



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 11:39 AM UTC

PDB ID : 3TPU / pdb_00003tpu
Title : 42F3 p5E8/H2-Ld complex
Authors : Adams, J.J.; Kranz, D.M.; Garcia, K.C.
Deposited on : 2011-09-08
Resolution : 3.10 Å(reported)

This is a Full wwPDB X-ray Structure Validation 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
Mogul	:	2022.3.0, CSD as543be (2022)
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

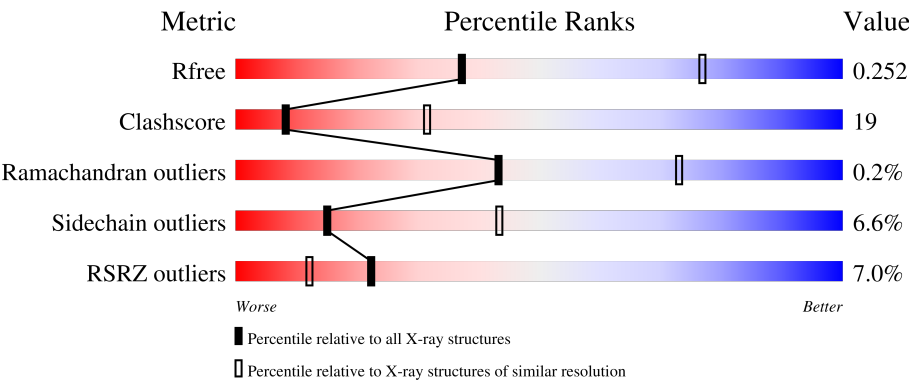
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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))
R _{free}	180053	1456 (3.10-3.10)
Clashscore	190562	1539 (3.10-3.10)
Ramachandran outliers	187476	1467 (3.10-3.10)
Sidechain outliers	187428	1467 (3.10-3.10)
RSRZ outliers	180081	1456 (3.10-3.10)

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	211	15% 53% 36% 8% .
1	C	211	10% 54% 37% 5% .
1	G	211	13% 56% 32% 6% ..
1	M	211	10% 50% 39% 8% .
2	B	243	3% 70% 25% ..

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Mol	Chain	Length	Quality of chain
2	D	243	
2	H	243	
2	N	243	
3	E	180	
3	I	180	
3	K	180	
3	Q	180	
4	F	9	
4	J	9	
4	L	9	
4	R	9	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	SO4	E	180	-	-	X	-
5	SO4	N	243	-	-	X	-

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 20148 atoms, of which 0 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 42F3 alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	205	Total	C	N	O	S	0	0	0
			1595	1007	264	316	8			
1	C	204	Total	C	N	O	S	0	0	0
			1584	1000	262	314	8			
1	G	202	Total	C	N	O	S	0	0	0
			1573	994	261	310	8			
1	M	204	Total	C	N	O	S	0	0	0
			1587	1001	263	315	8			

- Molecule 2 is a protein called 42F3 beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			
2	D	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			
2	H	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			
2	N	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			

- Molecule 3 is a protein called H2-Ld SBM2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	I	173	Total	C	N	O	S	0	0	0
			1436	900	255	274	7			
3	E	175	Total	C	N	O	S	0	0	0
			1449	907	258	277	7			
3	K	175	Total	C	N	O	S	0	0	0
			1448	908	257	276	7			
3	Q	176	Total	C	N	O	S	0	0	0
			1453	911	258	277	7			

- Molecule 4 is a protein called p5E8 peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	J	9	Total	C	N	O	0	0	0
			85	62	10	13			
4	F	9	Total	C	N	O	0	0	0
			85	62	10	13			
4	L	9	Total	C	N	O	0	0	0
			85	62	10	13			
4	R	9	Total	C	N	O	0	0	0
			85	62	10	13			

- Molecule 5 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		
5	D	1	Total	O	S	0	0
			5	4	1		
5	D	1	Total	O	S	0	0
			5	4	1		
5	E	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	G	1	Total	O	S	0	0
			5	4	1		
5	H	1	Total	O	S	0	0
			5	4	1		
5	H	1	Total	O	S	0	0
			5	4	1		
5	K	1	Total	O	S	0	0
			5	4	1		
5	K	1	Total	O	S	0	0
			5	4	1		
5	N	1	Total	O	S	0	0
			5	4	1		
5	N	1	Total	O	S	0	0
			5	4	1		
5	Q	1	Total	O	S	0	0
			5	4	1		

- Molecule 6 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	N	1	Total	C	O	0	0
			4	2	2		

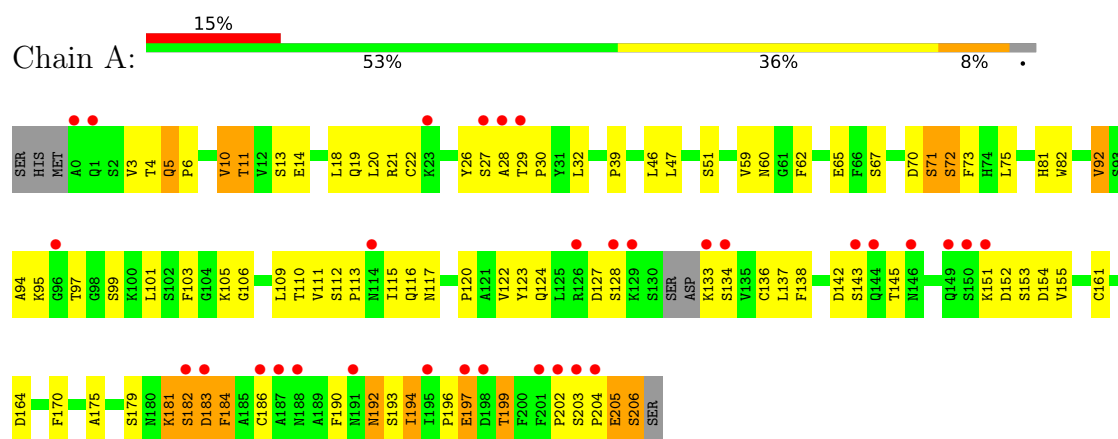
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	I	1	Total 1	O 1	0	0
7	H	1	Total 1	O 1	0	0
7	K	1	Total 1	O 1	0	0
7	N	1	Total 1	O 1	0	0

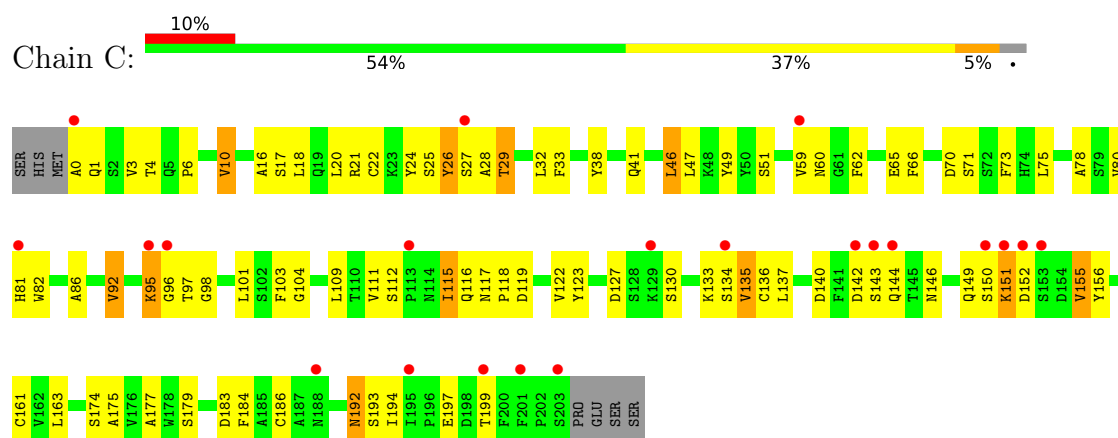
3 Residue-property plots [i](#)

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 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.

