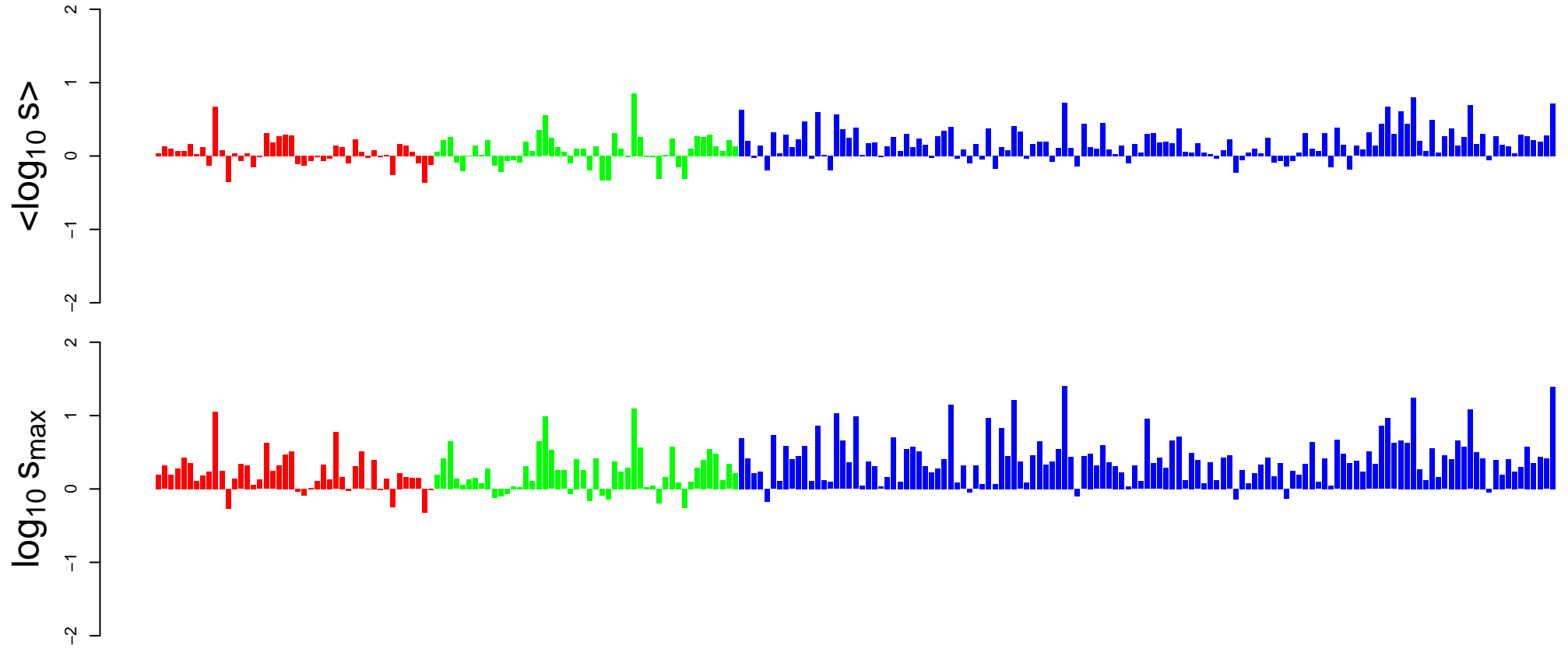
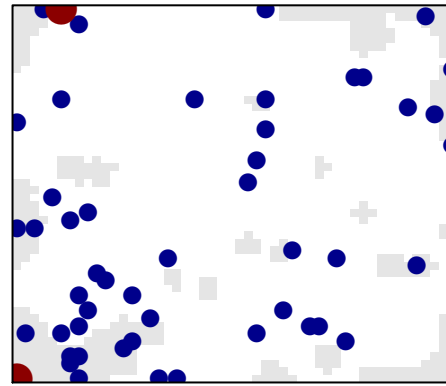
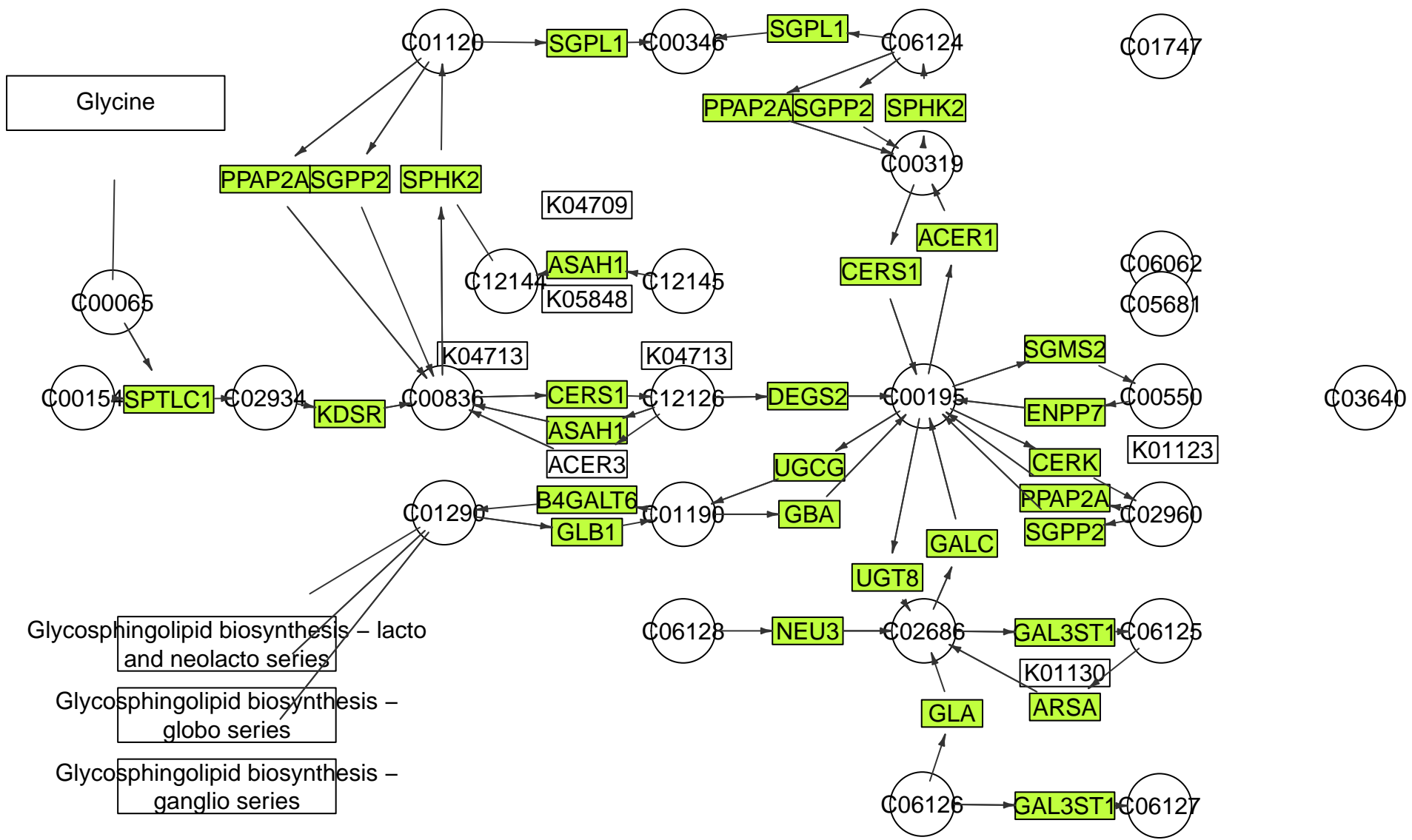


# Spingolipid metabolism

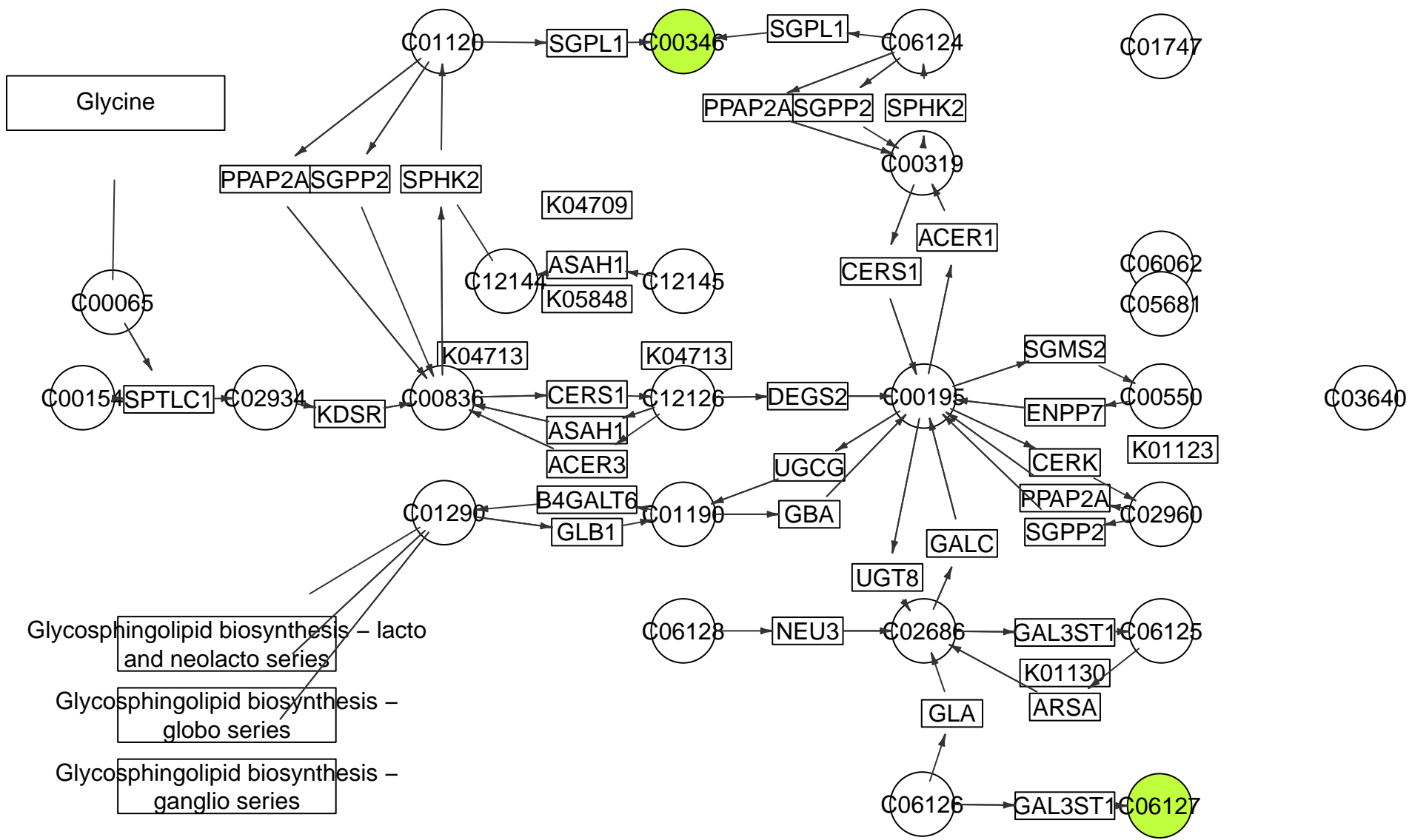
all genes



Spingolipid metabolism  
(genes with data)



Spingolipid metabolism  
(sink nodes)



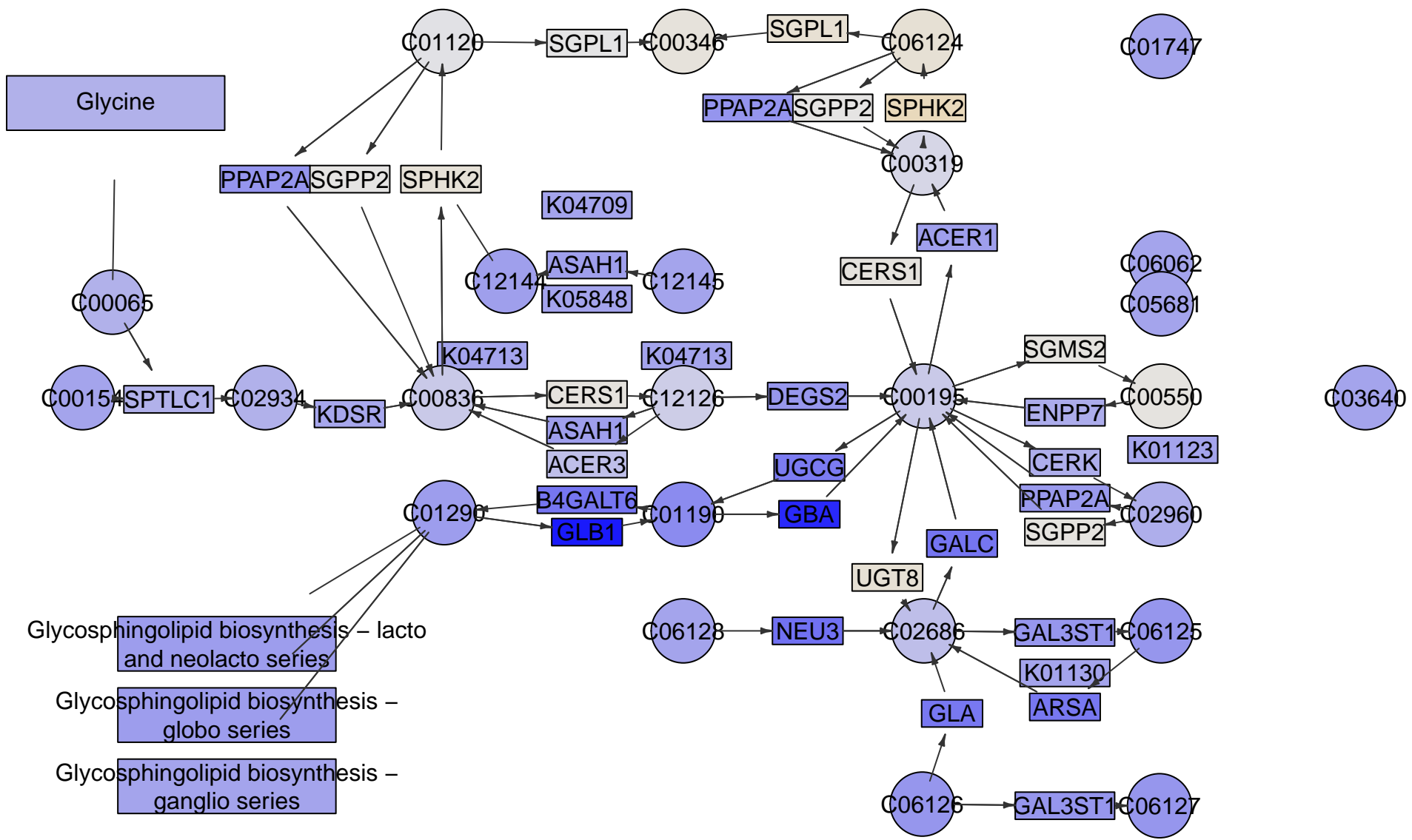
Glycosphingolipid biosynthesis – lacto and neolacto series

Glycosphingolipid biosynthesis – globo series

Glycosphingolipid biosynthesis – ganglio series



Spingolipid metabolism  
MPI-002



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



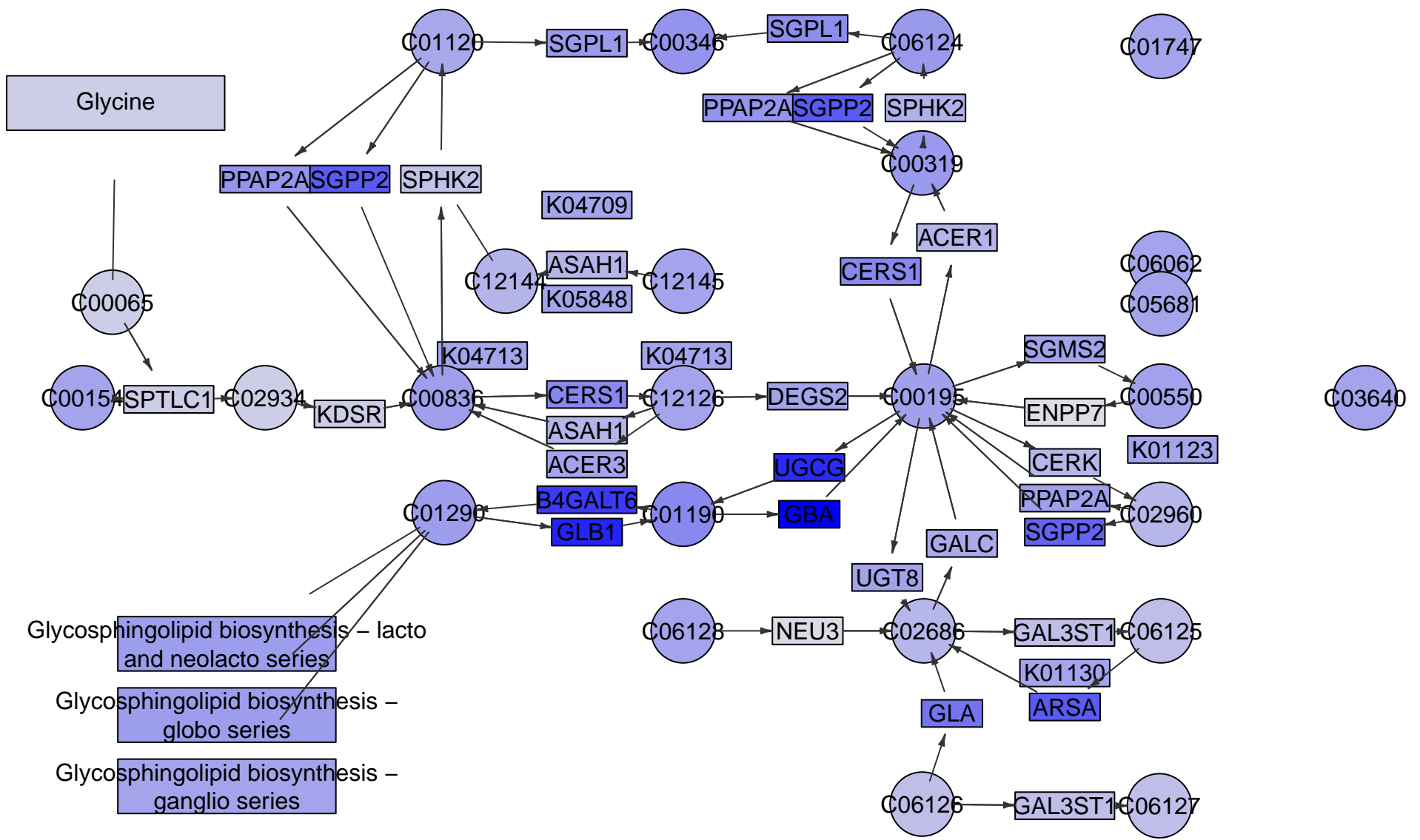








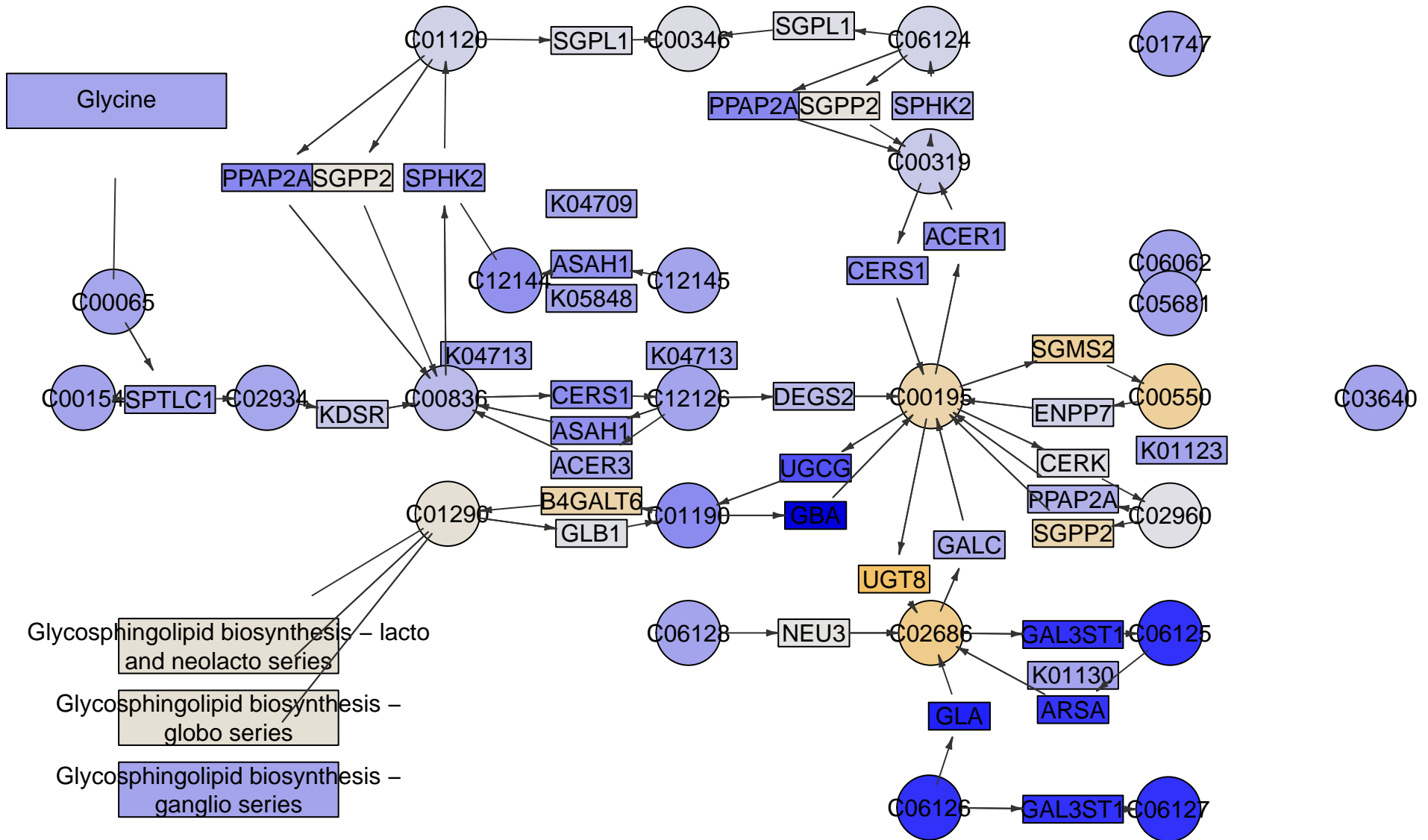
Spingolipid metabolism  
MPI-017



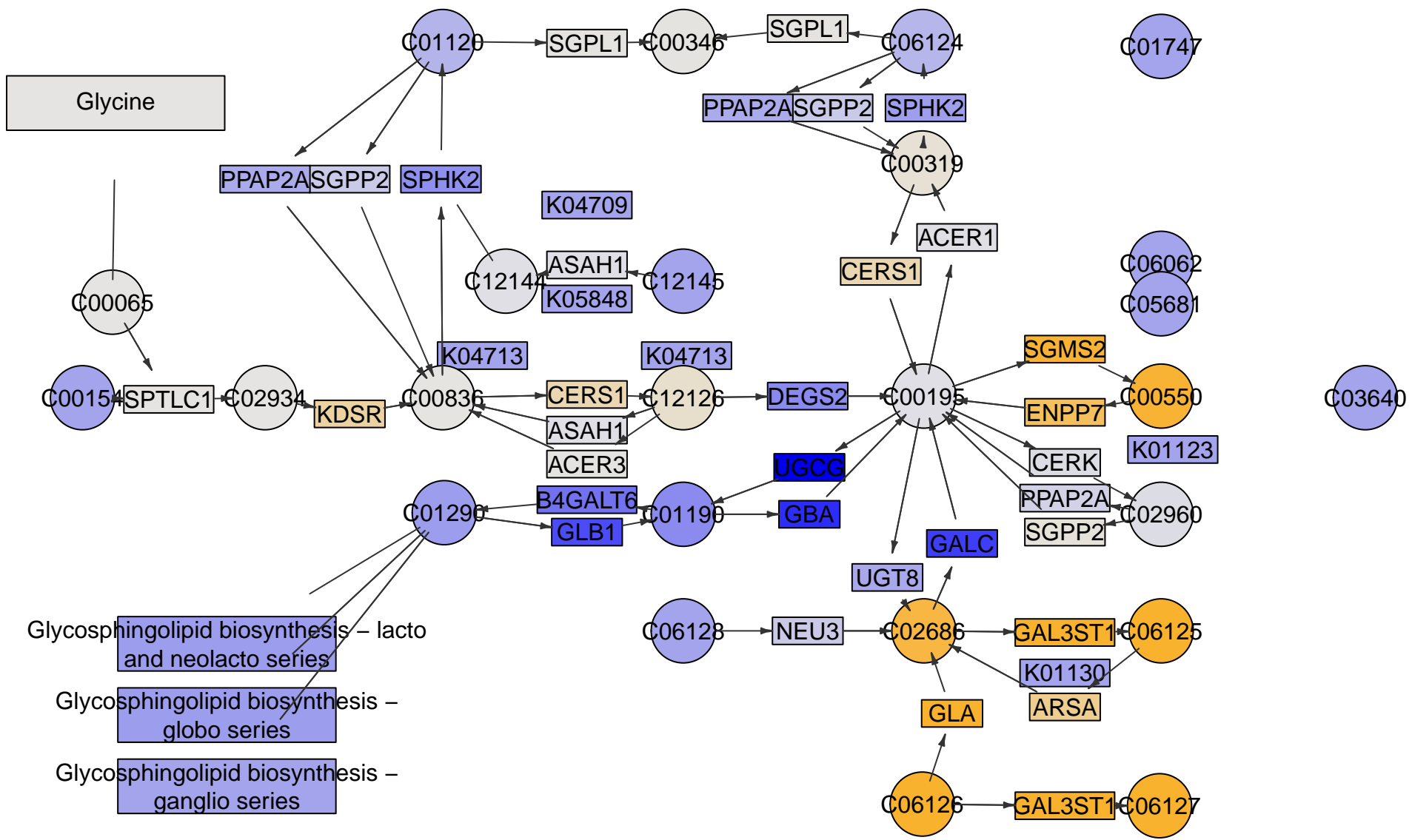
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



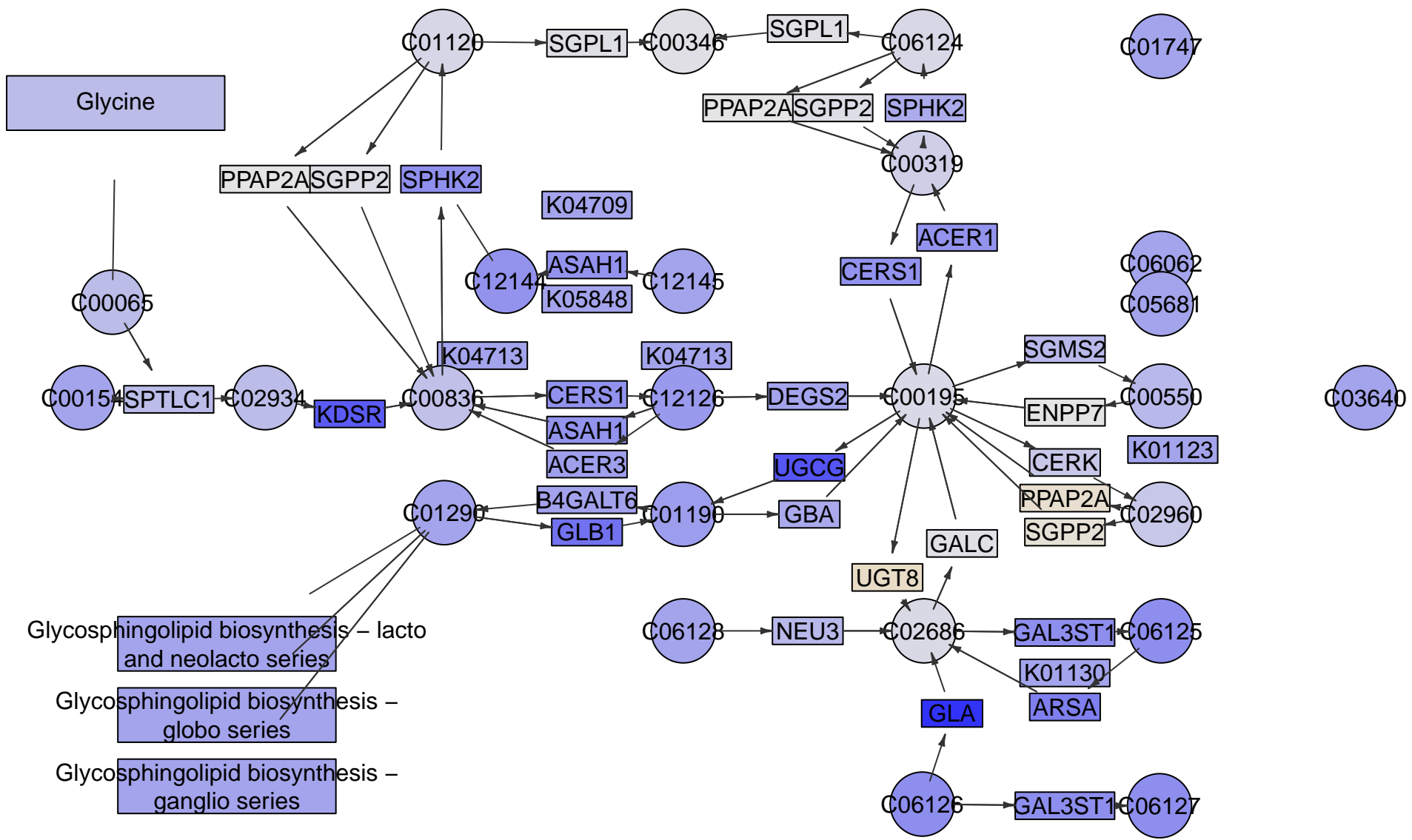
Spingolipid metabolism  
MPI-027



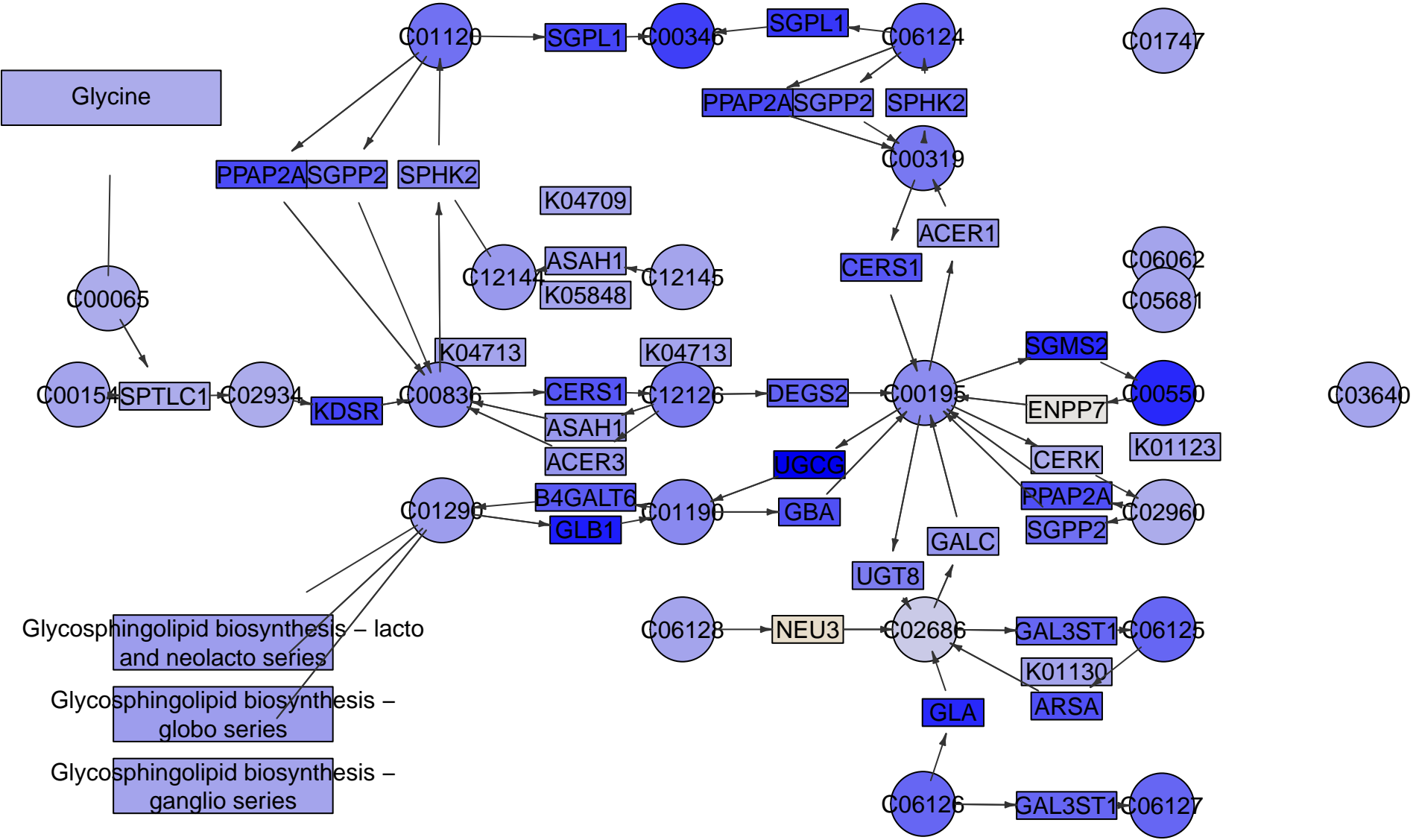
Spingolipid metabolism  
MPI-028



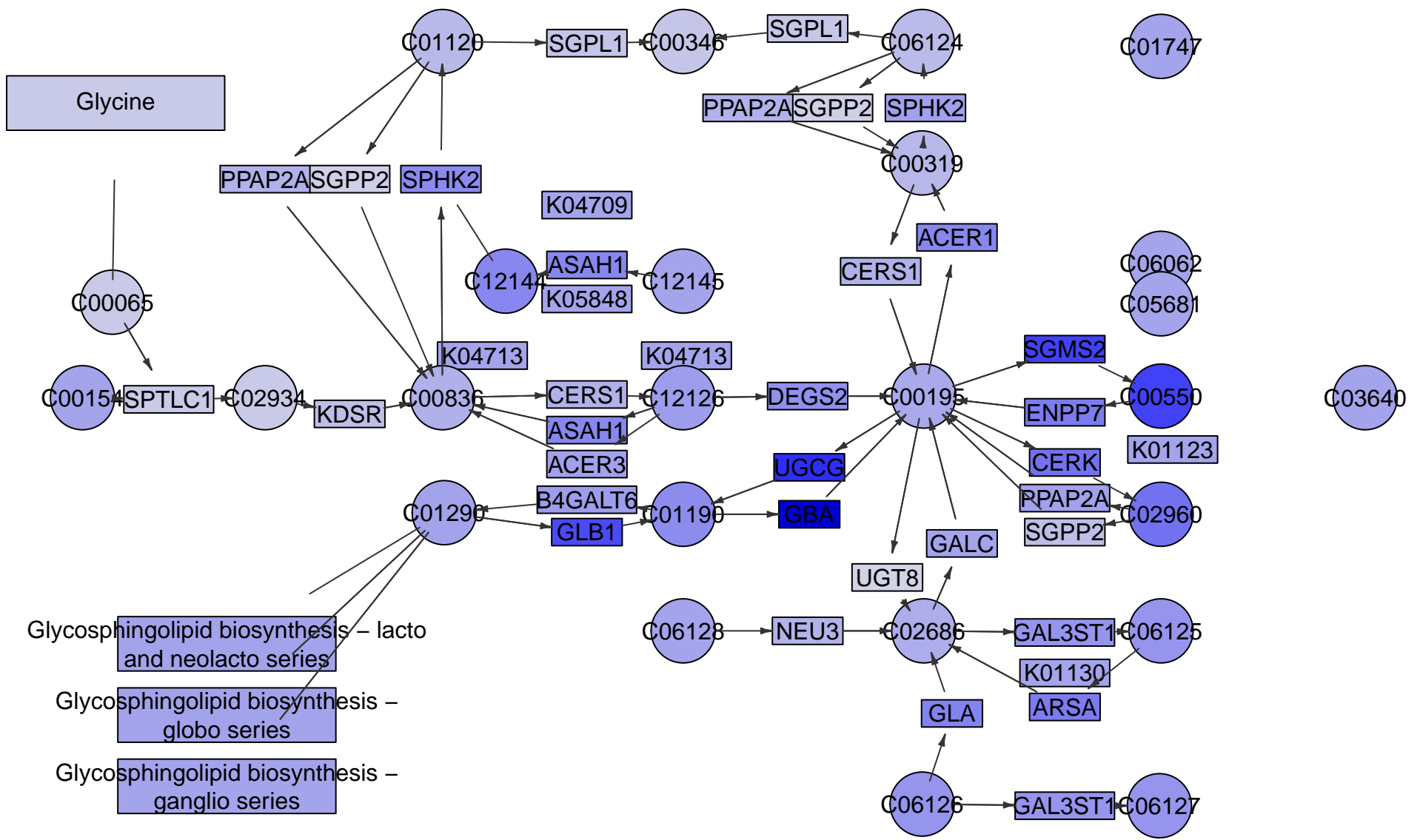
Spingolipid metabolism  
MPI-032



Spingolipid metabolism  
MPI-033



Spingolipid metabolism  
MPI-034

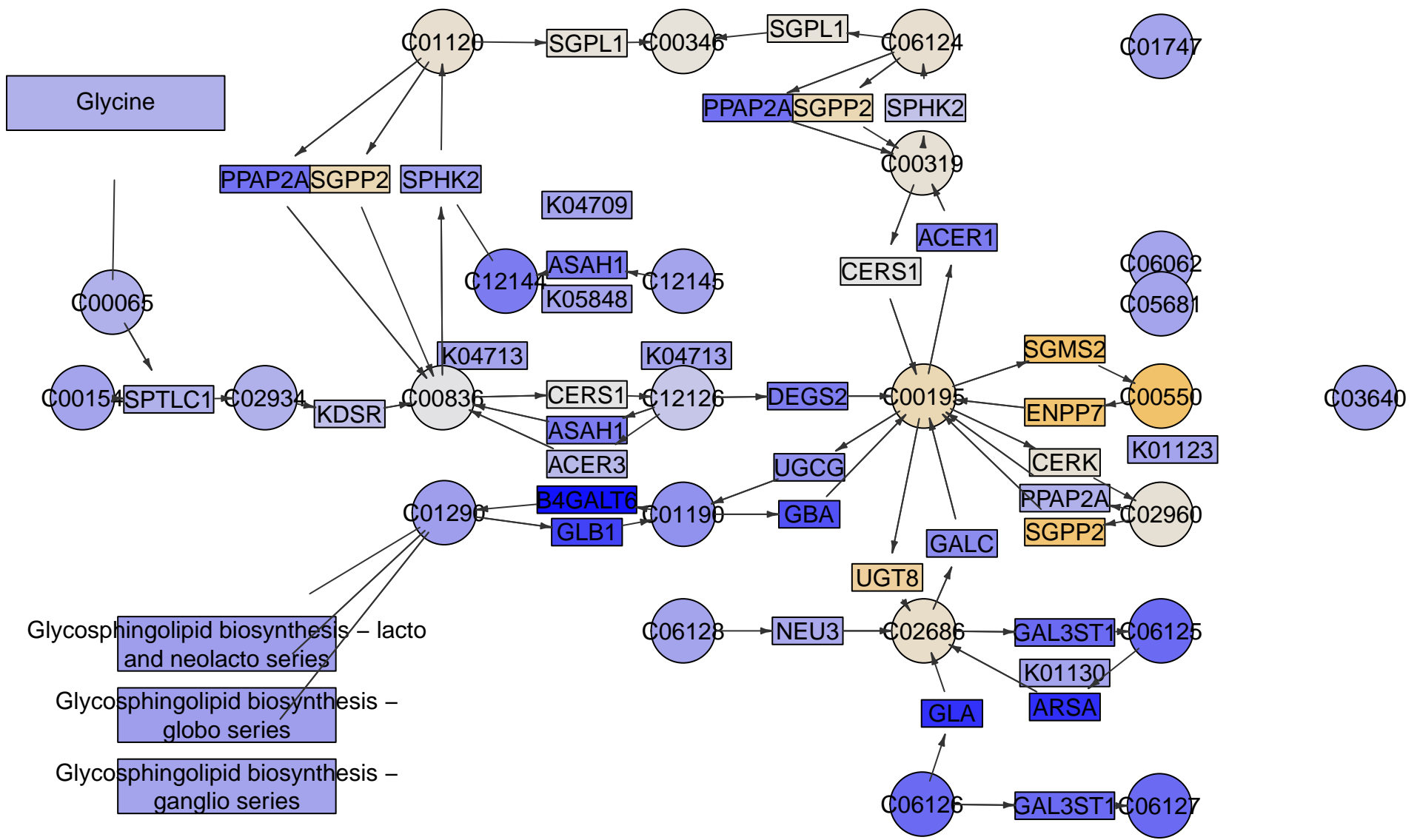


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

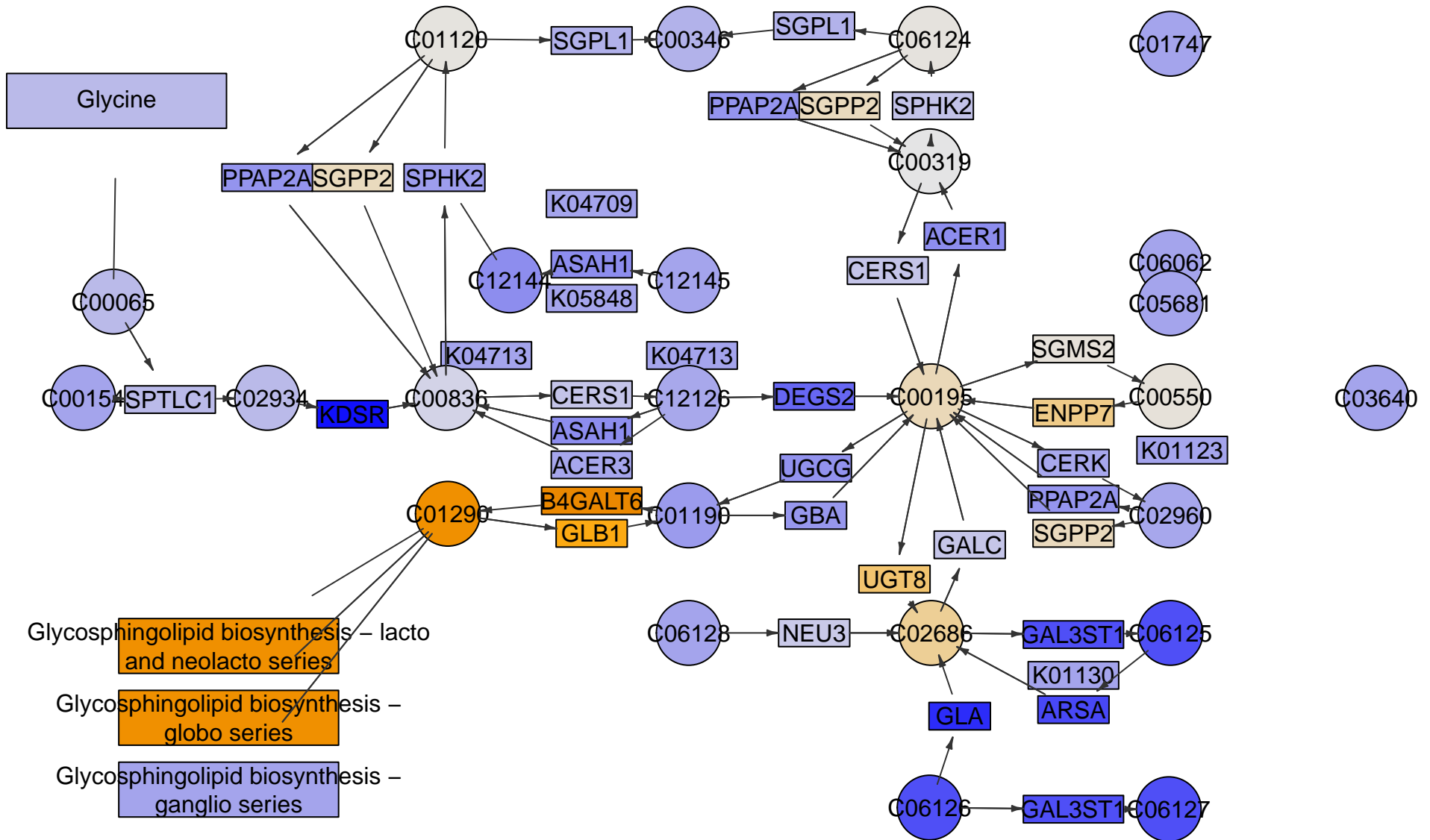




Spingolipid metabolism  
MPI-044

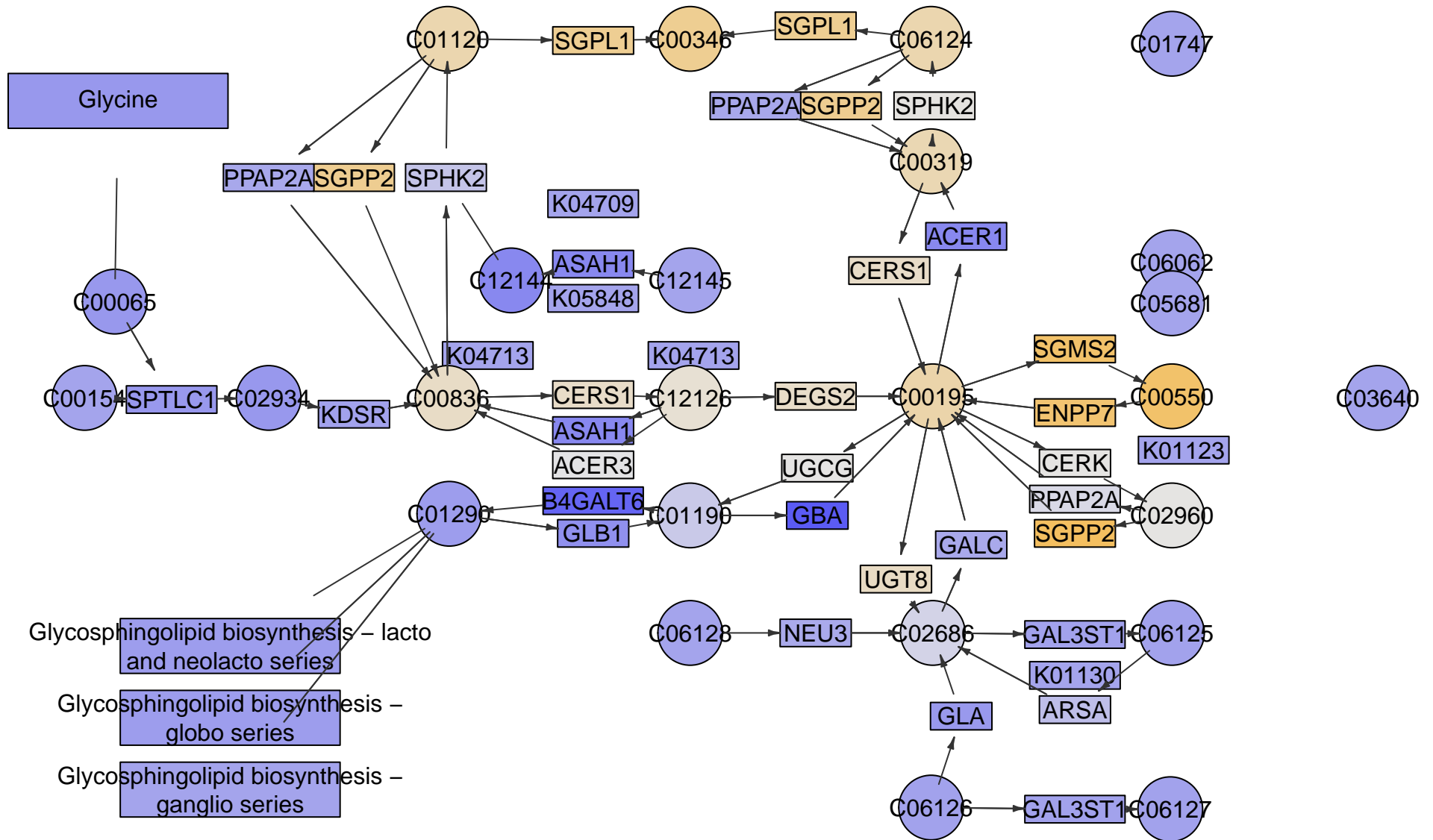


Spingolipid metabolism  
MPI-048

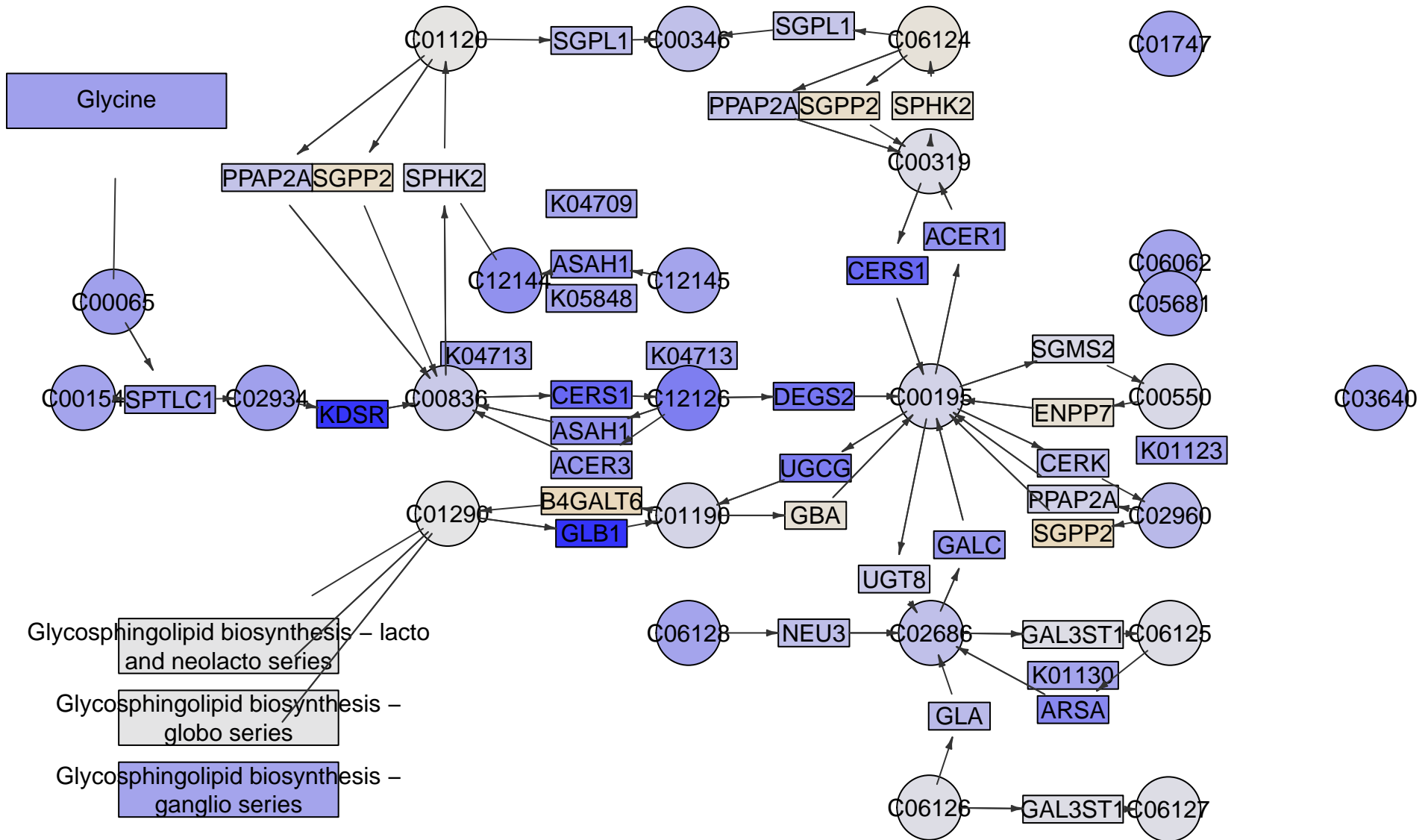




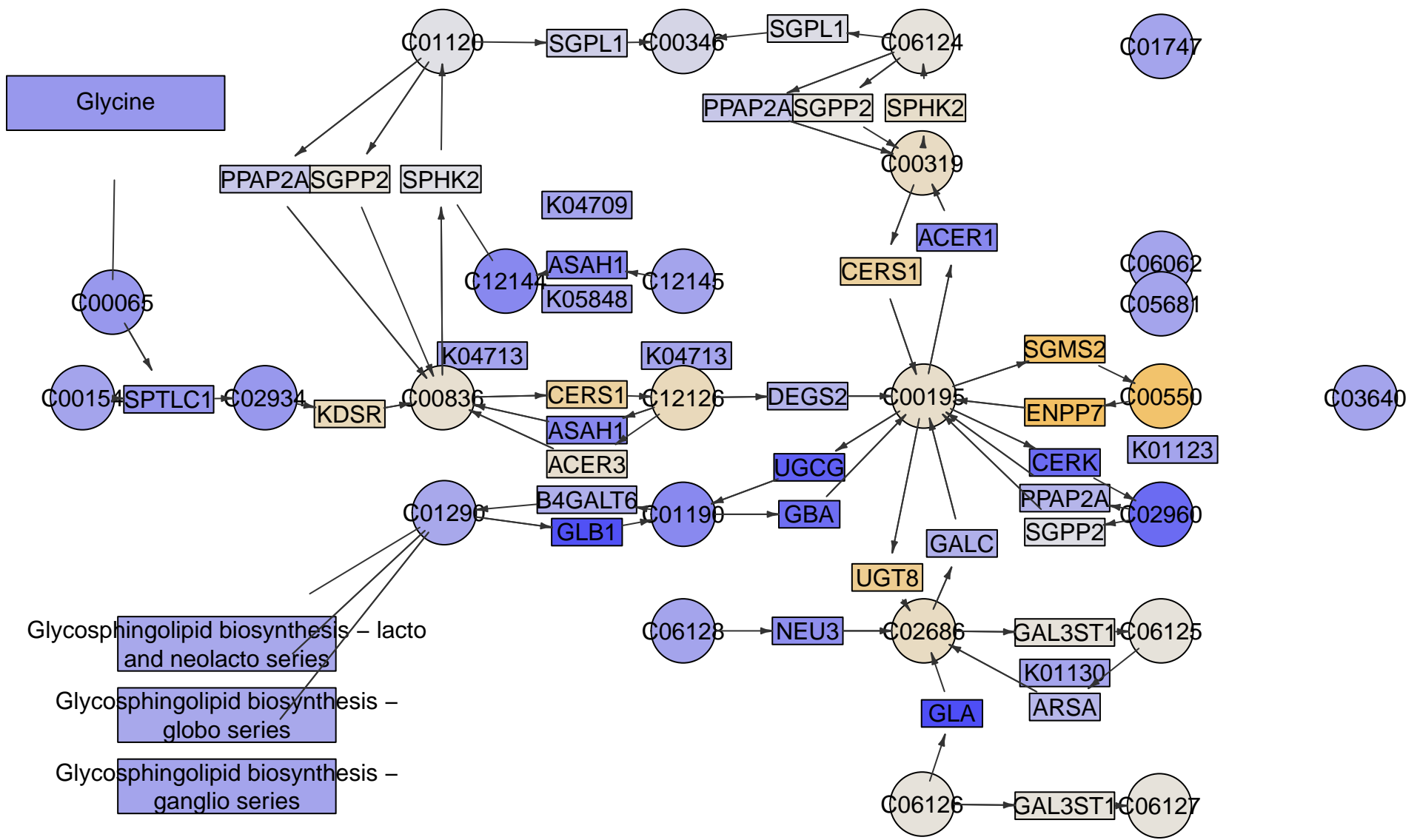
Sphingolipid metabolism  
 MPI-065



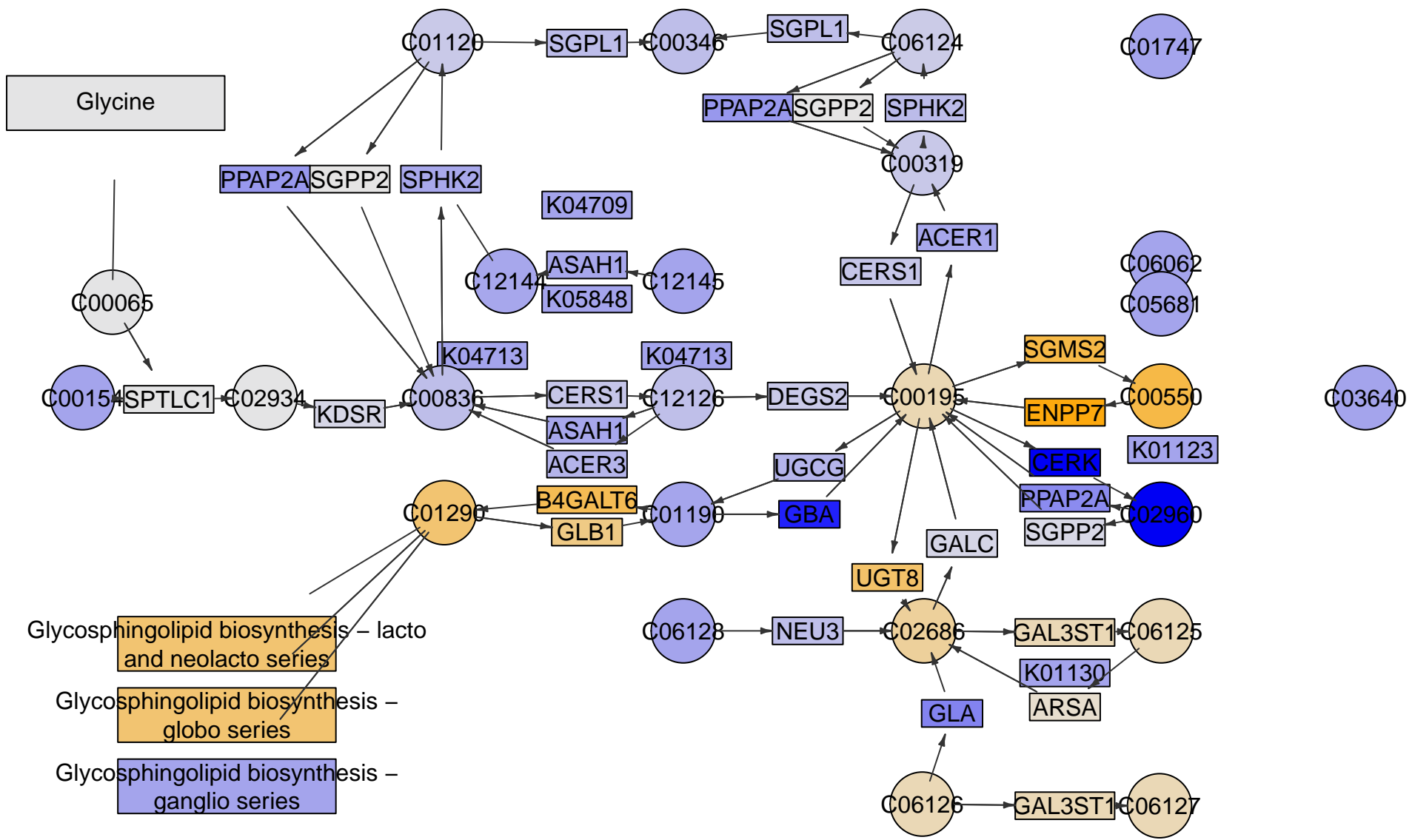
Spingolipid metabolism  
MPI-071



Spingolipid metabolism  
MPI-075



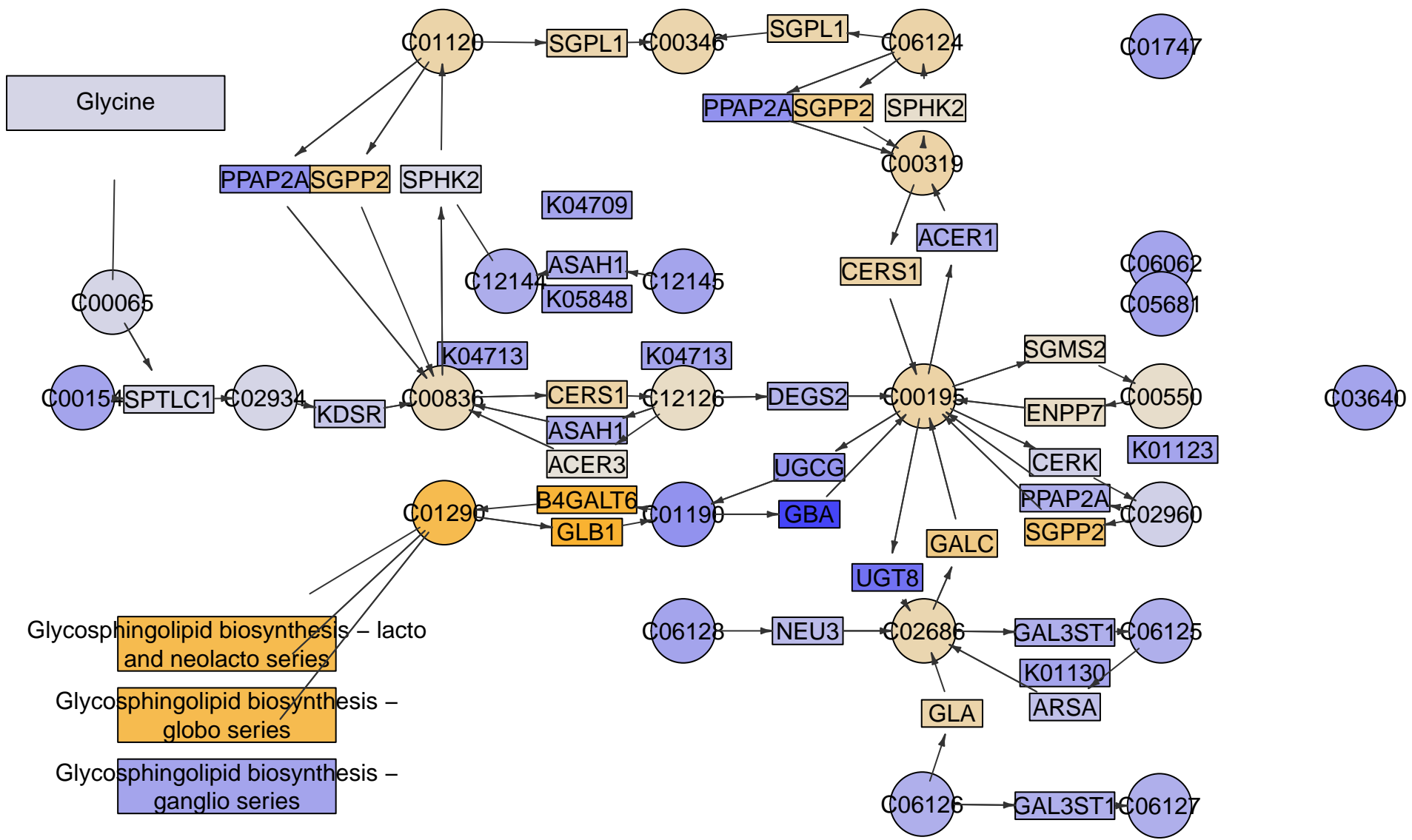
Spingolipid metabolism  
MPI-077



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



Spingolipid metabolism  
MPI-078

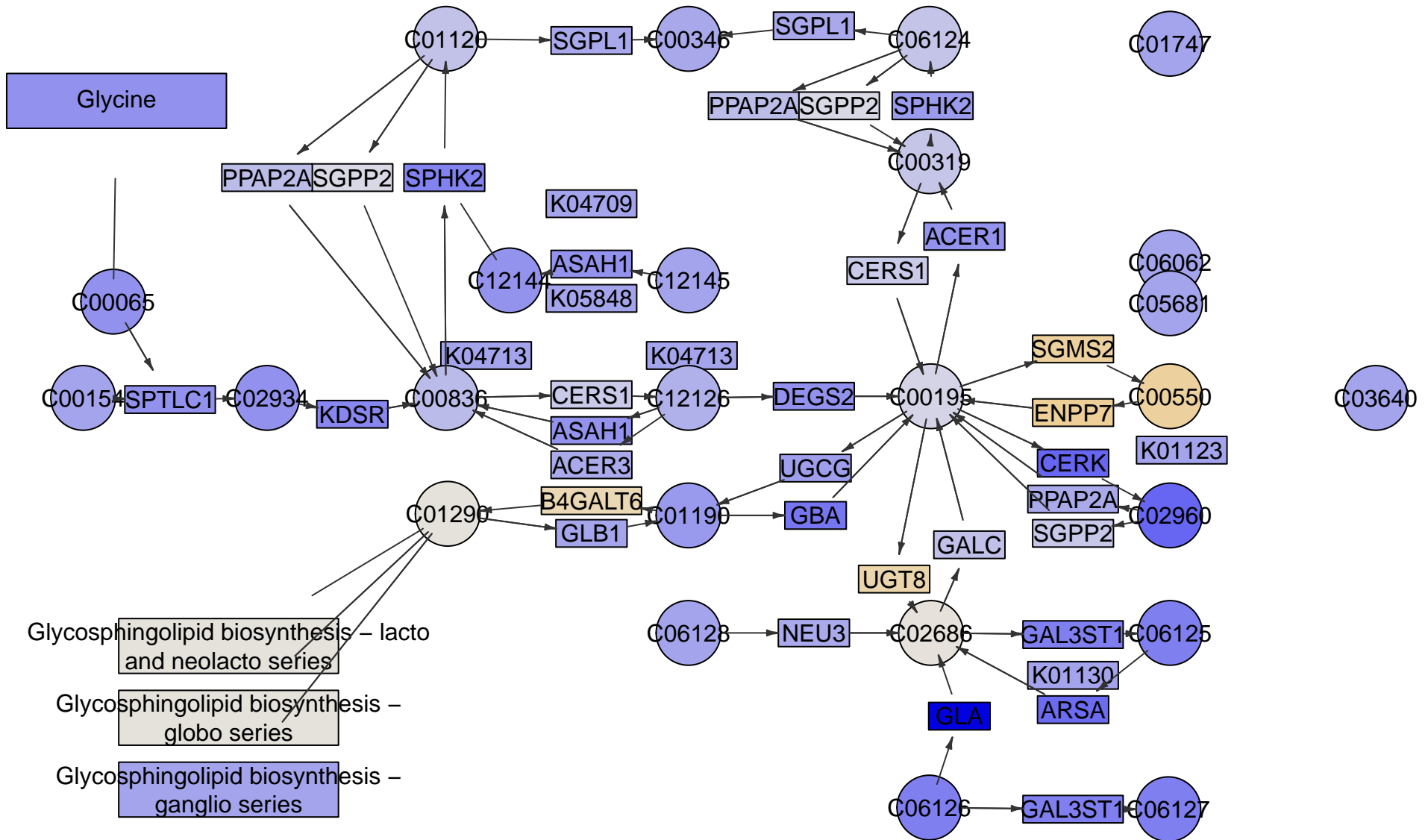


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



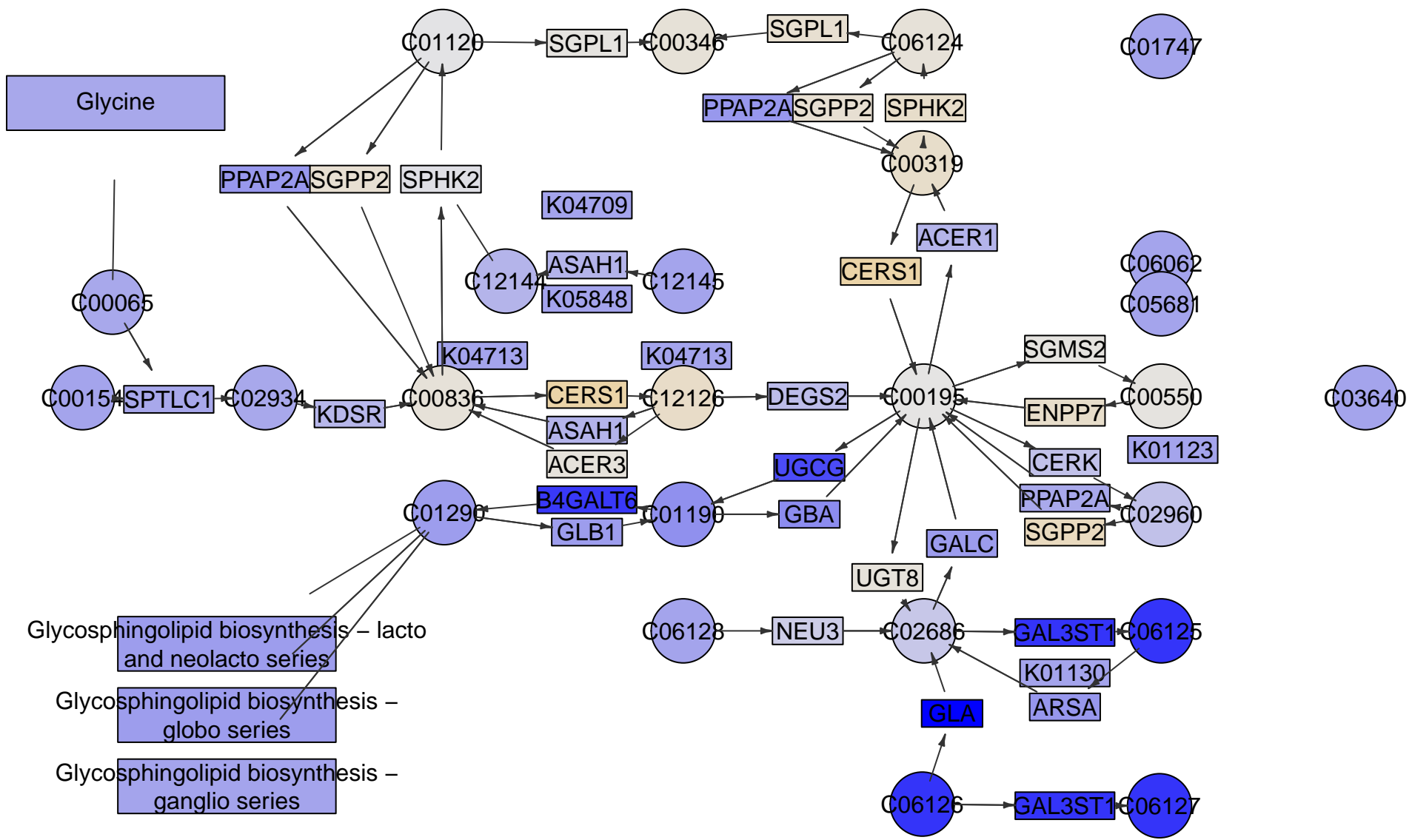


Spingolipid metabolism  
MPI-081





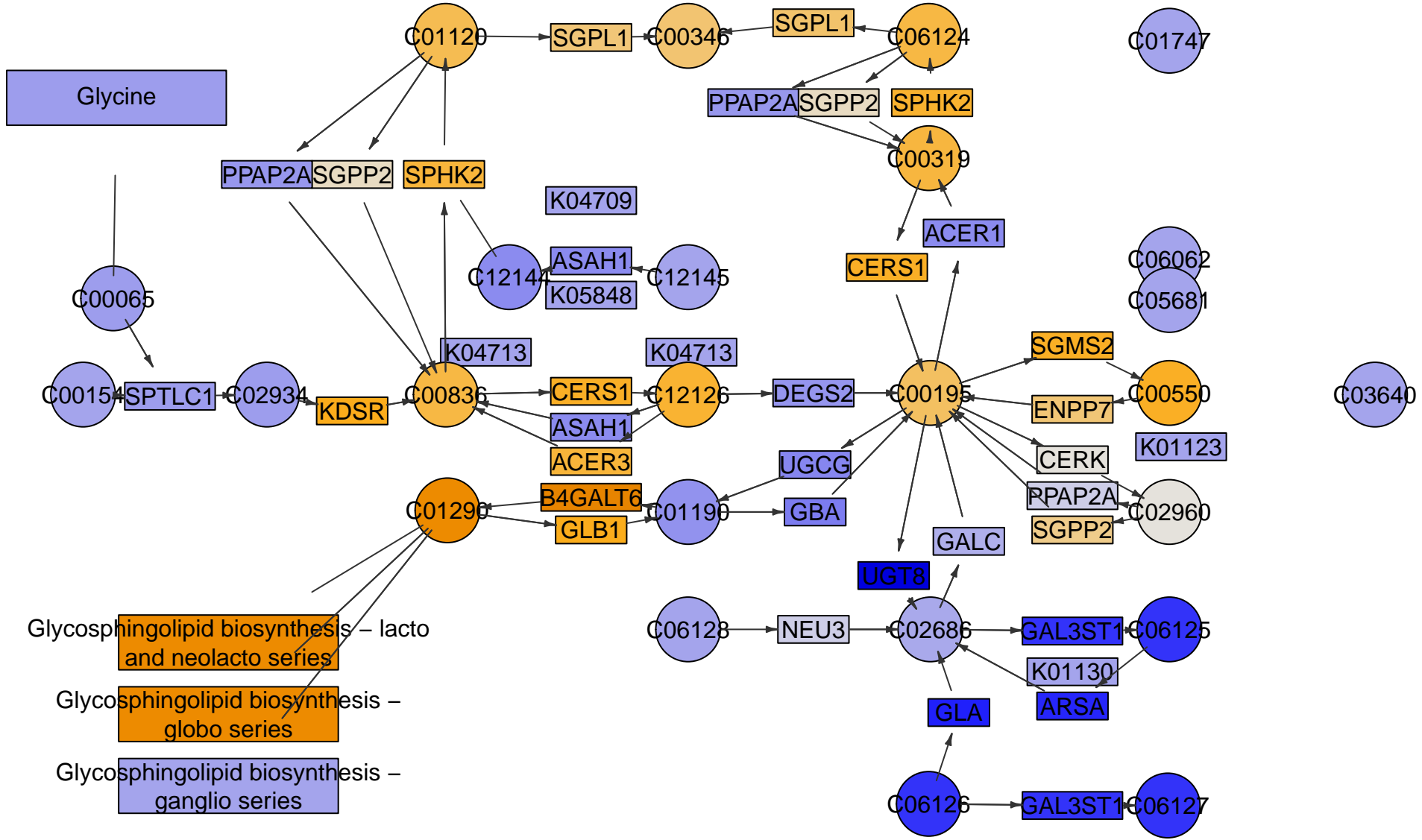
Spingolipid metabolism  
MPI-084



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



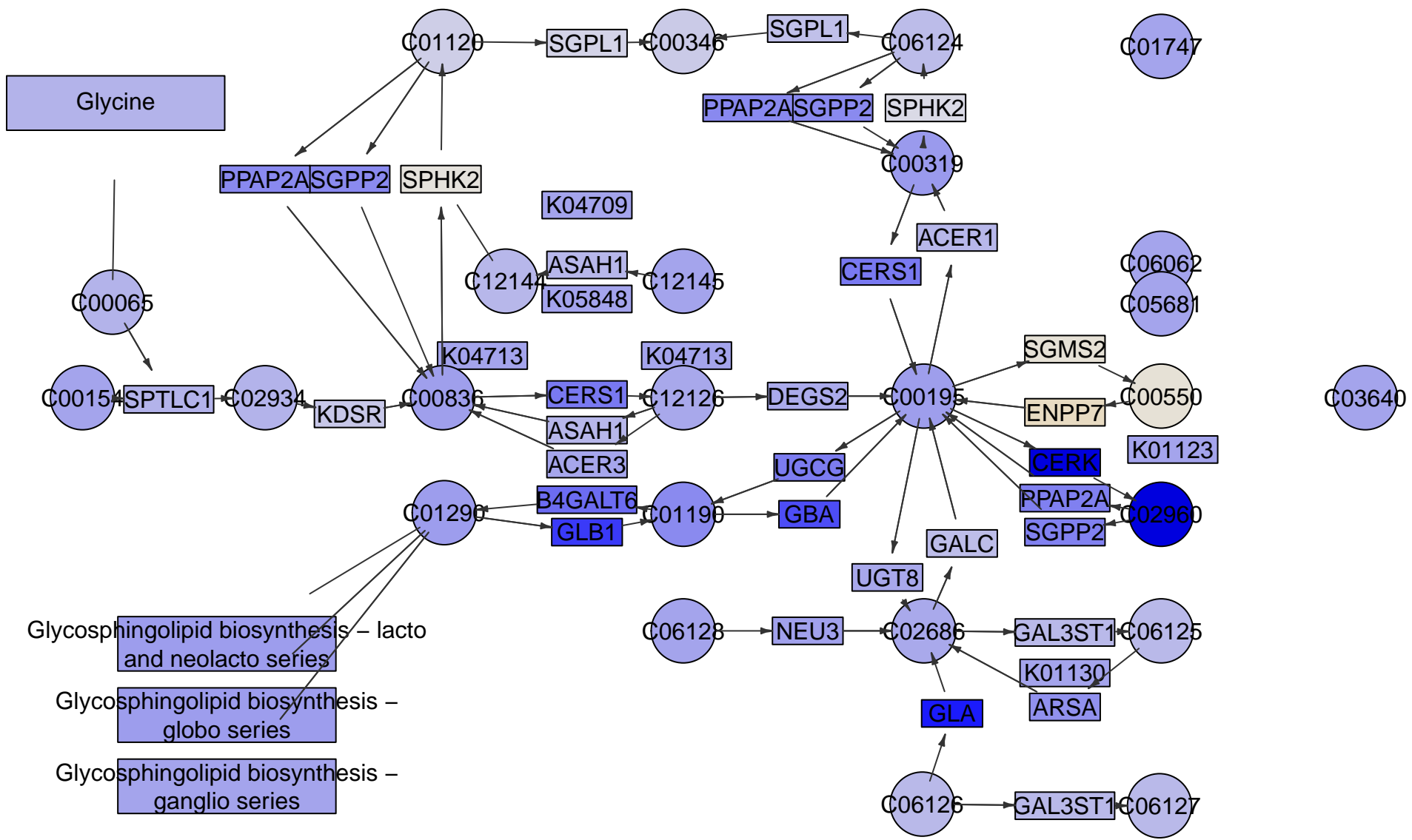
Spingolipid metabolism  
MPI-086



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

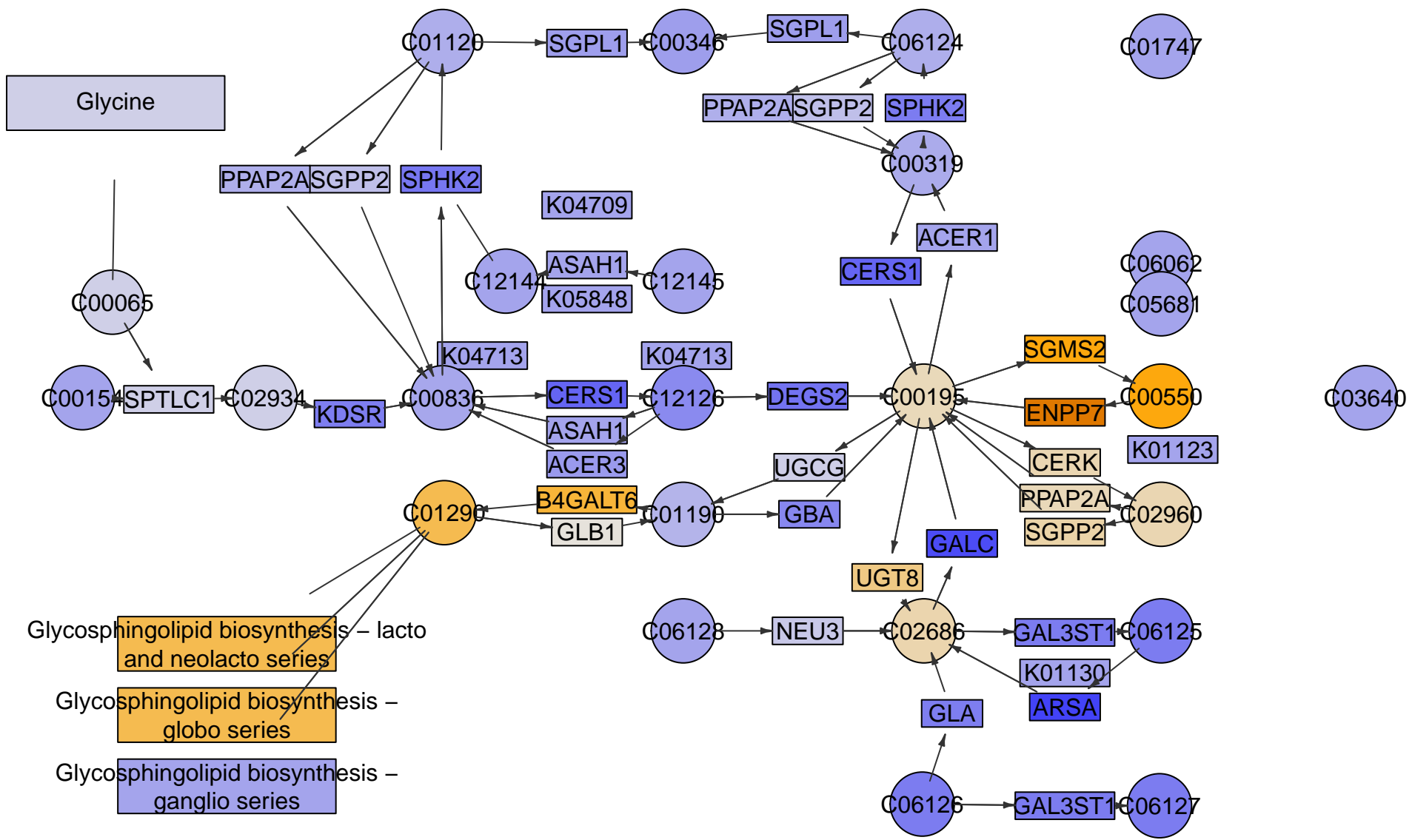


Spingolipid metabolism  
MPI-087



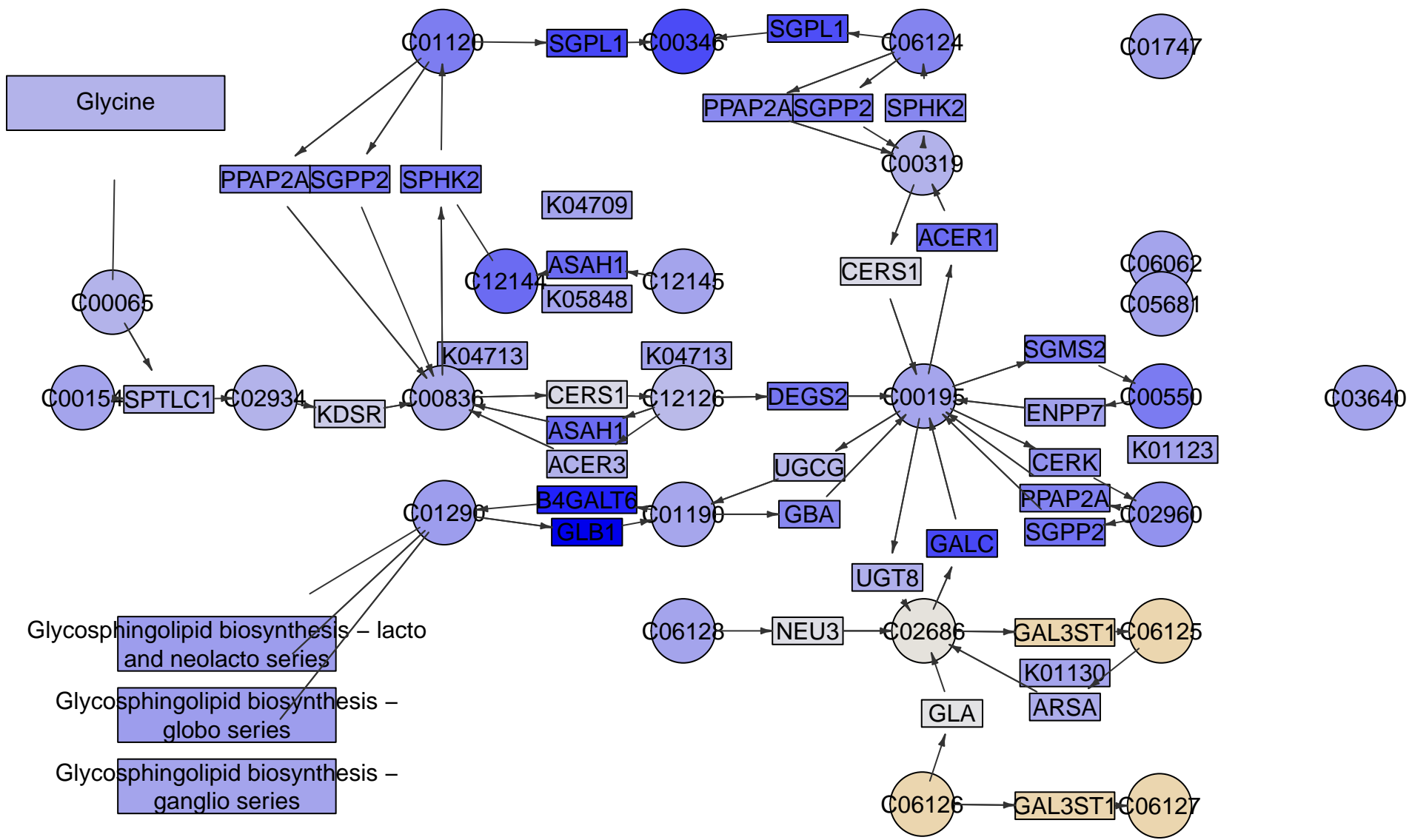
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-089





