

TABLE S3: d Sites Summary

d Site ¹	η amino acid	∂ amino acid (subclass)	Distinctive Class	∂ amino acid (subclass)	Distinctive Class	Class-Distinctive Site(s) Within 5 Å
1	S	N ($G\alpha_s, G\alpha_{olf}$)	G(s)	N ($G\alpha_q, G\alpha_{11}$)	G(q)	G(q)-D#2
2	D/E	G ($G\alpha_s$)	G(s)	K/R ($G\alpha_{12}, G\alpha_{13}$)	G(12)	G(12)-D #5
3	K/R	C ($G\alpha_i, G\alpha_t$) V ($G\alpha_o$)	G(i)	L ($G\alpha_{12}$)	G(12)	G(12)-D #5
4	Q	K/R ($G\alpha_s, G\alpha_{olf}$)	G(s)	R ($G\alpha_{12}$)	G(12)	G(12)-D#7
5	D/E	N ($G\alpha_o, G\alpha_{i1}$) S ($G\alpha_{i3}$) G ($G\alpha_{i2}$)	G(io)	S ($G\alpha_{12}$)	G(12)	G(12)-D#7
6	K	A,S ($G\alpha_i$) S,G ($G\alpha_t$)	G(io)	Q ($G\alpha_s, G\alpha_{olf}$)	G(s)	G(s)-D#5
7	D/E	N ($G\alpha_i, G\alpha_{12}$) S ($G\alpha_{i1}$)	G(io)	N ($G\alpha_q$) T ($G\alpha_{11}, G\alpha_{14}$)	G(q)	G(q)-D#6
8	Q	L ($G\alpha_i$) M ($G\alpha_t$)	G(io)	M ($G\alpha_s, G\alpha_{olf}$)	G(s)	G(s)-D#10
9	T	M ($G\alpha_i$) V ($G\alpha_t$)	G(io)	E ($G\alpha_q, G\alpha_{11}, G\alpha_{14}$)	G(q)	G(q)-D#8
10	N	H ($G\alpha_t$)	G(io)	Y ($G\alpha_q, G\alpha_{11}, G\alpha_{14}$)	G(q)	G(q)-D#9 G(q)-D#10 G(io)-D#7
11	W	F/Y ($G\alpha_{o1}, G\alpha_i$)	G(io)	L ($G\alpha_{12}$) V ($G\alpha_{13}$)	G(12)	G(12)-D#13
12	I/L	M ($G\alpha_{olf}$)	G(s)	V ($G\alpha_{t1}$)	G(io)	G(io)-D#9
13	Y	C ($G\alpha_i, G\alpha_o, G\alpha_t$)	G(io)	H ($G\alpha_{12}$)	G(12)	G(12)-D#16
14	I/L	V (rodent $G\alpha_{o2}$)	G(io)	C ($G\alpha_s, G\alpha_{olf}$)	G(s)	G(s)-D#13
15	I	V (human $G\alpha_{12}$)	G(12)	V ($G\alpha_i, G\alpha_t$)	G(io)	G(io)-D#12 G(io)-D#13 G(12)-D#18 G(12)-D#19
16	A	D ($G\alpha_{13}$)	G(12)	D ($G\alpha_s$)	G(s)	G(s)-D#14

¹ Corresponds to the order of sites in Figure 2.