



**Extended Data Figure 3. Structural analysis of MmCAT1:FrMLV-RBD.** (a) Secondary structure of MmCAT1. (b) Topology of MmCAT1. (c) Structure and density of MmCAT1's Cys226 and Cys309. (d) Structures of MmCAT1, GkApcT, B0,+AT1, and LAT1, aligned on the APC domain. (e) Open book diagram of MmCAT1:FrMLV-RBD complex interface. (f) Arginine binding of MmCAT1 and GkApcT, colored in purple and green, respectively. (g) Position of the Na2 site in LeuT, and the occupying Asn197 of MmCAT1 and Lys191 of GkApcT. MmCAT1, GkApcT, and LeuT are colored in purple, green, and yellow, respectively.