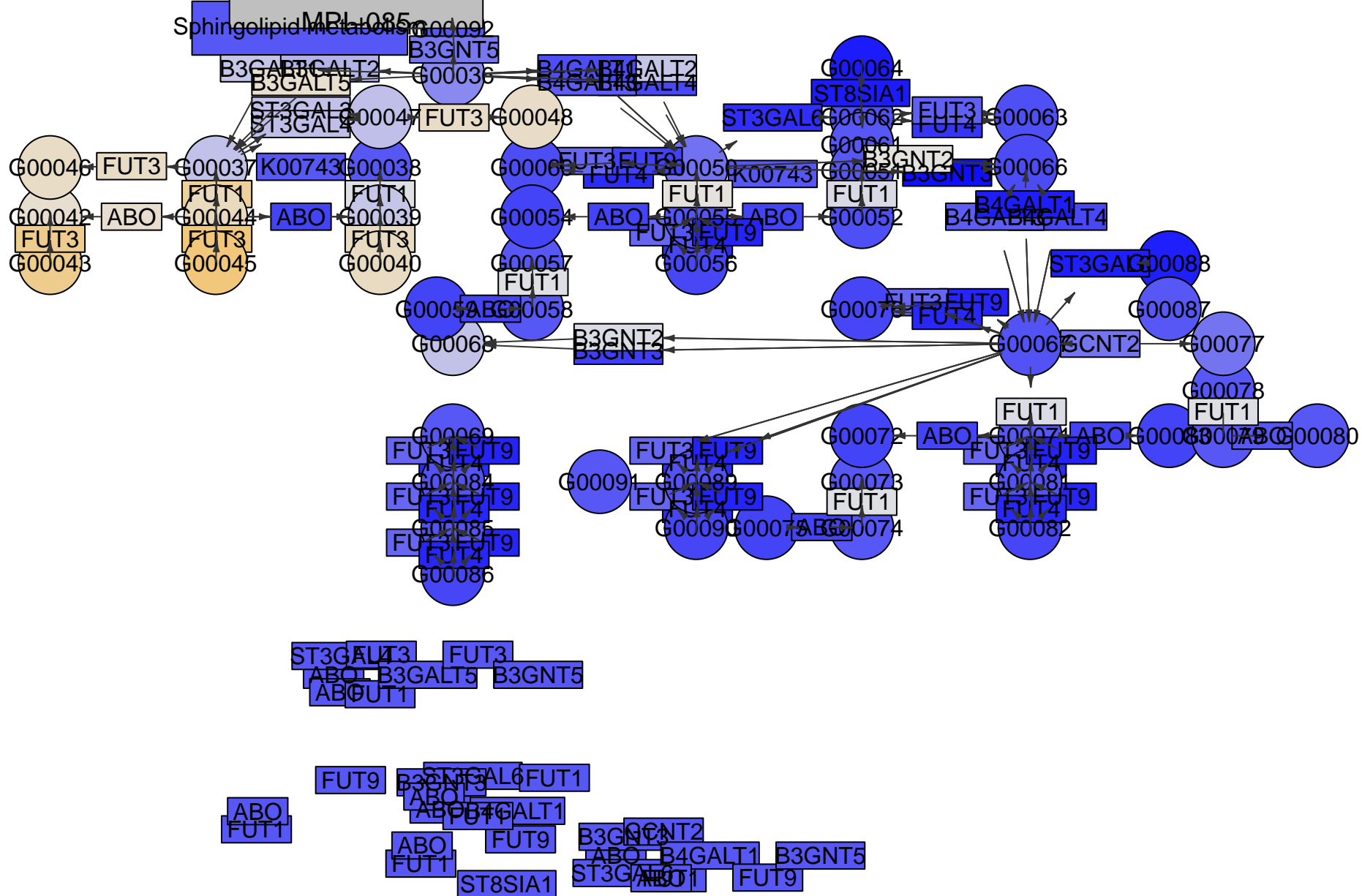
Glycosphingolipid biosynthesis – lacto and neolacto series



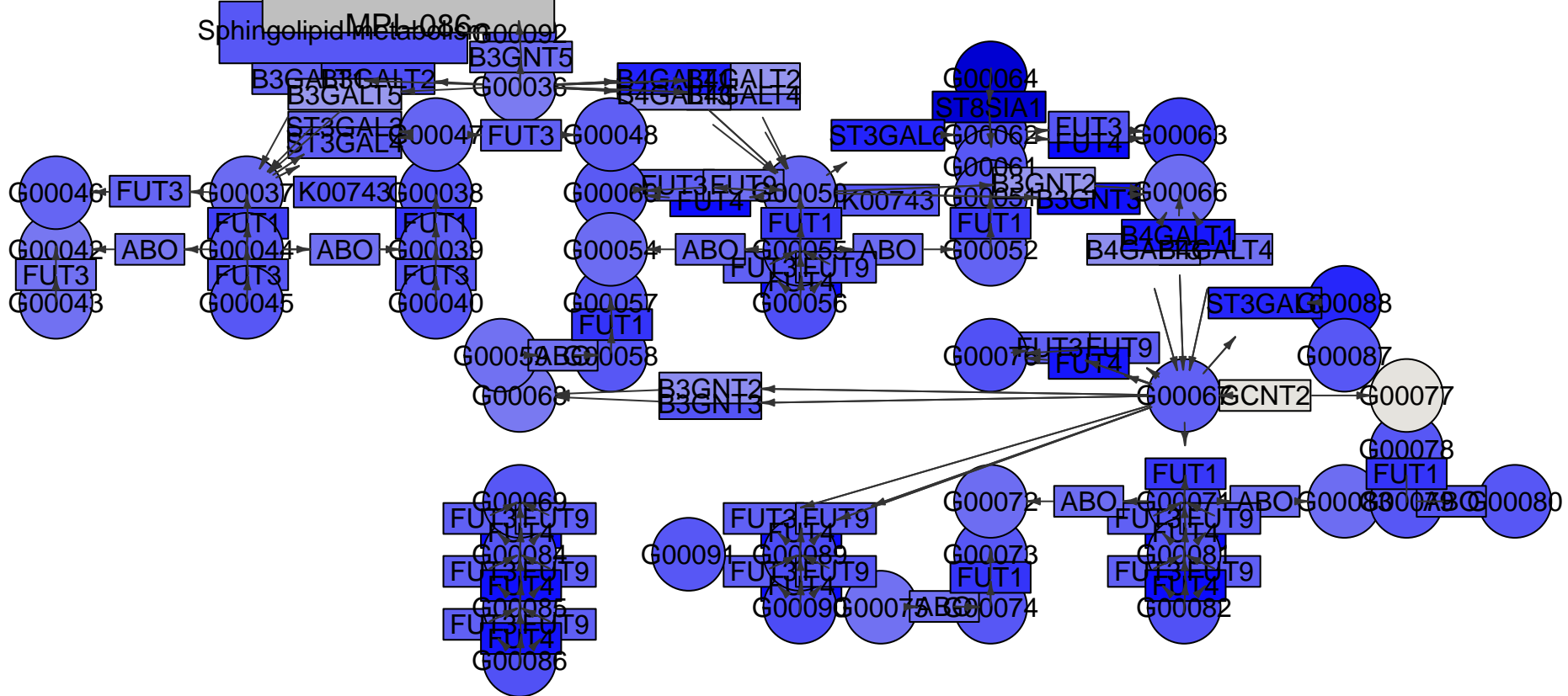
ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL4
ABO
FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



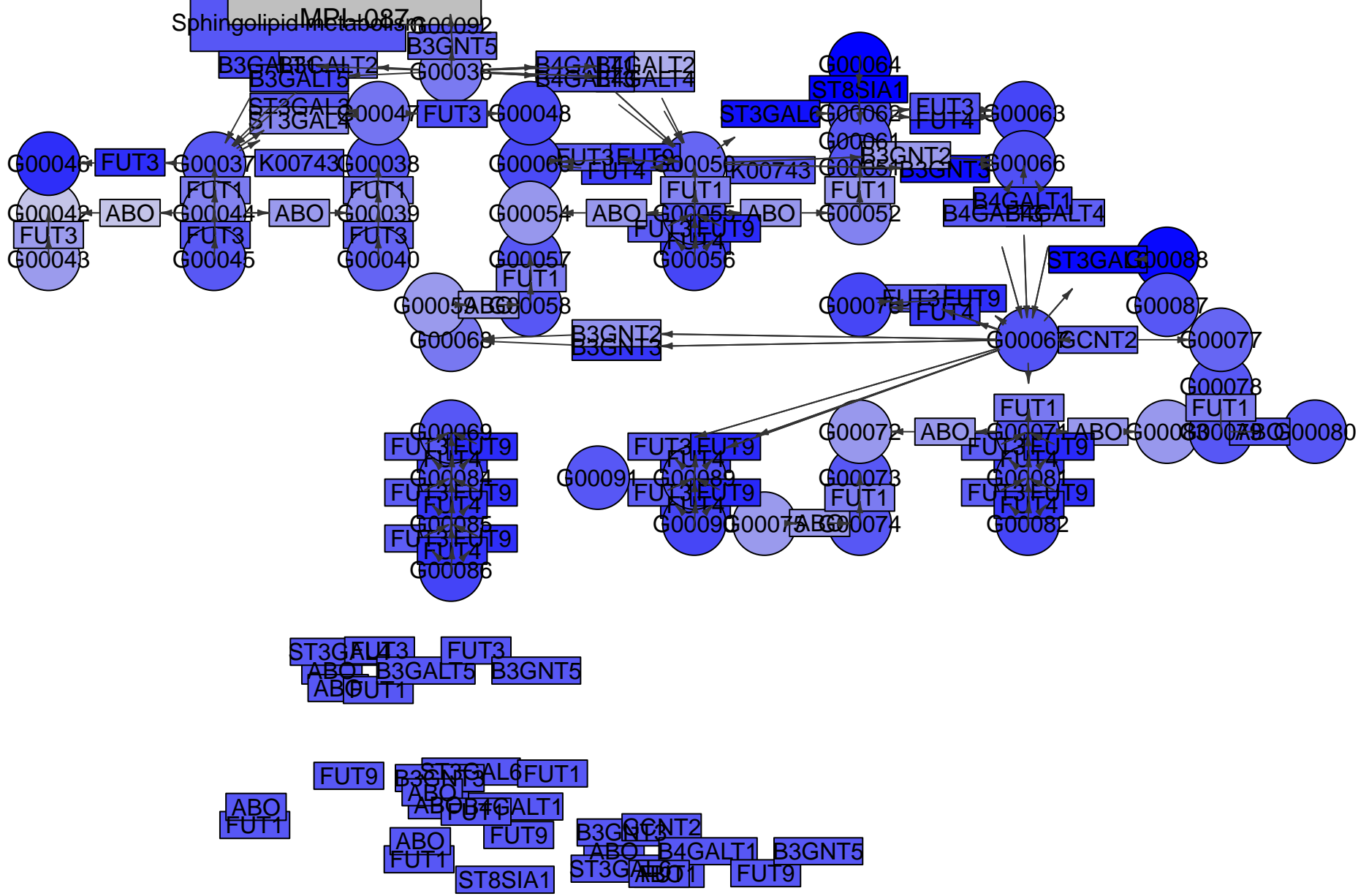
Glycosphingolipid biosynthesis – lacto and neolacto series



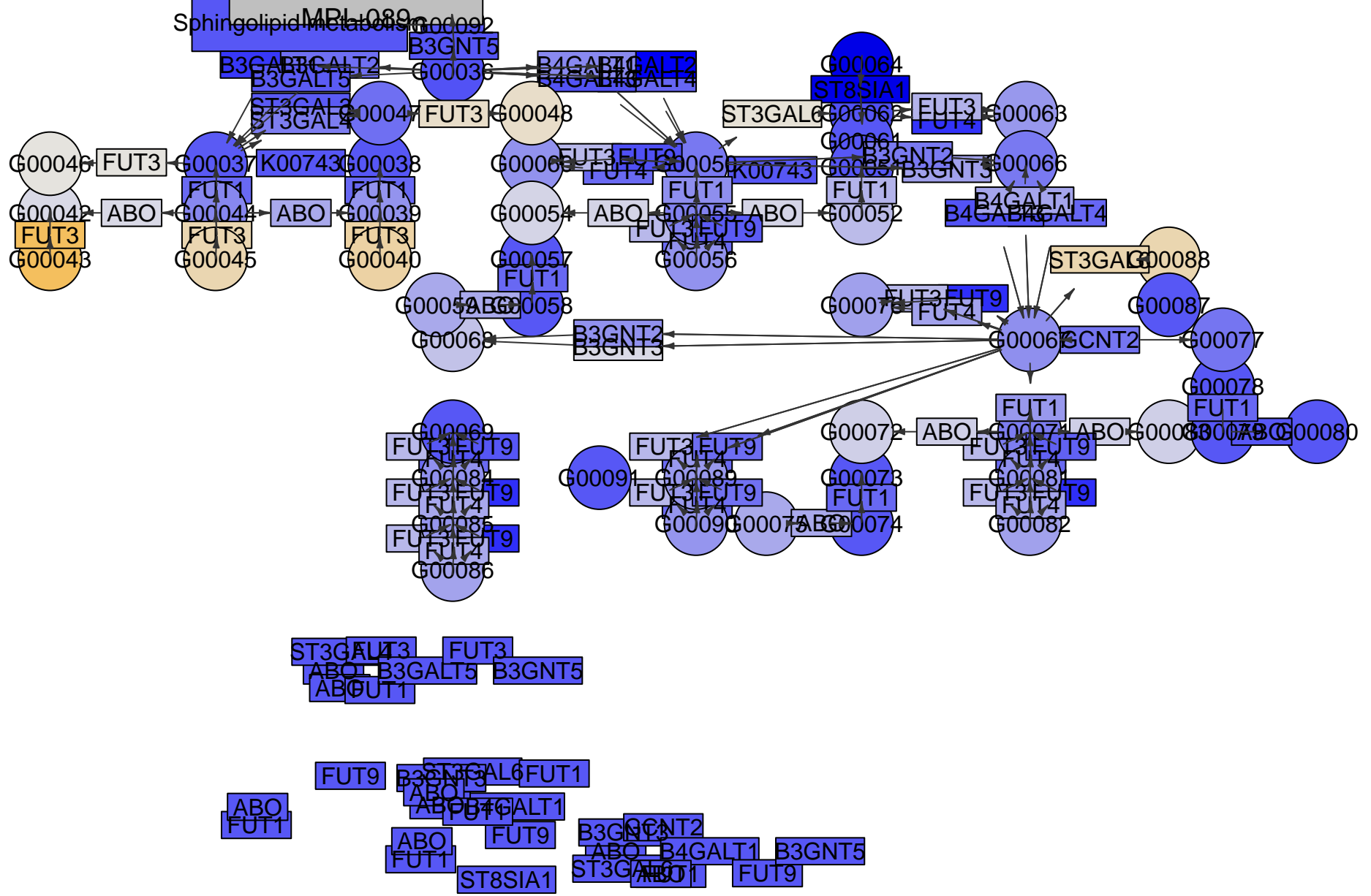
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST3GAL6
 ABO FUT9

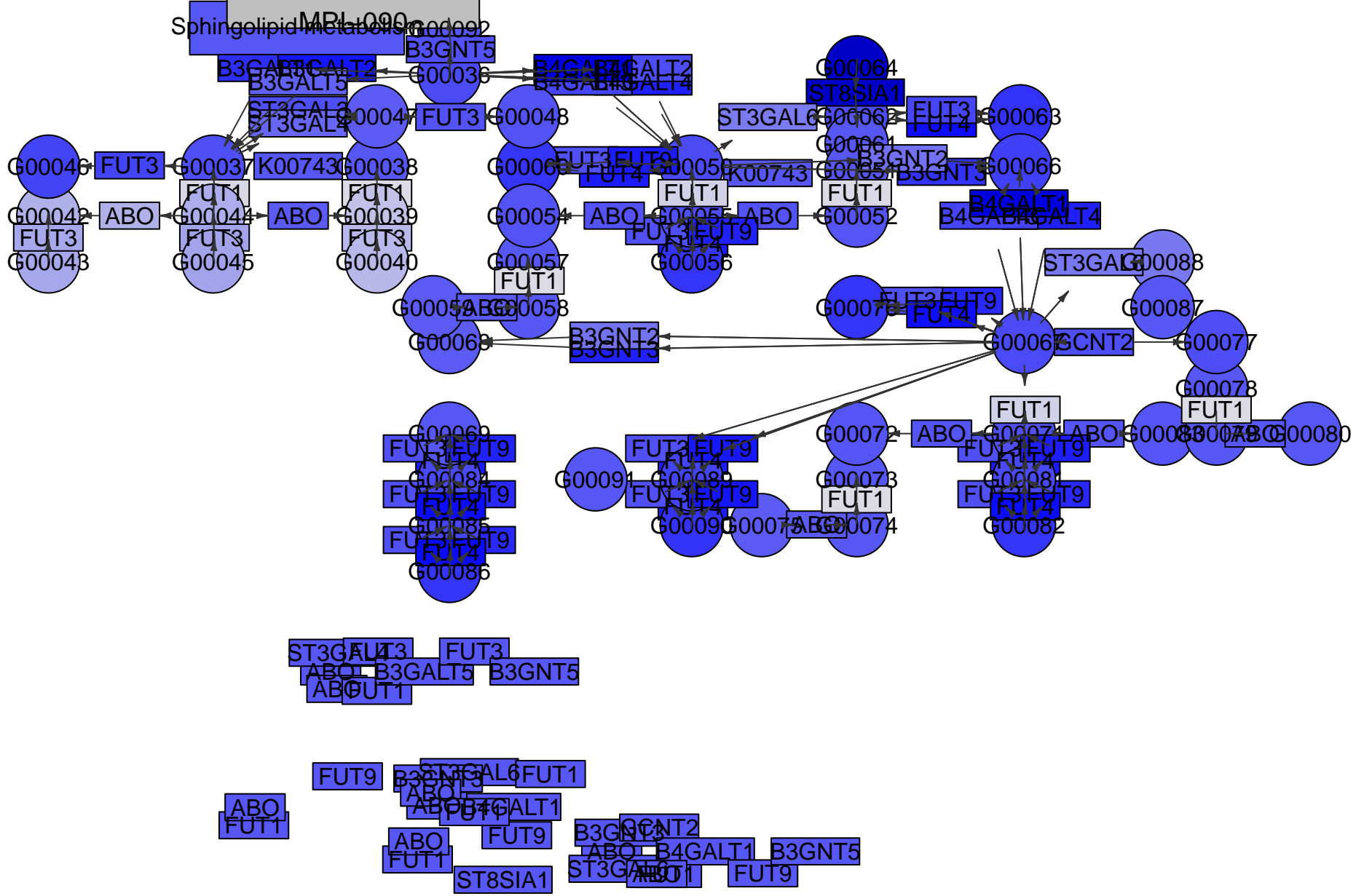
Glycosphingolipid biosynthesis – lacto and neolacto series



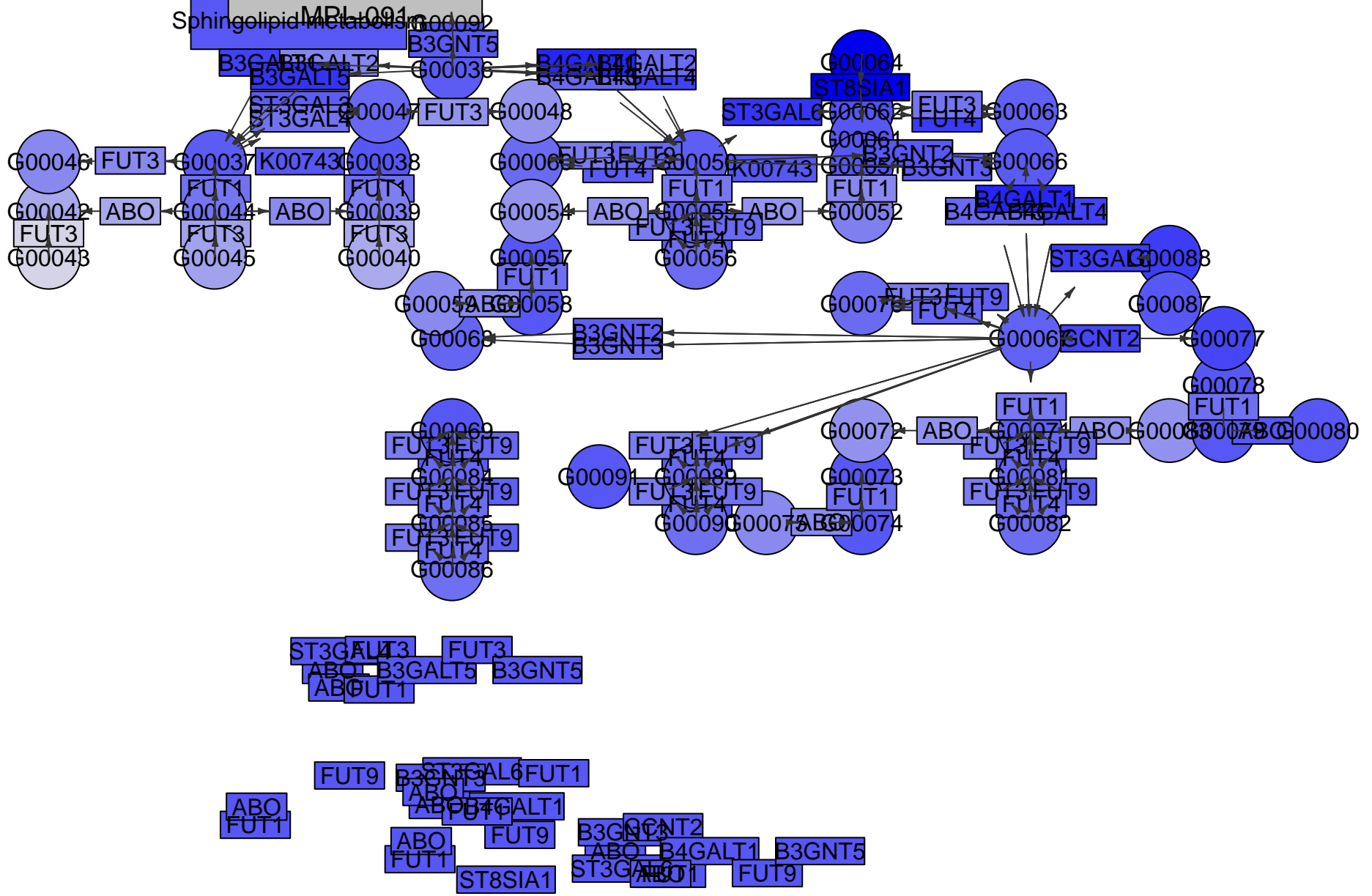
Glycosphingolipid biosynthesis – lacto and neolacto series



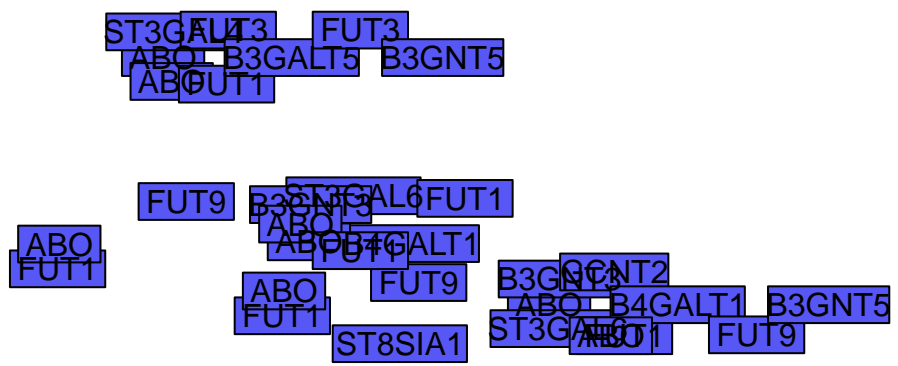
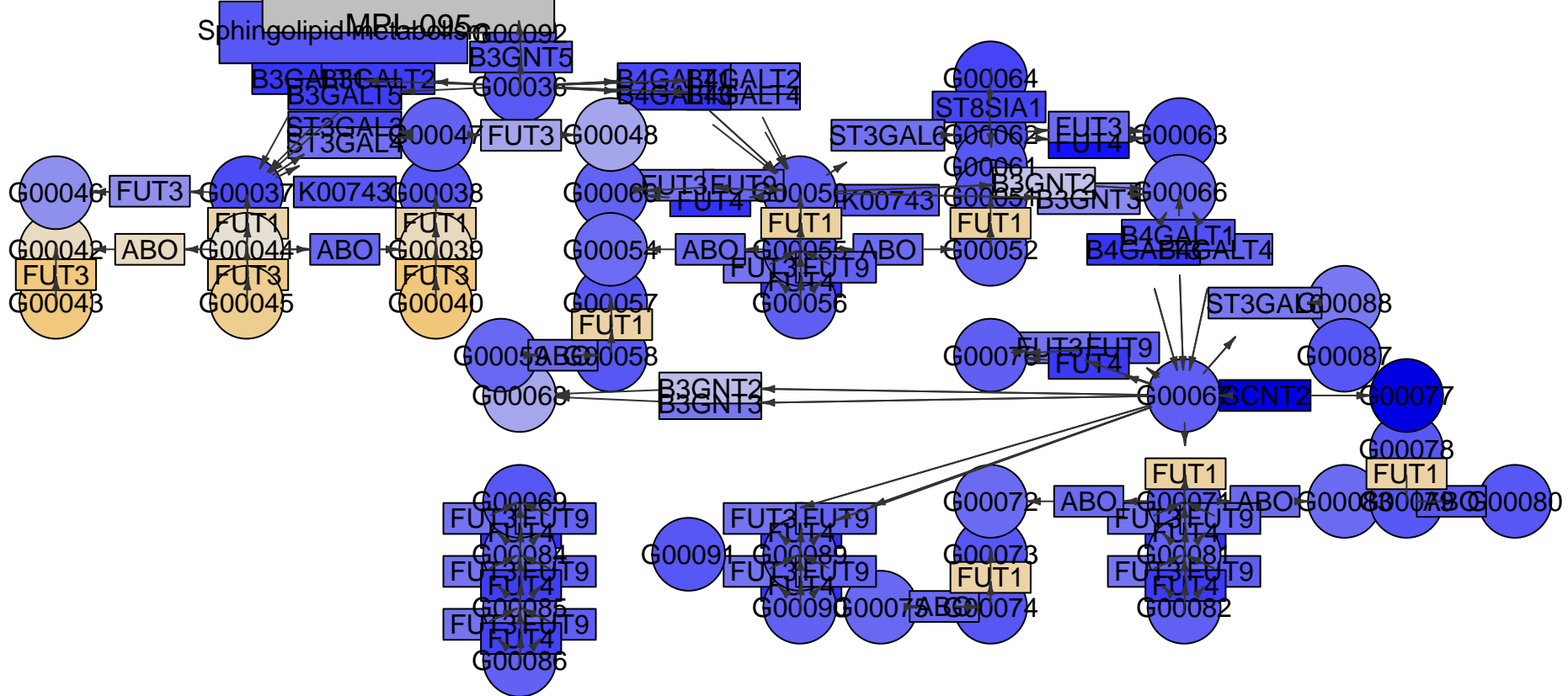
Glycosphingolipid biosynthesis – lacto and neolacto series



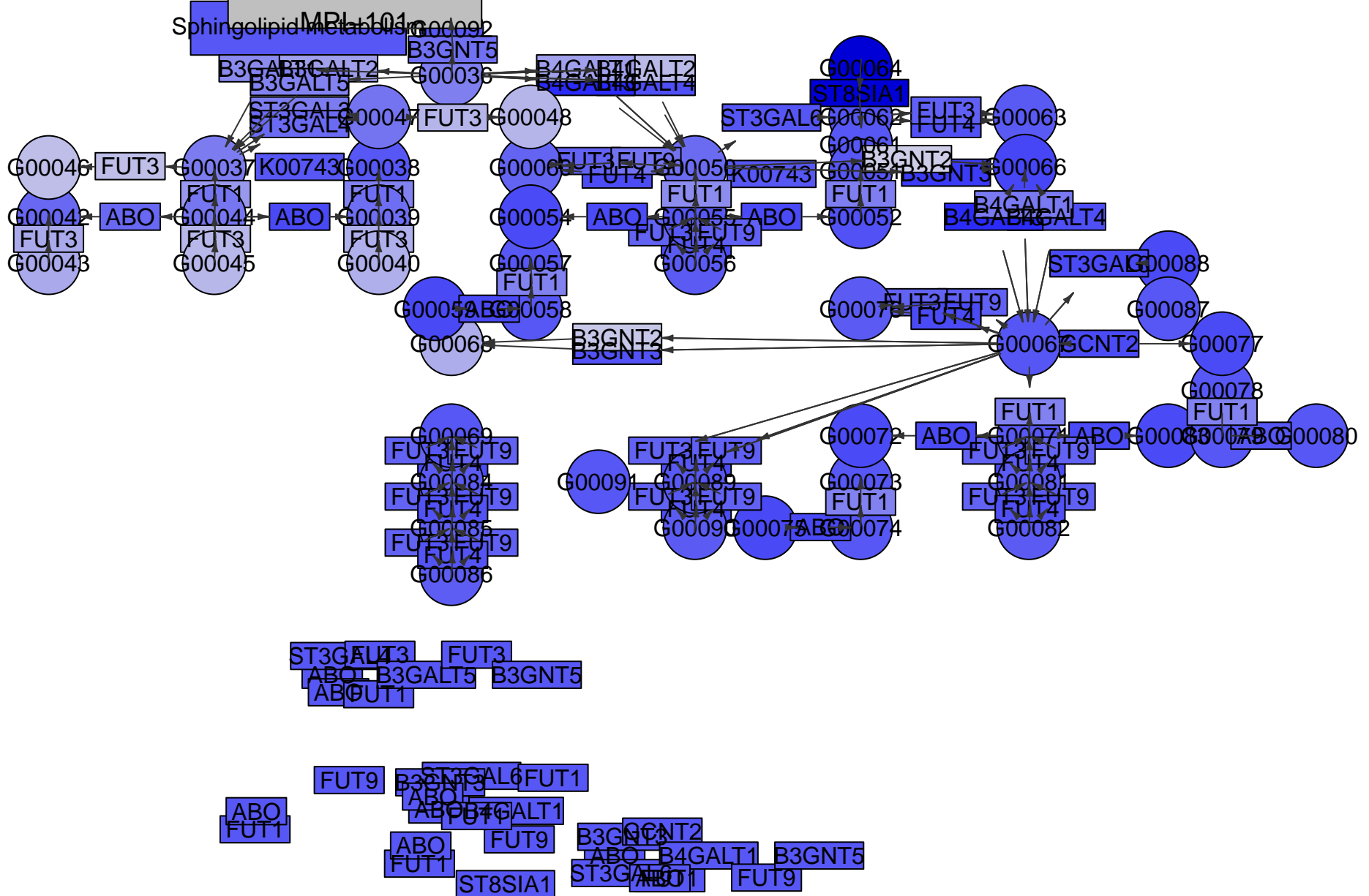
Glycosphingolipid biosynthesis – lacto and neolacto series



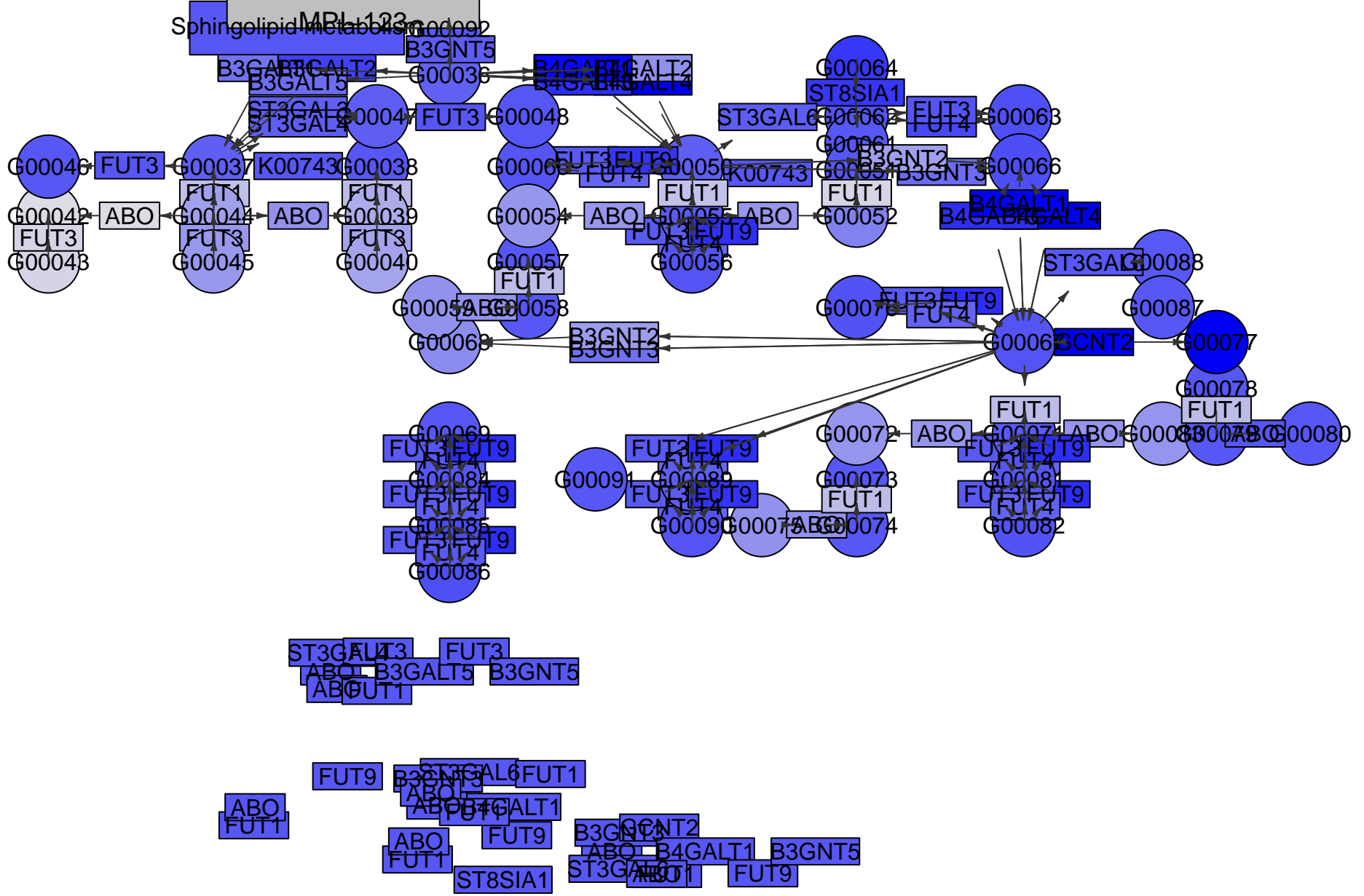
Glycosphingolipid biosynthesis – lacto and neolacto series



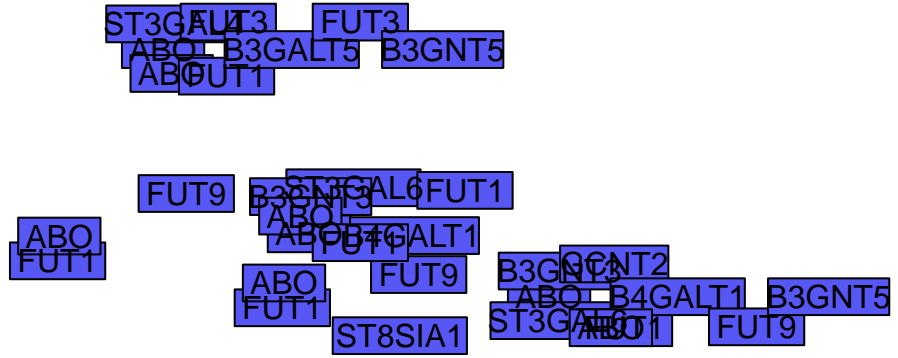
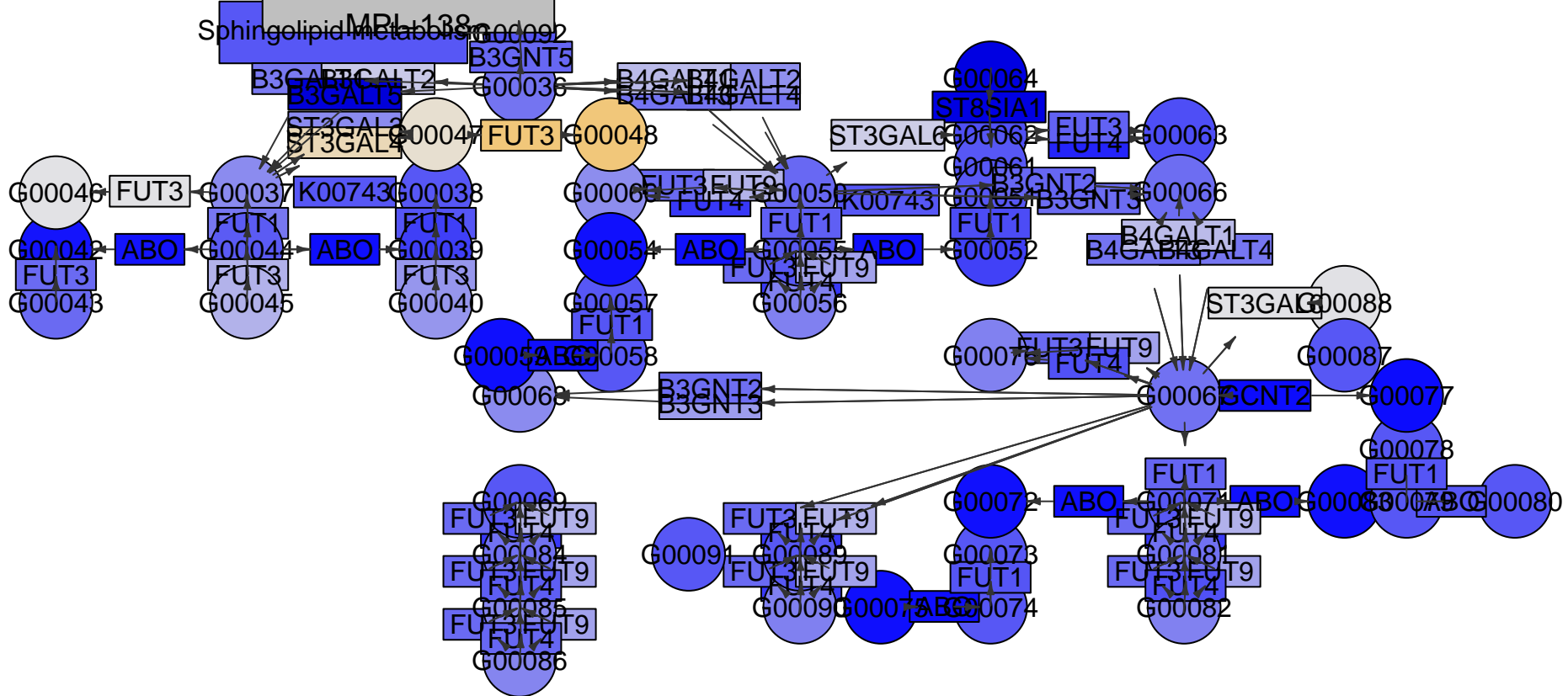
Glycosphingolipid biosynthesis – lacto and neolacto series



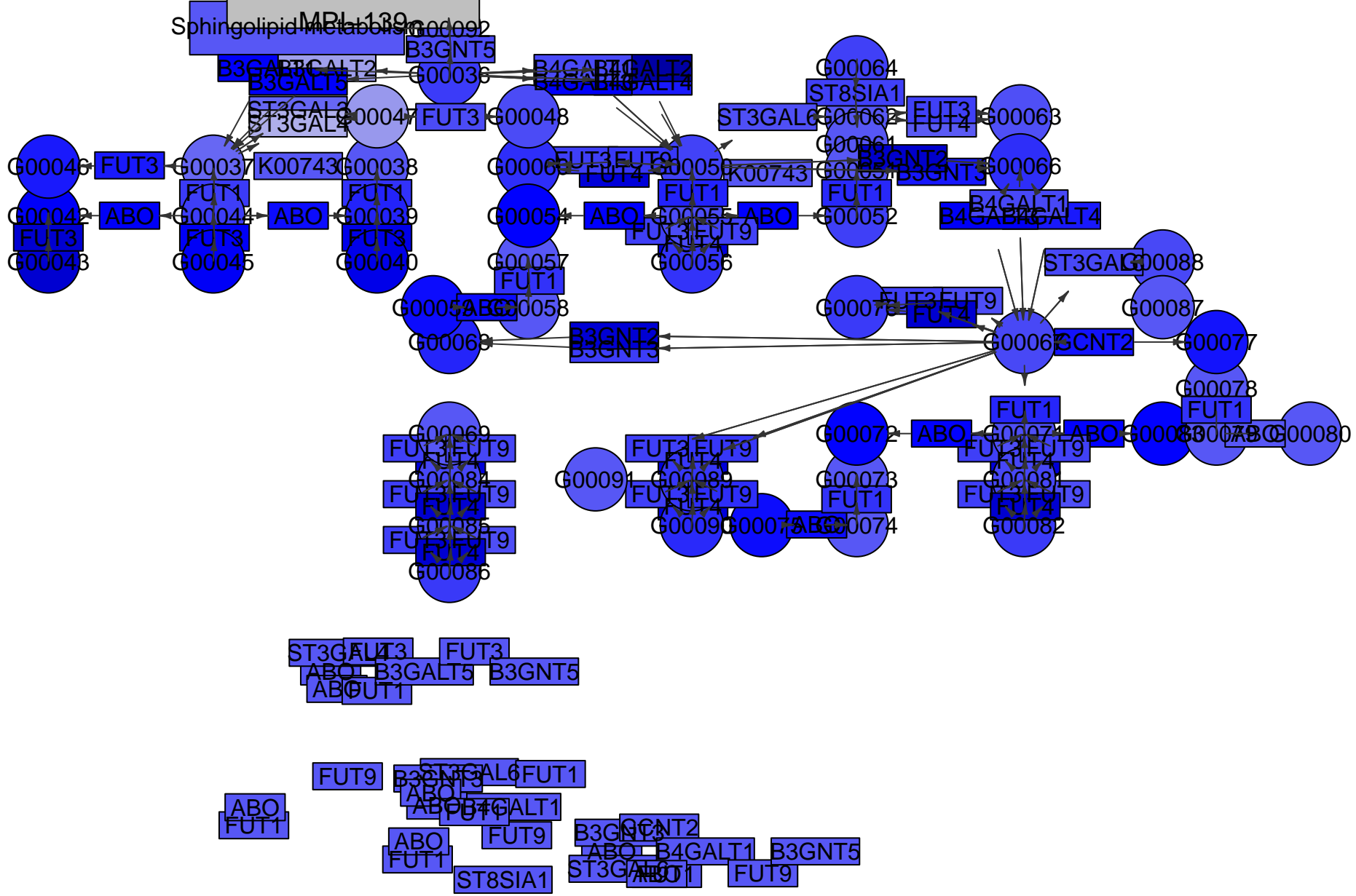
Glycosphingolipid biosynthesis – lacto and neolacto series



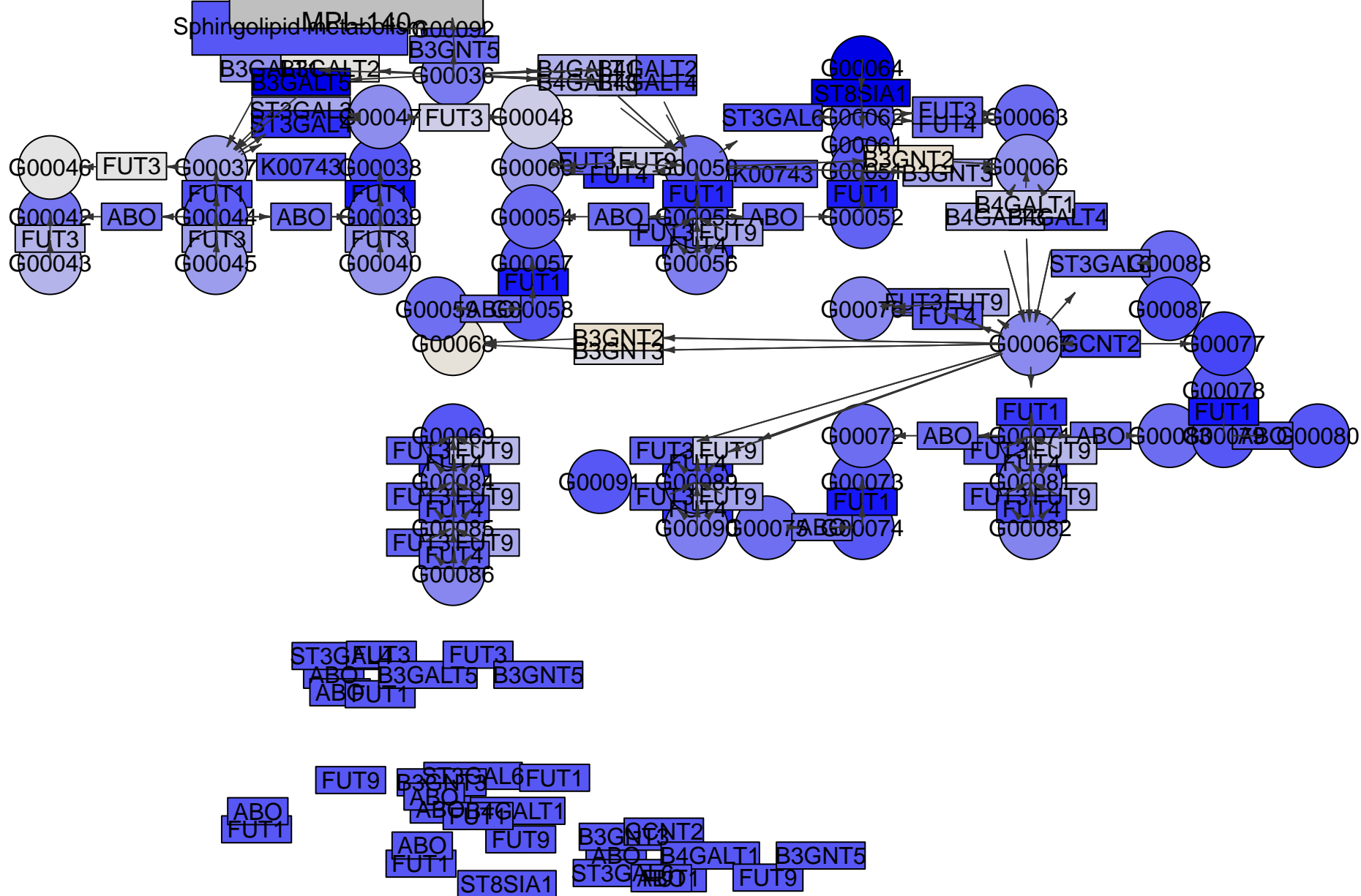
Glycosphingolipid biosynthesis – lacto and neolacto series



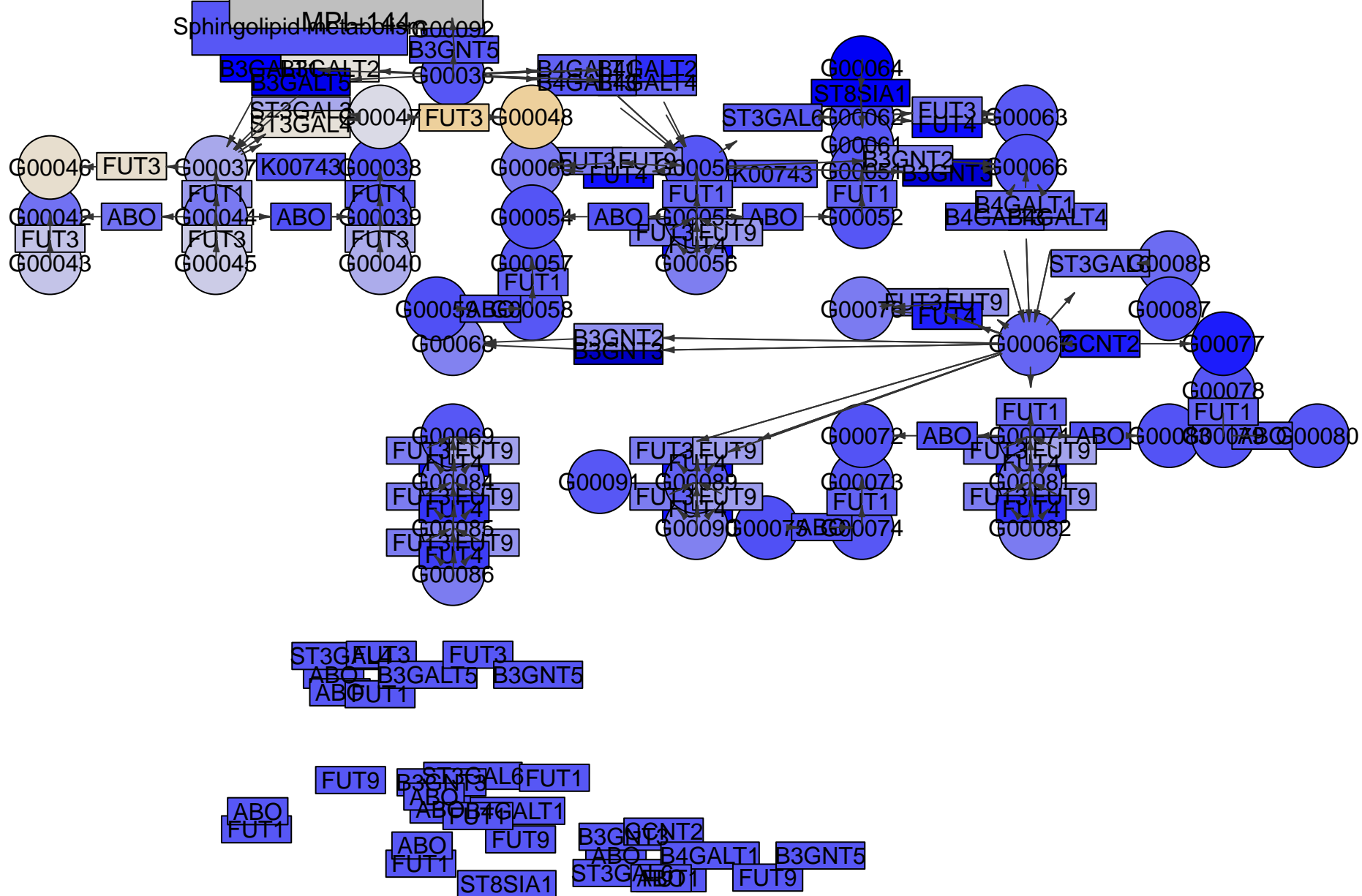
Glycosphingolipid biosynthesis – lacto and neolacto series



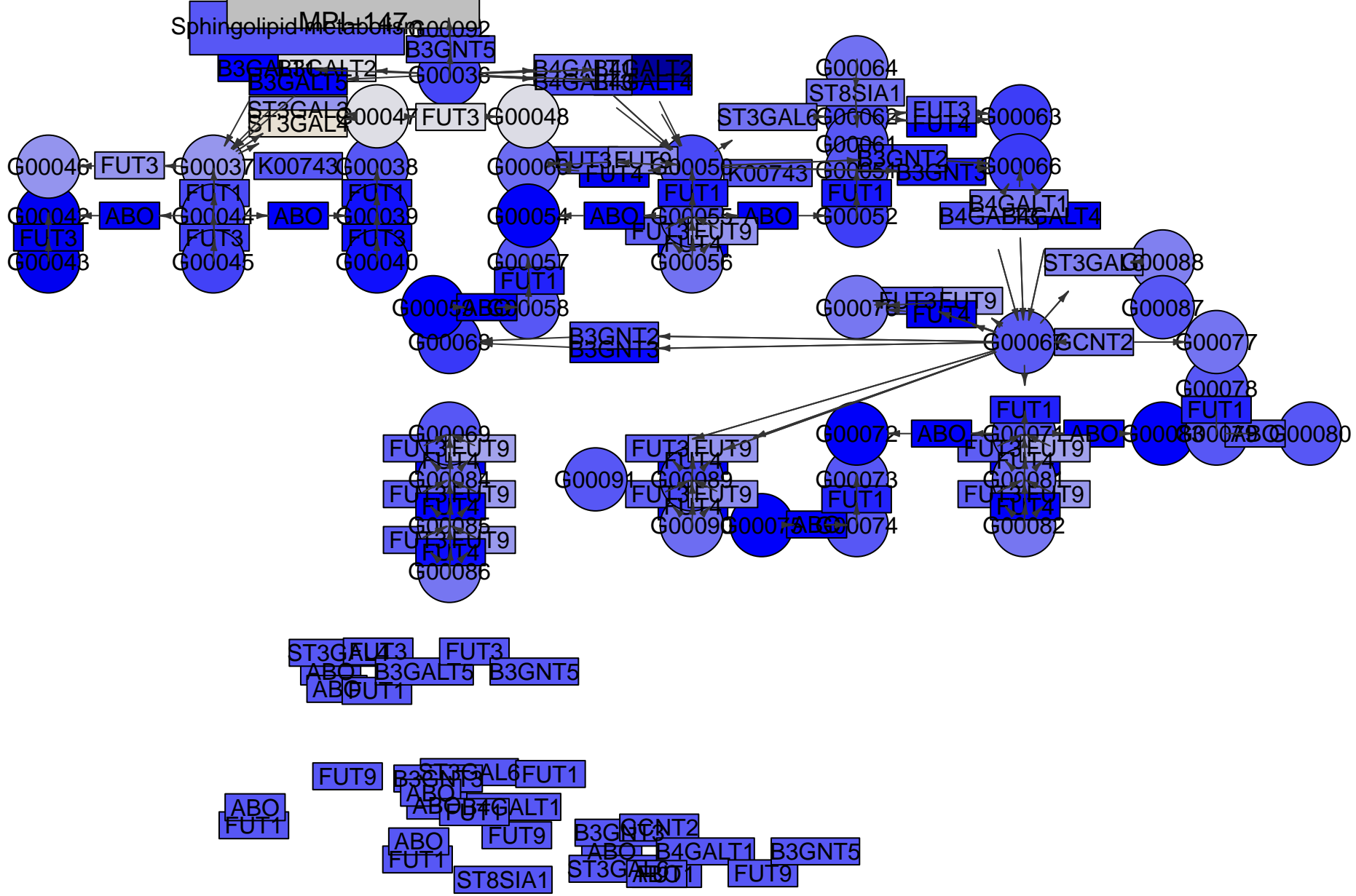
Glycosphingolipid biosynthesis – lacto and neolacto series



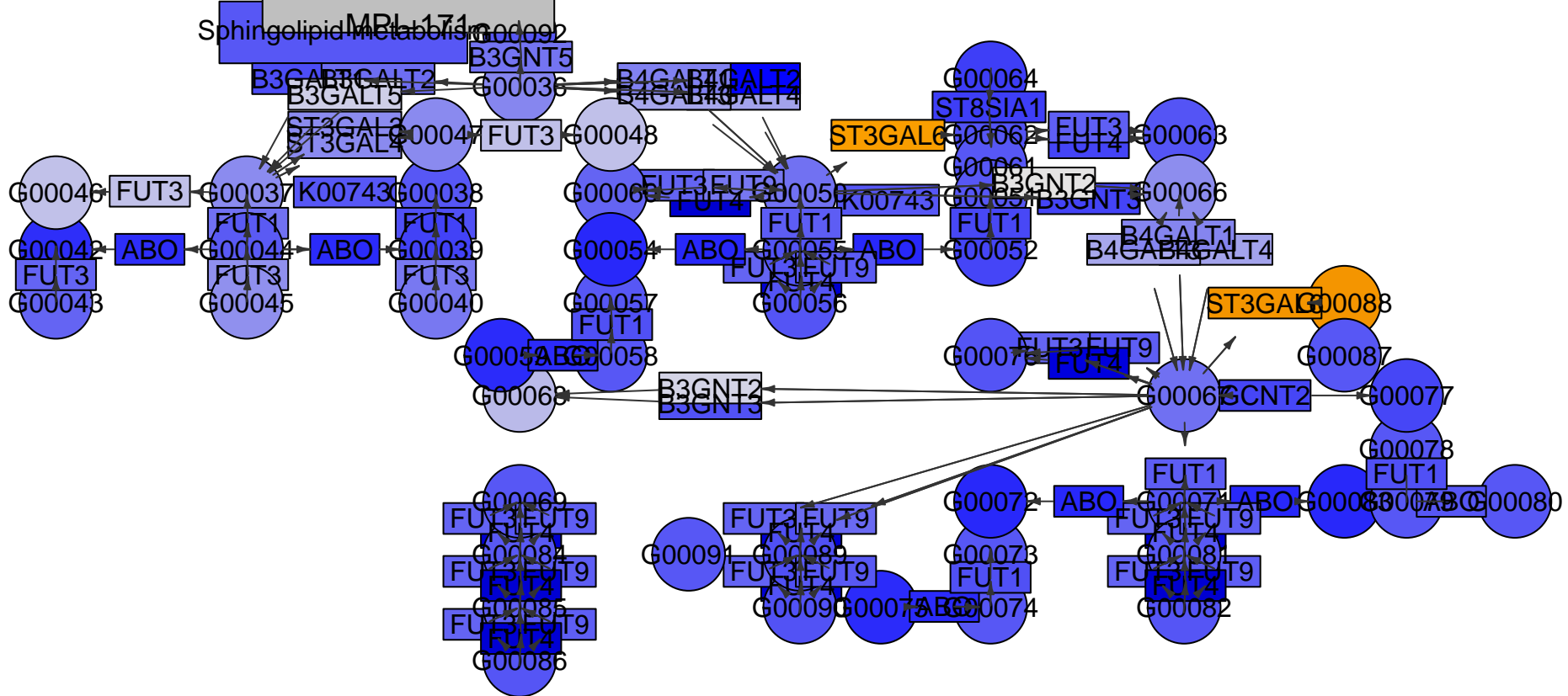
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



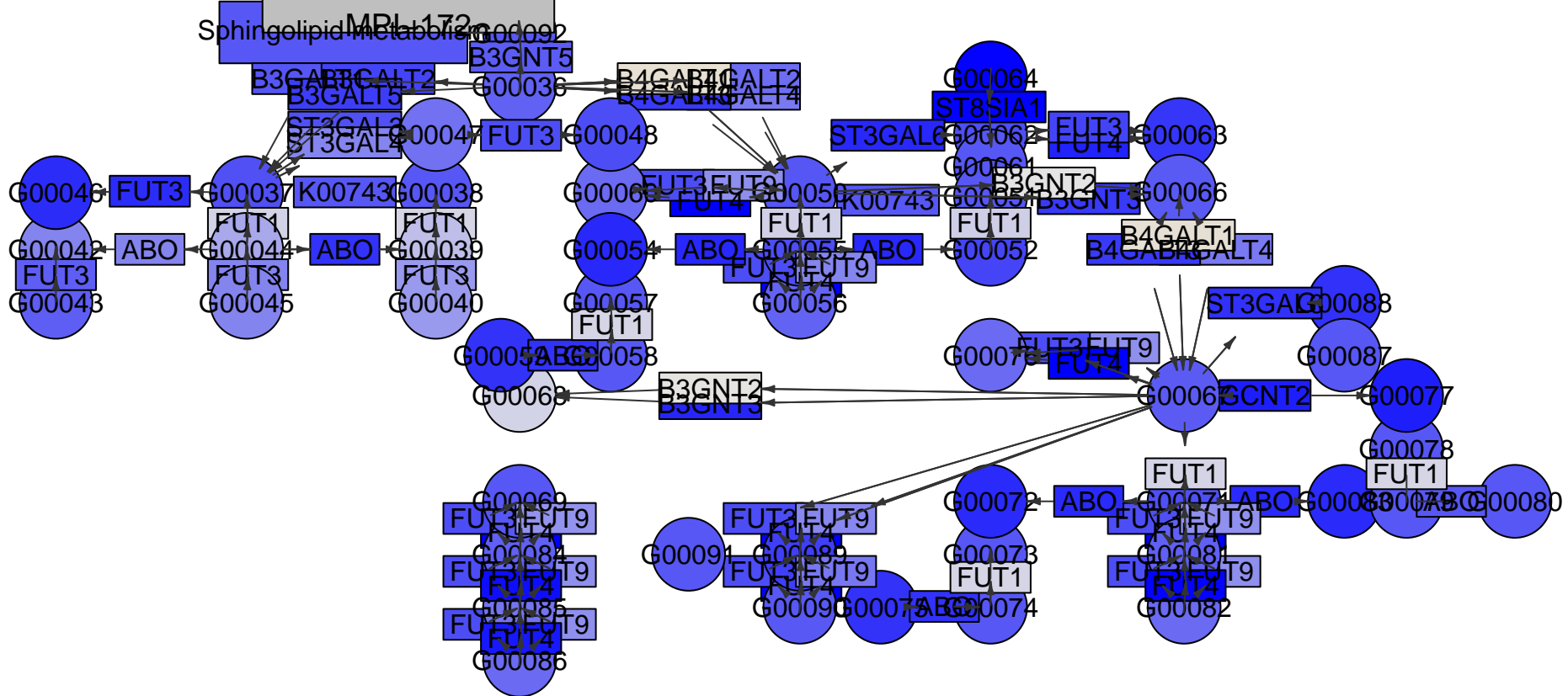
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT5 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT5
 FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

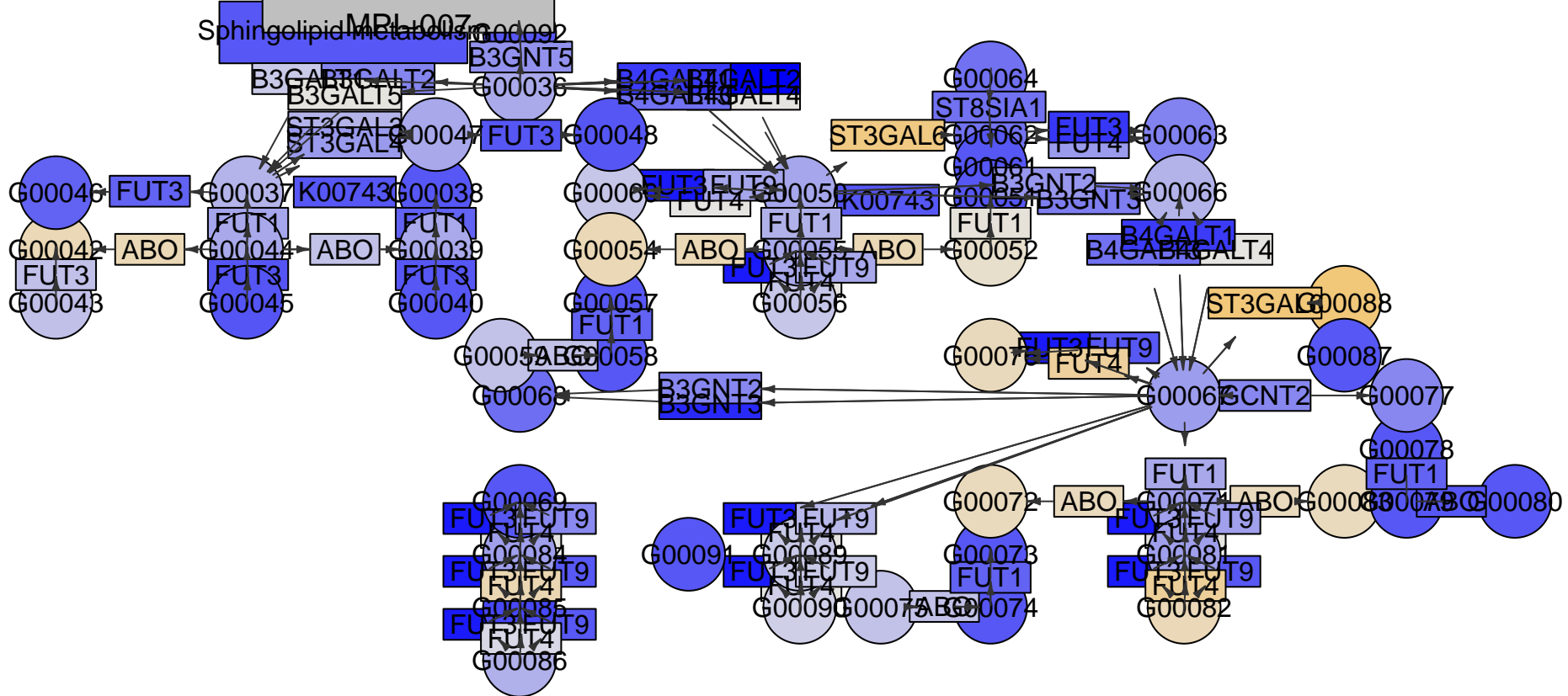
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO1

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO1
 ABO B4GALT1
 ABO1 FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO1 FUT9

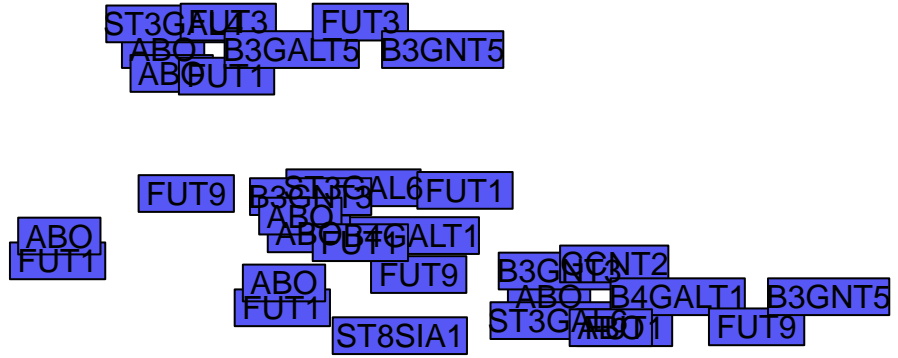
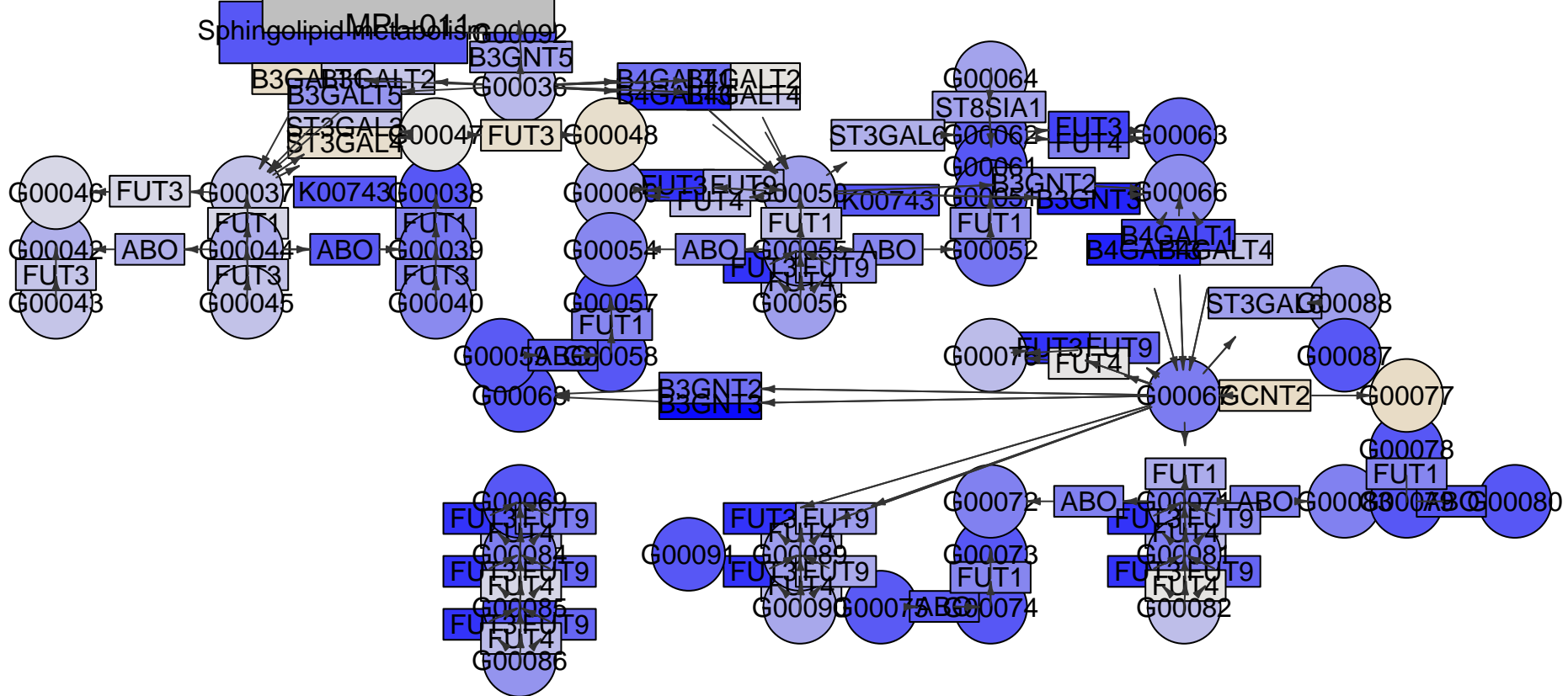
Glycosphingolipid biosynthesis – lacto and neolacto series



