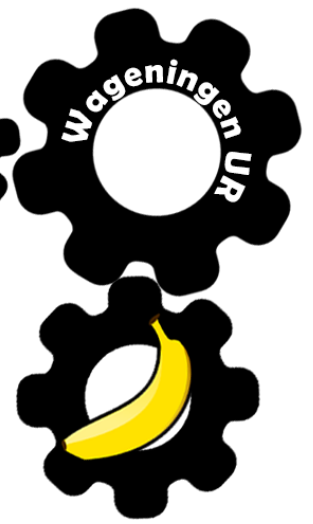


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Metabolic Modeling Pathways

NGAM_Formula

$H_2O + ATP \rightarrow ADP + \text{Orthophosphate} + H^+$

TetR_Protein_Formula

16 L-Glutamyl-tRNA(Glu) + 2 L-Tryptophanyl-tRNA(Trp) + 34 L-Leucyl-tRNA(Leu) + 40 H₂O + 10 L-Isoleucyl-tRNA(Ile) + 14 L-Aspartyl-tRNA(Asp) + 7 L-Histidyl-tRNA(His) + 9 L-Valyl-tRNA(Val) + 8 L-Phenylalanyl-tRNA(Phe) + 16 L-Arginyl-tRNA(Arg) + 7 L-Asparaginyl-tRNA(Asn) + 11 L-Glutaminyl-tRNA(Gln) + 23 L-Alanyl-tRNA(Ala) + 14 Glycyl-tRNA(Gly) + 7 L-Methionyl-tRNA (Met) + 4 L-Lysyl-tRNA (Lys) + 12 L-Threonyl-tRNA(Thr) + 8 L-Prolyl-tRNA(Pro) + 5 L-Tyrosyl-tRNA(Tyr) + 10 L-Seryl-tRNA(Ser) + L-Cysteinyl-tRNA(Cys) + 40 GTP \rightarrow 16 tRNA(Arg) + 40 GDP + 7 tRNA(His) + 7 tRNA(Met) + 9 tRNA(Val) + 4 tRNA(Lys) + 8 tRNA(Pro) + 23 tRNA(Ala) + 10 tRNA(Ser) + 7 tRNA(Asn) + 10 tRNA(Ile) + 34 tRNA(Leu) + 14 tRNA(Gly) + 50 Orthophosphate + 5 tRNA(Tyr) + 8 tRNA(Phe) + 12 tRNA(Thr) + 11 tRNA (Gln) + tRNA(Cys) + 2 tRNA(Trp) + 16 tRNA (Glu) + 14 tRNA(Asp) + TetR

LacI_Protein_Formula

15 L-Glutamyl-tRNA(Glu) + 2 L-Tryptophanyl-tRNA(Trp) + 41 L-Leucyl-tRNA(Leu) + 40 H₂O + 18 L-Isoleucyl-tRNA(Ile) + 17 L-Aspartyl-tRNA(Asp) + 7 L-Histidyl-tRNA(His) + 34 L-Valyl-tRNA(Val) + 4 L-Phenylalanyl-tRNA(Phe) + 19 L-Arginyl-tRNA(Arg) + 12 L-Asparaginyl-tRNA(Asn) + 28 L-Glutaminyl-tRNA(Gln) + 44 L-Alanyl-tRNA(Ala) + 22 Glycyl-tRNA(Gly) + 11 L-Methionyl-tRNA (Met) + 10 L-Lysyl-tRNA (Lys) + 19 L-Threonyl-tRNA(Thr) + 14 L-Prolyl-tRNA(Pro) + 8 L-Tyrosyl-tRNA(Tyr) + 32 L-Seryl-tRNA(Ser) + 3 L-Cysteinyl-tRNA(Cys) + 40 GTP \rightarrow 19 tRNA(Arg) + 40 GDP + 7 tRNA(His) + 11 tRNA(Met) + 34 tRNA(Val) + 10 tRNA(Lys) + 14 tRNA(Pro) + 44 tRNA(Ala) + 32 tRNA(Ser) + 12 tRNA(Asn) + 18 tRNA(Ile) + 41 tRNA(Leu) + 22 tRNA(Gly) + 50 Orthophosphate + 8 tRNA(Tyr) + 4 tRNA(Phe) + 19 tRNA(Thr) + 28 tRNA (Gln) + 3 tRNA(Cys) + 2 tRNA(Trp) + 15 tRNA (Glu) + 17 tRNA(Asp) + LacI

