

SUPPLEMENTARY DATASET 1

Metaphylogenetic analysis of global sewage reveals that bacterial strains associated with human disease show less degree of geographic clustering

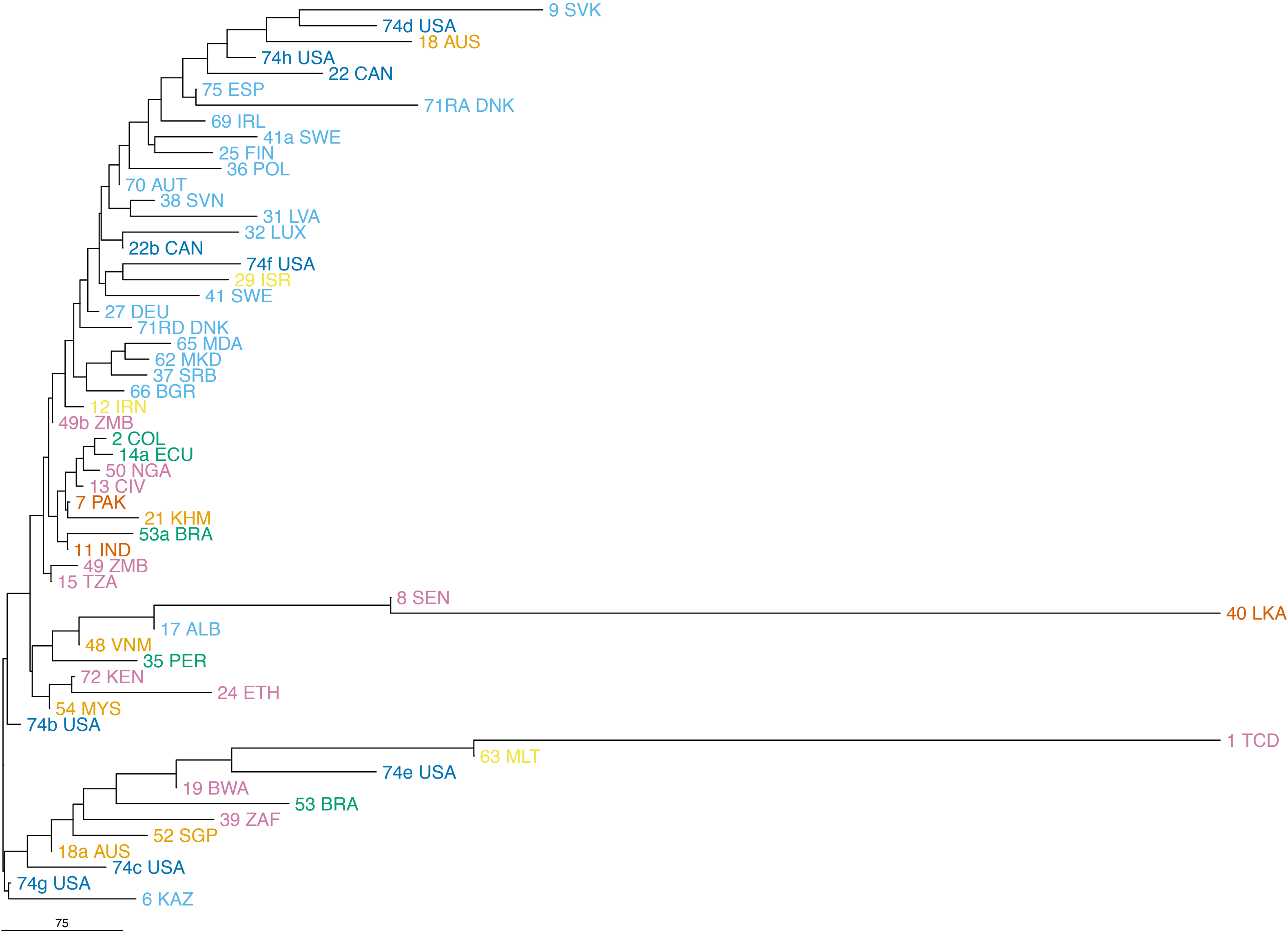
Johanne Ahrenfeldt¹, Madina Waisi¹, Isabella C. Loft¹, Philip T.L.C. Clausen¹, Rosa Allesøe¹, Judit Szarvas¹, Rene S. Hendriksen¹, Frank M. Aarestrup¹, Ole Lund^{1,*}

¹DTU Food. Technical University of Denmark. DK-2800. Denmark.

*Corresponding author. olund@food.dtu.dk.

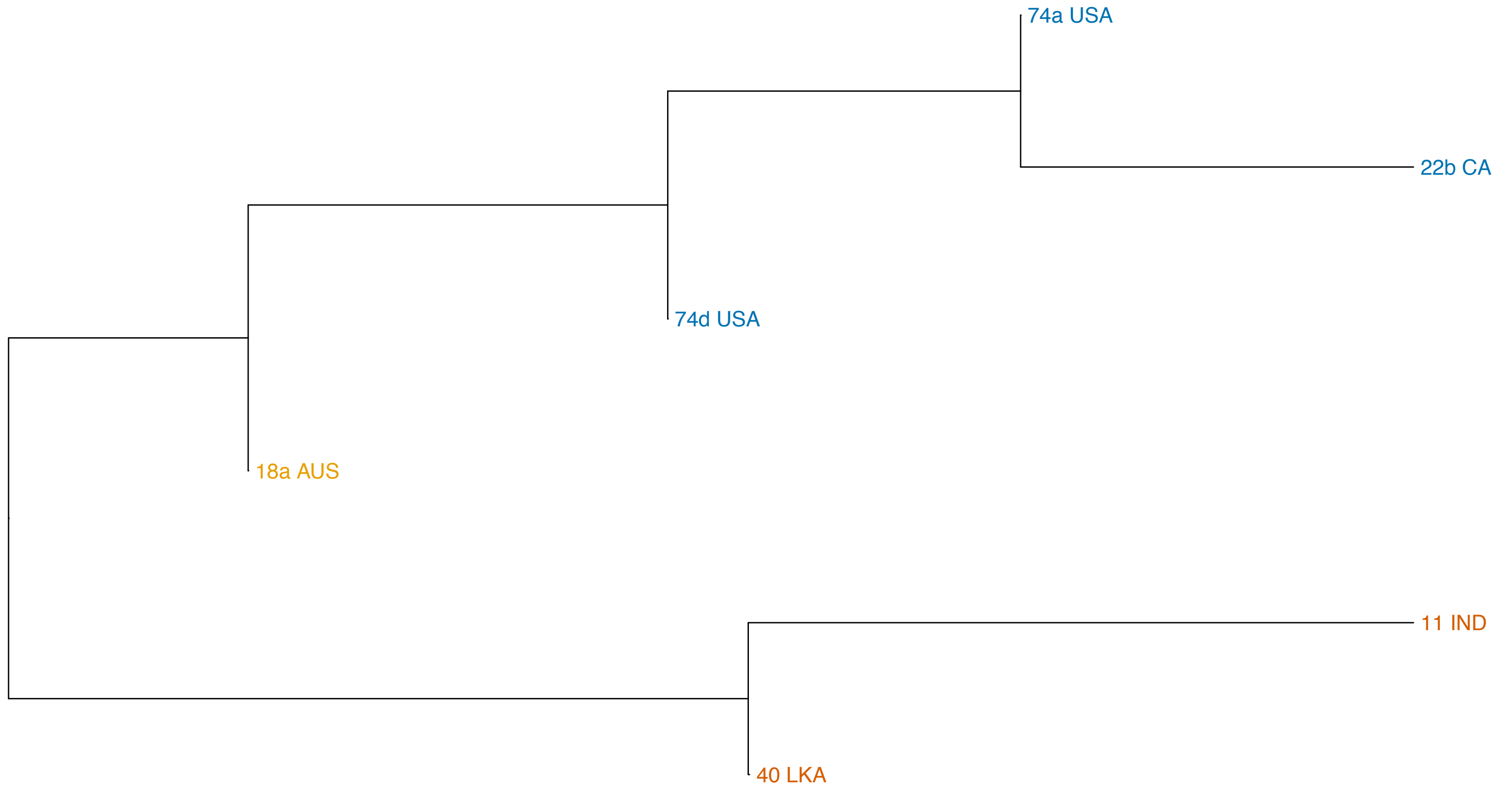
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- South Asia
- Sub-Saharan Africa

Escherichia coli str. K-12 substr. MG1655
p-value 0.052



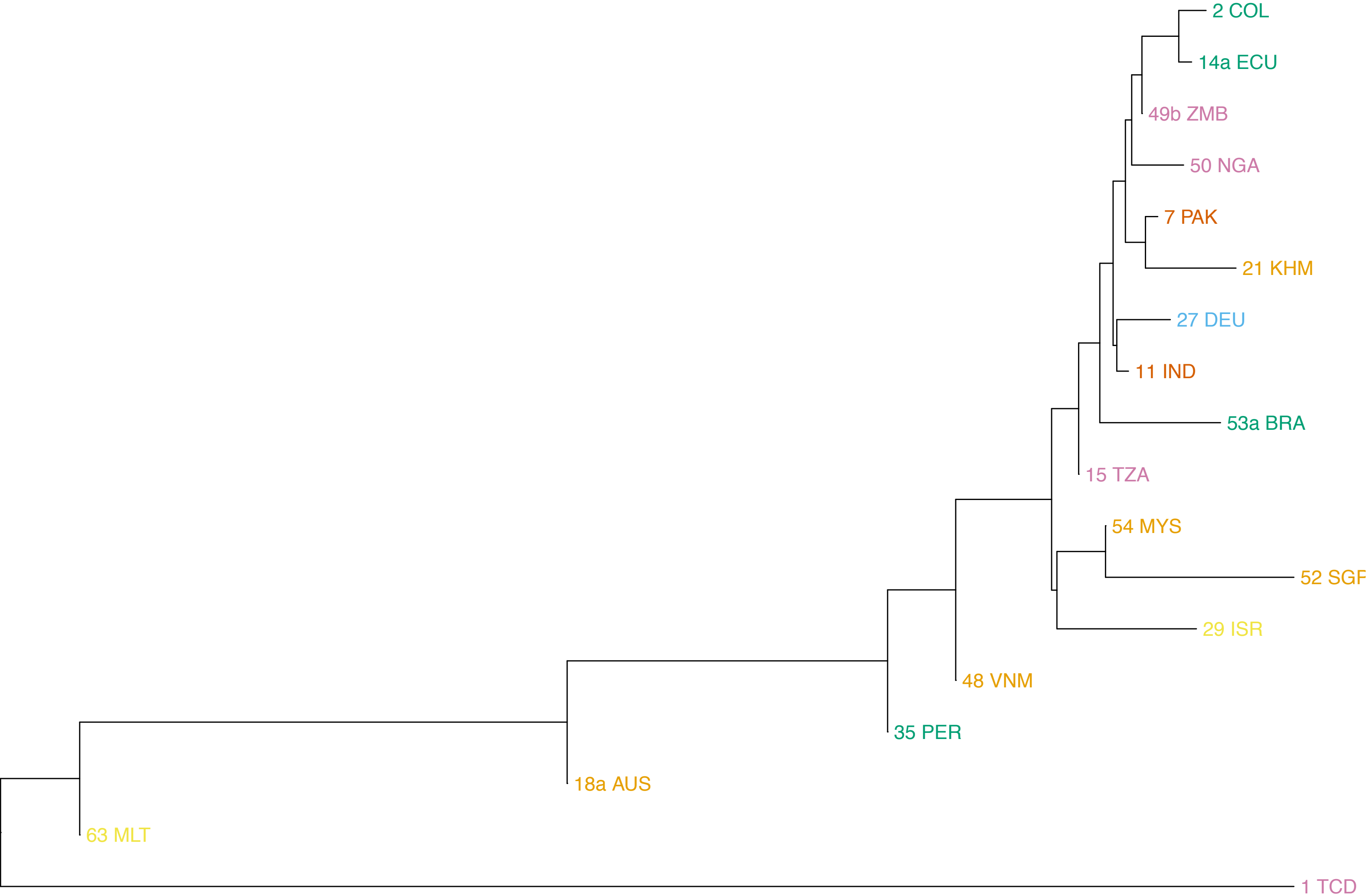
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Lactococcus lactis subsp. lactis II1403
p-value 0.017



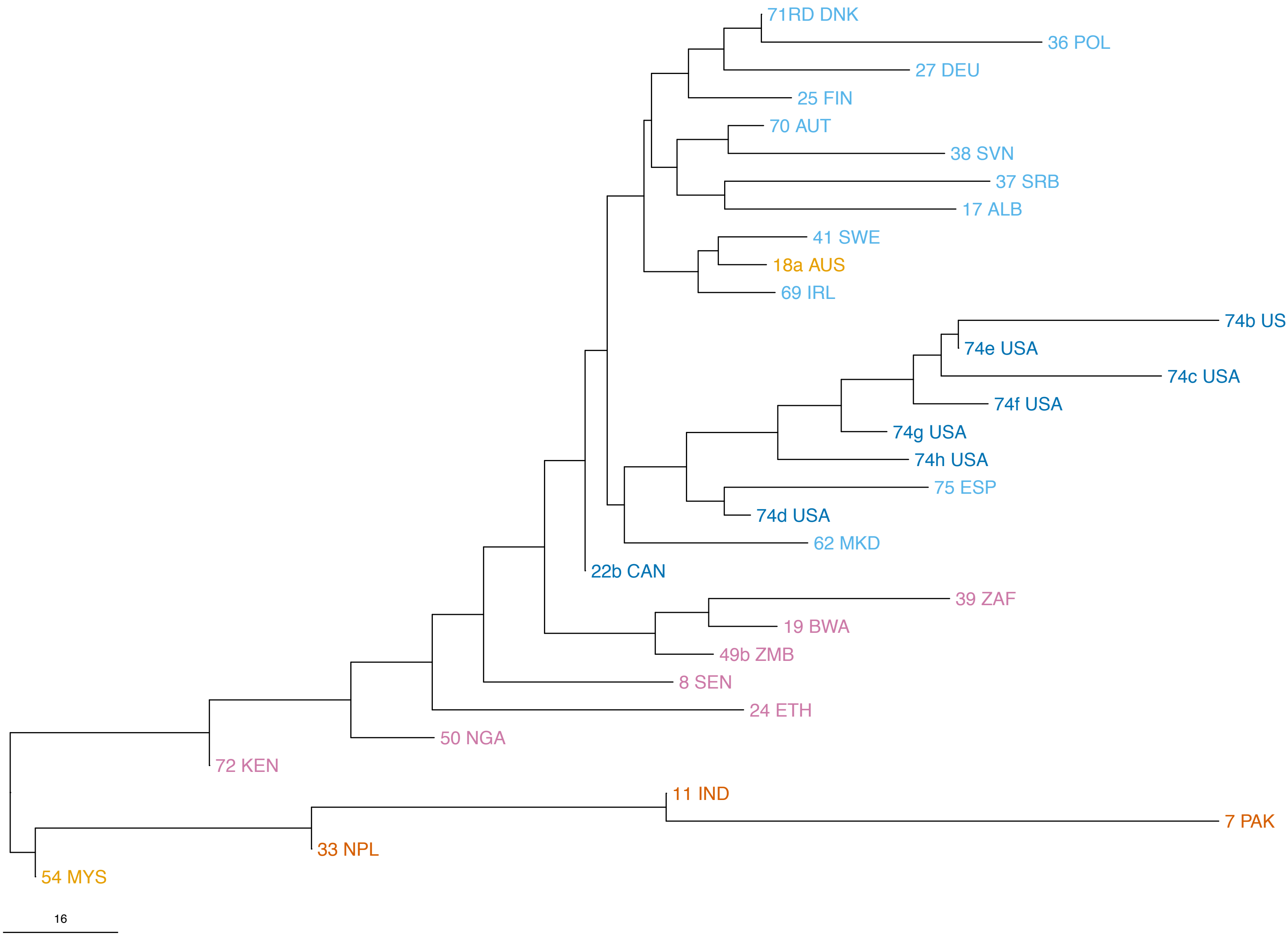
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Shigella flexneri 2a str. 301
p-value 0.51



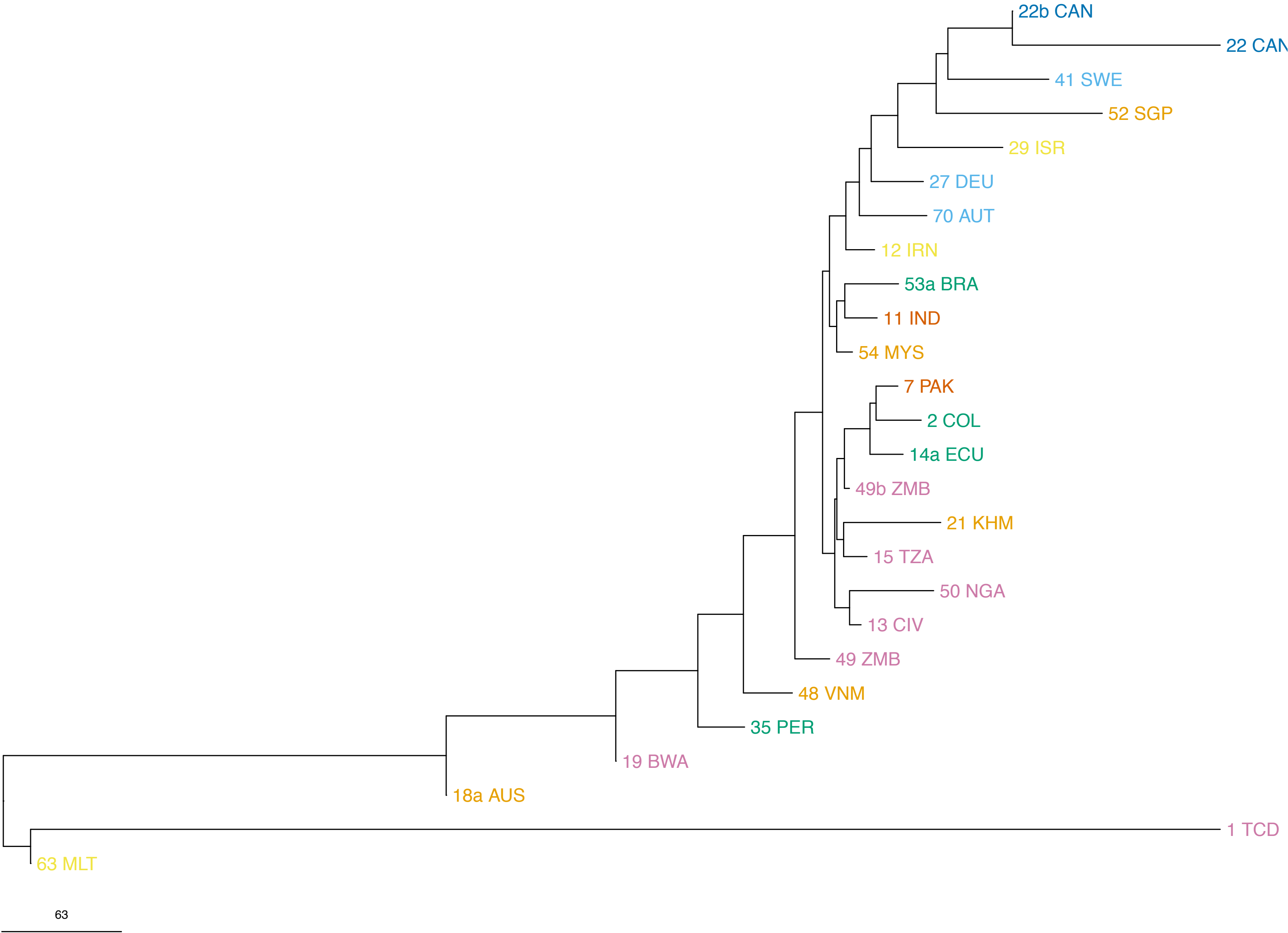
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Bifidobacterium longum NCC2705
p-value 0.00010



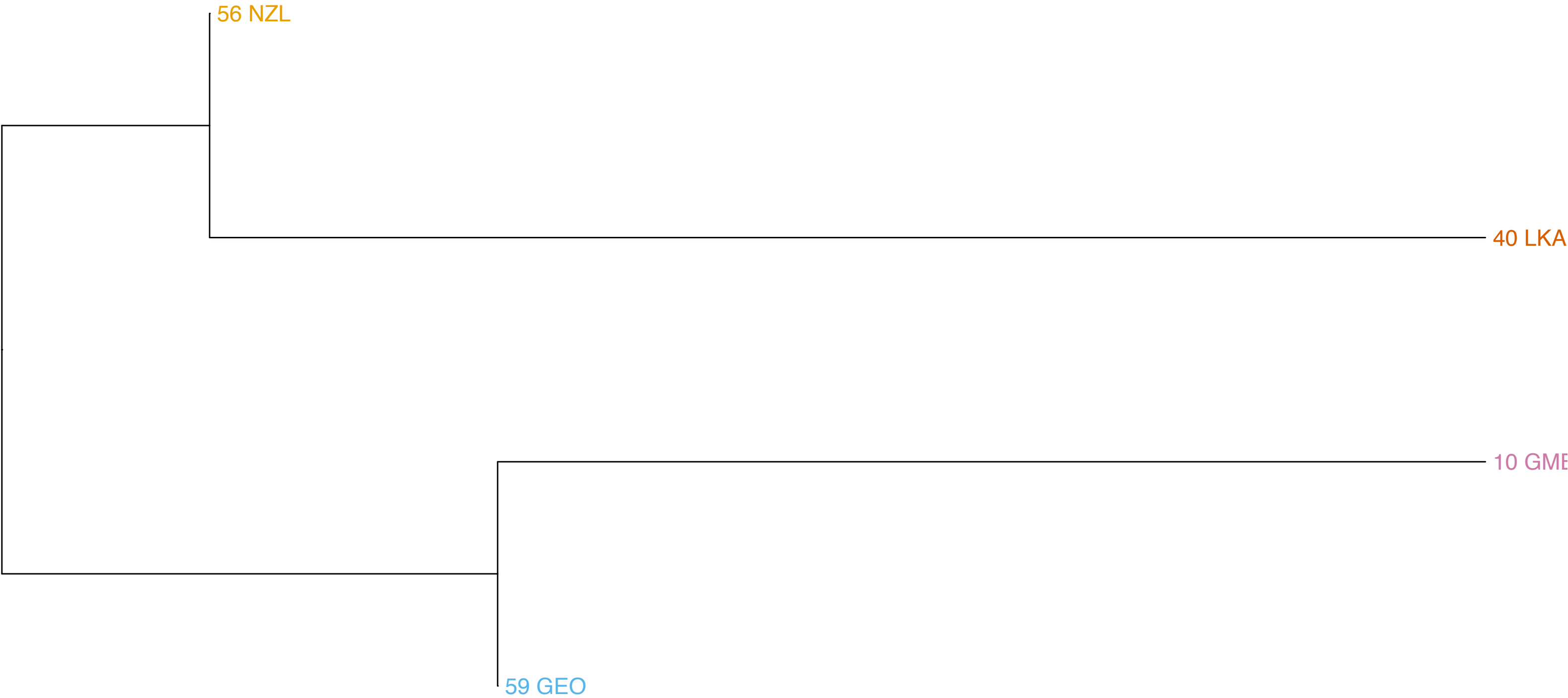
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Escherichia coli O157:H7 str. Sakai
p-value 0.70



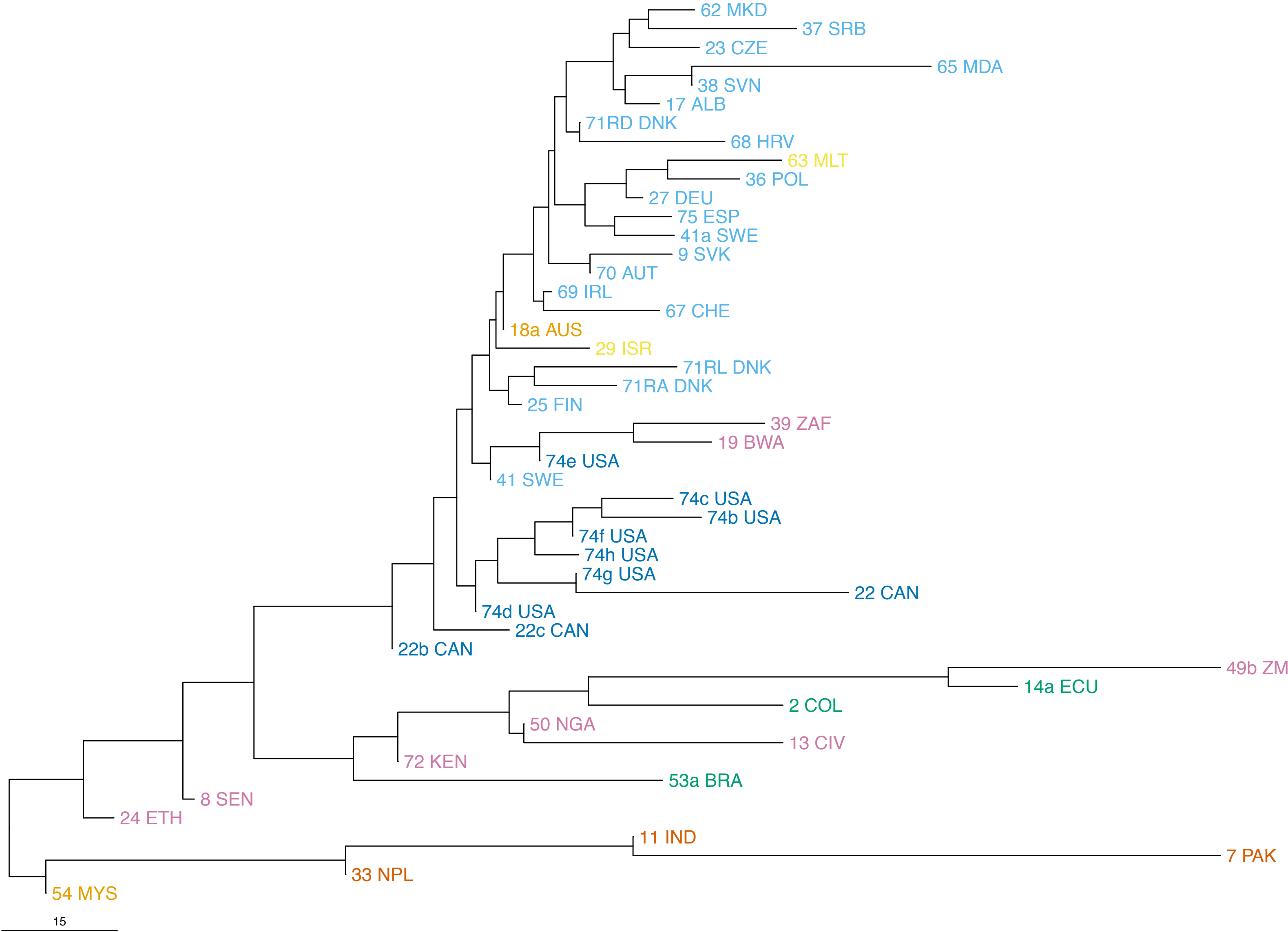
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Pseudomonas fluorescens SBW25
p-value 0



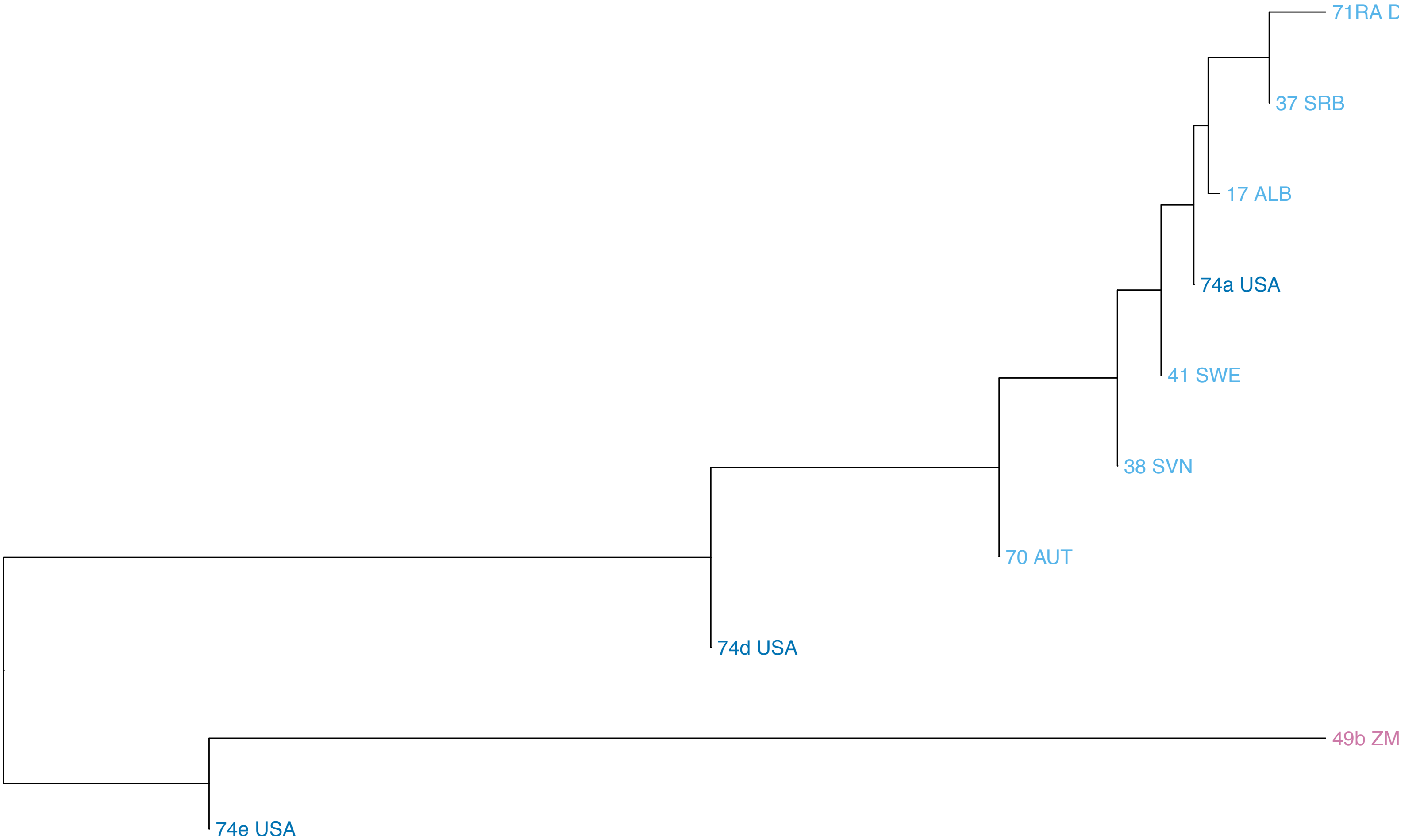
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Bifidobacterium adolescentis ATCC 15703
p-value 0.00010



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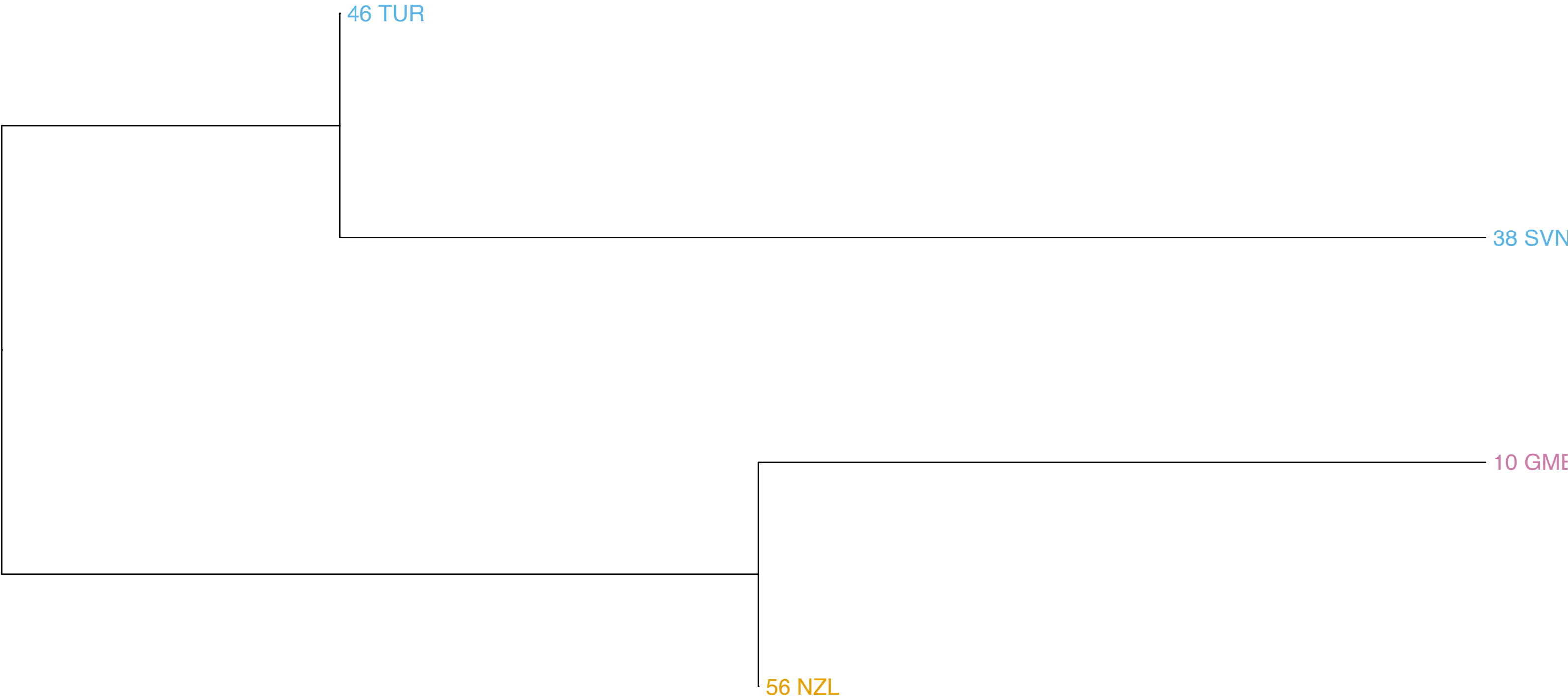
Streptococcus thermophilus CNRZ1066
p-value 0.0094



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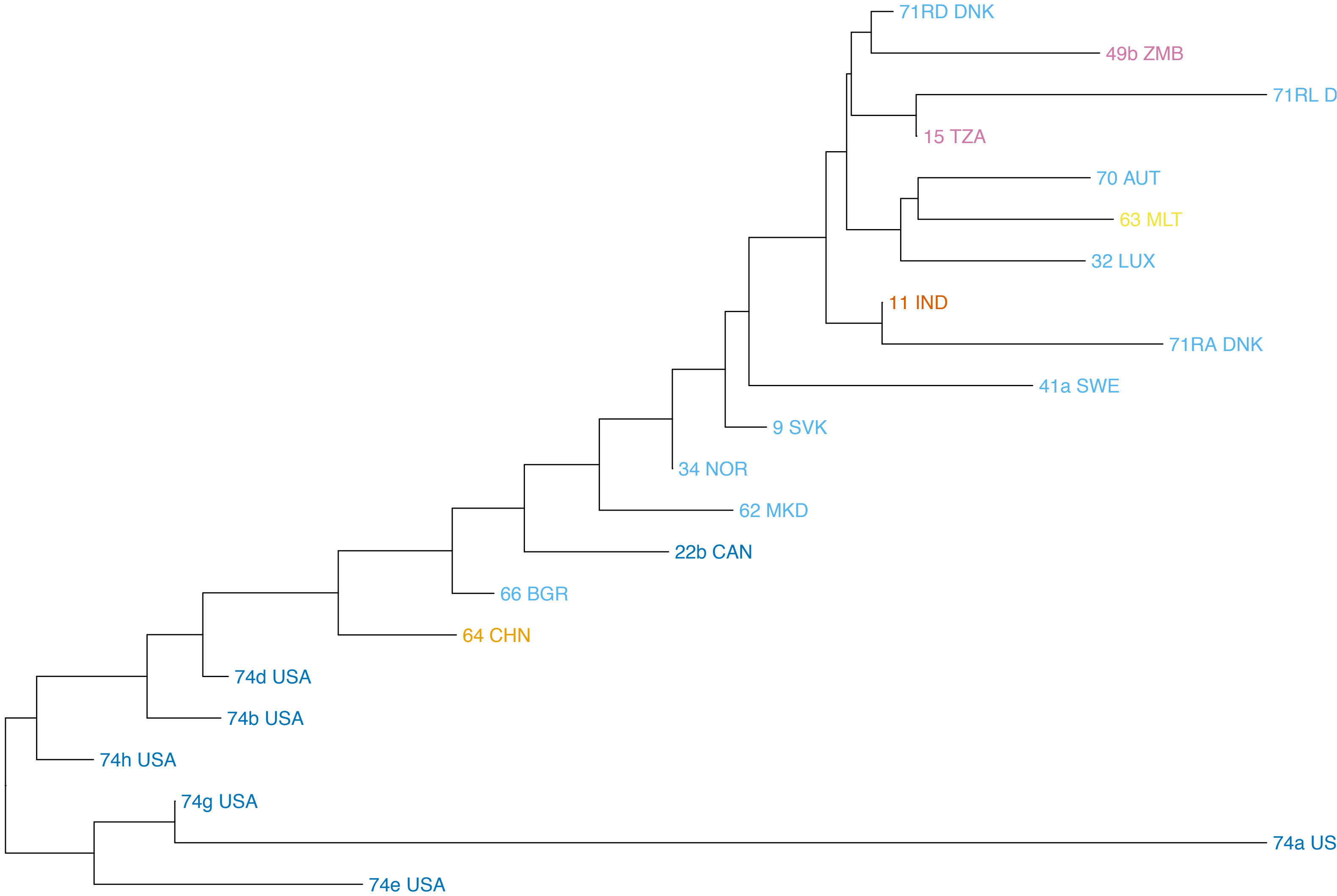
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Psychrobacter arcticus 273–4
p-value 1.0



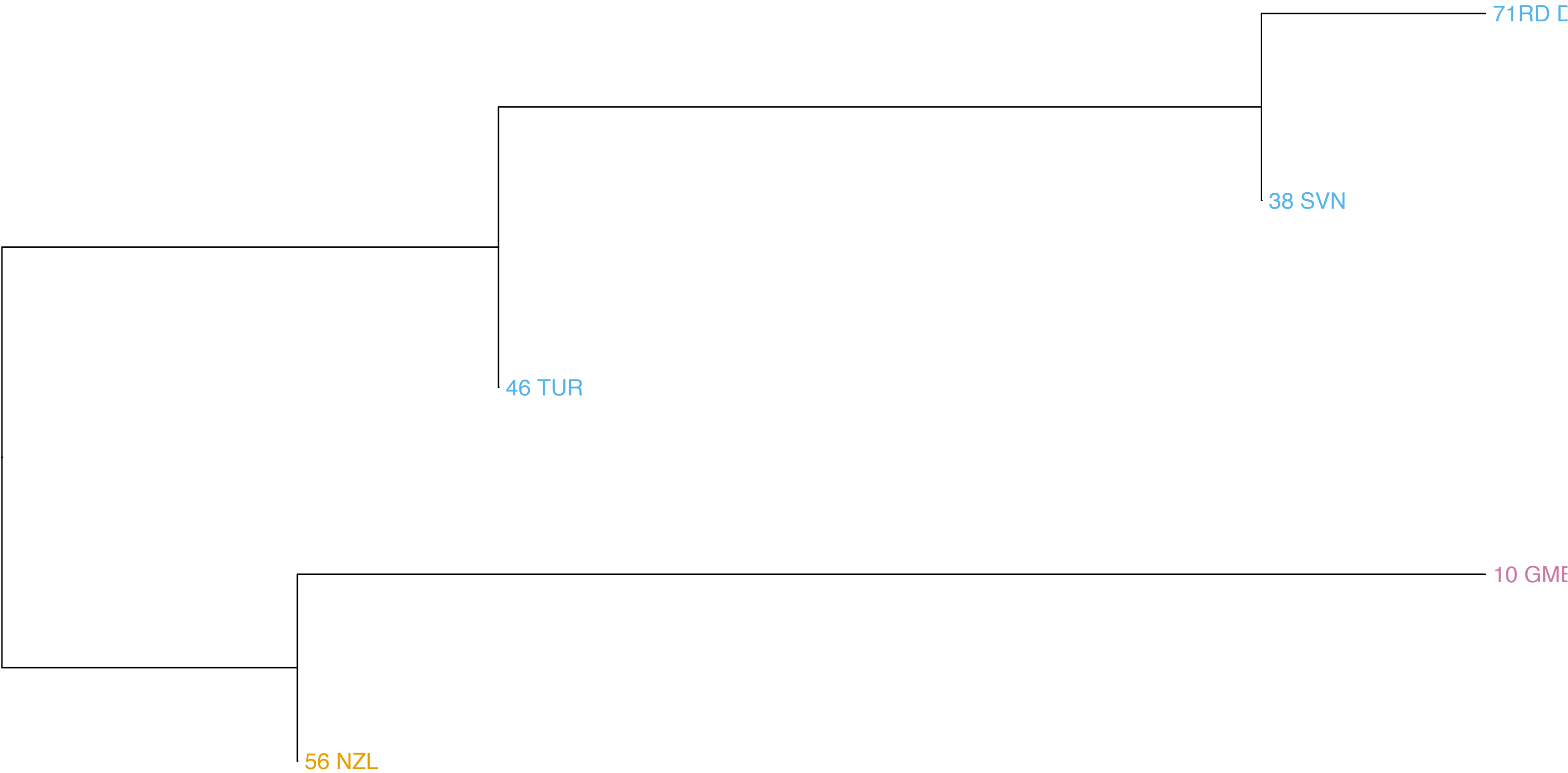
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Bacteroides vulgatus ATCC 8482
p-value 0.0088



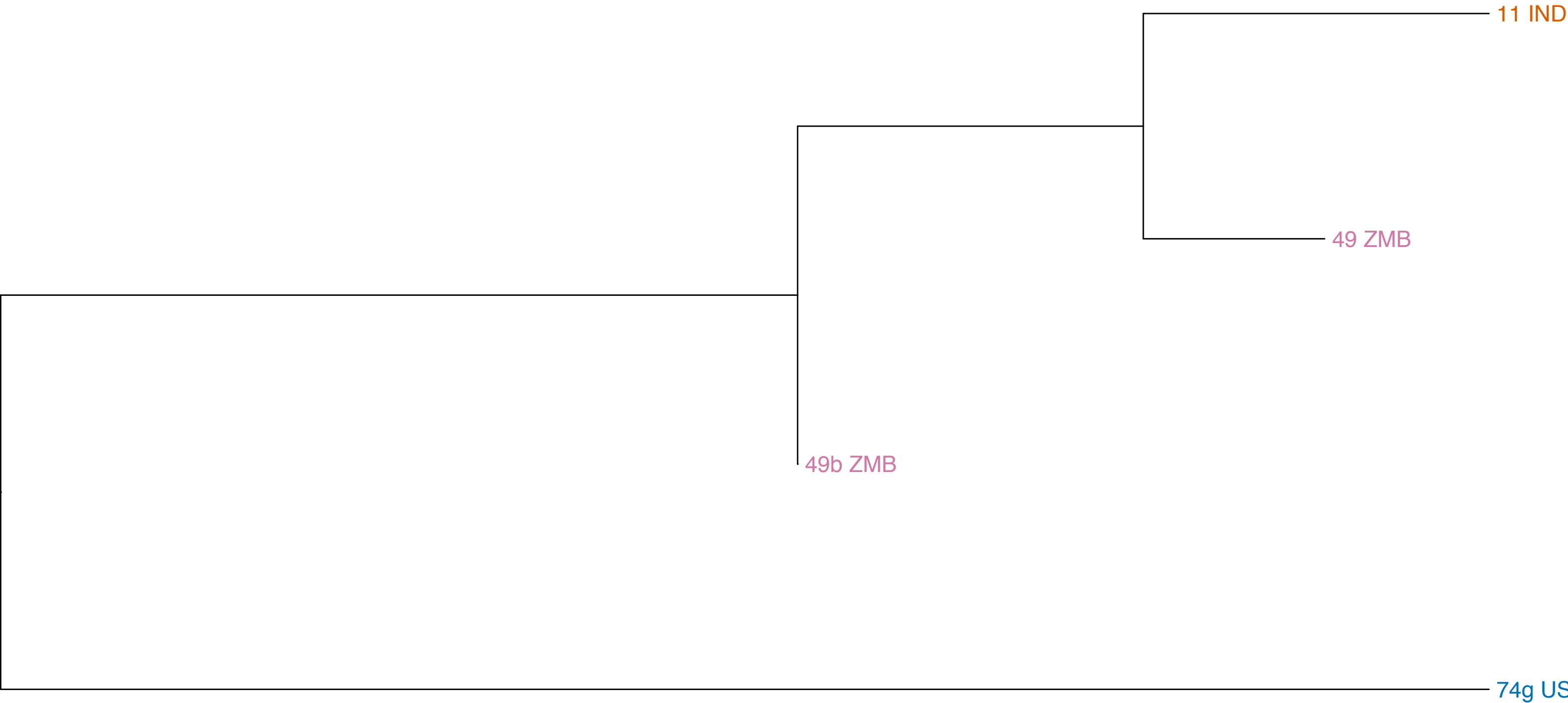
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Psychrobacter cryohalolentis K5
p-value 0.20



