



# Full wwPDB EM Validation Report ⓘ

Oct 1, 2024 – 01:28 PM JST

PDB ID : 7W3B  
EMDB ID : EMD-32276  
Title : Structure of USP14-bound human 26S proteasome in substrate-engaged state  
ED5\_USP14  
Authors : Zhang, S.; Zou, S.; Yin, D.; Wu, Z.; Mao, Y.  
Deposited on : 2021-11-25  
Resolution : 3.60 Å(reported)

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:

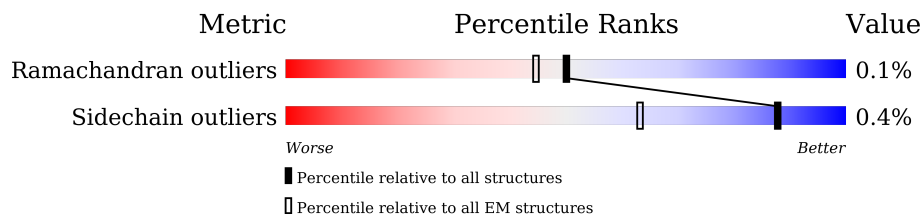
EMDB validation analysis : 0.0.1.dev113  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.60 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.



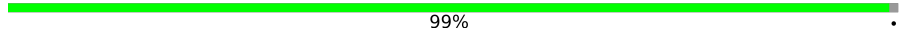
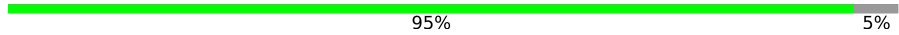
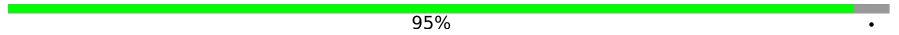
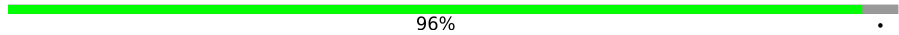
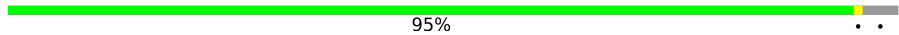
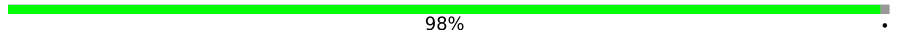
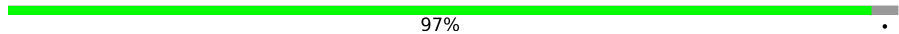


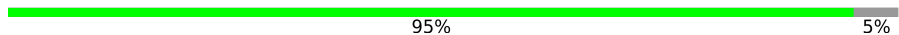
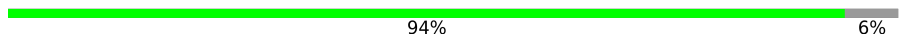




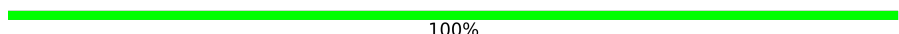
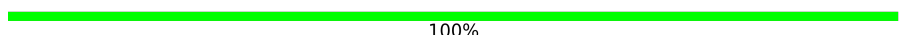
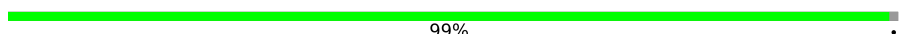
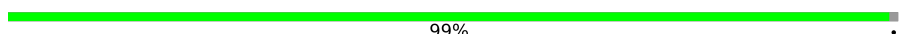






Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	95% . 5%
2	B	440	90% 9%
3	C	398	99% ..
4	D	418	90% . 9%
5	E	403	95% . .
6	F	439	89% . 10%
7	G	246	98% .
7	g	246	99% .
8	H	234	99% .

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Mol	Chain	Length	Quality of chain
8	h	234	 99%
9	I	261	 95% 5%
9	i	261	 95%
10	J	248	 96%
10	j	248	 95%
11	K	241	 98%
11	k	241	 97%
12	L	269	 88% 11%
12	l	269	 88% 12%
13	M	255	 95% 5%
13	m	255	 94% 6%
14	N	239	 85% 15%
14	n	239	 85% 15%
15	O	277	 79% 21%
15	o	277	 79% 21%
16	P	205	 100%
16	p	205	 100%
17	Q	201	 99%
17	q	201	 99%
18	R	263	 76% 24%
18	r	263	 76% 24%
19	S	241	 88% 12%
19	s	241	 88% 12%
20	T	264	 82% 18%
20	t	264	 81% 18%

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Mol	Chain	Length	Quality of chain
21	U	953	 86% 13%
22	V	534	 83% 17%
23	W	456	 15% 96%
24	X	422	 5% 90% 10%
25	Y	389	 96%
26	Z	324	 88% 12%
27	a	376	 98%
28	b	377	 50% 49%
29	c	310	 92% 7%
30	d	350	 5% 73% 27%
31	f	908	 19% 97%
32	v	28	 11% 100%
33	x	494	 29% 79% 21%
34	y	76	 74% 100%
35	e	70	 6% 69% 29%

## 2 Entry composition [i](#)

There are 38 unique types of molecules in this entry. The entry contains 109441 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	413	3229	2034	566	611	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	399	3122	1967	529	611	15	0	0

- Molecule 3 is a protein called Isoform 2 of 26S proteasome regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	396	3105	1954	558	576	17	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	3040	1923	524	580	13	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	389	3097	1947	552	581	17	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	3098	1951	533	596	18	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	Total	C	N	O	S	0	0
			1867	1187	312	355	13		
7	g	244	Total	C	N	O	S	0	0
			1879	1193	318	355	13		

- 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	Total	C	N	O	S	0	0
			1801	1149	304	342	6		
8	h	232	Total	C	N	O	S	0	0
			1805	1154	307	338	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	248	Total	C	N	O	S	0	0
			1933	1222	330	371	10		
9	i	250	Total	C	N	O	S	0	0
			1955	1234	336	375	10		

- 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	Total	C	N	O	S	0	0
			1861	1166	327	363	5		
10	j	239	Total	C	N	O	S	0	0
			1861	1168	332	356	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	238	Total	C	N	O	S	0	0
			1813	1139	302	361	11		
11	k	234	Total	C	N	O	S	0	0
			1782	1119	295	357	11		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	240	1876	1175	338	352	11	0	0
12	l	238	1861	1165	335	350	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	242	1890	1200	323	356	11	0	0
13	m	240	1881	1193	321	356	11	0	0

- Molecule 14 is a protein called Proteasome subunit beta type-6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	N	203	1521	954	259	296	12	0	0
14	n	202	1510	947	258	293	12	0	0

- Molecule 15 is a protein called Proteasome subunit beta type-7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	O	220	1645	1035	278	320	12	0	0
15	o	220	1659	1044	283	320	12	0	0

- Molecule 16 is a protein called Proteasome subunit beta type-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	P	204	1587	1010	264	294	19	0	0
16	p	204	1591	1013	265	294	19	0	0

- Molecule 17 is a protein called Proteasome subunit beta type-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	Q	199	1588	1017	270	292	9	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
17	q	199	Total	C	N	O	S	0	0
			1578	1012	267	290	9		

- Molecule 18 is a protein called Proteasome subunit beta type-5.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	201	Total	C	N	O	S	0	0
			1559	982	274	294	9		
18	r	201	Total	C	N	O	S	0	0
			1549	977	270	293	9		

- Molecule 19 is a protein called Proteasome subunit beta type-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	213	Total	C	N	O	S	0	0
			1641	1041	281	309	10		
19	s	213	Total	C	N	O	S	0	0
			1650	1044	283	313	10		

- Molecule 20 is a protein called Proteasome subunit beta type-4.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	216	Total	C	N	O	S	0	0
			1683	1062	291	318	12		
20	t	216	Total	C	N	O	S	0	0
			1687	1064	291	320	12		

- Molecule 21 is a protein called 26S proteasome non-ATPase regulatory subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	827	Total	C	N	O	S	0	0
			6459	4101	1097	1217	44		

- Molecule 22 is a protein called 26S proteasome non-ATPase regulatory subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	444	Total	C	N	O	S	0	0
			3612	2301	645	653	13		

- Molecule 23 is a protein called 26S proteasome non-ATPase regulatory subunit 12.



Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	W	446	3635	2302	622	687	24	0	0

- Molecule 24 is a protein called 26S proteasome non-ATPase regulatory subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	X	380	3009	1918	509	570	12	0	0

- Molecule 25 is a protein called 26S proteasome non-ATPase regulatory subunit 6.

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

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

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

- Molecule 27 is a protein called 26S proteasome non-ATPase regulatory subunit 13.

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

- Molecule 28 is a protein called 26S proteasome non-ATPase regulatory subunit 4.

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

- Molecule 29 is a protein called 26S proteasome non-ATPase regulatory subunit 14.

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

- Molecule 30 is a protein called 26S proteasome non-ATPase regulatory subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	257	Total	C	N	O	S	0	0
			2116	1371	346	390	9		

- Molecule 31 is a protein called 26S proteasome non-ATPase regulatory subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	889	Total	C	N	O	S	0	0
			6866	4315	1174	1331	46		

- Molecule 32 is a protein called Substrate.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	v	28	Total	C	N	O	0	0
			140	84	28	28		

- Molecule 33 is a protein called Ubiquitin carboxyl-terminal hydrolase 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	x	392	Total	C	N	O	S	0	0
			3144	1985	523	616	20		

- Molecule 34 is a protein called Ubiquitin.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	y	76	Total	C	N	O	S	0	0
			601	378	105	117	1		

- Molecule 35 is a protein called 26S proteasome complex subunit DSS1.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	e	50	Total	C	N	O	0	0
			425	260	65	100		

- Molecule 36 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula:  $C_{10}H_{16}N_5O_{13}P_3$ ) (labeled as "Ligand of Interest" by depositor).



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

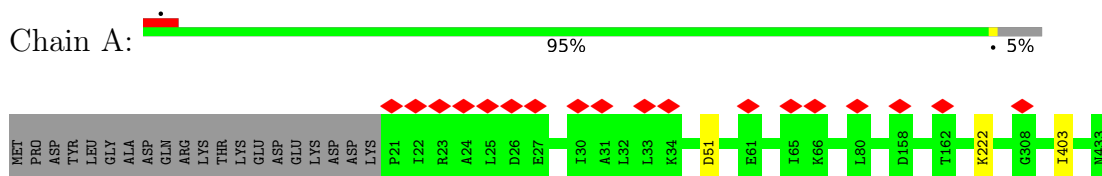
- Molecule 38 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
38	c	1	1	1	0

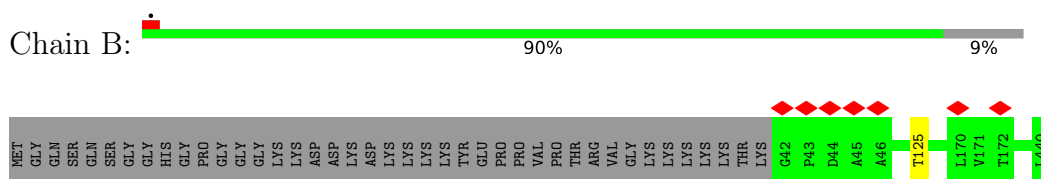
### 3 Residue-property plots [i](#)

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.

