Full wwPDB X-ray Structure Validation Report (i)

Feb 15, 2024 – 01:29 AM EST

PDB ID	:	3ODM
Title	:	Archaeal-type phosphoenolpyruvate carboxylase
Authors	:	Dunten, P.W.
Deposited on	:	2010-08-11
Resolution	:	2.95 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 (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

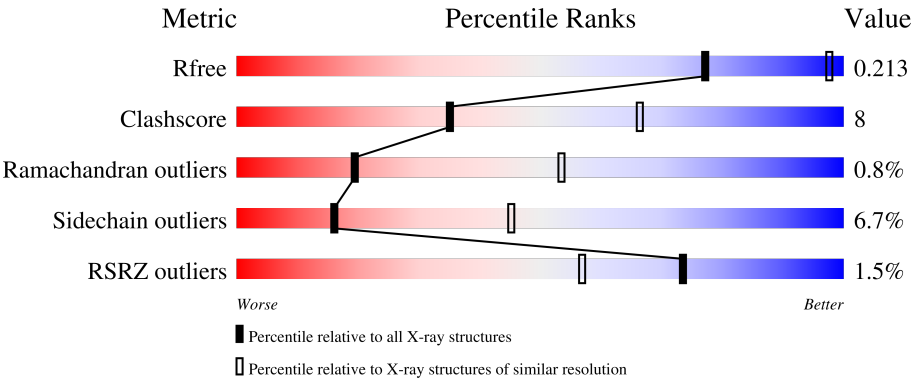
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.95 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	3104 (3.00-2.92)
Clashscore	141614	3462 (3.00-2.92)
Ramachandran outliers	138981	3340 (3.00-2.92)
Sidechain outliers	138945	3343 (3.00-2.92)
RSRZ outliers	127900	2986 (3.00-2.92)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	560	75% 18% • 6%
1	B	560	% 72% 21% • 6%
1	C	560	2% 69% 22% • 5%
1	D	560	% 76% 16% • 6%
1	E	560	% 74% 18% • 6%

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Mol	Chain	Length	Quality of chain
1	F	560	71% 22% 6%
1	G	560	5% 68% 24% 6%
1	H	560	% 75% 17% 6%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	AUC	A	607	-	-	X	-
2	AUC	A	608	-	-	X	-
2	AUC	A	631	-	-	X	-
2	AUC	B	609	-	-	X	-
2	AUC	B	610	-	-	X	-
2	AUC	C	601	-	-	X	-
2	AUC	C	602	-	-	X	-
2	AUC	D	603	-	-	X	-
2	AUC	D	604	-	-	X	-
2	AUC	E	605	-	-	X	-
2	AUC	E	606	-	-	X	-
2	AUC	F	614	-	-	X	-
2	AUC	G	615	-	-	X	-
2	AUC	H	611	-	-	X	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 33563 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 Phosphoenolpyruvate carboxylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	525	Total	C	N	O	S	0	0	0
			4146	2629	696	797	24			
1	B	529	Total	C	N	O	S	0	0	0
			4169	2641	701	803	24			
1	C	530	Total	C	N	O	S	0	0	1
			4171	2645	699	803	24			
1	D	526	Total	C	N	O	S	0	0	0
			4153	2634	697	798	24			
1	E	524	Total	C	N	O	S	0	0	0
			4137	2623	694	796	24			
1	F	529	Total	C	N	O	S	0	0	0
			4160	2637	696	803	24			
1	G	527	Total	C	N	O	S	0	0	0
			4156	2635	698	799	24			
1	H	527	Total	C	N	O	S	0	0	0
			4164	2643	699	798	24			

There are 184 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-22	MET	-	expression tag	UNP Q8XLE8
A	-21	GLY	-	expression tag	UNP Q8XLE8
A	-20	HIS	-	expression tag	UNP Q8XLE8
A	-19	HIS	-	expression tag	UNP Q8XLE8
A	-18	HIS	-	expression tag	UNP Q8XLE8
A	-17	HIS	-	expression tag	UNP Q8XLE8
A	-16	HIS	-	expression tag	UNP Q8XLE8
A	-15	HIS	-	expression tag	UNP Q8XLE8
A	-14	HIS	-	expression tag	UNP Q8XLE8
A	-13	HIS	-	expression tag	UNP Q8XLE8
A	-12	HIS	-	expression tag	UNP Q8XLE8
A	-11	HIS	-	expression tag	UNP Q8XLE8
A	-10	SER	-	expression tag	UNP Q8XLE8

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-9	SER	-	expression tag	UNP Q8XLE8
A	-8	GLY	-	expression tag	UNP Q8XLE8
A	-7	HIS	-	expression tag	UNP Q8XLE8
A	-6	ILE	-	expression tag	UNP Q8XLE8
A	-5	ASP	-	expression tag	UNP Q8XLE8
A	-4	ASP	-	expression tag	UNP Q8XLE8
A	-3	ASP	-	expression tag	UNP Q8XLE8
A	-2	ASP	-	expression tag	UNP Q8XLE8
A	-1	LYS	-	expression tag	UNP Q8XLE8
A	0	HIS	-	expression tag	UNP Q8XLE8
B	-22	MET	-	expression tag	UNP Q8XLE8
B	-21	GLY	-	expression tag	UNP Q8XLE8
B	-20	HIS	-	expression tag	UNP Q8XLE8
B	-19	HIS	-	expression tag	UNP Q8XLE8
B	-18	HIS	-	expression tag	UNP Q8XLE8
B	-17	HIS	-	expression tag	UNP Q8XLE8
B	-16	HIS	-	expression tag	UNP Q8XLE8
B	-15	HIS	-	expression tag	UNP Q8XLE8
B	-14	HIS	-	expression tag	UNP Q8XLE8
B	-13	HIS	-	expression tag	UNP Q8XLE8
B	-12	HIS	-	expression tag	UNP Q8XLE8
B	-11	HIS	-	expression tag	UNP Q8XLE8
B	-10	SER	-	expression tag	UNP Q8XLE8
B	-9	SER	-	expression tag	UNP Q8XLE8
B	-8	GLY	-	expression tag	UNP Q8XLE8
B	-7	HIS	-	expression tag	UNP Q8XLE8
B	-6	ILE	-	expression tag	UNP Q8XLE8
B	-5	ASP	-	expression tag	UNP Q8XLE8
B	-4	ASP	-	expression tag	UNP Q8XLE8
B	-3	ASP	-	expression tag	UNP Q8XLE8
B	-2	ASP	-	expression tag	UNP Q8XLE8
B	-1	LYS	-	expression tag	UNP Q8XLE8
B	0	HIS	-	expression tag	UNP Q8XLE8
C	-22	MET	-	expression tag	UNP Q8XLE8
C	-21	GLY	-	expression tag	UNP Q8XLE8
C	-20	HIS	-	expression tag	UNP Q8XLE8
C	-19	HIS	-	expression tag	UNP Q8XLE8
C	-18	HIS	-	expression tag	UNP Q8XLE8
C	-17	HIS	-	expression tag	UNP Q8XLE8
C	-16	HIS	-	expression tag	UNP Q8XLE8
C	-15	HIS	-	expression tag	UNP Q8XLE8
C	-14	HIS	-	expression tag	UNP Q8XLE8

