



Full wwPDB X-ray Structure Validation Report ⓘ

May 27, 2020 – 02:14 am BST

PDB ID : 4YNN
Title : Structure of Legionella pneumophila DegQ (S190A variant)
Authors : Wrase, R.; Hilgenfeld, R.; Hansen, G.
Deposited on : 2015-03-10
Resolution : 3.20 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.11
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)	:	2.11

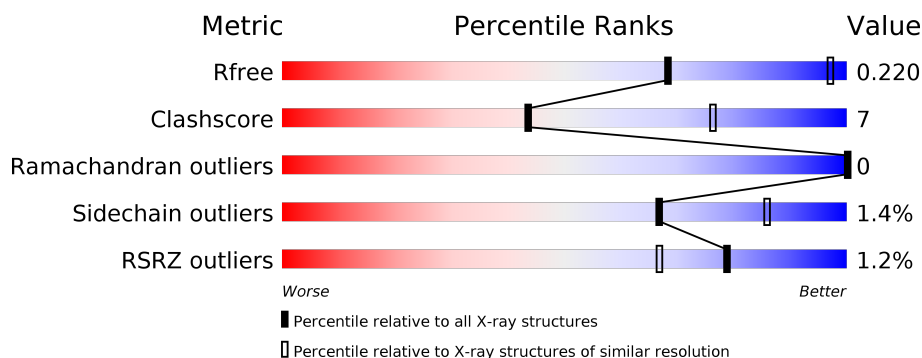
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 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}	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

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 on 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	448	<div> <div>%</div> <div> <div></div> <div>72%</div> <div>17%</div> <div>•</div> <div>11%</div> </div> </div>
1	B	448	<div> <div>%</div> <div> <div></div> <div>74%</div> <div>15%</div> <div></div> <div>11%</div> </div> </div>
1	C	448	<div> <div>%</div> <div> <div></div> <div>73%</div> <div>16%</div> <div></div> <div>11%</div> </div> </div>
1	D	448	<div> <div>%</div> <div> <div></div> <div>72%</div> <div>17%</div> <div></div> <div>11%</div> </div> </div>
1	E	448	<div> <div>%</div> <div> <div></div> <div>74%</div> <div>15%</div> <div></div> <div>11%</div> </div> </div>
1	F	448	<div> <div>%</div> <div> <div></div> <div>77%</div> <div>13%</div> <div></div> <div>11%</div> </div> </div>

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Mol	Chain	Length	Quality of chain
1	G	448	<div> <div></div> <div>%</div> <div> <div></div> <div>74%</div> <div>15%</div> <div>11%</div> </div> </div>
1	H	448	<div> <div></div> <div>2%</div> <div> <div></div> <div>74%</div> <div>15%</div> <div>11%</div> </div> </div>
2	I	8	<div> <div></div> <div>88%</div> <div>13%</div> </div>
3	J	6	<div> <div></div> <div>100%</div> </div>
3	L	6	<div> <div></div> <div>67%</div> <div>33%</div> </div>
4	K	7	<div> <div></div> <div>86%</div> <div>14%</div> </div>
4	M	7	<div> <div></div> <div>86%</div> <div>14%</div> </div>
4	N	7	<div> <div></div> <div>100%</div> </div>
4	O	7	<div> <div></div> <div>100%</div> </div>
4	P	7	<div> <div></div> <div>100%</div> </div>
5	Q	3	<div> <div></div> <div>67%</div> <div>33%</div> </div>
5	R	3	<div> <div></div> <div>100%</div> </div>
5	S	3	<div> <div></div> <div>67%</div> <div>33%</div> </div>
5	T	3	<div> <div></div> <div>100%</div> </div>
5	U	3	<div> <div></div> <div>100%</div> </div>
5	V	3	<div> <div></div> <div>100%</div> </div>

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 24195 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 Protease DO.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			
1	B	399	Total	C	N	O	S	0	0	0
			2971	1880	522	565	4			
1	C	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			
1	D	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			
1	E	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			
1	F	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			
1	G	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			
1	H	400	Total	C	N	O	S	0	0	0
			2979	1885	523	566	5			

There are 104 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-11	MET	-	initiating methionine	UNP Q5ZVV9
A	-10	ARG	-	expression tag	UNP Q5ZVV9
A	-9	GLY	-	expression tag	UNP Q5ZVV9
A	-8	SER	-	expression tag	UNP Q5ZVV9
A	-7	HIS	-	expression tag	UNP Q5ZVV9
A	-6	HIS	-	expression tag	UNP Q5ZVV9
A	-5	HIS	-	expression tag	UNP Q5ZVV9
A	-4	HIS	-	expression tag	UNP Q5ZVV9
A	-3	HIS	-	expression tag	UNP Q5ZVV9
A	-2	HIS	-	expression tag	UNP Q5ZVV9
A	-1	GLY	-	expression tag	UNP Q5ZVV9
A	0	SER	-	expression tag	UNP Q5ZVV9
A	190	ALA	SER	engineered mutation	UNP Q5ZVV9

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-11	MET	-	initiating methionine	UNP Q5ZVV9
B	-10	ARG	-	expression tag	UNP Q5ZVV9
B	-9	GLY	-	expression tag	UNP Q5ZVV9
B	-8	SER	-	expression tag	UNP Q5ZVV9
B	-7	HIS	-	expression tag	UNP Q5ZVV9
B	-6	HIS	-	expression tag	UNP Q5ZVV9
B	-5	HIS	-	expression tag	UNP Q5ZVV9
B	-4	HIS	-	expression tag	UNP Q5ZVV9
B	-3	HIS	-	expression tag	UNP Q5ZVV9
B	-2	HIS	-	expression tag	UNP Q5ZVV9
B	-1	GLY	-	expression tag	UNP Q5ZVV9
B	0	SER	-	expression tag	UNP Q5ZVV9
B	190	ALA	SER	engineered mutation	UNP Q5ZVV9
C	-11	MET	-	initiating methionine	UNP Q5ZVV9
C	-10	ARG	-	expression tag	UNP Q5ZVV9
C	-9	GLY	-	expression tag	UNP Q5ZVV9
C	-8	SER	-	expression tag	UNP Q5ZVV9
C	-7	HIS	-	expression tag	UNP Q5ZVV9
C	-6	HIS	-	expression tag	UNP Q5ZVV9
C	-5	HIS	-	expression tag	UNP Q5ZVV9
C	-4	HIS	-	expression tag	UNP Q5ZVV9
C	-3	HIS	-	expression tag	UNP Q5ZVV9
C	-2	HIS	-	expression tag	UNP Q5ZVV9
C	-1	GLY	-	expression tag	UNP Q5ZVV9
C	0	SER	-	expression tag	UNP Q5ZVV9
C	190	ALA	SER	engineered mutation	UNP Q5ZVV9
D	-11	MET	-	initiating methionine	UNP Q5ZVV9
D	-10	ARG	-	expression tag	UNP Q5ZVV9
D	-9	GLY	-	expression tag	UNP Q5ZVV9
D	-8	SER	-	expression tag	UNP Q5ZVV9
D	-7	HIS	-	expression tag	UNP Q5ZVV9
D	-6	HIS	-	expression tag	UNP Q5ZVV9
D	-5	HIS	-	expression tag	UNP Q5ZVV9
D	-4	HIS	-	expression tag	UNP Q5ZVV9
D	-3	HIS	-	expression tag	UNP Q5ZVV9
D	-2	HIS	-	expression tag	UNP Q5ZVV9
D	-1	GLY	-	expression tag	UNP Q5ZVV9
D	0	SER	-	expression tag	UNP Q5ZVV9
D	190	ALA	SER	engineered mutation	UNP Q5ZVV9
E	-11	MET	-	initiating methionine	UNP Q5ZVV9
E	-10	ARG	-	expression tag	UNP Q5ZVV9
E	-9	GLY	-	expression tag	UNP Q5ZVV9

