

## Description of Additional Supplementary Files

### **GolpHCat (TMEM87A), a unique voltage-dependent cation channel in Golgi apparatus, contributes to Golgi-pH maintenance and hippocampus-dependent memory**

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**File Name:** Supplementary Data 1

**Description:** Initial structures of the K<sup>+</sup> conformational dynamics of hTMEM87A obtained from GaMD simulations (frame 1491).

**File Name:** Supplementary Data 2

**Description:** Final structures of the K<sup>+</sup> conformational dynamics of hTMEM87A obtained from GaMD simulations (frame 1846).

**File Name:** Supplementary Data 3

**Description:** Initial structure of PE binding simulations of hTMEM87A (S1).

**File Name:** Supplementary Data 4

**Description:** Final structure of PE binding simulations of hTMEM87A (S7).