

Supplementary Material

Crystal structures of three representatives of a new Pfam family PF14869 (DUF4488) suggest they function in sugar binding/uptake

Abhinav Kumar^{1,2}, Marco Punta^{3,4}, Herbert L. Axelrod^{1,2}, Debanu Das^{1,2}, Carol L. Farr^{1,5}, Joanna C. Grant^{1,6}, Hsiu-Ju Chiu^{1,2}, Mitchell D. Miller^{1,2}, Penelope C. Coggill^{3,4}, Heath E. Klock^{1,6}, Marc-André Elsliger^{1,5}, Ashley M. Deacon^{1,2}, Adam Godzik^{1,7,8}, Scott A. Lesley^{1,5,6}, and Ian A. Wilson^{1,5#}

¹Joint Center for Structural Genomics

²Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory, Menlo Park, California 94025, USA

³EMBL-European Bioinformatics Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 1SD, UK

⁴Sanger Institute, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 1SA, UK

⁵Department of Integrative Structural and Computational Biology, The Scripps Research Institute, La Jolla, California 92037, USA

⁶Protein Sciences Department, Genomics Institute of the Novartis Research Foundation, San Diego, California 92121, USA

⁷Program on Bioinformatics and Systems Biology, Sanford-Burnham Medical Research Institute, La Jolla California 92037, USA

⁸Center for Research in Biological Systems, University of California, San Diego, La Jolla, California 92093, USA

Running title: Crystal Structures of Pfam PF14869 (DUF4488)

[#]To whom correspondence should be addressed: Ian A. Wilson, Joint Center for Structural Genomics, The Scripps Research Institute, 10550 N. Torrey Pines Rd., BCC206, La Jolla, CA 92037, USA. Tel.: 858-784-9706; Fax: 858-784-2980; E-mail: wilson@scripps.edu.

HMMsearch (<http://hmm.janelia.org>) results for PF14869 family against UniProtKB

HMMER3/f [3.1b1 | May 2013]
 NAME SEED
 LENG 128
 ALPH amino
 RF no
 MM no
 CONS yes
 CS no
 MAP yes
 DATE Wed Sep 11 20:29:17 2013
 NSBQ 12
 EPFN 1.350586
 CKSUM 112009290
 STATS LOCAL MSV -9.8359 0.71224
 STATS LOCAL VITERBI -10.6336 0.71224
 STATS LOCAL FORWARD -4.5820 0.71224

