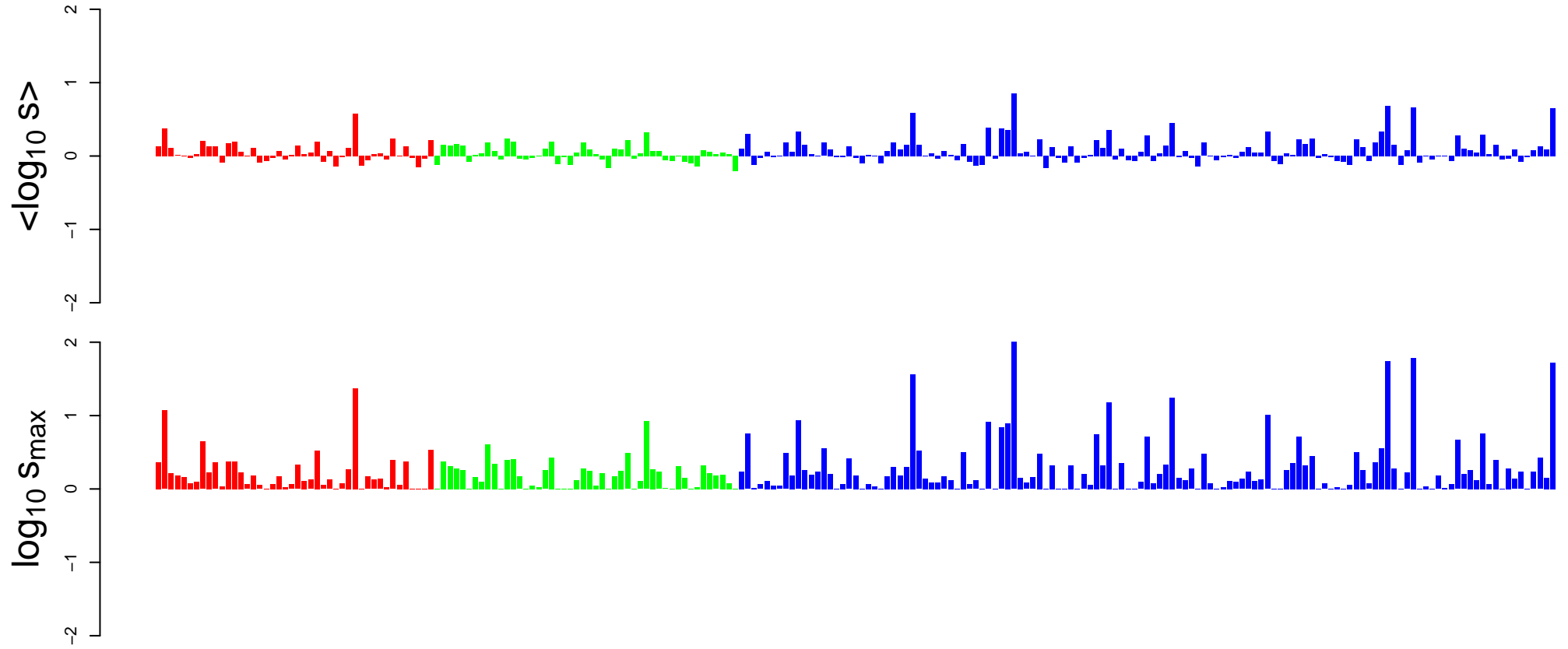
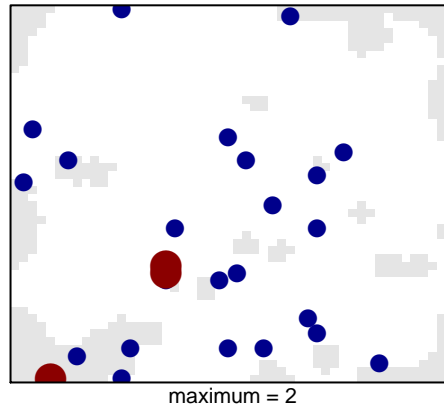
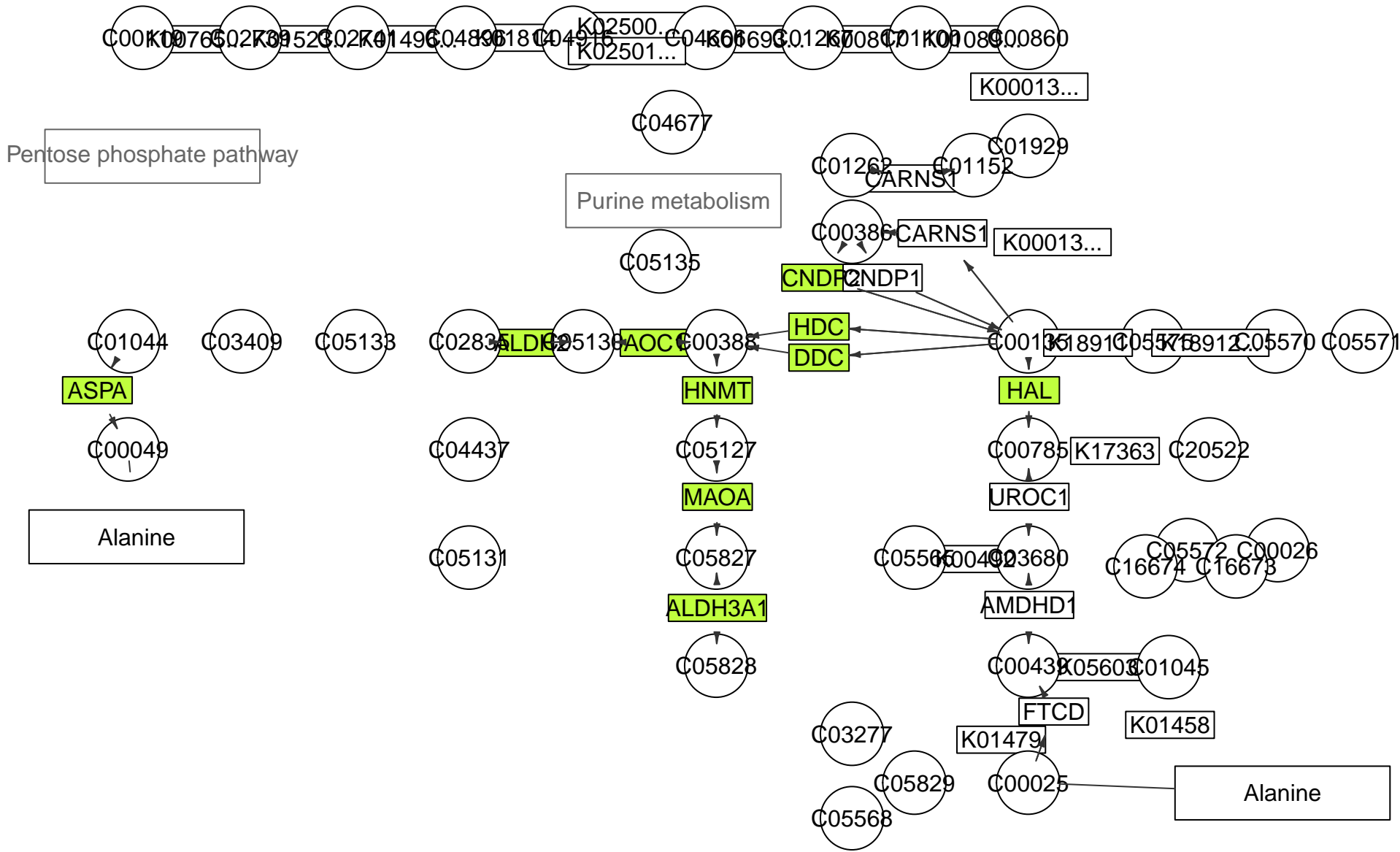


# Histidine metabolism

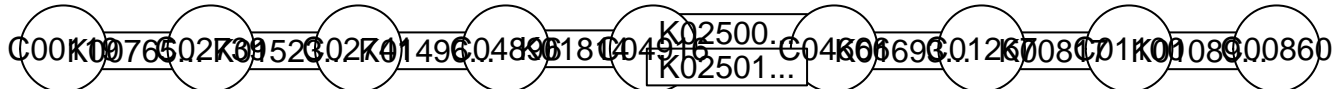
all genes



Histidine metabolism  
(genes with data)

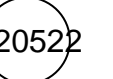
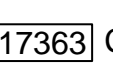
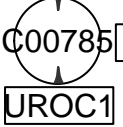
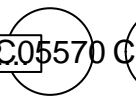
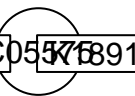
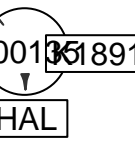
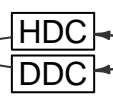
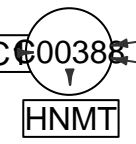
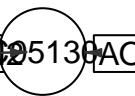
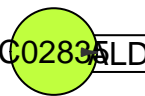
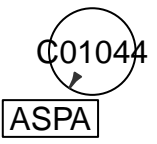


Histidine metabolism  
(sink nodes)

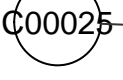
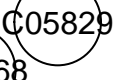
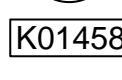
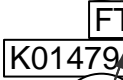
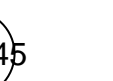
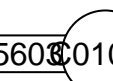
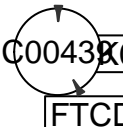
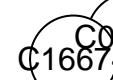
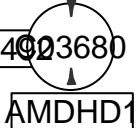
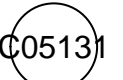


