## Dcm/Dam- containing (I)

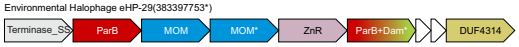
Environmental Halophage eHP-27 (383397704*)

Alphaproteobacteria/Hyphomicrobium sp. MC1(338740373*)

Caudovirales/Streptococcus phage EJ-1(39653711*)

Betaproteobacteria/Burkholderia phymatum STM815(186472258*)

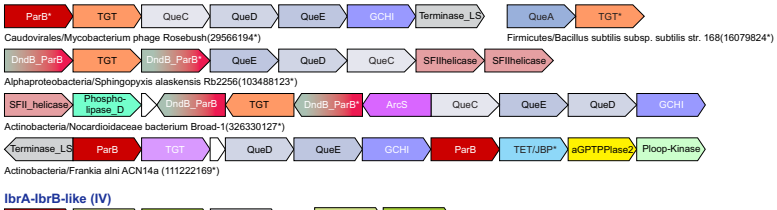
## MOM- containing (II)




Environmental Halophage eHP-29(383397753*)

Firmicutes/Clostridium sp. 7_3_54FAA(355623503*)

## Deazapurine-like DNA-base modification system (III)




Caudovirales/Mycobacterium phage Rosebush(29566194*)

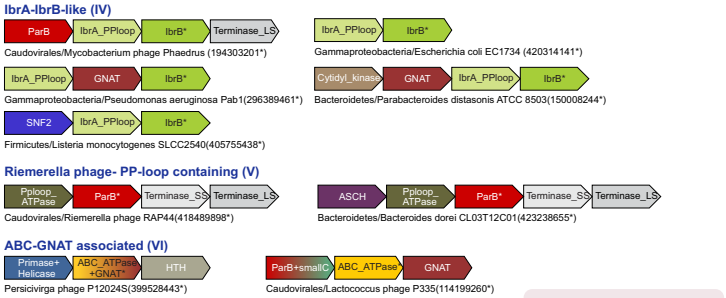
Firmicutes/Bacillus subtilis subsp. subtilis str. 168(16079824*)

Alphaproteobacteria/Sphingopyxis alaskensis Rb2256(103488123*)

Actinobacteria/Nocardioidaceae bacterium Broad-1(326330127*)

Actinobacteria/Frankia alni ACN14a (111222169*)

## IbrA-IbrB-like (IV)




Caudovirales/Mycobacterium phage Phaedrus (194303201*)

Gammaproteobacteria/Escherichia coli EC1734 (420314141*)

Gammaproteobacteria/Pseudomonas aeruginosa Pab1(296389461*)

Bacteroidetes/Parabacteroides distasonis ATCC 8503(150008244*)

Firmicutes/Listeria monocytogenes SLCC2540(405755438*)

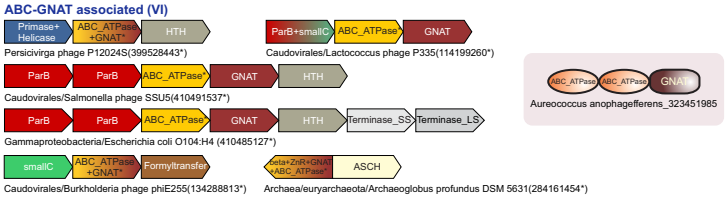
## Riemerella phage- PP-loop containing (V)




Caudovirales/Riemerella phage RAP44(418489898*)

Bacteroidetes/Bacteroides dorei CL03T12C01(423238655*)

## ABC-GNAT associated (VI)




Persicivirga phage P12024S(399528443*)

Caudovirales/Lactococcus phage P335(114199260*)

Caudovirales/Salmonella phage SSU5(410491537*)

Gammaproteobacteria/Escherichia coli O104:H4 (410485127*)

Caudovirales/Burkholderia phage phiE255(134288813*)

Archaea/euryarchaeota/Archaeoglobus profundus DSM 5631(284161454*)