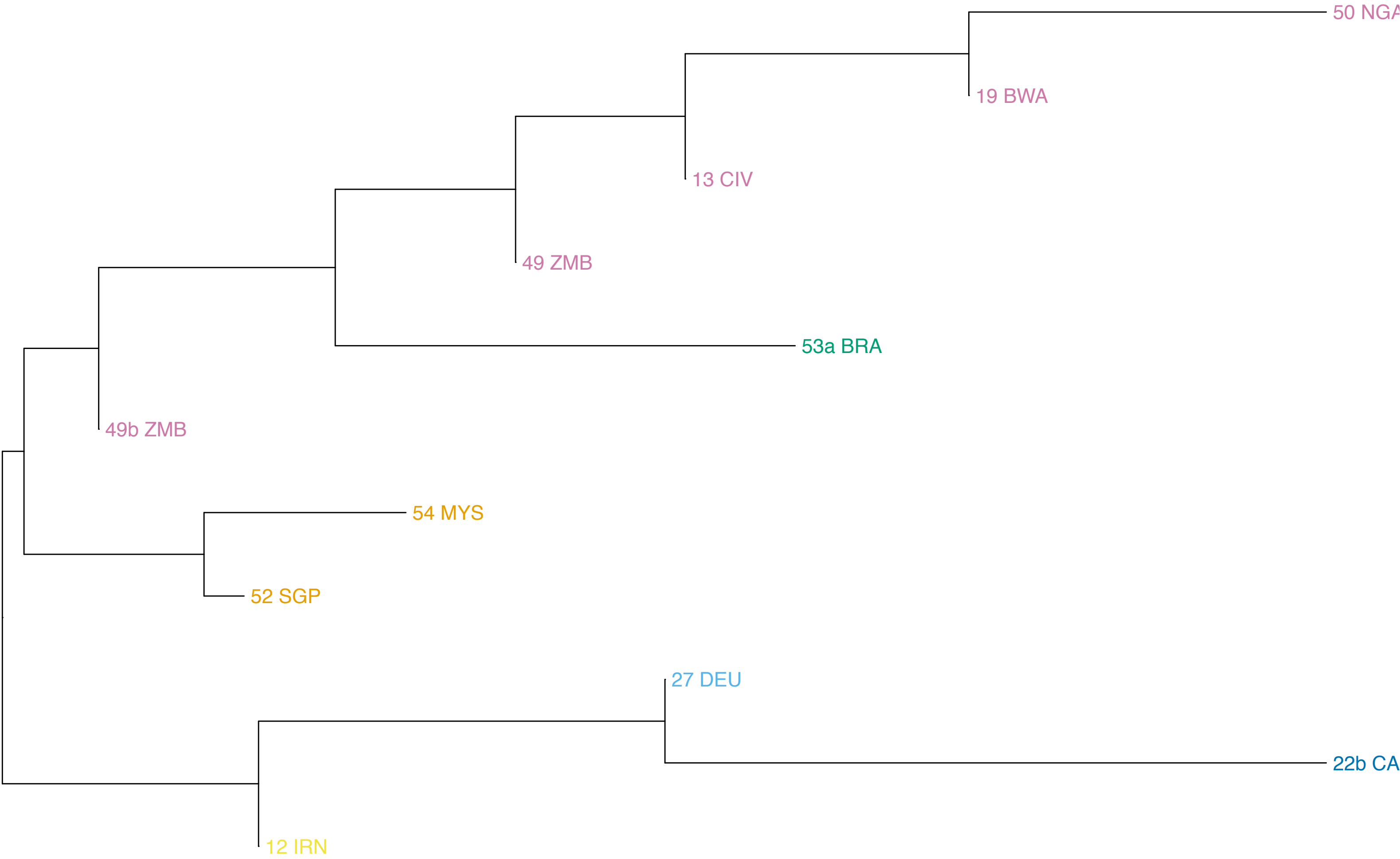
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Arcobacter butzleri RM4018
p-value 1.0



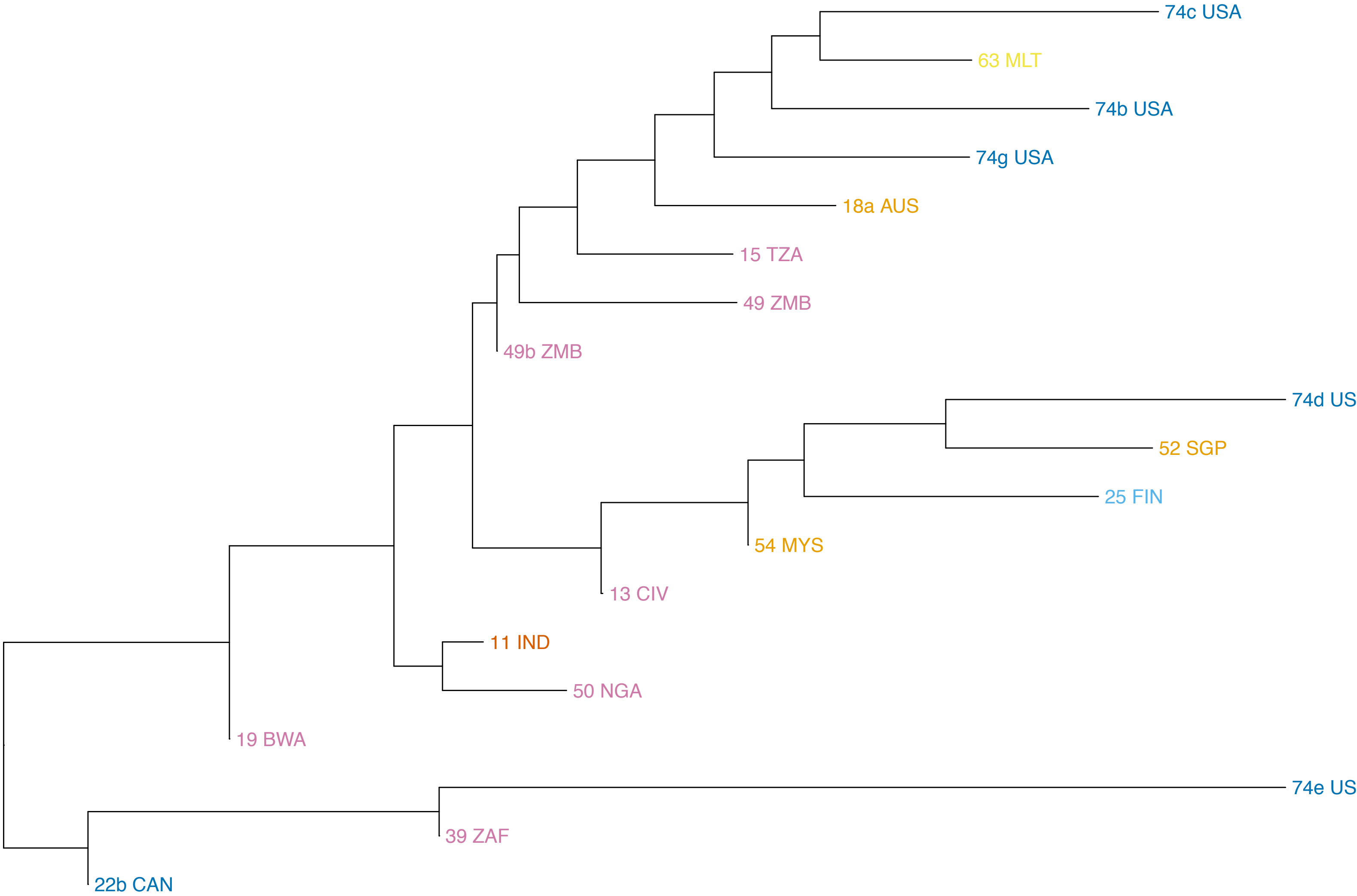
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Acidovorax sp. JS42
p-value 0.0078

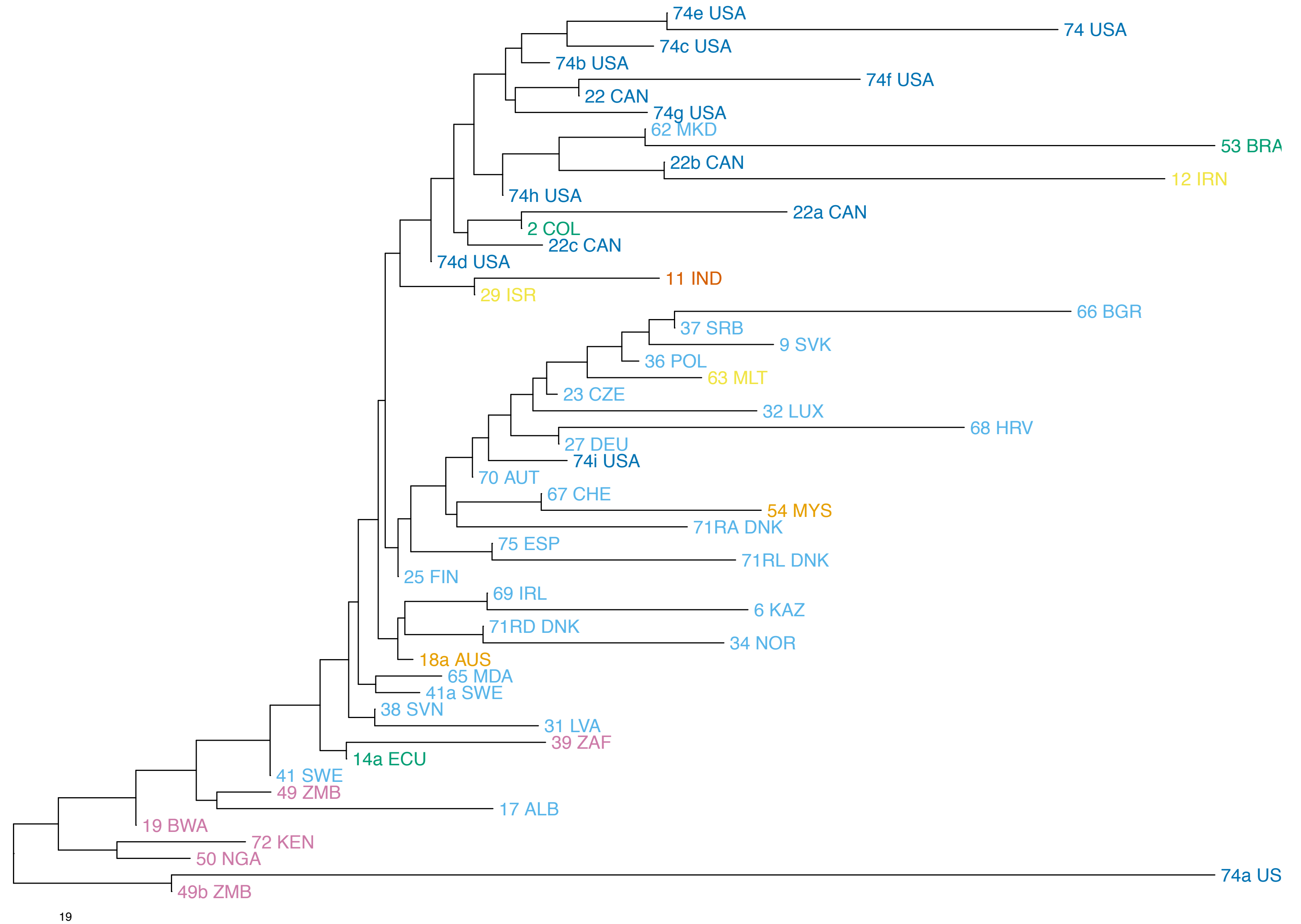


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Klebsiella pneumoniae 342
p-value 0.65

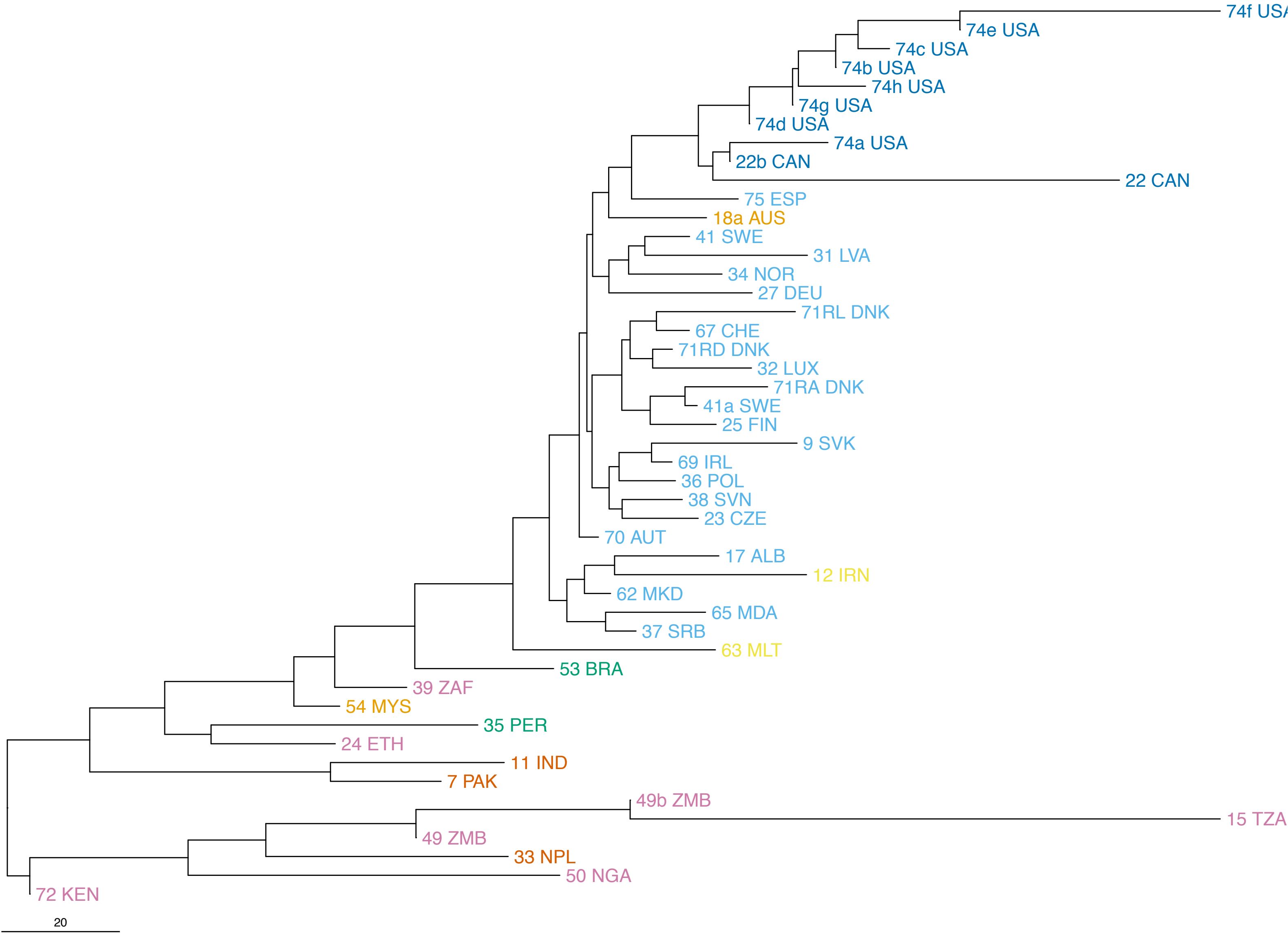


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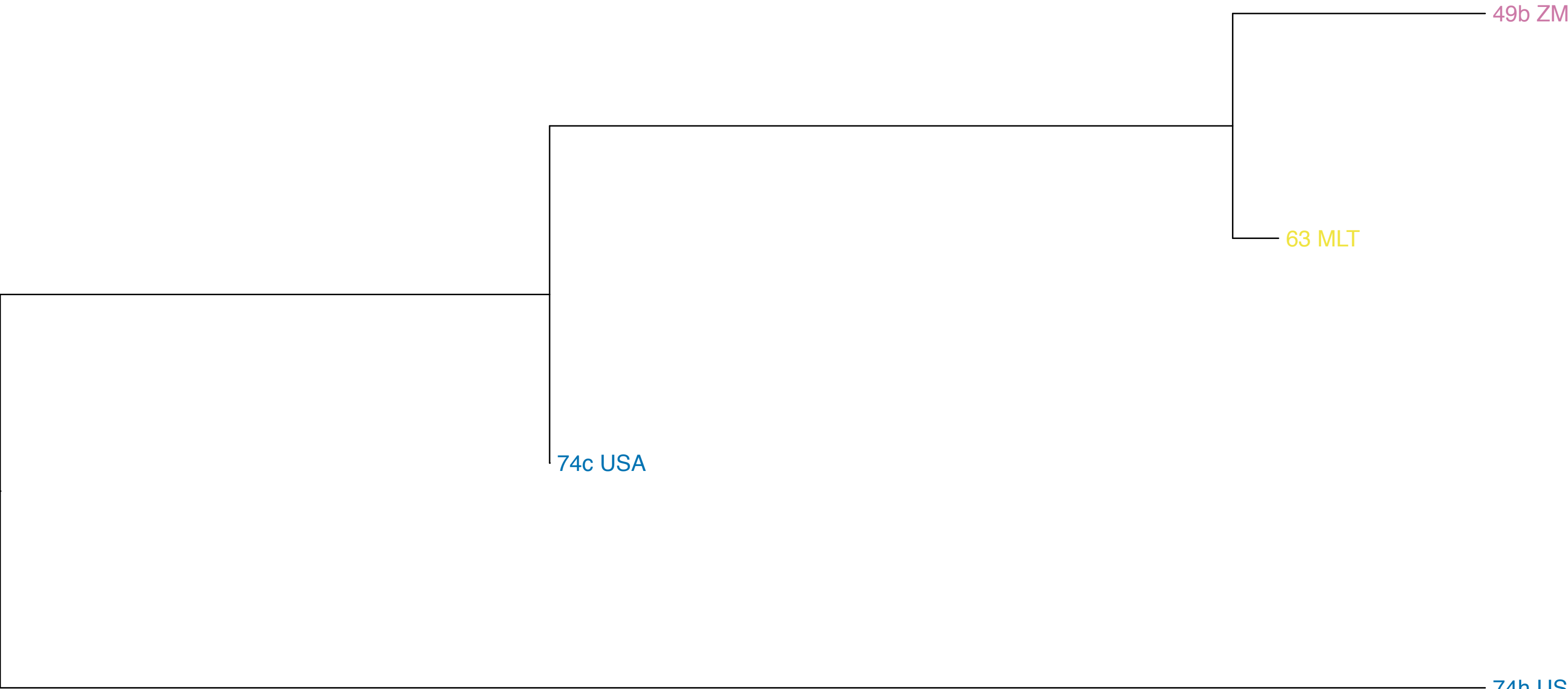
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Eubacterium rectale ATCC 33656
p-value 0.00010



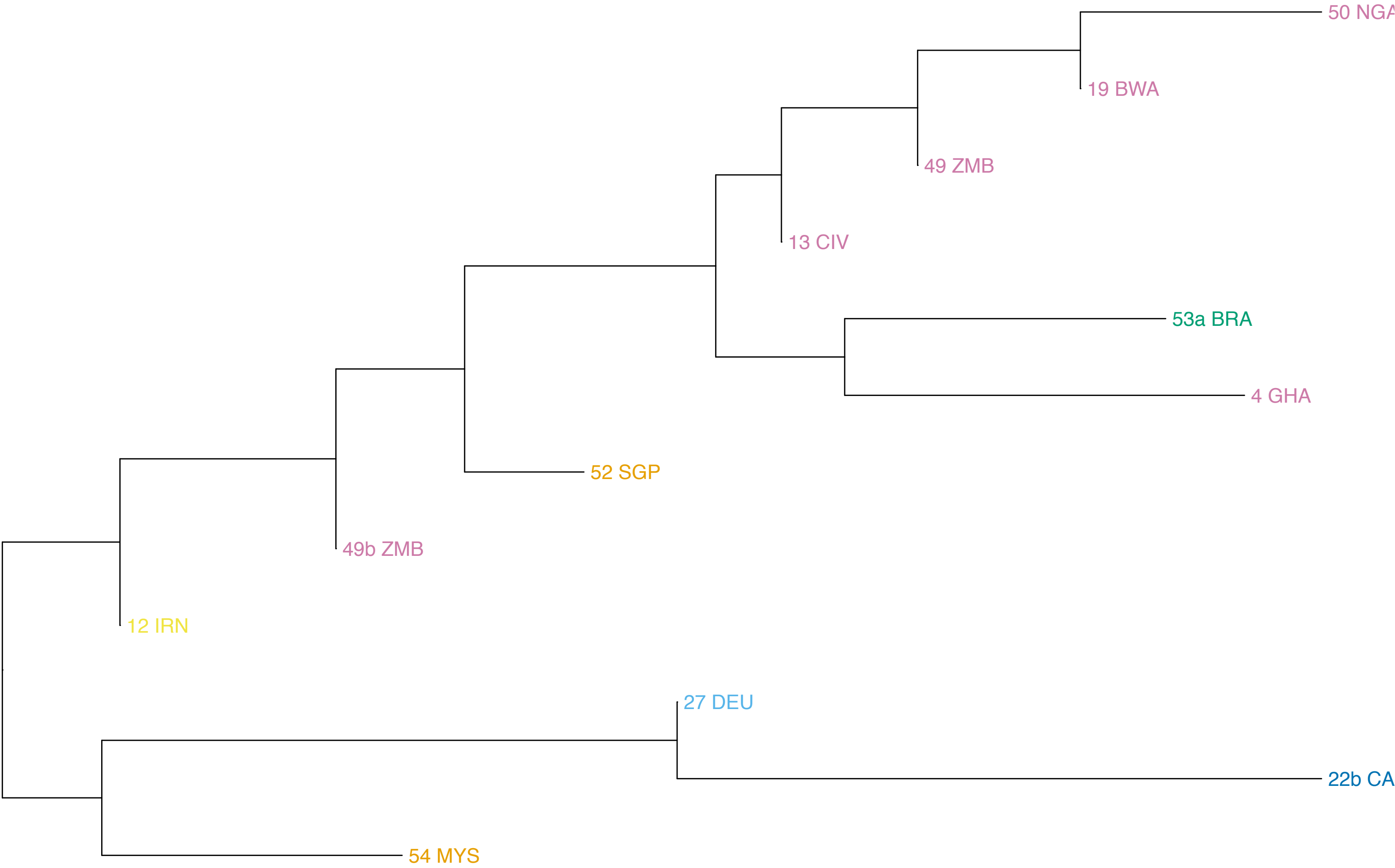
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Laribacter hongkongensis HLHK9
p-value 1.0



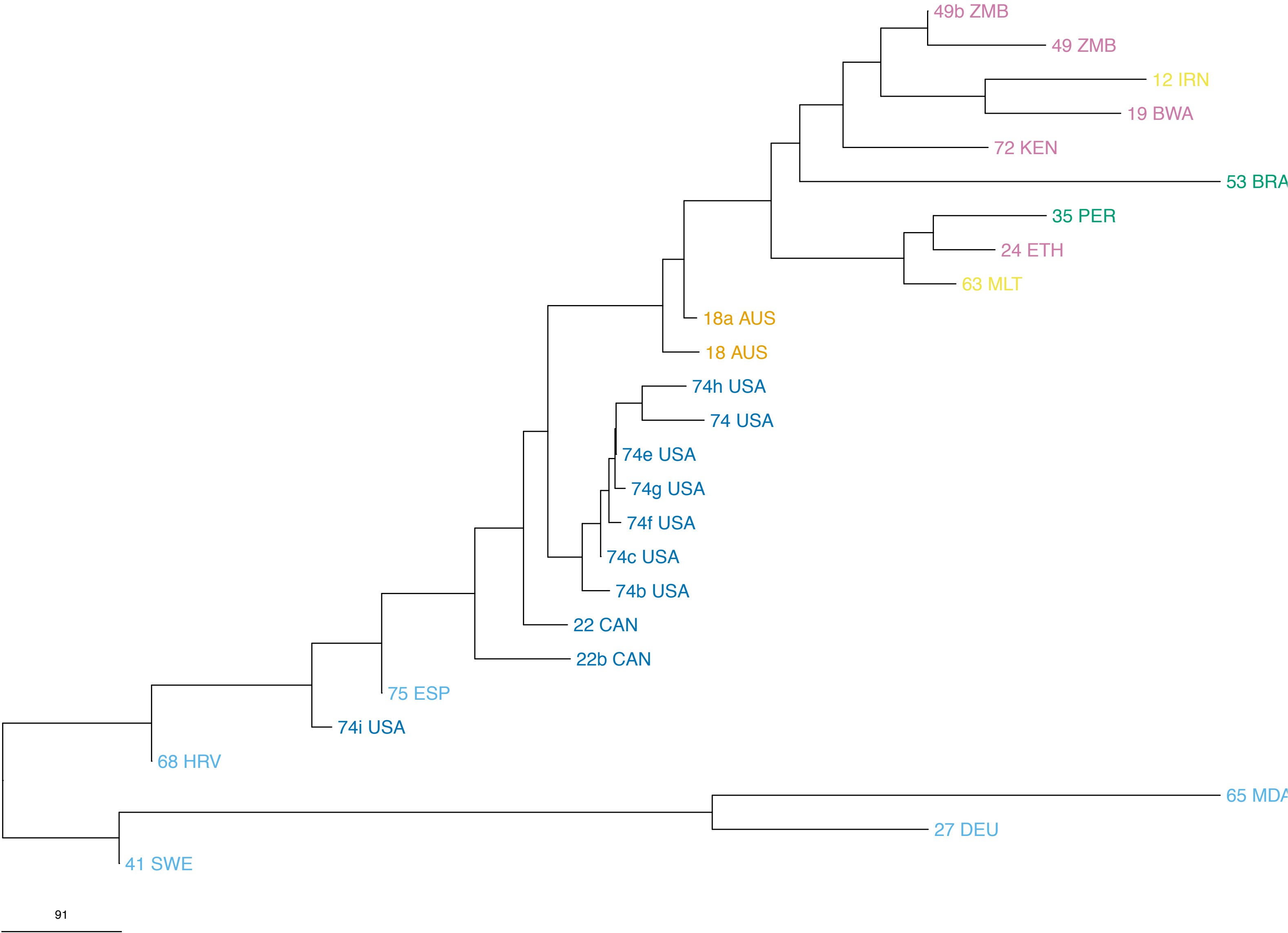
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Acidovorax ebreus TPSY
p-value 0.043



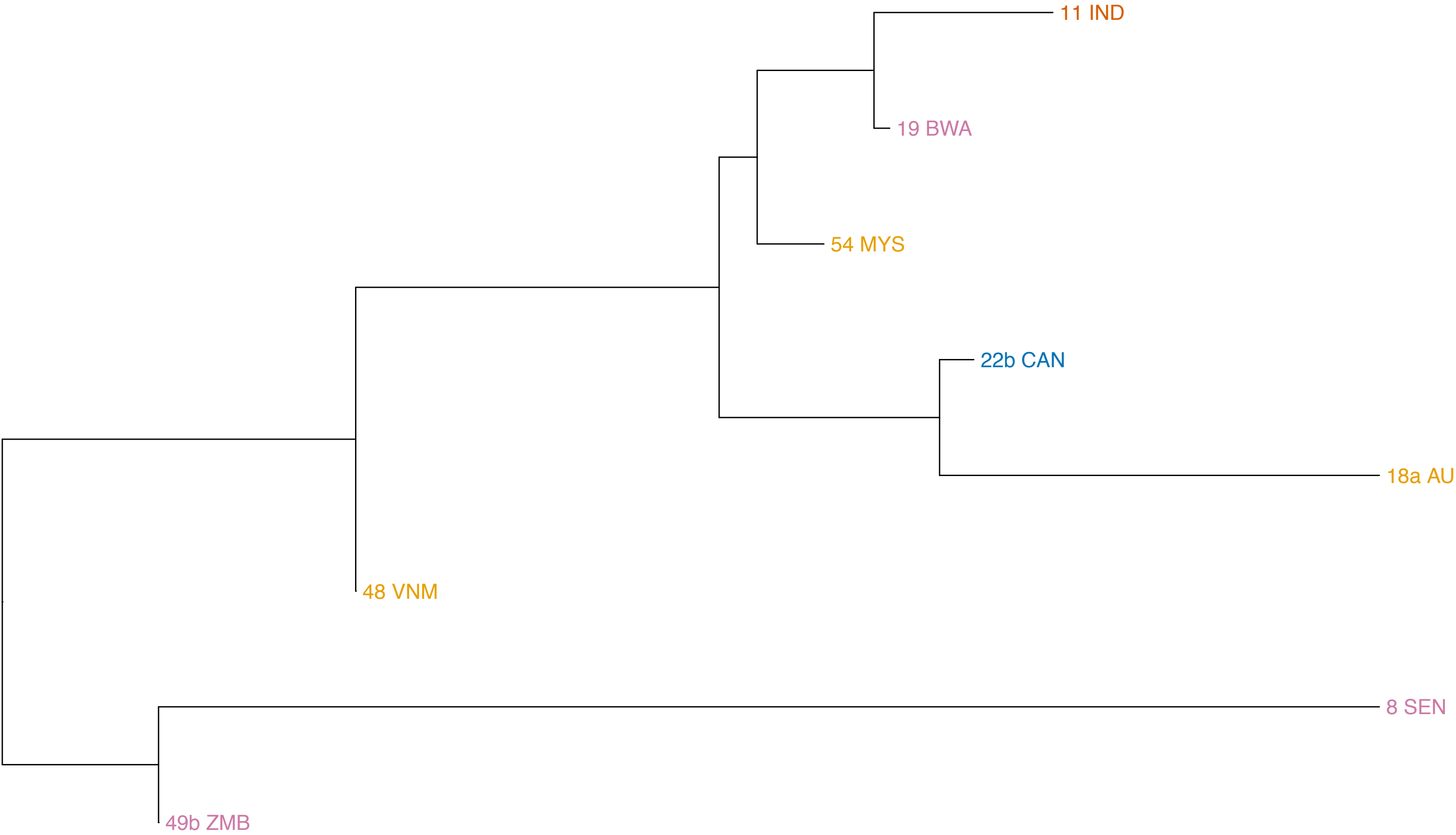
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Sebaldella termitidis ATCC 33386
p-value 0.00010



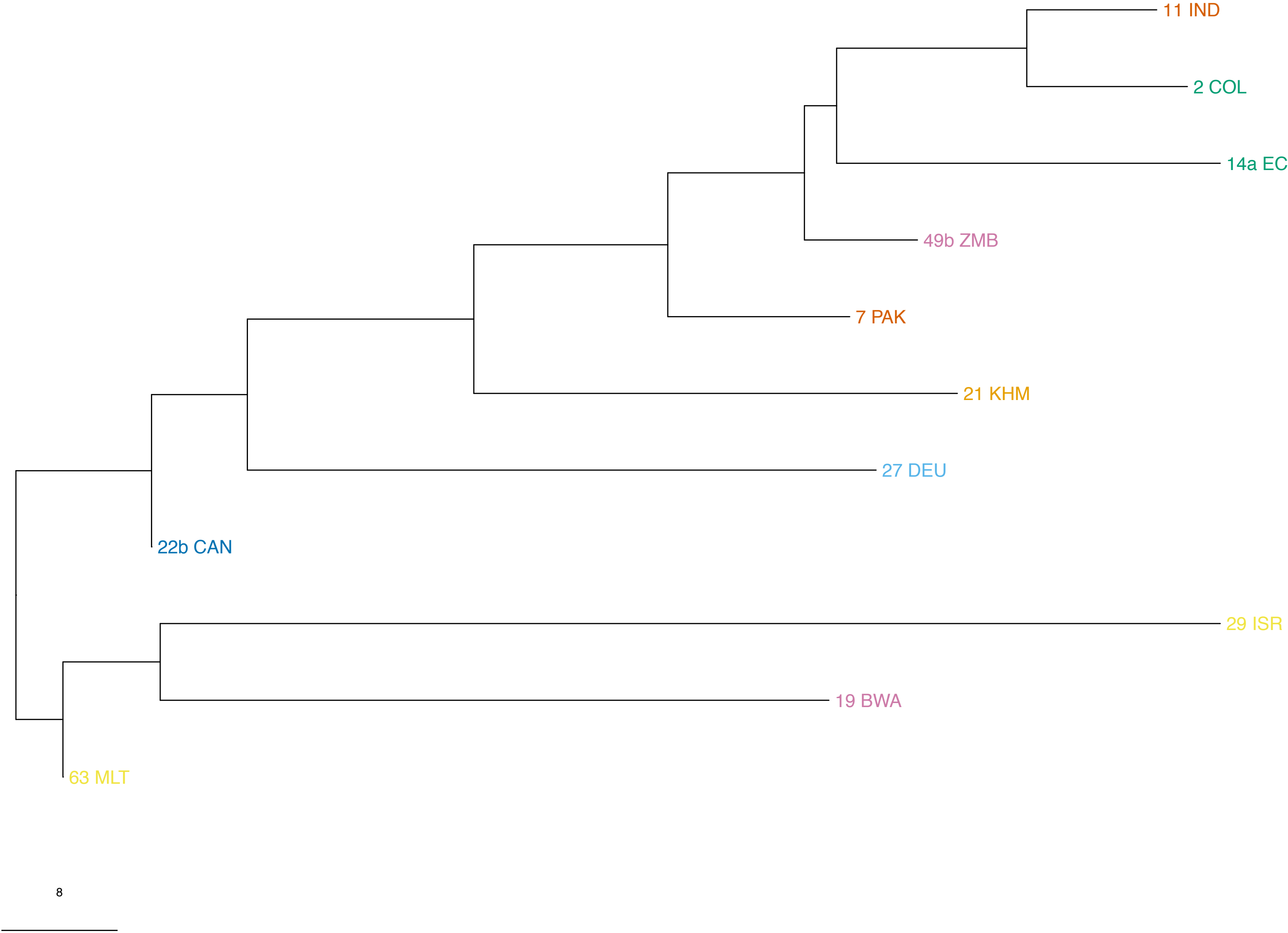
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Enterobacter cloacae subsp. cloacae ATCC 13047
p-value 0.29



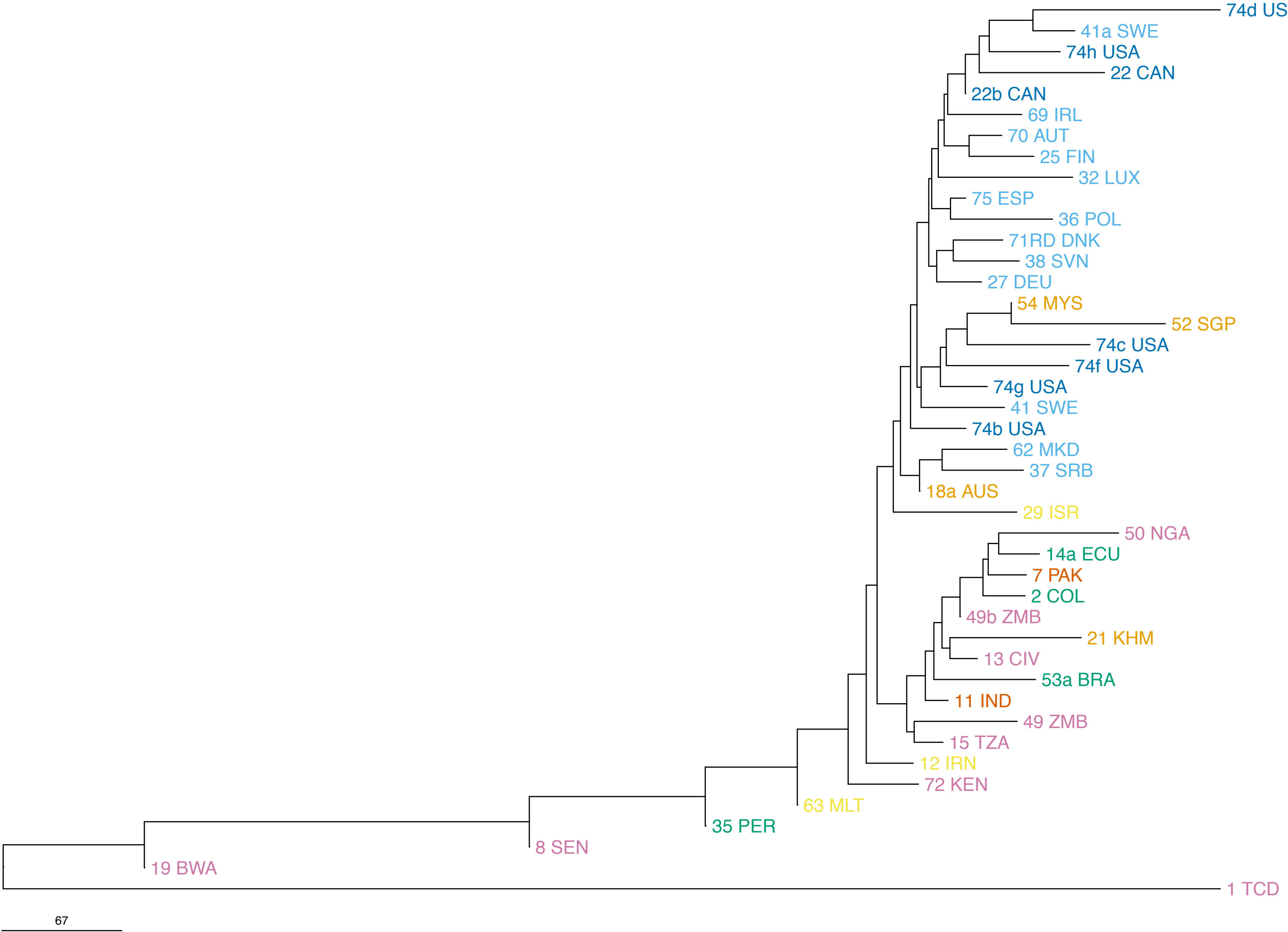
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Escherichia coli IA139
p-value 0.069



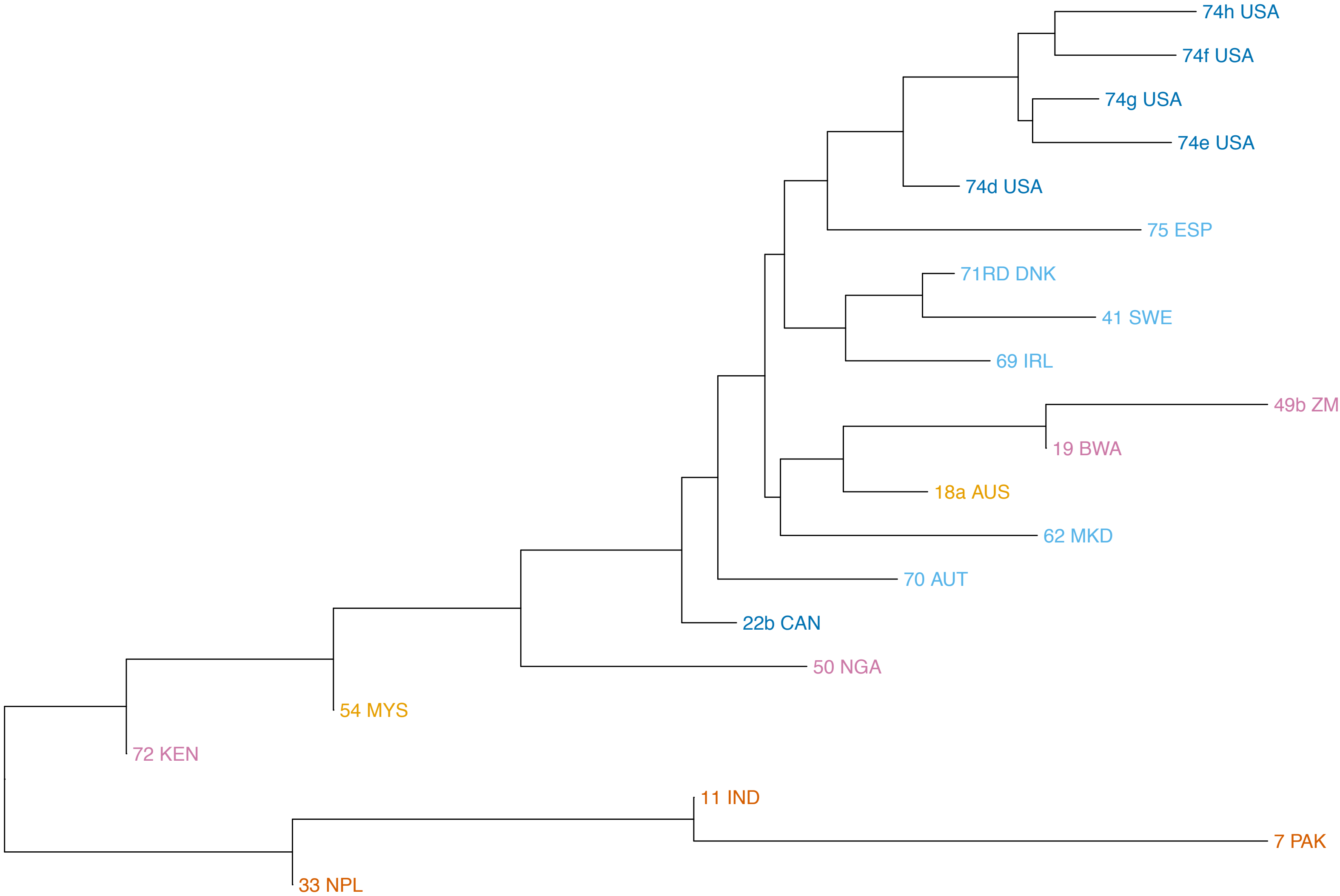
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Escherichia coli 042
p-value 0.27