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-8	SER	-	expression tag	UNP Q5ZVV9
E	-7	HIS	-	expression tag	UNP Q5ZVV9
E	-6	HIS	-	expression tag	UNP Q5ZVV9
E	-5	HIS	-	expression tag	UNP Q5ZVV9
E	-4	HIS	-	expression tag	UNP Q5ZVV9
E	-3	HIS	-	expression tag	UNP Q5ZVV9
E	-2	HIS	-	expression tag	UNP Q5ZVV9
E	-1	GLY	-	expression tag	UNP Q5ZVV9
E	0	SER	-	expression tag	UNP Q5ZVV9
E	190	ALA	SER	engineered mutation	UNP Q5ZVV9
F	-11	MET	-	initiating methionine	UNP Q5ZVV9
F	-10	ARG	-	expression tag	UNP Q5ZVV9
F	-9	GLY	-	expression tag	UNP Q5ZVV9
F	-8	SER	-	expression tag	UNP Q5ZVV9
F	-7	HIS	-	expression tag	UNP Q5ZVV9
F	-6	HIS	-	expression tag	UNP Q5ZVV9
F	-5	HIS	-	expression tag	UNP Q5ZVV9
F	-4	HIS	-	expression tag	UNP Q5ZVV9
F	-3	HIS	-	expression tag	UNP Q5ZVV9
F	-2	HIS	-	expression tag	UNP Q5ZVV9
F	-1	GLY	-	expression tag	UNP Q5ZVV9
F	0	SER	-	expression tag	UNP Q5ZVV9
F	190	ALA	SER	engineered mutation	UNP Q5ZVV9
G	-11	MET	-	initiating methionine	UNP Q5ZVV9
G	-10	ARG	-	expression tag	UNP Q5ZVV9
G	-9	GLY	-	expression tag	UNP Q5ZVV9
G	-8	SER	-	expression tag	UNP Q5ZVV9
G	-7	HIS	-	expression tag	UNP Q5ZVV9
G	-6	HIS	-	expression tag	UNP Q5ZVV9
G	-5	HIS	-	expression tag	UNP Q5ZVV9
G	-4	HIS	-	expression tag	UNP Q5ZVV9
G	-3	HIS	-	expression tag	UNP Q5ZVV9
G	-2	HIS	-	expression tag	UNP Q5ZVV9
G	-1	GLY	-	expression tag	UNP Q5ZVV9
G	0	SER	-	expression tag	UNP Q5ZVV9
G	190	ALA	SER	engineered mutation	UNP Q5ZVV9
H	-11	MET	-	initiating methionine	UNP Q5ZVV9
H	-10	ARG	-	expression tag	UNP Q5ZVV9
H	-9	GLY	-	expression tag	UNP Q5ZVV9
H	-8	SER	-	expression tag	UNP Q5ZVV9
H	-7	HIS	-	expression tag	UNP Q5ZVV9
H	-6	HIS	-	expression tag	UNP Q5ZVV9

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Chain	Residue	Modelled	Actual	Comment	Reference
H	-5	HIS	-	expression tag	UNP Q5ZVV9
H	-4	HIS	-	expression tag	UNP Q5ZVV9
H	-3	HIS	-	expression tag	UNP Q5ZVV9
H	-2	HIS	-	expression tag	UNP Q5ZVV9
H	-1	GLY	-	expression tag	UNP Q5ZVV9
H	0	SER	-	expression tag	UNP Q5ZVV9
H	190	ALA	SER	engineered mutation	UNP Q5ZVV9

- Molecule 2 is a protein called Octapeptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	I	8	Total	C	N	O	0	0	0
			40	24	8	8			

- Molecule 3 is a protein called Hexa-peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	J	6	Total	C	N	O	0	0	0
			30	18	6	6			
3	L	6	Total	C	N	O	0	0	0
			30	18	6	6			

- Molecule 4 is a protein called Hepta-peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	K	7	Total	C	N	O	0	0	0
			35	21	7	7			
4	M	7	Total	C	N	O	0	0	0
			35	21	7	7			
4	N	7	Total	C	N	O	0	0	0
			35	21	7	7			
4	O	7	Total	C	N	O	0	0	0
			35	21	7	7			
4	P	7	Total	C	N	O	0	0	0
			35	21	7	7			

- Molecule 5 is a protein called UNK-UNK-UNK.

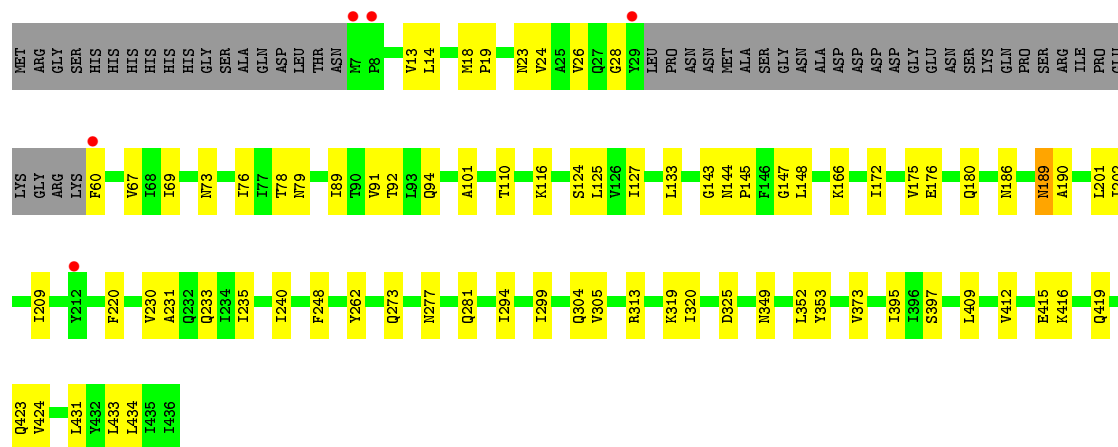
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	Q	3	Total	C	N	O	0	0	0
			16	9	3	4			

