



# Full wwPDB X-ray Structure Validation Report ⓘ

Jul 12, 2021 – 06:13 PM EDT

PDB ID : 1GUL  
Title : HUMAN GLUTATHIONE TRANSFERASE A4-4 COMPLEX WITH  
IODOBENZYL GLUTATHIONE  
Authors : Bruns, C.M.; Hubatsch, I.; Ridderstrom, M.; Mannervik, B.; Tainer, J.A.  
Deposited on : 1998-06-10  
Resolution : 2.70 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](mailto: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.

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

MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.22
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.22

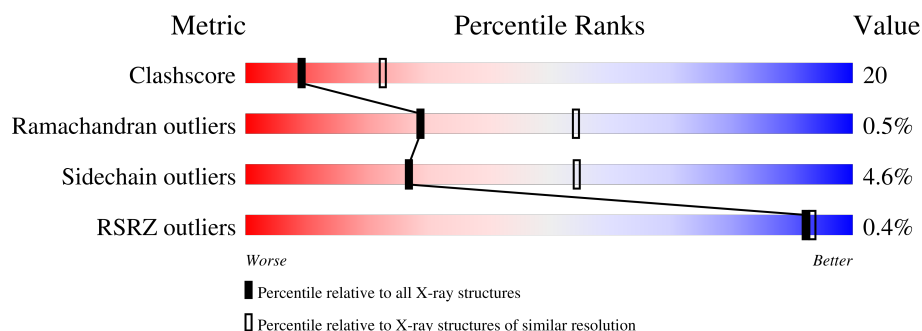
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.70 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	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	222	
1	B	222	
1	C	222	
1	D	222	
1	E	222	
1	F	222	

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Mol	Chain	Length	Quality of chain
1	G	222	<div><div>%</div><div><div></div><div>52%</div><div>39%</div><div>5% ..</div></div></div>
1	H	222	<div><div></div><div>51%</div><div>40%</div><div>5% ..</div></div>
2	I	3	<div><div></div><div>67%</div><div>33%</div></div>
2	J	3	<div><div></div><div>67%</div><div>33%</div></div>
2	K	3	<div><div></div><div>67%</div><div>33%</div></div>
2	L	3	<div><div></div><div>67%</div><div>33%</div></div>
2	M	3	<div><div></div><div>67%</div><div>33%</div></div>
2	N	3	<div><div></div><div>67%</div><div>33%</div></div>
2	O	3	<div><div></div><div>67%</div><div>33%</div></div>
2	P	3	<div><div></div><div>67%</div><div>33%</div></div>

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 14656 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 GLUTATHIONE TRANSFERASE A4-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	B	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	C	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	D	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	E	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	F	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	G	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			
1	H	217	Total	C	N	O	S	0	0	0
			1777	1158	298	315	6			

- Molecule 2 is a protein called S-(2-iodobenzyl) glutathione.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	I	3	Total	C	I	N	O	S	0	0
			28	17	1	3	6	1		
2	J	3	Total	C	I	N	O	S	0	0
			28	17	1	3	6	1		
2	K	3	Total	C	I	N	O	S	0	0
			28	17	1	3	6	1		
2	L	3	Total	C	I	N	O	S	0	0
			28	17	1	3	6	1		
2	M	3	Total	C	I	N	O	S	0	0
			28	17	1	3	6	1		
2	N	3	Total	C	I	N	O	S	0	0
			28	17	1	3	6	1		

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
2	O	3	Total	C	I	N	O	S	0	0	0
			28	17	1	3	6	1			
2	P	3	Total	C	I	N	O	S	0	0	0
			28	17	1	3	6	1			

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	27	Total	O	0	0
			27	27		
3	B	27	Total	O	0	0
			27	27		
3	C	27	Total	O	0	0
			27	27		
3	D	27	Total	O	0	0
			27	27		
3	E	27	Total	O	0	0
			27	27		
3	F	27	Total	O	0	0
			27	27		
3	G	27	Total	O	0	0
			27	27		
3	H	27	Total	O	0	0
			27	27		

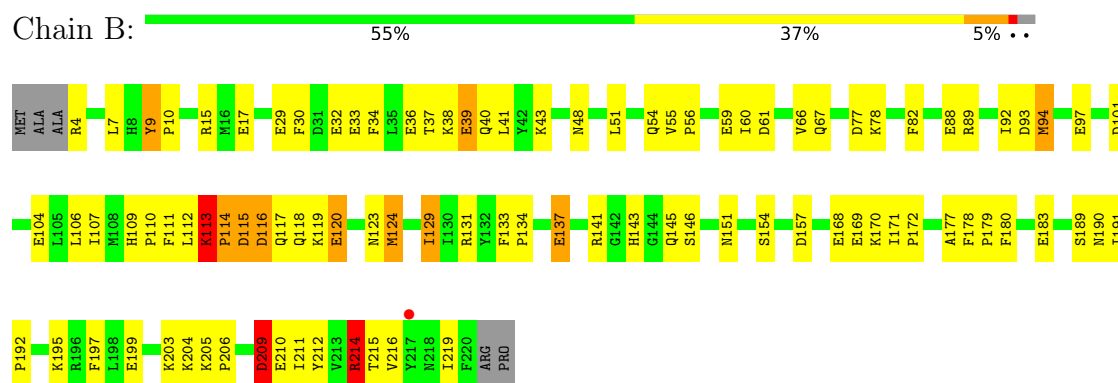
### 3 Residue-property plots

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.

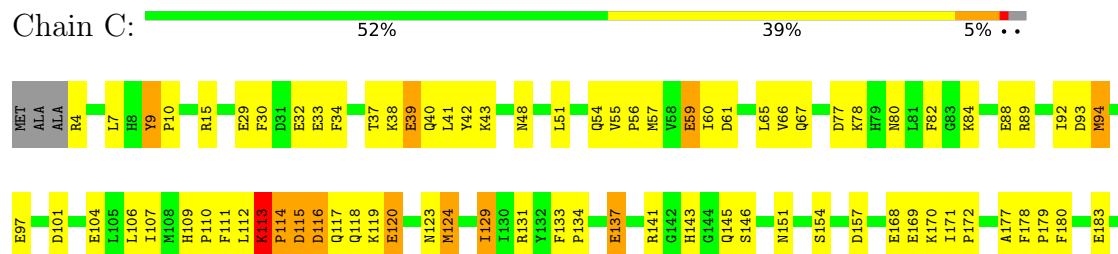
#### • Molecule 1: GLUTATHIONE TRANSFERASE A4-4

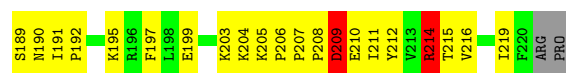


#### • Molecule 1: GLUTATHIONE TRANSFERASE A4-4



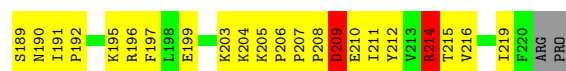
#### • Molecule 1: GLUTATHIONE TRANSFERASE A4-4





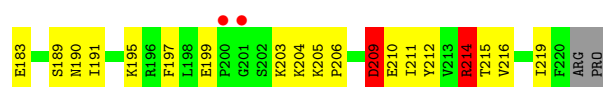
• Molecule 1: GLUTATHIONE TRANSFERASE A4-4

Chain D: 53% 39% 5% ..



• Molecule 1: GLUTATHIONE TRANSFERASE A4-4

Chain E: 54% 38% 5% ..



• Molecule 1: GLUTATHIONE TRANSFERASE A4-4

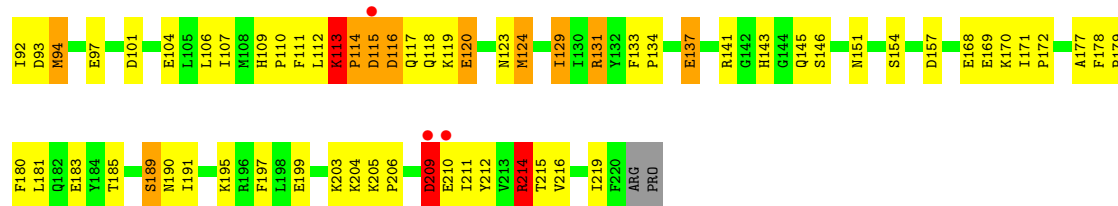
Chain F: 53% 39% 5% ..



• Molecule 1: GLUTATHIONE TRANSFERASE A4-4

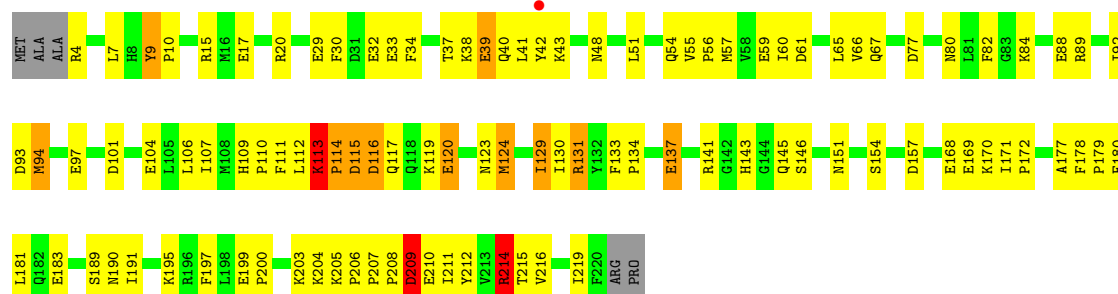
Chain G: 52% 39% 5% ..





• Molecule 1: GLUTATHIONE TRANSFERASE A4-4

Chain H: 51% 40% 5% ..



• Molecule 2: S-(2-iodobenzyl) glutathione

Chain I: 67% 33%



• Molecule 2: S-(2-iodobenzyl) glutathione

Chain J: 67% 33%



• Molecule 2: S-(2-iodobenzyl) glutathione

Chain K: 67% 33%



• Molecule 2: S-(2-iodobenzyl) glutathione

Chain L: 67% 33%



• Molecule 2: S-(2-iodobenzyl) glutathione



Chain M:  67% 33%

E231  
IC1232  
G233

- Molecule 2: S-(2-iodobenzyl) glutathione

Chain N:  67% 33%

E231  
IC1232  
G233

- Molecule 2: S-(2-iodobenzyl) glutathione

Chain O:  67% 33%

E231  
IC1232  
G233

- Molecule 2: S-(2-iodobenzyl) glutathione

Chain P:  67% 33%

E231  
IC1232  
G233

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	155.30Å 156.10Å 101.30Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	160.00 – 2.70 57.44 – 2.60	Depositor EDS
% Data completeness (in resolution range)	86.0 (160.00-2.70) 84.2 (57.44-2.60)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.11	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.34 (at 2.61Å)	Xtriage
Refinement program	TNT 5E	Depositor
R, $R_{free}$	0.248 , 0.260 0.221 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	26.1	Xtriage
Anisotropy	0.084	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 54.6	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.022 for k,h,-l	Xtriage
$F_o, F_c$ correlation	0.89	EDS
Total number of atoms	14656	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	24.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.61% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: ICY, GGL

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	1.28	15/1817 (0.8%)	1.60	31/2456 (1.3%)
1	B	1.28	16/1817 (0.9%)	1.60	31/2456 (1.3%)
1	C	1.28	15/1817 (0.8%)	1.60	31/2456 (1.3%)
1	D	1.28	15/1817 (0.8%)	1.60	31/2456 (1.3%)
1	E	1.28	15/1817 (0.8%)	1.60	30/2456 (1.2%)
1	F	1.28	15/1817 (0.8%)	1.60	31/2456 (1.3%)
1	G	1.28	15/1817 (0.8%)	1.60	31/2456 (1.3%)
1	H	1.28	15/1817 (0.8%)	1.60	30/2456 (1.2%)
2	I	1.53	0/4	2.19	0/2
2	J	1.53	0/4	2.19	0/2
2	K	1.53	0/4	2.20	0/2
2	L	1.51	0/4	2.19	0/2
2	M	1.53	0/4	2.18	0/2
2	N	1.53	0/4	2.19	0/2
2	O	1.52	0/4	2.20	0/2
2	P	1.54	0/4	2.19	0/2
All	All	1.28	121/14568 (0.8%)	1.60	246/19664 (1.3%)

