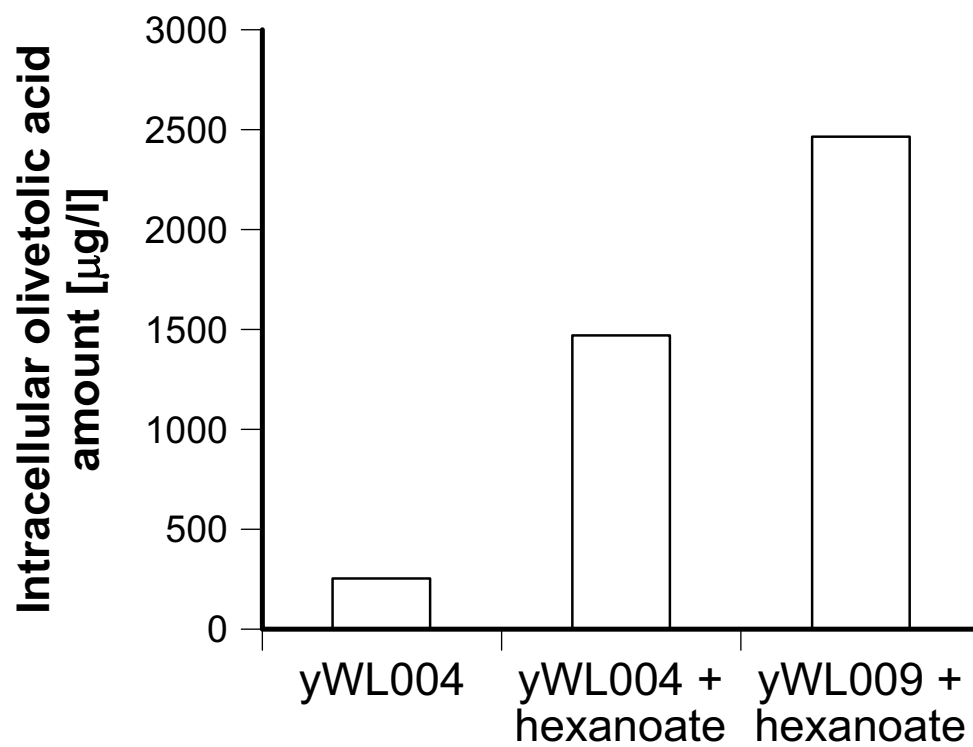
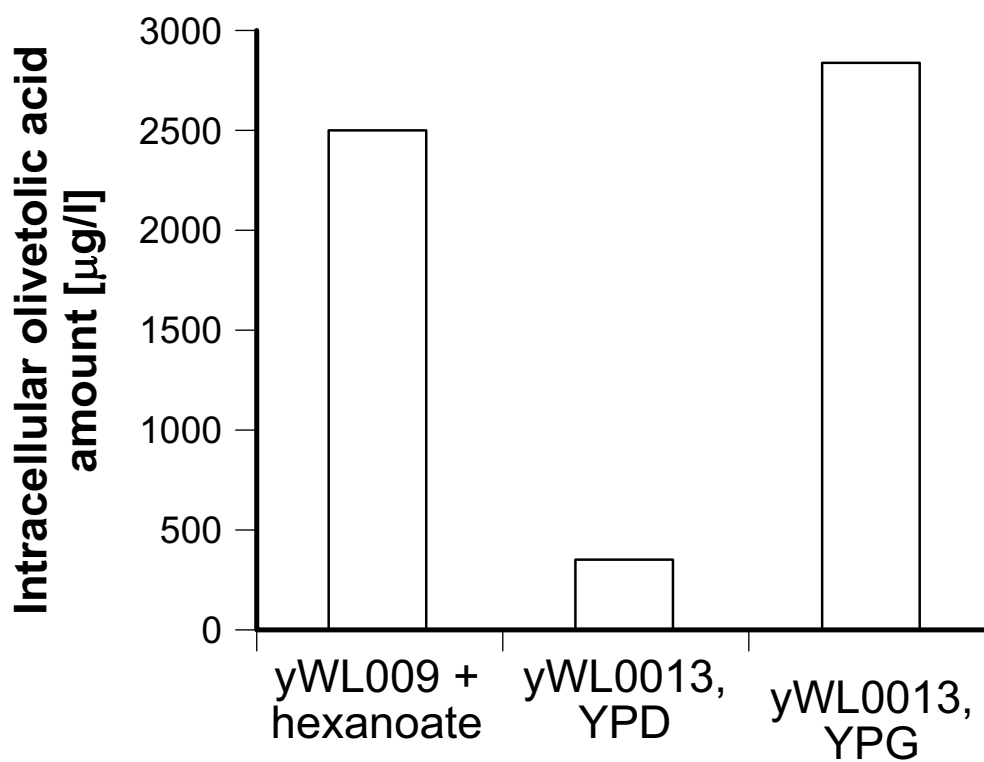


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2/101**FIG. 2****FIG. 3**

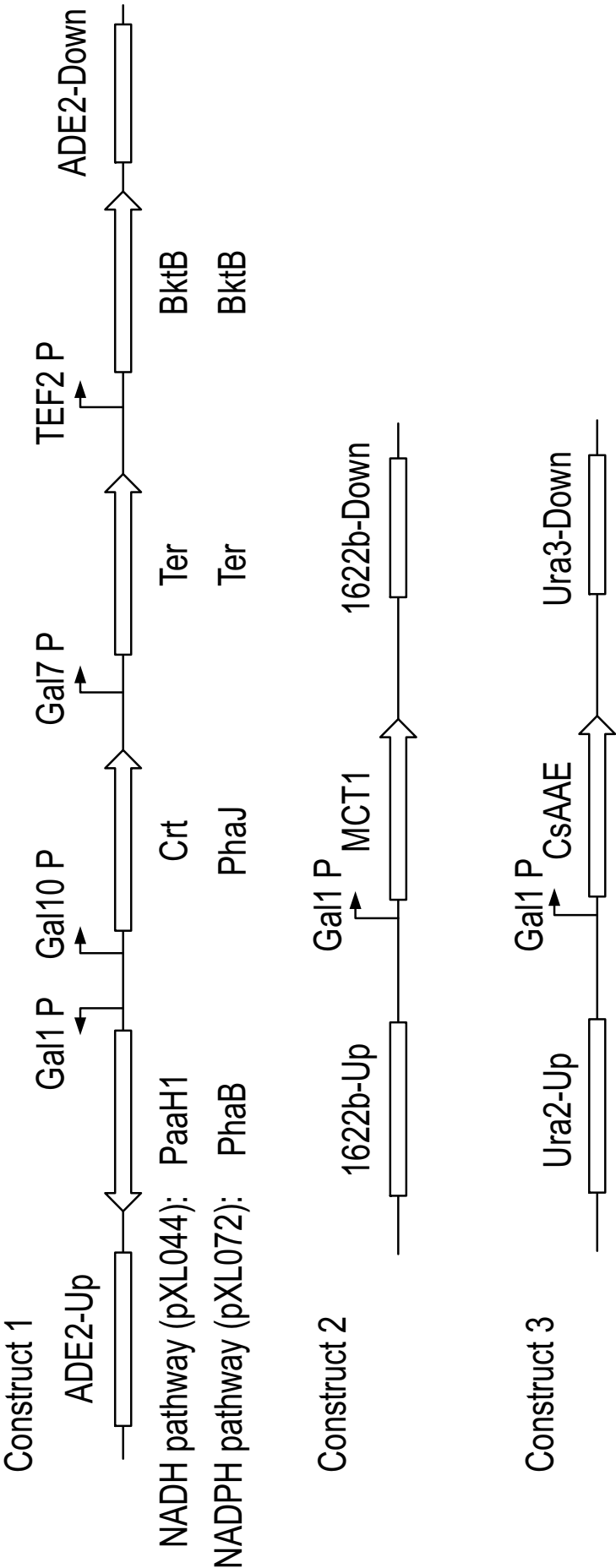
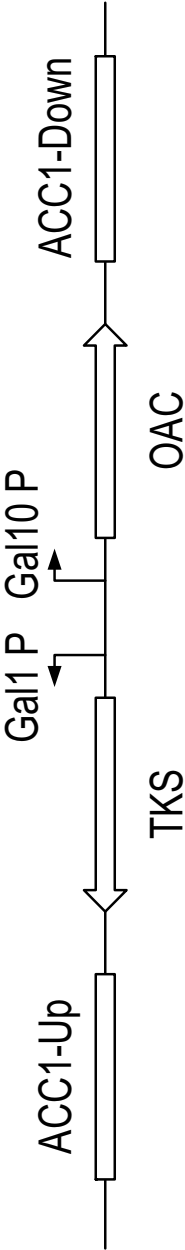


FIG. 4

Construct 4
Design 1:



Construct 5
Design 2:

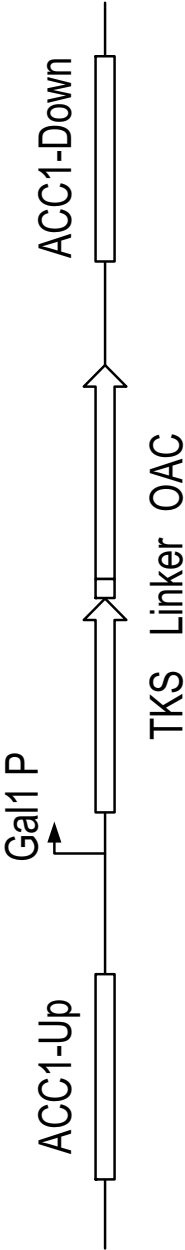


FIG. 5

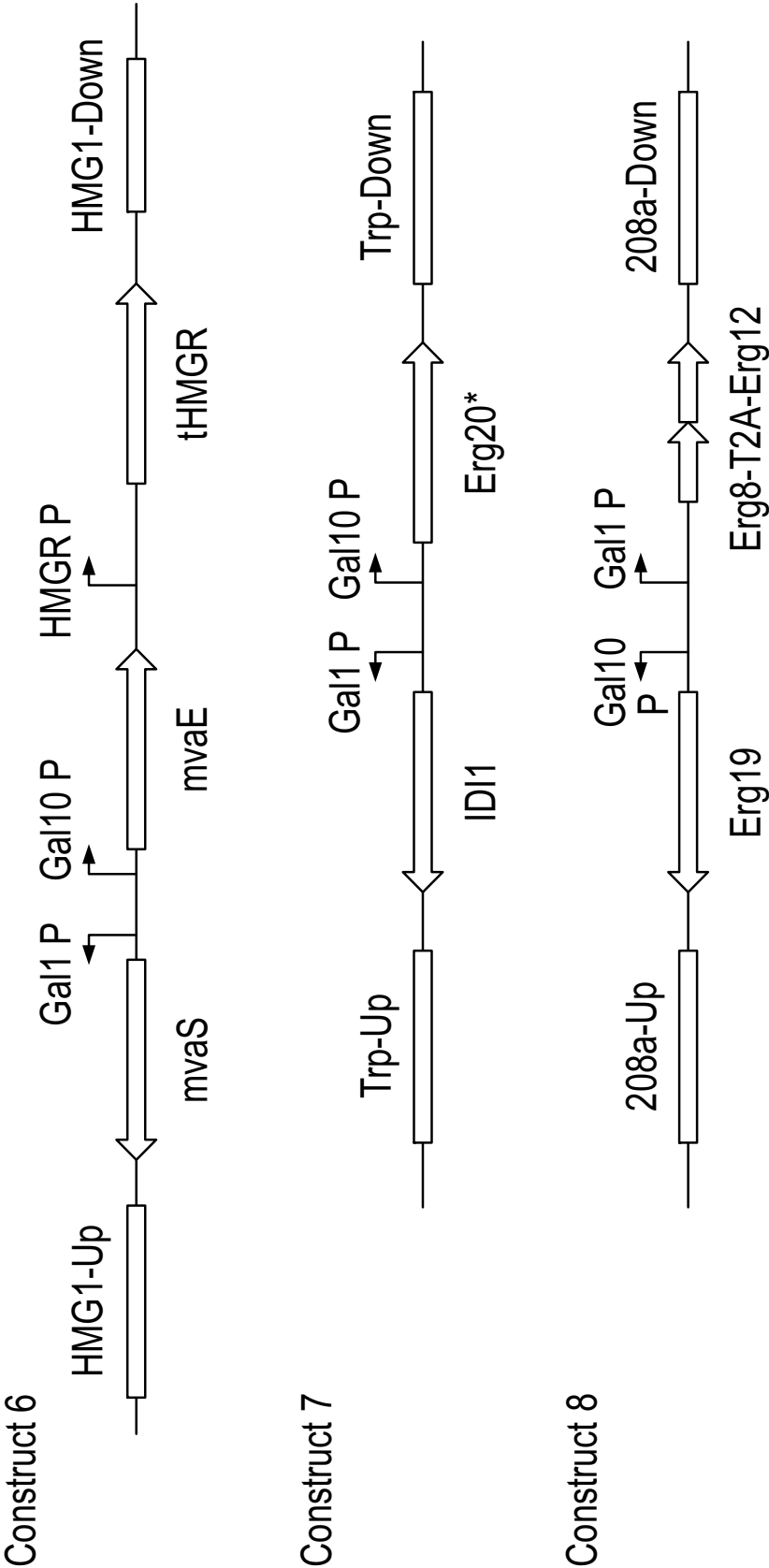
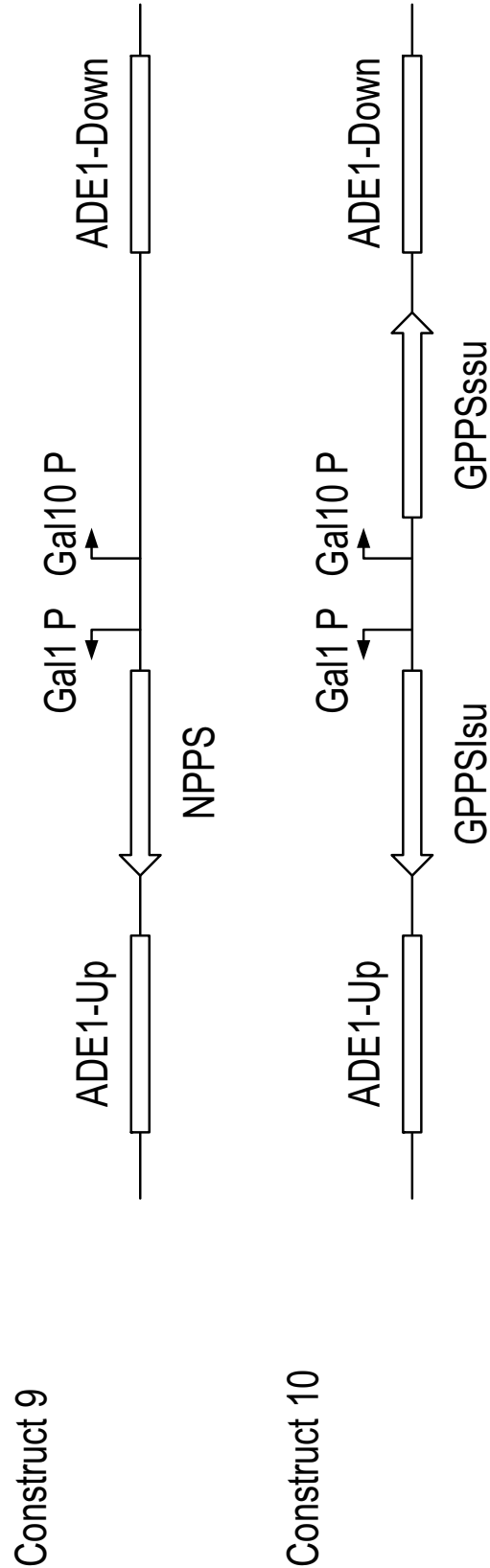


FIG. 6



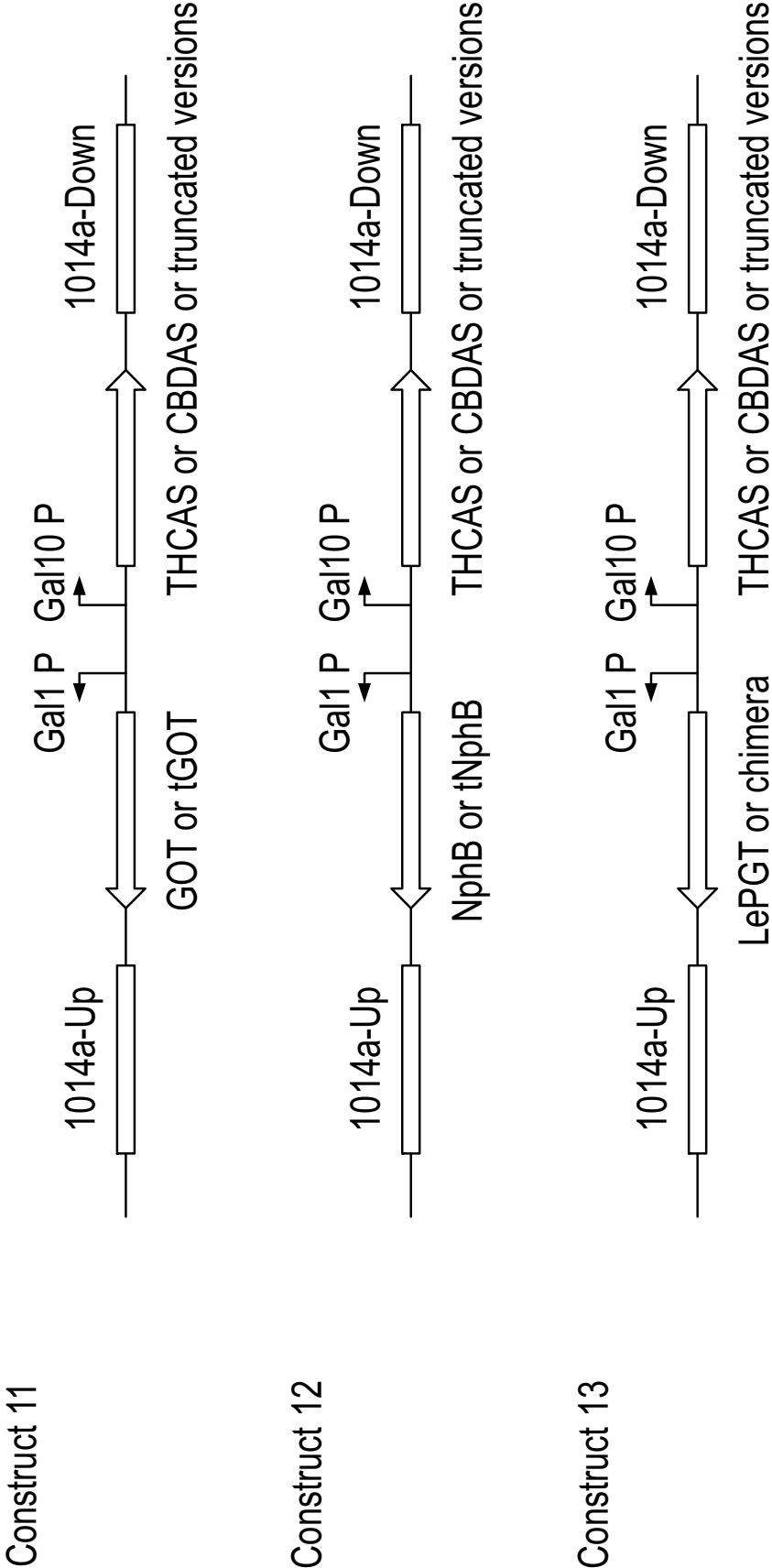


FIG. 8

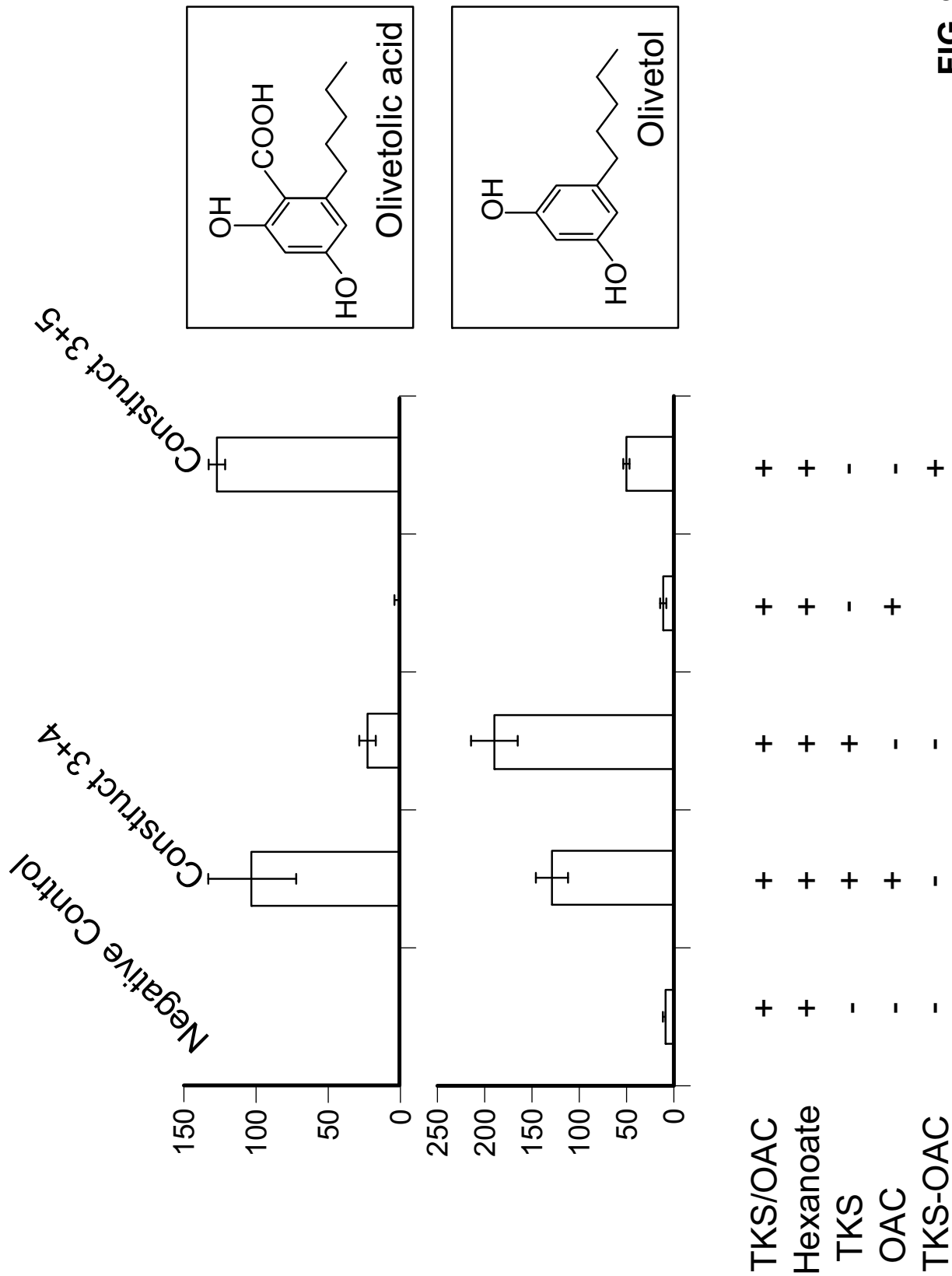


FIG. 9

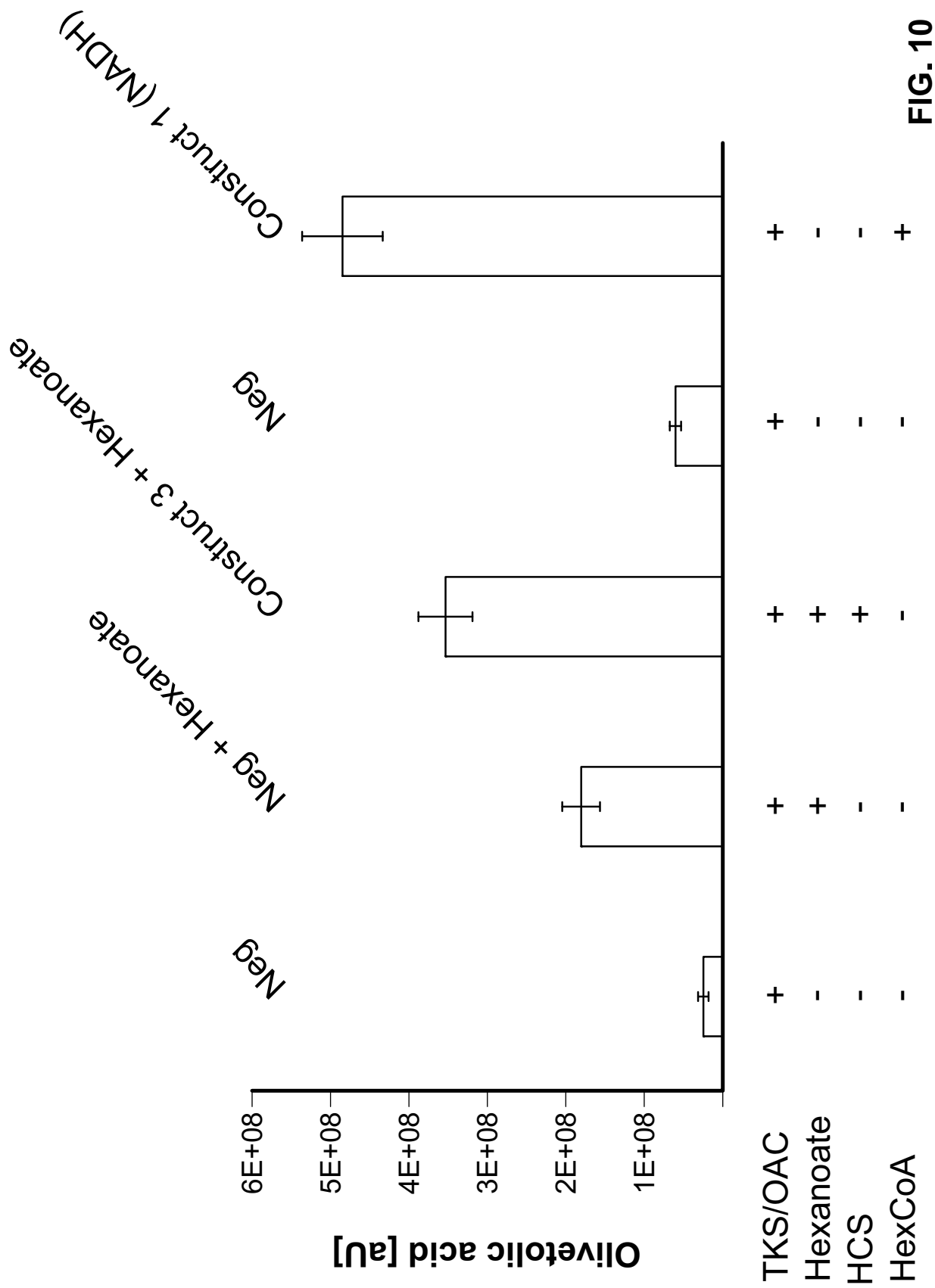


FIG. 10

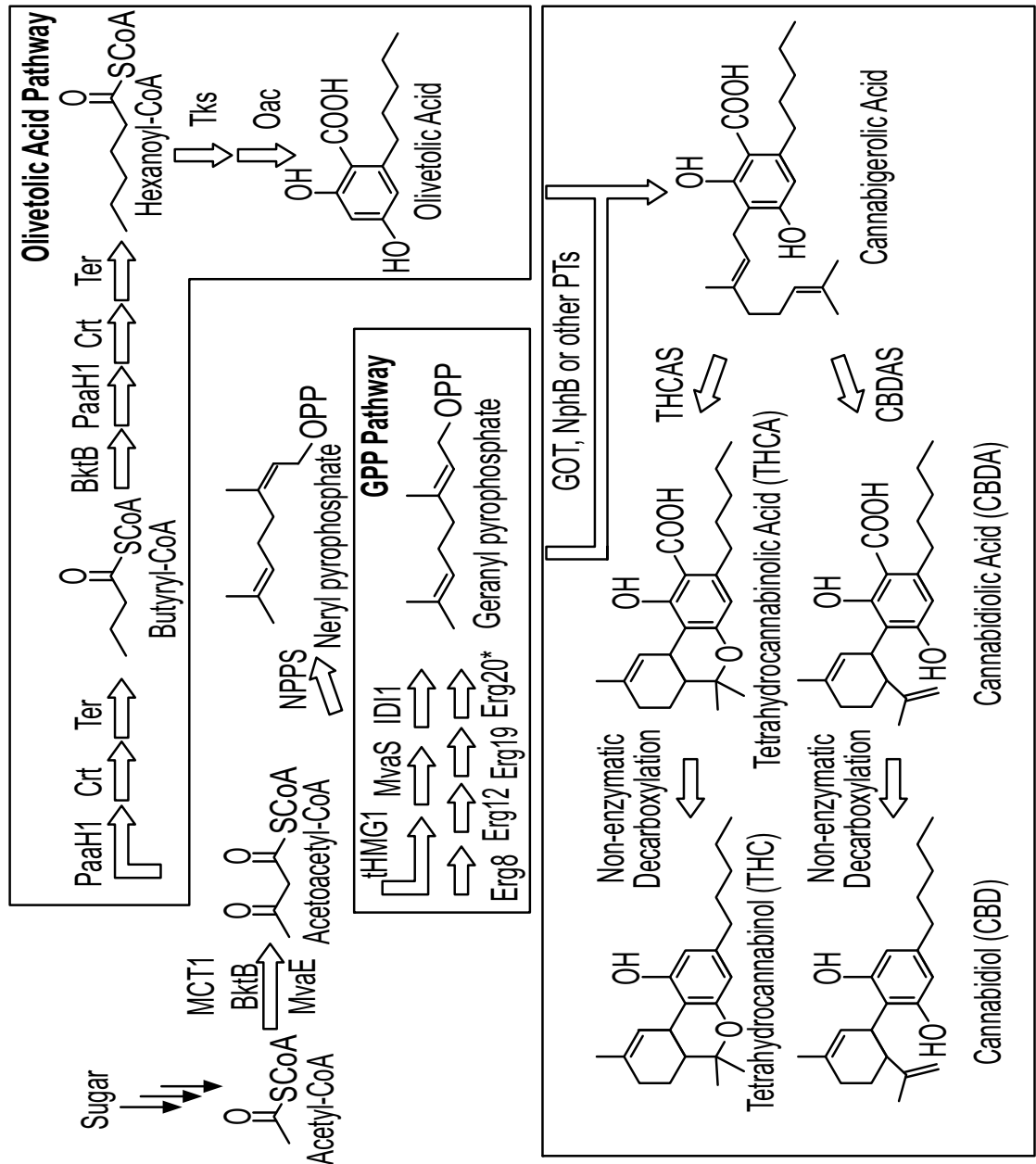
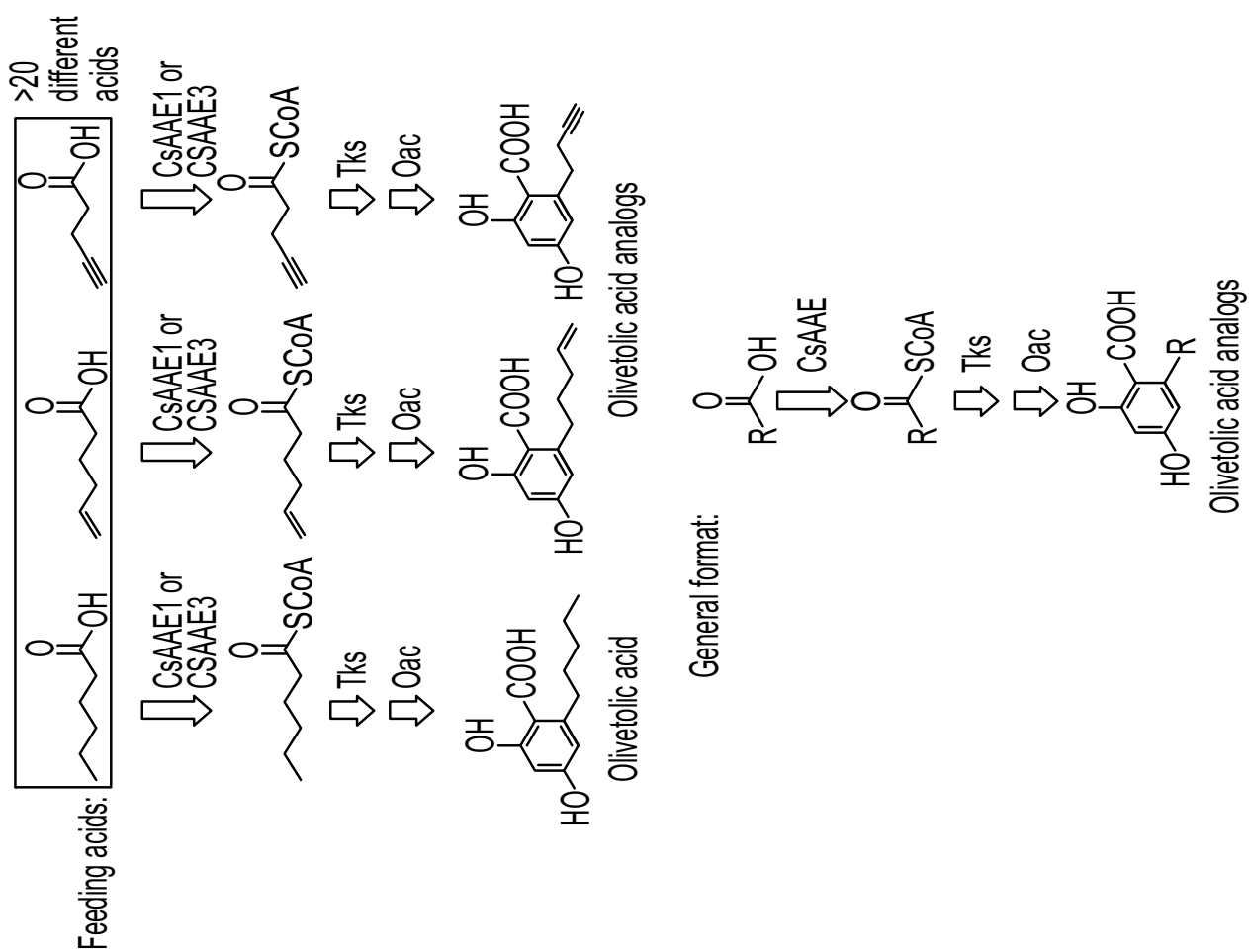
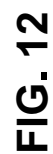


FIG. 11





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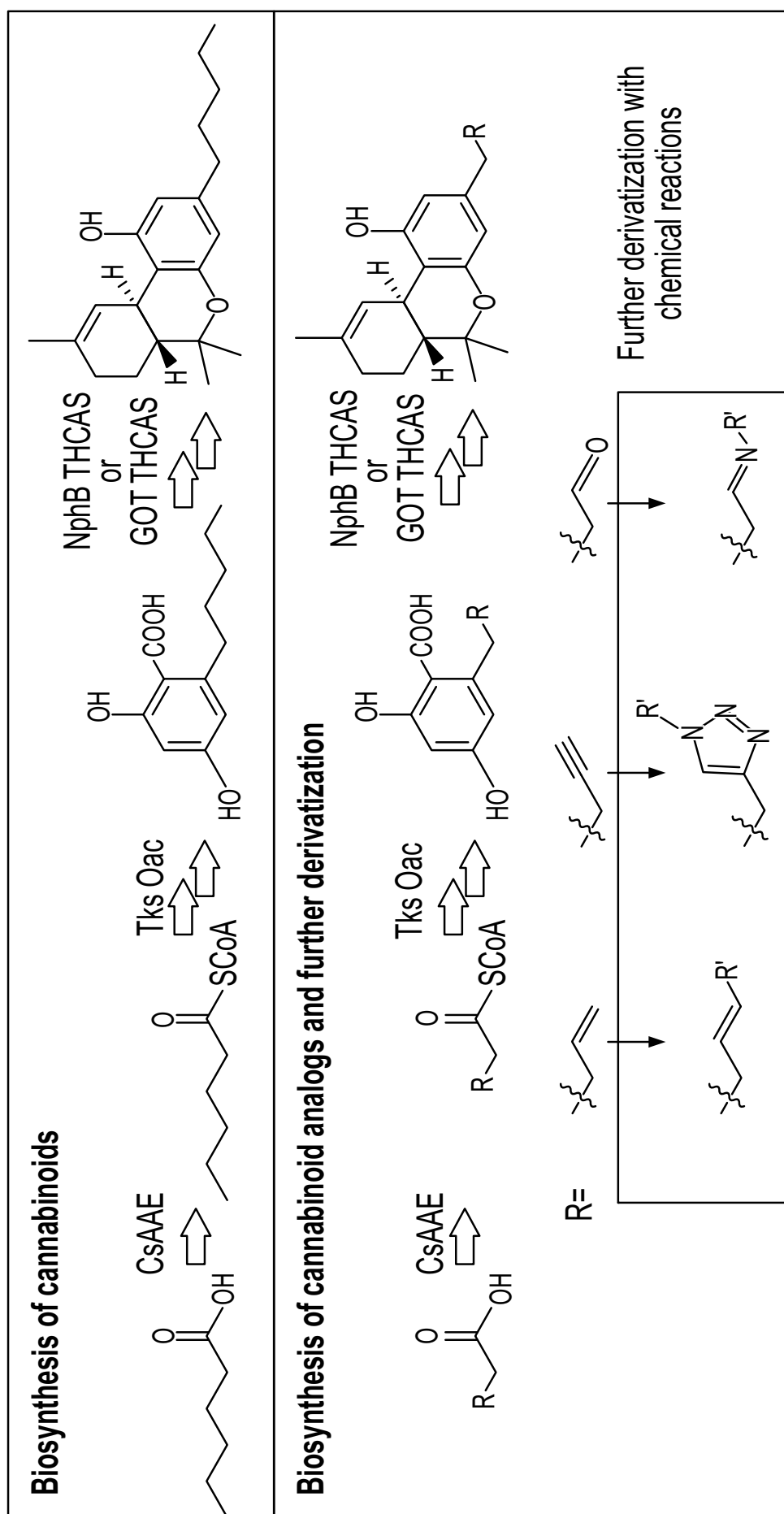


FIG. 13

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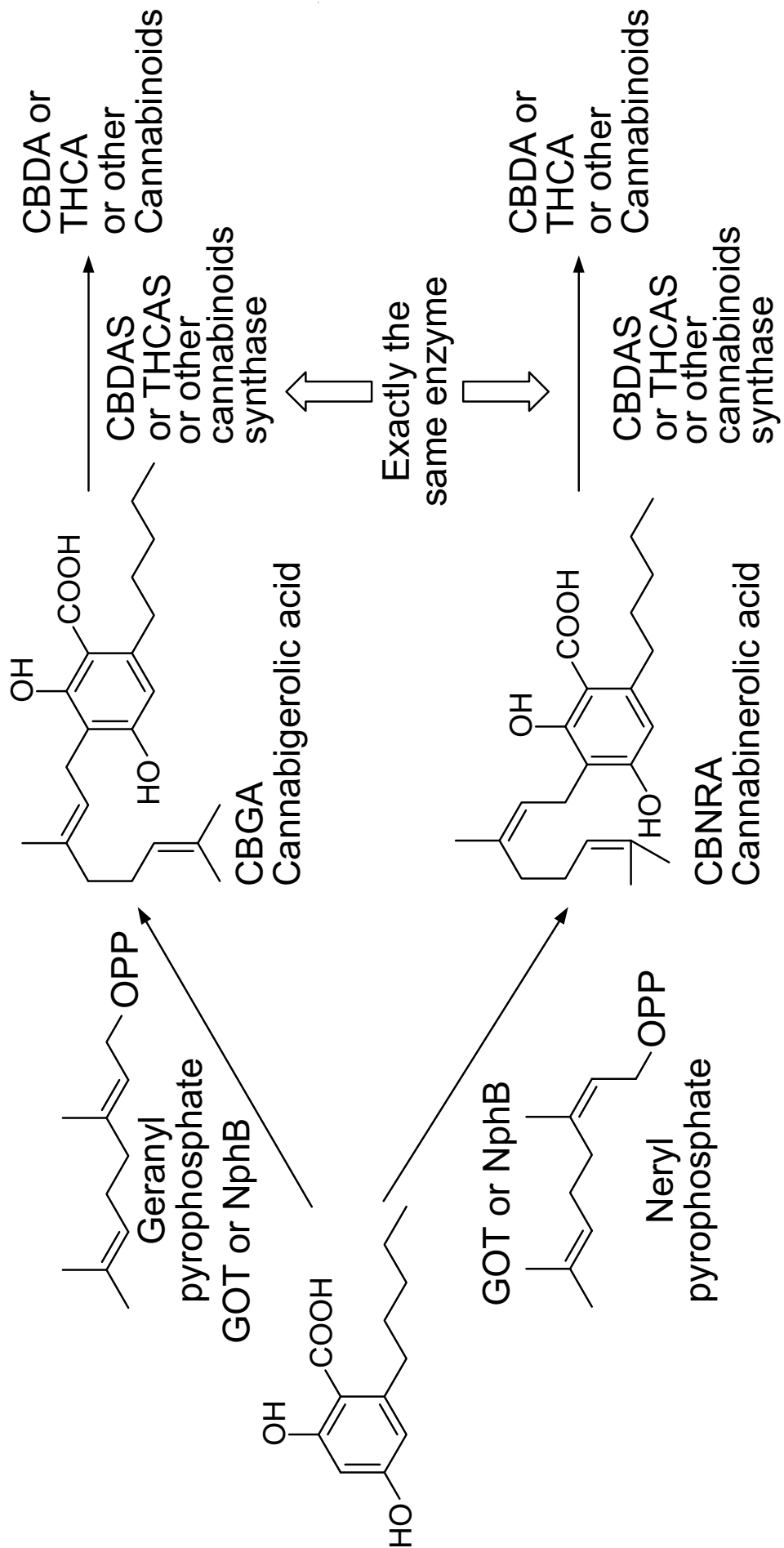
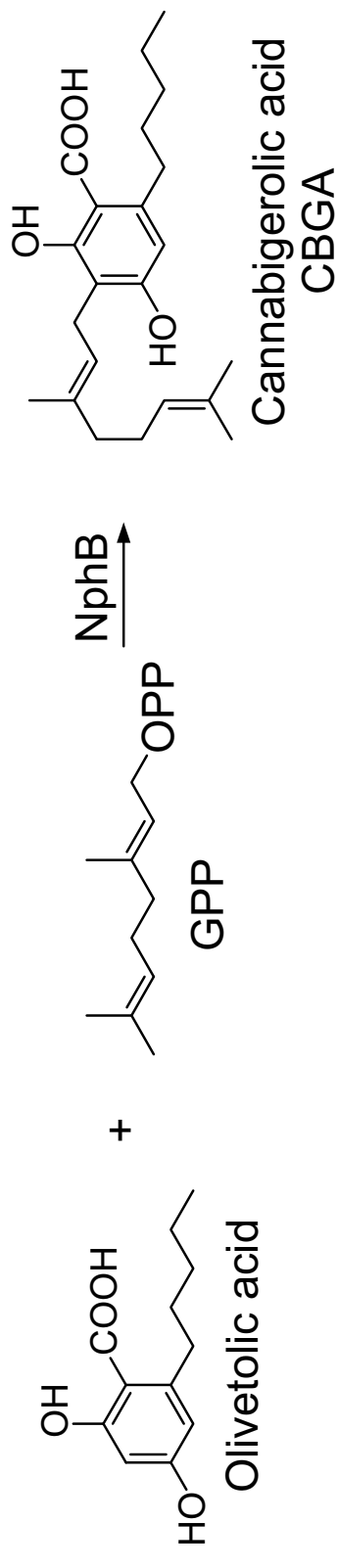