Pentose phosphate pathway

Purine metabolism



Alanine

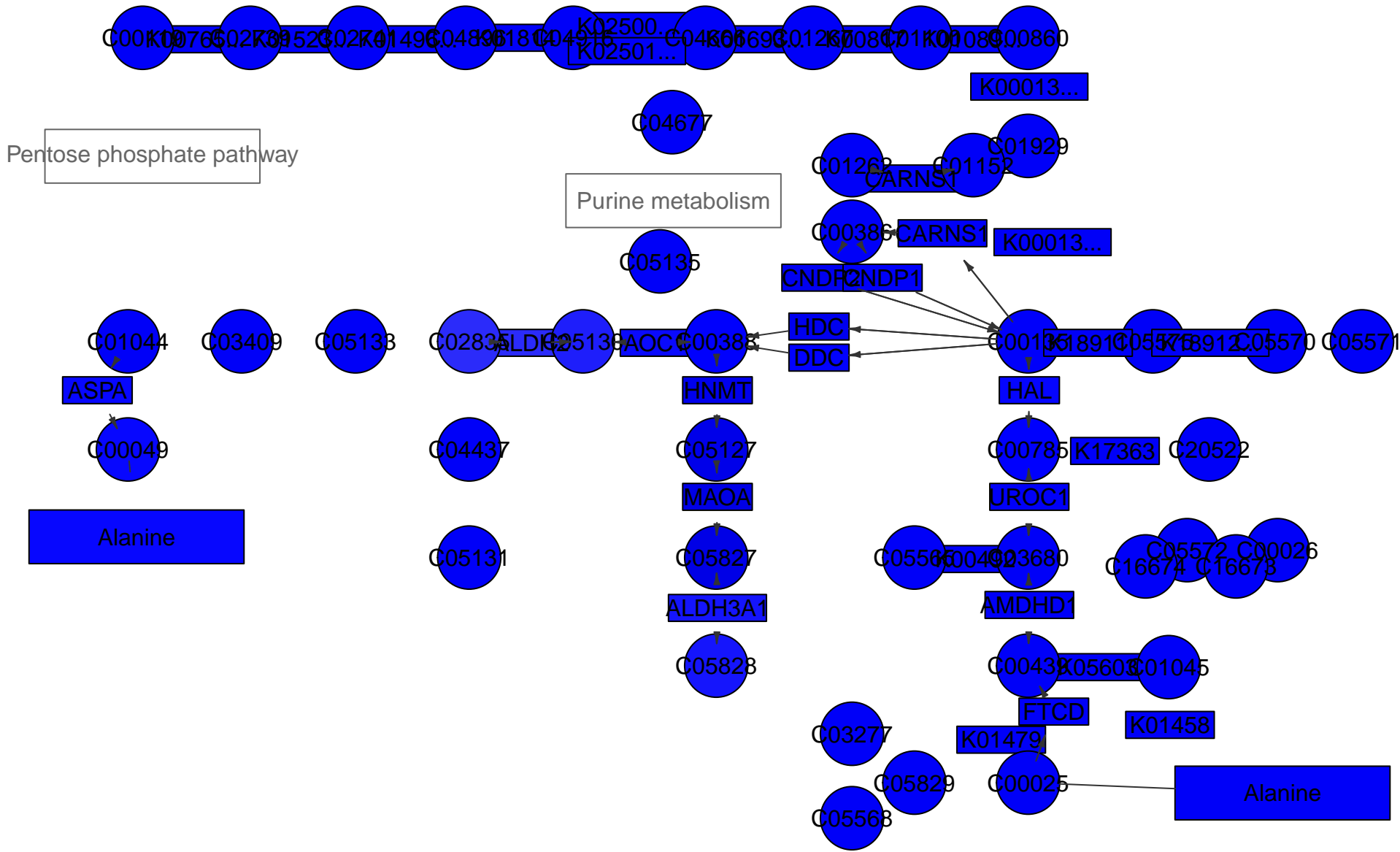


Alanine





Histidine metabolism  
MPI-003



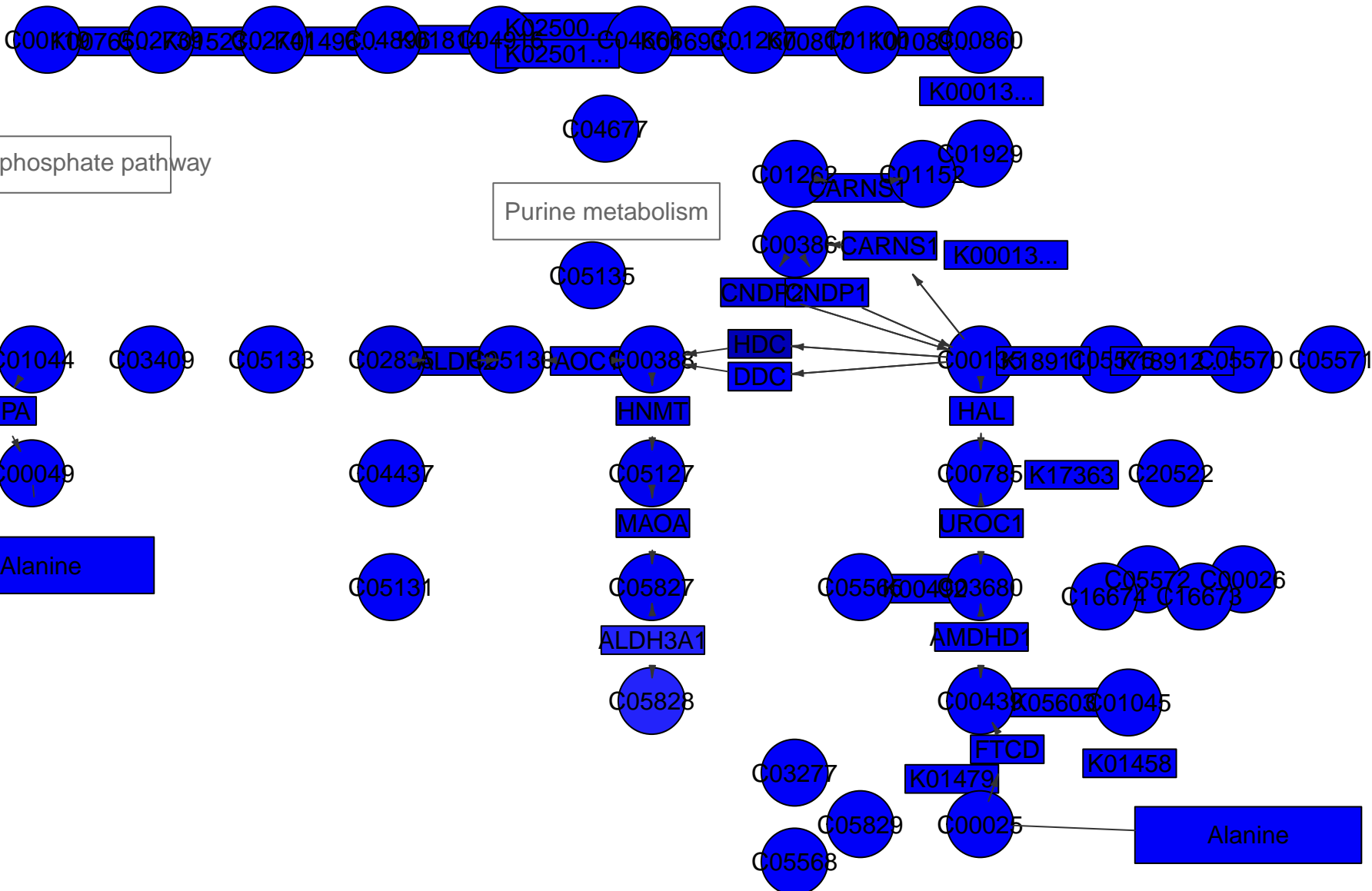
Histidine metabolism  
MPI-005

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



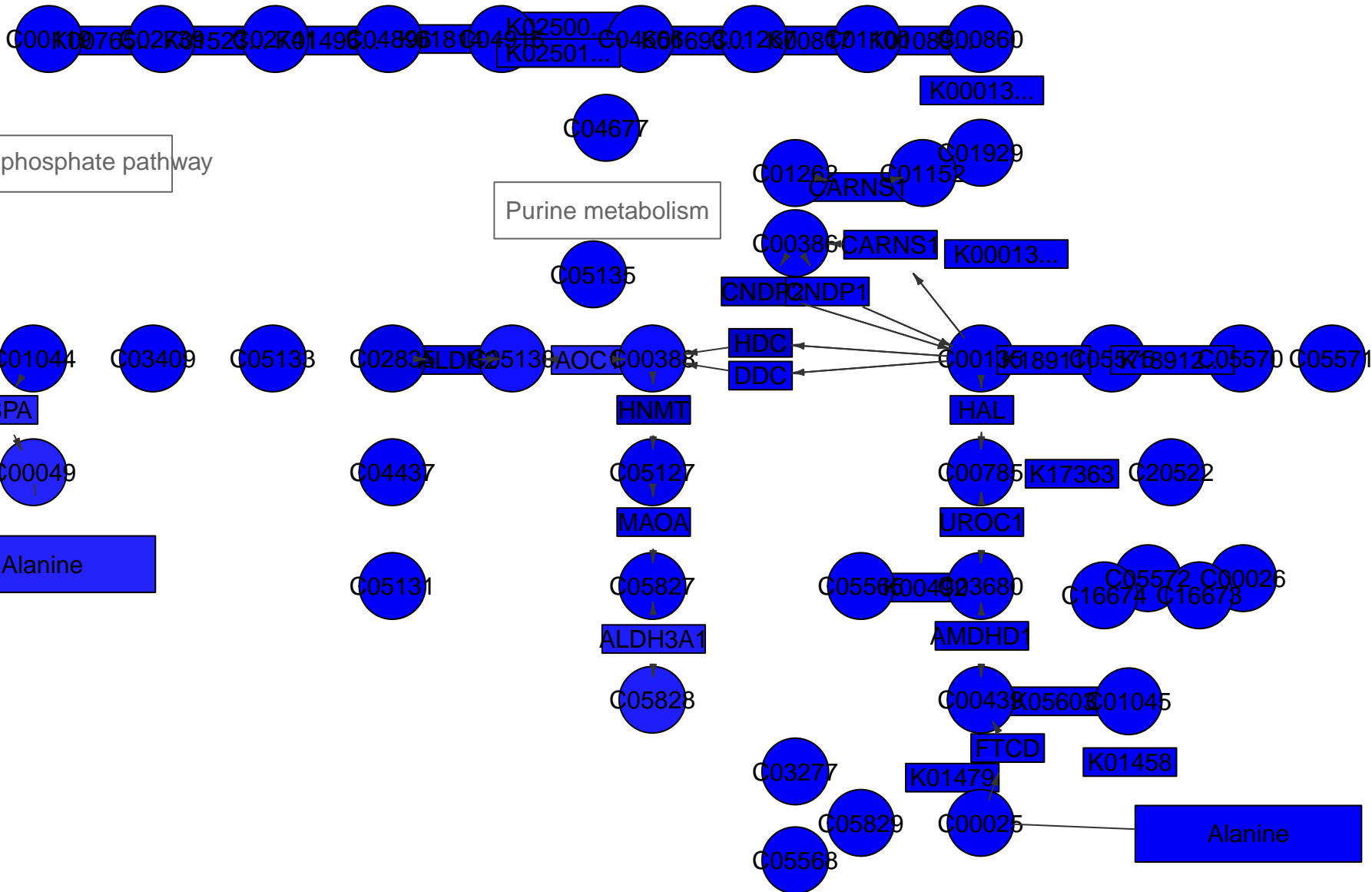
Histidine metabolism  
MPI-006

Pentose phosphate pathway

Purine metabolism

Alanine

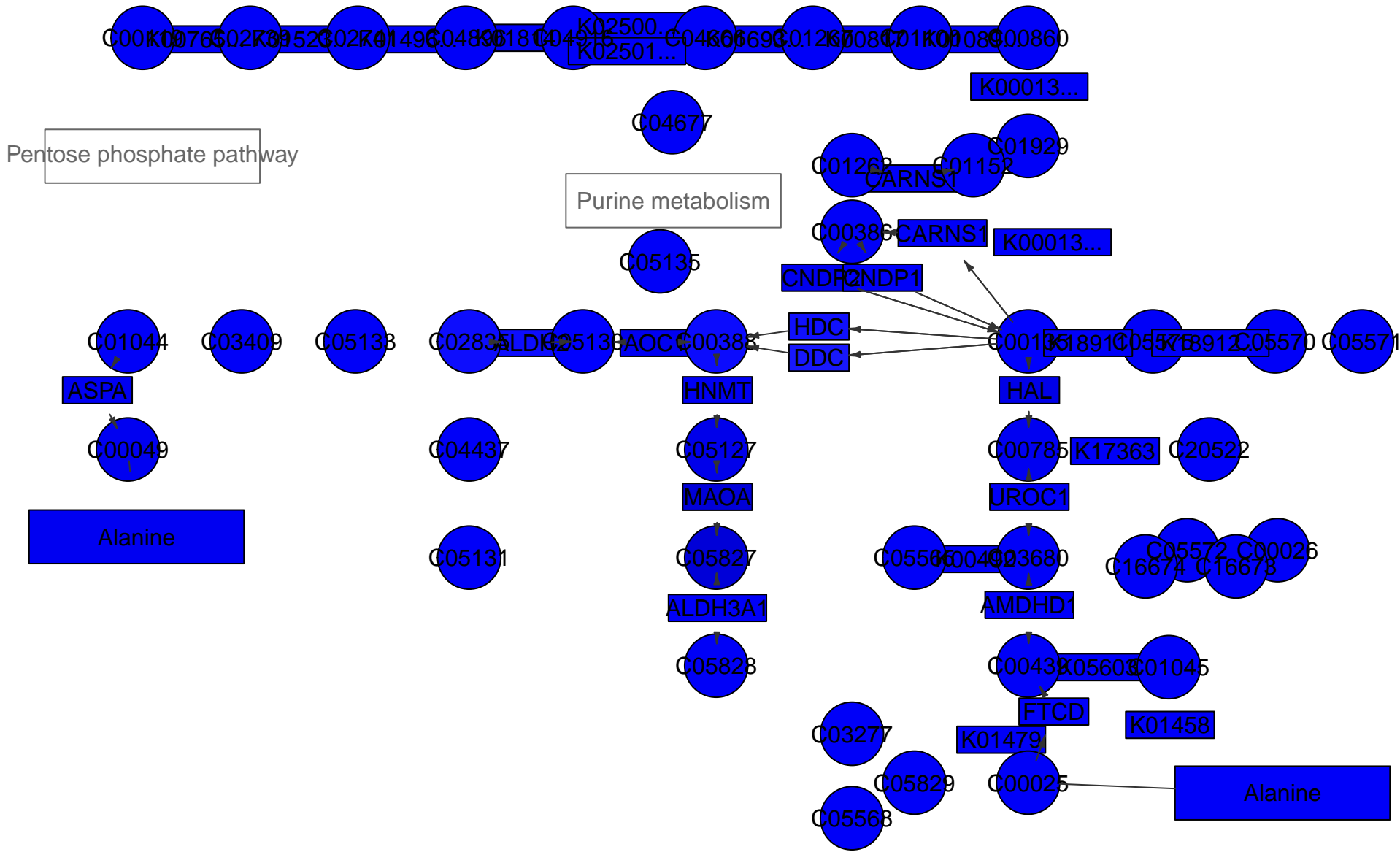
Alanine







Histidine metabolism  
MPI-017





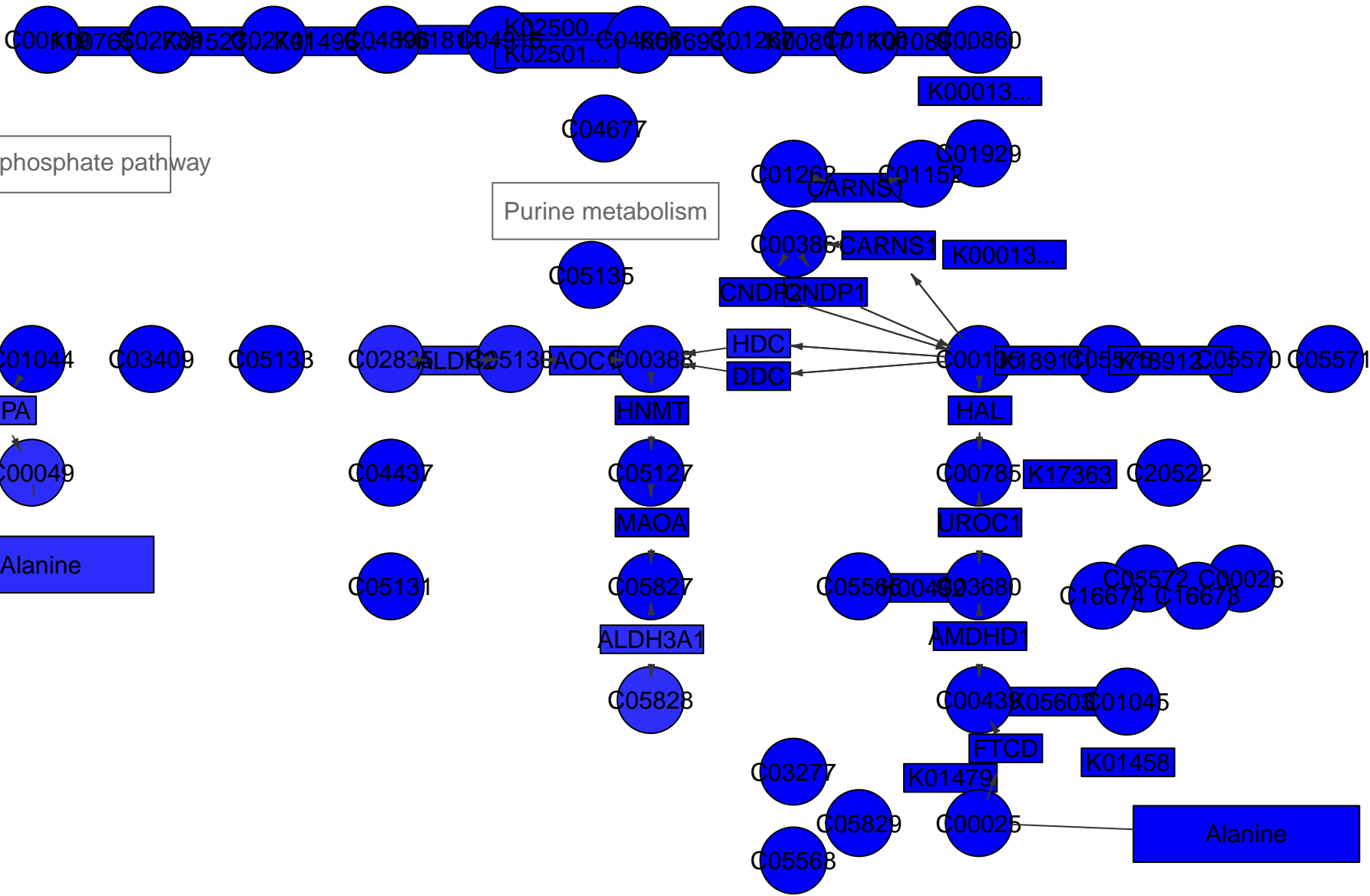
Histidine metabolism  
MPI-027

Pentose phosphate pathway

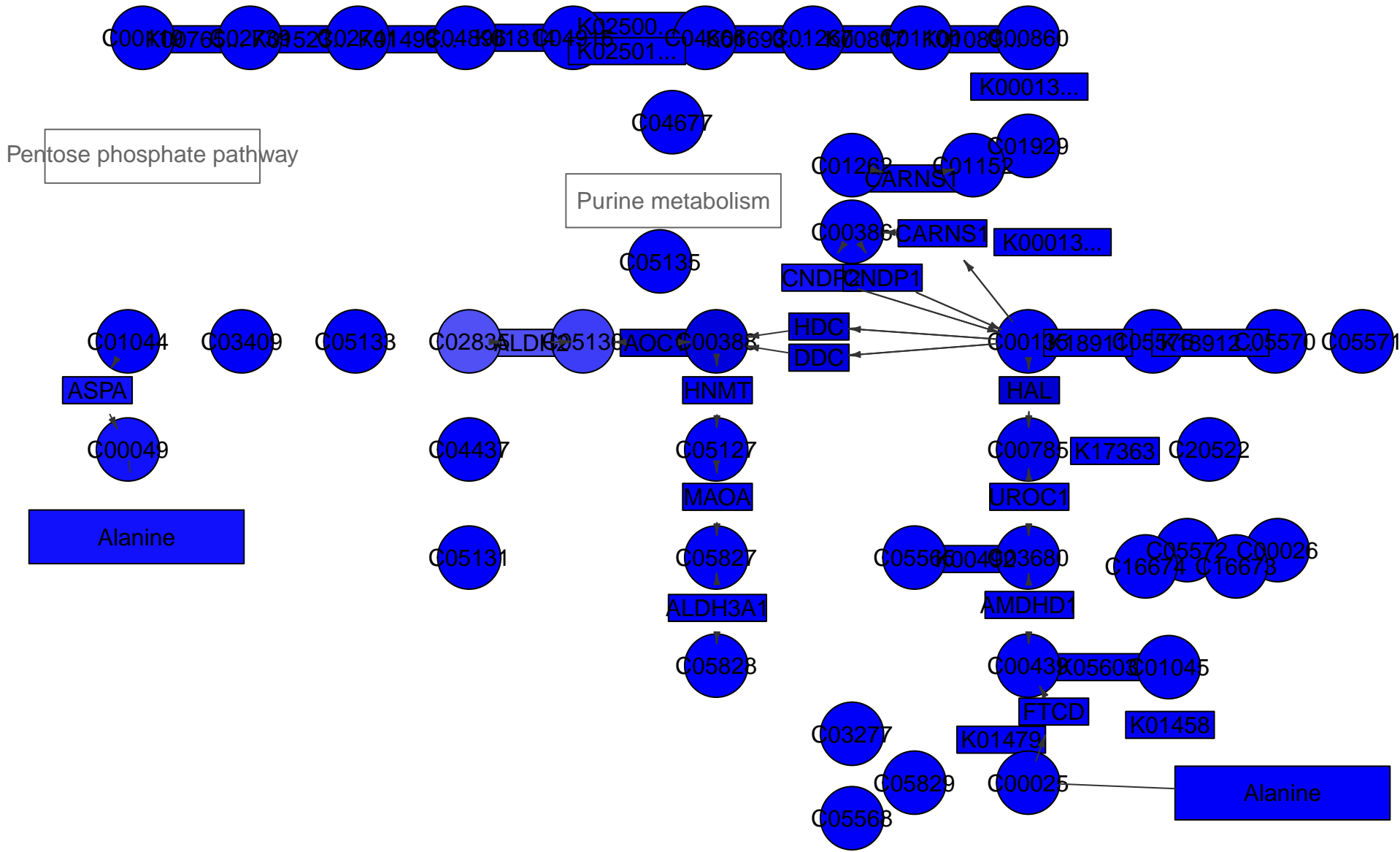
Purine metabolism

Alanine

Alanine



Histidine metabolism  
MPI-028



Pentose phosphate pathway

Purine metabolism

Alanine

Alanine

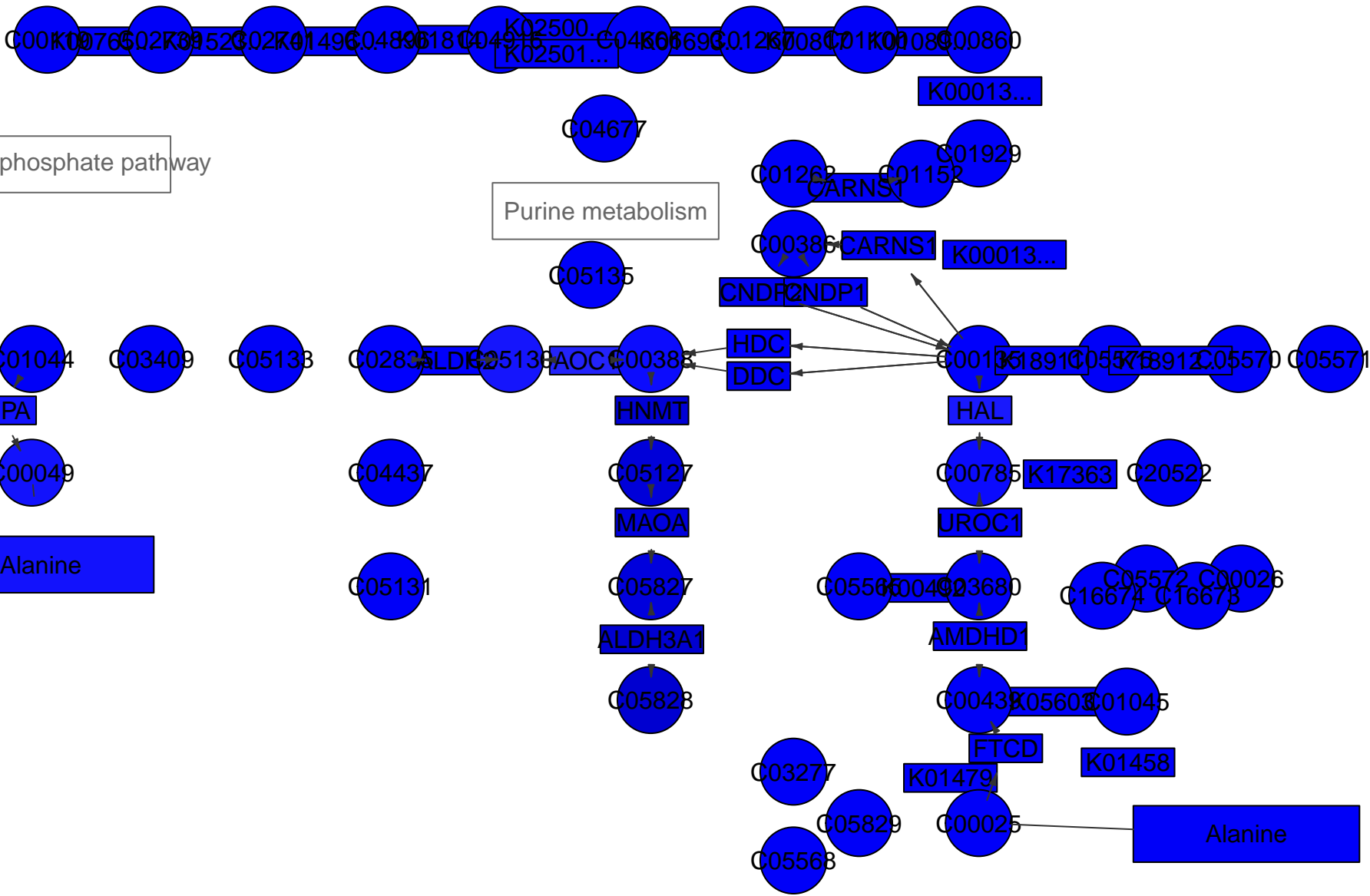
Histidine metabolism  
MPI-032

Pentose phosphate pathway

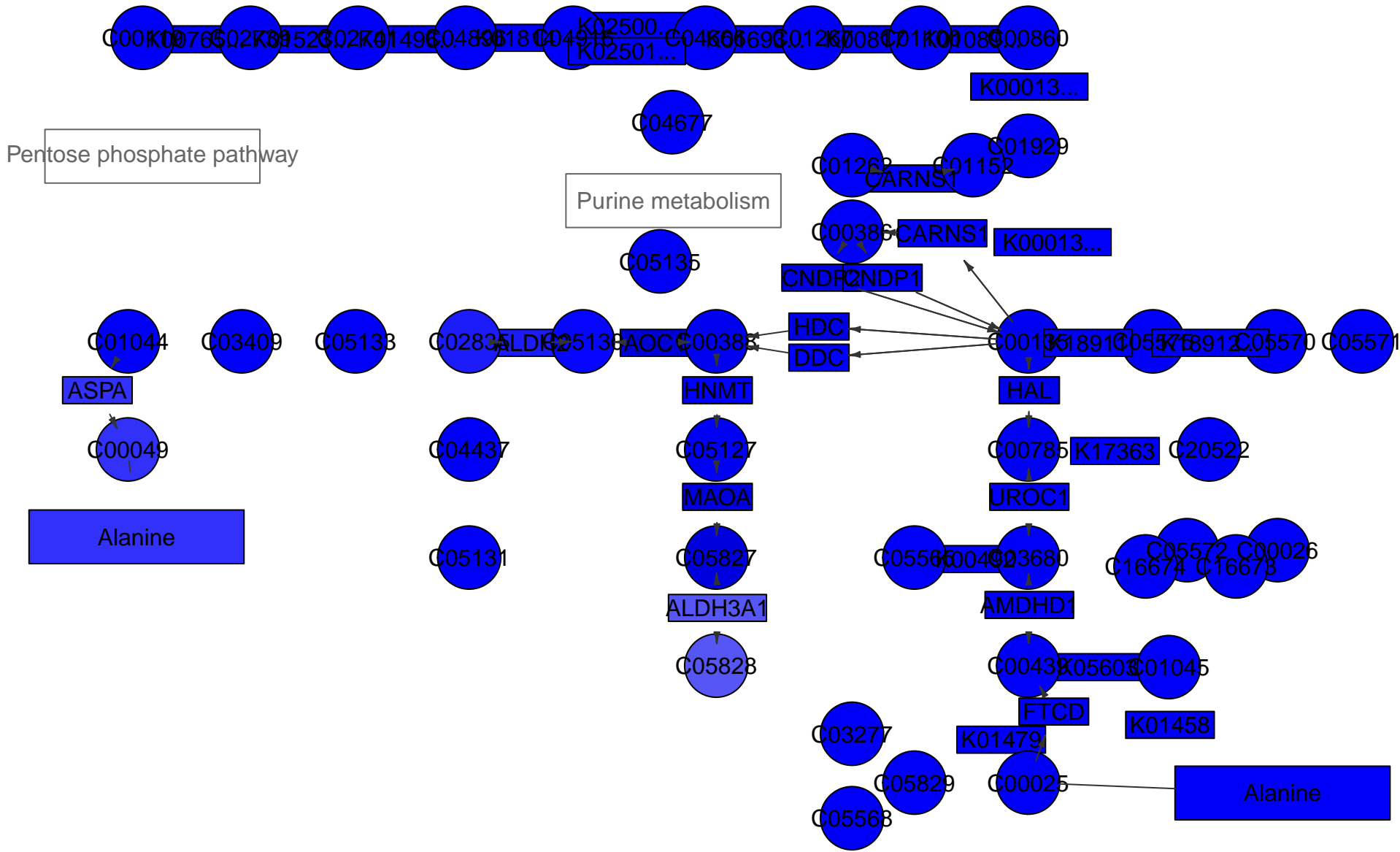
Purine metabolism

Alanine

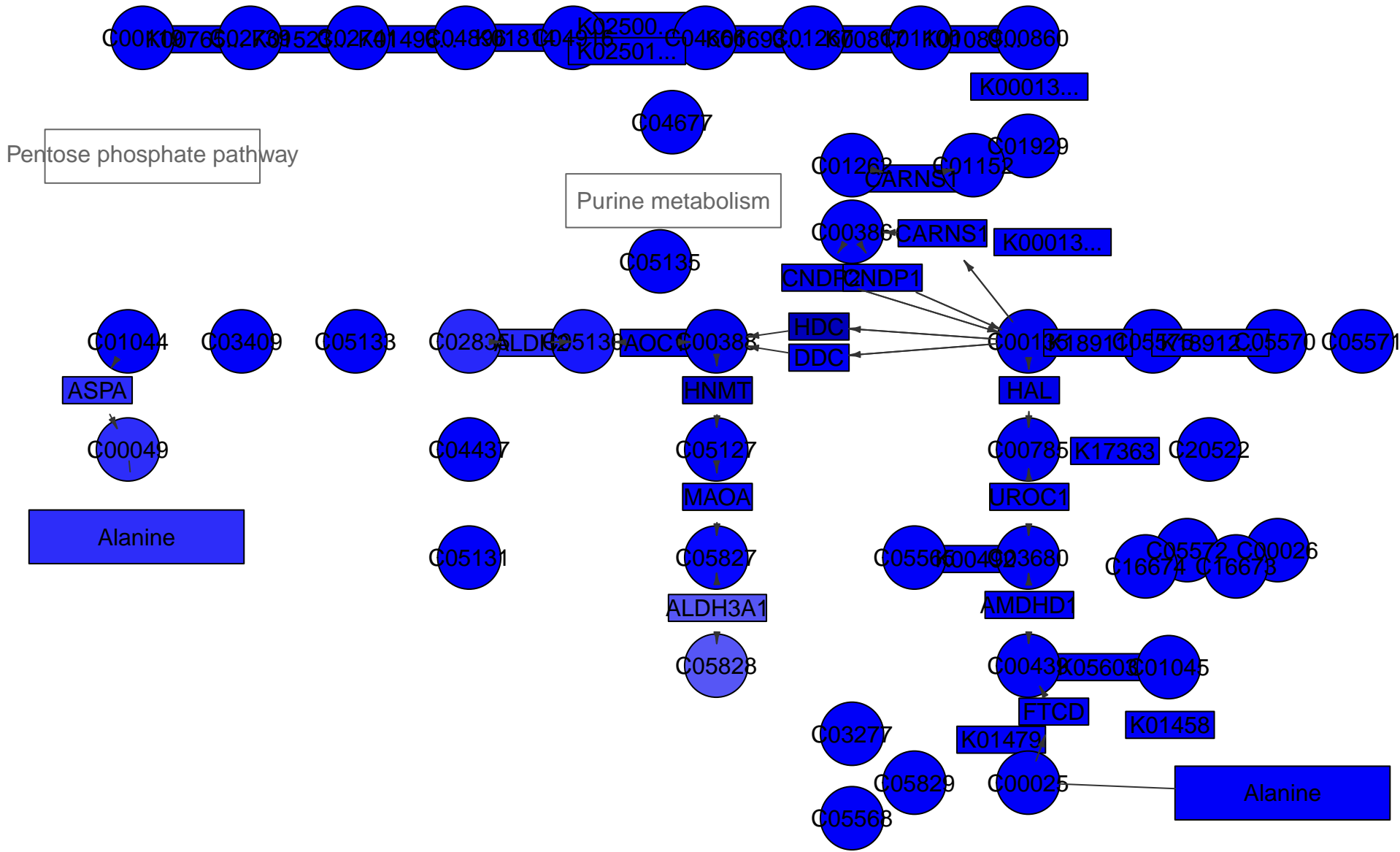
Alanine



Histidine metabolism  
MPI-033



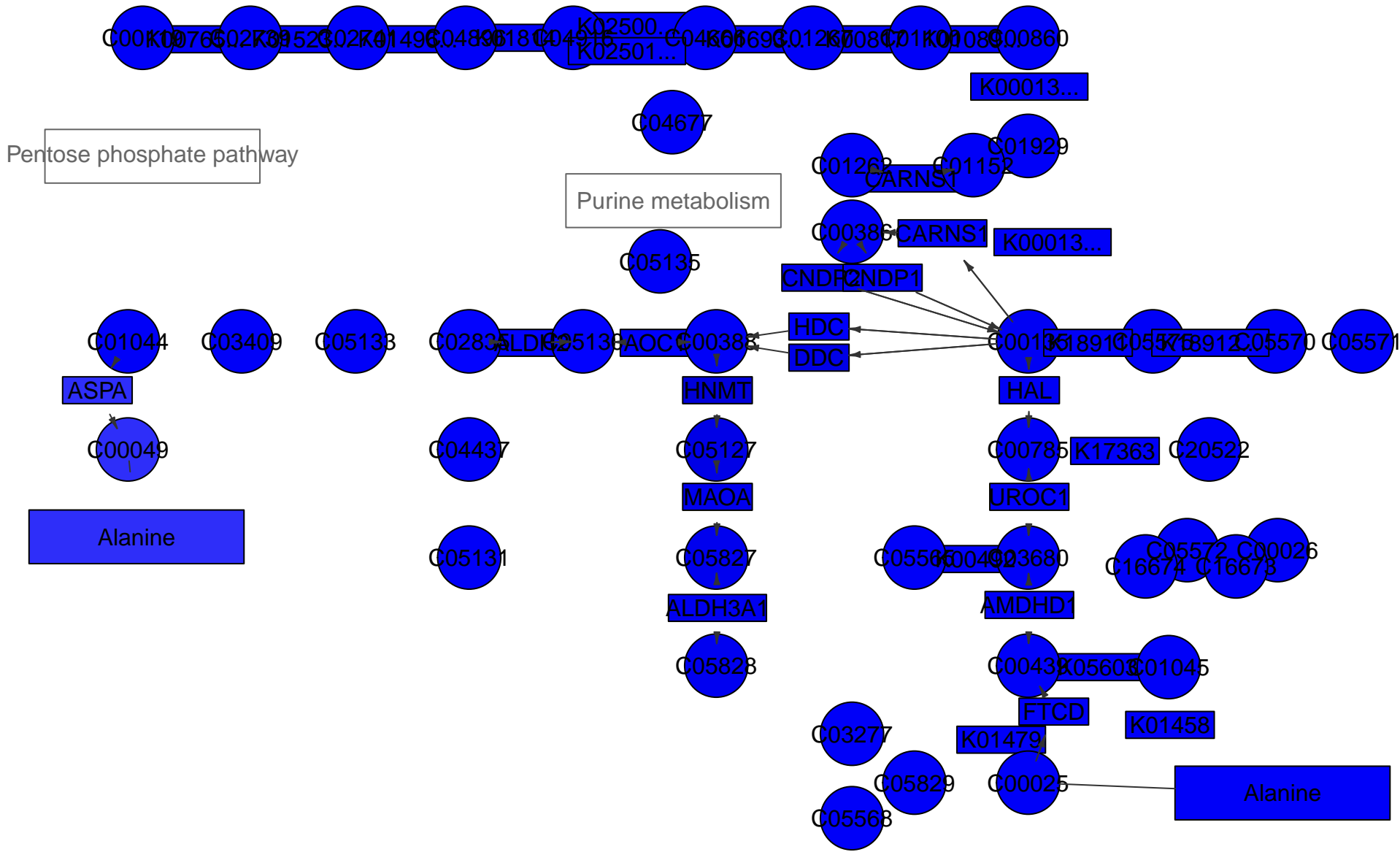
Histidine metabolism  
MPI-034



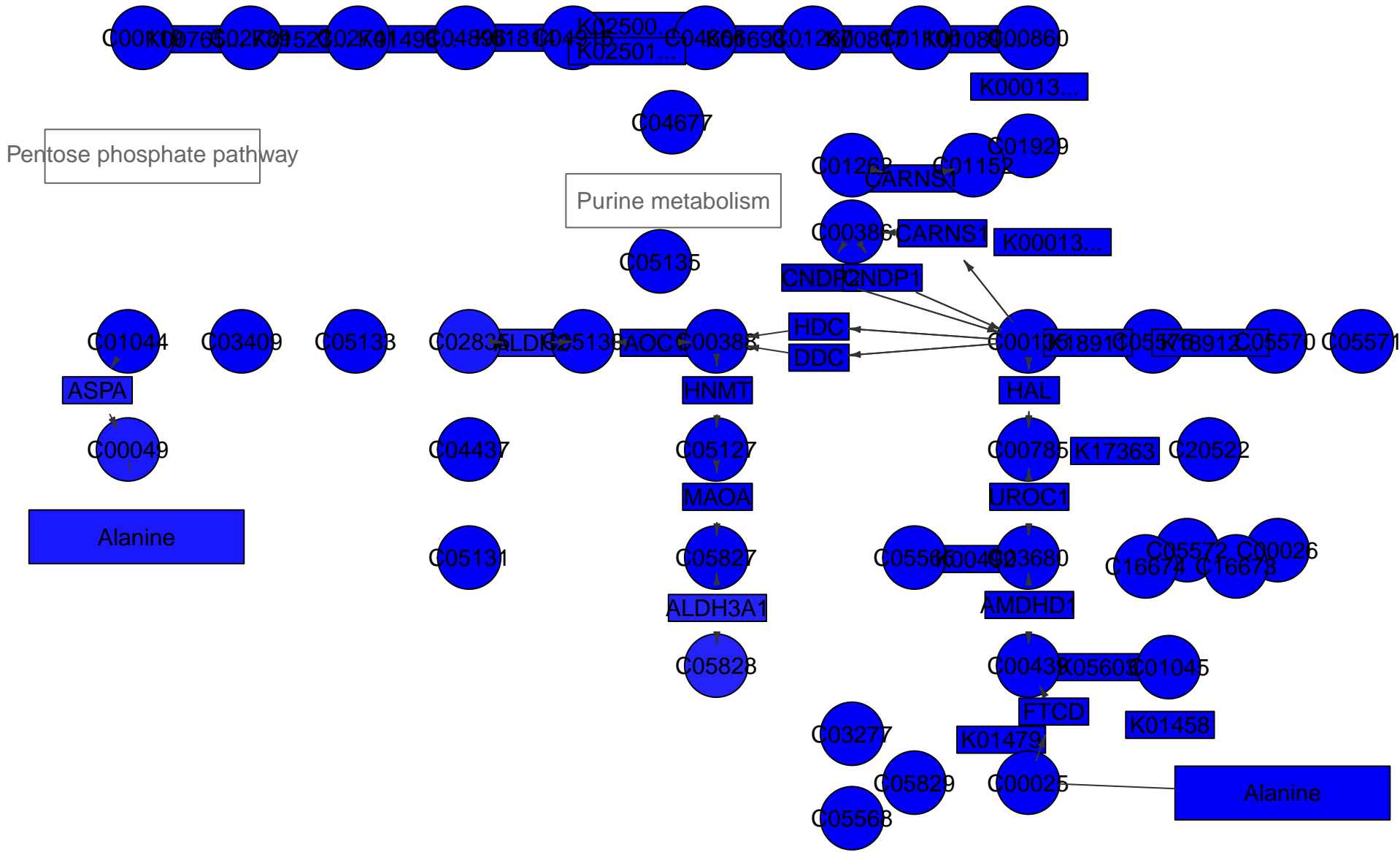




Histidine metabolism  
MPI-044



Histidine metabolism  
MPI-048



Pentose phosphate pathway

Purine metabolism

Alanine

Alanine

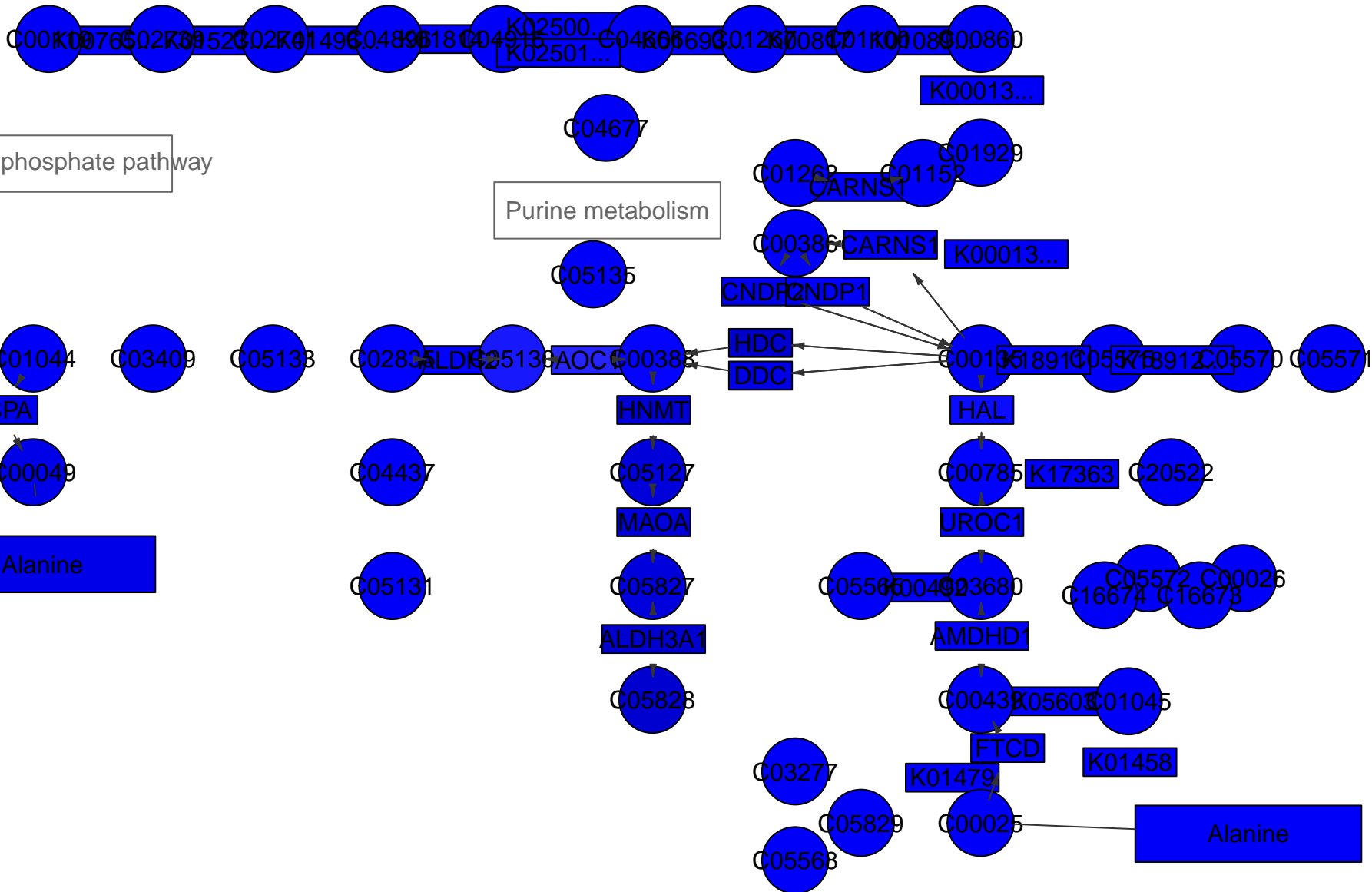
Histidine metabolism  
MPI-055

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



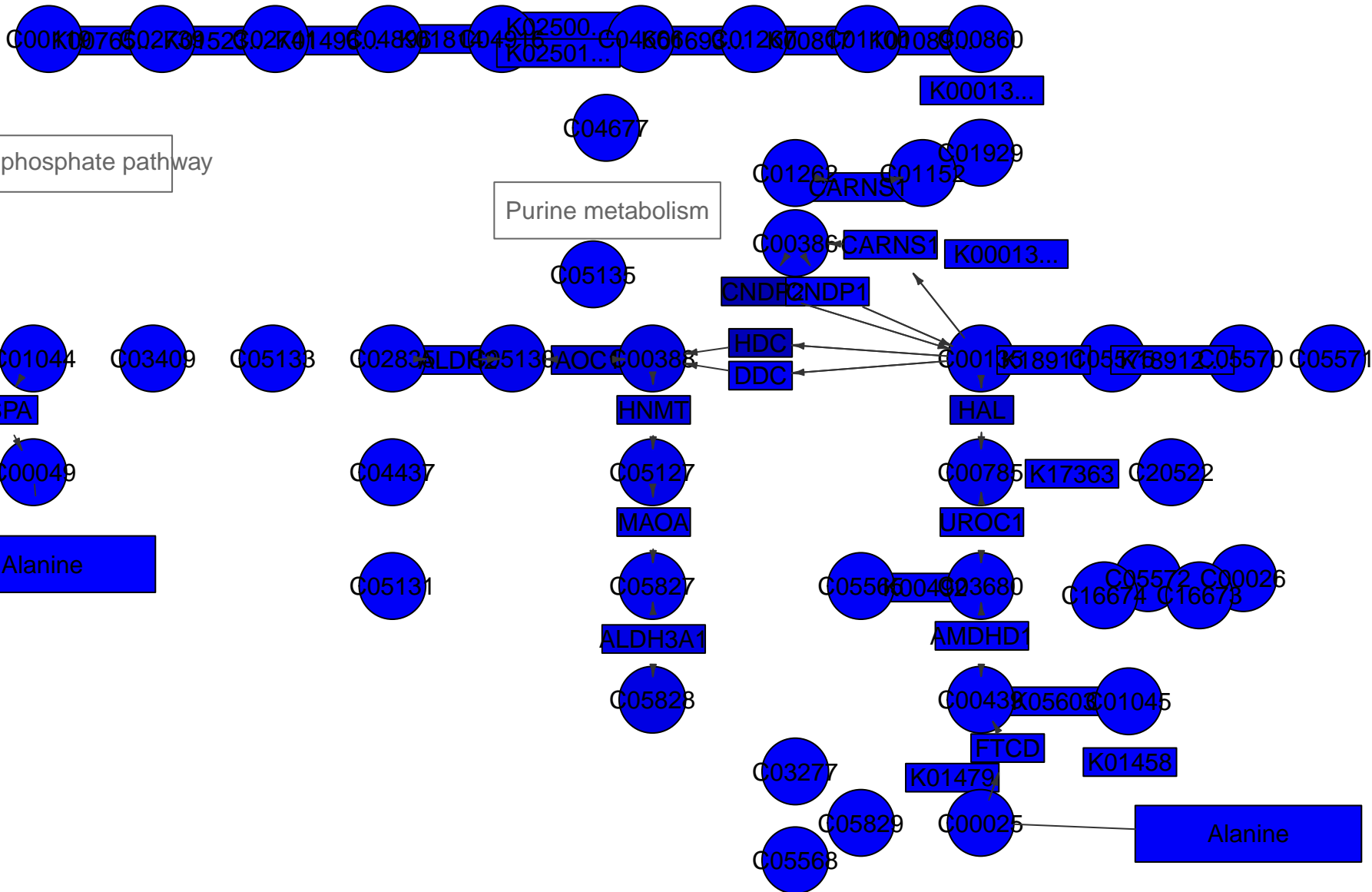
Histidine metabolism  
MPI-065

Pentose phosphate pathway

Purine metabolism

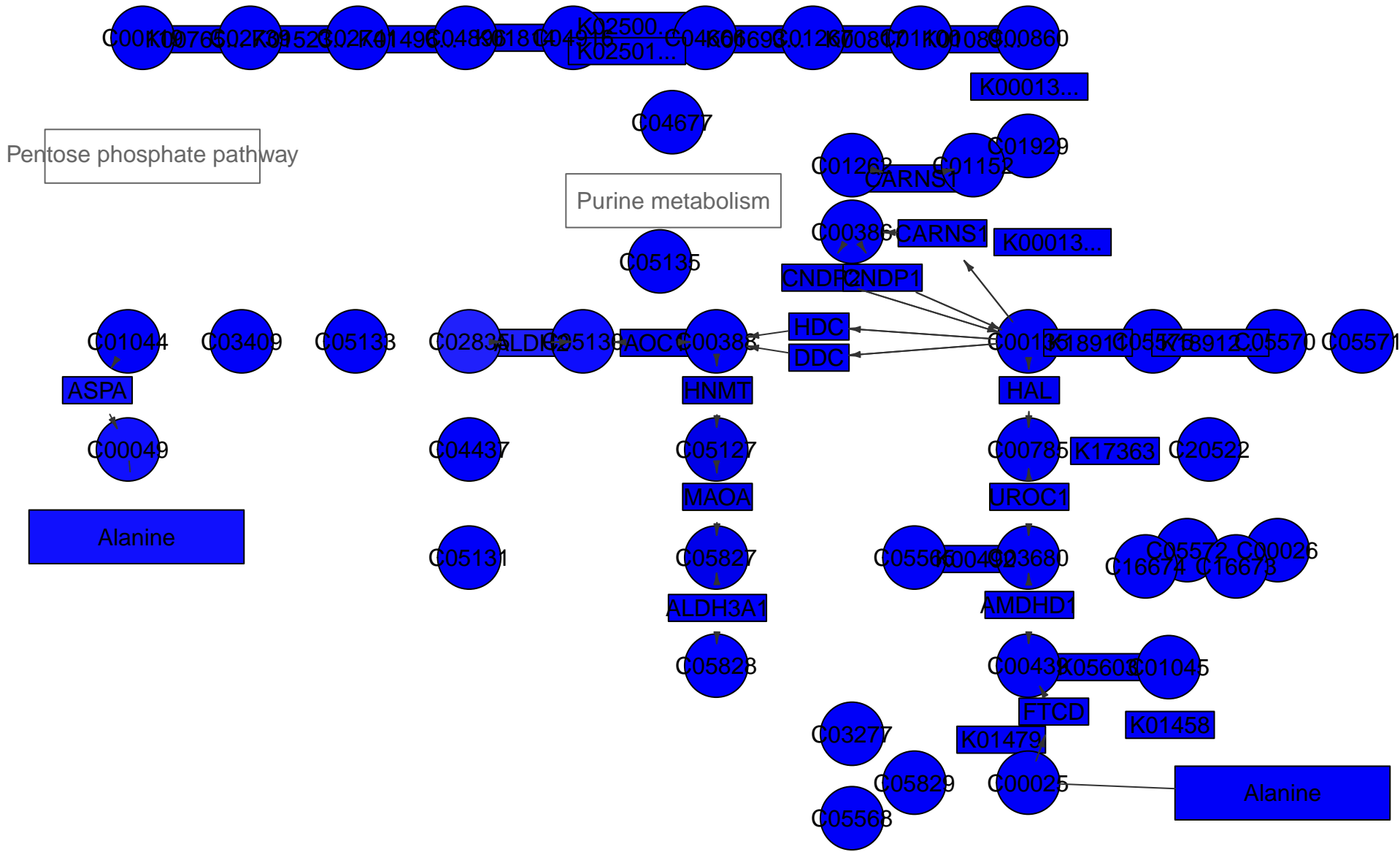
Alanine

Alanine





Histidine metabolism  
MPI-075



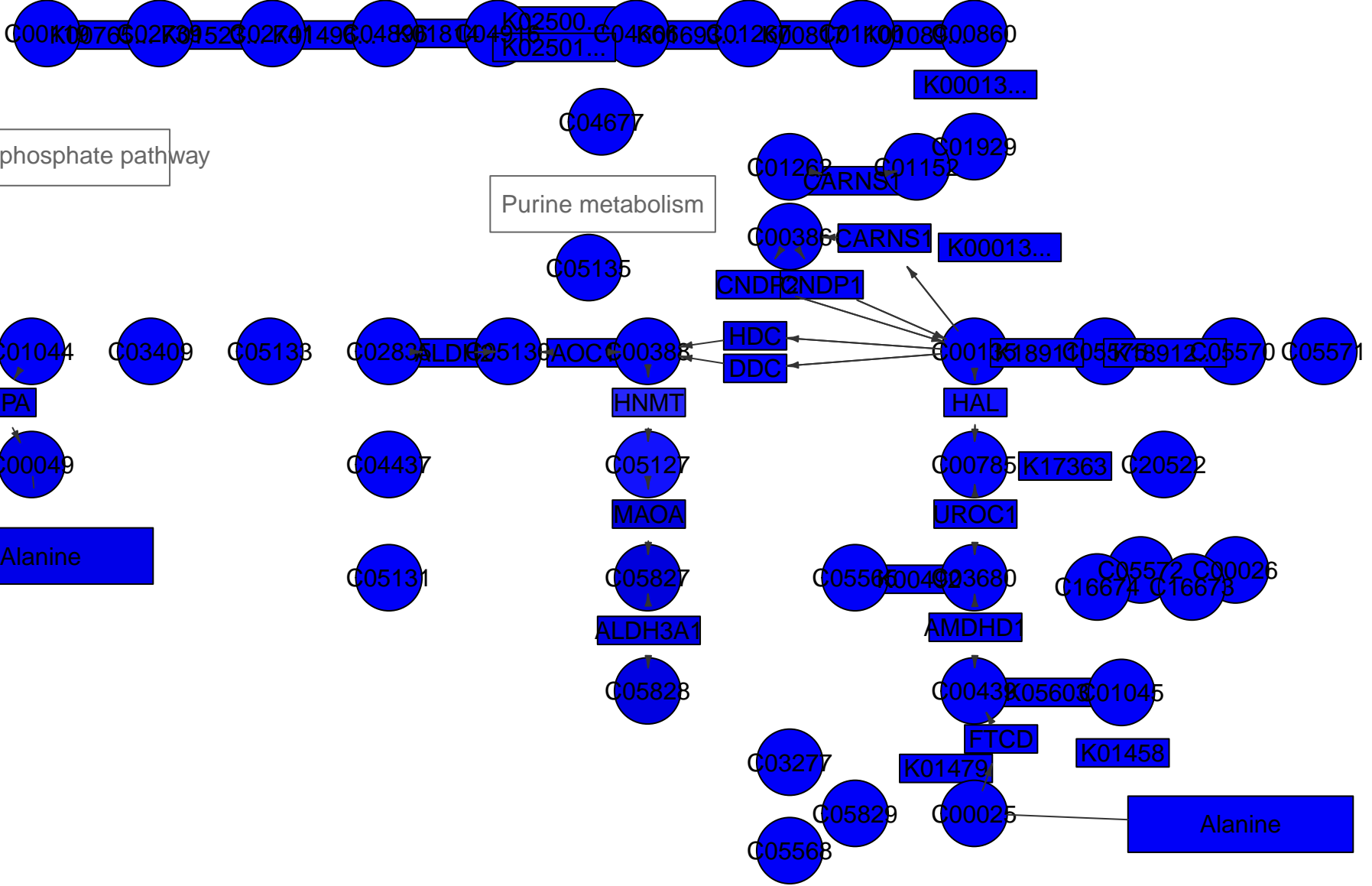
Histidine metabolism  
MPI-077

Pentose phosphate pathway

Purine metabolism

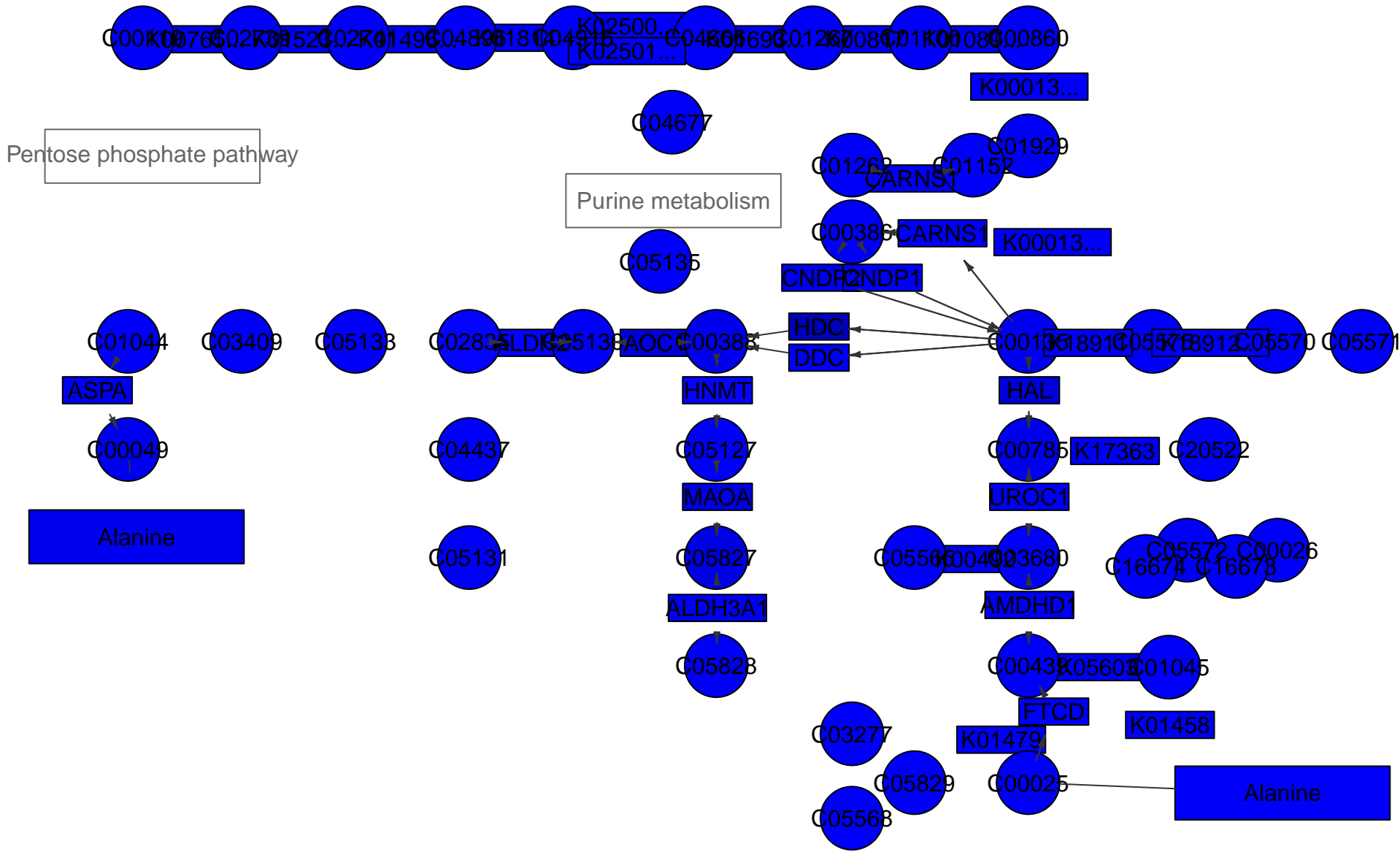
Alanine

Alanine





Histidine metabolism  
MPI-078



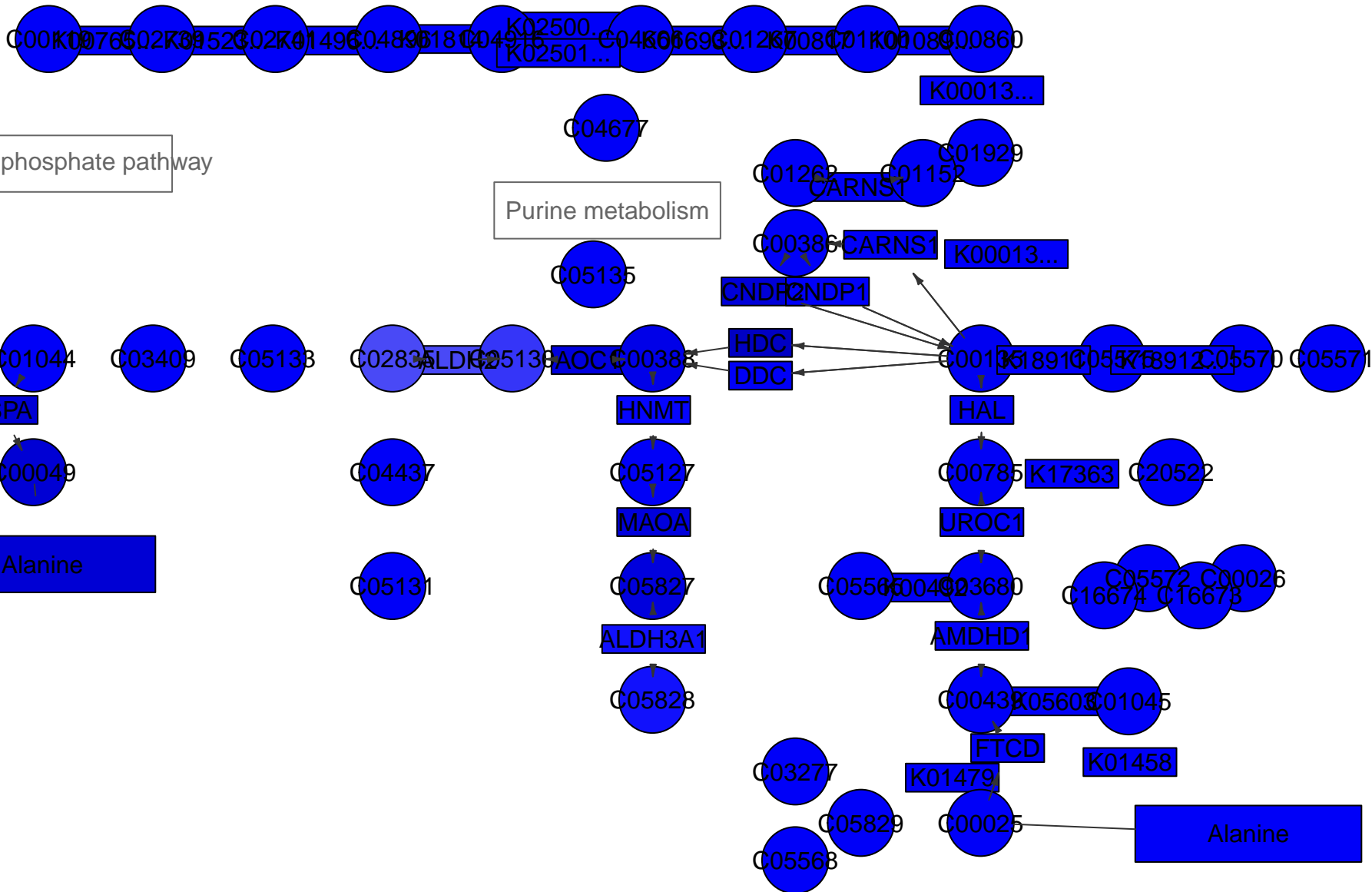
Histidine metabolism  
MPI-079

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



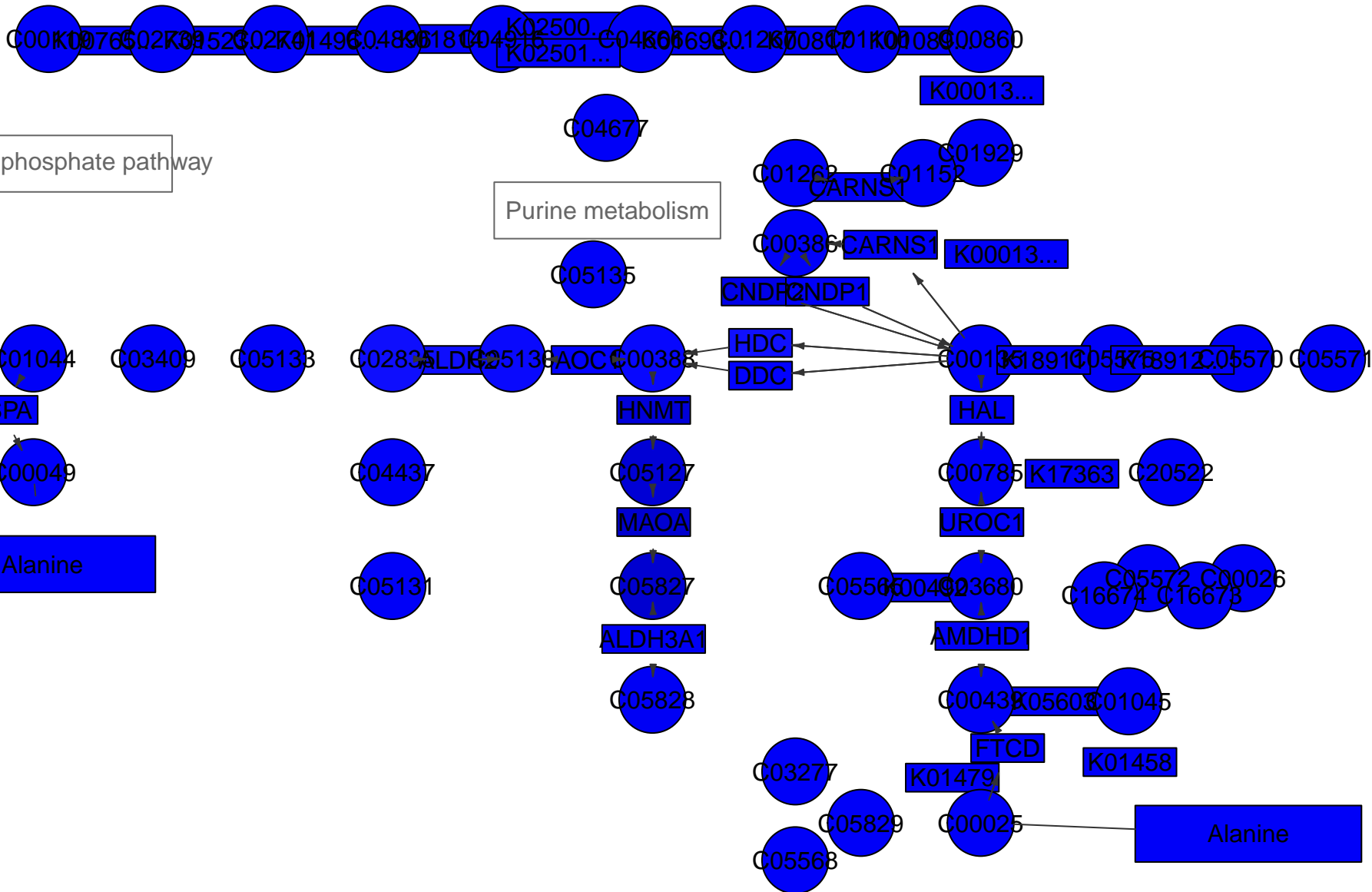
Histidine metabolism  
MPI-080

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine







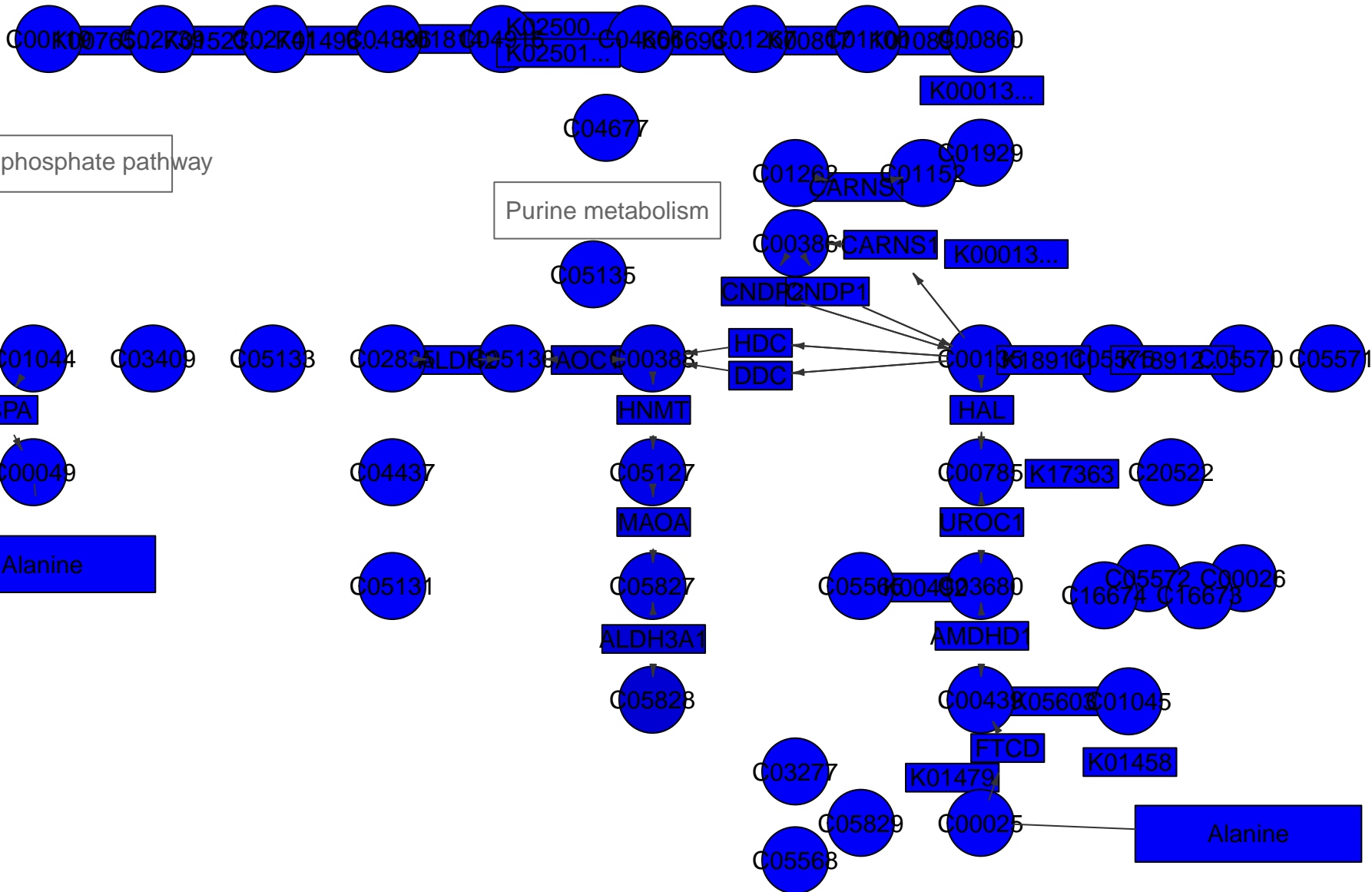
Histidine metabolism  
MPI-084

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine





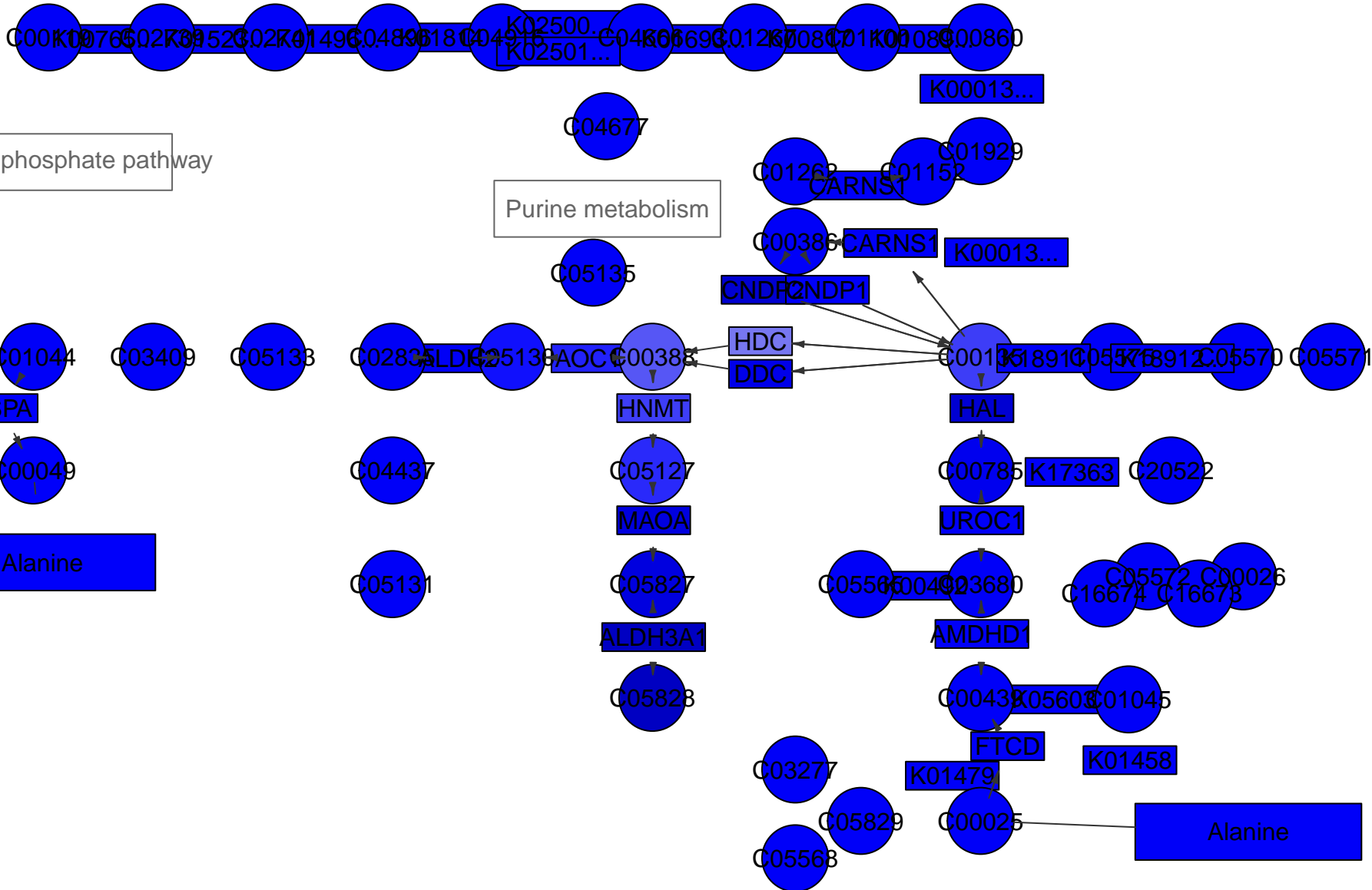
Histidine metabolism  
MPI-086

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine





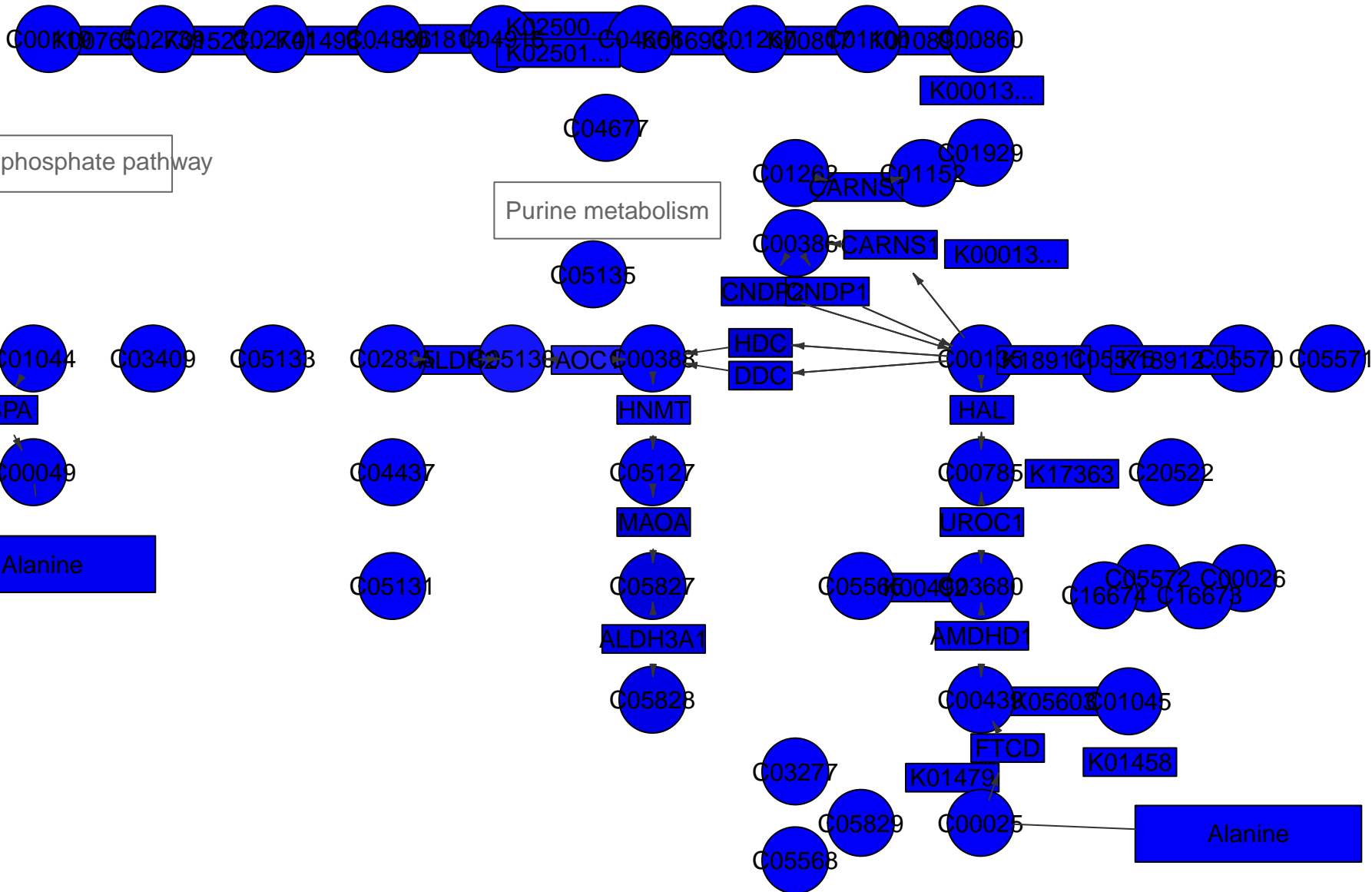
Histidine metabolism  
MPI-087

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



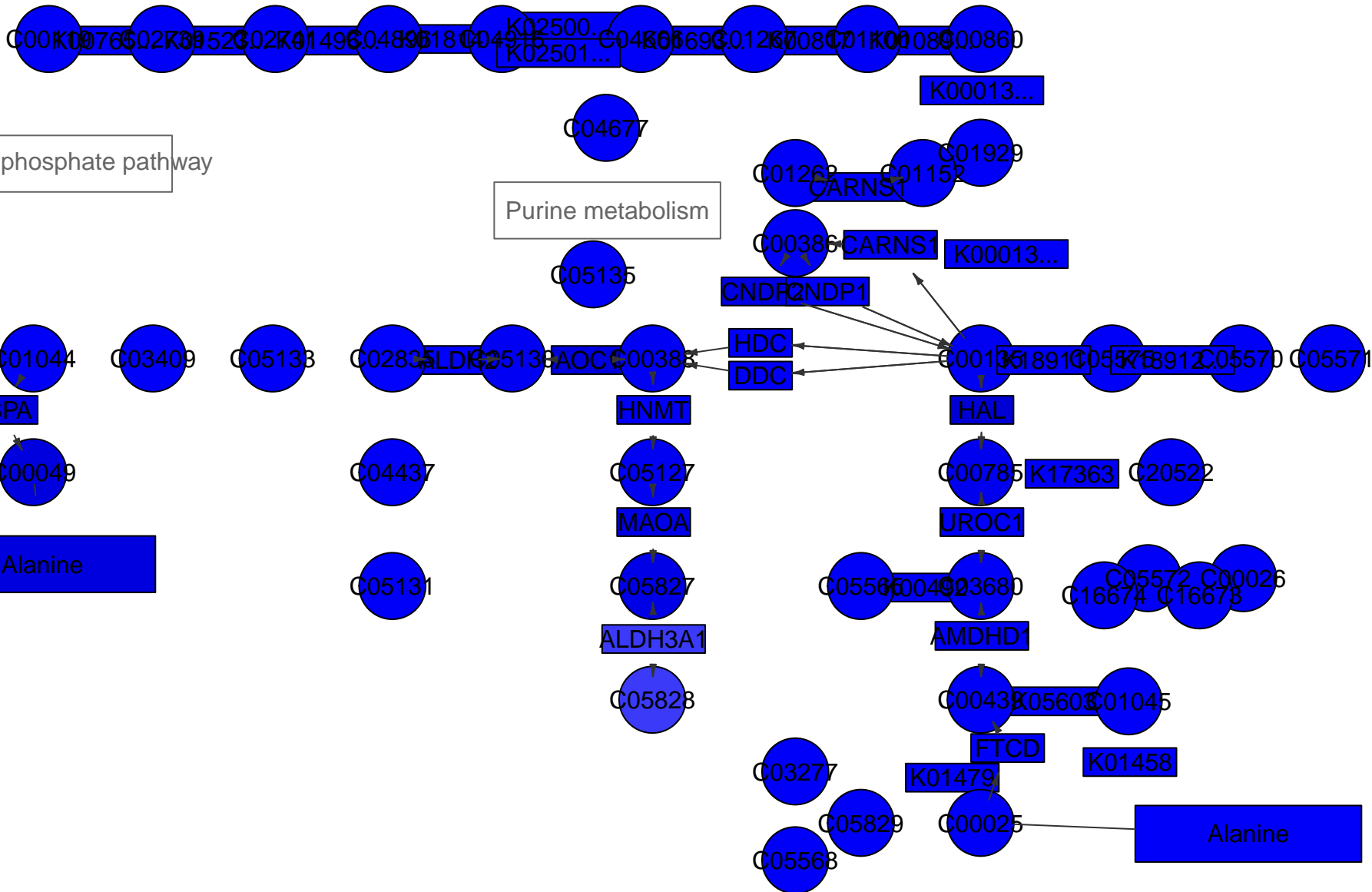
Histidine metabolism  
MPI-089

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine





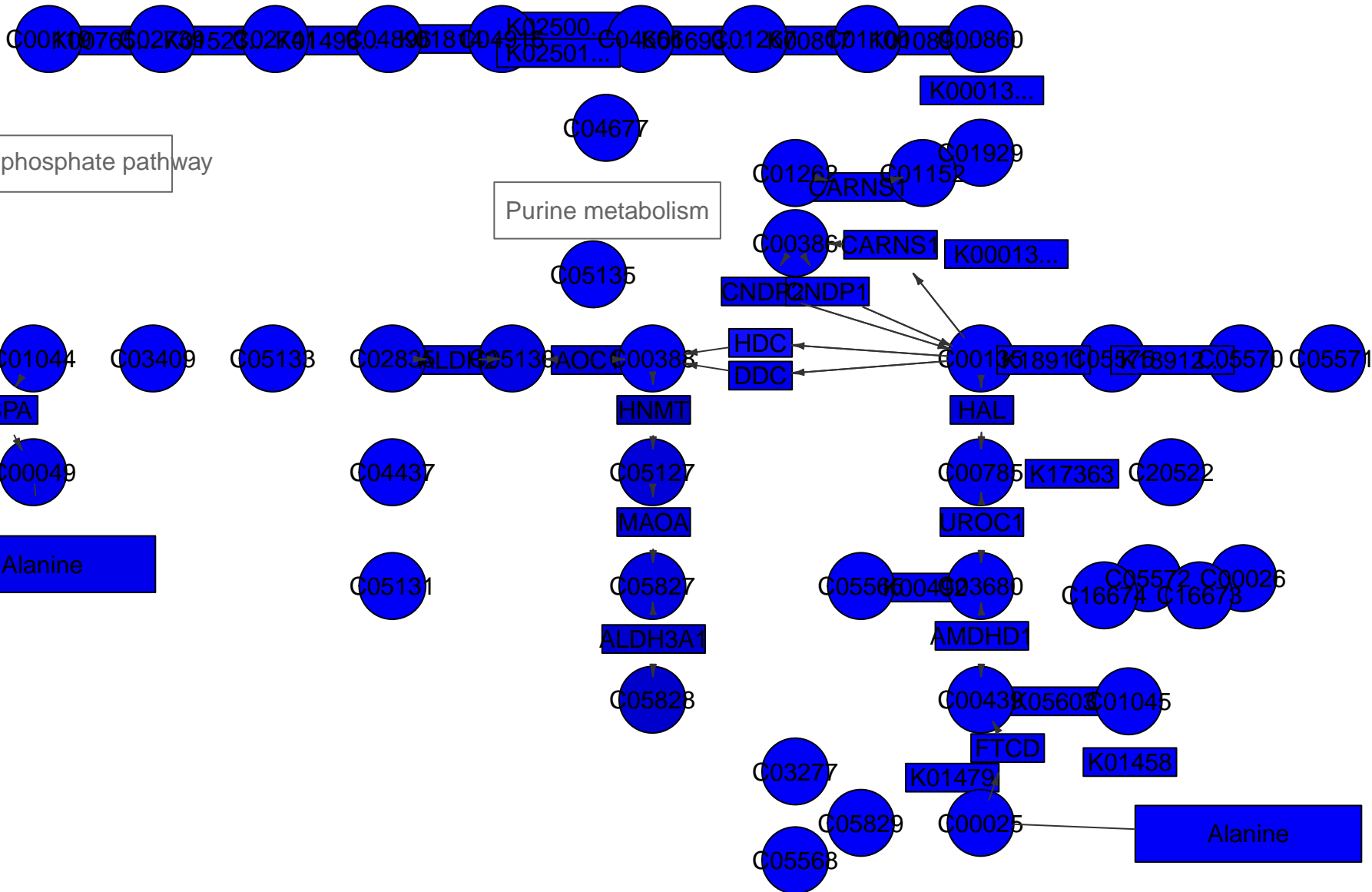
Histidine metabolism  
MPI-091

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



