



## Full wwPDB EM Validation Report ⓘ

Dec 31, 2024 – 06:00 PM EST

PDB ID : 8JTI  
EMDB ID : EMD-36645  
Title : Cryo-EM structure of human 26S RP (Eb state) bound to K11/K48-branched ubiquitin (Ub) chain composed of four Ub.  
Authors : Hsu, S.T.D.; Draczkowski, P.; Wang, Y.S.  
Deposited on : 2023-06-21  
Resolution : 3.80 Å(reported)  
Based on initial model : 6MSB

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev113  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.40

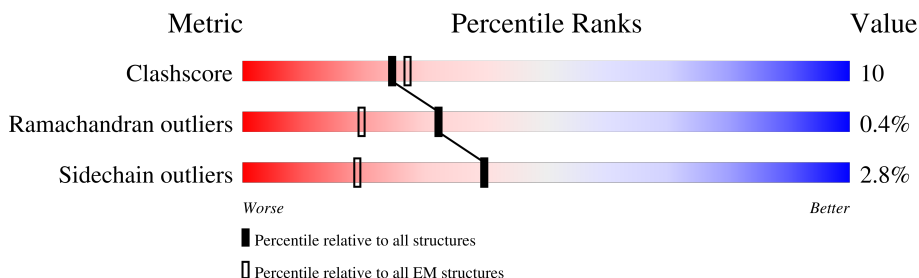
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.80 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.






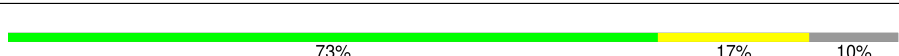
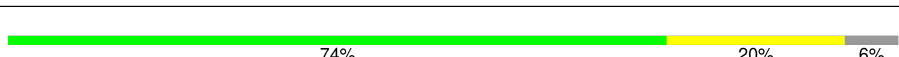
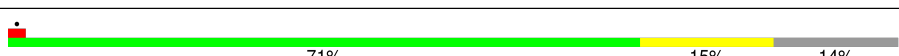
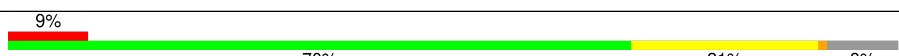
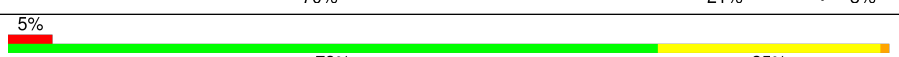

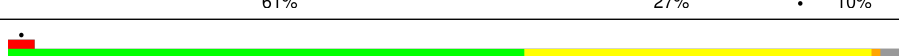
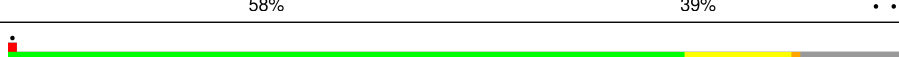



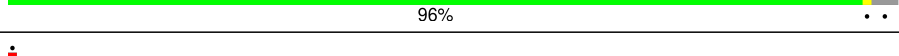
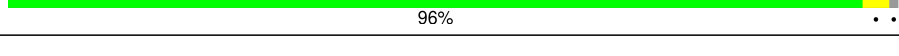

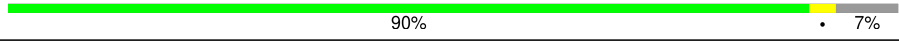
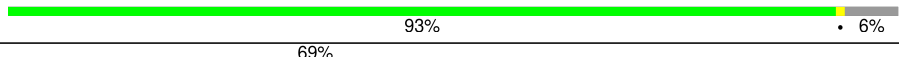
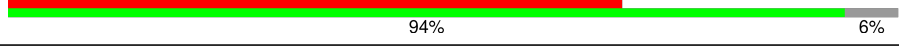
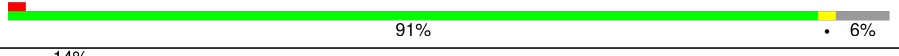
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	433	
2	B	440	
3	C	406	
4	D	418	
5	E	389	
6	F	439	
7	G	246	
8	H	234	

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Mol	Chain	Length	Quality of chain
9	I	261	
10	J	248	
11	K	241	
12	L	263	
13	M	255	
14	U	953	
15	V	534	
16	W	456	
17	X	422	
18	Y	389	
19	Z	324	
20	d	350	
21	e	70	
22	f	908	
23	a	376	
24	b	377	
25	c	310	
26	u	81	
26	v	81	
26	w	81	
26	x	81	

## 2 Entry composition [i](#)

There are 29 unique types of molecules in this entry. The entry contains 67839 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called 26S protease regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	394	3096	1951	543	584	18	0	0

- Molecule 2 is a protein called 26S protease regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	384	3004	1895	515	580	14	0	0

- Molecule 3 is a protein called 26S protease regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	365	2868	1811	515	526	16	0	0

- Molecule 4 is a protein called 26S protease regulatory subunit 6B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	380	3039	1923	524	579	13	0	0

- Molecule 5 is a protein called 26S protease regulatory subunit 10B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	375	2979	1875	529	559	16	0	0

- Molecule 6 is a protein called 26S protease regulatory subunit 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	395	3093	1943	535	598	17	0	0

- Molecule 7 is a protein called Proteasome subunit alpha type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	240	1826	1160	305	348	13	0	0

- Molecule 8 is a protein called Proteasome subunit alpha type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	232	1708	1081	289	333	5	0	0

- Molecule 9 is a protein called Proteasome subunit alpha type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	250	1912	1204	329	371	8	0	0

- Molecule 10 is a protein called Proteasome subunit alpha type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	239	1713	1062	311	335	5	0	0

- Molecule 11 is a protein called Proteasome subunit alpha type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	234	1759	1102	290	356	11	0	0

- Molecule 12 is a protein called Proteasome subunit alpha type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	238	1850	1159	334	346	11	0	0

- Molecule 13 is a protein called Proteasome subunit alpha type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	M	240	1856	1178	314	353	11	0	0

- Molecule 14 is a protein called 26S proteasome non-ATPase regulatory subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	U	815	6361	4040	1083	1194	44	0	0

- Molecule 15 is a protein called 26S proteasome non-ATPase regulatory subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	V	493	3315	2075	622	611	7	0	0

- Molecule 16 is a protein called 26S proteasome non-ATPase regulatory subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	W	456	3292	2064	584	630	14	0	0

- Molecule 17 is a protein called 26S proteasome non-ATPase regulatory subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	X	380	2793	1763	487	534	9	0	0

- Molecule 18 is a protein called 26S proteasome non-ATPase regulatory subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	Y	378	3115	1987	533	578	17	0	0

- Molecule 19 is a protein called 26S proteasome non-ATPase regulatory subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	Z	286	2281	1457	392	427	5	0	0

- Molecule 20 is a protein called 26S proteasome non-ATPase regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	d	257	2053	1332	336	376	9	0	0

- Molecule 21 is a protein called 26S proteasome complex subunit DSS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	e	49	Total	C	N	O	S	0	0
			280	171	52	56	1		

- Molecule 22 is a protein called 26S proteasome non-ATPase regulatory subunit 2.

Mol	Chain	Residues	Atoms				AltConf	Trace	
22	f	880	Total	C	N	O		0	0
			4338	2578	880	880			

- Molecule 23 is a protein called 26S proteasome non-ATPase regulatory subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	a	373	Total	C	N	O	S	0	0
			2995	1911	510	559	15		

- Molecule 24 is a protein called 26S proteasome non-ATPase regulatory subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	b	191	Total	C	N	O	S	0	0
			1458	910	261	279	8		

- Molecule 25 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	c	287	Total	C	N	O	S	0	0
			2260	1430	389	422	19		

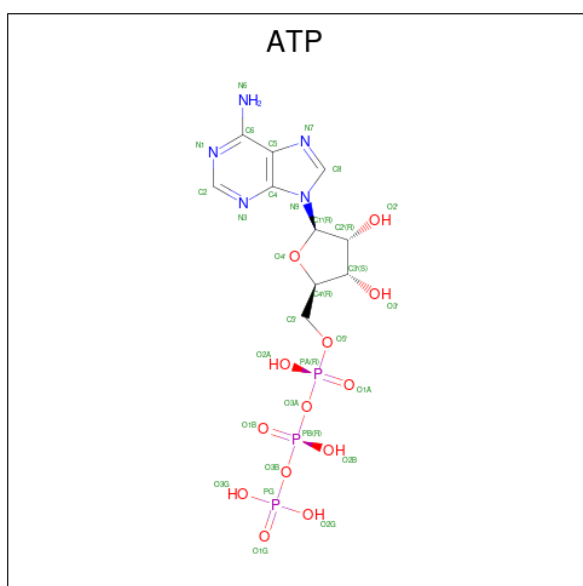
- Molecule 26 is a protein called Polyubiquitin-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	v	76	Total	C	N	O	S	0	0
			603	378	107	117	1		
26	u	76	Total	C	N	O	S	0	0
			603	378	107	117	1		
26	x	76	Total	C	N	O	S	0	0
			603	378	107	117	1		
26	w	76	Total	C	N	O	S	0	0
			603	378	107	117	1		

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
v	-4	GLY	-	linker	UNP P0CG47
v	-3	SER	-	linker	UNP P0CG47
v	-2	GLY	-	linker	UNP P0CG47
v	-1	GLY	-	linker	UNP P0CG47
v	0	SER	-	linker	UNP P0CG47
v	63	ARG	LYS	engineered mutation	UNP P0CG47
u	-4	GLY	-	linker	UNP P0CG47
u	-3	SER	-	linker	UNP P0CG47
u	-2	GLY	-	linker	UNP P0CG47
u	-1	GLY	-	linker	UNP P0CG47
u	0	SER	-	linker	UNP P0CG47
u	63	ARG	LYS	engineered mutation	UNP P0CG47
x	-4	GLY	-	linker	UNP P0CG47
x	-3	SER	-	linker	UNP P0CG47
x	-2	GLY	-	linker	UNP P0CG47
x	-1	GLY	-	linker	UNP P0CG47
x	0	SER	-	linker	UNP P0CG47
x	63	ARG	LYS	engineered mutation	UNP P0CG47
w	-4	GLY	-	linker	UNP P0CG47
w	-3	SER	-	linker	UNP P0CG47
w	-2	GLY	-	linker	UNP P0CG47
w	-1	GLY	-	linker	UNP P0CG47
w	0	SER	-	linker	UNP P0CG47
w	63	ARG	LYS	engineered mutation	UNP P0CG47

- Molecule 27 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ).



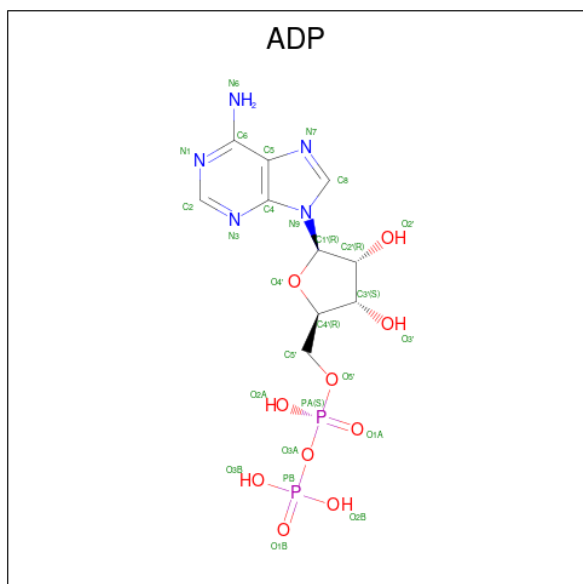


Mol	Chain	Residues	Atoms					AltConf
27	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
27	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
27	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
27	E	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 28 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
28	A	1	Total	Mg	0
			1	1	
28	B	1	Total	Mg	0
			1	1	
28	D	1	Total	Mg	0
			1	1	
28	E	1	Total	Mg	0
			1	1	
28	F	1	Total	Mg	0
			1	1	

- Molecule 29 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: C<sub>10</sub>H<sub>15</sub>N<sub>5</sub>O<sub>10</sub>P<sub>2</sub>).

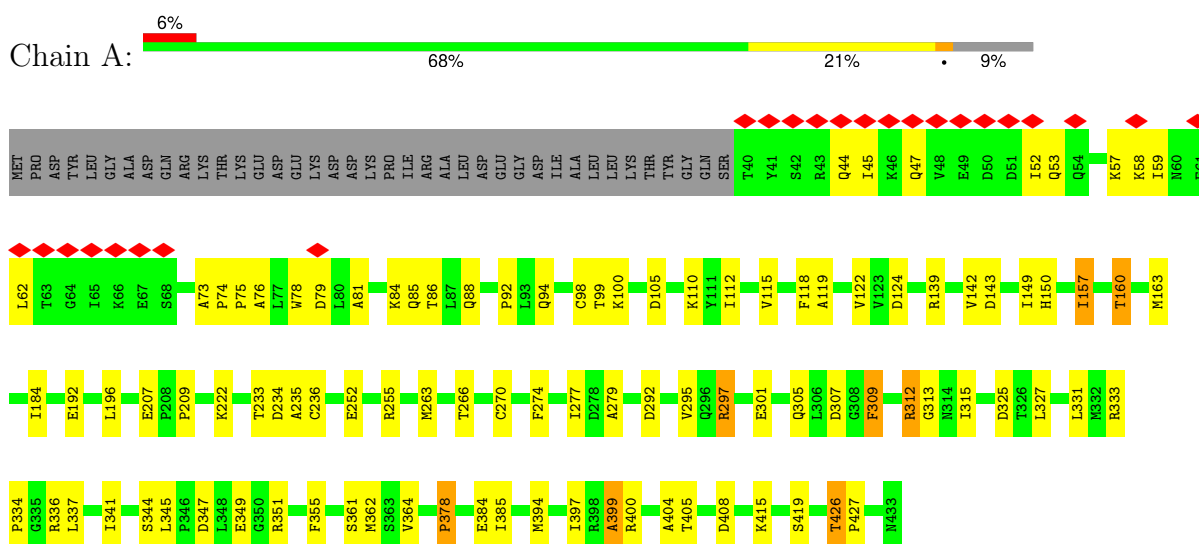


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
29	C	1	27	10	5	10	2	0
29	F	1	27	10	5	10	2	0

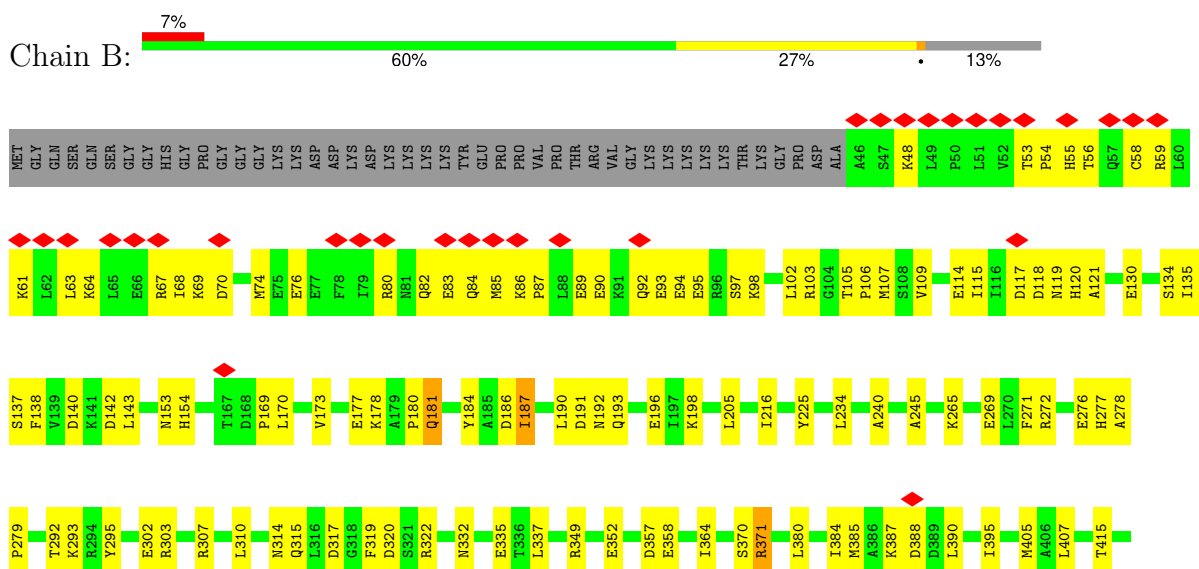
### 3 Residue-property plots [i](#)

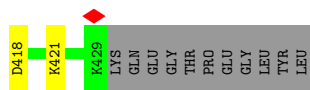
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 26S protease regulatory subunit 7

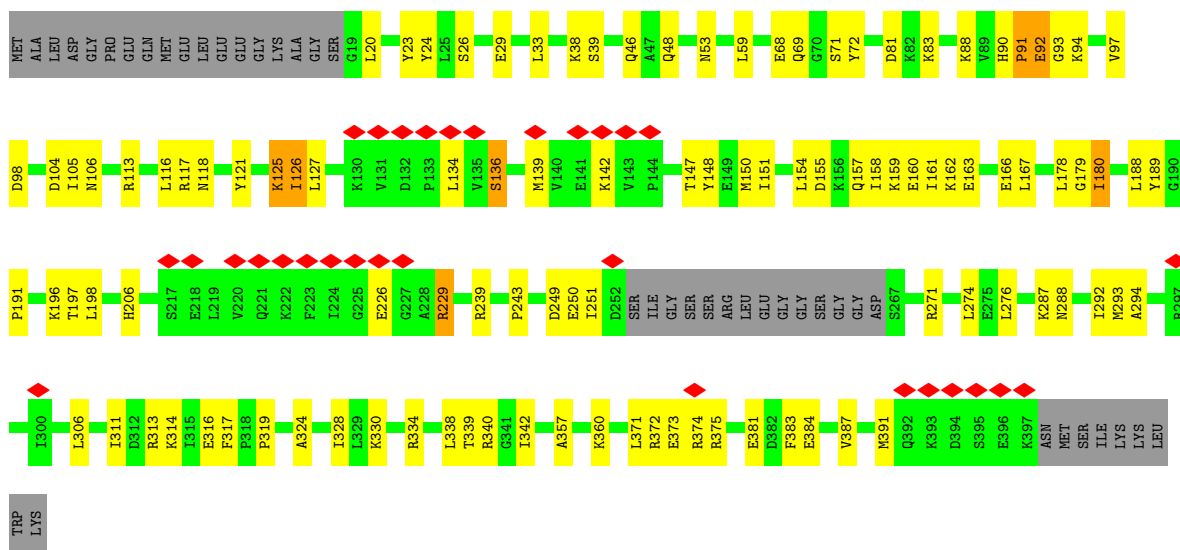


- Molecule 2: 26S protease regulatory subunit 4

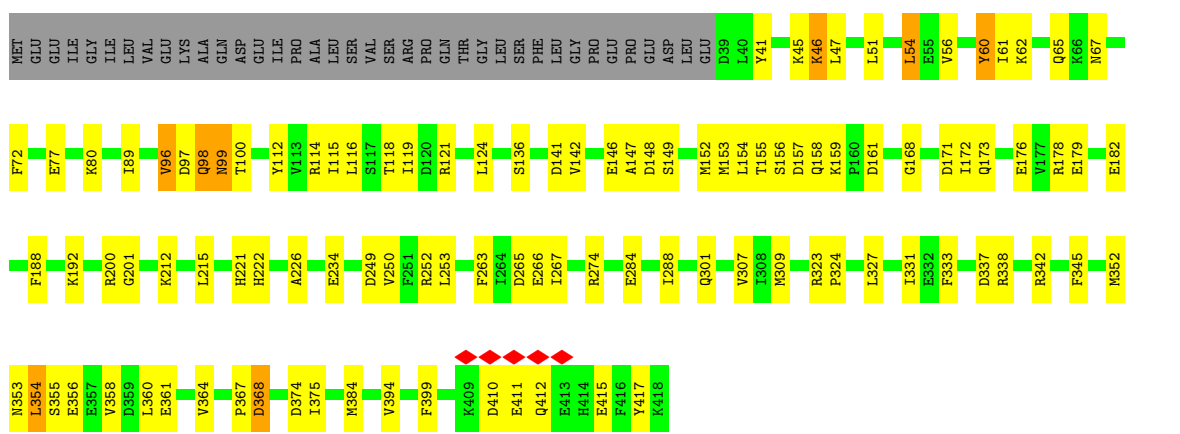




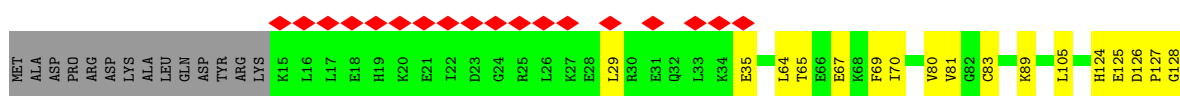
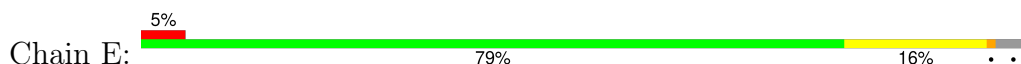
• Molecule 3: 26S protease regulatory subunit 8



• Molecule 4: 26S protease regulatory subunit 6B

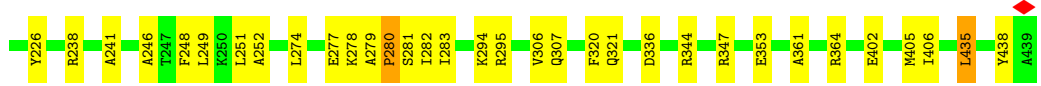
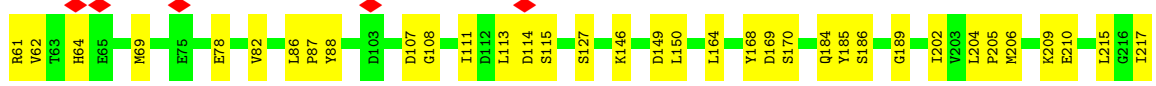
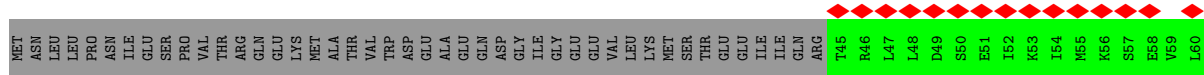
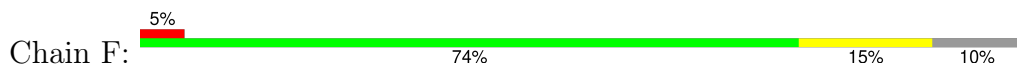


• Molecule 5: 26S protease regulatory subunit 10B

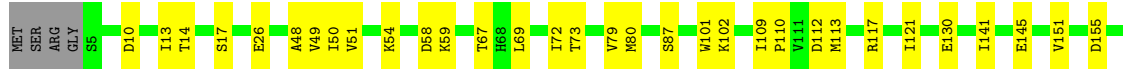
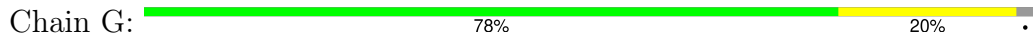




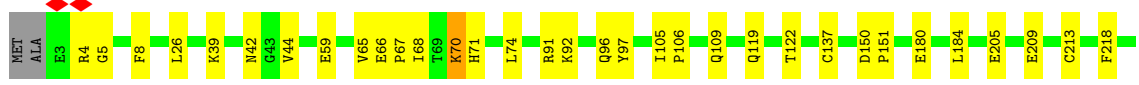
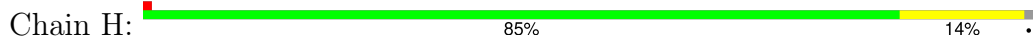
• Molecule 6: 26S protease regulatory subunit 6A



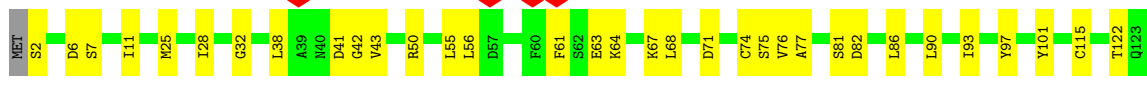
• Molecule 7: Proteasome subunit alpha type-6

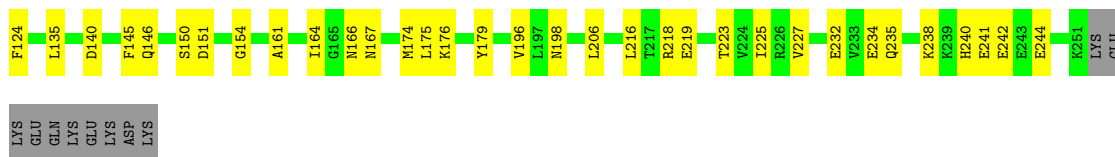


• Molecule 8: Proteasome subunit alpha type-2

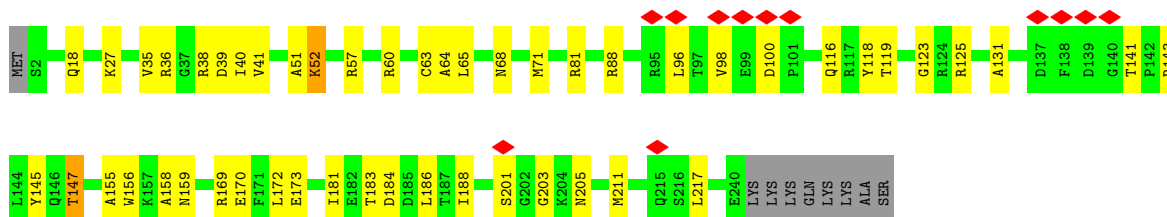
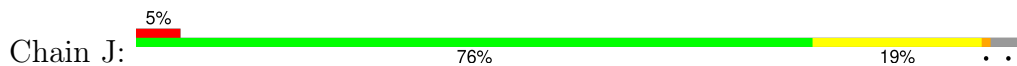