LambdaCI_Protein_Formula

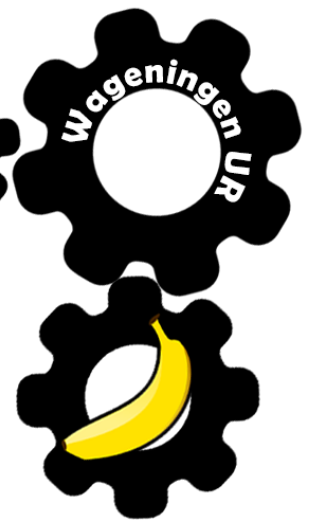
22 L-Glutamyl-tRNA(Glu) + 3 L-Tryptophanyl-tRNA(Trp) + 19 L-Leucyl-tRNA(Leu) + 40 H₂O + 10 L-Isoleucyl-tRNA(Ile) + 9 L-Aspartyl-tRNA(Asp) + L-Histidyl-tRNA(His) + 15 L-Valyl-tRNA(Val) + 12 L-Phenylalanyl-tRNA(Phe) + 8 L-Arginyl-tRNA(Arg) + 8 L-Asparaginyl-tRNA(Asn) + 11 L-Glutaminyl-tRNA(Gln) + 19 L-Alanyl-tRNA(Ala) + 17 Glycyl-tRNA(Gly) + 17 L-Methionyl-tRNA (Met) + 9 L-Lysyl-tRNA (Lys) + 10 L-Threonyl-tRNA(Thr) + 15 L-Prolyl-tRNA(Pro) + 7 L-Tyrosyl-tRNA(Tyr) + 22 L-Seryl-tRNA(Ser) + 3 L-Cysteinyl-tRNA(Cys) + 40 GTP \rightarrow 8 tRNA(Arg) + 40 GDP + tRNA(His) + 17 tRNA(Met) + 15 tRNA(Val) + 9 tRNA(Lys) + 15 tRNA(Pro) + 19 tRNA(Ala) + 22 tRNA(Ser) + 8 tRNA(Asn) + 10 tRNA(Ile) + 19 tRNA(Leu) + 17 tRNA(Gly) + 50 Orthophosphate + 7 tRNA(Tyr) + 12 tRNA(Phe) + 10 tRNA(Thr) + 11 tRNA (Gln) + 3 tRNA(Cys) + 3 tRNA(Trp) + 22 tRNA (Glu) + 9 tRNA(Asp) + LambdaCI



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Fainhibitor_Protein_Formula

19 L-Glutamyl-tRNA(Glu) + 2 L-Tryptophanyl-tRNA(Trp) + 35 L-Leucyl-tRNA(Leu) + 40 H₂O + 16 L-Isoleucyl-tRNA(Ile) + 16 L-Aspartyl-tRNA(Asp) + 10 L-Histidyl-tRNA(His) + 25 L-Valyl-tRNA(Val) + 7 L-Phenylalanyl-tRNA(Phe) + 20 L-Arginyl-tRNA(Arg) + 10 L-Asparaginyl-tRNA(Asn) + 13 L-Glutaminyl-tRNA(Gln) + 37 L-Alanyl-tRNA(Ala) + 16 Glycyl-tRNA(Gly) + 9 L-Methionyl-tRNA (Met) + 10 L-Lysyl-tRNA (Lys) + 21 L-Threonyl-tRNA(Thr) + 14 L-Prolyl-tRNA(Pro) + 12 L-Tyrosyl-tRNA(Tyr) + 19 L-Seryl-tRNA(Ser) + 4 L-Cysteiny-tRNA(Cys) + 40 GTP -> 20 tRNA(Arg) + 40 GDP + 10 tRNA(His) + 9 tRNA(Met) + 25 tRNA(Val) + 10 tRNA(Lys) + 14 tRNA(Pro) + 37 tRNA(Ala) + 19 tRNA(Ser) + 10 tRNA(Asn) + 16 tRNA(Ile) + 35 tRNA(Leu) + 16 tRNA(Gly) + 50 Orthophosphate + 12 tRNA(Tyr) + 7 tRNA(Phe) + 21 tRNA(Thr) + 13 tRNA (Gln) + 4 tRNA(Cys) + 2 tRNA(Trp) + 19 tRNA (Glu) + 16 tRNA(Asp) + Fainhib

Pyoverdine_Pathway

Oxygen + 2 L-Aspartate <=> 2 L-OHAsp

2 L-Ornithine + Oxygen <=> 2 L-OHOrn

Oxygen + 2 Chromophore <=> 8 H₂O + 2 L-2,4-Diaminobutanoate + 2 L-Tyrosine + 2 Succinate + 2 H⁺