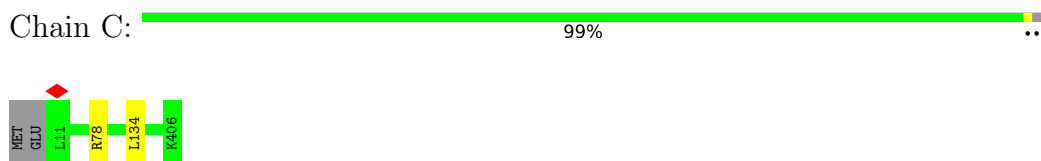
- Molecule 1: 26S protease regulatory subunit 7



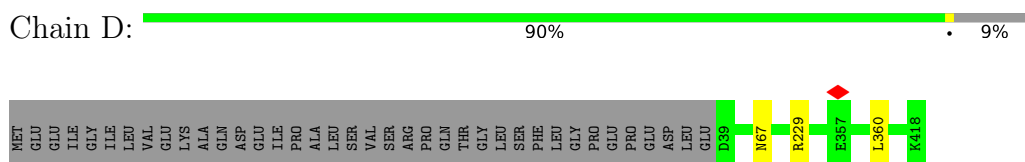
- Molecule 2: 26S protease regulatory subunit 4



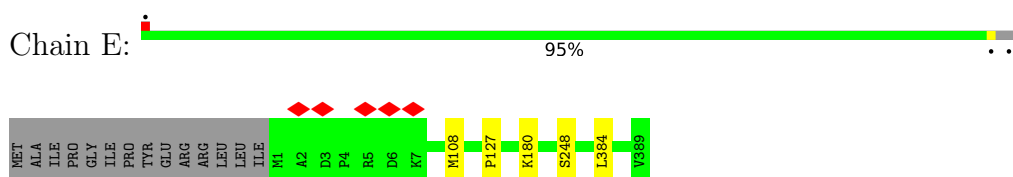
- Molecule 3: Isoform 2 of 26S proteasome regulatory subunit 8



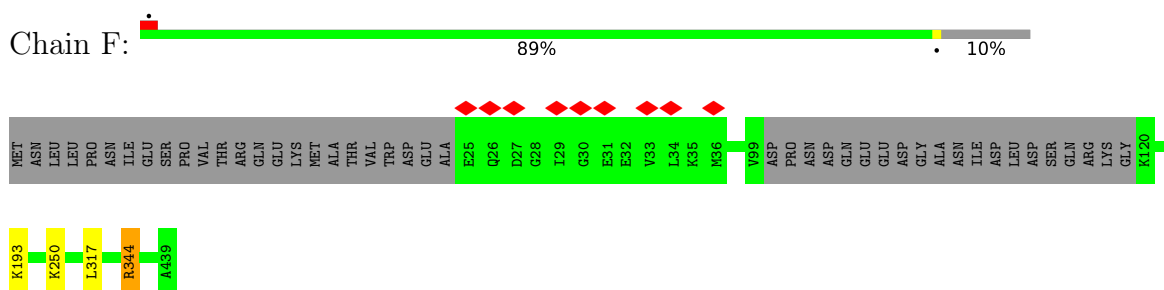
- Molecule 4: 26S protease regulatory subunit 6B



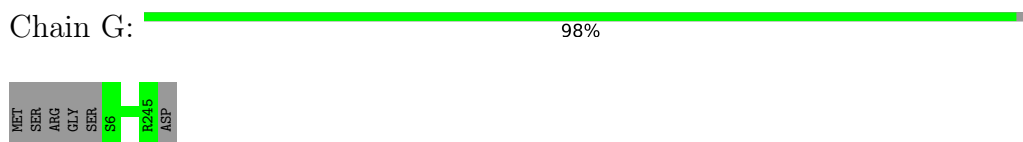
- Molecule 5: 26S proteasome regulatory subunit 10B



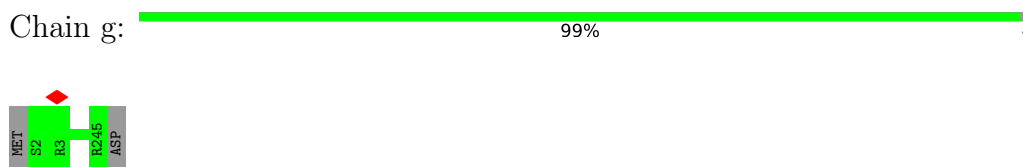
- Molecule 6: 26S protease regulatory subunit 6A



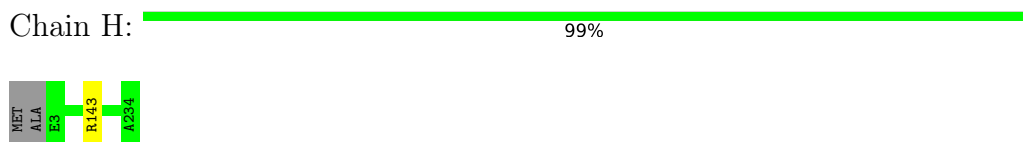
- Molecule 7: Proteasome subunit alpha type-6



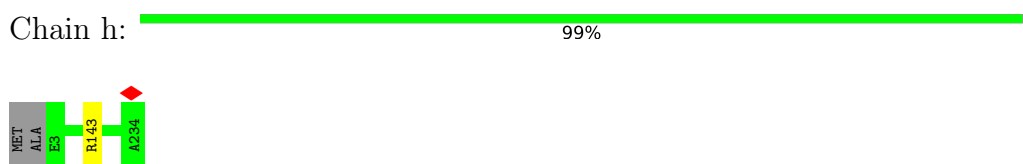
- Molecule 7: Proteasome subunit alpha type-6



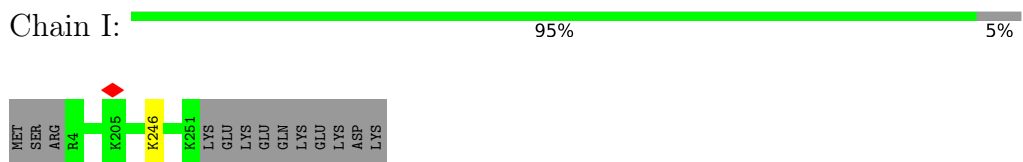
- Molecule 8: Proteasome subunit alpha type-2



- Molecule 8: Proteasome subunit alpha type-2

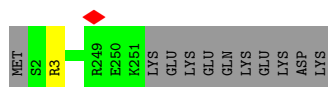


- Molecule 9: Proteasome subunit alpha type-4



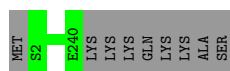
- Molecule 9: Proteasome subunit alpha type-4

Chain i:  95%



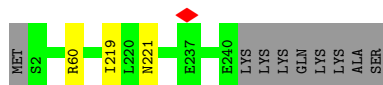
- Molecule 10: Proteasome subunit alpha type-7

Chain J:  96%



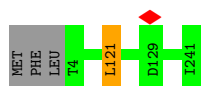
- Molecule 10: Proteasome subunit alpha type-7

Chain j:  95%



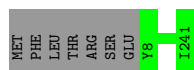
- Molecule 11: Proteasome subunit alpha type-5

Chain K:  98%




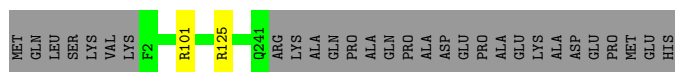
- Molecule 11: Proteasome subunit alpha type-5

Chain k:  97%




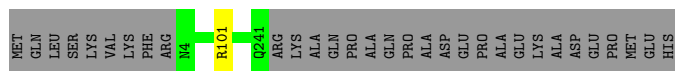
- Molecule 12: Isoform Long of Proteasome subunit alpha type-1

Chain L:  88% 11%



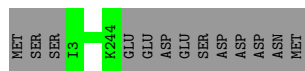
- Molecule 12: Isoform Long of Proteasome subunit alpha type-1

Chain l:  88% 12%



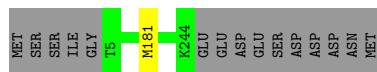
- Molecule 13: Proteasome subunit alpha type-3

Chain M:  95% 5%




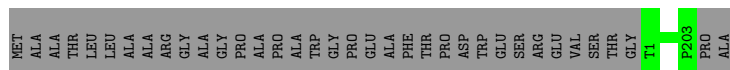
- Molecule 13: Proteasome subunit alpha type-3

Chain m:  94% 6%




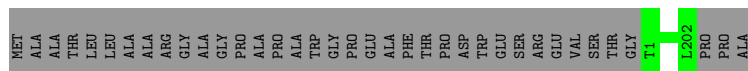
- Molecule 14: Proteasome subunit beta type-6

Chain N:  85% 15%




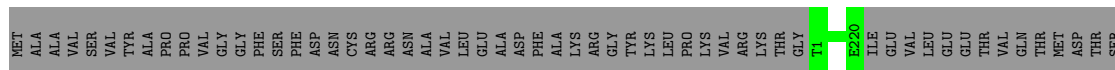
- Molecule 14: Proteasome subunit beta type-6

Chain n:  85% 15%




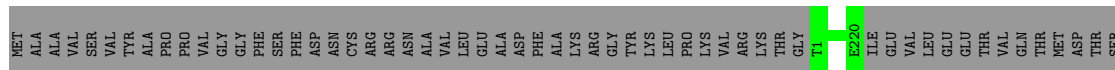
- Molecule 15: Proteasome subunit beta type-7

Chain O:  79% 21%



- Molecule 15: Proteasome subunit beta type-7

Chain o:  79% 21%



- Molecule 16: Proteasome subunit beta type-3

Chain P:  100%



- Molecule 16: Proteasome subunit beta type-3



Chain p: 100%



- Molecule 17: Proteasome subunit beta type-2

Chain Q: 99%



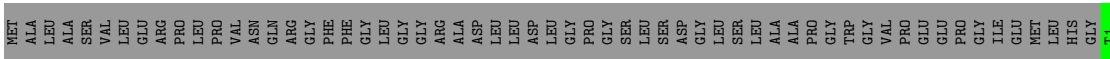
- Molecule 17: Proteasome subunit beta type-2

Chain q: 99%



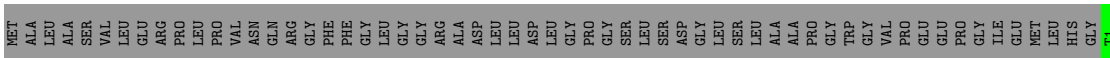
- Molecule 18: Proteasome subunit beta type-5

Chain R: 76% 24%



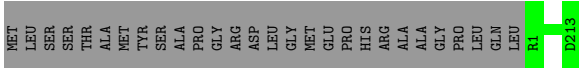
- Molecule 18: Proteasome subunit beta type-5

Chain r: 76% 24%



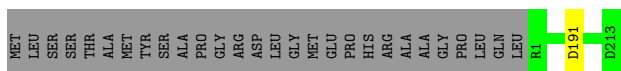
- Molecule 19: Proteasome subunit beta type-1

Chain S: 88% 12%

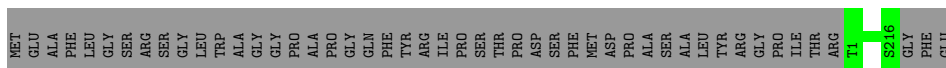
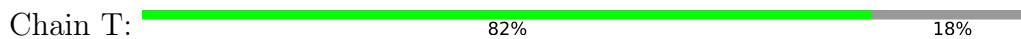


- Molecule 19: Proteasome subunit beta type-1

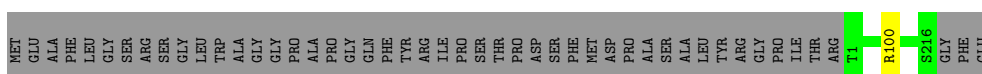
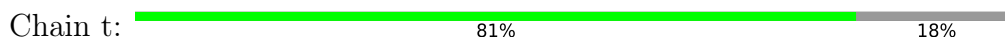
Chain s: 88% 12%



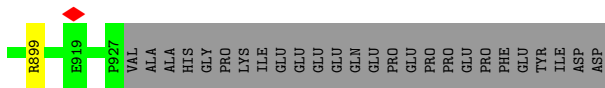
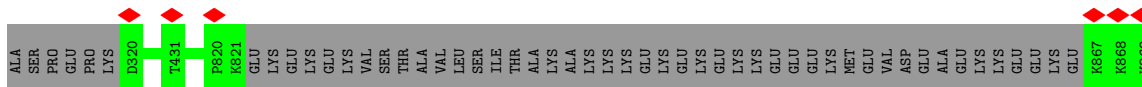
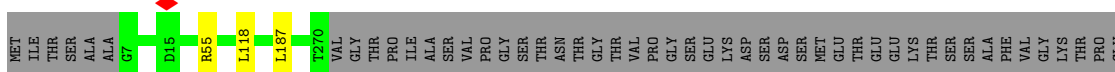
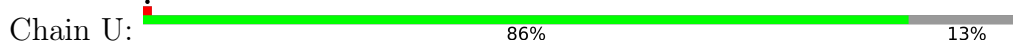
- Molecule 20: Proteasome subunit beta type-4



