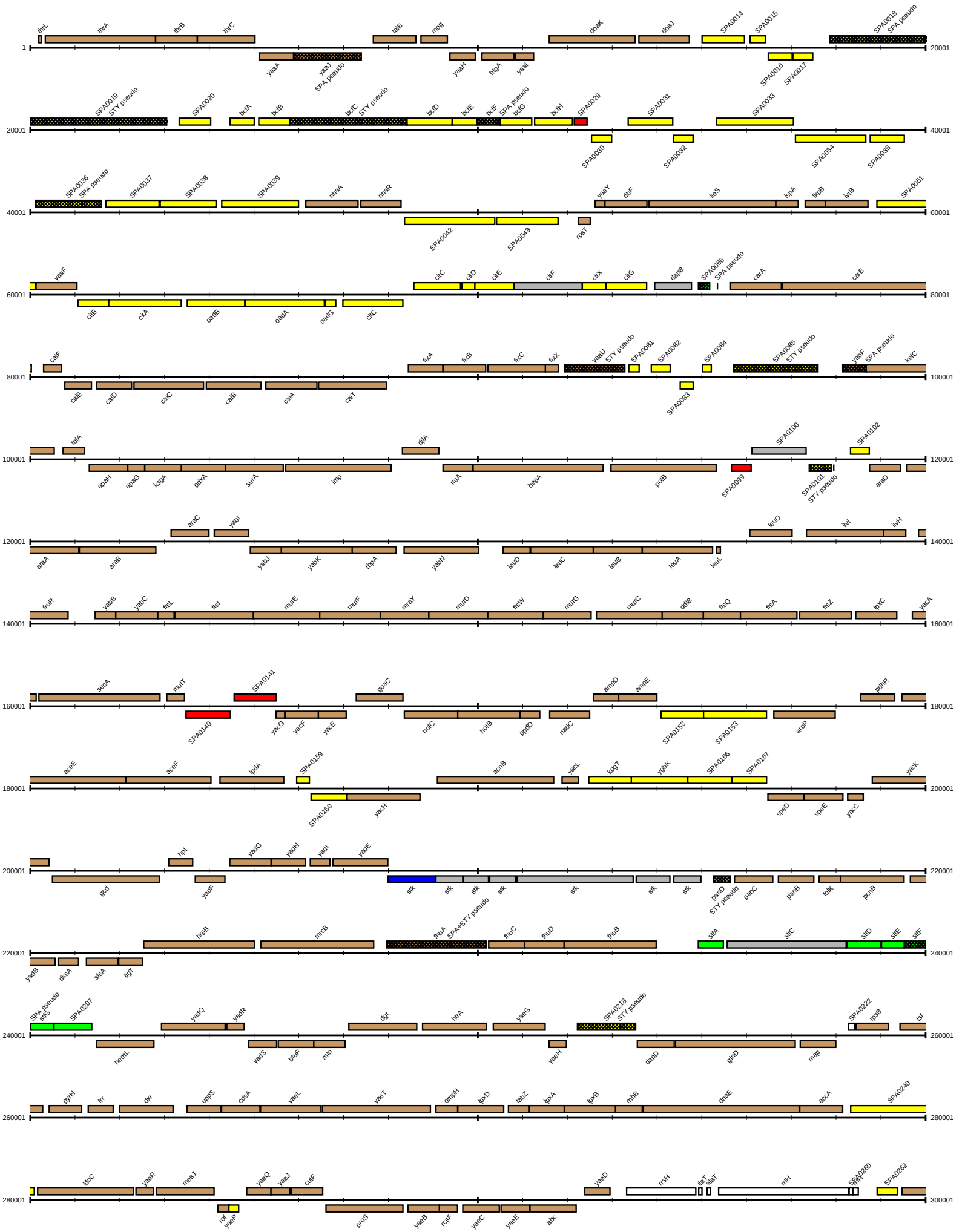
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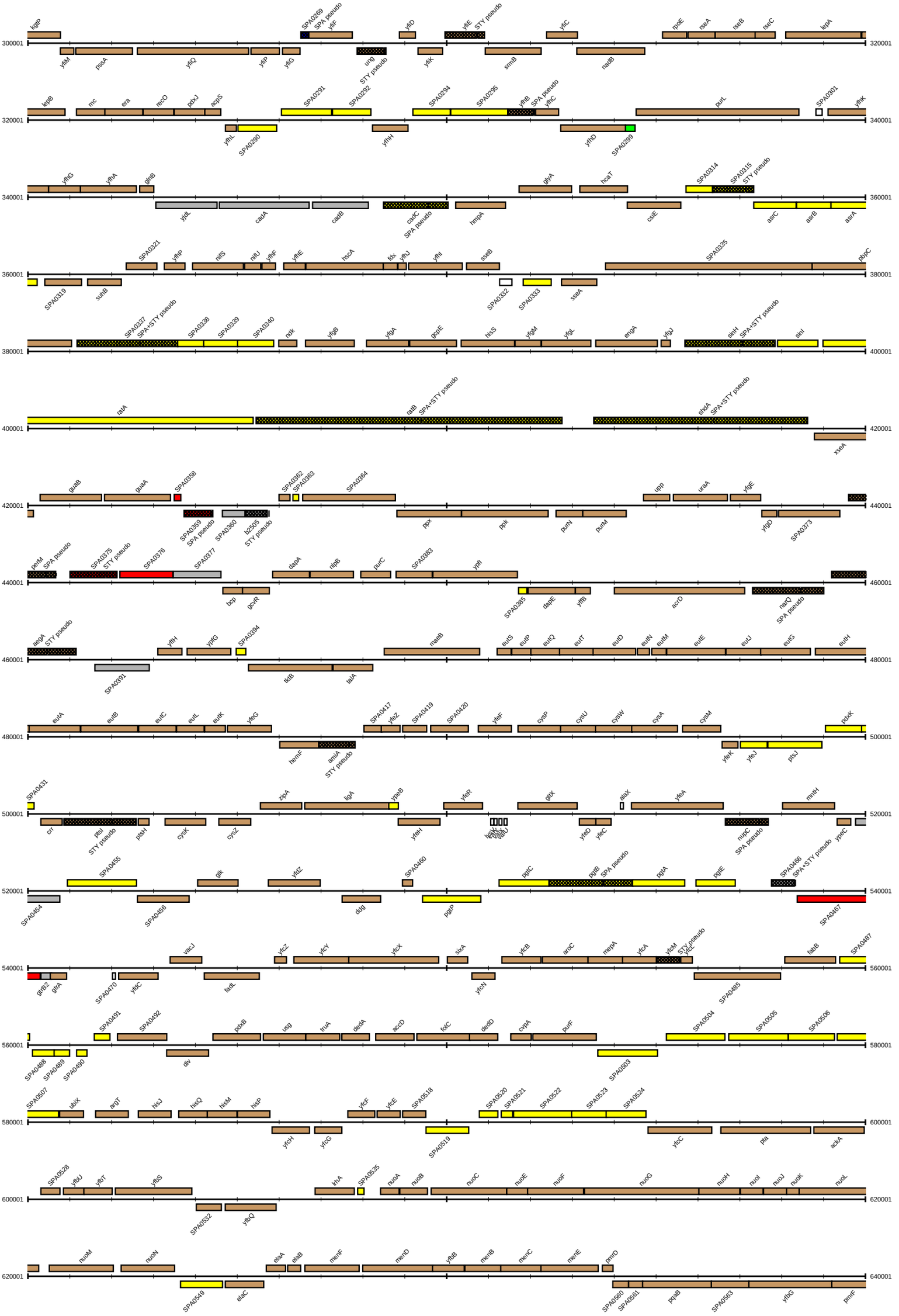
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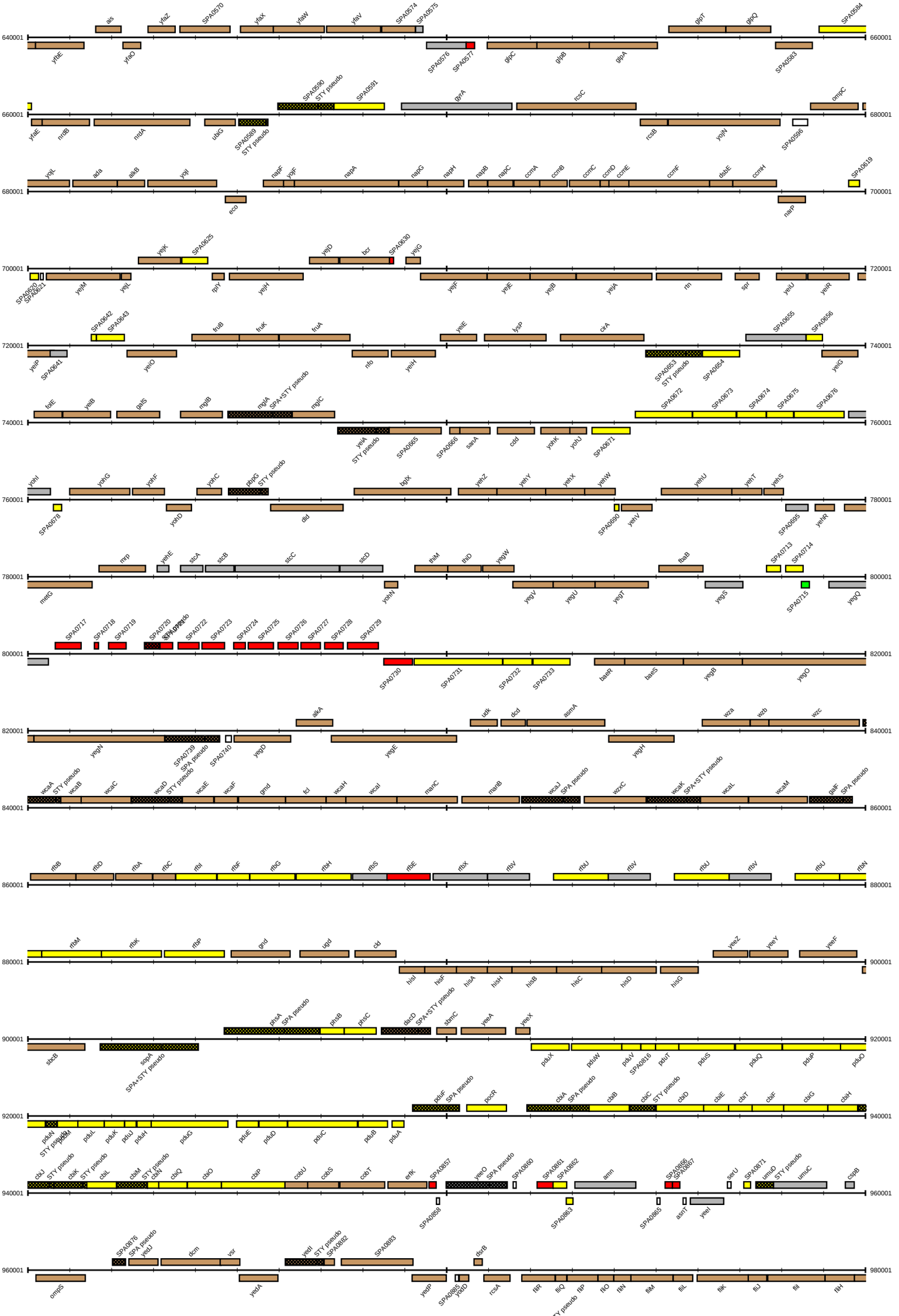
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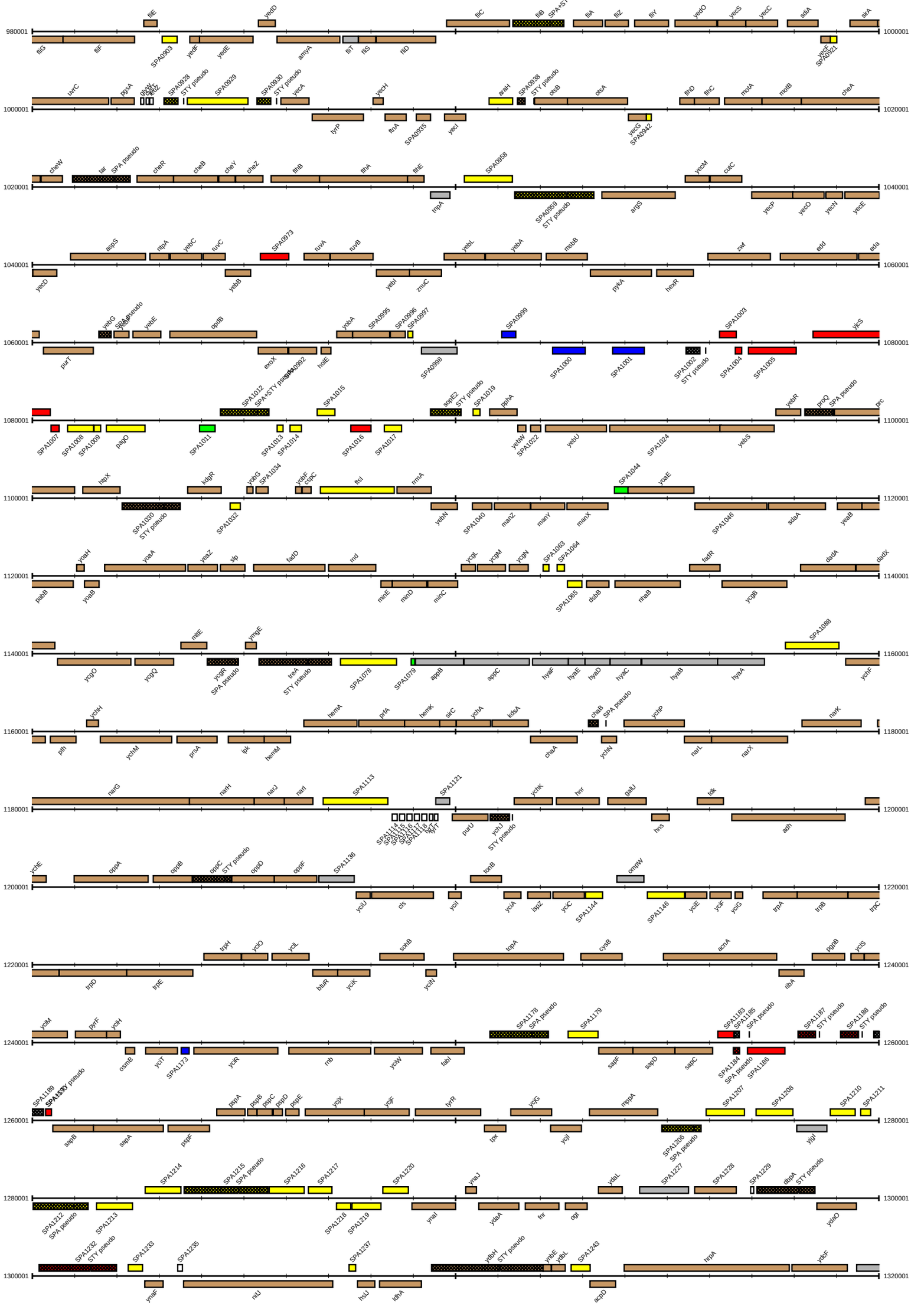
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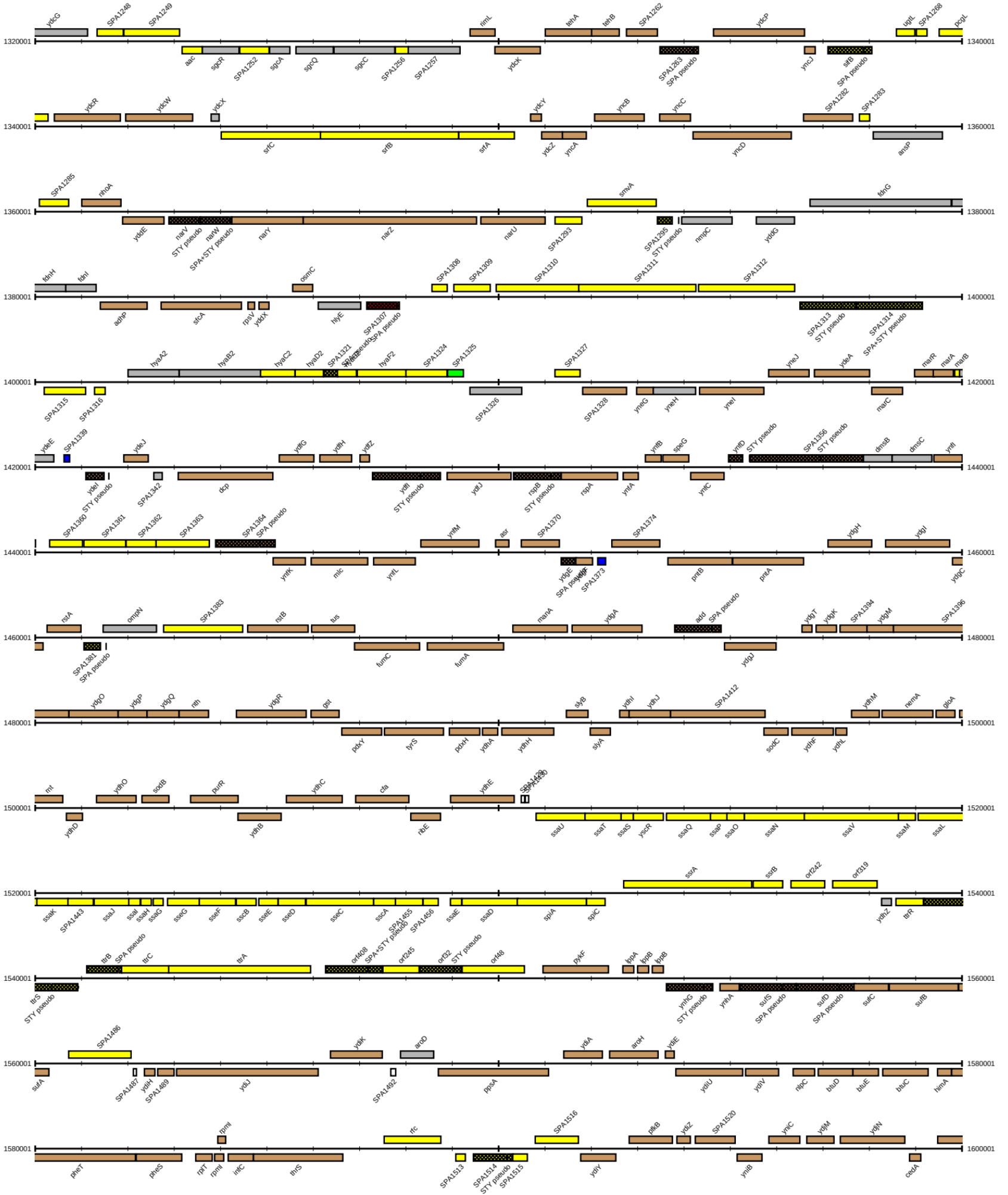
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ydiZ
ydiI
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ydiJ
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rspA
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ymfC
ymfB
speG
ymfD
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dmsC
ymfI
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SPA1364
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mlc
ymfL
ymfM
asr
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SPA1374
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pntA
ydgH
ydgI
ydgC
1460001
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fumA
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tyrS
pdxH
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slyA
ydhI
ydhJ
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ydhL
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gloA
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ribE
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ssaT
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ssaQ
ssaP
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ssaM
ssaL
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ssaH
ssaG
ssaF
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ssaD
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spiC
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ssrB
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SPA pseudo
ttrC
ttrA
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ydiK
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ppsA