L-Ornithine + L-Aspartate + Chromophore <=> 2 H₂O + Subpyoverdine1

L-2,4-Diaminobutanoate + L-OHAsp + Subpyoverdine1 <=> 3 H₂O + Subpyoverdine2

Glycine + L-Serine + Subpyoverdine2 <=> 2 H₂O + Subpyoverdine3

L-OHOrn + Subpyoverdine3 <=> 2 H₂O + Pyoverdine

Pyocin_Protein_Formula

11 L-Glutamyl-tRNA(Glu) + 2 L-Tryptophanyl-tRNA(Trp) + 24 L-Leucyl-tRNA(Leu) + 40 H₂O + 9 L-Isoleucyl-tRNA(Ile) + 8 L-Aspartyl-tRNA(Asp) + 2 L-Histidyl-tRNA(His) + 7 L-Valyl-tRNA(Val) + 5 L-Phenylalanyl-tRNA(Phe) + 13 L-Arginyl-tRNA(Arg) + 9 L-Asparaginyl-tRNA(Asn) + 11 L-Glutaminyl-tRNA(Gln) + 18 L-Alanyl-tRNA(Ala) + 22 Glycyl-tRNA(Gly) + 9 L-Methionyl-tRNA (Met) + 4 L-Lysyl-tRNA (Lys) + 7 L-Threonyl-tRNA(Thr) + 5 L-Prolyl-tRNA(Pro) + 8 L-Tyrosyl-tRNA(Tyr) + 8 L-Seryl-tRNA(Ser) + L-Cysteiny-tRNA(Cys) + 40 GTP -> 13 tRNA(Arg) + 40 GDP + 2 tRNA(His) + 9 tRNA(Met) + 7 tRNA(Val) + 4 tRNA(Lys) + 5 tRNA(Pro) + 18 tRNA(Ala) + 8 tRNA(Ser) + 9 tRNA(Asn) + 9 tRNA(Ile) + 24 tRNA(Leu) + 22 tRNA(Gly) + 50 Orthophosphate + 8 tRNA(Tyr) + 5 tRNA(Phe) + 7 tRNA(Thr) + 11 tRNA (Gln) + tRNA(Cys) + 2 tRNA(Trp) + 11 tRNA (Glu) + 8 tRNA(Asp) + Pyocin

DAPG_Pathway

3 Malonyl-CoA + H⁺ -> 2 CO₂ + 3 CoA + 3,5-Diketoheptanedioate

3,5-Diketoheptanedioate -> CO₂ + H⁺ + Phloroglucinol

Acetyl-CoA + Phloroglucinol <=> CoA + MAPG

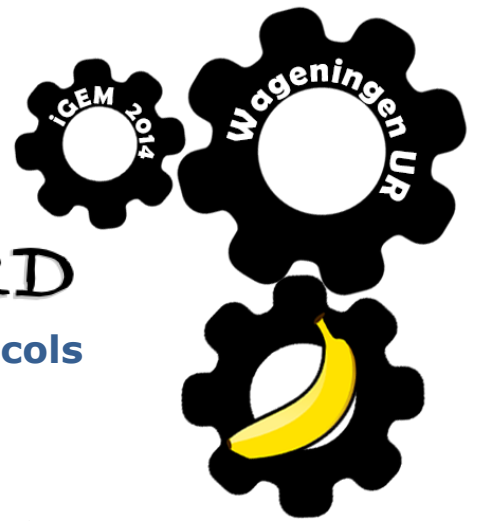
Acetyl-CoA + MAPG <=> CoA + DAPG



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DMDS_DMTS_Pathway

L-Methionine \rightleftharpoons NH₄⁺ + Methanethiol + 2-Oxobutanoate

Hydrogen sulfide + 8 Methanethiol + 10 NAD⁺ \rightarrow 10 NADH + 3 DMDS + DMTS

TAT_Epsilon_Protein_Formula

10 L-Glutamyl-tRNA(Glu) + 2 L-Tryptophanyl-tRNA(Trp) + 14 L-Leucyl-tRNA(Leu) + 34 H₂O + 3 L-Isoleucyl-tRNA(Ile) + 2 L-Aspartyl-tRNA(Asp) + 2 L-Histidyl-tRNA(His) + 7 L-Valyl-tRNA(Val) + 2 L-Phenylalanyl-tRNA(Phe) + 4 L-Arginyl-tRNA(Arg) + 11 L-Asparaginyl-tRNA(Asn) + 4 L-Glutaminyl-tRNA(Gln) + 5 L-Alanyl-tRNA(Ala) + 7 L-Methionyl-tRNA (Met) + 2 L-Lysyl-tRNA (Lys) + 2 L-Threonyl-tRNA(Thr) + 8 L-Tyrosyl-tRNA(Tyr) + 6 L-Seryl-tRNA(Ser) + 34 GTP \rightarrow 4 tRNA(Arg) + 34 GDP + 2 tRNA(His) + 7 tRNA(Met) + 7 tRNA(Val) + 2 tRNA(Lys) + 5 tRNA(Ala) + 6 tRNA(Ser) + 11 tRNA(Asn) + 3 tRNA(Ile) + 14 tRNA(Leu) + 42.5 Orthophosphate + 8 tRNA(Tyr) + 2 tRNA(Phe) + 2 tRNA(Thr) + 4 tRNA (Gln) + 2 tRNA(Trp) + 10 tRNA (Glu) + 2 tRNA(Asp) + Epsilon

TAT_Zeta_Protein_Formula

25 L-Glutamyl-tRNA(Glu) + 26 L-Leucyl-tRNA(Leu) + 36 H₂O + 19 L-Isoleucyl-tRNA(Ile) + 12 L-Aspartyl-tRNA(Asp) + 5 L-Histidyl-tRNA(His) + 7 L-Valyl-tRNA(Val) + 8 L-Phenylalanyl-tRNA(Phe) + 11 L-Arginyl-tRNA(Arg) + 16 L-Asparaginyl-tRNA(Asn) + 16 L-Glutaminyl-tRNA(Gln) + 13 L-Alanyl-tRNA(Ala) + 15 Glycyl-tRNA(Gly) + 25 L-Methionyl-tRNA (Met) + 8 L-Lysyl-tRNA (Lys) + 26 L-Threonyl-tRNA(Thr) + 20 L-Prolyl-tRNA(Pro) + 8 L-Tyrosyl-tRNA(Tyr) + 15 L-Seryl-tRNA(Ser) + 36 GTP \rightarrow 11 tRNA(Arg) + 36 GDP + 5 tRNA(His) + 25 tRNA(Met) + 7 tRNA(Val) + 8 tRNA(Lys) + 20 tRNA(Pro) + 13 tRNA(Ala) + 15 tRNA(Ser) + 16 tRNA(Asn) + 19 tRNA(Ile) + 26 tRNA(Leu) + 15 tRNA(Gly) + 45 Orthophosphate + 8 tRNA(Tyr) + 8 tRNA(Phe) + 26 tRNA(Thr) + 16 tRNA (Gln) + 25 tRNA (Glu) + 12 tRNA(Asp) + Zeta