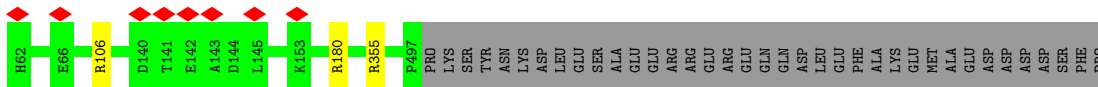
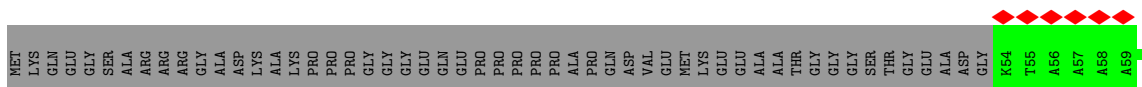
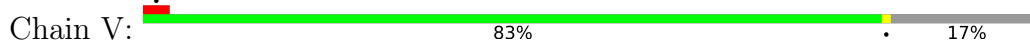
- Molecule 20: Proteasome subunit beta type-4



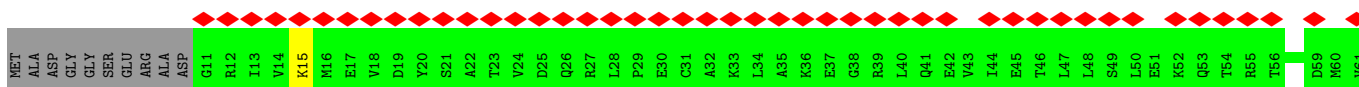
- Molecule 21: 26S proteasome non-ATPase regulatory subunit 1



- Molecule 22: 26S proteasome non-ATPase regulatory subunit 3



- Molecule 23: 26S proteasome non-ATPase regulatory subunit 12





GLY  
LYS  
LYS  
ASP  
LYS  
LYS  
GLU  
GLU  
LYS  
LYS

- Molecule 29: 26S proteasome non-ATPase regulatory subunit 14

Chain c: 92% 7%

MET  
ASP  
ARG  
LEU  
LEU  
ARG  
LEU  
GLY  
GLY  
MET  
PRO  
MET  
PRO  
GLY  
LEU  
GLY  
GLN  
GLY  
PRO  
PRO  
THR  
ASP  
ALA  
ALA  
PRO  
A24  
G81  
R104  
R161  
L212  
A271  
K310

- Molecule 30: 26S proteasome non-ATPase regulatory subunit 8

Chain d: 5% 73% 27%

MET  
PHE  
ILE  
LYS  
GLY  
ARG  
ALA  
PRO  
ARG  
VAL  
ASN  
GLY  
PRO  
ALA  
ARG  
GLY  
ARG  
SER  
SER  
ALA  
THR  
ARG  
GLY  
GLY  
LEU  
THR  
SER  
GLN  
VAL  
VAL  
ALA  
LEU  
PRO  
PRO  
ALA  
ALA  
THR  
LEU  
GLY  
SER  
THR  
SER  
ARG  
ARG  
PRO  
HIS  
PHE  
ARG  
ALA  
SER  
VAL  
CYS  
ARG  
ARG  
CYS  
ARG  
LYS  
LYS  
GLY  
GLY  
LEU  
LEU  
ALA  
ALA

SER  
ARG  
LYS  
MET  
ALA  
ALA  
VAL  
VAL  
ASN  
GLY  
ALA  
ALA  
GLY  
PHE  
SER  
SER  
SER  
GLY  
PRO  
ALA  
ALA  
THR  
SER  
GLY  
ALA  
VAL  
VAL  
LEU  
GLN  
PRO  
ALA  
ALA  
THR  
GLY  
M1  
L16  
S17  
E52  
E57  
Q128  
A160  
L190  
K201  
K204  
K211  
V216  
L217  
G218  
F219  
A226

S227  
Q228  
Q229  
K231  
V257

- Molecule 31: 26S proteasome non-ATPase regulatory subunit 2

Chain f: 19% 97%

M1  
E2  
E3  
G4  
G5  
R6  
D7  
K8  
A9  
P10  
V11  
Q12  
P13  
Q14  
Q15  
S16  
P17  
A18  
A19  
A20  
P21  
G22  
G23  
T24  
D25  
E26  
K27  
P28  
S29  
G30  
K31  
E32  
R33  
R34  
D35  
A36  
G37  
D38  
K39  
D40  
K41  
E42  
Q43  
Q44  
L45  
L46  
S46  
E47  
E48  
D49  
K50  
Q51  
L52  
Q53  
D54  
E55  
L59  
V60  
E61  
R62

L63  
G64  
E65  
K66  
D67  
T68  
S69  
L70  
A74  
L75  
E76  
E77  
L78  
R79  
R80  
Q81  
I82  
S85  
K97  
F98  
L99  
R100  
P101  
H102  
Y103  
G104  
K105  
E108  
A123  
D124  
I125  
S147  
Q148  
E149  
E150  
L151  
A152  
S153  
H154  
G155  
H156  
E157  
D174  
D175  
V192  
E203  
L207  
L208  
M209  
E210

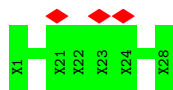
A247  
L248  
M273  
V278  
E279  
D280  
I281  
F282  
T283  
L307  
S308  
E309  
D310  
V311  
E312  
E313  
Y314  
E315  
S347  
N355  
N356  
R357  
F358  
G359  
G360  
S361  
S362  
S363  
L390  
D393  
D394  
G395  
N396  
K397  
K398  
L399  
A411  
D430  
Y434  
S435  
S436  
C459  
D460  
A464  
D468

L471  
H472  
H473  
E495  
D496  
L502  
K509  
A572  
E576  
L580  
V583  
R673  
S700  
N705  
R746  
L796  
W822  
E836  
E836  
L837  
R838  
P839  
L840  
P841  
W842  
S843  
W844  
R845  
W846  
A849  
W850  
T870  
L874  
E886  
F887  
L888  
P889  
VAL  
THR  
PRO  
ILE  
LEU

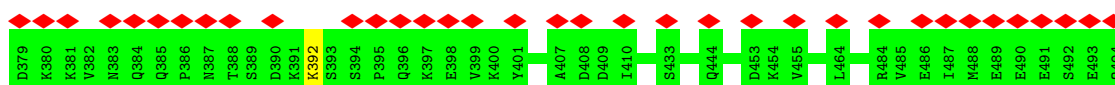
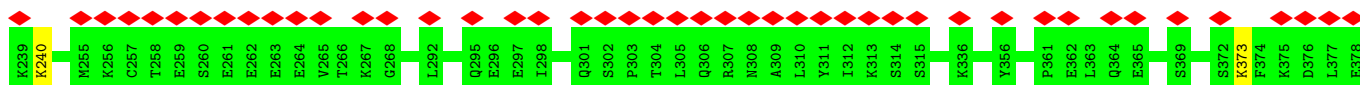
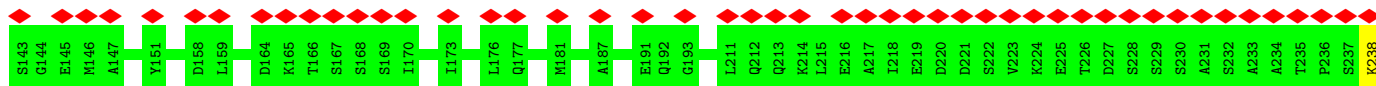
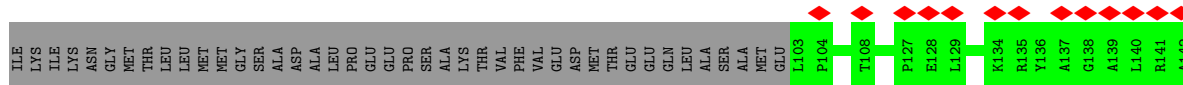
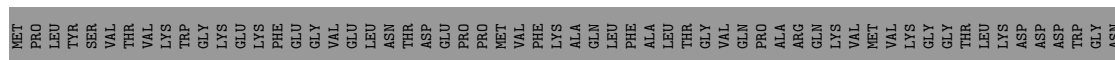
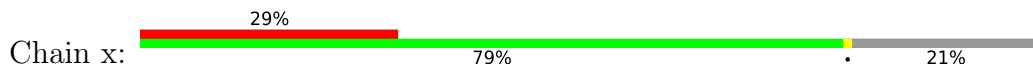
GLU  
GLY  
PHE  
VAL  
ILE  
LEU  
ARG  
LYS  
ASN  
PRO  
ASN  
TYR  
ASP  
LEU

- Molecule 32: Substrate

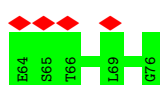
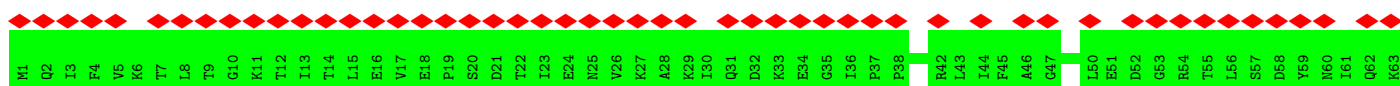
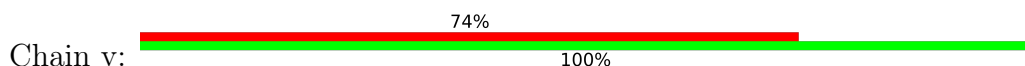
Chain v: 11% 100%



• Molecule 33: Ubiquitin carboxyl-terminal hydrolase 14



• Molecule 34: Ubiquitin



• Molecule 35: 26S proteasome complex subunit DSS1



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	35156	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 ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	400	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.020	Depositor
Minimum map value	-0.005	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.005	Depositor
Map size (Å)	438.4, 438.4, 438.4	wwPDB
Map dimensions	640, 640, 640	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.685, 0.685, 0.685	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

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	0.26	0/3283	0.57	1/4433 (0.0%)
2	B	0.26	0/3168	0.56	0/4276
3	C	0.26	0/3146	0.57	1/4226 (0.0%)
4	D	0.26	0/3090	0.55	1/4168 (0.0%)
5	E	0.26	0/3145	0.61	1/4233 (0.0%)
6	F	0.26	0/3137	0.57	1/4223 (0.0%)
7	G	0.28	0/1901	0.52	0/2572
7	g	0.27	0/1913	0.51	0/2589
8	H	0.28	0/1840	0.52	0/2495
8	h	0.27	0/1844	0.50	0/2497
9	I	0.26	0/1963	0.52	0/2650
9	i	0.27	0/1985	0.53	0/2677
10	J	0.27	0/1887	0.56	0/2553
10	j	0.26	0/1887	0.56	0/2549
11	K	0.27	0/1841	0.53	1/2486 (0.0%)
11	k	0.26	0/1809	0.50	0/2444
12	L	0.26	0/1911	0.53	0/2584
12	l	0.26	0/1896	0.53	0/2565
13	M	0.27	0/1925	0.51	0/2592
13	m	0.27	0/1916	0.53	0/2580
14	N	0.26	0/1548	0.52	0/2097
14	n	0.26	0/1536	0.49	0/2080
15	O	0.26	0/1672	0.54	0/2267
15	o	0.26	0/1686	0.54	0/2282
16	P	0.26	0/1616	0.51	0/2180
16	p	0.27	0/1620	0.52	0/2184
17	Q	0.27	0/1621	0.51	0/2194
17	q	0.27	0/1611	0.52	0/2182
18	R	0.27	0/1590	0.52	0/2147
18	r	0.27	0/1580	0.54	0/2135
19	S	0.27	0/1671	0.55	0/2252
19	s	0.27	0/1680	0.54	1/2264 (0.0%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
20	T	0.27	0/1716	0.55	0/2323
20	t	0.26	0/1720	0.53	0/2328
21	U	0.27	0/6575	0.53	0/8897
22	V	0.26	0/3681	0.53	0/4969
23	W	0.27	0/3683	0.61	0/4952
24	X	0.26	0/3053	0.56	1/4115 (0.0%)
25	Y	0.28	0/3173	0.63	1/4273 (0.0%)
26	Z	0.28	0/2324	0.61	0/3150
27	a	0.26	0/3053	0.58	1/4133 (0.0%)
28	b	0.26	0/1478	0.57	0/2001
29	c	0.28	0/2302	0.58	0/3110
30	d	0.27	0/2162	0.56	1/2919 (0.0%)
31	f	0.27	0/6980	0.61	2/9433 (0.0%)
33	x	0.25	0/3202	0.50	0/4310
34	y	0.26	0/607	0.57	0/816
35	e	0.27	0/437	0.51	0/595
All	All	0.27	0/111064	0.55	13/149980 (0.0%)

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
30	d	190	LEU	CA-CB-CG	5.97	129.03	115.30
6	F	317	LEU	CA-CB-CG	5.80	128.64	115.30
3	C	134	LEU	CA-CB-CG	5.63	128.24	115.30
25	Y	377	LEU	CA-CB-CG	5.63	128.24	115.30
24	X	69	LEU	CA-CB-CG	5.52	128.01	115.30
5	E	384	LEU	CA-CB-CG	5.40	127.71	115.30
11	K	121	LEU	CA-CB-CG	5.25	127.38	115.30
31	f	874	LEU	CA-CB-CG	5.24	127.36	115.30
27	a	188	LEU	CA-CB-CG	5.22	127.31	115.30
19	s	191	ASP	CB-CG-OD1	5.09	122.88	118.30
31	f	502	LEU	CA-CB-CG	5.06	126.93	115.30
1	A	51	ASP	CB-CG-OD1	5.04	122.84	118.30
4	D	360	LEU	CA-CB-CG	5.02	126.86	115.30

There are no chirality outliers.