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aroH
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ydiU
ydiV
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btuD
btuE
btuC
hmA
1580001
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pheT
pheS
rplT
rpmI
infC
thrS
rfc
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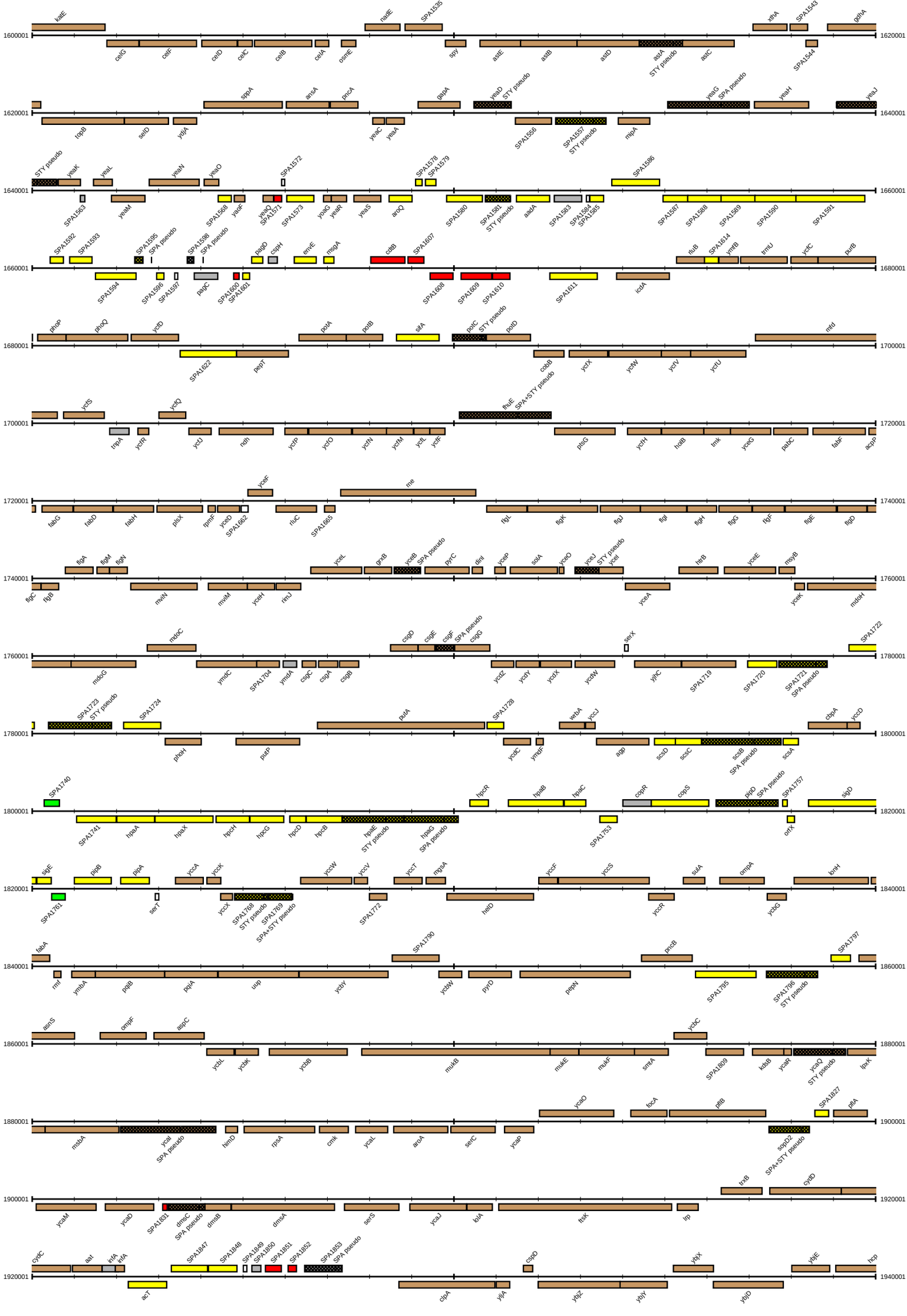
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sppA
ansA
pncA
yeaC
yeaA
gapA
yeaD
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mipA
yeaG
SPA pseudo
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yeaJ
1640001
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yeaO
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aroQ
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cspH
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fluB
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purB
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phoQ
ycfD
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poxB
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potD
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ycfV
ycfU
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ycfR
ycfJ
ndh
ycfP
ycfO
ycfN
ycfM
ycfL
ycfF
fhuE
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ycfH
holB
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fabF
acpP
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fabH
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flgE
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flgM
flgN
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mvM
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rimJ
yceL
grxB
yceB
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dfnI
yceP
solA
yceO
yceJ
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yceA
htrB
yceE
msyB
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csgB
csgD
csgE
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ycdW
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hpaC