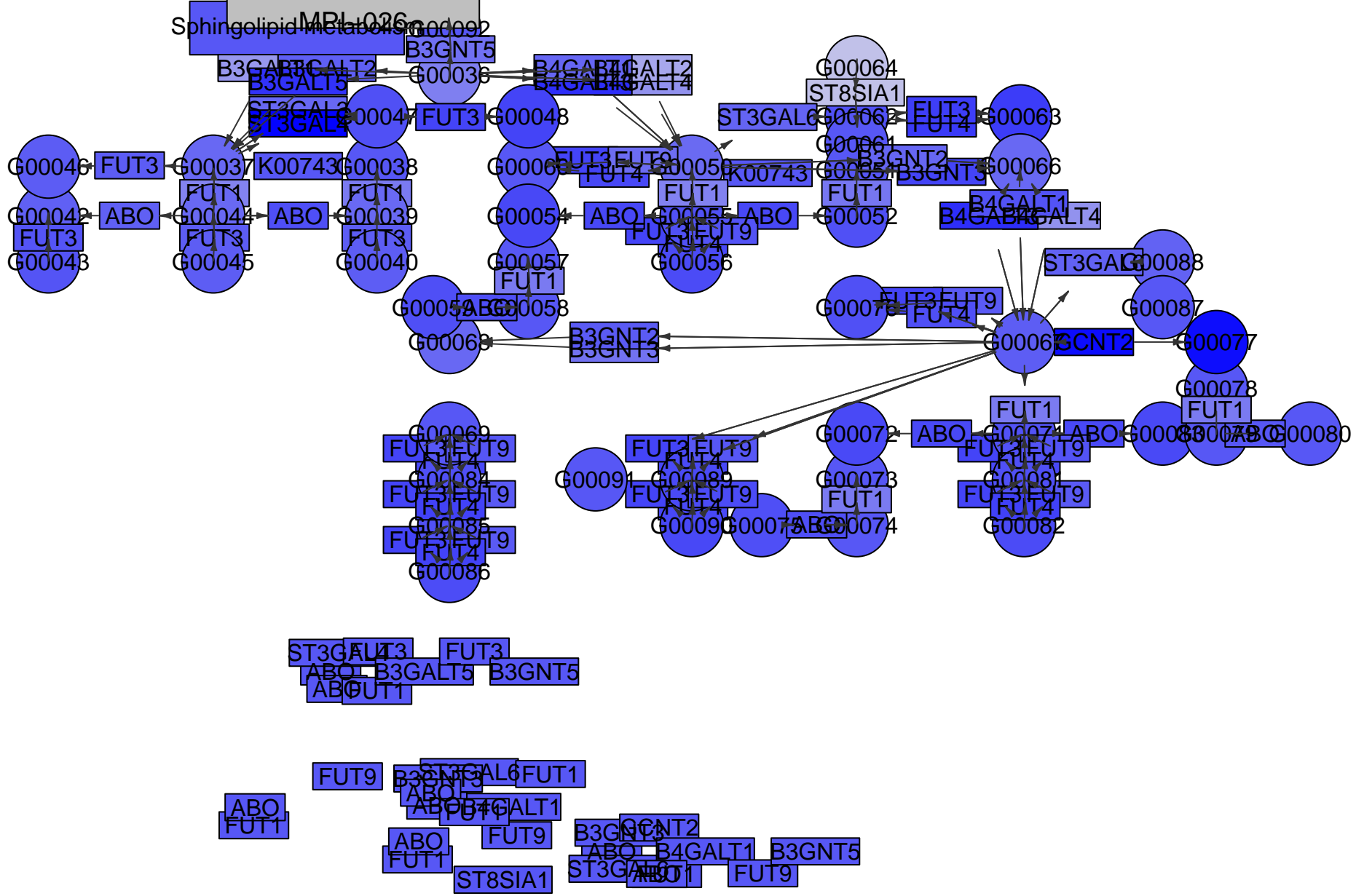
ST3GAL4, FUT3, ABO, B3GALT5, B3GNT5, ABO, FUT1

FUT9, ST3GAL6, FUT1, B3GNT3, ABO, B4GALT1, ABO, FUT9, B3GNT2, ABO, B4GALT1, B3GNT5, ST8SIA1, ST3GAL6, ABO, FUT9

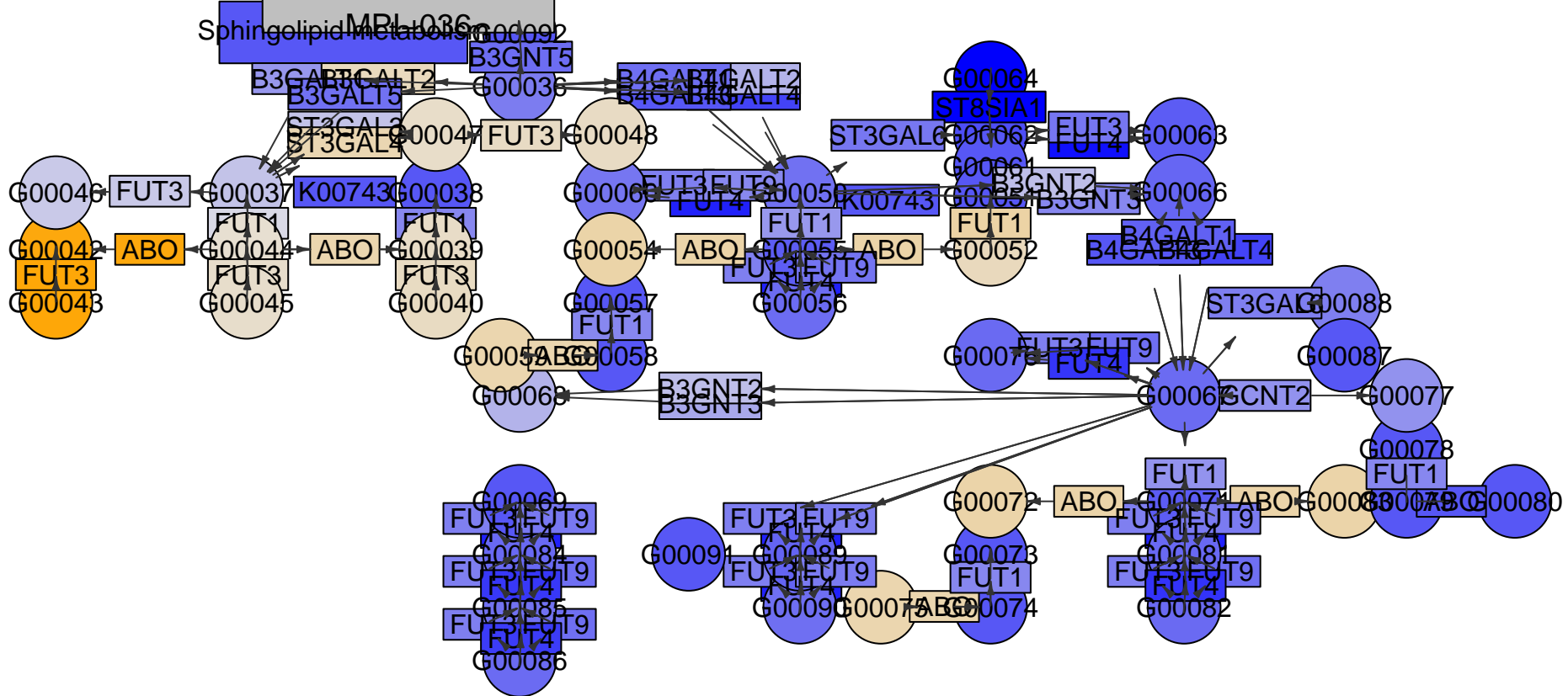
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



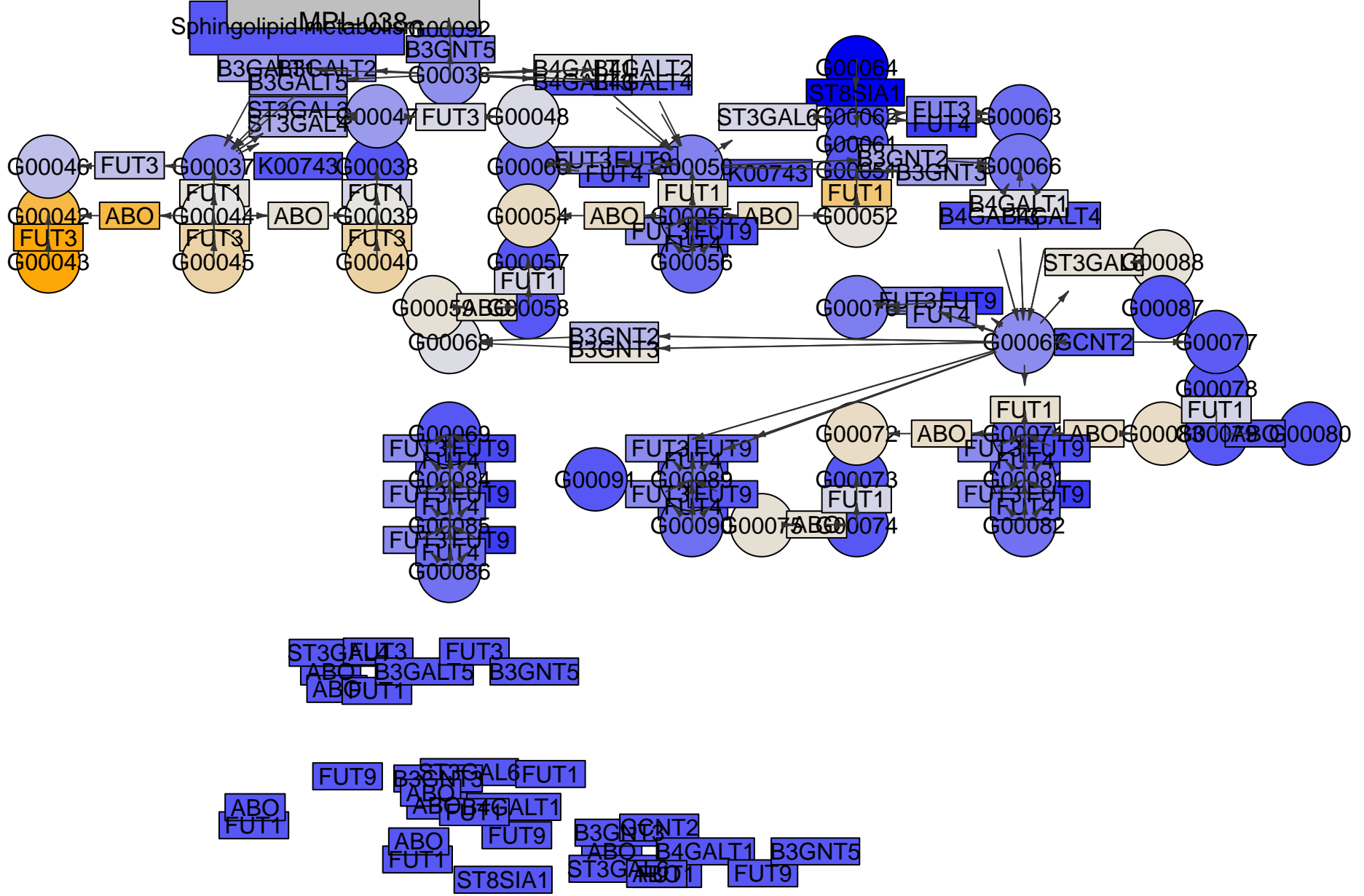
Glycosphingolipid biosynthesis – lacto and neolacto series



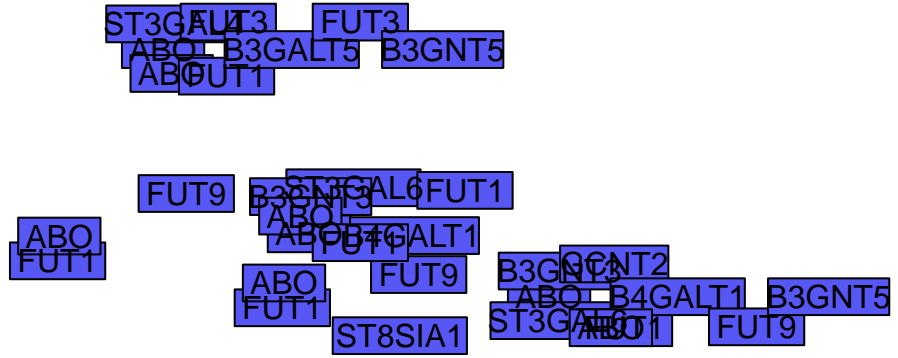
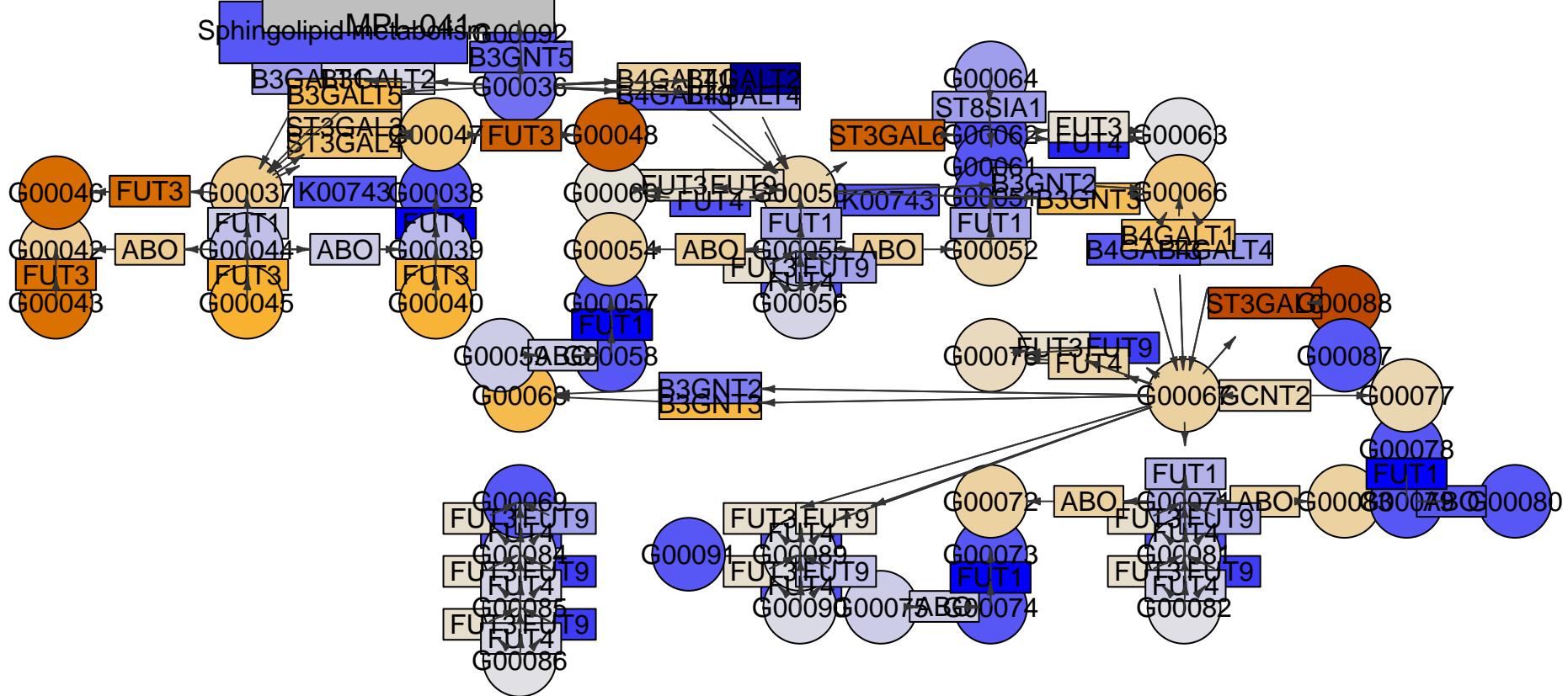
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO1

FUT9 ST3GAL6 FUT1
 ABO1 B3GNT3 ABO1 B4GALT1
 ABO1 B4GALT1
 ABO1 FUT9 B3GNT2 ABO1 B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO1 FUT9

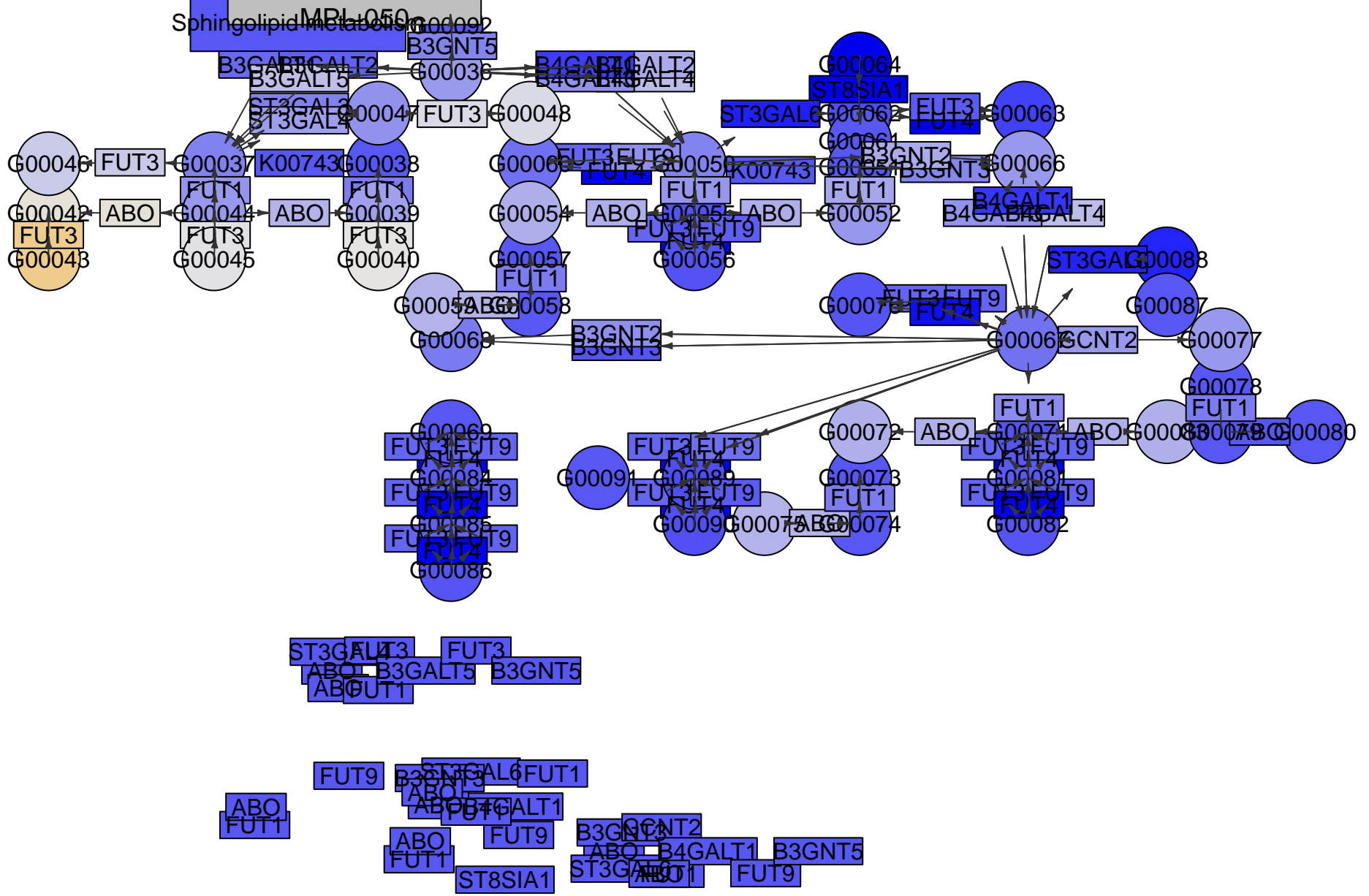
Glycosphingolipid biosynthesis – lacto and neolacto series



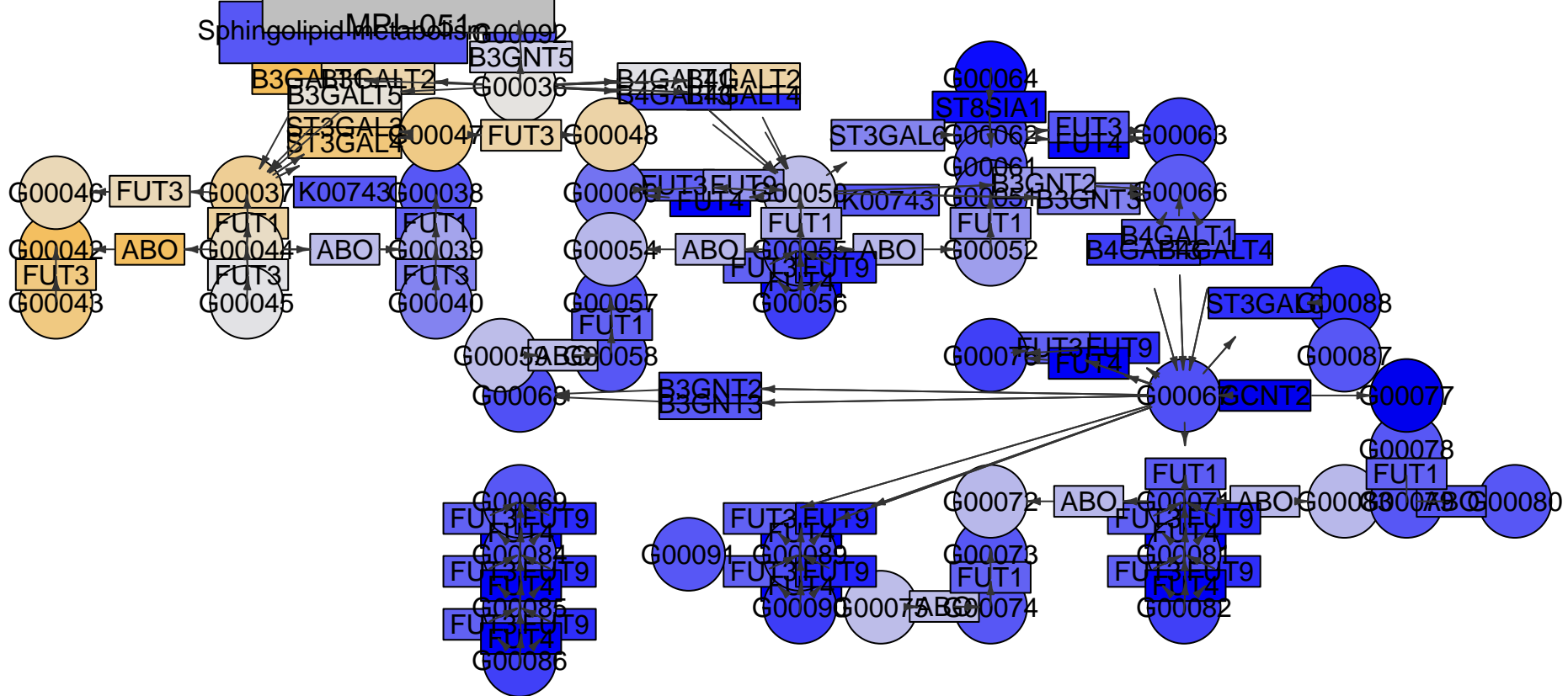
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



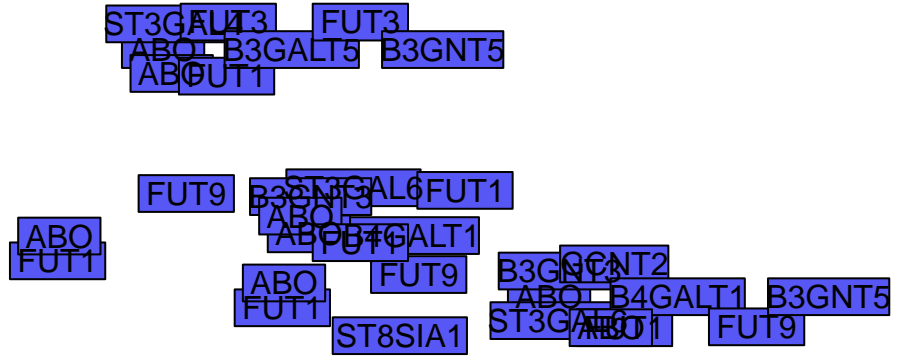
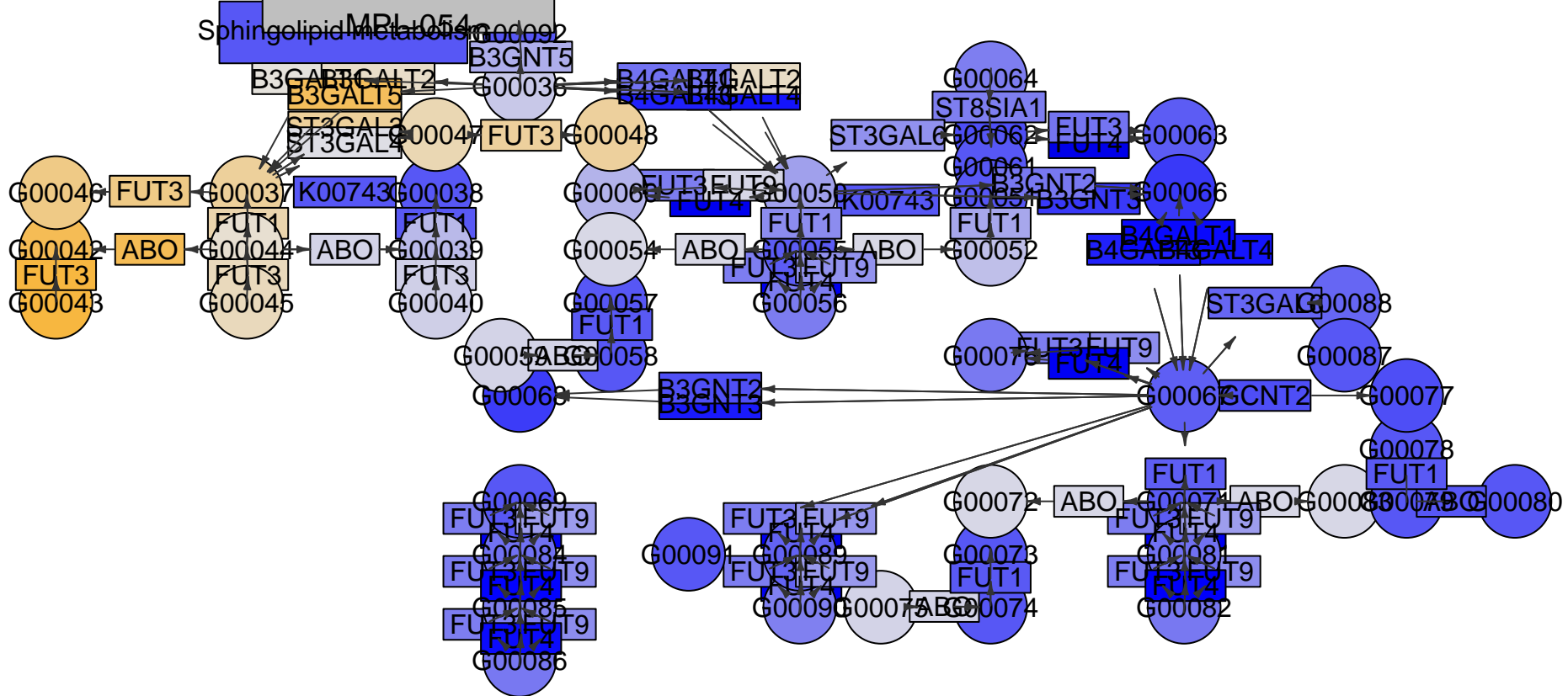
Glycosphingolipid biosynthesis – lacto and neolacto series



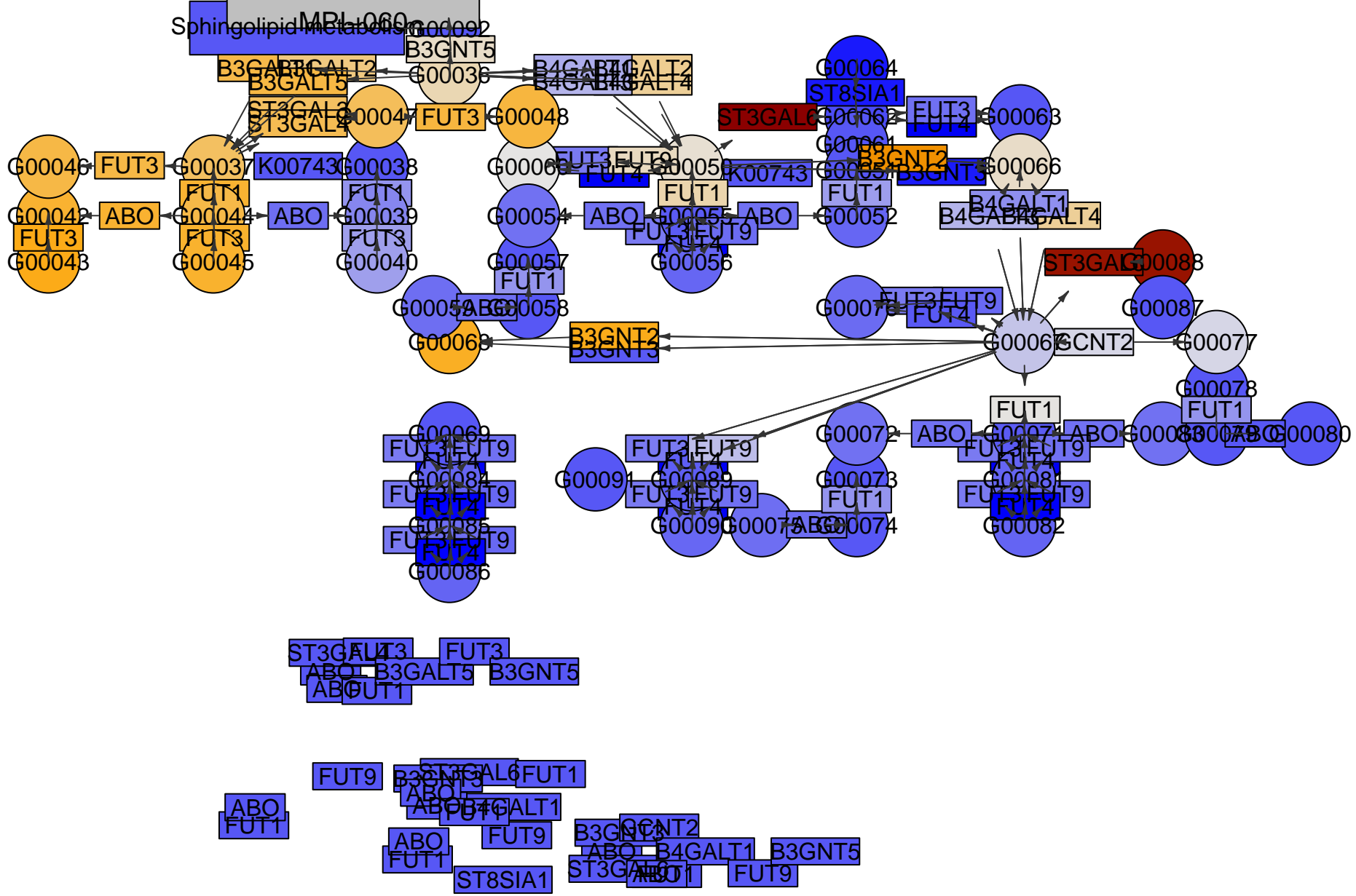
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT2
 ABO B4GALT1
 ABO FUT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

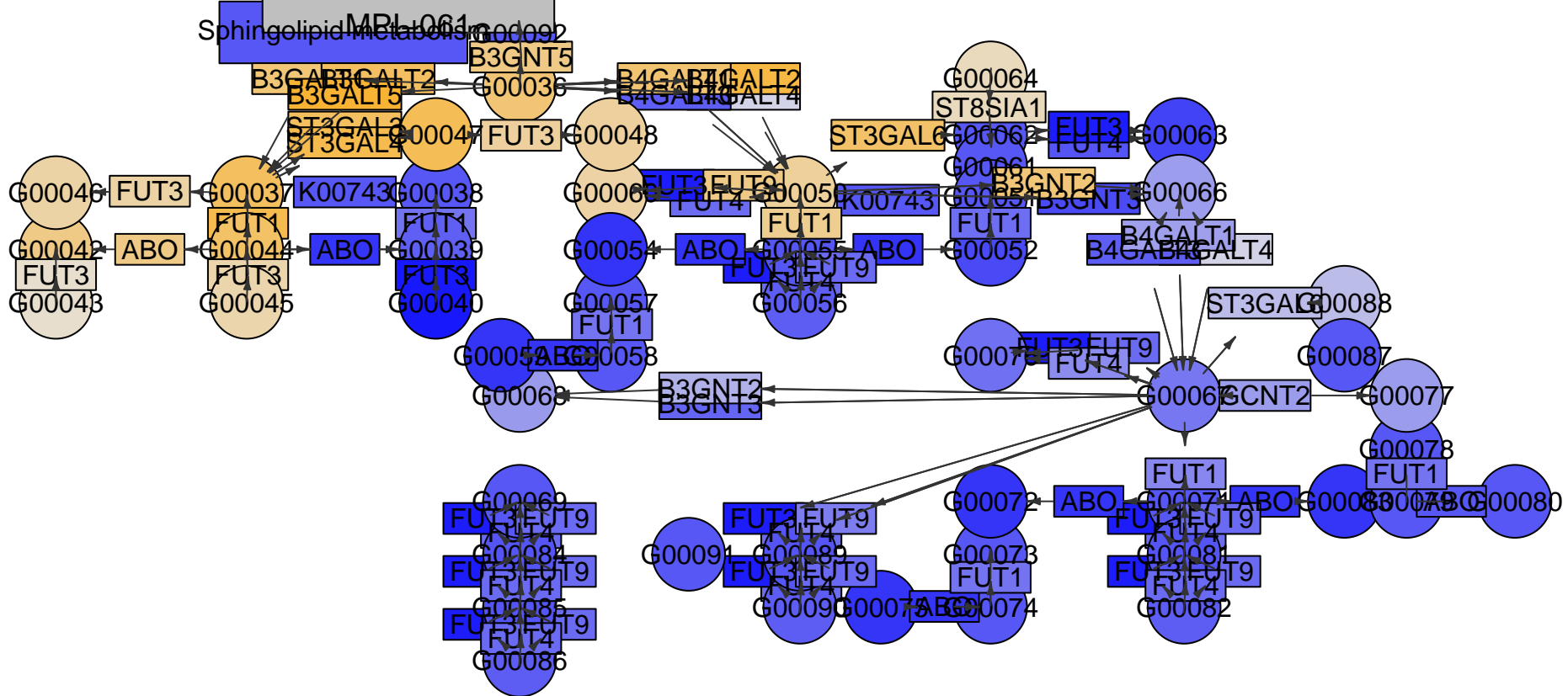
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



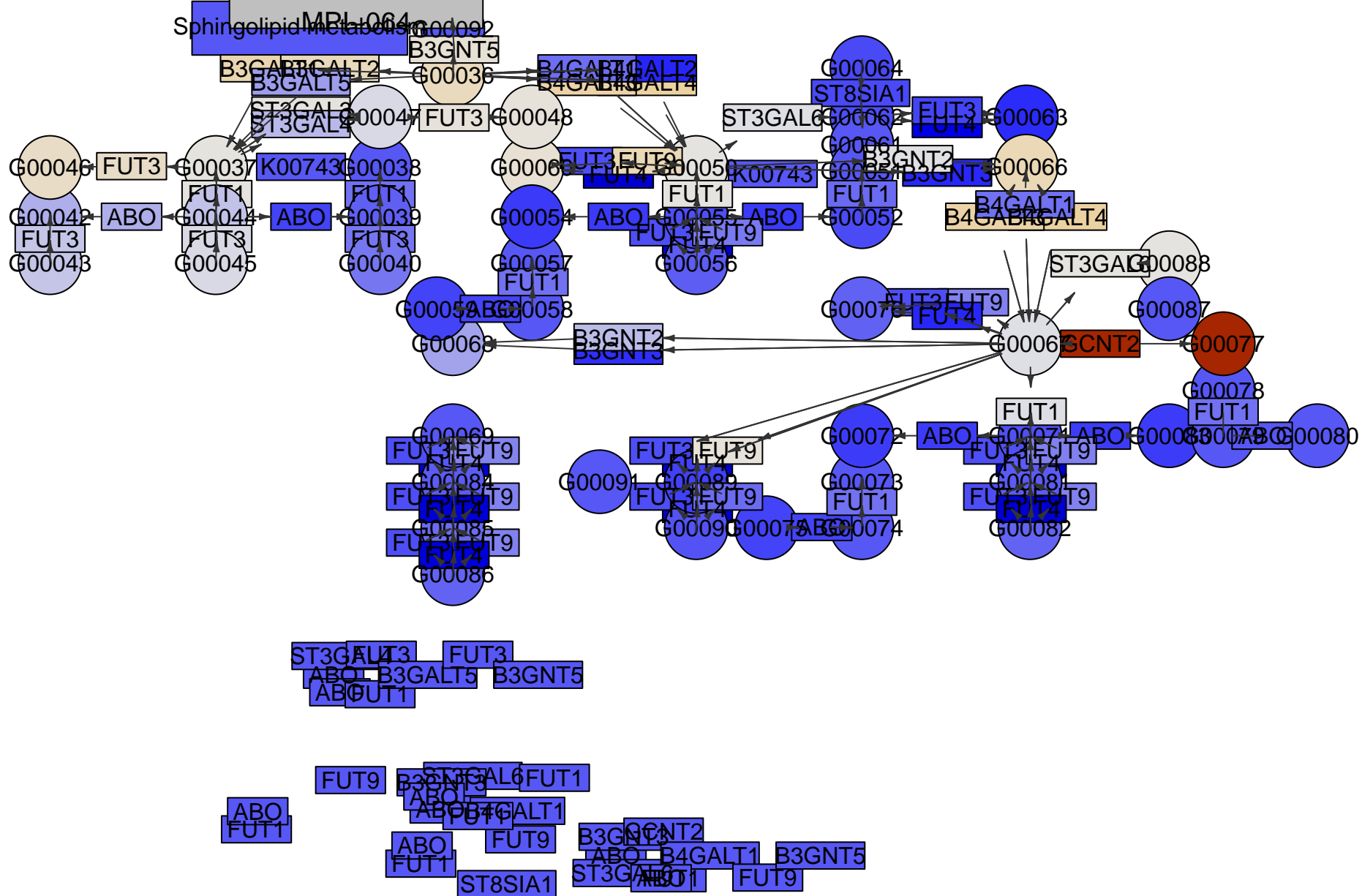
Glycosphingolipid biosynthesis – lacto and neolacto series



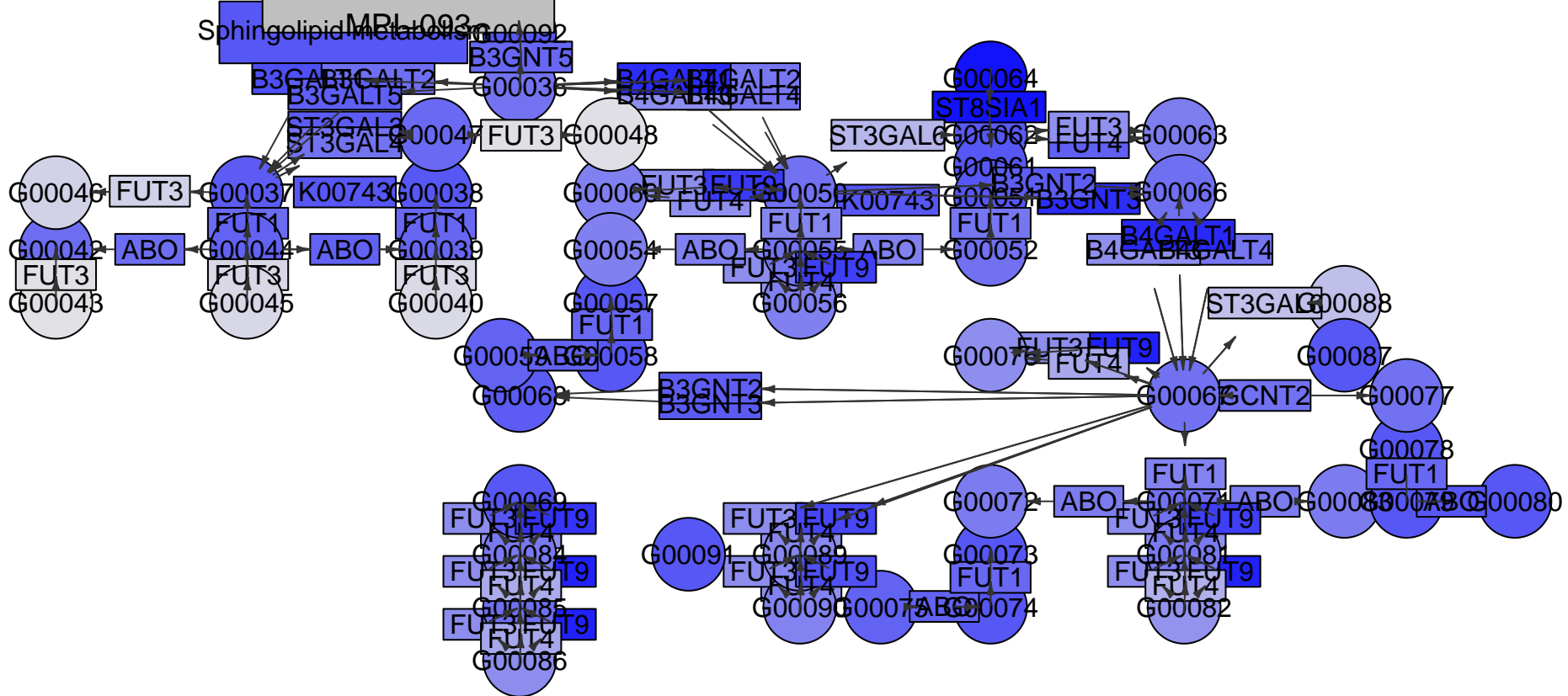
ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

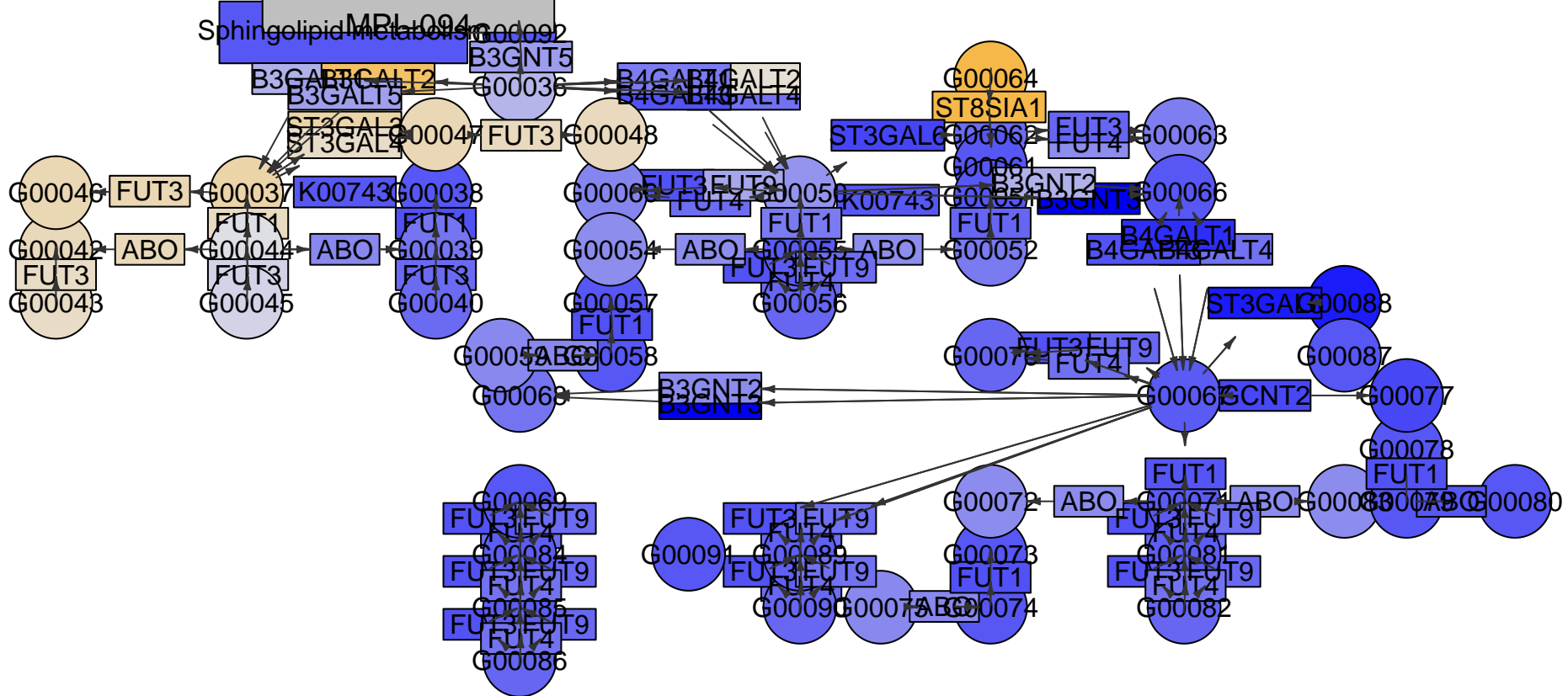


ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO1

FUT9
ST3GAL6
B3GNT3
ABO1
B4GALT1
ABO
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL4
ABO1
FUT9

ABO
FUT1

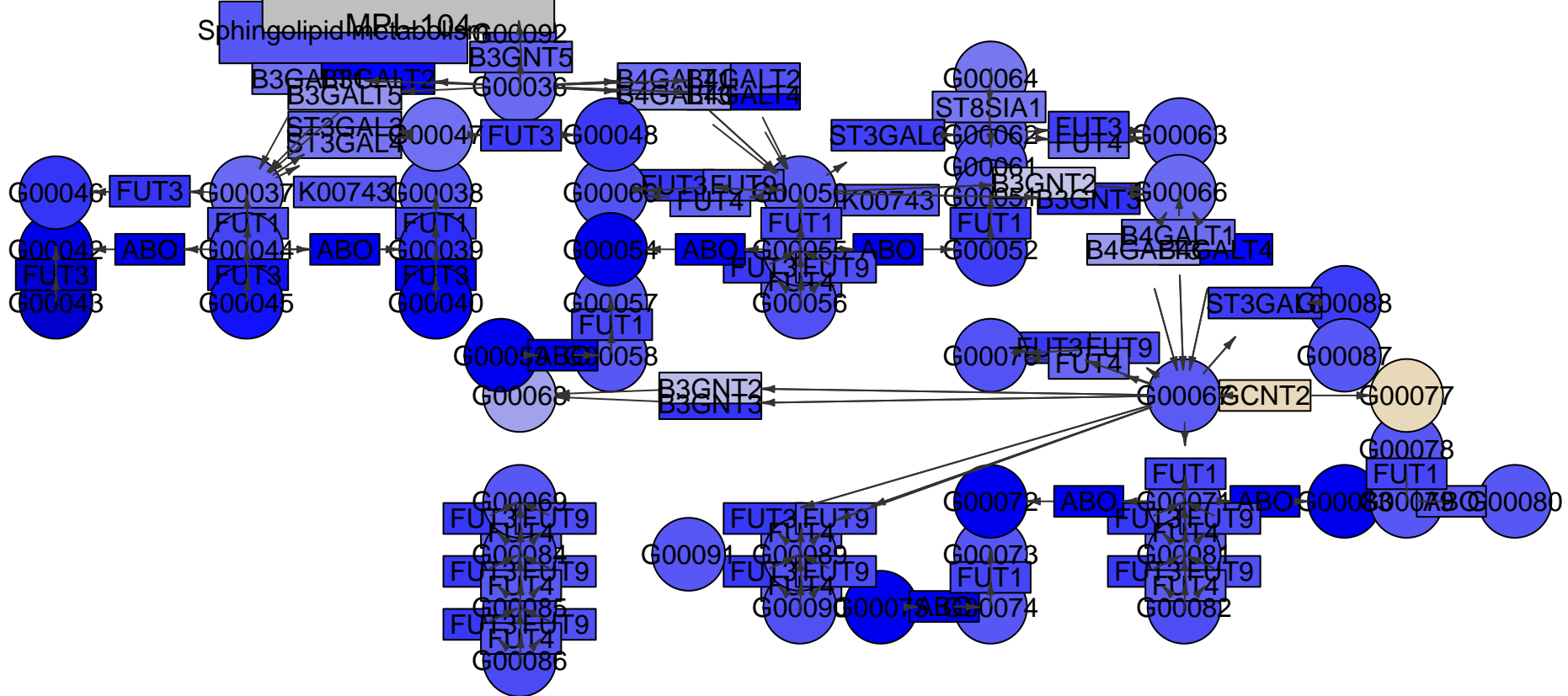
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GALT3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GALT1 ABO FUT9

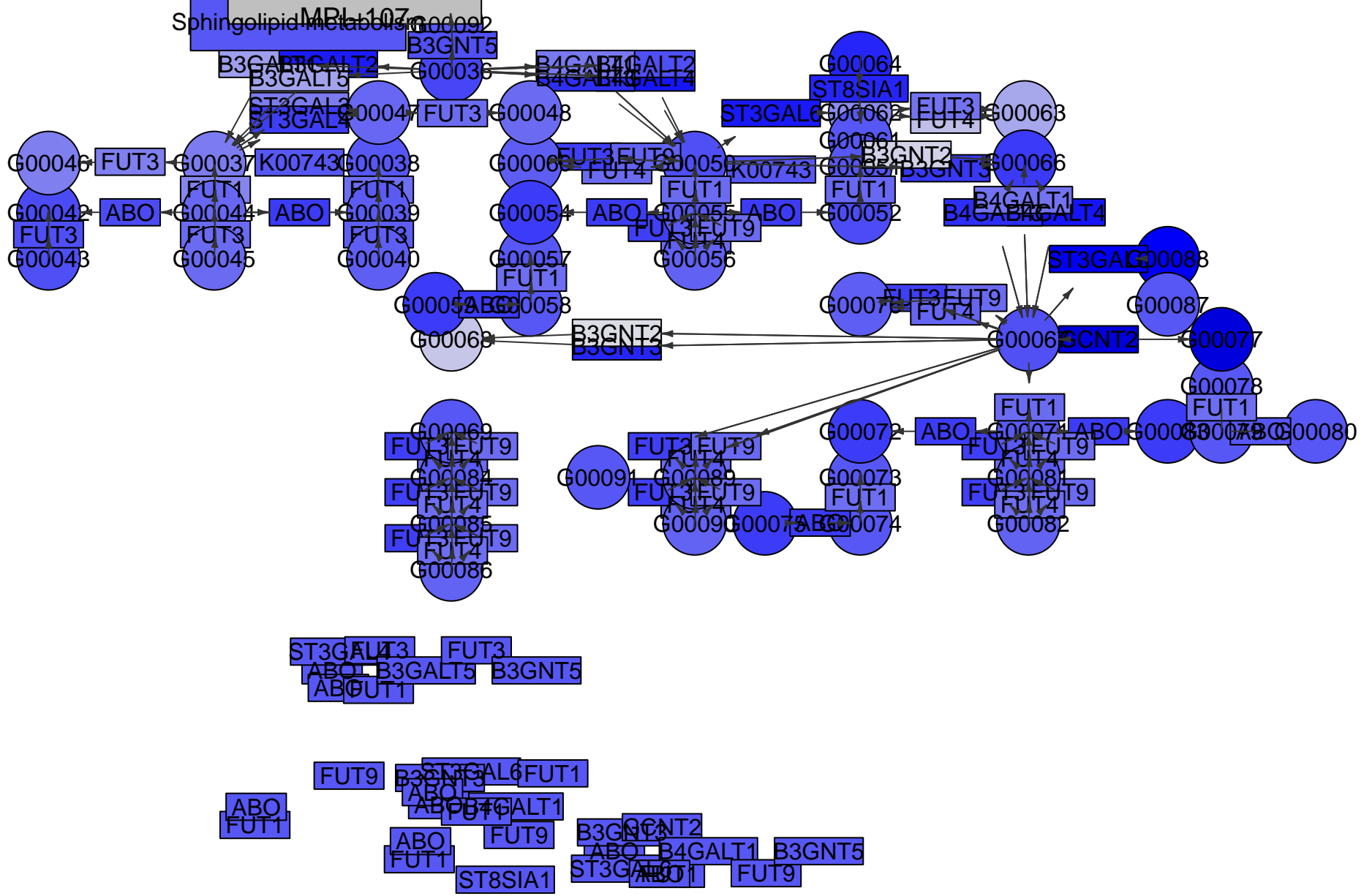
Glycosphingolipid biosynthesis – lacto and neolacto series



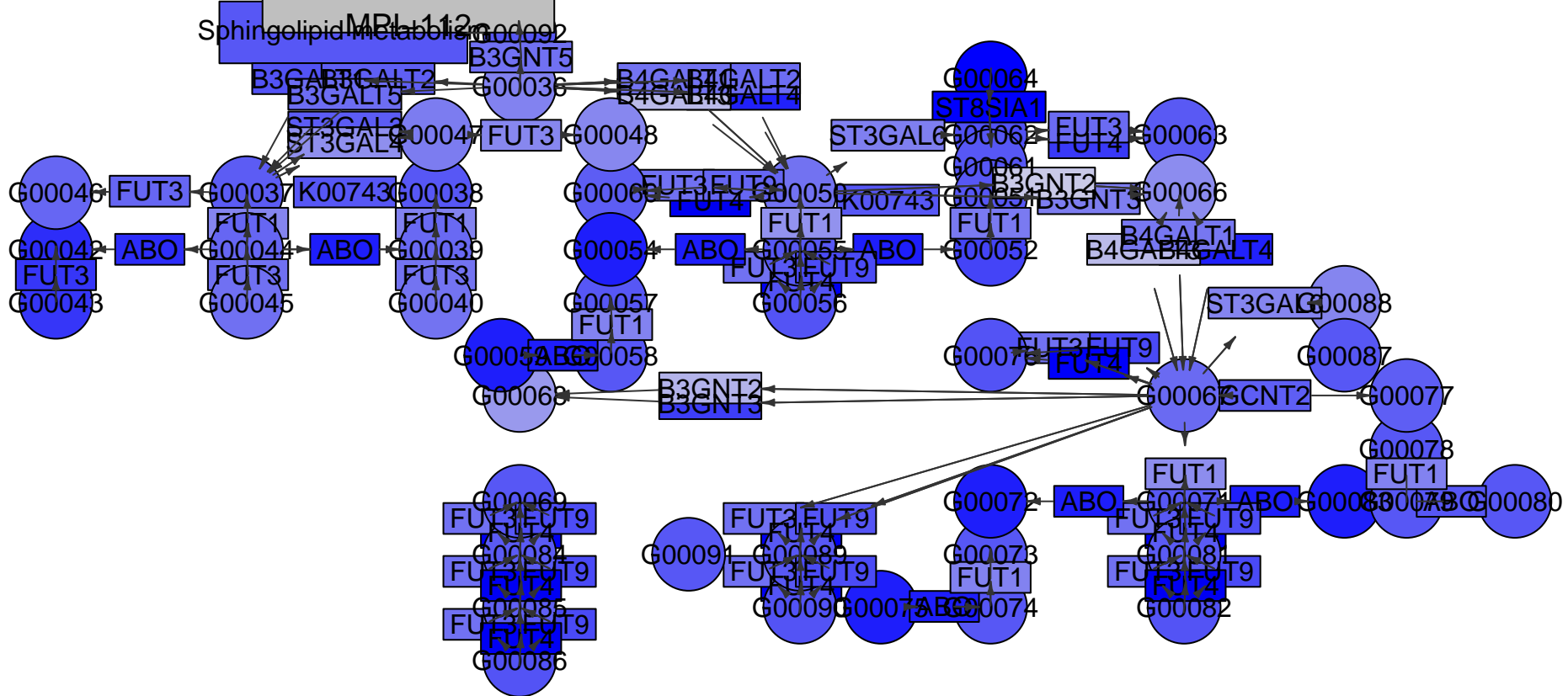
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



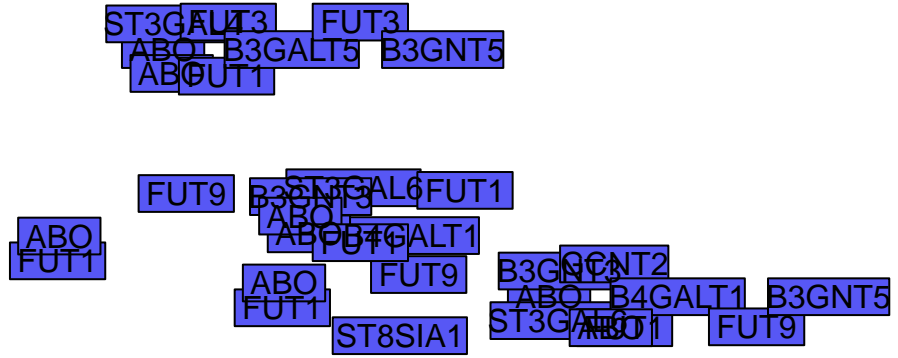
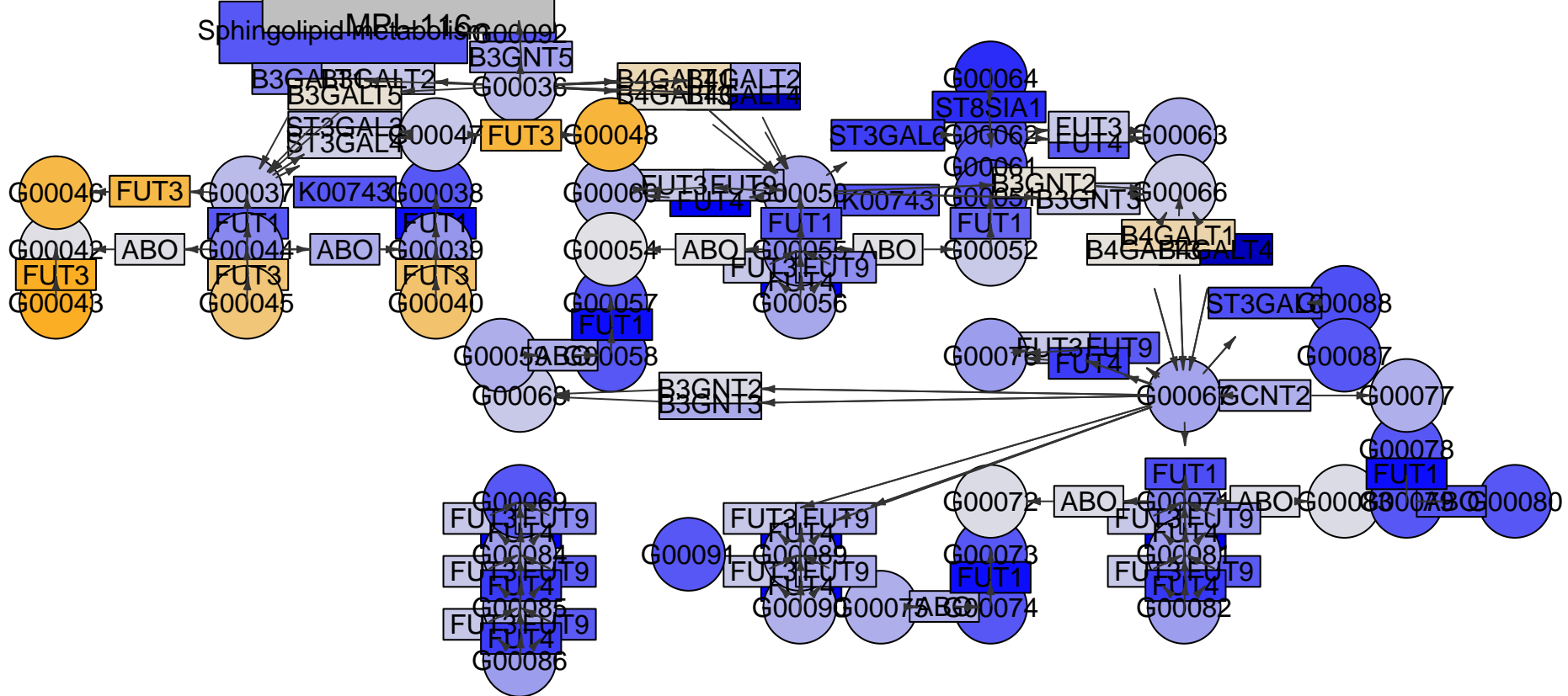
Glycosphingolipid biosynthesis – lacto and neolacto series



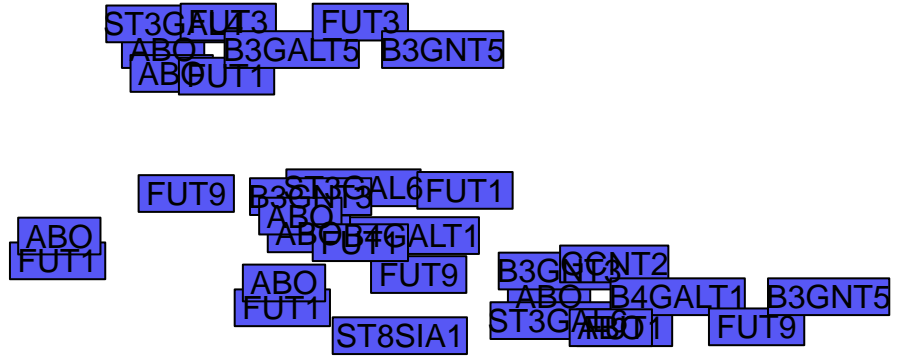
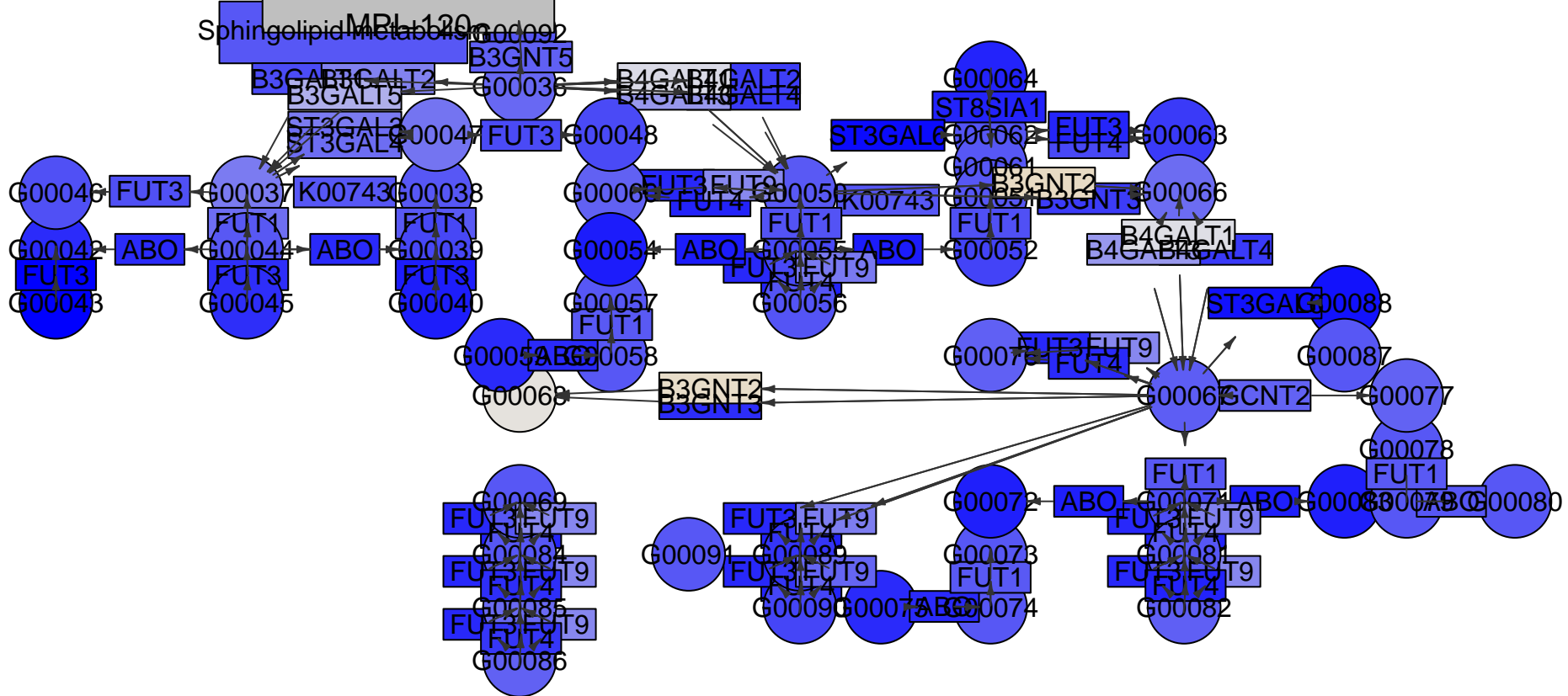
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT2
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST8SIA1 ST3GAL6 ABO FUT9