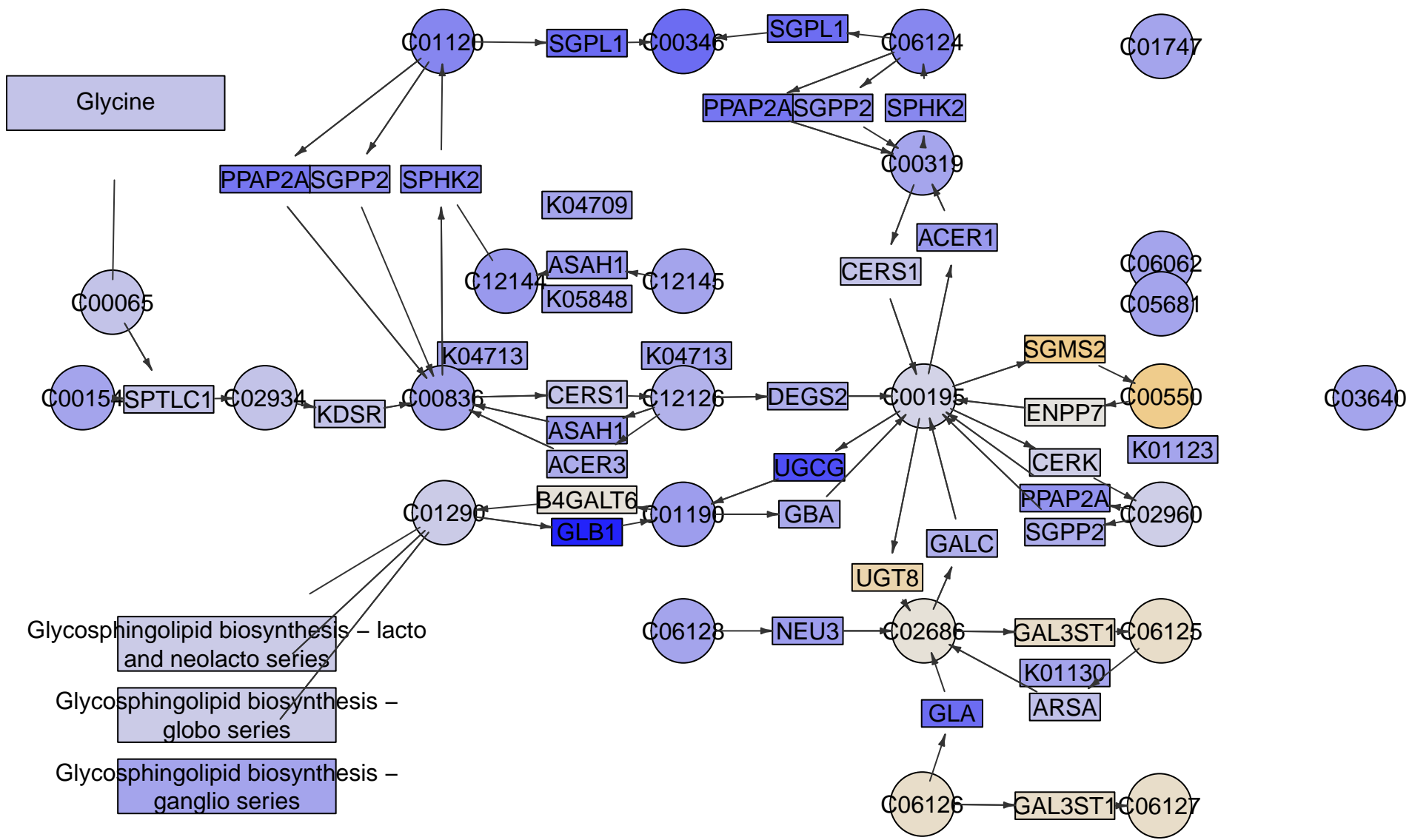
Spingolipid metabolism  
MPI-091



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



Spingolipid metabolism  
MPI-101



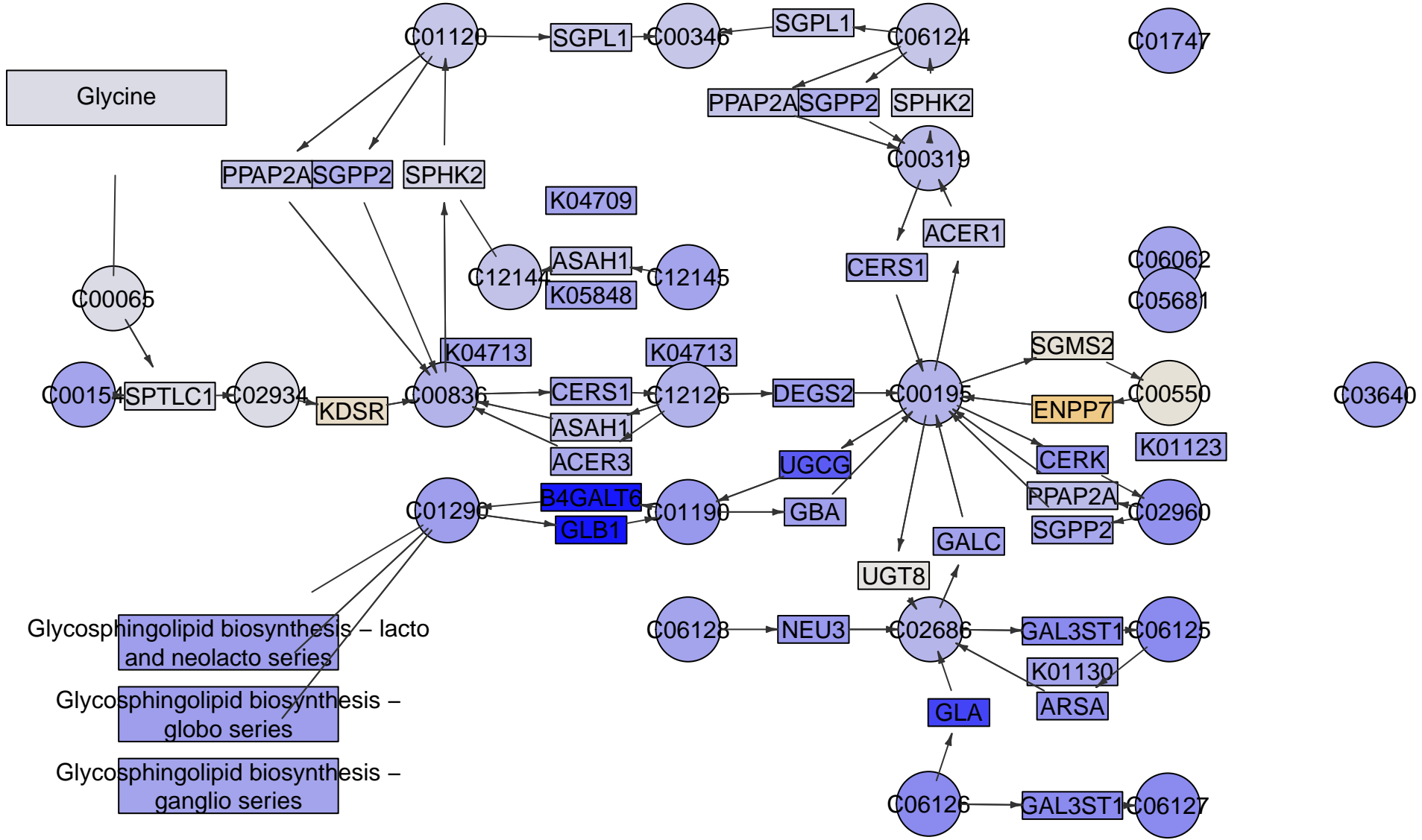
Glycosphingolipid biosynthesis – lacto  
and neolacto series

Glycosphingolipid biosynthesis –  
globo series

Glycosphingolipid biosynthesis –  
ganglio series



# Spingolipid metabolism MPI-123



Glycosphingolipid biosynthesis – lacto  
and neolacto series

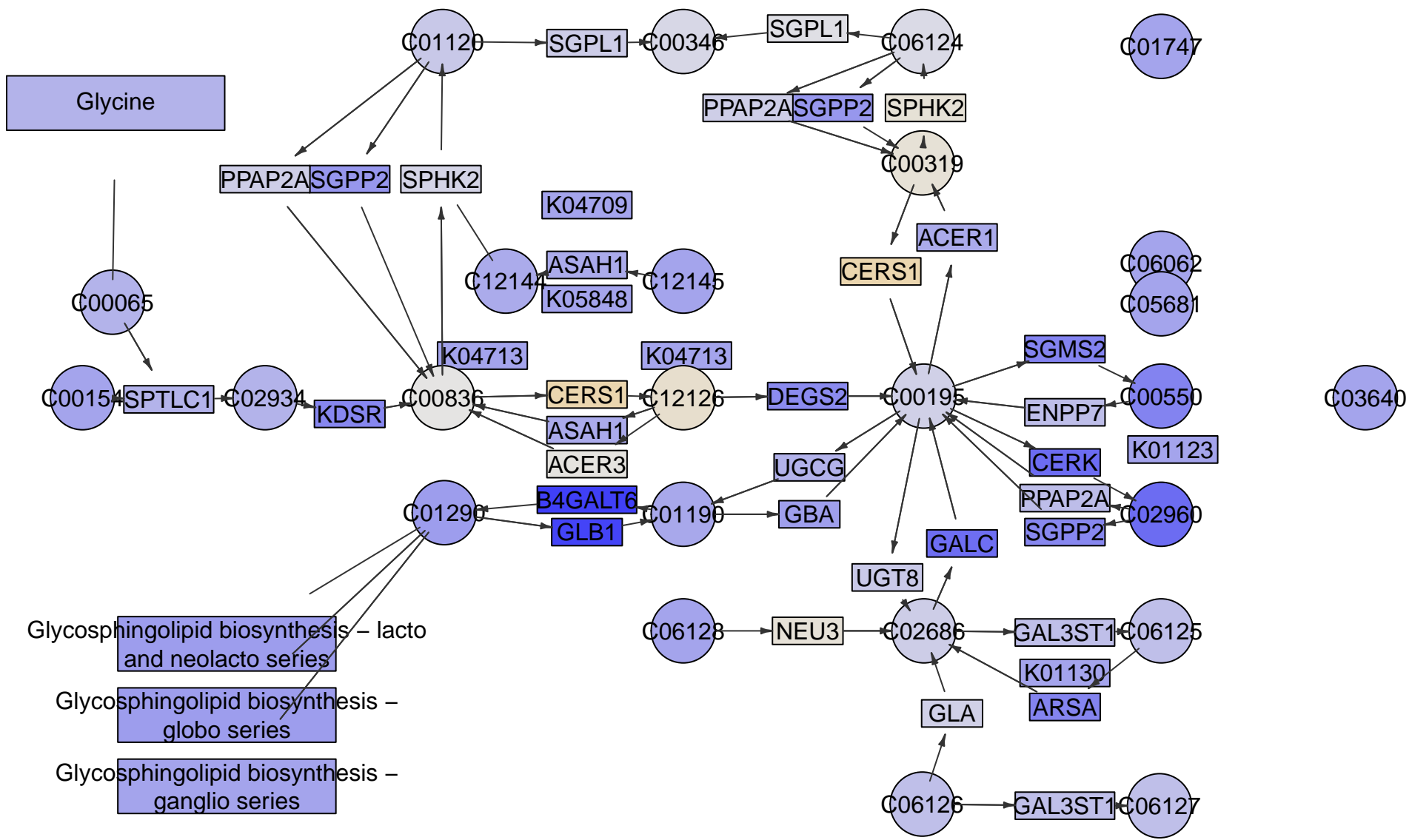
Glycosphingolipid biosynthesis –  
globo series

Glycosphingolipid biosynthesis –  
ganglio series





Spingolipid metabolism  
MPI-139



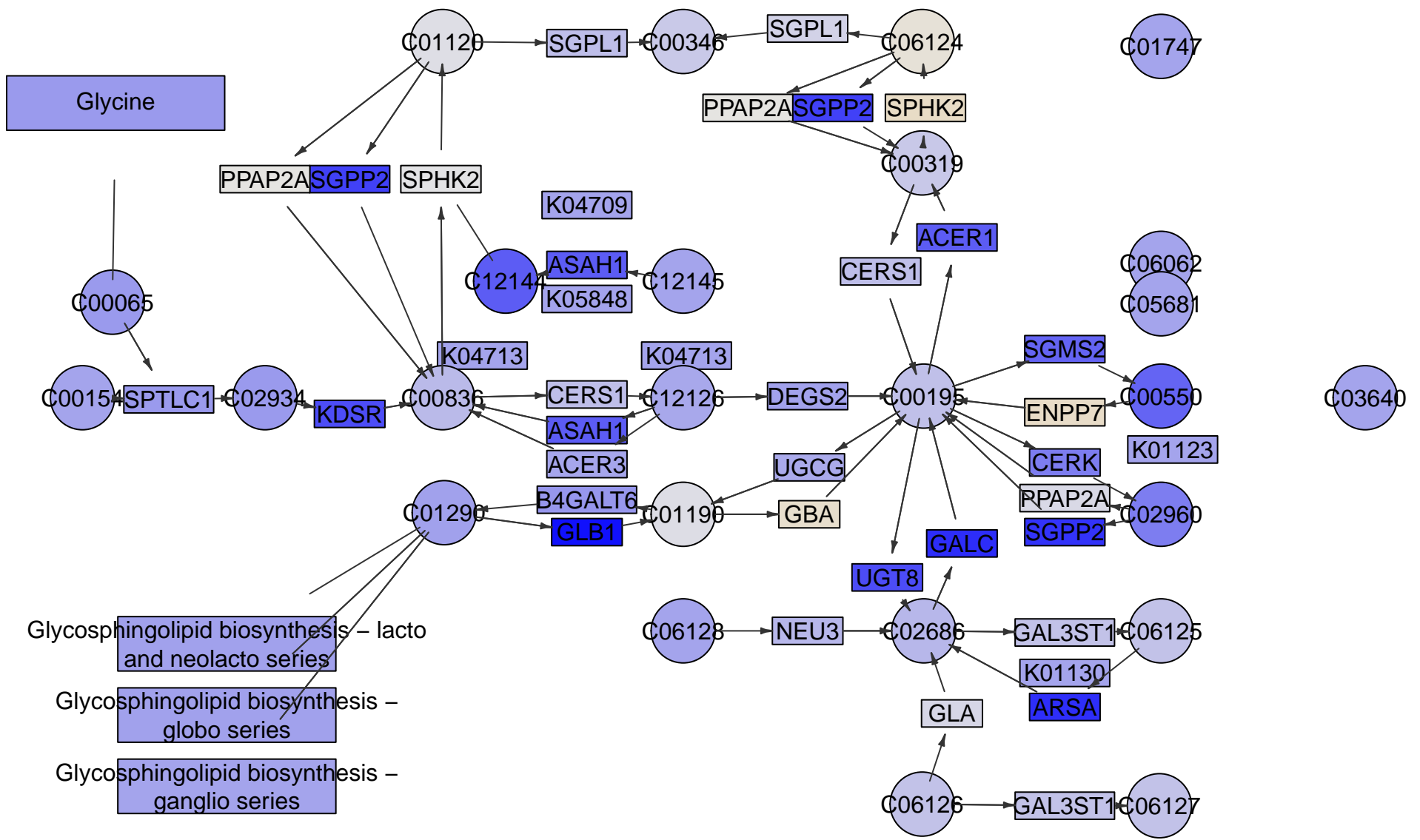
Glycine

Glycosphingolipid biosynthesis – lacto  
and neolacto series

Glycosphingolipid biosynthesis –  
globo series

Glycosphingolipid biosynthesis –  
ganglio series

Spingolipid metabolism  
MPI-140

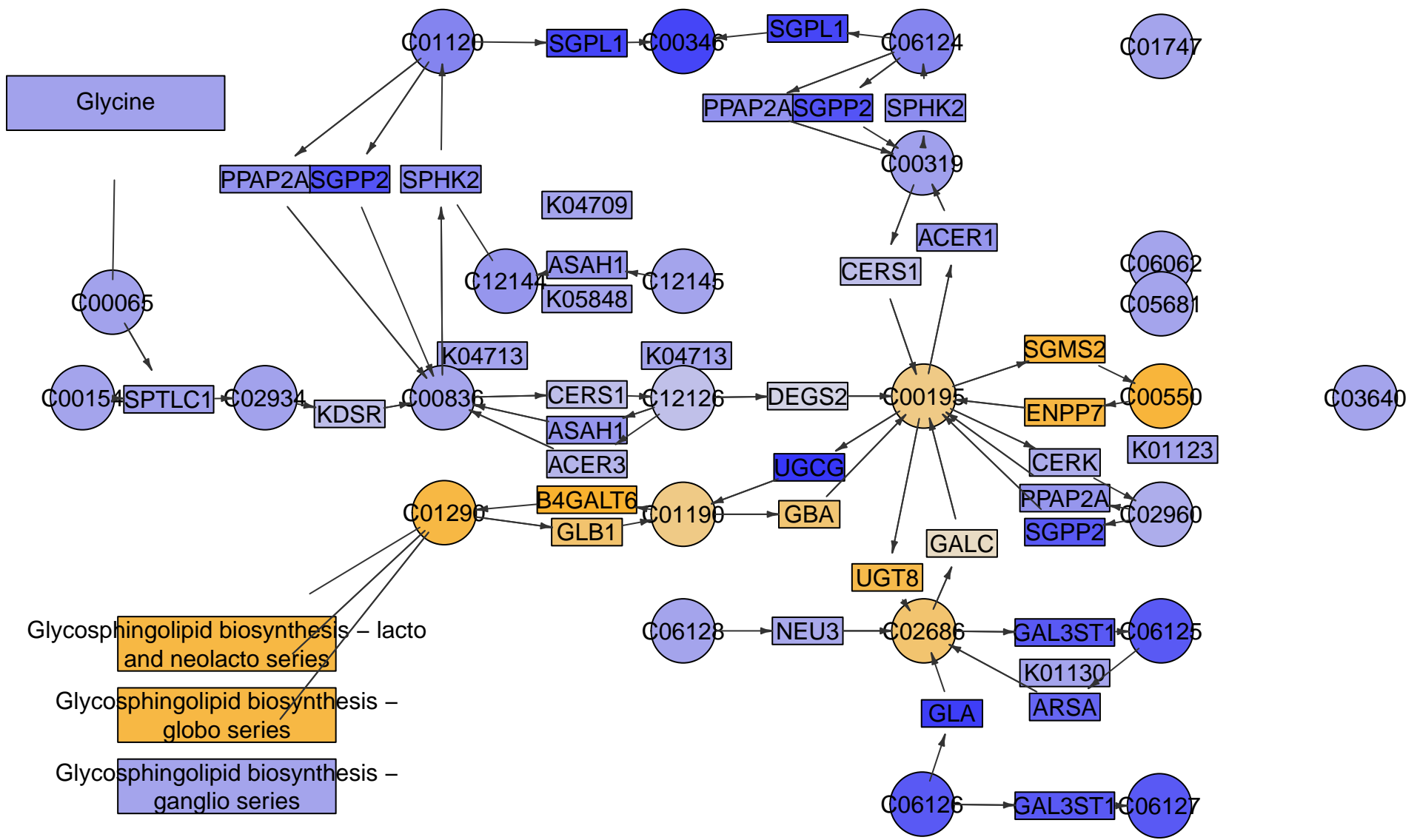


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



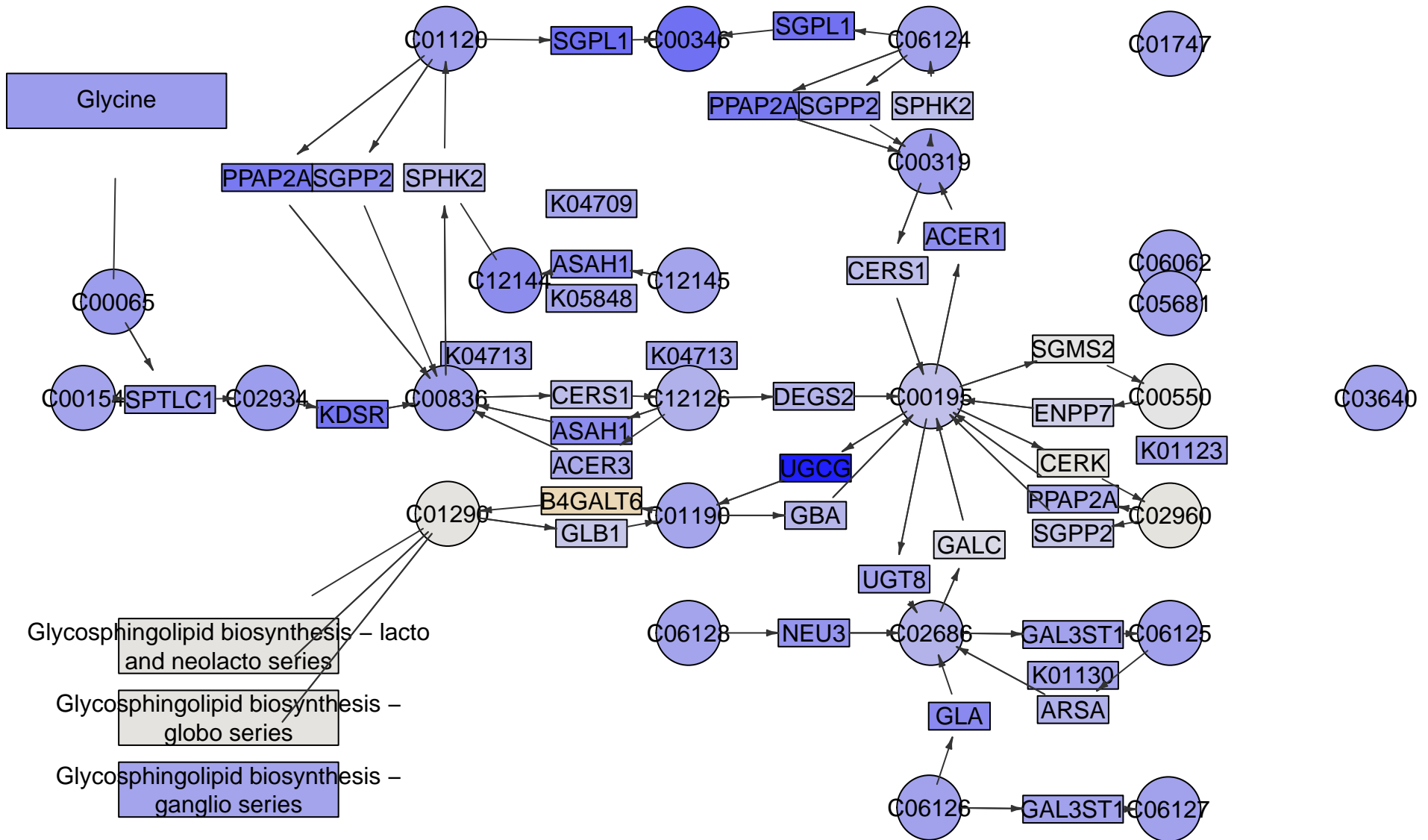


Spingolipid metabolism  
MPI-171

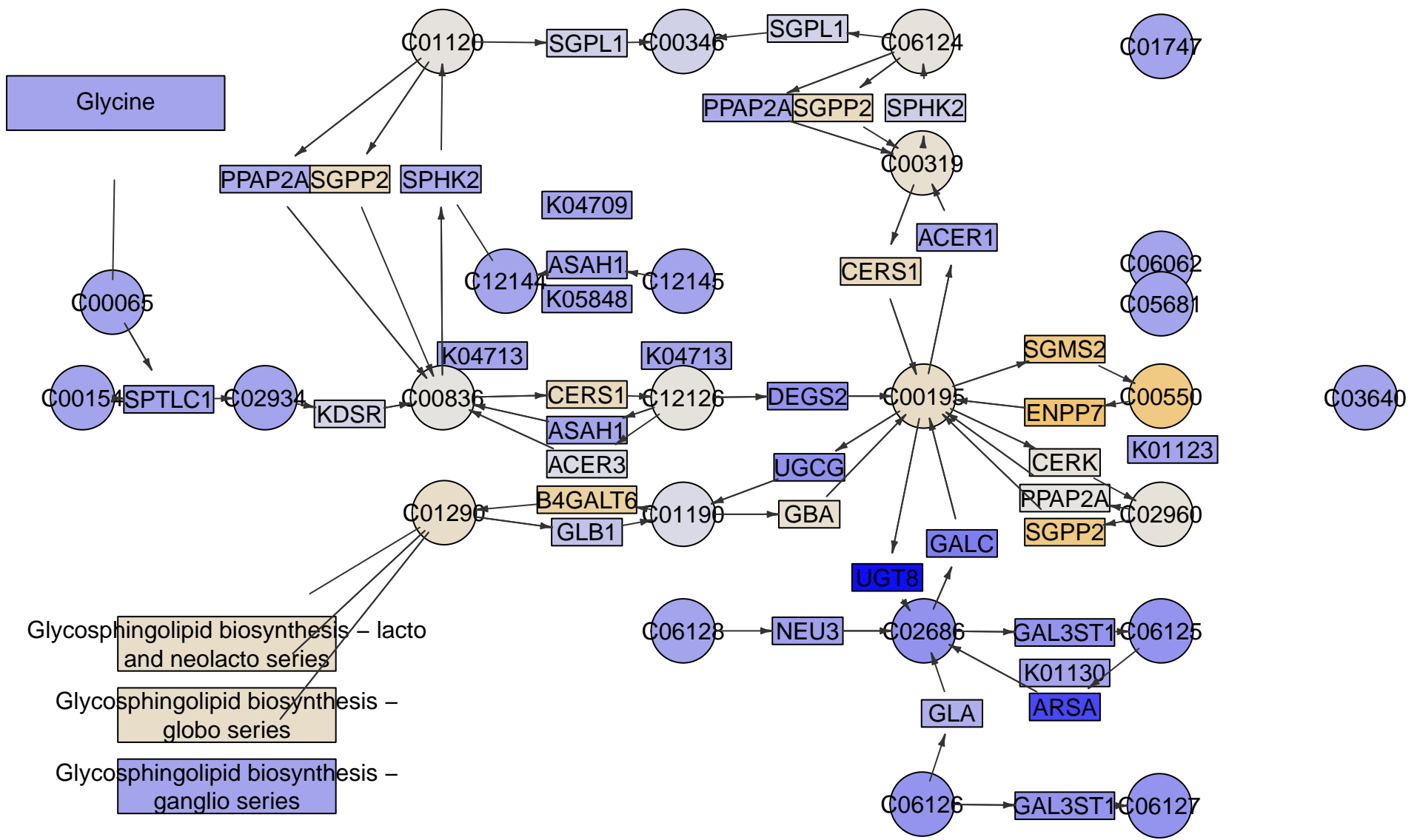


- Glycosphingolipid biosynthesis - lacto and neolacto series
- Glycosphingolipid biosynthesis - globo series
- Glycosphingolipid biosynthesis - ganglio series