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copS
pipD
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sigD
1820001
sigE
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yccK
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yccV
yccT
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ymbA
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ycbK
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mukE
mukF
smtA
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cmk
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serC
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pflB
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ftsK
trxB
cydD
lip
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cydC
aat
intA
intA
acT
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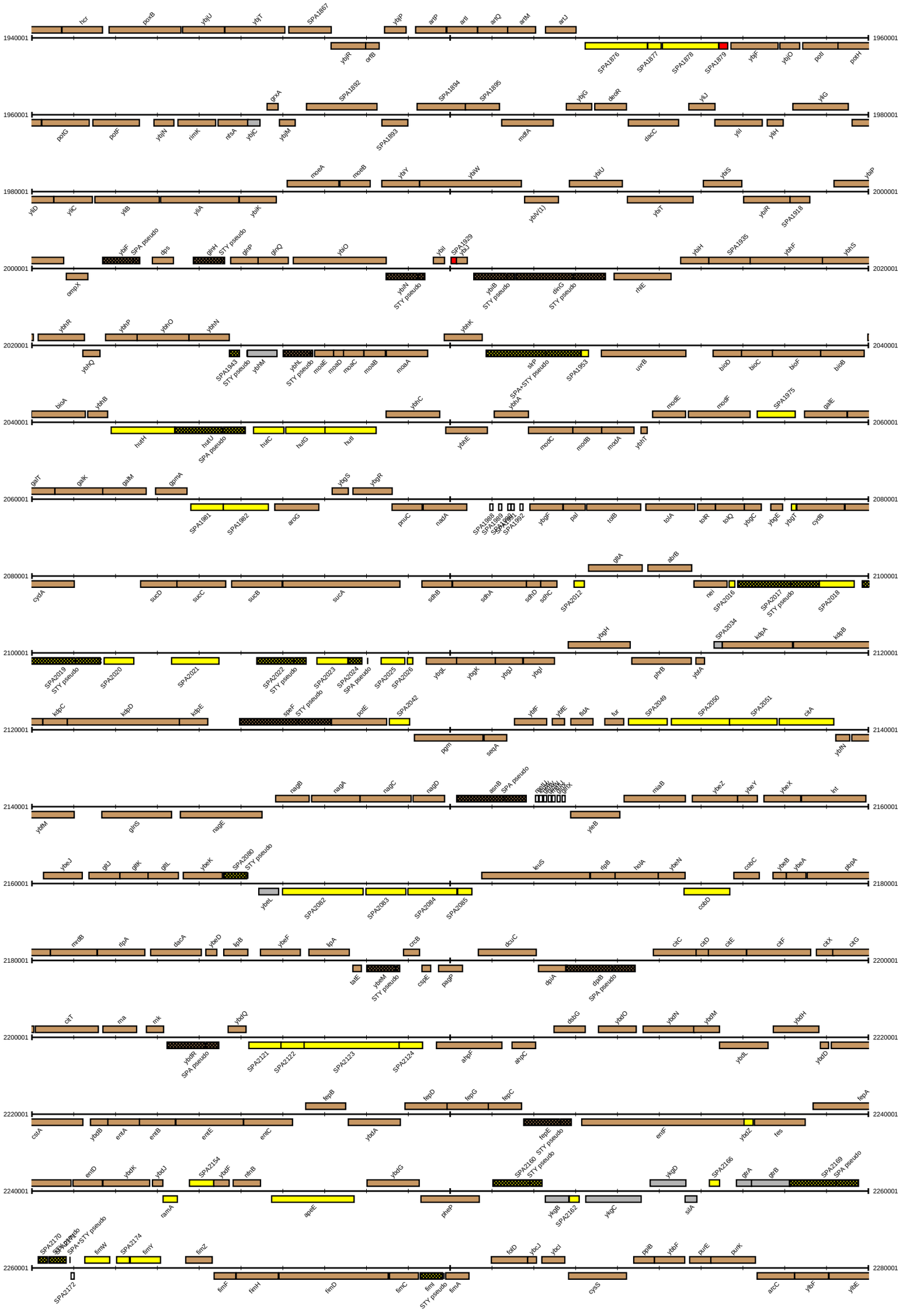
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artM
artJ
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ortB
SPA1876
SPA1877
SPA1878
SPA1879
ybjF
ybjO
potI
potH
1960001
grxA
SPA1892
SPA1894
SPA1895
ybjG
deoR
ylJ
ylG
1980001
potG
potF
ybjN
rimK
rlsA
ybjC
ybjM
SPA1893
mdfA
dacC
yiiI
yiiH
1980001
moeA
moeB
ybjY
ybiW
ybiU
ybiS
ybiP
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yliC
yliB
yliA
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ybiT
ybiR
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ghrH
STY pseudo
glnP
glnQ
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ybiH
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ybiS
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ybiN
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ybiB
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dlnG
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rhlE
2020001
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ybhP
ybhO
ybhN
ybhK
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ybhQ
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STY pseudo
ybhM
ybhL
STY pseudo