TAT_Kis_Protein_Formula

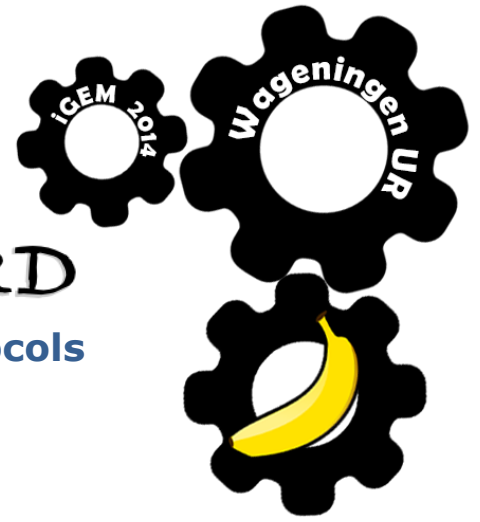
9 L-Glutamyl-tRNA(Glu) + L-Tryptophanyl-tRNA(Trp) + 11 L-Leucyl-tRNA(Leu) + 38 H₂O + 4 L-Isoleucyl-tRNA(Ile) + 4 L-Aspartyl-tRNA(Asp) + L-Histidyl-tRNA(His) + 7 L-Valyl-tRNA(Val) + 6 L-Arginyl-tRNA(Arg) + 4 L-Asparaginyl-tRNA(Asn) + 3 L-Glutaminyl-tRNA(Gln) + 8 L-Alanyl-tRNA(Ala) + 6 Glycyl-tRNA(Gly) + L-Methionyl-tRNA (Met) + 3 L-Lysyl-tRNA (Lys) + 5 L-Threonyl-tRNA(Thr) + 6 L-Prolyl-tRNA(Pro) + 2 L-Tyrosyl-tRNA(Tyr) + 4 L-Seryl-tRNA(Ser) + L-Cysteinyl-tRNA(Cys) + 38 GTP \rightarrow 6 tRNA(Arg) + 38 GDP + tRNA(His) + tRNA(Met) + 7 tRNA(Val) + 3 tRNA(Lys) + 6 tRNA(Pro) + 8 tRNA(Ala) + 4 tRNA(Ser) + 4 tRNA(Asn) + 4 tRNA(Ile) + 11 tRNA(Leu) + 6 tRNA(Gly) + 47.5 Orthophosphate + 2 tRNA(Tyr) + 5 tRNA(Thr) + 3 tRNA (Gln) + tRNA(Cys) + tRNA(Trp) + 9 tRNA (Glu) + 4 tRNA(Asp) + Kis



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TAT_Kid_Protein_Formula

6 L-Glutamyl-tRNA(Glu) + L-Tryptophanyl-tRNA(Trp) + 9 L-Leucyl-tRNA(Leu) + 38 H₂O + 6 L-Isoleucyl-tRNA(Ile) + 4 L-Aspartyl-tRNA(Asp) + L-Histidyl-tRNA(His) + 7 L-Valyl-tRNA(Val) + 3 L-Phenylalanyl-tRNA(Phe) + 12 L-Arginyl-tRNA(Arg) + 3 L-Asparaginyl-tRNA(Asn) + 3 L-Glutaminyl-tRNA(Gln) + 7 L-Alanyl-tRNA(Ala) + 12 Glycyl-tRNA(Gly) + 2 L-Methionyl-tRNA (Met) + 3 L-Lysyl-tRNA (Lys) + 12 L-Threonyl-tRNA(Thr) + 7 L-Prolyl-tRNA(Pro) + 4 L-Seryl-tRNA(Ser) + L-Cysteinyl-tRNA(Cys) + 38 GTP -> 12 tRNA(Arg) + 38 GDP + tRNA(His) + 2 tRNA(Met) + 7 tRNA(Val) + 3 tRNA(Lys) + 7 tRNA(Pro) + 7 tRNA(Ala) + 4 tRNA(Ser) + 3 tRNA(Asn) + 6 tRNA(Ile) + 9 tRNA(Leu) + 12 tRNA(Gly) + 47.5 Orthophosphate + 3 tRNA(Phe) + 12 tRNA(Thr) + 3 tRNA (Gln) + tRNA(Cys) + tRNA(Trp) + 6 tRNA (Glu) + 4 tRNA(Asp) + Kid

Plasmid_Production_Size (30kb)

18457.02 dCTP + 11542.98 dATP + 679.698 CTP + 733.6429 UTP + 11542.98 dTTP + 18457.02 dGTP + 922.4501 ATP + 1095.0728 GTP -> 3887.794 Pyrophosphate + Plasmid