All (121) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	168	GLU	CD-OE2	8.12	1.34	1.25
1	D	168	GLU	CD-OE2	8.11	1.34	1.25
1	B	97	GLU	CD-OE2	8.11	1.34	1.25
1	C	97	GLU	CD-OE2	8.10	1.34	1.25
1	B	168	GLU	CD-OE2	8.08	1.34	1.25
1	H	97	GLU	CD-OE2	8.07	1.34	1.25
1	A	97	GLU	CD-OE2	8.07	1.34	1.25
1	D	97	GLU	CD-OE2	8.06	1.34	1.25
1	G	97	GLU	CD-OE2	8.06	1.34	1.25
1	A	168	GLU	CD-OE2	8.06	1.34	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	G	168	GLU	CD-OE2	8.06	1.34	1.25
1	F	97	GLU	CD-OE2	8.05	1.34	1.25
1	E	168	GLU	CD-OE2	8.04	1.34	1.25
1	C	168	GLU	CD-OE2	8.03	1.34	1.25
1	F	168	GLU	CD-OE2	8.01	1.34	1.25
1	E	97	GLU	CD-OE2	8.01	1.34	1.25
1	E	33	GLU	CD-OE2	7.91	1.34	1.25
1	H	33	GLU	CD-OE2	7.90	1.34	1.25
1	G	33	GLU	CD-OE2	7.89	1.34	1.25
1	A	33	GLU	CD-OE2	7.88	1.34	1.25
1	F	33	GLU	CD-OE2	7.88	1.34	1.25
1	C	33	GLU	CD-OE2	7.87	1.34	1.25
1	B	33	GLU	CD-OE2	7.86	1.34	1.25
1	D	33	GLU	CD-OE2	7.84	1.34	1.25
1	D	104	GLU	CD-OE2	6.74	1.33	1.25
1	A	104	GLU	CD-OE2	6.73	1.33	1.25
1	C	104	GLU	CD-OE2	6.73	1.33	1.25
1	B	104	GLU	CD-OE2	6.72	1.33	1.25
1	H	104	GLU	CD-OE2	6.71	1.33	1.25
1	F	104	GLU	CD-OE2	6.70	1.33	1.25
1	G	104	GLU	CD-OE2	6.67	1.32	1.25
1	E	104	GLU	CD-OE2	6.67	1.32	1.25
1	B	88	GLU	CD-OE2	6.34	1.32	1.25
1	C	88	GLU	CD-OE2	6.33	1.32	1.25
1	D	88	GLU	CD-OE2	6.32	1.32	1.25
1	G	88	GLU	CD-OE2	6.31	1.32	1.25
1	E	88	GLU	CD-OE2	6.30	1.32	1.25
1	A	88	GLU	CD-OE2	6.30	1.32	1.25
1	H	88	GLU	CD-OE2	6.29	1.32	1.25
1	F	88	GLU	CD-OE2	6.29	1.32	1.25
1	A	32	GLU	CD-OE2	6.24	1.32	1.25
1	E	32	GLU	CD-OE2	6.24	1.32	1.25
1	F	32	GLU	CD-OE2	6.23	1.32	1.25
1	D	32	GLU	CD-OE2	6.22	1.32	1.25
1	B	32	GLU	CD-OE2	6.21	1.32	1.25
1	G	32	GLU	CD-OE2	6.17	1.32	1.25
1	H	32	GLU	CD-OE2	6.17	1.32	1.25
1	C	32	GLU	CD-OE2	6.17	1.32	1.25
1	G	59	GLU	CD-OE2	6.09	1.32	1.25
1	D	59	GLU	CD-OE2	6.08	1.32	1.25
1	G	199	GLU	CD-OE2	6.07	1.32	1.25
1	F	59	GLU	CD-OE2	6.07	1.32	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	59	GLU	CD-OE2	6.07	1.32	1.25
1	E	59	GLU	CD-OE2	6.05	1.32	1.25
1	H	29	GLU	CD-OE2	6.05	1.32	1.25
1	A	59	GLU	CD-OE2	6.05	1.32	1.25
1	C	59	GLU	CD-OE2	6.05	1.32	1.25
1	F	29	GLU	CD-OE2	6.03	1.32	1.25
1	E	199	GLU	CD-OE2	6.02	1.32	1.25
1	D	199	GLU	CD-OE2	6.02	1.32	1.25
1	C	29	GLU	CD-OE2	6.00	1.32	1.25
1	A	29	GLU	CD-OE2	5.99	1.32	1.25
1	A	199	GLU	CD-OE2	5.99	1.32	1.25
1	H	59	GLU	CD-OE2	5.99	1.32	1.25
1	D	29	GLU	CD-OE2	5.99	1.32	1.25
1	B	29	GLU	CD-OE2	5.96	1.32	1.25
1	F	199	GLU	CD-OE2	5.95	1.32	1.25
1	C	199	GLU	CD-OE2	5.95	1.32	1.25
1	G	29	GLU	CD-OE2	5.95	1.32	1.25
1	E	29	GLU	CD-OE2	5.95	1.32	1.25
1	B	199	GLU	CD-OE2	5.93	1.32	1.25
1	H	199	GLU	CD-OE2	5.92	1.32	1.25
1	H	210	GLU	CD-OE2	5.70	1.31	1.25
1	A	210	GLU	CD-OE2	5.66	1.31	1.25
1	C	210	GLU	CD-OE2	5.66	1.31	1.25
1	D	210	GLU	CD-OE2	5.65	1.31	1.25
1	E	210	GLU	CD-OE2	5.65	1.31	1.25
1	B	210	GLU	CD-OE2	5.64	1.31	1.25
1	F	210	GLU	CD-OE2	5.63	1.31	1.25
1	G	210	GLU	CD-OE2	5.59	1.31	1.25
1	F	137	GLU	CD-OE2	5.42	1.31	1.25
1	C	137	GLU	CD-OE2	5.41	1.31	1.25
1	H	137	GLU	CD-OE2	5.40	1.31	1.25
1	E	137	GLU	CD-OE2	5.38	1.31	1.25
1	A	137	GLU	CD-OE2	5.38	1.31	1.25
1	G	137	GLU	CD-OE2	5.37	1.31	1.25
1	B	169	GLU	CD-OE1	-5.35	1.19	1.25
1	B	137	GLU	CD-OE2	5.34	1.31	1.25
1	D	137	GLU	CD-OE2	5.34	1.31	1.25
1	E	169	GLU	CD-OE1	-5.33	1.19	1.25
1	G	169	GLU	CD-OE1	-5.33	1.19	1.25
1	F	169	GLU	CD-OE1	-5.33	1.19	1.25
1	C	169	GLU	CD-OE1	-5.32	1.19	1.25
1	A	169	GLU	CD-OE1	-5.31	1.19	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	169	GLU	CD-OE1	-5.28	1.19	1.25
1	F	39	GLU	CD-OE2	5.27	1.31	1.25
1	G	183	GLU	CD-OE2	5.26	1.31	1.25
1	H	169	GLU	CD-OE1	-5.26	1.19	1.25
1	E	39	GLU	CD-OE2	5.22	1.31	1.25
1	B	39	GLU	CD-OE2	5.21	1.31	1.25
1	B	120	GLU	CD-OE2	5.21	1.31	1.25
1	F	183	GLU	CD-OE2	5.20	1.31	1.25
1	H	183	GLU	CD-OE2	5.20	1.31	1.25
1	A	183	GLU	CD-OE2	5.20	1.31	1.25
1	A	39	GLU	CD-OE2	5.19	1.31	1.25
1	C	183	GLU	CD-OE2	5.19	1.31	1.25
1	D	120	GLU	CD-OE2	5.19	1.31	1.25
1	G	39	GLU	CD-OE2	5.18	1.31	1.25
1	E	120	GLU	CD-OE2	5.18	1.31	1.25
1	G	120	GLU	CD-OE2	5.18	1.31	1.25
1	B	183	GLU	CD-OE2	5.18	1.31	1.25
1	H	39	GLU	CD-OE2	5.18	1.31	1.25
1	A	120	GLU	CD-OE2	5.17	1.31	1.25
1	F	120	GLU	CD-OE2	5.17	1.31	1.25
1	D	183	GLU	CD-OE2	5.16	1.31	1.25
1	C	39	GLU	CD-OE2	5.15	1.31	1.25
1	D	39	GLU	CD-OE2	5.15	1.31	1.25
1	H	120	GLU	CD-OE2	5.15	1.31	1.25
1	E	183	GLU	CD-OE2	5.15	1.31	1.25
1	C	120	GLU	CD-OE2	5.12	1.31	1.25
1	B	17	GLU	CD-OE2	5.01	1.31	1.25