FIG. 14



Titer of Cannabigerolic acid

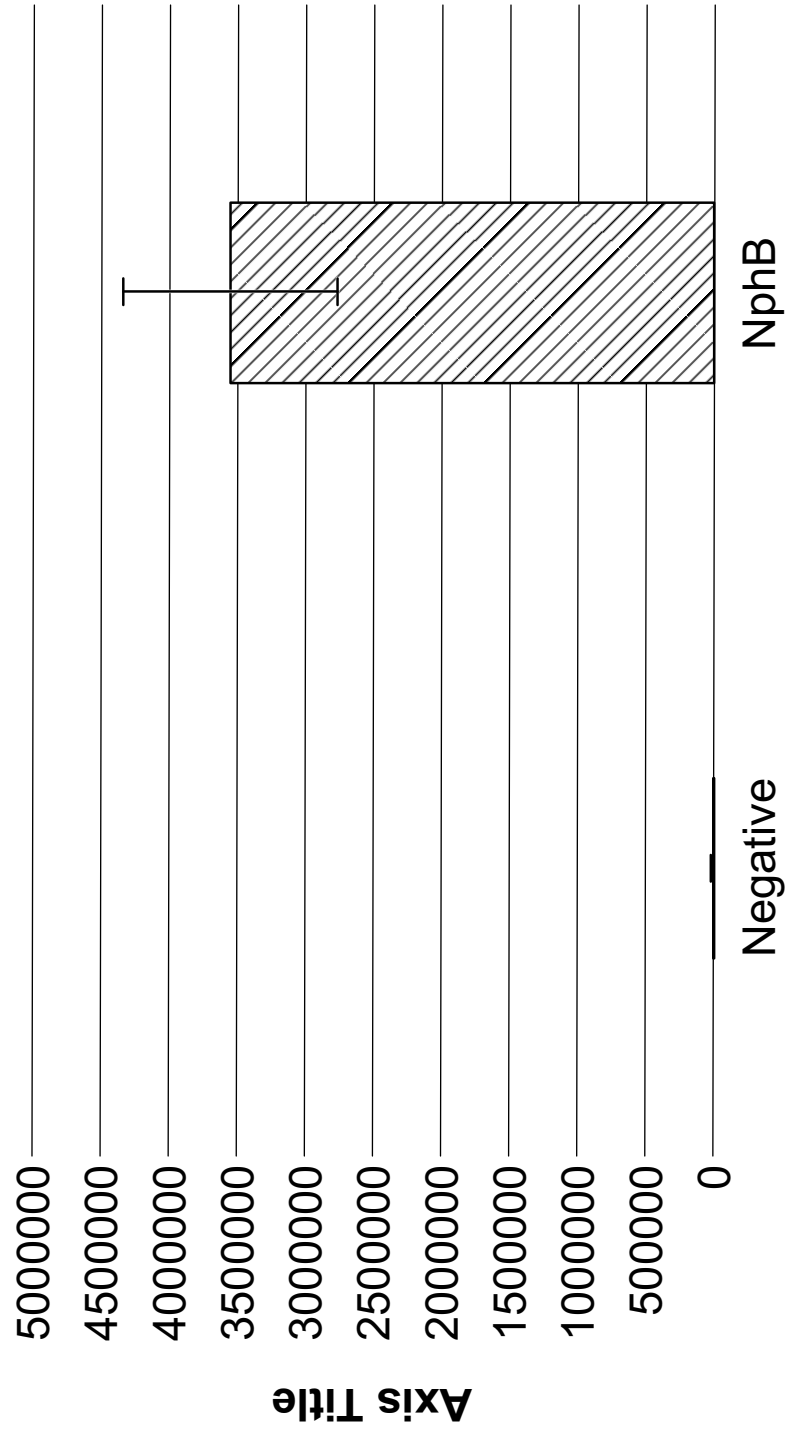


FIG. 15

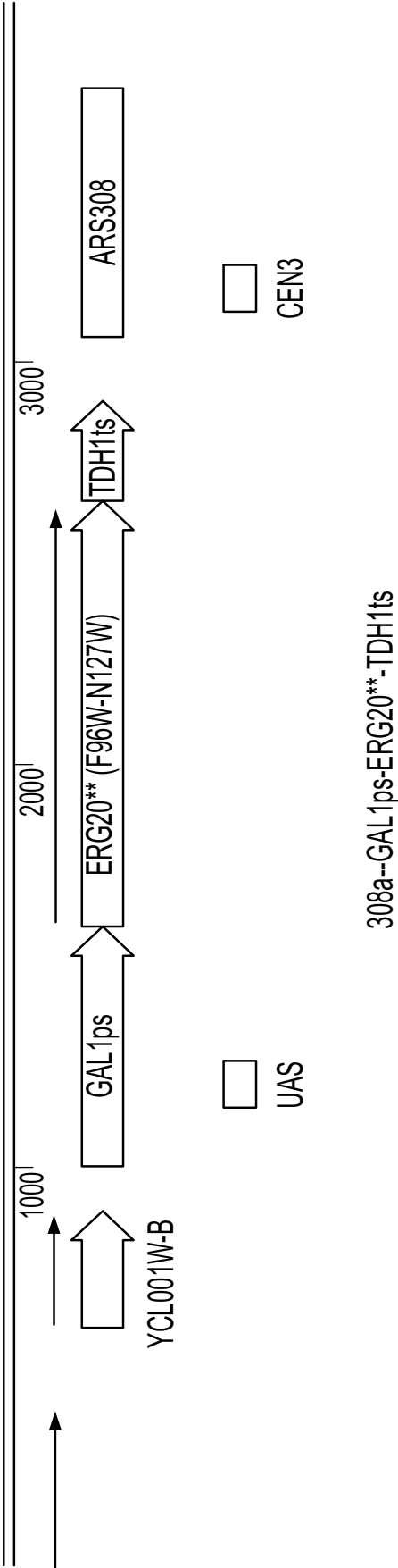
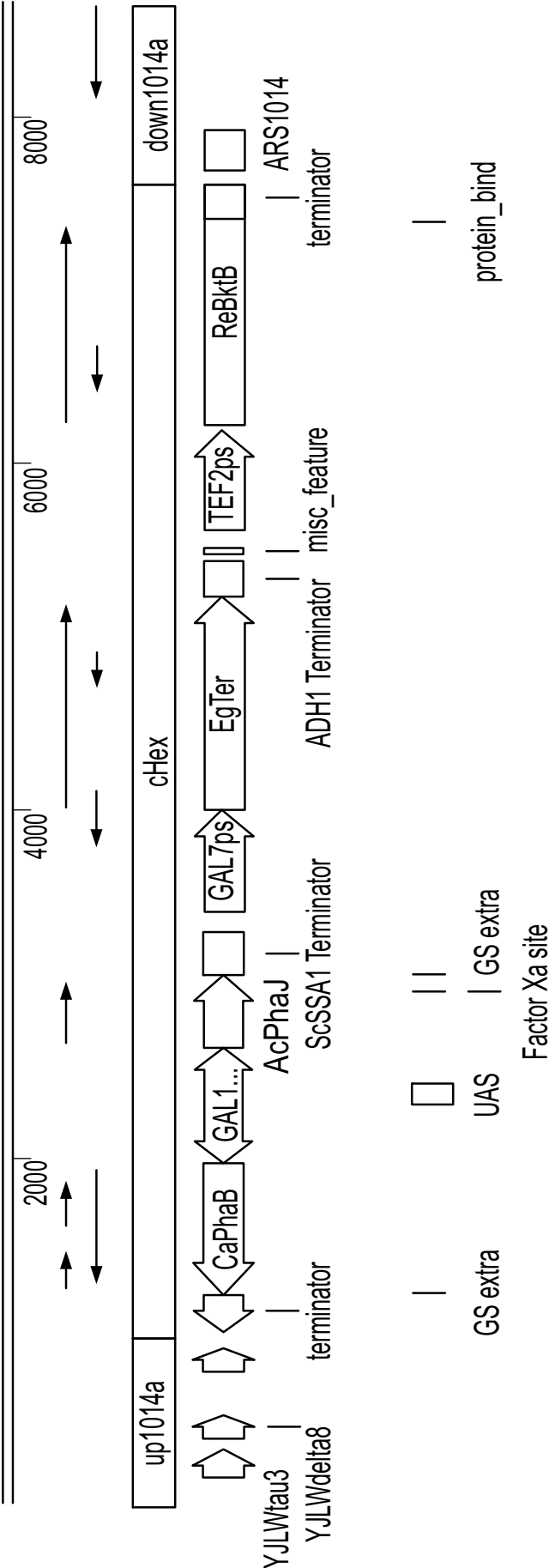


FIG. 16

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1014a--cHexCoA

FIG. 17

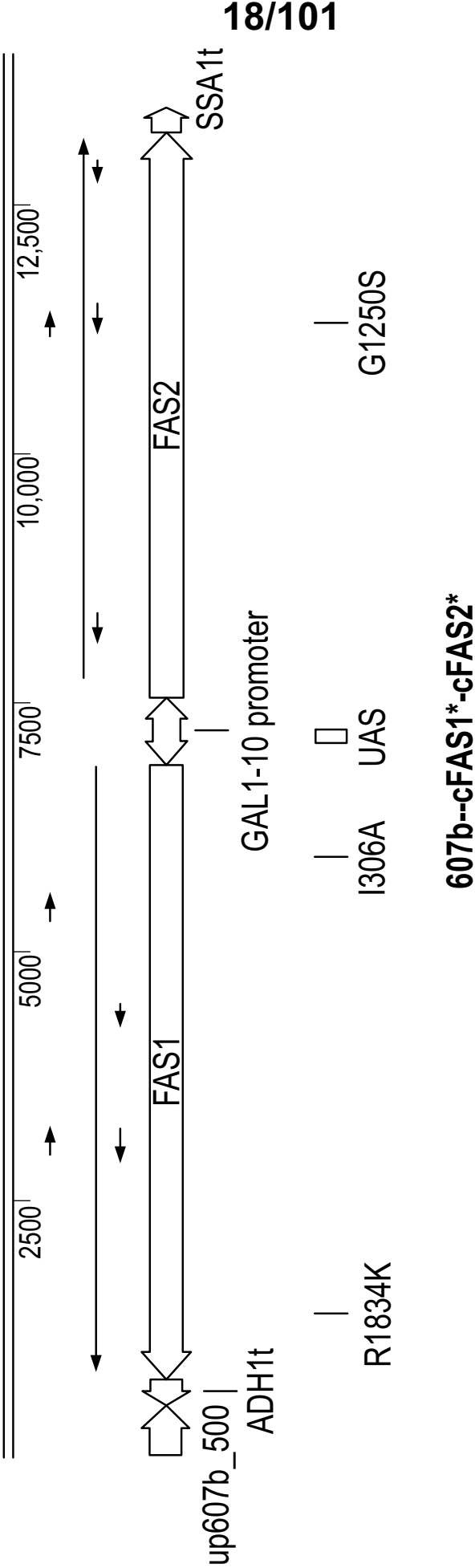


FIG. 18

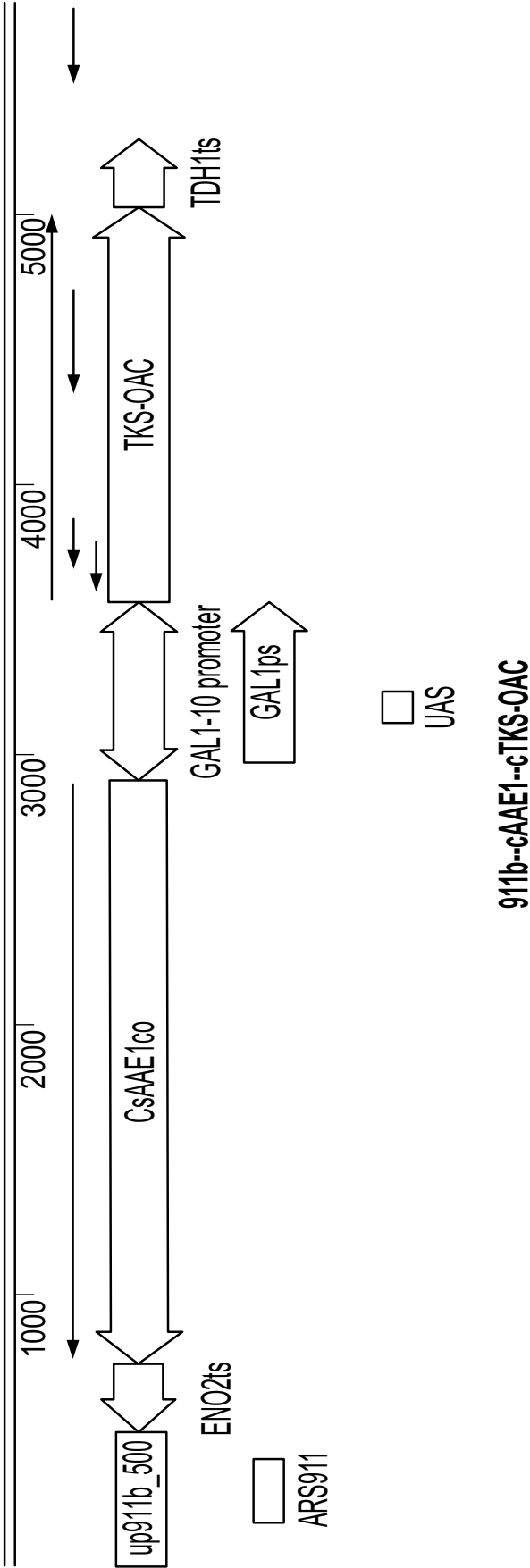
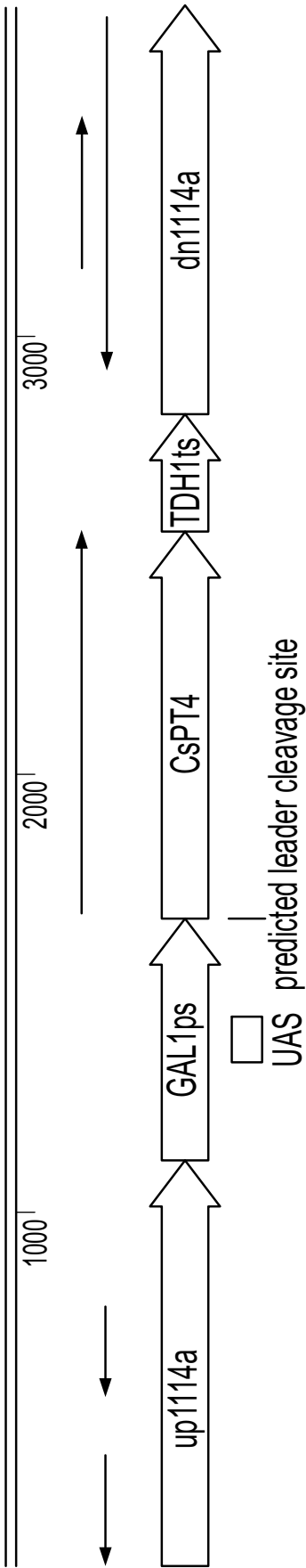


FIG. 19

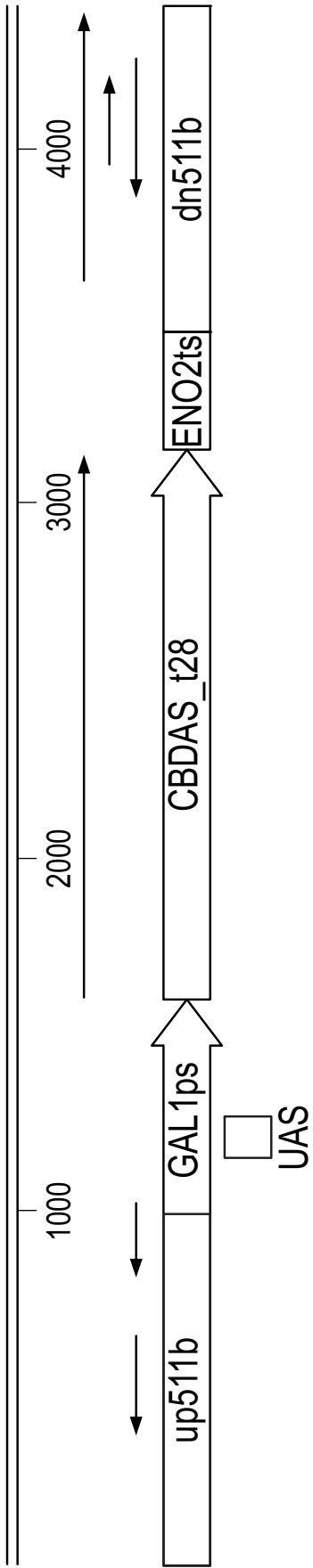
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1114a-tCsPT4

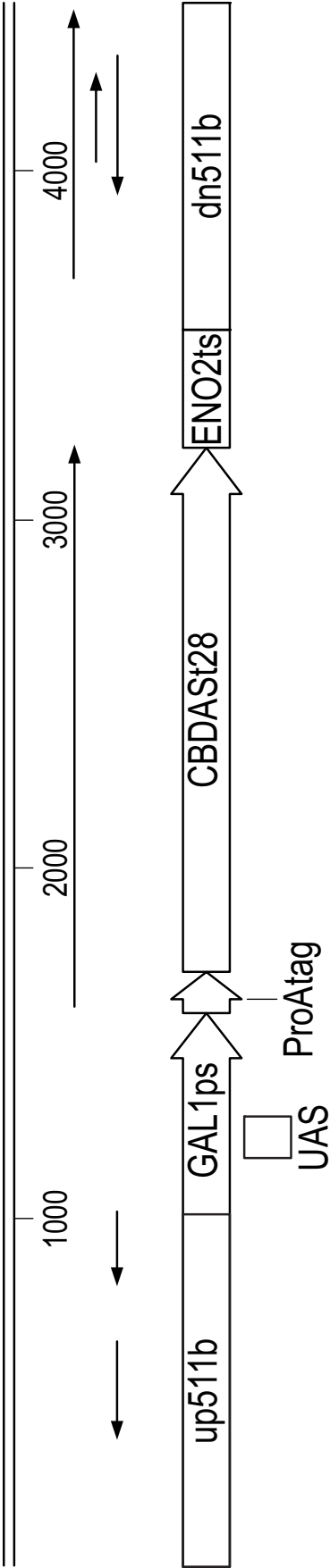
FIG. 20

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511b--GAL1ps-CBDAS t28-ENO2ts

FIG. 21



511b--GAL1ps-ProA-CBDAS-ENO2ts

FIG. 22

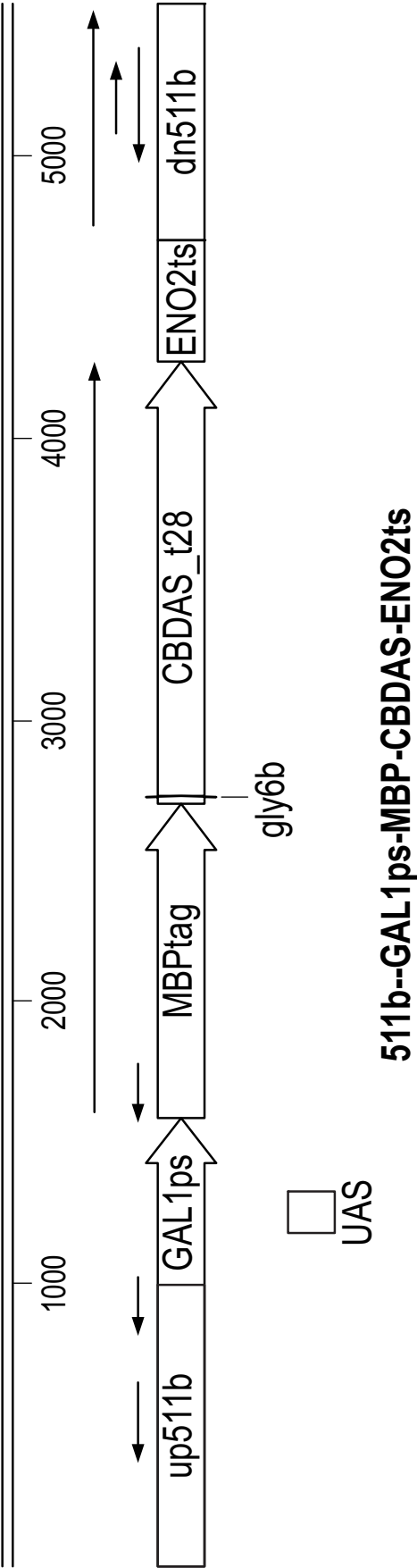


FIG. 23

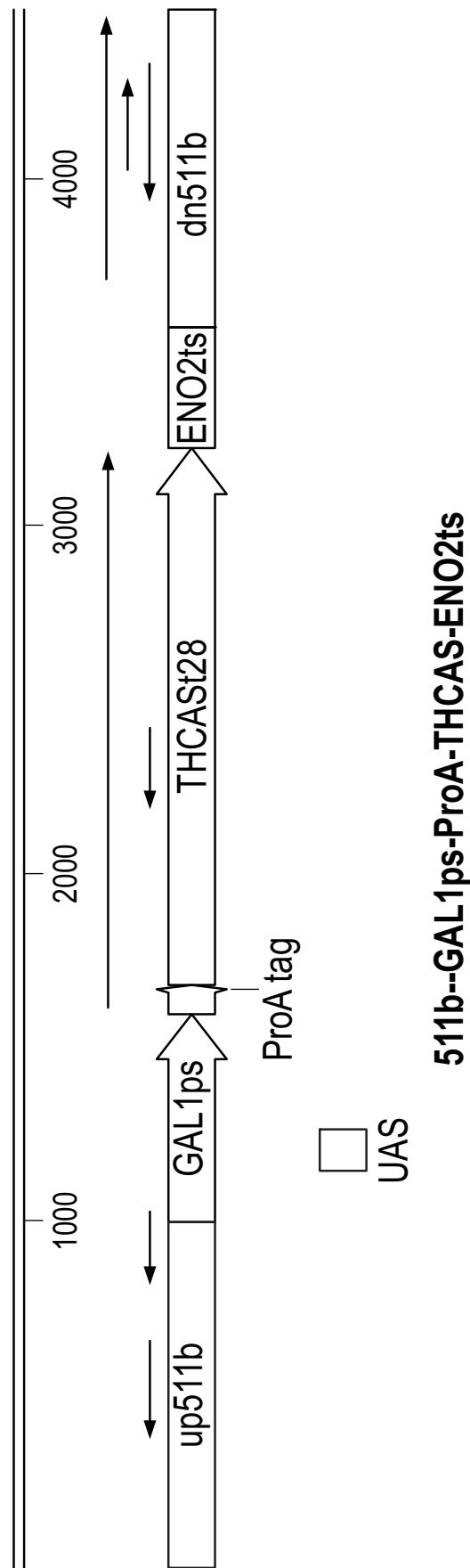
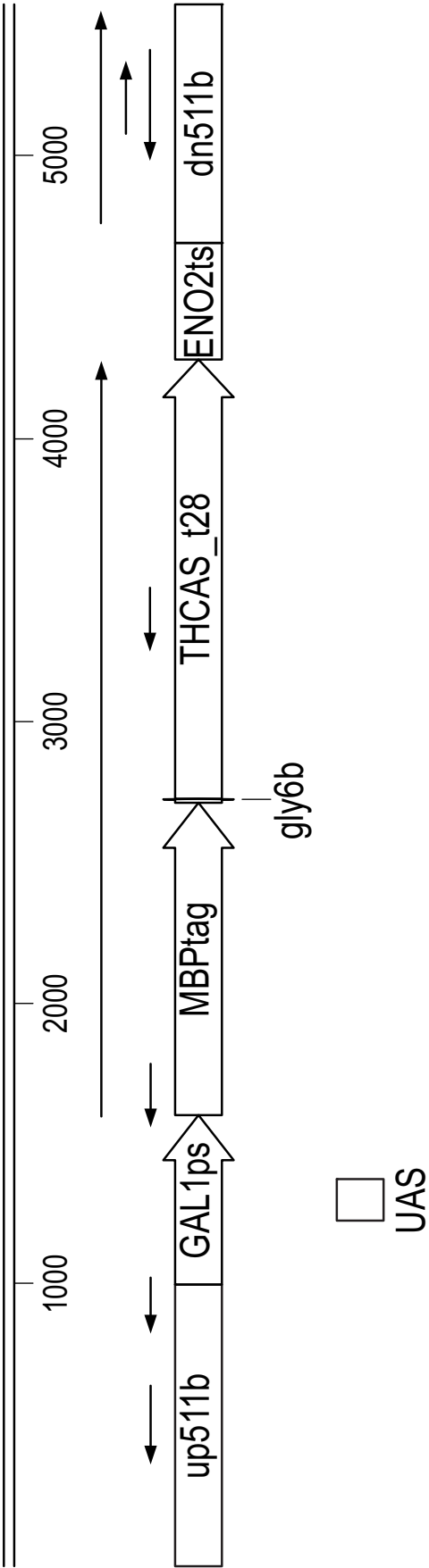


FIG. 24



511b--GAL1ps-MBP-THCAS-ENO2ts

FIG. 25

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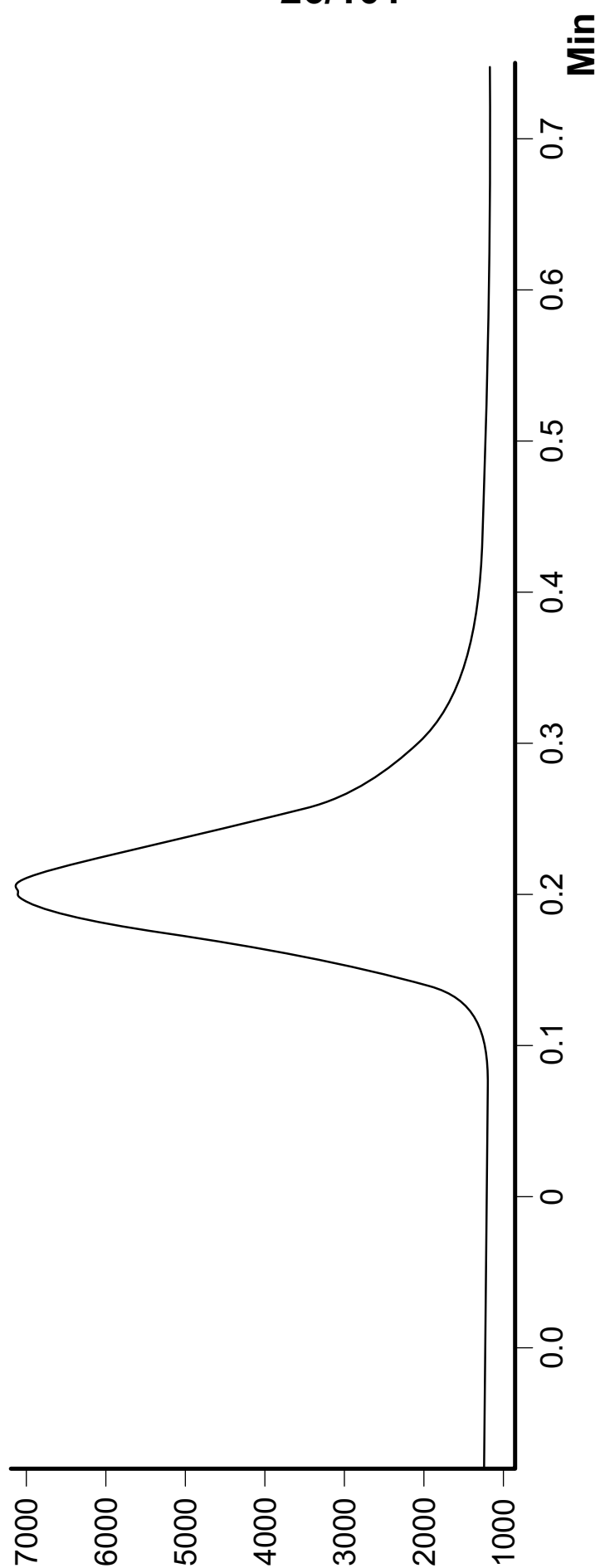


FIG. 26A

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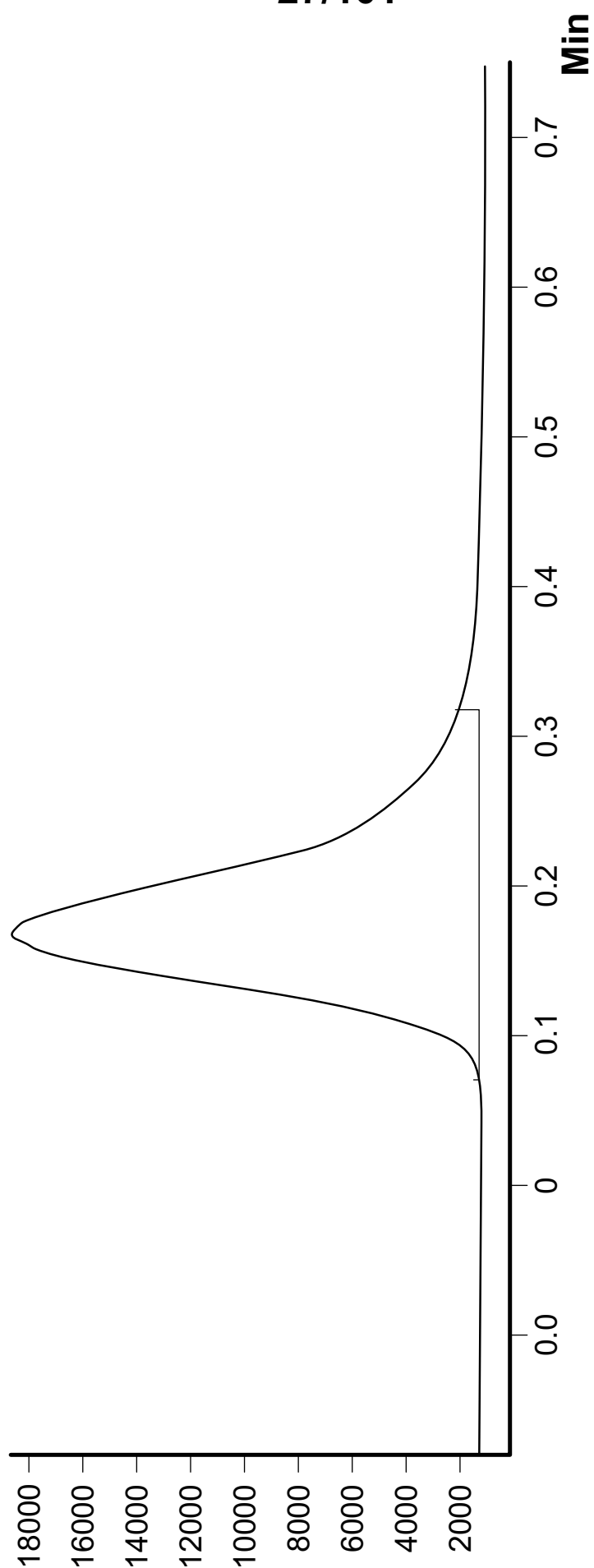


FIG. 26B

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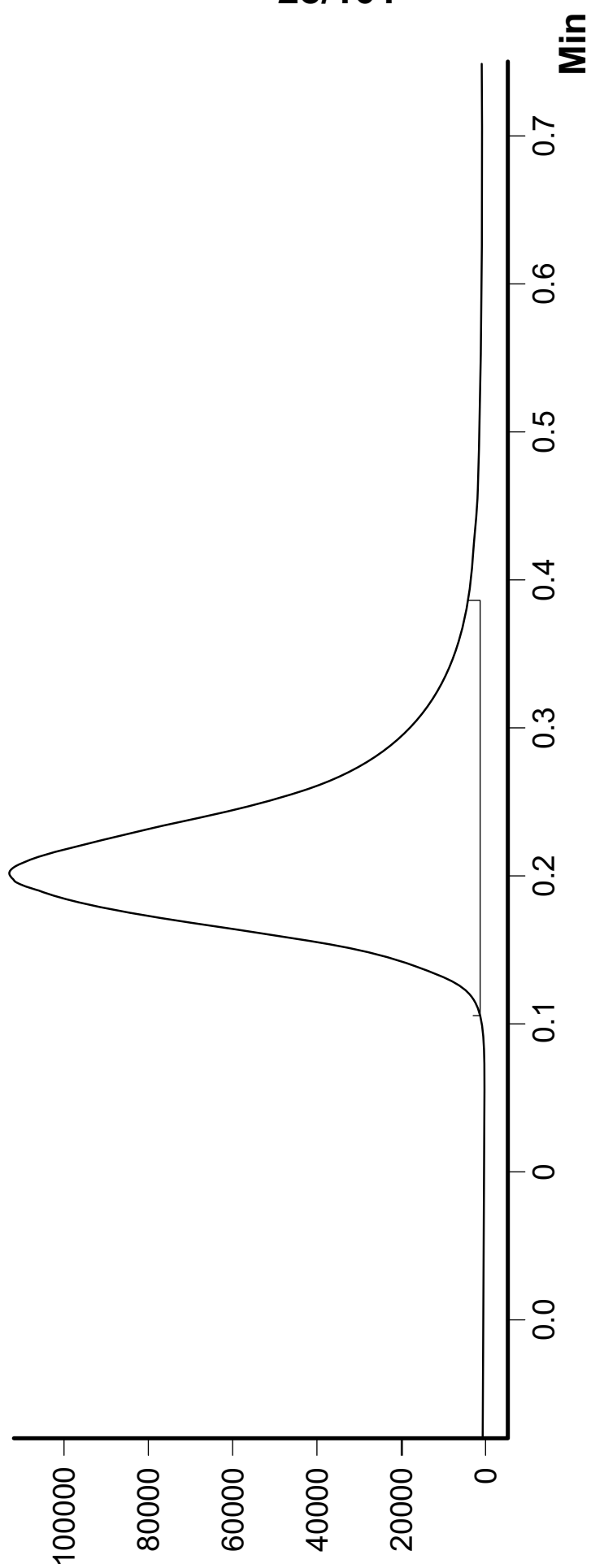


FIG. 26C

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THCA synthase with N-terminal truncation and ProA signal sequence

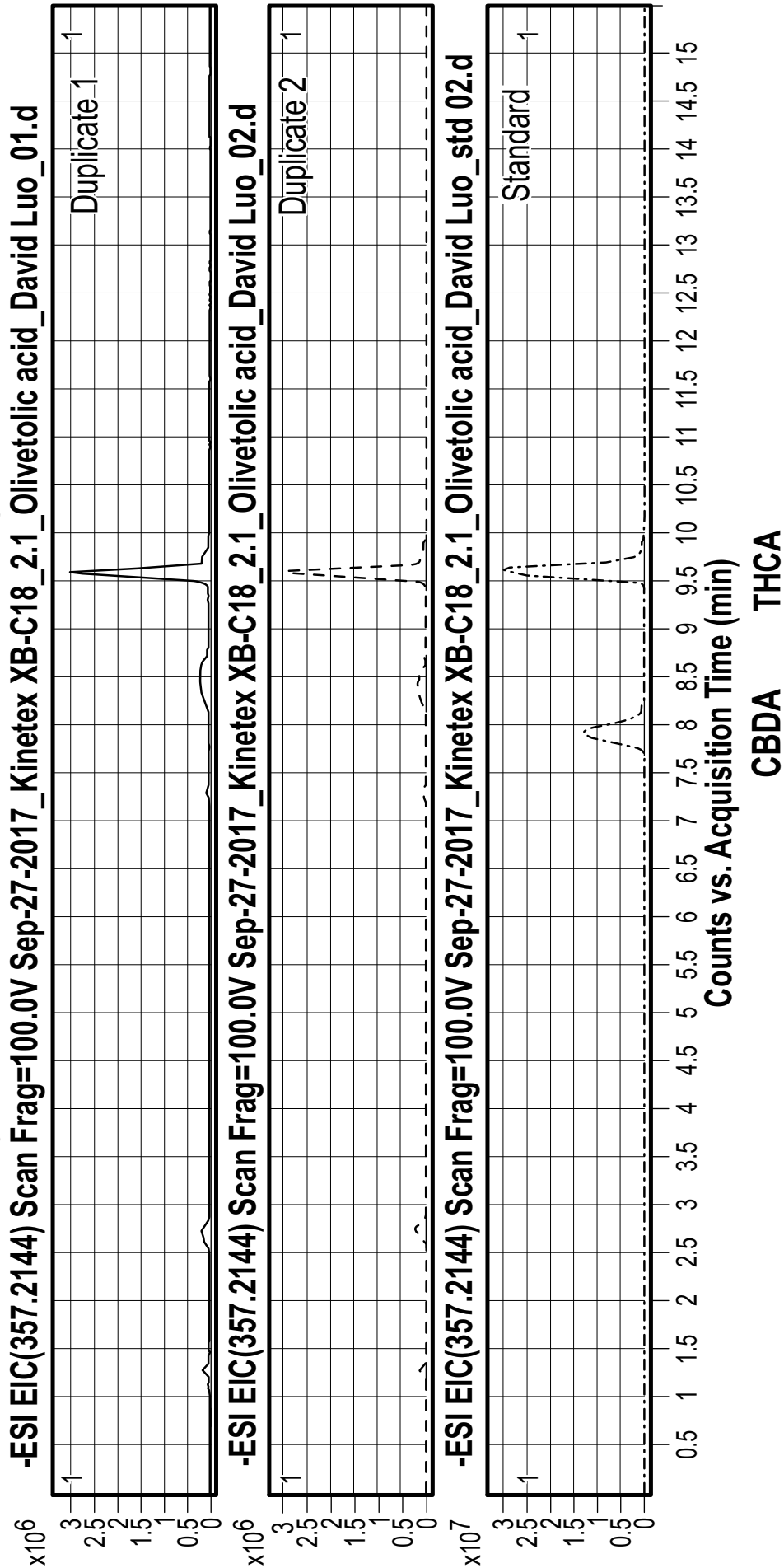
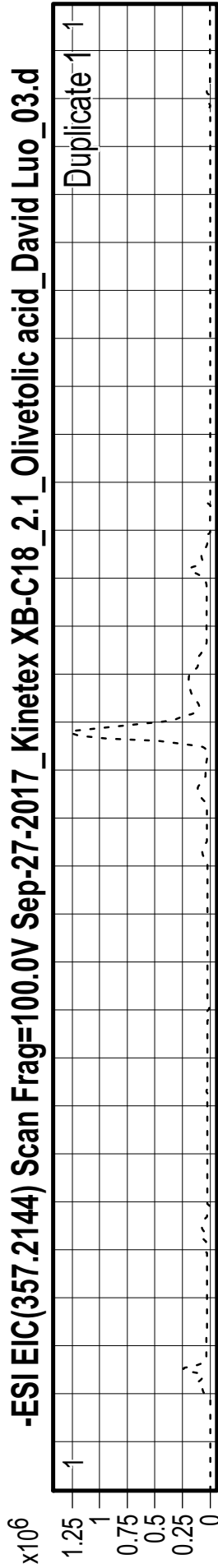