HMM	A	C	D	E	F	G	H	I	K	L	M	N	P	Q	R	S	T	V	W	Y
COMPO	m->m	m->i	m->d	i->m	i->i	d->m	d->d													
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
1	2.35000	5.01854	2.98239	2.07743	4.30664	3.46452	3.08044	3.32438	2.02637	3.29716	4.07599	2.96030	3.85618	2.77526	2.65617	2.50133	2.89781	3.05638	5.48521	4.11701
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
2	2.68339	5.06045	2.92673	2.27161	4.38473	3.44821	3.67388	3.83832	2.43084	3.37104	4.14418	2.37048	3.15301	2.79206	2.66908	1.96682	2.50851	3.44779	5.54665	4.16815
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
3	3.51153	4.80623	5.21813	4.64752	3.23713	4.80167	5.12376	2.29841	4.50219	0.79458	2.28707	4.87179	4.95632	4.55069	4.57130	4.15955	3.73078	1.99863	5.35199	4.32504
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
4	2.50212	5.02623	2.98329	2.27239	4.31599	3.46761	3.25781	3.76002	2.04184	2.86396	4.08348	2.78429	3.85977	2.26806	2.86754	2.66809	2.90381	2.84959	5.49024	4.12300
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
5	3.39229	5.09004	4.16327	4.13646	5.21537	0.25860	5.19645	4.96417	4.38232	4.54261	5.54204	4.33024	4.49272	4.66833	4.53687	3.58231	3.91001	4.39677	6.15161	5.34341
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
6	3.34711	4.59075	5.28297	4.81086	3.87951	4.84161	5.53036	1.27410	4.72284	2.33847	3.64441	4.98525	5.11326	4.98093	4.89810	4.26161	3.61350	0.87252	5.93112	4.71592
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
7	4.27687	5.44996	4.91744	4.76349	3.34591	4.34941	4.64125	4.36151	4.50060	3.65797	4.96516	4.82692	4.91121	4.85892	4.53155	4.47608	4.60826	4.26231	0.29260	3.32715
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
8	3.40111	5.33592	3.35436	3.14814	5.57162	3.78046	4.29909	4.31447	2.94001	3.76142	4.80496	3.60115	4.25931	3.20086	3.44181	3.71180	4.02040	5.76154	4.50717	8.0
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
9	2.67068	4.35232	3.61682	3.05229	3.47674	3.65852	3.92896	2.82050	2.96965	1.87061	2.39085	3.43422	4.04267	2.79667	3.29491	2.43398	2.65012	2.61155	4.94462	3.72055
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
10	2.69442	4.47117	3.84726	2.69615	3.67490	3.62304	4.21184	2.69962	3.26513	2.66454	3.64021	3.65025	4.13440	3.59486	3.54270	2.97907	3.00820	2.09878	5.18646	3.96493
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
11	2.64353	4.30447	3.16017	0.61958	0.77255	0.48576	0.95510													
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
12	2.87898	4.78476	3.10196	2.13638	3.20911	3.55804	3.72793	3.34547	2.75600	2.95224	3.91965	3.17422	4.02649	3.13381	3.11366	2.95654	3.12833	3.10750	4.73619	1.52066
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
13	2.68620	4.21075	3.97610	3.39539	3.31388	3.76375	4.05489	2.29495	3.28493	1.94981	2.93079	3.67223	4.13217	3.54543	2.57942	2.75336	2.91856	1.86016	4.83061	3.63180
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
