



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 7, 2026 – 04:20 AM UTC

PDB ID : 1PMA / pdb_00001pma
Title : PROTEASOME FROM THERMOPLASMA ACIDOPHILUM
Authors : Loewe, J.; Stock, D.; Jap, B.; Zwickl, P.; Baumeister, W.; Huber, R.
Deposited on : 1994-12-19
Resolution : 3.40 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

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>.

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

MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

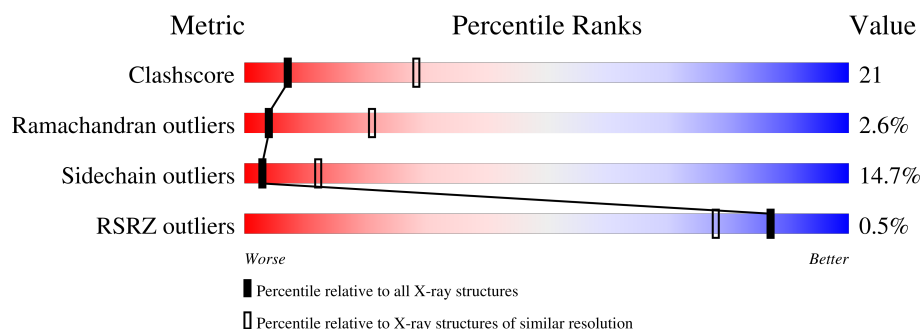
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.40 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.



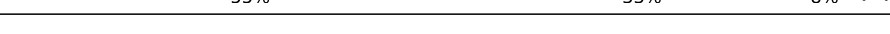
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	190562	1022 (3.44-3.36)
Ramachandran outliers	187476	1012 (3.44-3.36)
Sidechain outliers	187428	1012 (3.44-3.36)
RSRZ outliers	180081	1001 (3.44-3.36)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	233	% 45% 43% 7% 5%
1	C	233	% 49% 36% 9% 5%
1	D	233	% 46% 39% 9% 5%
1	E	233	% 46% 38% 10% 5%
1	F	233	42% 45% 7% 5%
1	G	233	% 41% 47% 6% 5%
1	H	233	47% 41% 7% 5%

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Mol	Chain	Length	Quality of chain
1	I	233	
1	J	233	
1	K	233	
1	L	233	
1	M	233	
1	N	233	
1	O	233	
2	1	211	
2	2	211	
2	B	211	
2	P	211	
2	Q	211	
2	R	211	
2	S	211	
2	T	211	
2	U	211	
2	V	211	
2	W	211	
2	X	211	
2	Y	211	
2	Z	211	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 56294 atoms, of which 10402 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 PROTEASOME.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	C	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	D	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	E	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	F	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	G	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	H	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	I	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	J	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	K	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	L	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	M	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	N	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			
1	O	221	Total	C	H	N	O	S	0	0	0
			2113	1092	393	290	335	3			

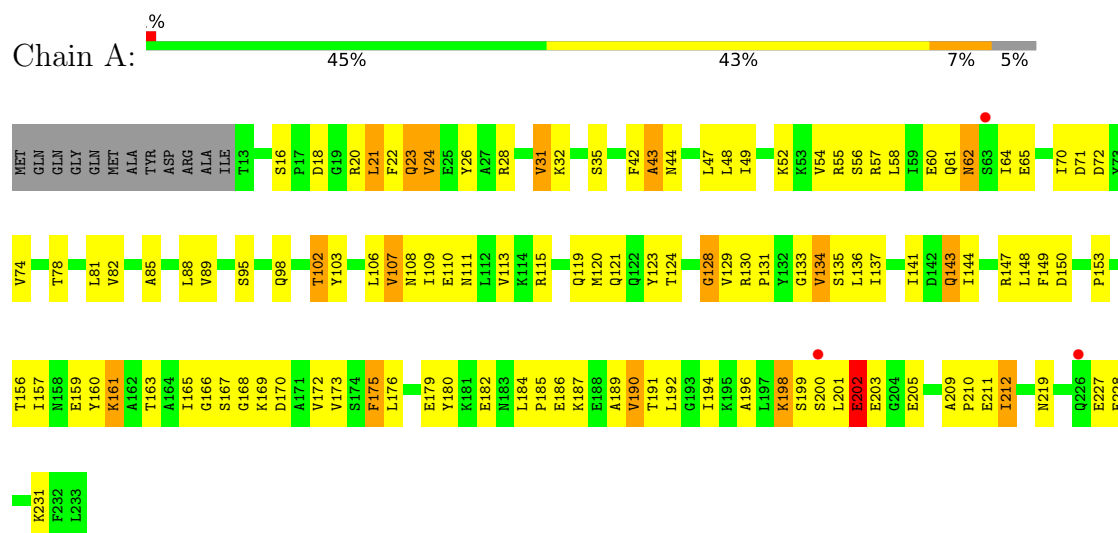
- Molecule 2 is a protein called PROTEASOME.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	B	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	P	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	Q	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	R	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	S	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	T	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	U	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	V	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	W	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	X	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	Y	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	Z	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	1	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0
2	2	203	Total 1908	C 985	H 350	N 264	O 298	S 11	0	0	0

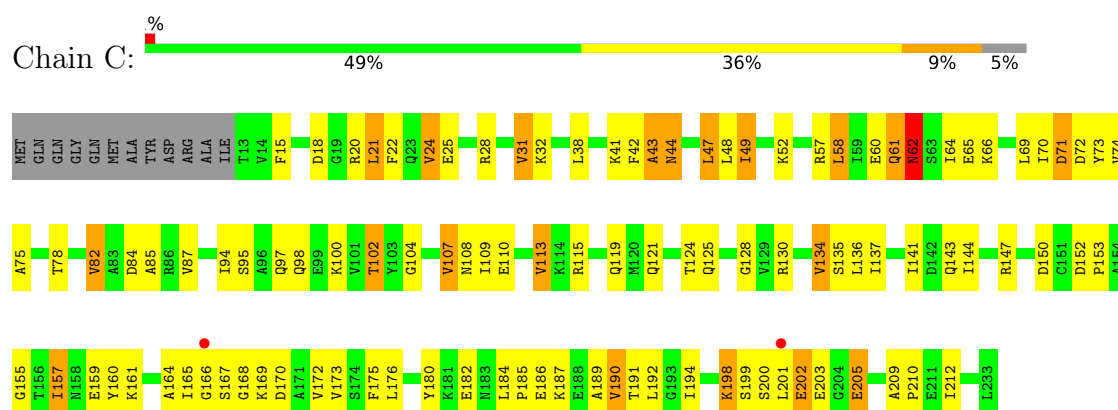
3 Residue-property plots

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 electron 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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.

