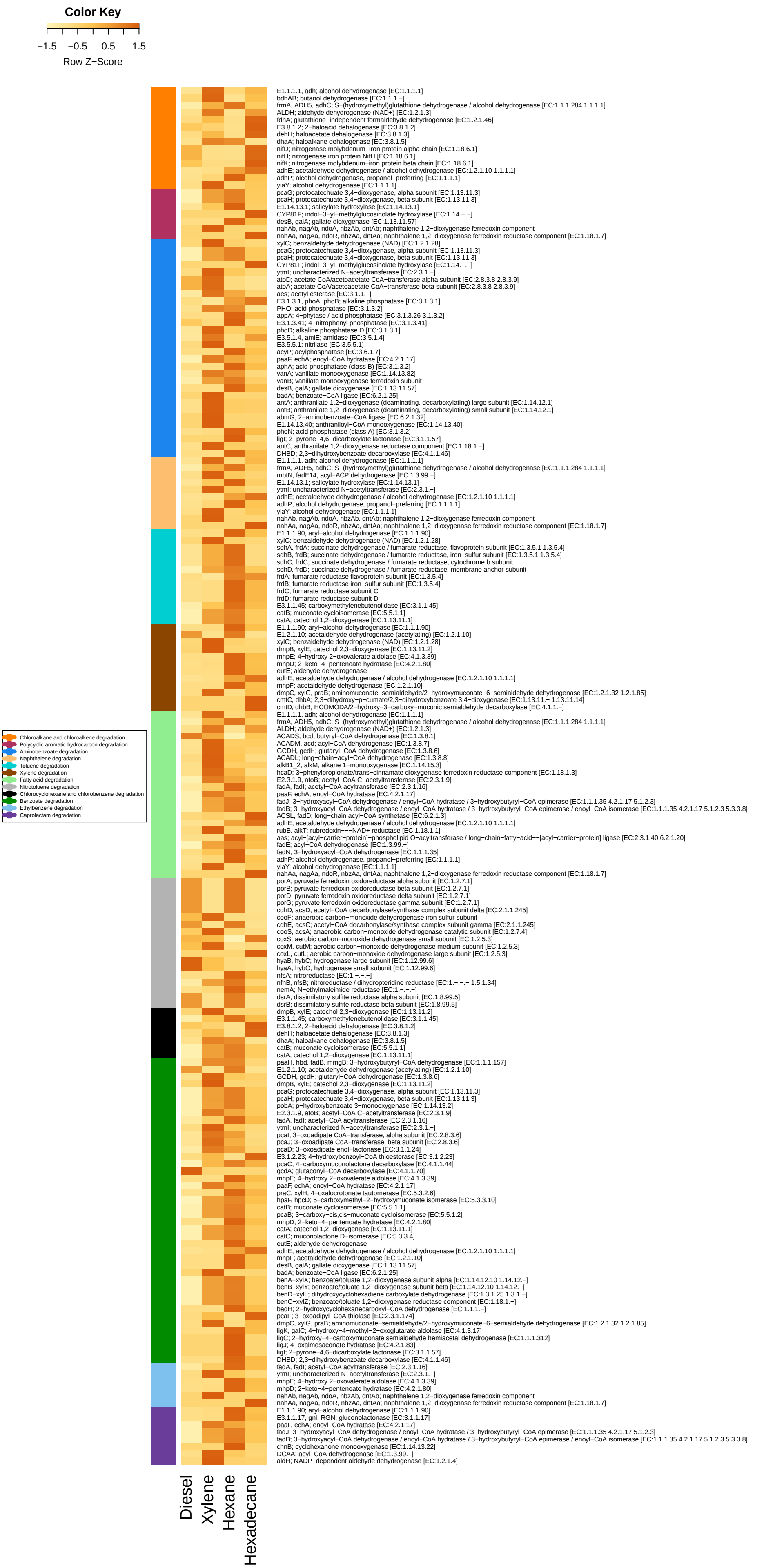
Color Key
−1.5 −0.5 0.5 1.5
Row Z−Score
E1.1.1.1, adh; alcohol dehydrogenase [EC:1.1.1.1]
bdhAB; butanol dehydrogenase [EC:1.1.1.−]
frmA, ADH5, adhC; S−(hydroxymethyl)glutathione dehydrogenase / alcohol dehydrogenase [EC:1.1.1.284 1.1.1.1]
ALDH; aldehyde dehydrogenase (NAD+) [EC:1.2.1.3]
fdhA; glutathione−independent formaldehyde dehydrogenase [EC:1.2.1.46]
E3.8.1.2; 2−haloacid dehalogenase [EC:3.8.1.2]
dehH; haloacetate dehalogenase [EC:3.8.1.3]
dhaA; haloalkane dehalogenase [EC:3.8.1.5]
nifD; nitrogenase molybdenum−iron protein alpha chain [EC:1.18.6.1]
nifH; nitrogenase iron protein NifH [EC:1.18.6.1]
nifK; nitrogenase molybdenum−iron protein beta chain [EC:1.18.6.1]
adhE; acetaldehyde dehydrogenase / alcohol dehydrogenase [EC:1.2.1.10 1.1.1.1]
adhP; alcohol dehydrogenase, propanol−preferring [EC:1.1.1.1]
yiaY; alcohol dehydrogenase [EC:1.1.1.1]
pcaG; protocatechuate 3,4−dioxygenase, alpha subunit [EC:1.13.11.3]
pcaH; protocatechuate 3,4−dioxygenase, beta subunit [EC:1.13.11.3]
E1.14.13.1; salicylate hydroxylase [EC:1.14.13.1]
CYP81F; indol−3−yl−methylglucosinolate hydroxylase [EC:1.14.−.−]
desB, galA; gallate dioxygenase [EC:1.13.11.57]
nahAb, nagAb, ndoA, nbzAb, dntAb; naphthalene 1,2−dioxygenase ferredoxin component
nahAa, nagAa, ndoR, nbzAa, dntAa; naphthalene 1,2−dioxygenase ferredoxin reductase component [EC:1.18.1.7]
xylC; benzaldehyde dehydrogenase (NAD) [EC:1.2.1.28]
pcaG; protocatechuate 3,4−dioxygenase, alpha subunit [EC:1.13.11.3]
pcaH; protocatechuate 3,4−dioxygenase, beta subunit [EC:1.13.11.3]
CYP81F; indol−3−yl−methylglucosinolate hydroxylase [EC:1.14.−.−]
ytmI; uncharacterized N−acetyltransferase [EC:2.3.1.−]
atoD; acetate CoA/acetoacetate CoA−transferase alpha subunit [EC:2.8.3.8 2.8.3.9]
atoA; acetate CoA/acetoacetate CoA−transferase beta subunit [EC:2.8.3.8 2.8.3.9]
aes; acetyl esterase [EC:3.1.1.−]
E3.1.3.1, phoA, phoB; alkaline phosphatase [EC:3.1.3.1]
PHO; acid phosphatase [EC:3.1.3.2]
appA; 4−phytase / acid phosphatase [EC:3.1.3.26 3.1.3.2]