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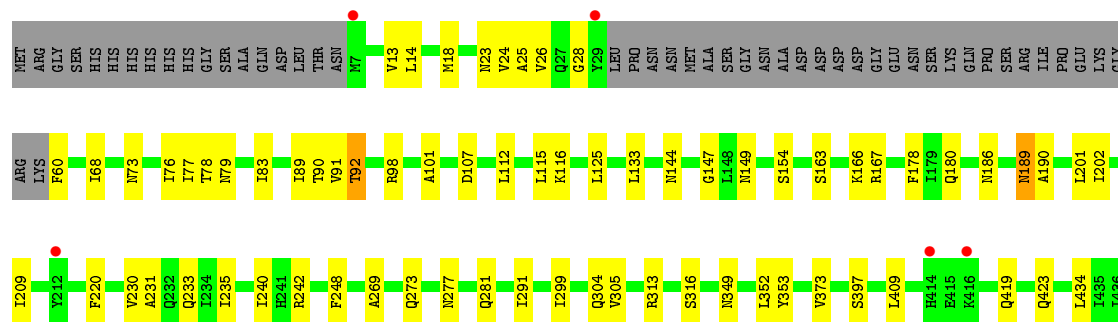
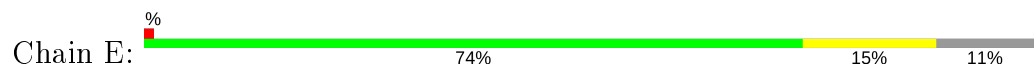
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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	R	3	Total 16	C 9	N 3	O 4	0	0	0
5	S	3	Total 16	C 9	N 3	O 4	0	0	0
5	T	3	Total 16	C 9	N 3	O 4	0	0	0
5	U	3	Total 16	C 9	N 3	O 4	0	0	0
5	V	3	Total 16	C 9	N 3	O 4	0	0	0

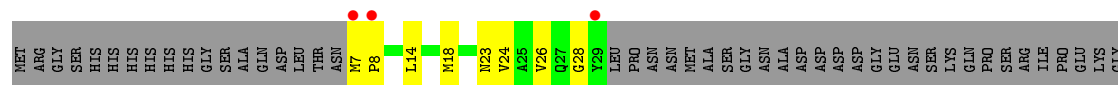
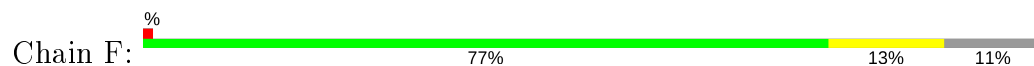
- Molecule 1: Protease DO



- Molecule 1: Protease DO



- Molecule 1: Protease DO



Chain L:  67% 33%




- Molecule 4: Hepta-peptide

Chain K:  86% 14%



- Molecule 4: Hepta-peptide

Chain M:  86% 14%



- Molecule 4: Hepta-peptide

Chain N:  100%

There are no outlier residues recorded for this chain.

- Molecule 4: Hepta-peptide

Chain O:  100%

There are no outlier residues recorded for this chain.

- Molecule 4: Hepta-peptide

Chain P:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: UNK-UNK-UNK

Chain Q:  67% 33%



- Molecule 5: UNK-UNK-UNK

Chain R:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: UNK-UNK-UNK

Chain S:  67% 33%

X105
X106
X107

- Molecule 5: UNK-UNK-UNK

Chain T:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: UNK-UNK-UNK

Chain U:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: UNK-UNK-UNK

Chain V:  100%

There are no outlier residues recorded for this chain.

4 Data and refinement statistics

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, α , β , γ	147.91Å 147.91Å 383.51Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	28.54 – 3.20 28.54 – 3.20	Depositor EDS
% Data completeness (in resolution range)	99.0 (28.54-3.20) 99.0 (28.54-3.20)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.18 (at 3.17Å)	Xtriage
Refinement program	PHENIX 1.8.1 _1168	Depositor
R, R_{free}	0.181 , 0.219 0.184 , 0.220	Depositor DCC
R_{free} test set	3875 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	72.1	Xtriage
Anisotropy	0.002	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 55.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	0.066 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	24195	wwPDB-VP
Average B, all atoms (Å ²)	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.53% 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 [i](#)

5.1 Standard geometry [i](#)

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	0.24	0/3018	0.46	0/4089
1	B	0.25	0/3010	0.47	0/4078
1	C	0.25	0/3018	0.47	0/4089
1	D	0.24	0/3018	0.45	0/4089
1	E	0.25	0/3018	0.47	0/4089
1	F	0.25	0/3018	0.46	0/4089
1	G	0.24	0/3018	0.46	0/4089
1	H	0.25	0/3018	0.47	0/4089
All	All	0.25	0/24136	0.47	0/32701