All (246) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	101	ASP	CB-CG-OD2	-8.70	110.47	118.30
1	G	101	ASP	CB-CG-OD2	-8.63	110.53	118.30
1	B	101	ASP	CB-CG-OD2	-8.63	110.54	118.30
1	A	101	ASP	CB-CG-OD2	-8.61	110.55	118.30
1	E	101	ASP	CB-CG-OD2	-8.61	110.55	118.30
1	F	101	ASP	CB-CG-OD2	-8.61	110.55	118.30
1	D	101	ASP	CB-CG-OD2	-8.60	110.56	118.30
1	C	101	ASP	CB-CG-OD2	-8.59	110.57	118.30
1	B	61	ASP	CB-CG-OD2	-8.02	111.08	118.30
1	E	61	ASP	CB-CG-OD2	-8.02	111.08	118.30
1	G	61	ASP	CB-CG-OD2	-8.00	111.10	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	61	ASP	CB-CG-OD2	-7.99	111.11	118.30
1	D	61	ASP	CB-CG-OD2	-7.98	111.12	118.30
1	C	61	ASP	CB-CG-OD2	-7.97	111.12	118.30
1	F	61	ASP	CB-CG-OD2	-7.97	111.12	118.30
1	H	61	ASP	CB-CG-OD2	-7.95	111.15	118.30
1	B	89	ARG	NE-CZ-NH2	-7.85	116.38	120.30
1	D	89	ARG	NE-CZ-NH2	-7.85	116.38	120.30
1	F	89	ARG	NE-CZ-NH2	-7.84	116.38	120.30
1	C	89	ARG	NE-CZ-NH2	-7.80	116.40	120.30
1	D	157	ASP	CB-CG-OD1	7.78	125.30	118.30
1	G	157	ASP	CB-CG-OD1	7.78	125.30	118.30
1	A	89	ARG	NE-CZ-NH2	-7.77	116.42	120.30
1	E	157	ASP	CB-CG-OD1	7.76	125.28	118.30
1	E	89	ARG	NE-CZ-NH2	-7.76	116.42	120.30
1	H	157	ASP	CB-CG-OD1	7.75	125.28	118.30
1	B	157	ASP	CB-CG-OD1	7.75	125.27	118.30
1	F	157	ASP	CB-CG-OD1	7.74	125.27	118.30
1	H	116	ASP	CB-CG-OD2	-7.74	111.33	118.30
1	C	157	ASP	CB-CG-OD1	7.73	125.26	118.30
1	F	116	ASP	CB-CG-OD2	-7.72	111.35	118.30
1	G	89	ARG	NE-CZ-NH2	-7.72	116.44	120.30
1	G	116	ASP	CB-CG-OD2	-7.72	111.35	118.30
1	A	157	ASP	CB-CG-OD1	7.72	125.25	118.30
1	E	116	ASP	CB-CG-OD2	-7.70	111.37	118.30
1	H	89	ARG	NE-CZ-NH2	-7.70	116.45	120.30
1	H	9	TYR	CB-CG-CD2	7.70	125.62	121.00
1	A	116	ASP	CB-CG-OD2	-7.69	111.38	118.30
1	B	116	ASP	CB-CG-OD2	-7.68	111.39	118.30
1	D	116	ASP	CB-CG-OD2	-7.67	111.40	118.30
1	C	116	ASP	CB-CG-OD2	-7.66	111.41	118.30
1	G	9	TYR	CB-CG-CD2	7.61	125.57	121.00
1	A	9	TYR	CB-CG-CD2	7.59	125.55	121.00
1	B	9	TYR	CB-CG-CD2	7.58	125.55	121.00
1	F	9	TYR	CB-CG-CD2	7.58	125.55	121.00
1	D	9	TYR	CB-CG-CD2	7.57	125.54	121.00
1	E	9	TYR	CB-CG-CD2	7.57	125.54	121.00
1	C	9	TYR	CB-CG-CD2	7.52	125.52	121.00
1	C	113	LYS	C-N-CD	-7.47	104.16	120.60
1	A	113	LYS	C-N-CD	-7.45	104.21	120.60
1	B	113	LYS	C-N-CD	-7.45	104.21	120.60
1	G	113	LYS	C-N-CD	-7.45	104.21	120.60
1	D	113	LYS	C-N-CD	-7.44	104.23	120.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	113	LYS	C-N-CD	-7.44	104.24	120.60
1	F	113	LYS	C-N-CD	-7.44	104.24	120.60
1	H	113	LYS	C-N-CD	-7.43	104.26	120.60
1	G	120	GLU	CA-CB-CG	-7.08	97.82	113.40
1	B	120	GLU	CA-CB-CG	-7.08	97.83	113.40
1	D	120	GLU	CA-CB-CG	-7.07	97.84	113.40
1	F	120	GLU	CA-CB-CG	-7.07	97.84	113.40
1	E	120	GLU	CA-CB-CG	-7.07	97.85	113.40
1	A	120	GLU	CA-CB-CG	-7.07	97.85	113.40
1	C	120	GLU	CA-CB-CG	-7.07	97.85	113.40
1	H	120	GLU	CA-CB-CG	-7.04	97.91	113.40
1	D	77	ASP	CB-CG-OD2	-7.03	111.97	118.30
1	E	77	ASP	CB-CG-OD2	-7.01	111.99	118.30
1	G	77	ASP	CB-CG-OD2	-7.01	111.99	118.30
1	A	77	ASP	CB-CG-OD2	-6.99	112.01	118.30
1	C	77	ASP	CB-CG-OD2	-6.99	112.01	118.30
1	H	77	ASP	CB-CG-OD2	-6.98	112.02	118.30
1	F	77	ASP	CB-CG-OD2	-6.97	112.02	118.30
1	B	77	ASP	CB-CG-OD2	-6.97	112.03	118.30
1	C	157	ASP	CB-CG-OD2	-6.92	112.07	118.30
1	H	157	ASP	CB-CG-OD2	-6.91	112.08	118.30
1	B	157	ASP	CB-CG-OD2	-6.91	112.08	118.30
1	C	115	ASP	CB-CG-OD1	6.90	124.51	118.30
1	G	157	ASP	CB-CG-OD2	-6.90	112.09	118.30
1	A	157	ASP	CB-CG-OD2	-6.89	112.10	118.30
1	D	157	ASP	CB-CG-OD2	-6.89	112.10	118.30
1	F	115	ASP	CB-CG-OD1	6.88	124.49	118.30
1	B	115	ASP	CB-CG-OD1	6.88	124.49	118.30
1	F	157	ASP	CB-CG-OD2	-6.88	112.11	118.30
1	D	115	ASP	CB-CG-OD1	6.87	124.48	118.30
1	E	157	ASP	CB-CG-OD2	-6.87	112.11	118.30
1	G	115	ASP	CB-CG-OD1	6.87	124.48	118.30
1	A	115	ASP	CB-CG-OD1	6.87	124.48	118.30
1	H	115	ASP	CB-CG-OD1	6.84	124.46	118.30
1	E	115	ASP	CB-CG-OD1	6.84	124.46	118.30
1	H	131	ARG	NE-CZ-NH1	-6.83	116.89	120.30
1	B	131	ARG	NE-CZ-NH1	-6.82	116.89	120.30
1	G	94	MET	CG-SD-CE	-6.82	89.28	100.20
1	E	94	MET	CG-SD-CE	-6.81	89.30	100.20
1	H	94	MET	CG-SD-CE	-6.81	89.30	100.20
1	A	94	MET	CG-SD-CE	-6.81	89.31	100.20
1	C	94	MET	CG-SD-CE	-6.81	89.31	100.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	94	MET	CG-SD-CE	-6.80	89.31	100.20
1	E	131	ARG	NE-CZ-NH1	-6.80	116.90	120.30
1	F	94	MET	CG-SD-CE	-6.79	89.33	100.20
1	C	115	ASP	CB-CG-OD2	-6.79	112.19	118.30
1	B	94	MET	CG-SD-CE	-6.79	89.34	100.20
1	H	115	ASP	CB-CG-OD2	-6.78	112.20	118.30
1	A	115	ASP	CB-CG-OD2	-6.78	112.20	118.30
1	D	93	ASP	CB-CG-OD2	-6.78	112.20	118.30
1	G	115	ASP	CB-CG-OD2	-6.78	112.20	118.30
1	E	115	ASP	CB-CG-OD2	-6.77	112.20	118.30
1	F	115	ASP	CB-CG-OD2	-6.77	112.21	118.30
1	D	115	ASP	CB-CG-OD2	-6.77	112.21	118.30
1	G	131	ARG	NE-CZ-NH1	-6.76	116.92	120.30
1	A	131	ARG	NE-CZ-NH1	-6.76	116.92	120.30
1	F	131	ARG	NE-CZ-NH1	-6.76	116.92	120.30
1	B	93	ASP	CB-CG-OD2	-6.75	112.22	118.30
1	B	115	ASP	CB-CG-OD2	-6.75	112.22	118.30
1	C	131	ARG	NE-CZ-NH1	-6.73	116.93	120.30
1	A	93	ASP	CB-CG-OD2	-6.72	112.25	118.30
1	C	93	ASP	CB-CG-OD2	-6.72	112.25	118.30
1	G	93	ASP	CB-CG-OD2	-6.72	112.25	118.30
1	H	93	ASP	CB-CG-OD2	-6.71	112.26	118.30
1	E	93	ASP	CB-CG-OD2	-6.71	112.26	118.30
1	F	93	ASP	CB-CG-OD2	-6.70	112.27	118.30
1	D	131	ARG	NE-CZ-NH1	-6.69	116.96	120.30
1	B	9	TYR	CB-CG-CD1	-6.51	117.09	121.00
1	G	9	TYR	CB-CG-CD1	-6.49	117.10	121.00
1	H	9	TYR	CB-CG-CD1	-6.49	117.10	121.00
1	E	93	ASP	CB-CG-OD1	6.49	124.14	118.30
1	G	93	ASP	CB-CG-OD1	6.47	124.12	118.30
1	B	93	ASP	CB-CG-OD1	6.46	124.11	118.30
1	A	9	TYR	CB-CG-CD1	-6.45	117.13	121.00
1	C	93	ASP	CB-CG-OD1	6.45	124.11	118.30
1	F	93	ASP	CB-CG-OD1	6.45	124.11	118.30
1	A	93	ASP	CB-CG-OD1	6.44	124.10	118.30
1	D	93	ASP	CB-CG-OD1	6.44	124.09	118.30
1	D	9	TYR	CB-CG-CD1	-6.43	117.14	121.00
1	F	9	TYR	CB-CG-CD1	-6.43	117.14	121.00
1	C	9	TYR	CB-CG-CD1	-6.43	117.14	121.00
1	E	9	TYR	CB-CG-CD1	-6.43	117.14	121.00
1	H	93	ASP	CB-CG-OD1	6.40	124.06	118.30
1	H	116	ASP	CB-CG-OD1	6.34	124.00	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	116	ASP	CB-CG-OD1	6.33	124.00	118.30
1	E	116	ASP	CB-CG-OD1	6.33	124.00	118.30
1	D	116	ASP	CB-CG-OD1	6.31	123.98	118.30
1	G	116	ASP	CB-CG-OD1	6.29	123.96	118.30
1	A	116	ASP	CB-CG-OD1	6.28	123.95	118.30
1	A	209	ASP	CB-CG-OD2	-6.28	112.65	118.30
1	H	209	ASP	CB-CG-OD2	-6.28	112.65	118.30
1	E	209	ASP	CB-CG-OD2	-6.27	112.65	118.30
1	B	209	ASP	CB-CG-OD2	-6.27	112.66	118.30
1	F	209	ASP	CB-CG-OD2	-6.27	112.66	118.30
1	G	209	ASP	CB-CG-OD2	-6.26	112.67	118.30
1	D	209	ASP	CB-CG-OD2	-6.25	112.67	118.30
1	C	116	ASP	CB-CG-OD1	6.25	123.93	118.30
1	C	209	ASP	CB-CG-OD2	-6.25	112.67	118.30
1	B	116	ASP	CB-CG-OD1	6.25	123.92	118.30
1	E	190	ASN	N-CA-CB	6.16	121.69	110.60
1	G	190	ASN	N-CA-CB	6.16	121.69	110.60
1	F	190	ASN	N-CA-CB	6.15	121.66	110.60
1	H	190	ASN	N-CA-CB	6.14	121.66	110.60
1	A	190	ASN	N-CA-CB	6.14	121.65	110.60
1	D	190	ASN	N-CA-CB	6.14	121.65	110.60
1	B	190	ASN	N-CA-CB	6.13	121.64	110.60
1	C	190	ASN	N-CA-CB	6.13	121.63	110.60
1	G	4	ARG	NE-CZ-NH2	-6.02	117.29	120.30
1	B	4	ARG	NE-CZ-NH2	-6.00	117.30	120.30
1	E	4	ARG	NE-CZ-NH2	-6.00	117.30	120.30
1	E	15	ARG	CD-NE-CZ	-5.99	115.21	123.60
1	A	4	ARG	NE-CZ-NH2	-5.98	117.31	120.30
1	C	4	ARG	NE-CZ-NH2	-5.97	117.31	120.30
1	C	15	ARG	CD-NE-CZ	-5.96	115.25	123.60
1	G	15	ARG	CD-NE-CZ	-5.96	115.25	123.60
1	D	4	ARG	NE-CZ-NH2	-5.96	117.32	120.30
1	A	15	ARG	CD-NE-CZ	-5.96	115.26	123.60
1	D	15	ARG	CD-NE-CZ	-5.95	115.27	123.60
1	B	15	ARG	CD-NE-CZ	-5.95	115.27	123.60
1	F	4	ARG	NE-CZ-NH2	-5.95	117.33	120.30
1	F	15	ARG	CD-NE-CZ	-5.94	115.29	123.60
1	H	15	ARG	CD-NE-CZ	-5.92	115.31	123.60
1	H	4	ARG	NE-CZ-NH2	-5.90	117.35	120.30
1	H	101	ASP	CB-CG-OD1	5.85	123.56	118.30
1	G	101	ASP	CB-CG-OD1	5.80	123.52	118.30
1	F	101	ASP	CB-CG-OD1	5.80	123.52	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	101	ASP	CB-CG-OD1	5.80	123.52	118.30
1	A	101	ASP	CB-CG-OD1	5.79	123.52	118.30
1	C	101	ASP	CB-CG-OD1	5.79	123.52	118.30
1	B	101	ASP	CB-CG-OD1	5.79	123.51	118.30
1	D	101	ASP	CB-CG-OD1	5.73	123.46	118.30
1	F	214	ARG	NE-CZ-NH1	5.61	123.10	120.30
1	E	77	ASP	CB-CG-OD1	5.61	123.34	118.30
1	G	214	ARG	NE-CZ-NH1	5.60	123.10	120.30
1	G	124	MET	CB-CA-C	-5.59	99.22	110.40
1	C	124	MET	CB-CA-C	-5.59	99.23	110.40
1	A	77	ASP	CB-CG-OD1	5.58	123.32	118.30
1	C	77	ASP	CB-CG-OD1	5.58	123.32	118.30
1	A	124	MET	CB-CA-C	-5.58	99.25	110.40
1	G	77	ASP	CB-CG-OD1	5.58	123.32	118.30
1	E	124	MET	CB-CA-C	-5.58	99.25	110.40
1	H	124	MET	CB-CA-C	-5.57	99.25	110.40
1	F	124	MET	CB-CA-C	-5.57	99.26	110.40
1	B	124	MET	CB-CA-C	-5.57	99.26	110.40
1	D	77	ASP	CB-CG-OD1	5.57	123.31	118.30
1	D	124	MET	CB-CA-C	-5.57	99.27	110.40
1	F	77	ASP	CB-CG-OD1	5.56	123.30	118.30
1	A	214	ARG	NE-CZ-NH1	5.55	123.08	120.30
1	C	214	ARG	NE-CZ-NH1	5.54	123.07	120.30
1	H	77	ASP	CB-CG-OD1	5.54	123.29	118.30
1	H	214	ARG	NE-CZ-NH1	5.54	123.07	120.30
1	B	77	ASP	CB-CG-OD1	5.54	123.28	118.30
1	B	214	ARG	NE-CZ-NH1	5.50	123.05	120.30
1	E	214	ARG	NE-CZ-NH1	5.49	123.05	120.30
1	D	214	ARG	NE-CZ-NH1	5.48	123.04	120.30
1	G	61	ASP	CB-CG-OD1	5.48	123.23	118.30
1	H	61	ASP	CB-CG-OD1	5.46	123.22	118.30
1	E	61	ASP	CB-CG-OD1	5.45	123.21	118.30
1	C	61	ASP	CB-CG-OD1	5.45	123.20	118.30
1	F	88	GLU	CG-CD-OE2	-5.45	107.41	118.30
1	B	88	GLU	CG-CD-OE2	-5.44	107.42	118.30
1	H	88	GLU	CG-CD-OE2	-5.44	107.43	118.30
1	A	61	ASP	CB-CG-OD1	5.43	123.19	118.30
1	A	88	GLU	CG-CD-OE2	-5.43	107.44	118.30
1	F	61	ASP	CB-CG-OD1	5.43	123.19	118.30
1	D	88	GLU	CG-CD-OE2	-5.42	107.46	118.30
1	G	88	GLU	CG-CD-OE2	-5.42	107.46	118.30
1	B	61	ASP	CB-CG-OD1	5.42	123.17	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	88	GLU	CG-CD-OE2	-5.42	107.47	118.30
1	E	88	GLU	CG-CD-OE2	-5.42	107.47	118.30
1	D	61	ASP	CB-CG-OD1	5.37	123.14	118.30
1	G	54	GLN	CB-CA-C	-5.27	99.86	110.40
1	D	54	GLN	CB-CA-C	-5.27	99.86	110.40
1	E	54	GLN	CB-CA-C	-5.27	99.86	110.40
1	F	54	GLN	CB-CA-C	-5.27	99.87	110.40
1	C	54	GLN	CB-CA-C	-5.26	99.87	110.40
1	A	54	GLN	CB-CA-C	-5.26	99.88	110.40
1	B	54	GLN	CB-CA-C	-5.26	99.89	110.40
1	H	54	GLN	CB-CA-C	-5.24	99.92	110.40
1	C	129	ILE	CB-CA-C	-5.18	101.24	111.60
1	E	129	ILE	CB-CA-C	-5.18	101.24	111.60
1	D	129	ILE	CB-CA-C	-5.17	101.25	111.60
1	A	129	ILE	CB-CA-C	-5.17	101.25	111.60
1	B	129	ILE	CB-CA-C	-5.17	101.26	111.60
1	F	129	ILE	CB-CA-C	-5.17	101.26	111.60
1	H	129	ILE	CB-CA-C	-5.17	101.26	111.60
1	G	129	ILE	CB-CA-C	-5.16	101.28	111.60
1	D	4	ARG	NE-CZ-NH1	5.03	122.81	120.30
1	B	209	ASP	CB-CG-OD1	5.01	122.81	118.30
1	F	4	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	A	4	ARG	NE-CZ-NH1	5.01	122.80	120.30
1	C	4	ARG	NE-CZ-NH1	5.01	122.80	120.30
1	G	4	ARG	NE-CZ-NH1	5.00	122.80	120.30