FIG. 27

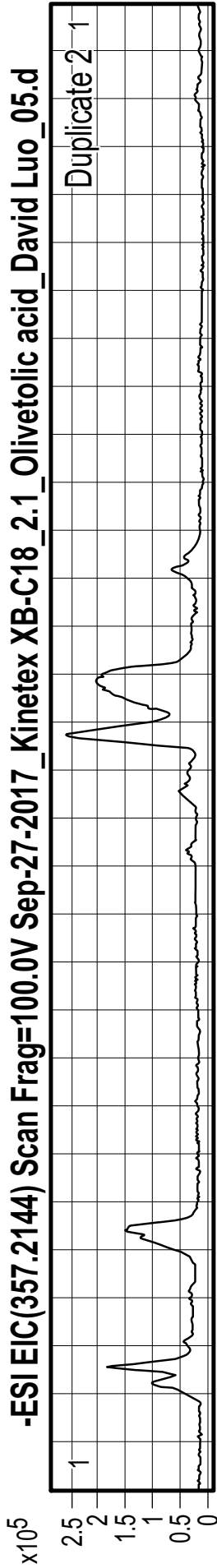
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CBDA synthase with N-terminal truncation and ProA signal sequence

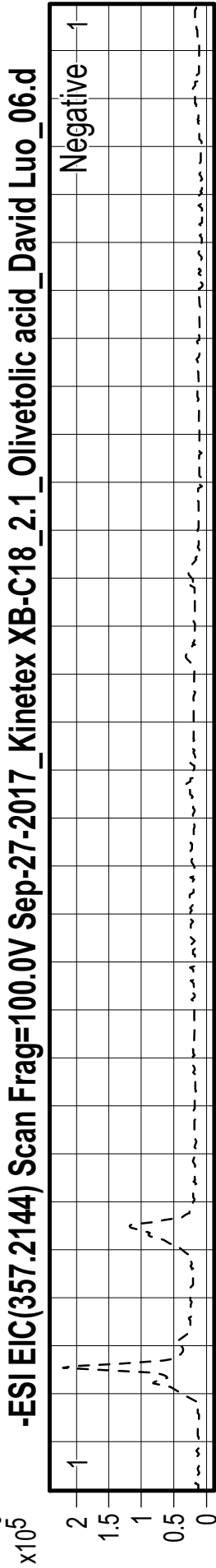
-ESI EIC(357.2144) Scan Frag=100.0V Sep-27-2017_Kinetex XB-C18_2.1_Olivetolic acid_David Luo_03.d



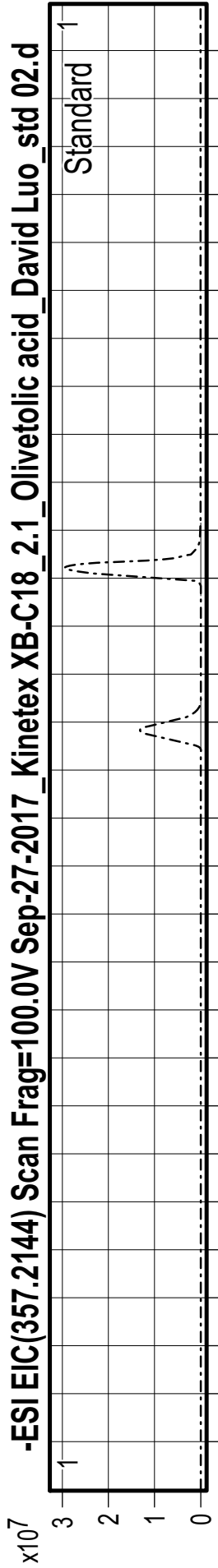
-ESI EIC(357.2144) Scan Frag=100.0V Sep-27-2017_Kinetex XB-C18_2.1_Olivetolic acid_David Luo_05.d



-ESI EIC(357.2144) Scan Frag=100.0V Sep-27-2017_Kinetex XB-C18_2.1_Olivetolic acid_David Luo_06.d



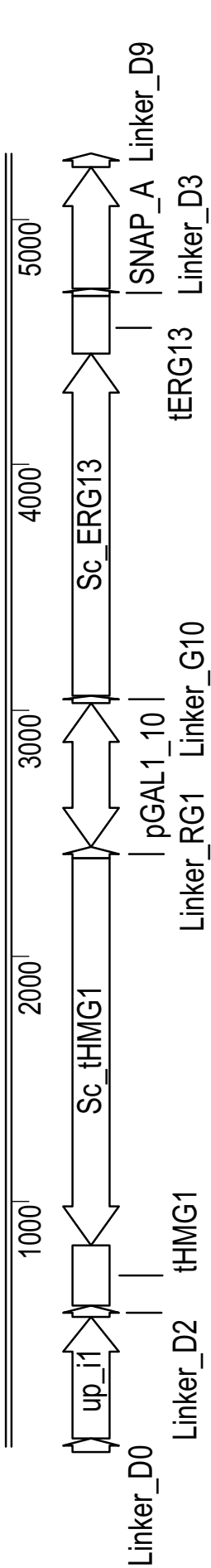
-ESI EIC(357.2144) Scan Frag=100.0V Sep-27-2017_Kinetex XB-C18_2.1_Olivetolic acid_David Luo_std 02.d



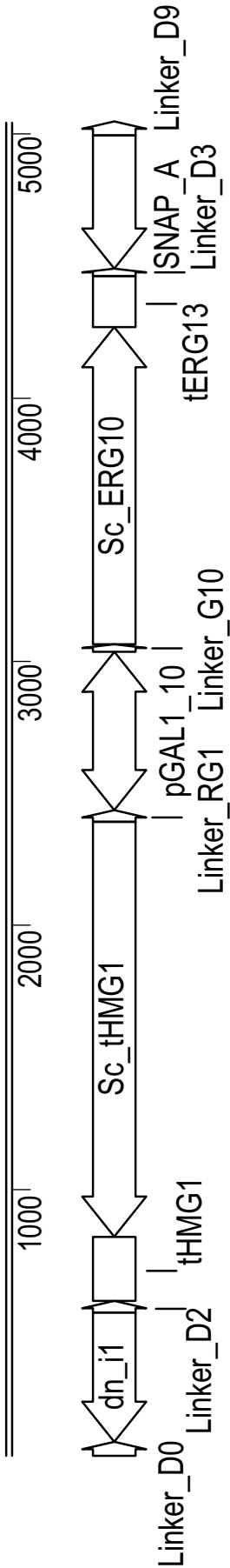
Counts vs. Acquisition Time (min)

CBDA THCA

FIG. 28



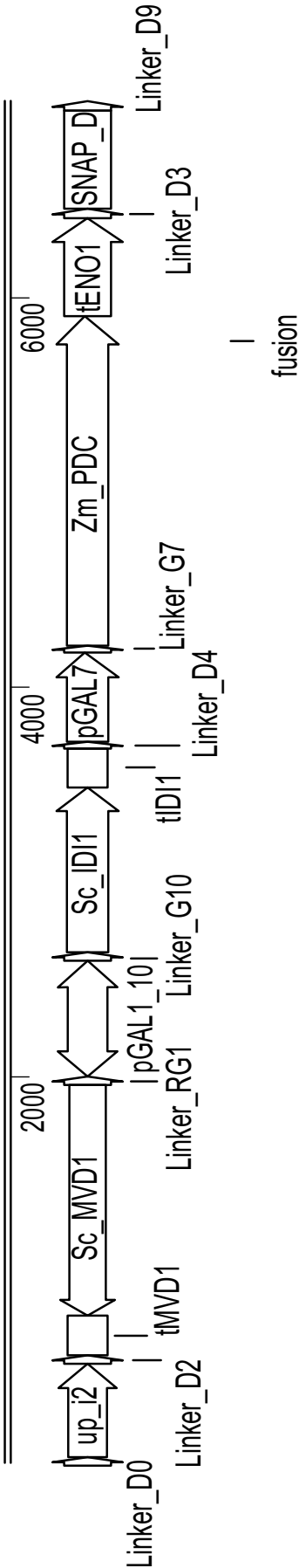
S22_i1_GPP_native_1A
5259 bp



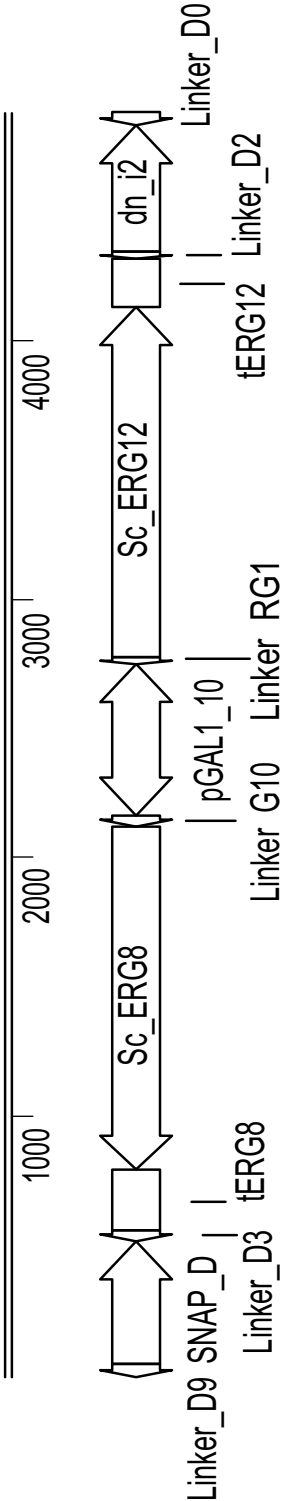
S23_i1_GPP_native_1B
5028 bp

FIG. 29A

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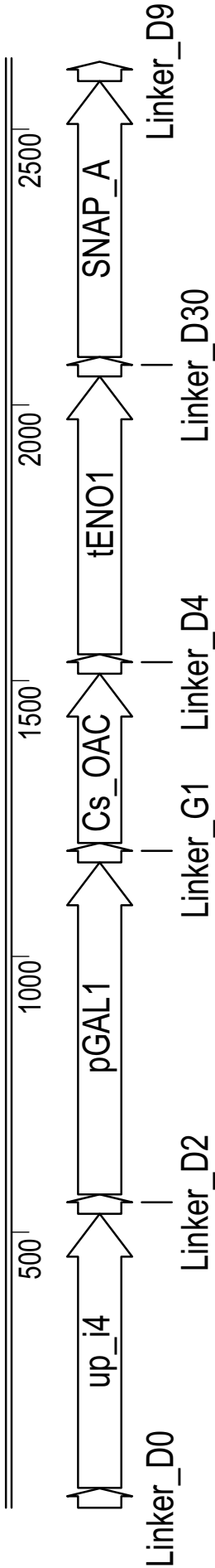


S24_i2_GPP_native_2A
7002 bp

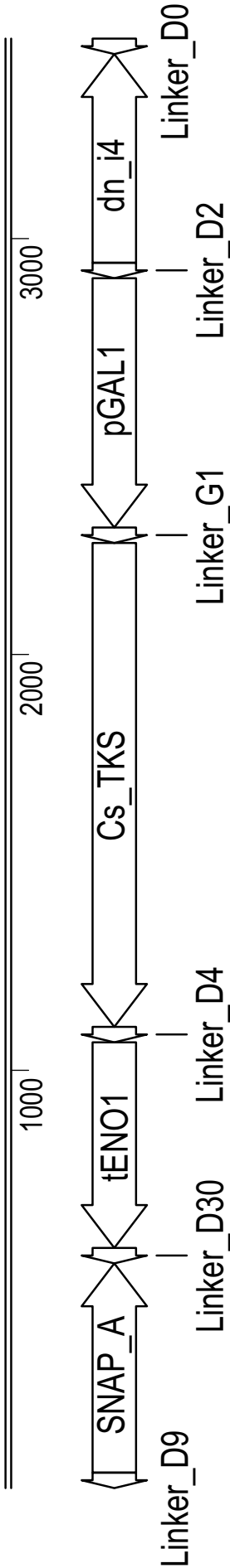


S25_i2_GPP_native_2B
4897 bp

FIG. 29B



S244_i4A_OAC
2625 bp



S247_i4B_TKS
3477 bp

FIG. 30A

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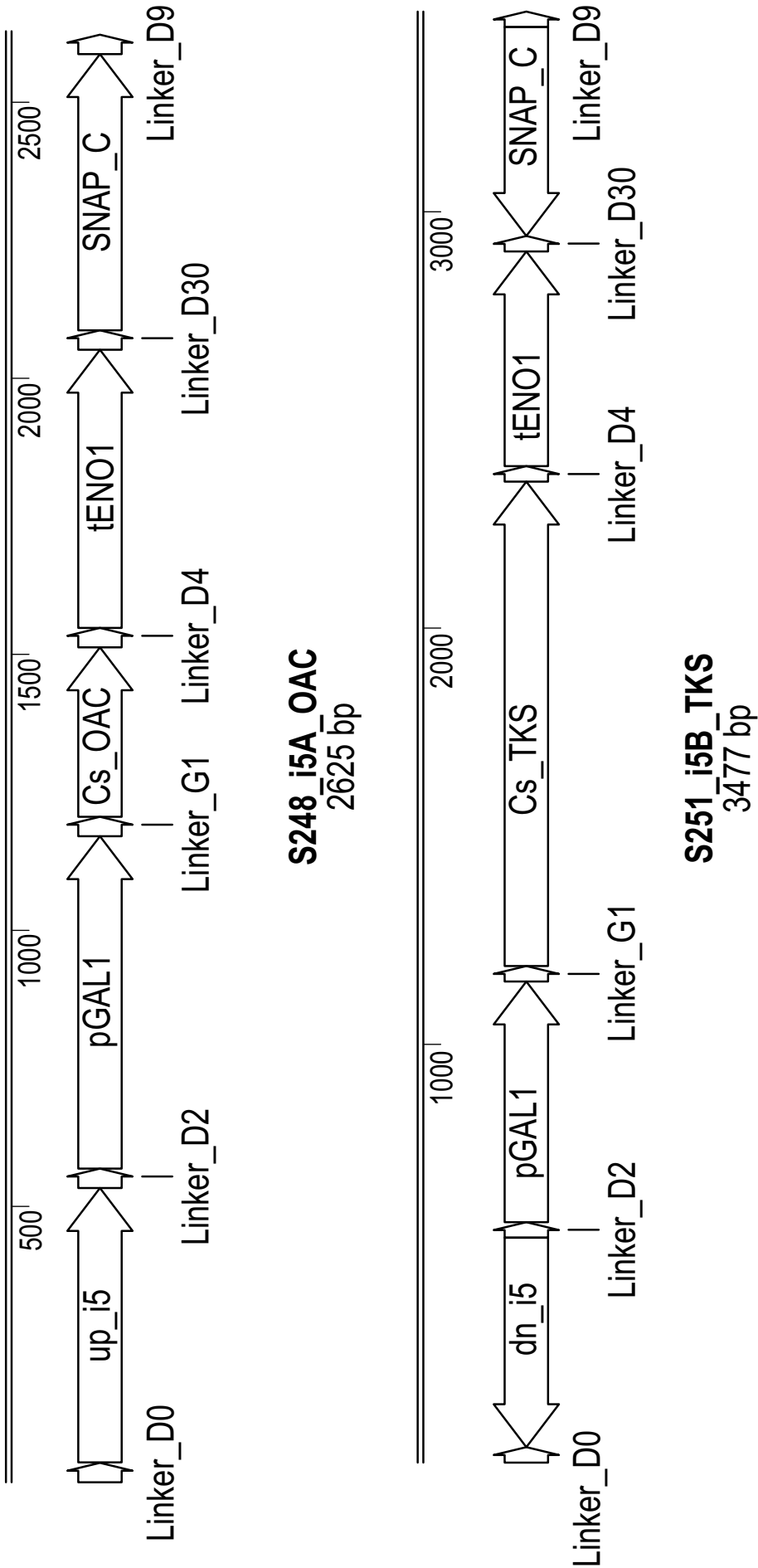


FIG. 30B

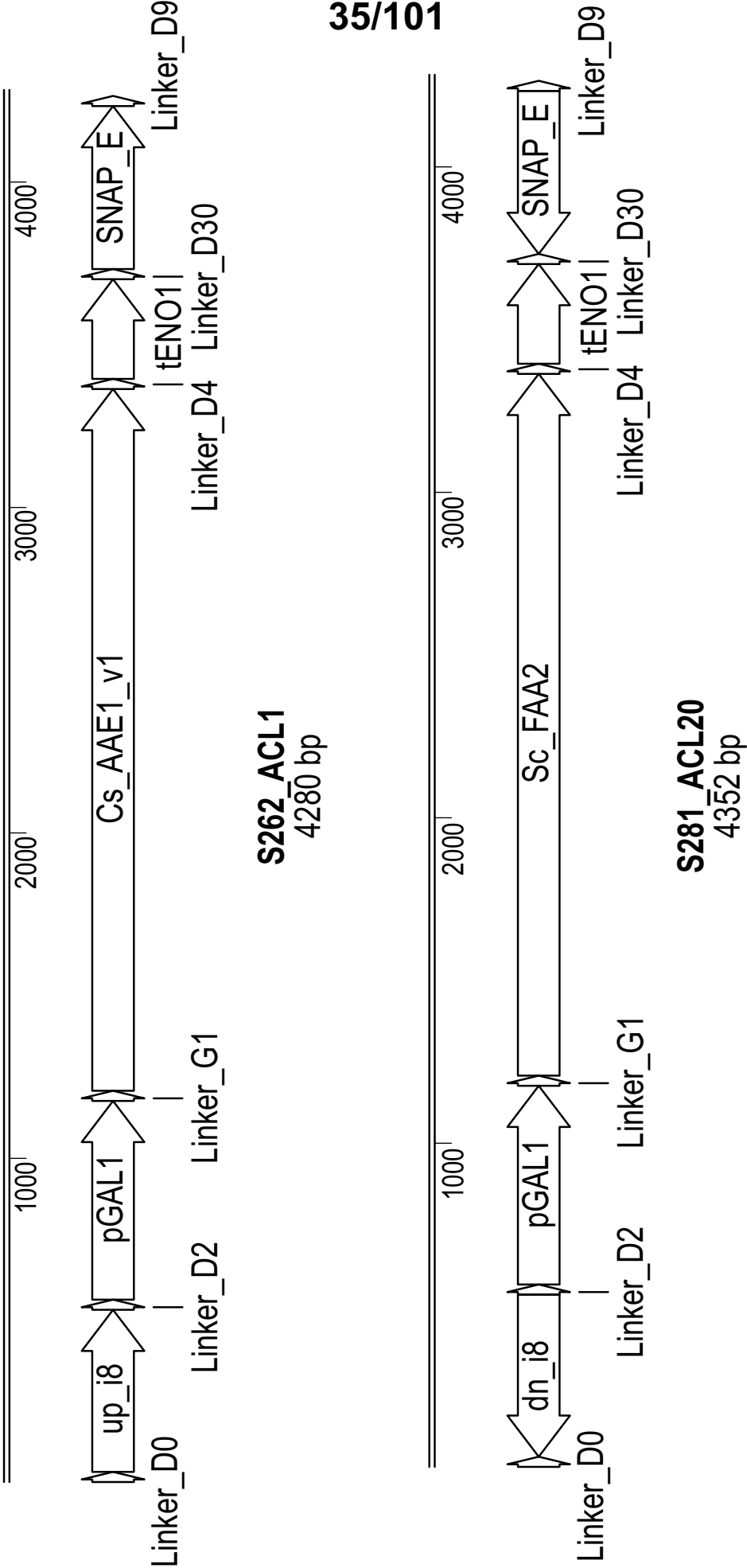


FIG. 30C

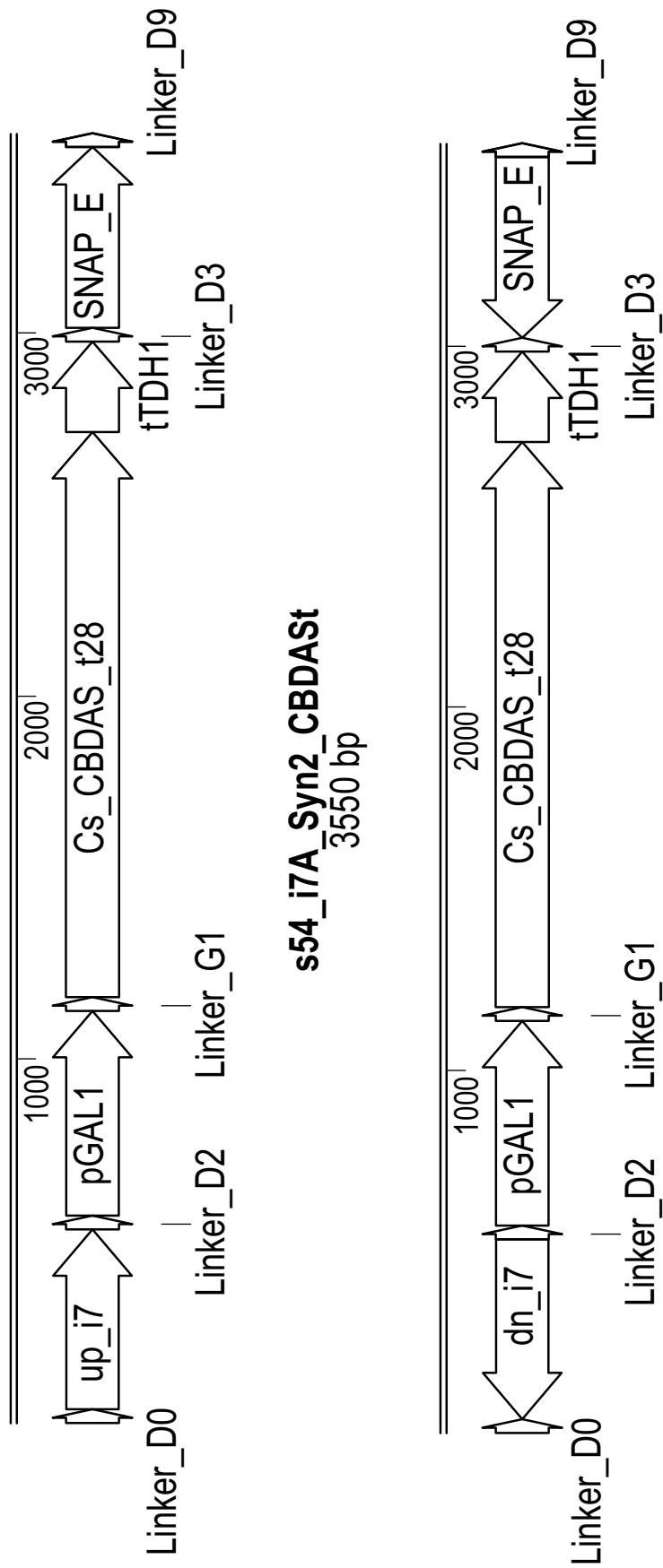
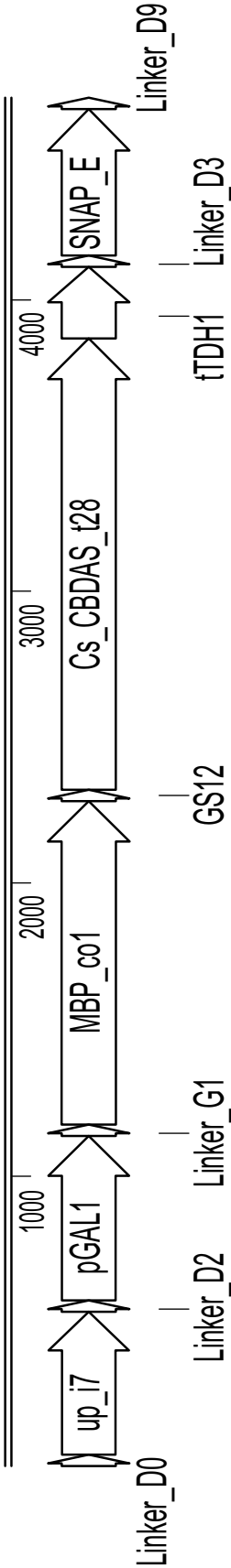
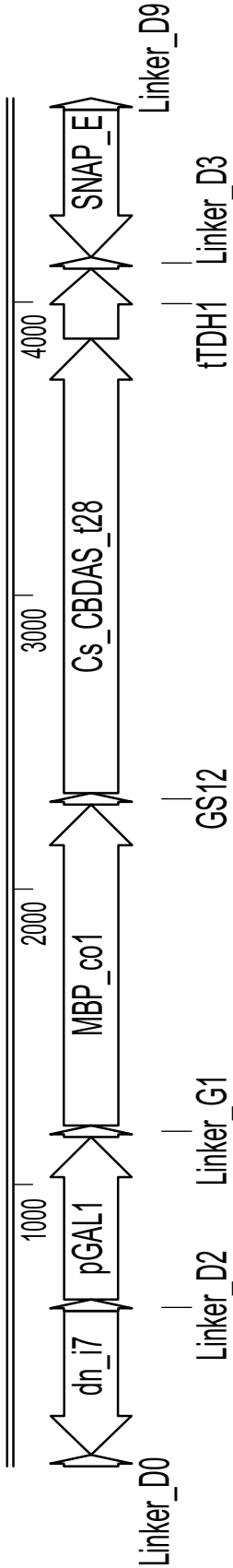


