Supplementary Information for

Assessing the Role of Residue Phe108 of Cytochrome P450 3A4 in Allosteric Effects of Midazolam Metabolism

Tingting Fu, ^{ab} Hongxing Zhang^b and Qingchuan Zheng*^{ab}

^a School of Pharmaceutical Sciences, Jilin University, Changchun, 130021, China.

^b Institute of Theoretical Chemistry, College of Chemistry, Jilin University, Changchun, 130023, China.

*Corresponding author

E-mail addresses: zhengqc@jlu.edu.cn (Qingchuan Zheng).

List of contents:

Fig. S1. The structures of MDZ, 1'-OH-MDZ, 4-OH-MDZ, TST, PGS and ANF.

Fig. S2. The globular domain (S29-A503) of CYP3A4. The active site and the two peripheral allosteric sites (Site 1 and Site 2) are highlighted with orange, yellow, and cyan dots. The F-F' loop, G-G' loop, and B-C loop are shown in cyan, orange, and pink, respectively. The heme and residue F108 are shown in sticks.

Fig. S3. Complex models and residue structures. The complex models constructed in this study: (A) the CYP3A4-MDZ-MDZ complex; (B) the CYP3A4-MDZ-TST complex. (C) Structures of F108 and mutant residues A108, M108, and W108. The S-MDZ, E-MDZ, and TST are shown in orange, yellow, and cyan, respectively.

Table S1. The length of 2a and 2f channels in the wild-type and mutation systems (Å).



H

Fig. S1. The structures of MDZ, 1'-OH-MDZ, 4-OH-MDZ, TST, and PGS.



Fig. S2. The globular domain (S29-A503) of CYP3A4. The active site and the two peripheral allosteric sites (Site 1 and Site 2) are highlighted with orange, yellow, and cyan dots. The F-F' loop, G-G' loop, and B-C loop are shown in cyan, orange, and pink, respectively. The heme and residue F108 are shown in sticks.



Fig. S3. Complex models and residue structures. The complex models constructed in this study: (A) the CYP3A4-MDZ-MDZ complex; (B) the CYP3A4-MDZ-TST complex. (C) Structures of F108 and mutant residues A108, M108, and W108. The S-MDZ, E-MDZ, and TST are shown in orange, yellow, and cyan, respectively.

Systems	2a	2f
CYP3A4-MDZ-TST	31.19	32.25
F108A-MDZ-TST	19.63	
F108M-MDZ-TST	28.47	23.24
F108W-MDZ-TST	16.31	27.16

Table S1. The length of 2a and 2f channels in the wild-type and mutation systems (Å).