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	1777	0	1829	73	0
1	B	1777	0	1829	75	1
1	C	1777	0	1829	79	1
1	D	1777	0	1829	79	6

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	1777	0	1829	80	0
1	F	1777	0	1829	93	0
1	G	1777	0	1829	92	0
1	H	1777	0	1829	79	6
2	I	28	0	19	1	0
2	J	28	0	19	1	0
2	K	28	0	19	1	0
2	L	28	0	19	1	0
2	M	28	0	19	1	0
2	N	28	0	19	1	0
2	O	28	0	19	1	0
2	P	28	0	19	1	0
3	A	27	0	0	1	0
3	B	27	0	0	1	0
3	C	27	0	0	1	0
3	D	27	0	0	1	0
3	E	27	0	0	1	0
3	F	27	0	0	1	0
3	G	27	0	0	1	0
3	H	27	0	0	1	0
All	All	14656	0	14784	580	7

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 20.

All (580) 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:E:66:VAL:H	1:F:94:MET:CE	1.51	1.23
1:C:94:MET:CE	1:D:66:VAL:H	1.51	1.20
1:E:94:MET:CE	1:F:66:VAL:H	1.58	1.16
1:A:94:MET:CE	1:B:66:VAL:H	1.66	1.08
1:G:66:VAL:H	1:H:94:MET:CE	1.71	1.04
1:A:66:VAL:H	1:B:94:MET:CE	1.71	1.03
1:C:66:VAL:H	1:D:94:MET:CE	1.75	0.98
1:E:66:VAL:H	1:F:94:MET:HE3	1.26	0.97
1:G:94:MET:CE	1:H:66:VAL:H	1.78	0.96
1:C:94:MET:HE3	1:D:66:VAL:H	1.28	0.95
1:A:113:LYS:HE2	1:A:113:LYS:H	1.32	0.94
1:B:113:LYS:H	1:B:113:LYS:HE2	1.32	0.94
1:F:113:LYS:HE2	1:F:113:LYS:H	1.33	0.94

