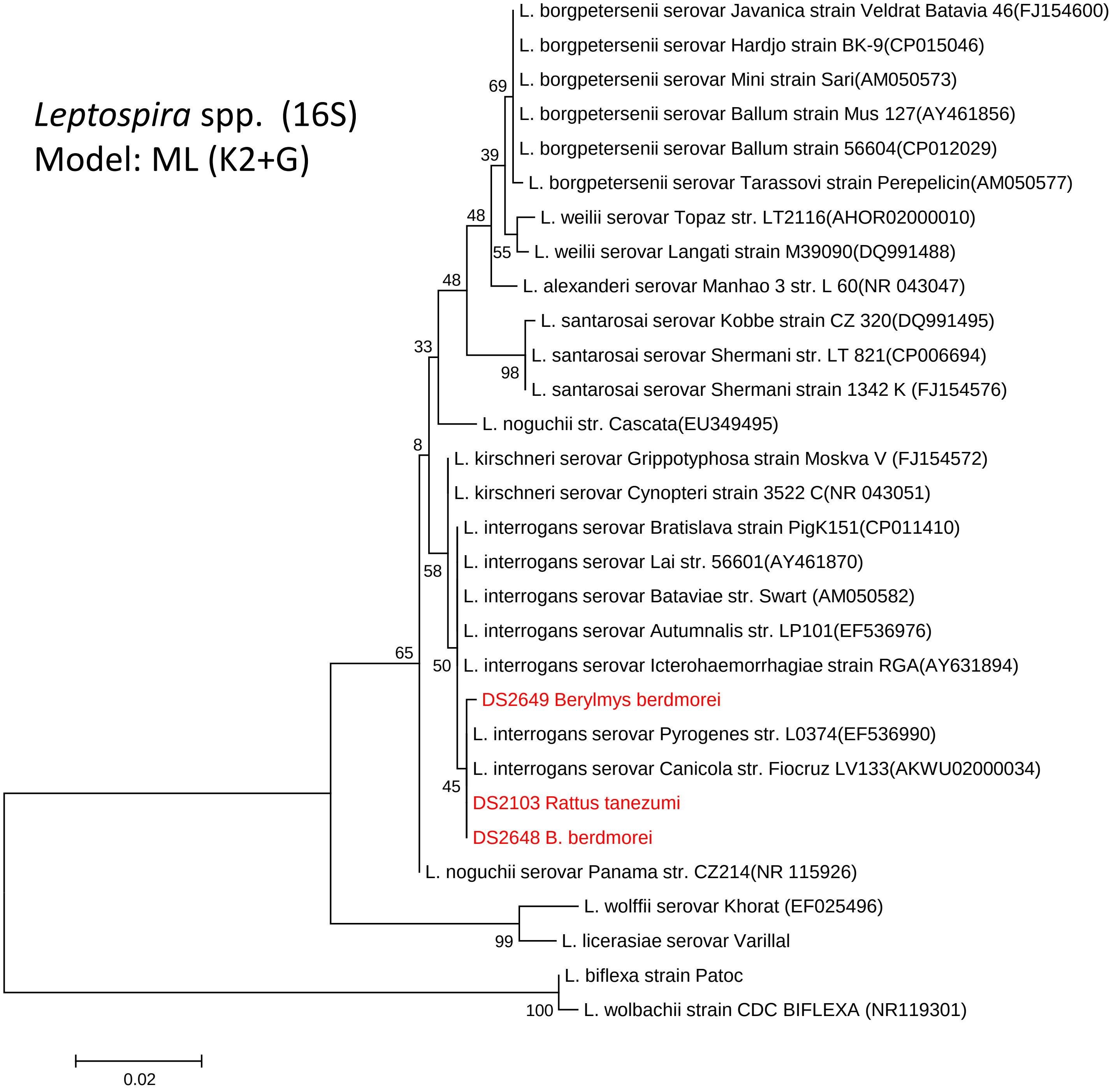
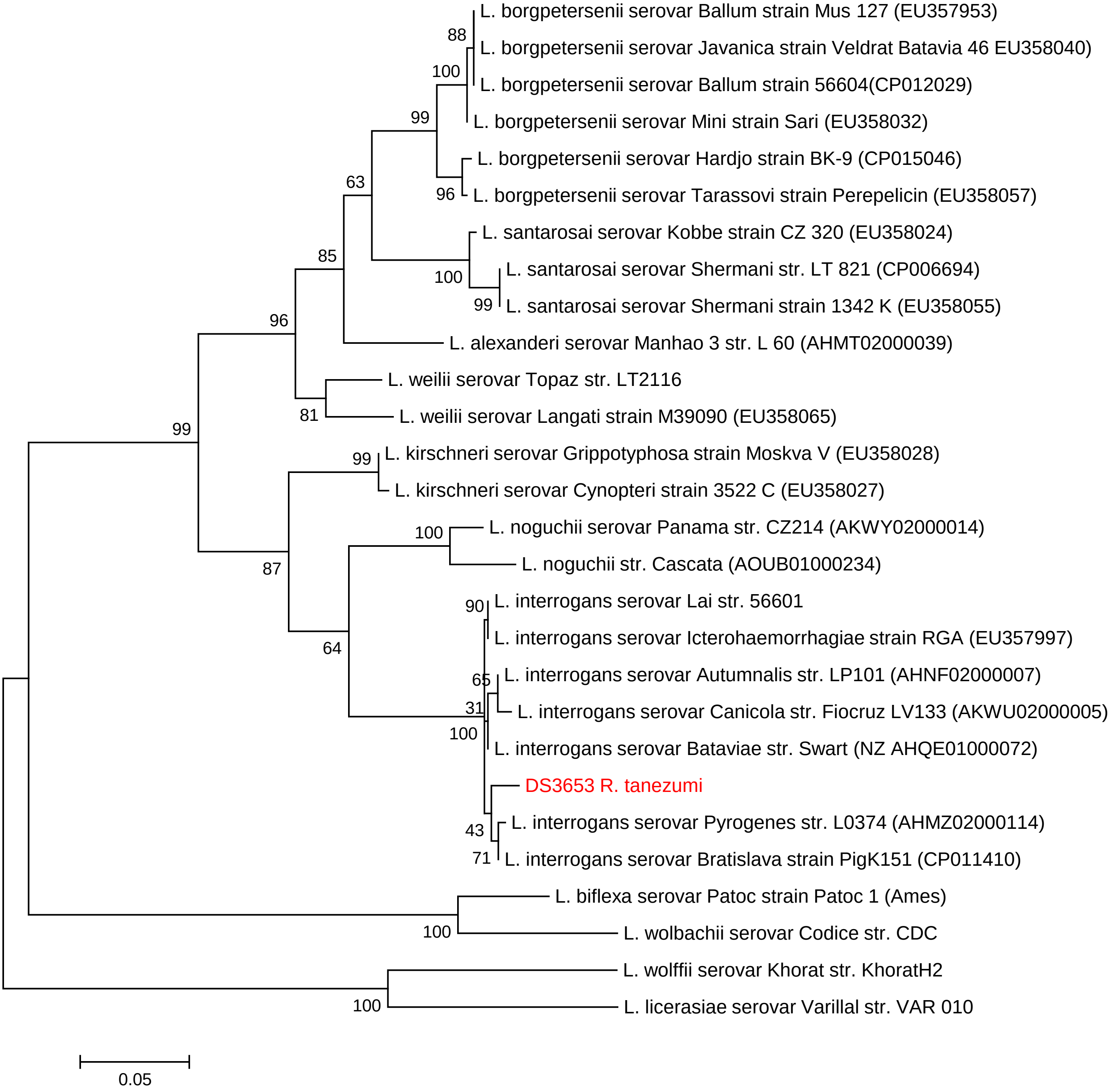
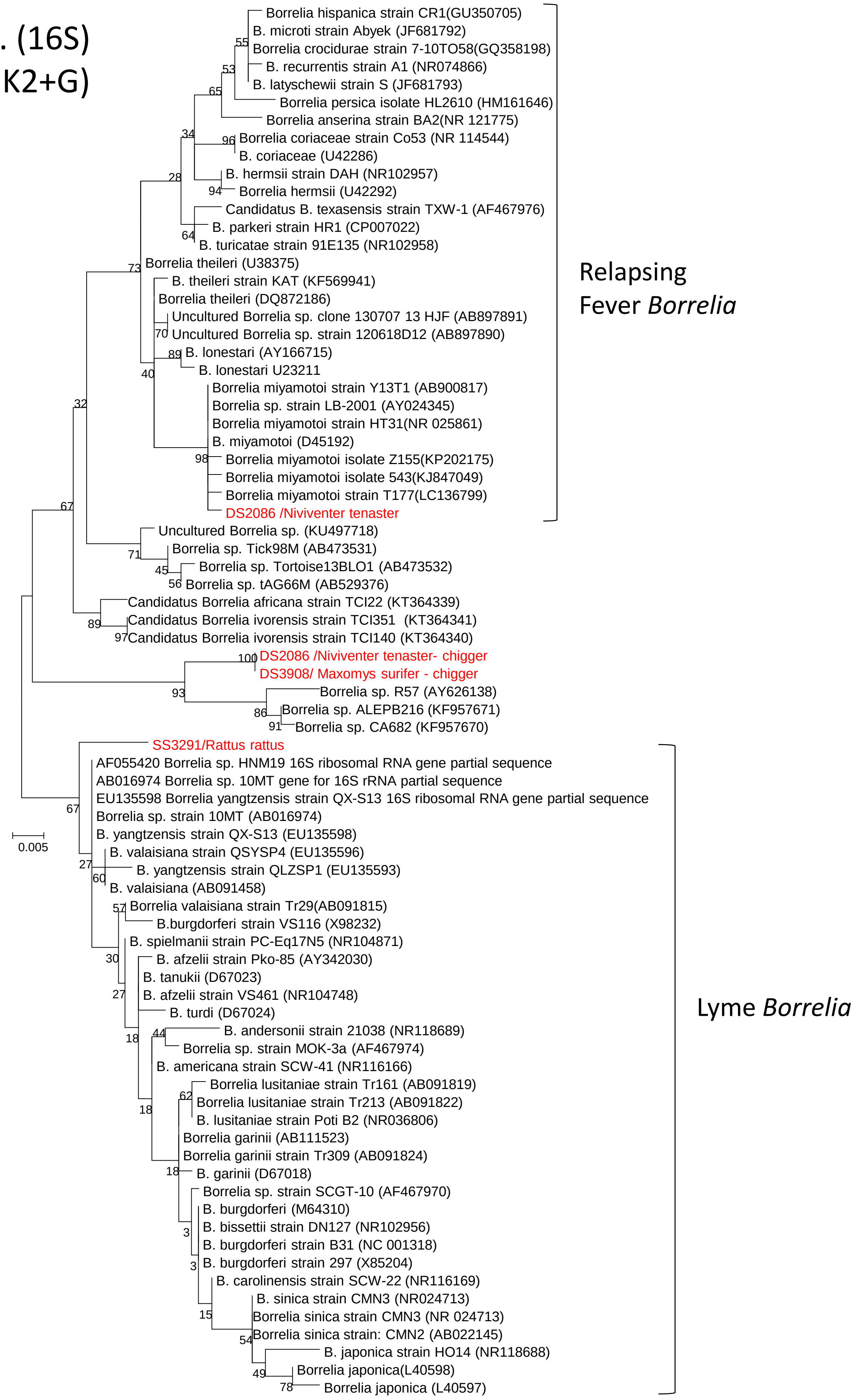
Phylogenetic analysis of pathogens detected from NGS results (red letters). All maximum likelihood trees were created using the best fit model of nucleotide substitution in the MEGA 6 program with bootstrapping (1000 replicates).