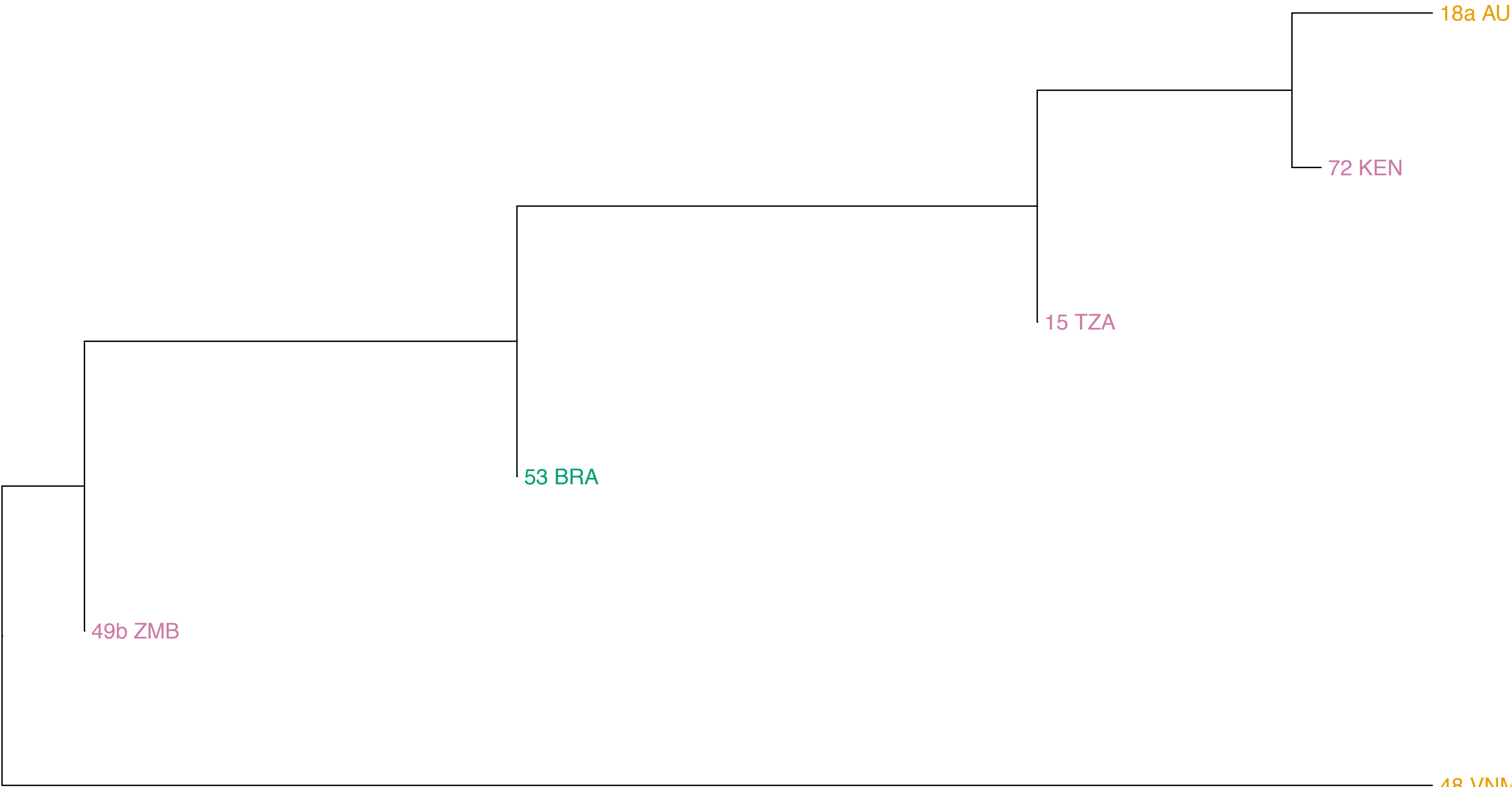
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Bifidobacterium longum subsp. longum JDM301
p-value 0.00010



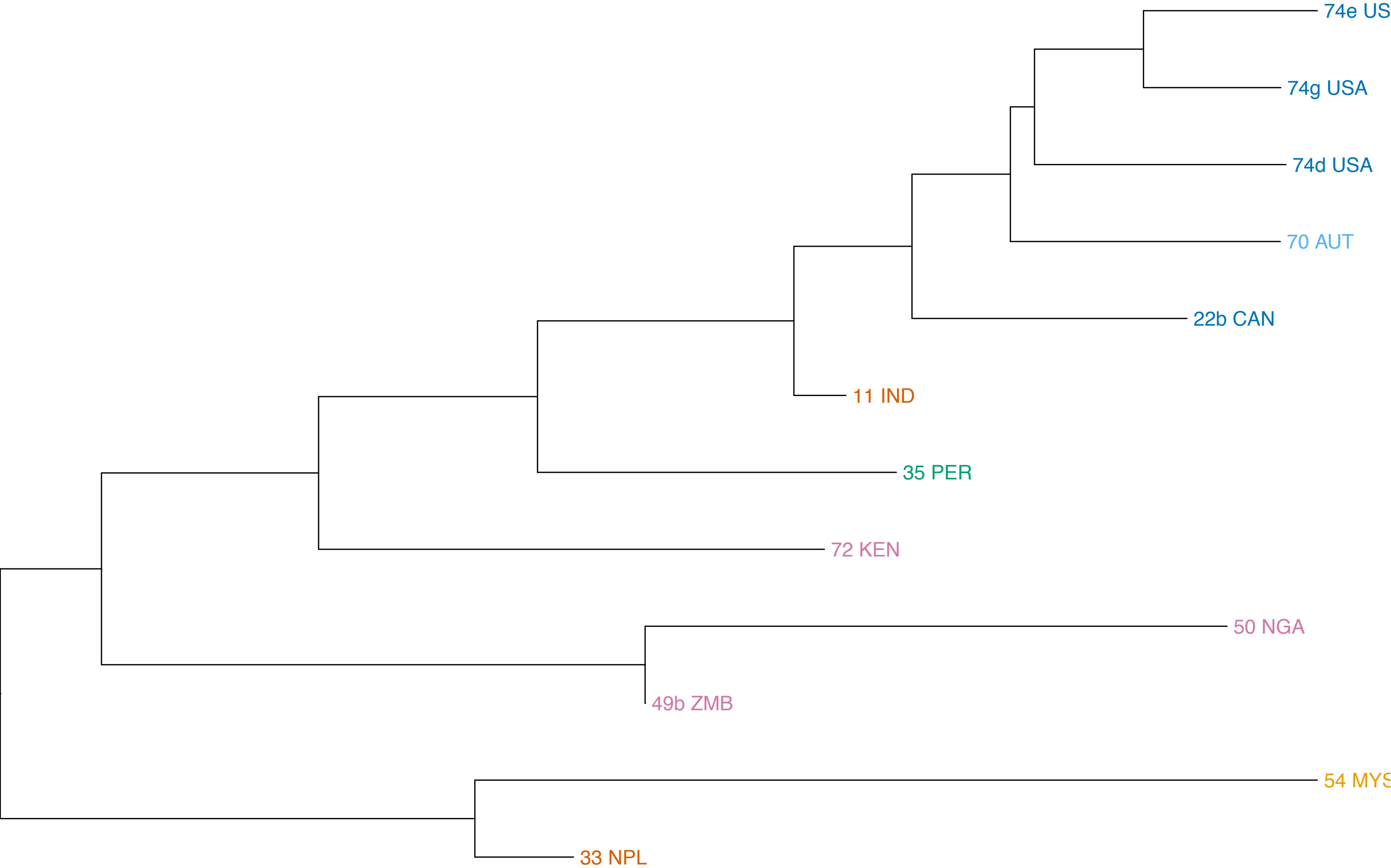
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Comamonas testosteroni CNB-2
p-value 0.63



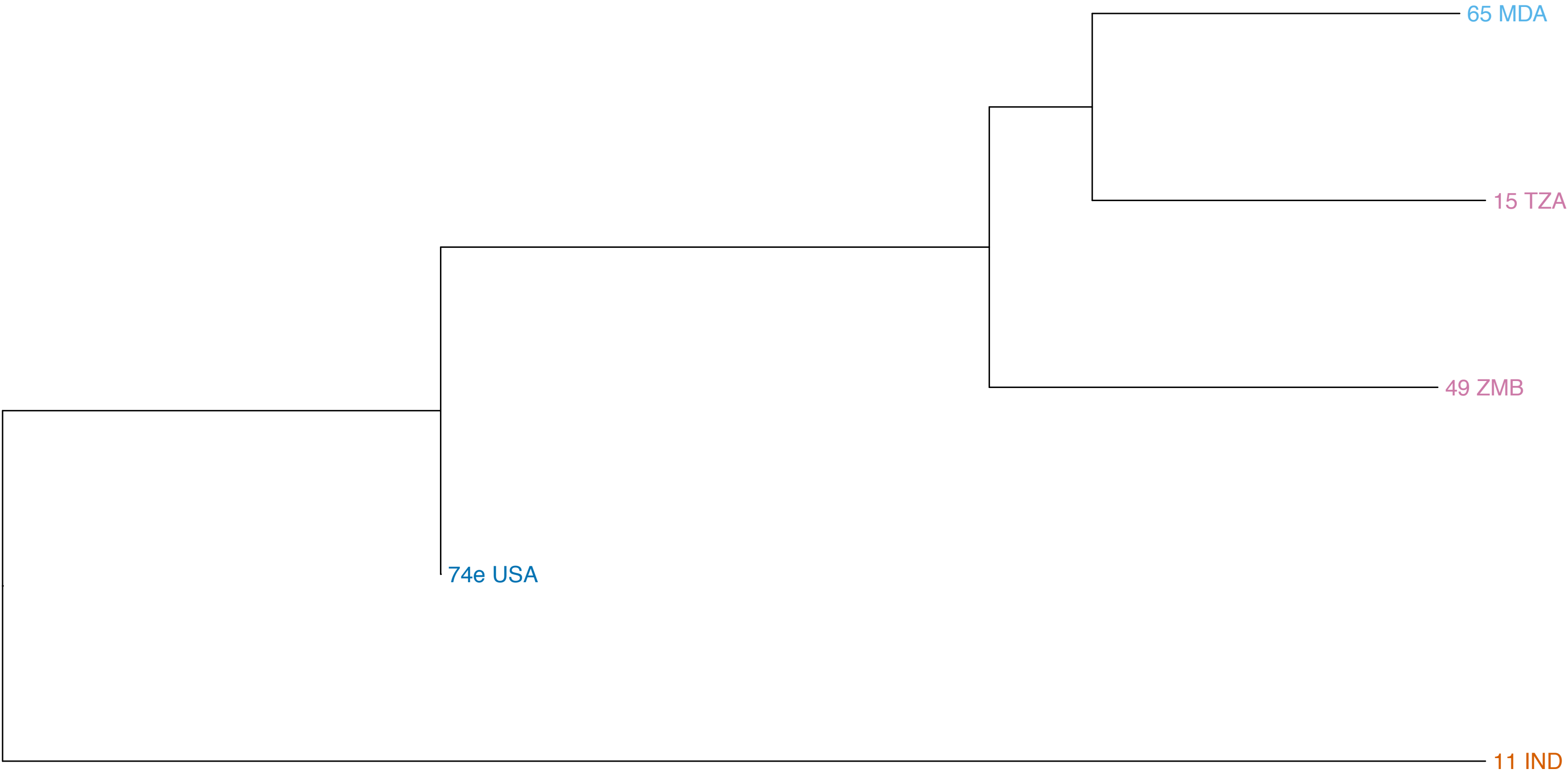
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Eubacterium eligens ATCC 27750
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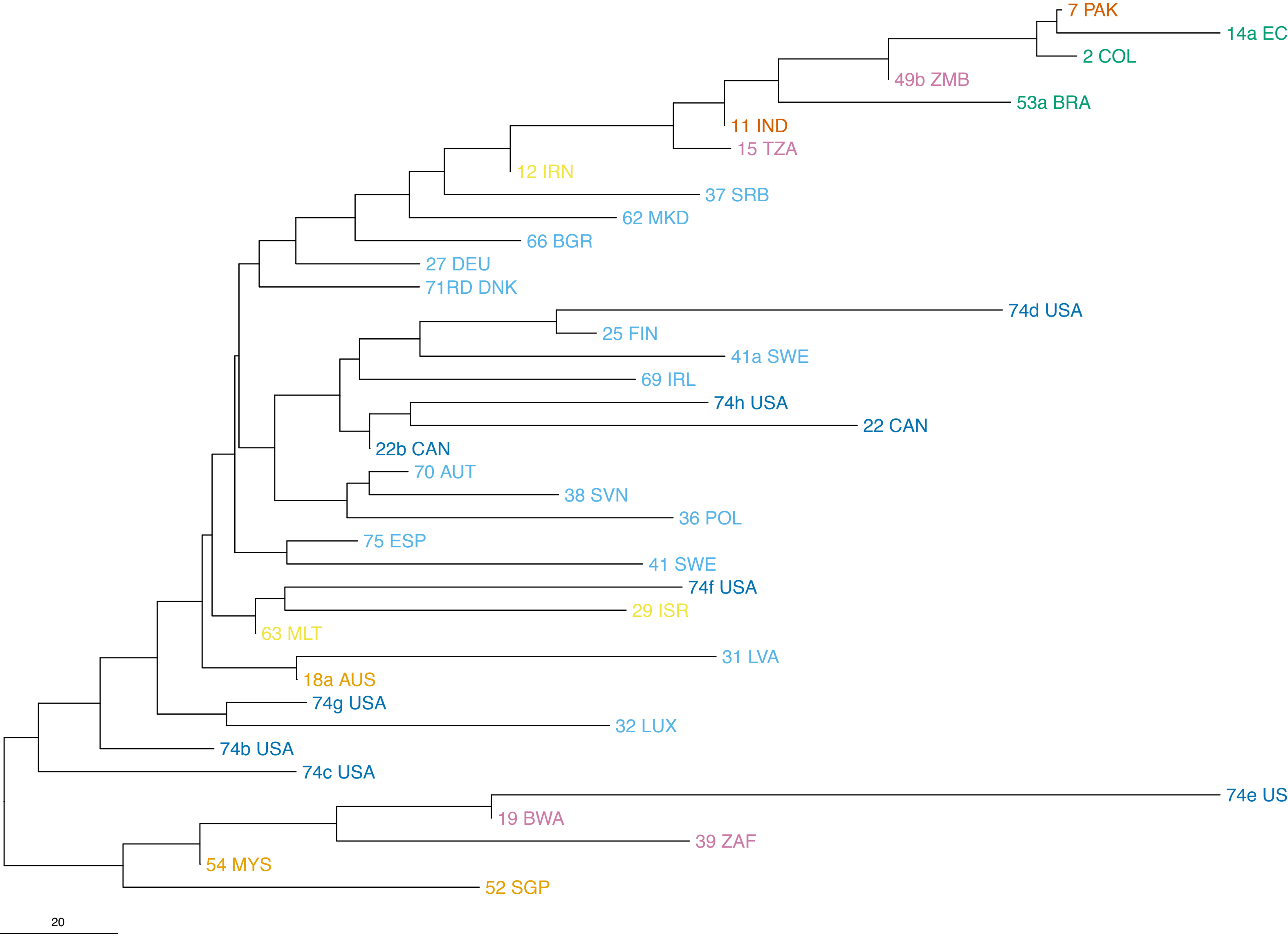
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Lactobacillus delbrueckii subsp. bulgaricus ND02
p-value 1.0



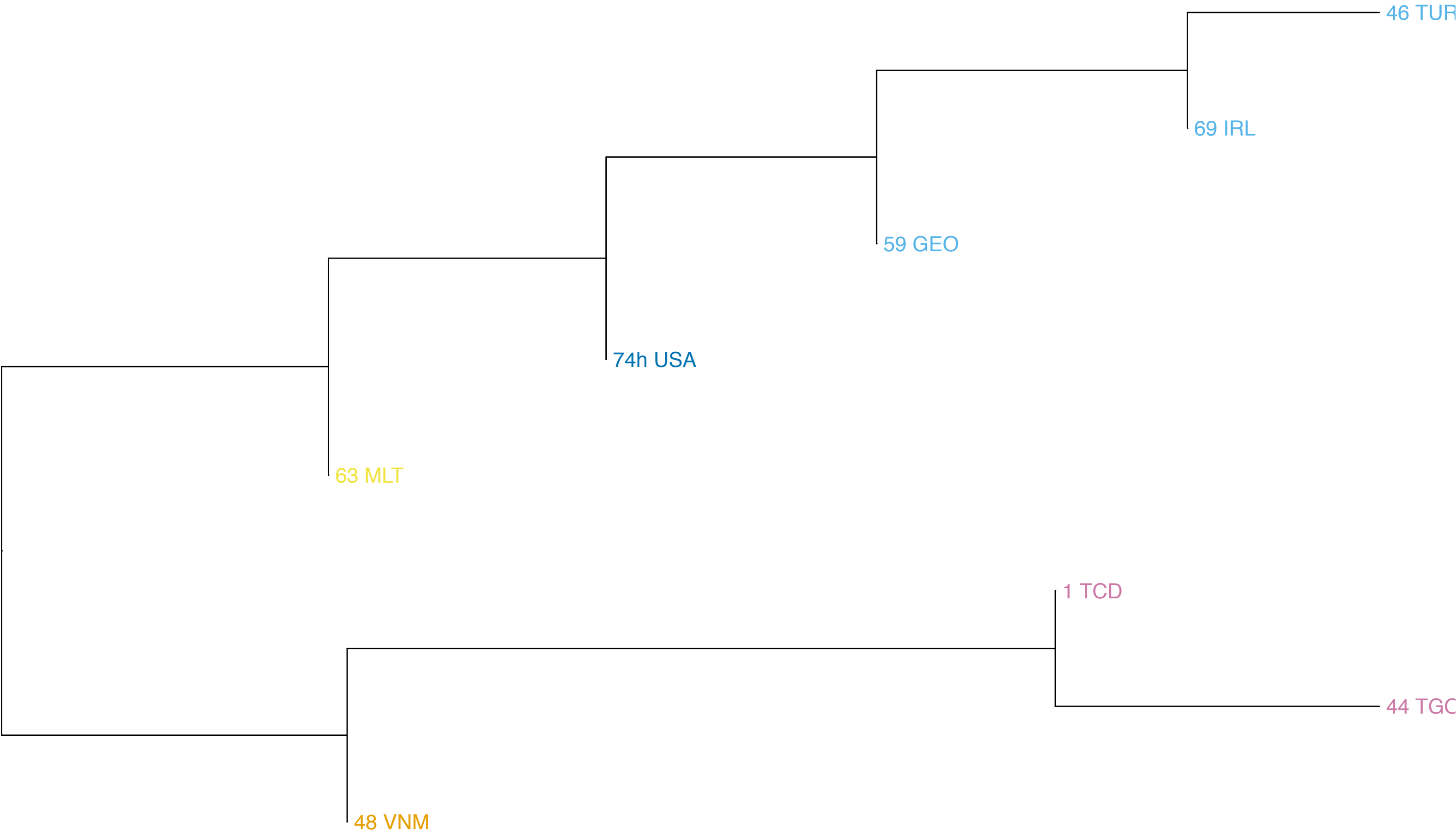
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Escherichia coli O83:H1 str. NRG 857C
p-value 0.00030



- East Asia & Pacific
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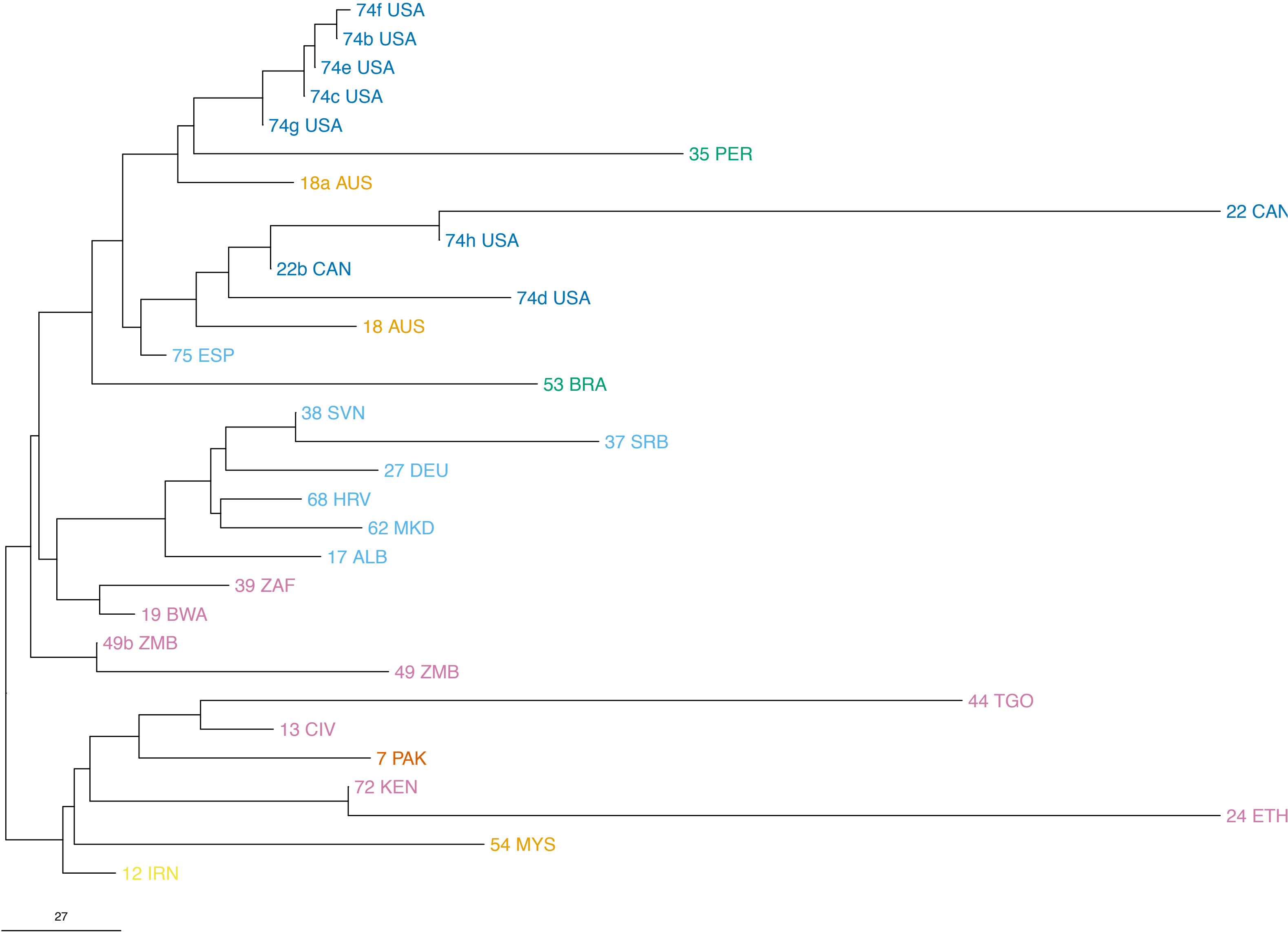
Aeromonas salmonicida subsp. salmonicida A449
p-value 0.062



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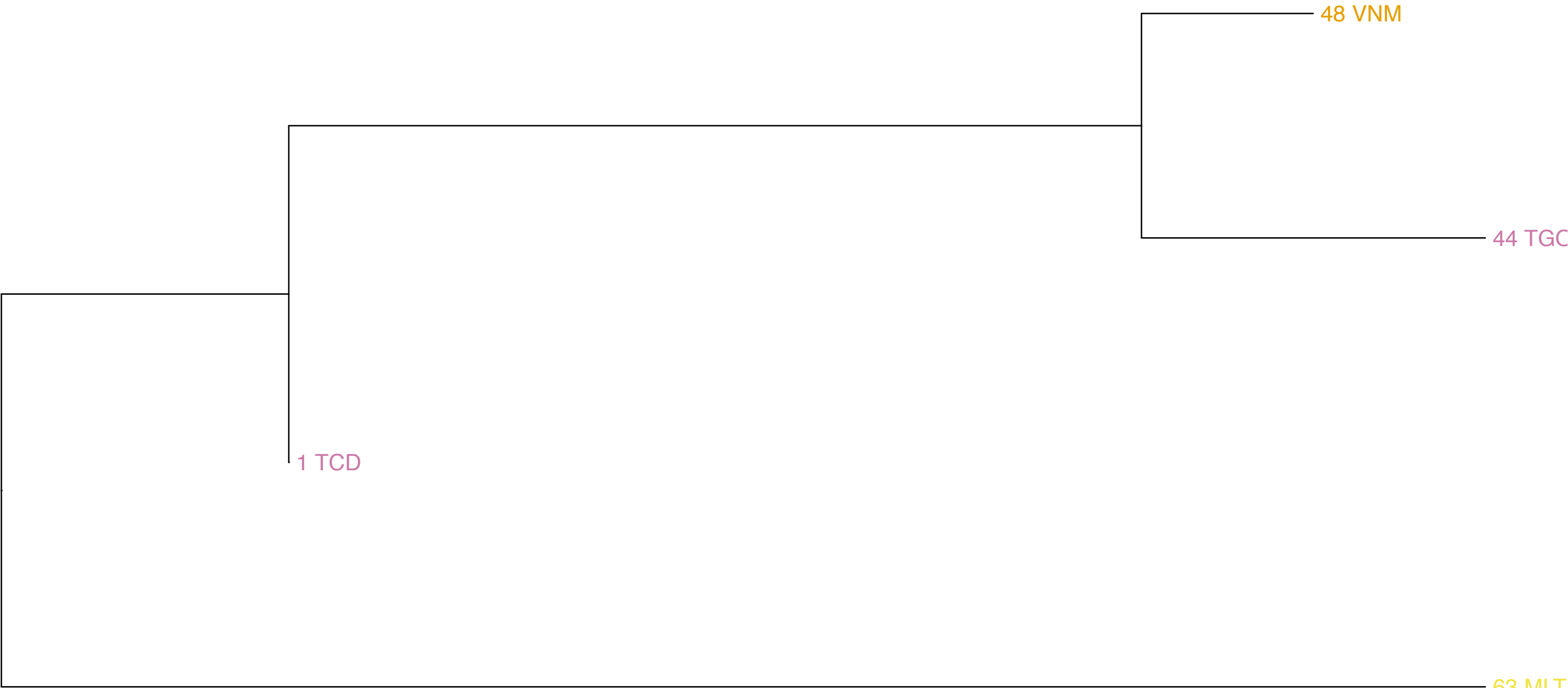
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Clostridium sticklandii str. DSM 519
p-value 0.030



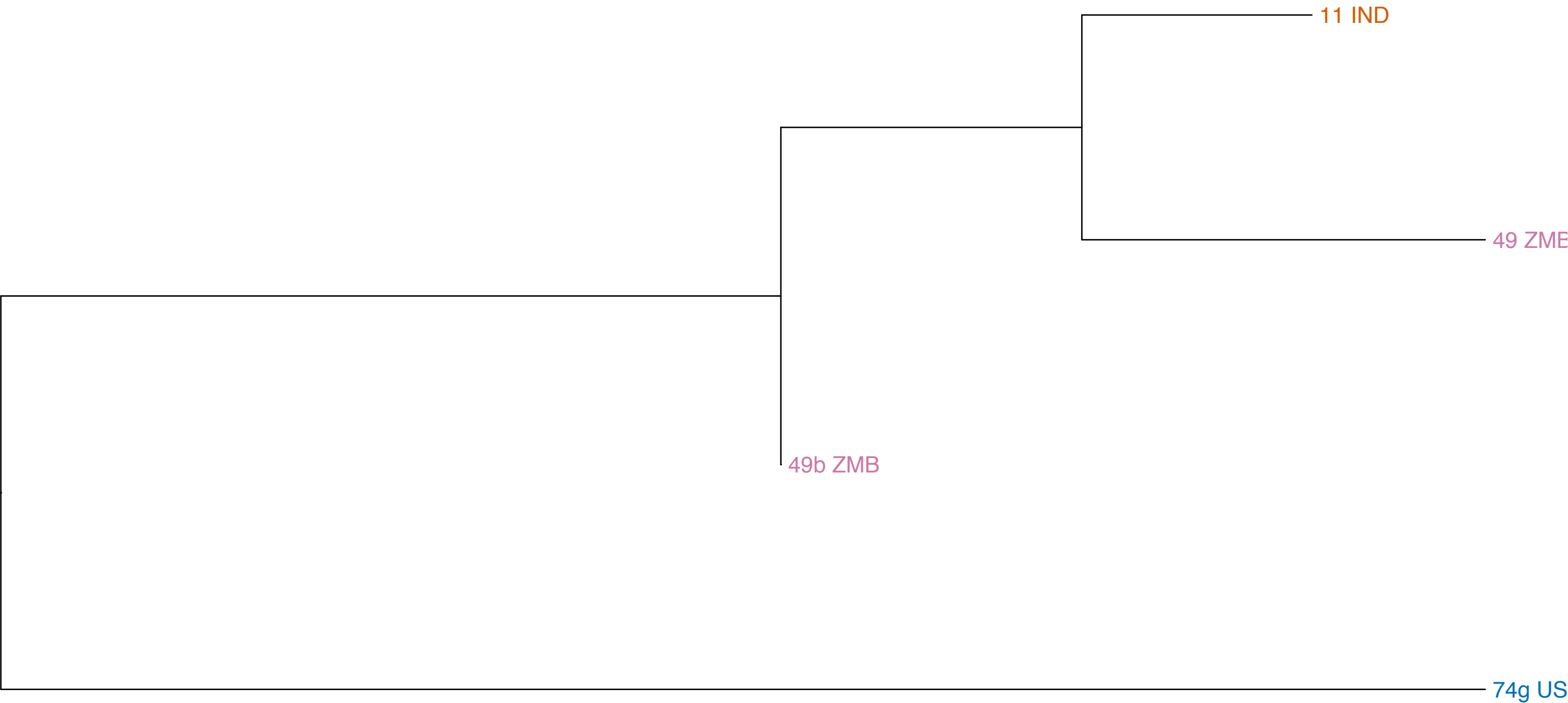
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Aeromonas veronii B565
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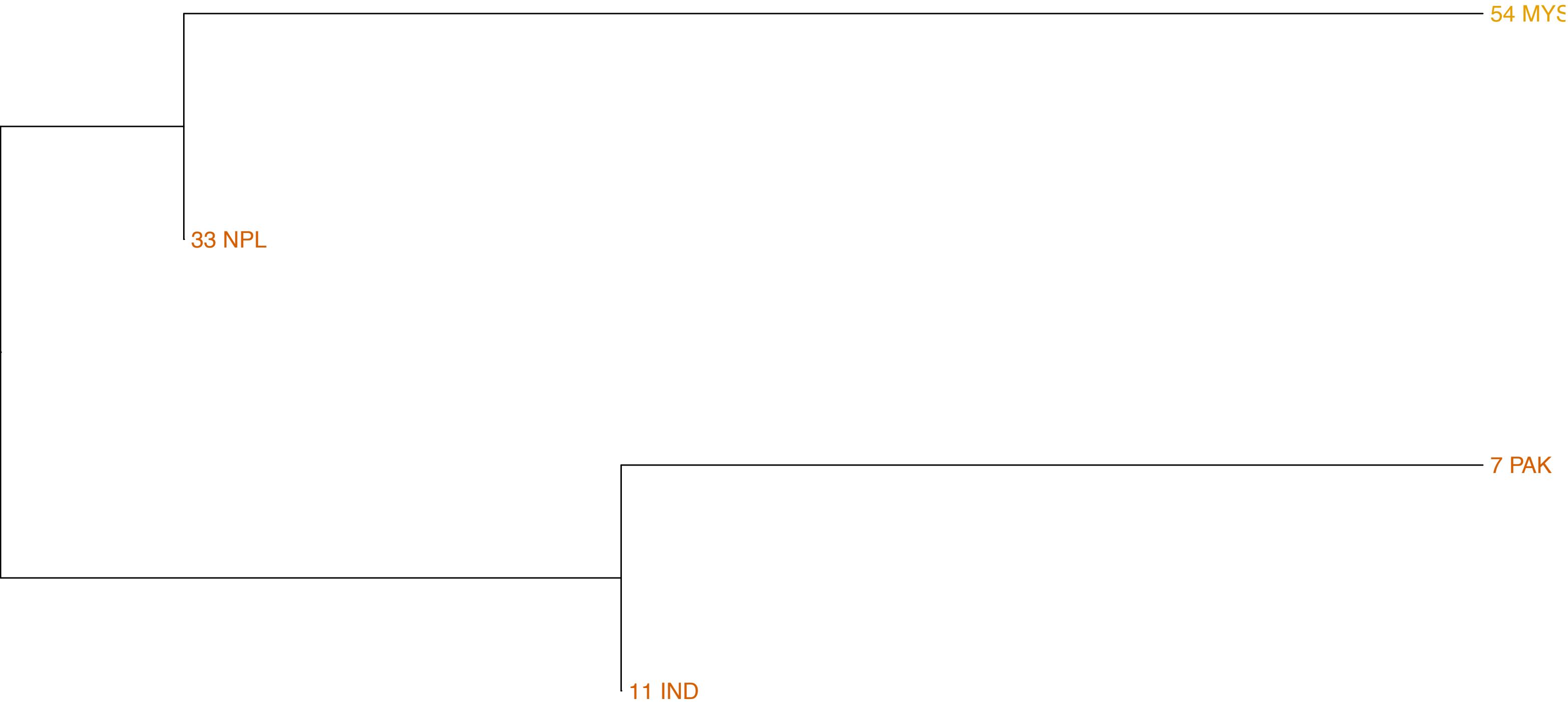
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Arcobacter butzleri 7h1h
p-value 1.0



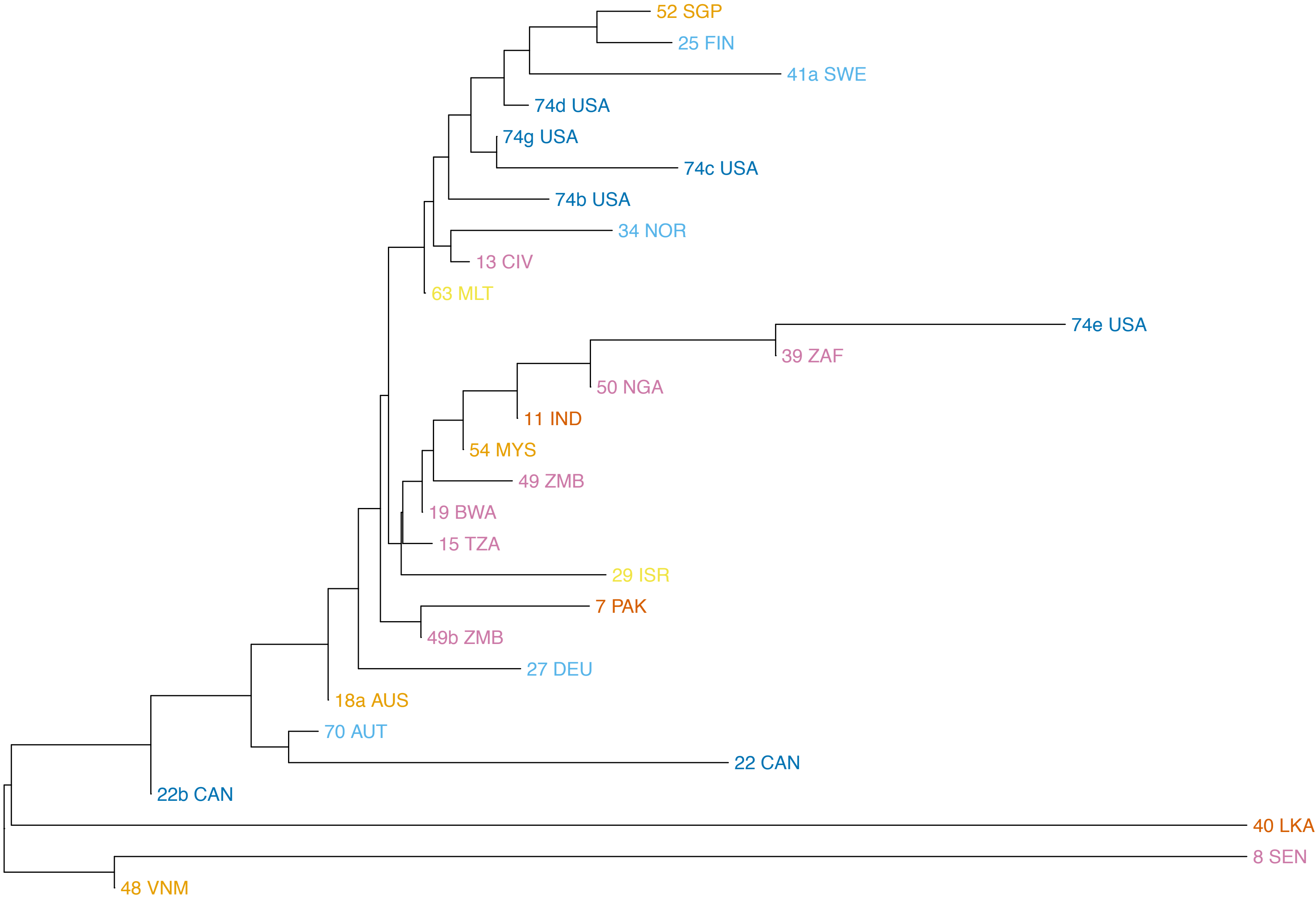
Lactobacillus ruminis ATCC 27782
p-value 0.51

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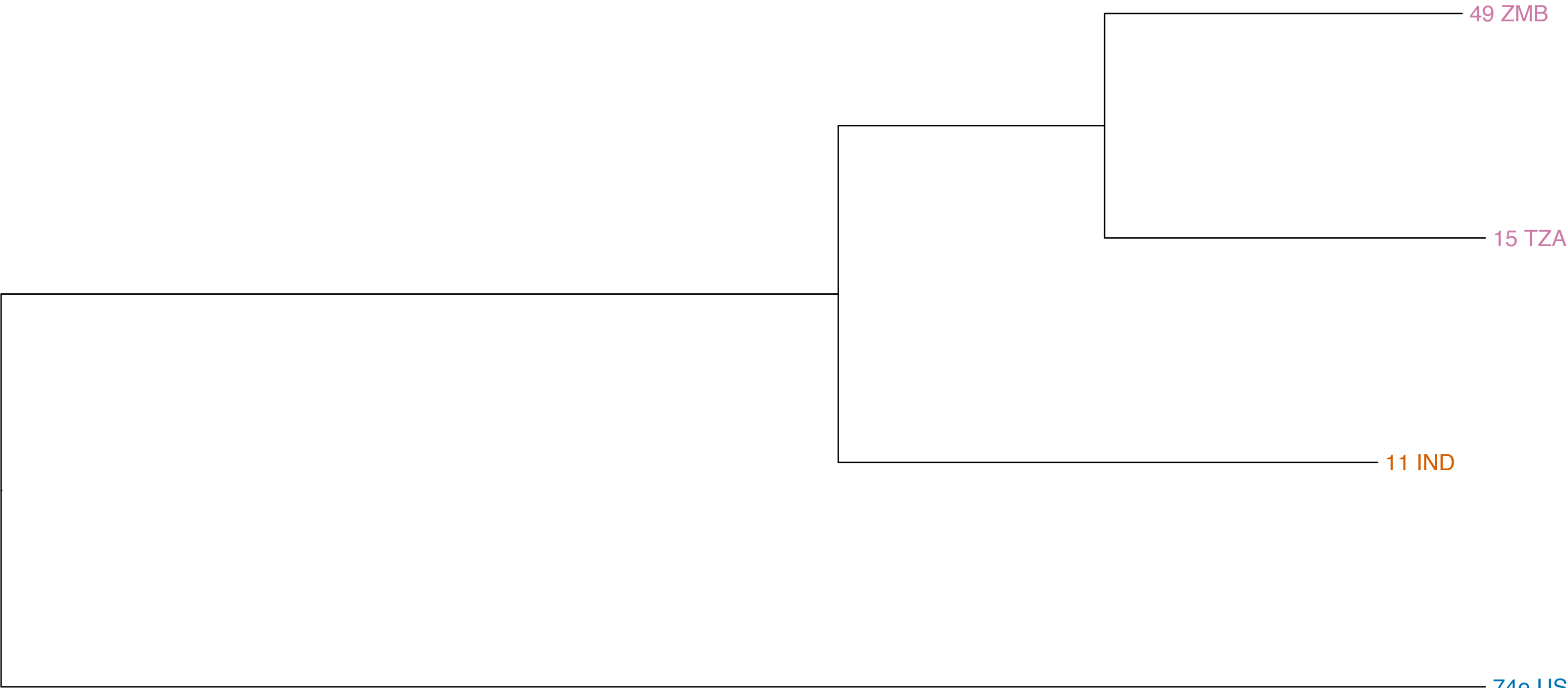
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Klebsiella pneumoniae subsp. pneumoniae HS11286
p-value 0.53



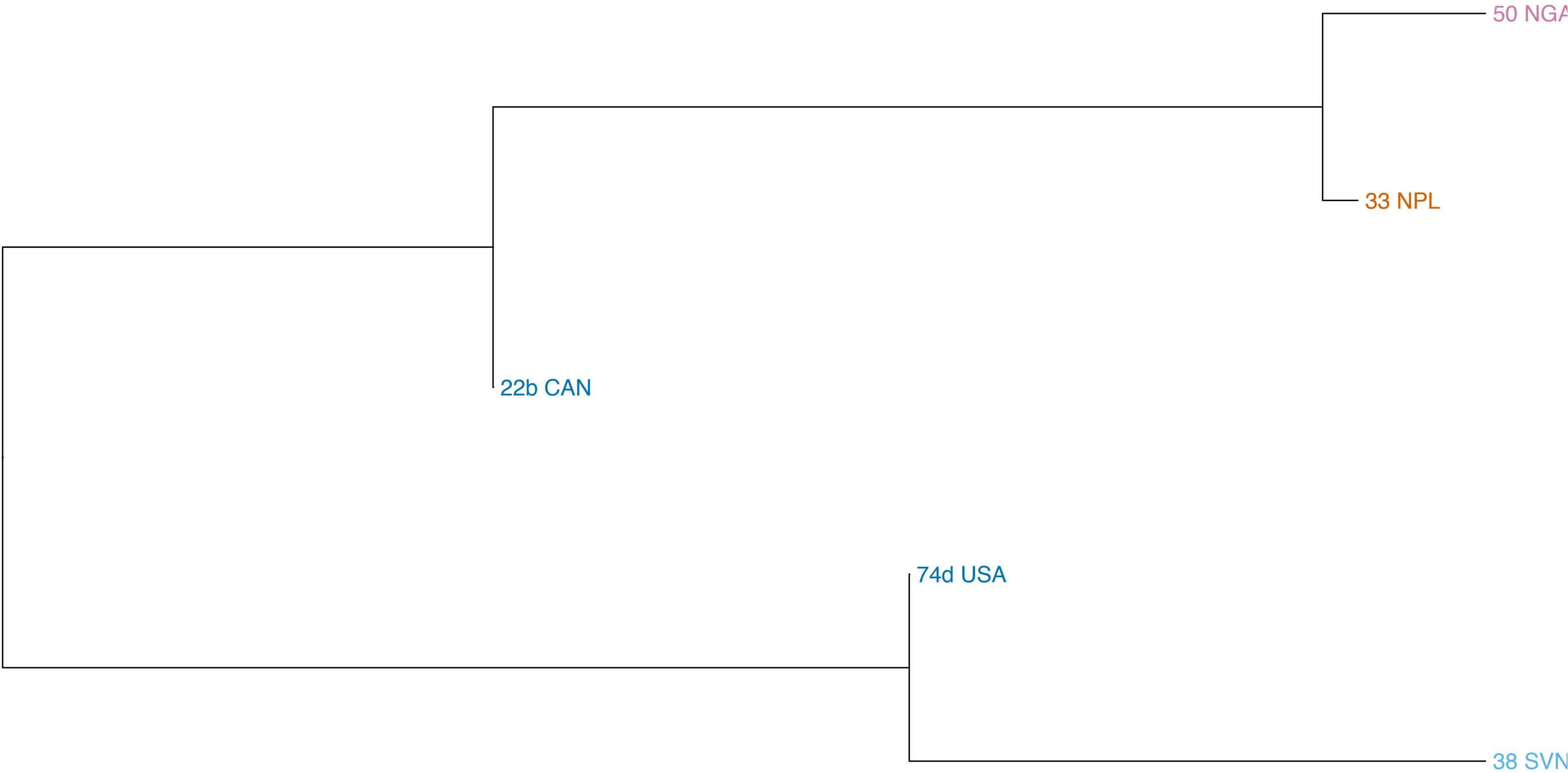
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Streptococcus infantarius subsp. infantarius CJ18
p-value 1.0