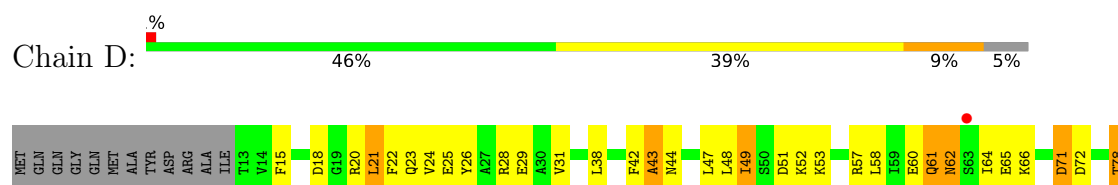
• Molecule 1: PROTEASOME

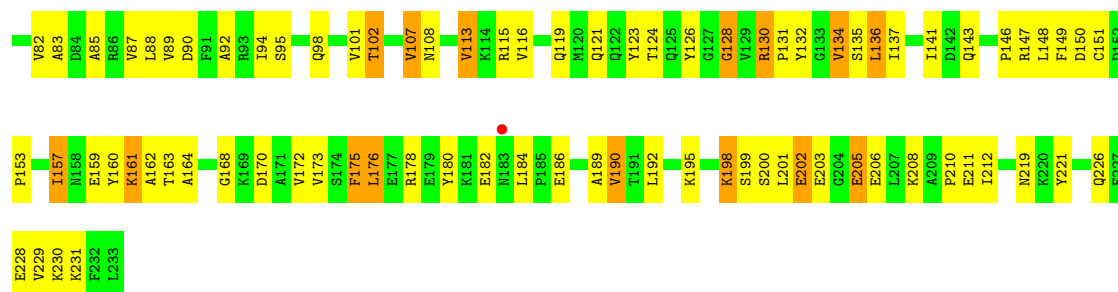


• Molecule 1: PROTEASOME

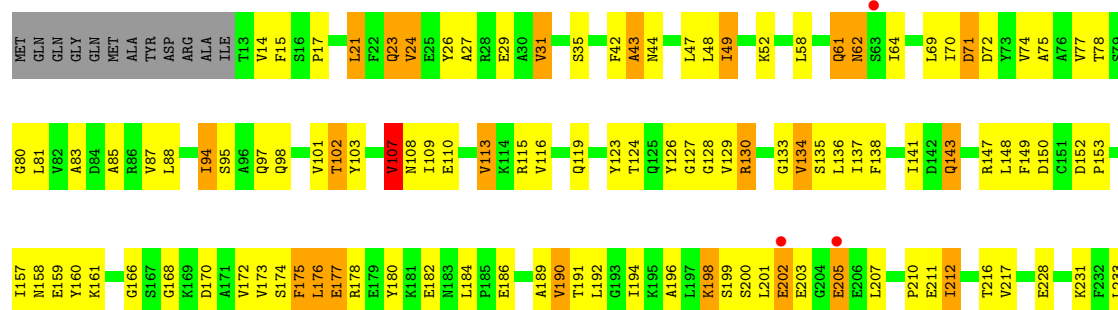


• Molecule 1: PROTEASOME

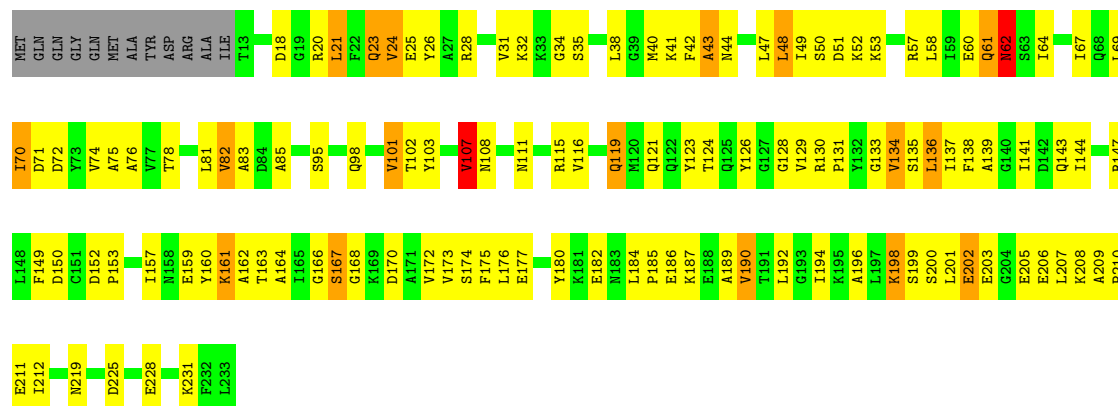




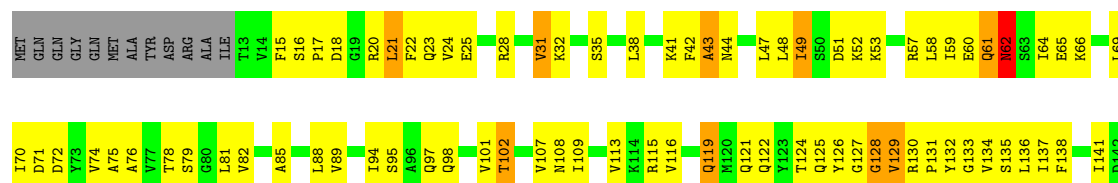
• Molecule 1: PROTEASOME



• Molecule 1: PROTEASOME



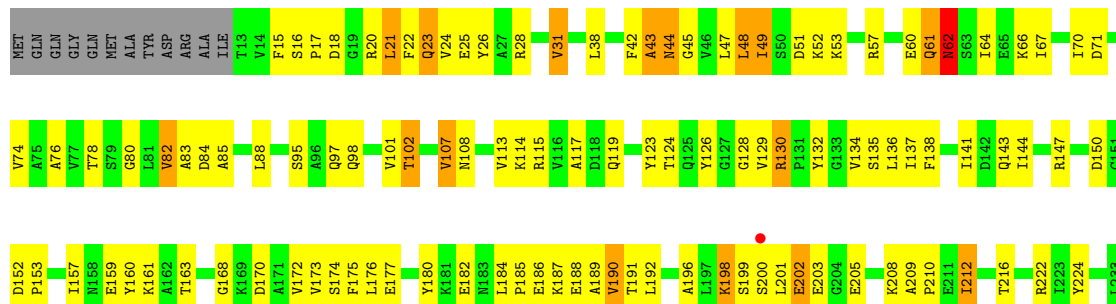
• Molecule 1: PROTEASOME





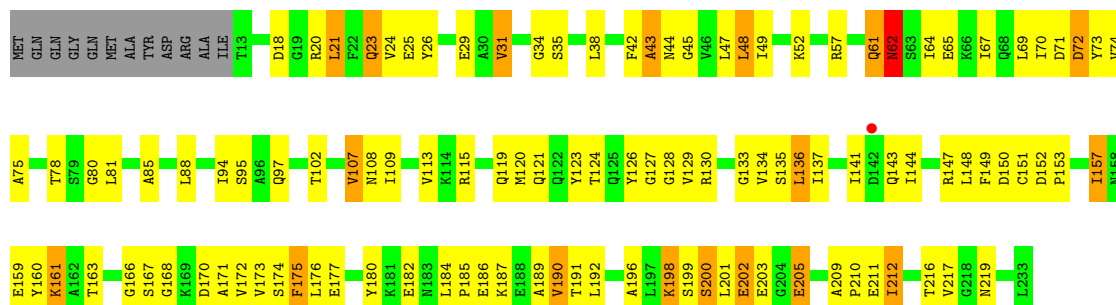
