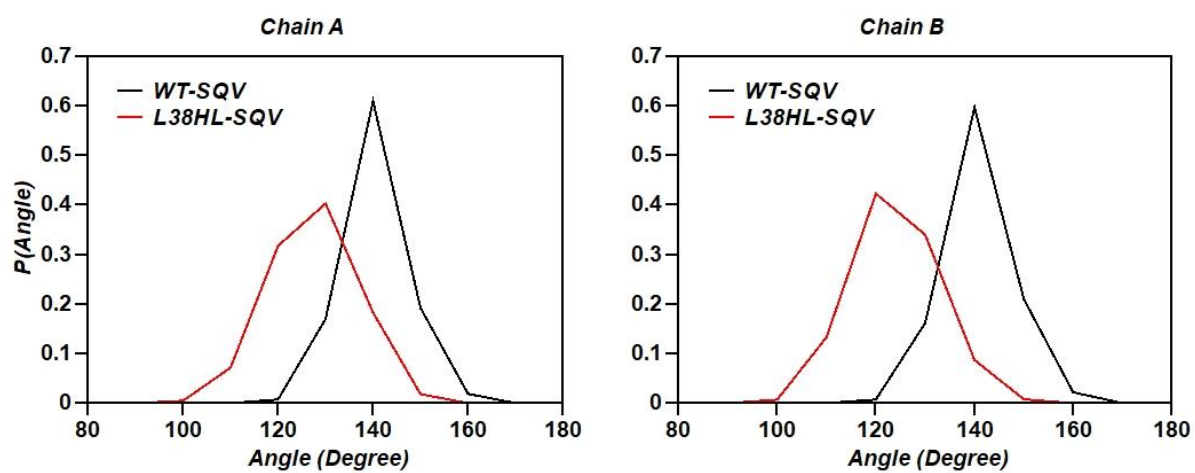
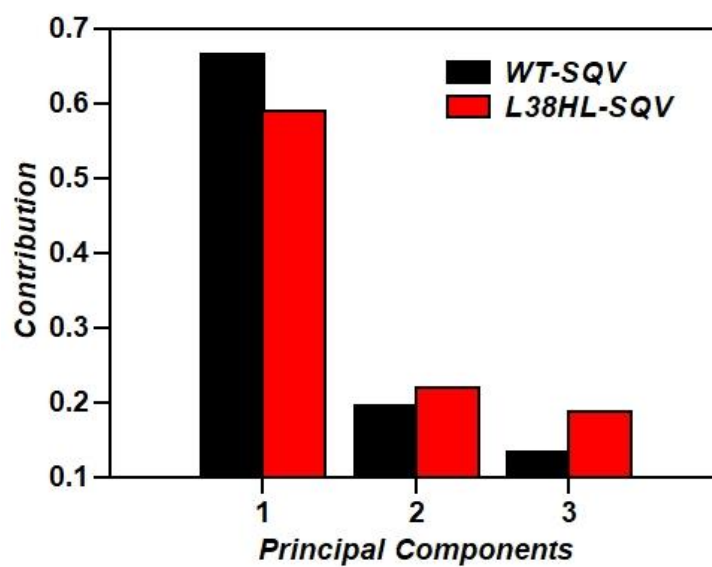


## Supplementary Information



**Figure S1:** Frequency distribution of Hinge C $\alpha$  Angles



**Figure S2:** Contributions from the first 3 principal components

### Supplementary Table S1

List of hydrogen bonds formed between the homodimer in wild-type

| Acceptor   | Donor      | Occupancy |
|------------|------------|-----------|
| PRO1@O     | PHE198@N   | 0.3605    |
| GLN2@OE1   | THR195@OG1 | 0.1318    |
| LEU3@O     | LEU196@AN  | 0.460     |
| LEU5@O     | ARG186@NH1 | 0.589     |
| THR26@OG1  | THR125@OG1 | 0.430     |
| ASP29@OD1  | ARG107@NE  | 0.300     |
| ASP29@OD1  | ARG107@NH2 | 0.389     |
| ASP29@OD2  | ARG107@NE  | 0.276     |
| ASP29@OD2  | ARG107@NH2 | 0.365     |
| THR96@O    | ASN197@N   | 0.700     |
| THR96@OG1  | ASN197@ND2 | 0.123     |
| THR96@OG1  | GLN101@NE2 | 0.120     |
| LEU97@O    | ILE102@N   | 0.808     |
| ASN98@O    | THR195@N   | 0.360     |
| PHE99@O    | PRO100@N   | 0.293     |
| PHE99@OXT  | PRO100@N   | 0.339     |
| PRO100@O   | PHE99@N    | 0.353     |
| GLN101@OE1 | THR96@N    | 0.165     |
| ILE102@O   | LEU97@N    | 0.339     |
| LEU104@O   | ARG87@NH1  | 0.728     |
| LEU123@O   | THR26@OG1  | 0.174     |
| GLY148@O   | GLY51@N    | 0.210     |
| THR195@O   | ASN98@N    | 0.717     |
| THR195@OG1 | ASN98@ND2  | 0.107     |
| THR195@OG1 | GLN2@NE2   | 0.118     |
| LEU196@O   | ILE3@N     | 0.787     |
| ASN197@O   | THR96@N    | 0.326     |
| PHE198@O   | PRO1@N     | 0.298     |
| PHE198@OXT | PRO1@N     | 0.324     |

### Supplementary Table S2

List of hydrogen bonds formed between the homodimer in L38HL

| Acceptor   | Donor      | Occupancy |
|------------|------------|-----------|
| PRO1@O     | PHE202@N   | 0.437     |
| ILE3@O     | LEU200@N   | 0.416     |
| LEU5@O     | ARG190@NH1 | 0.815     |
| LEU24@O    | THR127@OG1 | 0.523     |
| THR98@O    | ASN201@N   | 0.756     |
| LEU99@O    | ILE104@N   | 0.810     |
| ASN100@O   | THR199@N   | 0.123     |
| PHE101@O   | PRO102N    | 0.36      |
| PHE101@OXT | PRO102@N   | 0.338     |
| PRO102@O   | PHE101@N   | 0.433     |
| GLN103@OE1 | THE98@OG1  | 0.328     |
| ILE104@O   | LEU99@N    | 0.471     |
| LEU106@O   | ARG89@NH1  | 0.468     |
| ASP130@OD1 | ARG8@NE    | 0.324     |
| ASP130@OD1 | ARG8@NH2   | 0.407     |
| ASP130@OD2 | ARG8@NE    | 0.322     |
| ASP130@OD2 | ARG8@NH2   | 0.462     |
| GLY154@O   | GLY53@N    | 0.122     |
| THR199@O   | ASN100@N   | 0.7941    |
| LEU200@O   | ILE3@N     | 0.8218    |
| ASN201@O   | THE98@N    | 0.3781    |
| PHE202@O   | PRO1@N     | 0.29      |
| PHE202@OXT | PRO1@N     | 0.315     |