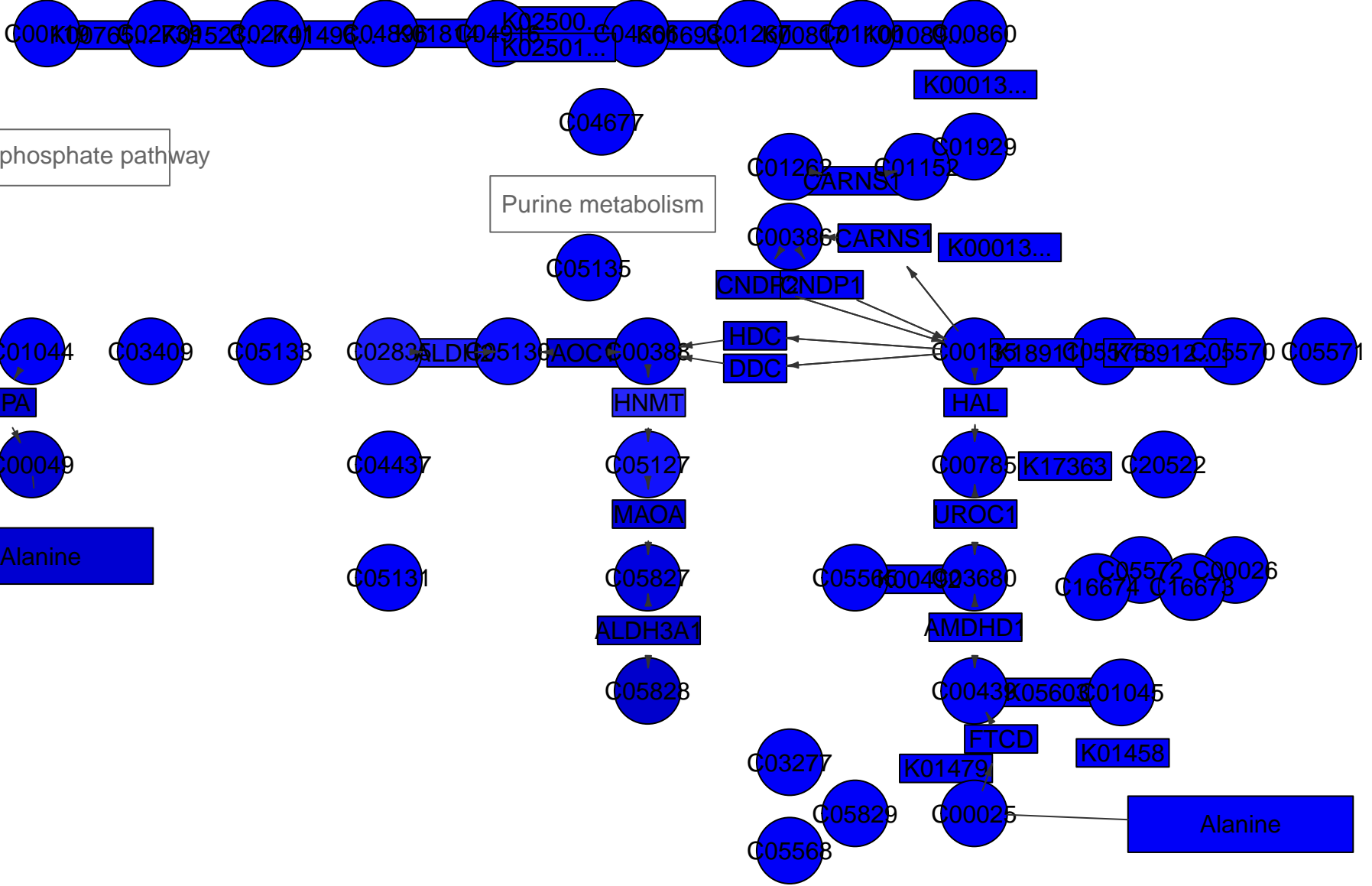
Histidine metabolism  
MPI-095

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



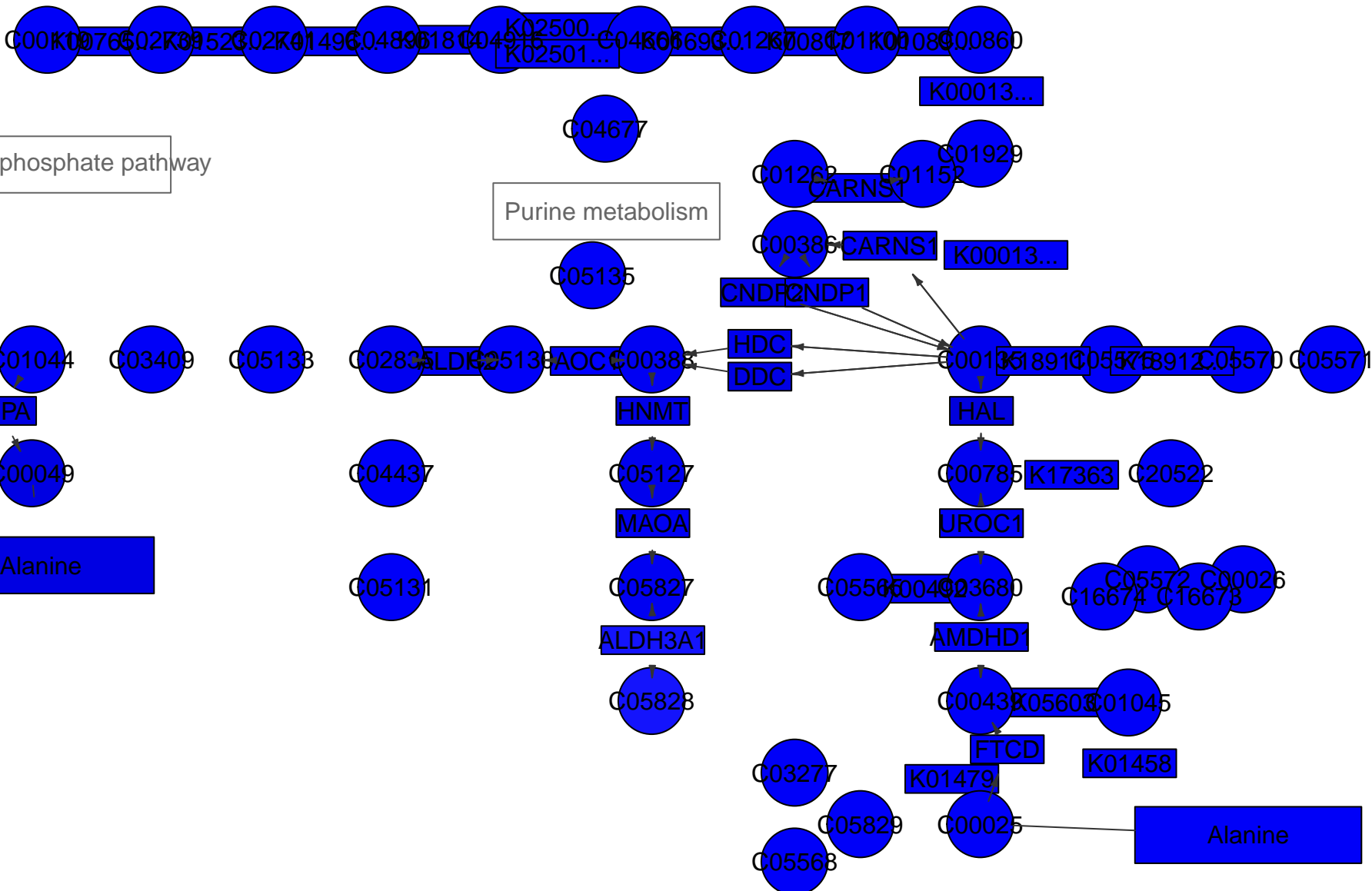
Histidine metabolism  
MPI-101

Pentose phosphate pathway

Purine metabolism

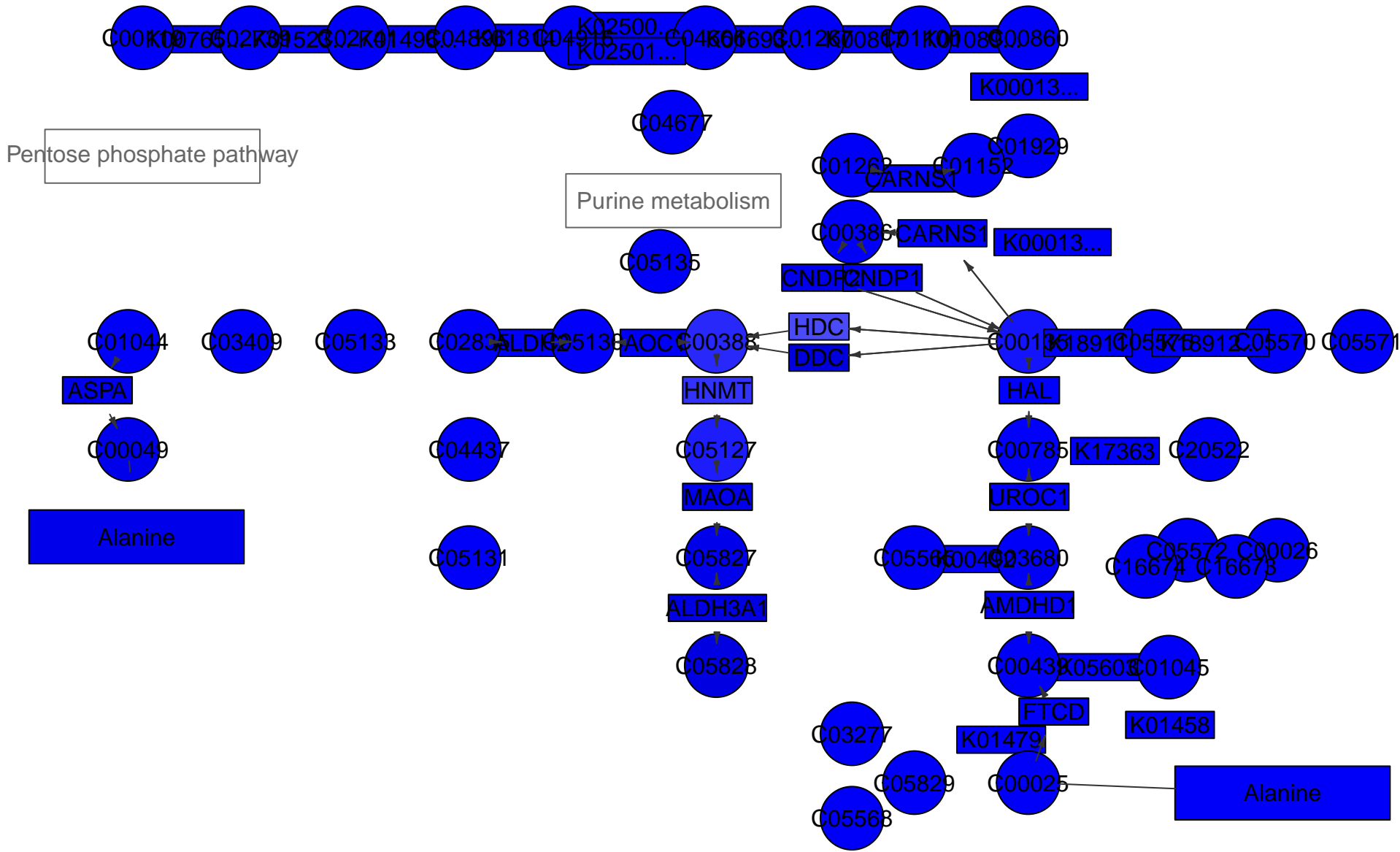
Alanine

Alanine



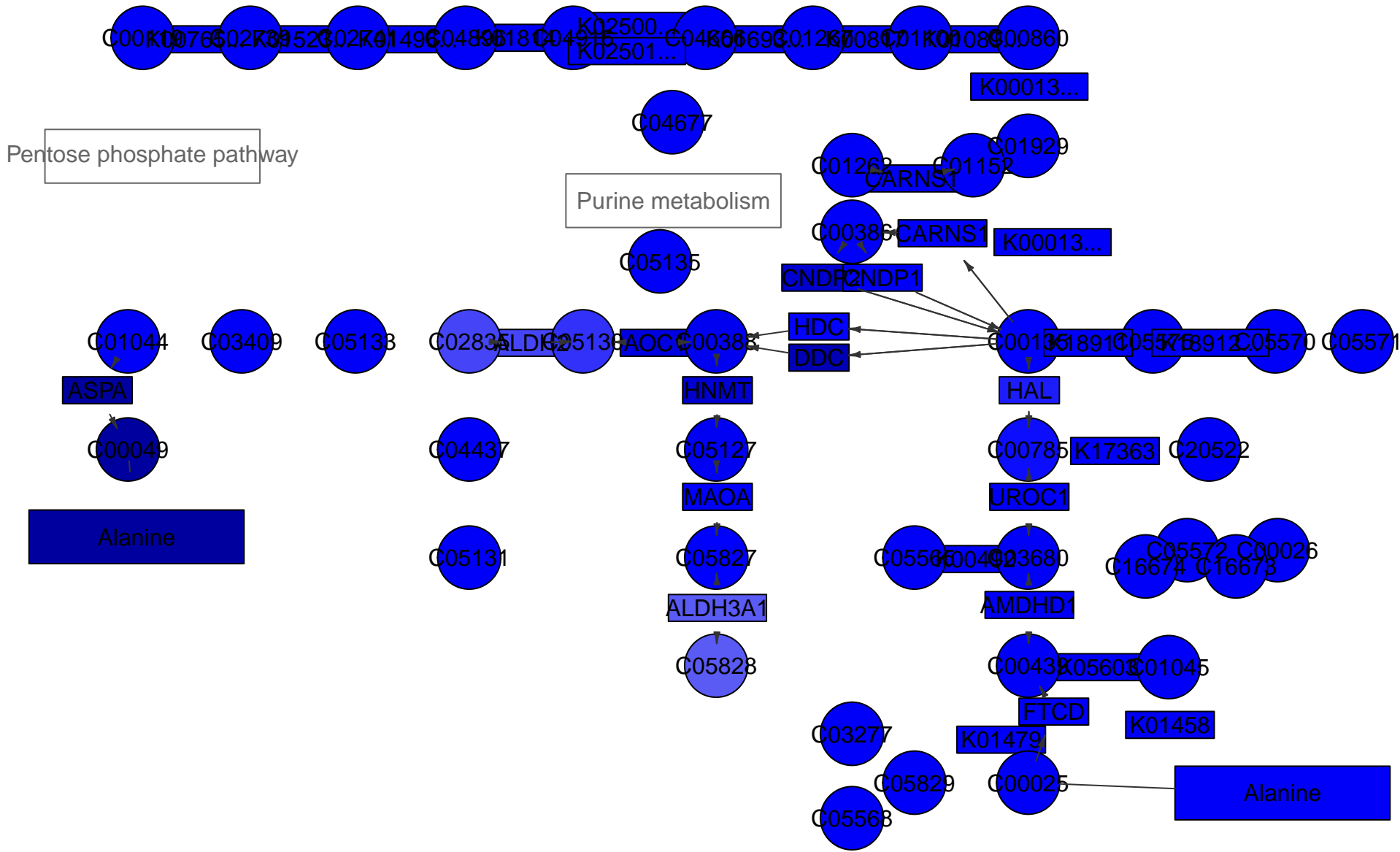


Histidine metabolism  
MPI-123

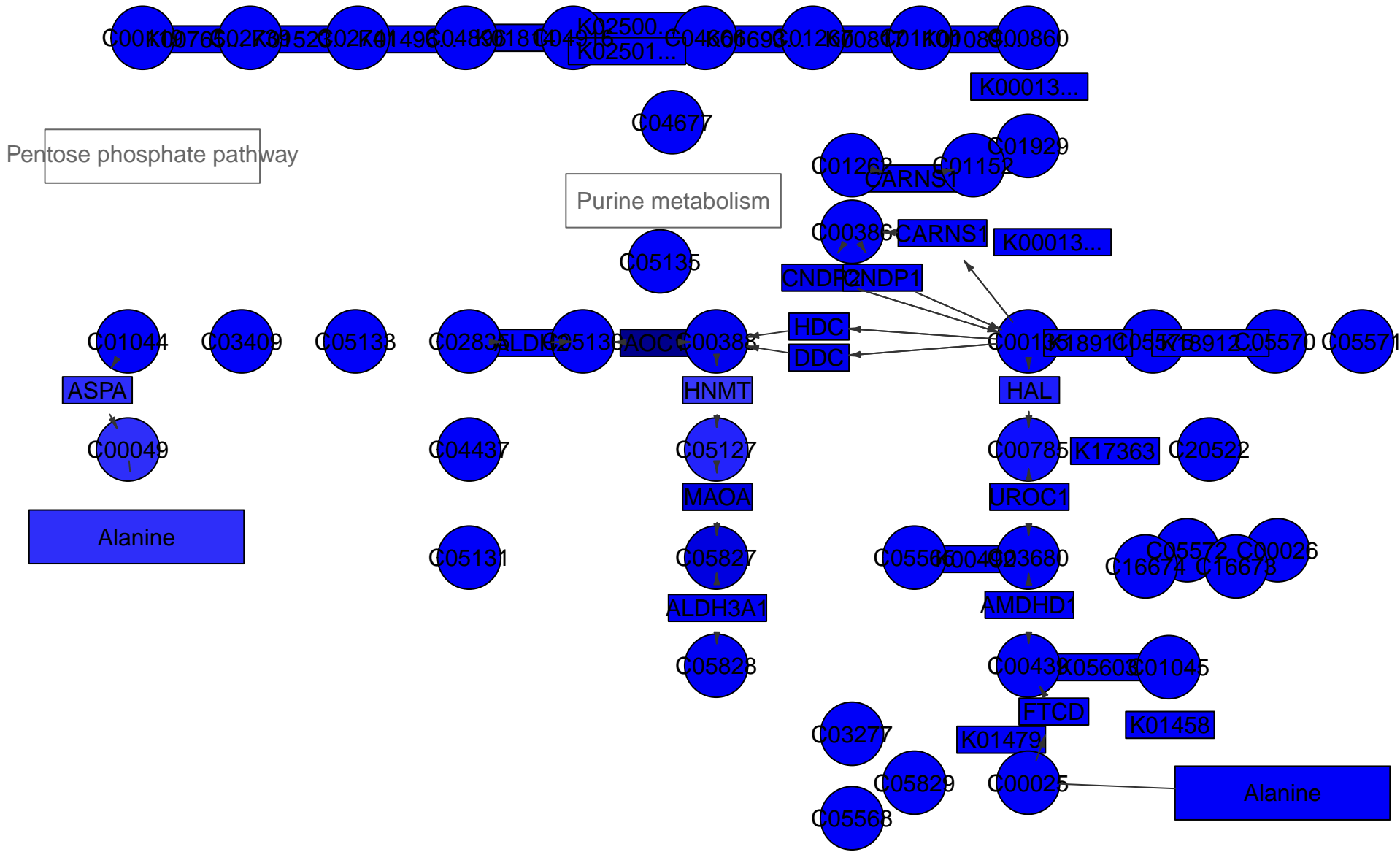




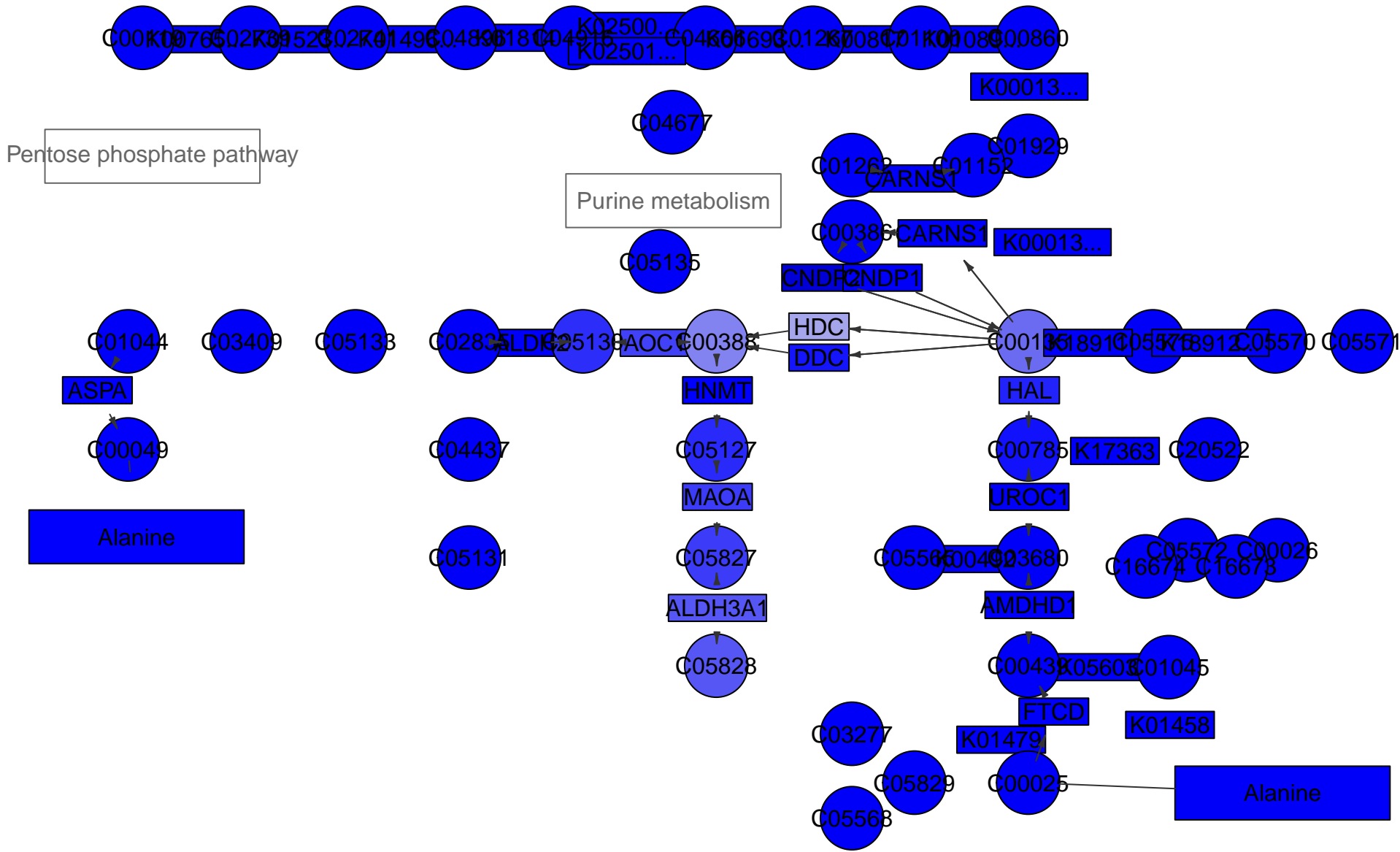
Histidine metabolism  
MPI-138



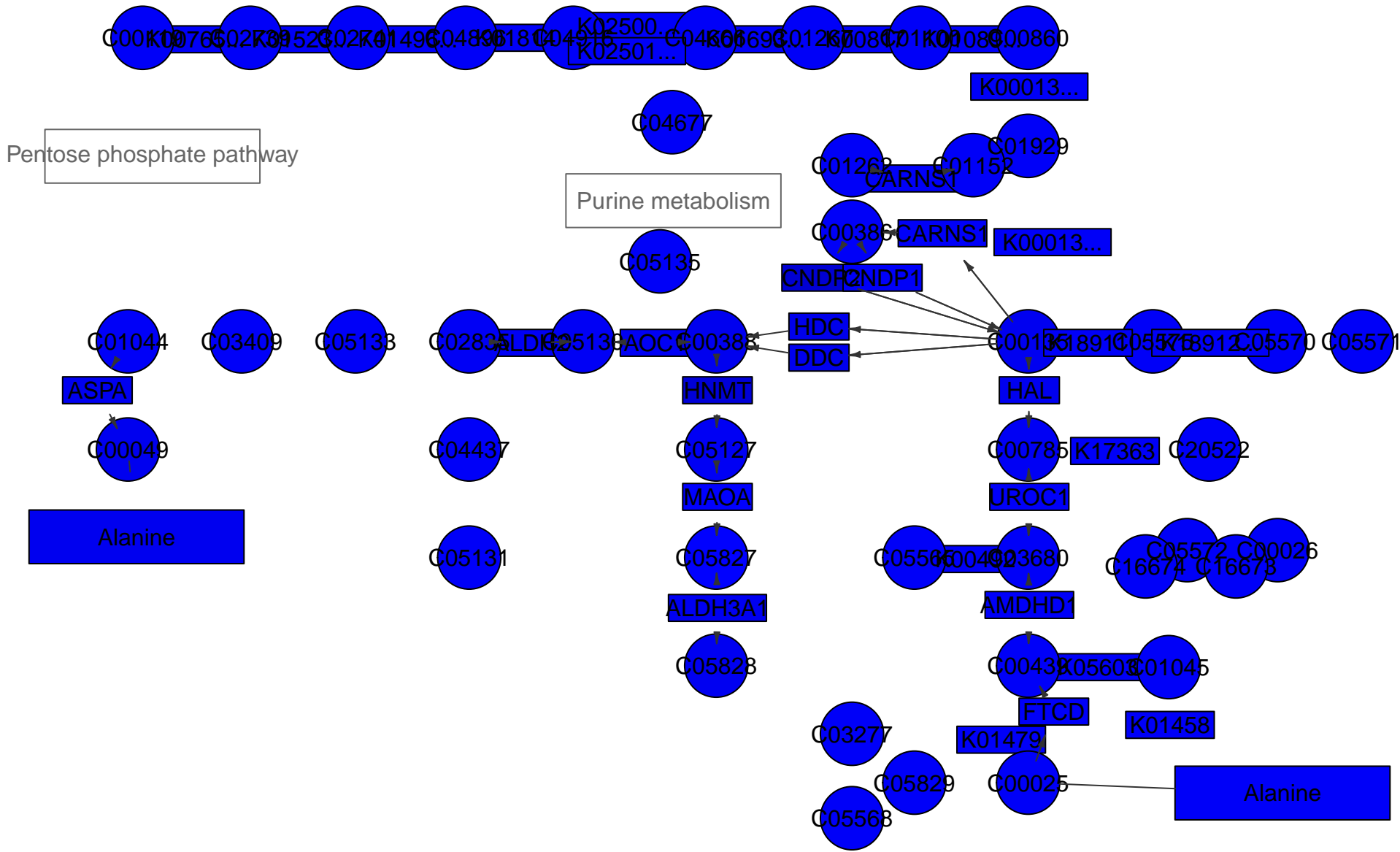
Histidine metabolism  
MPI-139



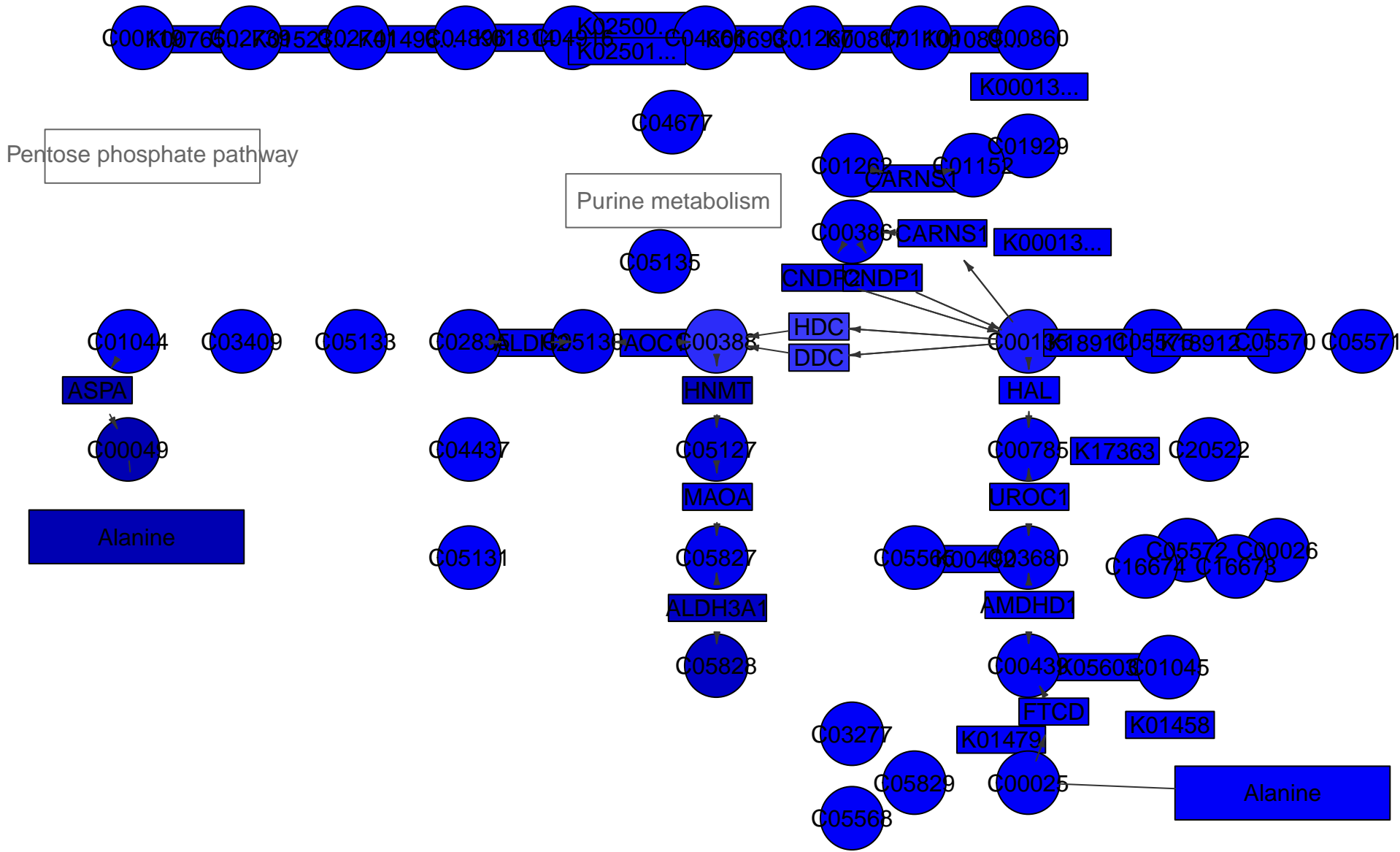
Histidine metabolism  
MPI-140



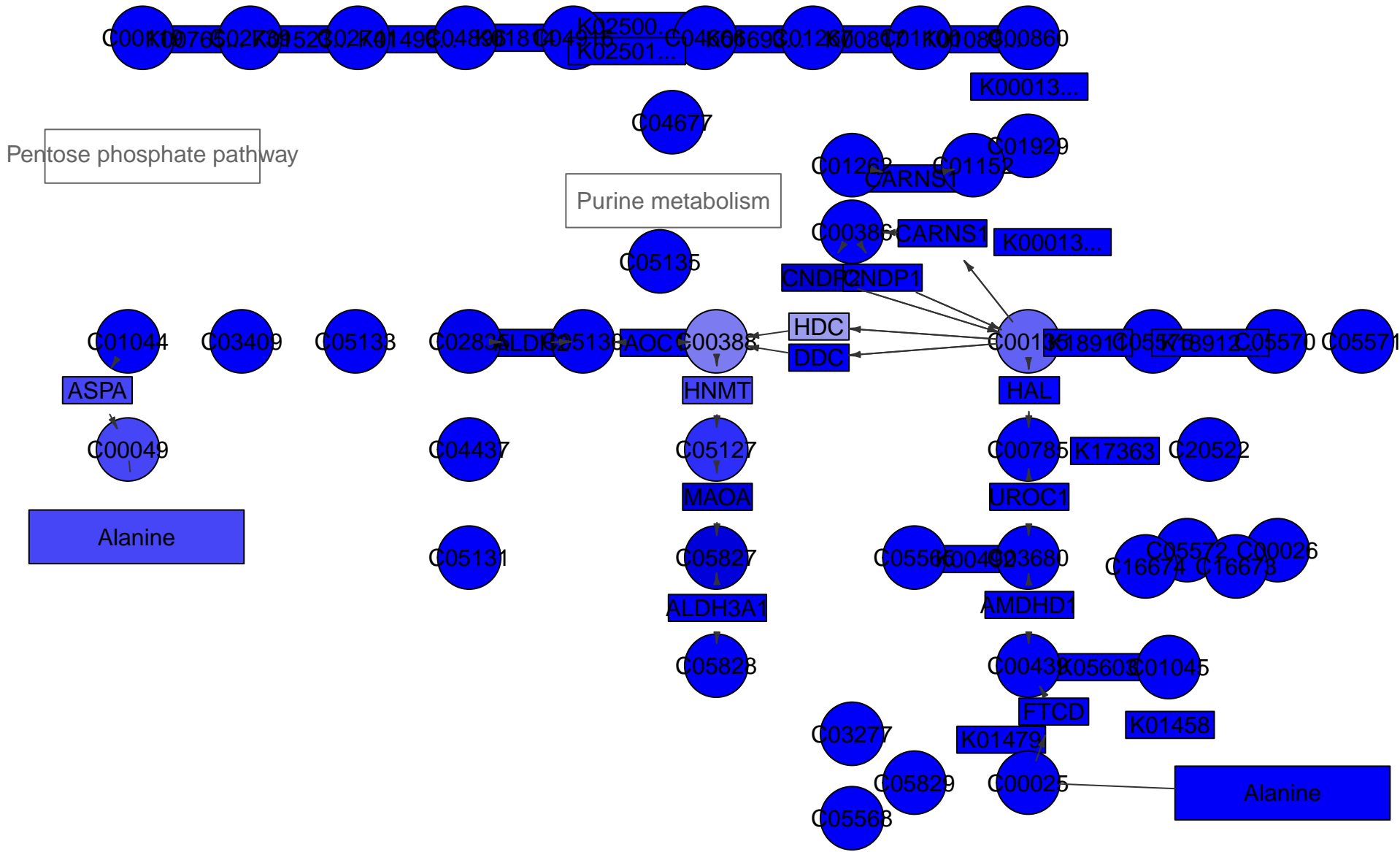
Histidine metabolism  
MPI-144



Histidine metabolism  
MPI-147



Histidine metabolism  
MPI-171





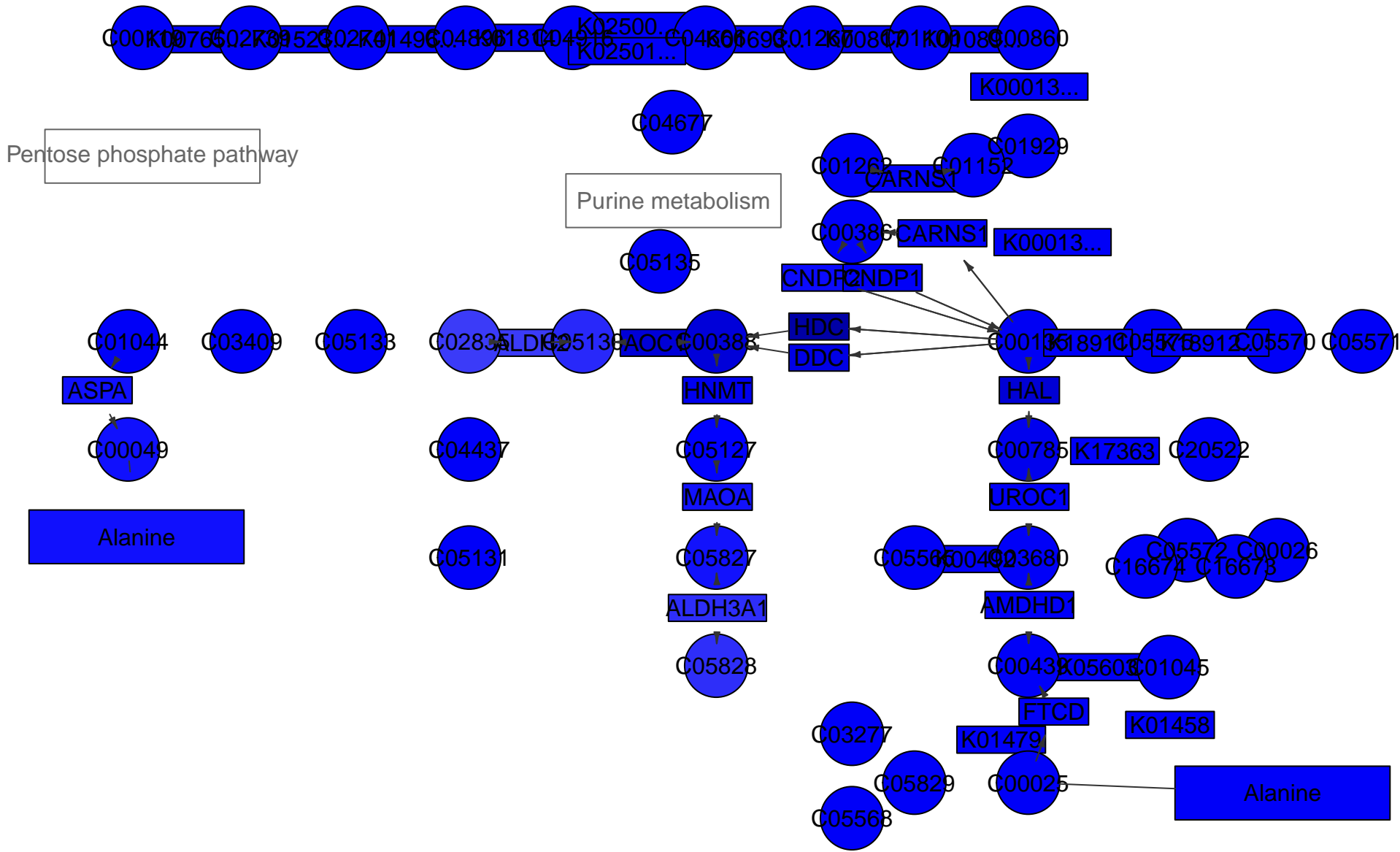








Histidine metabolism  
MPI-026



Pentose phosphate pathway

Purine metabolism

Alanine

Alanine

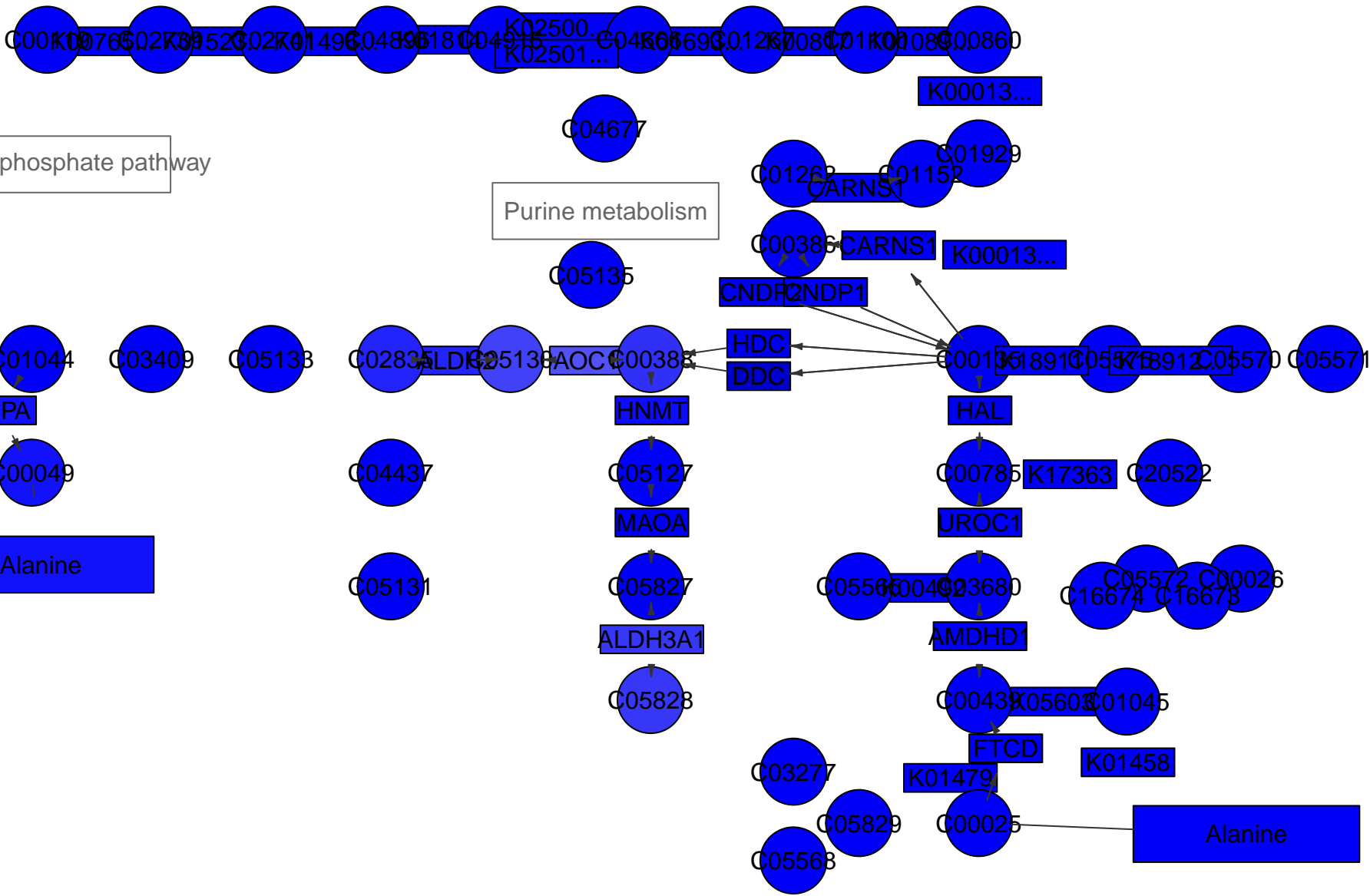
Histidine metabolism  
MPI-036

Pentose phosphate pathway

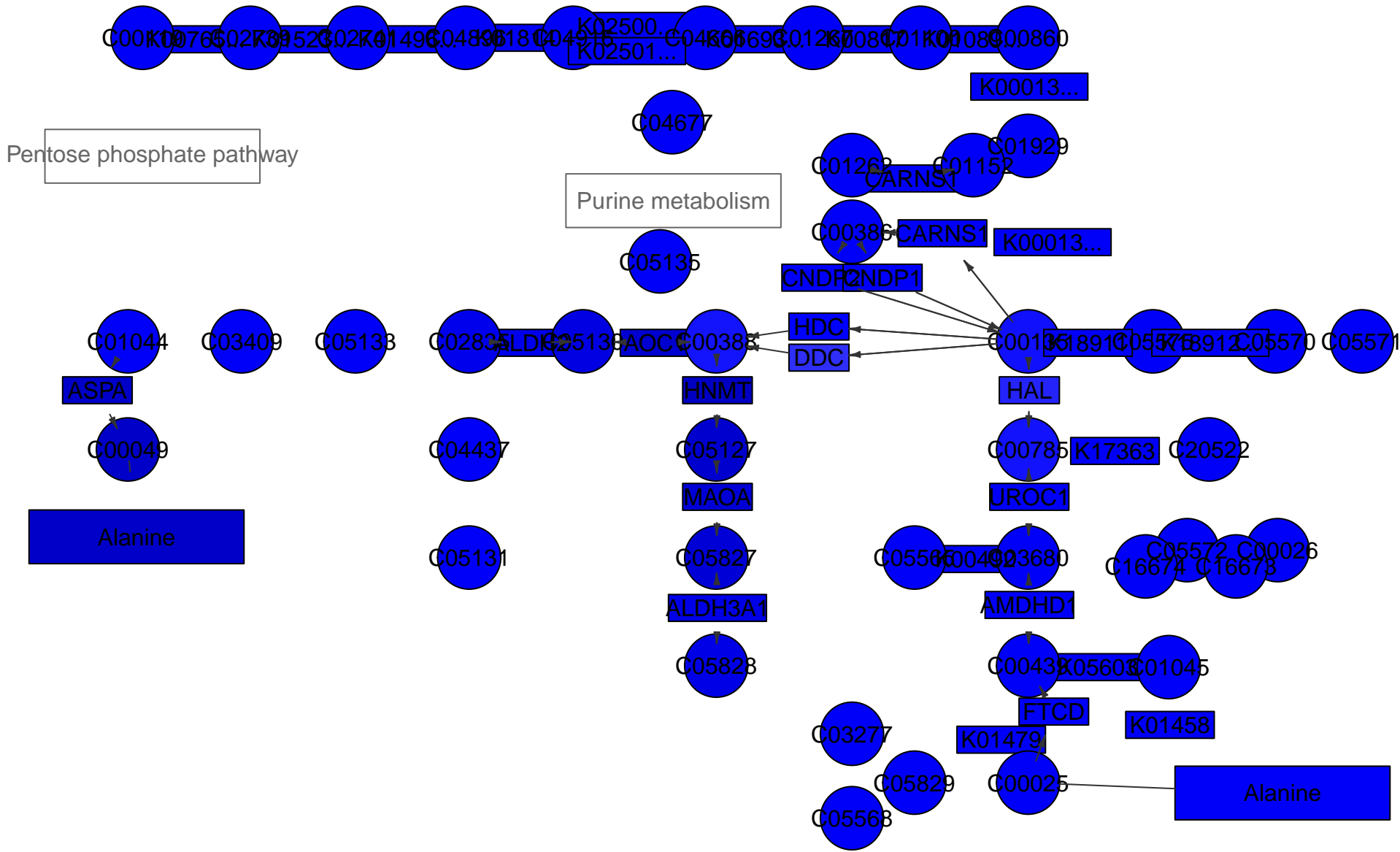
Purine metabolism

Alanine

Alanine

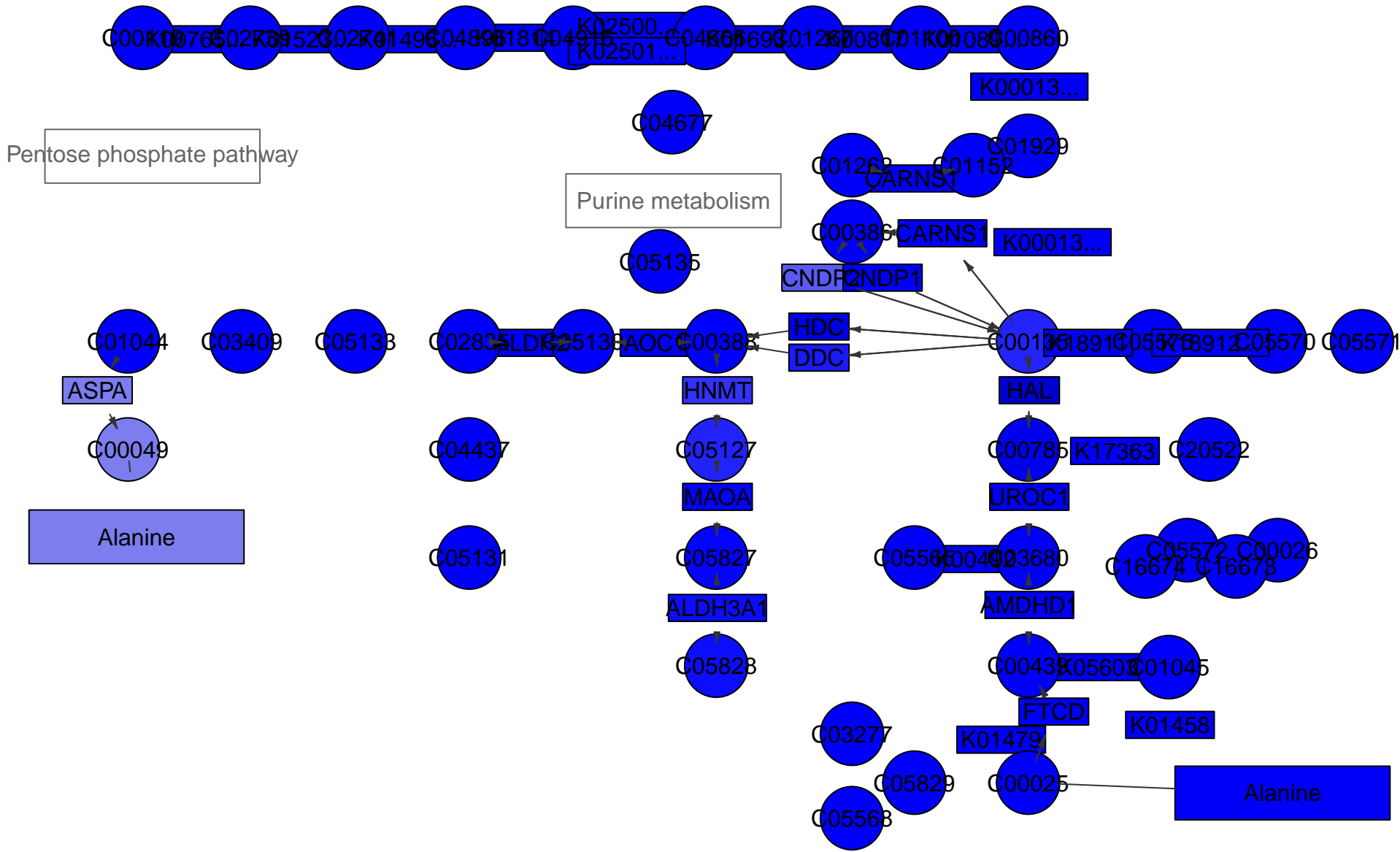


Histidine metabolism  
MPI-037





Histidine metabolism  
MPI-041



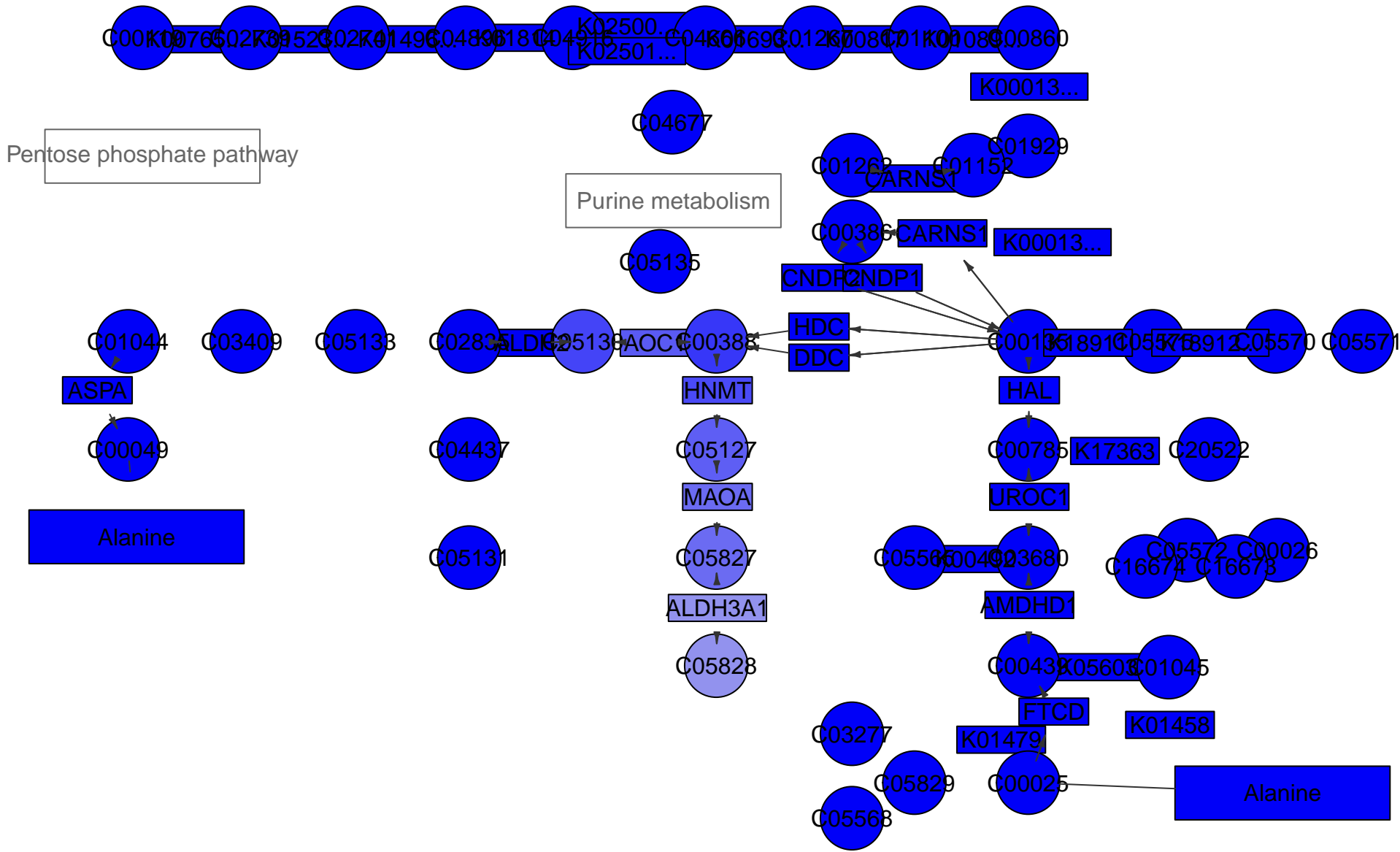
Pentose phosphate pathway

Purine metabolism

Alanine

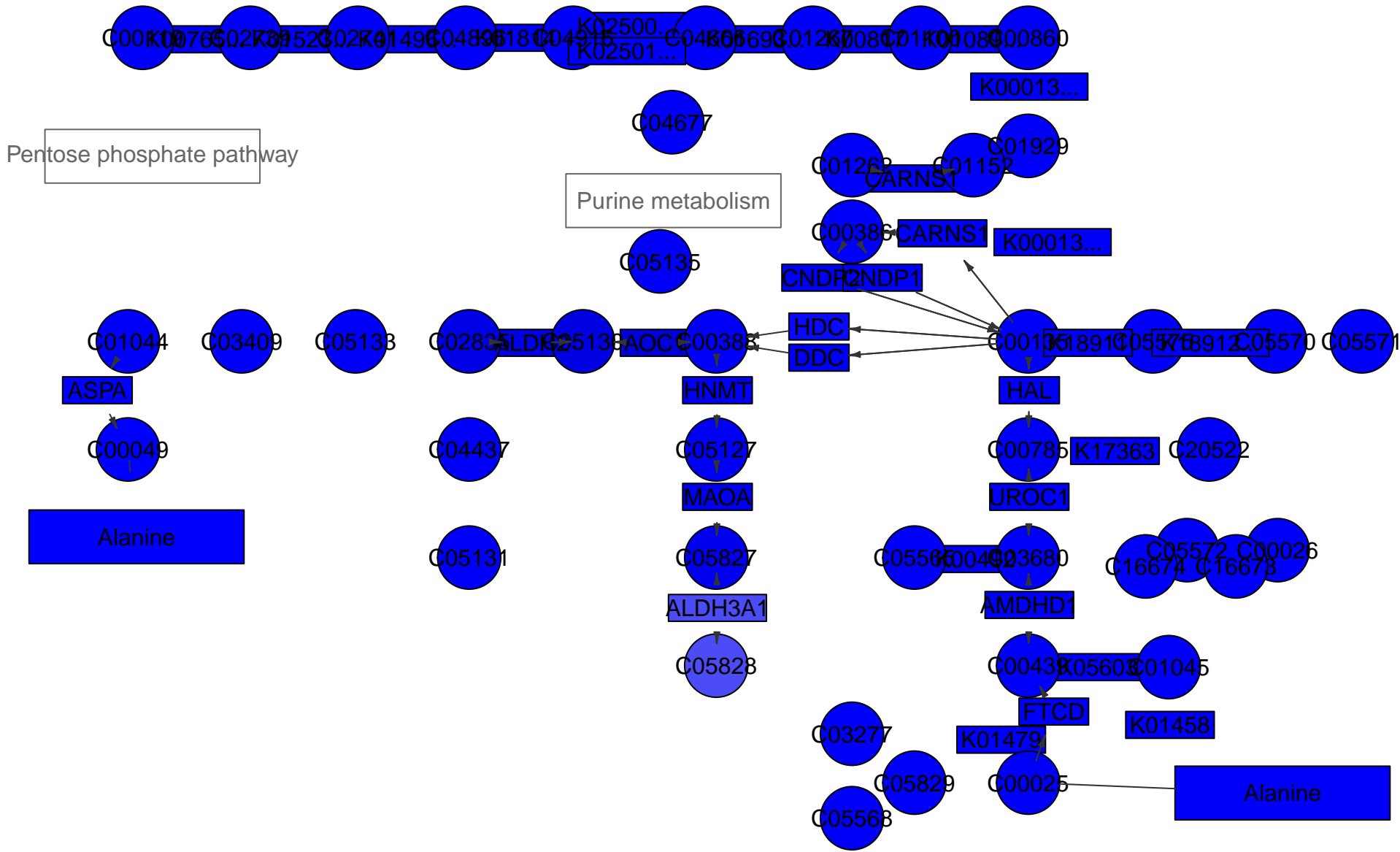
Alanine

Histidine metabolism  
MPI-046



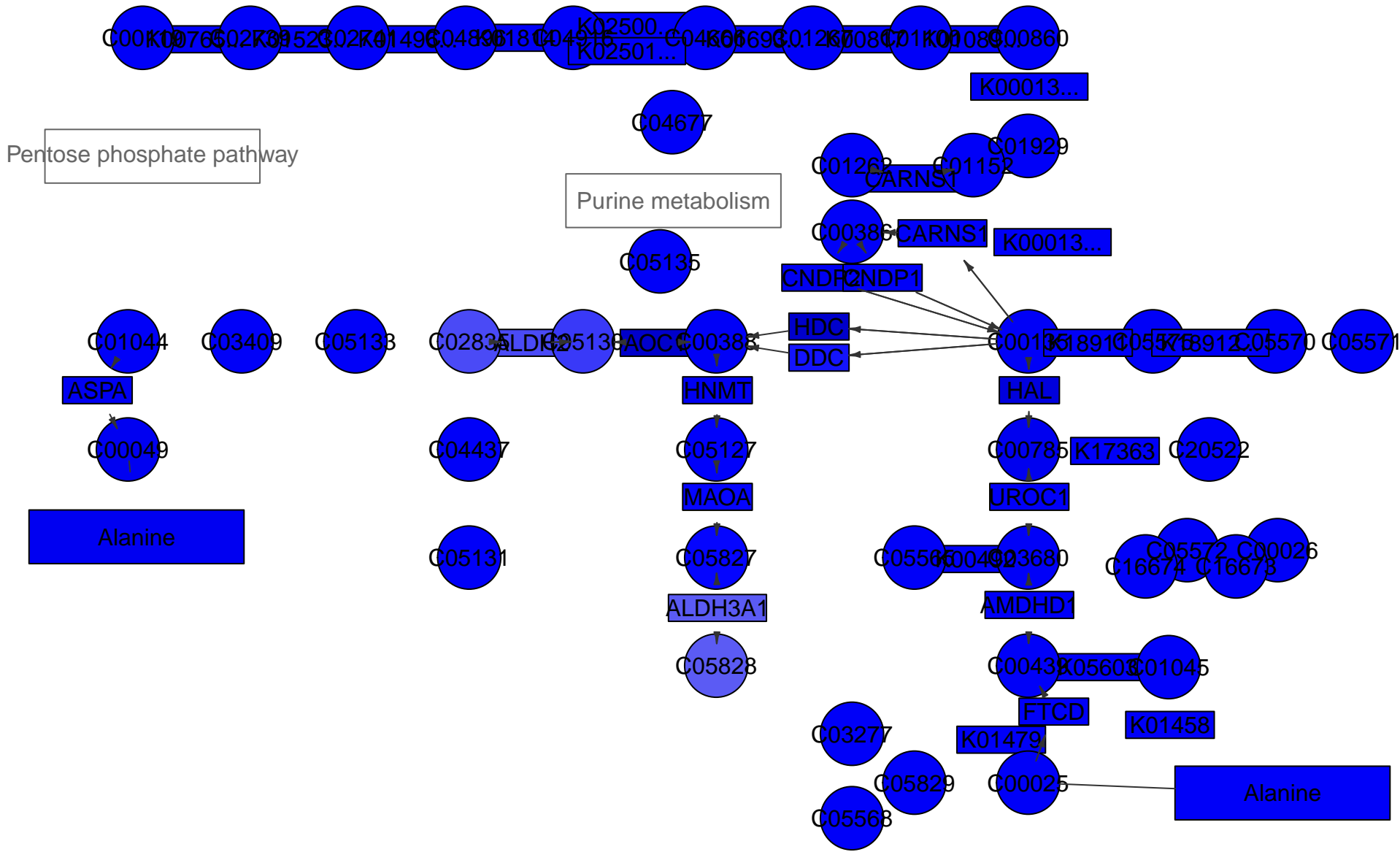


Histidine metabolism  
MPI-050





Histidine metabolism  
MPI-054





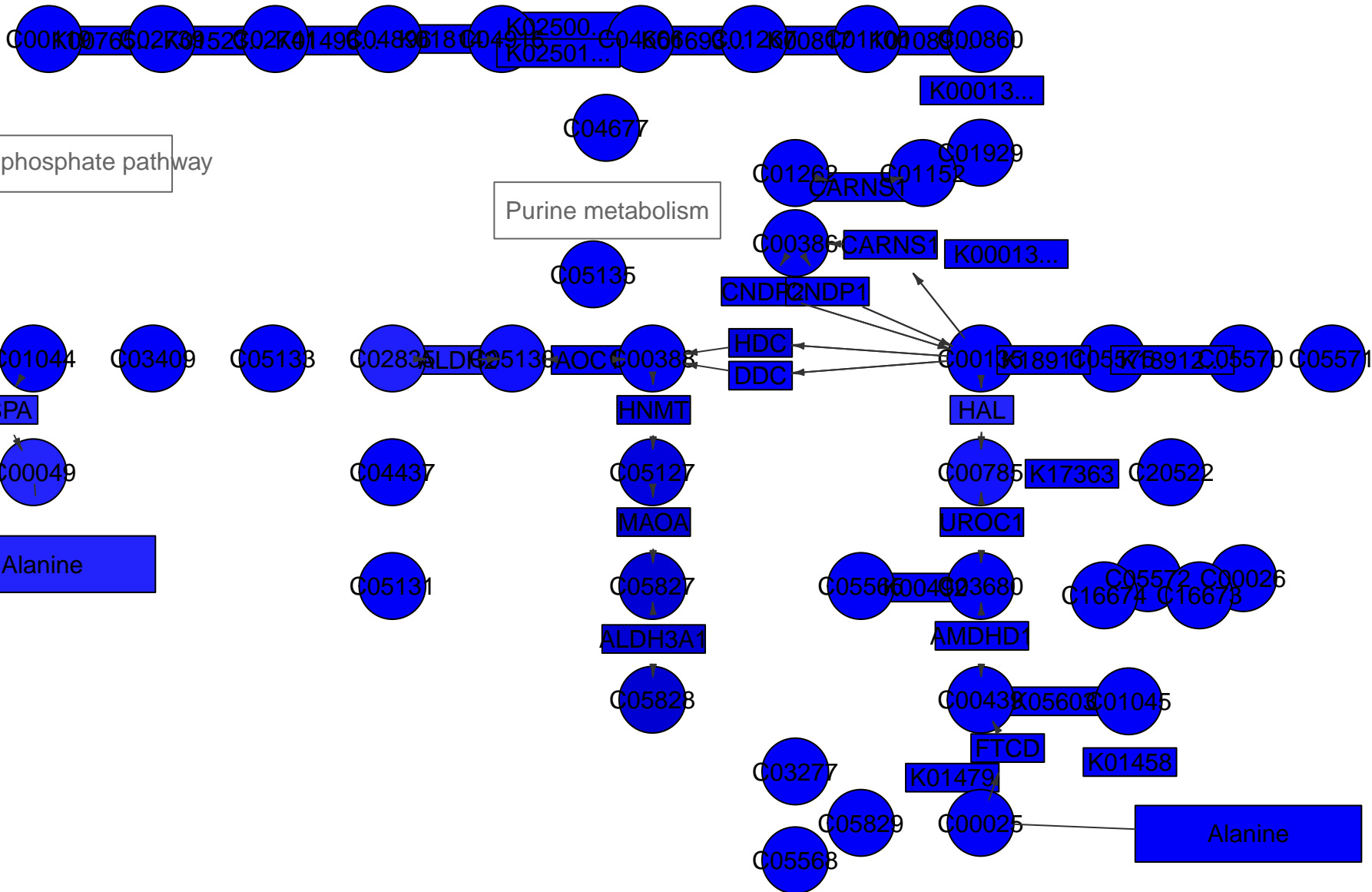
Histidine metabolism  
MPI-060

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



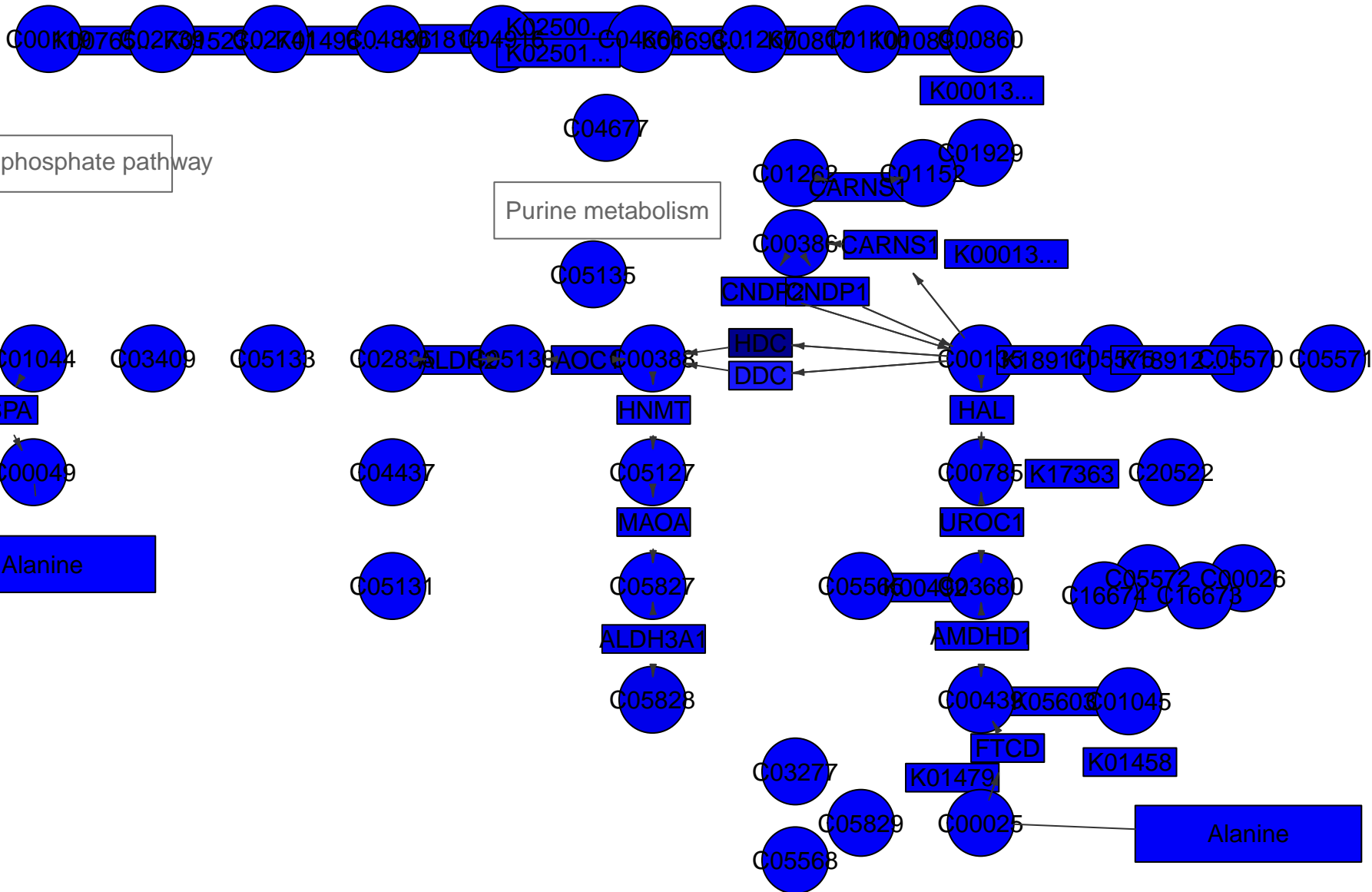
Histidine metabolism  
MPI-061

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine





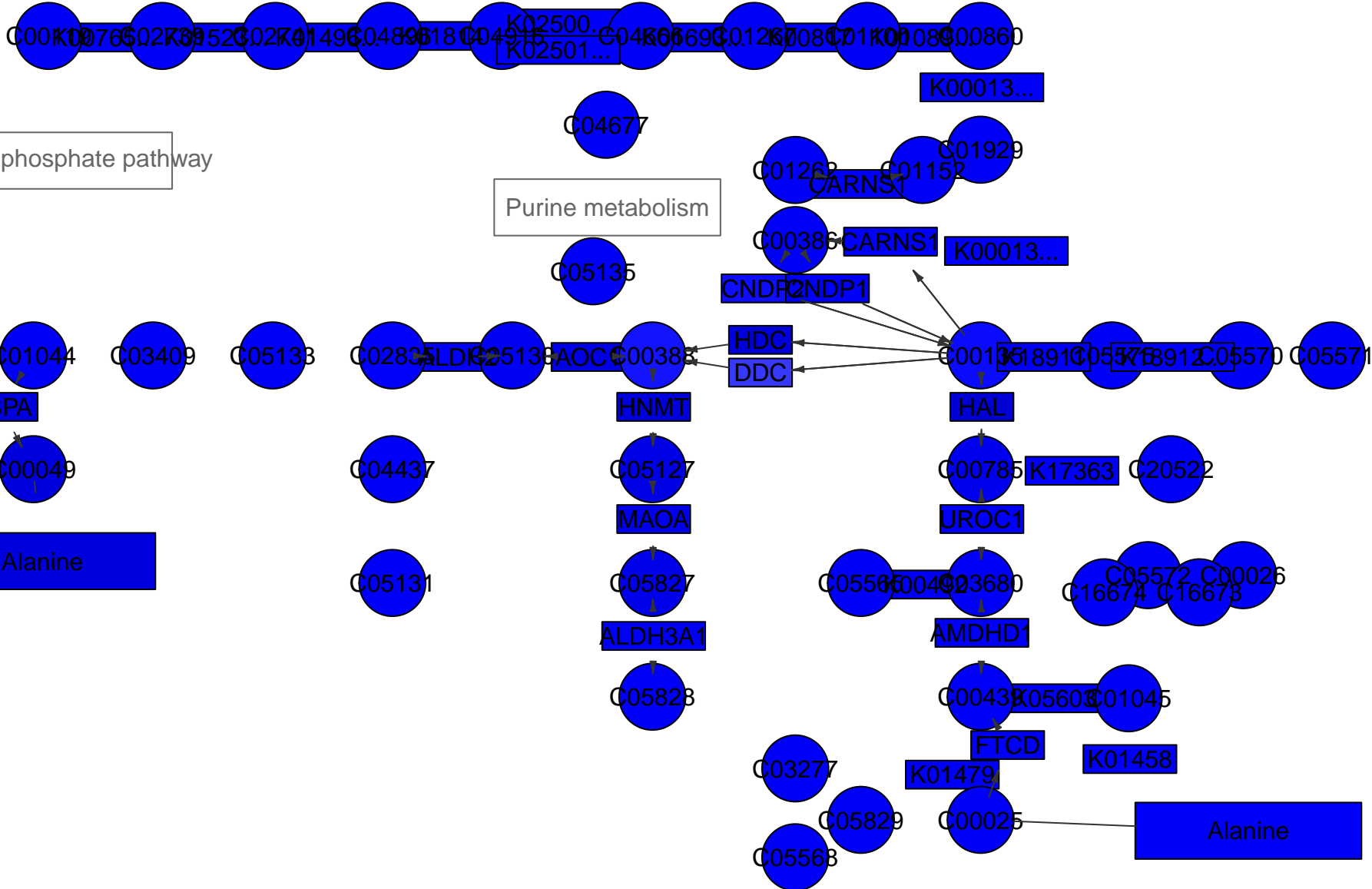
Histidine metabolism  
MPI-070

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine











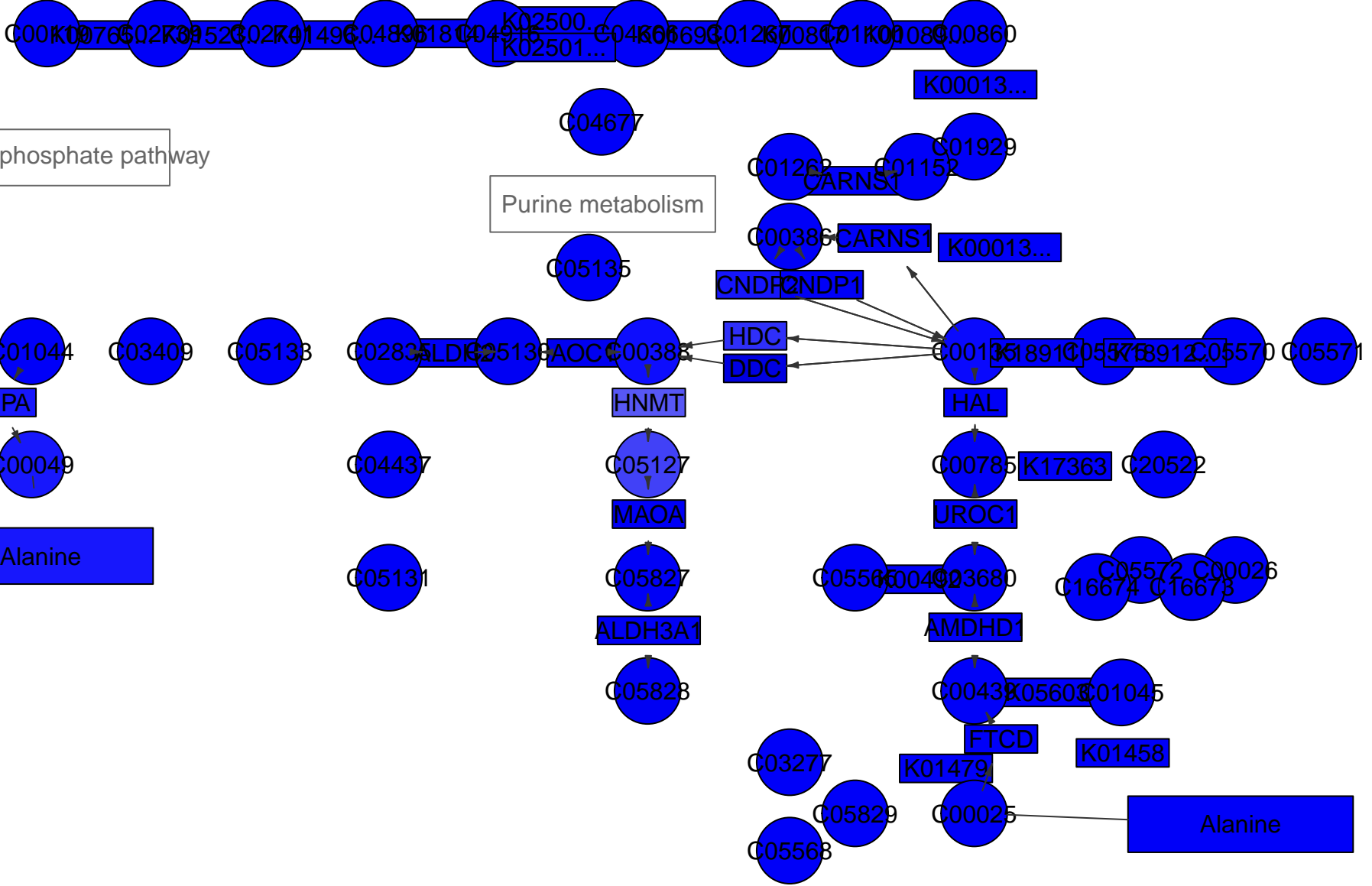
Histidine metabolism  
MPI-099

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine





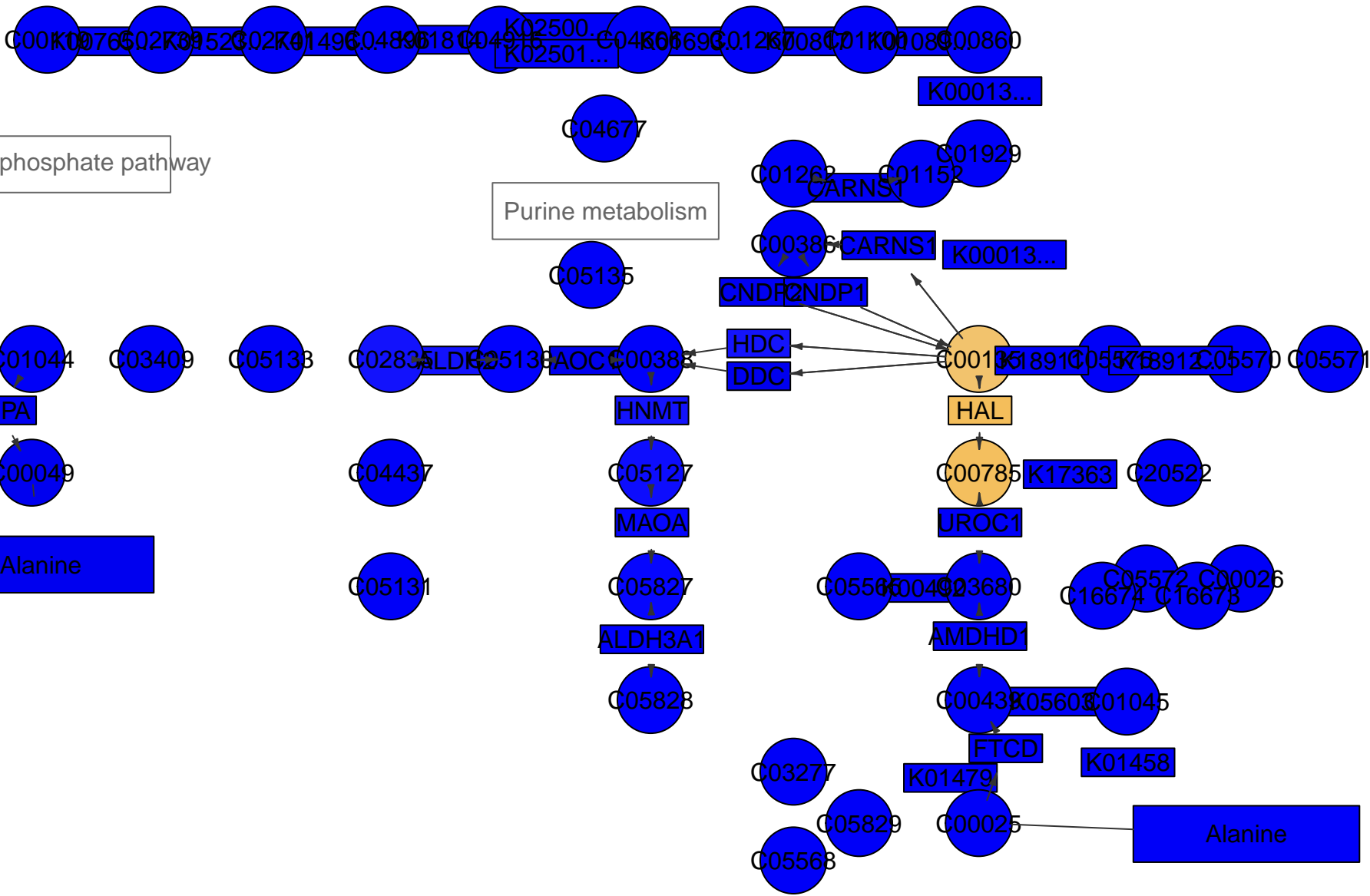
Histidine metabolism  
MPI-107

Pentose phosphate pathway

Purine metabolism

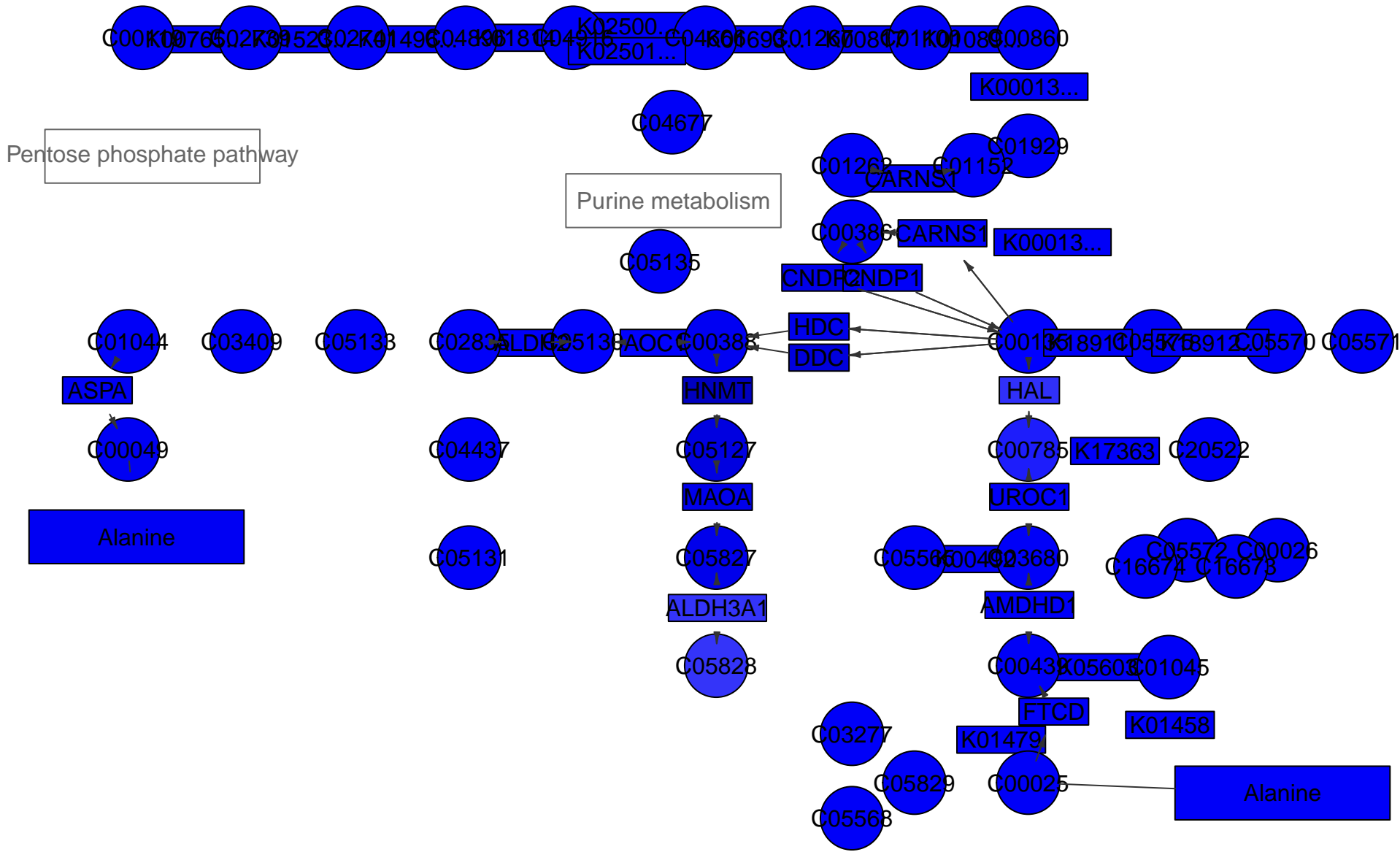
Alanine

Alanine



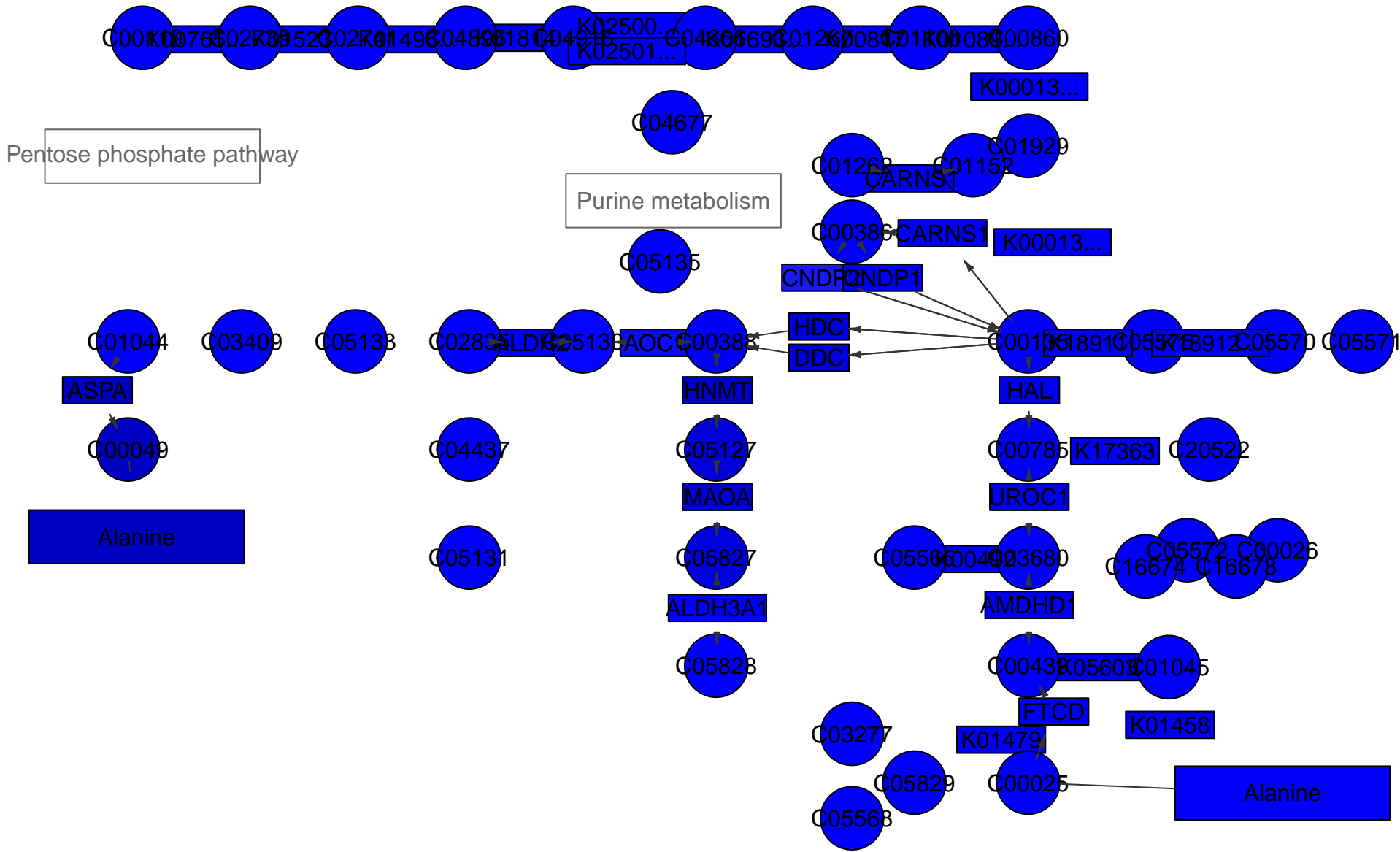


Histidine metabolism  
MPI-116





Histidine metabolism  
MPI-117



Pentose phosphate pathway

Purine metabolism

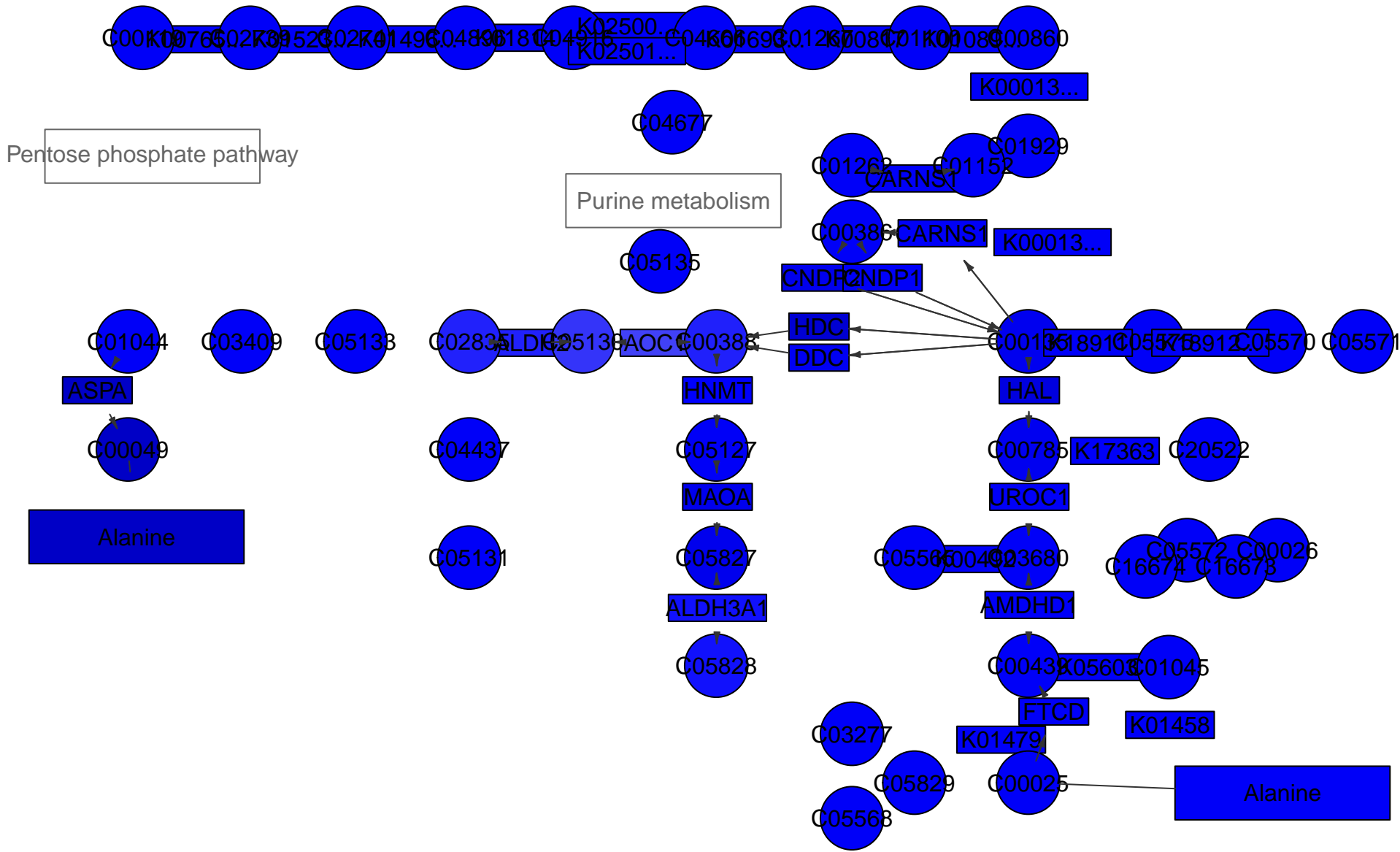
Alanine

Alanine





Histidine metabolism  
MPI-124



C001K00765 C02K3952 C02K01496 C04896 C04915 K02500 K02501... C04K66693 C012K7080 C01K00089 C00860

K00013...

C04677

Pentose phosphate pathway

Purine metabolism

C01269 C01152 CARNIS1 C01929

C00386 CARNIS1 K00013...

