

# Description of Additional Supplementary Files

**File Name: Supplementary Data 1**

Description: All peptides quantified in the unfractionated volume-normalized metaproteomic analysis

**File Name: Supplementary Data 2**

Description: All proteins identified and quantified in the Supernatant (SNT) fraction

**File Name: Supplementary Data 3**

Description: All proteins identified and quantified in the Planktonic cells (PC) fraction

**File Name: Supplementary Data 4**

Description: All proteins identified and quantified in the Substrate bound (SB) fraction

**File Name: Supplementary Data 5**

Description: Methane Metabolism related enzymes quantified in the three fractions

**File Name: Supplementary Data 6**

Description: Carbohydrate Active Enzyme (CAZyme) proteins identified and quantified in all three (SNT, PC, SB) fractions

**File Name: Supplementary Data 7**

Description: Substrate activity grouping of the identified CAZyme proteins in the three (SNT, PC, SB) fractions.

**File Name: Supplementary Data 8**

Description: Measured proteins with potential oxidase activity based on KEGG Orthology (KO) in each fraction.

**File Name: Supplementary Data 9**

Description: Reactive Oxygen Species (ROS) stress responsive enzymes