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [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	2979	0	3088	45	0
1	B	2971	0	3080	40	0
1	C	2979	0	3088	45	0
1	D	2979	0	3088	46	0
1	E	2979	0	3088	45	0
1	F	2979	0	3088	33	0
1	G	2979	0	3088	41	0
1	H	2979	0	3088	40	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	I	40	0	11	1	0
3	J	30	0	8	0	0
3	L	30	0	8	2	0
4	K	35	0	9	1	0
4	M	35	0	9	1	0
4	N	35	0	9	0	0
4	O	35	0	9	0	0
4	P	35	0	9	0	0
5	Q	16	0	5	1	0
5	R	16	0	5	0	0
5	S	16	0	6	1	0
5	T	16	0	5	0	0
5	U	16	0	5	0	0
5	V	16	0	5	0	0
All	All	24195	0	24799	329	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (329) 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:125:LEU:HD11	1:E:201:LEU:HB2	1.58	0.85
1:D:23:ASN:HD21	1:D:144:ASN:HD22	1.25	0.84
1:D:230:VAL:HG13	1:D:240:ILE:HD11	1.67	0.77
1:D:125:LEU:HD11	1:D:201:LEU:HB2	1.66	0.75
1:B:230:VAL:HG13	1:B:240:ILE:HD11	1.69	0.72
1:E:209:ILE:HG13	1:E:220:PHE:HE2	1.55	0.72
1:H:230:VAL:HG13	1:H:240:ILE:HD11	1.71	0.71
1:A:230:VAL:HG13	1:A:240:ILE:HD11	1.71	0.71
1:G:230:VAL:HG13	1:G:240:ILE:HD11	1.73	0.71
1:B:89:ILE:HG13	1:B:101:ALA:HB3	1.73	0.70
1:C:209:ILE:HG13	1:C:220:PHE:HE2	1.57	0.70
1:F:230:VAL:HG13	1:F:240:ILE:HD11	1.74	0.69
1:A:24:VAL:HG12	1:A:91:VAL:HG22	1.74	0.68
1:C:24:VAL:HG12	1:C:91:VAL:HG22	1.75	0.68
1:H:18:MET:HE1	1:H:157:ALA:HB2	1.76	0.68
1:D:209:ILE:HG13	1:D:220:PHE:HE2	1.58	0.67
1:D:89:ILE:HG13	1:D:101:ALA:HB3	1.77	0.66
1:B:209:ILE:HG13	1:B:220:PHE:HE2	1.59	0.66
1:E:230:VAL:HG13	1:E:240:ILE:HD11	1.77	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:26:VAL:HG22	1:C:89:ILE:HG22	1.78	0.66
1:D:23:ASN:HD21	1:D:144:ASN:ND2	1.94	0.65
1:C:230:VAL:HG13	1:C:240:ILE:HD11	1.80	0.64
1:C:23:ASN:HB2	1:C:92:THR:HG23	1.79	0.64
1:A:89:ILE:HG13	1:A:101:ALA:HB3	1.79	0.64
1:E:26:VAL:HG22	1:E:89:ILE:HG22	1.78	0.64
1:B:233:GLN:HE21	1:B:313:ARG:HH11	1.46	0.64
1:G:26:VAL:HG22	1:G:89:ILE:HG22	1.80	0.64
1:H:89:ILE:HG13	1:H:101:ALA:HB3	1.79	0.64
1:E:25:ALA:HB3	1:E:90:THR:HG23	1.80	0.63
1:F:233:GLN:HE21	1:F:313:ARG:HH11	1.46	0.63
1:B:26:VAL:HG22	1:B:89:ILE:HG22	1.80	0.63
1:A:233:GLN:HE21	1:A:313:ARG:HH11	1.46	0.62
1:D:26:VAL:HG22	1:D:89:ILE:HG22	1.82	0.62
1:B:324:ARG:O	1:B:327:LYS:HG2	2.00	0.62
1:D:419:GLN:HG3	1:D:434:LEU:HD11	1.81	0.61
1:F:125:LEU:HD11	1:F:201:LEU:HB2	1.82	0.61
1:A:209:ILE:HG13	1:A:220:PHE:HE2	1.64	0.61
1:A:269:ALA:HB3	1:A:291:ILE:HB	1.81	0.61
1:C:233:GLN:HE21	1:C:313:ARG:HH11	1.47	0.61
1:D:233:GLN:HE21	1:D:313:ARG:HH11	1.46	0.60
1:G:107:ASP:OD2	1:G:242:ARG:NH2	2.33	0.60
1:E:23:ASN:HD21	1:E:144:ASN:HD22	1.48	0.60
1:G:68:ILE:HG12	1:G:76:ILE:HG22	1.83	0.60
1:E:23:ASN:HD21	1:E:144:ASN:ND2	1.99	0.59
1:F:299:ILE:HD13	1:F:305:VAL:HG22	1.83	0.59
1:A:127:ILE:HG21	1:A:228:LYS:HE2	1.84	0.59
1:D:277:ASN:N	1:D:281:GLN:OE1	2.34	0.59
1:G:89:ILE:HG13	1:G:101:ALA:HB3	1.84	0.59
1:H:26:VAL:HG22	1:H:89:ILE:HG22	1.84	0.59
1:A:419:GLN:HG3	1:A:434:LEU:HD11	1.85	0.58
1:G:209:ILE:HG13	1:G:220:PHE:HE2	1.67	0.58
1:C:125:LEU:HD11	1:C:201:LEU:HB2	1.85	0.58
1:F:209:ILE:HG13	1:F:220:PHE:HE2	1.67	0.58
1:D:397:SER:HB3	1:D:423:GLN:HB3	1.86	0.58
1:A:332:ASP:OD2	1:C:102:ARG:NH2	2.36	0.58
1:F:89:ILE:HG13	1:F:101:ALA:HB3	1.85	0.58
1:E:68:ILE:HG12	1:E:76:ILE:HG22	1.84	0.58
1:B:28:GLY:O	1:B:60:PHE:HB3	2.04	0.58
1:C:419:GLN:HG3	1:C:434:LEU:HD11	1.86	0.57
1:H:233:GLN:HE21	1:H:313:ARG:HH11	1.51	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:89:ILE:HG13	1:E:101:ALA:HB3	1.85	0.57
1:G:24:VAL:HG12	1:G:91:VAL:HG22	1.86	0.57
1:G:431:LEU:HD23	1:G:433:LEU:HD21	1.87	0.57
1:H:419:GLN:HG3	1:H:434:LEU:HD11	1.86	0.57
1:C:248:PHE:HB2	1:C:273:GLN:HB3	1.86	0.57
1:E:233:GLN:HE21	1:E:313:ARG:HH11	1.52	0.56
1:F:24:VAL:HG12	1:F:91:VAL:HG22	1.85	0.56
1:B:419:GLN:HG3	1:B:434:LEU:HD11	1.87	0.56
1:G:419:GLN:HG3	1:G:434:LEU:HD11	1.85	0.56
1:D:125:LEU:CD1	1:D:201:LEU:HB2	2.35	0.56
1:H:125:LEU:HD11	1:H:199:GLY:O	2.04	0.56
1:H:269:ALA:HB3	1:H:291:ILE:HB	1.85	0.56
1:H:24:VAL:HG12	1:H:91:VAL:HG22	1.86	0.56
1:C:14:LEU:O	1:C:18:MET:HG2	2.06	0.56
1:A:14:LEU:O	1:A:18:MET:HG2	2.06	0.56
1:F:26:VAL:HG22	1:F:89:ILE:HG22	1.86	0.56
1:E:269:ALA:HB3	1:E:291:ILE:HB	1.88	0.56
1:H:209:ILE:HG13	1:H:220:PHE:HE2	1.71	0.55
1:E:419:GLN:HG3	1:E:434:LEU:HD11	1.87	0.55
1:E:28:GLY:O	1:E:60:PHE:HB3	2.07	0.55
1:B:256:LEU:O	1:B:260:MET:HG3	2.07	0.55
1:G:233:GLN:HE21	1:G:313:ARG:HH11	1.55	0.55
1:G:133:LEU:HD11	1:G:202:ILE:HD12	1.89	0.54
1:C:89:ILE:HG13	1:C:101:ALA:HB3	1.88	0.54
1:E:24:VAL:HG12	1:E:91:VAL:HG22	1.88	0.54
1:F:419:GLN:HG3	1:F:434:LEU:HD11	1.89	0.54
1:A:124:SER:OG	1:A:125:LEU:N	2.40	0.54
1:D:24:VAL:HG12	1:D:91:VAL:HG22	1.88	0.54
1:C:277:ASN:N	1:C:281:GLN:OE1	2.37	0.54
1:A:247:ILE:HD11	1:A:271:VAL:HG22	1.90	0.54
1:B:124:SER:OG	1:B:125:LEU:N	2.40	0.54
1:C:28:GLY:O	1:C:60:PHE:HB3	2.07	0.54
1:F:125:LEU:CD1	1:F:201:LEU:HB2	2.38	0.54
1:C:125:LEU:CD1	1:C:201:LEU:HB2	2.38	0.54
1:B:269:ALA:HB3	1:B:291:ILE:HB	1.90	0.54
1:G:76:ILE:HD11	1:G:115:LEU:HD12	1.90	0.54
1:H:110:THR:HG22	1:H:175:VAL:HB	1.90	0.54
1:B:133:LEU:HD11	1:B:202:ILE:HD12	1.90	0.53
1:C:180:GLN:HG3	1:C:220:PHE:CE1	2.43	0.53
1:G:269:ALA:HB3	1:G:291:ILE:HB	1.90	0.53
1:C:133:LEU:HD11	1:C:202:ILE:HD12	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:166:LYS:HE3	1:H:304:GLN:HE21	1.74	0.52
1:B:14:LEU:O	1:B:18:MET:HG2	2.09	0.52
1:B:248:PHE:HB2	1:B:273:GLN:HB3	1.91	0.52