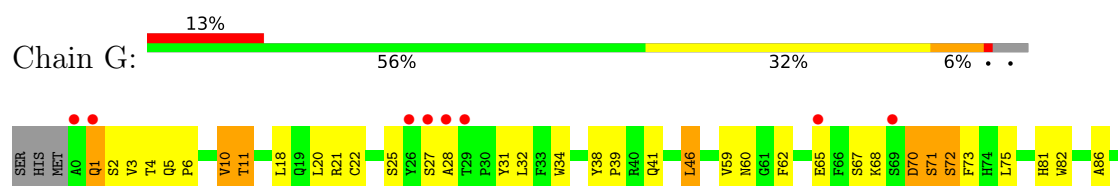
• Molecule 1: 42F3 alpha

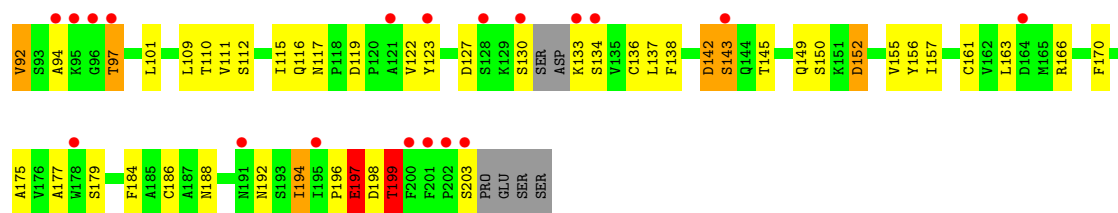


• Molecule 1: 42F3 alpha

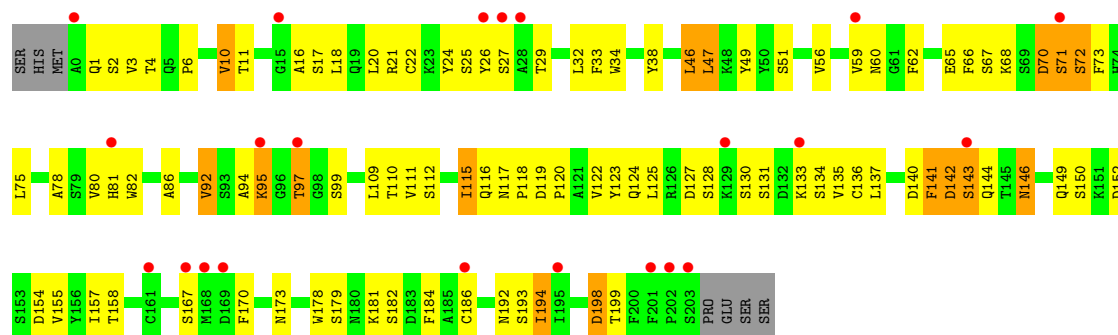


• Molecule 1: 42F3 alpha

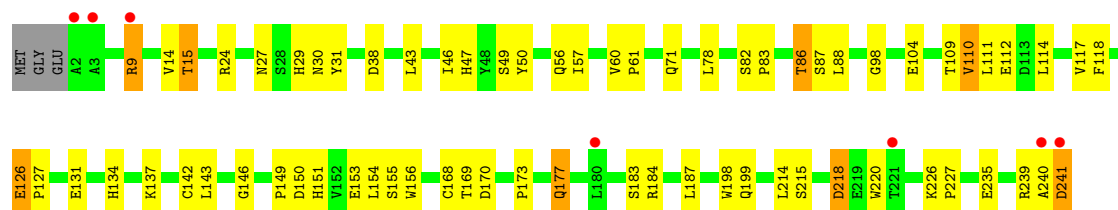




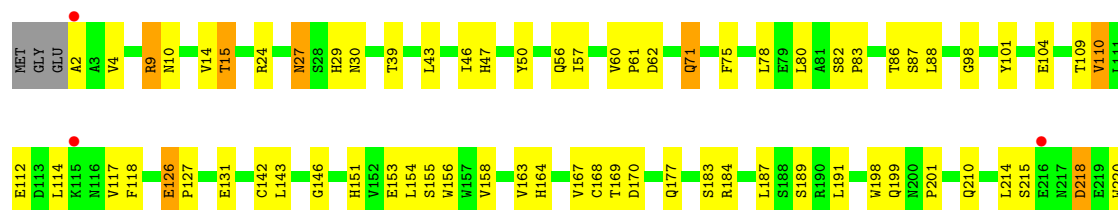
• Molecule 1: 42F3 alpha



• Molecule 2: 42F3 beta

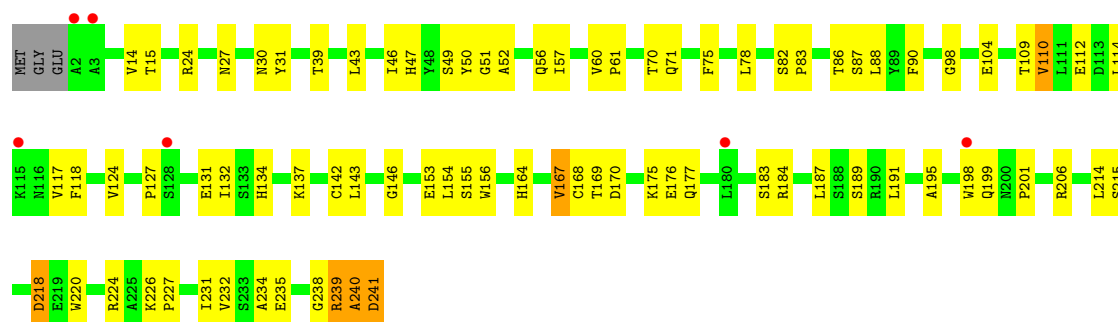


• Molecule 2: 42F3 beta

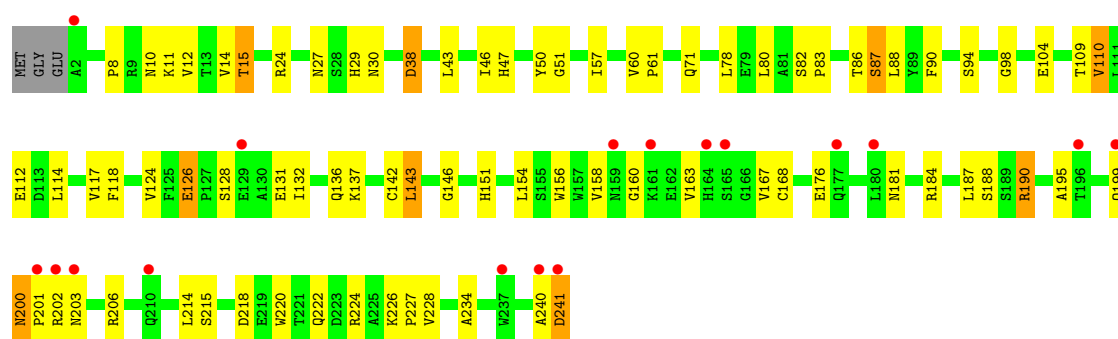


• Molecule 2: 42F3 beta

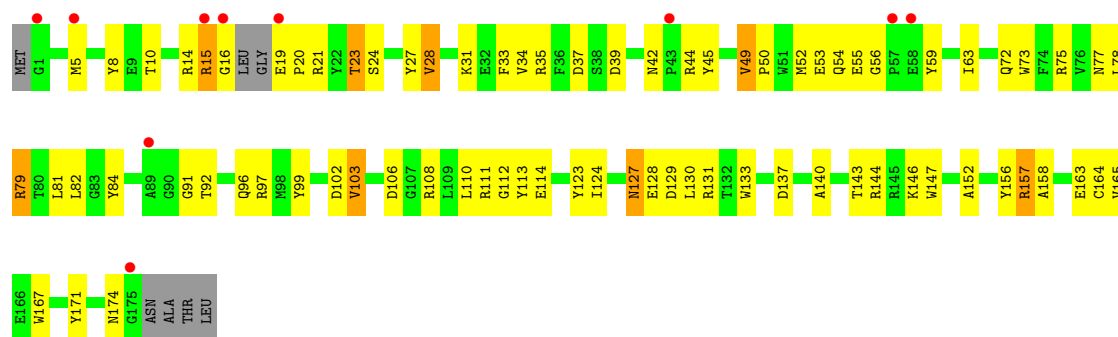




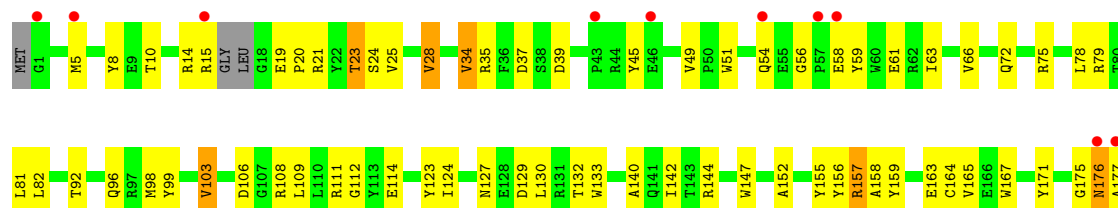
• Molecule 2: 42F3 beta



• Molecule 3: H2-Ld SBM2

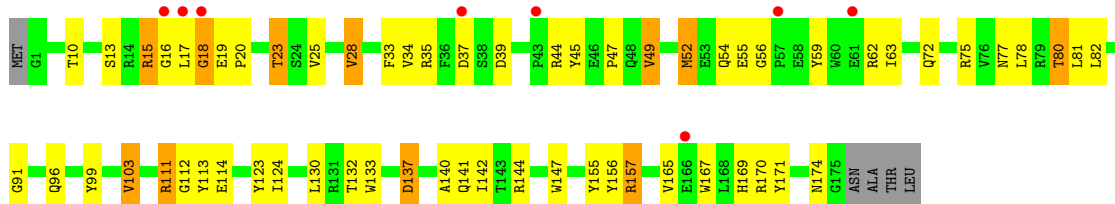


• Molecule 3: H2-Ld SBM2

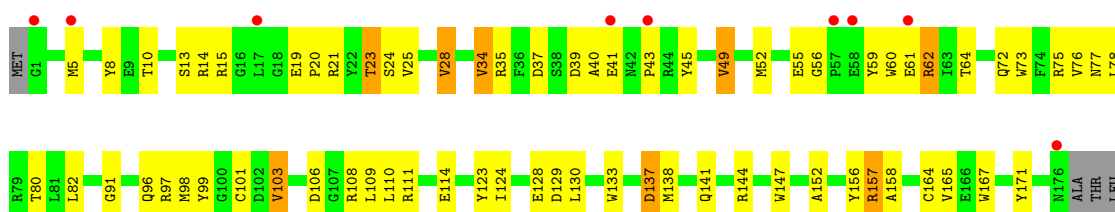


THR
LEU

● Molecule 3: H2-Ld SBM2

Chain K:  4% 63% 28% 6%

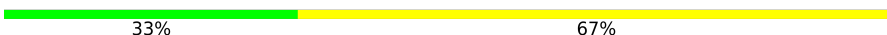
● Molecule 3: H2-Ld SBM2

Chain Q:  5% 59% 34% 2%

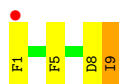
● Molecule 4: p5E8 peptide

Chain J:  22% 44% 44% 11%

● Molecule 4: p5E8 peptide

Chain F:  33% 67%

● Molecule 4: p5E8 peptide

Chain L:  11% 56% 33% 11%

● Molecule 4: p5E8 peptide

Chain R:  67% 22% 11%



4 Data and refinement statistics

Property	Value	Source
Space group	H 3 2	Depositor
Cell constants a, b, c, α , β , γ	291.33Å 291.33Å 291.24Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	45.31 – 3.10 45.31 – 3.10	Depositor EDS
% Data completeness (in resolution range)	99.7 (45.31-3.10) 99.5 (45.31-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.98 (at 3.12Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7_650)	Depositor
R, R_{free}	0.231 , 0.258 0.225 , 0.252	Depositor DCC
R_{free} test set	4272 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	67.0	Xtriage
Anisotropy	0.432	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 43.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	20148	wwPDB-VP
Average B, all atoms (Å ²)	70.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.96% 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 ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: EDO, SO4

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	0.73	3/1634 (0.2%)	1.14	12/2214 (0.5%)
1	C	0.72	3/1623 (0.2%)	1.16	17/2200 (0.8%)
1	G	0.76	3/1611 (0.2%)	1.20	18/2182 (0.8%)
1	M	0.70	2/1626 (0.1%)	1.25	22/2204 (1.0%)
2	B	0.74	0/1952	0.98	7/2662 (0.3%)
2	D	0.73	1/1952 (0.1%)	1.03	12/2662 (0.5%)
2	H	0.69	1/1952 (0.1%)	1.03	9/2662 (0.3%)
2	N	0.75	1/1952 (0.1%)	1.05	9/2662 (0.3%)
3	E	0.75	3/1488 (0.2%)	1.00	6/2014 (0.3%)
3	I	0.69	3/1475 (0.2%)	0.99	5/1996 (0.3%)
3	K	0.85	2/1488 (0.1%)	1.05	8/2015 (0.4%)
3	Q	0.66	1/1493 (0.1%)	1.03	7/2022 (0.3%)
4	F	0.75	0/90	0.83	0/121
4	J	0.72	0/90	0.90	1/121 (0.8%)
4	L	0.84	0/90	0.83	0/121
4	R	1.23	0/90	1.04	0/121
All	All	0.74	23/20606 (0.1%)	1.07	133/27979 (0.5%)

All (23) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	143	SER	CA-C	7.31	1.62	1.52
3	E	72	GLN	CD-OE1	6.38	1.35	1.23
2	H	27	ASN	CG-OD1	5.95	1.34	1.23
3	E	127	ASN	CG-OD1	5.63	1.34	1.23
3	I	72	GLN	CD-OE1	5.62	1.34	1.23
2	N	8	PRO	N-CD	-5.60	1.40	1.47
1	G	188	ASN	CG-OD1	5.55	1.34	1.23
1	C	192	ASN	CG-OD1	5.48	1.33	1.23
3	K	72	GLN	CD-OE1	5.45	1.33	1.23
3	I	174	ASN	CG-OD1	5.45	1.33	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	Q	72	GLN	CD-OE1	5.45	1.33	1.23
2	D	27	ASN	CG-OD1	5.35	1.33	1.23
3	E	34	VAL	CA-CB	-5.35	1.51	1.55
1	M	192	ASN	CG-OD1	5.31	1.33	1.23
1	G	117	ASN	CG-OD1	5.30	1.33	1.23
1	A	192	ASN	CG-OD1	5.26	1.33	1.23
1	C	117	ASN	CG-OD1	5.24	1.33	1.23
3	K	77	ASN	CG-OD1	5.18	1.33	1.23
1	A	117	ASN	CG-OD1	5.16	1.33	1.23
1	G	1	GLN	CD-OE1	5.08	1.33	1.23
1	A	19	GLN	CD-OE1	5.07	1.33	1.23
3	I	127	ASN	CG-OD1	5.05	1.33	1.23
1	M	117	ASN	CG-OD1	5.04	1.33	1.23

All (133) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	K	81	LEU	N-CA-C	12.46	124.40	111.07
2	N	203	ASN	N-CA-C	11.40	126.35	109.59
3	I	81	LEU	N-CA-C	11.38	123.25	111.07
1	C	142	ASP	N-CA-C	9.87	125.07	110.17
2	D	4	VAL	N-CA-C	-9.76	94.07	108.12
2	H	235	GLU	N-CA-C	9.75	124.89	110.46
1	M	142	ASP	N-CA-C	9.40	122.75	110.43
1	A	197	GLU	N-CA-C	-9.14	101.22	111.82
1	M	72	SER	N-CA-C	8.94	123.98	109.59
1	A	181	LYS	N-CA-C	-8.83	97.42	110.23
2	D	240	ALA	N-CA-C	8.69	120.83	111.36
1	M	184	PHE	N-CA-C	8.65	122.95	110.24
1	G	134	SER	N-CA-C	8.45	123.20	108.75
3	K	18	GLY	N-CA-C	-8.45	99.74	112.41
1	G	199	THR	N-CA-C	8.34	121.60	108.67
2	H	239	ARG	N-CA-C	8.25	122.85	109.40
1	G	149	GLN	N-CA-C	8.13	121.08	110.43
1	M	193	SER	N-CA-C	8.10	122.65	109.85
1	A	193	SER	N-CA-C	8.10	122.64	109.85
1	M	68	LYS	N-CA-C	-7.94	102.71	111.36
1	C	144	GLN	N-CA-C	7.89	119.88	111.28
1	M	141	PHE	N-CA-C	7.88	120.93	110.53
2	B	60	VAL	CA-C-N	7.80	127.46	119.19
2	B	60	VAL	C-N-CA	7.80	127.46	119.19
2	H	176	GLU	N-CA-C	-7.61	102.92	111.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	81	LEU	N-CA-C	7.57	120.19	111.11
1	C	41	GLN	N-CA-C	7.50	119.84	109.18
3	Q	60	TRP	N-CA-C	7.50	121.53	112.38
3	E	142	ILE	N-CA-CB	7.48	118.48	110.62
1	G	28	ALA	N-CA-C	-7.47	103.07	111.14
1	G	197	GLU	N-CA-C	-7.44	103.94	113.16
1	A	72	SER	N-CA-C	7.22	121.21	109.59
3	E	140	ALA	N-CA-C	7.19	120.03	111.33
1	A	182	SER	N-CA-C	-7.16	103.48	111.28
2	N	60	VAL	CA-C-N	7.12	126.74	119.19
2	N	60	VAL	C-N-CA	7.12	126.74	119.19
1	M	70	ASP	N-CA-C	7.12	121.72	112.89
2	N	126	GLU	CA-C-N	7.09	127.49	119.83
2	N	126	GLU	C-N-CA	7.09	127.49	119.83
1	M	71	SER	N-CA-C	-7.08	102.44	111.92
1	G	68	LYS	N-CA-C	-7.06	103.66	111.36
1	C	199	THR	CA-C-N	7.04	131.56	121.50
1	C	199	THR	C-N-CA	7.04	131.56	121.50
1	M	182	SER	N-CA-C	-7.03	103.67	111.82
2	D	60	VAL	CA-C-N	6.96	126.57	119.19
2	D	60	VAL	C-N-CA	6.96	126.57	119.19
3	K	44	ARG	N-CA-C	6.90	120.76	109.24
1	C	28	ALA	N-CA-C	-6.73	103.87	111.07
3	I	79	ARG	N-CA-C	-6.68	103.81	112.23
3	E	176	ASN	N-CA-C	6.67	119.46	108.99
1	G	145	THR	N-CA-C	-6.64	100.07	109.96
2	H	60	VAL	CA-C-N	6.54	126.17	119.56
2	H	60	VAL	C-N-CA	6.54	126.17	119.56
1	C	197	GLU	N-CA-C	-6.37	104.44	111.82
1	G	143	SER	N-CA-C	6.33	117.85	111.07
1	G	71	SER	N-CA-C	-6.31	103.46	111.92
2	B	86	THR	N-CA-C	-6.25	100.79	110.10
1	G	41	GLN	N-CA-C	6.16	117.92	109.18
1	M	112	SER	CA-C-N	-6.11	113.66	120.14
1	M	112	SER	C-N-CA	-6.11	113.66	120.14
1	C	112	SER	CA-C-N	-6.10	113.67	120.14
1	C	112	SER	C-N-CA	-6.10	113.67	120.14
1	M	24	TYR	N-CA-C	6.08	119.62	109.95
1	M	143	SER	N-CA-C	-6.05	104.68	111.28
1	M	144	GLN	N-CA-C	6.03	119.89	112.54
1	M	181	LYS	N-CA-C	-6.02	101.57	110.48
1	A	71	SER	N-CA-C	-6.00	103.88	111.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	M	27	SER	N-CA-C	5.99	119.47	109.95
1	C	193	SER	N-CA-C	5.94	118.73	109.52
1	G	70	ASP	N-CA-C	5.90	120.20	112.89
3	K	140	ALA	N-CA-C	5.87	118.43	111.33
2	N	200	ASN	CA-C-N	5.86	125.72	119.28
2	N	200	ASN	C-N-CA	5.86	125.72	119.28
3	E	142	ILE	N-CA-C	-5.83	104.17	110.23
1	C	135	VAL	N-CA-C	5.83	116.88	108.48
1	M	110	THR	N-CA-C	5.81	118.56	107.75
3	I	140	ALA	N-CA-C	5.78	118.32	111.33
2	D	15	THR	CB-CA-C	-5.77	102.71	109.80
2	B	218	ASP	N-CA-C	-5.76	100.31	109.76
1	G	72	SER	N-CA-C	5.76	118.78	109.40
2	B	235	GLU	N-CA-C	5.75	118.59	110.14
1	G	112	SER	CA-C-N	-5.75	114.05	120.14
1	G	112	SER	C-N-CA	-5.75	114.05	120.14
4	J	2	LEU	N-CA-C	5.71	118.55	109.24
2	D	126	GLU	CA-C-N	5.70	125.99	119.83
2	D	126	GLU	C-N-CA	5.70	125.99	119.83
2	D	27	ASN	CA-C-N	-5.70	114.68	123.17
2	D	27	ASN	C-N-CA	-5.70	114.68	123.17
2	N	167	VAL	N-CA-C	5.64	116.60	108.48
2	H	218	ASP	N-CA-C	-5.63	100.53	109.76
2	N	15	THR	CB-CA-C	-5.59	102.92	109.80
1	C	155	VAL	N-CA-CB	5.59	118.85	111.25
3	K	137	ASP	N-CA-C	5.53	115.33	108.19
1	C	143	SER	CA-C-O	5.53	127.49	121.02
1	M	11	THR	N-CA-C	5.52	117.90	108.90
1	C	146	ASN	N-CA-C	5.45	117.84	109.07
1	G	5	GLN	CA-C-N	5.40	124.74	118.85
1	G	5	GLN	C-N-CA	5.40	124.74	118.85
1	A	5	GLN	CA-C-N	5.38	124.72	118.85
1	A	5	GLN	C-N-CA	5.38	124.72	118.85
2	D	239	ARG	CA-C-N	5.36	127.90	120.29
2	D	239	ARG	C-N-CA	5.36	127.90	120.29
1	A	134	SER	N-CA-C	5.36	118.12	108.48
2	H	240	ALA	N-CA-CB	5.34	118.33	110.33
3	Q	45	TYR	N-CA-CB	-5.33	101.91	109.85
3	E	51	TRP	N-CA-C	5.32	119.52	113.19
3	Q	45	TYR	N-CA-C	5.31	117.92	109.96
1	M	97	THR	N-CA-C	-5.30	104.28	111.55
1	M	134	SER	N-CA-C	5.30	117.81	108.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	134	SER	N-CA-C	5.29	118.00	108.48
3	Q	137	ASP	N-CA-C	5.29	115.37	108.07
3	K	142	ILE	N-CA-CB	5.26	116.36	110.62
2	H	27	ASN	N-CA-C	-5.26	103.55	110.33
3	I	91	GLY	N-CA-C	5.25	120.65	112.31
1	C	104	GLY	N-CA-C	-5.24	104.17	112.66
2	D	218	ASP	N-CA-C	-5.22	100.66	109.07
2	B	126	GLU	CA-C-N	5.22	125.46	119.83
2	B	126	GLU	C-N-CA	5.22	125.46	119.83
1	G	145	THR	N-CA-CB	5.21	117.75	109.51
3	I	137	ASP	N-CA-C	5.19	114.89	108.19
1	M	26	TYR	CA-C-N	5.18	131.22	122.87
1	M	26	TYR	C-N-CA	5.18	131.22	122.87
1	C	103	PHE	N-CA-C	5.17	117.54	110.55
3	K	142	ILE	CB-CA-C	-5.17	105.35	111.81
3	Q	91	GLY	N-CA-C	5.14	120.49	112.31
3	Q	62	ARG	N-CA-C	-5.13	102.90	111.37
1	A	103	PHE	N-CA-C	5.09	117.43	110.55
3	Q	34	VAL	CB-CA-C	-5.07	106.97	111.74
2	H	239	ARG	N-CA-CB	-5.07	102.01	110.83
3	K	91	GLY	N-CA-C	5.04	120.32	112.31
1	A	112	SER	CA-C-N	-5.03	114.81	120.14
1	A	112	SER	C-N-CA	-5.03	114.81	120.14
1	G	152	ASP	N-CA-C	5.00	118.49	112.38

