

Supplementary Figure 1. Phylogenetic tree of Unief90_A0A139TME1 homologues and the genomic analysis of *Akkermansia muciniphila* strain YL44. (A) Phylogenetic tree of Unief90_A0A139TME1 homologues, built with the sequences from NCBI non-redundant protein with cut off of 40% identity and 70% coverage. Stick in red indicates the Unief90_A0A139TME1 itself. (B) The genes flanking OGA gene in the genome of *A.muciniphila* strain YL44. (C-H) The GC content (C), GC3s content (D), CAI (E), CBI (F), Fop (G) and ENC value (H) of all genes encoding by *Akkermansia muciniphila* strain YL44. (I) Lineage probability index (LPI) score histogram for proteins encoded in the *A.muciniphila* strain YL44.

