

**Table 1:** Top 20% of ET residues from global (class A) and opsin family analyses.

TM	% Rank	GLOBAL	OPSIN
1	5%	N55	N55,
	10%		
	15%		<b>G51, T58</b>
	20%	T62	
2	5%		N73, N78,
	10%	N73, I75,	
	15%	L72, L76, L79, V87, F91	L76, L72, <b>G90</b>
	20%	N78, F85, M86	F91
3	5%	C110, L128, E134, R135	C110, G121, R135
	10%	G120, L131	<b>L125</b> , E134
	15%	A132, Y136, V138	L128
	20%	T118, G121	<b>E113</b> , L131
4	5%	W161	W161, <b>P171, W175</b>
	10%		
	15%		<b>C167</b>
	20%	A153	A153, <b>G156</b>
5	5%	Y223	P215, Y223
	10%		
	15%	P215, C222	<b>V230</b> ,
	20%	V204	<b>M207</b> , C222
6	5%	W265	P267
	10%	V254, M257, P267	
	15%		<b>V250, M253</b>
	20%		V254
7	5%	N302, Y306	<b>K296</b> , N302, P303, Y306
	10%	P303, N310	N310
	15%		
	20%	I305, I307	<b>M288, F294, A295</b> , I307

**Key:**

Color codes for global trace residues

Linking Core, Trigger region, Coupling region, No mutational data

Opsin specific trace residues are **bold and underlined**.