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	1595	0	1523	80	0
1	C	1584	0	1509	68	0
1	G	1573	0	1505	60	0
1	M	1587	0	1515	67	1
2	B	1900	0	1797	61	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	D	1900	0	1797	74	0
2	H	1900	0	1797	70	0
2	N	1900	0	1796	69	1
3	E	1449	0	1333	57	0
3	I	1436	0	1322	75	0
3	K	1448	0	1339	50	0
3	Q	1453	0	1341	55	0
4	F	85	0	77	8	0
4	J	85	0	77	11	0
4	L	85	0	77	8	0
4	R	85	0	77	6	0
5	A	5	0	0	0	0
5	B	15	0	0	0	0
5	D	10	0	0	1	0
5	E	5	0	0	4	0
5	G	5	0	0	0	0
5	H	10	0	0	1	0
5	K	10	0	0	0	0
5	N	10	0	0	3	0
5	Q	5	0	0	0	0
6	N	4	0	6	0	0
7	H	1	0	0	0	0
7	I	1	0	0	0	0
7	K	1	0	0	0	0
7	N	1	0	0	0	0
All	All	20148	0	18888	751	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 19.

All (751) 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)
1:A:161:CYS:HB3	2:B:168:CYS:SG	1.13	1.69
1:G:161:CYS:HB3	2:H:168:CYS:SG	1.34	1.63
1:C:161:CYS:HB3	2:D:168:CYS:SG	1.34	1.62
1:A:161:CYS:CB	2:B:168:CYS:SG	2.08	1.40
1:C:161:CYS:CB	2:D:168:CYS:SG	2.25	1.25
1:G:161:CYS:CB	2:H:168:CYS:SG	2.27	1.22
3:I:15:ARG:HD3	3:I:15:ARG:N	1.45	1.15
3:I:15:ARG:N	3:I:15:ARG:HH11	1.47	1.13