There are no planarity outliers.



## 5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

## 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	411/433 (95%)	365 (89%)	45 (11%)	1 (0%)	44	73
2	B	397/440 (90%)	359 (90%)	38 (10%)	0	100	100
3	C	394/398 (99%)	354 (90%)	40 (10%)	0	100	100
4	D	378/418 (90%)	347 (92%)	31 (8%)	0	100	100
5	E	387/403 (96%)	346 (89%)	38 (10%)	3 (1%)	16	51
6	F	391/439 (89%)	362 (93%)	28 (7%)	1 (0%)	37	67
7	G	238/246 (97%)	227 (95%)	11 (5%)	0	100	100
7	g	242/246 (98%)	233 (96%)	9 (4%)	0	100	100
8	H	230/234 (98%)	220 (96%)	10 (4%)	0	100	100
8	h	230/234 (98%)	213 (93%)	17 (7%)	0	100	100
9	I	246/261 (94%)	237 (96%)	9 (4%)	0	100	100
9	i	248/261 (95%)	240 (97%)	8 (3%)	0	100	100
10	J	237/248 (96%)	224 (94%)	13 (6%)	0	100	100
10	j	237/248 (96%)	228 (96%)	9 (4%)	0	100	100
11	K	236/241 (98%)	224 (95%)	11 (5%)	1 (0%)	30	63
11	k	232/241 (96%)	222 (96%)	10 (4%)	0	100	100
12	L	238/269 (88%)	230 (97%)	8 (3%)	0	100	100
12	l	236/269 (88%)	227 (96%)	9 (4%)	0	100	100
13	M	240/255 (94%)	230 (96%)	10 (4%)	0	100	100
13	m	238/255 (93%)	235 (99%)	3 (1%)	0	100	100
14	N	201/239 (84%)	197 (98%)	4 (2%)	0	100	100

*Continued on next page...*

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
14	n	200/239 (84%)	195 (98%)	5 (2%)	0	100	100
15	O	218/277 (79%)	211 (97%)	7 (3%)	0	100	100
15	o	218/277 (79%)	212 (97%)	6 (3%)	0	100	100
16	P	202/205 (98%)	196 (97%)	6 (3%)	0	100	100
16	p	202/205 (98%)	192 (95%)	10 (5%)	0	100	100
17	Q	197/201 (98%)	192 (98%)	5 (2%)	0	100	100
17	q	197/201 (98%)	192 (98%)	5 (2%)	0	100	100
18	R	199/263 (76%)	195 (98%)	4 (2%)	0	100	100
18	r	199/263 (76%)	194 (98%)	5 (2%)	0	100	100
19	S	211/241 (88%)	204 (97%)	7 (3%)	0	100	100
19	s	211/241 (88%)	205 (97%)	6 (3%)	0	100	100
20	T	214/264 (81%)	210 (98%)	4 (2%)	0	100	100
20	t	214/264 (81%)	205 (96%)	9 (4%)	0	100	100
21	U	821/953 (86%)	765 (93%)	56 (7%)	0	100	100
22	V	442/534 (83%)	433 (98%)	9 (2%)	0	100	100
23	W	444/456 (97%)	415 (94%)	28 (6%)	1 (0%)	44	73
24	X	378/422 (90%)	358 (95%)	20 (5%)	0	100	100
25	Y	376/389 (97%)	338 (90%)	38 (10%)	0	100	100
26	Z	284/324 (88%)	256 (90%)	28 (10%)	0	100	100
27	a	371/376 (99%)	336 (91%)	34 (9%)	1 (0%)	37	67
28	b	189/377 (50%)	173 (92%)	16 (8%)	0	100	100
29	c	285/310 (92%)	248 (87%)	37 (13%)	0	100	100
30	d	255/350 (73%)	221 (87%)	34 (13%)	0	100	100
31	f	887/908 (98%)	778 (88%)	109 (12%)	0	100	100
33	x	390/494 (79%)	372 (95%)	18 (5%)	0	100	100
34	y	74/76 (97%)	72 (97%)	2 (3%)	0	100	100
35	e	48/70 (69%)	41 (85%)	6 (12%)	1 (2%)	5	33
All	All	13813/15458 (89%)	12929 (94%)	875 (6%)	9 (0%)	50	79

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	222	LYS

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Mol	Chain	Res	Type
5	E	248	SER
5	E	180	LYS
6	F	344	ARG
35	e	28	ALA
23	W	140	ILE
27	a	69	HIS
5	E	127	PRO
11	K	121	LEU

### 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	348/372 (94%)	347 (100%)	1 (0%)	91	96
2	B	349/385 (91%)	348 (100%)	1 (0%)	91	96
3	C	340/346 (98%)	339 (100%)	1 (0%)	91	96
4	D	333/366 (91%)	331 (99%)	2 (1%)	84	92
5	E	341/353 (97%)	340 (100%)	1 (0%)	91	96
6	F	340/379 (90%)	337 (99%)	3 (1%)	75	87
7	G	202/210 (96%)	202 (100%)	0	100	100
7	g	201/210 (96%)	201 (100%)	0	100	100
8	H	187/191 (98%)	186 (100%)	1 (0%)	86	93
8	h	188/191 (98%)	187 (100%)	1 (0%)	86	93
9	I	202/221 (91%)	201 (100%)	1 (0%)	86	93
9	i	206/221 (93%)	205 (100%)	1 (0%)	86	93
10	J	197/211 (93%)	197 (100%)	0	100	100
10	j	196/211 (93%)	193 (98%)	3 (2%)	60	78
11	K	197/203 (97%)	197 (100%)	0	100	100
11	k	195/203 (96%)	195 (100%)	0	100	100
12	L	202/230 (88%)	200 (99%)	2 (1%)	73	85

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
12	l	201/230 (87%)	200 (100%)	1 (0%)	86	93
13	M	198/212 (93%)	198 (100%)	0	100	100
13	m	198/212 (93%)	197 (100%)	1 (0%)	86	93
14	N	158/181 (87%)	158 (100%)	0	100	100
14	n	156/181 (86%)	156 (100%)	0	100	100
15	O	178/228 (78%)	178 (100%)	0	100	100
15	o	181/228 (79%)	181 (100%)	0	100	100
16	P	172/174 (99%)	172 (100%)	0	100	100
16	p	173/174 (99%)	173 (100%)	0	100	100
17	Q	168/171 (98%)	168 (100%)	0	100	100
17	q	166/171 (97%)	166 (100%)	0	100	100
18	R	156/202 (77%)	156 (100%)	0	100	100
18	r	154/202 (76%)	154 (100%)	0	100	100
19	S	175/199 (88%)	175 (100%)	0	100	100
19	s	177/199 (89%)	177 (100%)	0	100	100
20	T	178/215 (83%)	178 (100%)	0	100	100
20	t	179/215 (83%)	178 (99%)	1 (1%)	84	92
21	U	707/816 (87%)	703 (99%)	4 (1%)	84	92
22	V	390/460 (85%)	387 (99%)	3 (1%)	79	88
23	W	410/416 (99%)	404 (98%)	6 (2%)	60	78
24	X	327/362 (90%)	327 (100%)	0	100	100
25	Y	334/344 (97%)	330 (99%)	4 (1%)	67	82
26	Z	257/295 (87%)	256 (100%)	1 (0%)	89	95
27	a	333/336 (99%)	331 (99%)	2 (1%)	84	92
28	b	167/312 (54%)	166 (99%)	1 (1%)	84	92
29	c	252/268 (94%)	249 (99%)	3 (1%)	67	82
30	d	231/294 (79%)	231 (100%)	0	100	100
31	f	745/763 (98%)	742 (100%)	3 (0%)	89	95
33	x	353/439 (80%)	349 (99%)	4 (1%)	70	83
34	y	68/68 (100%)	68 (100%)	0	100	100
35	e	44/63 (70%)	43 (98%)	1 (2%)	45	68

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	11810/13133 (90%)	11757 (100%)	53 (0%)	88 95

All (53) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	403	ILE
2	B	125	THR
3	C	78	ARG
4	D	67	ASN
4	D	229	ARG
5	E	108	MET
6	F	193	LYS
6	F	250	LYS
6	F	344	ARG
8	H	143	ARG
9	I	246	LYS
12	L	101	ARG
12	L	125	ARG
21	U	55	ARG
21	U	118	LEU
21	U	187	LEU
21	U	899	ARG
22	V	106	ARG
22	V	180	ARG
22	V	355	ARG
23	W	15	LYS
23	W	117	ASP
23	W	142	ARG
23	W	208	LYS
23	W	248	ARG
23	W	294	LYS
25	Y	101	ARG
25	Y	195	LYS
25	Y	375	LEU
25	Y	377	LEU
26	Z	109	ASN
27	a	230	ARG
27	a	289	ARG
28	b	161	ASN
29	c	104	ARG
29	c	161	ARG
29	c	212	LEU

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Mol	Chain	Res	Type
31	f	673	ARG
31	f	705	ASN
31	f	746	ARG
8	h	143	ARG
9	i	3	ARG
10	j	60	ARG
10	j	219	ILE
10	j	221	ASN
12	l	101	ARG
13	m	181	MET
20	t	100	ARG
33	x	238	LYS
33	x	240	LYS
33	x	373	LYS
33	x	392	LYS
35	e	35	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
3	C	53	ASN
9	I	155	ASN
11	K	41	GLN
21	U	111	GLN
21	U	115	ASN
23	W	395	ASN
29	c	77	GLN
31	f	180	GLN
31	f	329	ASN
20	t	188	GLN
33	x	281	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 [i](#)

Of 5 ligands modelled in this entry, 1 is monoatomic - leaving 4 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
37	ADP	F	501	-	24,29,29	0.95	1 (4%)	29,45,45	1.43	4 (13%)
36	ATP	C	501	-	26,33,33	0.59	0	31,52,52	0.75	2 (6%)
36	ATP	E	501	-	26,33,33	0.61	0	31,52,52	0.72	1 (3%)
36	ATP	D	501	-	26,33,33	0.61	0	31,52,52	0.82	1 (3%)

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
37	ADP	F	501	-	-	6/12/32/32	0/3/3/3
36	ATP	C	501	-	-	3/18/38/38	0/3/3/3
36	ATP	E	501	-	-	8/18/38/38	0/3/3/3
36	ATP	D	501	-	-	7/18/38/38	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
37	F	501	ADP	C5-C4	2.46	1.47	1.40

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
37	F	501	ADP	C3'-C2'-C1'	3.57	106.35	100.98
37	F	501	ADP	PA-O3A-PB	-3.27	121.61	132.83
37	F	501	ADP	N3-C2-N1	-2.79	124.31	128.68
37	F	501	ADP	C4-C5-N7	-2.73	106.55	109.40
36	E	501	ATP	C5-C6-N6	2.28	123.82	120.35
36	D	501	ATP	C5-C6-N6	2.28	123.82	120.35
36	C	501	ATP	C5-C6-N6	2.28	123.82	120.35
36	C	501	ATP	PB-O3B-PG	2.00	139.70	132.83

There are no chirality outliers.