● Molecule 1: PROTEASOME

Chain H: 47% 41% 7% 5%



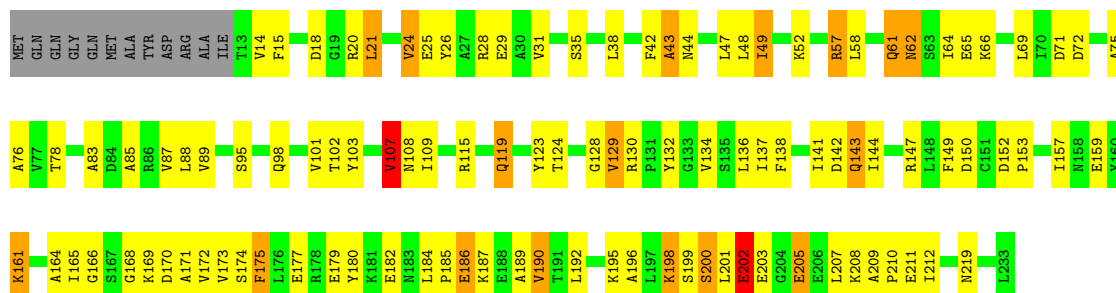
● Molecule 1: PROTEASOME

Chain I: 46% 40% 8% 5%



● Molecule 1: PROTEASOME

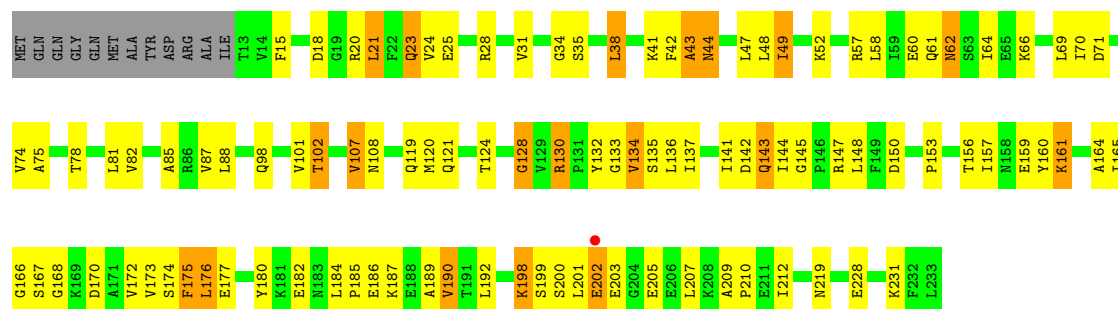
Chain J: 48% 38% 7% 5%



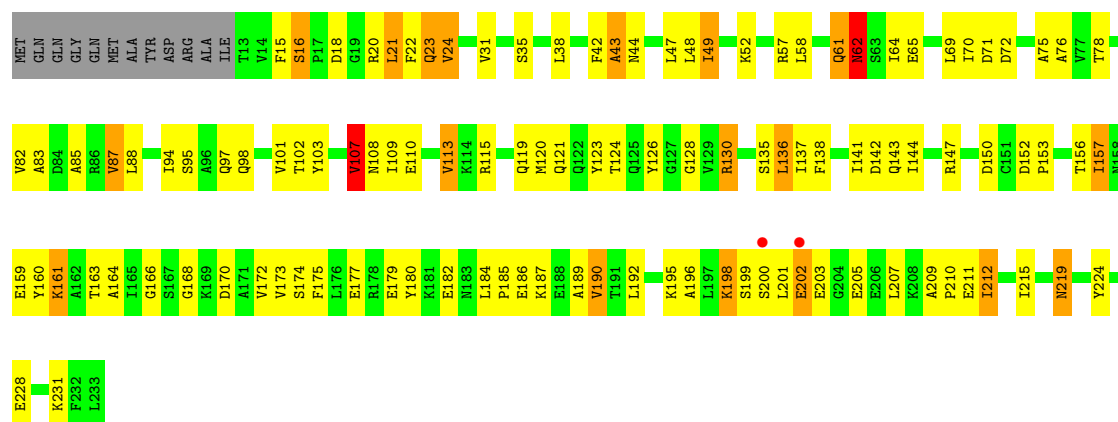
● Molecule 1: PROTEASOME

Chain K: 50% 36% 8% 5%

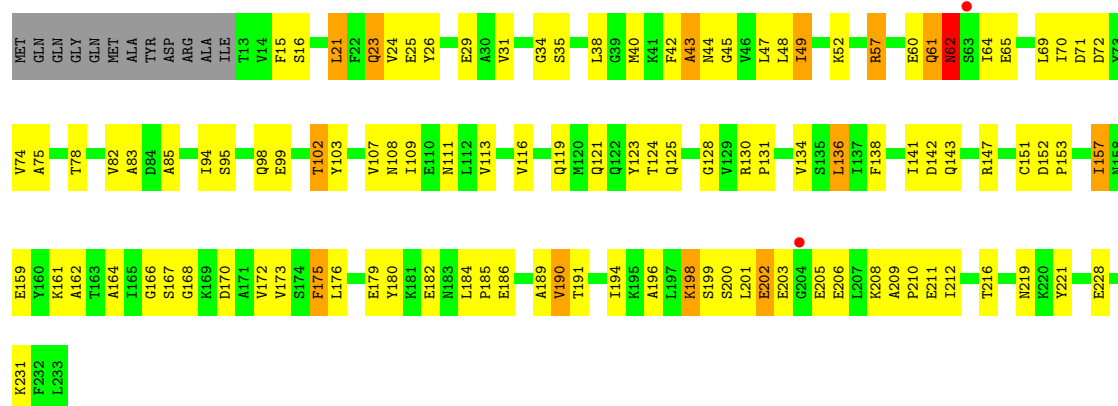




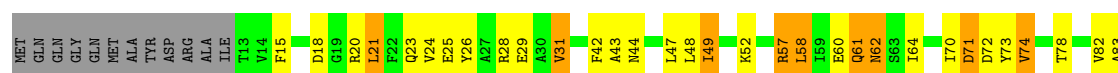
• Molecule 1: PROTEASOME