1:C:256:LEU:O	1:C:260:MET:HG3	2.10	0.52
1:F:342:GLU:OE1	1:F:353:TYR:OH	2.27	0.52
1:D:14:LEU:O	1:D:18:MET:HG2	2.10	0.52
1:E:397:SER:HB3	1:E:423:GLN:HB3	1.92	0.52
1:H:28:GLY:O	1:H:60:PHE:HB3	2.10	0.52
1:G:124:SER:OG	1:G:125:LEU:N	2.43	0.52
1:D:69:ILE:HG23	1:D:127:ILE:HD11	1.91	0.51
1:H:180:GLN:HG3	1:H:220:PHE:CE1	2.46	0.51
1:F:277:ASN:N	1:F:281:GLN:OE1	2.41	0.51
1:D:28:GLY:O	1:D:60:PHE:HB3	2.11	0.51
1:E:73:ASN:O	1:E:116:LYS:HE3	2.10	0.51
1:E:125:LEU:CD1	1:E:201:LEU:HB2	2.36	0.51
1:F:180:GLN:HG3	1:F:220:PHE:CE1	2.46	0.51
1:B:125:LEU:HD11	1:B:199:GLY:O	2.11	0.51
1:A:190:ALA:HB2	2:I:5:UNK:O	2.10	0.51
1:A:93:LEU:HD21	1:A:122:LEU:HD23	1.94	0.50
1:F:28:GLY:O	1:F:60:PHE:HB3	2.10	0.50
1:C:397:SER:HB3	1:C:423:GLN:HB3	1.93	0.50
1:G:233:GLN:NE2	1:G:313:ARG:HG3	2.26	0.50
1:A:26:VAL:HG22	1:A:89:ILE:HG22	1.93	0.50
1:B:180:GLN:HG3	1:B:220:PHE:CE1	2.47	0.50
1:A:233:GLN:HE21	1:A:313:ARG:NH1	2.10	0.50
1:E:186:ASN:O	1:E:189:ASN:HB2	2.12	0.50
1:F:269:ALA:HB3	1:F:291:ILE:HB	1.92	0.50
1:H:124:SER:OG	1:H:125:LEU:N	2.44	0.50
1:C:269:ALA:HB3	1:C:291:ILE:HB	1.93	0.50
1:A:125:LEU:HD23	1:A:201:LEU:HB2	1.93	0.49
1:A:28:GLY:O	1:A:60:PHE:HB3	2.12	0.49
1:F:14:LEU:O	1:F:18:MET:HG2	2.12	0.49
1:A:125:LEU:HD11	1:A:199:GLY:O	2.12	0.49
1:C:262:TYR:OH	1:C:325:ASP:O	2.23	0.49
1:D:23:ASN:ND2	1:D:144:ASN:HD22	2.01	0.49
1:A:166:LYS:HE3	1:A:304:GLN:HE21	1.78	0.49
1:A:104:ILE:HD11	1:A:116:LYS:HB2	1.93	0.49
1:F:23:ASN:HB2	1:F:92:THR:HB	1.94	0.49
1:G:76:ILE:HG13	1:G:115:LEU:HB2	1.95	0.49
1:C:172:ILE:N	1:C:176:GLU:OE1	2.46	0.48
1:A:332:ASP:OD2	1:C:116:LYS:HD3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:247:ILE:HD11	1:C:271:VAL:HG22	1.94	0.48
1:D:262:TYR:OH	1:D:325:ASP:O	2.23	0.48
1:H:104:ILE:HD11	1:H:116:LYS:HB2	1.94	0.48
1:A:226:MET:HG3	1:A:311:LEU:HD11	1.94	0.48
1:B:233:GLN:HE21	1:B:313:ARG:NH1	2.11	0.48
1:E:166:LYS:HE3	1:E:304:GLN:HE21	1.78	0.48
1:E:231:ALA:O	1:E:235:ILE:HG13	2.13	0.48
1:D:395:ILE:HG12	1:D:424:VAL:HG12	1.95	0.48
1:E:107:ASP:OD2	1:E:242:ARG:NH2	2.46	0.48
1:D:248:PHE:HB2	1:D:273:GLN:HB3	1.96	0.48
1:E:83:ILE:HD13	1:E:115:LEU:HD21	1.96	0.48
1:E:14:LEU:O	1:E:18:MET:HG2	2.14	0.48
1:C:273:GLN:HB2	1:F:430:ALA:HB3	1.95	0.48
1:B:166:LYS:HE3	1:B:304:GLN:HE21	1.79	0.47
1:B:68:ILE:HG12	1:B:76:ILE:HG22	1.95	0.47
1:H:226:MET:HG3	1:H:311:LEU:HD11	1.95	0.47
1:E:180:GLN:HG3	1:E:220:PHE:CE1	2.50	0.47
1:A:244:LEU:HG	5:Q:107:UNK:OXT	2.13	0.47
1:D:110:THR:HG22	1:D:175:VAL:HB	1.96	0.47
1:H:68:ILE:HG12	1:H:76:ILE:HG22	1.97	0.47
1:A:68:ILE:HG12	1:A:76:ILE:HG22	1.97	0.47
1:G:77:ILE:HD11	1:G:112:LEU:HD22	1.96	0.47
1:A:133:LEU:HD11	1:A:202:ILE:HD12	1.96	0.47
1:C:231:ALA:O	1:C:235:ILE:HG13	2.15	0.47
1:C:299:ILE:HD13	1:C:305:VAL:HG22	1.97	0.47
1:C:349:ASN:HD21	1:C:352:LEU:HB2	1.80	0.47
1:G:180:GLN:HG3	1:G:220:PHE:CE1	2.49	0.47
1:D:209:ILE:HA	3:L:2:UNK:HA	1.97	0.47
1:D:299:ILE:HD13	1:D:305:VAL:HG22	1.97	0.47
1:D:78:THR:OG1	1:D:79:ASN:N	2.48	0.47
1:E:277:ASN:N	1:E:281:GLN:OE1	2.43	0.47
1:B:277:ASN:N	1:B:281:GLN:OE1	2.45	0.47
1:C:124:SER:OG	1:C:125:LEU:N	2.48	0.47
1:A:395:ILE:HG12	1:A:424:VAL:HG12	1.97	0.46
1:G:67:VAL:HG11	1:G:201:LEU:HD22	1.97	0.46
1:C:233:GLN:HE21	1:C:313:ARG:NH1	2.13	0.46
1:D:186:ASN:O	1:D:189:ASN:HB2	2.16	0.46
1:G:350:PRO:HG3	1:G:416:LYS:HE2	1.96	0.46
1:E:163:SER:N	1:E:180:GLN:O	2.48	0.46
1:C:395:ILE:HG12	1:C:424:VAL:HG12	1.98	0.45
1:C:190:ALA:HB2	4:K:5:UNK:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:253:THR:HG21	1:H:98:ARG:HH12	1.80	0.45
1:A:67:VAL:HG11	1:A:201:LEU:HD22	1.98	0.45
1:A:7:MET:HA	1:A:8:PRO:HD3	1.75	0.45
1:H:196:ASN:OD1	1:H:200:GLU:N	2.49	0.45
1:H:256:LEU:O	1:H:260:MET:HG3	2.17	0.45
1:E:313:ARG:O	1:E:316:SER:OG	2.30	0.45
1:G:430:ALA:HB3	1:H:273:GLN:HB2	1.97	0.45
1:H:248:PHE:HB2	1:H:273:GLN:HB3	1.97	0.45
1:H:412:VAL:O	1:H:415:GLU:HG2	2.16	0.45
1:C:104:ILE:HD11	1:C:116:LYS:HB2	1.98	0.45
1:C:244:LEU:HG	5:S:107:UNK:OXT	2.17	0.45
1:D:133:LEU:HD11	1:D:202:ILE:HD12	1.99	0.45
1:E:233:GLN:NE2	1:E:240:ILE:HG23	2.32	0.45
1:D:352:LEU:HD11	1:D:409:LEU:HG	1.99	0.45
1:B:163:SER:N	1:B:180:GLN:O	2.47	0.45
1:H:76:ILE:HD11	1:H:115:LEU:HD12	1.99	0.45
1:E:76:ILE:HG13	1:E:115:LEU:HB2	1.98	0.45
1:B:104:ILE:HD11	1:B:116:LYS:HB2	1.99	0.44
1:D:19:PRO:HA	1:D:94:GLN:HG2	2.00	0.44
1:G:248:PHE:HB2	1:G:273:GLN:HB3	1.99	0.44
1:G:299:ILE:HD13	1:G:305:VAL:HG22	1.99	0.44
1:B:233:GLN:NE2	1:B:240:ILE:HG23	2.32	0.44
1:D:209:ILE:HG13	1:D:220:PHE:CE2	2.45	0.44
1:E:233:GLN:HE21	1:E:313:ARG:NH1	2.15	0.44
1:C:305:VAL:O	1:C:309:ILE:HG12	2.18	0.44
1:E:92:THR:HB	1:E:98:ARG:HG2	1.99	0.44
1:B:126:VAL:HG13	1:B:200:GLU:HA	1.99	0.44
1:E:23:ASN:ND2	1:E:144:ASN:HD22	2.14	0.44
1:A:256:LEU:O	1:A:260:MET:HG3	2.18	0.44
1:D:294:ILE:HG12	1:D:320:ILE:HD12	1.99	0.44
1:A:186:ASN:O	1:A:189:ASN:HB2	2.17	0.44
1:B:352:LEU:HD11	1:B:409:LEU:HG	2.00	0.44
1:F:233:GLN:HE21	1:F:313:ARG:NH1	2.14	0.44
1:G:163:SER:N	1:G:180:GLN:O	2.51	0.44
1:A:299:ILE:HD13	1:A:305:VAL:HG22	2.00	0.44
1:B:231:ALA:O	1:B:235:ILE:HG13	2.17	0.44
1:B:146:PHE:CD2	1:C:218:ILE:HD12	2.52	0.43
1:C:319:LYS:HE3	1:C:319:LYS:HB2	1.86	0.43
1:G:104:ILE:HD11	1:G:116:LYS:HB2	2.00	0.43
1:H:393:ASP:OD2	1:H:426:ARG:NH2	2.38	0.43
1:A:180:GLN:HG3	1:A:220:PHE:CE1	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:143:GLY:O	1:C:145:PRO:HD3	2.18	0.43
1:E:144:ASN:HD21	1:E:147:GLY:HA2	1.83	0.43
1:H:126:VAL:HG13	1:H:200:GLU:HA	1.99	0.43