• Molecule 9: Proteasome subunit alpha type-4

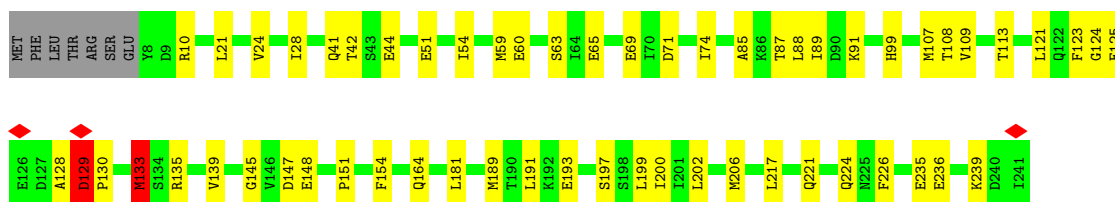
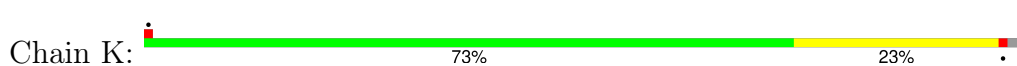




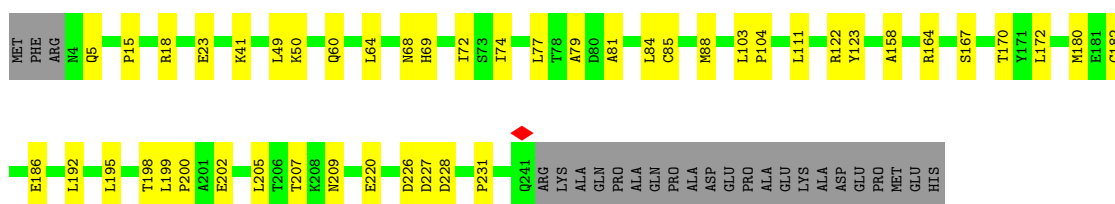
- Molecule 10: Proteasome subunit alpha type-7



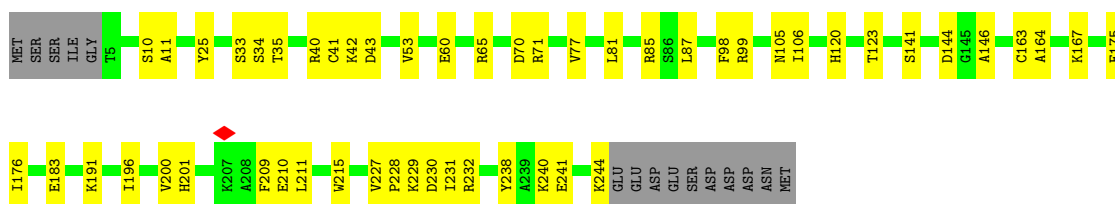
- Molecule 11: Proteasome subunit alpha type-5



- Molecule 12: Proteasome subunit alpha type-1

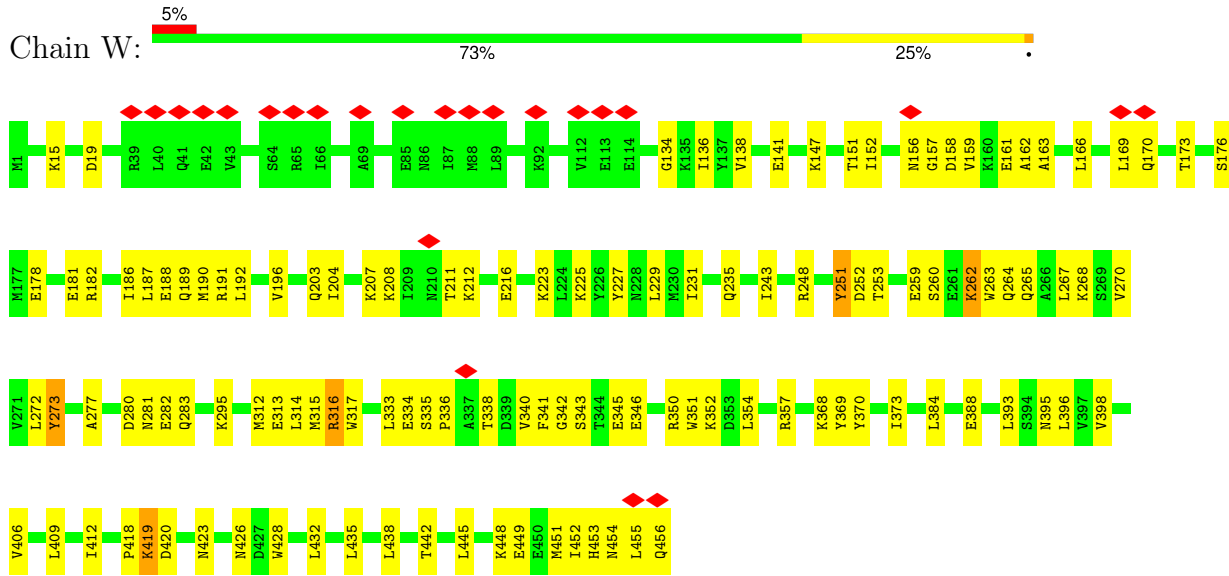


- Molecule 13: Proteasome subunit alpha type-3

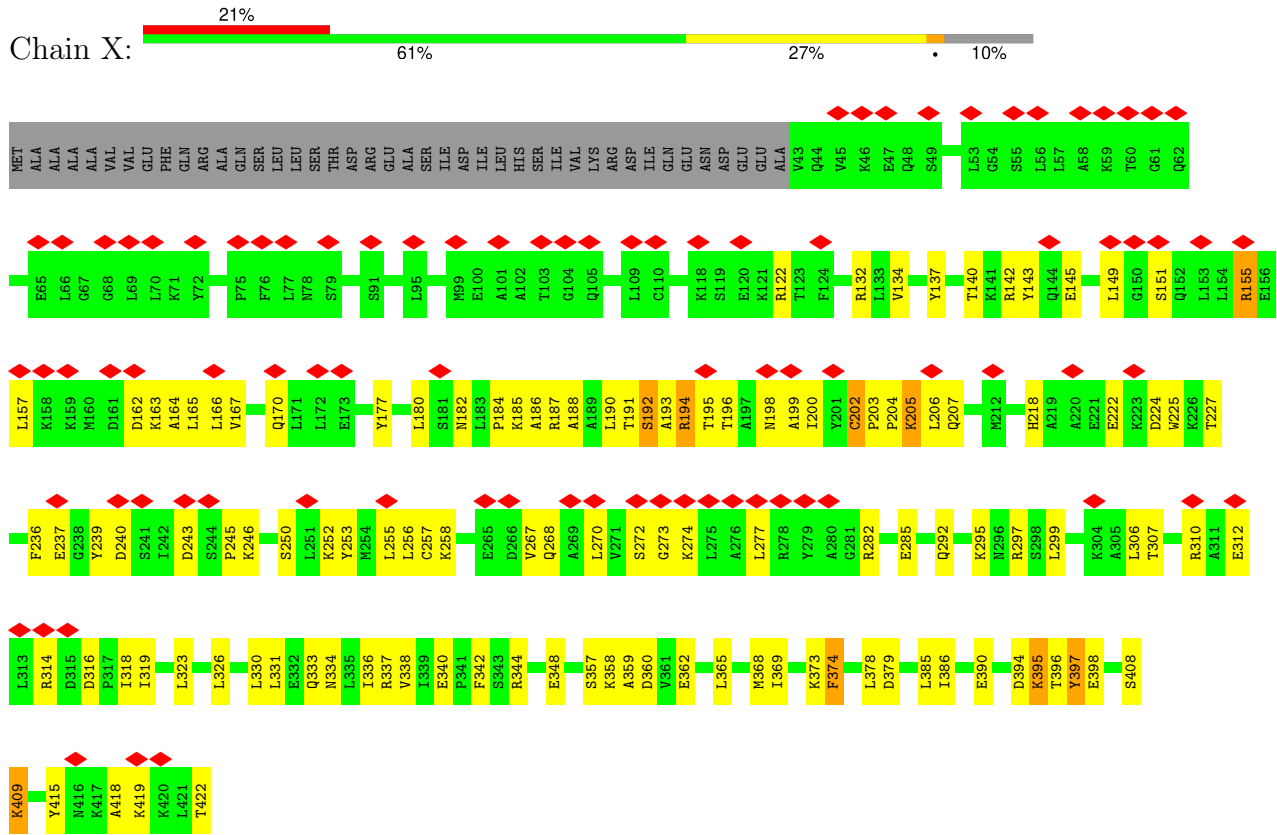


- Molecule 14: 26S proteasome non-ATPase regulatory subunit 1

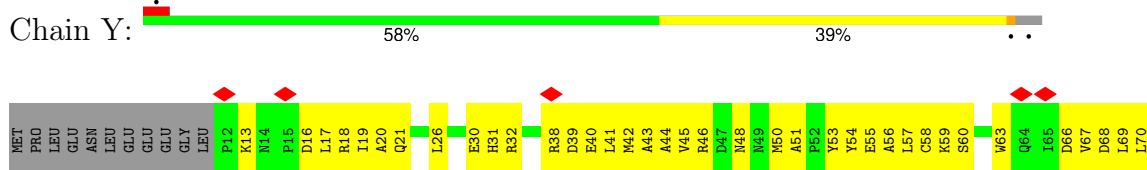




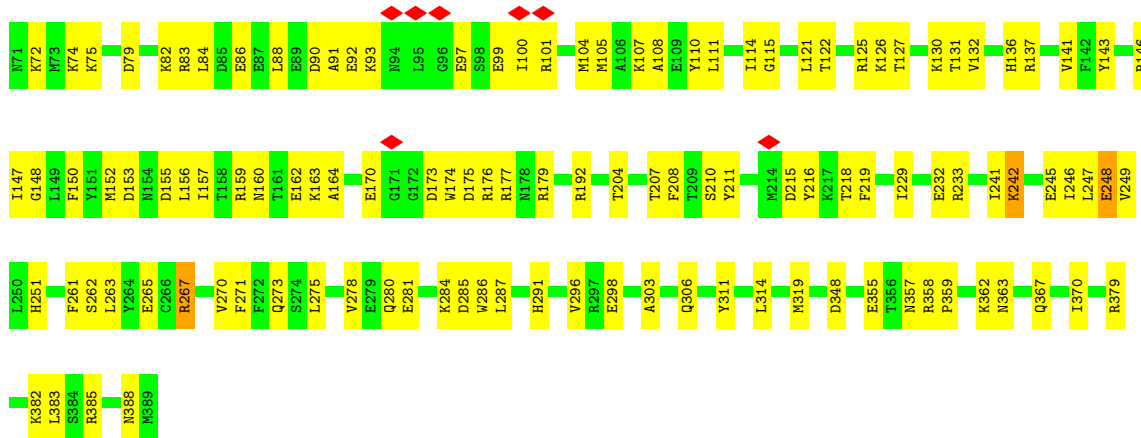
• Molecule 17: 26S proteasome non-ATPase regulatory subunit 11



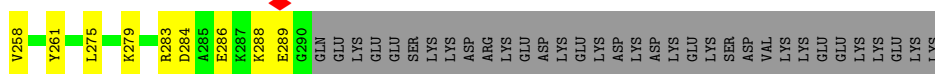
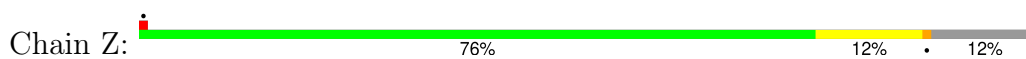
• Molecule 18: 26S proteasome non-ATPase regulatory subunit 6



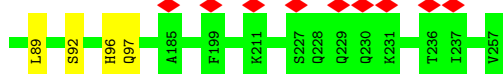
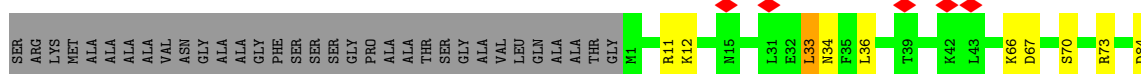
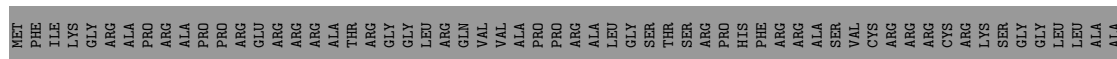




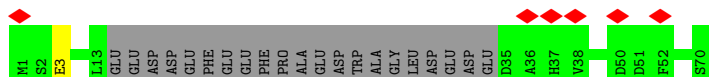
- Molecule 19: 26S proteasome non-ATPase regulatory subunit 7



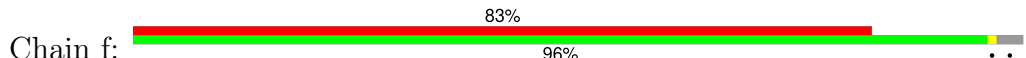
- Molecule 20: 26S proteasome non-ATPase regulatory subunit 8



- Molecule 21: 26S proteasome complex subunit DSS1



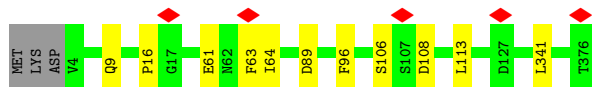
- Molecule 22: 26S proteasome non-ATPase regulatory subunit 2



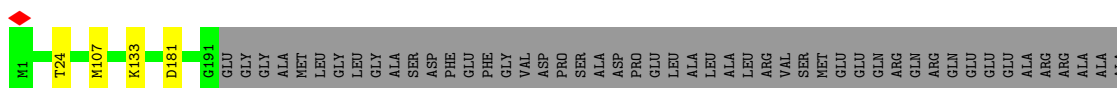
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E61	R62	L63	G64	E65	K66	D67	T68	S69	L70	M71	R72	F73	A74	L75	E76	E77	L78	R79	R80	Q81	R82	R83	S84	S85	T86	T87	S88	R89	T90	S91	V92	P93	R94	P95	L96	K97	F98	L99	R100	P101	H102	Y103	G104	K105	L106	S107	K108	L109	Y110	E111	M112	M113	D114	P115	G116	E117	K118	K119	R120
F121	A122	L123	D124	L125	I126	S127	V128	L129	A130	M131	T132	M133	Y134	G135	E136	R137	E138	C139	L140	K141	Y142	R143	L144	V145	G146	S147	Q148	E149	E150	L151	A152	S153	V154	G155	H156	E157	Y158	V159	R160	H161	L162	A163	G164	E165	K166	L167	K168	E169	Y170	Q171	E172	L173	D174	D175	A176	E177	K178	V179	Q180
R181	E182	P183	L184	L185	T186	L187	K188	E189	E190	I191	F192	P193	Y194	M195	M196	A197	H198	N199	A200	E201	H202	E203	A204	C205	D206	L207	L208	M209	E210	I211	E212	Q213	V214	D215	E218	K219	D222	E223	N224	A225	Y226	A227	K228	V229	C230	L231	Y232	L233	T234	S235	C236	L237	M238	Y239	E242	P243			
E244	N245	L248	L249	A252	V255	F256	F259	S260	R261	F262	P263	E264	A265	E266	A267	L266	R267	L268	A269	L270	M271	L272	M273	D274	M275	E276	L277	V278	E279	D280	L281	T283	E284	C285	K286	D287	V288	V289	V290	Q291	K292	Q293	M294	A295	F296	M297	L298	Q299	R300	H301	G302	V303	F304	L305	E306	L307	Q428	I429	
S308	E309	D310	V311	E312	E313	Y314	D316	L317	T318	E319	I320	M321	S322	N323	V324	Q325	L326	N327	S328	N329	F330	L331	A332	L333	A334	R335	E336	L337	M340	I339	E341	E342	M343	V344	P345	Y349	K350	T351	H352	L353	E354	N355	N356	R357	PHE	GLY	GLY	GLY	GLY	SER	SER	GLN	VAL	ASP	S367	A368	R369		
M370	N371	L372	A373	S374	S375	F376	V377	M378	G379	V381	N382	A383	A384	F385	C386	Q387	D388	K389	L390	M391	T392	D393	G394	G395	N396	K397	M398	L399	Y400	M401	M402	K403	D404	H405	A406	M407	L408	S409	A410	A411	A412	S413	L414	G415	M416	I417	L418	L419	W420	D421	V422	D423	G424	G425	L426	T427	Q428	I429	
D430	K431	Y432	L433	Y434	S435	S436	E437	D438	Y439	I440	K441	S442	G443	L446	A447	C448	G449	I450	M451	N452	S453	G454	A455	R456	M457	E458	D459	D460	P461	A462	L463	A464	L465	L466	D468	Y469	V470	L471	H472	M473	S474	M475	T476	M477	R478	L479	G480	S481	I482	F483	G484	L485	G486	L487	A488	Y489	A490		
G491	S492	M493	R494	E495	D496	V497	L498	T499	L500	L501	L502	P503	V504	M505	G506	D507	S508	K509	S510	S511	M512	E513	V514	A515	G516	V517	T518	A519	L520	C521	G522	G523	M524	L525	A526	S529	C530	N531	G532	D533	V534	T535	I538	L539	Q540	T541	I542	M543	E544	K545	S546	E547	T548	E549	L550	K551	D552		
T553	Y554	A555	R556	P559	L560	G561	L562	G563	L564	M565	H566	L567	G568	K569	G570	E571	A572	I573	E574	A575	L576	E581	V582	V583	S584	E585	P586	F587	S588	S589	F590	G591	N592	V595	D596	V597	C598	A599	Y600	A601	G602	S603	T661	I615	C616	S617	E618	H619	F620	A695	L696	I697	S698						
K623	E624	K625	E626	E627	D628	K629	D630	K631	G632	E633	K634	K635	D636	K637	K640	E641	A642	P643	G647	A661	M662	G663	E664	G665	I666	A668	E669	M670	A671	L672	R673	T674	F675	G676	H677	L678	L679	R680	Y681	G682	E683	P684	T685	L686	R687	R688	A689	L692	A693	S617	E618	H619	F620	A695	L696	I697	S698		
V699	S700	M701	P702	R703	L704	M705	I706	D707	T708	T709	L710	S711	K712	D716	A717	D718	F719	E720	V721	S722	Y723	M724	S725	I726	F727	M728	M729	G730	M731	V732	G733	S734	G735	T736	M737	N738	A739	R740	L741	A742	M743	L744	L745	R746	Q747	L748	A749	Q750	Y751	H752	A753	K754	D755	P756	M757	N758	L759	F760	
M761	A765	H770	L771	G772	I775	L776	I777	P780	Y781	H782	D784	R785	Q786	L787	M788	S789	Q790	V791	A792	V793	A794	G795	L796	L797	T798	V799	L800	V801	S802	F803	L804	D805	V806	R807	R808	L809	L810	L811	G812	K813	S814	H815	V816	Y817	L818	Y819	G820	L821	V822	R823	A824	H825	L830						
V831	T832	F833	D834	E835	E836	L837	R838	P839	L840	P841	V842	S843	V844	V846	G847	Q848	A849	V850	D851	V852	V853	G854	Q855	A856	G857	K858	P859	K860	T861	I862	T863	G864	F865	G866	T867	H868	T869	S870	P871	V872	A875	H876	G877	E878	R879	A880	E881	L882	A883	E885	E886	F887	L888	P889	VAL	THR			

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TYR  
ASP  
LEU

- Molecule 23: 26S proteasome non-ATPase regulatory subunit 13



- Molecule 24: 26S proteasome non-ATPase regulatory subunit 4

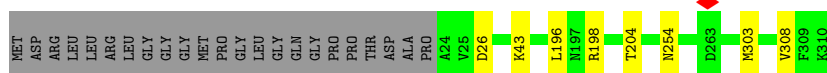
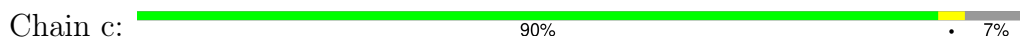


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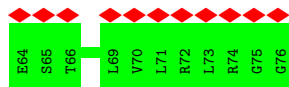
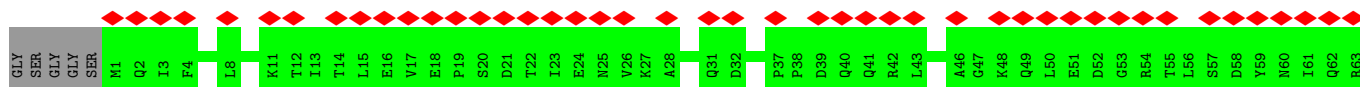
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- Molecule 25: 26S proteasome non-ATPase regulatory subunit 14



- Molecule 26: Polyubiquitin-B



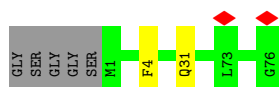
- Molecule 26: Polyubiquitin-B



## • Molecule 26: Polyubiquitin-B



## • Molecule 26: Polyubiquitin-B



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	52216	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	49	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	70000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	50.794	Depositor
Minimum map value	-23.427	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	5	Depositor
Map size ( $\text{\AA}$ )	560.0, 560.0, 560.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.4, 1.4, 1.4	Depositor

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ATP, ADP

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.59	0/3148	0.66	0/4250
2	B	0.49	0/3047	0.63	0/4111
3	C	0.42	0/2905	0.62	0/3910
4	D	0.52	0/3089	0.61	0/4168
5	E	0.57	0/3025	0.69	0/4073
6	F	0.56	0/3134	0.65	0/4225
7	G	0.46	0/1859	0.56	0/2523
8	H	0.43	0/1743	0.53	0/2372
9	I	0.38	0/1942	0.55	0/2628
10	J	0.42	0/1737	0.57	0/2369
11	K	0.41	0/1786	0.56	0/2419
12	L	0.46	0/1885	0.59	0/2552
13	M	0.47	0/1891	0.56	0/2552
14	U	0.51	0/6476	0.62	0/8764
15	V	0.42	0/3360	0.60	0/4587
16	W	0.40	0/3332	0.56	0/4514
17	X	0.35	0/2831	0.53	0/3835
18	Y	0.46	0/3173	0.59	0/4273
19	Z	0.63	0/2324	0.64	0/3150
20	d	0.39	0/2096	0.59	0/2835
21	e	0.29	0/279	0.59	0/379
22	f	0.24	0/4336	0.45	0/6030
23	a	0.39	0/3053	0.58	0/4133
24	b	0.48	0/1478	0.67	0/2001
25	c	0.61	0/2302	0.65	0/3110
26	u	0.51	0/609	0.62	0/819
26	v	0.28	0/609	0.53	0/819
26	w	0.38	0/609	0.64	0/819
26	x	0.29	0/609	0.56	0/819
All	All	0.47	0/68667	0.60	0/93039

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3096	0	3138	78	0
2	B	3004	0	3063	93	0
3	C	2868	0	2964	81	0
4	D	3039	0	3075	80	0
5	E	2979	0	3052	45	0
6	F	3093	0	3165	44	0
7	G	1826	0	1796	35	0
8	H	1708	0	1594	23	0
9	I	1912	0	1851	50	0
10	J	1713	0	1537	39	0
11	K	1759	0	1707	41	0
12	L	1850	0	1822	31	0
13	M	1856	0	1814	34	0
14	U	6361	0	6397	83	0
15	V	3315	0	2757	82	0
16	W	3292	0	2975	100	0
17	X	2793	0	2662	83	0
18	Y	3115	0	3120	129	0
19	Z	2281	0	2312	38	0
20	d	2053	0	2029	0	0
21	e	280	0	190	0	0
22	f	4338	0	2026	0	0
23	a	2995	0	3012	0	0
24	b	1458	0	1505	0	0
25	c	2260	0	2276	0	0
26	u	603	0	629	0	0
26	v	603	0	629	0	0
26	w	603	0	629	0	0
26	x	603	0	629	0	0
27	A	31	0	12	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
27	B	31	0	12	0	0
27	D	31	0	12	1	0
27	E	31	0	12	2	0
28	A	1	0	0	0	0
28	B	1	0	0	0	0
28	D	1	0	0	0	0
28	E	1	0	0	0	0
28	F	1	0	0	0	0
29	C	27	0	12	3	0
29	F	27	0	12	1	0
All	All	67839	0	64427	1097	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