CNDP2 CNDP1

C01044 C03409 C05133 C02835 ALDH2 C05138 AOC C00388 HDC DDC C00135 K18910 C05K78912 C05570 C05571

ASPA

HNMT

HAL

C00049

C04437

C05127 MAOA

C00785 UROC1

K17363

C20522

Alanine

C05131

C05827 ALDH3A1

C05565 C00492 C03680 AMDHD1

C05572 C00026 C16674 C16673

C05828

C00439 K05603 C01045 FTCD

C03277

K01479

K01458

C05829 C00025 C05568

Alanine

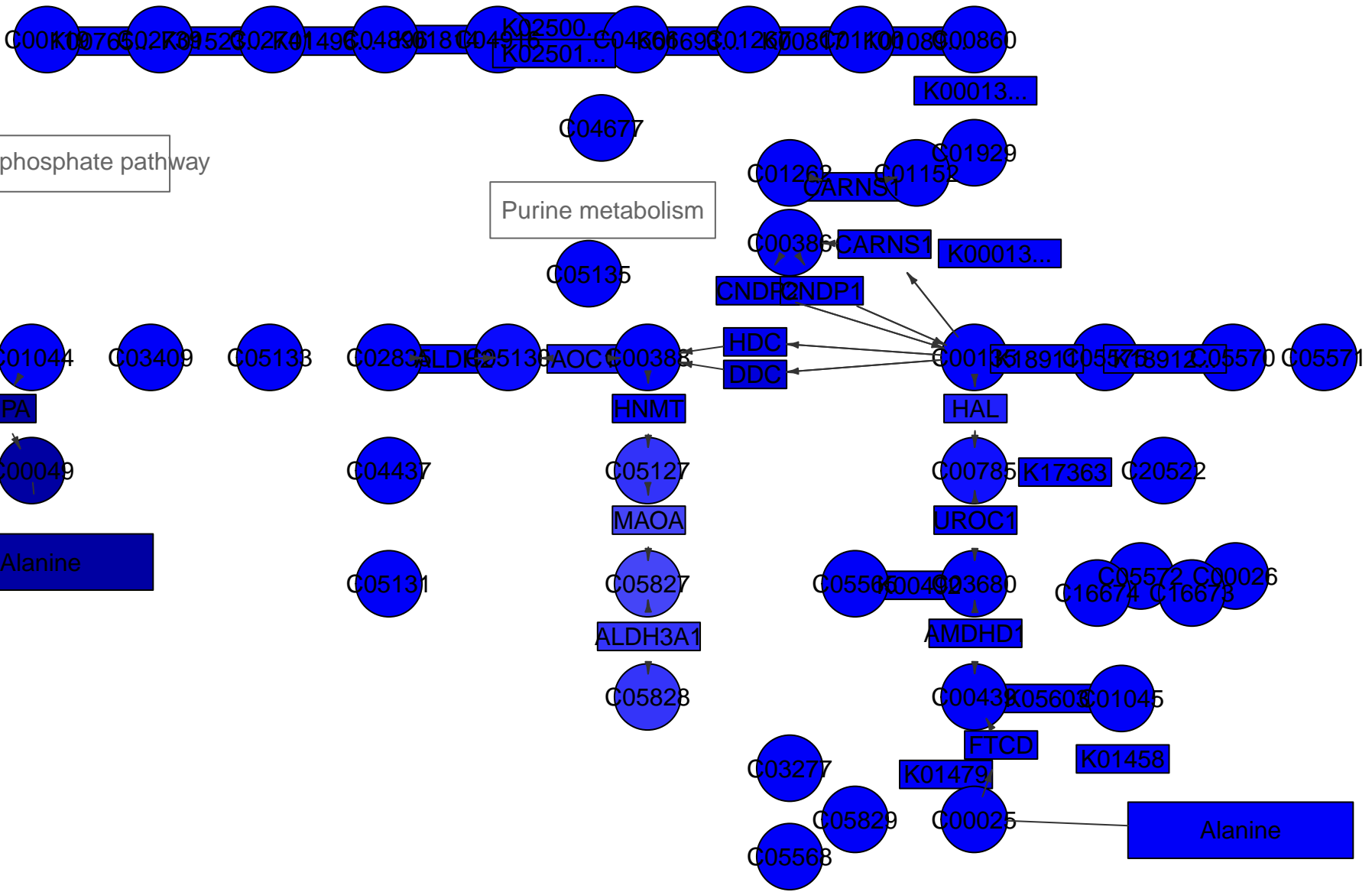
Histidine metabolism  
MPI-126

Pentose phosphate pathway

Purine metabolism

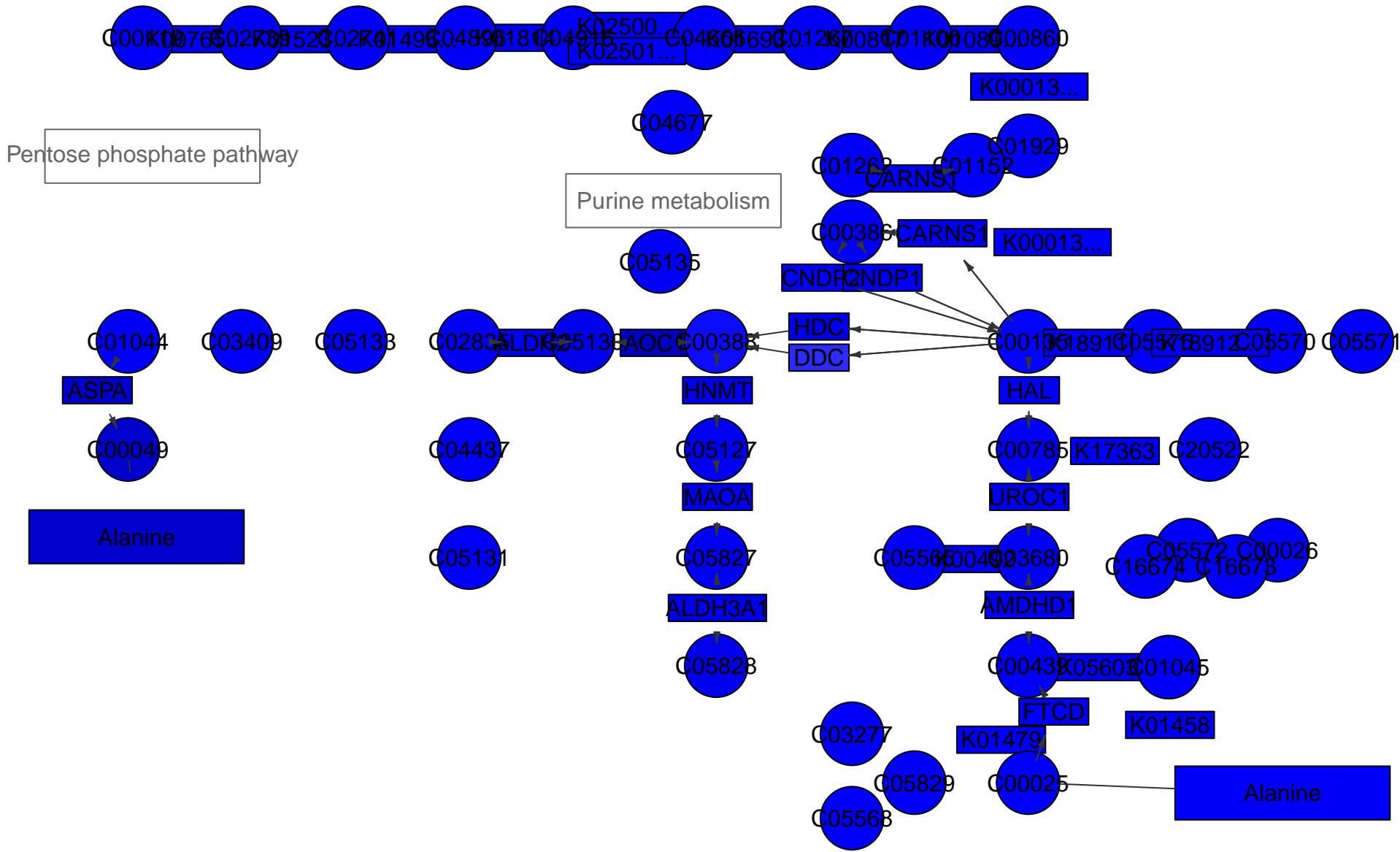
Alanine

Alanine

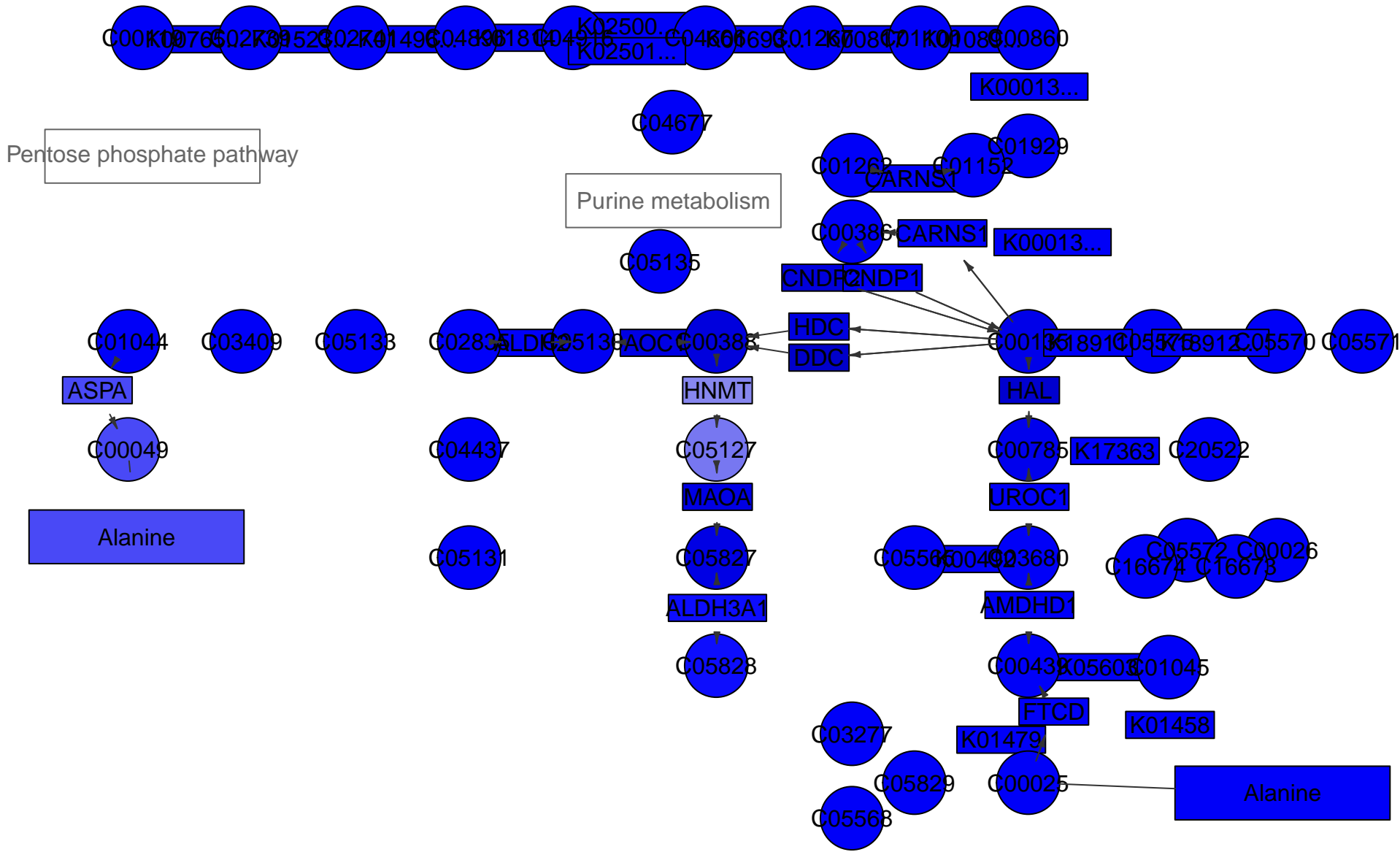




Histidine metabolism  
MPI-143

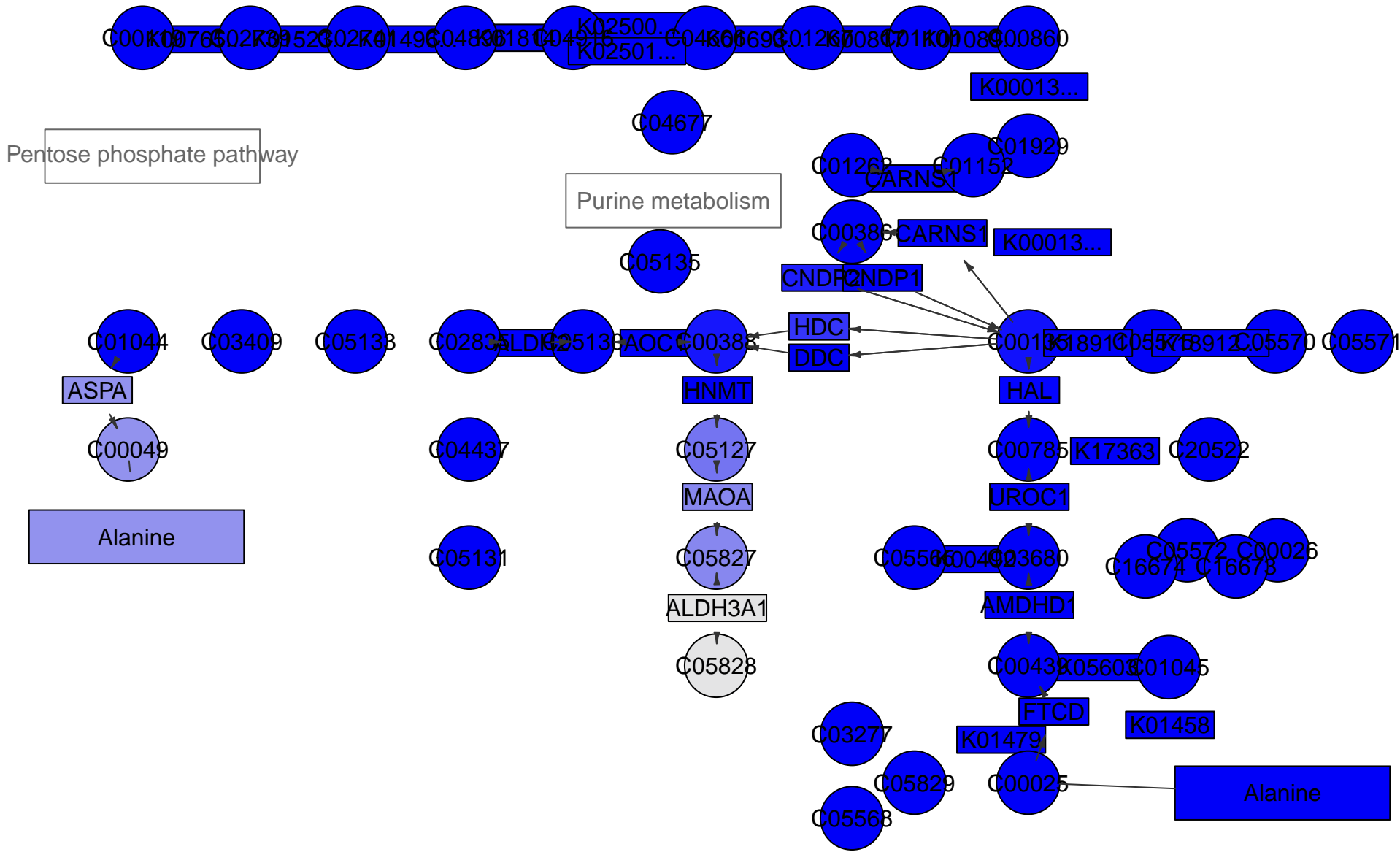


Histidine metabolism  
MPI-148



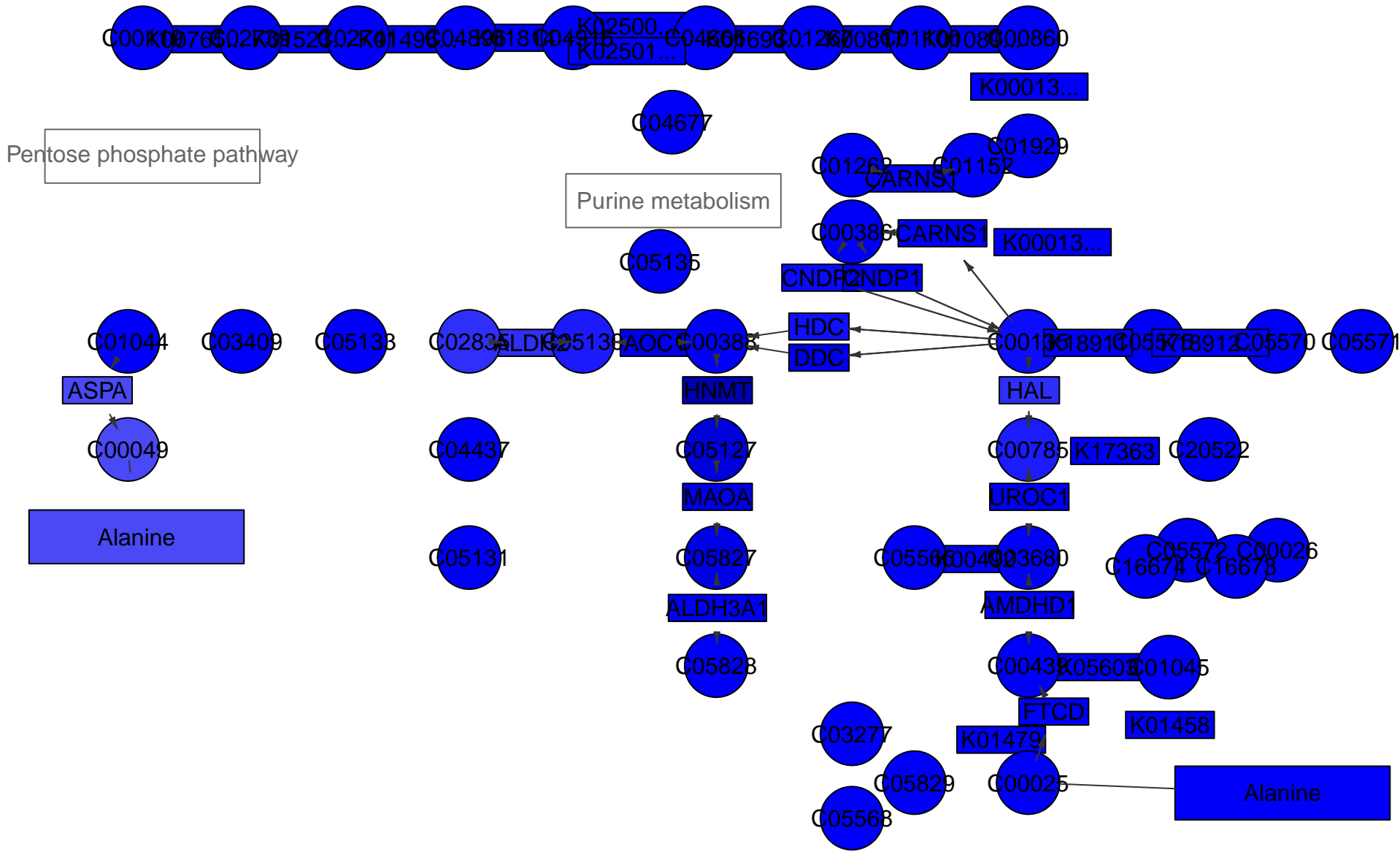


Histidine metabolism  
MPI-161





Histidine metabolism  
MPI-165



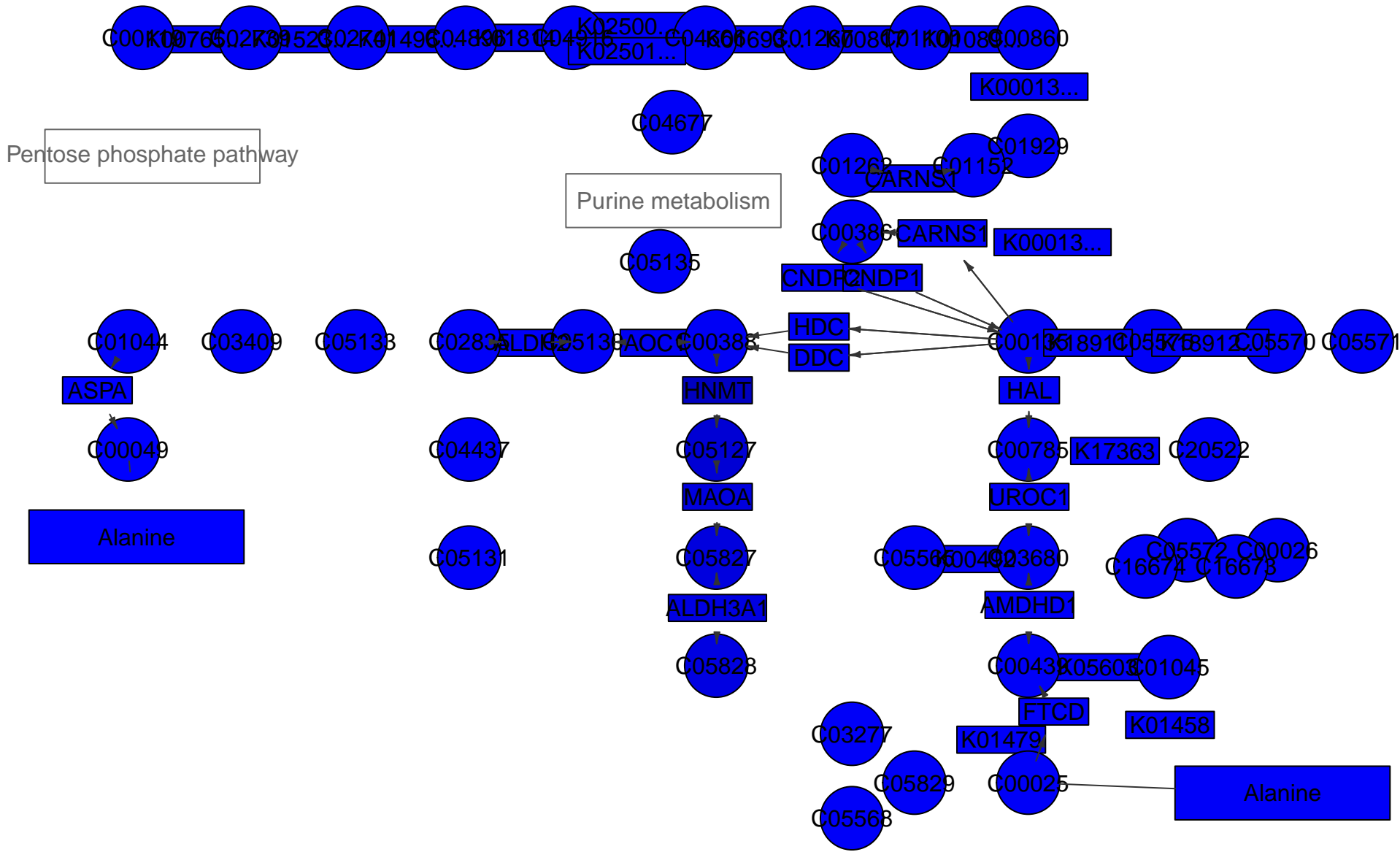
Pentose phosphate pathway

Purine metabolism

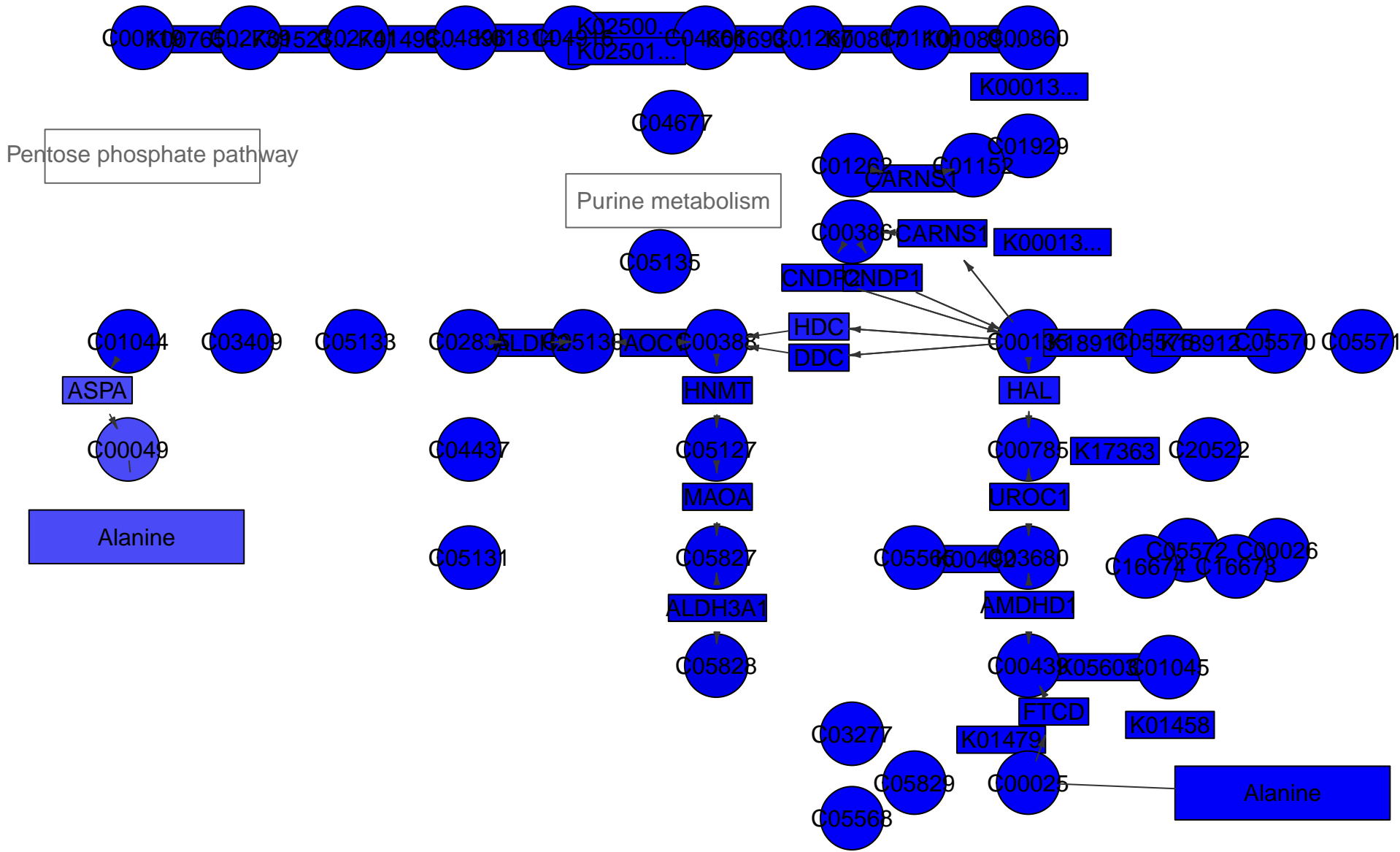
Alanine

Alanine

Histidine metabolism  
MPI-169



Histidine metabolism  
MPI-175



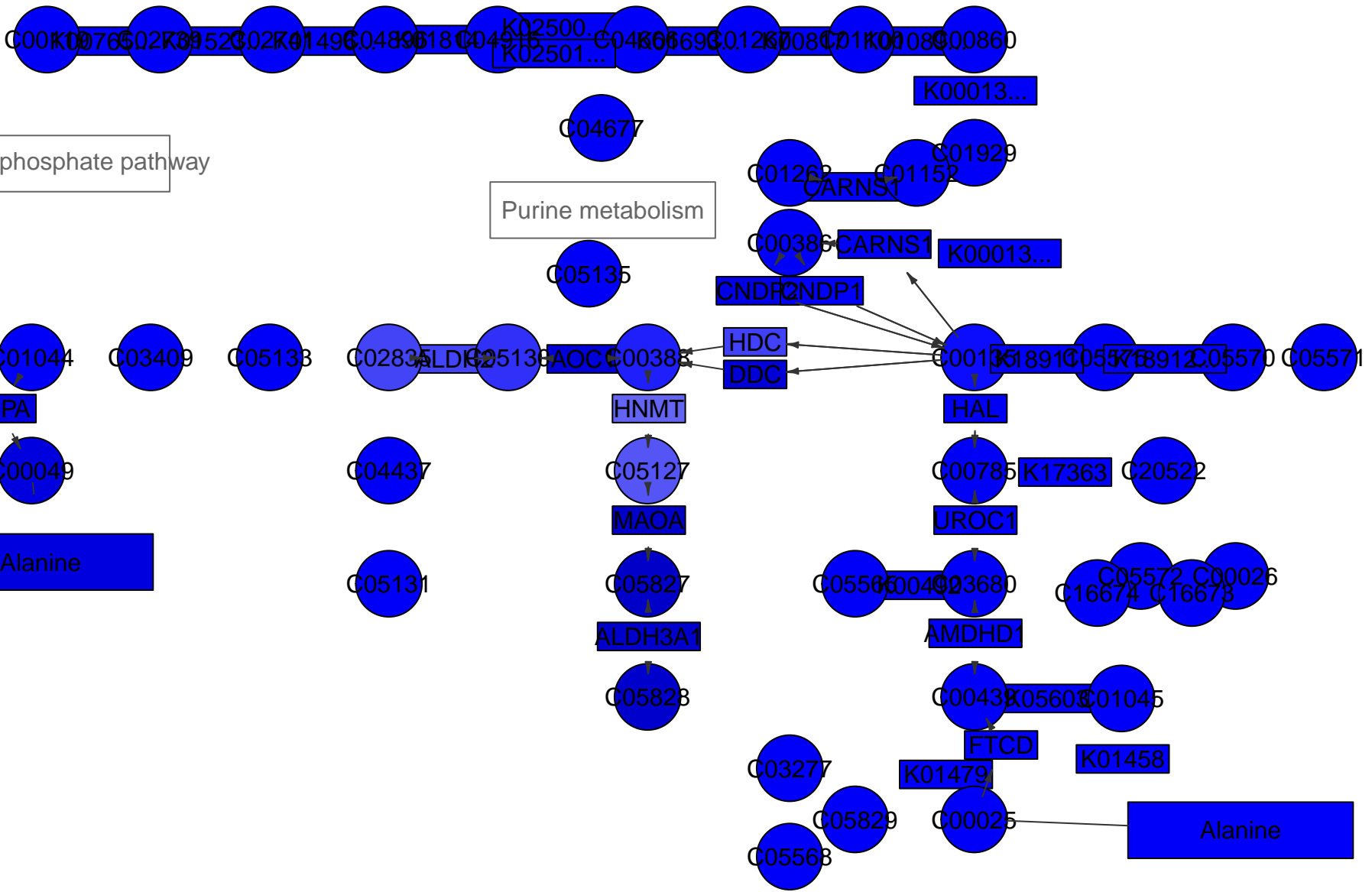
Histidine metabolism  
MPI-187

Pentose phosphate pathway

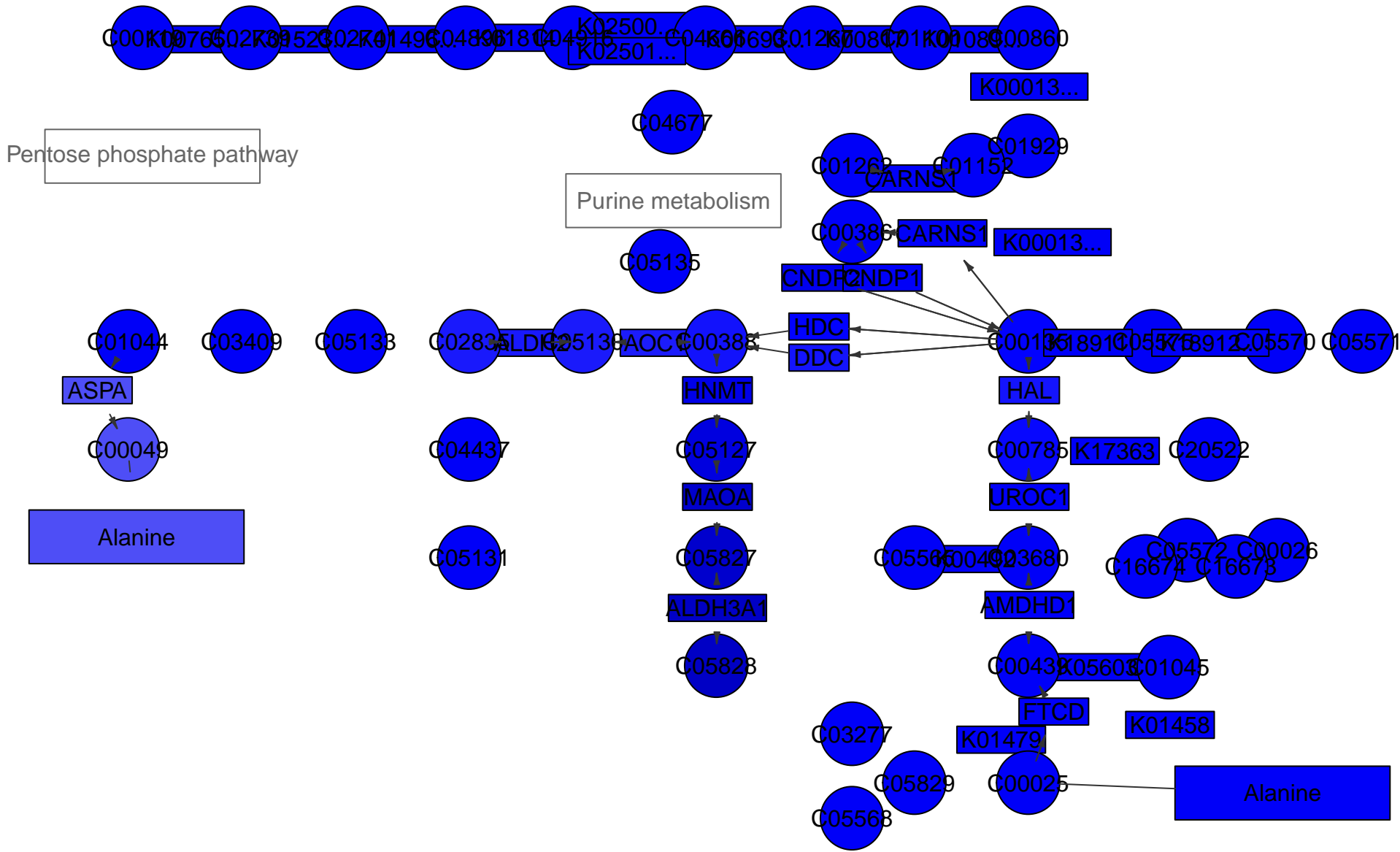
Purine metabolism

Alanine

Alanine



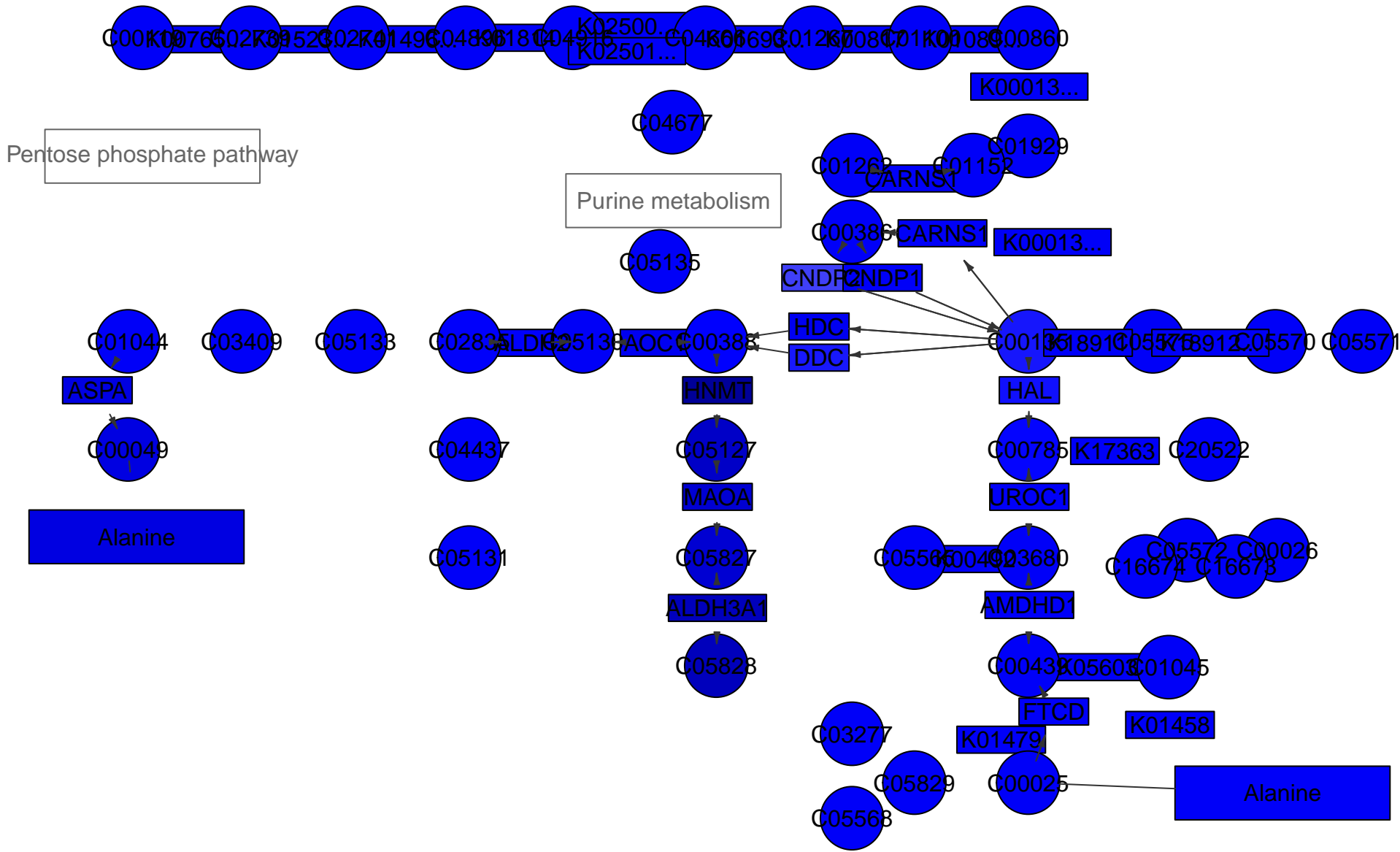
Histidine metabolism  
MPI-193



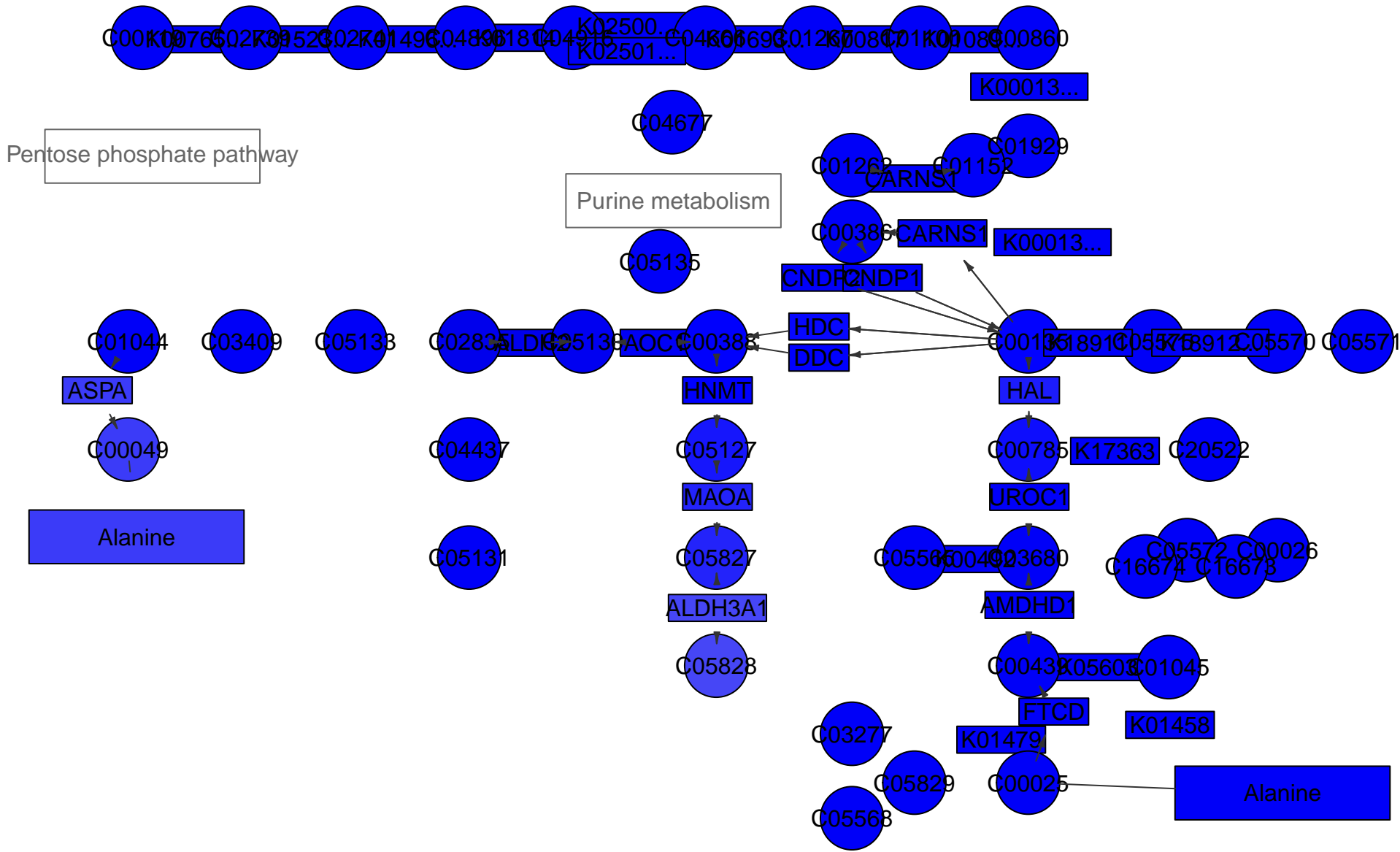




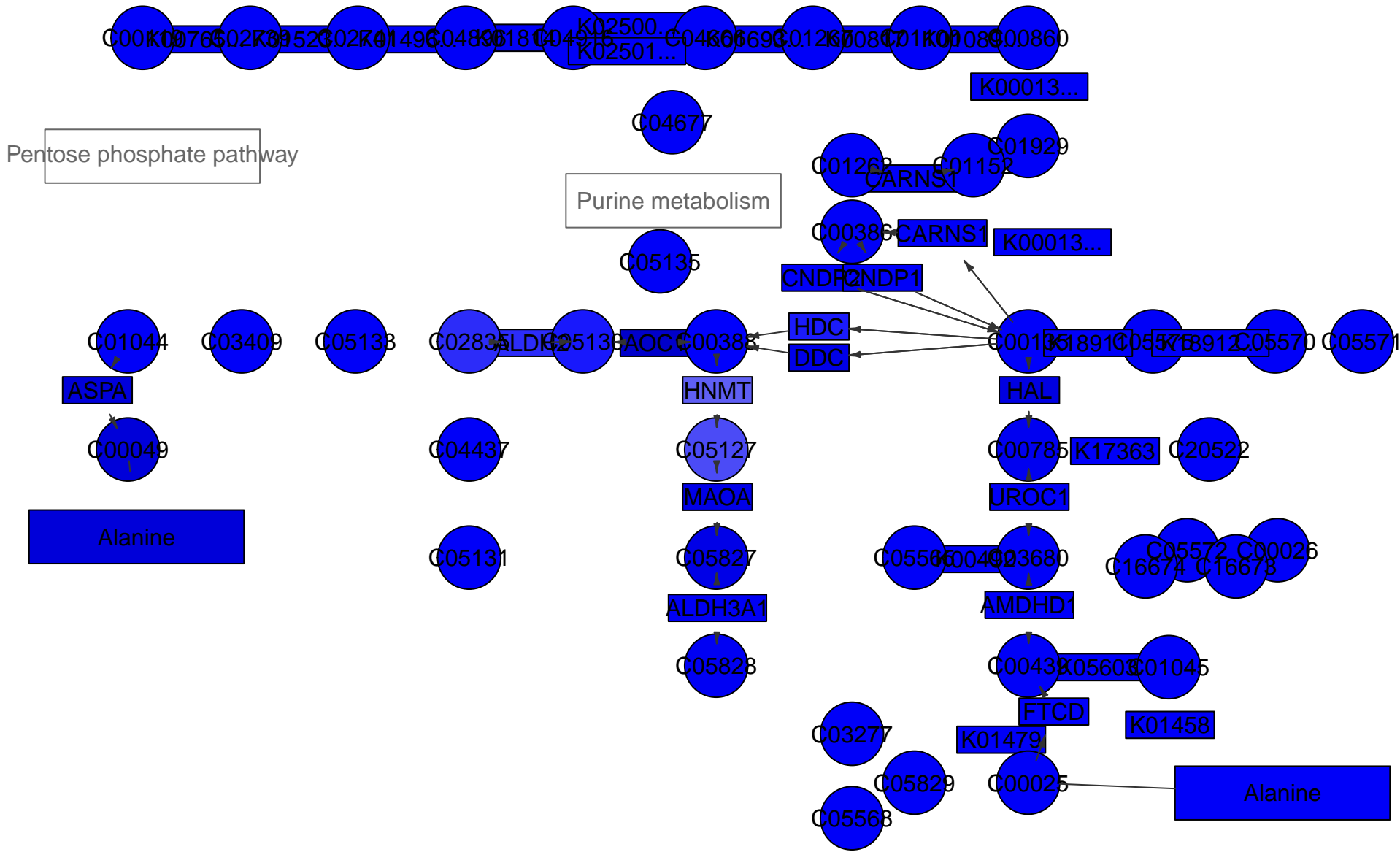
Histidine metabolism  
MPI-222



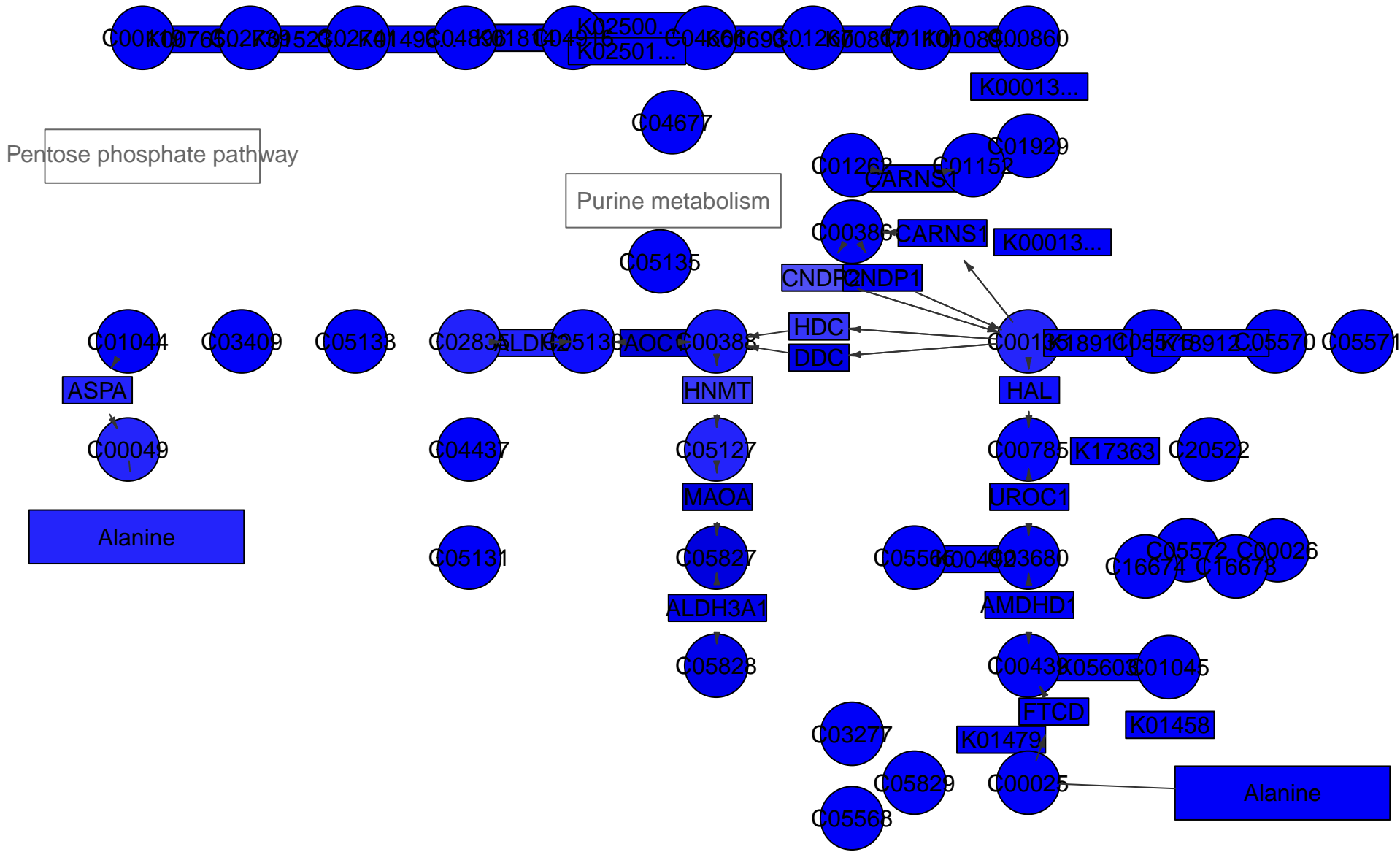
Histidine metabolism  
MPI-225



Histidine metabolism  
MPI-242

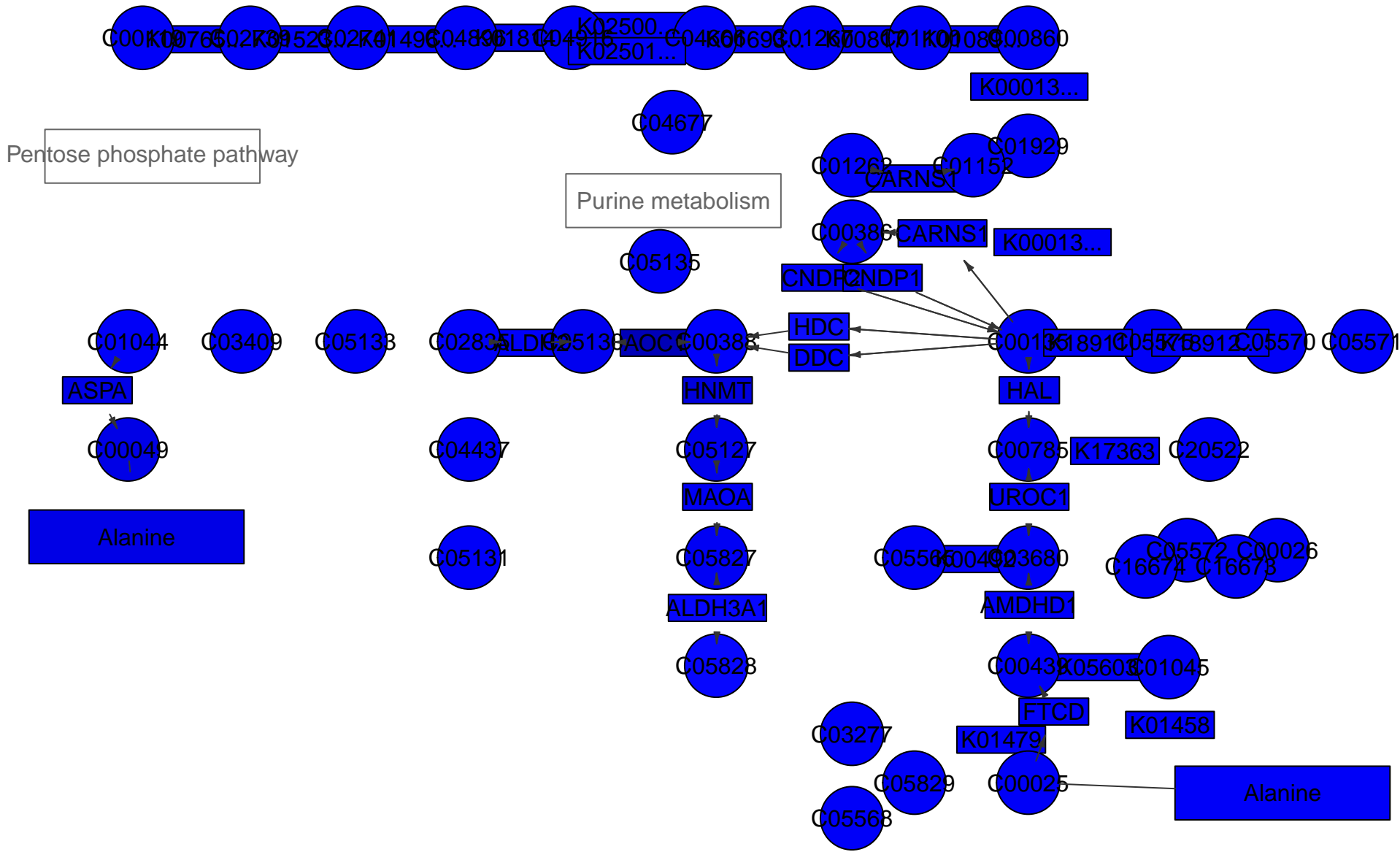


Histidine metabolism  
MPI-245





Histidine metabolism  
MPI-249



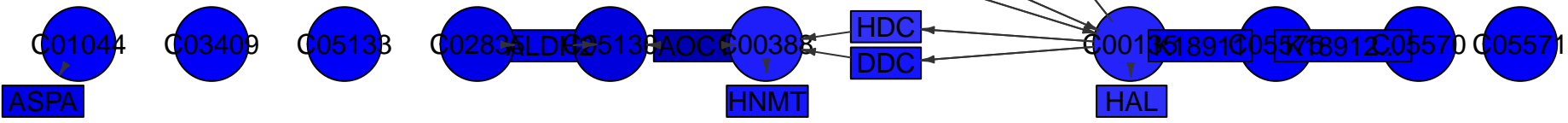
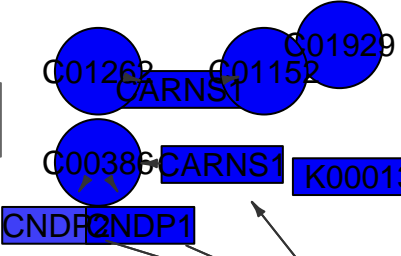
Histidine metabolism  
MPI-250