Spingolipid metabolism  
MPI-172

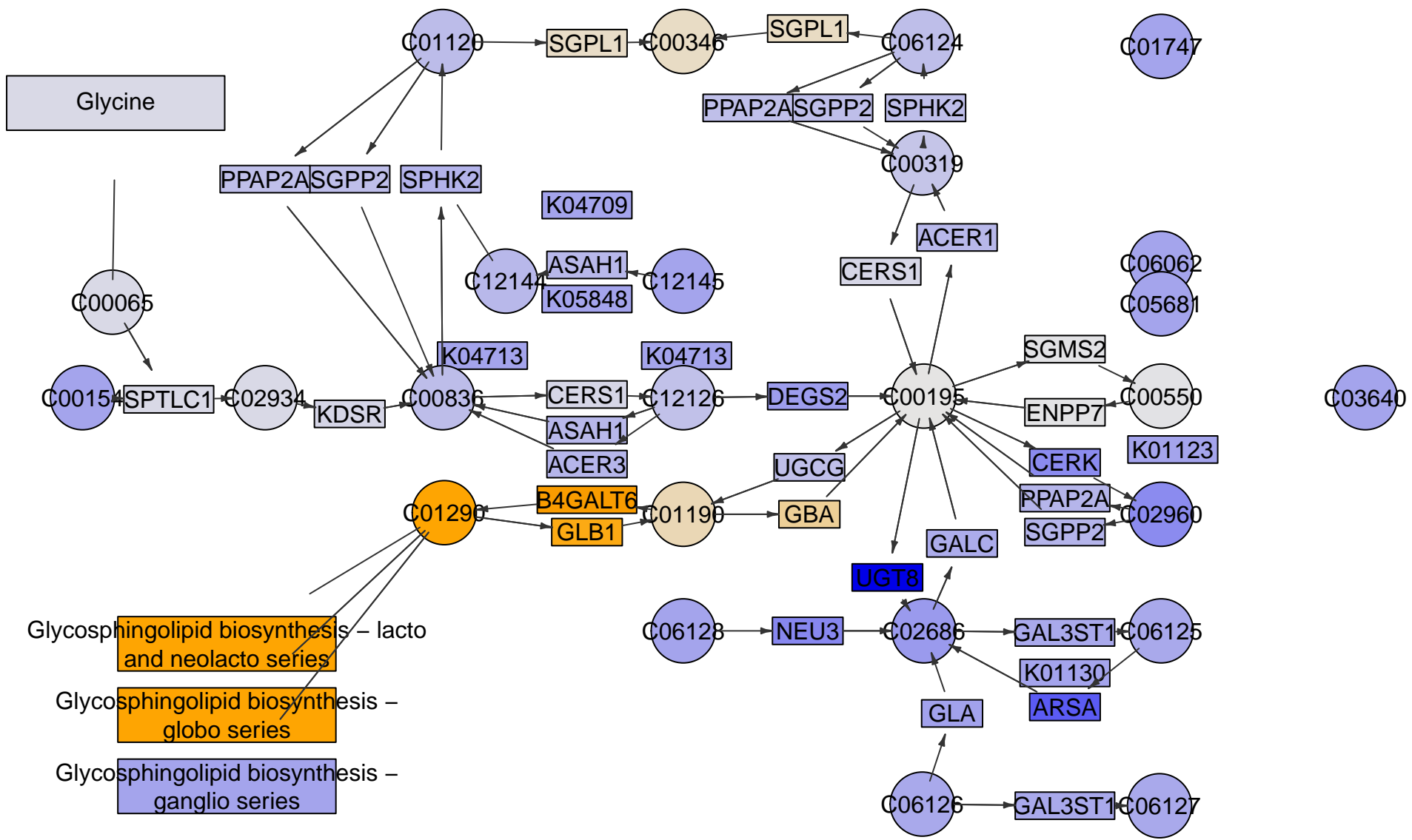


Spingolipid metabolism  
MPI-007





Spingolipid metabolism  
MPI-011



Glycine

- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series





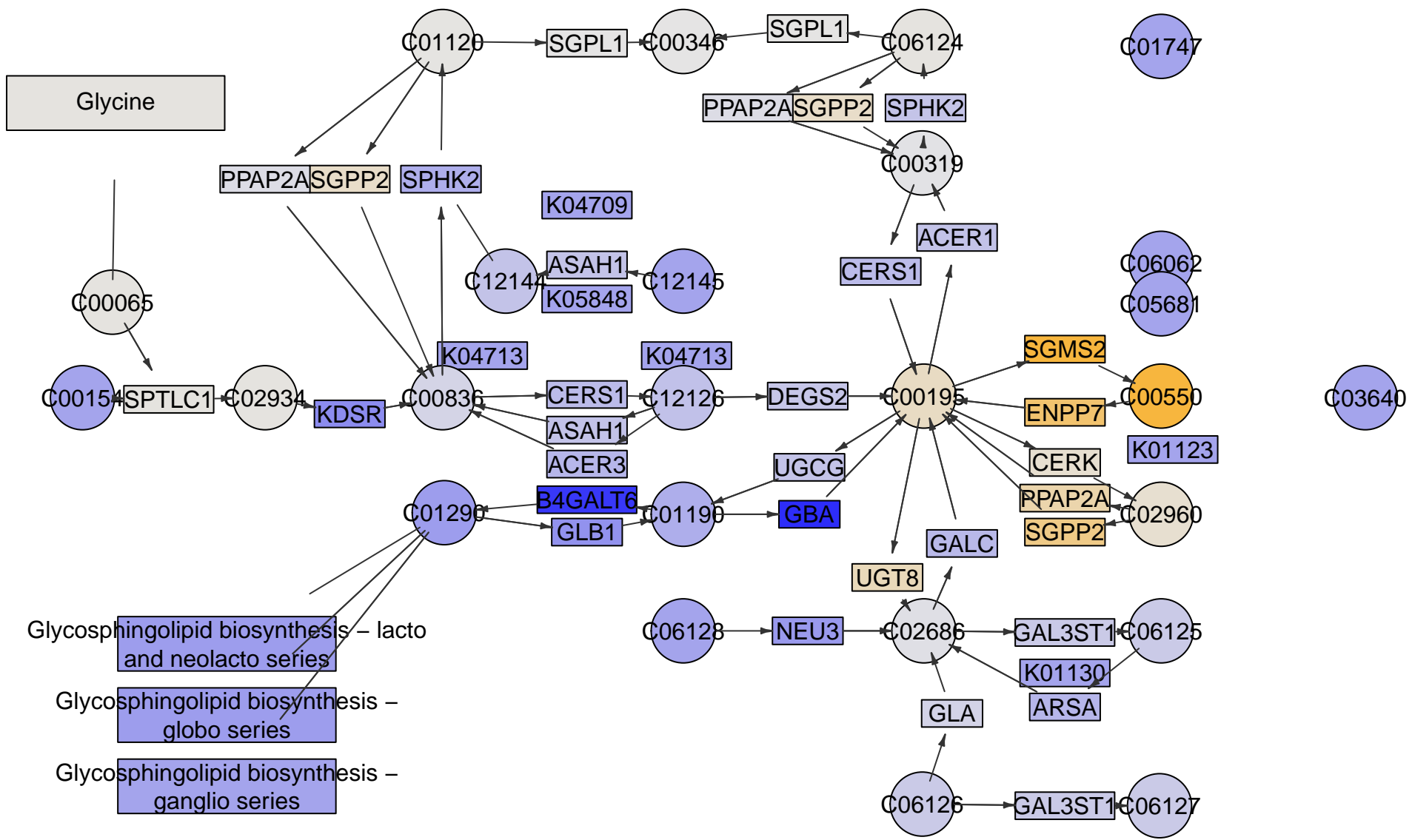






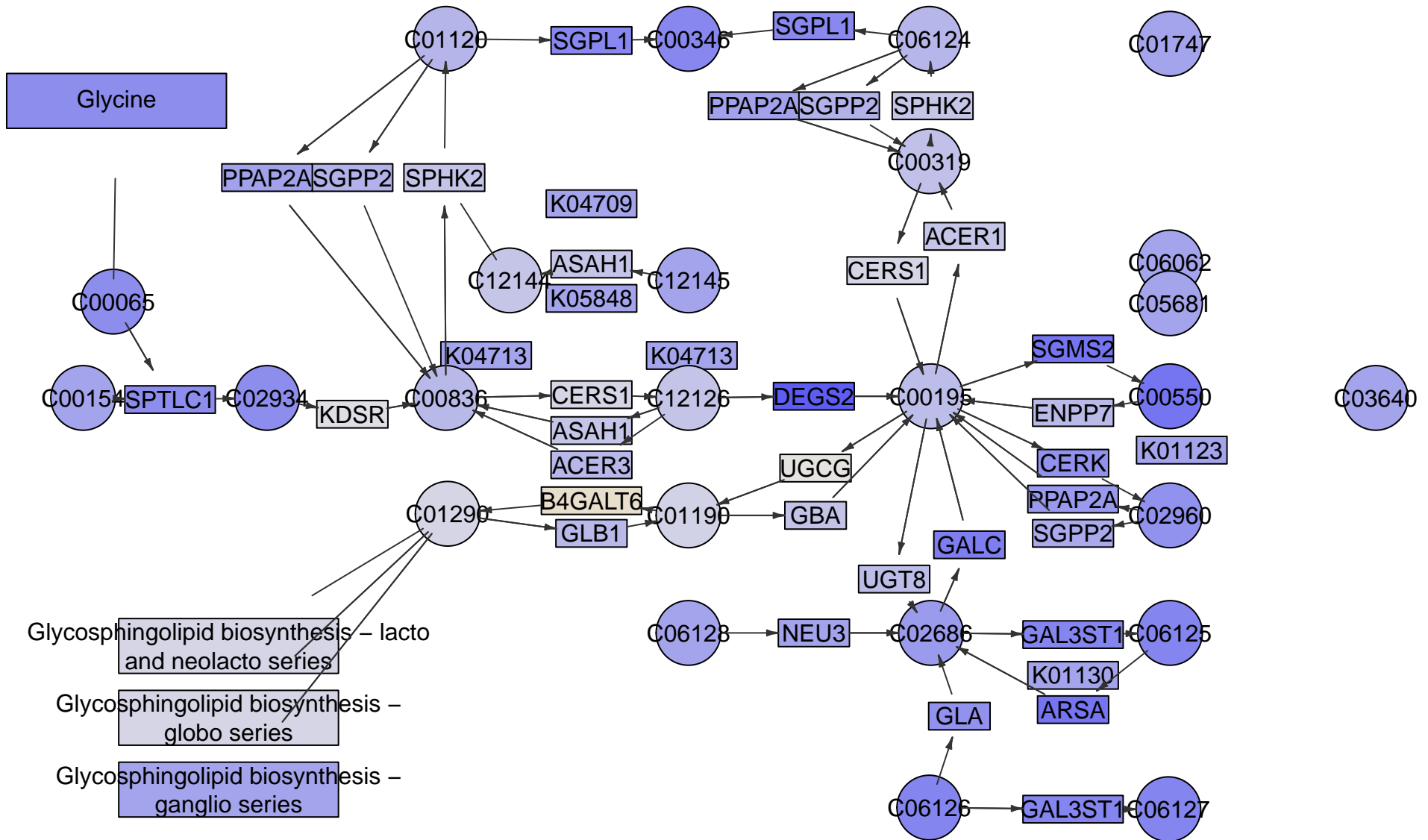


Spingolipid metabolism  
MPI-046

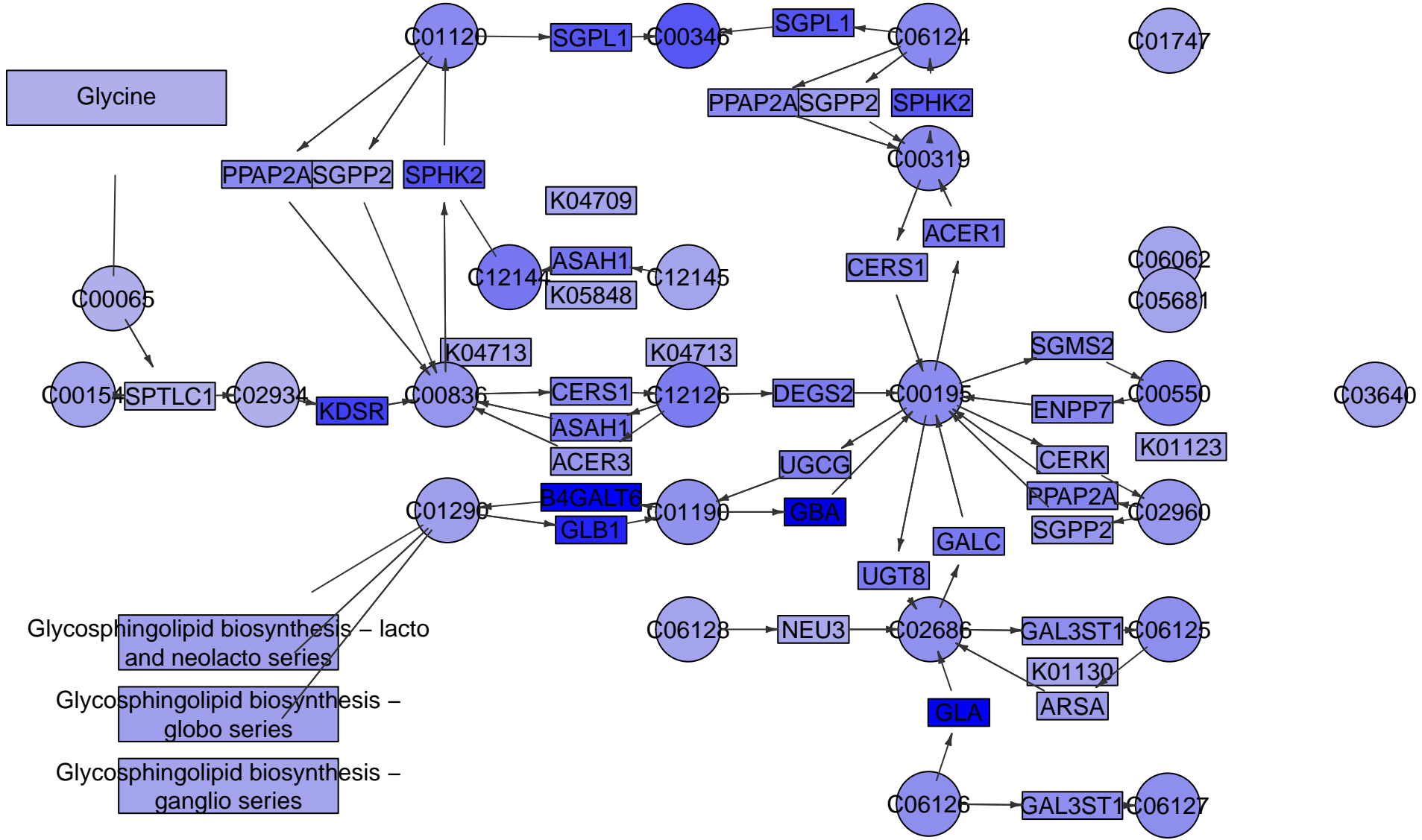




Spingolipid metabolism  
MPI-050

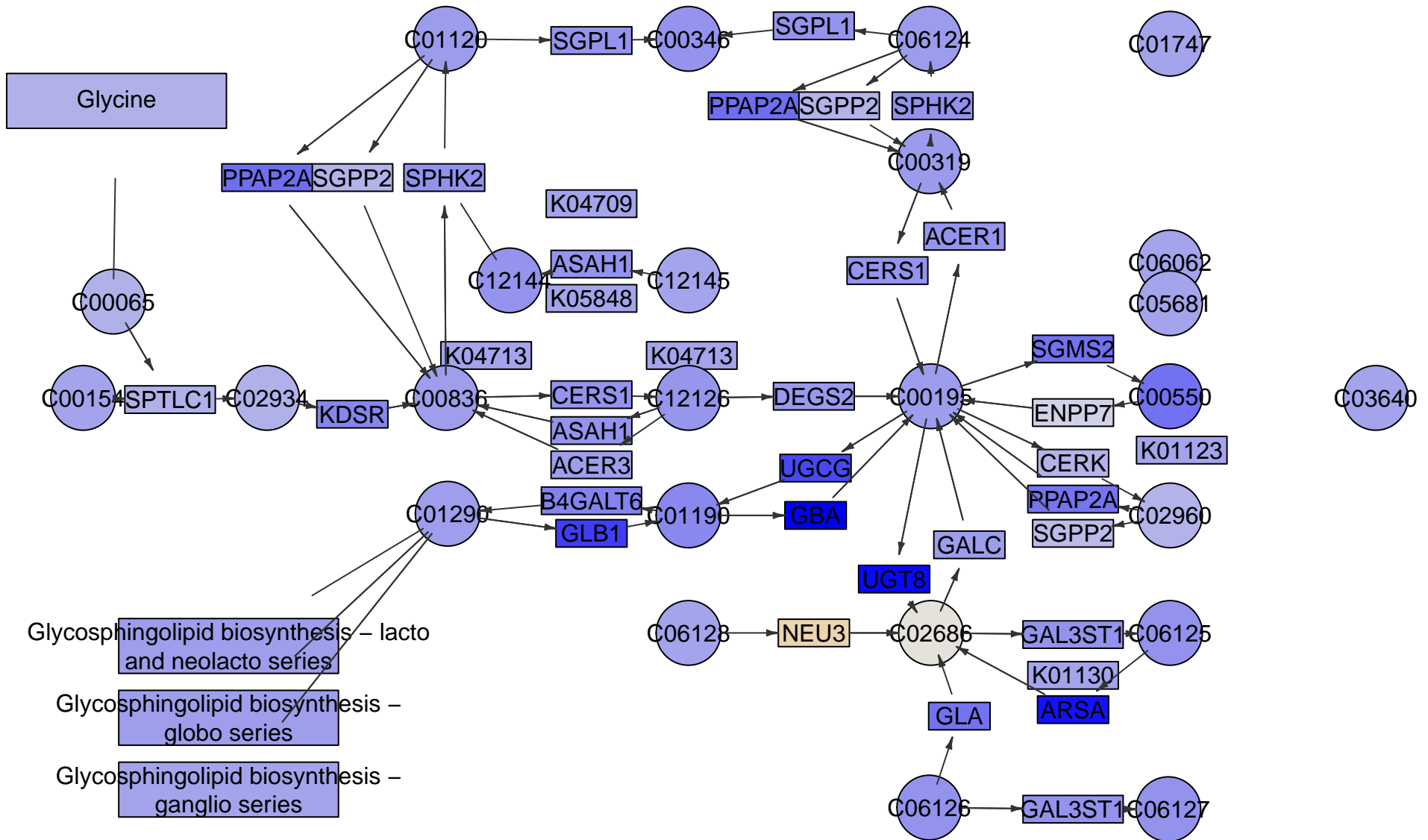


Spingolipid metabolism  
MPI-051

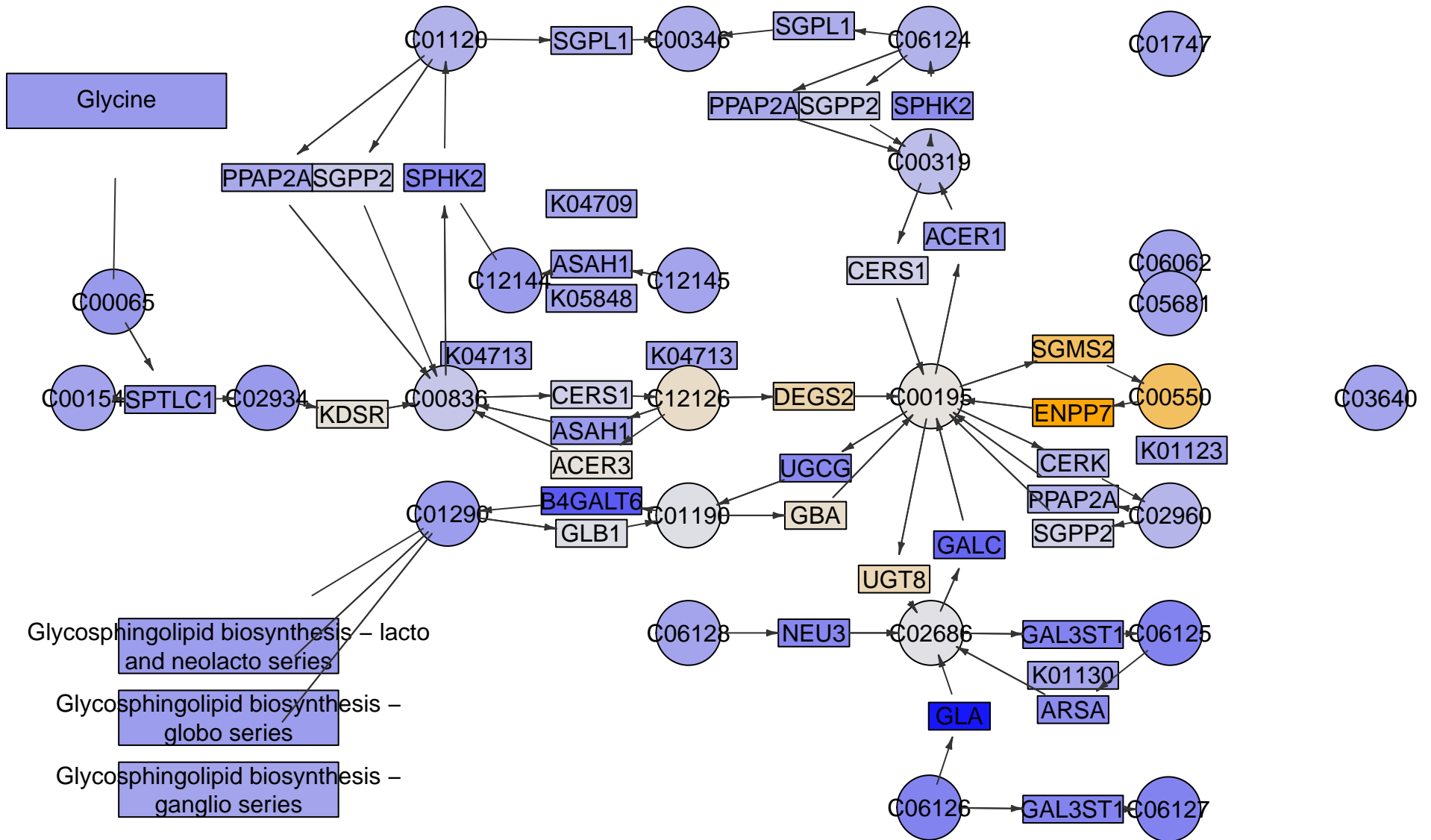


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

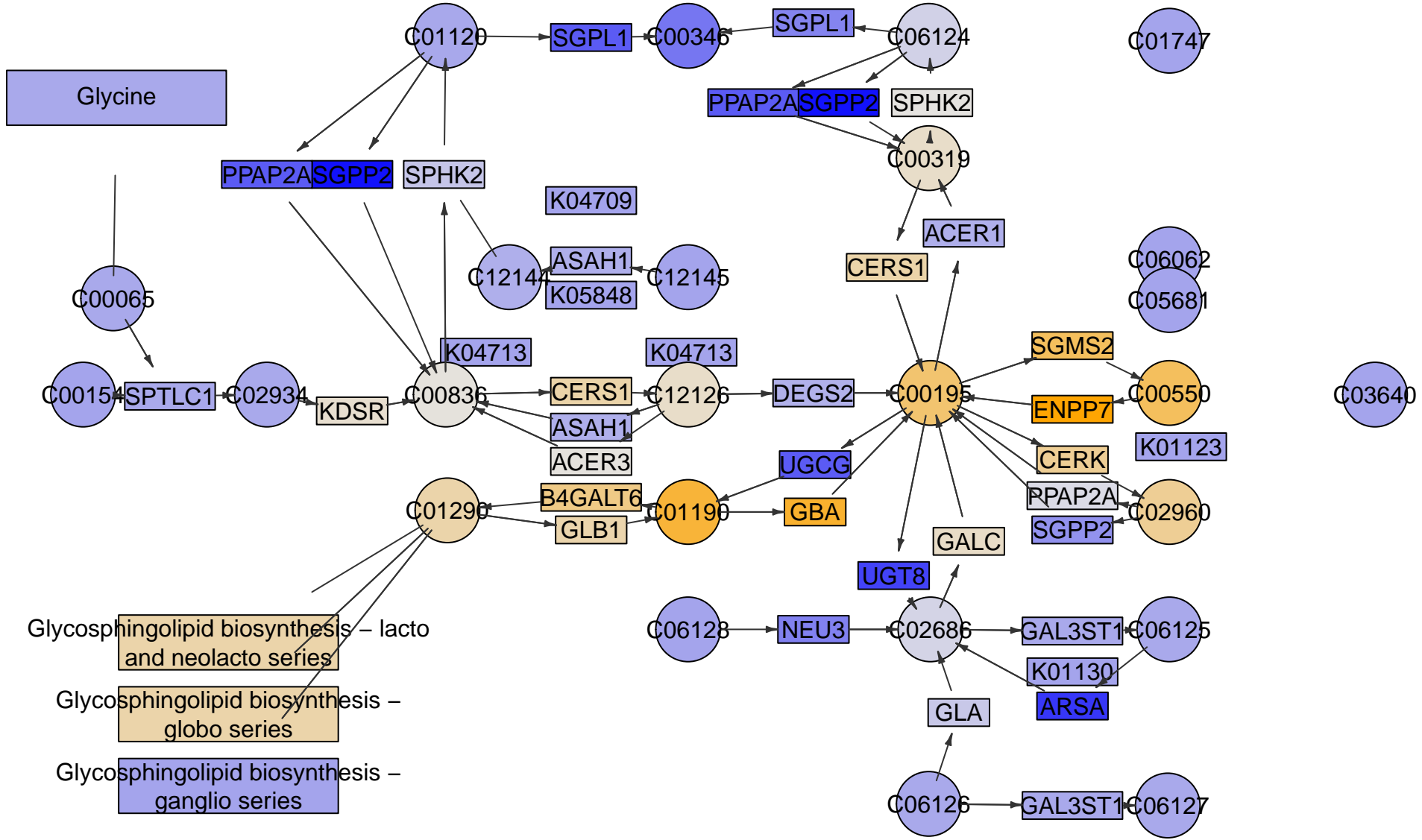
Spingolipid metabolism  
MPI-054



Spingolipid metabolism  
MPI-059



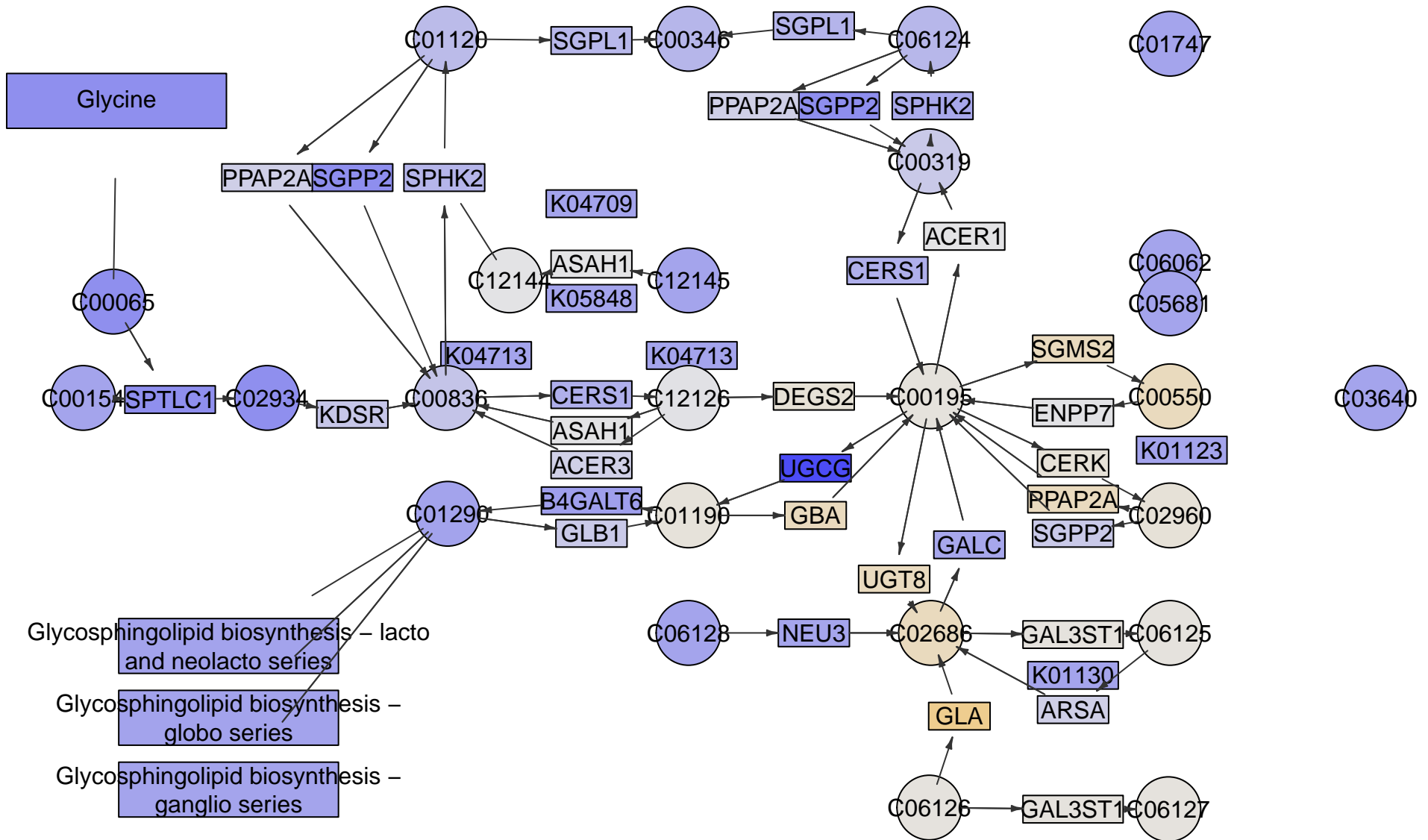
Spingolipid metabolism  
MPI-060



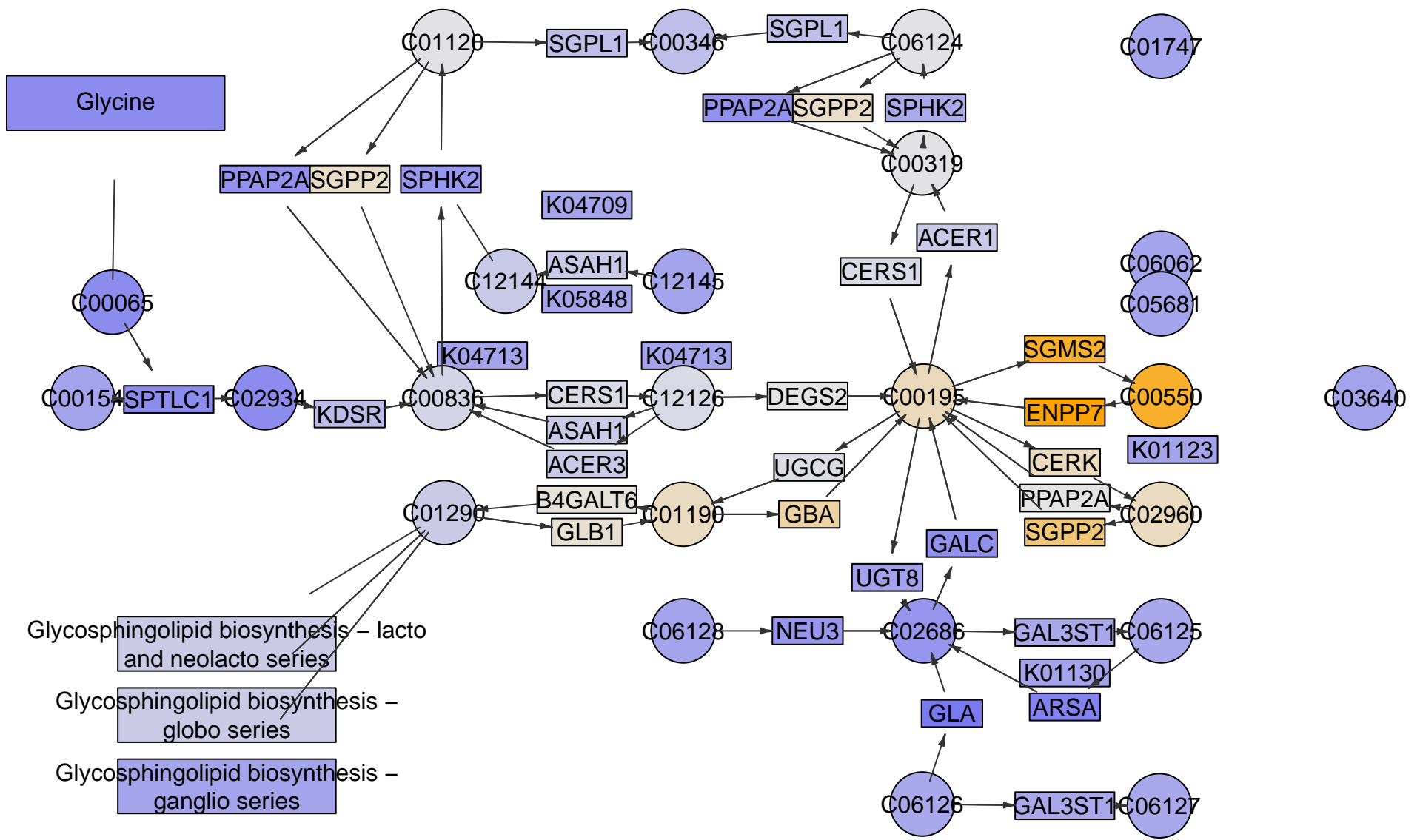
Glycine

- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

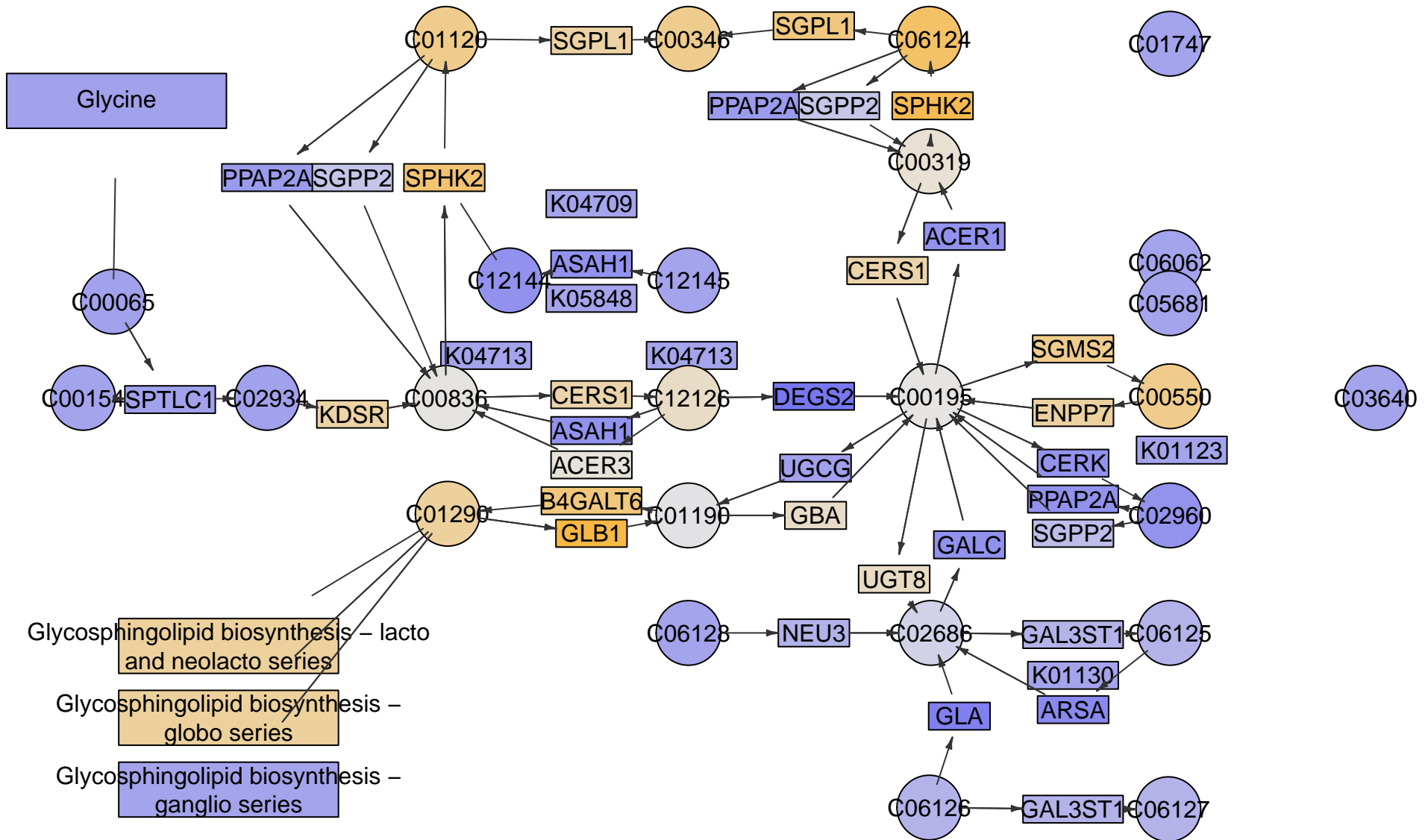
Spingolipid metabolism  
MPI-061



Spingolipid metabolism  
MPI-064

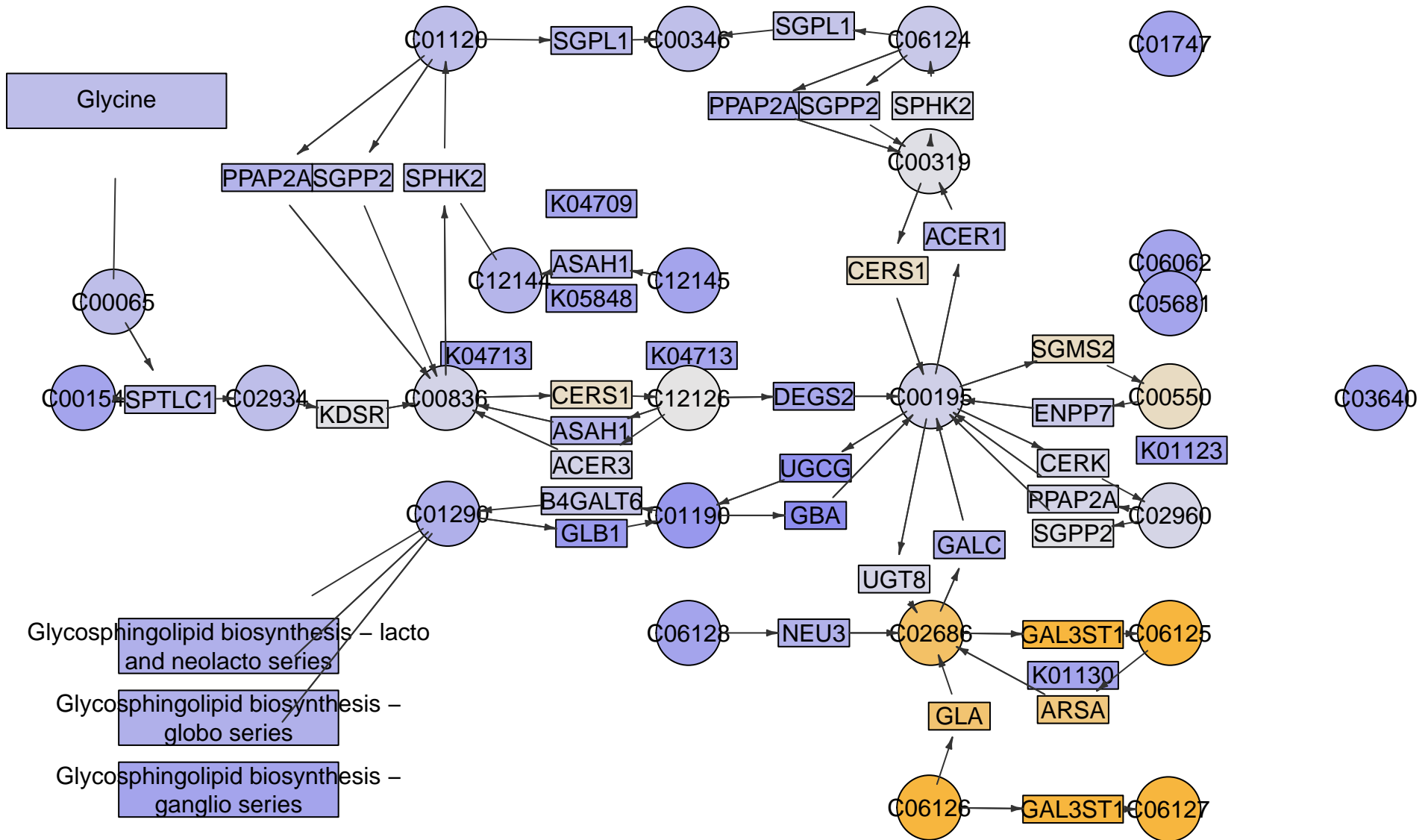


Spingolipid metabolism  
MPI-070

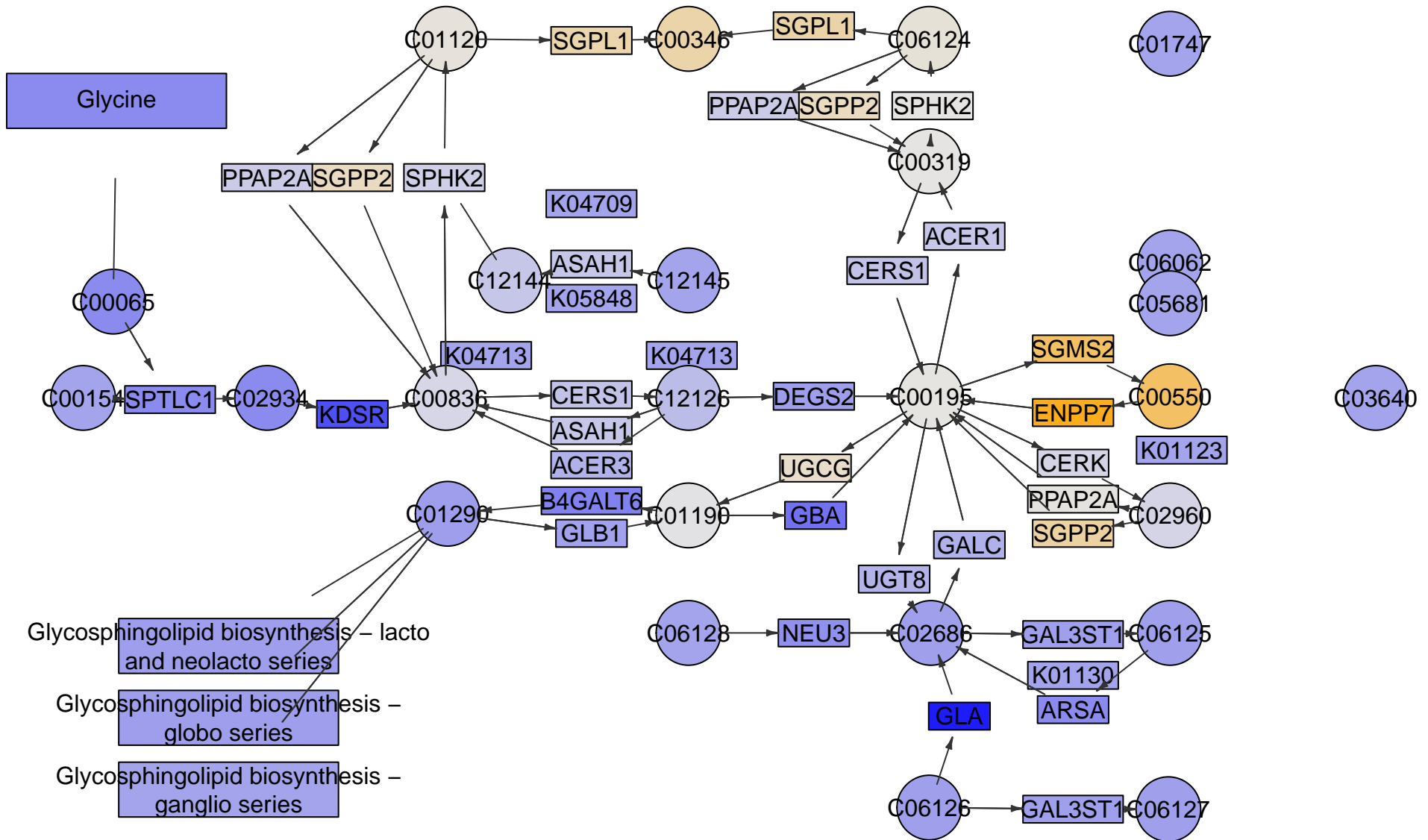




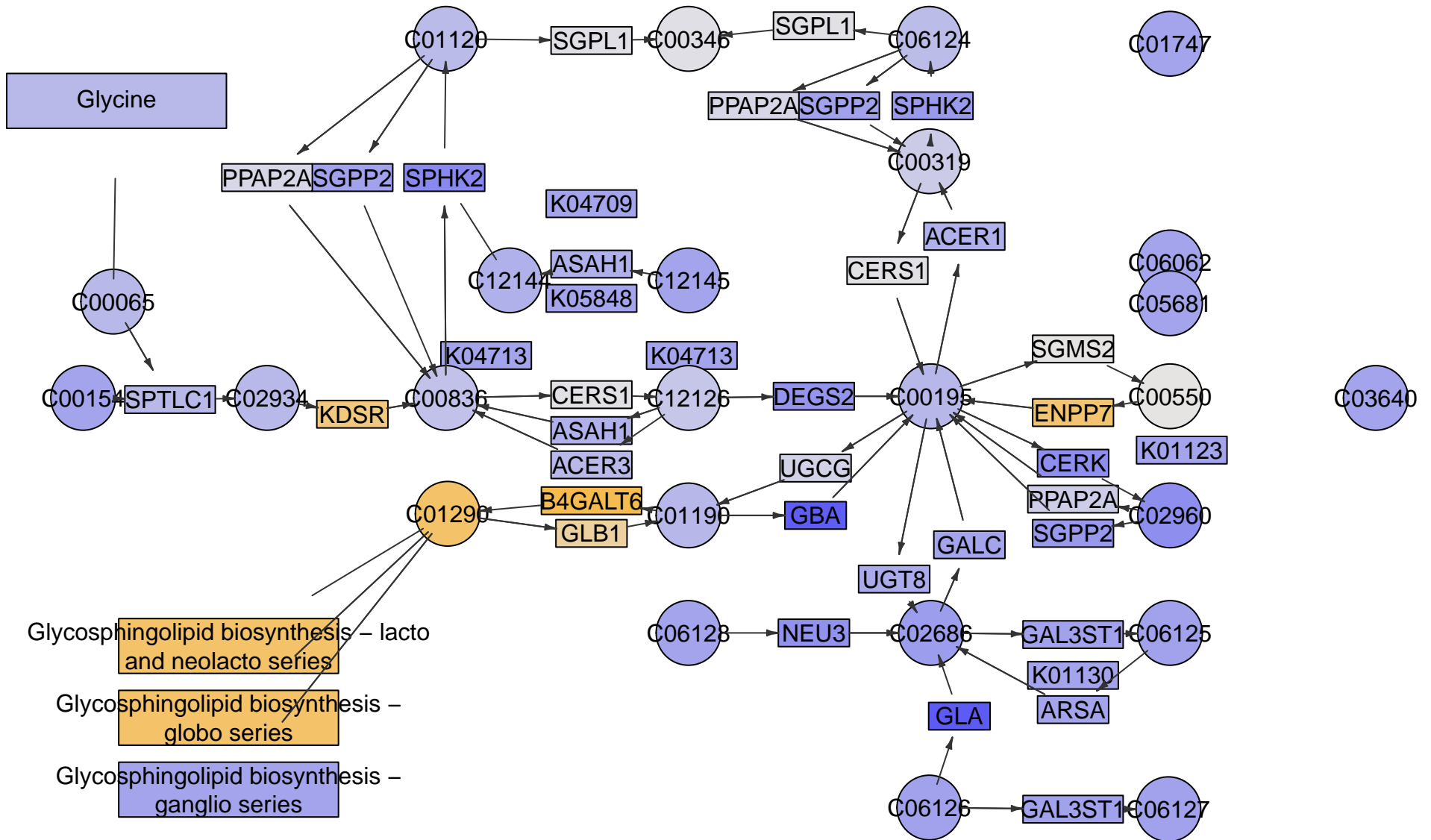
Spingolipid metabolism  
MPI-072



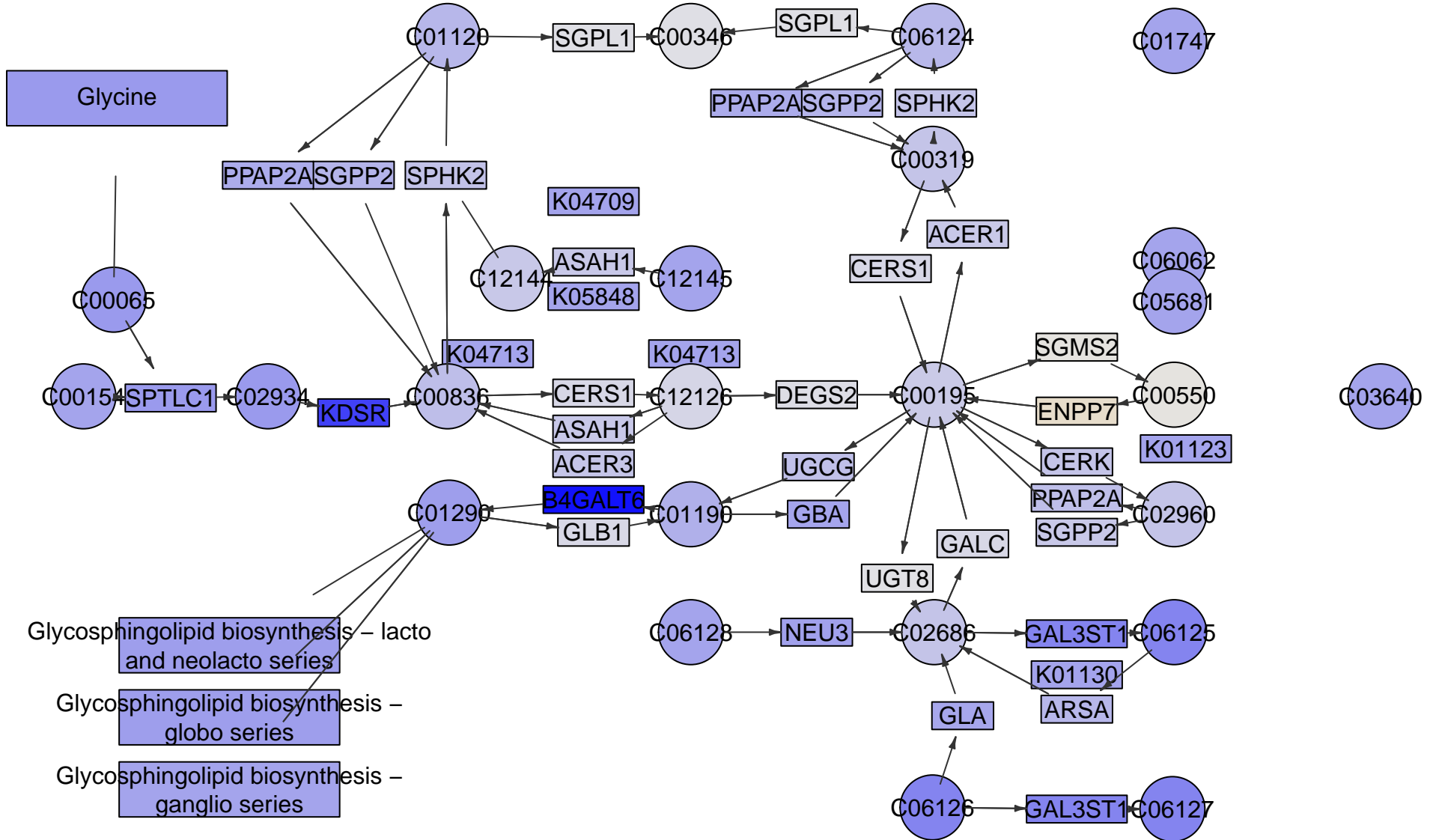
Spingolipid metabolism  
MPI-093



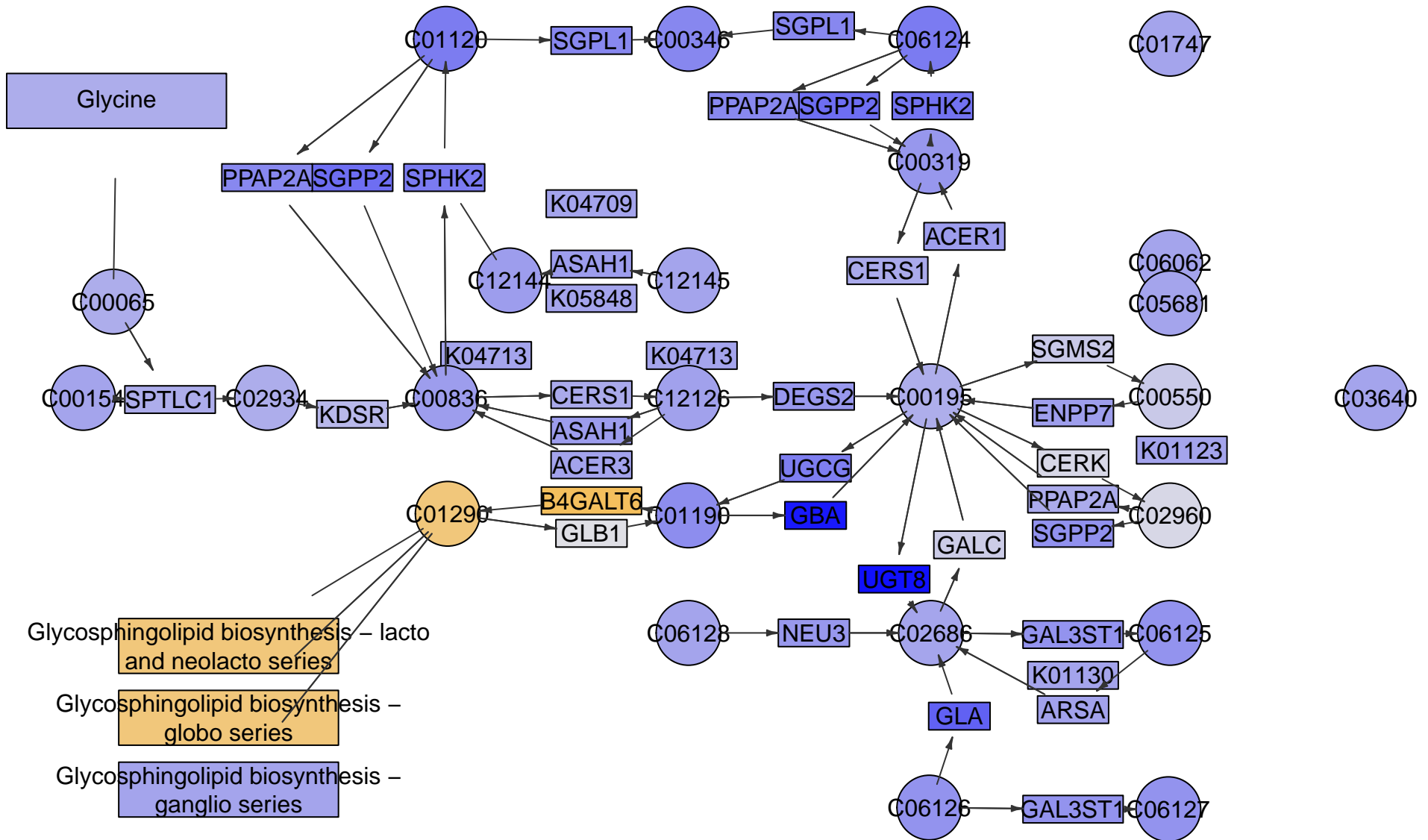
Spingolipid metabolism  
MPI-094



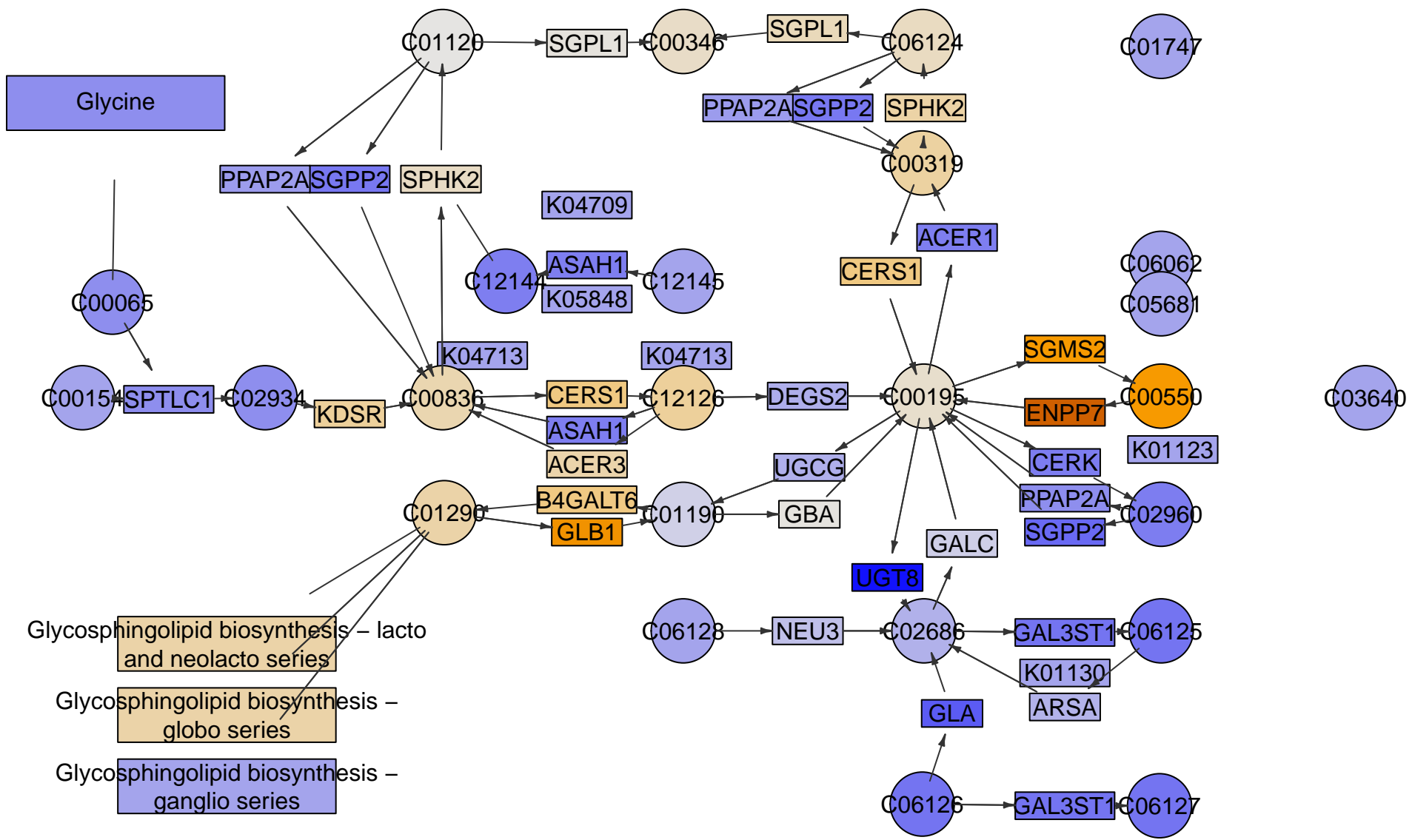
Spingolipid metabolism  
MPI-099



Spingolipid metabolism  
MPI-104



Spingolipid metabolism  
MPI-107

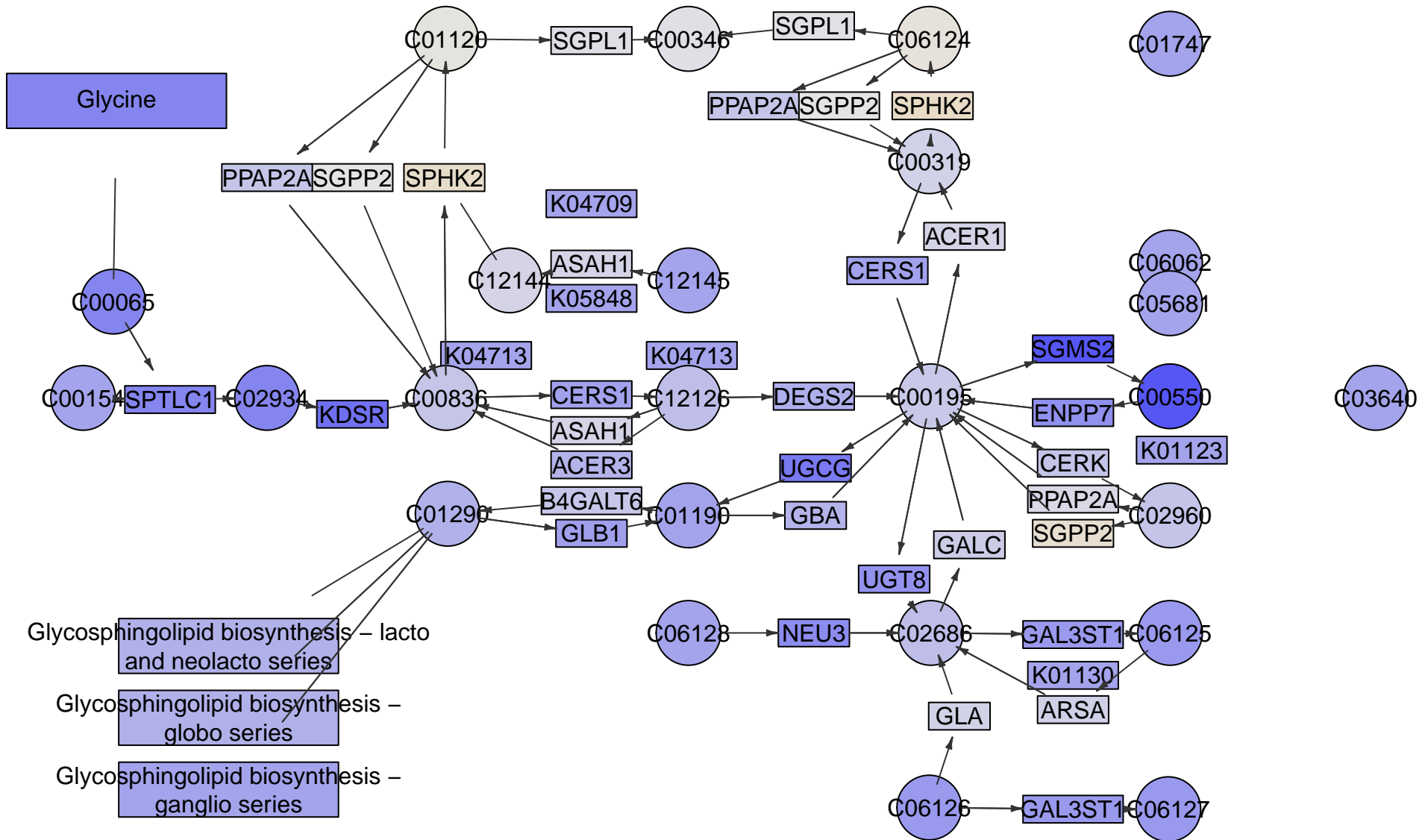


Glycosphingolipid biosynthesis – lacto  
and neolacto series

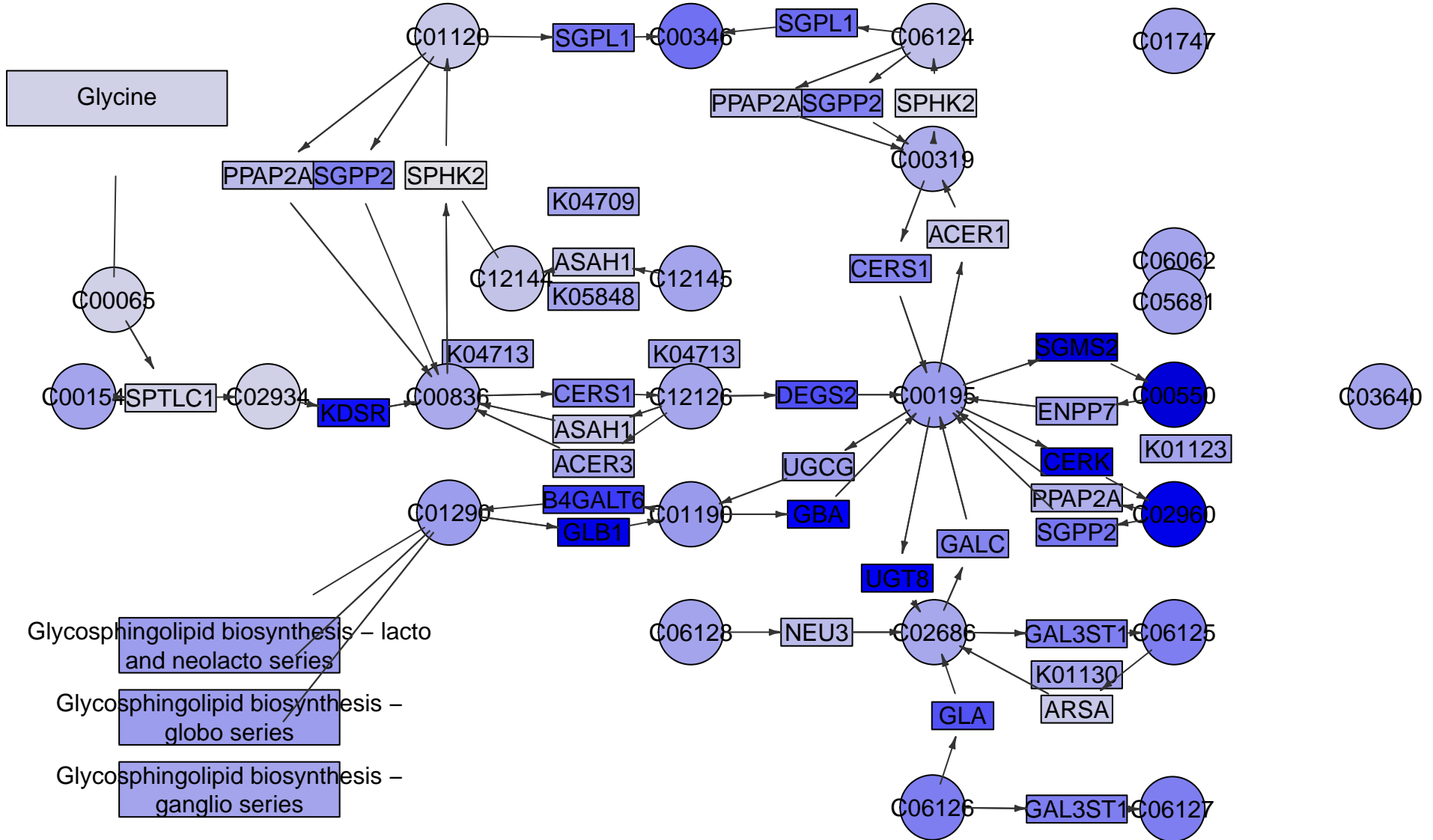
Glycosphingolipid biosynthesis –  
globo series

Glycosphingolipid biosynthesis –  
ganglio series

Spingolipid metabolism  
MPI-112

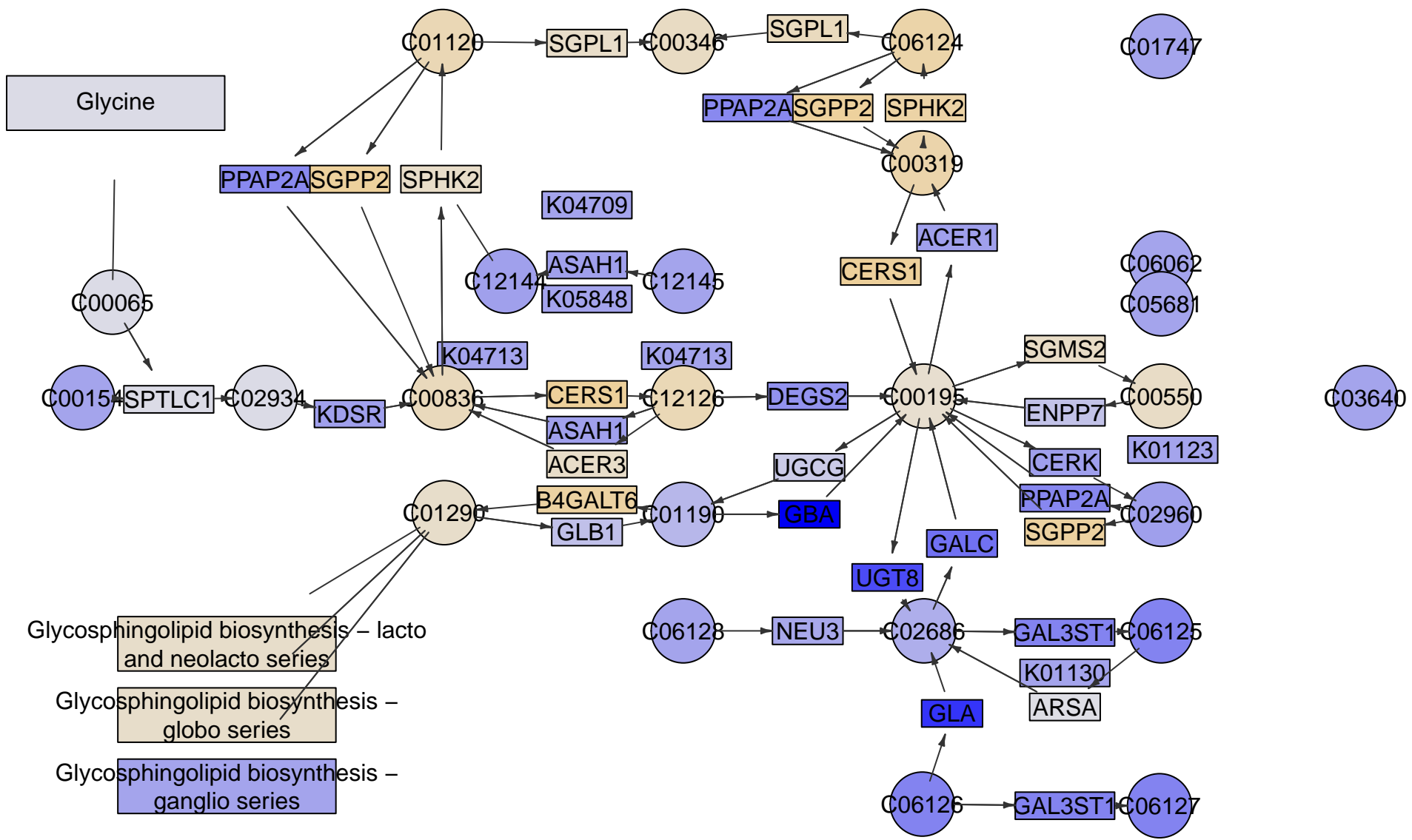


Spingolipid metabolism  
MPI-116

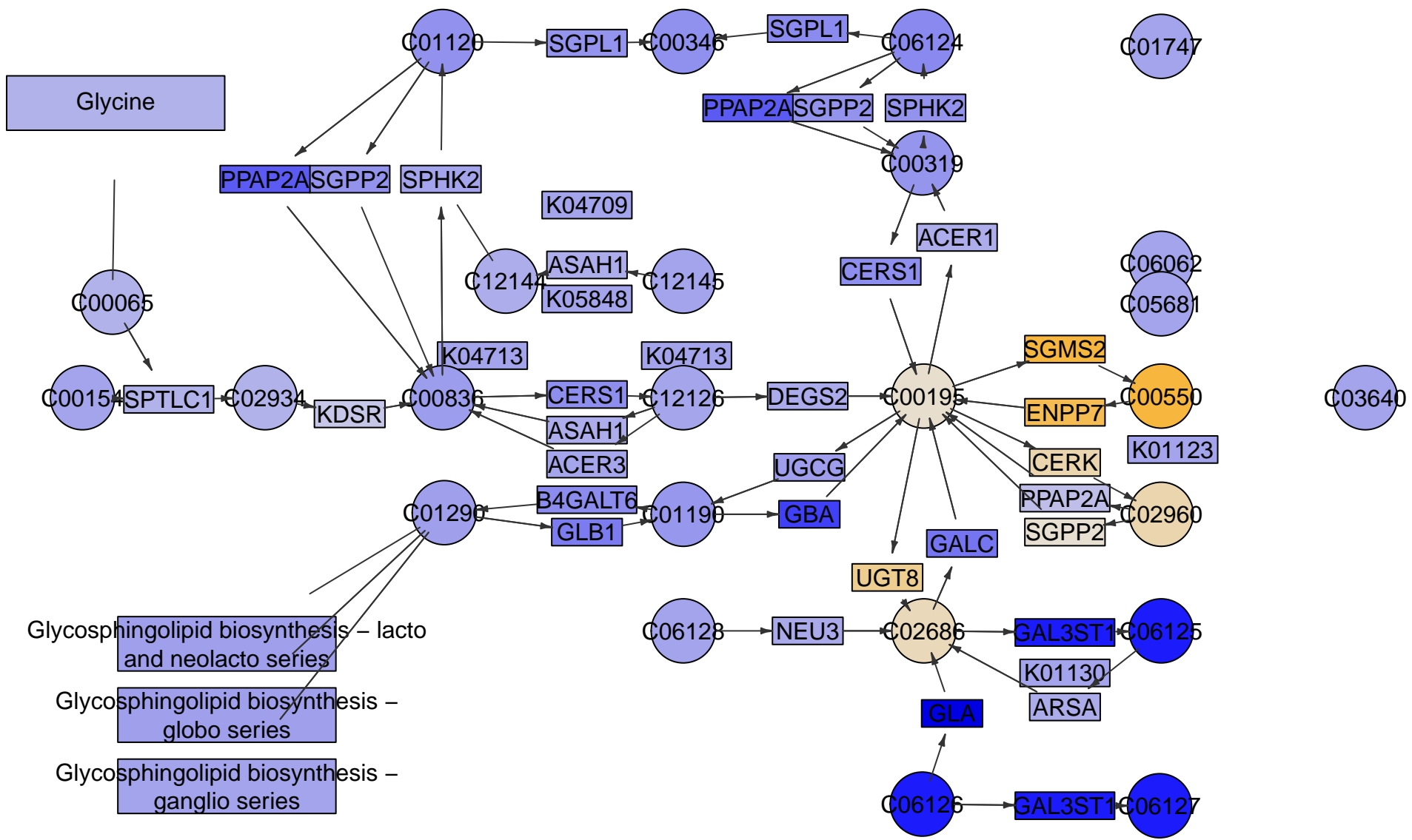




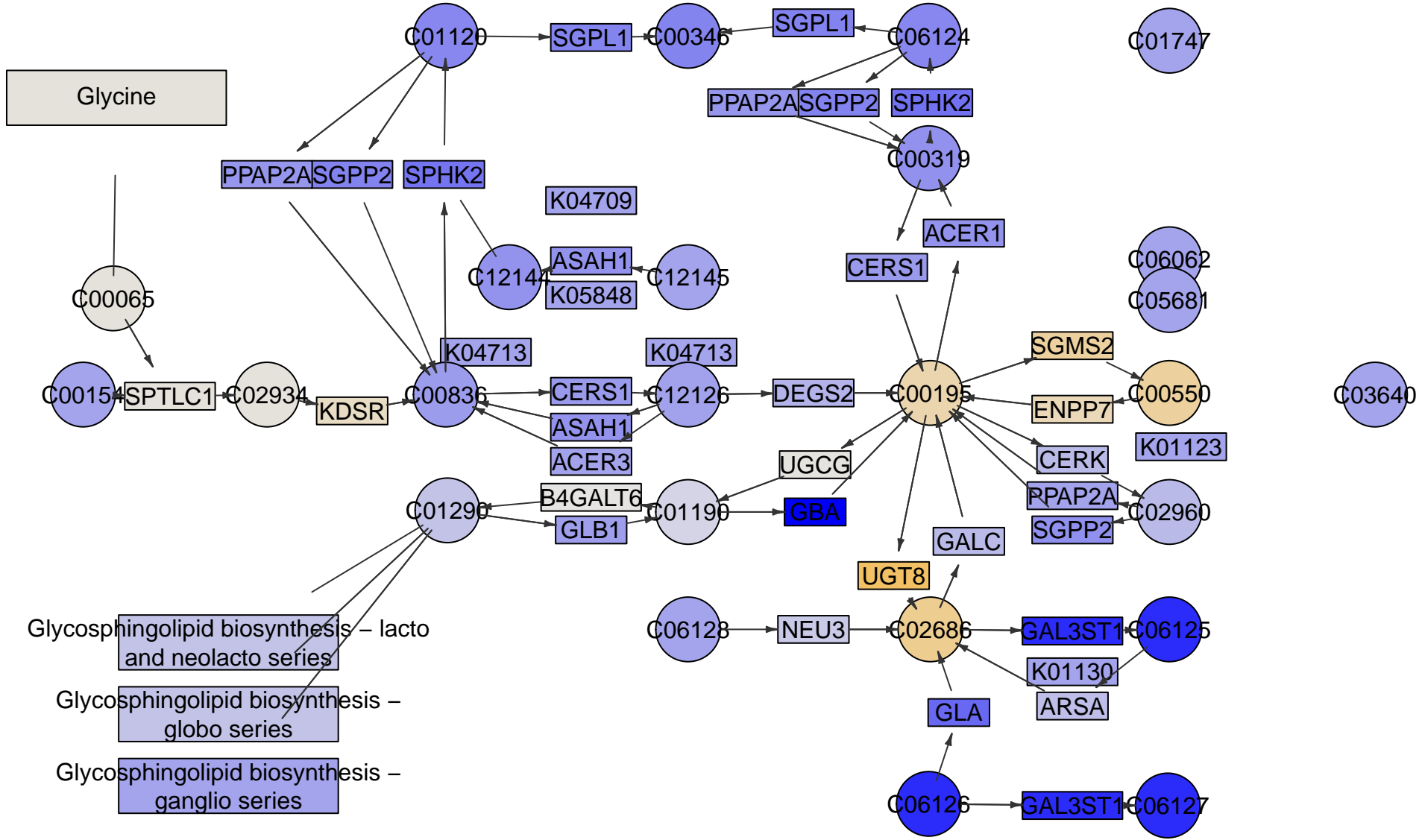
Spingolipid metabolism  
MPI-117



Spingolipid metabolism  
MPI-120

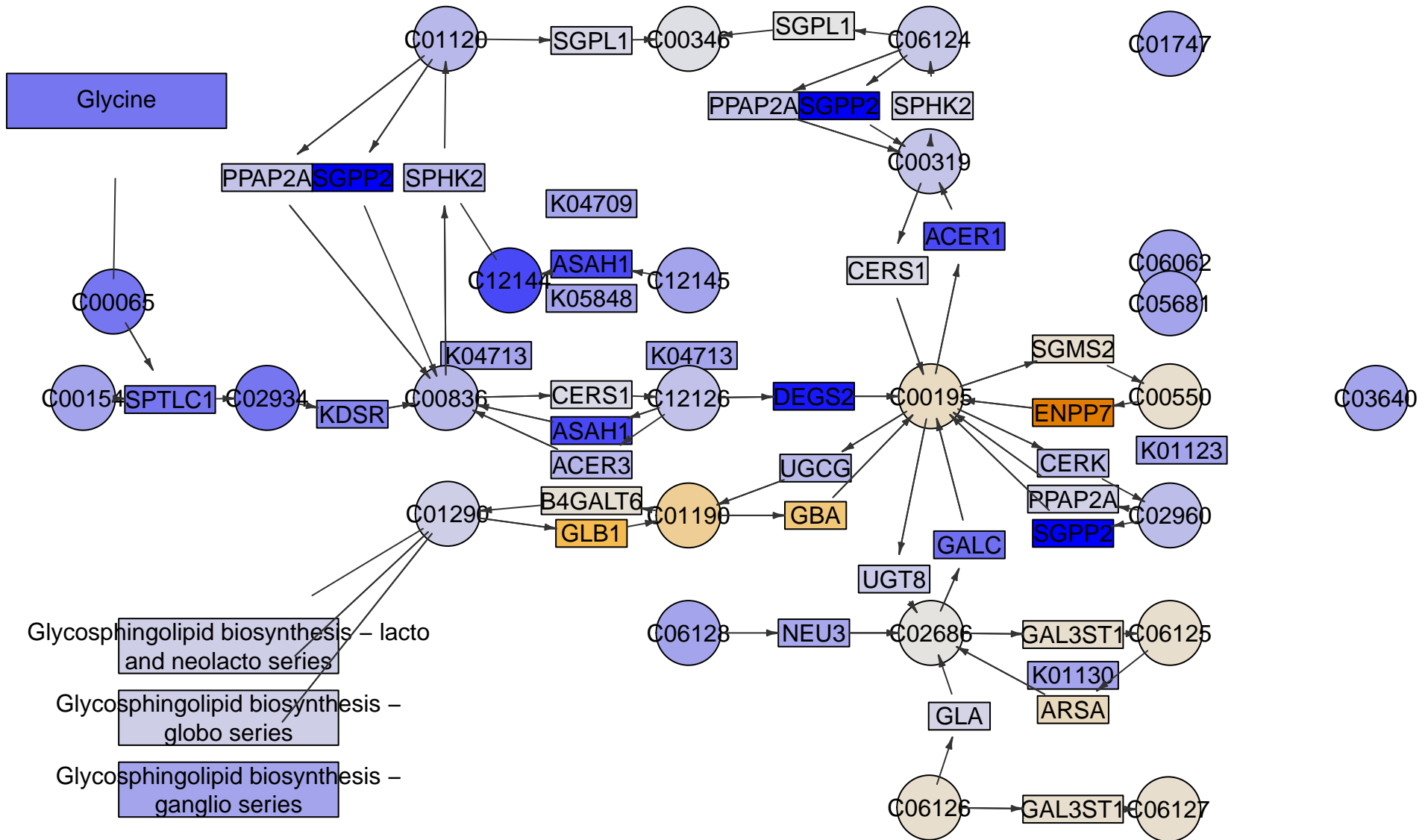


Spingolipid metabolism  
MPI-121

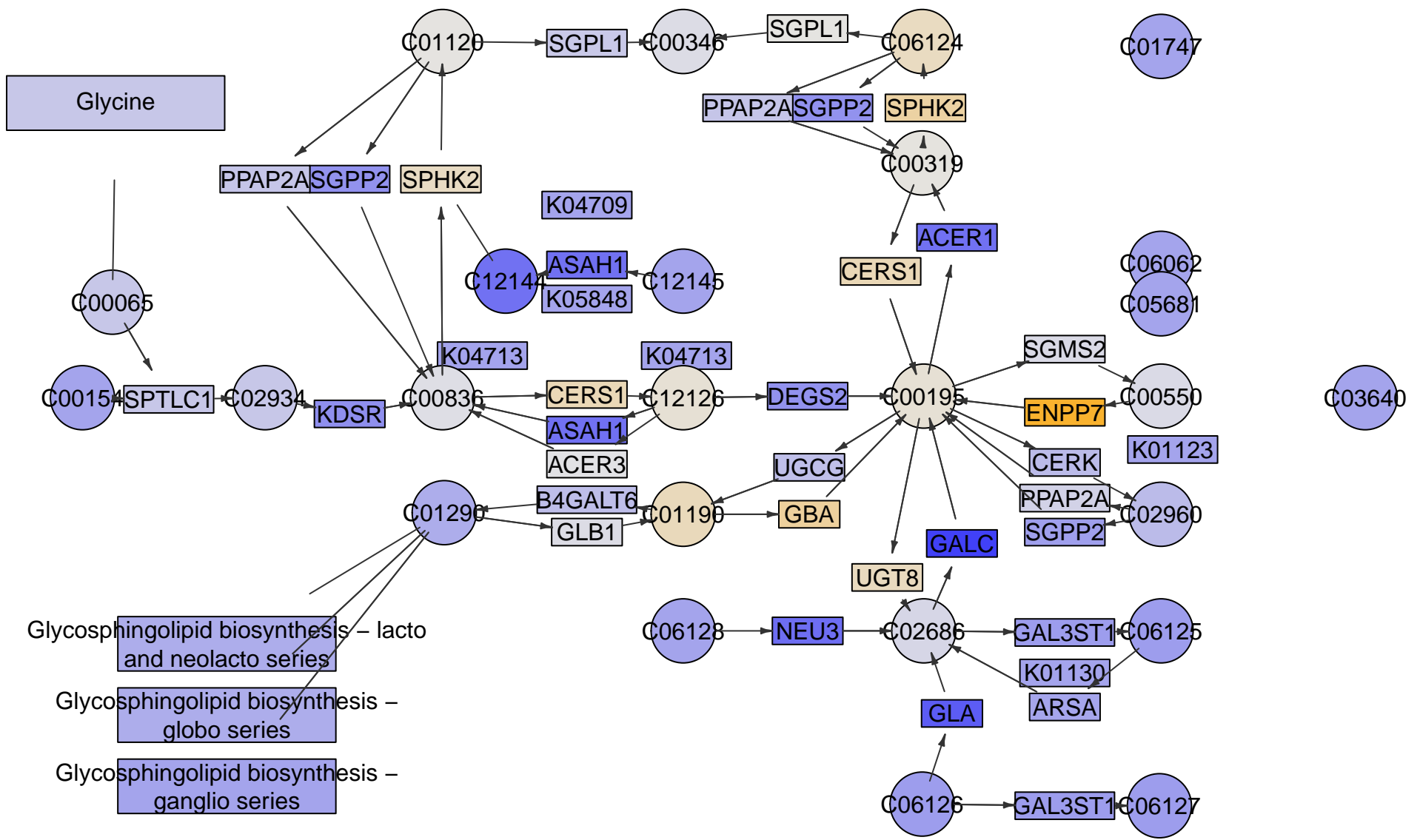


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-124

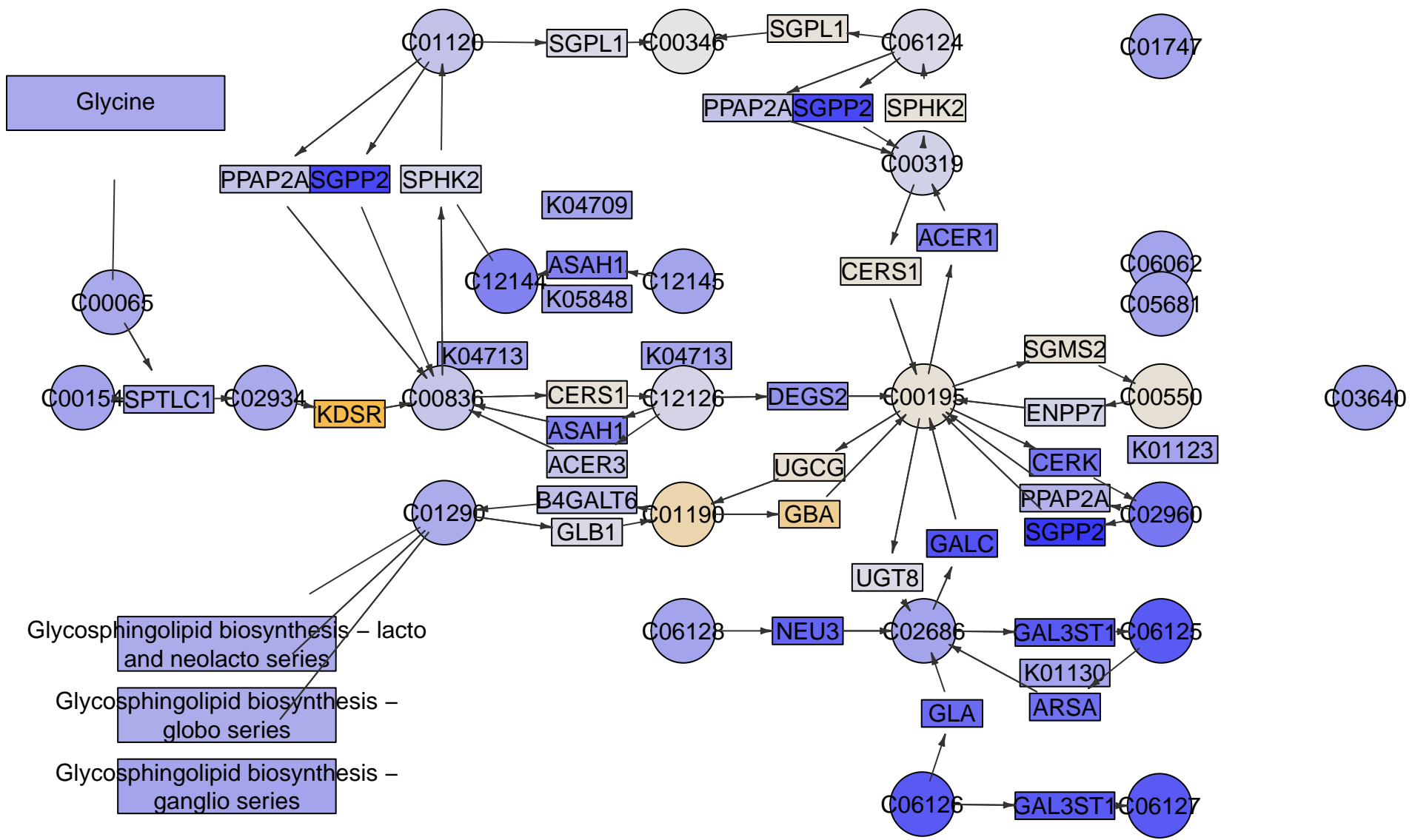


Spingolipid metabolism  
MPI-126

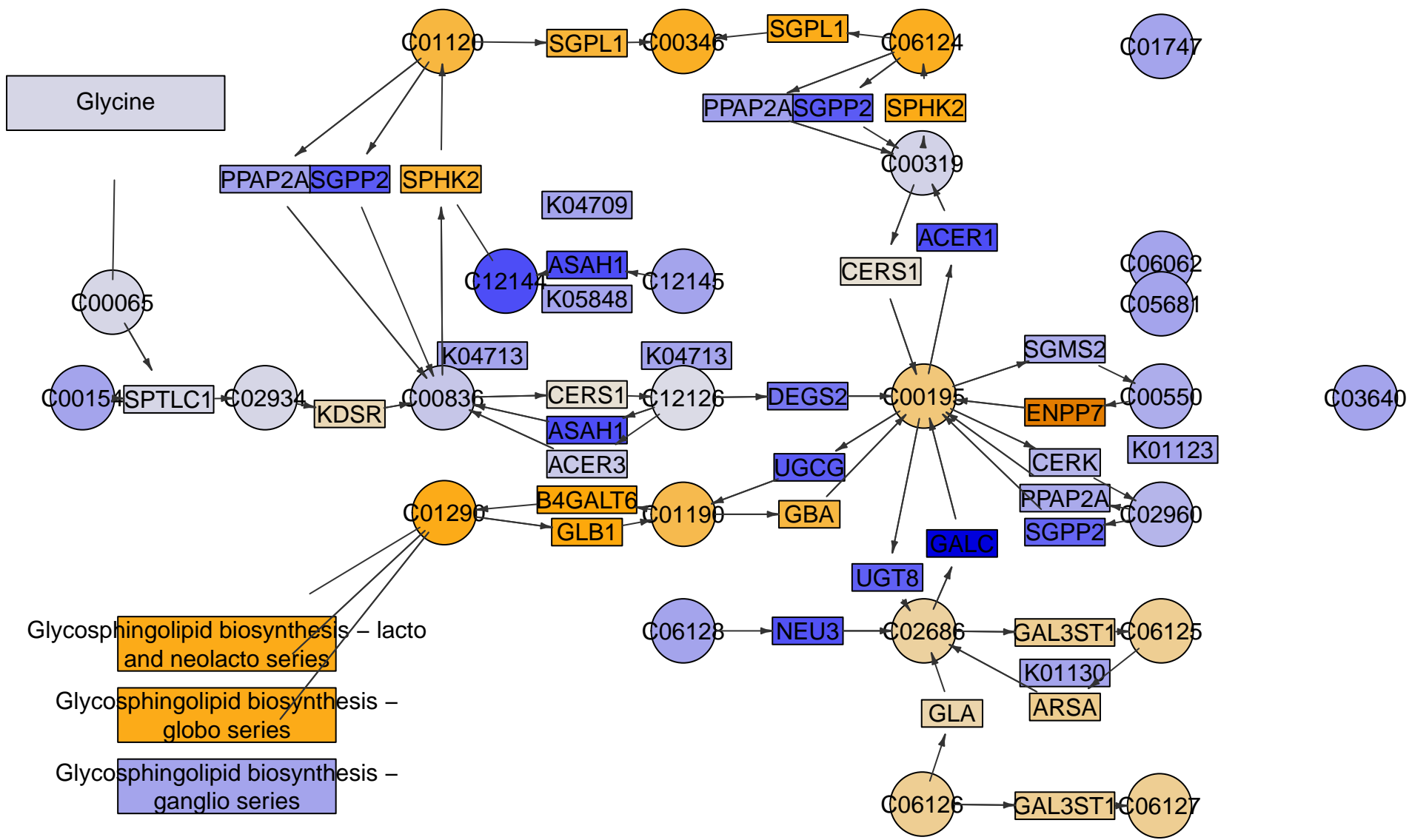


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

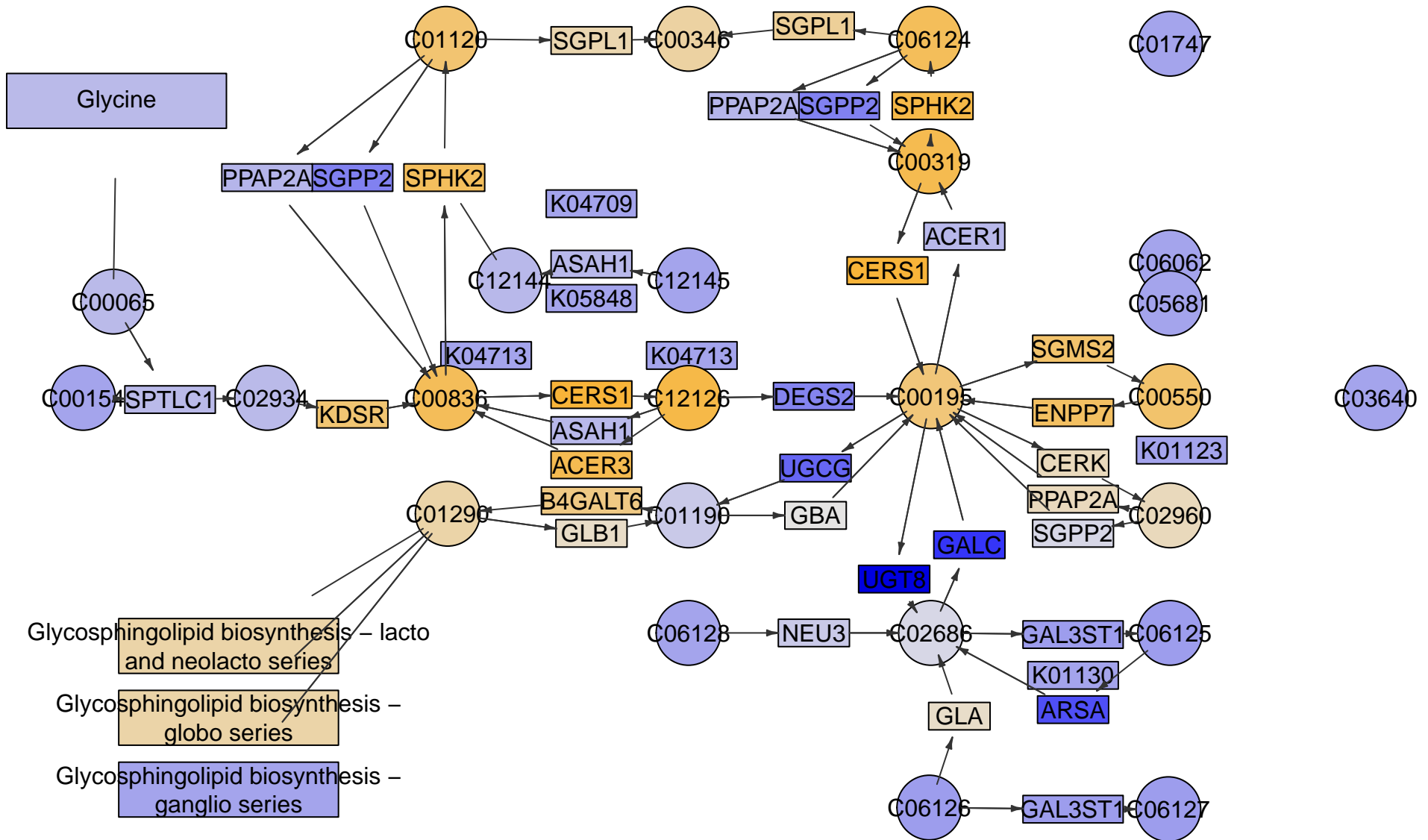
Spingolipid metabolism  
MPI-131



Spingolipid metabolism  
MPI-143

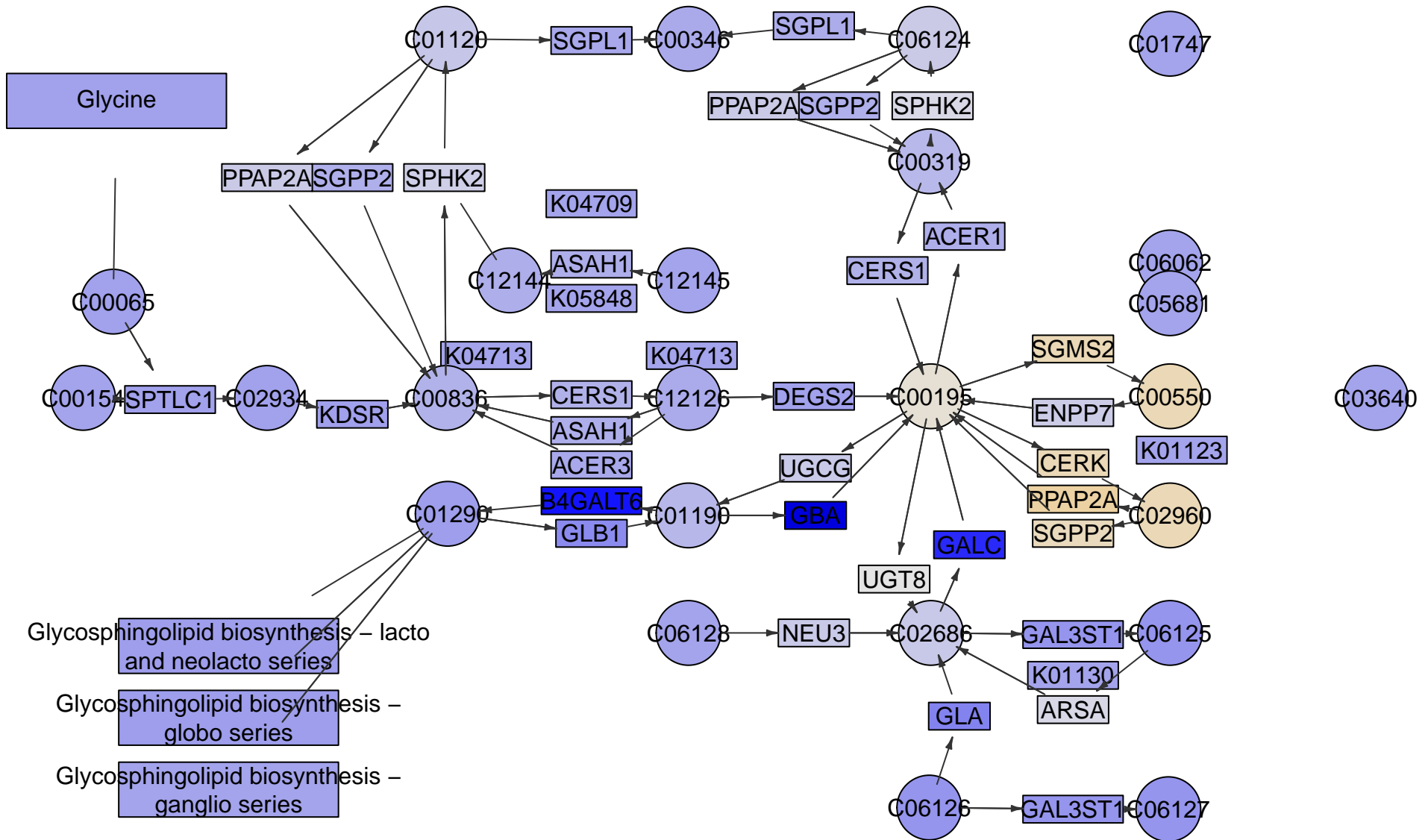


Spingolipid metabolism  
MPI-148



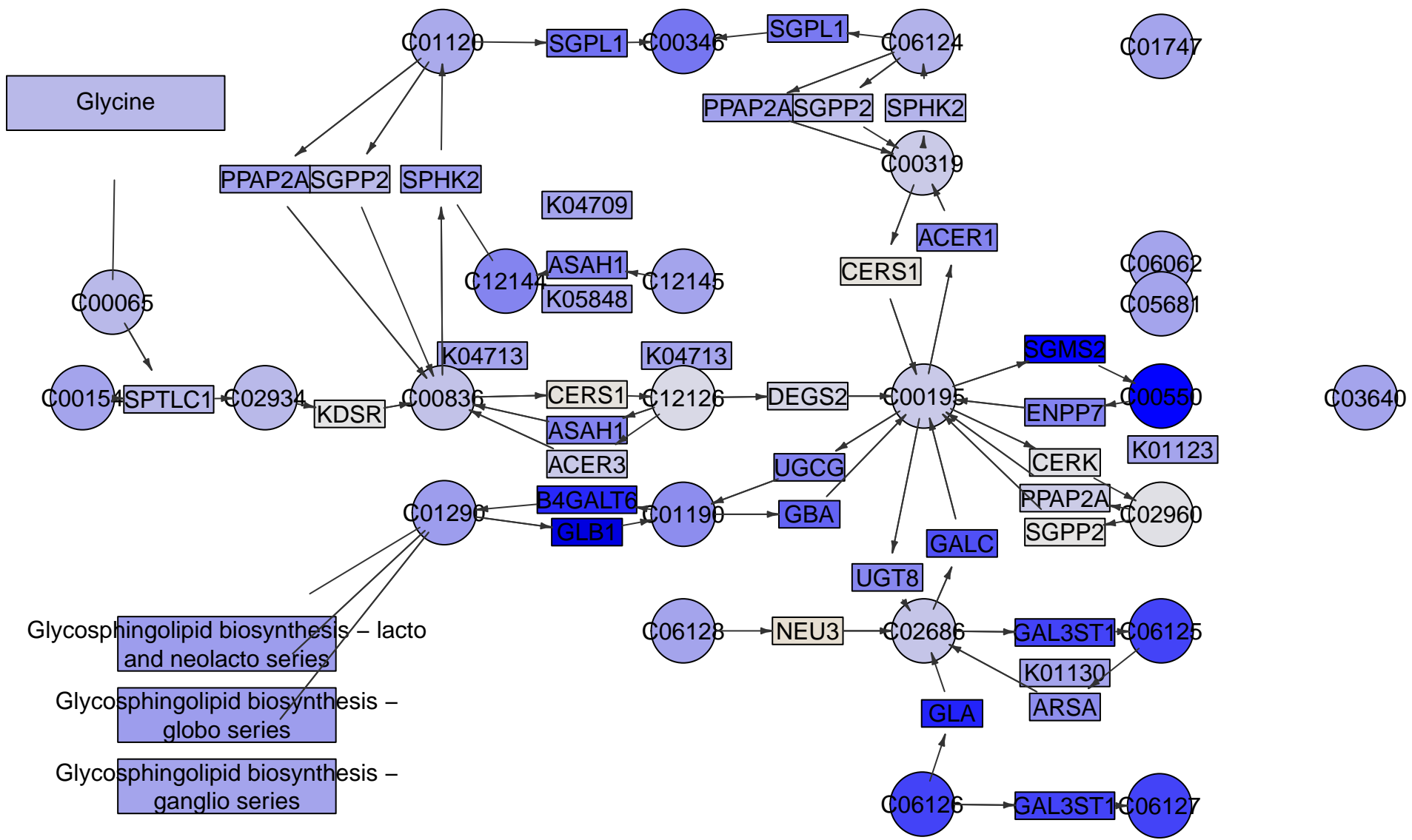


Spingolipid metabolism  
MPI-161





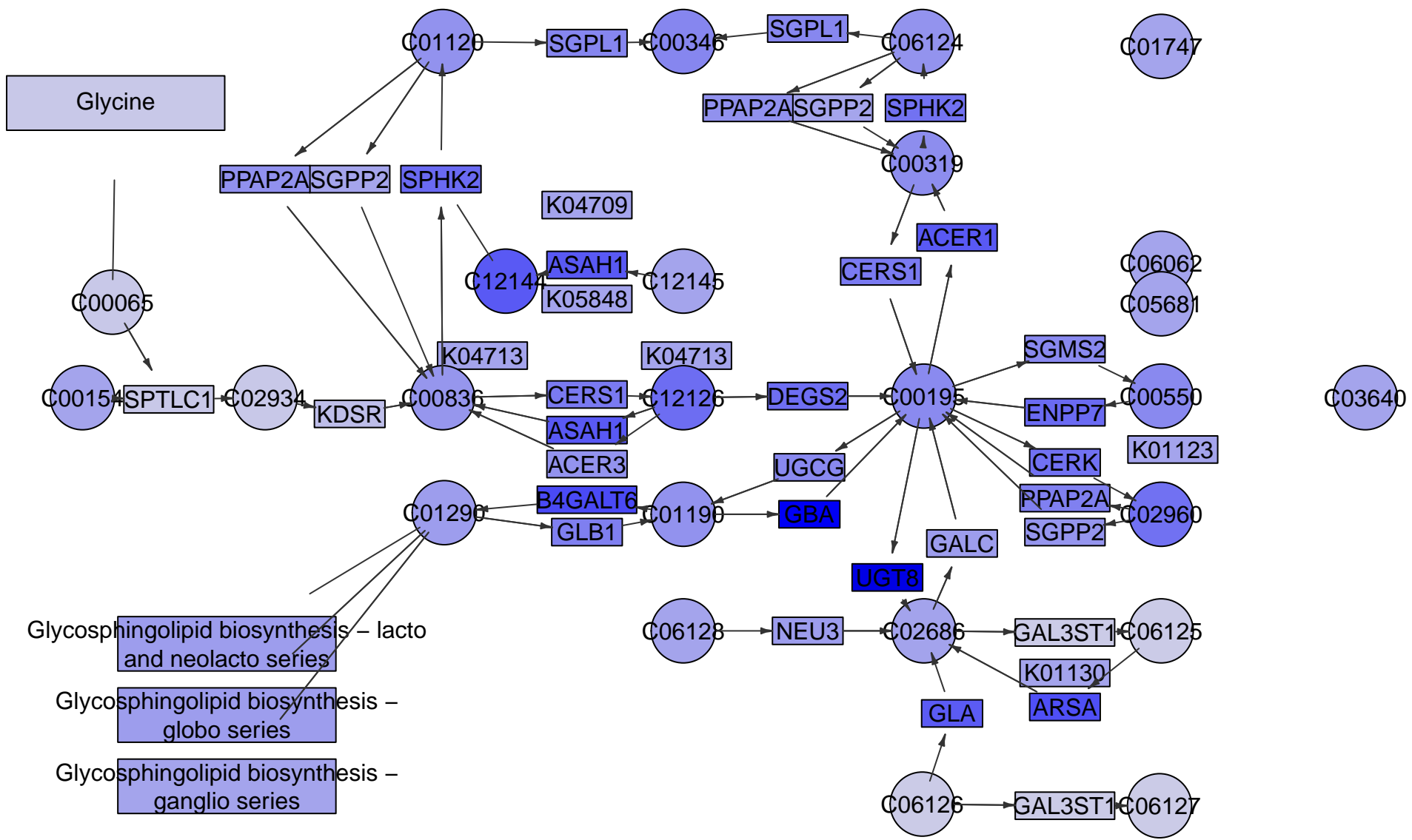
Spingolipid metabolism  
MPI-165



Glycine

- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-169

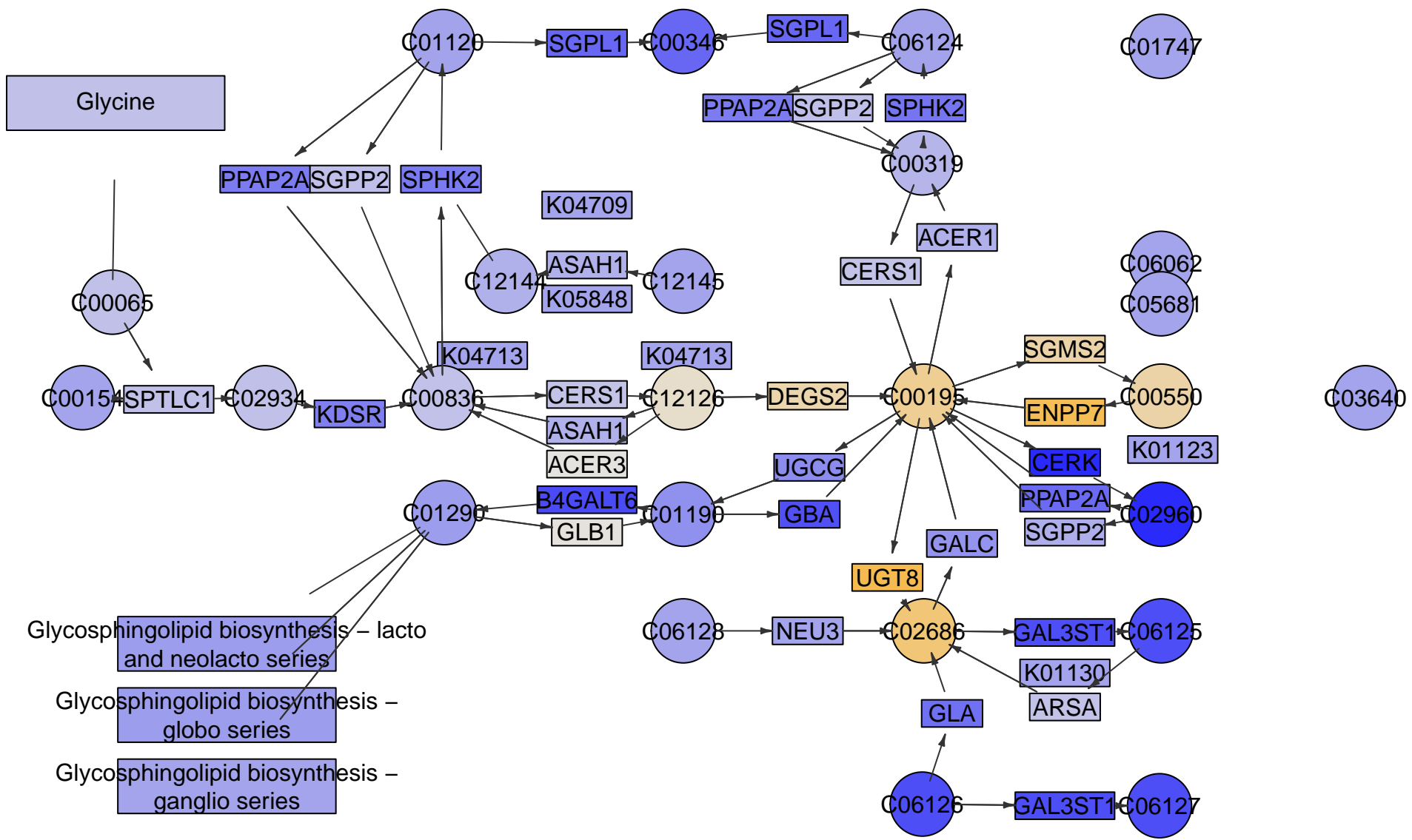


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series





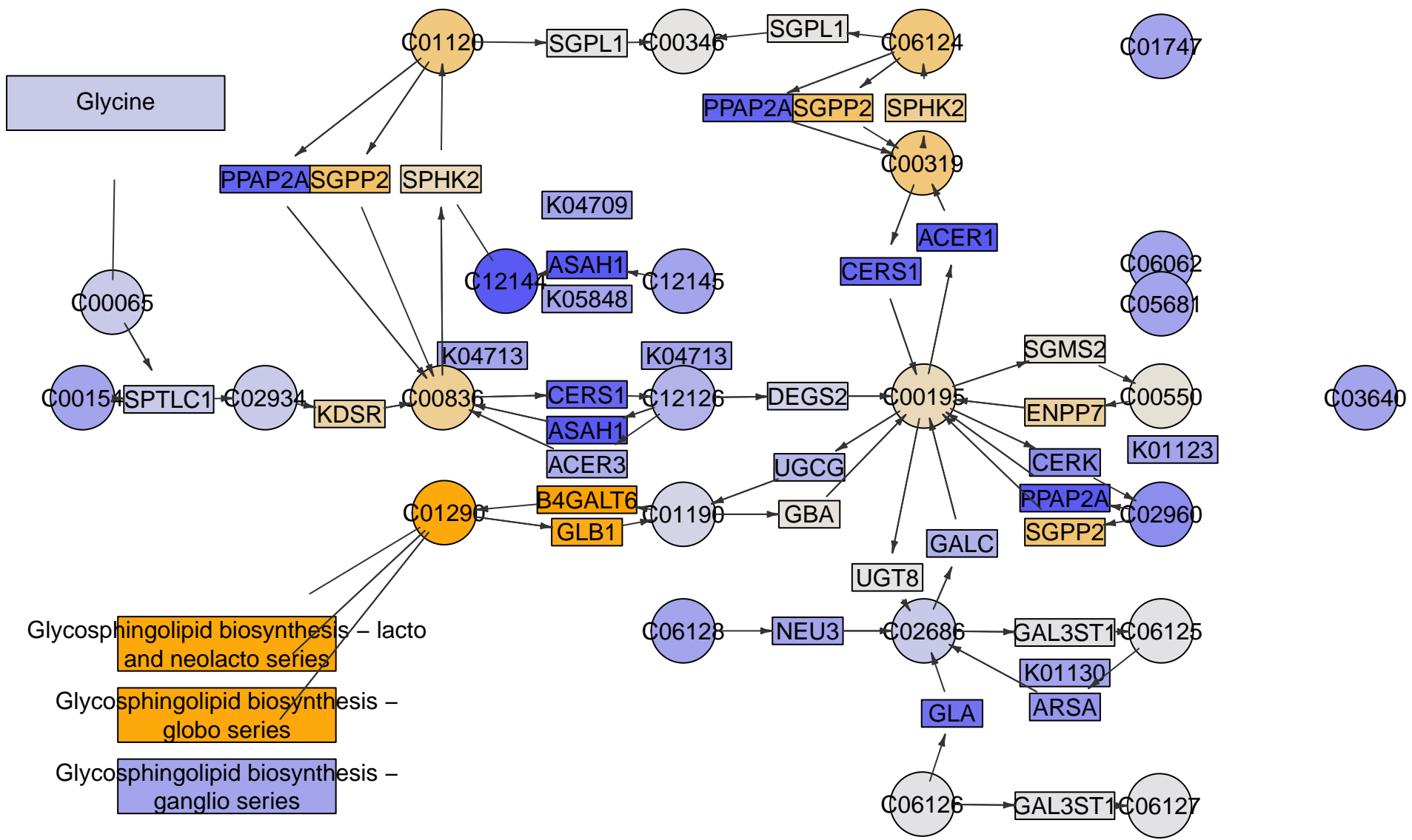
Spingolipid metabolism  
MPI-193





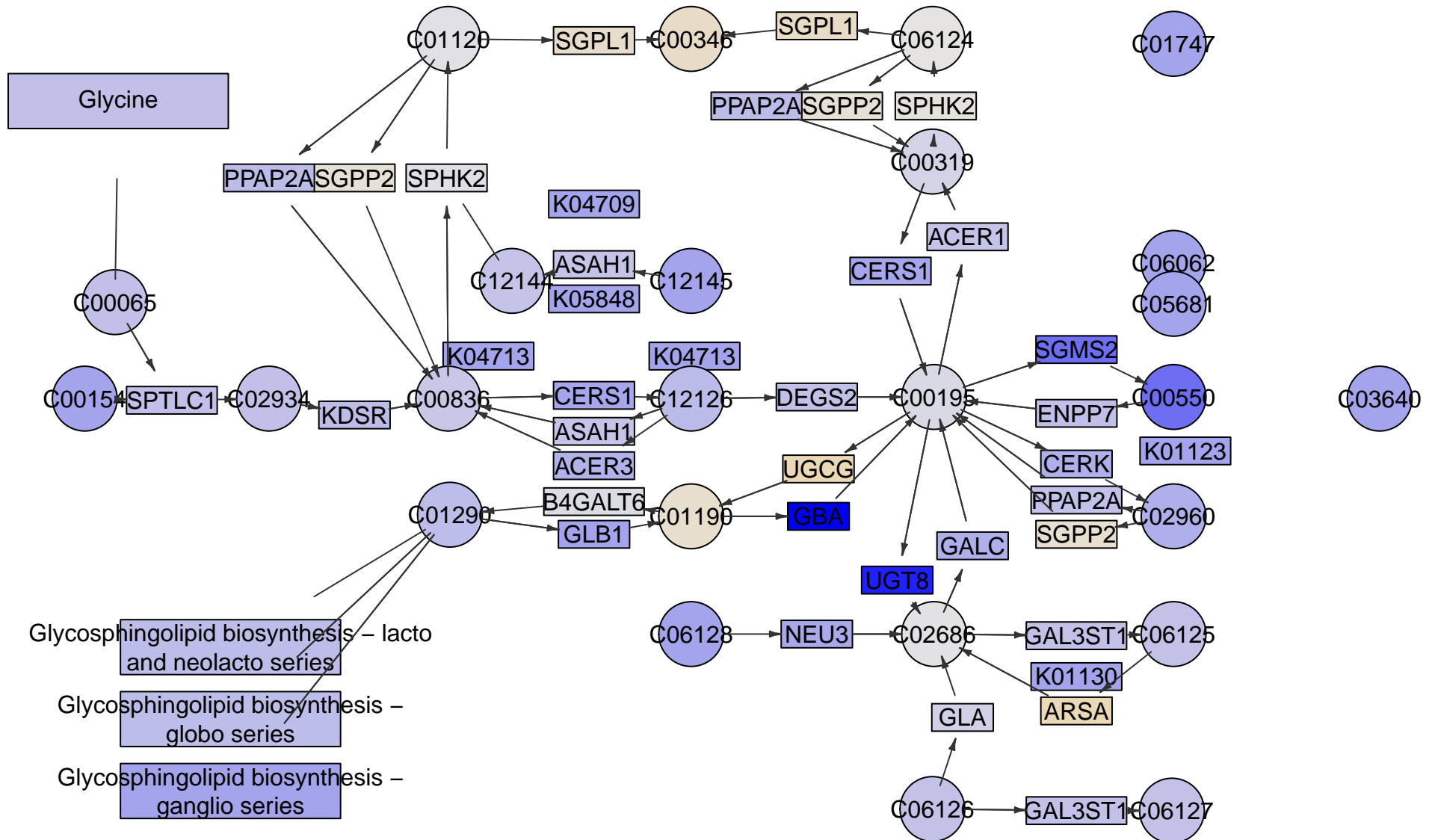


Spingolipid metabolism  
MPI-222

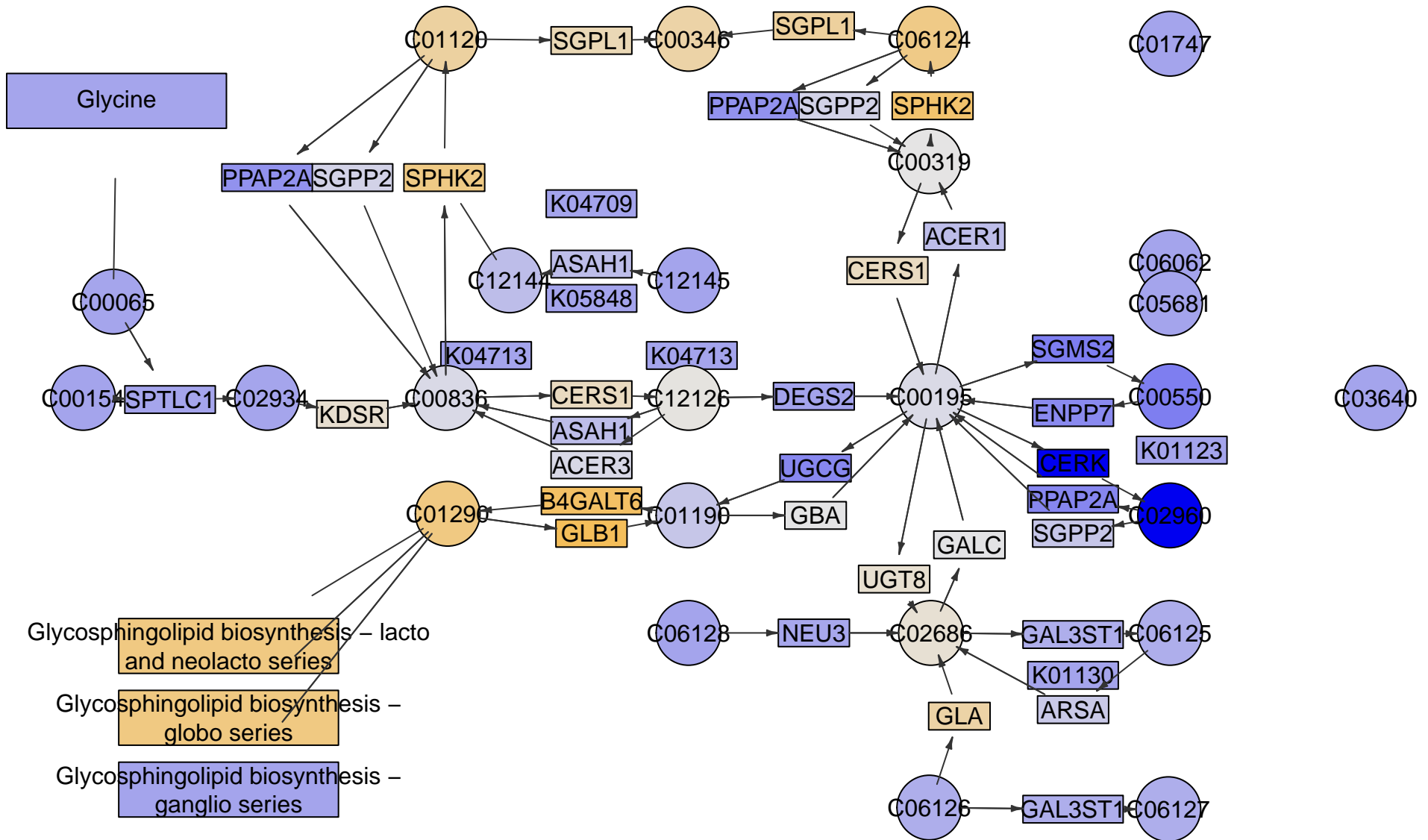


- Glycosphingolipid biosynthesis – lacto
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