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:94:MET:HE3	1:F:66:VAL:H	1.30	0.94
1:E:113:LYS:HE2	1:E:113:LYS:H	1.32	0.94
1:H:113:LYS:HE2	1:H:113:LYS:H	1.32	0.93
1:A:94:MET:HE3	1:B:66:VAL:H	1.30	0.93
1:D:113:LYS:HE2	1:D:113:LYS:H	1.32	0.93
1:C:113:LYS:HE2	1:C:113:LYS:H	1.33	0.92
1:G:113:LYS:H	1:G:113:LYS:HE2	1.32	0.91
1:C:94:MET:HE1	1:D:66:VAL:H	1.33	0.90
1:E:66:VAL:H	1:F:94:MET:HE1	1.32	0.90
1:B:119:LYS:NZ	1:B:123:ASN:HB2	1.88	0.89
1:C:119:LYS:NZ	1:C:123:ASN:HB2	1.88	0.89
1:D:119:LYS:NZ	1:D:123:ASN:HB2	1.88	0.89
1:F:118:GLN:HG2	1:G:118:GLN:HG2	1.52	0.89
1:H:119:LYS:NZ	1:H:123:ASN:HB2	1.88	0.89
1:G:119:LYS:NZ	1:G:123:ASN:HB2	1.88	0.88
1:A:119:LYS:NZ	1:A:123:ASN:HB2	1.88	0.88
1:E:119:LYS:NZ	1:E:123:ASN:HB2	1.88	0.87
1:F:119:LYS:NZ	1:F:123:ASN:HB2	1.88	0.87
1:C:94:MET:CE	1:D:66:VAL:N	2.37	0.87
1:E:66:VAL:N	1:F:94:MET:CE	2.37	0.86
1:G:66:VAL:H	1:H:94:MET:HE3	1.39	0.86
1:G:119:LYS:HZ3	1:G:123:ASN:HB2	1.43	0.83
1:F:118:GLN:CG	1:G:118:GLN:HG2	2.08	0.83
1:E:94:MET:HE1	1:F:66:VAL:H	1.40	0.83
1:C:59:GLU:OE1	1:G:211:ILE:HD11	1.80	0.81
1:B:119:LYS:HZ3	1:B:123:ASN:HB2	1.45	0.80
1:G:94:MET:HE3	1:H:66:VAL:H	1.47	0.79
1:A:66:VAL:H	1:B:94:MET:HE3	1.46	0.79
1:H:119:LYS:HZ3	1:H:123:ASN:HB2	1.45	0.79
1:C:119:LYS:HZ3	1:C:123:ASN:HB2	1.47	0.78
1:F:119:LYS:HZ3	1:F:123:ASN:HB2	1.46	0.78
1:A:119:LYS:HZ3	1:A:123:ASN:HB2	1.49	0.77
1:F:37:THR:OG1	1:F:40:GLN:HG3	1.85	0.77
1:B:37:THR:OG1	1:B:40:GLN:HG3	1.85	0.77
1:C:37:THR:OG1	1:C:40:GLN:HG3	1.85	0.76
1:E:37:THR:OG1	1:E:40:GLN:HG3	1.85	0.76
1:D:37:THR:OG1	1:D:40:GLN:HG3	1.85	0.76
1:D:119:LYS:HZ3	1:D:123:ASN:HB2	1.50	0.76
1:A:37:THR:OG1	1:A:40:GLN:HG3	1.85	0.75
1:H:37:THR:OG1	1:H:40:GLN:HG3	1.85	0.75
1:C:66:VAL:H	1:D:94:MET:HE1	1.49	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:37:THR:OG1	1:G:40:GLN:HG3	1.85	0.75
1:F:118:GLN:HE21	1:G:118:GLN:HG3	1.50	0.75
1:A:66:VAL:H	1:B:94:MET:HE1	1.52	0.74
1:F:118:GLN:NE2	1:G:118:GLN:HG3	2.02	0.74
1:G:66:VAL:H	1:H:94:MET:HE1	1.52	0.73
1:C:214:ARG:HG2	1:C:214:ARG:HH11	1.53	0.73
1:A:214:ARG:HG2	1:A:214:ARG:HH11	1.53	0.73
1:E:94:MET:CE	1:F:66:VAL:N	2.44	0.73
1:H:214:ARG:HG2	1:H:214:ARG:HH11	1.53	0.73
1:C:66:VAL:H	1:D:94:MET:HE3	1.54	0.72
1:G:214:ARG:HG2	1:G:214:ARG:HH11	1.53	0.72
1:F:214:ARG:HG2	1:F:214:ARG:HH11	1.53	0.72
1:B:214:ARG:HG2	1:B:214:ARG:HH11	1.53	0.72
1:E:214:ARG:HG2	1:E:214:ARG:HH11	1.53	0.72
1:D:214:ARG:HH11	1:D:214:ARG:HG2	1.53	0.72
1:A:94:MET:HE1	1:B:66:VAL:H	1.51	0.70
1:E:119:LYS:HZ3	1:E:123:ASN:HB2	1.56	0.70
1:E:66:VAL:N	1:F:94:MET:HE1	2.04	0.70
1:G:205:LYS:HB3	1:G:206:PRO:HD2	1.75	0.69
1:B:205:LYS:HB3	1:B:206:PRO:HD2	1.74	0.69
1:E:205:LYS:HB3	1:E:206:PRO:HD2	1.74	0.69
1:A:205:LYS:HB3	1:A:206:PRO:HD2	1.74	0.68
1:H:205:LYS:HB3	1:H:206:PRO:HD2	1.74	0.68
1:D:205:LYS:HB3	1:D:206:PRO:HD2	1.74	0.68
1:C:205:LYS:HB3	1:C:206:PRO:HD2	1.75	0.68
1:C:113:LYS:H	1:C:113:LYS:CE	2.07	0.68
1:E:94:MET:HE3	1:F:66:VAL:N	2.08	0.68
1:F:205:LYS:HB3	1:F:206:PRO:HD2	1.75	0.68
1:E:112:LEU:HB2	1:E:117:GLN:HG2	1.76	0.67
1:H:112:LEU:HB2	1:H:117:GLN:HG2	1.76	0.67
1:A:94:MET:HE1	1:B:66:VAL:HG22	1.77	0.67
1:A:112:LEU:HB2	1:A:117:GLN:HG2	1.76	0.67
1:F:113:LYS:H	1:F:113:LYS:CE	2.07	0.67
1:F:118:GLN:CG	1:G:118:GLN:CG	2.72	0.67
1:G:94:MET:HE1	1:H:66:VAL:H	1.58	0.67
1:B:112:LEU:HB2	1:B:117:GLN:HG2	1.76	0.67
1:C:112:LEU:HB2	1:C:117:GLN:HG2	1.76	0.67
1:D:9:TYR:CG	1:D:10:PRO:HD2	2.30	0.67
1:E:66:VAL:N	1:F:94:MET:HE3	2.03	0.66
1:E:113:LYS:H	1:E:113:LYS:CE	2.07	0.66
1:B:113:LYS:H	1:B:113:LYS:CE	2.07	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:9:TYR:CG	1:F:10:PRO:HD2	2.30	0.66
1:G:9:TYR:CG	1:G:10:PRO:HD2	2.30	0.66
1:G:112:LEU:HB2	1:G:117:GLN:HG2	1.76	0.66
1:H:9:TYR:CG	1:H:10:PRO:HD2	2.30	0.66
1:F:112:LEU:HB2	1:F:117:GLN:HG2	1.76	0.66
1:A:9:TYR:CG	1:A:10:PRO:HD2	2.30	0.66
1:B:9:TYR:CG	1:B:10:PRO:HD2	2.30	0.66
1:A:113:LYS:H	1:A:113:LYS:CE	2.07	0.66
1:C:9:TYR:CG	1:C:10:PRO:HD2	2.30	0.66
1:G:113:LYS:H	1:G:113:LYS:CE	2.07	0.66
1:D:112:LEU:HB2	1:D:117:GLN:HG2	1.76	0.65
1:E:9:TYR:CG	1:E:10:PRO:HD2	2.30	0.65
1:F:118:GLN:HG2	1:G:118:GLN:CG	2.25	0.65
1:C:94:MET:HE3	1:D:66:VAL:N	2.04	0.65
1:H:113:LYS:H	1:H:113:LYS:CE	2.07	0.64
1:D:113:LYS:H	1:D:113:LYS:CE	2.07	0.64
1:H:141:ARG:HH11	1:H:141:ARG:HG2	1.63	0.64
1:C:141:ARG:HG2	1:C:141:ARG:HH11	1.63	0.63
1:B:141:ARG:HG2	1:B:141:ARG:HH11	1.63	0.63
1:E:141:ARG:HG2	1:E:141:ARG:HH11	1.63	0.63
1:D:141:ARG:HG2	1:D:141:ARG:HH11	1.63	0.63
1:A:141:ARG:HH11	1:A:141:ARG:HG2	1.63	0.63
1:F:141:ARG:HH11	1:F:141:ARG:HG2	1.63	0.63
1:A:94:MET:HE3	1:B:66:VAL:N	2.10	0.62
1:C:94:MET:HE1	1:D:66:VAL:N	2.06	0.62
1:F:215:THR:O	1:F:219:ILE:HG13	2.00	0.62
1:A:215:THR:O	1:A:219:ILE:HG13	2.00	0.62
1:E:215:THR:O	1:E:219:ILE:HG13	2.00	0.62
1:G:141:ARG:HG2	1:G:141:ARG:HH11	1.63	0.62
1:F:109:HIS:HB3	1:F:110:PRO:HD3	1.82	0.62
1:A:109:HIS:HB3	1:A:110:PRO:HD3	1.82	0.62
1:G:109:HIS:HB3	1:G:110:PRO:HD3	1.82	0.61
1:H:109:HIS:HB3	1:H:110:PRO:HD3	1.82	0.61
1:H:215:THR:O	1:H:219:ILE:HG13	2.00	0.61
1:C:113:LYS:O	1:C:116:ASP:N	2.33	0.61
1:F:113:LYS:O	1:F:116:ASP:N	2.33	0.61
1:C:215:THR:O	1:C:219:ILE:HG13	2.00	0.61
1:A:94:MET:CE	1:B:66:VAL:HG22	2.31	0.61
1:D:215:THR:O	1:D:219:ILE:HG13	2.00	0.61
1:D:109:HIS:HB3	1:D:110:PRO:HD3	1.82	0.61
1:E:109:HIS:HB3	1:E:110:PRO:HD3	1.82	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:113:LYS:O	1:A:116:ASP:N	2.33	0.60
1:E:94:MET:HE1	1:F:66:VAL:N	2.13	0.60
1:B:215:THR:O	1:B:219:ILE:HG13	2.00	0.60
1:D:113:LYS:O	1:D:116:ASP:N	2.33	0.60
1:H:113:LYS:O	1:H:116:ASP:N	2.33	0.60
1:B:109:HIS:HB3	1:B:110:PRO:HD3	1.82	0.60
1:B:113:LYS:O	1:B:116:ASP:N	2.34	0.60
1:E:113:LYS:O	1:E:116:ASP:N	2.34	0.60
1:G:113:LYS:O	1:G:116:ASP:N	2.34	0.60
1:G:212:TYR:O	1:G:216:VAL:HG13	2.02	0.60
1:G:215:THR:O	1:G:219:ILE:HG13	2.00	0.60
1:F:212:TYR:O	1:F:216:VAL:HG13	2.02	0.59
1:C:212:TYR:O	1:C:216:VAL:HG13	2.02	0.59
1:E:212:TYR:O	1:E:216:VAL:HG13	2.02	0.59
1:H:212:TYR:O	1:H:216:VAL:HG13	2.02	0.59
1:B:212:TYR:O	1:B:216:VAL:HG13	2.02	0.59
1:C:109:HIS:HB3	1:C:110:PRO:HD3	1.82	0.59
1:D:212:TYR:O	1:D:216:VAL:HG13	2.02	0.59
1:A:94:MET:CE	1:B:66:VAL:N	2.51	0.59
1:C:133:PHE:HB2	1:C:134:PRO:HD3	1.85	0.59
1:F:133:PHE:HB2	1:F:134:PRO:HD3	1.85	0.59
1:A:133:PHE:HB2	1:A:134:PRO:HD3	1.85	0.59
1:B:133:PHE:HB2	1:B:134:PRO:HD3	1.85	0.59
1:G:133:PHE:HB2	1:G:134:PRO:HD3	1.85	0.59
1:H:133:PHE:HB2	1:H:134:PRO:HD3	1.85	0.59
1:A:212:TYR:O	1:A:216:VAL:HG13	2.02	0.58
1:D:129:ILE:N	1:D:129:ILE:HD13	2.18	0.58
1:C:129:ILE:HD13	1:C:129:ILE:N	2.18	0.58
1:F:191:ILE:O	1:F:195:LYS:N	2.29	0.58
1:E:133:PHE:HB2	1:E:134:PRO:HD3	1.85	0.58
1:F:118:GLN:NE2	1:G:118:GLN:CG	2.65	0.58
1:H:129:ILE:HD13	1:H:129:ILE:N	2.18	0.57
1:E:66:VAL:HG22	1:F:94:MET:HE1	1.85	0.57
1:D:133:PHE:HB2	1:D:134:PRO:HD3	1.85	0.57
1:E:66:VAL:HG22	1:F:94:MET:CE	2.35	0.57
1:C:191:ILE:O	1:C:195:LYS:N	2.29	0.57
1:F:129:ILE:HD13	1:F:129:ILE:N	2.18	0.57
1:G:129:ILE:N	1:G:129:ILE:HD13	2.18	0.56
1:H:214:ARG:HH11	1:H:214:ARG:CG	2.18	0.56
1:C:214:ARG:HH11	1:C:214:ARG:CG	2.18	0.56
1:A:214:ARG:HH11	1:A:214:ARG:CG	2.18	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:118:GLN:CD	1:G:118:GLN:HG2	2.25	0.56
1:H:39:GLU:O	1:H:43:LYS:HG3	2.06	0.56
1:E:39:GLU:O	1:E:43:LYS:HG3	2.06	0.56
1:G:214:ARG:HH11	1:G:214:ARG:CG	2.18	0.56
1:B:39:GLU:O	1:B:43:LYS:HG3	2.06	0.56
1:D:214:ARG:HH11	1:D:214:ARG:CG	2.18	0.56
1:F:214:ARG:HH11	1:F:214:ARG:CG	2.18	0.56
1:D:92:ILE:HD13	1:D:154:SER:HB2	1.88	0.55
1:E:214:ARG:HH11	1:E:214:ARG:CG	2.18	0.55
1:F:118:GLN:HG3	1:G:118:GLN:NE2	2.21	0.55
1:D:39:GLU:O	1:D:43:LYS:HG3	2.06	0.55
1:A:129:ILE:HD13	1:A:129:ILE:N	2.18	0.55
1:C:92:ILE:HD13	1:C:154:SER:HB2	1.88	0.55
1:F:92:ILE:HD13	1:F:154:SER:HB2	1.88	0.55
1:A:92:ILE:HD13	1:A:154:SER:HB2	1.88	0.55
1:C:39:GLU:O	1:C:43:LYS:HG3	2.06	0.55
1:A:39:GLU:O	1:A:43:LYS:HG3	2.06	0.55
1:E:129:ILE:HD13	1:E:129:ILE:N	2.18	0.55
1:F:39:GLU:O	1:F:43:LYS:HG3	2.06	0.55
1:E:92:ILE:HD13	1:E:154:SER:HB2	1.88	0.55
1:H:92:ILE:HD13	1:H:154:SER:HB2	1.88	0.55
1:G:39:GLU:O	1:G:43:LYS:HG3	2.06	0.54
1:B:92:ILE:HD13	1:B:154:SER:HB2	1.88	0.54
1:B:214:ARG:HH11	1:B:214:ARG:CG	2.18	0.54
1:E:94:MET:HE1	1:F:66:VAL:HG22	1.88	0.54
1:B:129:ILE:N	1:B:129:ILE:HD13	2.18	0.54
1:G:66:VAL:N	1:H:94:MET:CE	2.56	0.53
1:B:191:ILE:O	1:B:195:LYS:N	2.29	0.53
1:G:66:VAL:HG22	1:H:94:MET:HE1	1.90	0.53
1:G:92:ILE:HD13	1:G:154:SER:HB2	1.88	0.53
1:E:119:LYS:HZ2	1:E:123:ASN:HB2	1.70	0.52
1:G:129:ILE:O	1:G:129:ILE:HG22	2.09	0.52
1:C:129:ILE:O	1:C:129:ILE:HG22	2.09	0.52
1:H:129:ILE:O	1:H:129:ILE:HG22	2.09	0.52
1:D:129:ILE:O	1:D:129:ILE:HG22	2.09	0.52
1:E:129:ILE:O	1:E:129:ILE:HG22	2.09	0.52
1:B:129:ILE:O	1:B:129:ILE:HG22	2.09	0.51
1:D:191:ILE:O	1:D:195:LYS:N	2.29	0.51
1:G:66:VAL:HG22	1:H:94:MET:CE	2.40	0.51
1:A:171:ILE:N	1:A:172:PRO:HD3	2.26	0.51
1:C:119:LYS:C	1:C:119:LYS:HD3	2.32	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:94:MET:CE	1:F:66:VAL:HG22	2.41	0.51
1:E:171:ILE:N	1:E:172:PRO:HD3	2.26	0.51
1:F:129:ILE:O	1:F:129:ILE:HG22	2.09	0.51
1:G:119:LYS:HD3	1:G:119:LYS:C	2.32	0.51
1:A:119:LYS:HD3	1:A:119:LYS:C	2.32	0.50
1:C:66:VAL:N	1:D:94:MET:HE1	2.24	0.50
1:C:94:MET:HE1	1:D:66:VAL:HG22	1.93	0.50
1:G:66:VAL:N	1:H:94:MET:HE1	2.24	0.50
1:F:119:LYS:HD3	1:F:119:LYS:C	2.32	0.50
1:H:119:LYS:HD3	1:H:119:LYS:C	2.32	0.50
1:B:119:LYS:HD3	1:B:119:LYS:C	2.32	0.50
1:D:171:ILE:N	1:D:172:PRO:HD3	2.26	0.50
1:A:129:ILE:O	1:A:129:ILE:HG22	2.09	0.50
1:D:119:LYS:HD3	1:D:119:LYS:C	2.32	0.50
1:E:137:GLU:CD	1:E:180:PHE:HB2	2.32	0.50
1:B:137:GLU:CD	1:B:180:PHE:HB2	2.32	0.50
1:C:51:LEU:HB3	1:C:66:VAL:HG21	1.94	0.50
1:D:137:GLU:CD	1:D:180:PHE:HB2	2.32	0.50
1:F:137:GLU:CD	1:F:180:PHE:HB2	2.32	0.50
1:G:137:GLU:CD	1:G:180:PHE:HB2	2.32	0.50
1:A:66:VAL:N	1:B:94:MET:HE1	2.26	0.50
1:G:66:VAL:N	1:H:94:MET:HE3	2.19	0.50
1:H:51:LEU:HB3	1:H:66:VAL:HG21	1.94	0.50
1:E:51:LEU:HB3	1:E:66:VAL:HG21	1.94	0.49
1:F:51:LEU:HB3	1:F:66:VAL:HG21	1.94	0.49
1:A:137:GLU:CD	1:A:180:PHE:HB2	2.32	0.49
1:D:51:LEU:HB3	1:D:66:VAL:HG21	1.94	0.49
1:E:119:LYS:C	1:E:119:LYS:HD3	2.32	0.49
1:C:137:GLU:CD	1:C:180:PHE:HB2	2.32	0.49
1:C:171:ILE:N	1:C:172:PRO:HD3	2.26	0.49
1:H:137:GLU:CD	1:H:180:PHE:HB2	2.32	0.49
1:G:171:ILE:N	1:G:172:PRO:HD3	2.26	0.48
1:B:51:LEU:HB3	1:B:66:VAL:HG21	1.94	0.48
1:C:94:MET:CE	1:D:66:VAL:HG22	2.43	0.48
1:A:51:LEU:HB3	1:A:66:VAL:HG21	1.94	0.48
1:B:171:ILE:N	1:B:172:PRO:HD3	2.26	0.48
1:G:51:LEU:HB3	1:G:66:VAL:HG21	1.94	0.48
1:E:191:ILE:O	1:E:195:LYS:N	2.29	0.48
1:H:191:ILE:O	1:H:195:LYS:N	2.29	0.48
1:E:66:VAL:O	1:E:67:GLN:HB2	2.14	0.48
1:H:171:ILE:N	1:H:172:PRO:HD3	2.26	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:94:MET:HE1	1:B:66:VAL:N	2.22	0.48
1:A:113:LYS:HA	1:A:114:PRO:HD3	1.50	0.47
1:B:66:VAL:O	1:B:67:GLN:HB2	2.14	0.47
1:F:171:ILE:N	1:F:172:PRO:HD3	2.26	0.47
1:G:113:LYS:HA	1:G:114:PRO:HD3	1.50	0.47
1:A:191:ILE:O	1:A:195:LYS:N	2.29	0.47
1:F:214:ARG:HD2	1:F:214:ARG:HA	1.64	0.47
1:A:66:VAL:O	1:A:67:GLN:HB2	2.14	0.47
1:D:66:VAL:O	1:D:67:GLN:HB2	2.14	0.47
1:D:133:PHE:N	1:D:134:PRO:CD	2.78	0.47
1:B:133:PHE:N	1:B:134:PRO:CD	2.78	0.47
1:D:178:PHE:HA	1:D:179:PRO:HD2	1.66	0.47
1:H:66:VAL:O	1:H:67:GLN:HB2	2.14	0.47
1:D:214:ARG:HD2	1:D:214:ARG:HA	1.65	0.46
1:G:66:VAL:O	1:G:67:GLN:HB2	2.14	0.46
1:G:94:MET:HE1	1:H:66:VAL:HG22	1.97	0.46
1:G:133:PHE:N	1:G:134:PRO:CD	2.78	0.46
1:A:120:GLU:O	1:A:124:MET:HG3	2.16	0.46
1:C:66:VAL:O	1:C:67:GLN:HB2	2.14	0.46
1:C:78:LYS:HD2	1:C:78:LYS:HA	1.73	0.46
1:F:66:VAL:O	1:F:67:GLN:HB2	2.14	0.46
1:G:94:MET:CE	1:H:66:VAL:HG22	2.46	0.46
1:G:120:GLU:O	1:G:124:MET:HG3	2.16	0.46
1:H:60:ILE:HG23	1:H:60:ILE:O	2.16	0.46
1:B:120:GLU:O	1:B:124:MET:HG3	2.16	0.46
1:C:120:GLU:O	1:C:124:MET:HG3	2.16	0.46
1:E:60:ILE:O	1:E:60:ILE:HG23	2.15	0.46
1:A:214:ARG:CG	1:A:214:ARG:NH1	2.79	0.46
1:C:113:LYS:HA	1:C:114:PRO:HD3	1.50	0.46
1:D:113:LYS:HA	1:D:114:PRO:HD3	1.50	0.46
1:E:120:GLU:O	1:E:124:MET:HG3	2.16	0.46
1:A:60:ILE:HG23	1:A:60:ILE:O	2.15	0.46
1:C:133:PHE:N	1:C:134:PRO:CD	2.78	0.46
1:D:191:ILE:HA	1:D:192:PRO:HD3	1.68	0.46
1:E:211:ILE:HD12	1:E:211:ILE:N	2.31	0.46
1:F:120:GLU:O	1:F:124:MET:HG3	2.16	0.46