All (1097) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:60:TYR:HB2	14:U:603:LEU:HD21	1.51	0.93
9:I:42:GLY:HA2	9:I:216:LEU:O	1.70	0.92
7:G:50:ILE:HG21	7:G:79:VAL:HG21	1.50	0.91
15:V:270:LEU:HD12	15:V:271:VAL:HG13	1.54	0.88
6:F:111:ILE:HG22	6:F:113:LEU:H	1.37	0.88
3:C:20:LEU:HD13	14:U:149:GLN:HG2	1.63	0.78
16:W:260:SER:HA	16:W:263:TRP:HB3	1.65	0.78
1:A:85:GLN:HE22	2:B:136:LEU:HD13	1.47	0.78
17:X:202:CYS:H	17:X:203:PRO:HD3	1.50	0.77
5:E:282:PRO:HB2	5:E:388:PRO:HB3	1.67	0.75
15:V:242:HIS:NE2	15:V:244:ALA:O	2.19	0.75
12:L:74:ILE:HD13	12:L:81:ALA:HB1	1.68	0.75
2:B:105:THR:HG23	2:B:106:PRO:HD3	1.69	0.74
1:A:52:ILE:HD13	2:B:69:LYS:HD2	1.68	0.74
14:U:135:ASN:HA	14:U:138:PHE:HD2	1.53	0.73
15:V:266:GLN:OE1	15:V:299:GLN:NE2	2.20	0.73
3:C:125:LYS:NZ	3:C:126:ILE:O	2.18	0.73
1:A:309:PHE:H	6:F:238:ARG:HH21	1.36	0.73
10:J:63:CYS:SG	10:J:88:ARG:NH2	2.61	0.73
1:A:295:VAL:HG21	2:B:307:ARG:HH22	1.53	0.73
4:D:141:ASP:OD1	4:D:142:VAL:N	2.22	0.72
8:H:68:ILE:HD11	8:H:74:LEU:HB2	1.70	0.72
16:W:216:GLU:HB3	16:W:223:LYS:HB2	1.69	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:287:LYS:HE3	3:C:288:ASN:H	1.53	0.72
3:C:371:LEU:O	3:C:374:ARG:NH1	2.23	0.72
2:B:80:ARG:HG2	2:B:84:GLN:HE22	1.56	0.71
5:E:64:LEU:HD23	5:E:65:THR:HG23	1.71	0.71
18:Y:101:ARG:NH2	18:Y:126:LYS:O	2.24	0.71
9:I:218:ARG:NH1	9:I:219:GLU:O	2.23	0.71
16:W:449:GLU:HB3	19:Z:222:ILE:HG12	1.73	0.71
13:M:141:SER:HB3	13:M:144:ASP:HB2	1.71	0.71
16:W:173:THR:O	16:W:182:ARG:NH1	2.23	0.71
13:M:215:TRP:HE3	13:M:227:VAL:HG12	1.55	0.71
18:Y:107:LYS:HZ1	18:Y:110:TYR:HD2	1.37	0.71
19:Z:223:ASN:OD1	19:Z:225:GLN:N	2.23	0.70
4:D:274:ARG:NH1	5:E:245:GLU:OE2	2.25	0.70
18:Y:241:ILE:HD11	18:Y:261:PHE:HE1	1.56	0.70
14:U:468:ALA:O	14:U:474:ARG:NH2	2.23	0.70
2:B:269:GLU:OE2	2:B:272:ARG:NH2	2.25	0.70
16:W:451:MET:SD	19:Z:103:LYS:NZ	2.62	0.70
16:W:452:ILE:HA	19:Z:103:LYS:HZ3	1.57	0.70
18:Y:192:ARG:HD3	18:Y:291:HIS:CG	2.26	0.70
1:A:351:ARG:NH1	1:A:378:PRO:O	2.25	0.69
2:B:364:ILE:HG22	2:B:395:ILE:HG21	1.75	0.69
11:K:124:GLY:H	11:K:133:MET:HG2	1.57	0.69
12:L:192:LEU:HD12	12:L:205:LEU:HD21	1.75	0.69
16:W:203:GLN:OE1	16:W:207:LYS:NZ	2.26	0.69
2:B:405:MET:SD	2:B:421:LYS:NZ	2.62	0.68
18:Y:121:LEU:HG	18:Y:125:ARG:HH12	1.58	0.68
1:A:84:LYS:O	1:A:88:GLN:NE2	2.26	0.68
13:M:34:SER:OG	13:M:65:ARG:NH1	2.25	0.68
4:D:384:MET:HE1	5:E:167:PRO:HD3	1.74	0.68
10:J:65:LEU:HB2	10:J:71:MET:HE3	1.76	0.68
18:Y:39:ASP:OD1	18:Y:40:GLU:N	2.26	0.68
10:J:131:ALA:H	10:J:147:THR:HG22	1.59	0.68
13:M:201:HIS:O	13:M:201:HIS:ND1	2.26	0.68
3:C:53:ASN:ND2	14:U:642:GLU:O	2.28	0.67
18:Y:358:ARG:HD2	18:Y:359:PRO:HD2	1.74	0.67
3:C:189:TYR:CE1	3:C:316:GLU:HG2	2.29	0.67
11:K:221:GLN:OE1	11:K:224:GLN:NE2	2.27	0.67
4:D:67:ASN:ND2	14:U:607:VAL:O	2.27	0.67
1:A:207:GLU:OE1	1:A:207:GLU:N	2.27	0.67
16:W:452:ILE:HA	19:Z:103:LYS:NZ	2.10	0.67
5:E:127:PRO:HD3	6:F:321:GLN:HG2	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:266:GLU:OE2	5:E:258:MET:HB2	1.95	0.66
13:M:65:ARG:NH2	13:M:77:VAL:O	2.24	0.66
16:W:338:THR:O	16:W:342:GLY:N	2.22	0.66
2:B:89:GLU:HB2	2:B:94:GLU:HG2	1.78	0.66
8:H:105:ILE:HD11	8:H:109:GLN:HB2	1.78	0.66
15:V:171:VAL:O	15:V:175:MET:N	2.24	0.66
8:H:213:CYS:HB2	8:H:218:PHE:HD1	1.60	0.66
16:W:169:LEU:HD11	16:W:189:GLN:HG3	1.77	0.66
4:D:374:ASP:OD1	5:E:292:PRO:HG2	1.96	0.66
15:V:399:ARG:O	15:V:402:VAL:HB	1.95	0.66
1:A:274:PHE:HB3	1:A:277:ILE:HD11	1.77	0.66
16:W:272:LEU:HD21	16:W:340:VAL:HG21	1.77	0.66
17:X:218:HIS:NE2	17:X:227:THR:OG1	2.29	0.66
15:V:384:GLU:HA	15:V:387:GLN:HE21	1.62	0.65
4:D:173:GLN:HG2	4:D:333:PHE:CE1	2.31	0.65
17:X:397:TYR:HE1	19:Z:258:VAL:HG11	1.62	0.65
7:G:173:THR:OG1	7:G:174:GLU:OE1	2.15	0.65
14:U:120:GLU:HA	14:U:123:LYS:HE3	1.78	0.65
16:W:189:GLN:HA	16:W:192:LEU:HD13	1.78	0.65
18:Y:130:LYS:NZ	18:Y:131:THR:OG1	2.29	0.65
7:G:174:GLU:OE1	7:G:174:GLU:N	2.26	0.65
16:W:280:ASP:OD1	16:W:281:ASN:N	2.30	0.65
16:W:453:HIS:CD2	19:Z:219:LYS:HD2	2.31	0.65
17:X:282:ARG:NH1	17:X:312:GLU:OE1	2.30	0.65
1:A:86:THR:HB	2:B:102:LEU:HD11	1.79	0.65
10:J:40:ILE:HA	10:J:211:MET:O	1.96	0.65
19:Z:219:LYS:HD3	19:Z:220:LEU:H	1.62	0.65
14:U:678:ASP:O	14:U:684:ARG:NH1	2.30	0.64
3:C:48:GLN:HB3	4:D:65:GLN:HE22	1.62	0.64
3:C:147:THR:OG1	3:C:206:HIS:NE2	2.30	0.64
2:B:357:ASP:OD1	2:B:358:GLU:N	2.30	0.64
4:D:89:ILE:HD11	5:E:80:VAL:HG23	1.77	0.64
14:U:536:ALA:HB2	14:U:548:LEU:HD23	1.78	0.64
15:V:322:VAL:O	15:V:326:GLN:NE2	2.22	0.64
18:Y:53:TYR:HD2	18:Y:57:LEU:HD13	1.61	0.64
16:W:452:ILE:HG13	16:W:453:HIS:ND1	2.12	0.64
12:L:164:ARG:HH22	12:L:200:PRO:HD3	1.62	0.64
13:M:163:CYS:SG	13:M:164:ALA:N	2.71	0.63
15:V:289:LEU:HB3	15:V:312:ALA:HB2	1.80	0.63
5:E:268:ASP:OD1	5:E:269:THR:N	2.30	0.63
2:B:371:ARG:NH2	3:C:178:LEU:O	2.29	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:234:GLU:OE2	5:E:216:ARG:NH1	2.31	0.63
18:Y:84:LEU:HD21	18:Y:107:LYS:HG2	1.78	0.63
17:X:256:LEU:HD22	17:X:319:ILE:HD11	1.79	0.63
3:C:38:LYS:HB3	4:D:54:LEU:HD22	1.79	0.63
3:C:197:THR:N	29:C:501:ADP:O2A	2.30	0.63
16:W:189:GLN:N	16:W:189:GLN:OE1	2.31	0.63
6:F:279:ALA:HB3	6:F:280:PRO:HD3	1.79	0.62
17:X:323:LEU:HD23	17:X:326:LEU:HD21	1.81	0.62
17:X:222:GLU:OE2	17:X:225:TRP:NE1	2.31	0.62
1:A:115:VAL:HG21	1:A:118:PHE:HB2	1.80	0.62
16:W:163:ALA:HA	16:W:166:LEU:HD13	1.82	0.62
1:A:100:LYS:HD3	1:A:139:ARG:HH12	1.65	0.62
9:I:90:LEU:HA	9:I:93:ILE:HD12	1.80	0.62
3:C:159:LYS:O	3:C:162:LYS:HG2	2.00	0.62
7:G:80:MET:HG2	7:G:87:SER:HB3	1.81	0.62
17:X:307:THR:HG23	17:X:310:ARG:HH22	1.64	0.62
1:A:307:ASP:OD2	1:A:333:ARG:NH2	2.33	0.62
15:V:281:ASN:C	15:V:283:ASN:H	2.03	0.62
15:V:494:MET:HB3	19:Z:275:LEU:HD11	1.79	0.62
18:Y:13:LYS:HG3	18:Y:146:ARG:HD2	1.82	0.62
5:E:262:ASN:ND2	5:E:266:GLY:HA3	2.15	0.61
14:U:880:ASN:HB3	14:U:881:PRO:HD3	1.81	0.61
16:W:176:SER:O	16:W:182:ARG:NH2	2.32	0.61
17:X:252:LYS:NZ	17:X:316:ASP:OD2	2.25	0.61
18:Y:13:LYS:HE2	18:Y:146:ARG:HB3	1.82	0.61
18:Y:208:PHE:O	18:Y:210:SER:N	2.33	0.61
16:W:260:SER:O	16:W:264:GLN:HG2	2.00	0.61
15:V:314:ARG:O	18:Y:382:LYS:NZ	2.34	0.61
16:W:136:ILE:O	16:W:138:VAL:N	2.34	0.61
9:I:122:THR:O	10:J:125:ARG:NH2	2.32	0.61
11:K:107:MET:SD	11:K:107:MET:N	2.73	0.61
17:X:306:LEU:HD21	17:X:314:ARG:HH22	1.65	0.61
6:F:107:ASP:OD1	6:F:108:GLY:N	2.33	0.60
6:F:209:LYS:H	6:F:209:LYS:HD3	1.65	0.60
15:V:242:HIS:CE1	15:V:244:ALA:HB3	2.37	0.60
15:V:476:PHE:HB3	19:Z:257:MET:HE1	1.83	0.60
1:A:44:GLN:O	1:A:47:GLN:HG2	2.02	0.60
11:K:44:GLU:OE1	11:K:191:LEU:N	2.35	0.60
18:Y:38:ARG:O	18:Y:41:LEU:HB3	2.01	0.60
12:L:5:GLN:OE1	12:L:5:GLN:N	2.31	0.60
9:I:176:LYS:NZ	10:J:51:ALA:O	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:43:ASP:OD1	13:M:43:ASP:N	2.34	0.60
16:W:445:LEU:HD23	19:Z:226:ILE:HG13	1.84	0.60
4:D:146:GLU:O	4:D:252:ARG:NH2	2.35	0.59
17:X:237:GLU:HA	17:X:240:ASP:HB2	1.83	0.59
18:Y:53:TYR:CD2	18:Y:57:LEU:HD13	2.37	0.59
1:A:59:ILE:HA	1:A:62:LEU:HB2	1.83	0.59
4:D:147:ALA:HB3	4:D:253:LEU:HD12	1.84	0.59
14:U:492:ASP:OD1	14:U:492:ASP:N	2.35	0.59
16:W:187:LEU:HA	16:W:190:MET:HG3	1.83	0.59
4:D:173:GLN:HG2	4:D:333:PHE:HE1	1.68	0.59
12:L:158:ALA:HB1	12:L:172:LEU:HD23	1.83	0.59
14:U:693:LEU:HD23	14:U:736:ILE:HG21	1.84	0.59
15:V:264:TYR:HB2	15:V:266:GLN:NE2	2.18	0.59
18:Y:285:ASP:OD1	18:Y:286:TRP:N	2.36	0.59
5:E:67:GLU:OE2	5:E:89:LYS:NZ	2.35	0.59
17:X:422:THR:OG1	19:Z:279:LYS:NZ	2.32	0.59
10:J:63:CYS:HG	10:J:88:ARG:HH21	1.48	0.59
16:W:265:GLN:OE1	16:W:265:GLN:N	2.31	0.59
14:U:333:MET:O	14:U:336:GLU:HG2	2.03	0.59
16:W:178:GLU:OE1	16:W:181:GLU:N	2.31	0.59
16:W:211:THR:HG23	16:W:212:LYS:HD3	1.85	0.59
17:X:368:MET:SD	17:X:373:LYS:HB3	2.43	0.59
9:I:154:GLY:O	10:J:81:ARG:NH2	2.33	0.58
18:Y:53:TYR:HA	18:Y:56:ALA:HB3	1.84	0.58
14:U:564:ASP:OD1	14:U:565:ALA:N	2.37	0.58
7:G:49:VAL:HG22	7:G:219:VAL:HG12	1.85	0.58
4:D:77:GLU:O	4:D:80:LYS:HG2	2.03	0.58
11:K:41:GLN:NE2	11:K:151:PRO:O	2.37	0.58
13:M:241:GLU:HA	13:M:244:LYS:HZ3	1.67	0.58
18:Y:101:ARG:HH21	18:Y:127:THR:HA	1.69	0.58
4:D:212:LYS:HG2	4:D:333:PHE:CD2	2.38	0.58
17:X:134:VAL:HB	17:X:149:LEU:HD23	1.85	0.58
10:J:39:ASP:OD1	10:J:39:ASP:N	2.34	0.58
18:Y:42:MET:HB2	18:Y:46:ARG:NH2	2.17	0.58
17:X:225:TRP:HE3	17:X:257:CYS:HG	1.50	0.58
18:Y:101:ARG:HA	18:Y:104:MET:HG3	1.85	0.58
8:H:66:GLU:OE2	8:H:91:ARG:NH2	2.37	0.57
2:B:415:THR:OG1	2:B:418:ASP:OD1	2.22	0.57
14:U:49:TYR:HD1	14:U:57:ARG:HG2	1.68	0.57
1:A:143:ASP:OD1	1:A:143:ASP:N	2.38	0.57
14:U:436:ALA:HB3	14:U:472:ILE:HD11	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:X:224:ASP:OD1	17:X:225:TRP:N	2.38	0.57
17:X:255:LEU:HD22	17:X:267:VAL:HG13	1.86	0.57
4:D:116:LEU:HD23	4:D:118:THR:H	1.70	0.57
9:I:241:GLU:O	9:I:244:GLU:HG2	2.05	0.57
2:B:80:ARG:O	2:B:84:GLN:NE2	2.37	0.57
3:C:88:LYS:HB3	3:C:94:LYS:HG3	1.86	0.57
15:V:306:ARG:NH2	15:V:336:GLU:OE2	2.36	0.57
1:A:142:VAL:HG12	1:A:149:ILE:HA	1.87	0.57
3:C:387:VAL:O	3:C:391:MET:HG2	2.05	0.57
4:D:345:PHE:CE2	4:D:375:ILE:HD12	2.39	0.57
11:K:99:HIS:ND1	11:K:107:MET:SD	2.78	0.57
16:W:169:LEU:HD22	16:W:186:ILE:HA	1.87	0.57
16:W:455:LEU:HD13	19:Z:103:LYS:HG2	1.87	0.57
9:I:32:GLY:H	9:I:50:ARG:HH21	1.51	0.57
10:J:35:VAL:HG23	10:J:158:ALA:HB2	1.86	0.56
15:V:393:THR:O	15:V:396:ILE:HG22	2.04	0.56
18:Y:13:LYS:HB2	18:Y:16:ASP:OD2	2.05	0.56
18:Y:20:ALA:HB2	18:Y:150:PHE:CE1	2.40	0.56
2:B:83:GLU:N	2:B:83:GLU:OE1	2.37	0.56
2:B:120:HIS:HA	2:B:135:ILE:HG13	1.86	0.56
7:G:67:THR:HG22	7:G:69:LEU:H	1.69	0.56
2:B:225:TYR:CZ	2:B:352:GLU:HB3	2.40	0.56
3:C:72:TYR:HE1	3:C:118:ASN:HA	1.70	0.56
9:I:234:GLU:OE1	9:I:234:GLU:N	2.29	0.56
14:U:811:PHE:HE1	14:U:885:MET:H	1.53	0.56
14:U:148:LYS:O	14:U:151:ILE:HG22	2.06	0.56
14:U:773:PHE:O	14:U:775:LEU:N	2.39	0.56
3:C:198:LEU:HD23	29:C:501:ADP:H2'	1.88	0.56
5:E:376:ASP:O	5:E:379:LYS:NZ	2.38	0.56
18:Y:67:VAL:HA	18:Y:70:LEU:HD12	1.87	0.56
11:K:123:PHE:HB2	11:K:133:MET:HE2	1.87	0.56
11:K:85:ALA:HB2	11:K:139:VAL:HG11	1.88	0.56
1:A:45:ILE:HD11	2:B:61:LYS:HB3	1.87	0.56
2:B:53:THR:O	2:B:55:HIS:ND1	2.38	0.56
2:B:184:TYR:CE2	2:B:198:LYS:HE2	2.40	0.56
3:C:69:GLN:OE1	3:C:69:GLN:N	2.34	0.56
4:D:178:ARG:O	4:D:182:GLU:HG2	2.06	0.56
9:I:38:LEU:HD12	9:I:43:VAL:HB	1.87	0.56
16:W:152:ILE:O	16:W:156:ASN:N	2.39	0.56
13:M:33:SER:O	13:M:167:LYS:HG3	2.05	0.56
14:U:765:VAL:HG11	14:U:778:PHE:CD2	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:25:MET:O	9:I:28:ILE:HG22	2.05	0.55
17:X:273:GLY:O	17:X:277:LEU:HG	2.06	0.55
18:Y:13:LYS:HE3	18:Y:147:ILE:HG13	1.88	0.55
16:W:282:GLU:HG2	16:W:283:GLN:N	2.20	0.55
2:B:109:VAL:HG21	3:C:94:LYS:HE2	1.89	0.55
9:I:161:ALA:HB1	9:I:175:LEU:HD13	1.88	0.55
9:I:216:LEU:HD13	9:I:225:ILE:HG12	1.88	0.55
14:U:482:GLY:HA3	14:U:515:ALA:HB1	1.89	0.55
15:V:223:LYS:HZ3	15:V:226:VAL:HB	1.71	0.55
18:Y:97:GLU:HG3	18:Y:99:GLU:OE2	2.07	0.55
2:B:130:GLU:OE1	2:B:130:GLU:N	2.39	0.55
11:K:147:ASP:OD1	11:K:148:GLU:N	2.34	0.55
7:G:101:TRP:CD2	7:G:109:ILE:HD13	2.41	0.55
9:I:63:GLU:OE1	9:I:64:LYS:HG3	2.06	0.55
14:U:341:PHE:CE2	14:U:787:CYS:HB3	2.42	0.55
16:W:420:ASP:HB3	16:W:423:ASN:HB2	1.89	0.55
14:U:21:GLU:OE1	14:U:55:ARG:NH1	2.40	0.55
16:W:452:ILE:HG22	19:Z:103:LYS:HZ1	1.71	0.55
18:Y:16:ASP:HA	18:Y:19:ILE:HD12	1.89	0.55
18:Y:92:GLU:HB3	18:Y:100:ILE:HD11	1.87	0.55
18:Y:275:LEU:HD21	18:Y:296:VAL:HG22	1.89	0.55
9:I:140:ASP:OD2	9:I:146:GLN:NE2	2.39	0.55
15:V:383:GLY:O	15:V:387:GLN:HG3	2.07	0.55
15:V:384:GLU:OE1	15:V:384:GLU:N	2.32	0.55
17:X:333:GLN:O	17:X:336:ILE:HG22	2.07	0.55
19:Z:59:ASP:OD1	19:Z:60:GLU:N	2.40	0.55
6:F:86:LEU:O	6:F:88:TYR:N	2.38	0.55
15:V:270:LEU:CD1	15:V:271:VAL:HG13	2.31	0.55
18:Y:51:ALA:HA	18:Y:54:TYR:CE2	2.42	0.55
18:Y:281:GLU:OE1	18:Y:284:LYS:NZ	2.30	0.55
5:E:179:GLY:N	27:E:401:ATP:O2B	2.33	0.55
15:V:478:GLN:O	15:V:481:SER:OG	2.23	0.55
18:Y:26:LEU:HD13	18:Y:32:ARG:O	2.07	0.55
7:G:163:PHE:HD2	7:G:166:THR:HG1	1.55	0.54
14:U:797:MET:SD	14:U:880:ASN:ND2	2.80	0.54
4:D:154:LEU:HD11	4:D:157:ASP:OD1	2.06	0.54
4:D:155:THR:HG23	4:D:159:LYS:HE2	1.89	0.54
4:D:355:SER:HB3	4:D:394:VAL:O	2.07	0.54
3:C:158:ILE:HA	3:C:161:ILE:HG22	1.90	0.54
13:M:191:LYS:HB3	13:M:238:TYR:CE2	2.42	0.54
17:X:415:TYR:OH	18:Y:383:LEU:HD22	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Y:270:VAL:HA	18:Y:273:GLN:HG2	1.88	0.54
1:A:399:ALA:O	1:A:400:ARG:HD2	2.08	0.54
2:B:48:LYS:HD3	2:B:68:ILE:HG21	1.90	0.54
11:K:197:SER:HA	11:K:200:ILE:HD12	1.88	0.54
16:W:395:ASN:HA	16:W:398:VAL:HG22	1.89	0.54
17:X:243:ASP:OD1	17:X:245:PRO:HD2	2.07	0.54
19:Z:26:ILE:HD12	19:Z:27:GLY:N	2.23	0.54
1:A:405:THR:N	1:A:408:ASP:OD2	2.31	0.54
18:Y:21:GLN:HE22	18:Y:286:TRP:H	1.56	0.54
4:D:212:LYS:HG2	4:D:333:PHE:HD2	1.72	0.54
4:D:411:GLU:HG2	4:D:412:GLN:N	2.21	0.54
5:E:348:THR:HA	6:F:217:ILE:HD11	1.89	0.54
16:W:334:GLU:OE1	16:W:334:GLU:N	2.40	0.54
1:A:73:ALA:HB3	1:A:78:TRP:HD1	1.72	0.54
3:C:113:ARG:HB2	3:C:127:LEU:HB2	1.89	0.54
18:Y:170:GLU:N	18:Y:170:GLU:OE1	2.40	0.54
2:B:64:LYS:HG3	2:B:67:ARG:HH21	1.72	0.53
2:B:407:LEU:HD12	3:C:178:LEU:HD12	1.90	0.53
18:Y:66:ASP:O	18:Y:70:LEU:N	2.27	0.53
18:Y:122:THR:HA	18:Y:125:ARG:HG2	1.89	0.53
2:B:54:PRO:HB2	2:B:61:LYS:HG3	1.91	0.53
2:B:118:ASP:N	2:B:118:ASP:OD1	2.39	0.53
11:K:71:ASP:OD1	11:K:74:ILE:N	2.40	0.53
13:M:200:VAL:HG22	13:M:201:HIS:H	1.74	0.53
16:W:138:VAL:HA	16:W:141:GLU:OE2	2.08	0.53
5:E:300:HIS:NE2	5:E:302:ASP:OD1	2.40	0.53
15:V:282:ASN:HD22	18:Y:385:ARG:HG2	1.73	0.53
14:U:369:THR:HG22	14:U:731:ILE:HD11	1.91	0.53
15:V:266:GLN:O	15:V:269:LYS:HG2	2.09	0.53
18:Y:90:ASP:O	18:Y:93:LYS:HG2	2.09	0.53
3:C:226:GLU:OE2	3:C:229:ARG:NH1	2.42	0.53
4:D:155:THR:HA	4:D:159:LYS:NZ	2.24	0.53
14:U:377:HIS:O	14:U:380:THR:HG22	2.08	0.53
16:W:15:LYS:O	16:W:19:ASP:N	2.38	0.53
17:X:163:LYS:HA	17:X:166:LEU:HD23	1.91	0.53
5:E:262:ASN:ND2	5:E:262:ASN:O	2.41	0.53
9:I:41:ASP:N	9:I:41:ASP:OD1	2.41	0.53
17:X:157:LEU:HG	17:X:166:LEU:HD22	1.91	0.53
17:X:274:LYS:HA	17:X:277:LEU:HD12	1.90	0.53
19:Z:193:ASN:O	19:Z:194:GLN:NE2	2.42	0.53
2:B:85:MET:HG3	2:B:86:LYS:HD3	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:105:THR:CG2	2:B:106:PRO:HD3	2.38	0.53
11:K:236:GLU:OE1	11:K:236:GLU:N	2.42	0.53
14:U:680:VAL:O	14:U:683:VAL:HG12	2.08	0.53
6:F:168:TYR:CD2	6:F:274:LEU:HD12	2.44	0.53
15:V:475:ALA:O	15:V:479:ARG:NH1	2.41	0.53
18:Y:39:ASP:O	18:Y:42:MET:HG3	2.09	0.53
1:A:192:GLU:OE2	1:A:196:LEU:HD12	2.09	0.53
2:B:295:TYR:CE2	3:C:271:ARG:HD2	2.44	0.53
4:D:188:PHE:CZ	4:D:192:LYS:HE2	2.44	0.53
11:K:129:ASP:HB2	11:K:130:PRO:HD2	1.89	0.53
18:Y:204:THR:O	18:Y:216:TYR:OH	2.26	0.53
16:W:281:ASN:OD1	16:W:282:GLU:N	2.41	0.52
17:X:360:ASP:OD1	17:X:360:ASP:N	2.40	0.52
18:Y:281:GLU:HA	18:Y:284:LYS:HZ2	1.73	0.52
9:I:71:ASP:HB3	9:I:223:THR:HG21	1.91	0.52
14:U:816:PRO:HB2	14:U:818:GLU:OE1	2.09	0.52
17:X:422:THR:OXT	19:Z:283:ARG:NH1	2.40	0.52
18:Y:303:ALA:O	18:Y:306:GLN:HB3	2.09	0.52
1:A:100:LYS:HD3	1:A:139:ARG:NH1	2.23	0.52
1:A:331:LEU:O	1:A:337:LEU:HD23	2.09	0.52
6:F:249:LEU:HB2	6:F:283:ILE:HG22	1.91	0.52
14:U:161:ASP:OD1	14:U:162:VAL:N	2.40	0.52
1:A:361:SER:O	1:A:361:SER:OG	2.25	0.52
9:I:232:GLU:O	9:I:235:GLN:NE2	2.38	0.52
3:C:160:GLU:HA	3:C:163:GLU:HG2	1.91	0.52
5:E:291:ARG:HH21	5:E:294:ARG:NH1	2.08	0.52
11:K:42:THR:HG23	11:K:189:MET:HB3	1.91	0.52
18:Y:215:ASP:O	18:Y:218:THR:OG1	2.26	0.52
4:D:263:PHE:CE2	4:D:265:ASP:HB2	2.45	0.52
15:V:439:ALA:HA	15:V:442:ILE:HD12	1.92	0.52
4:D:176:GLU:OE2	4:D:331:ILE:HD13	2.09	0.52
12:L:84:LEU:O	12:L:88:MET:HG2	2.10	0.52
15:V:302:TYR:OH	15:V:397:ARG:NH1	2.40	0.52
18:Y:121:LEU:HG	18:Y:125:ARG:NH1	2.23	0.52
6:F:344:ARG:HH11	6:F:347:ARG:NH1	2.08	0.52
14:U:818:GLU:OE1	14:U:818:GLU:N	2.36	0.52
18:Y:111:LEU:O	18:Y:115:GLY:N	2.36	0.52
1:A:234:ASP:OD1	1:A:235:ALA:N	2.42	0.52
1:A:426:THR:HG22	1:A:427:PRO:HD3	1.91	0.52
3:C:249:ASP:OD1	3:C:249:ASP:N	2.43	0.52
8:H:180:GLU:N	8:H:180:GLU:OE1	2.41	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:57:ARG:HA	10:J:60:ARG:HE	1.75	0.52
16:W:186:ILE:O	16:W:189:GLN:NE2	2.38	0.52
2:B:337:LEU:HD23	2:B:337:LEU:H	1.73	0.52
9:I:82:ASP:O	9:I:86:LEU:HG	2.10	0.52
15:V:480:ILE:HD11	19:Z:261:TYR:HA	1.90	0.52
16:W:235:GLN:OE1	16:W:350:ARG:NH2	2.42	0.52
2:B:387:LYS:HB3	2:B:390:LEU:HB3	1.93	0.51
1:A:81:ALA:HA	1:A:85:GLN:HB3	1.91	0.51
15:V:269:LYS:HD3	15:V:295:ILE:HD11	1.92	0.51
16:W:141:GLU:OE1	16:W:141:GLU:N	2.25	0.51
1:A:312:ARG:HG3	1:A:315:ILE:HB	1.91	0.51
9:I:115:CYS:HB3	10:J:81:ARG:HH22	1.75	0.51
16:W:448:LYS:HE3	19:Z:154:THR:CG2	2.40	0.51
17:X:195:THR:HA	17:X:198:ASN:HD21	1.75	0.51
17:X:348:GLU:OE1	17:X:348:GLU:N	2.41	0.51
4:D:156:SER:OG	4:D:157:ASP:N	2.41	0.51
15:V:415:SER:HB3	18:Y:348:ASP:OD1	2.11	0.51
16:W:169:LEU:O	16:W:173:THR:HG23	2.10	0.51
1:A:384:GLU:OE1	1:A:384:GLU:HA	2.10	0.51
2:B:114:GLU:O	2:B:121:ALA:HB1	2.10	0.51
5:E:242:ARG:NE	5:E:286:ASP:OD2	2.37	0.51
14:U:773:PHE:C	14:U:775:LEU:H	2.14	0.51
14:U:435:SER:O	14:U:437:TYR:N	2.44	0.51
2:B:320:ASP:OD1	2:B:320:ASP:N	2.39	0.51