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-13	HIS	-	expression tag	UNP Q8XLE8
C	-12	HIS	-	expression tag	UNP Q8XLE8
C	-11	HIS	-	expression tag	UNP Q8XLE8
C	-10	SER	-	expression tag	UNP Q8XLE8
C	-9	SER	-	expression tag	UNP Q8XLE8
C	-8	GLY	-	expression tag	UNP Q8XLE8
C	-7	HIS	-	expression tag	UNP Q8XLE8
C	-6	ILE	-	expression tag	UNP Q8XLE8
C	-5	ASP	-	expression tag	UNP Q8XLE8
C	-4	ASP	-	expression tag	UNP Q8XLE8
C	-3	ASP	-	expression tag	UNP Q8XLE8
C	-2	ASP	-	expression tag	UNP Q8XLE8
C	-1	LYS	-	expression tag	UNP Q8XLE8
C	0	HIS	-	expression tag	UNP Q8XLE8
D	-22	MET	-	expression tag	UNP Q8XLE8
D	-21	GLY	-	expression tag	UNP Q8XLE8
D	-20	HIS	-	expression tag	UNP Q8XLE8
D	-19	HIS	-	expression tag	UNP Q8XLE8
D	-18	HIS	-	expression tag	UNP Q8XLE8
D	-17	HIS	-	expression tag	UNP Q8XLE8
D	-16	HIS	-	expression tag	UNP Q8XLE8
D	-15	HIS	-	expression tag	UNP Q8XLE8
D	-14	HIS	-	expression tag	UNP Q8XLE8
D	-13	HIS	-	expression tag	UNP Q8XLE8
D	-12	HIS	-	expression tag	UNP Q8XLE8
D	-11	HIS	-	expression tag	UNP Q8XLE8
D	-10	SER	-	expression tag	UNP Q8XLE8
D	-9	SER	-	expression tag	UNP Q8XLE8
D	-8	GLY	-	expression tag	UNP Q8XLE8
D	-7	HIS	-	expression tag	UNP Q8XLE8
D	-6	ILE	-	expression tag	UNP Q8XLE8
D	-5	ASP	-	expression tag	UNP Q8XLE8
D	-4	ASP	-	expression tag	UNP Q8XLE8
D	-3	ASP	-	expression tag	UNP Q8XLE8
D	-2	ASP	-	expression tag	UNP Q8XLE8
D	-1	LYS	-	expression tag	UNP Q8XLE8
D	0	HIS	-	expression tag	UNP Q8XLE8
E	-22	MET	-	expression tag	UNP Q8XLE8
E	-21	GLY	-	expression tag	UNP Q8XLE8
E	-20	HIS	-	expression tag	UNP Q8XLE8
E	-19	HIS	-	expression tag	UNP Q8XLE8
E	-18	HIS	-	expression tag	UNP Q8XLE8

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-17	HIS	-	expression tag	UNP Q8XLE8
E	-16	HIS	-	expression tag	UNP Q8XLE8
E	-15	HIS	-	expression tag	UNP Q8XLE8
E	-14	HIS	-	expression tag	UNP Q8XLE8
E	-13	HIS	-	expression tag	UNP Q8XLE8
E	-12	HIS	-	expression tag	UNP Q8XLE8
E	-11	HIS	-	expression tag	UNP Q8XLE8
E	-10	SER	-	expression tag	UNP Q8XLE8
E	-9	SER	-	expression tag	UNP Q8XLE8
E	-8	GLY	-	expression tag	UNP Q8XLE8
E	-7	HIS	-	expression tag	UNP Q8XLE8
E	-6	ILE	-	expression tag	UNP Q8XLE8
E	-5	ASP	-	expression tag	UNP Q8XLE8
E	-4	ASP	-	expression tag	UNP Q8XLE8
E	-3	ASP	-	expression tag	UNP Q8XLE8
E	-2	ASP	-	expression tag	UNP Q8XLE8
E	-1	LYS	-	expression tag	UNP Q8XLE8
E	0	HIS	-	expression tag	UNP Q8XLE8
F	-22	MET	-	expression tag	UNP Q8XLE8
F	-21	GLY	-	expression tag	UNP Q8XLE8
F	-20	HIS	-	expression tag	UNP Q8XLE8
F	-19	HIS	-	expression tag	UNP Q8XLE8
F	-18	HIS	-	expression tag	UNP Q8XLE8
F	-17	HIS	-	expression tag	UNP Q8XLE8
F	-16	HIS	-	expression tag	UNP Q8XLE8
F	-15	HIS	-	expression tag	UNP Q8XLE8
F	-14	HIS	-	expression tag	UNP Q8XLE8
F	-13	HIS	-	expression tag	UNP Q8XLE8
F	-12	HIS	-	expression tag	UNP Q8XLE8
F	-11	HIS	-	expression tag	UNP Q8XLE8
F	-10	SER	-	expression tag	UNP Q8XLE8
F	-9	SER	-	expression tag	UNP Q8XLE8
F	-8	GLY	-	expression tag	UNP Q8XLE8
F	-7	HIS	-	expression tag	UNP Q8XLE8
F	-6	ILE	-	expression tag	UNP Q8XLE8
F	-5	ASP	-	expression tag	UNP Q8XLE8
F	-4	ASP	-	expression tag	UNP Q8XLE8
F	-3	ASP	-	expression tag	UNP Q8XLE8
F	-2	ASP	-	expression tag	UNP Q8XLE8
F	-1	LYS	-	expression tag	UNP Q8XLE8
F	0	HIS	-	expression tag	UNP Q8XLE8
G	-22	MET	-	expression tag	UNP Q8XLE8

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-21	GLY	-	expression tag	UNP Q8XLE8
G	-20	HIS	-	expression tag	UNP Q8XLE8
G	-19	HIS	-	expression tag	UNP Q8XLE8
G	-18	HIS	-	expression tag	UNP Q8XLE8
G	-17	HIS	-	expression tag	UNP Q8XLE8
G	-16	HIS	-	expression tag	UNP Q8XLE8
G	-15	HIS	-	expression tag	UNP Q8XLE8
G	-14	HIS	-	expression tag	UNP Q8XLE8
G	-13	HIS	-	expression tag	UNP Q8XLE8
G	-12	HIS	-	expression tag	UNP Q8XLE8
G	-11	HIS	-	expression tag	UNP Q8XLE8
G	-10	SER	-	expression tag	UNP Q8XLE8
G	-9	SER	-	expression tag	UNP Q8XLE8
G	-8	GLY	-	expression tag	UNP Q8XLE8
G	-7	HIS	-	expression tag	UNP Q8XLE8
G	-6	ILE	-	expression tag	UNP Q8XLE8
G	-5	ASP	-	expression tag	UNP Q8XLE8
G	-4	ASP	-	expression tag	UNP Q8XLE8
G	-3	ASP	-	expression tag	UNP Q8XLE8
G	-2	ASP	-	expression tag	UNP Q8XLE8
G	-1	LYS	-	expression tag	UNP Q8XLE8
G	0	HIS	-	expression tag	UNP Q8XLE8
H	-22	MET	-	expression tag	UNP Q8XLE8
H	-21	GLY	-	expression tag	UNP Q8XLE8
H	-20	HIS	-	expression tag	UNP Q8XLE8
H	-19	HIS	-	expression tag	UNP Q8XLE8
H	-18	HIS	-	expression tag	UNP Q8XLE8
H	-17	HIS	-	expression tag	UNP Q8XLE8
H	-16	HIS	-	expression tag	UNP Q8XLE8
H	-15	HIS	-	expression tag	UNP Q8XLE8
H	-14	HIS	-	expression tag	UNP Q8XLE8
H	-13	HIS	-	expression tag	UNP Q8XLE8
H	-12	HIS	-	expression tag	UNP Q8XLE8
H	-11	HIS	-	expression tag	UNP Q8XLE8
H	-10	SER	-	expression tag	UNP Q8XLE8
H	-9	SER	-	expression tag	UNP Q8XLE8
H	-8	GLY	-	expression tag	UNP Q8XLE8
H	-7	HIS	-	expression tag	UNP Q8XLE8
H	-6	ILE	-	expression tag	UNP Q8XLE8
H	-5	ASP	-	expression tag	UNP Q8XLE8
H	-4	ASP	-	expression tag	UNP Q8XLE8
H	-3	ASP	-	expression tag	UNP Q8XLE8