14	2.62376	4.52726	3.41058	2.87182	3.86623	3.48594	3.91057	3.20405	2.78723	2.91487	3.78512	3.28550	3.95992	3.15277	2.59201	1.79154	2.50333	2.04112	5.24363	3.98589
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
15	2.68468	5.13574	2.65939	2.01053	4.45354	3.09041	3.65066	3.92307	2.40699	3.42953	3.22240	2.70248	3.84763	2.17258	2.89788	2.33806	2.91805	3.51224	5.58443	4.18577
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
16	2.65502	4.80216	3.08669	3.30224	4.04898	2.88934	3.71982	3.10078	2.53508	3.81437	3.89941	3.04984	2.98280	2.88243	2.99029	2.00516	2.67258	3.14301	5.33595	4.01309
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
17	2.68368	4.80996	3.01476	2.23190	4.18020	2.31882	3.82466	3.57650	2.62606	3.20948	4.04001	3.08606	2.09004	2.99735	3.10969	2.74247	2.96187	2.57948	5.46773	4.14583
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
18	2.32698	5.41980	2.01622	1.63644	4.73551	3.41981	3.77121	4.23527	2.62095	3.71402	4.48913	2.26502	3.92347	2.59909	3.15460	2.80063	3.12454	3.79850	5.85648	4.40463
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
19	2.47820	4.42076	3.48598	2.91531	3.56532	3.62387	2.93759	2.69130	2.60463	2.28798	3.52144	3.33410	4.00336	3.17047	2.75481	2.86687	2.89392	1.99025	4.99512	3.75563
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
20	2.60662	4.76291	2.53307	2.52376	4.25037	2.27900	3.80687	3.66830	2.66315	3.28402	4.10325	3.01402	2.07639	2.97426	3.12609	2.66018	2.91451	2.86270	5.51918	4.18279
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
21	2.86880	4.52839	3.71926	3.24488	2.38801	1.77846	3.76887	3.07526	3.20079	2.70084	3.68868	3.54449	4.17722	3.46719	3.50327	3.06644	3.12714	2.86719	4.35357	1.96124
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
22	2.69570	5.05799	3.00254	1.94050	4.36864	3.47489	3.63830	3.31472	1.96807	3.33420	4.11364	2.96529	3.86354	2.54637	3.25033	2.68382	2.92051	3.06949	5.49869	4.14301
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
23	3.46521	4.74245	2.53467	4.66776	2.38934	4.76123	4.99793	1.66959	4.53099	0.92873	2.98037	4.84080	4.91323	4.53772	4.56641	4.11810	3.68134	2.37815	5.19319	4.05754
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
24	2.46510	4.61223	3.31001	2.74936	3.81080	3.57801	3.81095	3.36072	1.84518	2.60085	3.71866	3.21385	3.97124	3.03578	3.04381	2.39915	2.92322	2.87130	5.18094	3.91076
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
25	2.69822	4.44501	3.68809	3.20143	3.67497	3.59145	4.12193	2.90828	3.10716	1.63119	3.62105	3.53694	1.98579	3.45046	3.41856	2.93076	2.41824	2.70957	5.19364	3.96719
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
26	2.64621	4.33906	3.66783	3.12847	3.53345	2.79366	3.99777	2.46047	0.60307	1.81992	3.50939	4.37786	4.04390	3.36533	3.38197	1.96880	2.91393	2.61001	5.00584	3.77884
0.1908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510														
27	2.83702	4.94530	2.91744	2.75198	4.62806	3.38864	4.13425	4.18035	3.01721	3.76918	4.62139	1.54091	1.40814	3.33843						