Pentose phosphate pathway

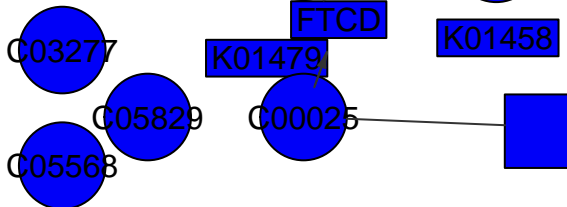
Purine metabolism

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Alanine

Alanine



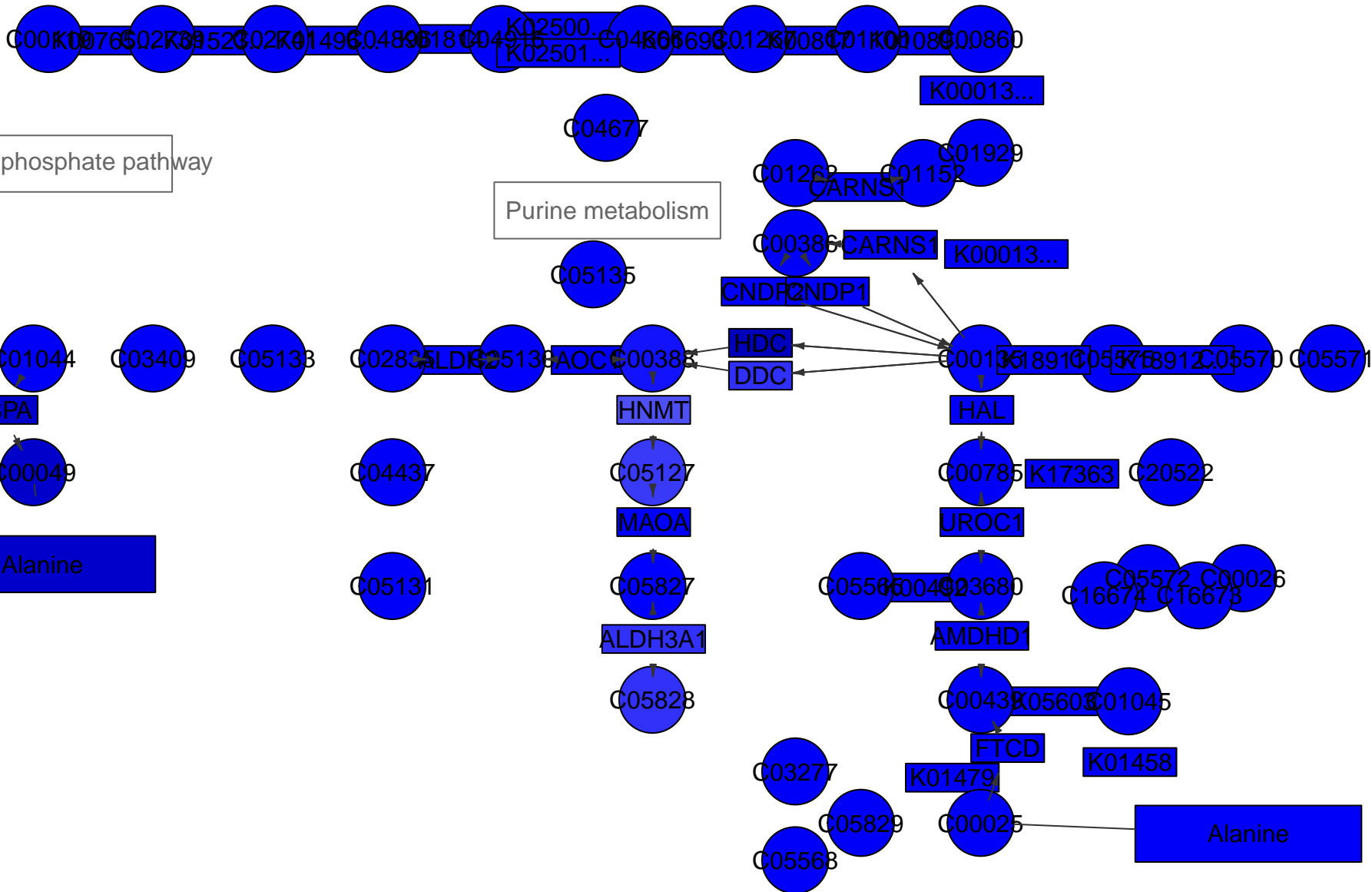
Histidine metabolism  
MPI-008

Pentose phosphate pathway

Purine metabolism

Alanine

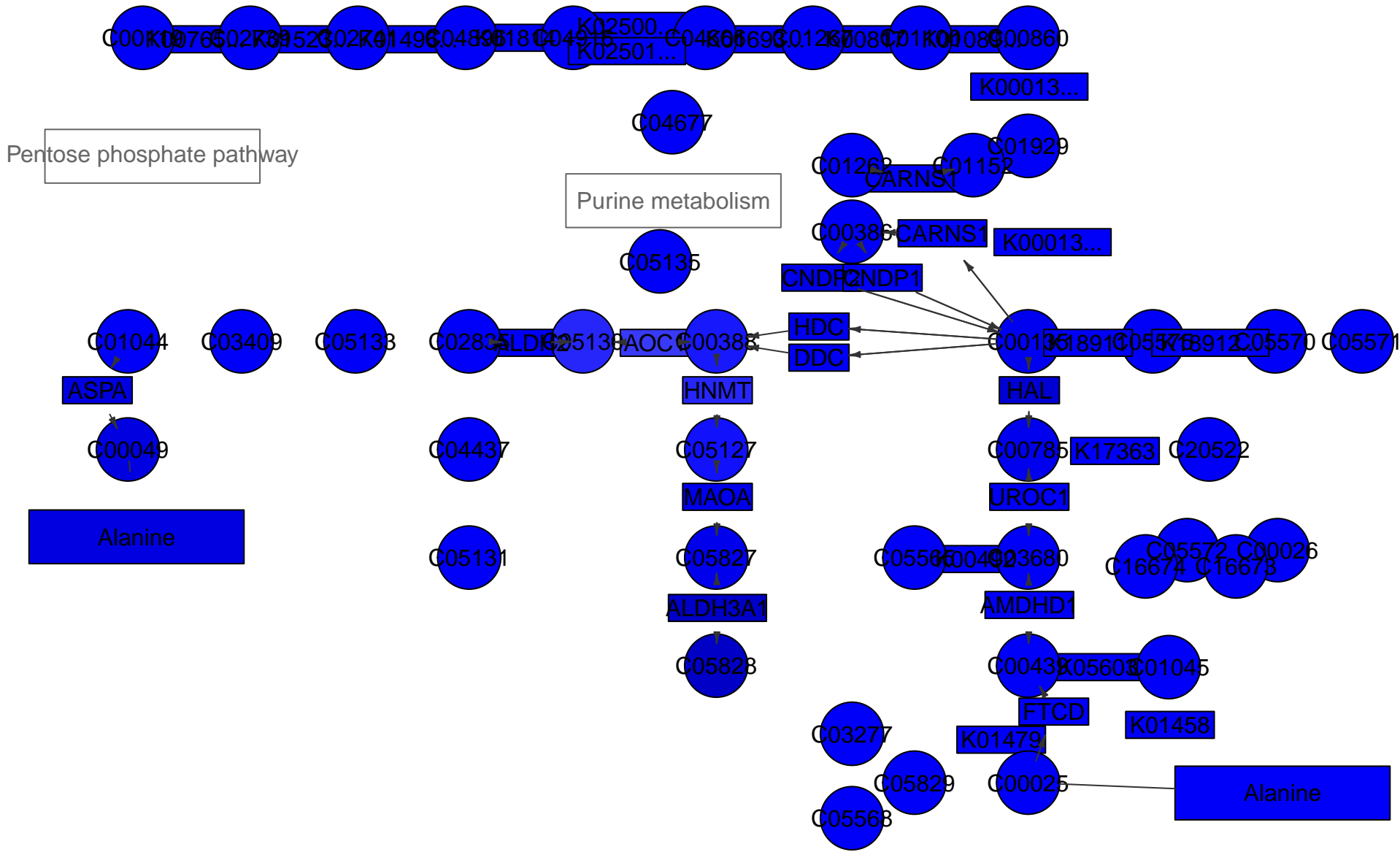
Alanine





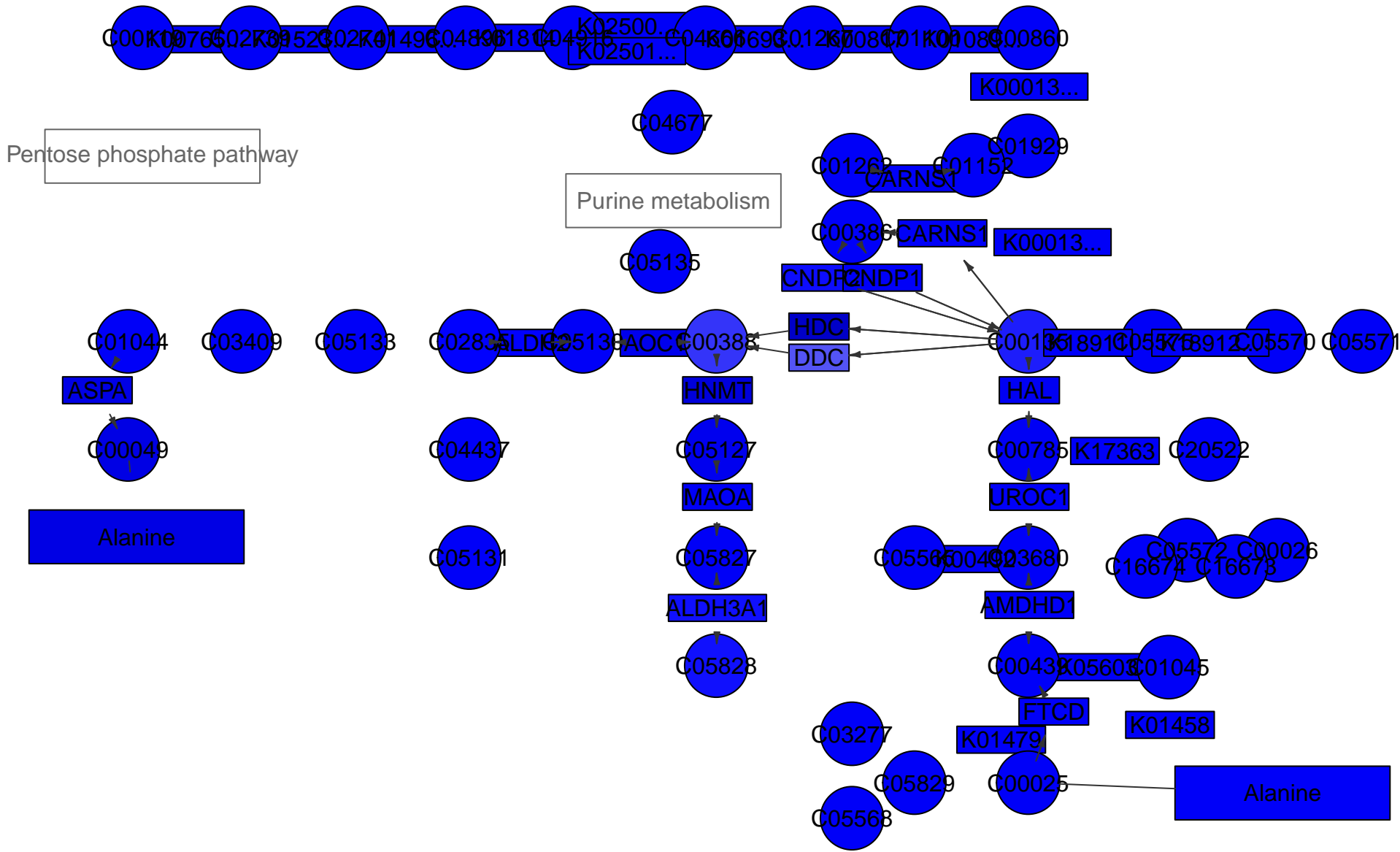


Histidine metabolism  
MPI-010

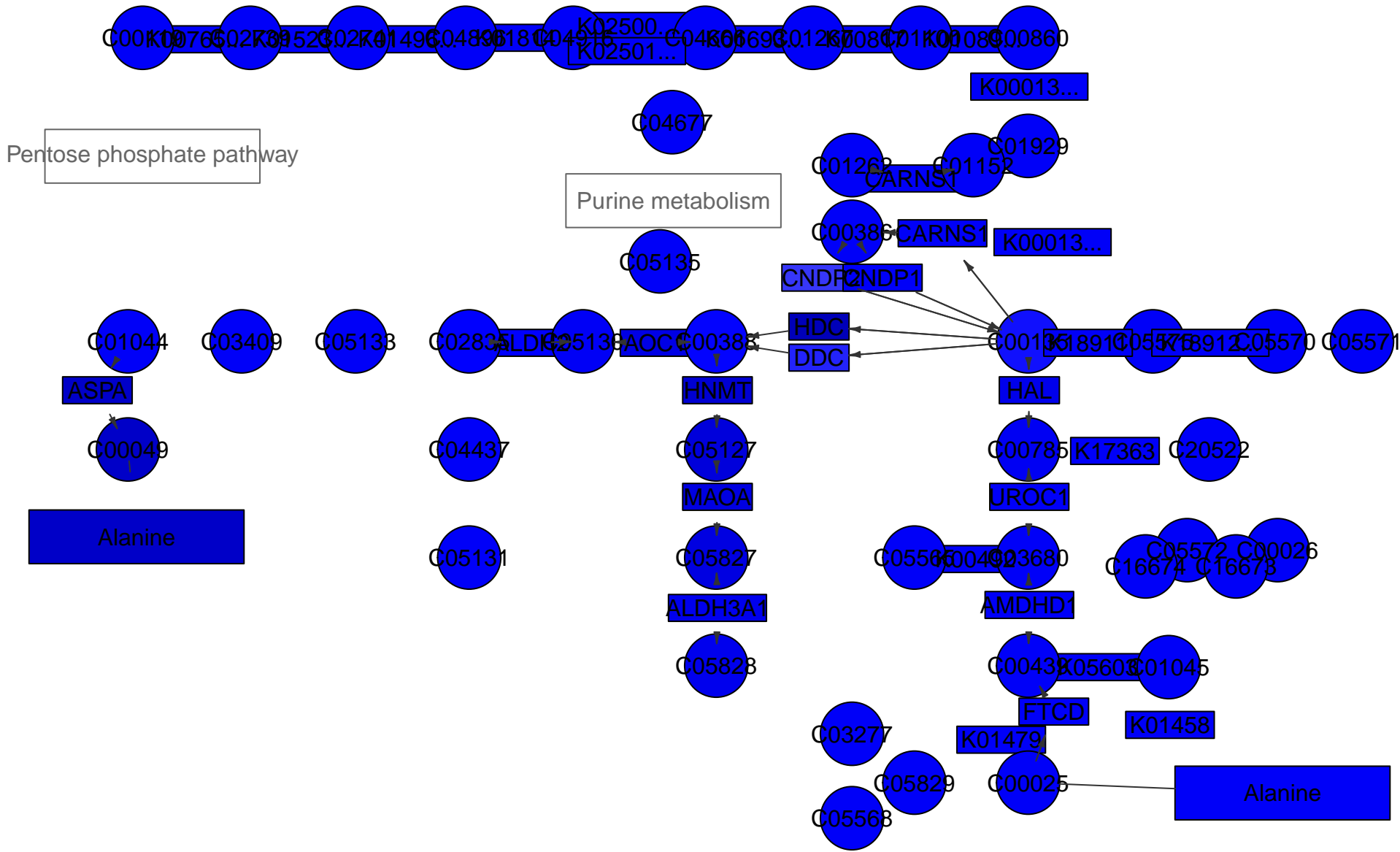




Histidine metabolism  
MPI-013



Histidine metabolism  
MPI-014



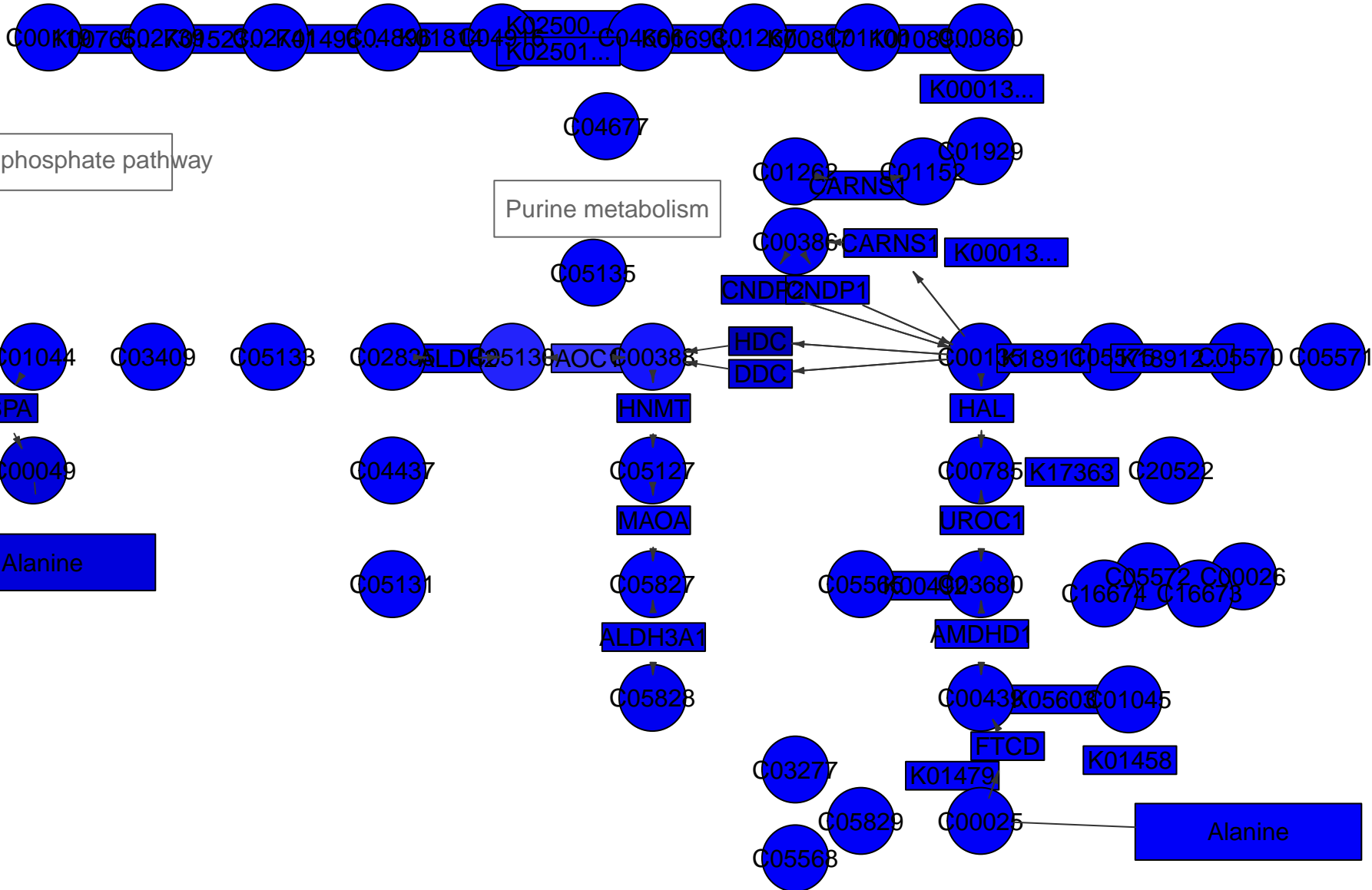
Histidine metabolism  
MPI-015

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



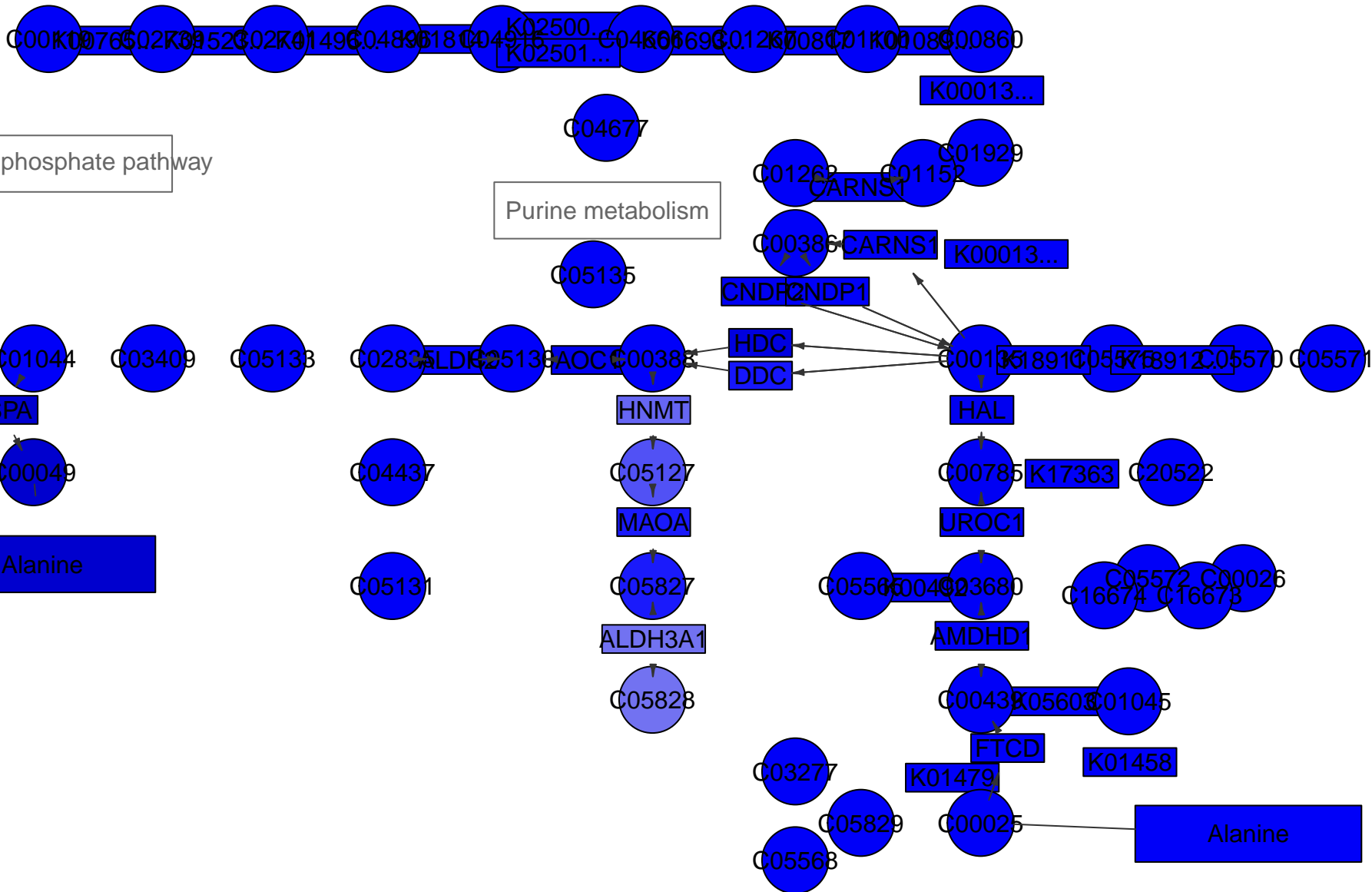
Histidine metabolism  
MPI-021

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine











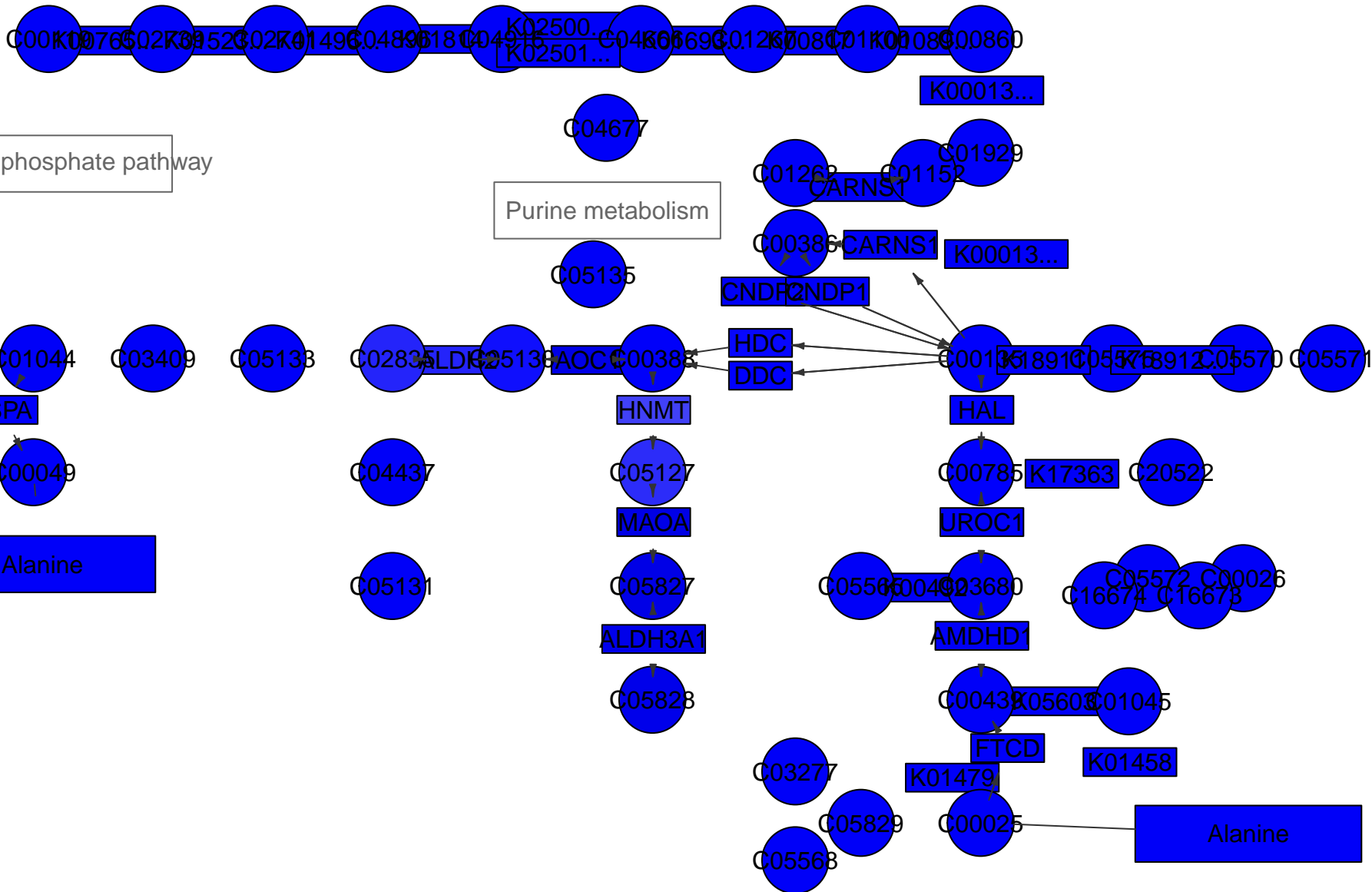
Histidine metabolism  
MPI-030

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



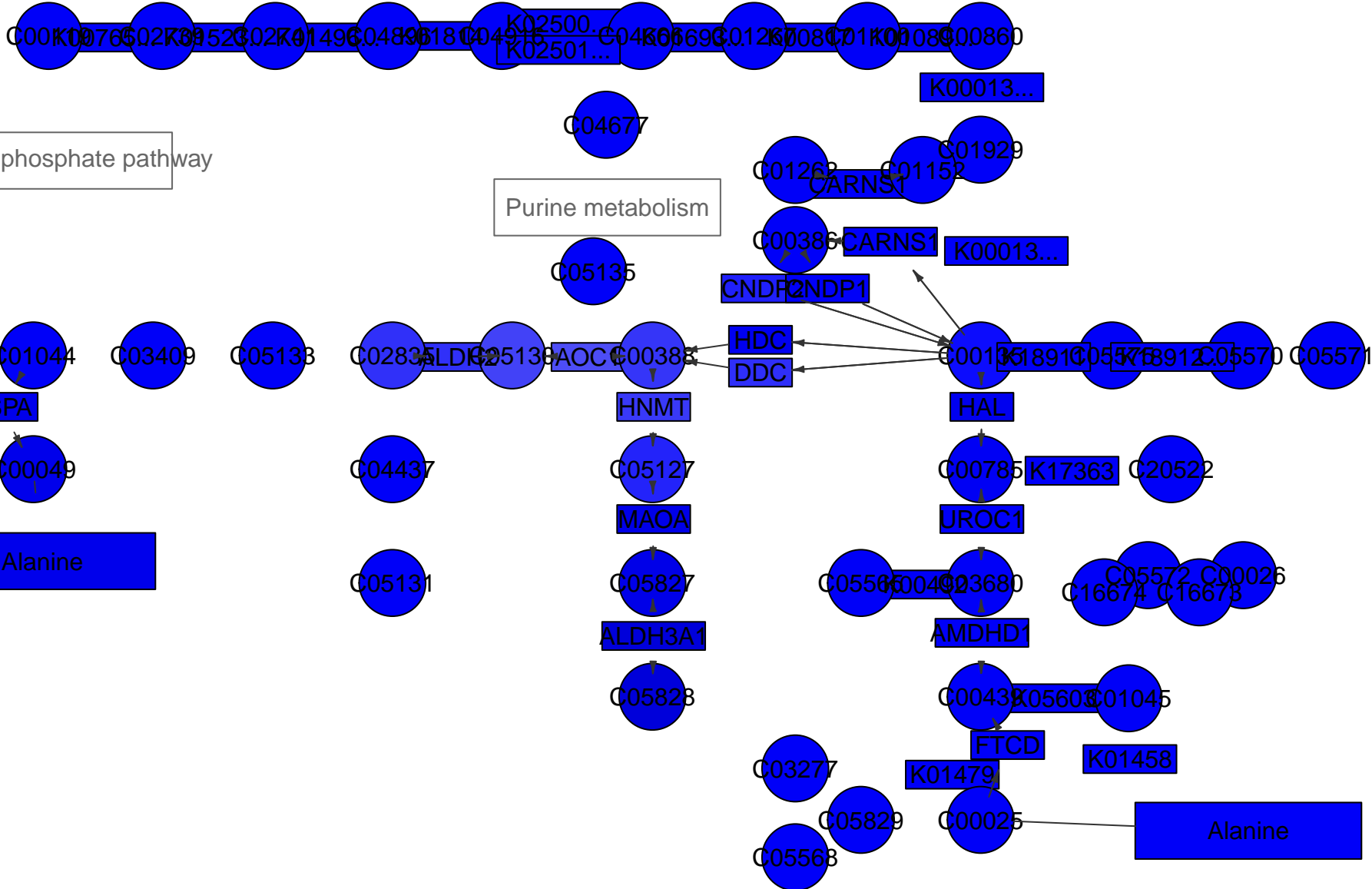
Histidine metabolism  
MPI-031

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine





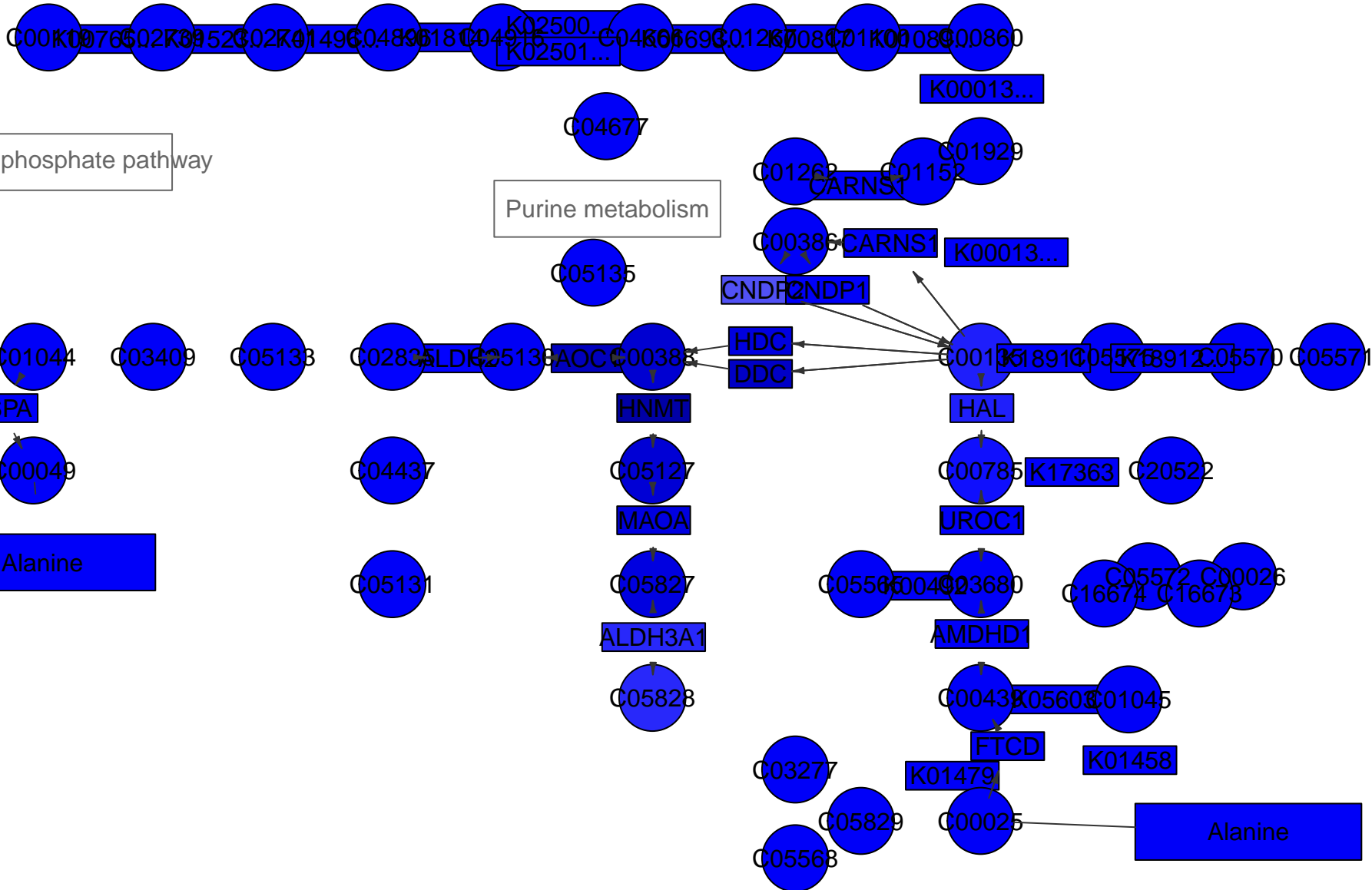
Histidine metabolism  
MPI-040

Pentose phosphate pathway

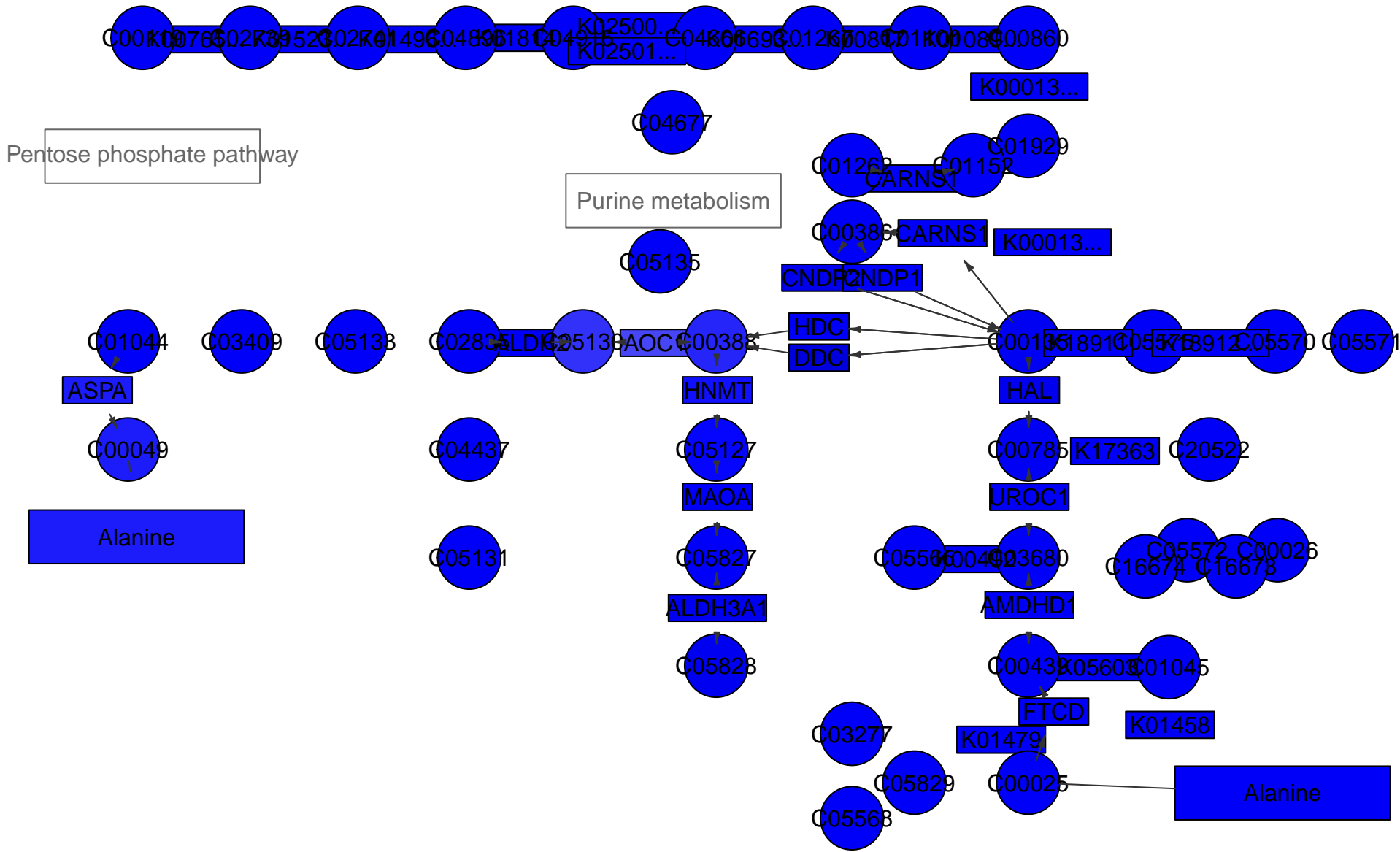
Purine metabolism

Alanine

Alanine



Histidine metabolism  
MPI-045



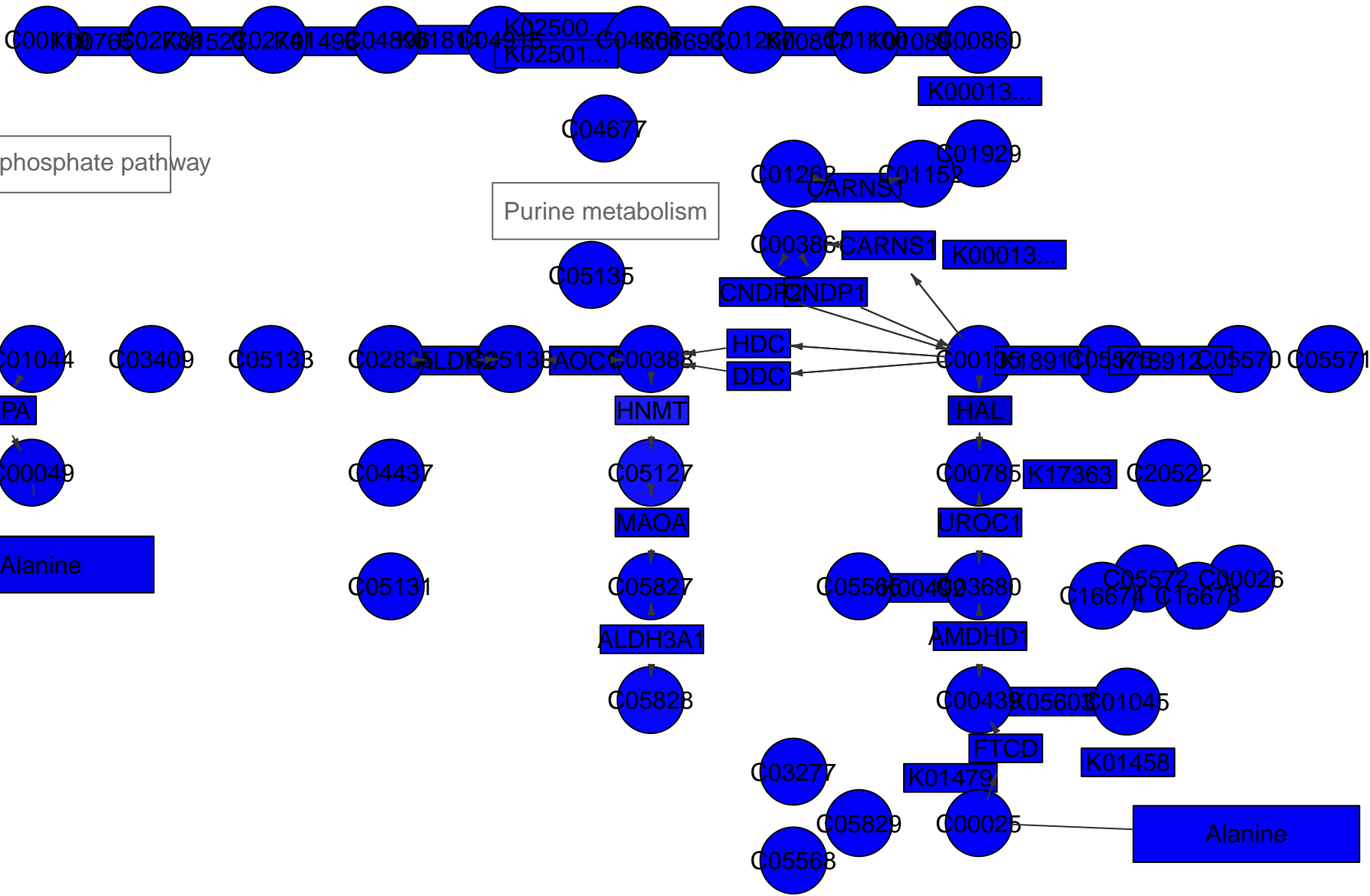
Histidine metabolism  
MPI-047

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine











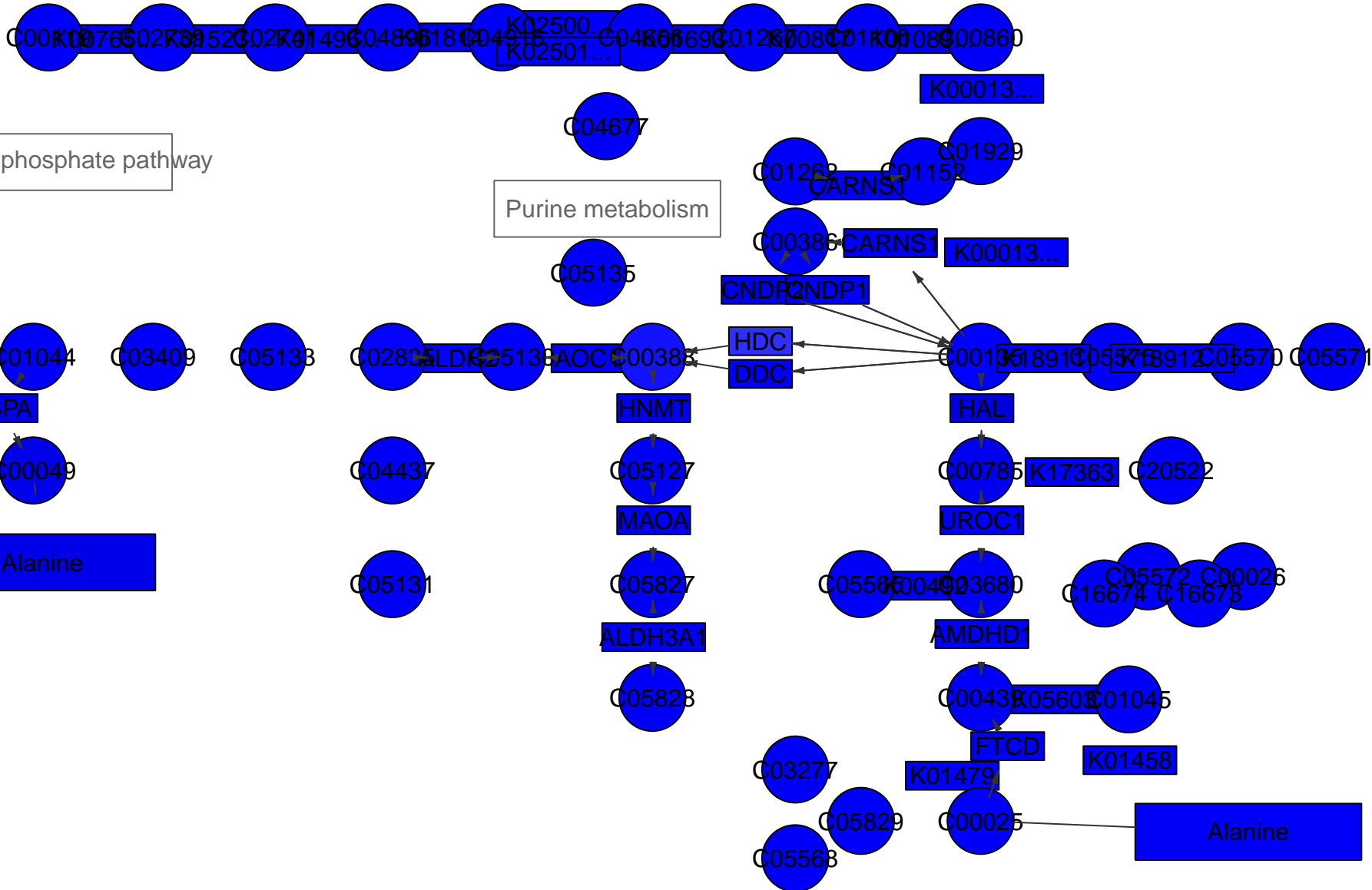
Histidine metabolism  
MPI-069

Pentose phosphate pathway

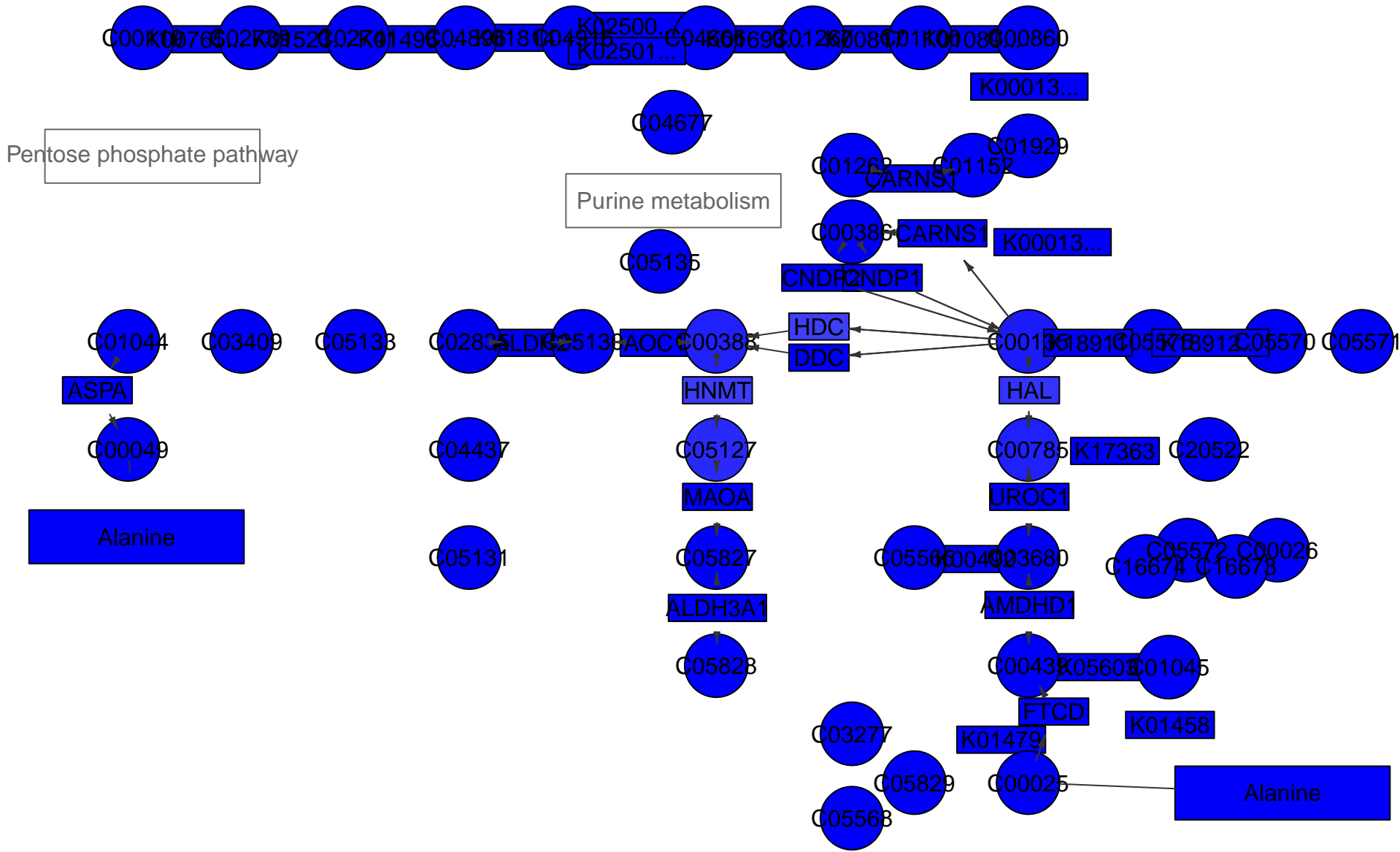
Purine metabolism

Alanine

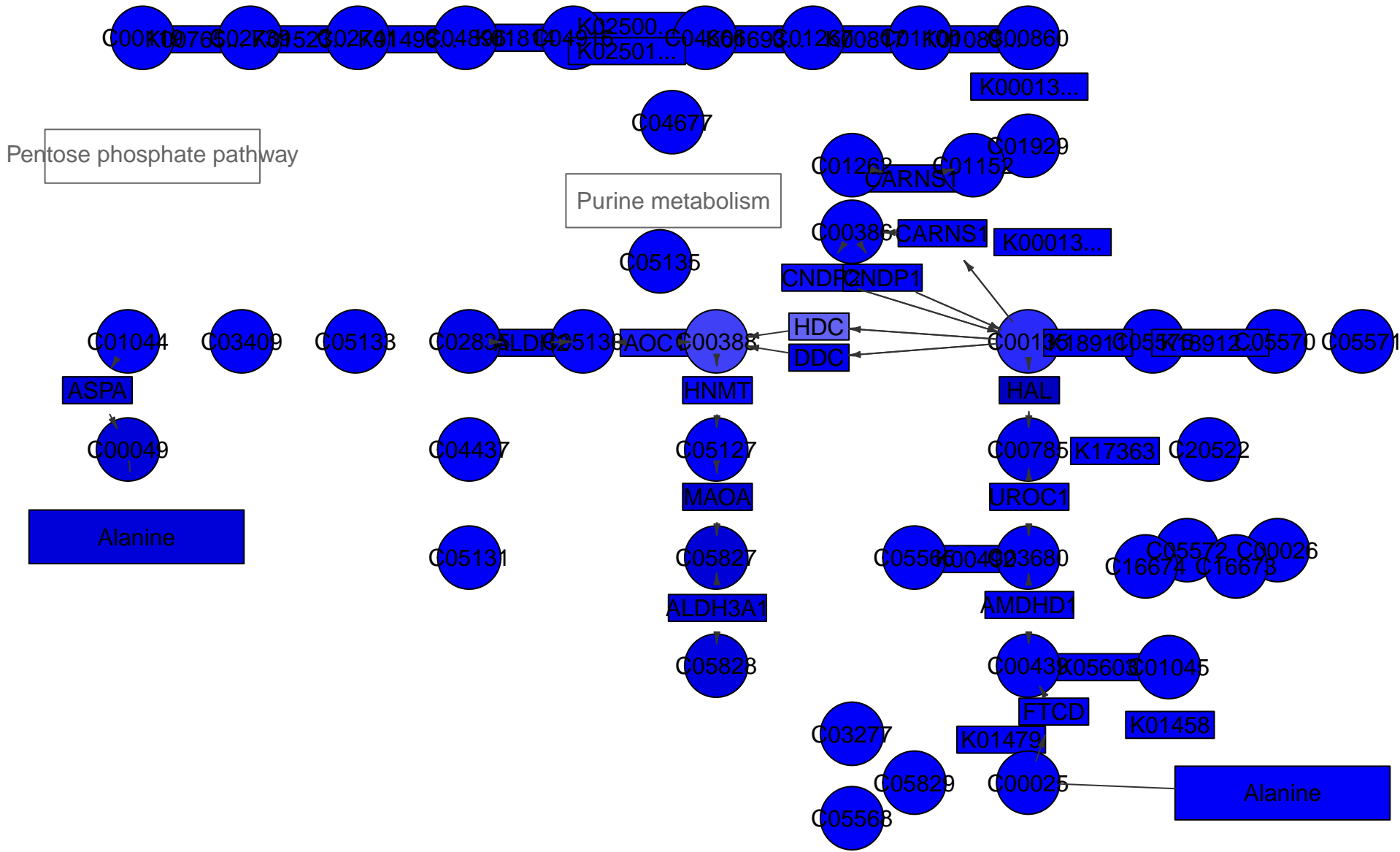
Alanine



Histidine metabolism  
MPI-073

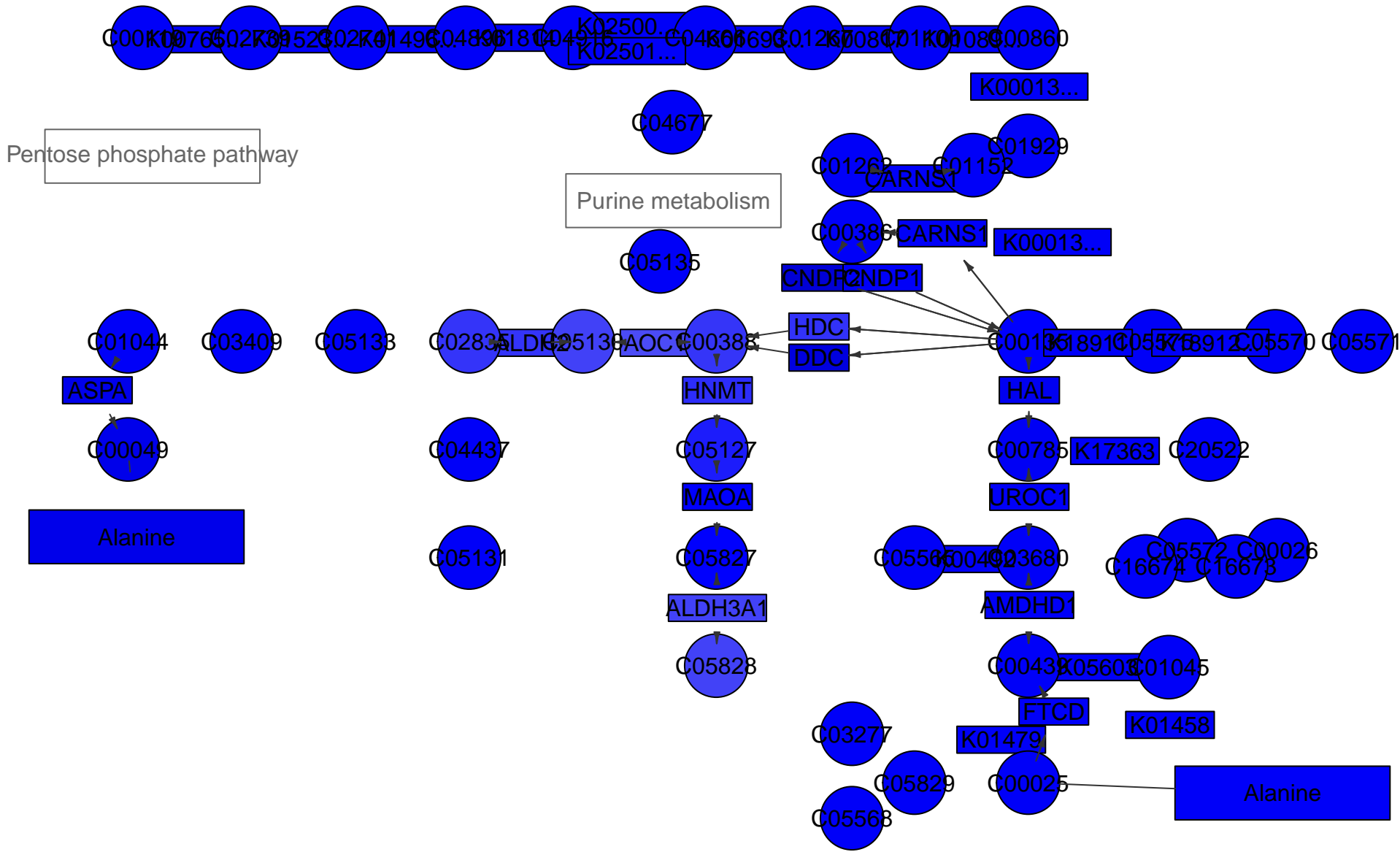


Histidine metabolism  
MPI-074





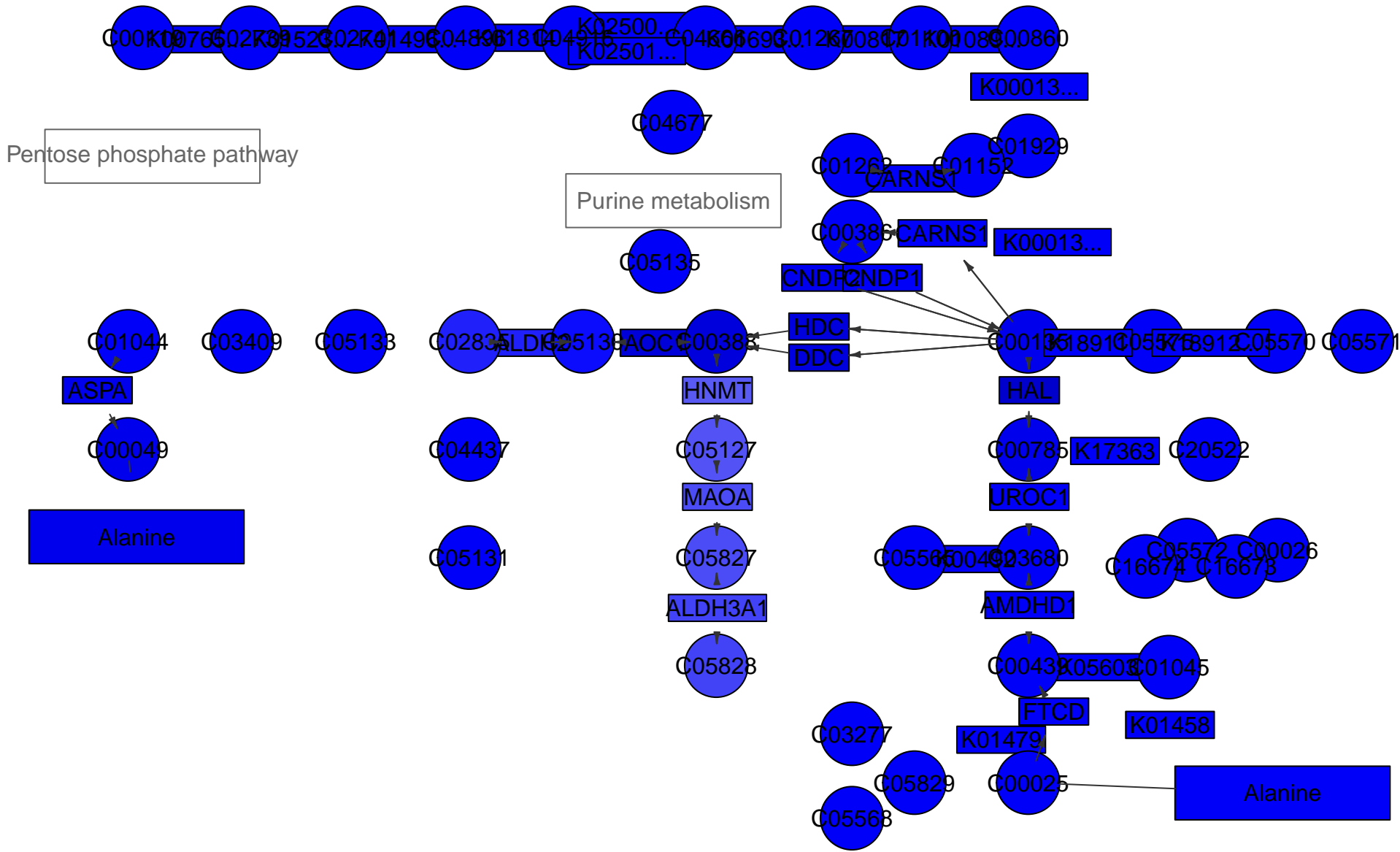
Histidine metabolism  
MPI-083







Histidine metabolism  
MPI-092







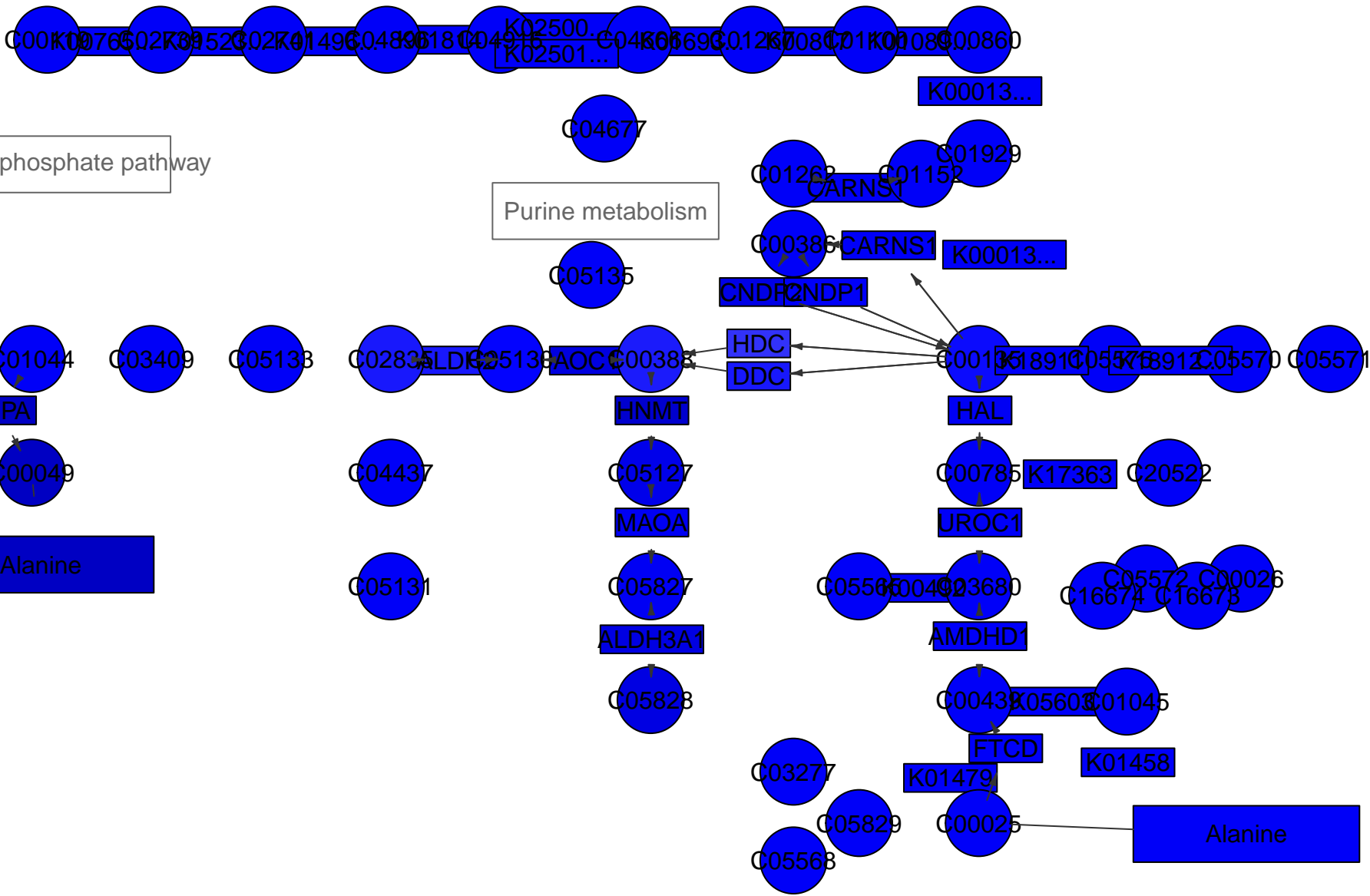
Histidine metabolism  
MPI-100

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



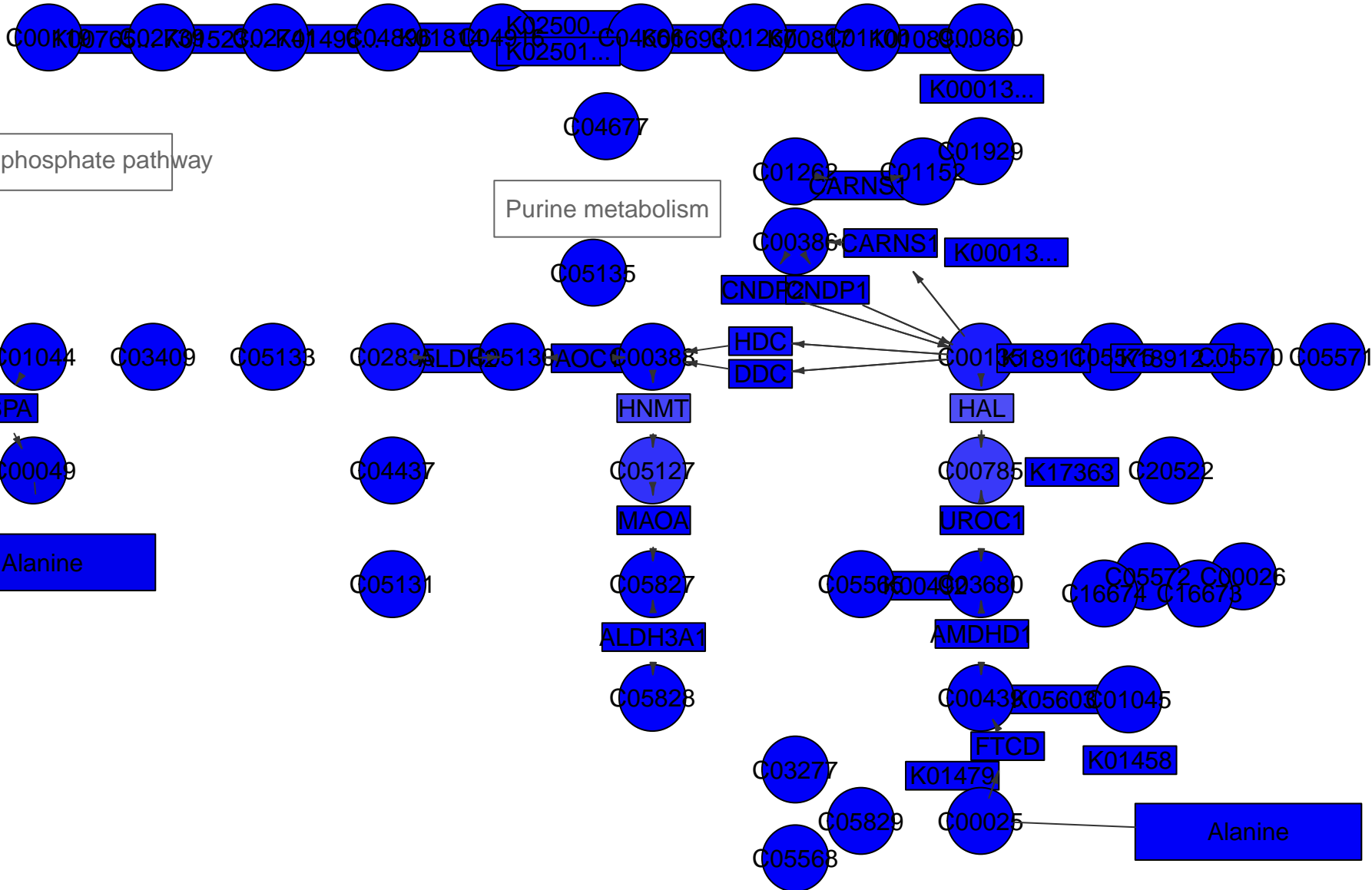
Histidine metabolism  
MPI-105

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



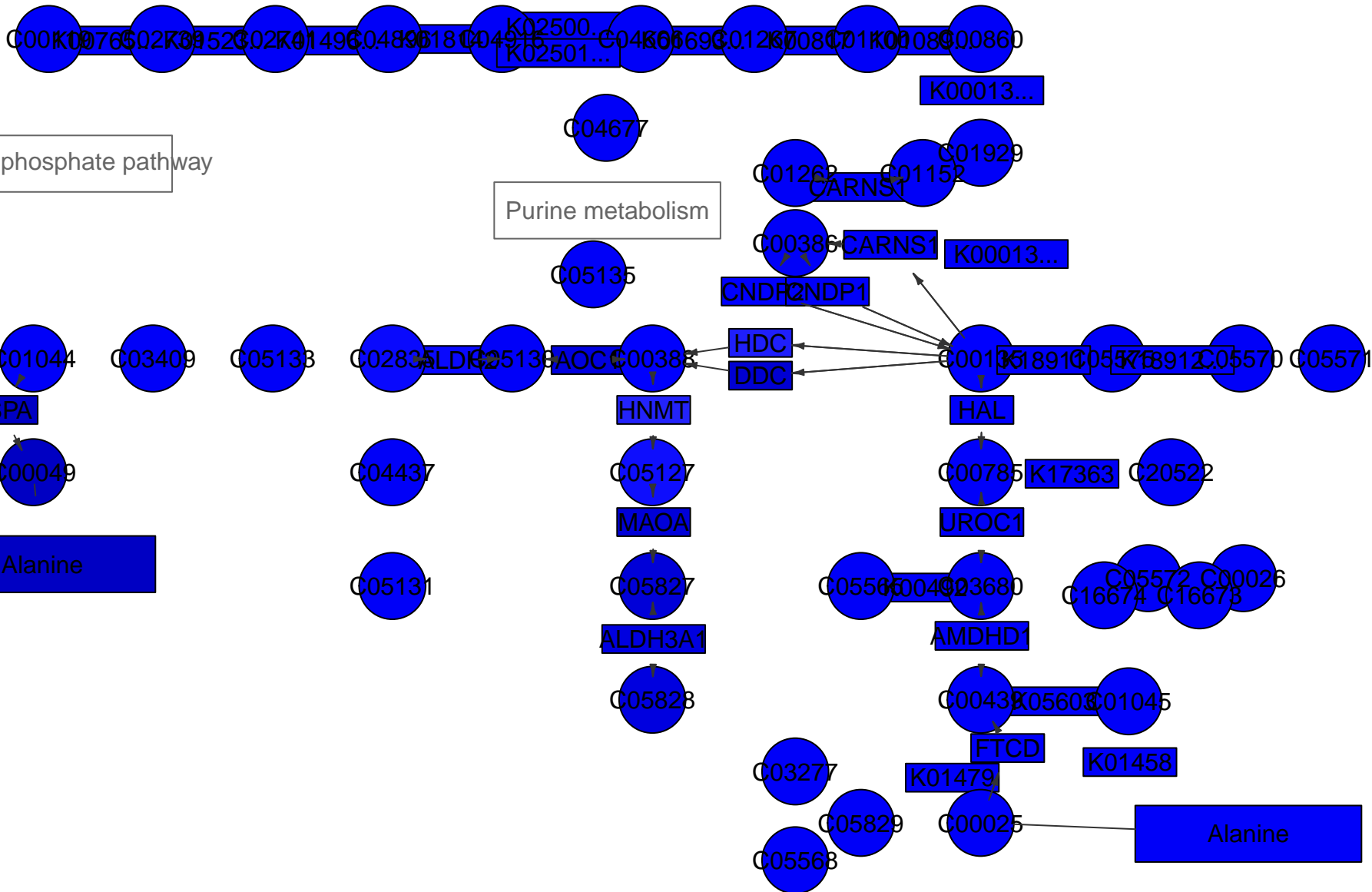
Histidine metabolism  
MPI-106

Pentose phosphate pathway

Purine metabolism

Alanine

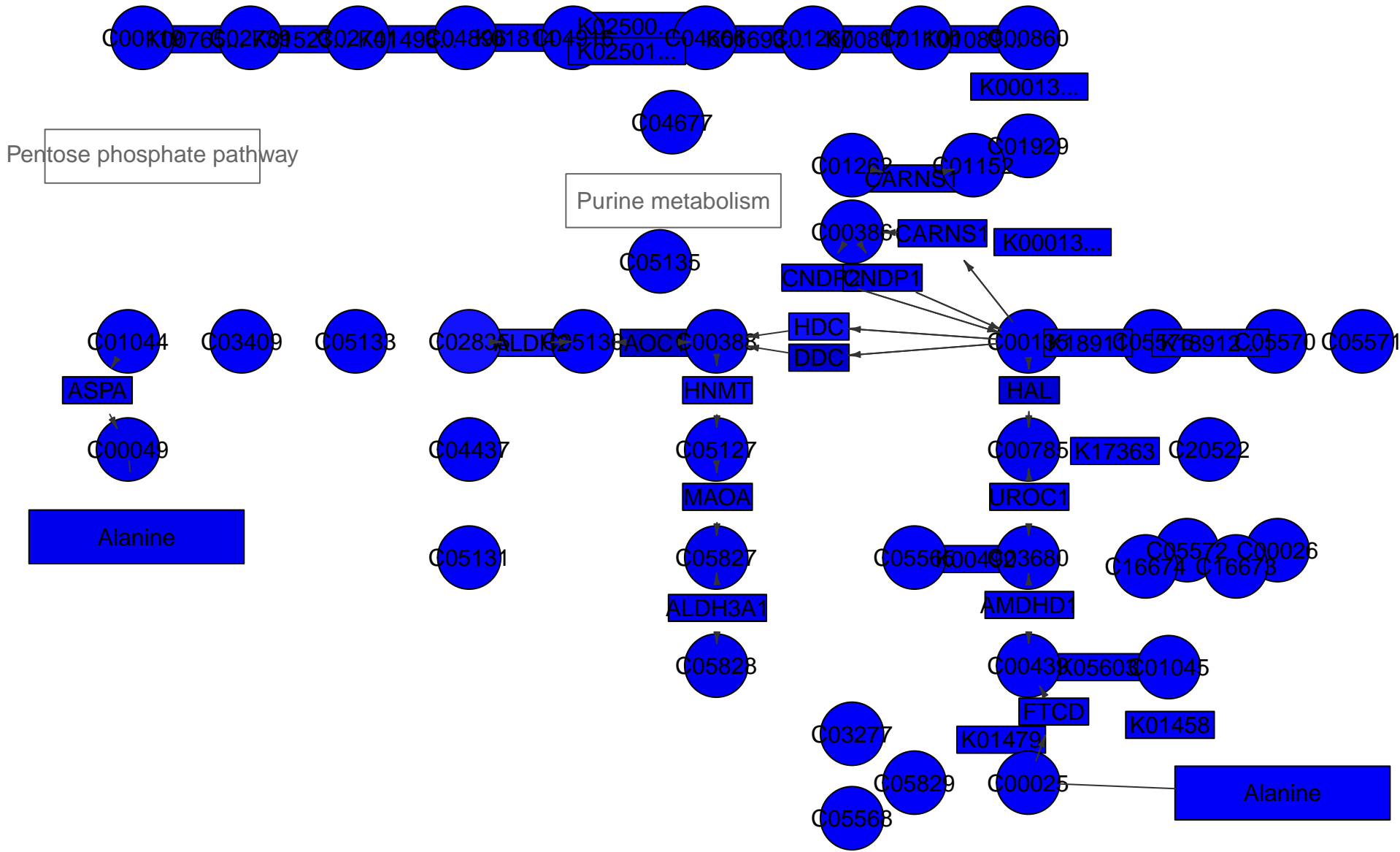
Alanine





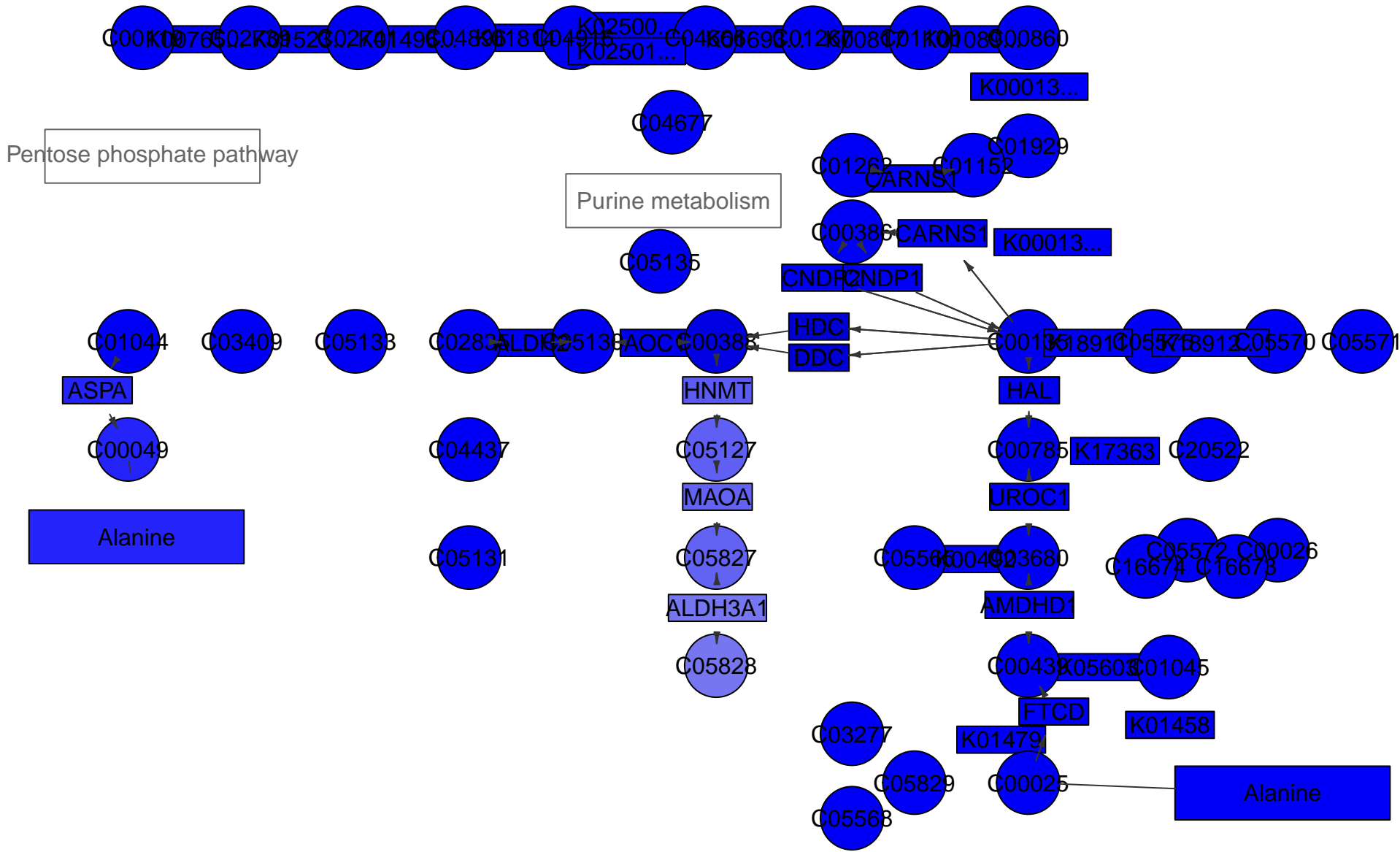


Histidine metabolism  
MPI-109





Histidine metabolism  
MPI-111



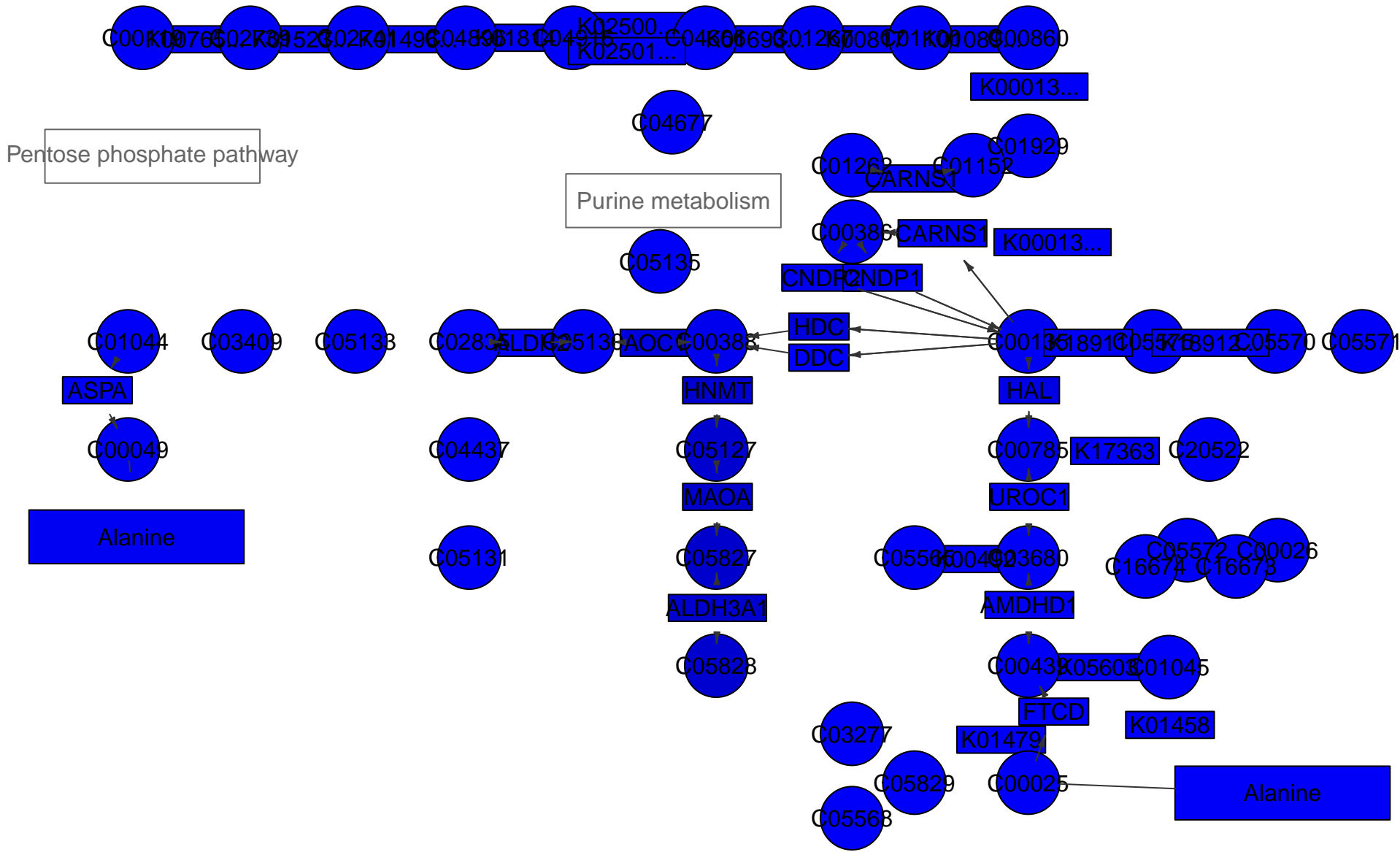
Pentose phosphate pathway

Purine metabolism

Alanine

Alanine

Histidine metabolism  
MPI-113







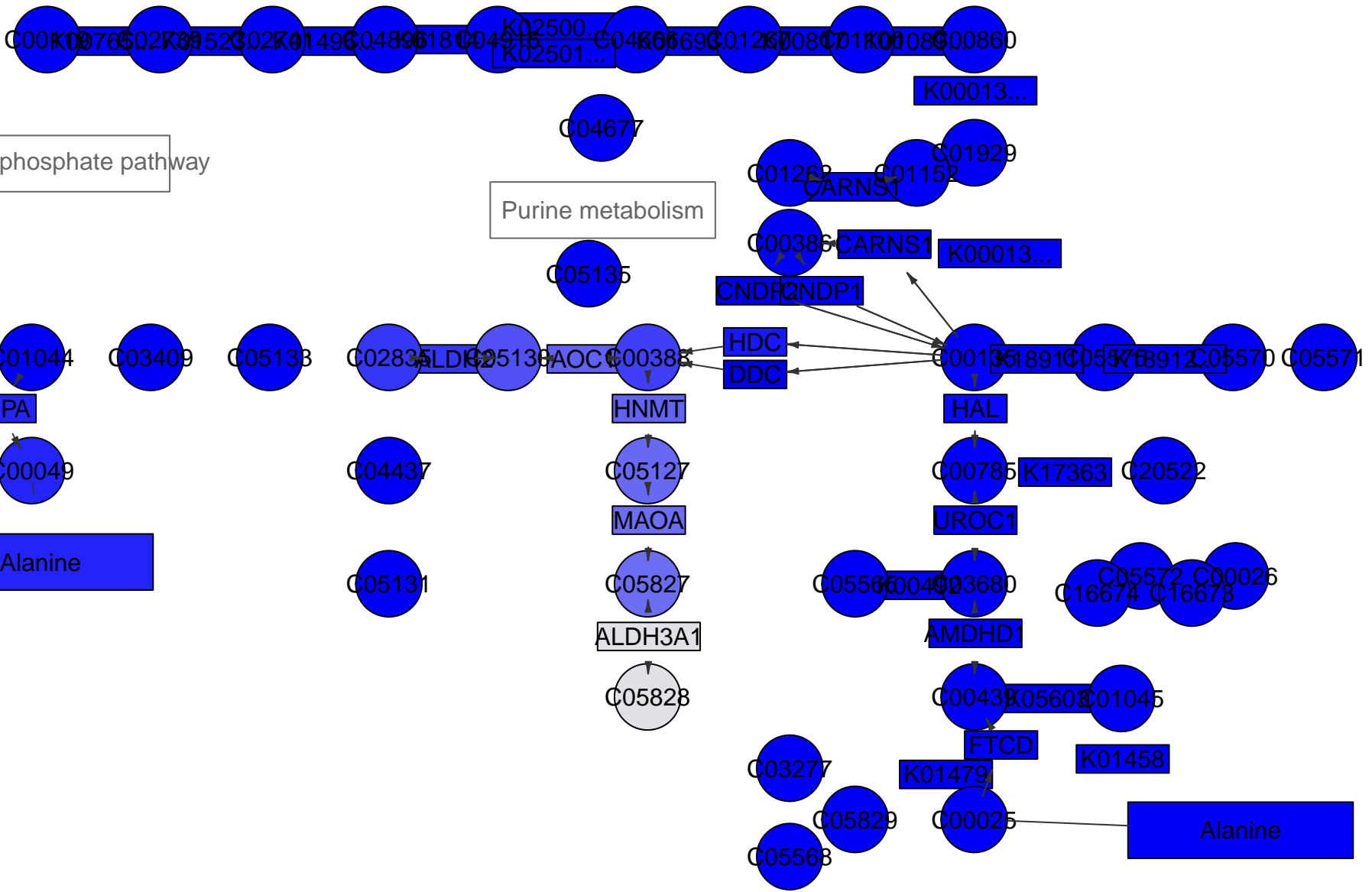