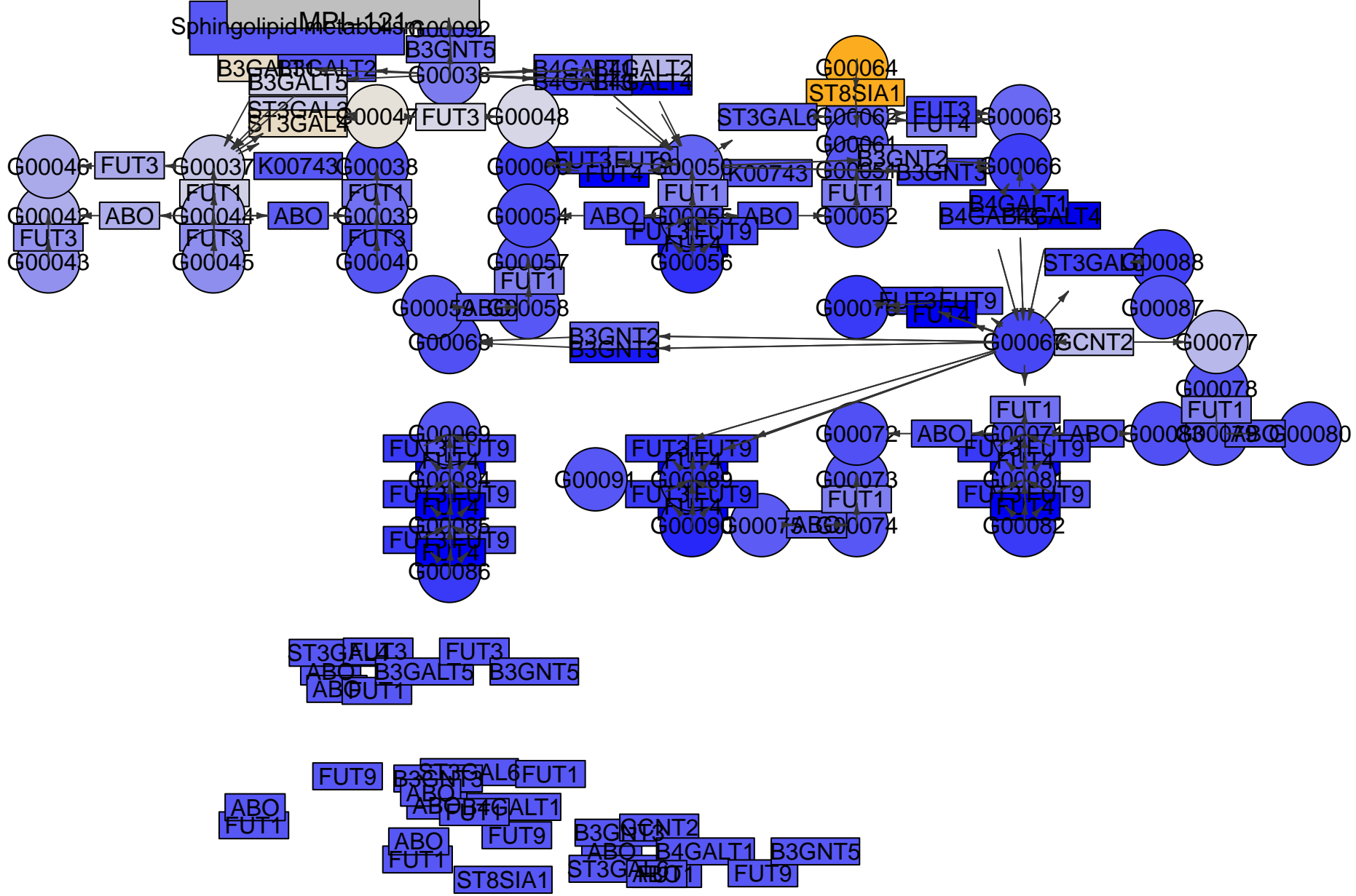
Glycosphingolipid biosynthesis – lacto and neolacto series



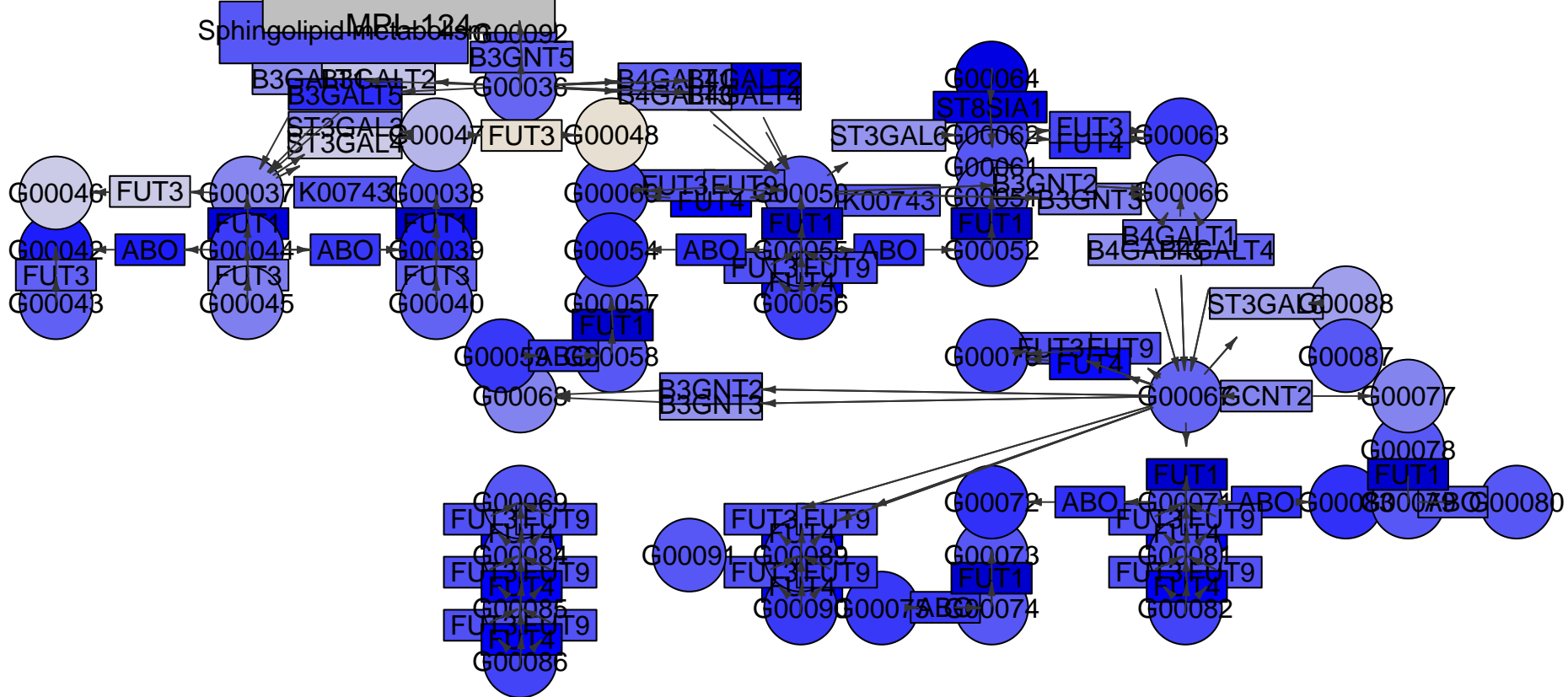
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



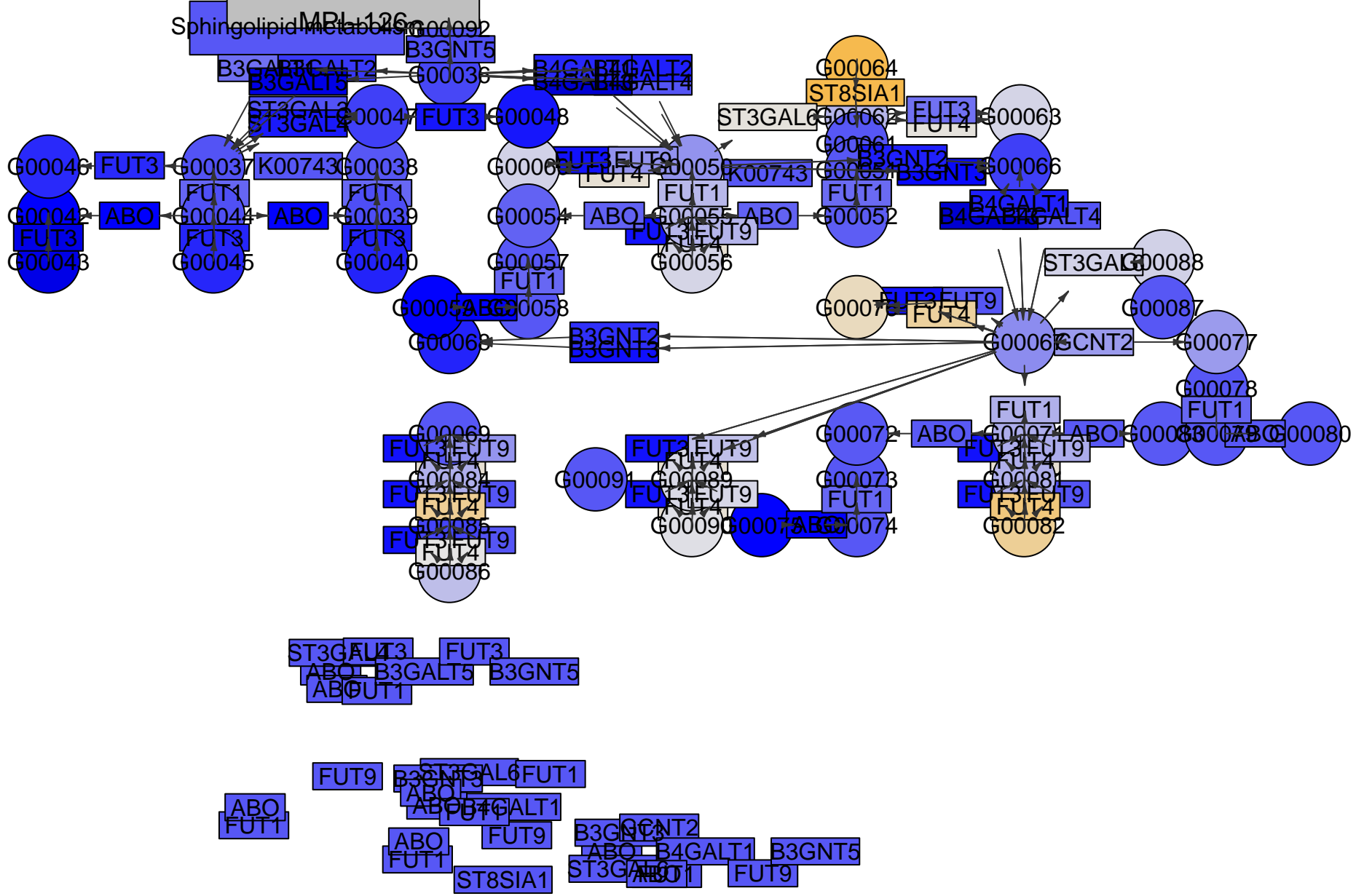
Glycosphingolipid biosynthesis – lacto and neolacto series



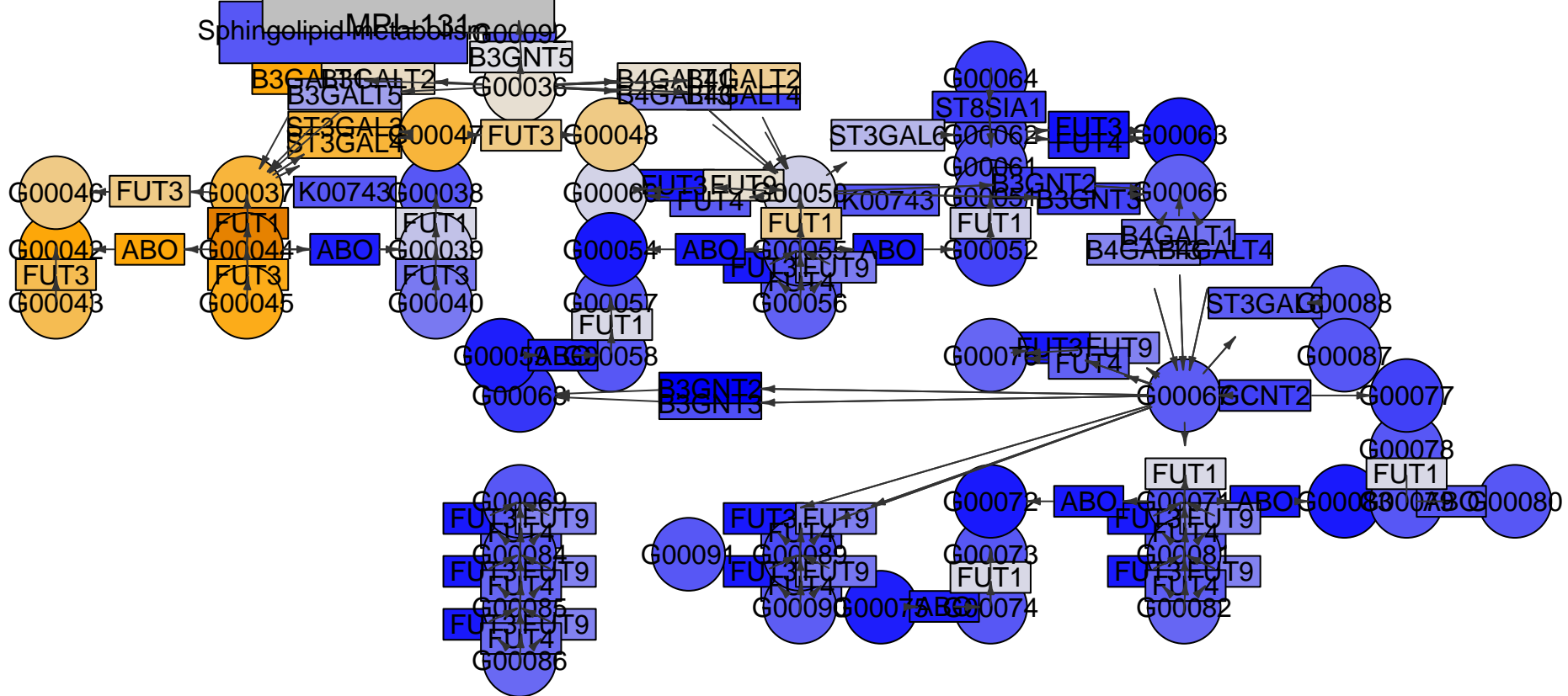
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



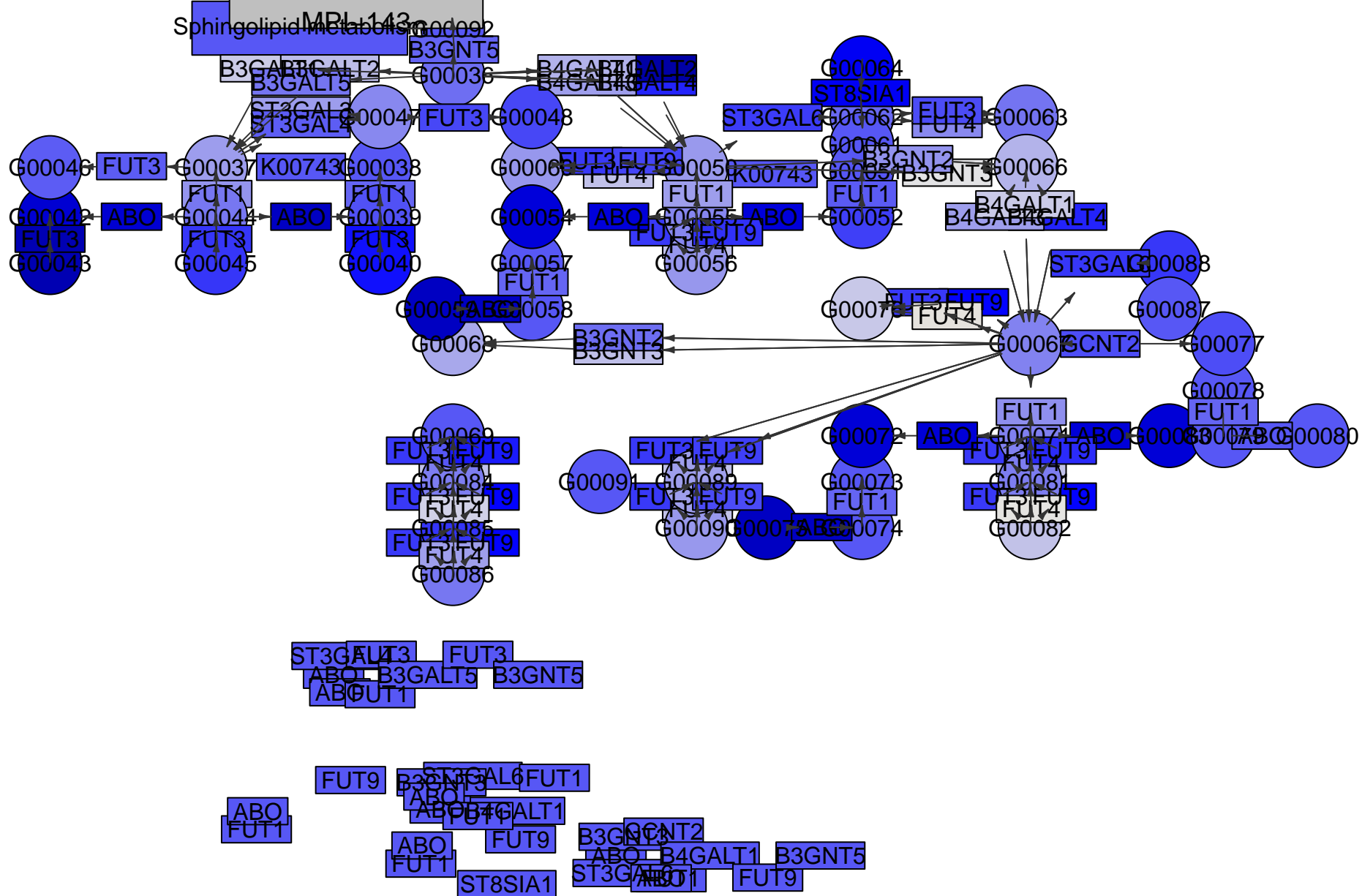
Glycosphingolipid biosynthesis – lacto and neolacto series



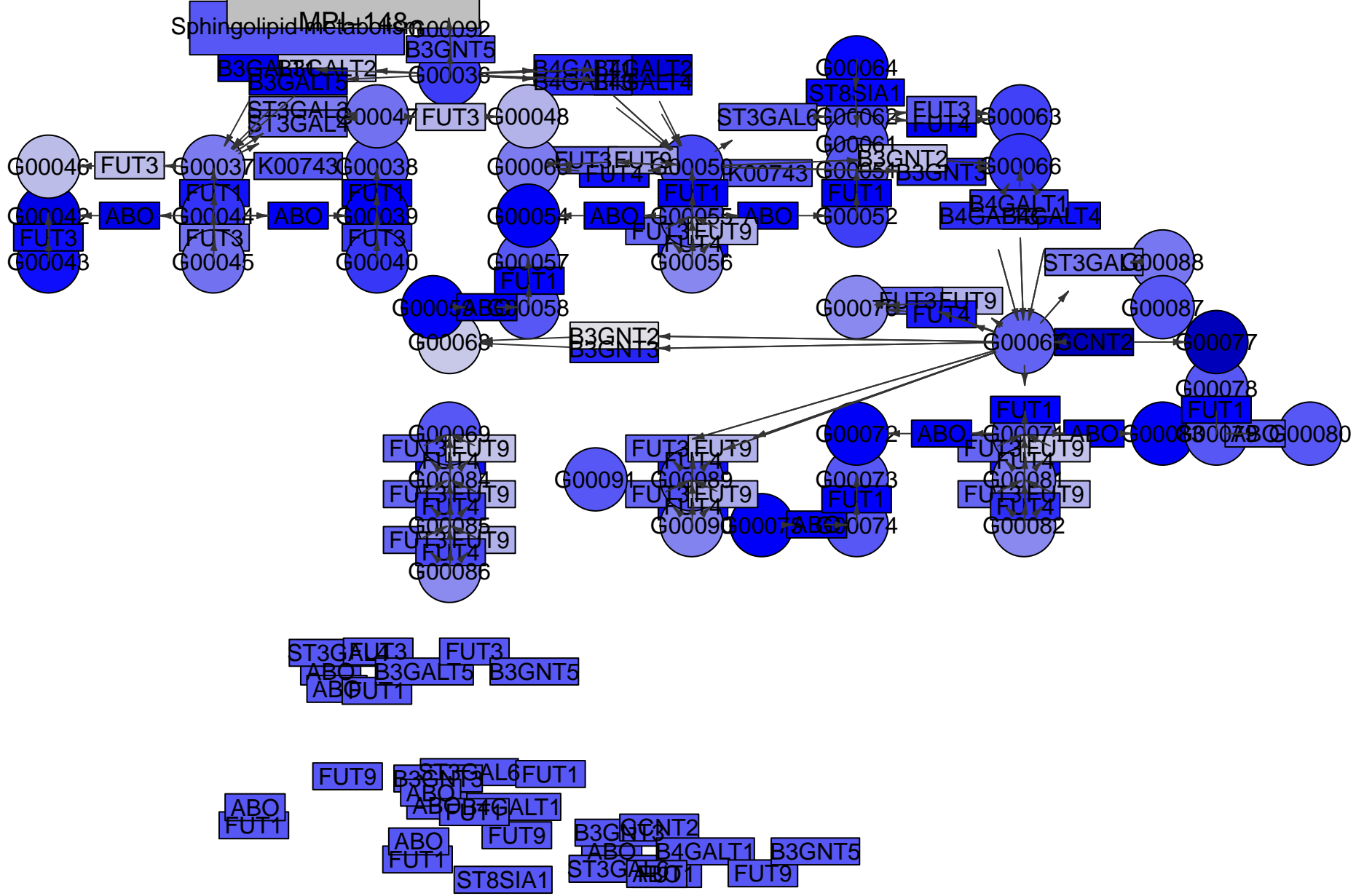
ST3GAL7
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT2
ABO
B4GALT1
B4GALT4
ABO
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

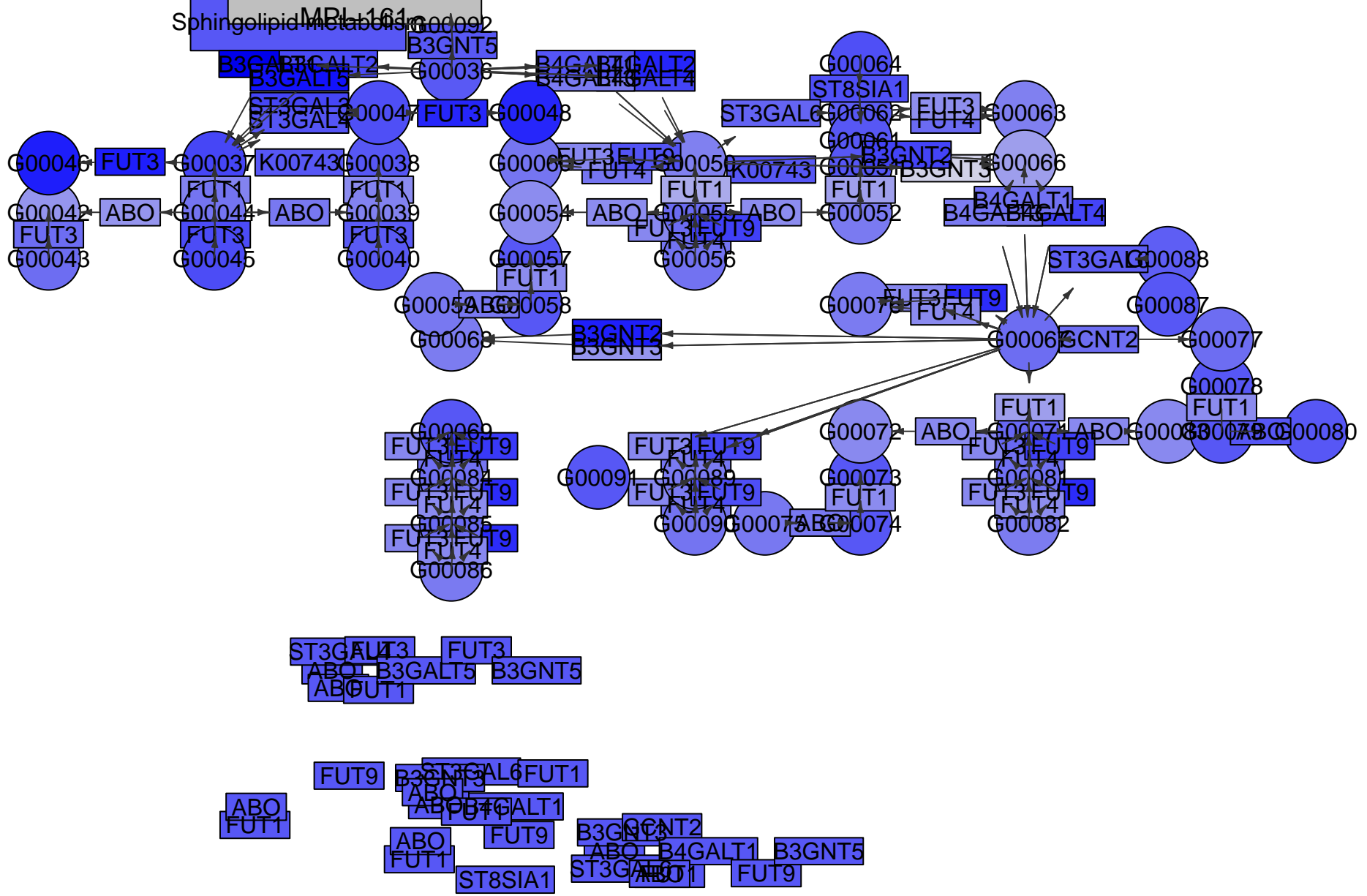
Glycosphingolipid biosynthesis – lacto and neolacto series



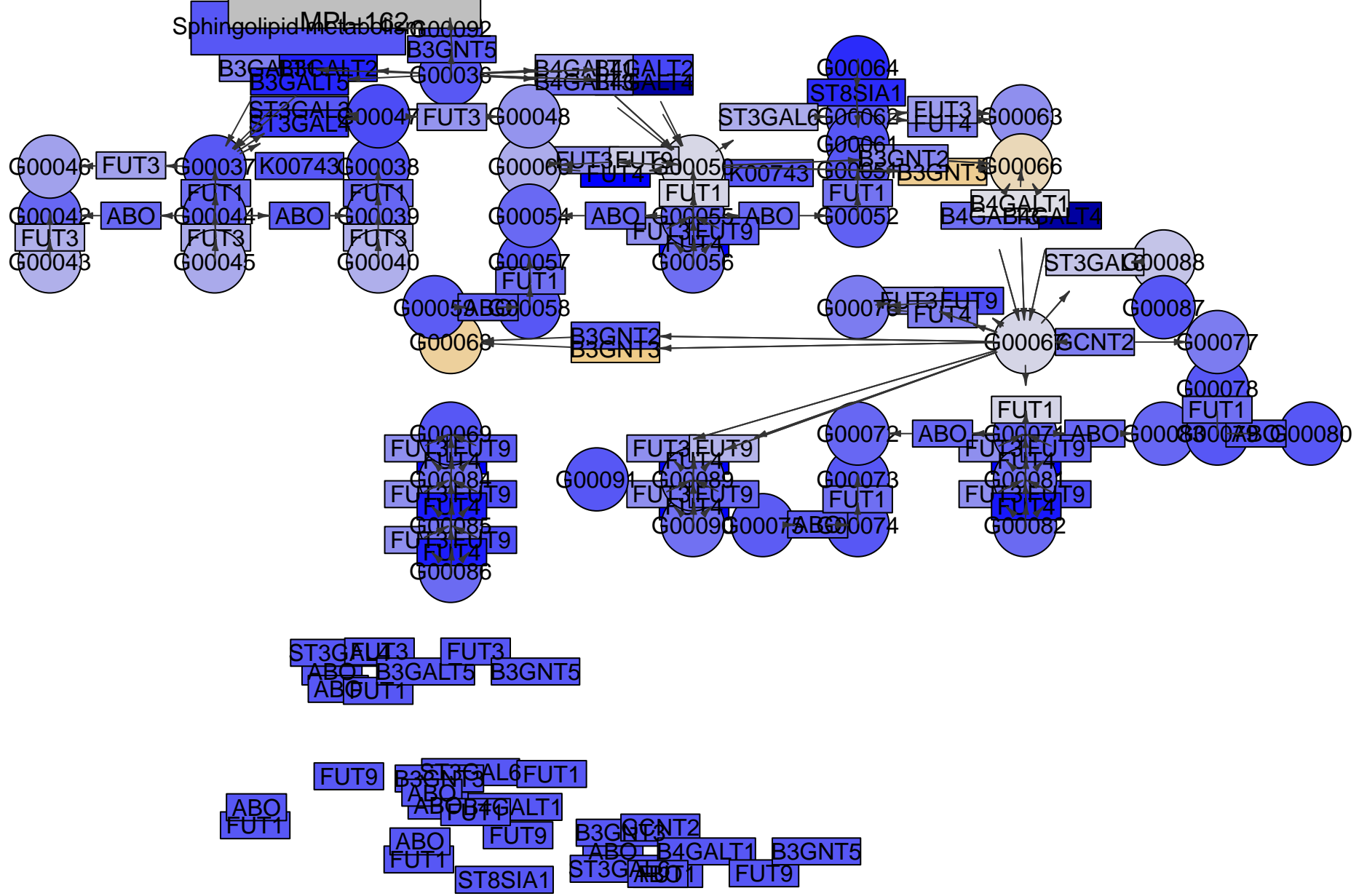
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

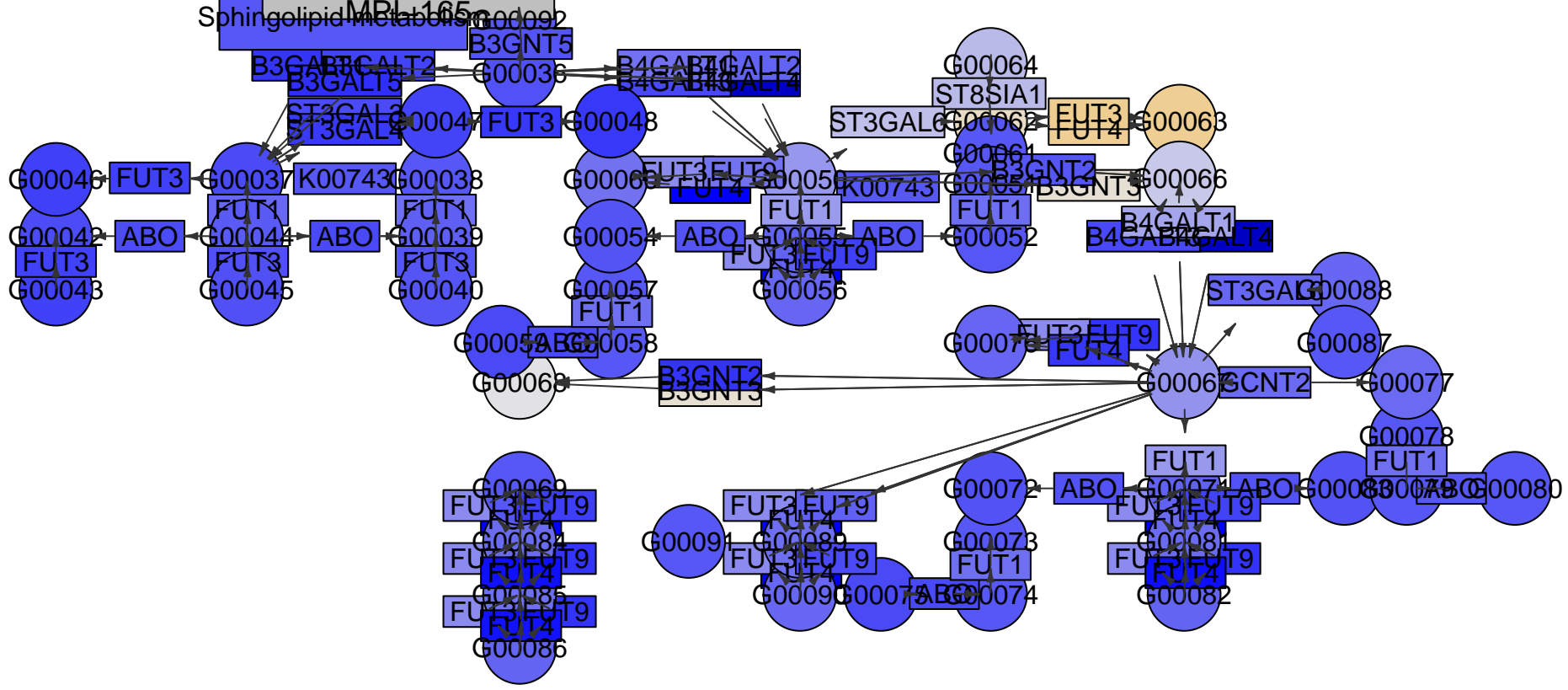


Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

Spingolipid Metabolism **MPL165**

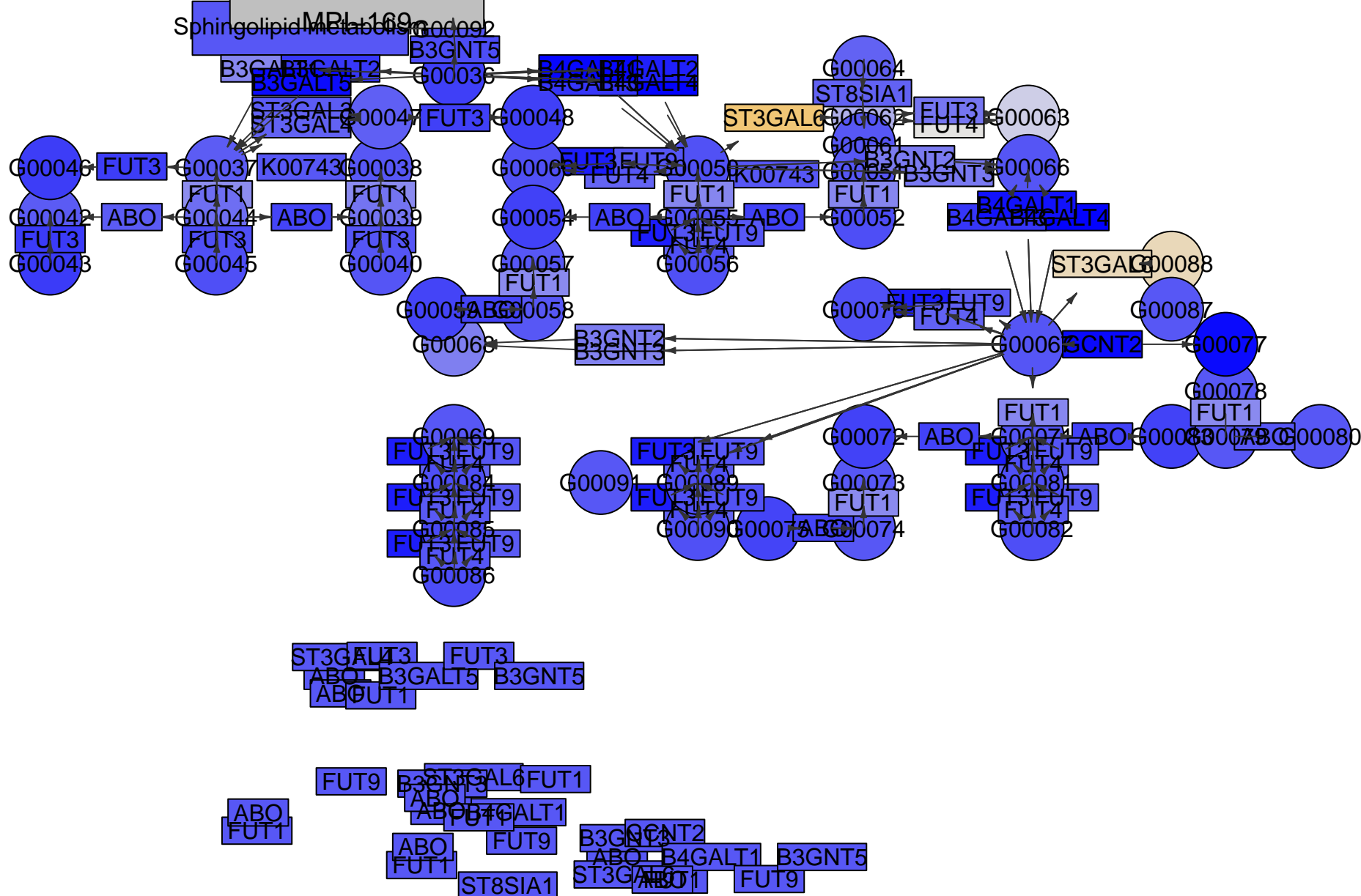


ST3GAL3, FUT3, ABO, B3GALT5, B3GNT5, ABO, FUT1

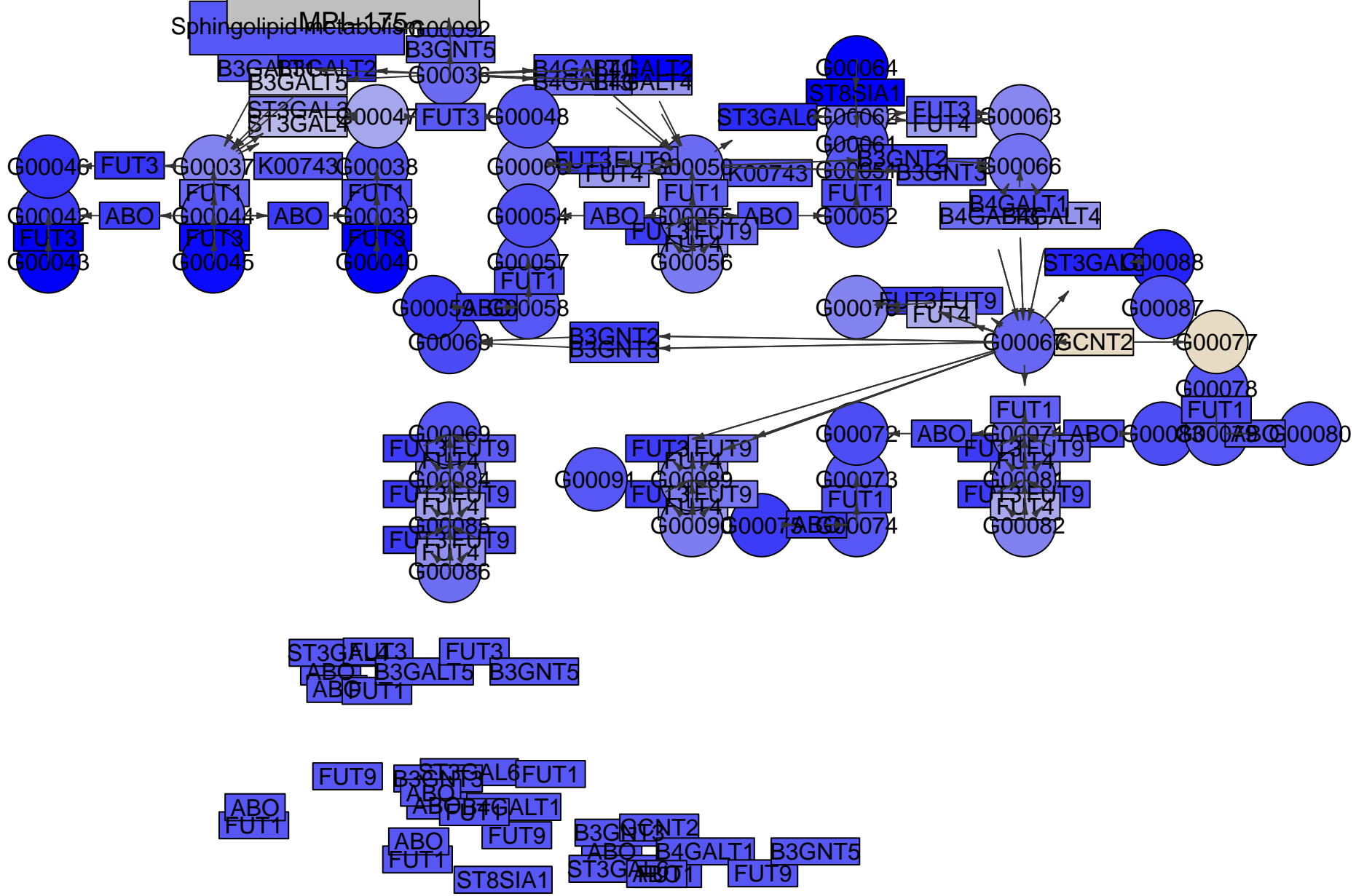
FUT9, ST3GAL6, FUT1, B3GNT5, ABO, B4GALT1, ABO, B4GALT1, B3GNT2, ABO, B4GALT1, B3GNT5, ST8SIA1, ST3GAL6, ABO, FUT9

ABO, FUT1

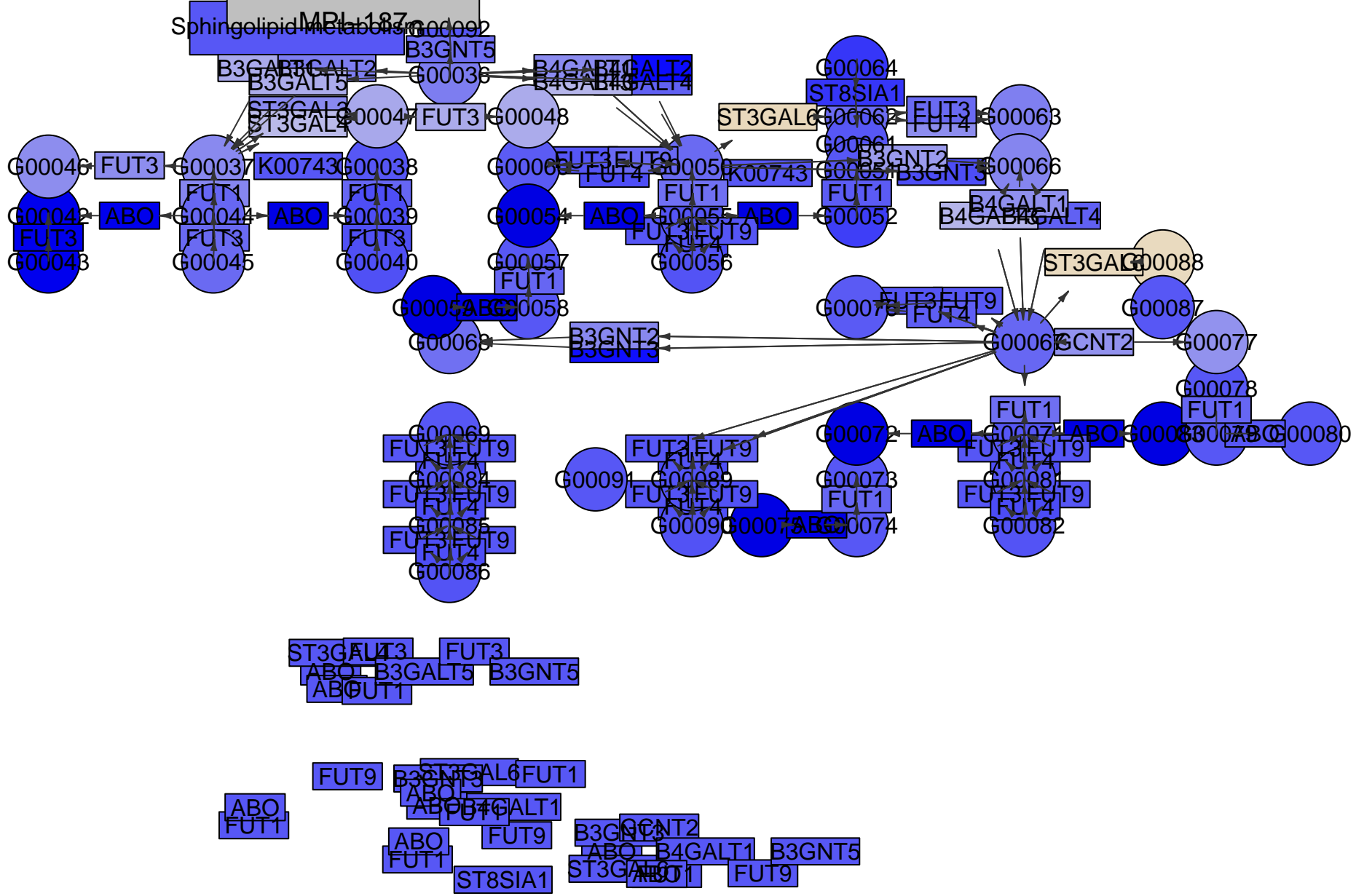
Glycosphingolipid biosynthesis – lacto and neolacto series



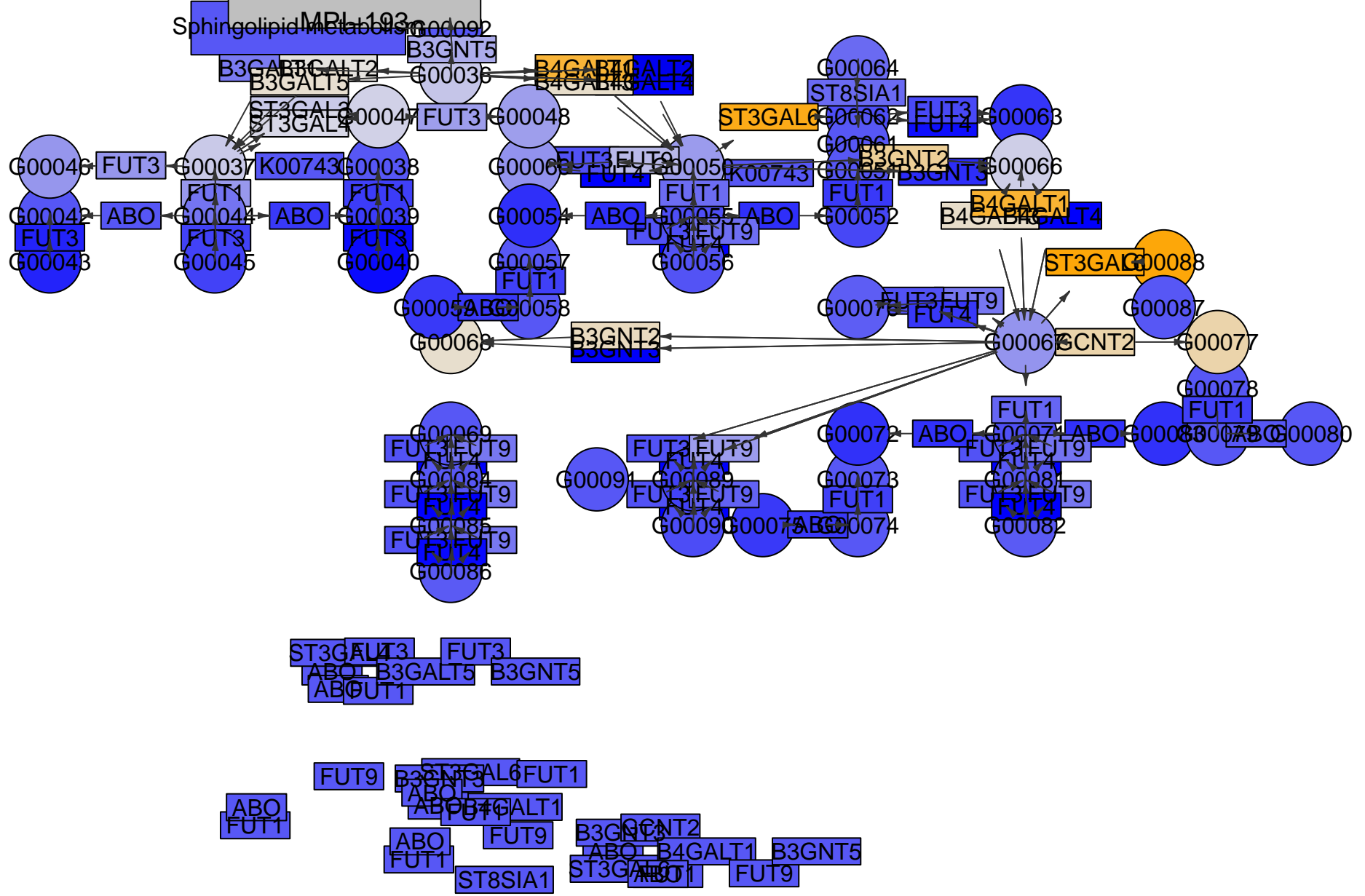
Glycosphingolipid biosynthesis – lacto and neolacto series



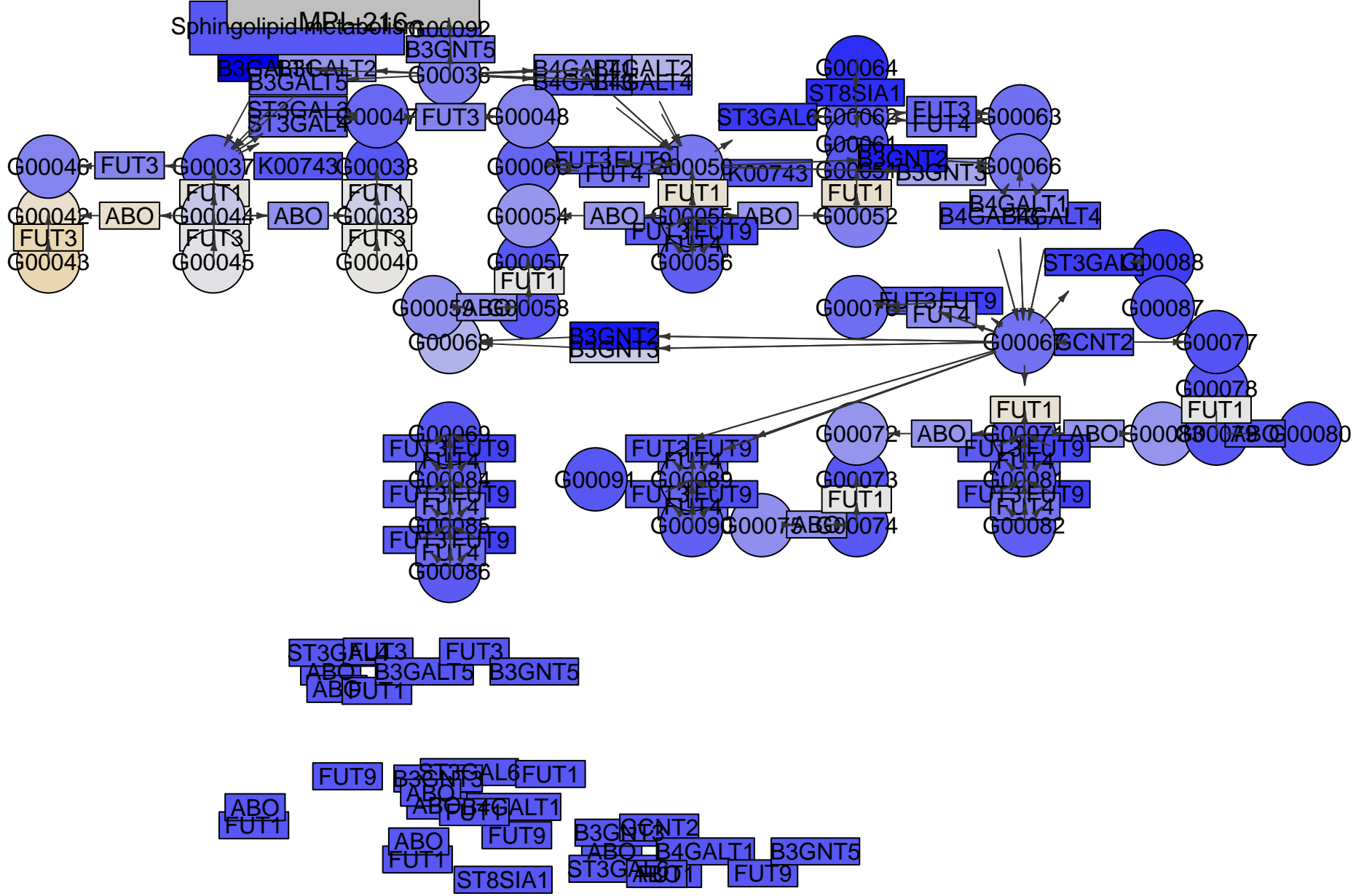
Glycosphingolipid biosynthesis – lacto and neolacto series



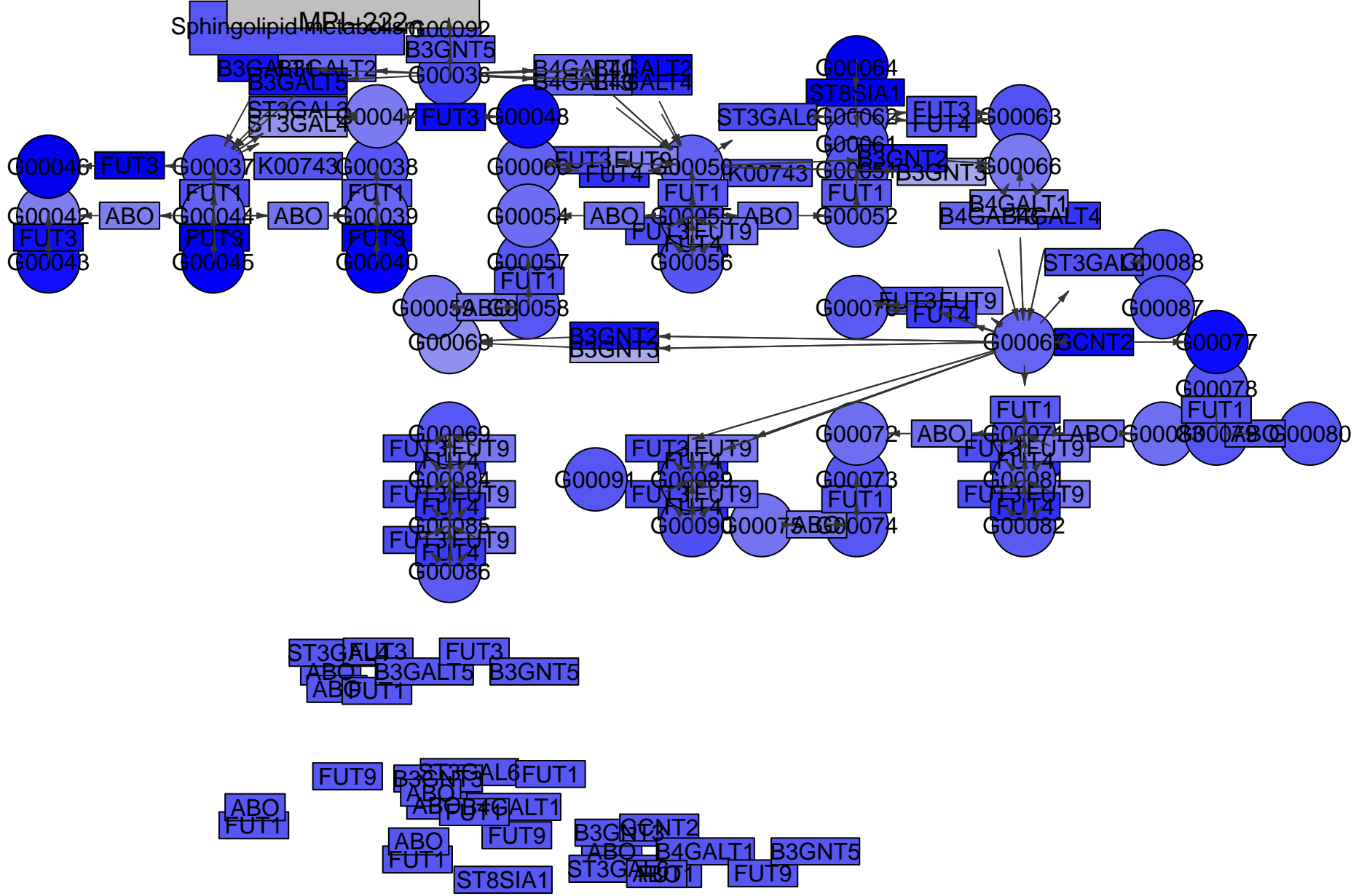
Glycosphingolipid biosynthesis – lacto and neolacto series



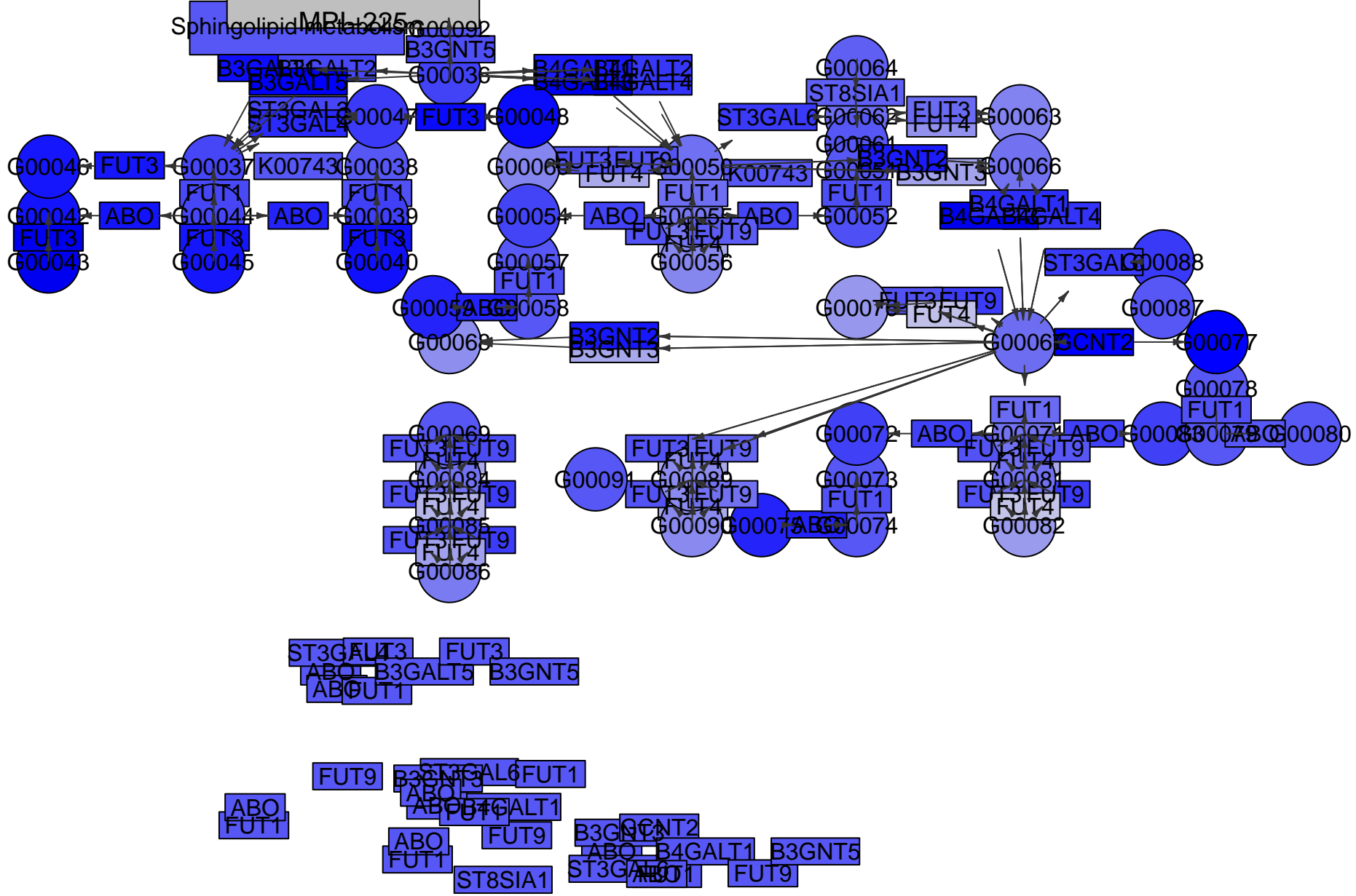
Glycosphingolipid biosynthesis – lacto and neolacto series



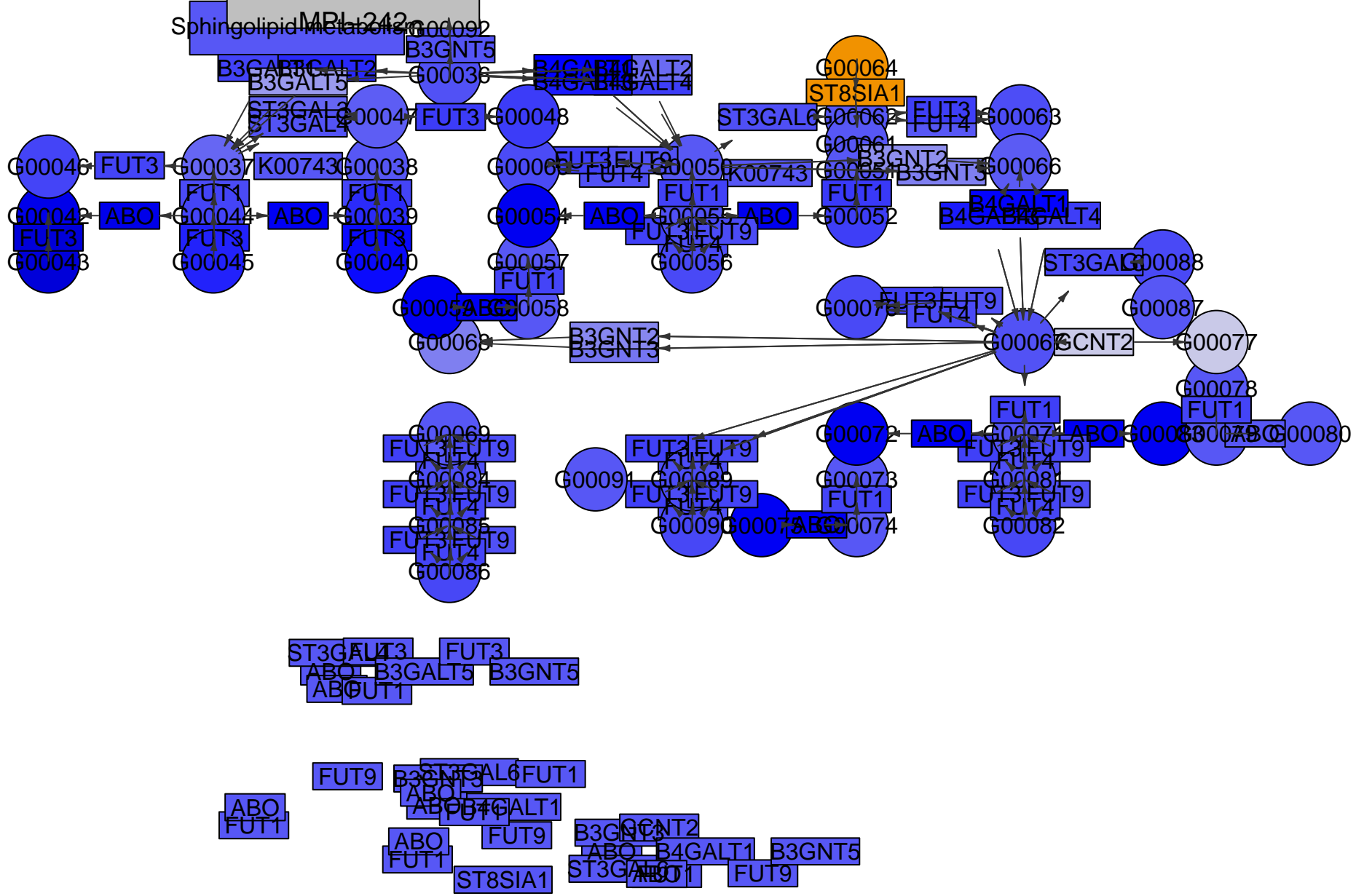
Glycosphingolipid biosynthesis – lacto and neolacto series



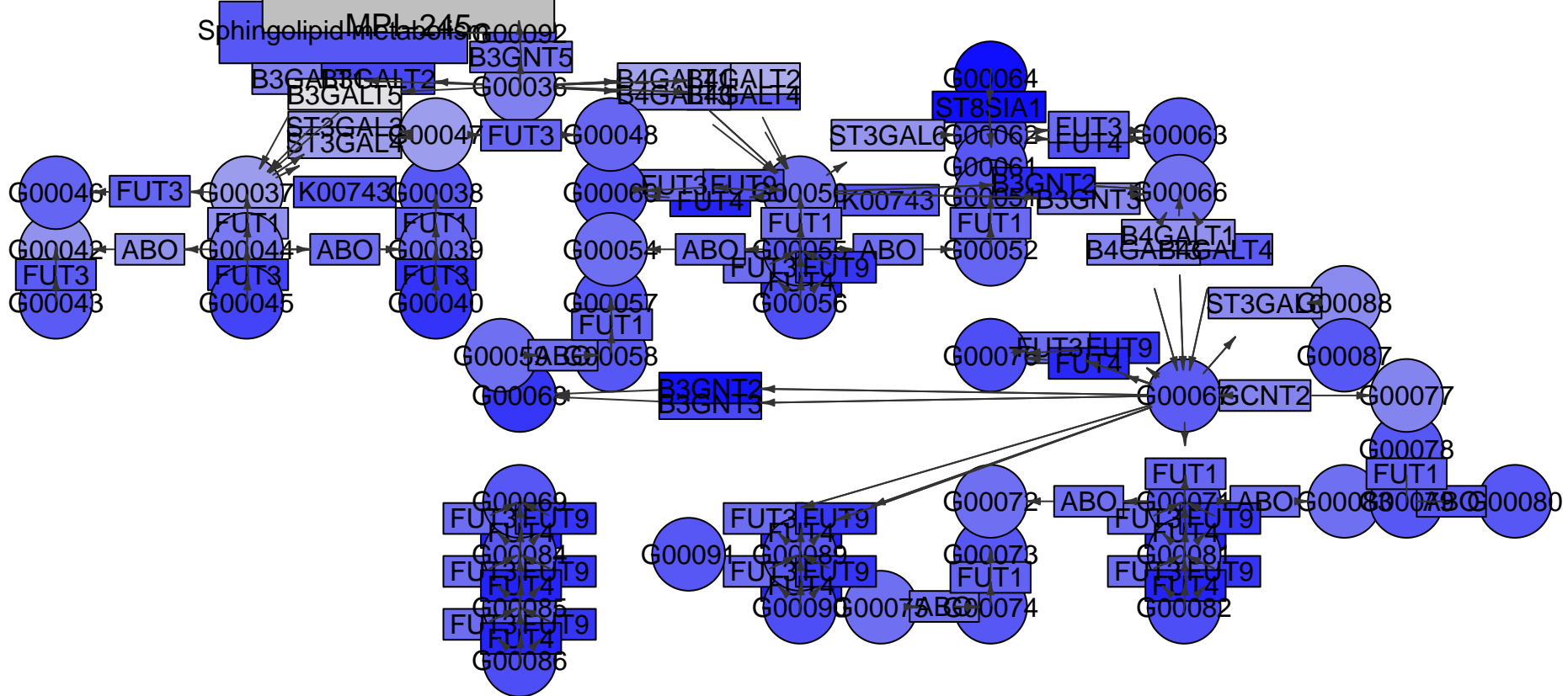
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