All (24) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
36	C	501	ATP	PB-O3A-PA-O5'
36	D	501	ATP	O4'-C4'-C5'-O5'
36	D	501	ATP	C3'-C4'-C5'-O5'
36	E	501	ATP	C5'-O5'-PA-O2A
37	F	501	ADP	C5'-O5'-PA-O1A
37	F	501	ADP	O4'-C4'-C5'-O5'
36	E	501	ATP	O4'-C4'-C5'-O5'
37	F	501	ADP	C3'-C4'-C5'-O5'
36	E	501	ATP	C3'-C4'-C5'-O5'
36	C	501	ATP	O4'-C4'-C5'-O5'
36	C	501	ATP	C3'-C4'-C5'-O5'
36	D	501	ATP	C4'-C5'-O5'-PA
36	E	501	ATP	PB-O3B-PG-O3G
36	D	501	ATP	C5'-O5'-PA-O3A
36	E	501	ATP	C5'-O5'-PA-O3A
37	F	501	ADP	C4'-C5'-O5'-PA
36	E	501	ATP	C5'-O5'-PA-O1A
37	F	501	ADP	C5'-O5'-PA-O2A
36	D	501	ATP	PB-O3B-PG-O1G
36	E	501	ATP	PB-O3A-PA-O2A
36	D	501	ATP	PB-O3B-PG-O2G
36	D	501	ATP	PB-O3B-PG-O3G
37	F	501	ADP	C5'-O5'-PA-O3A
36	E	501	ATP	PB-O3A-PA-O1A

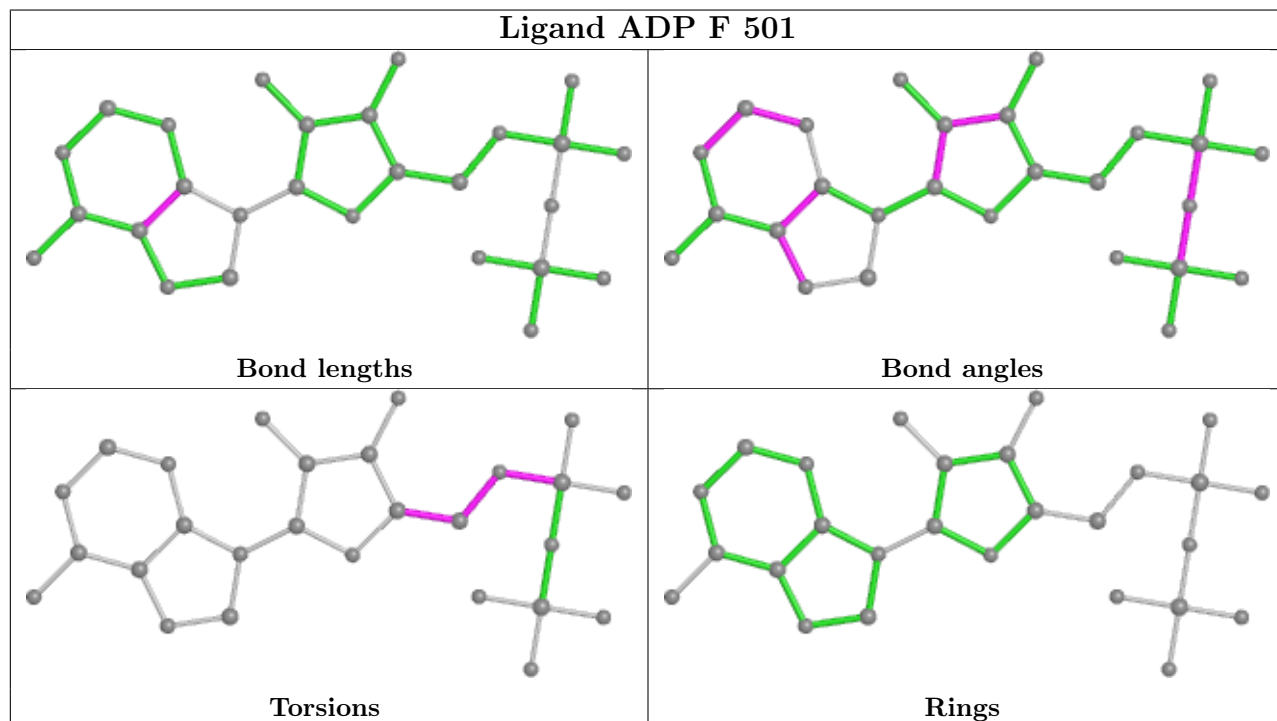
There are no ring outliers.

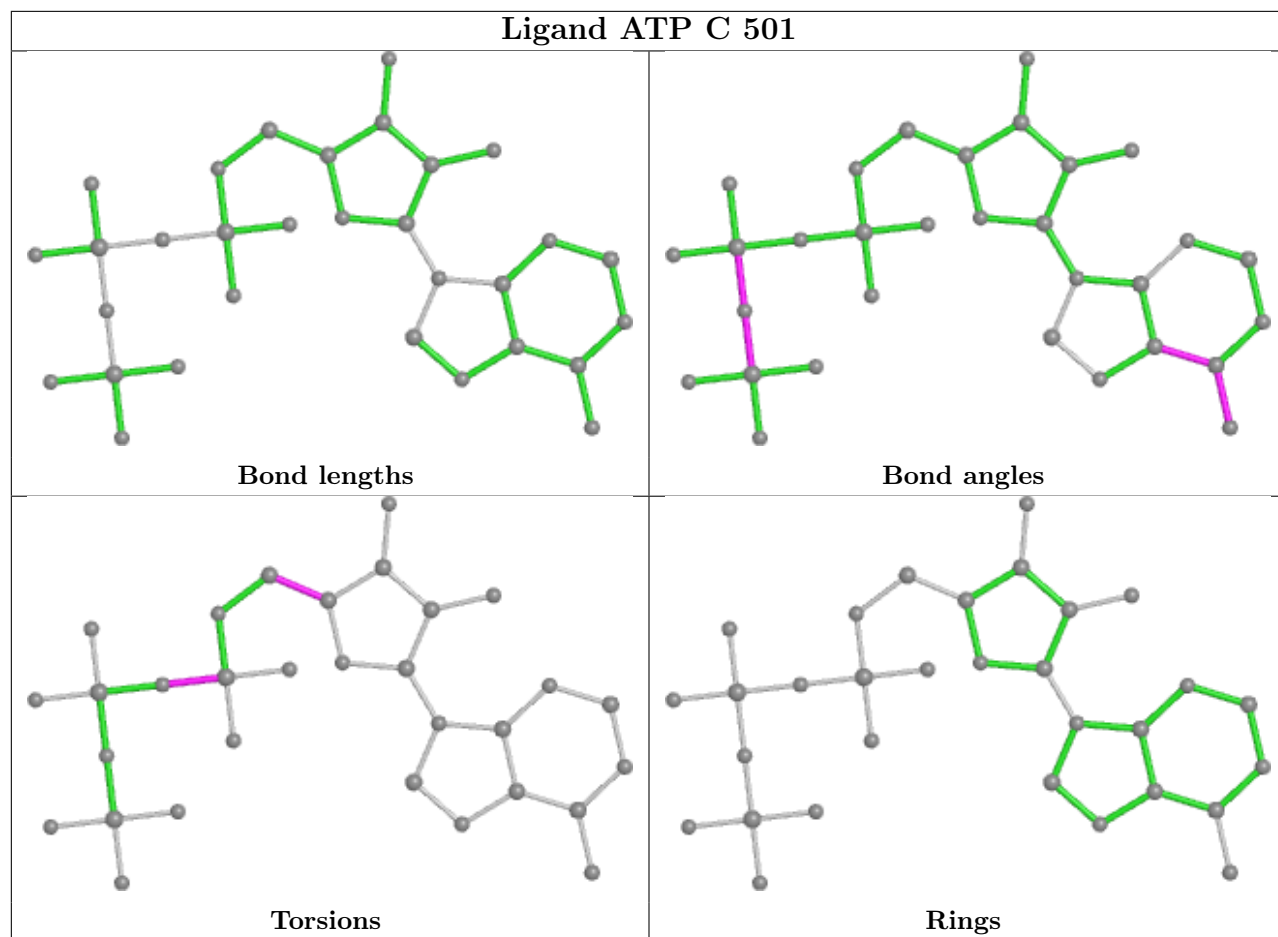
No monomer is involved in short contacts.

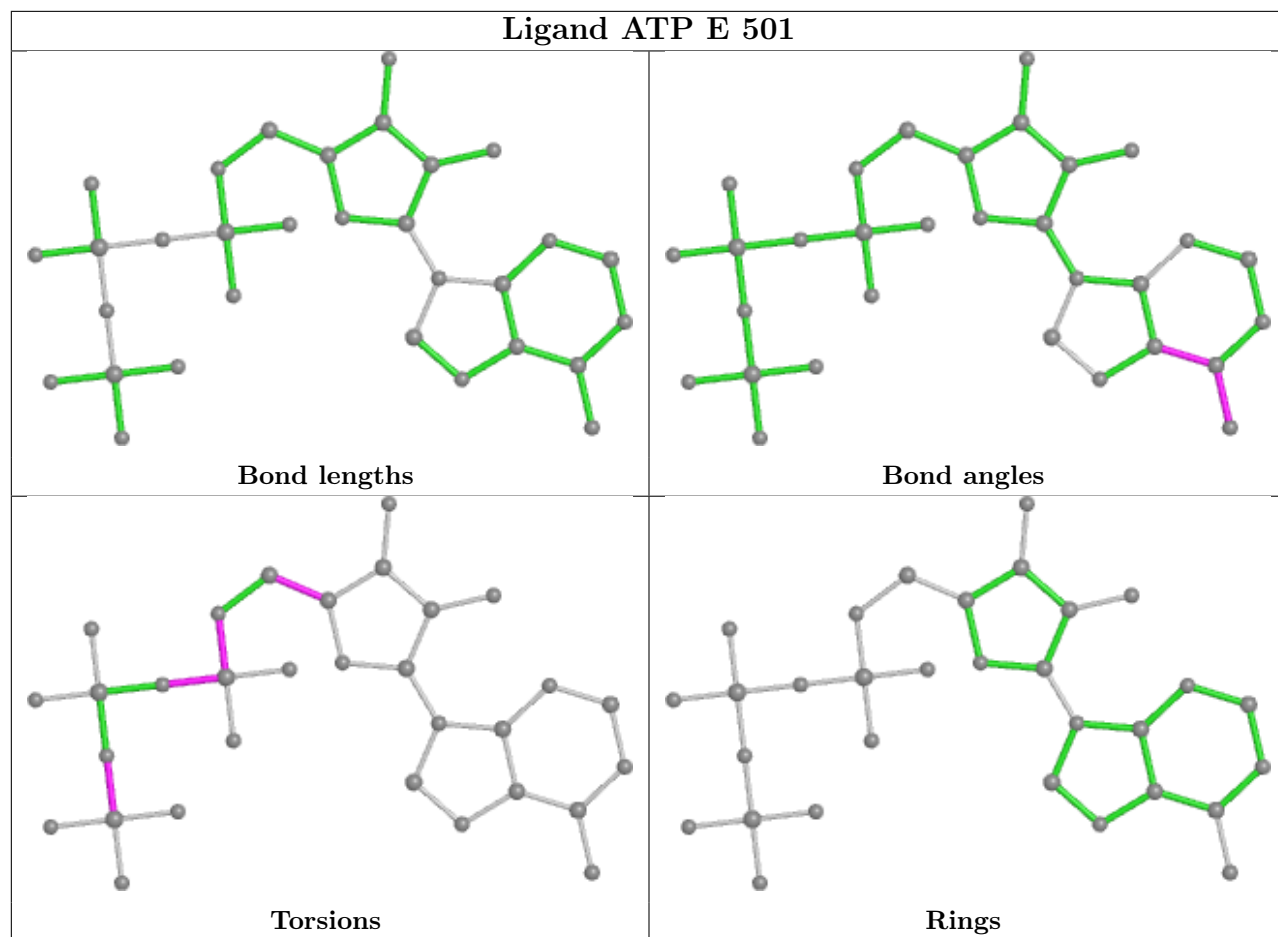
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