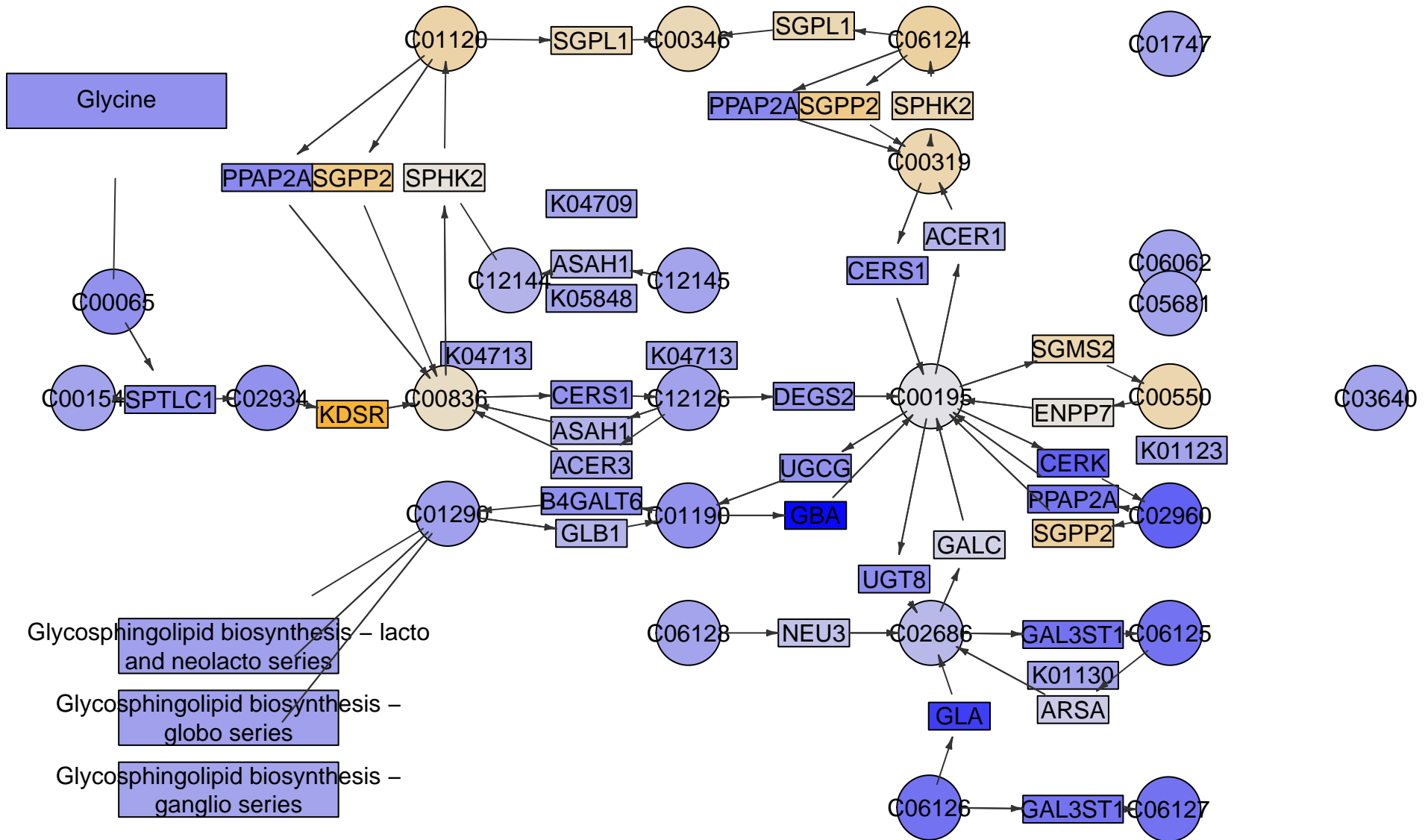
# Spingolipid metabolism MPI-225



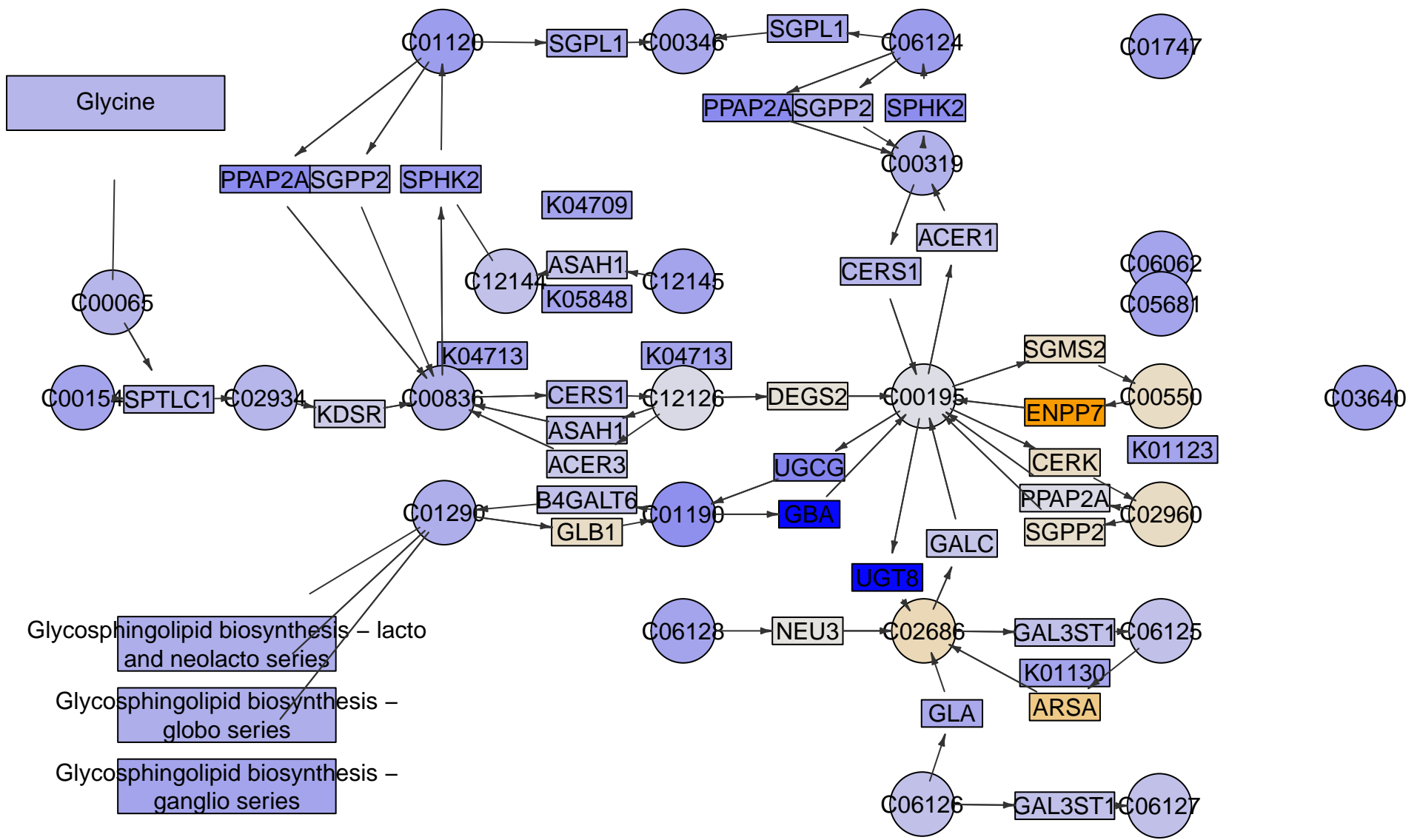
Spingolipid metabolism  
MPI-242



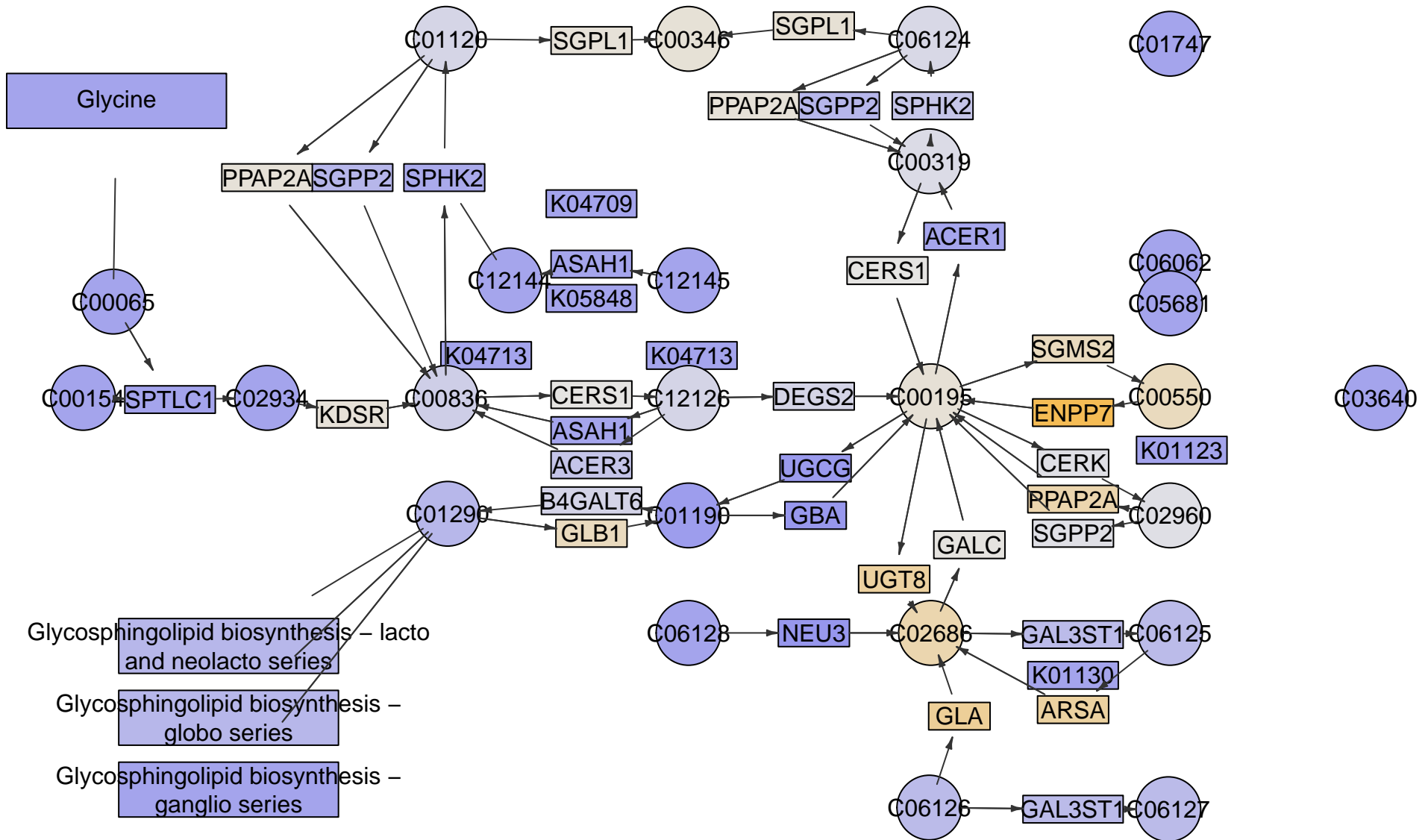
Spingolipid metabolism  
MPI-245



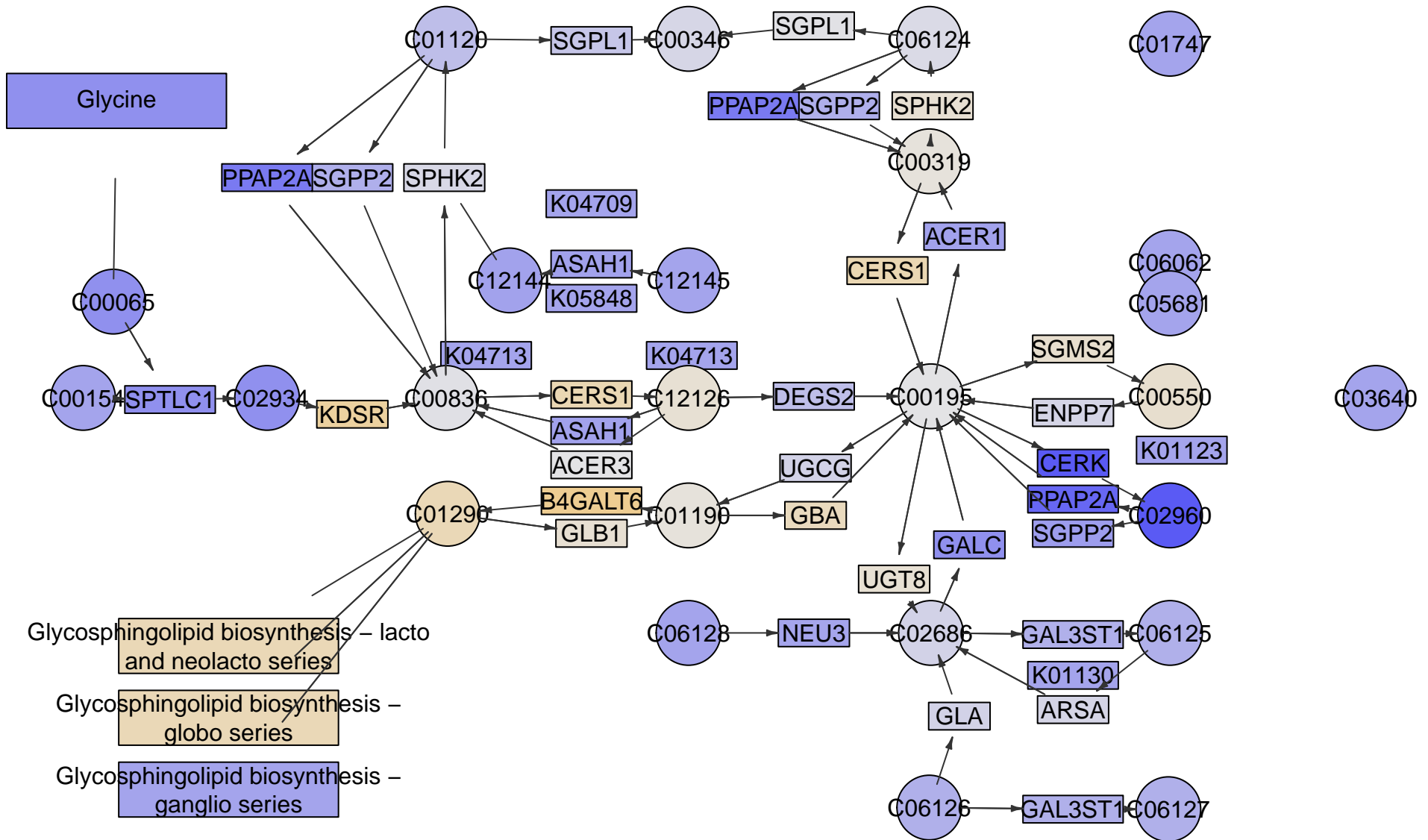
Spingolipid metabolism  
MPI-248



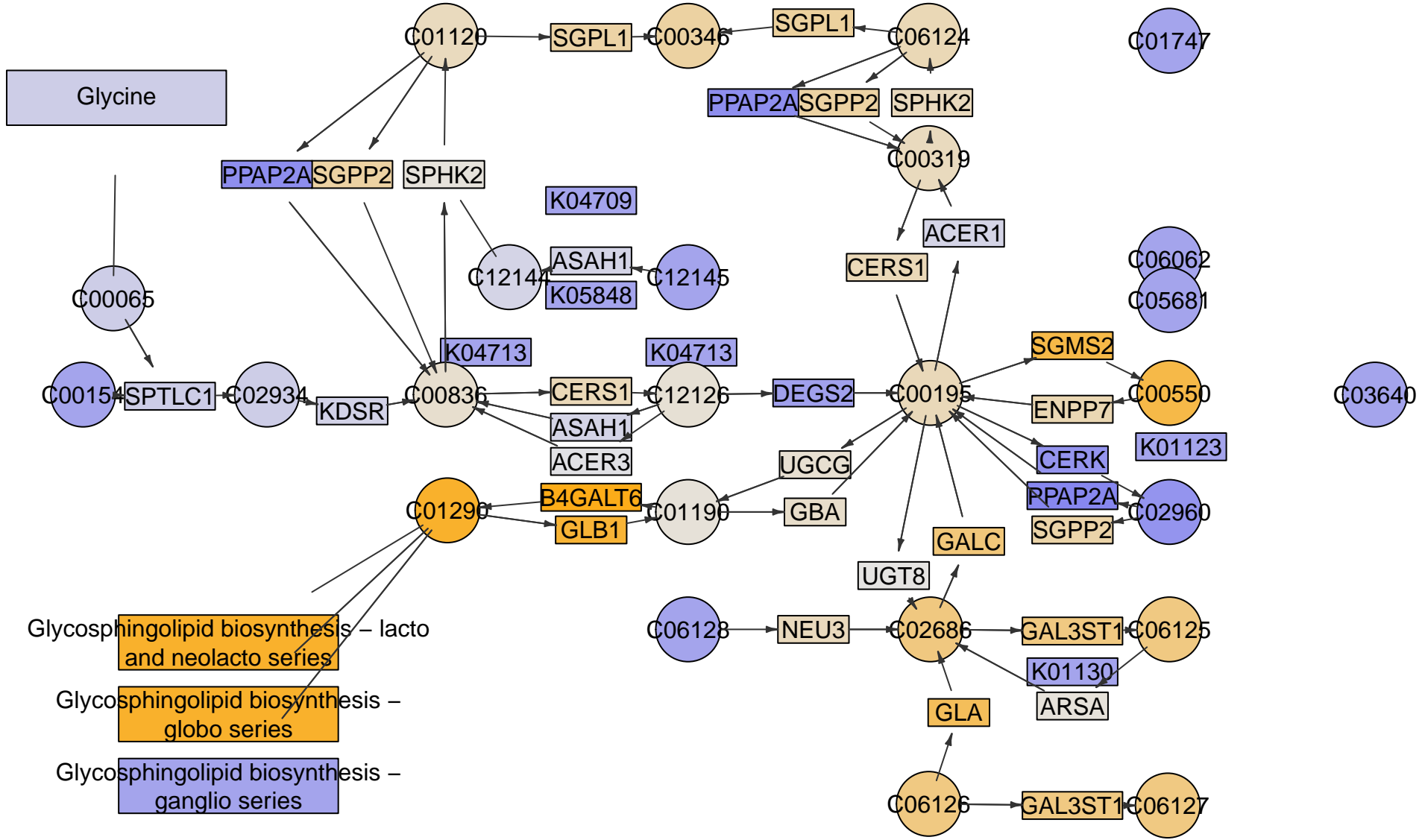
Spingolipid metabolism  
MPI-249



Spingolipid metabolism  
MPI-250



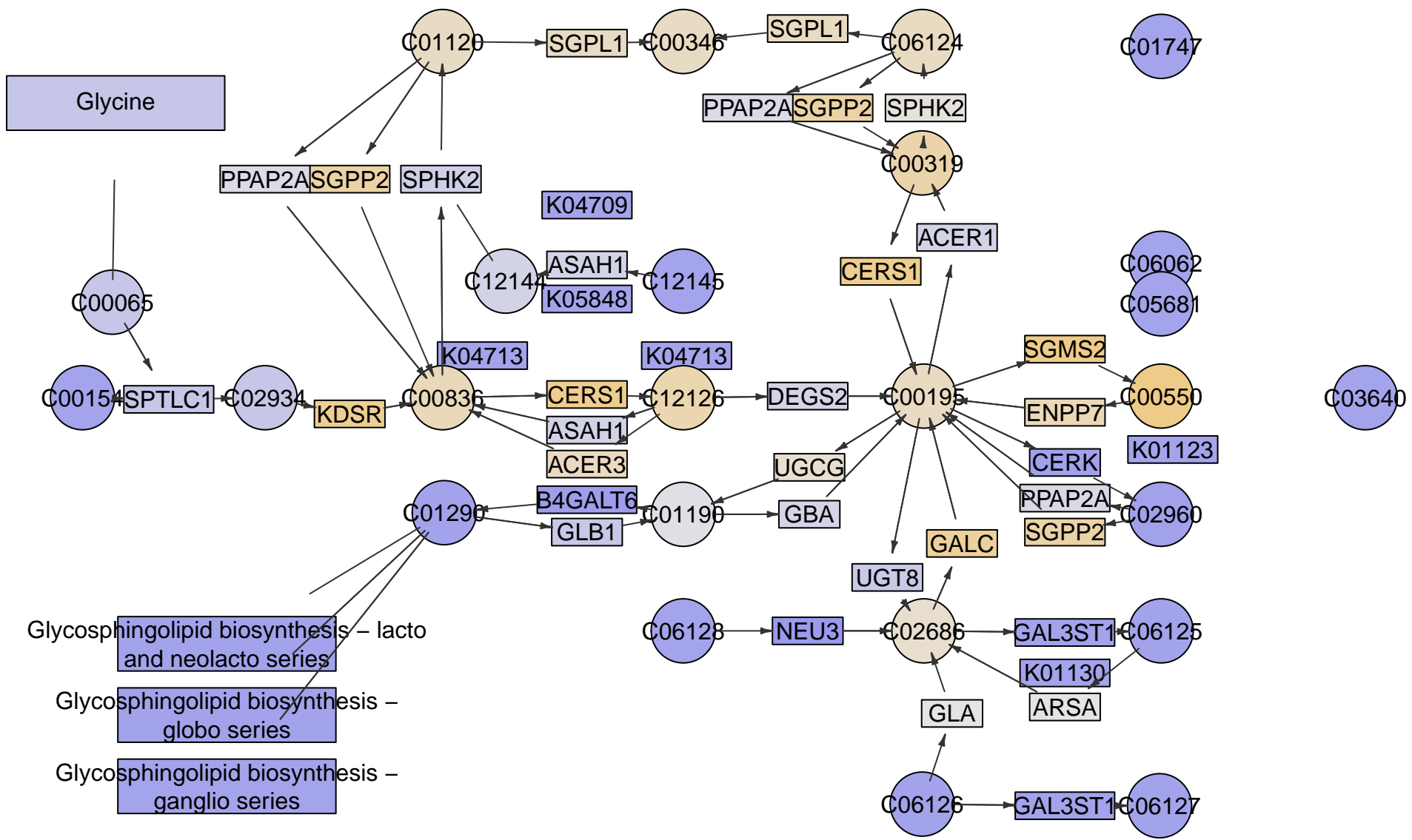
Spingolipid metabolism  
MPI-008



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



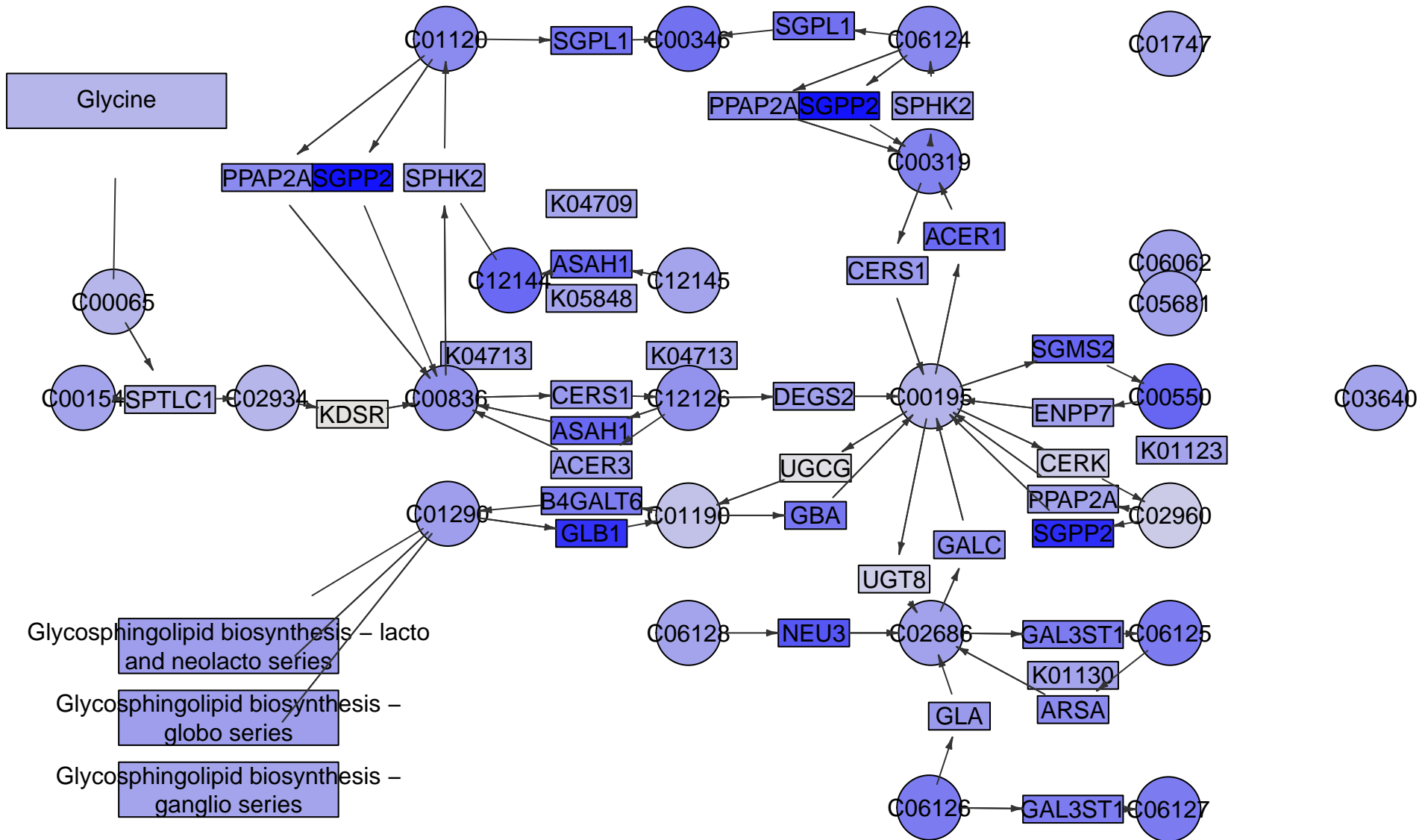
Spingolipid metabolism  
MPI-009



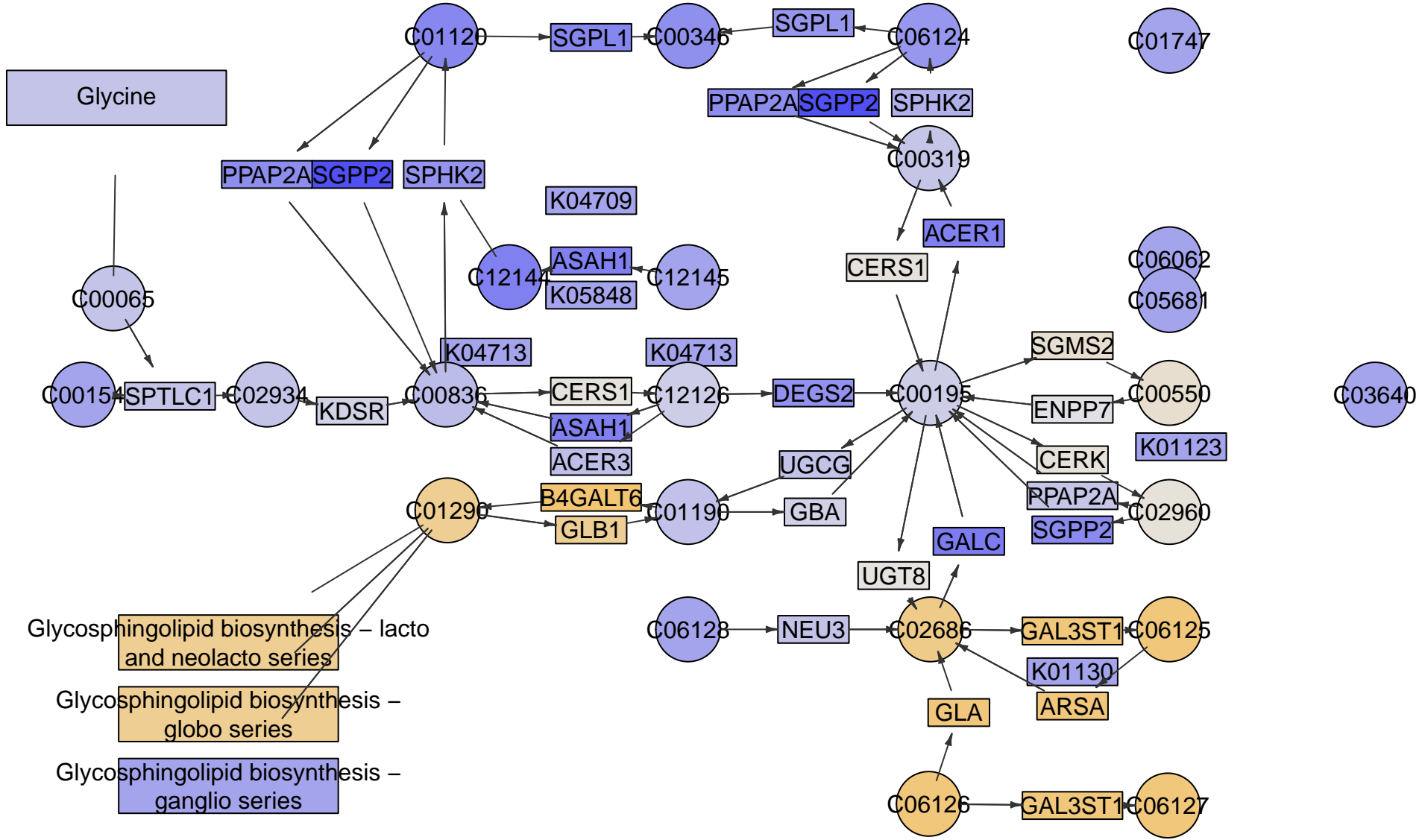




Spingolipid metabolism  
MPI-013

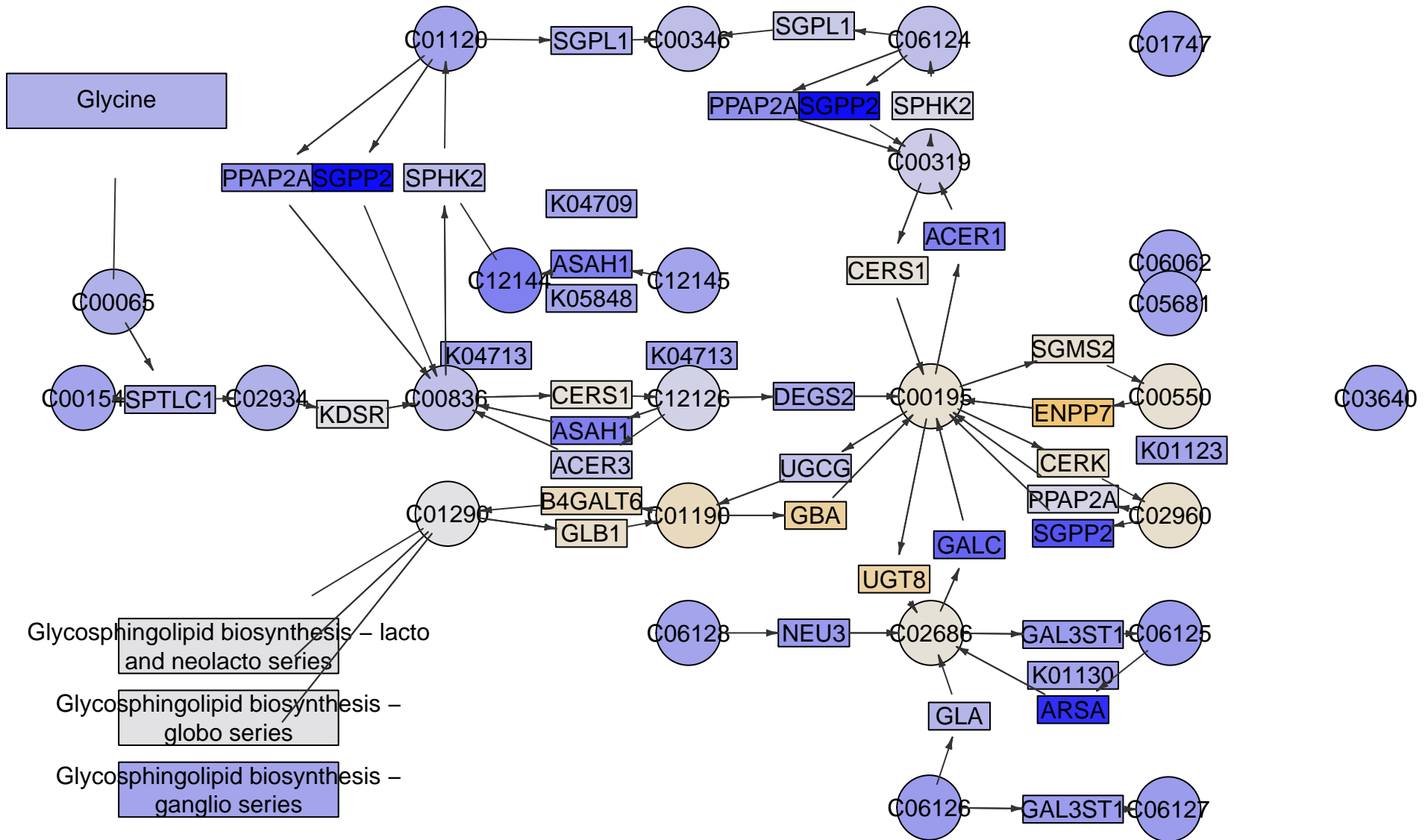


Spingolipid metabolism  
MPI-014

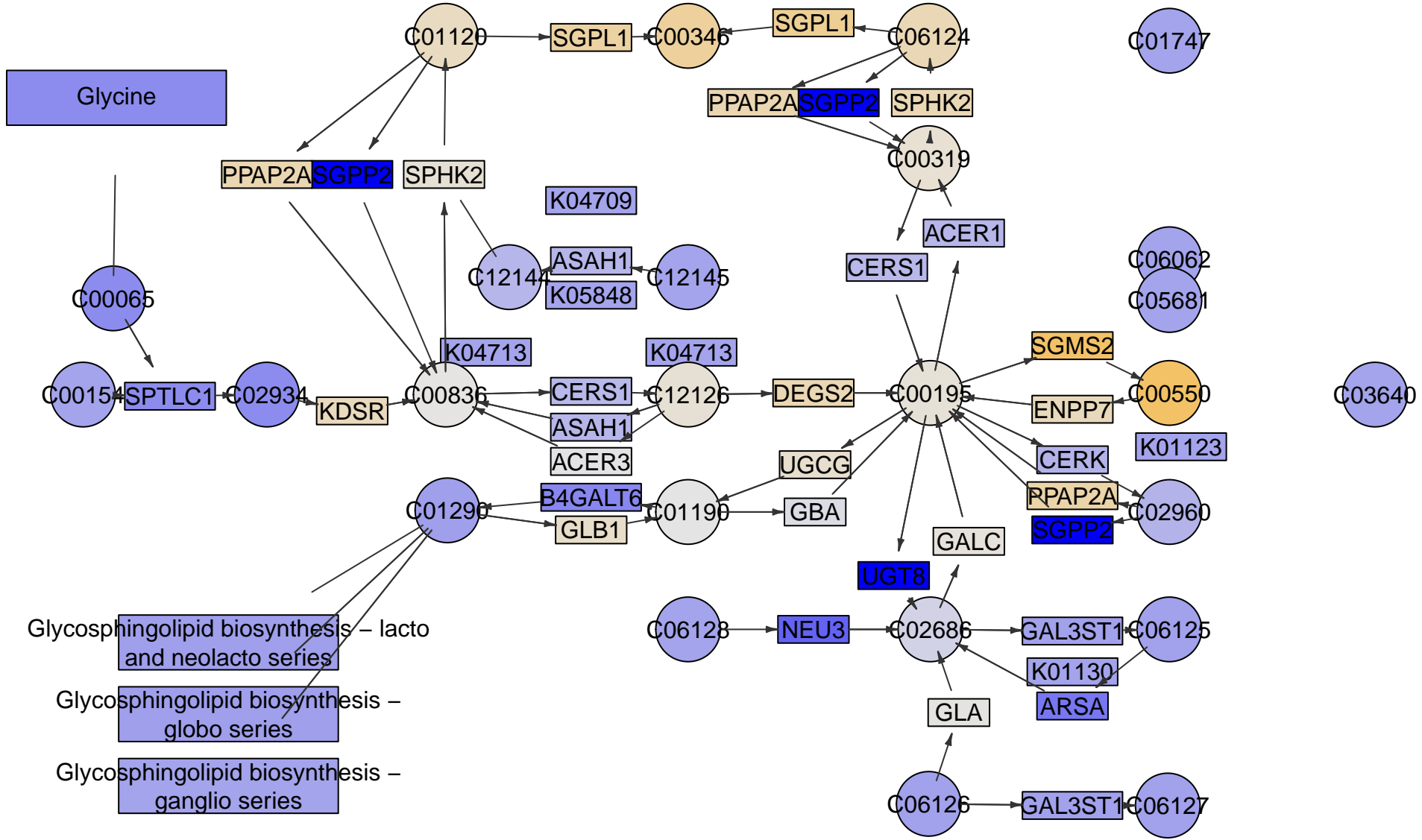


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

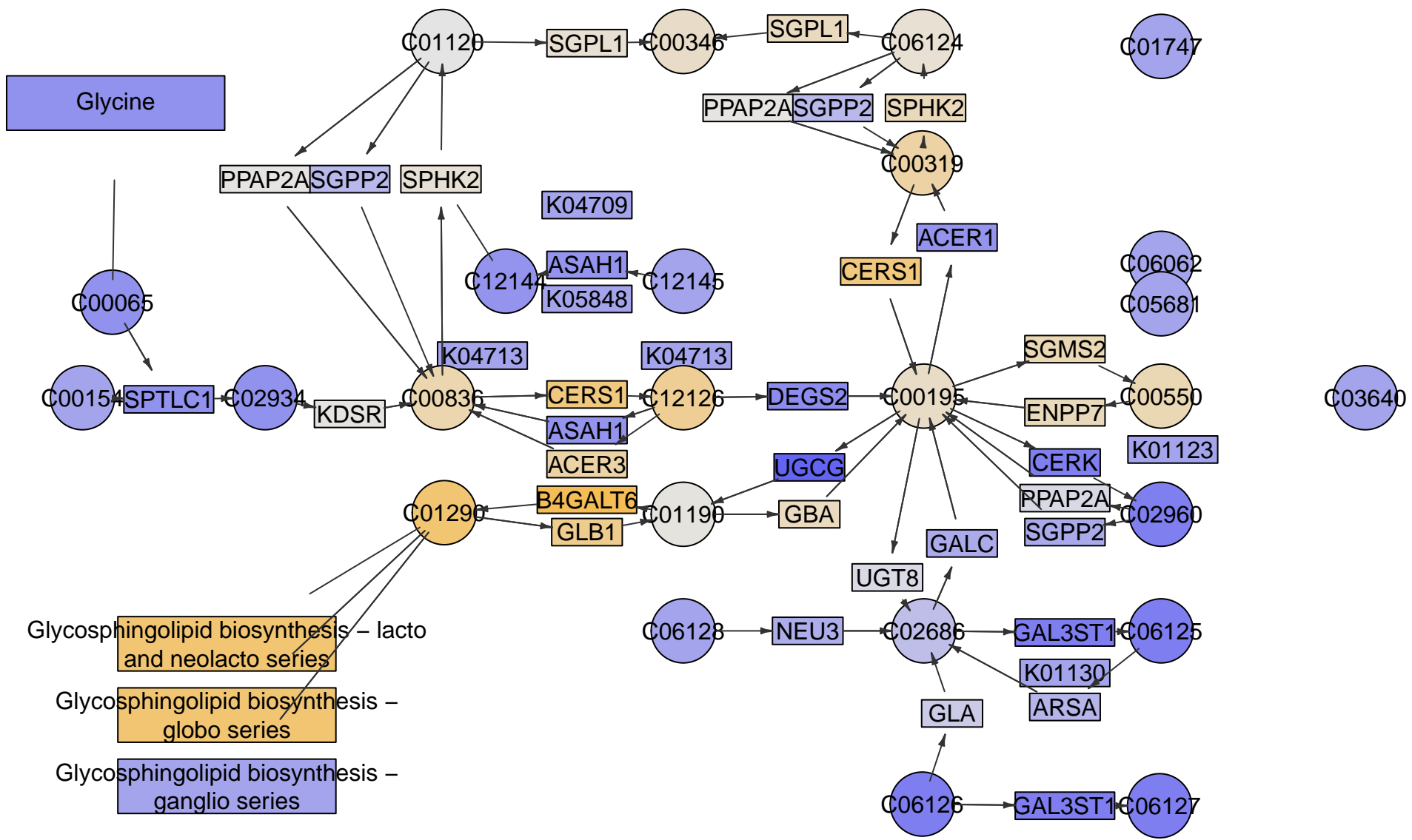
Spingolipid metabolism  
MPI-015



Spingolipid metabolism  
MPI-021

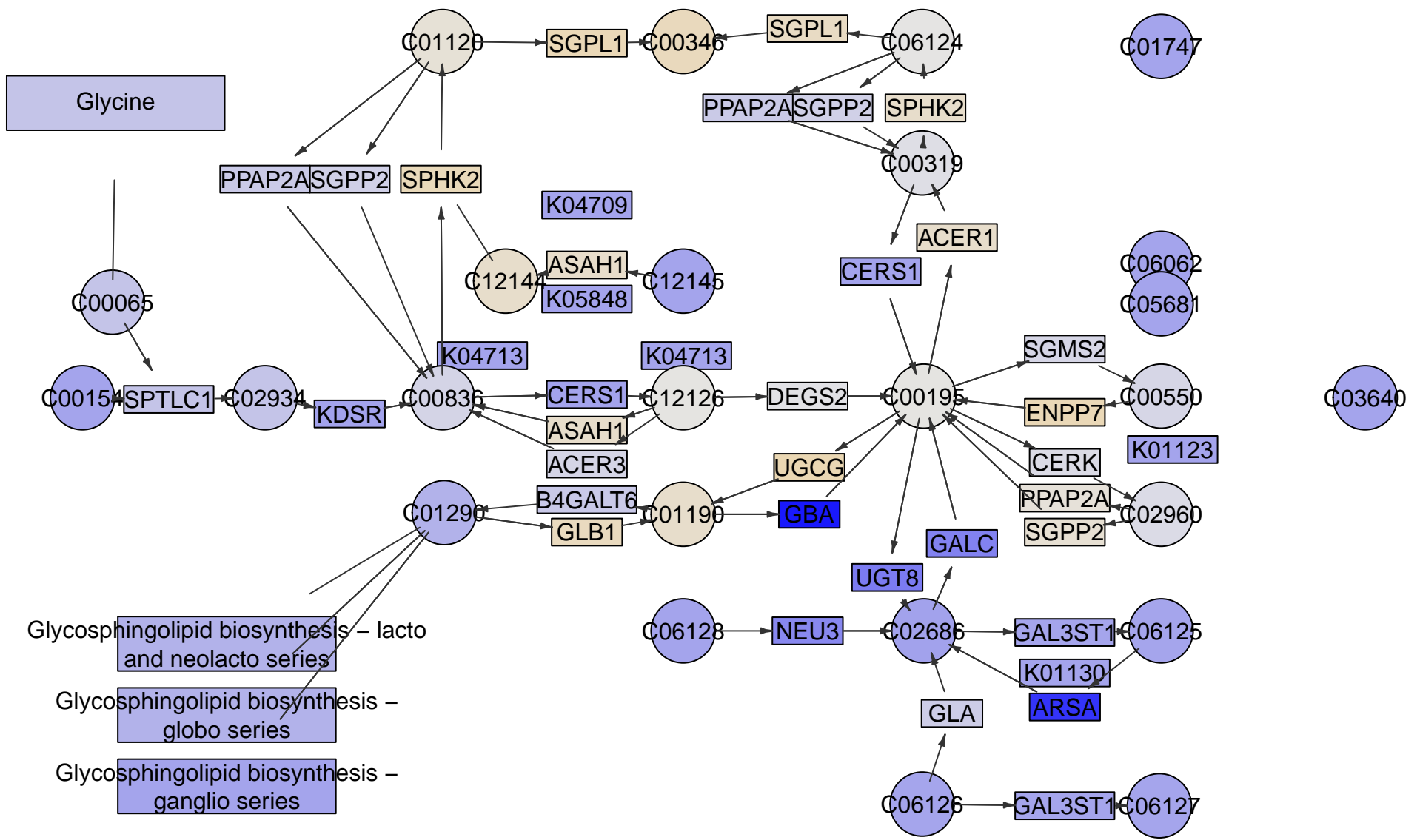


Spingolipid metabolism  
MPI-022

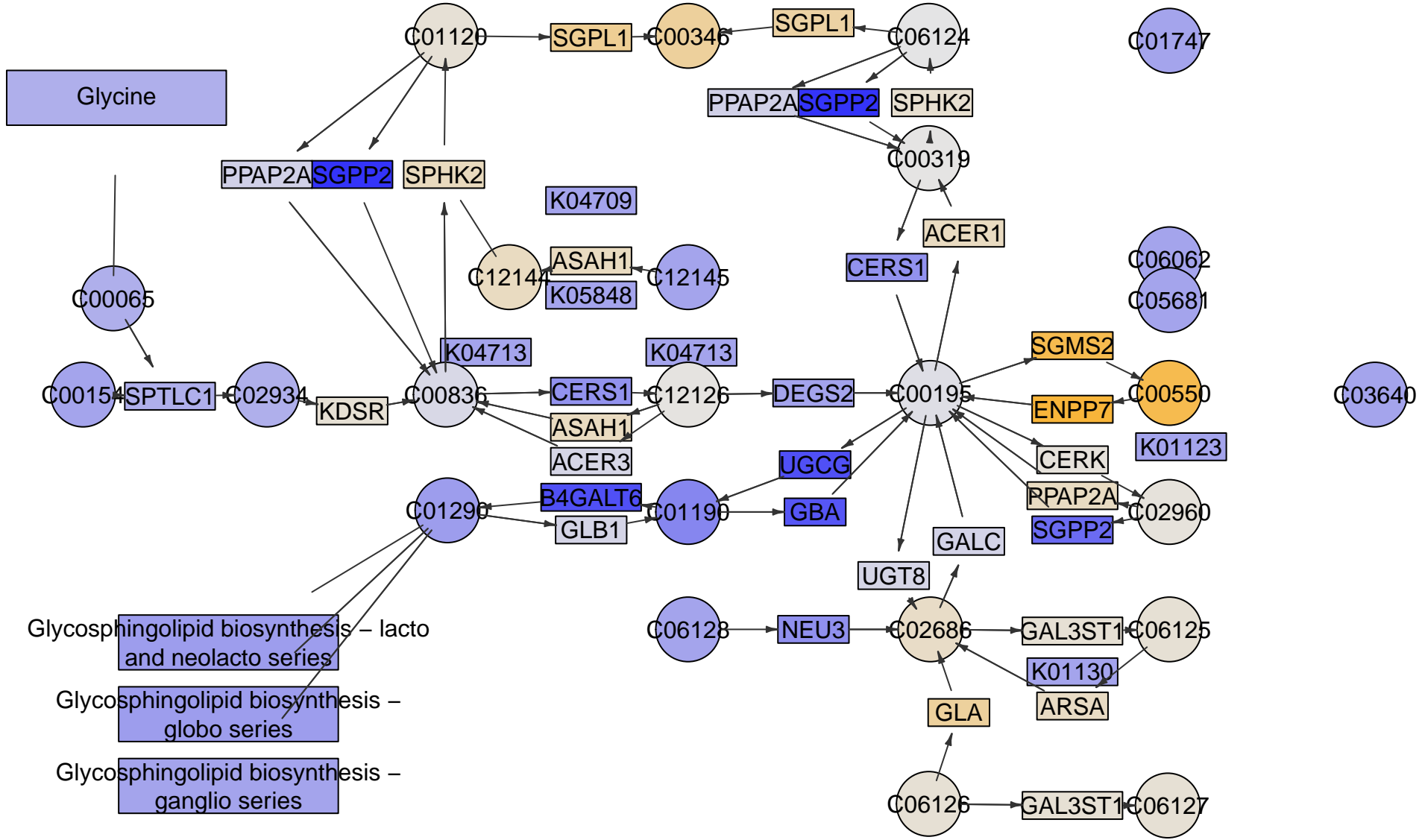




Spingolipid metabolism  
MPI-025

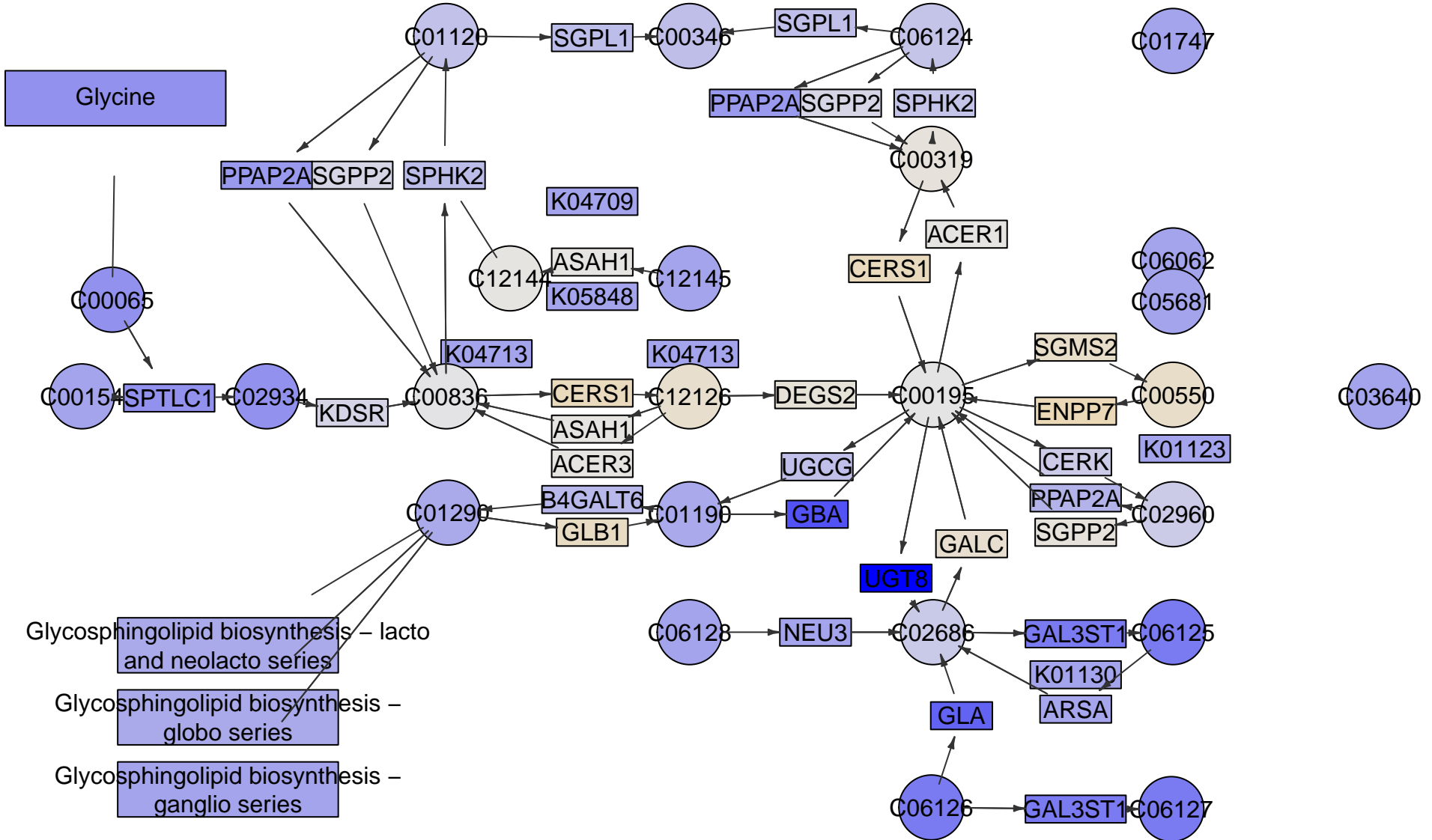


Spingolipid metabolism  
MPI-029



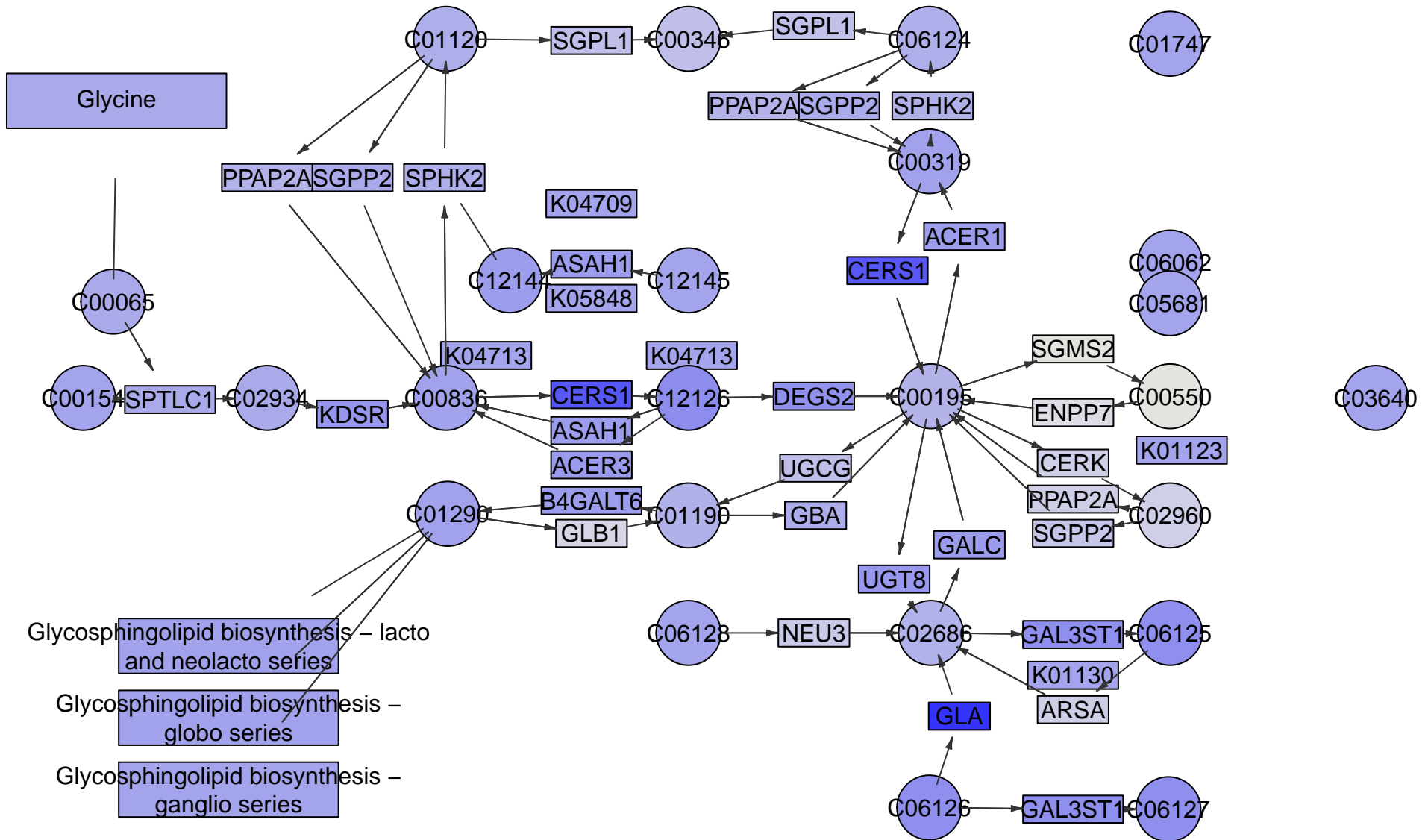
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-030