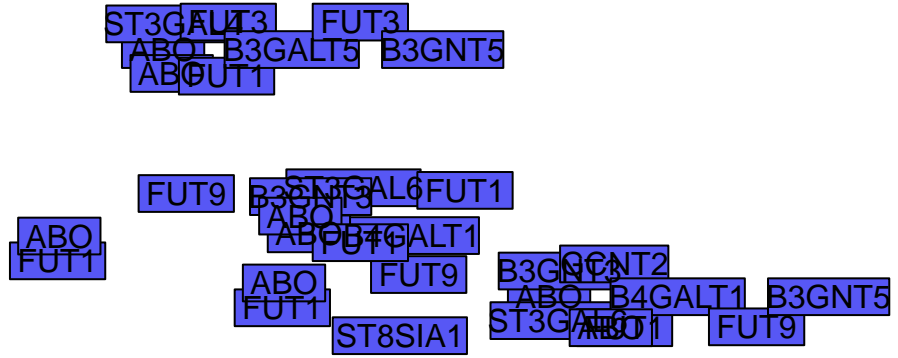
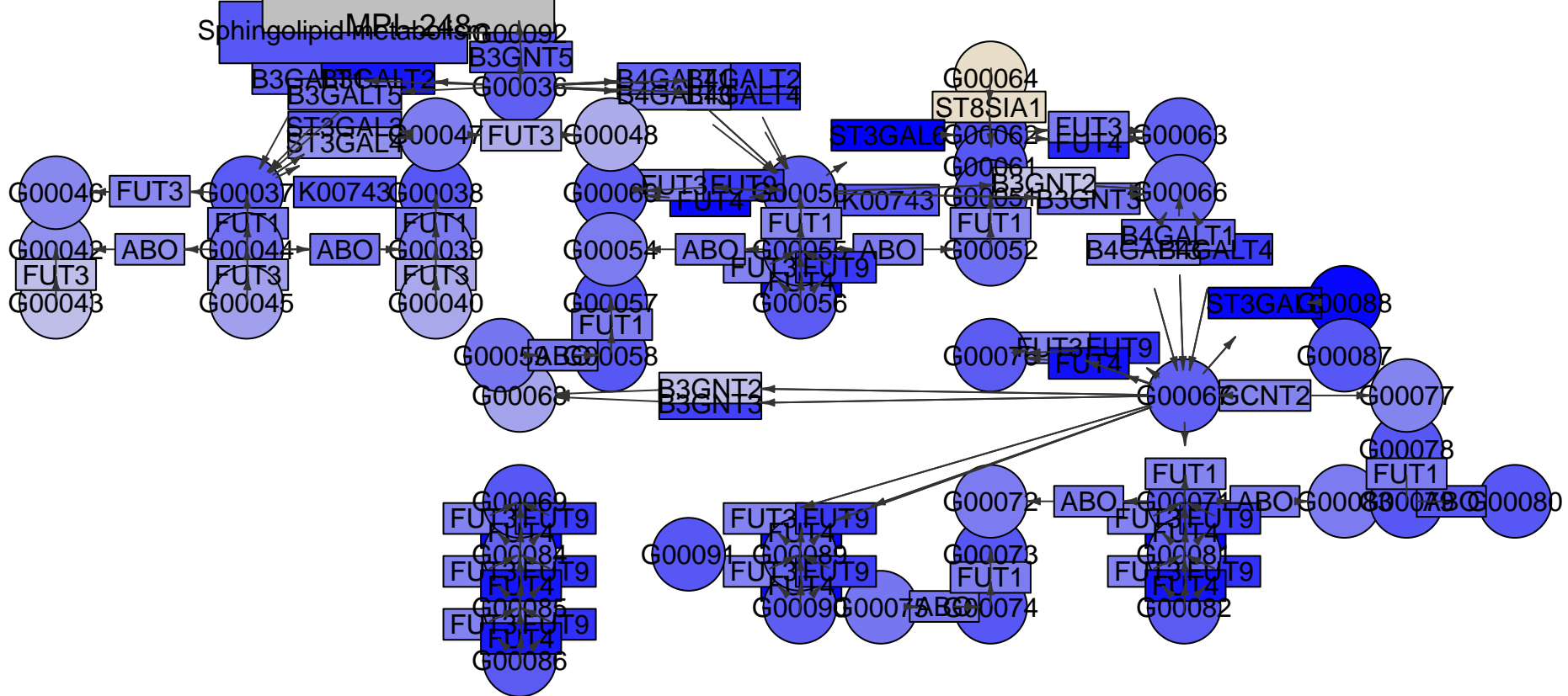
Glycosphingolipid biosynthesis – lacto and neolacto series



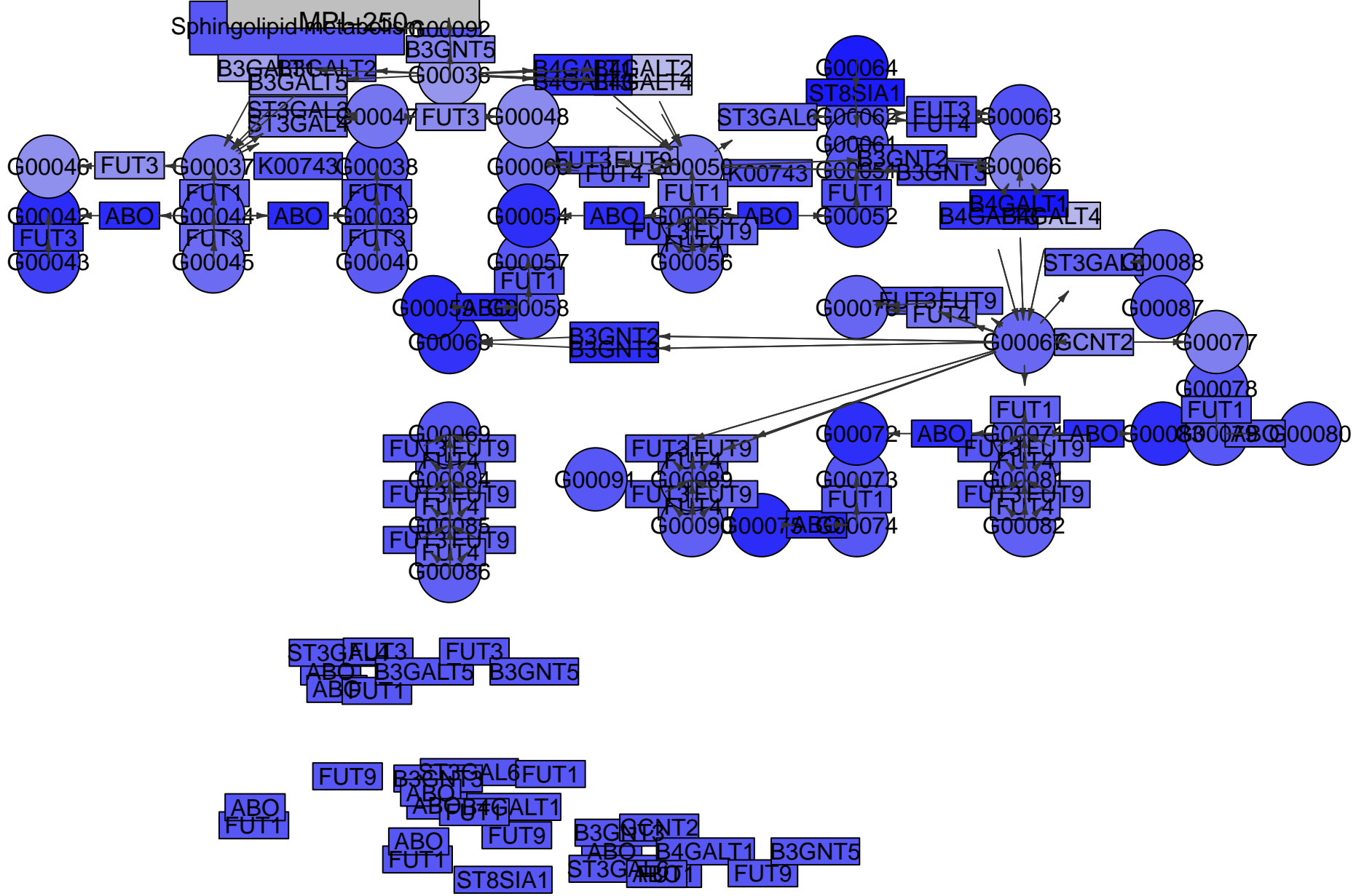
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT5 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST3GAL6
 ABO FUT9

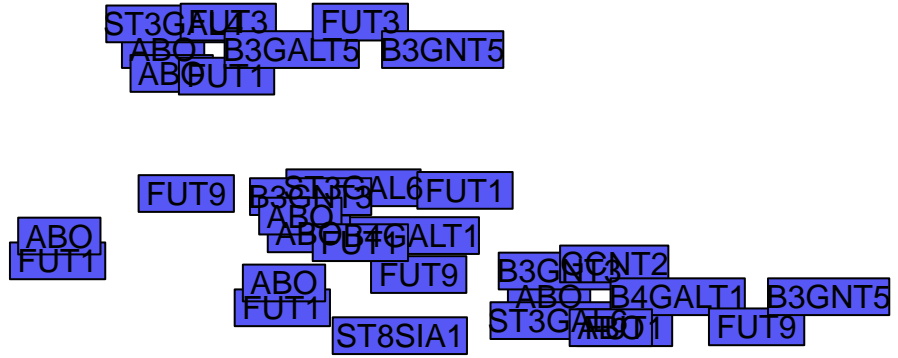
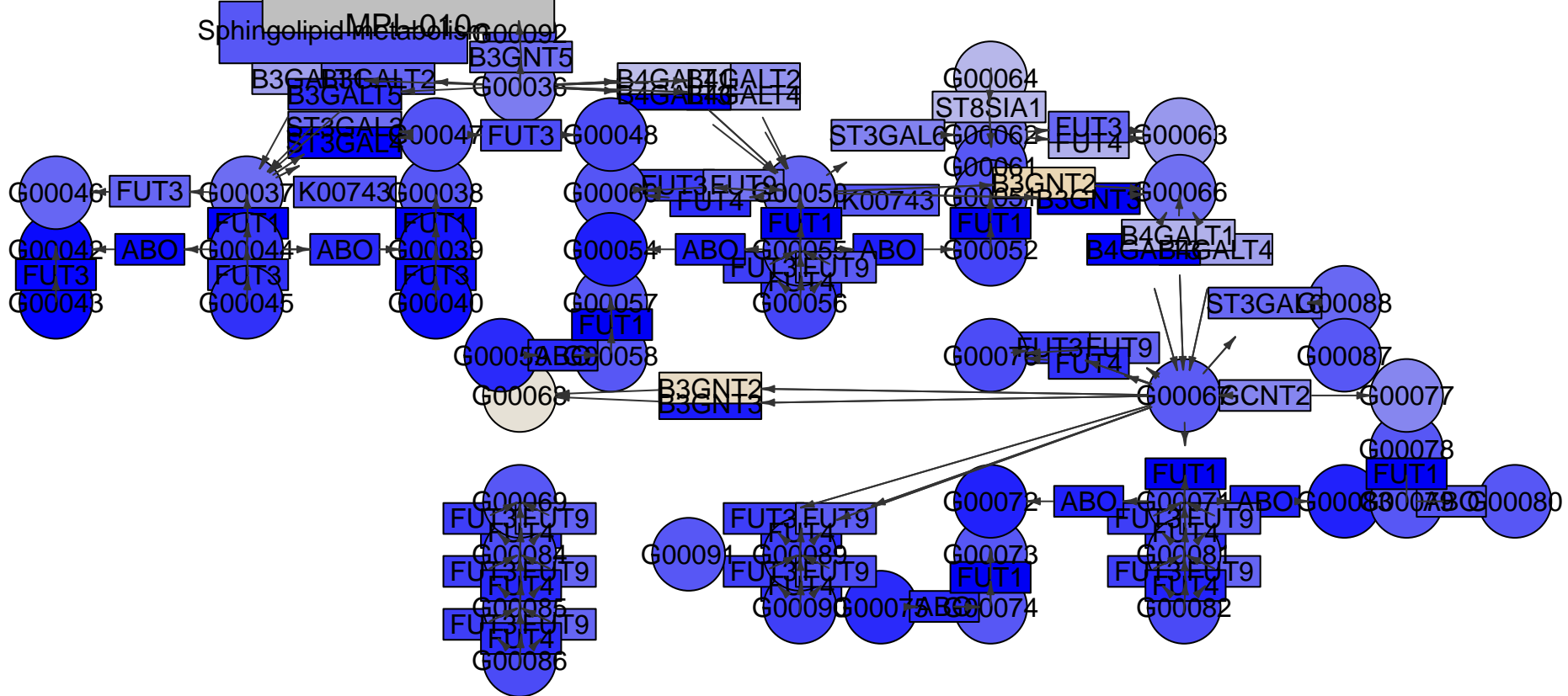
Glycosphingolipid biosynthesis – lacto and neolacto series



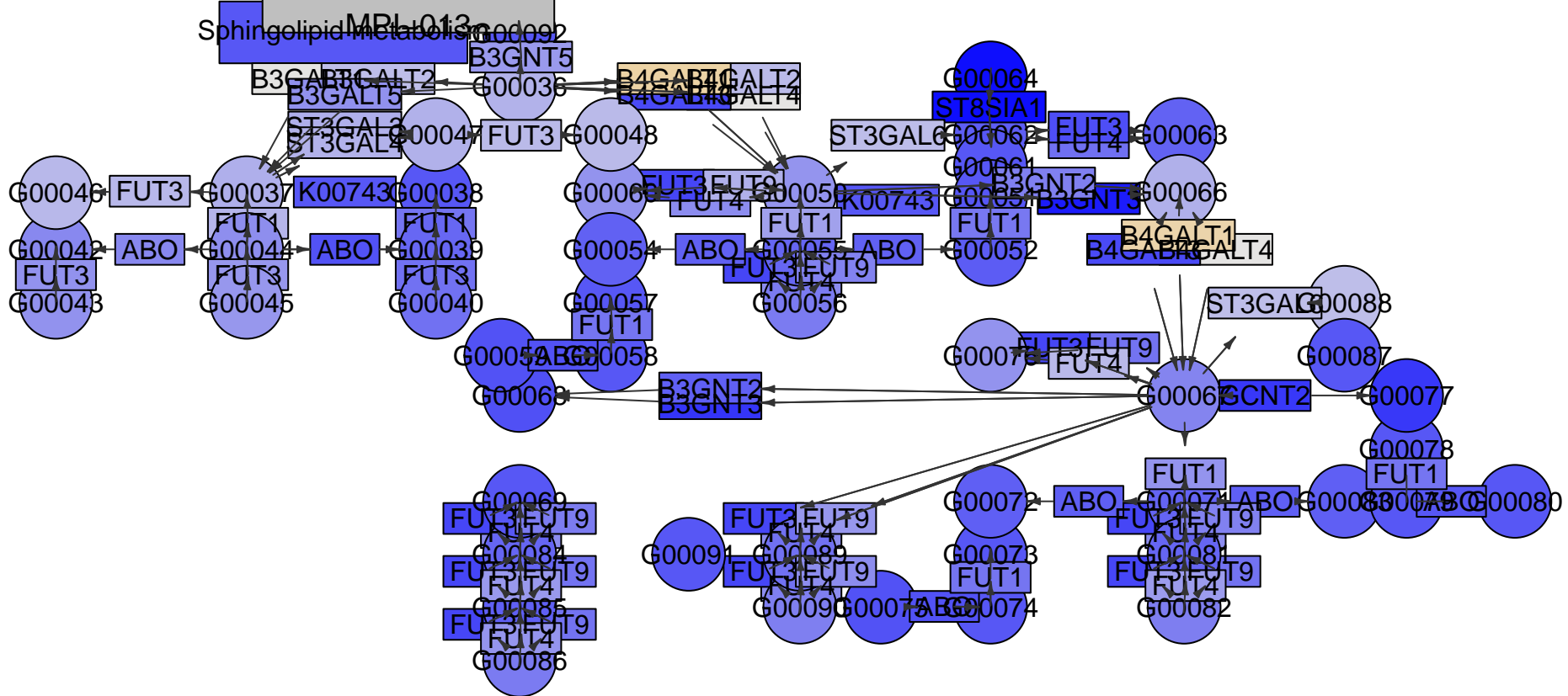
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



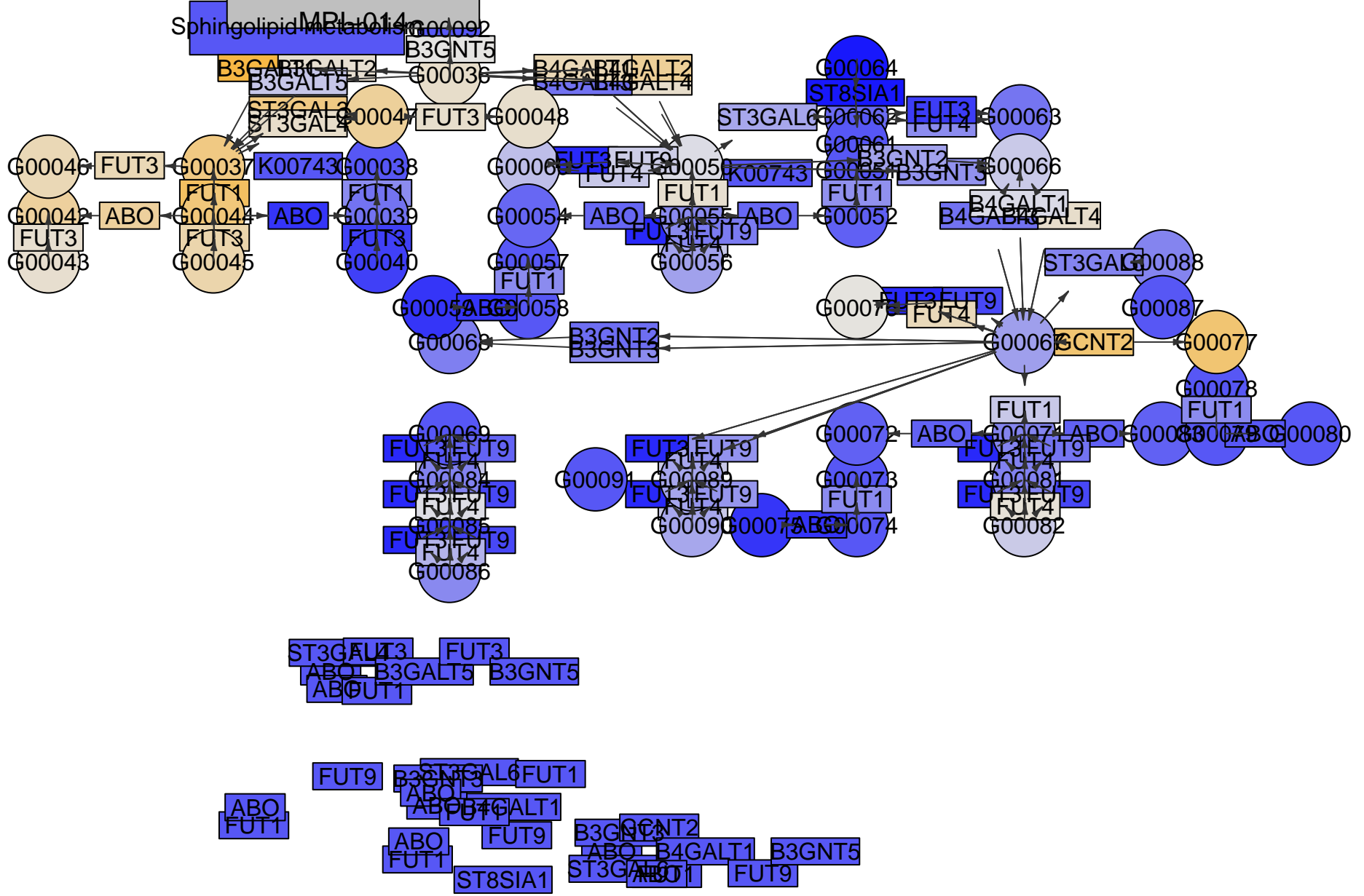
Glycosphingolipid biosynthesis – lacto and neolacto series



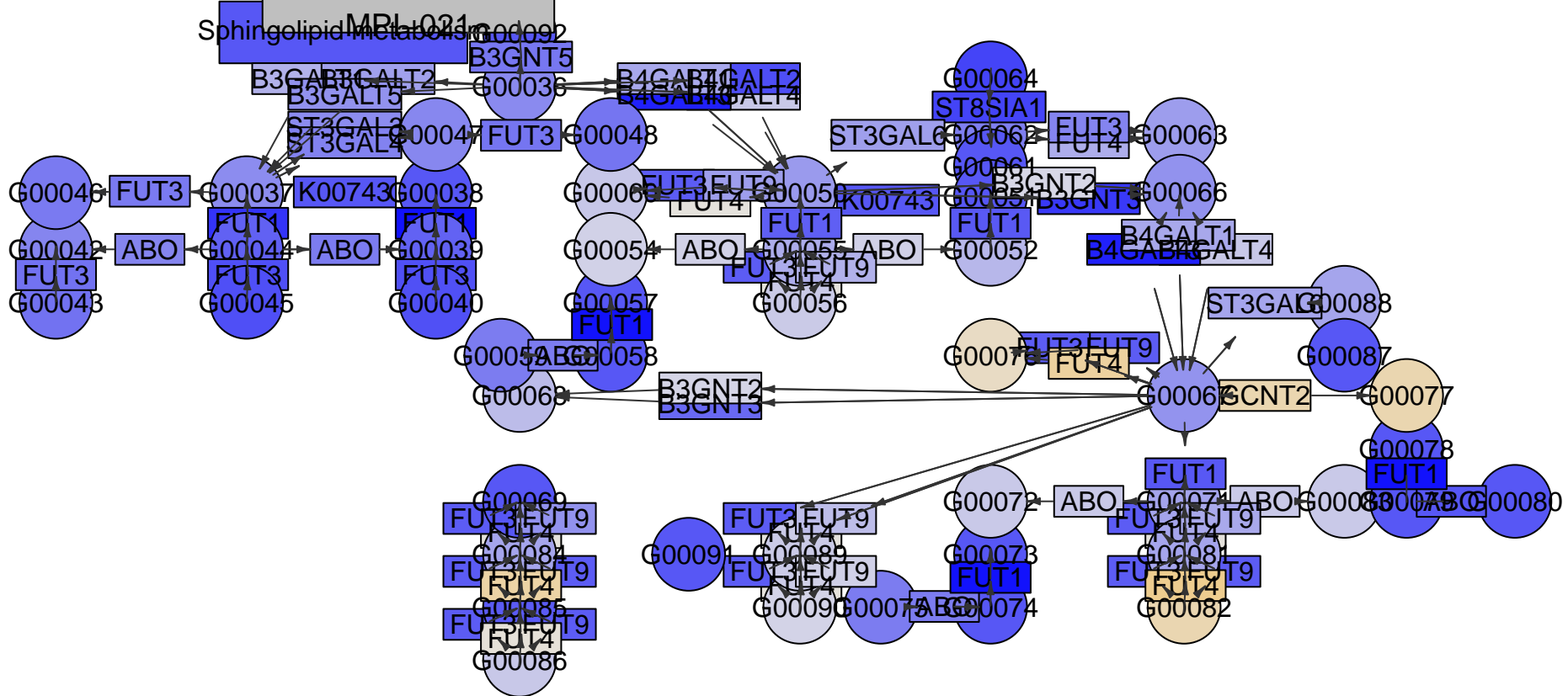
ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL4
ABO
FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



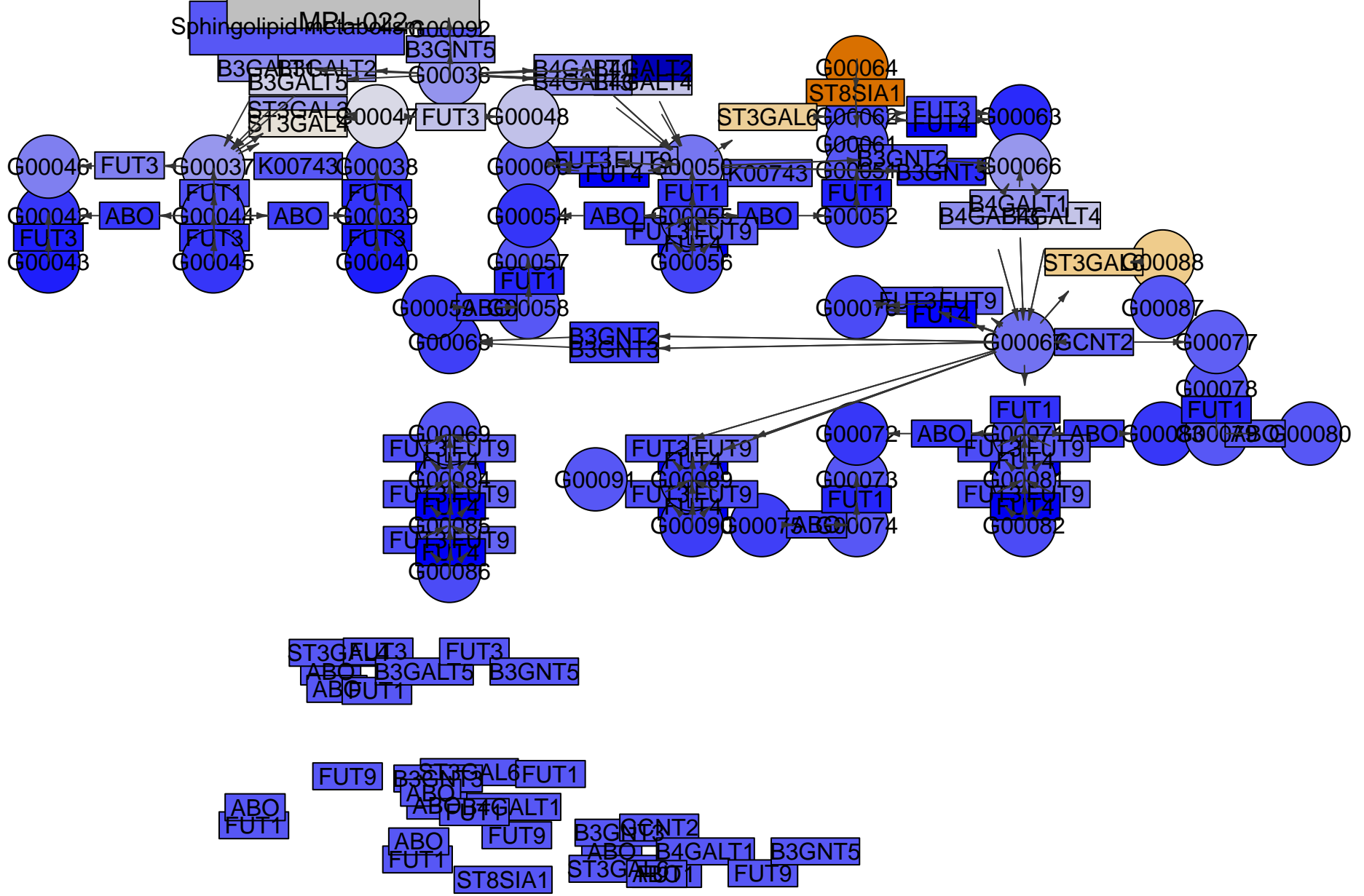
Glycosphingolipid biosynthesis – lacto and neolacto series



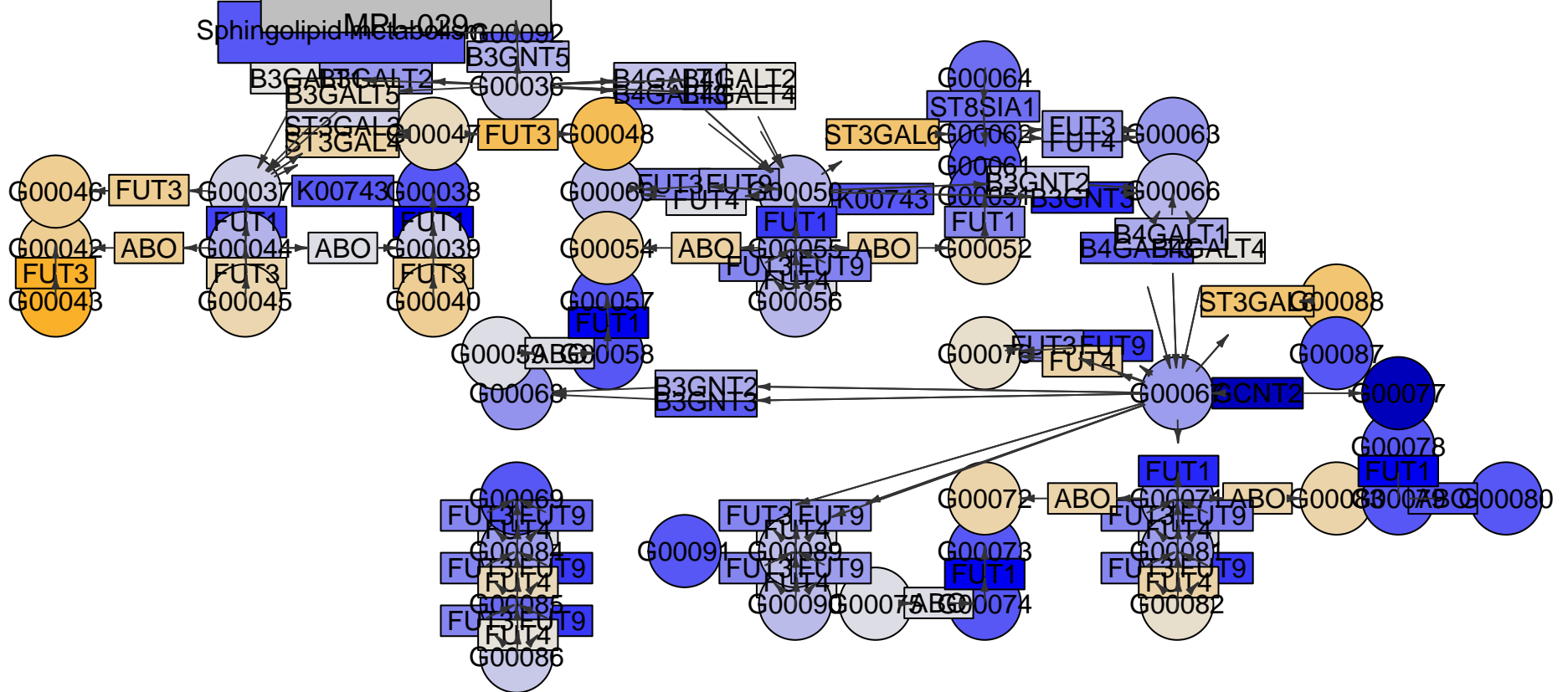
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL7 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



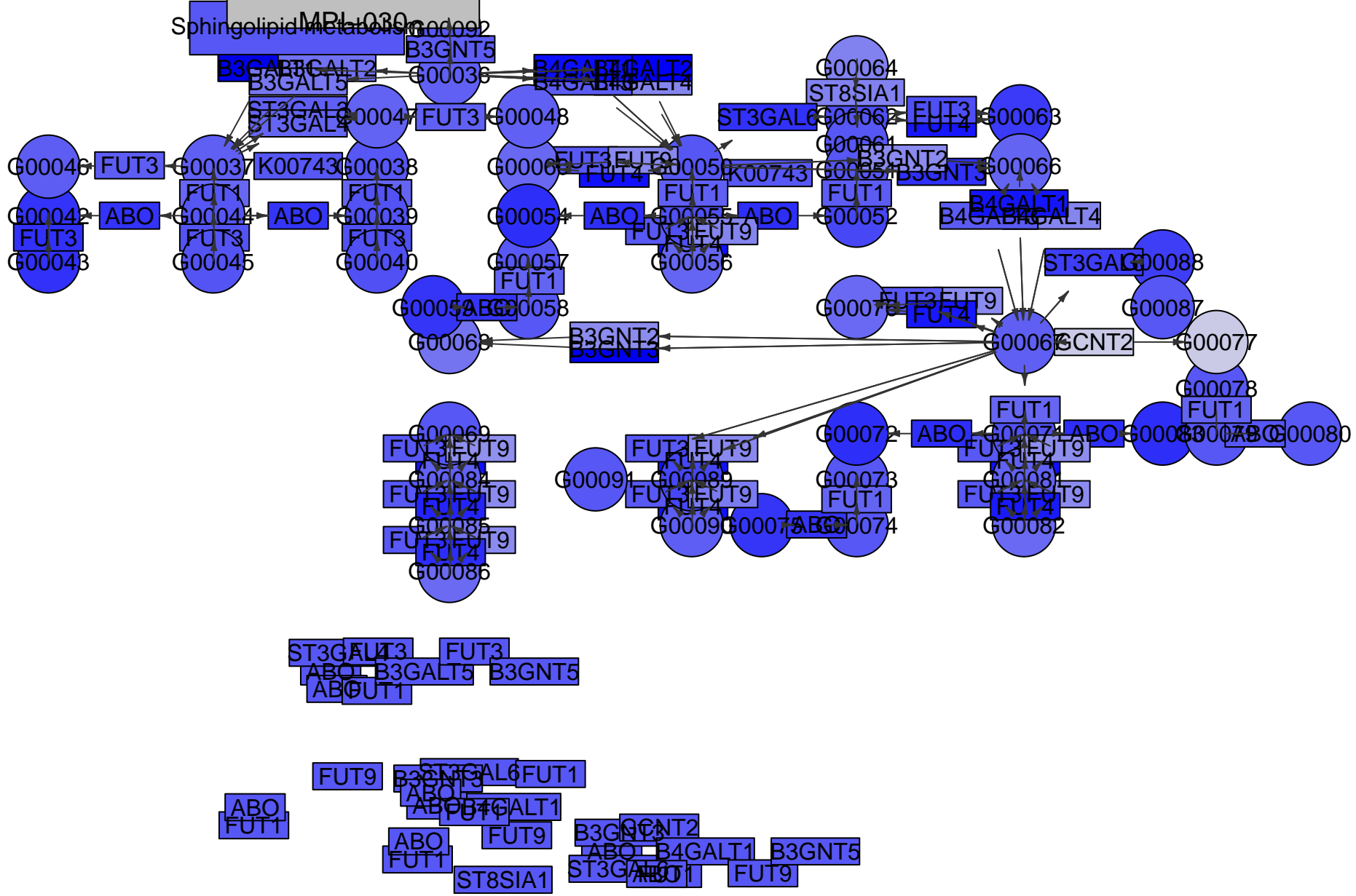
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO FUT1

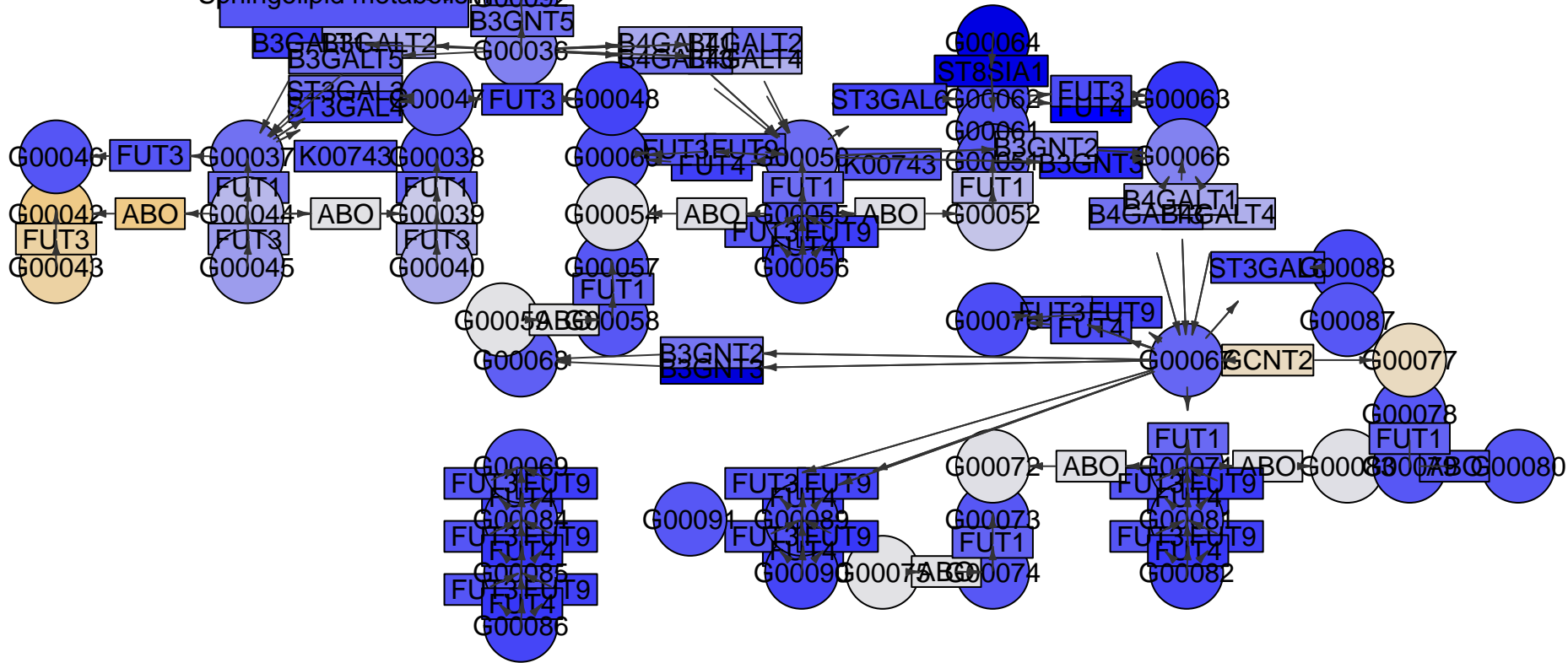
FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO FUT9 B3GNT2 ABO B4GALT1 B3GNT5
 ABO FUT1 ST3GAL6 ABO FUT9
 ABO ST8SIA1

Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

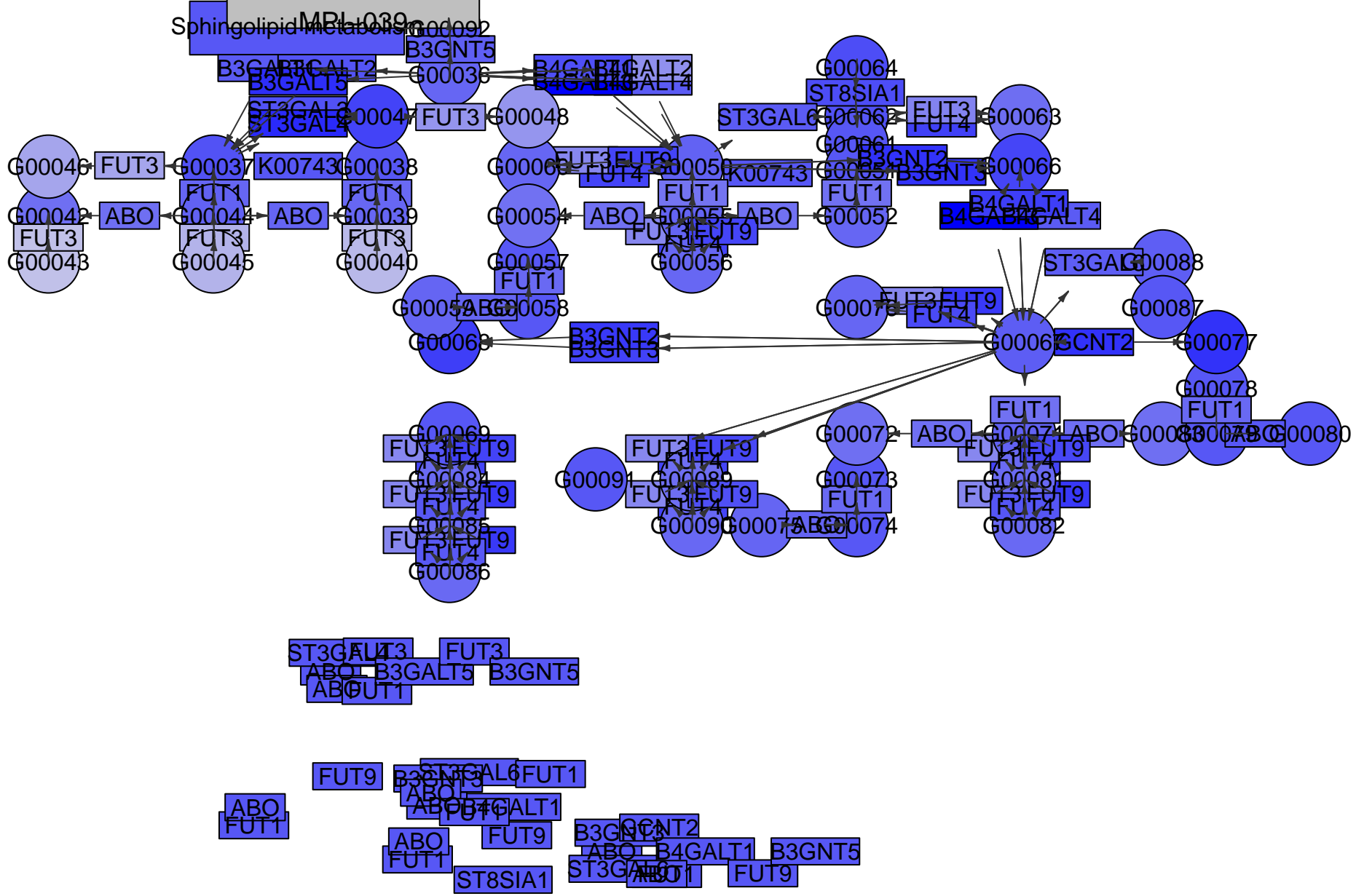
Spingolipid metabolism



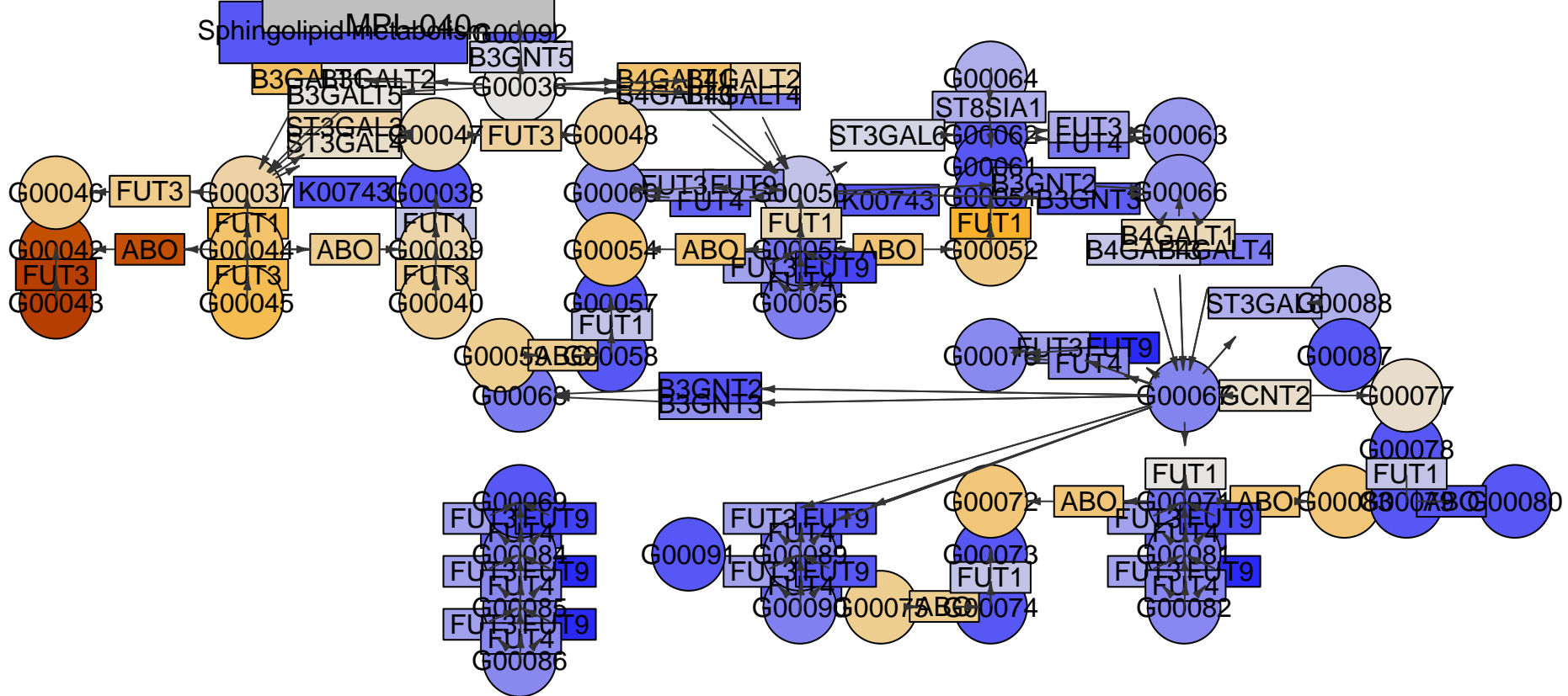
ST3GAL3 FUT3
ABO B3GALT5 B3GNT5
ABO FUT1

FUT9 ST3GAL6 FUT1
B3GNT5 ABO B4GALT1
ABO B4GALT1
ABO FUT9 B3GNT2
FUT1 ABO B4GALT1 B3GNT5
ST8SIA1 ST3GALT1 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



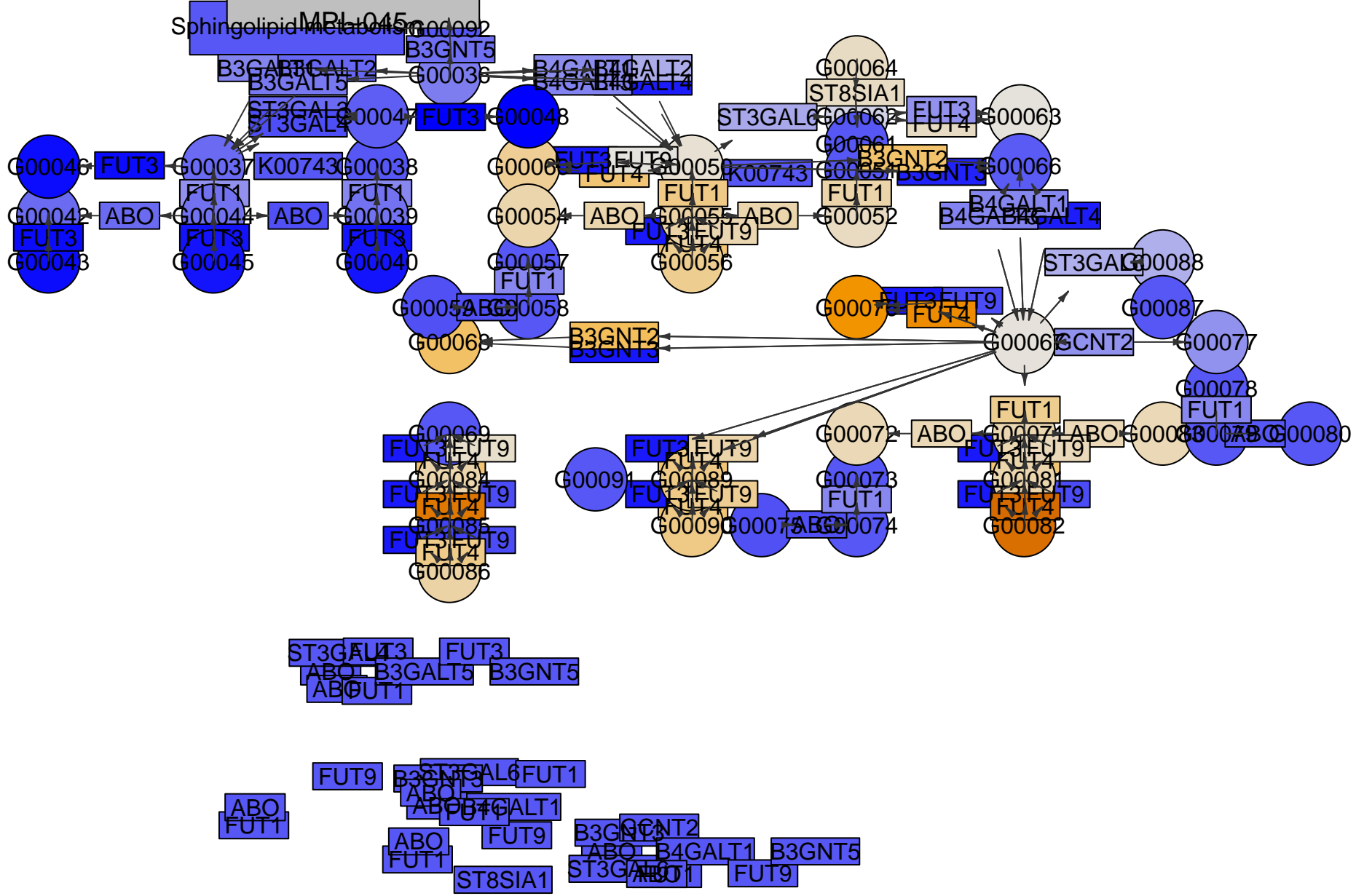
Glycosphingolipid biosynthesis – lacto and neolacto series



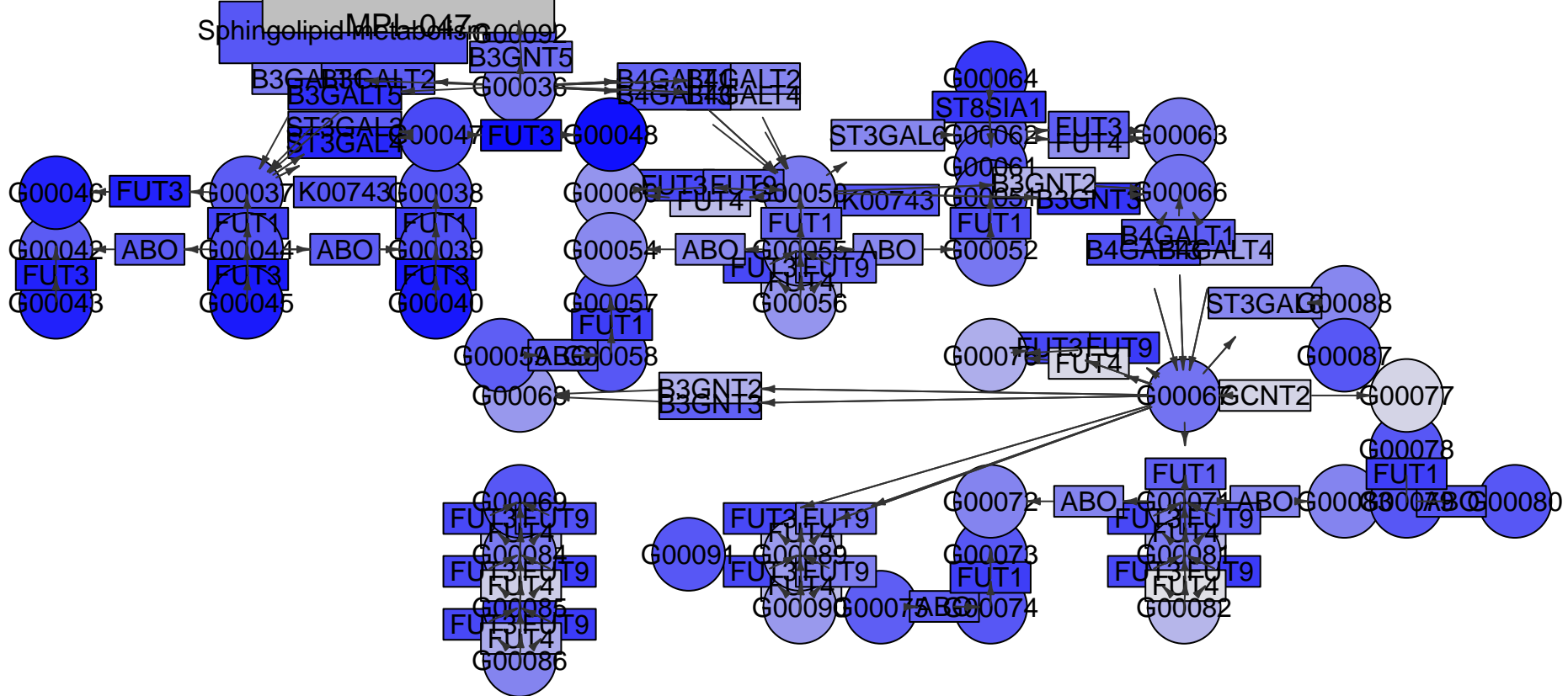
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO1

FUT9 ST3GAL6 FUT1
 ABO1 B3GNT5
 ABO1 B4GALT1
 ABO1
 ABO1 FUT9 B3GNT2
 ABO1 B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO1 FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



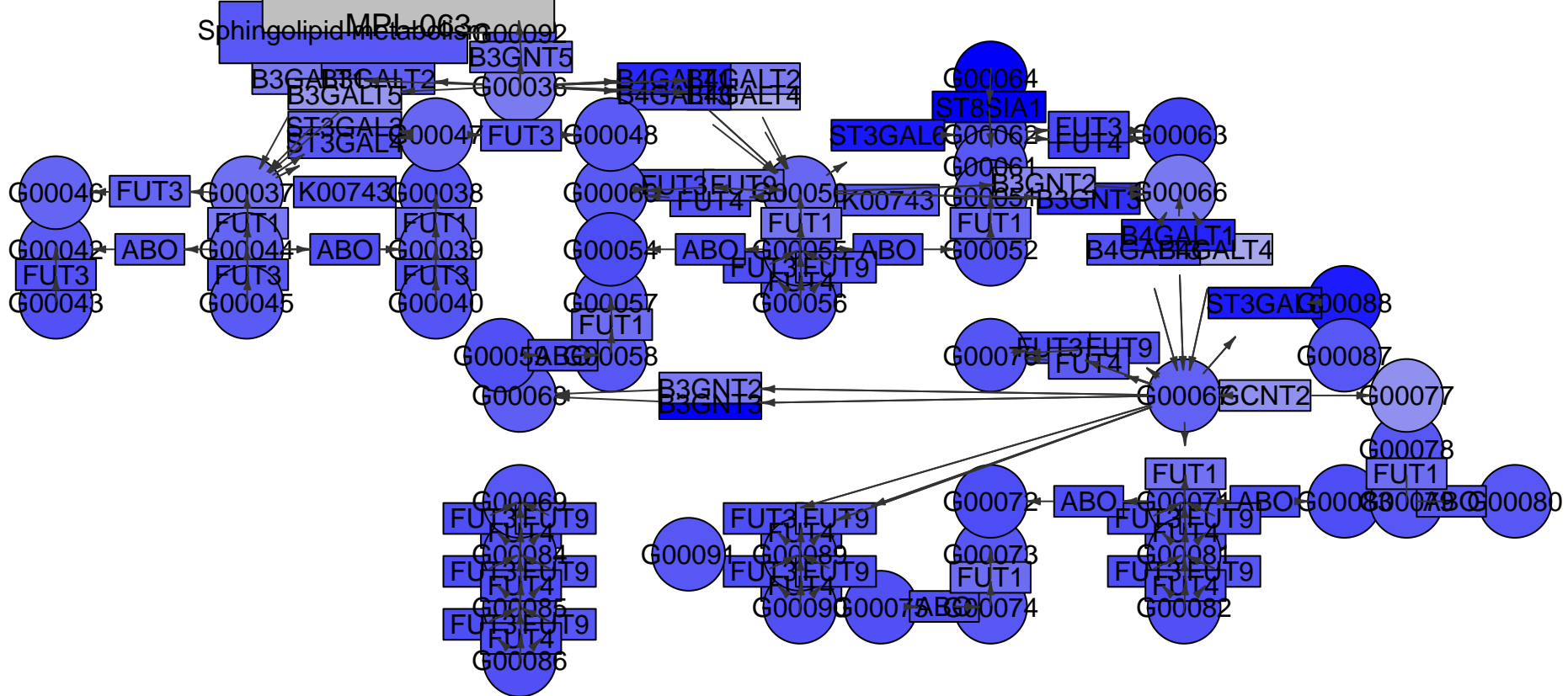
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

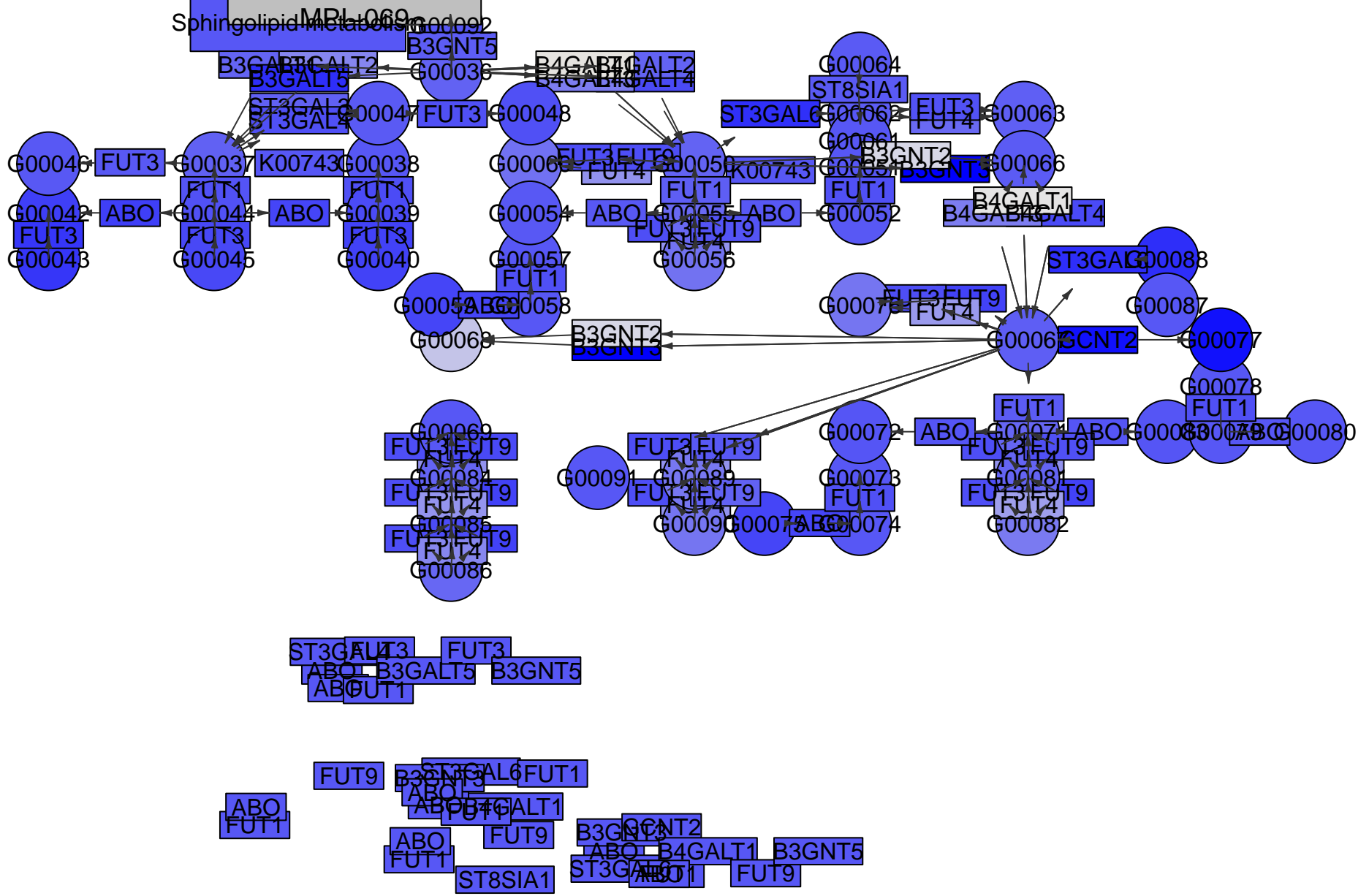
Glycosphingolipid biosynthesis – lacto and neolacto series



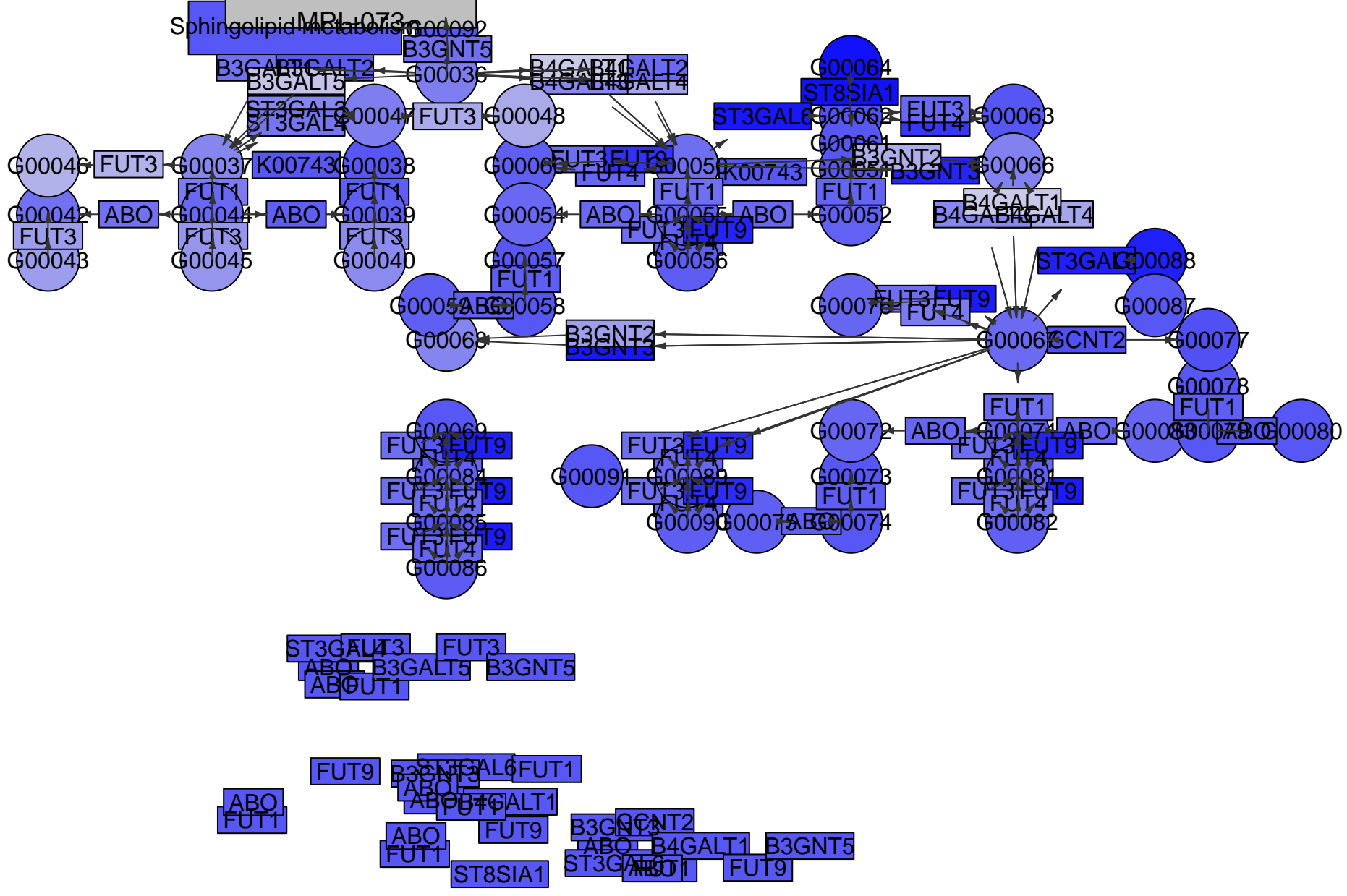
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

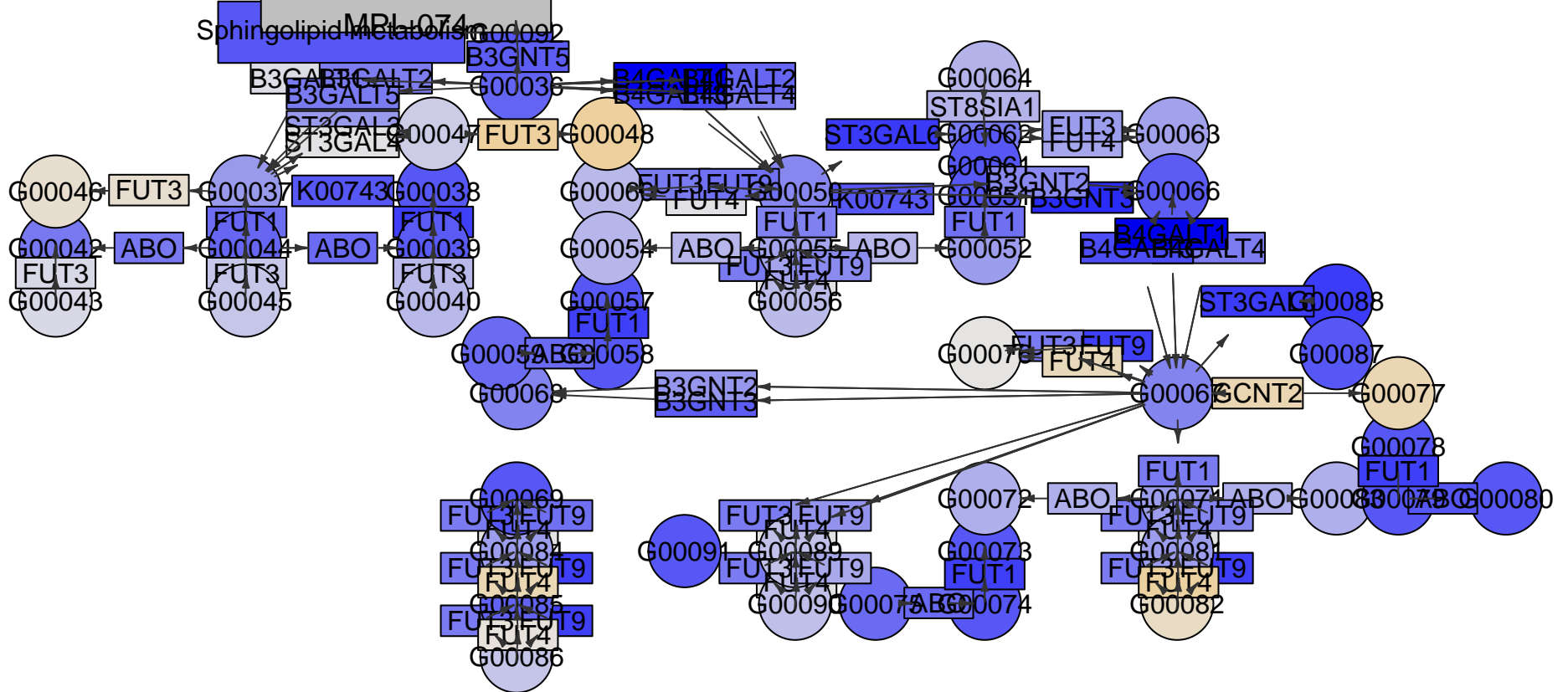
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