FIG. 31

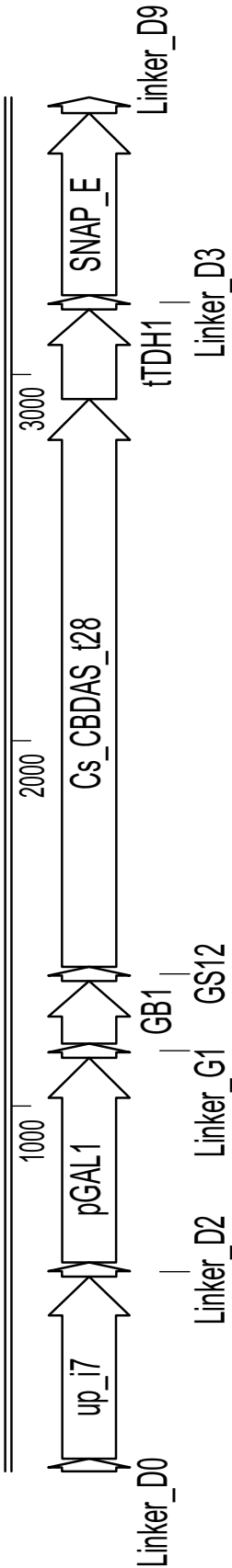


s56 i7A_Syn4_MBP-CBDAST
4693 bp

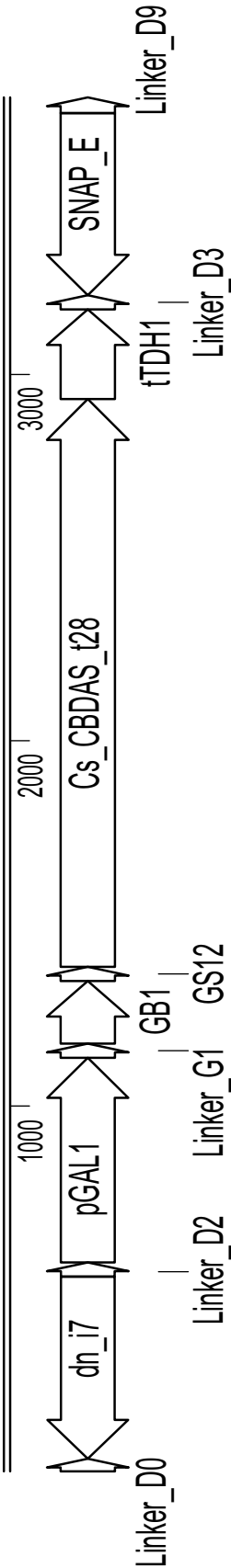


s70 i7B_Syn4_MBP-CBDAST
4693 bp

FIG. 32



s57_i7A_Syn5_GBkz-CBDAST
3754 bp



s71_i7B_Syn5_GBkz-CBDAST
3754 bp

FIG. 33

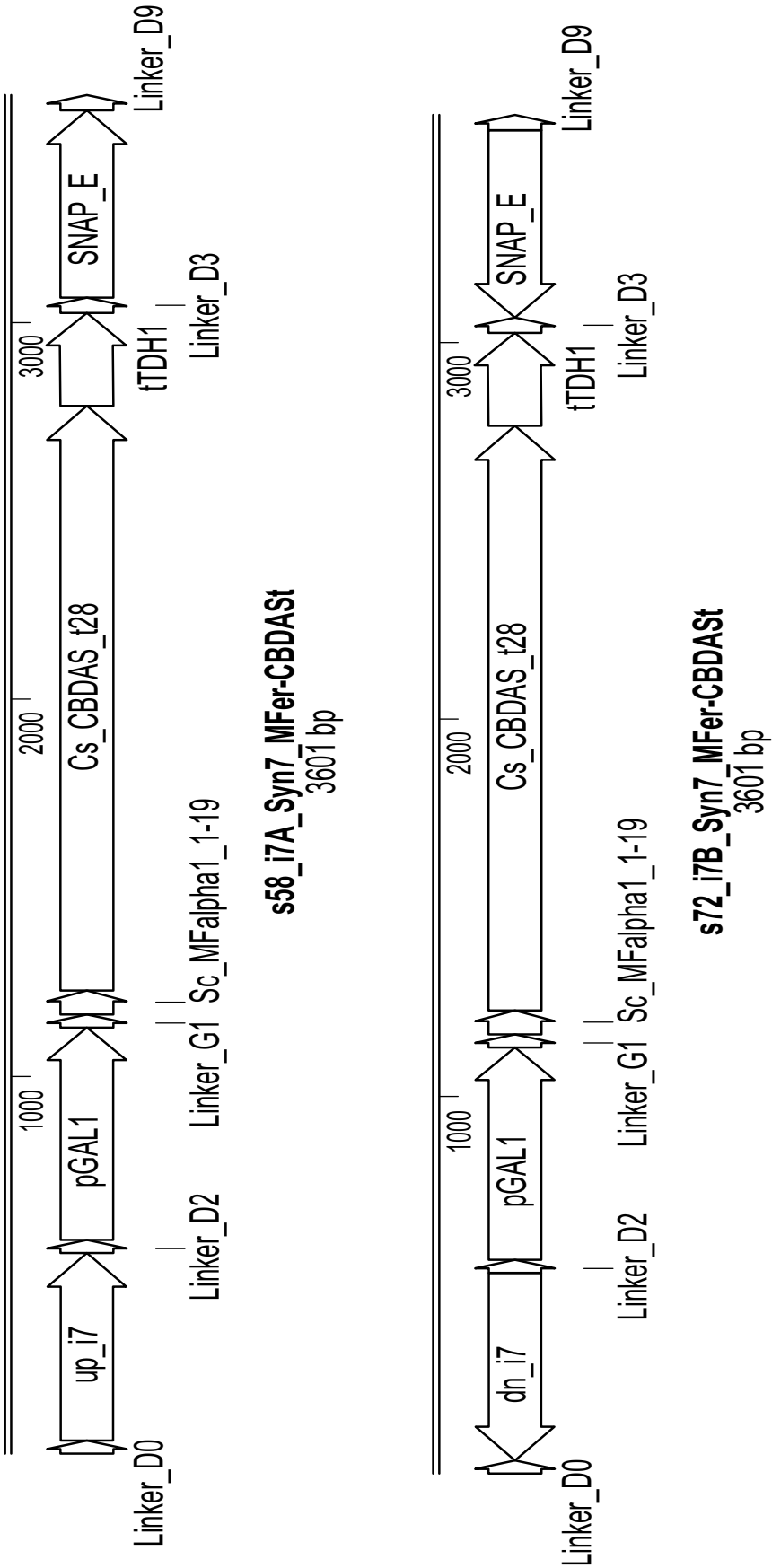


FIG. 34

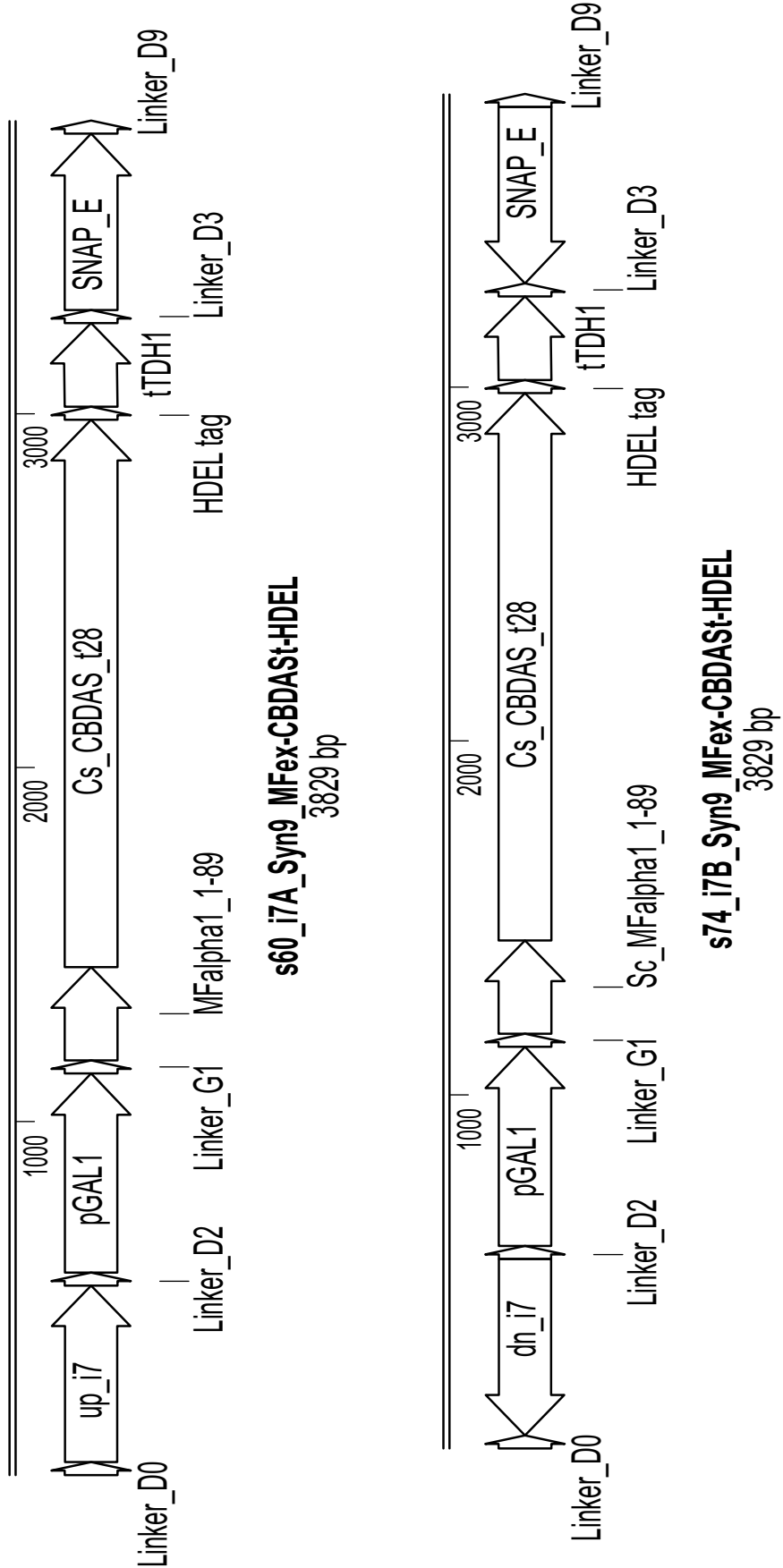


FIG. 35

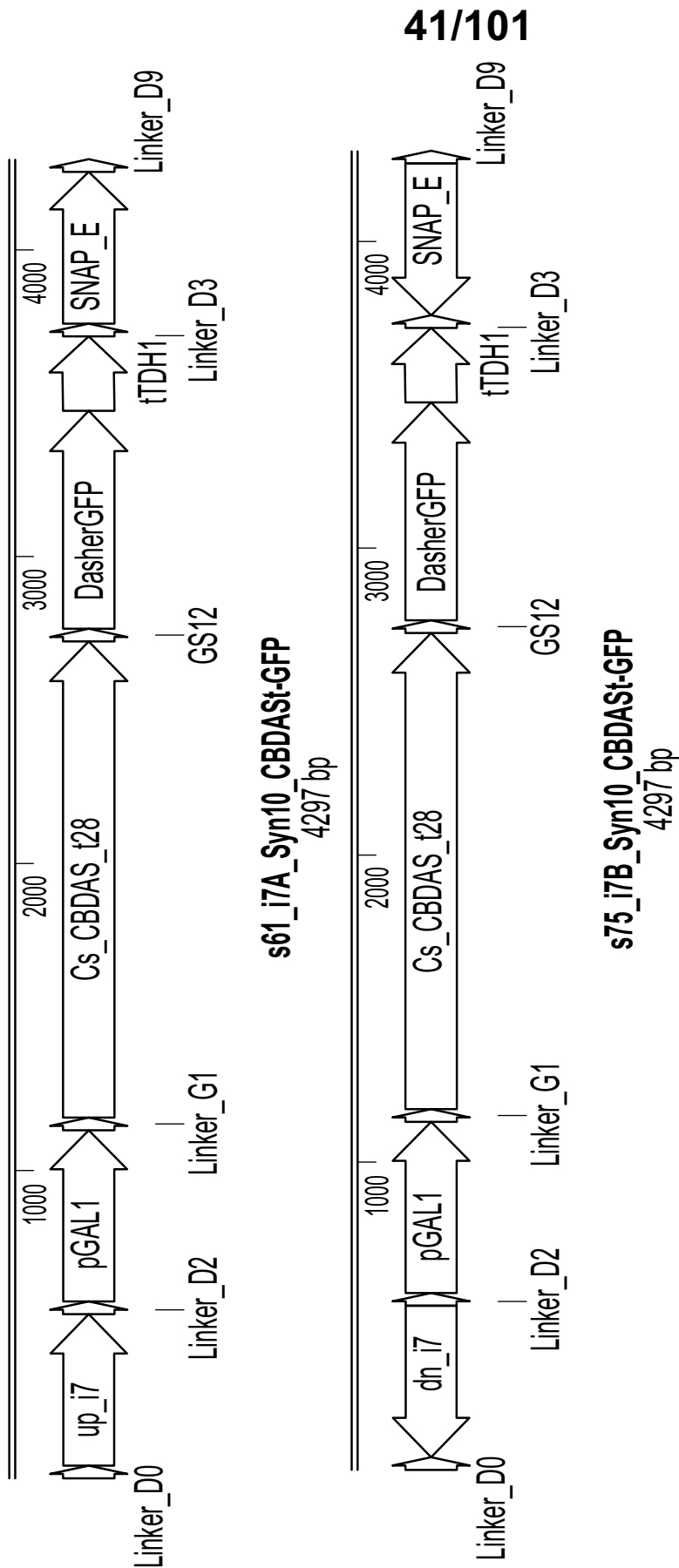


FIG. 36

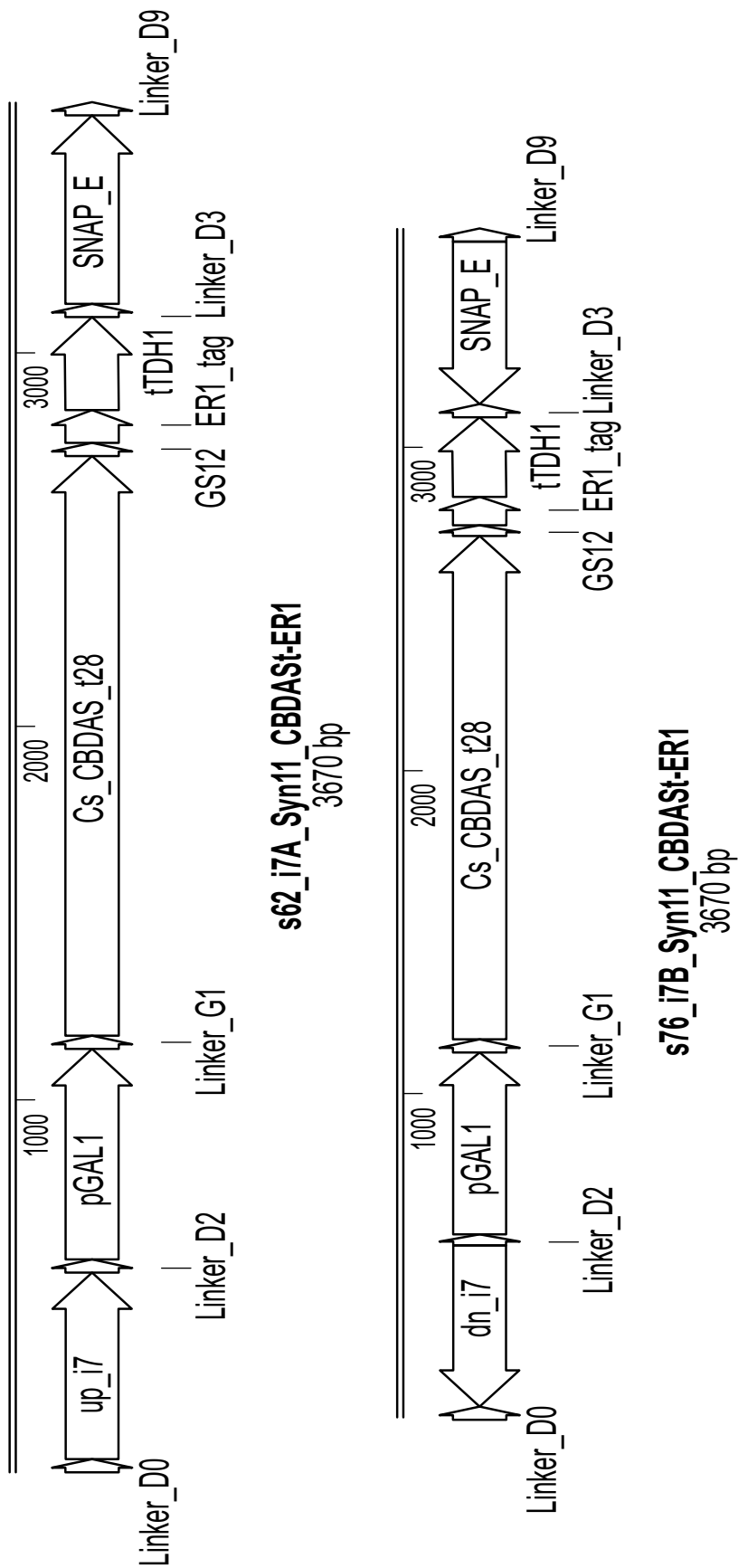


FIG. 37

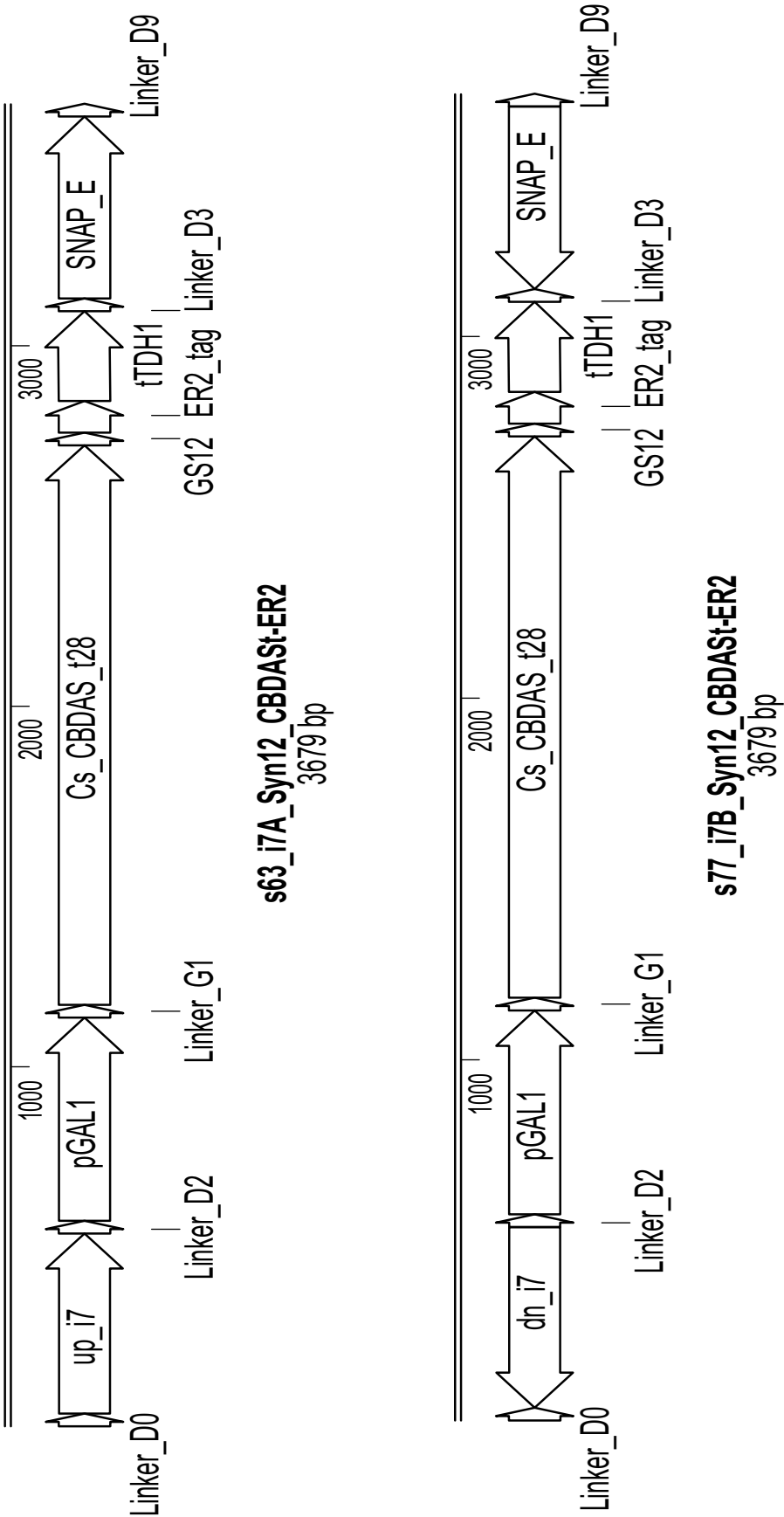


FIG. 38

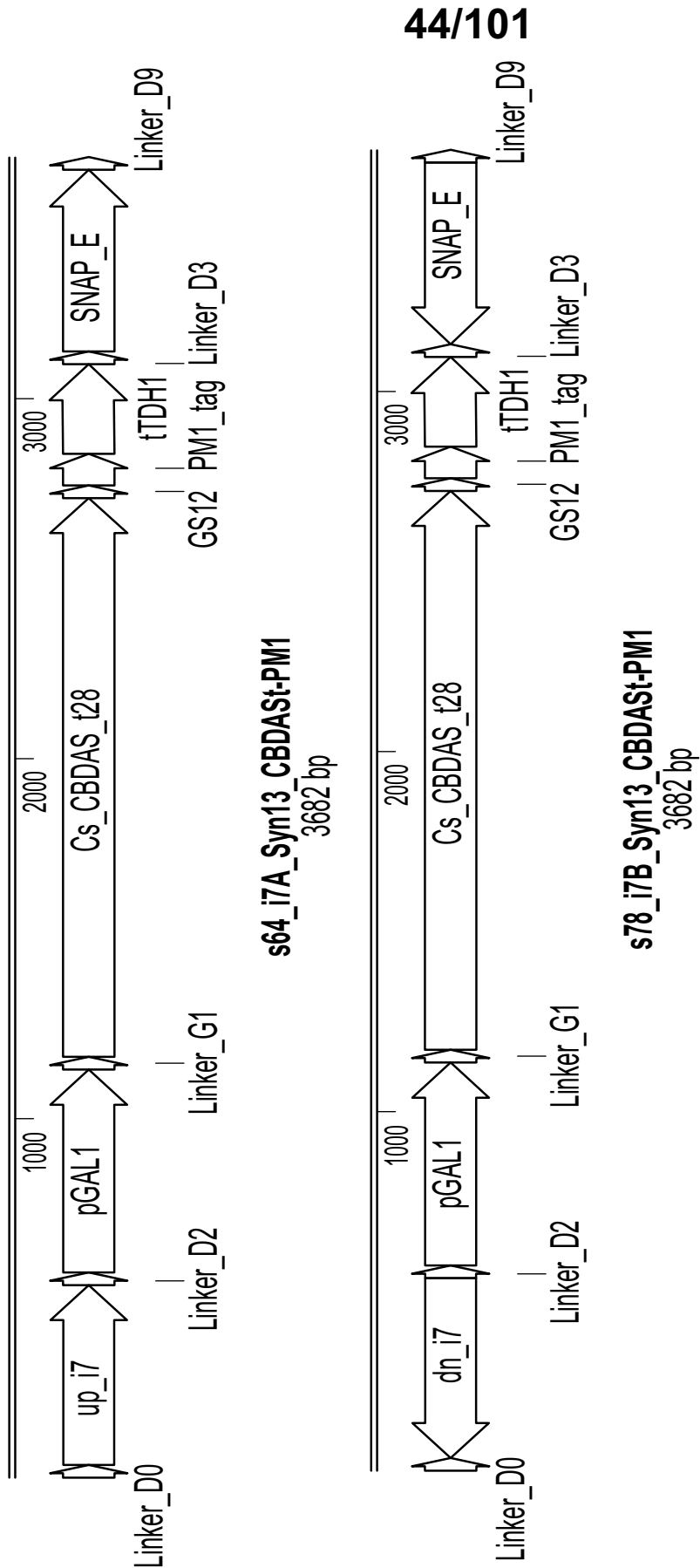
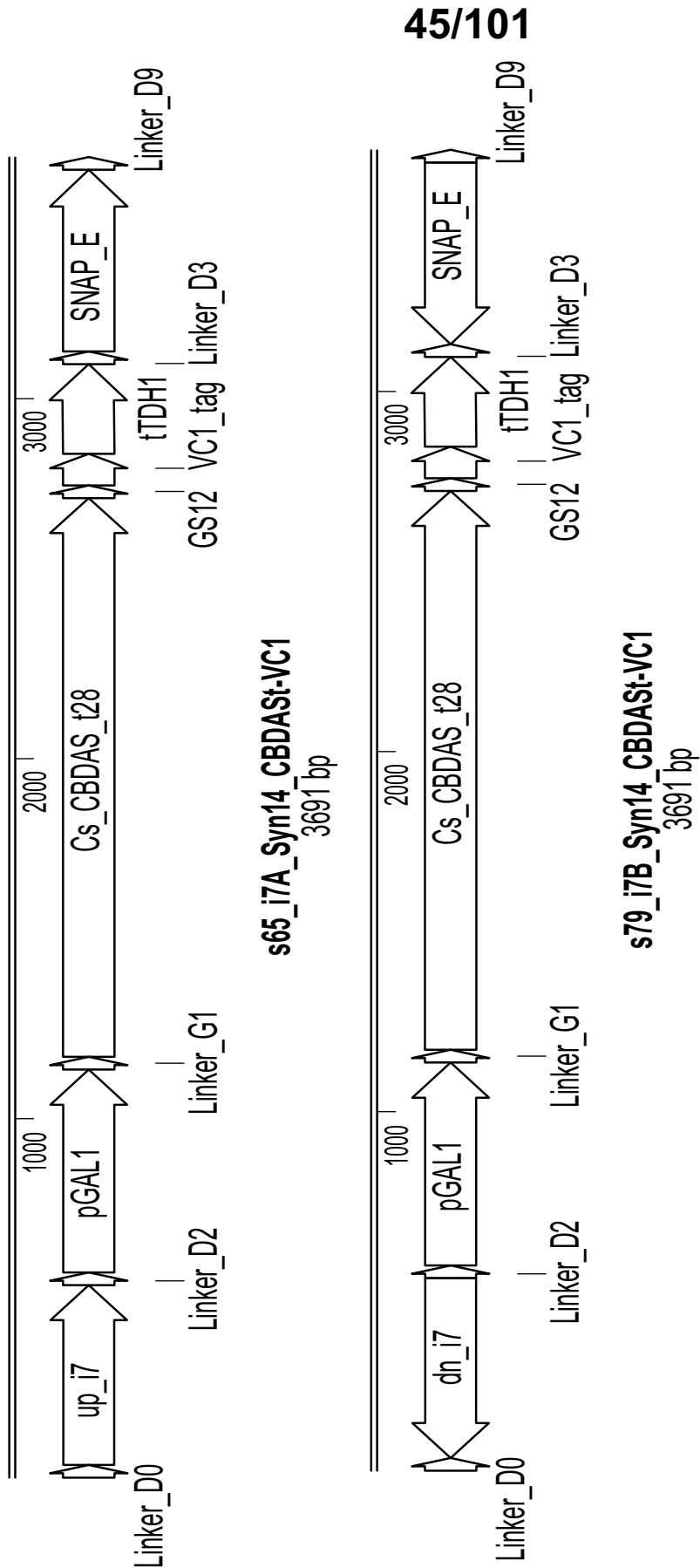


FIG. 39



Linker_D0

dn_i7

Linker_D2

pGAL1

Linker_G1

Cs_CBDAS_t28

Linker_D9

SNAP_E

100020003000

VC1_tag

tTDH1

GS12

VC1_tag

Linker_D3

s79_i7B_Syn14_CBDAS_t-VC1

3691bp

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FIG. 40

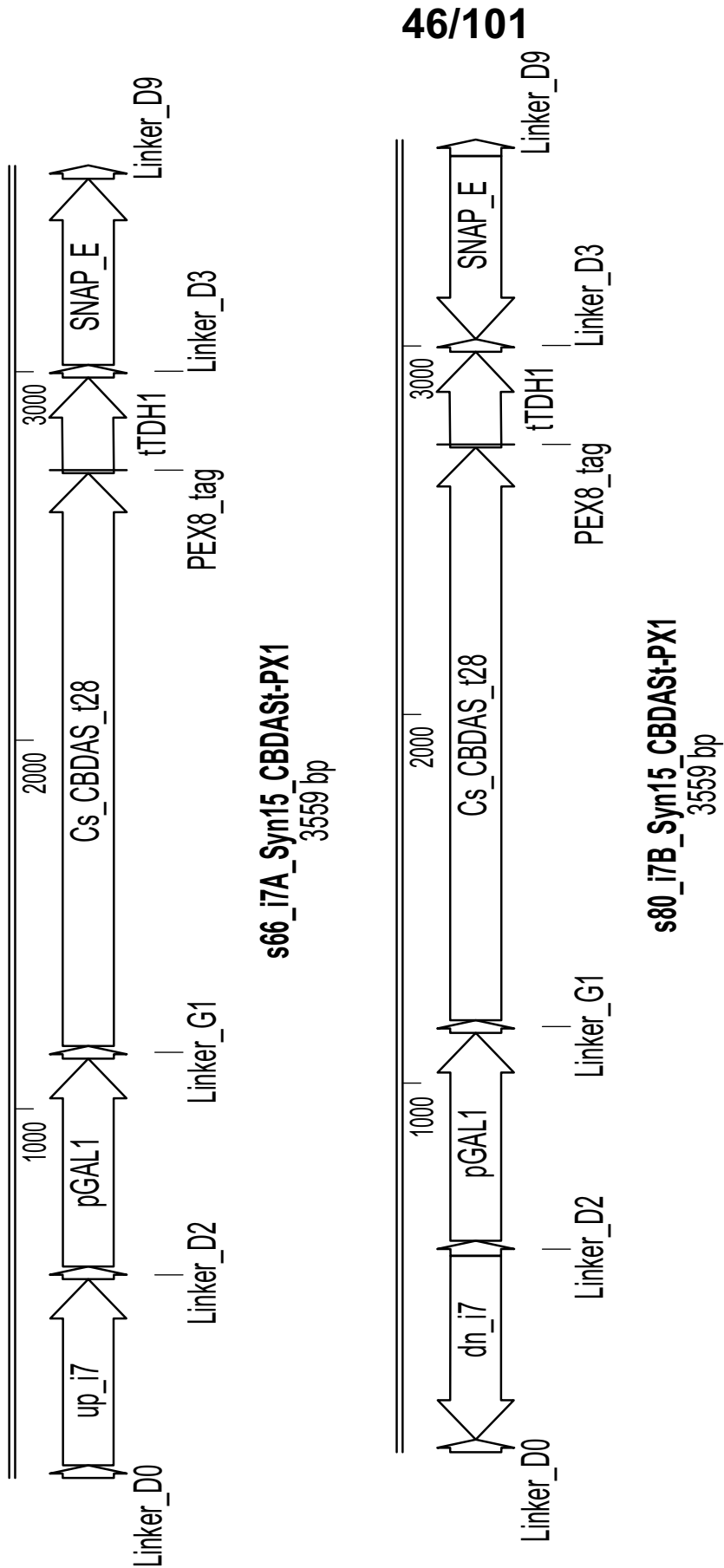


FIG. 41

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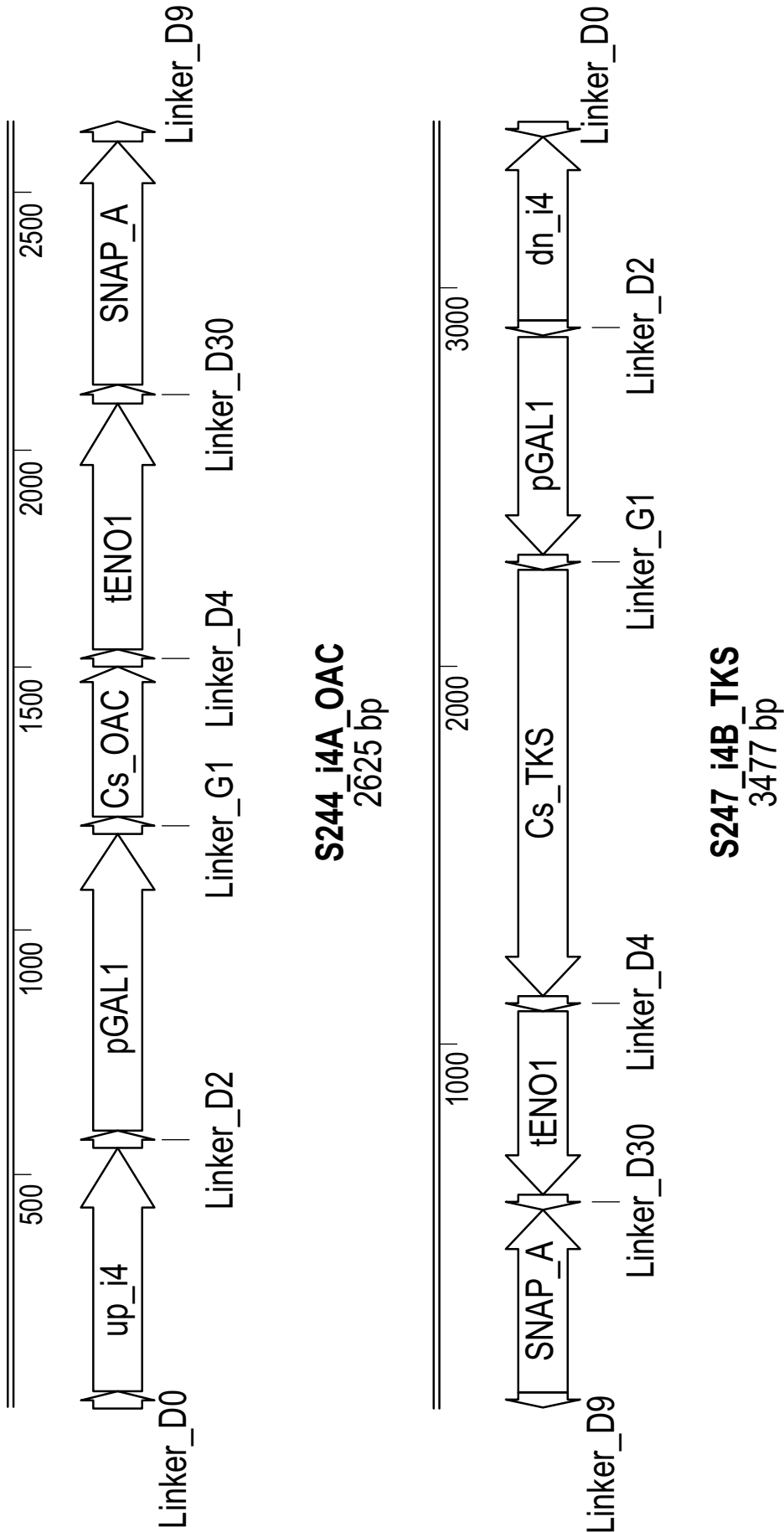


FIG. 42A

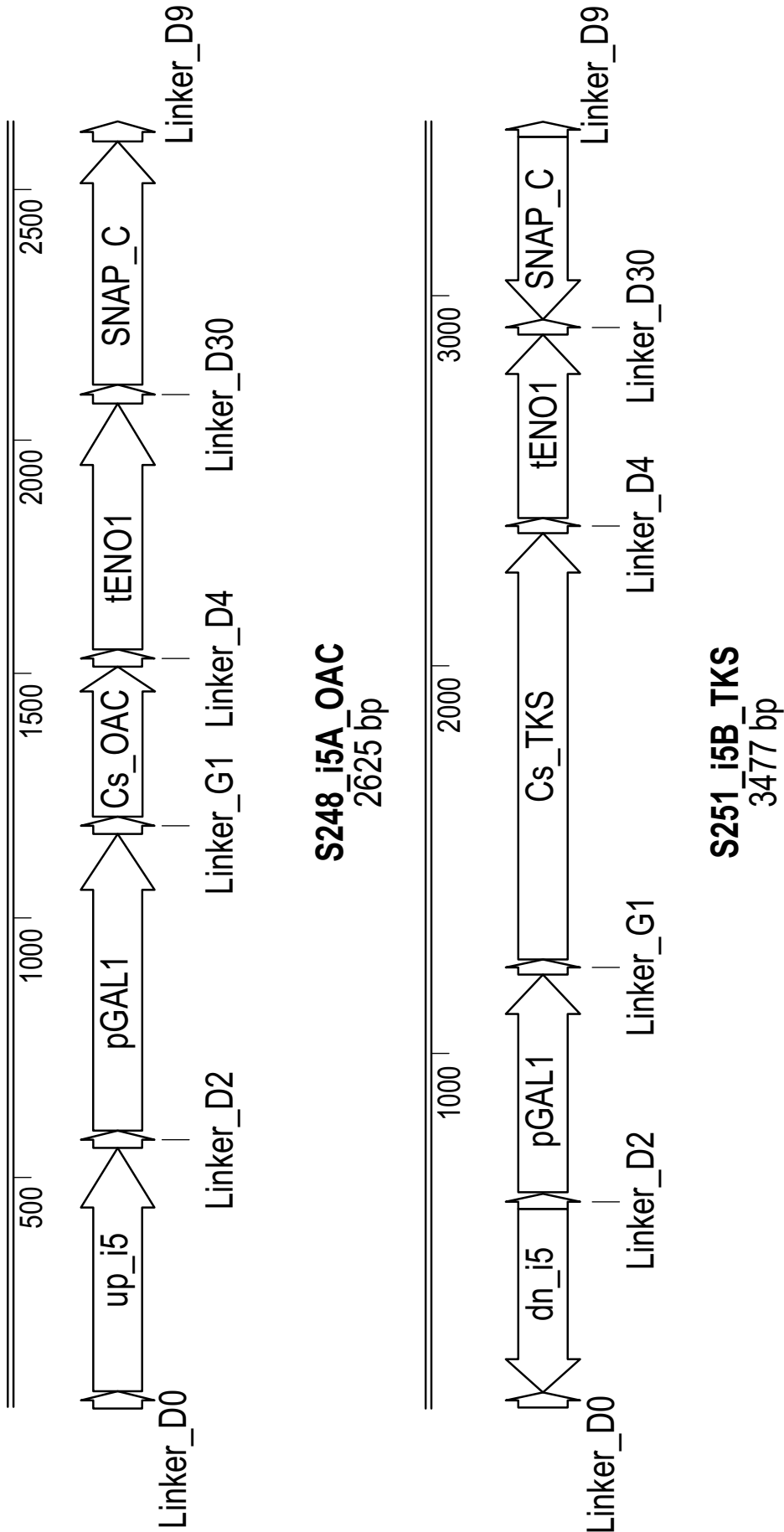
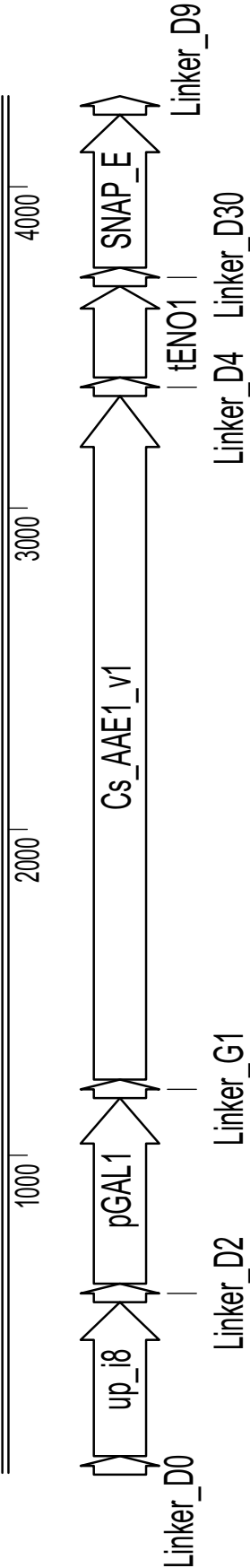
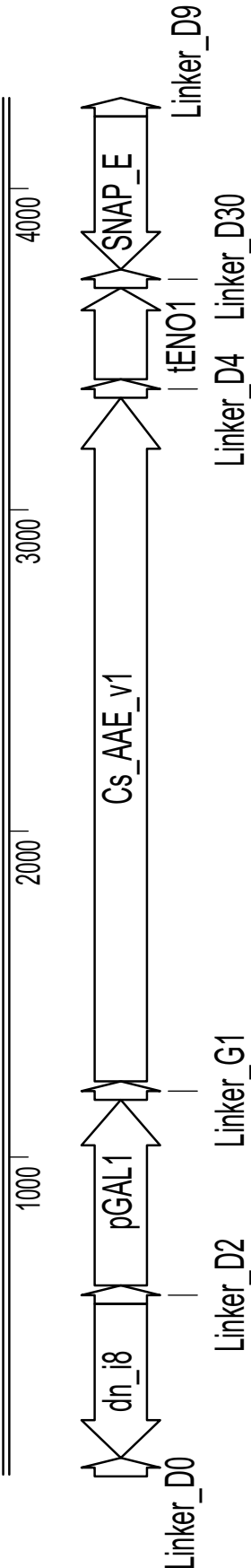


FIG. 42B



S262_ACL1
4280 bp



S274_ACL13
4280 bp

FIG. 42C

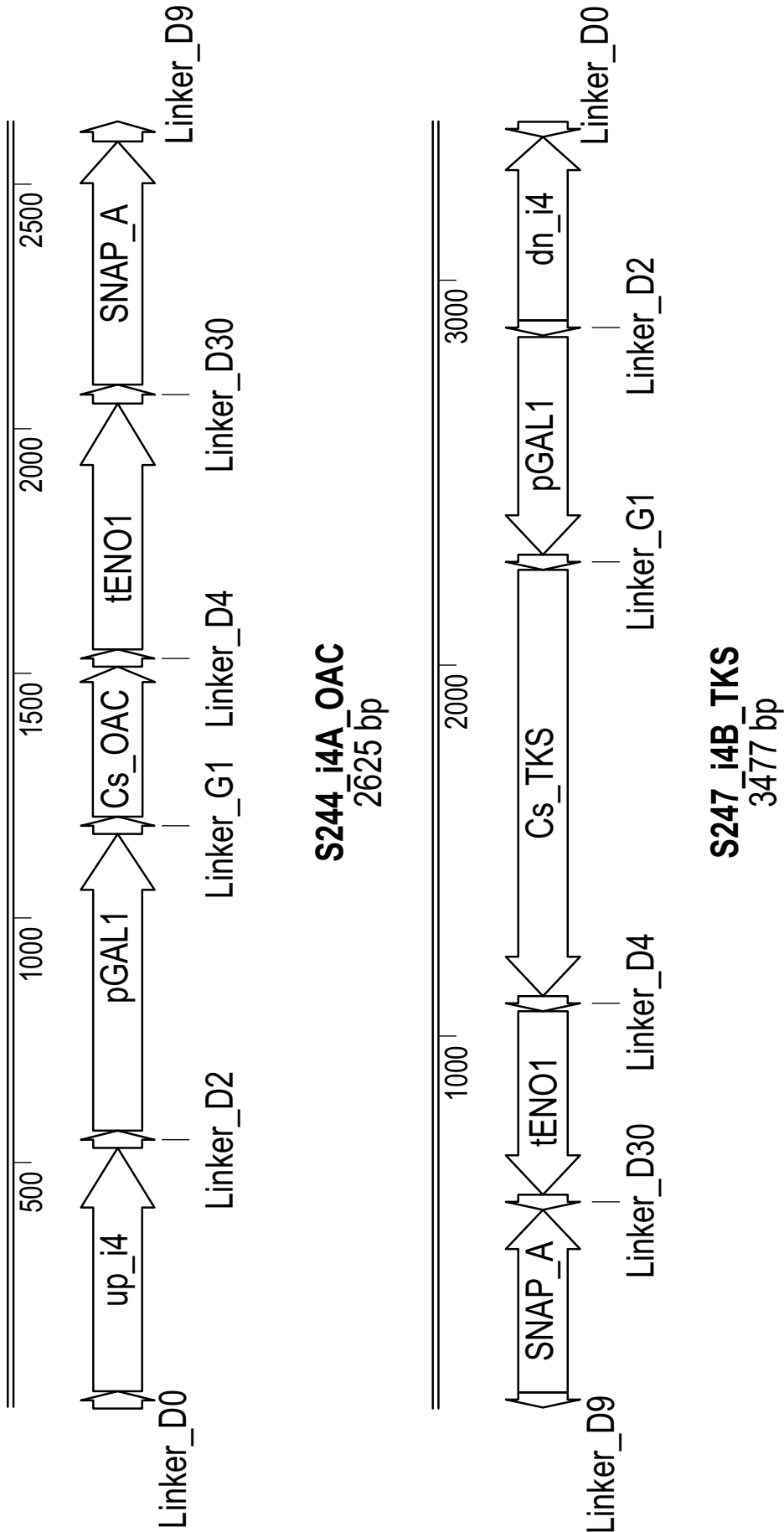


FIG. 43A

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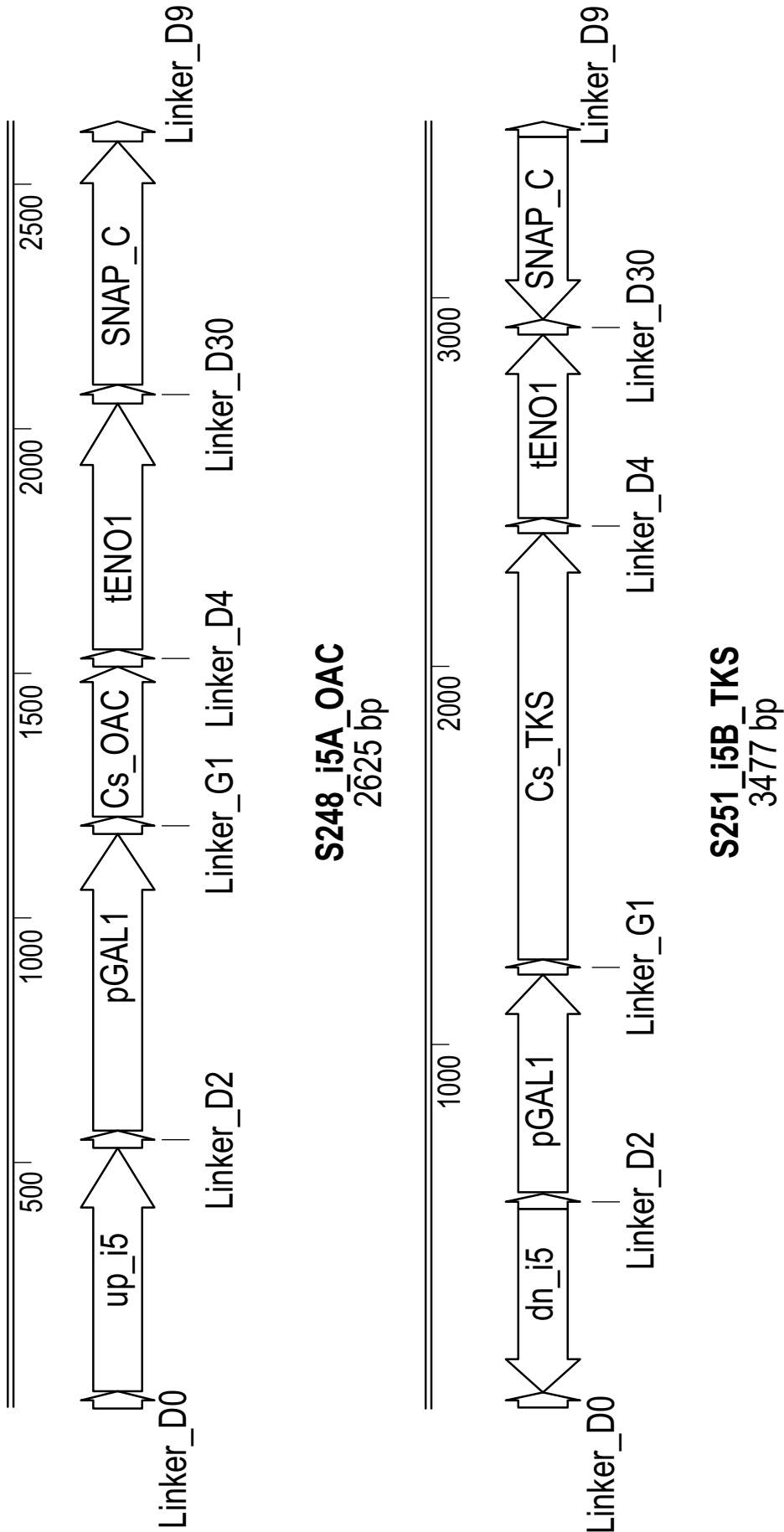
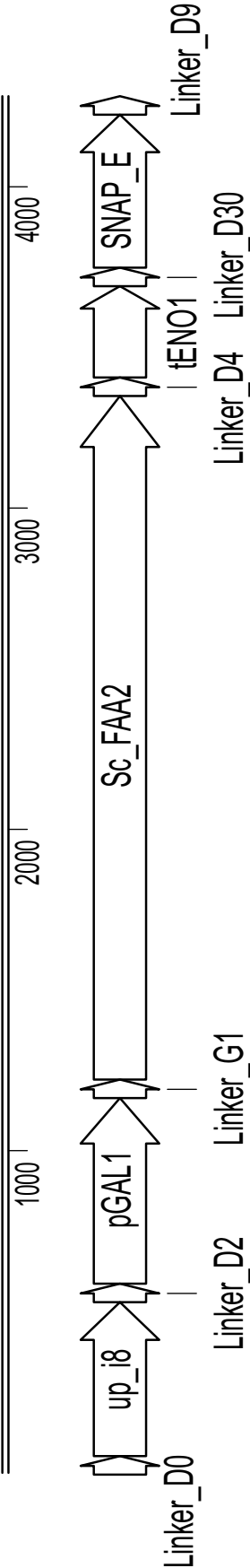
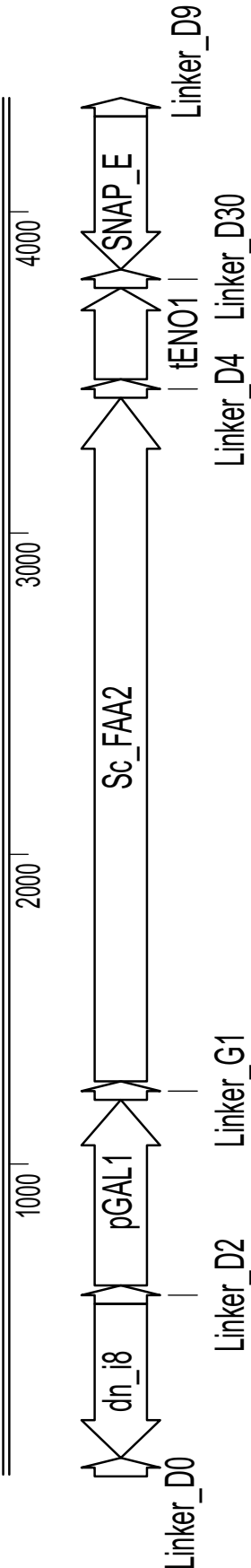