E3.1.3.41; 4−nitrophenyl phosphatase [EC:3.1.3.41]
phoD; alkaline phosphatase D [EC:3.1.3.1]
E3.5.1.4, amiE; amidase [EC:3.5.1.4]
E3.5.5.1; nitrilase [EC:3.5.5.1]
acyP; acylphosphatase [EC:3.6.1.7]
paaF, echA; enoyl−CoA hydratase [EC:4.2.1.17]
aphA; acid phosphatase (class B) [EC:3.1.3.2]
vanA; vanillate monooxygenase [EC:1.14.13.82]
vanB; vanillate monooxygenase ferredoxin subunit
desB, galA; gallate dioxygenase [EC:1.13.11.57]
badA; benzoate−CoA ligase [EC:6.2.1.25]
antA; anthranilate 1,2−dioxygenase (deaminating, decarboxylating) large subunit [EC:1.14.12.1]
antB; anthranilate 1,2−dioxygenase (deaminating, decarboxylating) small subunit [EC:1.14.12.1]
abmG; 2−aminobenzoate−CoA ligase [EC:6.2.1.32]
E1.14.13.40; anthraniloyl−CoA monooxygenase [EC:1.14.13.40]
phoN; acid phosphatase (class A) [EC:3.1.3.2]
ligI; 2−pyrone−4,6−dicarboxylate lactonase [EC:3.1.1.57]
antC; anthranilate 1,2−dioxygenase reductase component [EC:1.18.1.−]
DHBD; 2,3−dihydroxybenzoate decarboxylase [EC:4.1.1.46]
E1.1.1.1, adh; alcohol dehydrogenase [EC:1.1.1.1]
frmA, ADH5, adhC; S−(hydroxymethyl)glutathione dehydrogenase / alcohol dehydrogenase [EC:1.1.1.284 1.1.1.1]
mbtN, fadE14; acyl−ACP dehydrogenase [EC:1.3.99.−]
E1.14.13.1; salicylate hydroxylase [EC:1.14.13.1]
ytmI; uncharacterized N−acetyltransferase [EC:2.3.1.−]
adhE; acetaldehyde dehydrogenase / alcohol dehydrogenase [EC:1.2.1.10 1.1.1.1]
adhP; alcohol dehydrogenase, propanol−preferring [EC:1.1.1.1]
yiaY; alcohol dehydrogenase [EC:1.1.1.1]
nahAb, nagAb, ndoA, nbzAb, dntAb; naphthalene 1,2−dioxygenase ferredoxin component
nahAa, nagAa, ndoR, nbzAa, dntAa; naphthalene 1,2−dioxygenase ferredoxin reductase component [EC:1.18.1.7]
E1.1.1.90; aryl−alcohol dehydrogenase [EC:1.1.1.90]
xylC; benzaldehyde dehydrogenase (NAD) [EC:1.2.1.28]
sdhA, frdA; succinate dehydrogenase / fumarate reductase, flavoprotein subunit [EC:1.3.5.1 1.3.5.4]
sdhB, frdB; succinate dehydrogenase / fumarate reductase, iron−sulfur subunit [EC:1.3.5.1 1.3.5.4]
sdhC, frdC; succinate dehydrogenase / fumarate reductase, cytochrome b subunit