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:15:ARG:H	3:I:15:ARG:CD	1.60	1.11
2:D:239:ARG:HH11	2:D:239:ARG:CG	1.64	1.09
1:C:3:VAL:CG2	1:C:92:VAL:HG13	1.85	1.06
2:N:86:THR:HG23	2:N:109:THR:HA	1.38	1.05
3:I:15:ARG:HD3	3:I:15:ARG:H	0.88	1.05
2:D:239:ARG:HH11	2:D:239:ARG:HG3	1.16	1.05
1:M:67:SER:HB3	1:M:72:SER:HB3	1.35	1.03
1:G:197:GLU:OE1	1:G:197:GLU:HA	1.60	1.01
3:K:19:GLU:HG2	3:K:20:PRO:HD2	1.42	0.99
3:I:19:GLU:HG2	3:I:20:PRO:HD2	1.45	0.97
1:A:27:SER:O	1:A:30:PRO:HD3	1.64	0.97
3:Q:19:GLU:HG2	3:Q:20:PRO:HD2	1.46	0.97
1:M:142:ASP:OD1	1:M:143:SER:N	1.98	0.97
1:M:1:GLN:OE1	1:M:94:ALA:HA	1.63	0.97
3:E:19:GLU:HG2	3:E:20:PRO:HD2	1.48	0.96
3:E:129:ASP:OD1	3:E:132:THR:HG23	1.67	0.94
1:G:196:PRO:O	1:G:199:THR:HG23	1.70	0.92
4:L:1:PHE:HD1	4:L:1:PHE:O	1.53	0.91
1:A:161:CYS:HB3	2:B:168:CYS:HG	1.35	0.91
3:K:17:LEU:HD12	3:K:17:LEU:O	1.70	0.90
3:E:130:LEU:HB3	3:E:157:ARG:HG3	1.53	0.90
3:E:5:MET:HE2	3:E:164:CYS:SG	2.13	0.89
1:C:3:VAL:HG22	1:C:92:VAL:HG13	1.51	0.89
1:M:136:CYS:HG	1:M:186:CYS:HG	0.90	0.88
3:Q:130:LEU:HB3	3:Q:157:ARG:HG3	1.56	0.88
3:K:130:LEU:HB3	3:K:157:ARG:HG3	1.55	0.86
1:A:67:SER:HB3	1:A:72:SER:HB3	1.58	0.86
4:F:1:PHE:HD1	4:F:1:PHE:O	1.59	0.85
4:F:1:PHE:O	4:F:1:PHE:CD1	2.30	0.84
3:E:5:MET:CE	3:E:164:CYS:SG	2.65	0.84
1:C:16:ALA:O	1:C:80:VAL:HG22	1.76	0.84
4:L:1:PHE:O	4:L:1:PHE:CD1	2.30	0.84
2:N:160:GLY:HA2	5:N:243:SO4:O3	1.79	0.83
2:D:239:ARG:HG3	2:D:239:ARG:NH1	1.89	0.83
3:I:111:ARG:NH1	3:I:128:GLU:HB2	1.94	0.83
3:E:130:LEU:HD23	3:E:157:ARG:HG2	1.60	0.83
1:A:161:CYS:CB	2:B:168:CYS:HG	1.86	0.83
3:I:123:TYR:HD1	3:I:124:ILE:HG22	1.44	0.83
2:D:239:ARG:CG	2:D:239:ARG:NH1	2.37	0.82
3:Q:123:TYR:HD1	3:Q:124:ILE:HG22	1.44	0.82
3:I:15:ARG:N	3:I:15:ARG:CD	2.29	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:52:MET:O	3:I:55:GLU:HG3	1.77	0.82
3:I:130:LEU:HB3	3:I:157:ARG:HG3	1.62	0.81
2:N:88:LEU:HD21	2:N:90:PHE:CZ	2.15	0.81
2:H:50:TYR:HE2	2:H:56:GLN:HG3	1.45	0.80
1:G:101:LEU:HD13	2:H:98:GLY:HA2	1.64	0.79
1:A:194:ILE:O	1:A:194:ILE:HG22	1.83	0.79
2:D:83:PRO:HA	2:D:110:VAL:HG22	1.64	0.79
2:H:86:THR:HG23	2:H:109:THR:HA	1.63	0.79
1:M:51:SER:HB3	3:Q:158:ALA:HB2	1.63	0.78
3:I:14:ARG:HB3	3:I:15:ARG:NH1	1.98	0.78
1:M:3:VAL:CG2	1:M:22:CYS:SG	2.72	0.78
3:E:123:TYR:HD1	3:E:124:ILE:HG22	1.47	0.78
3:Q:101:CYS:CB	3:Q:164:CYS:HG	1.97	0.77
3:Q:52:MET:O	3:Q:55:GLU:HG3	1.84	0.77
3:K:52:MET:O	3:K:55:GLU:HG3	1.85	0.77
1:M:81:HIS:O	1:M:111:VAL:HG11	1.83	0.77
2:D:75:PHE:CG	2:N:80:LEU:HD13	2.20	0.76
1:G:67:SER:HB3	1:G:72:SER:HB3	1.66	0.76
3:I:15:ARG:N	3:I:15:ARG:NH1	2.30	0.76
3:I:15:ARG:H	3:I:15:ARG:NH1	1.83	0.76
2:H:78:LEU:N	2:H:78:LEU:HD12	2.01	0.75
1:C:183:ASP:OD1	1:C:183:ASP:C	2.30	0.75
2:H:46:ILE:HG22	2:H:47:HIS:CD2	2.21	0.75
3:K:111:ARG:HG3	3:K:112:GLY:N	2.02	0.75
1:A:3:VAL:CG2	1:A:22:CYS:SG	2.75	0.74
1:G:3:VAL:CG2	1:G:22:CYS:SG	2.75	0.74
3:Q:49:VAL:HG12	3:Q:52:MET:HG2	1.69	0.74
1:G:1:GLN:NE2	1:G:27:SER:HB2	2.02	0.74
2:B:111:LEU:HD21	2:B:149:PRO:HG3	1.69	0.74
1:M:194:ILE:O	1:M:194:ILE:HG22	1.87	0.74
3:Q:101:CYS:CB	3:Q:164:CYS:SG	2.76	0.73
1:A:136:CYS:HG	1:A:186:CYS:HG	0.73	0.73
1:A:183:ASP:OD1	1:A:183:ASP:C	2.30	0.73
3:I:111:ARG:HH11	3:I:128:GLU:HB2	1.51	0.73
2:H:88:LEU:HD21	2:H:90:PHE:CZ	2.24	0.73
3:K:54:GLN:O	3:K:54:GLN:HG3	1.87	0.73
2:H:117:VAL:HG12	2:H:227:PRO:HB2	1.69	0.73
3:I:5:MET:CE	3:I:164:CYS:SG	2.77	0.72
2:D:82:SER:C	2:D:110:VAL:HG21	2.14	0.72
2:N:195:ALA:O	2:N:199:GLN:HG3	1.88	0.72
2:N:117:VAL:HG12	2:N:227:PRO:HB2	1.70	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:5:MET:HE2	3:I:164:CYS:SG	2.29	0.72
2:D:27:ASN:HB3	2:D:29:HIS:CD2	2.25	0.72
3:E:75:ARG:NH2	5:E:180:SO4:O2	2.23	0.71
4:L:1:PHE:CD1	4:L:1:PHE:C	2.68	0.71
2:D:214:LEU:HD13	2:D:227:PRO:HG2	1.70	0.71
3:E:37:ASP:OD1	3:E:39:ASP:HB2	1.89	0.71
3:I:37:ASP:OD1	3:I:39:ASP:HB2	1.91	0.71
3:K:33:PHE:CD1	3:K:52:MET:HE2	2.25	0.71
1:A:151:LYS:CD	1:A:192:ASN:OD1	2.39	0.71
2:D:199:GLN:HA	2:D:239:ARG:O	1.89	0.71
2:D:117:VAL:O	2:D:224:ARG:NH2	2.23	0.71
3:Q:103:VAL:HG11	3:Q:165:VAL:HG13	1.72	0.71
1:G:142:ASP:OD2	1:G:142:ASP:C	2.33	0.70
1:A:124:GLN:HB2	1:A:186:CYS:SG	2.31	0.70
2:D:78:LEU:N	2:D:78:LEU:HD12	2.06	0.70
3:Q:101:CYS:HB3	3:Q:164:CYS:SG	2.31	0.70
2:D:46:ILE:HG22	2:D:47:HIS:CD2	2.26	0.70
1:C:151:LYS:HG3	1:C:152:ASP:N	2.06	0.70
2:H:156:TRP:HD1	2:H:167:VAL:HG11	1.56	0.70
1:C:136:CYS:SG	1:C:184:PHE:CE2	2.85	0.70
1:C:3:VAL:HG22	1:C:92:VAL:CG1	2.20	0.69
2:B:86:THR:HG23	2:B:109:THR:HA	1.75	0.69
3:E:103:VAL:HG11	3:E:165:VAL:HG13	1.72	0.69
2:N:88:LEU:HD23	2:N:90:PHE:CE2	2.27	0.69
1:A:183:ASP:O	1:A:184:PHE:CB	2.40	0.69
1:G:194:ILE:HG22	1:G:194:ILE:O	1.93	0.69
3:E:176:ASN:O	3:E:177:ALA:O	2.10	0.69
2:B:46:ILE:HG22	2:B:47:HIS:CD2	2.26	0.69
1:C:194:ILE:O	1:C:194:ILE:HG22	1.93	0.69
1:G:81:HIS:O	1:G:111:VAL:HG11	1.93	0.69
2:N:200:ASN:OD1	2:N:201:PRO:HD2	1.92	0.69
1:C:6:PRO:HG3	1:C:21:ARG:HB2	1.74	0.69
2:H:50:TYR:CE2	2:H:56:GLN:HG3	2.28	0.69
3:I:103:VAL:HG11	3:I:165:VAL:HG13	1.75	0.68
1:M:123:TYR:CE1	2:N:131:GLU:HA	2.27	0.68
3:E:10:THR:HG22	3:E:96:GLN:HG3	1.75	0.68
2:D:2:ALA:HB2	2:D:101:TYR:HD1	1.58	0.68
3:K:33:PHE:HD1	3:K:52:MET:HE2	1.58	0.68
3:I:15:ARG:HH11	3:I:15:ARG:H	1.15	0.68
1:M:3:VAL:HG21	1:M:22:CYS:SG	2.33	0.68
3:Q:130:LEU:HB3	3:Q:157:ARG:CG	2.24	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3:VAL:HG21	1:A:22:CYS:SG	2.34	0.68
2:H:156:TRP:CD1	2:H:167:VAL:HG11	2.28	0.67
2:H:117:VAL:O	2:H:224:ARG:NH2	2.28	0.67
1:C:161:CYS:HB3	2:D:168:CYS:HG	1.55	0.67
2:D:117:VAL:HG12	2:D:227:PRO:HB2	1.76	0.67
1:A:81:HIS:O	1:A:111:VAL:HG11	1.94	0.67
2:B:78:LEU:N	2:B:78:LEU:HD12	2.10	0.67
3:Q:37:ASP:OD1	3:Q:39:ASP:HB2	1.93	0.67
2:D:83:PRO:HA	2:D:110:VAL:CG2	2.23	0.67
3:K:37:ASP:OD1	3:K:39:ASP:HB2	1.95	0.67
1:M:124:GLN:HB2	1:M:186:CYS:SG	2.35	0.67
2:D:146:GLY:O	2:D:184:ARG:HD2	1.95	0.66
1:G:3:VAL:HG21	1:G:22:CYS:SG	2.36	0.66
1:M:6:PRO:HG3	1:M:21:ARG:HB2	1.76	0.66
3:I:129:ASP:O	3:I:131:ARG:NH1	2.27	0.66
3:E:54:GLN:O	3:E:54:GLN:HG2	1.95	0.66
1:A:6:PRO:HG3	1:A:21:ARG:HB2	1.78	0.66
3:K:123:TYR:HD1	3:K:124:ILE:HG22	1.59	0.66
2:H:214:LEU:HD13	2:H:227:PRO:HG2	1.78	0.65
2:N:46:ILE:HG22	2:N:47:HIS:CD2	2.30	0.65
2:N:214:LEU:HD13	2:N:227:PRO:HG2	1.77	0.65
1:A:183:ASP:OD1	1:A:184:PHE:N	2.30	0.65
2:H:88:LEU:CD2	2:H:90:PHE:CE2	2.79	0.65
3:K:103:VAL:HG11	3:K:165:VAL:HG13	1.79	0.65
2:D:239:ARG:HD3	2:D:241:ASP:OD2	1.96	0.65
2:H:156:TRP:CD1	2:H:167:VAL:CG1	2.80	0.65
3:Q:128:GLU:O	3:Q:130:LEU:HD13	1.97	0.65
1:A:5:GLN:O	1:A:105:LYS:HE3	1.97	0.65
2:D:239:ARG:HH11	2:D:239:ARG:HG2	1.58	0.65
3:E:129:ASP:OD1	3:E:132:THR:CG2	2.43	0.65
1:G:136:CYS:SG	1:G:186:CYS:HA	2.37	0.64
1:A:51:SER:HB3	3:I:158:ALA:HB2	1.79	0.64
3:I:123:TYR:CD1	3:I:124:ILE:HG22	2.31	0.64
3:E:130:LEU:HB3	3:E:157:ARG:CG	2.27	0.64
2:N:87:SER:OG	2:N:88:LEU:N	2.30	0.64
2:N:88:LEU:CD2	2:N:90:PHE:CE2	2.80	0.64
3:K:10:THR:HG22	3:K:96:GLN:HG3	1.79	0.64
3:Q:101:CYS:HG	3:Q:164:CYS:HG	0.66	0.64
2:H:88:LEU:HD23	2:H:90:PHE:CE2	2.32	0.64
2:H:82:SER:C	2:H:110:VAL:HG21	2.23	0.63
1:M:146:ASN:OD1	1:M:146:ASN:N	2.30	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:K:130:LEU:HB3	3:K:157:ARG:CG	2.27	0.63
2:N:82:SER:C	2:N:110:VAL:HG21	2.24	0.63
3:E:123:TYR:CD1	3:E:124:ILE:HG22	2.31	0.63
2:B:146:GLY:O	2:B:184:ARG:HD2	1.98	0.63
2:H:24:ARG:HG3	2:H:24:ARG:HH11	1.64	0.63
3:Q:123:TYR:CD1	3:Q:124:ILE:HG22	2.29	0.63
1:A:202:PRO:O	1:A:206:SER:N	2.29	0.63
2:H:146:GLY:O	2:H:184:ARG:HD2	1.99	0.63
2:H:164:HIS:O	2:H:167:VAL:HG23	1.98	0.63
3:I:10:THR:HG22	3:I:96:GLN:HG3	1.80	0.63
3:I:15:ARG:HD2	3:I:92:THR:OG1	1.99	0.63
1:C:32:LEU:CD2	1:C:92:VAL:HG12	2.28	0.62
2:D:118:PHE:CD2	2:D:184:ARG:HD3	2.33	0.62
3:I:5:MET:SD	3:I:167:TRP:CE3	2.93	0.62
4:F:1:PHE:CD1	4:F:1:PHE:C	2.77	0.62
3:K:16:GLY:H	3:K:17:LEU:HA	1.64	0.62
3:E:5:MET:SD	3:E:167:TRP:CE3	2.92	0.62
1:A:181:LYS:HB2	1:A:183:ASP:O	2.00	0.62
2:B:47:HIS:CE1	2:B:61:PRO:CB	2.82	0.62
2:B:82:SER:C	2:B:110:VAL:HG21	2.25	0.62
2:D:47:HIS:ND1	2:D:57:ILE:HA	2.15	0.62
2:H:47:HIS:CE1	2:H:61:PRO:CB	2.83	0.62
2:H:118:PHE:CD2	2:H:184:ARG:HD3	2.33	0.62
3:E:79:ARG:NH1	5:E:180:SO4:O4	2.26	0.62
1:M:38:TYR:CD1	1:M:86:ALA:HB2	2.35	0.62
3:I:99:TYR:HB3	3:I:114:GLU:OE2	1.99	0.62
1:G:6:PRO:HG3	1:G:21:ARG:HB2	1.81	0.62
3:K:156:TYR:OH	4:L:5:PHE:HA	2.00	0.62
3:Q:10:THR:HG22	3:Q:96:GLN:HG3	1.80	0.62
1:A:183:ASP:O	1:A:184:PHE:HB3	1.99	0.62
1:C:29:THR:HG23	3:E:163:GLU:OE2	2.00	0.62
3:E:75:ARG:NE	5:E:180:SO4:O2	2.32	0.61
3:E:176:ASN:O	3:E:177:ALA:C	2.42	0.61
2:H:177:GLN:O	2:H:183:SER:HB2	2.00	0.61
3:K:59:TYR:CD1	3:K:62:ARG:NH2	2.68	0.61
2:N:88:LEU:CD2	2:N:90:PHE:CZ	2.83	0.61
1:G:127:ASP:HB2	1:G:133:LYS:HB2	1.83	0.61
1:M:38:TYR:HD1	1:M:86:ALA:HB2	1.65	0.61
3:I:106:ASP:OD2	3:I:108:ARG:HG3	2.00	0.61
2:N:47:HIS:CE1	2:N:61:PRO:CB	2.84	0.61
2:B:214:LEU:HD13	2:B:227:PRO:HG2	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:99:TYR:HB3	3:E:114:GLU:OE2	2.01	0.60
3:K:59:TYR:CE1	3:K:62:ARG:NH2	2.68	0.60
3:K:80:THR:HG21	4:L:9:ILE:HG22	1.83	0.60
3:I:131:ARG:HG3	3:I:131:ARG:HH11	1.66	0.60
3:I:146:LYS:HD2	4:J:9:ILE:OXT	2.01	0.60
2:B:87:SER:OG	2:B:88:LEU:N	2.30	0.60
2:H:88:LEU:HD23	2:H:90:PHE:HE2	1.65	0.60
1:G:122:VAL:HG12	1:G:122:VAL:O	1.99	0.60
1:M:32:LEU:CD2	1:M:92:VAL:HG12	2.32	0.60
2:N:47:HIS:ND1	2:N:57:ILE:HA	2.16	0.60
2:H:47:HIS:CE1	2:H:61:PRO:HB3	2.37	0.60
2:N:78:LEU:N	2:N:78:LEU:HD12	2.17	0.60
2:H:47:HIS:ND1	2:H:57:ILE:HA	2.16	0.60
2:D:24:ARG:HG3	2:D:24:ARG:HH11	1.67	0.60
3:Q:137:ASP:O	3:Q:141:GLN:HG2	2.02	0.60
1:A:123:TYR:CE1	2:B:131:GLU:HA	2.37	0.59
1:G:70:ASP:HB3	1:G:72:SER:HB2	1.84	0.59
2:N:88:LEU:HD23	2:N:90:PHE:HE2	1.66	0.59
1:A:170:PHE:CE2	2:B:137:LYS:HE3	2.38	0.59
2:B:47:HIS:CE1	2:B:61:PRO:HB3	2.37	0.59
3:I:130:LEU:HB3	3:I:157:ARG:CG	2.31	0.59
3:I:75:ARG:NH1	3:I:79:ARG:HH12	2.00	0.59
2:D:50:TYR:HE2	2:D:56:GLN:HG3	1.68	0.59
3:K:141:GLN:OE1	3:K:144:ARG:NH2	2.35	0.59
1:M:178:TRP:CD2	2:N:143:LEU:HD21	2.38	0.59
2:H:154:LEU:HD23	2:H:155:SER:N	2.17	0.59
3:E:28:VAL:HG21	3:E:171:TYR:CE2	2.38	0.59
3:Q:99:TYR:HB3	3:Q:114:GLU:OE2	2.03	0.59
1:M:70:ASP:HB3	1:M:72:SER:HB2	1.84	0.58
1:A:70:ASP:HB3	1:A:72:SER:HB2	1.85	0.58
1:A:32:LEU:CD2	1:A:92:VAL:HG12	2.33	0.58
1:A:95:LYS:NZ	4:J:1:PHE:CE2	2.62	0.58
2:D:86:THR:HG23	2:D:109:THR:HA	1.85	0.58
1:A:194:ILE:O	1:A:194:ILE:CG2	2.51	0.58
1:C:149:GLN:HG3	1:C:150:SER:N	2.19	0.58
2:N:222:GLN:HG2	2:N:224:ARG:NH1	2.19	0.58
1:A:94:ALA:HB3	1:A:97:THR:HB	1.86	0.58
3:E:21:ARG:NE	3:E:39:ASP:OD2	2.37	0.58
2:B:215:SER:HB3	2:B:218:ASP:OD1	2.03	0.57
3:E:34:VAL:HG22	3:E:35:ARG:N	2.18	0.57
3:I:28:VAL:HG21	3:I:171:TYR:CE2	2.40	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:150:SER:HB3	1:G:157:ILE:HD12	1.84	0.57