1:H:211:ILE:HD12	1:H:211:ILE:N	2.31	0.46
1:A:133:PHE:N	1:A:134:PRO:CD	2.78	0.46
1:D:113:LYS:N	1:D:113:LYS:CD	2.79	0.46
1:G:211:ILE:N	1:G:211:ILE:HD12	2.31	0.46
1:H:120:GLU:O	1:H:124:MET:HG3	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:133:PHE:N	1:H:134:PRO:CD	2.78	0.46
1:B:211:ILE:N	1:B:211:ILE:HD12	2.31	0.46
1:C:178:PHE:HA	1:C:179:PRO:HD2	1.66	0.46
1:E:214:ARG:CG	1:E:214:ARG:NH1	2.79	0.46
1:F:133:PHE:N	1:F:134:PRO:CD	2.78	0.46
1:F:211:ILE:HD12	1:F:211:ILE:N	2.31	0.46
1:H:131:ARG:HE	1:H:131:ARG:HB2	1.54	0.46
1:D:60:ILE:O	1:D:60:ILE:HG23	2.15	0.46
1:D:120:GLU:O	1:D:124:MET:HG3	2.16	0.46
1:E:113:LYS:HA	1:E:114:PRO:HD3	1.50	0.46
1:F:113:LYS:CD	1:F:113:LYS:N	2.79	0.46
1:E:113:LYS:N	1:E:113:LYS:CD	2.79	0.45
1:E:133:PHE:N	1:E:134:PRO:CD	2.78	0.45
1:G:113:LYS:N	1:G:113:LYS:CD	2.79	0.45
1:C:214:ARG:CG	1:C:214:ARG:NH1	2.79	0.45
1:D:30:PHE:O	1:D:203:LYS:HE2	2.17	0.45
1:D:211:ILE:N	1:D:211:ILE:HD12	2.31	0.45
1:F:60:ILE:HG23	1:F:60:ILE:O	2.15	0.45
1:F:112:LEU:HD23	1:F:112:LEU:HA	1.61	0.45
1:G:214:ARG:CG	1:G:214:ARG:NH1	2.79	0.45
1:G:60:ILE:HG23	1:G:60:ILE:O	2.15	0.45
1:B:113:LYS:N	1:B:113:LYS:CD	2.79	0.45
1:C:30:PHE:O	1:C:203:LYS:HE2	2.16	0.45
1:C:113:LYS:CD	1:C:113:LYS:N	2.79	0.45
1:F:30:PHE:O	1:F:203:LYS:HE2	2.16	0.45
1:H:178:PHE:N	1:H:179:PRO:CD	2.79	0.45
1:E:30:PHE:O	1:E:203:LYS:HE2	2.17	0.45
1:G:30:PHE:O	1:G:203:LYS:HE2	2.16	0.45
1:A:211:ILE:HD12	1:A:211:ILE:N	2.31	0.45
1:B:214:ARG:CG	1:B:214:ARG:NH1	2.79	0.45
1:H:30:PHE:O	1:H:203:LYS:HE2	2.16	0.45
1:H:113:LYS:CD	1:H:113:LYS:N	2.79	0.45
1:A:113:LYS:CD	1:A:113:LYS:N	2.79	0.45
1:C:211:ILE:HD12	1:C:211:ILE:N	2.31	0.45
1:A:177:ALA:C	1:A:179:PRO:HD3	2.38	0.45
1:B:60:ILE:HG23	1:B:60:ILE:O	2.15	0.45
1:G:48:ASN:HA	3:G:7313:HOH:O	2.17	0.45
1:B:177:ALA:C	1:B:179:PRO:HD3	2.38	0.44
1:C:60:ILE:HG23	1:C:60:ILE:O	2.15	0.44
1:D:48:ASN:HA	3:D:4313:HOH:O	2.17	0.44
1:E:197:PHE:CZ	1:E:204:LYS:HB2	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:178:PHE:HA	1:H:179:PRO:HD2	1.66	0.44
1:F:48:ASN:HA	3:F:6313:HOH:O	2.17	0.44
1:F:197:PHE:CZ	1:F:204:LYS:HB2	2.53	0.44
1:H:48:ASN:HA	3:H:8313:HOH:O	2.17	0.44
1:H:214:ARG:HD2	1:H:214:ARG:HA	1.65	0.44
1:B:30:PHE:O	1:B:203:LYS:HE2	2.17	0.44
1:B:113:LYS:HA	1:B:114:PRO:HD3	1.50	0.44
1:D:177:ALA:C	1:D:179:PRO:HD3	2.38	0.44
1:E:48:ASN:HA	3:E:5313:HOH:O	2.17	0.44
1:A:30:PHE:O	1:A:203:LYS:HE2	2.16	0.44
1:B:178:PHE:HA	1:B:179:PRO:HD2	1.66	0.44
1:C:48:ASN:HA	3:C:3313:HOH:O	2.17	0.44
1:E:78:LYS:HA	1:E:78:LYS:HD2	1.73	0.44
1:F:177:ALA:C	1:F:179:PRO:HD3	2.38	0.44
1:G:191:ILE:O	1:G:195:LYS:N	2.29	0.44
1:B:145:GLN:HB3	1:B:151:ASN:OD1	2.18	0.44
1:G:177:ALA:C	1:G:179:PRO:HD3	2.38	0.44
1:G:178:PHE:N	1:G:179:PRO:CD	2.79	0.44
1:A:48:ASN:HA	3:A:1313:HOH:O	2.17	0.44
1:A:66:VAL:N	1:B:94:MET:HE3	2.24	0.44
1:A:197:PHE:CZ	1:A:204:LYS:HB2	2.52	0.44
1:B:78:LYS:HA	1:B:78:LYS:HD2	1.73	0.44
1:B:178:PHE:N	1:B:179:PRO:CD	2.79	0.44
1:C:197:PHE:CZ	1:C:204:LYS:HB2	2.52	0.44
1:G:197:PHE:CZ	1:G:204:LYS:HB2	2.53	0.44
1:C:65:LEU:HA	1:D:94:MET:HE1	1.99	0.44
1:B:197:PHE:CZ	1:B:204:LYS:HB2	2.52	0.44
1:D:145:GLN:HB3	1:D:151:ASN:OD1	2.18	0.44
1:D:171:ILE:HA	1:D:172:PRO:HD2	1.82	0.44
1:H:205:LYS:HA	1:H:206:PRO:HD3	1.79	0.44
1:D:197:PHE:CZ	1:D:204:LYS:HB2	2.52	0.43
1:E:205:LYS:HA	1:E:206:PRO:HD3	1.79	0.43
1:H:145:GLN:HB3	1:H:151:ASN:OD1	2.18	0.43
1:H:207:PRO:HA	1:H:208:PRO:HD3	1.81	0.43
1:C:177:ALA:C	1:C:179:PRO:HD3	2.38	0.43
1:H:177:ALA:C	1:H:179:PRO:HD3	2.38	0.43
1:D:78:LYS:HD2	1:D:78:LYS:HA	1.73	0.43
1:B:48:ASN:HA	3:B:2313:HOH:O	2.17	0.43
1:E:112:LEU:HD23	1:E:112:LEU:HA	1.61	0.43
1:H:113:LYS:HB3	1:H:114:PRO:HD2	2.01	0.43
1:H:197:PHE:CZ	1:H:204:LYS:HB2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:78:LYS:HD2	1:F:78:LYS:HA	1.73	0.43
1:F:145:GLN:HB3	1:F:151:ASN:OD1	2.18	0.43
1:G:131:ARG:HE	1:G:131:ARG:HB2	1.54	0.43
1:B:111:PHE:CZ	1:B:216:VAL:HG21	2.54	0.43
1:B:112:LEU:HD23	1:B:112:LEU:HA	1.61	0.43
1:E:177:ALA:C	1:E:179:PRO:HD3	2.38	0.43
1:C:214:ARG:HA	1:C:214:ARG:HD2	1.65	0.43
1:E:111:PHE:CZ	1:E:216:VAL:HG21	2.54	0.43
1:E:214:ARG:HD2	1:E:214:ARG:HA	1.65	0.43
1:D:207:PRO:HA	1:D:208:PRO:HD3	1.81	0.43
1:F:113:LYS:HB3	1:F:114:PRO:HD2	2.01	0.43
1:G:55:VAL:HB	1:G:56:PRO:HA	2.01	0.43
1:G:107:ILE:HG22	2:O:232:ICY:H3	2.01	0.43
1:H:107:ILE:HG22	2:P:232:ICY:H3	2.01	0.43
1:H:112:LEU:HB2	1:H:117:GLN:CG	2.48	0.43
1:A:9:TYR:HE1	1:A:56:PRO:HD3	1.84	0.43
1:B:113:LYS:HB3	1:B:114:PRO:HD2	2.01	0.43
1:C:107:ILE:HG22	2:K:232:ICY:H3	2.01	0.43
1:D:107:ILE:HG22	2:L:232:ICY:H3	2.01	0.43
1:F:107:ILE:HG22	2:N:232:ICY:H3	2.01	0.43
1:G:145:GLN:HB3	1:G:151:ASN:OD1	2.18	0.43
1:G:178:PHE:HA	1:G:179:PRO:HD2	1.67	0.43
1:A:145:GLN:HB3	1:A:151:ASN:OD1	2.18	0.43
1:F:205:LYS:HA	1:F:206:PRO:HD3	1.79	0.43
1:G:111:PHE:CZ	1:G:216:VAL:HG21	2.54	0.43
1:C:113:LYS:HB3	1:C:114:PRO:HD2	2.01	0.42
1:D:9:TYR:CD1	1:D:10:PRO:HD2	2.54	0.42
1:E:113:LYS:HB3	1:E:114:PRO:HD2	2.01	0.42
1:E:133:PHE:CB	1:E:134:PRO:HD3	2.49	0.42
1:F:9:TYR:HE1	1:F:56:PRO:HD3	1.84	0.42
1:F:42:TYR:HD1	1:F:42:TYR:HA	1.72	0.42
1:G:9:TYR:CD1	1:G:10:PRO:HD2	2.54	0.42
1:B:9:TYR:HE1	1:B:56:PRO:HD3	1.84	0.42
1:C:205:LYS:HA	1:C:206:PRO:HD3	1.79	0.42
1:E:145:GLN:HB3	1:E:151:ASN:OD1	2.18	0.42
1:E:181:LEU:HD23	1:E:181:LEU:HA	1.89	0.42
1:E:9:TYR:HE1	1:E:56:PRO:HD3	1.84	0.42
1:F:214:ARG:CG	1:F:214:ARG:NH1	2.79	0.42
1:A:112:LEU:HB2	1:A:117:GLN:CG	2.48	0.42
1:C:111:PHE:CZ	1:C:216:VAL:HG21	2.54	0.42
1:F:181:LEU:HD23	1:F:181:LEU:HA	1.89	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:185:THR:O	1:G:189:SER:OG	2.35	0.42
1:H:111:PHE:CZ	1:H:216:VAL:HG21	2.54	0.42
1:H:112:LEU:HD23	1:H:112:LEU:HA	1.61	0.42
1:A:38:LYS:O	1:A:41:LEU:HB3	2.19	0.42
1:C:145:GLN:HB3	1:C:151:ASN:OD1	2.18	0.42
1:G:9:TYR:HE1	1:G:56:PRO:HD3	1.84	0.42
1:G:38:LYS:O	1:G:41:LEU:HB3	2.19	0.42
1:H:133:PHE:CB	1:H:134:PRO:HD3	2.49	0.42
1:A:9:TYR:CD1	1:A:10:PRO:HD2	2.54	0.42
1:A:37:THR:HG1	1:A:40:GLN:HG3	1.82	0.42
1:A:107:ILE:HG22	2:I:232:ICY:H3	2.01	0.42
1:A:111:PHE:CZ	1:A:216:VAL:HG21	2.54	0.42
1:B:178:PHE:N	1:B:179:PRO:HD3	2.35	0.42
1:C:38:LYS:O	1:C:41:LEU:HB3	2.19	0.42
1:D:9:TYR:HE1	1:D:56:PRO:HD3	1.84	0.42
1:D:111:PHE:CZ	1:D:216:VAL:HG21	2.54	0.42
1:D:133:PHE:CB	1:D:134:PRO:HD3	2.49	0.42
1:A:113:LYS:HB3	1:A:114:PRO:HD2	2.01	0.42
1:E:38:LYS:O	1:E:41:LEU:HB3	2.19	0.42
1:F:9:TYR:CD1	1:F:10:PRO:HD2	2.54	0.42
1:F:38:LYS:O	1:F:41:LEU:HB3	2.19	0.42
1:G:113:LYS:HB3	1:G:114:PRO:HD2	2.01	0.42
1:G:178:PHE:N	1:G:179:PRO:HD3	2.35	0.42
1:A:170:LYS:C	1:A:172:PRO:HD3	2.40	0.42
1:C:9:TYR:CD1	1:C:10:PRO:HD2	2.54	0.42
1:D:38:LYS:O	1:D:41:LEU:HB3	2.19	0.42
1:H:9:TYR:HE1	1:H:56:PRO:HD3	1.84	0.42
1:A:178:PHE:N	1:A:179:PRO:HD3	2.35	0.42
1:B:55:VAL:HB	1:B:56:PRO:HA	2.01	0.42
1:B:191:ILE:HA	1:B:192:PRO:HD3	1.68	0.42
1:C:9:TYR:HE1	1:C:56:PRO:HD3	1.84	0.42
1:G:78:LYS:HD2	1:G:78:LYS:HA	1.73	0.42
1:G:112:LEU:HB2	1:G:117:GLN:CG	2.48	0.42
1:H:55:VAL:HB	1:H:56:PRO:HA	2.01	0.42
1:A:55:VAL:HB	1:A:56:PRO:HA	2.01	0.42
1:B:170:LYS:C	1:B:172:PRO:HD3	2.40	0.42
1:C:111:PHE:CE1	1:C:216:VAL:CG2	3.03	0.42
1:C:206:PRO:HA	1:C:207:PRO:HD3	1.88	0.42
1:D:205:LYS:HB3	1:D:206:PRO:CD	2.48	0.42
1:E:37:THR:HG1	1:E:40:GLN:HG3	1.83	0.42
1:E:178:PHE:N	1:E:179:PRO:HD3	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:111:PHE:CZ	1:F:216:VAL:HG21	2.54	0.42
1:F:113:LYS:HA	1:F:114:PRO:HD3	1.50	0.42
1:F:178:PHE:N	1:F:179:PRO:HD3	2.35	0.42
1:G:133:PHE:CB	1:G:134:PRO:HD3	2.49	0.42
1:H:9:TYR:CD1	1:H:10:PRO:HD2	2.54	0.42
1:A:9:TYR:O	1:A:34:PHE:HA	2.20	0.41
1:B:9:TYR:CD1	1:B:10:PRO:HD2	2.54	0.41
1:B:36:GLU:N	1:B:40:GLN:OE1	2.49	0.41
1:D:170:LYS:C	1:D:172:PRO:HD3	2.41	0.41
1:D:205:LYS:HA	1:D:206:PRO:HD3	1.79	0.41
1:E:9:TYR:CD1	1:E:10:PRO:HD2	2.54	0.41
1:G:9:TYR:O	1:G:34:PHE:HA	2.20	0.41
1:H:214:ARG:CG	1:H:214:ARG:NH1	2.79	0.41
1:A:209:ASP:OD1	1:A:211:ILE:HB	2.21	0.41
1:B:38:LYS:O	1:B:41:LEU:HB3	2.19	0.41
1:B:107:ILE:HG22	2:J:232:ICY:H3	2.01	0.41
1:C:55:VAL:HB	1:C:56:PRO:HA	2.01	0.41
1:C:112:LEU:HB2	1:C:117:GLN:CG	2.48	0.41
1:D:119:LYS:HZ2	1:D:123:ASN:HB2	1.79	0.41
1:E:55:VAL:HB	1:E:56:PRO:HA	2.01	0.41
1:E:66:VAL:O	1:F:94:MET:CE	2.68	0.41
1:E:170:LYS:C	1:E:172:PRO:HD3	2.40	0.41
1:F:9:TYR:O	1:F:34:PHE:HA	2.20	0.41
1:H:38:LYS:O	1:H:41:LEU:HB3	2.19	0.41
1:B:133:PHE:CB	1:B:134:PRO:HD3	2.49	0.41
1:C:42:TYR:HD1	1:C:42:TYR:HA	1.72	0.41
1:C:57:MET:HG2	1:C:65:LEU:O	2.21	0.41
1:D:214:ARG:CG	1:D:214:ARG:NH1	2.79	0.41
1:E:107:ILE:HG22	2:M:232:ICY:H3	2.01	0.41
1:E:111:PHE:CE1	1:E:216:VAL:CG2	3.03	0.41
1:F:133:PHE:CB	1:F:134:PRO:HD3	2.49	0.41
1:F:178:PHE:N	1:F:179:PRO:CD	2.79	0.41
1:F:179:PRO:HB3	1:H:42:TYR:CE2	2.55	0.41
1:F:209:ASP:OD1	1:F:211:ILE:HB	2.21	0.41
1:H:7:LEU:HD12	1:H:7:LEU:N	2.36	0.41
1:H:80:ASN:HD21	1:H:84:LYS:HE3	1.85	0.41
1:A:7:LEU:HD12	1:A:7:LEU:N	2.36	0.41
1:B:9:TYR:O	1:B:34:PHE:HA	2.20	0.41
1:C:178:PHE:N	1:C:179:PRO:CD	2.79	0.41
1:D:7:LEU:HD12	1:D:7:LEU:N	2.36	0.41
1:D:113:LYS:HB3	1:D:114:PRO:HD2	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:80:ASN:HD21	1:F:84:LYS:HE3	1.85	0.41
1:F:111:PHE:CE1	1:F:216:VAL:CG2	3.03	0.41
1:G:80:ASN:HD21	1:G:84:LYS:HE3	1.86	0.41
1:B:7:LEU:N	1:B:7:LEU:HD12	2.36	0.41
1:B:209:ASP:OD1	1:B:211:ILE:HB	2.21	0.41
1:C:9:TYR:O	1:C:34:PHE:HA	2.20	0.41
1:D:57:MET:HG2	1:D:65:LEU:O	2.21	0.41
1:D:80:ASN:HD21	1:D:84:LYS:HE3	1.85	0.41
1:F:55:VAL:HB	1:F:56:PRO:HA	2.01	0.41
1:G:171:ILE:HA	1:G:172:PRO:HD2	1.82	0.41
1:H:111:PHE:CE1	1:H:216:VAL:CG2	3.03	0.41
1:A:111:PHE:CE1	1:A:216:VAL:CG2	3.03	0.41
1:B:112:LEU:HB2	1:B:117:GLN:CG	2.48	0.41
1:C:7:LEU:N	1:C:7:LEU:HD12	2.36	0.41
1:C:80:ASN:HD21	1:C:84:LYS:HE3	1.86	0.41
1:C:191:ILE:HA	1:C:192:PRO:HD3	1.68	0.41
1:D:178:PHE:N	1:D:179:PRO:HD3	2.35	0.41
1:E:57:MET:HG2	1:E:65:LEU:O	2.20	0.41
1:E:178:PHE:HA	1:E:179:PRO:HD2	1.66	0.41
1:F:7:LEU:HD12	1:F:7:LEU:N	2.36	0.41
1:G:111:PHE:CE1	1:G:216:VAL:CG2	3.03	0.41
1:H:57:MET:HG2	1:H:65:LEU:O	2.21	0.41
1:A:112:LEU:HD23	1:A:112:LEU:HA	1.61	0.41
1:D:209:ASP:OD1	1:D:211:ILE:HB	2.21	0.41
1:F:55:VAL:HA	1:F:56:PRO:C	2.41	0.41
1:F:170:LYS:C	1:F:172:PRO:HD3	2.40	0.41
1:H:170:LYS:C	1:H:172:PRO:HD3	2.41	0.41
1:H:209:ASP:OD1	1:H:211:ILE:HB	2.21	0.41
1:A:80:ASN:HD21	1:A:84:LYS:HE3	1.85	0.41
1:B:111:PHE:CE1	1:B:216:VAL:CG2	3.03	0.41
1:C:170:LYS:C	1:C:172:PRO:HD3	2.40	0.41
1:C:209:ASP:OD1	1:C:211:ILE:HB	2.21	0.41
1:F:43:LYS:HG3	1:F:43:LYS:H	1.75	0.41
1:G:17:GLU:OE1	1:G:20:ARG:NH1	2.52	0.41
1:G:55:VAL:HA	1:G:56:PRO:C	2.41	0.41
1:G:170:LYS:C	1:G:172:PRO:HD3	2.40	0.41
1:B:112:LEU:CD1	1:B:120:GLU:HG3	2.51	0.41
1:C:178:PHE:N	1:C:179:PRO:HD3	2.35	0.41
1:D:9:TYR:O	1:D:34:PHE:HA	2.20	0.41
1:D:55:VAL:HB	1:D:56:PRO:HA	2.01	0.41
1:D:111:PHE:CE1	1:D:216:VAL:CG2	3.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:57:MET:HG2	1:F:65:LEU:O	2.21	0.41
1:G:181:LEU:HD23	1:G:181:LEU:HA	1.89	0.41
1:H:181:LEU:HA	1:H:181:LEU:HD23	1.89	0.41
1:A:178:PHE:N	1:A:179:PRO:CD	2.79	0.41
1:B:205:LYS:HB3	1:B:206:PRO:CD	2.48	0.41
1:E:164:ILE:HG22	1:E:165:LEU:N	2.36	0.41
1:F:118:GLN:CD	1:G:118:GLN:CG	2.89	0.41
1:A:86:LEU:HD12	1:A:86:LEU:HA	1.87	0.40
1:B:55:VAL:HA	1:B:56:PRO:C	2.41	0.40
1:C:55:VAL:HA	1:C:56:PRO:C	2.41	0.40
1:C:59:GLU:CD	1:G:211:ILE:HD11	2.41	0.40
1:E:9:TYR:O	1:E:34:PHE:HA	2.20	0.40
1:E:17:GLU:OE1	1:E:20:ARG:NH1	2.52	0.40
1:E:209:ASP:OD1	1:E:211:ILE:HB	2.21	0.40
1:G:209:ASP:OD1	1:G:211:ILE:HB	2.21	0.40
1:H:130:ILE:HG21	1:H:130:ILE:HD13	1.87	0.40
1:C:207:PRO:HA	1:C:208:PRO:HD3	1.82	0.40
1:D:178:PHE:N	1:D:179:PRO:CD	2.79	0.40
1:G:205:LYS:HB3	1:G:206:PRO:CD	2.49	0.40
1:A:55:VAL:HA	1:A:56:PRO:C	2.41	0.40
1:A:78:LYS:HA	1:A:78:LYS:HD2	1.73	0.40
1:F:112:LEU:HB2	1:F:117:GLN:CG	2.48	0.40
1:F:118:GLN:HG3	1:G:118:GLN:HE21	1.85	0.40
1:G:57:MET:HG2	1:G:65:LEU:O	2.20	0.40
1:G:112:LEU:CD1	1:G:120:GLU:HG3	2.51	0.40
1:H:17:GLU:OE1	1:H:20:ARG:NH1	2.52	0.40
1:D:55:VAL:HA	1:D:56:PRO:C	2.41	0.40
1:G:7:LEU:N	1:G:7:LEU:HD12	2.36	0.40
1:H:9:TYR:O	1:H:34:PHE:HA	2.20	0.40
1:H:178:PHE:N	1:H:179:PRO:HD3	2.35	0.40
1:A:57:MET:HG2	1:A:65:LEU:O	2.20	0.40
1:D:112:LEU:CD1	1:D:120:GLU:HG3	2.51	0.40
1:E:112:LEU:HB2	1:E:117:GLN:CG	2.48	0.40
1:H:37:THR:HG1	1:H:40:GLN:HG3	1.83	0.40