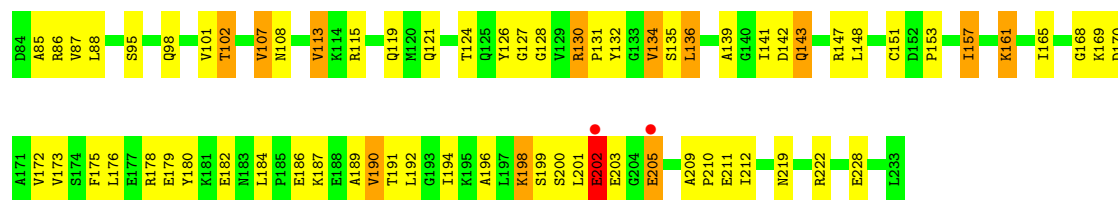


• Molecule 1: PROTEASOME

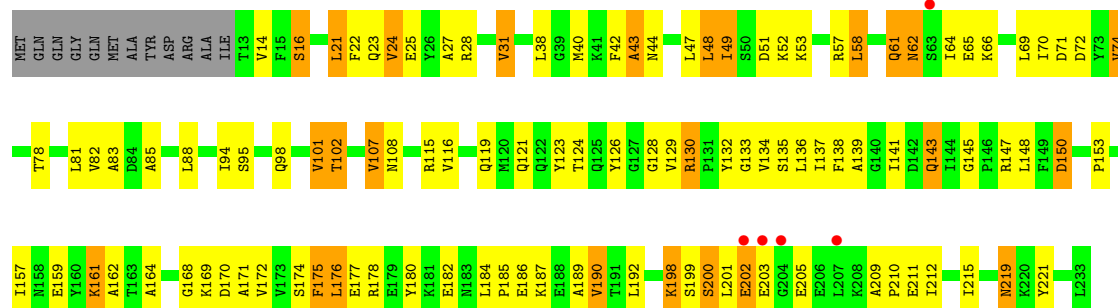


• Molecule 1: PROTEASOME

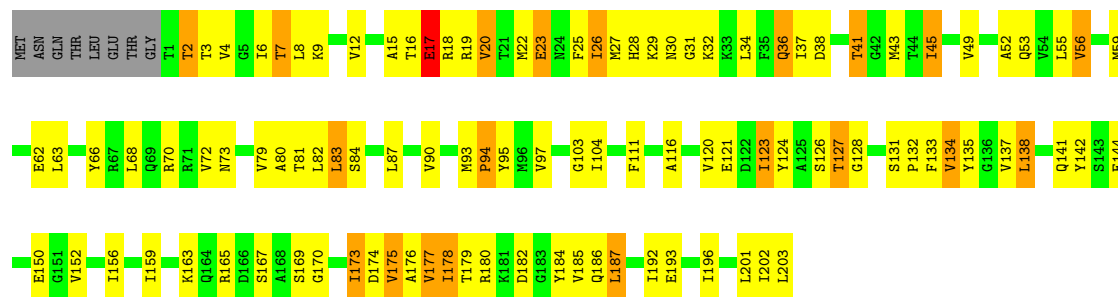




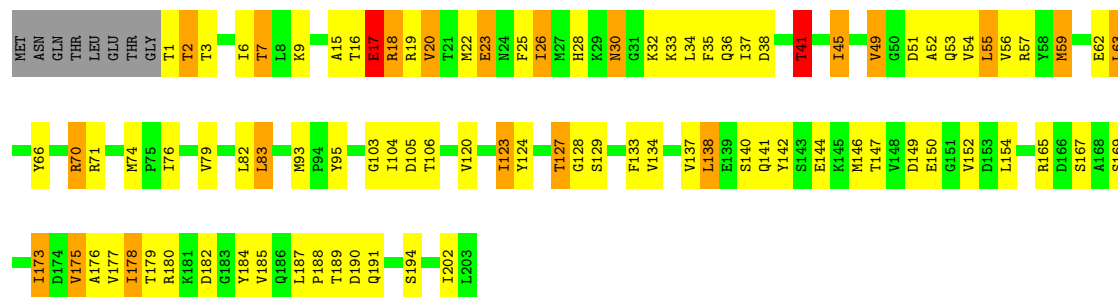
• Molecule 1: PROTEASOME



• Molecule 2: PROTEASOME

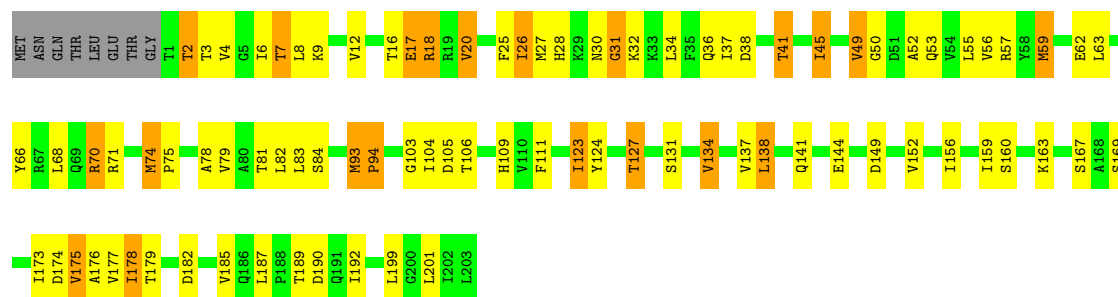


• Molecule 2: PROTEASOME



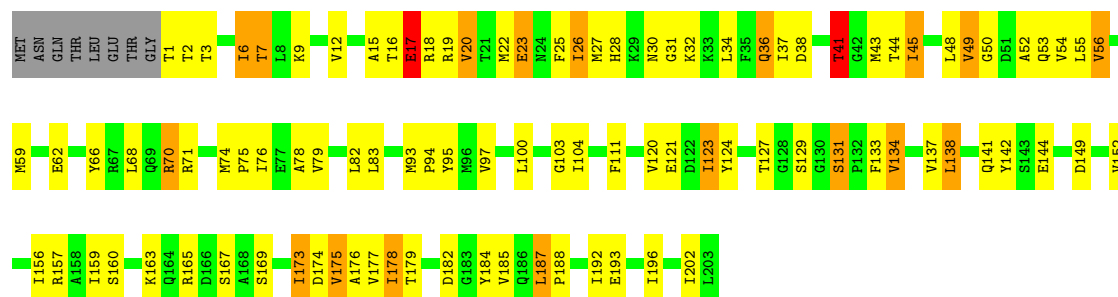
• Molecule 2: PROTEASOME





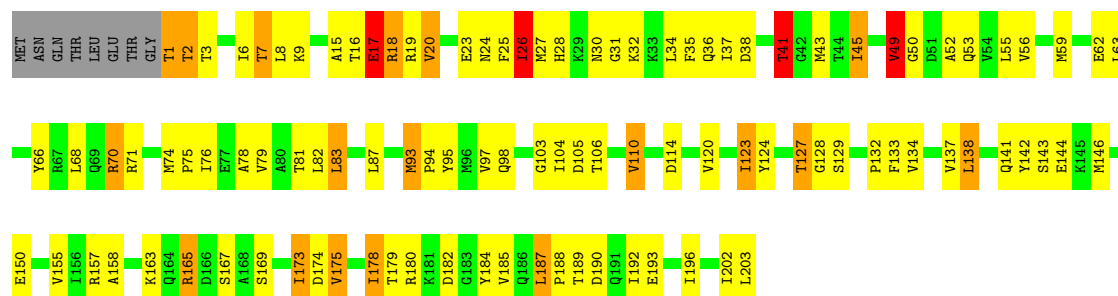
