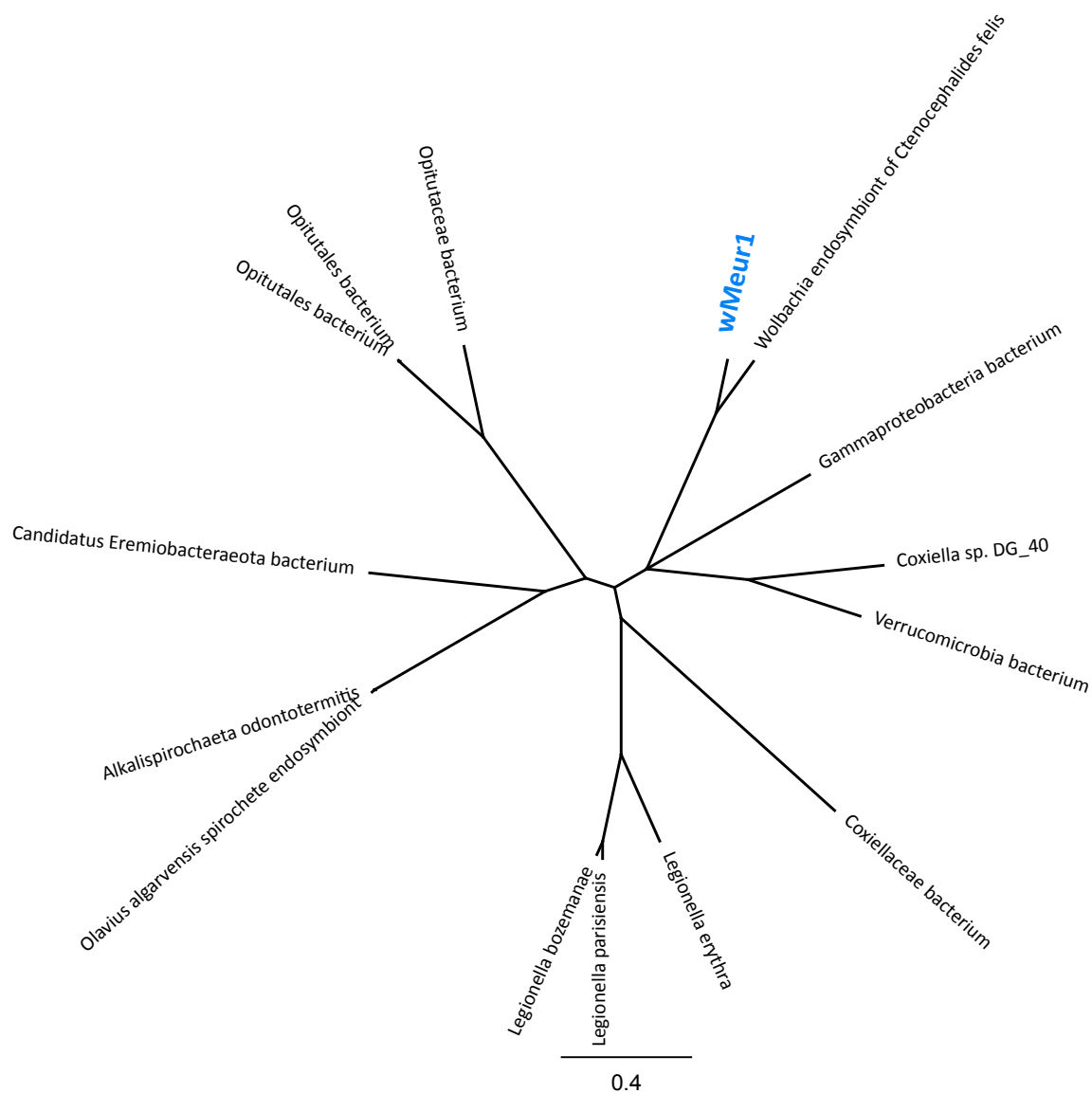
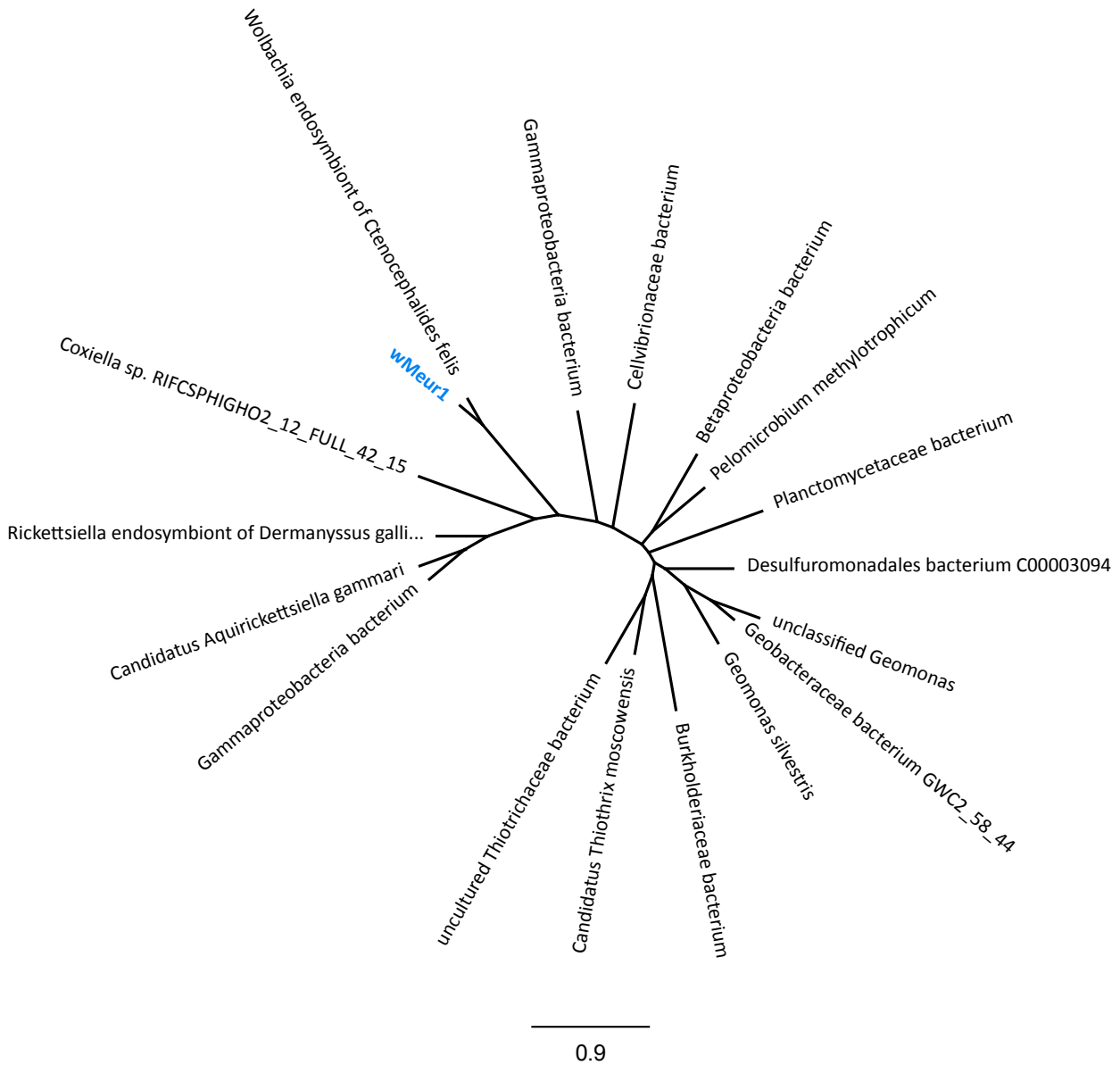


**Supplementary figure 7A:** Phylogenetic position of pantothenate synthesis related genes; Pantoate--beta-alanine ligase panC (EC 6.3.2.1)



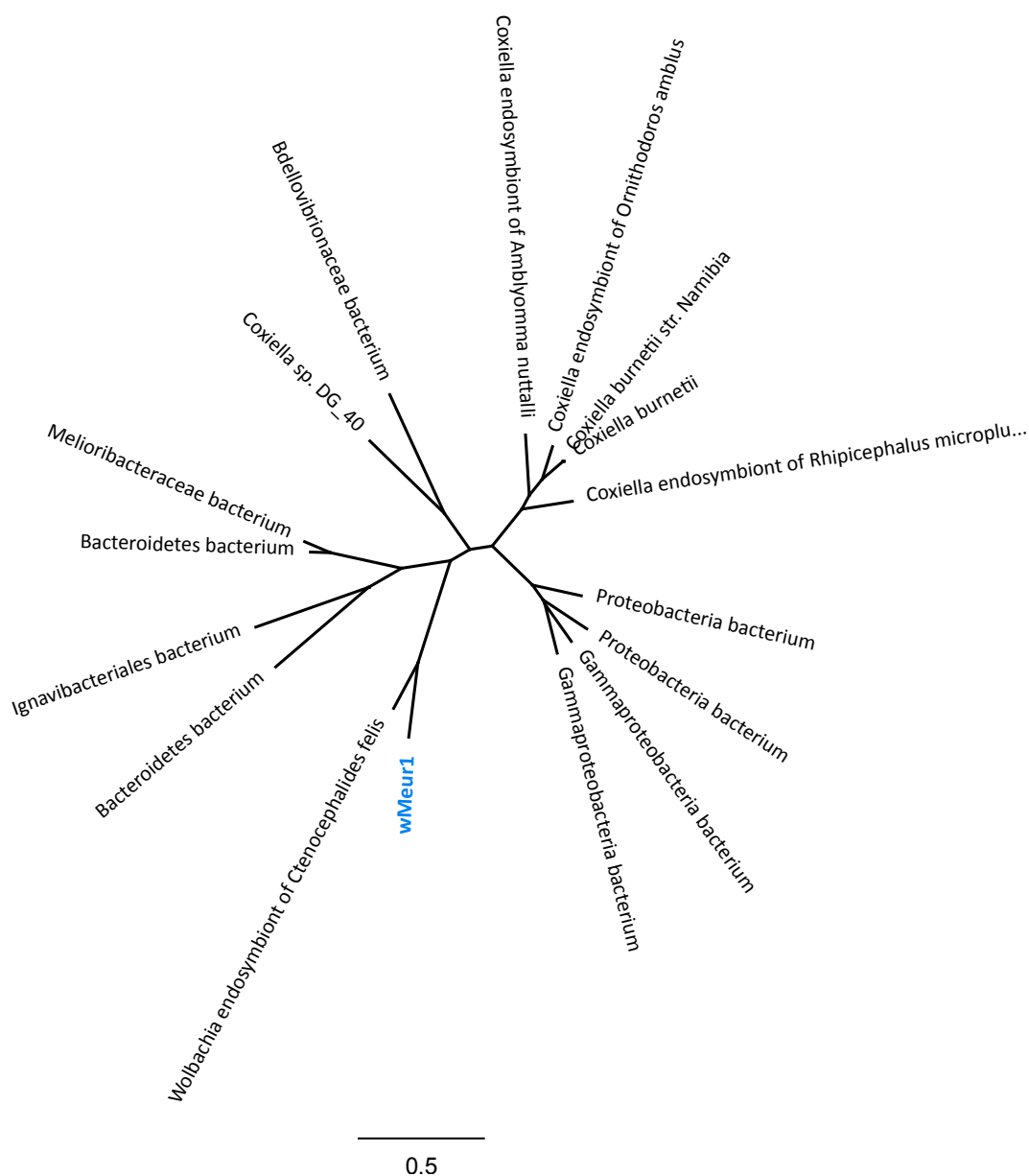
| Organism                                              | Name         |
|-------------------------------------------------------|--------------|
| Olavius algarvensis spirochete endosymbiont           | WP_124032323 |
| Alkalispirochaeta odontotermitis                      | WP_037564257 |
| Candidatus Eremiobacteraeota bacterium                | MBN9417370   |
| Opitutaceae bacterium                                 | MAM92216     |
| Opitutales bacterium                                  | MBT6769675   |
| Opitutales bacterium                                  | MBT3482533   |
| Coxiellaceae bacterium                                | MBV53023     |
| Legionella erythra                                    | WP_058527648 |
| Legionella parisiensis                                | WP_058516236 |
| Legionella bozemaniae                                 | WP_058458018 |