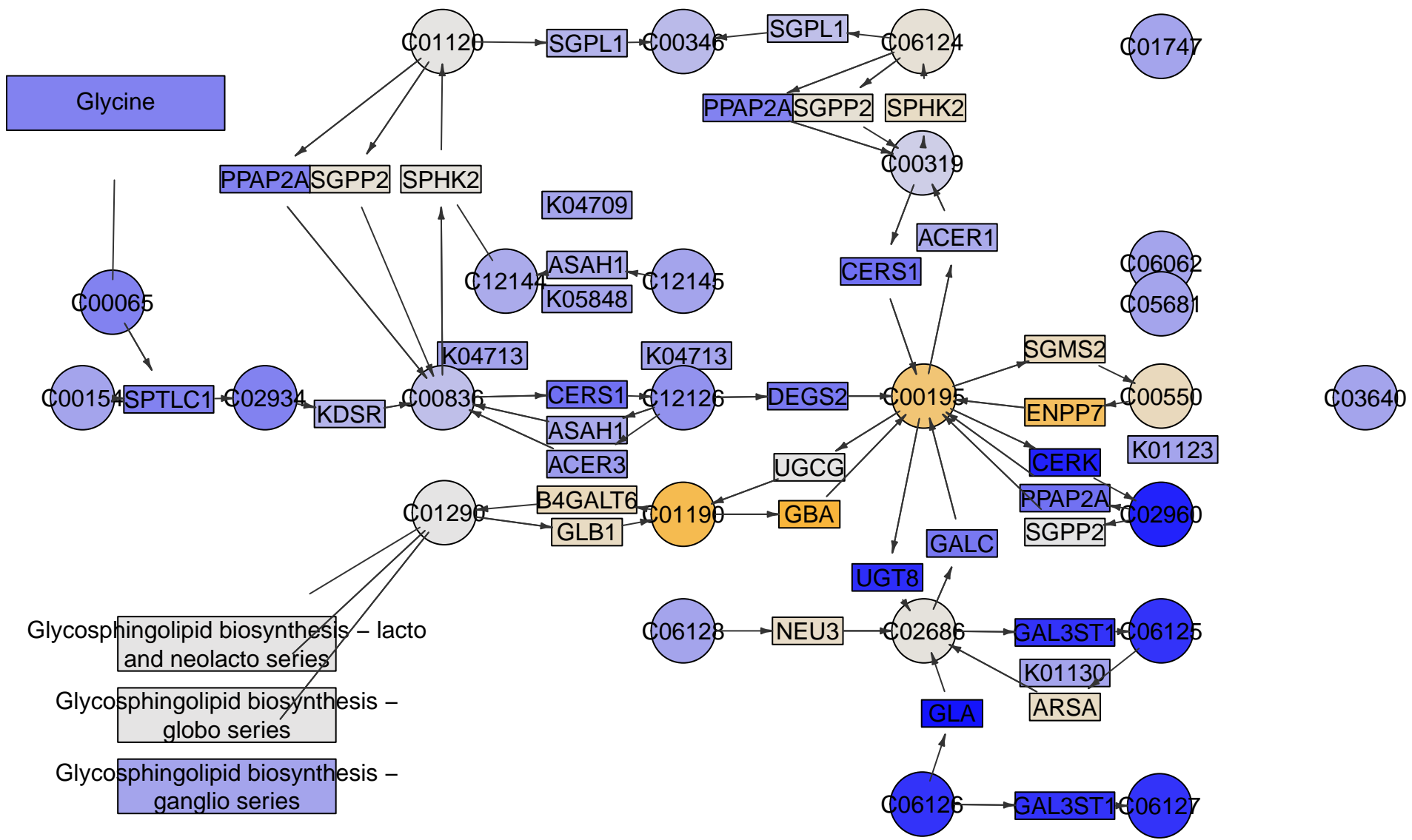




Spingolipid metabolism  
MPI-039

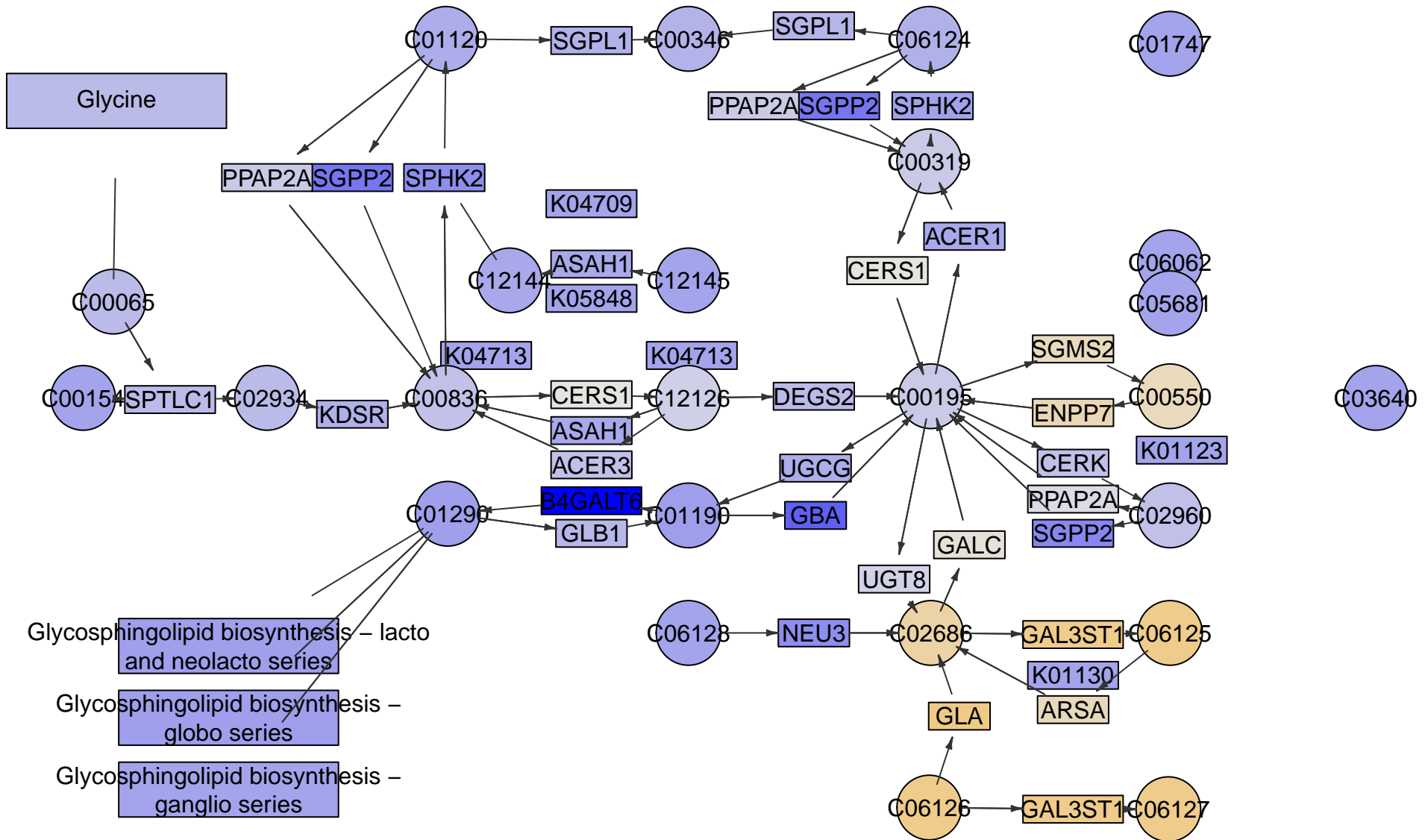


Spingolipid metabolism  
MPI-040



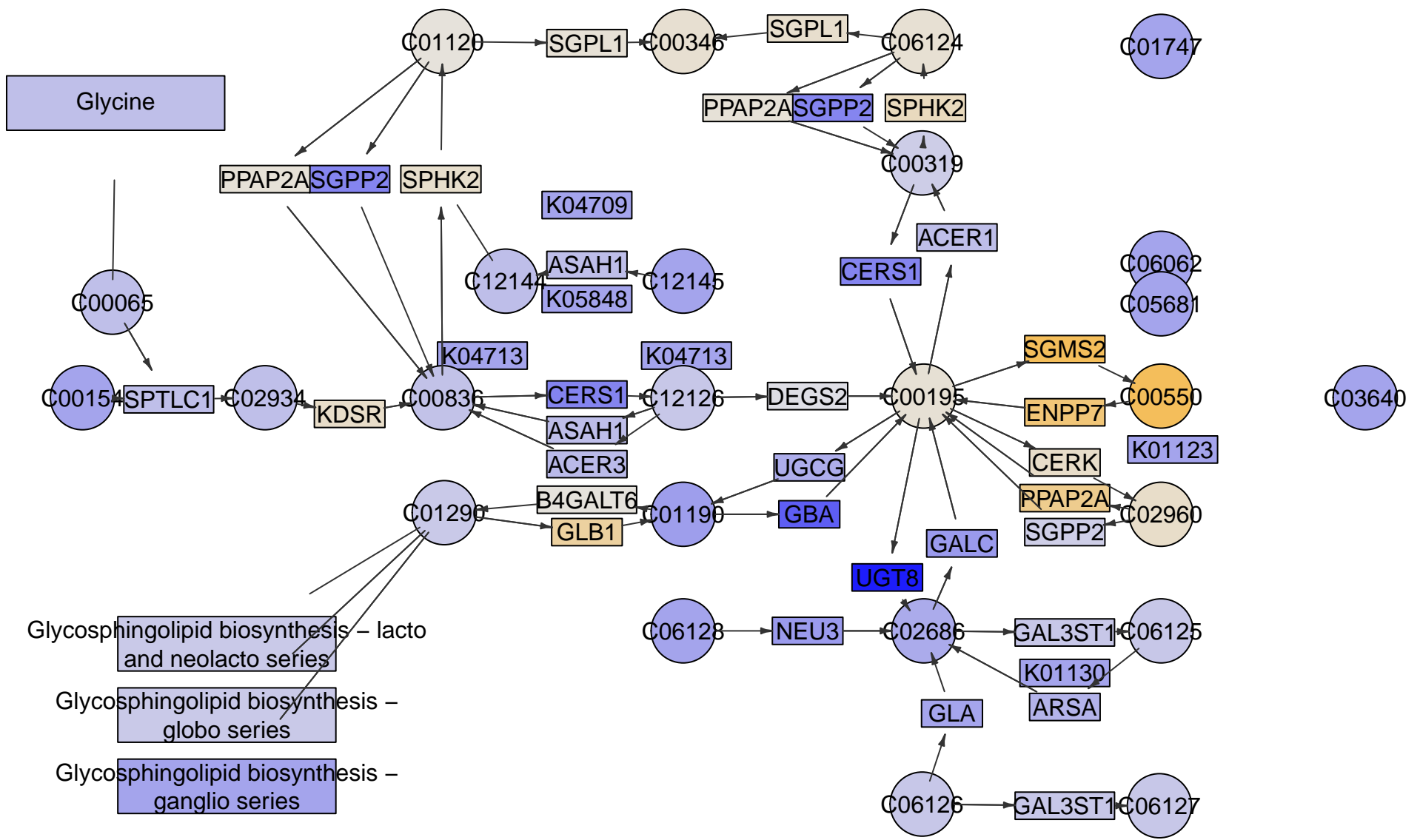


Spingolipid metabolism  
MPI-047





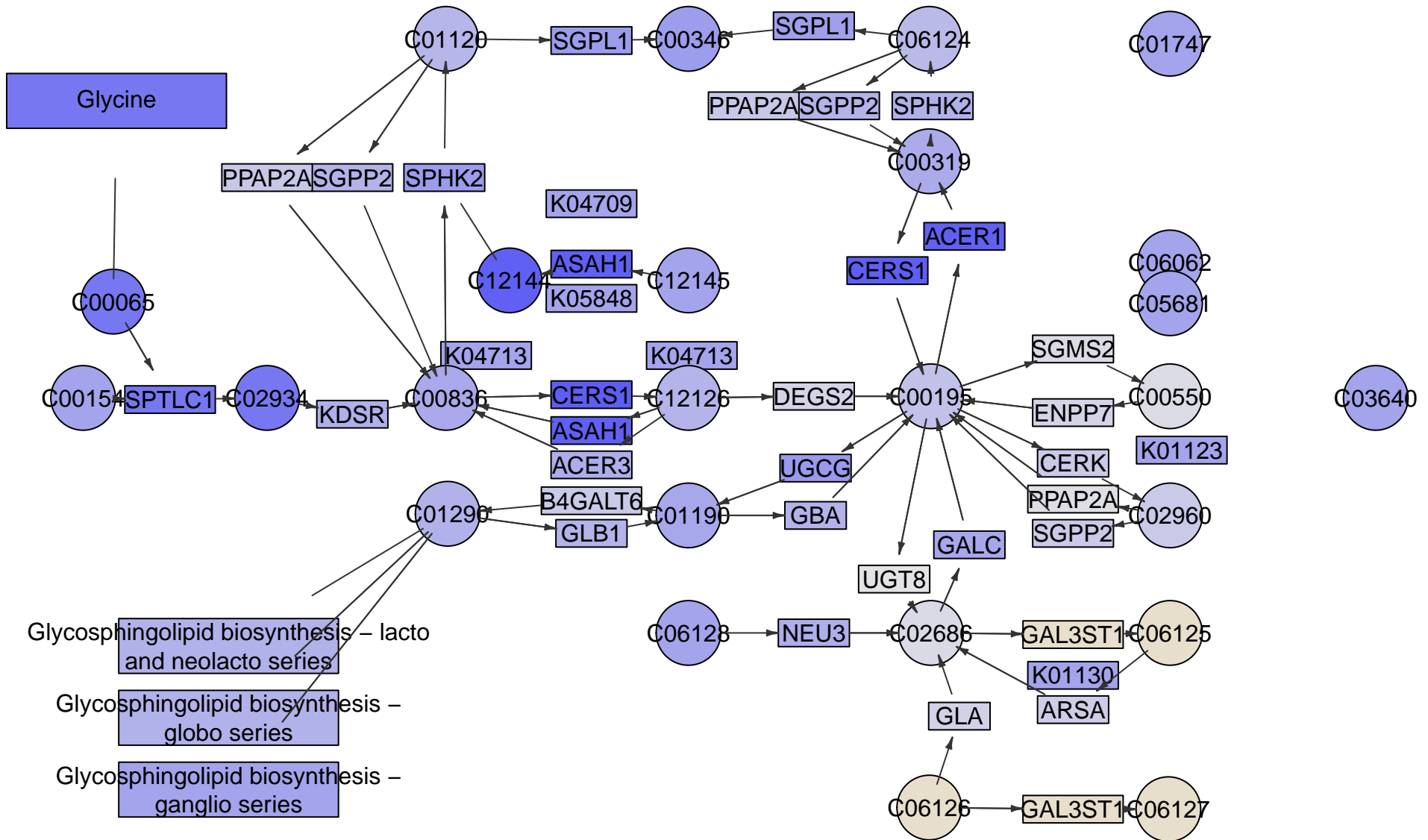
Spingolipid metabolism  
MPI-053



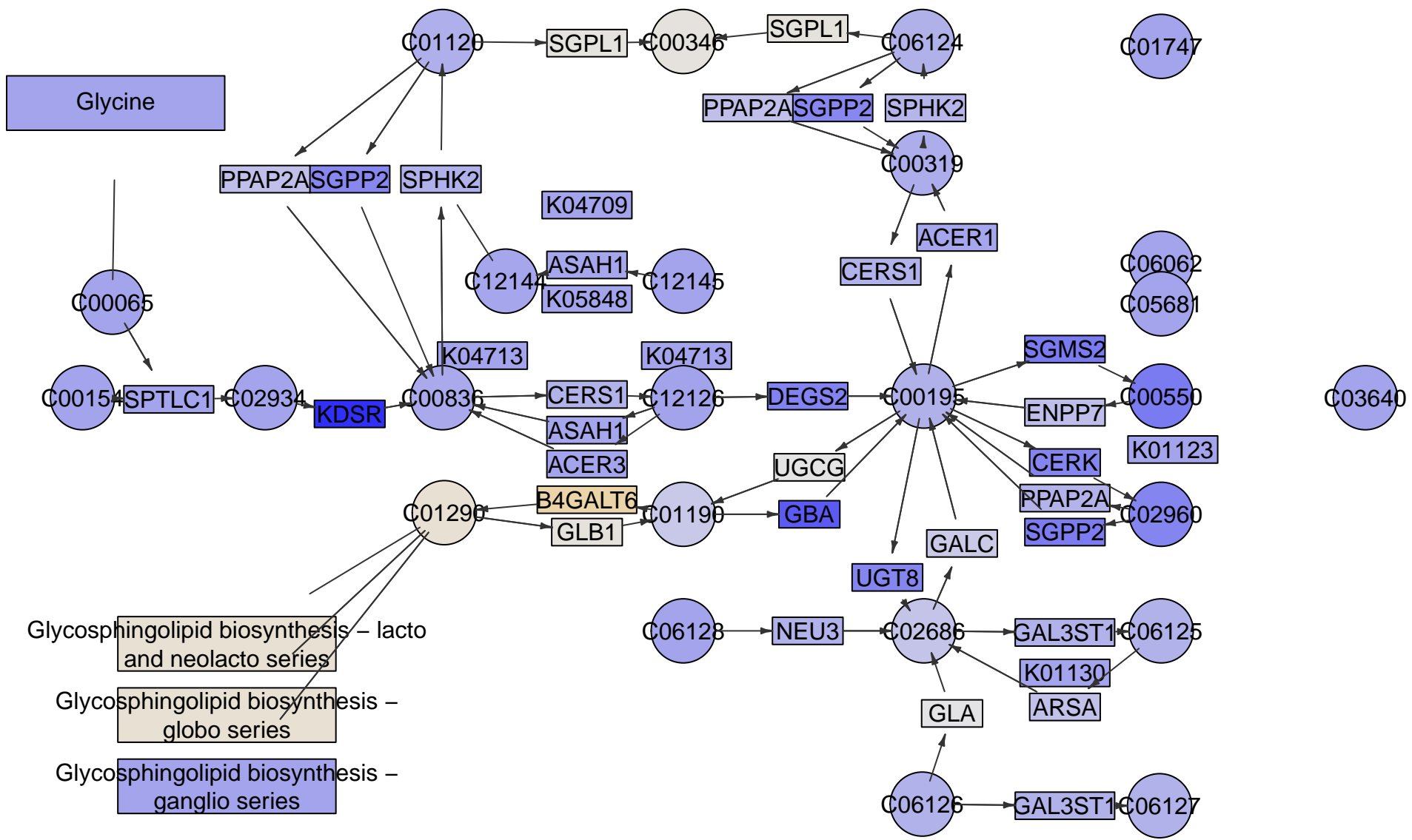




Spingolipid metabolism  
MPI-069

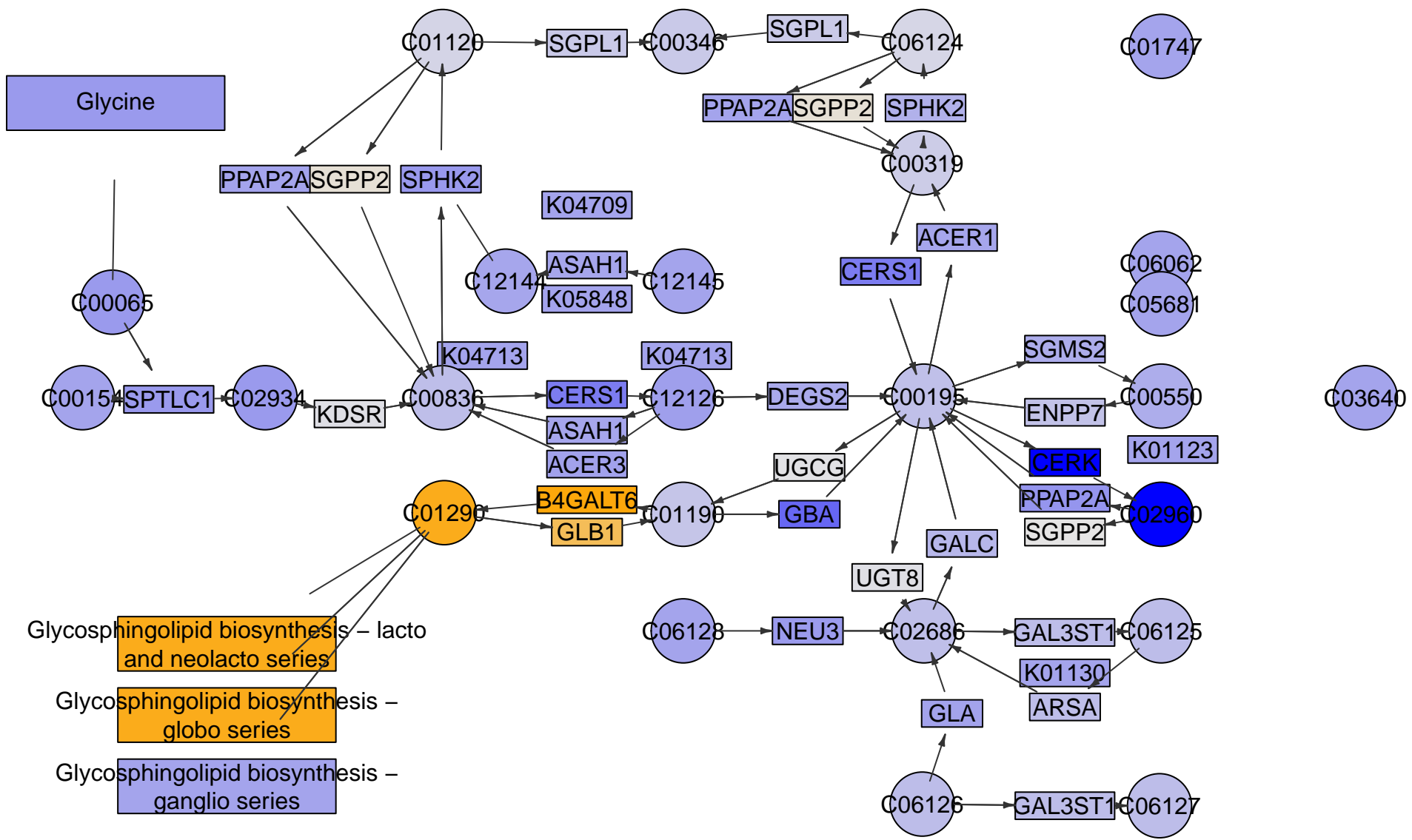


Spingolipid metabolism  
MPI-073

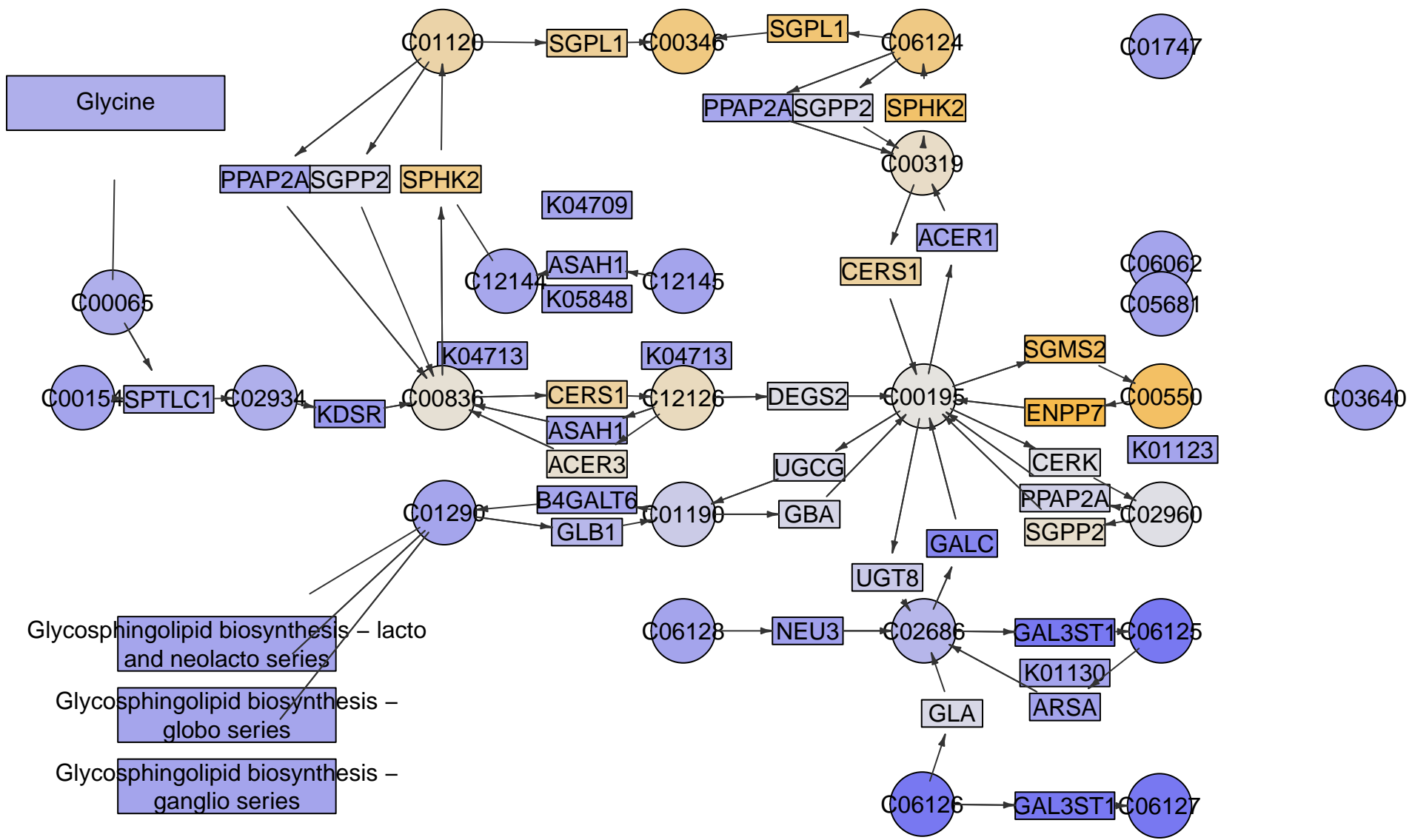




Spingolipid metabolism  
MPI-076



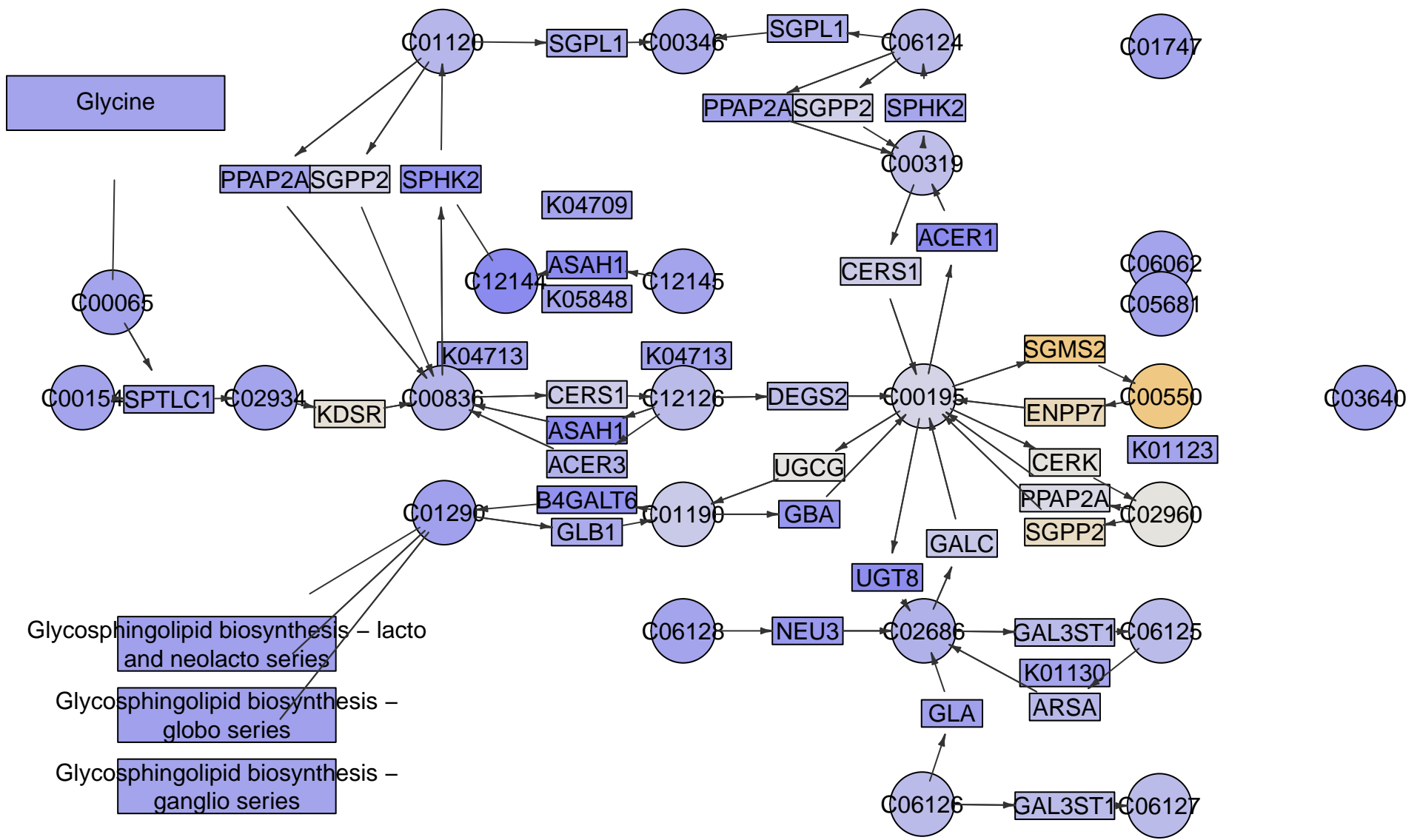
Spingolipid metabolism  
MPI-083



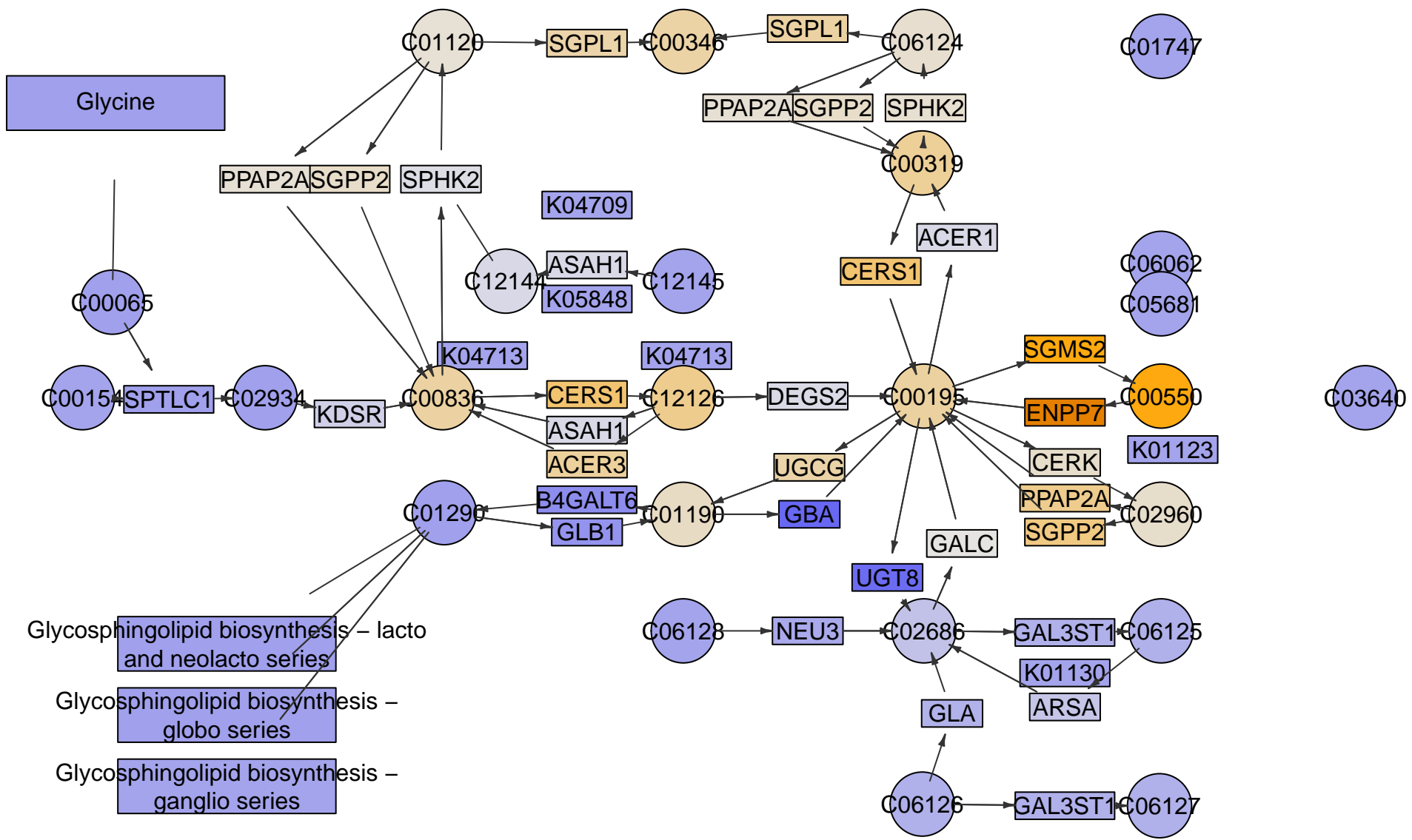
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



Spingolipid metabolism  
MPI-088



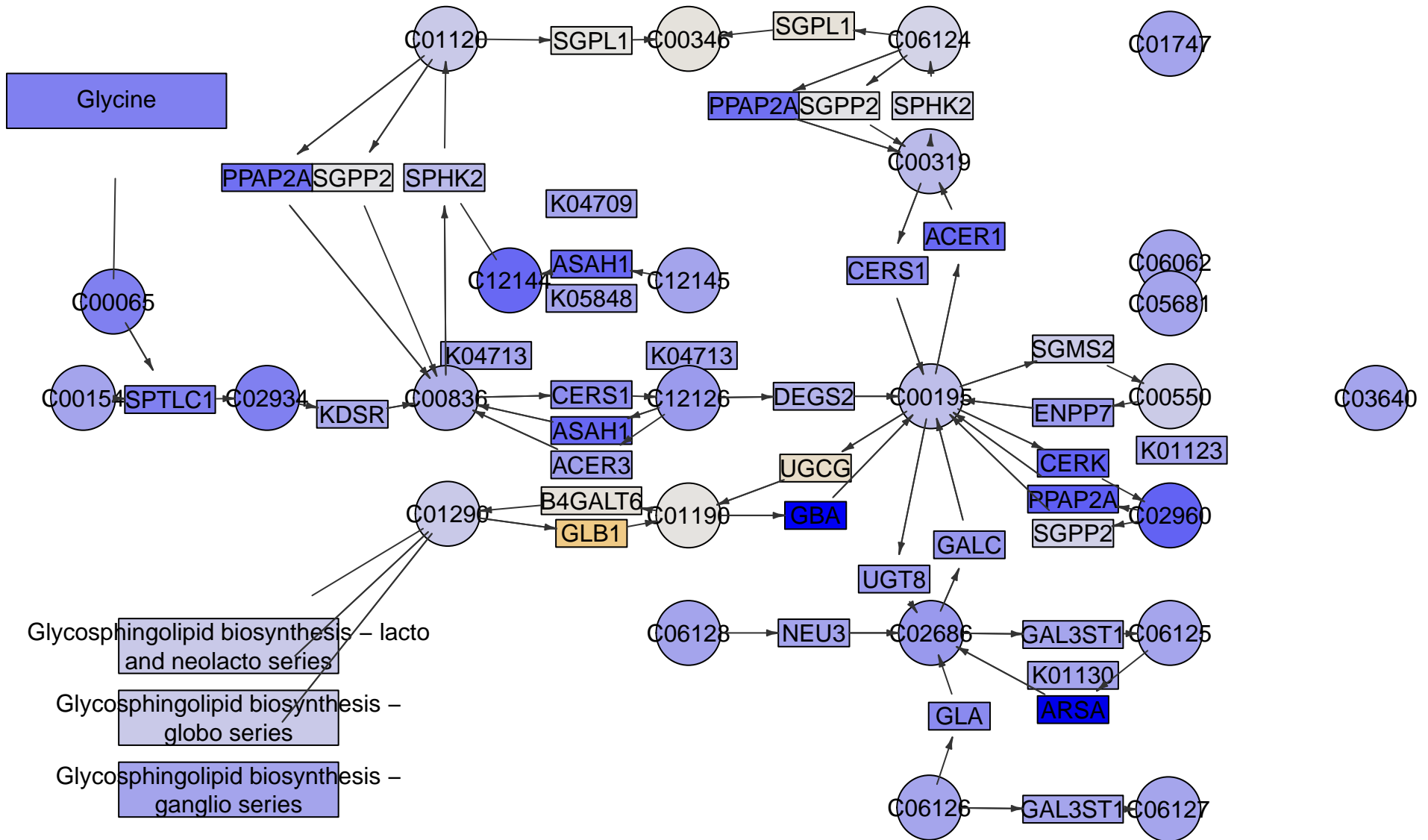
Spingolipid metabolism  
MPI-092



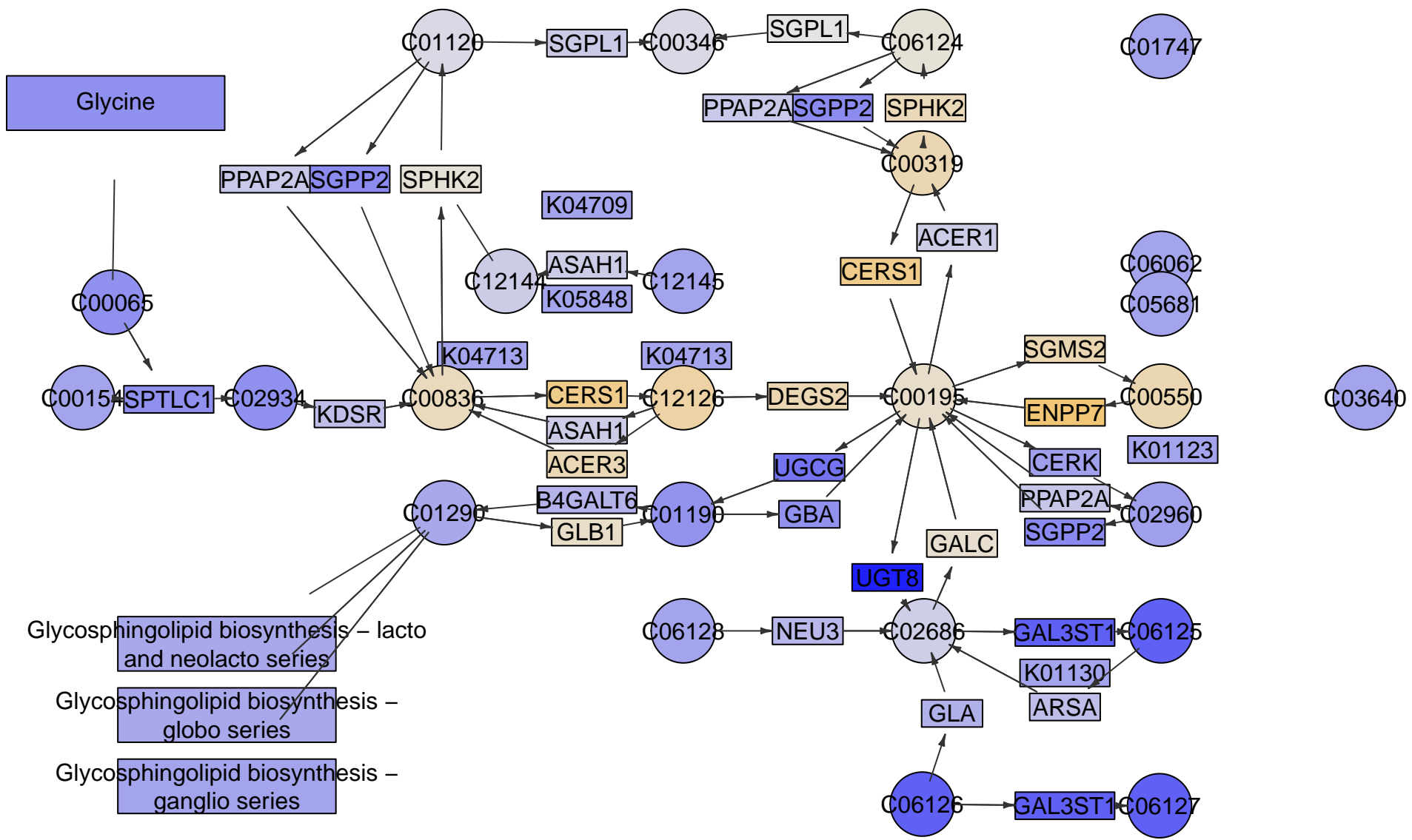




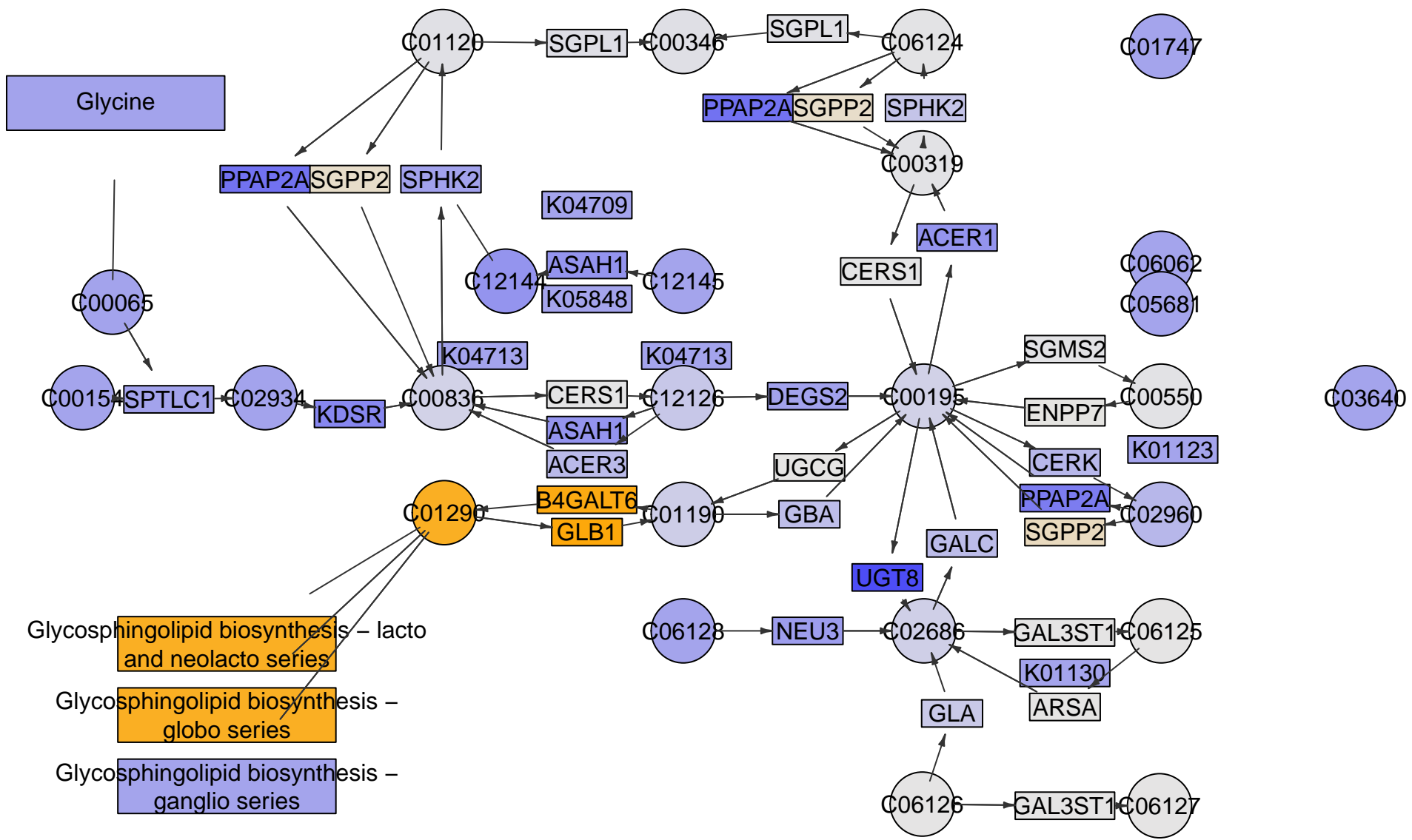
Spingolipid metabolism  
MPI-100



Spingolipid metabolism  
MPI-105



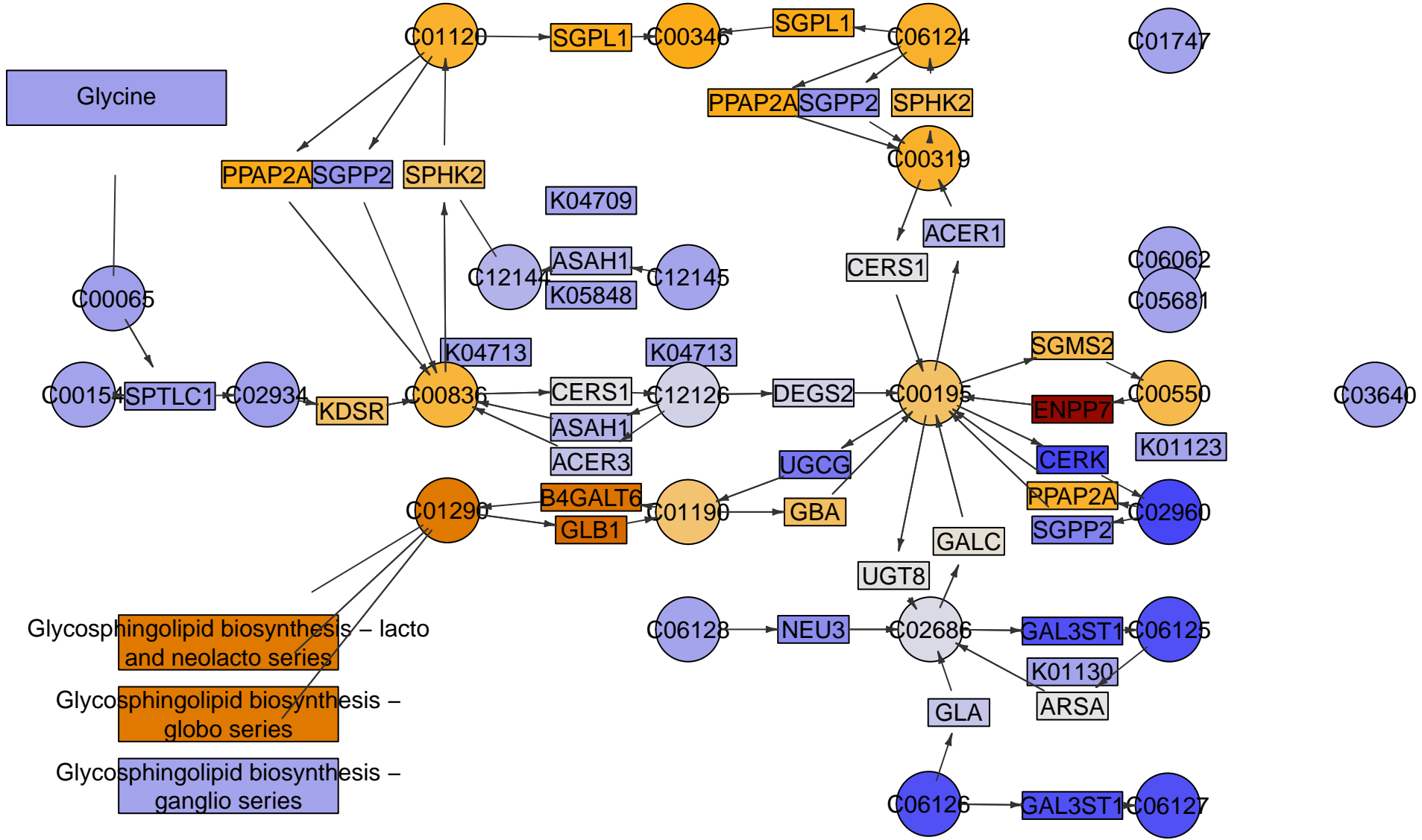
Spingolipid metabolism  
MPI-106



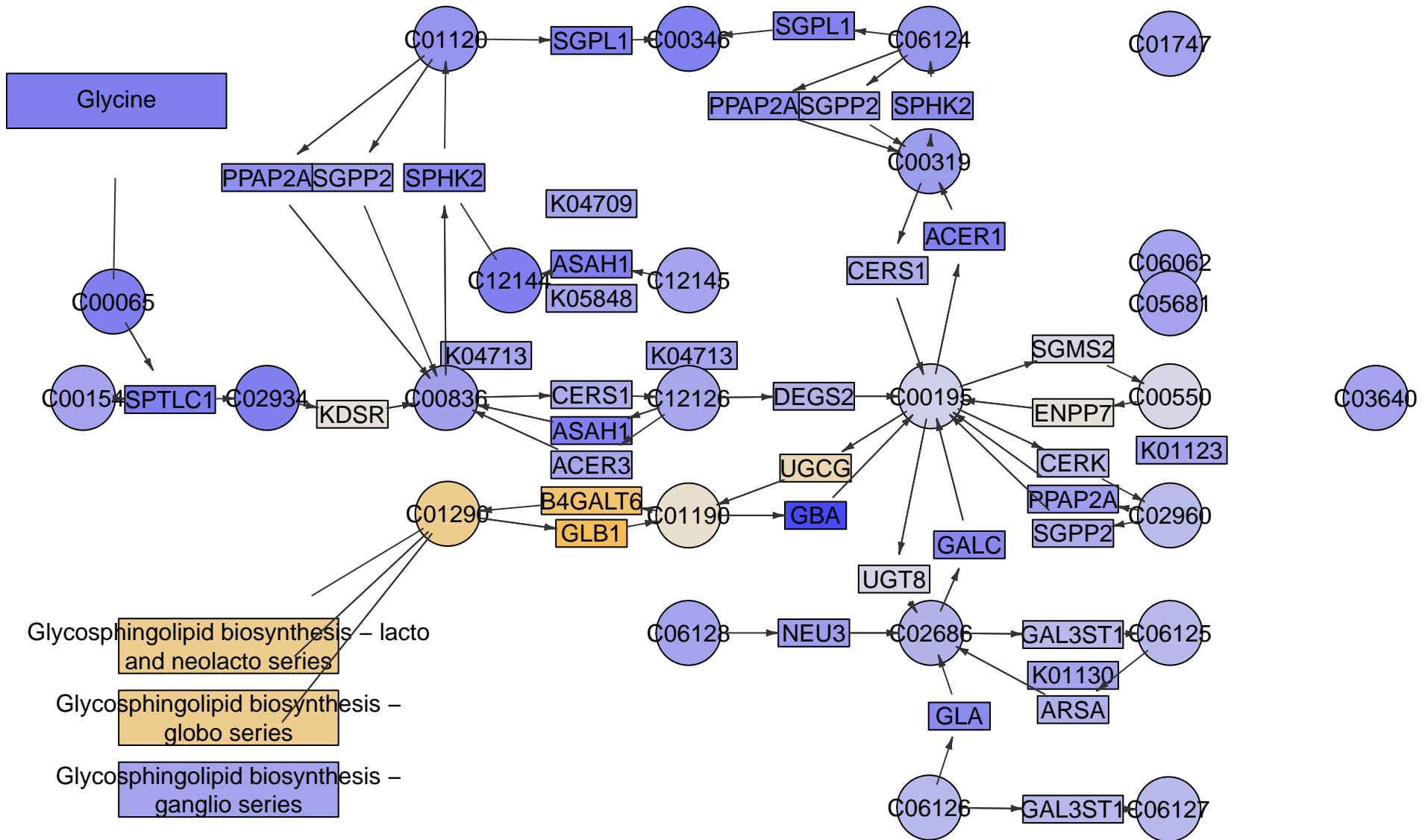




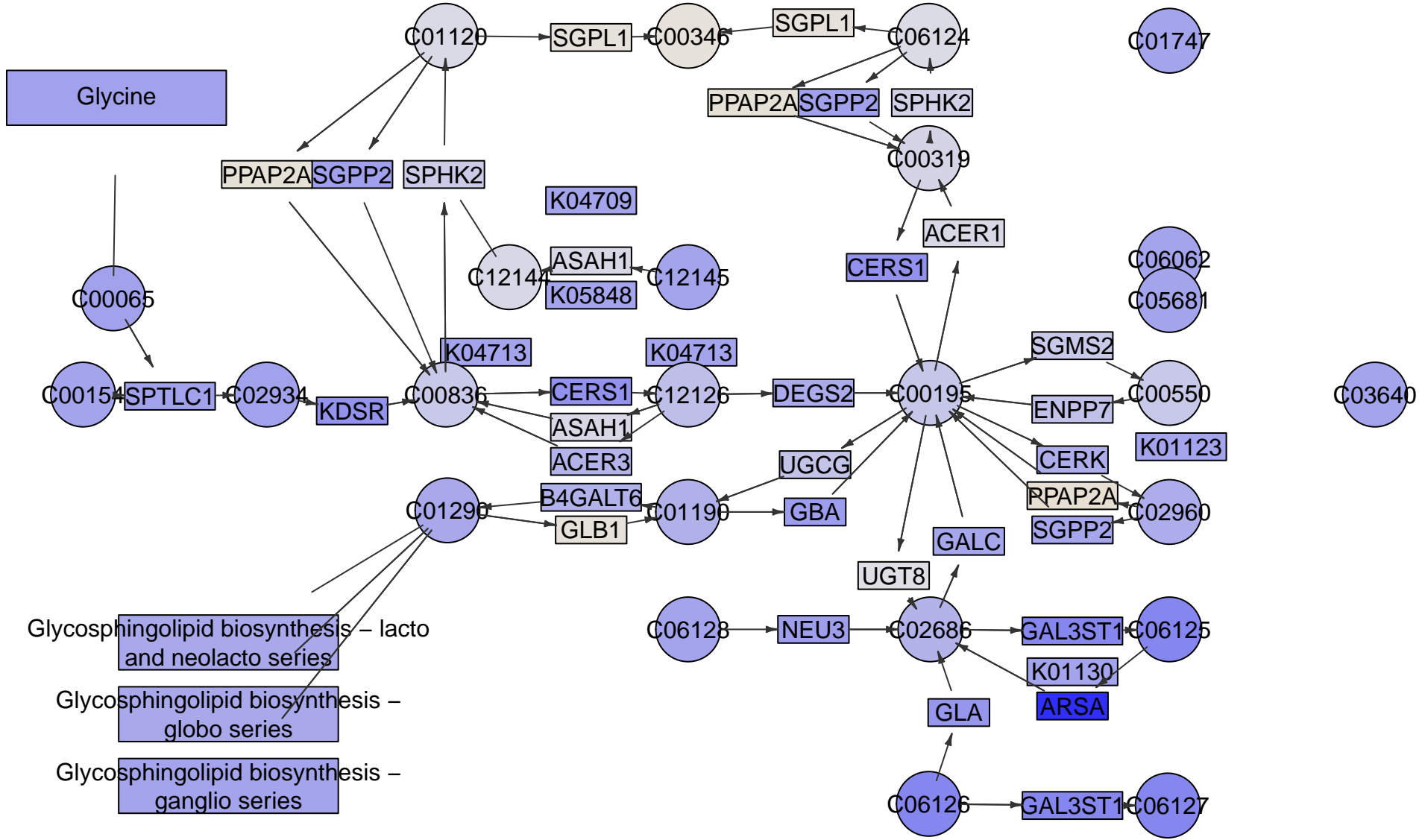
Spingolipid metabolism  
MPI-109



Spingolipid metabolism  
MPI-110

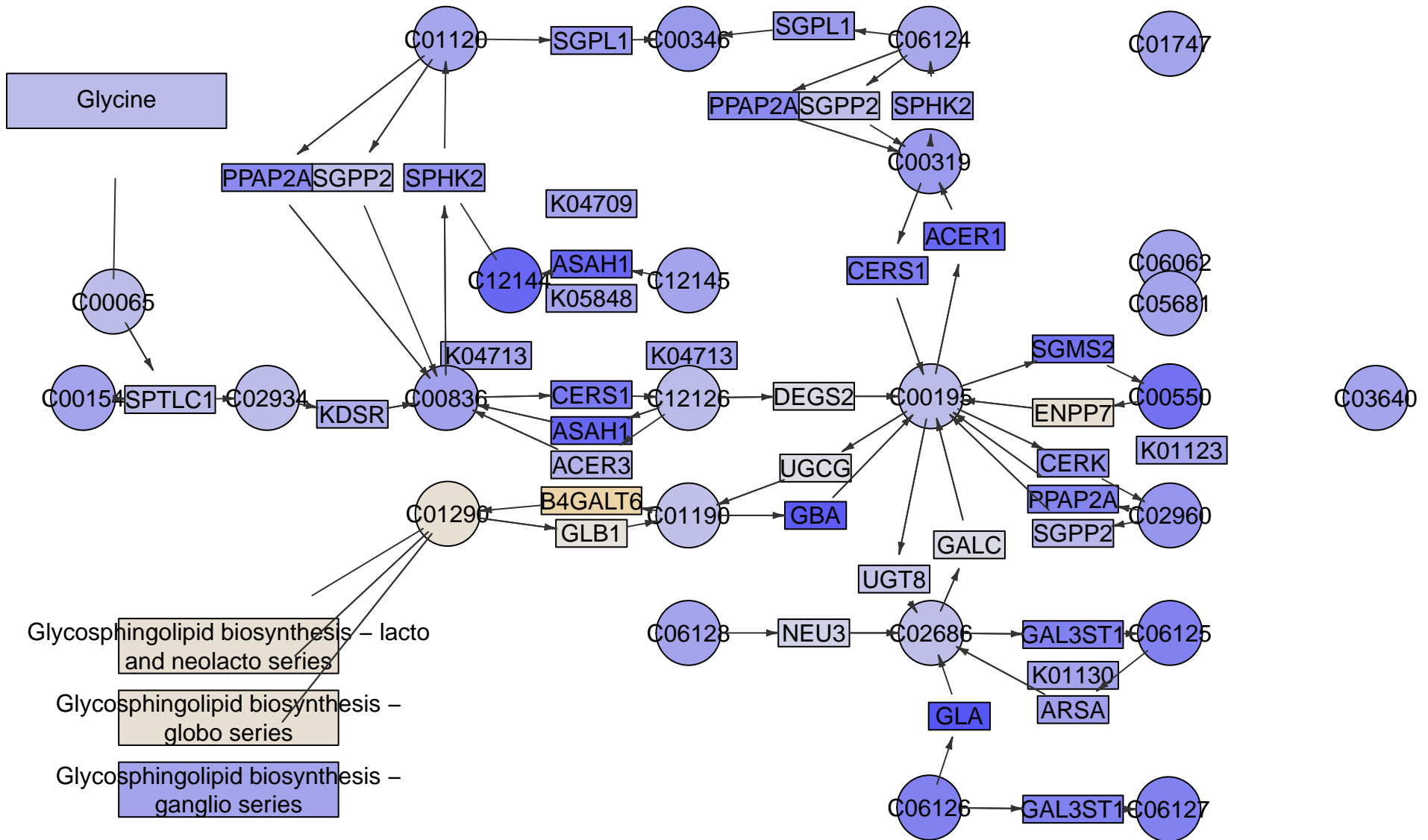


Spingolipid metabolism  
MPI-111

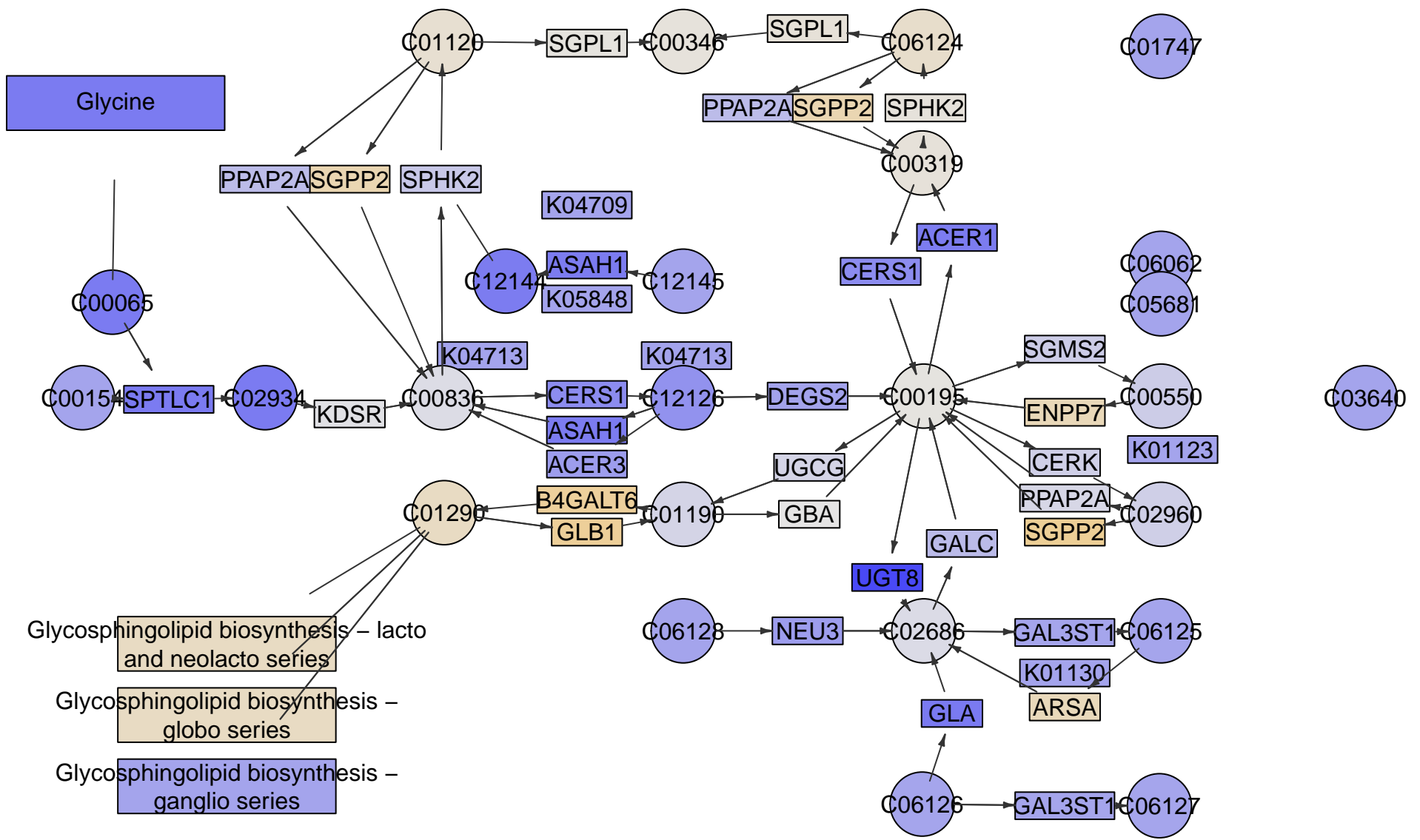


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

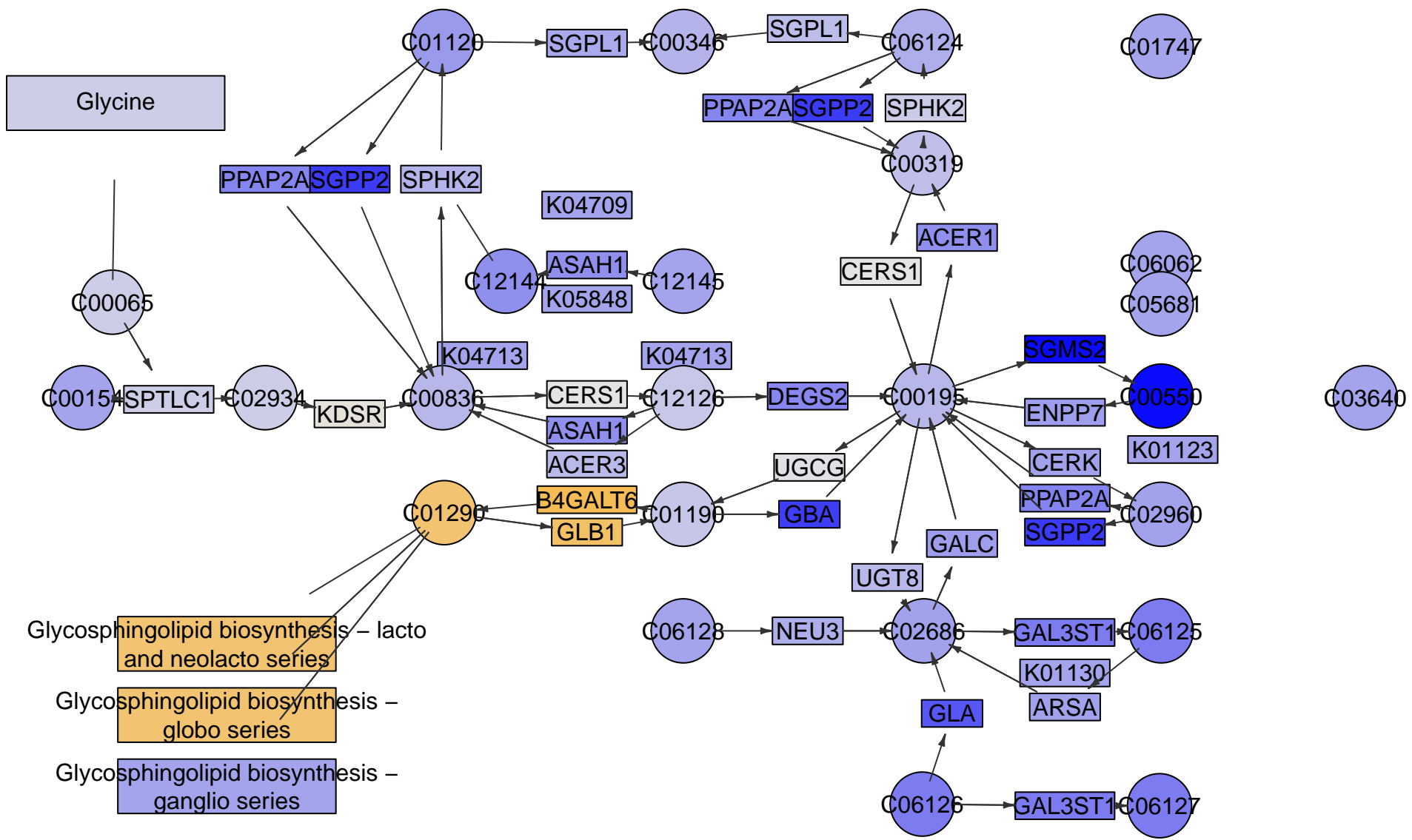
Spingolipid metabolism  
MPI-113



Spingolipid metabolism  
MPI-115

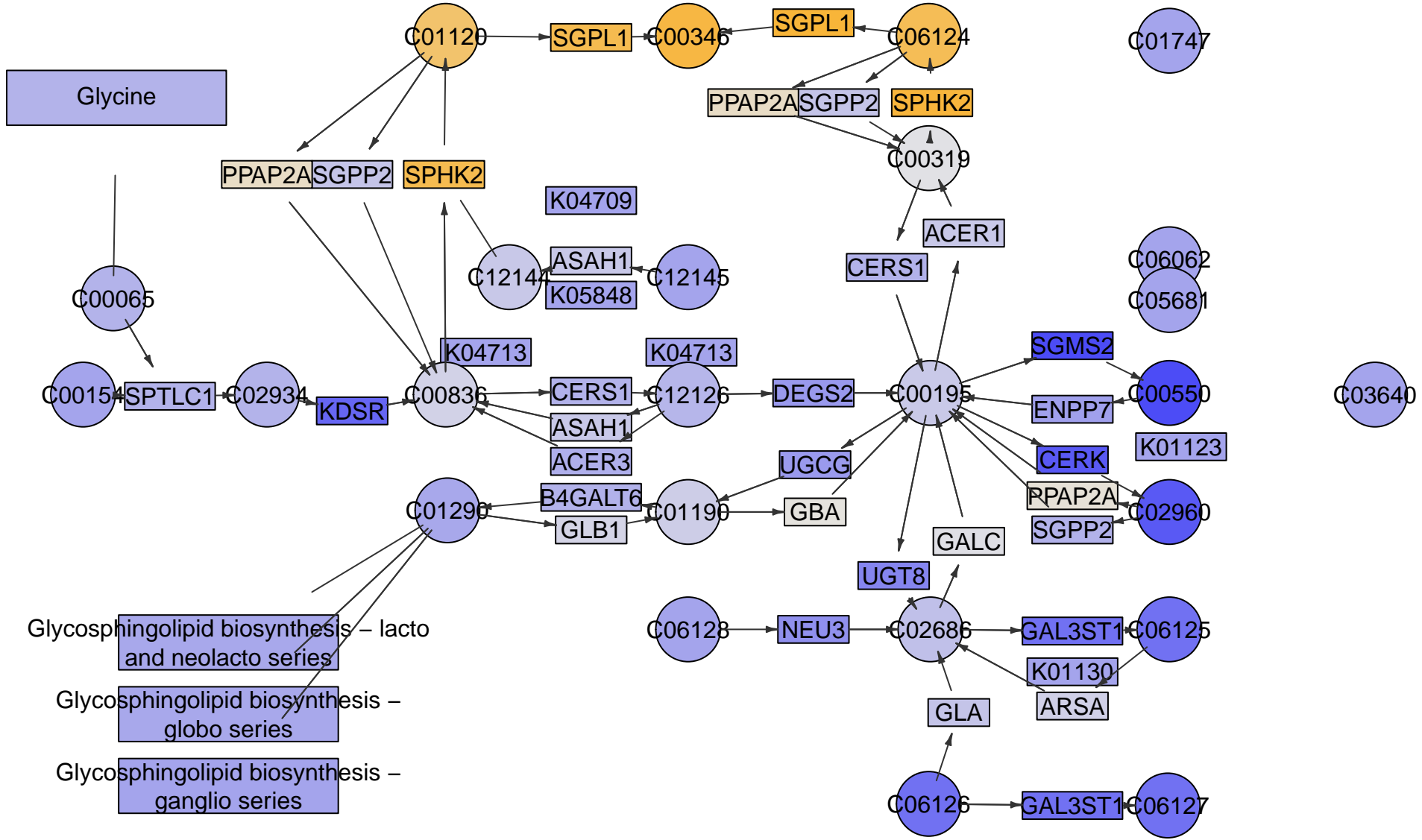


Spingolipid metabolism  
MPI-118



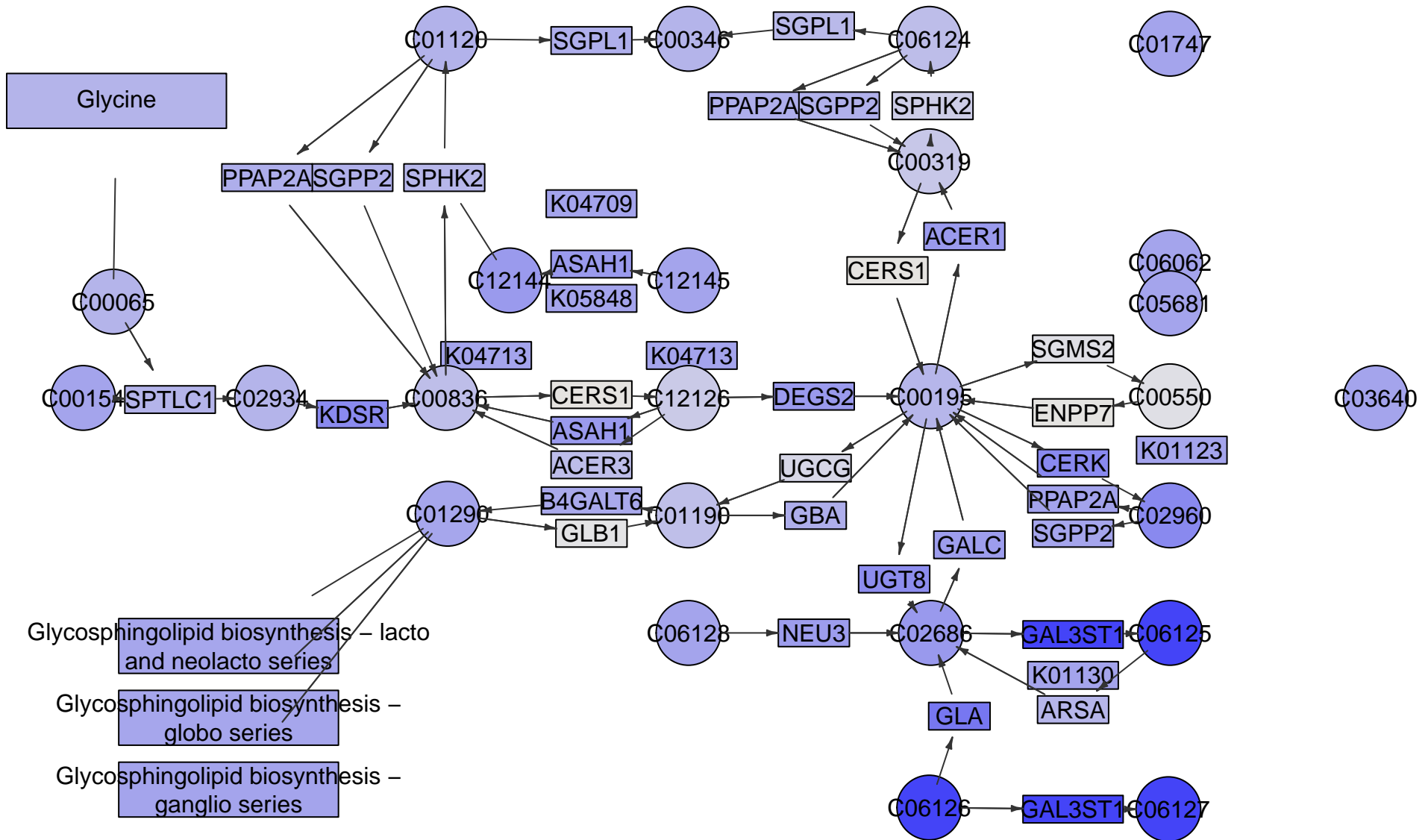
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-119



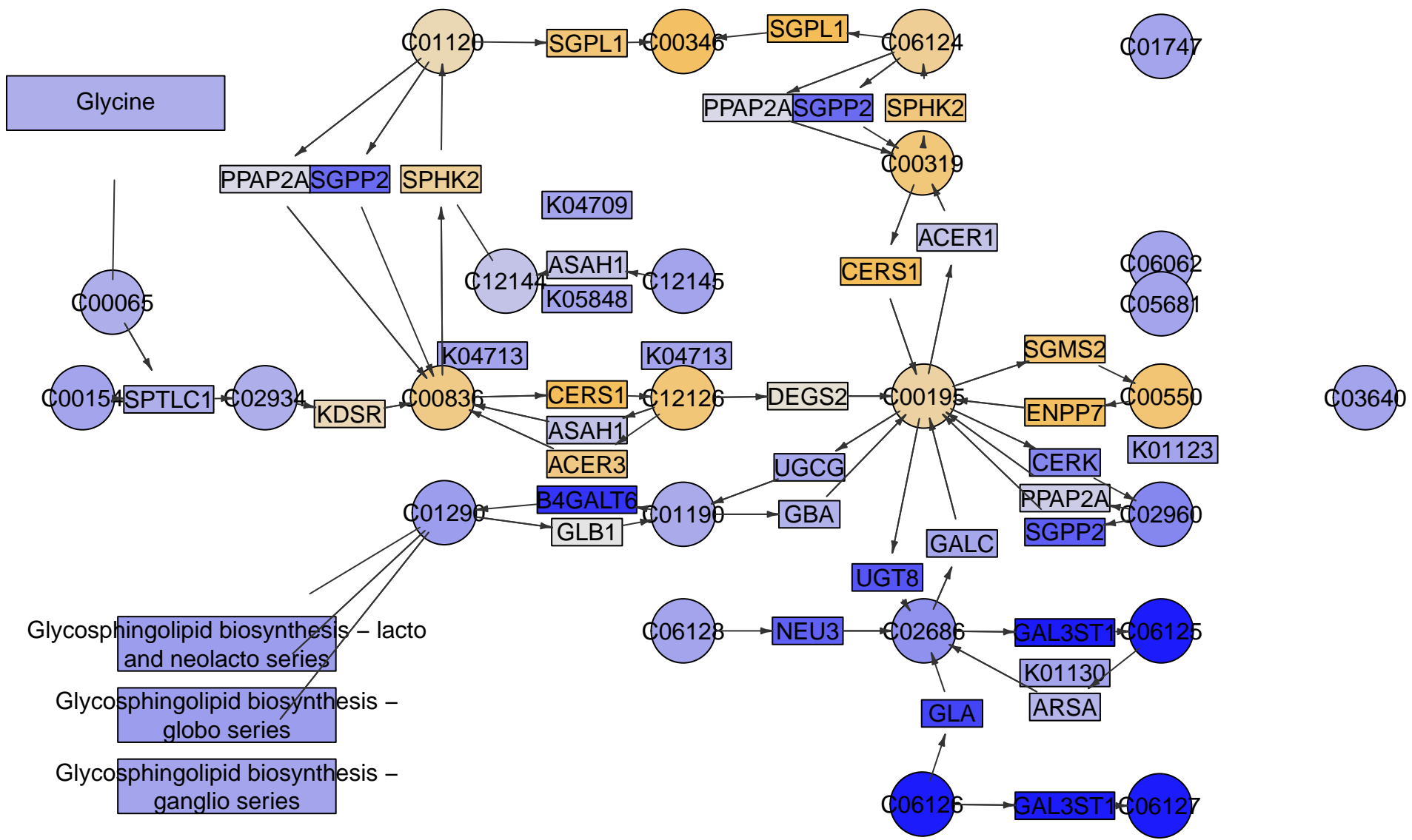
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-122



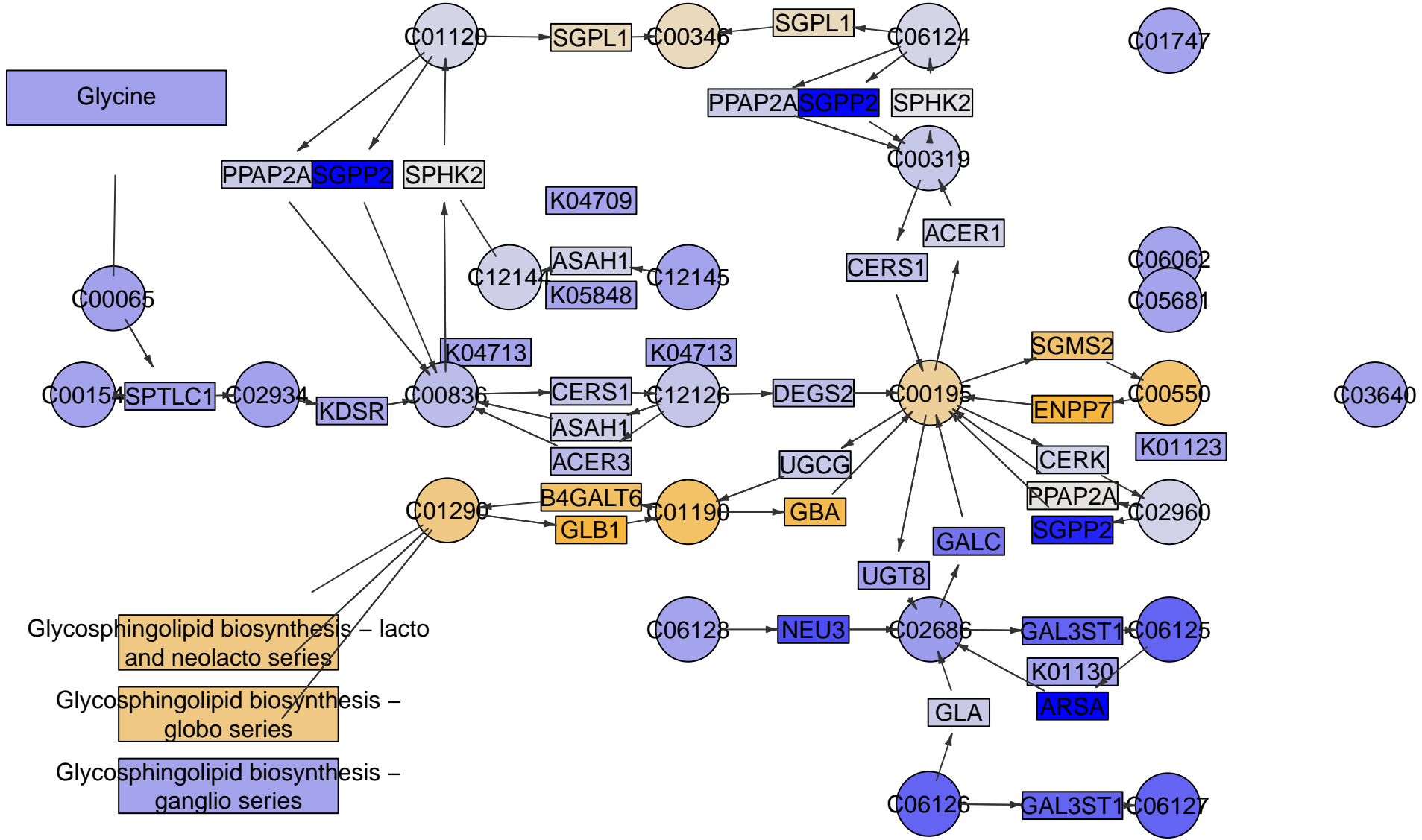


Spingolipid metabolism  
MPI-127



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

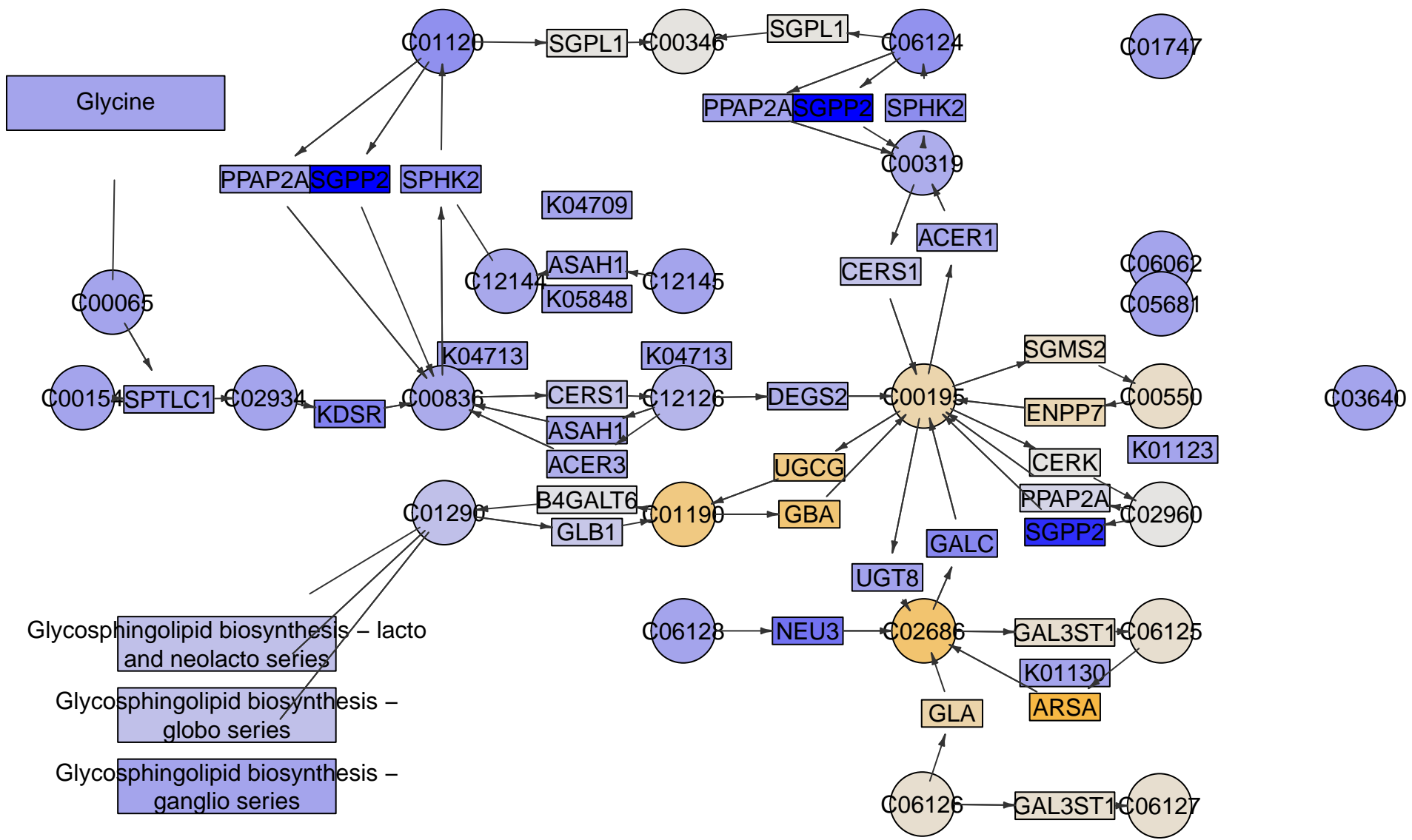
Spingolipid metabolism  
MPI-128



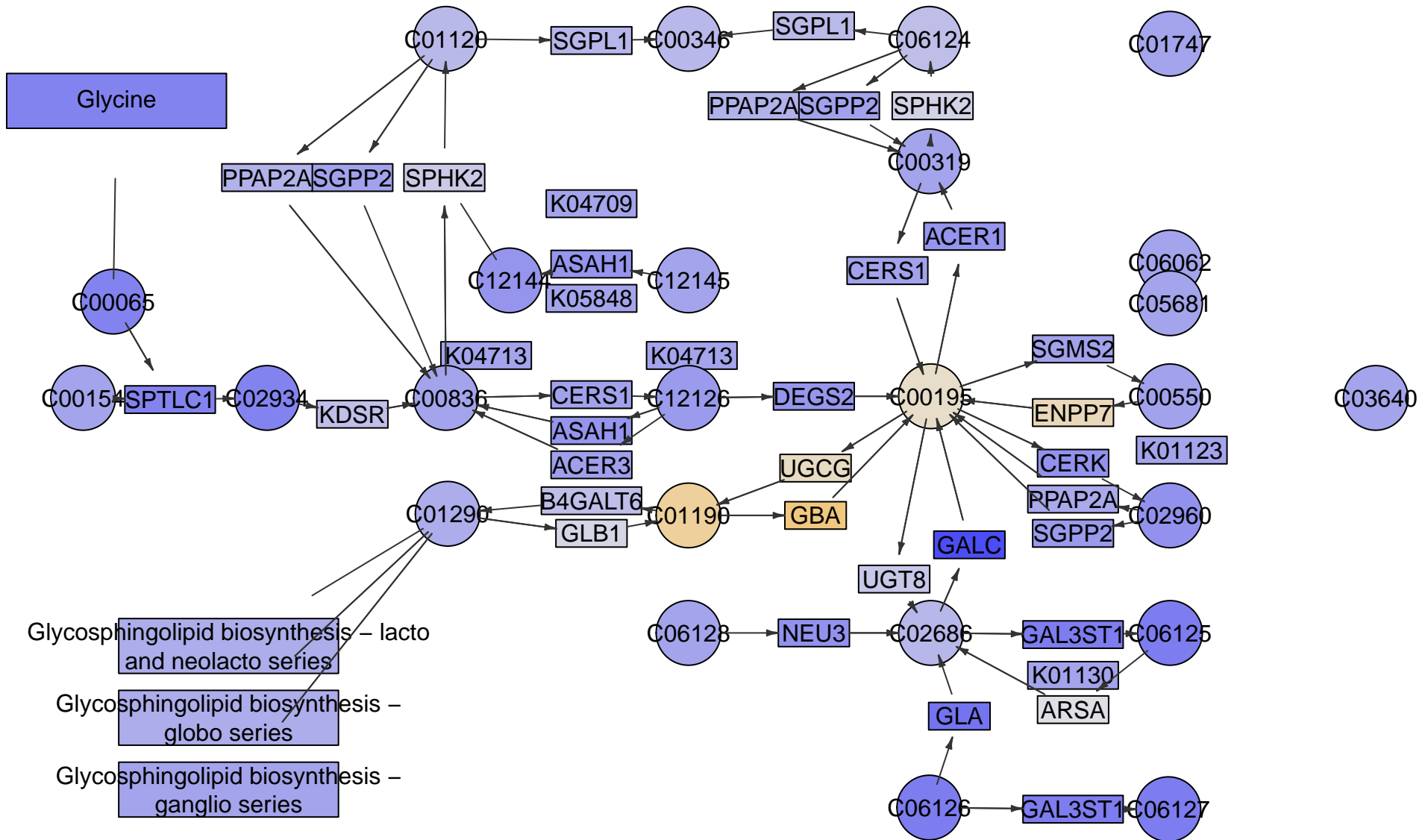
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