DAPG_Enzyme1_Formula

17 L-Glutamyl-tRNA(Glu) + 3 L-Tryptophanyl-tRNA(Trp) + 26 L-Leucyl-tRNA(Leu) + 40 H₂O + 21 L-Isoleucyl-tRNA(Ile) + 19 L-Aspartyl-tRNA(Asp) + 8 L-Histidyl-tRNA(His) + 27 L-Valyl-tRNA(Val) + 8 L-Phenylalanyl-tRNA(Phe) + 14 L-Arginyl-tRNA(Arg) + 11 L-Asparaginyl-tRNA(Asn) + 8 L-Glutaminyl-tRNA(Gln) + 43 L-Alanyl-tRNA(Ala) + 27 Glycyl-tRNA(Gly) + 10 L-Methionyl-tRNA (Met) + 8 L-Lysyl-tRNA (Lys) + 25 L-Threonyl-tRNA(Thr) + 11 L-Prolyl-tRNA(Pro) + 6 L-Tyrosyl-tRNA(Tyr) + 19 L-Seryl-tRNA(Ser) + 5 L-Cysteinyl-tRNA(Cys) + 40 GTP -> 14 tRNA(Arg) + 40 GDP + 8 tRNA(His) + 10 tRNA(Met) + 27 tRNA(Val) + 8 tRNA(Lys) + 11 tRNA(Pro) + 43 tRNA(Ala) + 19 tRNA(Ser) + 11 tRNA(Asn) + 21 tRNA(Ile) + 26 tRNA(Leu) + 27 tRNA(Gly) + 50 Orthophosphate + 6 tRNA(Tyr) + 8 tRNA(Phe) + 25 tRNA(Thr) + 8 tRNA (Gln) + 5 tRNA(Cys) + 3 tRNA(Trp) + 17 tRNA (Glu) + 19 tRNA(Asp) + EcFabH



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DAPG_Enzyme2_Formula

35 L-Glutamyl-tRNA(Glu) + 4 L-Tryptophanyl-tRNA(Trp) + 45 L-Leucyl-tRNA(Leu) + 40 H₂O + 25 L-Isoleucyl-tRNA(Ile) + 24 L-Aspartyl-tRNA(Asp) + 12 L-Histidyl-tRNA(His) + 38 L-Valyl-tRNA(Val) + 22 L-Phenylalanyl-tRNA(Phe) + 14 L-Arginyl-tRNA(Arg) + 20 L-Asparaginyl-tRNA(Asn) + 26 L-Glutaminyl-tRNA(Gln) + 46 L-Alanyl-tRNA(Ala) + 59 Glycyl-tRNA(Gly) + 45 L-Methionyl-tRNA (Met) + 18 L-Lysyl-tRNA (Lys) + 28 L-Threonyl-tRNA(Thr) + 23 L-Prolyl-tRNA(Pro) + 16 L-Tyrosyl-tRNA(Tyr) + 36 L-Seryl-tRNA(Ser) + 11 L-Cysteinyl-tRNA(Cys) + 40 GTP → 14 tRNA(Arg) + 40 GDP + 12 tRNA(His) + 45 tRNA(Met) + 38 tRNA(Val) + 18 tRNA(Lys) + 23 tRNA(Pro) + 46 tRNA(Ala) + 36 tRNA(Ser) + 20 tRNA(Asn) + 25 tRNA(Ile) + 45 tRNA(Leu) + 59 tRNA(Gly) + 50 Orthophosphate + 16 tRNA(Tyr) + 22 tRNA(Phe) + 28 tRNA(Thr) + 26 tRNA (Gln) + 11 tRNA(Cys) + 4 tRNA(Trp) + 35 tRNA (Glu) + 24 tRNA(Asp) + SCPx

DAPG_Enzyme3_Formula

16 L-Glutamyl-tRNA(Glu) + 2 L-Tryptophanyl-tRNA(Trp) + 10 L-Leucyl-tRNA(Leu) + 40 H₂O + 11 L-Isoleucyl-tRNA(Ile) + 3 L-Aspartyl-tRNA(Asp) + 2 L-Histidyl-tRNA(His) + 9 L-Valyl-tRNA(Val) + 7 L-Phenylalanyl-tRNA(Phe) + 10 L-Arginyl-tRNA(Arg) + 3 L-Asparaginyl-tRNA(Asn) + 4 L-Glutaminyl-tRNA(Gln) + 2 L-Alanyl-tRNA(Ala) + 12 Glycyl-tRNA(Gly) + 11 L-Methionyl-tRNA (Met) + 4 L-Lysyl-tRNA (Lys) + 4 L-Threonyl-tRNA(Thr) + 11 L-Prolyl-tRNA(Pro) + 7 L-Tyrosyl-tRNA(Tyr) + 5 L-Seryl-tRNA(Ser) + 3 L-Cysteinyl-tRNA(Cys) + 40 GTP → 10 tRNA(Arg) + 40 GDP + 2 tRNA(His) + 11 tRNA(Met) + 9 tRNA(Val) + 4 tRNA(Lys) + 11 tRNA(Pro) + 2 tRNA(Ala) + 5 tRNA(Ser) + 3 tRNA(Asn) + 11 tRNA(Ile) + 10 tRNA(Leu) + 12 tRNA(Gly) + 50 Orthophosphate + 7 tRNA(Tyr) + 7 tRNA(Phe) + 4 tRNA(Thr) + 4 tRNA (Gln) + 3 tRNA(Cys) + 2 tRNA(Trp) + 16 tRNA (Glu) + 3 tRNA(Asp) + acaC