28	2.63352	4.46158	3.43846	2.89858	3.70589	3.54171	3.90591	3.02350	2.86183	2.52420	3.64793	2.71405	3.98059	3.18429	3.24025	2.08878	2.44119	1.96175	5.12254	3.87202	28	v	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
	3.14844	4.49497	4.88974	4.31156	2.5937	4.31784	4.44754																		
29	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.52547	4.14216	1.09690	2.43193	4.38331	4.59002	4.21067	4.18102	3.64006	3.36944	2.57790	3.13691	3.46200	29	l	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
30	3.51423	5.43040	3.71942	3.28155	4.93537	3.91392	4.14769	4.40628	0.51783	3.87455	4.83536	3.67298	4.40048	3.32958	2.66734	3.53951	3.74243	4.09595	5.80244	4.70381	30	K	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
31	2.93223	4.55982	5.18212	4.65729	2.94649	4.70398	4.19877																		
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	0.99272	4.55105	2.11457	4.42505	4.81047	4.95566	4.71944	4.67106	4.07837	3.53993	1.42969	5.54230	4.34593	31	i	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
	3.05170	4.41537	4.75748	4.17664	3.21779	4.55268	1.72260	4.02407	1.21574	3.14974	4.31806	4.55258	4.16749	4.12054	3.57700	3.28076	2.06055	5.00139	2.79931	32	l	-	-	-	
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
33	2.58274	4.64374	3.10817	2.88709	4.64756	2.69464	4.19877																		
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	4.12930	3.11908	3.73597	4.54233	2.41413	3.92731	3.40185	3.53165	1.00413	3.01922	3.57936	5.91504	4.61215	33	s	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
34	2.49877	5.18974	1.85871	1.97365	4.51241	2.87006	3.70482	3.98251	2.49974	3.49624	4.26601	2.91478	3.28258	2.82324	3.00276	2.70952	2.98765	3.11125	5.65928	4.25181	34	d	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
35	3.03762	5.44359	0.89305	2.36621	5.00666	2.76427	4.04069																		
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	4.53851	3.10011	4.05865	4.90819	2.93292	4.02720	2.21993	3.69745	5.37777	3.38380	4.05391	6.21485	4.72660	35	d	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
	2.89119	5.23022	2.73865	2.45850	4.60531	1.50603	3.81611	4.05737	2.29624	3.58355	4.39675	2.37791	3.97566	2.60551	2.98470	2.86376	3.15032	3.66900	5.74605	4.37653	36	g	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
37	2.85007	5.08528	1.55212	2.39339	4.27873	3.58787	3.72081																		
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.83053	2.13232	3.36579	4.18115	3.10425	3.98411	2.85430	1.96758	2.85339	1.71174	3.48558	5.52624	4.22969	37	t	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
38	3.50544	4.81639	5.00686	4.55968	0.96156	4.59692	4.40032	2.01403	4.05119	1.95806	3.34706	4.57556	4.87619	4.46404	4.46712	3.98047	3.74774	2.56571	4.59782	3.03722	38	f	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
39	2.67795	4.28249	4.24060	3.65164	3.80238	4.11981																			
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.14752	3.51768	2.27353	4.20689	3.82259	4.16876	3.72248	3.66830	2.65899	2.82324	2.02792	4.75523	3.56792	39	v	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
40	2.77225	4.65221	3.37910	2.92464	3.80213	3.61042	3.99197	3.00243	2.87198	2.34640	3.81562	1.44452	4.07816	3.24902	3.24141	2.92846	3.05232	2.38030	5.27448	3.94933	40	n	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
41	3.19879	5.08528	0.84122	4.50708	4.99248	4.85727	1.39737	4.35869	1.59728	2.72871	4.61642	4.74614	4.44822	4.40674	3.83600	3.42817	1.68852	5.21121	4.09767	41	i	-	-	-	
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
42	2.70084	4.20867	4.03402	3.45299	3.30049	3.78995	4.08631	2.34625	3.34437	1.96878	2.61760	3.71591	4.15536	3.59240	2.85351	3.07041	2.29458	1.95119	4.83281	3.63847	42	v	-	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
43	2.95411	4.92549	4.49298	3.92480	3.91212	4.12504	1.91801	3.79965	1.05003	1.58265	4.13916	4.46623	4.01746	3.97749	3.44008	2.45699	1.96956	5.10873	3.94356	43	m	-	-	-	
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503					
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
44	2.39099	4.69843	2.73408	2.47338	3.04953	3.42174	3.64321	3.32305	2.46487	2.95190	3.78390	2.98081	3.81863	2.58613	2.63864	2.64268	2.48917	3.02220	5.22134	3.90528	44	a	-	-	-
	2.68622	4.42229	2.77524	2.73127	3.46358	2.40493	3.72499	3.29358	2.67745	2.69359	4.24619	2.90351	2.73744	3.18151	2.89784	2.37891	2.77524	2.98523	4.58481	3.61507					
	0.17851	1.86404	4.77475	0.66340	0.72281	0.32117	1.29207																		
45	2.65649	4.81270	8.00066	2.26270	4.03894	3.48742	3.70500																		
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.84791	2.51746	3.06533	2.83235	2.49765	3.88712	2.86557	2.74980	2.70412	2.66714	2.86548	5.32436	3.99663	47	e	-	-	-
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																		
46	2.49191	5.15917	2.88043	2.23661	4.48577	3.65846	3.95427	1.97686	3.45408	4.21285	2.68400	2.56553	2.41237	2.87290	2.67507	2.93924	3.54155	5.60192	4.20717	48	k	-	-	-	
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3											