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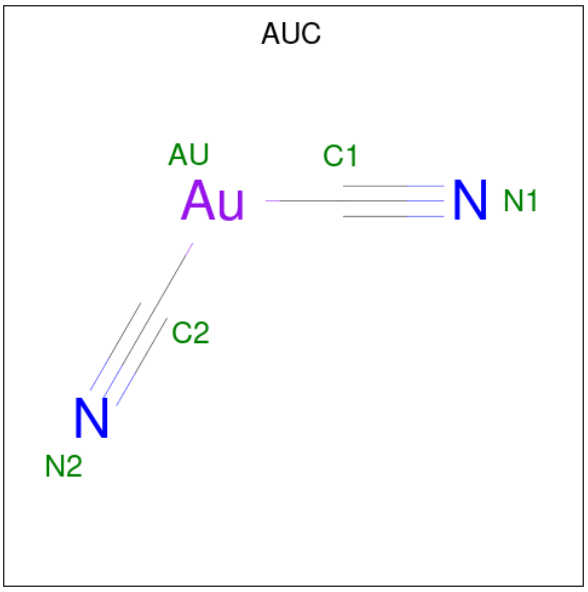
Chain	Residue	Modelled	Actual	Comment	Reference
H	-2	ASP	-	expression tag	UNP Q8XLE8
H	-1	LYS	-	expression tag	UNP Q8XLE8
H	0	HIS	-	expression tag	UNP Q8XLE8

- Molecule 2 is GOLD (I) CYANIDE ION (three-letter code: AUC) (formula: C_2AuN_2).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Au C N 5 1 2 2	0	0
2	A	1	Total Au 1 1	0	0
2	A	1	Total Au 1 1	0	0
2	A	1	Total Au C N 5 1 2 2	0	0
2	B	1	Total Au 1 1	0	0
2	B	1	Total Au 1 1	0	0
2	B	1	Total Au C N 5 1 2 2	0	0
2	B	1	Total Au 1 1	0	0
2	B	1	Total Au 1 1	0	0
2	B	1	Total Au 1 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	C	1	Total Au 1 1	0	0
2	C	1	Total Au 1 1	0	0
2	C	1	Total Au C N 5 1 2 2	0	0
2	C	1	Total Au 1 1	0	0
2	C	1	Total Au 1 1	0	0
2	D	1	Total Au C N 5 1 2 2	0	0
2	D	1	Total Au 1 1	0	0
2	D	1	Total Au 1 1	0	0
2	D	1	Total Au 1 1	0	0
2	E	1	Total Au 1 1	0	0
2	E	1	Total Au C N 5 1 2 2	0	0
2	E	1	Total Au 1 1	0	0
2	E	1	Total Au 1 1	0	0
2	F	1	Total Au 1 1	0	0
2	F	1	Total Au 1 1	0	0
2	F	1	Total Au C N 5 1 2 2	0	0
2	F	1	Total Au 1 1	0	0
2	F	1	Total Au 1 1	0	0
2	F	1	Total Au 1 1	0	0
2	G	1	Total Au C N 5 1 2 2	0	0
2	G	1	Total Au 1 1	0	0

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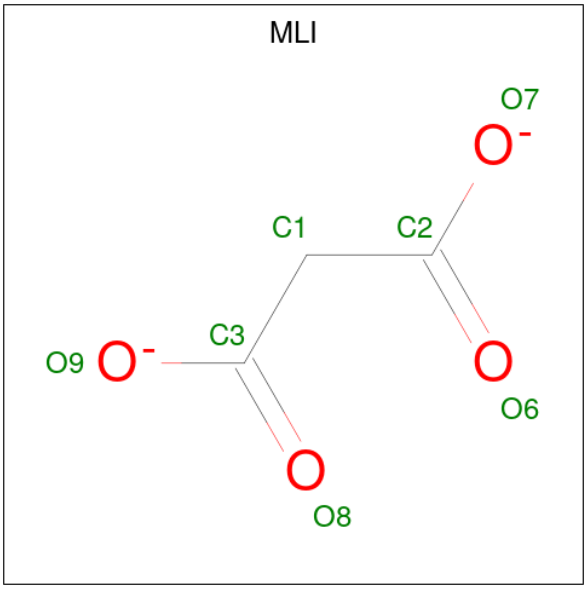
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	G	1	Total Au 1 1	0	0
2	H	1	Total Au C N 5 1 2 2	0	0
2	H	1	Total Au 1 1	0	0
2	H	1	Total Au 1 1	0	0
2	H	1	Total Au 1 1	0	0

- Molecule 3 is MALONATE ION (three-letter code: MLI) (formula: $C_3H_2O_4$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 7 3 4	0	0
3	C	1	Total C O 7 3 4	0	0
3	D	1	Total C O 7 3 4	0	0
3	E	1	Total C O 7 3 4	0	0
3	H	1	Total C O 7 3 4	0	0

- Molecule 4 is water.

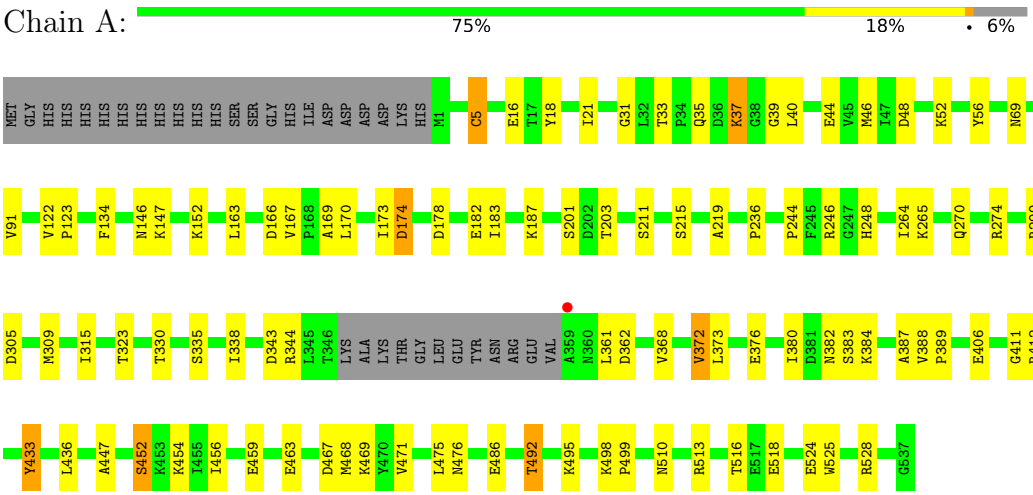
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	34	Total O 34 34	0	0
4	B	26	Total O 26 26	0	0
4	C	23	Total O 23 23	0	0
4	D	22	Total O 22 22	0	0
4	E	26	Total O 26 26	0	0
4	F	21	Total O 21 21	0	0
4	G	19	Total O 19 19	0	0
4	H	29	Total O 29 29	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

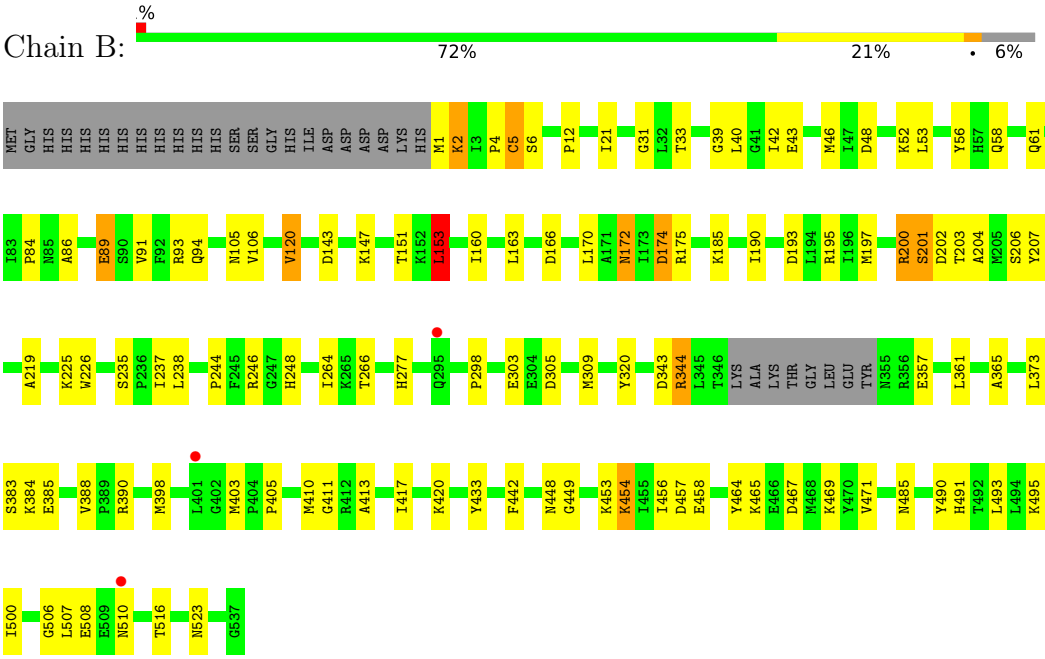
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain A:



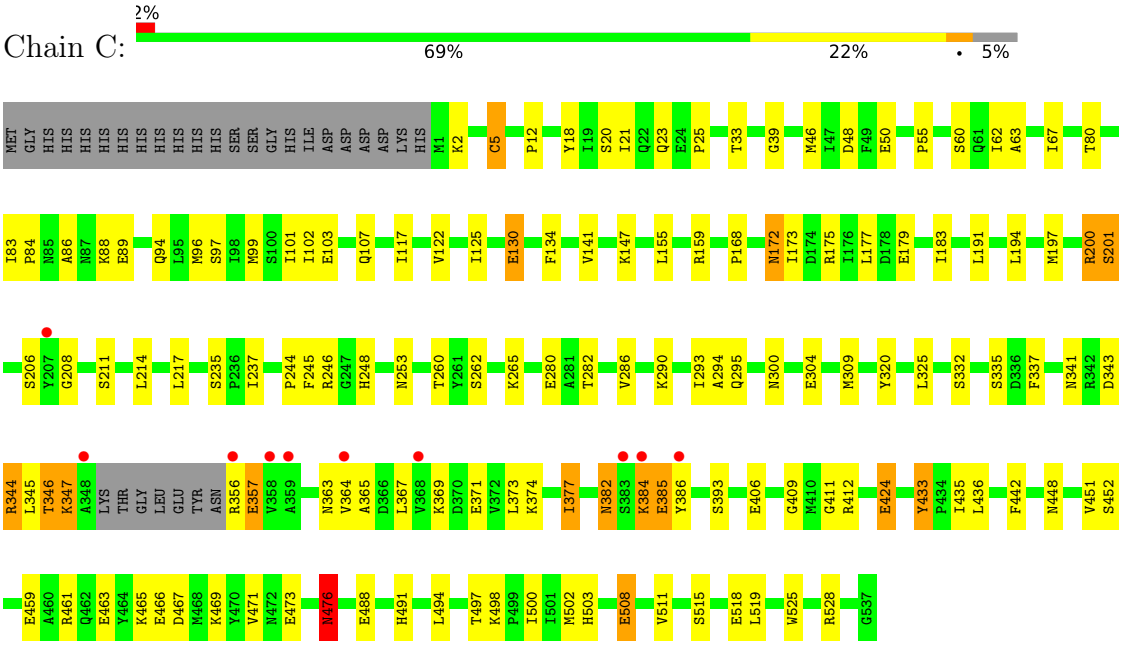
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain B:



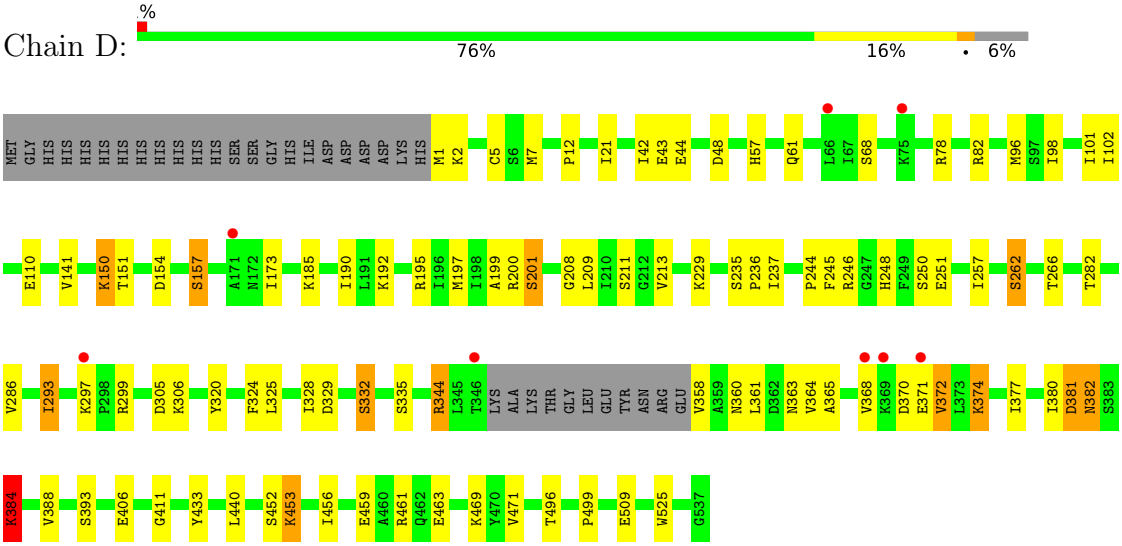
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain C:



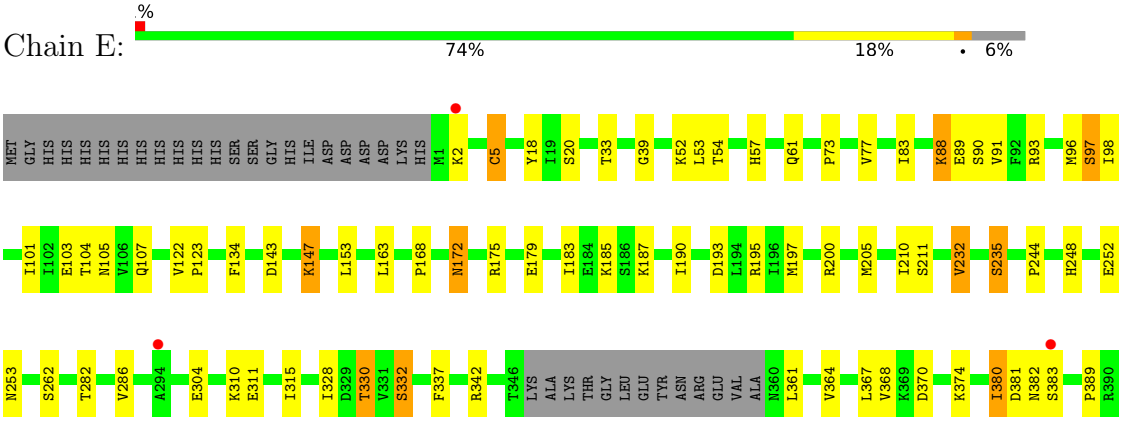
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain D:



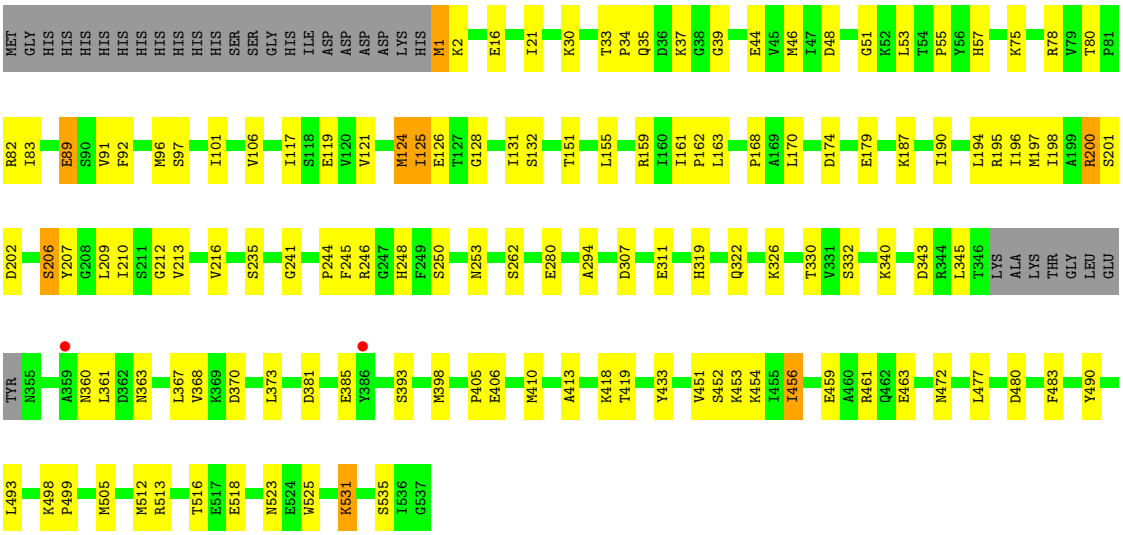
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain E:



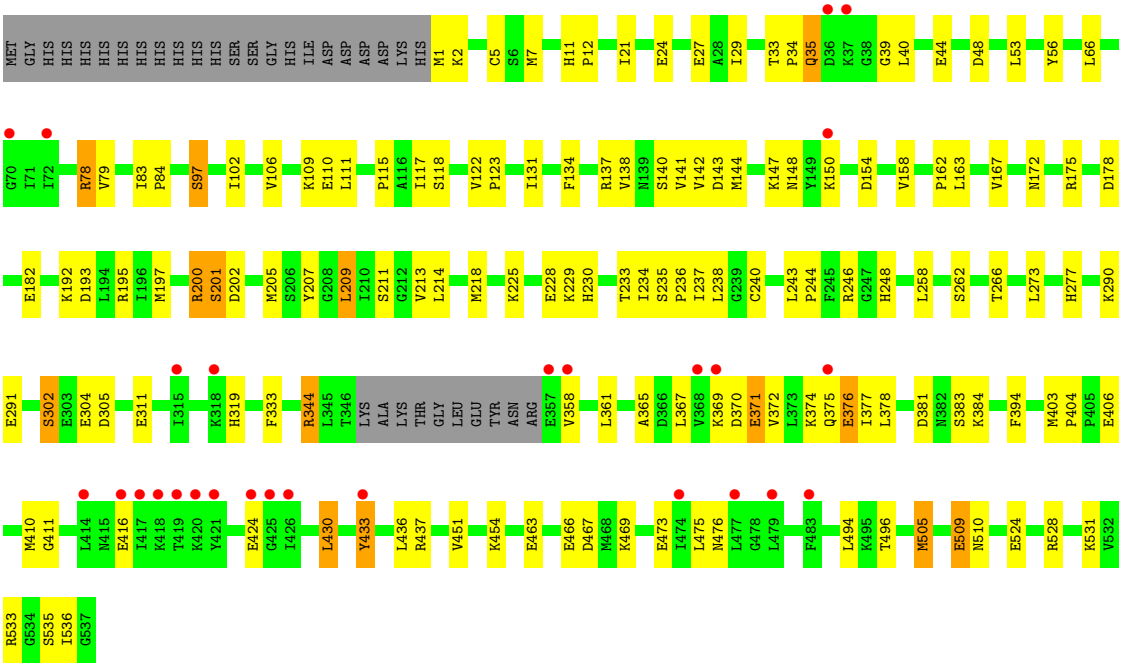
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain F:



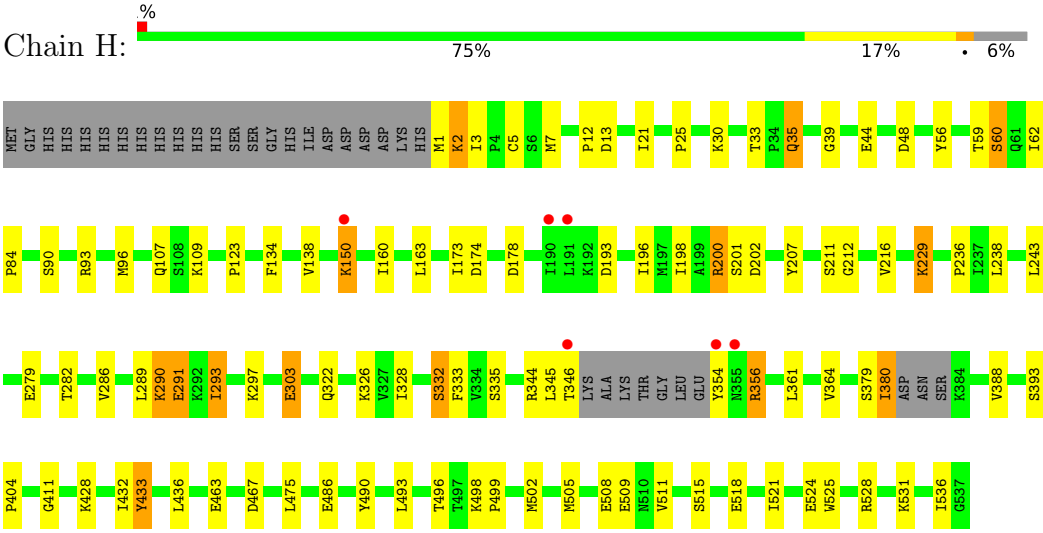
• Molecule 1: Phosphoenolpyruvate carboxylase

Chain G:



• Molecule 1: Phosphoenolpyruvate carboxylase

Chain H:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	121.42Å 161.58Å 279.98Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	56.84 – 2.95 56.83 – 2.95	Depositor EDS
% Data completeness (in resolution range)	100.0 (56.84-2.95) 99.9 (56.83-2.95)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.16 (at 2.96Å)	Xtriage
Refinement program	REFMAC 5.5.0110	Depositor
R, R_{free}	0.178 , 0.223 0.177 , 0.213	Depositor DCC
R_{free} test set	1135 reflections (0.98%)	wwPDB-VP
Wilson B-factor (Å^2)	67.1	Xtriage
Anisotropy	0.264	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 49.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	33563	wwPDB-VP
Average B, all atoms (Å^2)	66.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.28% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: AUC, MLI

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.61	0/4214	0.70	0/5678
1	B	0.55	0/4237	0.66	1/5711 (0.0%)
1	C	0.59	0/4239	0.67	1/5712 (0.0%)
1	D	0.60	0/4221	0.67	0/5688
1	E	0.60	0/4205	0.68	0/5667
1	F	0.53	0/4228	0.62	0/5700
1	G	0.55	0/4224	0.67	0/5692
1	H	0.57	0/4232	0.68	1/5702 (0.0%)
All	All	0.58	0/33800	0.67	3/45550 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	99	MET	CG-SD-CE	-5.29	91.73	100.20
1	B	153	LEU	CA-CB-CG	5.15	127.14	115.30
1	H	361	LEU	CA-CB-CG	5.10	127.02	115.30

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	4146	0	4209	55	0
1	B	4169	0	4212	69	0
1	C	4171	0	4224	86	0
1	D	4153	0	4218	69	0
1	E	4137	0	4193	64	0
1	F	4160	0	4198	65	0
1	G	4156	0	4213	79	0
1	H	4164	0	4221	61	0
2	A	12	0	0	6	0
2	B	10	0	0	6	0
2	C	9	0	0	4	0
2	D	8	0	0	4	0
2	E	8	0	0	4	0
2	F	10	0	0	4	0
2	G	7	0	0	5	0
2	H	8	0	0	5	0
3	A	7	0	2	0	0
3	C	7	0	2	0	0
3	D	7	0	2	1	0
3	E	7	0	2	0	0
3	H	7	0	2	0	0
4	A	34	0	0	1	0
4	B	26	0	0	1	0
4	C	23	0	0	2	0
4	D	22	0	0	0	0
4	E	26	0	0	2	0
4	F	21	0	0	0	0
4	G	19	0	0	0	0
4	H	29	0	0	0	0
All	All	33563	0	33698	545	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 8.