4:D:323:ARG:HE	4:D:324:PRO:HD2	1.75	0.51
4:D:417:TYR:OH	7:G:26:GLU:OE2	2.21	0.51
9:I:71:ASP:OD1	9:I:71:ASP:N	2.43	0.51
11:K:109:VAL:HG11	11:K:145:GLY:HA3	1.93	0.51
16:W:251:TYR:HE1	16:W:267:LEU:HD21	1.75	0.51
17:X:306:LEU:HD21	17:X:314:ARG:HH12	1.76	0.51
18:Y:40:GLU:O	18:Y:44:ALA:N	2.43	0.51
18:Y:379:ARG:O	18:Y:383:LEU:HG	2.10	0.51
2:B:120:HIS:HB3	2:B:134:SER:HA	1.93	0.51
18:Y:91:ALA:HB1	18:Y:99:GLU:HB2	1.93	0.51
19:Z:130:ASP:OD1	19:Z:131:LEU:N	2.44	0.51
1:A:327:LEU:HD12	1:A:331:LEU:HD22	1.93	0.51
5:E:280:ASN:ND2	5:E:280:ASN:O	2.43	0.51
11:K:87:THR:HB	11:K:91:LYS:NZ	2.25	0.51
17:X:306:LEU:HD11	17:X:314:ARG:HH12	1.76	0.51
18:Y:60:SER:HB3	18:Y:63:TRP:HZ3	1.75	0.51
9:I:124:PHE:HB2	10:J:123:GLY:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Y:131:THR:HG21	18:Y:136:HIS:HB2	1.93	0.51
3:C:196:LYS:N	29:C:501:ADP:O2A	2.44	0.50
12:L:228:ASP:O	12:L:231:PRO:HD2	2.11	0.50
15:V:353:LEU:HD12	15:V:353:LEU:O	2.11	0.50
17:X:415:TYR:HD1	17:X:418:ALA:HB3	1.76	0.50
18:Y:97:GLU:N	18:Y:99:GLU:OE2	2.44	0.50
9:I:174:MET:SD	9:I:196:VAL:HG22	2.51	0.50
18:Y:68:ASP:OD1	18:Y:68:ASP:N	2.40	0.50
1:A:124:ASP:OD1	1:A:124:ASP:N	2.44	0.50
2:B:153:ASN:OD1	2:B:154:HIS:N	2.44	0.50
16:W:216:GLU:OE1	16:W:223:LYS:HE2	2.11	0.50
18:Y:13:LYS:HZ3	18:Y:143:TYR:HD1	1.60	0.50
2:B:335:GLU:OE1	2:B:335:GLU:N	2.36	0.50
3:C:162:LYS:O	3:C:166:GLU:HG2	2.11	0.50
15:V:239:THR:H	15:V:247:GLN:HE21	1.58	0.50
15:V:281:ASN:HB2	15:V:284:GLU:OE1	2.11	0.50
3:C:20:LEU:O	3:C:24:TYR:HB3	2.11	0.50
4:D:361:GLU:HA	4:D:364:VAL:HG22	1.94	0.50
12:L:50:LYS:HG2	12:L:60:GLN:O	2.12	0.50
16:W:335:SER:OG	16:W:336:PRO:HD3	2.12	0.50
3:C:178:LEU:HB3	3:C:180:ILE:HD13	1.94	0.50
15:V:264:TYR:HB2	15:V:266:GLN:HE22	1.75	0.50
18:Y:363:ASN:O	18:Y:367:GLN:HG2	2.12	0.50
19:Z:43:TRP:HB3	19:Z:48:LEU:HA	1.93	0.50
2:B:388:ASP:N	2:B:388:ASP:OD1	2.43	0.50
3:C:381:GLU:HA	3:C:384:GLU:HG3	1.94	0.50
14:U:904:LYS:HE3	14:U:905:PRO:HD2	1.94	0.50
16:W:343:SER:HB2	16:W:346:GLU:HB3	1.93	0.50
18:Y:263:LEU:HB2	18:Y:271:PHE:CE1	2.47	0.50
18:Y:379:ARG:NH1	18:Y:383:LEU:HD21	2.27	0.50
19:Z:165:GLU:HG2	19:Z:167:ALA:H	1.77	0.50
9:I:75:SER:OG	9:I:76:VAL:N	2.45	0.50
18:Y:42:MET:HA	18:Y:45:VAL:HG22	1.93	0.50
2:B:140:ASP:O	2:B:142:ASP:N	2.42	0.50
3:C:340:ARG:HD3	18:Y:207:THR:O	2.12	0.50
4:D:171:ASP:OD1	4:D:172:ILE:N	2.45	0.50
16:W:159:VAL:HG12	16:W:196:VAL:HG22	1.94	0.50
17:X:194:ARG:O	17:X:198:ASN:ND2	2.45	0.50
10:J:183:THR:H	10:J:186:LEU:HD12	1.76	0.49
15:V:169:LEU:CB	15:V:221:LEU:HD11	2.42	0.49
15:V:205:LEU:O	15:V:207:ALA:N	2.41	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:X:239:TYR:CZ	17:X:246:LYS:HD2	2.47	0.49
18:Y:173:ASP:HB3	18:Y:176:ARG:HB2	1.94	0.49
18:Y:179:ARG:HG2	18:Y:208:PHE:CE1	2.47	0.49
2:B:90:GLU:HG3	2:B:92:GLN:HB2	1.94	0.49
6:F:246:ALA:HB1	6:F:280:PRO:O	2.12	0.49
13:M:53:VAL:HG23	13:M:209:PHE:HA	1.93	0.49
16:W:453:HIS:HB3	19:Z:219:LYS:HZ2	1.77	0.49
1:A:292:ASP:OD2	2:B:303:ARG:HD3	2.13	0.49
15:V:424:GLN:N	15:V:424:GLN:OE1	2.44	0.49
17:X:419:LYS:O	17:X:422:THR:HG22	2.11	0.49
3:C:20:LEU:O	3:C:24:TYR:CB	2.60	0.49
4:D:212:LYS:HA	4:D:333:PHE:HE2	1.78	0.49
9:I:68:LEU:HD22	9:I:90:LEU:HD11	1.93	0.49
9:I:115:CYS:HB3	10:J:81:ARG:NH2	2.27	0.49
11:K:123:PHE:HA	11:K:133:MET:HA	1.95	0.49
13:M:201:HIS:O	13:M:201:HIS:CG	2.64	0.49
14:U:164:GLU:OE2	14:U:203:LYS:NZ	2.28	0.49
18:Y:79:ASP:O	18:Y:82:LYS:HG2	2.12	0.49
3:C:23:TYR:CZ	14:U:105:ILE:HD11	2.47	0.49
7:G:210:PHE:CD1	7:G:215:ILE:HD13	2.48	0.49
12:L:122:ARG:HG3	12:L:123:TYR:H	1.77	0.49
14:U:332:GLU:OE1	14:U:332:GLU:N	2.41	0.49
17:X:299:LEU:HD21	17:X:331:LEU:HA	1.95	0.49
1:A:347:ASP:OD1	1:A:347:ASP:N	2.31	0.49
2:B:63:LEU:HB3	2:B:67:ARG:NH1	2.28	0.49
3:C:90:HIS:HB3	3:C:91:PRO:HD3	1.95	0.49
5:E:262:ASN:HD22	5:E:266:GLY:HA3	1.77	0.49
7:G:109:ILE:HD12	7:G:110:PRO:HD2	1.94	0.49
14:U:573:ASP:OD1	14:U:574:LYS:N	2.45	0.49
19:Z:286:GLU:HA	19:Z:289:GLU:OE2	2.13	0.49
5:E:152:PRO:HB3	5:E:159:PHE:CE2	2.47	0.49
7:G:51:VAL:HG22	7:G:217:VAL:HG22	1.95	0.49
15:V:346:LEU:O	15:V:347:GLN:HG2	2.13	0.49
17:X:253:TYR:CE1	17:X:318:ILE:HD11	2.47	0.49
3:C:148:TYR:H	3:C:206:HIS:HE2	1.59	0.49
18:Y:69:LEU:HA	18:Y:72:LYS:HE3	1.95	0.49
1:A:277:ILE:O	1:A:279:ALA:N	2.45	0.49
2:B:196:GLU:OE1	2:B:349:ARG:NH2	2.46	0.49
9:I:166:ASN:OD1	9:I:167:ASN:N	2.46	0.49
1:A:160:THR:O	1:A:163:MET:HG2	2.14	0.48
2:B:93:GLU:O	2:B:97:SER:N	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:114:ASP:OD1	6:F:115:SER:N	2.45	0.48
9:I:74:CYS:HB2	9:I:135:LEU:O	2.13	0.48
13:M:230:ASP:N	13:M:230:ASP:OD1	2.45	0.48
14:U:132:GLY:HA2	14:U:135:ASN:HD21	1.78	0.48
16:W:277:ALA:O	16:W:283:GLN:NE2	2.45	0.48
3:C:330:LYS:O	3:C:334:ARG:NH1	2.40	0.48
5:E:363:VAL:HG22	5:E:364:GLN:H	1.78	0.48
9:I:235:GLN:HA	9:I:238:LYS:HG2	1.95	0.48
14:U:131:GLU:OE2	14:U:159:ARG:NH2	2.44	0.48
14:U:792:ASN:HD21	14:U:798:PRO:HB3	1.78	0.48
16:W:393:LEU:HA	16:W:396:LEU:HD12	1.95	0.48
17:X:218:HIS:NE2	17:X:224:ASP:HB3	2.28	0.48
18:Y:385:ARG:NH2	18:Y:388:ASN:O	2.46	0.48
8:H:119:GLN:O	8:H:122:THR:HG22	2.14	0.48
15:V:296:LYS:HG2	15:V:304:GLU:OE2	2.13	0.48
18:Y:107:LYS:NZ	18:Y:110:TYR:HD2	2.08	0.48
19:Z:283:ARG:HG3	19:Z:284:ASP:N	2.28	0.48
1:A:105:ASP:OD1	1:A:105:ASP:N	2.45	0.48
3:C:104:ASP:OD1	3:C:105:ILE:N	2.46	0.48
3:C:311:ILE:HG21	3:C:314:LYS:HE2	1.96	0.48
15:V:252:ASN:ND2	15:V:287:ARG:HG3	2.29	0.48
16:W:454:ASN:OD1	19:Z:219:LYS:HE3	2.13	0.48
17:X:365:LEU:O	17:X:369:ILE:HG22	2.14	0.48
18:Y:280:GLN:OE1	18:Y:280:GLN:HA	2.13	0.48
1:A:81:ALA:HB3	2:B:137:SER:HB2	1.95	0.48
4:D:98:GLN:H	4:D:98:GLN:HG2	1.48	0.48
6:F:61:ARG:O	6:F:64:HIS:ND1	2.47	0.48
6:F:204:LEU:C	6:F:206:MET:H	2.17	0.48
6:F:226:TYR:CZ	6:F:353:GLU:HB3	2.48	0.48
11:K:51:GLU:OE2	11:K:202:LEU:HD22	2.14	0.48
15:V:277:PRO:O	15:V:278:GLU:HB2	2.13	0.48
17:X:258:LYS:HB3	17:X:267:VAL:HG22	1.95	0.48
18:Y:46:ARG:C	18:Y:48:ASN:H	2.16	0.48
5:E:385:ASP:OD1	5:E:386:TYR:N	2.43	0.48
6:F:402:GLU:O	6:F:406:ILE:HG12	2.13	0.48
7:G:112:ASP:OD1	7:G:113:MET:N	2.47	0.48
7:G:141:ILE:HG22	7:G:151:VAL:HG22	1.96	0.48
1:A:44:GLN:OE1	1:A:47:GLN:NE2	2.46	0.48
6:F:150:LEU:HD23	6:F:164:LEU:HD23	1.96	0.48
14:U:198:LEU:HG	14:U:219:CYS:SG	2.54	0.48
15:V:100:MET:H	15:V:103:SER:CB	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:190:LEU:O	2:B:191:ASP:HB2	2.13	0.48
4:D:249:ASP:OD1	4:D:250:VAL:N	2.46	0.48
11:K:60:GLU:OE1	11:K:63:SER:N	2.47	0.48
14:U:546:ARG:HA	14:U:577:ILE:HD11	1.95	0.48
18:Y:51:ALA:HA	18:Y:54:TYR:CZ	2.49	0.48
2:B:142:ASP:OD1	2:B:143:LEU:N	2.47	0.48
3:C:339:THR:H	3:C:342:ILE:HD11	1.78	0.48
13:M:40:ARG:HD2	13:M:146:ALA:HB3	1.96	0.48
15:V:87:SER:CB	15:V:128:ARG:H	2.27	0.48
16:W:334:GLU:O	16:W:338:THR:N	2.42	0.48
16:W:370:TYR:CD2	16:W:373:ILE:HD12	2.49	0.48
1:A:355:PHE:CE1	1:A:385:ILE:HD12	2.49	0.48
2:B:271:PHE:HD2	2:B:322:ARG:HH12	1.60	0.48
6:F:361:ALA:O	6:F:364:ARG:N	2.46	0.48
10:J:201:SER:OG	10:J:205:ASN:HB2	2.13	0.48
15:V:340:GLY:HA2	15:V:405:THR:OG1	2.14	0.48
15:V:386:PHE:HA	15:V:389:ASP:OD2	2.14	0.48
16:W:216:GLU:OE1	16:W:216:GLU:N	2.44	0.48
18:Y:55:GLU:HG3	18:Y:59:LYS:HG3	1.95	0.48
4:D:161:ASP:HA	4:D:221:HIS:ND1	2.29	0.47
4:D:221:HIS:HD2	4:D:222:HIS:CD2	2.31	0.47
5:E:213:ARG:NH1	5:E:217:GLU:OE2	2.47	0.47
7:G:10:ASP:OD2	7:G:17:SER:HA	2.14	0.47
17:X:167:VAL:HG11	17:X:206:LEU:HD13	1.95	0.47
18:Y:88:LEU:HD22	18:Y:100:ILE:HG23	1.96	0.47
4:D:267:ILE:HG13	4:D:267:ILE:O	2.13	0.47
14:U:529:ILE:O	14:U:533:VAL:HG13	2.14	0.47
18:Y:148:GLY:O	18:Y:152:MET:N	2.47	0.47
18:Y:281:GLU:HA	18:Y:284:LYS:NZ	2.28	0.47
3:C:338:LEU:HB2	3:C:342:ILE:HD11	1.96	0.47
4:D:342:ARG:HG2	4:D:364:VAL:HG11	1.96	0.47
13:M:34:SER:O	13:M:35:THR:OG1	2.20	0.47
13:M:81:LEU:HB3	13:M:85:ARG:NH1	2.29	0.47
17:X:143:TYR:HD1	17:X:180:LEU:HD22	1.79	0.47
17:X:202:CYS:N	17:X:203:PRO:HD3	2.22	0.47
19:Z:85:VAL:HG12	19:Z:85:VAL:O	2.14	0.47
1:A:349:GLU:OE1	1:A:349:GLU:N	2.46	0.47
2:B:115:ILE:HA	2:B:121:ALA:HB1	1.96	0.47
3:C:243:PRO:HB3	3:C:288:ASN:HD21	1.80	0.47
15:V:256:ARG:HD3	15:V:291:TYR:OH	2.15	0.47
15:V:374:LYS:O	15:V:378:VAL:HG23	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:180:LYS:HZ3	27:E:401:ATP:PB	2.36	0.47
14:U:701:ILE:HG21	14:U:810:THR:HG22	1.95	0.47
17:X:258:LYS:HE3	17:X:270:LEU:HD13	1.97	0.47
18:Y:108:ALA:HA	18:Y:111:LEU:HD12	1.95	0.47
1:A:236:CYS:O	1:A:270:CYS:HB2	2.14	0.47
1:A:415:LYS:O	1:A:419:SER:HB3	2.14	0.47
3:C:72:TYR:CE1	3:C:118:ASN:HA	2.48	0.47
4:D:148:ASP:CG	4:D:149:SER:H	2.18	0.47
9:I:135:LEU:HD21	9:I:164:ILE:HD11	1.97	0.47
15:V:243:ASP:HA	15:V:247:GLN:NE2	2.28	0.47
17:X:357:SER:OG	17:X:358:LYS:N	2.48	0.47
18:Y:31:HIS:H	18:Y:31:HIS:CD2	2.31	0.47
18:Y:153:ASP:O	18:Y:157:ILE:HG12	2.14	0.47
1:A:53:GLN:HG3	1:A:57:LYS:NZ	2.30	0.47
2:B:59:ARG:HH11	2:B:63:LEU:HD12	1.80	0.47
2:B:87:PRO:C	2:B:89:GLU:H	2.18	0.47
3:C:118:ASN:OD1	3:C:118:ASN:N	2.47	0.47
7:G:161:CYS:HB3	7:G:163:PHE:HE1	1.80	0.47
13:M:98:PHE:CD2	13:M:106:ILE:HB	2.49	0.47
15:V:269:LYS:HG3	15:V:270:LEU:N	2.30	0.47
18:Y:101:ARG:HH21	18:Y:127:THR:CA	2.28	0.47
18:Y:265:GLU:HB2	18:Y:267:ARG:NE	2.29	0.47
18:Y:275:LEU:HA	18:Y:278:VAL:HG12	1.96	0.47
4:D:176:GLU:HA	4:D:179:GLU:HG2	1.95	0.47
5:E:155:ASN:HB3	5:E:158:LEU:HD13	1.97	0.47
7:G:165:ALA:HB1	7:G:179:LEU:HD13	1.97	0.47
10:J:211:MET:HE3	10:J:217:LEU:HA	1.97	0.47
12:L:64:LEU:HD13	12:L:74:ILE:HD12	1.95	0.47
15:V:284:GLU:OE1	15:V:284:GLU:N	2.46	0.47
17:X:184:PRO:HA	17:X:187:ARG:CZ	2.45	0.47
17:X:268:GLN:O	17:X:272:SER:OG	2.28	0.47
8:H:59:GLU:H	8:H:59:GLU:CD	2.18	0.47
11:K:154:PHE:CE1	11:K:164:GLN:HB2	2.50	0.47
14:U:802:TYR:HE1	14:U:880:ASN:HA	1.80	0.47
17:X:142:ARG:HD3	17:X:145:GLU:OE2	2.14	0.47
18:Y:107:LYS:O	18:Y:111:LEU:HG	2.14	0.47
1:A:99:THR:HG22	1:A:115:VAL:HG12	1.97	0.47
2:B:135:ILE:HG22	2:B:136:LEU:O	2.15	0.47
9:I:38:LEU:HD11	9:I:145:PHE:HB3	1.97	0.47
14:U:227:GLN:OE1	14:U:227:GLN:N	2.48	0.47
14:U:380:THR:HG23	14:U:382:SER:H	1.80	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:V:273:LYS:O	15:V:273:LYS:HG3	2.14	0.47
2:B:265:LYS:HE3	2:B:265:LYS:HB2	1.73	0.46
3:C:373:GLU:HG3	3:C:375:ARG:HG3	1.97	0.46
11:K:133:MET:O	11:K:135:ARG:N	2.47	0.46
12:L:72:ILE:HD11	12:L:85:CYS:SG	2.54	0.46
13:M:228:PRO:HD2	13:M:231:ILE:HD12	1.96	0.46
17:X:299:LEU:HD23	17:X:334:ASN:HD22	1.80	0.46
1:A:98:CYS:SG	2:B:130:GLU:HG2	2.55	0.46
3:C:24:TYR:OH	4:D:41:TYR:HD1	1.99	0.46
11:K:108:THR:HA	11:K:147:ASP:OD2	2.15	0.46
12:L:68:ASN:O	12:L:220:GLU:HG2	2.15	0.46
13:M:99:ARG:NH2	13:M:105:ASN:OD1	2.48	0.46
14:U:254:GLU:OE2	14:U:751:ARG:NH1	2.46	0.46
14:U:818:GLU:O	14:U:818:GLU:HG2	2.15	0.46
18:Y:60:SER:HB3	18:Y:63:TRP:CZ3	2.50	0.46
19:Z:34:ARG:HH21	19:Z:102:HIS:CE1	2.33	0.46
3:C:324:ALA:O	3:C:328:ILE:HG12	2.14	0.46
14:U:9:ILE:HD12	14:U:9:ILE:H	1.81	0.46
14:U:135:ASN:HA	14:U:138:PHE:CD2	2.41	0.46
16:W:263:TRP:HZ2	16:W:295:LYS:HD3	1.79	0.46
16:W:406:VAL:O	17:X:342:PHE:HB2	2.15	0.46
17:X:162:ASP:OD1	17:X:164:ALA:N	2.49	0.46
18:Y:122:THR:HA	18:Y:125:ARG:HH11	1.80	0.46
1:A:394:MET:HA	1:A:397:ILE:HG22	1.98	0.46
2:B:302:GLU:OE1	2:B:302:GLU:N	2.48	0.46
4:D:124:LEU:HD12	4:D:124:LEU:O	2.16	0.46
4:D:263:PHE:HE2	4:D:265:ASP:HB2	1.80	0.46
6:F:146:LYS:N	6:F:149:ASP:OD2	2.39	0.46
6:F:241:ALA:HB2	6:F:248:PHE:CE2	2.50	0.46
10:J:41:VAL:CG2	10:J:211:MET:HB2	2.45	0.46
2:B:82:GLN:O	2:B:86:LYS:N	2.42	0.46
2:B:245:ALA:HB1	2:B:279:PRO:O	2.14	0.46
3:C:142:LYS:HD2	4:D:323:ARG:HG2	1.97	0.46
3:C:357:ALA:O	3:C:360:LYS:HG2	2.16	0.46
11:K:24:VAL:O	11:K:28:ILE:HG12	2.16	0.46
14:U:331:GLY:O	14:U:335:ILE:HG12	2.15	0.46
15:V:281:ASN:O	15:V:283:ASN:N	2.48	0.46
18:Y:48:ASN:O	18:Y:114:ILE:HD12	2.16	0.46
3:C:150:MET:SD	3:C:150:MET:N	2.89	0.46
3:C:157:GLN:HG2	3:C:317:PHE:CE1	2.51	0.46
6:F:336:ASP:OD1	6:F:336:ASP:N	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:97:TYR:CZ	9:I:101:TYR:HD2	2.34	0.46
14:U:49:TYR:CE2	14:U:50:GLU:HG3	2.51	0.46
15:V:223:LYS:NZ	15:V:226:VAL:HB	2.30	0.46
16:W:384:LEU:HD13	16:W:388:GLU:HB3	1.98	0.46
16:W:428:TRP:O	16:W:432:LEU:HD23	2.15	0.46
4:D:212:LYS:HE3	4:D:212:LYS:HB3	3.97	0.46
4:D:307:VAL:HG12	4:D:309:MET:HG3	1.98	0.46
5:E:283:ASP:N	5:E:283:ASP:OD1	2.49	0.46
7:G:58:ASP:OD1	7:G:59:LYS:N	2.47	0.46
15:V:449:ALA:HA	15:V:460:SER:HA	1.96	0.46
16:W:243:ILE:HD12	16:W:273:TYR:CE2	2.50	0.46
16:W:251:TYR:CE1	16:W:267:LEU:HD11	2.50	0.46
2:B:332:ASN:N	2:B:332:ASN:OD1	2.48	0.46
4:D:46:LYS:HB3	4:D:46:LYS:HE2	1.36	0.46
8:H:65:VAL:N	8:H:209:GLU:OE2	2.27	0.46
18:Y:16:ASP:OD1	18:Y:17:LEU:HD12	2.16	0.46
3:C:104:ASP:OD2	3:C:106:ASN:ND2	2.49	0.46
6:F:295:ARG:HA	6:F:307:GLN:NE2	2.31	0.46
11:K:125:GLU:HA	11:K:133:MET:SD	2.56	0.46
15:V:479:ARG:CZ	18:Y:370:ILE:HD11	2.46	0.46
17:X:282:ARG:HA	17:X:285:GLU:OE1	2.15	0.46
17:X:415:TYR:HA	17:X:418:ALA:HB3	1.97	0.46
19:Z:190:ARG:HB3	19:Z:190:ARG:CZ	2.45	0.46
1:A:92:PRO:O	1:A:94:GLN:NE2	2.40	0.46
4:D:116:LEU:HB3	4:D:119:ILE:CD1	2.46	0.45
16:W:170:GLN:HA	16:W:173:THR:HG23	1.98	0.45
18:Y:132:VAL:HA	18:Y:137:ARG:NH2	2.31	0.45
1:A:325:ASP:OD1	1:A:325:ASP:N	2.47	0.45
14:U:160:LEU:HD23	14:U:200:VAL:HG21	1.98	0.45
17:X:157:LEU:HD21	17:X:165:LEU:HB3	1.97	0.45
18:Y:156:LEU:O	18:Y:160:ASN:ND2	2.49	0.45
9:I:38:LEU:O	9:I:179:TYR:OH	2.35	0.45
11:K:181:LEU:HD12	11:K:181:LEU:HA	1.79	0.45
14:U:97:VAL:HA	14:U:100:ILE:HG12	1.97	0.45
15:V:163:VAL:O	15:V:167:LEU:CB	2.65	0.45
17:X:204:PRO:HA	17:X:207:GLN:HE22	1.80	0.45
3:C:26:SER:HA	3:C:29:GLU:HG3	1.99	0.45
3:C:68:GLU:O	4:D:136:SER:OG	2.33	0.45
5:E:69:PHE:CE1	5:E:83:CYS:HB2	2.51	0.45
8:H:105:ILE:HD12	8:H:106:PRO:HD2	1.98	0.45
15:V:281:ASN:C	15:V:283:ASN:N	2.69	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:W:263:TRP:CZ2	16:W:295:LYS:HD3	2.52	0.45
19:Z:122:VAL:HA	19:Z:136:GLU:O	2.16	0.45
2:B:187:ILE:HD13	2:B:234:LEU:HD22	1.99	0.45
3:C:97:VAL:HG21	3:C:121:TYR:O	2.16	0.45
3:C:189:TYR:CZ	3:C:316:GLU:HG2	2.51	0.45
10:J:65:LEU:HD12	10:J:88:ARG:HG3	1.98	0.45
10:J:169:ARG:O	10:J:172:LEU:N	2.49	0.45
12:L:18:ARG:NH1	12:L:23:GLU:OE2	2.49	0.45
17:X:170:GLN:HB3	17:X:193:ALA:HB2	1.99	0.45
18:Y:141:VAL:HG11	18:Y:164:ALA:HB2	1.97	0.45
1:A:252:GLU:OE1	1:A:255:ARG:NH1	2.48	0.45
1:A:279:ALA:HB2	2:B:310:LEU:HD13	1.98	0.45
5:E:124:HIS:ND1	5:E:125:GLU:OE2	2.44	0.45
9:I:28:ILE:HD11	9:I:77:ALA:O	2.16	0.45
15:V:292:THR:HA	15:V:295:ILE:HG12	1.99	0.45
7:G:214:GLU:C	7:G:215:ILE:HD12	2.37	0.45
10:J:201:SER:O	10:J:203:GLY:N	2.46	0.45
14:U:496:LEU:O	14:U:499:THR:HG22	2.16	0.45
16:W:268:LYS:HZ1	16:W:336:PRO:HB2	1.81	0.45
18:Y:42:MET:SD	18:Y:43:ALA:N	2.89	0.45
2:B:371:ARG:HE	2:B:371:ARG:HB2	1.56	0.45
2:B:380:LEU:HD23	2:B:380:LEU:H	1.82	0.45
3:C:81:ASP:OD1	3:C:81:ASP:N	2.45	0.45
5:E:64:LEU:HD12	5:E:70:ILE:HD11	1.97	0.45
6:F:114:ASP:CG	6:F:115:SER:H	2.20	0.45
10:J:184:ASP:O	10:J:188:ILE:HG12	2.17	0.45
1:A:362:MET:SD	2:B:216:ILE:HD11	2.57	0.45
2:B:70:ASP:O	2:B:74:MET:HG2	2.16	0.45
4:D:323:ARG:HG3	4:D:324:PRO:HD2	1.98	0.45
6:F:86:LEU:HA	6:F:88:TYR:CE1	2.52	0.45
14:U:423:MET:HG2	14:U:446:LEU:HD11	1.99	0.45
15:V:406:GLY:O	15:V:409:MET:HG3	2.17	0.45
16:W:134:GLY:C	16:W:136:ILE:H	2.20	0.45
18:Y:175:ASP:OD1	18:Y:176:ARG:N	2.48	0.45
1:A:336:ARG:C	1:A:337:LEU:HD22	2.37	0.45
2:B:278:ALA:HB1	2:B:279:PRO:HD2	1.99	0.45
3:C:46:GLN:HA	4:D:61:ILE:HD11	1.99	0.45
3:C:188:LEU:HD11	3:C:292:ILE:HD11	1.99	0.45
4:D:354:LEU:HD21	4:D:399:PHE:CZ	2.51	0.45
11:K:65:GLU:N	11:K:65:GLU:OE1	2.50	0.45
14:U:16:GLU:HG3	14:U:19:LEU:H	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:W:316:ARG:HE	16:W:316:ARG:HB2	1.54	0.45
18:Y:130:LYS:HG3	18:Y:131:THR:N	2.32	0.45
18:Y:242:LYS:HD2	18:Y:242:LYS:HA	1.77	0.45
2:B:143:LEU:H	2:B:143:LEU:HD23	1.81	0.44
4:D:152:MET:O	4:D:153:MET:HB3	2.17	0.44
5:E:69:PHE:HE1	5:E:83:CYS:HB2	1.83	0.44
5:E:155:ASN:HB3	5:E:158:LEU:CD1	2.47	0.44
12:L:68:ASN:OD1	12:L:69:HIS:N	2.50	0.44
15:V:277:PRO:HB3	15:V:285:TRP:HH2	1.82	0.44
3:C:274:LEU:HD12	3:C:274:LEU:HA	1.83	0.44
4:D:96:VAL:HG23	4:D:97:ASP:H	1.82	0.44
5:E:126:ASP:OD1	5:E:128:GLY:N	2.49	0.44
16:W:409:LEU:HD23	17:X:344:ARG:HH21	1.82	0.44
18:Y:31:HIS:ND1	18:Y:32:ARG:HG2	2.32	0.44
1:A:362:MET:HB3	1:A:364:VAL:HG13	1.98	0.44
2:B:117:ASP:O	2:B:119:ASN:N	2.46	0.44
9:I:11:ILE:HD11	10:J:18:GLN:CD	2.37	0.44
10:J:211:MET:HE3	10:J:217:LEU:HD13	1.98	0.44
16:W:248:ARG:HG3	16:W:270:VAL:HG21	1.99	0.44
16:W:368:LYS:HZ2	16:W:369:TYR:HE1	1.66	0.44
3:C:313:ARG:HD2	3:C:313:ARG:HA	1.80	0.44
10:J:38:ARG:NH2	10:J:181:ILE:O	2.50	0.44
14:U:138:PHE:O	14:U:142:LEU:HG	2.18	0.44
1:A:75:PRO:HA	1:A:78:TRP:CE2	2.53	0.44
4:D:99:ASN:O	4:D:114:ARG:HD3	2.16	0.44
7:G:155:ASP:OD1	7:G:159:TYR:N	2.47	0.44
13:M:240:LYS:HA	13:M:240:LYS:HD3	1.77	0.44
15:V:257:ASN:OD1	15:V:258:TYR:N	2.51	0.44
15:V:358:MET:HB3	15:V:359:PRO:HD3	2.00	0.44
16:W:419:LYS:HB3	16:W:419:LYS:HE3	1.51	0.44
16:W:453:HIS:HD2	19:Z:219:LYS:HD2	1.81	0.44
17:X:192:SER:O	17:X:195:THR:HB	2.18	0.44
17:X:359:ALA:HA	17:X:362:GLU:OE2	2.18	0.44
17:X:386:ILE:HD12	17:X:386:ILE:H	1.83	0.44