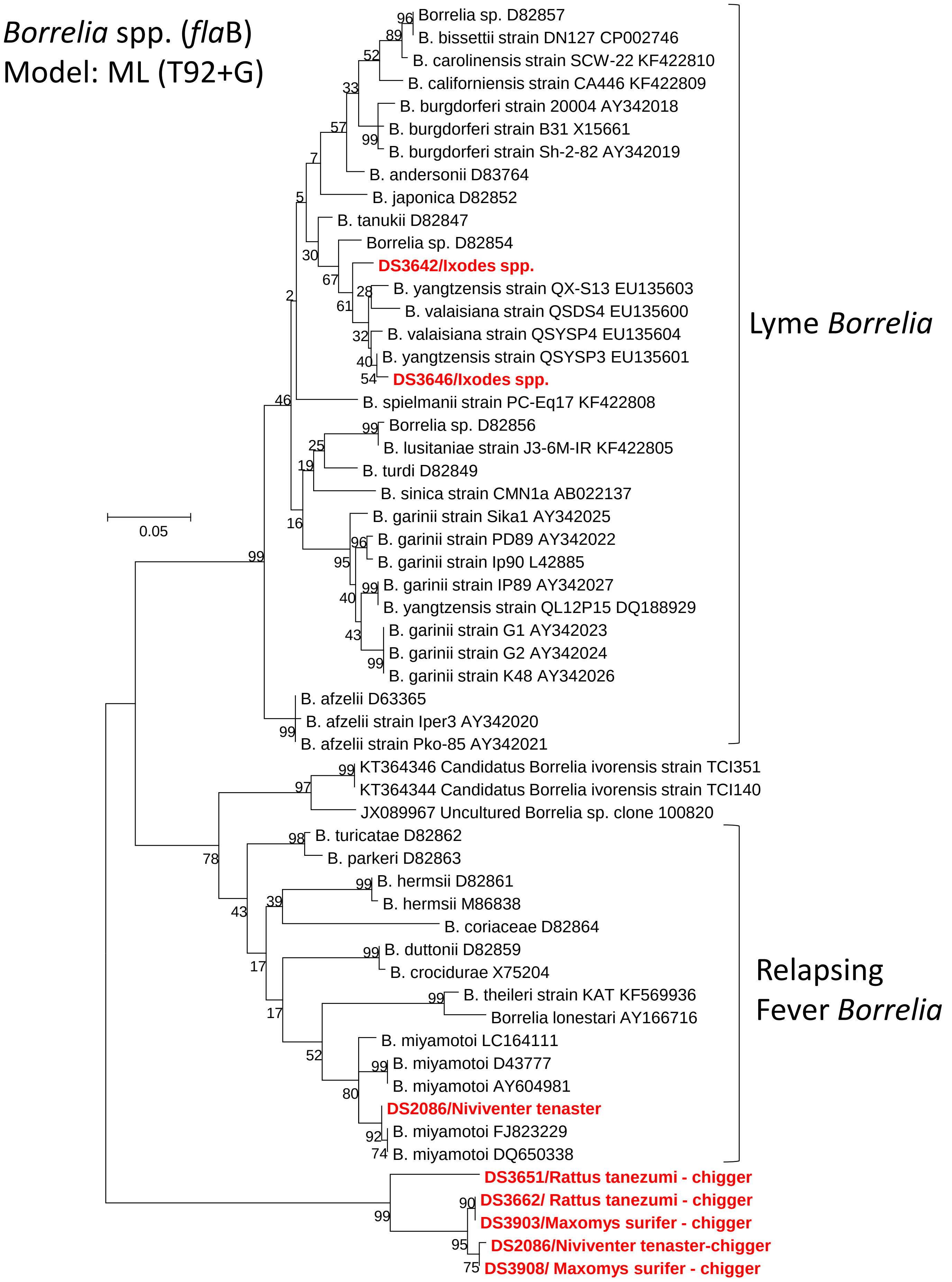


Leptospira spp. (*sec*Y)
Model: ML(HKY+G)



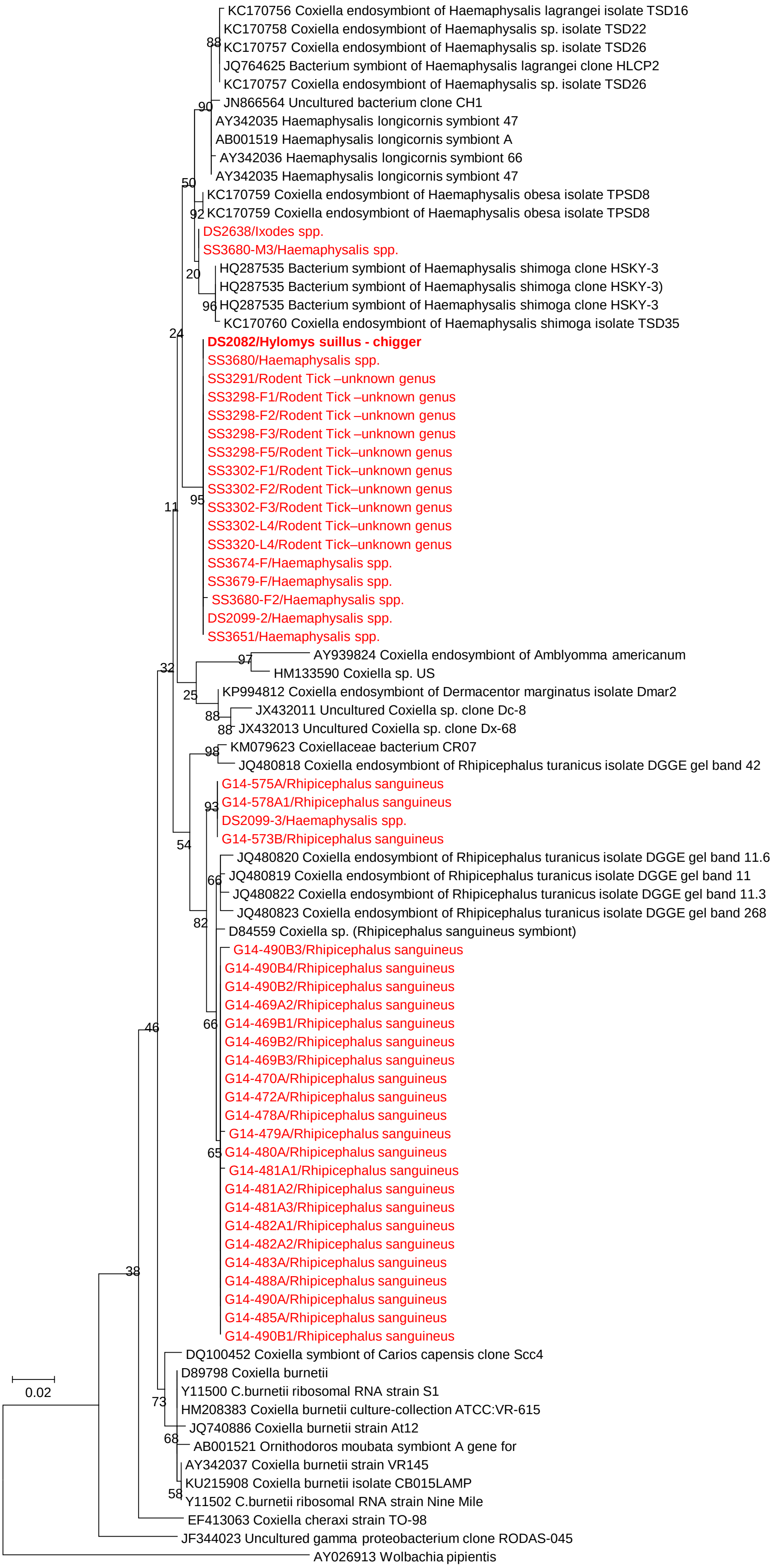
Borrelia spp. (16S)
Model: ML (K2+G)



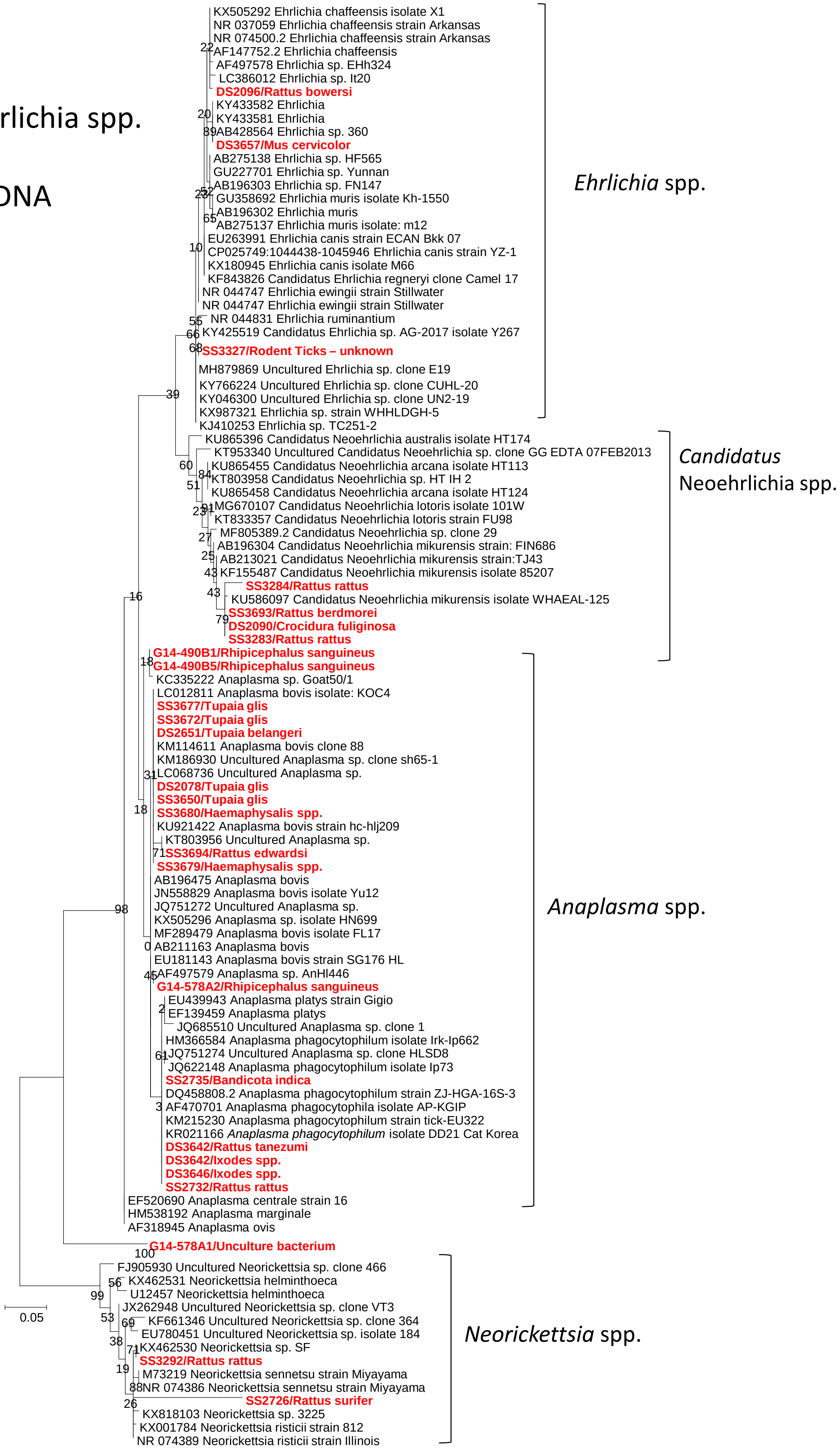

Borrelia spp. (*fla*B)
Model: ML (T92+G)
96 Borrelia sp. D82857
89 B. bissettii strain DN127 CP002746
52 B. carolinensis strain SCW-22 KF422810
33 B. californiensis strain CA446 KF422809
B. burgdorferi strain 20004 AY342018