All (545) 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:5:CYS:SG	2:E:605:AUC:AU	1.32	1.56
1:A:5:CYS:SG	2:A:608:AUC:AU	1.54	1.34
1:B:5:CYS:SG	2:B:609:AUC:AU	1.56	1.34
1:C:5:CYS:SG	2:C:601:AUC:AU	1.65	1.24
1:D:5:CYS:SG	2:D:604:AUC:AU	1.64	1.24

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:606:AUC:C1	2:E:606:AUC:AU	1.79	1.01
2:A:607:AUC:AU	2:A:607:AUC:C2	1.80	1.00
2:A:631:AUC:C2	2:A:631:AUC:AU	1.80	1.00
2:C:602:AUC:AU	2:C:602:AUC:C1	1.80	1.00
2:H:611:AUC:AU	2:H:611:AUC:C2	1.80	0.99
2:C:602:AUC:AU	2:C:602:AUC:C2	1.80	0.99
2:F:614:AUC:AU	2:F:614:AUC:C2	1.81	0.99
2:A:607:AUC:AU	2:A:607:AUC:C1	1.81	0.99
2:E:606:AUC:AU	2:E:606:AUC:C2	1.81	0.99
2:G:615:AUC:AU	2:G:615:AUC:C2	1.80	0.99
2:D:603:AUC:AU	2:D:603:AUC:C2	1.80	0.99
2:D:603:AUC:AU	2:D:603:AUC:C1	1.79	0.98
2:B:610:AUC:AU	2:B:610:AUC:C2	1.80	0.98
2:A:631:AUC:AU	2:A:631:AUC:C1	1.80	0.98
2:F:614:AUC:AU	2:F:614:AUC:C1	1.81	0.98
2:H:611:AUC:AU	2:H:611:AUC:C1	1.81	0.98
1:B:163:LEU:HD13	1:B:197:MET:HG2	1.46	0.97
2:G:615:AUC:AU	2:G:615:AUC:C1	1.82	0.97
2:B:610:AUC:AU	2:B:610:AUC:C1	1.81	0.97
1:E:185:LYS:HG3	1:E:190:ILE:HD13	1.49	0.95
1:D:380:ILE:HG23	1:D:381:ASP:H	1.34	0.93
1:B:5:CYS:HG	2:B:609:AUC:AU	1.08	0.92
1:C:5:CYS:HG	2:C:601:AUC:AU	1.06	0.89
1:F:21:ILE:HD11	1:G:21:ILE:HD11	1.54	0.88
1:D:365:ALA:HB2	1:D:377:ILE:HG21	1.54	0.88
1:B:344:ARG:HH12	2:B:610:AUC:C2	1.91	0.84
1:C:244:PRO:HA	1:C:248:HIS:HB2	1.58	0.84
1:G:48:ASP:HB2	2:G:615:AUC:N2	1.94	0.83
1:E:5:CYS:HG	2:E:605:AUC:AU	0.88	0.82
1:D:192:LYS:HA	1:D:192:LYS:HE2	1.62	0.82
1:E:210:ILE:HD12	1:E:410:MET:SD	2.20	0.82
1:D:380:ILE:CG2	1:D:381:ASP:H	1.95	0.80
1:D:380:ILE:HG23	1:D:381:ASP:N	1.97	0.79
1:C:179:GLU:O	1:C:183:ILE:HG13	1.81	0.79
1:D:154:ASP:O	1:D:157:SER:HB3	1.81	0.78
1:C:21:ILE:HD11	1:D:21:ILE:HD11	1.66	0.78
1:H:279:GLU:OE1	2:H:617:AUC:AU	1.71	0.77
1:E:185:LYS:HG3	1:E:190:ILE:CD1	2.15	0.76
1:E:483:PHE:CZ	1:F:190:ILE:HG12	2.20	0.76
1:D:197:MET:HG3	1:D:237:ILE:HB	1.67	0.76
1:H:496:THR:O	1:H:499:PRO:HD2	1.86	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:525:TRP:HZ2	1:E:525:TRP:CZ2	2.05	0.75
1:D:525:TRP:CZ2	1:E:525:TRP:HZ2	2.06	0.72
1:C:18:TYR:OH	1:C:343:ASP:OD2	2.05	0.72
1:C:384:LYS:HD3	1:C:385:GLU:H	1.54	0.72
1:D:365:ALA:HB2	1:D:377:ILE:CG2	2.20	0.71
1:G:243:LEU:HG	1:G:535:SER:HB2	1.71	0.71
1:D:5:CYS:HG	2:D:604:AUC:AU	0.67	0.71
1:H:60:SER:HB2	1:H:107:GLN:HE22	1.56	0.71
1:C:18:TYR:HA	1:C:341:ASN:HB3	1.72	0.70
1:H:150:LYS:H	1:H:150:LYS:HD2	1.54	0.70
1:D:282:THR:O	1:D:286:VAL:HG23	1.92	0.69
1:G:430:LEU:HD21	1:G:437:ARG:HG3	1.75	0.69
1:H:7:MET:HG3	1:H:44:GLU:HG2	1.74	0.68
1:F:168:PRO:HG3	1:F:363:ASN:HB2	1.76	0.67
1:E:163:LEU:HD13	1:E:197:MET:HG2	1.77	0.66
1:G:333:PHE:CE2	1:G:505:MET:HG3	2.31	0.66
1:B:413:ALA:O	1:B:417:ILE:HD12	1.96	0.66
1:F:453:LYS:HE2	1:F:461:ARG:NH2	2.11	0.66
1:E:57:HIS:O	1:E:61:GLN:HG3	1.95	0.66
1:B:411:GLY:HA3	1:B:467:ASP:HA	1.78	0.65
1:G:12:PRO:HG3	1:G:344:ARG:HD2	1.76	0.65
1:C:103:GLU:O	1:C:107:GLN:HG3	1.97	0.65
1:H:428:LYS:O	1:H:432:ILE:HG13	1.97	0.65
1:D:368:VAL:HG23	1:D:374:LYS:HD2	1.78	0.64
1:G:244:PRO:HA	1:G:248:HIS:HB2	1.78	0.64
1:H:433:TYR:CE2	1:H:436:LEU:HD13	2.33	0.64
1:D:209:LEU:O	1:D:213:VAL:HG23	1.97	0.64
1:D:262:SER:HB3	1:D:299:ARG:HG3	1.80	0.63
1:G:5:CYS:SG	1:G:290:LYS:HA	2.38	0.63
1:A:372:VAL:O	1:A:376:GLU:HG2	1.99	0.63
1:D:380:ILE:O	1:D:381:ASP:HB2	1.98	0.63
1:D:237:ILE:HG23	1:D:266:THR:HB	1.80	0.63
1:B:453:LYS:O	1:B:454:LYS:HB2	1.97	0.63
1:B:185:LYS:HG3	1:B:190:ILE:HG12	1.82	0.62
1:G:48:ASP:HB2	2:G:615:AUC:C2	2.28	0.62
1:H:198:ILE:HG21	1:H:216:VAL:HG13	1.82	0.62
1:G:118:SER:O	1:G:158:VAL:HA	1.99	0.62
1:H:150:LYS:H	1:H:150:LYS:CD	2.12	0.62
1:C:433:TYR:HE1	1:C:435:ILE:HG22	1.64	0.62
1:E:483:PHE:HZ	1:F:190:ILE:HG12	1.65	0.62
1:H:33:THR:O	1:H:39:GLY:HA3	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:48:ASP:OD1	1:B:82:ARG:HD3	2.00	0.61
1:F:498:LYS:HB3	1:F:499:PRO:HD3	1.82	0.61
1:G:411:GLY:HA3	1:G:467:ASP:HA	1.82	0.61
1:H:379:SER:C	1:H:380:ILE:HG12	2.20	0.61
1:F:128:GLY:HA3	1:F:179:GLU:HB3	1.82	0.61
1:H:490:TYR:HA	1:H:493:LEU:HD12	1.82	0.61
1:B:174:ASP:HB2	1:B:226:TRP:HB2	1.81	0.61