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moaD
moaC
moaB
moaA
slP
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bioD
bioC
bioF
bioB
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modE
modF
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galE
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hutU
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hutI
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modB
modA
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ybgR
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nadA
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ybgT
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2080001
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SPA2017
STY pseudo
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kdpA
kdpB
2120001
SPA2019
STY pseudo
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SPA2021
SPA2022
STY pseudo
SPA2023
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ybgK
ybgJ
ybgI
phrB
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2120001
kdpC
kdpD
kdpE
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ybfE
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SPA2051
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nagD
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ybeY
ybeX
lnt
2160001
ybfM
glnS
nagE
yleB
2160001
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gltK
gltL
ybeK
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rlpB
holA
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cobC
ybeB
ybeA
phpA
2180001
ybeL
SPA2082
SPA2083
SPA2084
SPA2085
cobD
2180001
mrdB
rlpA
dacA
ybeD
lipB
ybeF
lipA
circB
dcuC
citC
citD
citE
citF
citX
citG
2200001
tatE
ybeM
STY pseudo
cspE
paiP
dpiA
dpiB
SPA pseudo
2200001
citT
ma
mk
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dsbG
ybdO
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ybdM
ybdH
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SPA2122
SPA2123
SPA2124
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ahpC
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ybdD
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fepC
fepA
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ybdF
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gtrA
gtrB
SPA2169
SPA pseudo
2260001
ramA
apeE
pheP
ykgB
SPA2162
ykgC
slA
2260001
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fimW
SPA2174
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fimZ
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ybcI
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ybbF
putE
putK
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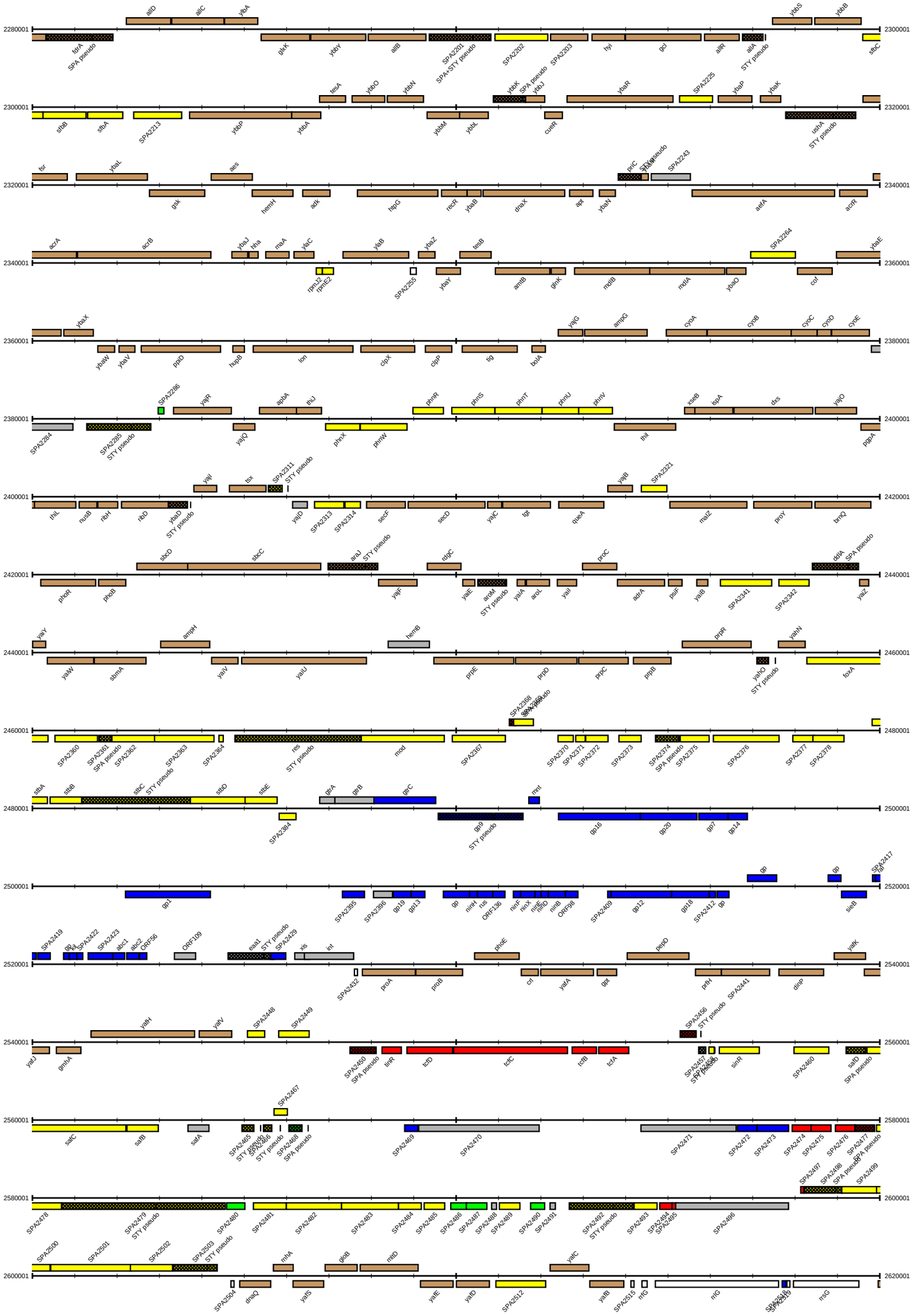
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ybbB
fdrA
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allB
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SPA2203
hyi
gcl
allR
allA
STY pseudo
sfbC
2300001
tesA
ybbO
ybbN
ybbK
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ybbJ
ybaR
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ybaP
ybaK
2320001
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sfbA
SPA2213
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ybbM
ybbL
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ushA
STY pseudo
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ybaL
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priC
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hemH
adk
hpG
recR
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apt
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acrR
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acrB
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rsaA
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ylaB
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amiG
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cyoB
cyoC
cyoD
cyoE
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ybaV
ppiD
hupB
lon
clpX
clpP
tig
bolA