All (7) 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:196:ARG:NH2	1:H:200:PRO:CG[4_455]	0.52	1.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:196:ARG:NH2	1:H:200:PRO:CB[4_455]	1.33	0.87
1:D:196:ARG:CZ	1:H:200:PRO:CB[4_455]	1.66	0.54
1:D:196:ARG:NH2	1:H:200:PRO:CD[4_455]	1.79	0.41
1:D:196:ARG:CZ	1:H:200:PRO:CG[4_455]	1.85	0.35
1:B:118:GLN:CG	1:C:118:GLN:CG[1_554]	2.00	0.20
1:D:196:ARG:NH1	1:H:200:PRO:CB[4_455]	2.19	0.01

## 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	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	B	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	C	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	D	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	E	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	F	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	G	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
1	H	215/222 (97%)	208 (97%)	6 (3%)	1 (0%)	29	54
All	All	1720/1776 (97%)	1664 (97%)	48 (3%)	8 (0%)	29	54

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	114	PRO
1	B	114	PRO
1	C	114	PRO
1	D	114	PRO
1	E	114	PRO
1	F	114	PRO

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Mol	Chain	Res	Type
1	G	114	PRO
1	H	114	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	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	B	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	C	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	D	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	E	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	F	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	G	197/200 (98%)	188 (95%)	9 (5%)	27	54
1	H	197/200 (98%)	188 (95%)	9 (5%)	27	54
All	All	1576/1600 (98%)	1504 (95%)	72 (5%)	27	54

