**Supplementary Table 4. Average amino acid identity comparison of genomes and metagenome-assembled genomes in the family *Candidatus* Manganitrophaceae.** The MAG IDs of the marine genus are in brown.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GCA\_012960925** | **GCA\_013151935** | **GCA\_015659975** | **GCA\_016200325** | **GCA\_004297235** | **Strain SA1** | **Strain Mn1** | **Strain SB1** |
| **GCA\_012960925** | 1.000 | 0.603 | 1.000 | 0.611 | 0.618 | 0.623 | 0.615 | 0.621 |
| **GCA\_013151935** | 0.603 | 1.000 | 0.606 | 0.560 | 0.564 | 0.566 | 0.559 | 0.565 |
| **GCA\_015659975** | 1.000 | 0.606 | 1.000 | 0.614 | 0.620 | 0.626 | 0.619 | 0.623 |
| **GCA\_016200325** | 0.611 | 0.560 | 0.614 | 1.000 | 0.768 | 0.749 | 0.746 | 0.753 |
| **GCA\_004297235** | 0.618 | 0.564 | 0.620 | 0.768 | 1.000 | 0.809 | 0.809 | 0.817 |
| **Strain SA1** | 0.623 | 0.566 | 0.626 | 0.749 | 0.809 | 1.000 | 0.933 | 0.953 |
| **Strain Mn1** | 0.615 | 0.559 | 0.619 | 0.746 | 0.809 | 0.933 | 1.000 | 0.931 |
| **Strain SB1** | 0.621 | 0.565 | 0.623 | 0.753 | 0.817 | 0.953 | 0.931 | 1.000 |