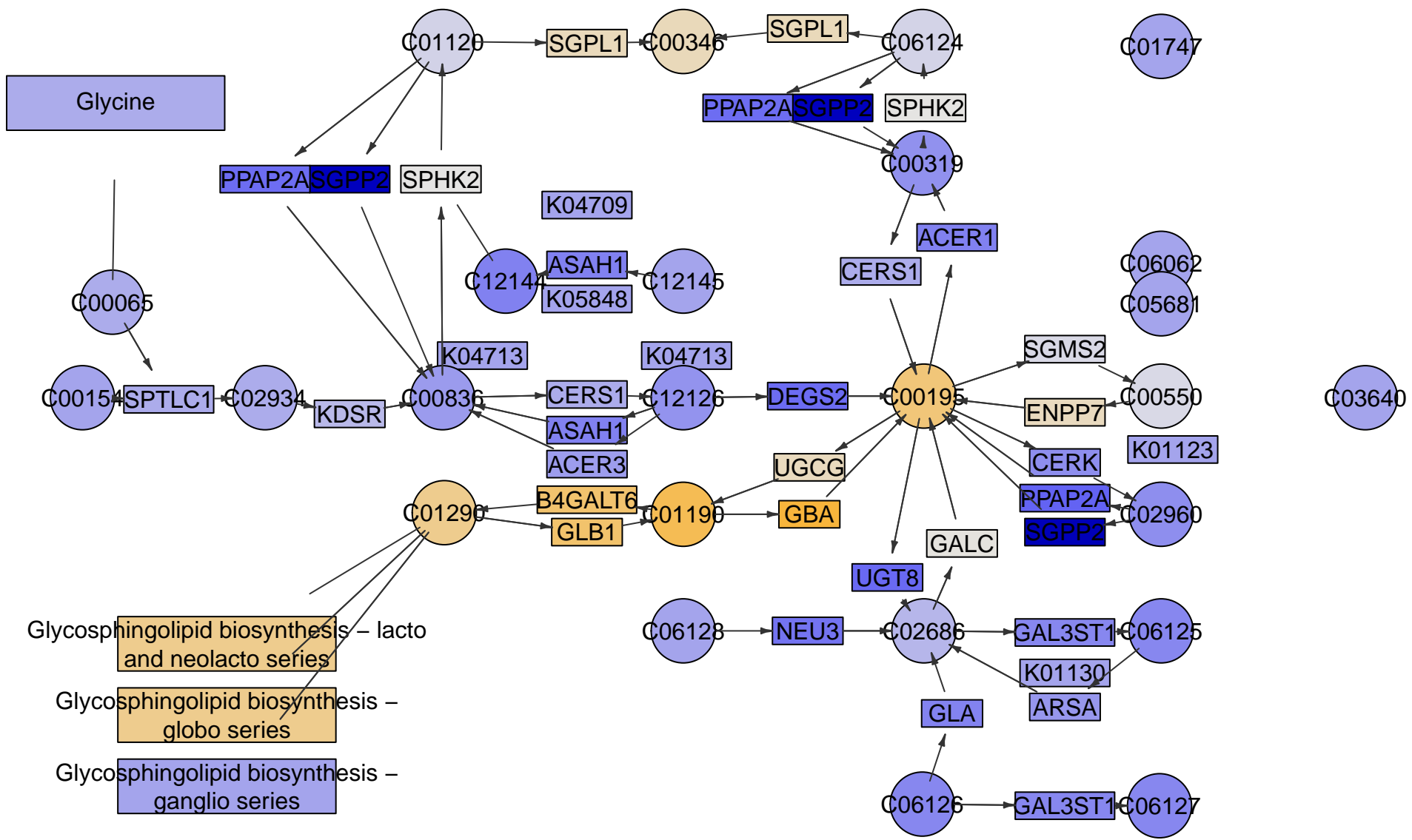
Spingolipid metabolism  
MPI-130



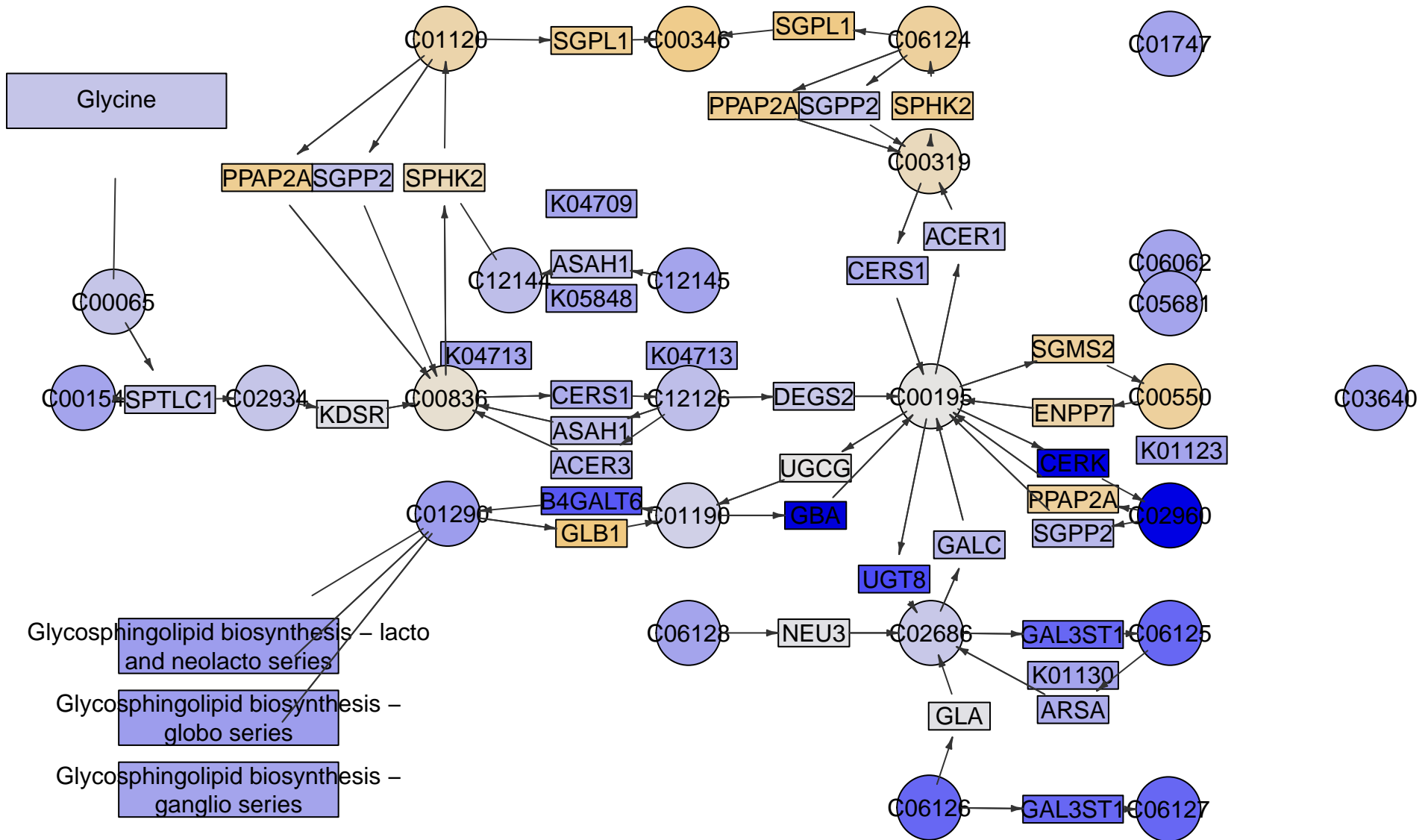
Spingolipid metabolism  
MPI-132



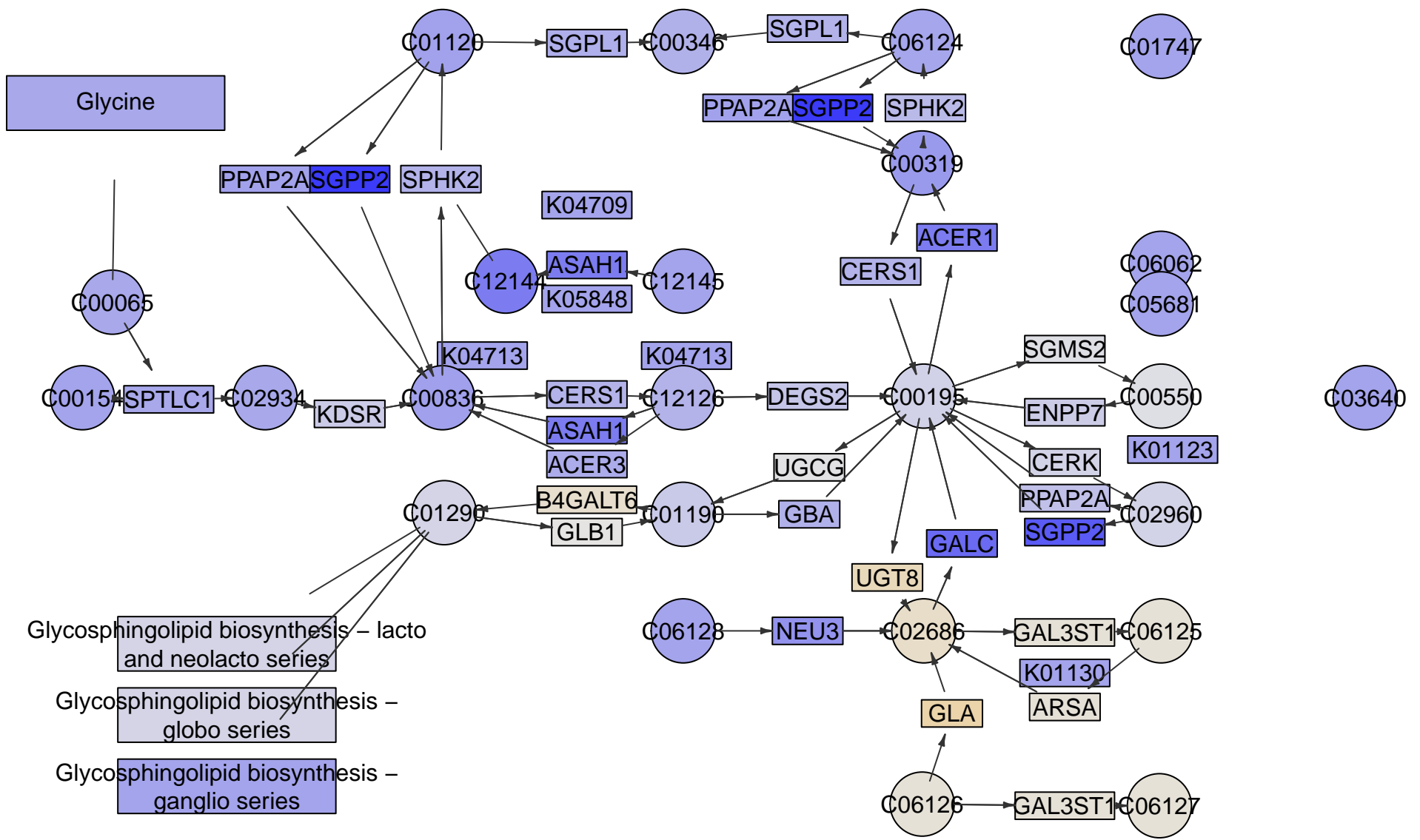
Spingolipid metabolism  
MPI-133



Spingolipid metabolism  
MPI-134

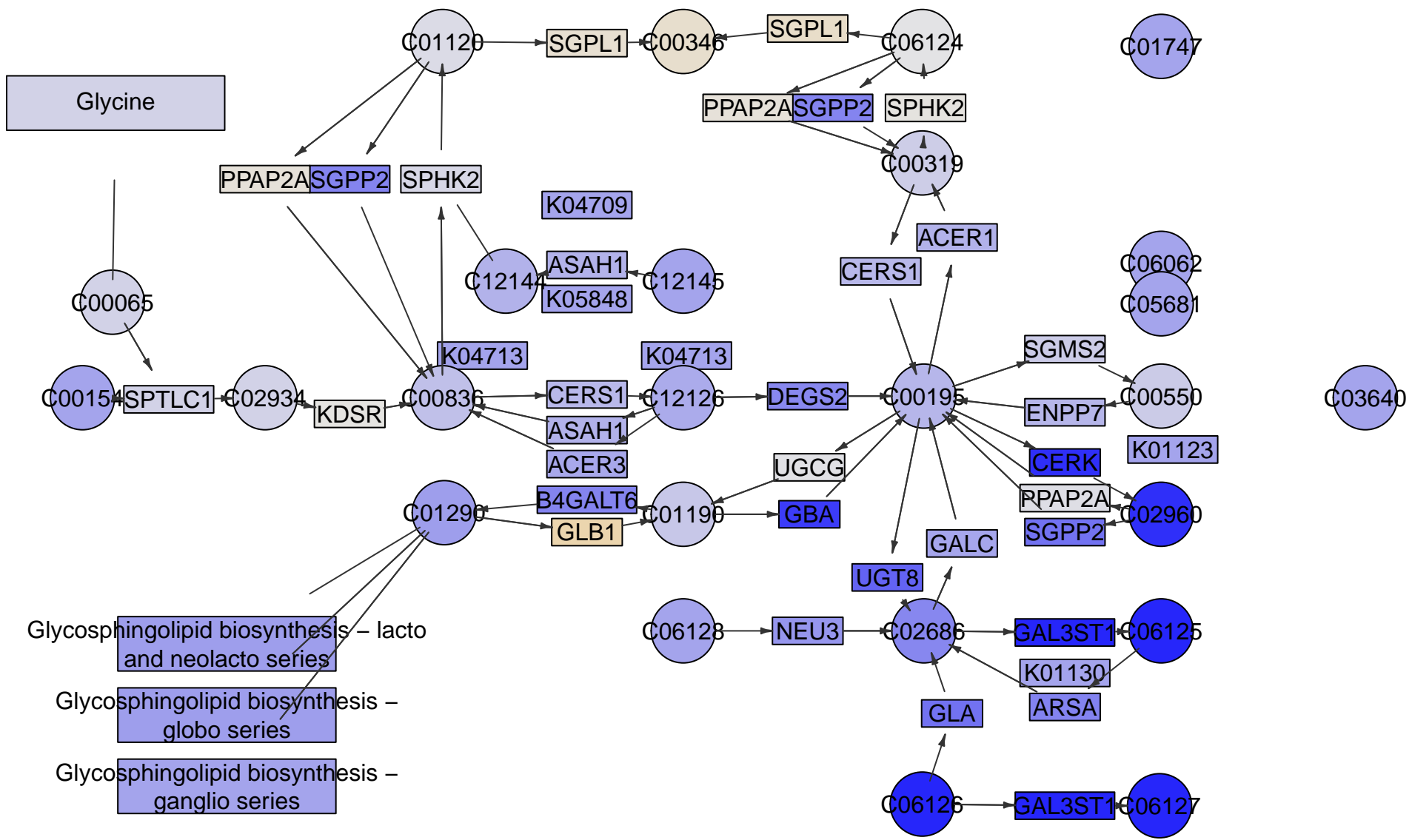


Spingolipid metabolism  
MPI-135



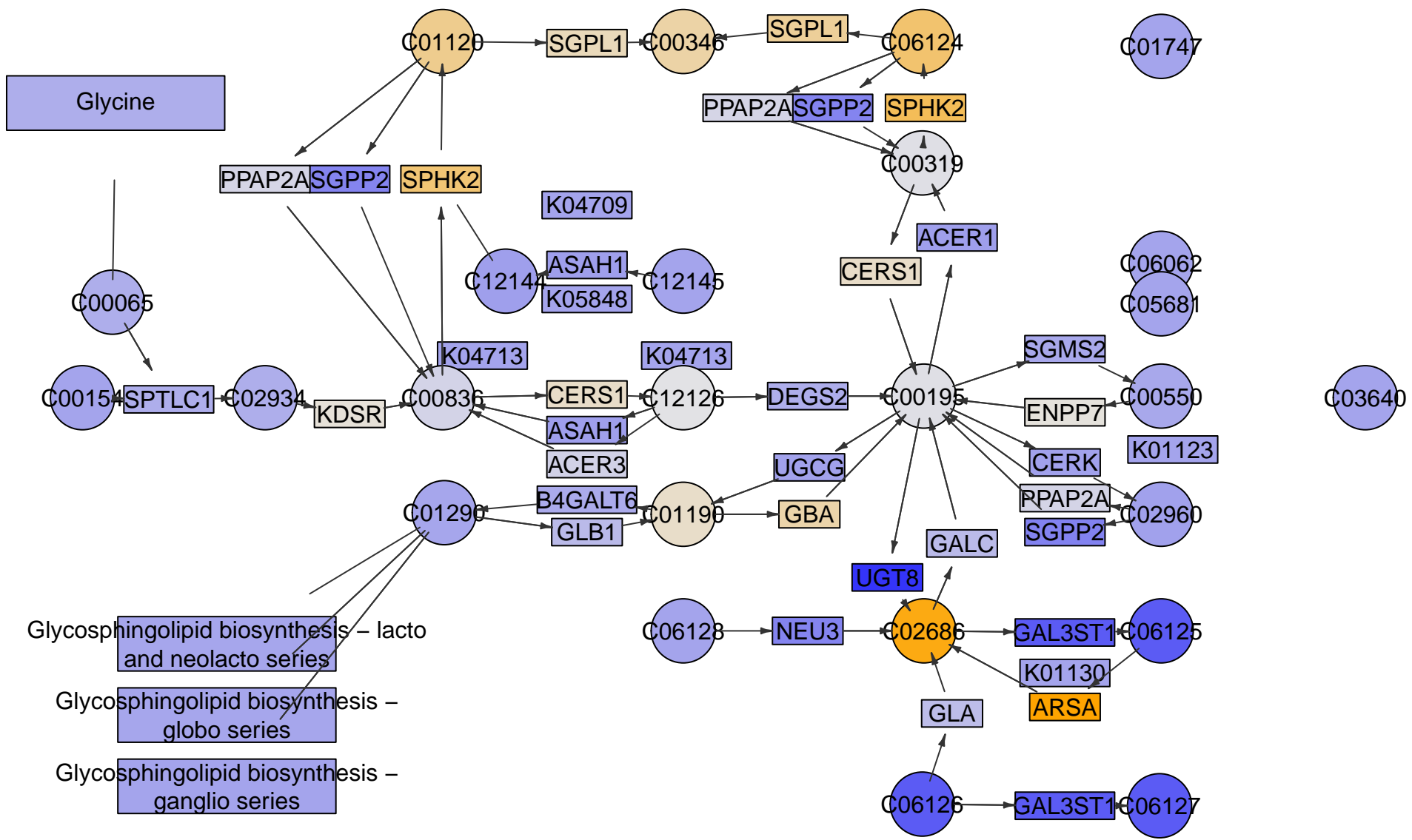


Spingolipid metabolism  
MPI-136



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-141



Glycine

C00065

C00154

Glycosphingolipid biosynthesis – lacto  
and neolacto series

Glycosphingolipid biosynthesis –  
globo series

Glycosphingolipid biosynthesis –  
ganglio series

C001120

SGPL1

C00346

SGPL1

C06124

C01747

PPAP2A

SGPP2

SPHK2

PPAP2A

SGPP2

SPHK2

C00319

ACER1

K04709

C12144

ASAH1

C12145

K05848

CERS1

C06062

C05681

K04713

C00836

CERS1

C12126

ASAH1

ACER3

B4GALT6

GLB1

K04713

DEGS2

C00195

SGMS2

ENPP7

CERK

RPAP2A

SGPP2

C00550

K01123

C02960

C03640

C01296

B4GALT6

GLB1

C01196

UGCG

GBA

GALC

UGT8

C06128

NEU3

C02686

GAL3ST1

C06125

GLA

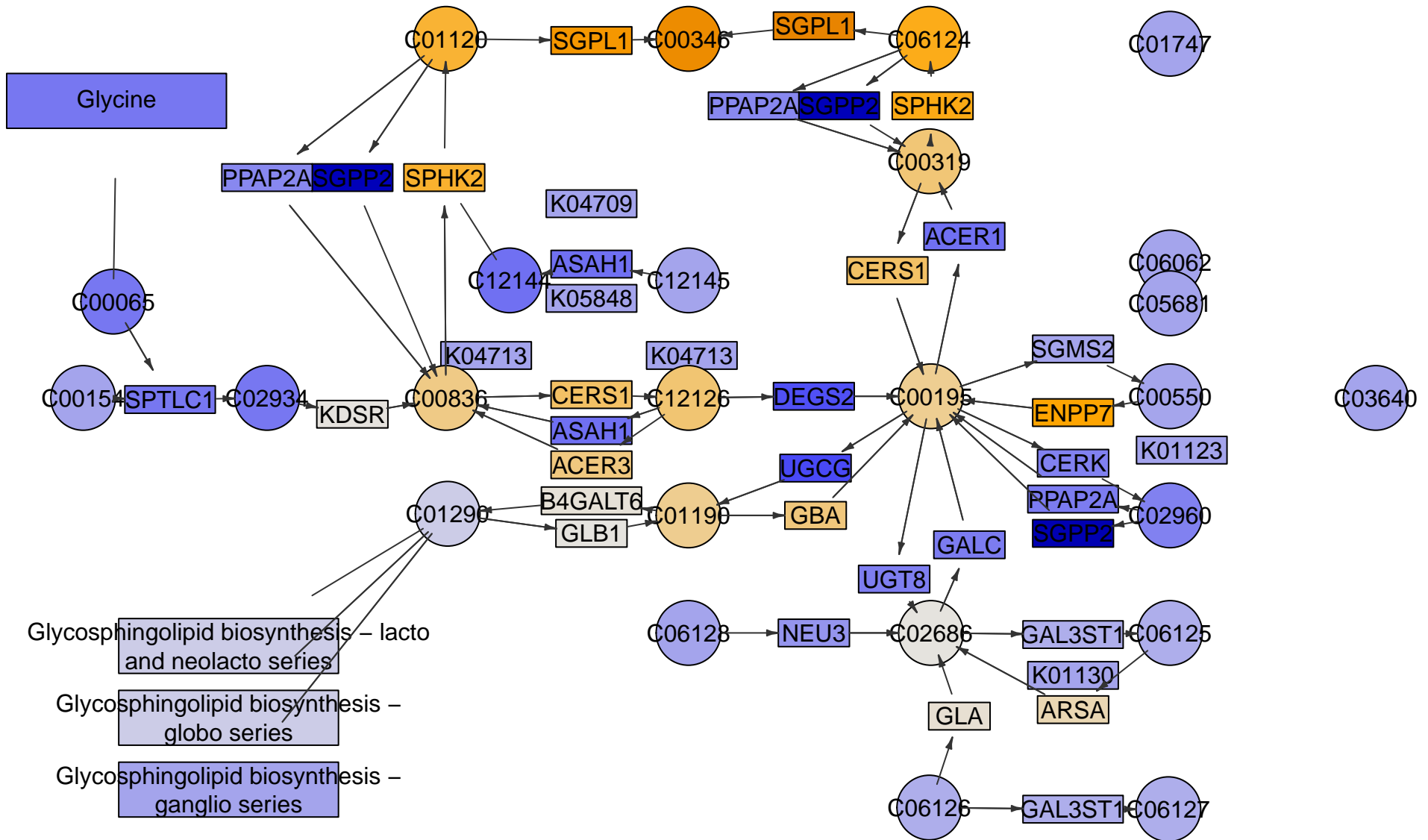
ARSA

C06126

GAL3ST1

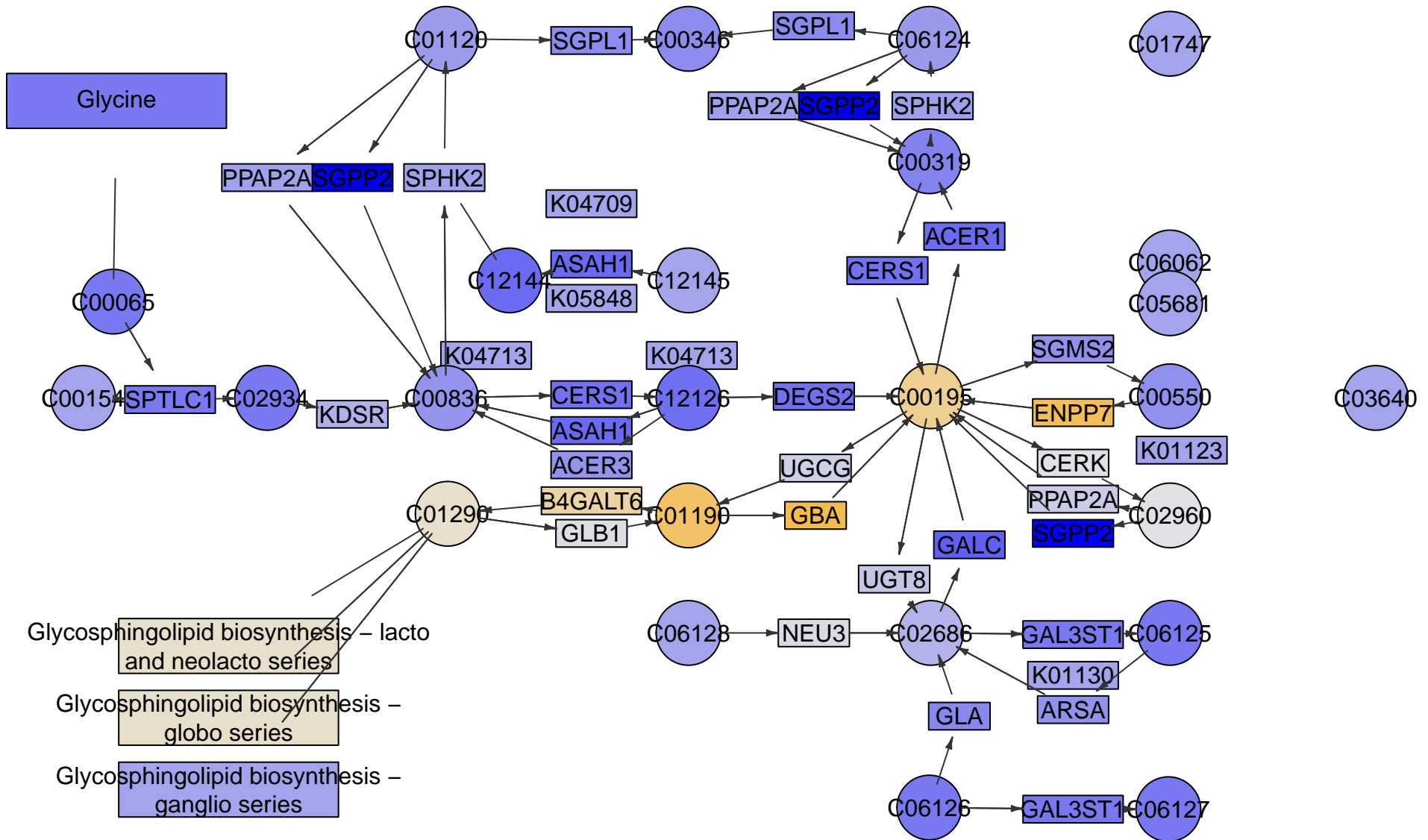
C06127

Spingolipid metabolism  
MPI-142

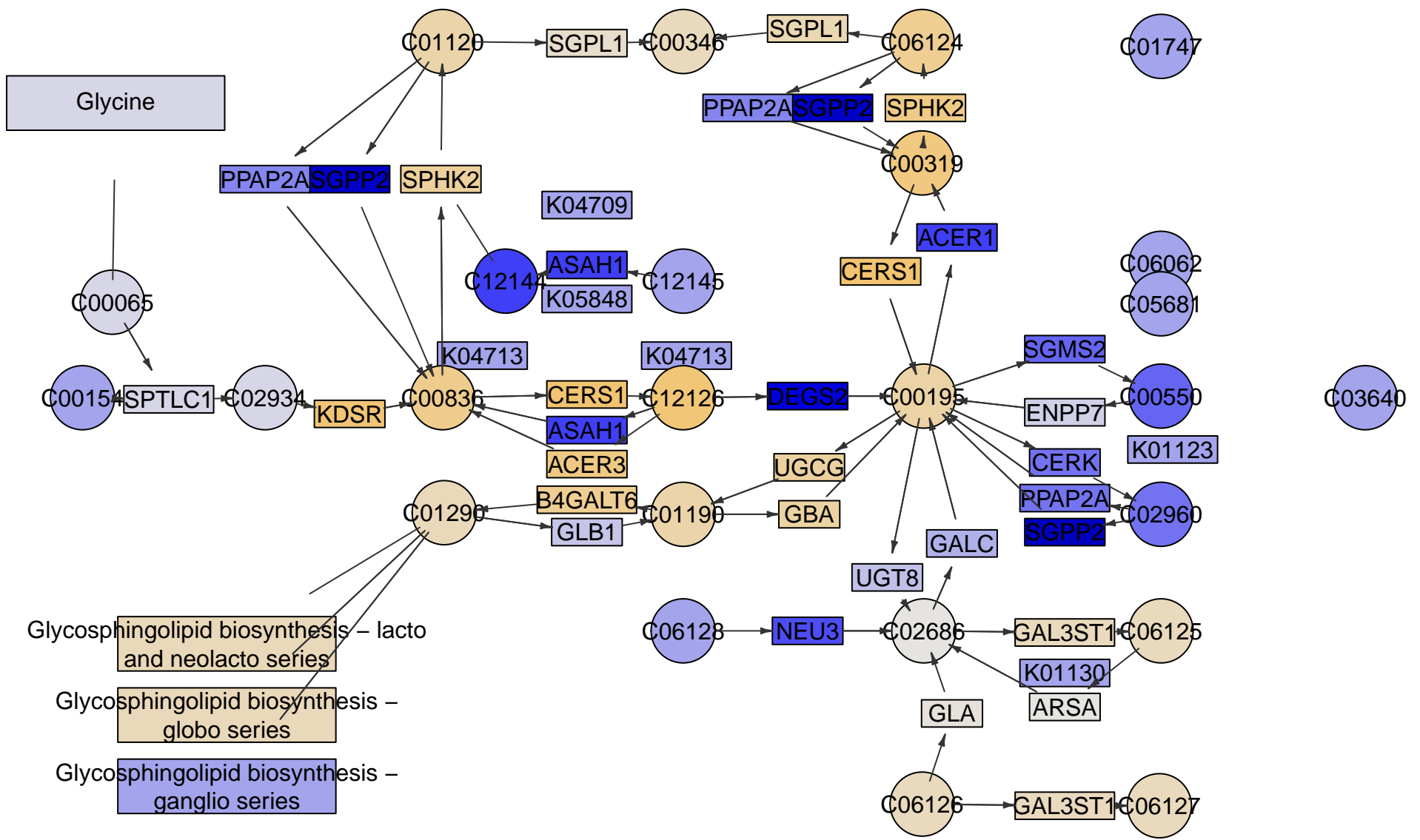




Spingolipid metabolism  
MPI-146



Spingolipid metabolism  
MPI-149



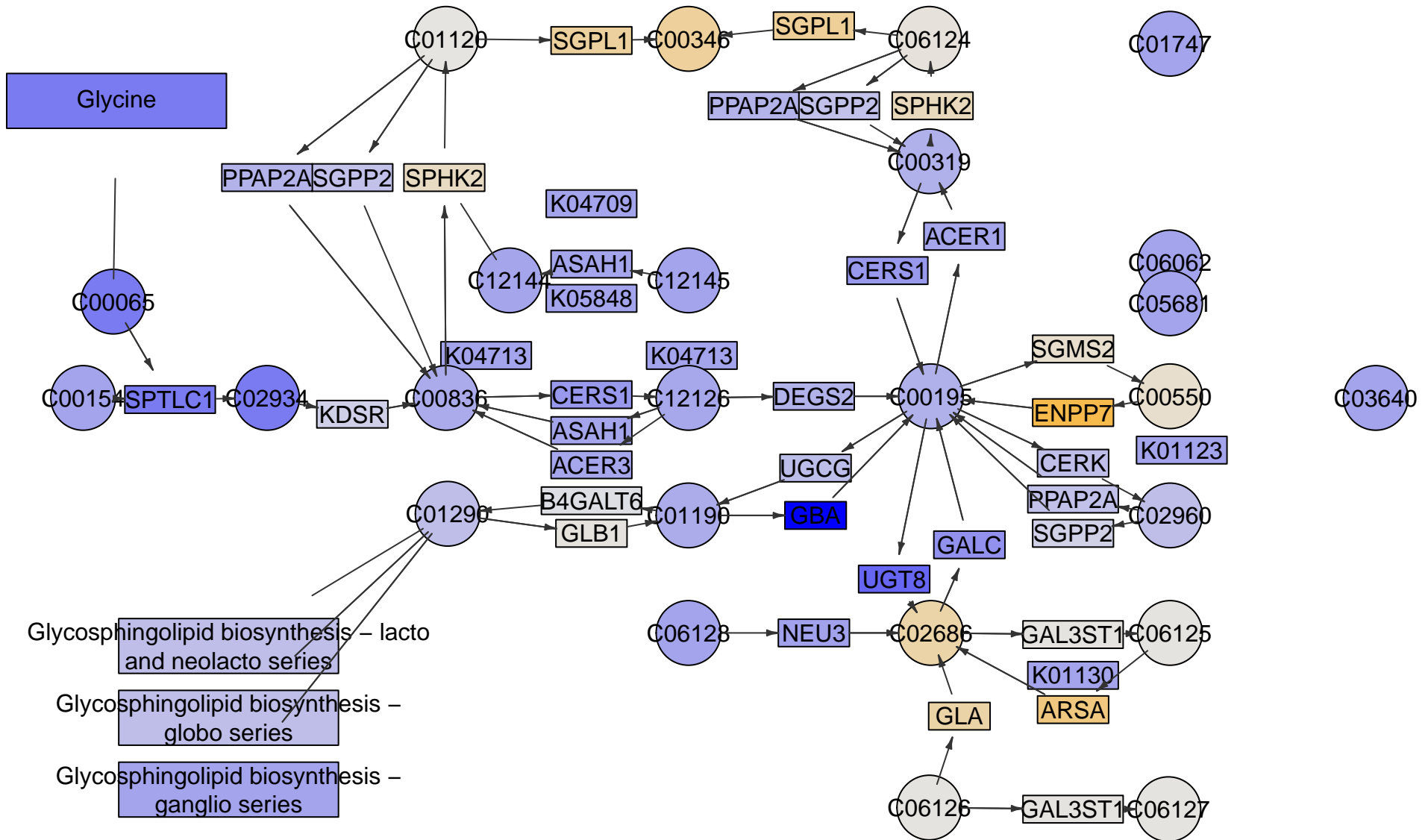
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series





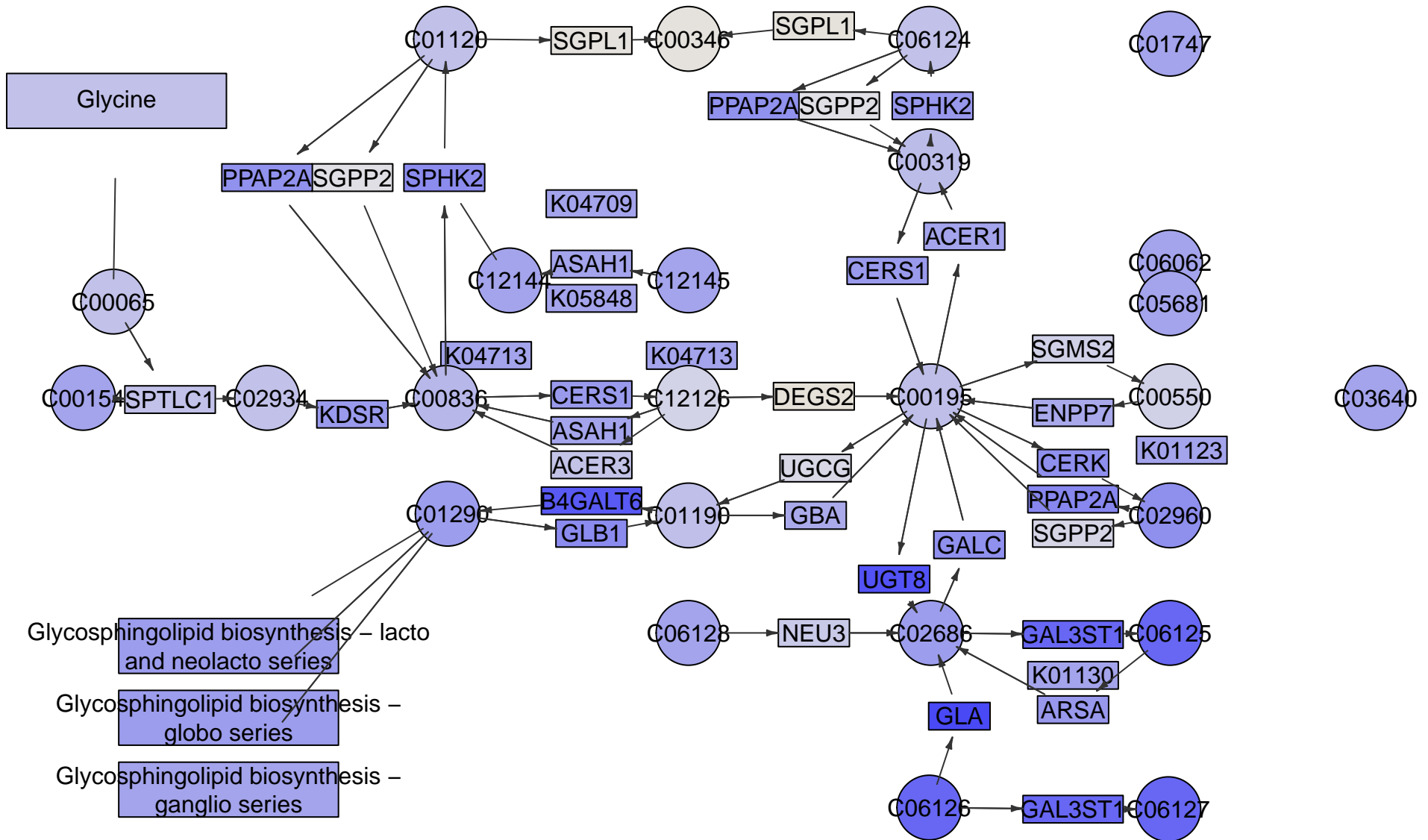


Spingolipid metabolism  
MPI-152

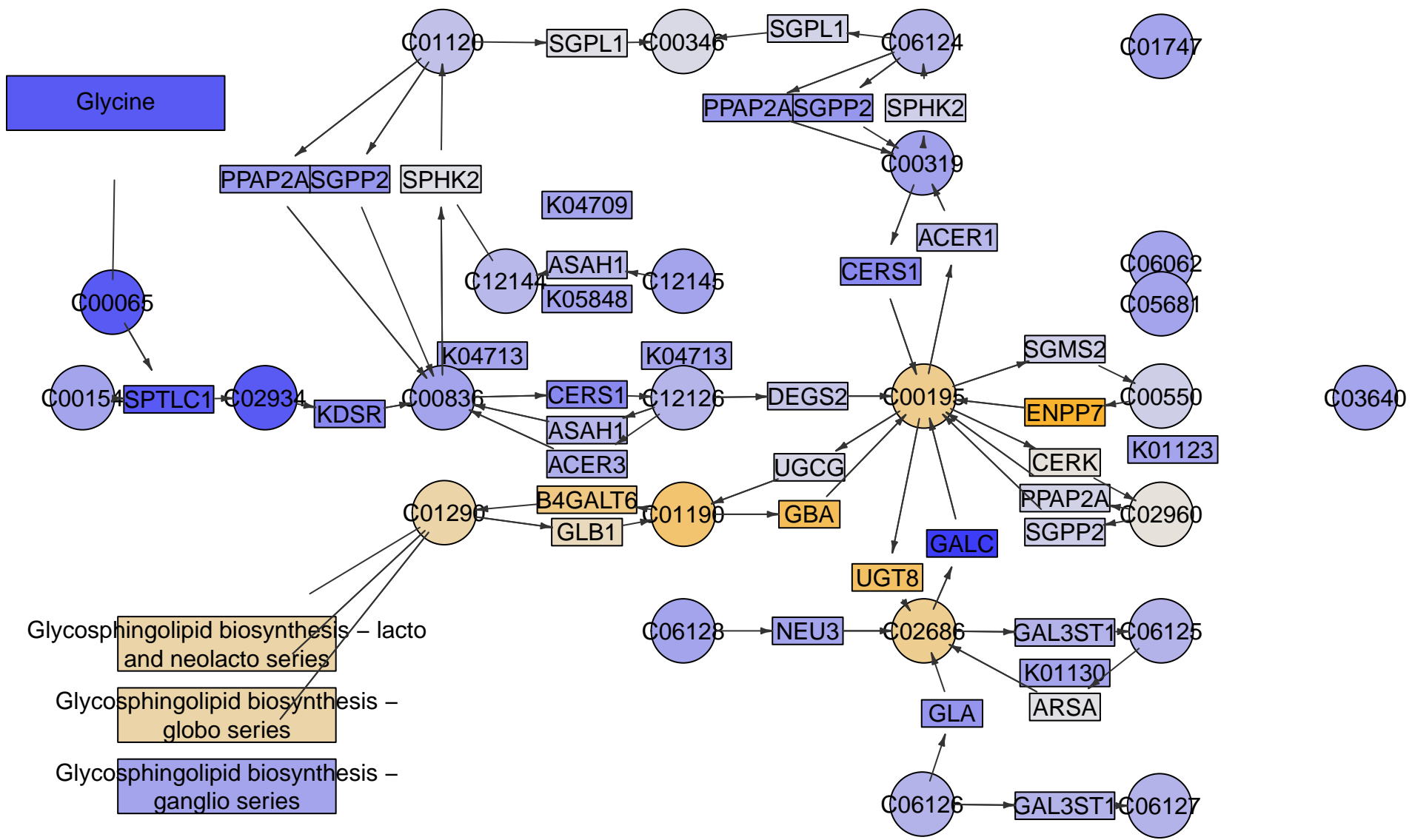




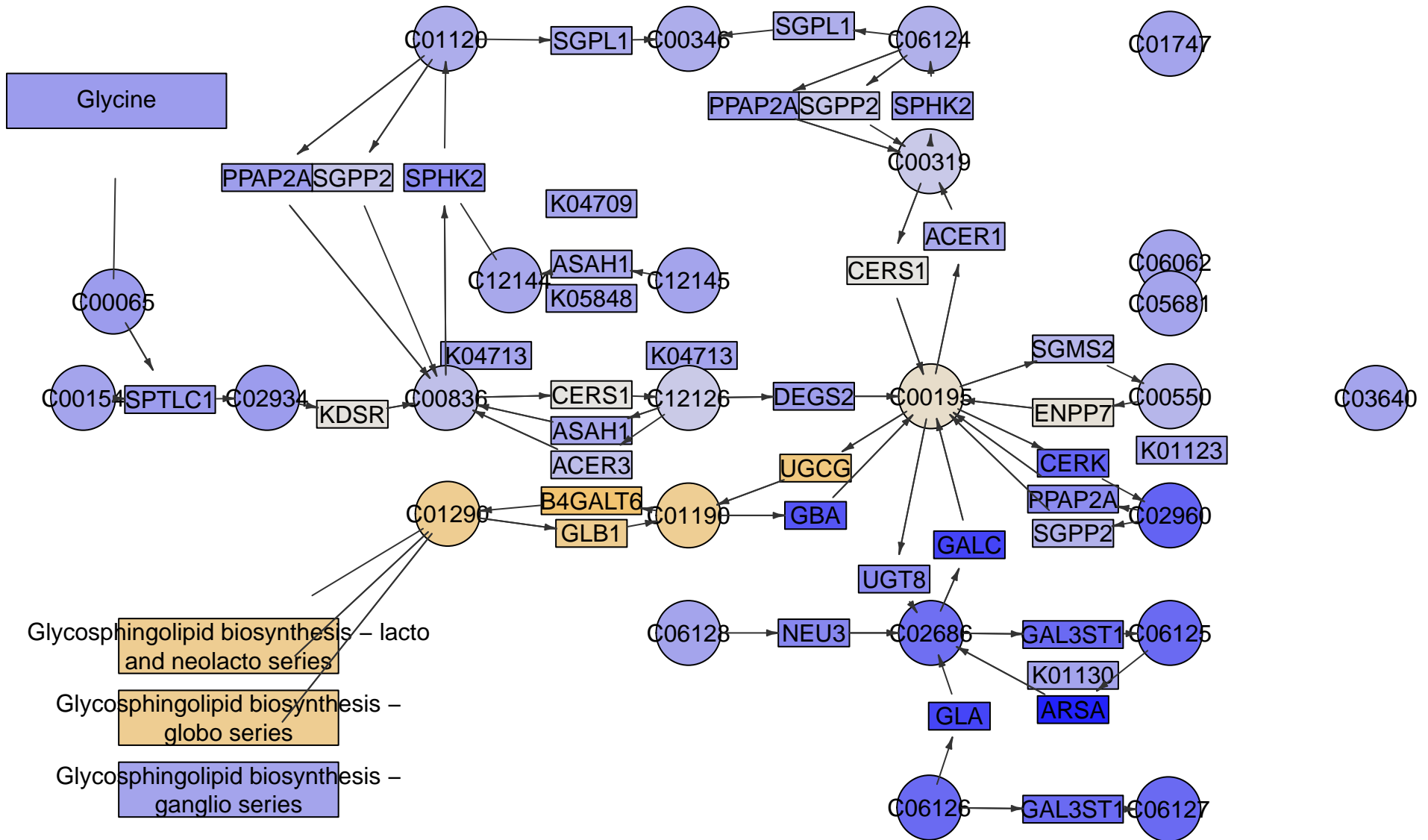
Spingolipid metabolism  
MPI-154



Spingolipid metabolism  
MPI-155



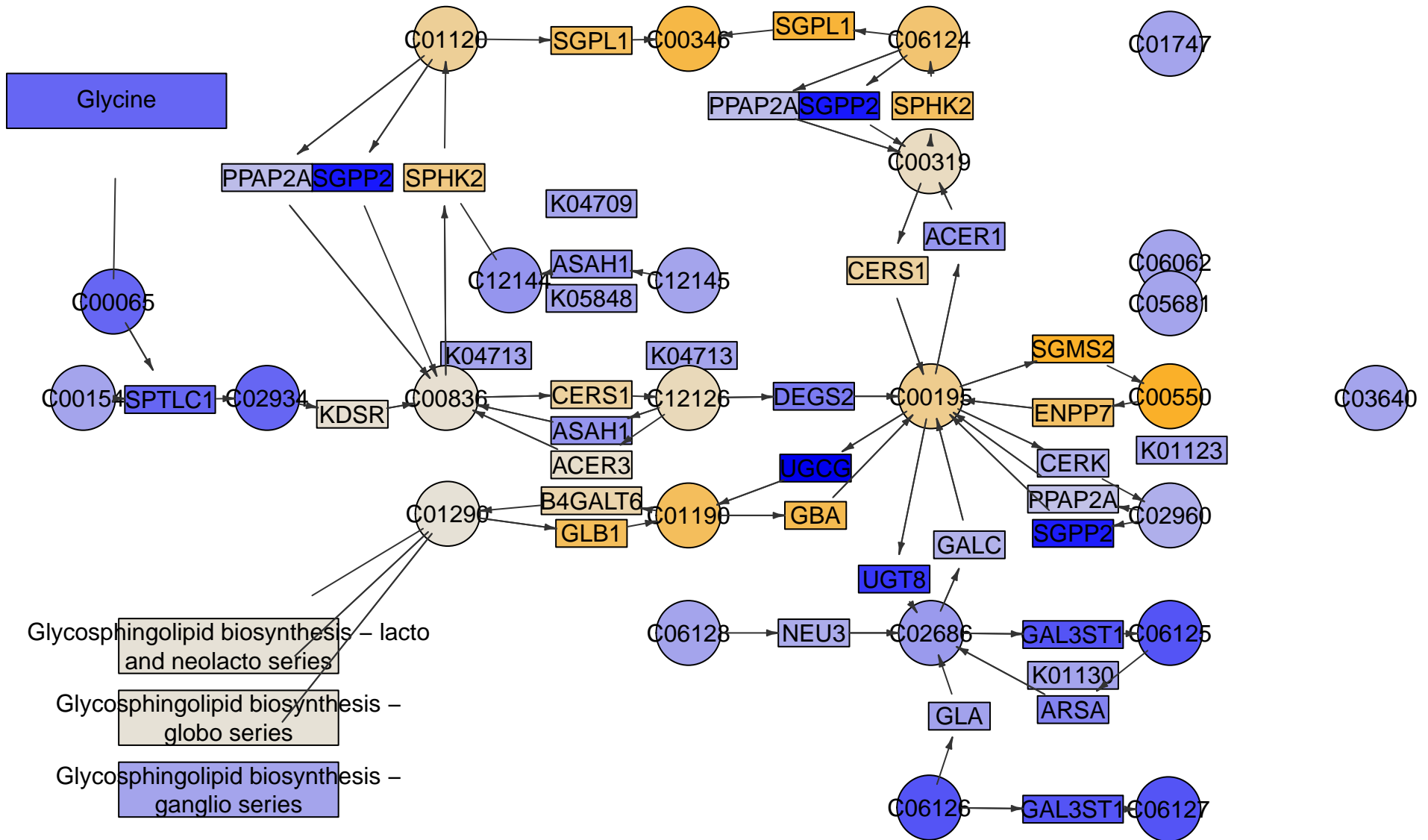
Spingolipid metabolism  
MPI-159







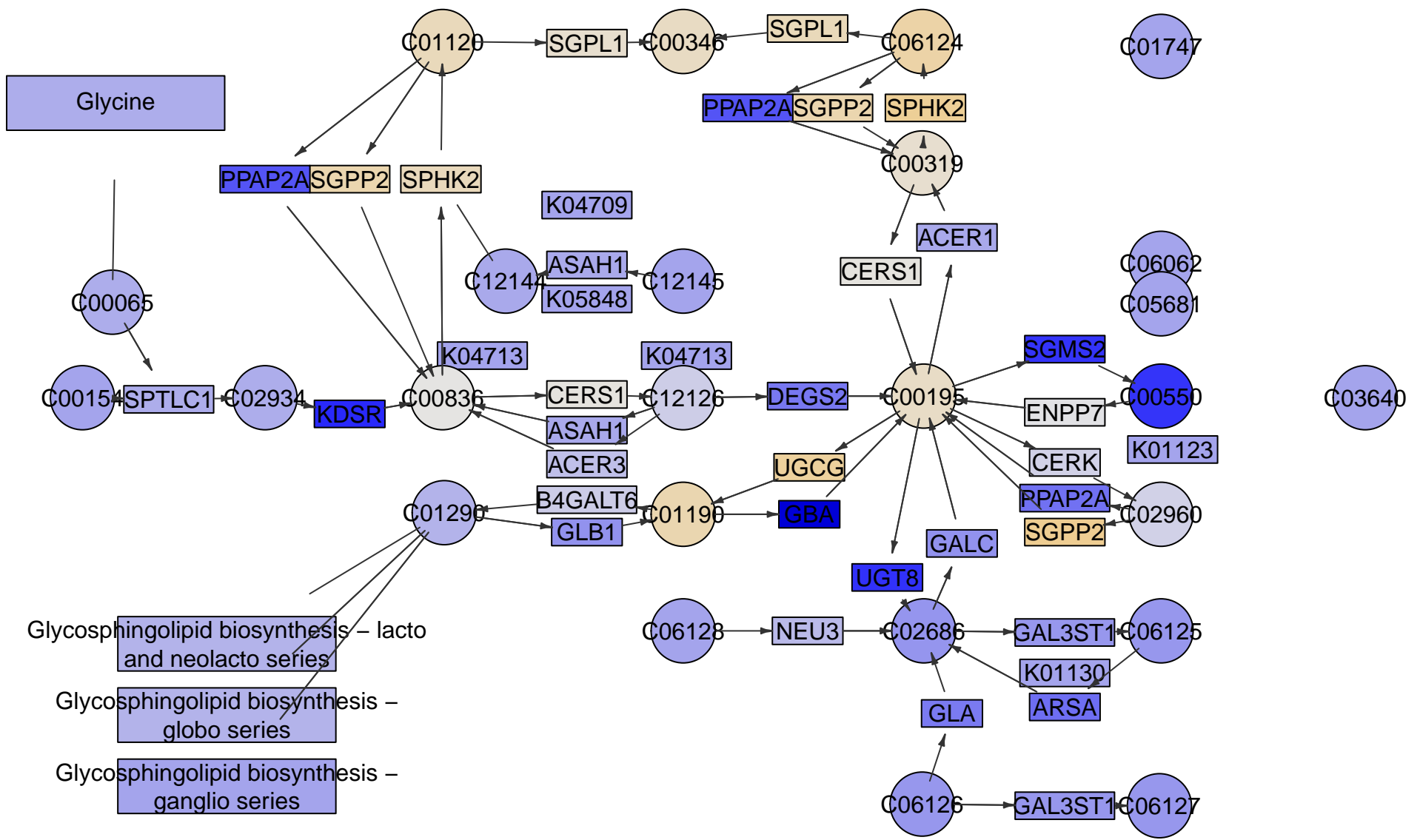
Spingolipid metabolism  
MPI-166







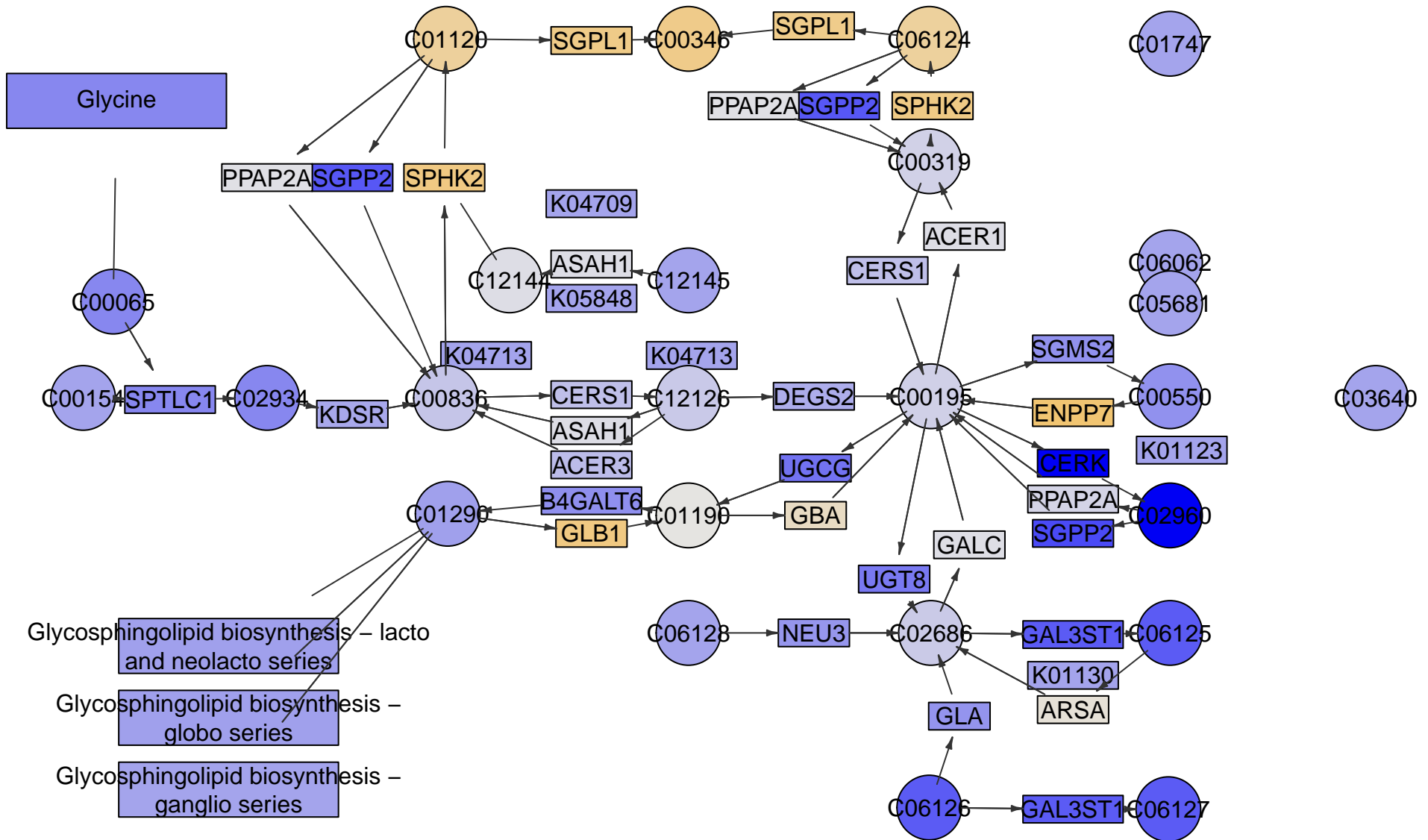
Spingolipid metabolism  
MPI-168



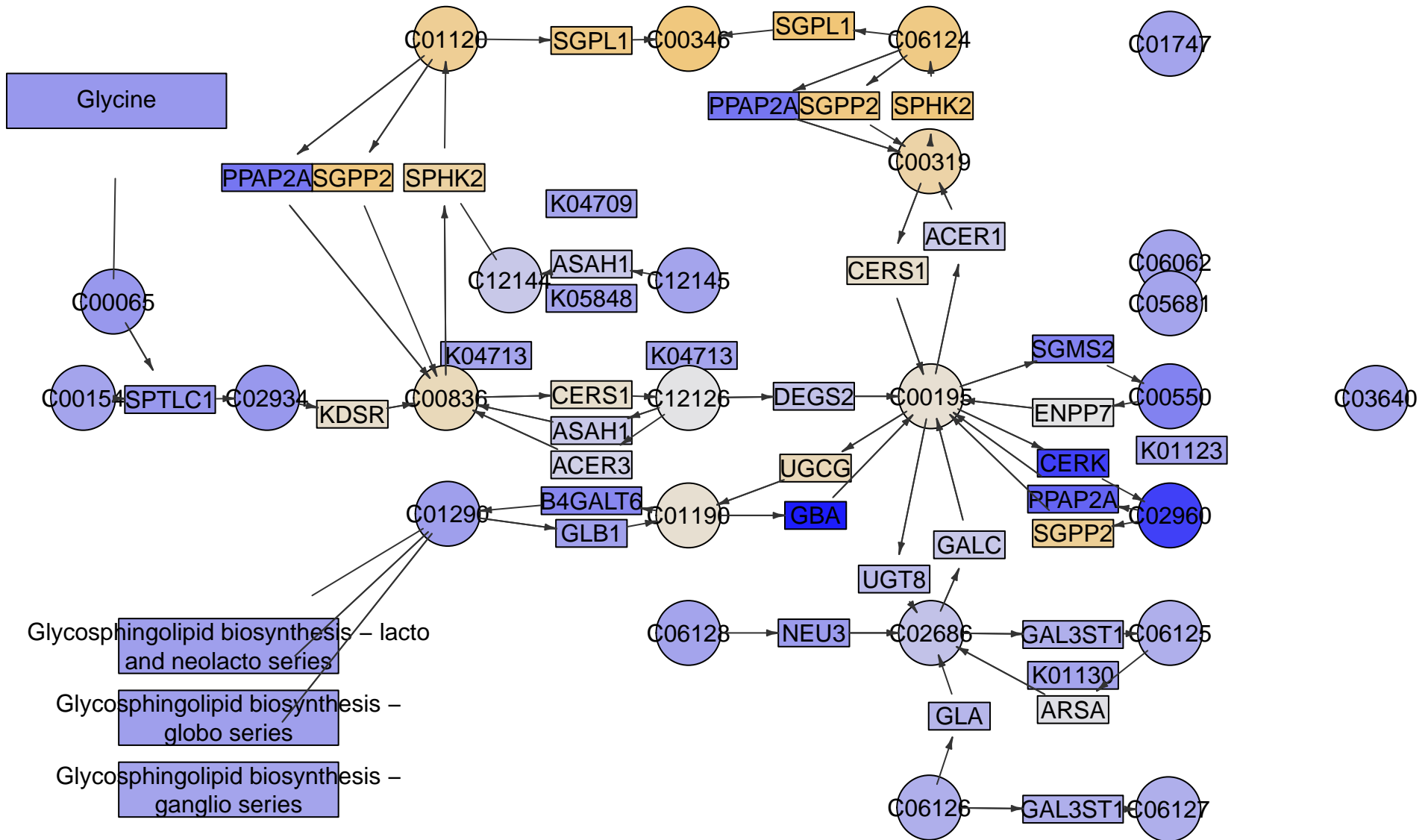
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