DAPG_Enzyme4_Formula

27 L-Glutamyl-tRNA(Glu) + 4 L-Tryptophanyl-tRNA(Trp) + 40 L-Leucyl-tRNA(Leu) + 40 H₂O + 22 L-Isoleucyl-tRNA(Ile) + 20 L-Aspartyl-tRNA(Asp) + 8 L-Histidyl-tRNA(His) + 30 L-Valyl-tRNA(Val) + 13 L-Phenylalanyl-tRNA(Phe) + 18 L-Arginyl-tRNA(Arg) + 10 L-Asparaginyl-tRNA(Asn) + 13 L-Glutaminyl-tRNA(Gln) + 29 L-Alanyl-tRNA(Ala) + 30 Glycyl-tRNA(Gly) + 25 L-Methionyl-tRNA (Met) + 14 L-Lysyl-tRNA (Lys) + 24 L-Threonyl-tRNA(Thr) + 20 L-Prolyl-tRNA(Pro) + 8 L-Tyrosyl-tRNA(Tyr) + 27 L-Seryl-tRNA(Ser) + 7 L-Cysteinyl-tRNA(Cys) + 40 GTP → 18 tRNA(Arg) + 40 GDP + 8 tRNA(His) + 25 tRNA(Met) + 30 tRNA(Val) + 14 tRNA(Lys) + 20 tRNA(Pro) + 29 tRNA(Ala) + 27 tRNA(Ser) + 10 tRNA(Asn) + 22 tRNA(Ile) + 40 tRNA(Leu) + 30 tRNA(Gly) + 50 Orthophosphate + 8 tRNA(Tyr) + 13 tRNA(Phe) + 24 tRNA(Thr) + 13 tRNA (Gln) + 7 tRNA(Cys) + 4 tRNA(Trp) + 27 tRNA (Glu) + 20 tRNA(Asp) + CHS2_SOLLC



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DAPG_Enzyme5_Formula

7 L-Glutamyl-tRNA(Glu) + 3 L-Tryptophanyl-tRNA(Trp) + 48 L-Leucyl-tRNA(Leu) + 40 H₂O + 49 L-Isoleucyl-tRNA(Ile) + 13 L-Aspartyl-tRNA(Asp) + 5 L-Histidyl-tRNA(His) + 28 L-Valyl-tRNA(Val) + 34 L-Phenylalanyl-tRNA(Phe) + 5 L-Arginyl-tRNA(Arg) + 12 L-Asparaginy-tRNA(Asn) + 11 L-Glutaminy-tRNA(Gln) + 28 L-Alanyl-tRNA(Ala) + 40 Glycyl-tRNA(Gly) + 19 L-Methionyl-tRNA (Met) + 16 L-Lysyl-tRNA (Lys) + 15 L-Threonyl-tRNA(Thr) + 14 L-Prolyl-tRNA(Pro) + 13 L-Tyrosyl-tRNA(Tyr) + 27 L-Seryl-tRNA(Ser) + L-Cysteinyl-tRNA(Cys) + 40 GTP -> 5 tRNA(Arg) + 40 GDP + 5 tRNA(His) + 19 tRNA(Met) + 28 tRNA(Val) + 16 tRNA(Lys) + 14 tRNA(Pro) + 28 tRNA(Ala) + 27 tRNA(Ser) + 12 tRNA(Asn) + 49 tRNA(Ile) + 48 tRNA(Leu) + 40 tRNA(Gly) + 50 Orthophosphate + 13 tRNA(Tyr) + 34 tRNA(Phe) + 15 tRNA(Thr) + 11 tRNA (Gln) + tRNA(Cys) + 3 tRNA(Trp) + 7 tRNA (Glu) + 13 tRNA(Asp) + efflux pump

DMDS_Enzyme1_Formula

26 L-Glutamyl-tRNA(Glu) + 4 L-Tryptophanyl-tRNA(Trp) + 37 L-Leucyl-tRNA(Leu) + 40 H₂O + 29 L-Isoleucyl-tRNA(Ile) + 25 L-Aspartyl-tRNA(Asp) + 11 L-Histidyl-tRNA(His) + 34 L-Valyl-tRNA(Val) + 11 L-Phenylalanyl-tRNA(Phe) + 18 L-Arginyl-tRNA(Arg) + 10 L-Asparaginy-tRNA(Asn) + 9 L-Glutaminy-tRNA(Gln) + 55 L-Alanyl-tRNA(Ala) + 32 Glycyl-tRNA(Gly) + 11 L-Methionyl-tRNA (Met) + 6 L-Lysyl-tRNA (Lys) + 35 L-Threonyl-tRNA(Thr) + 24 L-Prolyl-tRNA(Pro) + 7 L-Tyrosyl-tRNA(Tyr) + 37 L-Seryl-tRNA(Ser) + 4 L-Cysteinyl-tRNA(Cys) + 40 GTP -> 18 tRNA(Arg) + 40 GDP + 11 tRNA(His) + 11 tRNA(Met) + 34 tRNA(Val) + 6 tRNA(Lys) + 24 tRNA(Pro) + 55 tRNA(Ala) + 37 tRNA(Ser) + 10 tRNA(Asn) + 29 tRNA(Ile) + 37 tRNA(Leu) + 32 tRNA(Gly) + 50 Orthophosphate + 7 tRNA(Tyr) + 11 tRNA(Phe) + 35 tRNA(Thr) + 9 tRNA (Gln) + 4 tRNA(Cys) + 4 tRNA(Trp) + 26 tRNA (Glu) + 25 tRNA(Asp) + MGL