Histidine metabolism  
MPI-119

Pentose phosphate pathway

Purine metabolism

Alanine

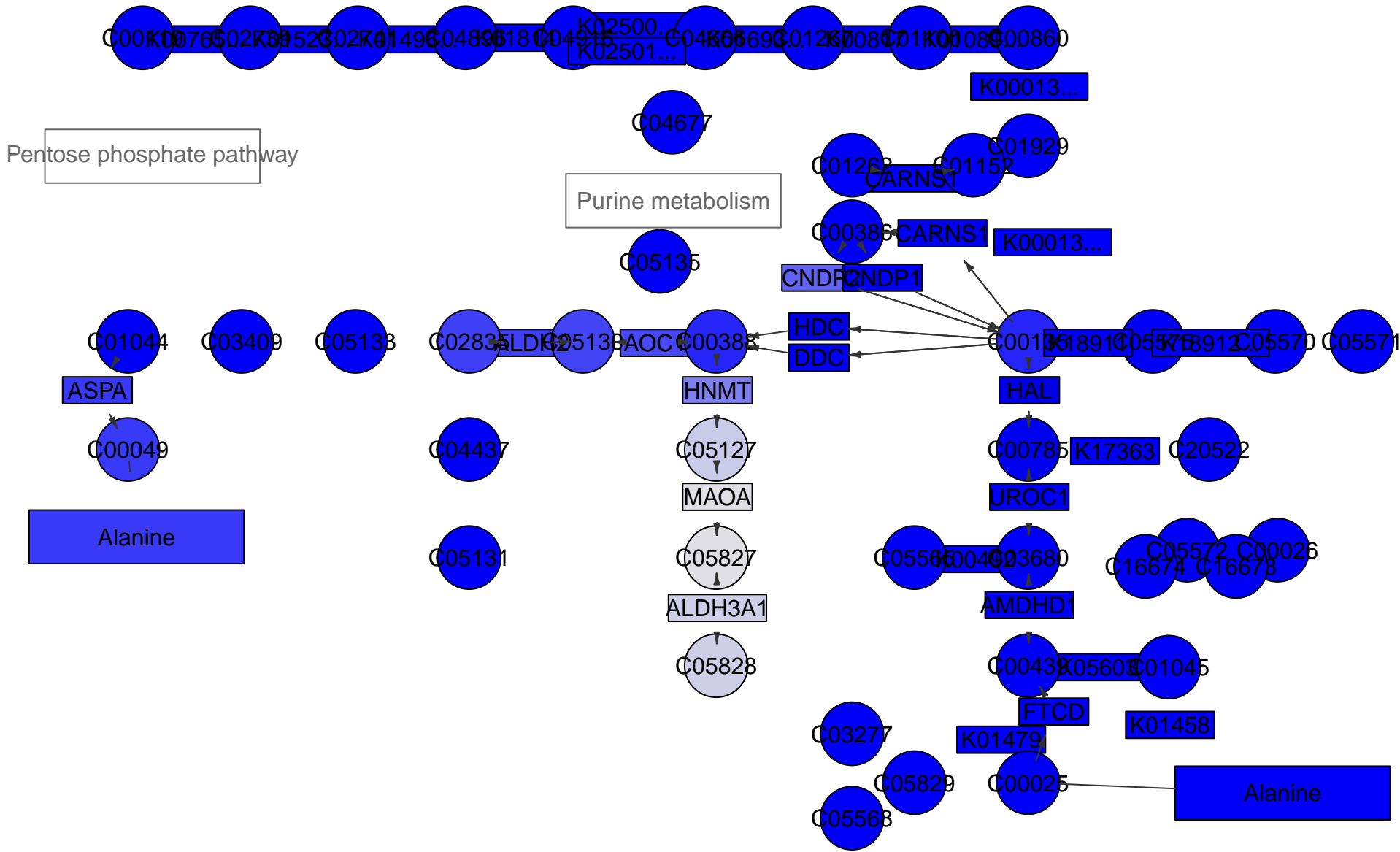
Alanine



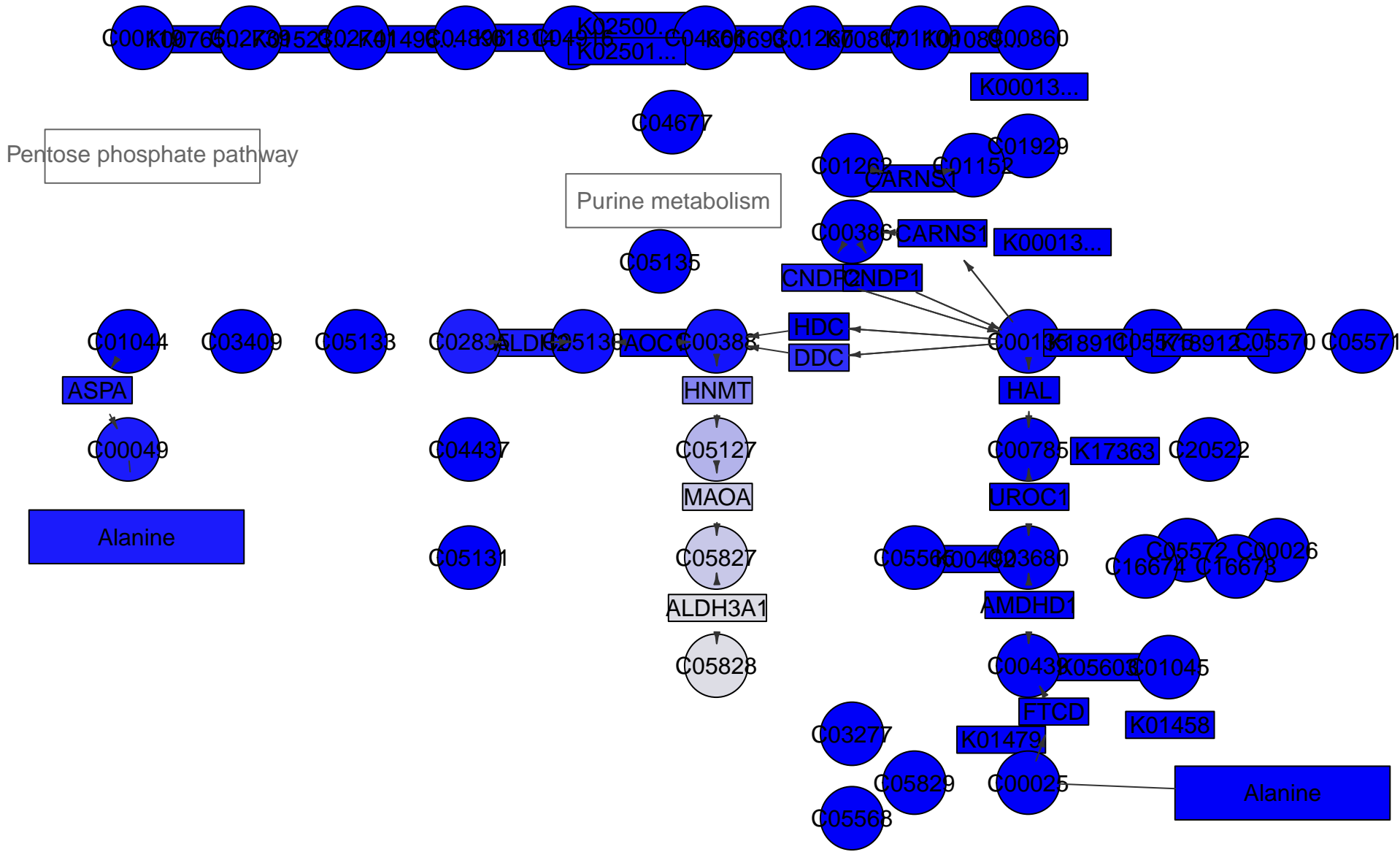




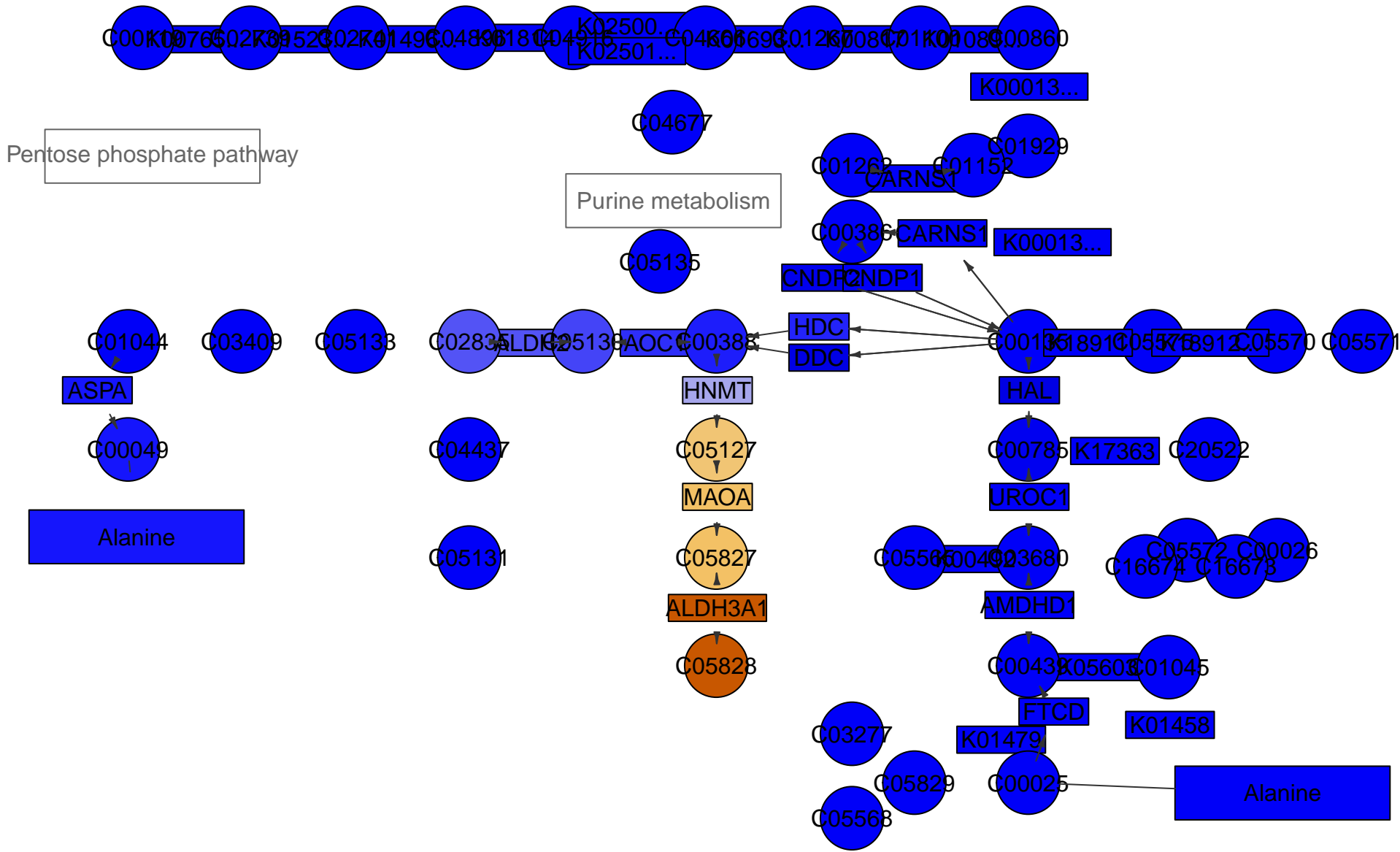
Histidine metabolism  
MPI-127



Histidine metabolism  
MPI-128



Histidine metabolism  
MPI-129



Pentose phosphate pathway

Purine metabolism

Alanine

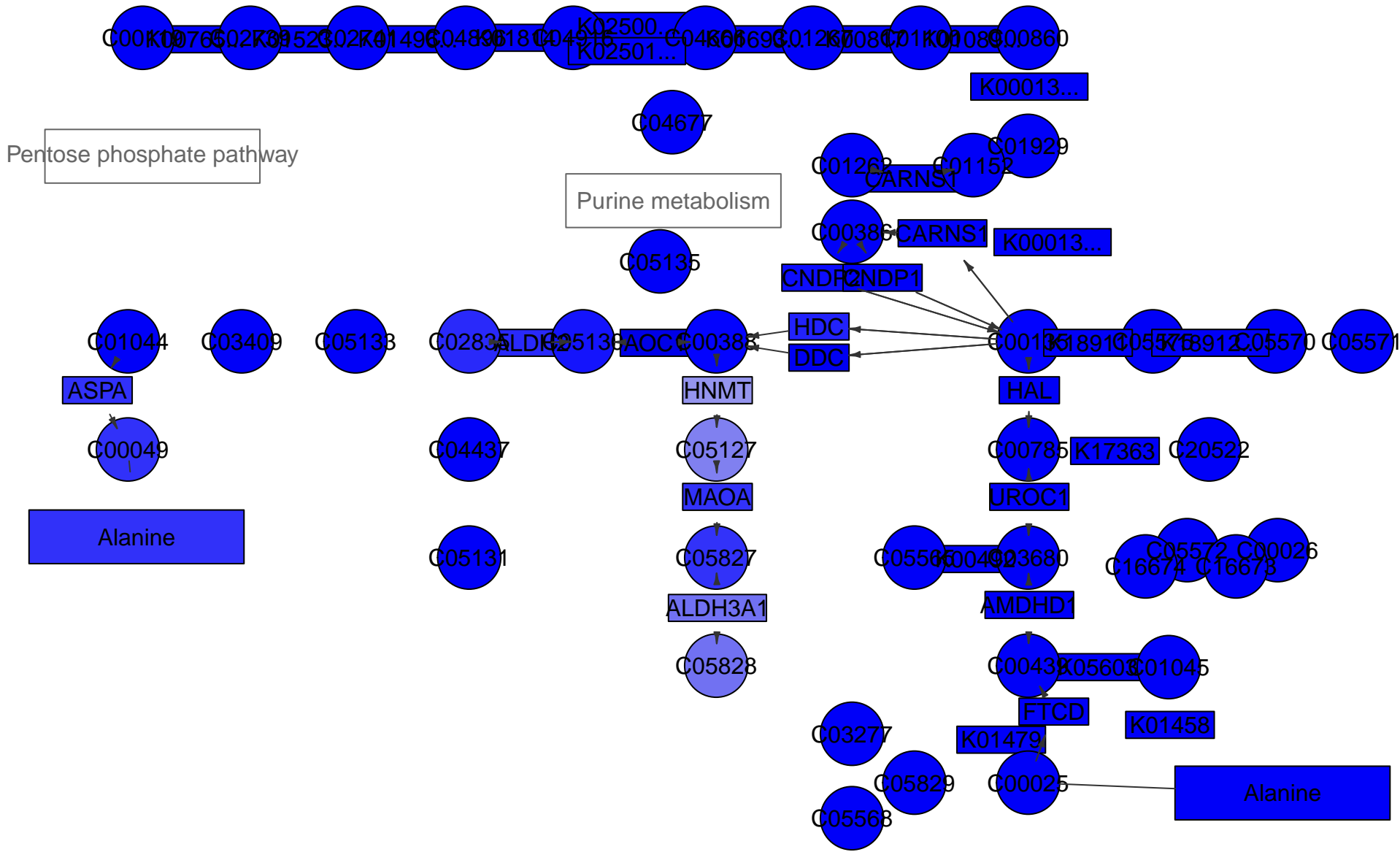
Alanine







Histidine metabolism  
MPI-134



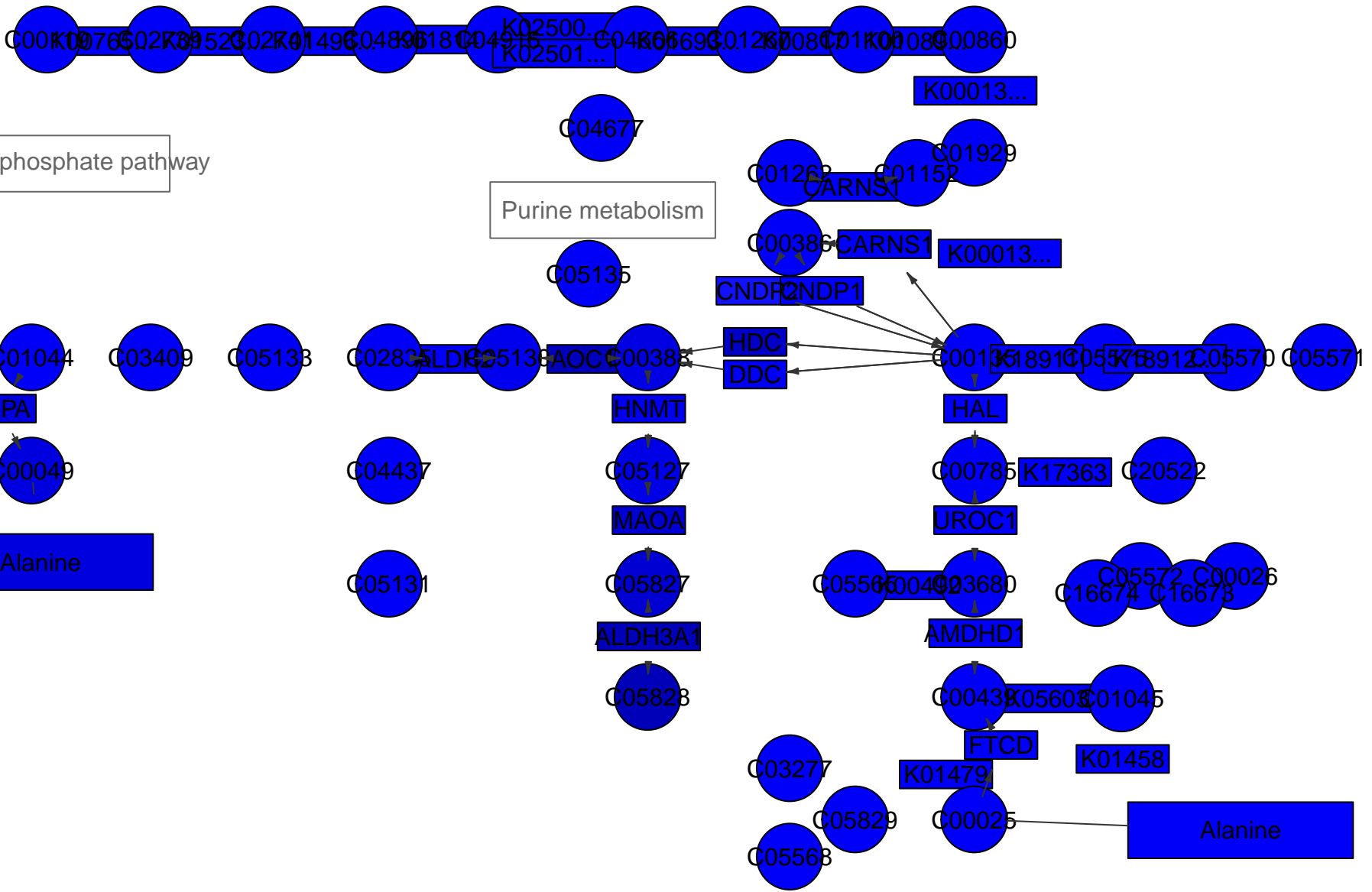
Histidine metabolism  
MPI-135

Pentose phosphate pathway

Purine metabolism

Alanine

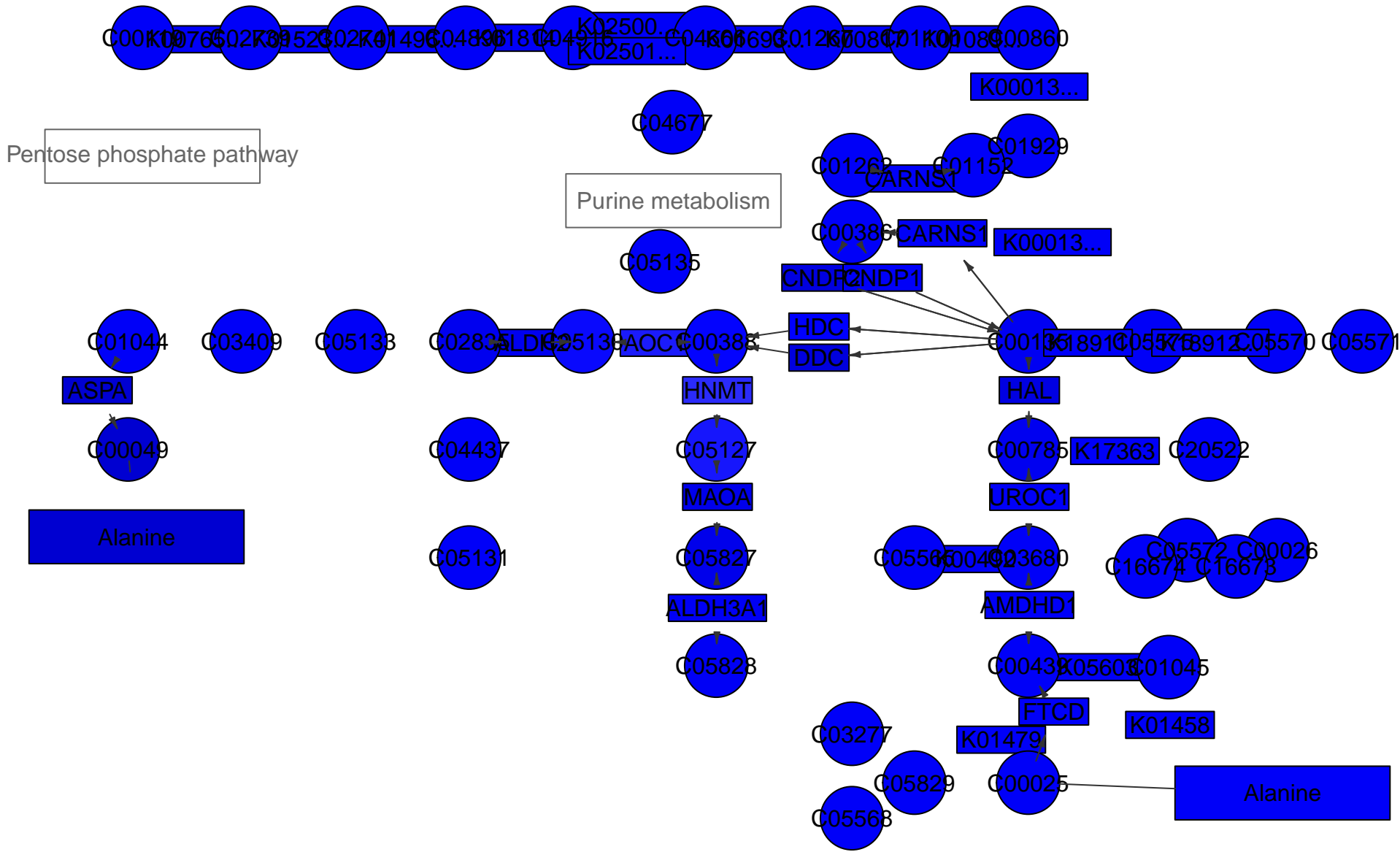
Alanine



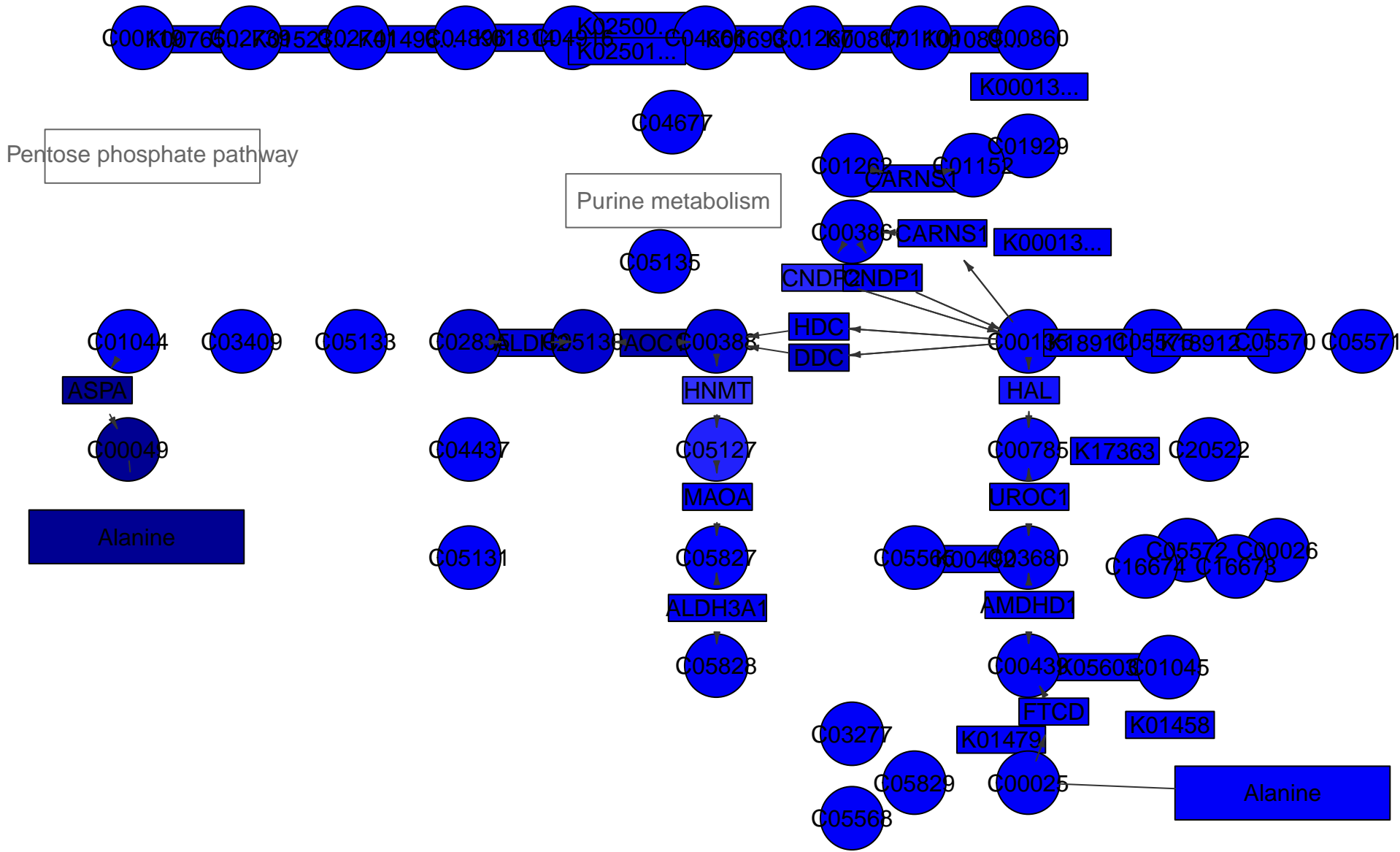




Histidine metabolism  
MPI-141



Histidine metabolism  
MPI-142



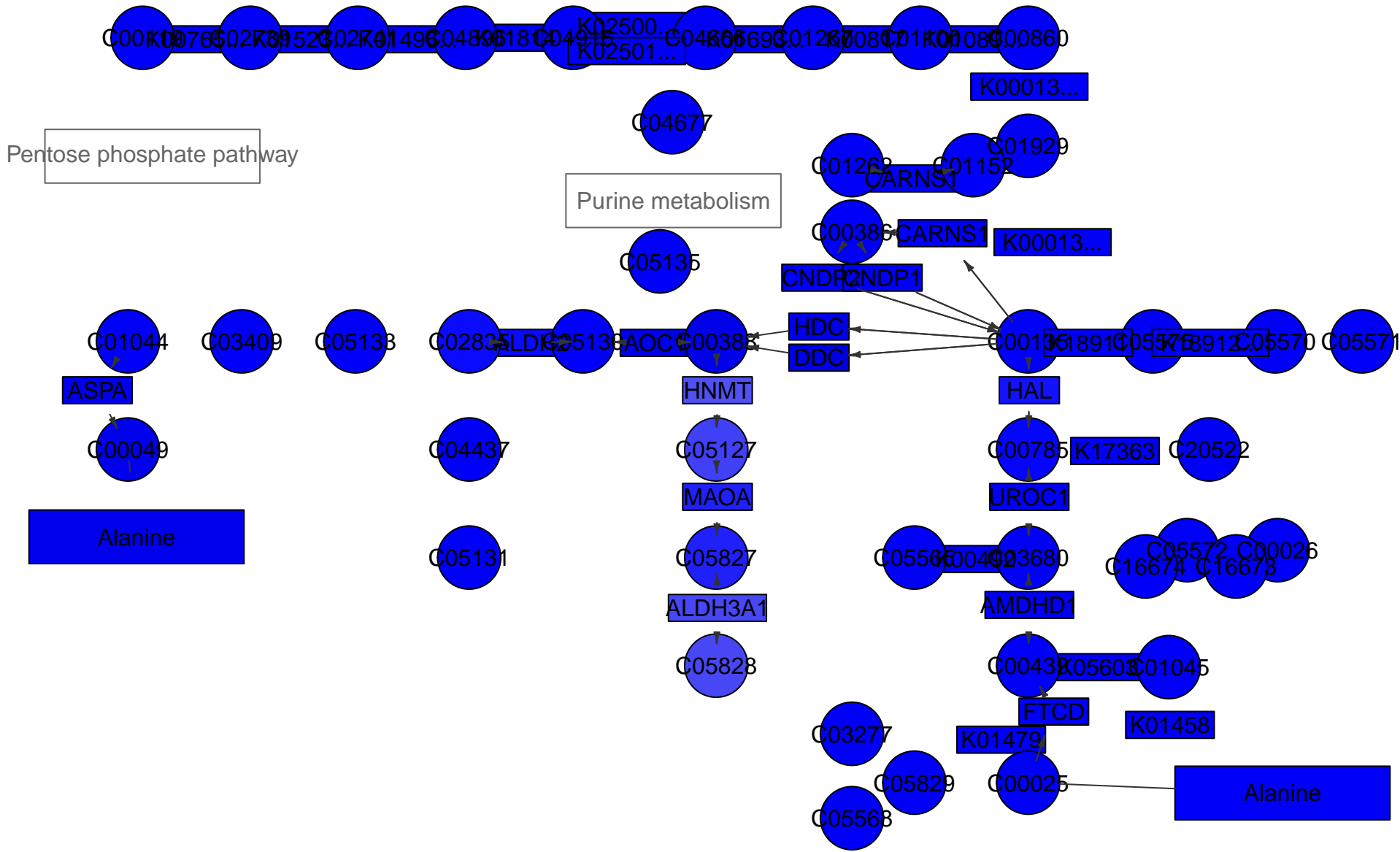
Pentose phosphate pathway

Purine metabolism

Alanine

Alanine

Histidine metabolism  
MPI-145



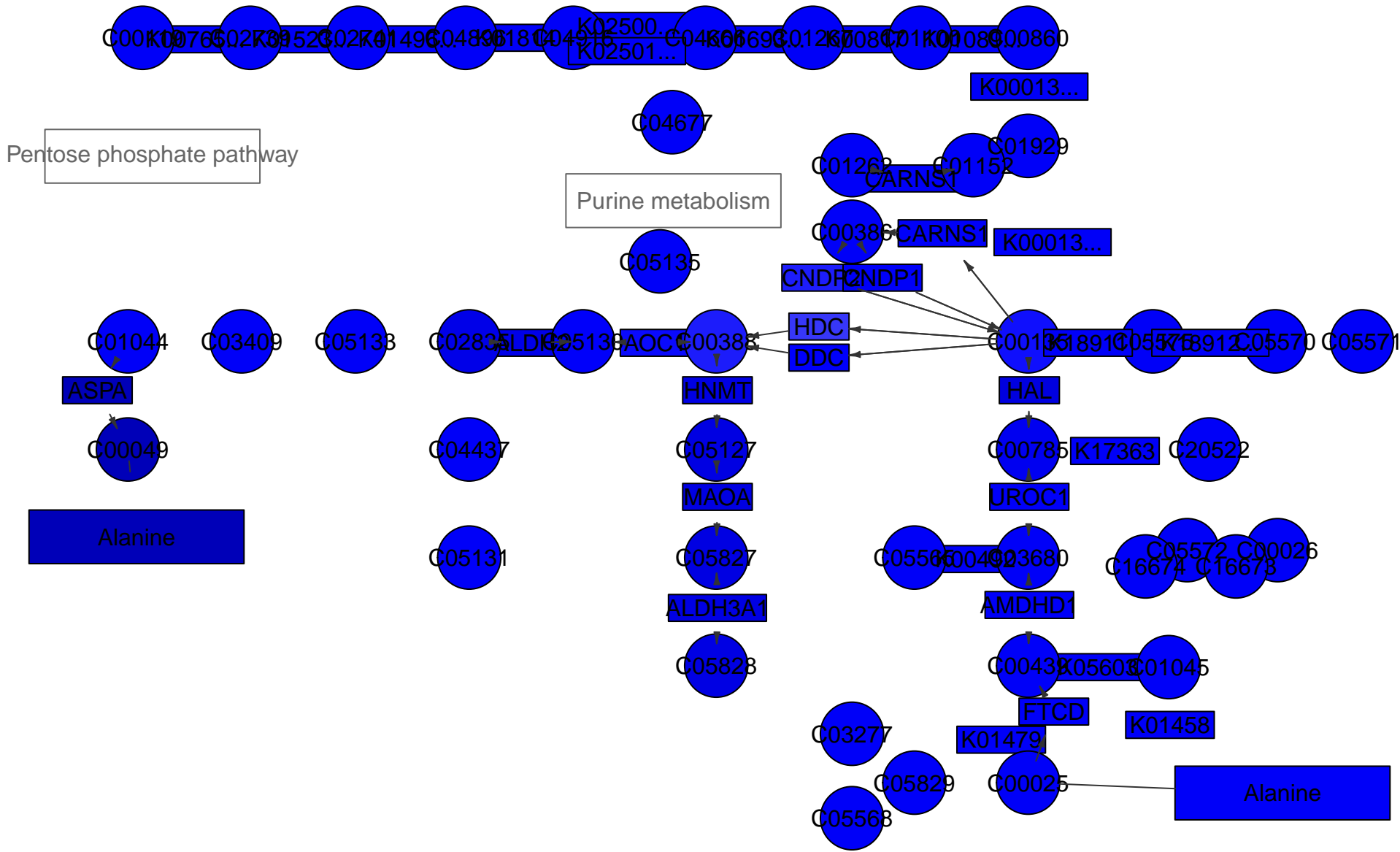
Pentose phosphate pathway

Purine metabolism

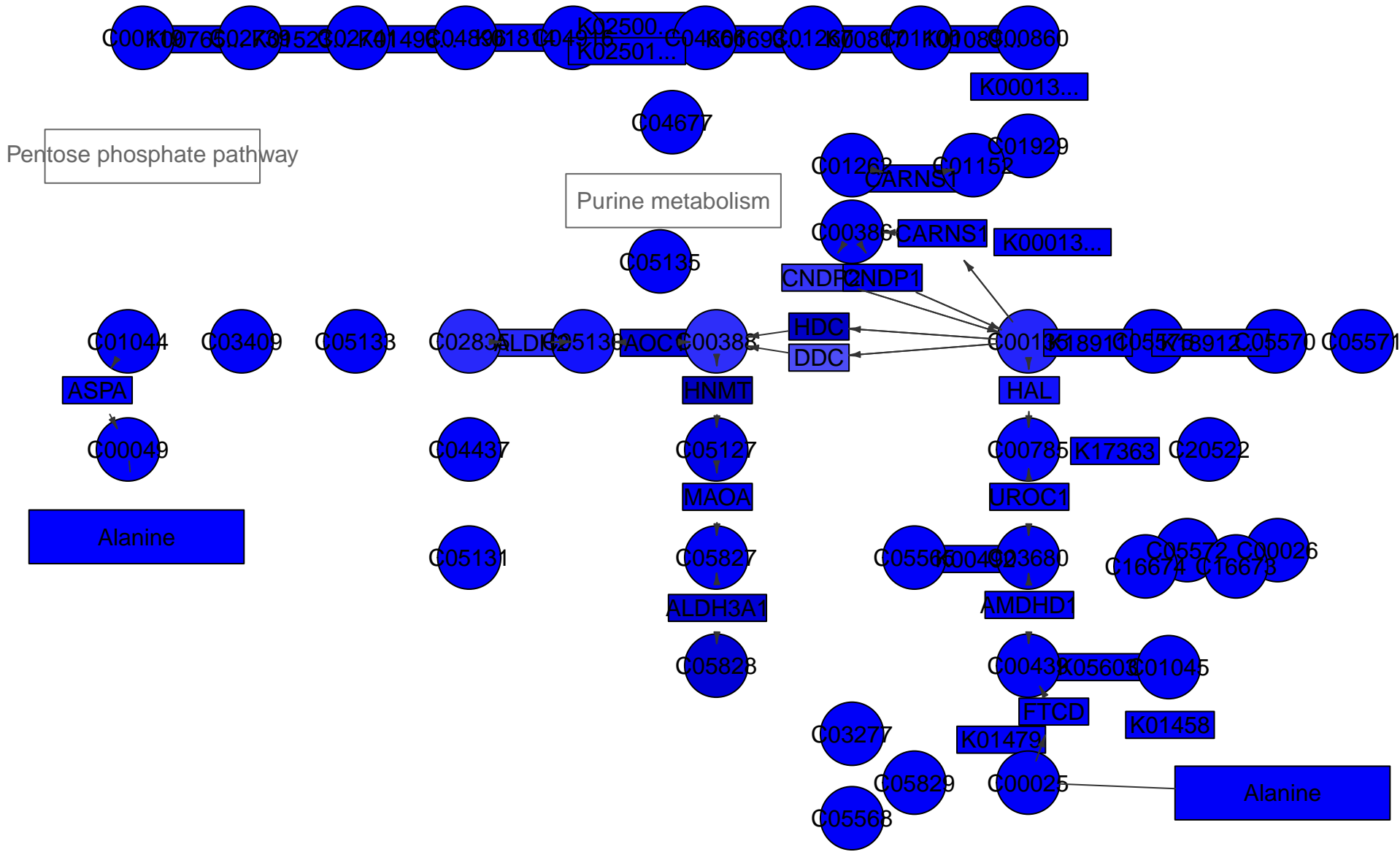
Alanine

Alanine

Histidine metabolism  
MPI-146



Histidine metabolism  
MPI-149



Pentose phosphate pathway

Purine metabolism

Alanine

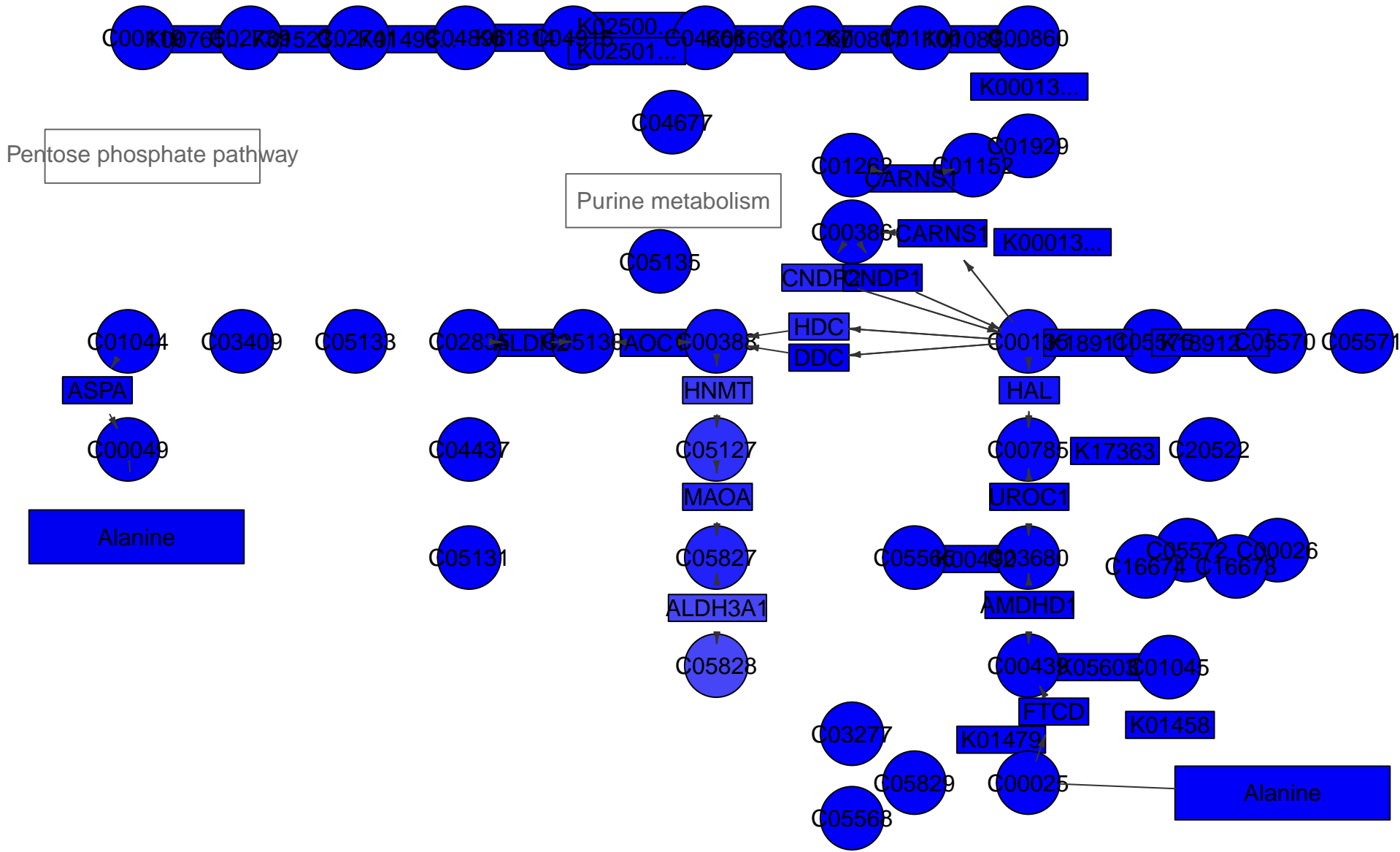
Alanine







Histidine metabolism  
MPI-152



Pentose phosphate pathway

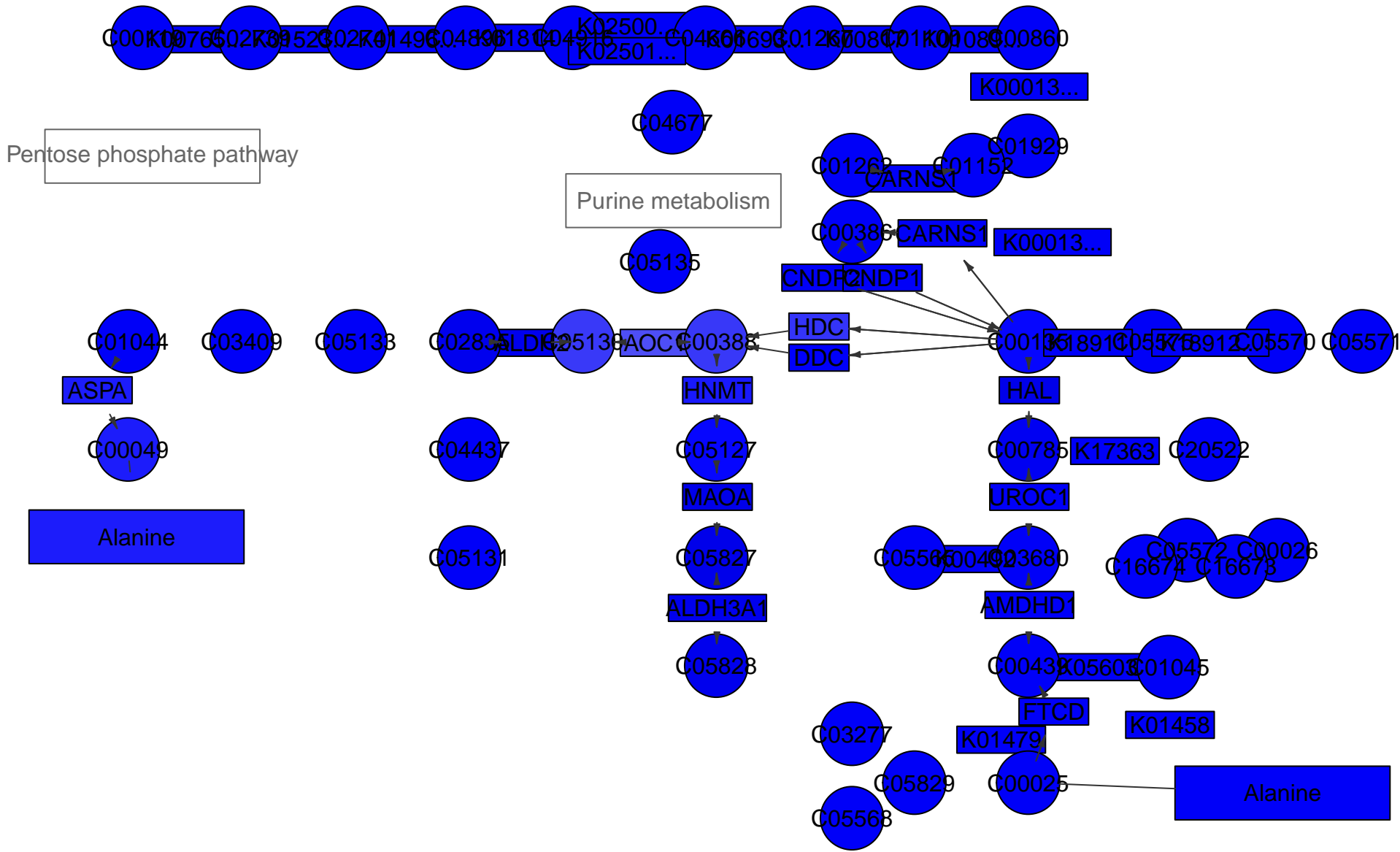
Purine metabolism

Alanine

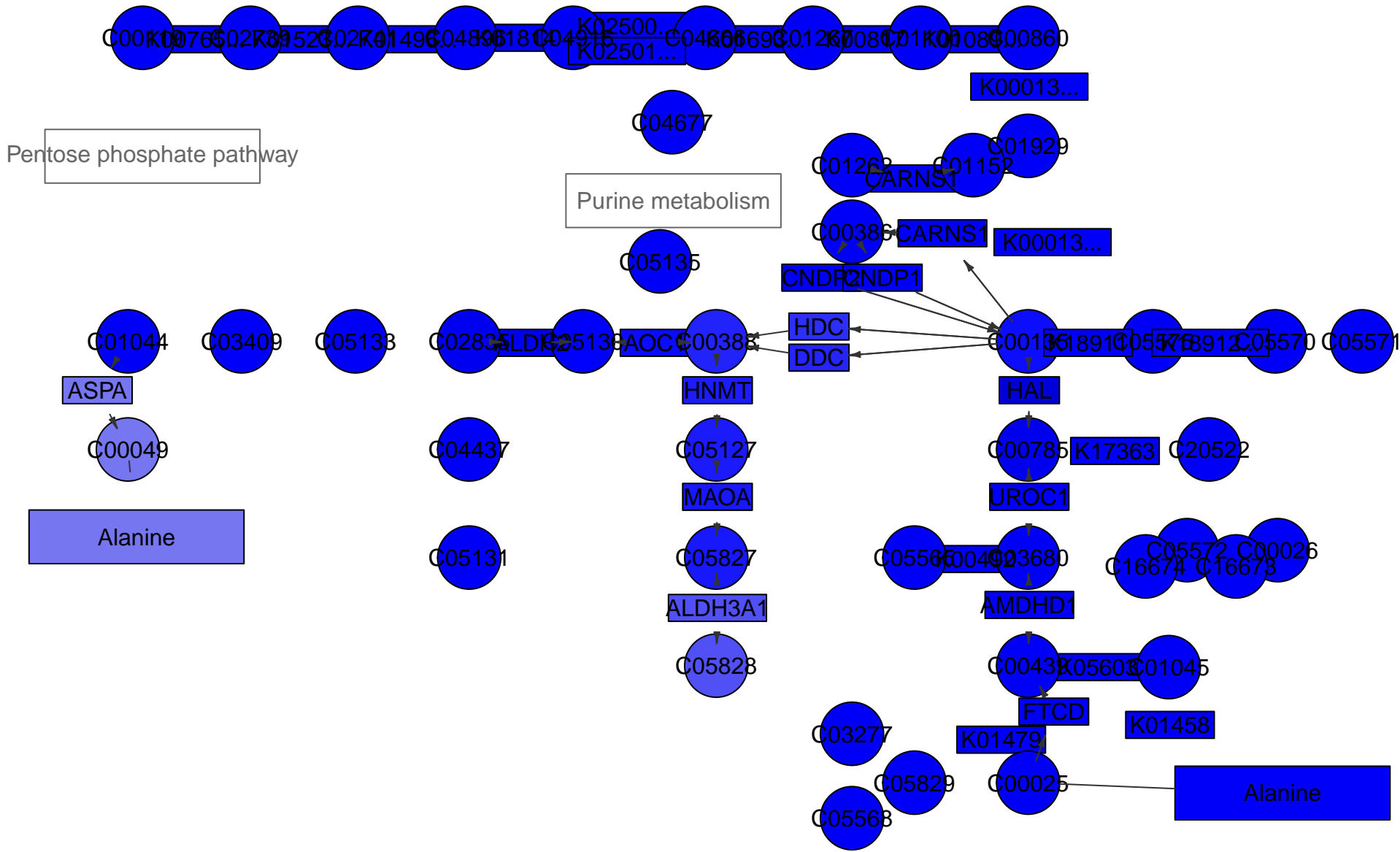
Alanine



Histidine metabolism  
MPI-154

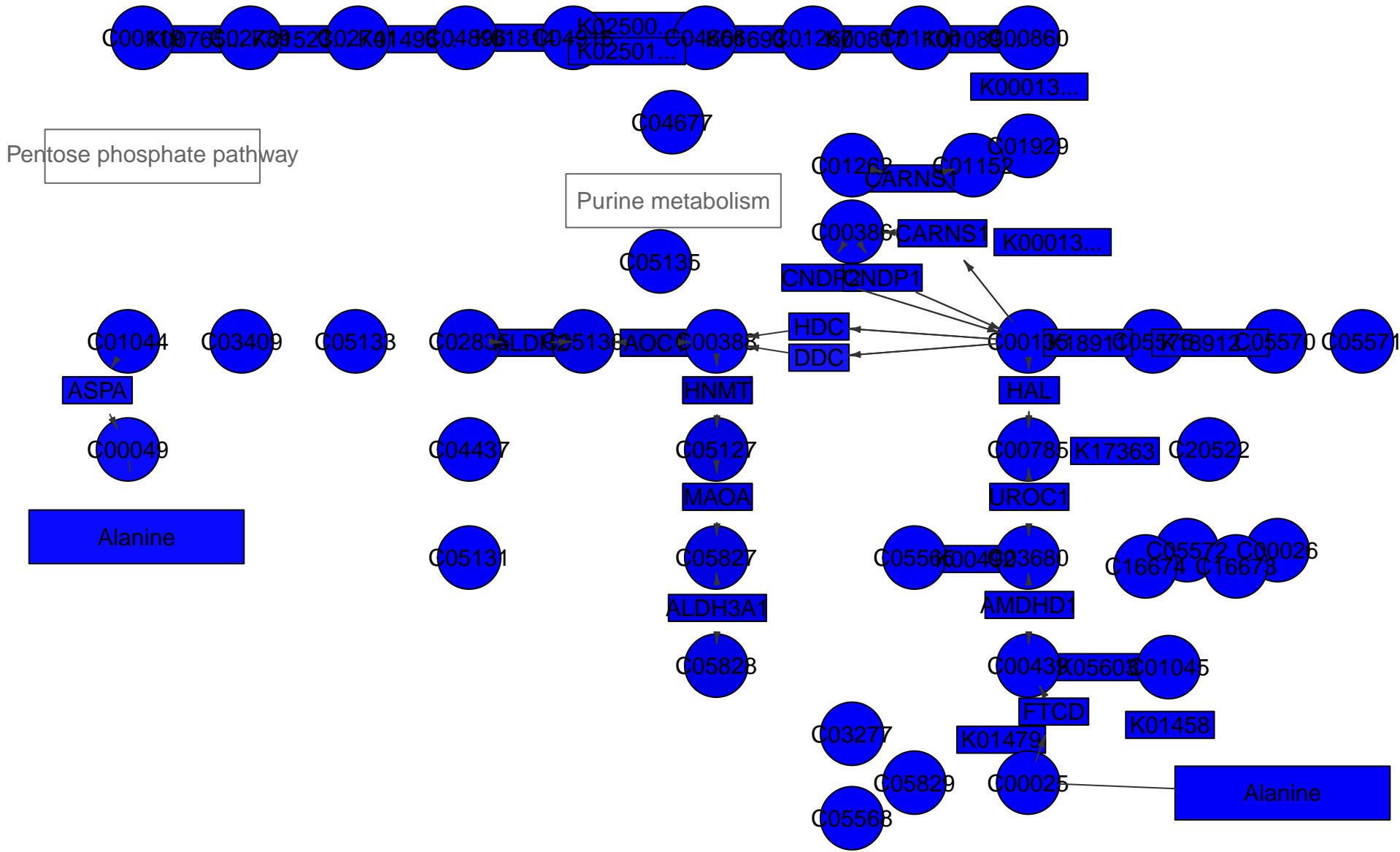


Histidine metabolism  
MPI-155



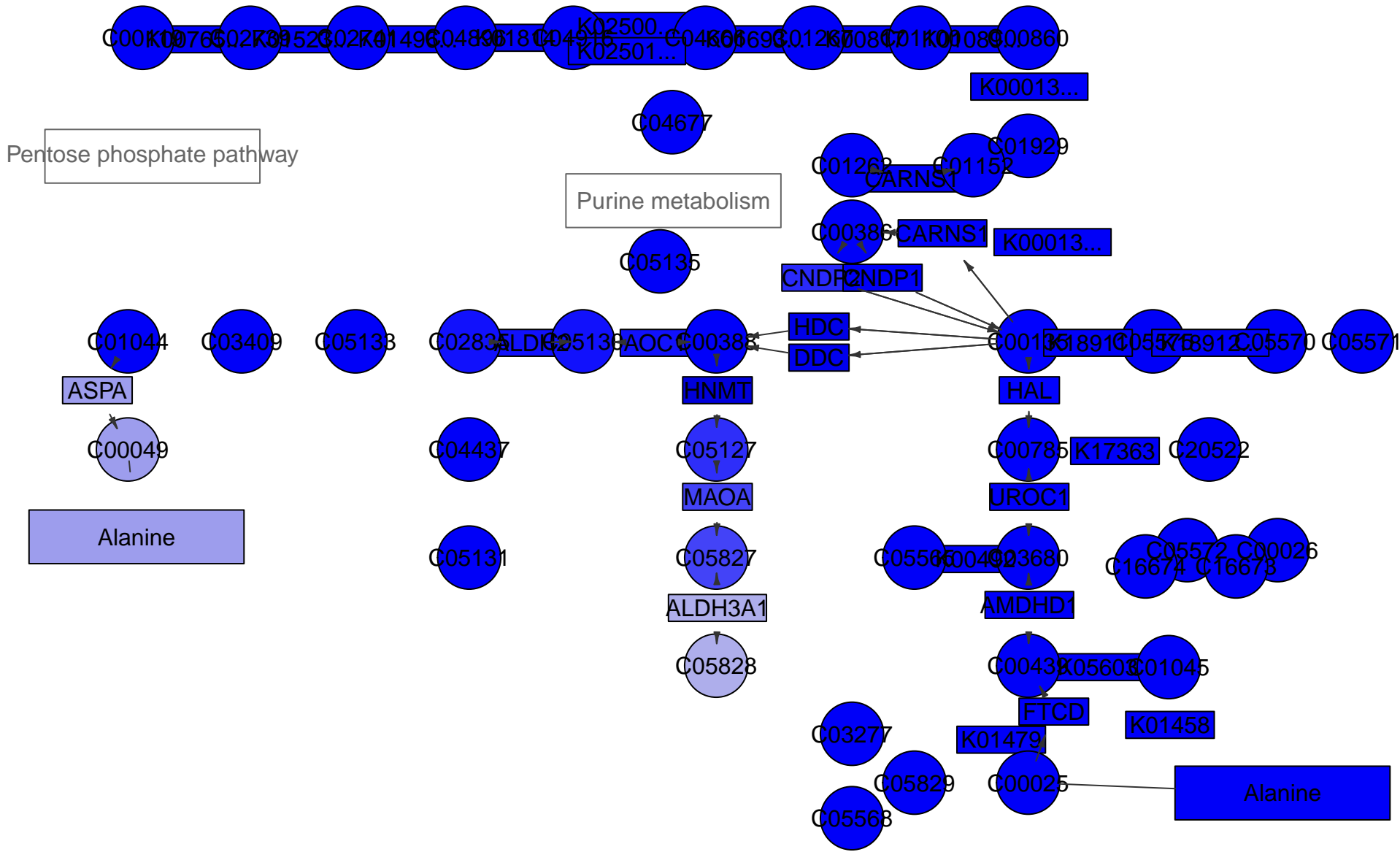


Histidine metabolism  
MPI-163





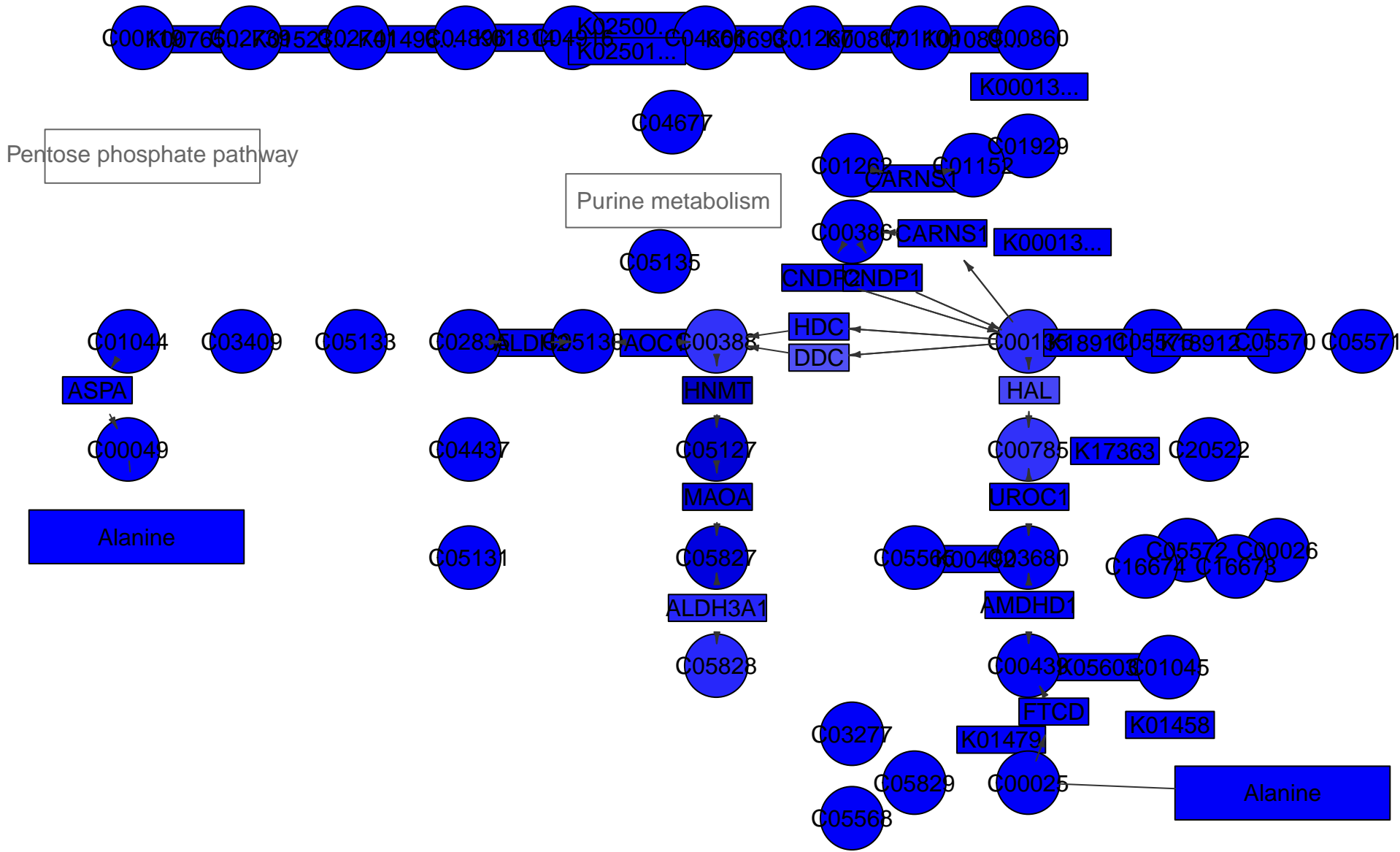
Histidine metabolism  
MPI-166







Histidine metabolism  
MPI-168



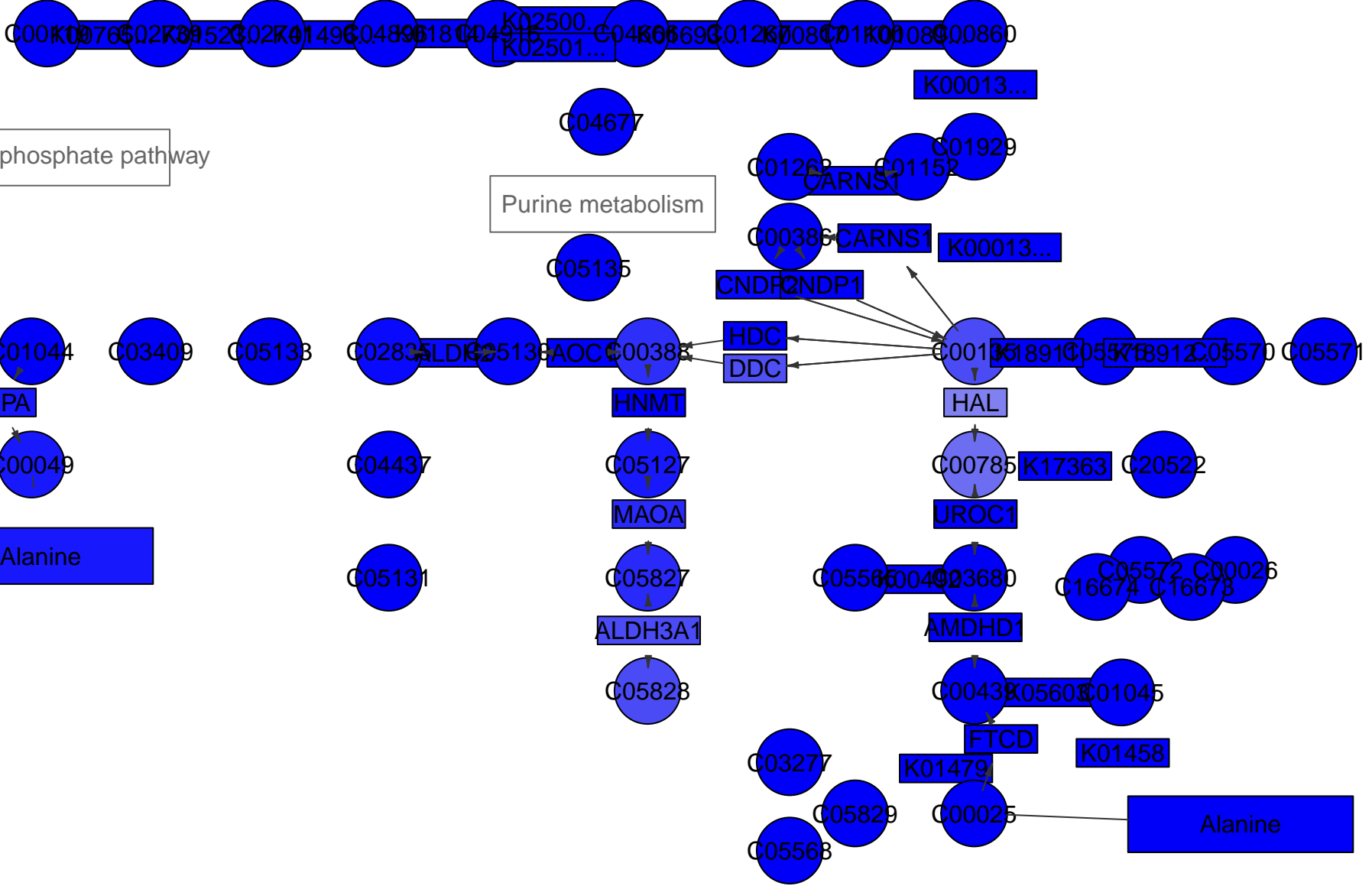
Histidine metabolism  
MPI-170

Pentose phosphate pathway

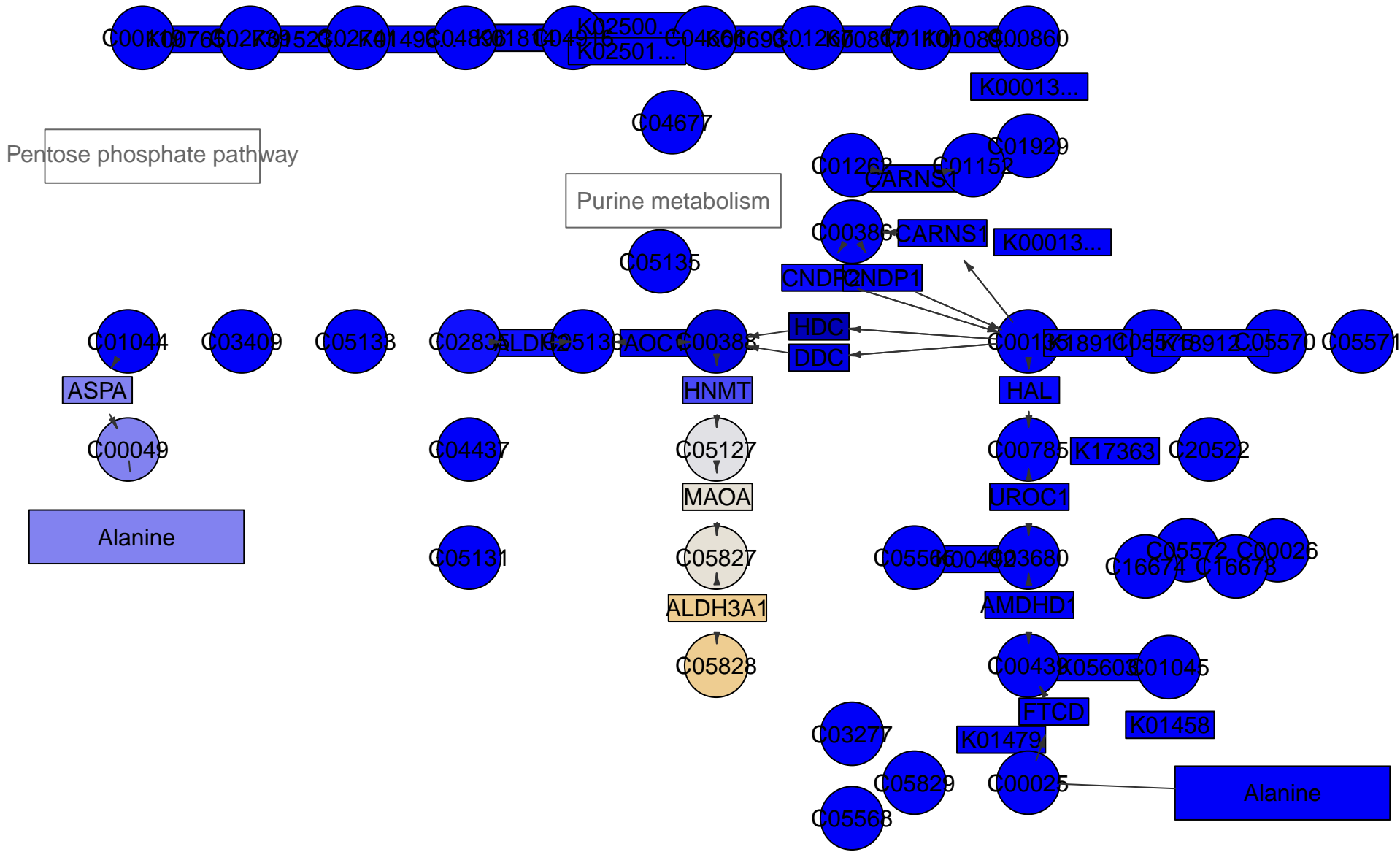
Purine metabolism

Alanine

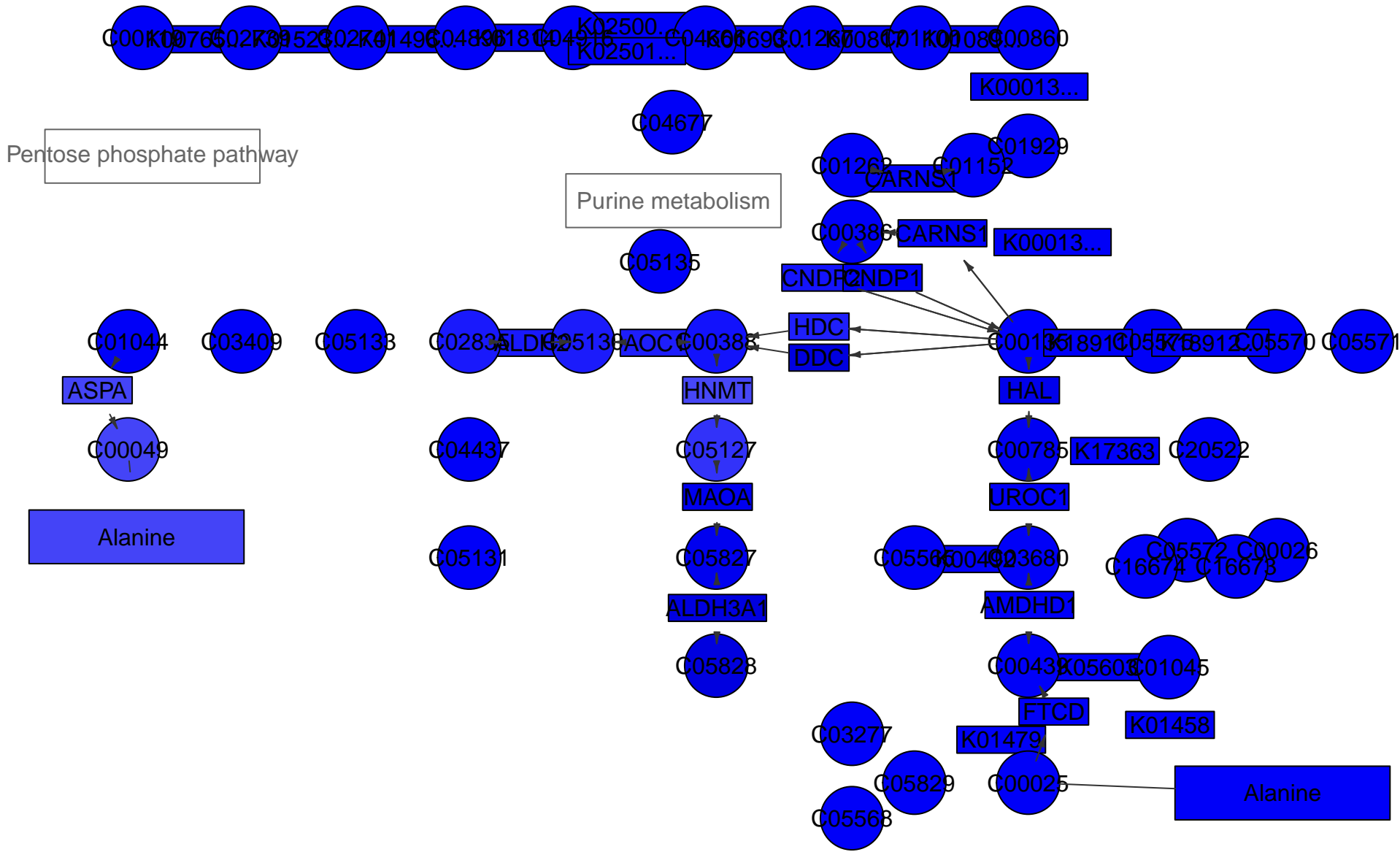
Alanine



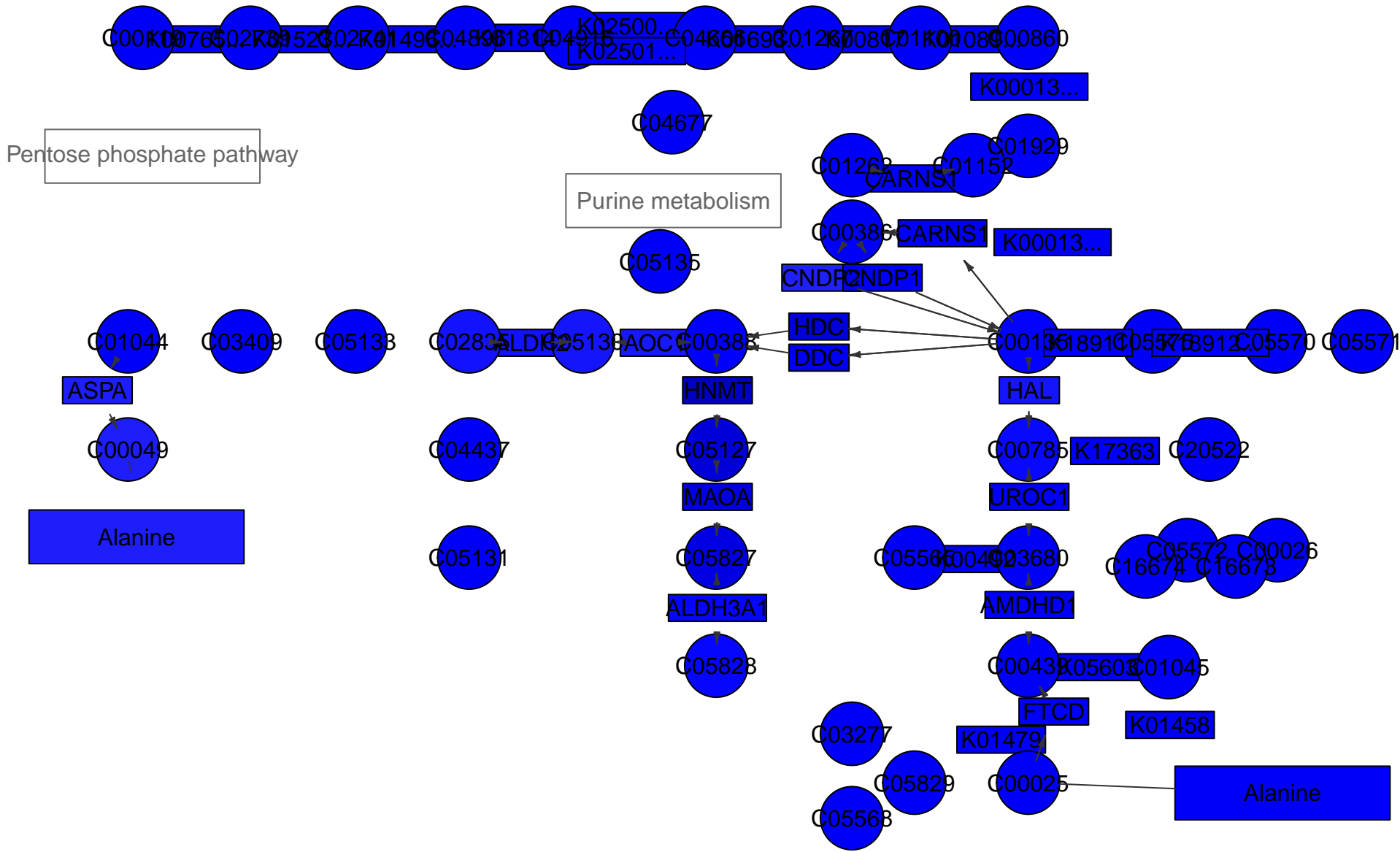
Histidine metabolism  
MPI-173



Histidine metabolism  
MPI-174



Histidine metabolism  
MPI-176



Pentose phosphate pathway

Purine metabolism

Alanine

Alanine







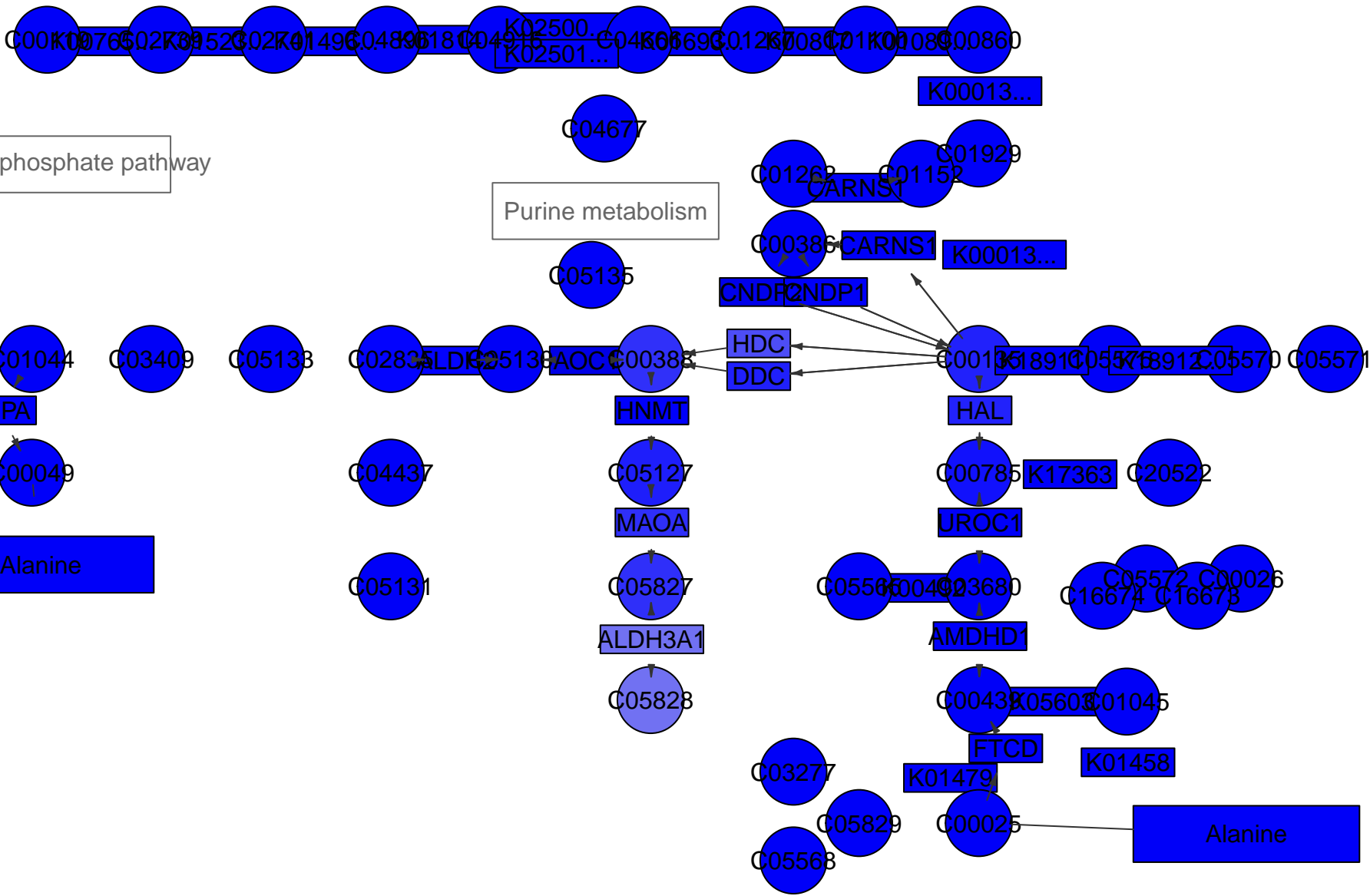
Histidine metabolism  
MPI-179

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



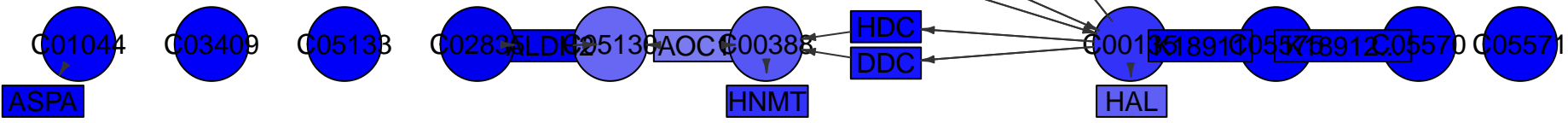
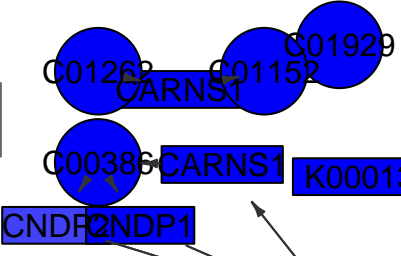
Histidine metabolism  
MPI-180



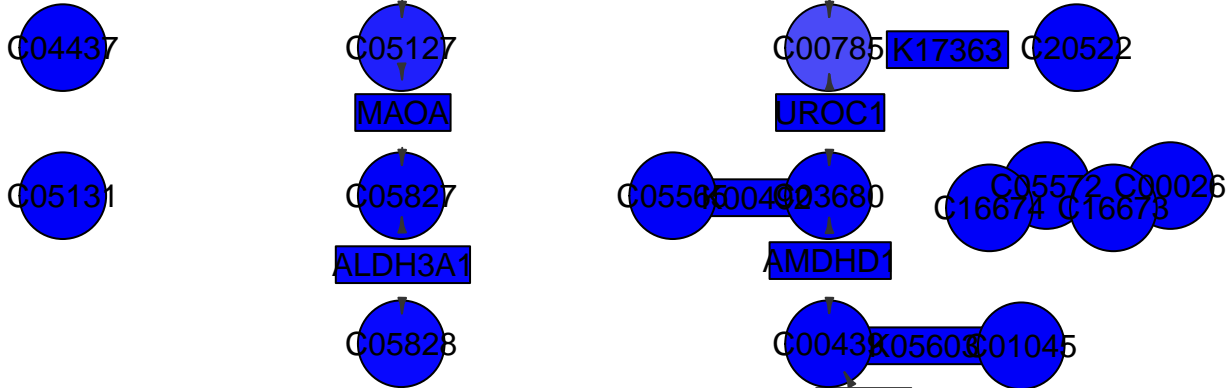
Pentose phosphate pathway

Purine metabolism

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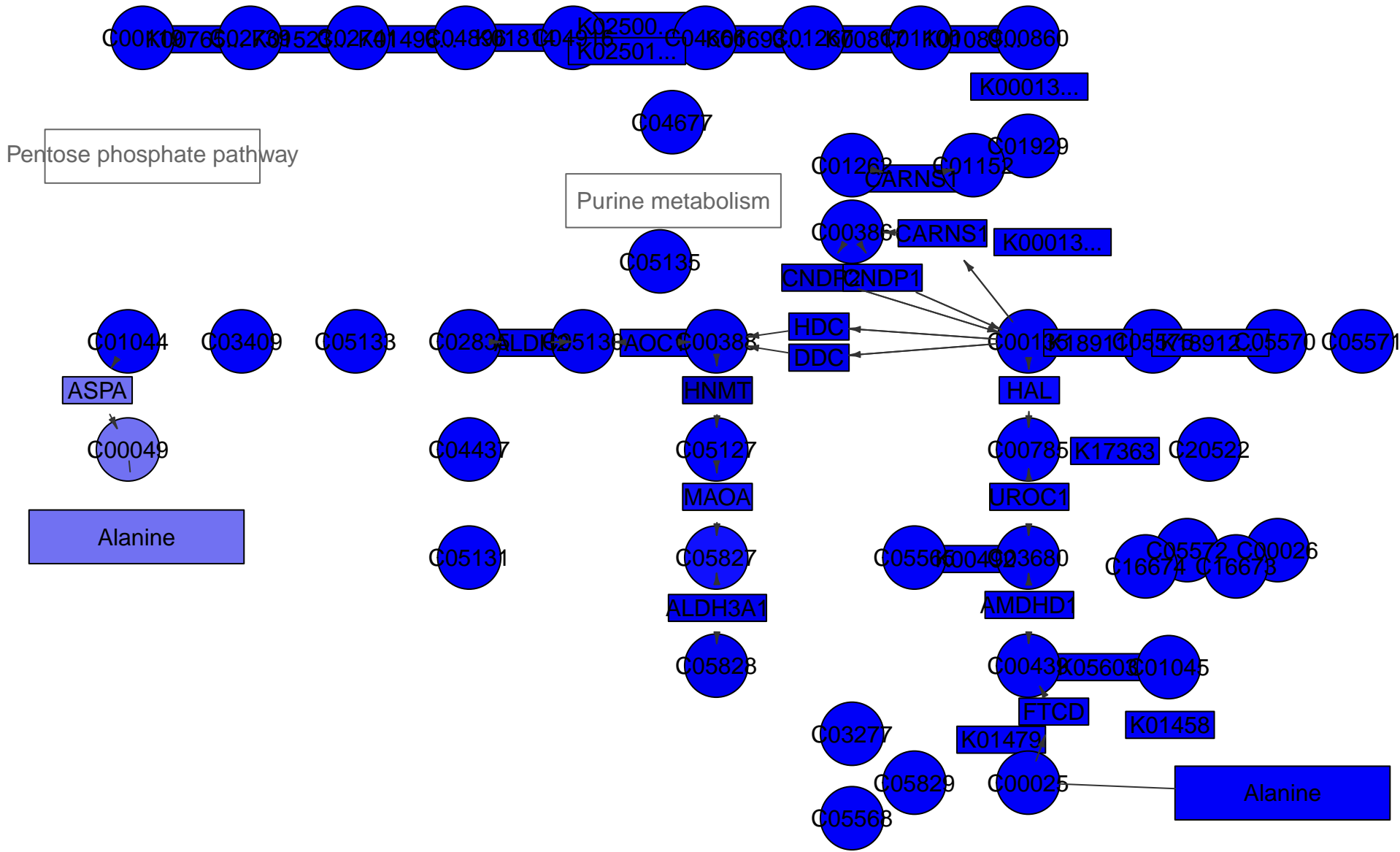