FIG. 43B



S269_ACL8
4352 bp



S281_ACL20
4352 bp

FIG. 43C

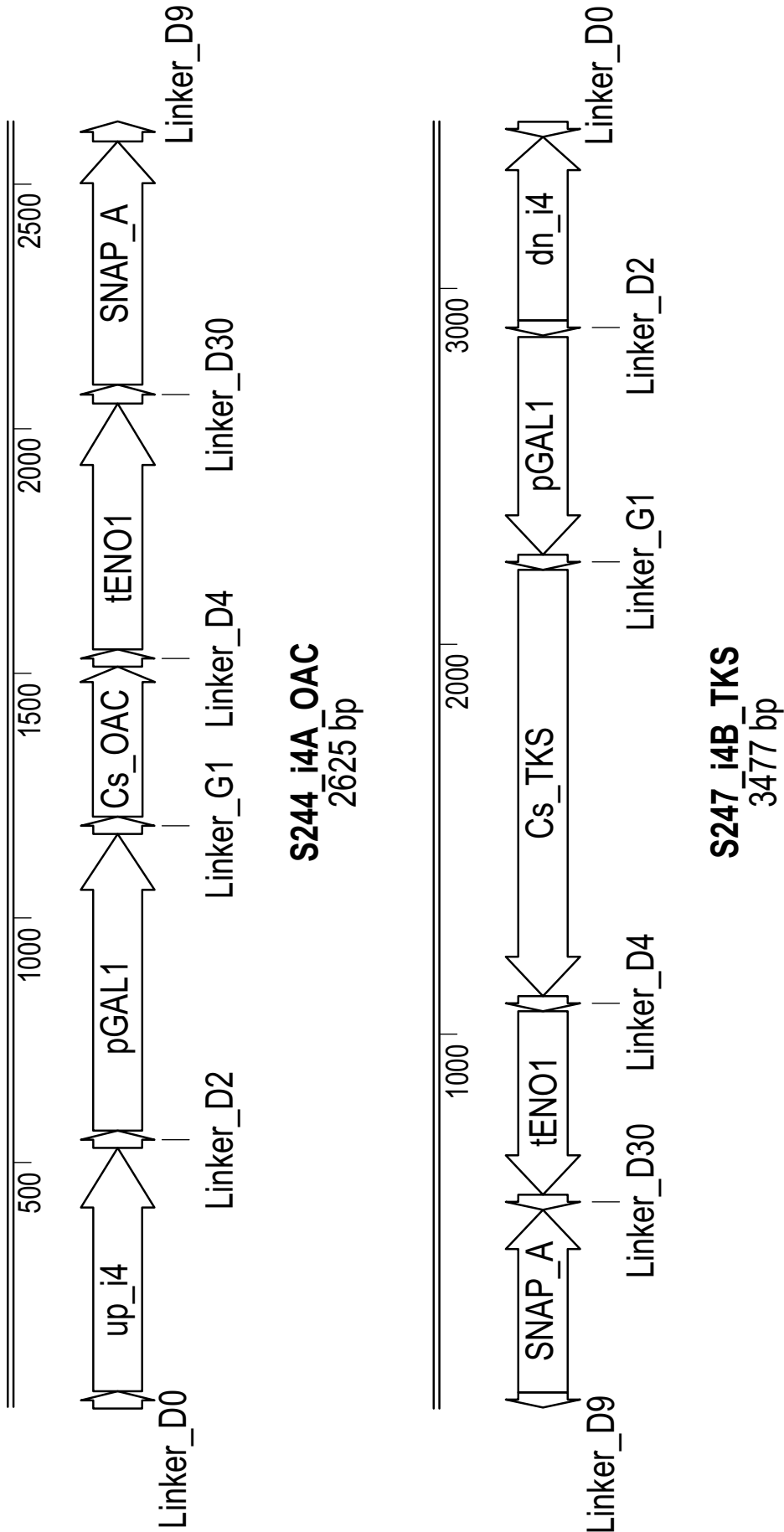


FIG. 44A

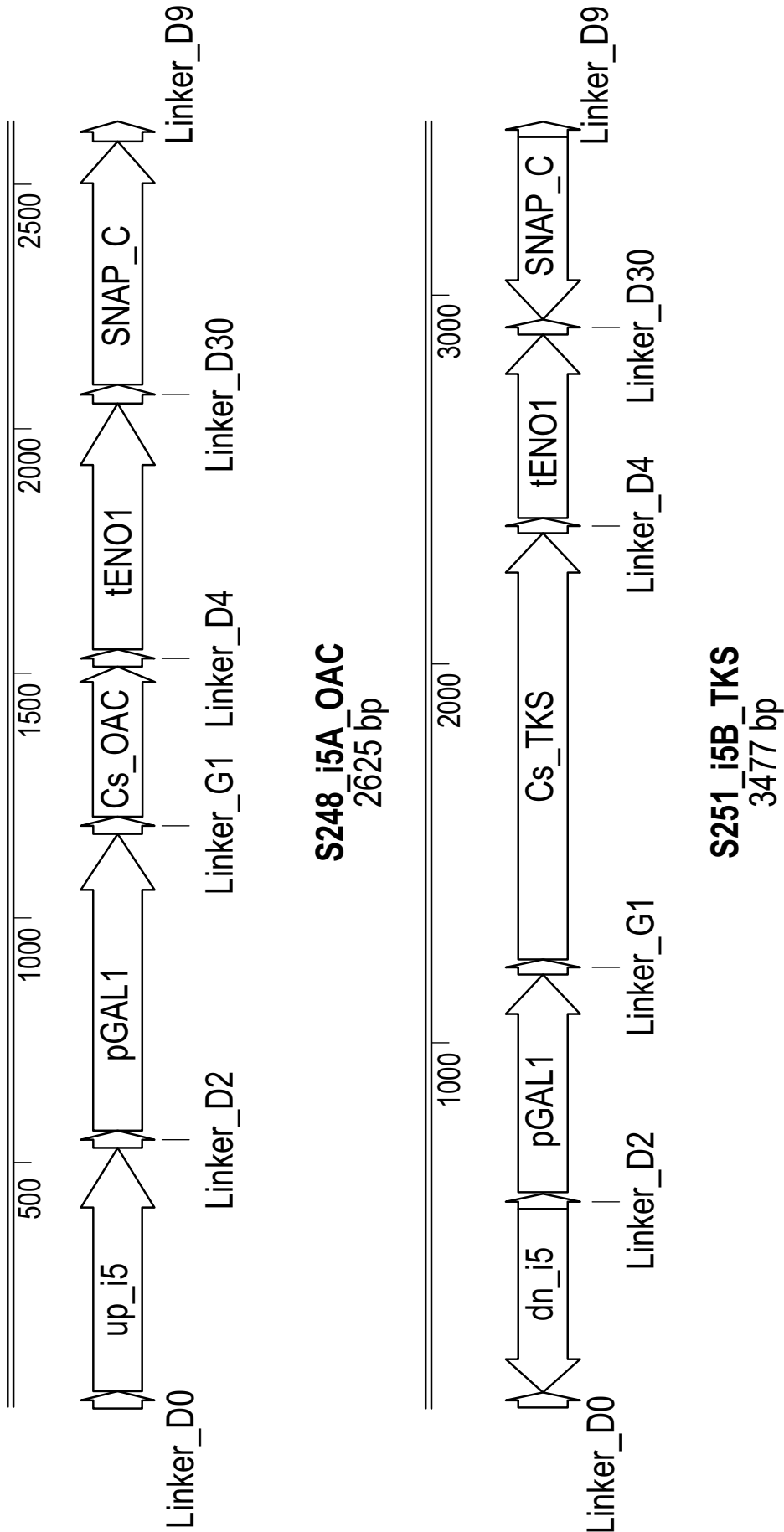


FIG. 44B

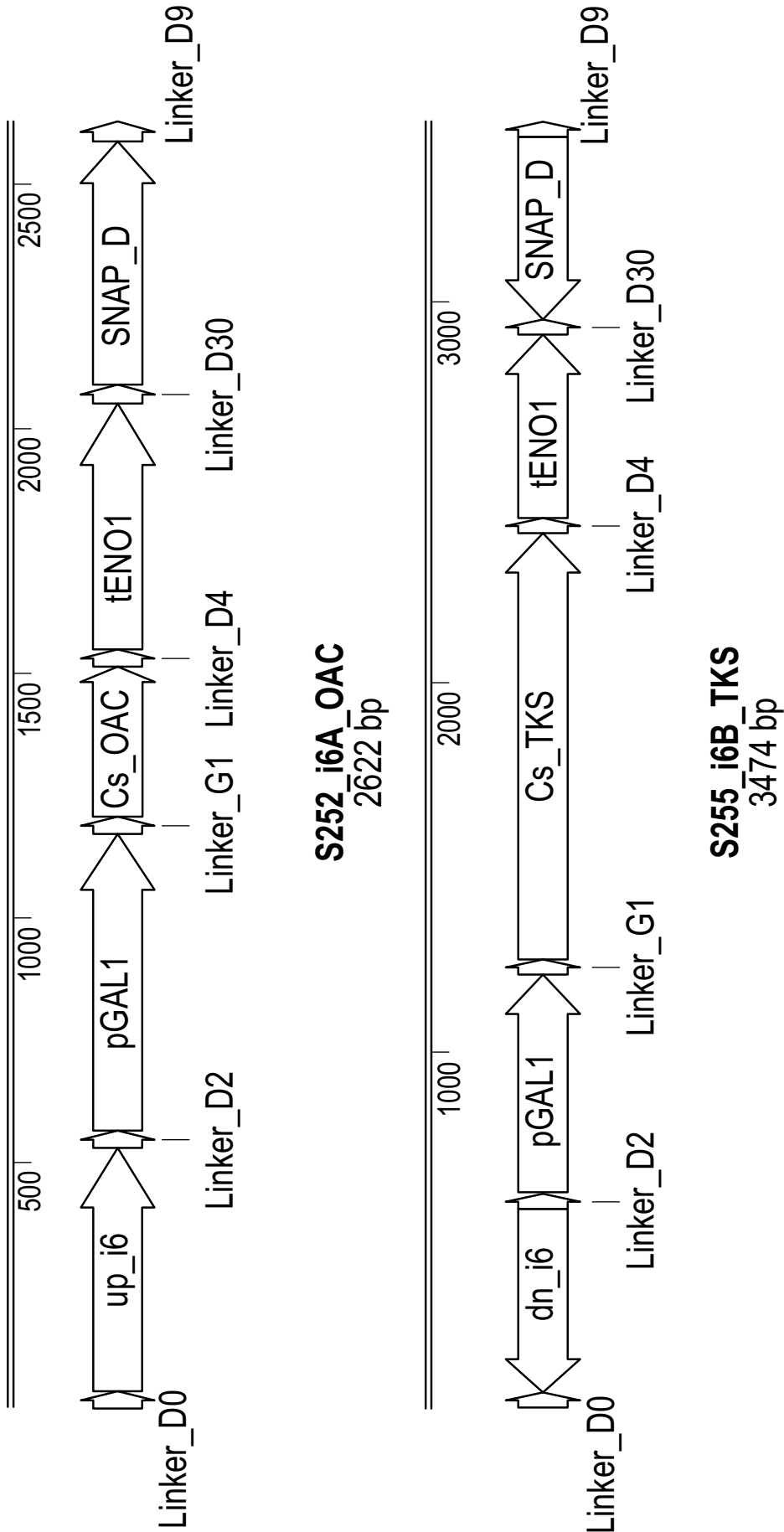


FIG. 44C

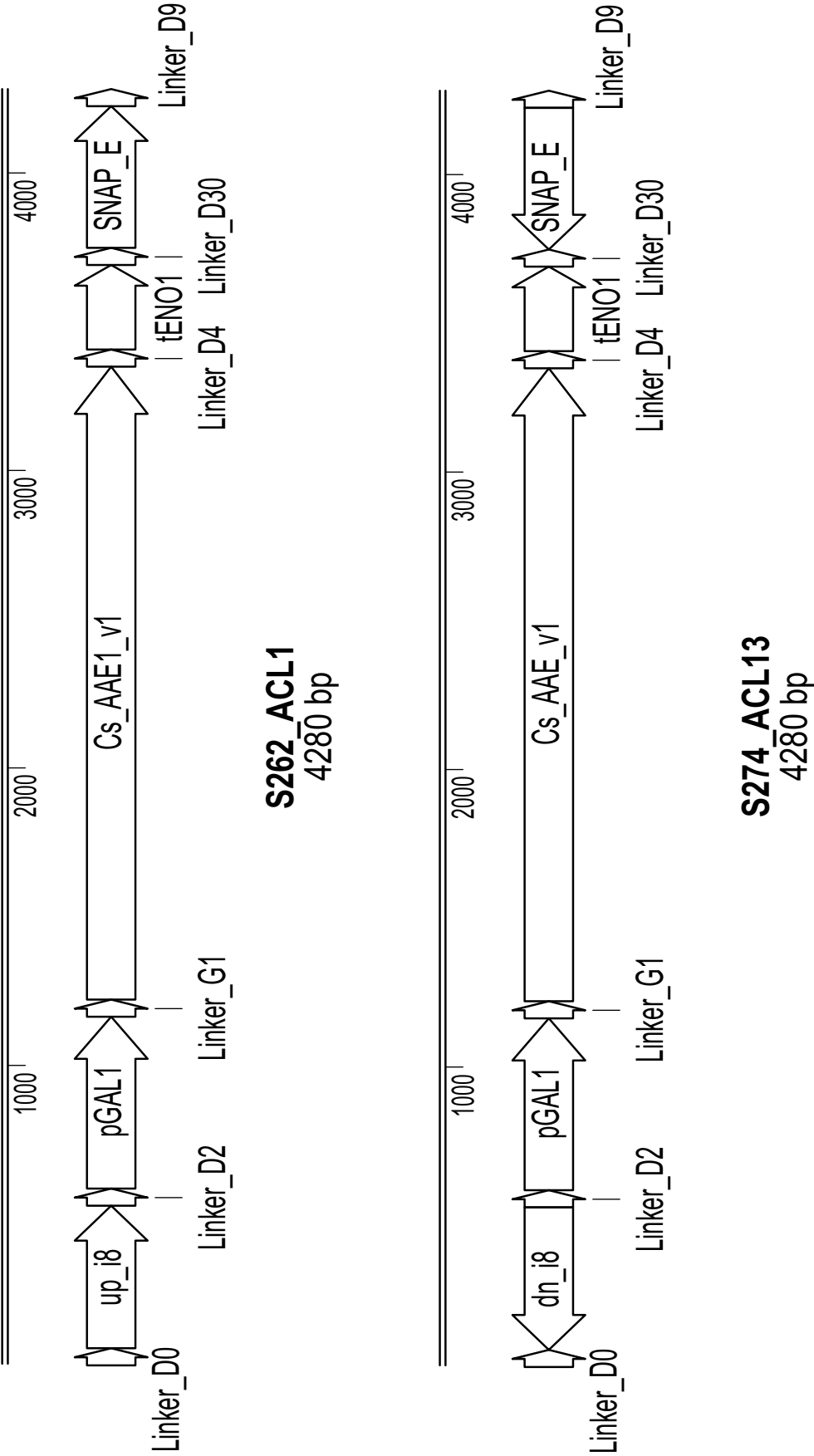


FIG. 45

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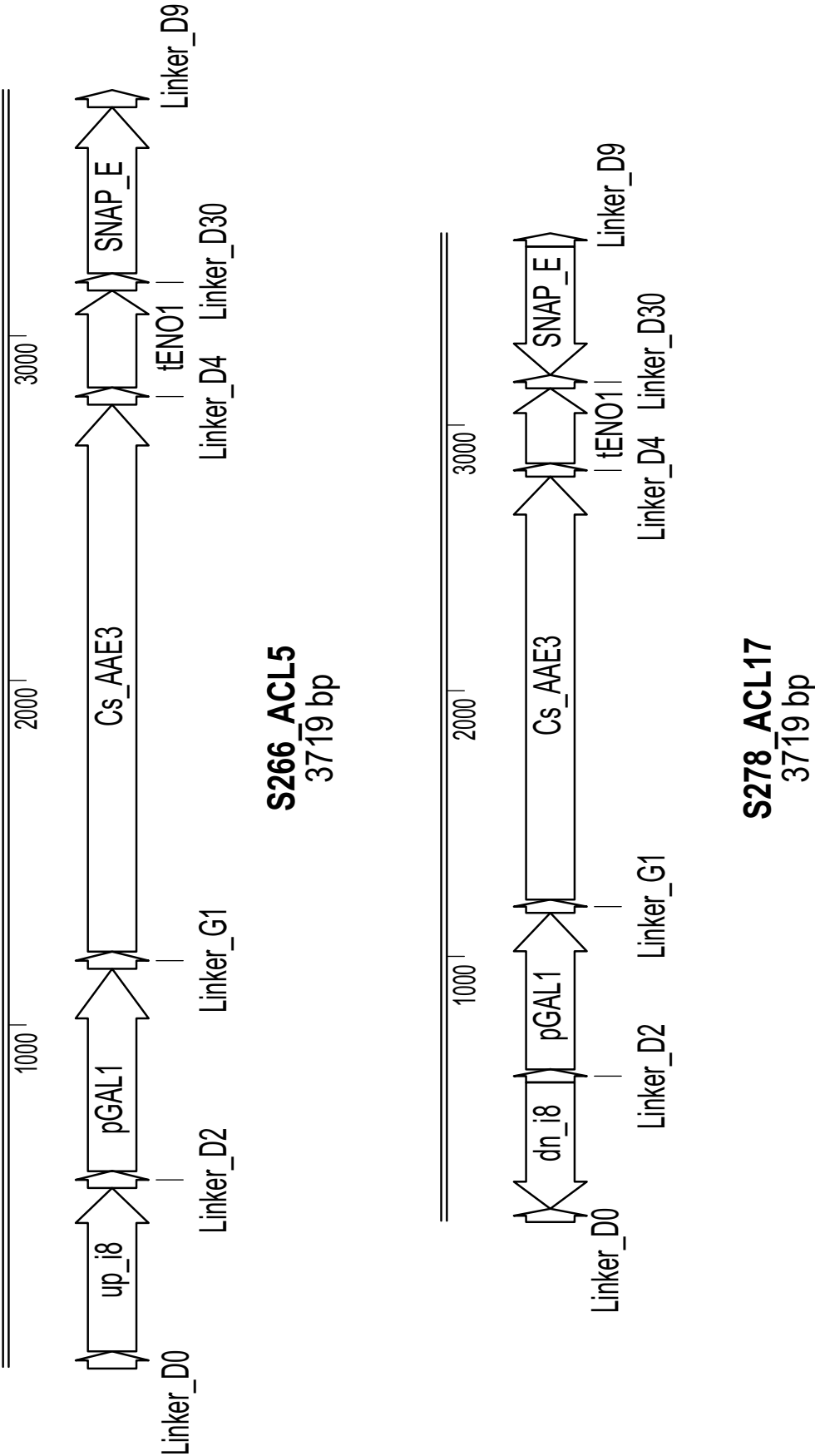


FIG. 46

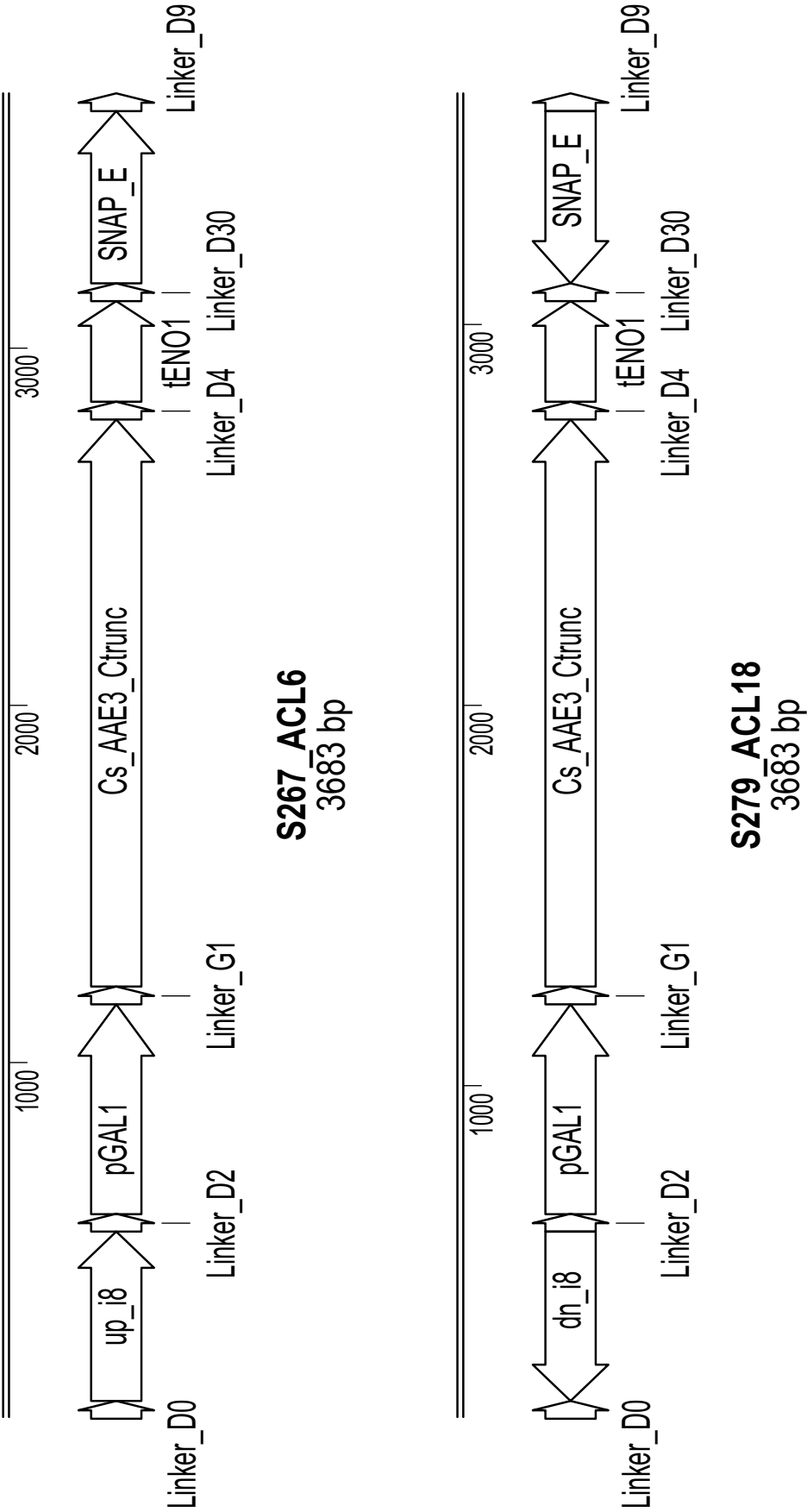


FIG. 47

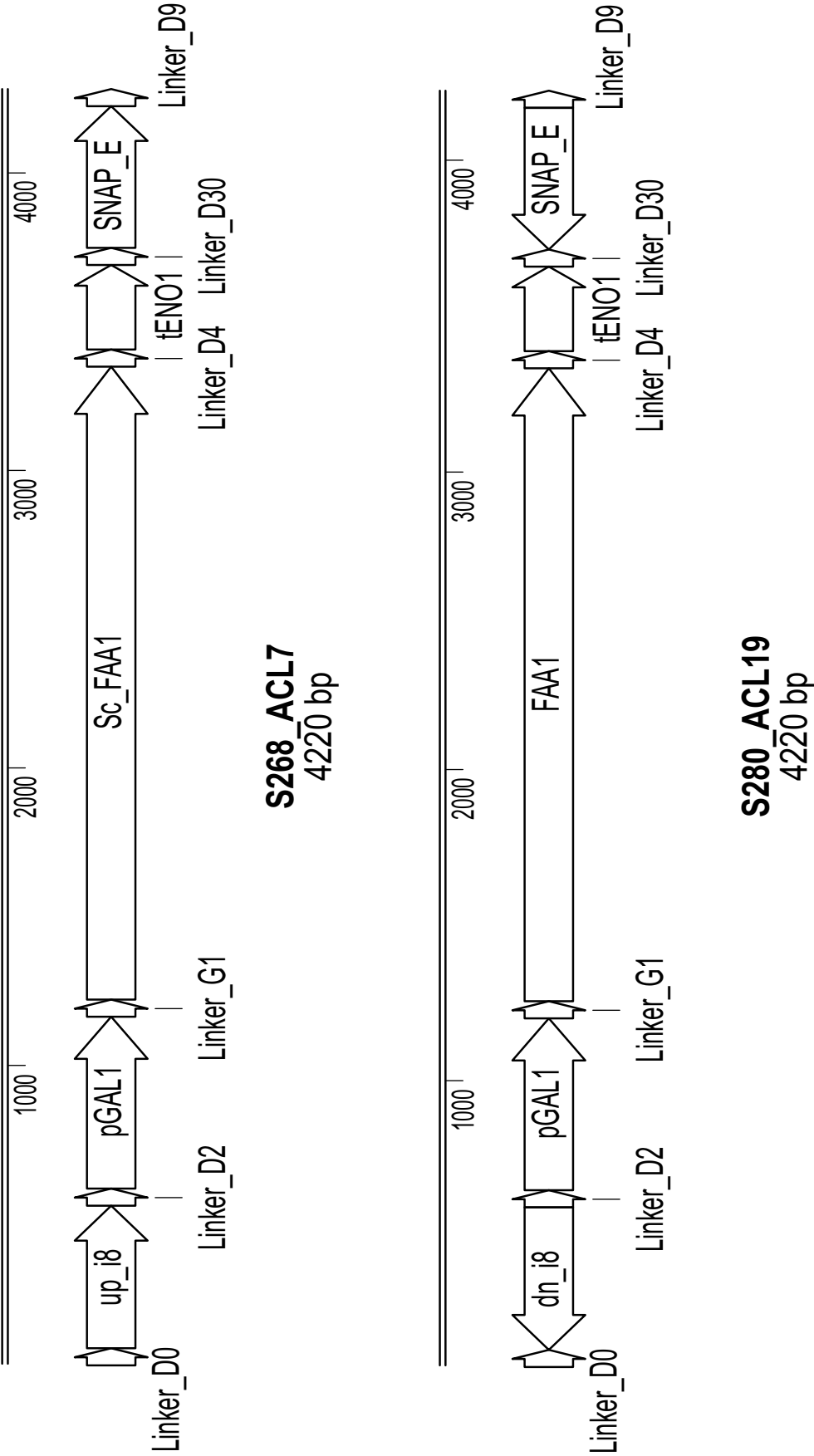
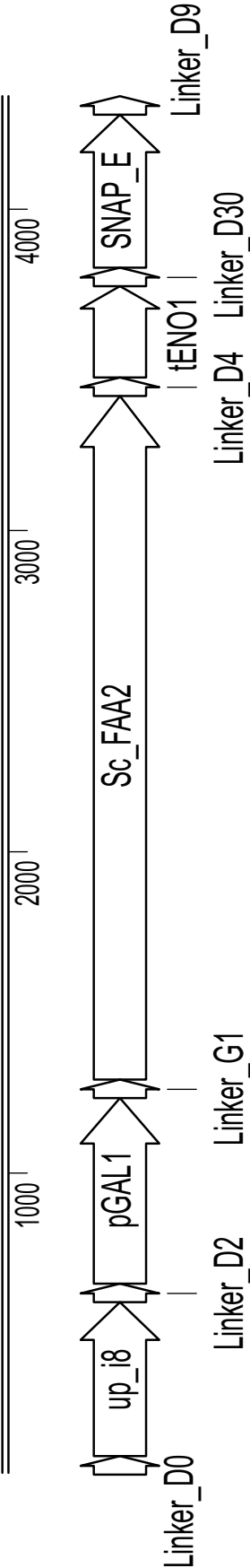
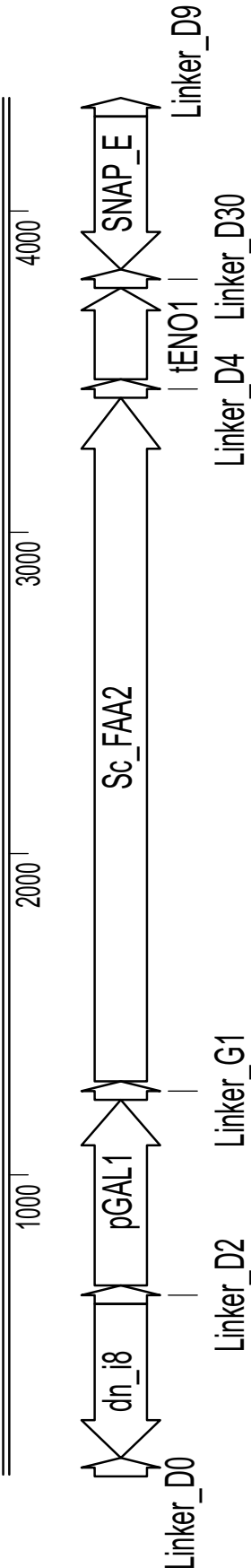


FIG. 48



S269_ACL8
4352 bp



S281_ACL20
4352 bp

FIG. 49

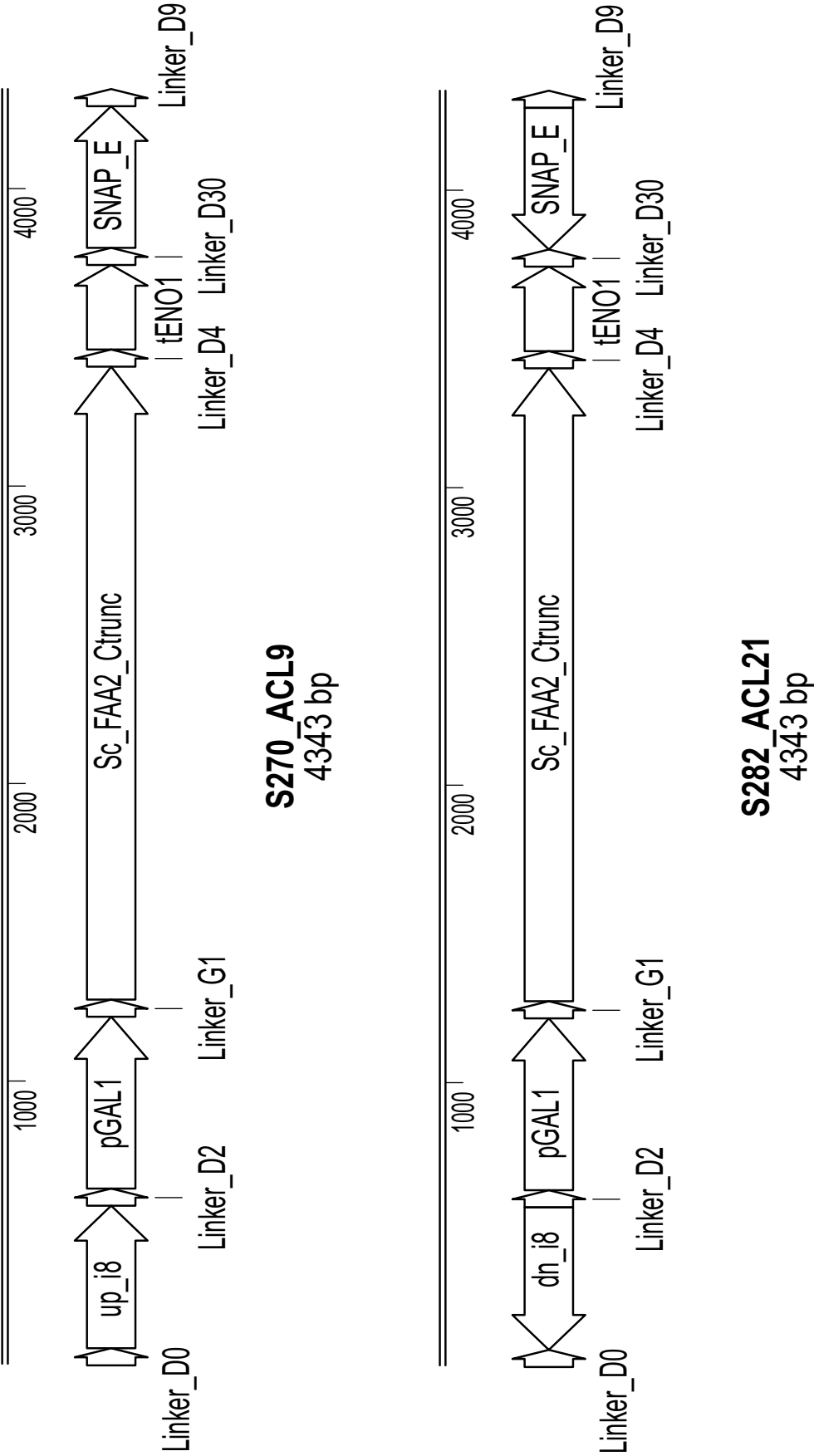
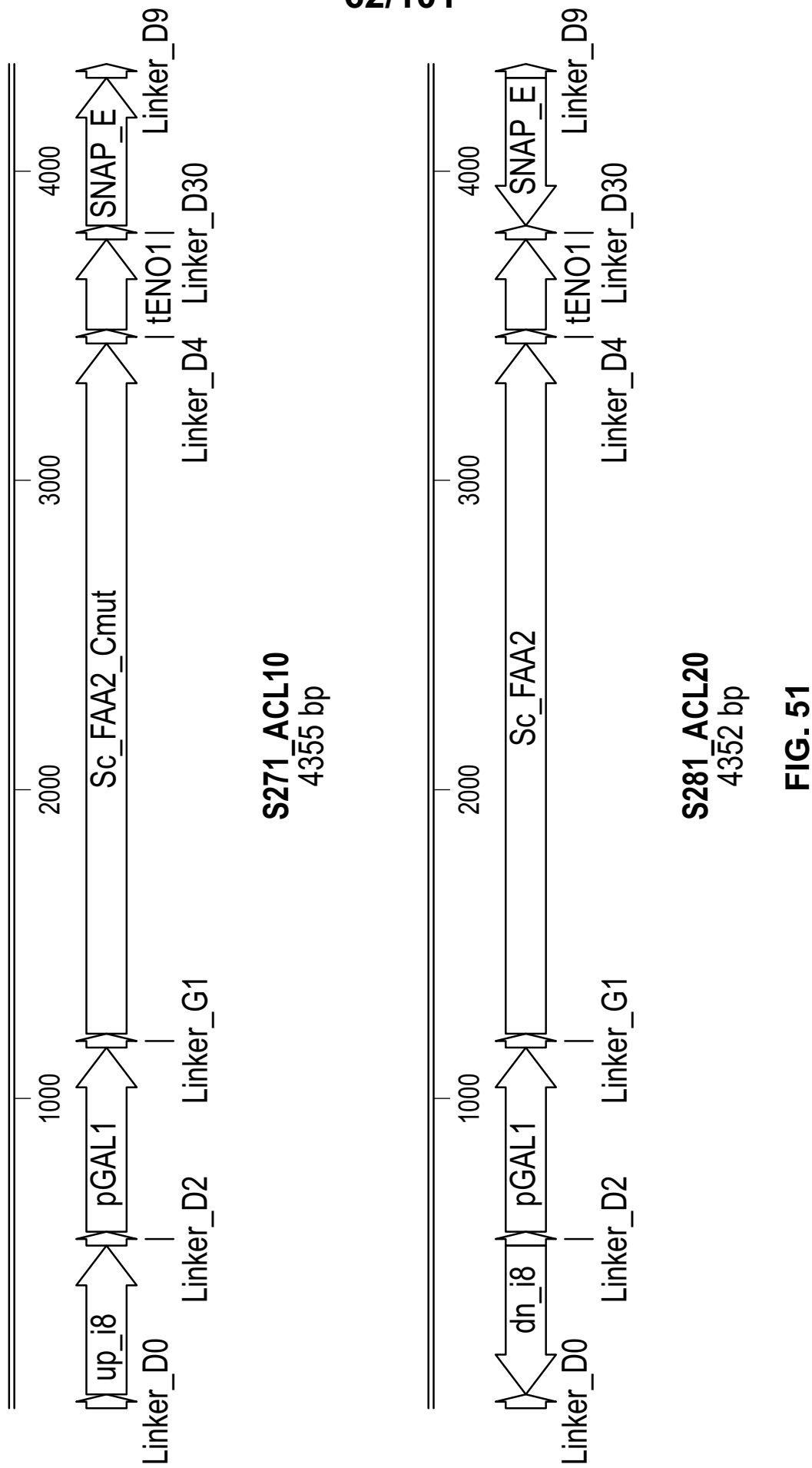
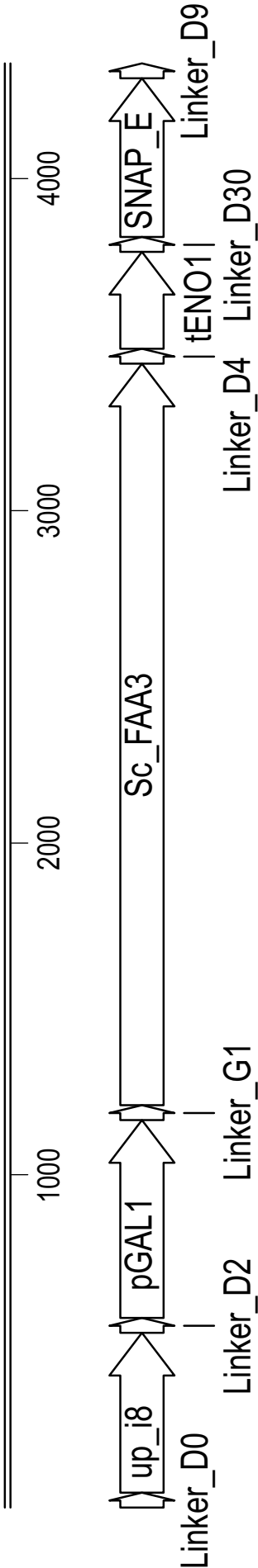


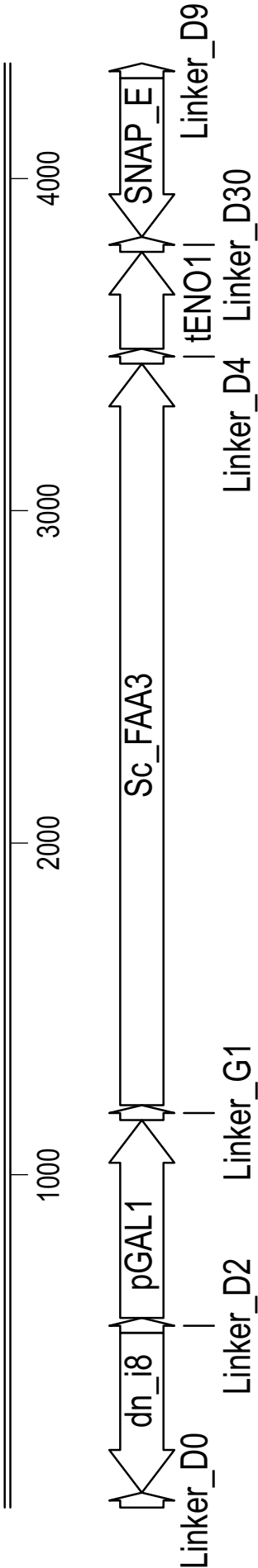
FIG. 50

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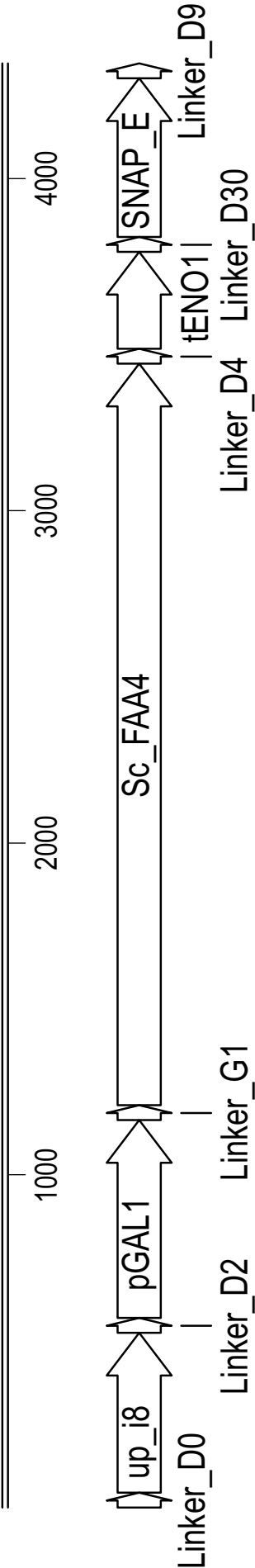


S272_ACL11
4202 bp



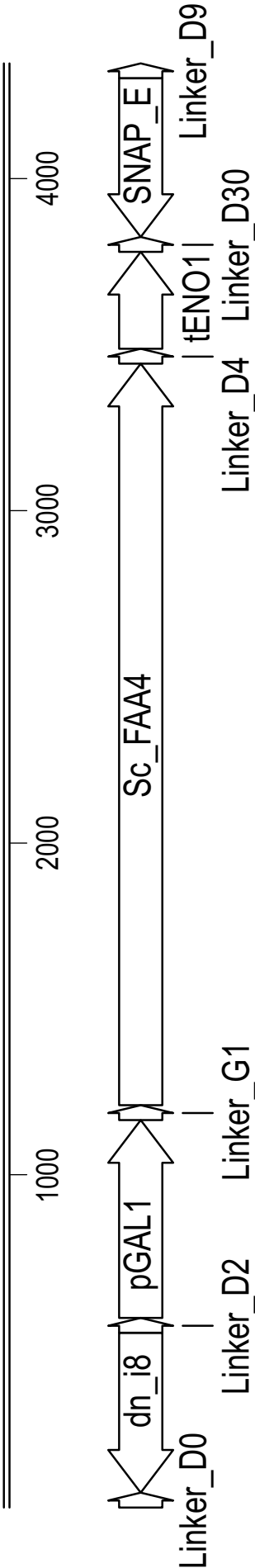
S284_ACL23
4202 bp

FIG. 52



S273_ACL12
4202 bp

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S285_ACL24
4202 bp

FIG. 53

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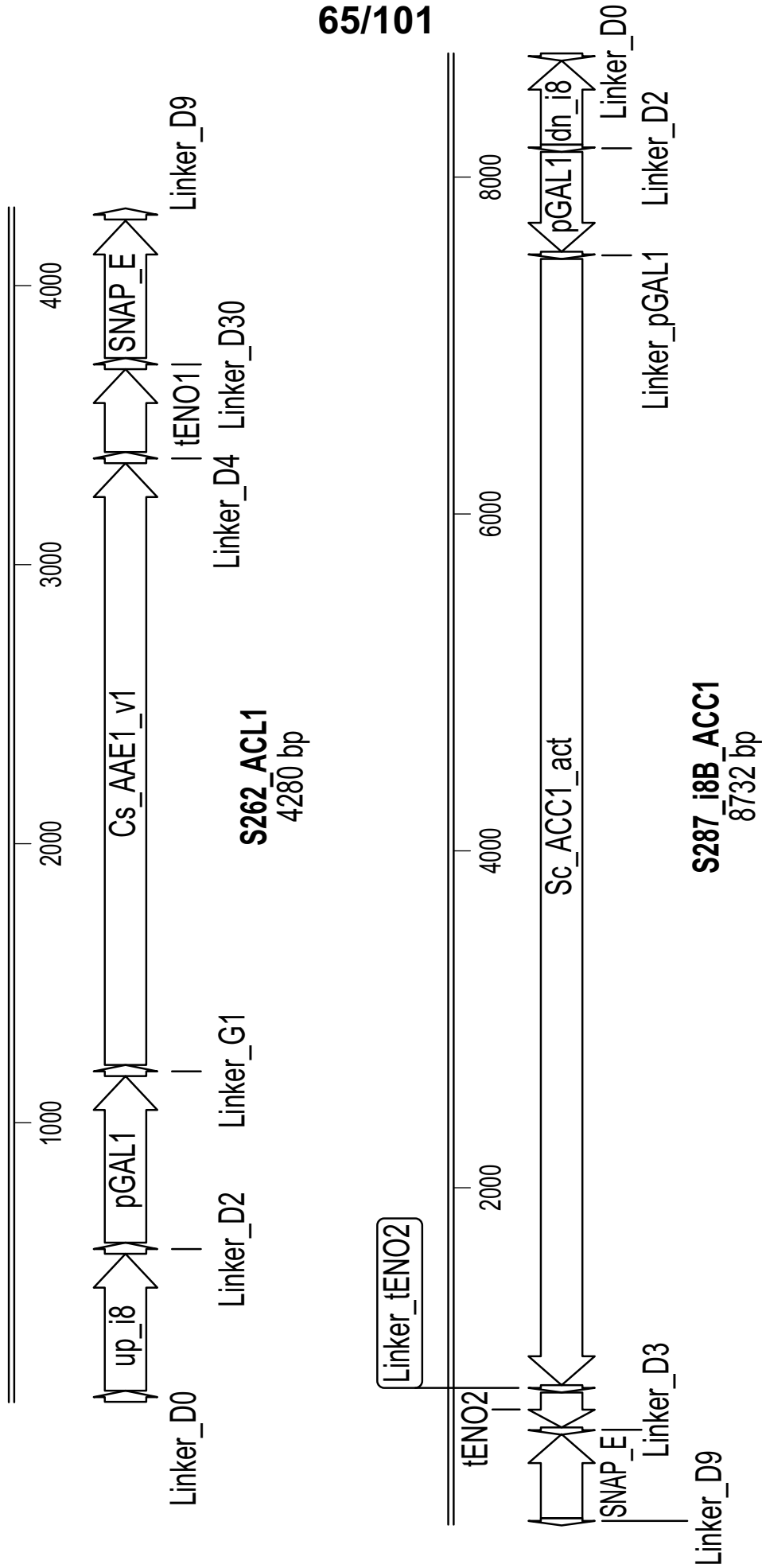