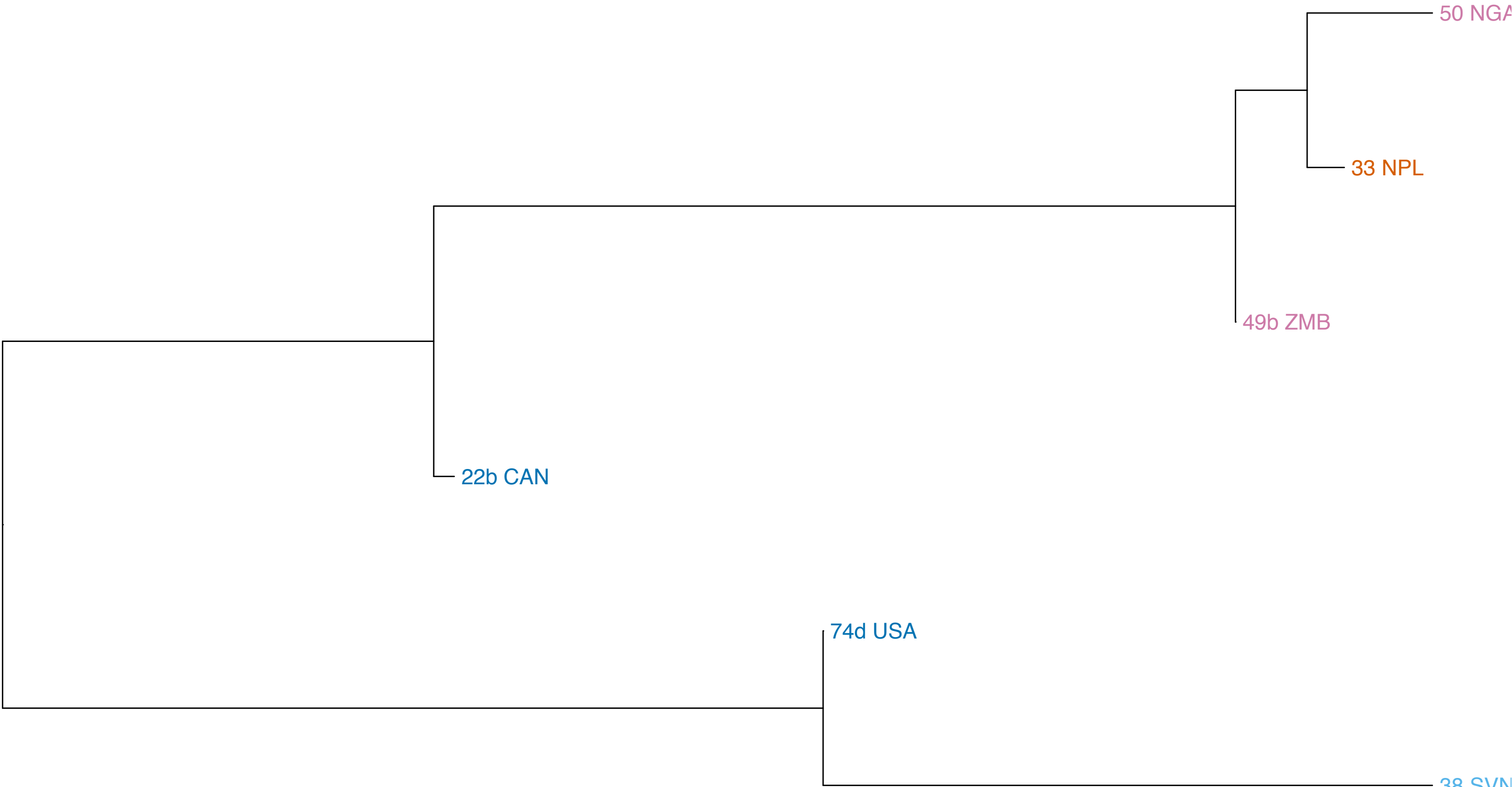
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Streptococcus salivarius JIM8777
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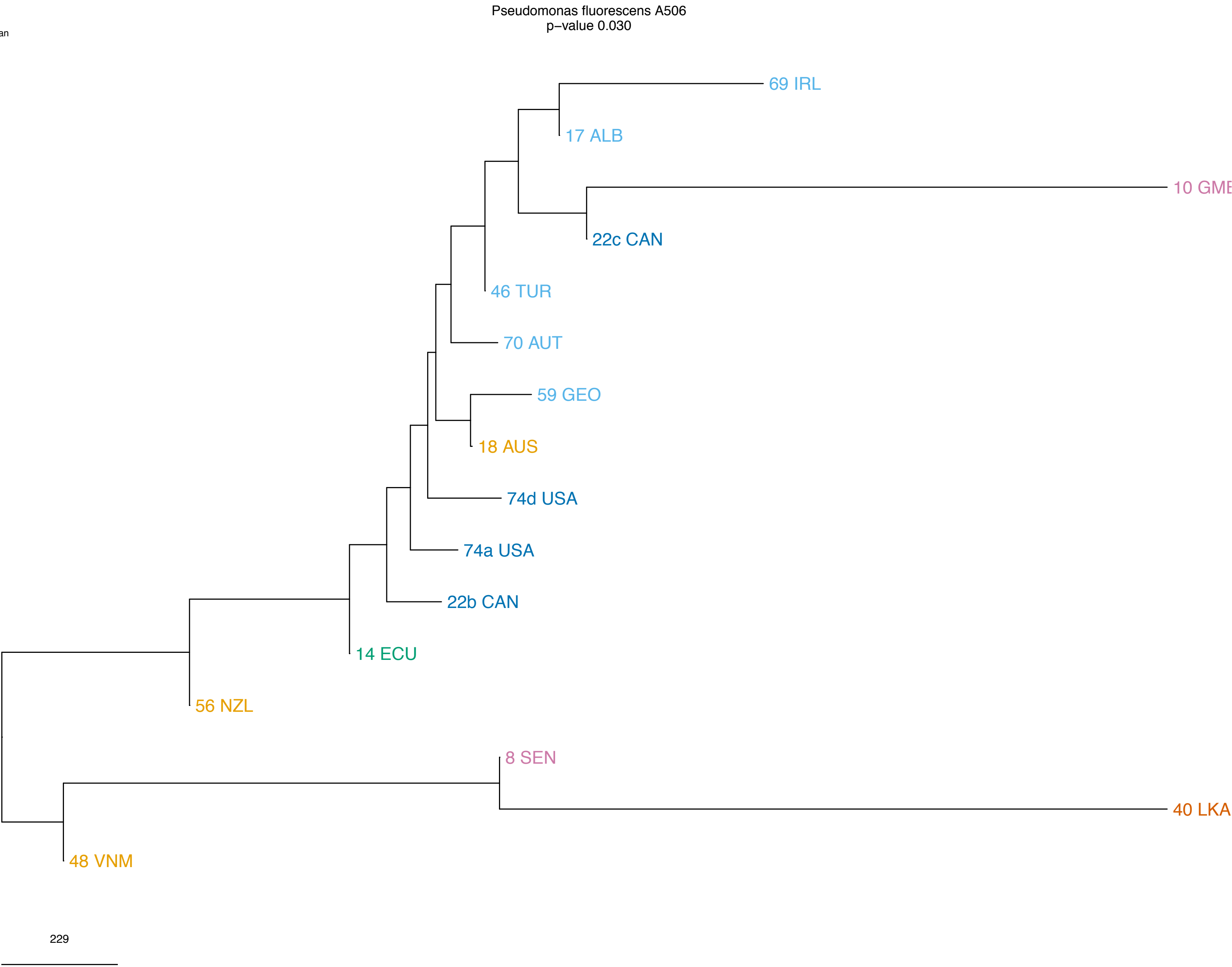


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Streptococcus salivarius CCHSS3
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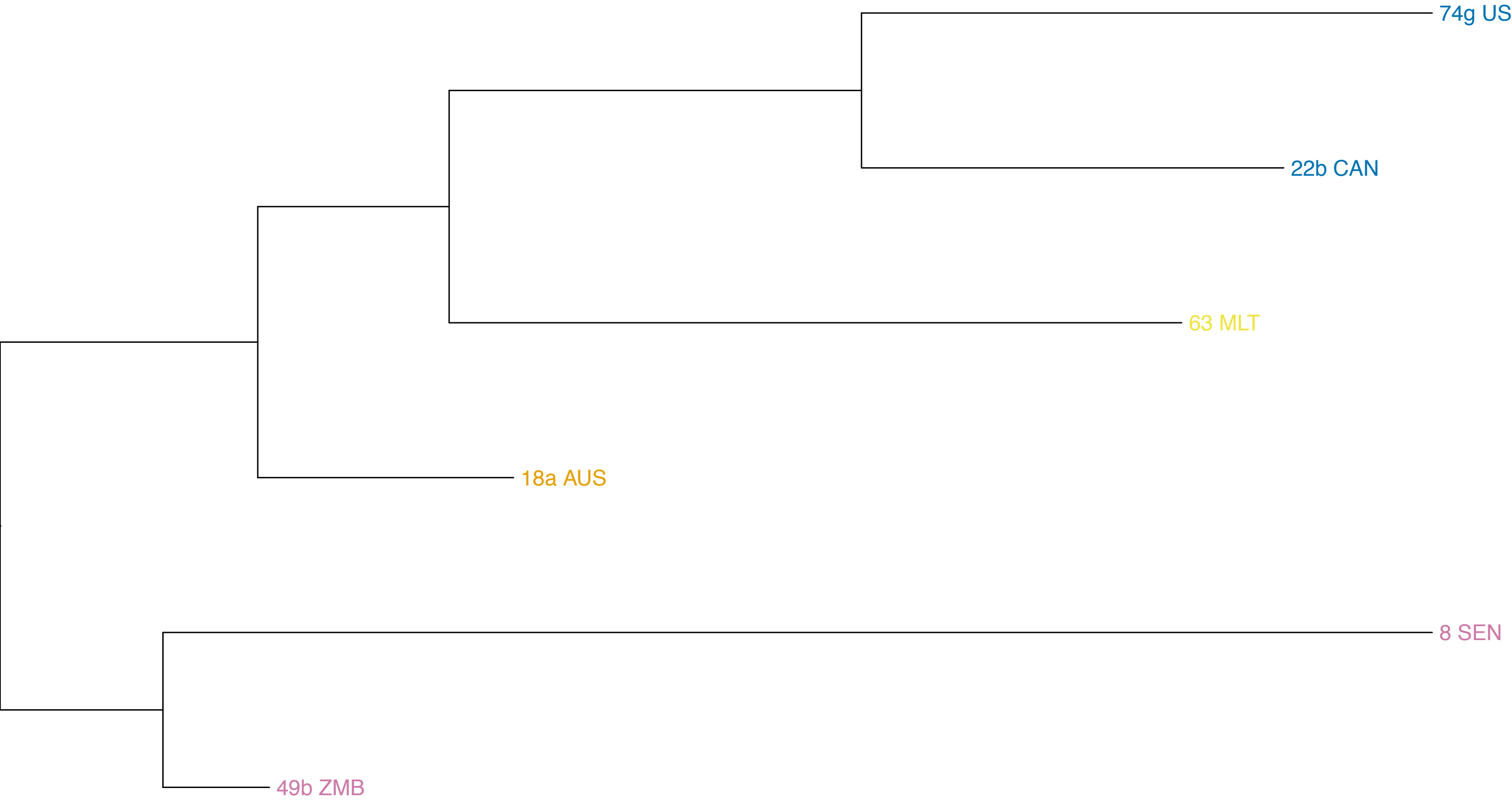


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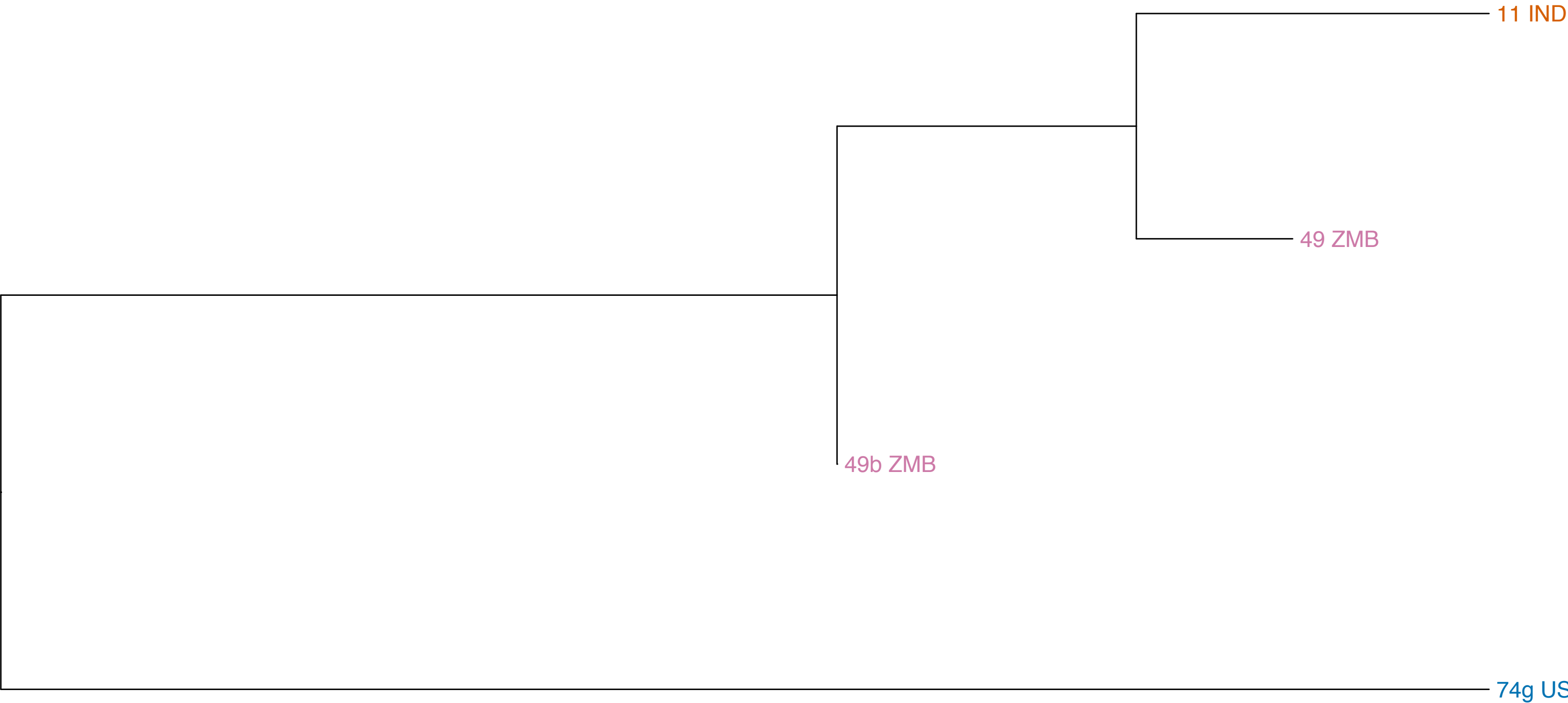
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Klebsiella oxytoca E718
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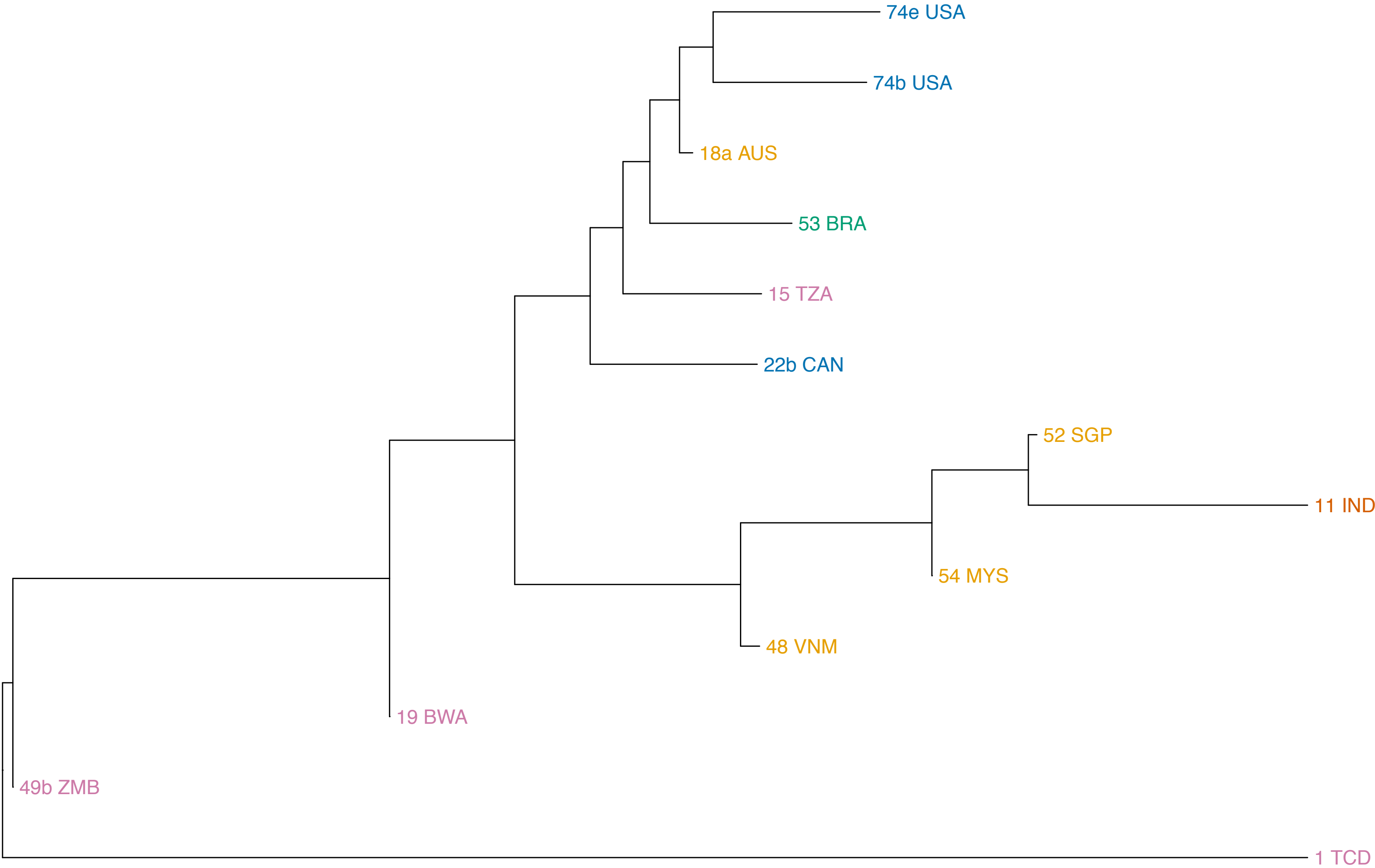
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Arcobacter butzleri ED-1
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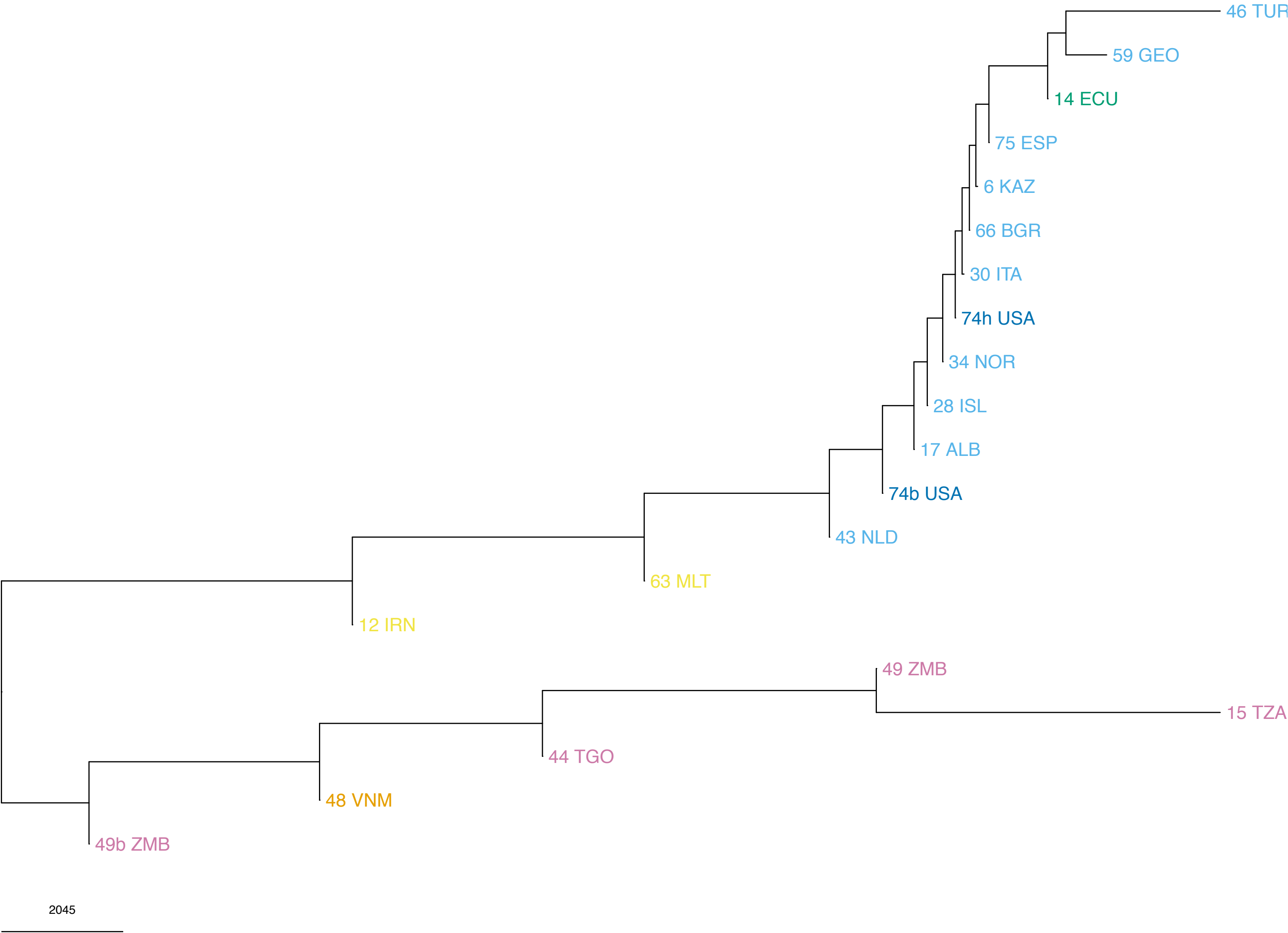
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Enterobacter cloacae subsp. cloacae ENHKU01
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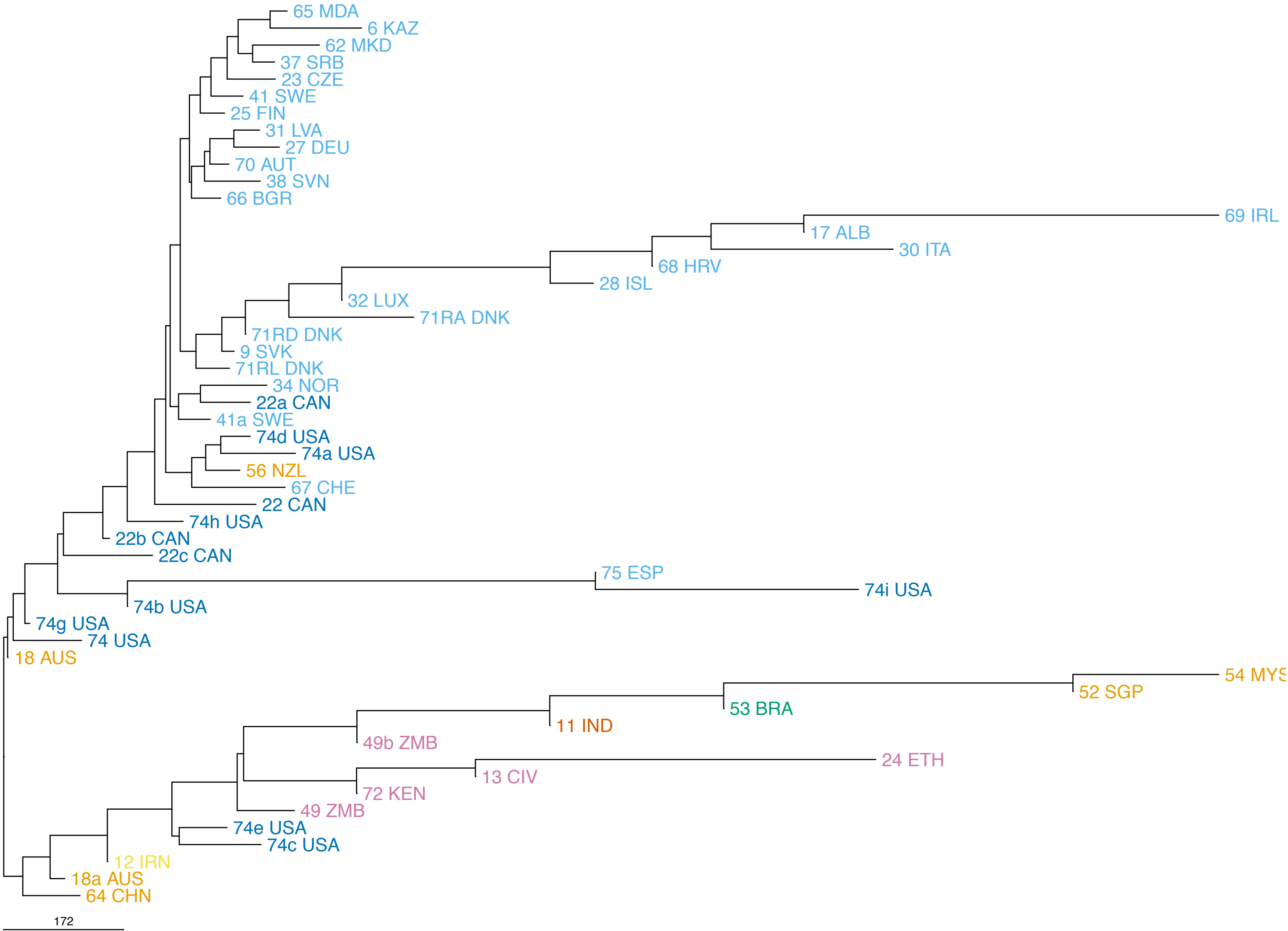
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Aeromonas media WS
p-value 0.00020



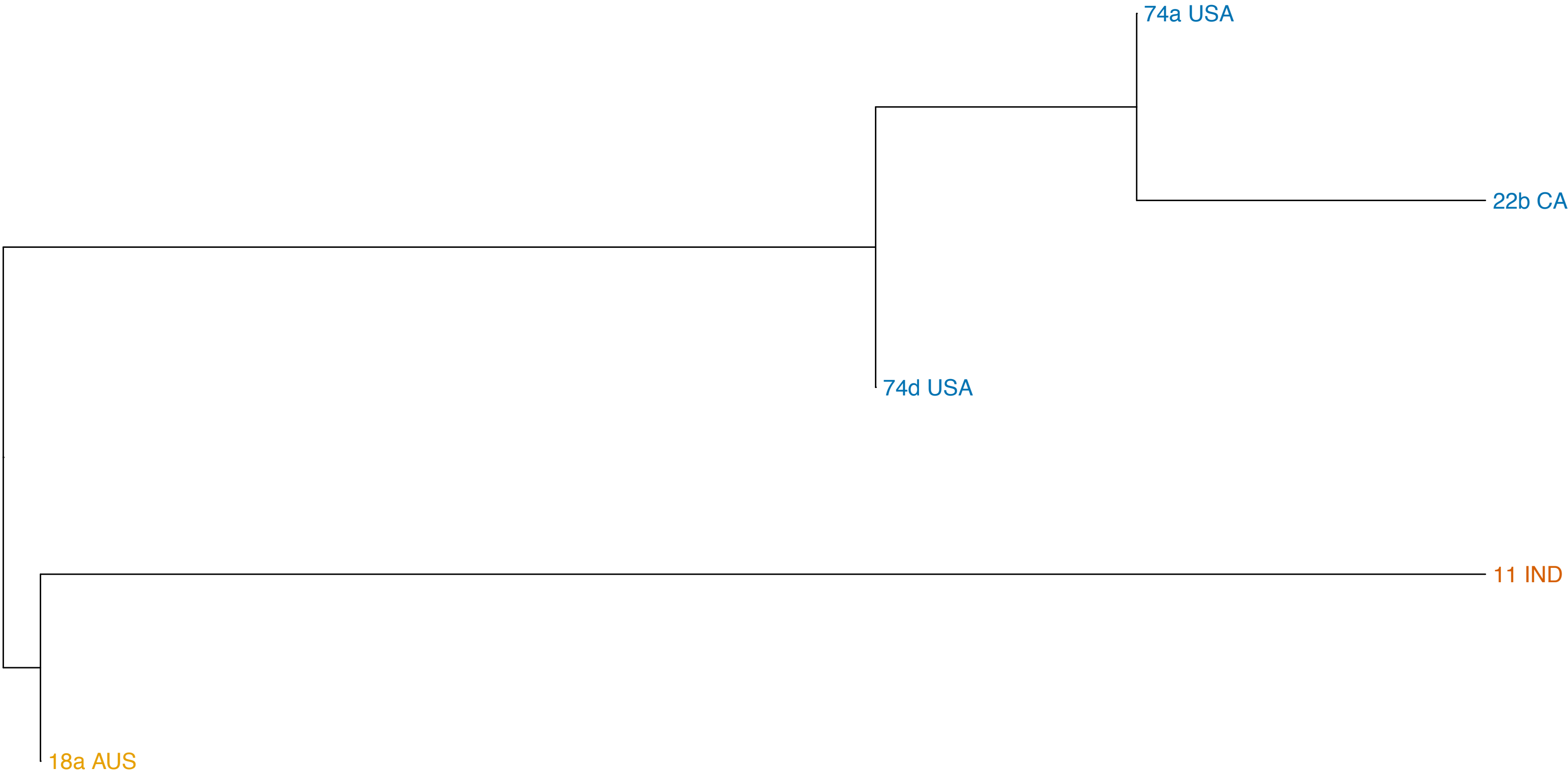
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Acidovorax sp. KKS102
p-value 0.00010



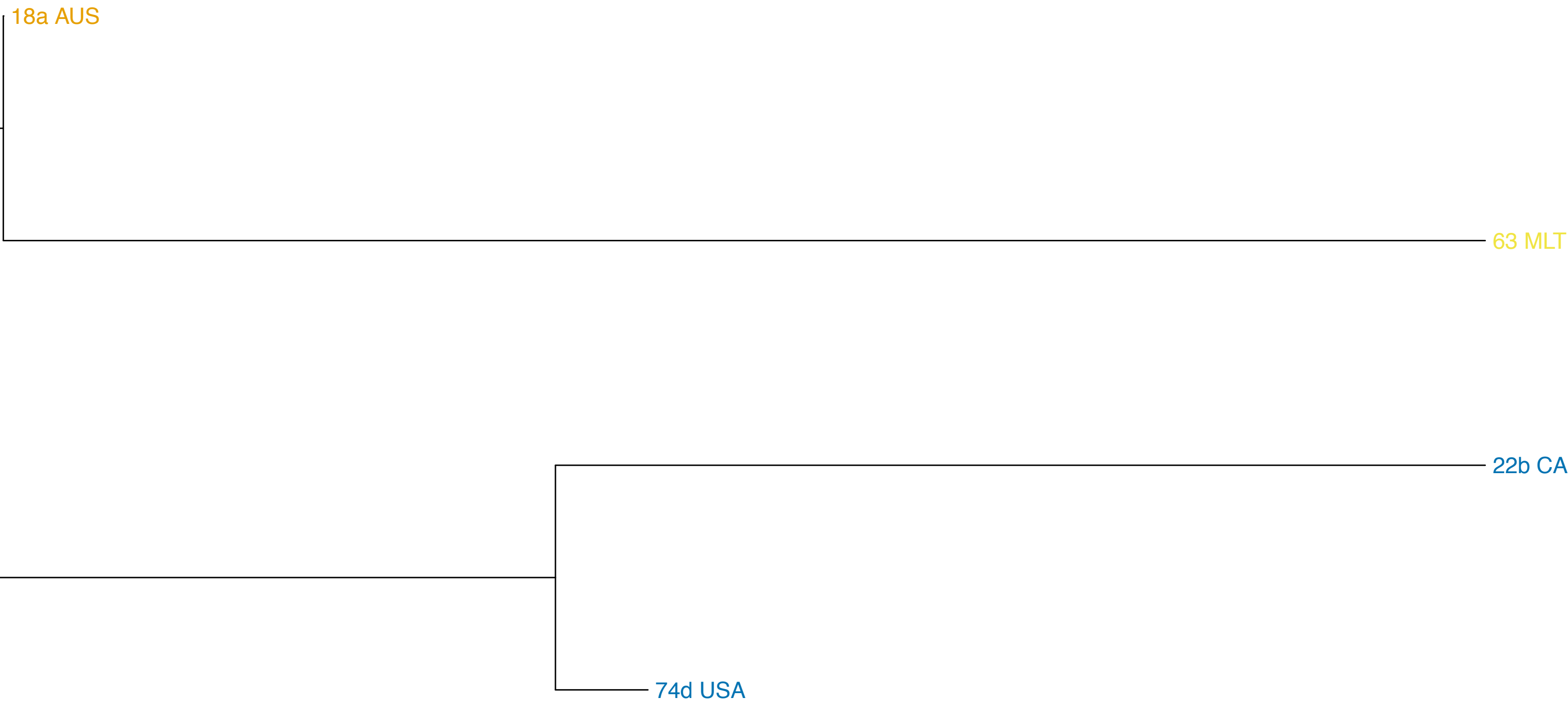
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Lactococcus lactis subsp. lactis IO-1
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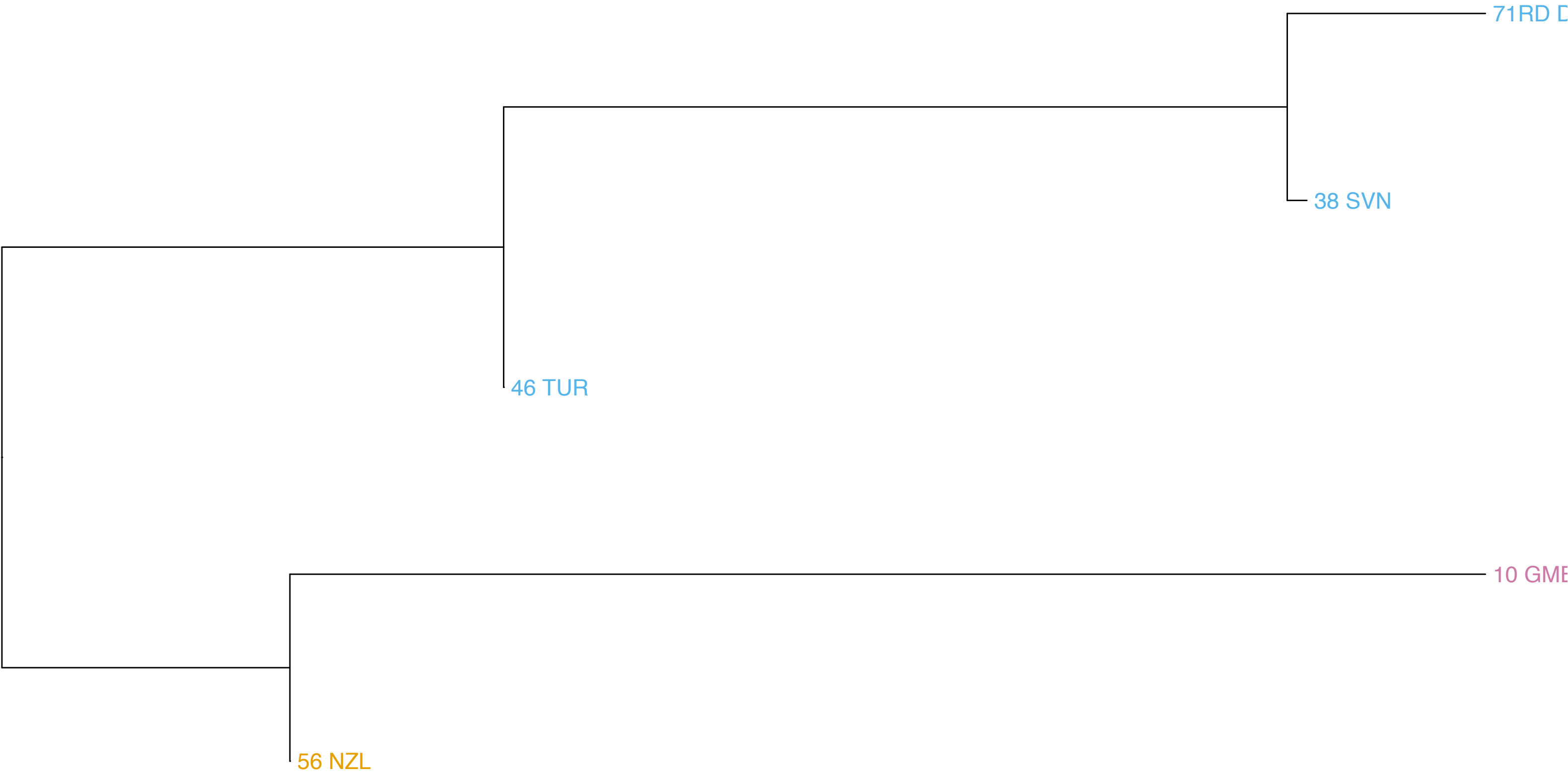
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Raoultella ornithinolytica B6
p-value 1.0



a East Asia & Pacific
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Psychrobacter sp. G
p-value 0.20

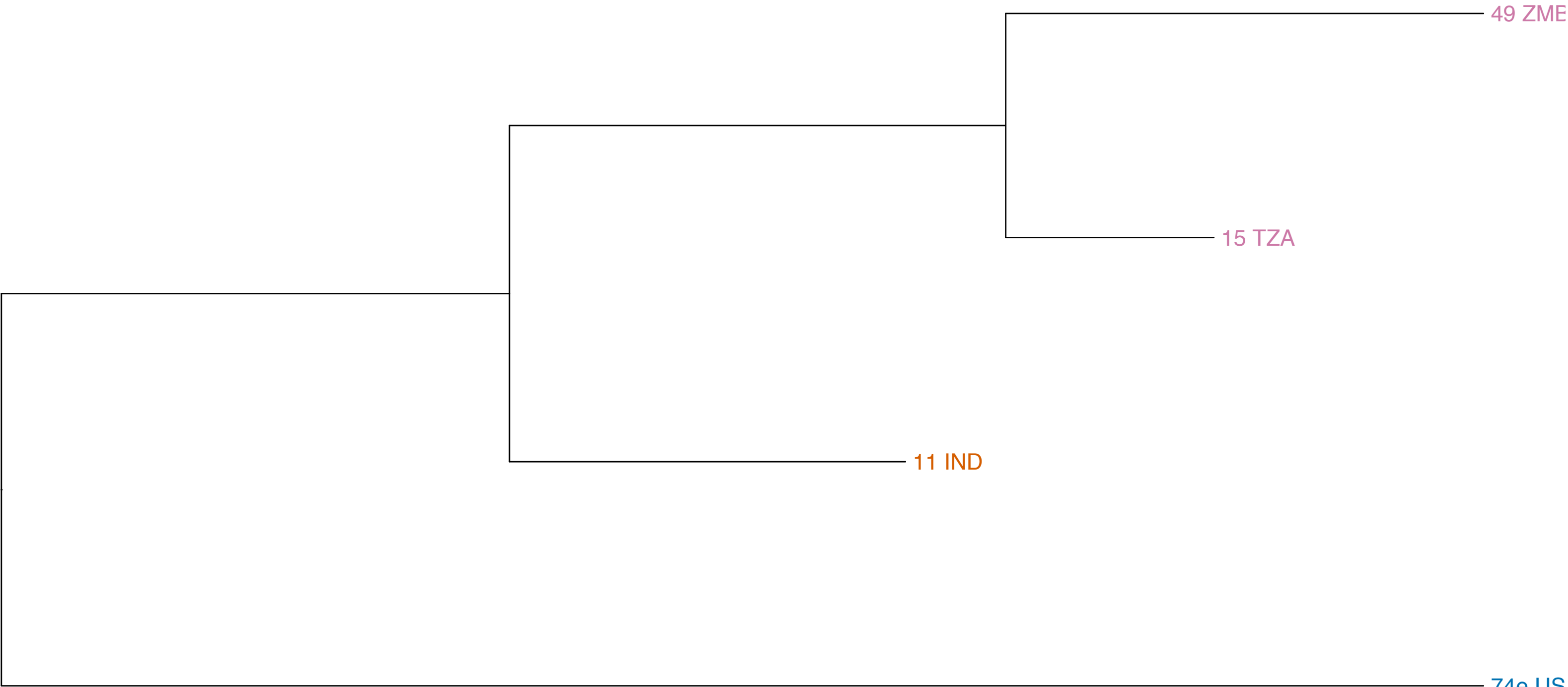


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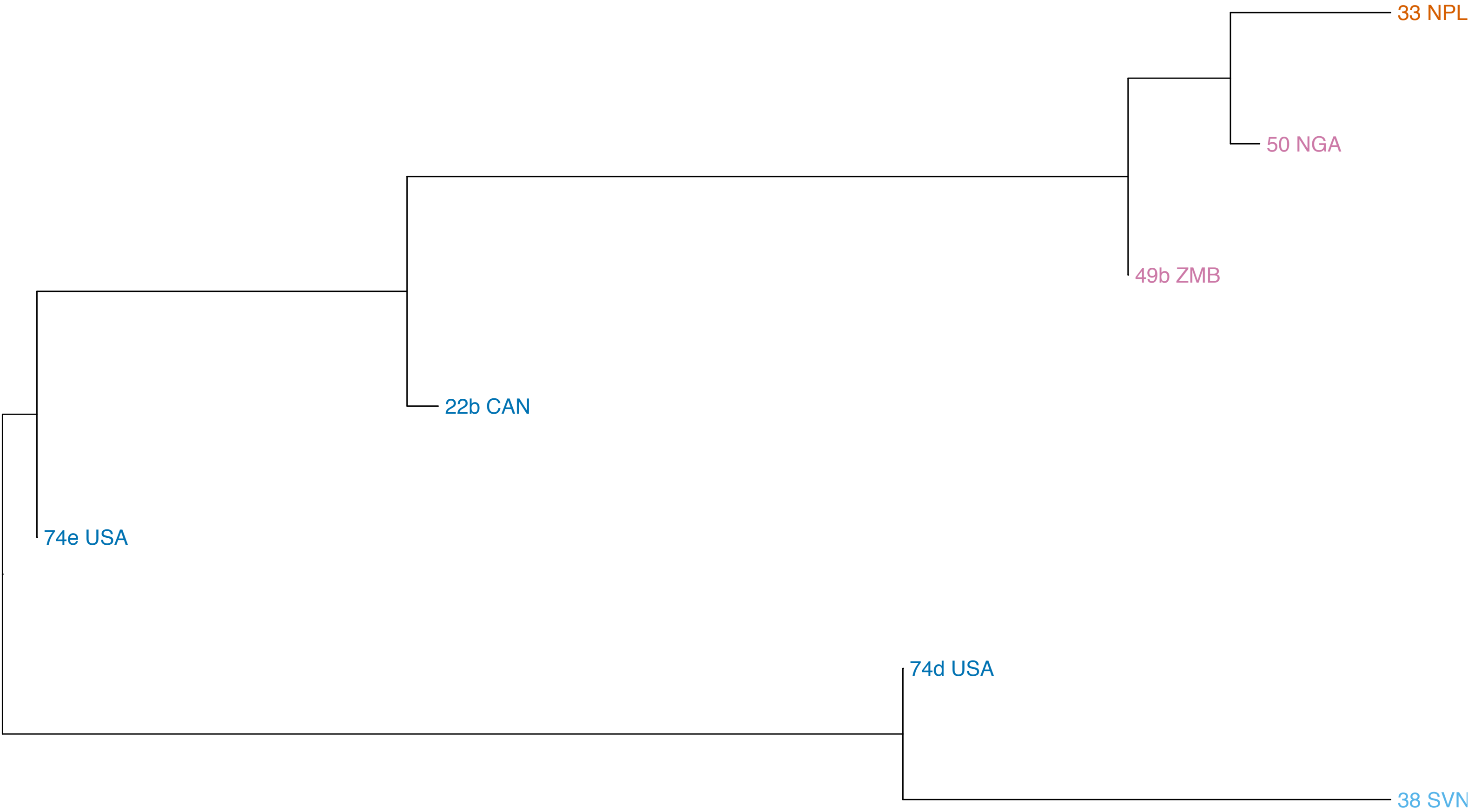
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Streptococcus lutetiensis 033
p-value 1.0