64	2.74007	5.02947	2.82239	2.47832	4.47240	2.23556	3.20115	3.94370	2.63196	3.49512	4.29154	1.86678	3.91333	2.95823	3.10635	2.07841	3.02525	3.53559	5.67434	4.29651	66	n	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.22494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
65	2.46721	4.21619	3.91917	3.34379	3.34243	3.73624	4.03990	2.38981	3.25651	2.24631	2.74223	3.63496	4.11327	3.51365	3.50998	2.53428	2.06558	2.07501	4.84650	3.64256	67	t	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
66	3.42158	4.82092	4.53027	4.11770	2.51403	4.32858	3.93114	2.27052	3.91721	2.56012	3.78724	4.15819	4.68886	4.11901	4.05786	3.69572	3.66752	2.88884	4.19352	0.87736	68	y	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
67	2.45919	4.54530	3.41562	2.87619	3.82808	3.55680	3.91104	3.04285	2.20558	2.84954	3.74199	3.30373	3.99908	3.15666	3.15167	8.34116	1.92199	2.00428	5.22342	3.96687	69	t	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
68	3.49037	5.61509	2.82823	0.48659	5.04142	3.67714	4.34623	4.60529	3.30087	4.15161	5.13582	3.34717	4.31412	3.57145	3.74040	3.43813	3.80843	4.24816	6.11266	4.87842	70	E	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
69	2.65361	3.76470	3.24841	2.68866	3.77954	3.55079	2.98863	2.85029	2.47960	2.83272	3.23088	2.87324	3.93601	2.64436	3.08368	2.41520	2.88499	2.89965	5.14961	2.83536	71	s	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
70	3.35470	4.59226	5.29659	4.78615	3.72362	4.84788	5.40497	2.18568	4.69195	1.79235	3.49568	4.96011	5.07436	4.88573	4.83008	4.24097	3.60406	1.08211	5.75751	4.59211	72	v	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
71	2.80928	5.23649	2.80017	1.56061	4.58072	2.98018	3.72509	4.03929	1.82024	3.54082	3.21217	2.95419	3.91921	2.84599	2.89786	2.77170	2.72553	3.63413	5.68655	4.30115	73	e	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
72	2.81778	5.01078	3.13766	2.68249	4.54147	2.68279	3.82990	3.94411	1.19980	3.49175	4.31040	3.15292	3.99136	2.97308	2.75757	2.84644	2.55442	3.55471	5.64456	4.35262	74	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
73	2.61309	4.22214	0.74114	2.75374	4.51169	2.99808	3.03064	3.95864	2.88551	3.56409	4.37113	1.51501	3.91640	3.20769	3.31442	1.77100	3.62866	3.48649	5.76268	4.44238	75	n	-	-
	2.68618	4.42227	2.77521	2.73125	3.46356	2.40514	3.72496	2.29356	2.67742	2.69357	4.24691	2.90348	2.73741	3.18148	2.89802	2.37888	2.77521	2.98494	4.58479	3.61505				
	0.10819	2.33962	5.08704	0.33208	1.26382	0.48576	0.95510																	
74	2.55602	4.25250	4.45956	3.88791	3.40898	4.02375	4.39902	1.78915	3.76014	1.77441	3.35765	4.06245	4.38218	3.97698	3.91930	2.86524	3.08467	1.51996	5.01957	3.82932	77	v	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
75	2.71932	4.79263	2.57053	2.61817	2.74929	3.55439	2.18284	4.40732	2.62666	3.02491	3.87912	3.11477	3.94982	2.96153	3.07131	4.12264	2.95210	3.11825	5.07956	3.17086	78	h	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
76	2.71637	4.80674	2.23398	2.57381	4.05620	3.48481	3.80685	3.45128	2.67520	1.82861	3.94602	3.08043	2.87573	2.99433	3.12782	2.53095	2.97160	3.15174	5.38184	4.06128	79	l	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
77	2.52455	4.29646	6.88546	2.93985	4.07621	3.32475	2.7777	3.30873	3.26307	3.12925	4.03770	3.52647	1.34702	3.58379	3.57524	2.39047	2.94969	1.99509	5.0607	4.27199	80	p	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
78	2.66191	4.41233	3.49424	2.93333	2.38313	3.62214	3.87837	2.91218	2.87873	2.61052	2.83298	3.34774	4.00834	2.23775	3.23782	2.63629	2.49769	2.68724	4.98462	3.73754	81	q	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
79	2.72485	4.22440	8.86115	3.10554	3.77705	3.77705	0.54581	4.42696	3.22248	3.61958	2.70791	3.63311	3.41577	3.62936	3.49366	3.04624	2.95579	2.28896	4.88750	3.69142	82	l	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
80	2.49173	5.12009	2.52202	2.24175	4.43838	3.44149	3.64160	3.90702	2.19333	3.41393	4.16935	2.54105	3.31678	2.55169	2.88191	2.47230	2.90394	2.70060	5.56873	4.17217	83	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
81	2.90495	4.30025	5.91029	2.02842	4.64339	3.60222	3.16501	4.12470	2.66526	3.64579	4.45247	2.24854	3.95893	2.96202	3.16351	2.85317	3.16473	3.72610	5.81278	4.39397	84	g	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	2.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.19098	4.36469	5.08704																					