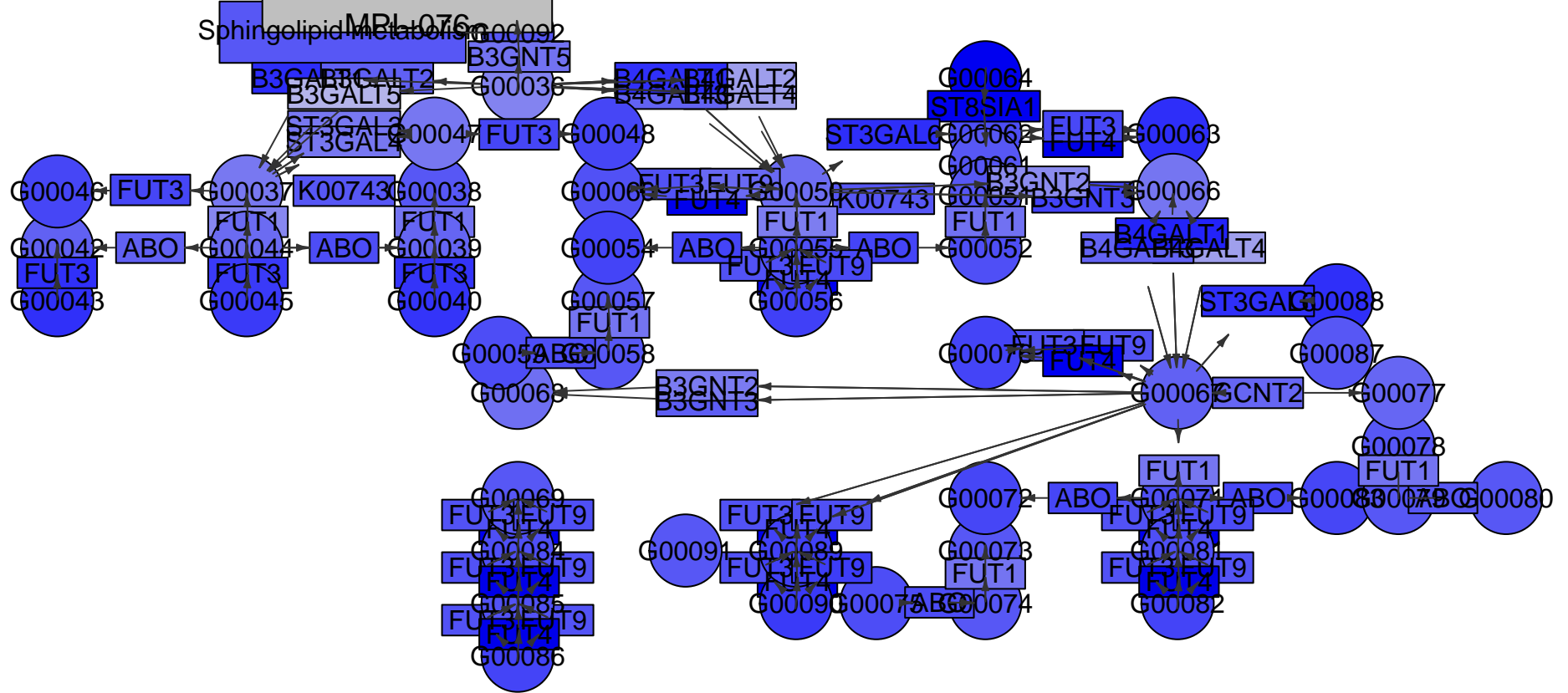
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO1

FUT9 ST3GAL6 FUT1
 B3GNT2 ABO1 B4GALT1
 ABO1 B4GALT1
 ABO1 FUT9 B3GNT2
 ABO1 B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO1 FUT9

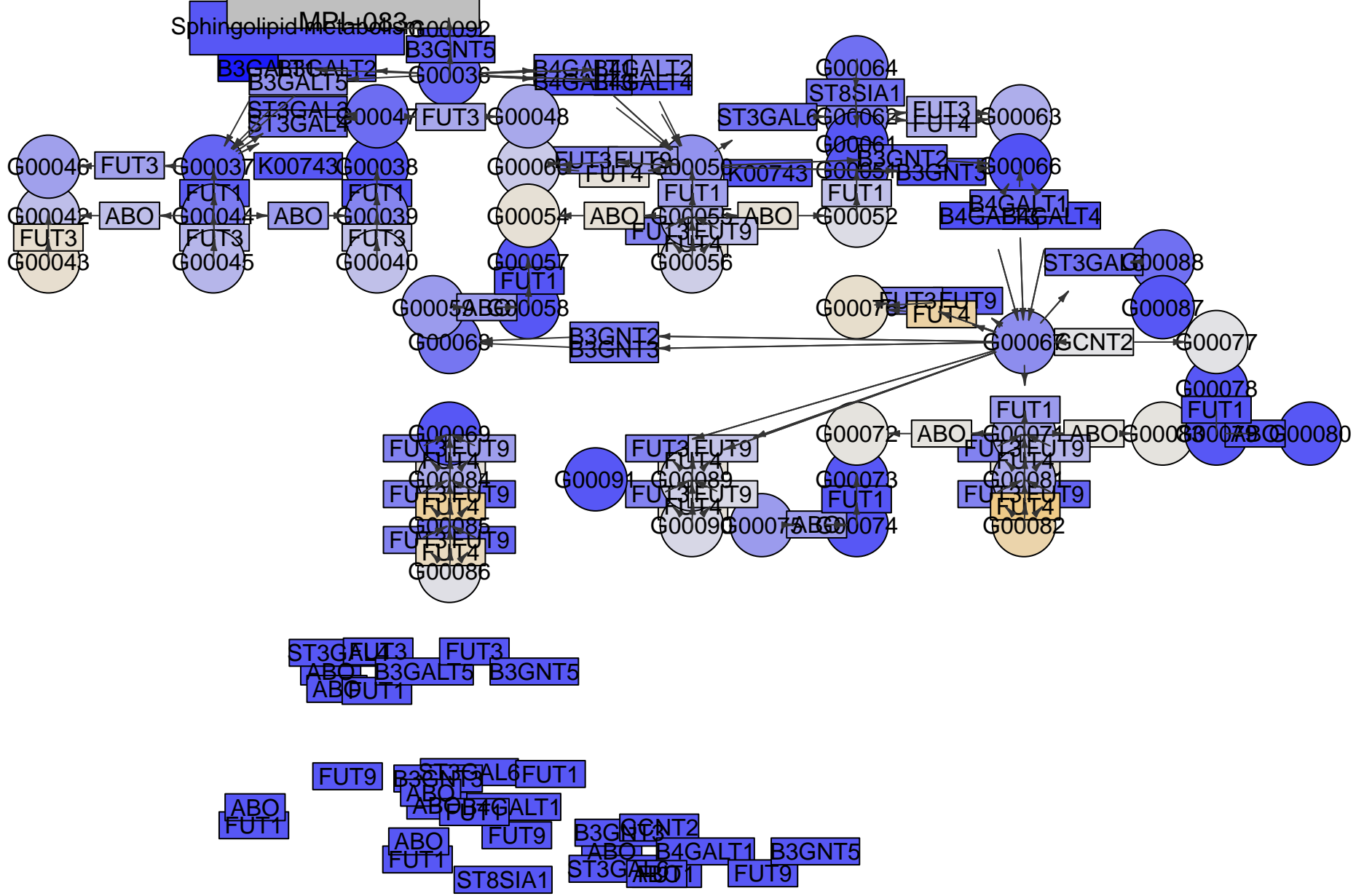
Glycosphingolipid biosynthesis – lacto and neolacto series



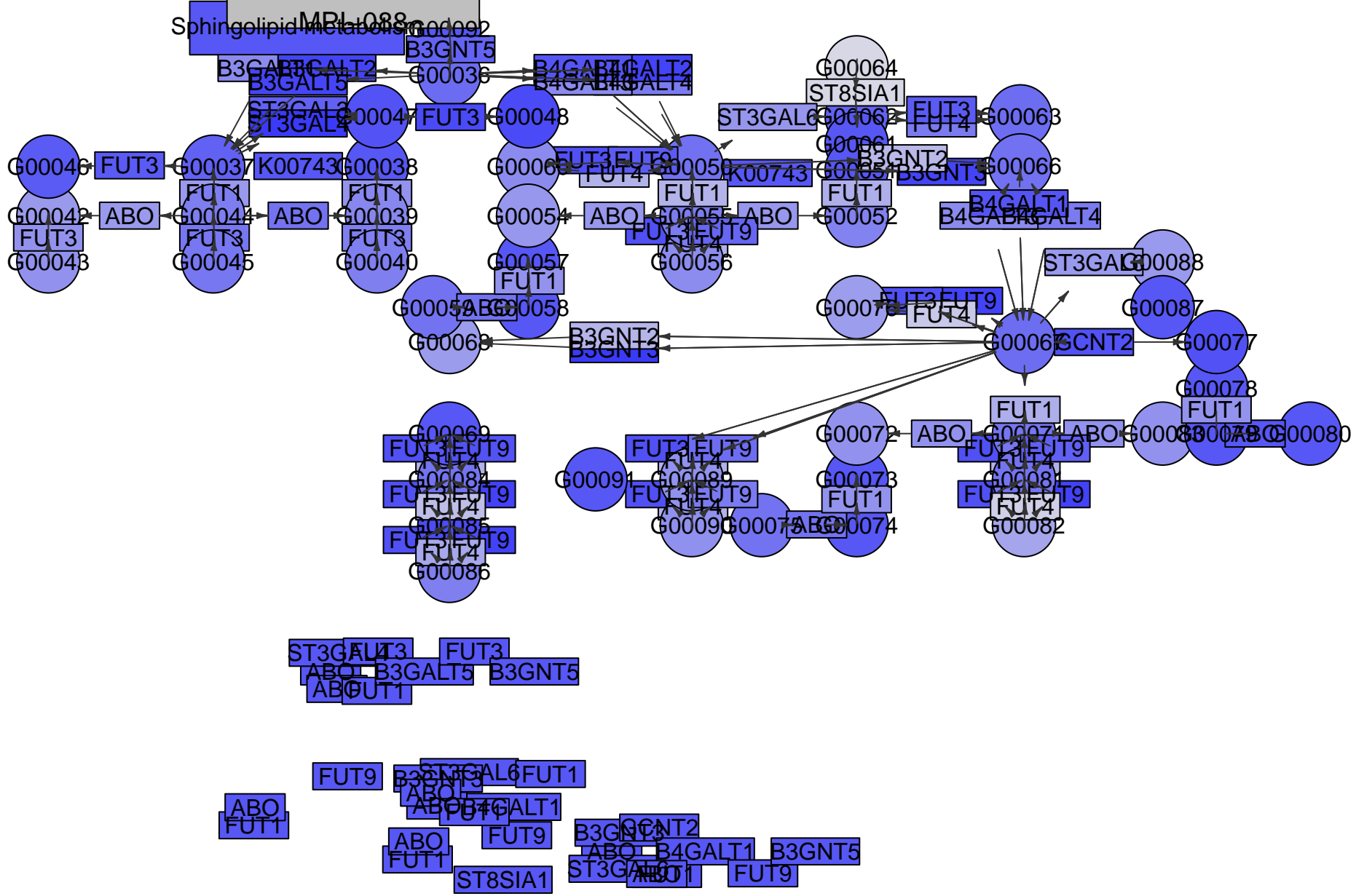
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT2
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

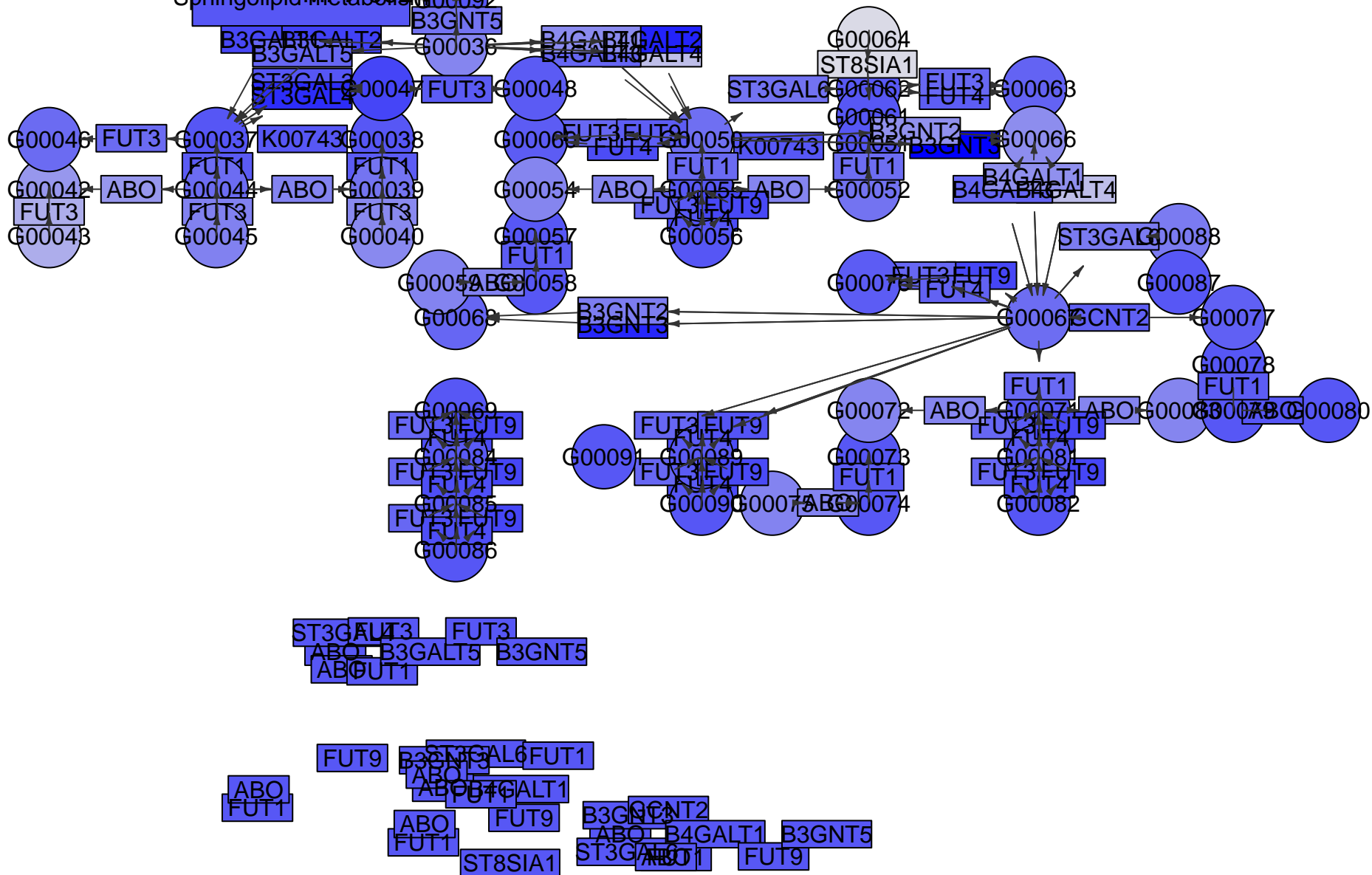


Glycosphingolipid biosynthesis – lacto and neolacto series

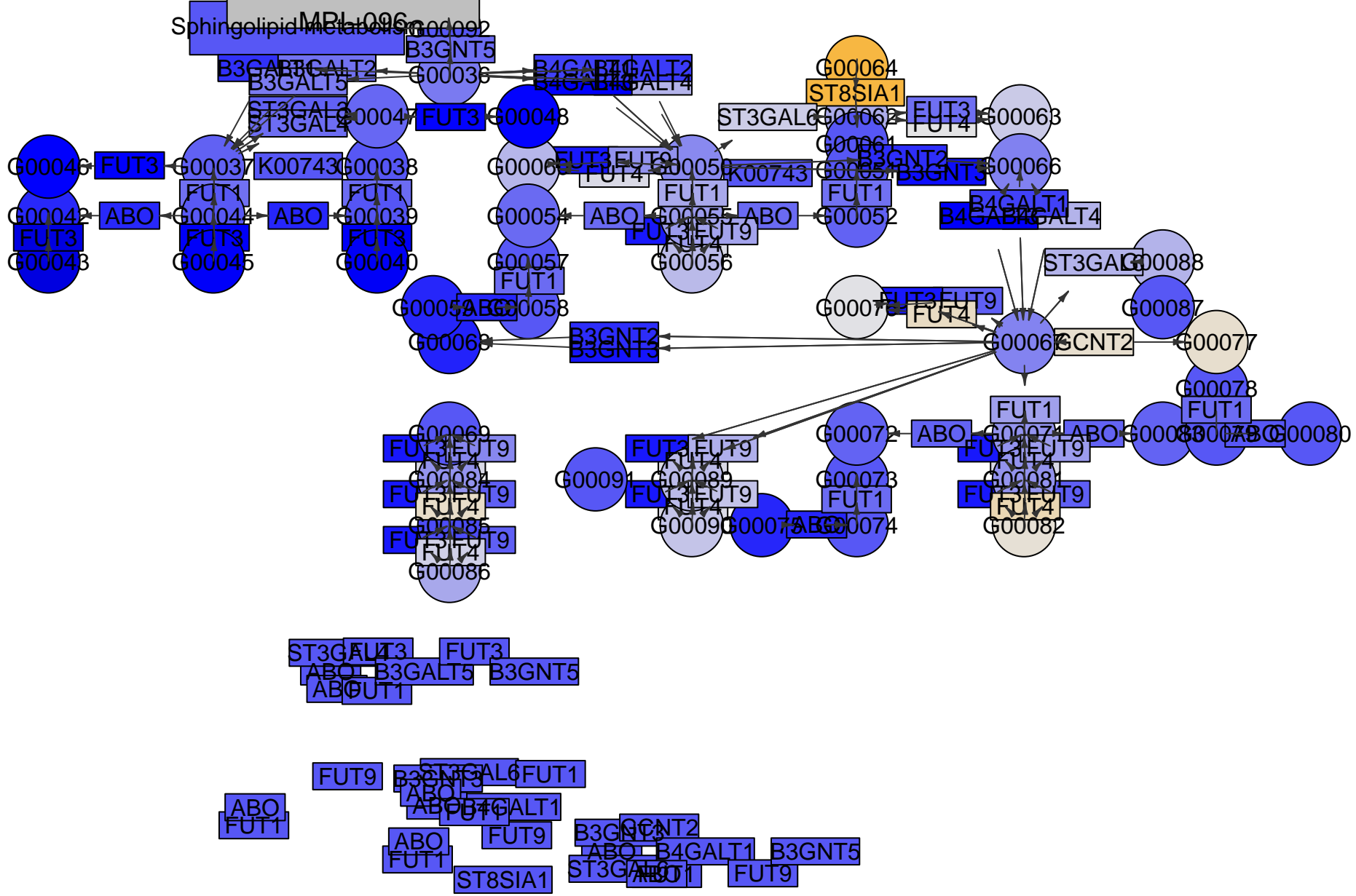


Glycosphingolipid biosynthesis – lacto and neolacto series

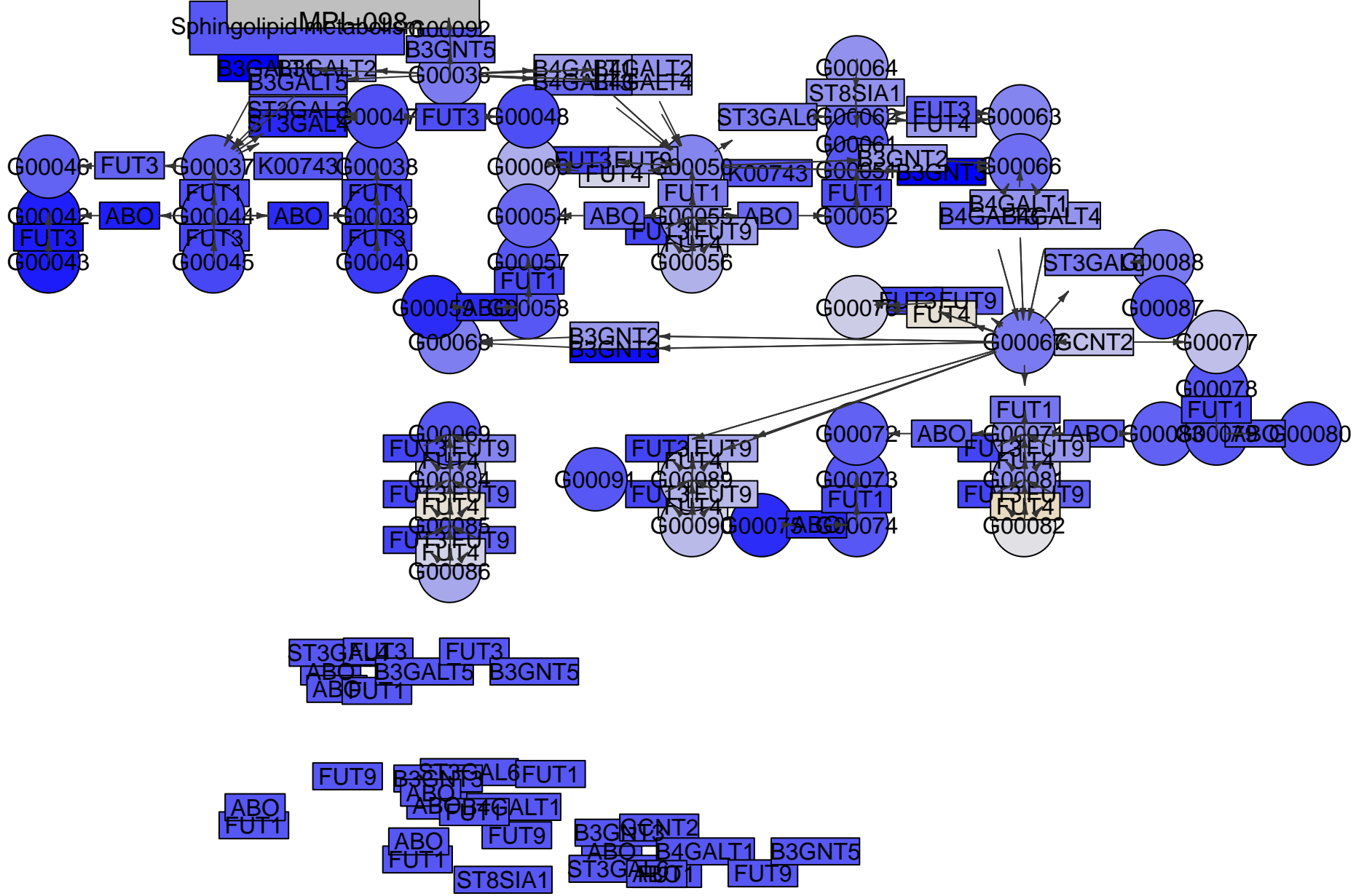
Spingolipid metabolism mod0092



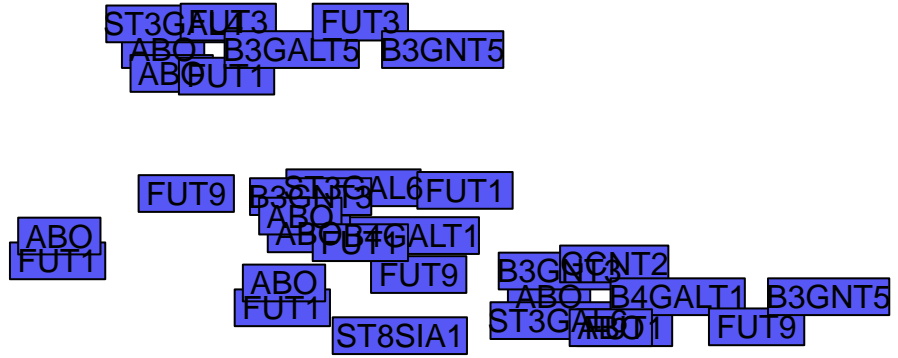
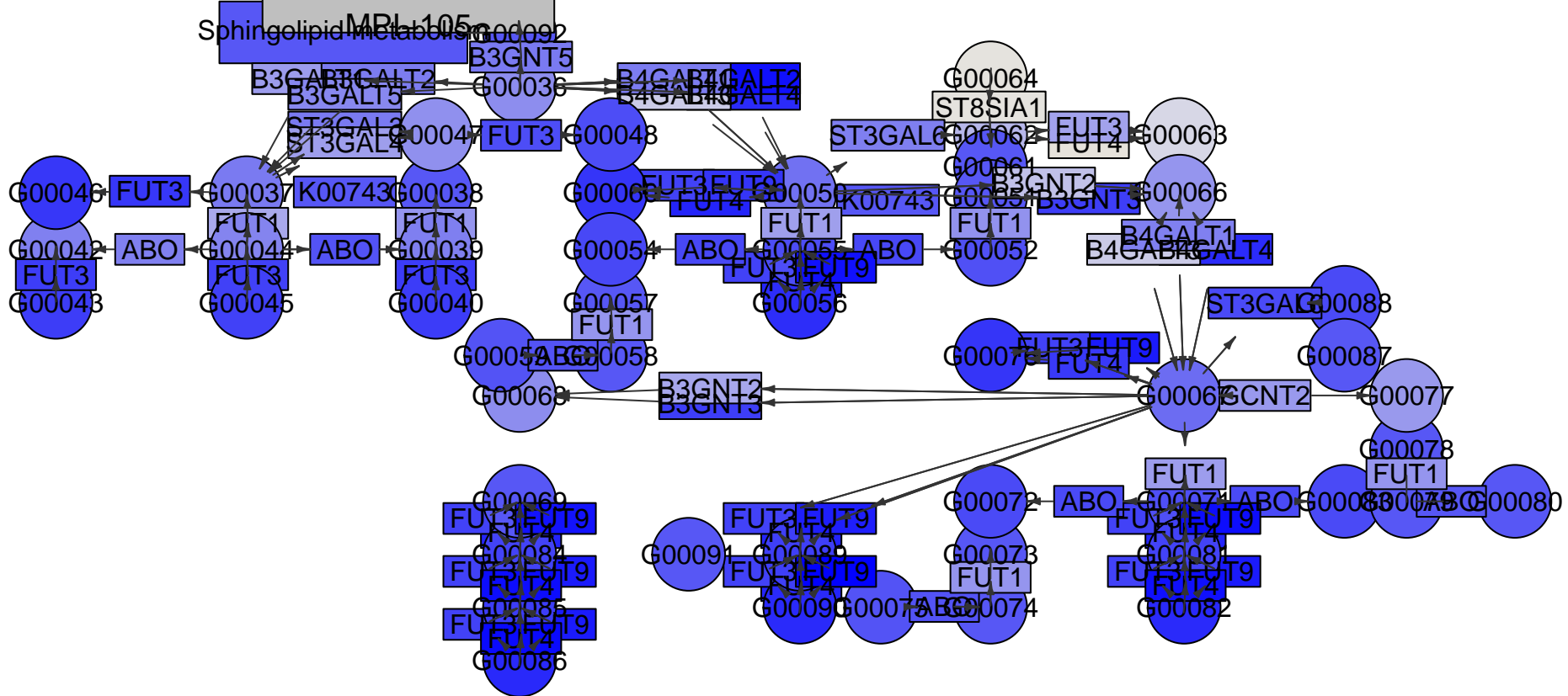
Glycosphingolipid biosynthesis – lacto and neolacto series



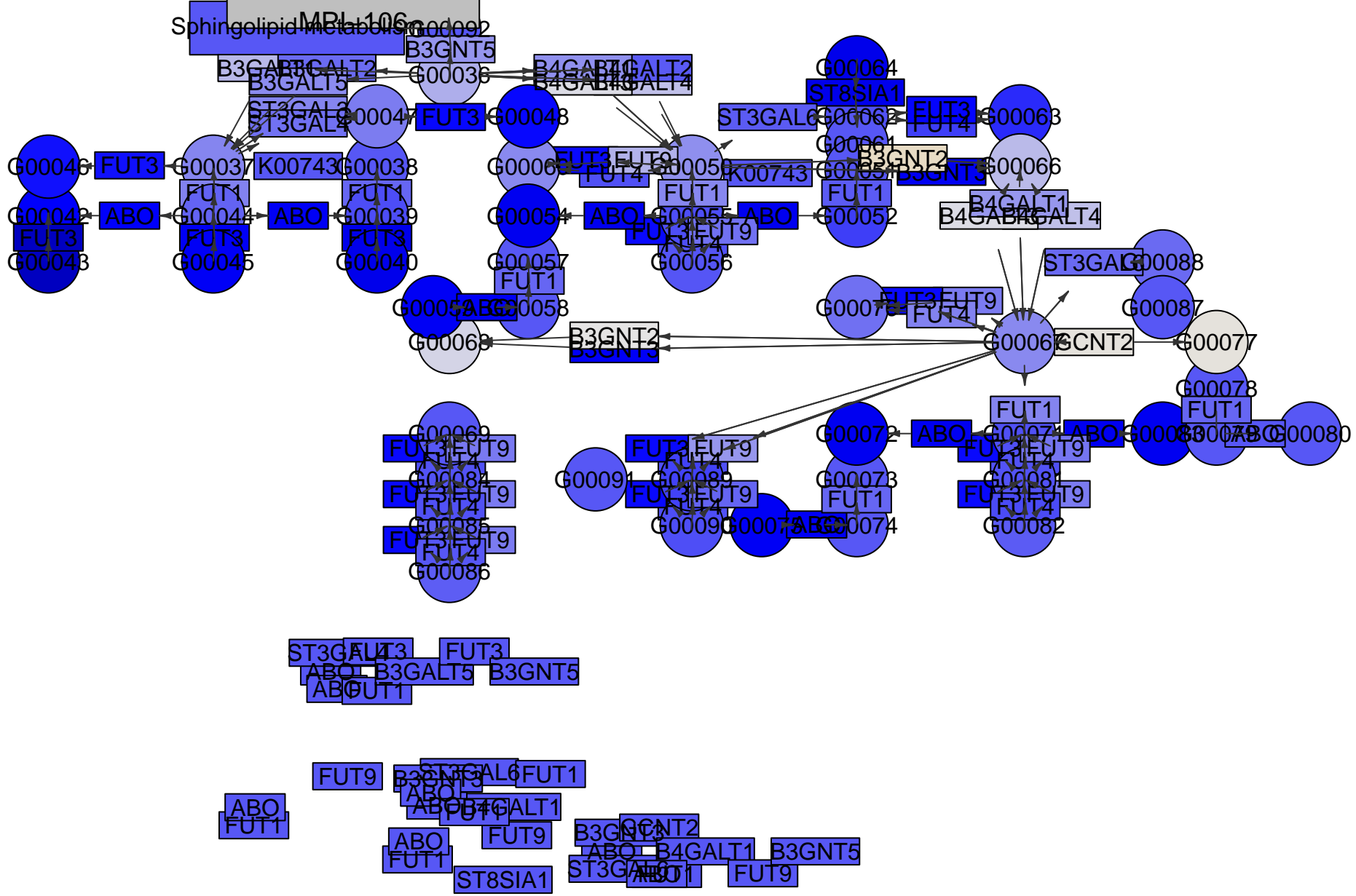
Glycosphingolipid biosynthesis – lacto and neolacto series



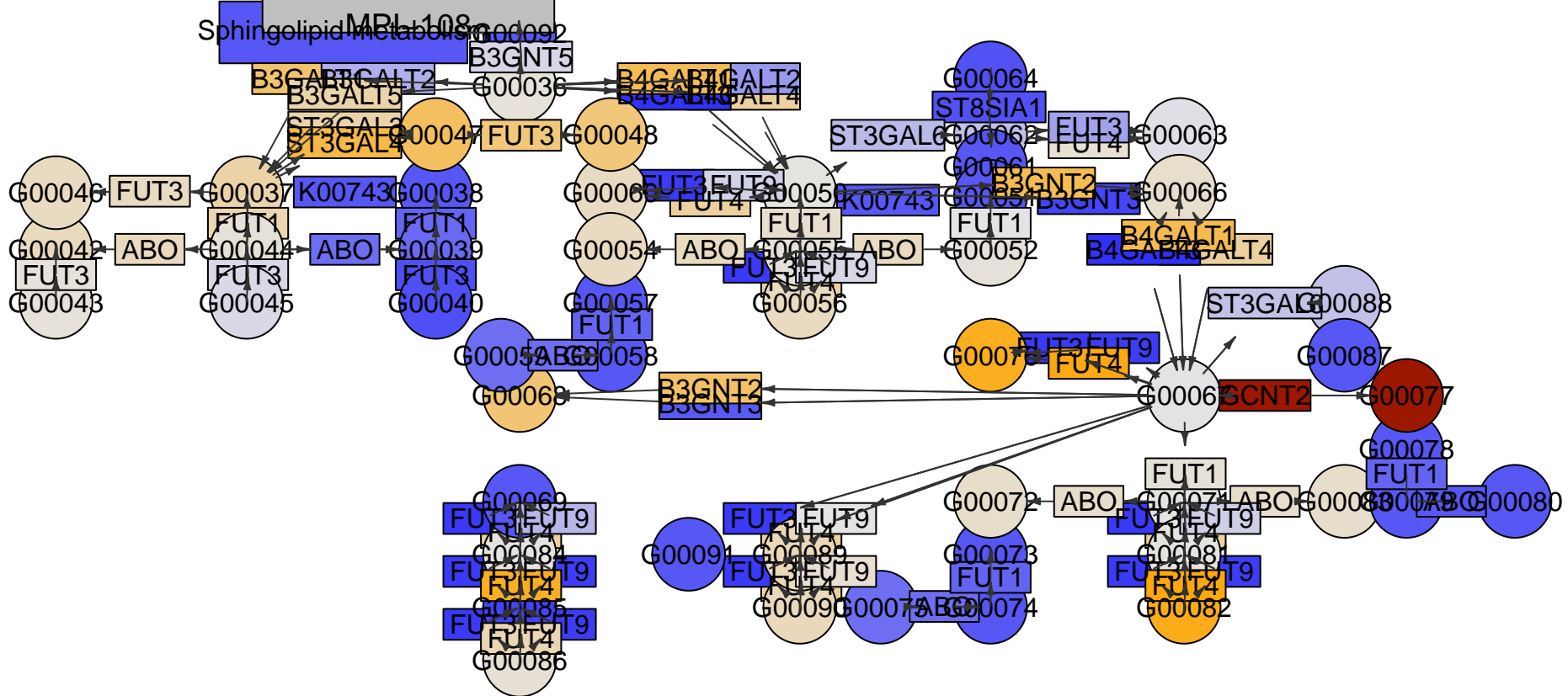
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



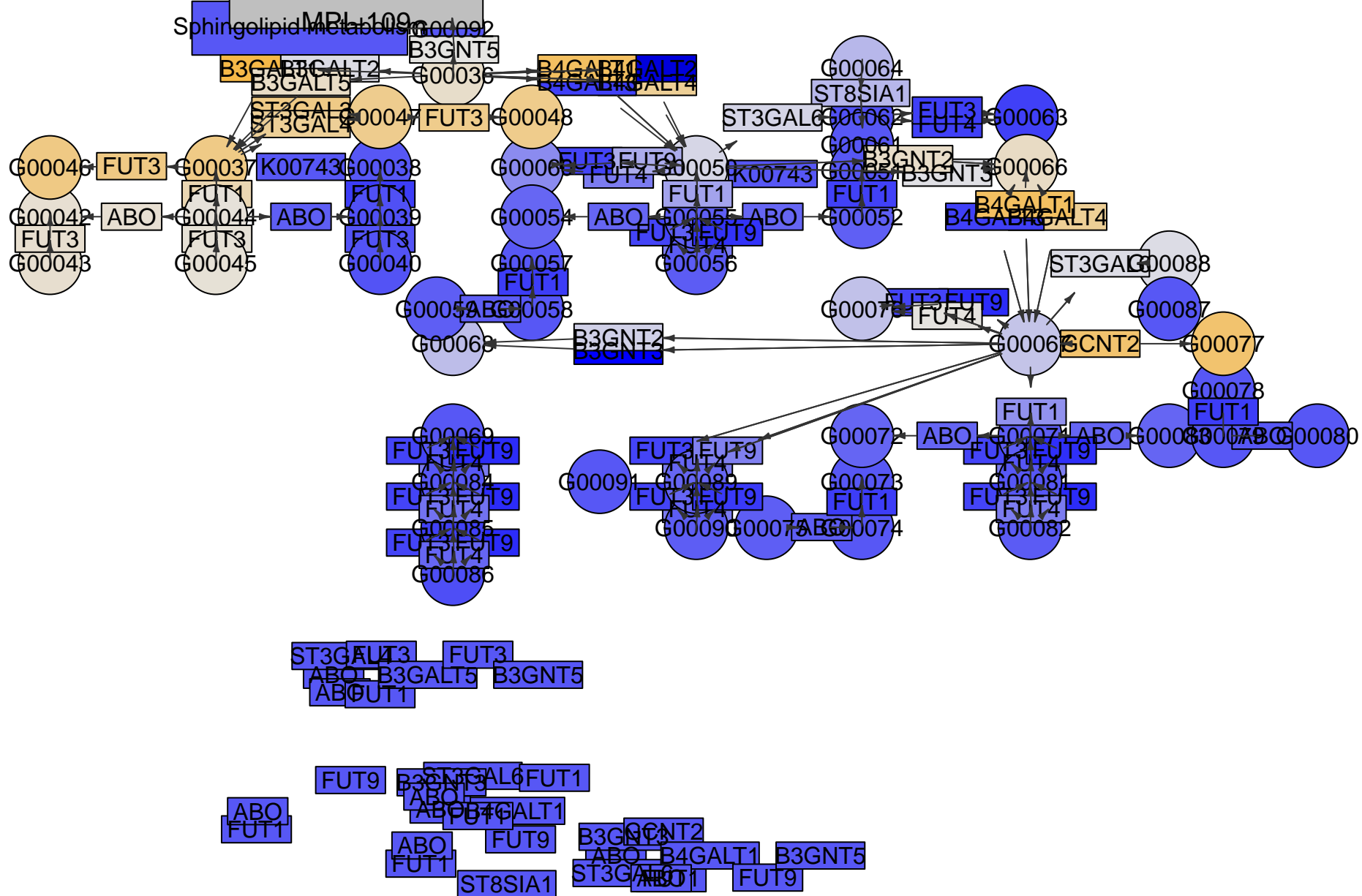
Glycosphingolipid biosynthesis – lacto and neolacto series



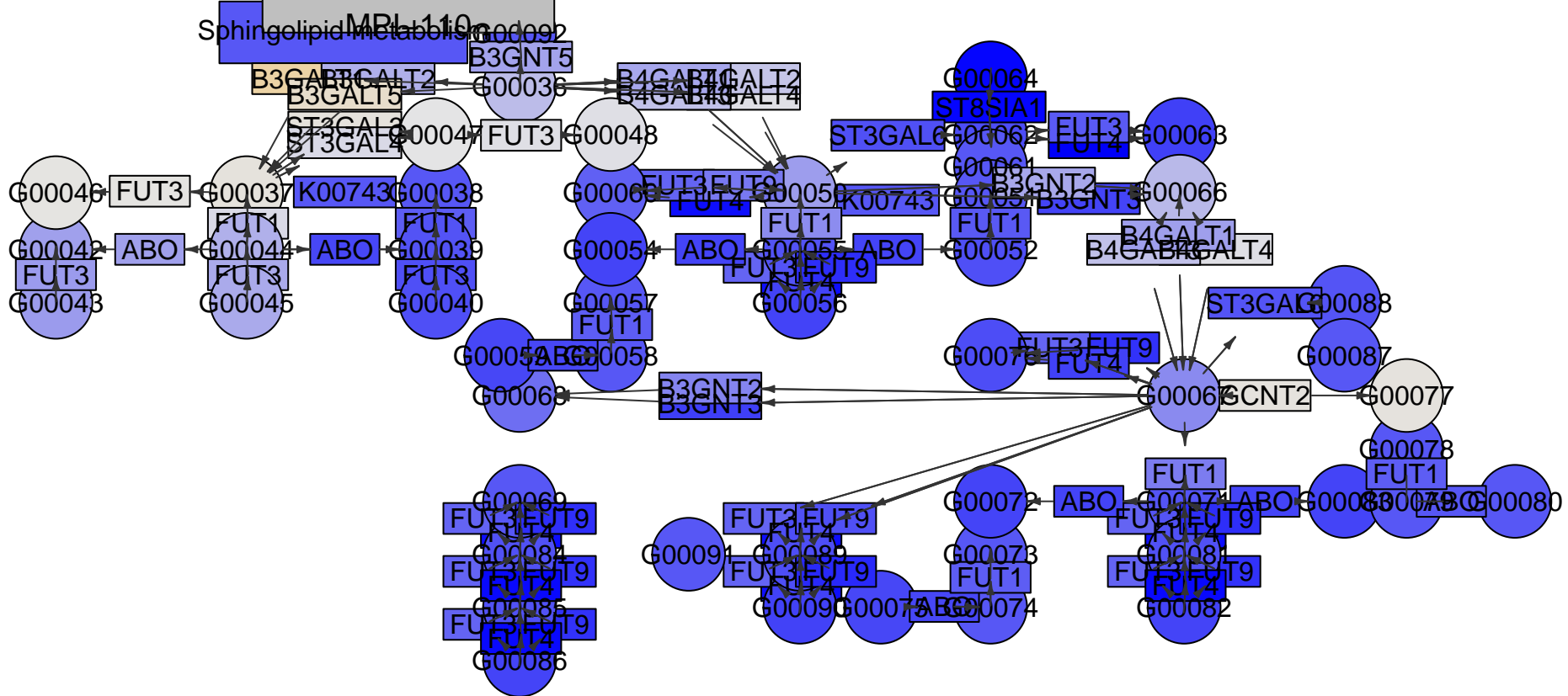
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



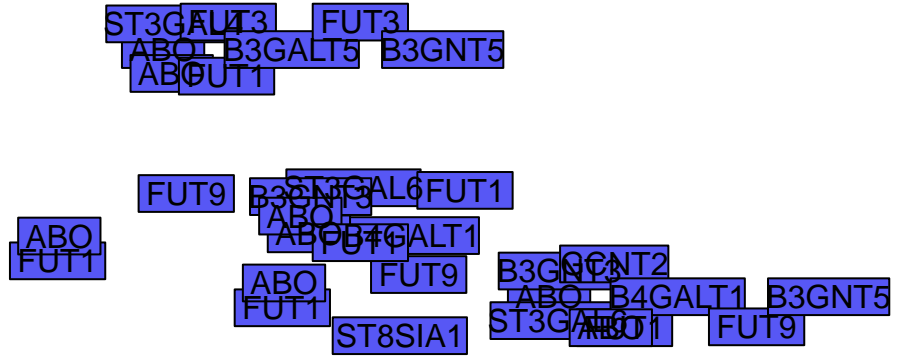
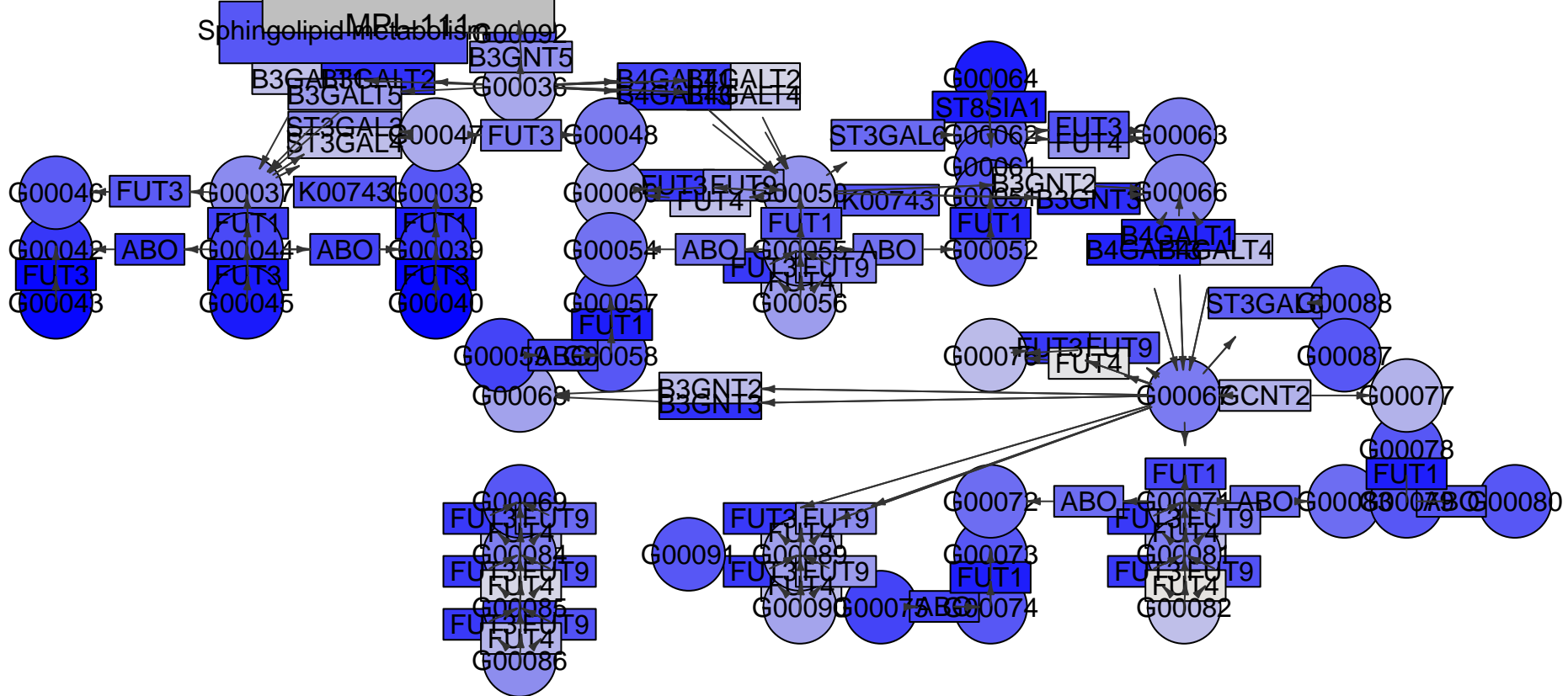
Glycosphingolipid biosynthesis – lacto and neolacto series



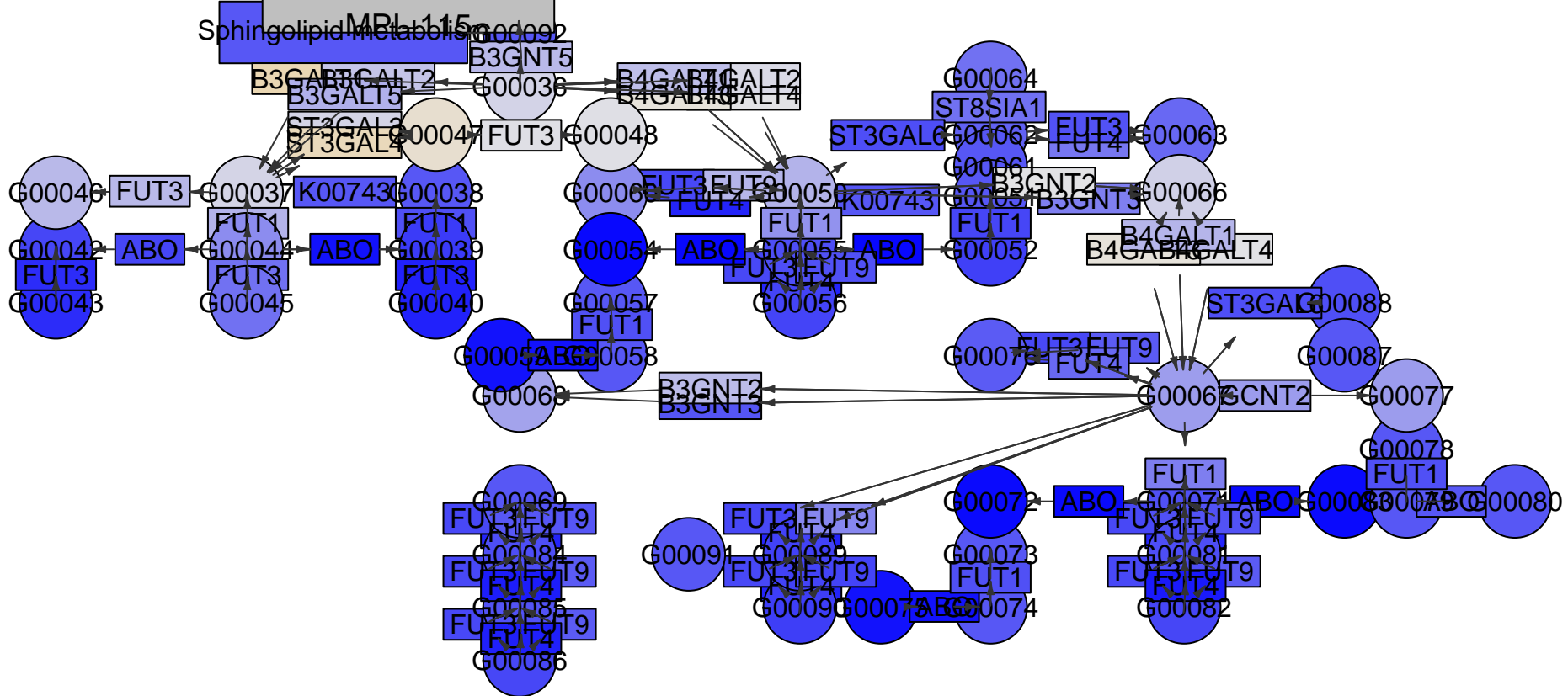
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2 ABO B4GALT1 B3GNT5
 ABO FUT1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

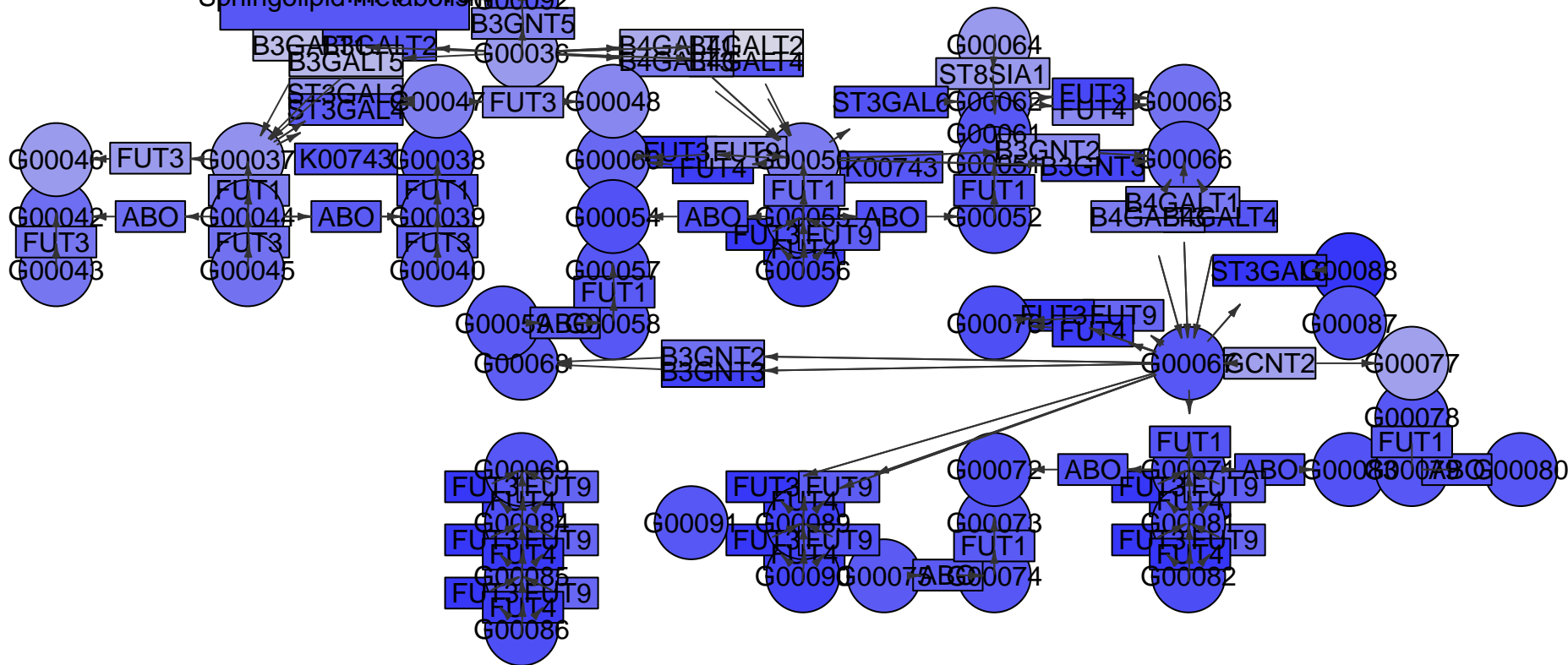


ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT2
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

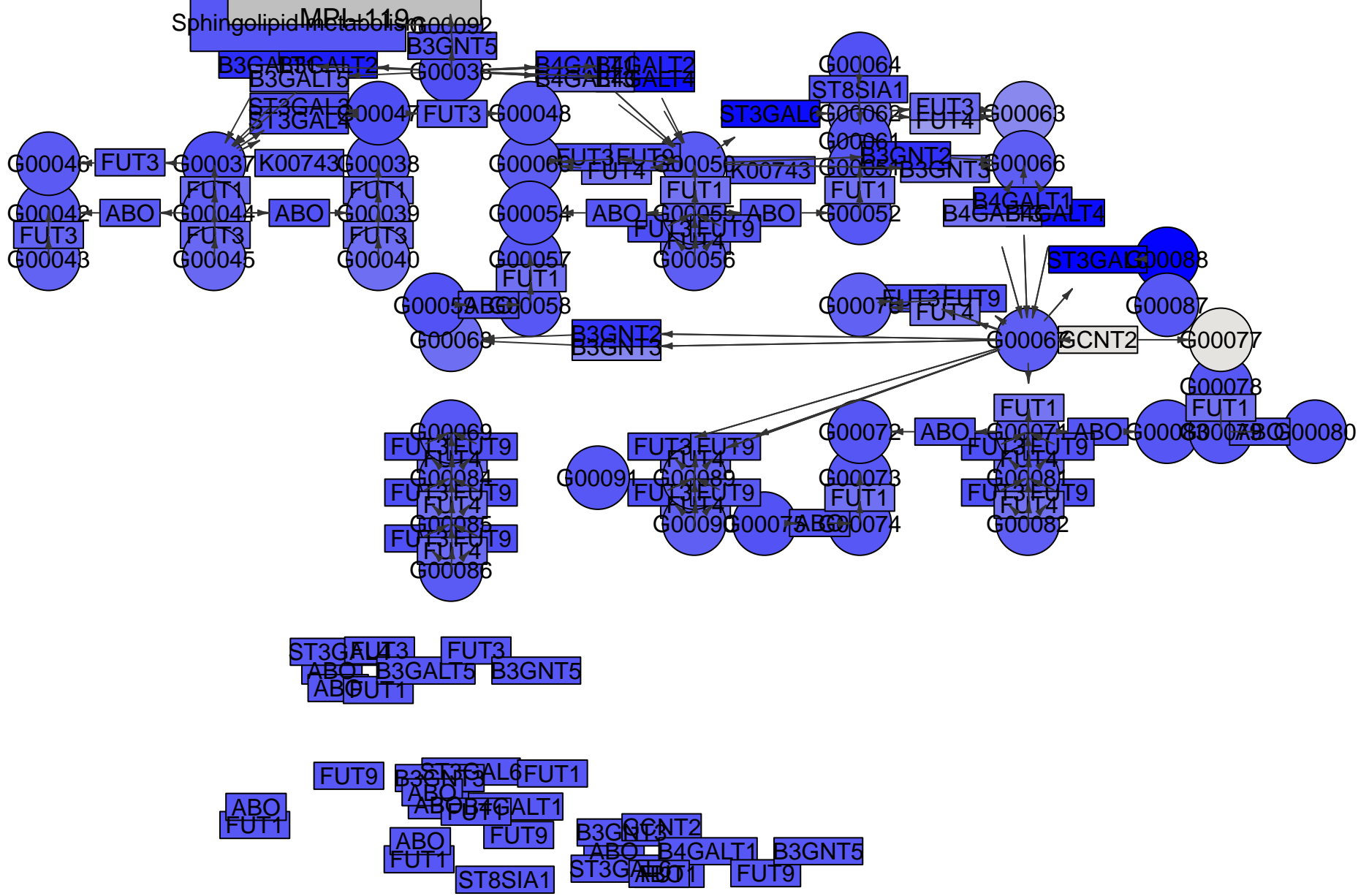
Spingolipid Metabolism



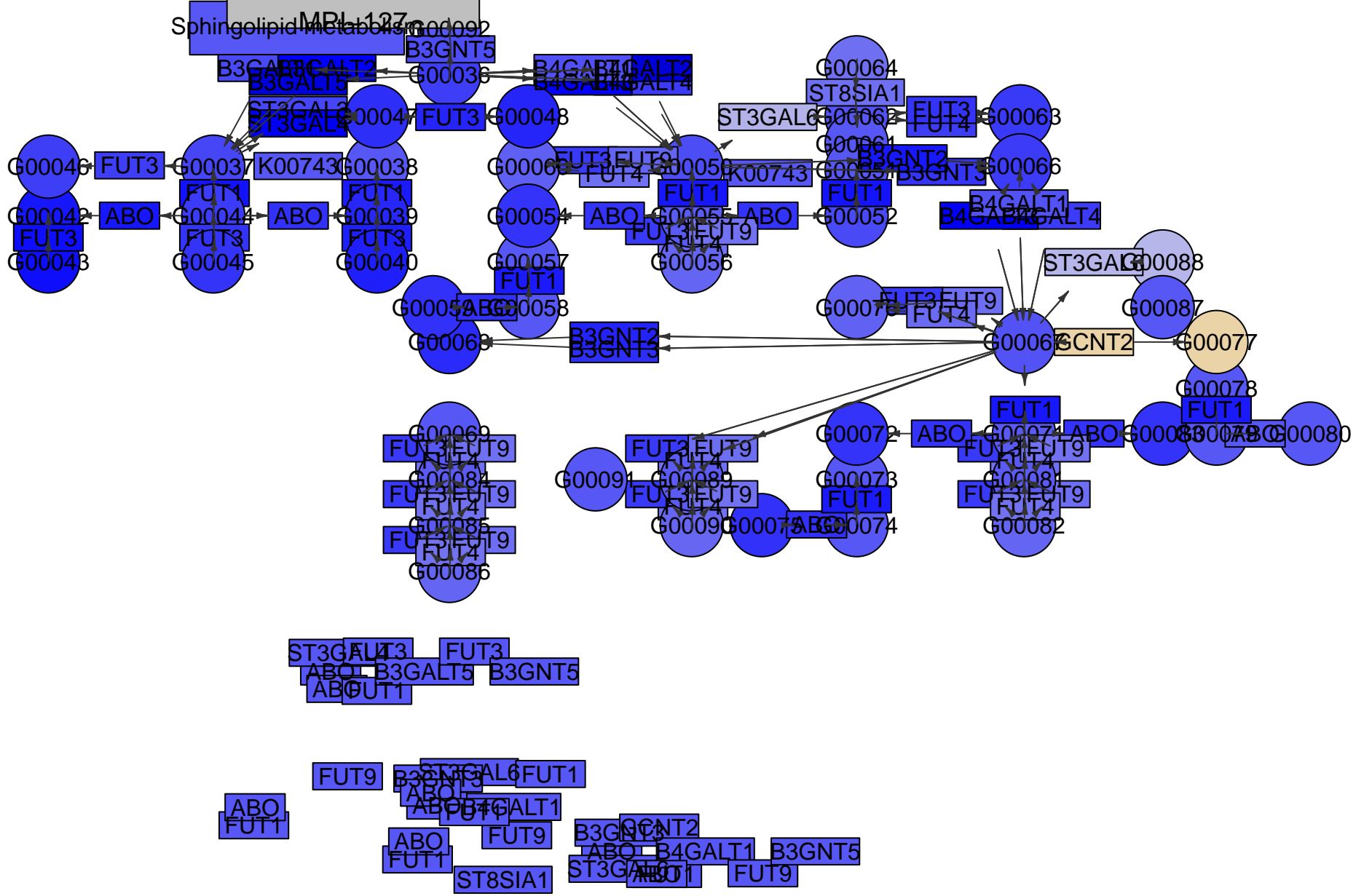
ST3GAL3 FUT3
ABO B3GALT5 B3GNT5
ABO1

FUT9 ST3GAL6 FUT1
B3GNT3 ABO1 B4GALT1
ABO1
ABO1 FUT9 B3GNT2
FUT1 ABO1 B4GALT1 B3GNT5
ST8SIA1 ST3GAL6 ABO1 FUT9

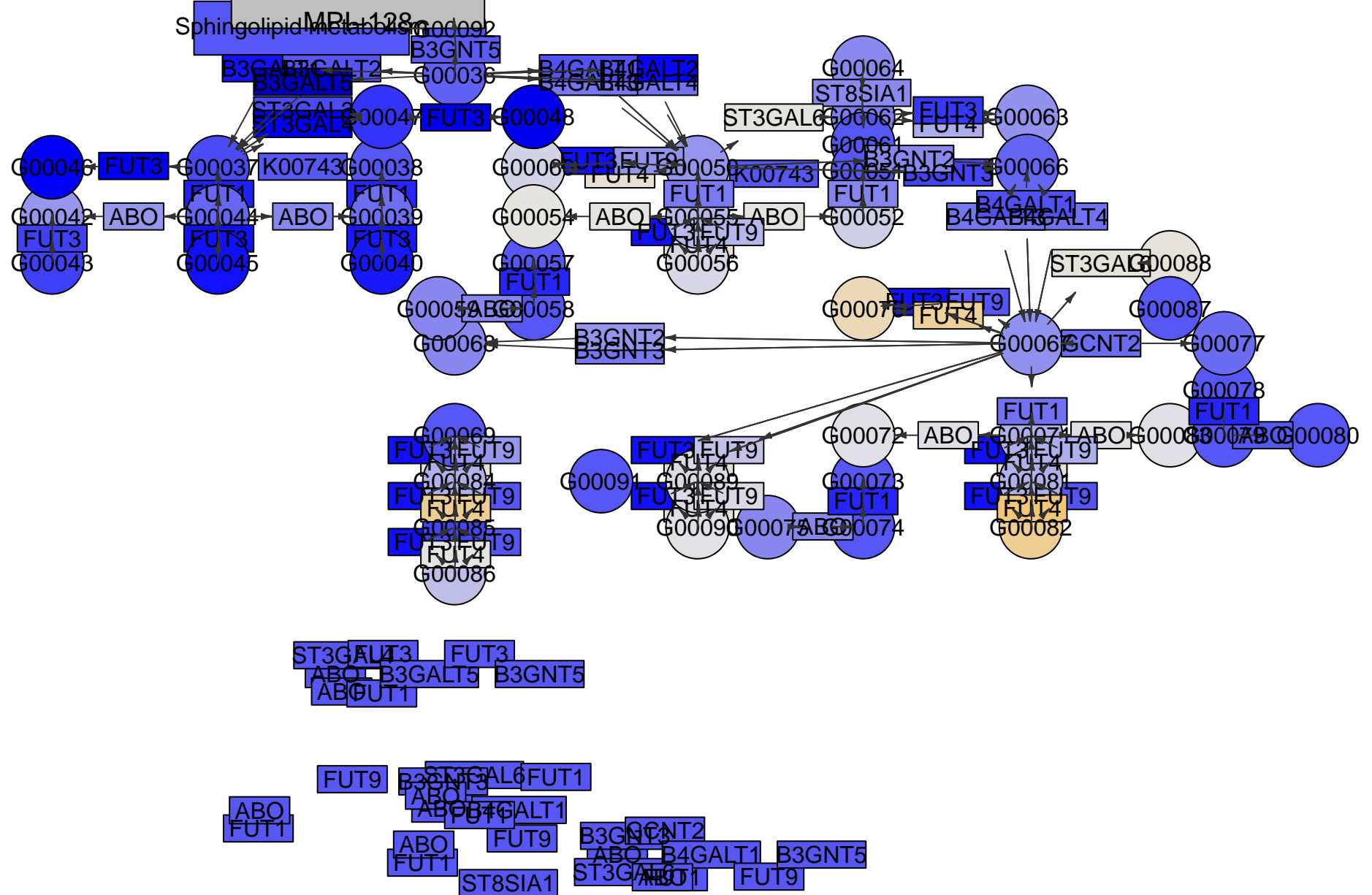
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



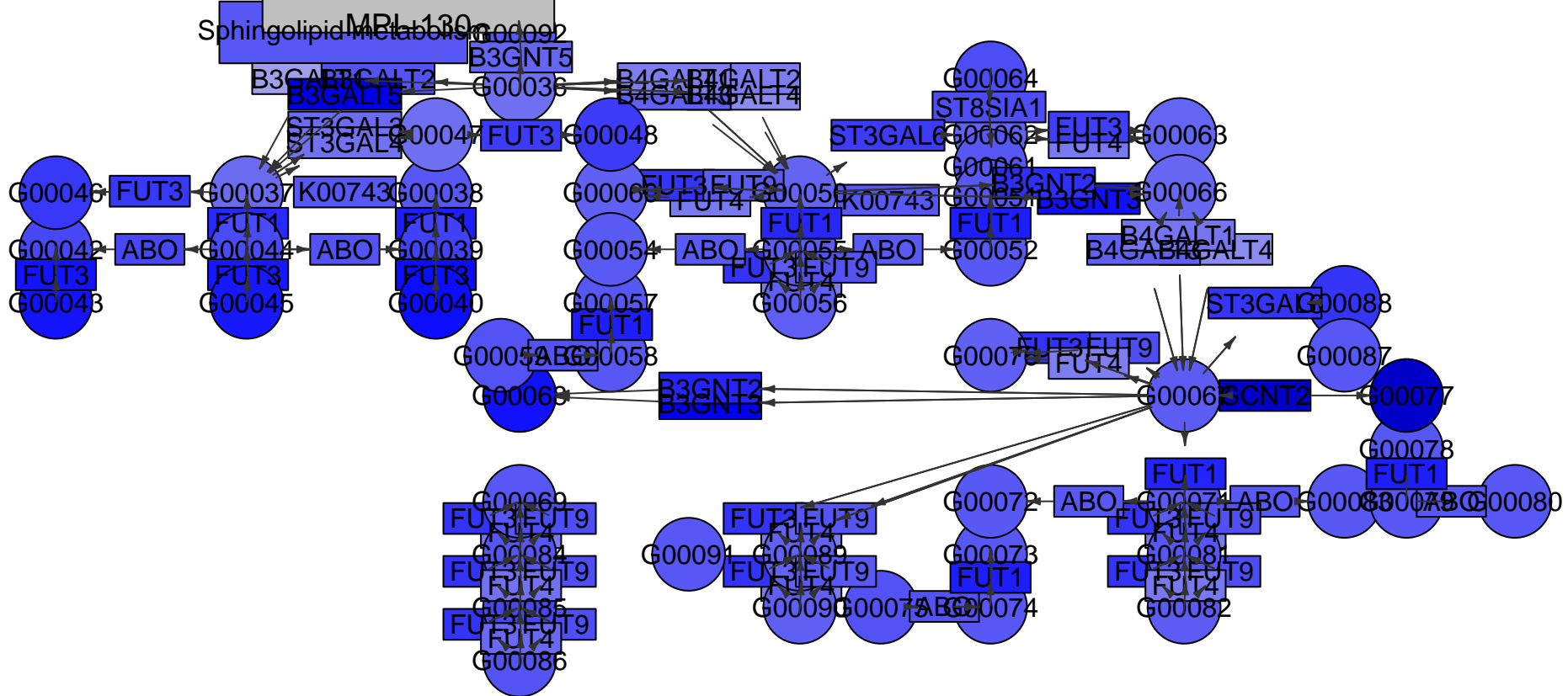
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GALT3 FUT3
ABO B3GALT5 B3GNT5
ABO FUT1