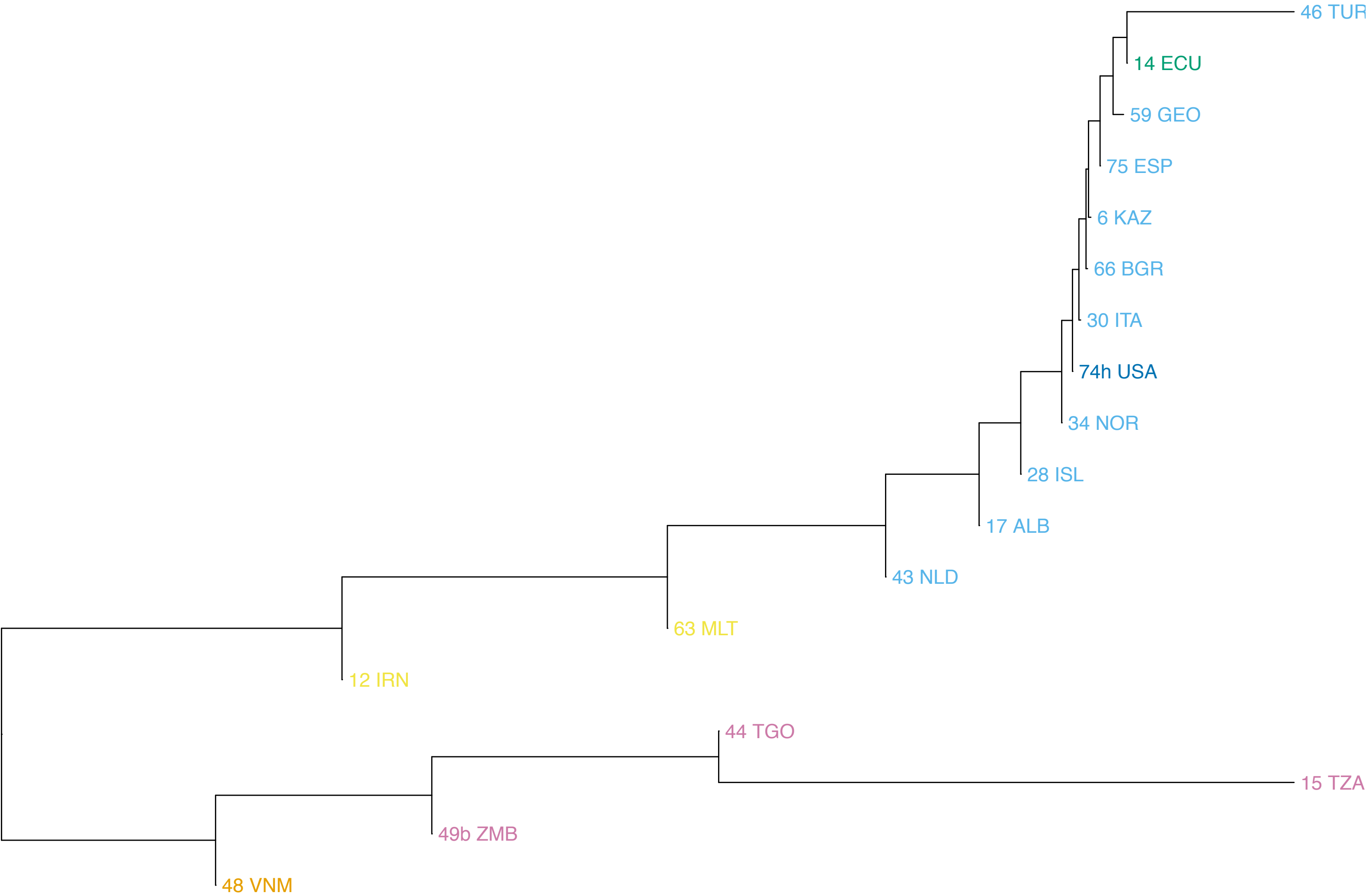
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Streptococcus salivarius strain HSISS4
p-value 0.11



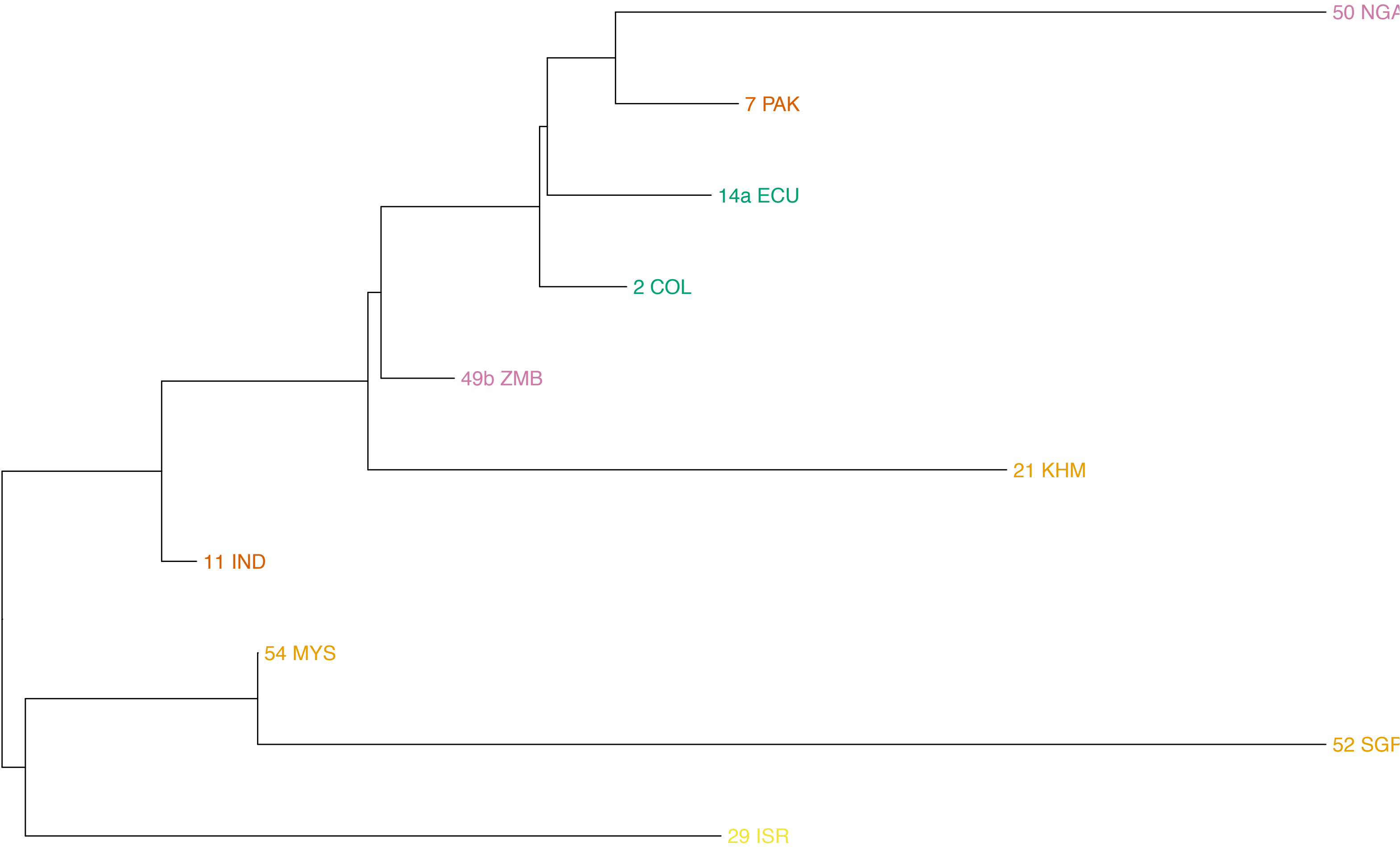
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Aeromonas hydrophila 4AK4
p-value 0.0014



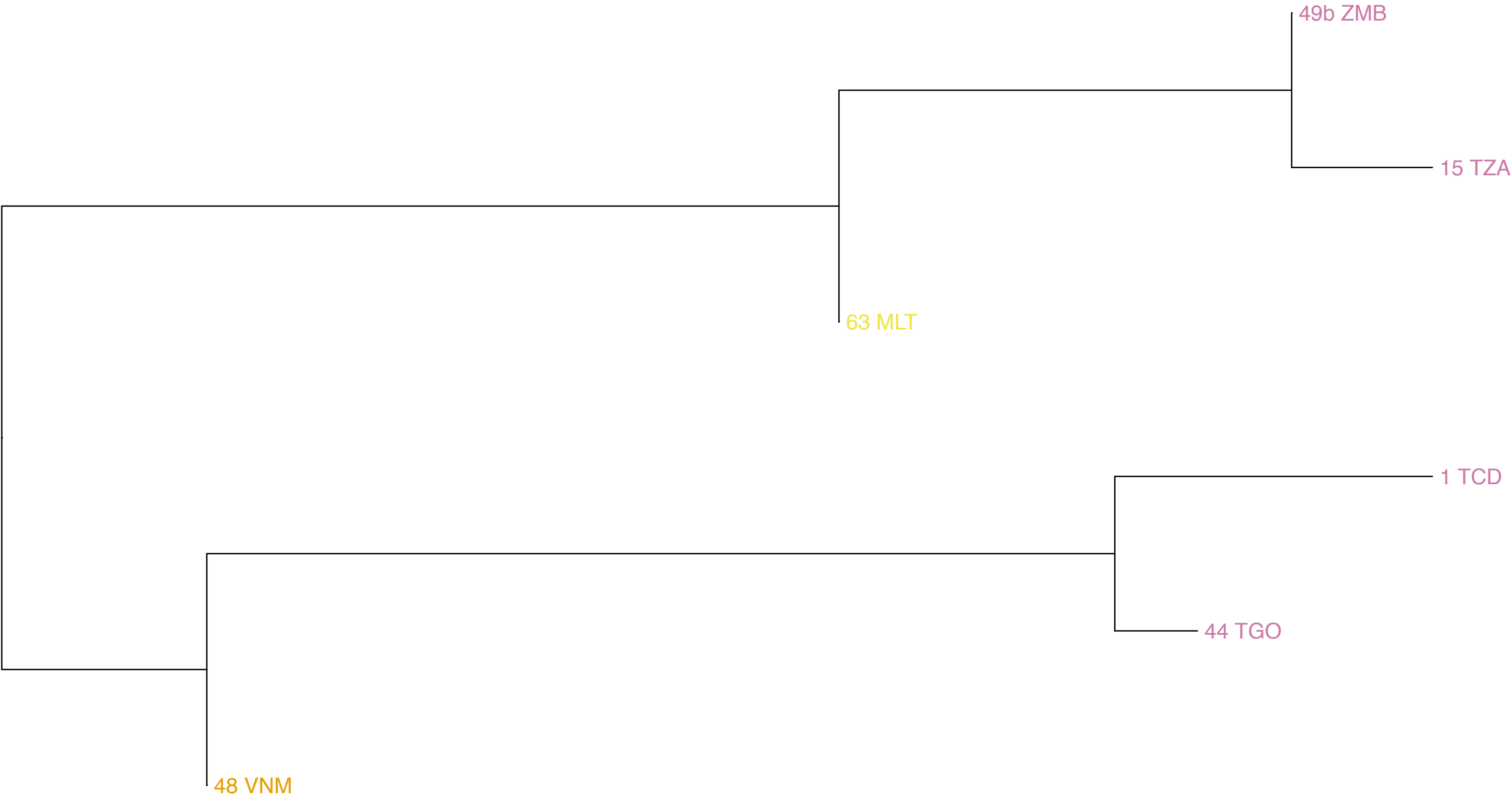
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Escherichia coli strain ST2747
p-value 0.31



- East Asia & Pacific
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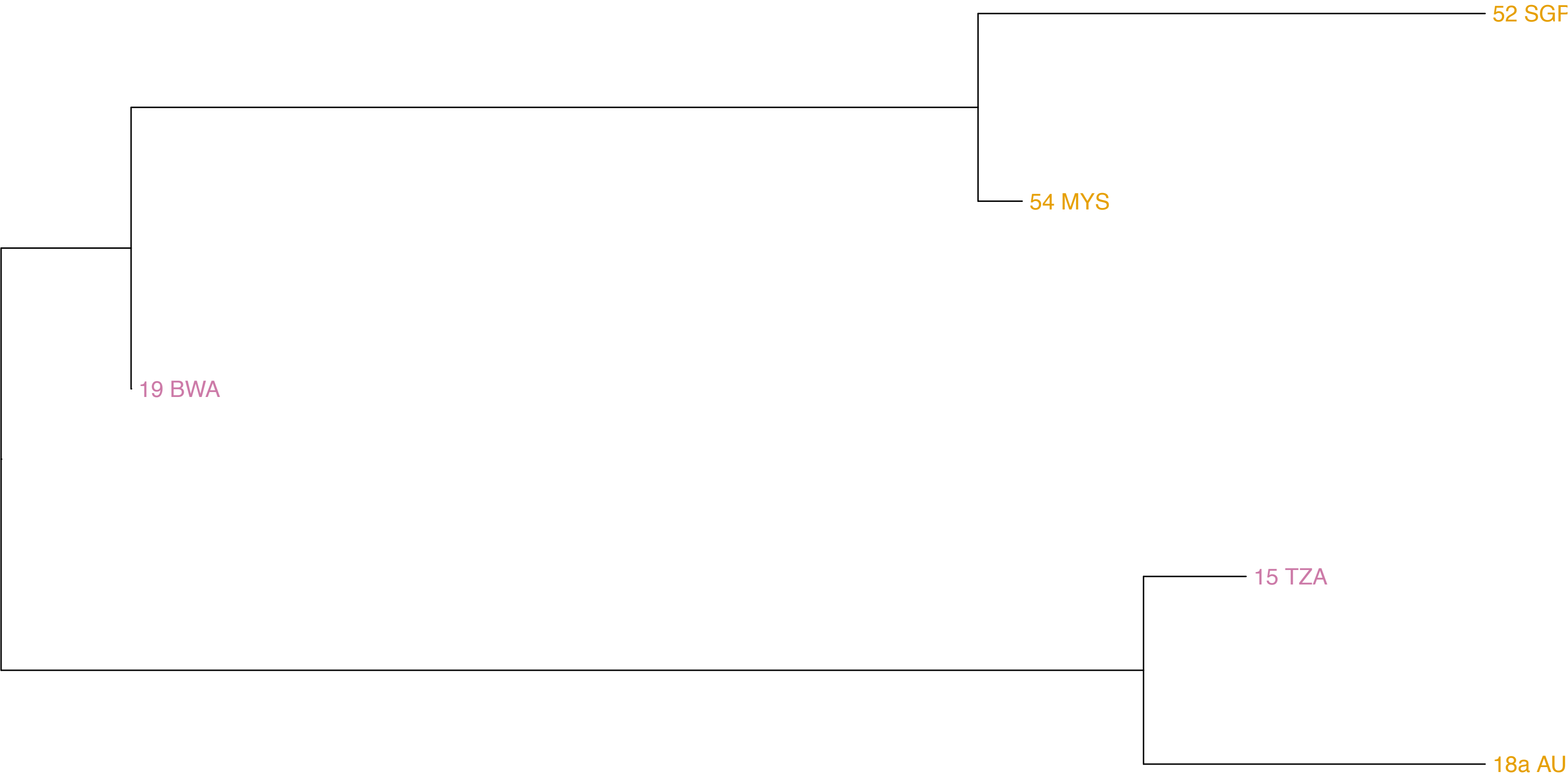
Aeromonas hydrophila YL17
p-value 1.0



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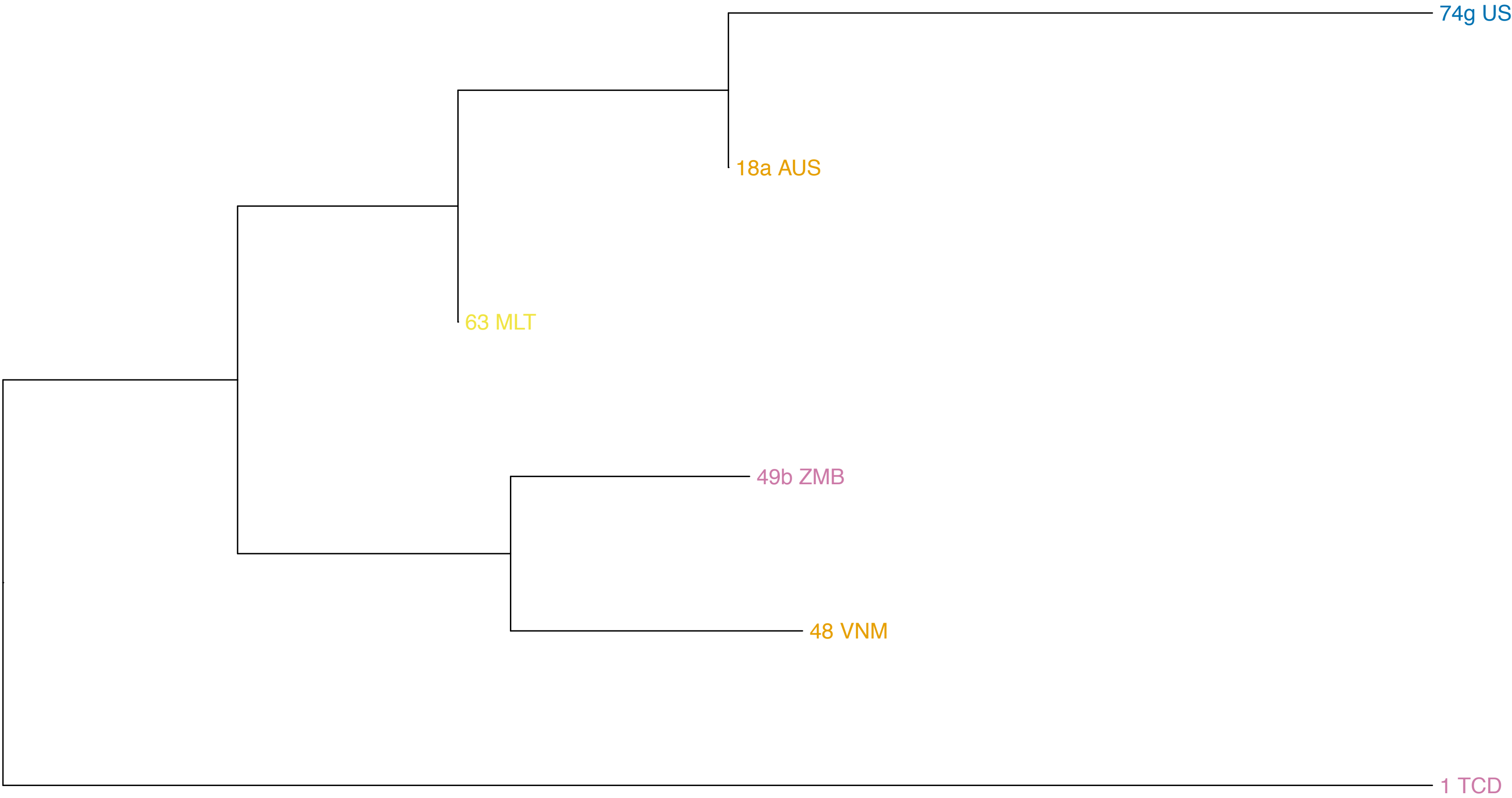
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Enterobacter asburiae L1
p-value 1.0



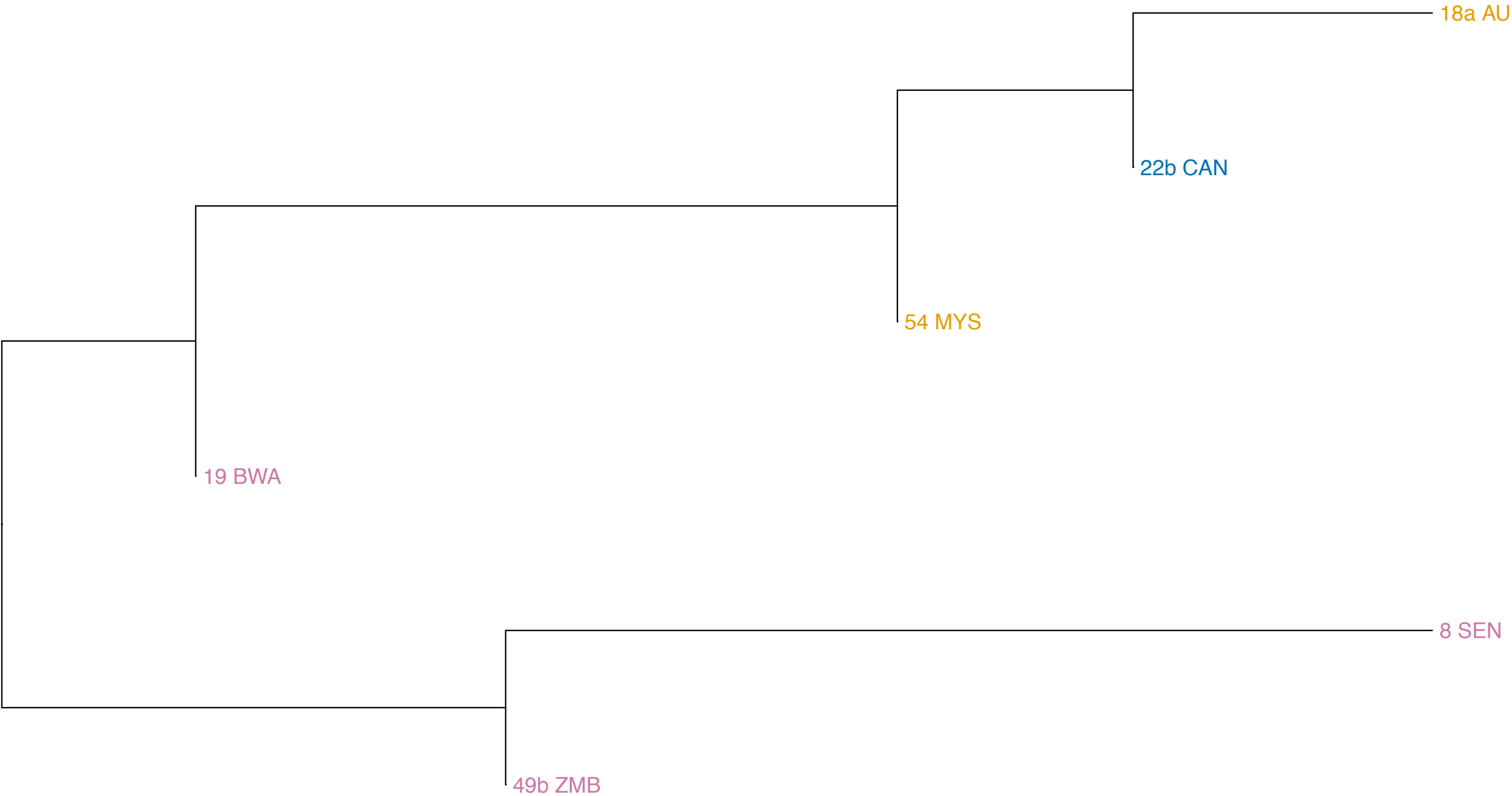
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Citrobacter freundii CFNIH1
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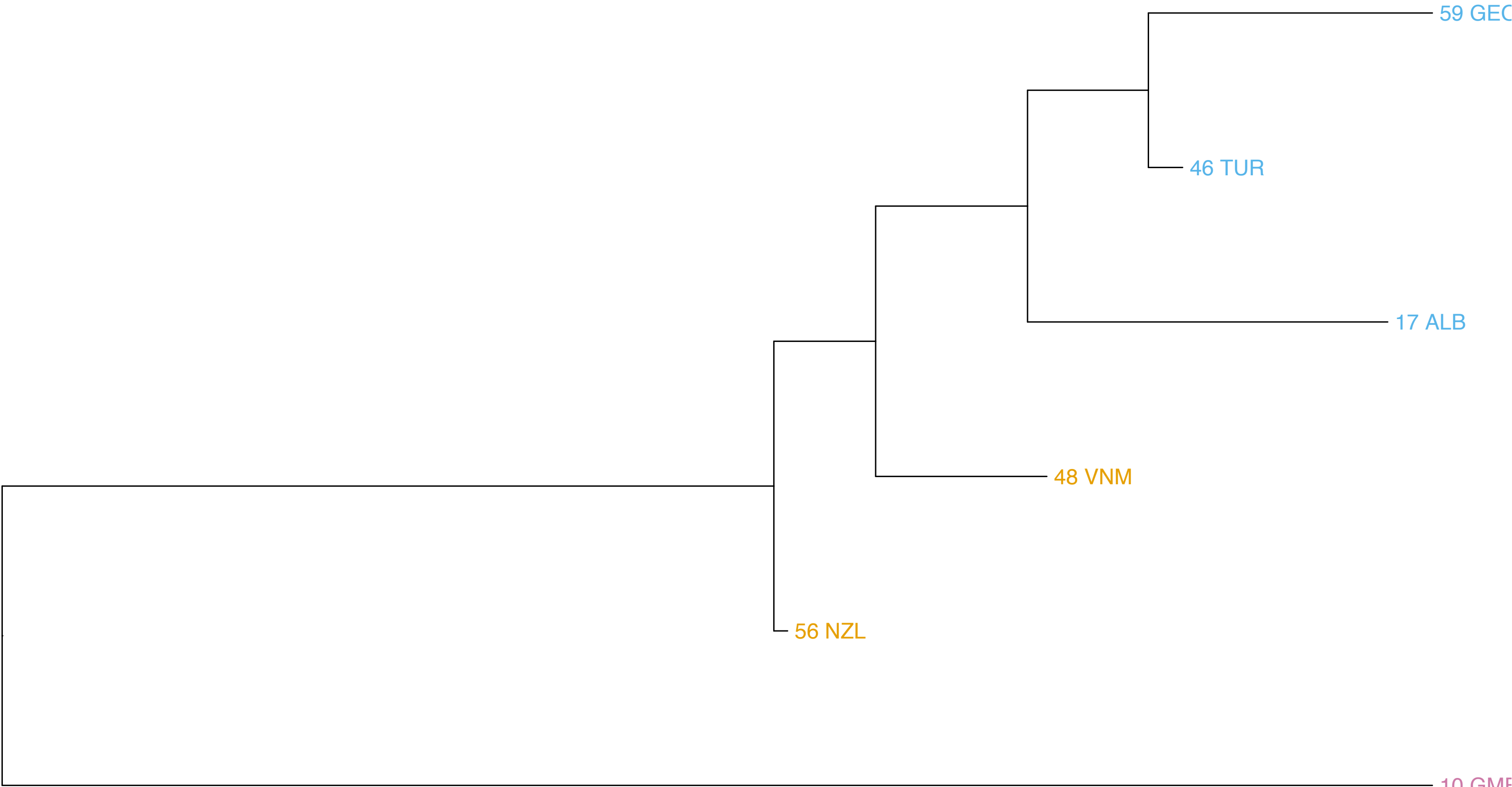
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Enterobacter cloacae ECNIH2
p-value 0.12



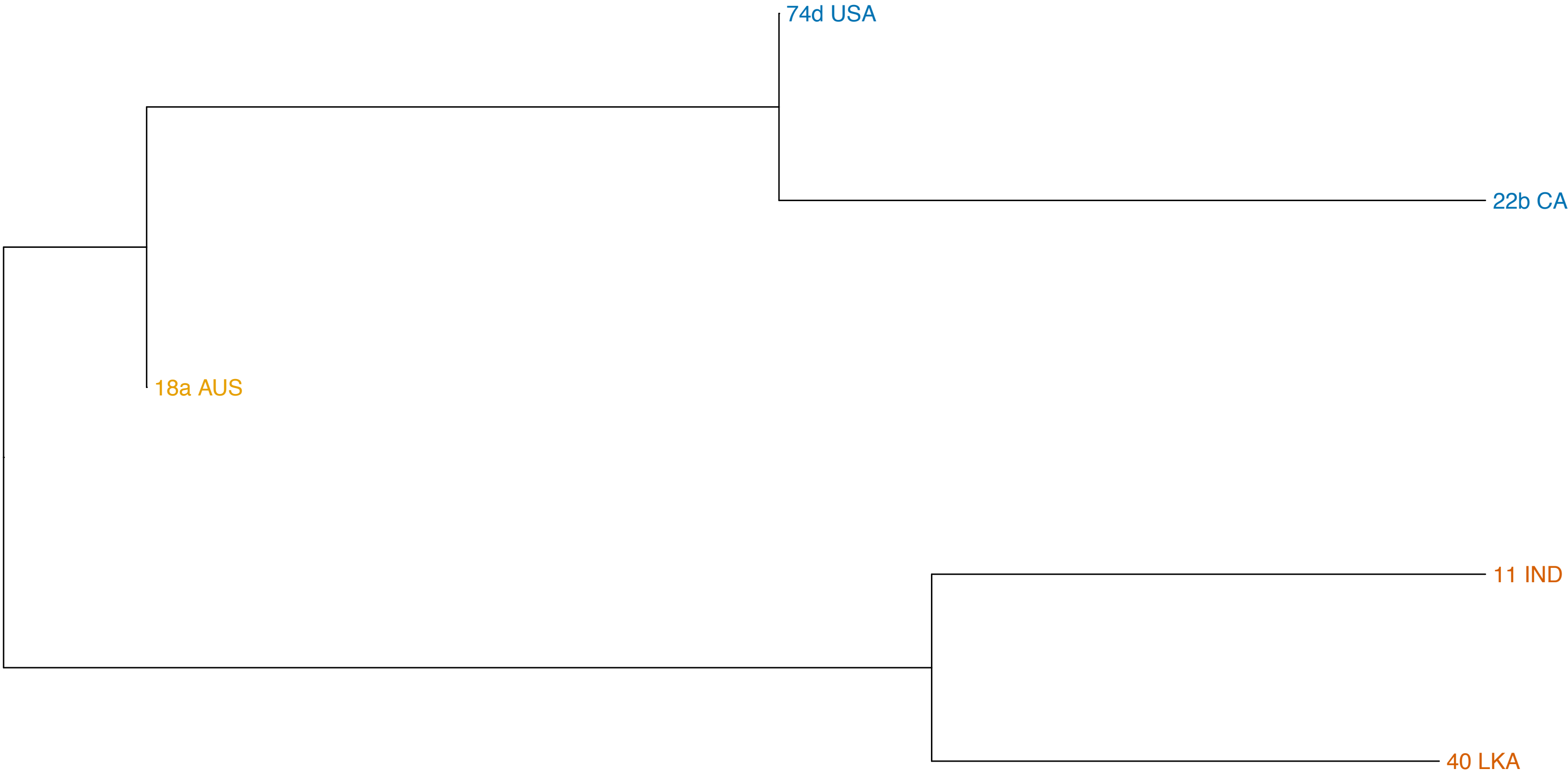
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Pseudomonas fluorescens strain UK4
p-value 0.064



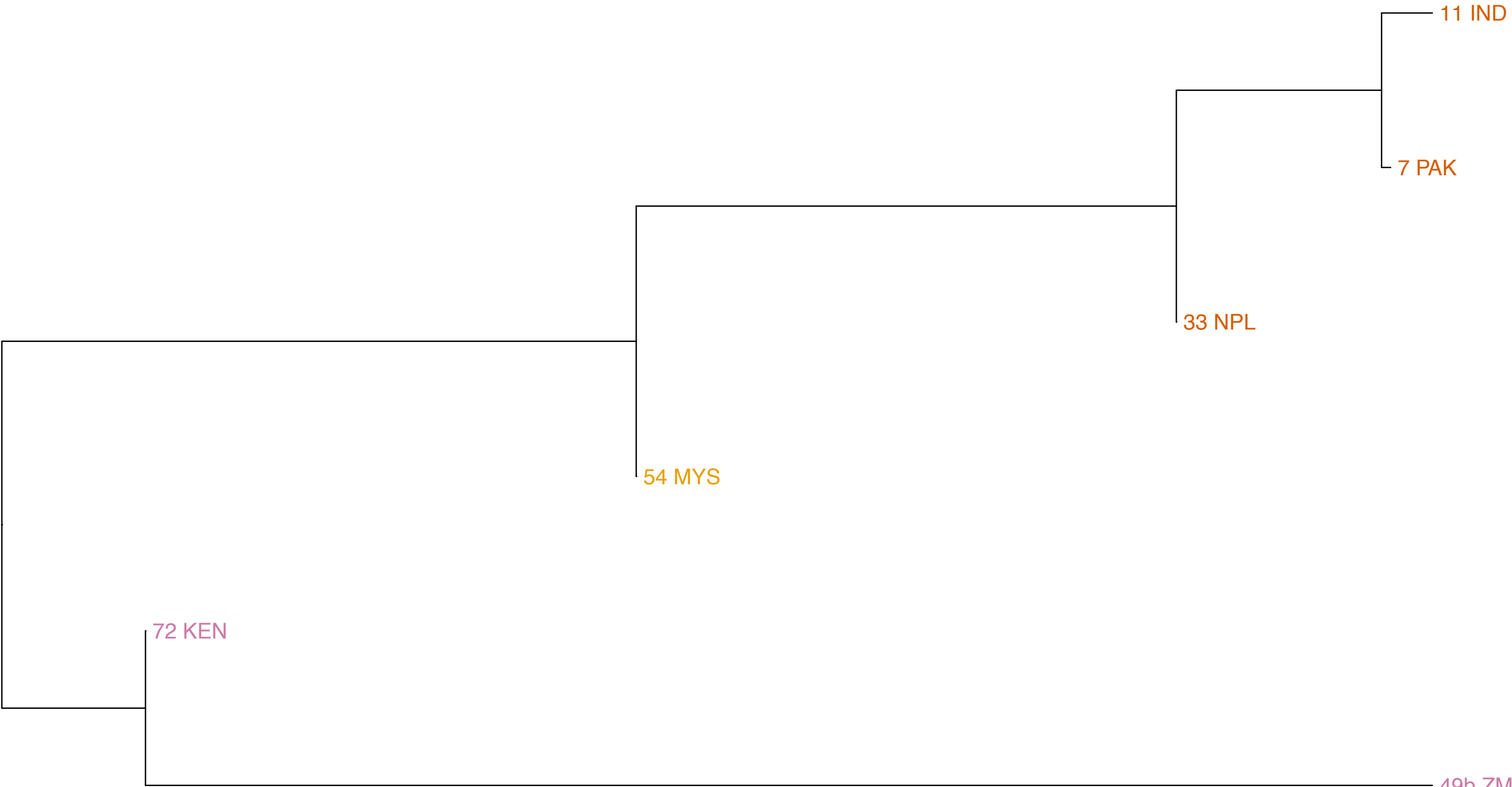
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Lactococcus lactis strain AI06
p-value 0.13

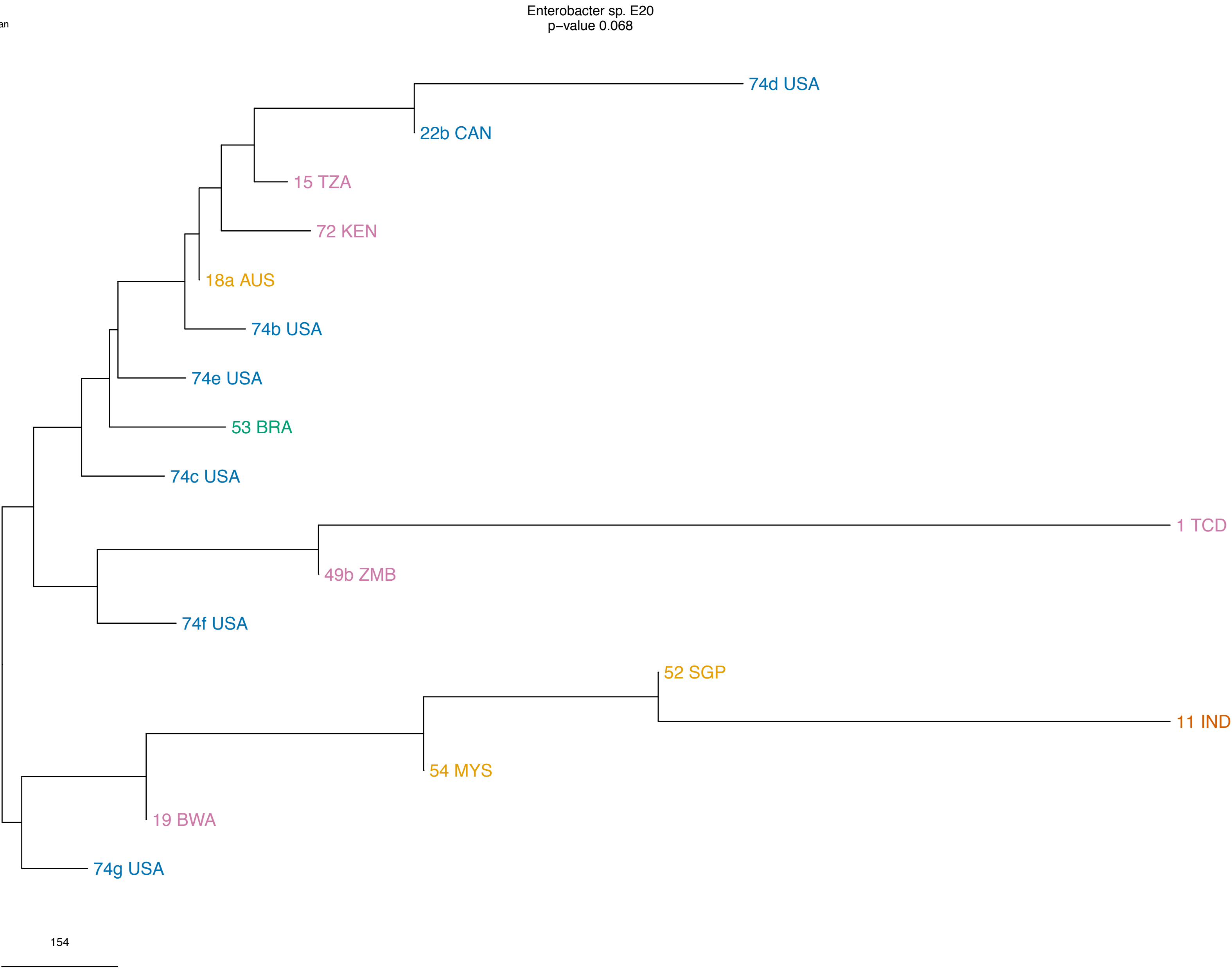


- East Asia & Pacific
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Bifidobacterium kashiwanohense PV20-2
p-value 0.21

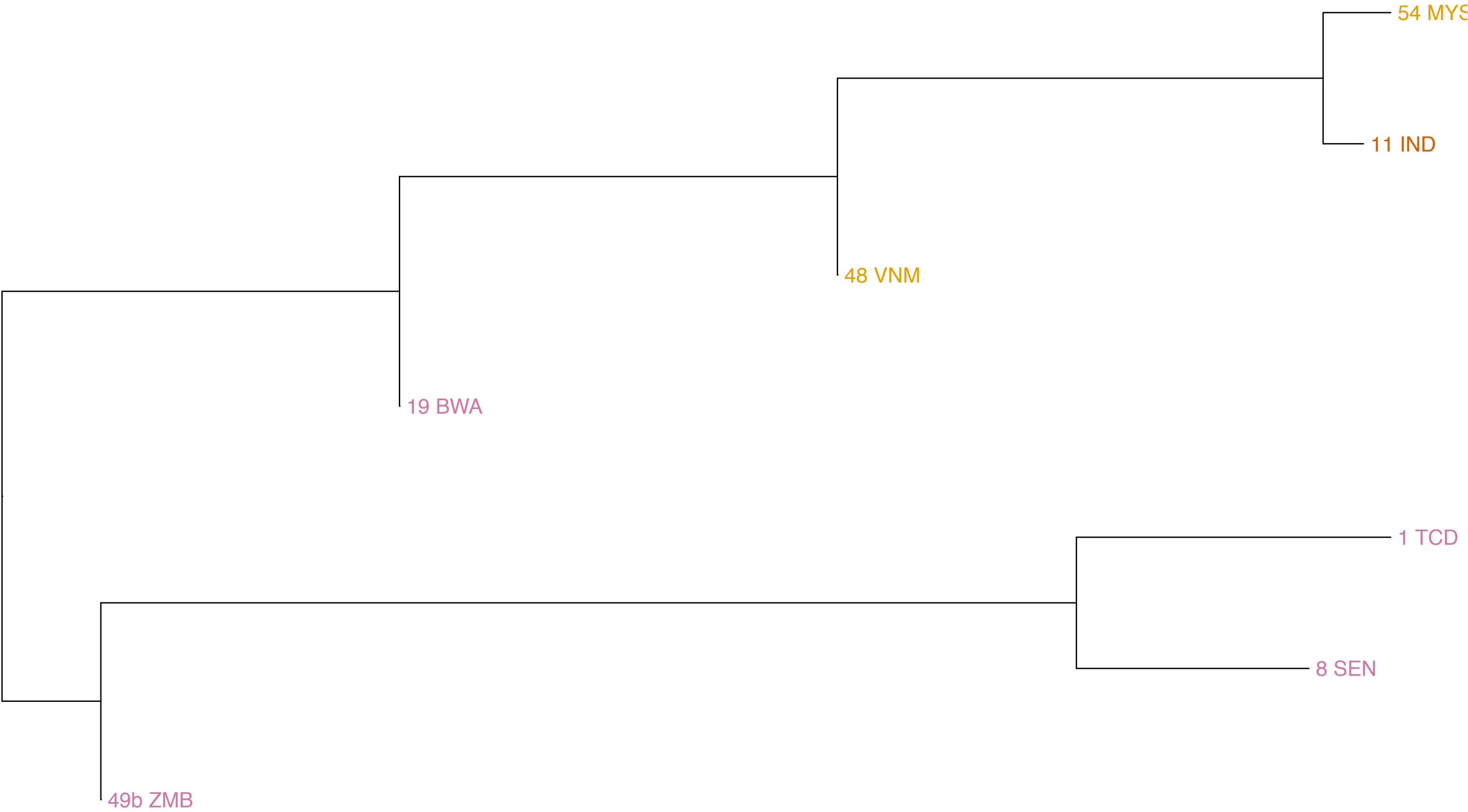


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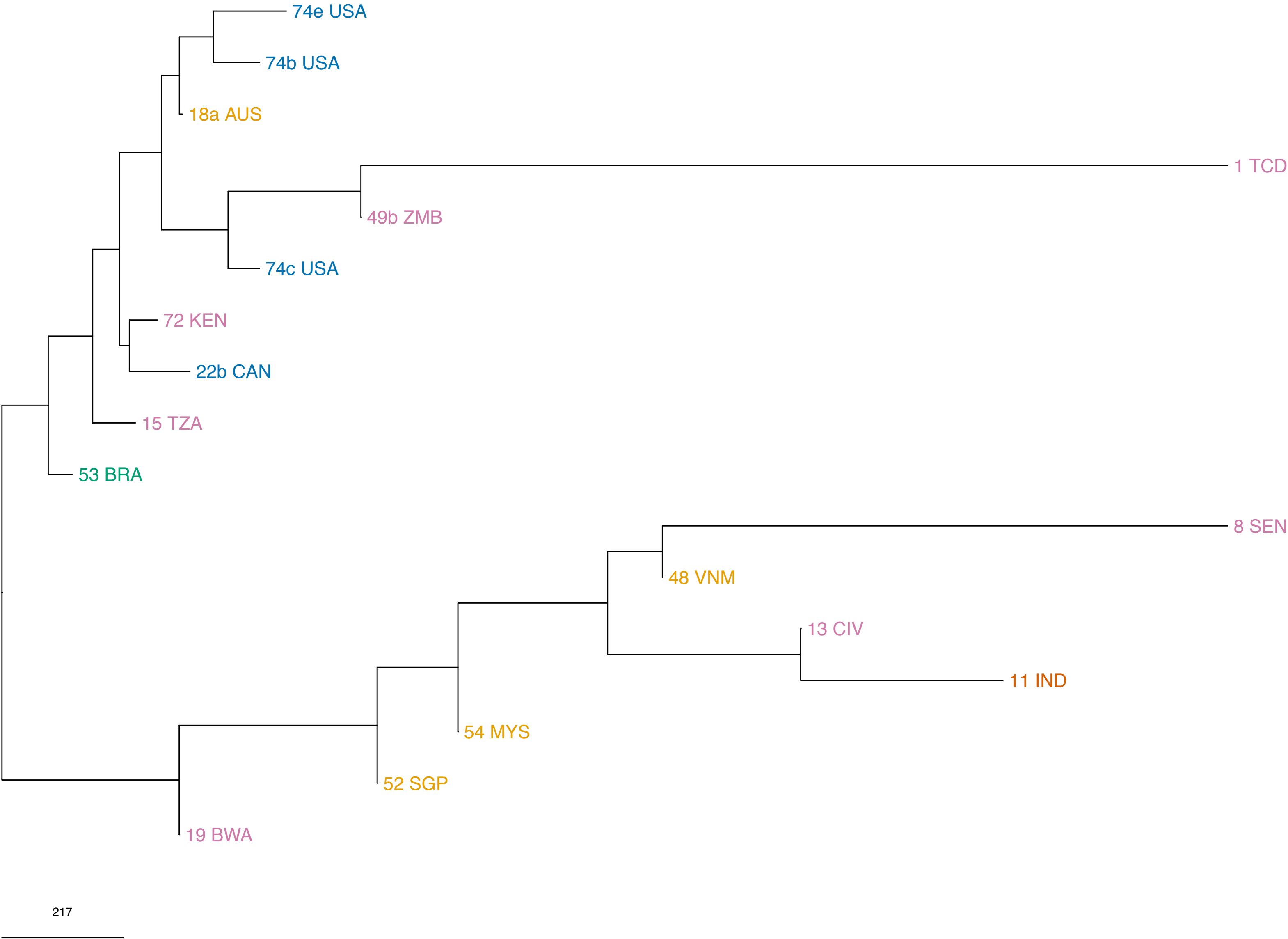
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Enterobacter cloacae strain 34978
p-value 0.14



