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Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway 4-hydroxycinnamoyl-CoA ligase gene family

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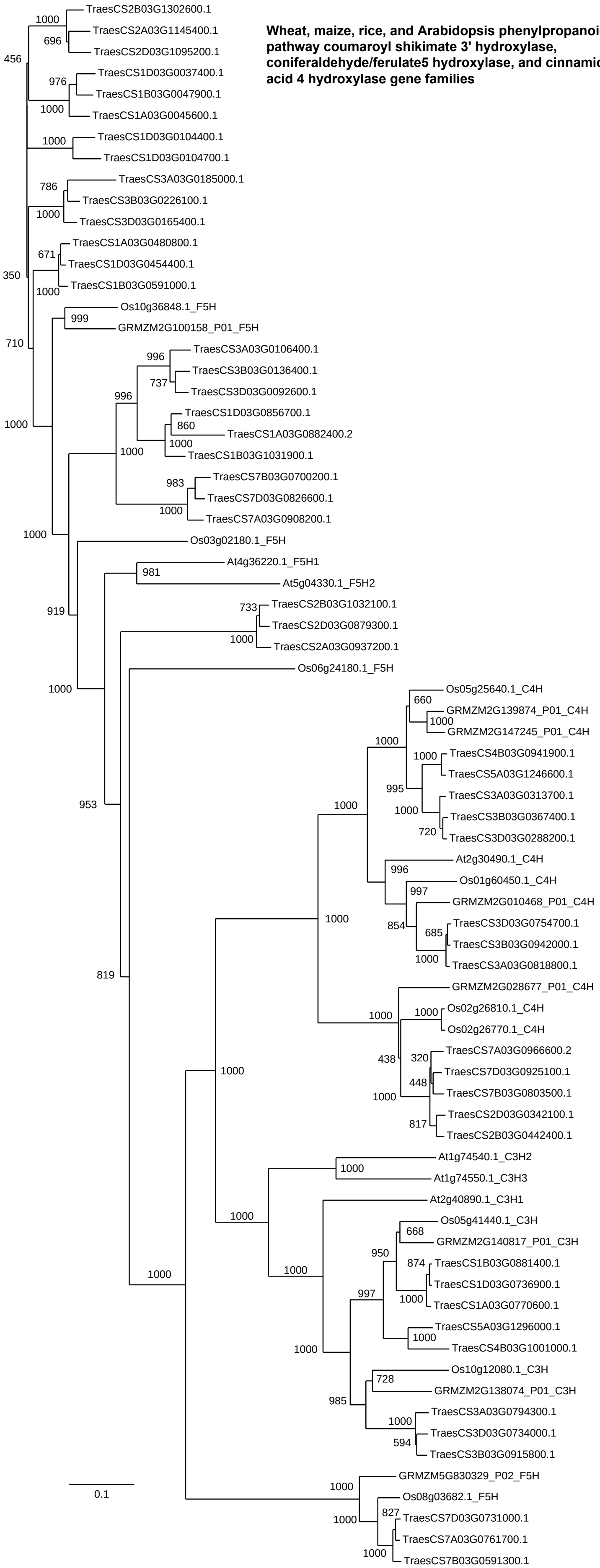
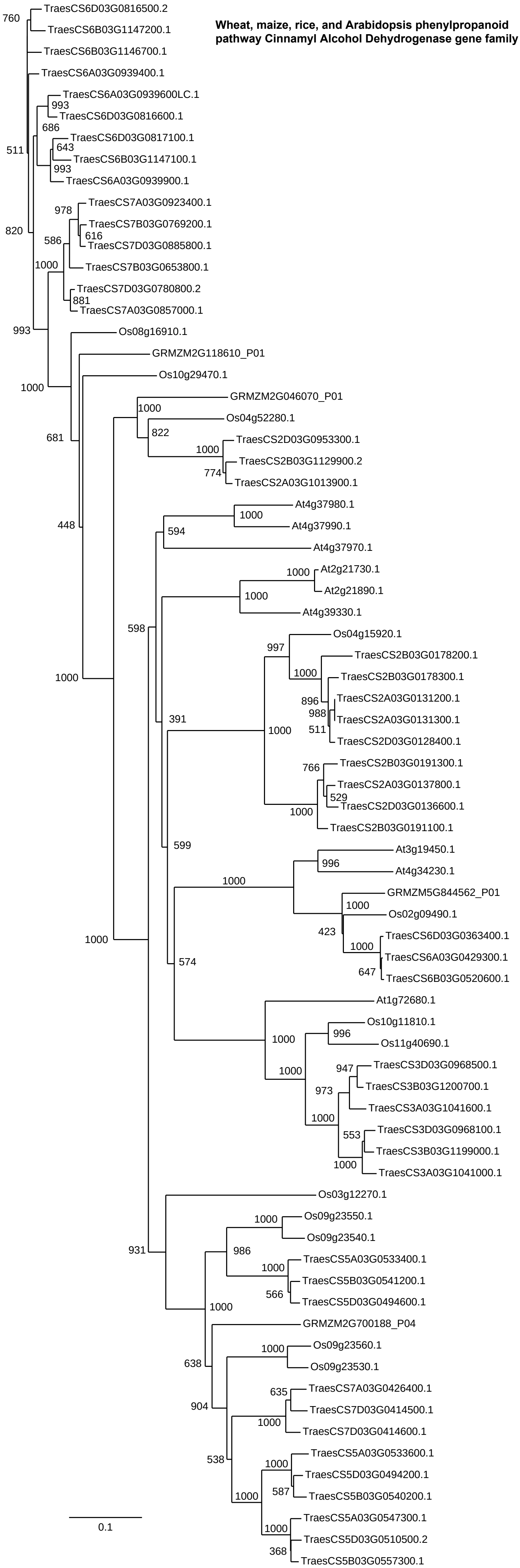
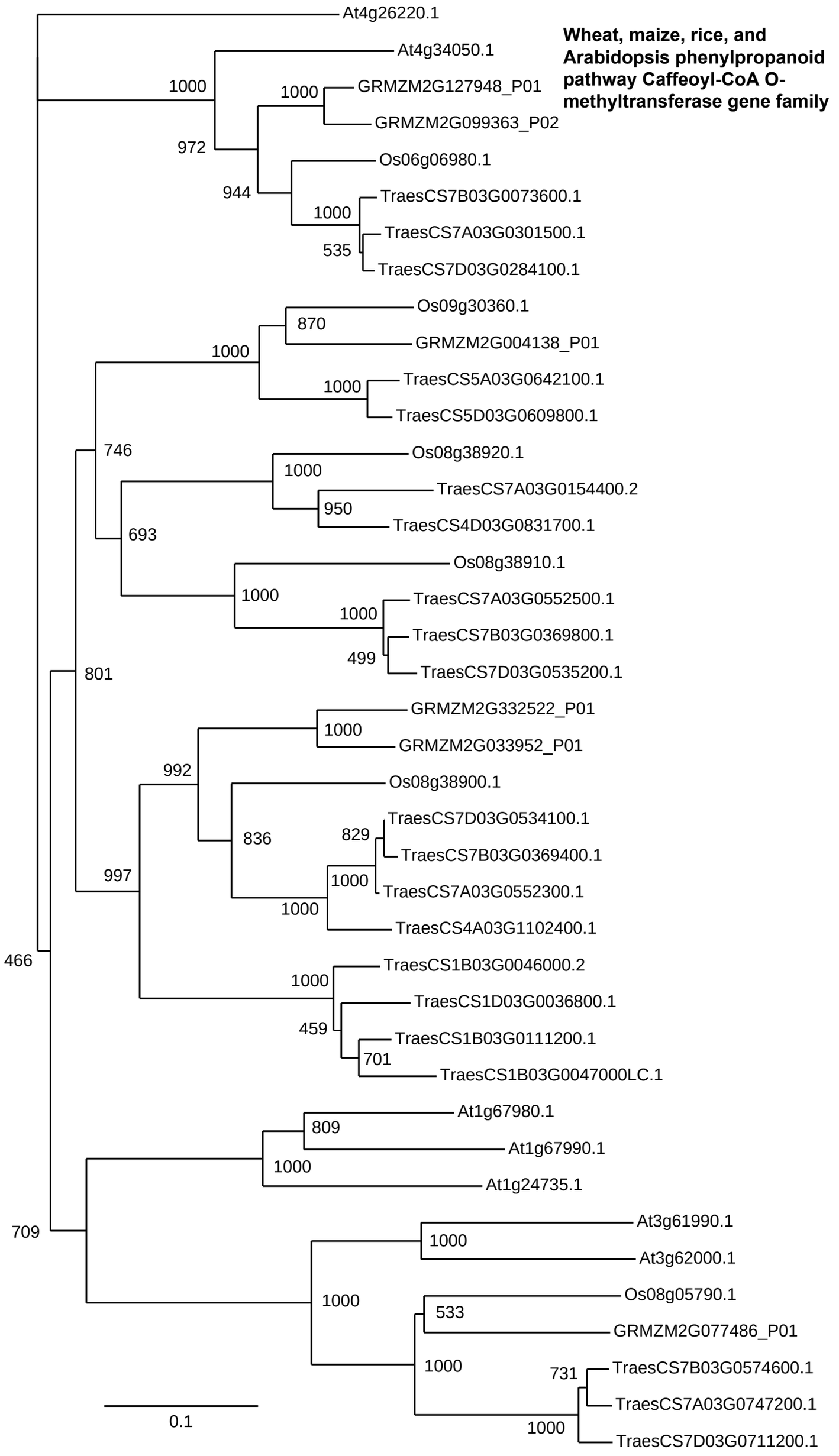
Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway coumaroyl shikimate 3' hydroxylase, coniferaldehyde/ferulate5 hydroxylase, and cinnamic acid 4 hydroxylase gene families



Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway Cinnamyl Alcohol Dehydrogenase gene family




Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway Caffeoyl-CoA O-methyltransferase gene family
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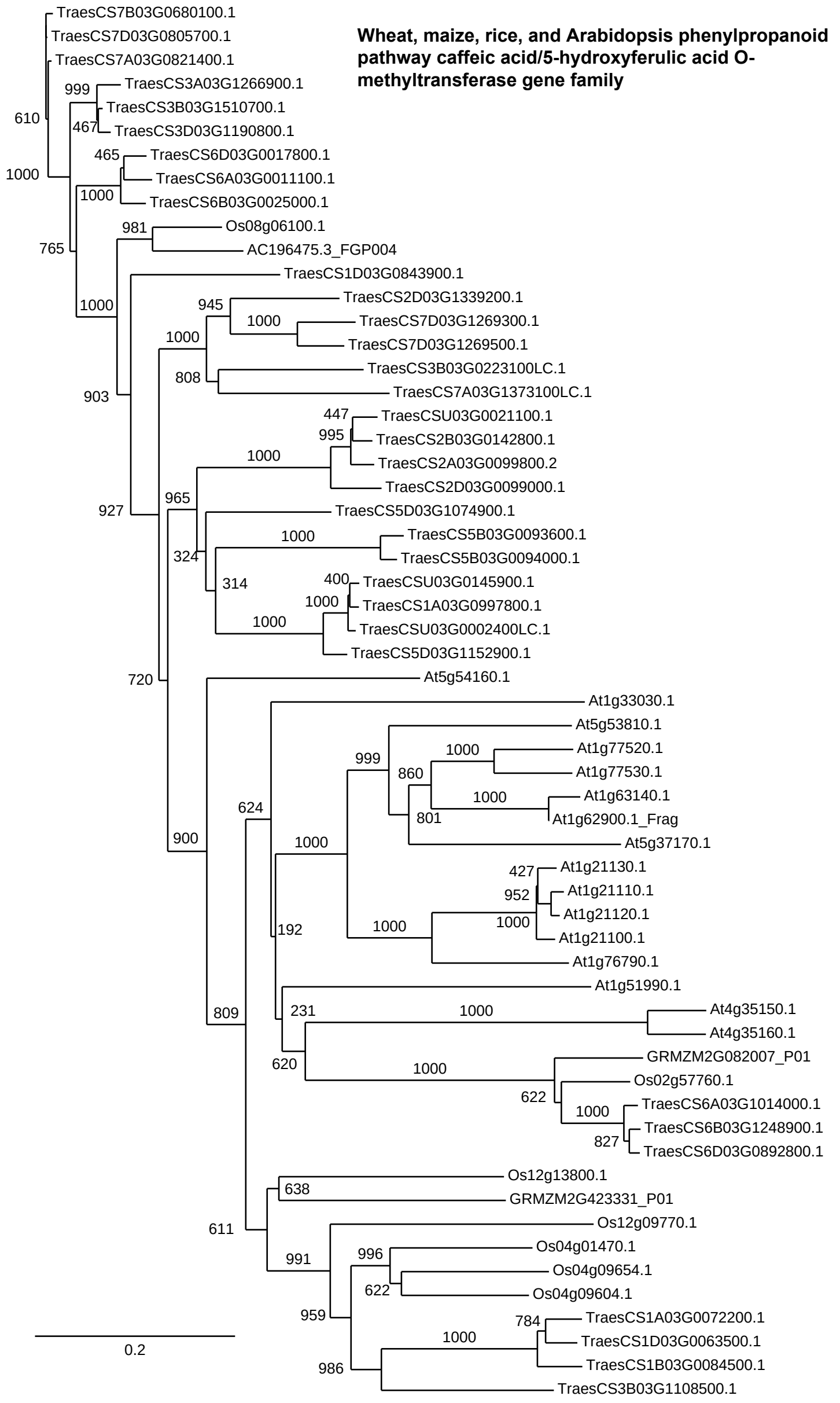
Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway caffeic acid/5-hydroxyferulic acid O-methyltransferase gene family
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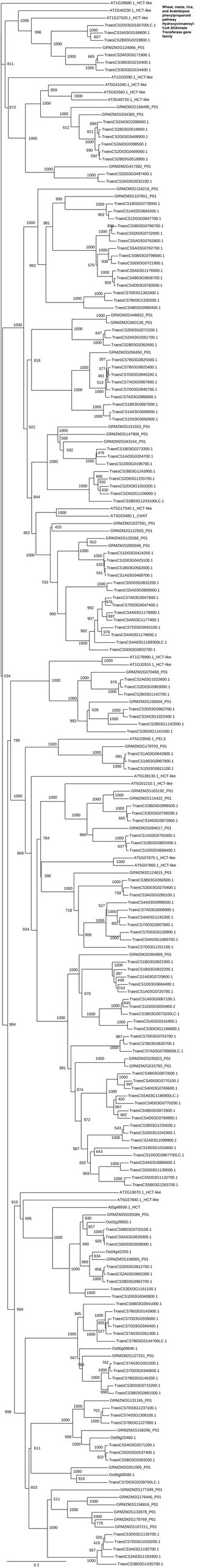
Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway cinnamoyl-CoA reductase gene family


Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway
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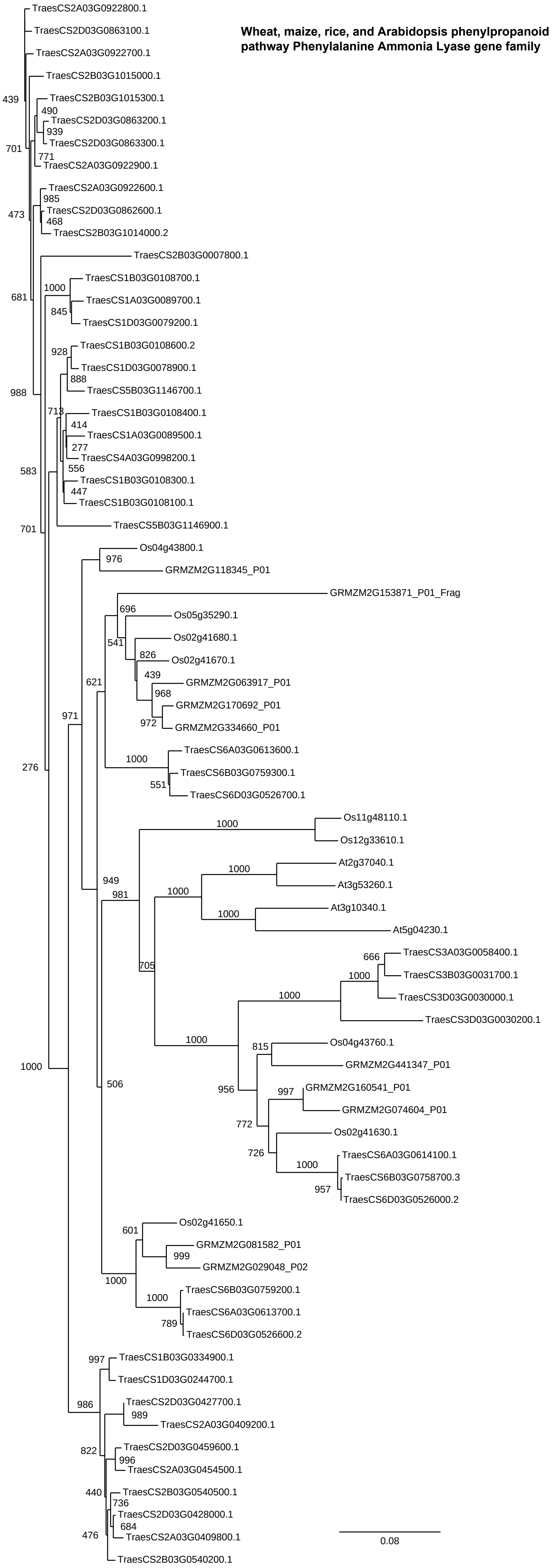
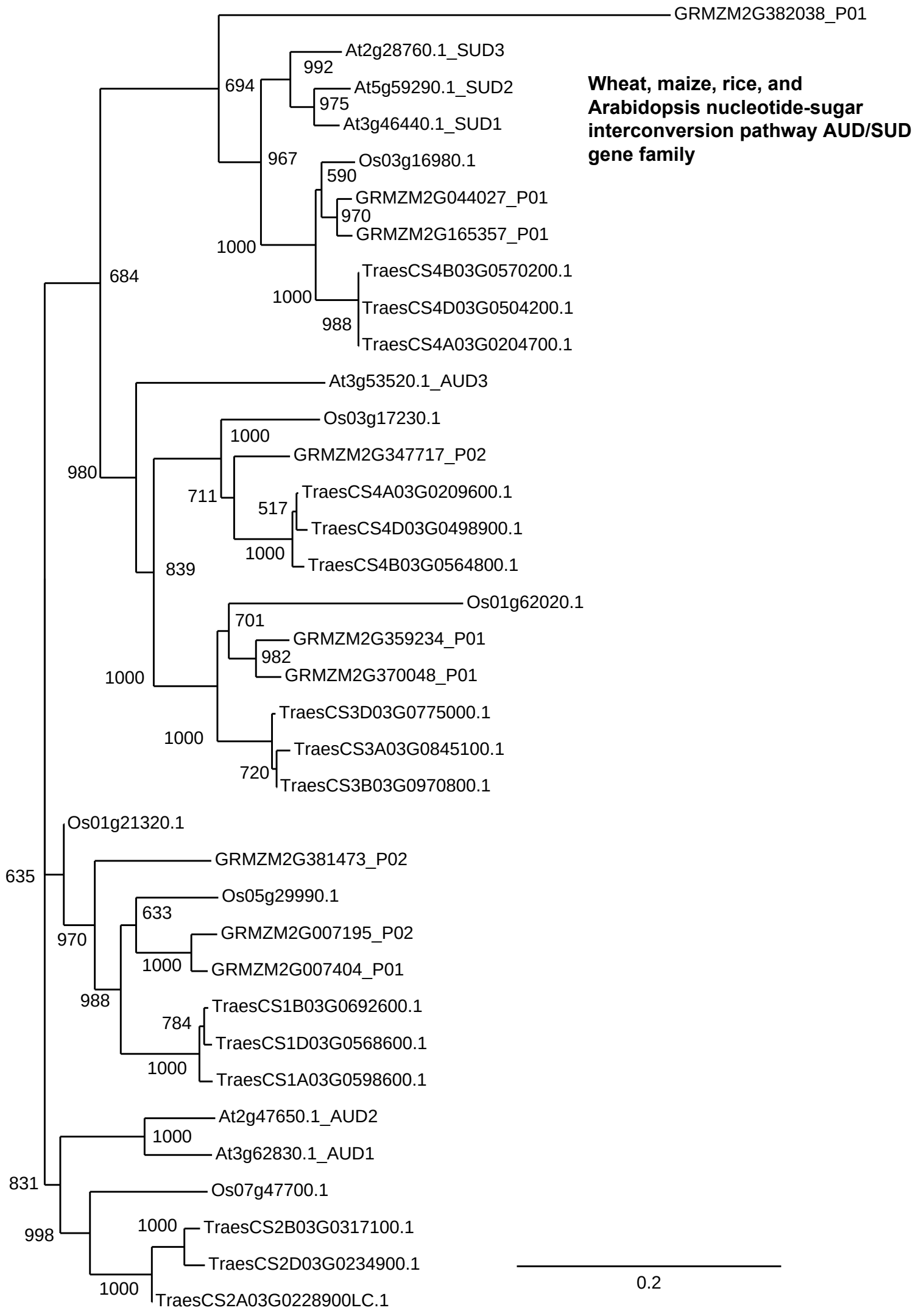
Wheat, maize, rice, and Arabidopsis phenylpropanoid pathway Phenylalanine Ammonia Lyase gene family