2:B:276:GLU:OE1	2:B:277:HIS:ND1	2.50	0.44
4:D:51:LEU:HD12	4:D:51:LEU:HA	1.82	0.44
5:E:216:ARG:HG2	5:E:263:GLN:NE2	2.33	0.44
6:F:189:GLY:H	29:F:501:ADP:N6	2.15	0.44
6:F:438:TYR:CE1	12:L:77:LEU:HB3	2.52	0.44
11:K:235:GLU:OE1	11:K:235:GLU:N	2.29	0.44
15:V:339:LEU:O	15:V:404:LYS:HD2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:X:368:MET:HG3	17:X:374:PHE:HD2	1.82	0.44
18:Y:311:TYR:HD2	18:Y:314:LEU:HD22	1.82	0.44
6:F:438:TYR:HE1	12:L:77:LEU:HB3	1.82	0.44
7:G:161:CYS:HB3	7:G:163:PHE:CE1	2.53	0.44
9:I:198:ASN:HA	9:I:206:LEU:HD21	2.00	0.44
1:A:99:THR:CG2	1:A:115:VAL:HG12	2.48	0.44
4:D:41:TYR:CE2	14:U:183:LEU:HD11	2.53	0.44
7:G:13:ILE:HG22	7:G:14:THR:H	1.83	0.44
8:H:205:GLU:OE1	8:H:223:PRO:HB3	2.18	0.44
14:U:505:ASP:OD1	14:U:506:ALA:N	2.51	0.44
15:V:188:SER:O	15:V:192:MET:N	2.51	0.44
3:C:98:ASP:OD1	3:C:98:ASP:N	2.48	0.44
8:H:4:ARG:HD3	8:H:5:GLY:O	2.18	0.44
8:H:150:ASP:OD1	8:H:151:PRO:HD2	2.17	0.44
9:I:238:LYS:HA	9:I:241:GLU:OE1	2.18	0.44
15:V:238:ALA:C	15:V:240:LEU:H	2.21	0.44
15:V:277:PRO:C	15:V:279:GLN:H	2.21	0.44
16:W:203:GLN:NE2	16:W:204:ILE:HG13	2.33	0.44
17:X:378:LEU:HD12	17:X:379:ASP:H	1.83	0.44
1:A:119:ALA:CB	6:F:127:SER:HB2	2.48	0.43
3:C:151:ILE:CG2	3:C:154:LEU:HB2	2.48	0.43
3:C:191:PRO:HG2	3:C:319:PRO:HG3	2.00	0.43
5:E:250:ASP:OD2	5:E:254:GLN:NE2	2.46	0.43
7:G:182:LYS:HE2	7:G:182:LYS:HB2	1.71	0.43
8:H:44:VAL:HG21	8:H:137:CYS:HB2	1.99	0.43
8:H:105:ILE:HG13	8:H:106:PRO:O	2.18	0.43
9:I:25:MET:HA	9:I:28:ILE:HG22	1.99	0.43
12:L:182:CYS:HB2	12:L:186:GLU:CG	2.48	0.43
13:M:176:ILE:HD13	13:M:196:ILE:HD13	2.00	0.43
16:W:448:LYS:HE2	16:W:448:LYS:HB2	1.61	0.43
4:D:153:MET:SD	4:D:158:GLN:HB3	2.58	0.43
4:D:415:GLU:N	4:D:415:GLU:OE1	2.50	0.43
6:F:204:LEU:O	6:F:206:MET:N	2.52	0.43
9:I:6:ASP:OD1	9:I:7:SER:N	2.48	0.43
16:W:357:ARG:HA	16:W:357:ARG:HD3	1.77	0.43
18:Y:75:LYS:HE2	18:Y:79:ASP:OD1	2.18	0.43
4:D:115:ILE:HD11	4:D:121:ARG:NH2	2.33	0.43
8:H:119:GLN:HG3	9:I:81:SER:HB2	2.00	0.43
11:K:109:VAL:O	11:K:113:THR:OG1	2.25	0.43
15:V:219:GLU:HG2	15:V:224:LEU:HD21	1.99	0.43
18:Y:160:ASN:HA	18:Y:163:LYS:HG2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Y:248:GLU:O	18:Y:251:HIS:HB3	2.18	0.43
18:Y:314:LEU:HD21	18:Y:319:MET:SD	2.58	0.43
3:C:155:ASP:N	3:C:155:ASP:OD1	2.51	0.43
7:G:54:LYS:HD3	7:G:216:GLU:OE2	2.19	0.43
8:H:8:PHE:CE2	9:I:6:ASP:HA	2.53	0.43
12:L:15:PRO:HA	13:M:25:TYR:CD1	2.53	0.43
15:V:429:ASP:OD1	15:V:430:SER:N	2.51	0.43
16:W:252:ASP:HB3	16:W:253:THR:H	1.63	0.43
18:Y:176:ARG:HA	18:Y:179:ARG:HD2	1.99	0.43
2:B:180:PRO:HG2	2:B:240:ALA:HB3	2.00	0.43
9:I:240:HIS:NE2	9:I:244:GLU:OE1	2.50	0.43
10:J:116:GLN:O	10:J:119:THR:OG1	2.35	0.43
12:L:167:SER:O	12:L:170:THR:OG1	2.30	0.43
14:U:898:CYS:SG	14:U:899:ARG:N	2.92	0.43
16:W:423:ASN:O	16:W:426:ASN:HB2	2.18	0.43
16:W:449:GLU:CB	19:Z:222:ILE:HG12	2.46	0.43
17:X:140:THR:O	17:X:142:ARG:NH1	2.52	0.43
5:E:376:ASP:HB2	5:E:379:LYS:HZ1	1.83	0.43
6:F:294:LYS:HB2	6:F:294:LYS:HE3	1.77	0.43
10:J:141:THR:O	10:J:143:ARG:HG2	2.19	0.43
11:K:206:MET:HE2	11:K:206:MET:HB3	1.78	0.43
16:W:173:THR:HG21	16:W:208:LYS:CE	2.49	0.43
16:W:231:ILE:O	16:W:235:GLN:HB2	2.18	0.43
6:F:184:GLN:OE1	6:F:186:SER:N	2.41	0.43
10:J:145:TYR:CE1	10:J:155:ALA:HB2	2.54	0.43
12:L:84:LEU:HD23	12:L:84:LEU:HA	1.83	0.43
16:W:158:ASP:OD2	16:W:161:GLU:HG2	2.19	0.43
18:Y:146:ARG:HD3	18:Y:211:TYR:HE2	1.84	0.43
18:Y:174:TRP:HA	18:Y:177:ARG:HB3	2.01	0.43
1:A:209:PRO:HD3	6:F:405:MET:CE	2.48	0.43
1:A:397:ILE:HD13	1:A:397:ILE:HG21	1.83	0.43
2:B:120:HIS:CB	2:B:134:SER:HA	2.49	0.43
4:D:161:ASP:OD1	4:D:221:HIS:ND1	2.50	0.43
7:G:102:LYS:HD2	7:G:102:LYS:HA	1.84	0.43
11:K:54:ILE:HG23	11:K:59:MET:HG3	2.01	0.43
14:U:641:SER:HB2	14:U:675:MET:CE	2.49	0.43
18:Y:355:GLU:OE1	18:Y:357:ASN:N	2.51	0.43
1:A:59:ILE:HG21	2:B:76:GLU:HB2	2.00	0.43
2:B:95:GLU:HA	2:B:98:LYS:NZ	2.34	0.43
2:B:292:THR:HG23	2:B:293:LYS:HG2	2.01	0.43
3:C:243:PRO:HB3	3:C:288:ASN:ND2	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:154:LEU:HG	4:D:158:GLN:HG2	2.01	0.43
14:U:694:ILE:HG23	14:U:695:MET:HG3	2.01	0.43
14:U:791:LEU:HG	14:U:795:LEU:HA	2.01	0.43
15:V:285:TRP:CD1	15:V:289:LEU:HD13	2.54	0.43
2:B:95:GLU:HA	2:B:98:LYS:HZ3	1.84	0.43
6:F:226:TYR:CE1	6:F:353:GLU:HB3	2.54	0.43
8:H:92:LYS:O	8:H:96:GLN:HG2	2.18	0.43
13:M:229:LYS:HA	13:M:232:ARG:HE	1.83	0.43
17:X:306:LEU:HD11	17:X:314:ARG:NH1	2.34	0.43
17:X:334:ASN:O	17:X:338:VAL:HG23	2.19	0.43
18:Y:175:ASP:OD1	18:Y:175:ASP:N	2.51	0.43
2:B:90:GLU:C	2:B:92:GLN:H	2.21	0.42
3:C:92:GLU:HB3	3:C:93:GLY:H	1.58	0.42
6:F:184:GLN:OE1	6:F:185:TYR:N	2.52	0.42
6:F:210:GLU:OE1	6:F:210:GLU:N	2.40	0.42
9:I:135:LEU:HD11	9:I:164:ILE:HD11	2.00	0.42
14:U:146:LYS:HG3	14:U:149:GLN:OE1	2.18	0.42
18:Y:262:SER:HA	18:Y:267:ARG:HH21	1.84	0.42
1:A:263:MET:O	1:A:266:THR:OG1	2.33	0.42
3:C:155:ASP:O	3:C:158:ILE:HG12	2.19	0.42
5:E:385:ASP:O	5:E:386:TYR:HB2	2.19	0.42
11:K:51:GLU:OE1	11:K:51:GLU:N	2.51	0.42
14:U:656:LEU:HD12	14:U:656:LEU:HA	1.89	0.42
15:V:347:GLN:HG3	15:V:347:GLN:O	2.19	0.42
17:X:297:ARG:NH1	17:X:337:ARG:HB2	2.33	0.42
18:Y:152:MET:N	18:Y:152:MET:SD	2.93	0.42
1:A:341:ILE:HD12	1:A:341:ILE:HG23	1.82	0.42
5:E:29:LEU:HB3	6:F:62:VAL:HG11	2.01	0.42
8:H:26:LEU:HA	8:H:26:LEU:HD23	1.72	0.42
16:W:151:THR:HG23	16:W:161:GLU:HB3	2.01	0.42
17:X:151:SER:O	17:X:155:ARG:NH1	2.53	0.42
17:X:336:ILE:O	17:X:340:GLU:HB2	2.18	0.42
18:Y:55:GLU:OE2	18:Y:58:CYS:HB2	2.19	0.42
1:A:88:GLN:O	1:A:92:PRO:HG2	2.19	0.42
2:B:384:ILE:HG22	2:B:385:MET:SD	2.59	0.42
3:C:276:LEU:HD23	3:C:276:LEU:HA	1.74	0.42
3:C:340:ARG:NH2	18:Y:216:TYR:OH	2.53	0.42
4:D:62:LYS:HE3	4:D:62:LYS:HB2	1.83	0.42
4:D:410:ASP:OD1	4:D:410:ASP:N	2.52	0.42
5:E:291:ARG:HG2	5:E:293:GLY:H	1.83	0.42
7:G:69:LEU:HD22	7:G:79:VAL:HG22	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:117:ARG:O	7:G:121:ILE:HG12	2.20	0.42
7:G:145:GLU:CD	7:G:145:GLU:H	2.23	0.42
8:H:97:TYR:CG	8:H:105:ILE:HD13	2.54	0.42
10:J:156:TRP:CG	10:J:159:ASN:ND2	2.87	0.42
13:M:70:ASP:CG	13:M:71:ARG:H	2.21	0.42
14:U:198:LEU:HD23	14:U:223:LEU:HD22	2.01	0.42
18:Y:104:MET:SD	18:Y:105:MET:N	2.92	0.42
1:A:333:ARG:HG2	1:A:334:PRO:O	2.19	0.42
2:B:109:VAL:HG21	3:C:94:LYS:HB2	2.02	0.42
4:D:157:ASP:OD1	4:D:157:ASP:N	2.38	0.42
8:H:70:LYS:HD2	8:H:71:HIS:HB3	2.01	0.42
9:I:55:LEU:O	9:I:56:LEU:HD22	2.20	0.42
17:X:330:LEU:HA	17:X:330:LEU:HD23	1.77	0.42
2:B:371:ARG:NE	3:C:179:GLY:HA3	2.35	0.42
3:C:178:LEU:HD23	3:C:178:LEU:HA	1.86	0.42
14:U:148:LYS:HA	14:U:151:ILE:HG22	2.01	0.42
14:U:763:VAL:O	14:U:767:THR:HG23	2.19	0.42
15:V:253:LEU:O	15:V:256:ARG:HB3	2.20	0.42
16:W:352:LYS:HA	16:W:352:LYS:HD3	1.84	0.42
17:X:177:TYR:CB	17:X:186:ALA:HB2	2.49	0.42
17:X:185:LYS:HB2	17:X:185:LYS:HE2	1.58	0.42
17:X:395:LYS:HE3	17:X:395:LYS:HB2	1.35	0.42
18:Y:155:ASP:OD1	18:Y:156:LEU:N	2.50	0.42
18:Y:159:ARG:O	18:Y:162:GLU:HG3	2.20	0.42
18:Y:229:ILE:HD11	18:Y:298:GLU:HG2	2.01	0.42
1:A:277:ILE:HD13	1:A:277:ILE:HA	1.86	0.42
2:B:82:GLN:HA	2:B:85:MET:HG2	2.01	0.42
5:E:81:VAL:HG13	5:E:105:LEU:O	2.20	0.42
6:F:202:ILE:HD13	6:F:202:ILE:HA	1.86	0.42
8:H:65:VAL:HG23	8:H:209:GLU:HG2	2.02	0.42
13:M:10:SER:OG	13:M:11:ALA:N	2.52	0.42
13:M:87:LEU:HD23	13:M:87:LEU:HA	1.64	0.42
16:W:170:GLN:HA	16:W:173:THR:CG2	2.49	0.42
16:W:259:GLU:HB2	16:W:262:LYS:HE3	2.01	0.42
17:X:292:GLN:HA	17:X:295:LYS:NZ	2.35	0.42
17:X:409:LYS:HB3	17:X:409:LYS:HE3	1.50	0.42
18:Y:245:GLU:O	18:Y:249:VAL:HG23	2.20	0.42
1:A:364:VAL:HG12	1:A:404:ALA:HB3	2.02	0.42
2:B:63:LEU:HD13	2:B:67:ARG:HH12	1.84	0.42
6:F:169:ASP:OD1	6:F:170:SER:N	2.53	0.42
7:G:48:ALA:HB3	7:G:220:VAL:HG12	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:41:VAL:HG22	10:J:211:MET:HB2	2.02	0.42
10:J:68:ASN:N	10:J:68:ASN:OD1	2.53	0.42
14:U:167:ILE:HA	14:U:176:MET:HE1	2.01	0.42
14:U:340:GLN:O	14:U:344:ARG:HG2	2.19	0.42
16:W:354:LEU:HA	16:W:354:LEU:HD12	1.80	0.42
16:W:370:TYR:CE2	16:W:373:ILE:HD12	2.54	0.42
16:W:435:LEU:HB2	19:Z:236:LEU:CD2	2.50	0.42
18:Y:68:ASP:O	18:Y:72:LYS:HG2	2.20	0.42
1:A:112:ILE:HD13	1:A:122:VAL:HG22	2.02	0.42
3:C:136:SER:HA	3:C:139:MET:HG3	2.02	0.42
4:D:201:GLY:HA3	4:D:327:LEU:HD13	2.02	0.42
7:G:72:ILE:HG22	7:G:73:THR:OG1	2.20	0.42
11:K:87:THR:HB	11:K:91:LYS:HZ1	1.85	0.42
12:L:41:LYS:HD2	12:L:180:MET:HA	2.02	0.42
12:L:111:LEU:HA	12:L:111:LEU:HD23	1.76	0.42
12:L:192:LEU:HD13	12:L:192:LEU:HA	1.87	0.42
15:V:331:LEU:HA	15:V:334:VAL:HG12	2.02	0.42
18:Y:367:GLN:O	18:Y:370:ILE:HG22	2.19	0.42
3:C:59:LEU:HD13	4:D:72:PHE:HE1	1.83	0.42
7:G:67:THR:HG22	7:G:69:LEU:N	2.35	0.42
9:I:61:PHE:CZ	9:I:227:VAL:HB	2.55	0.42
12:L:202:GLU:N	12:L:202:GLU:OE1	2.52	0.42
1:A:344:SER:OG	1:A:345:LEU:N	2.53	0.41
2:B:103:ARG:HB2	2:B:107:MET:CE	2.49	0.41
3:C:306:LEU:HD23	3:C:306:LEU:HA	1.82	0.41
10:J:36:ARG:HA	10:J:41:VAL:HG12	2.01	0.41
10:J:211:MET:CE	10:J:217:LEU:HA	2.50	0.41
11:K:69:GLU:HB3	11:K:226:PHE:CD2	2.55	0.41
11:K:224:GLN:OE1	11:K:224:GLN:N	2.51	0.41
12:L:49:LEU:HD21	12:L:199:LEU:HD21	2.02	0.41
12:L:103:LEU:HD12	12:L:104:PRO:HD2	2.01	0.41
16:W:333:LEU:N	16:W:334:GLU:OE1	2.52	0.41
17:X:365:LEU:HG	17:X:385:LEU:HD21	2.02	0.41
18:Y:241:ILE:HD11	18:Y:261:PHE:CE1	2.47	0.41
19:Z:32:GLN:H	19:Z:32:GLN:HG2	1.62	0.41
1:A:312:ARG:HG2	1:A:313:GLY:N	2.34	0.41
2:B:371:ARG:CZ	3:C:179:GLY:HA3	2.49	0.41
8:H:42:ASN:HD21	8:H:184:LEU:H	1.68	0.41
16:W:282:GLU:HG2	16:W:283:GLN:H	1.84	0.41
18:Y:18:ARG:HD2	18:Y:18:ARG:HA	1.69	0.41
19:Z:14:LEU:HD12	19:Z:14:LEU:HA	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:58:LYS:O	1:A:62:LEU:HD23	2.20	0.41
2:B:63:LEU:HD23	2:B:63:LEU:HA	1.88	0.41
5:E:378:LYS:HE3	5:E:378:LYS:HB2	1.92	0.41
7:G:130:GLU:OE1	7:G:130:GLU:N	2.53	0.41
7:G:155:ASP:OD2	7:G:159:TYR:HB3	2.20	0.41
9:I:176:LYS:HD3	10:J:52:LYS:HE3	2.02	0.41
11:K:88:LEU:HD23	11:K:88:LEU:HA	1.85	0.41
12:L:200:PRO:HB2	12:L:202:GLU:OE1	2.19	0.41
15:V:384:GLU:HG2	15:V:385:LYS:N	2.36	0.41
16:W:147:LYS:O	16:W:151:THR:HG22	2.20	0.41
17:X:205:LYS:HB2	17:X:205:LYS:HE3	1.33	0.41
18:Y:84:LEU:O	18:Y:88:LEU:HG	2.20	0.41
1:A:76:ALA:HA	1:A:79:ASP:OD2	2.21	0.41
4:D:168:GLY:H	27:D:501:ATP:HN61	1.67	0.41
14:U:472:ILE:HD13	14:U:472:ILE:HG21	1.81	0.41
15:V:225:ASP:O	15:V:228:ARG:N	2.52	0.41
15:V:237:THR:O	15:V:241:ARG:NH2	2.53	0.41
15:V:496:PHE:N	15:V:497:PRO:CD	2.83	0.41
17:X:236:PHE:HB2	17:X:250:SER:OG	2.21	0.41
1:A:301:GLU:OE2	1:A:305:GLN:HG2	2.21	0.41
9:I:38:LEU:HB2	9:I:43:VAL:HG23	2.02	0.41
9:I:238:LYS:O	9:I:242:GLU:HG2	2.21	0.41
13:M:210:GLU:HG2	13:M:211:LEU:H	1.84	0.41
16:W:152:ILE:HG23	16:W:157:GLY:HA2	2.02	0.41
16:W:227:TYR:HD1	16:W:227:TYR:HA	1.78	0.41
16:W:456:GLN:OE1	16:W:456:GLN:N	2.53	0.41
2:B:64:LYS:CG	2:B:67:ARG:HH21	2.33	0.41
4:D:200:ARG:HH22	4:D:301:GLN:H	1.66	0.41
14:U:800:VAL:HG22	14:U:801:GLN:N	2.35	0.41
16:W:251:TYR:CE1	16:W:267:LEU:HD21	2.54	0.41
16:W:316:ARG:O	16:W:317:TRP:HB3	2.20	0.41
17:X:202:CYS:N	17:X:203:PRO:CD	2.84	0.41
18:Y:30:GLU:H	18:Y:30:GLU:CD	2.22	0.41
18:Y:286:TRP:O	18:Y:287:LEU:HG	2.21	0.41
18:Y:362:LYS:HD2	18:Y:362:LYS:HA	1.81	0.41
1:A:184:ILE:HD13	1:A:184:ILE:HA	1.74	0.41
1:A:297:ARG:HH12	6:F:306:VAL:HG21	1.86	0.41
2:B:102:LEU:HD13	2:B:102:LEU:HA	1.82	0.41
2:B:319:PHE:CG	2:B:319:PHE:O	2.73	0.41
3:C:163:GLU:HA	3:C:167:LEU:HD13	2.02	0.41
4:D:45:LYS:HA	4:D:45:LYS:HD2	1.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:70:ASP:OD2	13:M:71:ARG:N	2.51	0.41
15:V:224:LEU:O	15:V:227:VAL:HB	2.21	0.41
16:W:188:GLU:O	16:W:191:ARG:HG2	2.21	0.41
2:B:205:LEU:HD23	2:B:205:LEU:HA	1.88	0.41
3:C:188:LEU:O	3:C:294:ALA:HA	2.21	0.41
5:E:282:PRO:HA	5:E:285:LEU:HD23	2.02	0.41
9:I:150:SER:OG	9:I:151:ASP:N	2.54	0.41
11:K:191:LEU:HD12	11:K:191:LEU:HA	1.85	0.41
16:W:346:GLU:OE2	16:W:350:ARG:NE	2.53	0.41
17:X:122:ARG:HE	17:X:122:ARG:HB2	1.76	0.41
17:X:397:TYR:HD1	17:X:397:TYR:HA	1.72	0.41
18:Y:13:LYS:CE	18:Y:146:ARG:HB3	2.50	0.41
18:Y:83:ARG:HA	18:Y:86:GLU:OE1	2.20	0.41
2:B:56:THR:HG23	2:B:58:CYS:H	1.86	0.41
4:D:215:LEU:HA	4:D:215:LEU:HD23	1.86	0.41
4:D:337:ASP:OD1	4:D:338:ARG:N	2.46	0.41
5:E:145:LEU:O	5:E:148:VAL:HG12	2.20	0.41
6:F:78:GLU:O	6:F:82:VAL:HG13	2.21	0.41
9:I:2:SER:N	12:L:123:TYR:HH	2.18	0.41
10:J:63:CYS:SG	10:J:64:ALA:N	2.93	0.41
11:K:189:MET:CE	11:K:193:GLU:HG3	2.51	0.41
16:W:162:ALA:HA	16:W:192:LEU:HD23	2.01	0.41
16:W:438:LEU:HD12	16:W:438:LEU:HA	1.76	0.41
18:Y:45:VAL:HG23	18:Y:46:ARG:HD3	2.03	0.41
18:Y:241:ILE:HD12	18:Y:241:ILE:HA	1.95	0.41
18:Y:311:TYR:CD2	18:Y:314:LEU:HD22	2.56	0.41
2:B:80:ARG:CG	2:B:84:GLN:HE22	2.31	0.41
4:D:284:GLU:O	4:D:288:ILE:HG13	2.21	0.41
10:J:71:MET:HE2	10:J:71:MET:HB2	1.91	0.41
11:K:199:LEU:HD21	11:K:217:LEU:HD21	2.03	0.41
13:M:60:GLU:H	13:M:60:GLU:CD	2.24	0.41
14:U:132:GLY:HA2	14:U:135:ASN:ND2	2.35	0.41
14:U:727:LYS:O	14:U:731:ILE:HG22	2.19	0.41
1:A:53:GLN:HG3	1:A:57:LYS:HZ1	1.86	0.40
1:A:78:TRP:CG	2:B:138:PHE:HB3	2.56	0.40
1:A:233:THR:OG1	1:A:234:ASP:N	2.54	0.40
4:D:156:SER:OG	4:D:157:ASP:OD1	2.38	0.40
4:D:355:SER:OG	4:D:356:GLU:N	2.52	0.40
5:E:309:ARG:NE	5:E:335:SER:O	2.54	0.40
6:F:435:LEU:HD22	6:F:435:LEU:HA	1.88	0.40
8:H:67:PRO:HB3	8:H:218:PHE:CE2	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:121:LEU:HD12	12:L:79:ALA:HB3	2.03	0.40
13:M:42:LYS:HE2	13:M:183:GLU:O	2.20	0.40
14:U:34:PHE:O	14:U:38:ILE:HG12	2.21	0.40
15:V:264:TYR:CD2	15:V:265:ASP:N	2.89	0.40
15:V:471:GLU:N	15:V:472:PRO:HD2	2.36	0.40
19:Z:219:LYS:HD3	19:Z:220:LEU:N	2.33	0.40
1:A:74:PRO:HA	1:A:75:PRO:HD3	1.96	0.40
2:B:216:ILE:HD13	2:B:216:ILE:HA	1.72	0.40
3:C:116:LEU:HD23	3:C:117:ARG:O	2.21	0.40
6:F:251:LEU:HD12	6:F:252:ALA:H	1.86	0.40
14:U:43:ASP:O	14:U:47:VAL:HG23	2.20	0.40
14:U:330:SER:OG	14:U:332:GLU:OE1	2.33	0.40
14:U:333:MET:HA	14:U:336:GLU:OE2	2.21	0.40
14:U:803:LYS:C	14:U:893:THR:HB	2.41	0.40
15:V:307:ARG:HG3	15:V:308:THR:N	2.36	0.40
16:W:225:LYS:O	16:W:229:LEU:HG	2.21	0.40
17:X:137:TYR:O	17:X:140:THR:OG1	2.31	0.40
18:Y:204:THR:HG22	18:Y:219:PHE:HE2	1.85	0.40
1:A:222:LYS:H	1:A:222:LYS:HG2	1.71	0.40
2:B:170:LEU:HD12	2:B:173:VAL:HG21	2.02	0.40
6:F:114:ASP:OD1	6:F:114:ASP:N	2.55	0.40
11:K:85:ALA:O	11:K:89:ILE:HG12	2.21	0.40
11:K:236:GLU:HA	11:K:239:LYS:NZ	2.36	0.40
13:M:120:HIS:O	13:M:123:THR:HG22	2.22	0.40
15:V:343:PRO:O	15:V:344:ASP:HB2	2.22	0.40
16:W:345:GLU:H	16:W:345:GLU:CD	2.23	0.40
16:W:442:THR:HA	19:Z:229:GLN:OE1	2.21	0.40
17:X:132:ARG:HA	17:X:132:ARG:HE	1.86	0.40
18:Y:70:LEU:HB3	18:Y:74:LYS:NZ	2.35	0.40
3:C:83:LYS:HA	3:C:105:ILE:HD11	2.03	0.40
7:G:216:GLU:N	7:G:216:GLU:OE1	2.54	0.40
12:L:49:LEU:HD12	12:L:209:ASN:O	2.21	0.40
13:M:241:GLU:O	13:M:244:LYS:HG2	2.20	0.40
14:U:23:ALA:O	14:U:26:LYS:HG2	2.22	0.40
15:V:415:SER:O	15:V:459:GLN:HA	2.22	0.40
17:X:162:ASP:O	17:X:163:LYS:HD3	2.22	0.40
18:Y:155:ASP:OD1	18:Y:155:ASP:N	2.54	0.40
2:B:94:GLU:HG3	2:B:98:LYS:NZ	2.36	0.40
3:C:71:SER:OG	4:D:112:TYR:HD2	2.04	0.40
4:D:152:MET:HE1	4:D:226:ALA:HB1	2.03	0.40
7:G:224:ASN:N	7:G:224:ASN:OD1	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:J:51:ALA:O	10:J:52:LYS:HG3	2.21	0.40
10:J:170:GLU:HA	10:J:173:GLU:OE2	2.21	0.40
10:J:183:THR:N	10:J:186:LEU:HD12	2.36	0.40
12:L:195:LEU:O	12:L:198:THR:HG22	2.22	0.40
13:M:175:GLU:N	13:M:175:GLU:OE1	2.55	0.40
14:U:263:SER:O	14:U:266:GLN:HG3	2.22	0.40
15:V:337:LEU:HA	15:V:337:LEU:HD13	1.89	0.40
17:X:132:ARG:HA	17:X:132:ARG:NE	2.37	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	392/433 (90%)	337 (86%)	51 (13%)	4 (1%)	13	44
2	B	382/440 (87%)	337 (88%)	42 (11%)	3 (1%)	16	49
3	C	361/406 (89%)	328 (91%)	32 (9%)	1 (0%)	37	69
4	D	378/418 (90%)	335 (89%)	41 (11%)	2 (0%)	25	58
5	E	373/389 (96%)	342 (92%)	31 (8%)	0	100	100
6	F	393/439 (90%)	358 (91%)	32 (8%)	3 (1%)	16	49
7	G	238/246 (97%)	224 (94%)	14 (6%)	0	100	100
8	H	230/234 (98%)	216 (94%)	14 (6%)	0	100	100
9	I	248/261 (95%)	227 (92%)	21 (8%)	0	100	100
10	J	237/248 (96%)	217 (92%)	19 (8%)	1 (0%)	30	63
11	K	232/241 (96%)	210 (90%)	19 (8%)	3 (1%)	10	39
12	L	236/263 (90%)	214 (91%)	22 (9%)	0	100	100
13	M	238/255 (93%)	219 (92%)	19 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
14	U	809/953 (85%)	750 (93%)	59 (7%)	0	100	100
15	V	489/534 (92%)	423 (86%)	65 (13%)	1 (0%)	44	74
16	W	454/456 (100%)	412 (91%)	40 (9%)	2 (0%)	30	63
17	X	378/422 (90%)	342 (90%)	33 (9%)	3 (1%)	16	49
18	Y	376/389 (97%)	337 (90%)	39 (10%)	0	100	100
19	Z	284/324 (88%)	260 (92%)	24 (8%)	0	100	100
20	d	255/350 (73%)	208 (82%)	46 (18%)	1 (0%)	30	63
21	e	45/70 (64%)	32 (71%)	13 (29%)	0	100	100
22	f	876/908 (96%)	727 (83%)	141 (16%)	8 (1%)	14	45
23	a	371/376 (99%)	343 (92%)	27 (7%)	1 (0%)	37	69
24	b	189/377 (50%)	164 (87%)	24 (13%)	1 (0%)	25	58
25	c	285/310 (92%)	256 (90%)	29 (10%)	0	100	100
26	u	74/81 (91%)	73 (99%)	1 (1%)	0	100	100
26	v	74/81 (91%)	73 (99%)	1 (1%)	0	100	100
26	w	74/81 (91%)	70 (95%)	4 (5%)	0	100	100
26	x	74/81 (91%)	71 (96%)	3 (4%)	0	100	100
All	All	9045/10066 (90%)	8105 (90%)	906 (10%)	34 (0%)	32	63