1:C:17:SER:HA	1:C:78:ALA:O	2.04	0.57
2:N:118:PHE:CD2	2:N:184:ARG:HD3	2.40	0.57
1:G:32:LEU:CD2	1:G:92:VAL:HG12	2.35	0.57
3:Q:156:TYR:OH	4:R:5:PHE:HA	2.05	0.57
2:B:30:ASN:HB3	2:B:50:TYR:O	2.04	0.57
2:D:10:ASN:OD1	2:D:151:HIS:NE2	2.28	0.57
3:I:133:TRP:HB2	3:I:144:ARG:HG3	1.87	0.57
1:M:1:GLN:OE1	1:M:94:ALA:CA	2.46	0.56
3:Q:34:VAL:HG22	3:Q:35:ARG:N	2.20	0.56
2:H:51:GLY:O	2:H:52:ALA:C	2.47	0.56
3:E:19:GLU:HG3	3:E:75:ARG:HH11	1.70	0.56
1:M:155:VAL:HG22	1:M:179:SER:HB2	1.86	0.56
2:B:150:ASP:OD1	2:B:150:ASP:C	2.47	0.56
1:M:82:TRP:HD1	1:M:111:VAL:O	1.89	0.56
1:M:120:PRO:HB2	1:M:199:THR:HA	1.87	0.56
3:Q:21:ARG:NE	3:Q:39:ASP:OD2	2.37	0.56
1:A:120:PRO:HB2	1:A:199:THR:HB	1.87	0.56
3:E:156:TYR:OH	4:F:5:PHE:HA	2.06	0.56
3:I:73:TRP:CE2	3:I:77:ASN:ND2	2.74	0.56
2:H:83:PRO:HA	2:H:110:VAL:CG2	2.36	0.56
1:M:115:ILE:HG22	1:M:118:PRO:HD3	1.87	0.56
1:C:95:LYS:NZ	4:F:2:LEU:O	2.32	0.56
2:D:9:ARG:NH1	2:D:153:GLU:OE2	2.38	0.56
3:Q:14:ARG:HD2	3:Q:19:GLU:O	2.05	0.56
1:A:95:LYS:NZ	3:I:163:GLU:OE1	2.39	0.55
2:B:50:TYR:HE2	2:B:56:GLN:HG3	1.71	0.55
1:C:136:CYS:SG	1:C:184:PHE:CZ	2.99	0.55
1:G:123:TYR:CE1	2:H:131:GLU:HA	2.41	0.55
1:G:127:ASP:HB3	1:G:130:SER:O	2.06	0.55
3:K:137:ASP:O	3:K:141:GLN:HG2	2.06	0.55
1:M:70:ASP:CB	1:M:72:SER:HB2	2.37	0.55
2:N:14:VAL:HG22	2:N:114:LEU:HD21	1.88	0.55
2:D:47:HIS:CE1	2:D:61:PRO:CB	2.90	0.55
2:N:201:PRO:CD	2:N:202:ARG:H	2.20	0.55
3:Q:28:VAL:HG21	3:Q:171:TYR:CE2	2.41	0.55
3:I:84:TYR:HE2	4:J:9:ILE:HG22	1.71	0.55
2:H:215:SER:HB3	2:H:218:ASP:OD1	2.07	0.55
1:G:127:ASP:OD2	1:G:133:LYS:HD3	2.07	0.55
1:M:2:SER:H	1:M:25:SER:HB2	1.72	0.55
2:N:47:HIS:CE1	2:N:61:PRO:HB3	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:197:GLU:OE1	1:G:197:GLU:CA	2.42	0.55
1:A:181:LYS:CB	1:A:183:ASP:O	2.56	0.54
1:C:32:LEU:HD23	1:C:92:VAL:HG12	1.89	0.54
1:G:137:LEU:HD12	1:G:175:ALA:O	2.06	0.54
1:M:198:ASP:C	1:M:198:ASP:OD2	2.50	0.54
1:A:161:CYS:SG	2:B:168:CYS:SG	3.06	0.54
1:A:26:TYR:C	1:A:26:TYR:CD2	2.81	0.54
1:M:122:VAL:HG12	1:M:122:VAL:O	2.07	0.54
3:I:21:ARG:NE	3:I:39:ASP:OD2	2.38	0.54
1:C:95:LYS:NZ	4:F:3:SER:HA	2.23	0.54
1:M:194:ILE:O	1:M:194:ILE:CG2	2.54	0.54
3:Q:106:ASP:OD2	3:Q:108:ARG:HG3	2.07	0.54
1:A:59:VAL:HG22	1:A:60:ASN:N	2.23	0.54
2:B:240:ALA:O	2:B:241:ASP:C	2.51	0.54
2:D:87:SER:OG	2:D:88:LEU:N	2.41	0.54
1:G:59:VAL:HG22	1:G:60:ASN:N	2.22	0.54
3:Q:109:LEU:HD11	3:Q:111:ARG:O	2.07	0.54
2:H:154:LEU:HD23	2:H:154:LEU:C	2.32	0.54
3:I:143:THR:HA	4:J:9:ILE:OXT	2.08	0.54
2:H:24:ARG:HG3	2:H:24:ARG:NH1	2.22	0.54
1:A:11:THR:HG23	1:A:110:THR:HB	1.91	0.53
3:E:75:ARG:CZ	5:E:180:SO4:O2	2.57	0.53
1:A:152:ASP:O	1:A:154:ASP:N	2.34	0.53
1:A:203:SER:N	1:A:204:PRO:HD2	2.23	0.53
3:K:59:TYR:HD1	3:K:62:ARG:HH22	1.57	0.53
3:E:15:ARG:NH1	3:Q:61:GLU:HB2	2.24	0.53
3:I:102:ASP:O	3:I:110:LEU:HB3	2.08	0.53
2:D:78:LEU:N	2:D:78:LEU:CD1	2.72	0.53
1:M:2:SER:H	1:M:25:SER:CB	2.20	0.53
3:K:99:TYR:HB3	3:K:114:GLU:OE2	2.09	0.53
3:K:130:LEU:HD23	3:K:157:ARG:HG2	1.91	0.53
3:I:34:VAL:HG22	3:I:35:ARG:N	2.24	0.53
2:D:215:SER:HB3	2:D:218:ASP:OD1	2.07	0.53
3:E:109:LEU:HD11	3:E:111:ARG:O	2.09	0.53
1:G:196:PRO:O	1:G:199:THR:CG2	2.51	0.53
1:A:32:LEU:HD13	1:A:73:PHE:HB2	1.91	0.53
3:I:49:VAL:O	3:I:53:GLU:HG3	2.09	0.53
2:D:167:VAL:HG22	2:D:191:LEU:HD13	1.91	0.53
2:D:177:GLN:O	2:D:183:SER:HB2	2.09	0.53
2:N:160:GLY:CA	5:N:243:SO4:O3	2.55	0.53
2:D:47:HIS:CE1	2:D:61:PRO:HB3	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:14:ARG:HB3	3:I:15:ARG:HH12	1.74	0.52
2:N:88:LEU:HD21	2:N:90:PHE:HZ	1.70	0.52
3:Q:19:GLU:HG3	3:Q:75:ARG:HH11	1.74	0.52
3:I:130:LEU:CD1	3:I:130:LEU:N	2.71	0.52
3:E:106:ASP:OD2	3:E:108:ARG:HG3	2.09	0.52
2:N:83:PRO:HA	2:N:110:VAL:HG22	1.91	0.52
1:M:136:CYS:SG	1:M:186:CYS:HA	2.49	0.52
2:N:27:ASN:HB3	2:N:29:HIS:CD2	2.44	0.52
3:E:14:ARG:HD2	3:E:19:GLU:O	2.09	0.52
1:G:155:VAL:HG22	1:G:179:SER:HB2	1.89	0.52
4:J:9:ILE:HG22	4:J:9:ILE:O	2.10	0.52
2:D:142:CYS:HB2	2:D:156:TRP:CH2	2.44	0.52
2:H:46:ILE:HG22	2:H:47:HIS:HD2	1.73	0.52
3:K:111:ARG:HG2	3:K:113:TYR:CZ	2.45	0.52
3:K:34:VAL:HG22	3:K:35:ARG:N	2.24	0.52
2:N:15:THR:HG23	2:N:83:PRO:HD3	1.90	0.52
2:N:215:SER:HB3	2:N:218:ASP:OD1	2.09	0.52
1:G:82:TRP:HD1	1:G:111:VAL:O	1.92	0.52
3:K:132:THR:HG22	3:K:133:TRP:N	2.25	0.52
2:N:146:GLY:O	2:N:184:ARG:HD2	2.10	0.52
2:N:206:ARG:NH2	5:N:243:SO4:O2	2.42	0.52
2:D:2:ALA:HB2	2:D:101:TYR:CD1	2.43	0.52
2:D:50:TYR:CE2	2:D:56:GLN:HG3	2.44	0.52
2:B:24:ARG:HG3	2:B:24:ARG:HH11	1.74	0.51
1:M:127:ASP:HB3	1:M:130:SER:O	2.10	0.51
2:N:11:LYS:HG3	2:N:12:VAL:N	2.25	0.51
2:B:15:THR:HG23	2:B:83:PRO:HD3	1.91	0.51
1:M:32:LEU:HD13	1:M:73:PHE:HB2	1.92	0.51
1:C:82:TRP:HD1	1:C:111:VAL:O	1.93	0.51
1:M:119:ASP:O	1:M:140:ASP:HB2	2.11	0.51
3:I:131:ARG:NH1	3:I:131:ARG:HG3	2.25	0.51
1:M:18:LEU:HD11	1:M:20:LEU:HG	1.92	0.51
2:N:30:ASN:HB3	2:N:50:TYR:O	2.10	0.51
2:N:240:ALA:O	2:N:241:ASP:C	2.53	0.51
3:I:5:MET:SD	3:I:167:TRP:HE3	2.33	0.51
1:C:3:VAL:HG23	1:C:92:VAL:HG13	1.88	0.51
3:E:111:ARG:HG3	3:E:112:GLY:H	1.75	0.51
2:H:117:VAL:HG11	2:H:214:LEU:CD1	2.40	0.51
2:B:149:PRO:O	2:B:151:HIS:N	2.44	0.51
2:B:150:ASP:CG	2:B:150:ASP:O	2.53	0.51
3:E:111:ARG:HG3	3:E:112:GLY:N	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:129:ASP:O	3:E:130:LEU:HB2	2.11	0.51
3:K:17:LEU:HD11	3:K:75:ARG:HH21	1.76	0.51
2:D:2:ALA:HB1	2:D:101:TYR:HB3	1.93	0.51
3:Q:130:LEU:HD12	3:Q:130:LEU:N	2.25	0.51
1:C:137:LEU:HD11	1:C:174:SER:OG	2.11	0.51
1:C:26:TYR:C	1:C:26:TYR:CD2	2.88	0.51
2:B:27:ASN:HB3	2:B:29:HIS:CD2	2.46	0.51
3:I:111:ARG:HG3	3:I:112:GLY:N	2.25	0.51
3:E:5:MET:SD	3:E:167:TRP:HE3	2.34	0.51
3:E:133:TRP:HB2	3:E:144:ARG:HG3	1.92	0.51
1:A:120:PRO:HB2	1:A:199:THR:HA	1.93	0.50
1:A:151:LYS:HD3	1:A:192:ASN:OD1	2.10	0.50
1:C:136:CYS:SG	1:C:184:PHE:HE2	2.33	0.50
1:M:158:THR:HG21	2:N:188:SER:OG	2.12	0.50
3:K:147:TRP:NE1	4:L:8:ASP:O	2.38	0.50
1:C:98:GLY:HA3	4:F:6:TRP:NE1	2.26	0.50
2:H:199:GLN:HA	2:H:239:ARG:O	2.12	0.50
1:C:101:LEU:HD13	2:D:98:GLY:HA2	1.93	0.50
2:H:134:HIS:HD2	2:H:134:HIS:O	1.94	0.50
4:J:1:PHE:CG	4:J:2:LEU:N	2.80	0.50
1:G:150:SER:HB3	1:G:157:ILE:CD1	2.40	0.50
2:H:83:PRO:HA	2:H:110:VAL:HG22	1.94	0.50
1:A:116:GLN:H	1:A:116:GLN:CD	2.20	0.50
2:B:114:LEU:HD22	2:B:214:LEU:HD21	1.93	0.50
2:B:150:ASP:OD1	2:B:150:ASP:O	2.30	0.50
3:I:15:ARG:NH1	3:I:16:GLY:H	2.09	0.50
2:H:78:LEU:N	2:H:78:LEU:CD1	2.70	0.50
2:H:82:SER:O	2:H:110:VAL:HG21	2.12	0.50
2:B:83:PRO:HA	2:B:110:VAL:HG22	1.93	0.50
1:C:32:LEU:HD13	1:C:73:PHE:HB2	1.93	0.50
2:B:114:LEU:HD13	2:B:214:LEU:CD2	2.43	0.49
1:G:116:GLN:CD	1:G:116:GLN:H	2.20	0.49
3:K:19:GLU:CG	3:K:20:PRO:HD2	2.30	0.49
1:M:82:TRP:HA	1:M:111:VAL:CG1	2.41	0.49
1:A:70:ASP:O	1:A:71:SER:HB2	2.11	0.49
1:G:1:GLN:NE2	1:G:27:SER:CB	2.73	0.49
2:B:9:ARG:HH22	2:B:153:GLU:CD	2.20	0.49
2:H:206:ARG:NE	5:H:243:SO4:O3	2.44	0.49
3:K:56:GLY:O	3:K:59:TYR:HB3	2.13	0.49
1:M:150:SER:HB3	1:M:157:ILE:CD1	2.43	0.49
2:N:38:ASP:OD1	2:N:87:SER:HB2	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:118:PHE:CD2	2:B:184:ARG:HD3	2.48	0.49
2:D:24:ARG:HG3	2:D:24:ARG:NH1	2.26	0.49
2:N:195:ALA:O	2:N:199:GLN:CG	2.59	0.49
2:B:117:VAL:HG12	2:B:227:PRO:HB2	1.94	0.49
3:K:80:THR:CG2	4:L:9:ILE:HG22	2.42	0.49
1:M:150:SER:HB3	1:M:157:ILE:HD12	1.94	0.49
1:A:18:LEU:HD11	1:A:20:LEU:HG	1.95	0.49
2:H:30:ASN:HB3	2:H:50:TYR:O	2.12	0.49
1:A:101:LEU:HD13	2:B:98:GLY:HA2	1.94	0.49
1:A:196:PRO:O	1:A:199:THR:CG2	2.61	0.49
1:C:18:LEU:HD11	1:C:20:LEU:HG	1.93	0.49
1:G:2:SER:H	1:G:25:SER:CB	2.26	0.49
1:M:136:CYS:HG	1:M:186:CYS:CB	2.26	0.49
1:A:32:LEU:HD23	1:A:92:VAL:HG12	1.95	0.49
1:A:152:ASP:O	1:A:152:ASP:OD1	2.30	0.49
1:C:3:VAL:HG13	1:C:22:CYS:SG	2.53	0.49
1:C:151:LYS:CG	1:C:152:ASP:N	2.75	0.49
2:N:86:THR:O	2:N:87:SER:CB	2.60	0.49
2:B:134:HIS:HD2	2:B:134:HIS:O	1.96	0.49
1:C:1:GLN:HA	1:C:25:SER:HB3	1.95	0.48
3:K:123:TYR:CD1	3:K:124:ILE:HG22	2.45	0.48
3:Q:40:ALA:O	3:Q:41:GLU:C	2.53	0.48
1:A:151:LYS:HD2	1:A:192:ASN:OD1	2.12	0.48
2:B:199:GLN:HA	2:B:239:ARG:O	2.13	0.48
3:I:147:TRP:NE1	4:J:8:ASP:O	2.37	0.48
2:H:127:PRO:HD2	2:H:198:TRP:CZ2	2.48	0.48
2:H:134:HIS:O	2:H:134:HIS:CD2	2.66	0.48
1:M:116:GLN:H	1:M:116:GLN:CD	2.21	0.48
2:N:201:PRO:HD2	2:N:202:ARG:H	1.77	0.48
1:A:155:VAL:HG22	1:A:179:SER:HB2	1.95	0.48
2:D:142:CYS:HB2	2:D:156:TRP:CZ2	2.48	0.48
2:N:83:PRO:HA	2:N:110:VAL:CG2	2.43	0.48
2:B:169:THR:O	2:B:170:ASP:C	2.54	0.48
1:G:119:ASP:OD1	1:G:119:ASP:C	2.56	0.48
2:H:240:ALA:O	2:H:241:ASP:C	2.56	0.48
2:N:14:VAL:CG2	2:N:114:LEU:HD21	2.42	0.48
3:Q:80:THR:OG1	4:R:9:ILE:HG21	2.12	0.48
1:G:152:ASP:OD1	1:G:152:ASP:O	2.30	0.48
2:H:88:LEU:HD21	2:H:90:PHE:CE2	2.48	0.48
3:K:28:VAL:HG21	3:K:171:TYR:CE2	2.48	0.48
3:Q:78:LEU:O	3:Q:82:LEU:HD13	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:0:ALA:O	1:C:1:GLN:C	2.53	0.48
1:C:6:PRO:CG	1:C:21:ARG:HB2	2.42	0.48
3:Q:130:LEU:HD23	3:Q:157:ARG:HG2	1.96	0.48
1:A:194:ILE:HD11	2:N:224:ARG:CA	2.44	0.48
3:K:78:LEU:O	3:K:82:LEU:HD13	2.12	0.48
2:B:83:PRO:HA	2:B:110:VAL:CG2	2.44	0.48
3:I:42:ASN:ND2	3:I:44:ARG:HD2	2.29	0.48
1:C:149:GLN:HG3	1:C:150:SER:H	1.79	0.48
1:C:194:ILE:O	1:C:194:ILE:CG2	2.61	0.48
3:E:159:TYR:CZ	3:E:164:CYS:HB2	2.49	0.48
1:M:10:VAL:HG12	1:M:109:LEU:HD12	1.95	0.48
1:A:196:PRO:HB2	1:A:199:THR:HG22	1.95	0.48
3:Q:130:LEU:N	3:Q:130:LEU:CD1	2.76	0.48
1:A:196:PRO:O	1:A:199:THR:HG23	2.14	0.48
3:E:111:ARG:CG	3:E:112:GLY:N	2.77	0.48
3:I:128:GLU:O	3:I:130:LEU:HD13	2.14	0.47
1:C:116:GLN:CD	1:C:116:GLN:H	2.22	0.47
1:G:70:ASP:O	1:G:71:SER:HB2	2.14	0.47
1:M:59:VAL:HG22	1:M:60:ASN:N	2.29	0.47
3:Q:61:GLU:O	3:Q:62:ARG:C	2.57	0.47
2:D:80:LEU:HD13	2:H:75:PHE:CG	2.49	0.47
2:D:240:ALA:O	2:D:241:ASP:C	2.56	0.47
1:G:18:LEU:HD11	1:G:20:LEU:HG	1.96	0.47
2:H:142:CYS:HB2	2:H:156:TRP:CH2	2.49	0.47
1:A:28:ALA:HA	1:A:29:THR:HA	1.68	0.47
1:C:82:TRP:HA	1:C:111:VAL:CG1	2.44	0.47
1:C:155:VAL:HG22	1:C:179:SER:HB2	1.96	0.47
1:G:199:THR:O	1:G:199:THR:OG1	2.30	0.47
2:B:134:HIS:O	2:B:134:HIS:CD2	2.68	0.47
3:Q:56:GLY:O	3:Q:59:TYR:HB3	2.14	0.47
3:Q:96:GLN:HG2	3:Q:97:ARG:N	2.29	0.47
3:I:27:TYR:HA	3:I:31:LYS:O	2.15	0.47
1:M:70:ASP:O	1:M:71:SER:HB2	2.14	0.47
2:N:29:HIS:HB3	2:N:94:SER:O	2.15	0.47
1:A:202:PRO:HG2	1:A:205:GLU:HB2	1.97	0.47
2:B:78:LEU:N	2:B:78:LEU:CD1	2.76	0.47
3:E:159:TYR:CE2	3:E:164:CYS:HB2	2.49	0.47
2:N:117:VAL:HG11	2:N:214:LEU:CD1	2.45	0.47
1:A:82:TRP:HD1	1:A:111:VAL:O	1.98	0.47
1:C:123:TYR:CE1	2:D:131:GLU:HA	2.50	0.47
2:D:169:THR:O	2:D:170:ASP:C	2.55	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:70:ASP:O	1:C:71:SER:HB2	2.14	0.47
2:N:142:CYS:HB2	2:N:156:TRP:CH2	2.50	0.47
1:A:142:ASP:OD1	1:A:145:THR:OG1	2.28	0.47