sdhD, frdD; succinate dehydrogenase / fumarate reductase, membrane anchor subunit
frdA; fumarate reductase flavoprotein subunit [EC:1.3.5.4]
frdB; fumarate reductase iron−sulfur subunit [EC:1.3.5.4]
frdC; fumarate reductase subunit C
frdD; fumarate reductase subunit D
E3.1.1.45; carboxymethylenebutenolidase [EC:3.1.1.45]
catB; muconate cycloisomerase [EC:5.5.1.1]
catA; catechol 1,2−dioxygenase [EC:1.13.11.1]
E1.1.1.90; aryl−alcohol dehydrogenase [EC:1.1.1.90]
E1.2.1.10; acetaldehyde dehydrogenase (acetylating) [EC:1.2.1.10]
xylC; benzaldehyde dehydrogenase (NAD) [EC:1.2.1.28]
dmpB, xylE; catechol 2,3−dioxygenase [EC:1.13.11.2]
mhpE; 4−hydroxy 2−oxovalerate aldolase [EC:4.1.3.39]
mhpD; 2−keto−4−pentenoate hydratase [EC:4.2.1.80]
eutE; aldehyde dehydrogenase
adhE; acetaldehyde dehydrogenase / alcohol dehydrogenase [EC:1.2.1.10 1.1.1.1]
mhpF; acetaldehyde dehydrogenase [EC:1.2.1.10]
dmpC, xylG, praB; aminomuconate−semialdehyde/2−hydroxymuconate−6−semialdehyde dehydrogenase [EC:1.2.1.32 1.2.1.85]
cmtC, dhbA; 2,3−dihydroxy−p−cumate/2,3−dihydroxybenzoate 3,4−dioxygenase [EC:1.13.11.− 1.13.11.14]
cmtD, dhbB; HCOMODA/2−hydroxy−3−carboxy−muconic semialdehyde decarboxylase [EC:4.1.1.−]
E1.1.1.1, adh; alcohol dehydrogenase [EC:1.1.1.1]
frmA, ADH5, adhC; S−(hydroxymethyl)glutathione dehydrogenase / alcohol dehydrogenase [EC:1.1.1.284 1.1.1.1]
ALDH; aldehyde dehydrogenase (NAD+) [EC:1.2.1.3]
ACADS, bcd; butyryl−CoA dehydrogenase [EC:1.3.8.1]
ACADM, acd; acyl−CoA dehydrogenase [EC:1.3.8.7]
GCDH, gcdH; glutaryl−CoA dehydrogenase [EC:1.3.8.6]
ACADL; long−chain−acyl−CoA dehydrogenase [EC:1.3.8.8]
alkB1_2, alkM; alkane 1−monooxygenase [EC:1.14.15.3]
hcaD; 3−phenylpropionate/trans−cinnamate dioxygenase ferredoxin reductase component [EC:1.18.1.3]
E2.3.1.9, atoB; acetyl−CoA C−acetyltransferase [EC:2.3.1.9]
fadA, fadI; acetyl−CoA acyltransferase [EC:2.3.1.16]
paaF, echA; enoyl−CoA hydratase [EC:4.2.1.17]
fadJ; 3−hydroxyacyl−CoA dehydrogenase / enoyl−CoA hydratase / 3−hydroxybutyryl−CoA epimerase [EC:1.1.1.35 4.2.1.17 5.1.2.3]