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	K	128	ALA
15	V	344	ASP
20	d	33	LEU
22	f	344	VAL
22	f	353	LEU
22	f	356	ASN
22	f	787	LEU
22	f	838	ARG
22	f	842	VAL
24	b	24	THR
2	B	181	GLN
6	F	280	PRO
4	D	367	PRO
4	D	368	ASP
11	K	133	MET

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Mol	Chain	Res	Type
17	X	188	ALA
17	X	199	ALA
22	f	335	ARG
22	f	841	PRO
23	a	16	PRO
1	A	309	PHE
1	A	399	ALA
10	J	27	LYS
16	W	312	MET
17	X	202	CYS
2	B	370	SER
2	B	169	PRO
3	C	91	PRO
1	A	378	PRO
11	K	129	ASP
6	F	87	PRO
16	W	418	PRO
1	A	157	ILE
6	F	205	PRO

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	337/372 (91%)	330 (98%)	7 (2%)	48	66
2	B	334/385 (87%)	323 (97%)	11 (3%)	33	56
3	C	311/352 (88%)	296 (95%)	15 (5%)	21	46
4	D	333/366 (91%)	318 (96%)	15 (4%)	23	47
5	E	329/341 (96%)	321 (98%)	8 (2%)	44	62
6	F	339/379 (89%)	331 (98%)	8 (2%)	44	62
7	G	193/210 (92%)	193 (100%)	0	100	100
8	H	164/191 (86%)	162 (99%)	2 (1%)	67	77
9	I	193/221 (87%)	192 (100%)	1 (0%)	86	90

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
10	J	154/211 (73%)	148 (96%)	6 (4%)	27	51
11	K	189/203 (93%)	185 (98%)	4 (2%)	48	66
12	L	198/224 (88%)	195 (98%)	3 (2%)	60	74
13	M	192/212 (91%)	191 (100%)	1 (0%)	86	90
14	U	695/816 (85%)	677 (97%)	18 (3%)	41	61
15	V	236/460 (51%)	231 (98%)	5 (2%)	48	66
16	W	291/416 (70%)	280 (96%)	11 (4%)	28	52
17	X	262/362 (72%)	244 (93%)	18 (7%)	13	37
18	Y	334/344 (97%)	326 (98%)	8 (2%)	44	62
19	Z	257/295 (87%)	253 (98%)	4 (2%)	58	73
20	d	212/294 (72%)	198 (93%)	14 (7%)	14	38
21	e	12/63 (19%)	11 (92%)	1 (8%)	9	32
23	a	333/336 (99%)	323 (97%)	10 (3%)	36	58
24	b	167/312 (54%)	164 (98%)	3 (2%)	54	71
25	c	252/268 (94%)	244 (97%)	8 (3%)	34	56
26	u	68/70 (97%)	67 (98%)	1 (2%)	60	74
26	v	68/70 (97%)	68 (100%)	0	100	100
26	w	68/70 (97%)	66 (97%)	2 (3%)	37	58
26	x	68/70 (97%)	67 (98%)	1 (2%)	60	74
All	All	6589/7913 (83%)	6404 (97%)	185 (3%)	40	59

All (185) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	110	LYS
1	A	150	HIS
1	A	157	ILE
1	A	160	THR
1	A	297	ARG
1	A	312	ARG
1	A	426	THR
2	B	177	GLU
2	B	178	LYS
2	B	181	GLN
2	B	186	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	B	187	ILE
2	B	192	ASN
2	B	193	GLN
2	B	314	ASN
2	B	315	GLN
2	B	317	ASP
2	B	371	ARG
3	C	33	LEU
3	C	39	SER
3	C	92	GLU
3	C	125	LYS
3	C	126	ILE
3	C	134	LEU
3	C	136	SER
3	C	180	ILE
3	C	229	ARG
3	C	239	ARG
3	C	250	GLU
3	C	251	ILE
3	C	293	MET
3	C	372	ARG
3	C	383	PHE
4	D	46	LYS
4	D	47	LEU
4	D	54	LEU
4	D	56	VAL
4	D	60	TYR
4	D	96	VAL
4	D	98	GLN
4	D	99	ASN
4	D	100	THR
4	D	352	MET
4	D	353	ASN
4	D	354	LEU
4	D	358	VAL
4	D	360	LEU
4	D	368	ASP
5	E	35	GLU
5	E	134	GLU
5	E	190	GLN
5	E	223	ARG
5	E	242	ARG

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
5	E	262	ASN
5	E	275	MET
5	E	310	LEU
6	F	69	MET
6	F	215	LEU
6	F	277	GLU
6	F	278	LYS
6	F	281	SER
6	F	282	ILE
6	F	320	PHE
6	F	435	LEU
8	H	39	LYS
8	H	70	LYS
9	I	67	LYS
10	J	52	LYS
10	J	96	LEU
10	J	98	VAL
10	J	100	ASP
10	J	118	TYR
10	J	147	THR
11	K	10	ARG
11	K	21	LEU
11	K	129	ASP
11	K	133	MET
12	L	207	THR
12	L	226	ASP
12	L	227	ASP
13	M	41	CYS
14	U	69	TYR
14	U	118	LEU
14	U	179	TYR
14	U	194	ARG
14	U	203	LYS
14	U	259	GLN
14	U	333	MET
14	U	345	ASN
14	U	387	ARG
14	U	388	ASP
14	U	415	HIS
14	U	423	MET
14	U	527	GLN
14	U	603	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
14	U	609	ASP
14	U	612	ASP
14	U	666	LYS
14	U	755	THR
15	V	210	CYS
15	V	220	PHE
15	V	223	LYS
15	V	283	ASN
15	V	497	PRO
16	W	251	TYR
16	W	262	LYS
16	W	273	TYR
16	W	313	GLU
16	W	314	LEU
16	W	315	MET
16	W	316	ARG
16	W	341	PHE
16	W	351	TRP
16	W	412	ILE
16	W	419	LYS
17	X	155	ARG
17	X	182	ASN
17	X	190	LEU
17	X	191	THR
17	X	192	SER
17	X	194	ARG
17	X	196	THR
17	X	200	ILE
17	X	205	LYS
17	X	374	PHE
17	X	390	GLU
17	X	394	ASP
17	X	395	LYS
17	X	396	THR
17	X	397	TYR
17	X	398	GLU
17	X	408	SER
17	X	409	LYS
18	Y	50	MET
18	Y	232	GLU
18	Y	233	ARG
18	Y	242	LYS

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
18	Y	246	ILE
18	Y	247	LEU
18	Y	248	GLU
18	Y	267	ARG
19	Z	43	TRP
19	Z	237	LEU
19	Z	257	MET
19	Z	288	LYS
20	d	11	ARG
20	d	12	LYS
20	d	33	LEU
20	d	34	ASN
20	d	36	LEU
20	d	66	LYS
20	d	67	ASP
20	d	70	SER
20	d	73	ARG
20	d	84	ASP
20	d	89	LEU
20	d	92	SER
20	d	96	HIS
20	d	97	GLN
21	e	3	GLU
23	a	9	GLN
23	a	61	GLU
23	a	63	PHE
23	a	64	ILE
23	a	89	ASP
23	a	96	PHE
23	a	106	SER
23	a	108	ASP
23	a	113	LEU
23	a	341	LEU
24	b	107	MET
24	b	133	LYS
24	b	181	ASP
25	c	26	ASP
25	c	43	LYS
25	c	196	LEU
25	c	198	ARG
25	c	204	THR
25	c	254	ASN

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Mol	Chain	Res	Type
25	c	303	MET
25	c	308	VAL
26	u	7	THR
26	x	52	ASP
26	w	4	PHE
26	w	31	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	47	GLN
1	A	85	GLN
1	A	88	GLN
2	B	84	GLN
4	D	65	GLN
4	D	222	HIS
6	F	307	GLN
15	V	266	GLN
15	V	299	GLN
15	V	387	GLN
17	X	198	ASN
20	d	252	GLN
24	b	12	ASN
26	w	41	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

### 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry

Of 11 ligands modelled in this entry, 5 are monoatomic - leaving 6 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
27	ATP	E	401	28	28,33,33	1.85	2 (7%)	34,52,52	1.04	2 (5%)
27	ATP	D	501	28	28,33,33	1.66	2 (7%)	34,52,52	0.80	1 (2%)
27	ATP	B	501	28	28,33,33	1.56	2 (7%)	34,52,52	0.72	1 (2%)
27	ATP	A	501	28	28,33,33	1.45	2 (7%)	34,52,52	0.71	1 (2%)
29	ADP	C	501	-	24,29,29	0.84	0	29,45,45	1.28	3 (10%)
29	ADP	F	501	28	24,29,29	0.94	0	29,45,45	1.50	5 (17%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
27	ATP	E	401	28	-	7/18/38/38	0/3/3/3
27	ATP	D	501	28	-	3/18/38/38	0/3/3/3
27	ATP	B	501	28	-	4/18/38/38	0/3/3/3
27	ATP	A	501	28	-	6/18/38/38	0/3/3/3
29	ADP	C	501	-	-	2/12/32/32	0/3/3/3
29	ADP	F	501	28	-	3/12/32/32	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
27	E	401	ATP	PA-O3A	-8.26	1.50	1.59
27	B	501	ATP	PB-O3B	-6.30	1.52	1.59
27	D	501	ATP	PB-O3B	-6.04	1.53	1.59
27	D	501	ATP	PA-O3A	-4.68	1.54	1.59
27	A	501	ATP	PB-O3B	-4.58	1.54	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
27	A	501	ATP	PA-O3A	-4.30	1.54	1.59
27	B	501	ATP	PA-O3A	-3.45	1.55	1.59
27	E	401	ATP	PB-O3B	-2.72	1.56	1.59

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
29	F	501	ADP	N3-C2-N1	-3.68	123.67	128.67
27	E	401	ATP	C4'-O4'-C1'	-3.64	106.60	109.92
29	F	501	ADP	O4'-C1'-N9	3.55	113.45	108.75
29	C	501	ADP	N3-C2-N1	-3.21	124.32	128.67
29	C	501	ADP	C4-C5-N7	-2.94	106.23	109.34
29	F	501	ADP	O3B-PB-O2B	2.73	118.03	107.80
29	F	501	ADP	O3'-C3'-C2'	-2.44	103.98	111.82
27	B	501	ATP	C5-C6-N6	2.38	123.94	120.31
27	A	501	ATP	C5-C6-N6	2.37	123.92	120.31
27	D	501	ATP	C5-C6-N6	2.29	123.80	120.31
27	E	401	ATP	C5-C6-N6	2.16	123.60	120.31
29	C	501	ADP	C4'-O4'-C1'	2.11	111.86	109.92
29	F	501	ADP	O3A-PA-O1A	-2.09	104.42	110.70

There are no chirality outliers.