1:C:1:GLN:OE1	1:C:27:SER:HB2	2.14	0.47
2:D:117:VAL:HG11	2:D:214:LEU:CD1	2.45	0.47
3:E:56:GLY:O	3:E:59:TYR:HB3	2.14	0.47
1:G:32:LEU:HD23	1:G:92:VAL:HG12	1.97	0.47
1:G:194:ILE:O	1:G:194:ILE:CG2	2.61	0.46
1:M:32:LEU:HD23	1:M:92:VAL:HG12	1.97	0.46
1:A:122:VAL:HG12	1:A:122:VAL:O	2.13	0.46
1:C:59:VAL:HG22	1:C:60:ASN:N	2.30	0.46
2:D:30:ASN:HB3	2:D:50:TYR:O	2.15	0.46
2:D:127:PRO:HD2	2:D:198:TRP:CZ2	2.50	0.46
1:G:170:PHE:CE2	2:H:137:LYS:HE3	2.49	0.46
2:H:47:HIS:CE1	2:H:61:PRO:HB2	2.51	0.46
3:K:169:HIS:O	3:K:170:ARG:C	2.57	0.46
2:H:15:THR:HG23	2:H:83:PRO:HD3	1.97	0.46
3:I:130:LEU:N	3:I:130:LEU:HD12	2.29	0.46
3:K:171:TYR:C	3:K:171:TYR:CD2	2.93	0.46
2:N:86:THR:O	2:N:87:SER:HB2	2.15	0.46
1:A:97:THR:HG22	1:A:97:THR:O	2.14	0.46
1:M:170:PHE:CE2	2:N:137:LYS:HE3	2.50	0.46
2:D:62:ASP:HB3	2:H:70:THR:HG22	1.96	0.46
3:E:14:ARG:CD	3:E:19:GLU:O	2.64	0.46
3:Q:133:TRP:HB2	3:Q:144:ARG:HG3	1.98	0.46
3:K:13:SER:HB3	3:K:78:LEU:HD13	1.97	0.46
1:C:137:LEU:HD12	1:C:175:ALA:O	2.16	0.46
3:E:19:GLU:HG3	3:E:75:ARG:NH1	2.30	0.46
3:K:167:TRP:CE2	4:L:1:PHE:HB3	2.51	0.46
1:M:29:THR:O	1:M:29:THR:OG1	2.30	0.46
1:A:62:PHE:CD2	1:A:75:LEU:HD11	2.50	0.46
2:D:83:PRO:CA	2:D:110:VAL:CG2	2.92	0.46
1:G:46:LEU:HD12	1:G:46:LEU:HA	1.71	0.46
3:Q:138:MET:O	3:Q:141:GLN:HB2	2.15	0.46
1:C:10:VAL:HG12	1:C:109:LEU:HD12	1.98	0.46
1:C:127:ASP:HB3	1:C:130:SER:O	2.16	0.46
2:D:82:SER:O	2:D:110:VAL:HG21	2.15	0.46
3:E:147:TRP:HB3	3:E:152:ALA:HB3	1.98	0.46
1:G:2:SER:H	1:G:25:SER:HB3	1.81	0.46
2:H:31:TYR:HA	2:H:49:SER:O	2.16	0.46
1:M:128:SER:HB2	2:N:126:GLU:OE2	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:I:15:ARG:H	3:I:15:ARG:CZ	2.30	0.45
2:D:71:GLN:O	2:D:71:GLN:HG3	2.13	0.45
1:G:82:TRP:HA	1:G:111:VAL:CG1	2.46	0.45
2:H:124:VAL:HG23	2:H:234:ALA:HB3	1.97	0.45
1:M:47:LEU:HB2	1:M:56:VAL:HG11	1.98	0.45
1:M:142:ASP:CG	1:M:143:SER:N	2.73	0.45
2:N:47:HIS:CE1	2:N:61:PRO:HB2	2.51	0.45
3:Q:14:ARG:CD	3:Q:19:GLU:O	2.65	0.45
2:B:177:GLN:O	2:B:183:SER:HB2	2.17	0.45
1:G:10:VAL:HG12	1:G:109:LEU:HD12	1.98	0.45
2:H:167:VAL:HG22	2:H:191:LEU:HD13	1.99	0.45
3:I:45:TYR:CE2	3:I:63:ILE:HG22	2.51	0.45
3:I:78:LEU:O	3:I:82:LEU:HD13	2.16	0.45
1:C:51:SER:HB3	3:E:158:ALA:HB2	1.97	0.45
2:D:220:TRP:HB2	2:D:226:LYS:HG3	1.99	0.45
2:H:169:THR:O	2:H:170:ASP:C	2.58	0.45
2:B:114:LEU:HD13	2:B:214:LEU:HD21	1.98	0.45
2:D:114:LEU:HD22	2:D:214:LEU:HD21	1.98	0.45
3:K:174:ASN:OD1	3:K:174:ASN:N	2.50	0.45
2:B:24:ARG:HG3	2:B:24:ARG:NH1	2.32	0.45
1:A:120:PRO:CB	1:A:199:THR:HB	2.45	0.45
2:B:220:TRP:CB	2:B:226:LYS:HG3	2.47	0.45
2:H:201:PRO:HB3	2:H:238:GLY:O	2.16	0.45
3:Q:8:TYR:CE1	3:Q:98:MET:HG3	2.52	0.45
3:Q:23:THR:HG23	3:Q:24:SER:N	2.31	0.45
1:A:120:PRO:HB2	1:A:199:THR:CA	2.47	0.45
2:D:9:ARG:HH12	2:D:153:GLU:CD	2.22	0.45
3:E:15:ARG:HD3	3:Q:61:GLU:HG2	1.99	0.45
3:I:54:GLN:O	3:I:55:GLU:HG2	2.16	0.45
3:E:175:GLY:O	3:E:176:ASN:ND2	2.50	0.45
2:N:14:VAL:O	2:N:15:THR:C	2.59	0.45
1:A:10:VAL:HG12	1:A:109:LEU:HD12	1.98	0.45
2:N:24:ARG:HG3	2:N:24:ARG:HH11	1.82	0.45
3:I:49:VAL:HG12	3:I:52:MET:HG3	1.99	0.44
3:I:156:TYR:OH	4:J:5:PHE:HA	2.18	0.44
1:C:96:GLY:HA2	3:E:66:VAL:HG13	1.98	0.44
2:D:169:THR:HG23	2:D:189:SER:HB2	1.99	0.44
1:M:198:ASP:OD2	1:M:198:ASP:O	2.35	0.44
2:N:158:VAL:HB	2:N:163:VAL:HG11	1.98	0.44
1:A:105:LYS:HG3	1:A:106:GLY:N	2.32	0.44
1:M:133:LYS:HD2	1:M:133:LYS:HA	1.67	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:220:TRP:CB	2:H:226:LYS:HG3	2.48	0.44
1:C:122:VAL:O	1:C:122:VAL:HG12	2.16	0.44
2:D:167:VAL:CG2	2:D:191:LEU:HD13	2.48	0.44
1:G:97:THR:O	1:G:97:THR:OG1	2.35	0.44
1:G:196:PRO:C	1:G:198:ASP:H	2.24	0.44
2:H:87:SER:OG	2:H:88:LEU:N	2.50	0.44
2:H:132:ILE:HG23	2:H:195:ALA:CB	2.47	0.44
1:M:46:LEU:HD12	1:M:46:LEU:HA	1.72	0.44
1:M:49:TYR:CE2	1:M:66:PHE:CD2	3.05	0.44
1:M:152:ASP:OD2	1:M:154:ASP:HB2	2.18	0.44
2:N:10:ASN:OD1	2:N:151:HIS:NE2	2.39	0.44
2:N:220:TRP:HB2	2:N:226:LYS:HG3	1.99	0.44
3:Q:73:TRP:CE2	3:Q:77:ASN:ND2	2.85	0.44
1:A:137:LEU:HD12	1:A:175:ALA:O	2.18	0.44
3:I:77:ASN:OD1	4:J:9:ILE:HG12	2.18	0.44
1:C:156:TYR:O	1:C:177:ALA:HA	2.18	0.44
3:E:78:LEU:O	3:E:82:LEU:HD13	2.18	0.44
1:G:11:THR:HG23	1:G:110:THR:HB	1.99	0.44
1:A:120:PRO:HB2	1:A:199:THR:CB	2.47	0.44
1:A:128:SER:HB3	2:B:126:GLU:HG3	2.00	0.44
2:B:50:TYR:CE2	2:B:56:GLN:HG3	2.50	0.44
3:I:33:PHE:HD1	3:I:52:MET:HE2	1.83	0.44
1:G:156:TYR:O	1:G:177:ALA:HA	2.18	0.44
3:I:49:VAL:HG12	3:I:52:MET:CG	2.48	0.44
1:C:1:GLN:OE1	1:C:27:SER:CB	2.66	0.44
3:E:129:ASP:CG	3:E:132:THR:HG23	2.39	0.44
1:G:62:PHE:CD2	1:G:75:LEU:HD11	2.52	0.44
1:M:137:LEU:O	1:M:137:LEU:HG	2.18	0.44
2:B:9:ARG:NH2	2:B:153:GLU:OE2	2.35	0.44
1:C:149:GLN:CG	1:C:150:SER:N	2.80	0.44
3:K:47:PRO:HB3	3:K:52:MET:HB3	1.98	0.44
1:M:123:TYR:HB3	2:N:128:SER:CB	2.48	0.44
2:B:154:LEU:HD23	2:B:155:SER:N	2.33	0.44
1:C:49:TYR:CE2	1:C:66:PHE:CD2	3.06	0.44
2:H:156:TRP:CD1	2:H:167:VAL:HG13	2.52	0.44
1:M:81:HIS:C	1:M:111:VAL:HG11	2.41	0.44
3:I:19:GLU:CG	3:I:20:PRO:HD2	2.33	0.43
2:B:82:SER:C	2:B:110:VAL:CG2	2.91	0.43
3:I:56:GLY:O	3:I:59:TYR:HB3	2.18	0.43
3:I:147:TRP:CZ2	4:J:5:PHE:CZ	3.06	0.43
2:H:220:TRP:HB2	2:H:226:LYS:HG3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:95:LYS:NZ	4:R:2:LEU:O	2.51	0.43
3:I:147:TRP:CZ2	4:J:5:PHE:HZ	2.35	0.43
1:G:32:LEU:HD13	1:G:73:PHE:HB2	2.01	0.43
1:G:138:PHE:CD1	1:G:138:PHE:C	2.95	0.43
3:Q:129:ASP:O	3:Q:130:LEU:HB2	2.17	0.43
2:B:47:HIS:CE1	2:B:61:PRO:HB2	2.52	0.43
3:K:54:GLN:O	3:K:54:GLN:CG	2.59	0.43
3:Q:80:THR:OG1	4:R:9:ILE:CG2	2.66	0.43
3:I:49:VAL:HA	3:I:50:PRO:HD3	1.93	0.43
1:C:33:PHE:CZ	2:D:98:GLY:HA3	2.53	0.43
1:G:192:ASN:O	1:G:192:ASN:ND2	2.51	0.43
3:K:15:ARG:H	3:K:15:ARG:HG3	1.51	0.43
3:I:171:TYR:C	3:I:171:TYR:CD2	2.96	0.43
1:M:16:ALA:O	1:M:80:VAL:HG22	2.17	0.43
1:C:62:PHE:CD2	1:C:75:LEU:HD11	2.53	0.43
3:I:8:TYR:O	3:I:24:SER:HA	2.19	0.43
1:M:33:PHE:CZ	2:N:98:GLY:HA3	2.54	0.43
2:N:168:CYS:HB3	2:N:190:ARG:HD2	2.01	0.43
3:E:171:TYR:C	3:E:171:TYR:CD2	2.96	0.43
2:N:201:PRO:CD	2:N:202:ARG:N	2.82	0.43
1:A:197:GLU:HB3	2:D:228:VAL:HG21	2.00	0.43
2:B:154:LEU:HD23	2:B:154:LEU:C	2.44	0.43
2:D:114:LEU:HD13	2:D:214:LEU:HD21	2.00	0.43
1:M:6:PRO:CG	1:M:21:ARG:HB2	2.44	0.43
2:N:132:ILE:HG23	2:N:195:ALA:CB	2.48	0.43
3:K:17:LEU:CD1	3:K:75:ARG:HH21	2.31	0.42
4:R:9:ILE:HD12	4:R:9:ILE:HA	1.65	0.42
2:B:127:PRO:HD2	2:B:198:TRP:CZ2	2.54	0.42
1:G:31:TYR:CE2	3:K:155:TYR:CE1	3.08	0.42
3:K:23:THR:O	3:K:23:THR:HG22	2.18	0.42
1:A:6:PRO:CG	1:A:21:ARG:HB2	2.46	0.42
2:B:86:THR:O	2:B:87:SER:HB2	2.20	0.42
1:C:46:LEU:HD12	1:C:46:LEU:HA	1.72	0.42
3:I:127:ASN:O	3:I:130:LEU:HD12	2.19	0.42
1:A:203:SER:HB2	1:A:204:PRO:CD	2.50	0.42
3:I:96:GLN:HG2	3:I:97:ARG:N	2.34	0.42
1:C:163:LEU:HB3	2:D:168:CYS:HB2	2.01	0.42
3:K:49:VAL:HG12	3:K:52:MET:HG2	2.02	0.42
3:Q:5:MET:CE	3:Q:167:TRP:CE3	3.02	0.42
1:A:70:ASP:CB	1:A:72:SER:HB2	2.48	0.42
1:A:152:ASP:O	1:A:153:SER:OG	2.30	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:150:ASP:OD2	2:B:173:PRO:HG3	2.19	0.42
2:D:158:VAL:HB	2:D:163:VAL:HG11	2.01	0.42
1:G:34:TRP:CE2	1:G:75:LEU:HB2	2.55	0.42
2:H:175:LYS:HD3	2:H:183:SER:HB3	2.02	0.42
3:K:16:GLY:HA3	3:K:18:GLY:N	2.35	0.42
2:B:31:TYR:HA	2:B:49:SER:O	2.19	0.42
3:I:129:ASP:O	3:I:130:LEU:HB2	2.19	0.42
1:C:29:THR:CG2	3:E:163:GLU:HB2	2.49	0.42
2:H:114:LEU:HD22	2:H:214:LEU:HD21	2.02	0.42
2:N:51:GLY:HA3	3:Q:76:VAL:HG21	2.02	0.42
2:N:78:LEU:N	2:N:78:LEU:CD1	2.82	0.42
1:M:17:SER:HA	1:M:78:ALA:O	2.20	0.42
2:N:154:LEU:HD23	2:N:154:LEU:C	2.44	0.42
3:Q:19:GLU:CG	3:Q:20:PRO:HD2	2.34	0.42
1:A:13:SER:O	1:A:14:GLU:C	2.63	0.42
1:A:138:PHE:HB2	1:A:190:PHE:CZ	2.55	0.42
3:I:23:THR:HG23	3:I:24:SER:N	2.33	0.42
1:C:24:TYR:OH	1:C:66:PHE:HE1	2.02	0.42
1:C:149:GLN:CG	1:C:150:SER:H	2.32	0.42
2:D:14:VAL:O	2:D:15:THR:C	2.63	0.42
2:H:169:THR:HG23	2:H:189:SER:HB2	2.02	0.42
1:A:127:ASP:HB2	1:A:133:LYS:HB2	2.00	0.41
1:C:95:LYS:HZ2	4:F:3:SER:HA	1.84	0.41
3:E:155:TYR:CD2	3:E:156:TYR:CE2	3.08	0.41
2:H:231:ILE:HG22	2:H:232:VAL:N	2.35	0.41
1:M:141:PHE:CZ	1:M:173:ASN:HB3	2.55	0.41
3:Q:13:SER:HB3	3:Q:78:LEU:HD13	2.01	0.41
2:D:154:LEU:C	2:D:154:LEU:HD23	2.45	0.41
1:G:6:PRO:CG	1:G:21:ARG:HB2	2.49	0.41
3:Q:171:TYR:CD2	3:Q:171:TYR:C	2.97	0.41
2:B:14:VAL:O	2:B:15:THR:C	2.63	0.41
3:I:111:ARG:HG2	3:I:113:TYR:CZ	2.55	0.41
2:N:142:CYS:HB2	2:N:156:TRP:CZ2	2.55	0.41
2:B:57:ILE:CG1	2:B:61:PRO:HG3	2.51	0.41
2:D:15:THR:HG23	2:D:83:PRO:HD3	2.01	0.41
3:Q:147:TRP:HB3	3:Q:152:ALA:HB3	2.02	0.41
2:D:220:TRP:CB	2:D:226:LYS:HG3	2.50	0.41
2:D:117:VAL:HG11	2:D:214:LEU:HD12	2.03	0.41
1:G:70:ASP:CB	1:G:72:SER:HB2	2.48	0.41
1:G:166:ARG:HE	1:G:166:ARG:HB2	1.61	0.41
2:H:14:VAL:O	2:H:15:THR:C	2.63	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:181:ASN:OD1	2:N:181:ASN:N	2.53	0.41
1:A:133:LYS:HD2	1:A:133:LYS:HA	1.76	0.41
2:D:101:TYR:CD2	2:D:101:TYR:N	2.89	0.41
1:M:125:LEU:HB3	2:N:126:GLU:O	2.21	0.41
2:N:220:TRP:CB	2:N:226:LYS:HG3	2.51	0.41
3:Q:61:GLU:O	3:Q:64:THR:N	2.53	0.41
1:A:81:HIS:C	1:A:111:VAL:HG11	2.46	0.41
1:A:82:TRP:HA	1:A:111:VAL:CG1	2.50	0.41
1:A:113:PRO:O	1:A:143:SER:OG	2.39	0.41
2:B:220:TRP:HB2	2:B:226:LYS:HG3	2.02	0.41
3:I:147:TRP:HB3	3:I:152:ALA:HB3	2.03	0.41
1:C:133:LYS:HD2	1:C:133:LYS:HA	1.72	0.41
2:D:201:PRO:HB3	2:D:238:GLY:O	2.21	0.41
3:E:8:TYR:CE1	3:E:98:MET:HG3	2.56	0.41
1:G:136:CYS:SG	1:G:184:PHE:CE2	3.13	0.41
1:M:62:PHE:CD2	1:M:75:LEU:HD11	2.55	0.41
2:N:124:VAL:HG23	2:N:234:ALA:HB3	2.03	0.41
2:B:82:SER:O	2:B:110:VAL:HG21	2.20	0.41
1:C:183:ASP:OD1	1:C:183:ASP:O	2.38	0.41
2:D:154:LEU:HD23	2:D:155:SER:N	2.36	0.41
1:C:3:VAL:CG1	1:C:22:CYS:SG	3.09	0.40
1:G:59:VAL:HG22	1:G:60:ASN:H	1.86	0.40
2:H:220:TRP:CG	2:H:226:LYS:HG3	2.56	0.40
3:K:45:TYR:CE2	3:K:63:ILE:HG22	2.56	0.40
1:M:34:TRP:CE2	1:M:75:LEU:HB2	2.56	0.40
1:A:164:ASP:OD1	1:A:164:ASP:C	2.63	0.40
3:E:58:GLU:HA	3:E:61:GLU:HB2	2.03	0.40
2:B:142:CYS:HB2	2:B:156:TRP:CH2	2.57	0.40
3:I:130:LEU:HD23	3:I:157:ARG:HG2	2.02	0.40
1:C:115:ILE:O	1:C:118:PRO:HD3	2.22	0.40
3:E:23:THR:HG23	3:E:24:SER:N	2.36	0.40
2:H:86:THR:O	2:H:87:SER:HB2	2.22	0.40
1:C:38:TYR:CD1	1:C:86:ALA:HB2	2.56	0.40
1:C:119:ASP:O	1:C:140:ASP:HB2	2.21	0.40
2:D:126:GLU:HA	2:D:127:PRO:HD3	1.89	0.40
2:D:164:HIS:N	5:D:242:SO4:O2	2.52	0.40
1:G:38:TYR:CD1	1:G:86:ALA:HB2	2.57	0.40
3:K:78:LEU:HD23	3:K:78:LEU:HA	1.92	0.40
1:M:127:ASP:HB2	1:M:133:LYS:HB2	2.03	0.40
3:Q:5:MET:SD	3:Q:167:TRP:CE3	3.15	0.40
4:R:2:LEU:HD23	4:R:2:LEU:HA	1.75	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:192:ASN:O	1:C:192:ASN:ND2	2.54	0.40
3:E:45:TYR:CE2	3:E:63:ILE:HG22	2.56	0.40
3:K:133:TRP:HB2	3:K:144:ARG:HG3	2.03	0.40
3:Q:34:VAL:CG2	3:Q:35:ARG:N	2.85	0.40
3:Q:78:LEU:HD23	3:Q:78:LEU:HA	1.91	0.40