fadB; 3−hydroxyacyl−CoA dehydrogenase / enoyl−CoA hydratase / 3−hydroxybutyryl−CoA epimerase / enoyl−CoA isomerase [EC:1.1.1.35 4.2.1.17 5.1.2.3 5.3.3.8]
ACSL, fadD; long−chain acyl−CoA synthetase [EC:6.2.1.3]
adhE; acetaldehyde dehydrogenase / alcohol dehydrogenase [EC:1.2.1.10 1.1.1.1]
rubB, alkT; rubredoxin−−−NAD+ reductase [EC:1.18.1.1]
aas; acyl−[acyl−carrier−protein]−phospholipid O−acyltransferase / long−chain−fatty−acid−−[acyl−carrier−protein] ligase [EC:2.3.1.40 6.2.1.20]
fadE; acyl−CoA dehydrogenase [EC:1.3.99.−]
fadN; 3−hydroxyacyl−CoA dehydrogenase [EC:1.1.1.35]
adhP; alcohol dehydrogenase, propanol−preferring [EC:1.1.1.1]
yiaY; alcohol dehydrogenase [EC:1.1.1.1]
nahAa, nagAa, ndoR, nbzAa, dntAa; naphthalene 1,2−dioxygenase ferredoxin reductase component [EC:1.18.1.7]
porA; pyruvate ferredoxin oxidoreductase alpha subunit [EC:1.2.7.1]
porB; pyruvate ferredoxin oxidoreductase beta subunit [EC:1.2.7.1]
porD; pyruvate ferredoxin oxidoreductase delta subunit [EC:1.2.7.1]
porG; pyruvate ferredoxin oxidoreductase gamma subunit [EC:1.2.7.1]
cdhD, acsD; acetyl−CoA decarbonylase/synthase complex subunit delta [EC:2.1.1.245]
cooF; anaerobic carbon−monoxide dehydrogenase iron sulfur subunit
cdhE, acsC; acetyl−CoA decarbonylase/synthase complex subunit gamma [EC:2.1.1.245]
cooS, acsA; anaerobic carbon−monoxide dehydrogenase catalytic subunit [EC:1.2.7.4]
coxS; aerobic carbon−monoxide dehydrogenase small subunit [EC:1.2.5.3]
coxM, cutM; aerobic carbon−monoxide dehydrogenase medium subunit [EC:1.2.5.3]
coxL, cutL; aerobic carbon−monoxide dehydrogenase large subunit [EC:1.2.5.3]
hyaB, hybC; hydrogenase large subunit [EC:1.12.99.6]
hyaA, hybO; hydrogenase small subunit [EC:1.12.99.6]
nfsA; nitroreductase [EC:1.−.−.−]
nfnB, nfsB; nitroreductase / dihydropteridine reductase [EC:1.−.−.− 1.5.1.34]
nemA; N−ethylmaleimide reductase [EC:1.−.−.−]
dsrA; dissimilatory sulfite reductase alpha subunit [EC:1.8.99.5]
dsrB; dissimilatory sulfite reductase beta subunit [EC:1.8.99.5]
dmpB, xylE; catechol 2,3−dioxygenase [EC:1.13.11.2]
E3.1.1.45; carboxymethylenebutenolidase [EC:3.1.1.45]