- Molecule 2: PROTEASOME

Chain R: 49% 37% 9% . .



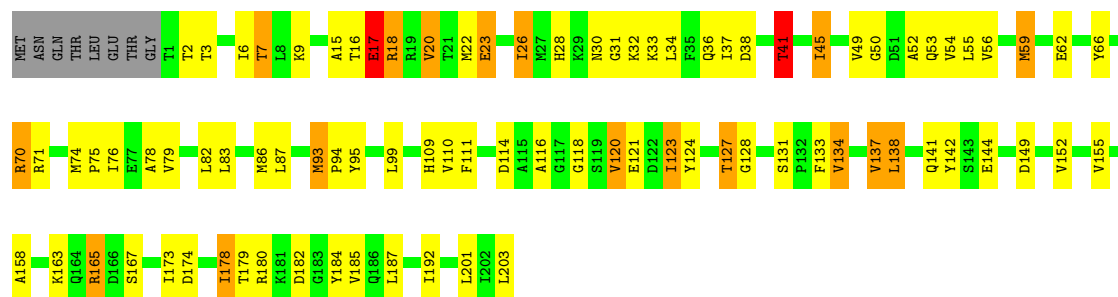
- Molecule 2: PROTEASOME

Chain S: 46% 39% 9% . .



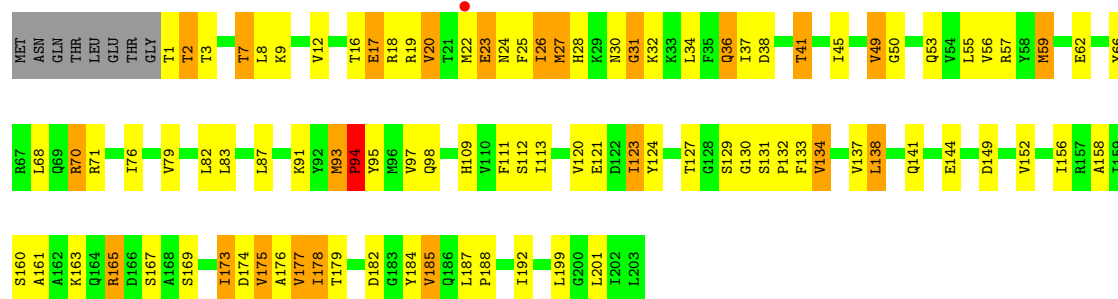
- Molecule 2: PROTEASOME

Chain T: 55% 33% 8% . .



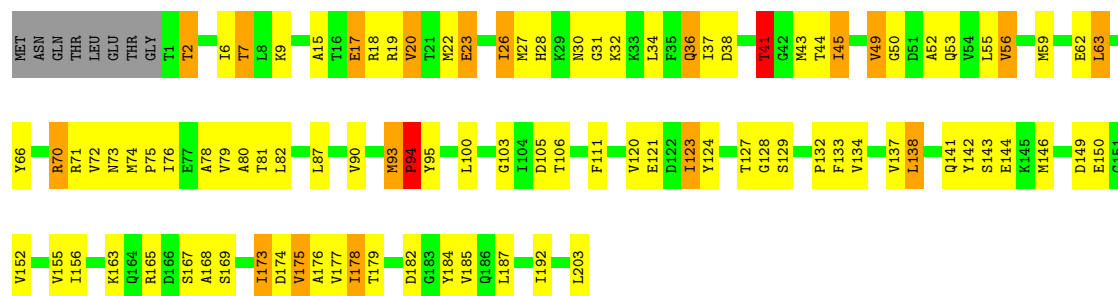
- Molecule 2: PROTEASOME

Chain U:  51% 34% 11% .



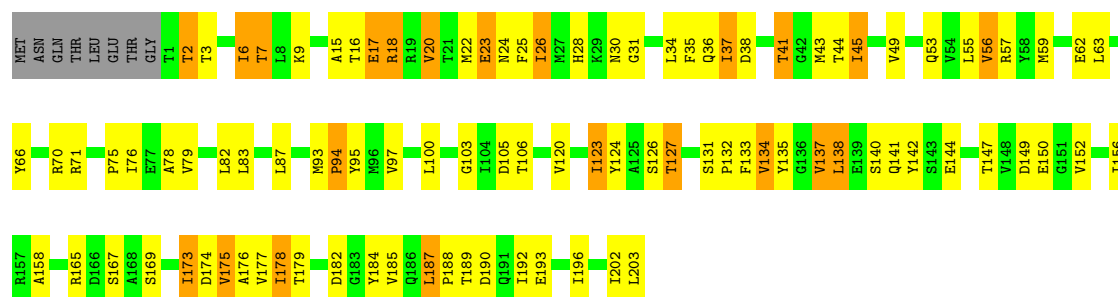
• Molecule 2: PROTEASOME

Chain V:  50% 36% 9% . .