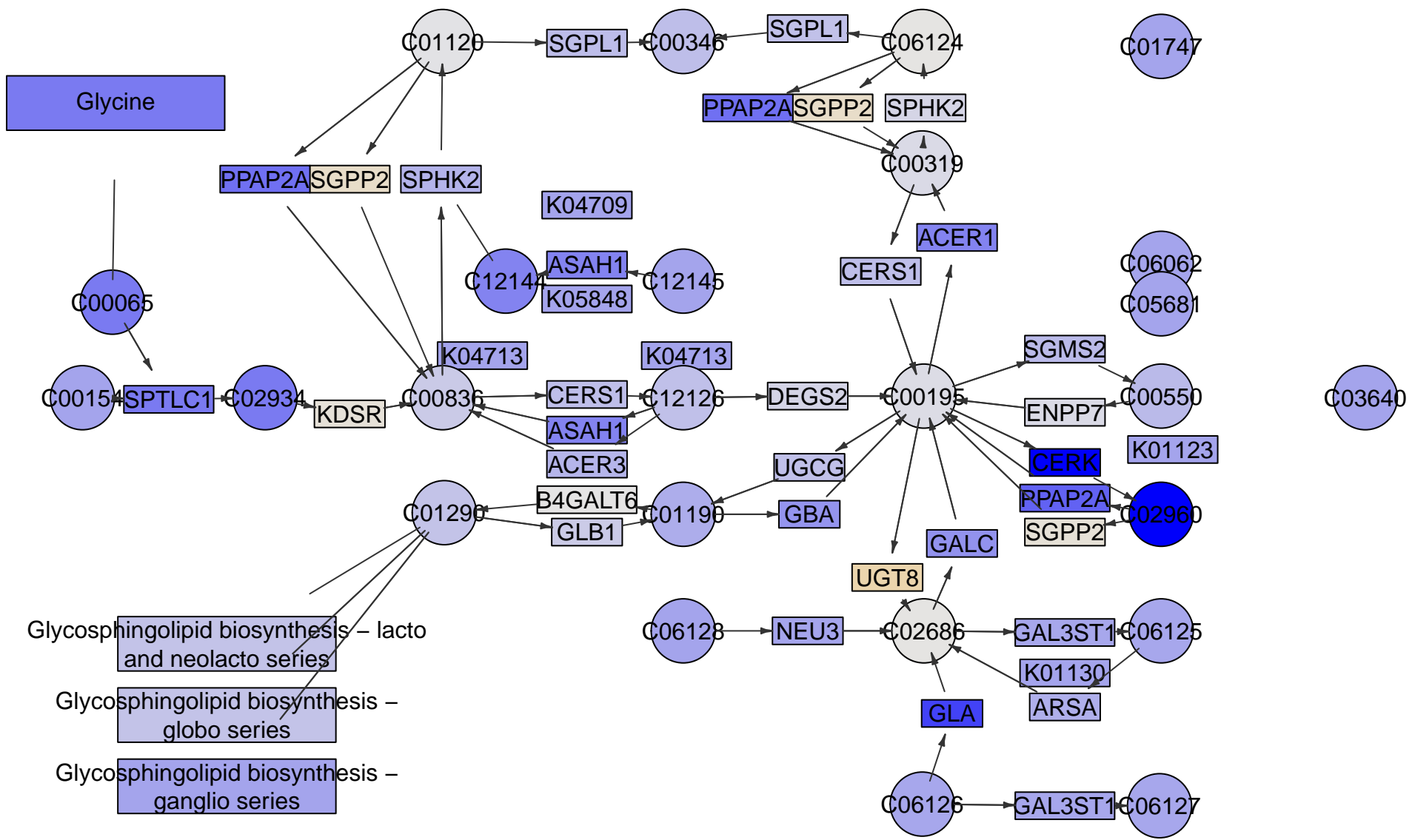
Spingolipid metabolism  
MPI-173



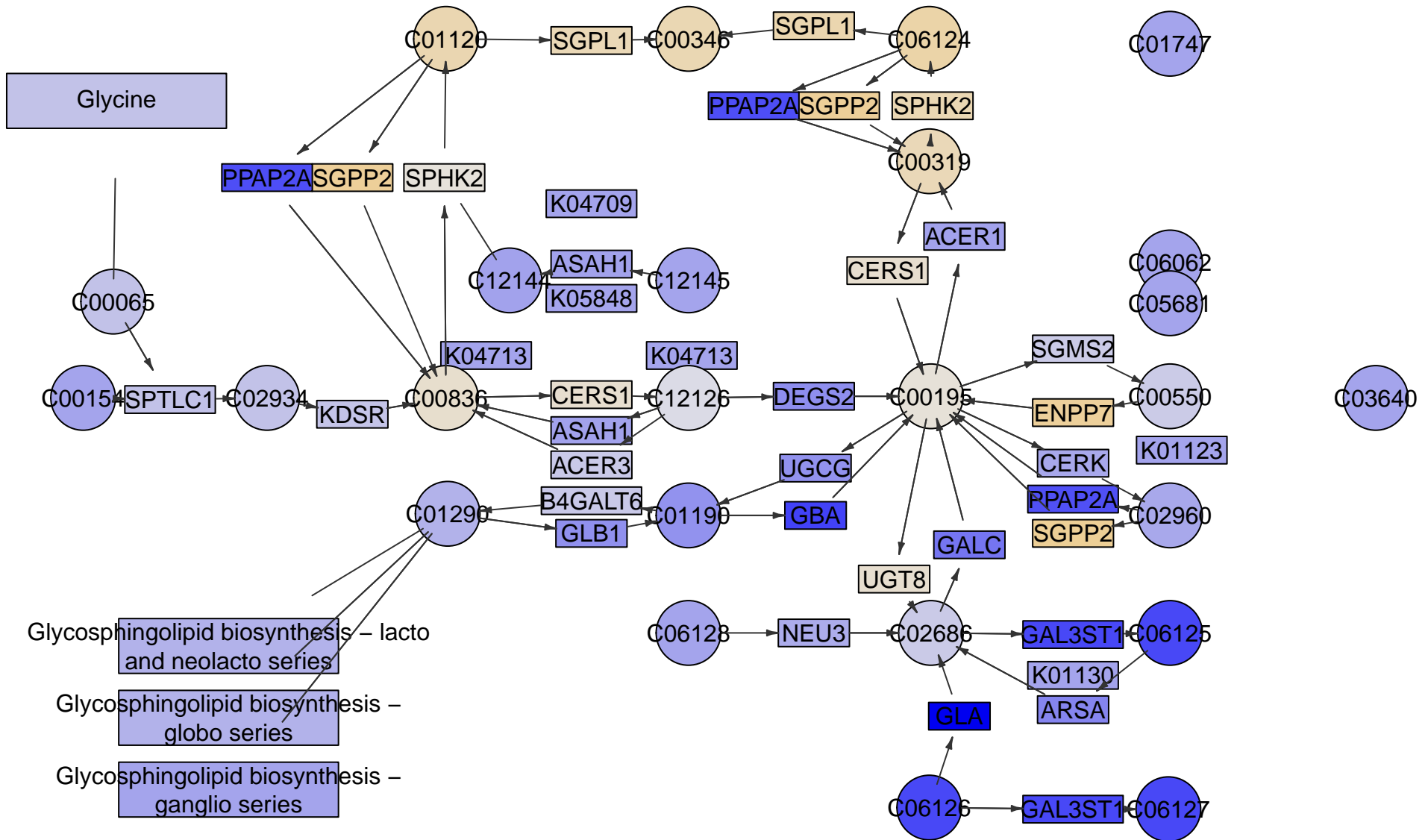
Spingolipid metabolism  
MPI-174



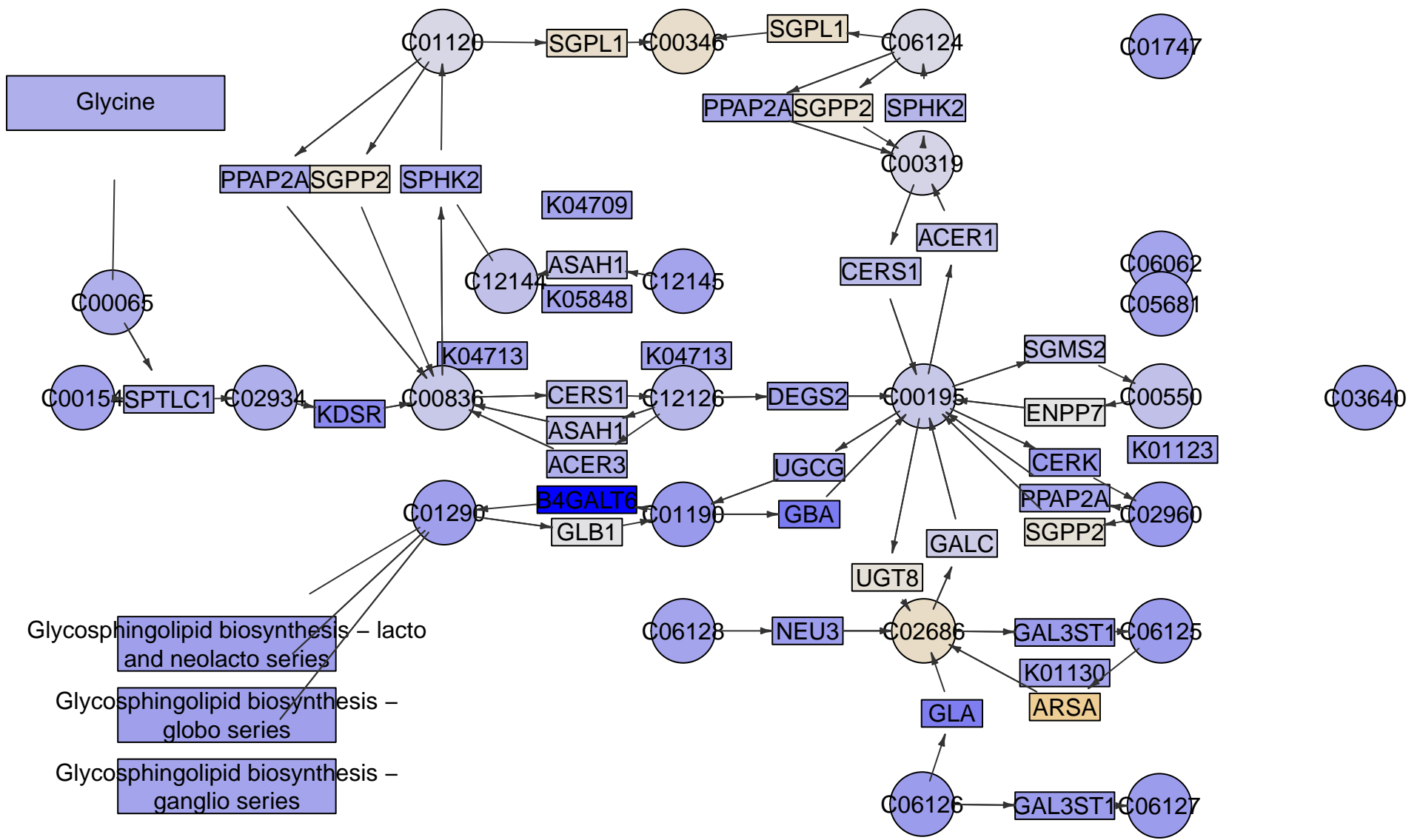
Spingolipid metabolism  
MPI-176



Spingolipid metabolism  
MPI-177



Spingolipid metabolism  
MPI-178

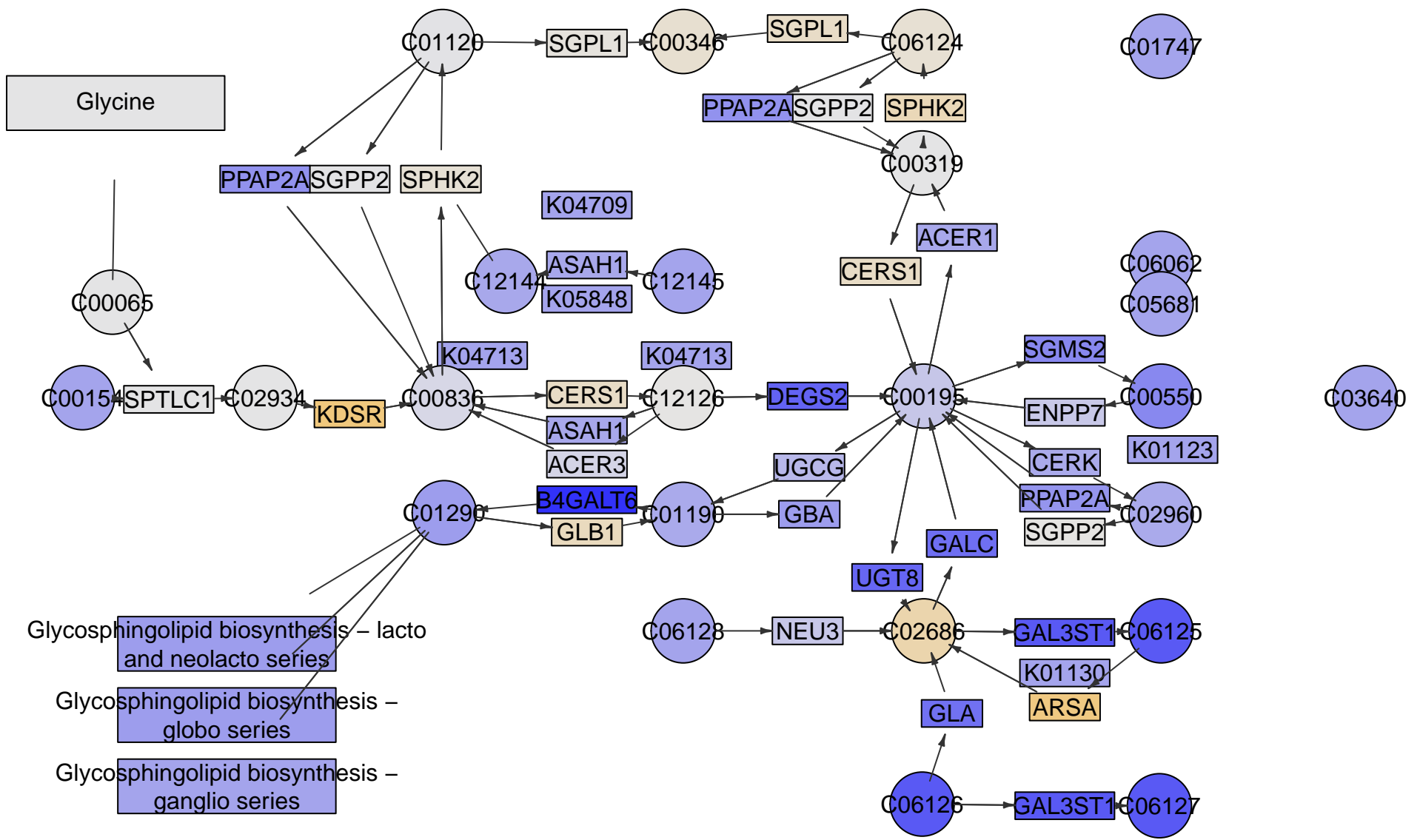


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



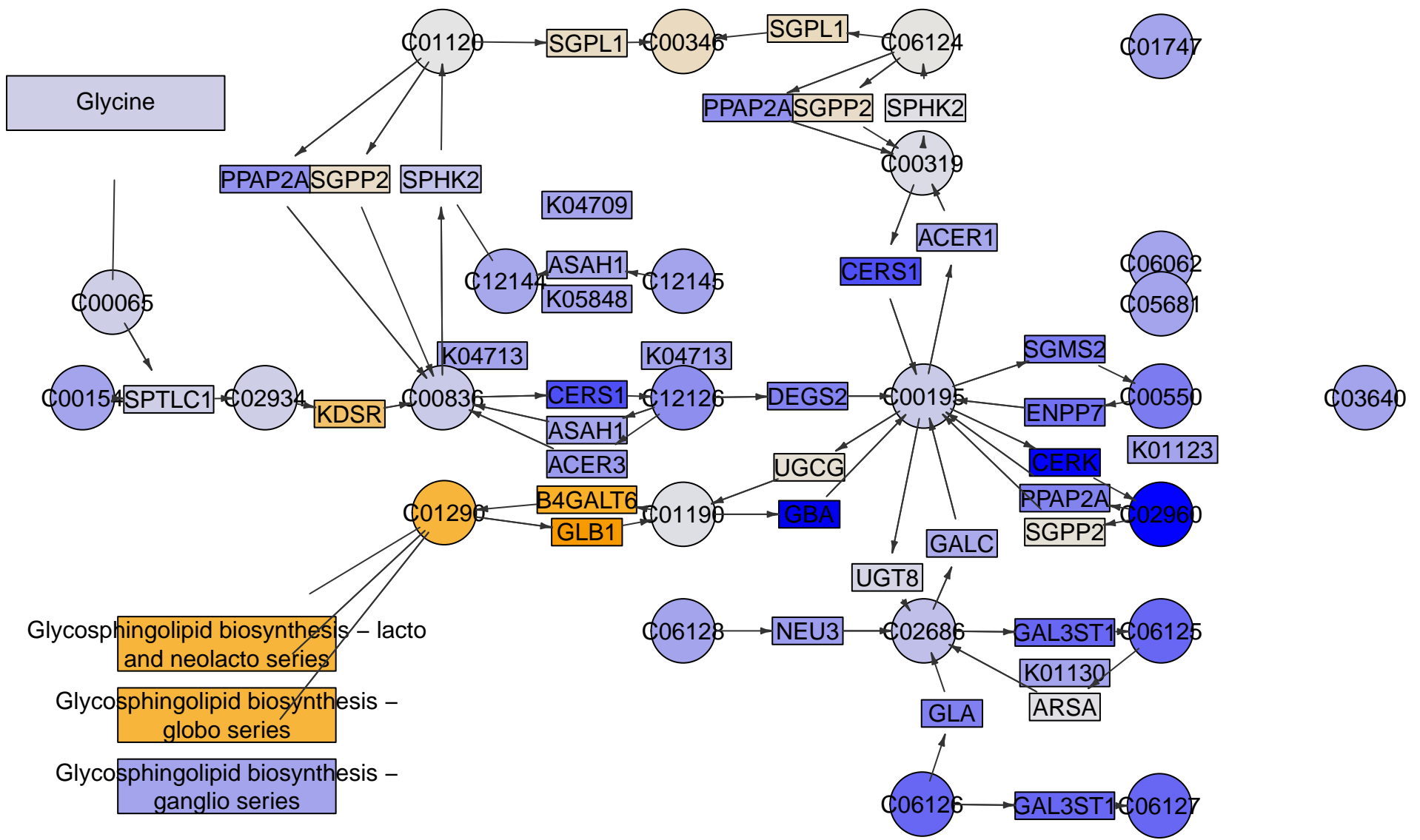


Spingolipid metabolism  
MPI-180





Spingolipid metabolism  
MPI-183

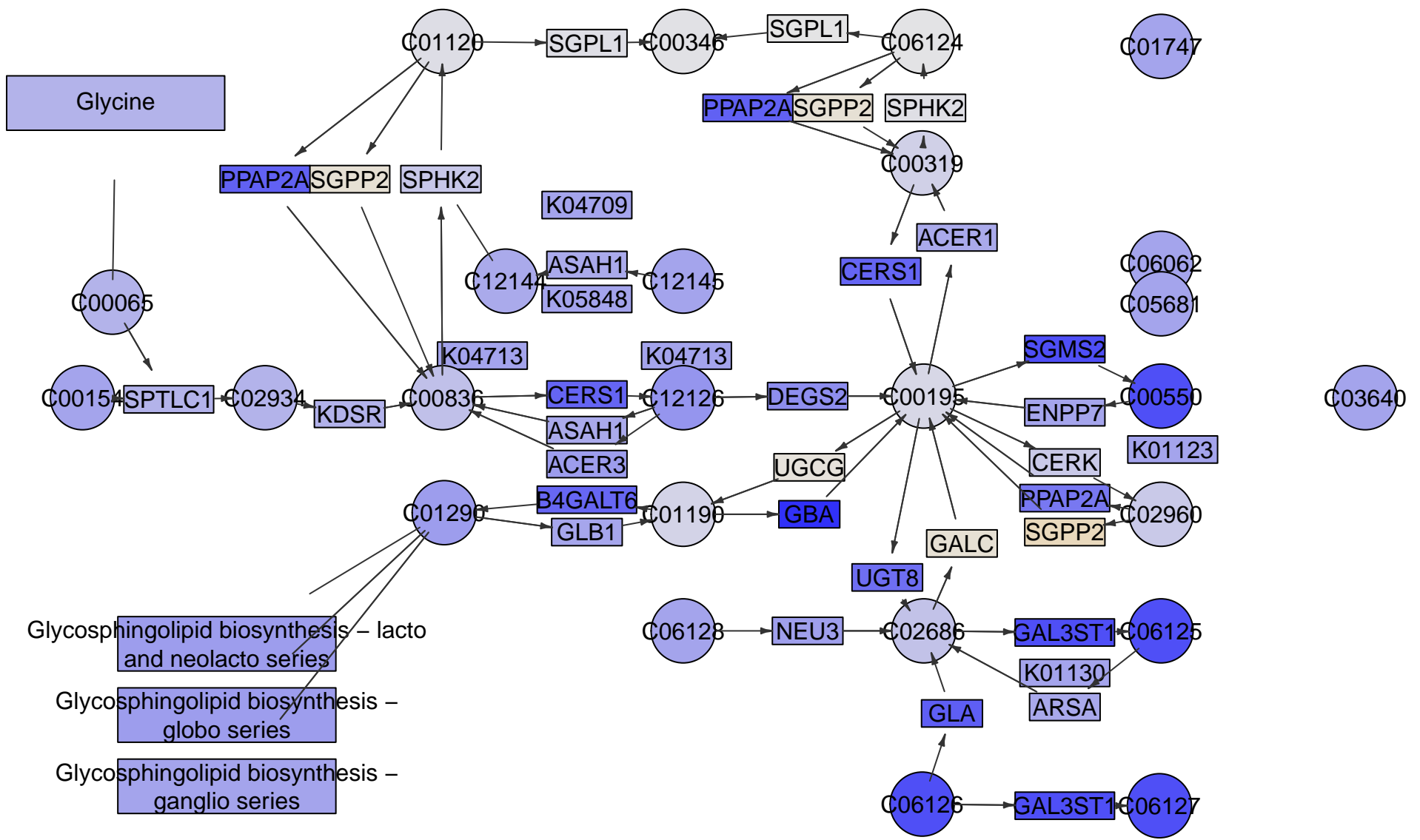


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



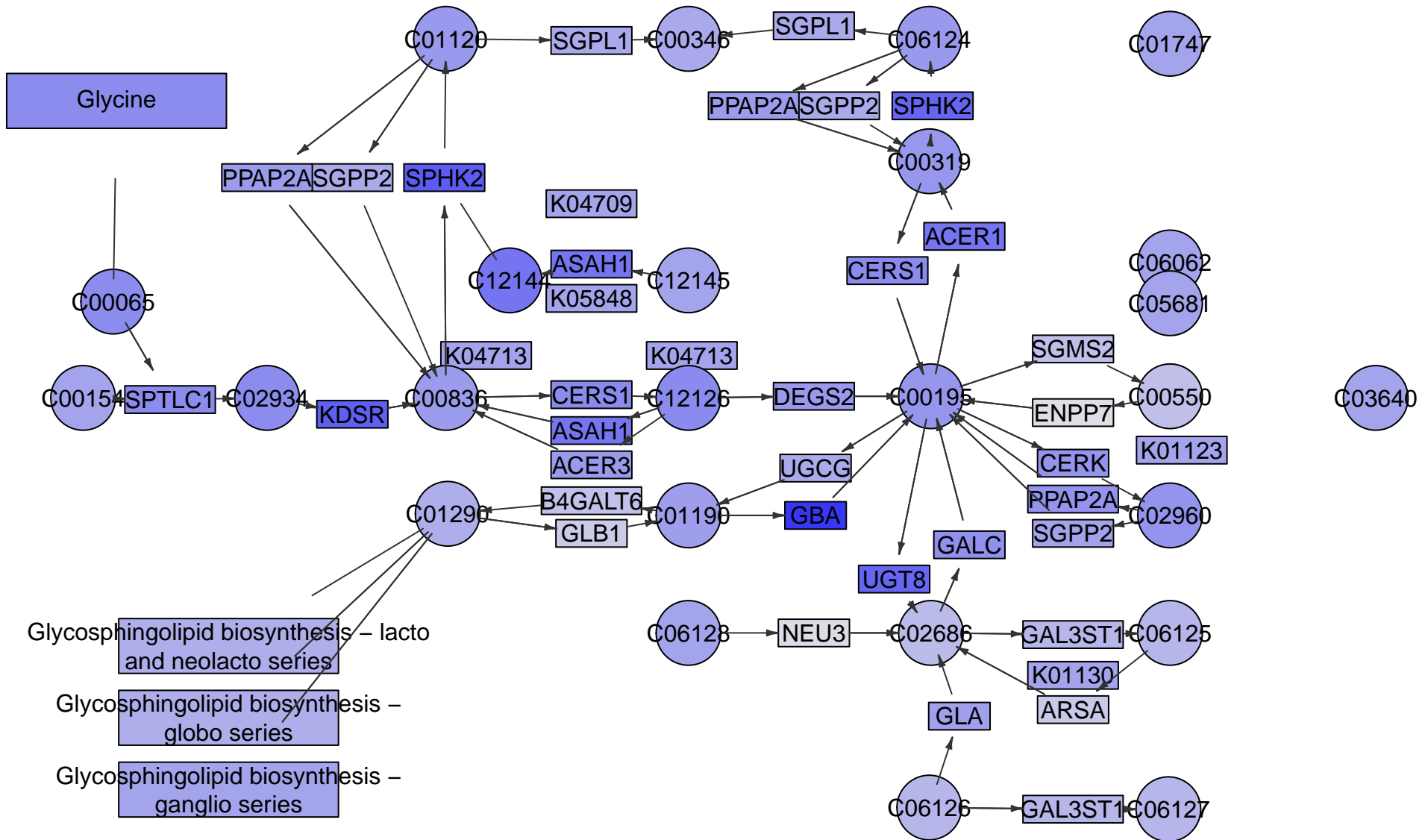


Spingolipid metabolism  
MPI-186



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

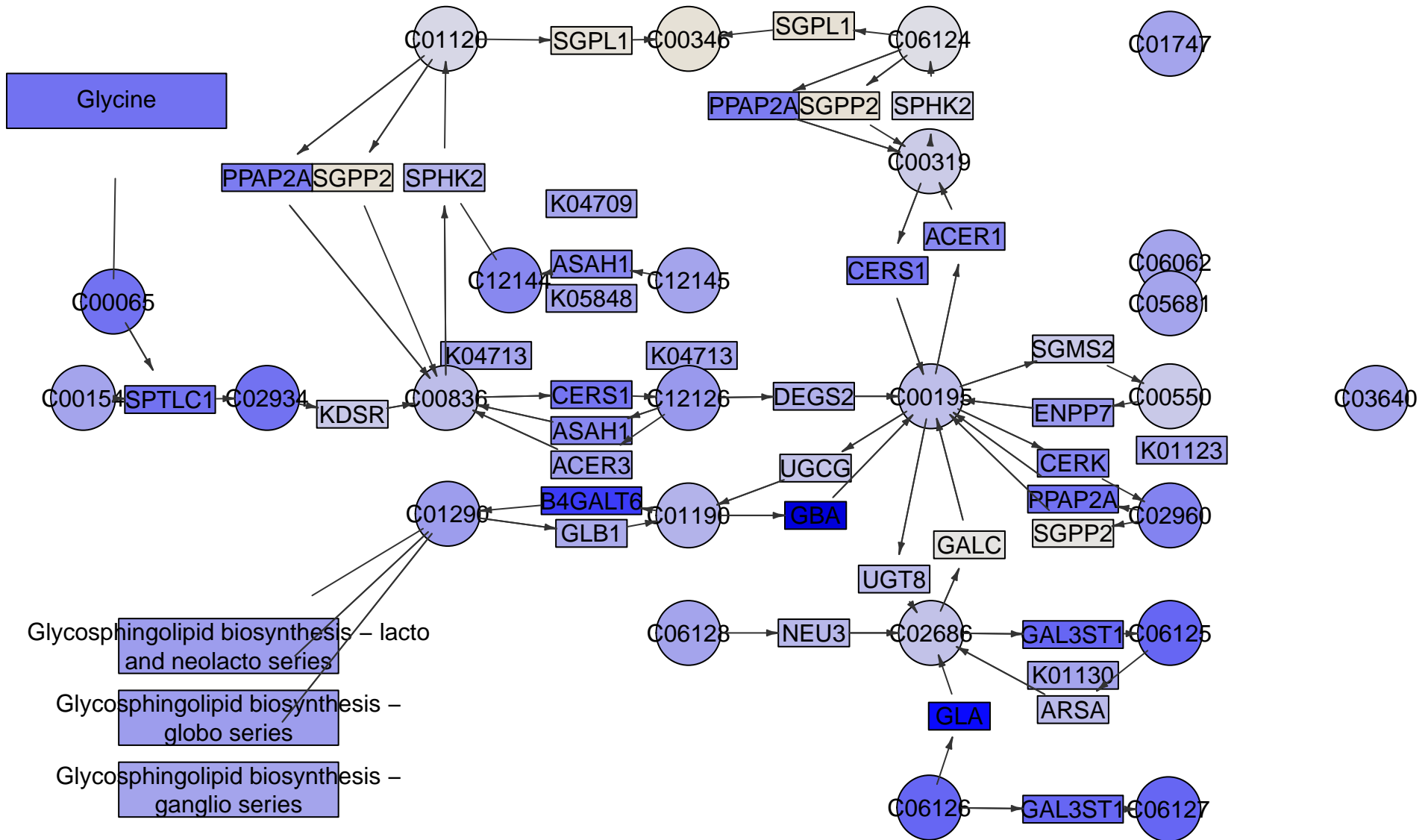
Spingolipid metabolism  
MPI-188



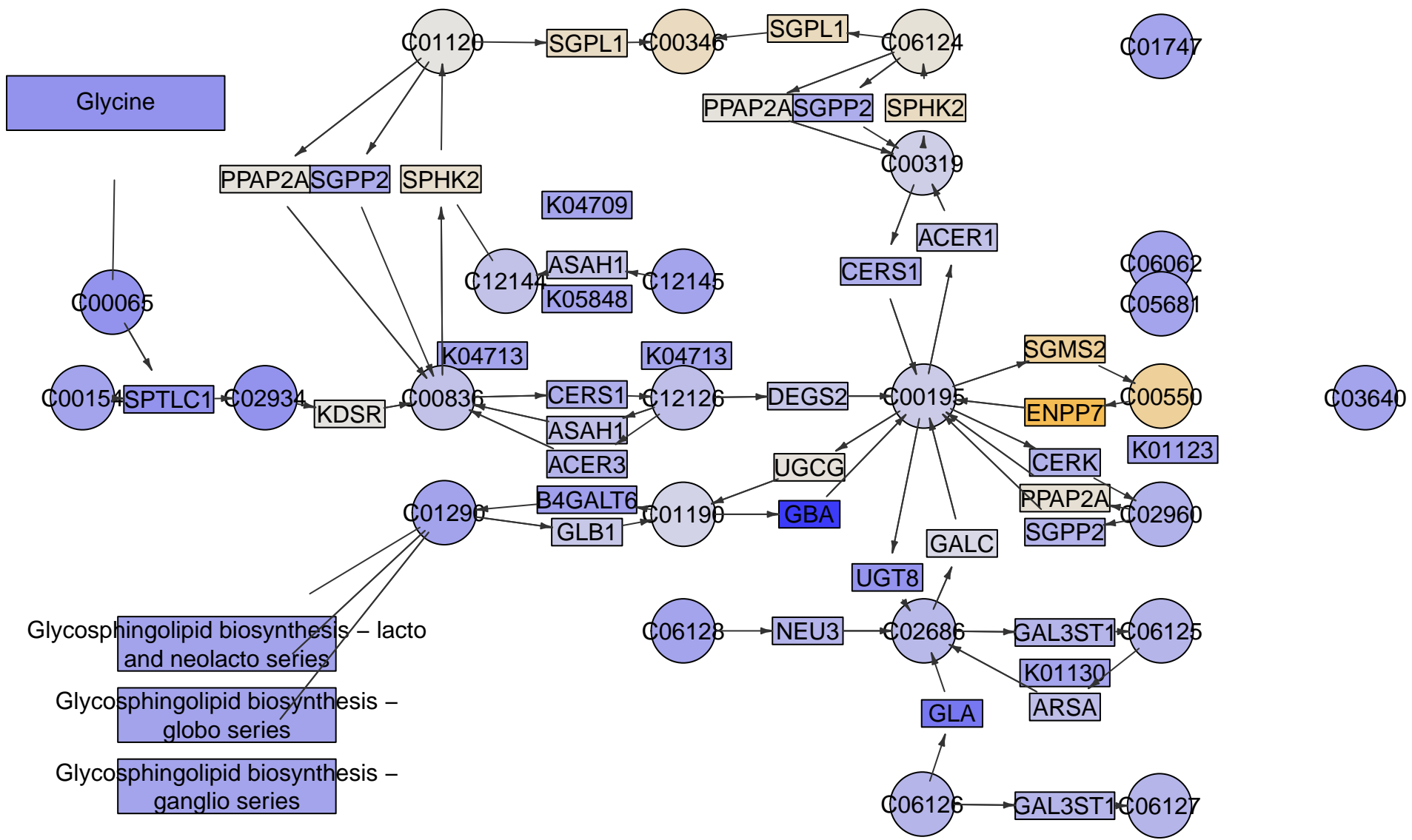




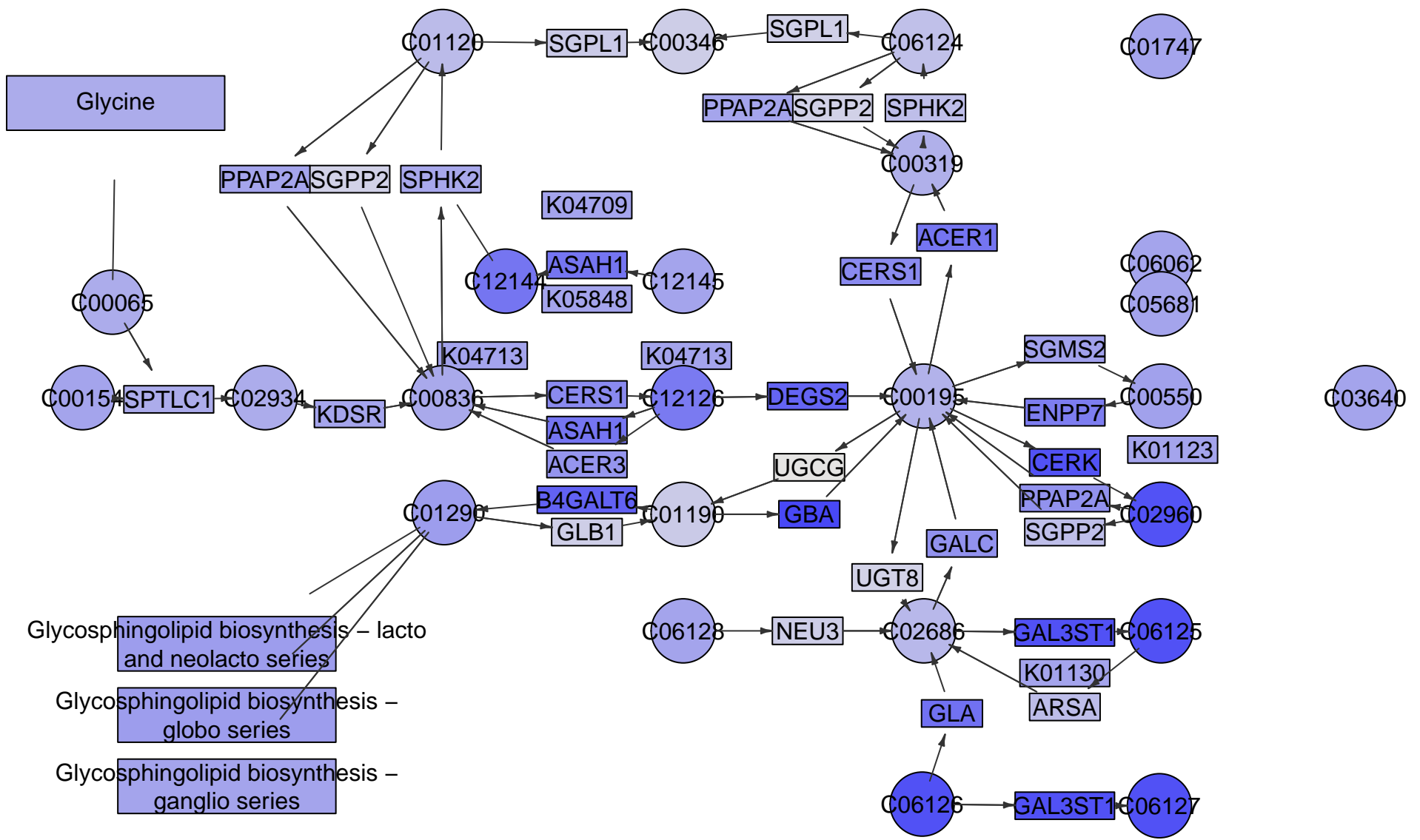
Spingolipid metabolism  
MPI-190



Spingolipid metabolism  
MPI-191

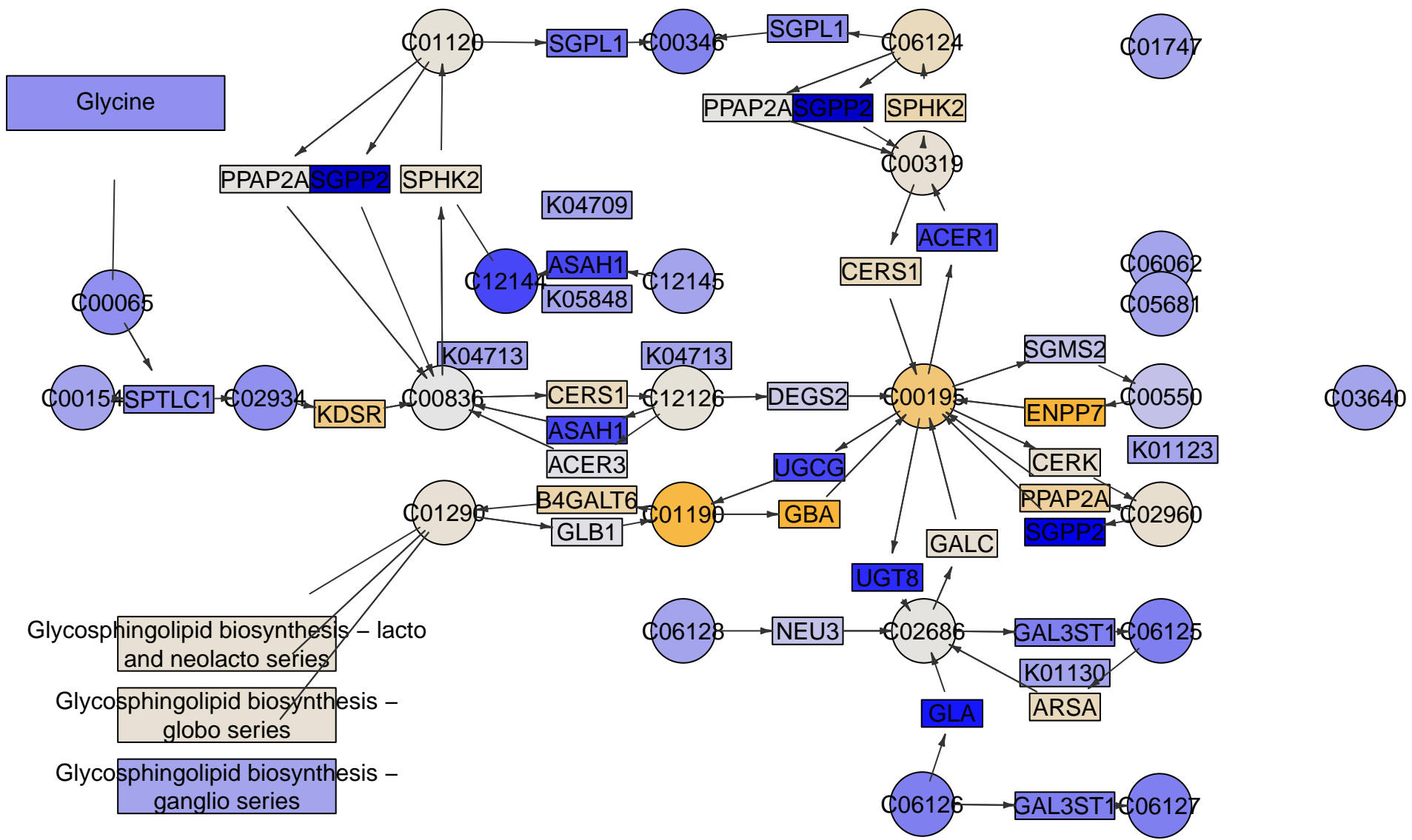


Spingolipid metabolism  
MPI-192





Spingolipid metabolism  
MPI-195



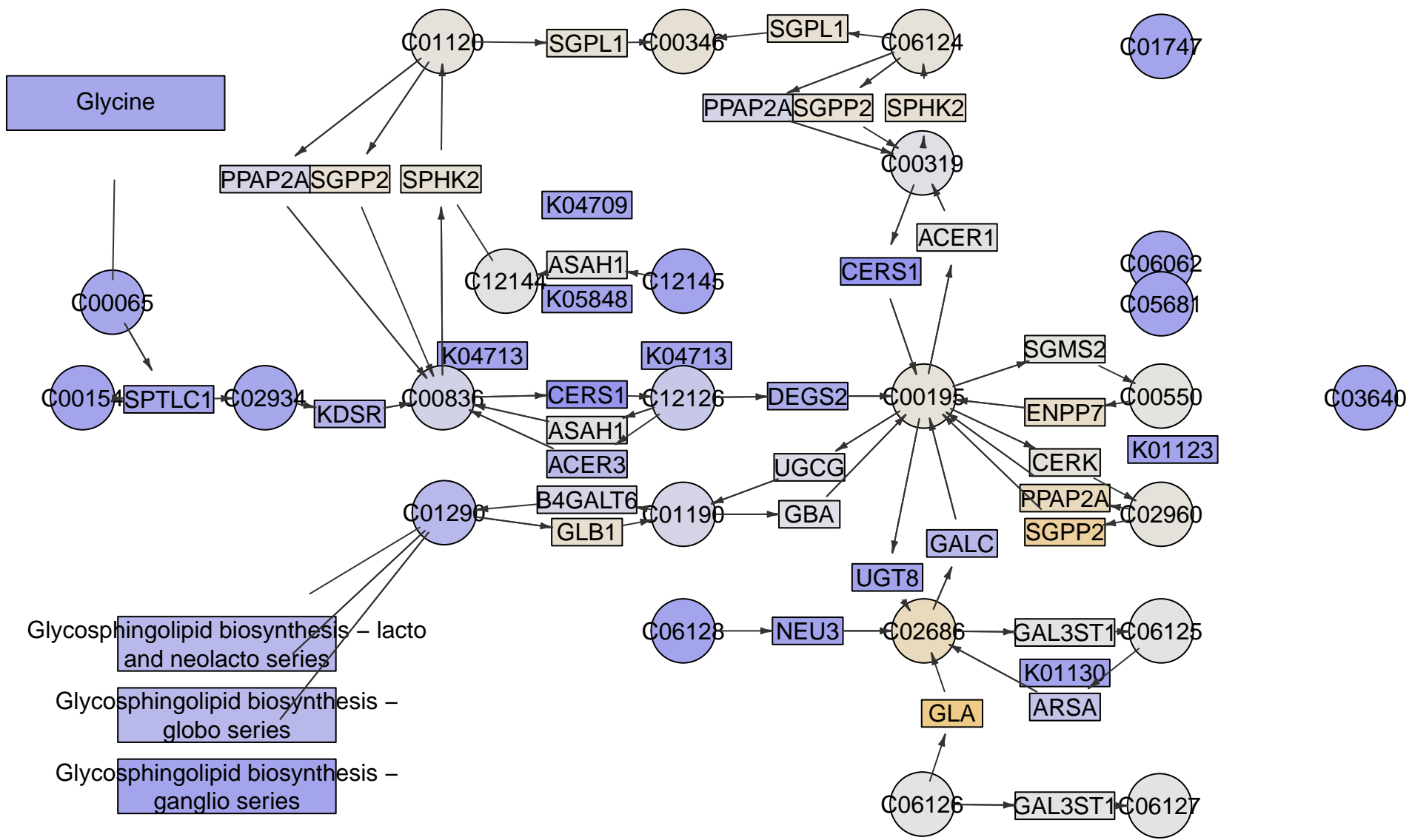
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



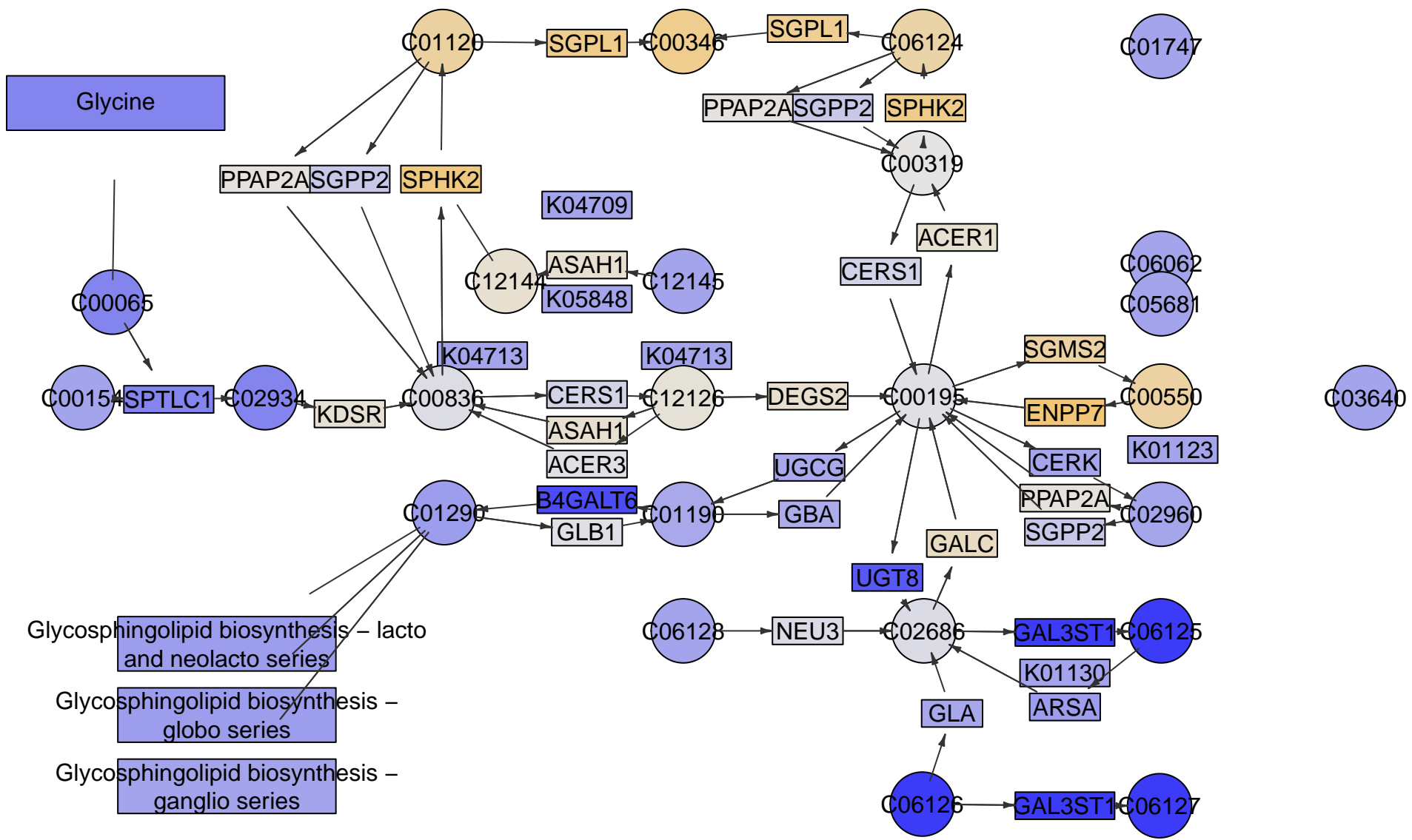




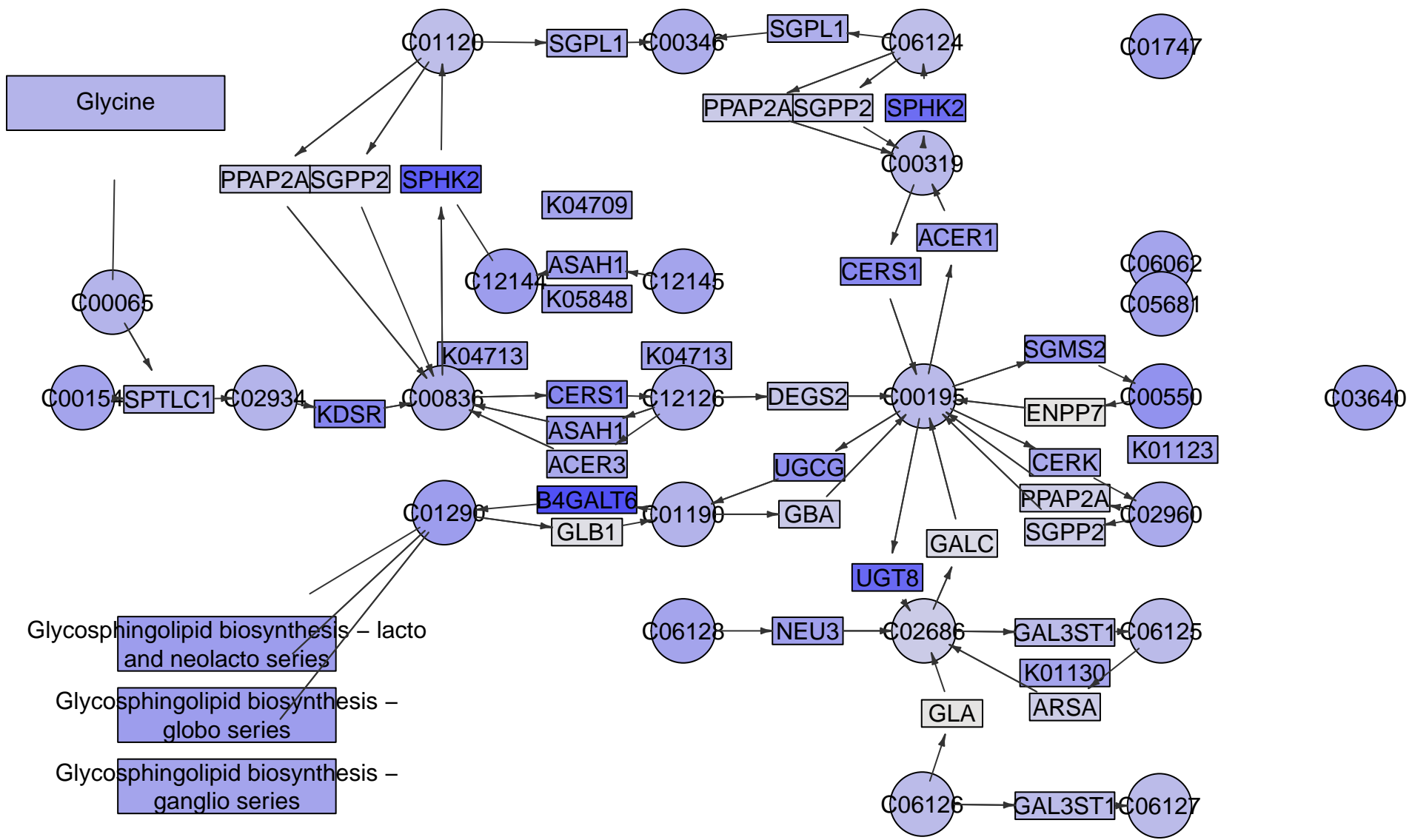
Spingolipid metabolism  
MPI-199



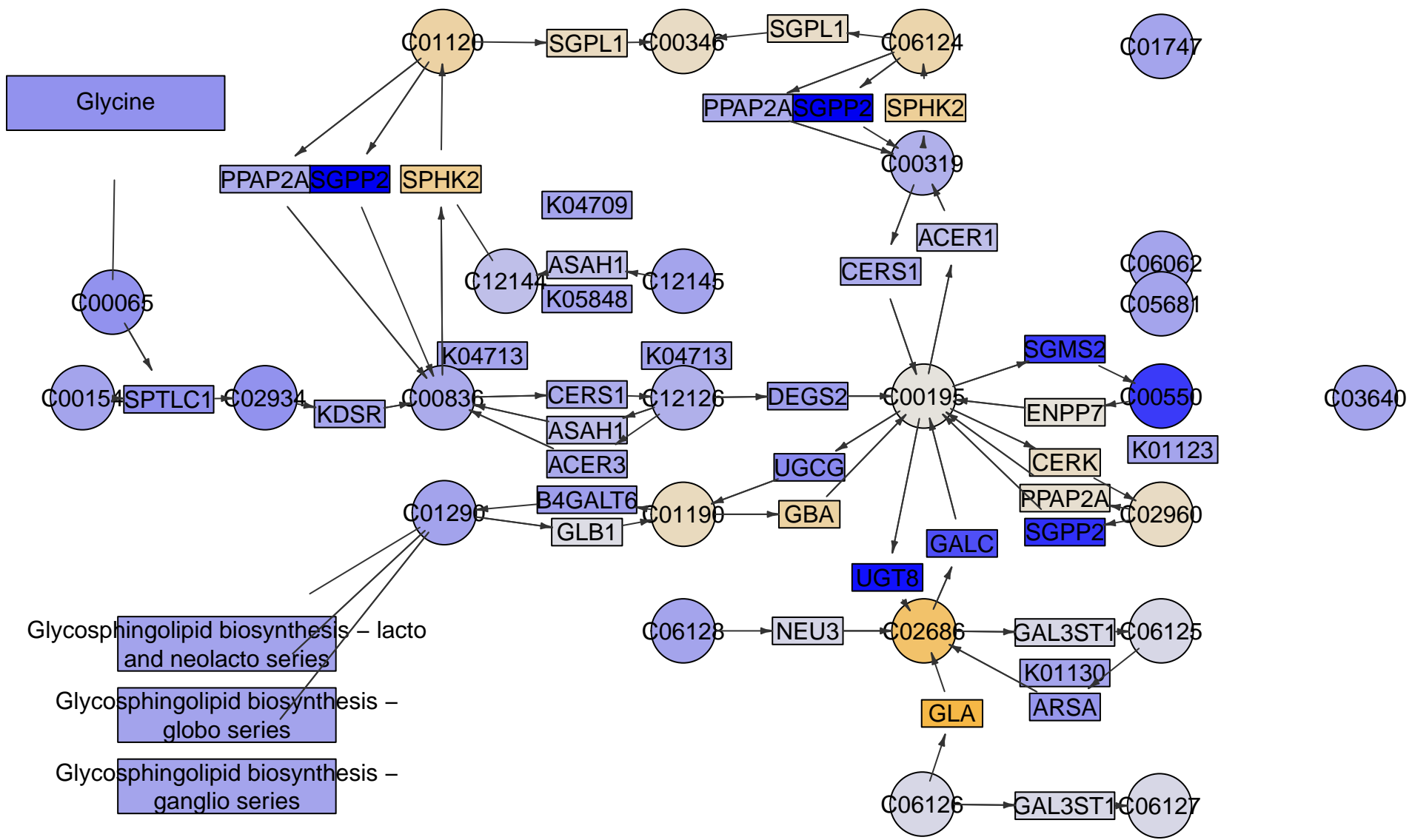
Spingolipid metabolism  
MPI-200



Spingolipid metabolism  
MPI-201



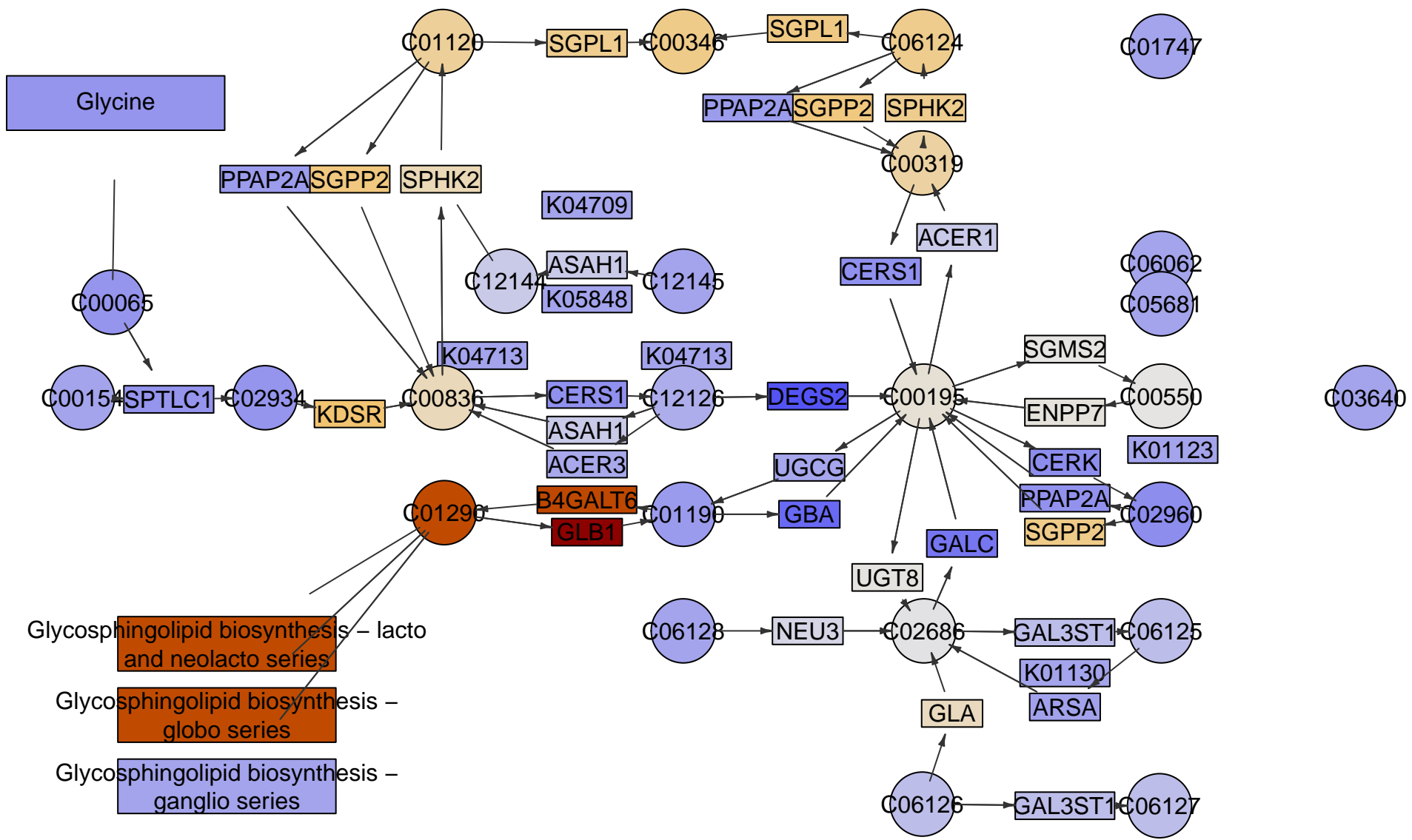
Spingolipid metabolism  
MPI-202



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



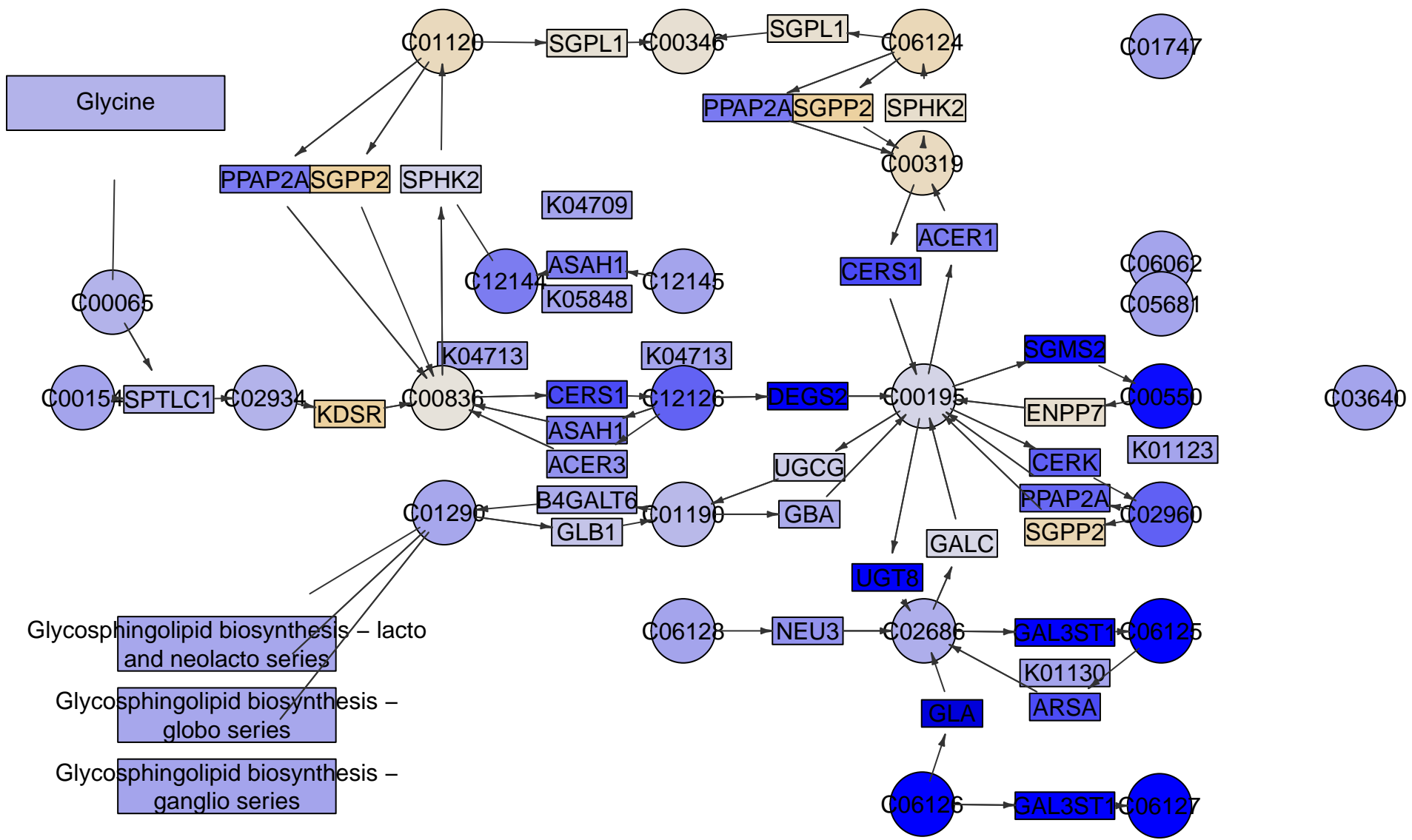
Spingolipid metabolism  
MPI-204



Glycosphingolipid biosynthesis – lacto  
 Glycosphingolipid biosynthesis – globo series  
 Glycosphingolipid biosynthesis – ganglio series

