

**Table S1:** Residues within a 5 Å shell (of retinal without Schiff base bond formed) which interact more favorably than an interaction energy of –1 kcal/mol with the ligand are shown in order of decreasing interaction. The interaction energy values are shown in parentheses.

NoSB- Ret(HD)/closed(xtal)	NoSB-Ret(HD)/ closed (MS)	NoSB- Ret(HD)/open(MS)
Thr118 (-4.6)	Lys296 (-9.6)	Lys296 (-7.3)
Tyr268 (-3.9)	Glu122 (-3.0)	Tyr268 (-3.4)
Lys296 (-2.6)	Tyr268 (-2.6)	Glu122 (-2.9)
Hsp211 (-1.8)	Ala117 (-1.9)	Ala272 (-2.7)
Glu122 (-1.4)	Thr118 (-1.9)	Ile275 (-2.5)
Phe208 (-1.4)	Ile275 (-1.6)	Ala117 (-2.2)
Met207 (-1.2)	Met207 (-1.1)	Val271 (-1.9)
	Phe212 (-1.0)	Met207 (-1.4)
		Phe208 (-1.3)
		Phe276 (-1.1)