Pyoverdine_Enzyme1_Formula

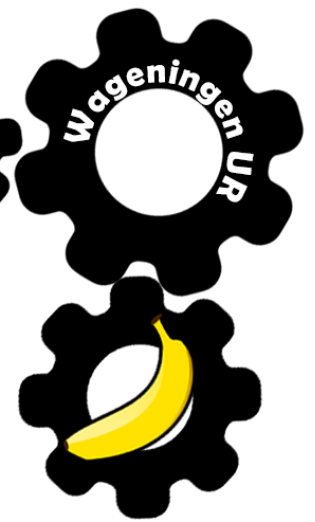
29 L-Glutamyl-tRNA(Glu) + 6 L-Tryptophanyl-tRNA(Trp) + 45 L-Leucyl-tRNA(Leu) + 40 H₂O + 20 L-Isoleucyl-tRNA(Ile) + 24 L-Aspartyl-tRNA(Asp) + 17 L-Histidyl-tRNA(His) + 30 L-Valyl-tRNA(Val) + 20 L-Phenylalanyl-tRNA(Phe) + 36 L-Arginyl-tRNA(Arg) + 8 L-Asparaginy-tRNA(Asn) + 21 L-Glutaminy-tRNA(Gln) + 40 L-Alanyl-tRNA(Ala) + 33 Glycyl-tRNA(Gly) + 15 L-Methionyl-tRNA (Met) + 5 L-Lysyl-tRNA (Lys) + 21 L-Threonyl-tRNA(Thr) + 22 L-Prolyl-tRNA(Pro) + 11 L-Tyrosyl-tRNA(Tyr) + 22 L-Seryl-tRNA(Ser) + 2 L-Cysteinyl-tRNA(Cys) + 40 GTP -> 36 tRNA(Arg) + 40 GDP + 17 tRNA(His) + 15 tRNA(Met) + 30 tRNA(Val) + 5 tRNA(Lys) + 22 tRNA(Pro) + 40 tRNA(Ala) + 22 tRNA(Ser) + 8 tRNA(Asn) + 20 tRNA(Ile) + 45 tRNA(Leu) + 33 tRNA(Gly) + 50 Orthophosphate + 11 tRNA(Tyr) + 20 tRNA(Phe) + 21 tRNA(Thr) + 21 tRNA (Gln) + 2 tRNA(Cys) + 6 tRNA(Trp) + 29 tRNA (Glu) + 24 tRNA(Asp) + PvdN



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Protocols



Pyoverdine_Enzyme2_Formula

22 L-Glutamyl-tRNA(Glu) + 11 L-Tryptophanyl-tRNA(Trp) + 49 L-Leucyl-tRNA(Leu) + 38 H₂O + 24 L-Isoleucyl-tRNA(Ile) + 34 L-Aspartyl-tRNA(Asp) + 7 L-Histidyl-tRNA(His) + 30 L-Valyl-tRNA(Val) + 16 L-Phenylalanyl-tRNA(Phe) + 28 L-Arginyl-tRNA(Arg) + 13 L-Asparaginyl-tRNA(Asn) + 14 L-Glutaminyl-tRNA(Gln) + 42 L-Alanyl-tRNA(Ala) + 44 Glycyl-tRNA(Gly) + 22 L-Methionyl-tRNA (Met) + 11 L-Lysyl-tRNA (Lys) + 17 L-Threonyl-tRNA(Thr) + 29 L-Prolyl-tRNA(Pro) + 12 L-Tyrosyl-tRNA(Tyr) + 25 L-Seryl-tRNA(Ser) + 38 GTP → 28 tRNA(Arg) + 38 GDP + 7 tRNA(His) + 22 tRNA(Met) + 30 tRNA(Val) + 11 tRNA(Lys) + 29 tRNA(Pro) + 42 tRNA(Ala) + 25 tRNA(Ser) + 13 tRNA(Asn) + 24 tRNA(Ile) + 49 tRNA(Leu) + 44 tRNA(Gly) + 47.5 Orthophosphate + 12 tRNA(Tyr) + 16 tRNA(Phe) + 17 tRNA(Thr) + 14 tRNA (Gln) + 11 tRNA(Trp) + 22 tRNA (Glu) + 34 tRNA(Asp) + PvdM