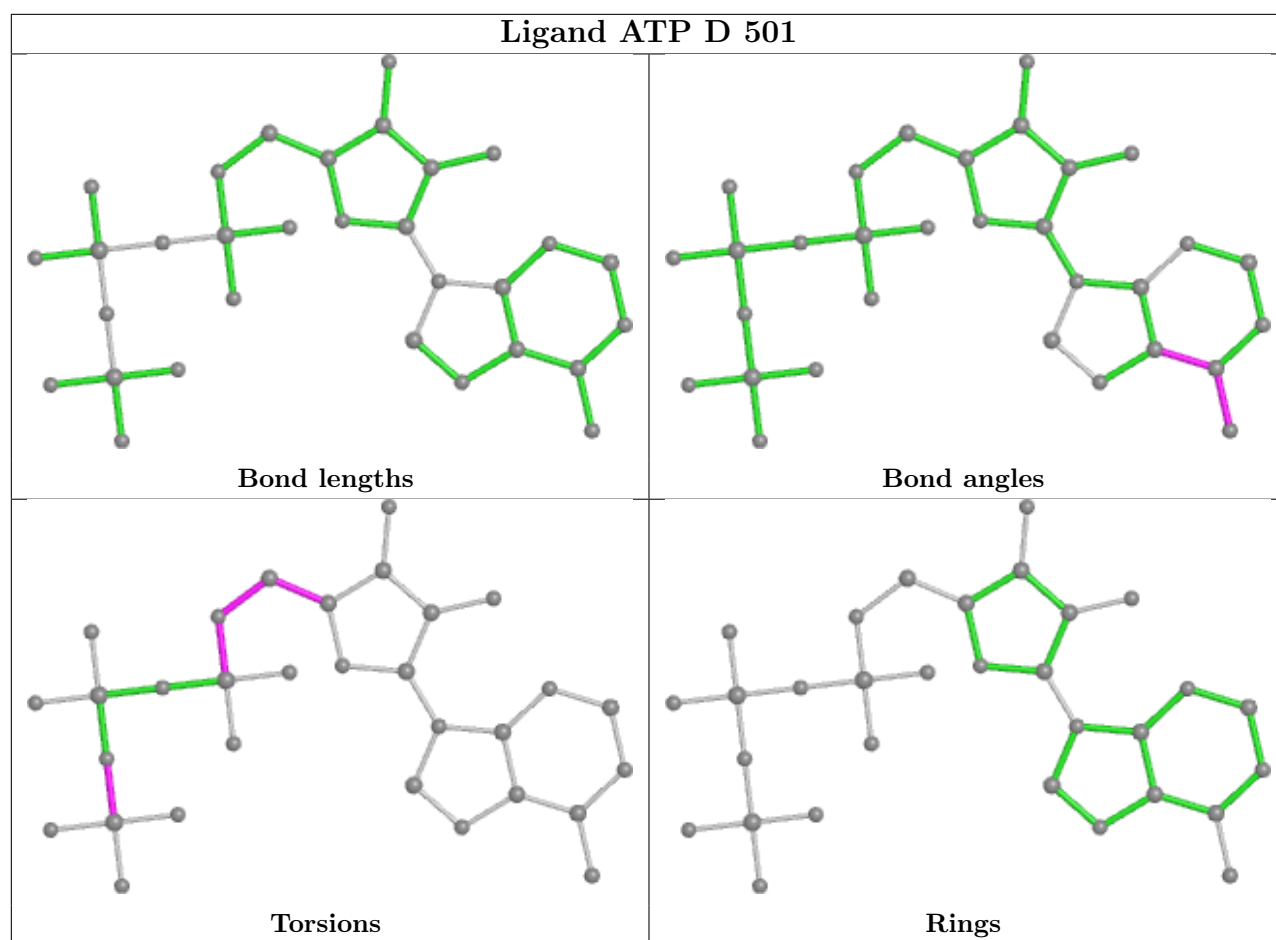


addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. 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.

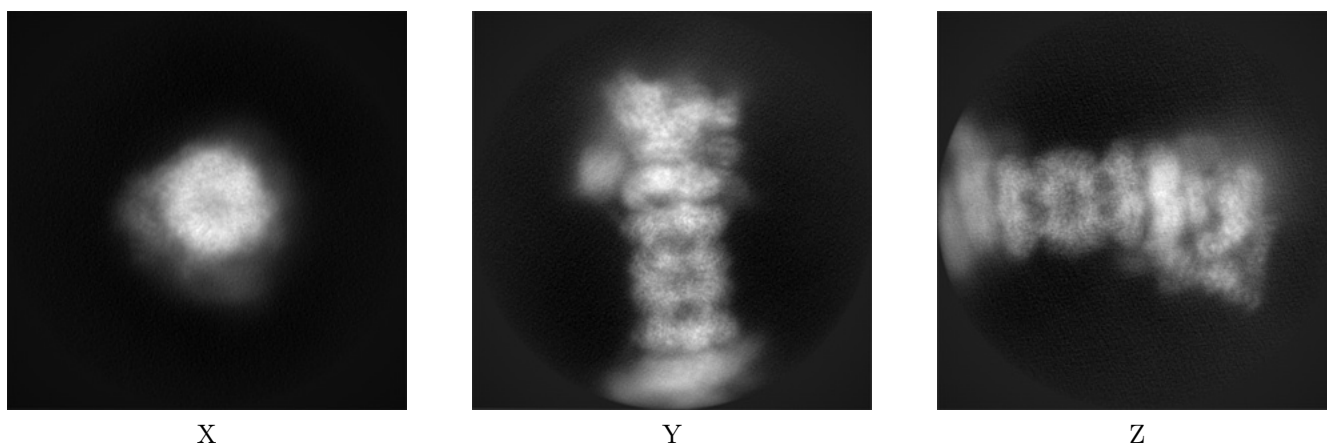
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32276. 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](#)

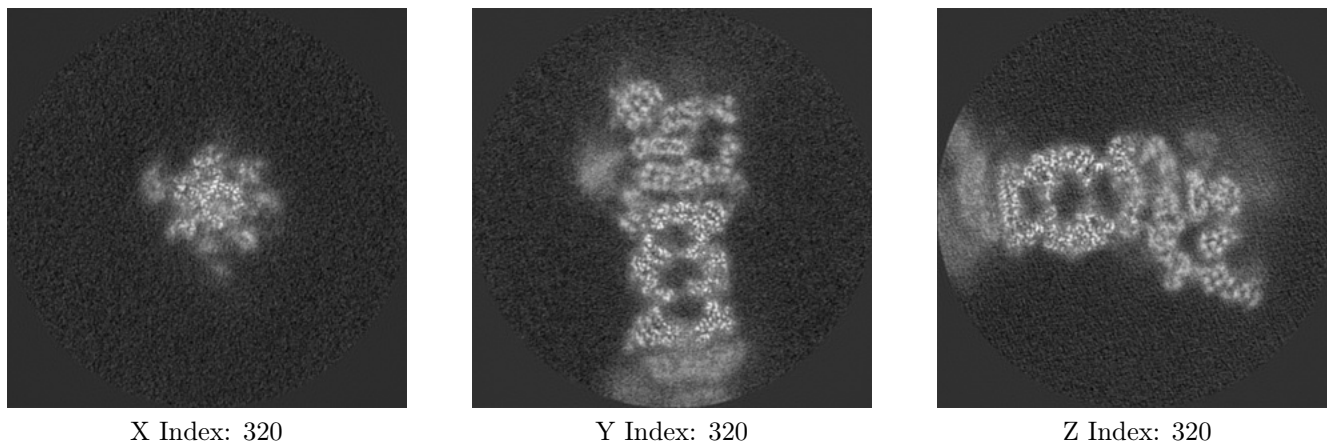
#### 6.1.1 Primary map



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

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

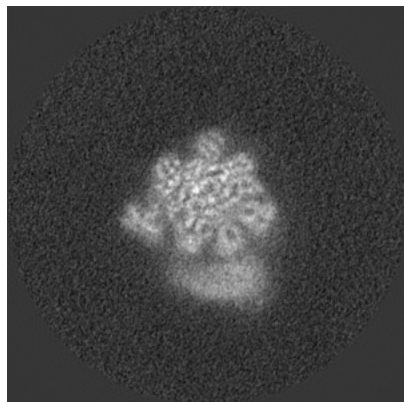
#### 6.2.1 Primary map



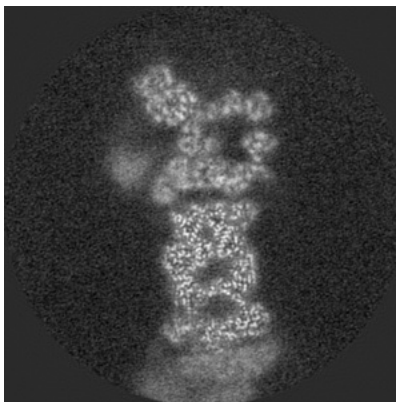
The images above show central slices of the map in three orthogonal directions.

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

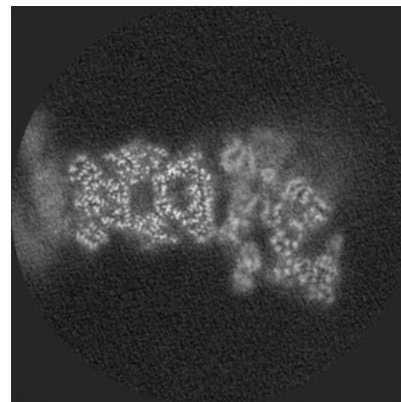
### 6.3.1 Primary map



X Index: 364



Y Index: 303

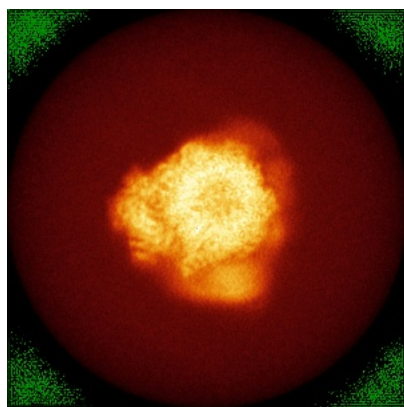


Z Index: 300

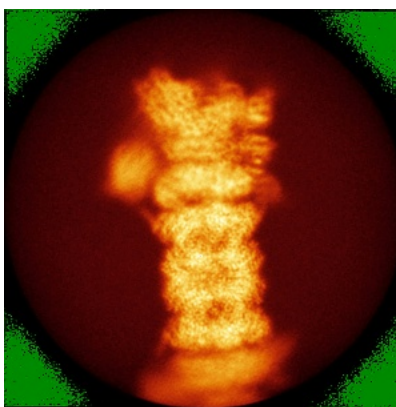
The images above show the largest variance slices of the map in three orthogonal directions.