1:H:163:SER:N	1:H:180:GLN:O	2.48	0.43
1:B:305:VAL:O	1:B:309:ILE:HG12	2.19	0.43
1:B:294:ILE:HD13	1:B:309:ILE:HD11	1.99	0.43
1:G:294:ILE:HG12	1:G:320:ILE:HD12	2.00	0.43
1:A:163:SER:N	1:A:180:GLN:O	2.49	0.43
1:H:23:ASN:HB2	1:H:92:THR:HB	2.00	0.43
1:H:247:ILE:HD11	1:H:271:VAL:HG22	2.00	0.43
1:G:73:ASN:O	1:G:116:LYS:HE3	2.19	0.43
1:H:283:ALA:O	1:H:331:LEU:HD22	2.19	0.43
1:A:77:ILE:HD11	1:A:112:LEU:HD22	2.00	0.43
1:H:125:LEU:HD23	1:H:201:LEU:HB2	2.01	0.43
1:F:398:ALA:HB1	1:F:420:LEU:HD11	2.00	0.43
1:C:245:MET:HE2	1:C:247:ILE:HG21	2.00	0.43
1:E:352:LEU:HD11	1:E:409:LEU:HG	2.01	0.42
1:H:83:ILE:HD13	1:H:115:LEU:HD21	2.01	0.42
1:E:78:THR:OG1	1:E:79:ASN:N	2.51	0.42
1:F:133:LEU:HD11	1:F:202:ILE:HD12	2.02	0.42
1:H:148:LEU:HA	1:H:148:LEU:HD23	1.85	0.42
1:D:180:GLN:HG3	1:D:220:PHE:CE1	2.54	0.42
1:D:412:VAL:O	1:D:415:GLU:HG2	2.19	0.42
1:E:133:LEU:HD11	1:E:202:ILE:HD12	2.01	0.42
1:E:299:ILE:HD13	1:E:305:VAL:HG22	2.01	0.42
1:G:28:GLY:O	1:G:60:PHE:HB3	2.18	0.42
1:G:319:LYS:HE3	1:G:319:LYS:HB2	1.89	0.42
1:D:190:ALA:HB2	3:L:5:UNK:O	2.20	0.42
1:A:319:LYS:HE3	1:A:319:LYS:HB2	1.89	0.42
1:A:345:LEU:HA	1:A:345:LEU:HD12	1.84	0.42
1:B:125:LEU:HD23	1:B:201:LEU:HB2	2.01	0.42
1:E:149:ASN:HB3	1:E:154:SER:O	2.20	0.42
1:G:294:ILE:HD13	1:G:309:ILE:HD11	2.02	0.42
1:F:124:SER:OG	1:F:125:LEU:N	2.53	0.42
1:B:143:GLY:O	1:B:145:PRO:HD3	2.19	0.42
1:C:209:ILE:HG13	1:C:220:PHE:CE2	2.47	0.42
1:D:124:SER:OG	1:D:125:LEU:N	2.53	0.42
1:G:79:ASN:HB2	1:G:82:VAL:HG23	2.01	0.42
1:B:233:GLN:NE2	1:B:313:ARG:HG3	2.34	0.42
1:C:233:GLN:NE2	1:C:313:ARG:HG3	2.35	0.42
1:G:231:ALA:O	1:G:235:ILE:HG13	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:412:VAL:O	1:C:415:GLU:HG2	2.20	0.42
1:D:349:ASN:O	1:D:353:TYR:HB2	2.20	0.42
1:B:24:VAL:HG12	1:B:91:VAL:HG22	2.01	0.42
1:F:337:ASP:HB3	1:F:340:LYS:HB3	2.02	0.42
1:B:79:ASN:HB2	1:B:82:VAL:HG23	2.01	0.42
1:A:294:ILE:HG12	1:A:320:ILE:HD12	2.02	0.41
1:A:78:THR:OG1	1:A:79:ASN:N	2.53	0.41
1:B:283:ALA:O	1:B:331:LEU:HD22	2.20	0.41
1:F:7:MET:HA	1:F:8:PRO:HD3	1.77	0.41
1:C:7:MET:HA	1:C:8:PRO:HD3	1.76	0.41
1:D:431:LEU:HD23	1:D:433:LEU:HD21	2.02	0.41
1:G:148:LEU:HA	1:G:148:LEU:HD23	1.89	0.41
1:H:299:ILE:HA	1:H:304:GLN:OE1	2.20	0.41
1:A:143:GLY:O	1:A:145:PRO:HD3	2.20	0.41
1:C:73:ASN:O	1:C:116:LYS:HE3	2.20	0.41
1:D:148:LEU:HA	1:D:148:LEU:HD23	1.88	0.41
1:F:327:LYS:HA	1:F:328:PRO:HD3	1.87	0.41
1:F:79:ASN:HB2	1:F:82:VAL:HG23	2.01	0.41
1:D:166:LYS:HE3	1:D:304:GLN:HE21	1.85	0.41
1:E:248:PHE:HB2	1:E:273:GLN:HB3	2.02	0.41
1:H:233:GLN:HE21	1:H:313:ARG:NH1	2.16	0.41
1:F:163:SER:N	1:F:180:GLN:O	2.52	0.41
1:F:305:VAL:O	1:F:309:ILE:HG12	2.21	0.41
1:F:412:VAL:O	1:F:415:GLU:HG2	2.21	0.41
1:G:143:GLY:O	1:G:145:PRO:HD3	2.20	0.41
1:C:249:VAL:HG12	1:C:302:ALA:HB1	2.03	0.41
1:D:172:ILE:N	1:D:176:GLU:OE1	2.52	0.41
1:G:245:MET:HE2	1:G:247:ILE:HG21	2.02	0.41
1:G:327:LYS:HA	1:G:328:PRO:HD3	1.90	0.41
1:E:190:ALA:HB2	4:M:5:UNK:O	2.20	0.41
1:E:167:ARG:HB2	1:E:178:PHE:HB2	2.03	0.41
1:F:133:LEU:HD11	1:F:202:ILE:HB	2.02	0.41
1:G:395:ILE:HG12	1:G:424:VAL:HG12	2.03	0.41
1:E:77:ILE:HD11	1:E:112:LEU:HD22	2.03	0.41
1:G:233:GLN:NE2	1:G:240:ILE:HG23	2.35	0.41
1:B:17:ALA:HA	1:B:125:LEU:HD13	2.03	0.41
1:B:77:ILE:HD11	1:B:112:LEU:HD22	2.03	0.41
1:D:231:ALA:O	1:D:235:ILE:HG13	2.20	0.41
1:D:319:LYS:HB2	1:D:319:LYS:HE3	1.86	0.41
1:F:149:ASN:HD22	1:F:154:SER:H	1.69	0.41
1:A:342:GLU:OE2	1:A:353:TYR:OH	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:76:ILE:HD11	1:E:115:LEU:HD12	2.03	0.40
1:F:132:LYS:HA	1:F:132:LYS:HD3	1.89	0.40
1:A:396:ILE:HD13	1:A:425:LEU:HD11	2.03	0.40
1:A:83:ILE:HD13	1:A:115:LEU:HD21	2.03	0.40
1:E:144:ASN:ND2	1:E:147:GLY:HA2	2.36	0.40
1:F:226:MET:HG3	1:F:311:LEU:HD11	2.03	0.40
1:G:226:MET:HG3	1:G:311:LEU:HD11	2.03	0.40
1:B:149:ASN:HD22	1:B:154:SER:H	1.70	0.40
1:B:398:ALA:HB1	1:B:420:LEU:HD11	2.03	0.40
1:D:67:VAL:HG11	1:D:201:LEU:HD22	2.04	0.40
1:A:294:ILE:HD13	1:A:309:ILE:HD11	2.03	0.40
1:D:144:ASN:ND2	1:D:147:GLY:HA2	2.36	0.40
1:G:149:ASN:HB3	1:G:154:SER:O	2.22	0.40
1:H:291:ILE:HD13	1:H:322:ILE:HG22	2.03	0.40
1:H:327:LYS:HA	1:H:328:PRO:HD3	1.91	0.40
1:H:390:ARG:HA	1:H:390:ARG:HD3	1.90	0.40
1:H:7:MET:HA	1:H:8:PRO:HD3	1.73	0.40
1:B:148:LEU:HD23	1:B:148:LEU:HA	1.87	0.40
1:D:73:ASN:O	1:D:116:LYS:HE3	2.21	0.40
1:D:143:GLY:O	1:D:145:PRO:HD3	2.21	0.40
1:D:233:GLN:NE2	1:D:313:ARG:HG3	2.36	0.40
1:E:349:ASN:O	1:E:353:TYR:HB2	2.20	0.40
1:G:78:THR:OG1	1:G:79:ASN:N	2.54	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	396/448 (88%)	388 (98%)	8 (2%)	0	100	100
1	B	395/448 (88%)	387 (98%)	8 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	396/448 (88%)	387 (98%)	9 (2%)	0	100	100
1	D	396/448 (88%)	387 (98%)	9 (2%)	0	100	100
1	E	396/448 (88%)	388 (98%)	8 (2%)	0	100	100
1	F	396/448 (88%)	388 (98%)	8 (2%)	0	100	100
1	G	396/448 (88%)	389 (98%)	7 (2%)	0	100	100
1	H	396/448 (88%)	387 (98%)	9 (2%)	0	100	100
All	All	3167/3584 (88%)	3101 (98%)	66 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	322/362 (89%)	315 (98%)	7 (2%)	52	79
1	B	321/362 (89%)	319 (99%)	2 (1%)	86	94
1	C	322/362 (89%)	316 (98%)	6 (2%)	57	81
1	D	322/362 (89%)	316 (98%)	6 (2%)	57	81
1	E	322/362 (89%)	318 (99%)	4 (1%)	71	88
1	F	322/362 (89%)	319 (99%)	3 (1%)	78	91
1	G	322/362 (89%)	319 (99%)	3 (1%)	78	91
1	H	322/362 (89%)	316 (98%)	6 (2%)	57	81
All	All	2575/2896 (89%)	2538 (99%)	37 (1%)	67	86