57 B. burgdorferi strain B31 X15661
99 B. burgdorferi strain Sh-2-82 AY342019
7 B. andersonii D83764
5 B. japonica D82852
B. tanukii D82847
Borrelia sp. D82854
30 **DS3642/Ixodes spp.**
67 28 B. yangtzensis strain QX-S13 EU135603
61 B. valaisiana strain QSDS4 EU135600
32 B. valaisiana strain QSYSP4 EU135604
40 B. yangtzensis strain QSYSP3 EU135601
54 **DS3646/Ixodes spp.**
2 B. spielmanii strain PC-Eq17 KF422808
46 99 Borrelia sp. D82856
25 B. lusitaniae strain J3-6M-IR KF422805
19 B. turdi D82849
B. sinica strain CMN1a AB022137
16 B. garinii strain Sika1 AY342025
96 B. garinii strain PD89 AY342022
95 B. garinii strain Ip90 L42885
99 B. garinii strain IP89 AY342027
40 B. yangtzensis strain QL12P15 DQ188929
43 B. garinii strain G1 AY342023
B. garinii strain G2 AY342024
99 B. garinii strain K48 AY342026
99 B. afzelii D63365
B. afzelii strain Iper3 AY342020
99 B. afzelii strain Pko-85 AY342021
Lyme *Borrelia*
0.05
99 KT364346 Candidatus Borrelia ivorensis strain TCI351
97 KT364344 Candidatus Borrelia ivorensis strain TCI140
JX089967 Uncultured Borrelia sp. clone 100820
98 B. turicatae D82862
78 B. parkeri D82863
99 B. hermsii D82861
43 39 B. hermsii M86838
B. coriaceae D82864
99 B. duttonii D82859
17 B. crocidurae X75204
99 B. theileri strain KAT KF569936
17 Borrelia lonestari AY166716
52 B. miyamotoi LC164111
99 B. miyamotoi D43777
