**Supplementary Table 4**. TD-DFT/MM–calculated emission for electronic transition between S1 and S0 for the model GBAv-closed-R337L (resulting from the R337L mutation in GBAv-closed before MD). The TD-DFT/MM calculations were performed with the 6-311G(2d,p) basis set and the B3LYP functional on a structure optimized at the same level of theory.

|  |  |
| --- | --- |
| Model*a* | TD-DFT/MM  in eV*b* |
| Snapshot (1) [simulation times = 5 ns] | 2.38 (520) |
| Snapshot (2) [simulation times = 6.8 ns] | 2.18 (568) |
| Snapshot (3) [simulation times = 7 ns] | 2.22 (557) |
| Snapshot (4) [simulation times = 8 ns] | 2.15 (577) |
| Snapshot (5) [simulation times = 10 ns] | 2.21 (561) |
| GBAv-closed snapshot (1) of Supplementary Table 2 | 2.32 (535) |
| GBAv mutant R337L (experimental value) | 2.13 (580) |
| GBAv double mutant R337L/I351 (experimental value) | 2.13 (580) |

*a*The values in parentheses represent the number of the snapshot extracted from the corresponding MD simulation.

*b*The associated wavelengths in nm are given in parentheses.