E3.8.1.2; 2−haloacid dehalogenase [EC:3.8.1.2]
dehH; haloacetate dehalogenase [EC:3.8.1.3]
dhaA; haloalkane dehalogenase [EC:3.8.1.5]
catB; muconate cycloisomerase [EC:5.5.1.1]
catA; catechol 1,2−dioxygenase [EC:1.13.11.1]
paaH, hbd, fadB, mmgB; 3−hydroxybutyryl−CoA dehydrogenase [EC:1.1.1.157]
E1.2.1.10; acetaldehyde dehydrogenase (acetylating) [EC:1.2.1.10]
GCDH, gcdH; glutaryl−CoA dehydrogenase [EC:1.3.8.6]
dmpB, xylE; catechol 2,3−dioxygenase [EC:1.13.11.2]
pcaG; protocatechuate 3,4−dioxygenase, alpha subunit [EC:1.13.11.3]
pcaH; protocatechuate 3,4−dioxygenase, beta subunit [EC:1.13.11.3]
pobA; p−hydroxybenzoate 3−monooxygenase [EC:1.14.13.2]
E2.3.1.9, atoB; acetyl−CoA C−acetyltransferase [EC:2.3.1.9]
fadA, fadI; acetyl−CoA acyltransferase [EC:2.3.1.16]
ytmI; uncharacterized N−acetyltransferase [EC:2.3.1.−]
pcaI; 3−oxoadipate CoA−transferase, alpha subunit [EC:2.8.3.6]
pcaJ; 3−oxoadipate CoA−transferase, beta subunit [EC:2.8.3.6]
pcaD; 3−oxoadipate enol−lactonase [EC:3.1.1.24]
E3.1.2.23; 4−hydroxybenzoyl−CoA thioesterase [EC:3.1.2.23]
pcaC; 4−carboxymuconolactone decarboxylase [EC:4.1.1.44]
gcdA; glutaconyl−CoA decarboxylase [EC:4.1.1.70]
mhpE; 4−hydroxy 2−oxovalerate aldolase [EC:4.1.3.39]
paaF, echA; enoyl−CoA hydratase [EC:4.2.1.17]
praC, xylH; 4−oxalocrotonate tautomerase [EC:5.3.2.6]
hpaF, hpcD; 5−carboxymethyl−2−hydroxymuconate isomerase [EC:5.3.3.10]
catB; muconate cycloisomerase [EC:5.5.1.1]
pcaB; 3−carboxy−cis,cis−muconate cycloisomerase [EC:5.5.1.2]
mhpD; 2−keto−4−pentenoate hydratase [EC:4.2.1.80]
catA; catechol 1,2−dioxygenase [EC:1.13.11.1]
catC; muconolactone D−isomerase [EC:5.3.3.4]
eutE; aldehyde dehydrogenase
adhE; acetaldehyde dehydrogenase / alcohol dehydrogenase [EC:1.2.1.10 1.1.1.1]
mhpF; acetaldehyde dehydrogenase [EC:1.2.1.10]
desB, galA; gallate dioxygenase [EC:1.13.11.57]
badA; benzoate−CoA ligase [EC:6.2.1.25]
benA−xylX; benzoate/toluate 1,2−dioxygenase subunit alpha [EC:1.14.12.10 1.14.12.−]
benB−xylY; benzoate/toluate 1,2−dioxygenase subunit beta [EC:1.14.12.10 1.14.12.−]