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thiJ
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phnT
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phnV
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ispA
dxs
yajO
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secD
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queA
malZ
proY
bmrQ
sbcD
sbcC
araJ
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rdgC
proC
ddlA
SPA pseudo
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phoB
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aroM
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aroL
yaiI
adrA
rsiF
yaiB
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SPA2342
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hemB
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yaiU
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prpD
prpC
prpB
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SPA2368
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stbB
stbC
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stbE
grrA
grrB
grrC
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rus
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yafV
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tcfB
tcfA
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sinR
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safB
safA
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STY pseudo
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SPA2502
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glnB
mltD
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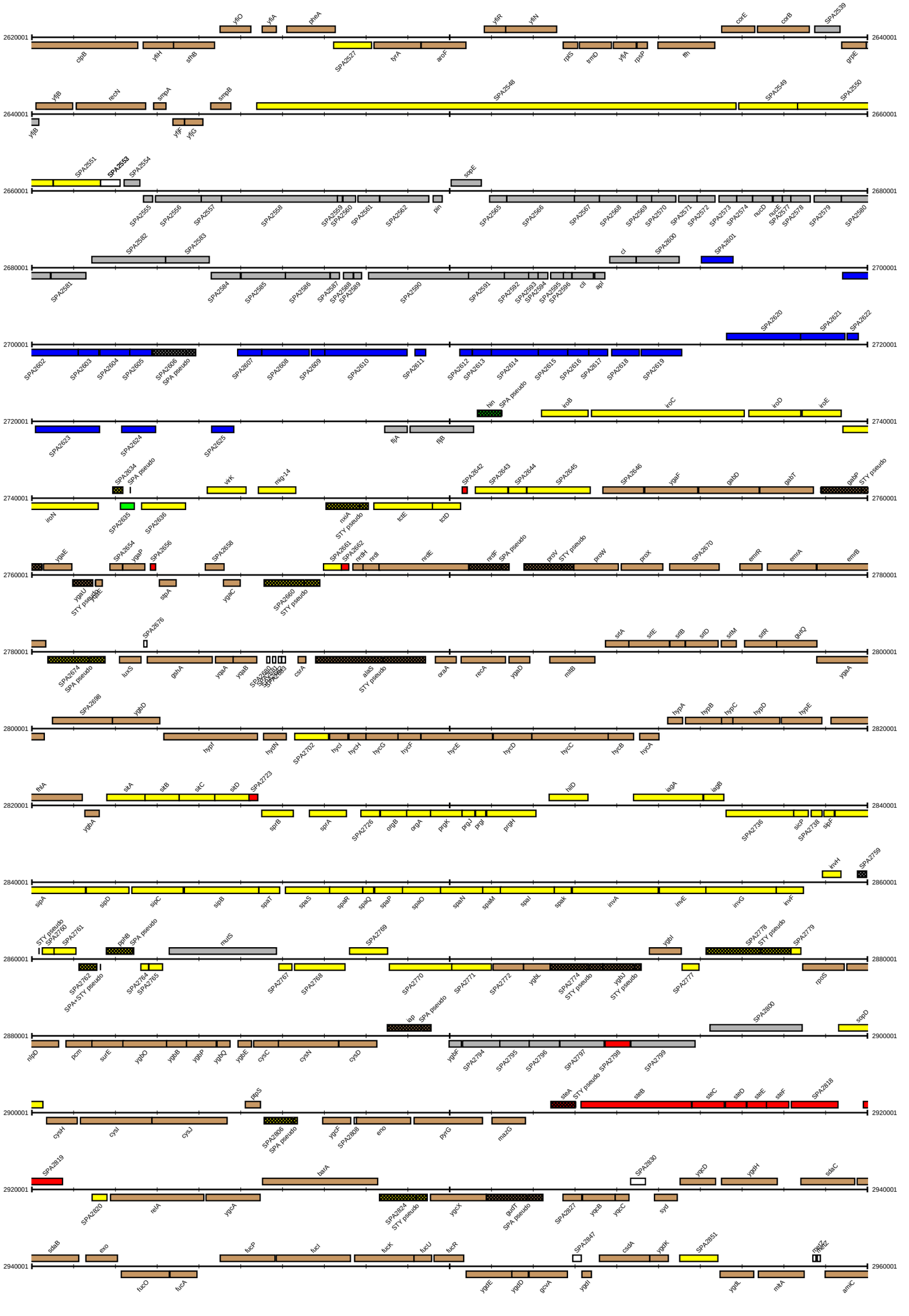
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gmE
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tctD
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proW
proX
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sptA
ygaC
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sfiR
gutQ
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ygaA