Alanine



Alanine

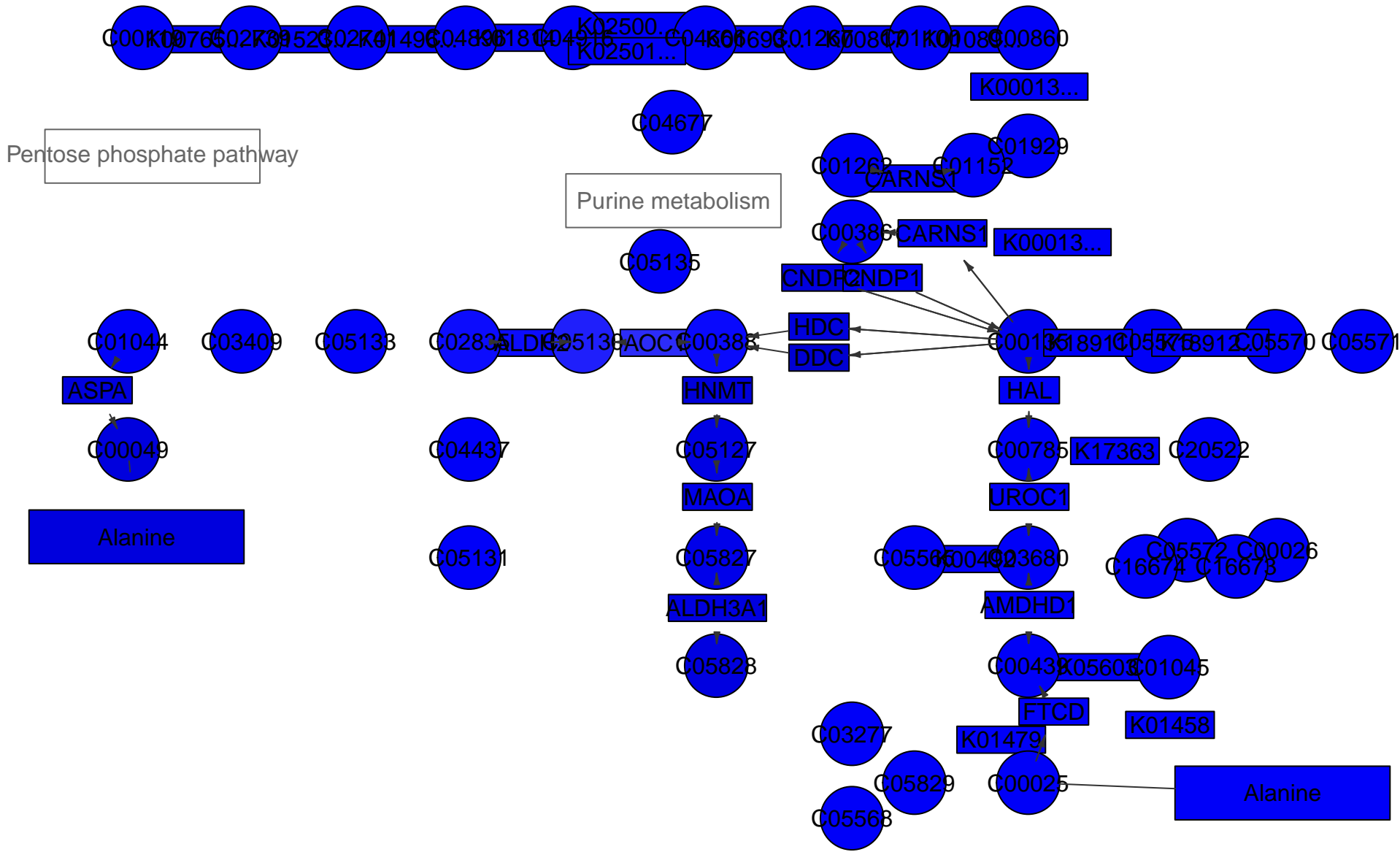
Histidine metabolism  
MPI-182



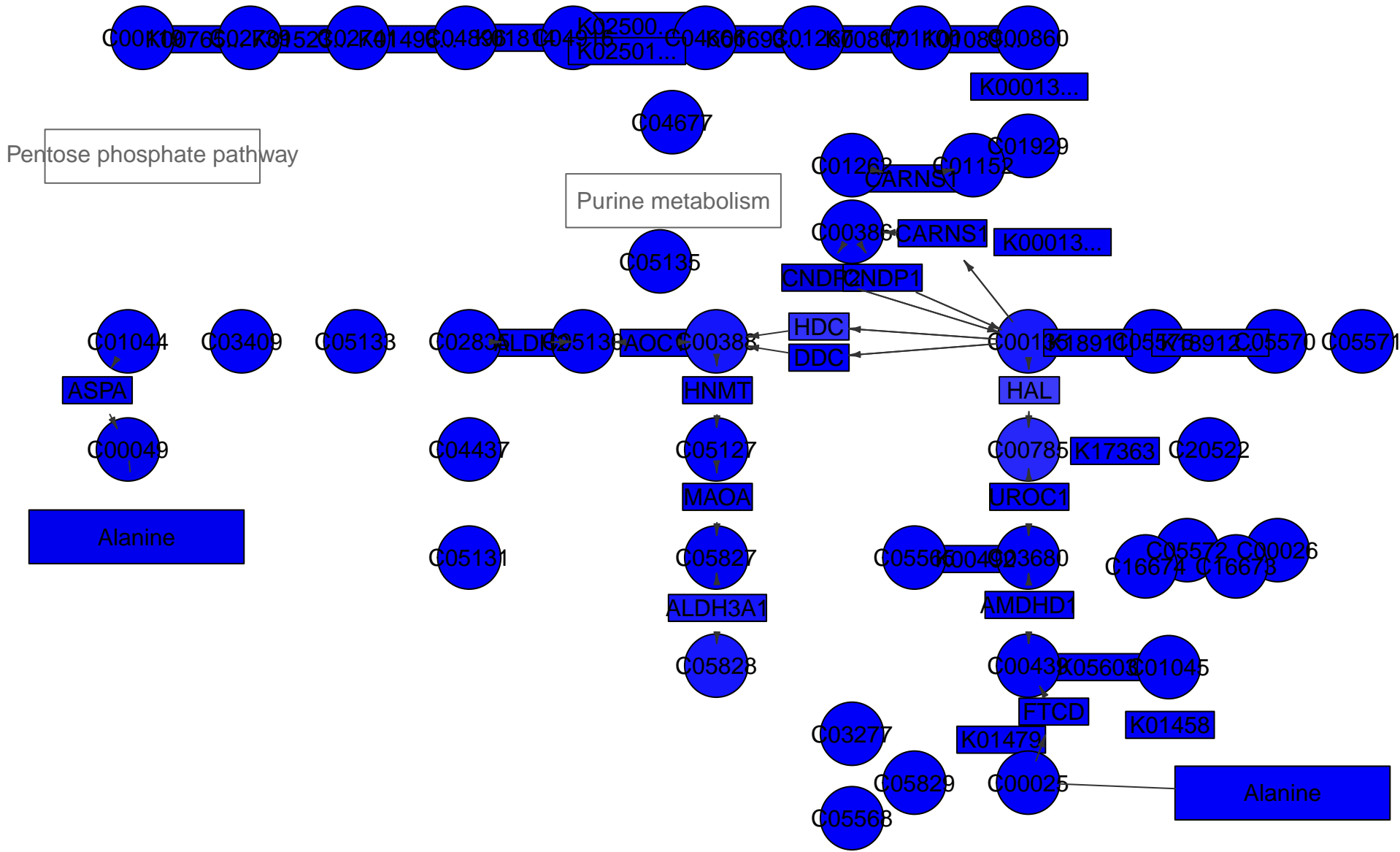




Histidine metabolism  
MPI-185



Histidine metabolism  
MPI-186







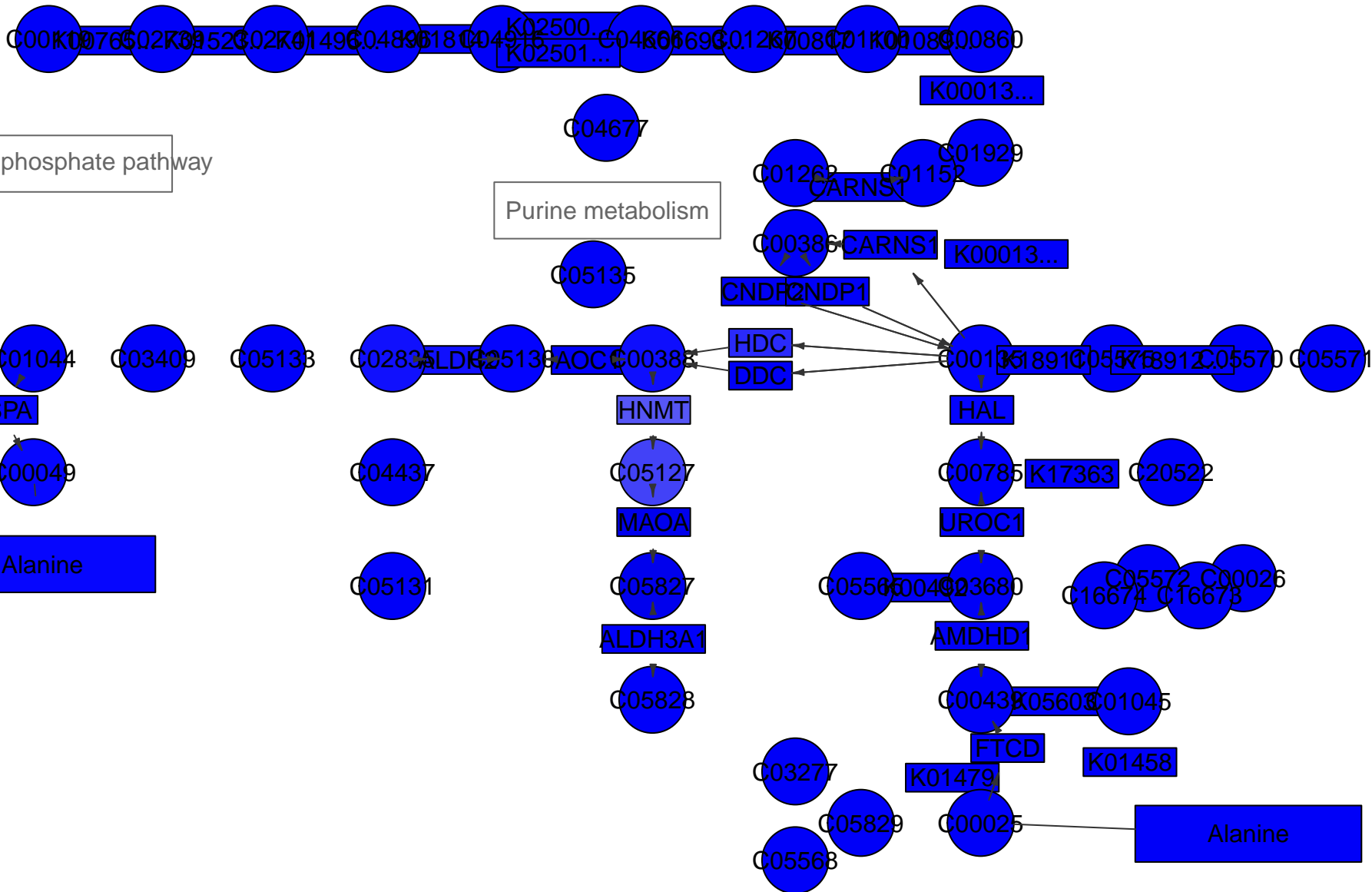
Histidine metabolism  
MPI-189

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



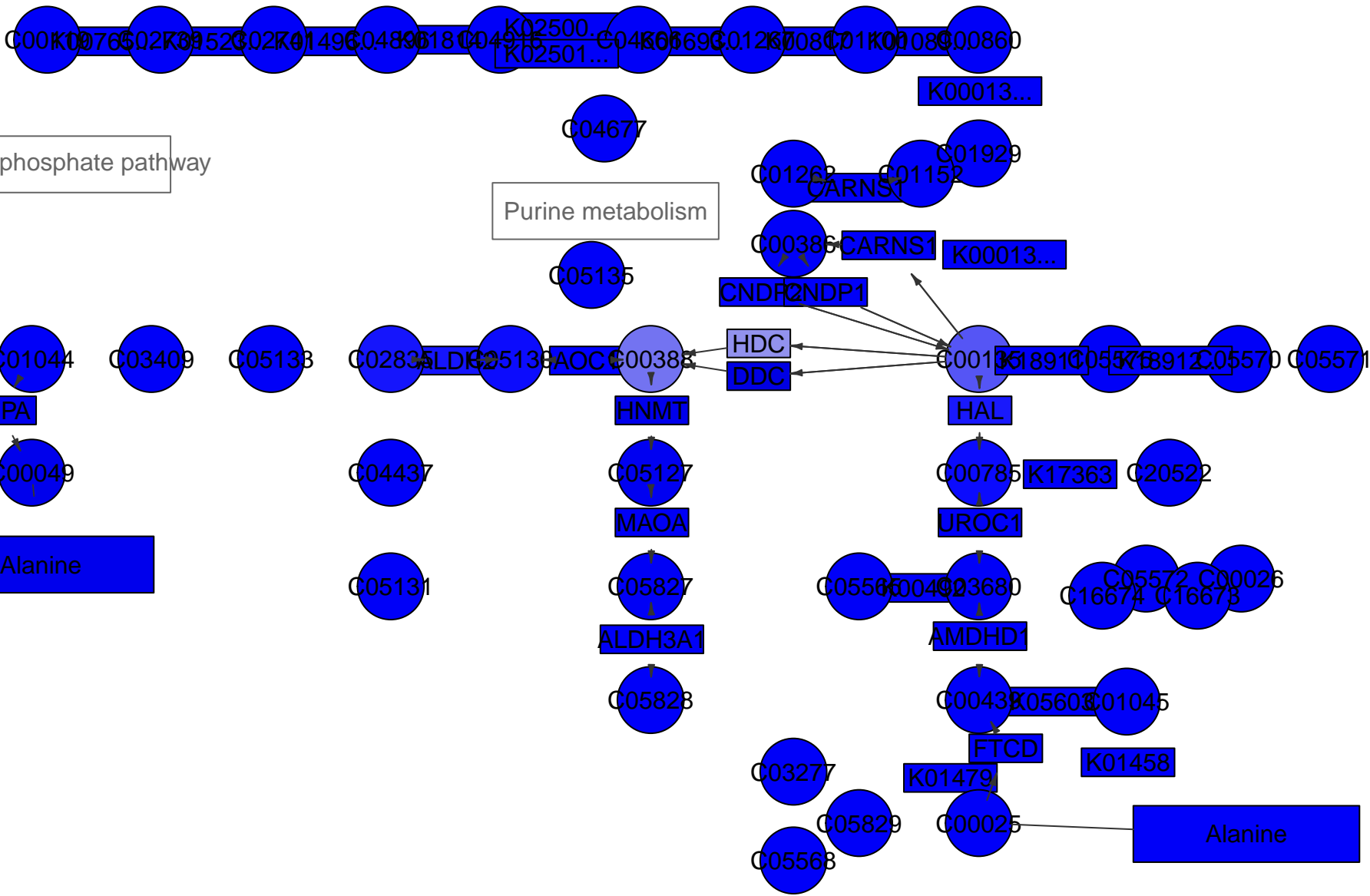
Histidine metabolism  
MPI-190

Pentose phosphate pathway

Purine metabolism

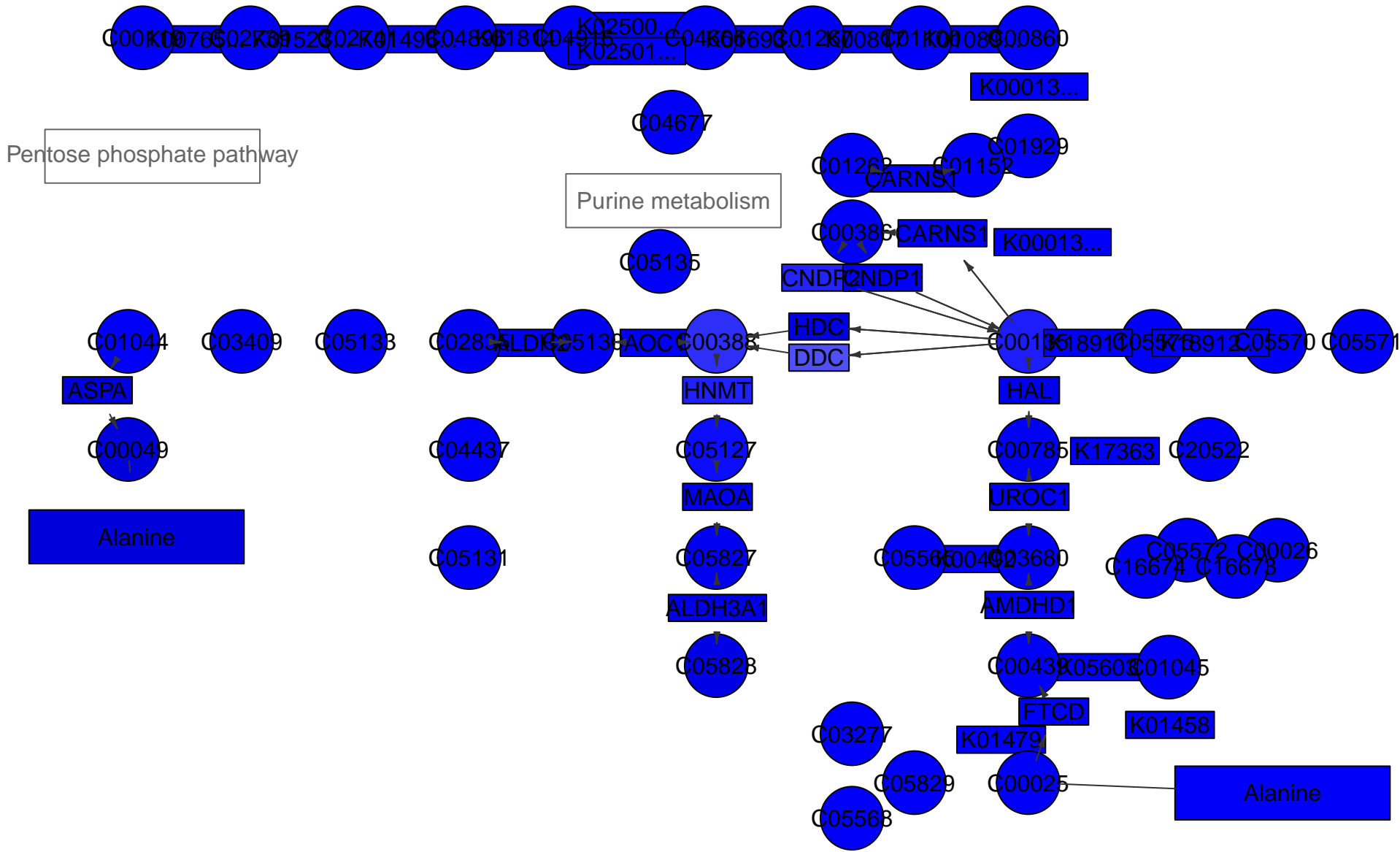
Alanine

Alanine





Histidine metabolism  
MPI-192



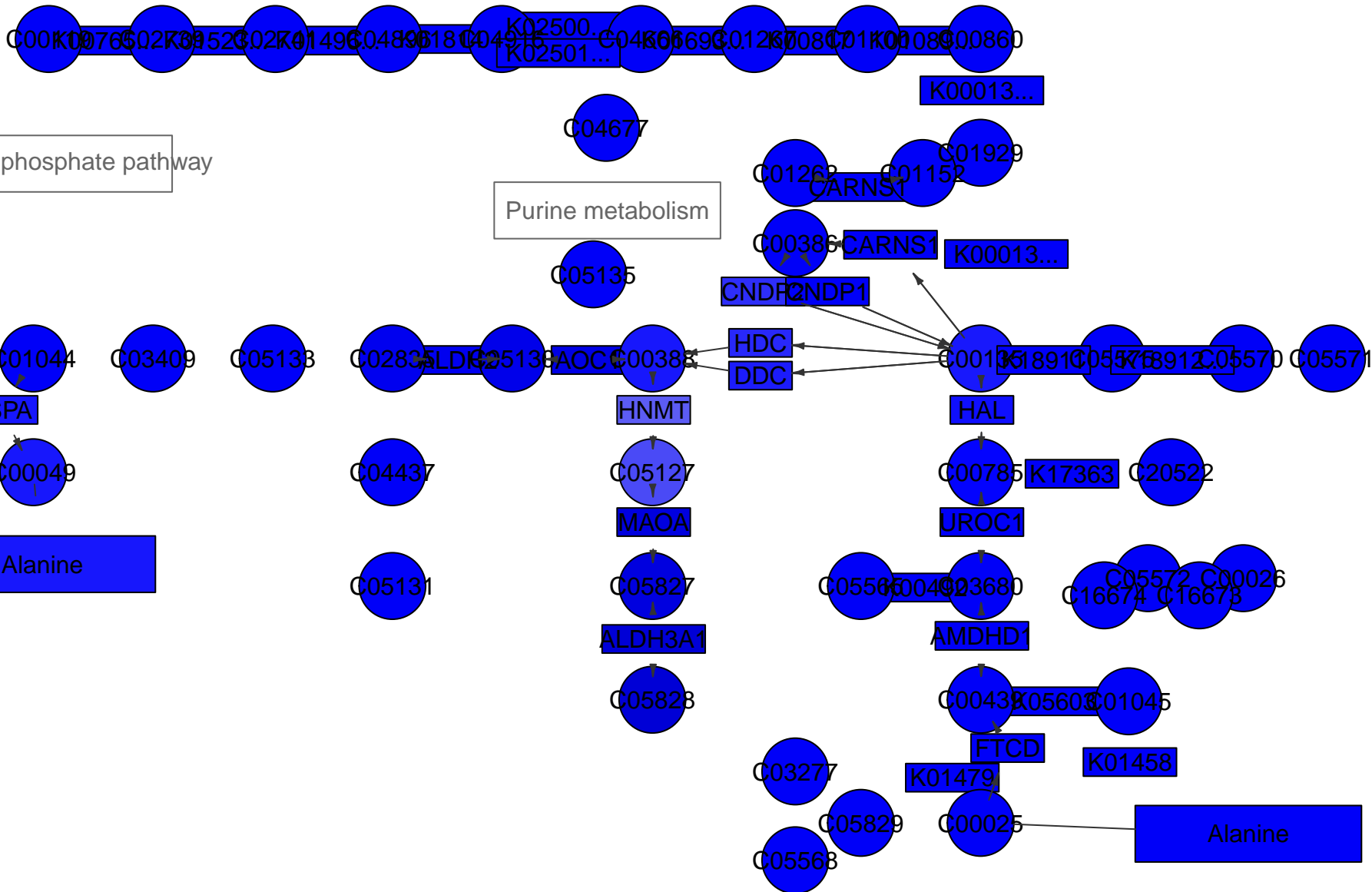
Histidine metabolism  
MPI-194

Pentose phosphate pathway

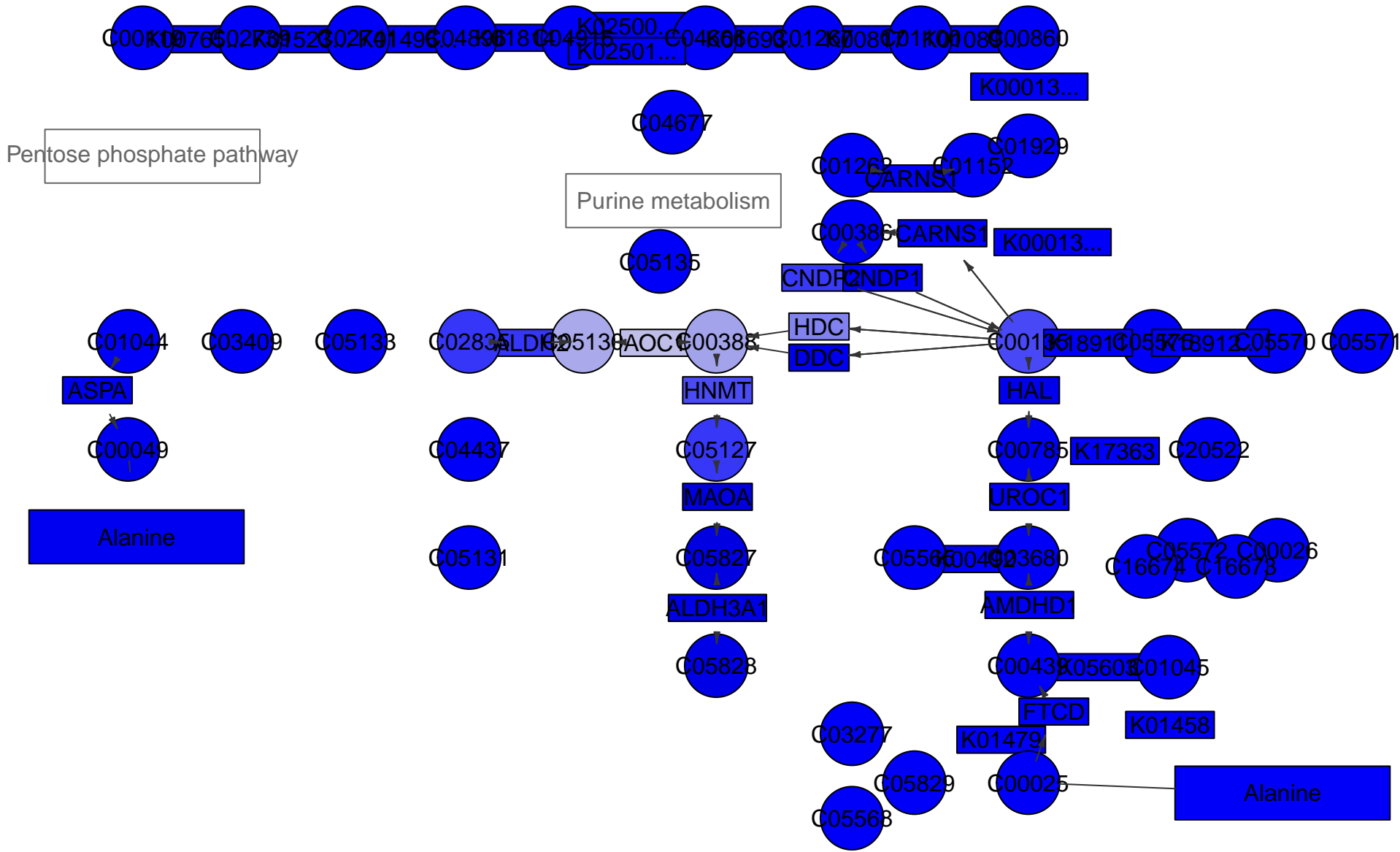
Purine metabolism

Alanine

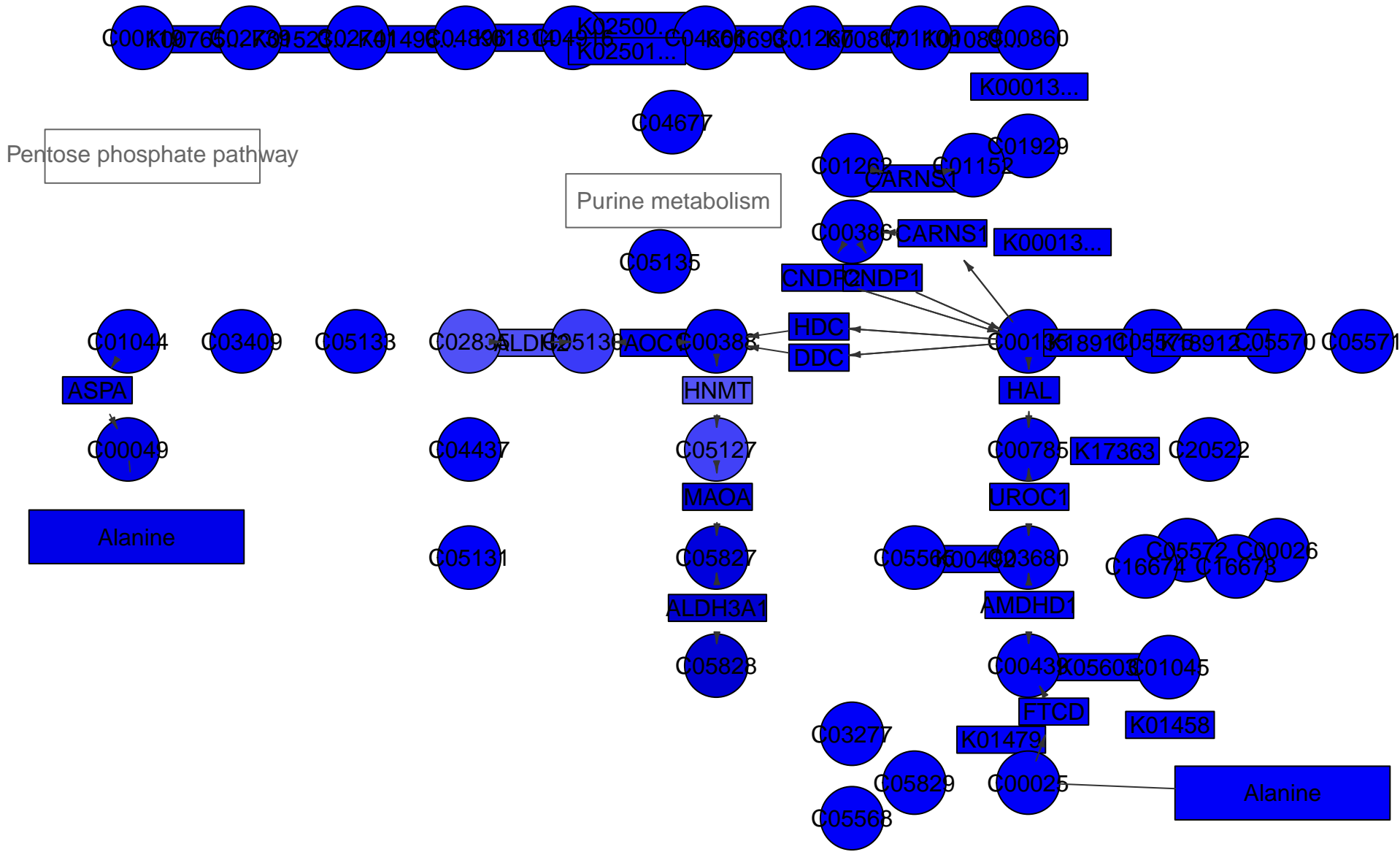
Alanine



Histidine metabolism  
MPI-195



Histidine metabolism  
MPI-196







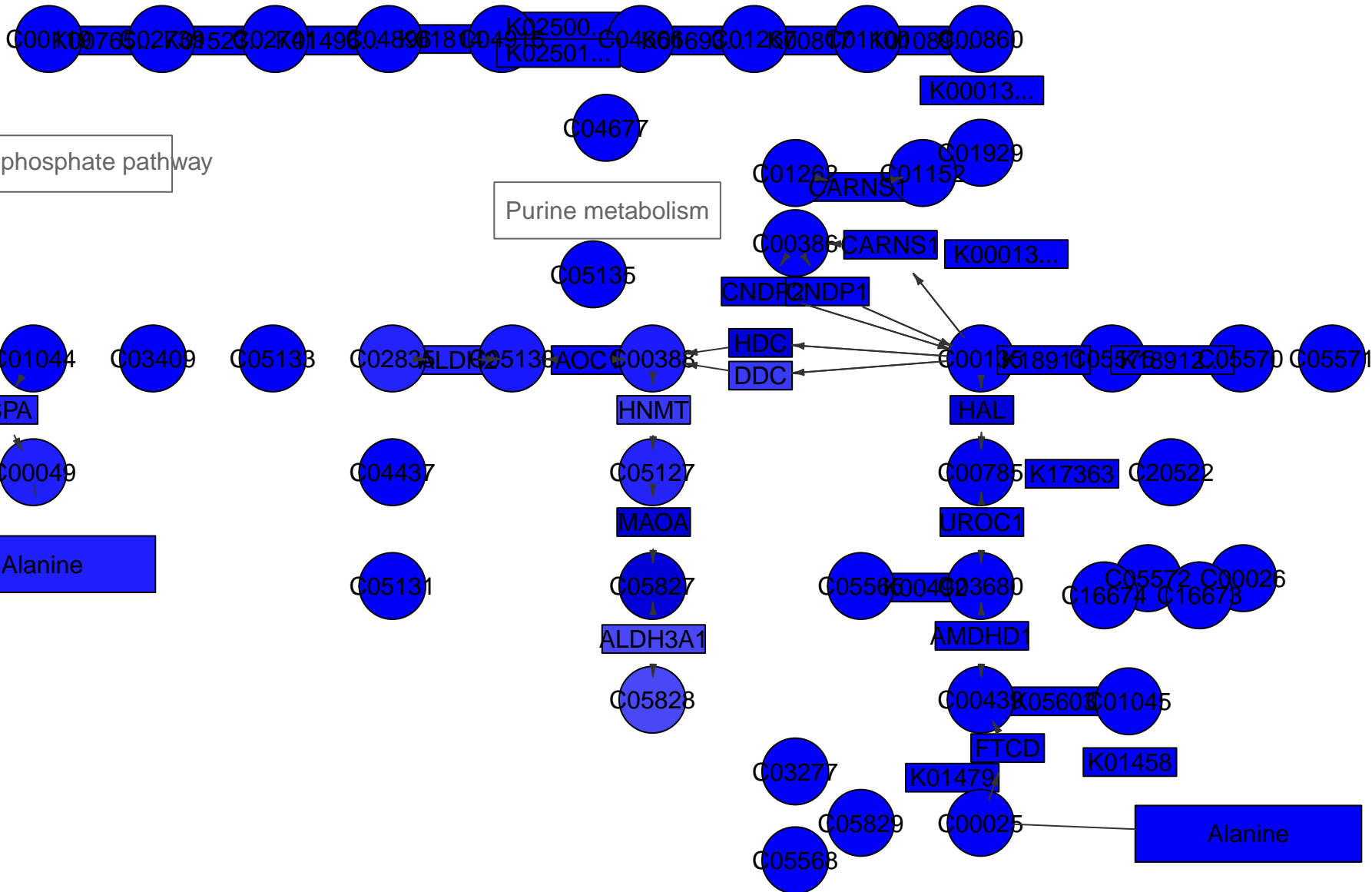
Histidine metabolism  
MPI-199

Pentose phosphate pathway

Purine metabolism

Alanine

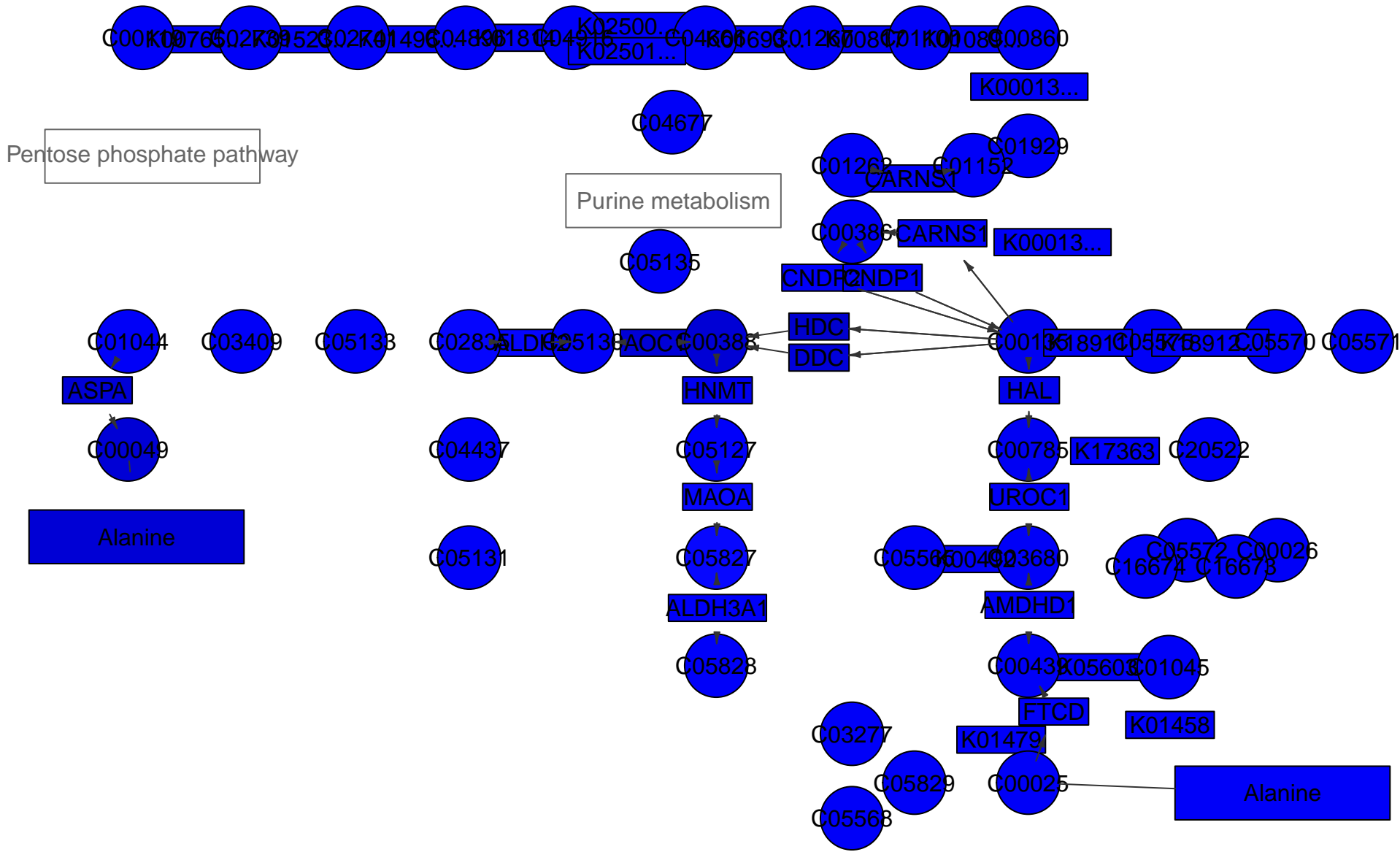
Alanine



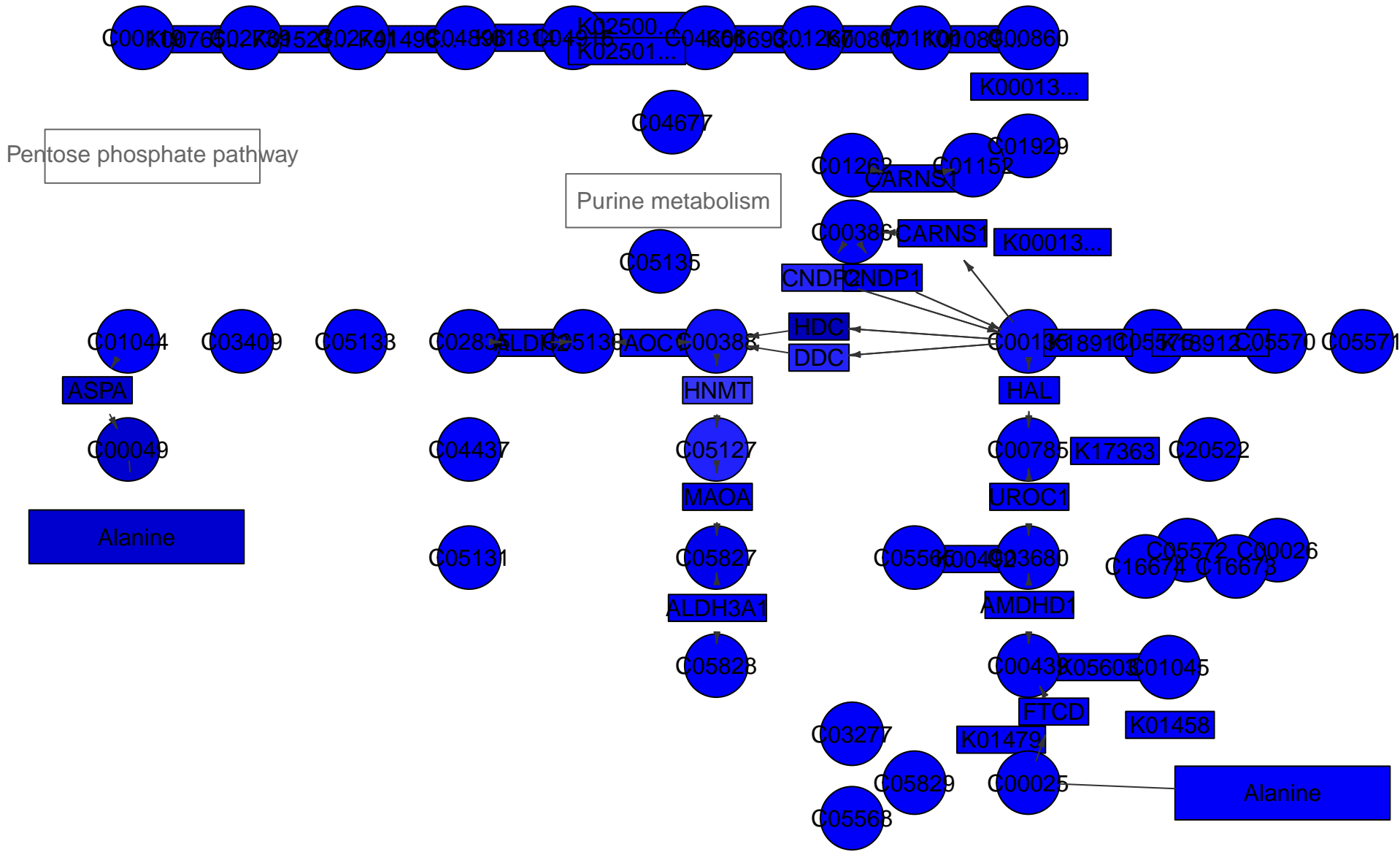




Histidine metabolism  
MPI-202



Histidine metabolism  
MPI-203



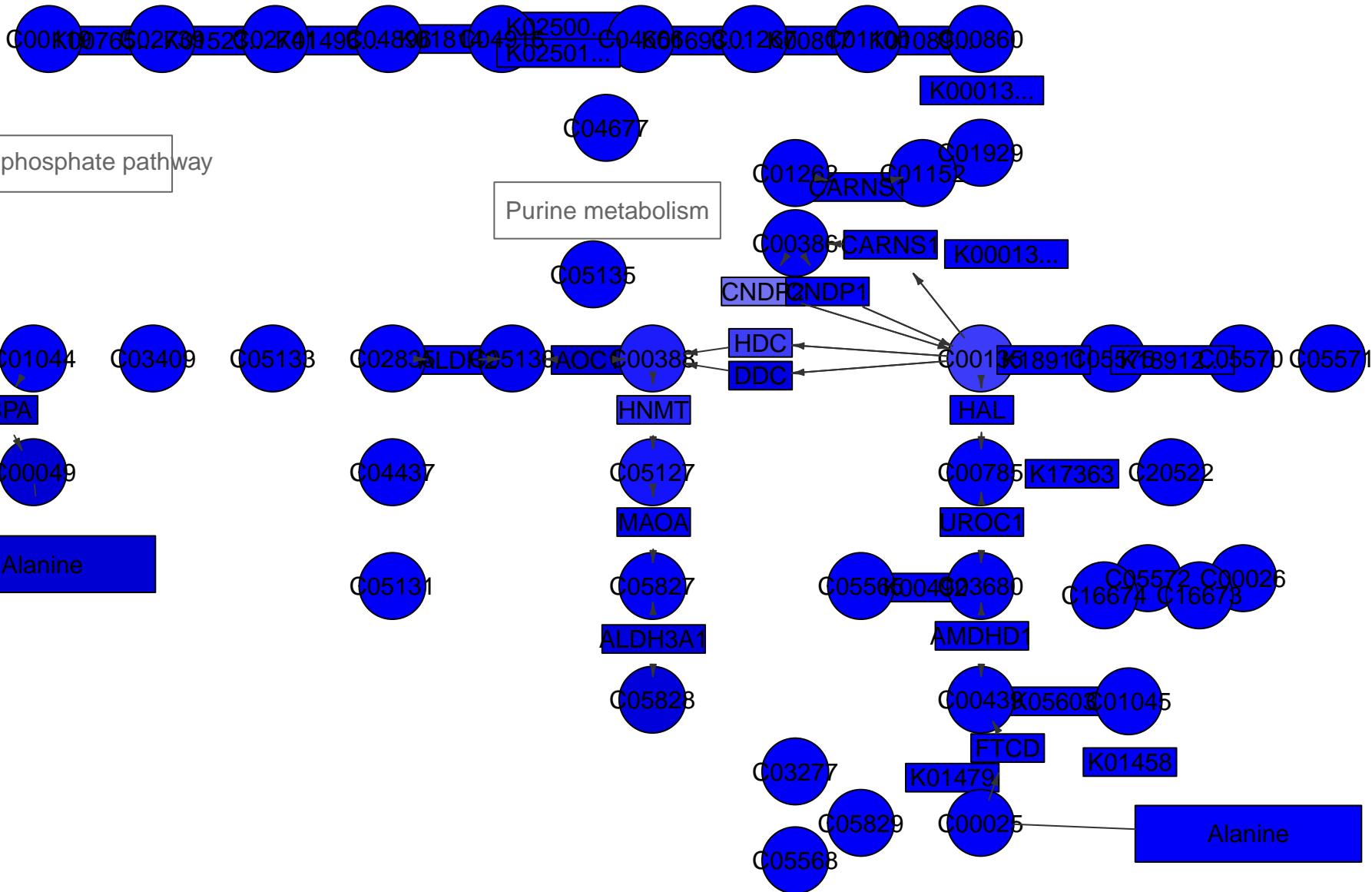
Histidine metabolism  
MPI-204

Pentose phosphate pathway

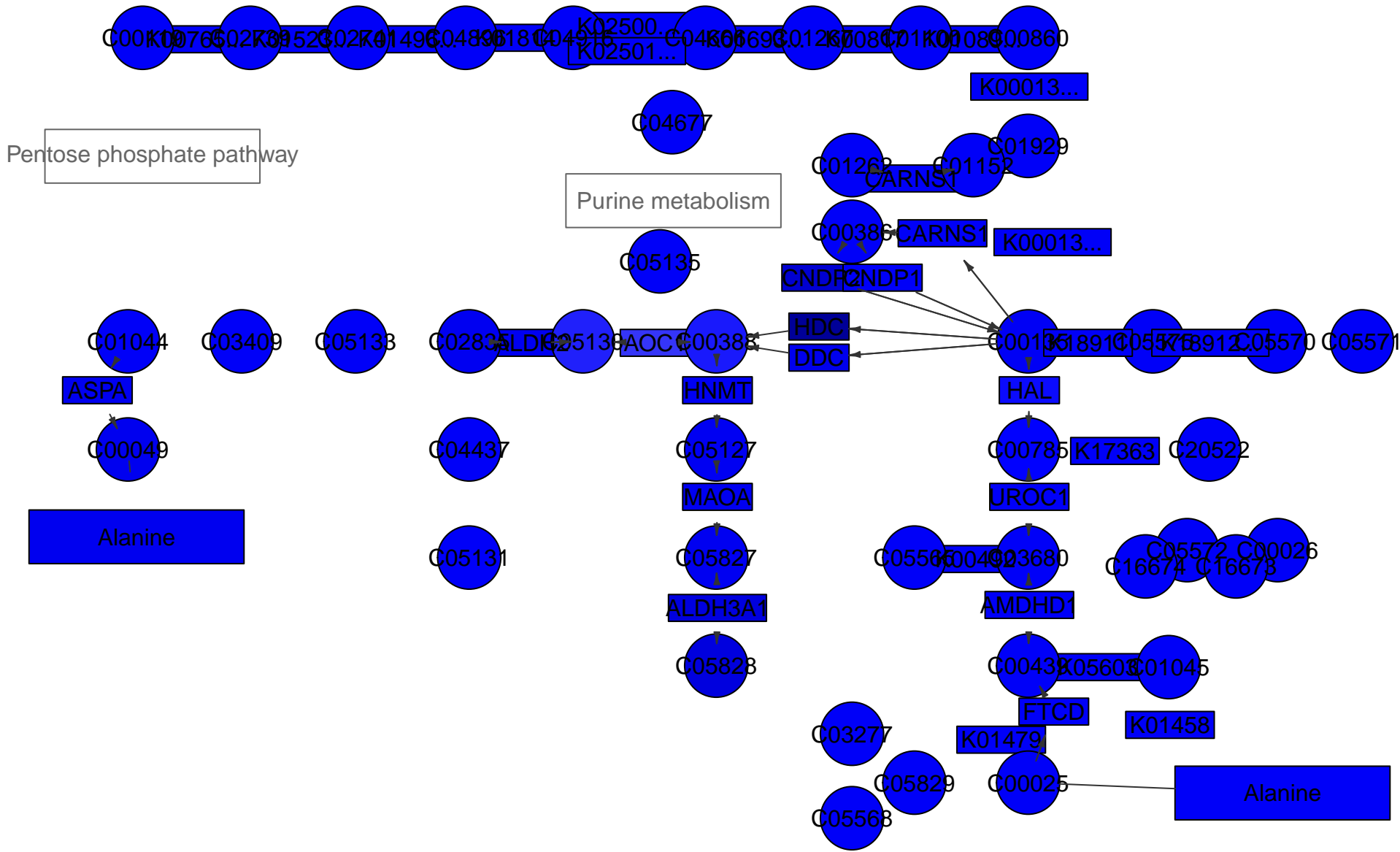
Purine metabolism

Alanine

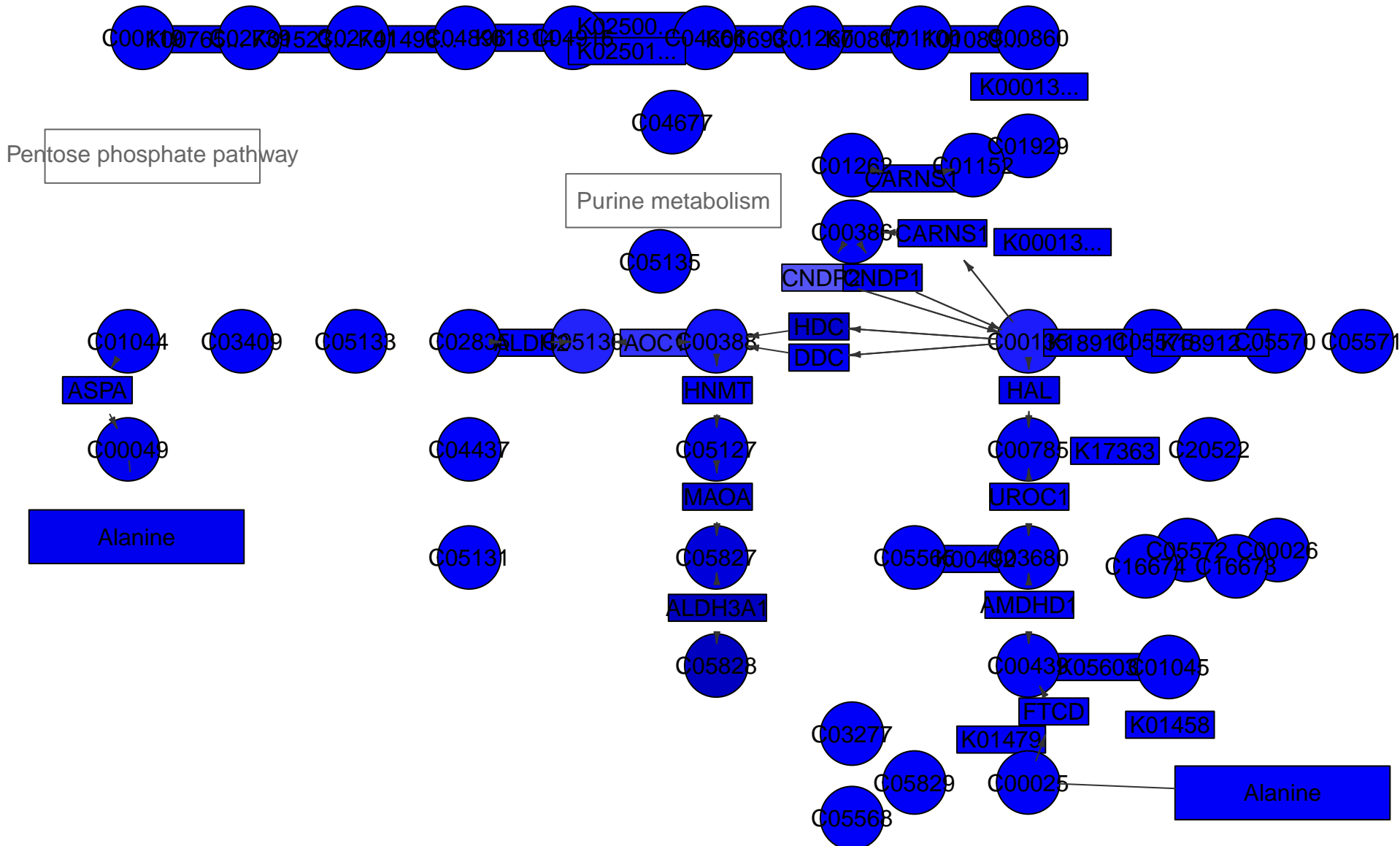
Alanine



Histidine metabolism  
MPI-205

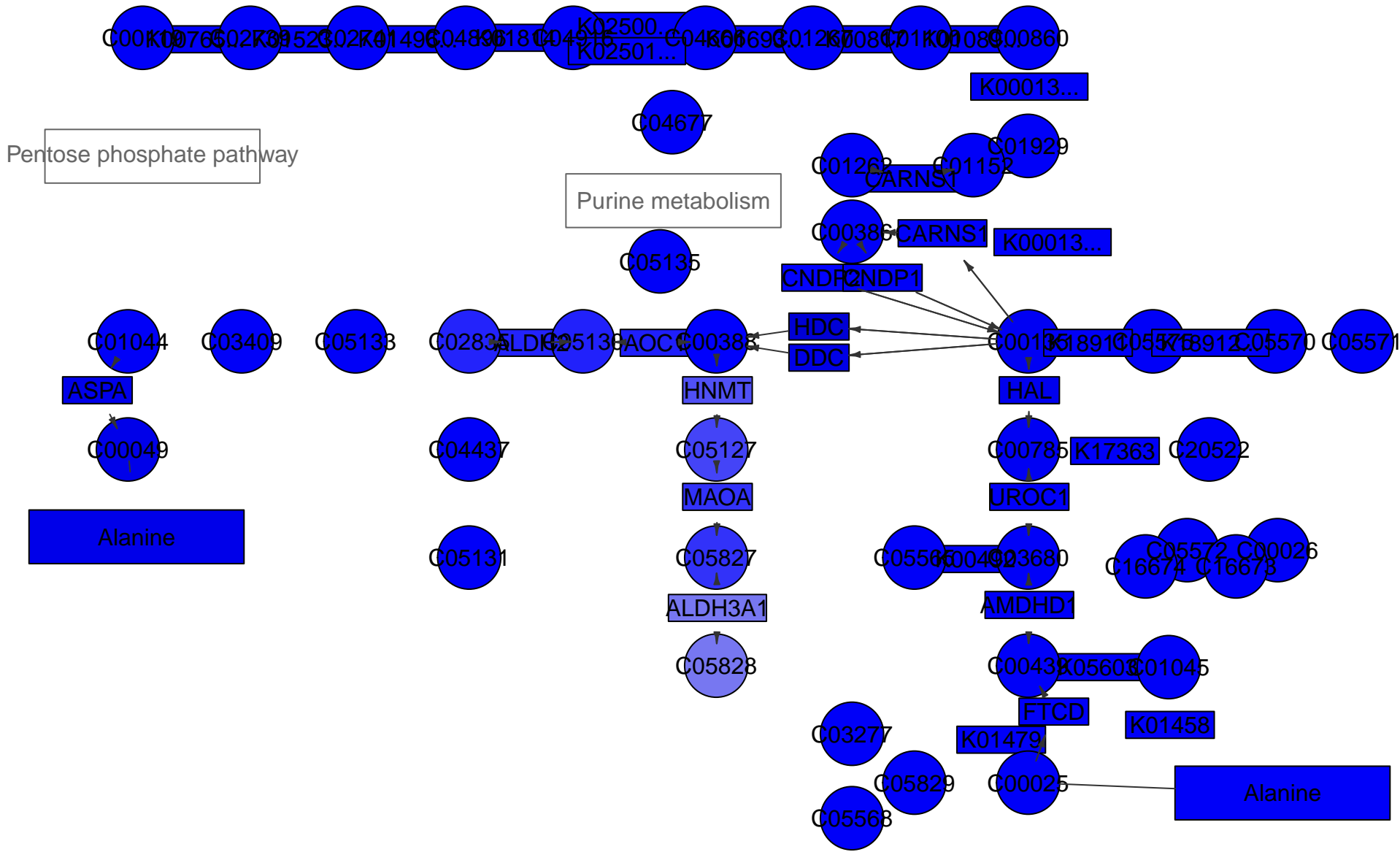


Histidine metabolism  
MPI-206





Histidine metabolism  
MPI-207



Pentose phosphate pathway

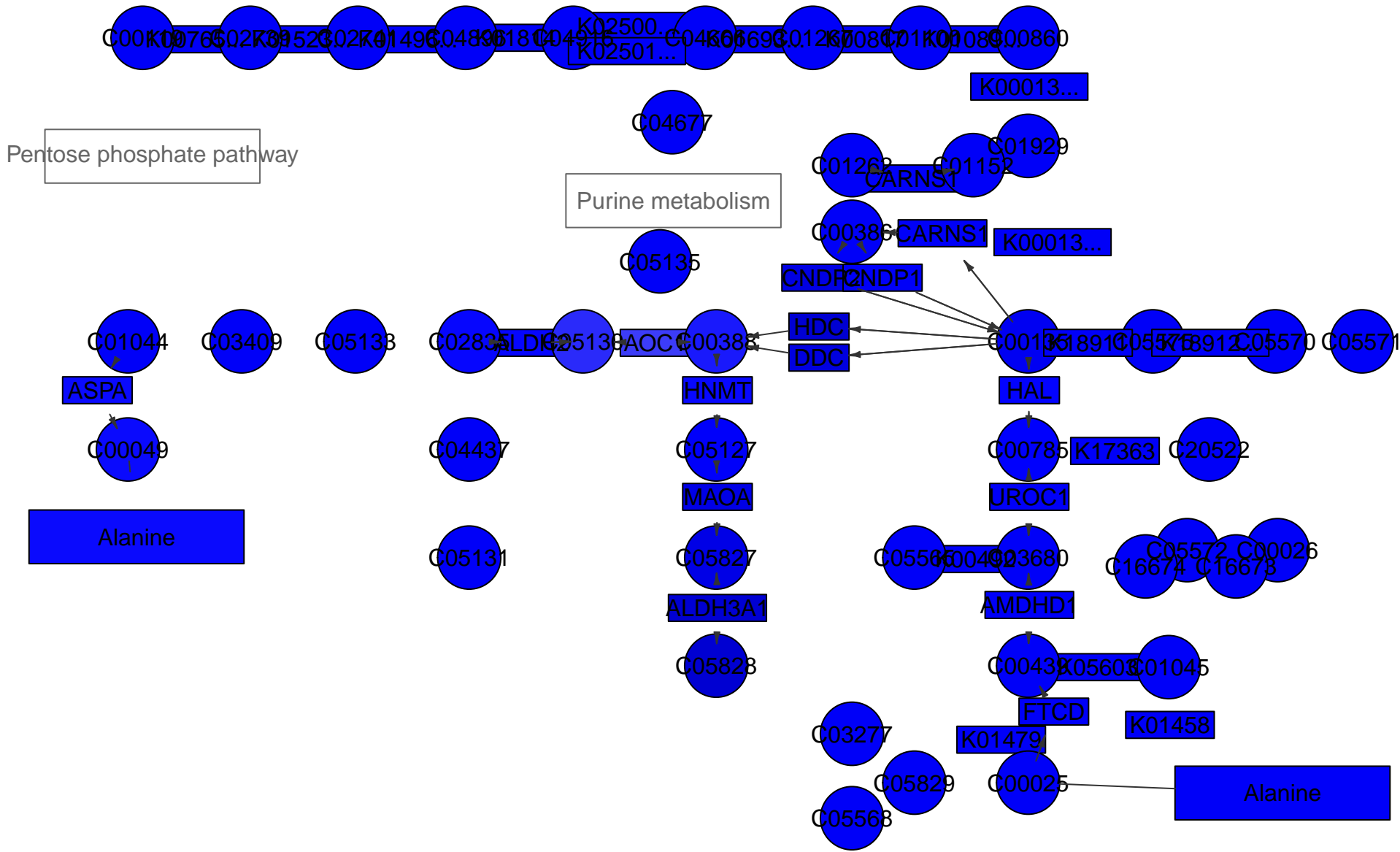
Purine metabolism

Alanine

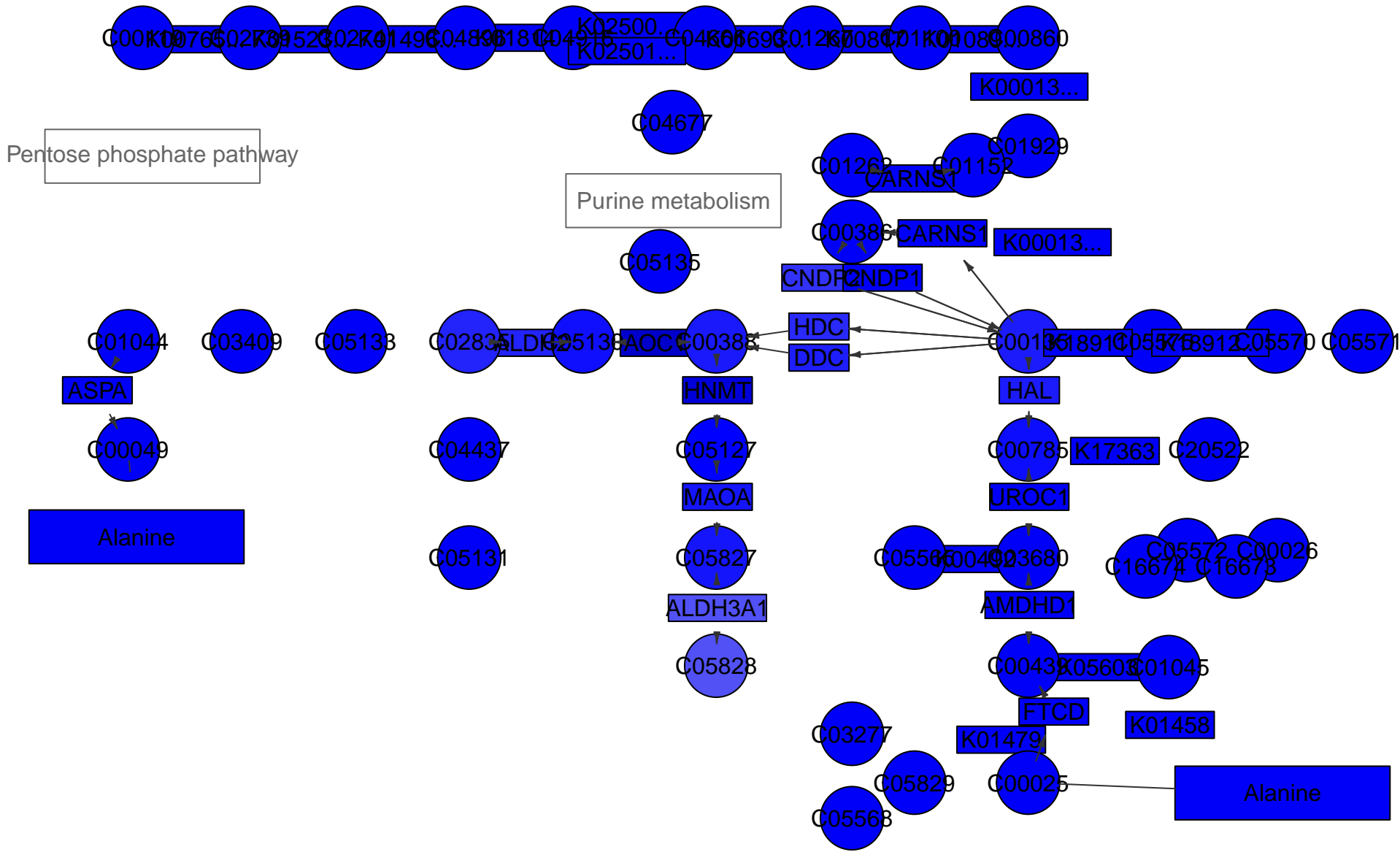
Alanine



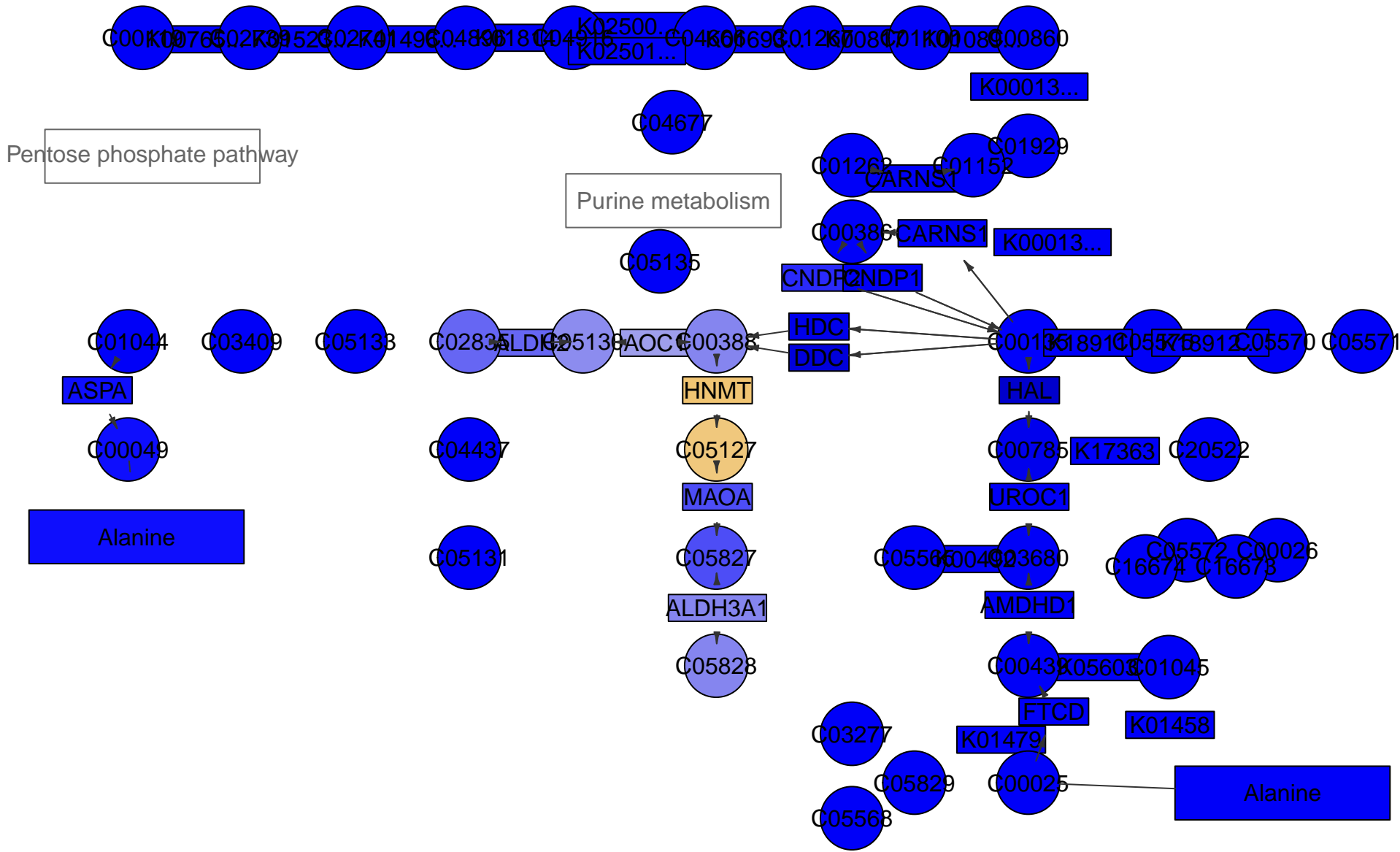
Histidine metabolism  
MPI-209



Histidine metabolism  
MPI-210

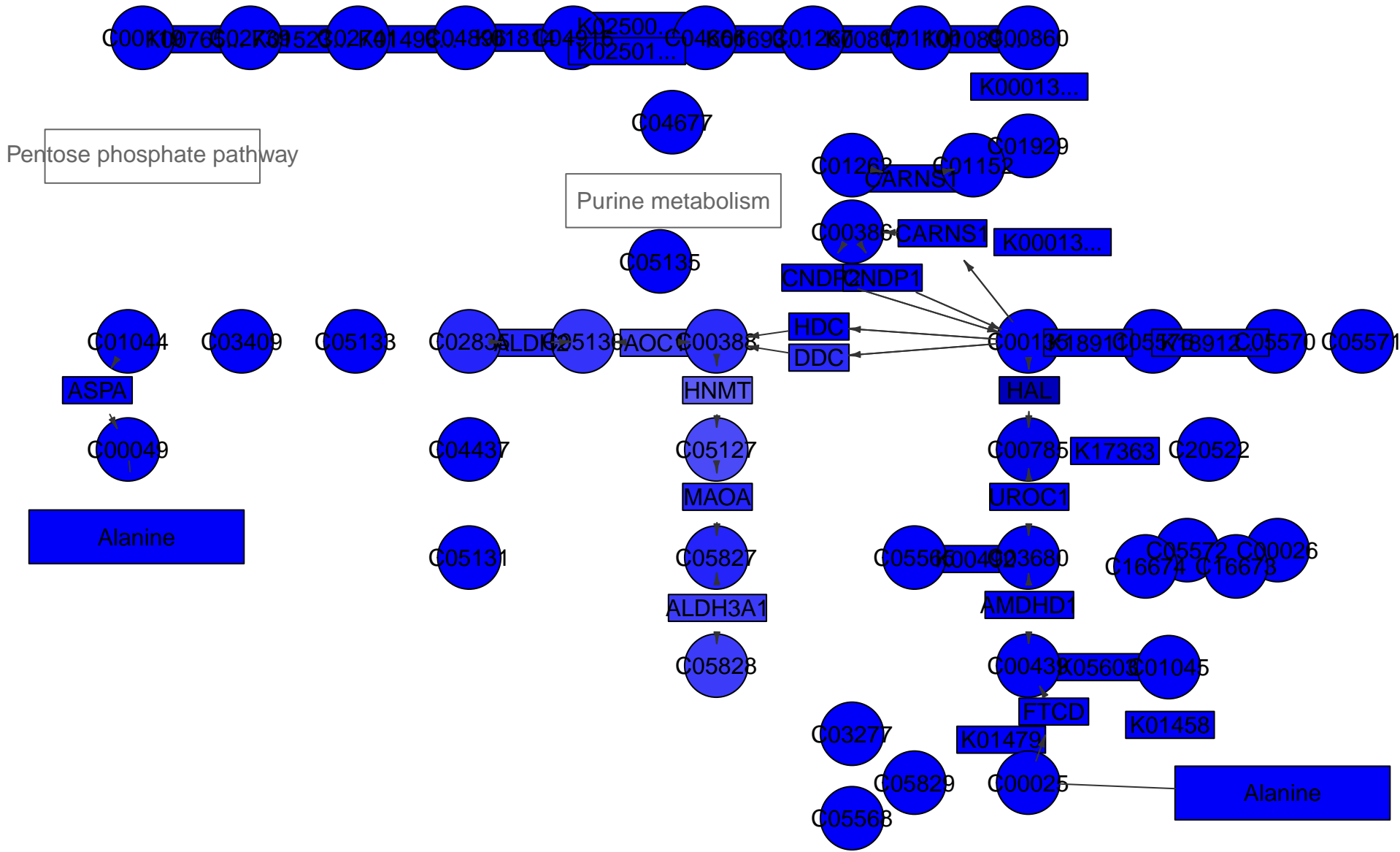


Histidine metabolism  