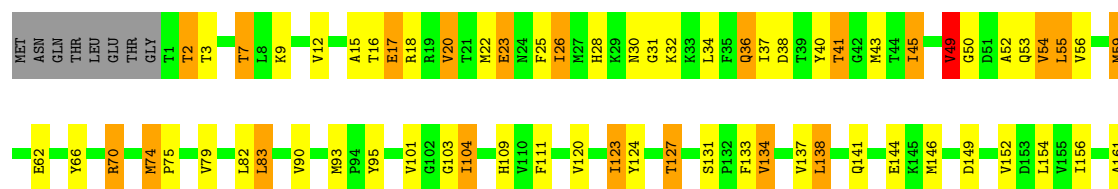
• Molecule 2: PROTEASOME

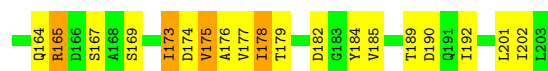
Chain W:  50% 36% 10% .



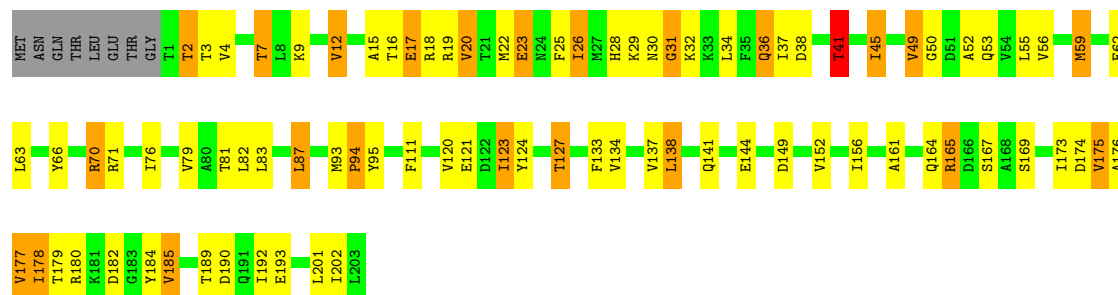
• Molecule 2: PROTEASOME

Chain X:  55% 29% 11% .

