

Supplementary Data Guide:

Supplementary Data 1. Results of the HHpred search with heliorhodopsin 48C12.

Supplementary Data 2. Alignment file with Type-1 rhodopsins and heliorhodopsins representatives.

Supplementary Data 3. Phylogenetic tree using LG matrix. Used in Figure 2a.

Supplementary Data 4. Phylogenetic tree using LG matrix.

Supplementary Data 5. Phylogenetic tree using DCMut matrix.

Supplementary Data 6. Phylogenetic tree using Jones matrix.

Supplementary Data 7. Phylogenetic tree using MtREV matrix.

Supplementary Data 8. Phylogenetic tree using WAG matrix.