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831
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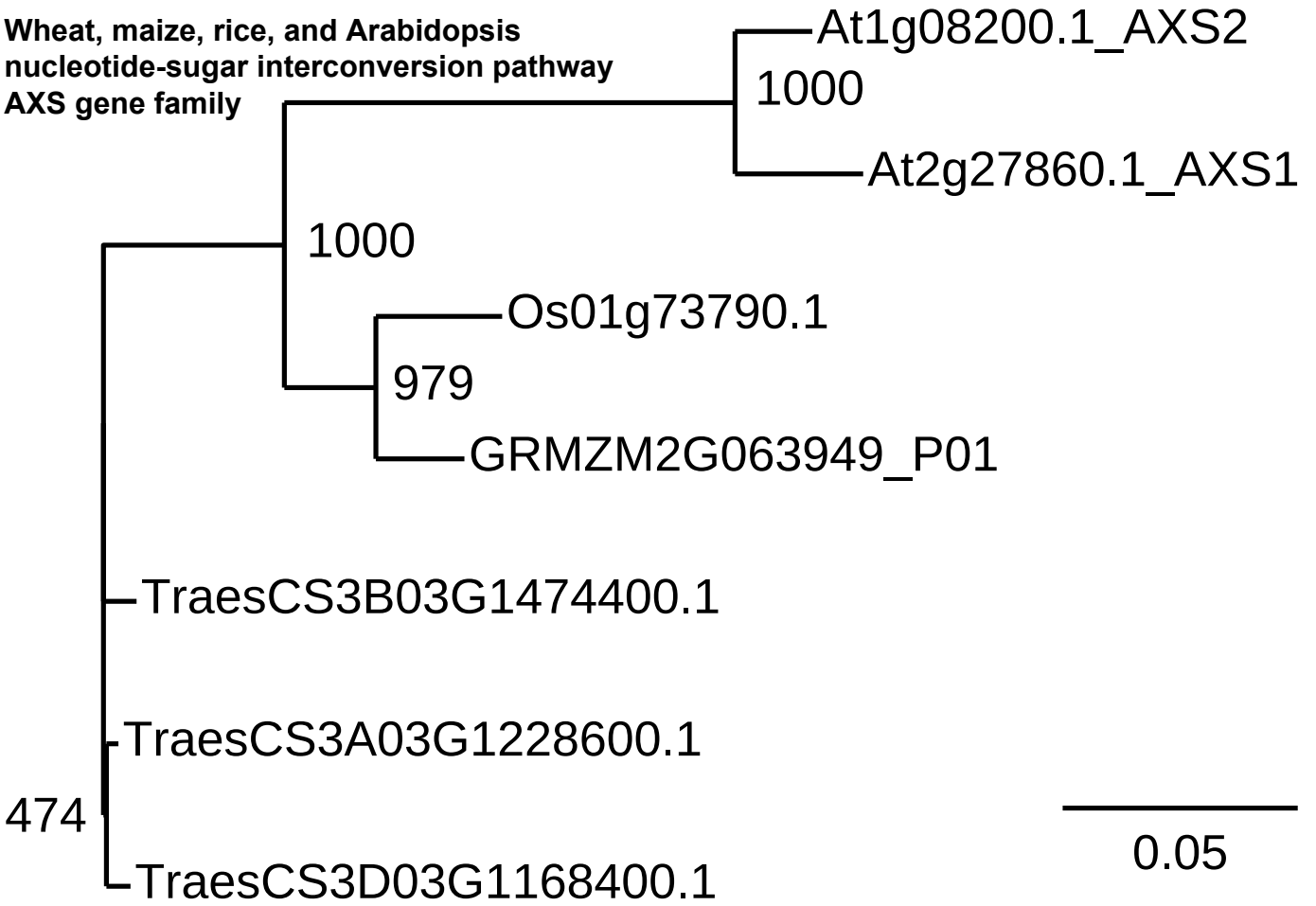
Wheat, maize, rice, and Arabidopsis
nucleotide-sugar interconversion pathway
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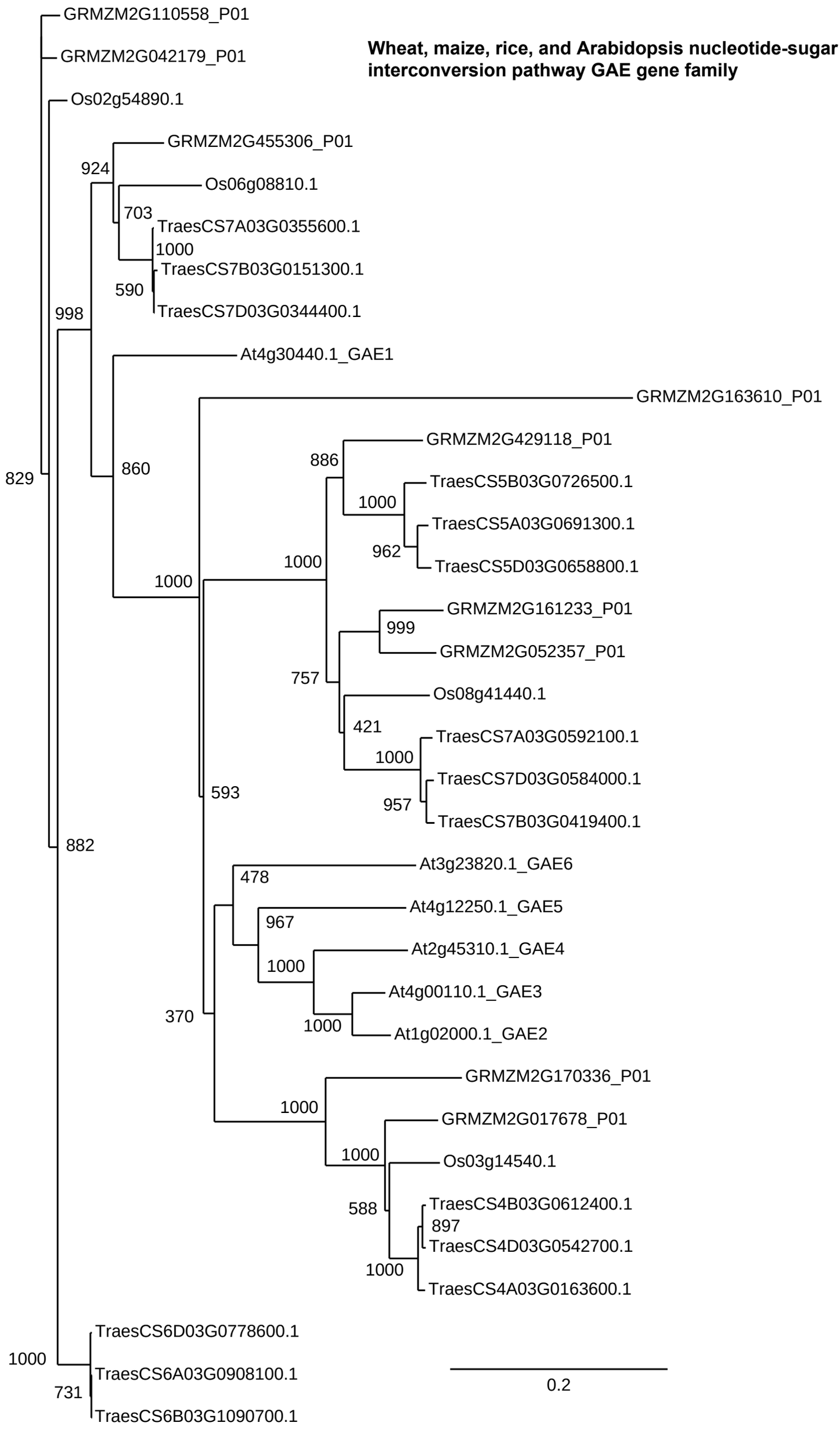
Wheat, maize, rice, and Arabidopsis nucleotide-sugar interconversion pathway GAE gene family
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998
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886
829
860
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962
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TraesCS5D03G0658800.1
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757
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593
957
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882
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478
At4g12250.1_GAE5
967
At2g45310.1_GAE4
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At4g00110.1_GAE3
370
1000
At1g02000.1_GAE2
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588
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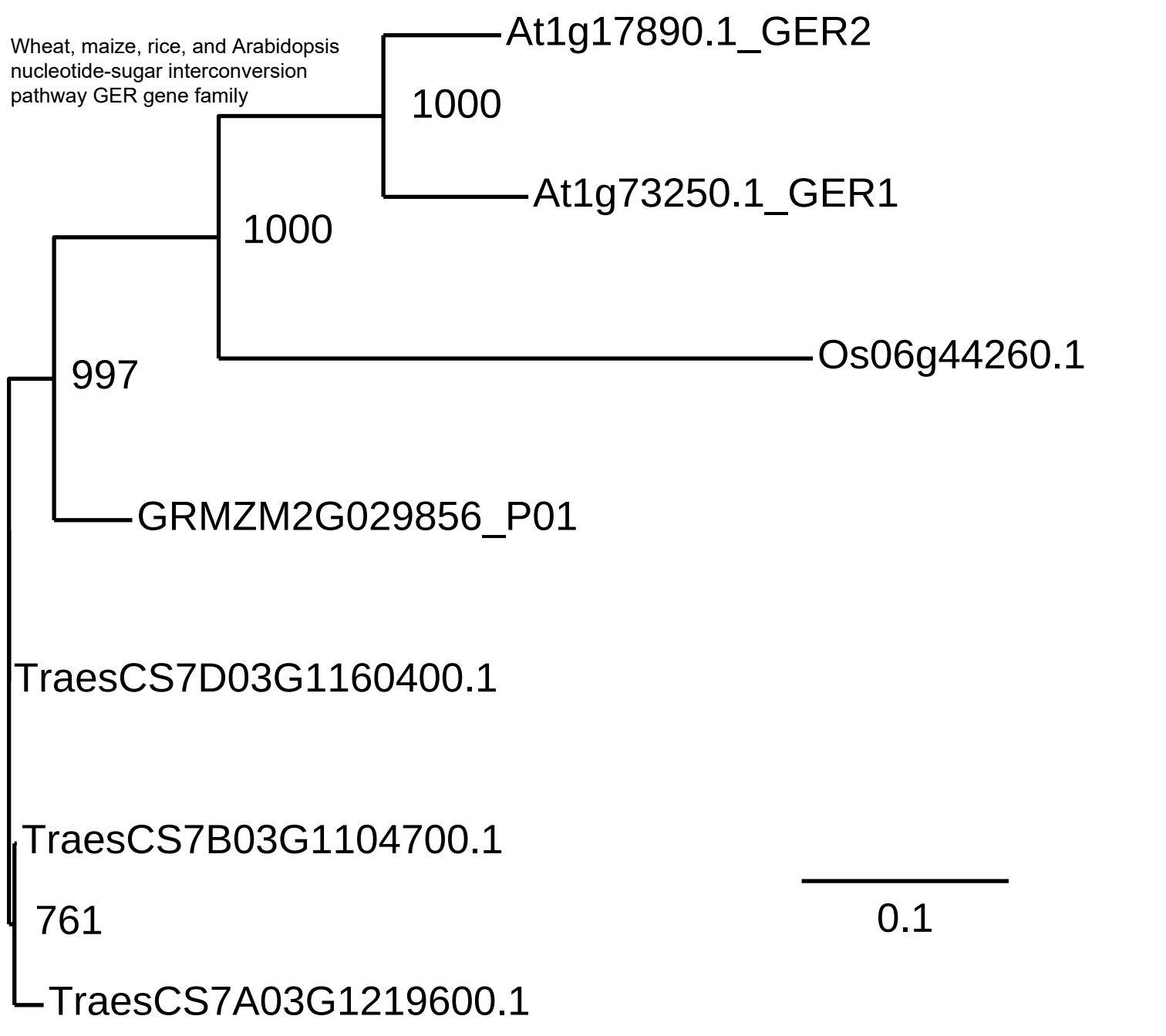
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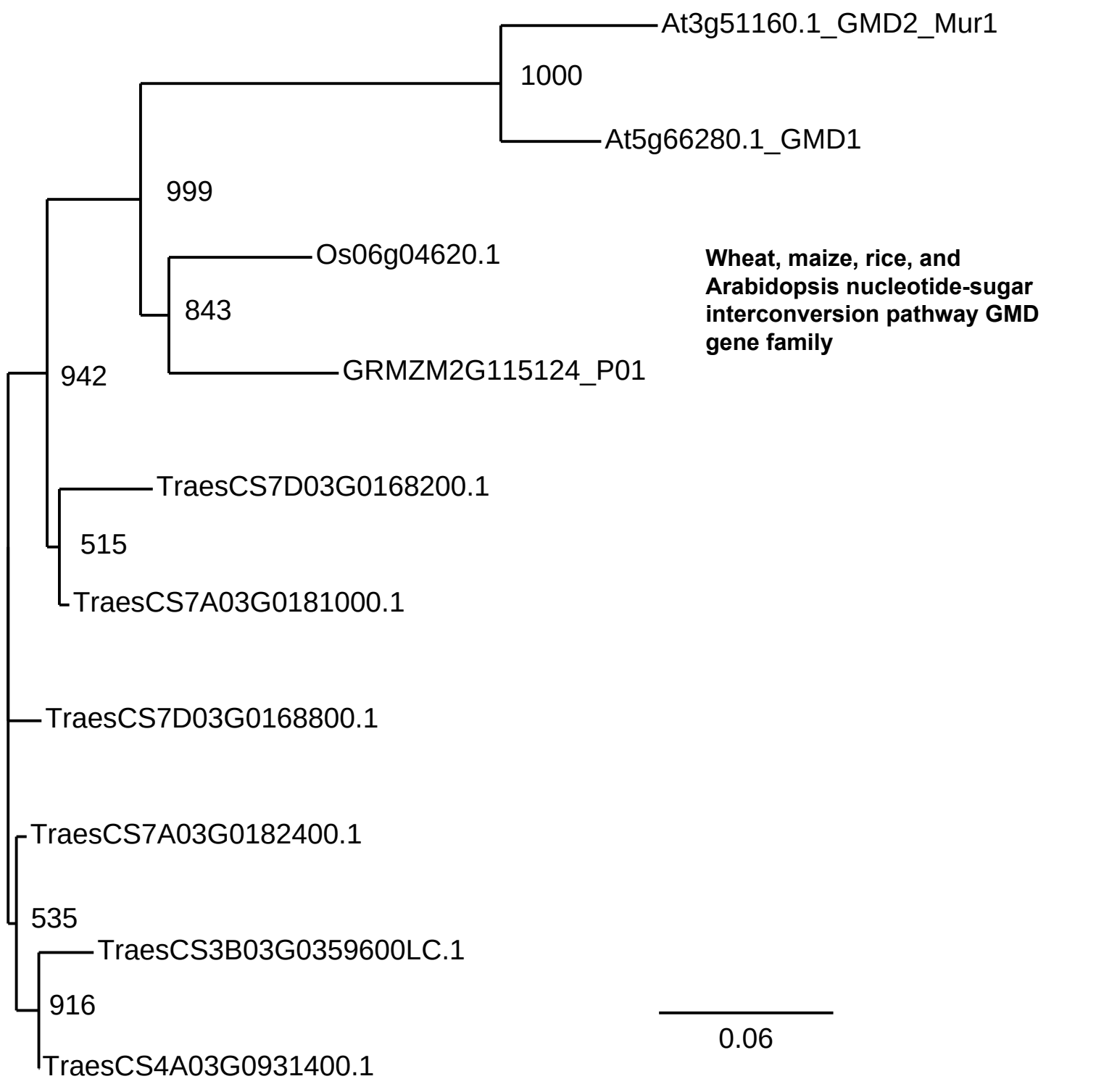
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GRMZM2G115124_P01
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TraesCS7A03G0181000.1
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TraesCS7A03G0182400.1
535
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916
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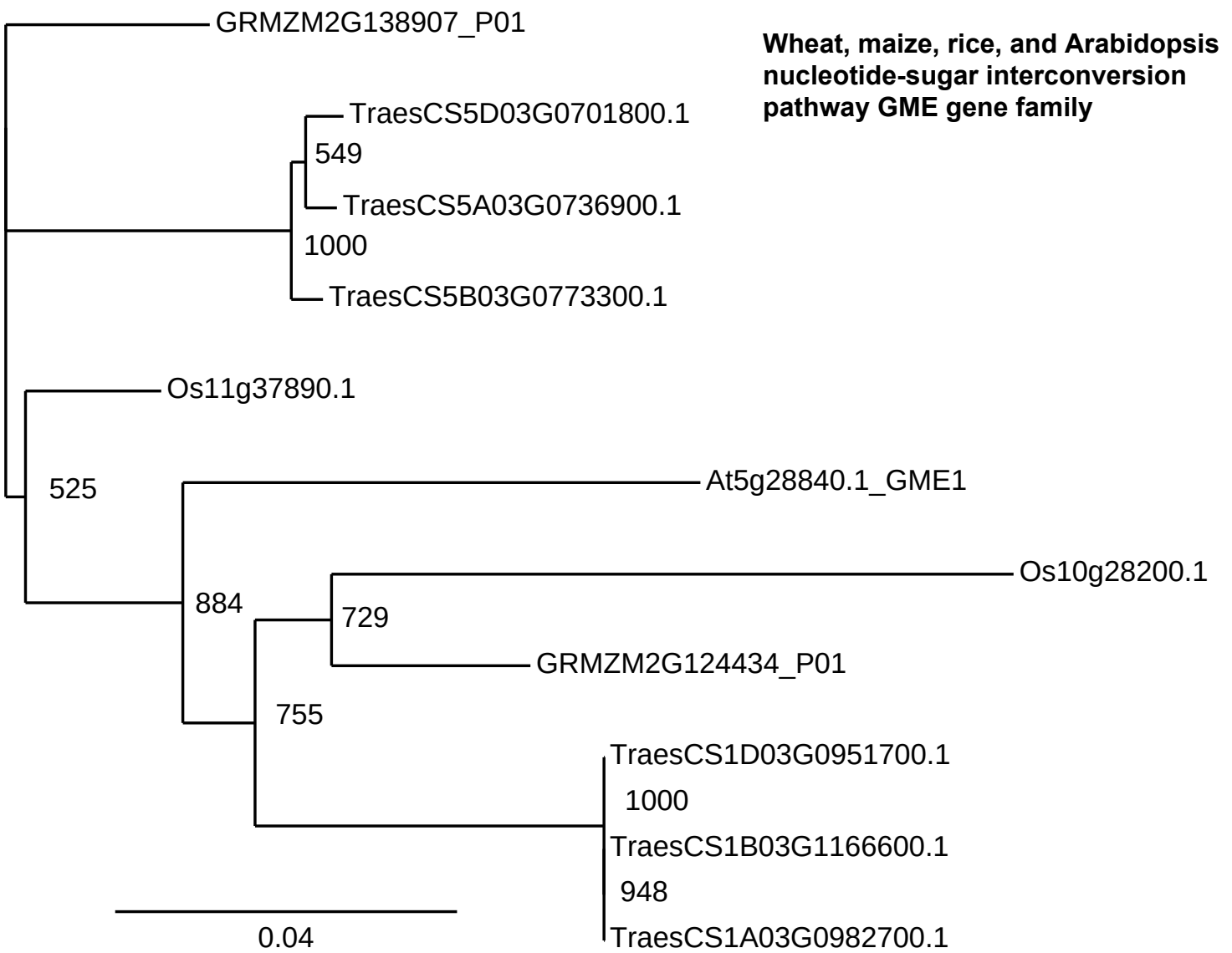
Wheat, maize, rice, and Arabidopsis nucleotide-sugar interconversion pathway GMD gene family
0.06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Os11g37890.1
525
At5g28840.1_GME1
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884
729
GRMZM2G124434_P01
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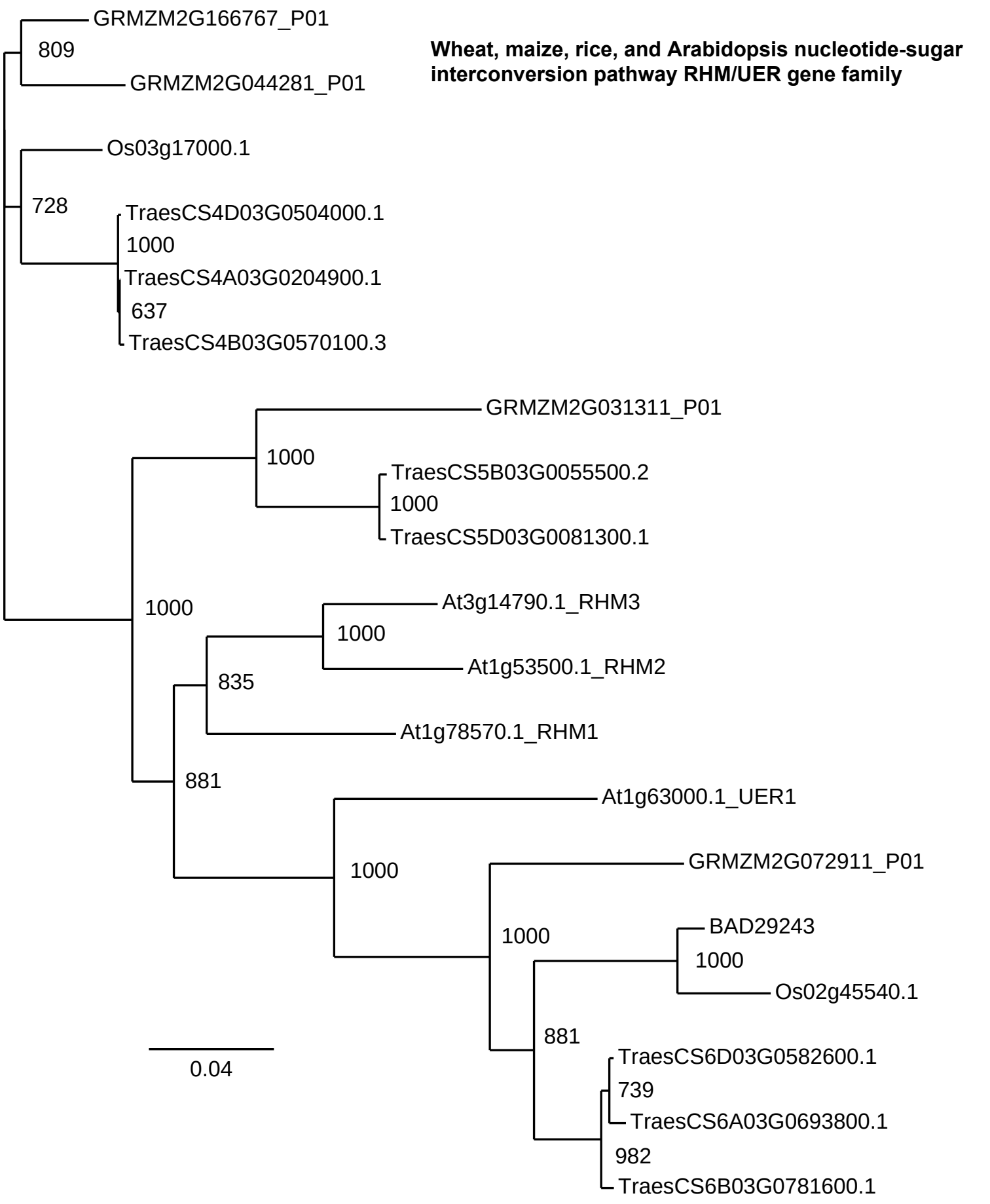
Wheat, maize, rice, and Arabidopsis nucleotide-sugar interconversion pathway RHM/UER gene family
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728
TraesCS4D03G0504000.1
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TraesCS4A03G0204900.1
637
TraesCS4B03G0570100.3
GRMZM2G031311_P01
1000
TraesCS5B03G0055500.2
1000
TraesCS5D03G0081300.1
1000
At3g14790.1_RHM3
1000
At1g53500.1_RHM2
835
At1g78570.1_RHM1
881
At1g63000.1_UER1
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1000
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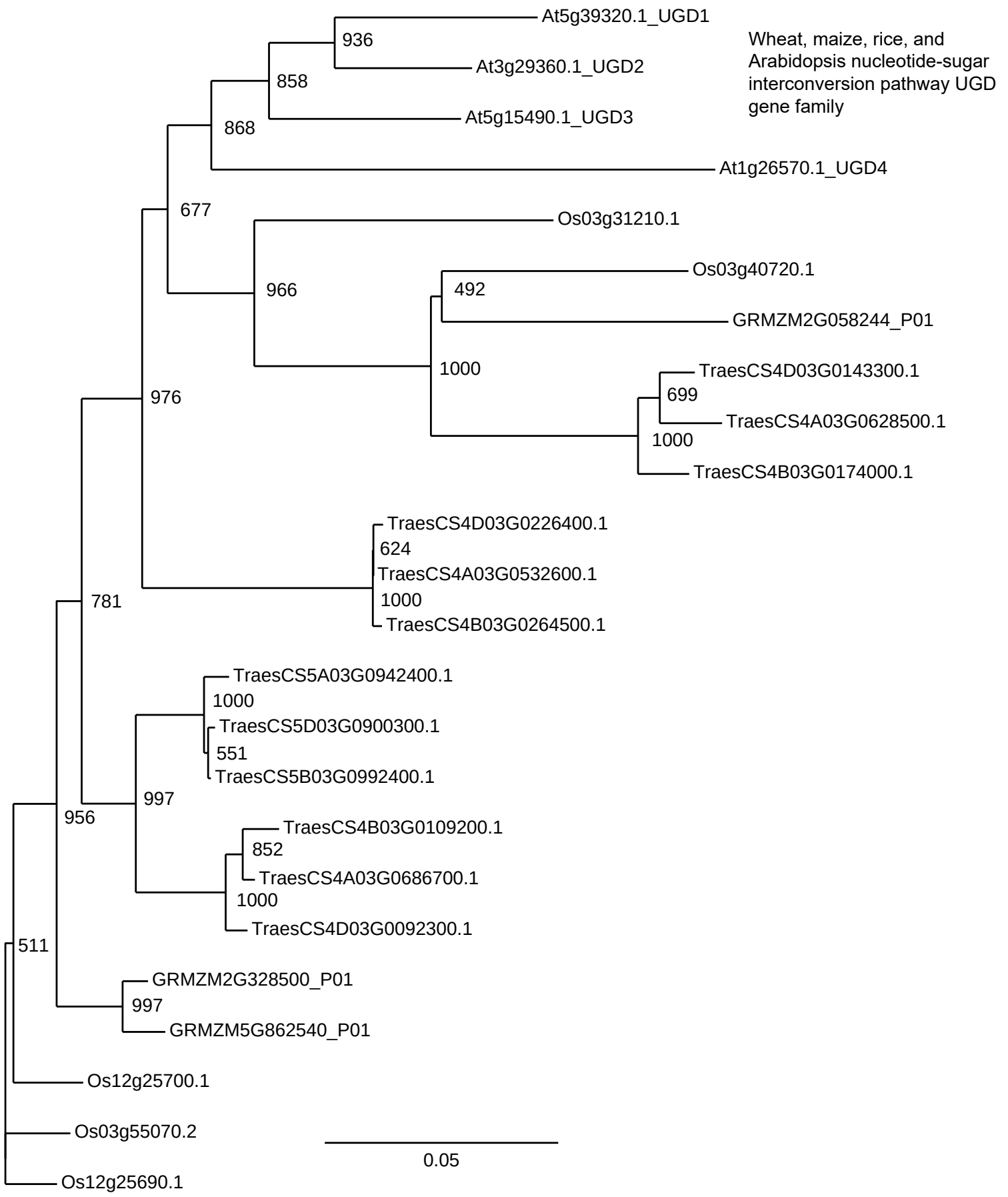
Wheat, maize, rice, and Arabidopsis nucleotide-sugar interconversion pathway UGD gene family
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At1g26570.1_UGD4
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966
Os03g40720.1
492
GRMZM2G058244_P01
1000
TraesCS4D03G0143300.1
699
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997
956
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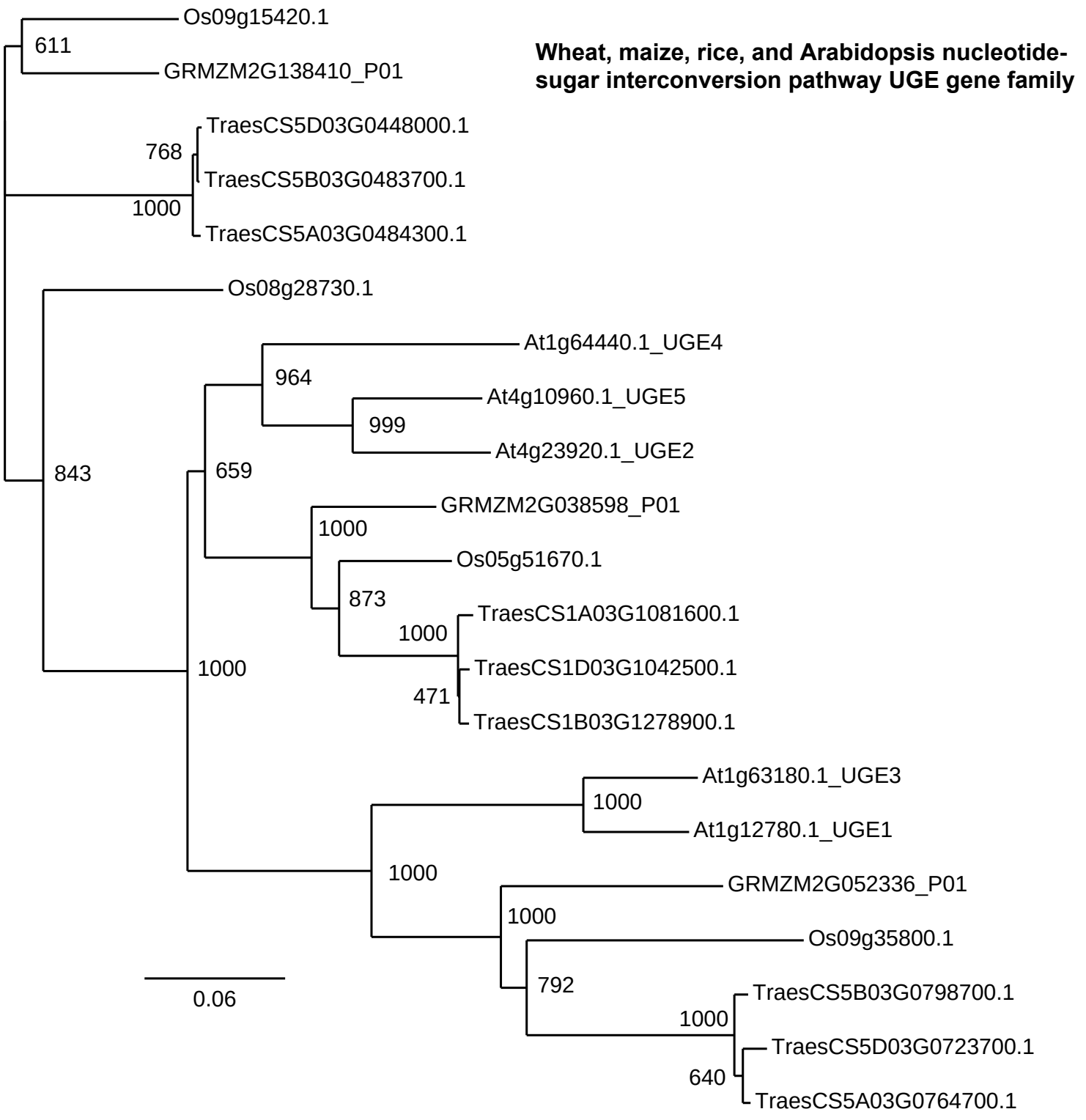
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999
At4g23920.1_UGE2
843
659
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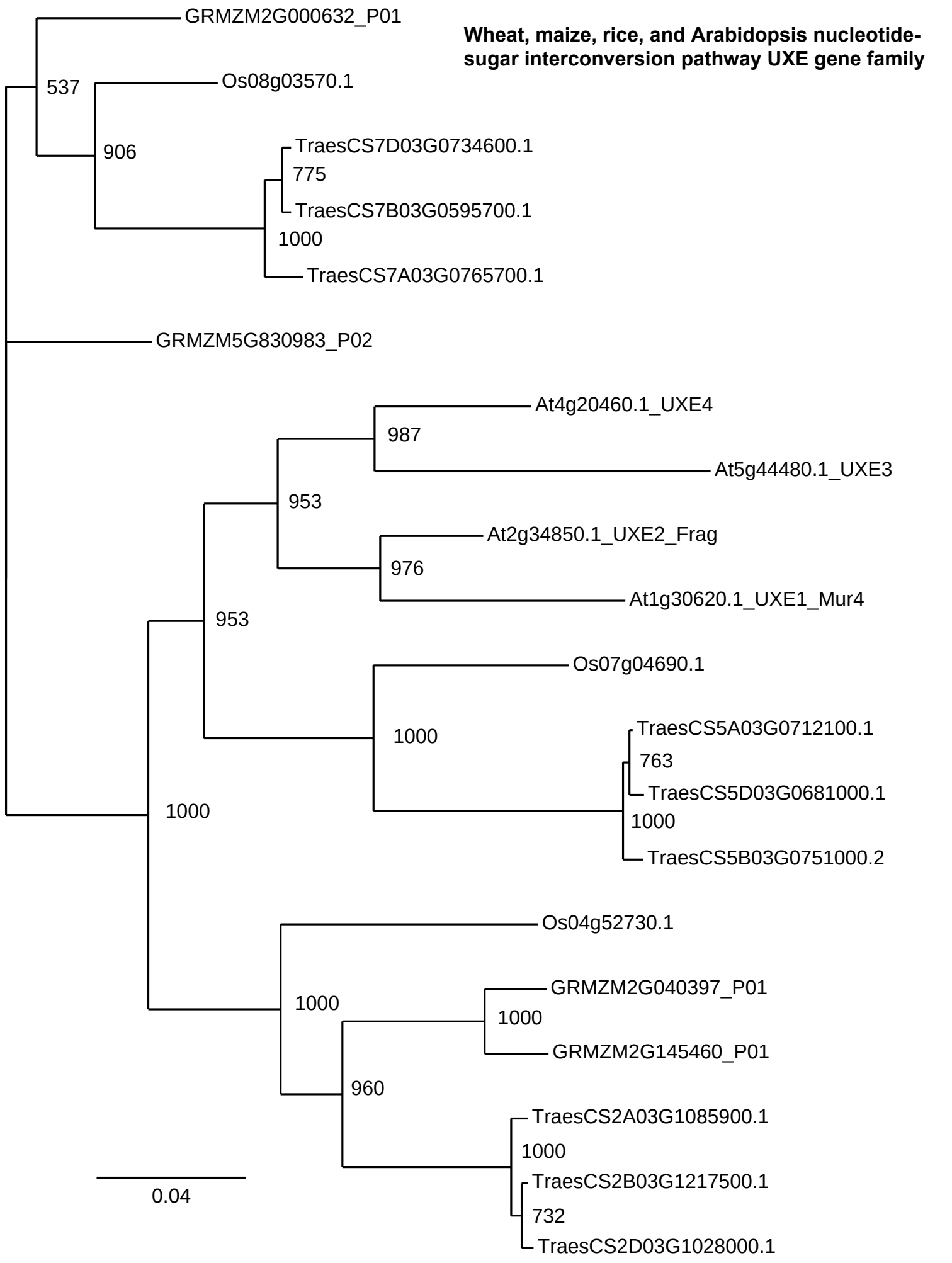
Wheat, maize, rice, and Arabidopsis nucleotide-sugar interconversion pathway UXE gene family
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987
At5g44480.1_UXE3
953
At2g34850.1_UXE2_Frag
976
At1g30620.1_UXE1_Mur4
953
Os07g04690.1
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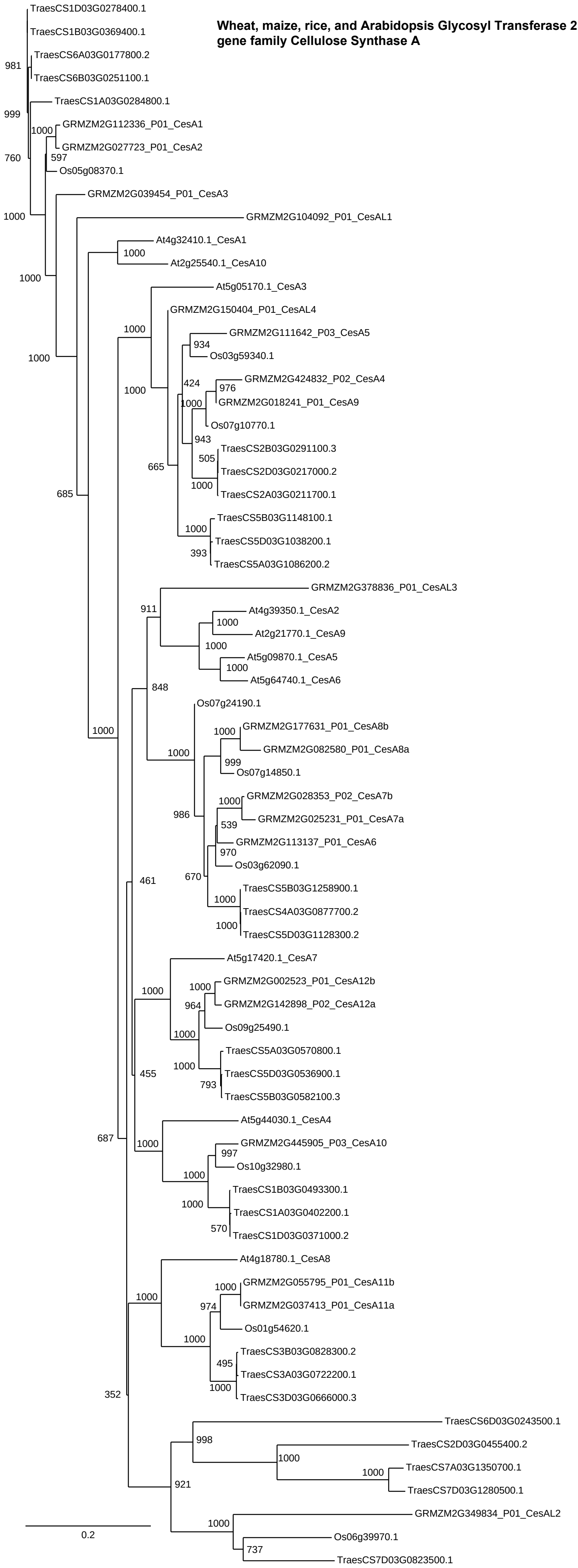
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 2 gene family Cellulose Synthase A



Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 2 gene family Cellulose Synthase-like Group A