1:H:282:THR:O	1:H:286:VAL:HG23	2.01	0.61
1:A:123:PRO:HA	1:A:163:LEU:HB3	1.82	0.61
1:A:492:THR:HG21	1:C:503:HIS:HB2	1.83	0.61
1:G:109:LYS:HG3	1:G:115:PRO:HD3	1.82	0.61
1:B:170:LEU:HB3	1:B:219:ALA:HB2	1.82	0.61
1:C:101:ILE:HG23	1:C:117:ILE:HD13	1.82	0.61
1:B:244:PRO:HA	1:B:248:HIS:HB2	1.82	0.61
1:E:193:ASP:HA	1:E:232:VAL:HG23	1.83	0.61
1:G:197:MET:HG3	1:G:237:ILE:HB	1.82	0.61
1:C:48:ASP:OD1	1:C:50:GLU:N	2.31	0.60
1:C:335:SER:HB2	1:C:393:SER:HB3	1.82	0.60
1:F:168:PRO:CG	1:F:363:ASN:HB2	2.30	0.60
1:A:5:CYS:HG	2:A:608:AUC:AU	0.56	0.60
1:C:21:ILE:HD11	1:D:21:ILE:CD1	2.31	0.60
1:G:83:ILE:HG22	1:G:97:SER:HB2	1.82	0.60
1:G:134:PHE:O	1:G:138:VAL:HG23	2.00	0.60
1:H:243:LEU:HD13	1:H:399:TYR:CE2	2.36	0.60
1:H:498:LYS:HB3	1:H:499:PRO:HD3	1.82	0.60
1:G:371:GLU:O	1:G:375:GLN:HG2	2.01	0.60
1:D:98:ILE:HG22	1:D:141:VAL:HG11	1.83	0.59
1:G:172:ASN:HB3	1:G:175:ARG:HE	1.66	0.59
1:C:451:VAL:O	1:C:498:LYS:HD2	2.01	0.59
1:D:380:ILE:CG2	1:D:381:ASP:N	2.61	0.59
1:F:170:LEU:HD21	1:F:198:ILE:HG23	1.84	0.59
1:D:496:THR:O	1:D:499:PRO:HD2	2.03	0.59
1:G:372:VAL:O	1:G:376:GLU:HG2	2.02	0.59
1:C:217:LEU:HD21	1:C:260:THR:O	2.03	0.58
1:G:172:ASN:CB	1:G:175:ARG:HE	2.14	0.58
1:E:104:THR:HA	1:E:107:GLN:HE21	1.68	0.58
1:C:201:SER:HB3	1:C:246:ARG:HD2	1.85	0.58
1:G:209:LEU:HB3	1:G:410:MET:HG3	1.85	0.58
1:C:488:GLU:HG3	4:C:714:HOH:O	2.02	0.58
1:A:513:ARG:HG2	1:A:513:ARG:HH11	1.69	0.58
1:B:467:ASP:O	1:B:471:VAL:HG23	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:86:ALA:HB2	1:C:94:GLN:OE1	2.03	0.58
1:C:168:PRO:HG3	1:C:363:ASN:HB2	1.86	0.58
1:E:498:LYS:HB3	1:E:499:PRO:HD3	1.86	0.58
1:D:199:ALA:HB1	3:D:901:MLI:O7	2.05	0.57
1:A:31:GLY:HA2	1:A:40:LEU:HD12	1.86	0.57
1:D:411:GLY:CA	1:D:471:VAL:HG23	2.35	0.57
1:C:356:ARG:O	1:C:357:GLU:HB2	2.04	0.57
1:H:48:ASP:HB2	2:H:611:AUC:C2	2.35	0.57
1:F:370:ASP:HB3	1:F:373:LEU:HD23	1.87	0.56
1:H:48:ASP:HB2	2:H:611:AUC:N2	2.20	0.56
1:D:459:GLU:O	1:D:463:GLU:HG3	2.04	0.56
1:G:370:ASP:OD1	1:G:372:VAL:HG12	2.05	0.56
1:C:476:ASN:HD22	1:C:476:ASN:H	1.53	0.56
1:D:325:LEU:HD22	1:D:384:LYS:HE3	1.86	0.56
1:F:472:ASN:HA	1:F:477:LEU:HD12	1.88	0.56
1:F:163:LEU:HD13	1:F:197:MET:HG2	1.86	0.56
1:F:406:GLU:O	1:F:410:MET:HG3	2.05	0.56
1:A:524:GLU:O	1:A:528:ARG:HG3	2.06	0.56
1:F:21:ILE:HD11	1:G:21:ILE:CD1	2.30	0.56
1:F:212:GLY:O	1:F:216:VAL:HG23	2.04	0.56
1:H:379:SER:O	1:H:380:ILE:HG12	2.06	0.56
1:F:92:PHE:HB3	1:G:56:TYR:OH	2.06	0.56
1:H:333:PHE:CE2	1:H:505:MET:HG2	2.39	0.56
1:A:459:GLU:O	1:A:463:GLU:HG3	2.05	0.55
1:A:52:LYS:HD3	4:A:762:HOH:O	2.06	0.55
1:C:21:ILE:HD12	1:C:55:PRO:HD3	1.89	0.55
1:F:459:GLU:O	1:F:463:GLU:HG3	2.05	0.55
1:E:90:SER:OG	1:E:93:ARG:HD2	2.07	0.55
1:F:360:ASN:HB3	1:F:363:ASN:HD21	1.72	0.55
1:A:167:VAL:HG13	1:A:215:SER:HB3	1.88	0.55
1:A:305:ASP:O	1:A:309:MET:HG3	2.06	0.55
1:D:5:CYS:SG	1:D:293:ILE:HG21	2.47	0.55
1:B:238:LEU:HB2	1:B:264:ILE:HD12	1.89	0.55
1:B:485:ASN:OD1	1:B:495:LYS:HE3	2.07	0.55
1:H:134:PHE:O	1:H:138:VAL:HG23	2.06	0.55
1:E:98:ILE:HA	1:E:101:ILE:HD12	1.87	0.55
1:A:35:GLN:HA	1:A:39:GLY:O	2.07	0.55
1:C:433:TYR:CE2	1:C:436:LEU:HD13	2.43	0.54
1:G:44:GLU:HG3	1:G:78:ARG:HB3	1.88	0.54
1:G:195:ARG:HG3	1:G:235:SER:HB3	1.89	0.54
1:G:244:PRO:HB2	1:G:406:GLU:HG2	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:273:LEU:O	1:G:277:HIS:HB2	2.07	0.54
1:A:244:PRO:HB2	1:A:406:GLU:HG2	1.90	0.54
1:D:12:PRO:HG3	1:D:344:ARG:HD2	1.89	0.54
1:E:18:TYR:HE2	1:E:20:SER:HB3	1.73	0.54
1:H:333:PHE:CE2	1:H:505:MET:CG	2.91	0.54
1:F:162:PRO:HG2	1:F:196:ILE:HG22	1.89	0.54
1:B:172:ASN:HB2	1:B:175:ARG:HG3	1.89	0.54
1:C:433:TYR:CE1	1:C:435:ILE:HG22	2.41	0.54
1:D:102:ILE:HG13	1:D:141:VAL:HG12	1.90	0.54
1:H:515:SER:HB3	1:H:518:GLU:HB2	1.89	0.54
1:C:433:TYR:HE1	1:C:435:ILE:CG2	2.21	0.53
1:C:345:LEU:HD21	1:D:57:HIS:CD2	2.42	0.53
1:G:29:ILE:HG23	1:G:66:LEU:HD23	1.90	0.53
1:E:524:GLU:OE2	1:E:528:ARG:NH2	2.42	0.53
1:B:496:THR:HG22	1:G:496:THR:O	2.08	0.53
1:D:208:GLY:HA2	1:D:320:TYR:CD1	2.44	0.53
1:A:46:MET:HA	1:A:80:THR:O	2.08	0.52
1:B:6:SER:HB2	1:B:42:ILE:HG23	1.91	0.52
1:G:533:ARG:NH2	1:G:536:ILE:O	2.34	0.52
1:D:411:GLY:HA2	1:D:471:VAL:HG23	1.91	0.52