ABO FUT1
FUT9 B3GNT5 ST3GAL6 FUT1
ABO B4GALT1
ABO FUT9 B3GNT2
ABO B4GALT1 B3GNT5
ST8SIA1 ST3GALT1 ABO FUT9

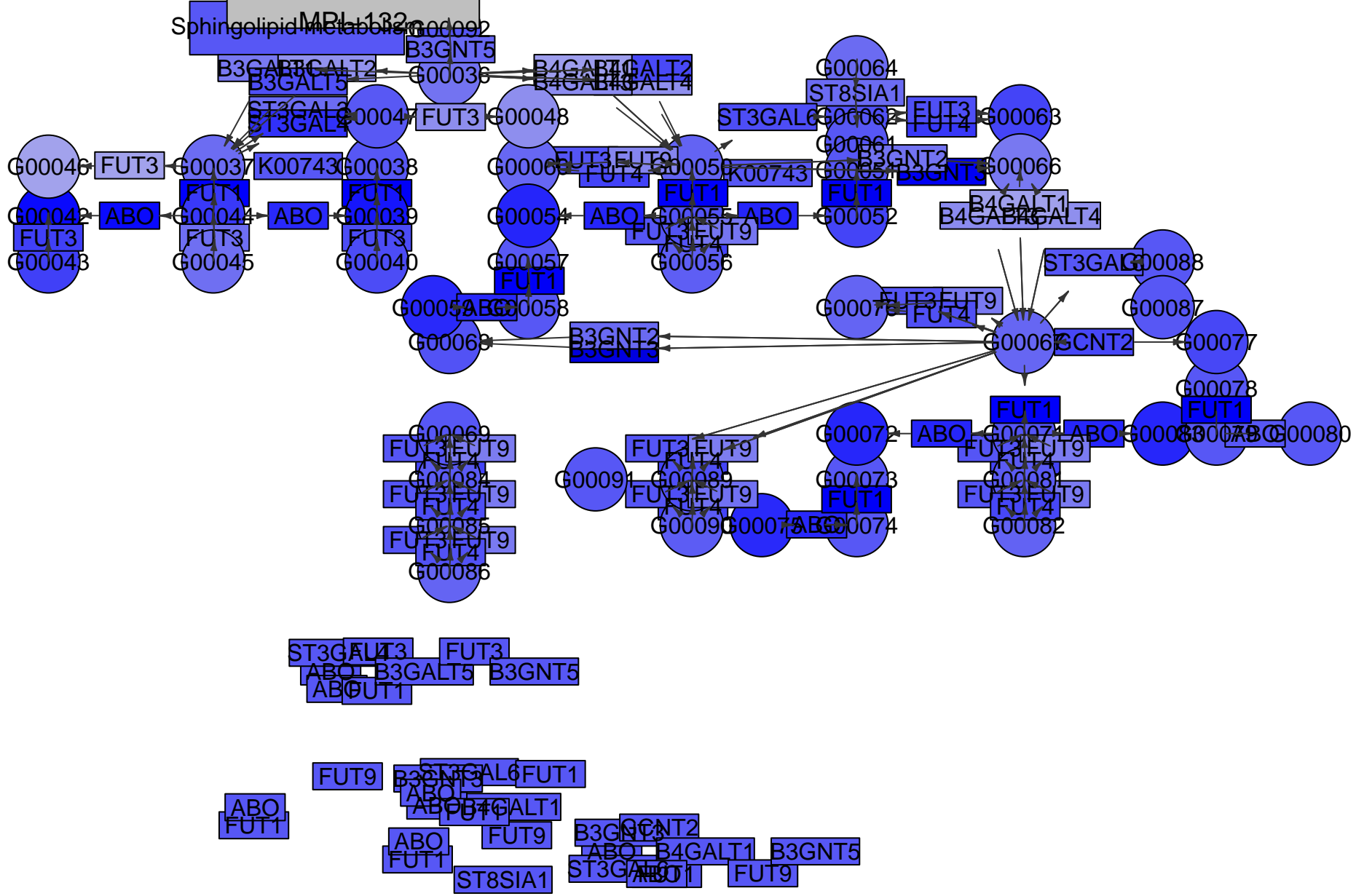
Glycosphingolipid biosynthesis – lacto and neolacto series



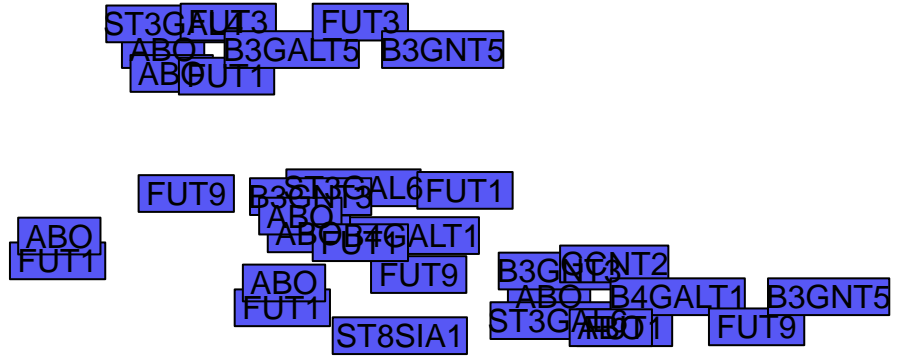
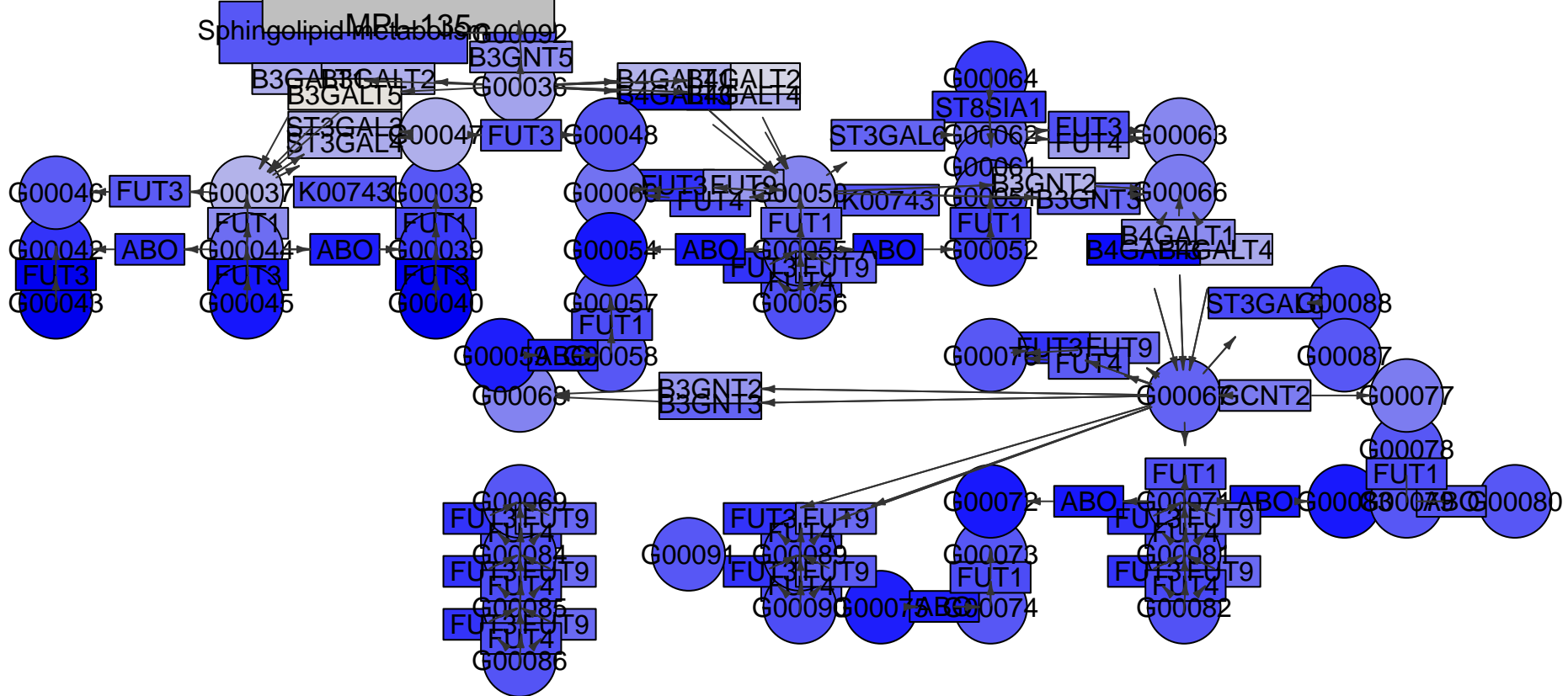
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST8SIA1 ST3GAL6 ABO FUT9

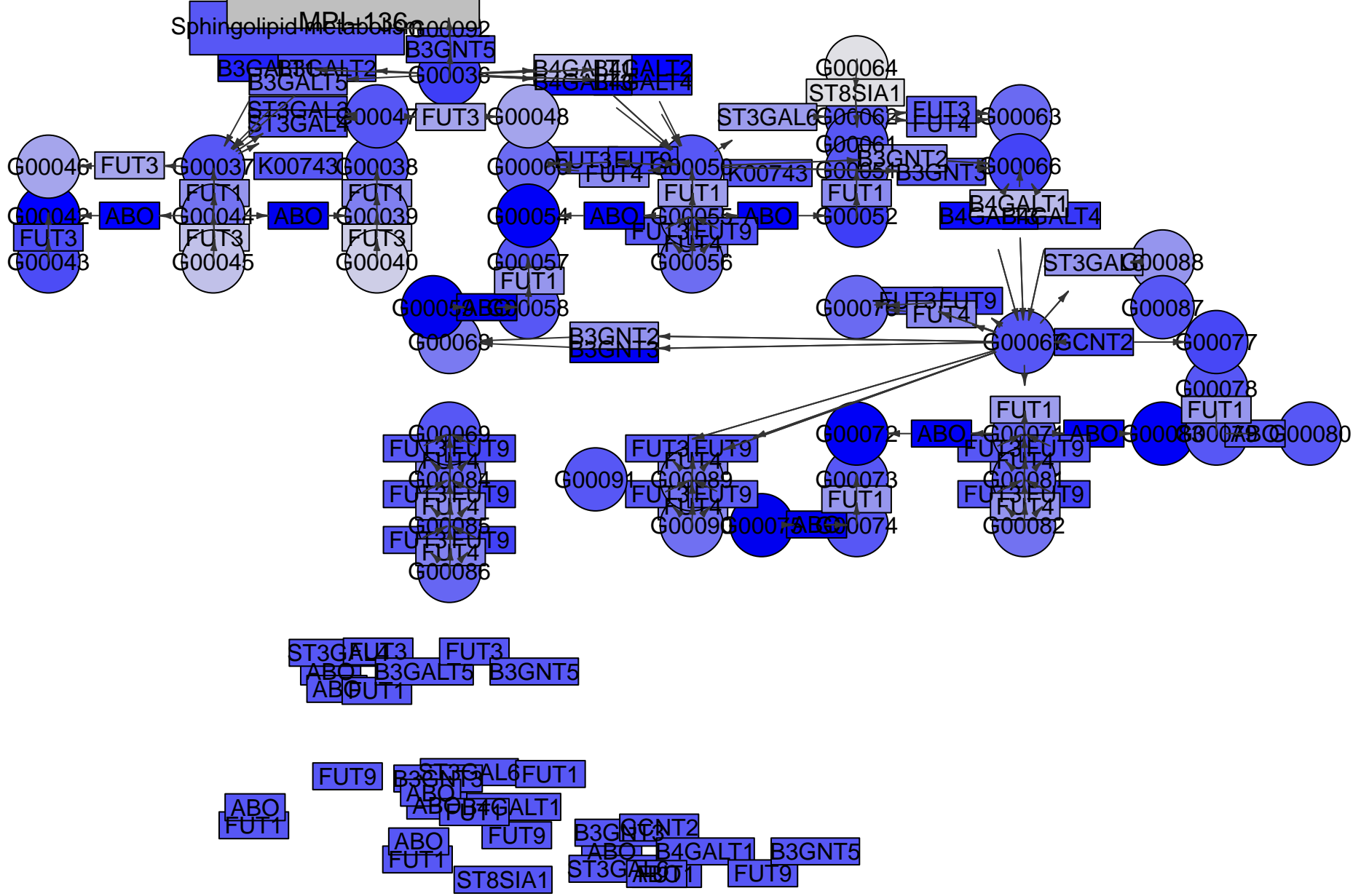
Glycosphingolipid biosynthesis – lacto and neolacto series



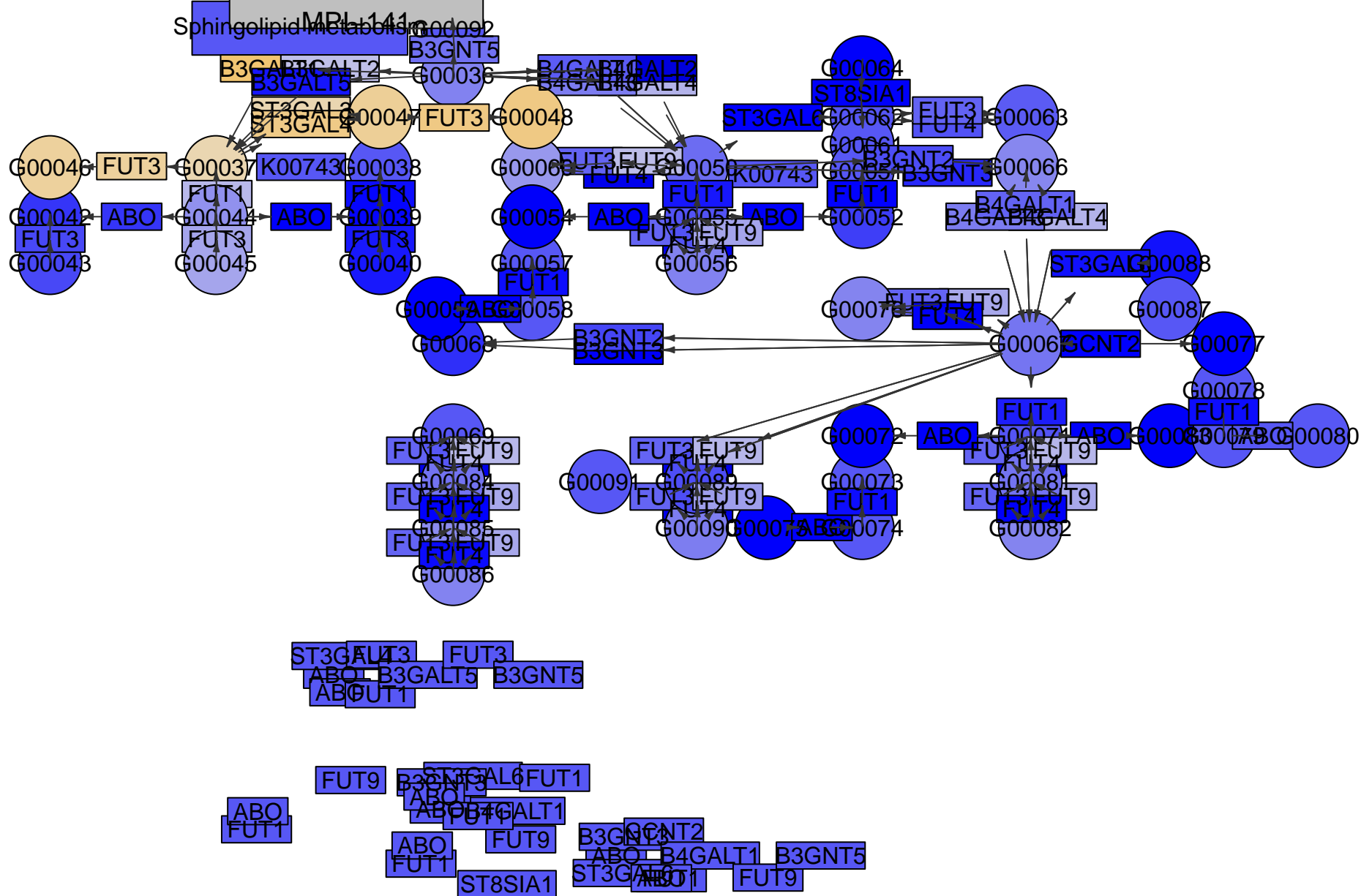
Glycosphingolipid biosynthesis – lacto and neolacto series



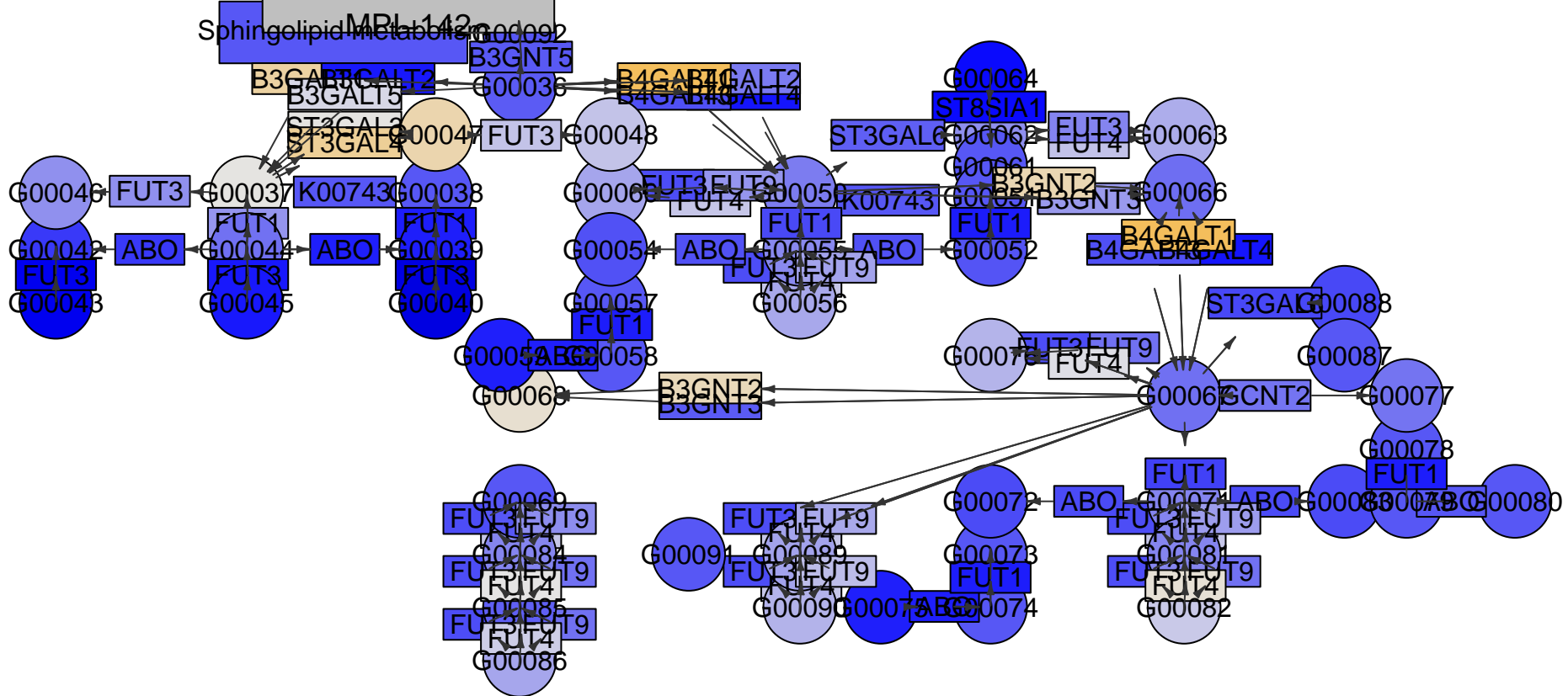
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



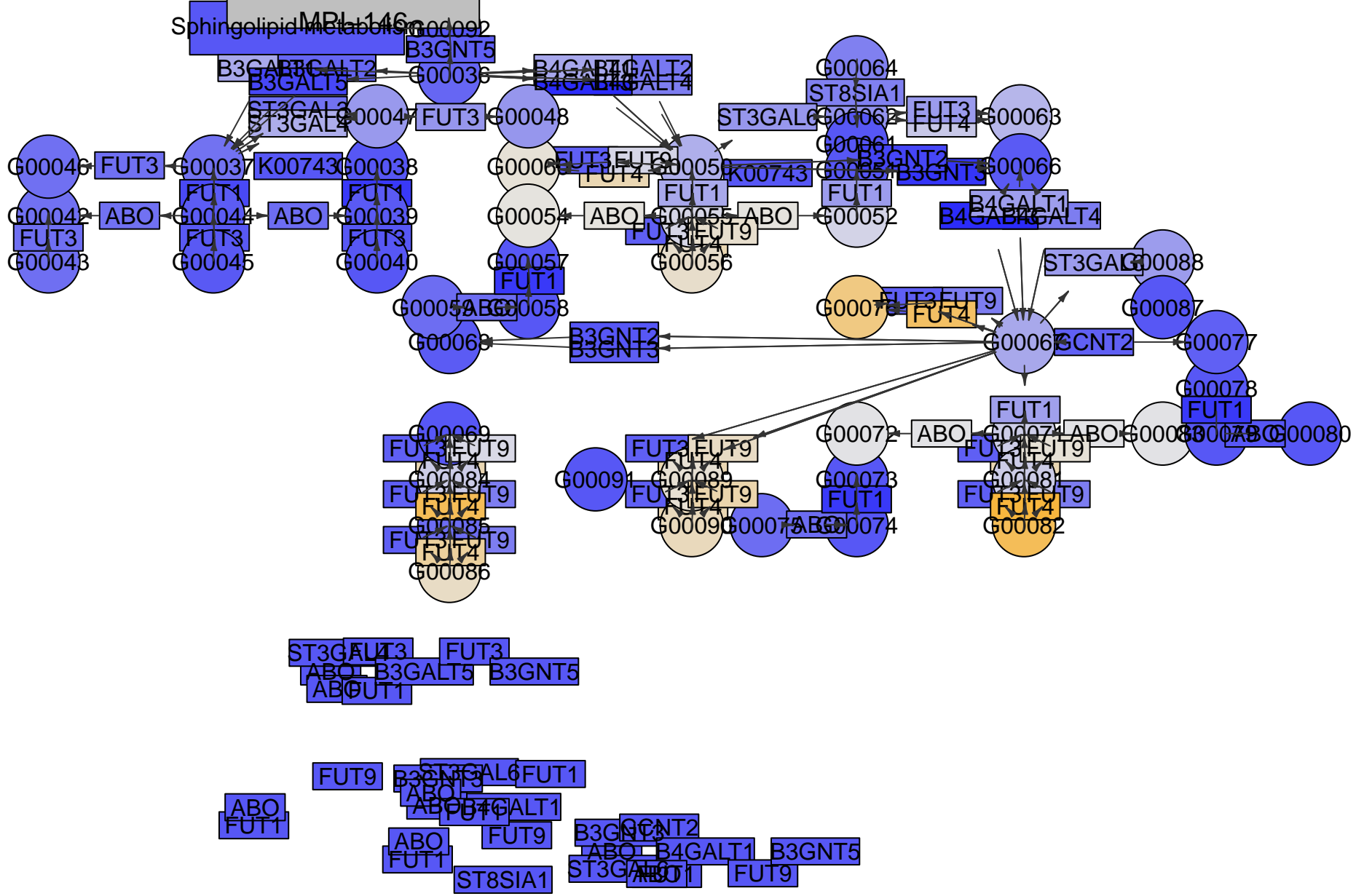
Glycosphingolipid biosynthesis – lacto and neolacto series



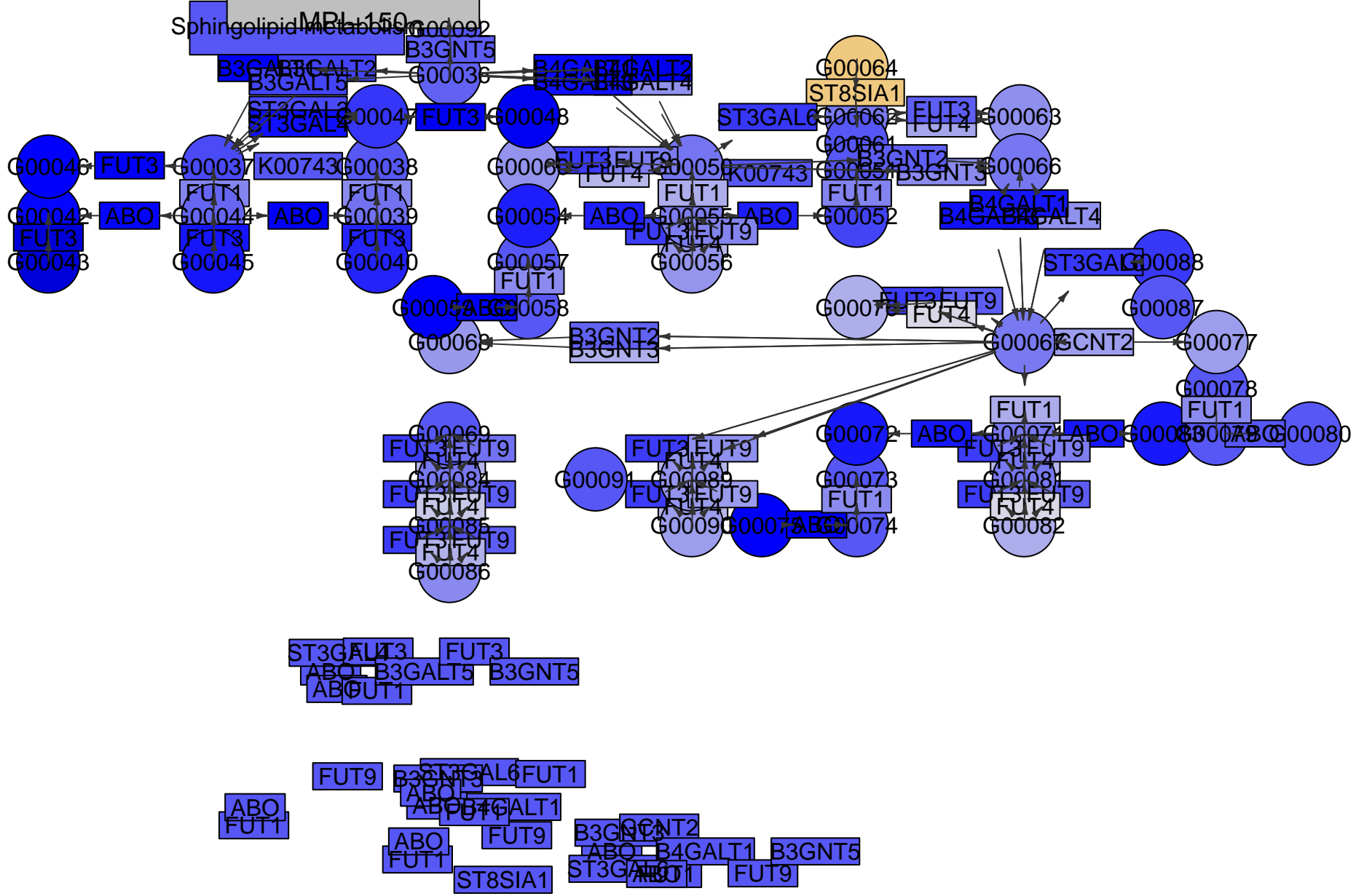
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

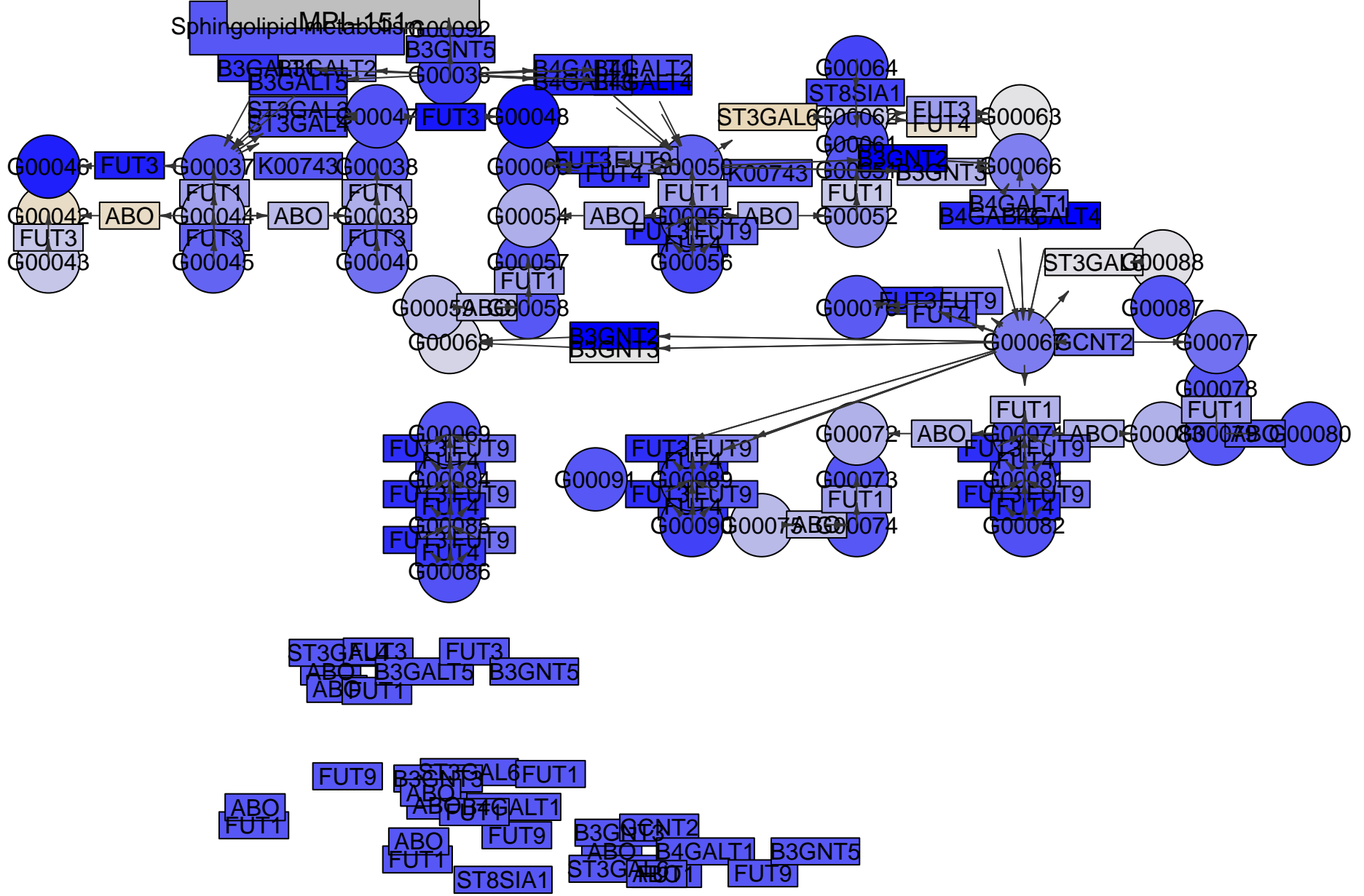
Glycosphingolipid biosynthesis – lacto and neolacto series



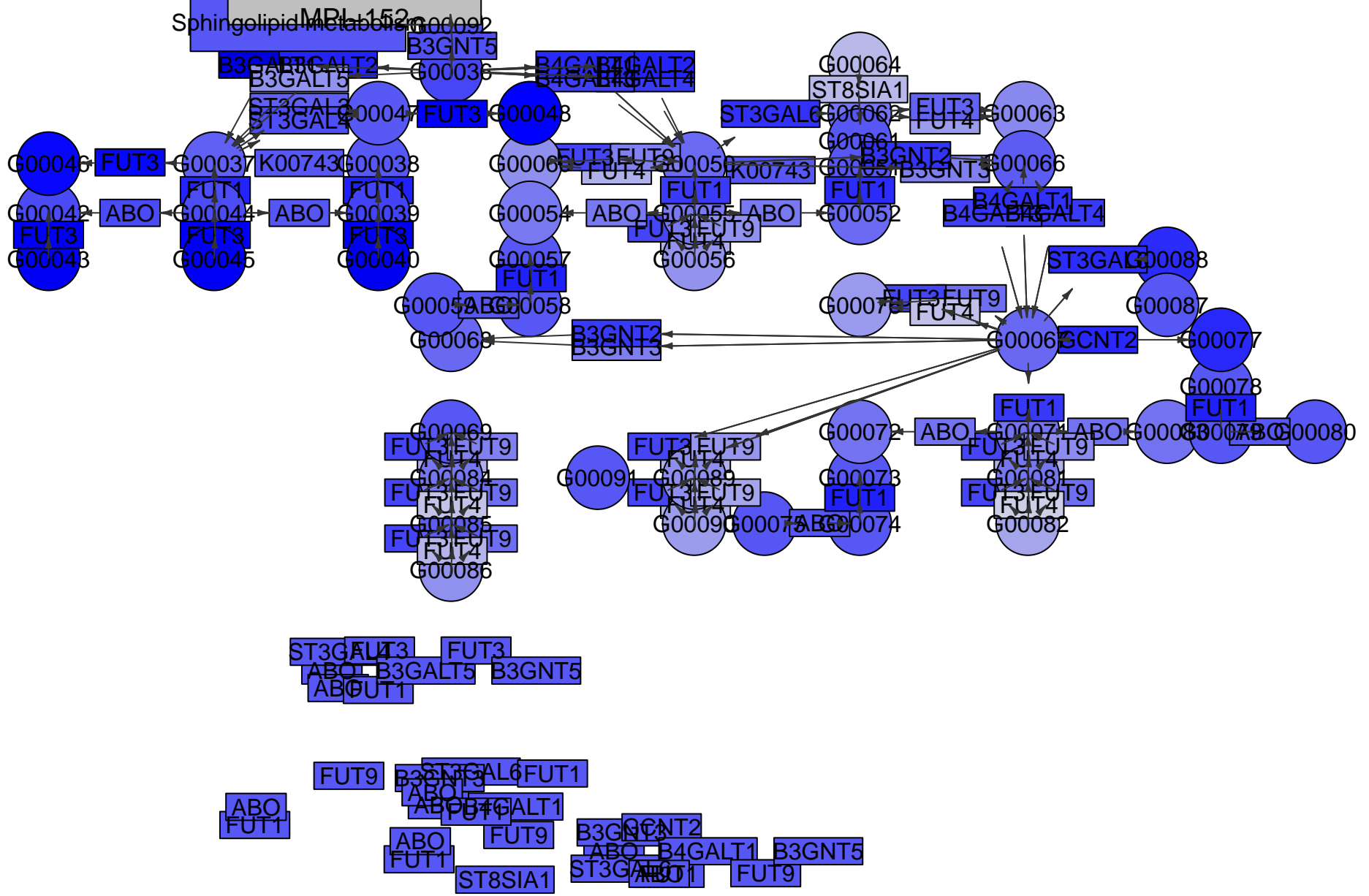
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

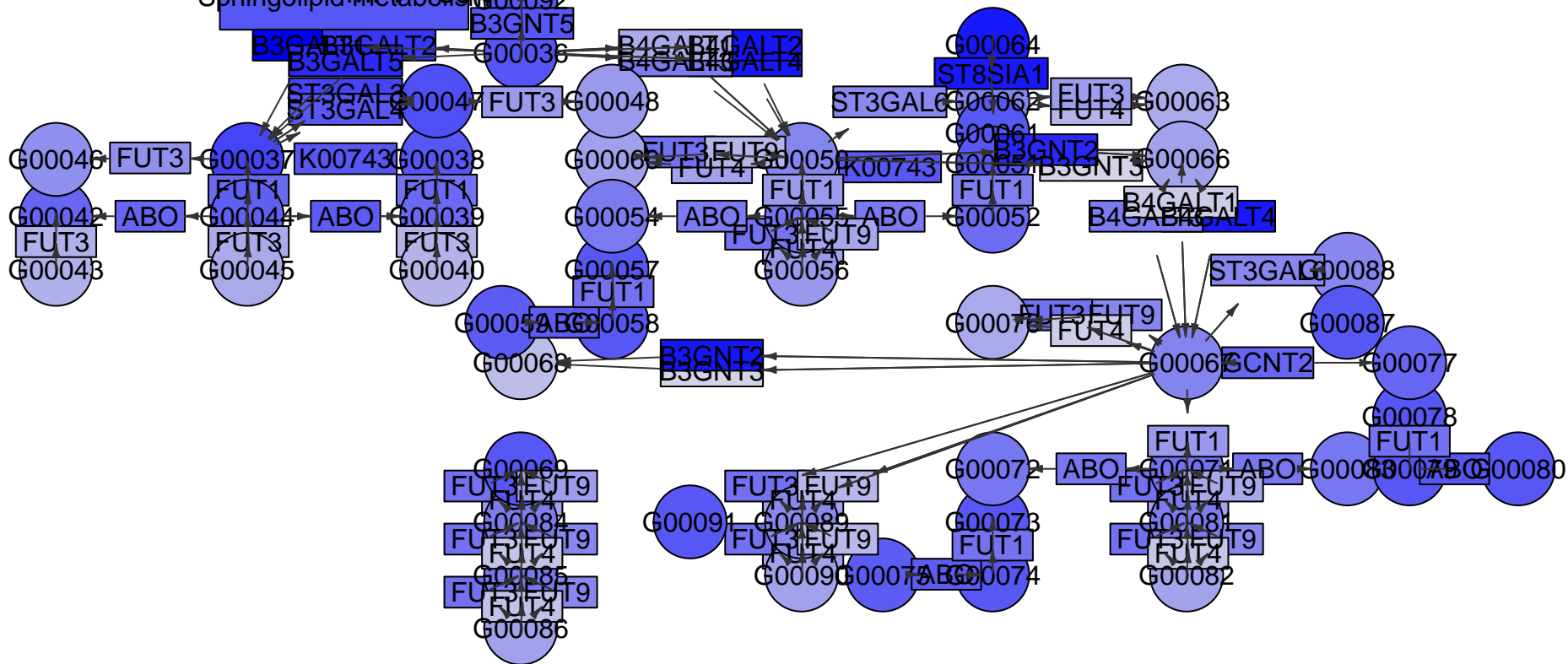


Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

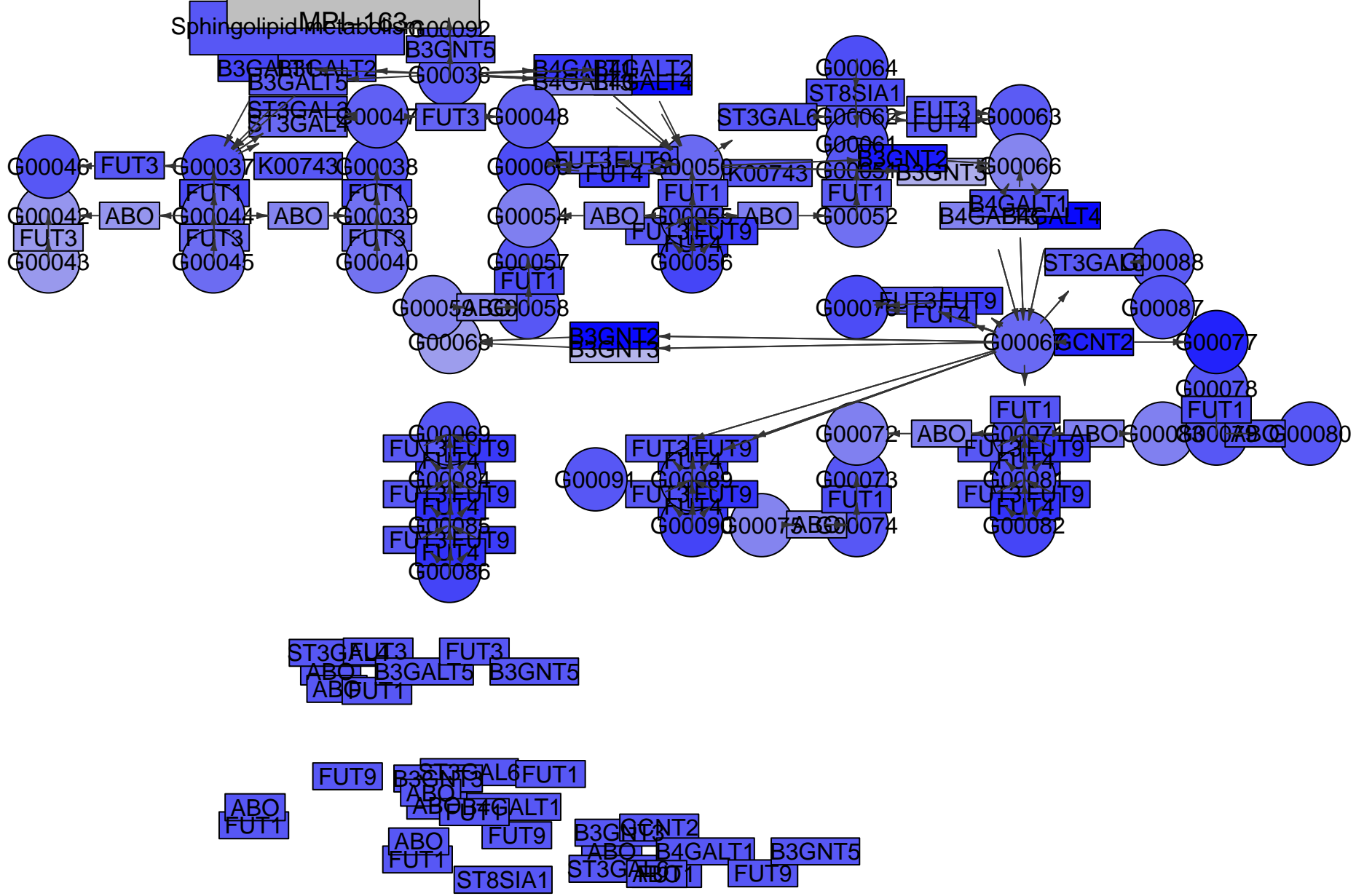
Spingolipid Metabolism



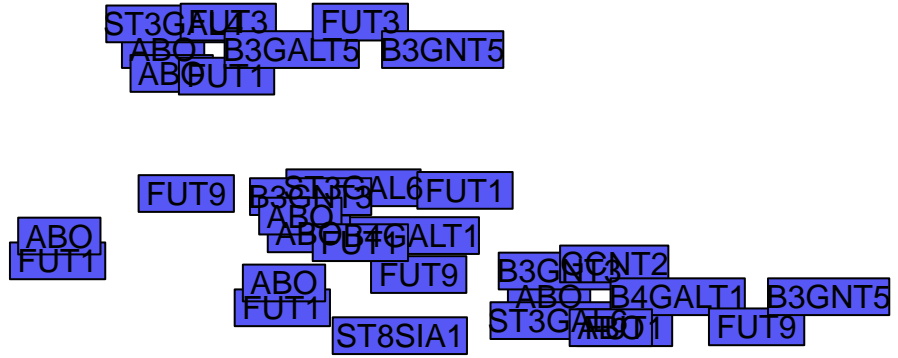
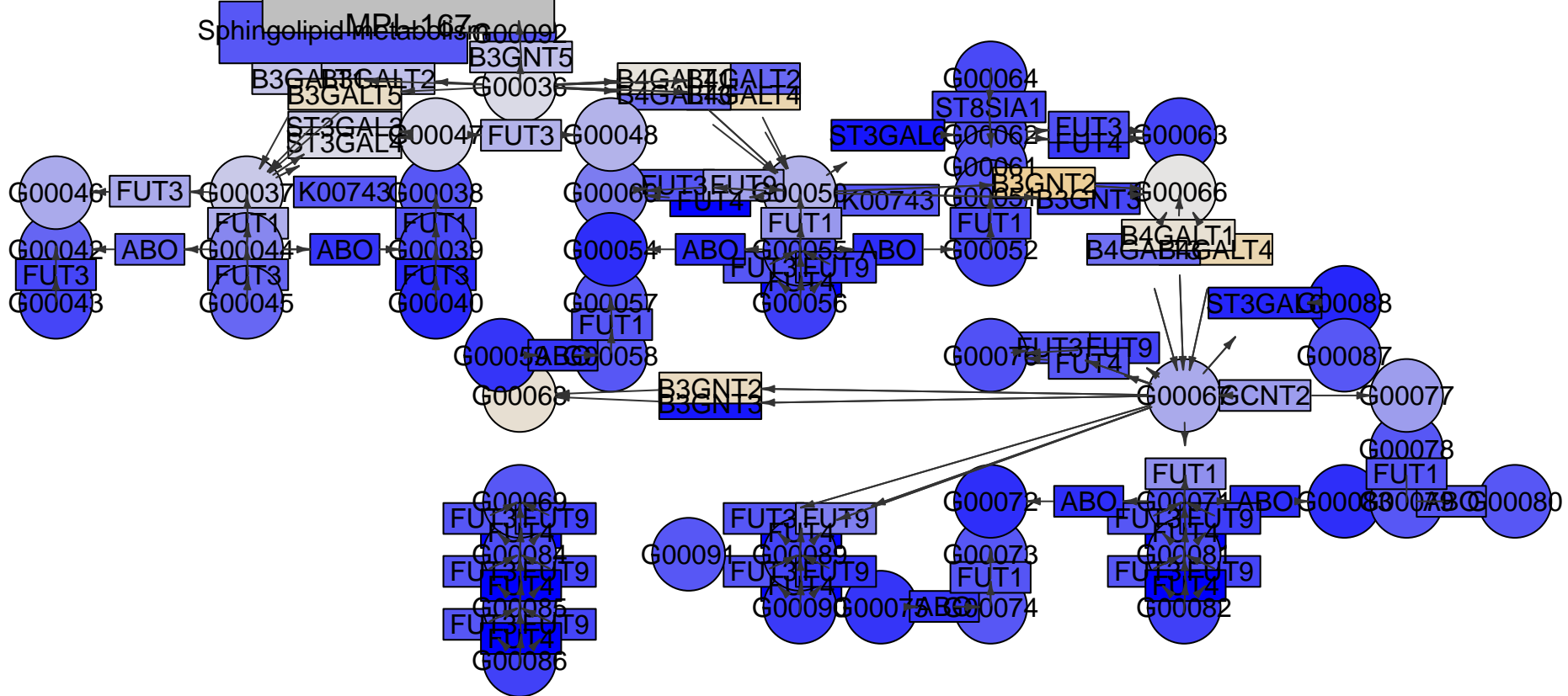
ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

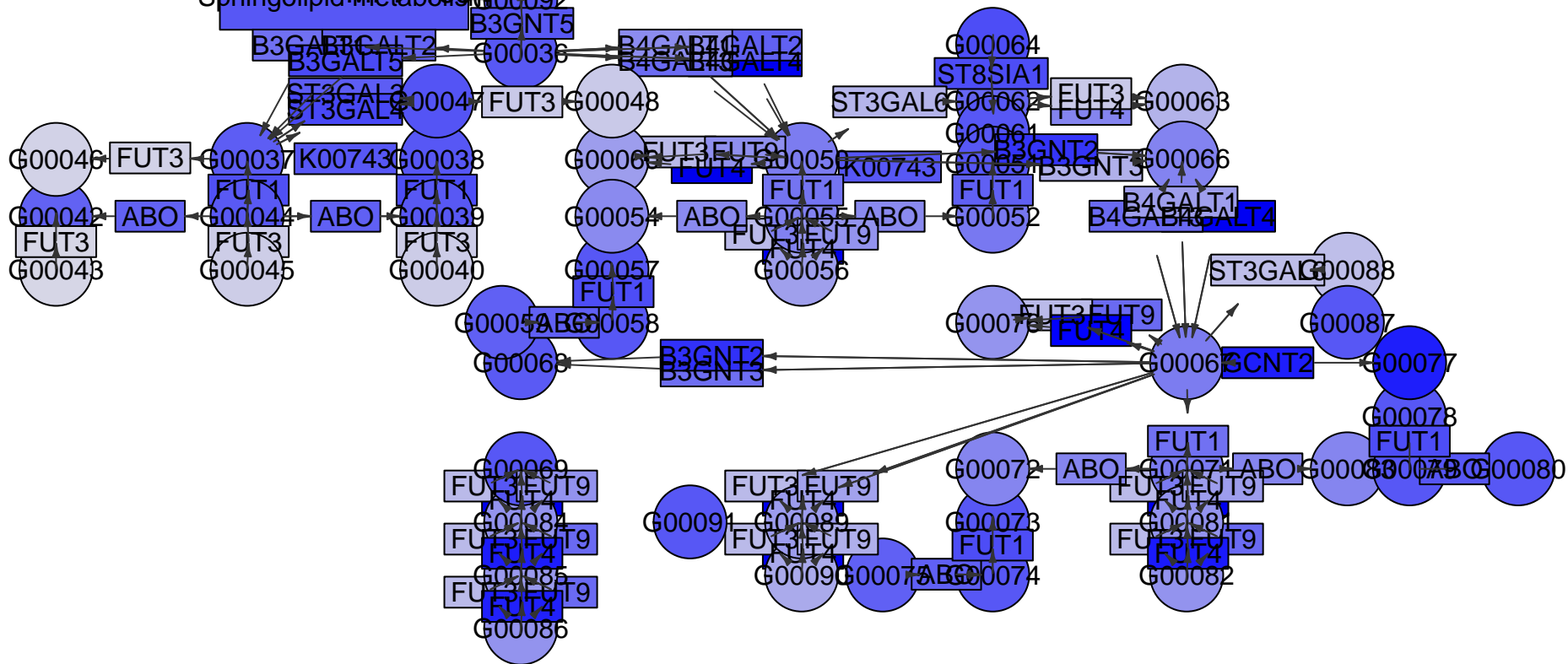


Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

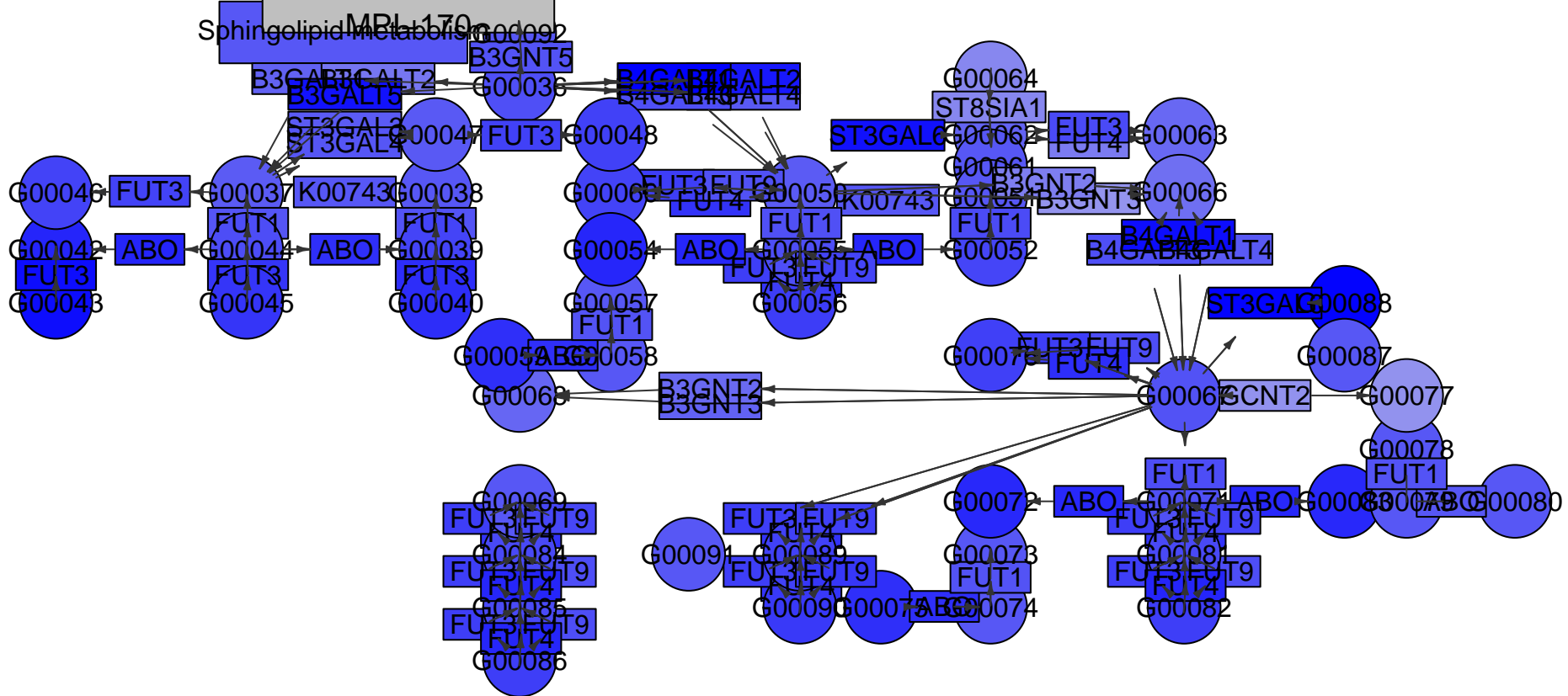
Spingolipid Metabolism



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO1

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO1
 ABO1 B4GALT1
 ABO1
 ABO1 FUT9 B3GNT2
 ABO1 B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO1 FUT9

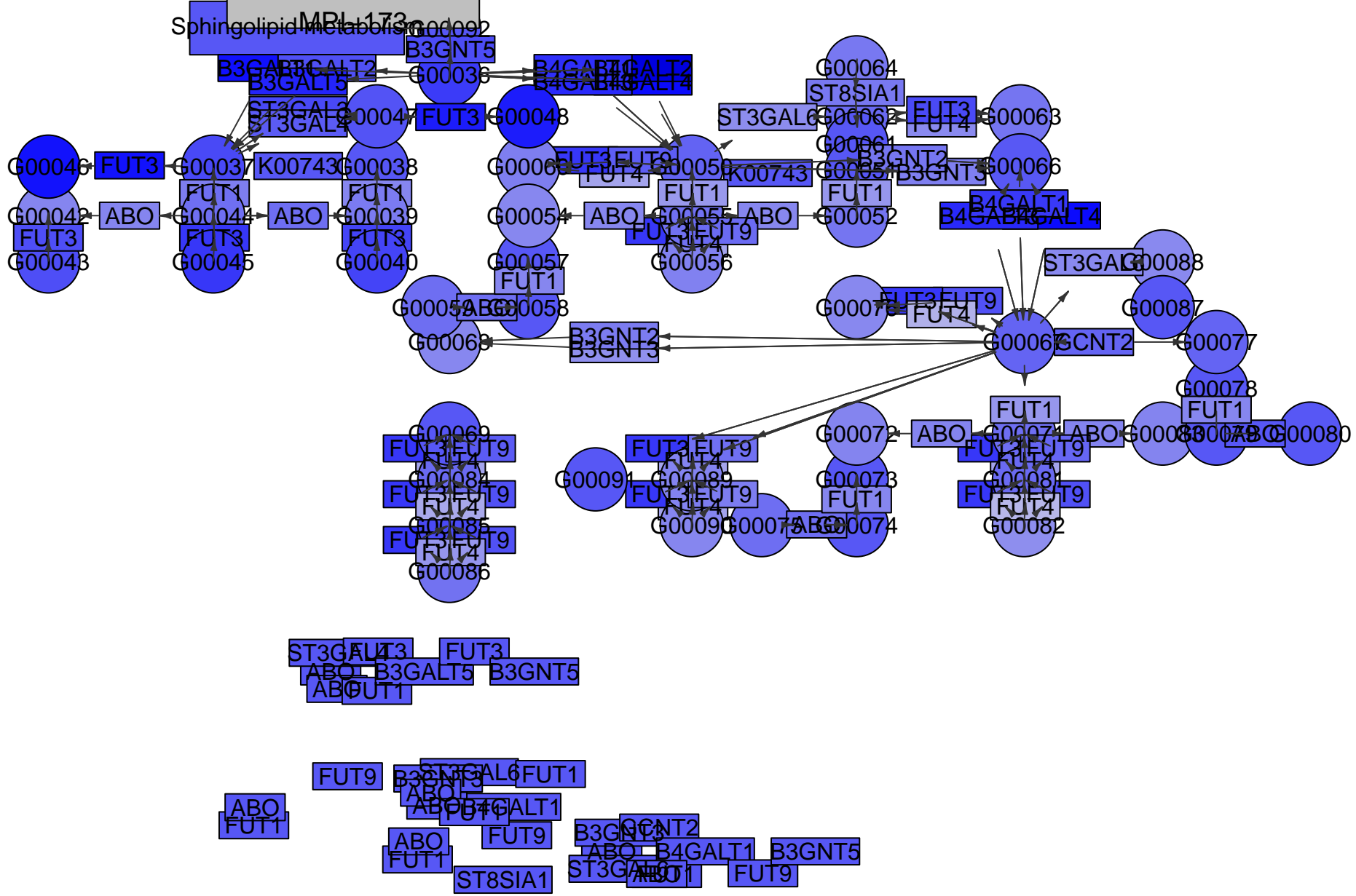
Glycosphingolipid biosynthesis – lacto and neolacto series



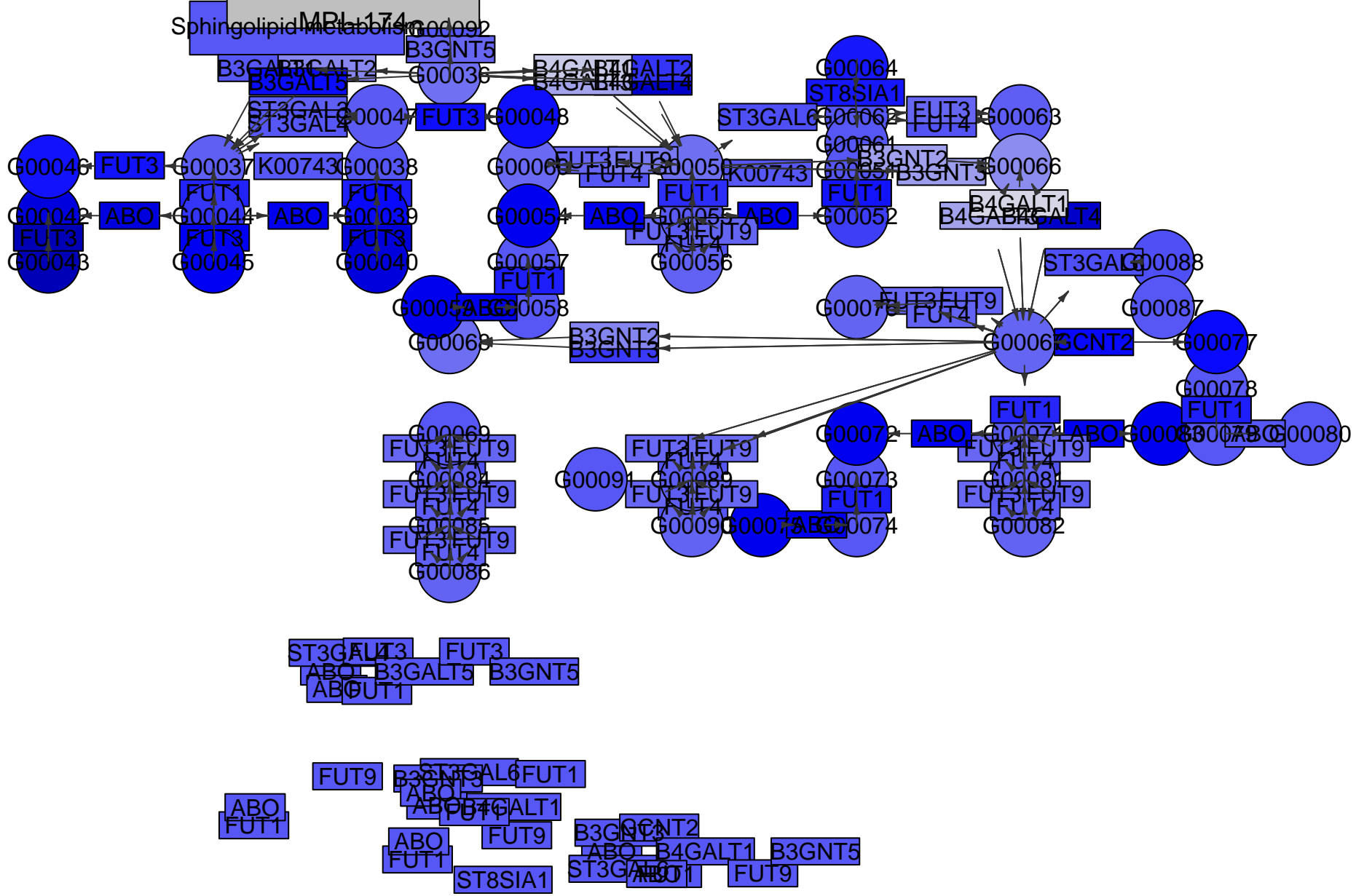
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO FUT1
 ST8SIA1 ST3GAL6 ABO FUT9

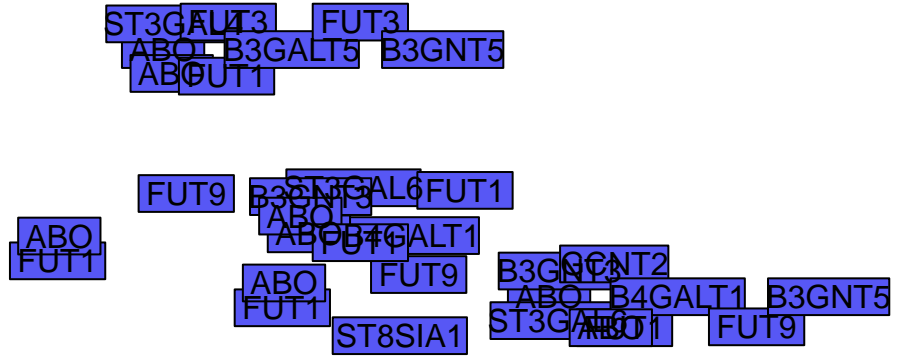
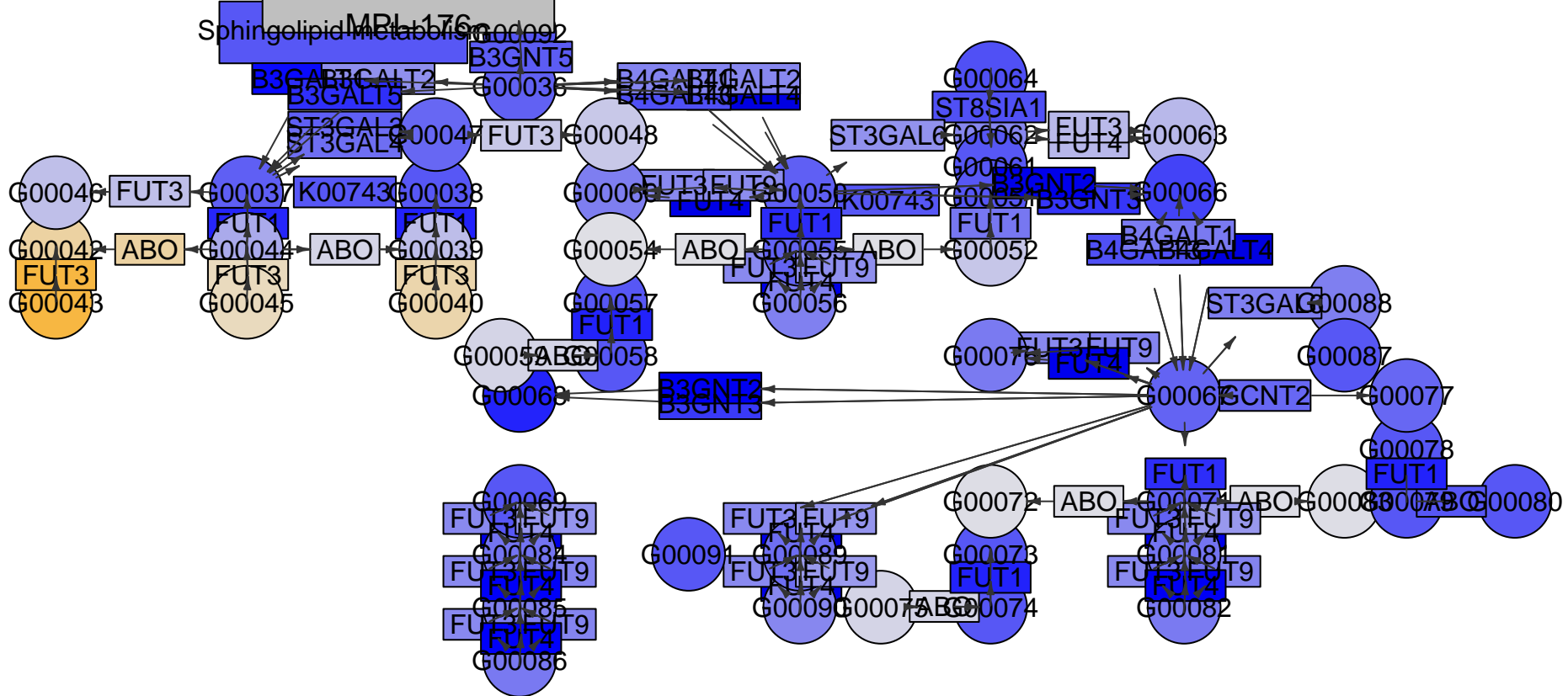
Glycosphingolipid biosynthesis – lacto and neolacto series



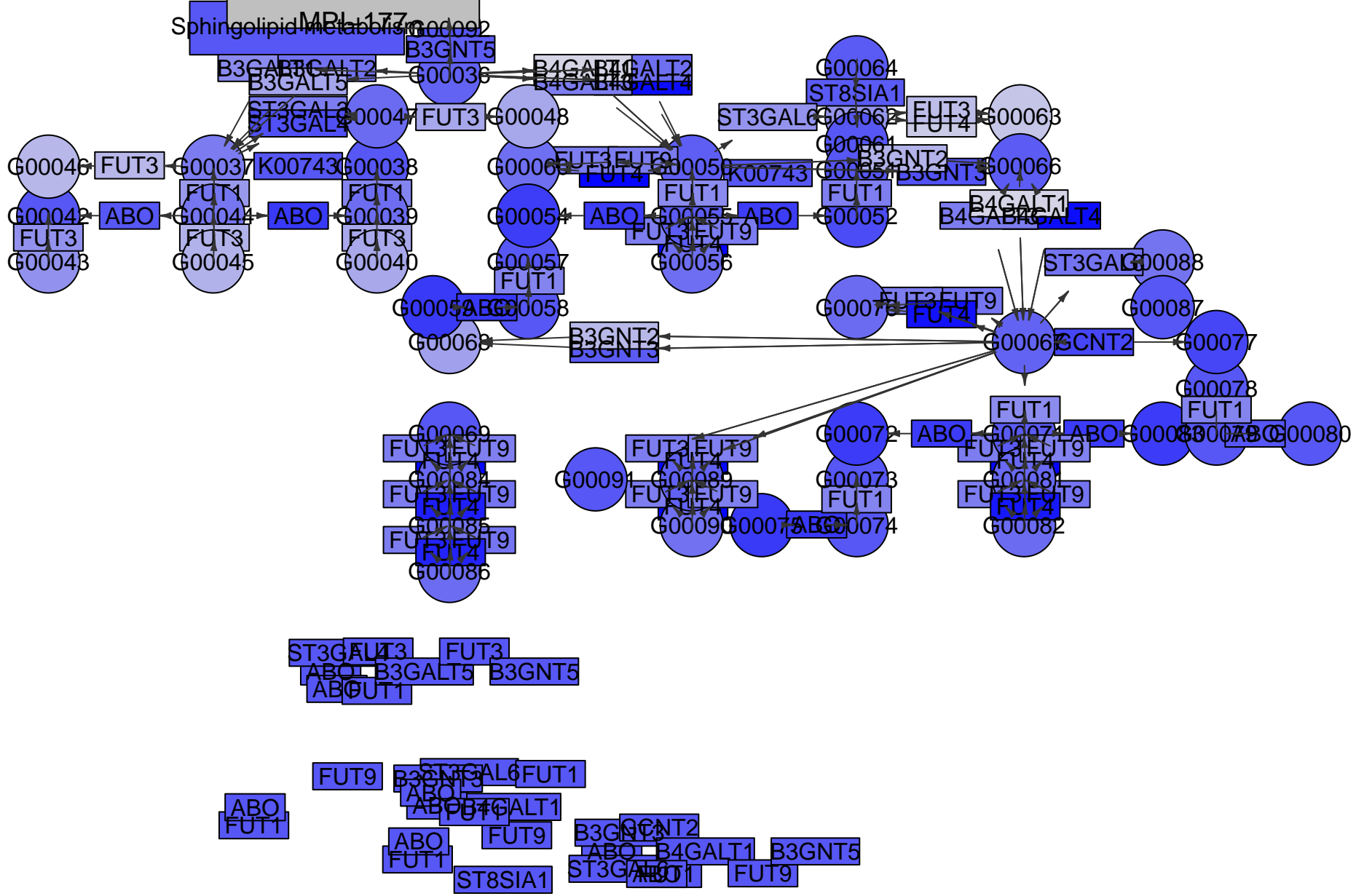
Glycosphingolipid biosynthesis – lacto and neolacto series