All (25) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
27	A	501	ATP	C5'-O5'-PA-O1A
27	A	501	ATP	C5'-O5'-PA-O3A
27	E	401	ATP	PB-O3B-PG-O2G
27	E	401	ATP	C5'-O5'-PA-O1A
27	E	401	ATP	C5'-O5'-PA-O2A
27	E	401	ATP	C5'-O5'-PA-O3A
27	E	401	ATP	O4'-C4'-C5'-O5'
27	E	401	ATP	C3'-C4'-C5'-O5'
29	F	501	ADP	C5'-O5'-PA-O1A
29	F	501	ADP	O4'-C4'-C5'-O5'
29	F	501	ADP	C3'-C4'-C5'-O5'
27	A	501	ATP	O4'-C4'-C5'-O5'
27	B	501	ATP	PB-O3A-PA-O1A
29	C	501	ADP	PB-O3A-PA-O1A
27	A	501	ATP	C5'-O5'-PA-O2A
27	D	501	ATP	C5'-O5'-PA-O3A
29	C	501	ADP	C5'-O5'-PA-O1A

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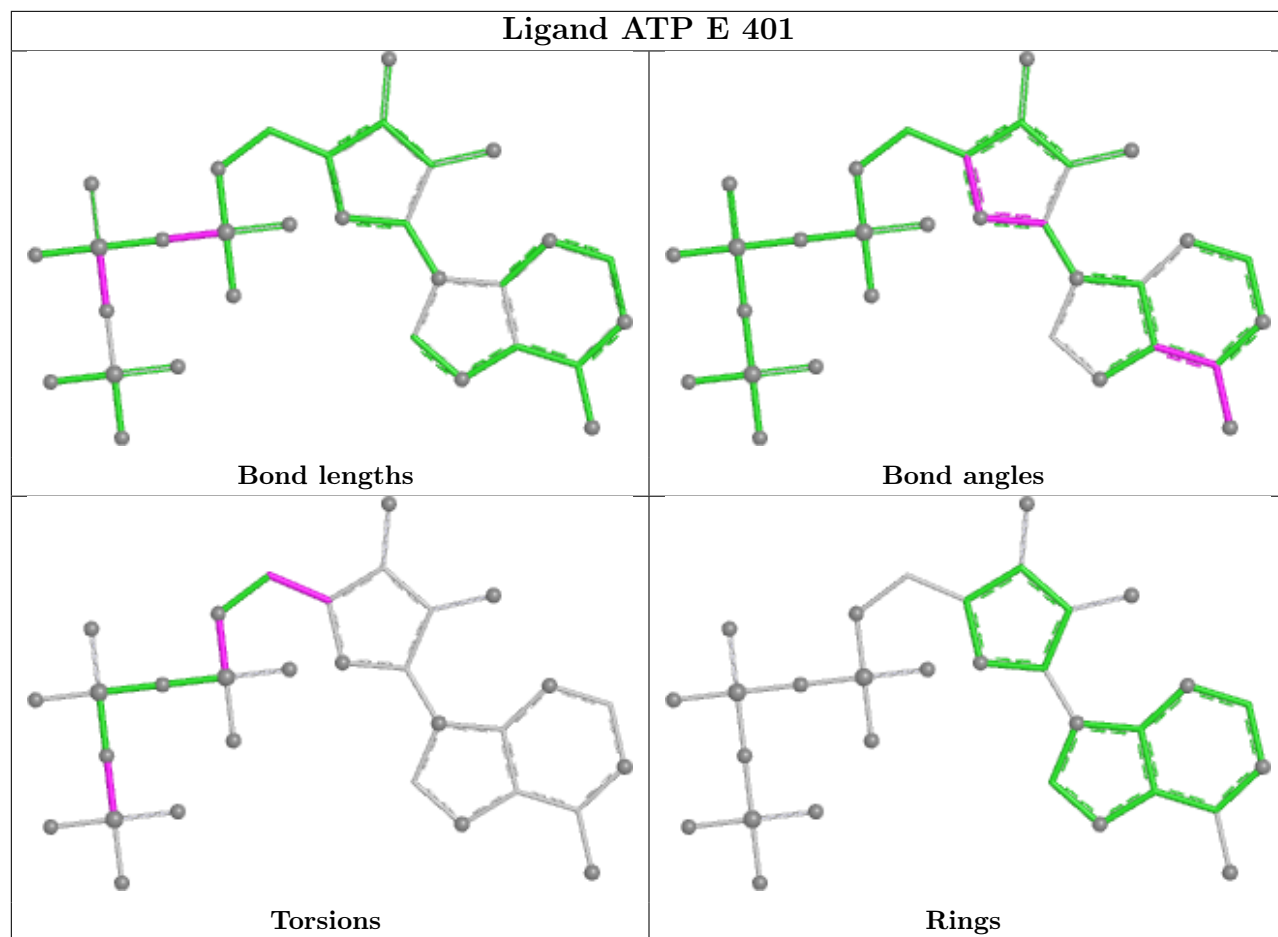
Mol	Chain	Res	Type	Atoms
27	B	501	ATP	O4'-C4'-C5'-O5'
27	B	501	ATP	C3'-C4'-C5'-O5'
27	A	501	ATP	C3'-C4'-C5'-O5'
27	D	501	ATP	PG-O3B-PB-O1B
27	E	401	ATP	PB-O3B-PG-O3G
27	A	501	ATP	PG-O3B-PB-O2B
27	B	501	ATP	PB-O3A-PA-O2A
27	D	501	ATP	PG-O3B-PB-O2B

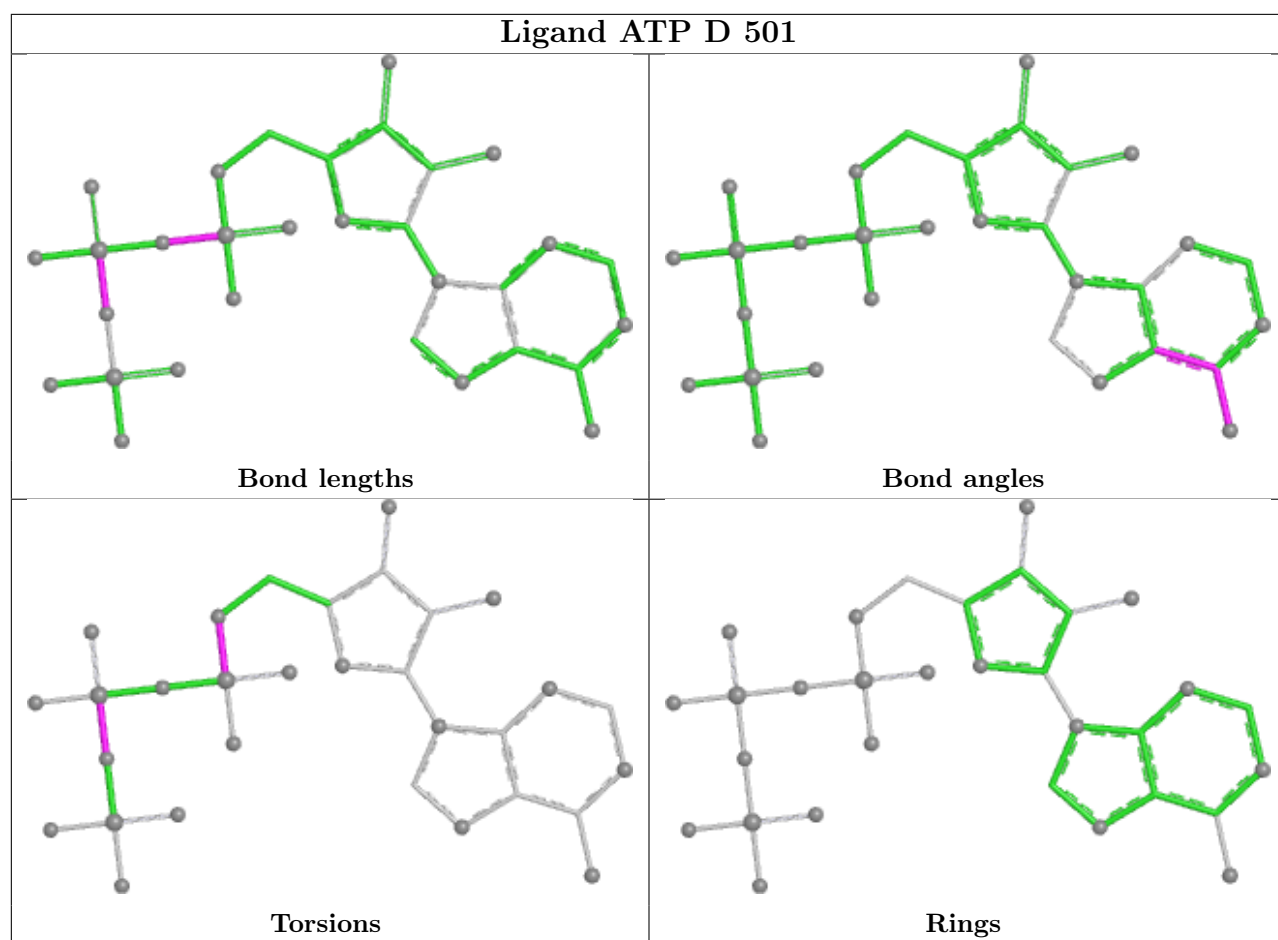
There are no ring outliers.

4 monomers are involved in 7 short contacts:

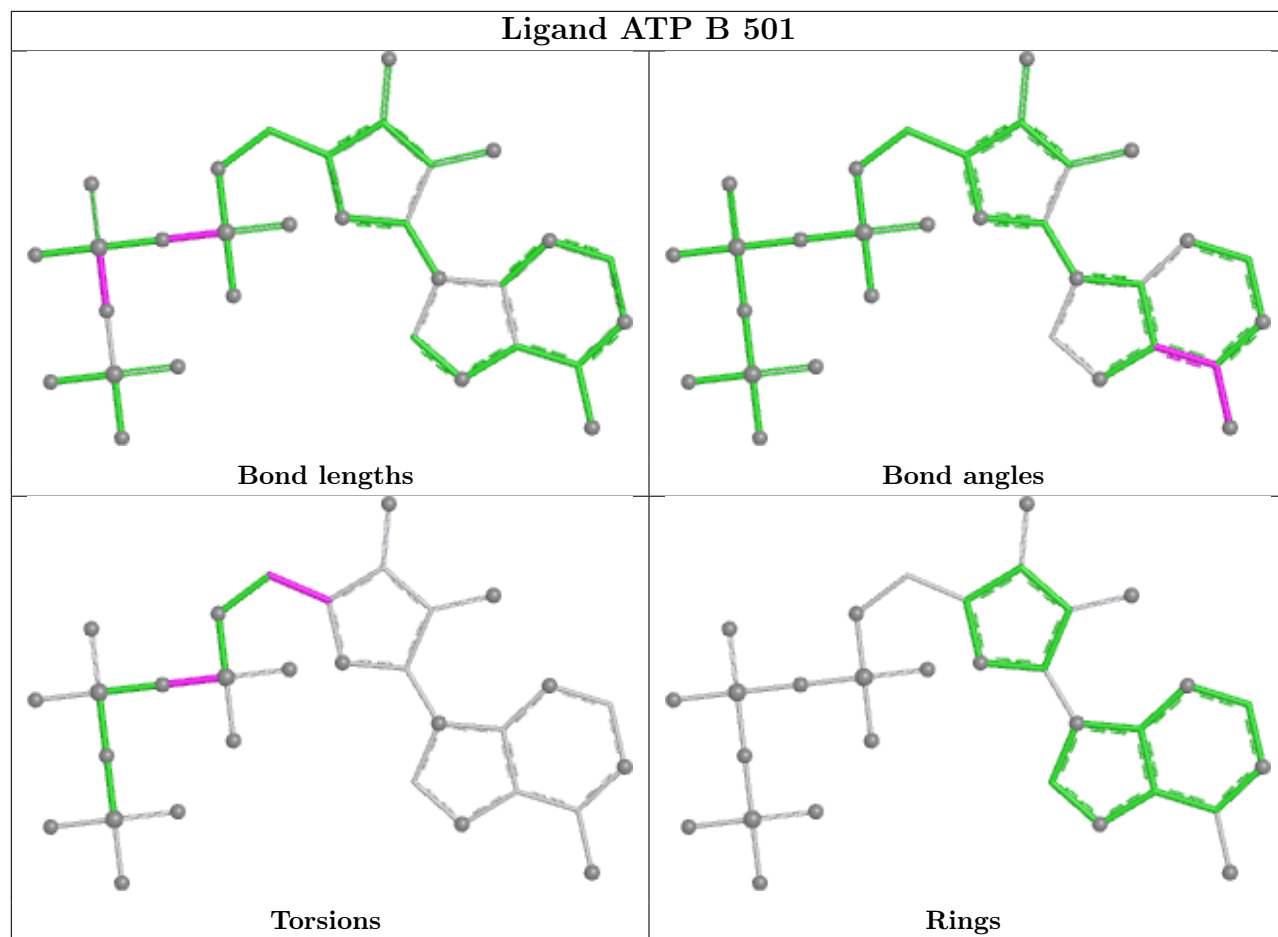
Mol	Chain	Res	Type	Clashes	Symm-Clashes
27	E	401	ATP	2	0
27	D	501	ATP	1	0
29	C	501	ADP	3	0
29	F	501	ADP	1	0

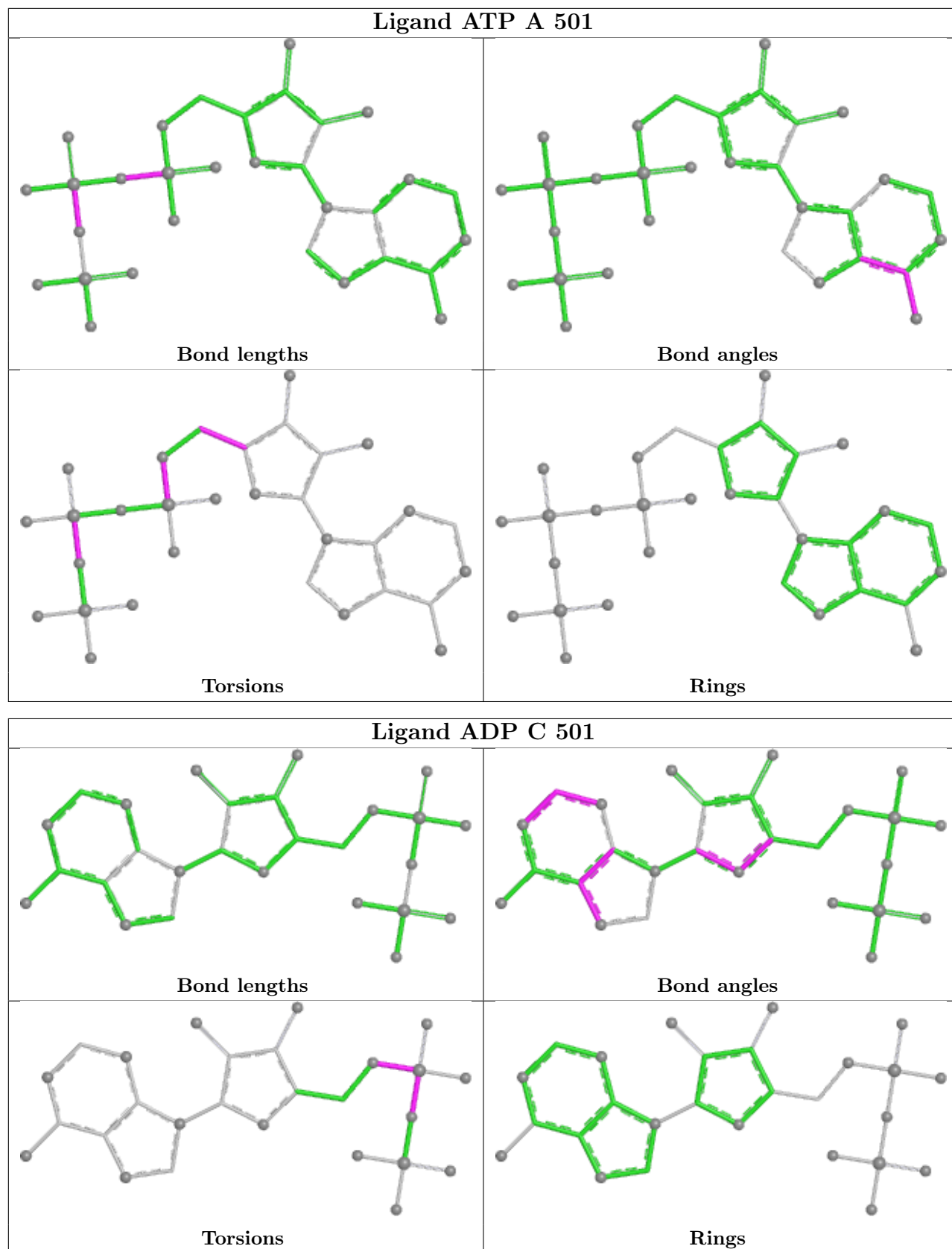
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

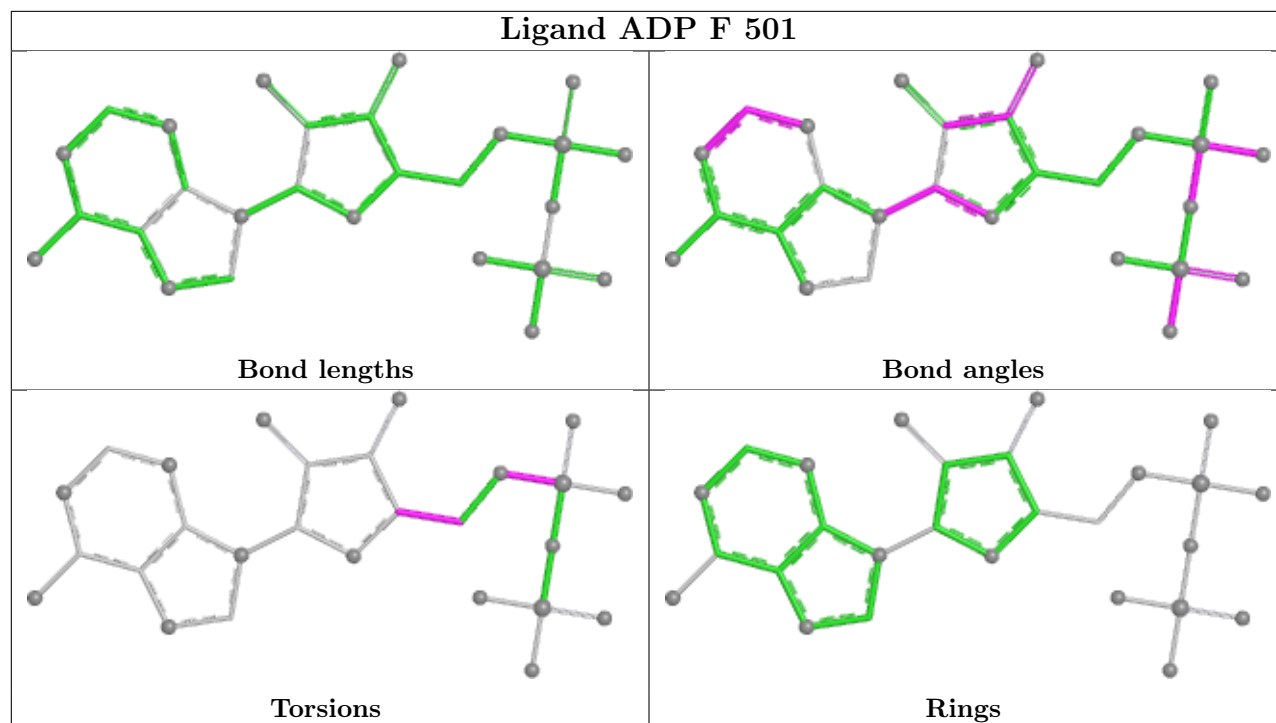












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

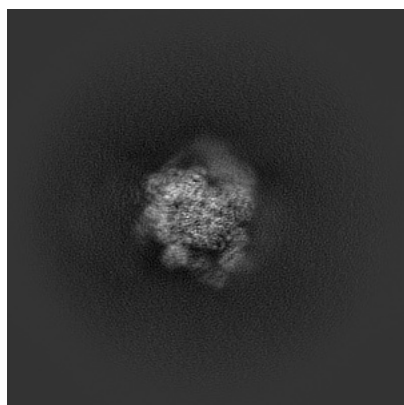
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-36645. These allow visual inspection of the internal detail of the map and identification of artifacts.

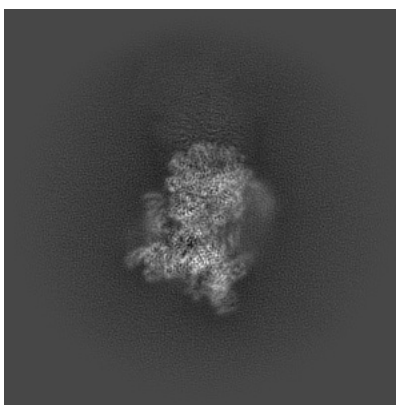
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

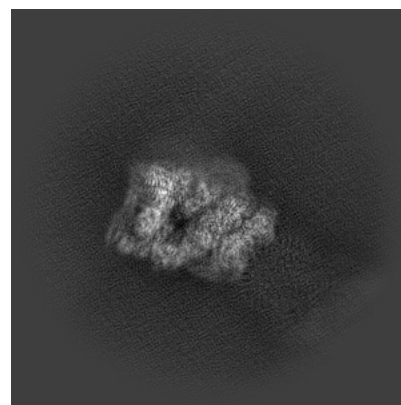
#### 6.1.1 Primary map



X



Y

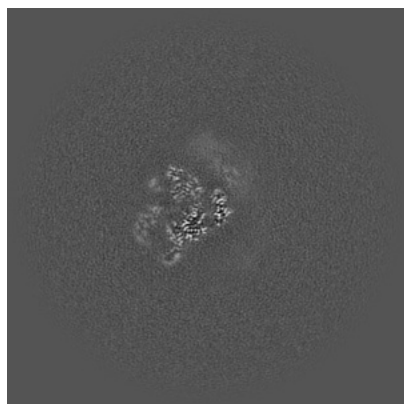


Z

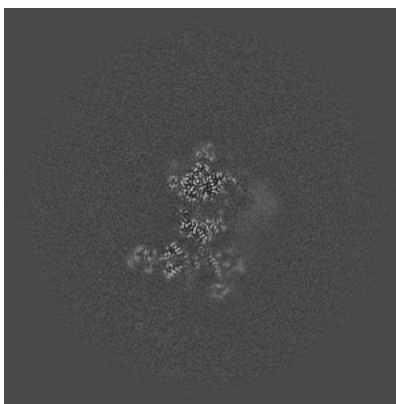
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

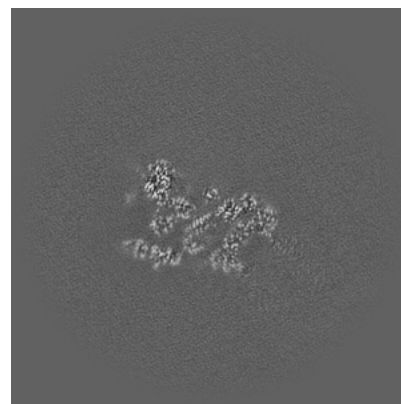
#### 6.2.1 Primary map



X Index: 200



Y Index: 200

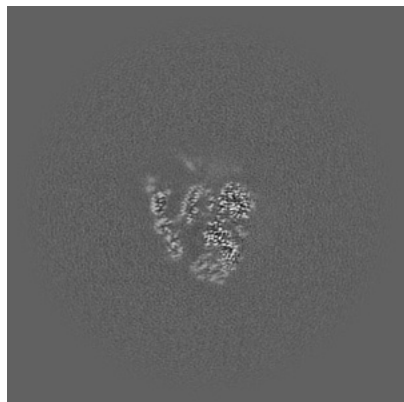


Z Index: 200

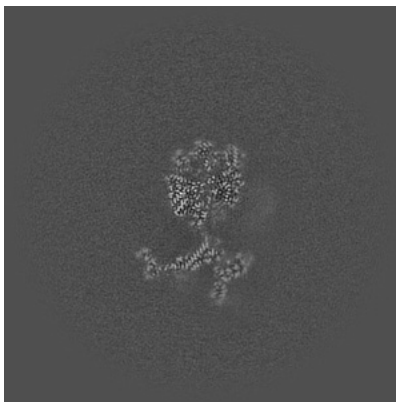
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

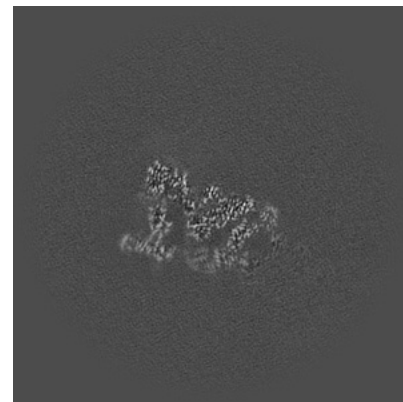
### 6.3.1 Primary map



X Index: 153



Y Index: 188

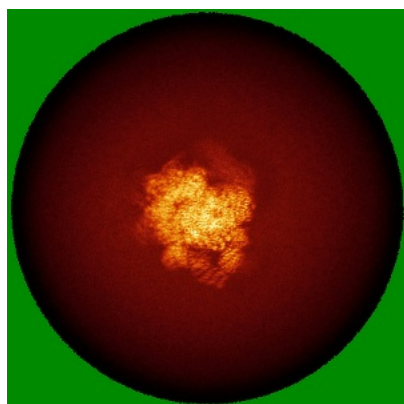


Z Index: 191

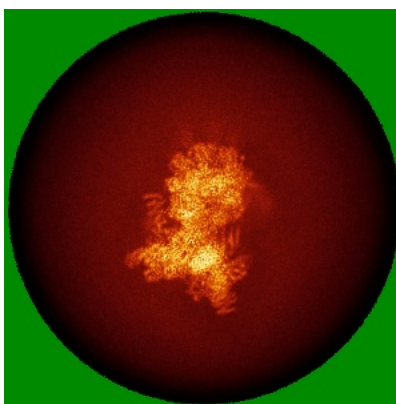
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

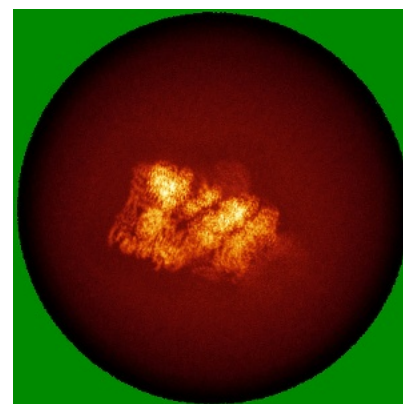
### 6.4.1 Primary map



X



Y

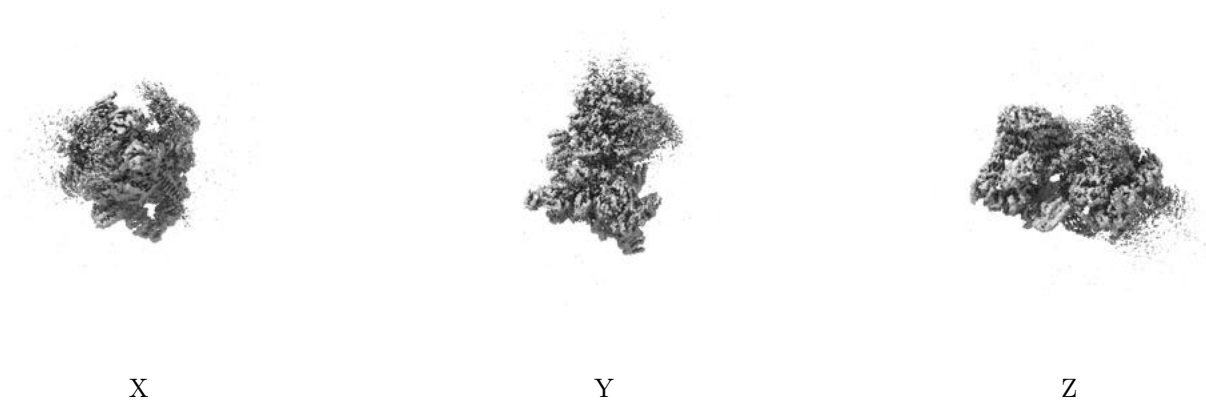


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 5.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