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

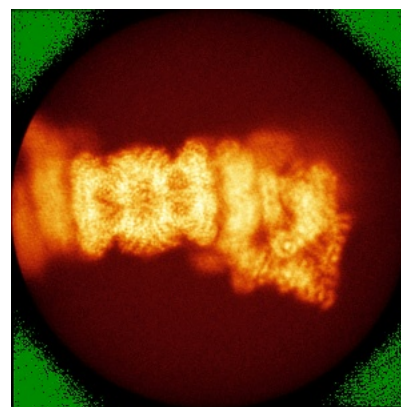
### 6.4.1 Primary map



X



Y

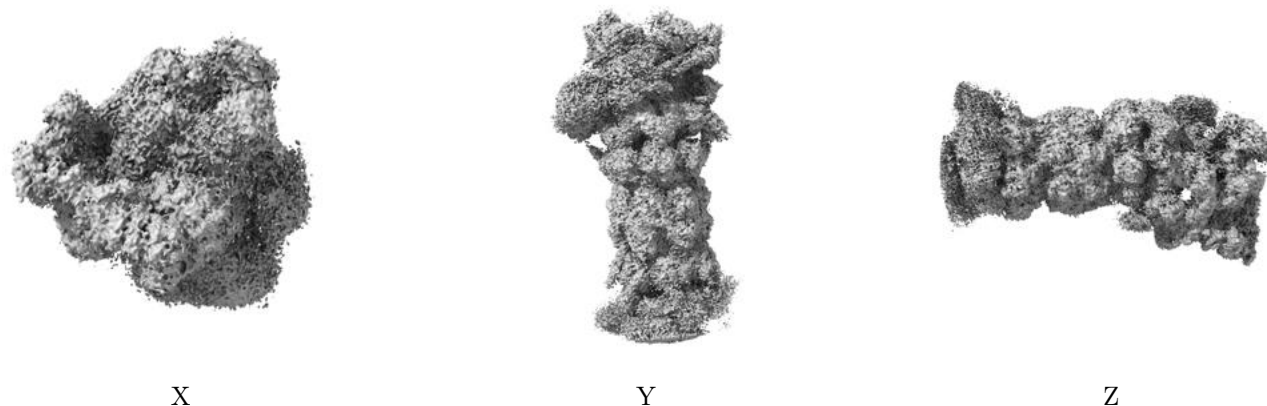


Z

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 0.005. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

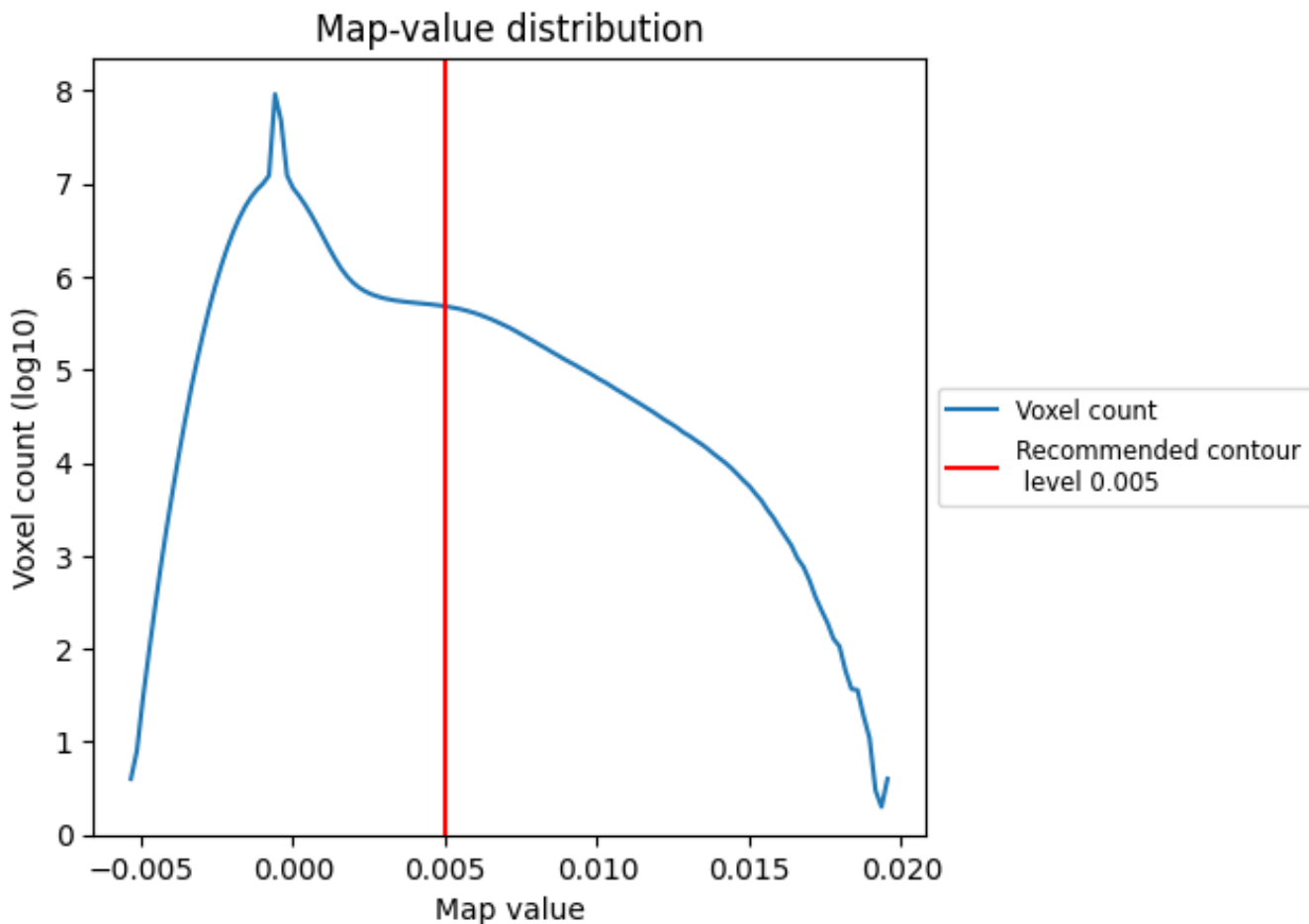
## 6.6 Mask visualisation [i](#)

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.

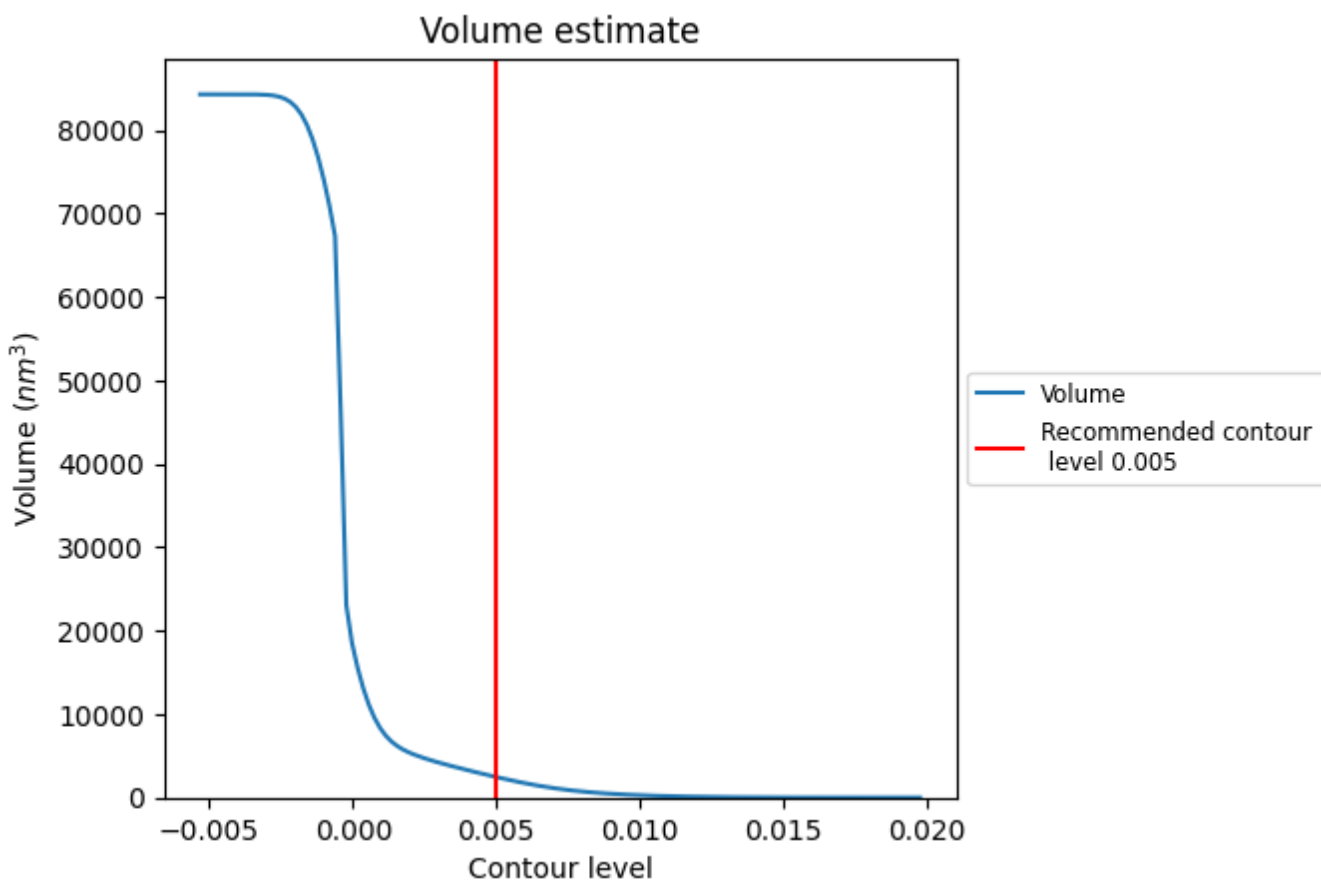
### 7.1 Map-value distribution [i](#)



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.



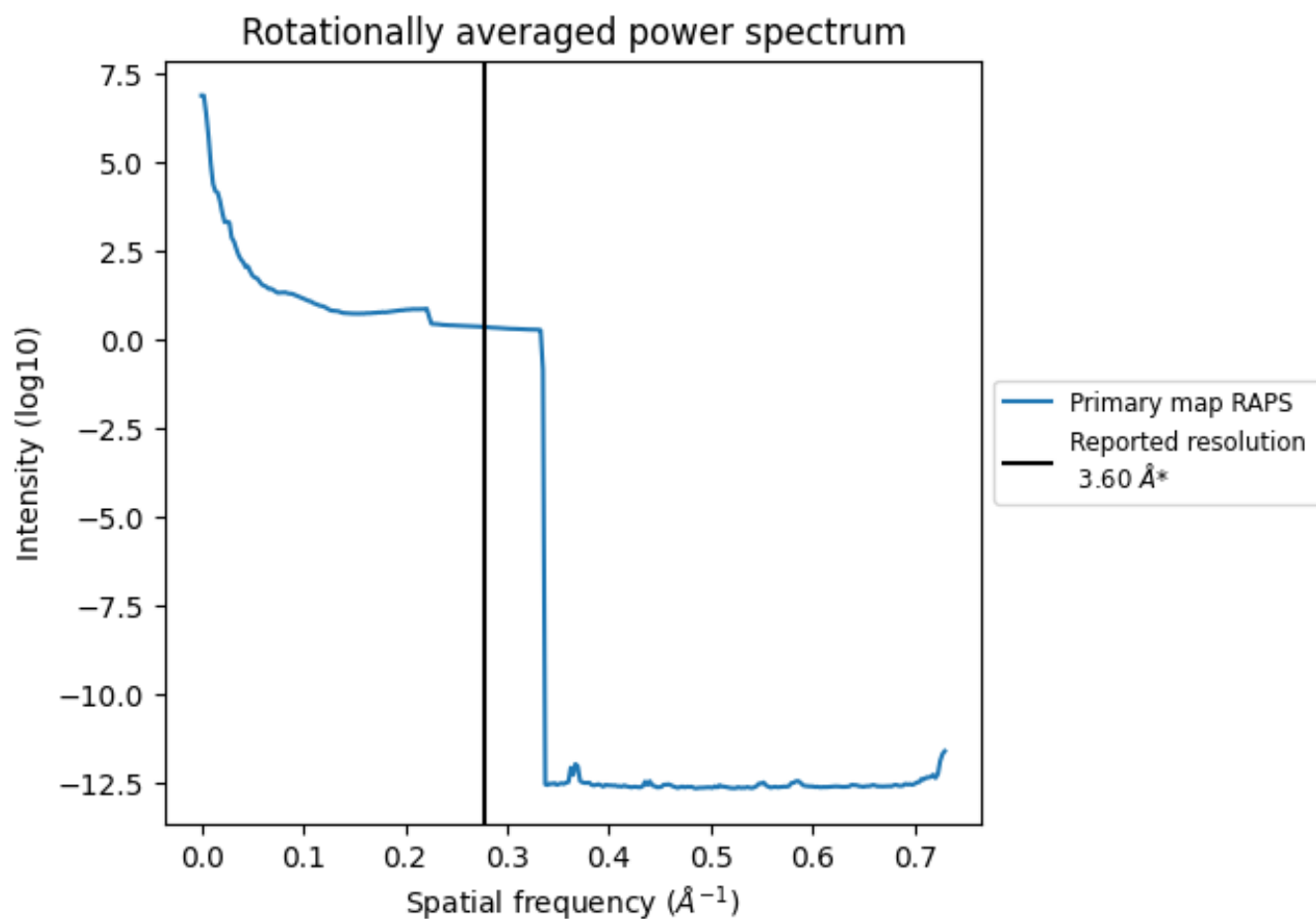
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2452 nm<sup>3</sup>; this corresponds to an approximate mass of 2215 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  $0.278 \text{ \AA}^{-1}$