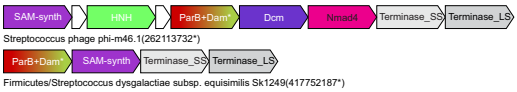

Aureococcus anophagefferens_323451985

## Peptide-ligase associated (VII)

Gammaproteobacteria/Mannheimia haemolytica PHL213(254361055*)

Firmicutes/Desulfotomaculum acetoxidans DSM 771(258517008*)

## SAM-synthetase associated (VIII)




Streptococcus phage phi-m46.1(262113732*)

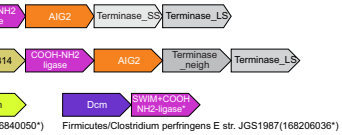
Firmicutes/Streptococcus dysgalactiae subsp. equisimilis Sk1249(417752187*)

## SAM-decarboxylase associated (IX)

Crocaibacter phage P2559S(399528699*)

Bacteroidetes/Bacteroides coprocola DSM 17136(189460517*)

## Amidoligase associated (X)



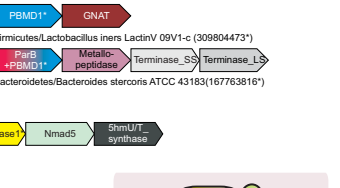

Firmicutes/Ruminococcus torques ATCC 27756(153814252*)

Firmicutes/Clostridium kluyveri DSM 555(153955267*)

Deltaproteobacteria/Desulfovibrio hydrothermalis AM13 = DSM 14728(436840050*)

Firmicutes/Clostridium perfringens E str. JGS1987(168206036*)

## PBMD1 associated (XI)



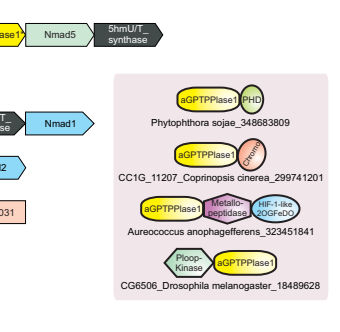

Caudovirales/Streptococcus phage Mm1(26553450*)

Firmicutes/Lactobacillus iners LactinV 09V1-c (309804473*)

Firmicutes/Clostridium perfringens(21306448*)

Bacteroidetes/Bacteroides stercoris ATCC 43183(167763816*)

## aG/T-Phosphorylase biosynthesis related (XII)




Caudovirales/Pseudomonas phage M6(149408284*)

Caudovirales/Bacillus phage Sp10(418489628*)

Caudovirales/Ralstonia phage RSL1(189427011*)

Chlorobi/Chlorobaculum parvum NCIB 8327(193211966*)

Actinobacteria/Mycobacterium marinum M(183980060*)

Caudovirales/Serratia phage phiMAM1(440789279*)

Cyanobacteria/Oscillatoria acuminata PCC 6304 (428215066*)

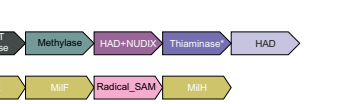
Phytophthora sojae_348683809

CC1G_11207_Coprinopsis cinerea_299741201

Aureococcus anophagefferens_323451841

CG6506_Drosophila melanogaster_18489628

## MazG containing (XIII)




Betaproteobacteria/Burkholderia xenovorans Lb400(91783262*)

Betaproteobacteria/Achromobacter xylosoxidans A8(311109515*)

Caudovirales/Dickeya phage Limestone (448260061*)

## Nmad2 operon (XIV)




Deferribacteres/Deferribacter desulfuricans SSM1(291279281*)