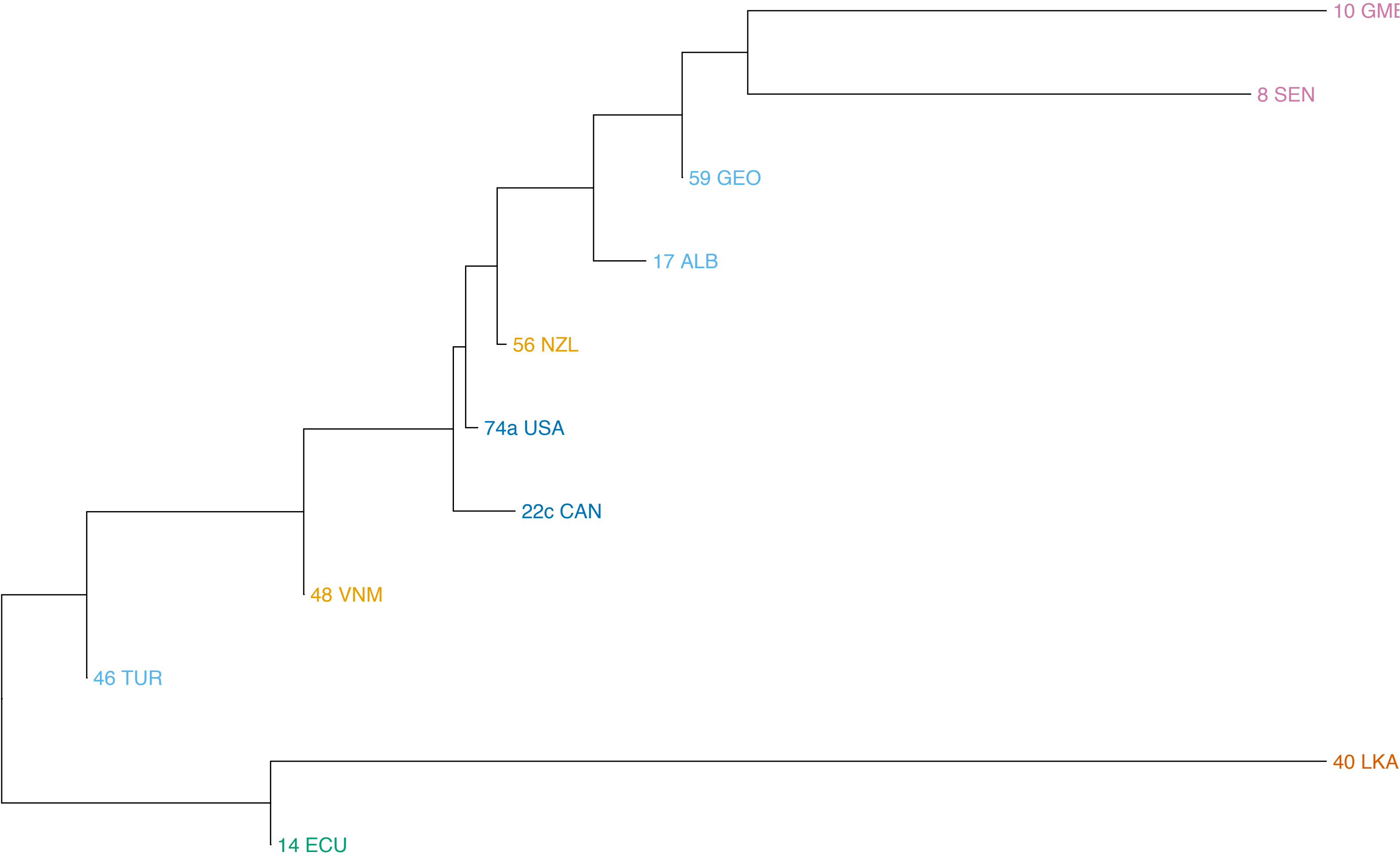
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Enterobacter asburiae strain 35734
p-value 0.38



- East Asia & Pacific
- Europe & Central Asia
- Latin America & Caribbean
- North America
- South Asia
- Sub-Saharan Africa

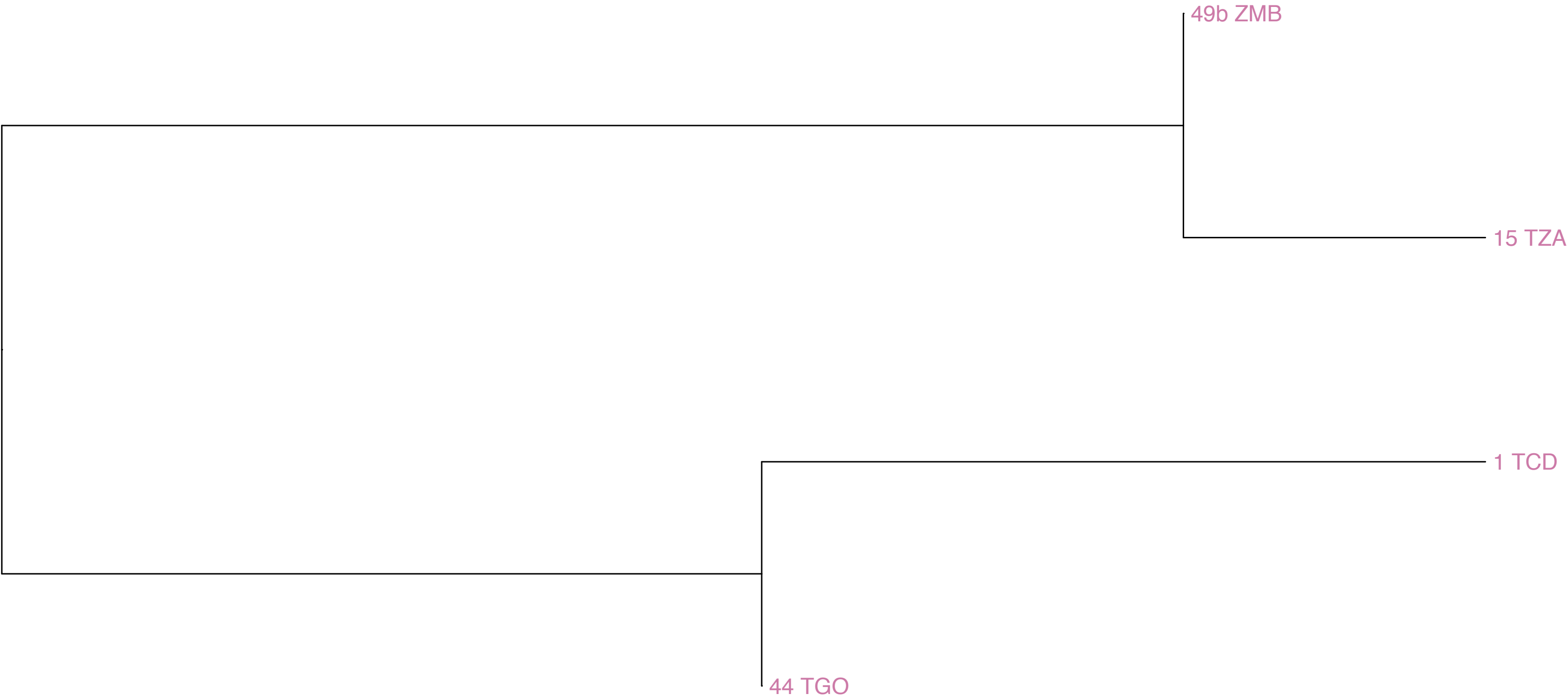
Pseudomonas fluorescens strain PCL1751
p-value 0.098



698

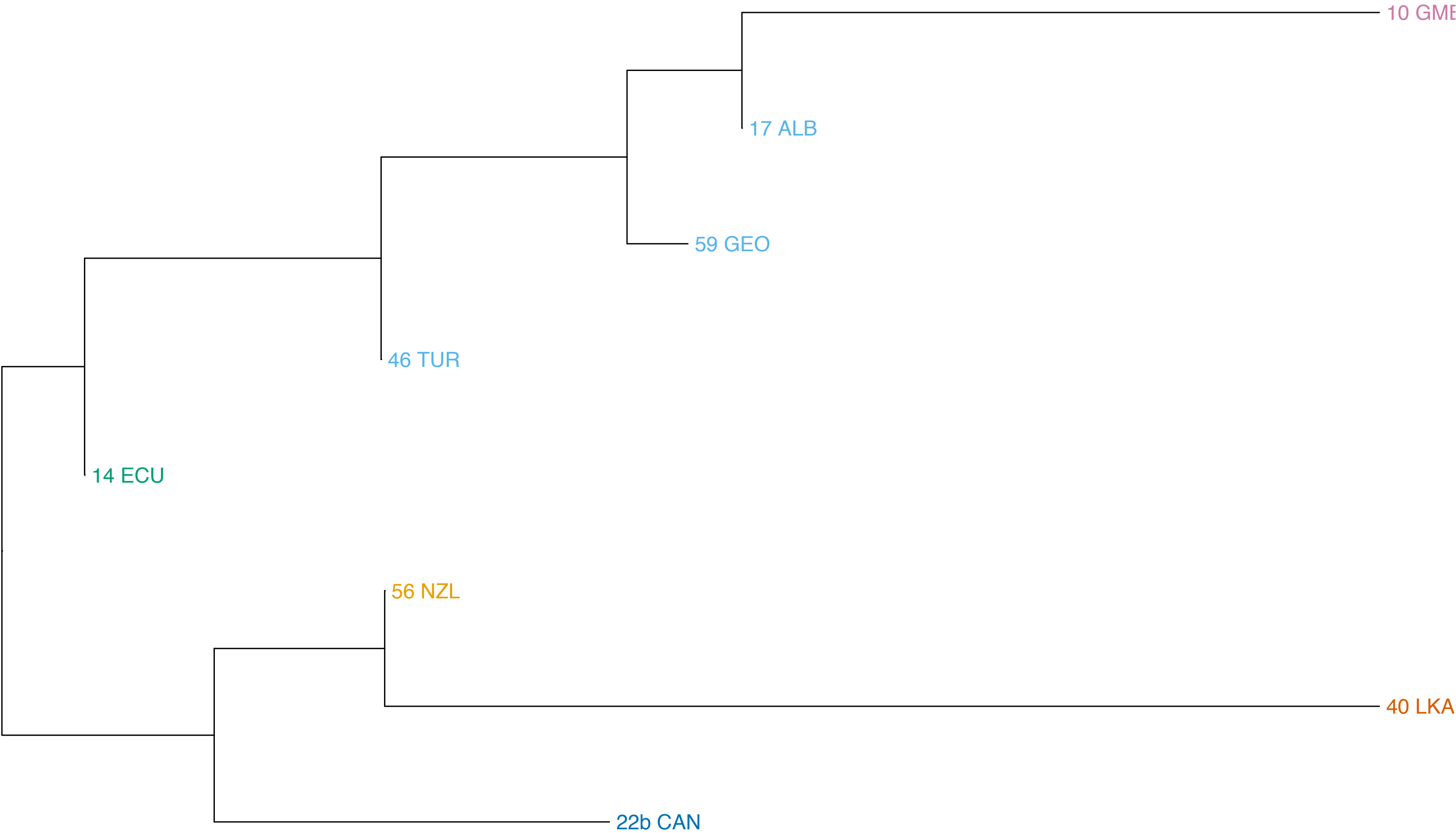
Aeromonas hydrophila strain AL06-06
p-value 0

a Sub-Saharan Africa

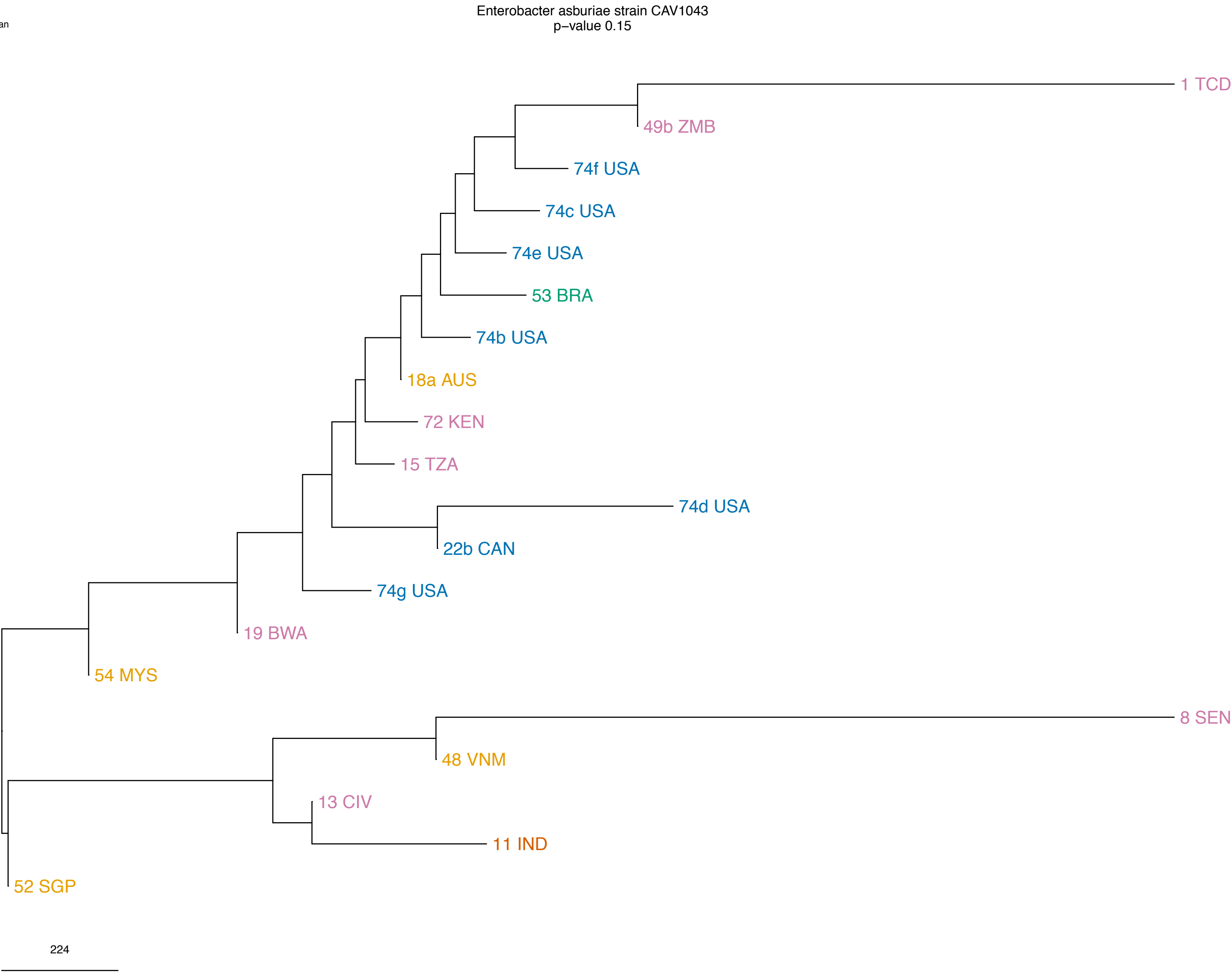


- East Asia & Pacific
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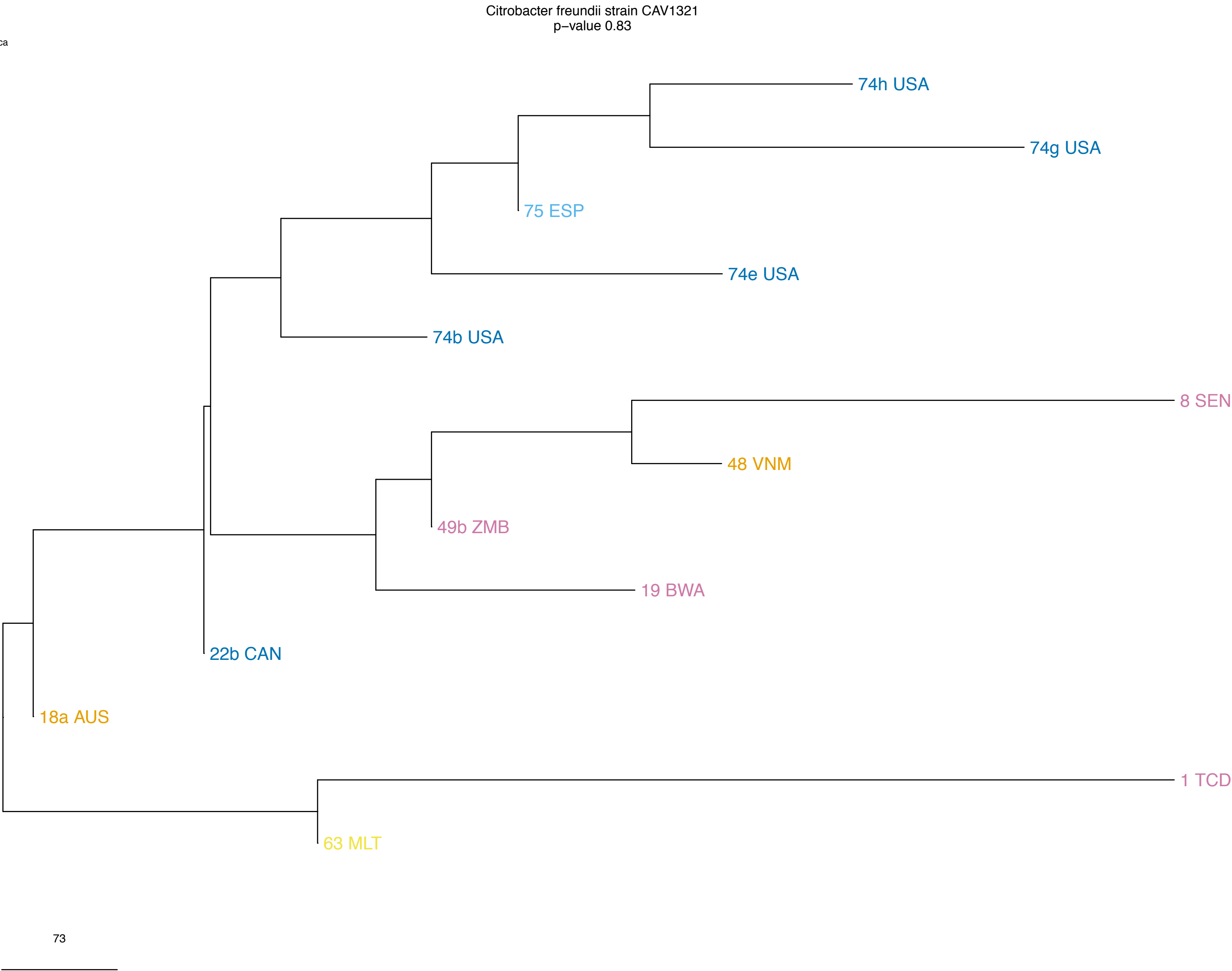
Pseudomonas fluorescens strain LBUM223
p-value 0.088



- a East Asia & Pacific
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- a Sub-Saharan Africa

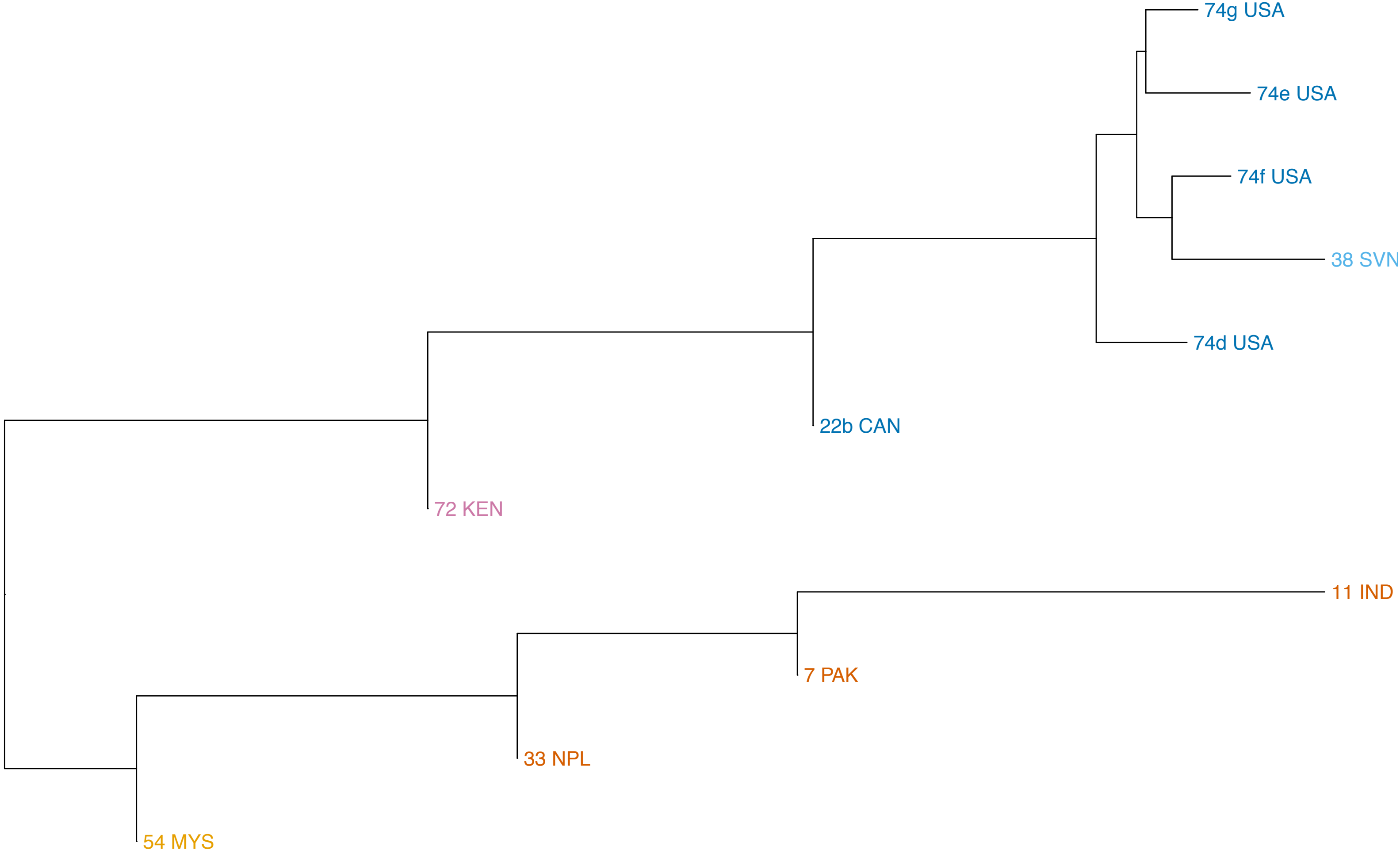


- East Asia & Pacific
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- Sub-Saharan Africa



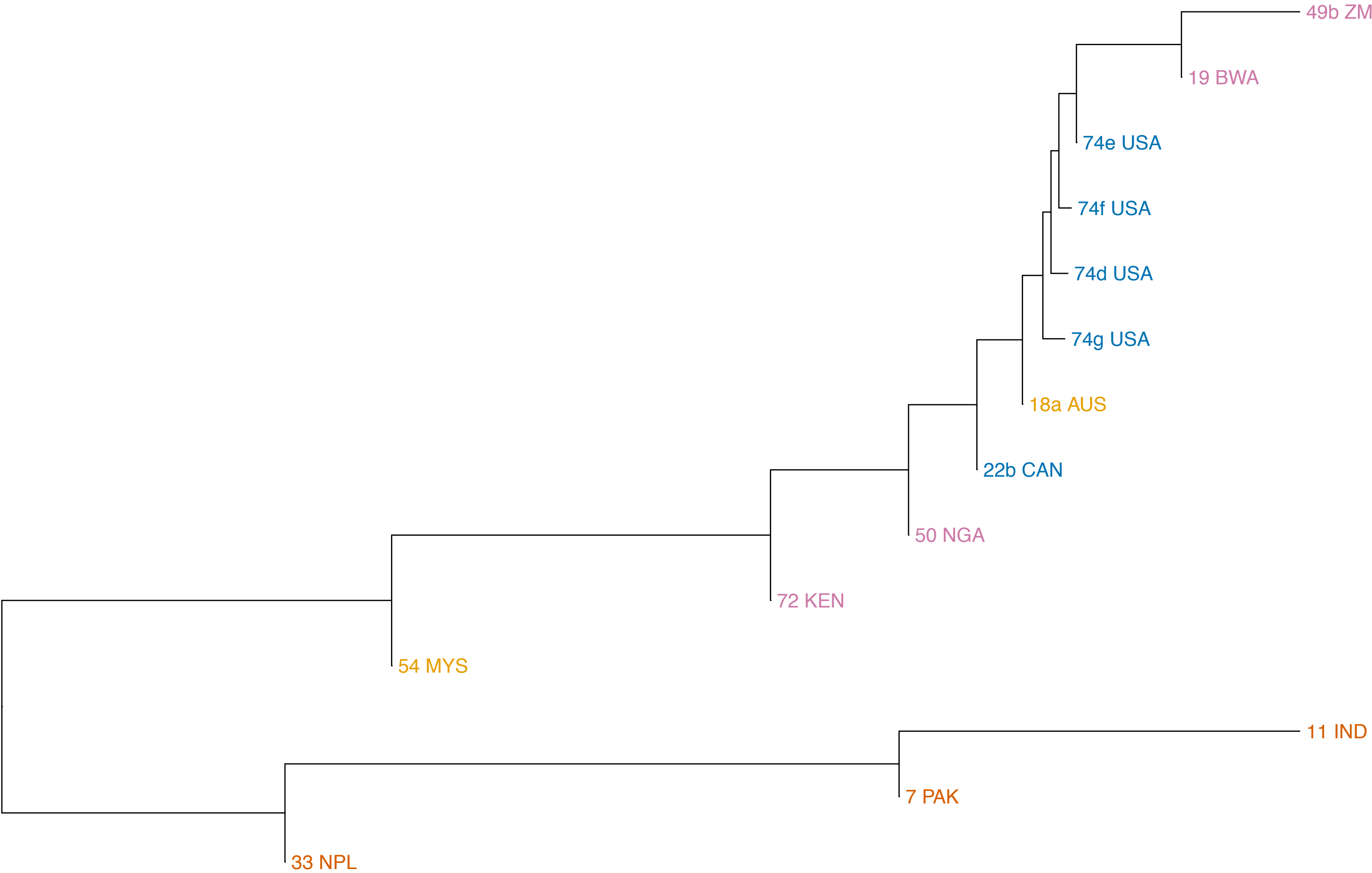
- a East Asia & Pacific
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Bifidobacterium catenulatum DSM 16992 = JCM 1194 = LMG 11043
p-value 0.00080



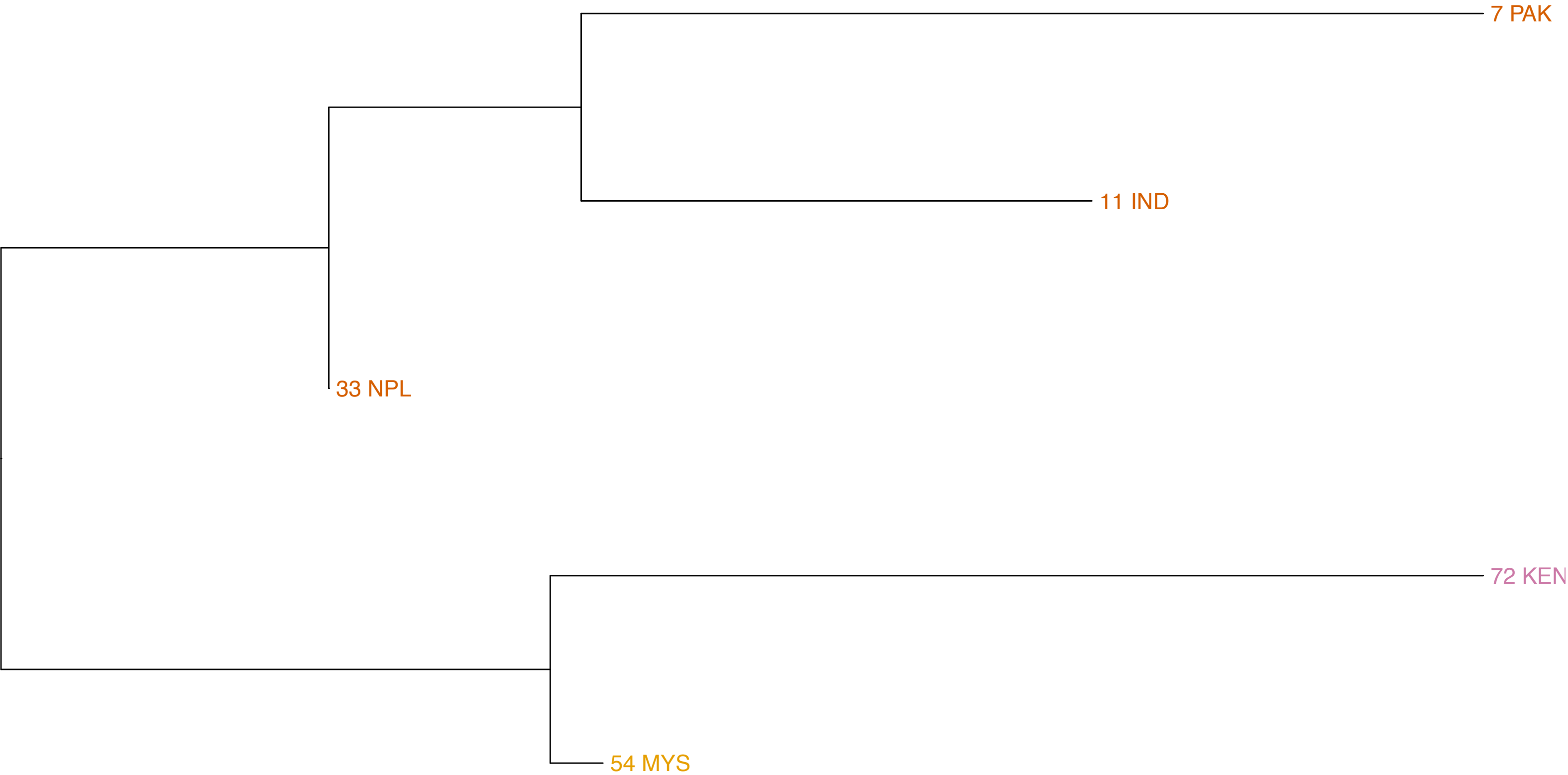
- East Asia & Pacific
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Bifidobacterium pseudocatenulatum DSM 20438 = JCM 1200 = LMG 10505
p-value 0.00010



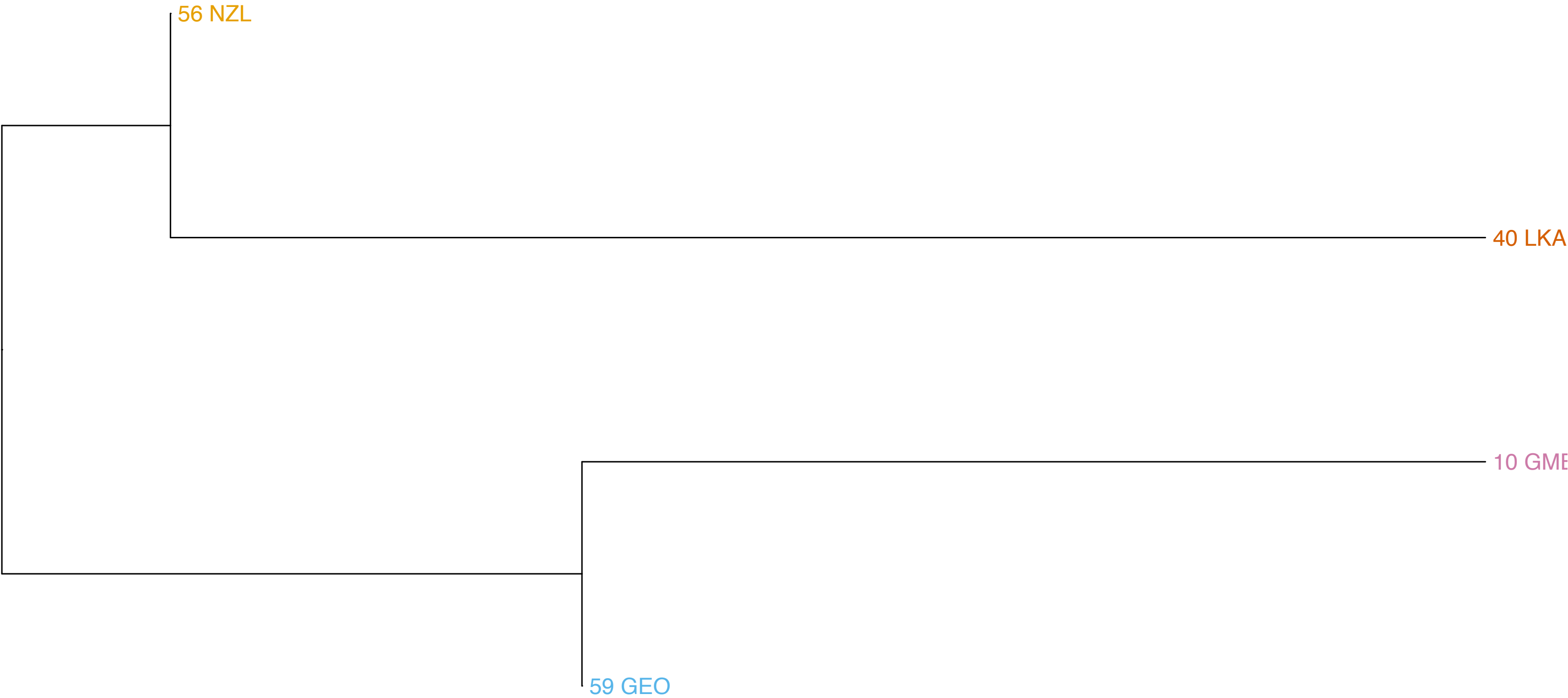
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a Sub-Saharan Africa

Bifidobacterium kashiwanohense JCM 15439 = DSM 21854 DNA
p-value 0.20



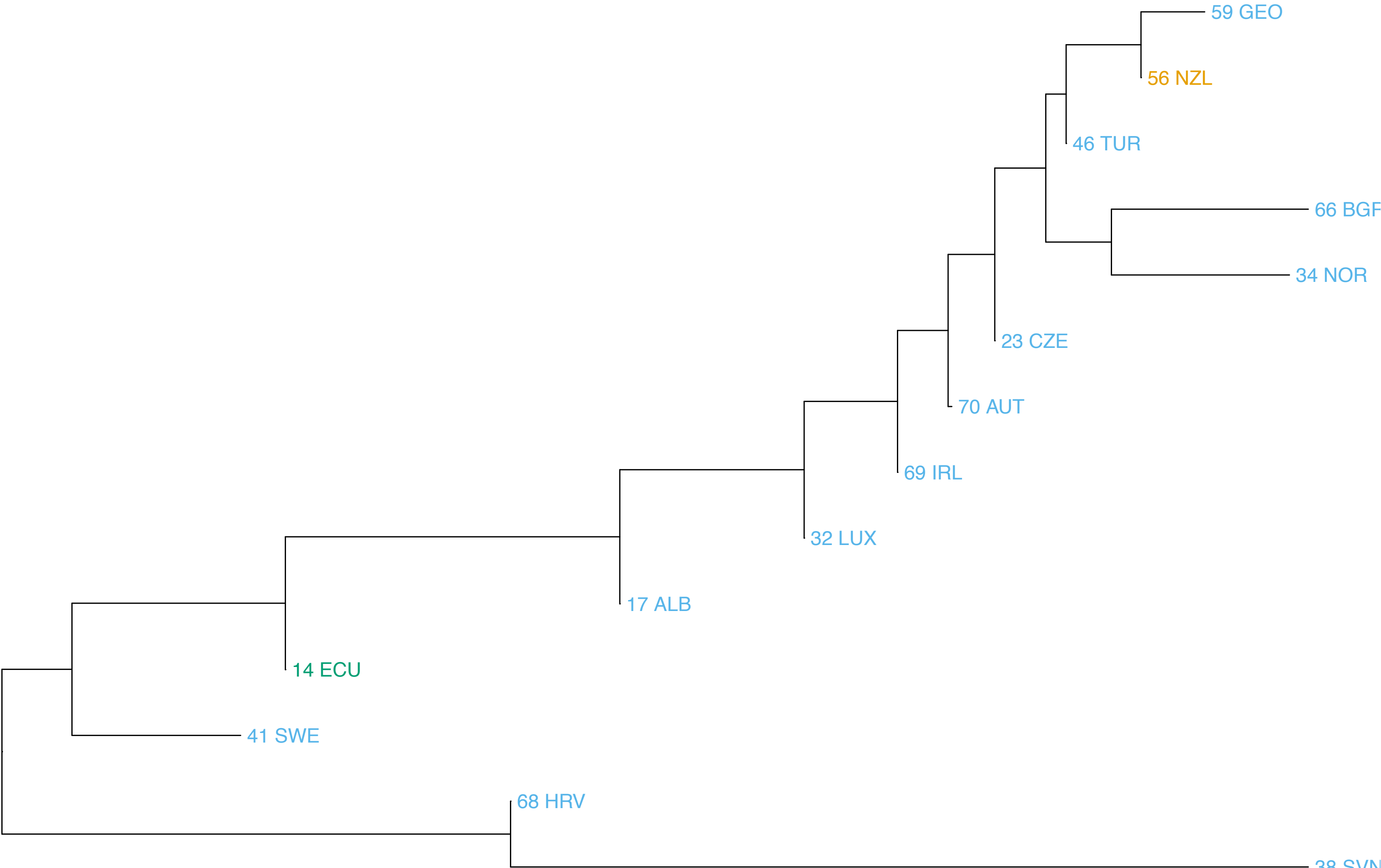
- East Asia & Pacific
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- Sub-Saharan Africa

Pseudomonas trivialis strain IHBB745
p-value 0



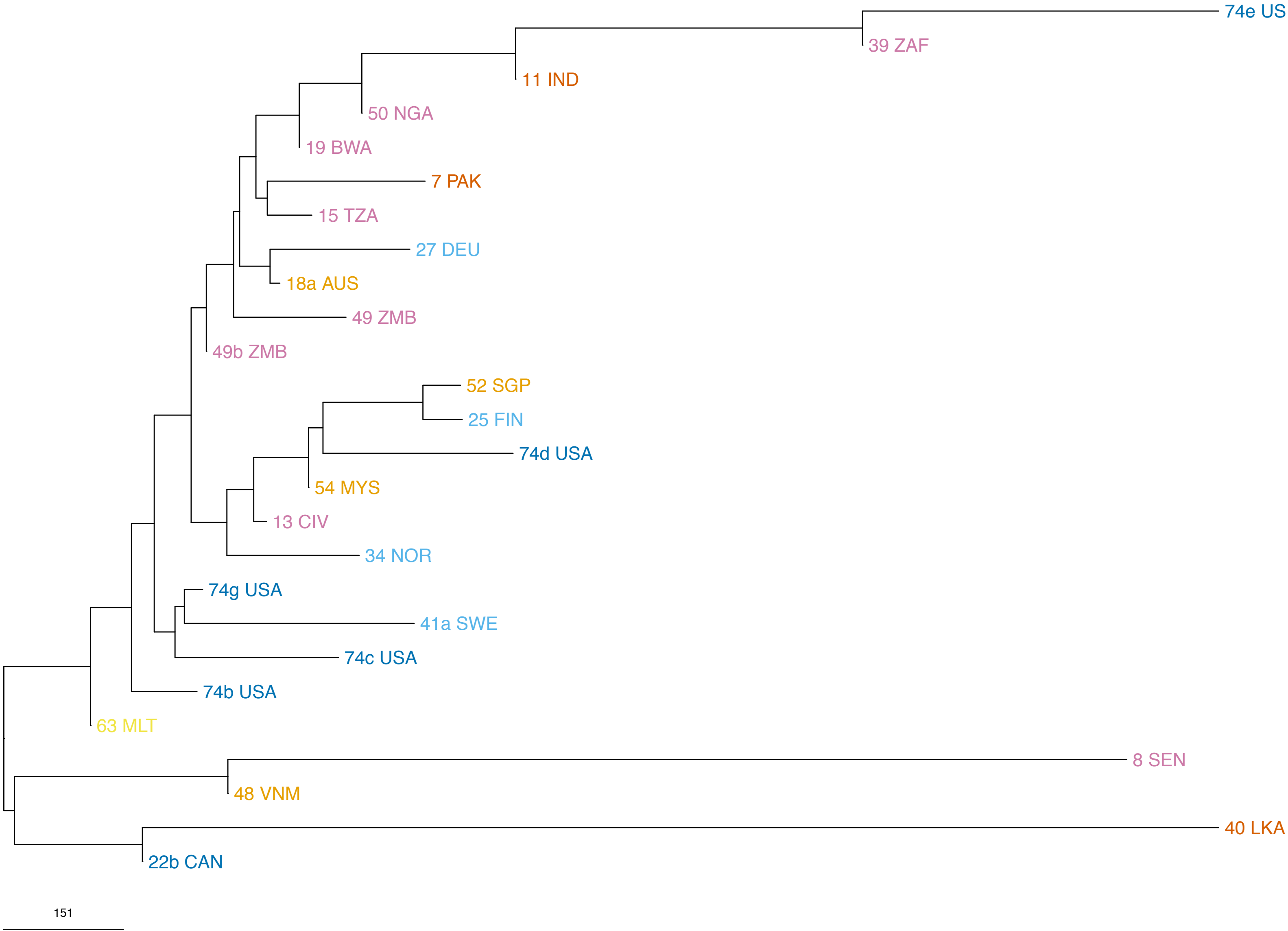
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Acinetobacter sp. TTH0-4
p-value 0.23