Pyoverdine_Enzyme3_Formula

30 L-Glutamyl-tRNA(Glu) + 3 L-Tryptophanyl-tRNA(Trp) + 61 L-Leucyl-tRNA(Leu) + 40 H₂O + 20 L-Isoleucyl-tRNA(Ile) + 22 L-Aspartyl-tRNA(Asp) + 13 L-Histidyl-tRNA(His) + 37 L-Valyl-tRNA(Val) + 14 L-Phenylalanyl-tRNA(Phe) + 34 L-Arginyl-tRNA(Arg) + 7 L-Asparaginyl-tRNA(Asn) + 22 L-Glutaminyl-tRNA(Gln) + 56 L-Alanyl-tRNA(Ala) + 54 Glycyl-tRNA(Gly) + 11 L-Methionyl-tRNA (Met) + 9 L-Lysyl-tRNA (Lys) + 18 L-Threonyl-tRNA(Thr) + 28 L-Prolyl-tRNA(Pro) + 10 L-Tyrosyl-tRNA(Tyr) + 16 L-Seryl-tRNA(Ser) + 4 L-Cysteiny-tRNA(Cys) + 40 GTP → 34 tRNA(Arg) + 40 GDP + 13 tRNA(His) + 11 tRNA(Met) + 37 tRNA(Val) + 9 tRNA(Lys) + 28 tRNA(Pro) + 56 tRNA(Ala) + 16 tRNA(Ser) + 7 tRNA(Asn) + 20 tRNA(Ile) + 61 tRNA(Leu) + 54 tRNA(Gly) + 50 Orthophosphate + 10 tRNA(Tyr) + 14 tRNA(Phe) + 18 tRNA(Thr) + 22 tRNA (Gln) + 4 tRNA(Cys) + 3 tRNA(Trp) + 30 tRNA (Glu) + 22 tRNA(Asp) + PvdH

Pyoverdine_Enzyme4_Formula

40 L-Glutamyl-tRNA(Glu) + 16 L-Tryptophanyl-tRNA(Trp) + 83 L-Leucyl-tRNA(Leu) + 40 H₂O + 25 L-Isoleucyl-tRNA(Ile) + 45 L-Aspartyl-tRNA(Asp) + 10 L-Histidyl-tRNA(His) + 45 L-Valyl-tRNA(Val) + 25 L-Phenylalanyl-tRNA(Phe) + 64 L-Arginyl-tRNA(Arg) + 23 L-Asparaginyl-tRNA(Asn) + 52 L-Glutaminyl-tRNA(Gln) + 91 L-Alanyl-tRNA(Ala) + 62 Glycyl-tRNA(Gly) + 18 L-Methionyl-tRNA (Met) + 12 L-Lysyl-tRNA (Lys) + 28 L-Threonyl-tRNA(Thr) + 48 L-Prolyl-tRNA(Pro) + 22 L-Tyrosyl-tRNA(Tyr) + 45 L-Seryl-tRNA(Ser) + 6 L-Cysteiny-tRNA(Cys) + 40 GTP → 64 tRNA(Arg) + 40 GDP + 10 tRNA(His) + 18 tRNA(Met) + 45 tRNA(Val) + 12 tRNA(Lys) + 48 tRNA(Pro) + 91 tRNA(Ala) + 45 tRNA(Ser) + 23 tRNA(Asn) + 25 tRNA(Ile) + 83 tRNA(Leu) + 62 tRNA(Gly) + 50 Orthophosphate + 22 tRNA(Tyr) + 25 tRNA(Phe) + 28 tRNA(Thr) + 52 tRNA (Gln) + 6 tRNA(Cys) + 16 tRNA(Trp) + 40 tRNA (Glu) + 45 tRNA(Asp) + PvdQ

Pyoverdine_Enzyme5_Formula

29 L-Glutamyl-tRNA(Glu) + 11 L-Tryptophanyl-tRNA(Trp) + 43 L-Leucyl-tRNA(Leu) + 40 H₂O + 26 L-Isoleucyl-tRNA(Ile) + 36 L-Aspartyl-tRNA(Asp) + 12 L-Histidyl-tRNA(His) + 29 L-Valyl-tRNA(Val) + 24 L-Phenylalanyl-tRNA(Phe) + 33 L-Arginyl-tRNA(Arg) + 19 L-Asparaginyl-tRNA(Asn) + 22 L-Glutaminyl-tRNA(Gln) + 48 L-Alanyl-tRNA(Ala) + 47 Glycyl-tRNA(Gly) + 22 L-Methionyl-tRNA (Met) + 15 L-Lysyl-tRNA (Lys) + 20 L-Threonyl-tRNA(Thr) + 24 L-Prolyl-tRNA(Pro) + 25 L-Tyrosyl-tRNA(Tyr) + 27 L-Seryl-tRNA(Ser) + 8 L-Cysteiny-tRNA(Cys) + 40 GTP → 33 tRNA(Arg) + 40 GDP + 12 tRNA(His) + 22 tRNA(Met) + 29 tRNA(Val) + 15 tRNA(Lys) + 24 tRNA(Pro) + 48 tRNA(Ala) + 27 tRNA(Ser) + 19 tRNA(Asn) + 26 tRNA(Ile) + 43 tRNA(Leu) + 47 tRNA(Gly) + 50 Orthophosphate + 25 tRNA(Tyr) + 24 tRNA(Phe) + 20 tRNA(Thr) + 22 tRNA (Gln) + 8 tRNA(Cys) + 11 tRNA(Trp) + 29 tRNA (Glu) + 36 tRNA(Asp) + PvcC