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Os10g26630.1_OsCslA2
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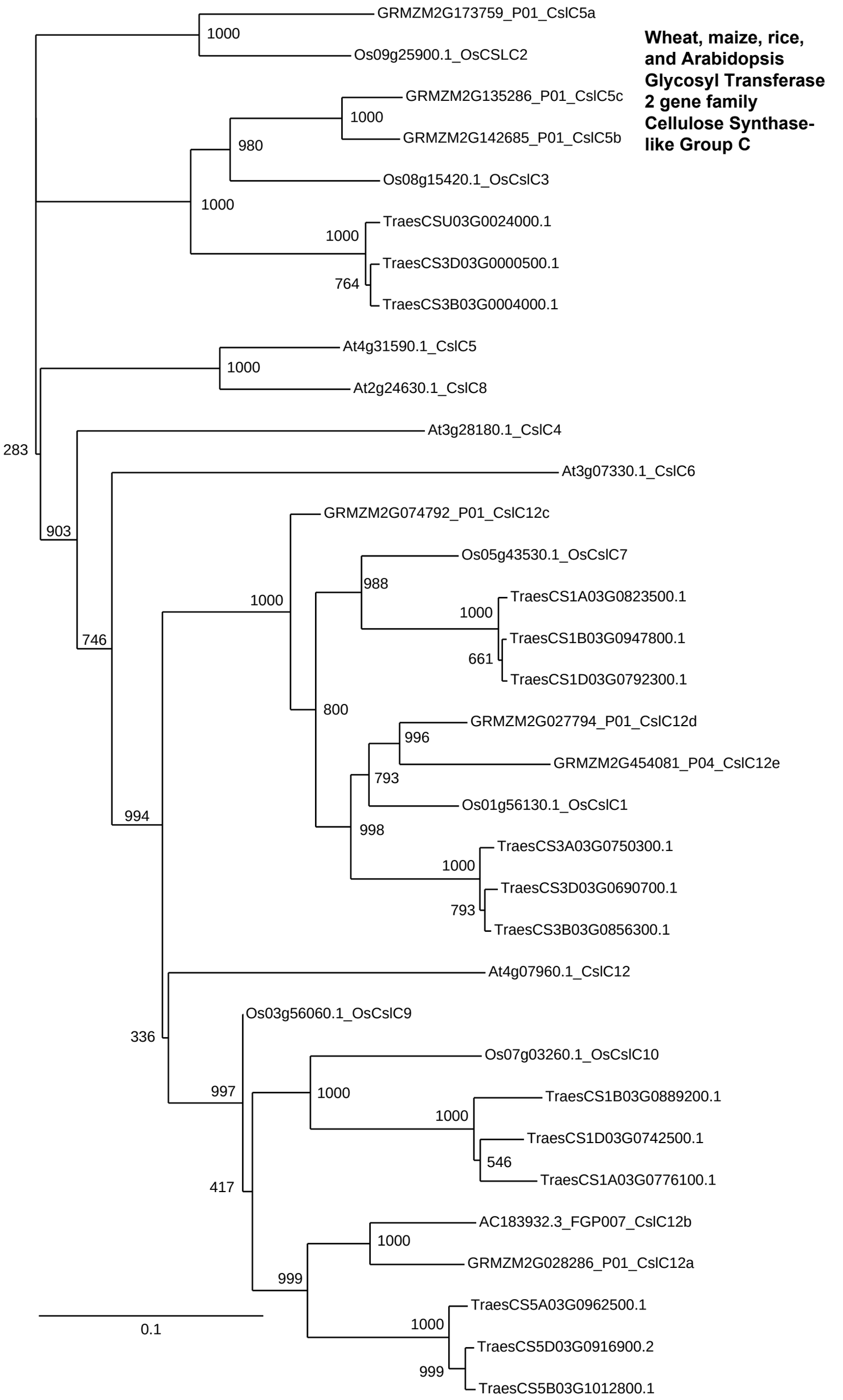
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283
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903
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996
GRMZM2G454081_P04_CslC12e
793
Os01g56130.1_OsCslC1
994
998
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Os07g03260.1_OsCslC10
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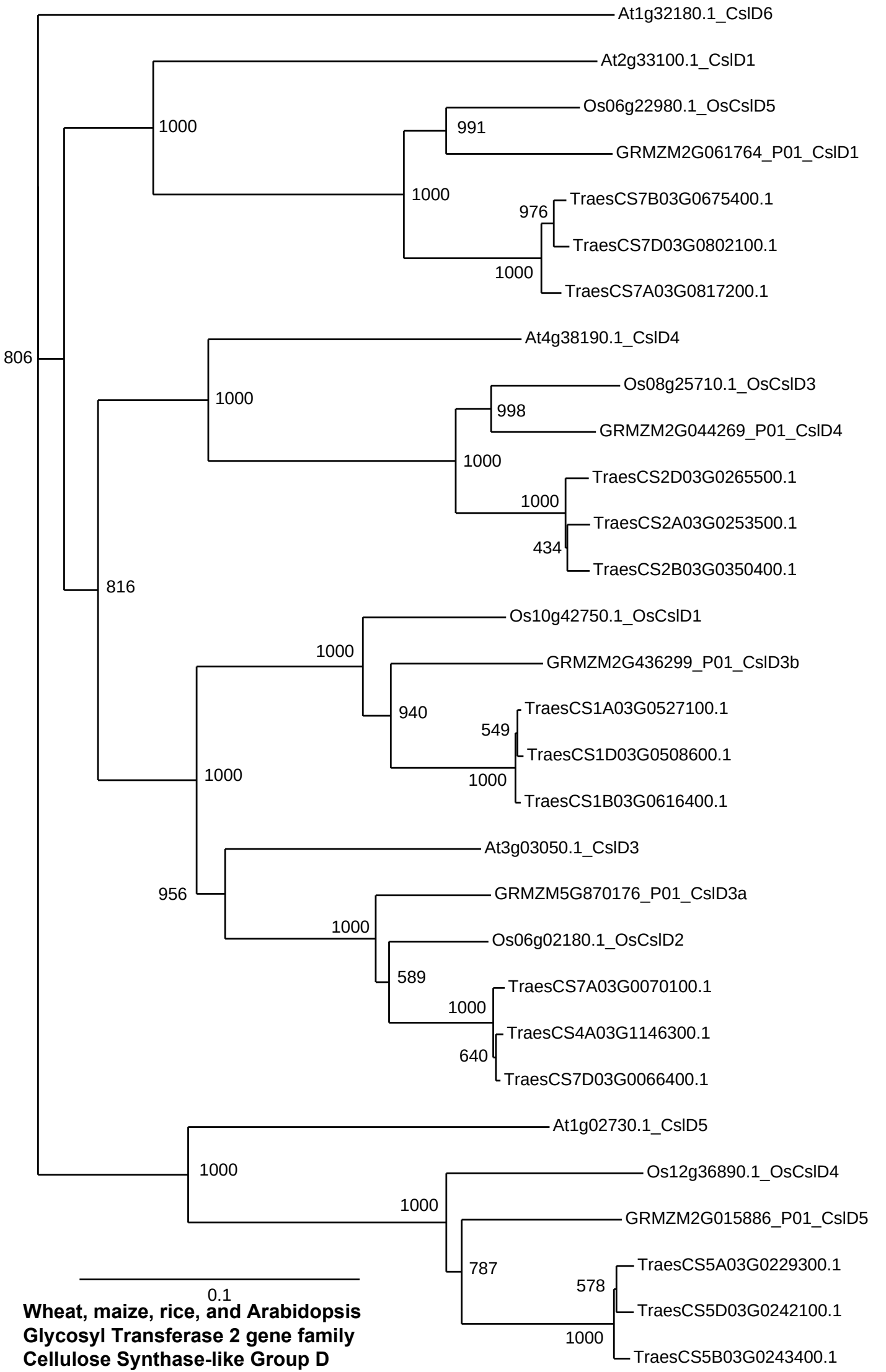
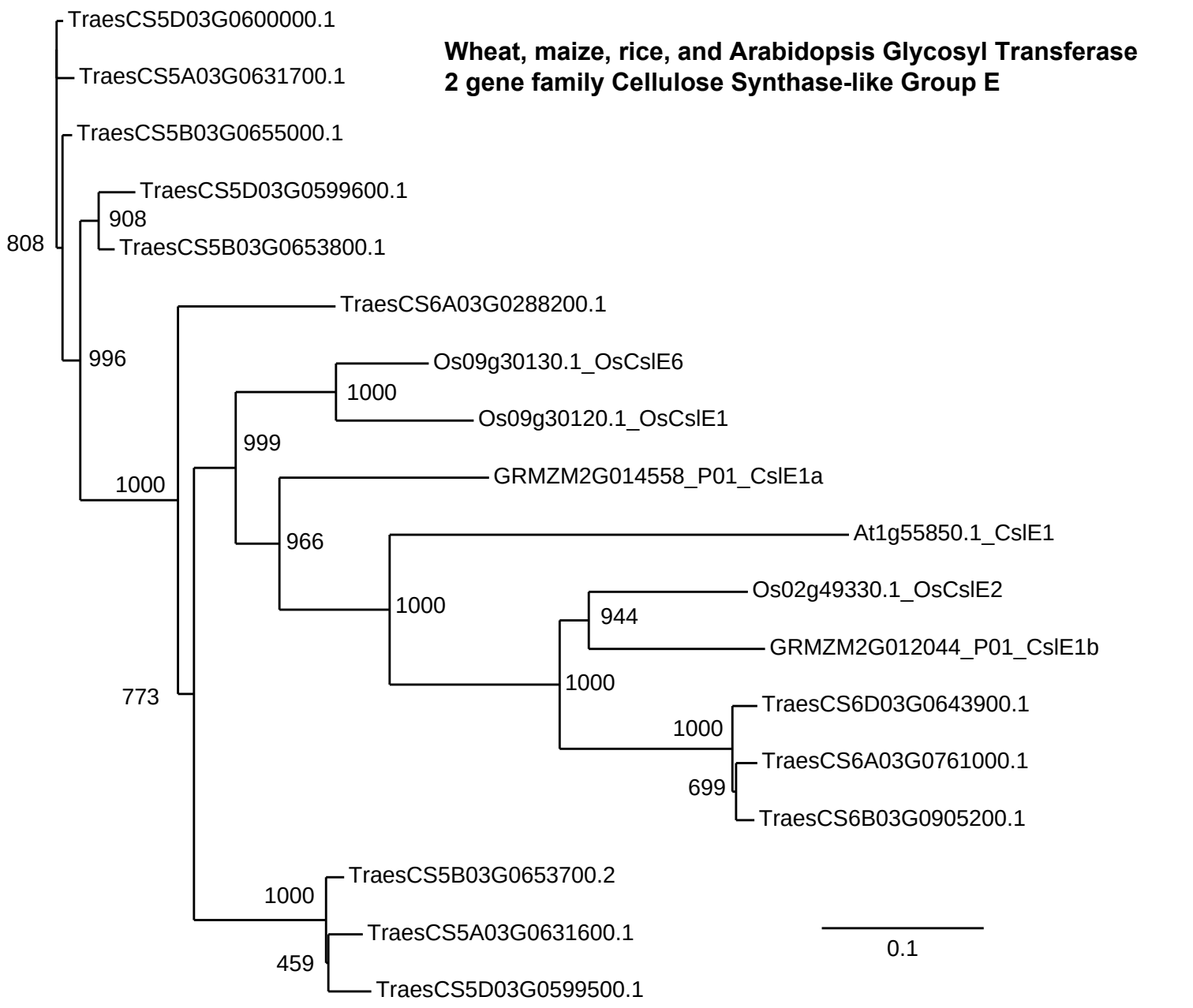


Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 2 gene family Cellulose Synthase-like Group D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TraesCS6A03G0288200.1
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Os09g30130.1_OsCslE6
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Os09g30120.1_OsCslE1
999
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1000
Os02g49330.1_OsCslE2
944
GRMZM2G012044_P01_CslE1b
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773
TraesCS6D03G0643900.1
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TraesCS6A03G0761000.1
699
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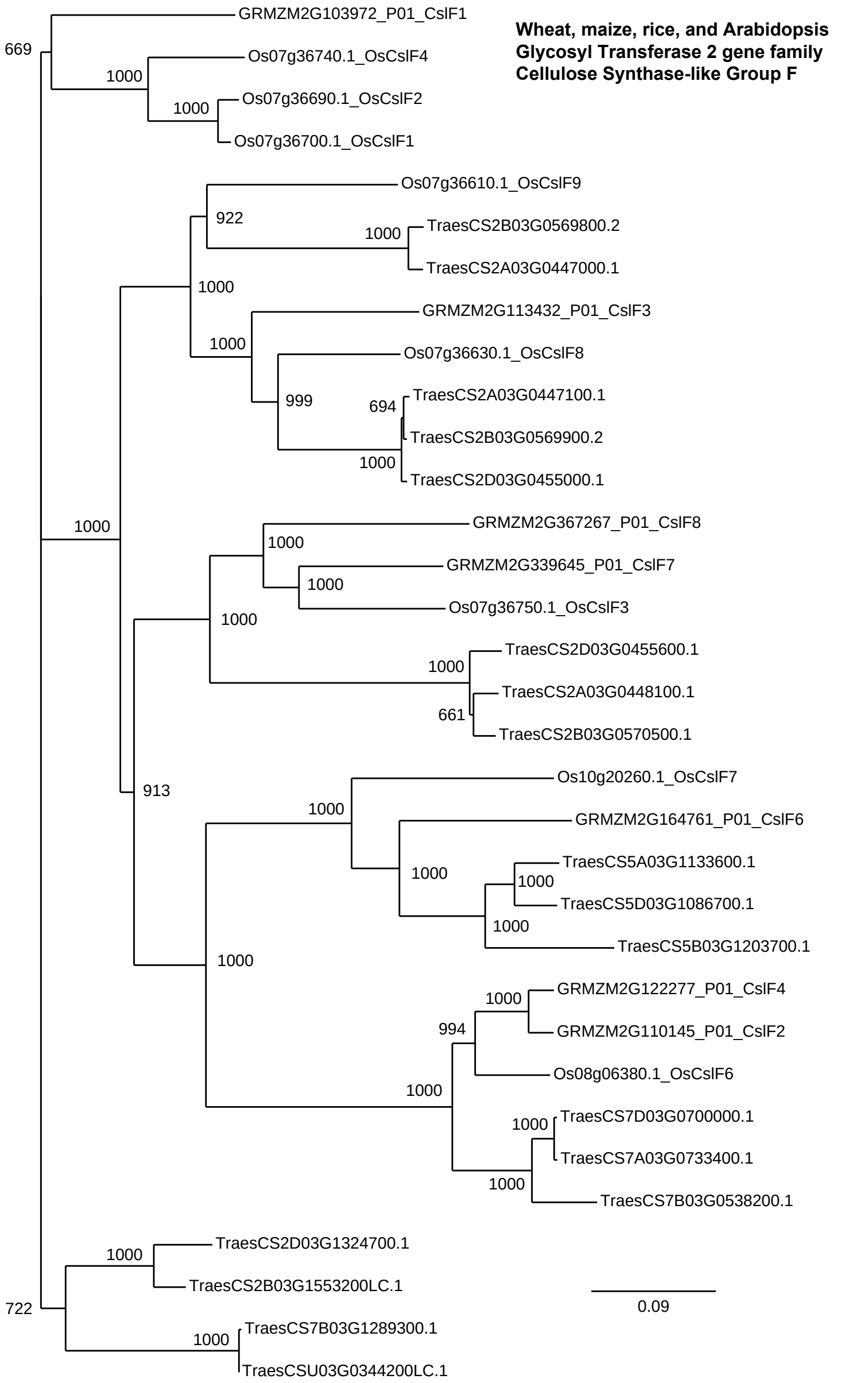
Wheat, maize, rice, and Arabidopsis
Glycosyl Transferase 2 gene family
Cellulose Synthase-like Group F
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Os07g36700.1_OsCslF1
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TraesCS2D03G0455000.1
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Os07g36750.1_OsCslF3
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TraesCS5B03G1203700.1
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TraesCS2B03G1553200LC.1
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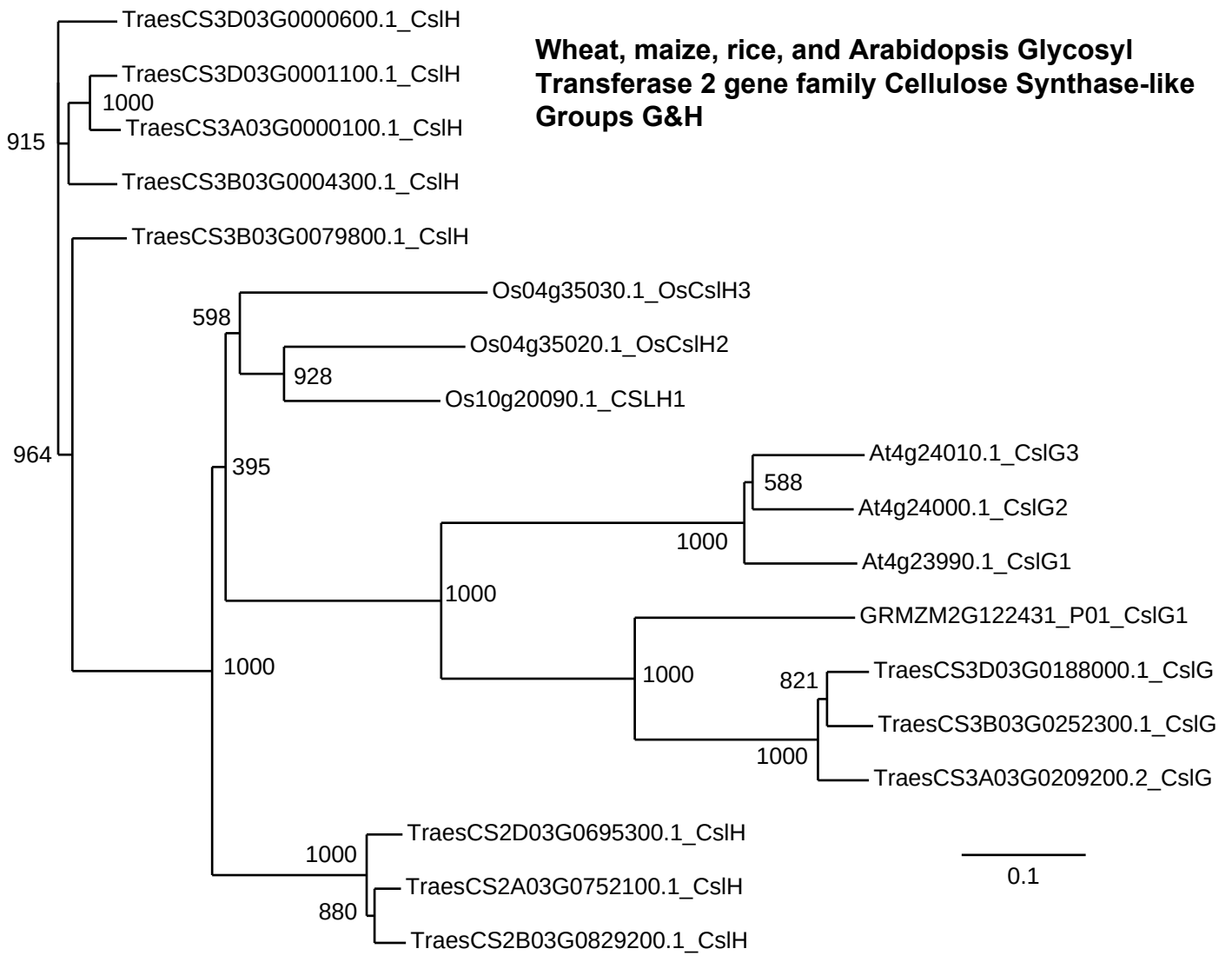
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 2 gene family Cellulose Synthase-like Groups G&H
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TraesCS3B03G0004300.1_CslH
TraesCS3B03G0079800.1_CslH
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598
Os04g35020.1_OsCslH2
928
Os10g20090.1_CSLH1
964
395
At4g24010.1_CslG3
588
At4g24000.1_CslG2
1000
At4g23990.1_CslG1
1000
GRMZM2G122431_P01_CslG1
1000
821
TraesCS3D03G0188000.1_CslG
TraesCS3B03G0252300.1_CslG
1000
TraesCS3A03G0209200.2_CslG
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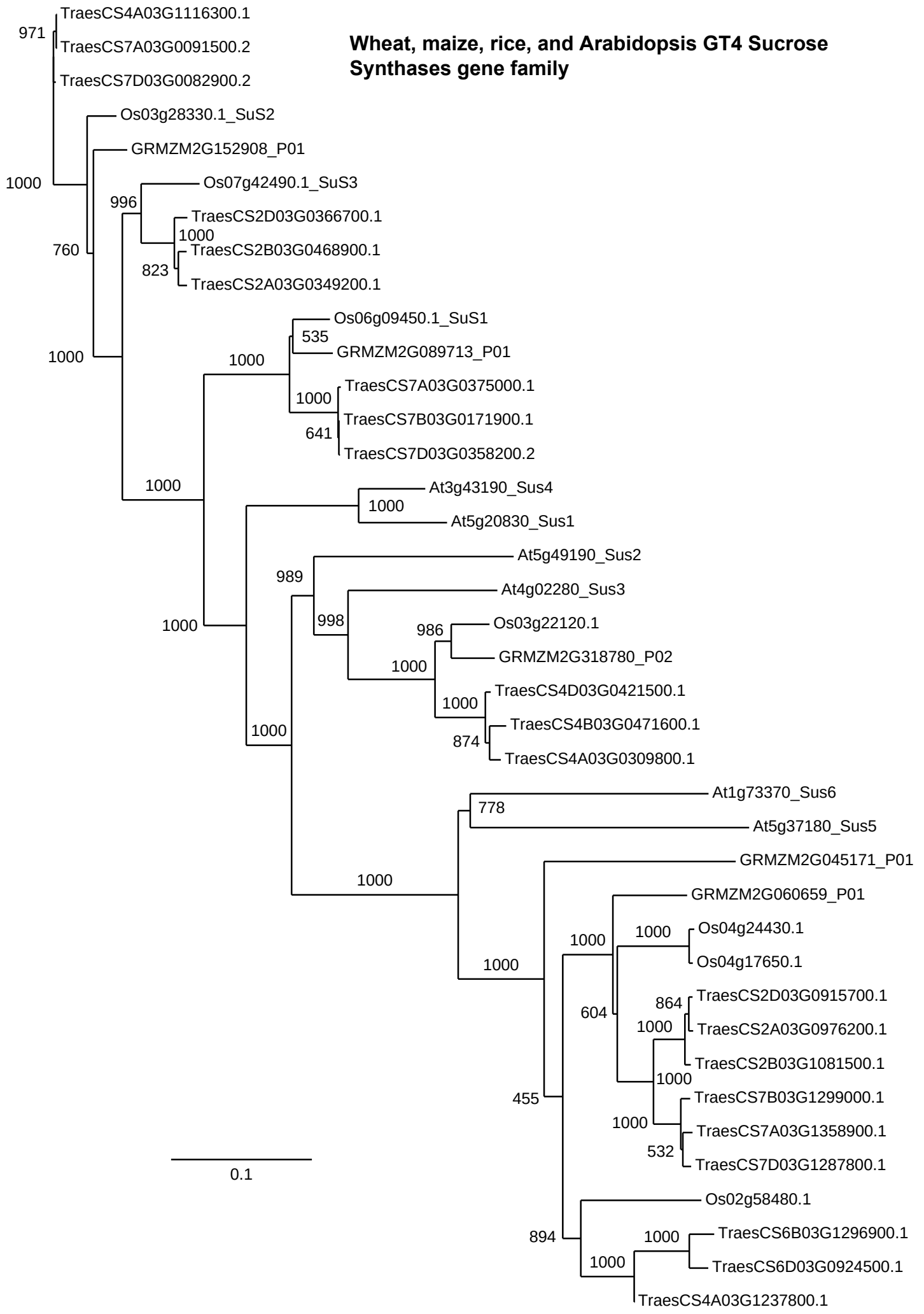
Wheat, maize, rice, and Arabidopsis GT4 Sucrose Synthases gene family
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TraesCS7A03G0091500.2
TraesCS7D03G0082900.2
Os03g28330.1_SuS2
GRMZM2G152908_P01
Os07g42490.1_SuS3
TraesCS2D03G0366700.1
TraesCS2B03G0468900.1
TraesCS2A03G0349200.1
Os06g09450.1_SuS1
GRMZM2G089713_P01
TraesCS7A03G0375000.1
TraesCS7B03G0171900.1
TraesCS7D03G0358200.2
At3g43190_Sus4
At5g20830_Sus1
At5g49190_Sus2
At4g02280_Sus3
Os03g22120.1
GRMZM2G318780_P02
TraesCS4D03G0421500.1
TraesCS4B03G0471600.1
TraesCS4A03G0309800.1
At1g73370_Sus6
At5g37180_Sus5
GRMZM2G045171_P01
GRMZM2G060659_P01
Os04g24430.1
Os04g17650.1
TraesCS2D03G0915700.1
TraesCS2A03G0976200.1
TraesCS2B03G1081500.1
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TraesCS7D03G1287800.1
Os02g58480.1
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TraesCS6D03G0924500.1
TraesCS4A03G1237800.1
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535
1000
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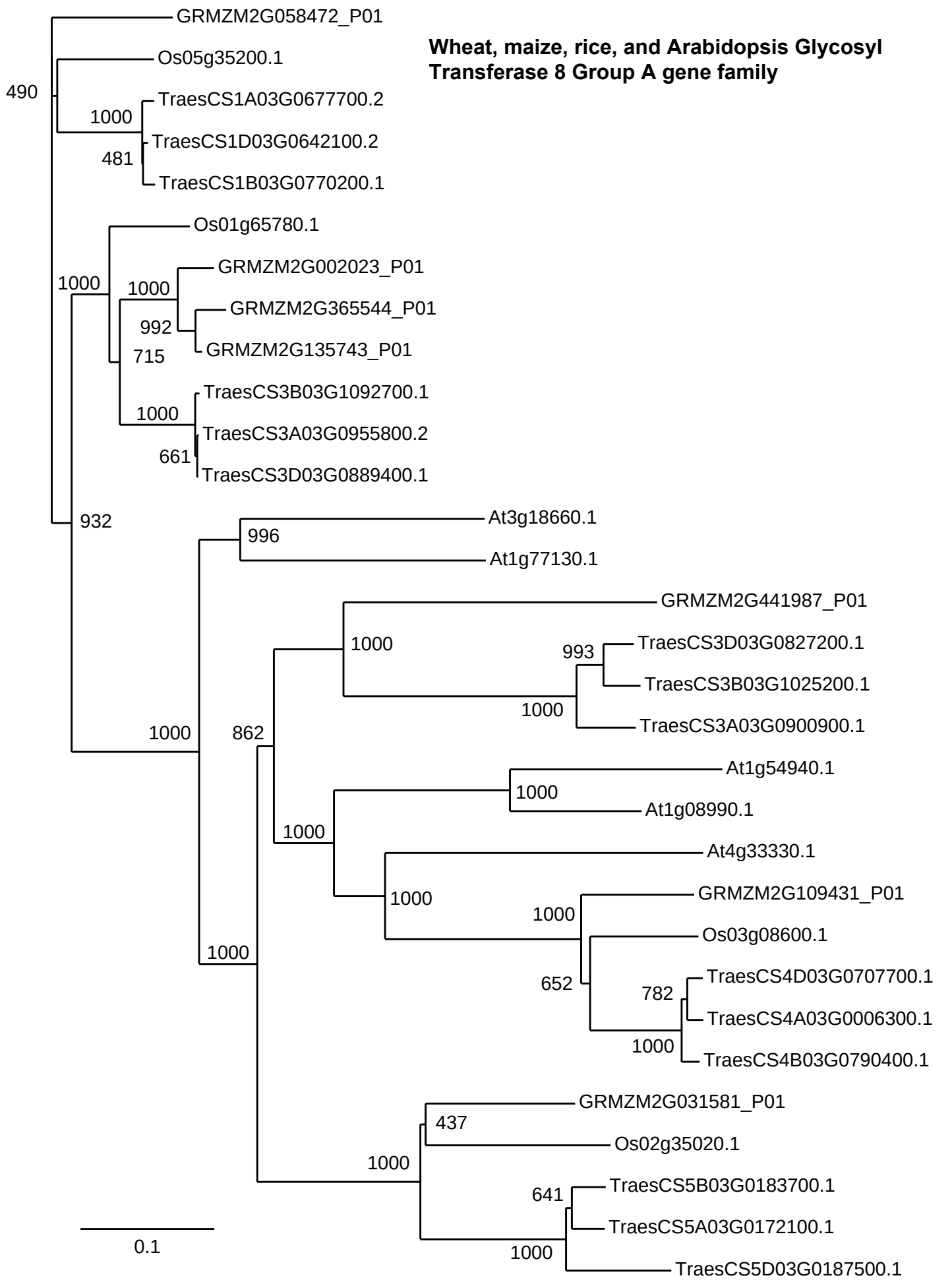
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GRMZM2G002023_P01
1000
GRMZM2G365544_P01
992
GRMZM2G135743_P01
715
TraesCS3B03G1092700.1
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TraesCS3A03G0955800.2
661
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932
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996
At1g77130.1
GRMZM2G441987_P01
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TraesCS3D03G0827200.1
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TraesCS3B03G1025200.1
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At1g08990.1
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At4g33330.1
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GRMZM2G109431_P01
1000
Os03g08600.1
1000
652
TraesCS4D03G0707700.1
782
TraesCS4A03G0006300.1
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TraesCS4B03G0790400.1
GRMZM2G031581_P01
437
Os02g35020.1
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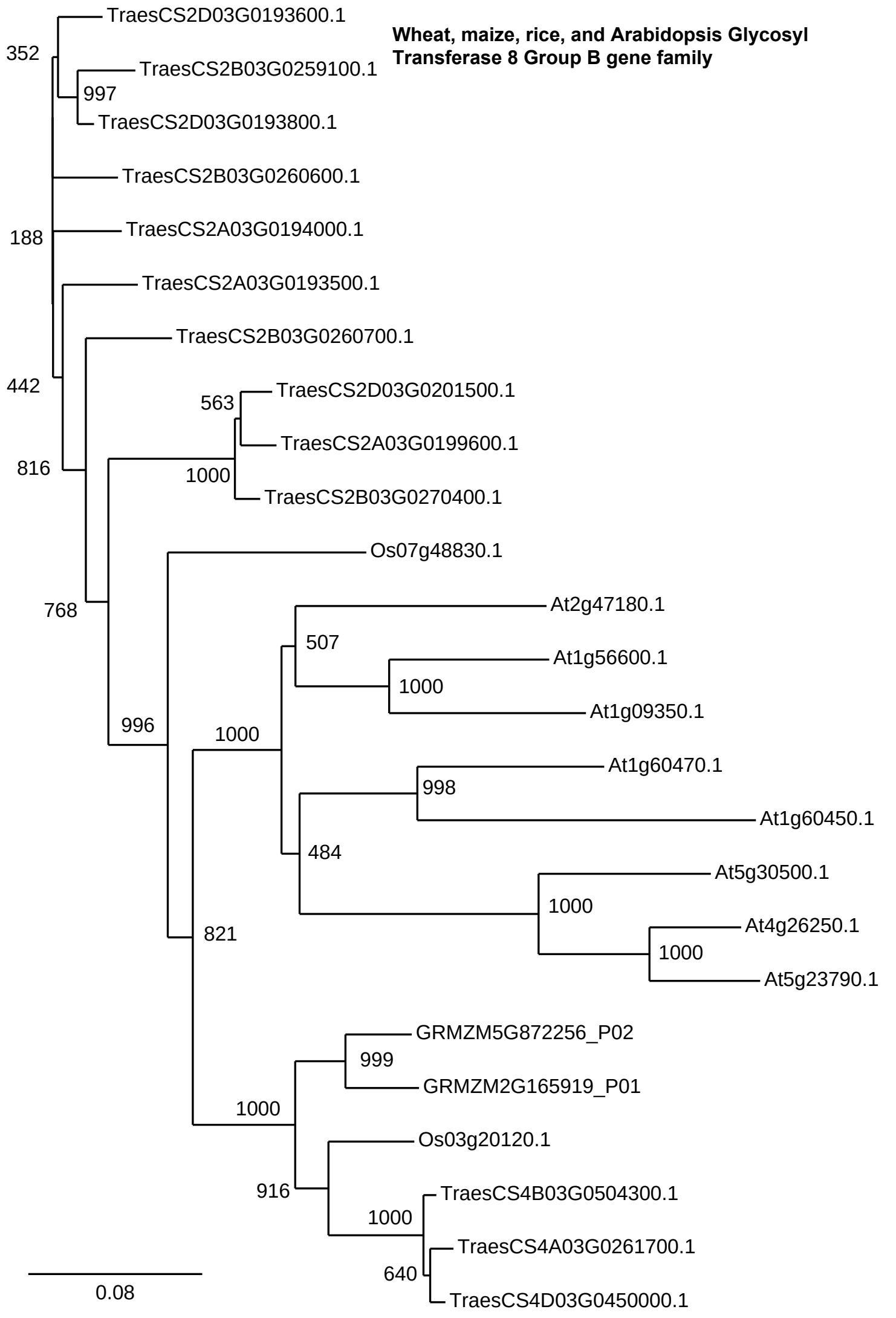
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 8 Group B gene family
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TraesCS2B03G0259100.1
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TraesCS2D03G0193800.1
TraesCS2B03G0260600.1
188
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TraesCS2B03G0260700.1
442
563
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816
1000
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768
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507
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1000
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996
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484
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1000
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916
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Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 8 Group C gene family