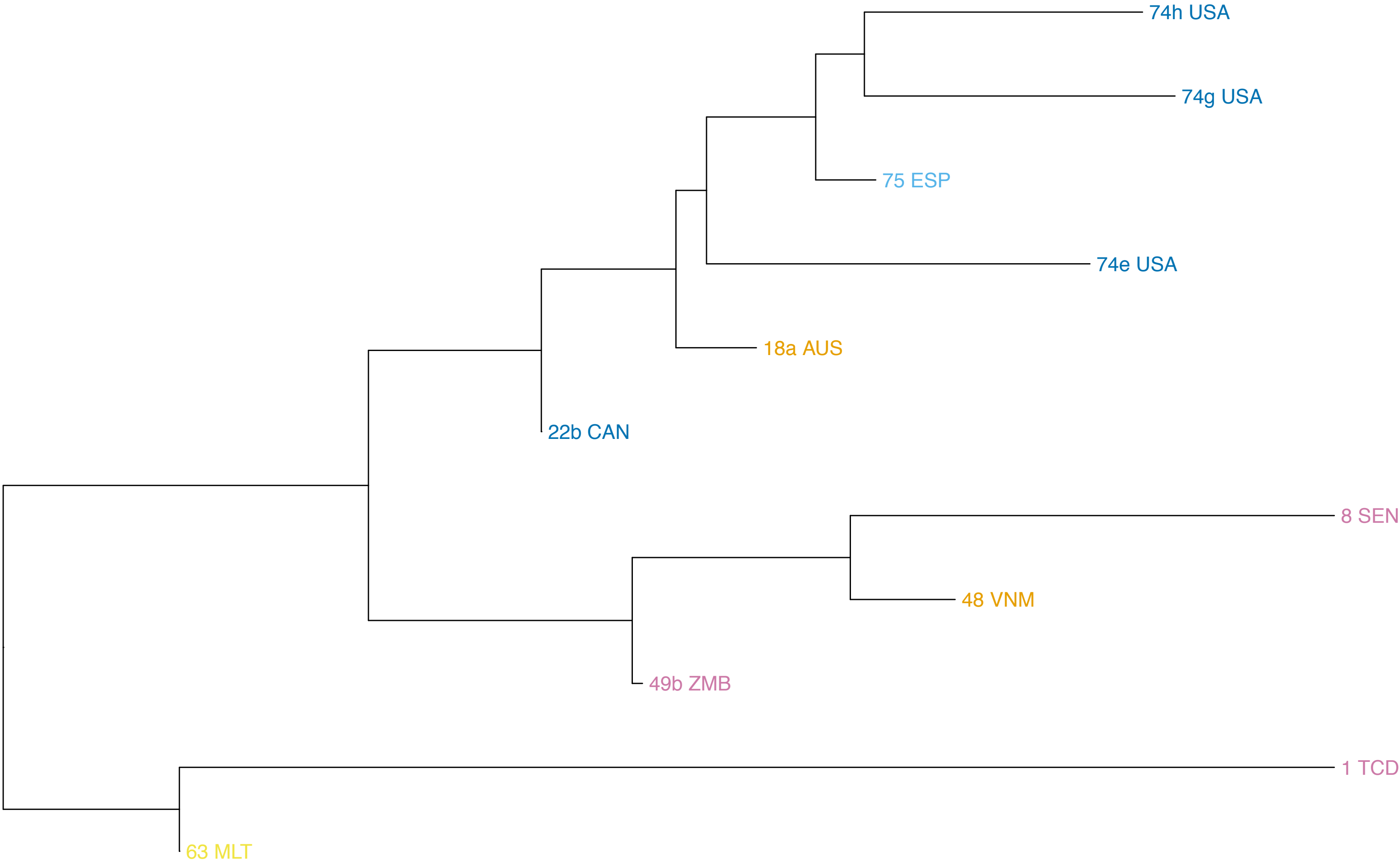
- East Asia & Pacific
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- Sub-Saharan Africa

Klebsiella variicola strain HKUOPLA
p-value 0.45



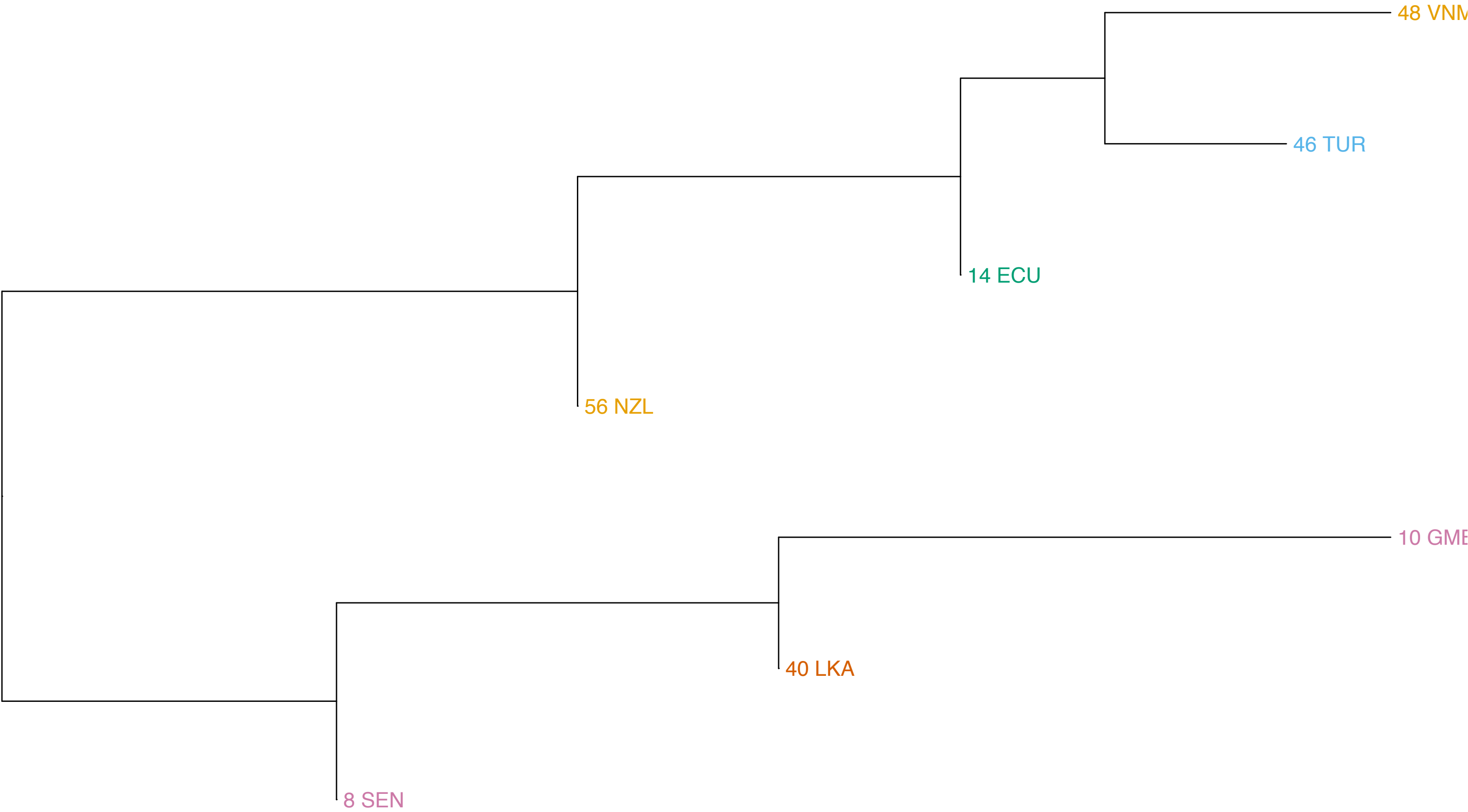
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Citrobacter freundii strain P10159
p-value 0.78



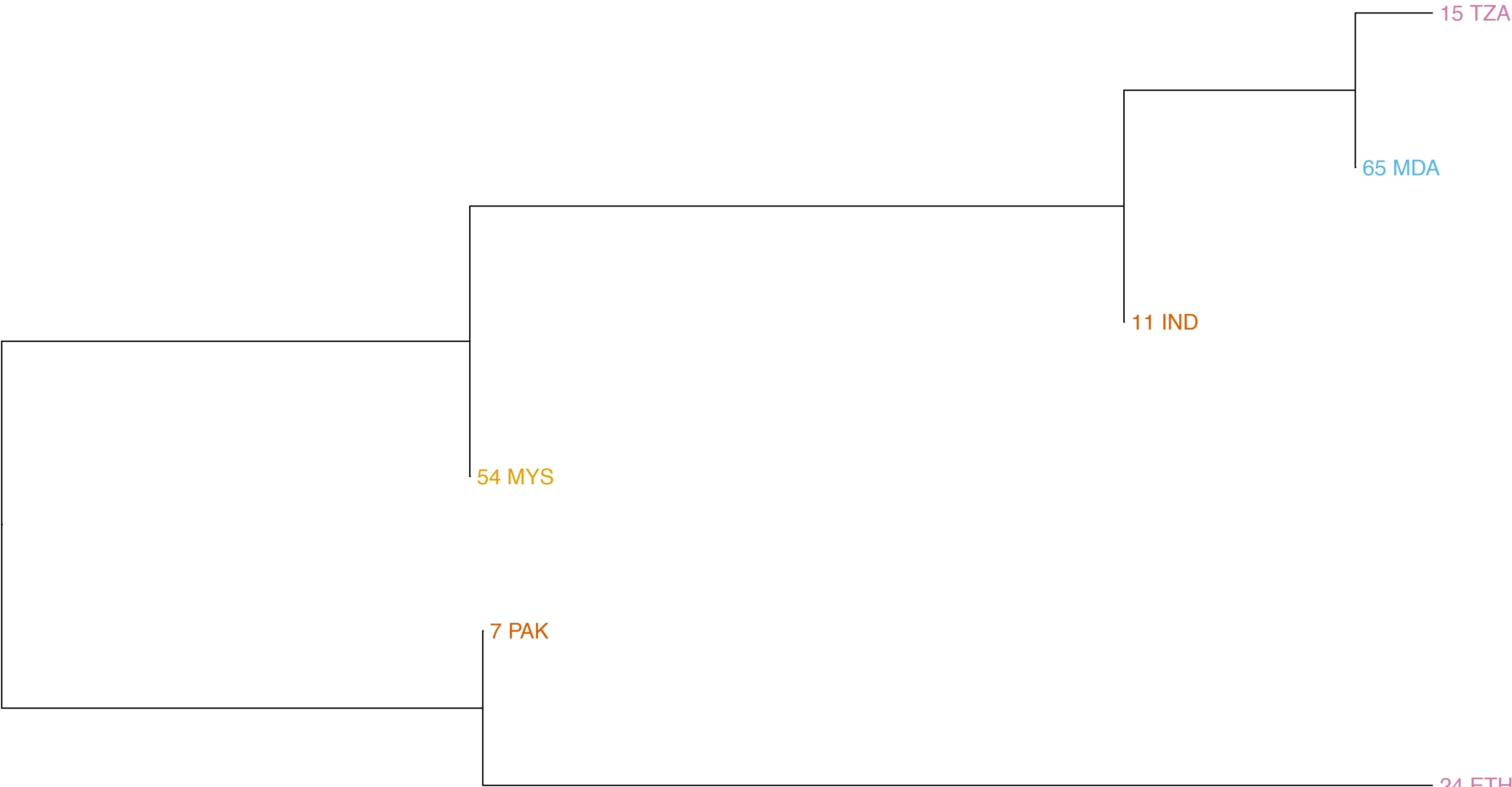
- East Asia & Pacific
- Europe & Central Asia
- Latin America & Caribbean
- South Asia
- Sub-Saharan Africa

Pseudomonas versuta L10.10
p-value 0.037



- East Asia & Pacific
- Europe & Central Asia
- South Asia
- Sub-Saharan Africa

Megasphaera elsdenii 14–14
p-value 0.98

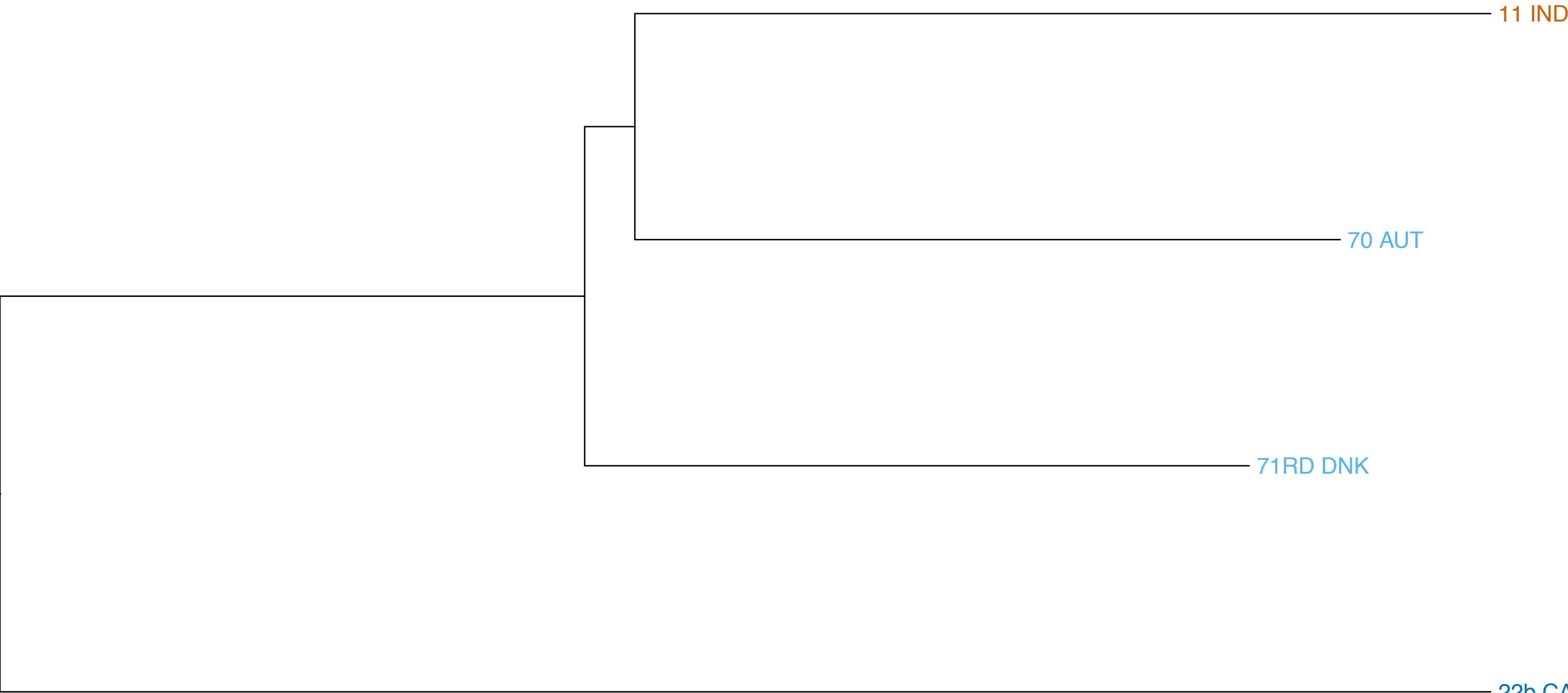


1470



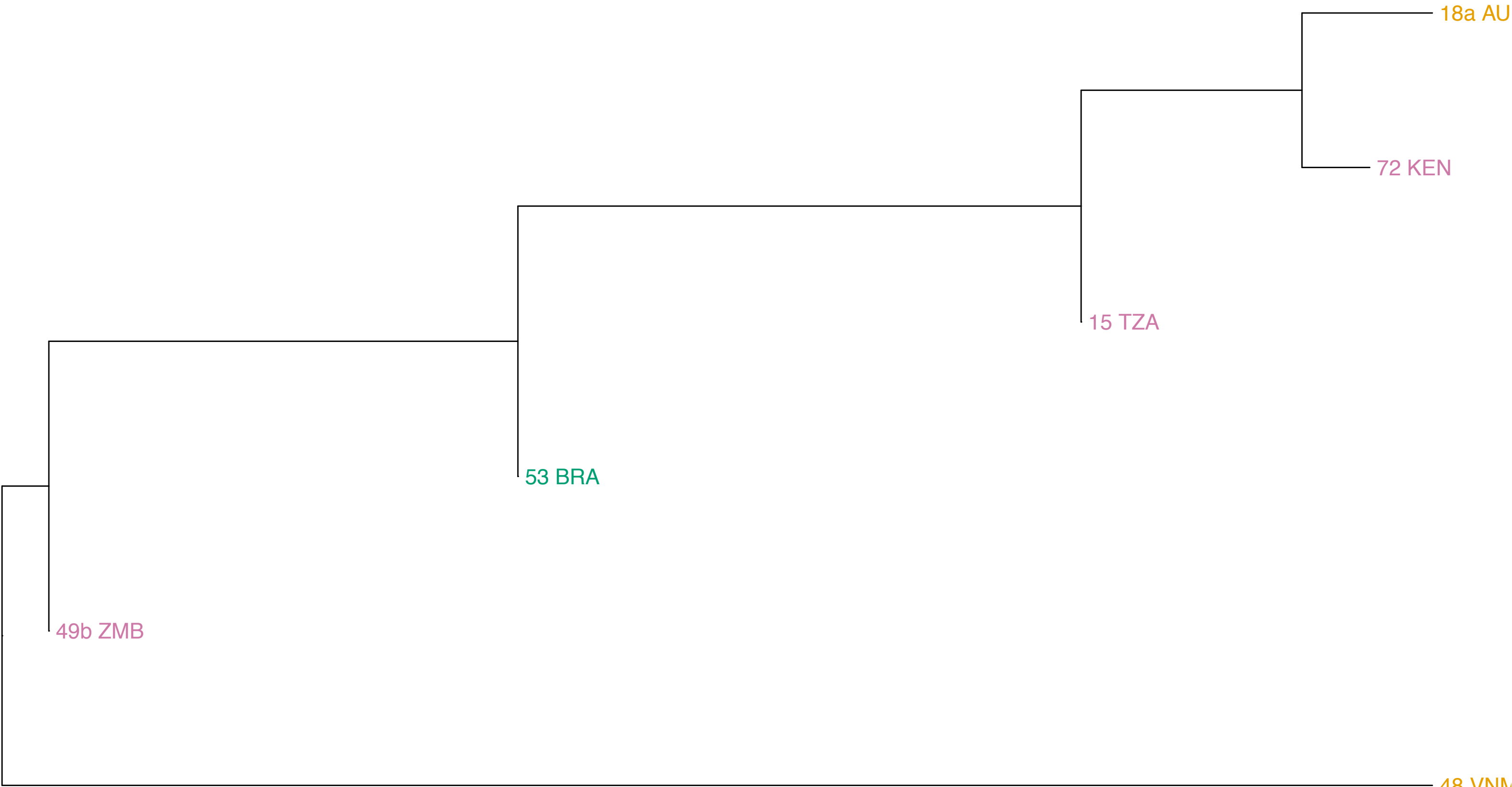
a Europe & Central Asia
a North America
a South Asia

Bacteroides ovatus strain ATCC 8483
p-value 1.0



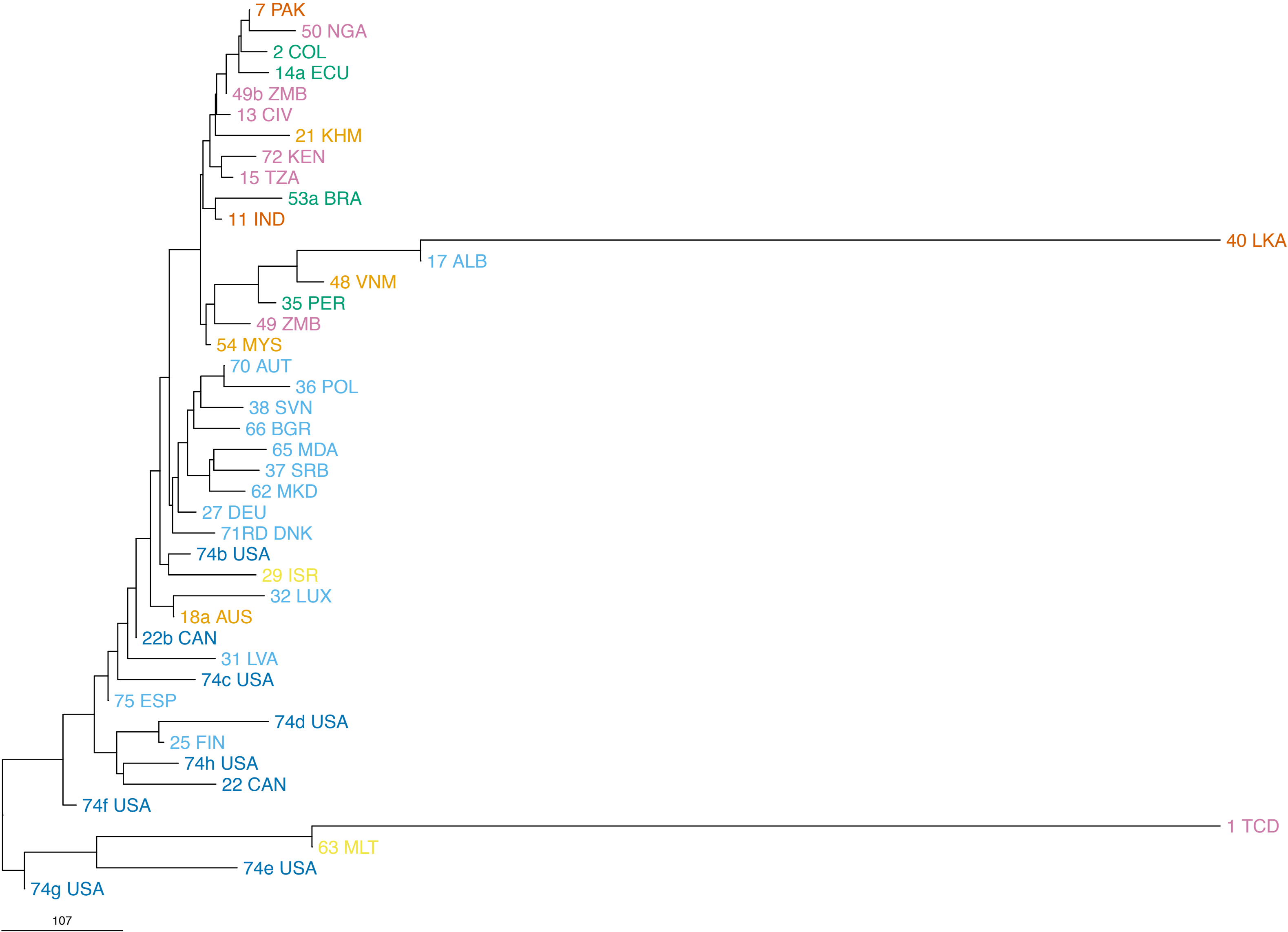
a East Asia & Pacific
a Latin America & Caribbean
a Sub-Saharan Africa

Comamonas testosteroni P19
p-value 0.64



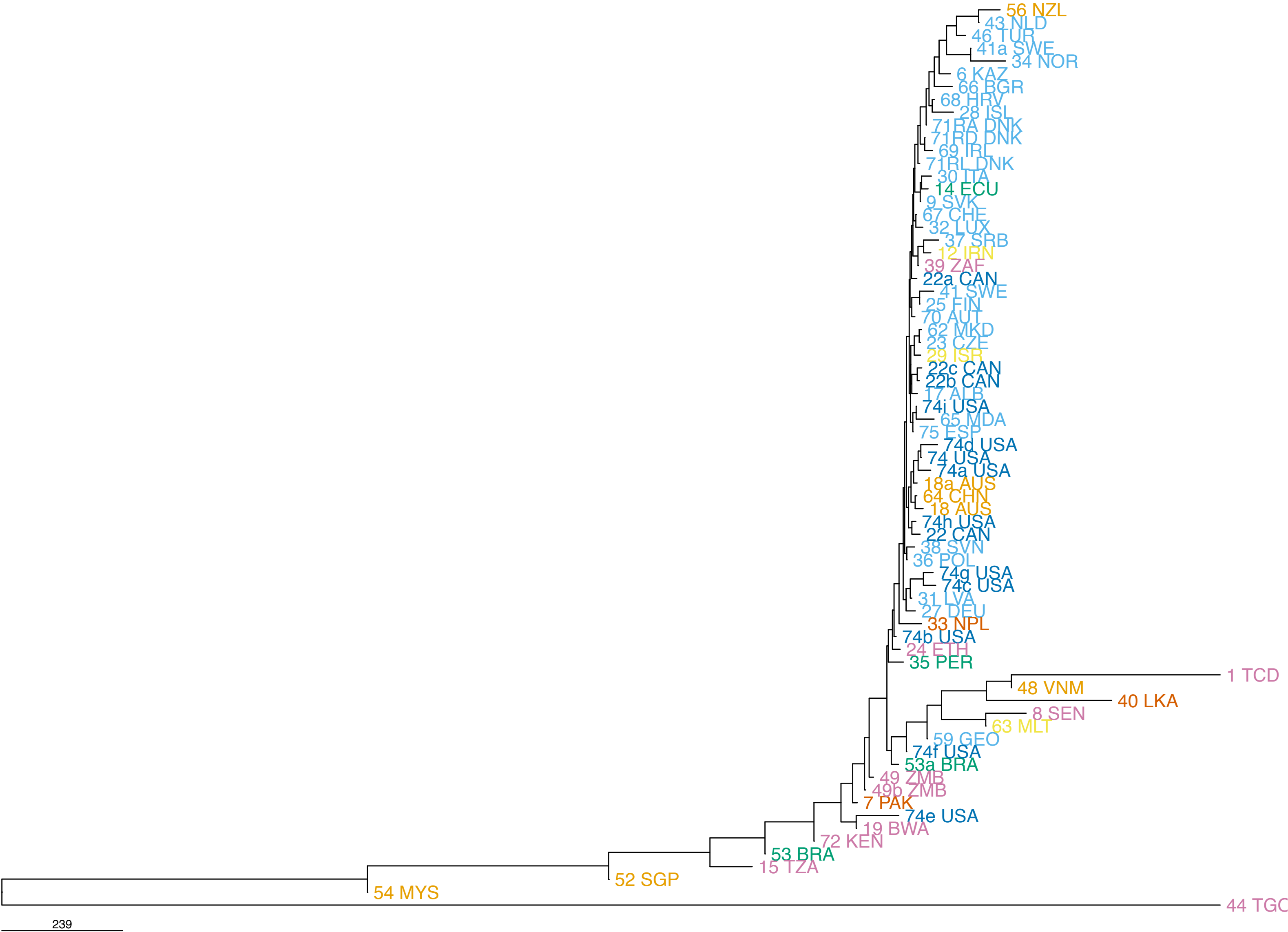
- a East Asia & Pacific
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- a Sub-Saharan Africa

Escherichia coli O157:H7 str. 2009EL2109
p-value 0.088



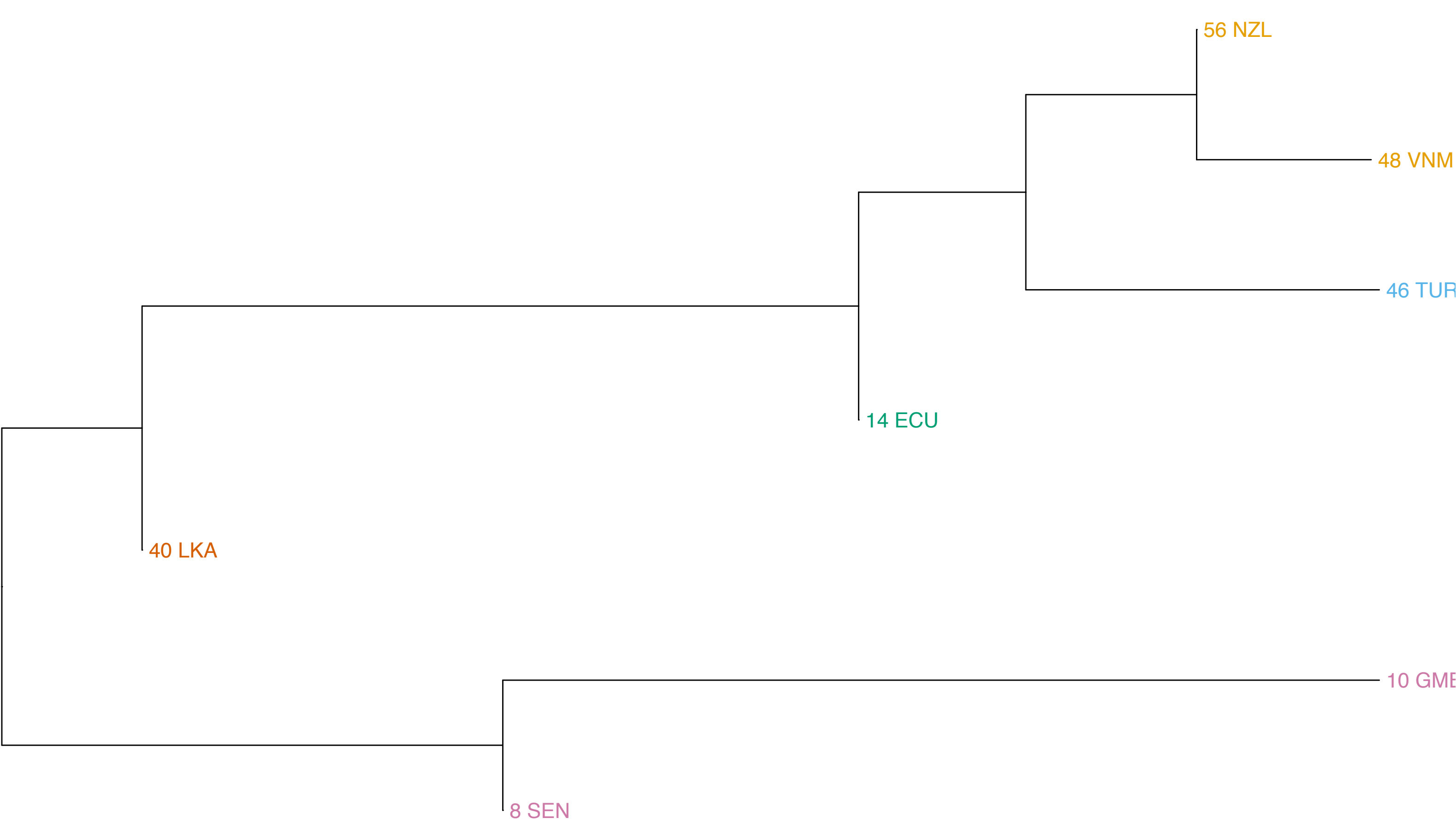
- East Asia & Pacific
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- North America
- South Asia
- Sub-Saharan Africa

Acinetobacter johnsonii XBB1
p-value 0.17



- East Asia & Pacific
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- South Asia
- Sub-Saharan Africa

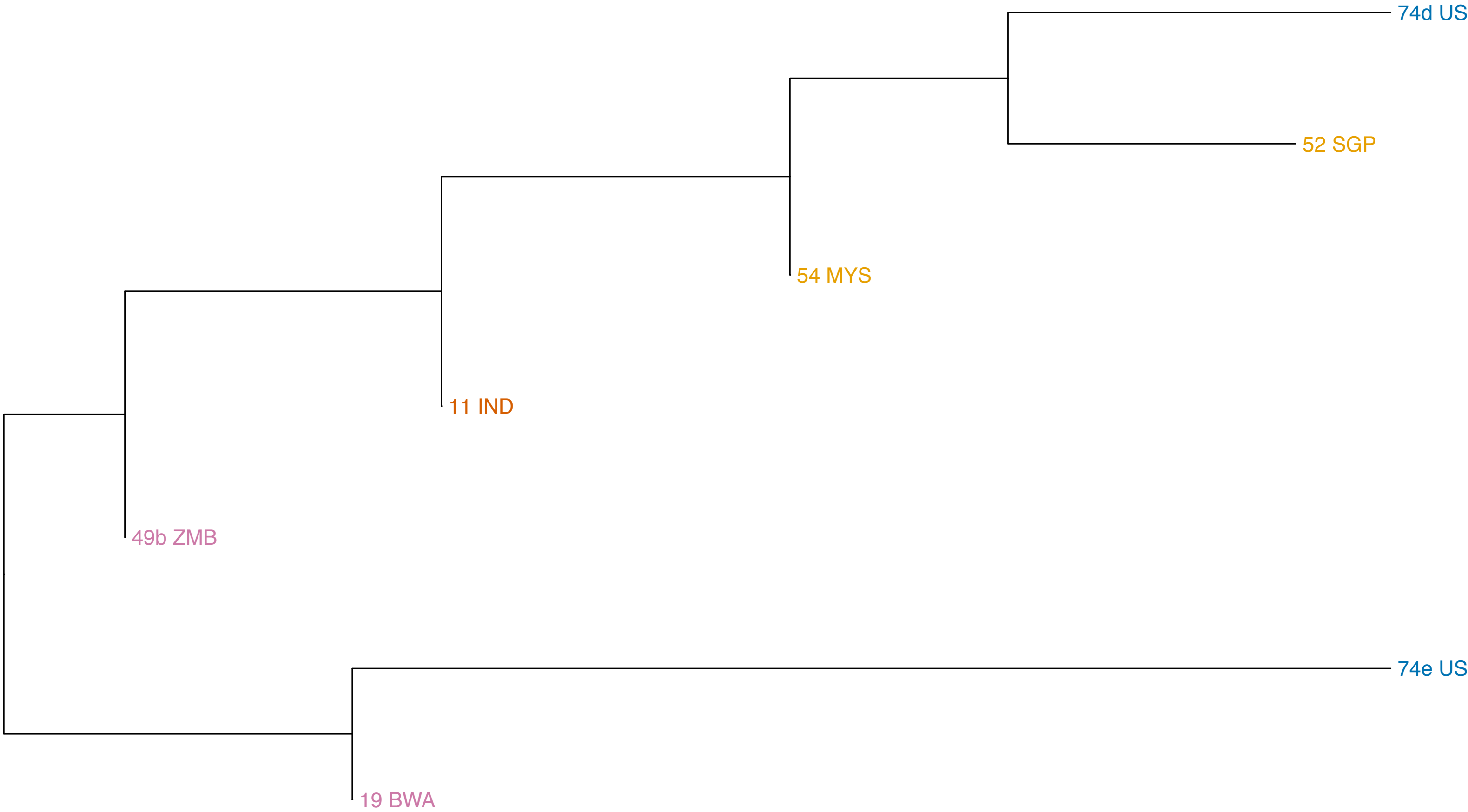
Pseudomonas fragi strain P121
p-value 0.039



533

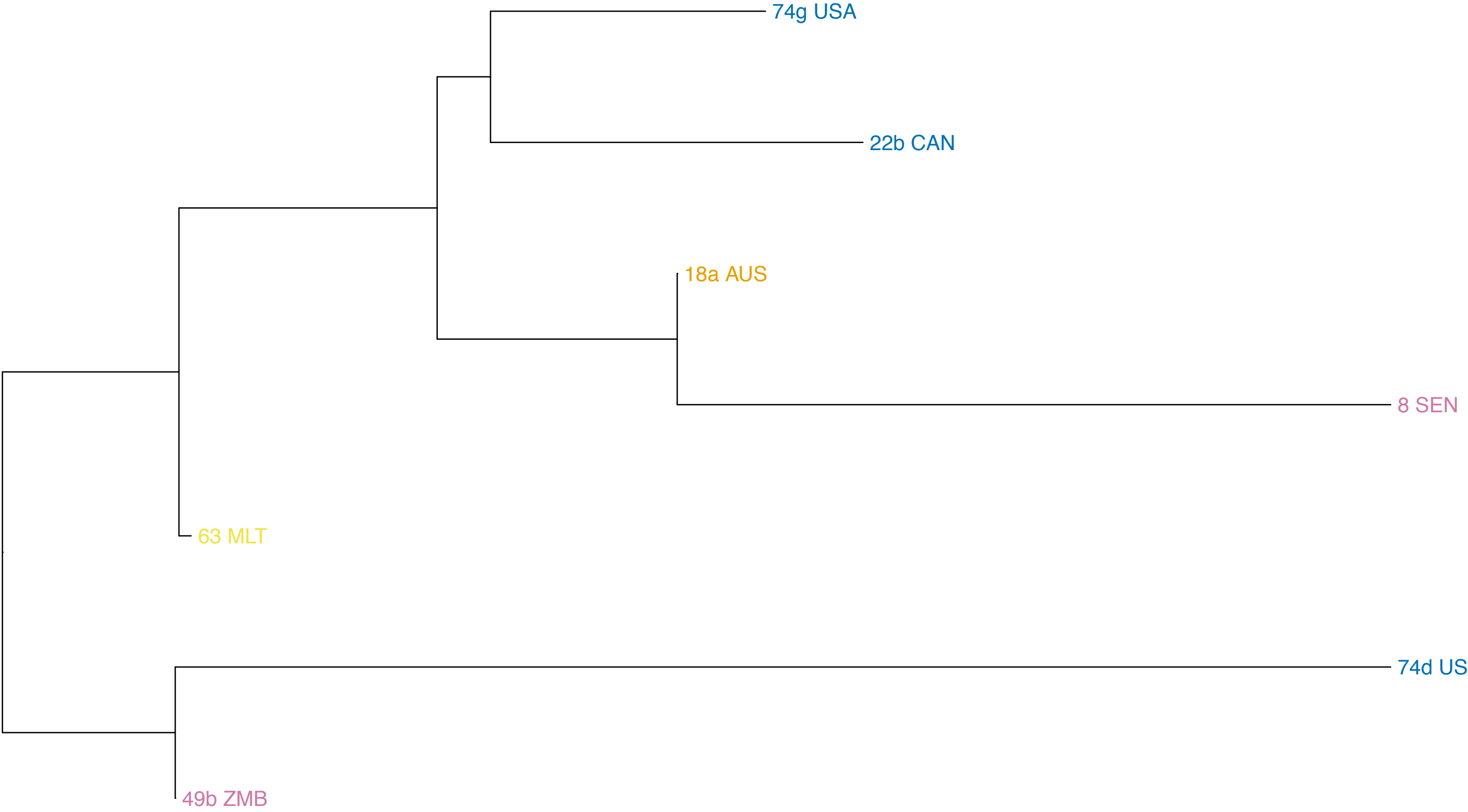
- East Asia & Pacific
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- Sub-Saharan Africa

Klebsiella pneumoniae DNA strain: YH43
p-value 0.74



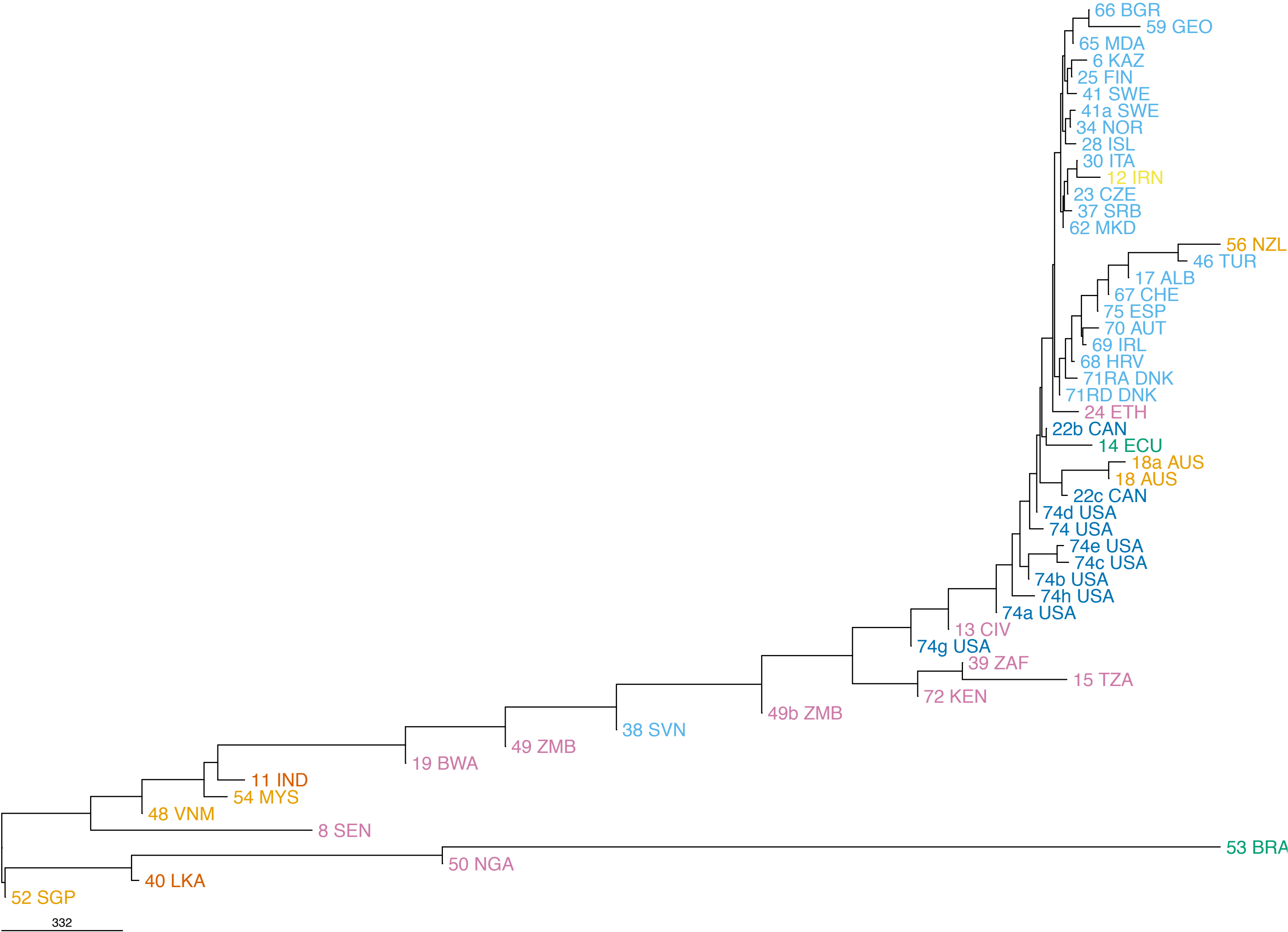
- East Asia & Pacific
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Klebsiella oxytoca DNA strain: JKo3
p-value 0.79



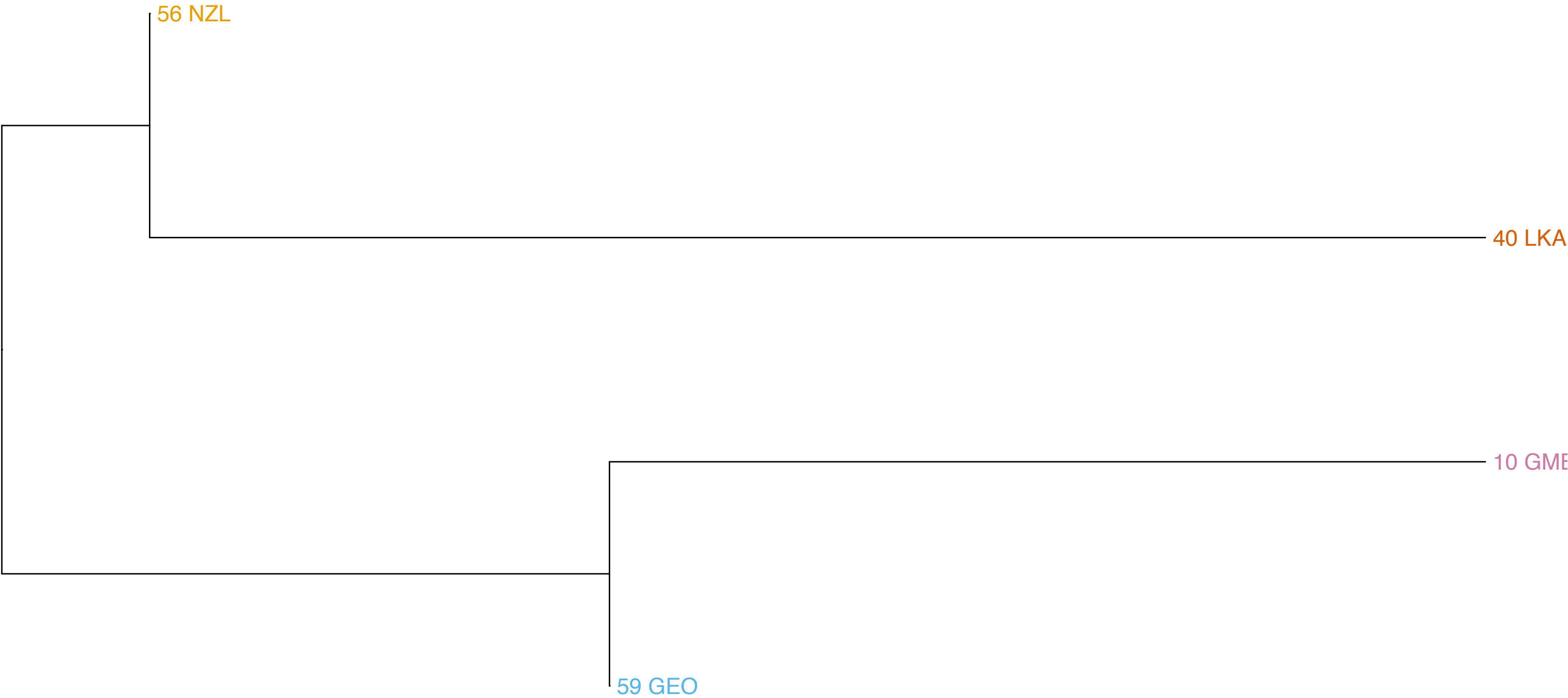
- East Asia & Pacific
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- South Asia
- Sub-Saharan Africa