All (72) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	82	PHE
1	A	106	LEU
1	A	113	LYS
1	A	115	ASP
1	A	143	HIS
1	A	146	SER
1	A	189	SER
1	A	209	ASP
1	A	214	ARG
1	B	82	PHE
1	B	106	LEU
1	B	113	LYS
1	B	115	ASP

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Mol	Chain	Res	Type
1	B	143	HIS
1	B	146	SER
1	B	189	SER
1	B	209	ASP
1	B	214	ARG
1	C	82	PHE
1	C	106	LEU
1	C	113	LYS
1	C	115	ASP
1	C	143	HIS
1	C	146	SER
1	C	189	SER
1	C	209	ASP
1	C	214	ARG
1	D	82	PHE
1	D	106	LEU
1	D	113	LYS
1	D	115	ASP
1	D	143	HIS
1	D	146	SER
1	D	189	SER
1	D	209	ASP
1	D	214	ARG
1	E	82	PHE
1	E	106	LEU
1	E	113	LYS
1	E	115	ASP
1	E	143	HIS
1	E	146	SER
1	E	189	SER
1	E	209	ASP
1	E	214	ARG
1	F	82	PHE
1	F	106	LEU
1	F	113	LYS
1	F	115	ASP
1	F	143	HIS
1	F	146	SER
1	F	189	SER
1	F	209	ASP
1	F	214	ARG
1	G	82	PHE

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Mol	Chain	Res	Type
1	G	106	LEU
1	G	113	LYS
1	G	115	ASP
1	G	143	HIS
1	G	146	SER
1	G	189	SER
1	G	209	ASP
1	G	214	ARG
1	H	82	PHE
1	H	106	LEU
1	H	113	LYS
1	H	115	ASP
1	H	143	HIS
1	H	146	SER
1	H	189	SER
1	H	209	ASP
1	H	214	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	53	GLN
1	A	152	GLN
1	A	162	GLN
1	A	218	ASN
1	B	53	GLN
1	B	152	GLN
1	B	162	GLN
1	B	218	ASN
1	C	53	GLN
1	C	152	GLN
1	C	162	GLN
1	C	218	ASN
1	D	53	GLN
1	D	152	GLN
1	D	162	GLN
1	D	218	ASN
1	E	53	GLN
1	E	152	GLN
1	E	162	GLN
1	E	218	ASN
1	F	53	GLN

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Mol	Chain	Res	Type
1	F	118	GLN
1	F	152	GLN
1	F	162	GLN
1	F	218	ASN
1	G	53	GLN
1	G	118	GLN
1	G	152	GLN
1	G	162	GLN
1	G	218	ASN
1	H	53	GLN
1	H	152	GLN
1	H	162	GLN
1	H	218	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

16 non-standard protein/DNA/RNA residues 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	$\# Z  > 2$
2	GGL	L	231	2	4,8,9	0.47	0	2,9,11	1.22	0
2	ICY	P	232	2	13,14,15	0.77	0	13,17,19	2.48	5 (38%)
2	ICY	J	232	2	13,14,15	0.77	0	13,17,19	2.48	5 (38%)
2	ICY	I	232	2	13,14,15	0.76	0	13,17,19	2.47	5 (38%)
2	ICY	K	232	2	13,14,15	0.76	0	13,17,19	2.47	5 (38%)
2	GGL	M	231	2	4,8,9	0.46	0	2,9,11	1.22	0
2	GGL	K	231	2	4,8,9	0.46	0	2,9,11	1.23	0
2	ICY	N	232	2	13,14,15	0.77	0	13,17,19	2.48	5 (38%)
2	GGL	J	231	2	4,8,9	0.47	0	2,9,11	1.23	0



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	GGL	P	231	2	4,8,9	0.46	0	2,9,11	1.22	0
2	ICY	M	232	2	13,14,15	0.77	0	13,17,19	2.47	5 (38%)
2	GGL	N	231	2	4,8,9	0.46	0	2,9,11	1.23	0
2	GGL	I	231	2	4,8,9	0.46	0	2,9,11	1.22	0
2	ICY	O	232	2	13,14,15	0.77	0	13,17,19	2.47	5 (38%)
2	ICY	L	232	2	13,14,15	0.76	0	13,17,19	2.47	5 (38%)
2	GGL	O	231	2	4,8,9	0.46	0	2,9,11	1.22	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
2	GGL	L	231	2	-	1/3/8/9	-
2	ICY	P	232	2	-	1/6/8/10	0/1/1/1
2	ICY	J	232	2	-	1/6/8/10	0/1/1/1
2	ICY	I	232	2	-	1/6/8/10	0/1/1/1
2	ICY	K	232	2	-	1/6/8/10	0/1/1/1
2	GGL	M	231	2	-	1/3/8/9	-
2	GGL	K	231	2	-	1/3/8/9	-
2	ICY	N	232	2	-	1/6/8/10	0/1/1/1
2	GGL	J	231	2	-	1/3/8/9	-
2	GGL	P	231	2	-	1/3/8/9	-
2	ICY	M	232	2	-	1/6/8/10	0/1/1/1
2	GGL	N	231	2	-	1/3/8/9	-
2	GGL	I	231	2	-	1/3/8/9	-
2	ICY	O	232	2	-	1/6/8/10	0/1/1/1
2	ICY	L	232	2	-	1/6/8/10	0/1/1/1
2	GGL	O	231	2	-	1/3/8/9	-

There are no bond length outliers.

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	N	232	ICY	C3-C2-C1	-4.50	116.54	121.70
2	J	232	ICY	C3-C2-C1	-4.48	116.56	121.70
2	P	232	ICY	C3-C2-C1	-4.48	116.57	121.70
2	I	232	ICY	C3-C2-C1	-4.47	116.57	121.70
2	M	232	ICY	C3-C2-C1	-4.47	116.58	121.70
2	K	232	ICY	C3-C2-C1	-4.47	116.58	121.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	L	232	ICY	C3-C2-C1	-4.46	116.58	121.70
2	O	232	ICY	C3-C2-C1	-4.46	116.59	121.70
2	M	232	ICY	C6-C1-C2	4.16	122.25	117.05
2	N	232	ICY	C6-C1-C2	4.16	122.25	117.05
2	K	232	ICY	C6-C1-C2	4.16	122.25	117.05
2	J	232	ICY	C6-C1-C2	4.16	122.25	117.05
2	P	232	ICY	C6-C1-C2	4.15	122.24	117.05
2	I	232	ICY	C6-C1-C2	4.15	122.24	117.05
2	O	232	ICY	C6-C1-C2	4.14	122.22	117.05
2	L	232	ICY	C6-C1-C2	4.13	122.22	117.05
2	P	232	ICY	C0-C1-C2	-3.75	119.98	123.29
2	N	232	ICY	C0-C1-C2	-3.74	119.98	123.29
2	J	232	ICY	C0-C1-C2	-3.72	120.01	123.29
2	L	232	ICY	C0-C1-C2	-3.72	120.01	123.29
2	I	232	ICY	C0-C1-C2	-3.71	120.01	123.29
2	K	232	ICY	C0-C1-C2	-3.71	120.02	123.29
2	O	232	ICY	C0-C1-C2	-3.70	120.02	123.29
2	M	232	ICY	C0-C1-C2	-3.69	120.03	123.29
2	L	232	ICY	C1-C0-SG	-3.37	105.39	114.22
2	K	232	ICY	C1-C0-SG	-3.36	105.41	114.22
2	O	232	ICY	C1-C0-SG	-3.36	105.42	114.22
2	J	232	ICY	C1-C0-SG	-3.36	105.42	114.22
2	N	232	ICY	C1-C0-SG	-3.36	105.43	114.22
2	I	232	ICY	C1-C0-SG	-3.36	105.43	114.22
2	P	232	ICY	C1-C0-SG	-3.36	105.44	114.22
2	M	232	ICY	C1-C0-SG	-3.35	105.46	114.22
2	N	232	ICY	C3-C2-I	2.78	124.55	117.62
2	J	232	ICY	C3-C2-I	2.78	124.54	117.62
2	M	232	ICY	C3-C2-I	2.78	124.54	117.62
2	O	232	ICY	C3-C2-I	2.77	124.53	117.62
2	I	232	ICY	C3-C2-I	2.77	124.53	117.62
2	K	232	ICY	C3-C2-I	2.77	124.52	117.62
2	L	232	ICY	C3-C2-I	2.77	124.52	117.62
2	P	232	ICY	C3-C2-I	2.77	124.51	117.62

There are no chirality outliers.

All (16) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	I	231	GGL	C-CA-CB-CG
2	J	231	GGL	C-CA-CB-CG
2	K	231	GGL	C-CA-CB-CG

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Mol	Chain	Res	Type	Atoms
2	L	231	GGL	C-CA-CB-CG
2	M	231	GGL	C-CA-CB-CG
2	N	231	GGL	C-CA-CB-CG
2	O	231	GGL	C-CA-CB-CG
2	P	231	GGL	C-CA-CB-CG
2	I	232	ICY	CA-CB-SG-C0
2	J	232	ICY	CA-CB-SG-C0
2	K	232	ICY	CA-CB-SG-C0
2	L	232	ICY	CA-CB-SG-C0
2	M	232	ICY	CA-CB-SG-C0
2	N	232	ICY	CA-CB-SG-C0
2	O	232	ICY	CA-CB-SG-C0
2	P	232	ICY	CA-CB-SG-C0

There are no ring outliers.

8 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	P	232	ICY	1	0
2	J	232	ICY	1	0
2	I	232	ICY	1	0
2	K	232	ICY	1	0
2	N	232	ICY	1	0
2	M	232	ICY	1	0
2	O	232	ICY	1	0
2	L	232	ICY	1	0

## 5.5 Carbohydrates [i](#)

There are no monosaccharides 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 ⓘ

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	217/222 (97%)	-0.34	0 <span>100</span> <span>100</span>	4, 14, 71, 147	0
1	B	217/222 (97%)	-0.29	1 (0%) <span>91</span> <span>92</span>	4, 14, 71, 147	0
1	C	217/222 (97%)	-0.31	0 <span>100</span> <span>100</span>	4, 14, 71, 147	0
1	D	217/222 (97%)	-0.41	0 <span>100</span> <span>100</span>	4, 14, 71, 147	0
1	E	217/222 (97%)	-0.35	2 (0%) <span>84</span> <span>85</span>	4, 14, 71, 147	0
1	F	217/222 (97%)	-0.44	0 <span>100</span> <span>100</span>	4, 14, 71, 147	0
1	G	217/222 (97%)	-0.30	3 (1%) <span>75</span> <span>77</span>	4, 14, 71, 147	0
1	H	217/222 (97%)	-0.26	1 (0%) <span>91</span> <span>92</span>	4, 14, 71, 147	0
2	I	1/3 (33%)	0.23	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	J	1/3 (33%)	1.85	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	K	1/3 (33%)	0.46	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	L	1/3 (33%)	0.11	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	M	1/3 (33%)	0.35	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	N	1/3 (33%)	-0.25	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	O	1/3 (33%)	0.42	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
2	P	1/3 (33%)	0.76	0 <span>100</span> <span>100</span>	42, 42, 42, 42	0
All	All	1744/1800 (96%)	-0.33	7 (0%) <span>92</span> <span>93</span>	4, 15, 71, 147	0

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	201	GLY	3.8
1	E	200	PRO	3.6
1	B	217	TYR	2.7
1	G	115	ASP	2.5
1	H	42	TYR	2.1

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Mol	Chain	Res	Type	RSRZ
1	G	209	ASP	2.1
1	G	210	GLU	2.1

## 6.2 Non-standard residues in protein, DNA, RNA chains [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	GGL	O	231	9/10	0.90	0.19	6,18,37,43	0
2	ICY	O	232	14/15	0.91	0.20	5,39,300,300	0
2	ICY	L	232	14/15	0.92	0.17	5,39,300,300	0
2	GGL	I	231	9/10	0.93	0.14	6,18,37,43	0
2	GGL	J	231	9/10	0.93	0.19	6,18,37,43	0
2	ICY	I	232	14/15	0.93	0.14	5,39,300,300	0
2	ICY	P	232	14/15	0.94	0.18	5,39,300,300	0
2	ICY	J	232	14/15	0.94	0.15	5,39,300,300	0
2	GGL	P	231	9/10	0.94	0.15	6,18,37,43	0
2	GGL	K	231	9/10	0.95	0.16	6,18,37,43	0
2	ICY	K	232	14/15	0.95	0.17	5,39,300,300	0
2	ICY	M	232	14/15	0.95	0.13	5,39,300,300	0
2	ICY	N	232	14/15	0.96	0.11	5,39,300,300	0
2	GGL	L	231	9/10	0.96	0.14	6,18,37,43	0
2	GGL	M	231	9/10	0.97	0.13	6,18,37,43	0
2	GGL	N	231	9/10	0.97	0.13	6,18,37,43	0

## 6.3 Carbohydrates [i](#)

There are no monosaccharides 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.