benD−xylL; dihydroxycyclohexadiene carboxylate dehydrogenase [EC:1.3.1.25 1.3.1.−]
benC−xylZ; benzoate/toluate 1,2−dioxygenase reductase component [EC:1.18.1.−]
badH; 2−hydroxycyclohexanecarboxyl−CoA dehydrogenase [EC:1.1.1.−]
pcaF; 3−oxoadipyl−CoA thiolase [EC:2.3.1.174]
dmpC, xylG, praB; aminomuconate−semialdehyde/2−hydroxymuconate−6−semialdehyde dehydrogenase [EC:1.2.1.32 1.2.1.85]
ligK, galC; 4−hydroxy−4−methyl−2−oxoglutarate aldolase [EC:4.1.3.17]
ligC; 2−hydroxy−4−carboxymuconate semialdehyde hemiacetal dehydrogenase [EC:1.1.1.312]
ligJ; 4−oxalmesaconate hydratase [EC:4.2.1.83]
ligI; 2−pyrone−4,6−dicarboxylate lactonase [EC:3.1.1.57]
DHBD; 2,3−dihydroxybenzoate decarboxylase [EC:4.1.1.46]
fadA, fadI; acetyl−CoA acyltransferase [EC:2.3.1.16]
ytmI; uncharacterized N−acetyltransferase [EC:2.3.1.−]
mhpE; 4−hydroxy 2−oxovalerate aldolase [EC:4.1.3.39]
mhpD; 2−keto−4−pentenoate hydratase [EC:4.2.1.80]
nahAb, nagAb, ndoA, nbzAb, dntAb; naphthalene 1,2−dioxygenase ferredoxin component
nahAa, nagAa, ndoR, nbzAa, dntAa; naphthalene 1,2−dioxygenase ferredoxin reductase component [EC:1.18.1.7]
E1.1.1.90; aryl−alcohol dehydrogenase [EC:1.1.1.90]
E3.1.1.17, gnl, RGN; gluconolactonase [EC:3.1.1.17]
paaF, echA; enoyl−CoA hydratase [EC:4.2.1.17]
fadJ; 3−hydroxyacyl−CoA dehydrogenase / enoyl−CoA hydratase / 3−hydroxybutyryl−CoA epimerase [EC:1.1.1.35 4.2.1.17 5.1.2.3]
fadB; 3−hydroxyacyl−CoA dehydrogenase / enoyl−CoA hydratase / 3−hydroxybutyryl−CoA epimerase / enoyl−CoA isomerase [EC:1.1.1.35 4.2.1.17 5.1.2.3 5.3.3.8]
chnB; cyclohexanone monooxygenase [EC:1.14.13.22]
DCAA; acyl−CoA dehydrogenase [EC:1.3.99.−]
aldH; NADP−dependent aldehyde dehydrogenase [EC:1.2.1.4]
Chloroalkane and chloroalkene degradation
Polycyclic aromatic hydrocarbon degradation
Aminobenzoate degradation
Naphthalene degradation
Toluene degradation
Xylene degradation
Fatty acid degradation
Nitrotoluene degradation
Chlorocyclohexane and chlorobenzene degradation
Benzoate degradation
Ethylbenzene degradation
Caprolactam degradation
Diesel
Xylene
Hexane
Hexadecane