All (37) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	76	ILE
1	A	92	THR
1	A	189	ASN
1	A	345	LEU

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Mol	Chain	Res	Type
1	A	361	GLU
1	A	373	VAL
1	A	397	SER
1	B	76	ILE
1	B	361	GLU
1	C	76	ILE
1	C	92	THR
1	C	150	SER
1	C	189	ASN
1	C	373	VAL
1	C	436	ILE
1	D	13	VAL
1	D	76	ILE
1	D	92	THR
1	D	189	ASN
1	D	373	VAL
1	D	416	LYS
1	E	13	VAL
1	E	92	THR
1	E	189	ASN
1	E	373	VAL
1	F	76	ILE
1	F	345	LEU
1	F	416	LYS
1	G	13	VAL
1	G	125	LEU
1	G	340	LYS
1	H	13	VAL
1	H	76	ILE
1	H	94	GLN
1	H	345	LEU
1	H	373	VAL
1	H	436	ILE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	23	ASN
1	A	144	ASN
1	A	155	GLN
1	A	233	GLN
1	B	149	ASN

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Mol	Chain	Res	Type
1	B	155	GLN
1	B	233	GLN
1	C	233	GLN
1	D	23	ASN
1	D	155	GLN
1	D	233	GLN
1	E	144	ASN
1	E	149	ASN
1	E	233	GLN
1	F	233	GLN
1	G	233	GLN
1	H	149	ASN
1	H	233	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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	400/448 (89%)	-0.38	3 (0%) 86 78	23, 58, 90, 112	0
1	B	399/448 (89%)	-0.35	3 (0%) 86 78	23, 51, 85, 112	0
1	C	400/448 (89%)	-0.40	5 (1%) 77 65	22, 49, 81, 117	0
1	D	400/448 (89%)	-0.24	5 (1%) 77 65	25, 62, 99, 127	0
1	E	400/448 (89%)	-0.35	5 (1%) 77 65	25, 53, 93, 129	0
1	F	400/448 (89%)	-0.33	5 (1%) 77 65	31, 60, 95, 119	0
1	G	400/448 (89%)	-0.32	4 (1%) 82 72	27, 59, 92, 120	0
1	H	400/448 (89%)	-0.32	7 (1%) 68 55	27, 58, 91, 125	0
2	I	0/8	-	-	-	-
3	J	0/6	-	-	-	-
3	L	0/6	-	-	-	-
4	K	0/7	-	-	-	-
4	M	0/7	-	-	-	-
4	N	0/7	-	-	-	-
4	O	0/7	-	-	-	-
4	P	0/7	-	-	-	-
5	Q	0/3	-	-	-	-
5	R	0/3	-	-	-	-
5	S	0/3	-	-	-	-
5	T	0/3	-	-	-	-
5	U	0/3	-	-	-	-
5	V	0/3	-	-	-	-
All	All	3199/3657 (87%)	-0.34	37 (1%) 79 67	22, 56, 92, 129	0