At3g50760.1
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At1g19300.1
At1g70090.1
1000
At1g24170.1
948
At3g28340.1
613
At3g62660.1
912
At4g02130.1
972
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582
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GRMZM2G019583_P01
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TraesCS2A03G0285900.1
546
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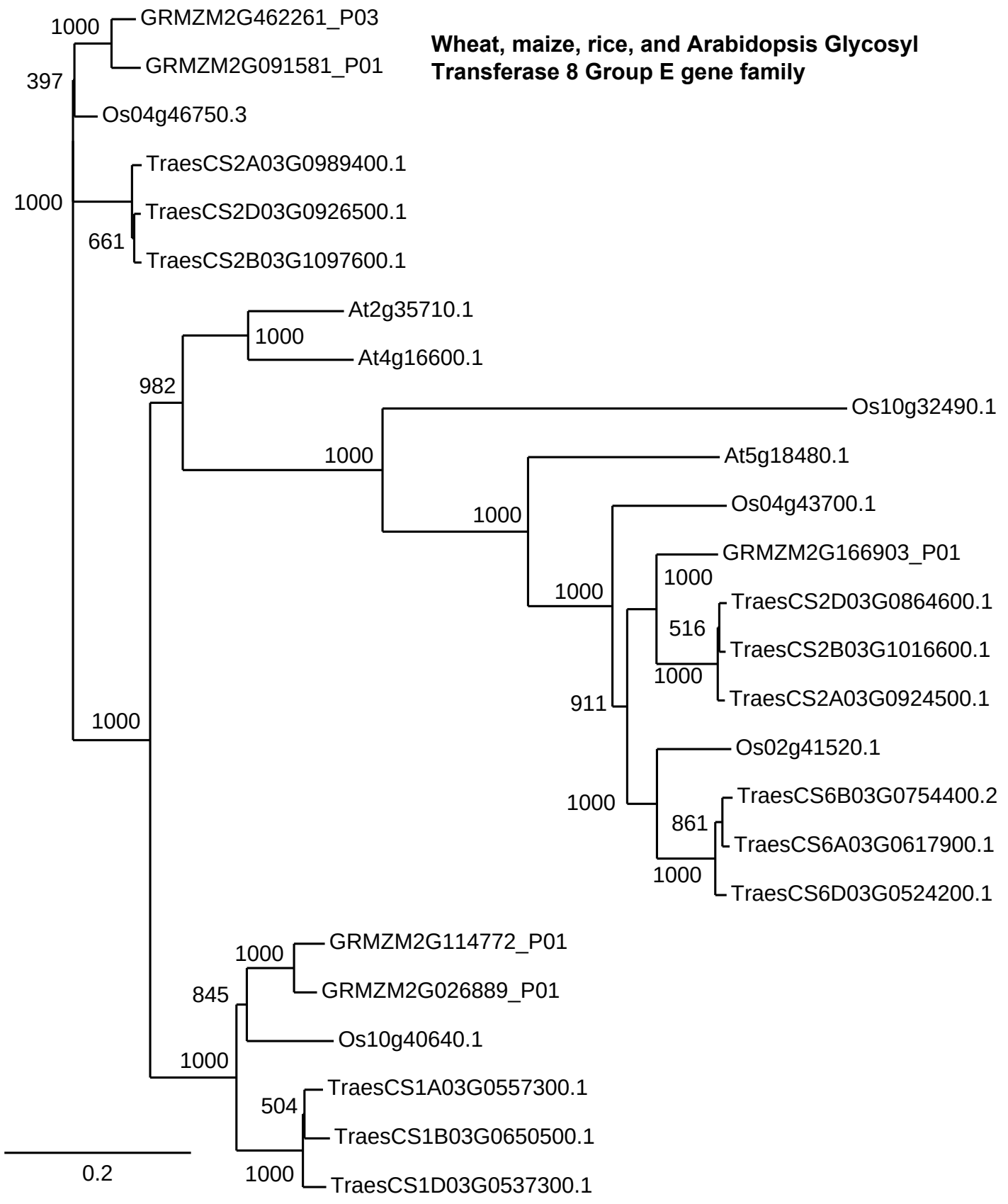
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 8 Group D gene family


Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 8 Group E gene family
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At2g35710.1
At4g16600.1
Os10g32490.1
At5g18480.1
Os04g43700.1
GRMZM2G166903_P01
TraesCS2D03G0864600.1
TraesCS2B03G1016600.1
TraesCS2A03G0924500.1
Os02g41520.1
TraesCS6B03G0754400.2
TraesCS6A03G0617900.1
TraesCS6D03G0524200.1
GRMZM2G114772_P01
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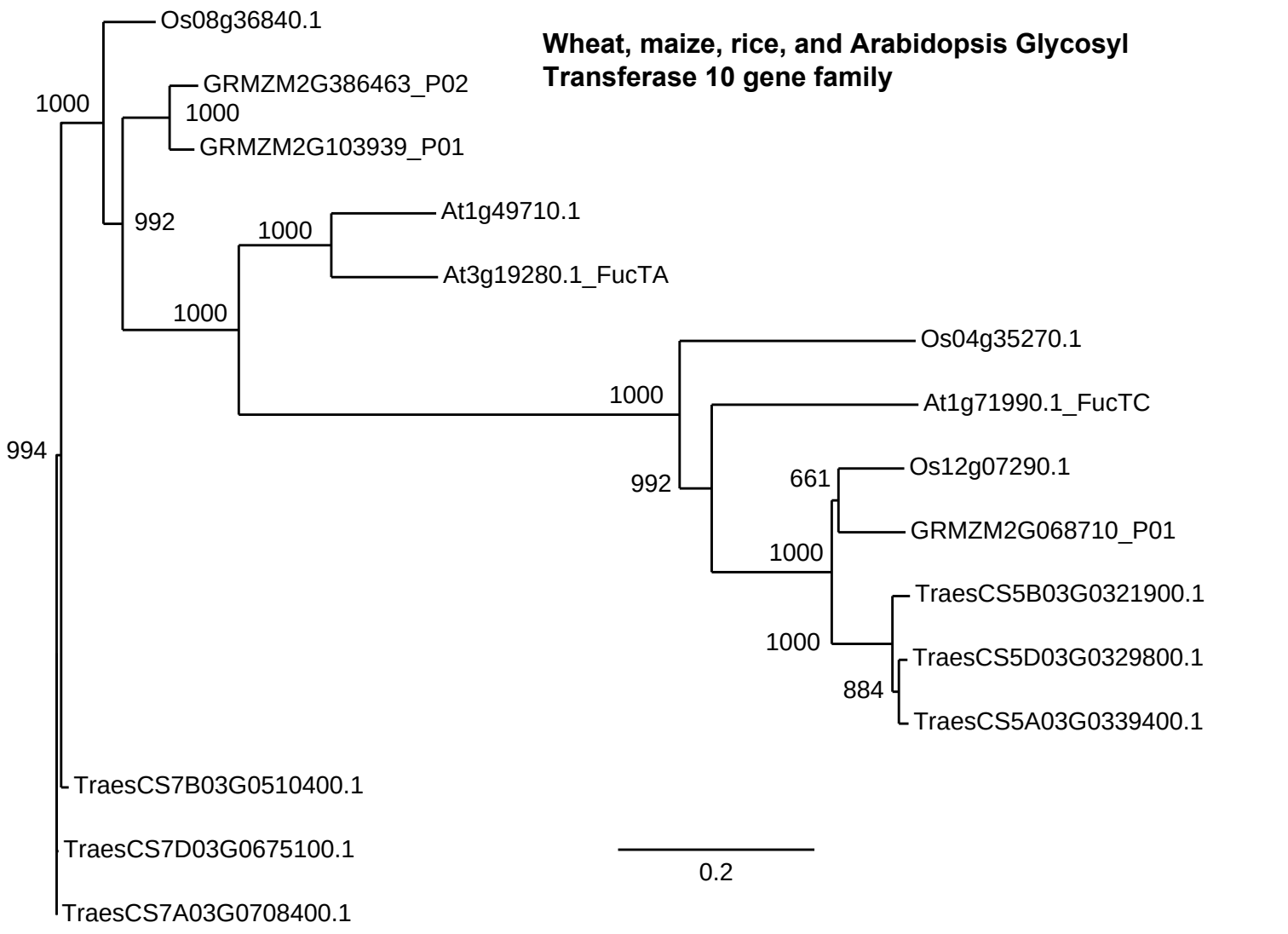
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 10 gene family
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At1g71990.1_FucTC
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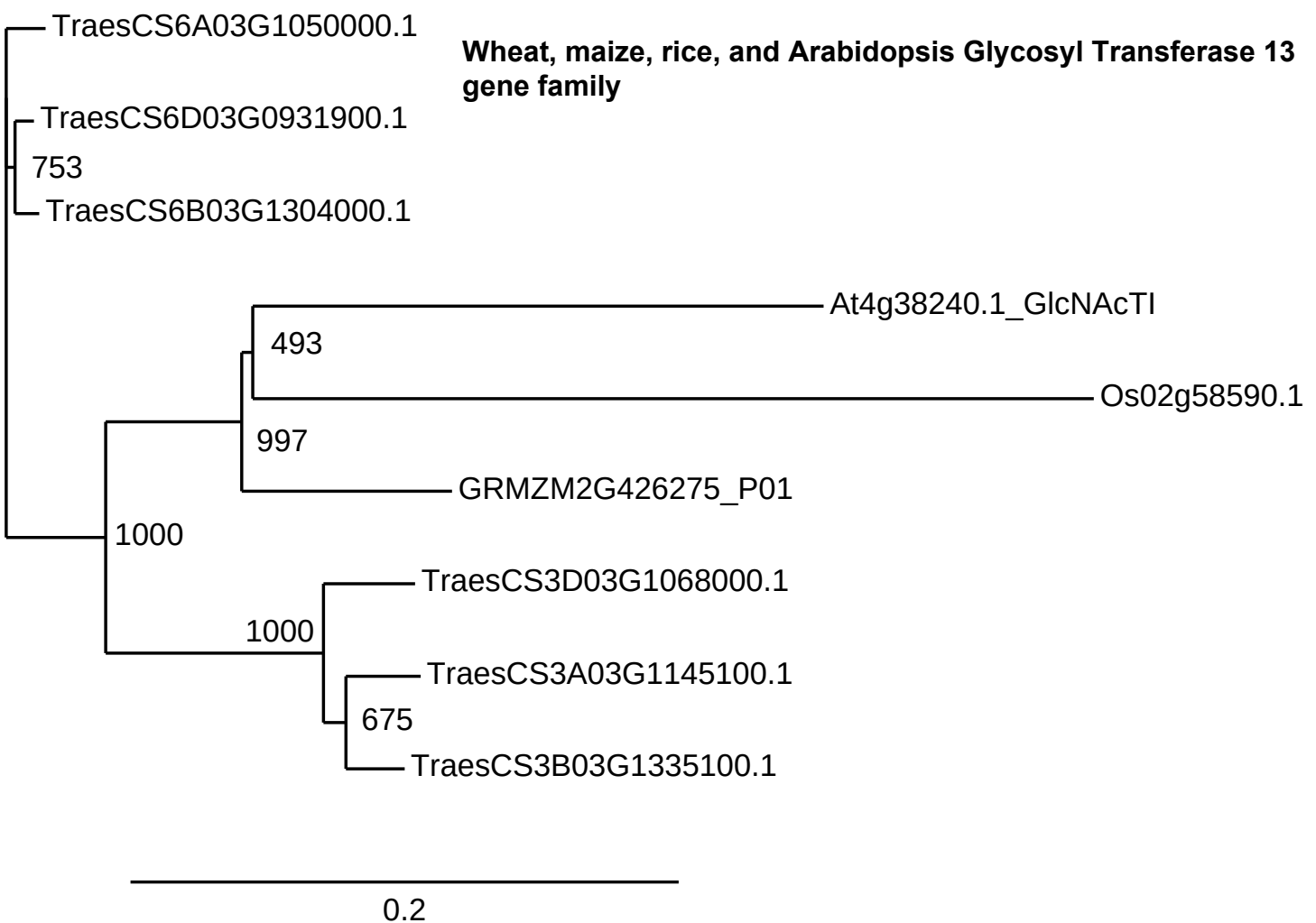
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 13 gene family
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997
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1000
TraesCS3D03G1068000.1
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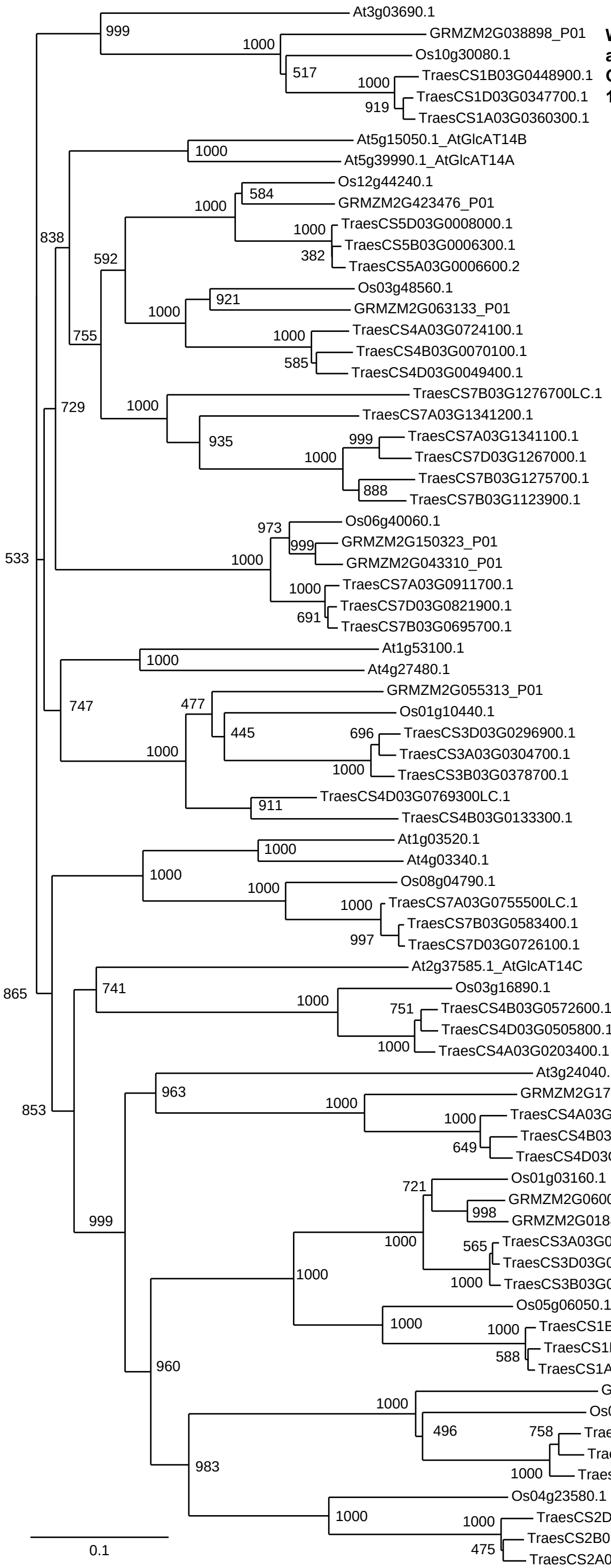
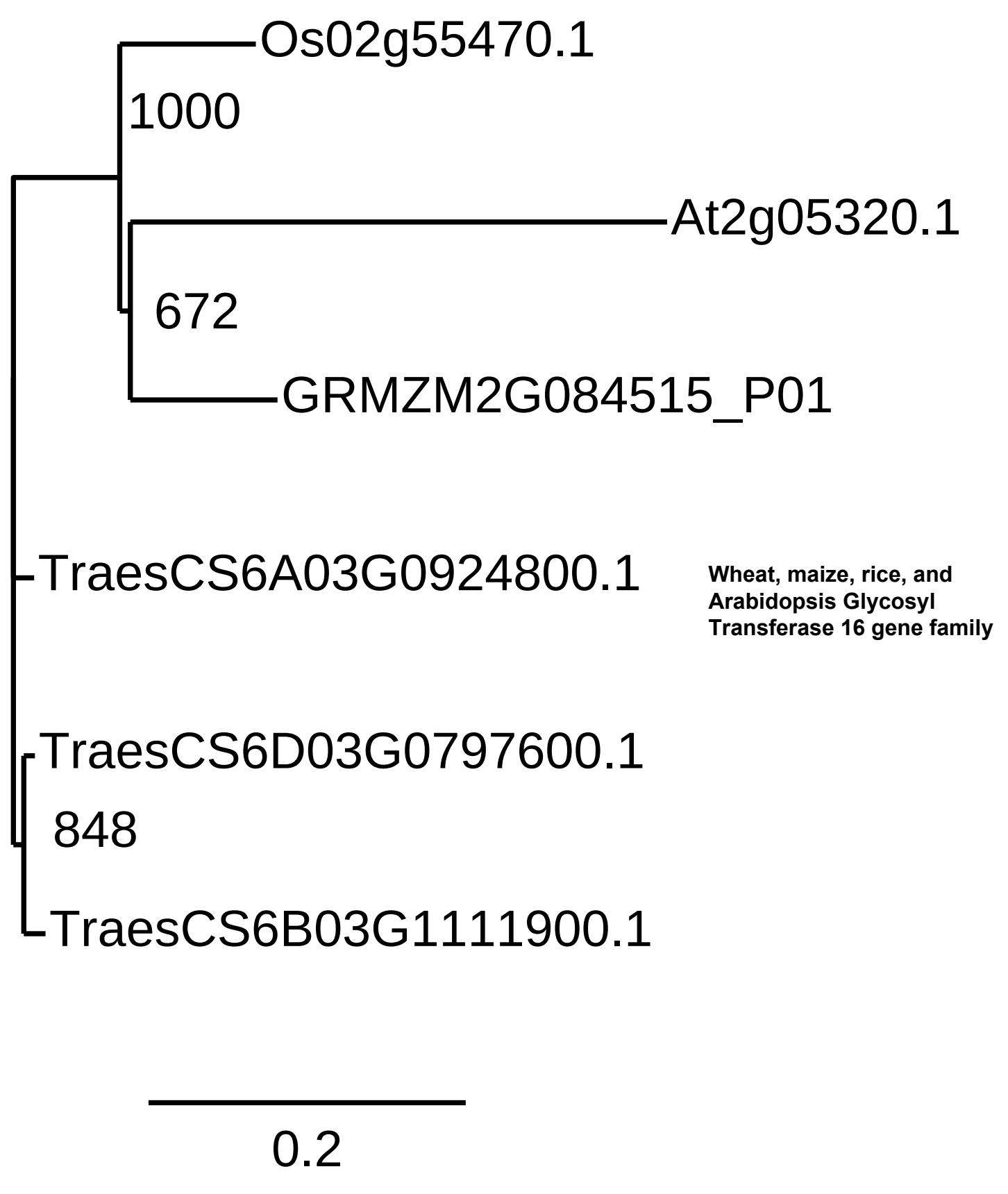
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 14 gene family

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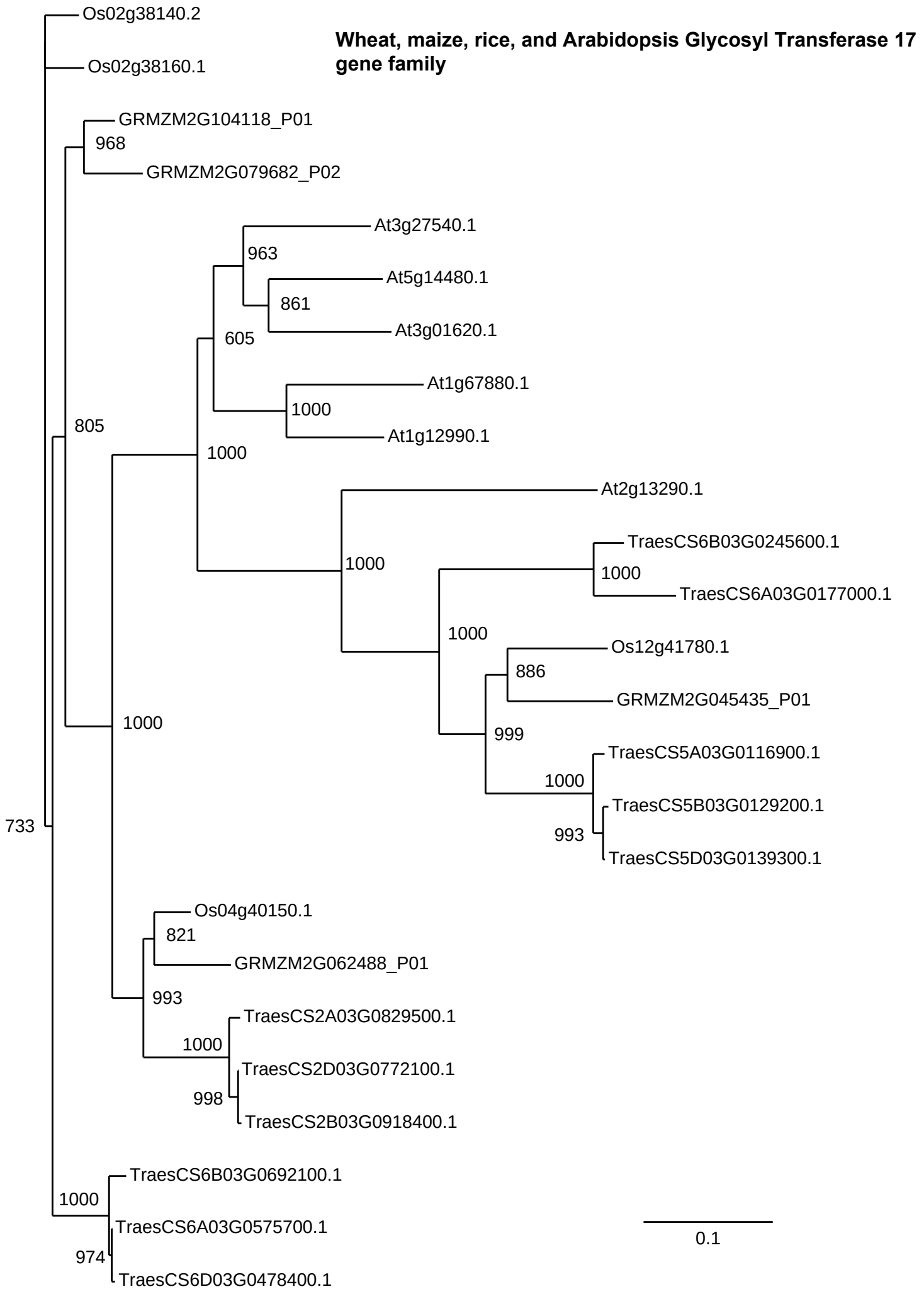
Wheat, maize, rice, and
Arabidopsis Glycosyl
Transferase 16 gene family


Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 17 gene family
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963
At5g14480.1
861
At3g01620.1
605
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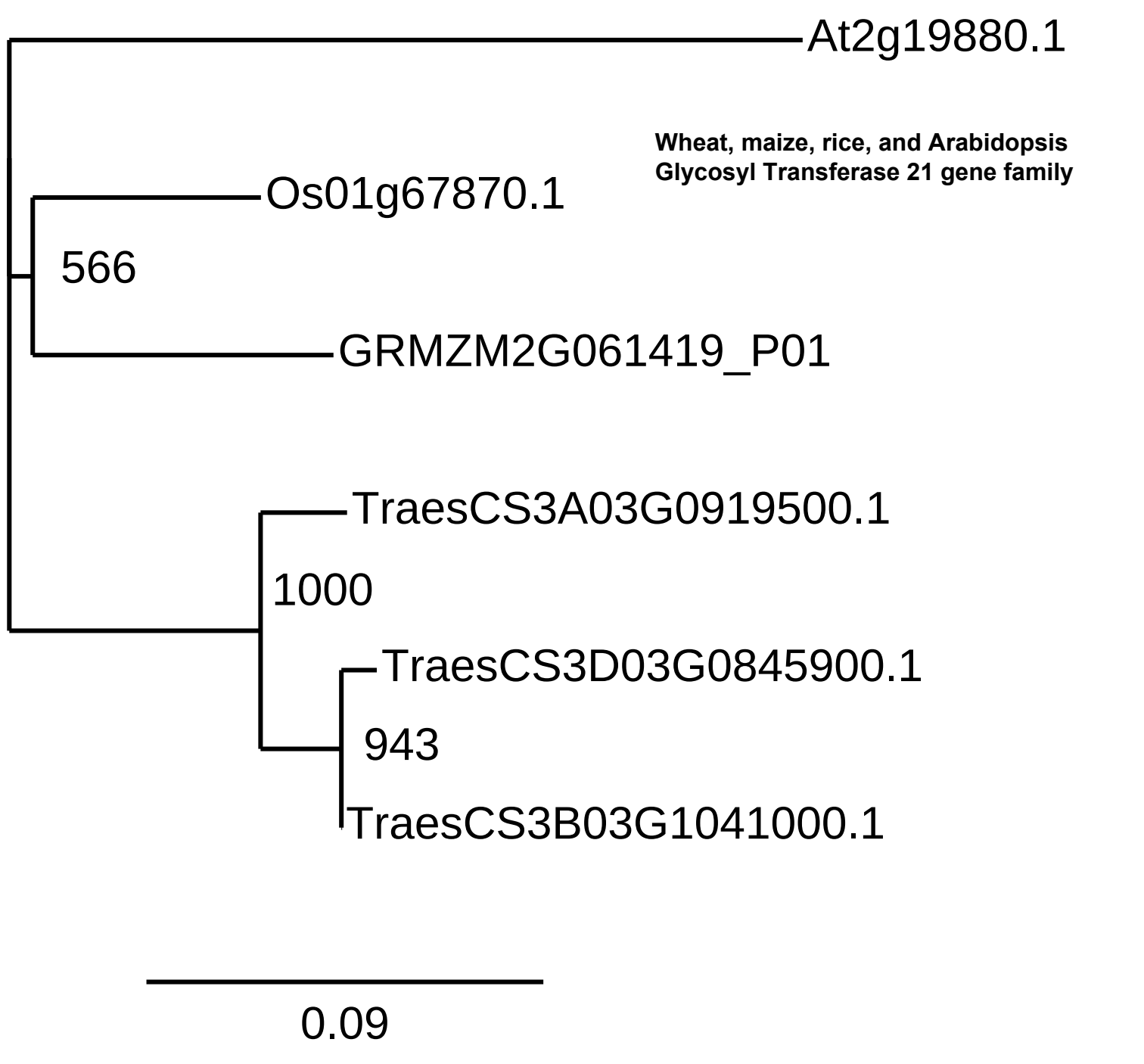
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Wheat, maize, rice, and Arabidopsis
Glycosyl Transferase 21 gene family
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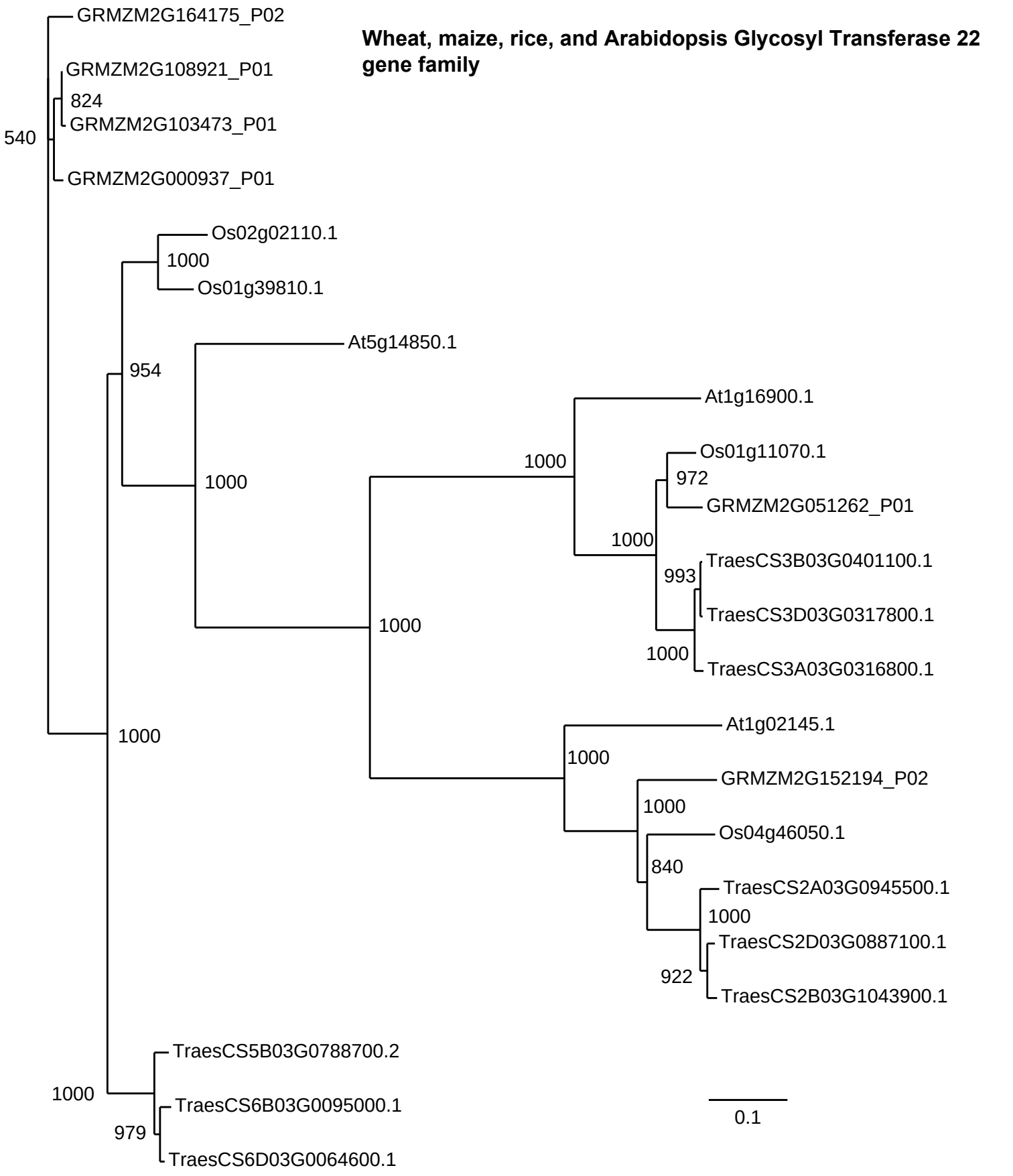
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 22 gene family
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Os04g46050.1
840
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922
TraesCS2B03G1043900.1
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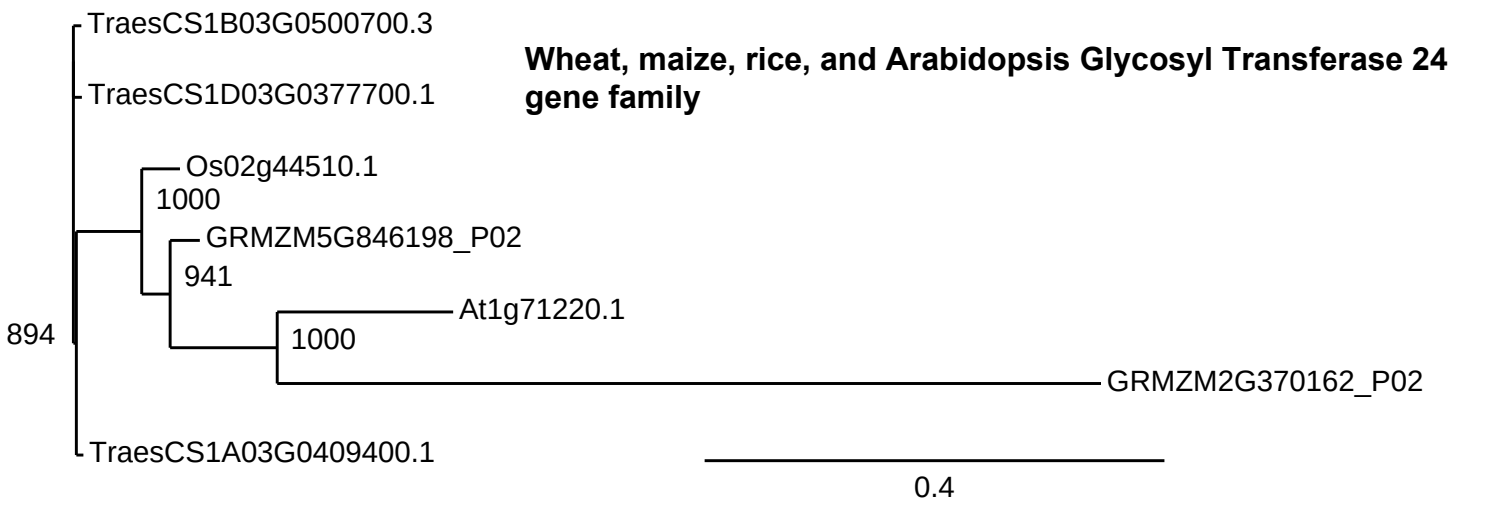
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 24 gene family
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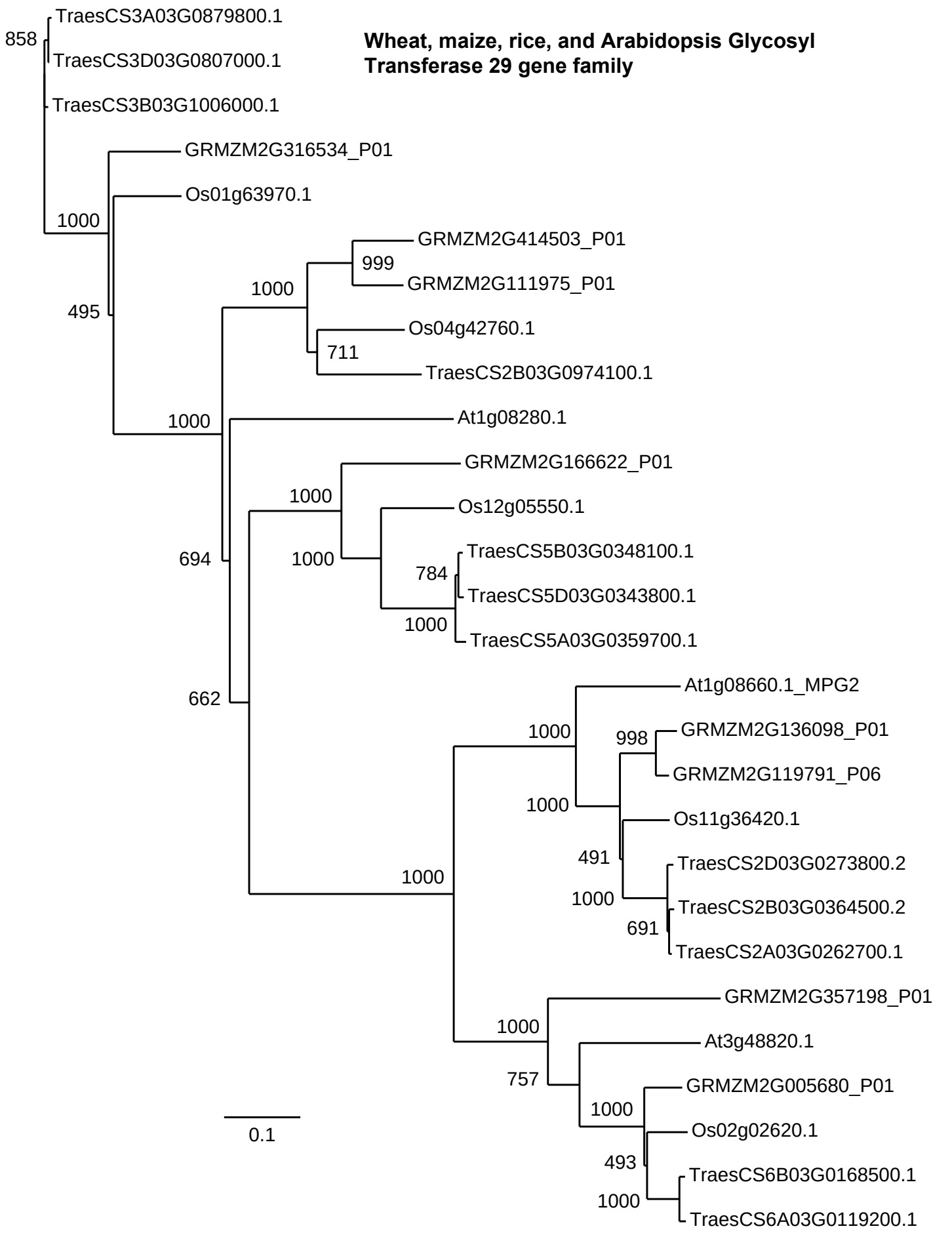
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 29 gene family
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TraesCS3B03G1006000.1
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GRMZM2G414503_P01
999
GRMZM2G111975_P01
1000
495
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711
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At1g08280.1
GRMZM2G166622_P01
1000
Os12g05550.1
694
1000
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784
TraesCS5D03G0343800.1
1000
TraesCS5A03G0359700.1
662
At1g08660.1_MPG2
1000
998
GRMZM2G136098_P01
GRMZM2G119791_P06
1000
Os11g36420.1
491
1000
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1000
TraesCS2B03G0364500.2
691
TraesCS2A03G0262700.1
GRMZM2G357198_P01
1000
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757
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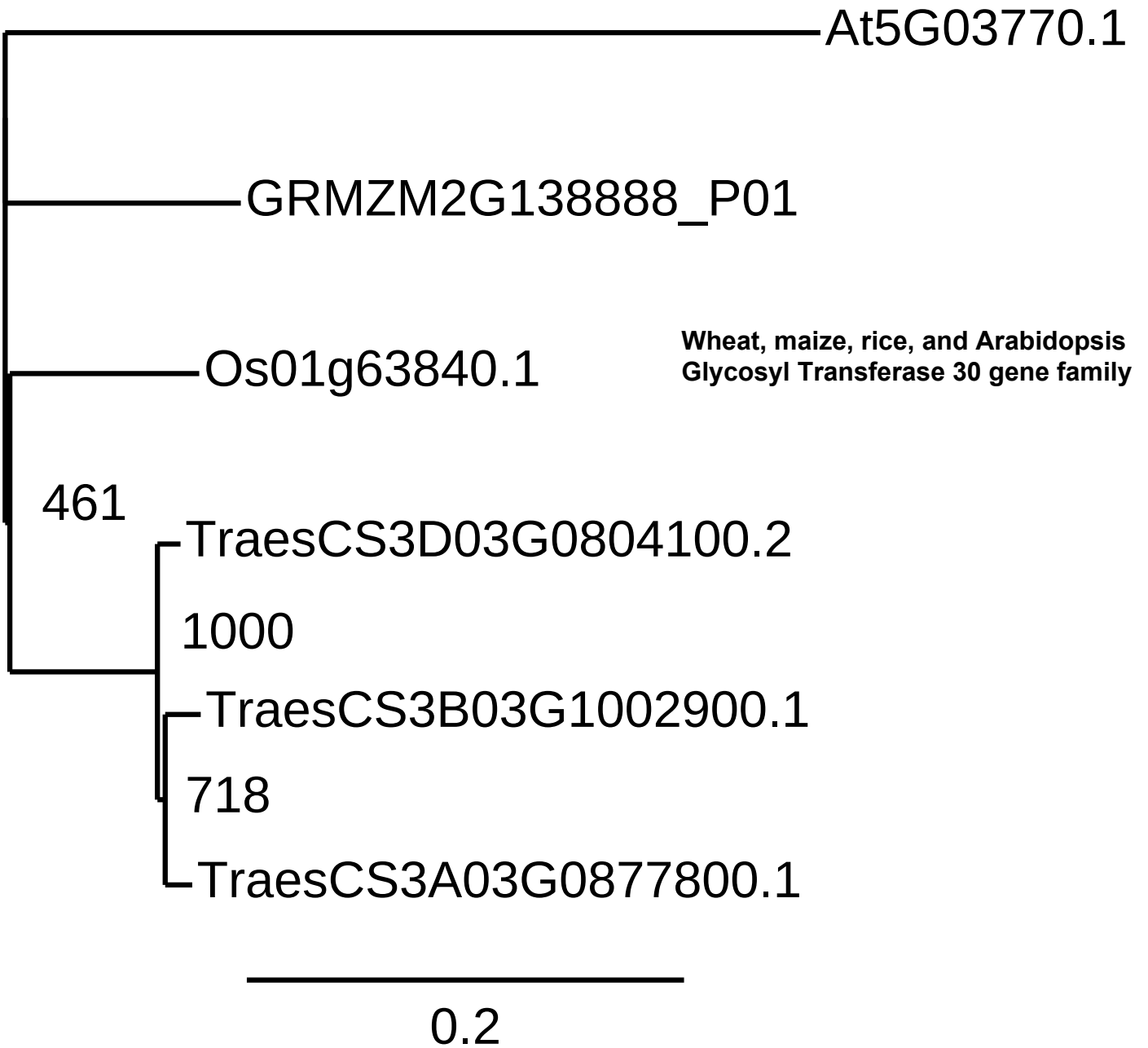
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GRMZM2G138888_P01
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Wheat, maize, rice, and Arabidopsis
Glycosyl Transferase 30 gene family
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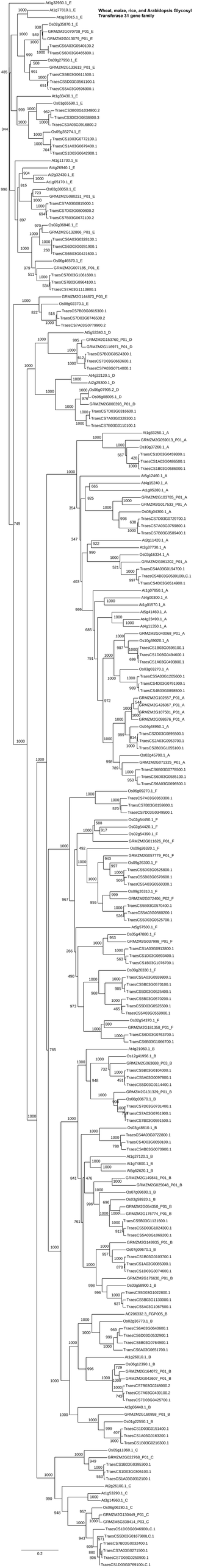
0.2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GRMZM2G013079_P01_E
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TraesCS6D03G0465800.1
Os09g27950.1_E
GRMZM2G113613_P01_E
TraesCS5B03G0611500.1
TraesCS5D03G0561100.1
TraesCS5A03G0596900.1
At1g33430.1_E
Os01g65590.1_E
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TraesCS3D03G0638800.3
TraesCS3A03G0916800.2
Os05g35274.1_E
TraesCS1B03G0772100.1
TraesCS1A03G0679400.1
TraesCS1D03G0642900.1
At1g11730.1_E
At4g26940.1_E
At2g32430.1_E
At1g05170.1_E
Os03g38050.1_E
GRMZM2G088231_P01_E
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TraesCS7D03G0800800.2
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At1g05280.1_A
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GRMZM2G017533_P01_A
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TraesCS7B03G0589400.1
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Os03g16334.1_A
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At4g00300.1_A
At1g10570.1_A
At5g41460.1_A
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At4g11350.1_A
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GRMZM2G107501_P01_A
GRMZM2G098676_P01_A
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At1g53290.1_C
At3g14960.1_C
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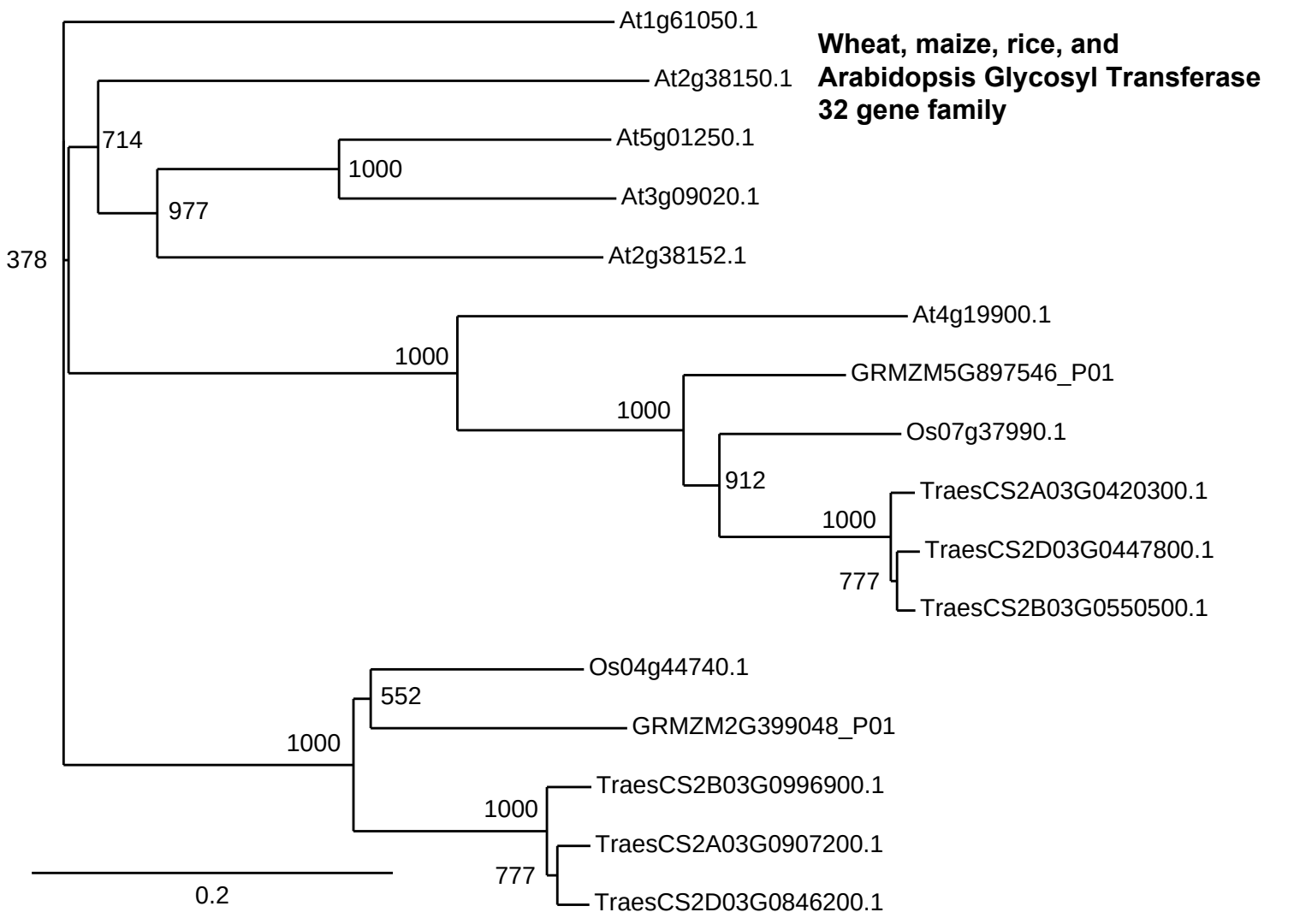
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Os07g37990.1
TraesCS2A03G0420300.1
TraesCS2D03G0447800.1
TraesCS2B03G0550500.1
Os04g44740.1
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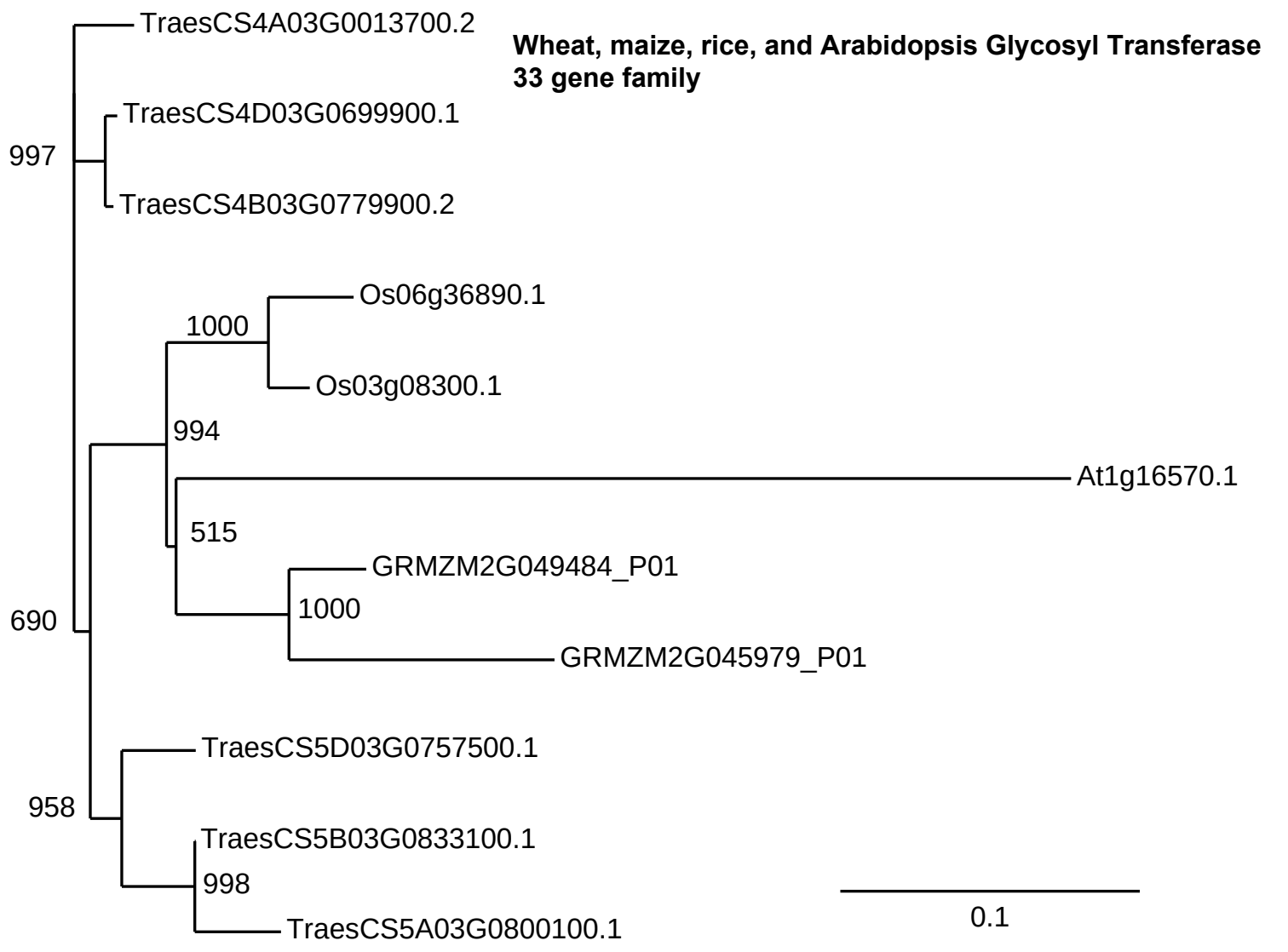
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 33 gene family
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994
At1g16570.1
515
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690
GRMZM2G045979_P01
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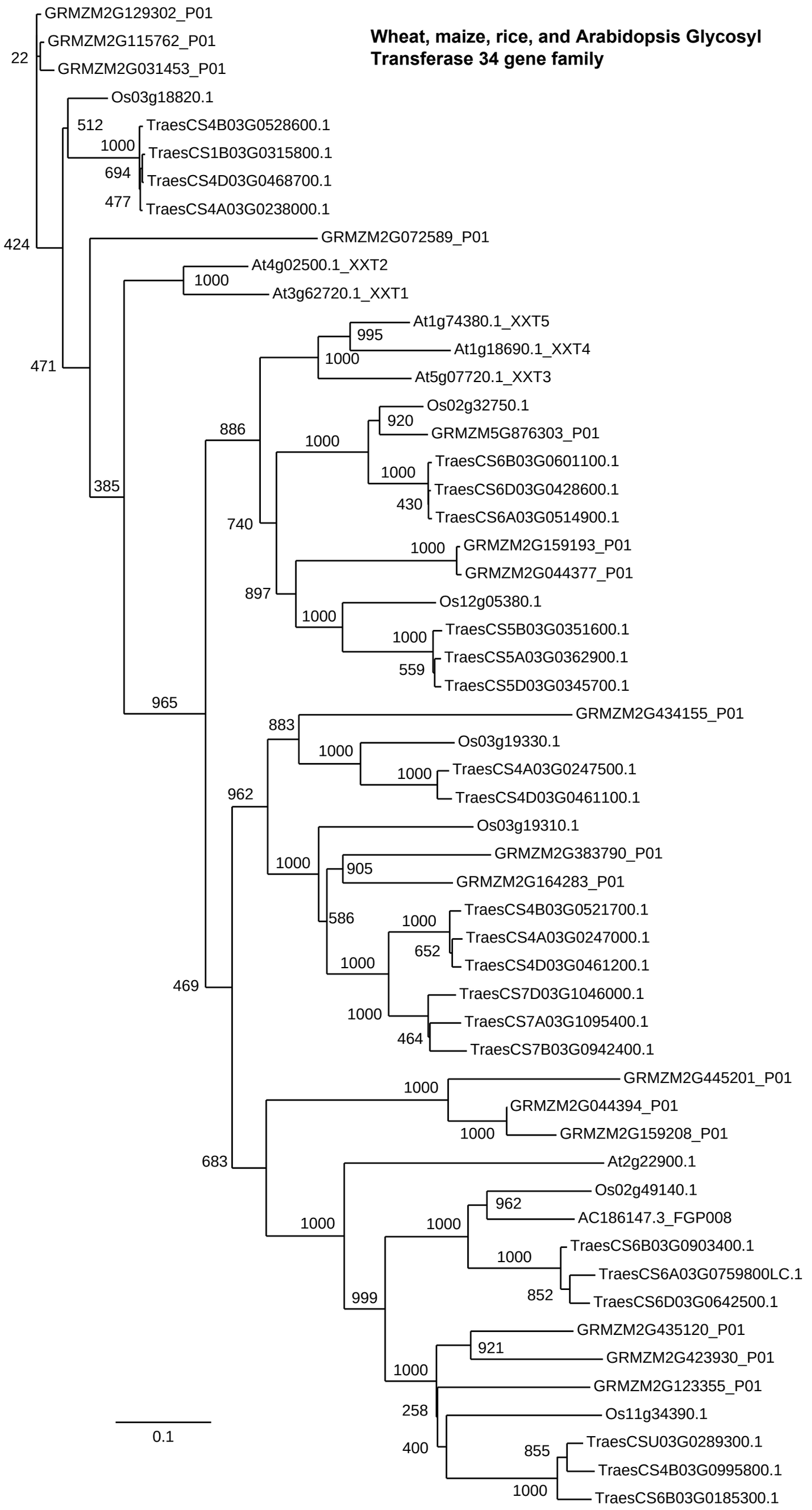
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 34 gene family
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GRMZM2G123355_P01
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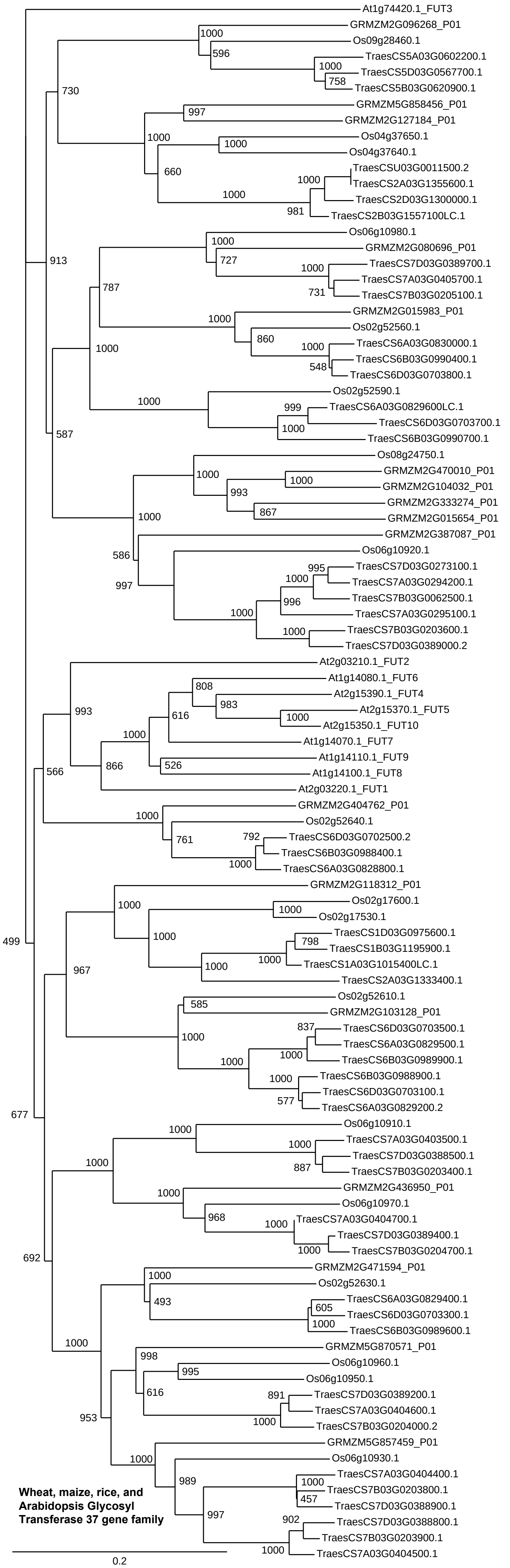
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At1g14110.1_FUT9
At1g14100.1_FUT8
At2g03220.1_FUT1
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TraesCS7A03G0404600.1
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Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 37 gene family
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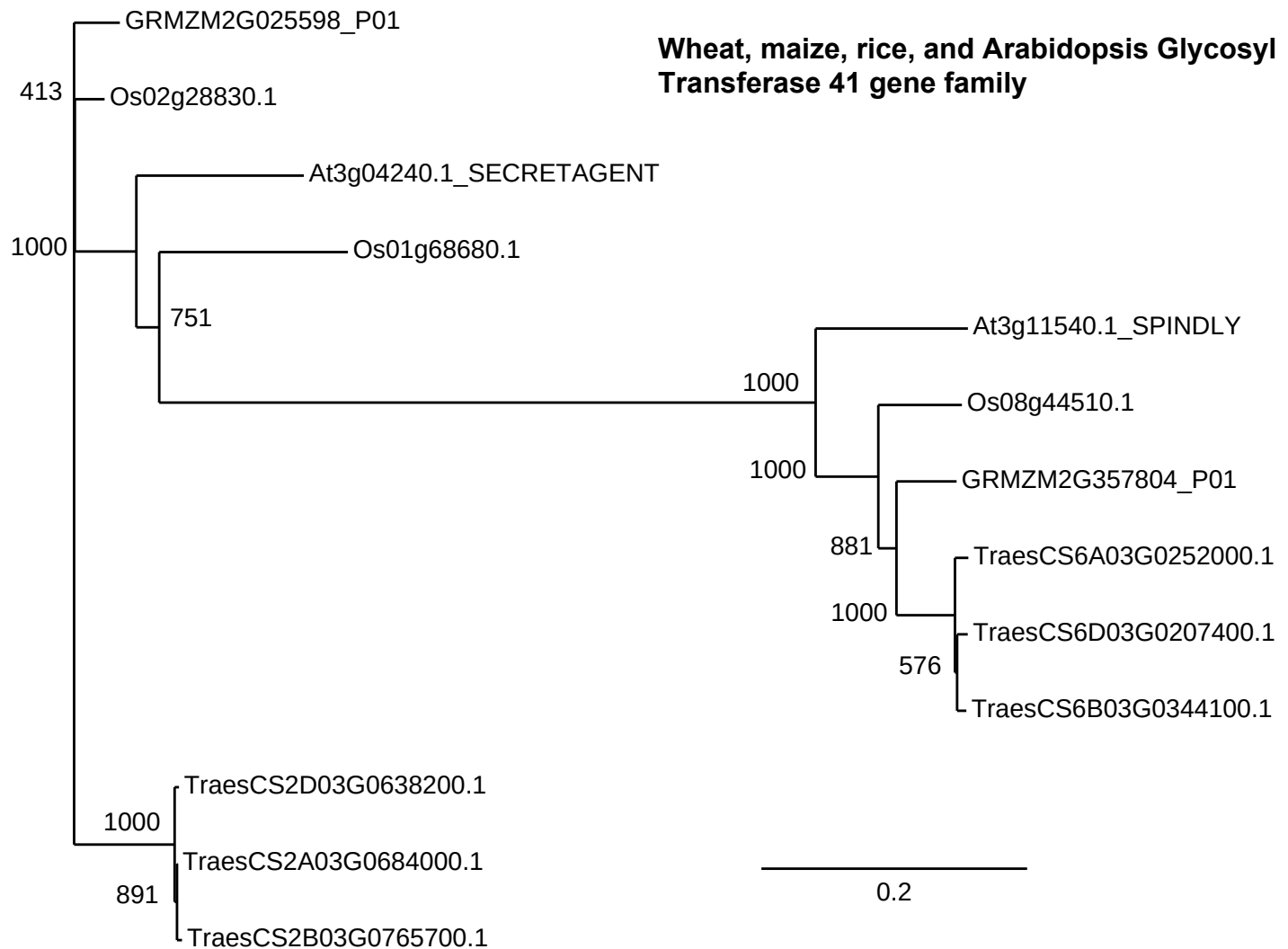
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 41 gene family
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At3g11540.1_SPINDLY
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TraesCS2D03G0638200.1
1000
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0.2

Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 43 gene family

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GRMZM2G001079_P02
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TraesCS2B03G1353400.1
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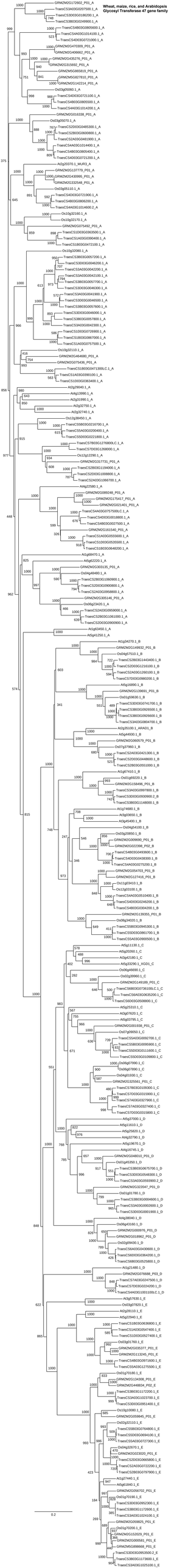
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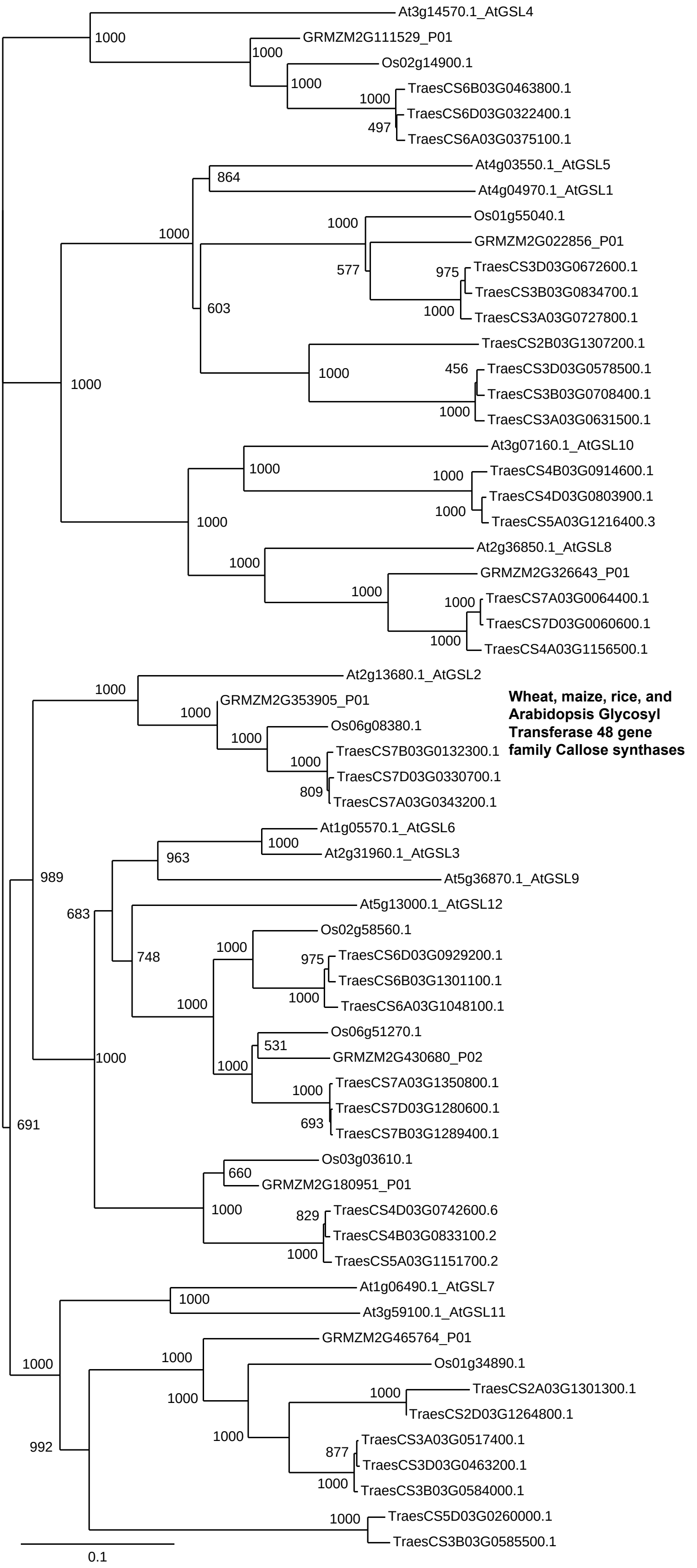
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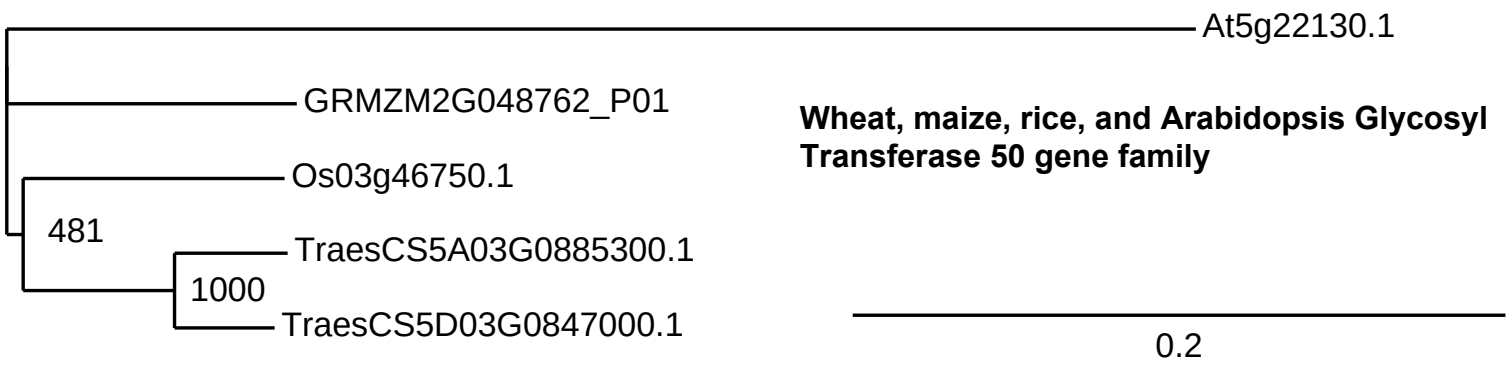
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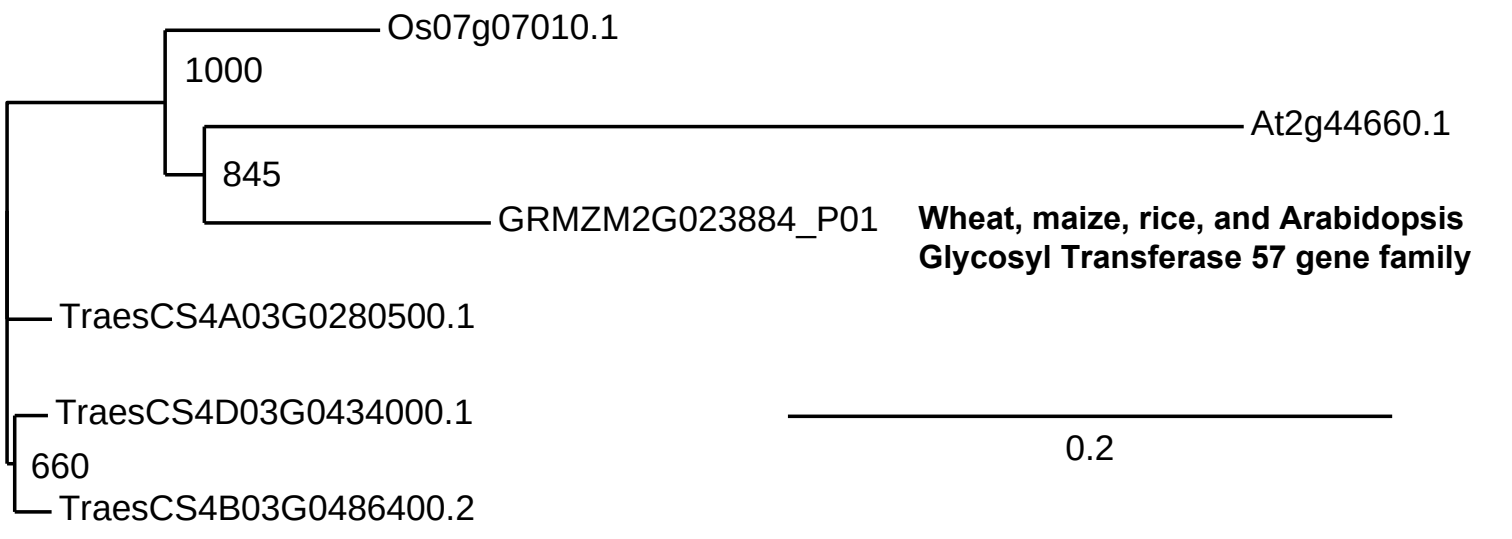
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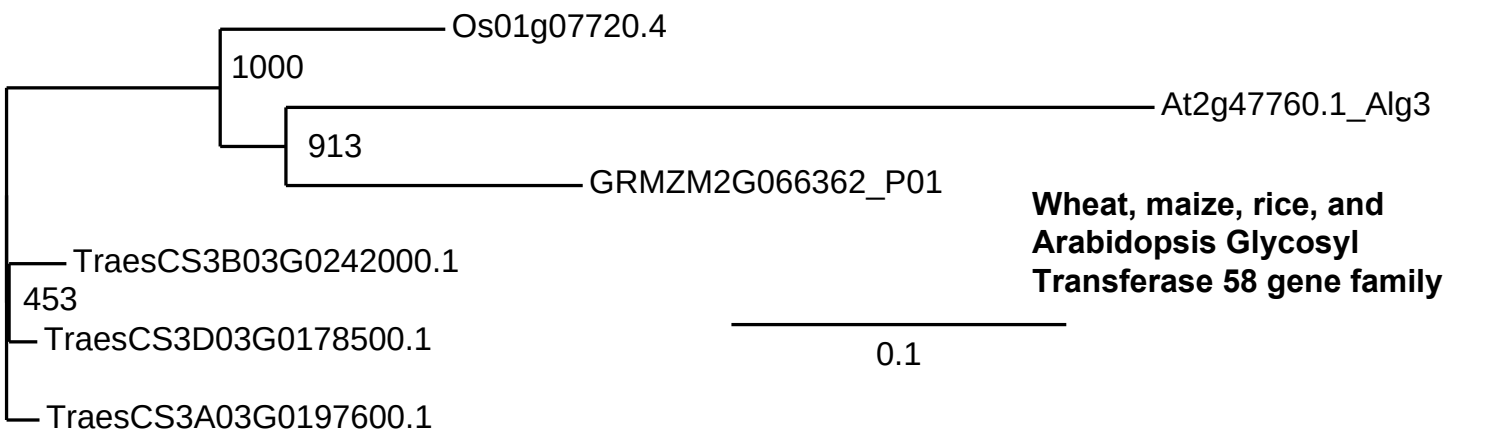
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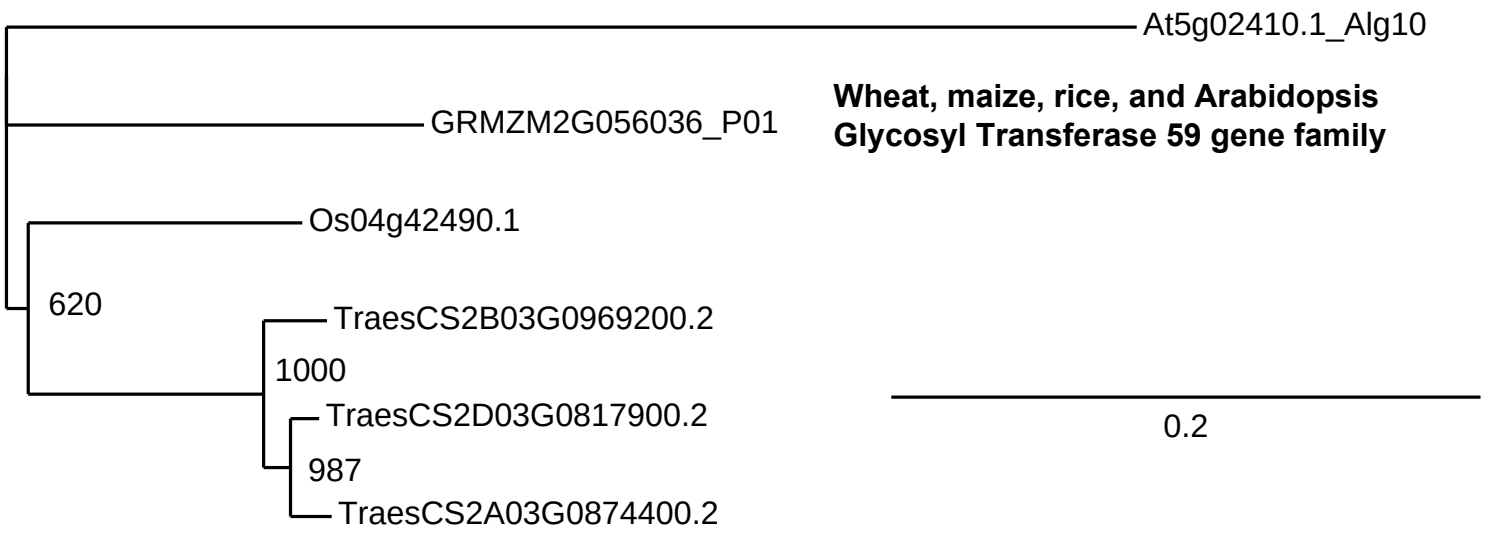
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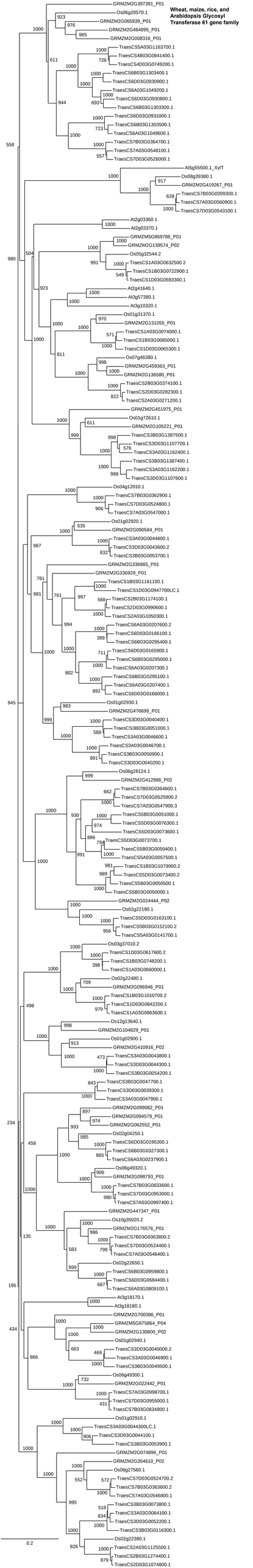
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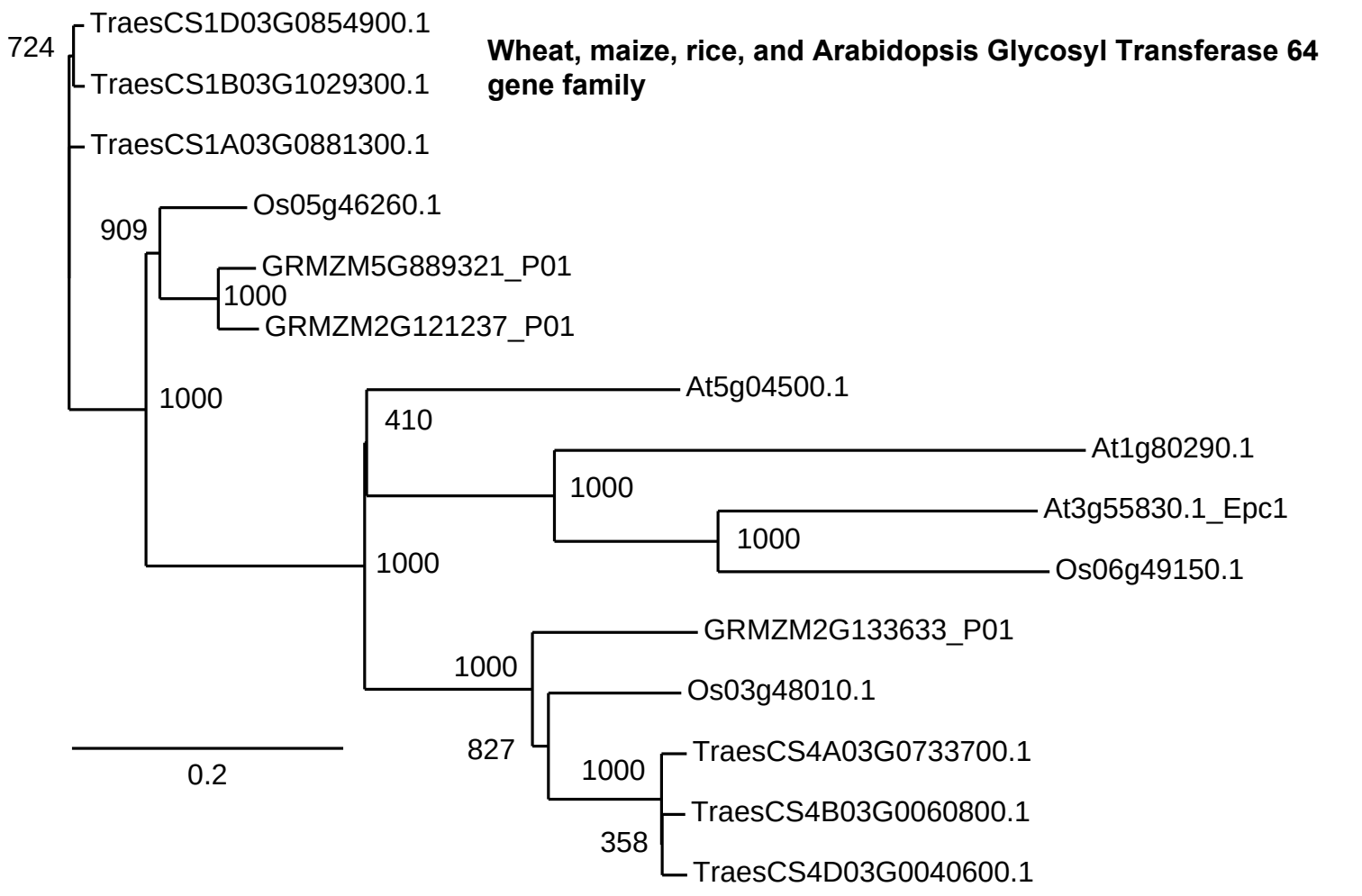
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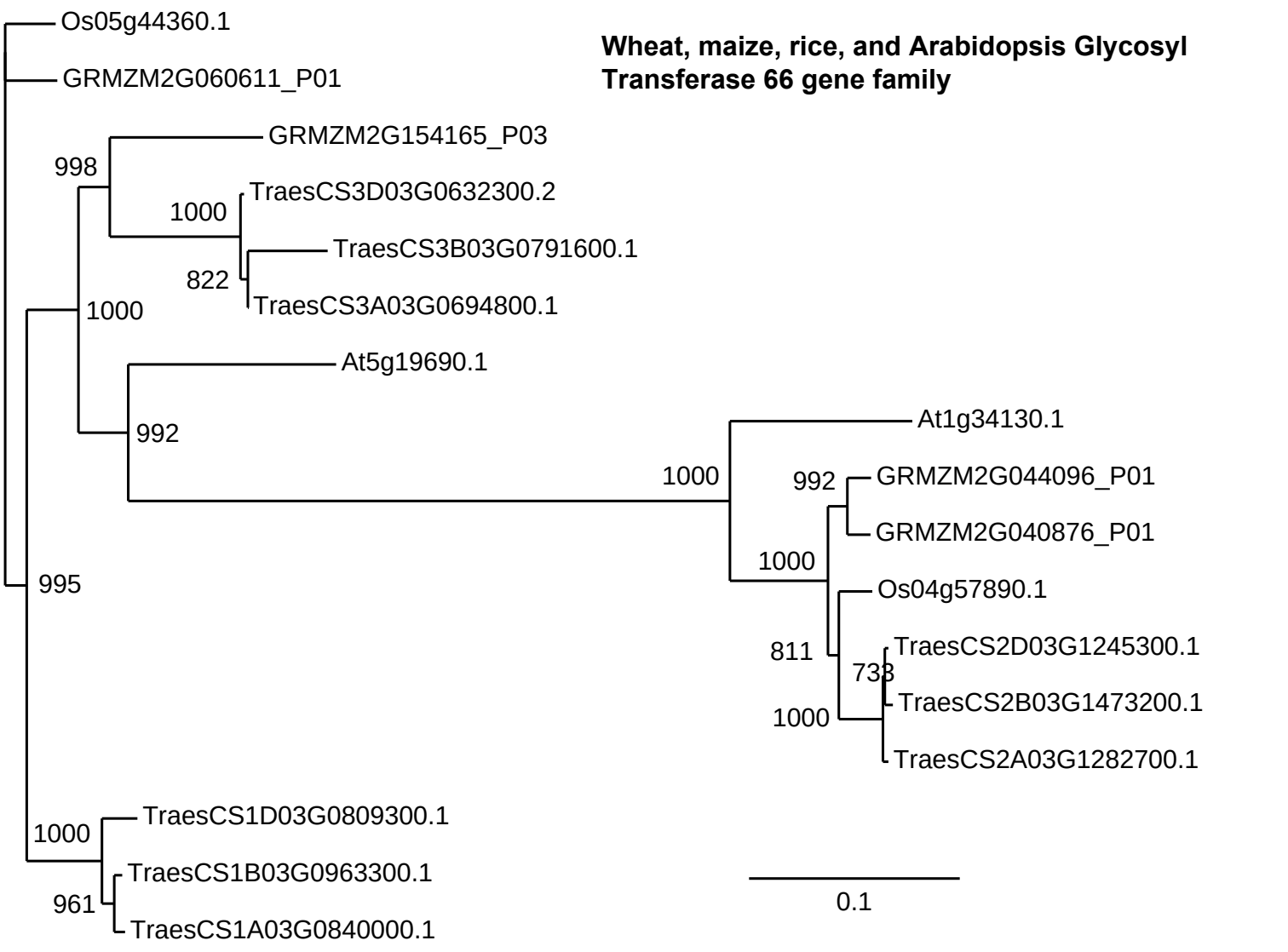
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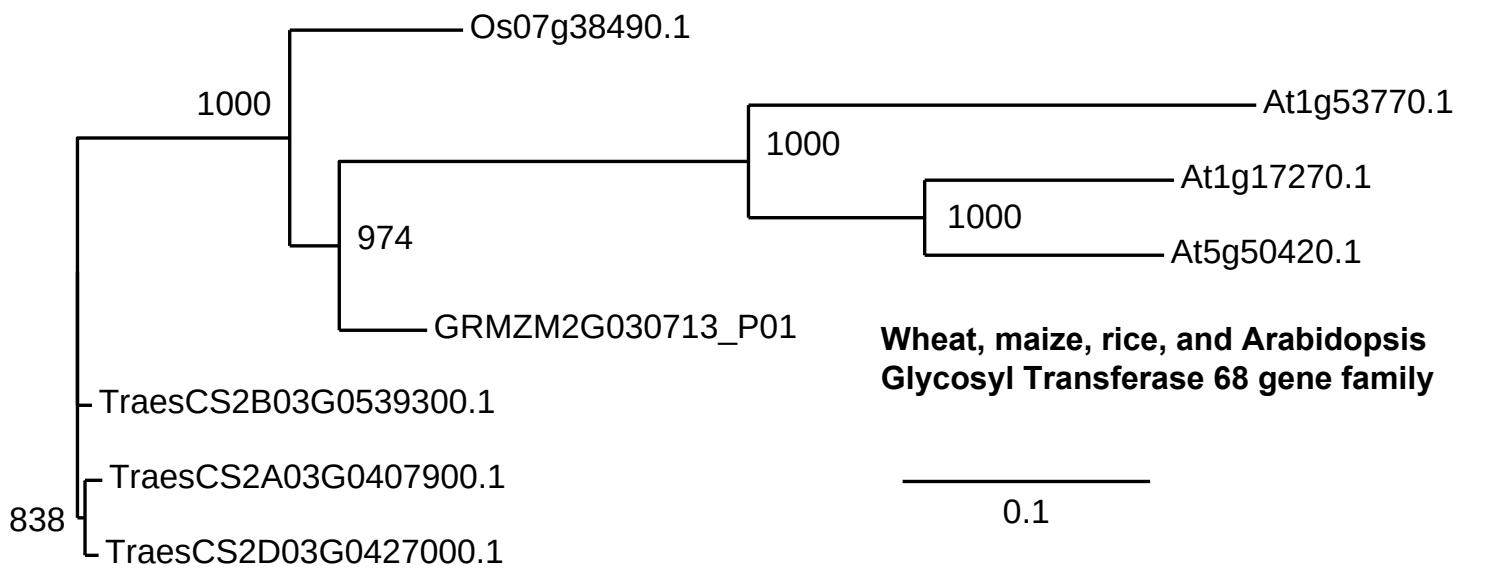
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Wheat, maize, rice, and Arabidopsis
Glycosyl Transferase 68 gene family
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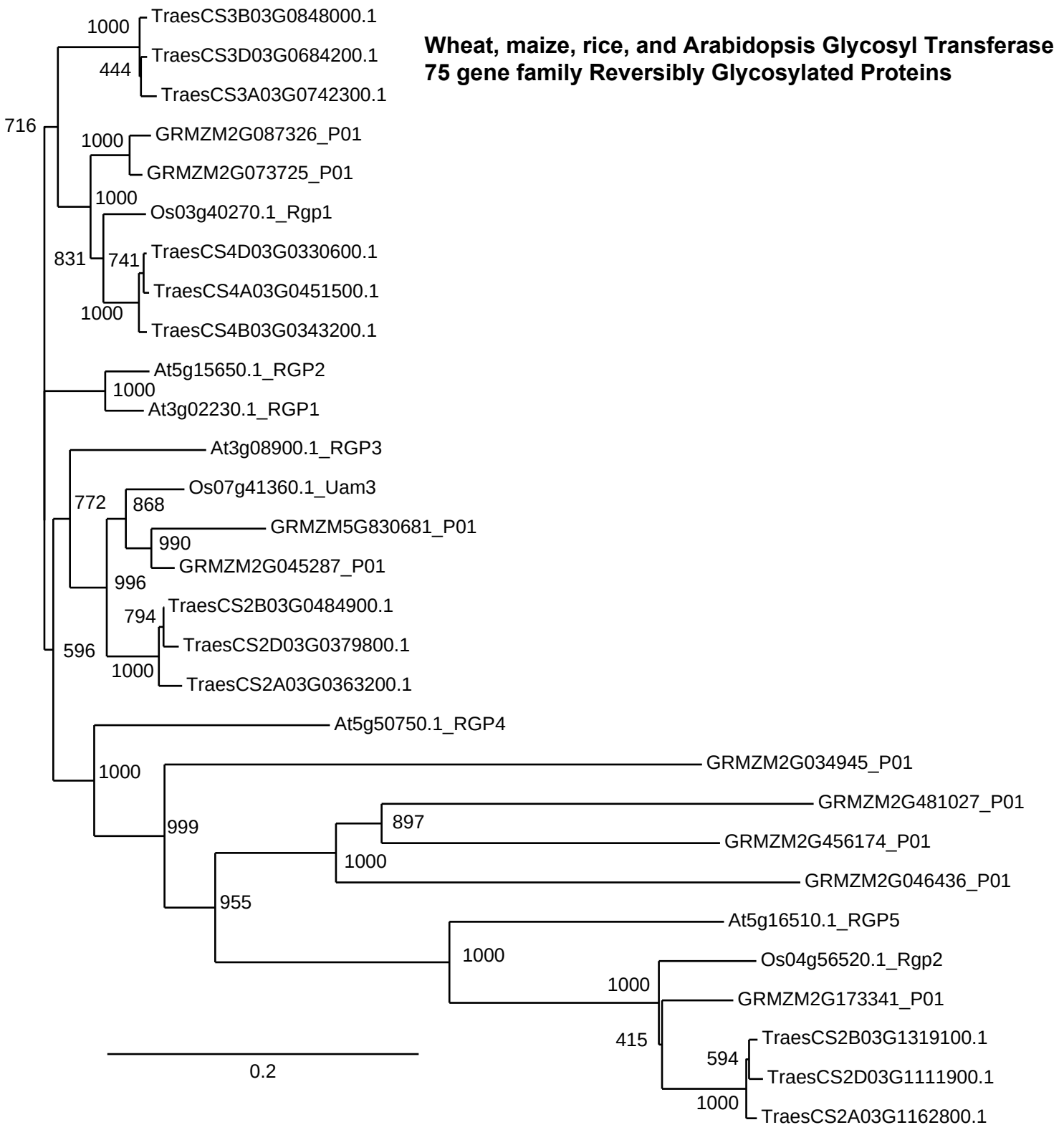
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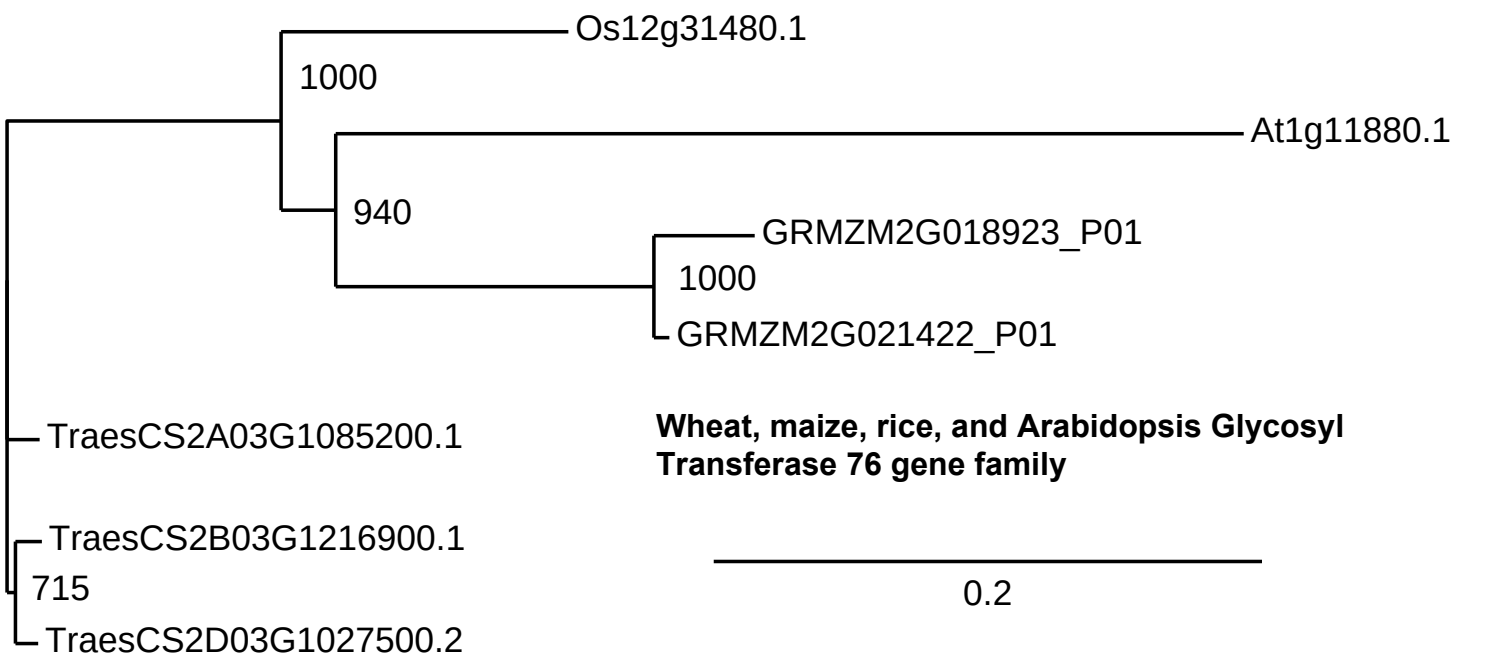
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Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 76 gene family
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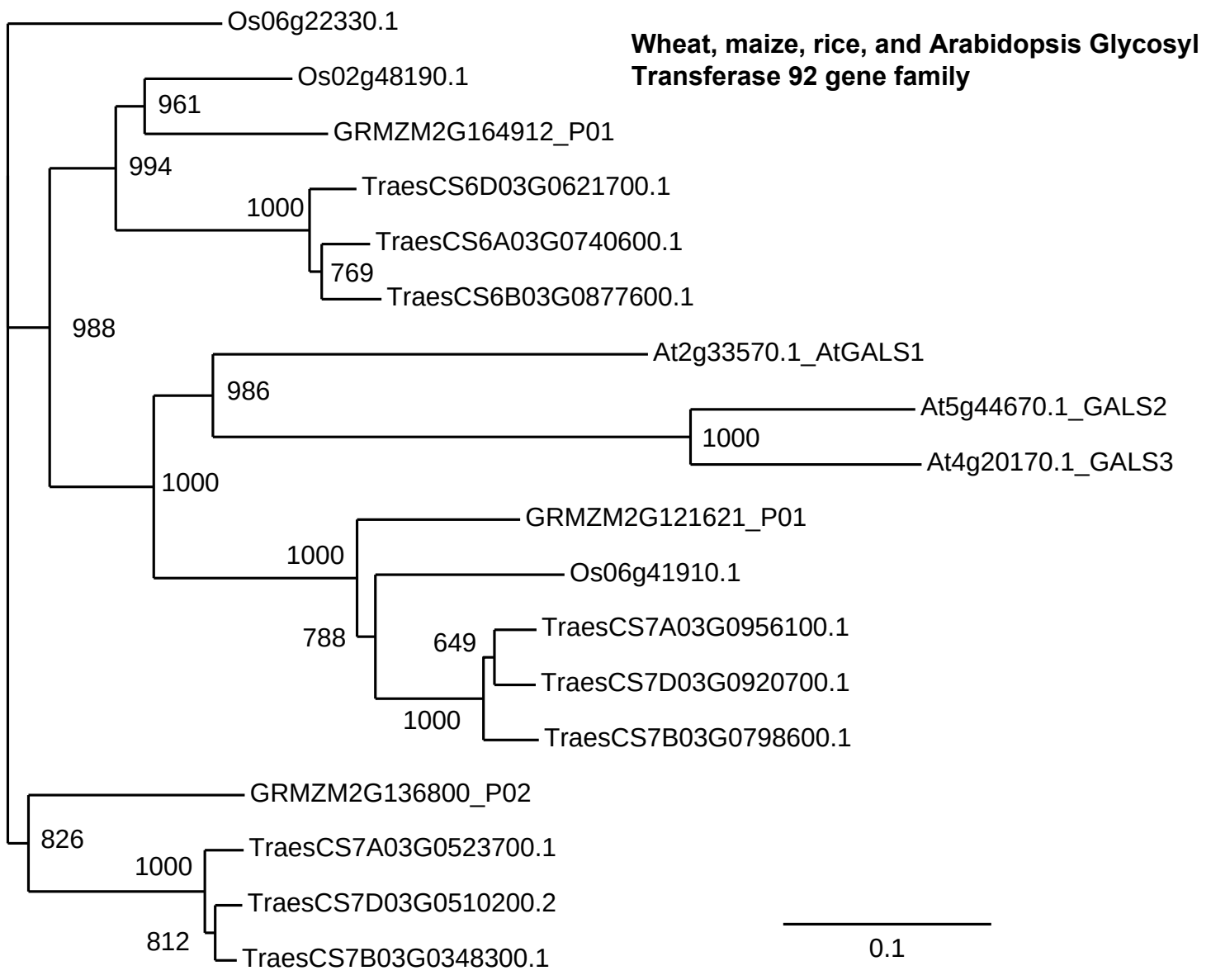
Wheat, maize, rice, and Arabidopsis Glycosyl Transferase 77 gene family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988
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GRMZM2G121621_P01
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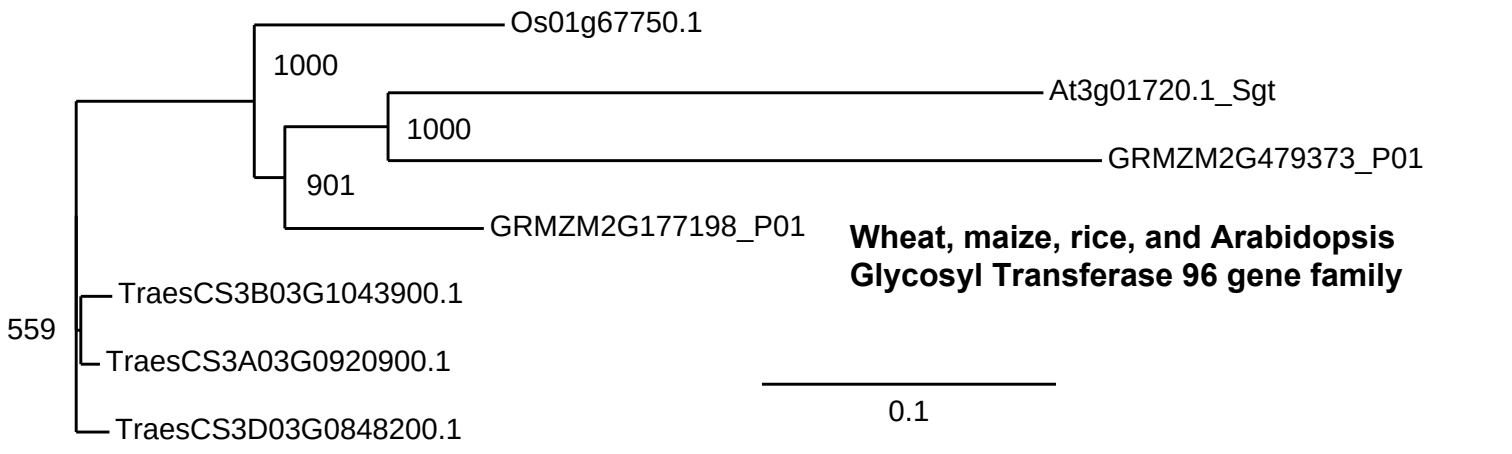
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Wheat, maize, rice, and Arabidopsis
Glycosyl Transferase 96 gene family
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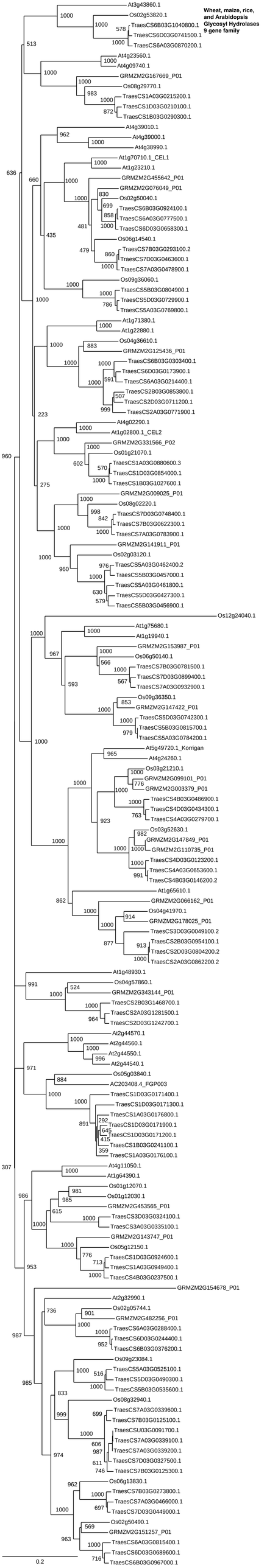
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TraesCS6A03G0870200.1
At4g23560.1
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GRMZM2G167669_P01
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TraesCS1A03G0215200.1
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At4g39010.1
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At4g38990.1
At1g70710.1_CEL1
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TraesCS7B03G0293100.2
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TraesCS2D03G0711200.1
TraesCS2A03G0771900.1
At4g02290.1
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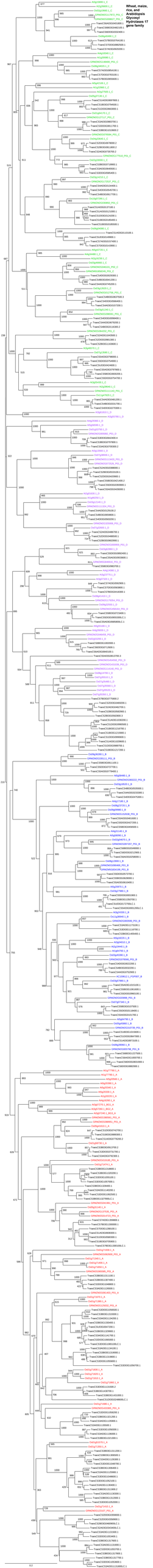
Wheat, maize, rice, and Arabidopsis Glycosyl Hydrolases 16 gene family endo-beta-transglucosylase/ hydrolases (XTHs)