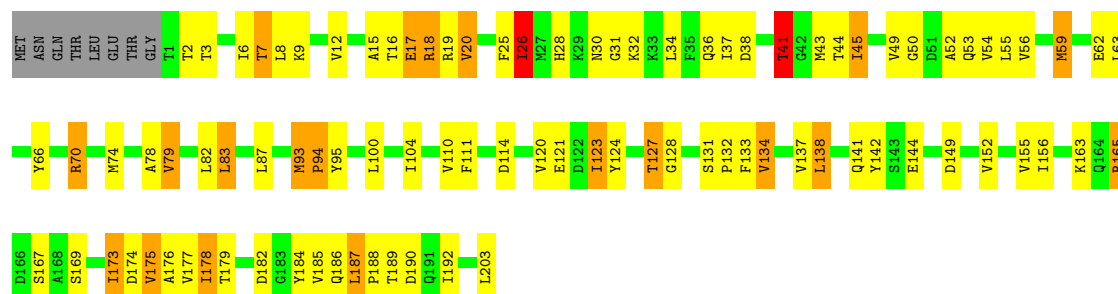




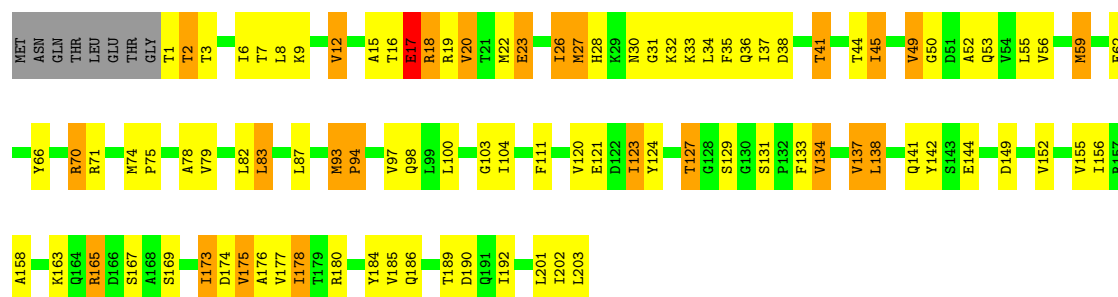
• Molecule 2: PROTEASOME



• Molecule 2: PROTEASOME

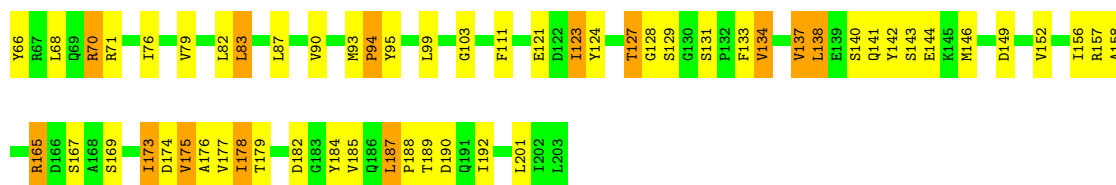


• Molecule 2: PROTEASOME



• Molecule 2: PROTEASOME





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	311.90Å 209.70Å 117.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 3.40 10.00 – 3.40	Depositor EDS
% Data completeness (in resolution range)	85.7 (10.00-3.40) 81.7 (10.00-3.40)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.72 (at 3.37Å)	Xtriage
Refinement program	X-PLOR 3.1	Depositor
R, R_{free}	0.221 , (Not available) 0.208 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	80.4	Xtriage
Anisotropy	0.268	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.27 , 110.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	56294	wwPDB-VP
Average B, all atoms (Å ²)	47.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.52% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	0.61	0/1743	0.98	6/2348 (0.3%)
1	C	0.64	0/1743	1.03	5/2348 (0.2%)
1	D	0.64	0/1743	1.03	11/2348 (0.5%)
1	E	0.66	0/1743	1.00	6/2348 (0.3%)
1	F	0.64	0/1743	1.02	8/2348 (0.3%)
1	G	0.63	0/1743	1.04	7/2348 (0.3%)
1	H	0.63	0/1743	1.02	7/2348 (0.3%)
1	I	0.62	0/1743	1.00	5/2348 (0.2%)
1	J	0.60	0/1743	1.01	8/2348 (0.3%)
1	K	0.60	0/1743	1.04	9/2348 (0.4%)
1	L	0.65	0/1743	1.04	12/2348 (0.5%)
1	M	0.63	0/1743	1.01	6/2348 (0.3%)
1	N	0.65	0/1743	1.02	11/2348 (0.5%)
1	O	0.64	0/1743	1.02	8/2348 (0.3%)
2	1	0.73	0/1577	1.14	10/2129 (0.5%)
2	2	0.69	0/1577	1.13	14/2129 (0.7%)
2	B	0.75	0/1577	1.12	12/2129 (0.6%)
2	P	0.71	1/1577 (0.1%)	1.14	12/2129 (0.6%)
2	Q	0.71	0/1577	1.14	13/2129 (0.6%)
2	R	0.74	0/1577	1.13	11/2129 (0.5%)
2	S	0.75	1/1577 (0.1%)	1.14	15/2129 (0.7%)
2	T	0.73	0/1577	1.11	12/2129 (0.6%)
2	U	0.72	0/1577	1.11	10/2129 (0.5%)
2	V	0.74	0/1577	1.14	10/2129 (0.5%)
2	W	0.74	0/1577	1.16	12/2129 (0.6%)
2	X	0.73	0/1577	1.10	10/2129 (0.5%)
2	Y	0.71	0/1577	1.10	9/2129 (0.4%)
2	Z	0.73	2/1577 (0.1%)	1.13	13/2129 (0.6%)
All	All	0.68	4/46480 (0.0%)	1.07	272/62678 (0.4%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S	26	ILE	CA-CB	6.70	1.60	1.53
2	Z	59	MET	SD-CE	-5.80	1.65	1.79
2	P	93	MET	SD-CE	5.15	1.92	1.79
2	Z	93	MET	SD-CE	5.00	1.92	1.79

The worst 5 of 272 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	1	93	MET	CA-C-N	11.71	131.84	119.78
2	1	93	MET	C-N-CA	11.71	131.84	119.78
1	G	161	LYS	N-CA-C	-11.21	98.21	112.90
2	Z	93	MET	CA-C-N	11.02	131.71	119.92
2	Z	93	MET	C-N-CA	11.02	131.71	119.92

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	1720	393	1753	80	0
1	C	1720	393	1753	76	0
1	D	1720	393	1753	79	1
1	E	1720	393	1753	83	0
1	F	1720	393	1753	89	0
1	G	1720	393	1753	96	0
1	H	1720	393	1753	82	0
1	I	1720	393	1753	83	0
1	J	1720	393	1753	77	0
1	K	1720	393	1753	73	0
1	L	1720	393	1753	81	0
1	M	1720	393	1753	76	0
1	N	1720	393	1753	67	1
1	O	1720	393	1753	79	0
2	1	1558	350	1609	79	0
2	2	1558	350	1609	63	0
2	B	1558	350	1609	84	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	P	1558	350	1609	72	0
2	Q	1558	350	1609	59	0
2	R	1558	350	1609	70	0
2	S	1558	350	1609	82	0
2	T	1558	350	1609	66	0
2	U	1558	350	1609	73	0
2	V	1558	350	1609	79	0
2	W	1558	350	1609	70	0
2	X	1558	350	1609	68	0
2	Y	1558	350	1609	67	0
2	Z	1558	350	1609	72	0
All	All	45892	10402	47068	1933	1

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 21.

The worst 5 of 1933 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)
2:B:38:ASP:HB3	2:B:41:THR:HG23	1.38	1.03
2:T:38:ASP:HB3	2:T:41:THR:HG23	1.44	1.00
2:Q:45:ILE:HG12	2:Q:52:ALA:HB1	1.44	0.99
2:Q:38:ASP:HB3	2:Q:41:THR:HG23	1.46	0.98
2:R:38:ASP:HB3	2:R:41:THR:HG23	1.45	0.98

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:178:ARG:HH22	1:N:178:ARG:HH22[4_457]	1.29	0.31

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 X-ray entries followed by that with respect to entries of similar resolution.

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	219/233 (94%)	184 (84%)	26 (12%)	9 (4%)	2	15
1	C	219/233 (94%)	185 (84%)	25 (11%)	9 (4%)	2	15
1	D	219/233 (94%)	184 (84%)	28 (13%)	7 (3%)	3	17
1	E	219/233 (94%)	188 (86%)	22 (10%)	9 (4%)	2	15
1	F	219/233 (94%)	183 (84%)	25 (11%)	11 (5%)	1	10
1	G	219/233 (94%)	186 (85%)	23 (10%)	10 (5%)	2	12
1	H	219/233 (94%)	186 (85%)	25 (11%)	8 (4%)	2	16
1	I	219/233 (94%)	188 (86%)	22 (10%)	9 (4%)	2	15
1	J	219/233 (94%)	182 (83%)	26 (12%)	11 (5%)	1	10
1	K	219/233 (94%)	187 (85%)	26 (12%)	6 (3%)	4	20
1	L	219/233 (94%)	186 (85%)	24 (11%)	9 (4%)	2	15
1	M	219/233 (94%)	184 (84%)	26 (12%)	9 (4%)	2	15
1	N	219/233 (94%)	187 (85%)	23 (10%)	9 (4%)	2	15
1	O	219/233 (94%)	188 (86%)	23 (10%)	8 (4%)	2	16
2	1	201/211 (95%)	184 (92%)	15 (8%)	2 (1%)	12	40
2	2	201/211 (95%)	181 (90%)	19 (10%)	1 (0%)	24	54
2	B	201/211 (95%)	185 (92%)	14 (7%)	2 (1%)	12	40
2	P	201/211 (95%)	183 (91%)	16 (8%)	2 (1%)	12	40
2	Q	201/211 (95%)	180 (90%)	20 (10%)	1 (0%)	24	54
2	R	201/211 (95%)	184 (92%)	15 (8%)	2 (1%)	12	40
2	S	201/211 (95%)	181 (90%)	16 (8%)	4 (2%)	6	25
2	T	201/211 (95%)	176 (88%)	23 (11%)	2 (1%)	12	40
2	U	201/211 (95%)	184 (92%)	15 (8%)	2 (1%)	12	40
2	V	201/211 (95%)	179 (89%)	20 (10%)	2 (1%)	12	40
2	W	201/211 (95%)	186 (92%)	13 (6%)	2 (1%)	12	40
2	X	201/211 (95%)	181 (90%)	18 (9%)	2 (1%)	12	40
2	Y	201/211 (95%)	183 (91%)	16 (8%)	2 (1%)	12	40
2	Z	201/211 (95%)	185 (92%)	14 (7%)	2 (1%)	12	40
All	All	5880/6216 (95%)	5150 (88%)	578 (10%)	152 (3%)	4	21