FIG. 54

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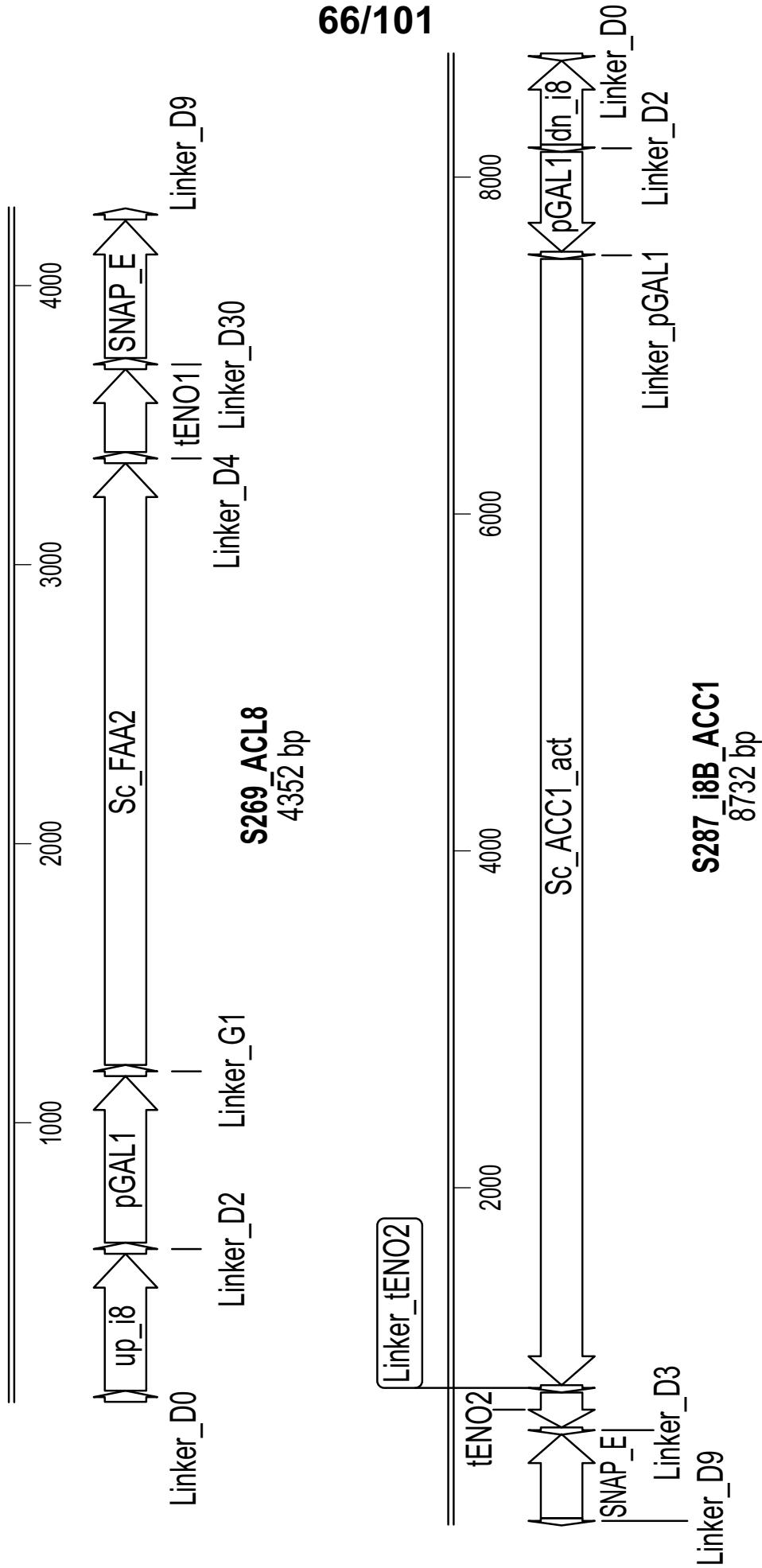


FIG. 55

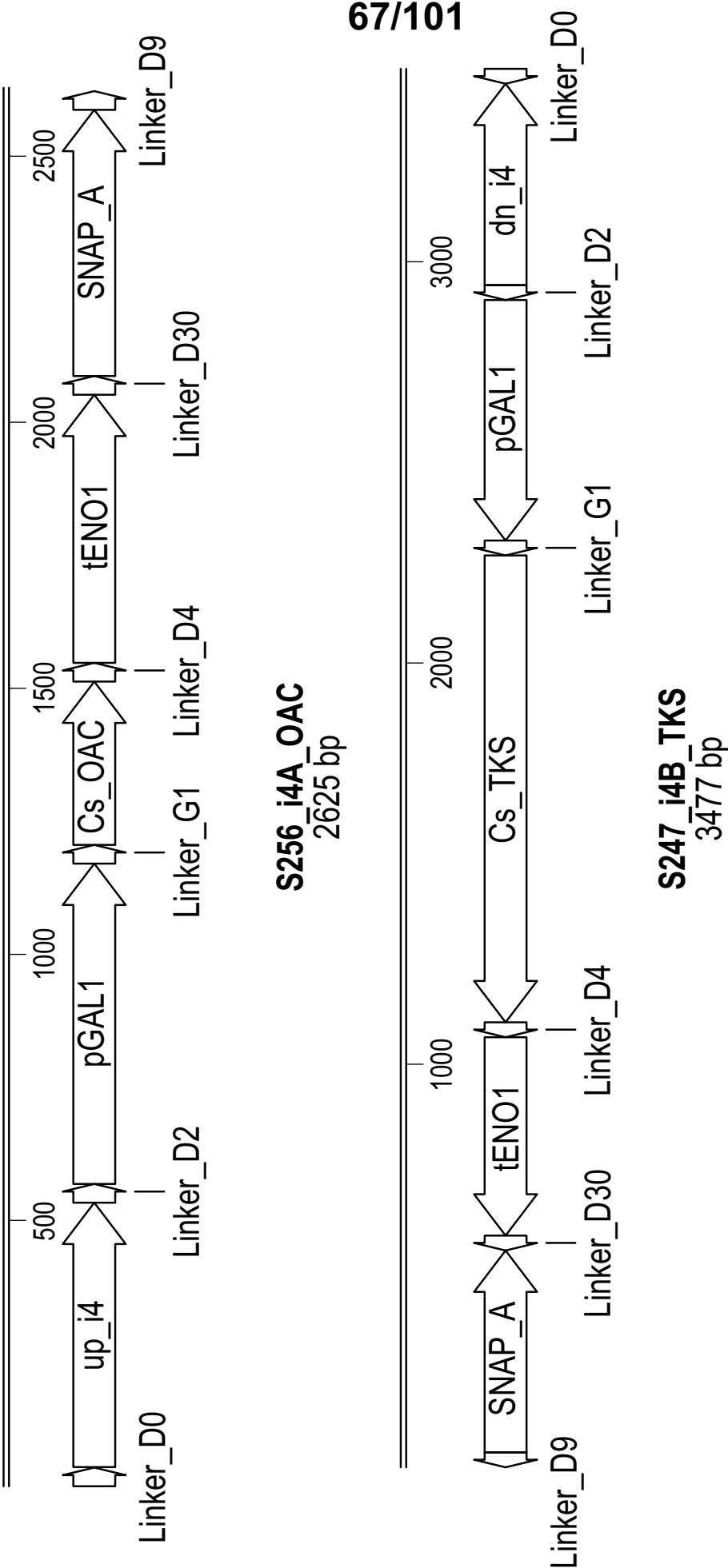


FIG. 56A

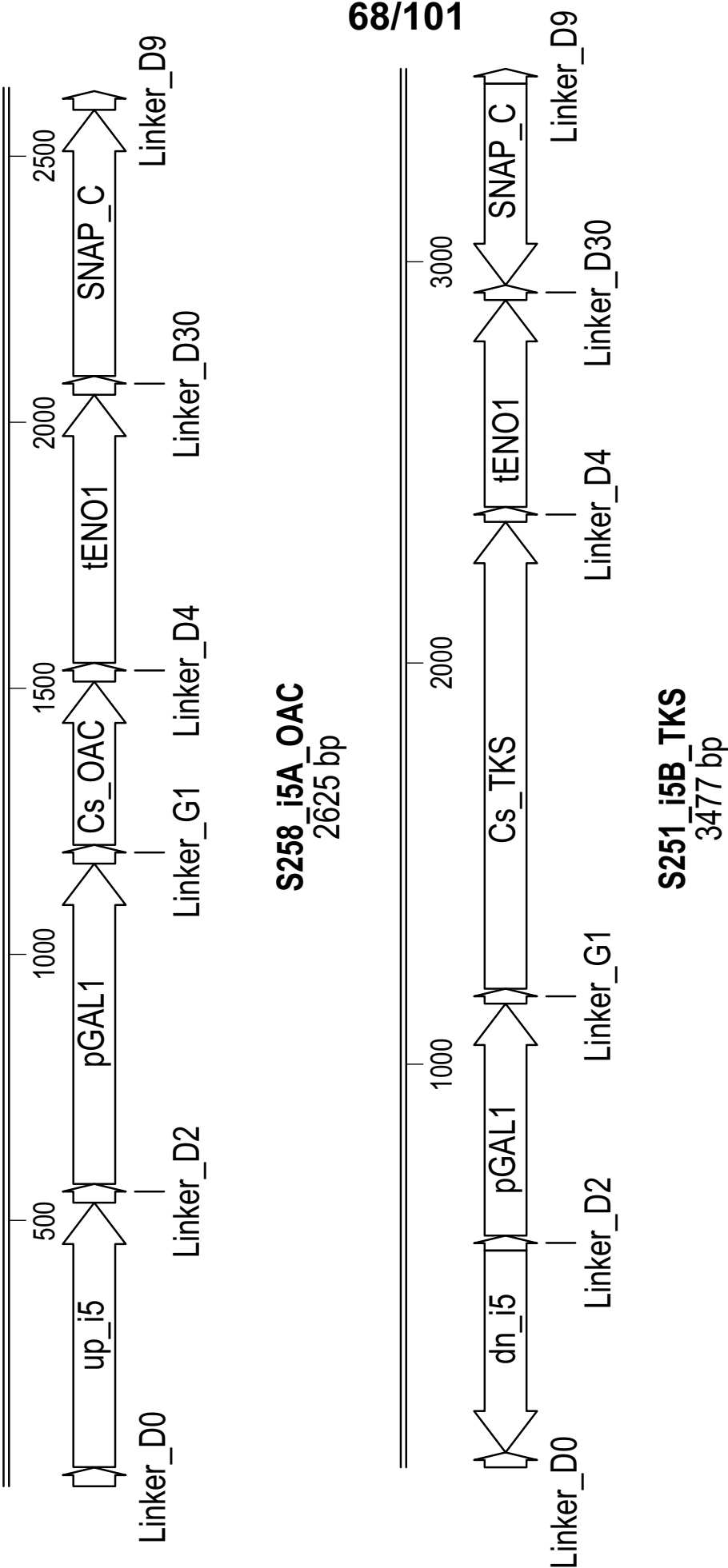


FIG. 56B

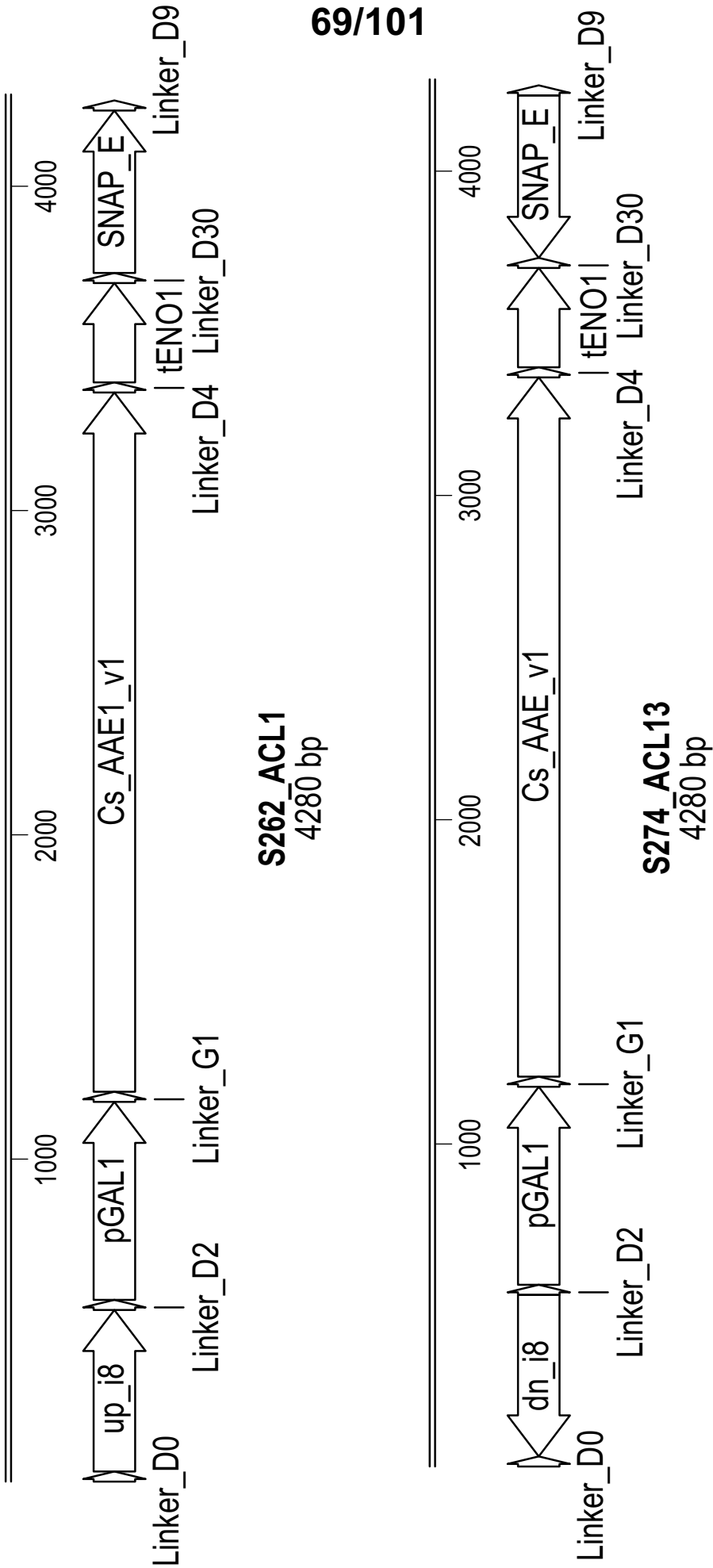


FIG. 56C

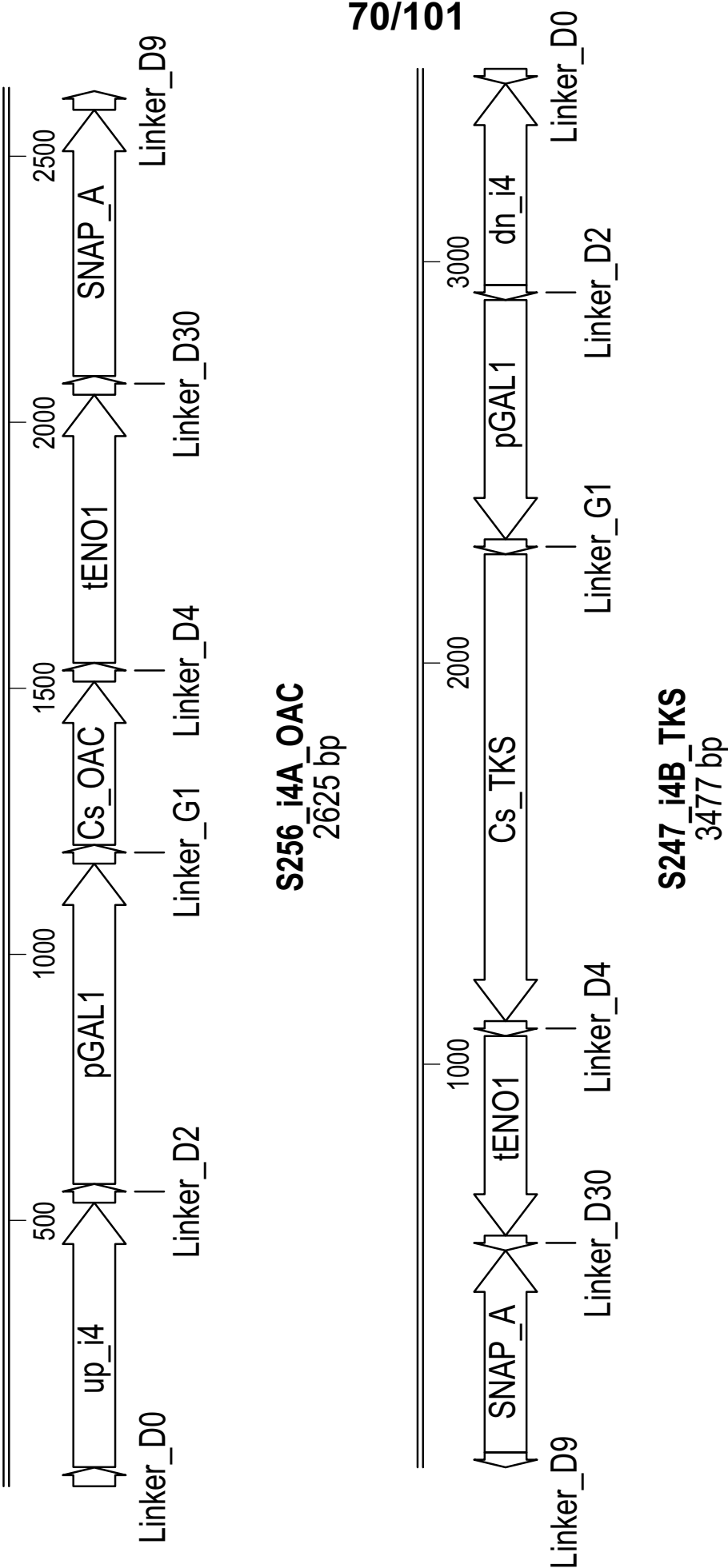


FIG. 57A

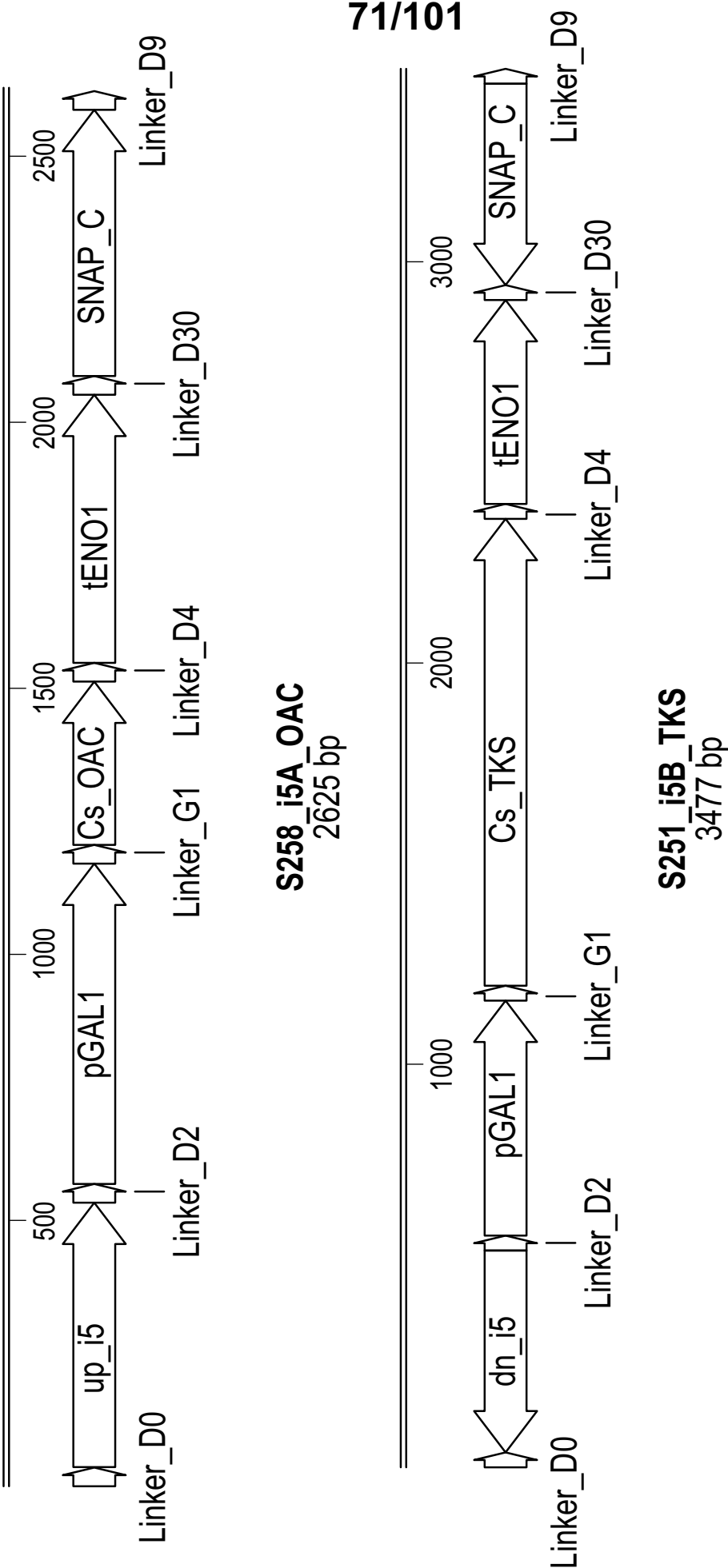


FIG. 57B

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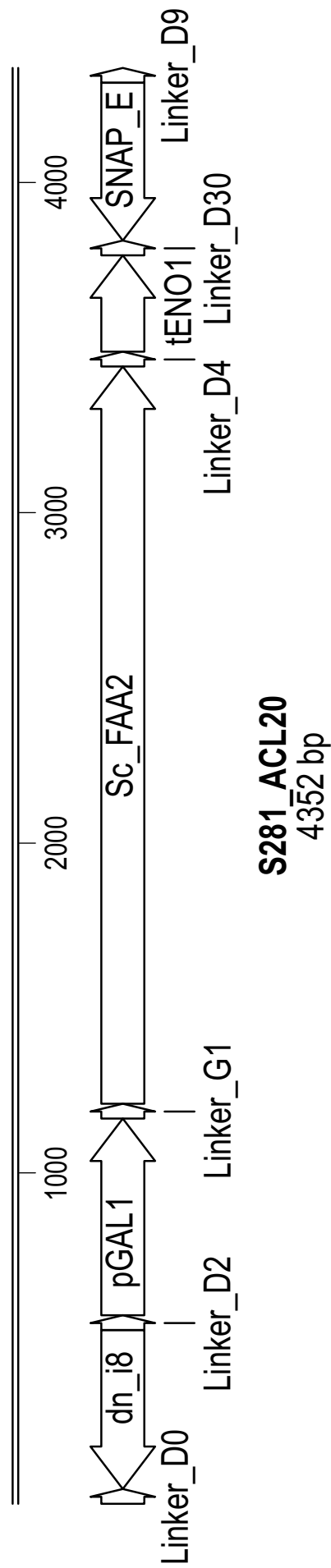
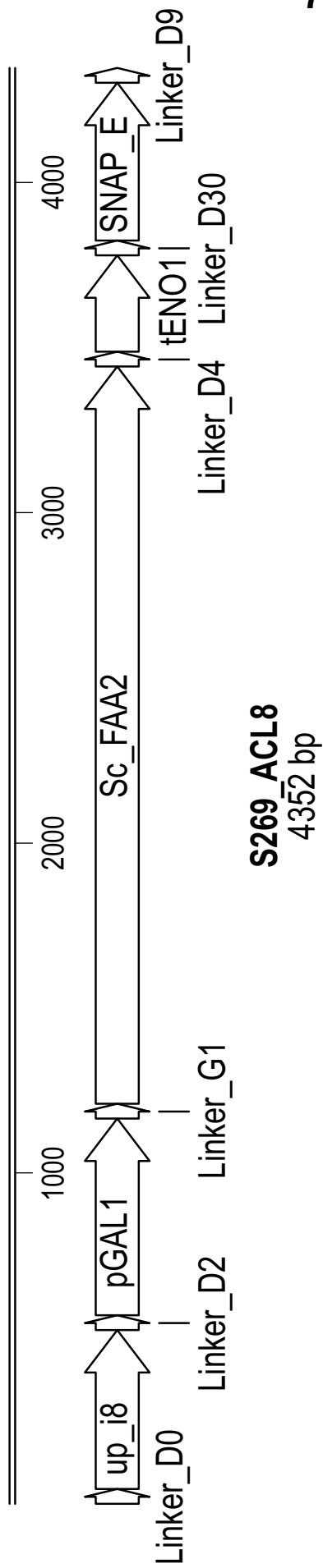


FIG. 57C

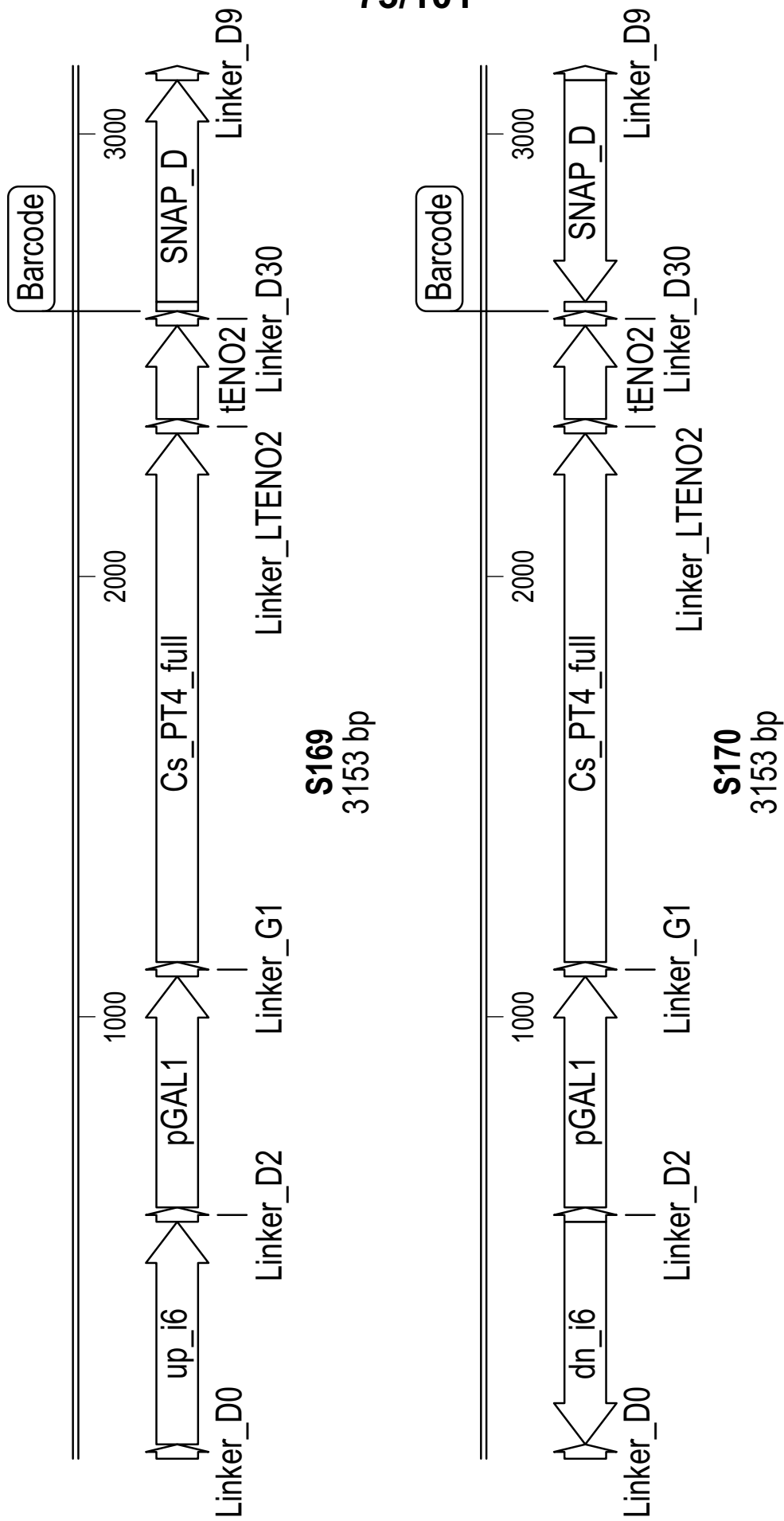


FIG. 58

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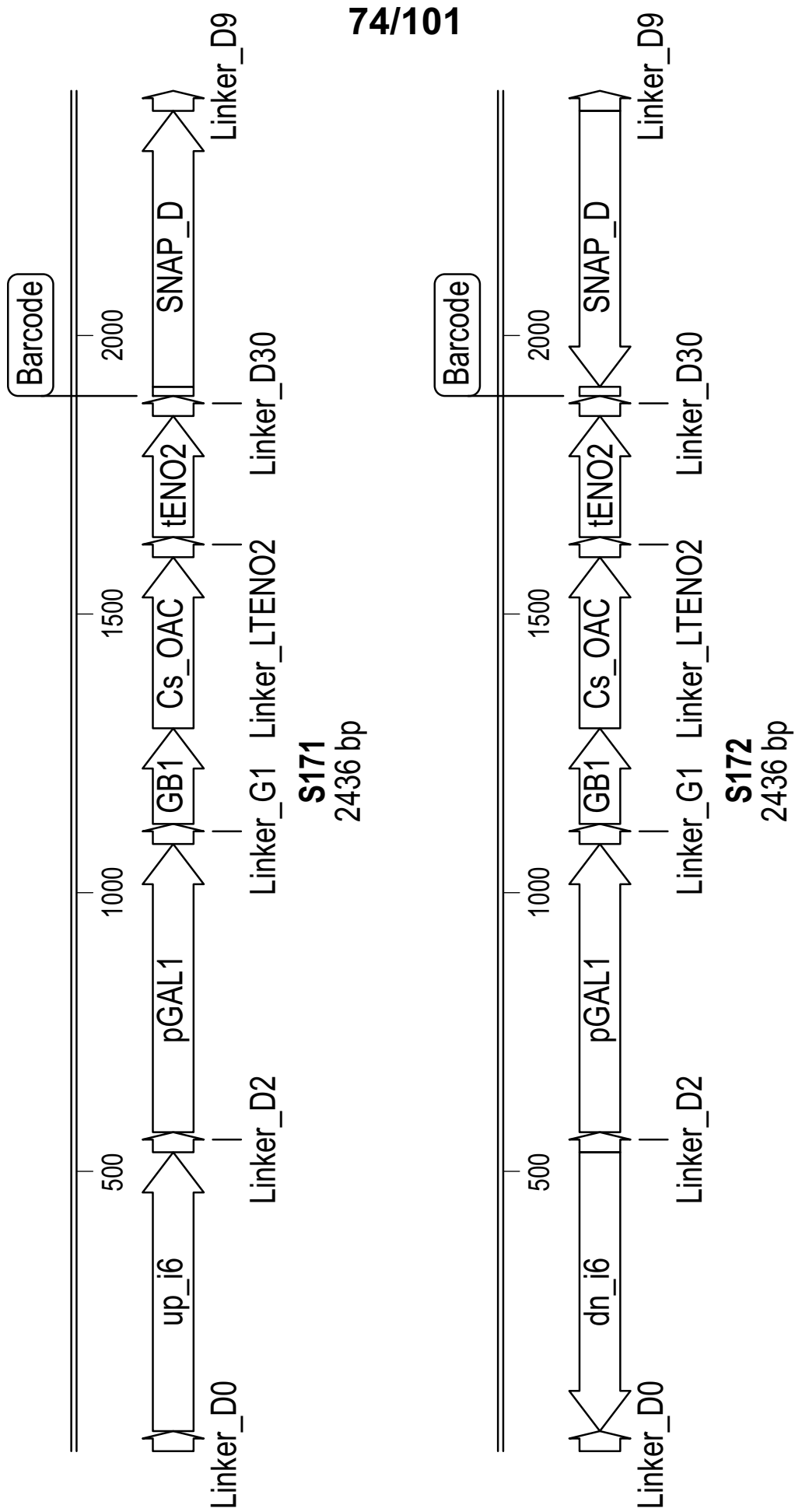


FIG. 59

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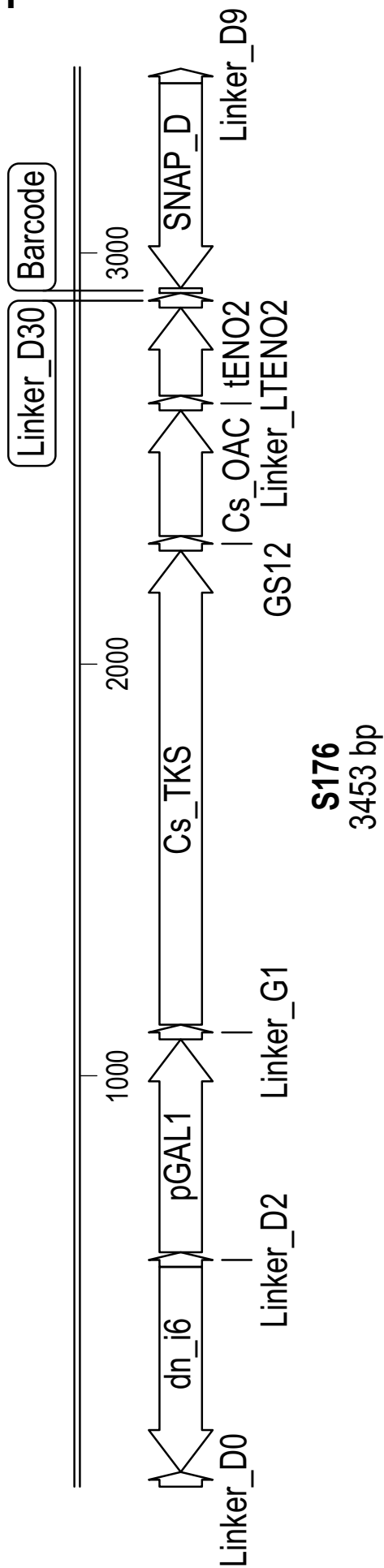
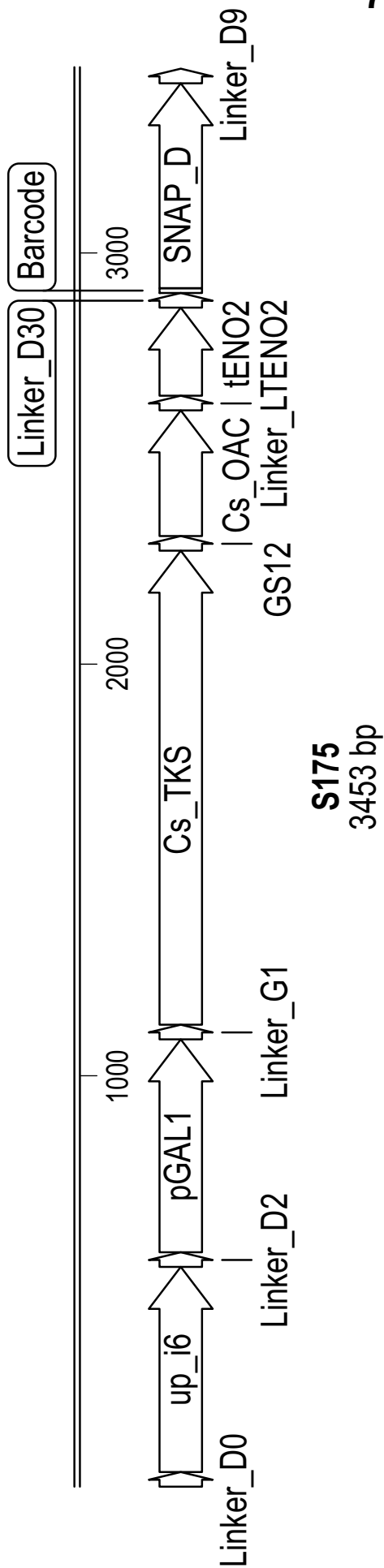
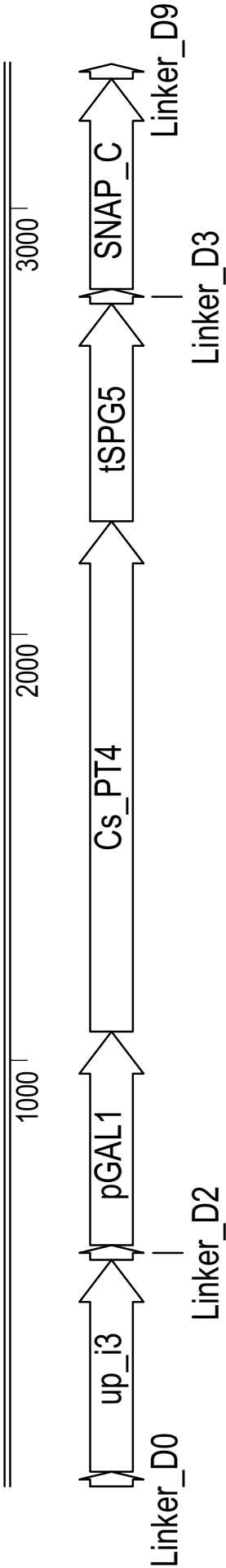
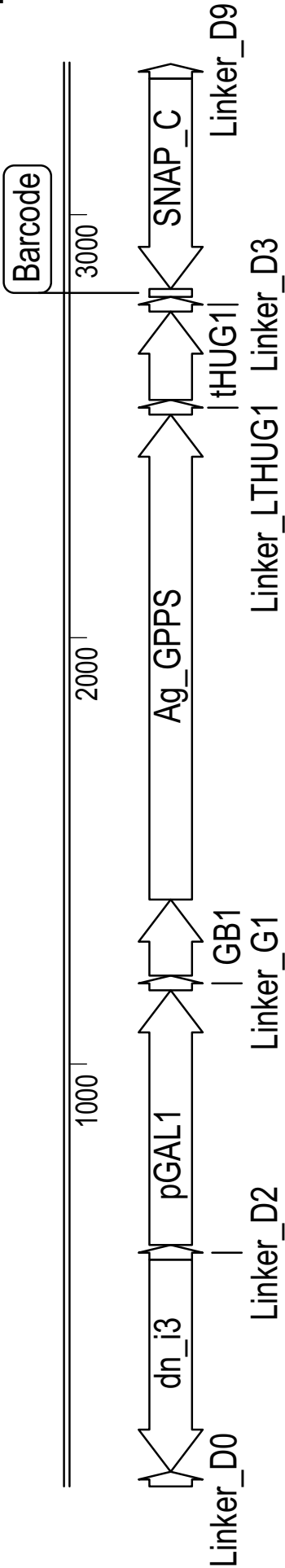


FIG. 60



S26_i3_GPP_codonopt_3A_CSPT4
3346 bp



S151
3363 bp

FIG. 61

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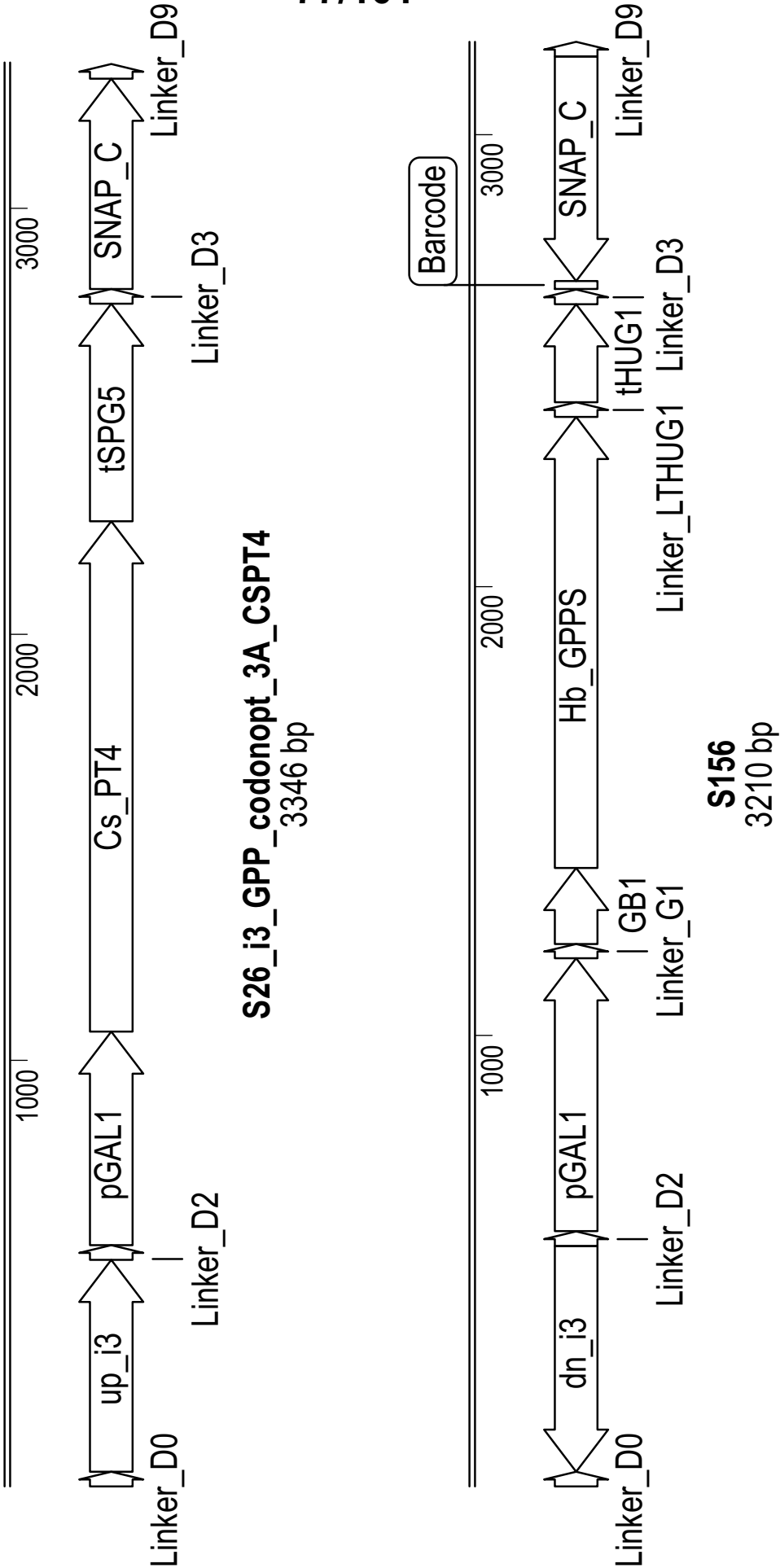
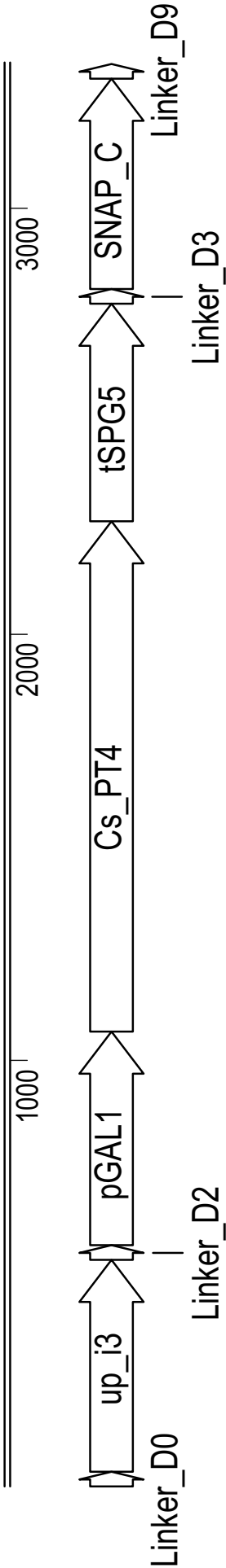
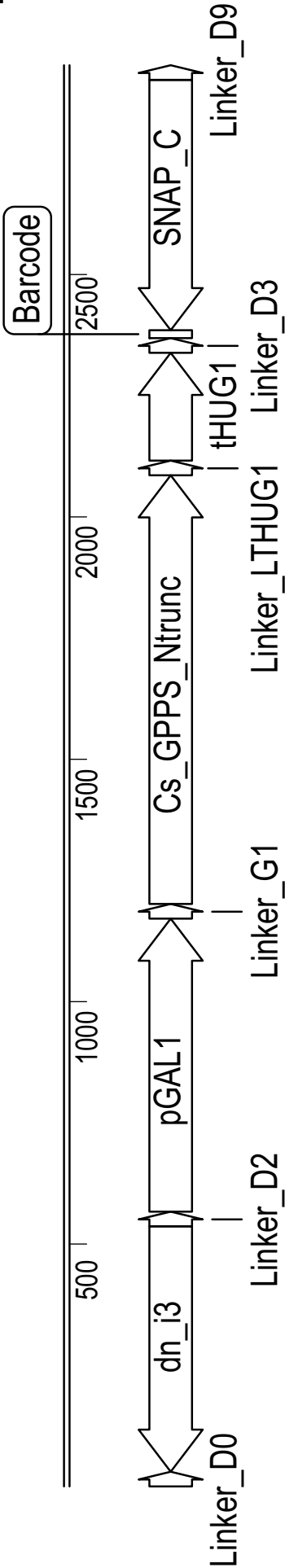


