## Description of Additional Supplementary Files

File name: Supplementary Data 1

Description: Dialanine initial structure

File name: Supplementary Data 2

**Description:** Dialanine final structure

File name: Supplementary Data 3

Description: Trp-cage initial structure

File name: Supplementary Data 4 Description: Trp-cage final structure

**File name:** Supplementary Data 5 **Description:** VHP initial structure

**File name:** Supplementary Data 6 **Description:** VHP initial structure

File name: Supplementary Data 7
Description: GAAC initial structure

File name: Supplementary Data 8 Description: GAAC final structure

File name: Supplementary Data 9
Description: Barnase initial structure

File name: Supplementary Data 10 Description: Barnase final structure

File name: Supplementary Data 11
Description: Elastase initial structure

File name: Supplementary Data 12 Description: Elastase final structure

**File name:** Supplementary Data 13 **Description:** PGK initial structure

File name: Supplementary Data 14 Description: PGK final structure

**File name:** Supplementary Data 15 **Description:** 3CL<sup>pro</sup> initial structure

**File name:** Supplementary Data 16 **Description:** 3CL<sup>pro</sup> final structure

File name: Supplementary Movie 1
Description: Dialanine trajectory

File name: Supplementary Movie 2 Description: PGK trajectory

**File name:** Supplementary Movie 3 **Description:** 3CL<sup>pro</sup> trajectory

**File name:** Supplementary Movie 4 **Description:** Trp-cage trajectory

File name: Supplementary Movie 5

**Description:** VHP trajectory

**File name:** Supplementary Movie 6 **Description:** GAAC trajectory

File name: Supplementary Movie 7 Description: Barnase trajectory

File name: Supplementary Movie 8 Description: Elastase trajectory