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:M:167:SER:O	2:N:136:GLN:NE2[2_555]	2.03	0.17

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	201/211 (95%)	183 (91%)	16 (8%)	2 (1%)	12	41
1	C	202/211 (96%)	184 (91%)	18 (9%)	0	100	100
1	G	198/211 (94%)	181 (91%)	15 (8%)	2 (1%)	12	41
1	M	202/211 (96%)	189 (94%)	13 (6%)	0	100	100
2	B	238/243 (98%)	223 (94%)	15 (6%)	0	100	100
2	D	238/243 (98%)	225 (94%)	13 (6%)	0	100	100
2	H	238/243 (98%)	224 (94%)	14 (6%)	0	100	100
2	N	238/243 (98%)	226 (95%)	11 (5%)	1 (0%)	30	61
3	E	171/180 (95%)	160 (94%)	11 (6%)	0	100	100
3	I	169/180 (94%)	158 (94%)	11 (6%)	0	100	100
3	K	173/180 (96%)	158 (91%)	15 (9%)	0	100	100
3	Q	174/180 (97%)	161 (92%)	12 (7%)	1 (1%)	21	52

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	F	7/9 (78%)	7 (100%)	0	0	100	100
4	J	7/9 (78%)	7 (100%)	0	0	100	100
4	L	7/9 (78%)	7 (100%)	0	0	100	100
4	R	7/9 (78%)	6 (86%)	1 (14%)	0	100	100
All	All	2470/2572 (96%)	2299 (93%)	165 (7%)	6 (0%)	43	73

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	184	PHE
3	Q	43	PRO
2	N	87	SER
1	G	94	ALA
1	A	39	PRO
1	G	39	PRO

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	180/186 (97%)	165 (92%)	15 (8%)	10	35
1	C	178/186 (96%)	163 (92%)	15 (8%)	10	35
1	G	177/186 (95%)	162 (92%)	15 (8%)	10	35
1	M	179/186 (96%)	163 (91%)	16 (9%)	9	33
2	B	206/208 (99%)	194 (94%)	12 (6%)	18	48
2	D	206/208 (99%)	194 (94%)	12 (6%)	18	48
2	H	206/208 (99%)	195 (95%)	11 (5%)	20	51
2	N	206/208 (99%)	194 (94%)	12 (6%)	18	48
3	E	144/148 (97%)	137 (95%)	7 (5%)	22	53
3	I	143/148 (97%)	137 (96%)	6 (4%)	26	58
3	K	144/148 (97%)	134 (93%)	10 (7%)	14	41

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	Q	144/148 (97%)	136 (94%)	8 (6%)	19	49
4	F	9/9 (100%)	8 (89%)	1 (11%)	6	24
4	J	9/9 (100%)	9 (100%)	0	100	100
4	L	9/9 (100%)	8 (89%)	1 (11%)	6	24
4	R	9/9 (100%)	8 (89%)	1 (11%)	6	24
All	All	2149/2204 (98%)	2007 (93%)	142 (7%)	15	43

All (142) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	THR
1	A	10	VAL
1	A	11	THR
1	A	46	LEU
1	A	47	LEU
1	A	65	GLU
1	A	92	VAL
1	A	99	SER
1	A	115	ILE
1	A	182	SER
1	A	183	ASP
1	A	194	ILE
1	A	199	THR
1	A	205	GLU
1	A	206	SER
2	B	9	ARG
2	B	15	THR
2	B	38	ASP
2	B	43	LEU
2	B	71	GLN
2	B	104	GLU
2	B	110	VAL
2	B	112	GLU
2	B	143	LEU
2	B	177	GLN
2	B	187	LEU
2	B	241	ASP
3	I	15	ARG
3	I	23	THR
3	I	28	VAL