All (37) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	8	PRO	4.3
1	B	212	TYR	3.9

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Mol	Chain	Res	Type	RSRZ
1	D	8	PRO	3.7
1	G	29	TYR	3.7
1	D	212	TYR	3.6
1	G	7	MET	3.4
1	H	414	HIS	3.4
1	C	212	TYR	3.2
1	D	7	MET	2.9
1	D	29	TYR	2.9
1	B	29	TYR	2.8
1	H	212	TYR	2.8
1	G	87	ASN	2.8
1	G	212	TYR	2.7
1	F	8	PRO	2.7
1	F	85	ASN	2.7
1	H	29	TYR	2.6
1	F	339	LYS	2.6
1	C	339	LYS	2.6
1	F	29	TYR	2.6
1	C	29	TYR	2.5
1	F	7	MET	2.5
1	E	29	TYR	2.5
1	A	60	PHE	2.3
1	E	7	MET	2.3
1	B	171	ASN	2.3
1	D	60	PHE	2.3
1	C	8	PRO	2.2
1	E	212	TYR	2.2
1	E	414	HIS	2.2
1	C	7	MET	2.1
1	H	7	MET	2.1
1	A	212	TYR	2.1
1	E	416	LYS	2.1
1	H	85	ASN	2.0
1	H	339	LYS	2.0
1	A	29	TYR	2.0

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates 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.