ygaB
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SPA2691
SPA2692
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invF
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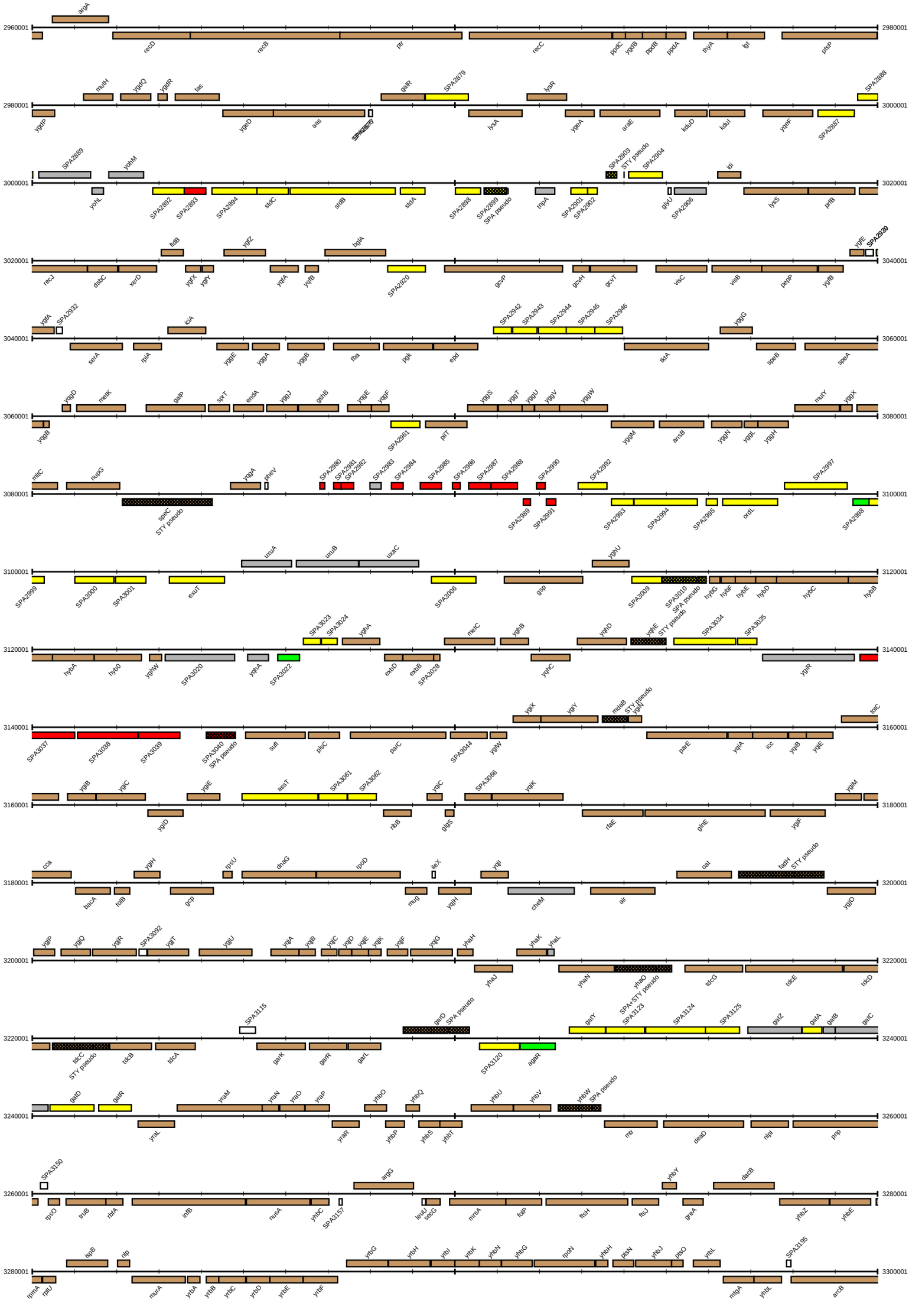
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stdA
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ftsJ
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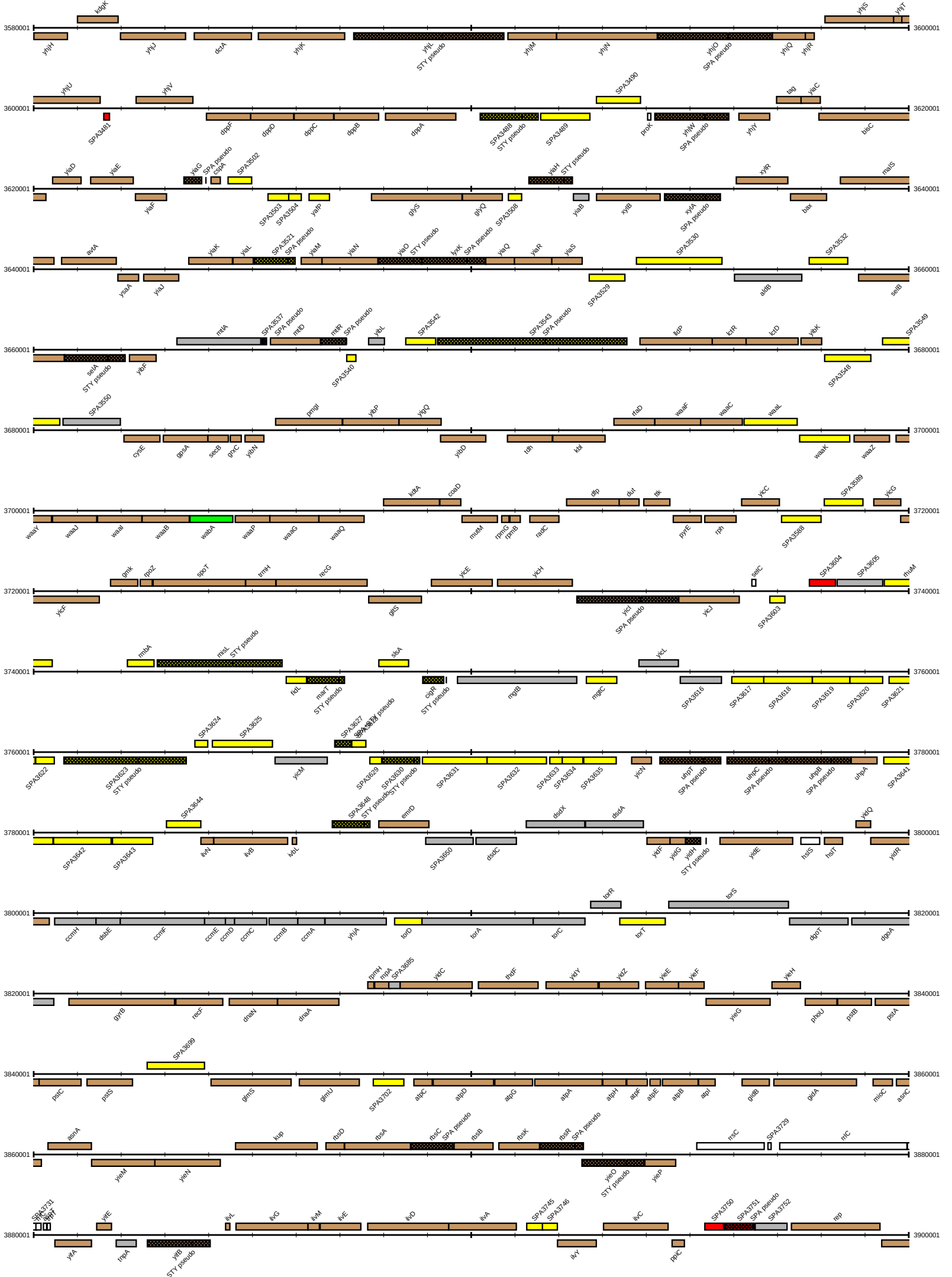
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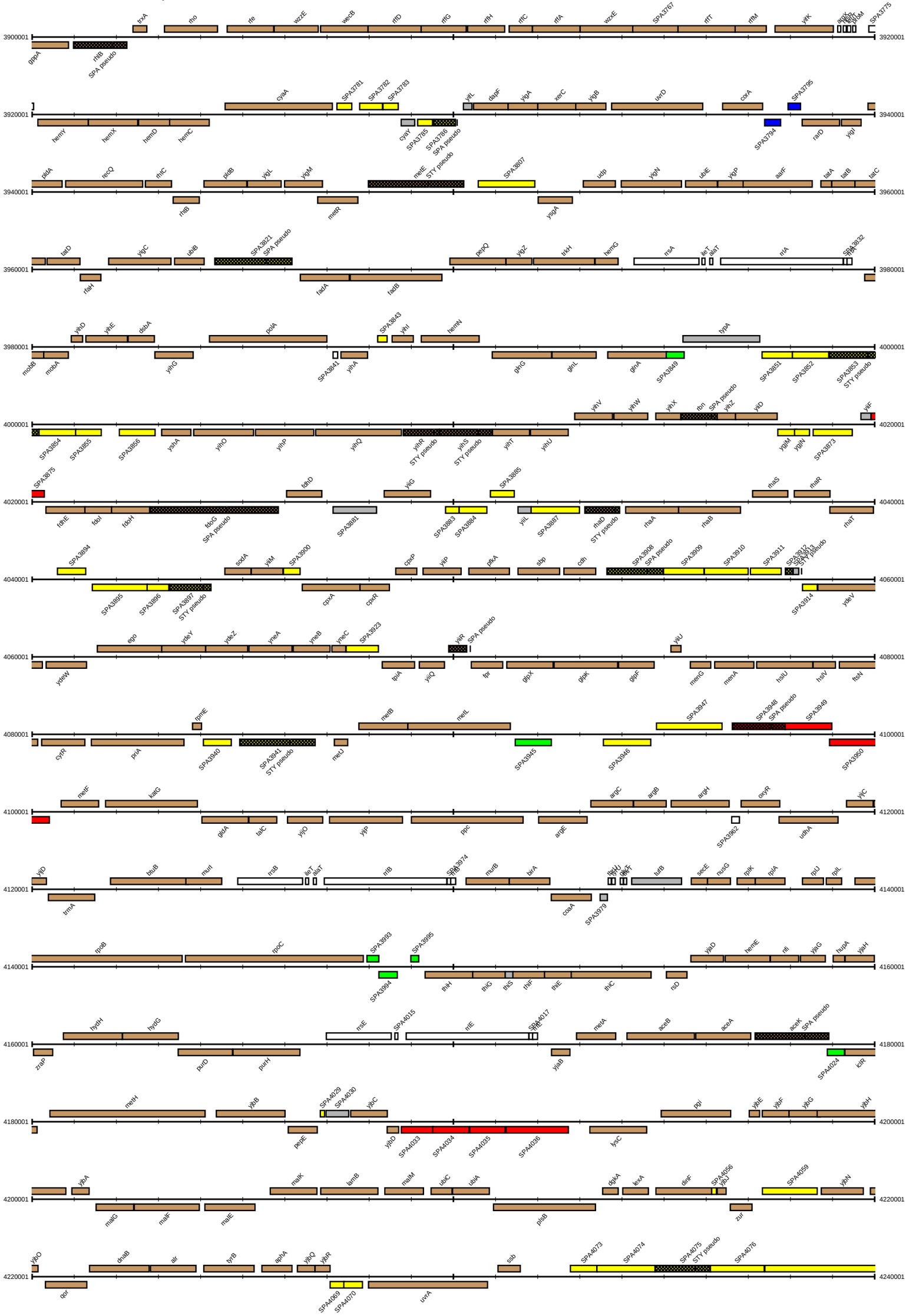
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aphA
yjbQ
yjbR
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SPA4074
SPA4075
STY pseudo
SPA4076
qor
SPA4069
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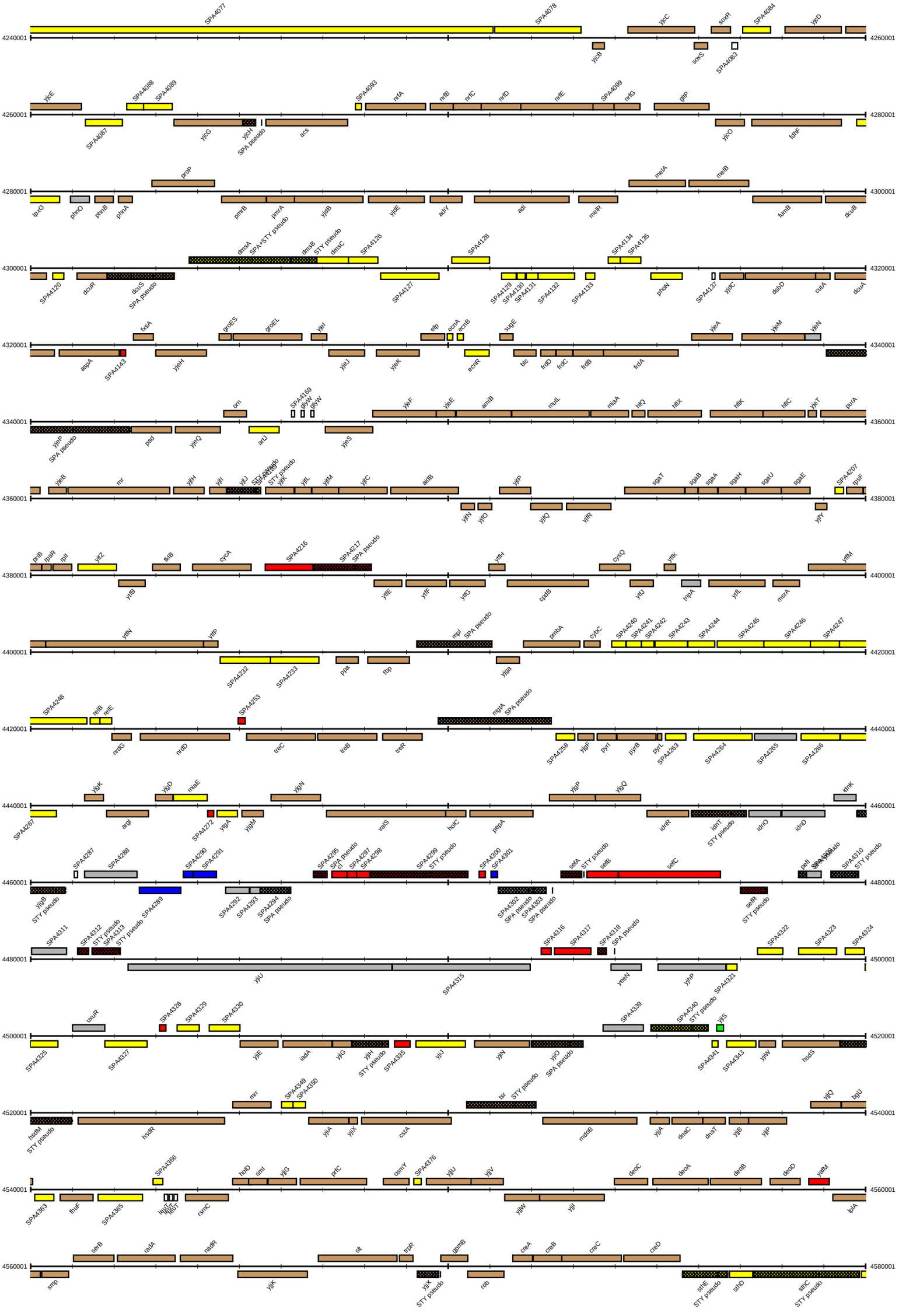
uvrA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SPA4089
SPA4093
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nrfB
nrfC
nrfD
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nrfG
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proP
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melB
lpxO
phnO
phnB
phnA
pmrB
pmrA
yjdB
yjdE
adiY
adi
melR
fumB
dcuB
4320001
dmsA
SPA+STY pseudo
dmsB
STY pseudo
dmsC
SPA4126
SPA4128
SPA4134
SPA4135
SPA4120
dcuR
dcuS
SPA pseudo
SPA4127
SPA4129
SPA4130
SPA4131
SPA4132
SPA4133
phoN
SPA4137
yjdC
dsbD
cuA
dcuA
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fxsA
groES
groEL
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elp
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ecnB
sugE
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yjeN
aspA
SPA4143
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yjeK
ecnR
bic
frdD
frdC
frdB
frdA
4360001
orn
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glyW
glyW
yjeF
yjeE
amiB
mutL
miaA
hfQ
hflX
hflK
hflC
yjeT
purA
yjeP
SPA pseudo
psd
yjeQ
artJ
yjeS
yjeB
mr
yjfH
yjfI
yjfJ
SPA pseudo
SPA pseudo
STY pseudo
yjfK
yjfL
yjfM
yjfC
adiB
yjfP
sgaT
sgaB
sgaA