| Wolbachia endosymbiont of Ctenocephalides felis wCfeT | WP_168464627 |
| Gammaproteobacteria bacterium                         | MBI2790727   |
| Coxiella sp. DG_40                                    | KPJ67214     |
| Verrucomicrobia bacterium                             | PWU05281     |

**Supplementary figure 7B:** Phylogenetic position of pantothenate synthesis related genes; Ketopantoate reductase PanG (EC 1.1.1.169)



| Name                                                                | Accession    |
|---------------------------------------------------------------------|--------------|
| <i>Gammaproteobacteria</i> bacterium                                | TLY47062     |
| <i>Candidatus Aquirickettsiella gammari</i>                         | RDH40168     |
| <i>Rickettsiella</i> endosymbiont of <i>Dermanyssus gallinae</i>    | WP_218814024 |
| <i>Wolbachia</i> endosymbiont of <i>Ctenocephalides felis</i> wCfeT | WP_218938889 |
| <i>Gammaproteobacteria</i> bacterium                                | HBA33227     |
| <i>Burkholderiaceae</i> bacterium                                   | MBV8634101   |
| <i>Cellvibrionaceae</i> bacterium                                   | MAZ88707     |
| <i>Planctomycetaceae</i> bacterium                                  | HID78016     |
| <i>Betaproteobacteria</i> bacterium                                 | MBI1965041   |
| <i>Pelomicrobium methylotrophicum</i>                               | WP_147800823 |
| <i>Desulfuromonadales</i> bacterium C00003094                       | OEU60518     |
| uncultured <i>Thiotrichaceae</i> bacterium                          | CAA6822986   |
| <i>Candidatus Thiothrix moscowensis</i>                             | MBJ6612093   |
| <i>Geomonas silvestris</i>                                          | WP_183355568 |
| <i>Geobacteraceae</i> bacterium GWC2_58_44                          | OGU05969     |
| unclassified <i>Geomonas</i>                                        | WP_217289478 |
| <i>Coxiella</i> sp. RIFCSPHIGHO2_12_FULL_42_15                      | OGO93865     |

**Supplementary figure 7C:** Phylogenetic position of pantothenate synthesis related genes; 3-methyl-2-oxobutanoate hydroxymethyltransferase pan B (EC 2.1.2.11)



| Name                                                  | Accession    |
|-------------------------------------------------------|--------------|
| Bacteroidetes bacterium                               | MBU0473530   |
| Ignavibacteriales bacterium                           | MBN2571901   |
| Melioribacteraceae bacterium                          | KAB2839543   |
| Bacteroidetes bacterium                               | MBU2494347   |
| Wolbachia endosymbiont of Ctenocephalides felis wCfeT | WP_168464630 |
| Coxiella sp. DG_40                                    | KPJ67213     |
| Proteobacteria bacterium                              | MBS0288437   |
| Proteobacteria bacterium                              | MBS0287918   |
| Gammaproteobacteria bacterium                         | MBI2790726   |
| Gammaproteobacteria bacterium                         | MBN9286951   |
| Coxiella endosymbiont of Rhipicephalus microplus      | WP_102157157 |
| Coxiella endosymbiont of Amblyomma nuttalli           | WP_211923626 |
| Coxiella endosymbiont of Ornithodoros amblyus         | MBW5802677   |
| Coxiella burnetii str. Namibia                        | AIT63869     |
| Coxiella burnetii                                     | WP_080744740 |
| Bdellovibrionaceae bacterium                          | MBT4762628   |