5 of 152 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	128	GLY
1	A	182	GLU
1	A	200	SER
1	C	128	GLY
1	C	200	SER

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	184/193 (95%)	157 (85%)	27 (15%)	3	12
1	C	184/193 (95%)	160 (87%)	24 (13%)	4	16
1	D	184/193 (95%)	156 (85%)	28 (15%)	3	10
1	E	184/193 (95%)	156 (85%)	28 (15%)	3	10
1	F	184/193 (95%)	157 (85%)	27 (15%)	3	12
1	G	184/193 (95%)	163 (89%)	21 (11%)	5	21
1	H	184/193 (95%)	161 (88%)	23 (12%)	4	18
1	I	184/193 (95%)	162 (88%)	22 (12%)	5	19
1	J	184/193 (95%)	161 (88%)	23 (12%)	4	18
1	K	184/193 (95%)	156 (85%)	28 (15%)	3	10
1	L	184/193 (95%)	159 (86%)	25 (14%)	3	15
1	M	184/193 (95%)	159 (86%)	25 (14%)	3	15
1	N	184/193 (95%)	159 (86%)	25 (14%)	3	15
1	O	184/193 (95%)	155 (84%)	29 (16%)	2	10
2	1	170/177 (96%)	145 (85%)	25 (15%)	3	12
2	2	170/177 (96%)	140 (82%)	30 (18%)	2	8
2	B	170/177 (96%)	142 (84%)	28 (16%)	2	10
2	P	170/177 (96%)	143 (84%)	27 (16%)	2	10
2	Q	170/177 (96%)	140 (82%)	30 (18%)	2	8
2	R	170/177 (96%)	142 (84%)	28 (16%)	2	10

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	S	170/177 (96%)	144 (85%)	26 (15%)	3	10
2	T	170/177 (96%)	146 (86%)	24 (14%)	3	13
2	U	170/177 (96%)	145 (85%)	25 (15%)	3	12
2	V	170/177 (96%)	146 (86%)	24 (14%)	3	13
2	W	170/177 (96%)	144 (85%)	26 (15%)	3	10
2	X	170/177 (96%)	143 (84%)	27 (16%)	2	10
2	Y	170/177 (96%)	140 (82%)	30 (18%)	2	8
2	Z	170/177 (96%)	147 (86%)	23 (14%)	4	15
All	All	4956/5180 (96%)	4228 (85%)	728 (15%)	3	12

5 of 728 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	R	173	ILE
2	W	37	ILE
2	S	49	VAL
2	R	144	GLU
2	U	12	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 163 such sidechains are listed below:

Mol	Chain	Res	Type
2	T	85	ASN
2	Y	98	GLN
2	U	30	ASN
2	W	30	ASN
2	Z	141	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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](#)

There are no ligands in this entry.

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 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	221/233 (94%)	-0.17	3 (1%) 73 59	21, 51, 101, 142	0
1	C	221/233 (94%)	-0.14	2 (0%) 81 68	15, 50, 100, 142	0
1	D	221/233 (94%)	-0.21	2 (0%) 81 68	22, 48, 97, 141	0
1	E	221/233 (94%)	-0.13	3 (1%) 73 59	19, 49, 98, 142	0
1	F	221/233 (94%)	-0.14	0 100 100	18, 52, 99, 141	0
1	G	221/233 (94%)	-0.05	3 (1%) 73 59	22, 52, 98, 143	0
1	H	221/233 (94%)	-0.15	1 (0%) 87 78	23, 52, 102, 141	0
1	I	221/233 (94%)	-0.20	1 (0%) 87 78	19, 51, 97, 142	0
1	J	221/233 (94%)	-0.22	0 100 100	22, 51, 100, 144	0
1	K	221/233 (94%)	-0.26	1 (0%) 87 78	22, 51, 99, 141	0
1	L	221/233 (94%)	-0.25	2 (0%) 81 68	16, 49, 98, 141	0
1	M	221/233 (94%)	-0.24	2 (0%) 81 68	19, 49, 97, 141	0
1	N	221/233 (94%)	-0.22	2 (0%) 81 68	21, 49, 97, 144	0
1	O	221/233 (94%)	-0.17	5 (2%) 61 46	19, 48, 97, 140	0
2	1	203/211 (96%)	-0.53	0 100 100	12, 33, 65, 74	0
2	2	203/211 (96%)	-0.49	0 100 100	11, 33, 64, 75	0
2	B	203/211 (96%)	-0.49	0 100 100	13, 34, 65, 77	0
2	P	203/211 (96%)	-0.51	0 100 100	10, 35, 63, 72	0
2	Q	203/211 (96%)	-0.56	0 100 100	11, 33, 63, 73	0
2	R	203/211 (96%)	-0.56	0 100 100	11, 32, 63, 73	0
2	S	203/211 (96%)	-0.48	0 100 100	10, 33, 64, 74	0
2	T	203/211 (96%)	-0.41	0 100 100	13, 35, 65, 77	0
2	U	203/211 (96%)	-0.50	1 (0%) 87 78	16, 34, 65, 76	0
2	V	203/211 (96%)	-0.55	0 100 100	14, 32, 64, 74	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
2	W	203/211 (96%)	-0.56	0 100 100	13, 34, 64, 76	0
2	X	203/211 (96%)	-0.60	0 100 100	11, 33, 63, 78	0
2	Y	203/211 (96%)	-0.58	0 100 100	12, 33, 62, 73	0
2	Z	203/211 (96%)	-0.60	0 100 100	12, 32, 64, 75	0
All	All	5936/6216 (95%)	-0.35	28 (0%) 87 78	10, 41, 92, 144	0

The worst 5 of 28 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	O	202	GLU	4.0
1	D	63	SER	3.6
1	K	202	GLU	3.5
1	C	166	GLY	3.2
1	N	205	GLU	3.1

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.