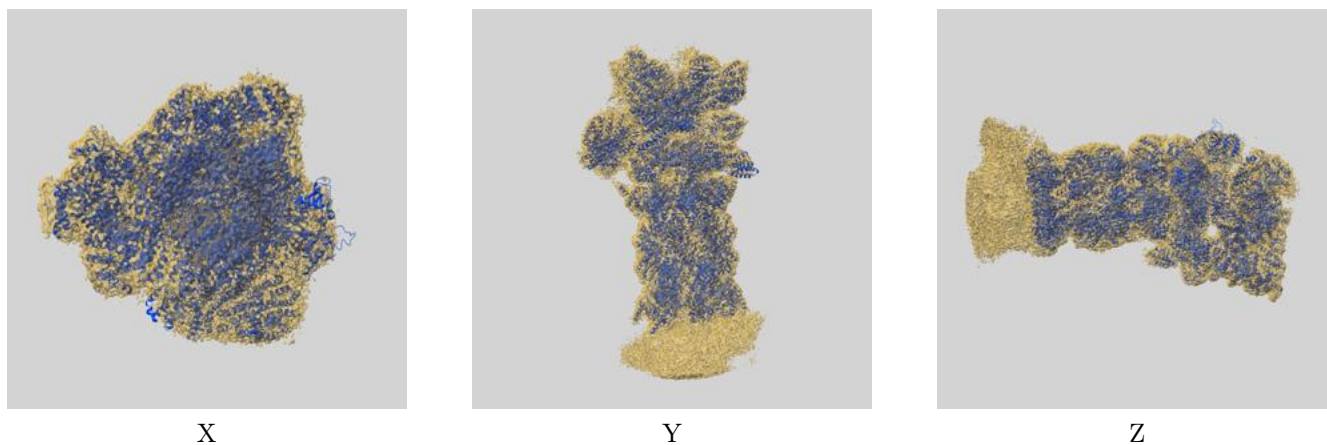
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

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

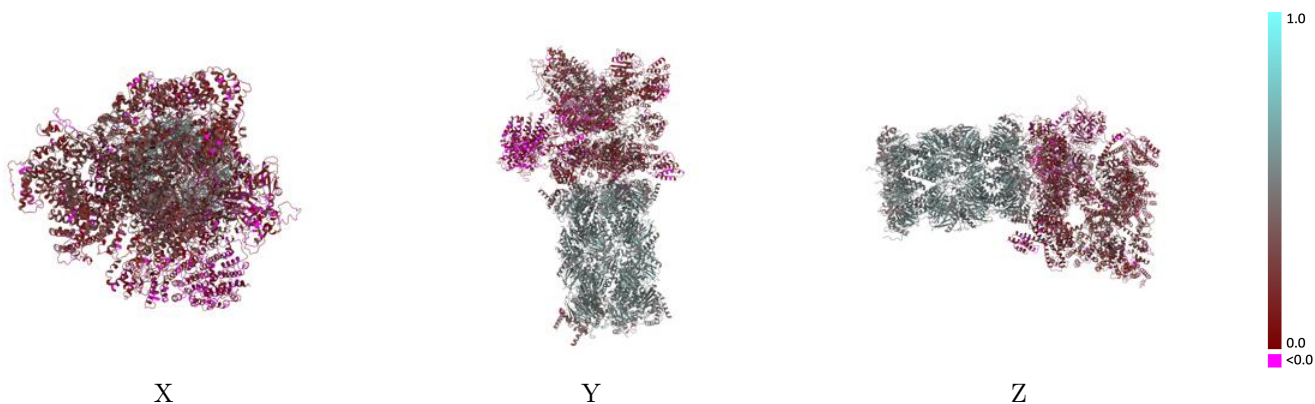
This section contains information regarding the fit between EMDB map EMD-32276 and PDB model 7W3B. Per-residue inclusion information can be found in section 3 on page 13.

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



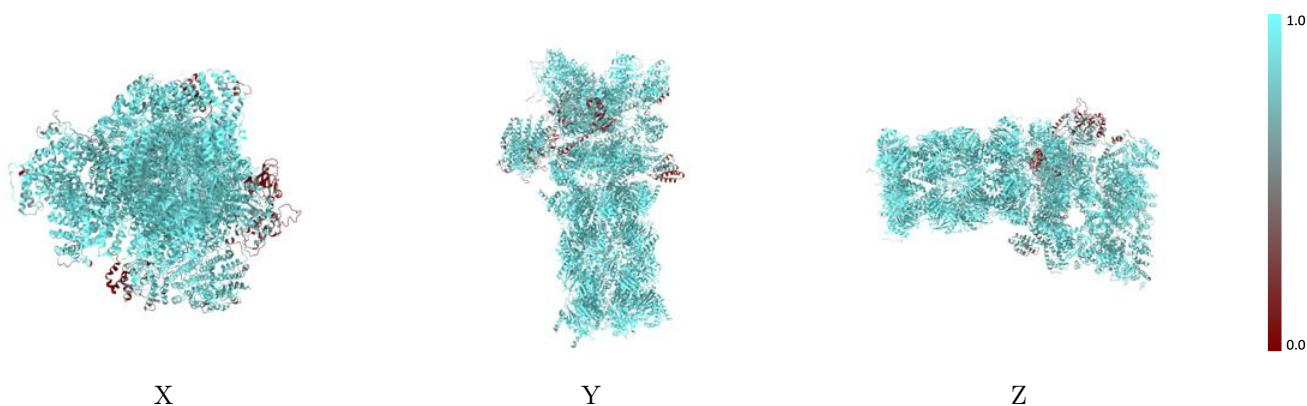
The images above show the 3D surface view of the map at the recommended contour level 0.005 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



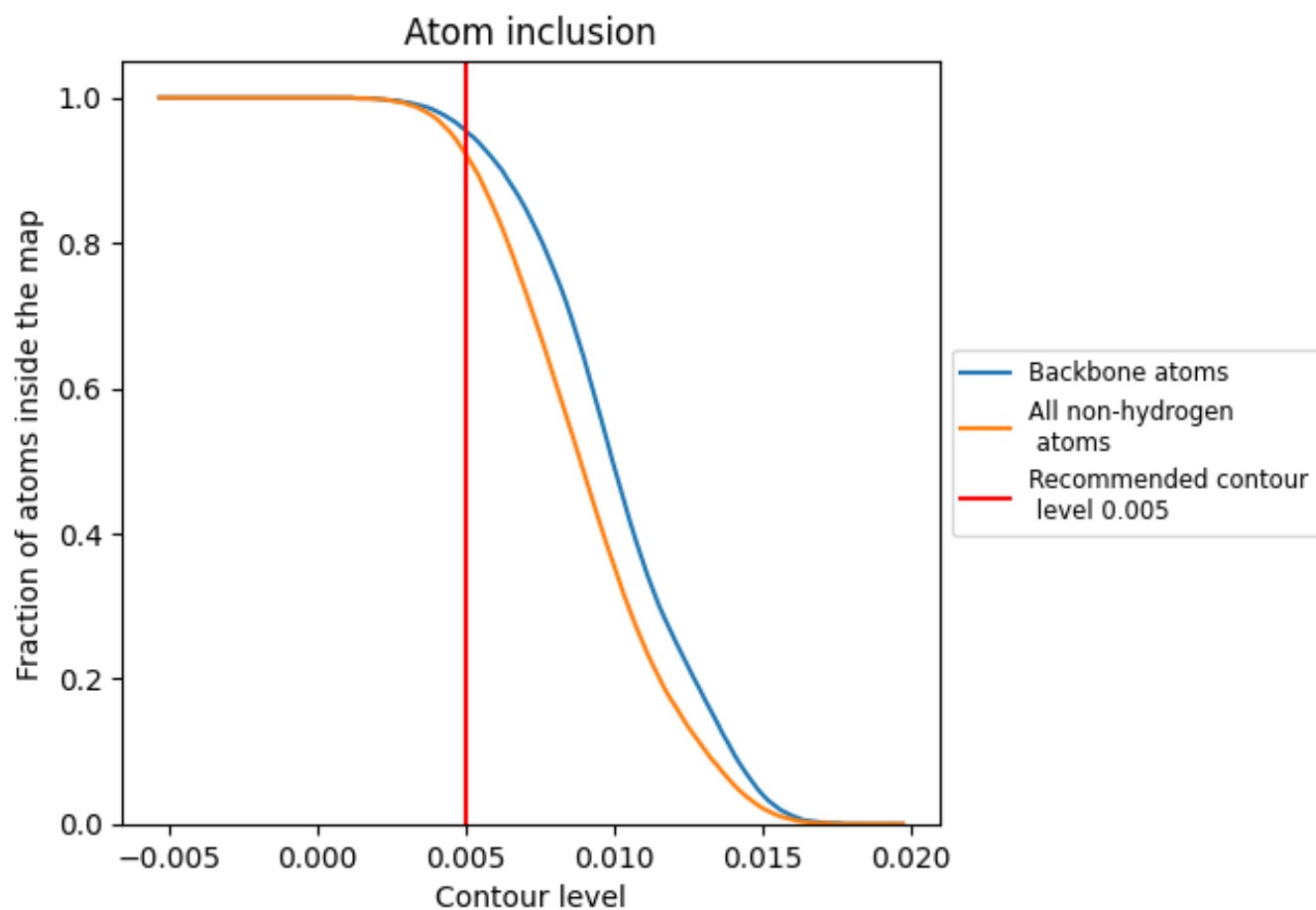
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.005).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 92% 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 (0.005) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9230	 0.3360
A	 0.9340	 0.1830
B	 0.9490	 0.1600
C	 0.9650	 0.2460
D	 0.9750	 0.2630
E	 0.9410	 0.2510
F	 0.9430	 0.2080
G	 0.9770	 0.4910
H	 0.9880	 0.4940
I	 0.9780	 0.4750
J	 0.9800	 0.4570
K	 0.9830	 0.4840
L	 0.9880	 0.5060
M	 0.9820	 0.5030
N	 0.9910	 0.5320
O	 0.9900	 0.5250
P	 0.9960	 0.5280
Q	 0.9930	 0.5250
R	 0.9980	 0.5280
S	 0.9890	 0.5240
T	 0.9900	 0.5330
U	 0.9310	 0.2450
V	 0.9210	 0.2390
W	 0.7790	 0.1970
X	 0.8660	 0.2060
Y	 0.9210	 0.2150
Z	 0.9700	 0.2590
a	 0.9040	 0.2080
b	 0.9470	 0.1970
c	 0.9630	 0.2690
d	 0.8340	 0.1960
e	 0.8590	 0.2320
f	 0.7500	 0.0770
g	 0.9750	 0.4940
h	 0.9840	 0.4980



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Chain	Atom inclusion	Q-score
i	 0.9650	 0.4750
j	 0.9570	 0.4430
k	 0.9730	 0.4780
l	 0.9860	 0.5170
m	 0.9760	 0.4930
n	 0.9890	 0.5330
o	 0.9950	 0.5250
p	 0.9940	 0.5250
q	 0.9950	 0.5250
r	 0.9940	 0.5250
s	 0.9900	 0.5240
t	 0.9890	 0.5350
v	 0.8710	 0.1670
x	 0.5360	 0.1270
y	 0.2870	 0.1460