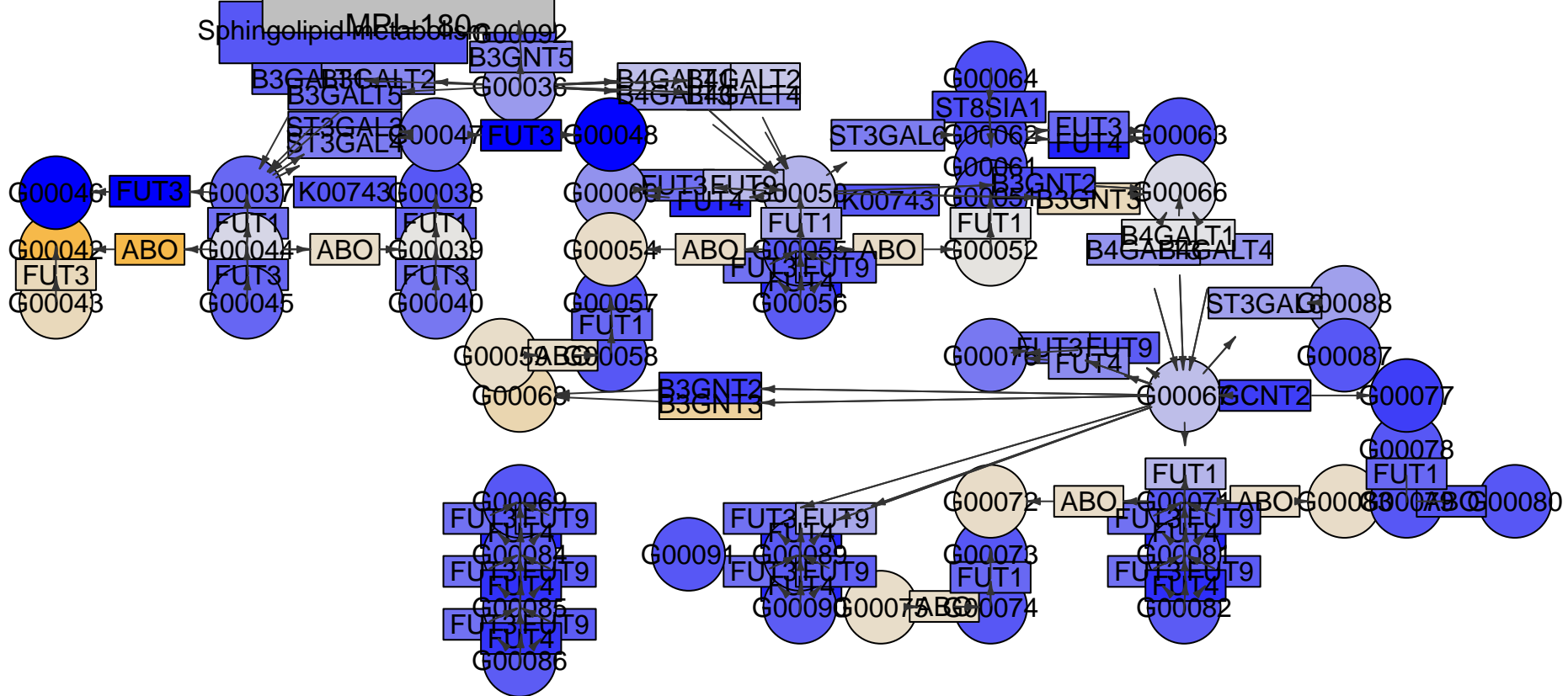
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



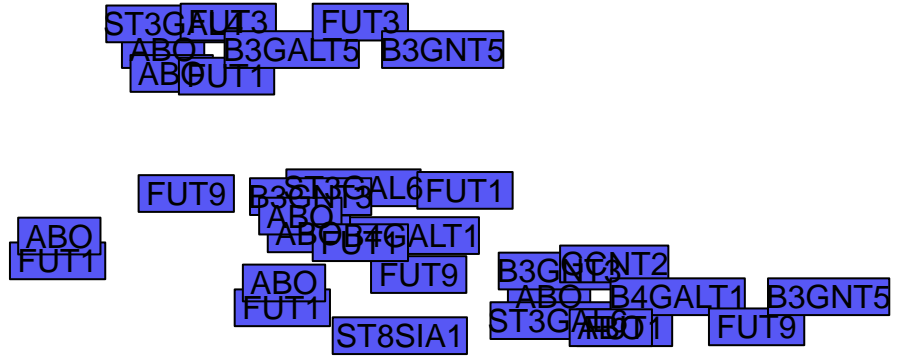
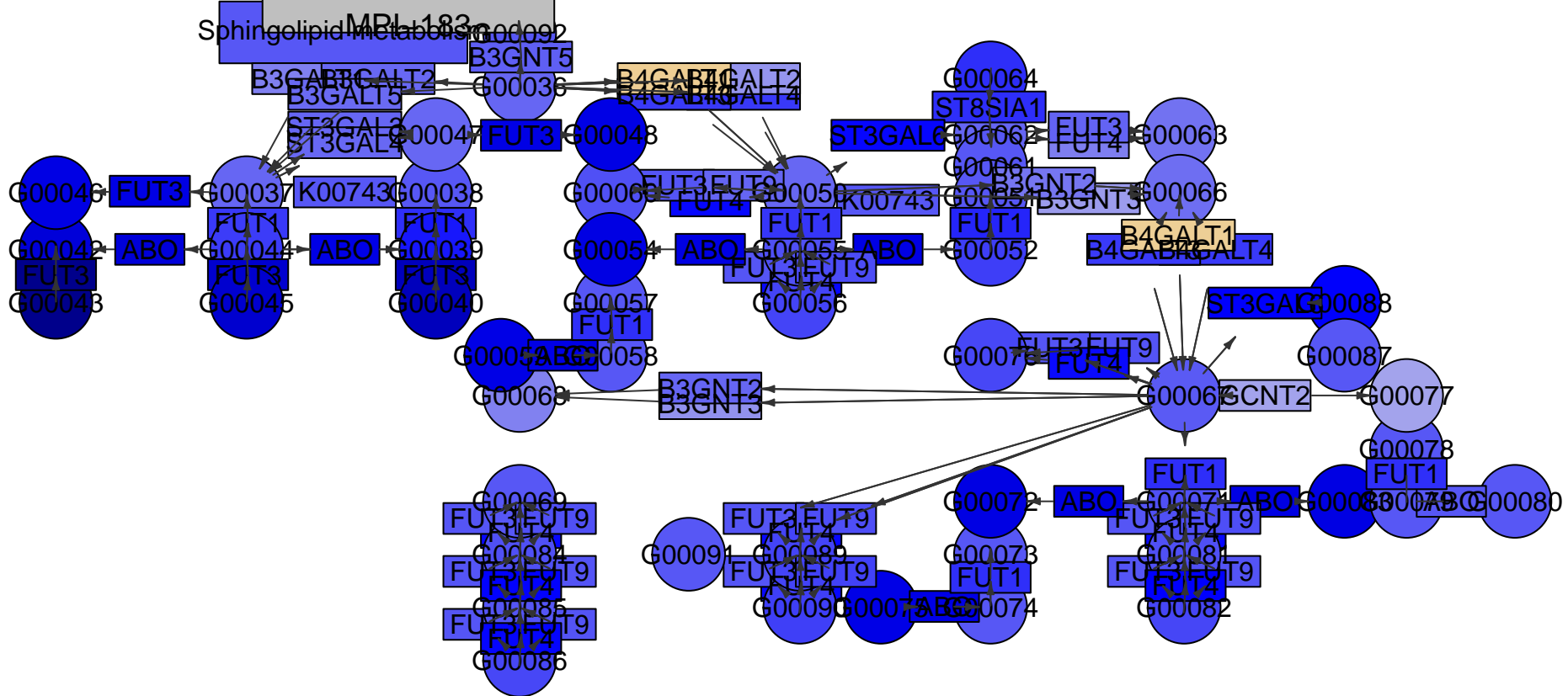
Glycosphingolipid biosynthesis – lacto and neolacto series



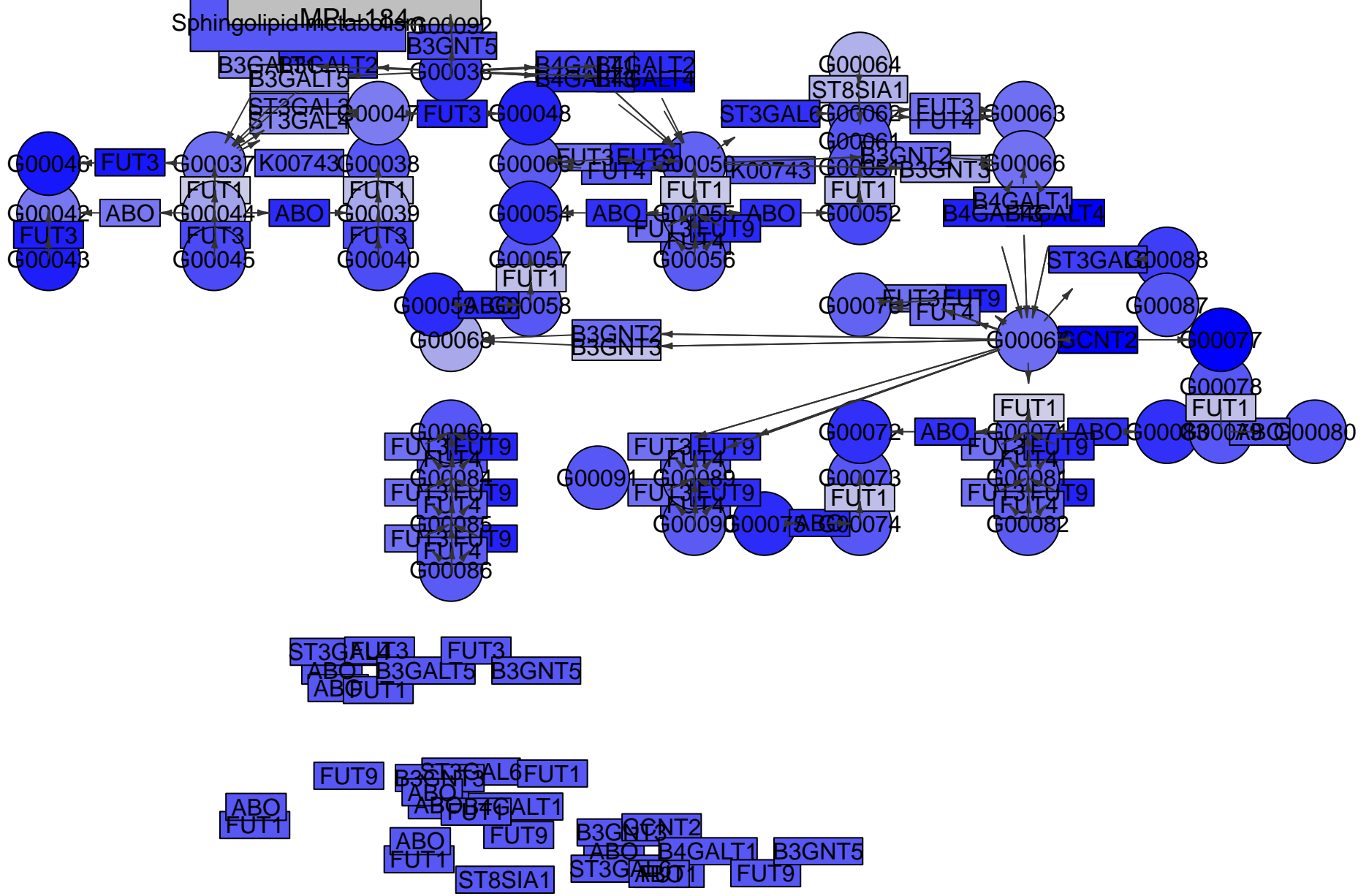
ST3GAL3 FUT3
ABO B3GALT5 B3GNT5
ABO FUT1

FUT9 ST3GAL6 FUT1
B3GNT3 ABO B4GALT1
ABO B4GALT1
ABO FUT1
FUT9 B3GNT2
ABO B4GALT1 B3GNT5
ST8SIA1 ST3GAL6 ABO FUT9

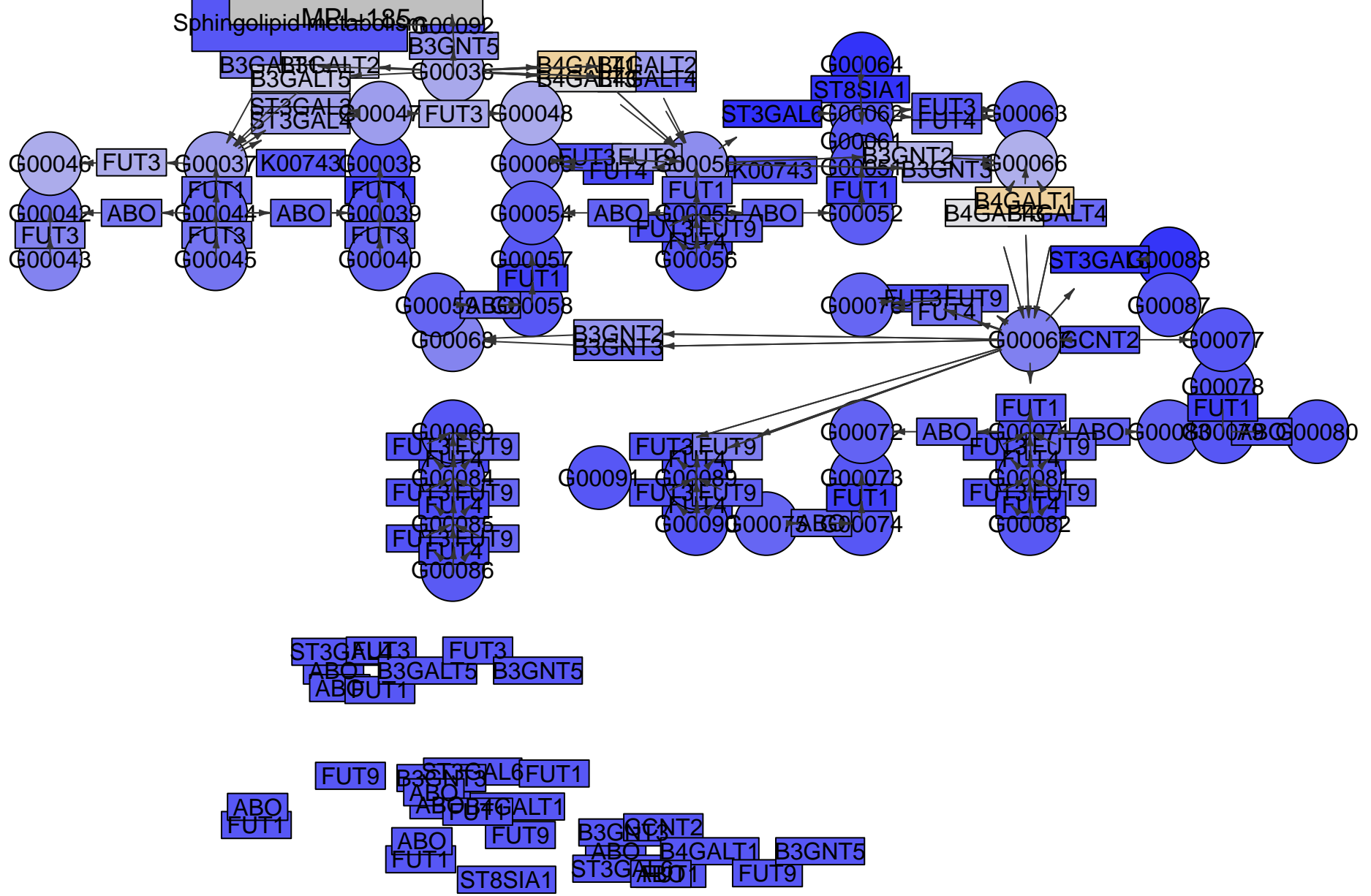
Glycosphingolipid biosynthesis – lacto and neolacto series



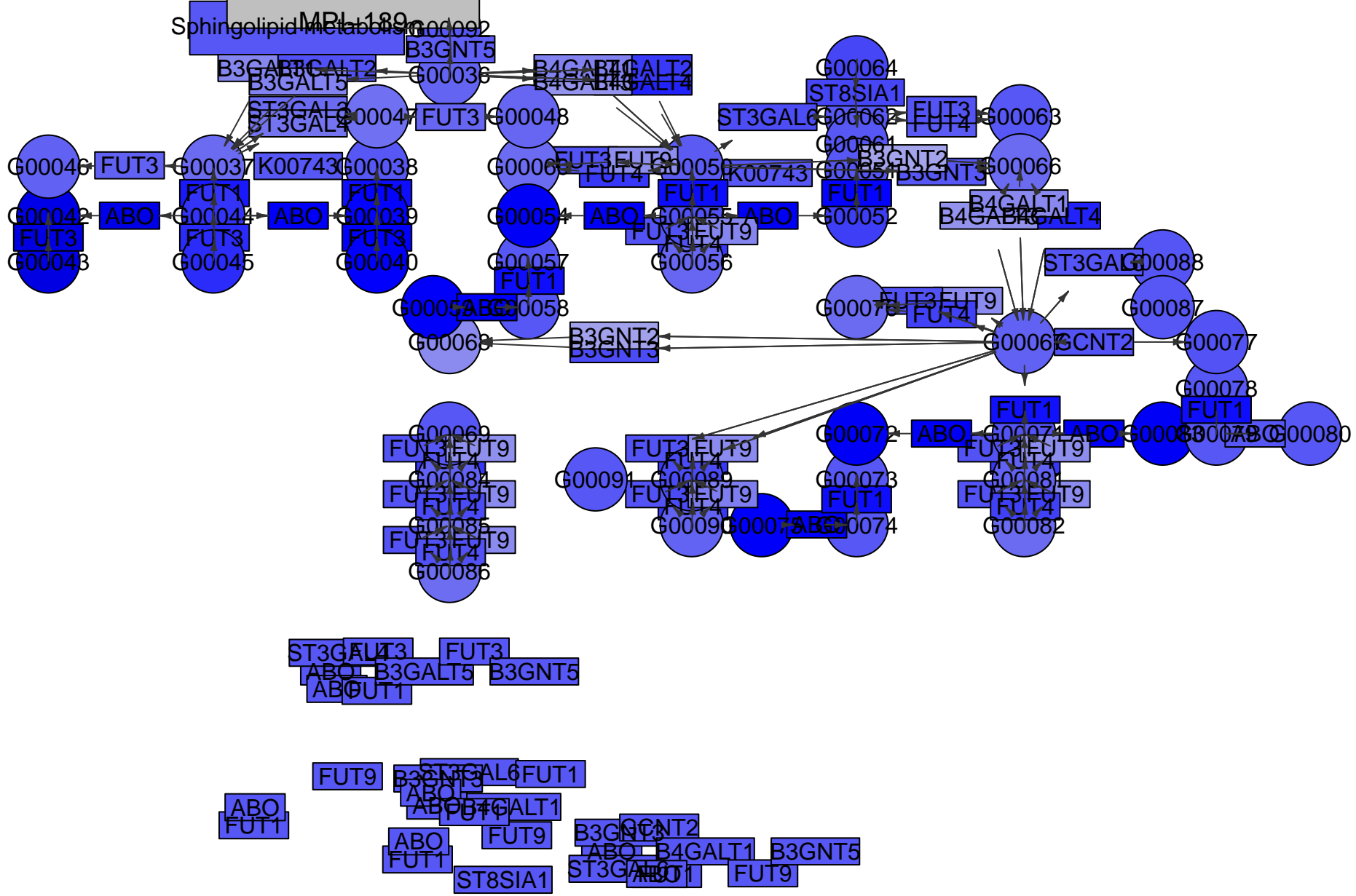
Glycosphingolipid biosynthesis – lacto and neolacto series



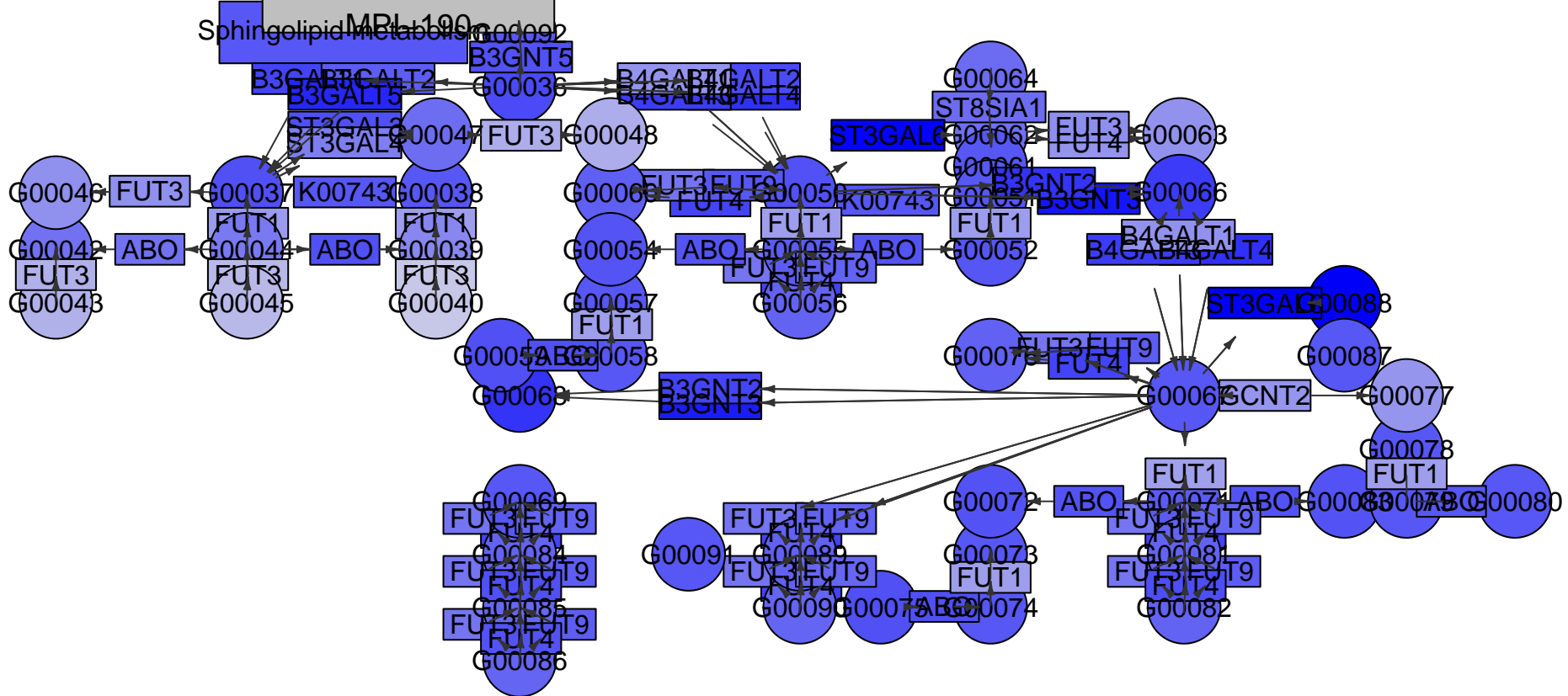
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



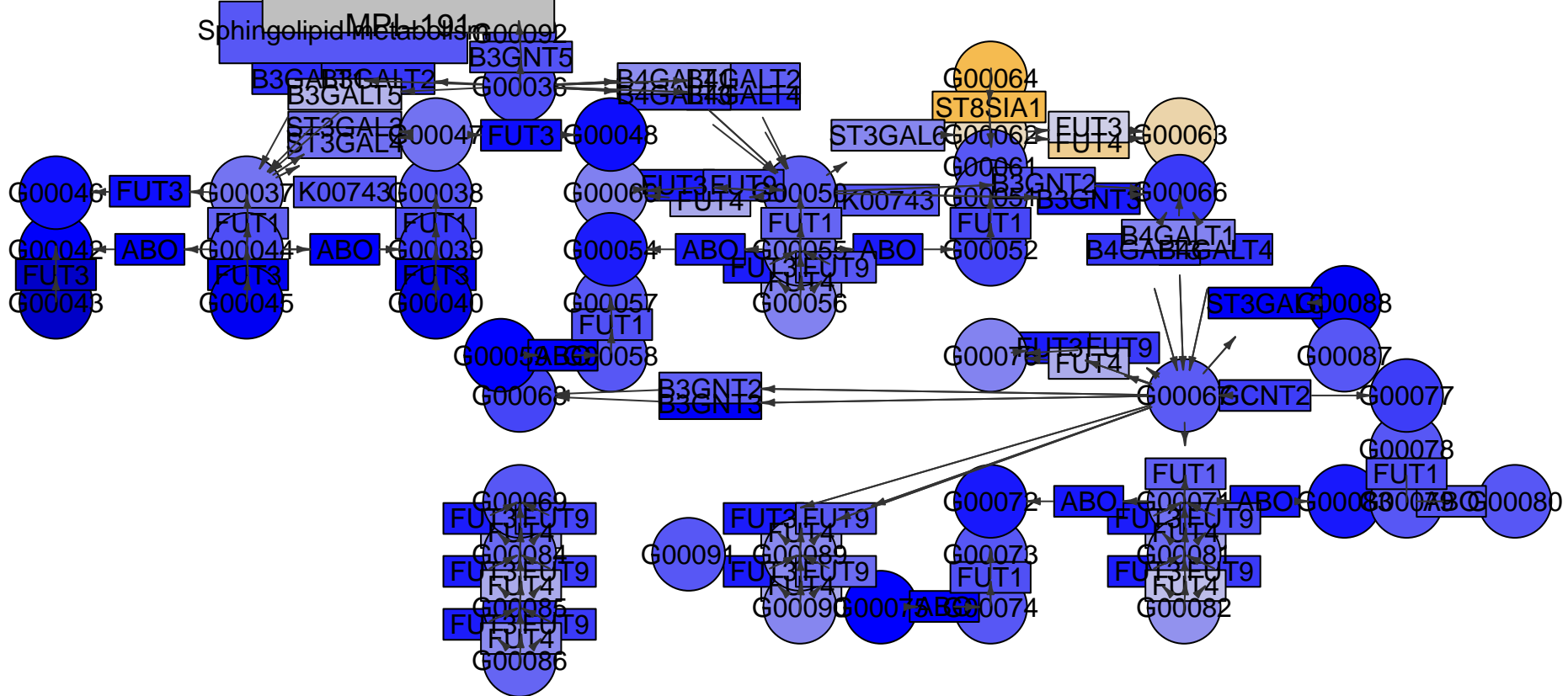
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

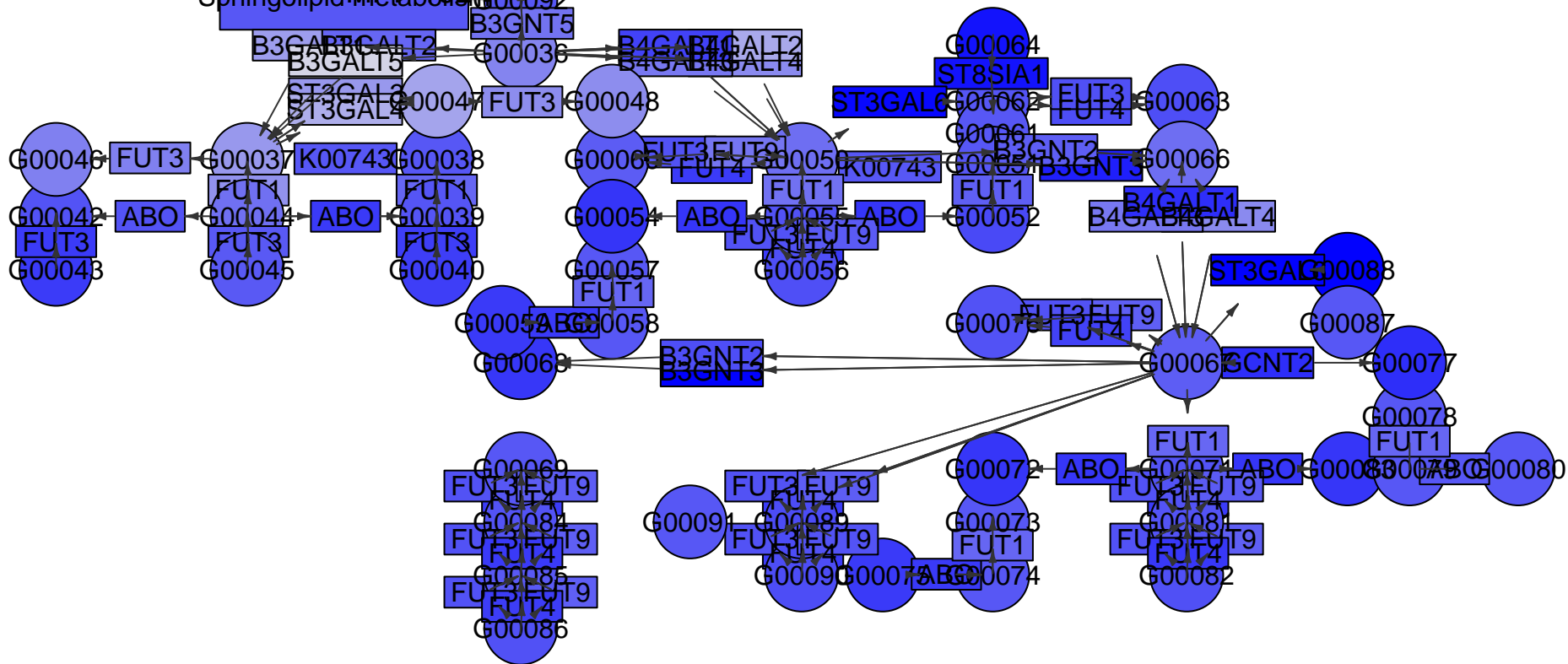


ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT2
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO FUT1 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

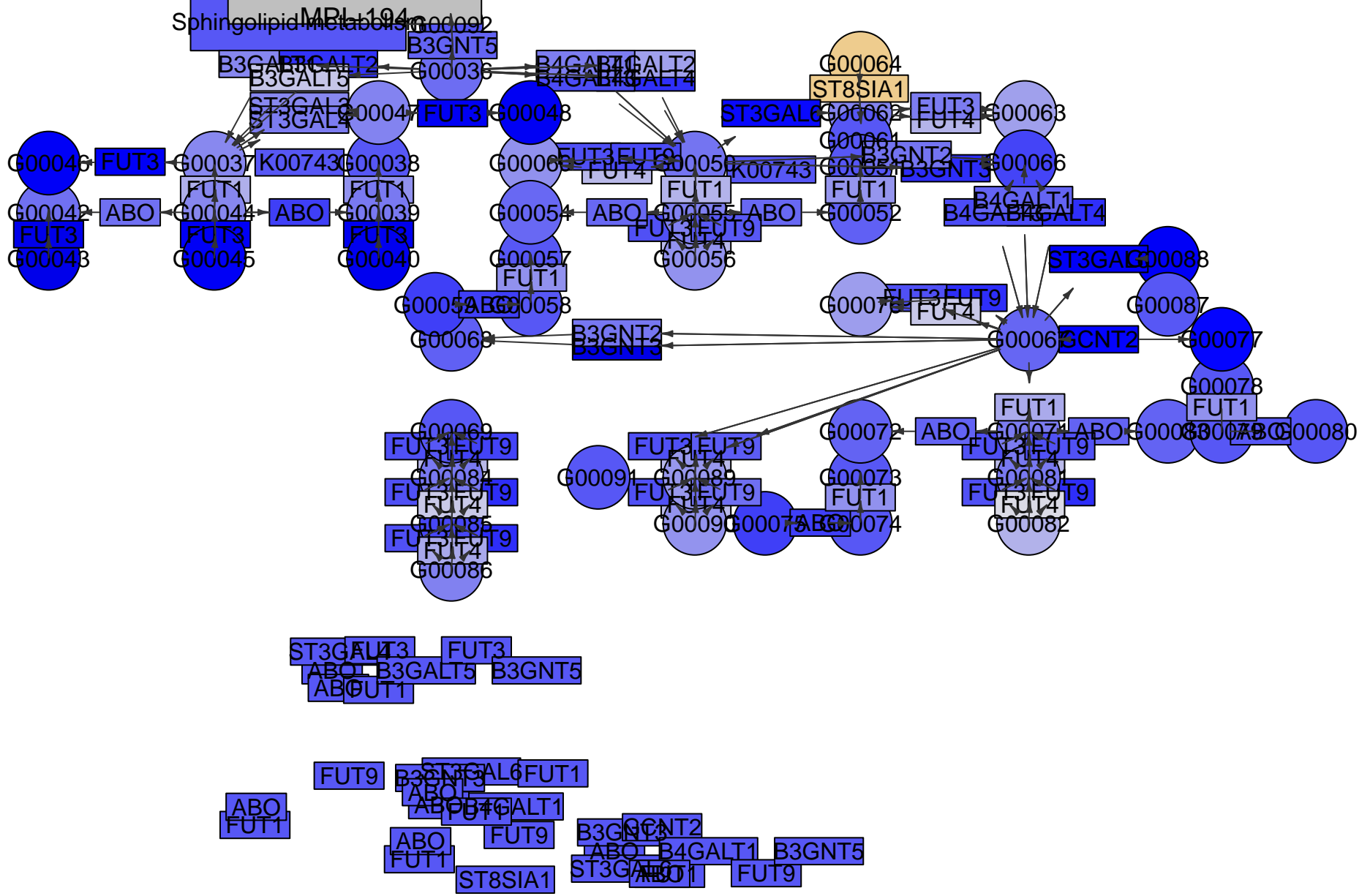
Spingolipid Metabolism mod0092



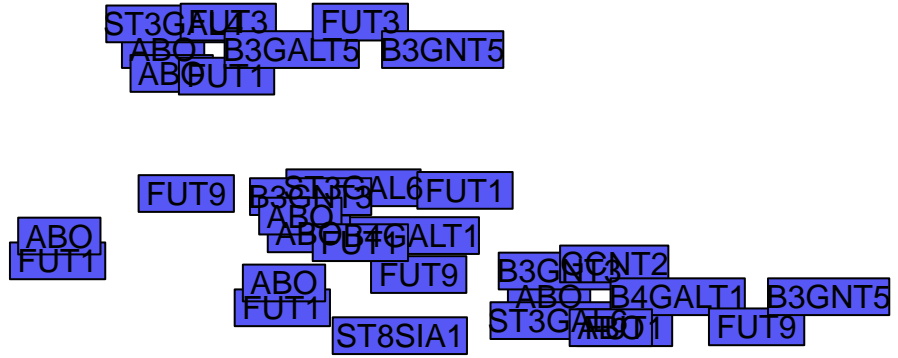
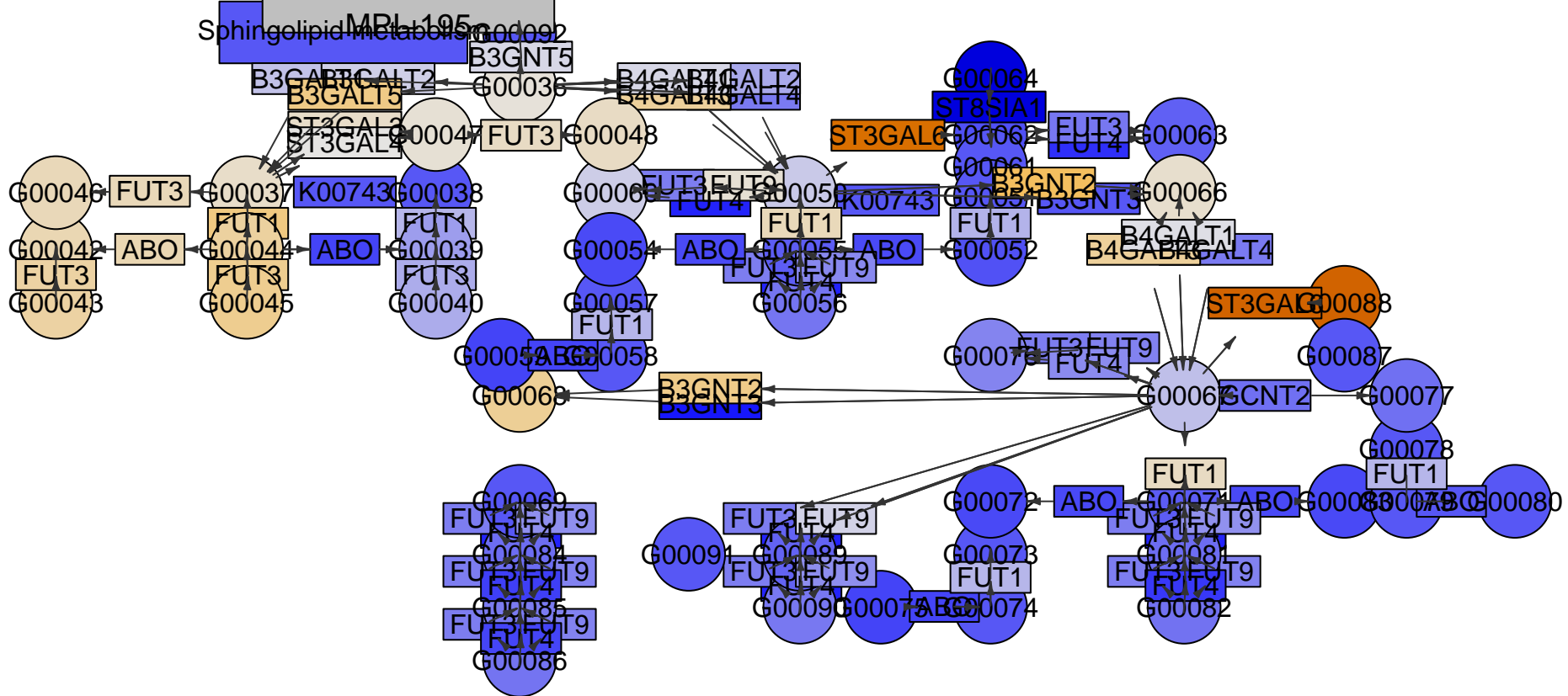
ST3GAL3 FUT3
ABO B3GALT5 B3GNT5
ABO FUT1

FUT9 ST3GAL6 FUT1
B3GNT3 ABO B4GALT1
ABO B4GALT1
ABO FUT9 B3GNT2
FUT1 ABO B4GALT1 B3GNT5
ST8SIA1 ST3GAL6 ABO FUT9

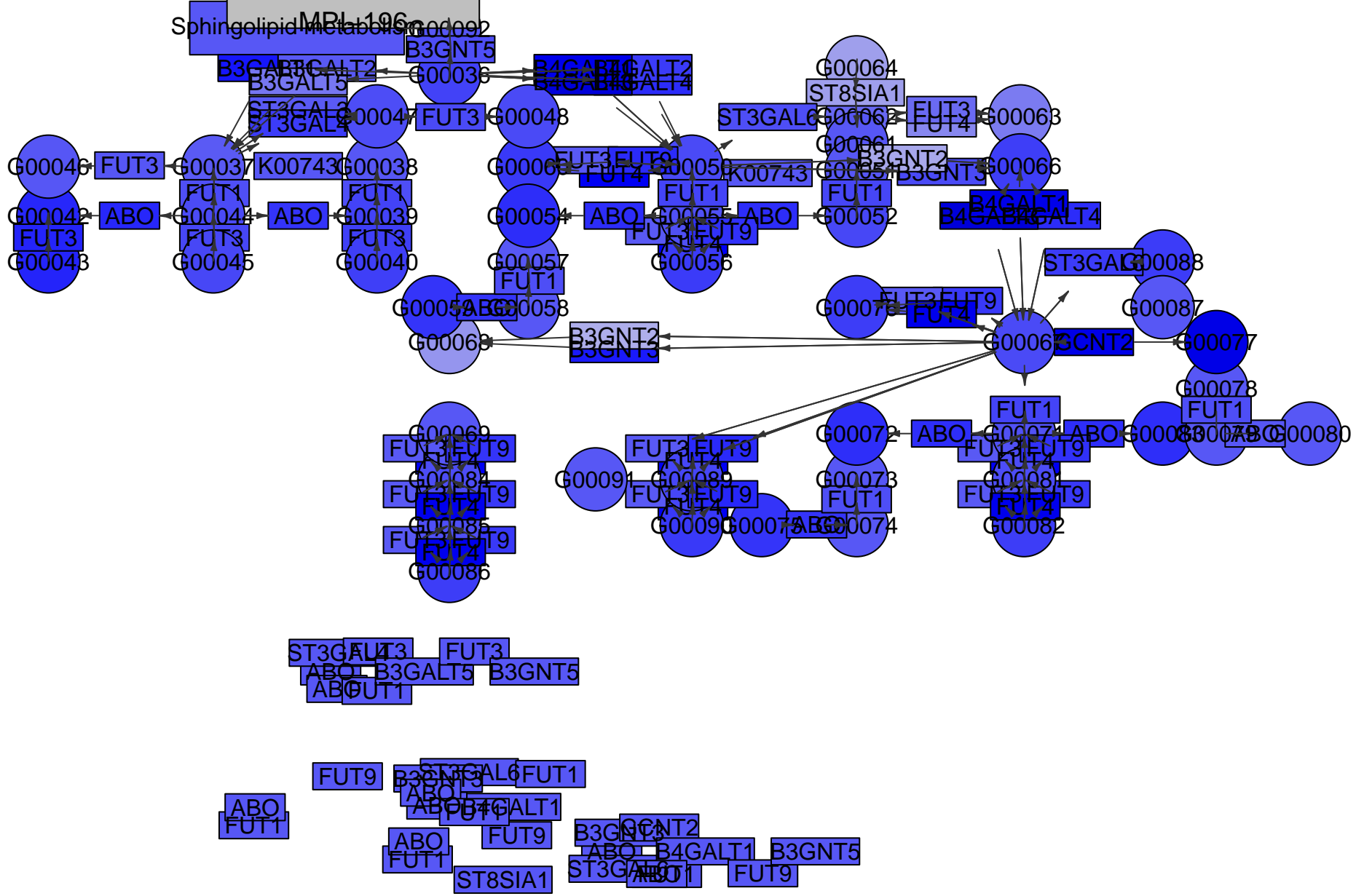
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

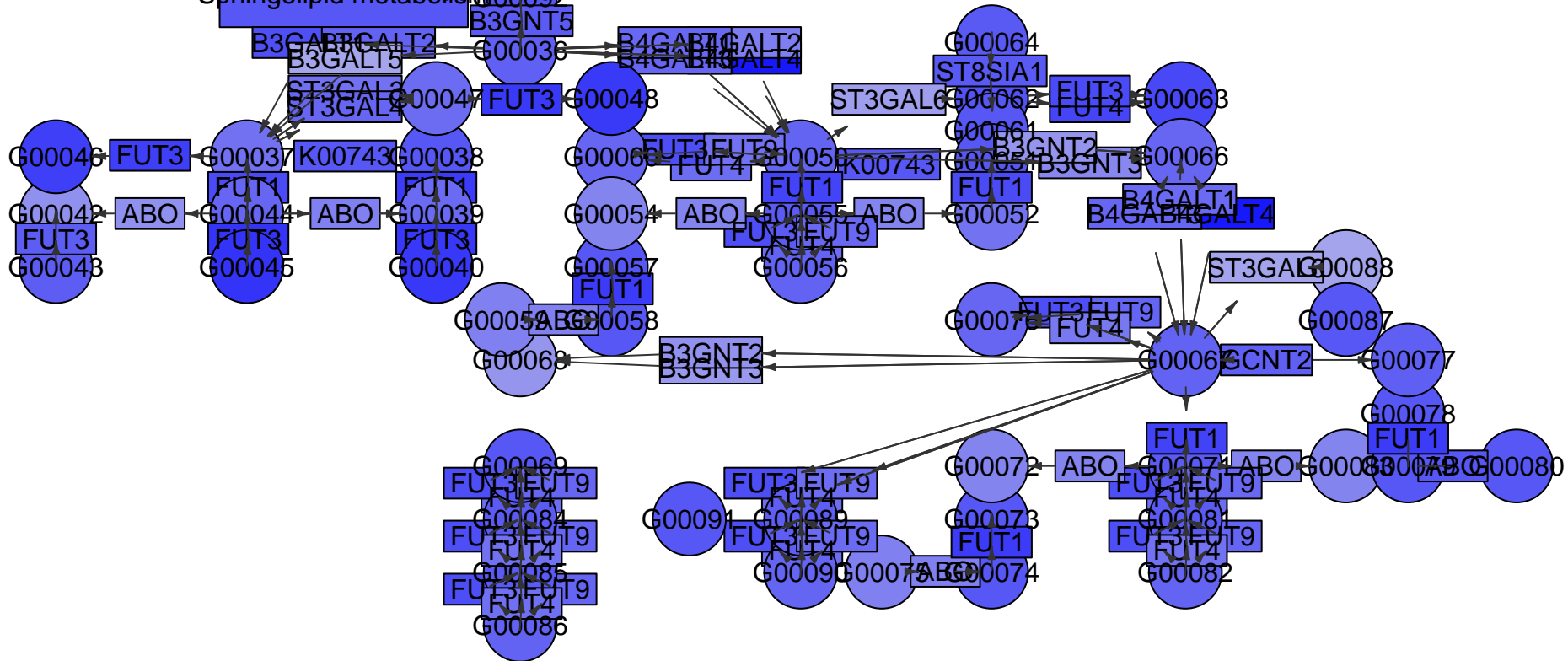


Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

Spingolipid Metabolism mod0092

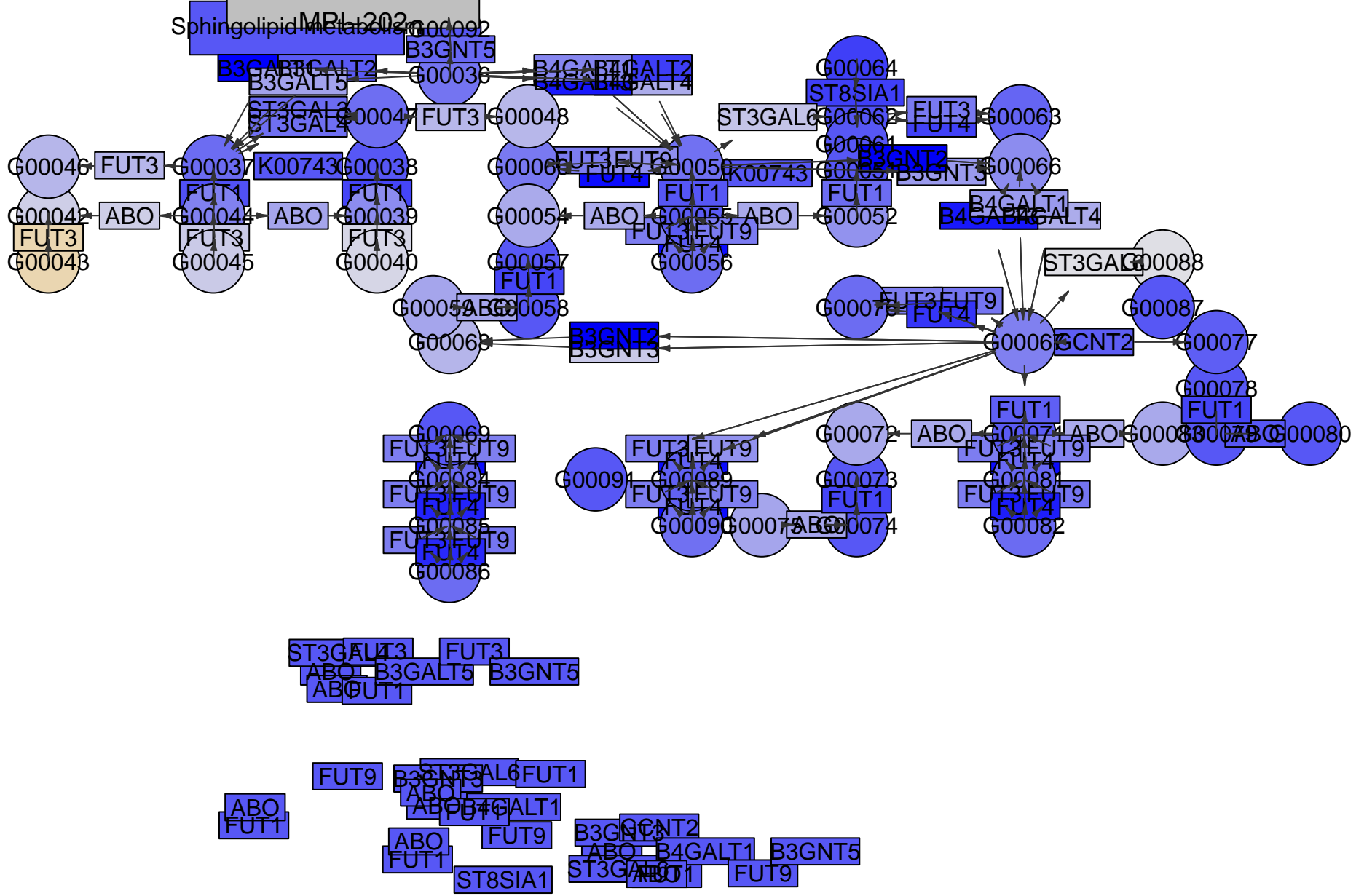


ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

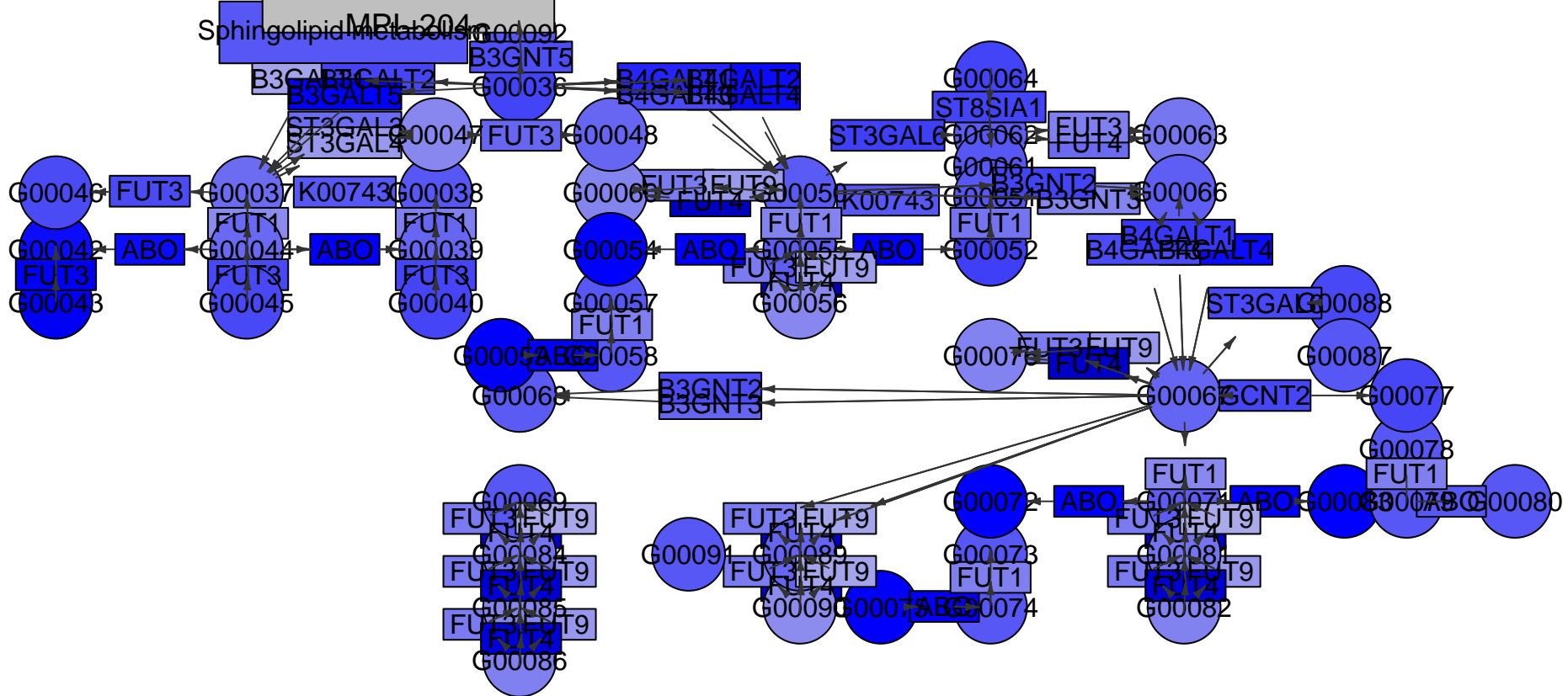
FUT9
ST3GAL6
B3GNT5
ABO
B4GALT1
ABO
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

ABO
FUT1

Glycosphingolipid biosynthesis – lacto and neolacto series



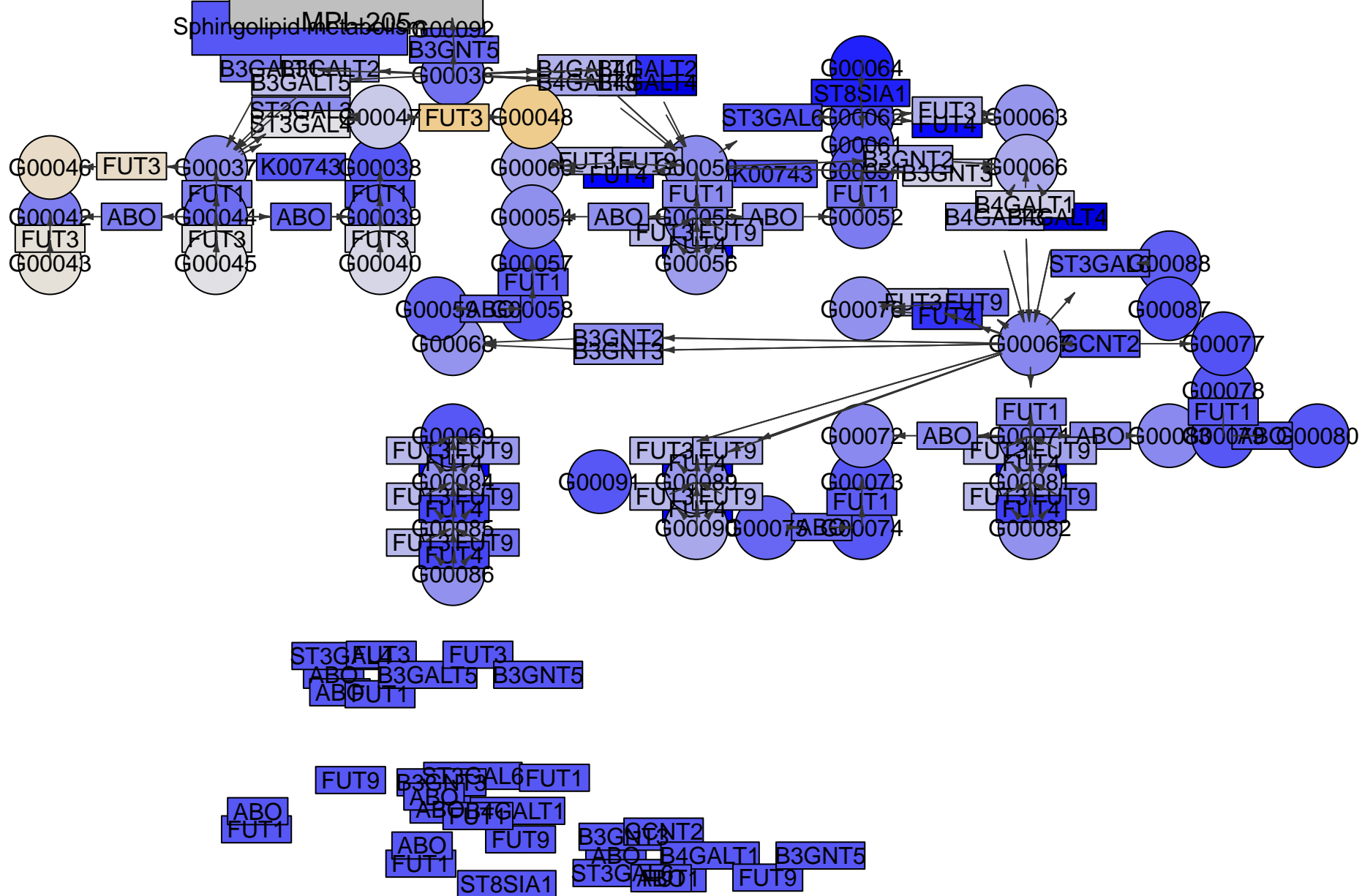
Glycosphingolipid biosynthesis – lacto and neolacto series



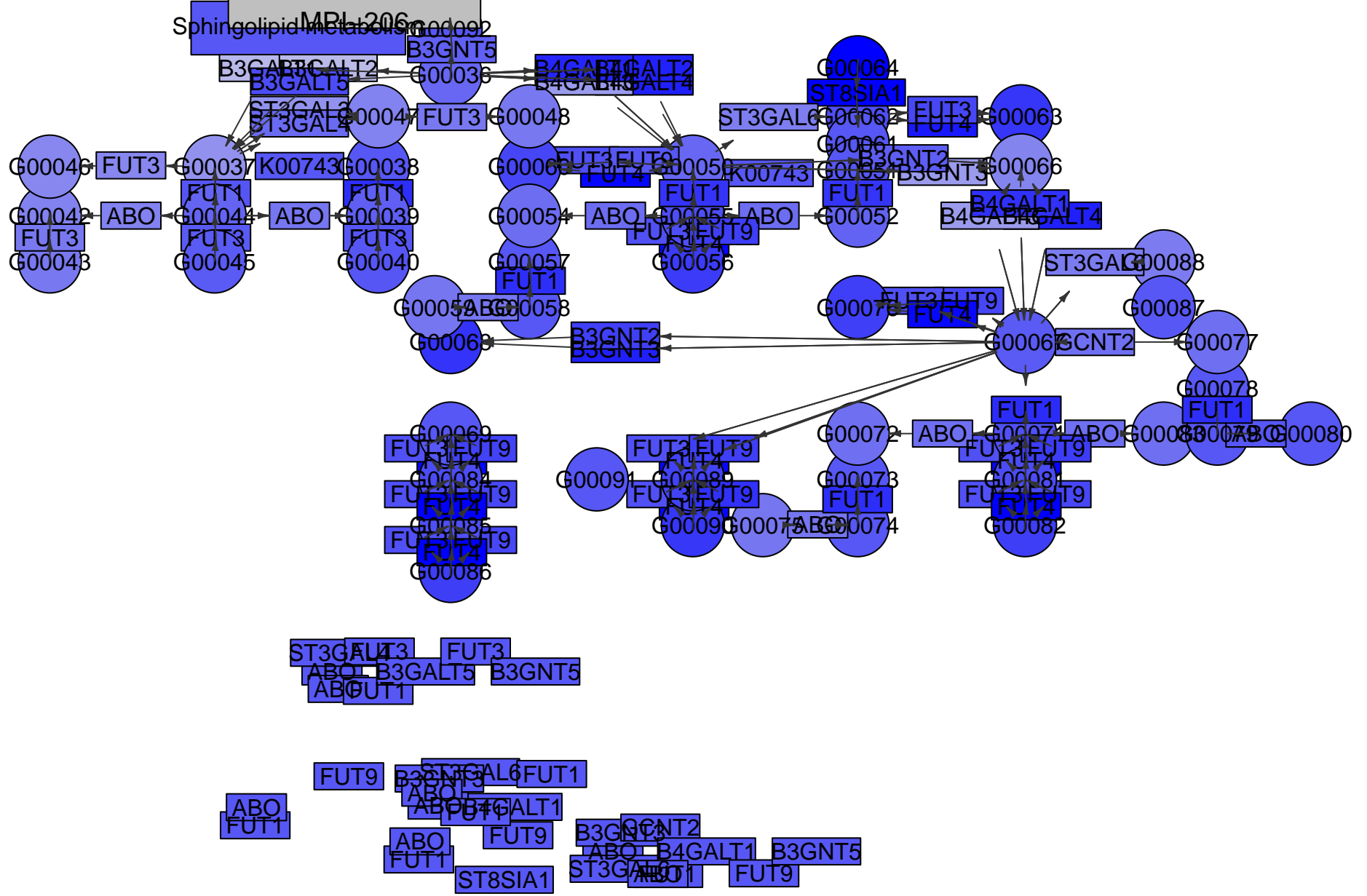
ST3GALT3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 B3GNT3 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2 ABO B4GALT1 B3GNT5
 FUT1 ST8SIA1 ST3GALT1 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

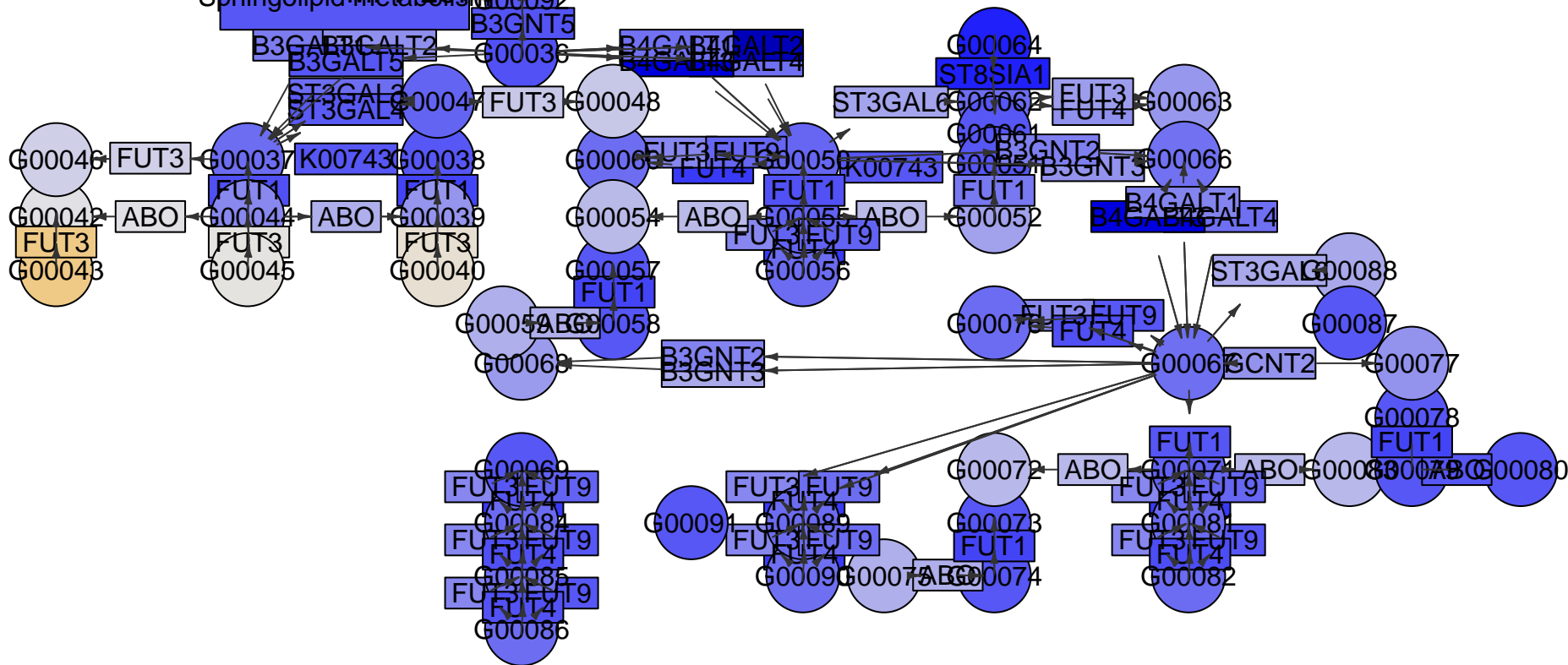


Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

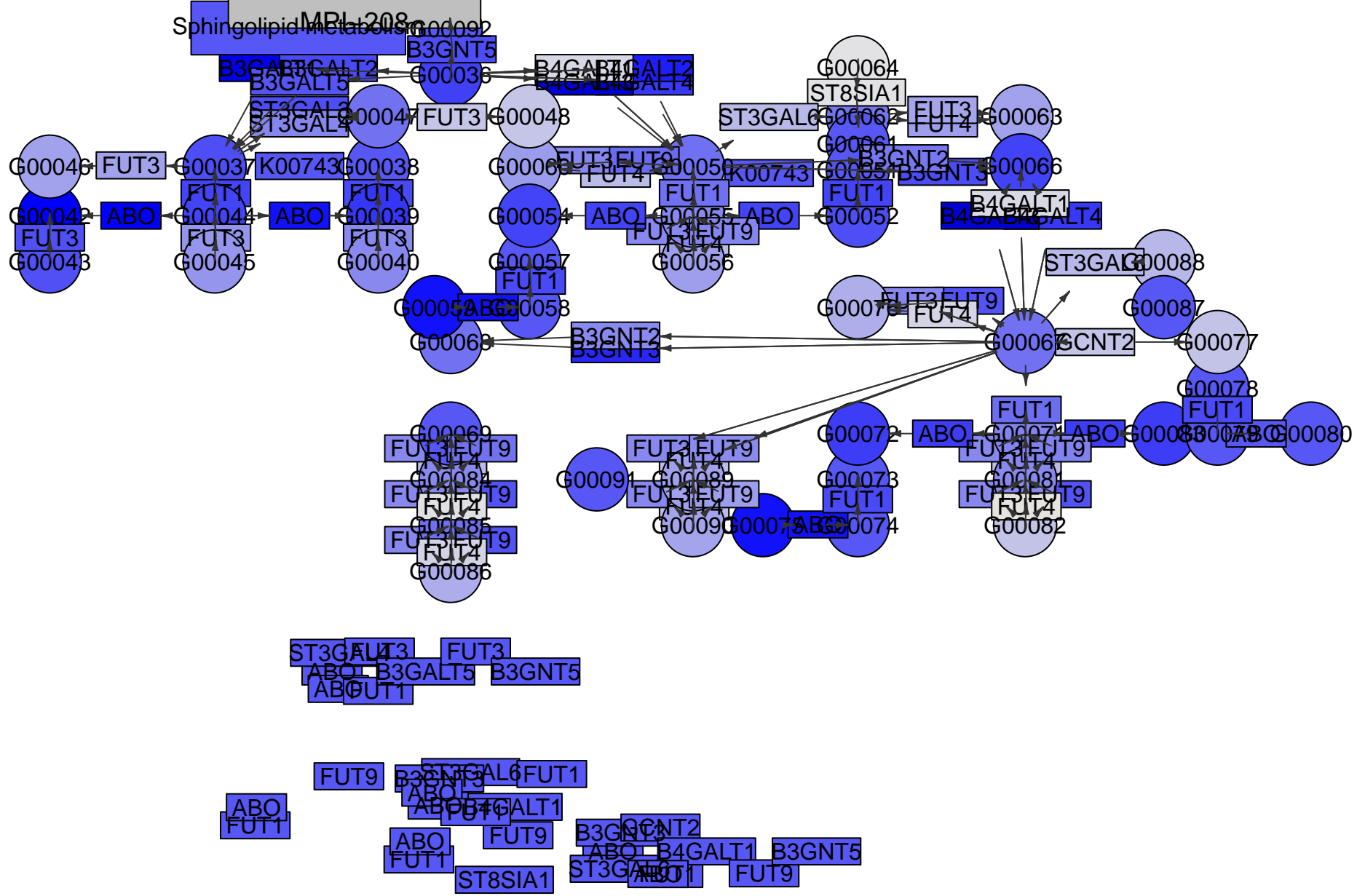
Spingolipid Metabolism



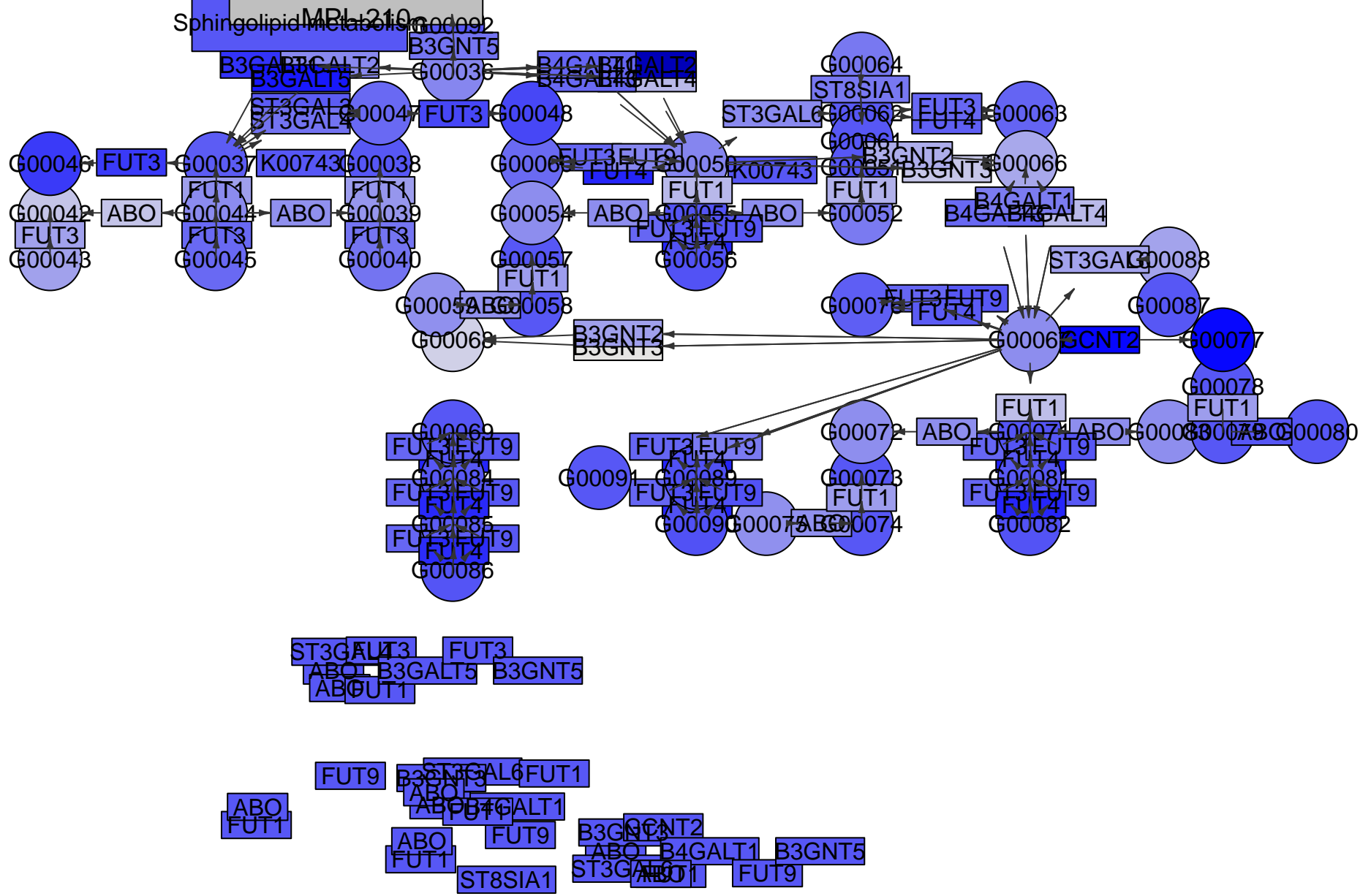
ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
FUT1