Wheat, maize, rice, and Arabidopsis Glycosyl Hydrolases 17 gene family

Wheat, maize, rice, and Arabidopsis Glycosyl Hydrolase 18 gene family Yieldins



Wheat, maize, rice, and Arabidopsis Glycosyl Hydrolases 28 Group A gene family Polygalacturonases

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At4g23820.1
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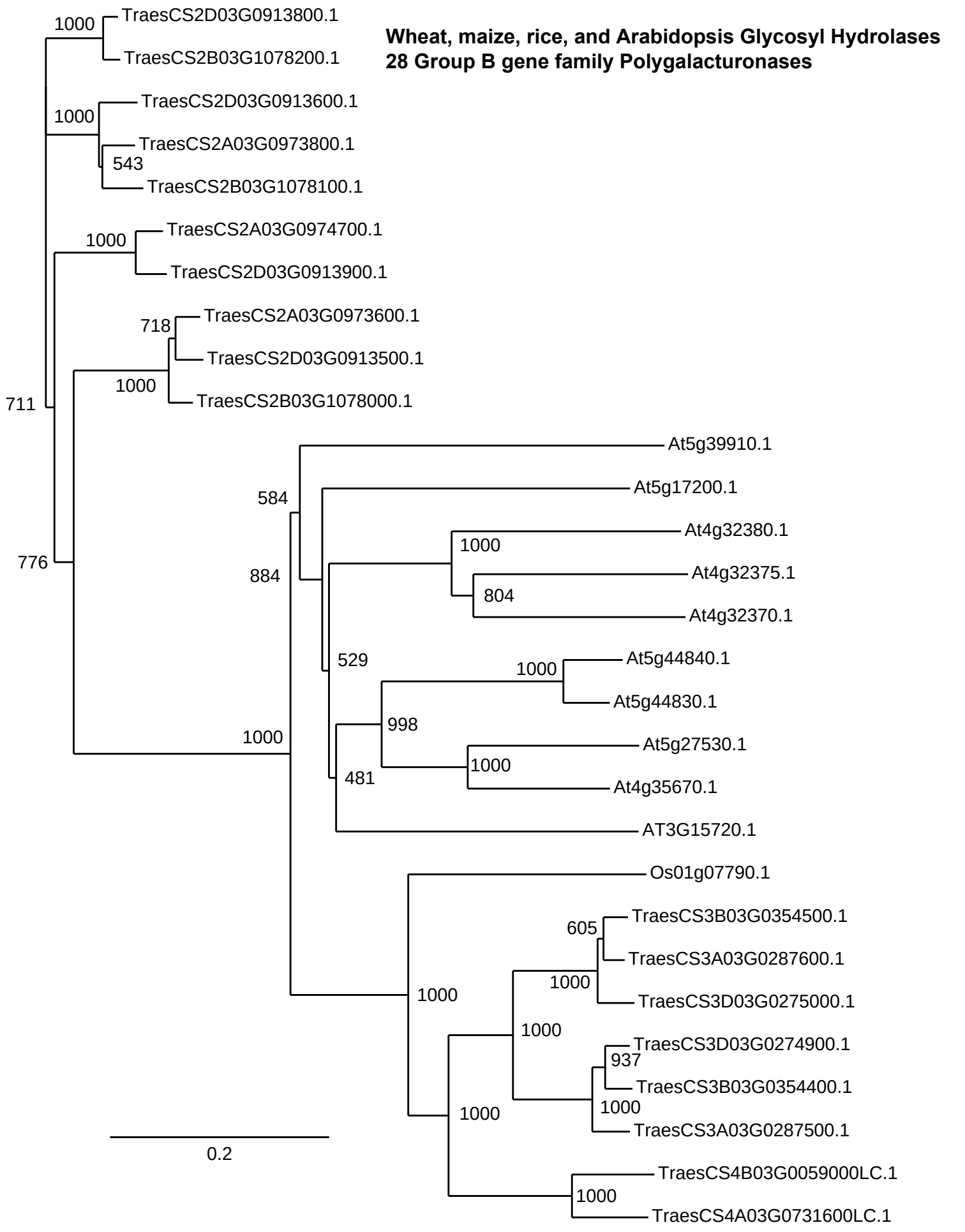
Wheat, maize, rice, and Arabidopsis Glycosyl Hydrolases 28 Group B gene family Polygalacturonases
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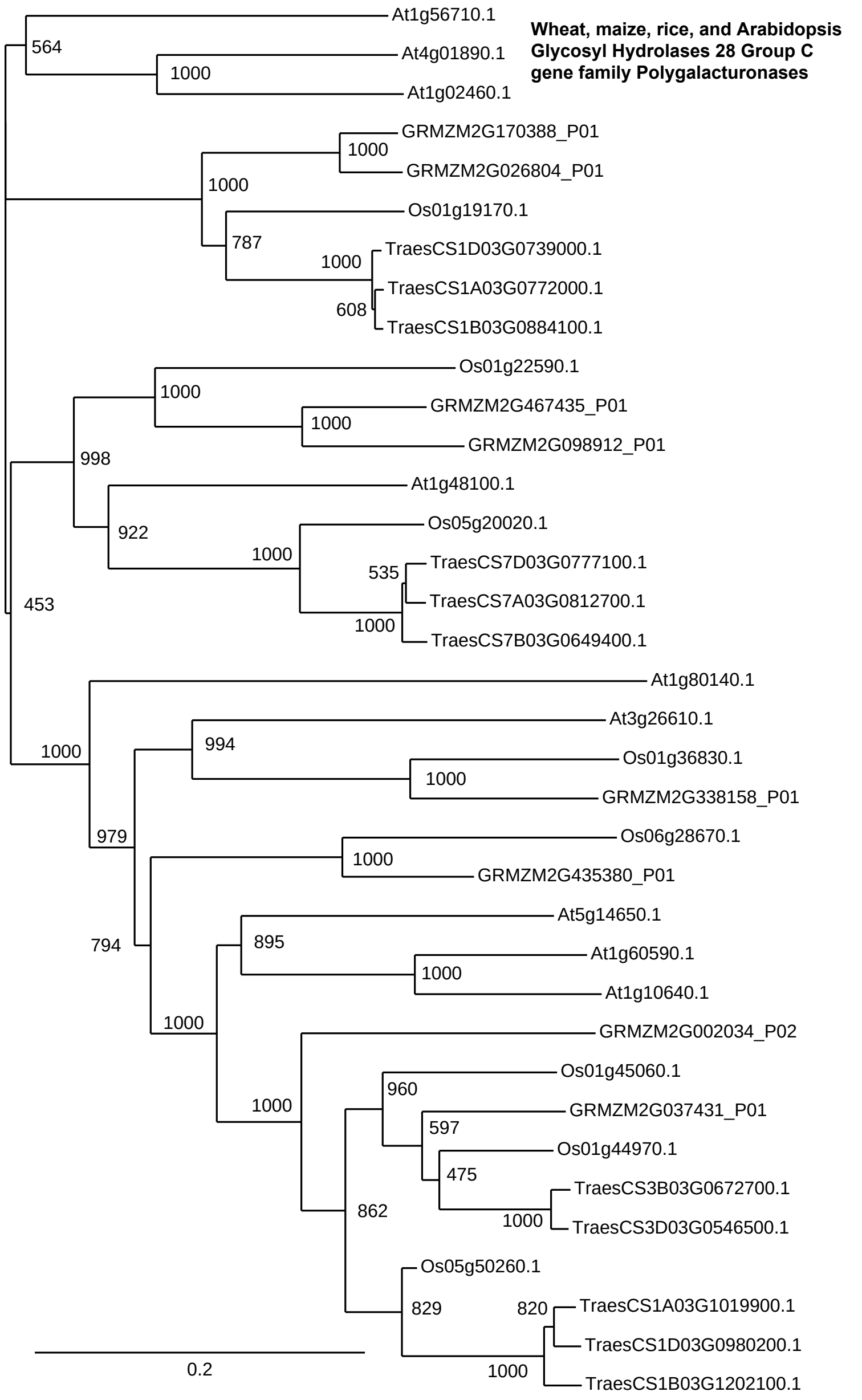
Wheat, maize, rice, and Arabidopsis
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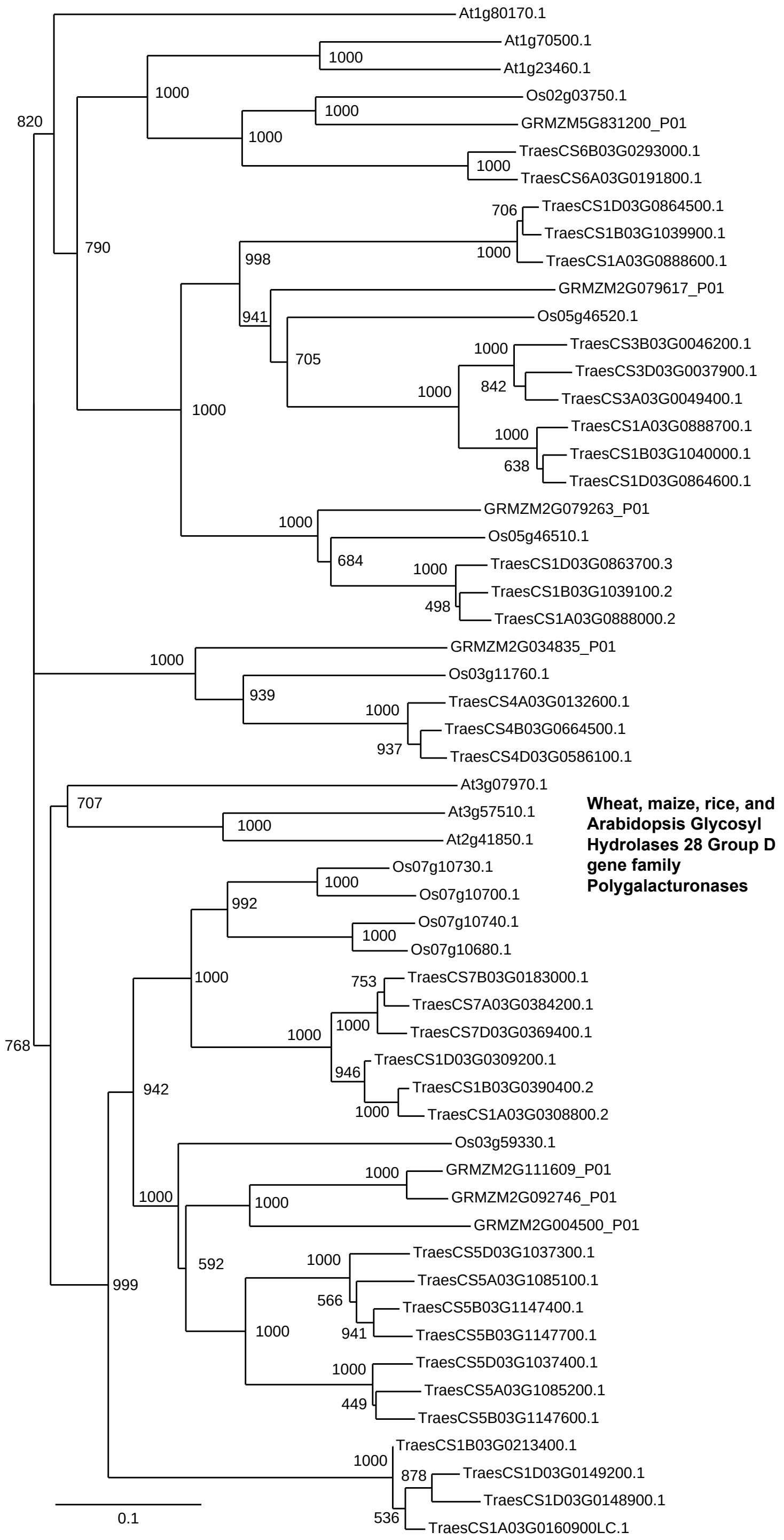
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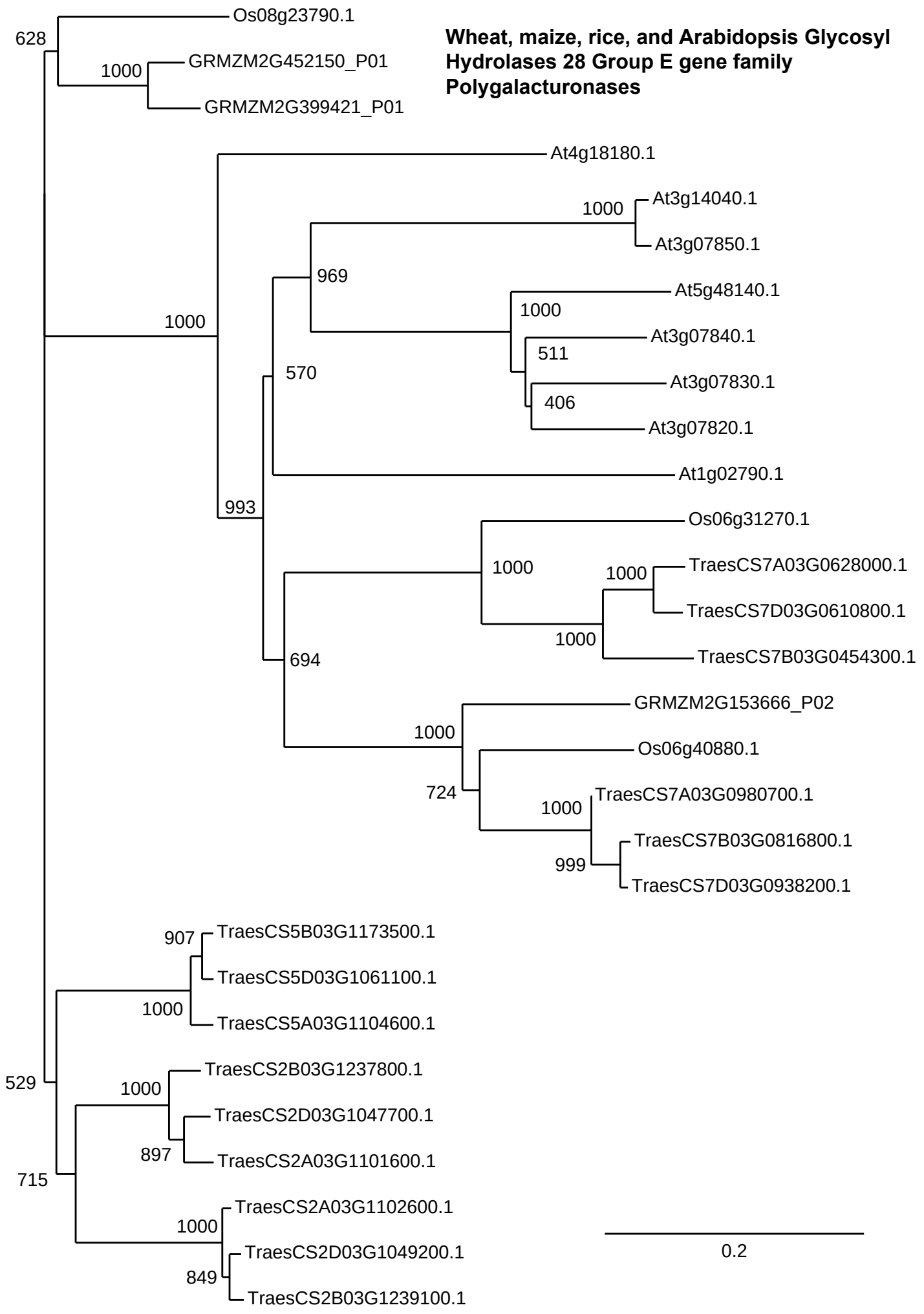
Wheat, maize, rice, and Arabidopsis Glycosyl Hydrolases 28 Group D gene family Polygalacturonases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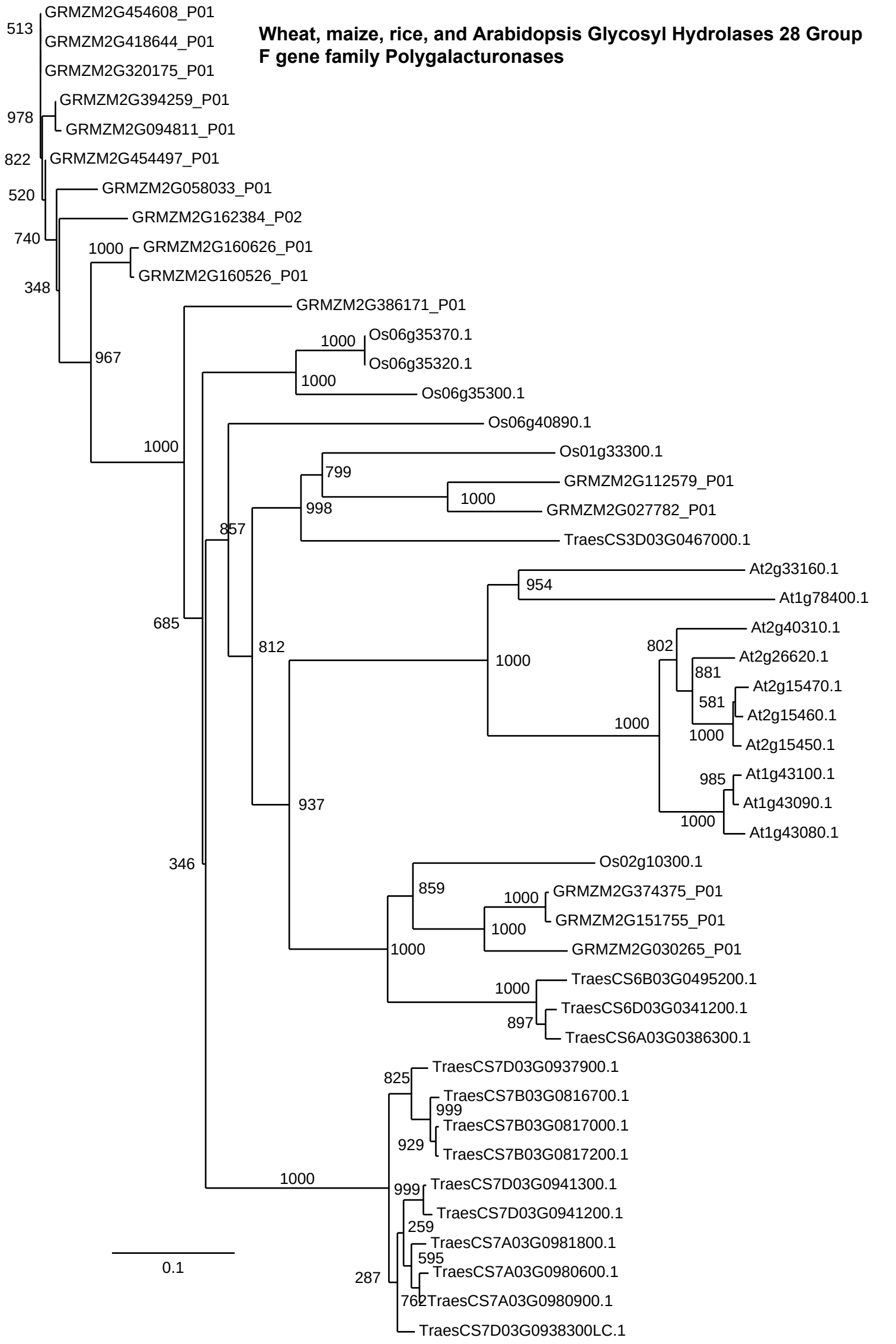
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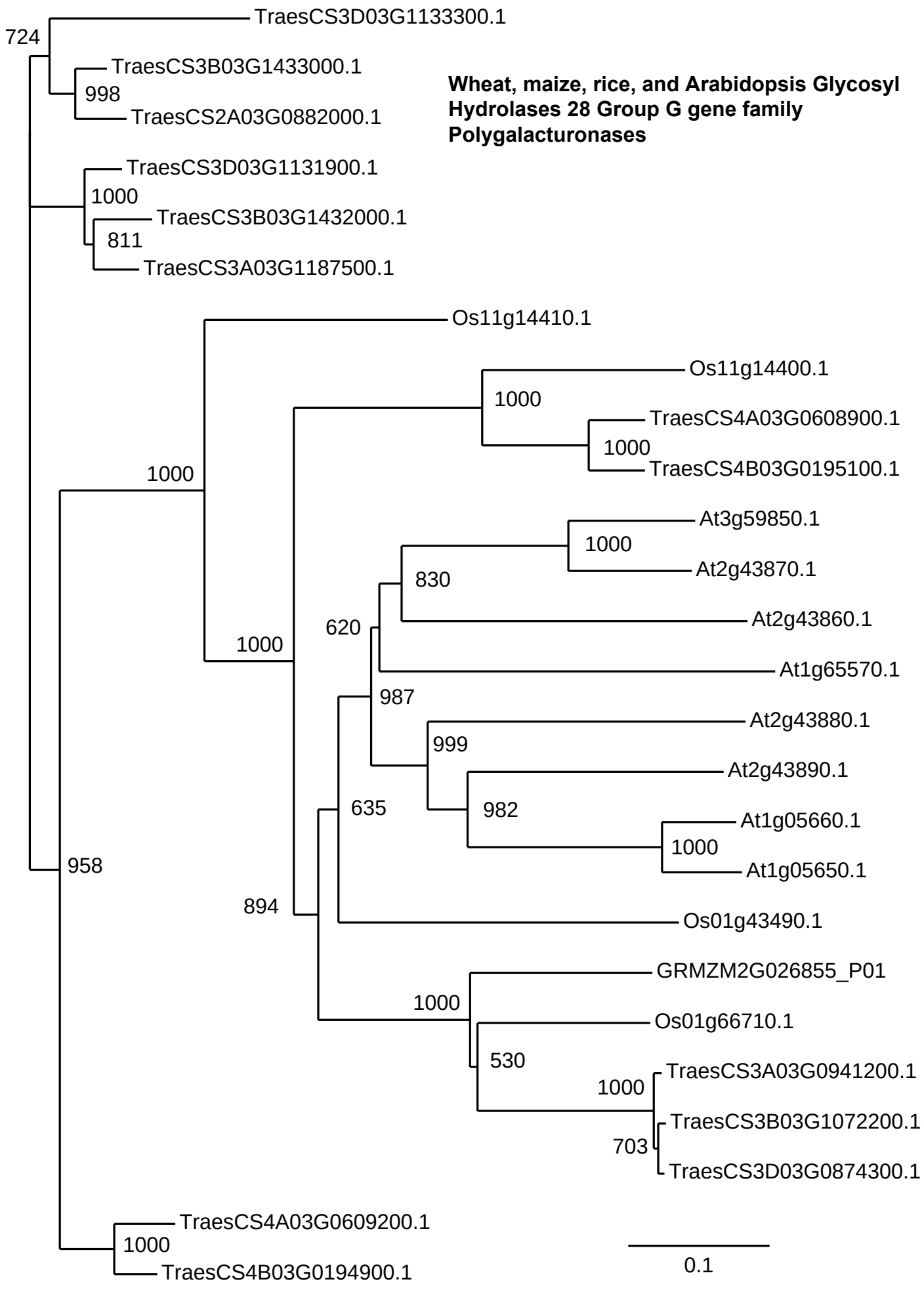
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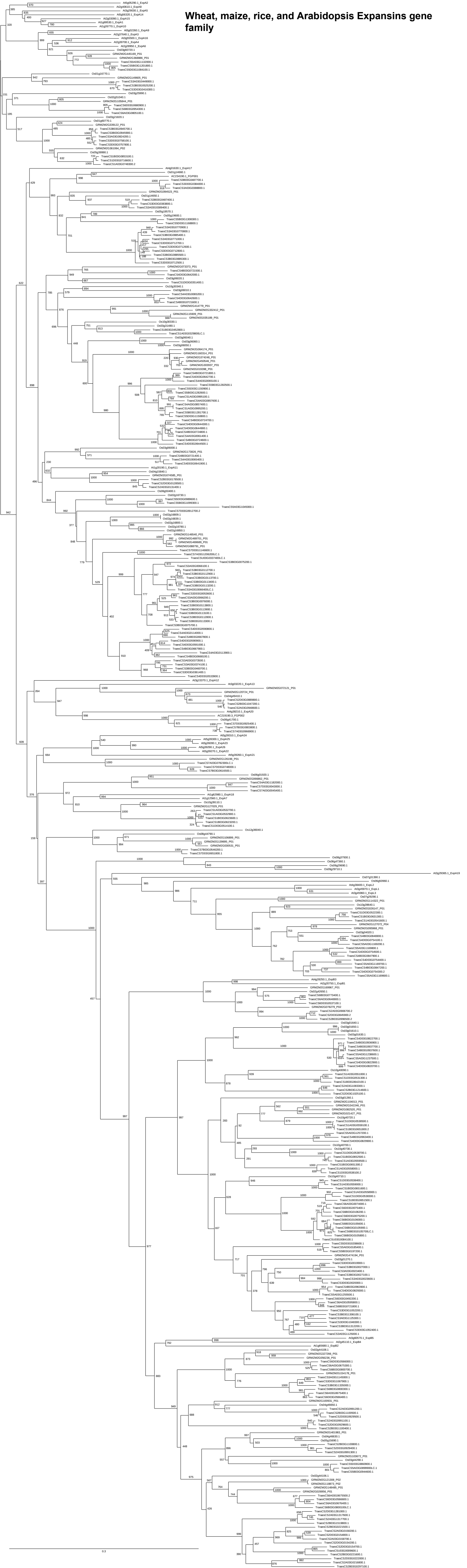
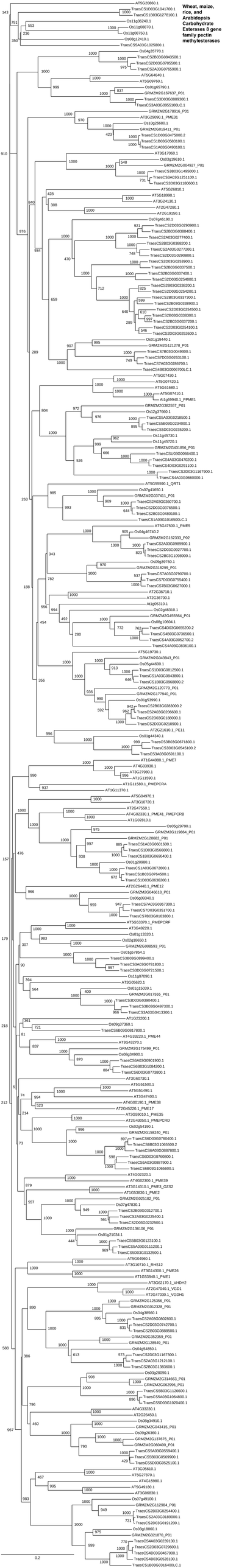
Wheat, maize, rice, and Arabidopsis Expansins gene family