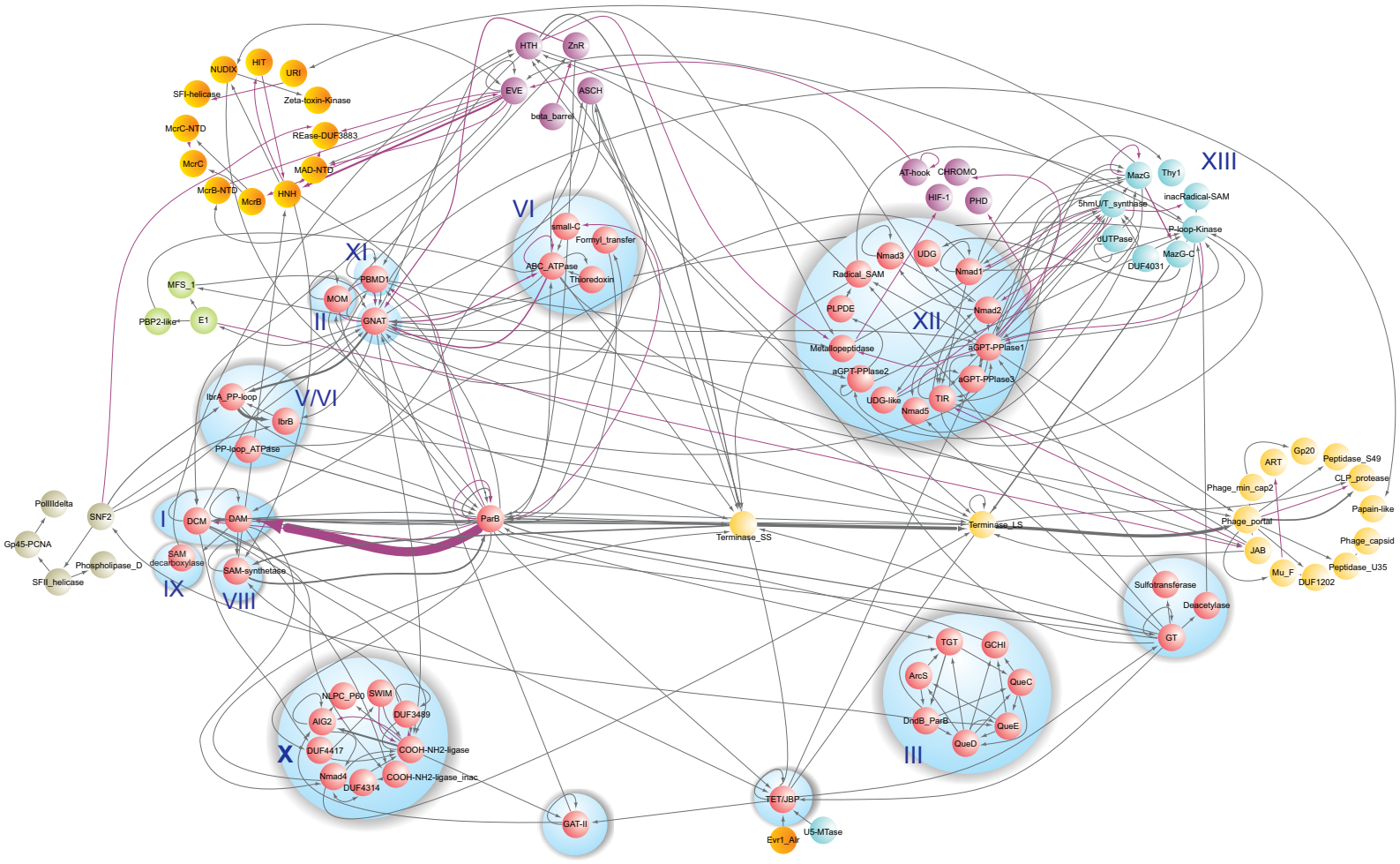
Gammaproteobacteria/Cellvibrio sp. BR (388259618*)

## Thiamin biosynthesis (XV)




Firmicutes/Paenibacillus dendritiformis C454(374601497*)




Actinobacteria/Streptomyces rimofaciens(167996982*)