100	4.22463	5.29054	5.14395	4.96765	1.06191	4.83191	3.64625	3.83415	4.77643	3.06305	4.39202	4.43699	5.11024	4.56517	4.67565	4.22876	4.43333	3.78037	3.73992	0.94699	104	y	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
101	2.67507	4.65877	3.22857	2.67015	2.55189	3.55410	3.09946	3.23466	1.95337	2.89120	3.74756	3.15217	3.94070	2.97880	3.04082	2.54775	2.66237	2.96447	5.15629	3.36214	105	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
102	3.08537	4.41865	4.87275	4.30080	3.39332	4.35881	4.73691	1.68368	4.16404	1.39818	2.76442	4.44206	4.64973	4.31867	4.26582	3.68977	2.84949	1.60858	5.19865	4.05507	106	l	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
103	2.52918	5.13435	2.59554	2.22183	4.45803	3.44384	3.67676	3.99646	2.14945	4.49383	4.25472	2.91636	3.05866	2.90111	2.92047	2.69466	2.96812	3.85053	5.64155	4.23771	107	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
104	2.74532	5.21673	2.52713	2.20521	4.54004	2.25845	3.69030	4.01574	1.94103	3.51438	4.27733	2.66924	3.87514	2.80378	2.96040	2.70488	2.51937	3.59845	5.66456	4.25497	108	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
105	2.69211	5.13435	2.11819	2.38893	4.45803	3.44384	3.64926	3.92341	2.22716	4.42728	4.18611	2.93140	3.85487	2.55135	2.23765	3.35924	2.92330	3.13573	5.57777	4.18756	109	d	-	-
	2.68635	4.42256	2.77518	2.73109	3.46385	2.40479	3.72526	2.29307	2.67730	2.69328	4.24721	2.90219	2.73771	3.18177	2.89815	2.37918	2.77551	2.98549	4.58508	3.61534				
	0.33845	1.26957	5.08704	1.52382	0.24574	0.48576	0.95510																	
106	3.07081	5.70197	1.56212	1.70711	4.99828	2.82946	3.89922	4.53022	2.87794	3.99326	4.80988	1.79245	3.99937	3.04858	3.47408	2.95417	3.34772	4.07655	6.13830	4.62303	116	d	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
107	2.66197	3.93970	2.99144	2.29112	4.26893	2.97075	3.66007	3.70872	2.06294	2.26589	4.05009	2.96702	3.85707	2.59013	2.67175	2.23280	2.68640	3.02981	5.46443	4.10070	117	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
108	2.74787	4.60689	3.43913	2.85249	3.74321	3.64010	3.81543	3.15574	2.38327	3.70473	3.28772	2.81841	3.06560	2.62253	2.89351	2.97163	2.90975	2.03981	3.84569	3.61503	118	w	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
109	2.35132	3.68401	4.19342	3.60276	2.88111	2.89512	0.60802	2.54304	3.46863	2.29267	3.21471	4.12732	3.67419	3.62020	2.76511	2.87550	1.96567	3.62941	2.81212	3.61503	119	v	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
110	2.66219	4.65032	3.21534	2.65877	3.83767	3.54169	2.56041	2.32860	2.45267	2.88882	3.74207	3.14292	3.93098	2.97266	3.04638	2.42564	2.24566	2.49757	5.19048	3.37983	120	t	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
111	3.49037	5.15109	2.82823	0.48659	5.04142	3.67714	3.46233	4.60529	3.30087	4.19351	5.13582	3.34717	4.31412	3.57145	3.74040	4.43813	3.80843	4.24816	6.11266	4.87842	121	E	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
112	2.66150	4.40899	3.49516	2.93296	3.54929	3.62247	3.87465	2.32951	2.47742	2.62516	3.51653	3.34641	4.00731	3.19125	3.21888	2.53293	2.31390	2.68173	4.98582	2.44575	122	t	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
113	4.27697	4.45496	9.1744	4.76349	3.24591	4.34951	4.64125	4.36151	4.50060	3.65797	4.96516	4.82692	4.91121	4.85892	4.53155	4.47608	4.60826	4.26231	0.29260	3.32715	123	W	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
114	2.35461	4.63115	3.24716	2.68301	2.93486	3.55577	2.28710	3.19823	1.96914	2.54206	3.71946	3.16172	3.94036	2.98641	2.78663	2.77768	2.89731	2.93223	5.15977	3.34114	124	k	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
115	3.42352	5.45469	3.94625	3.16419	5.00679	3.96729	3.81322	4.31389	1.65676	3.69355	4.58859	3.50632	4.31525	2.94678	0.85503	3.41157	3.55411	4.00797	5.67028	4.57302	125	r	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
116	2.70580	4.50427	4.98289	4.49036	3.84824	4.52505	5.18562	1.58722	4.39362	4.42670	3.65281	4.66291	4.87909	4.65893	4.58528	3.91503	3.45912	0.83685	5.74114	4.52768	126	v	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.01908	4.36469	5.08704	0.61958	0.77255	0.48576	0.95510																	
117	2.71344	5.06553	2.93442	1.93703	4.36278	3.09371	3.68253	3.80558	2.07795	2.78608	4.13303	2.96767	2.49419	2.80643	2.88480	2.70358	2.94648	3.43223	5.53172	4.16432	127	e	-	-
	2.68618	4.42225	2.77519	2.73123	3.46354	2.40513	3.72494	3.29354	2.67741	2.69355	4.24690	2.90347	2.73739	3.18146	2.89801	2.37887	2.77519	2.98518	4.58477	3.61503				
	0.																							