FIG. 62

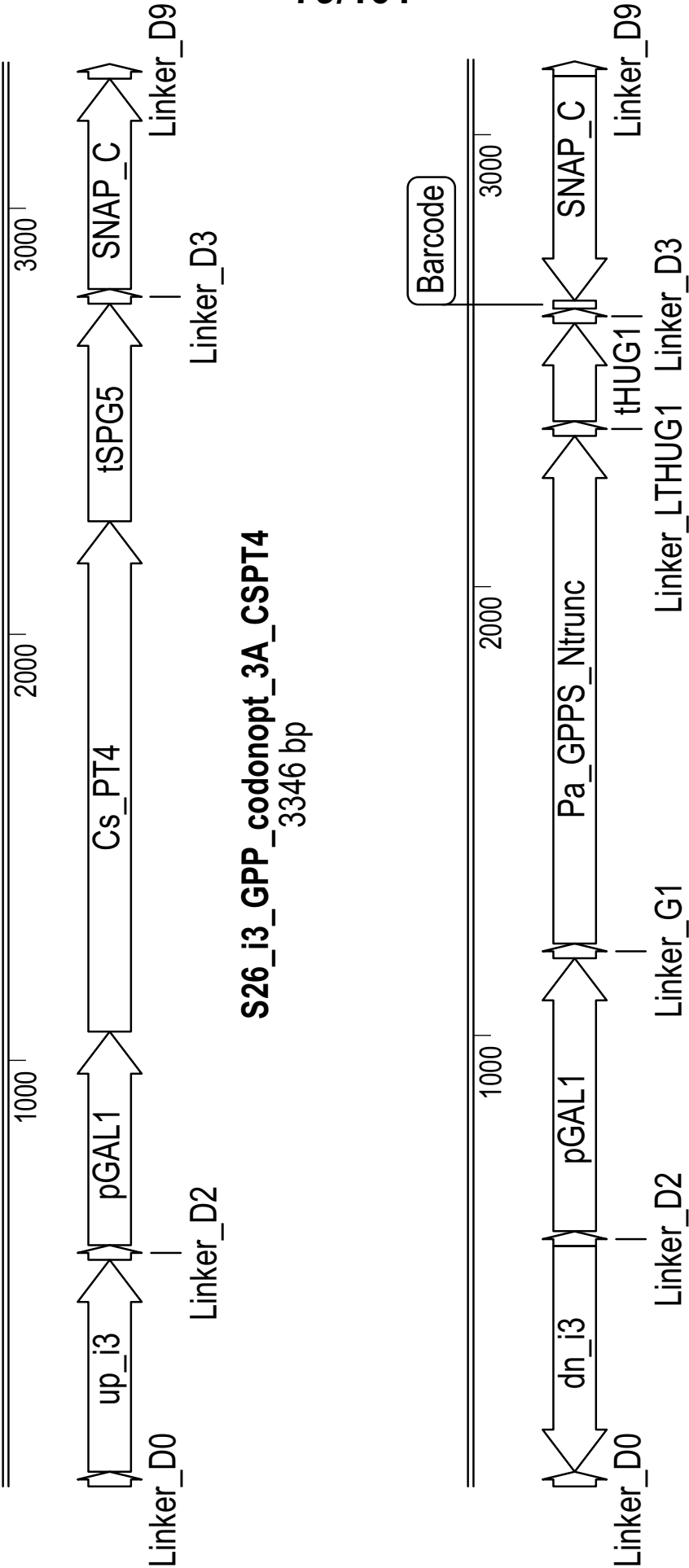


S26_i3_GPP_codonopt_3A_CSPT4
3346 bp



S160
2922 bp

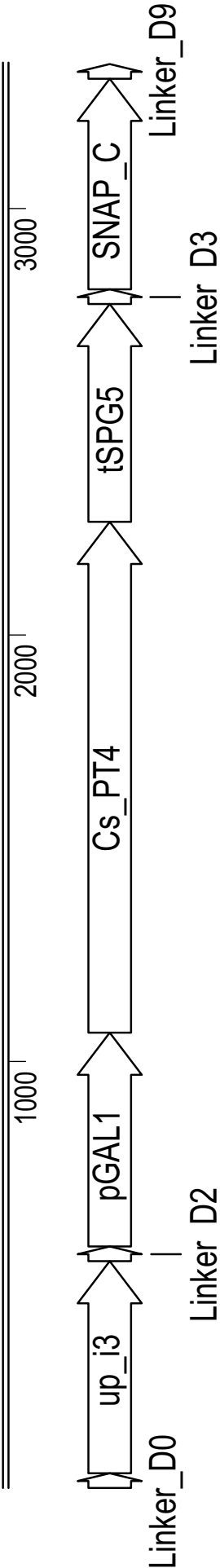
FIG. 63



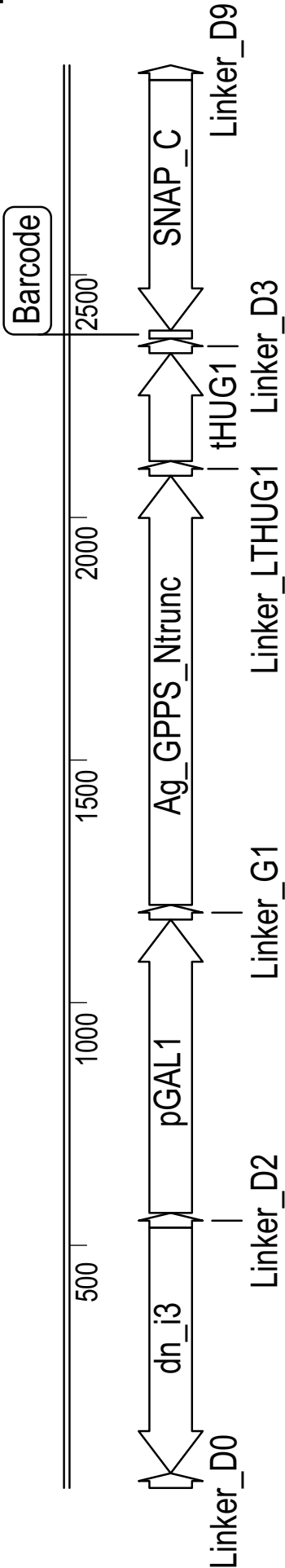
S162

3183 bp

FIG. 64

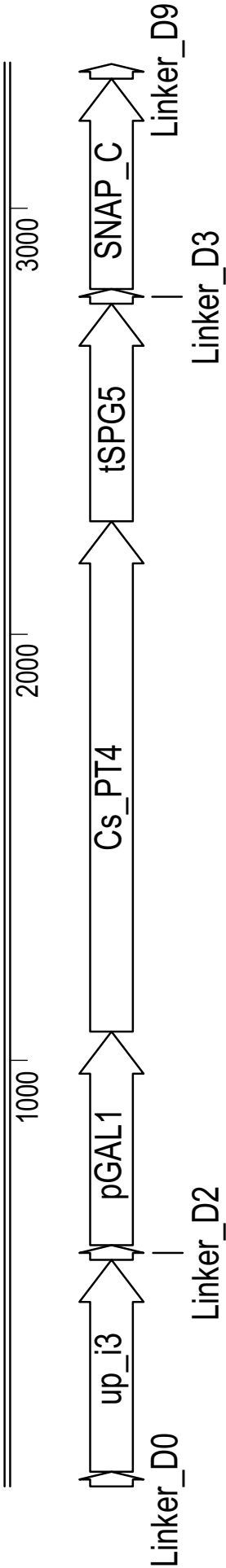


S26_i3_GPP_codonopt_3A_CSPT4
3346 bp

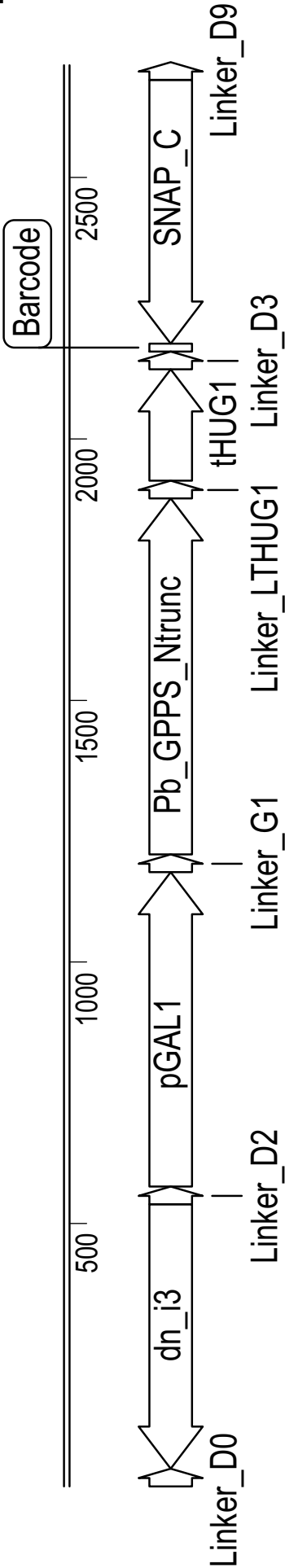


S163
2937 bp

FIG. 65



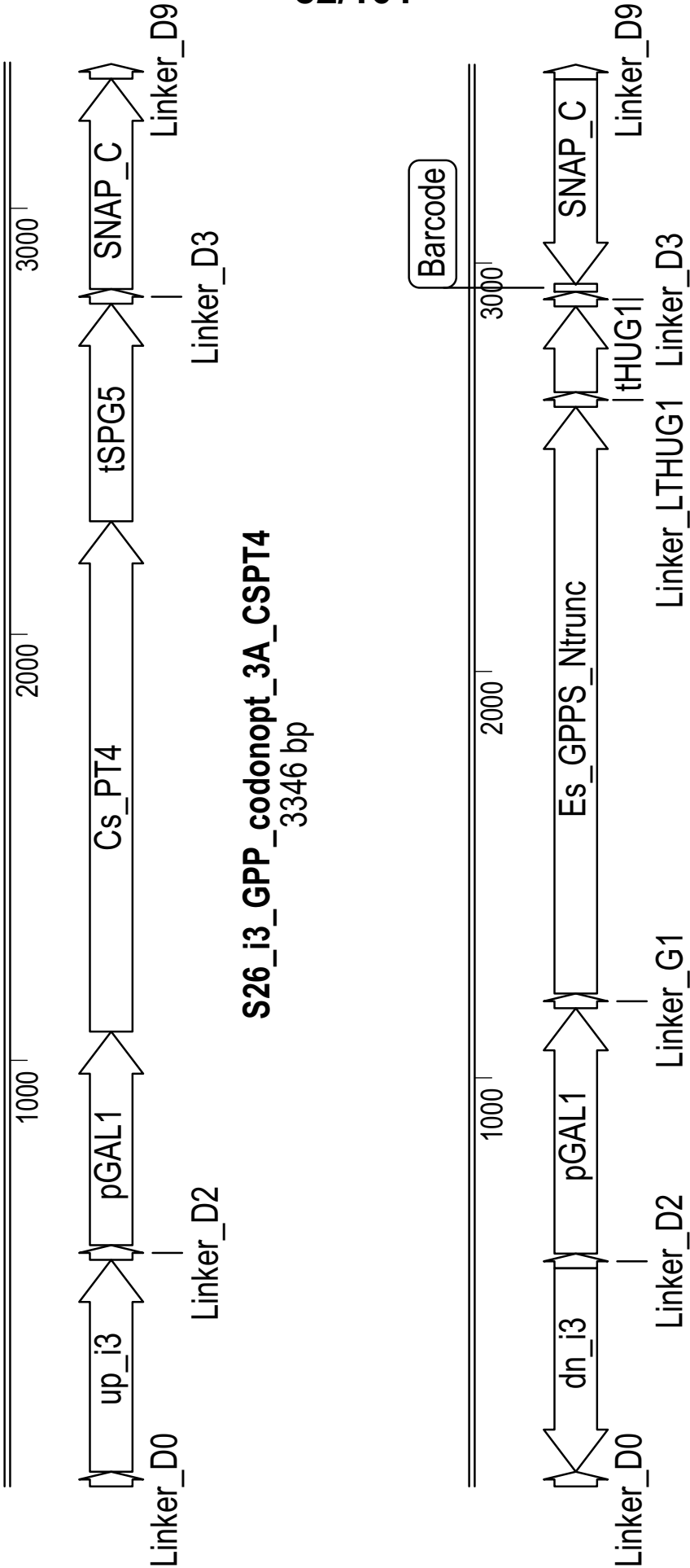
S26_i3_GPP_codonopt_3A_CSPT4
3346 bp



S164
2721 bp

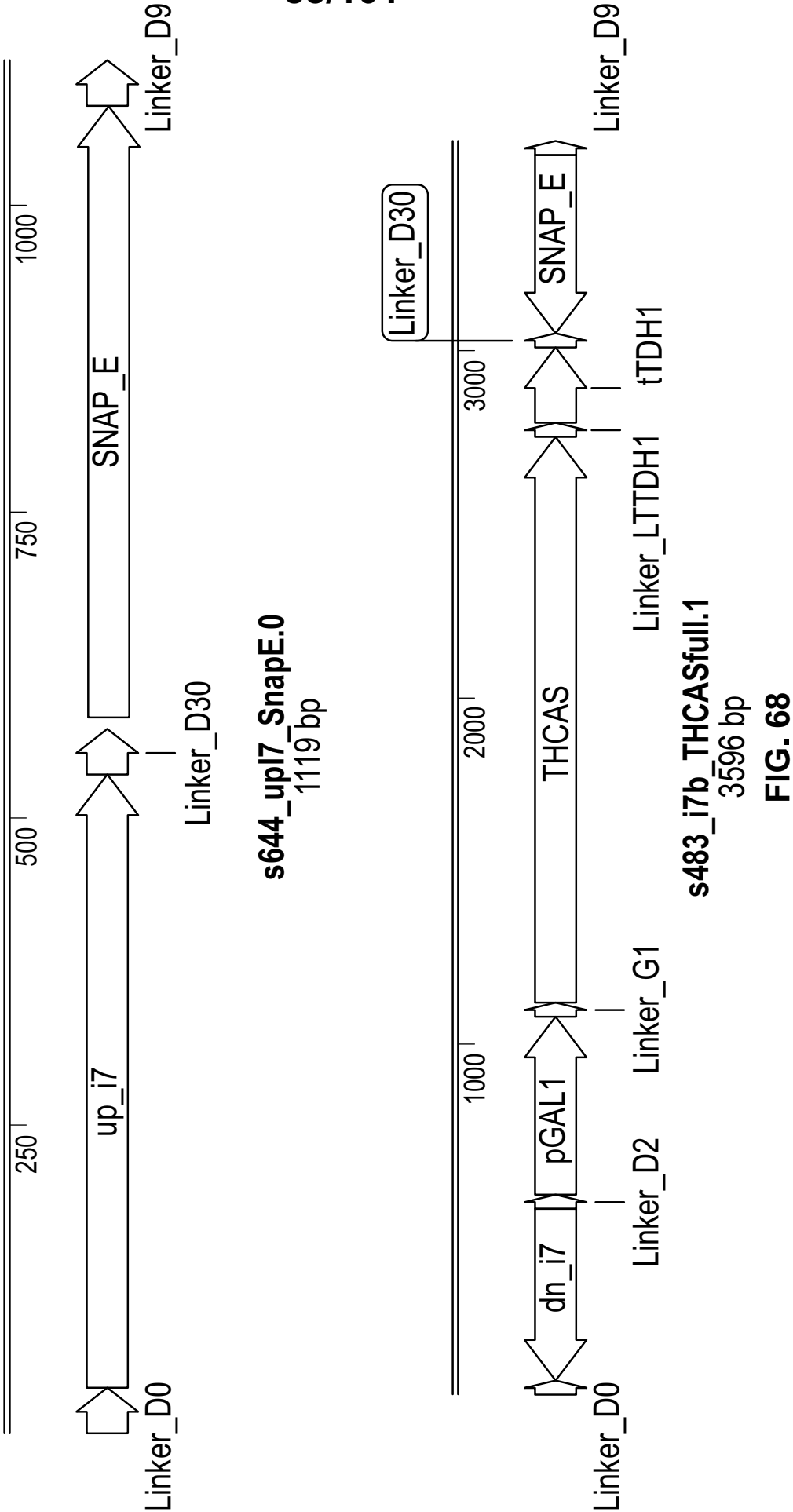
FIG. 66

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S166
3483 bp
FIG. 67

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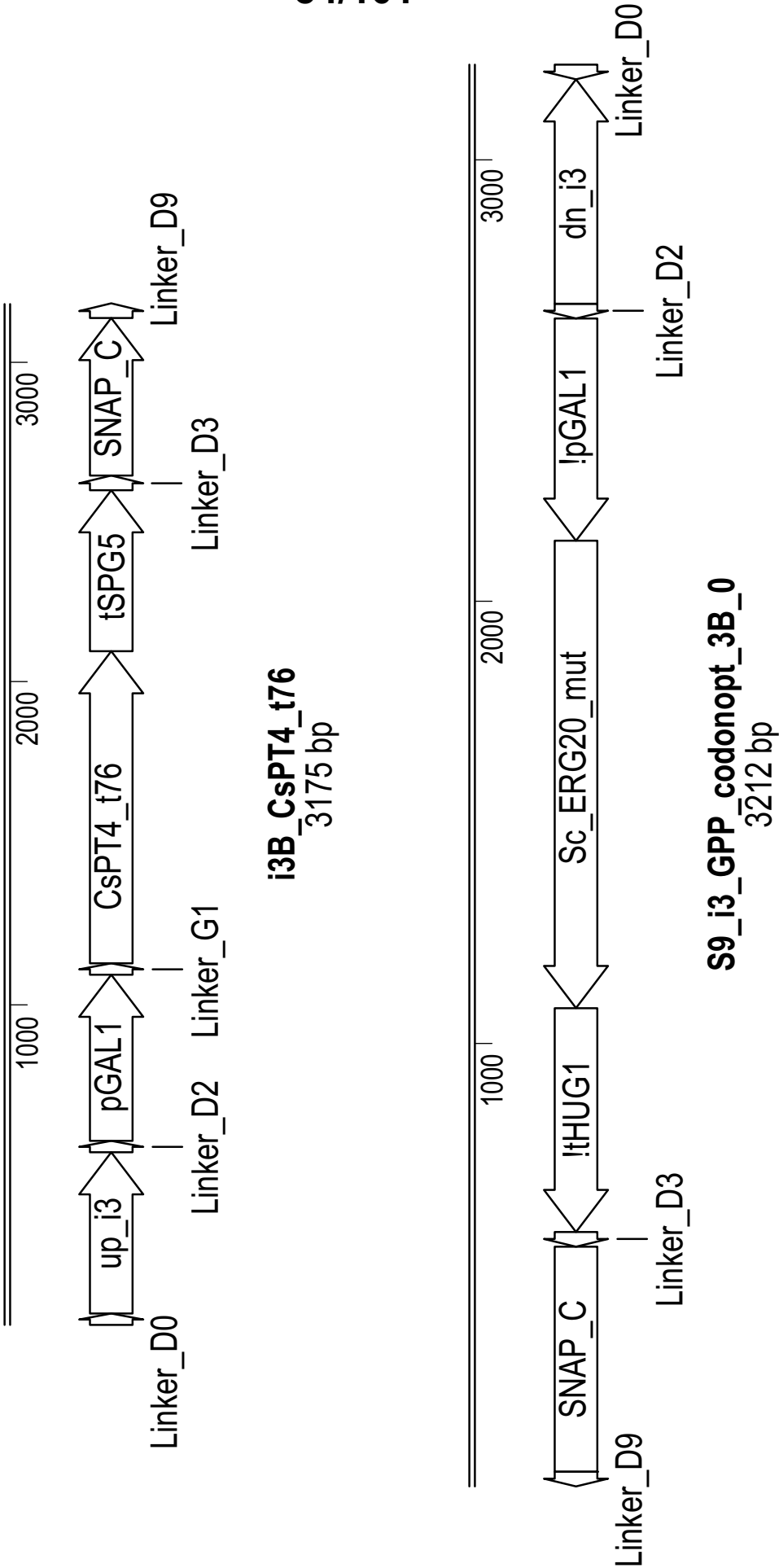


FIG. 69

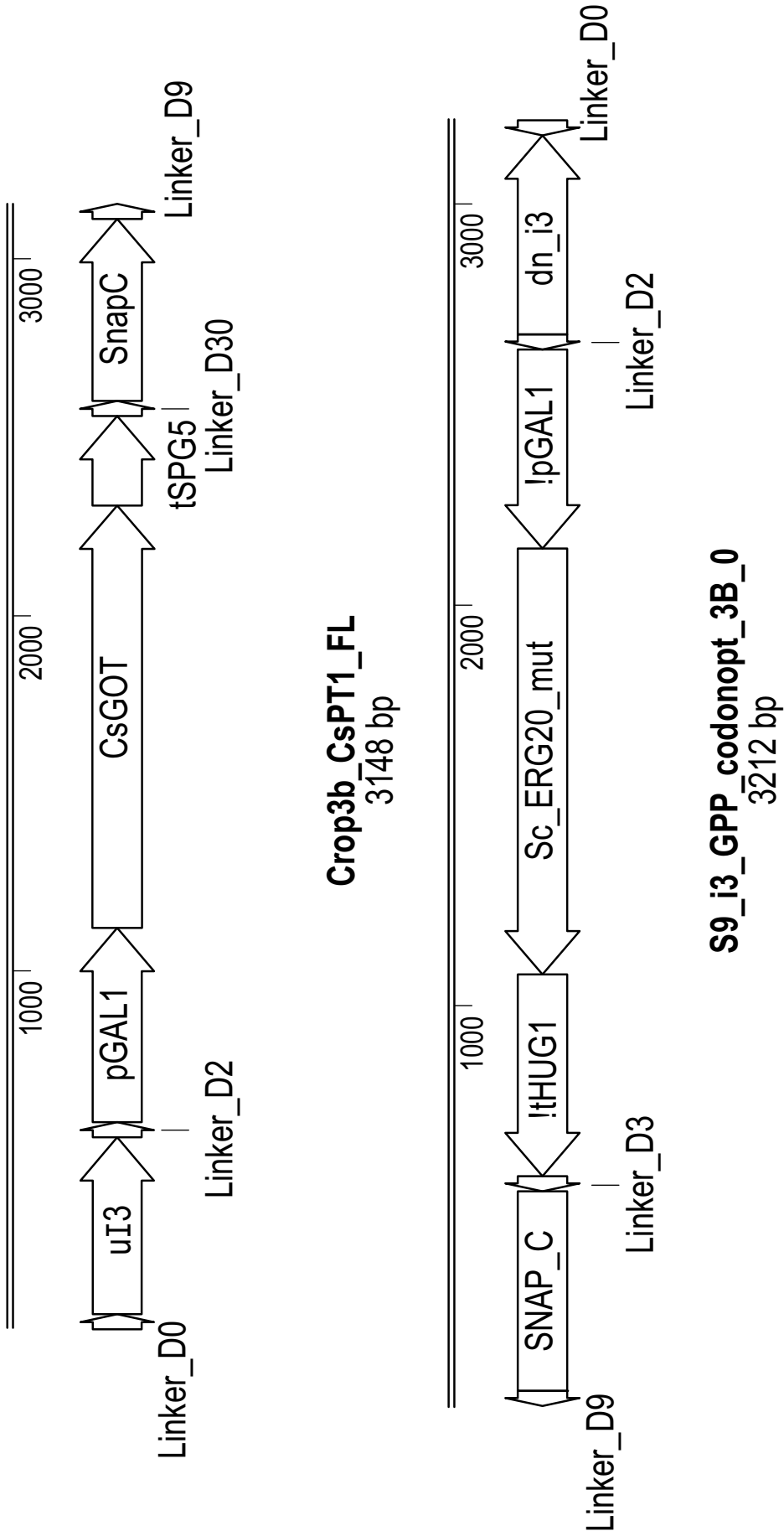


FIG. 70

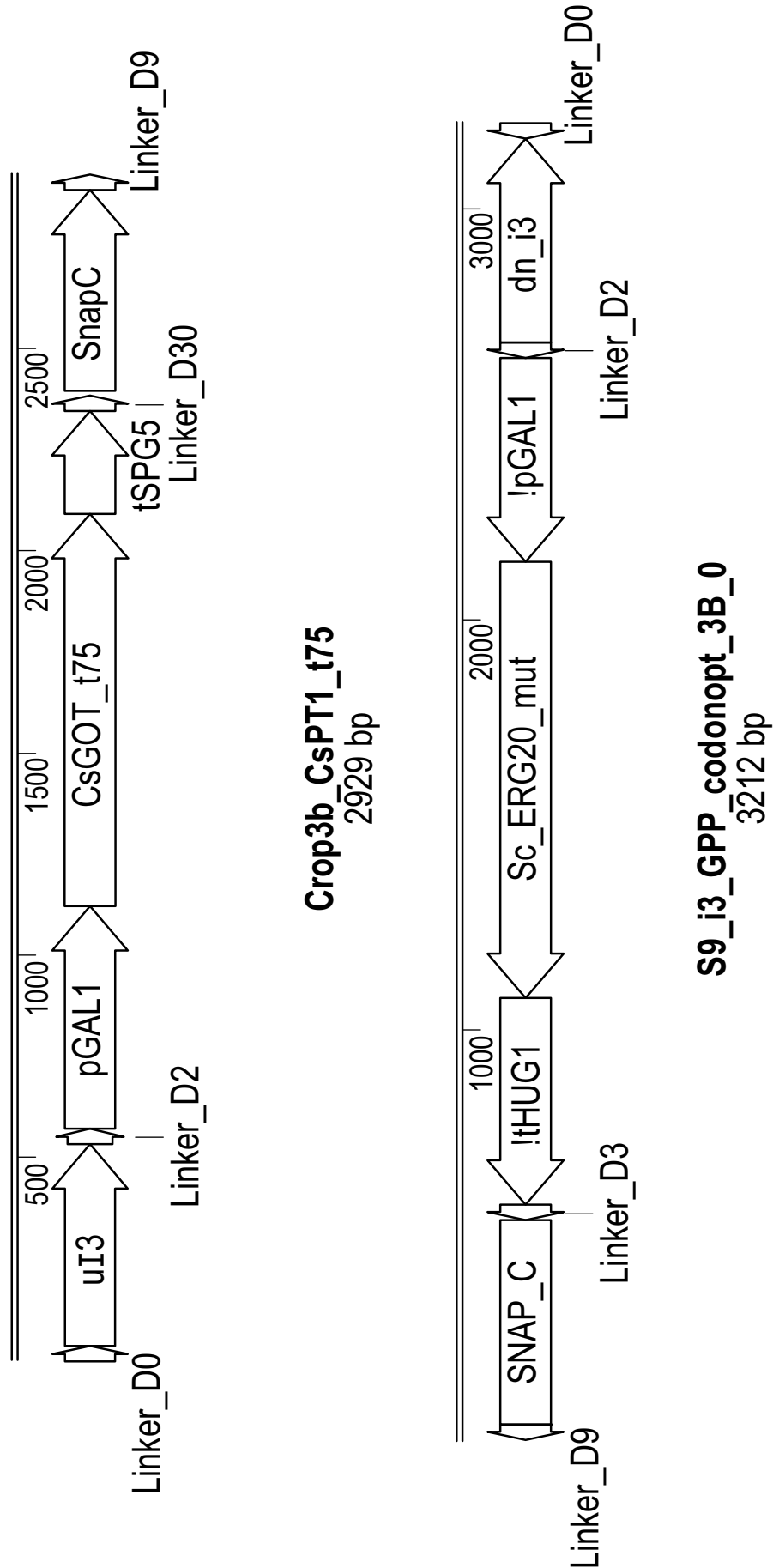


FIG. 71

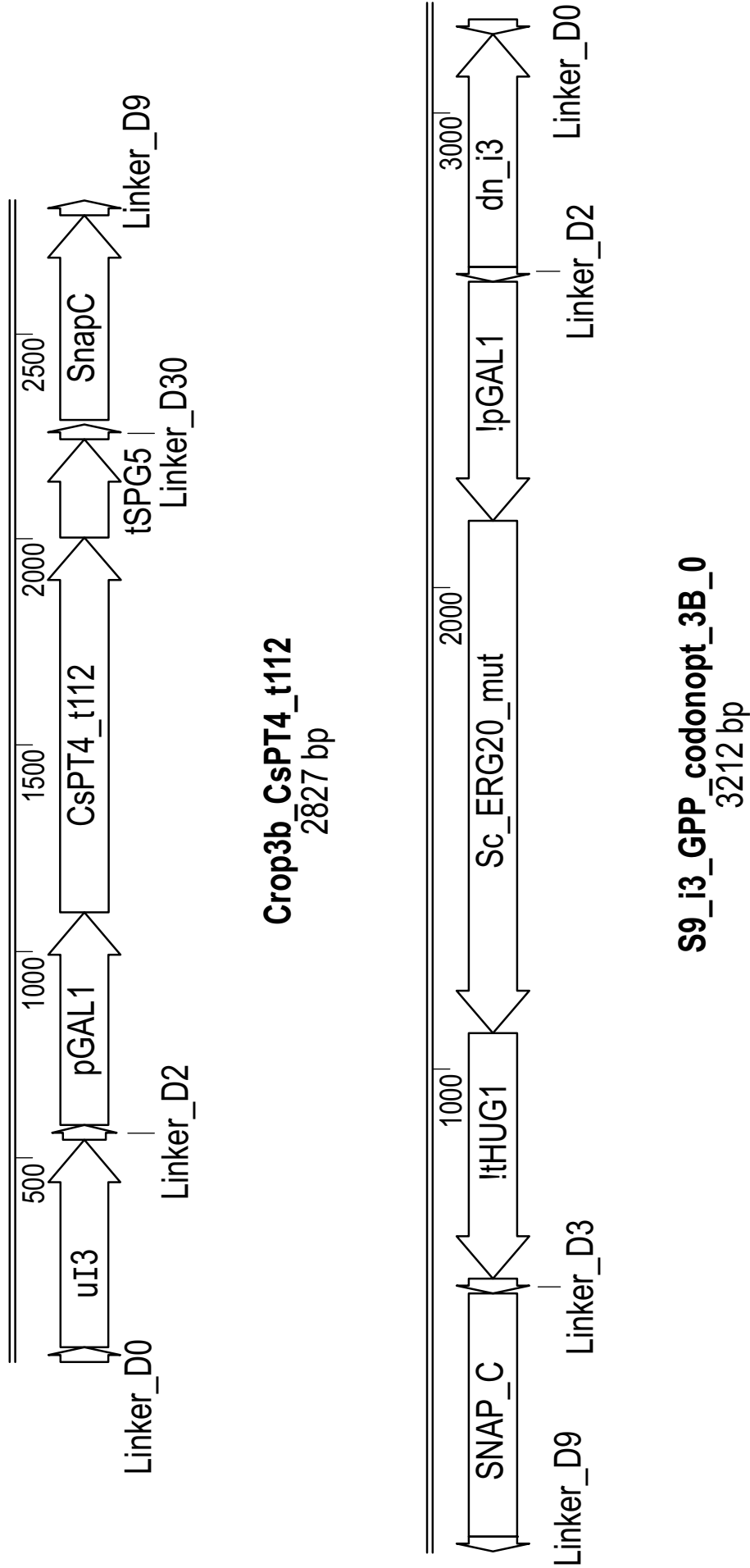
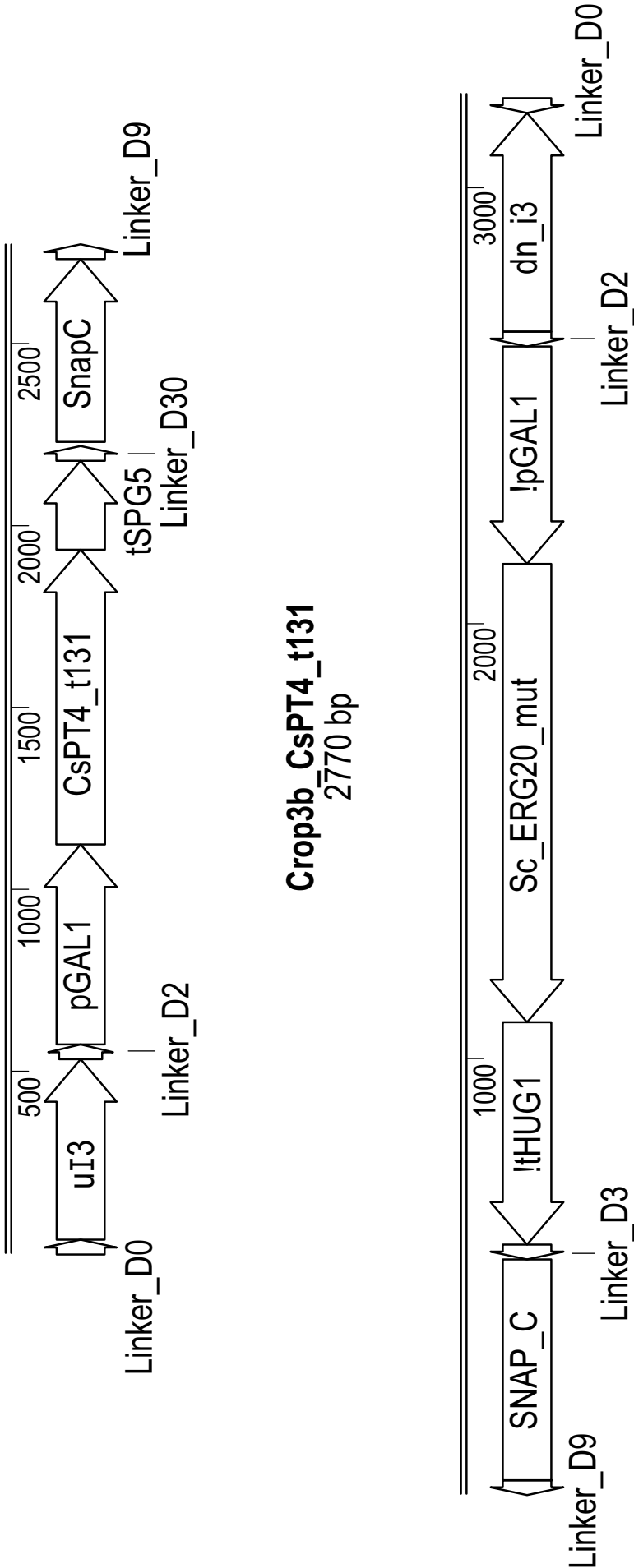