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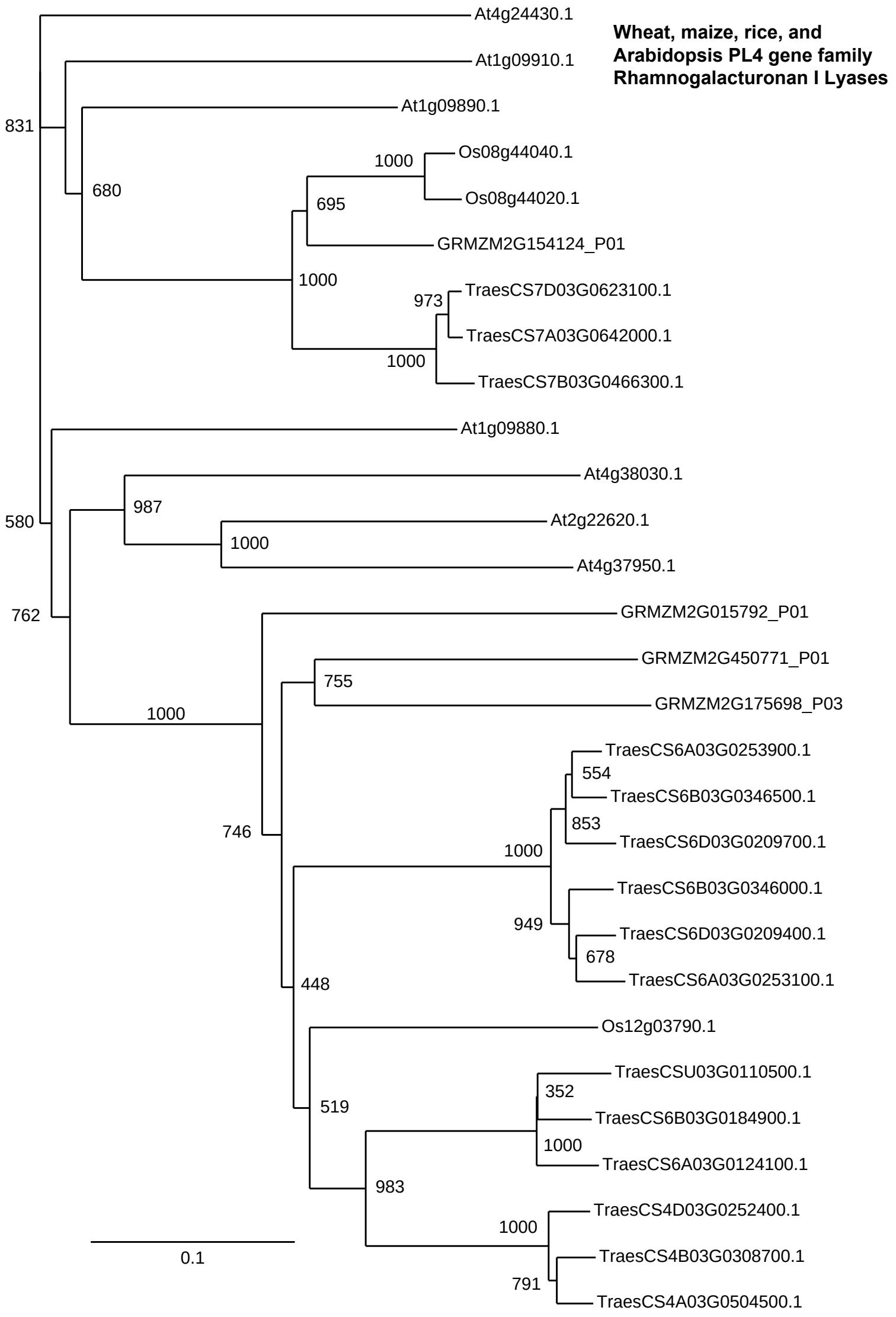
Wheat, maize, rice, and Arabidopsis Carbohydrate Esterases 13 gene family pectin acetylesterases

Wheat, maize, rice, and Arabidopsis PL1 gene family
Pectate and Pectin Lyases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Wheat, maize, rice, and Arabidopsis prolyl-4-hydroxylases gene family

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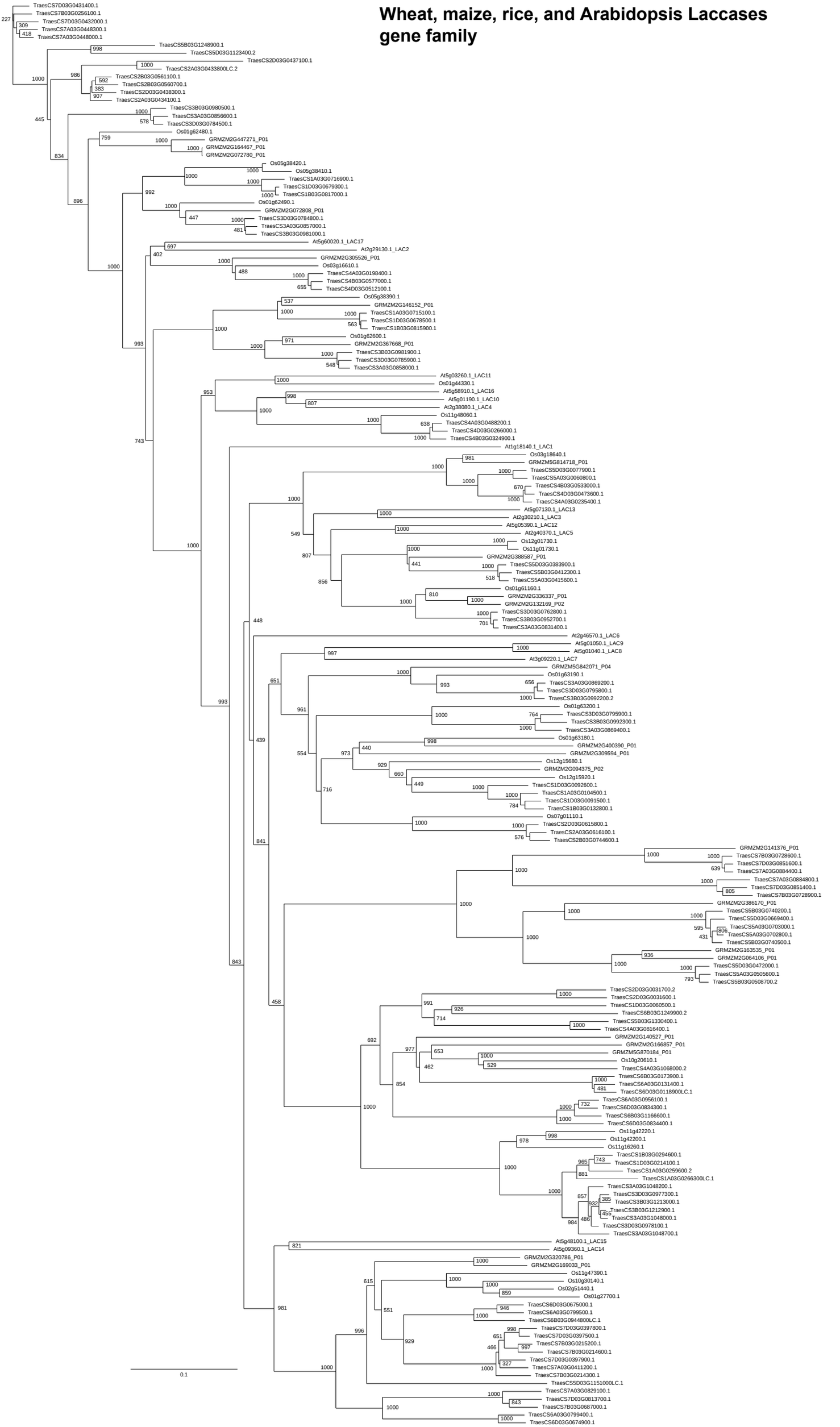
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Wheat, maize, rice, and Arabidopsis SKU5 gene family

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TraesCS7A03G0017900.1
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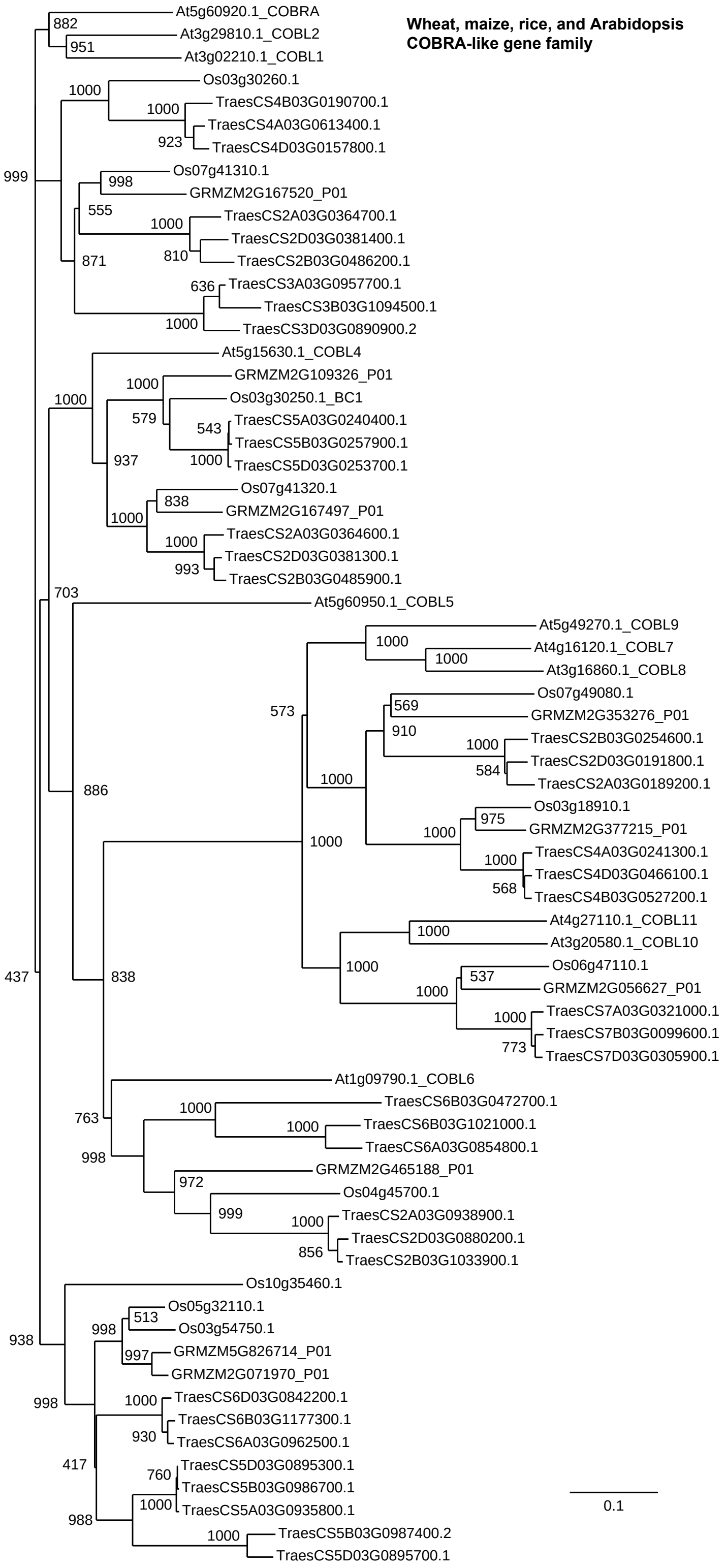
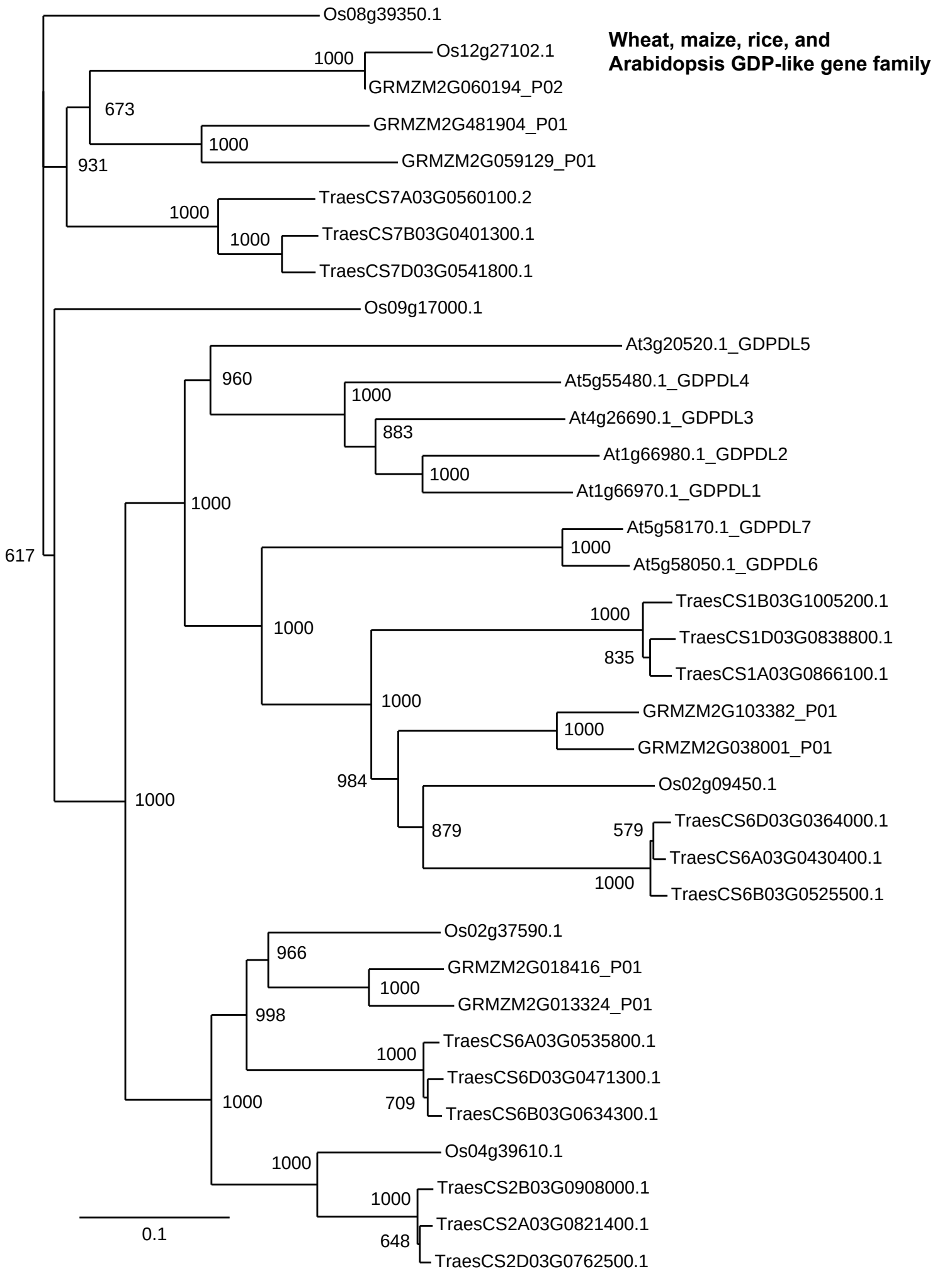
Wheat, maize, rice, and Arabidopsis COBRA-like gene family

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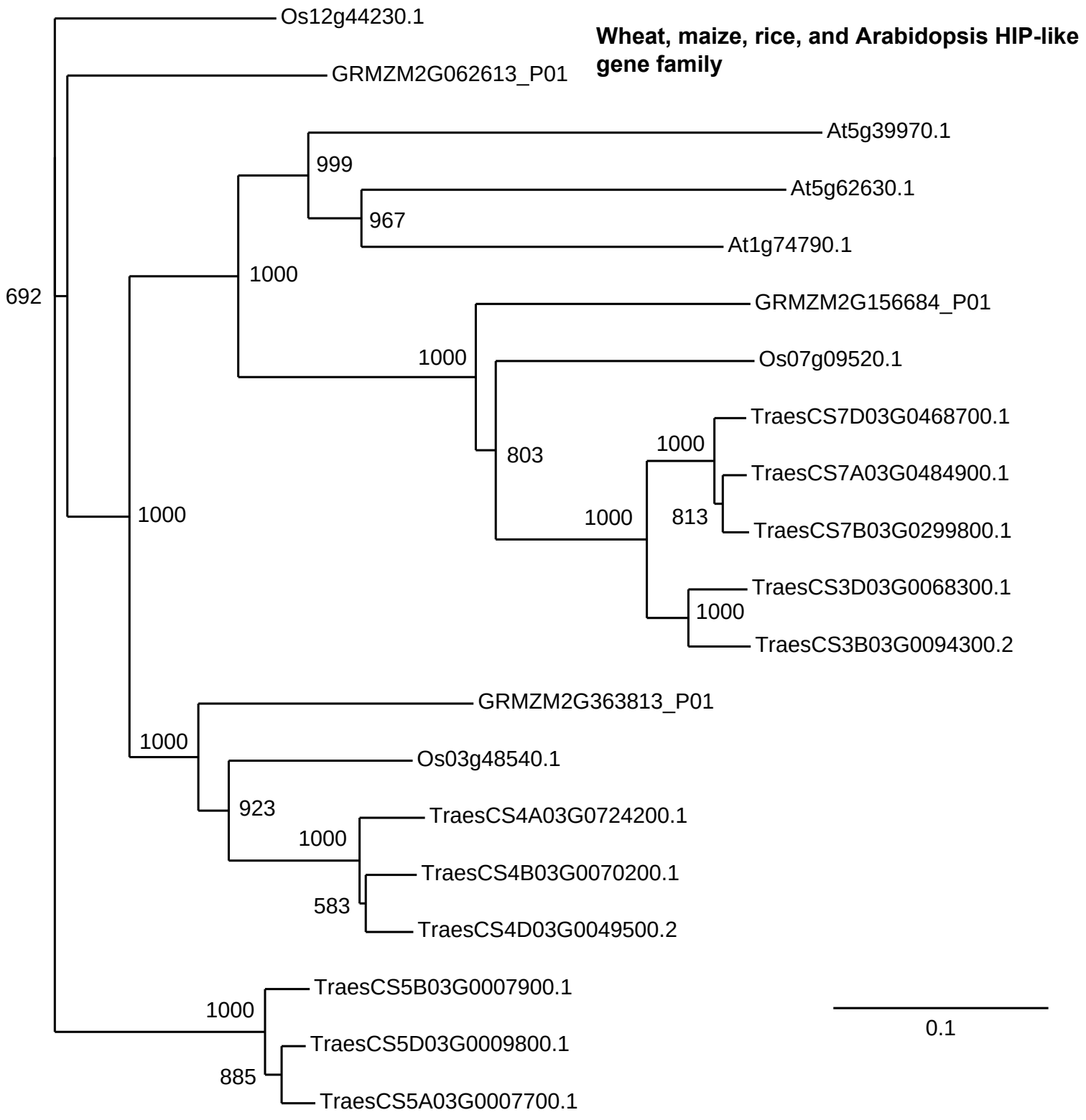
Wheat, maize, rice, and Arabidopsis Protease gene family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Wheat, maize, rice, and Arabidopsis Arabinogalactan protein gene family

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At1g55330.1_AGP21
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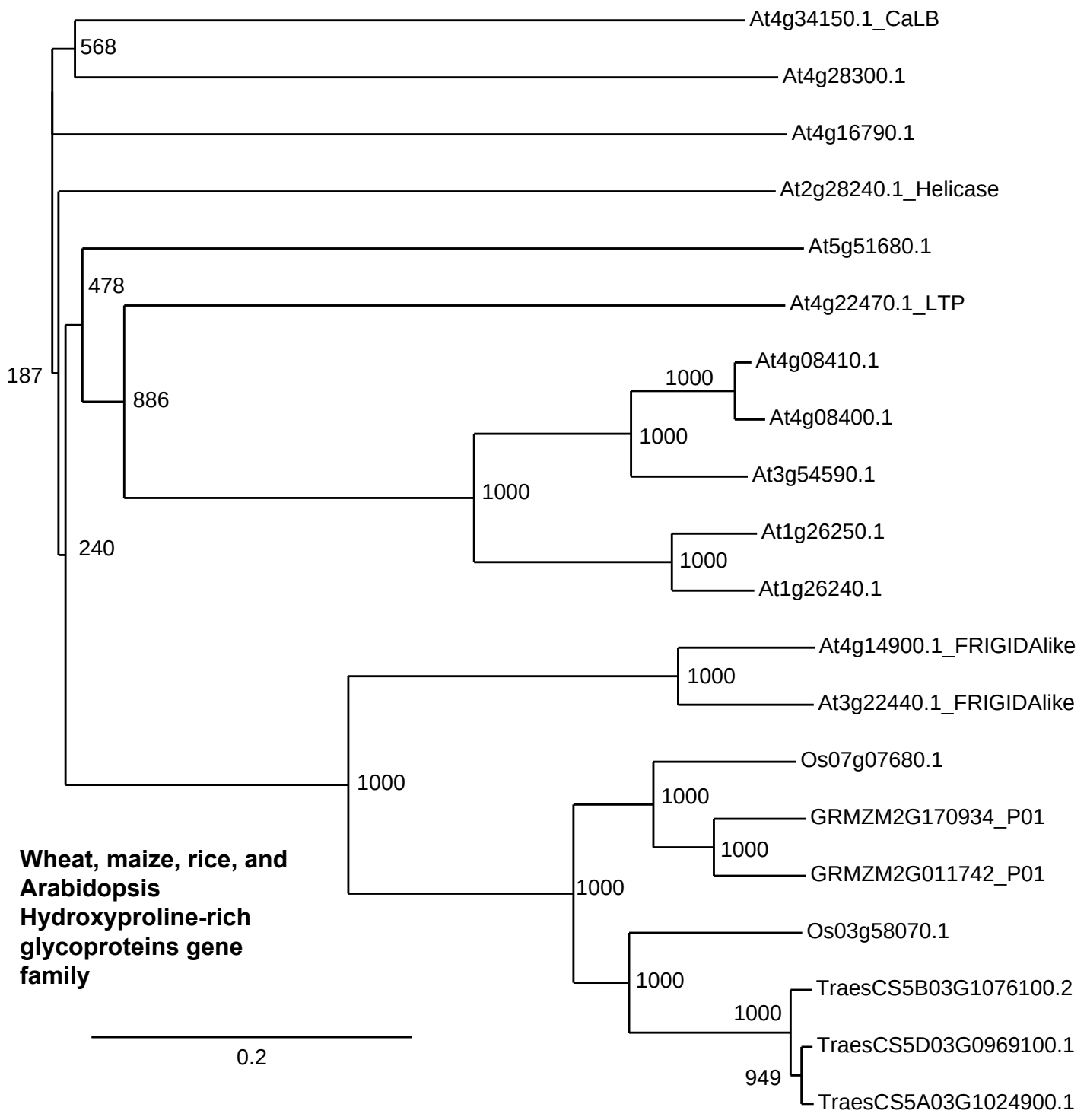
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Wheat, maize, rice, and Arabidopsis Hydroxyproline-rich glycoproteins gene family
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