Moraxella osloensis strain CCUG 350
p-value 0.00010



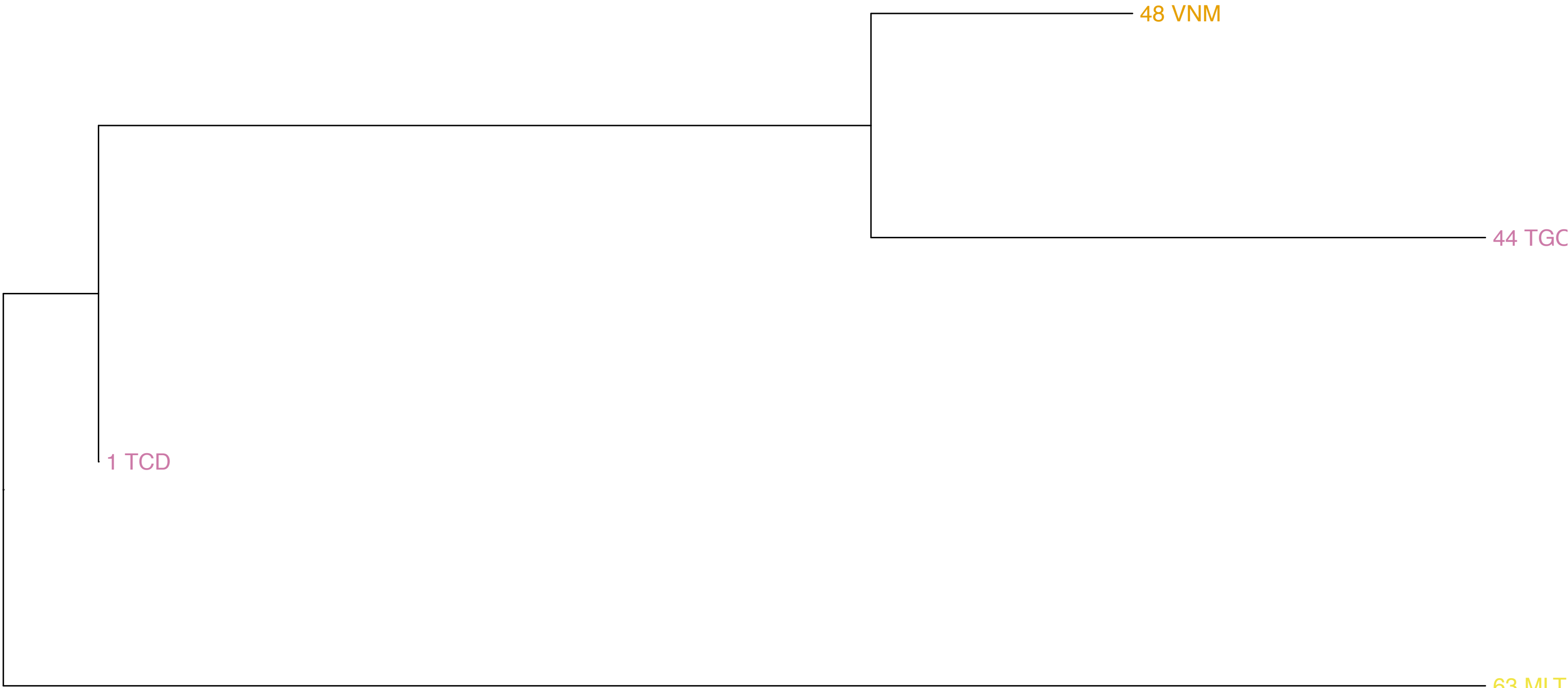
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Pseudomonas azotoformans strain S4
p-value 0



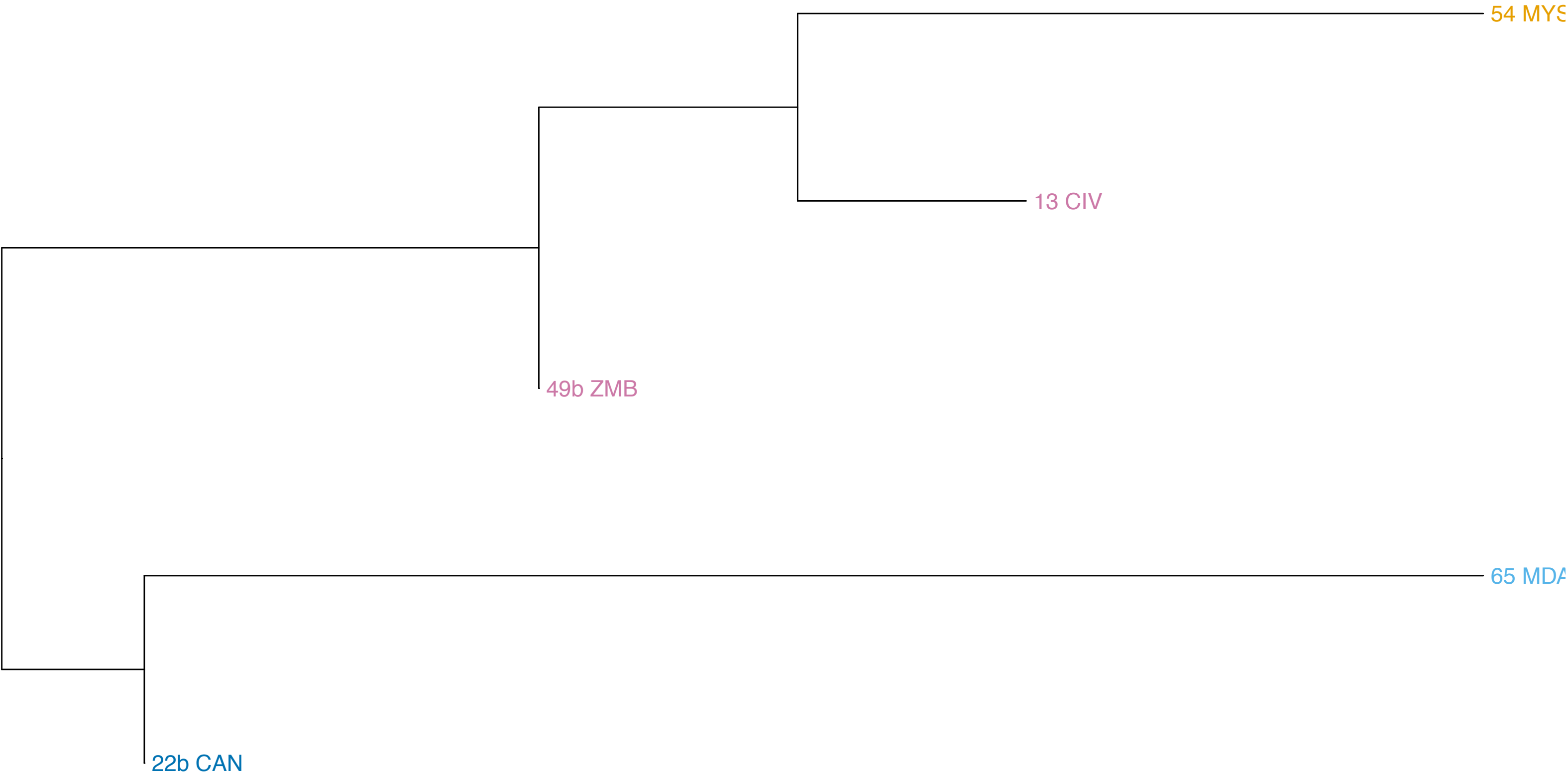
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Aeromonas veronii strain TH0426
p-value 1.0



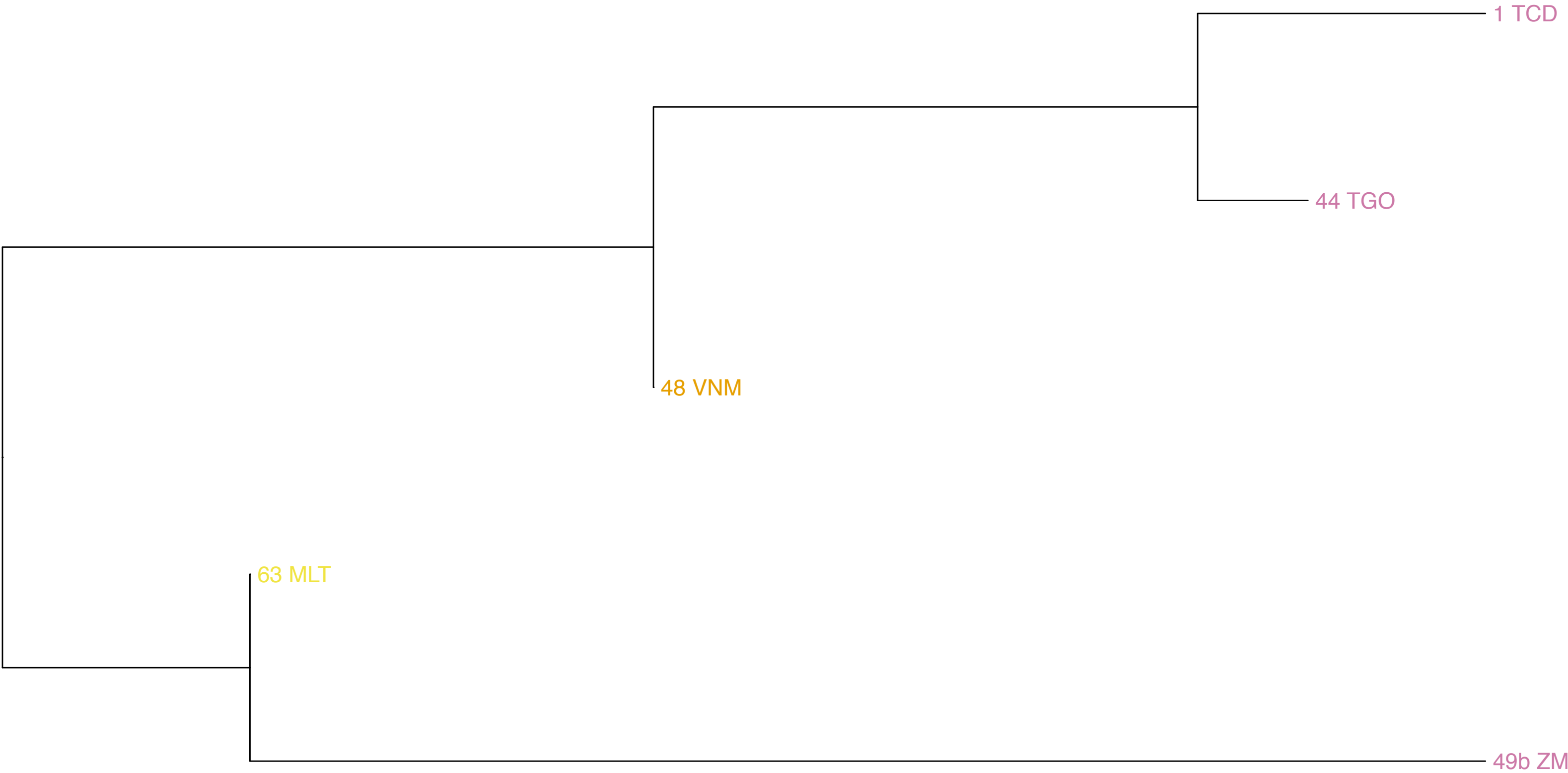
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Pseudomonas alcaligenes strain NEB 585
p-value 1.0



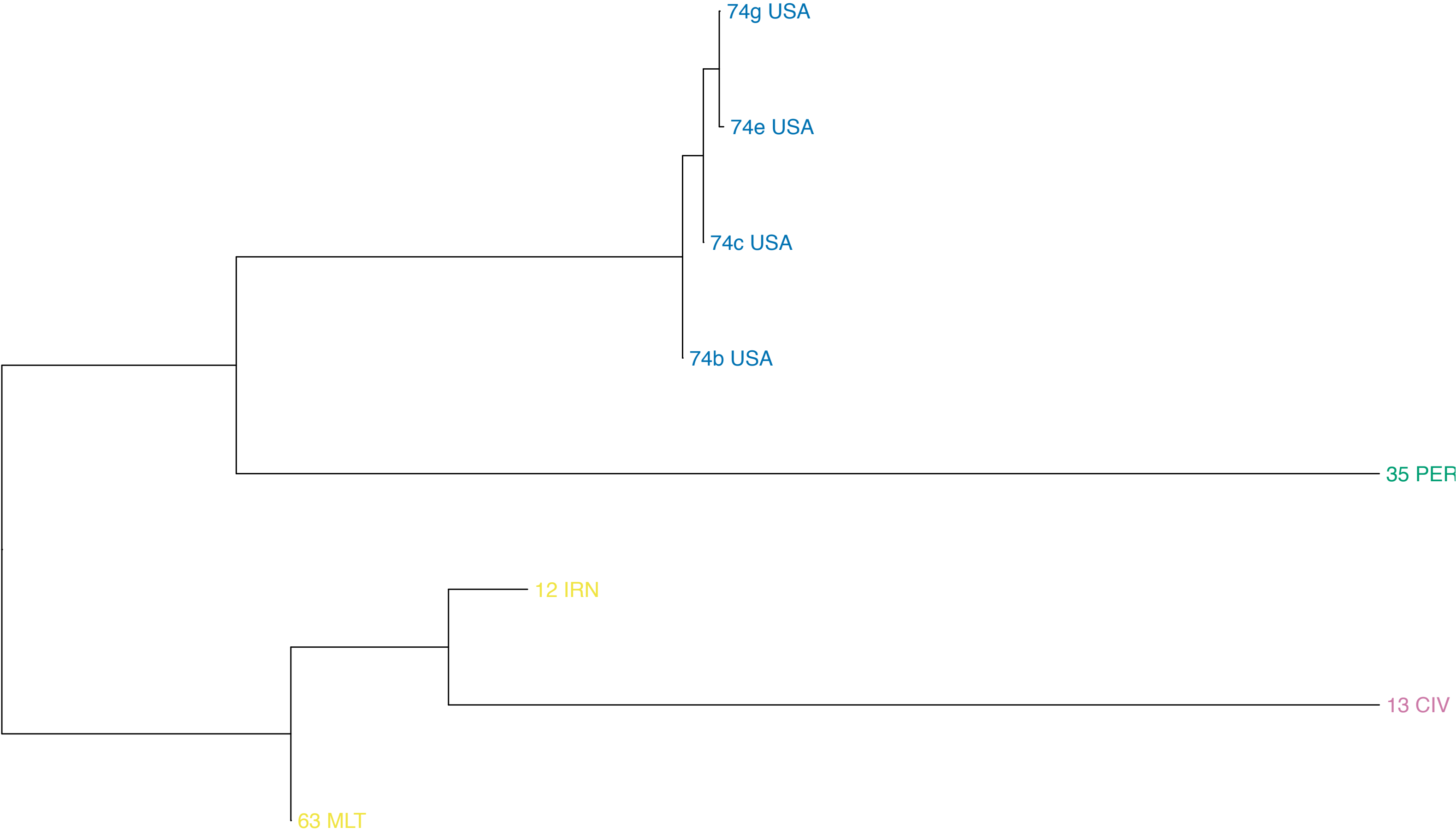
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Aeromonas veronii strain AVNIH1
p-value 1.0



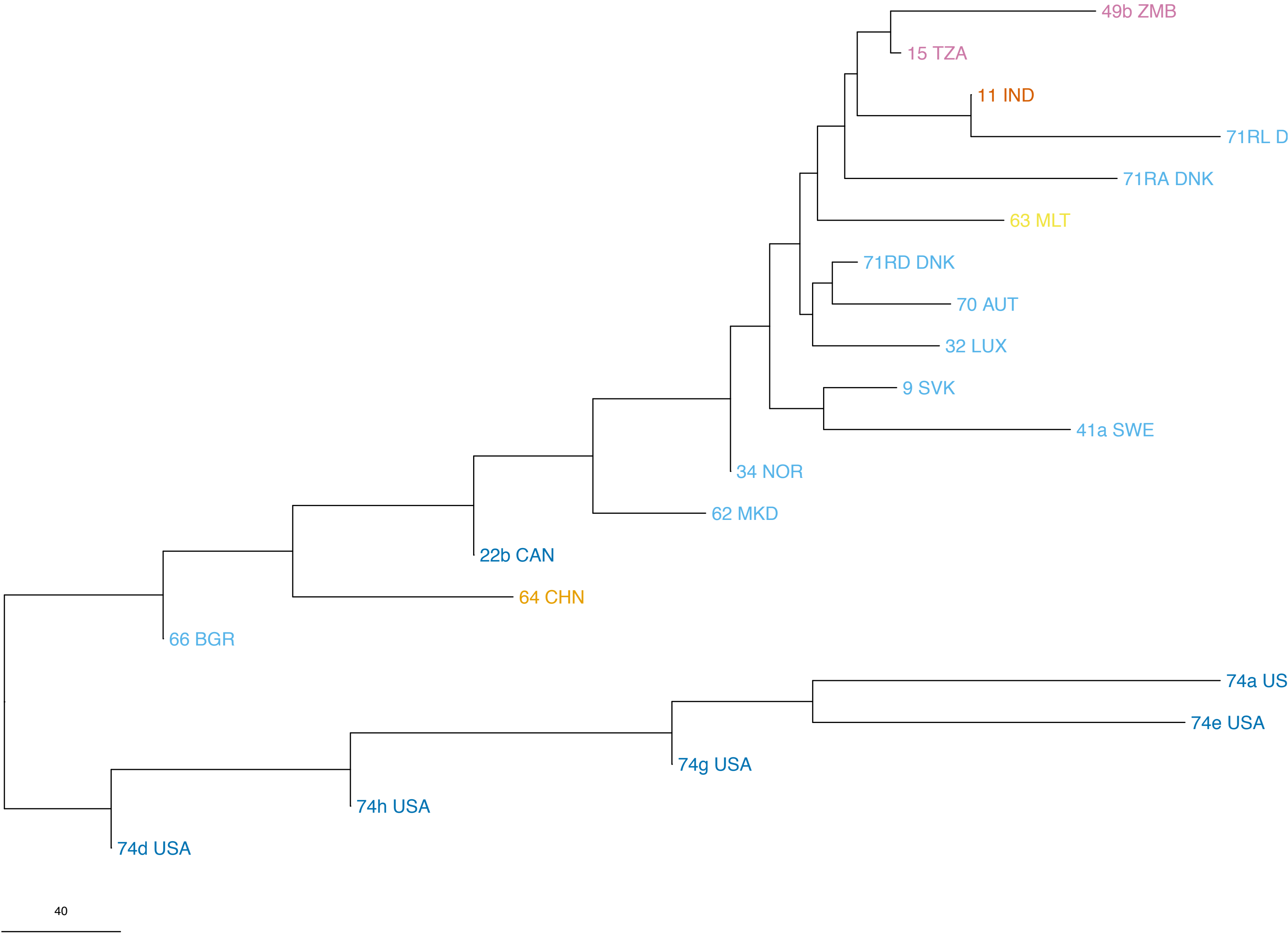
- a Latin America & Caribbean
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- a North America
- a Sub-Saharan Africa

Moraxella ovis strain 199/55
p-value 0.0026



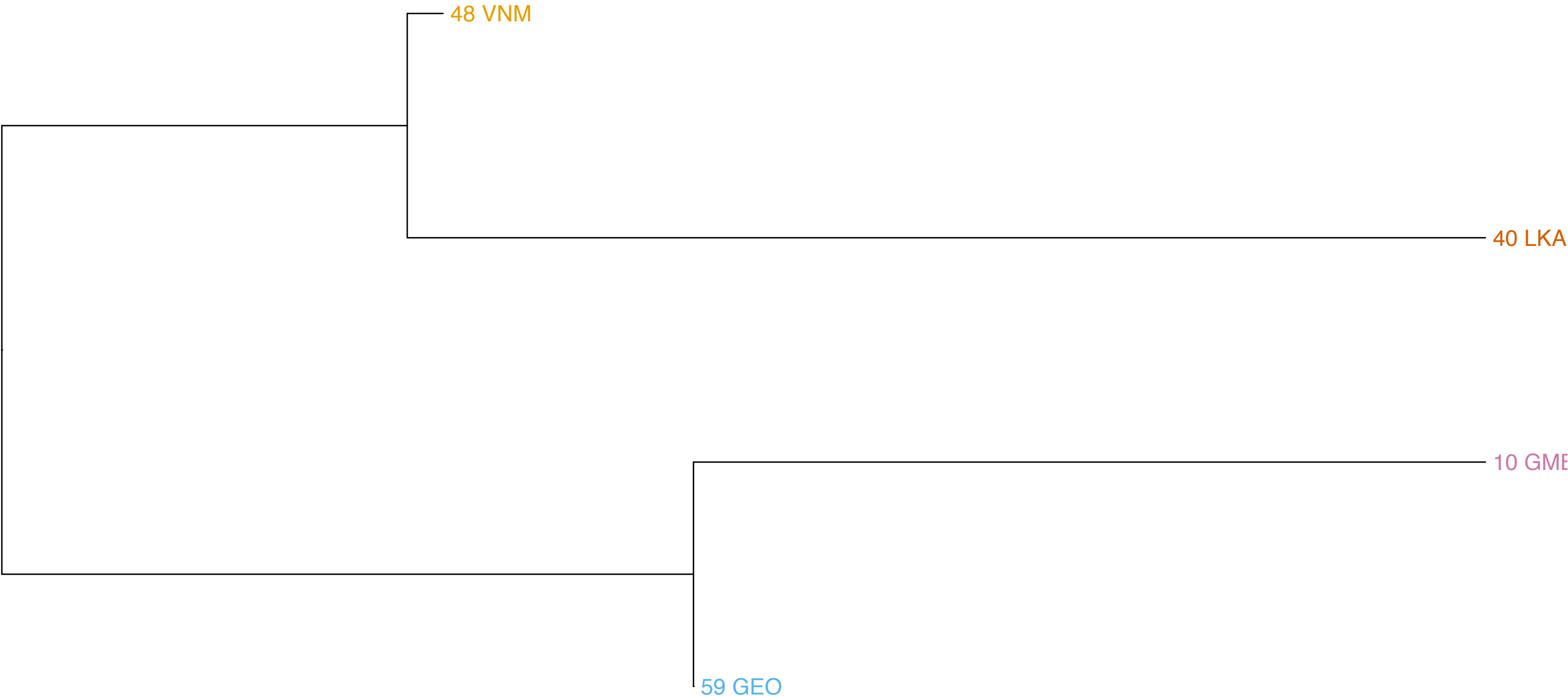
- East Asia & Pacific
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- Middle East & North Africa
- North America
- South Asia
- Sub-Saharan Africa

Bacteroides dorei CL03T12C01
p-value 0.0013



- a East Asia & Pacific
- a Europe & Central Asia
- a South Asia
- a Sub-Saharan Africa

Pseudomonas antarctica strain PAMC 27494
p-value 0



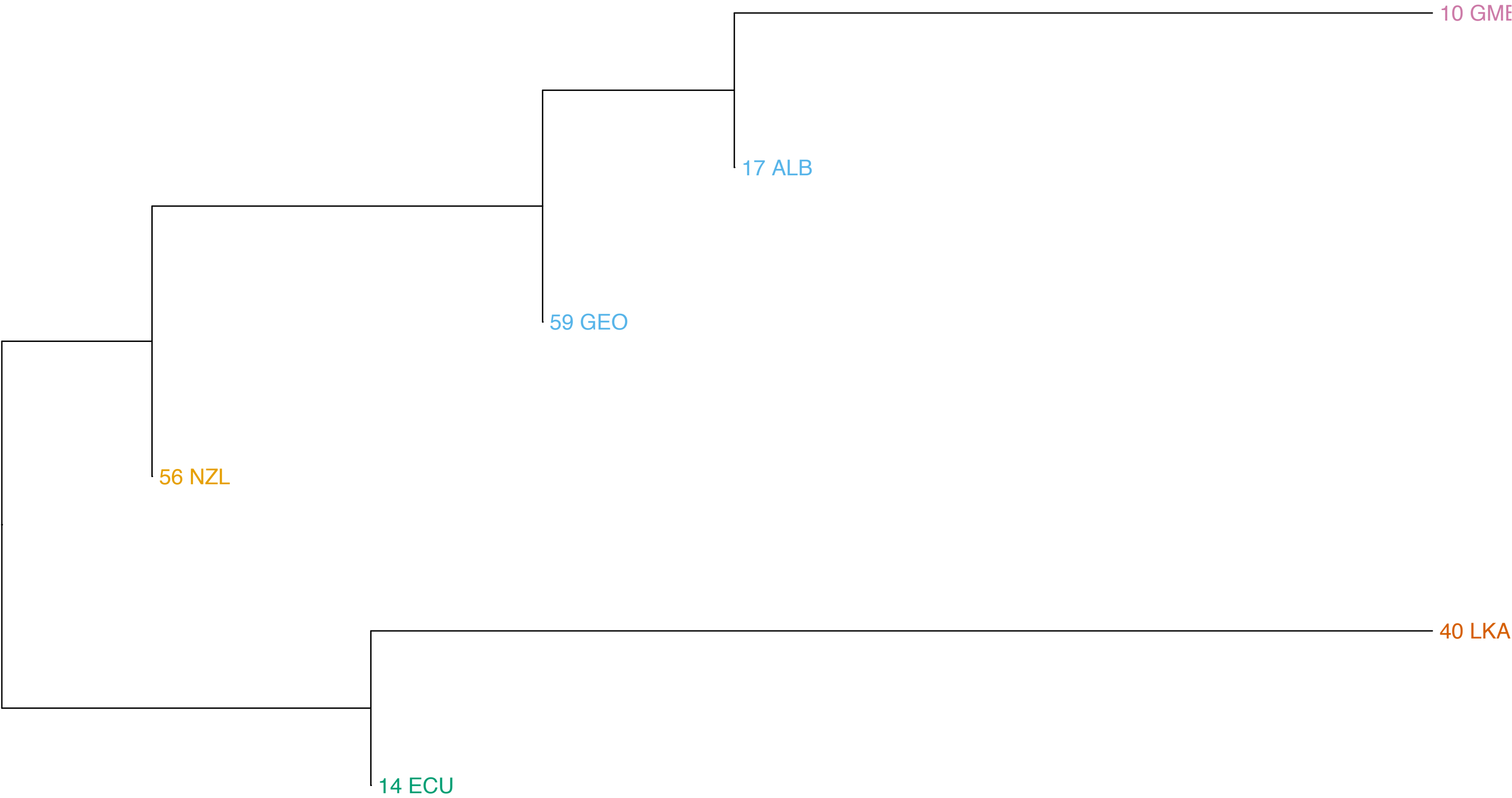
a Latin America & Caribbean
a South Asia
a Sub-Saharan Africa

Escherichia coli O36:H14 strain 06-00048
p-value 1.0



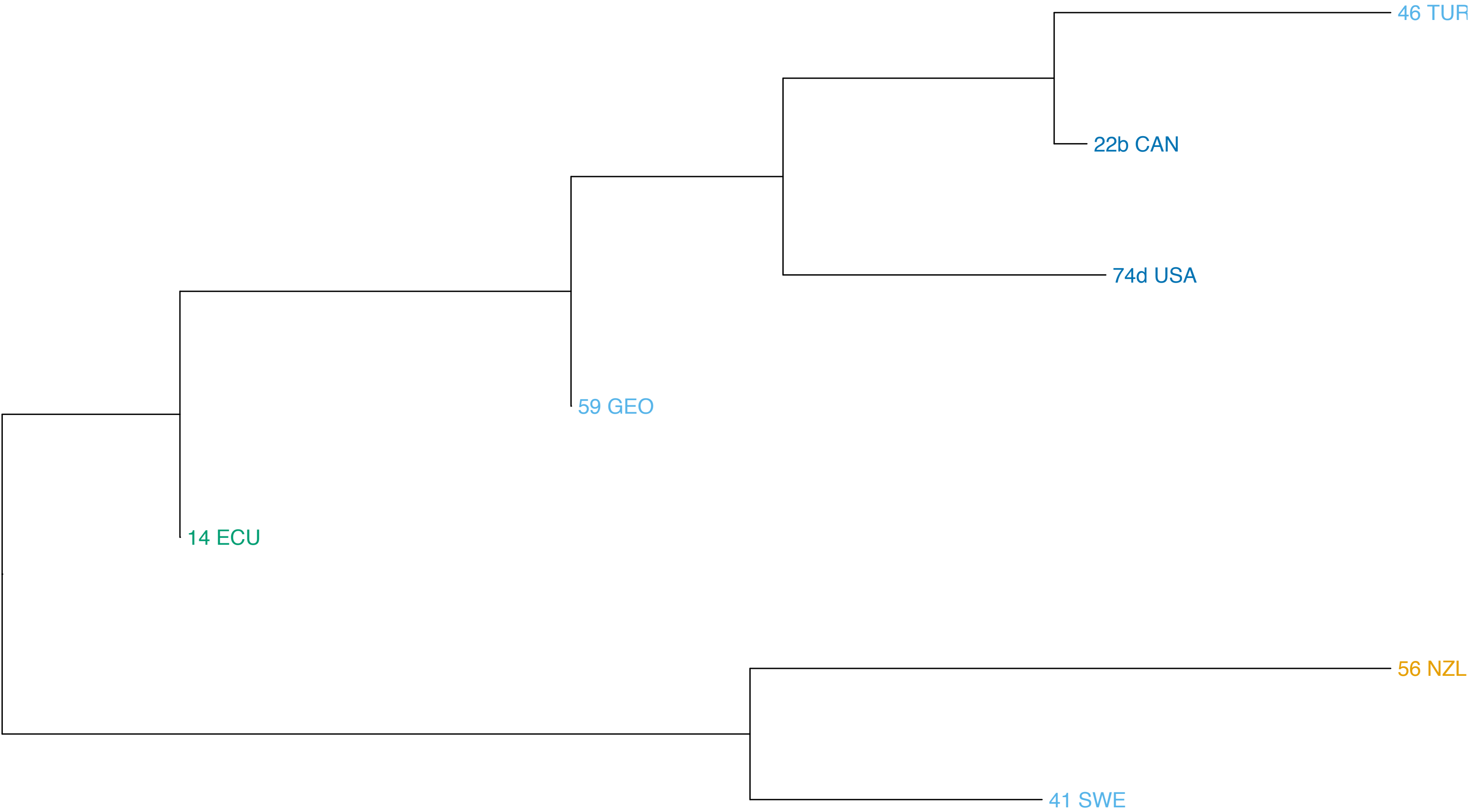
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- South Asia
- Sub-Saharan Africa

Pseudomonas fluorescens strain L228
p-value 1.0



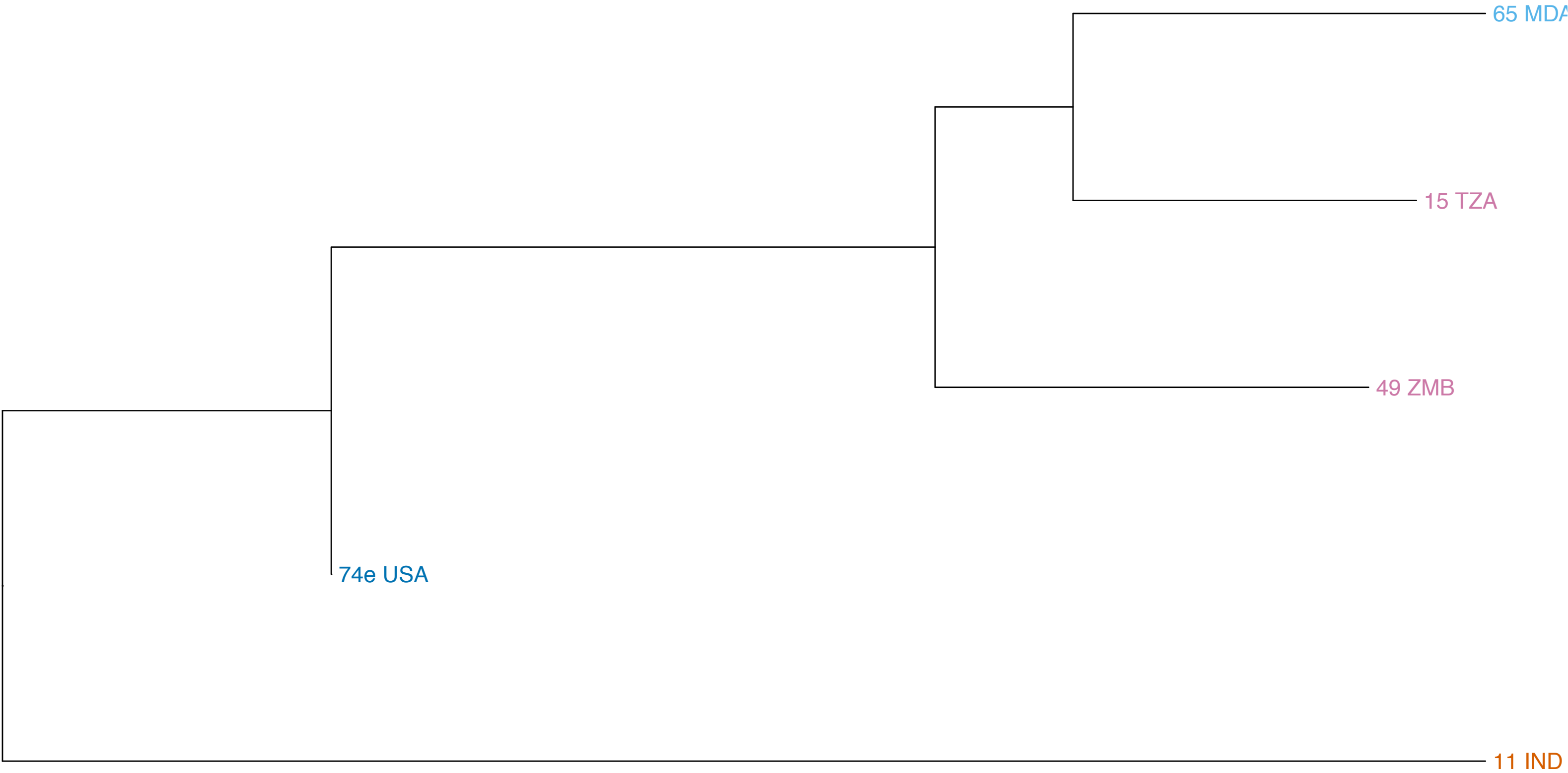
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Janthinobacterium sp. 1_2014MBL_MicDiv
p-value 0.64



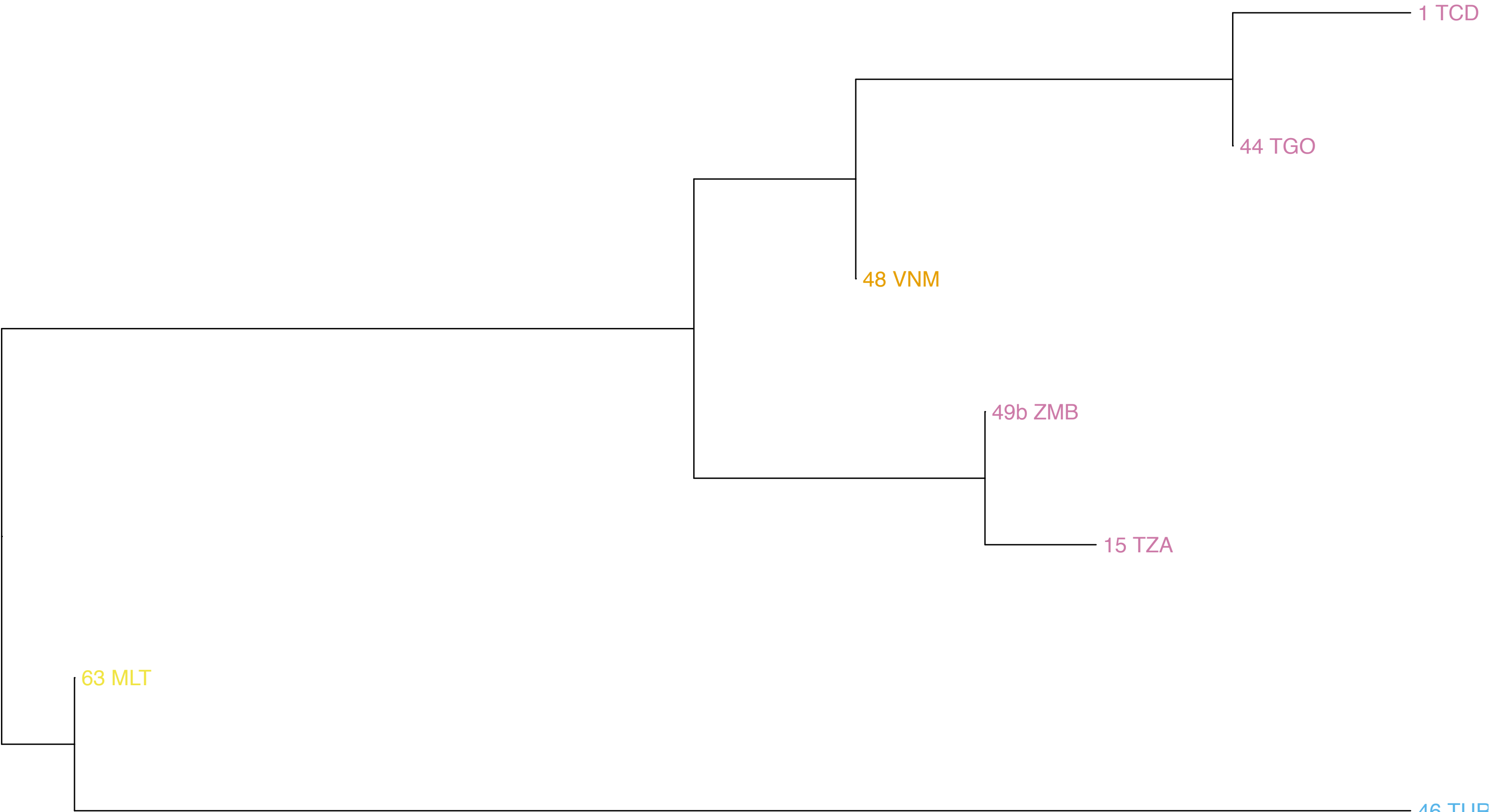
- Europe & Central Asia
- North America
- South Asia
- Sub-Saharan Africa

Lactobacillus delbrueckii subsp. sunkii strain JCM 17838
p-value 1.0



- East Asia & Pacific
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- Sub-Saharan Africa

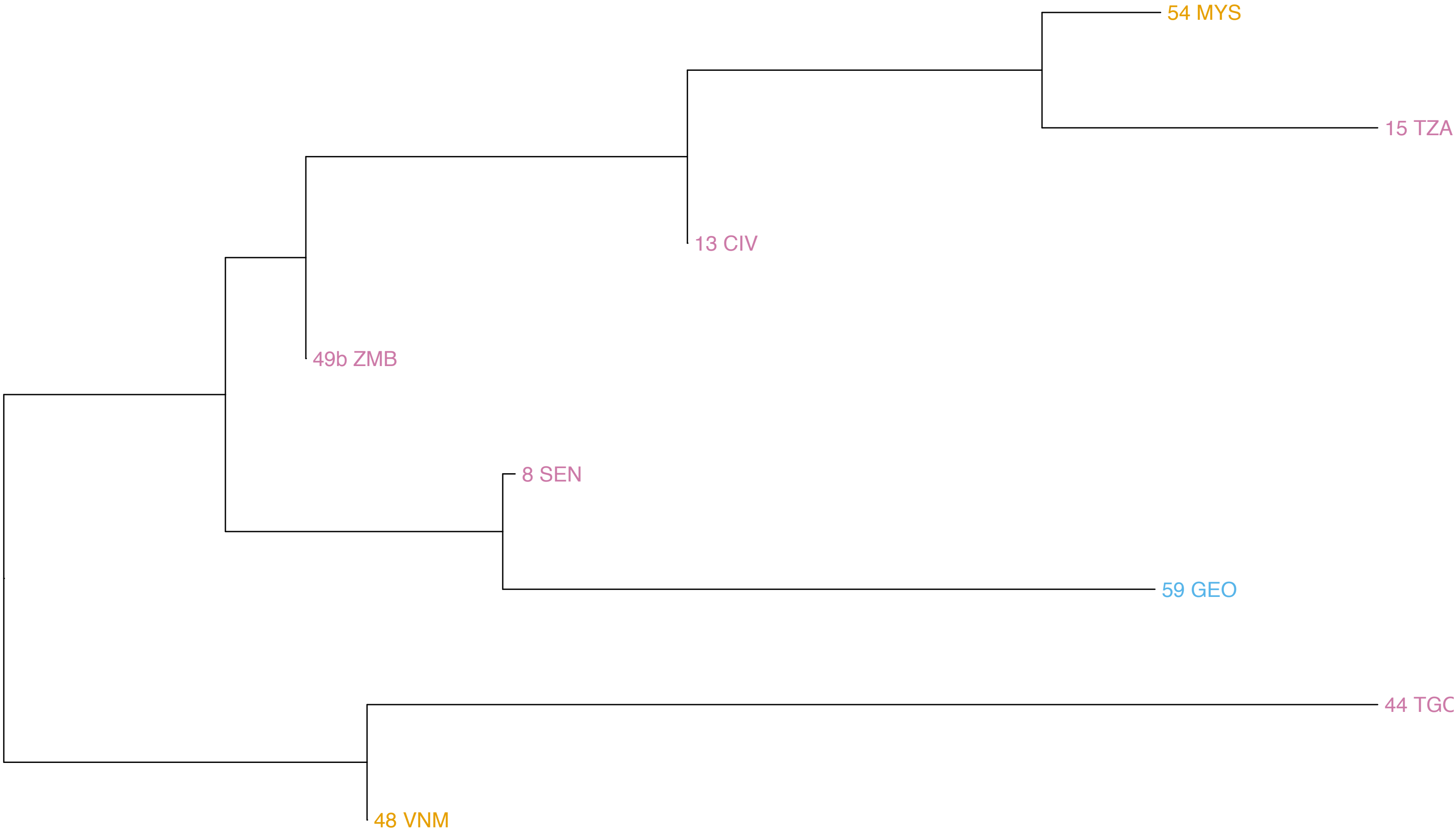
Aeromonas aquatica strain MX16A
p-value 0.43



2640

a East Asia & Pacific
a Europe & Central Asia
a Sub-Saharan Africa

Acinetobacter junii strain 65
p-value 0.65



a Europe & Central Asia
a Sub-Saharan Africa