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Mol	Chain	Res	Type
3	I	49	VAL
3	I	103	VAL
3	I	157	ARG
1	C	4	THR
1	C	10	VAL
1	C	26	TYR
1	C	29	THR
1	C	46	LEU
1	C	47	LEU
1	C	65	GLU
1	C	81	HIS
1	C	92	VAL
1	C	95	LYS
1	C	97	THR
1	C	115	ILE
1	C	135	VAL
1	C	151	LYS
1	C	186	CYS
2	D	9	ARG
2	D	39	THR
2	D	43	LEU
2	D	71	GLN
2	D	104	GLU
2	D	110	VAL
2	D	112	GLU
2	D	143	LEU
2	D	187	LEU
2	D	210	GLN
2	D	239	ARG
2	D	241	ASP
3	E	23	THR
3	E	25	VAL
3	E	28	VAL
3	E	49	VAL
3	E	92	THR
3	E	103	VAL
3	E	157	ARG
4	F	9	ILE
1	G	4	THR
1	G	10	VAL
1	G	11	THR
1	G	46	LEU

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Mol	Chain	Res	Type
1	G	65	GLU
1	G	92	VAL
1	G	97	THR
1	G	115	ILE
1	G	142	ASP
1	G	143	SER
1	G	163	LEU
1	G	194	ILE
1	G	197	GLU
1	G	199	THR
1	G	203	SER
2	H	39	THR
2	H	43	LEU
2	H	71	GLN
2	H	104	GLU
2	H	110	VAL
2	H	112	GLU
2	H	143	LEU
2	H	153	GLU
2	H	167	VAL
2	H	187	LEU
2	H	241	ASP
3	K	15	ARG
3	K	23	THR
3	K	25	VAL
3	K	28	VAL
3	K	49	VAL
3	K	52	MET
3	K	80	THR
3	K	103	VAL
3	K	111	ARG
3	K	157	ARG
4	L	9	ILE
1	M	4	THR
1	M	10	VAL
1	M	46	LEU
1	M	47	LEU
1	M	65	GLU
1	M	92	VAL
1	M	95	LYS
1	M	97	THR
1	M	99	SER

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Mol	Chain	Res	Type
1	M	115	ILE
1	M	131	SER
1	M	135	VAL
1	M	146	ASN
1	M	149	GLN
1	M	194	ILE
1	M	198	ASP
2	N	38	ASP
2	N	43	LEU
2	N	71	GLN
2	N	104	GLU
2	N	110	VAL
2	N	112	GLU
2	N	143	LEU
2	N	176	GLU
2	N	187	LEU
2	N	190	ARG
2	N	228	VAL
2	N	241	ASP
3	Q	15	ARG
3	Q	23	THR
3	Q	25	VAL
3	Q	28	VAL
3	Q	49	VAL
3	Q	103	VAL
3	Q	110	LEU
3	Q	157	ARG
4	R	9	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	60	ASN
2	B	18	ASN
2	B	27	ASN
2	B	47	HIS
2	B	134	HIS
2	B	164	HIS
2	B	172	GLN
2	B	177	GLN
2	B	210	GLN
3	I	77	ASN

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Mol	Chain	Res	Type
3	I	127	ASN
3	I	174	ASN
1	C	60	ASN
2	D	18	ASN
2	D	47	HIS
2	D	164	HIS
2	D	172	GLN
2	D	210	GLN
3	E	176	ASN
1	G	1	GLN
1	G	60	ASN
1	G	192	ASN
2	H	18	ASN
2	H	47	HIS
2	H	172	GLN
3	K	87	GLN
1	M	60	ASN
2	N	18	ASN
2	N	27	ASN
2	N	47	HIS
2	N	172	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](#)

16 ligands are modelled in this entry.

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	$\# Z > 2$
5	SO4	A	208	-	4,4,4	0.24	0	6,6,6	0.67	0
5	SO4	Q	180	-	4,4,4	0.34	0	6,6,6	0.34	0
6	EDO	N	244	-	3,3,3	0.38	0	2,2,2	0.43	0
5	SO4	E	180	-	4,4,4	0.26	0	6,6,6	0.19	0
5	SO4	K	181	-	4,4,4	1.04	0	6,6,6	1.39	1 (16%)
5	SO4	N	242	-	4,4,4	0.23	0	6,6,6	0.07	0
5	SO4	H	243	-	4,4,4	0.40	0	6,6,6	0.42	0
5	SO4	G	208	-	4,4,4	0.29	0	6,6,6	0.24	0
5	SO4	B	244	-	4,4,4	0.26	0	6,6,6	0.37	0
5	SO4	D	242	-	4,4,4	0.14	0	6,6,6	0.46	0
5	SO4	B	243	-	4,4,4	0.40	0	6,6,6	0.49	0
5	SO4	H	242	-	4,4,4	0.23	0	6,6,6	0.32	0
5	SO4	N	243	-	4,4,4	0.26	0	6,6,6	0.58	0
5	SO4	B	242	-	4,4,4	0.31	0	6,6,6	0.48	0
5	SO4	K	180	-	4,4,4	0.29	0	6,6,6	0.33	0
5	SO4	D	243	-	4,4,4	0.29	0	6,6,6	0.39	0

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
6	EDO	N	244	-	-	1/1/1/1	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	K	181	SO4	O4-S-O3	3.06	125.39	108.54

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	N	244	EDO	O1-C1-C2-O2

There are no ring outliers.

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	E	180	SO4	4	0
5	H	243	SO4	1	0
5	D	242	SO4	1	0
5	N	243	SO4	3	0

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	205/211 (97%)	0.90	32 (15%) 5 2	42, 77, 113, 124	0
1	C	204/211 (96%)	0.81	21 (10%) 12 6	24, 81, 114, 125	0
1	G	202/211 (95%)	0.87	27 (13%) 7 4	44, 80, 119, 130	0
1	M	204/211 (96%)	0.84	22 (10%) 11 6	49, 82, 119, 140	0
2	B	240/243 (98%)	0.03	7 (2%) 53 32	34, 54, 94, 130	0
2	D	240/243 (98%)	-0.07	4 (1%) 69 48	32, 55, 95, 133	0
2	H	240/243 (98%)	0.20	6 (2%) 58 37	33, 56, 100, 131	0
2	N	240/243 (98%)	0.32	17 (7%) 22 12	34, 55, 100, 133	0
3	E	175/180 (97%)	0.29	10 (5%) 29 16	44, 61, 109, 155	0
3	I	173/180 (96%)	0.34	10 (5%) 29 16	46, 64, 111, 154	0
3	K	175/180 (97%)	0.37	8 (4%) 37 20	43, 59, 113, 153	0
3	Q	176/180 (97%)	0.31	9 (5%) 33 18	46, 64, 119, 137	0
4	F	9/9 (100%)	0.07	0 100 100	45, 50, 55, 58	0
4	J	9/9 (100%)	0.45	2 (22%) 2 1	49, 54, 70, 71	0
4	L	9/9 (100%)	0.11	1 (11%) 10 5	39, 44, 52, 53	0
4	R	9/9 (100%)	0.28	0 100 100	49, 55, 62, 65	0
All	All	2510/2572 (97%)	0.42	176 (7%) 22 12	24, 66, 111, 155	0

All (176) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	203	SER	7.1
1	G	96	GLY	6.3
2	N	203	ASN	4.9
2	B	2	ALA	4.7
1	C	96	GLY	4.5

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Mol	Chain	Res	Type	RSRZ
3	Q	41	GLU	4.3
1	C	152	ASP	4.2
3	Q	43	PRO	4.2
1	A	27	SER	4.1
3	Q	61	GLU	4.1
1	G	27	SER	4.0
1	C	143	SER	3.9
3	Q	5	MET	3.9
3	Q	176	ASN	3.9
3	I	16	GLY	3.8
1	A	133	LYS	3.8
1	A	191	ASN	3.7
1	M	203	SER	3.6
1	G	0	ALA	3.5
1	A	144	GLN	3.5
1	M	27	SER	3.5
2	N	202	ARG	3.5
1	A	96	GLY	3.4
1	G	26	TYR	3.3
3	Q	57	PRO	3.3
1	A	186	CYS	3.3
3	E	54	GLN	3.3
2	N	161	LYS	3.3
2	N	240	ALA	3.3
3	K	17	LEU	3.2
1	C	81	HIS	3.2
3	E	177	ALA	3.2
1	G	133	LYS	3.2
2	H	2	ALA	3.2
1	G	95	LYS	3.1
1	A	143	SER	3.1
2	H	3	ALA	3.1
2	N	159	ASN	3.0
3	Q	1	GLY	3.0
1	G	203	SER	3.0
1	C	27	SER	3.0
1	C	142	ASP	3.0
1	A	188	ASN	3.0
1	M	161	CYS	3.0
3	K	18	GLY	2.9
3	Q	17	LEU	2.9
1	A	183	ASP	2.9

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Mol	Chain	Res	Type	RSRZ
1	G	121	ALA	2.9
1	C	134	SER	2.9
1	C	195	ILE	2.9
1	C	95	LYS	2.9
1	M	195	ILE	2.8
3	I	5	MET	2.8
2	B	3	ALA	2.8
1	C	151	LYS	2.8
1	G	202	PRO	2.8
1	M	167	SER	2.8
1	G	29	THR	2.7
1	A	151	LYS	2.7
2	D	2	ALA	2.7
3	E	58	GLU	2.7
1	C	199	THR	2.7
2	H	180	LEU	2.7
1	A	204	PRO	2.7
1	M	95	LYS	2.7
1	M	133	LYS	2.7
2	N	237	TRP	2.6
1	A	0	ALA	2.6
1	G	94	ALA	2.6
3	K	57	PRO	2.6
3	I	89	ALA	2.6
1	M	168	MET	2.5
1	C	129	LYS	2.5
2	D	115	LYS	2.5
1	A	134	SER	2.5
1	A	1	GLN	2.5
2	N	2	ALA	2.5
1	A	202	PRO	2.5
1	G	130	SER	2.5
1	A	28	ALA	2.5
1	G	191	ASN	2.5
1	C	201	PHE	2.5
2	D	216	GLU	2.5
1	A	198	ASP	2.5
1	G	164	ASP	2.5
1	M	97	THR	2.5
3	Q	58	GLU	2.4
1	G	201	PHE	2.4
3	I	175	GLY	2.4

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Mol	Chain	Res	Type	RSRZ
1	M	0	ALA	2.4
2	N	199	GLN	2.4
1	A	128	SER	2.4
1	M	71	SER	2.4
1	A	195	ILE	2.4
2	H	128	SER	2.4
1	A	146	ASN	2.4
1	M	202	PRO	2.4
3	I	1	GLY	2.4
3	E	1	GLY	2.4
2	N	165	SER	2.4
3	E	46	GLU	2.4
1	C	203	SER	2.4
3	I	43	PRO	2.4
1	M	15	GLY	2.3
2	N	164	HIS	2.3
4	J	1	PHE	2.3
1	C	113	PRO	2.3
1	G	69	SER	2.3
3	K	43	PRO	2.3
2	N	180	LEU	2.3
2	H	115	LYS	2.3
2	N	196	THR	2.3
1	M	26	TYR	2.3
1	M	201	PHE	2.3
3	K	166	GLU	2.3
2	N	201	PRO	2.3
1	A	187	ALA	2.3
1	G	28	ALA	2.3
1	C	144	GLN	2.3
2	B	241	ASP	2.3
1	A	197	GLU	2.3
3	E	43	PRO	2.3
1	M	81	HIS	2.3
1	M	143	SER	2.3
1	G	123	TYR	2.3
3	I	15	ARG	2.3
2	N	241	ASP	2.3
1	G	134	SER	2.2
1	M	59	VAL	2.2
3	E	5	MET	2.2
1	G	178	TRP	2.2

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Mol	Chain	Res	Type	RSRZ
4	L	1	PHE	2.2
1	A	182	SER	2.2
1	A	149	GLN	2.2
1	G	1	GLN	2.2
2	B	180	LEU	2.2
3	K	16	GLY	2.2
1	A	23	LYS	2.2
1	M	28	ALA	2.2
1	M	186	CYS	2.2
1	M	129	LYS	2.2
2	N	177	GLN	2.2
3	I	58	GLU	2.2
3	I	57	PRO	2.2
4	J	9	ILE	2.1
1	A	114	ASN	2.1
1	C	188	ASN	2.1
1	G	200	PHE	2.1
1	C	59	VAL	2.1
1	G	195	ILE	2.1
1	A	126	ARG	2.1
2	N	210	GLN	2.1
3	E	15	ARG	2.1
1	G	143	SER	2.1
1	M	169	ASP	2.1
1	G	97	THR	2.1
2	B	240	ALA	2.1
3	K	61	GLU	2.1
1	C	153	SER	2.1
1	A	129	LYS	2.1
1	A	201	PHE	2.1
1	G	65	GLU	2.1
2	N	129	GLU	2.1
2	H	198	TRP	2.1
1	A	29	THR	2.1
1	C	0	ALA	2.1
1	A	150	SER	2.0
1	C	150	SER	2.0
3	E	176	ASN	2.0
2	B	221	THR	2.0
3	E	57	PRO	2.0
3	I	19	GLU	2.0
1	G	128	SER	2.0

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Mol	Chain	Res	Type	RSRZ
2	D	240	ALA	2.0
3	K	37	ASP	2.0
2	B	9	ARG	2.0

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](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
6	EDO	N	244	4/4	0.73	0.32	60,62,75,79	0
5	SO4	H	243	5/5	0.74	0.11	86,88,91,118	0
5	SO4	B	243	5/5	0.78	0.14	79,83,100,128	0
5	SO4	A	208	5/5	0.80	0.17	78,93,101,101	5
5	SO4	N	243	5/5	0.82	0.13	91,98,118,124	5
5	SO4	H	242	5/5	0.82	0.10	77,89,102,117	0
5	SO4	B	244	5/5	0.85	0.14	49,62,74,75	5
5	SO4	Q	180	5/5	0.86	0.13	79,86,105,119	5
5	SO4	N	242	5/5	0.87	0.11	96,97,97,98	5
5	SO4	E	180	5/5	0.87	0.10	60,68,75,77	5
5	SO4	D	242	5/5	0.89	0.10	63,72,93,94	0
5	SO4	D	243	5/5	0.91	0.12	45,68,82,97	5
5	SO4	K	180	5/5	0.91	0.08	59,68,72,82	5
5	SO4	K	181	5/5	0.92	0.10	88,91,95,97	5
5	SO4	G	208	5/5	0.93	0.09	45,56,62,76	5
5	SO4	B	242	5/5	0.94	0.06	57,71,84,89	0

6.5 Other polymers [i](#)

There are no such residues in this entry.