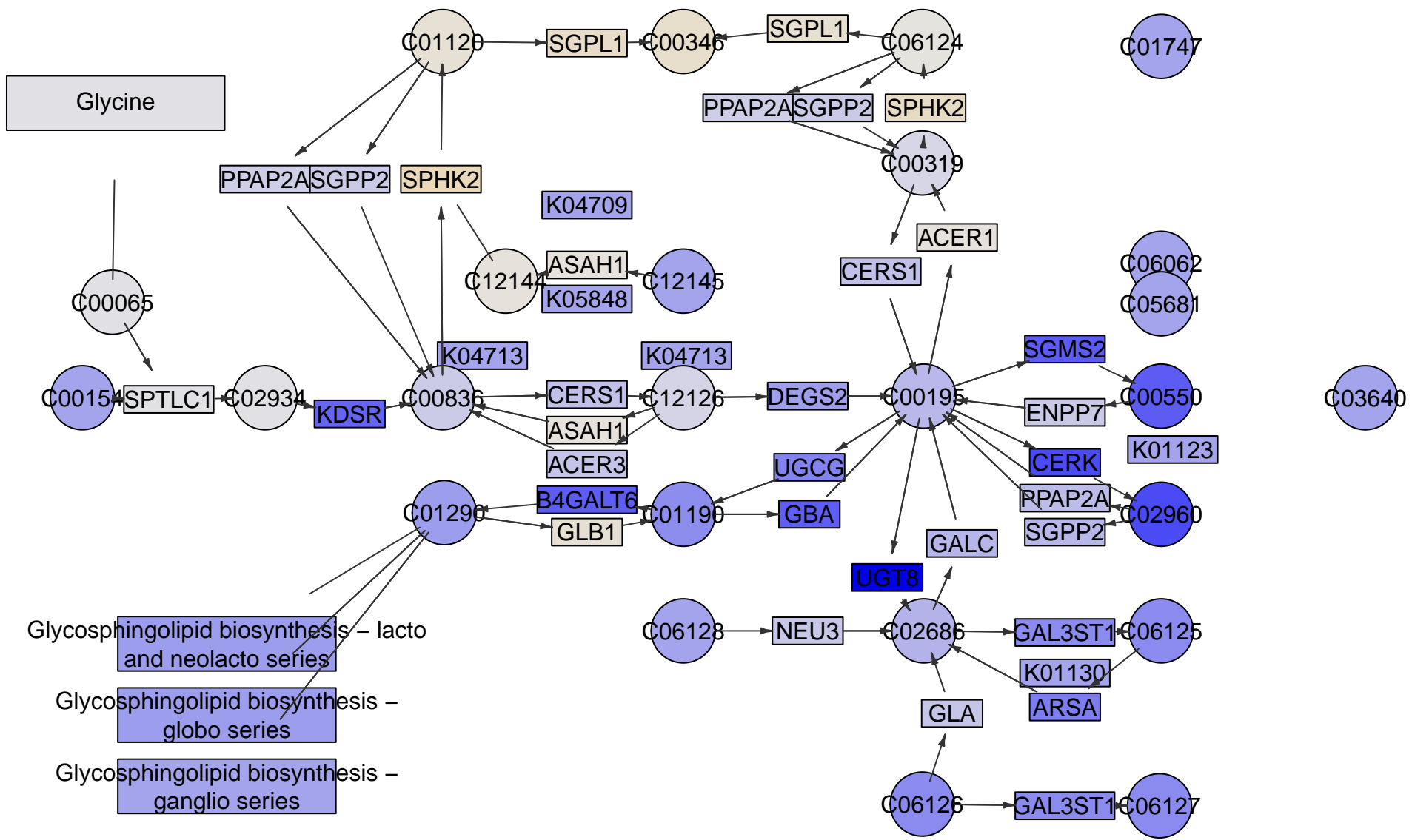


Spingolipid metabolism  
MPI-206



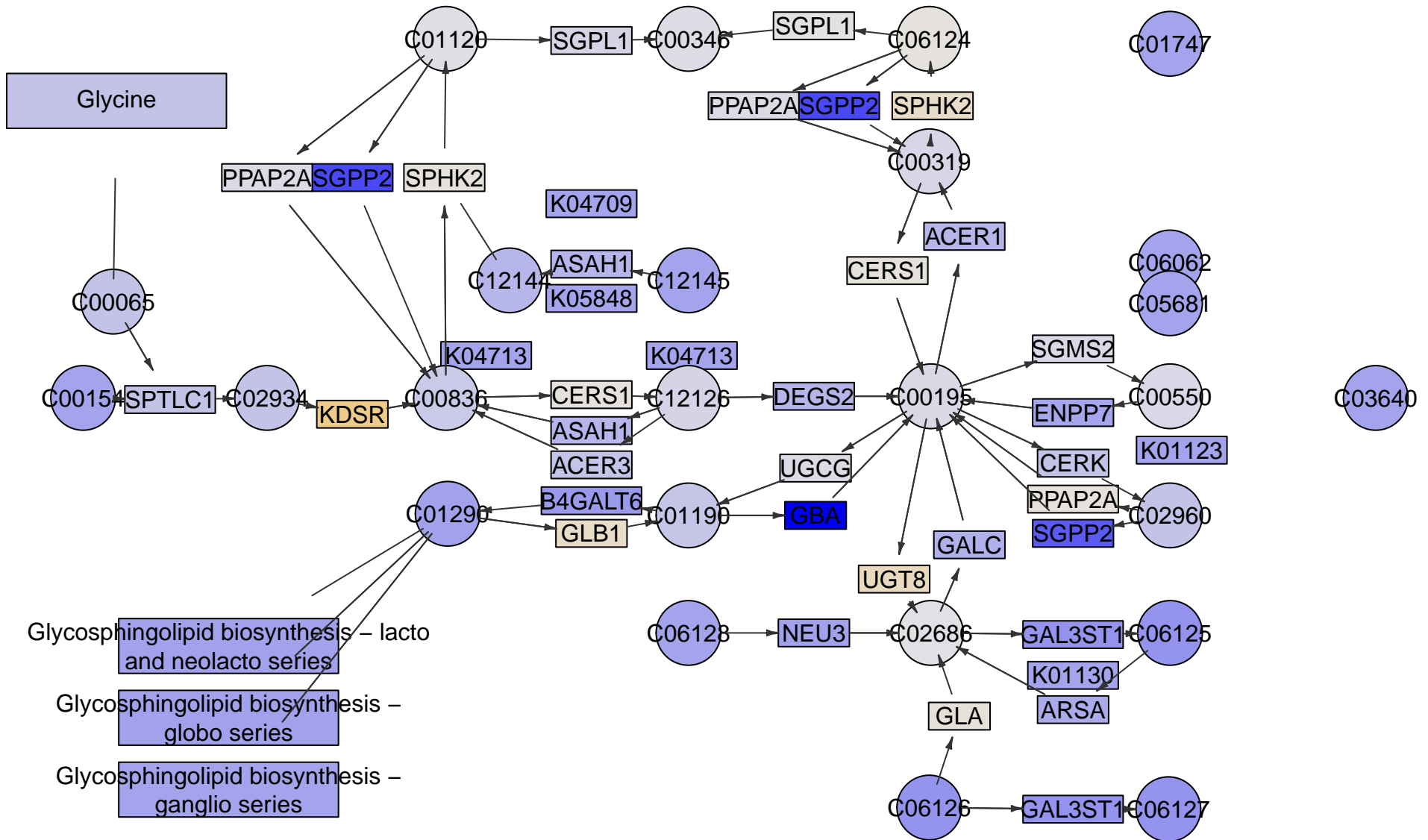


Spingolipid metabolism  
MPI-207

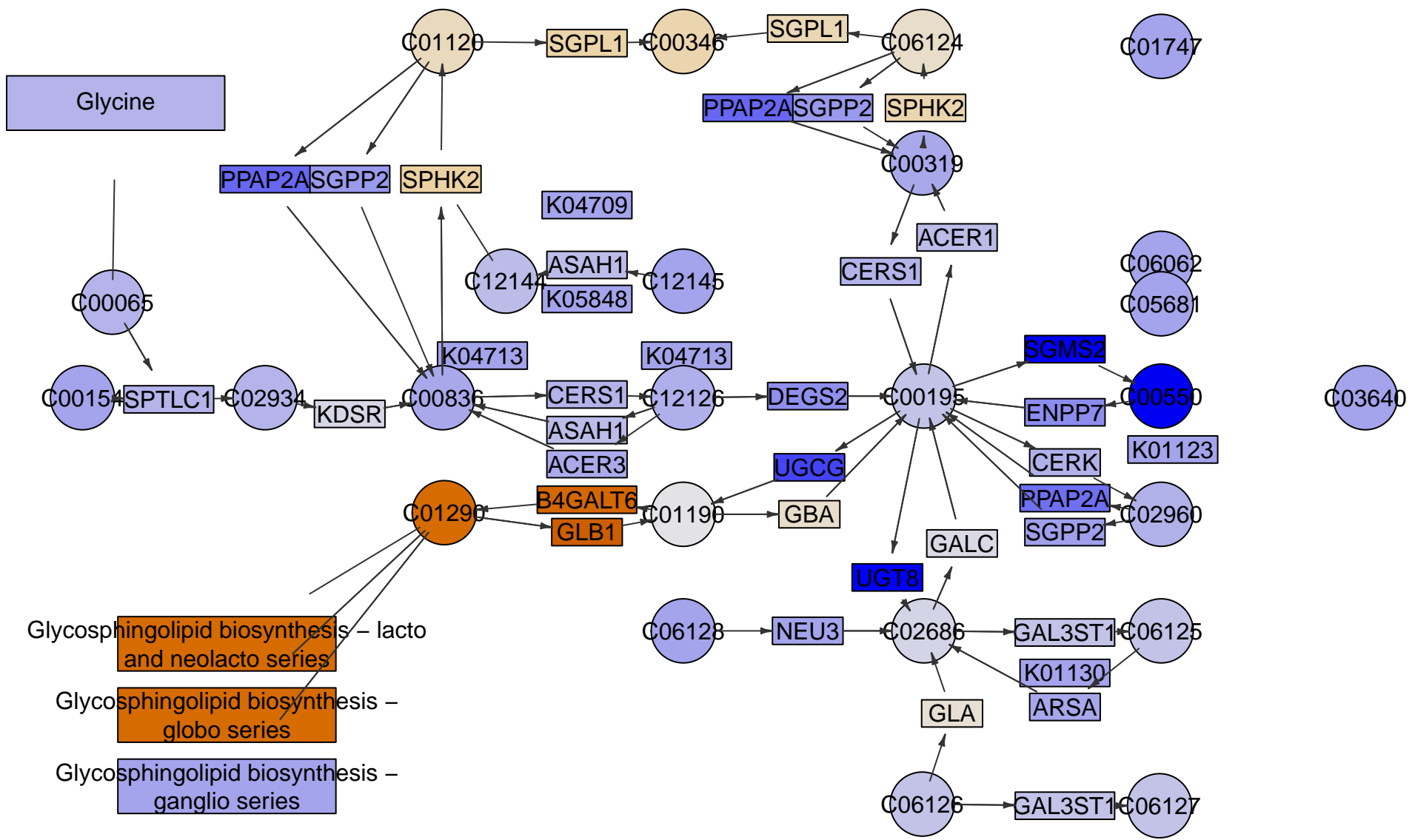


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-208



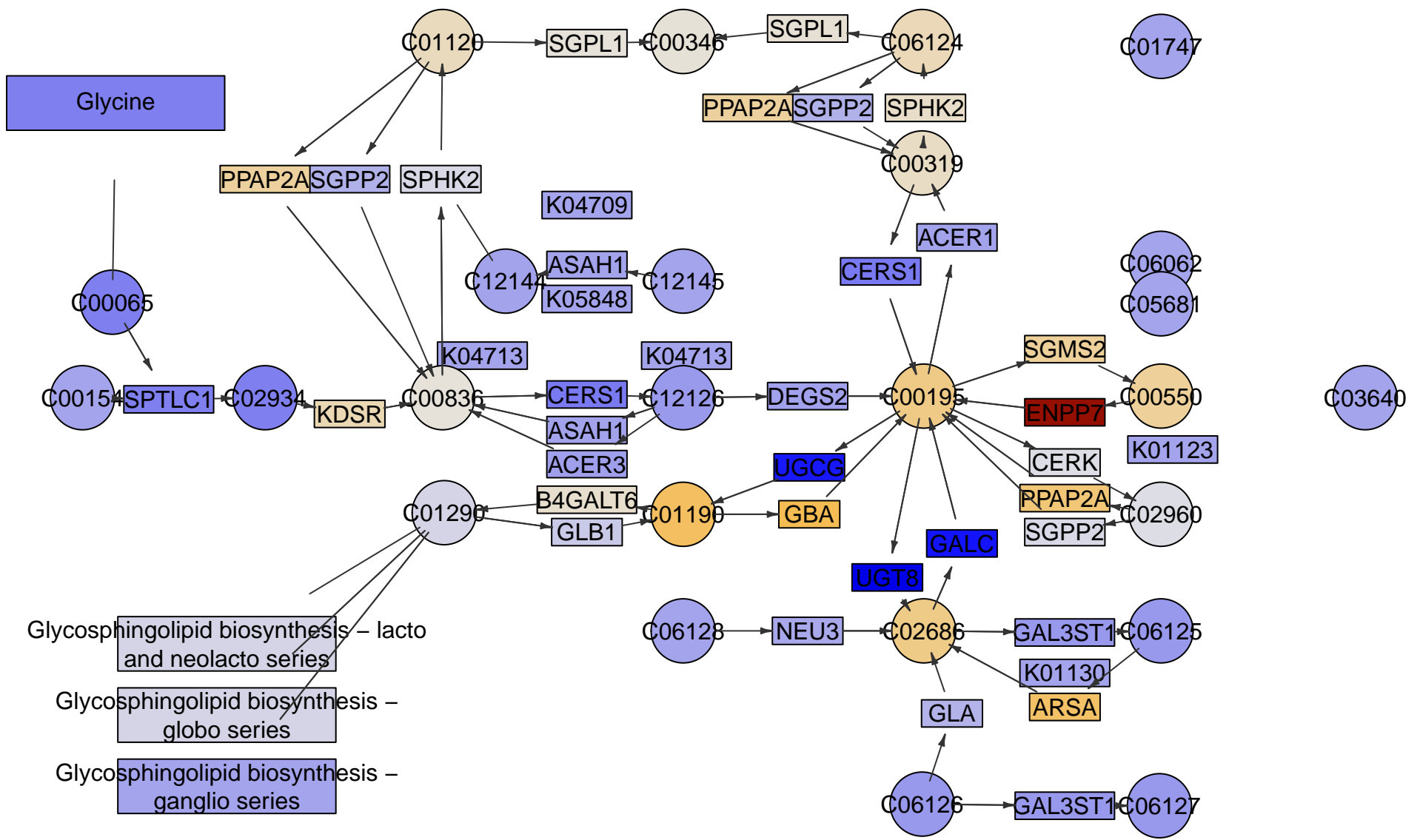
Spingolipid metabolism  
MPI-209



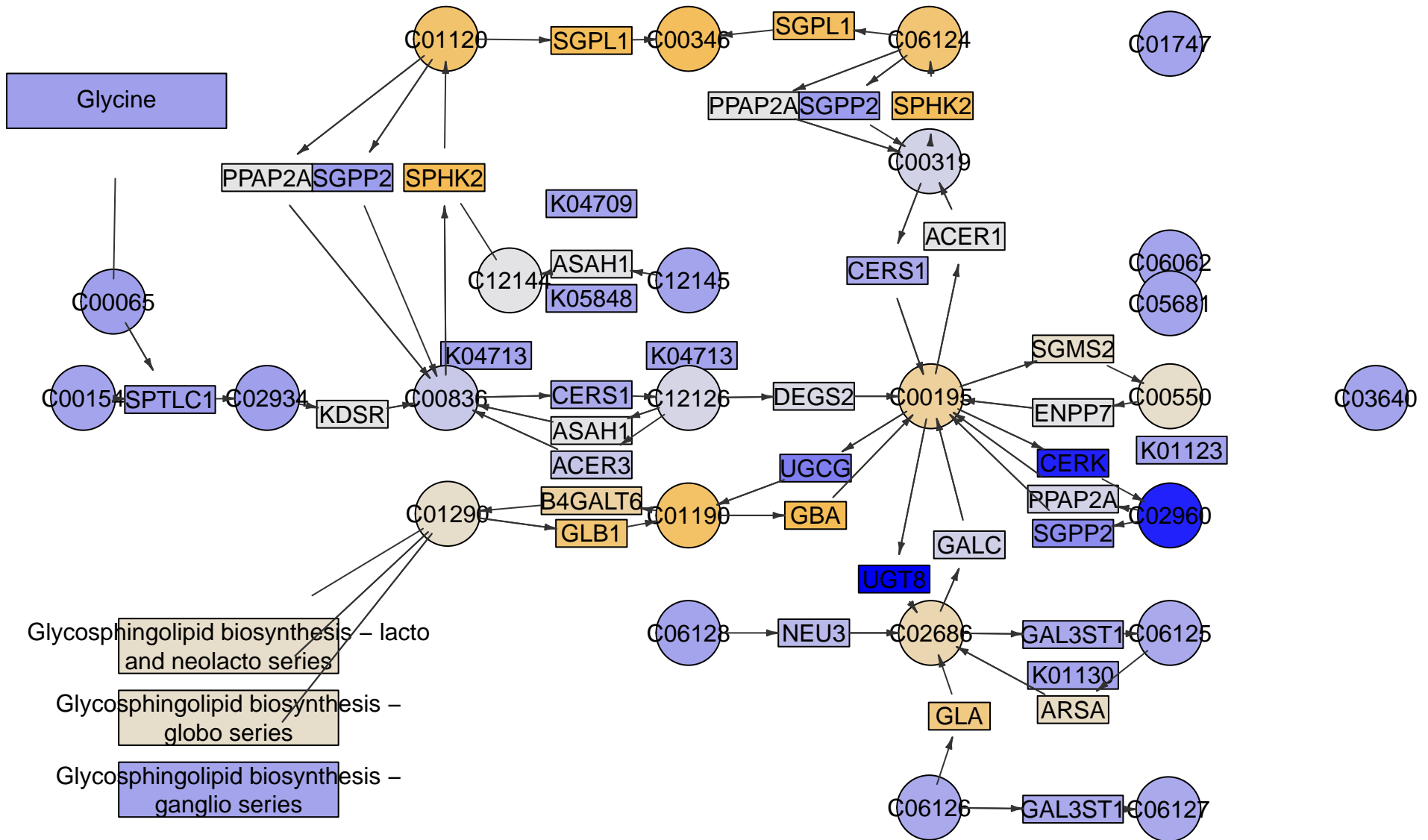
Glycine

- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

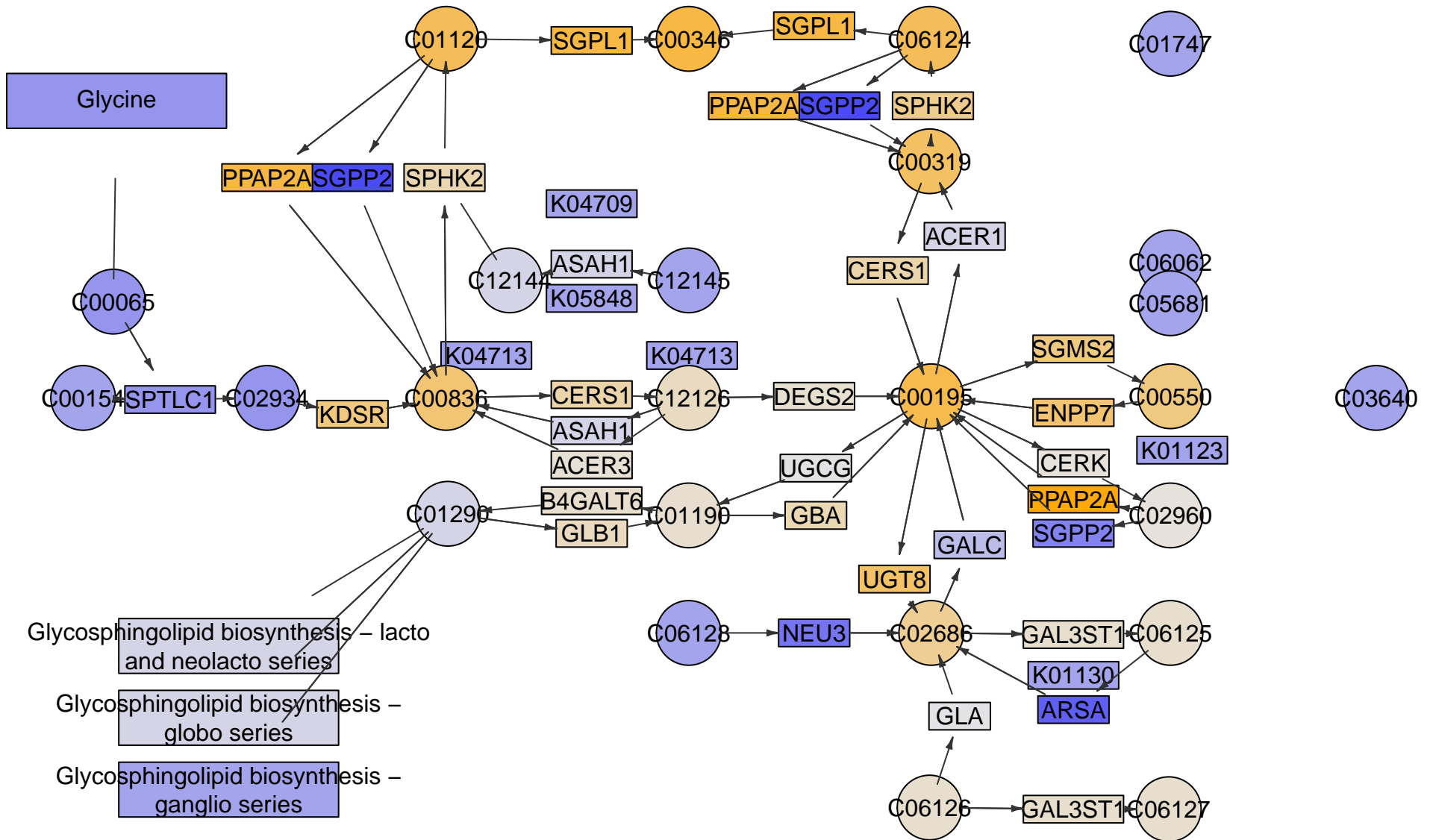
Spingolipid metabolism  
MPI-210



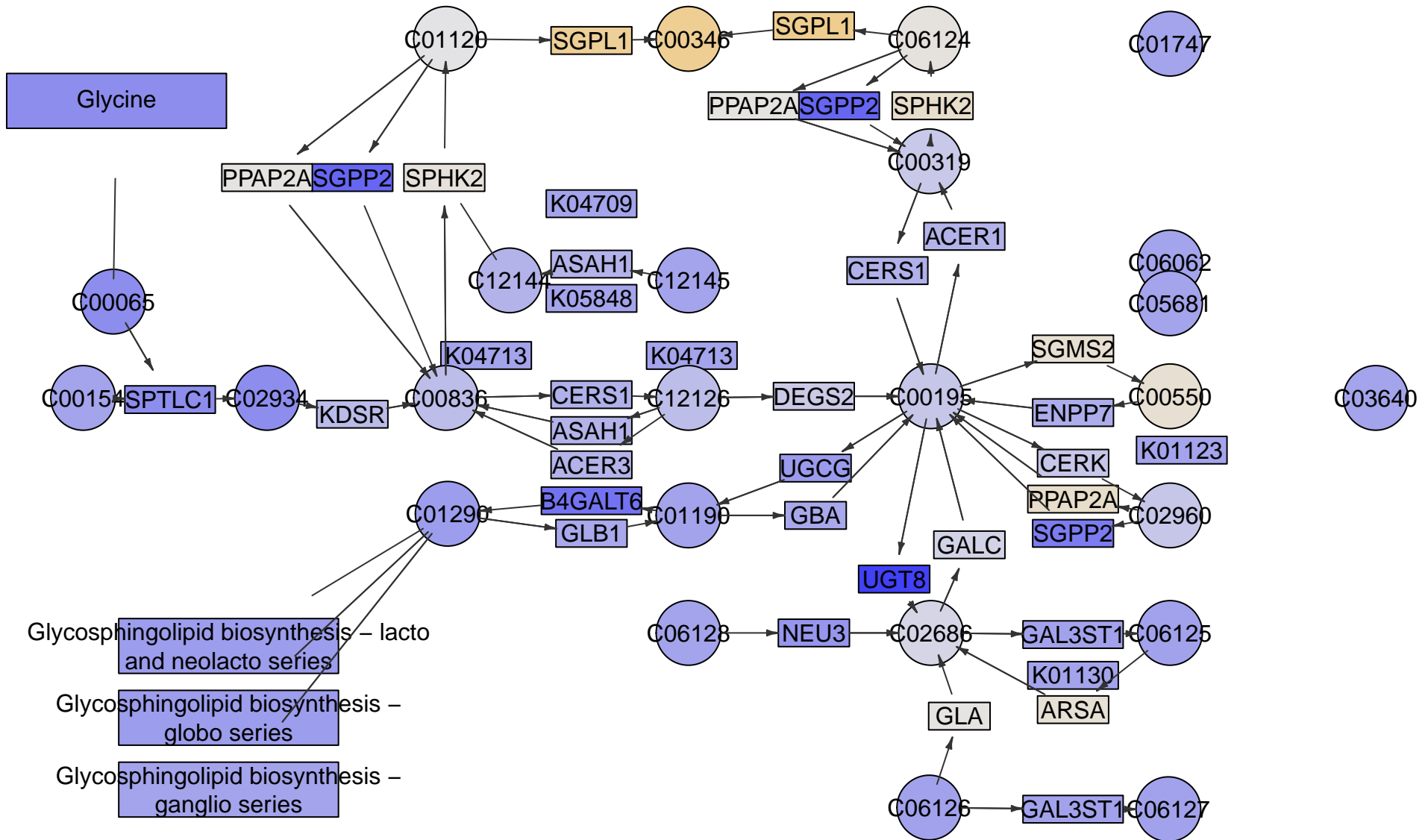
Spingolipid metabolism  
MPI-212



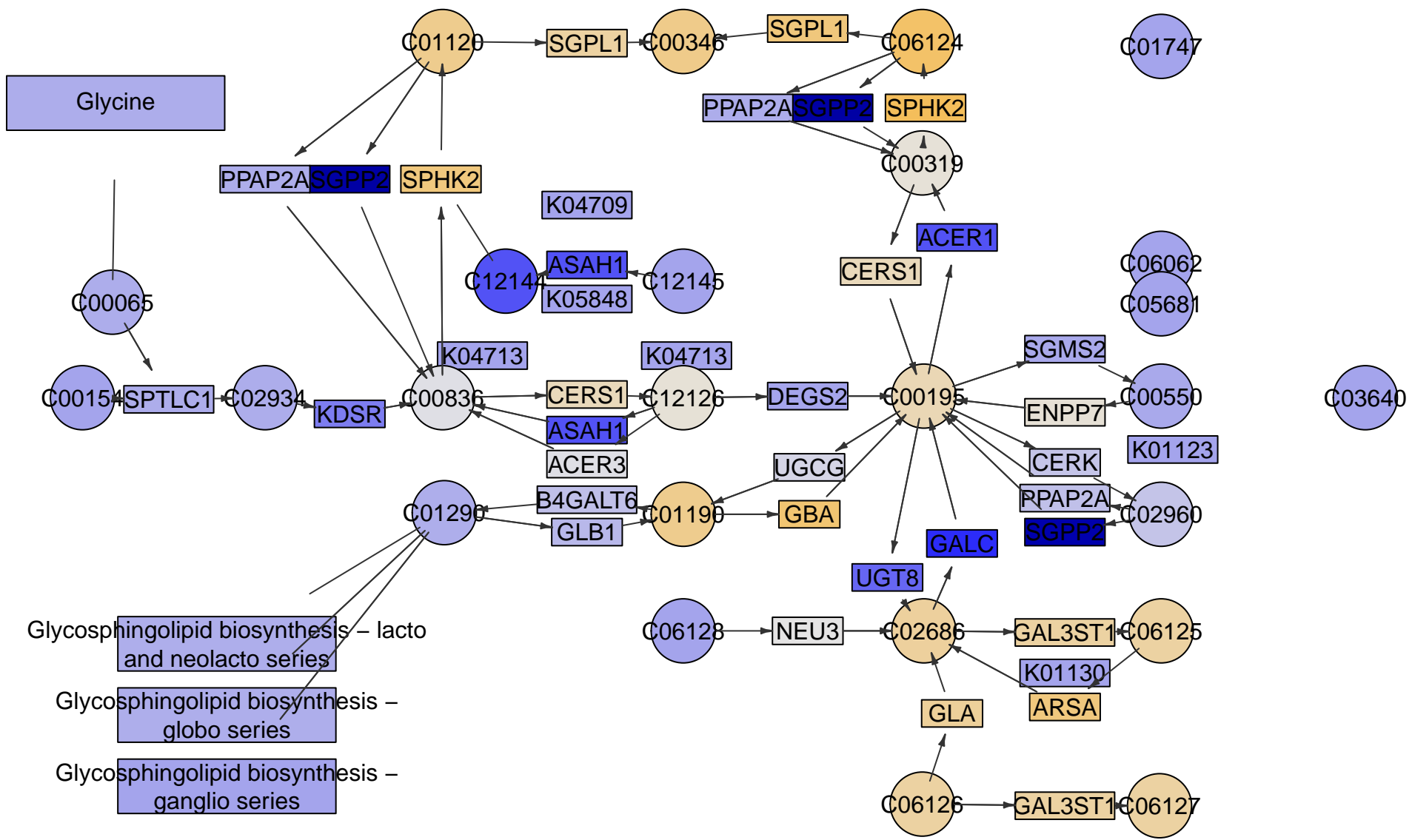
Spingolipid metabolism  
MPI-213



Spingolipid metabolism  
MPI-215

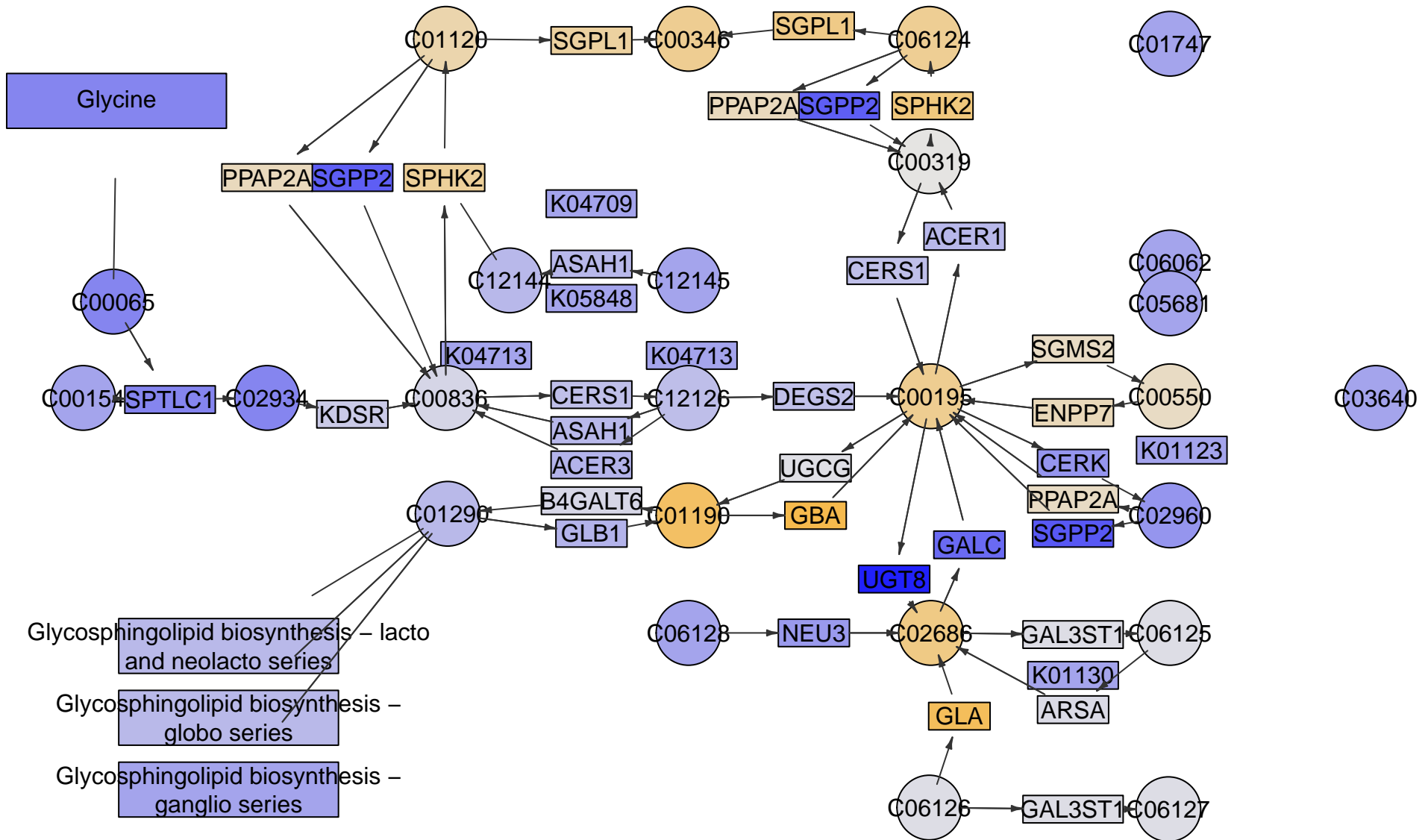


Spingolipid metabolism  
MPI-219

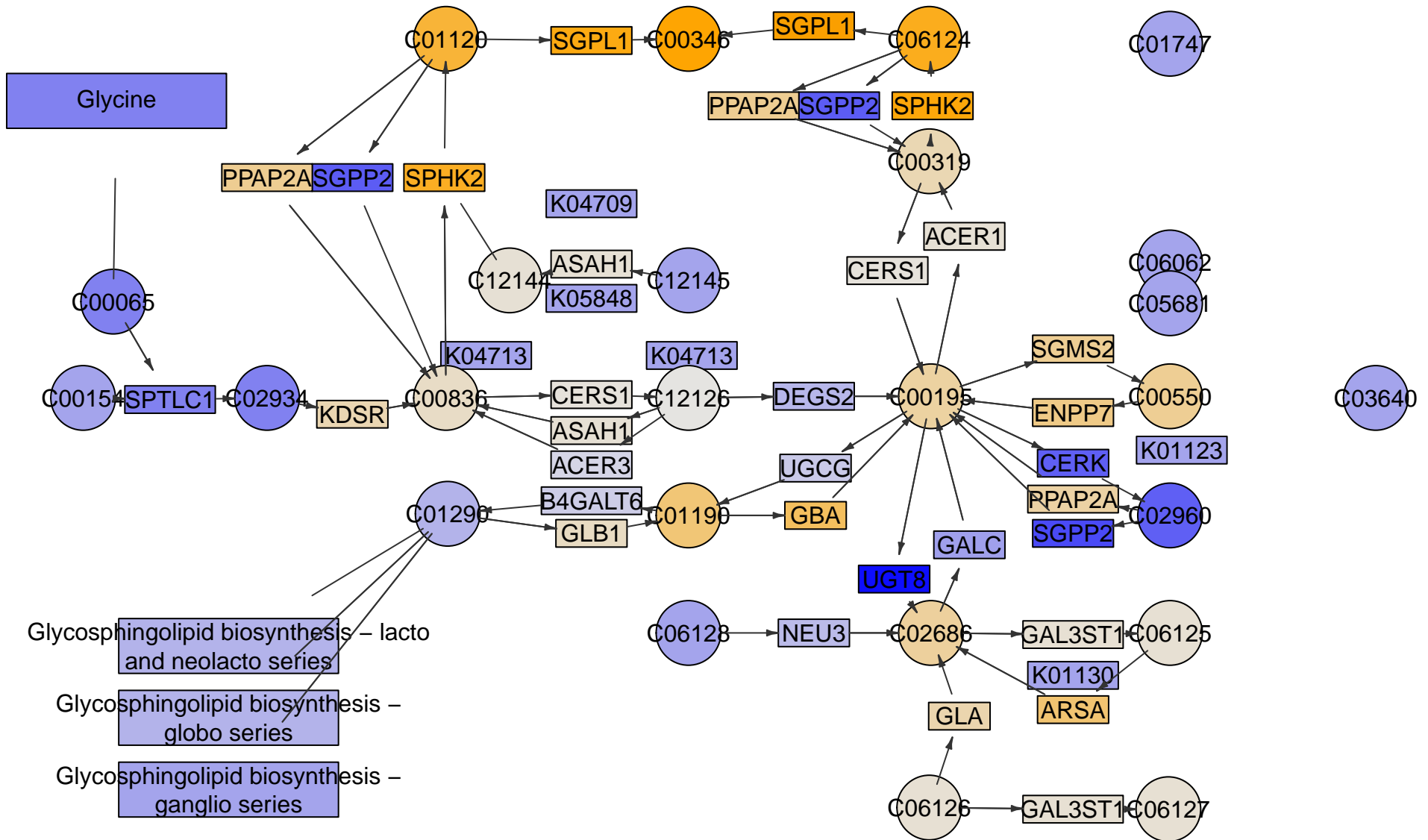




Spingolipid metabolism  
MPI-221

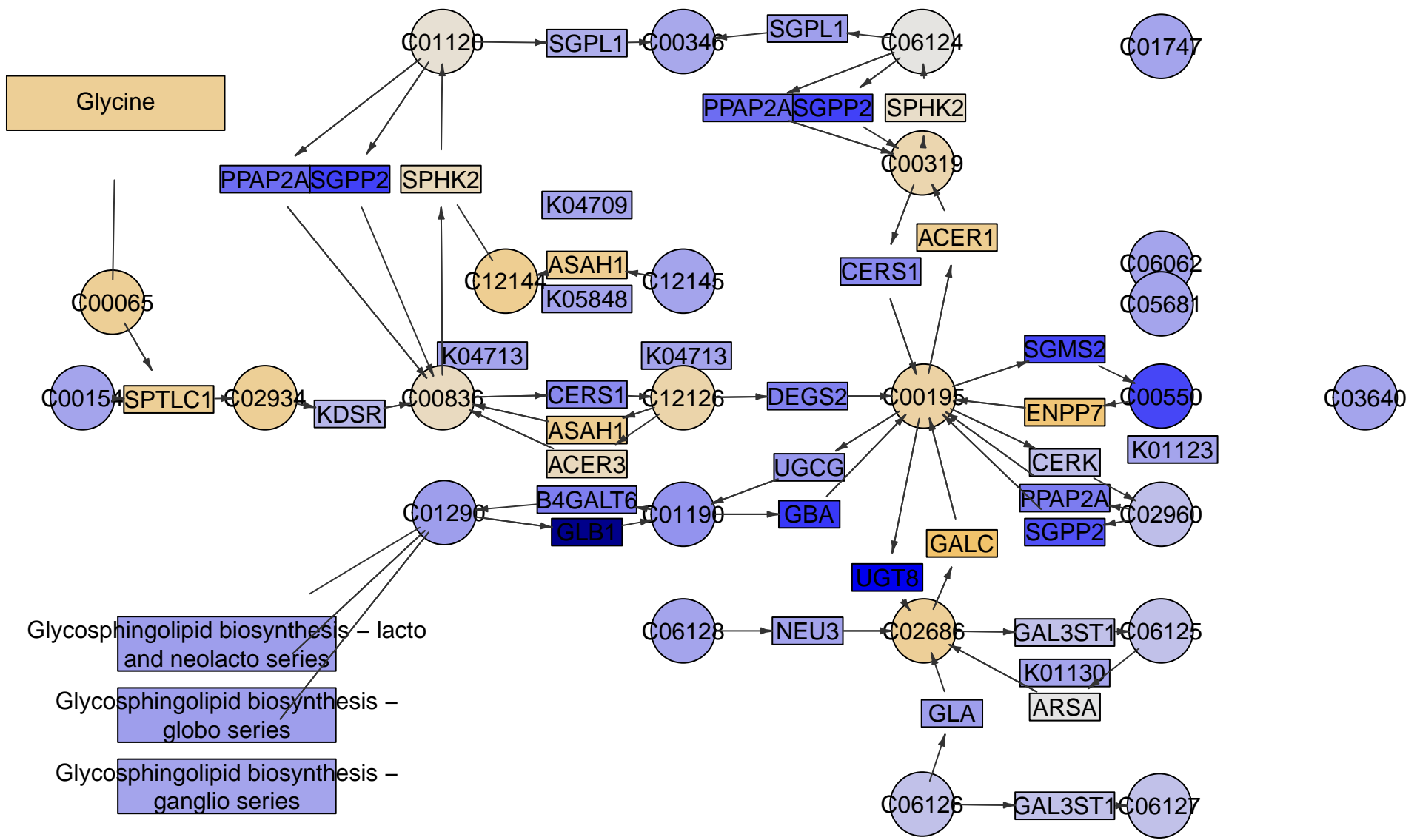


Spingolipid metabolism  
MPI-223a



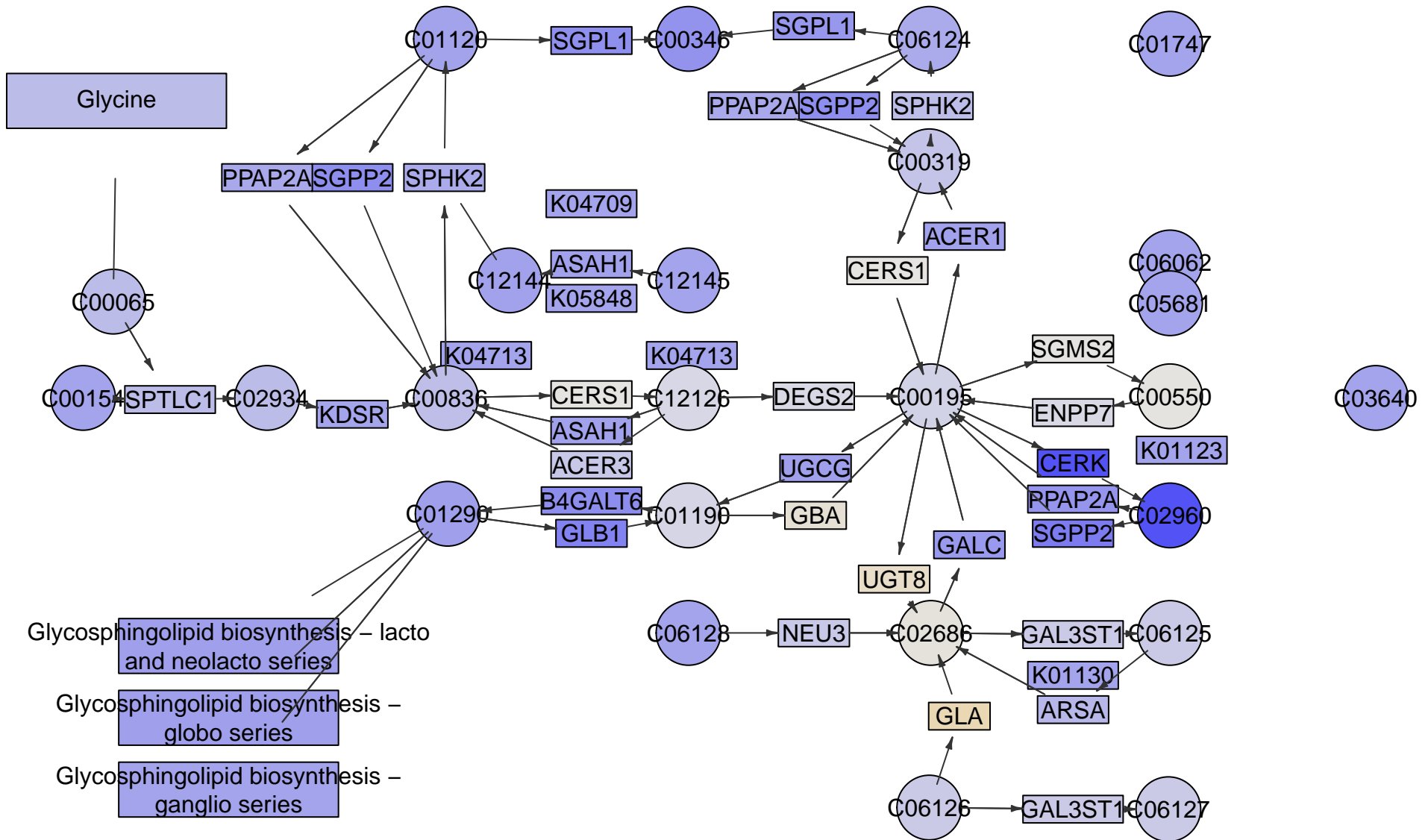


Spingolipid metabolism  
MPI-226



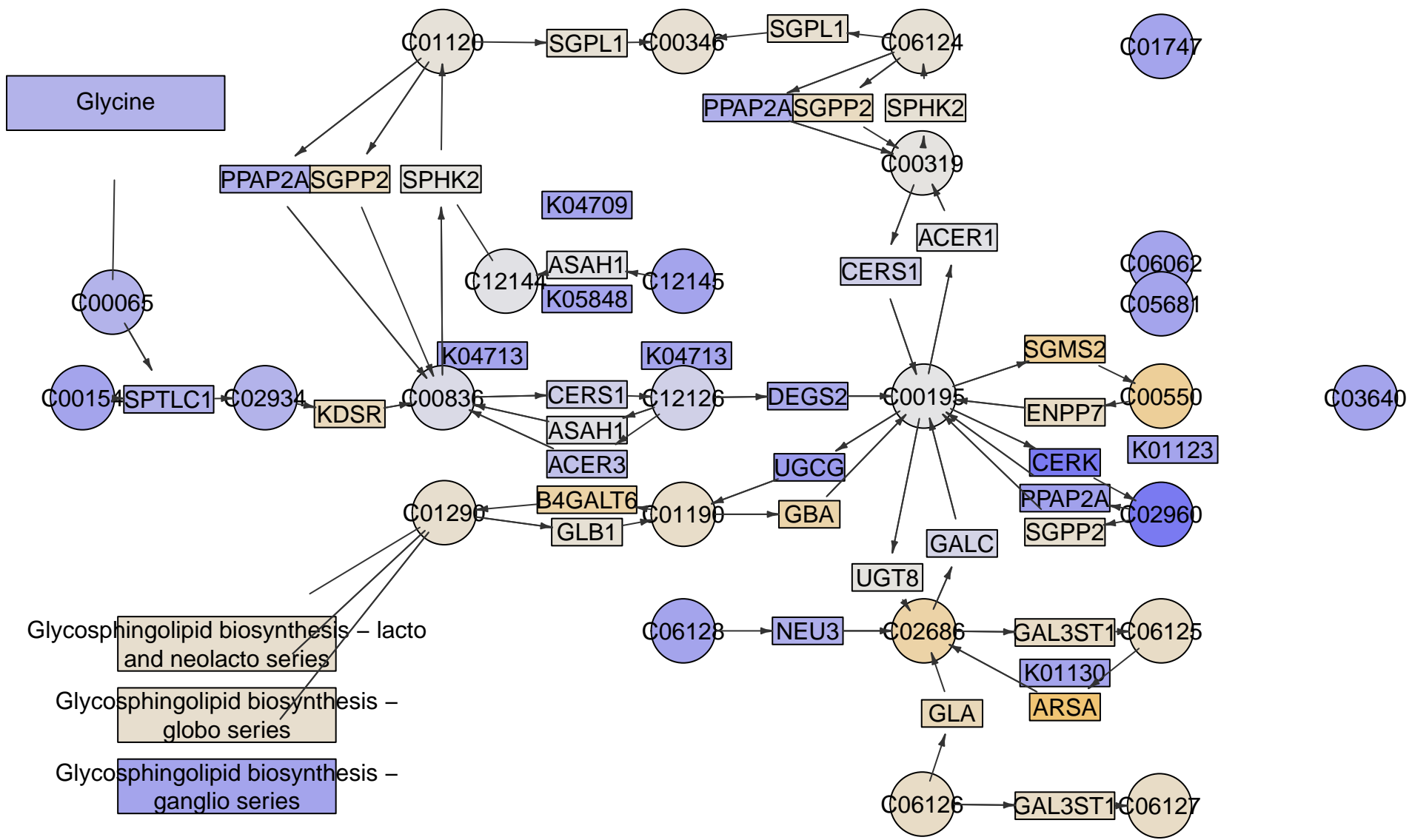


Spingolipid metabolism  
MPI-228





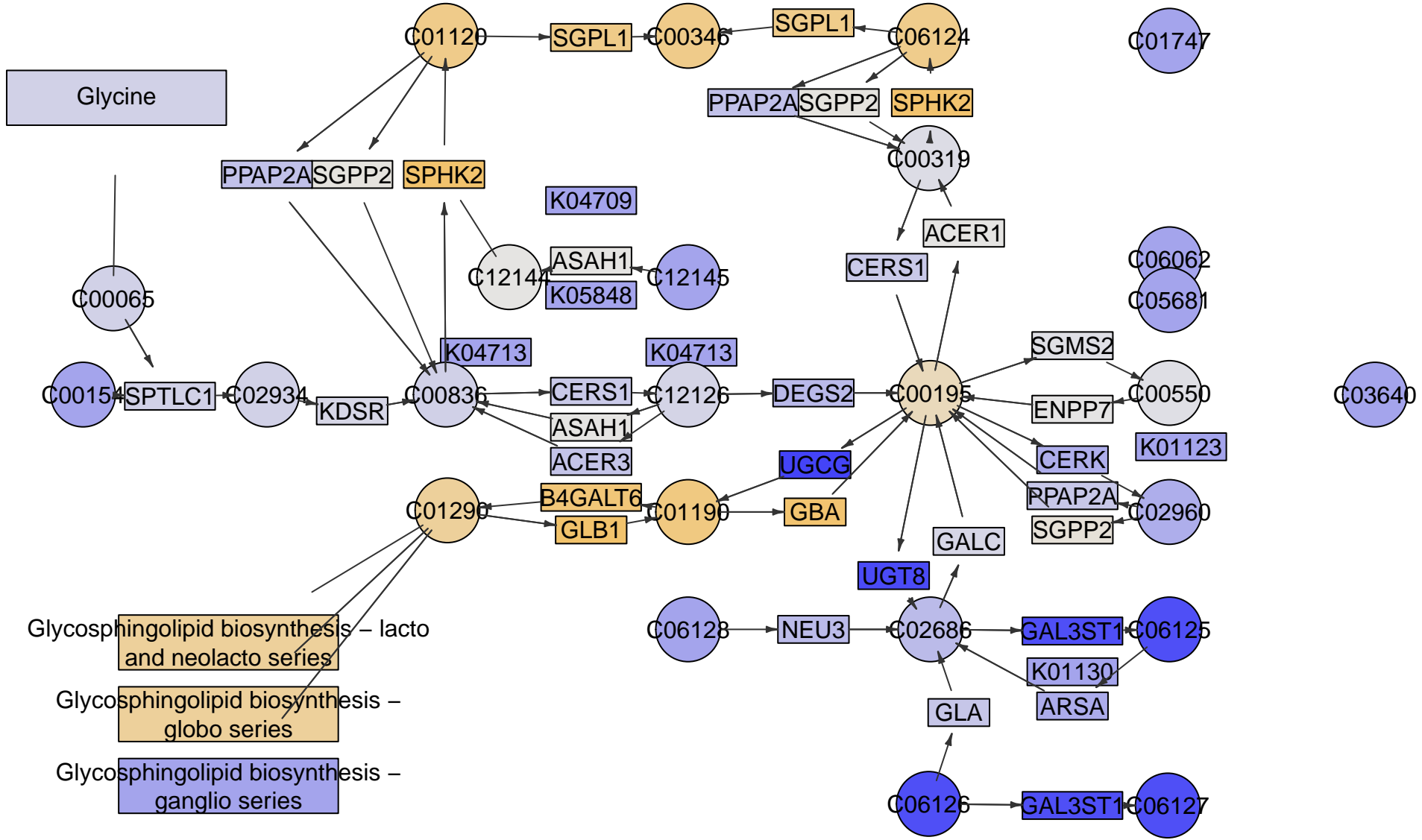
Spingolipid metabolism  
MPI-230



- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series



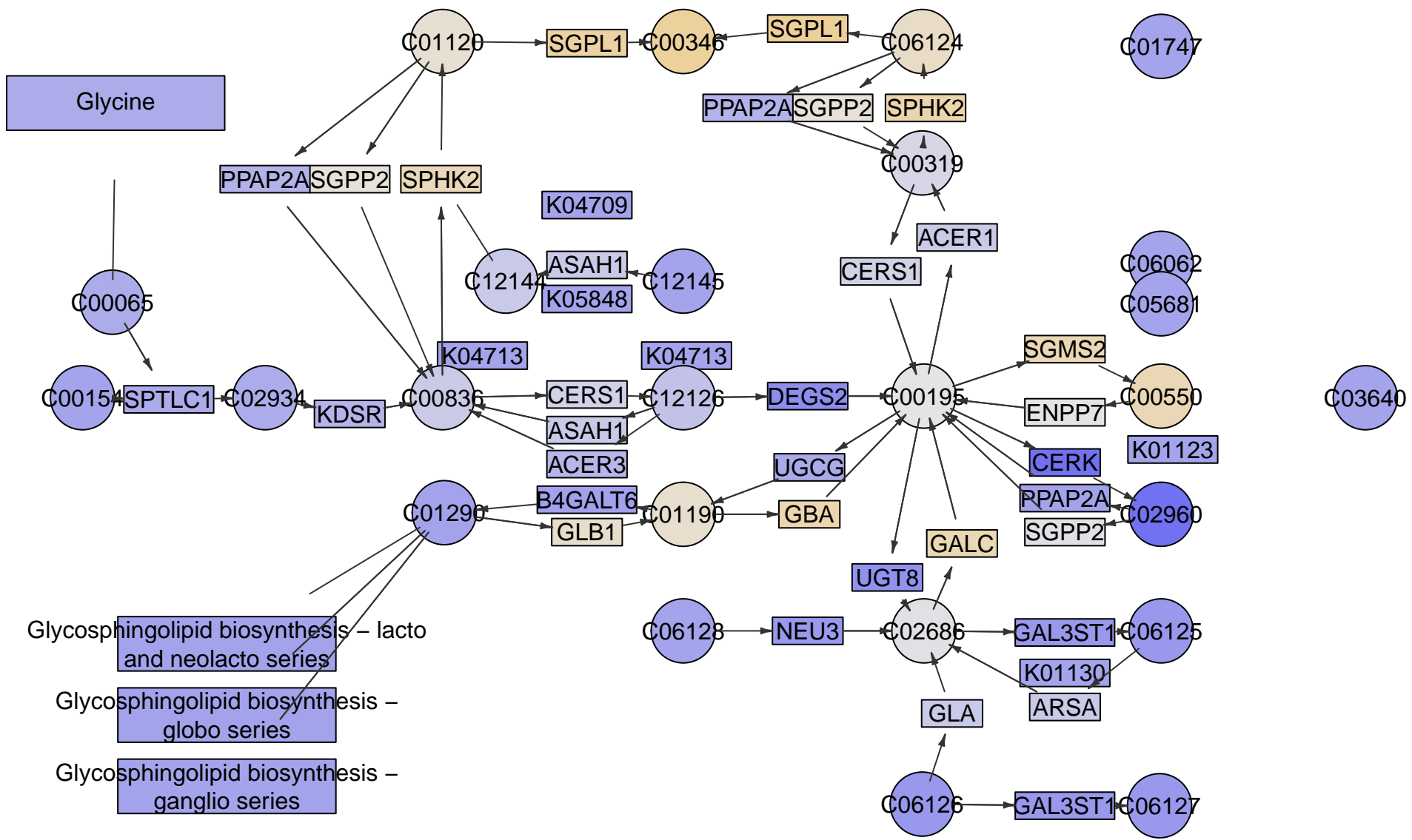
Spingolipid metabolism  
MPI-231



Glycine

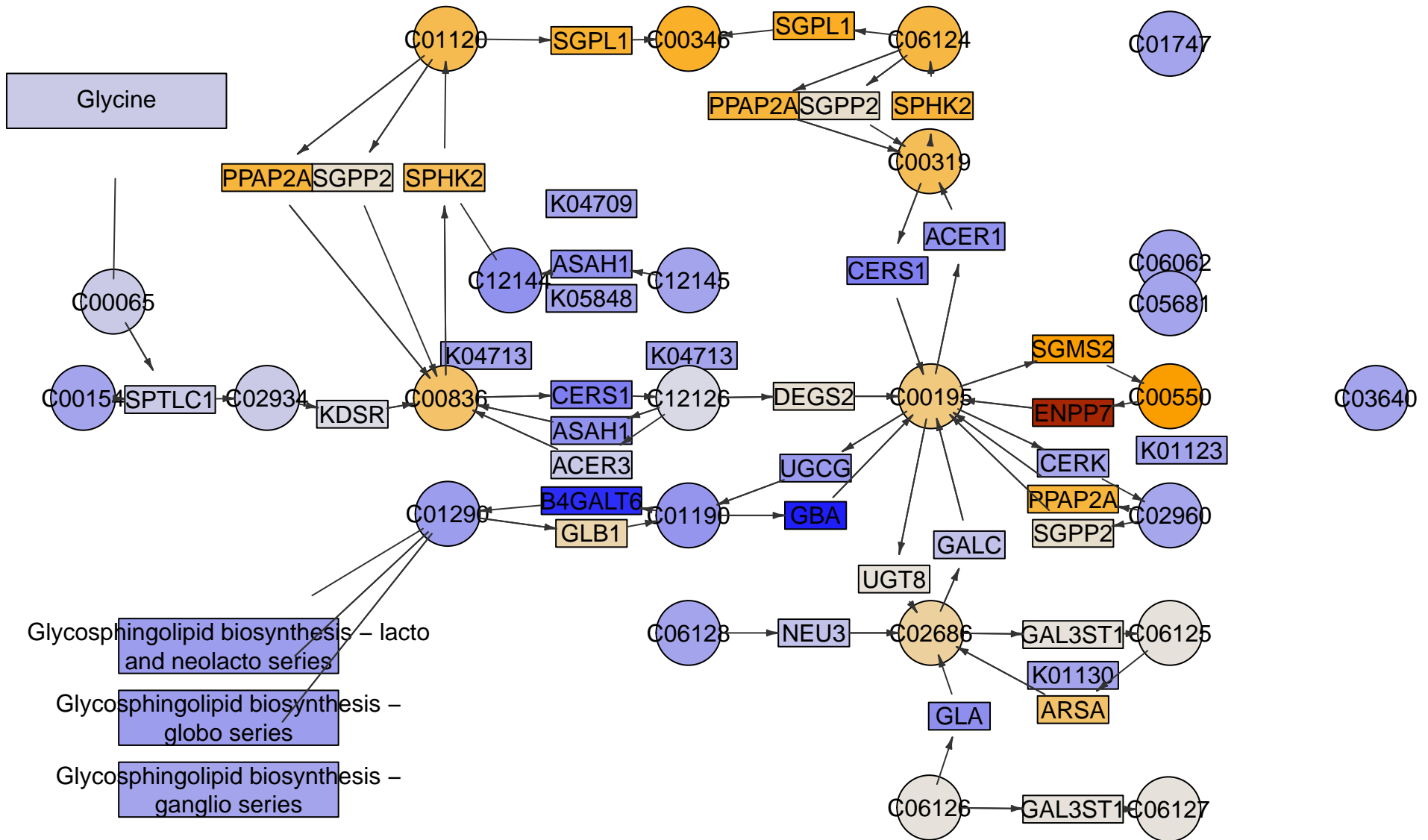
- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

Spingolipid metabolism  
MPI-232

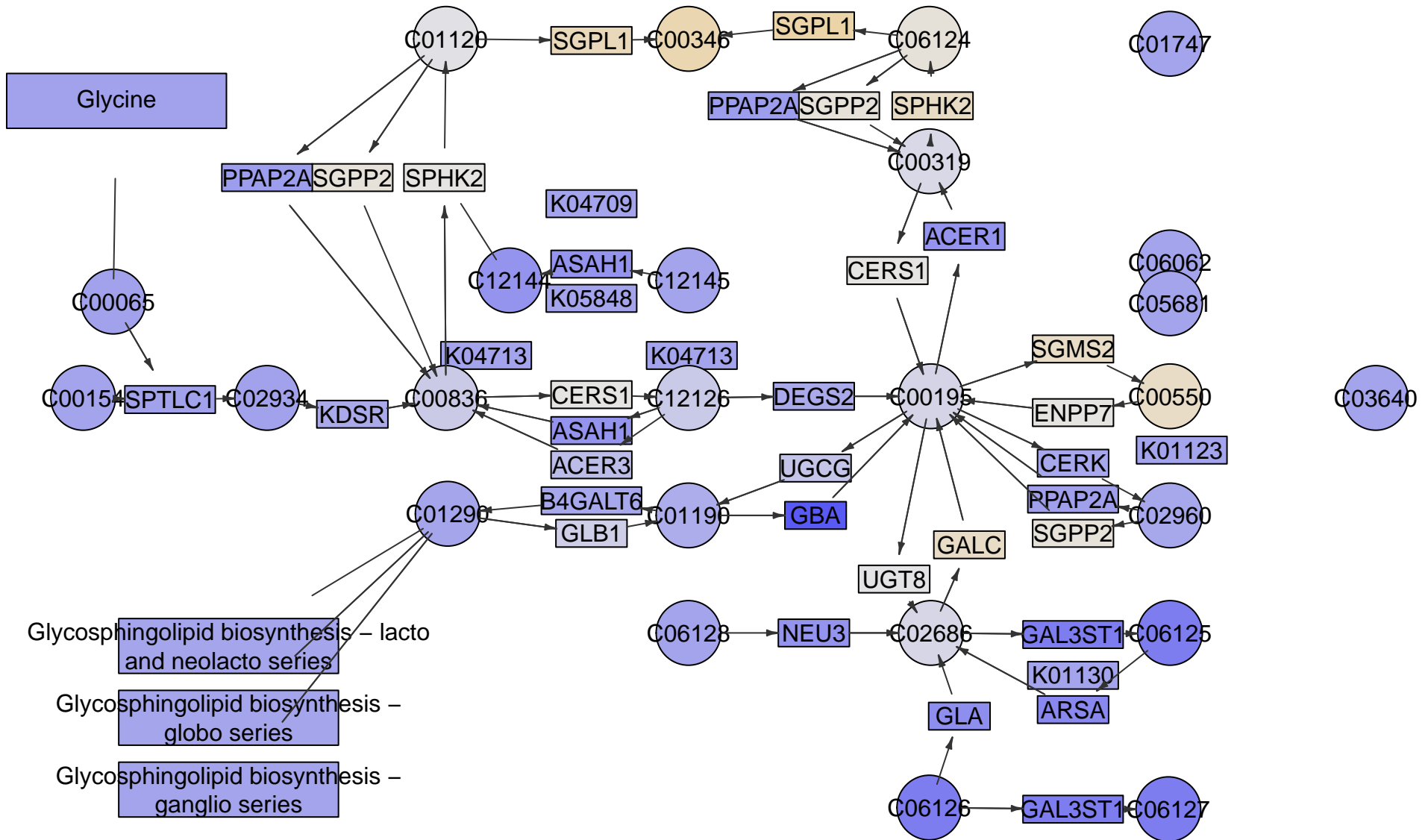


- Glycosphingolipid biosynthesis – lacto and neolacto series
- Glycosphingolipid biosynthesis – globo series
- Glycosphingolipid biosynthesis – ganglio series

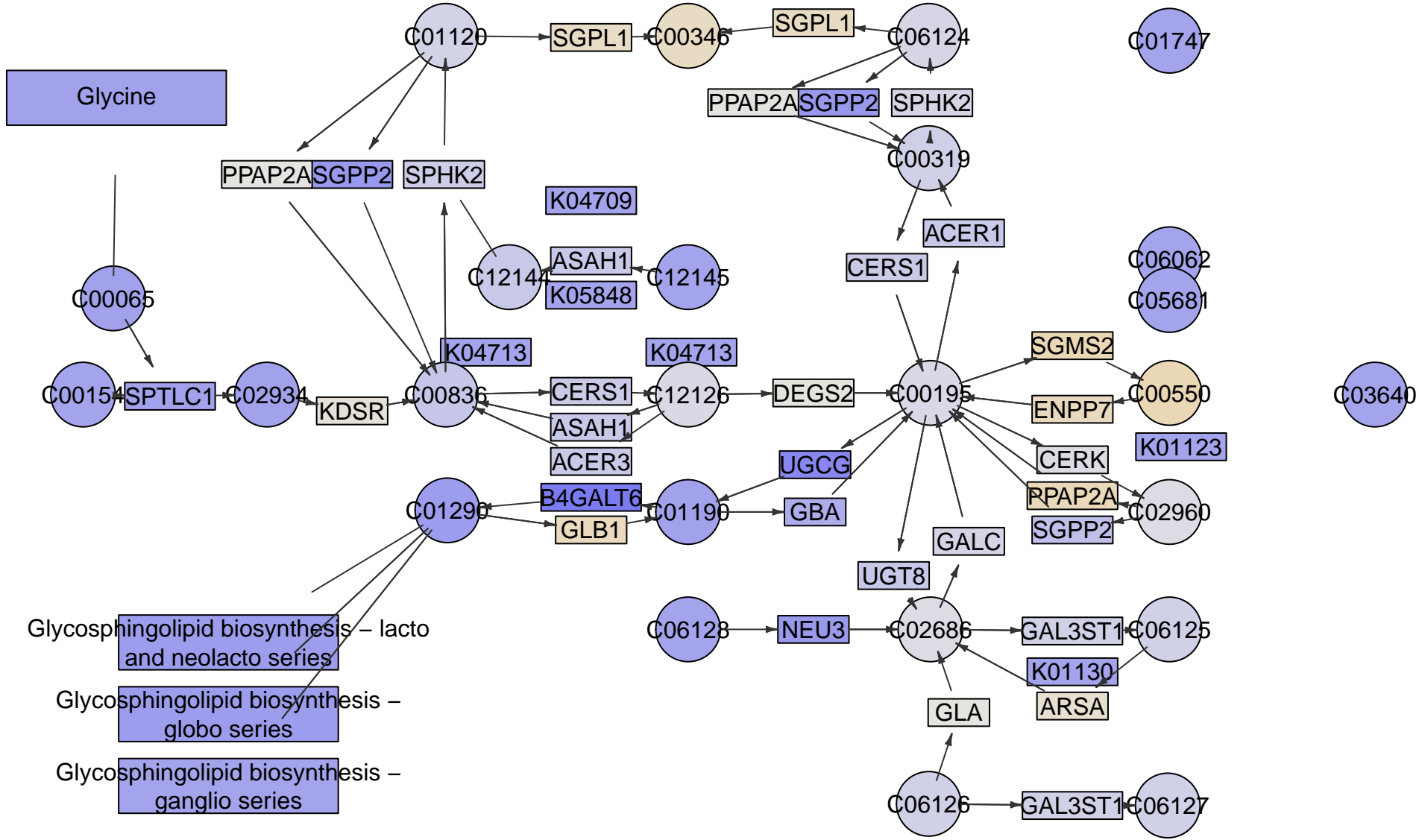
Spingolipid metabolism  
MPI-233



Spingolipid metabolism  
MPI-234

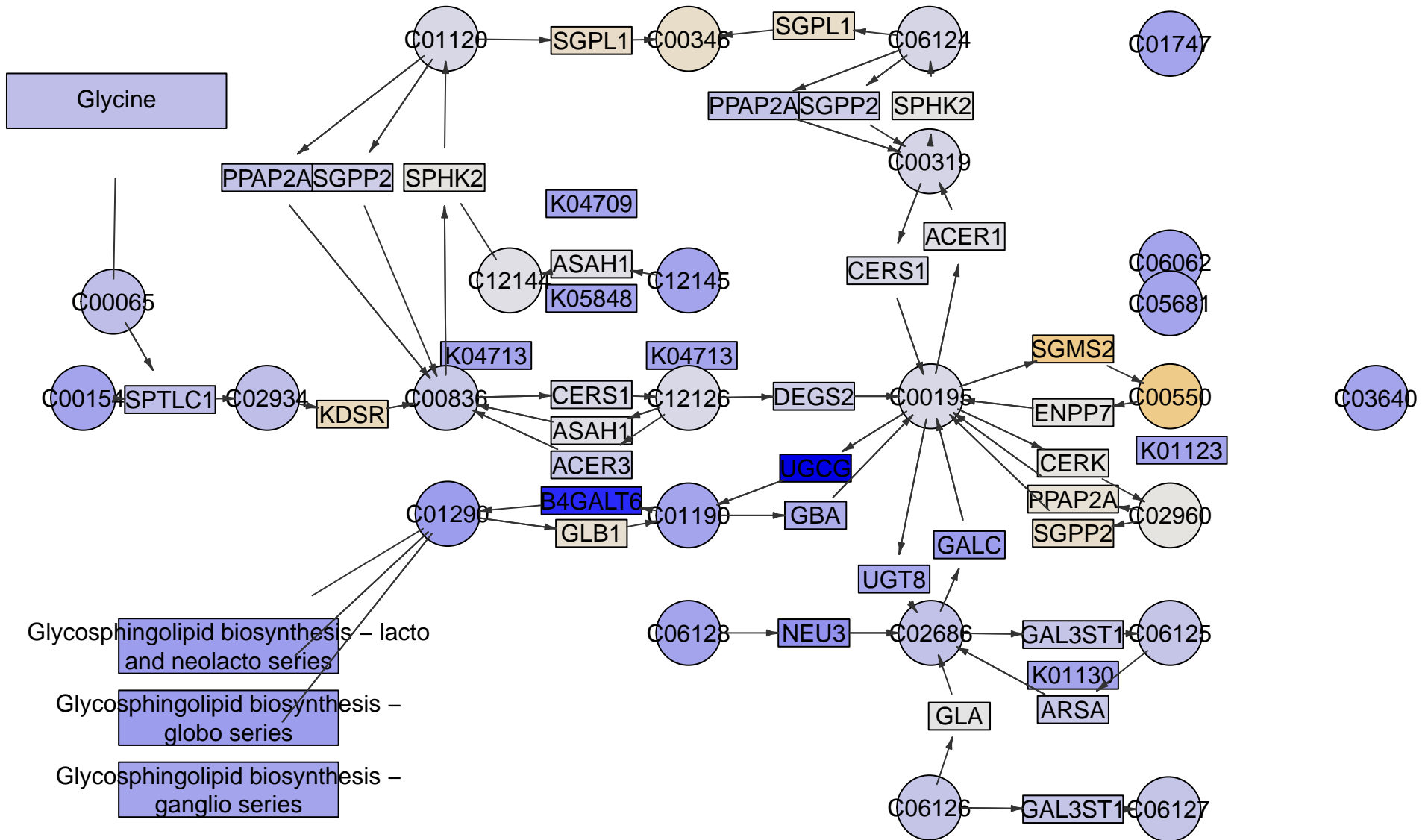


Spingolipid metabolism  
MPI-235

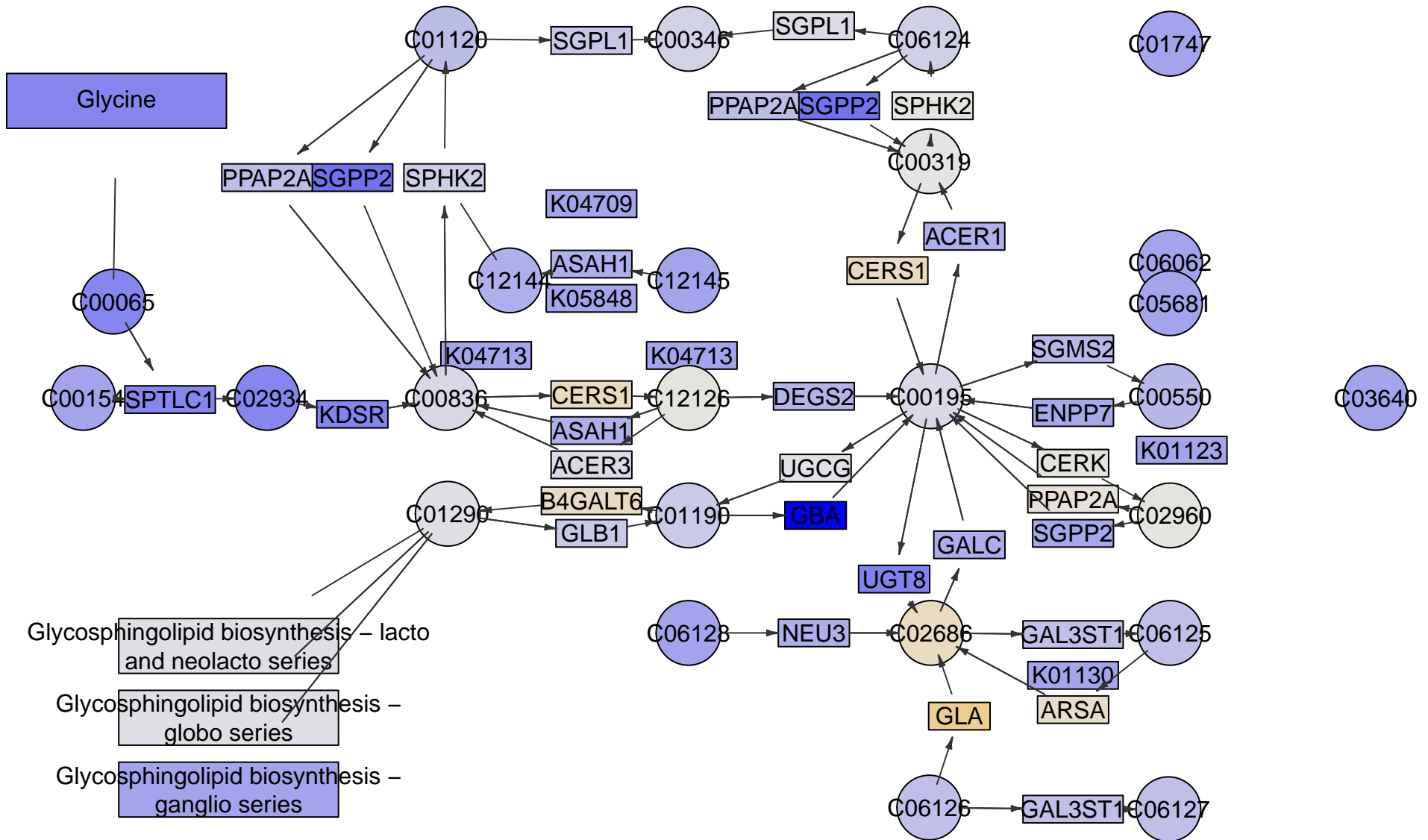




Spingolipid metabolism  
MPI-237

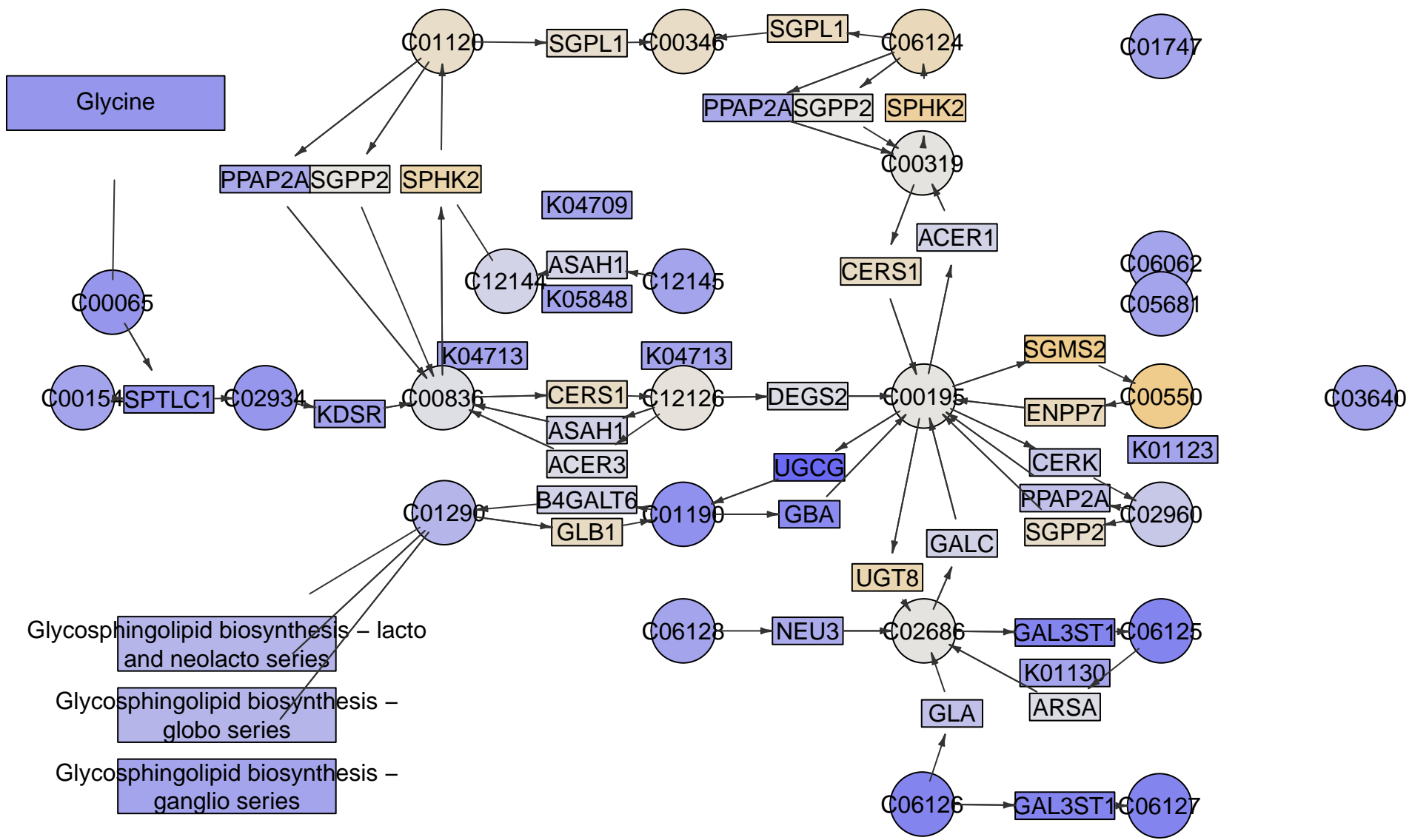


Spingolipid metabolism  
MPI-239

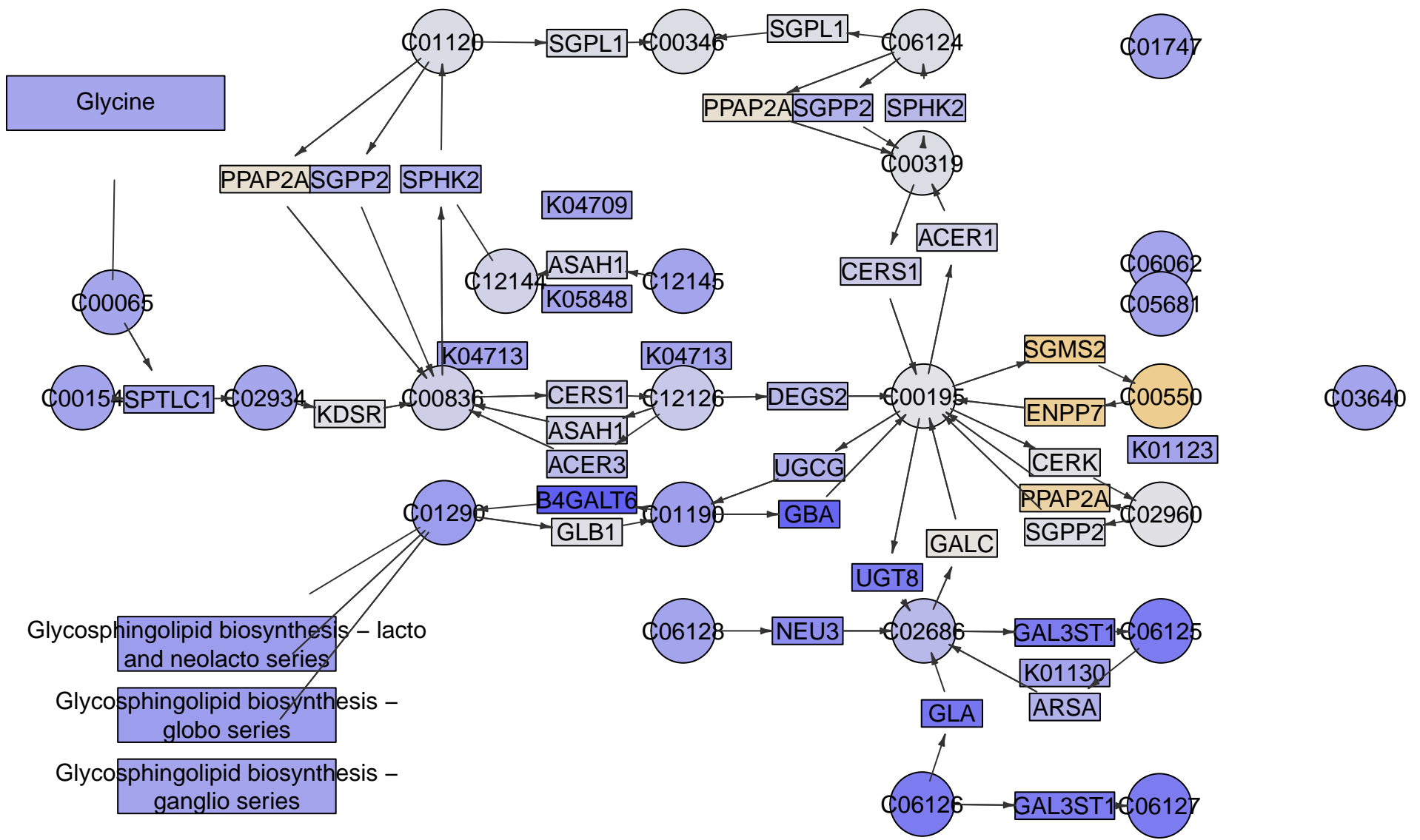




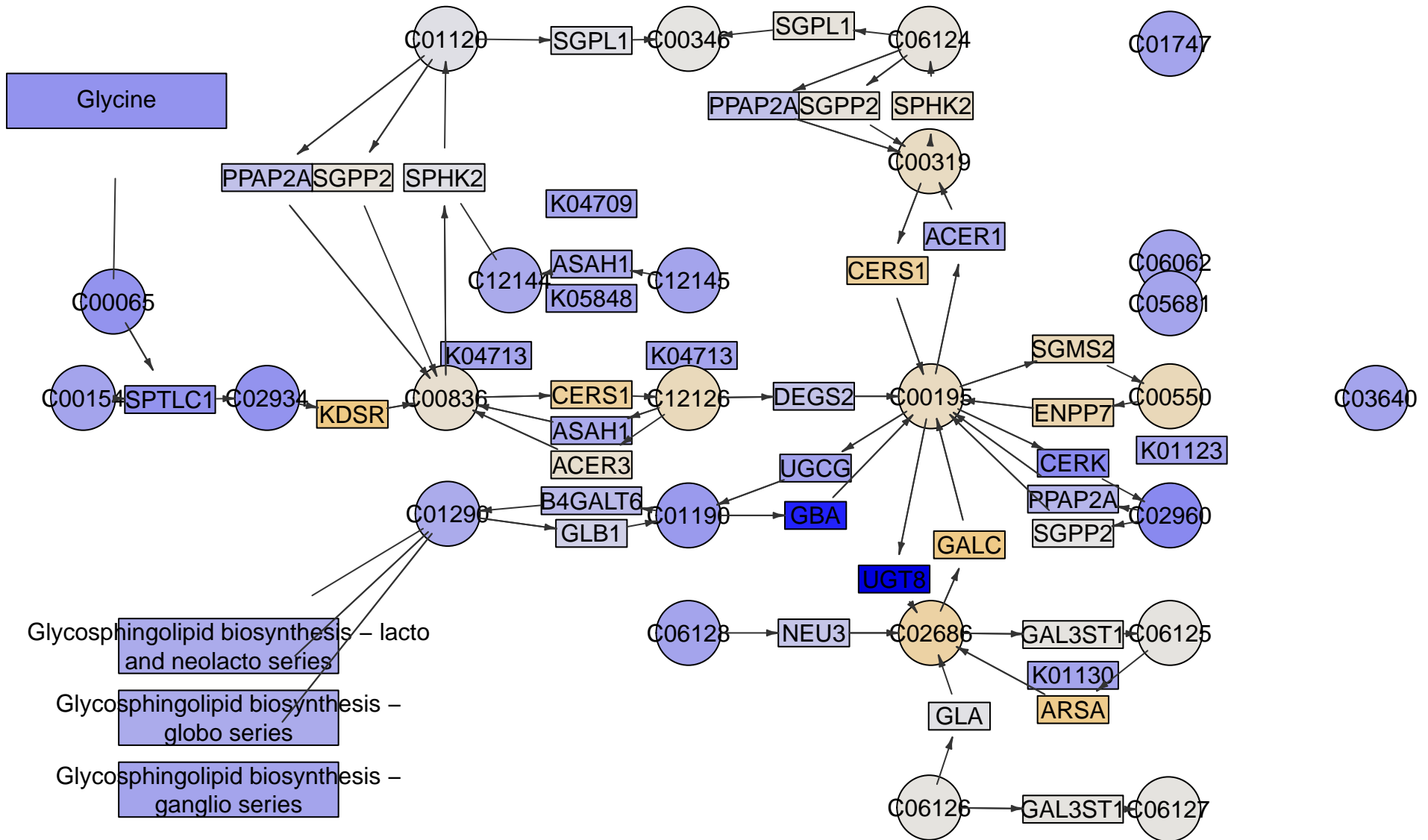
Spingolipid metabolism  
MPI-241



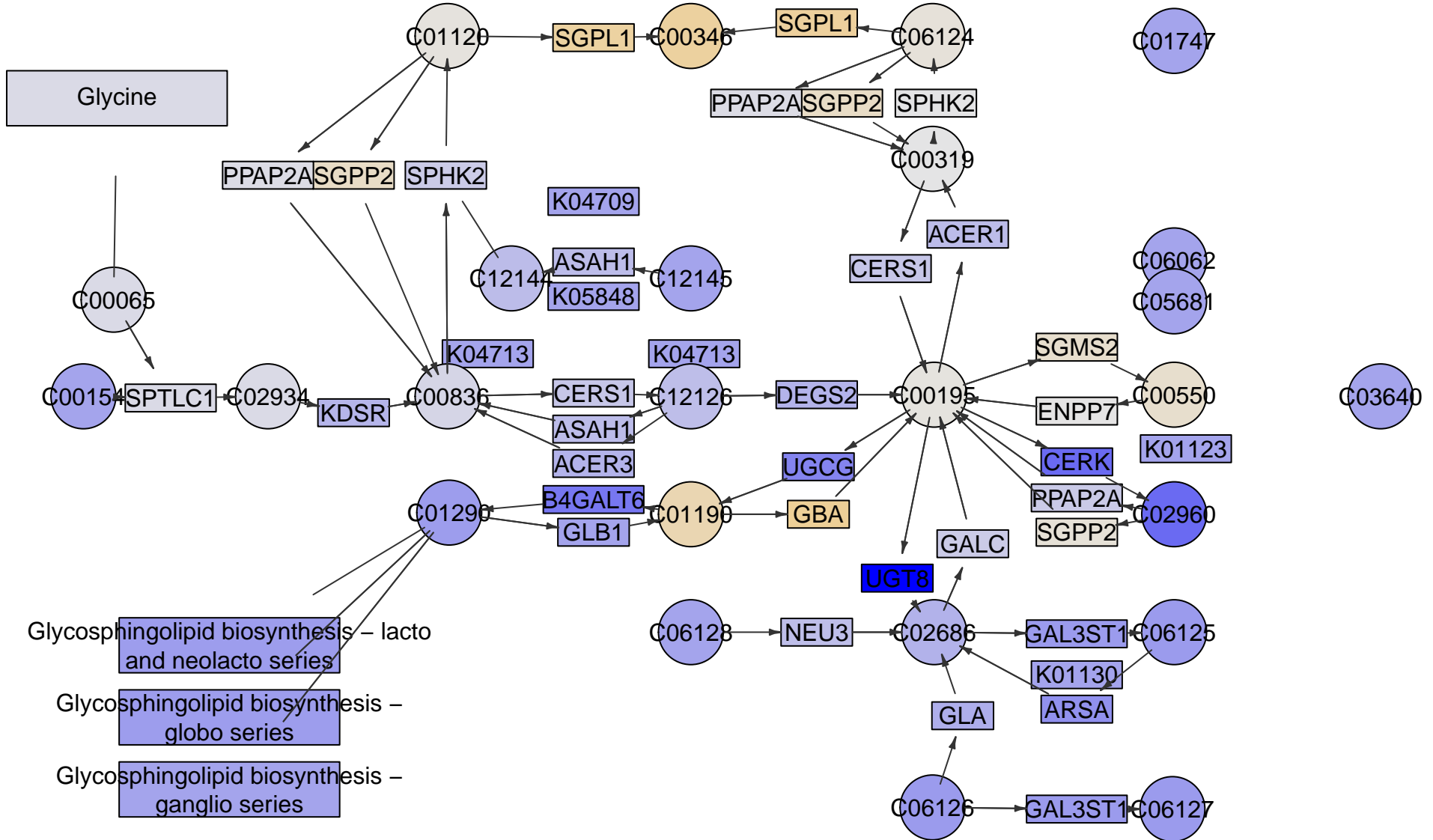
Spingolipid metabolism  
MPI-243



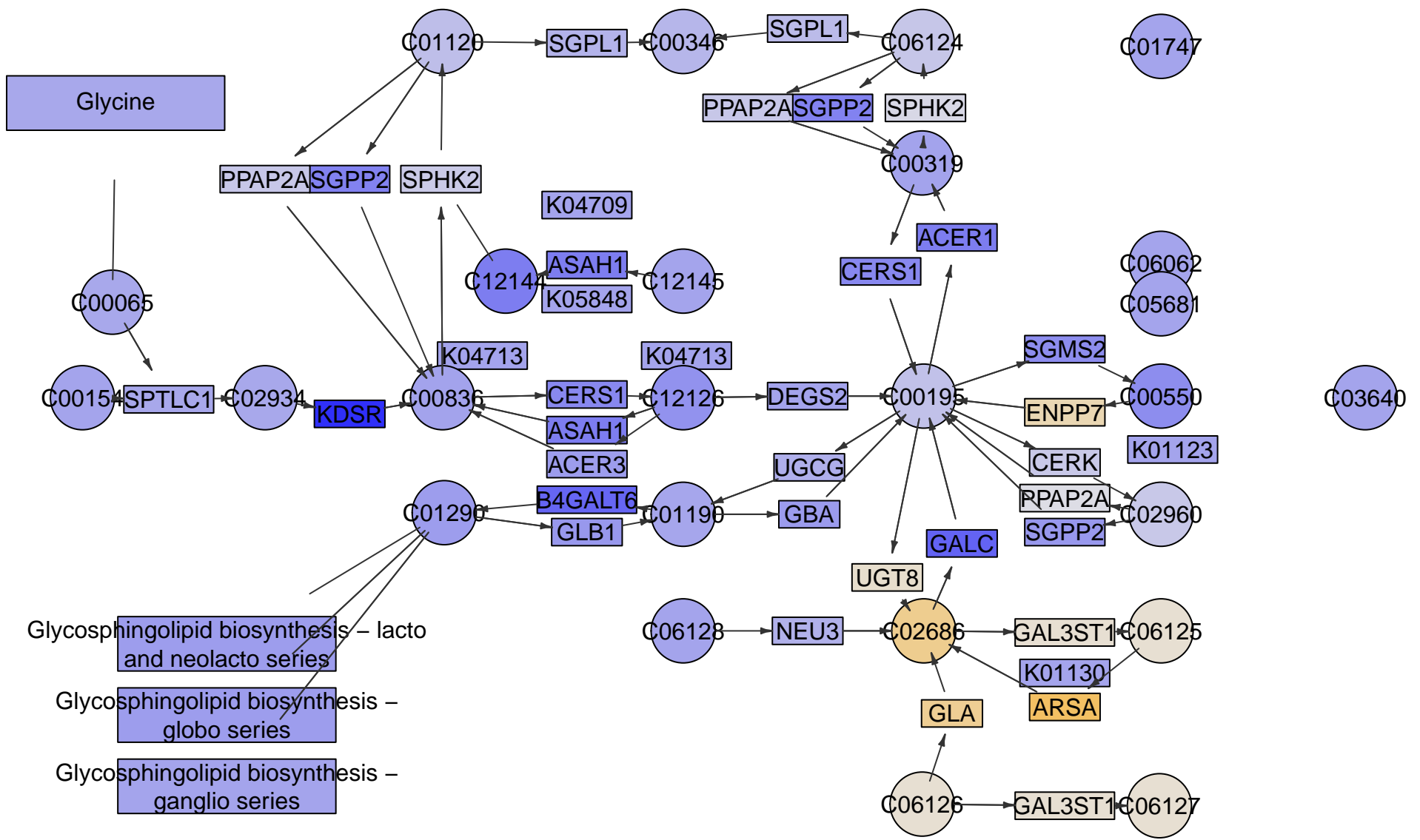
Spingolipid metabolism  
MPI-244



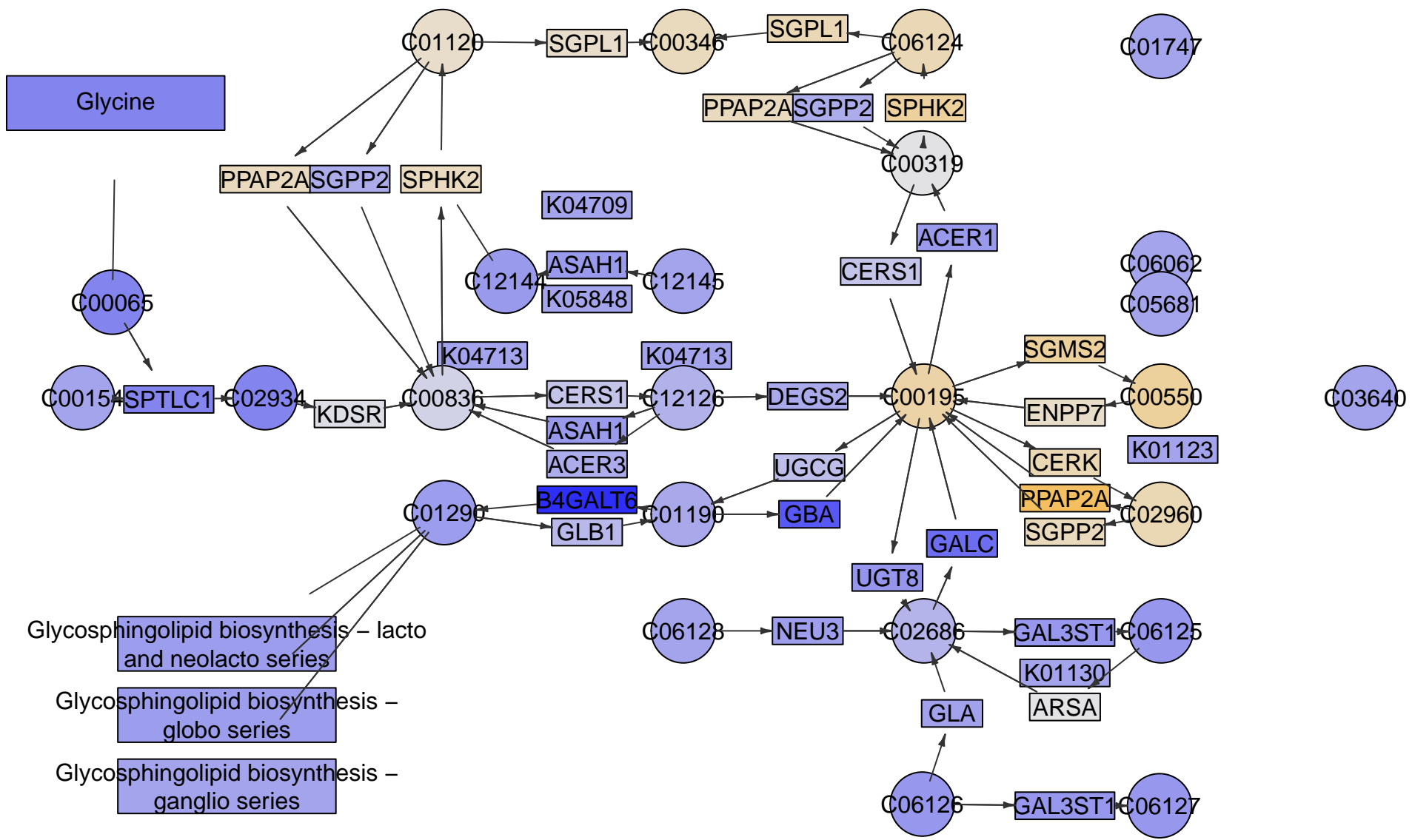
Spingolipid metabolism  
MPI-246



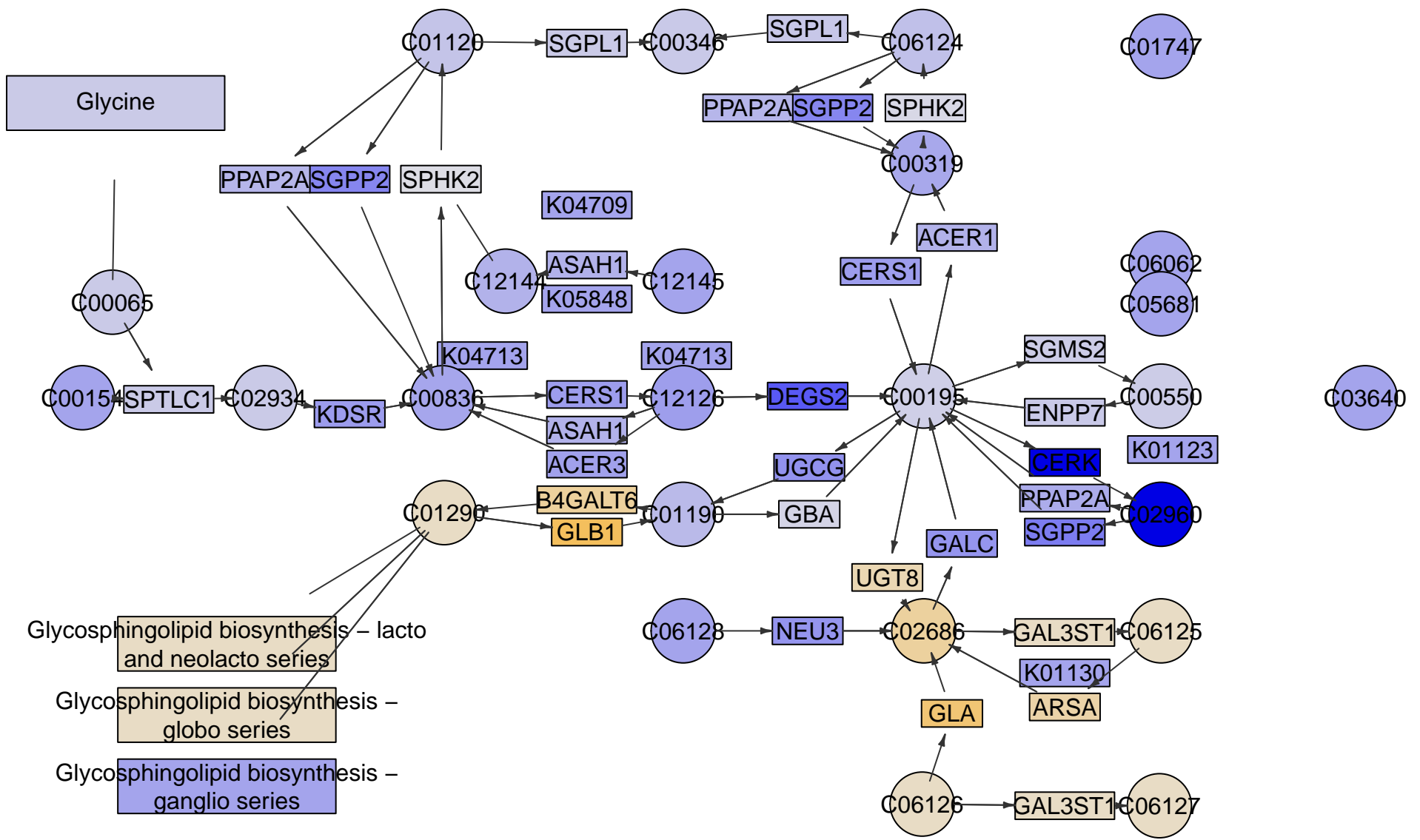
Spingolipid metabolism  
MPI-247



Spingolipid metabolism  
MPI-251



Spingolipid metabolism  
MPI-255



Glycosphingolipid biosynthesis – lacto  
and neolacto series

Glycosphingolipid biosynthesis –  
globo series

Glycosphingolipid biosynthesis –  
ganglio series

Spingolipid metabolism  
MPI-223b