FUT9
ST3GAL6
B3GNT3
ABO
B4GALT1
ABO
FUT1
ABO
FUT1
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL1
ABO
FUT9

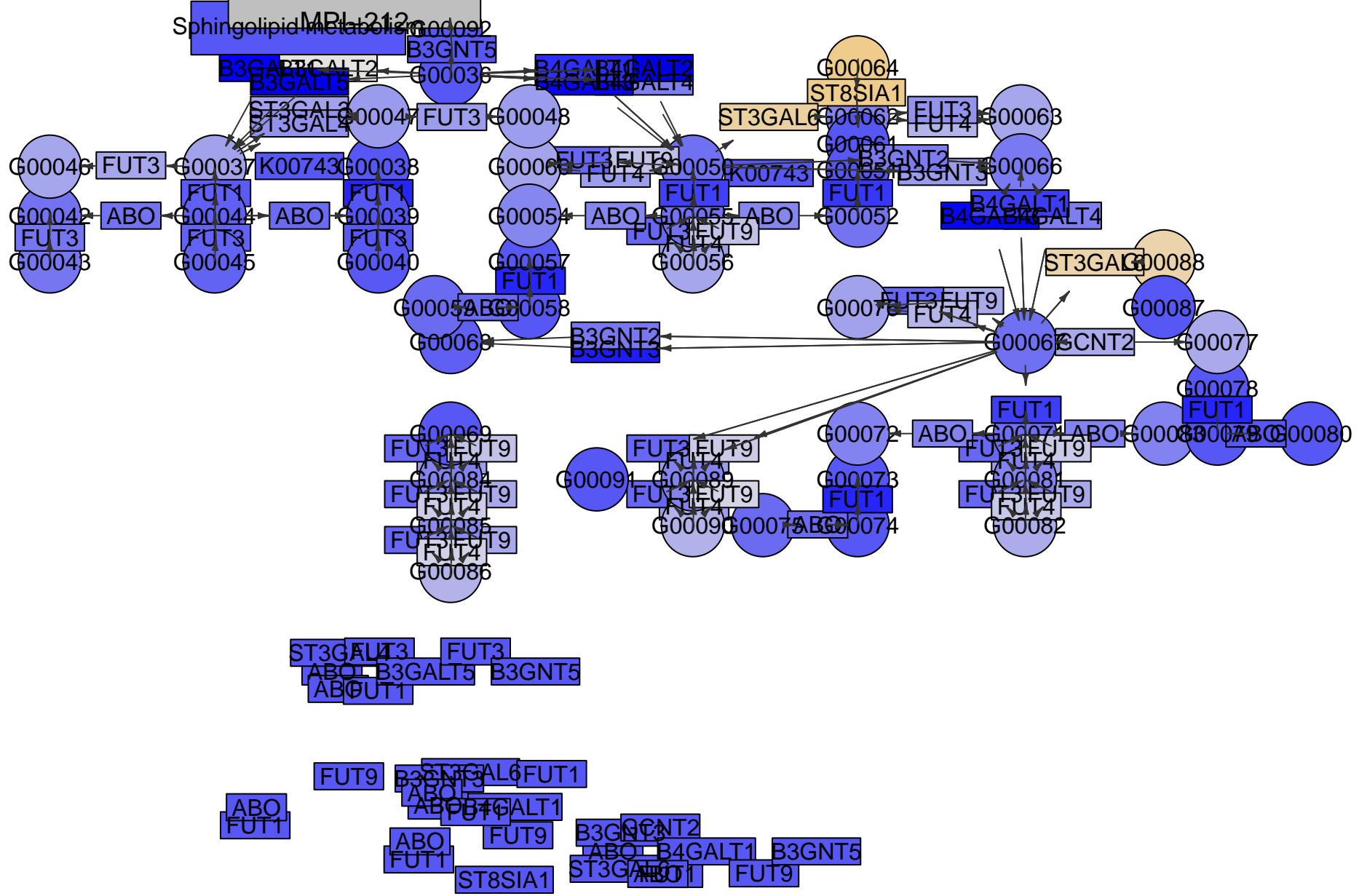
Glycosphingolipid biosynthesis – lacto and neolacto series



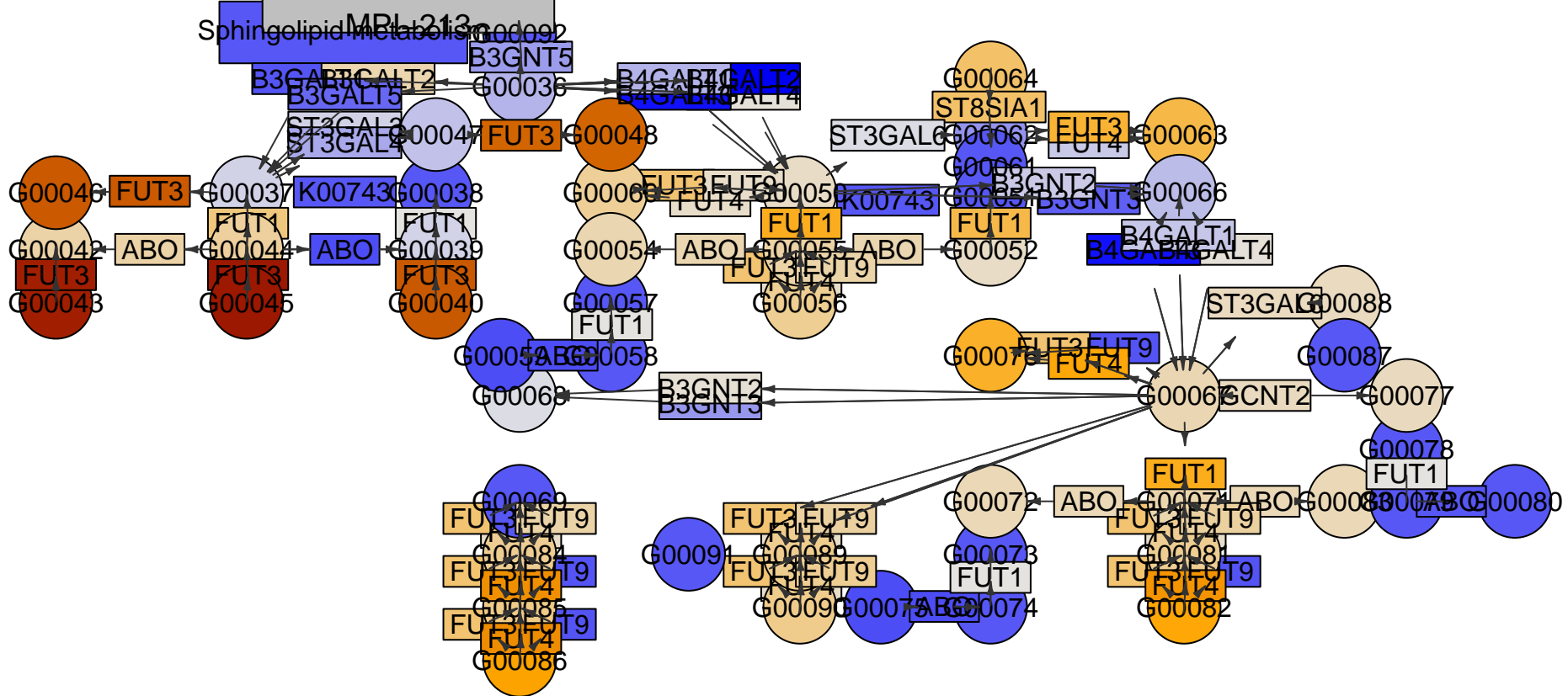
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



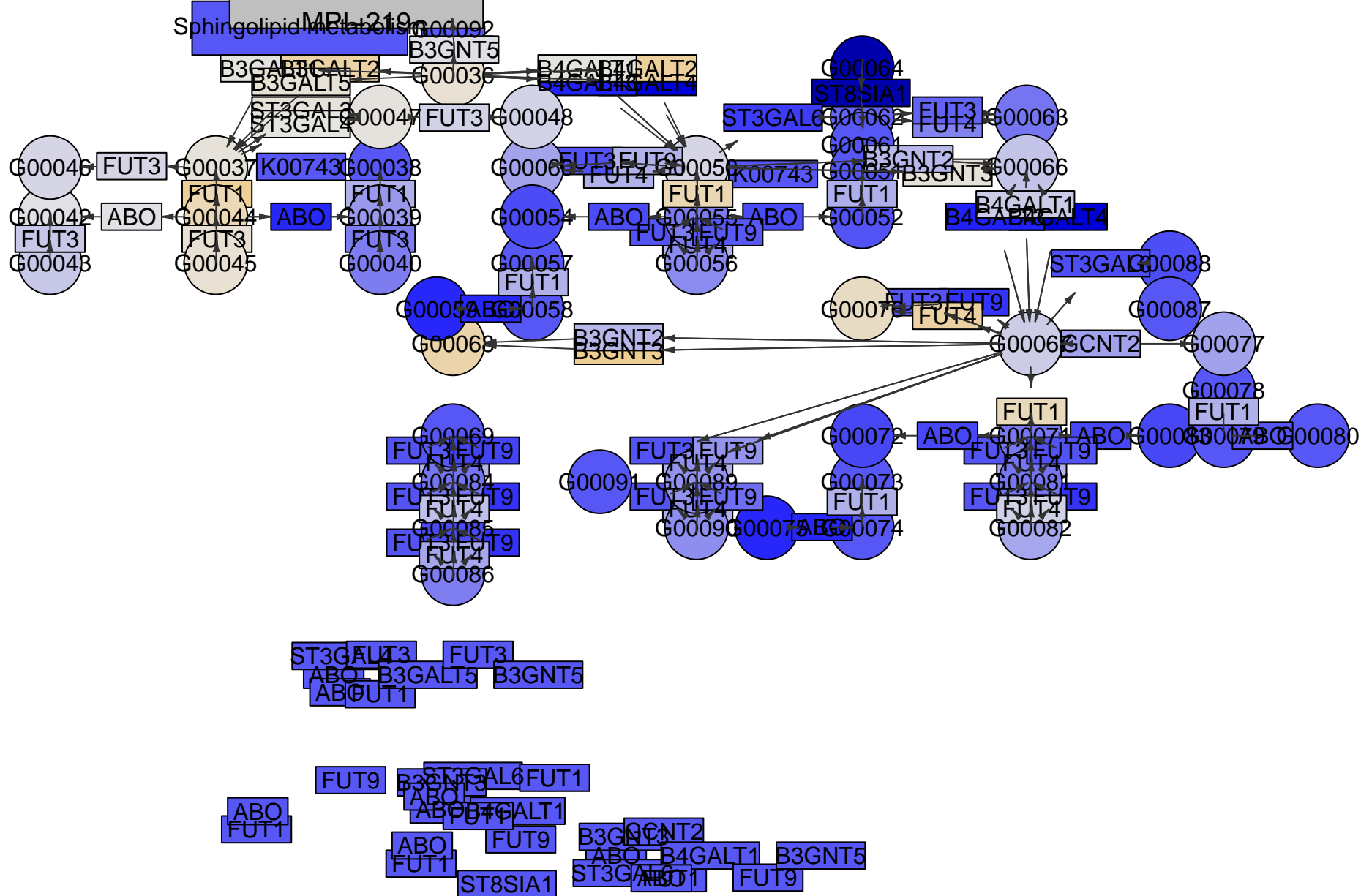
Glycosphingolipid biosynthesis – lacto and neolacto series



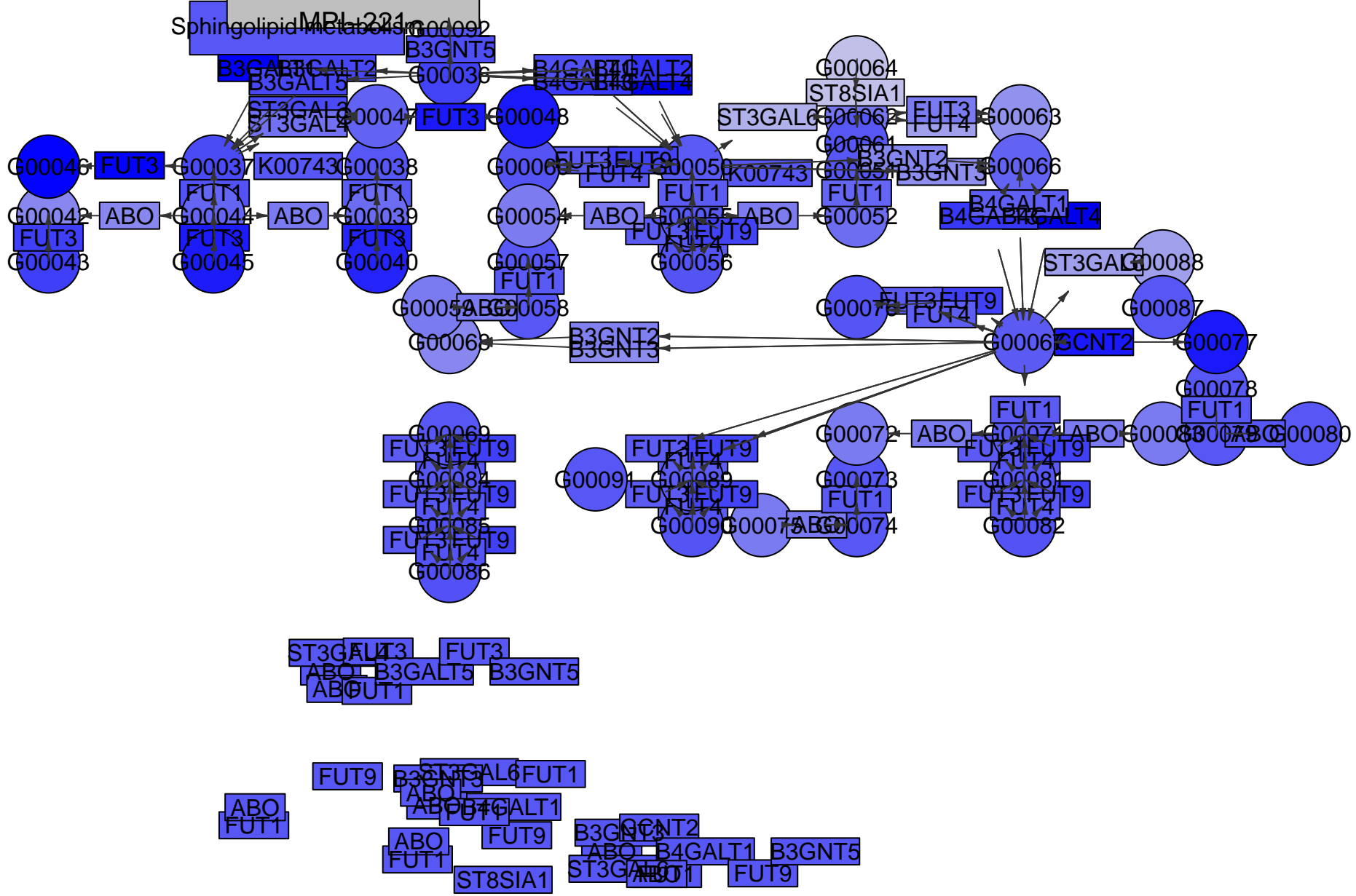
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2 ABO B4GALT1 B3GNT5
 FUT1 ST8SIA1 ST3GAL6 ABO FUT9

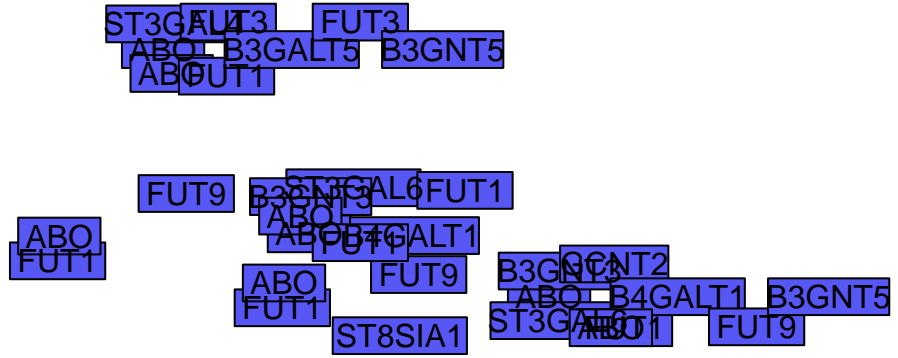
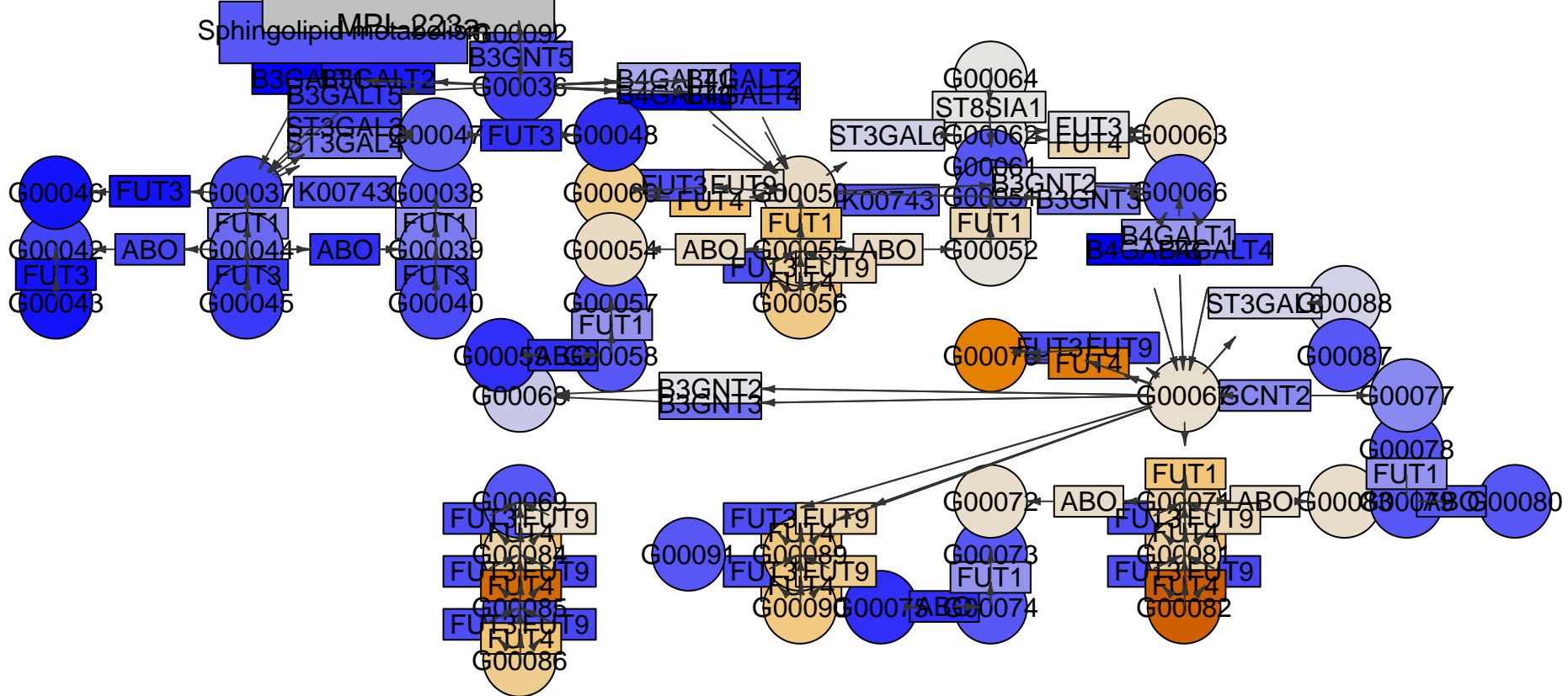
Glycosphingolipid biosynthesis – lacto and neolacto series



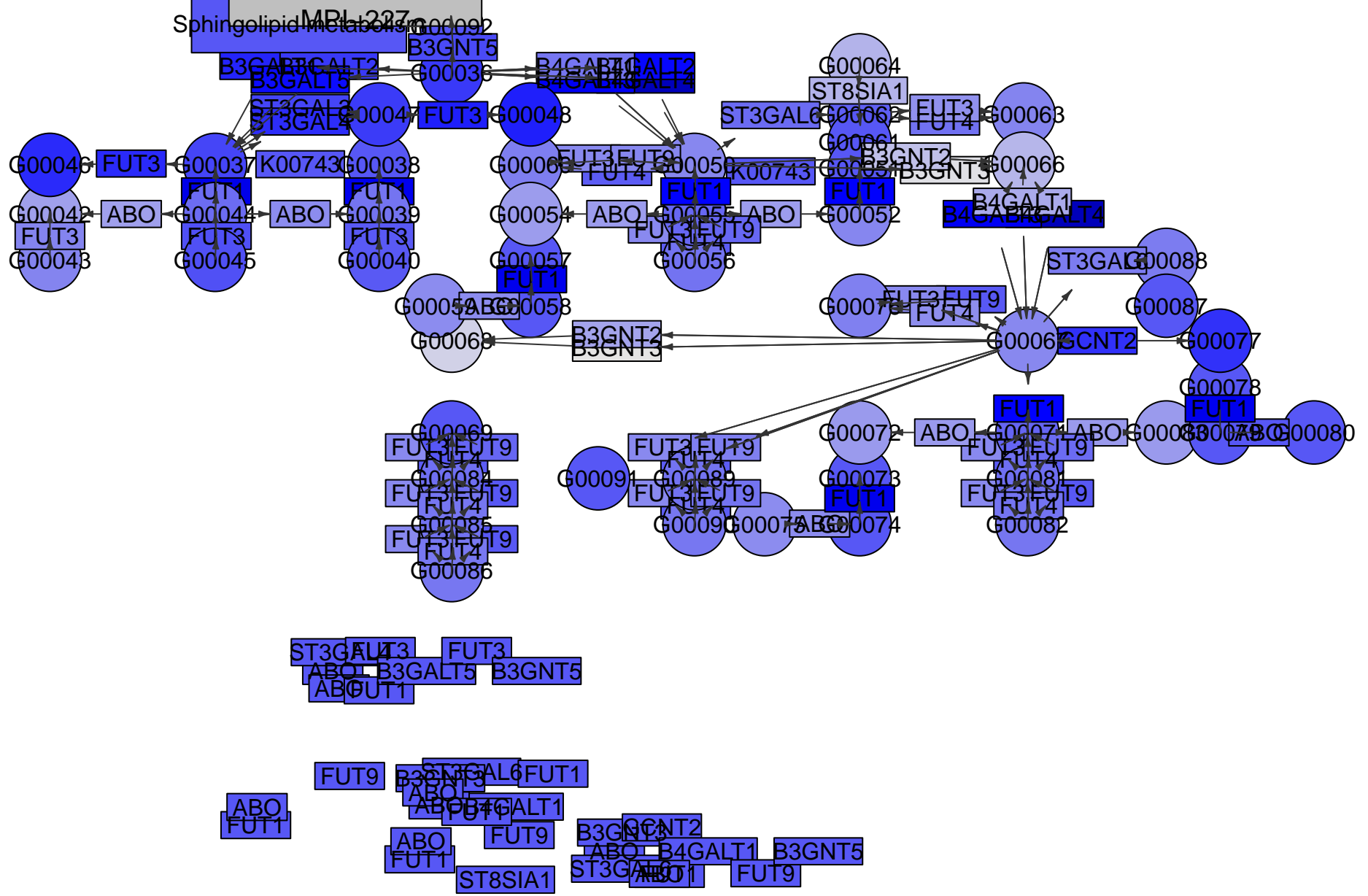
Glycosphingolipid biosynthesis – lacto and neolacto series



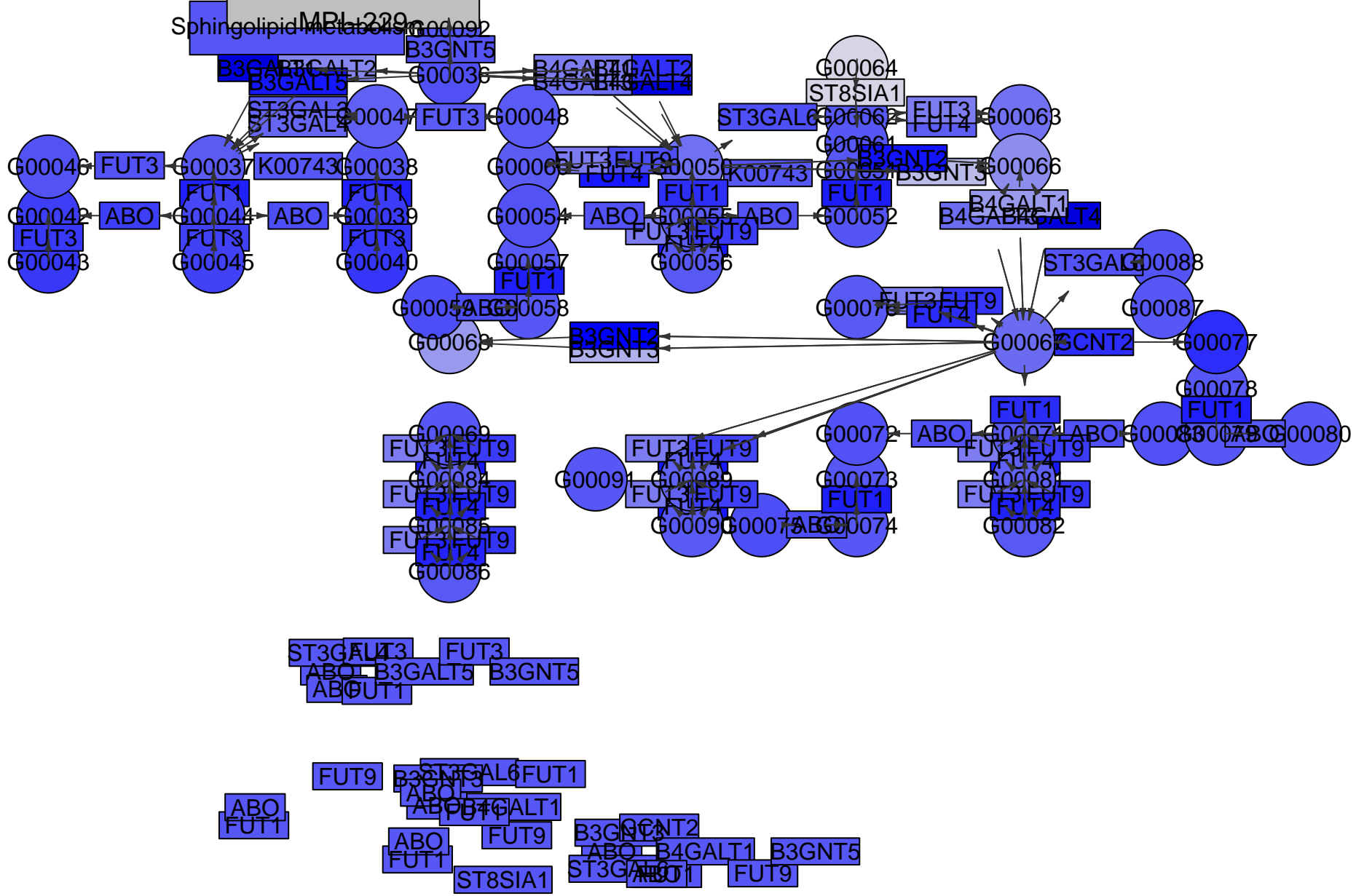
Glycosphingolipid biosynthesis – lacto and neolacto series



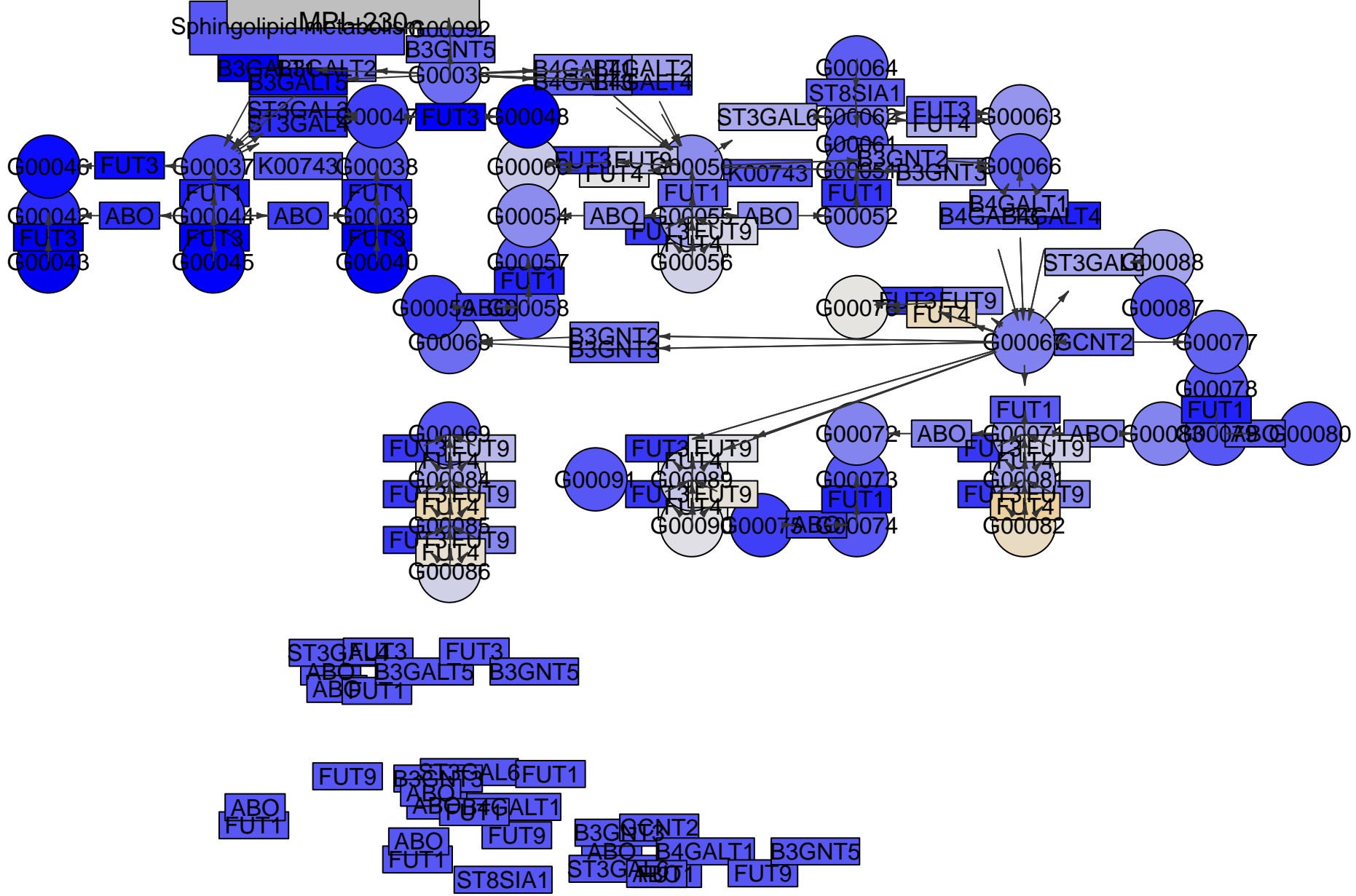
Glycosphingolipid biosynthesis – lacto and neolacto series



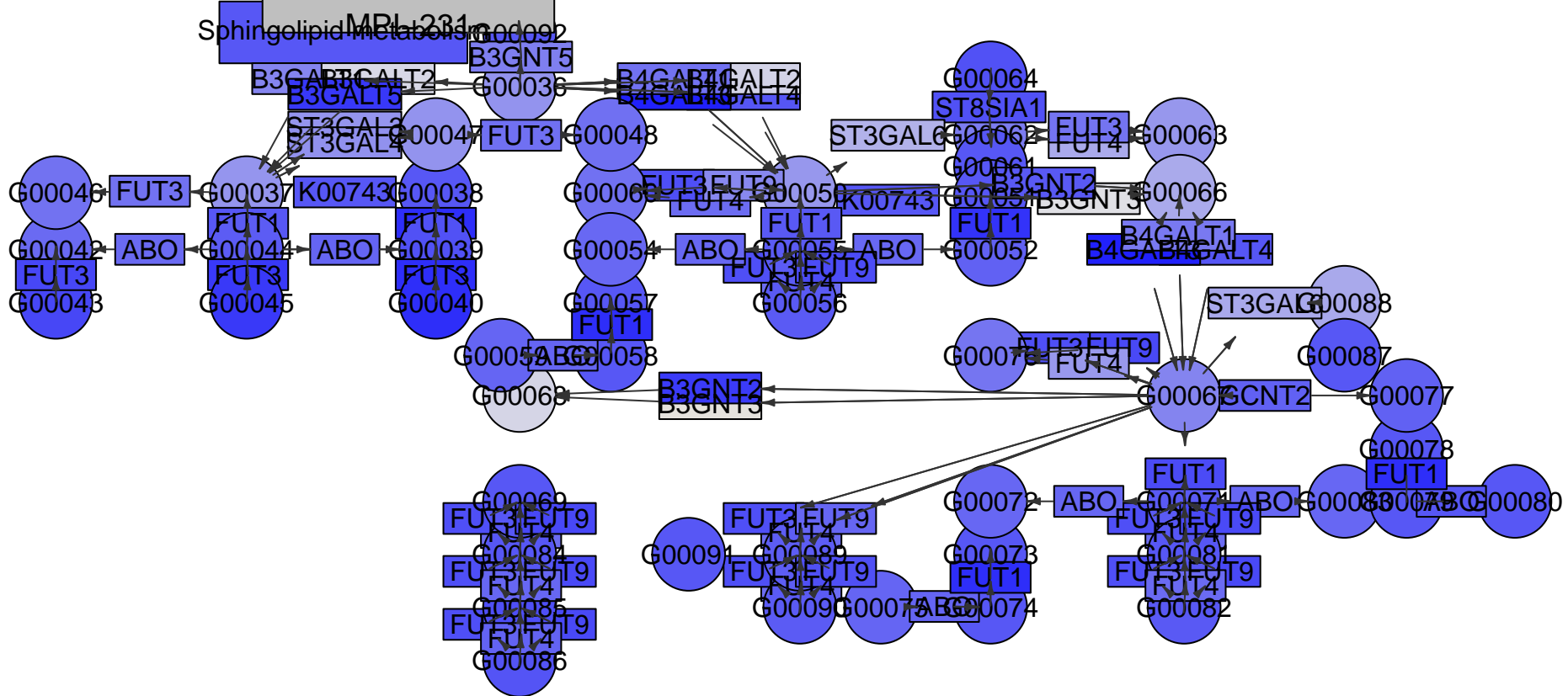
Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series

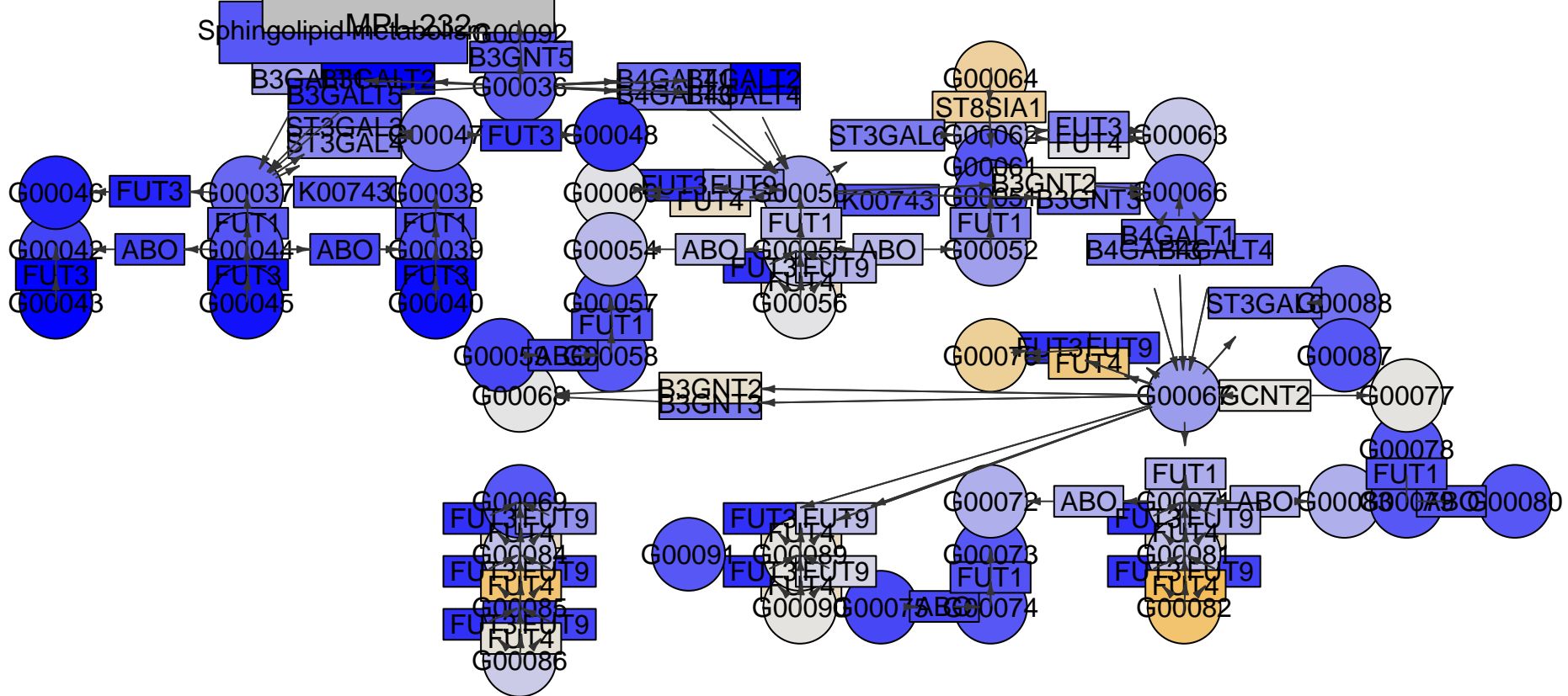


ST3GAL4
FUT3
ABO
B3GALT5
B3GNT5
ABO
ABO
ABO

FUT9
ST3GAL6
B3GNT3
ABO
ABO
B4GALT1
ABO
FUT9
B3GNT2
ABO
B4GALT1
B3GNT5
ST8SIA1
ST3GAL6
ABO
FUT9

ABO
FUT1

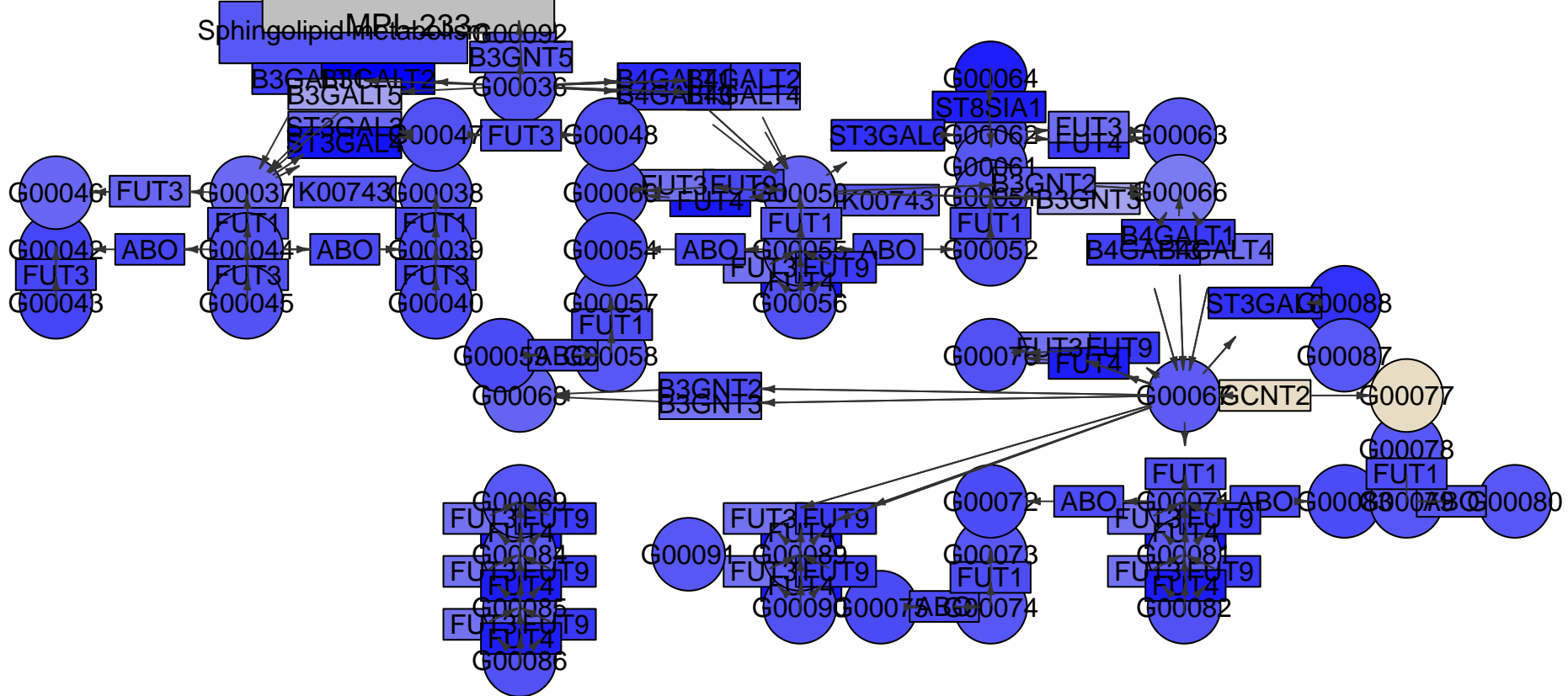
Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

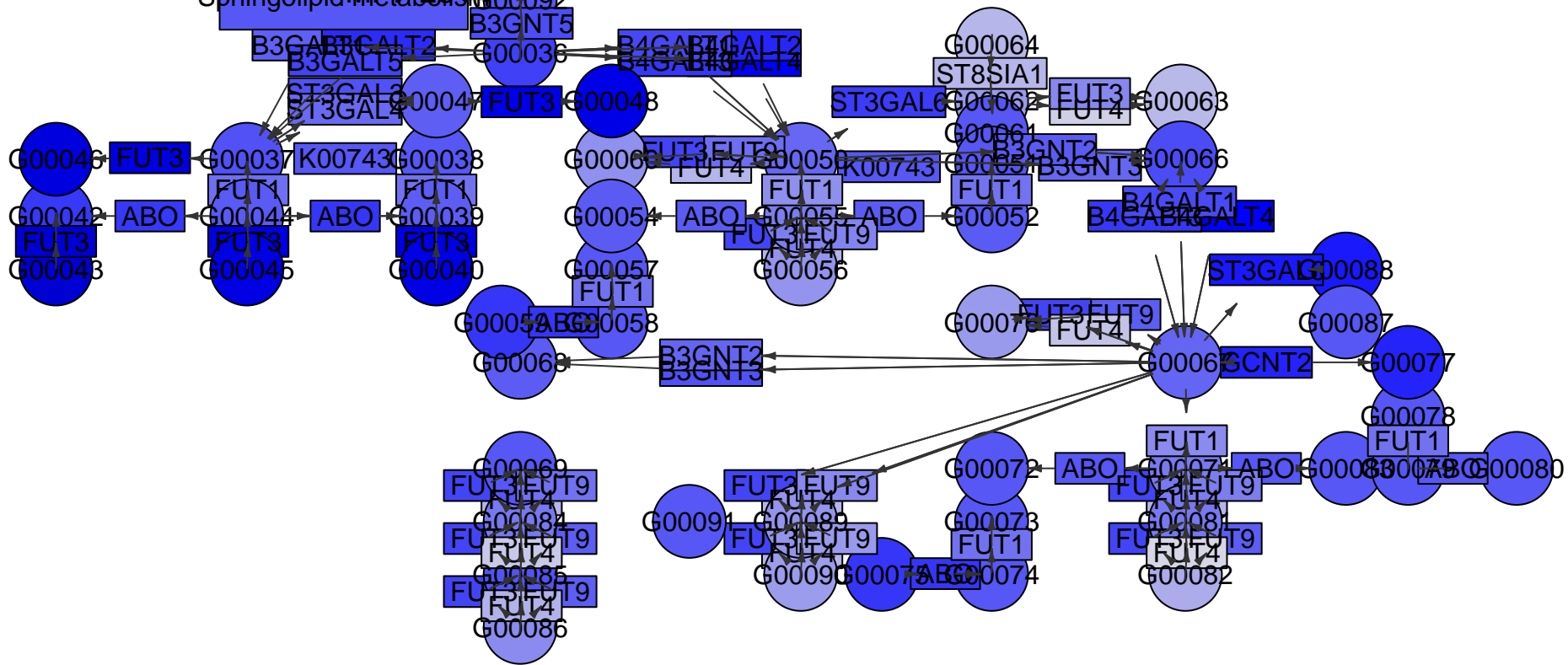


ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT5 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

Spingolipid Metabolism

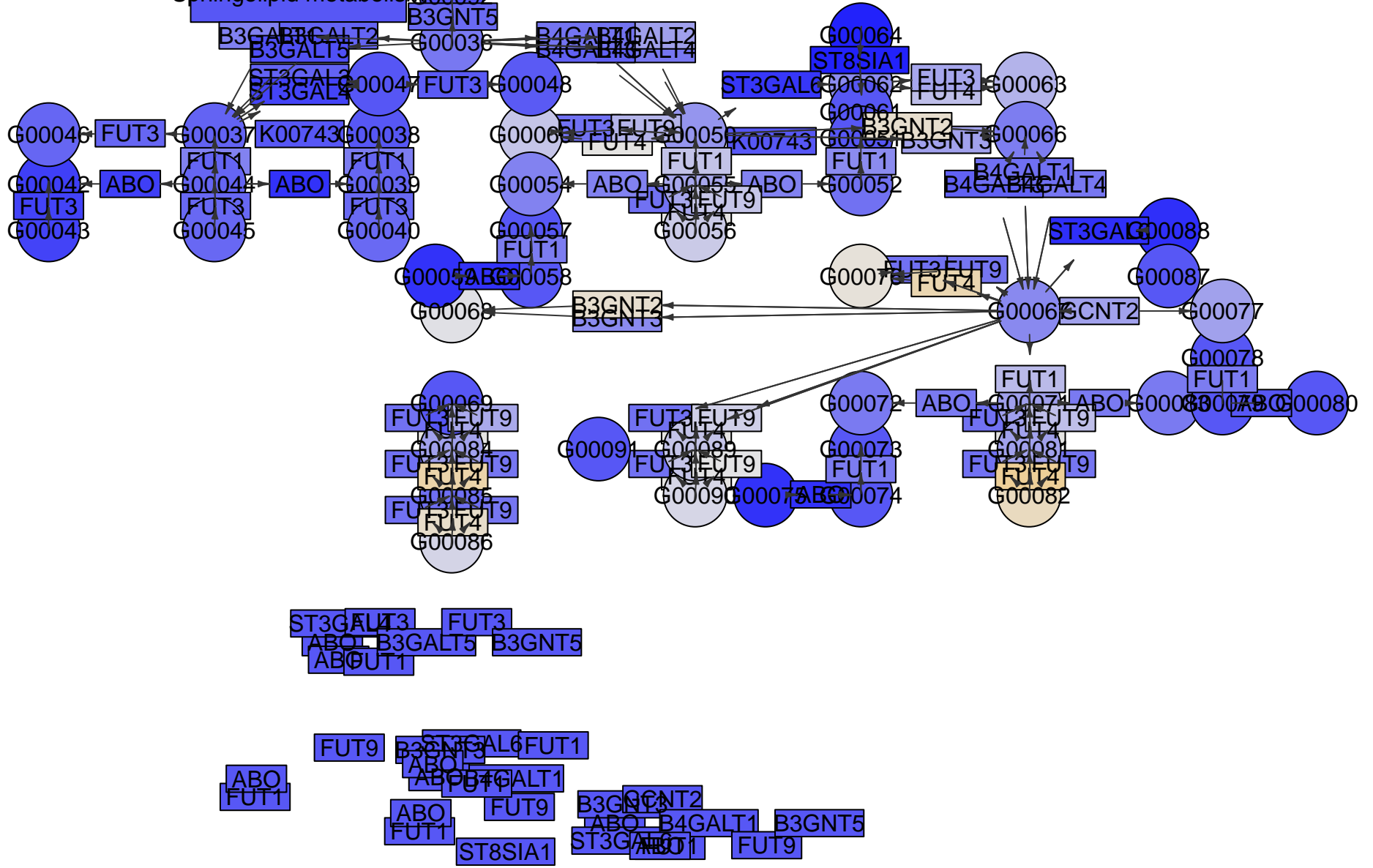


ST3GAL3 FUT3
ABO B3GALT5 B3GNT5
ABO1

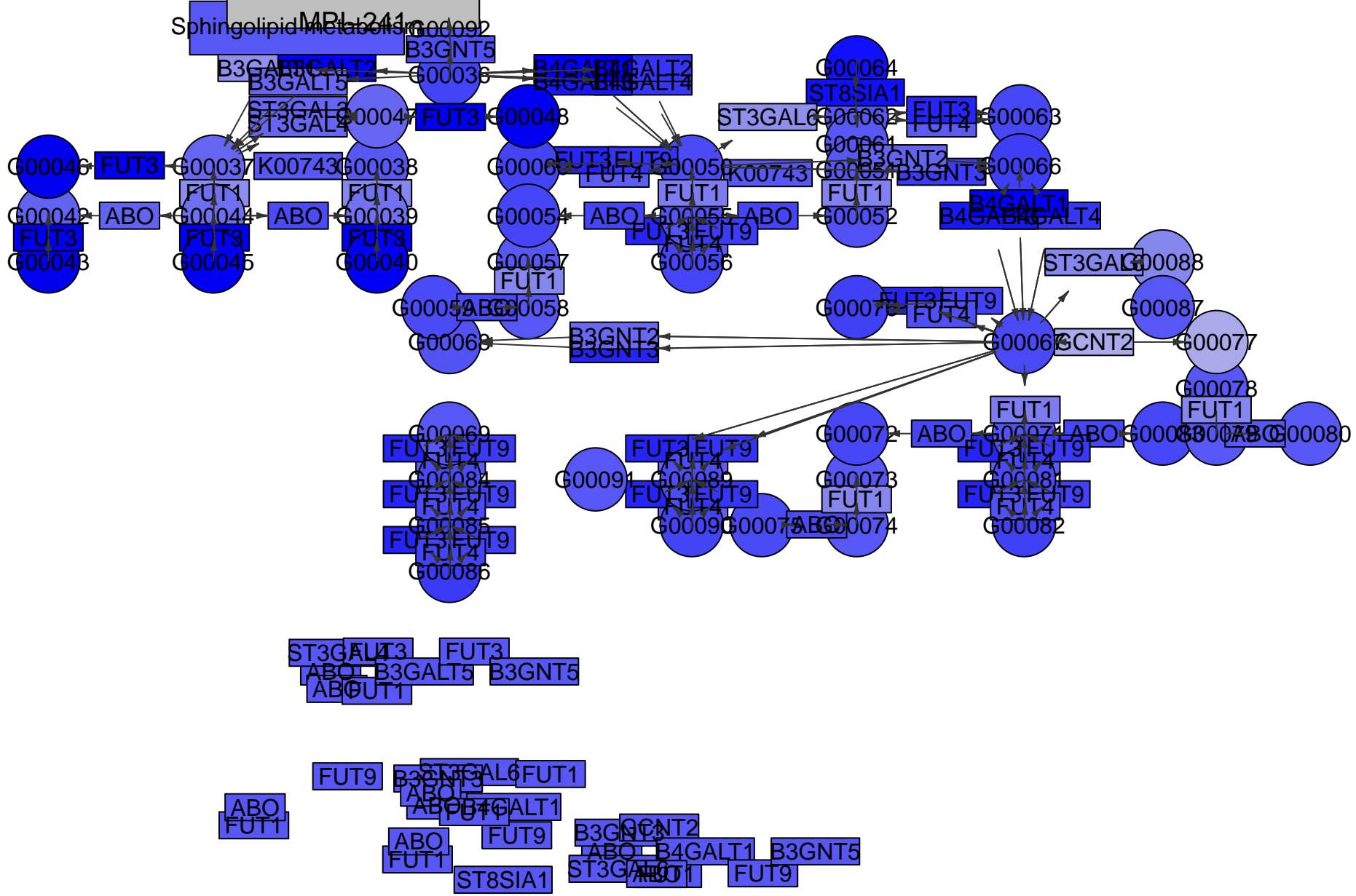
FUT9 ST3GAL6 FUT1
B3GNT2 ABO1 B4GALT1
ABO1
ABO FUT9 B3GNT2
FUT1 ABO B4GALT1 B3GNT5
ST8SIA1 ST3GAL6 ABO1 FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

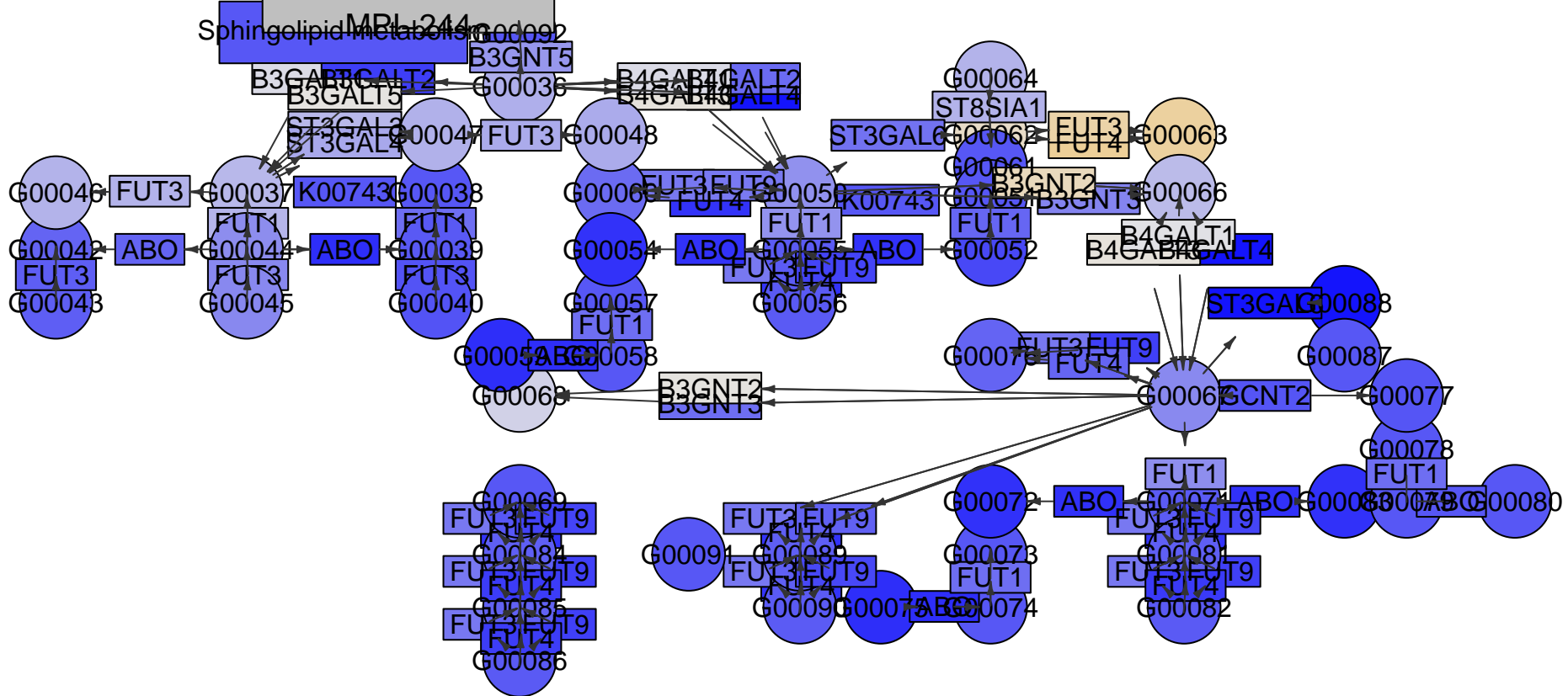
Spingolipid Metabolism



Glycosphingolipid biosynthesis – lacto and neolacto series



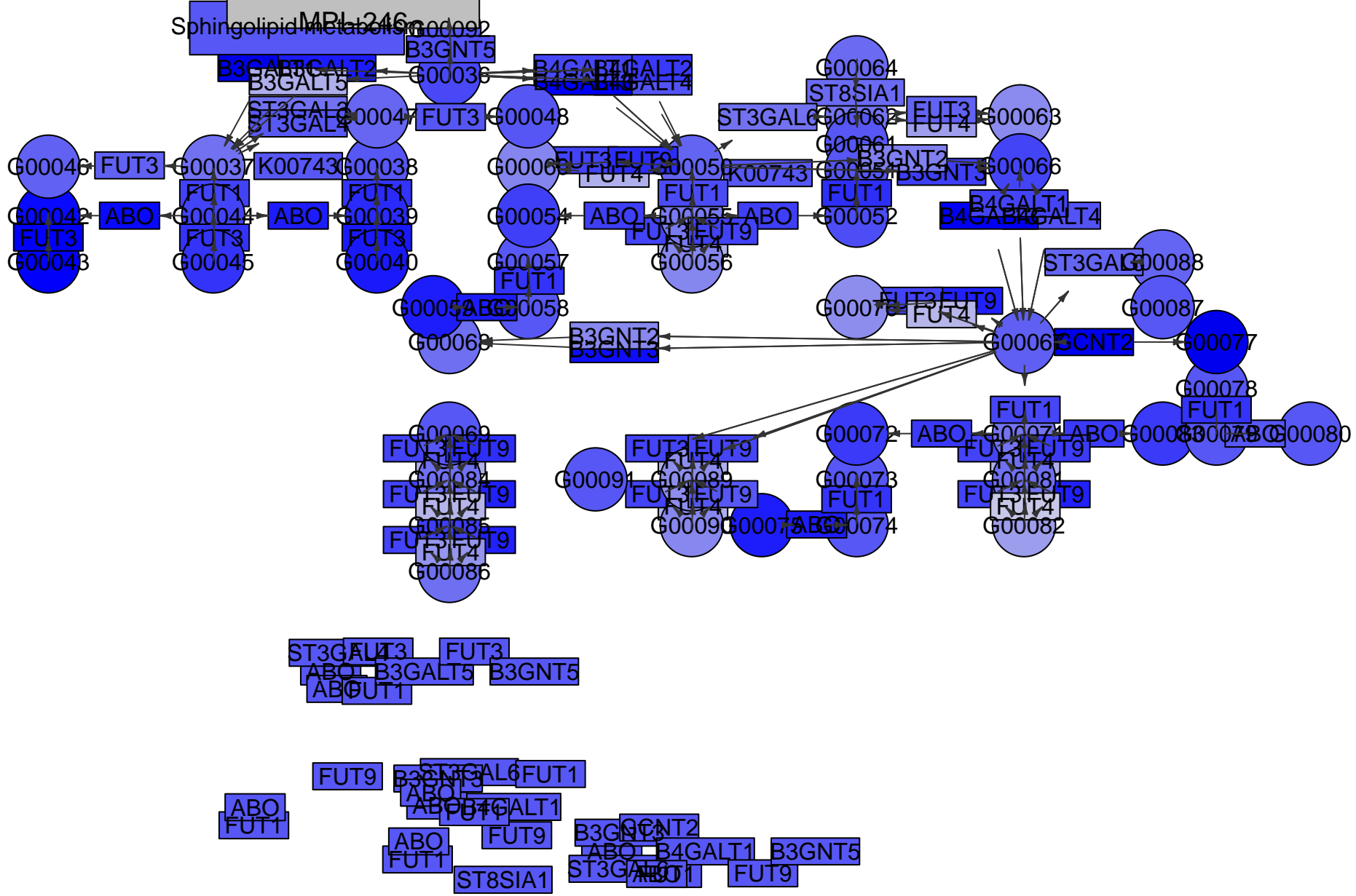
Glycosphingolipid biosynthesis – lacto and neolacto series



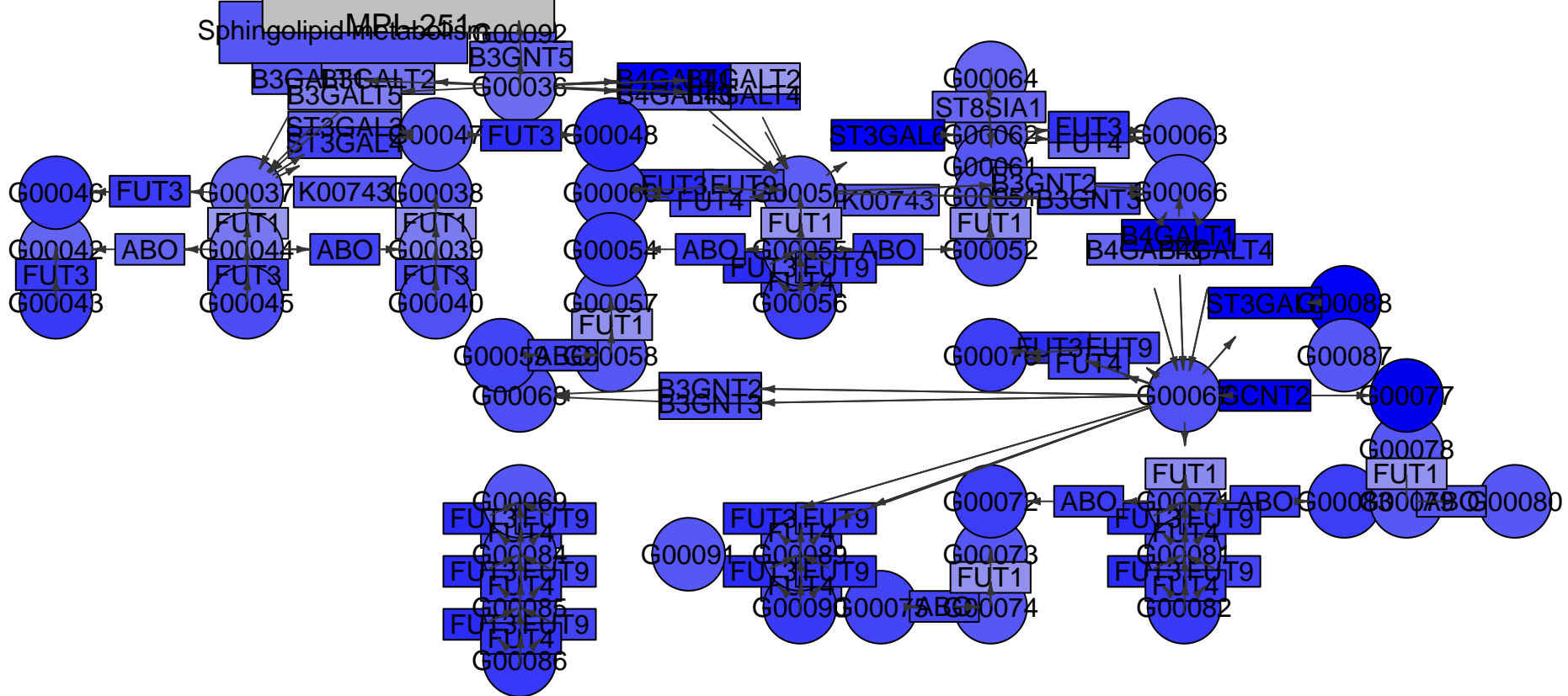
ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 ABO B3GNT3 ABO
 ABO B4GALT1
 ABO FUT1 FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ST8SIA1 ST3GAL6 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series



Glycosphingolipid biosynthesis – lacto and neolacto series



ST3GAL3 FUT3
 ABO B3GALT5 B3GNT5
 ABO

FUT9 ST3GAL6 FUT1
 B3GNT3 ABO B4GALT1
 ABO B4GALT1
 ABO FUT9 B3GNT2
 ABO B4GALT1 B3GNT5
 ABO ST3GAL6
 ABO FUT9

Glycosphingolipid biosynthesis – lacto and neolacto series