80 B. miyamotoi AY604981
DS2086/Niviventer tenaster
92 B. miyamotoi FJ823229
74 B. miyamotoi DQ650338
Relapsing Fever *Borrelia*
DS3651/Rattus tanezumi - chigger
90 **DS3662/ Rattus tanezumi - chigger**
99 **DS3903/Maxomys surifer - chigger**
95 **DS2086/Niviventer tenaster-chigger**
75 **DS3908/ Maxomys surifer - chigger**

Coxiella spp. (16S)

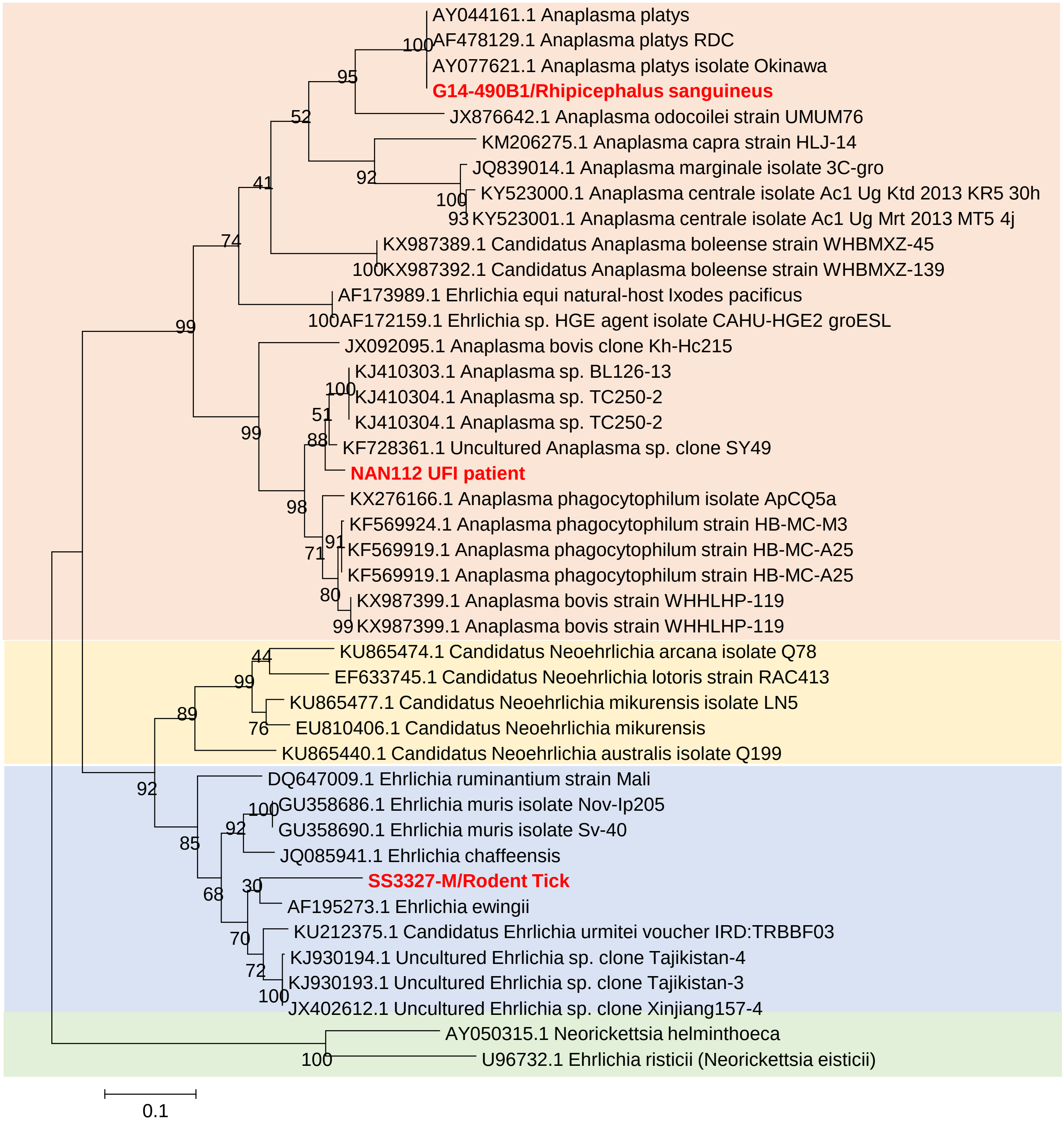
Model: ML(K2+G)



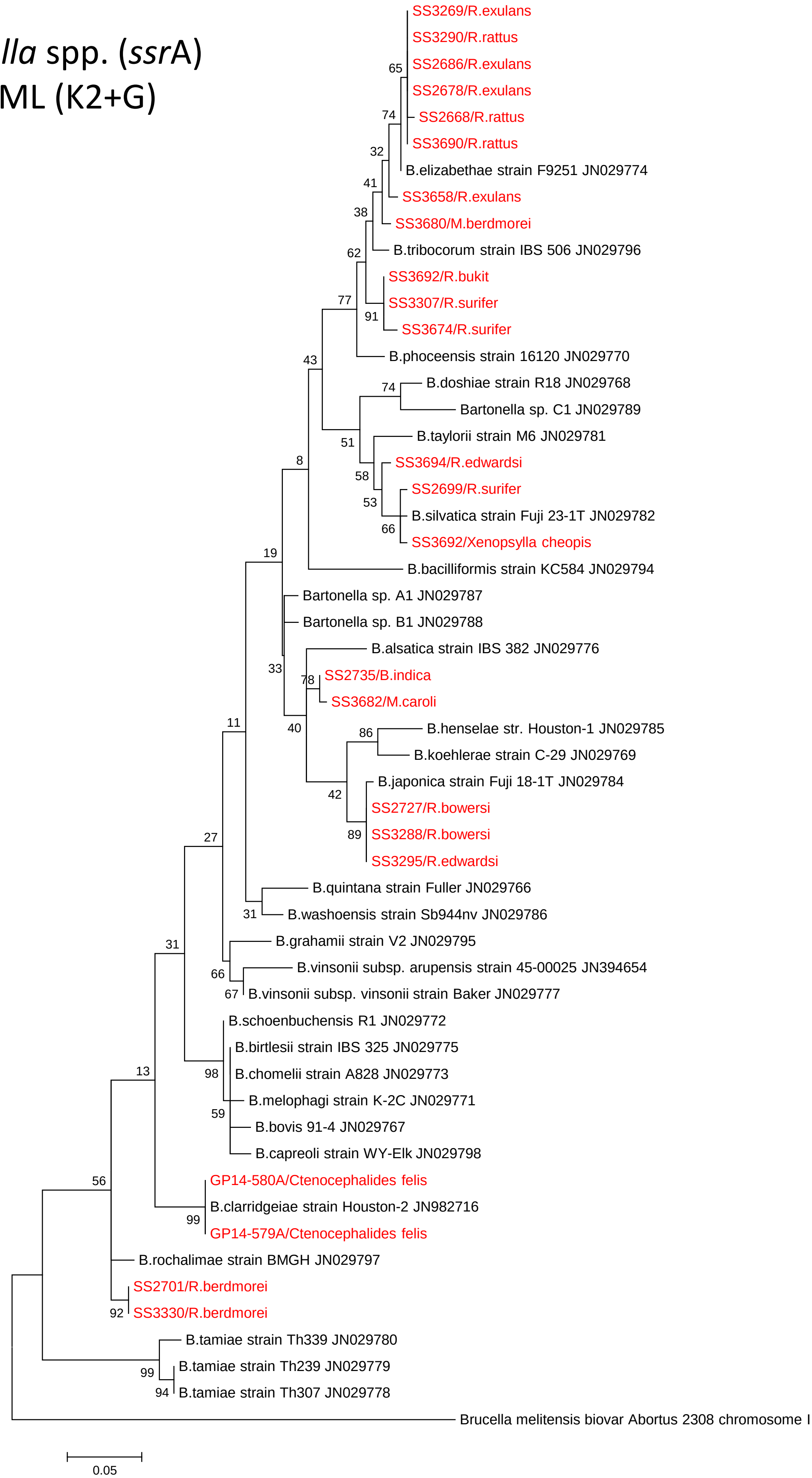