MPI-212

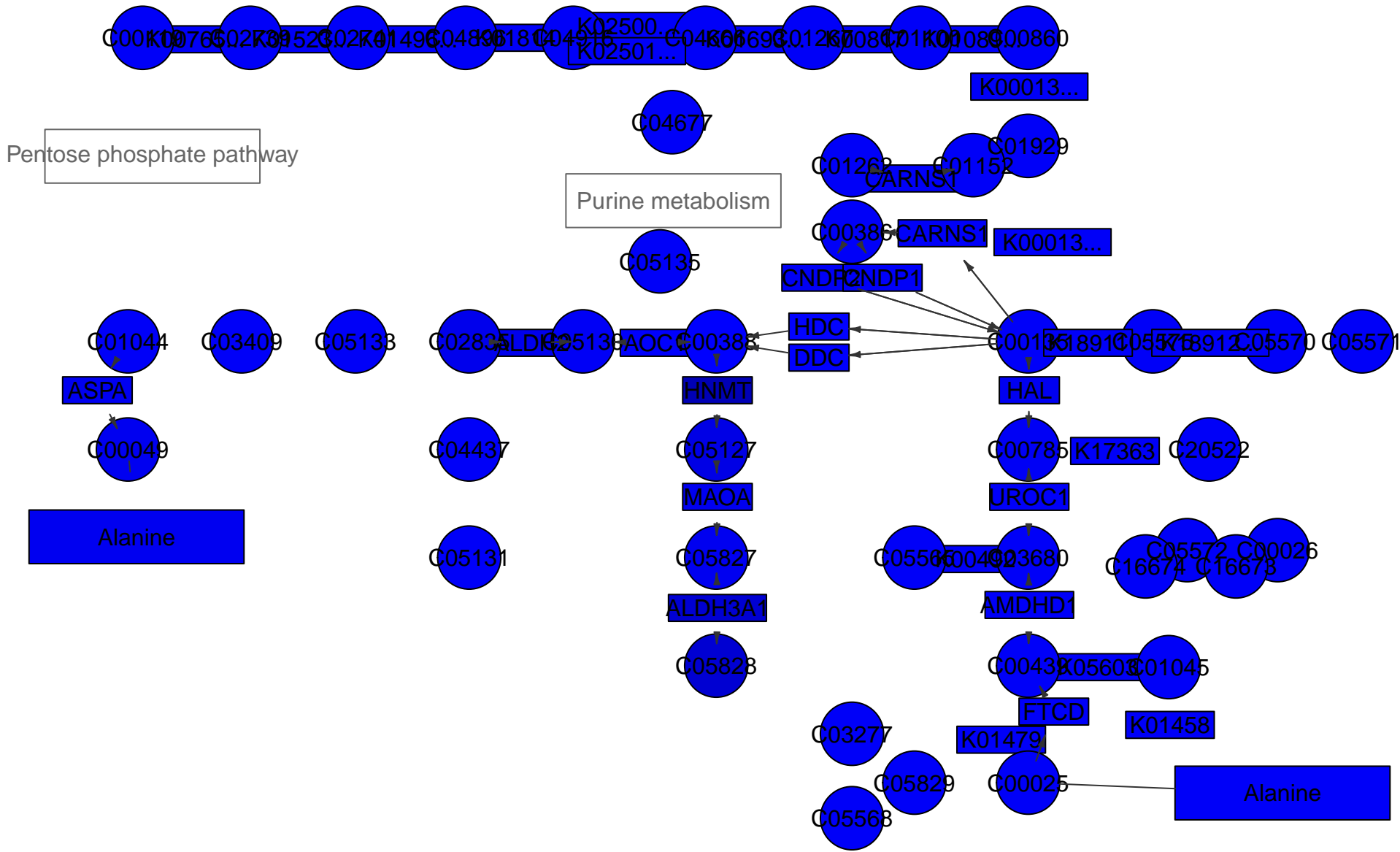




Histidine metabolism  
MPI-215

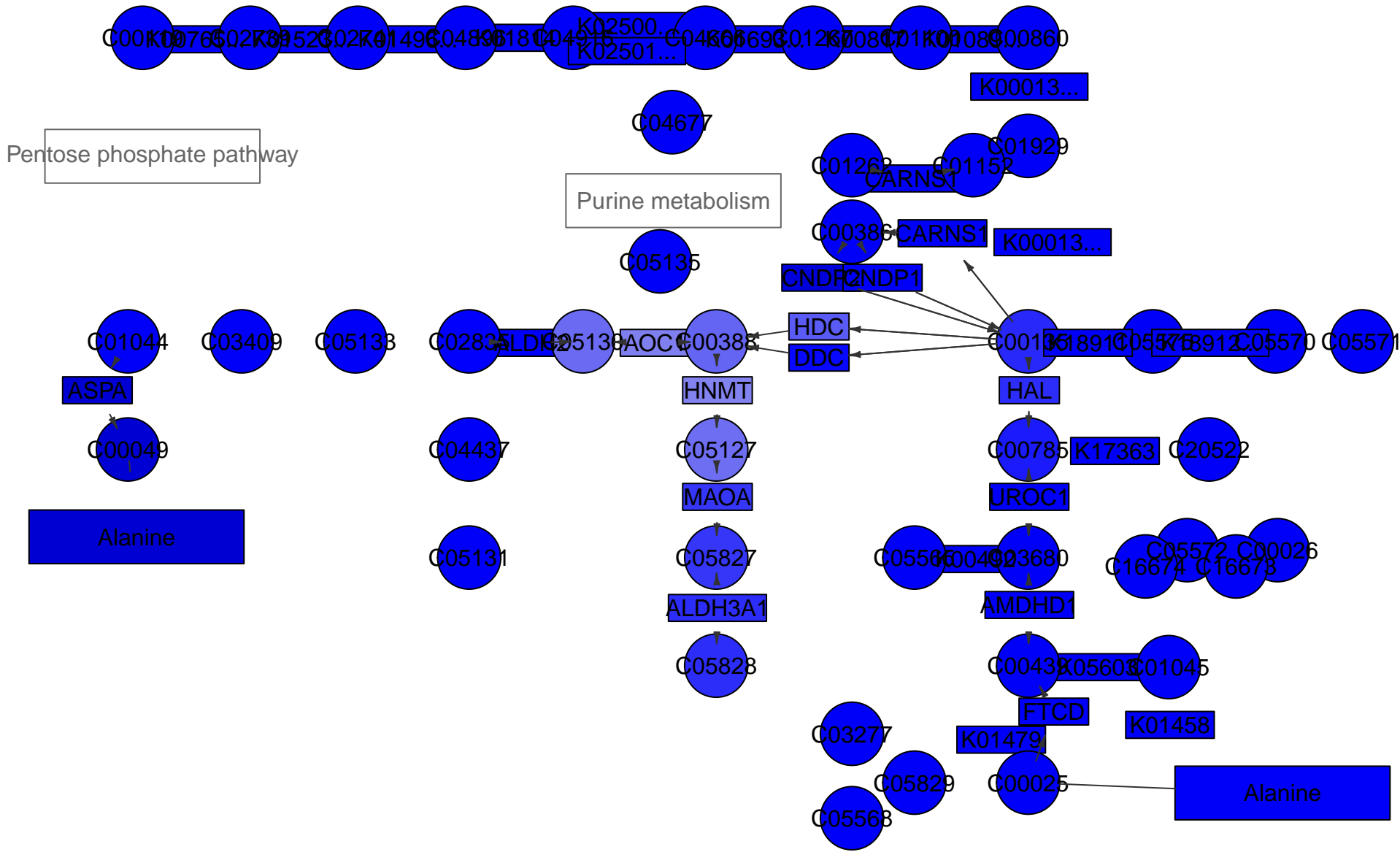


Histidine metabolism  
MPI-219





Histidine metabolism  
MPI-221



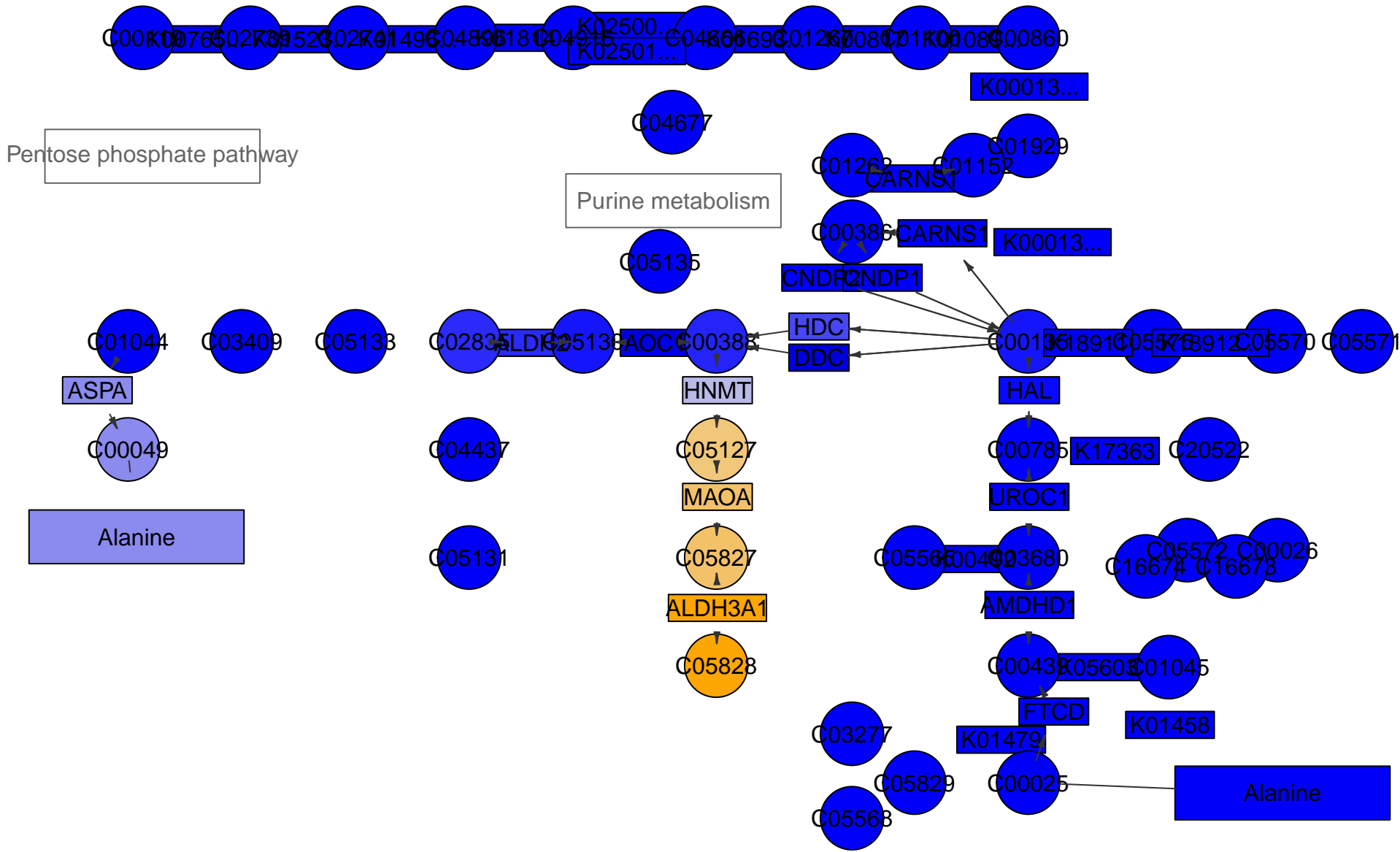
Pentose phosphate pathway

Purine metabolism

Alanine

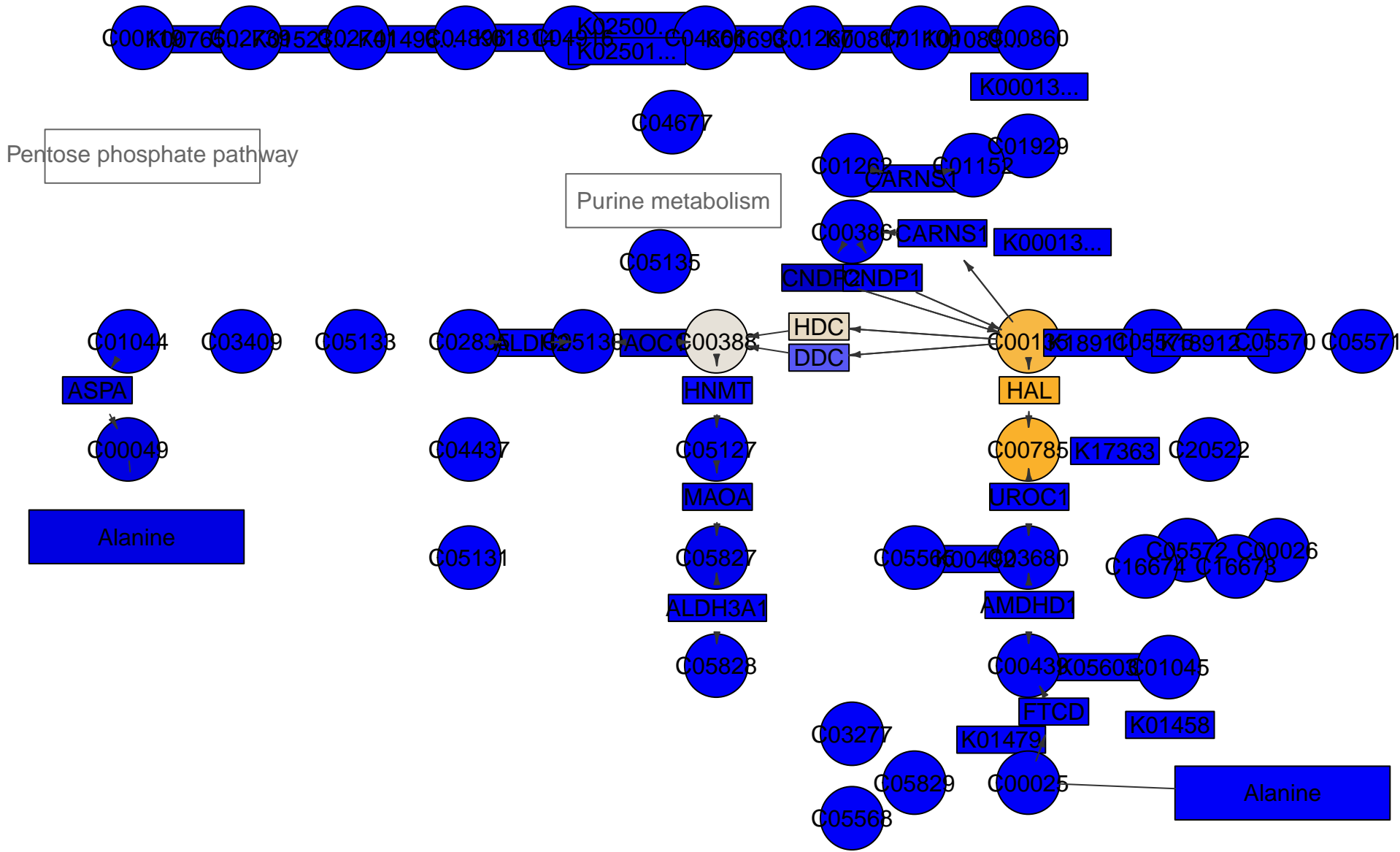
Alanine

Histidine metabolism  
MPI-223a





Histidine metabolism  
MPI-226



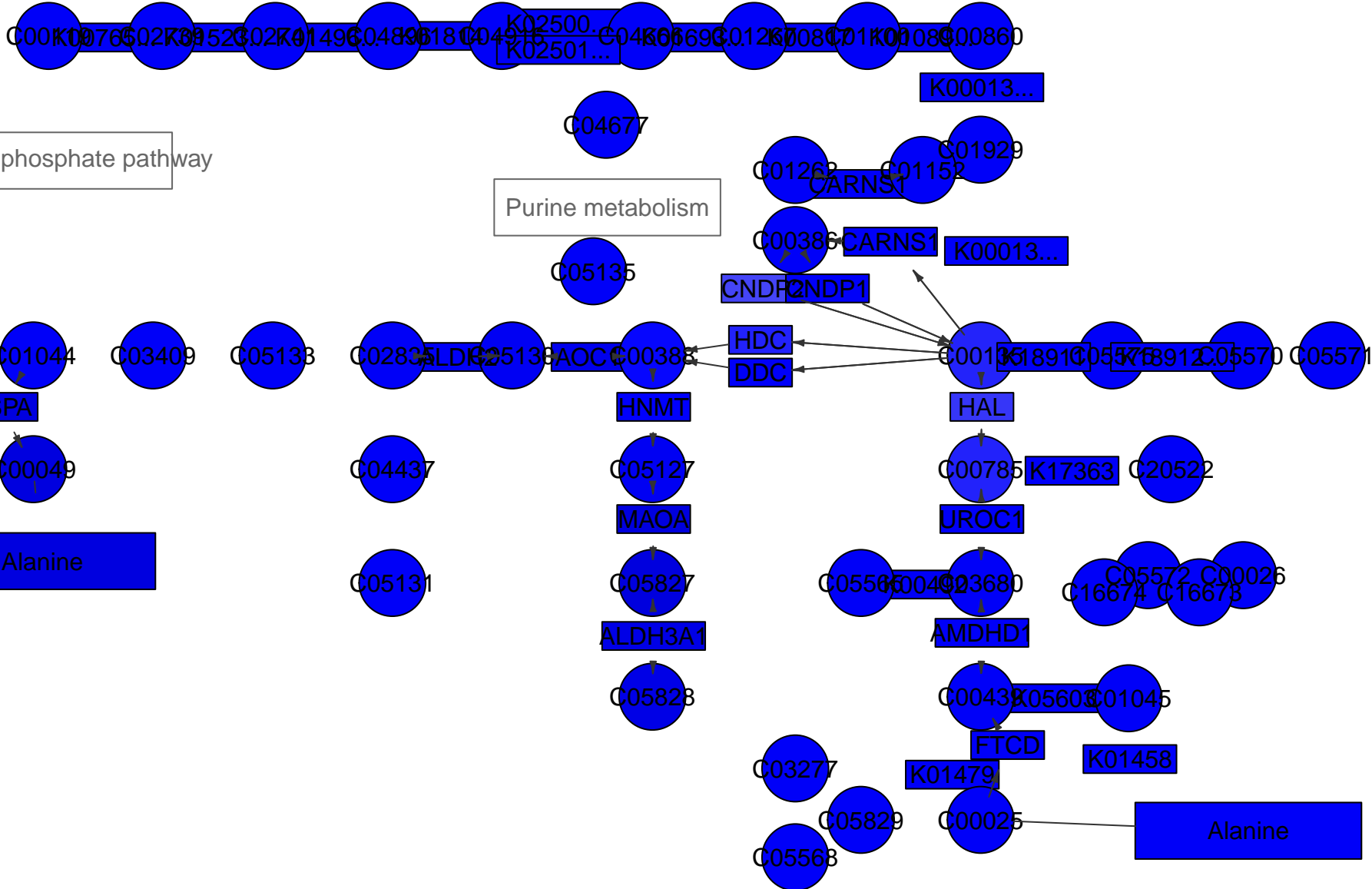
Histidine metabolism  
MPI-227

Pentose phosphate pathway

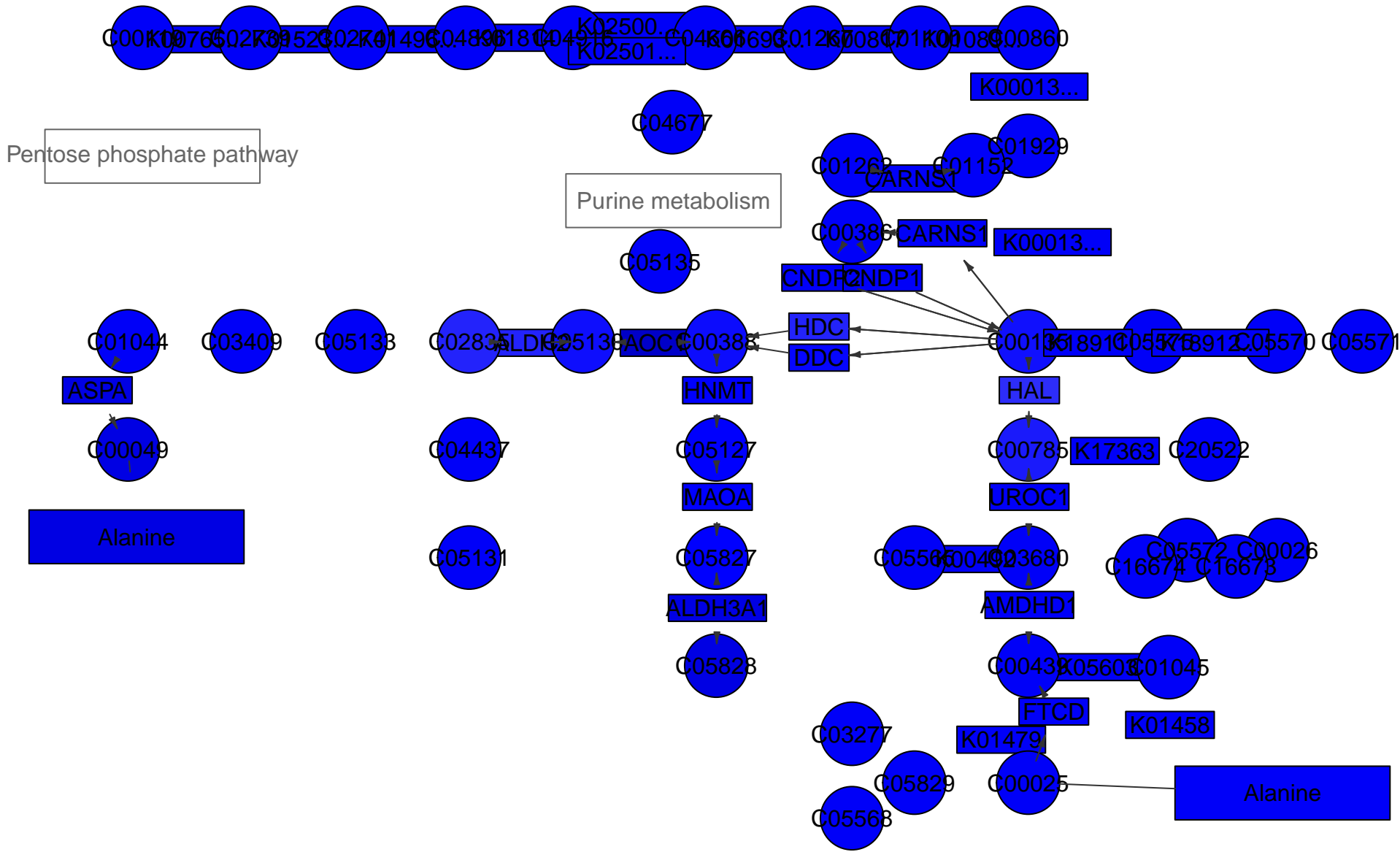
Purine metabolism

Alanine

Alanine

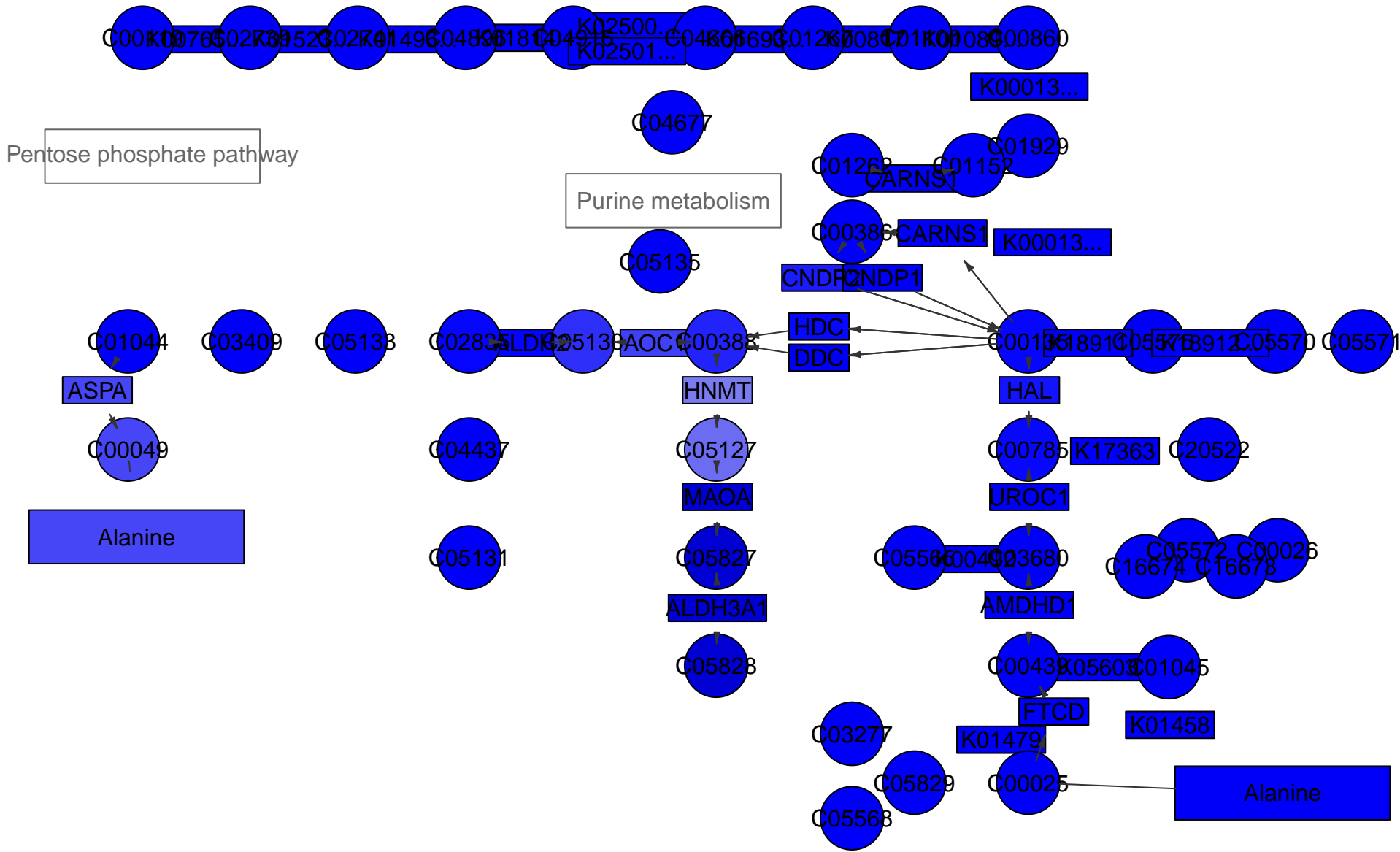


Histidine metabolism  
MPI-228



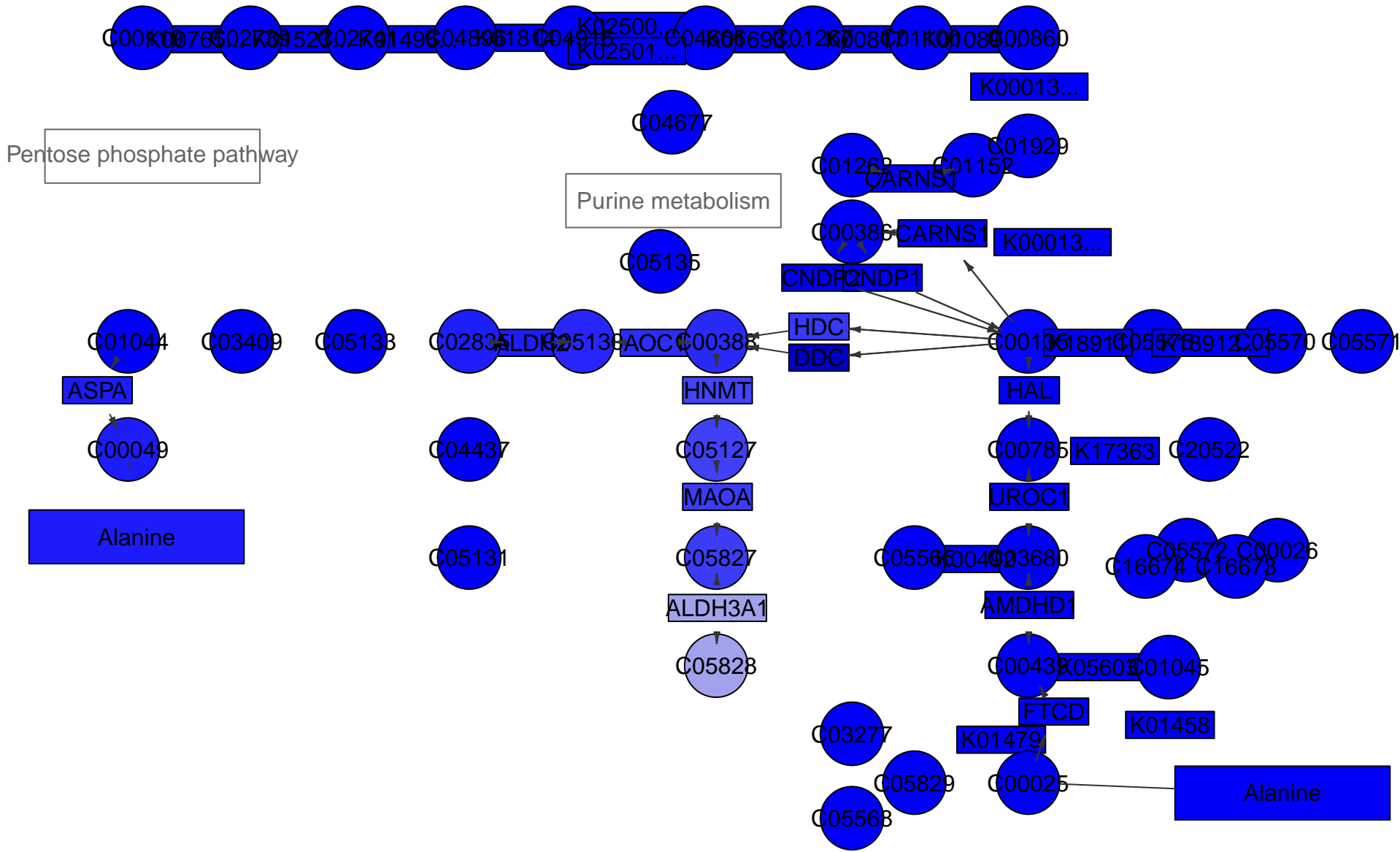


Histidine metabolism  
MPI-230

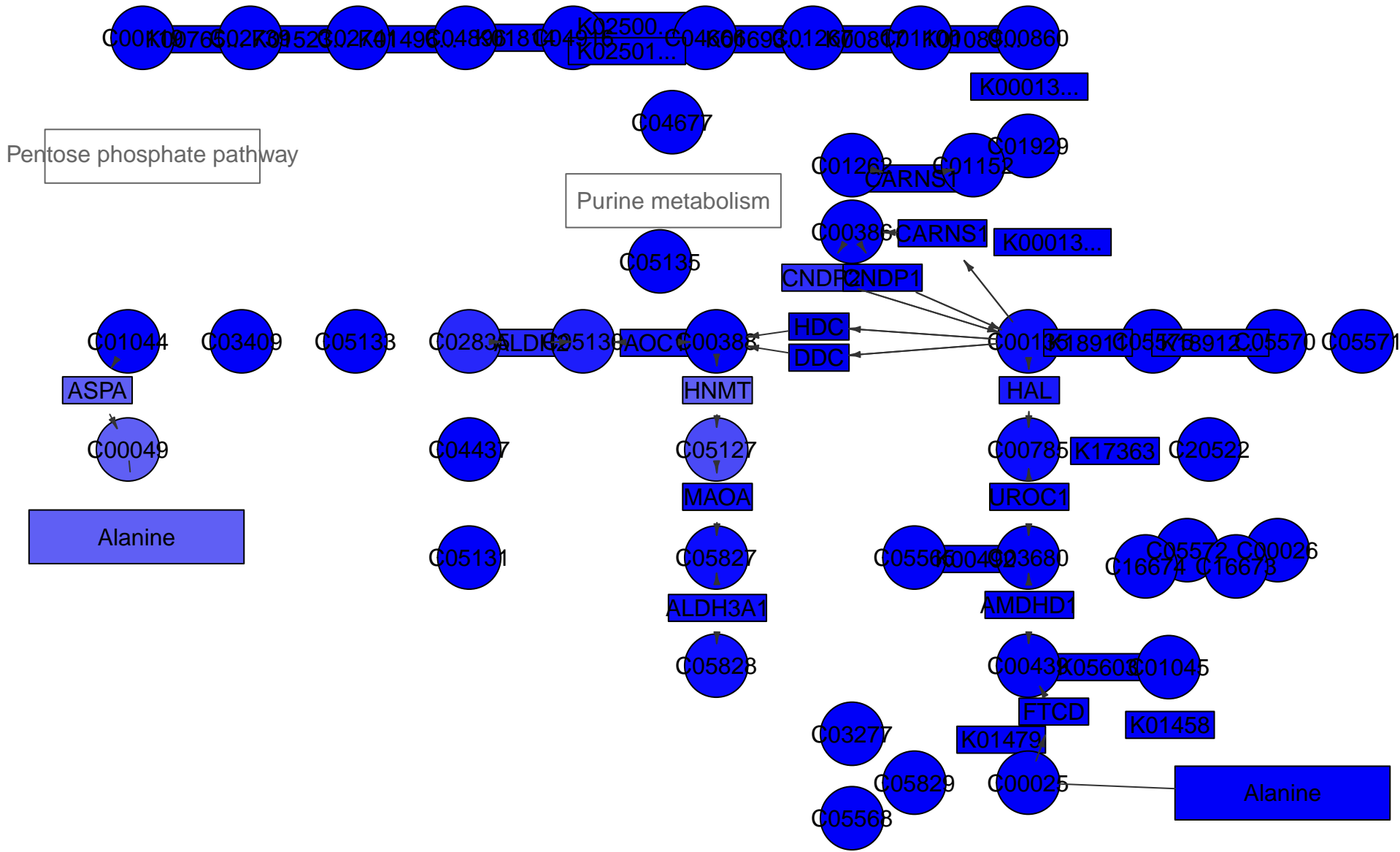




Histidine metabolism  
MPI-231



Histidine metabolism  
MPI-232



Pentose phosphate pathway

Purine metabolism

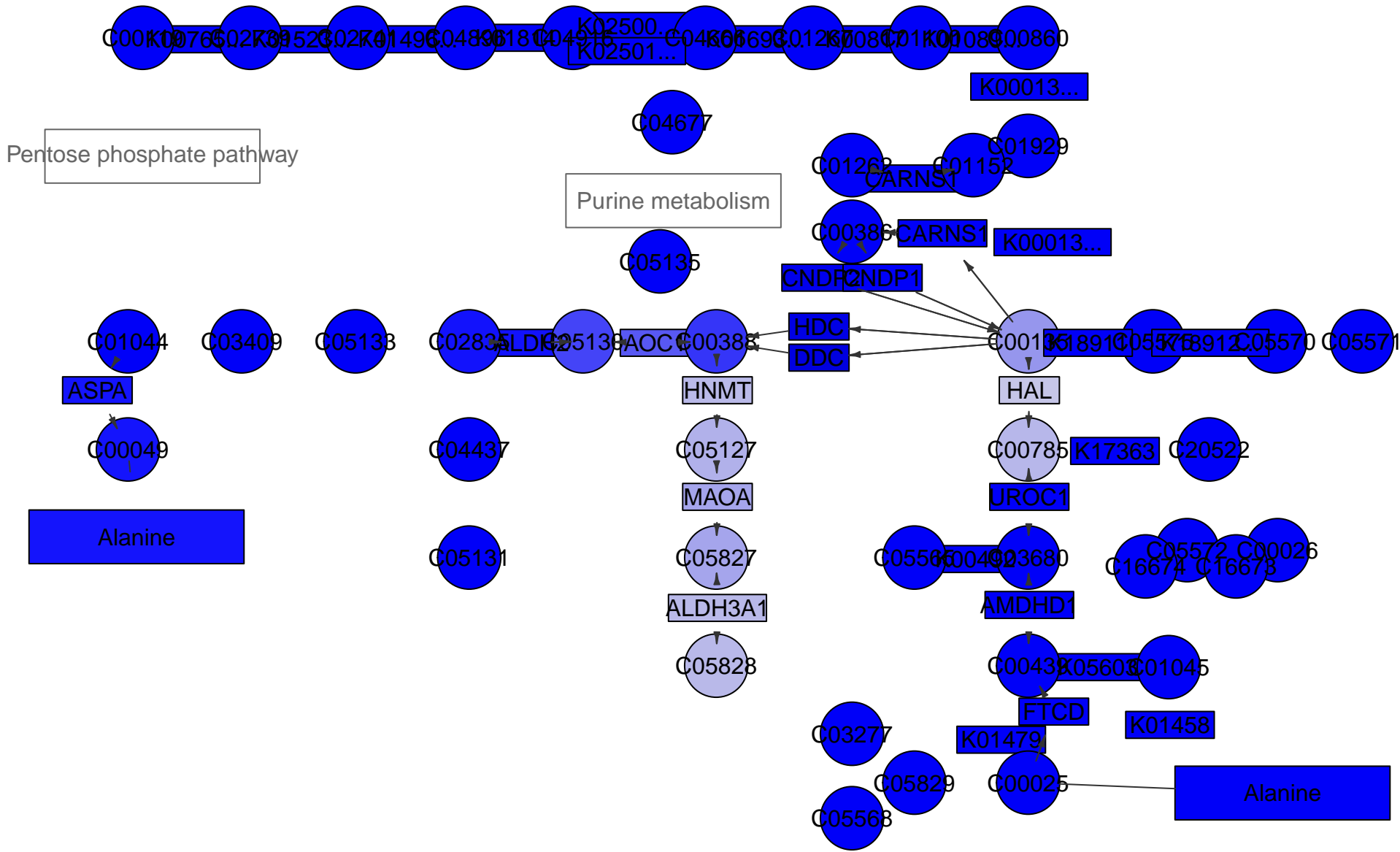
Alanine

Alanine





Histidine metabolism  
MPI-235



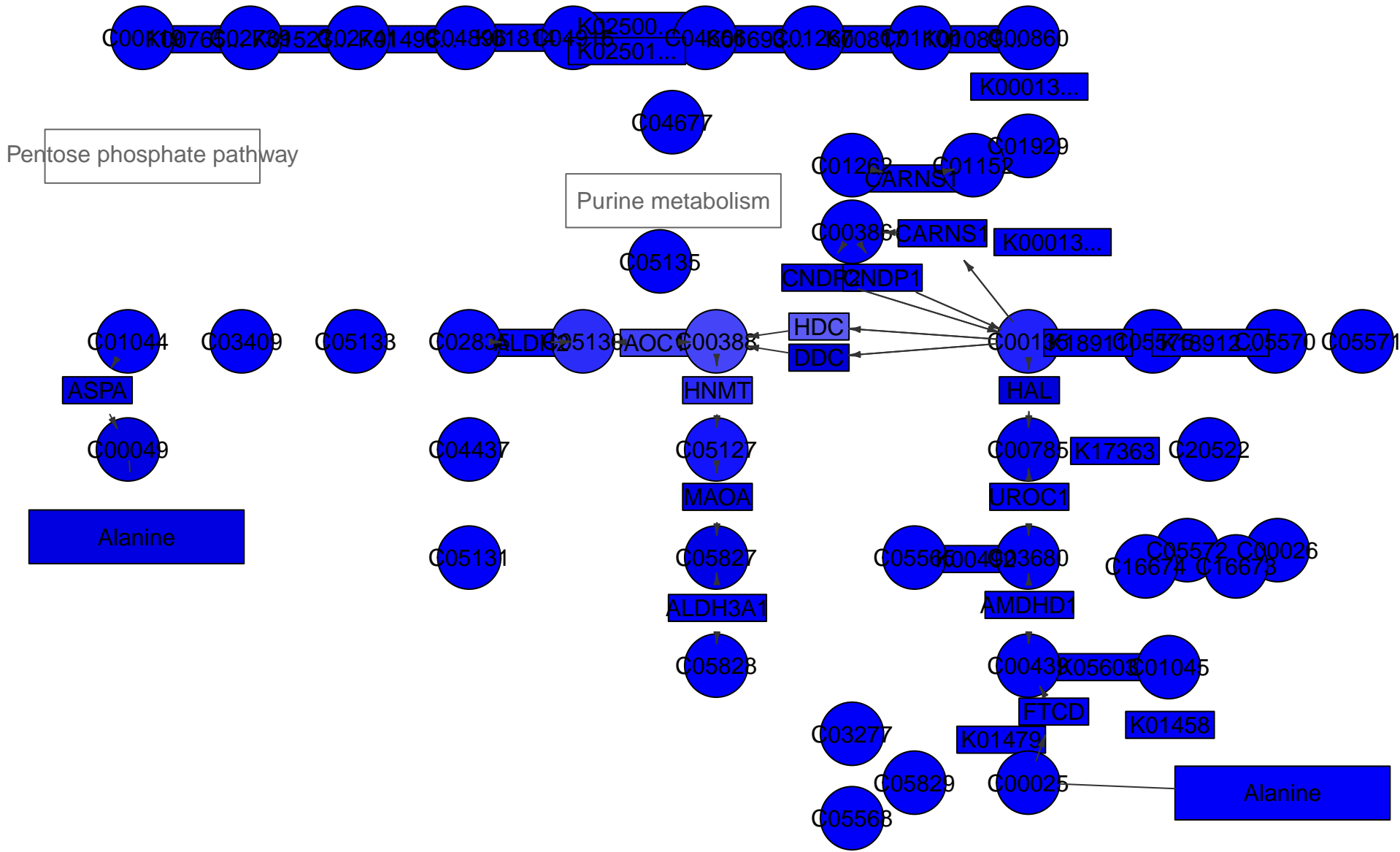
Pentose phosphate pathway

Purine metabolism

Alanine

Alanine

Histidine metabolism  
MPI-236



Pentose phosphate pathway

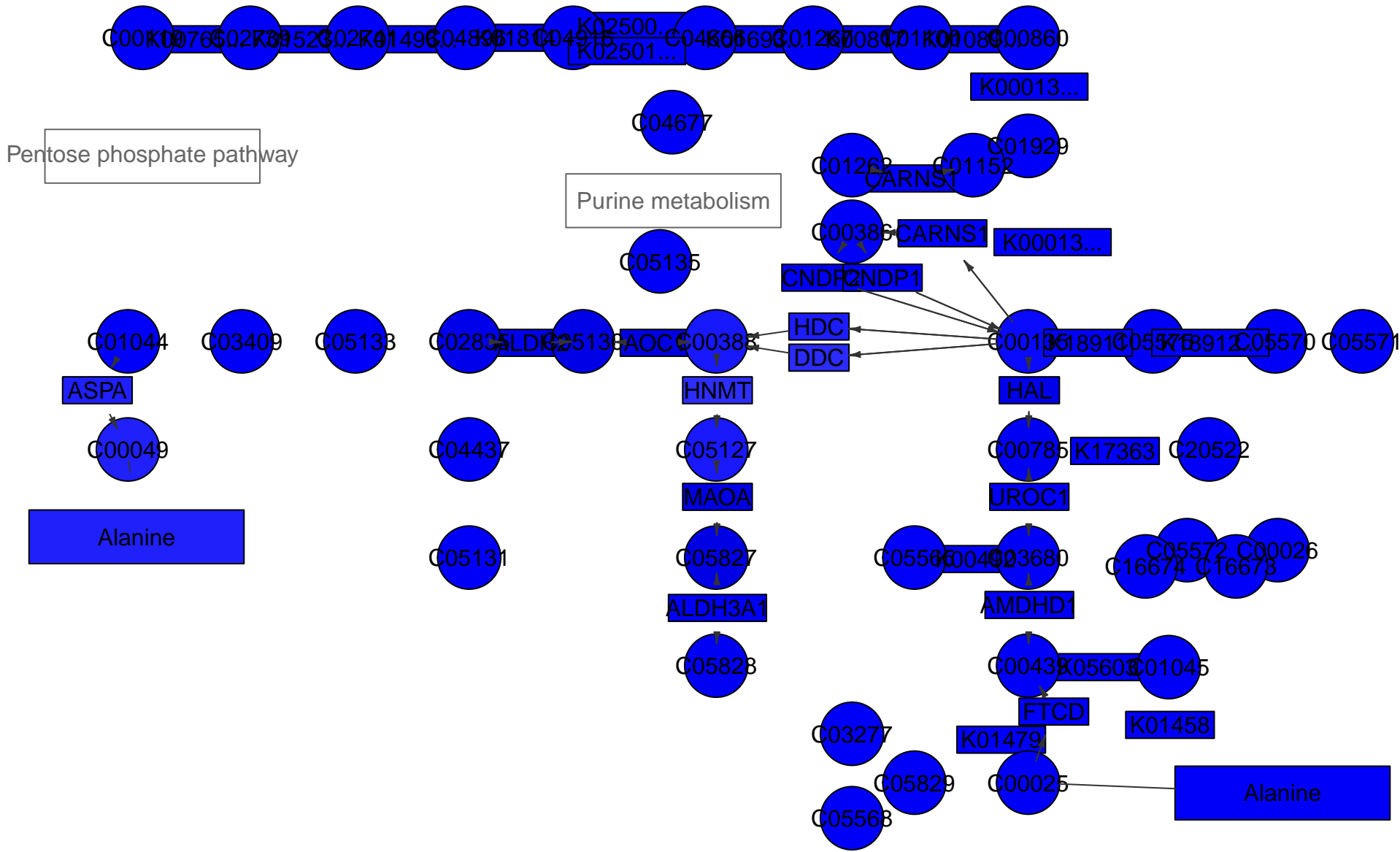
Purine metabolism

Alanine

Alanine

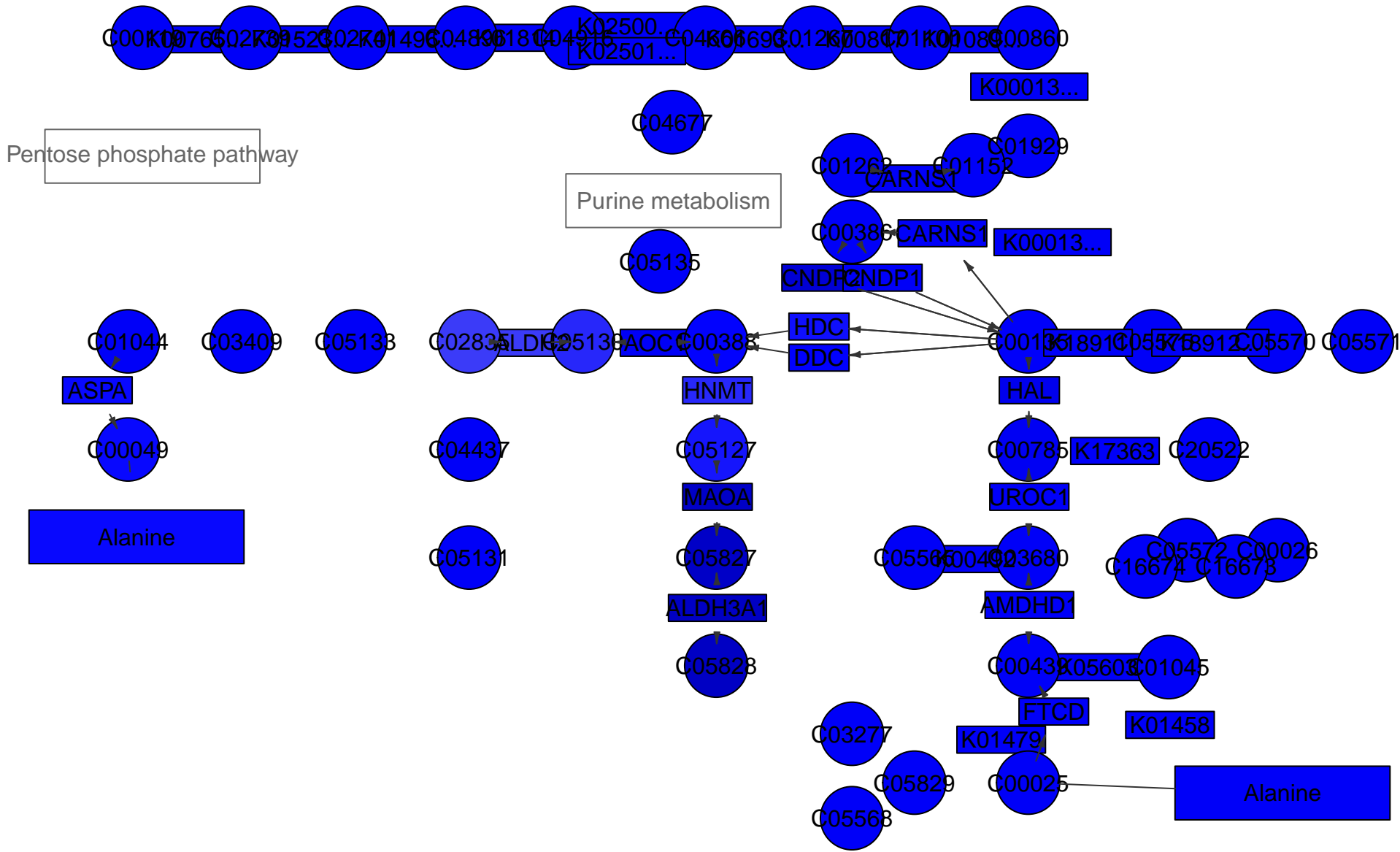


Histidine metabolism  
MPI-239

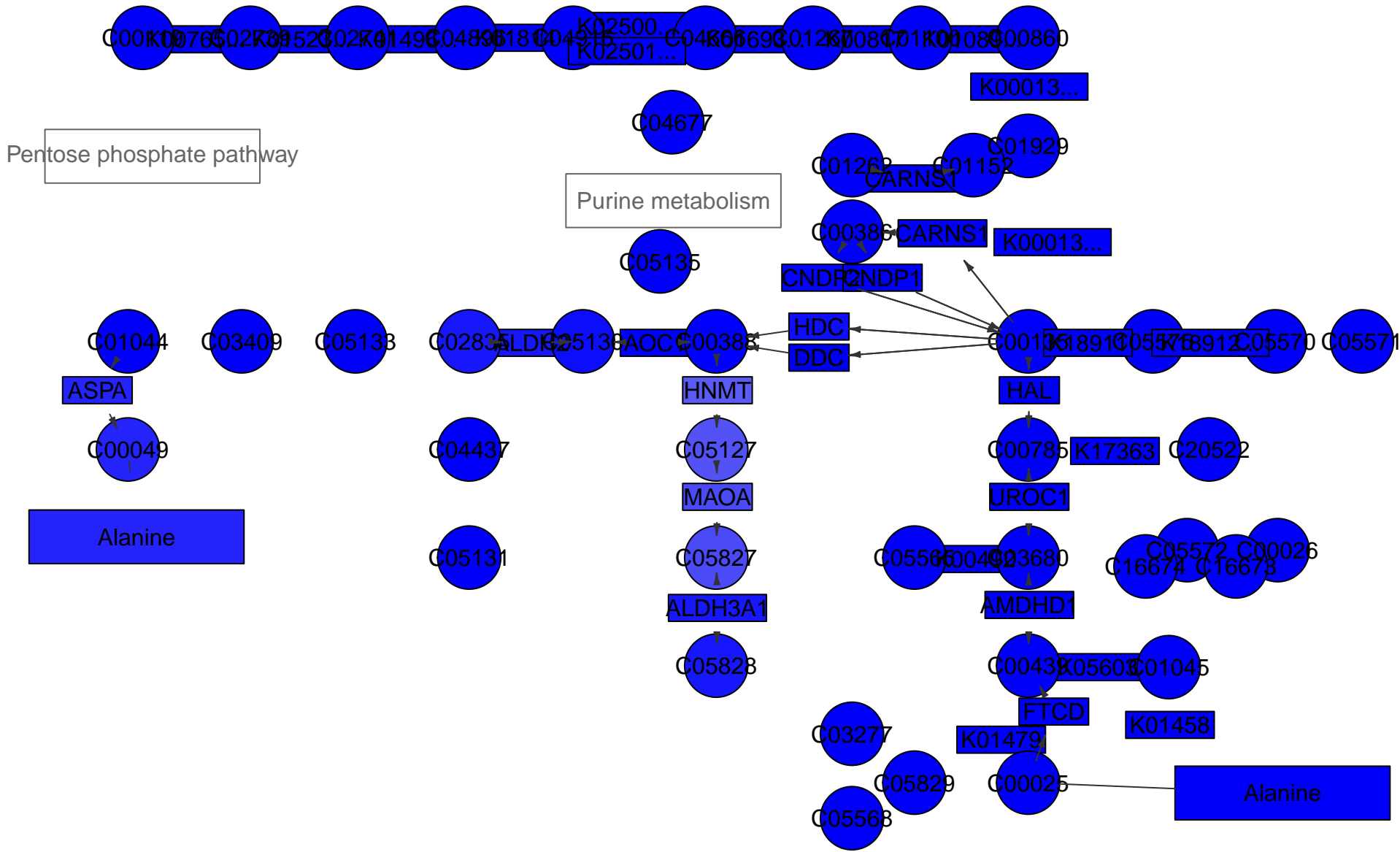




Histidine metabolism  
MPI-241

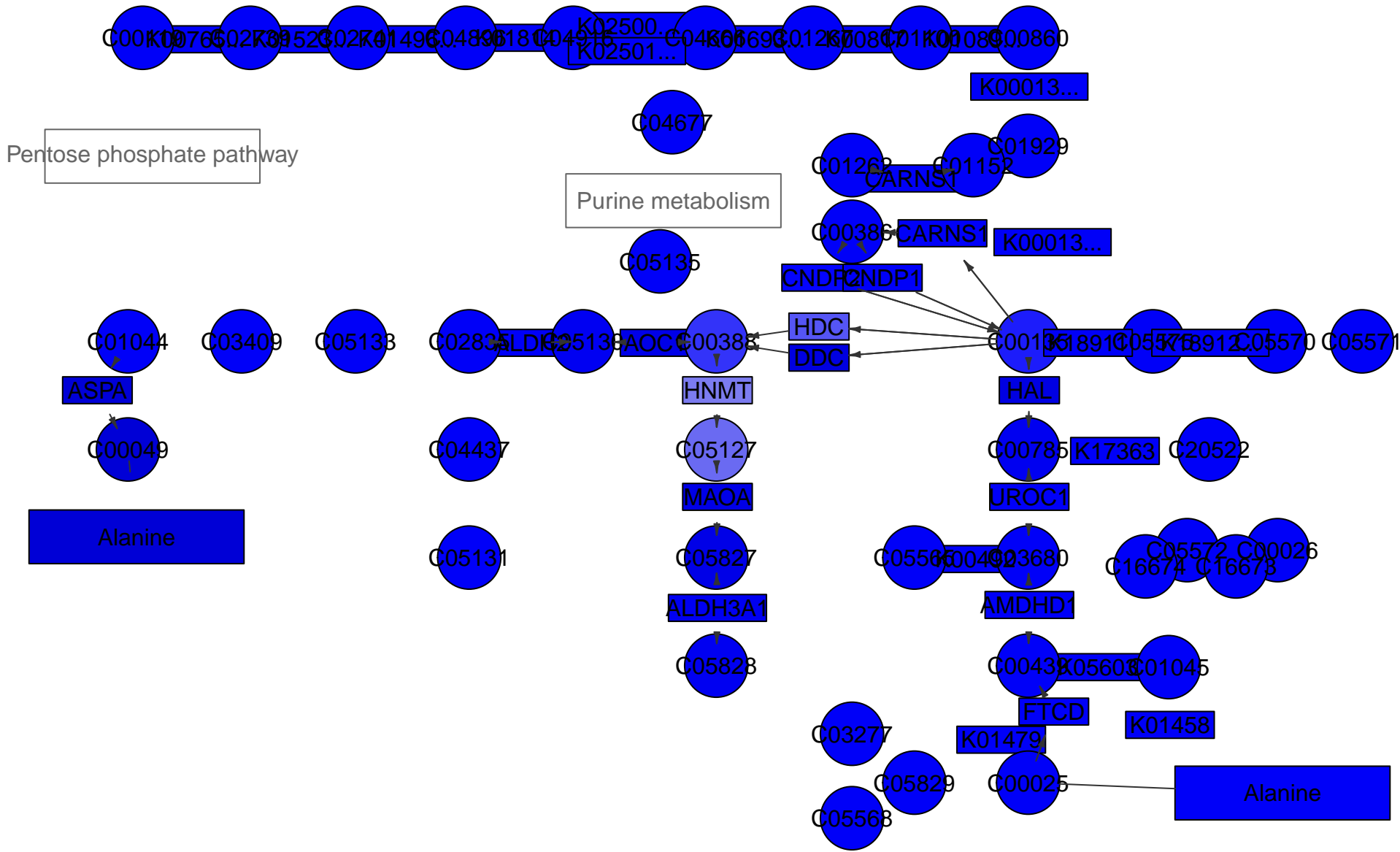


Histidine metabolism  
MPI-243





Histidine metabolism  
MPI-246





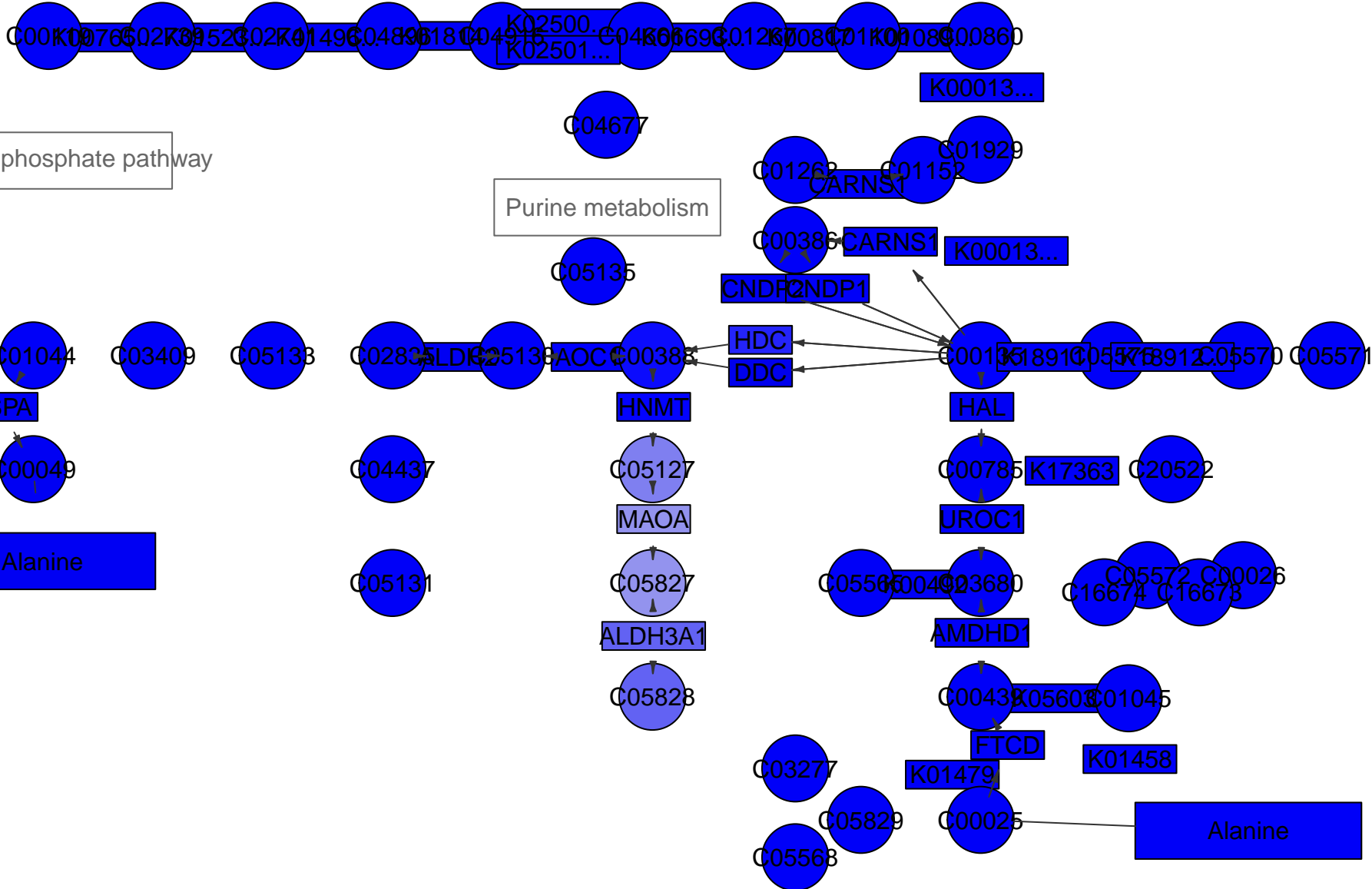
Histidine metabolism  
MPI-251

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



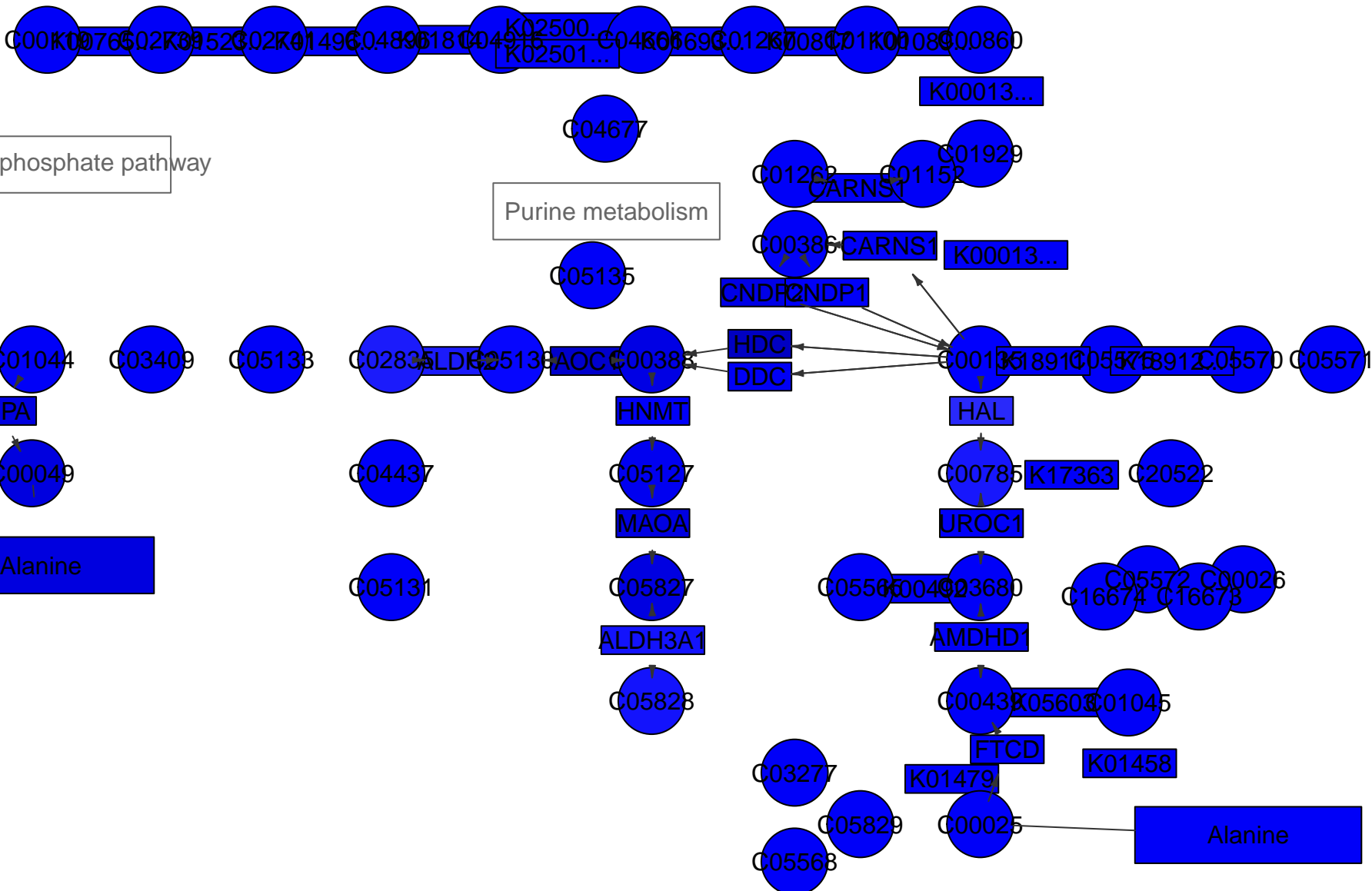
Histidine metabolism  
MPI-255

Pentose phosphate pathway

Purine metabolism

Alanine

Alanine



Histidine metabolism  
MPI-223b