FIG. 72



S9_i3_GPP_codonopt_3B_0
3212 bp

FIG. 73

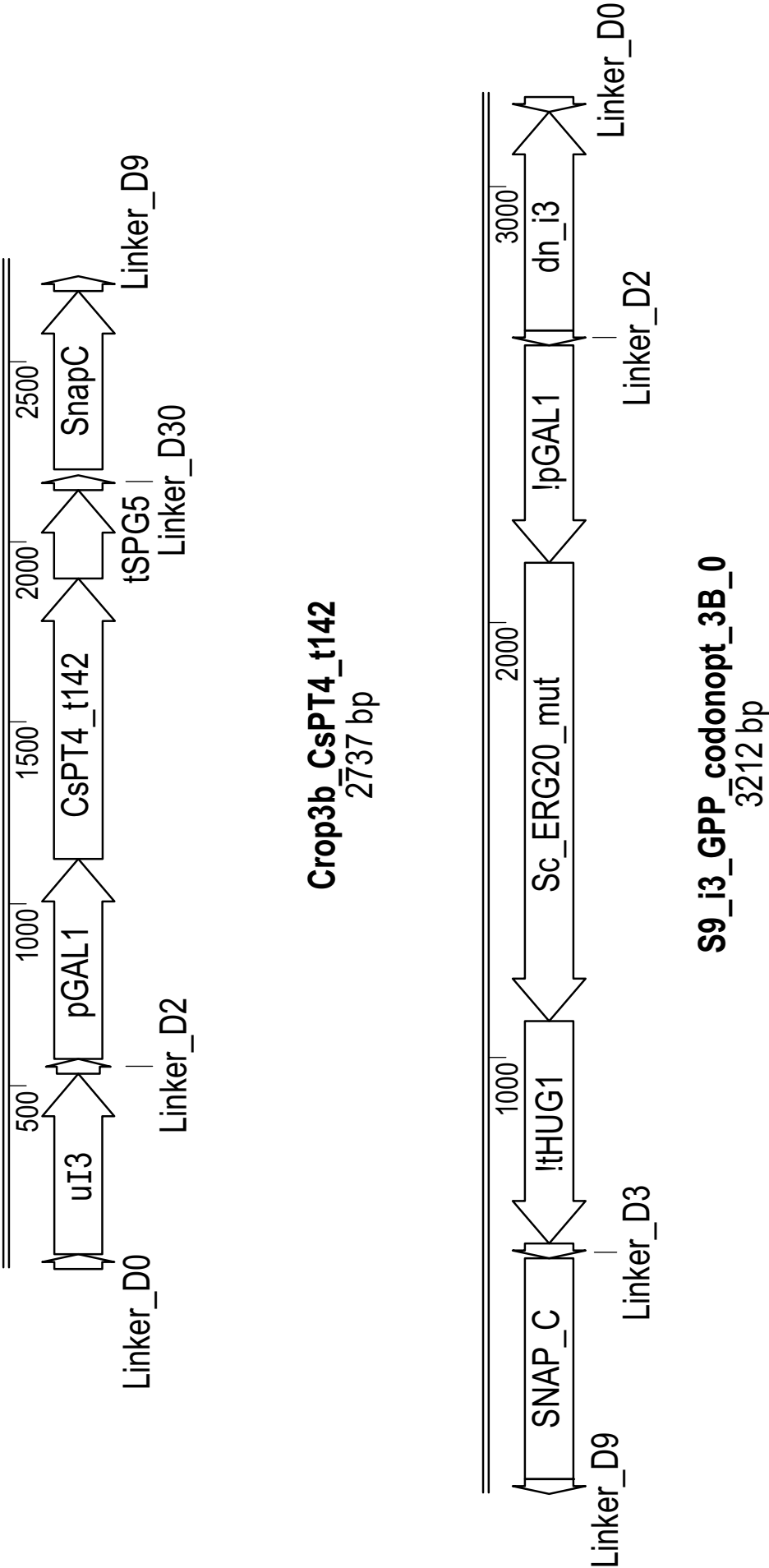


FIG. 74

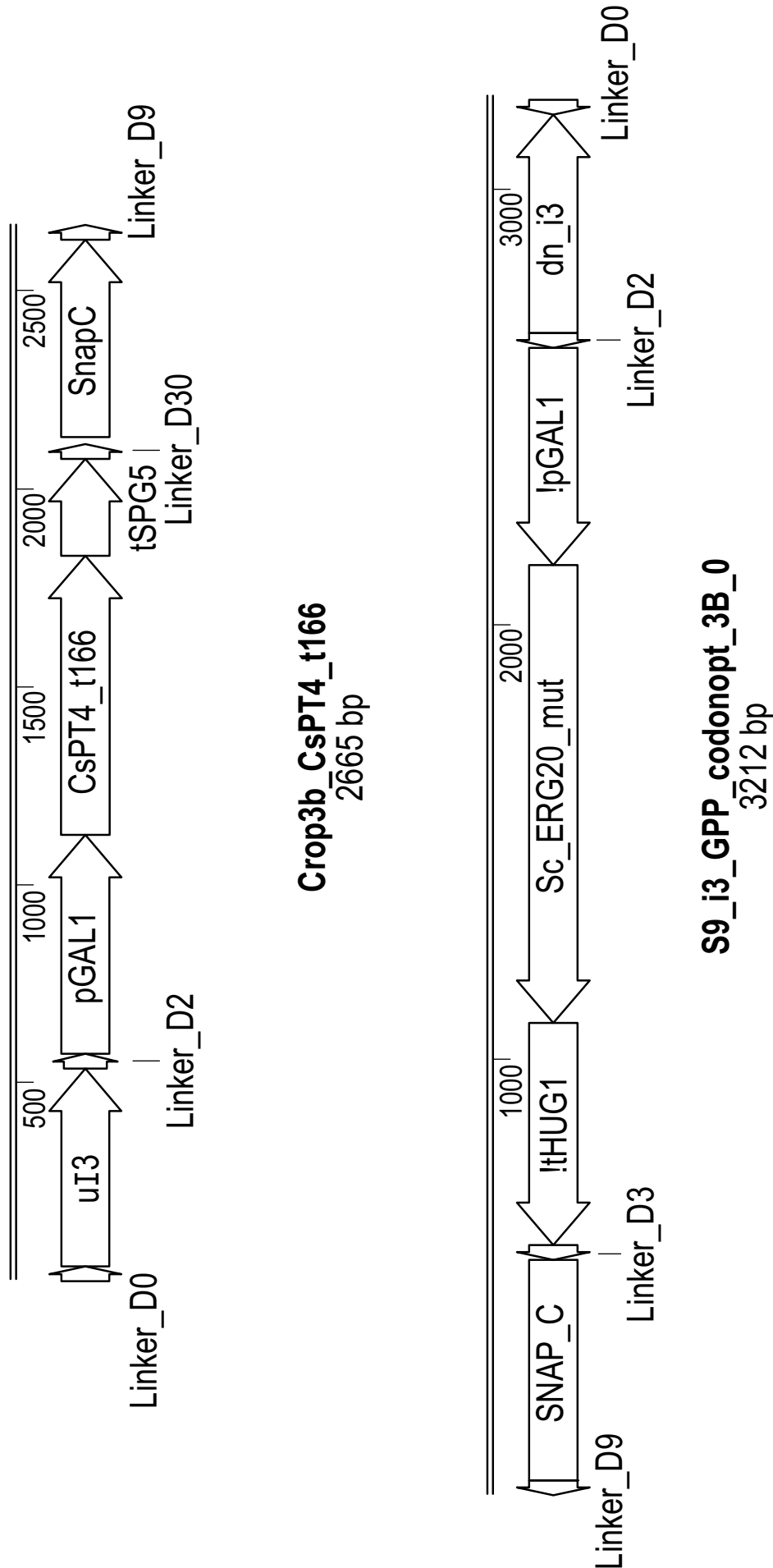


FIG. 75

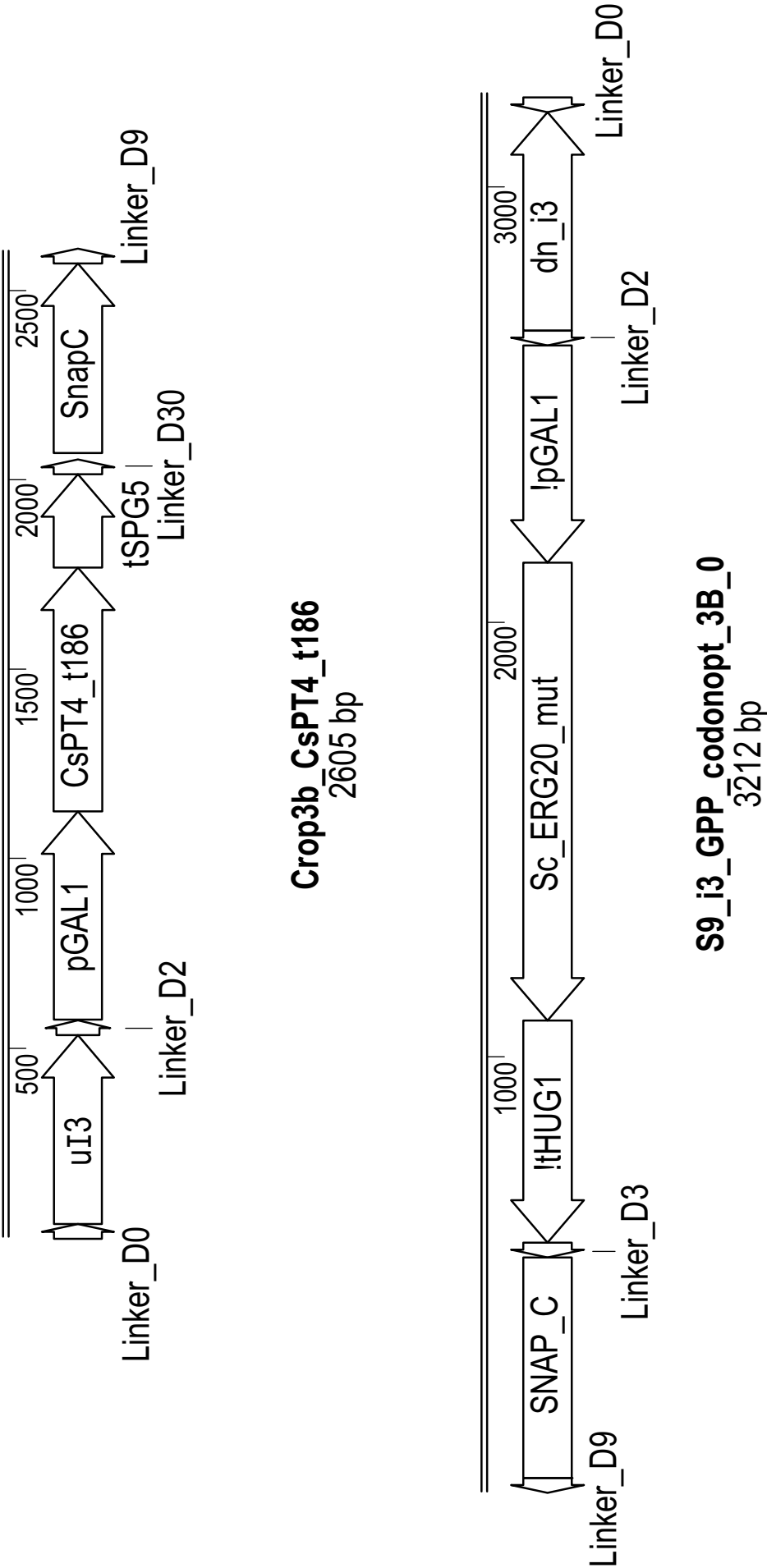
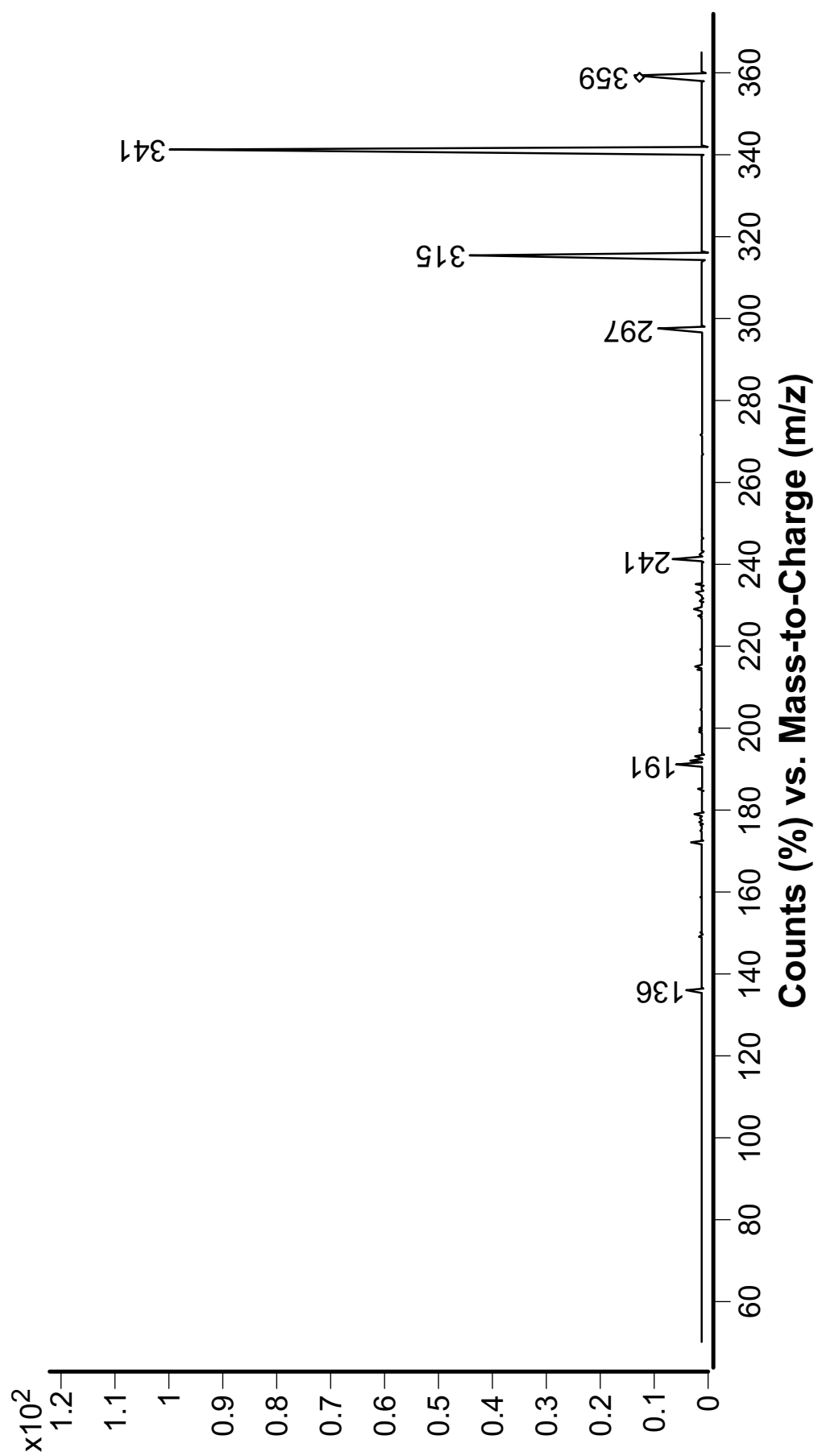
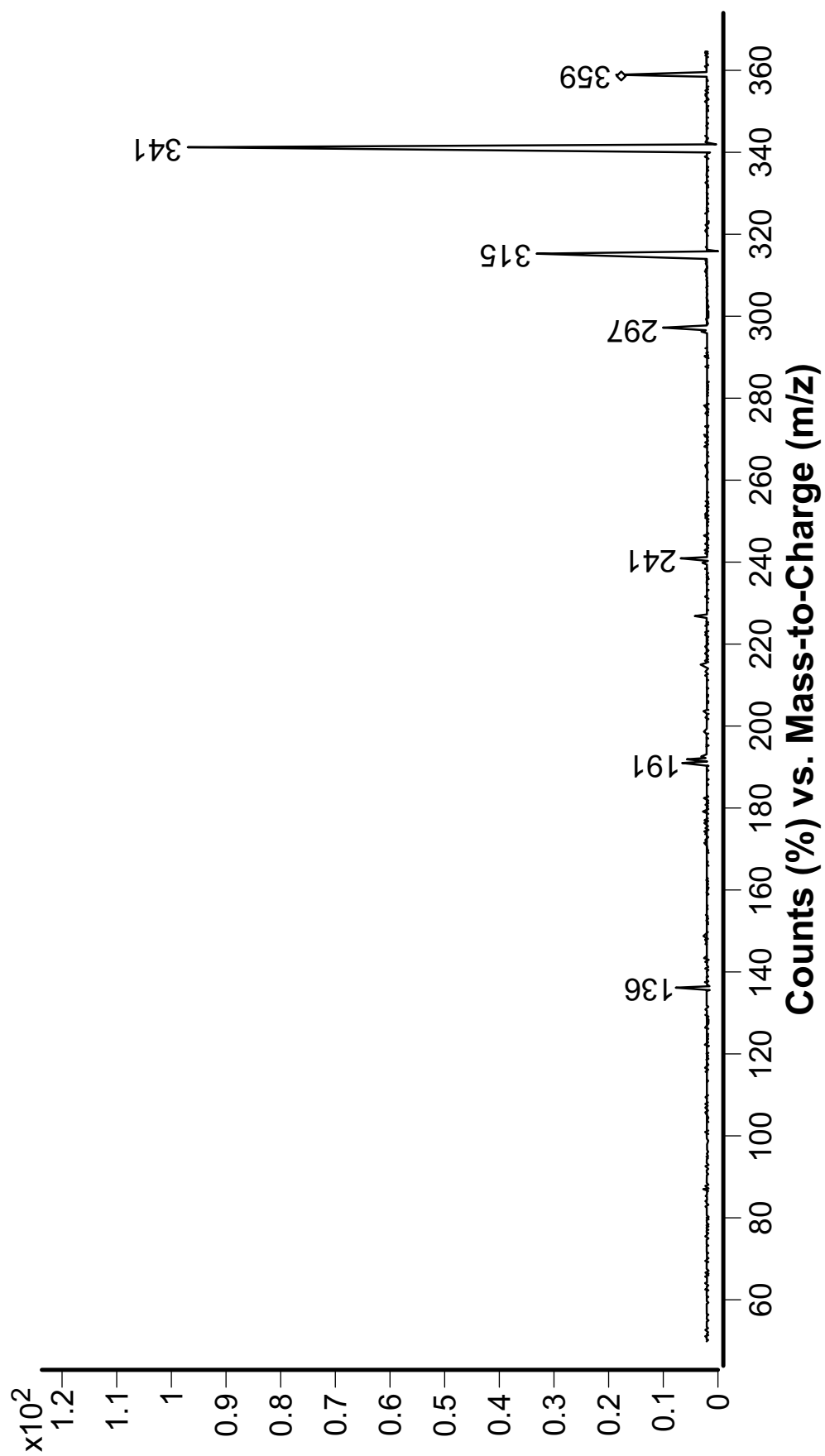
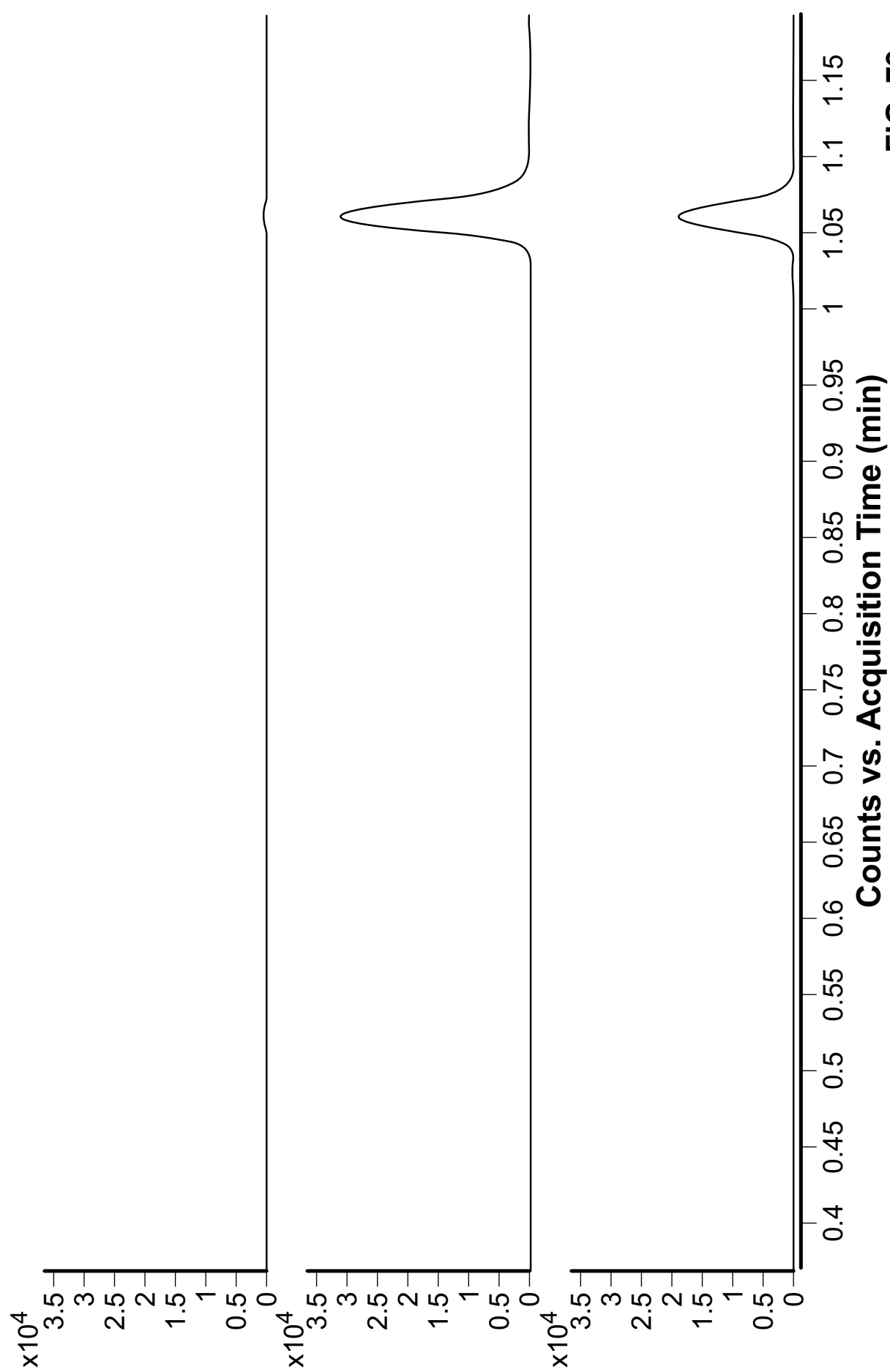


FIG. 76

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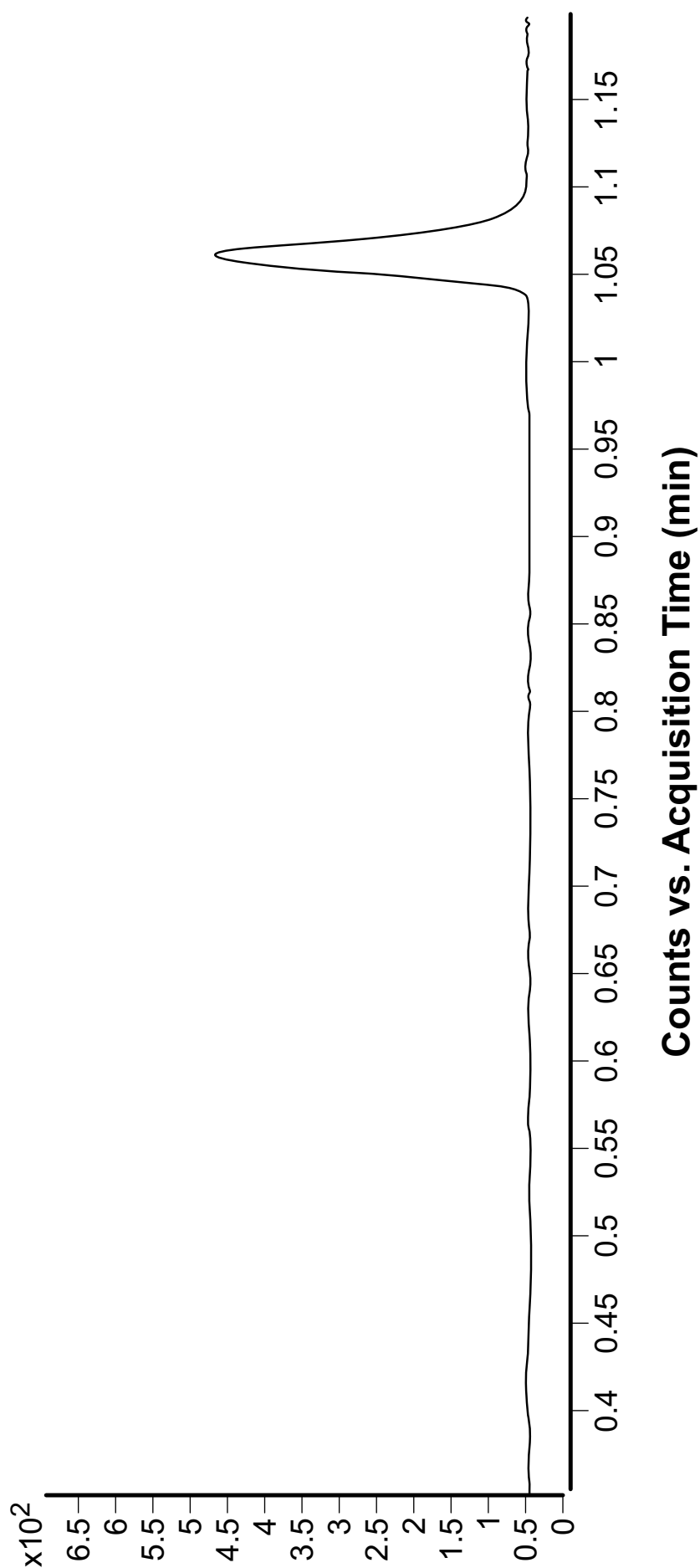
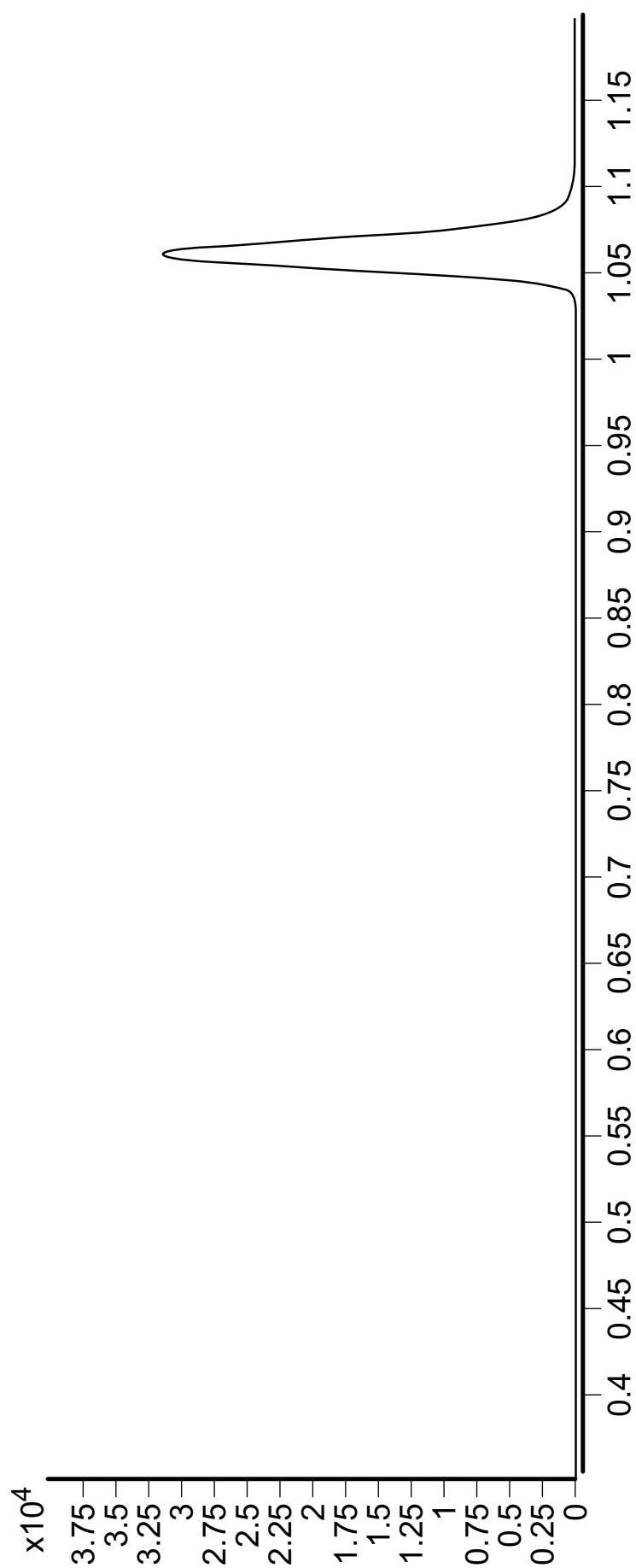


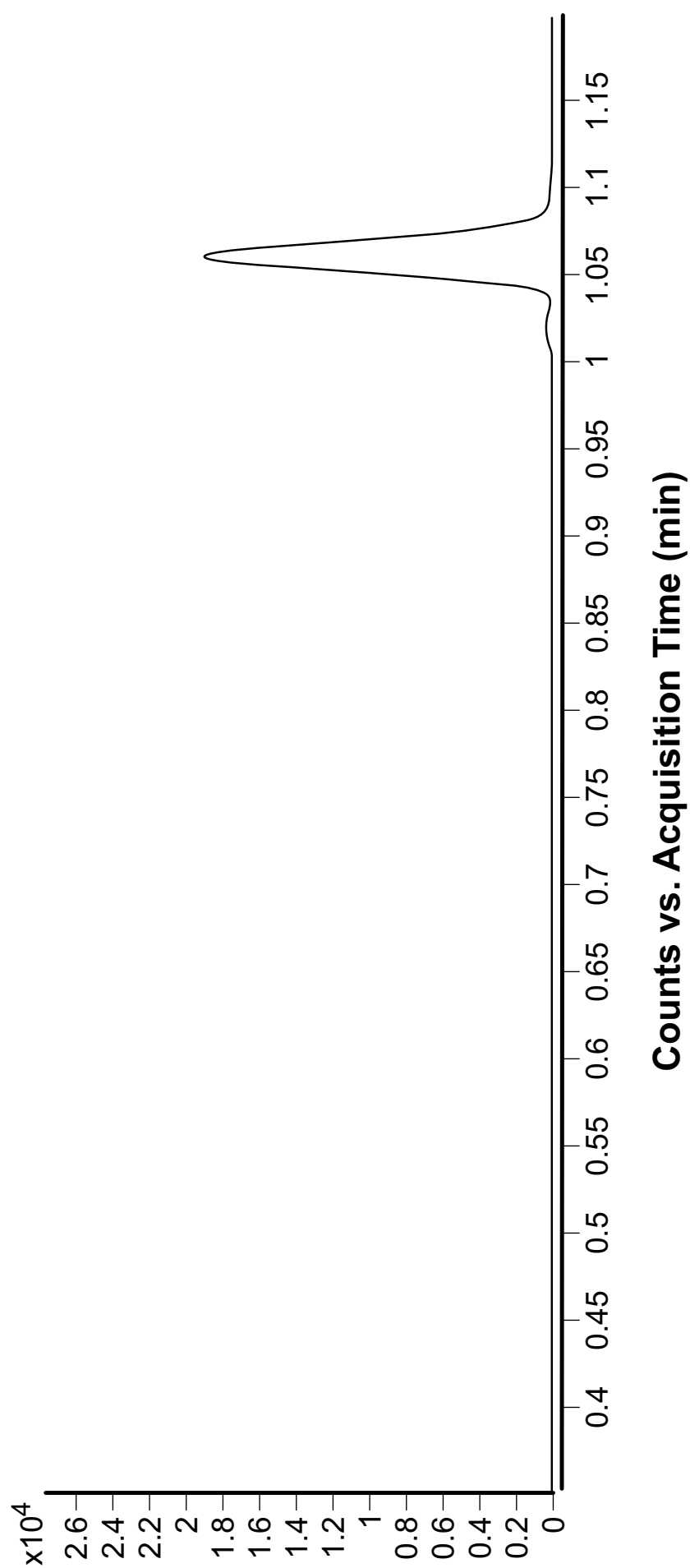
FIG. 80

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Counts vs. Acquisition Time (min)

FIG. 81

97/101**FIG. 82**

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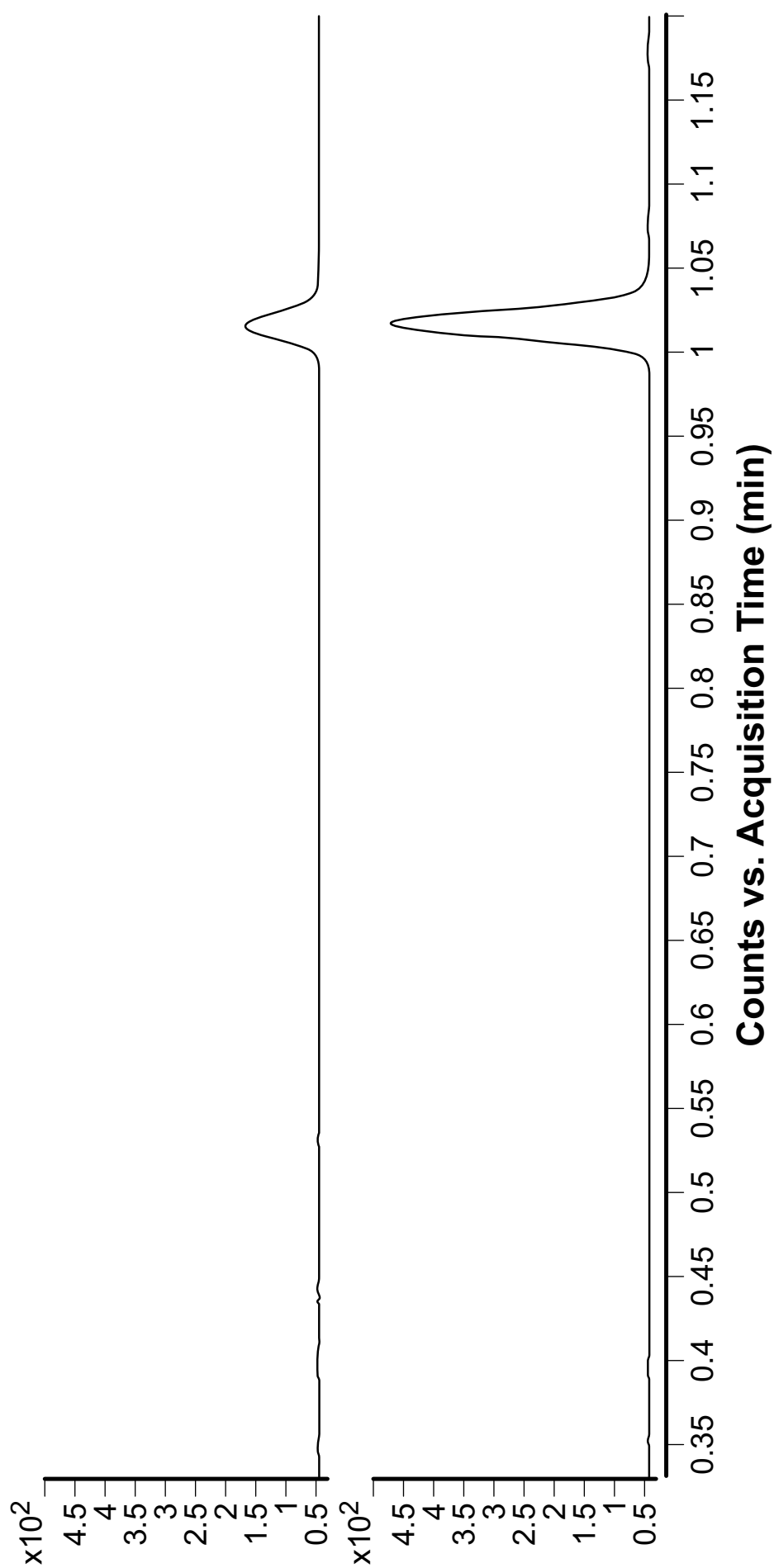


FIG. 83

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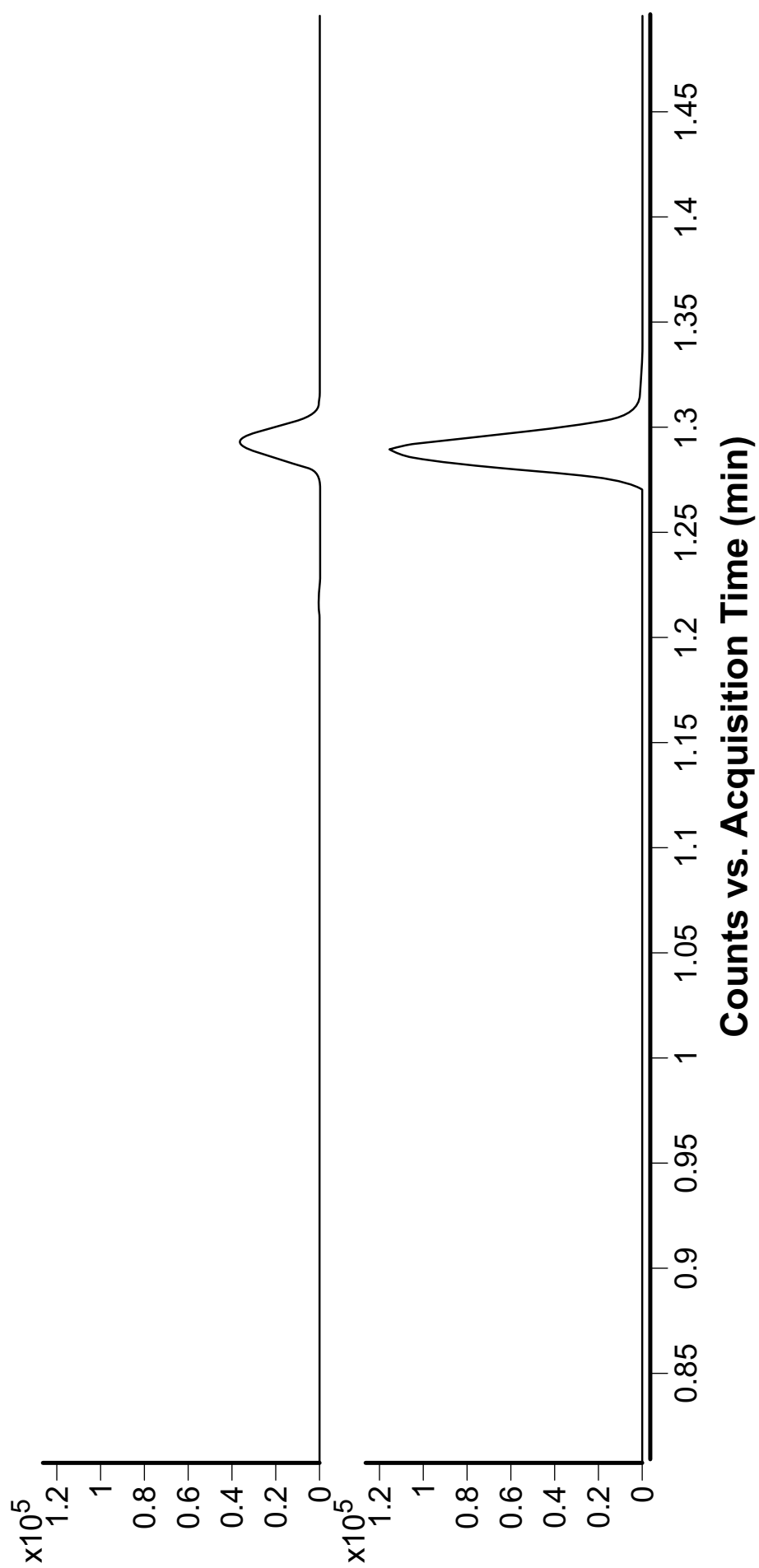


FIG. 84

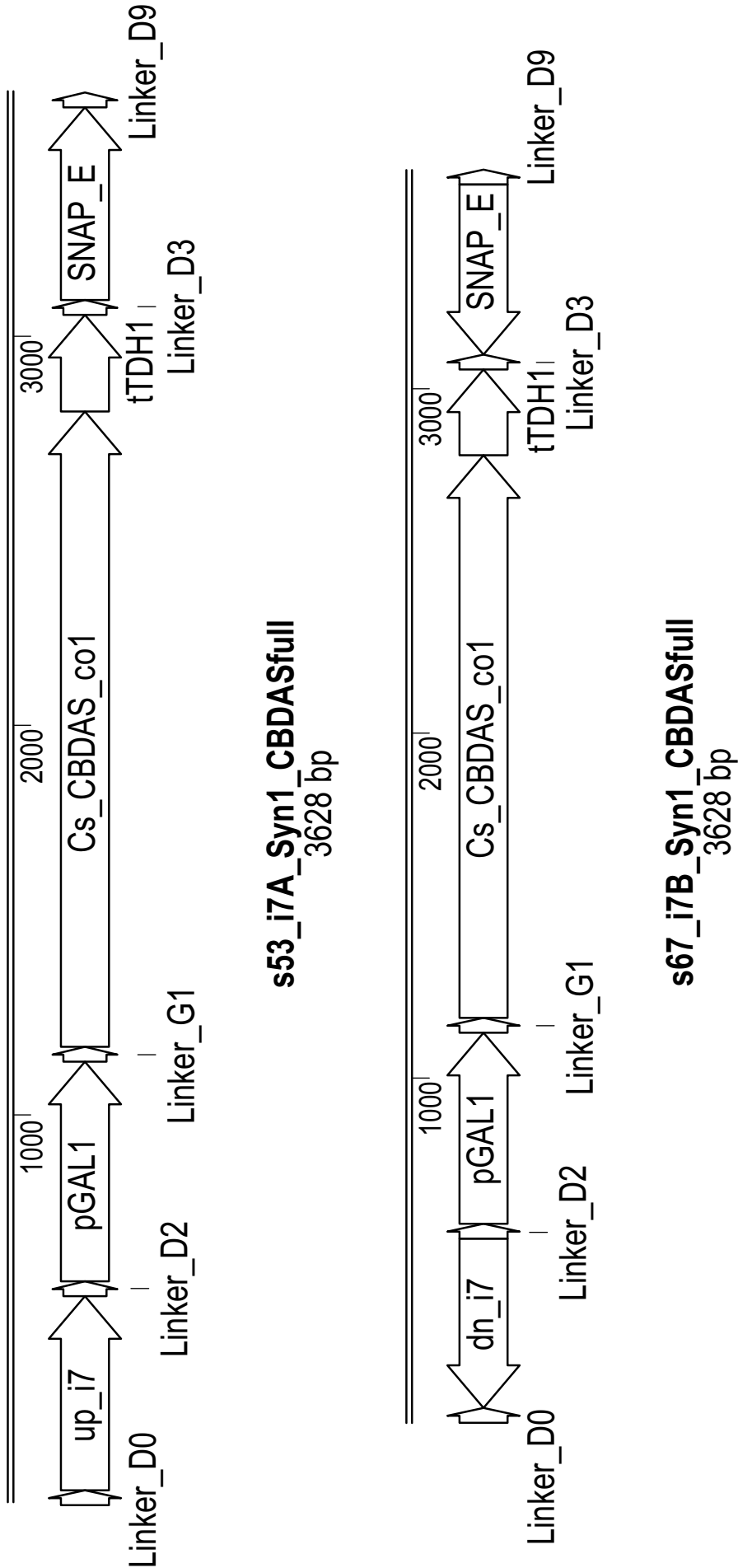
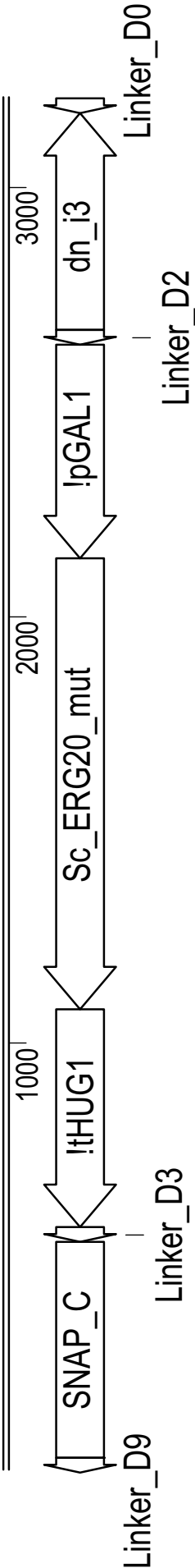


FIG. 85

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S26 i3_GPP_codonopt_3A_CSPT4
3346 bp



S9 i3_GPP_codonopt_3B_0
3212 bp

FIG. 86