sgaH
sgaU
sgaE
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yjfN
yjfO
yjfQ
yjfR
yjfY
pyrB
rpsR
rplI
yjfZ
fkdB
cycA
SPA4216
SPA4217
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ydhI
cysQ
ydhK
ydhM
4400001
yjfB
yjfE
yjfF
yjfG
cpdB
yjfJ
rnpA
yjfL
msrA
yjfN
yjfP
mpl
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pmbA
cybC
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SPA4242
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ppa
fbp
yjga
SPA4248
relB
relE
SPA4253
mglA
SPA pseudo
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nrdD
trcC
treB
treR
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yjgC
pyrI
pyrB
pyrL
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SPA4265
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yjgK
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miaE
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argI
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idnO
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SPA4301
selA
STY pseudo
selB
selC
pefI
SPA4309
SPA pseudo
SPA4310
STY pseudo
yjgB
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SPA4292
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SPA4317
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yjiU
SPA4315
yeeN
yjhP
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SPA4329
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SPA4339
SPA4340
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SPA4327
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iadA
yjiG
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mdoB
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fhuF
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yjjI
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nadR
slt
trpR
gpmB
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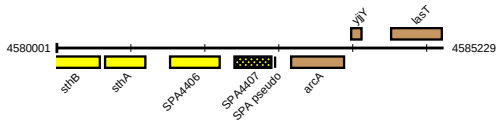
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SPA4407
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arcA