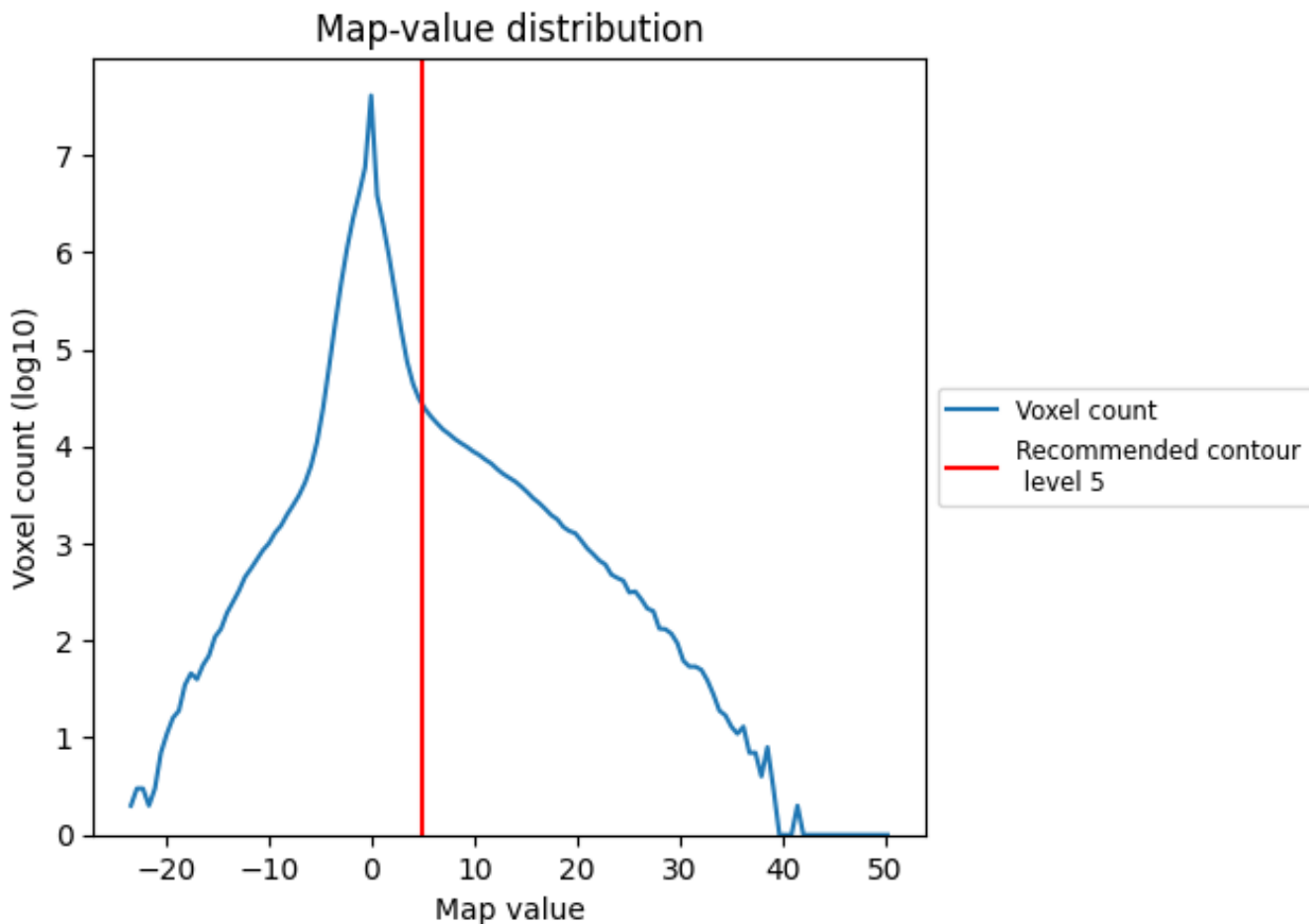
## 6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

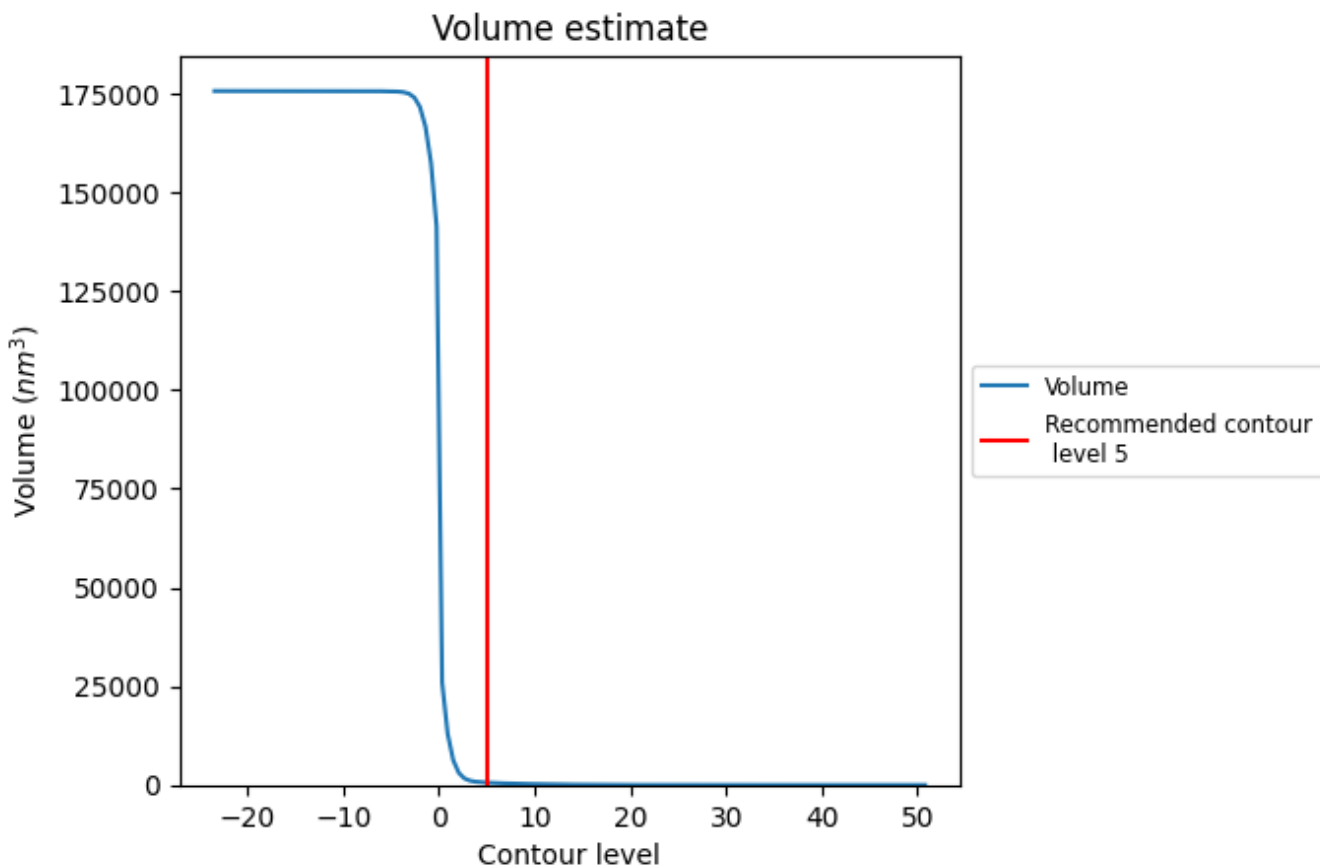
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

## 7.2 Volume estimate [\(i\)](#)

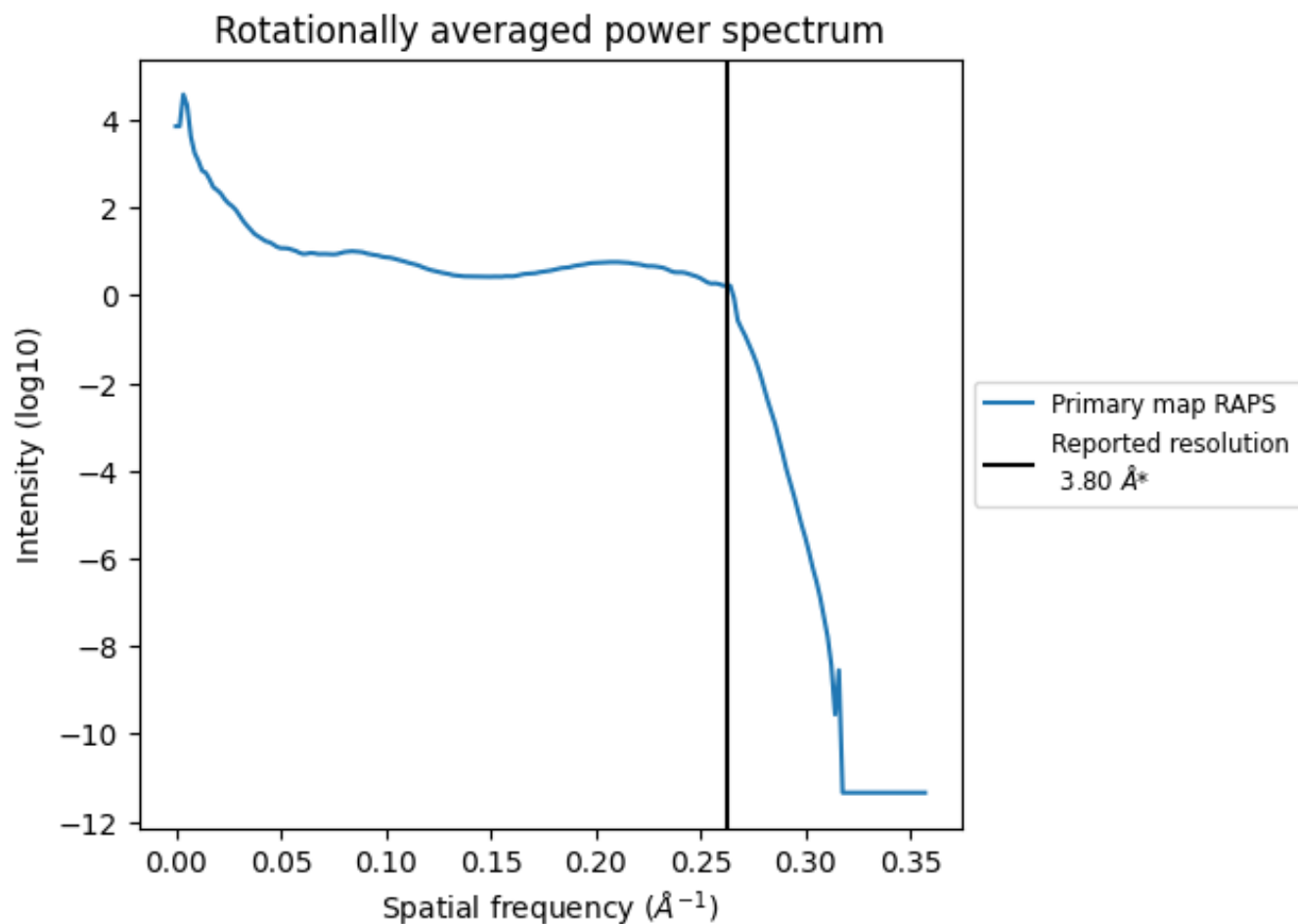


The volume at the recommended contour level is 587  $\text{nm}^3$ ; this corresponds to an approximate mass of 530 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.



### 7.3 Rotationally averaged power spectrum i

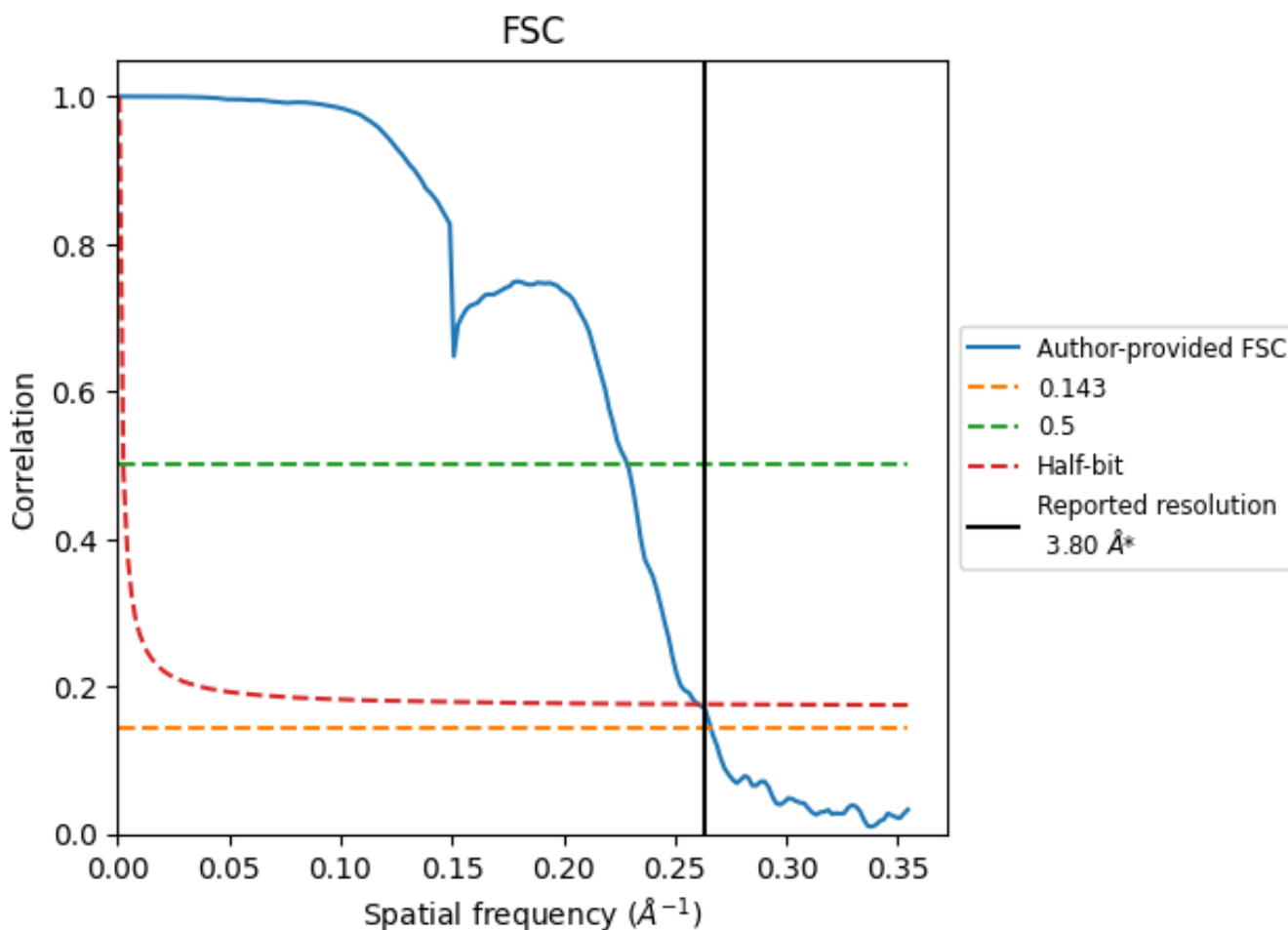


\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [\(i\)](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [\(i\)](#)



\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

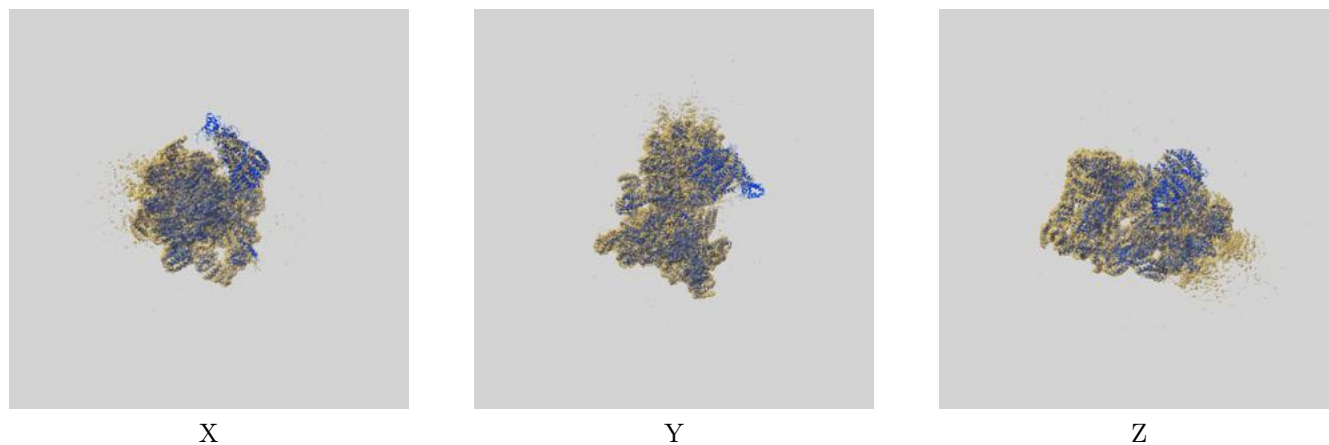
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.76	4.37	3.84
Unmasked-calculated*	-	-	-

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

## 9 Map-model fit [i](#)

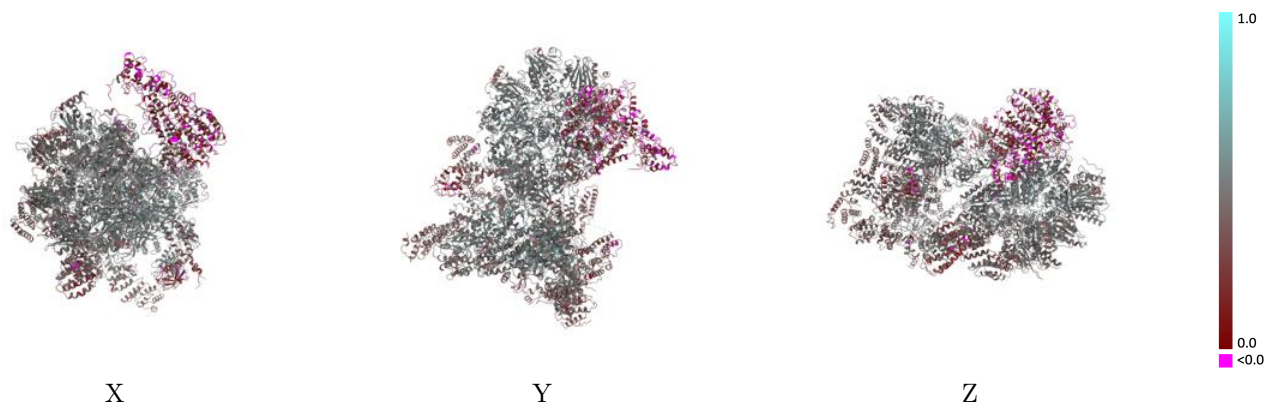
This section contains information regarding the fit between EMDB map EMD-36645 and PDB model 8JTI. Per-residue inclusion information can be found in section 3 on page 11.

### 9.1 Map-model overlay [i](#)



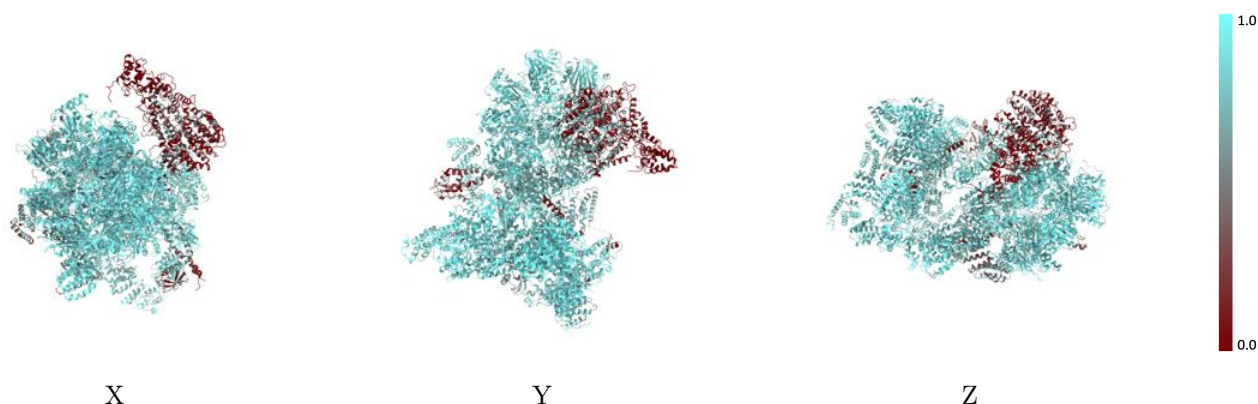
The images above show the 3D surface view of the map at the recommended contour level 5.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [\(i\)](#)



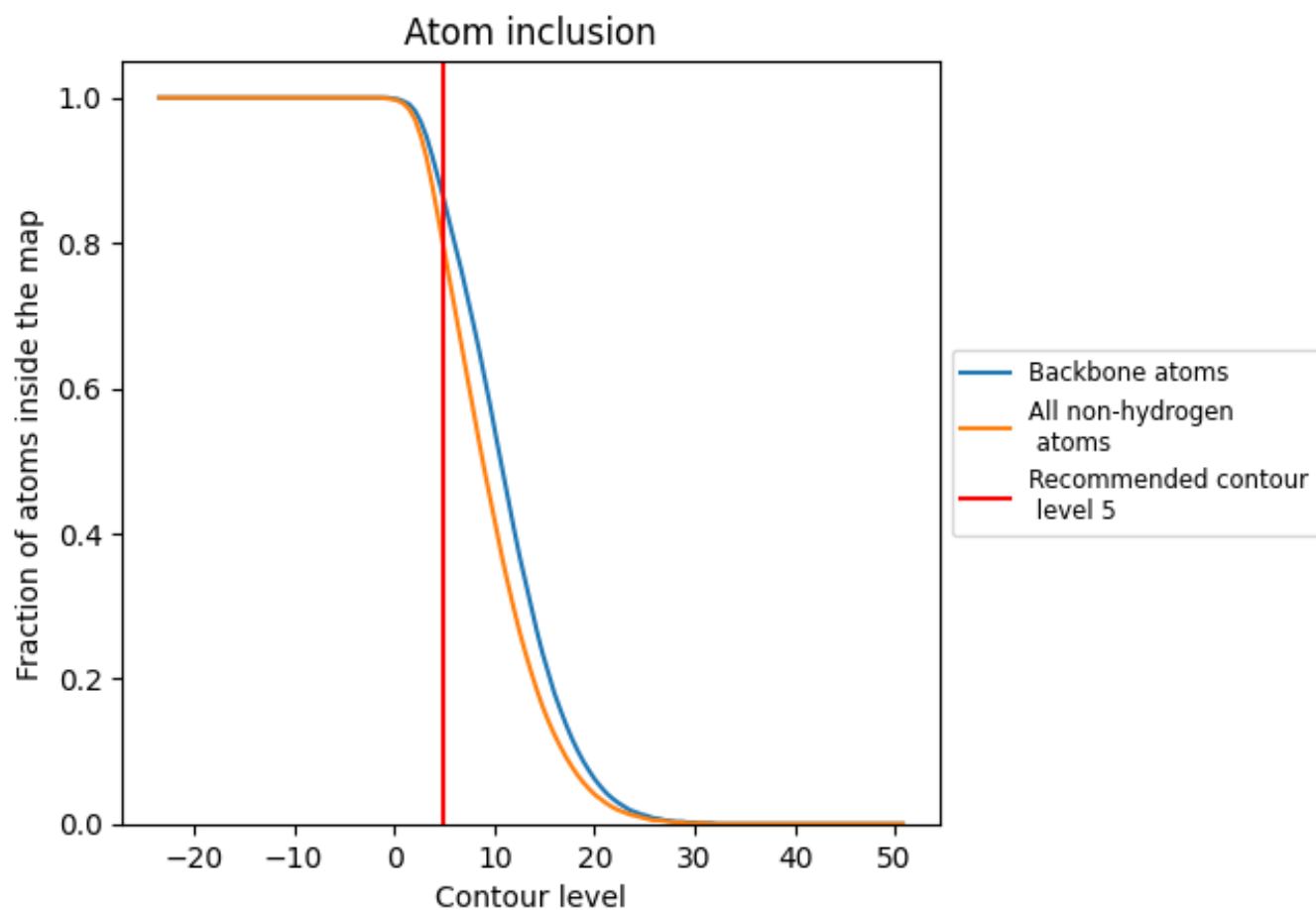
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (5).





























































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 79% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7900	 0.4230
A	 0.8510	 0.4690
B	 0.7980	 0.4490
C	 0.7880	 0.4450
D	 0.8520	 0.4740
E	 0.8650	 0.4910
F	 0.8530	 0.4870
G	 0.8750	 0.4800
H	 0.8750	 0.4650
I	 0.8260	 0.4350
J	 0.8450	 0.4500
K	 0.8570	 0.4740
L	 0.8850	 0.4830
M	 0.8750	 0.4640
U	 0.8730	 0.4550
V	 0.8310	 0.3900
W	 0.8360	 0.3810
X	 0.6250	 0.3710
Y	 0.8330	 0.3710
Z	 0.8730	 0.4800
a	 0.8450	 0.4070
b	 0.8980	 0.4580
c	 0.8920	 0.5020
d	 0.8040	 0.3550
e	 0.7860	 0.3390
f	 0.1810	 0.1890
u	 0.9340	 0.4690
v	 0.2430	 0.2040
w	 0.8290	 0.4200
x	 0.5880	 0.3900