Anaplasna spp.
Ehrlichia spp
Candidatus Neoehrlichia spp.
Neorickettsia spp.
Target gene: 16S rDNA
Model: ML (K2+G)



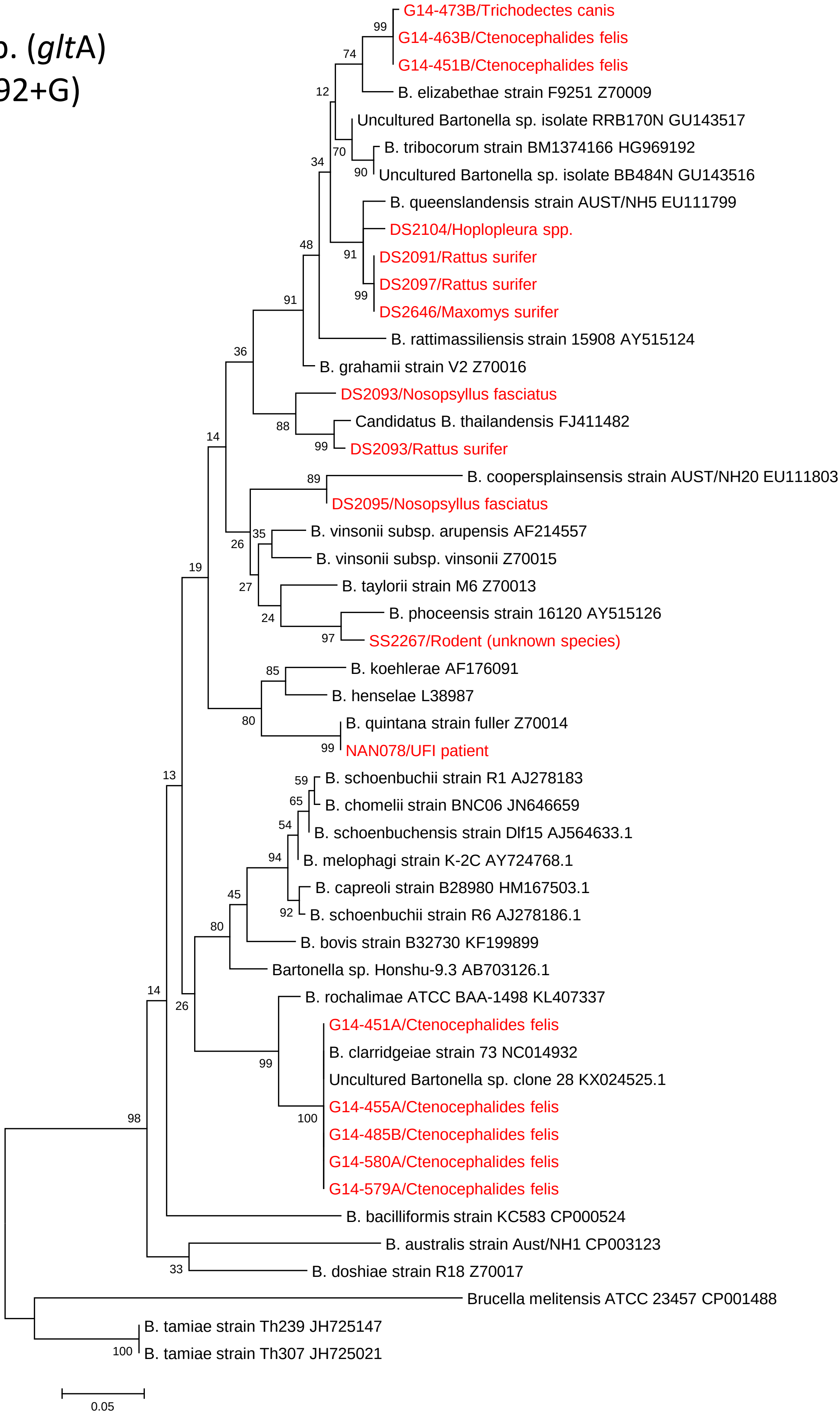
Anaplasma & *Ehrlichia* spp. (*gro*EL)
Model:T92+G



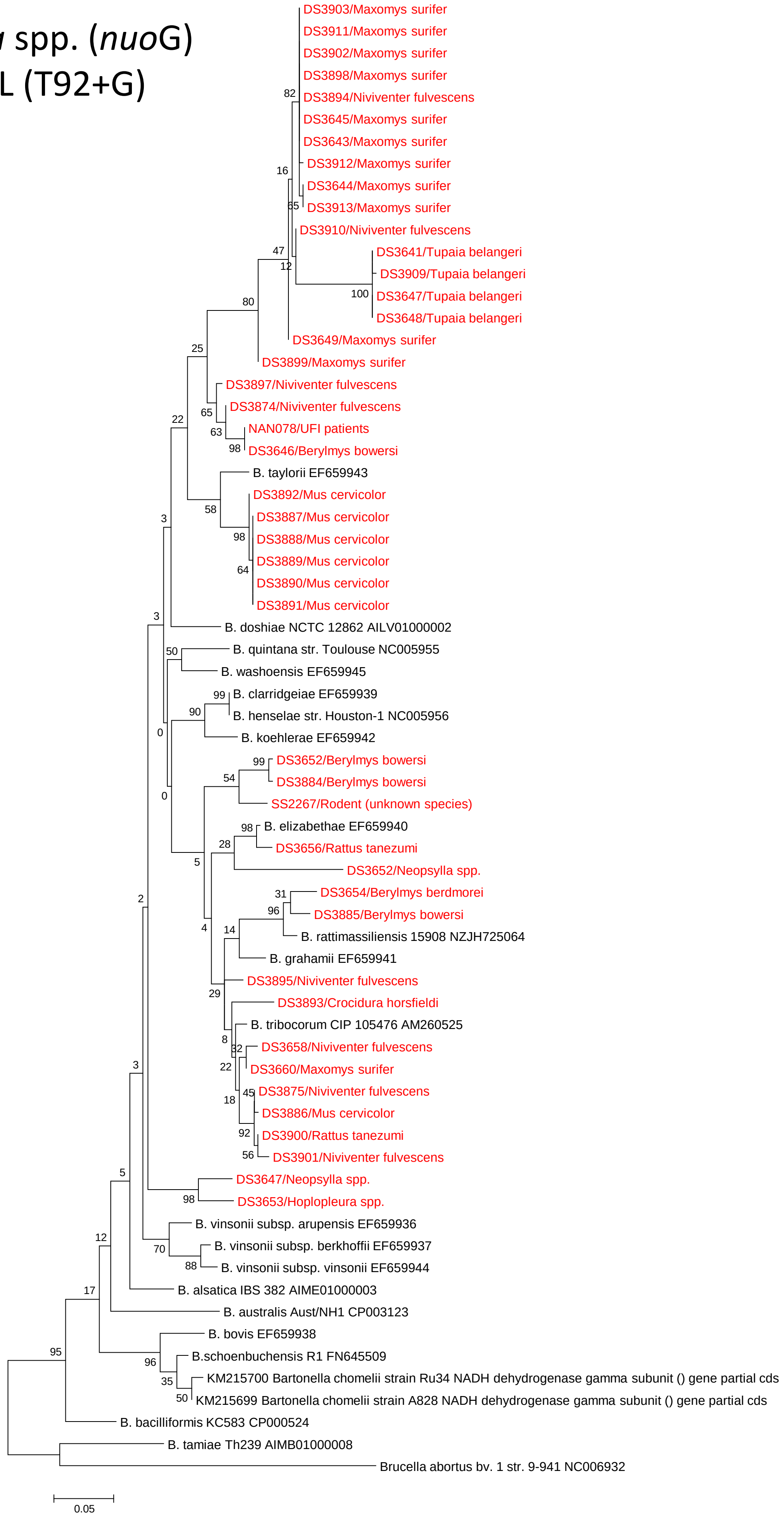
Bartonella spp. (*ssr*A)
Model: ML (K2+G)



Bartonella spp. (*glt*A)
Model: ML (T92+G)



Bartonella spp. (*nuo*G)
Model: ML (T92+G)



Rickettsia spp. (*glt*A)
Model: ML(T92+G)