1:F:319:HIS:CD2	1:F:413:ALA:HA	2.45	0.52
1:H:335:SER:HB2	1:H:393:SER:HB3	1.91	0.52
1:D:525:TRP:CZ2	1:E:525:TRP:CZ2	2.87	0.52
1:F:490:TYR:O	1:F:493:LEU:HB2	2.09	0.52
1:A:411:GLY:HA2	1:A:471:VAL:HG23	1.92	0.52
1:B:53:LEU:HG	1:B:53:LEU:O	2.09	0.52
1:D:42:ILE:HG22	1:D:43:GLU:N	2.25	0.52
1:E:330:THR:HG22	1:E:505:MET:CE	2.39	0.52
1:G:524:GLU:OE1	1:G:528:ARG:NH2	2.43	0.52
1:A:44:GLU:OE2	1:A:80:THR:OG1	2.26	0.52
1:A:387:ALA:O	1:A:389:PRO:HD3	2.10	0.52
1:B:206:SER:HB2	1:B:207:TYR:CD2	2.45	0.52
1:C:345:LEU:O	1:C:347:LYS:HG2	2.10	0.52
1:D:185:LYS:HG3	1:D:190:ILE:HG22	1.90	0.52
1:D:201:SER:HB3	1:D:246:ARG:HD2	1.92	0.52
1:G:437:ARG:NH2	1:G:475:LEU:O	2.42	0.52
1:E:328:ILE:O	1:E:332:SER:HB2	2.10	0.51
1:G:1:MET:HG2	1:G:2:LYS:N	2.25	0.51
1:B:31:GLY:HA2	1:B:40:LEU:HG	1.92	0.51
1:C:63:ALA:O	1:C:67:ILE:HG13	2.10	0.51
1:C:451:VAL:HG11	1:C:494:LEU:HB3	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:335:SER:HB2	1:D:393:SER:HB3	1.91	0.51
1:D:370:ASP:OD1	1:D:372:VAL:HG12	2.11	0.51
1:F:163:LEU:HA	1:F:197:MET:O	2.09	0.51
1:G:144:MET:O	1:G:148:ASN:ND2	2.44	0.51
1:C:244:PRO:HB2	1:C:406:GLU:HG2	1.92	0.51
1:G:172:ASN:HD21	1:G:367:LEU:HD21	1.75	0.51
1:F:244:PRO:HA	1:F:248:HIS:HB2	1.91	0.51
1:F:518:GLU:N	1:F:518:GLU:OE1	2.43	0.51
1:F:48:ASP:HB2	2:F:614:AUC:N1	2.26	0.51
1:F:159:ARG:HH22	1:F:194:LEU:HD13	1.76	0.51
1:G:311:GLU:OE2	1:G:369:LYS:HE2	2.11	0.51
1:H:212:GLY:O	1:H:216:VAL:HG23	2.10	0.51
1:B:46:MET:HA	1:B:80:THR:O	2.11	0.51
1:E:88:LYS:HE3	1:E:88:LYS:HA	1.91	0.51
1:C:461:ARG:O	1:C:465:LYS:HG3	2.11	0.51
1:F:51:GLY:O	1:F:345:LEU:N	2.44	0.51
1:B:143:ASP:O	1:B:147:LYS:HG2	2.11	0.51
1:H:303:GLU:OE1	1:H:303:GLU:HA	2.09	0.51
1:E:143:ASP:O	1:E:147:LYS:HE3	2.10	0.50
1:F:210:ILE:HG13	1:F:410:MET:SD	2.51	0.50
1:G:433:TYR:CE2	1:G:436:LEU:HD13	2.47	0.50
1:B:210:ILE:HD12	1:B:410:MET:SD	2.51	0.50
1:B:496:THR:O	1:G:496:THR:HG22	2.12	0.50
1:C:473:GLU:O	1:C:476:ASN:ND2	2.44	0.50
1:E:508:GLU:HB3	1:E:511:VAL:HG23	1.92	0.50
1:E:244:PRO:HB2	1:E:406:GLU:HG2	1.93	0.50
1:F:16:GLU:OE2	1:F:531:LYS:HE2	2.11	0.50
1:C:411:GLY:HA3	1:C:467:ASP:HA	1.91	0.50
1:B:105:ASN:HB3	1:B:153:LEU:CD2	2.41	0.50
1:G:200:ARG:HG2	1:G:238:LEU:HD11	1.94	0.50
1:D:360:ASN:HB3	1:D:363:ASN:OD1	2.11	0.50
1:G:451:VAL:HG11	1:G:494:LEU:HB3	1.93	0.50
1:B:48:ASP:HB2	2:B:610:AUC:N1	2.27	0.49
1:B:448:ASN:HD22	1:B:491:HIS:HD2	1.60	0.49
1:H:356:ARG:HB3	1:H:388:VAL:HG13	1.93	0.49
1:D:110:GLU:HG2	1:D:151:THR:OG1	2.12	0.49
1:F:209:LEU:O	1:F:213:VAL:HG23	2.12	0.49
1:H:174:ASP:O	1:H:178:ASP:HB2	2.12	0.49
1:B:4:PRO:HB3	1:B:43:GLU:HB2	1.93	0.49
1:C:448:ASN:ND2	1:C:491:HIS:ND1	2.53	0.49
1:C:345:LEU:O	1:C:346:THR:C	2.50	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:382:ASN:N	1:C:382:ASN:HD22	2.08	0.49
1:G:140:SER:O	1:G:143:ASP:HB2	2.13	0.49
1:E:205:MET:HG3	1:E:394:PHE:CD2	2.47	0.49
1:B:33:THR:HB	1:B:39:GLY:HA3	1.94	0.49
1:F:244:PRO:HB2	1:F:406:GLU:HG2	1.95	0.49
1:H:433:TYR:CD1	1:H:436:LEU:HB2	2.48	0.49
1:B:448:ASN:HD22	1:B:491:HIS:CD2	2.31	0.49
1:D:185:LYS:HG3	1:D:190:ILE:CG2	2.43	0.49
1:G:1:MET:HG2	1:G:2:LYS:H	1.77	0.49
1:G:205:MET:HG3	1:G:394:PHE:CD2	2.48	0.49
1:H:123:PRO:HA	1:H:163:LEU:HB3	1.95	0.49
1:E:195:ARG:HG3	1:E:235:SER:HB3	1.95	0.49
1:H:236:PRO:HB2	1:H:264:ILE:HD13	1.94	0.49
1:A:411:GLY:HA3	1:A:467:ASP:HA	1.95	0.48
1:C:476:ASN:HD22	1:C:476:ASN:N	2.10	0.48
1:B:456:ILE:HG22	1:B:457:ASP:O	2.12	0.48
1:C:214:LEU:HD22	1:C:309:MET:HG2	1.95	0.48
1:E:337:PHE:CE1	1:E:519:LEU:HD22	2.48	0.48
1:A:173:ILE:HG13	1:A:173:ILE:O	2.13	0.48
1:B:303:GLU:HA	1:B:303:GLU:OE1	2.13	0.48
1:E:123:PRO:HA	1:E:163:LEU:HB3	1.94	0.48
1:F:1:MET:HG3	1:F:75:LYS:O	2.13	0.48
1:F:453:LYS:HE2	1:F:461:ARG:HH22	1.77	0.48
1:G:225:LYS:O	1:G:228:GLU:HB2	2.13	0.48
1:E:524:GLU:O	1:E:528:ARG:HG3	2.14	0.48
1:H:200:ARG:HG2	1:H:238:LEU:HD11	1.96	0.48
1:A:122:VAL:HG11	1:A:134:PHE:CD2	2.49	0.48
1:C:244:PRO:HA	1:C:248:HIS:CB	2.36	0.48
1:E:244:PRO:HA	1:E:248:HIS:HB2	1.95	0.48
1:G:106:VAL:O	1:G:110:GLU:HG3	2.13	0.48
1:C:96:MET:HG2	1:D:96:MET:HG2	1.95	0.48
1:E:83:ILE:HG22	1:E:97:SER:HB2	1.96	0.48
1:G:234:ILE:HG22	1:G:236:PRO:HD3	1.96	0.48
1:A:33:THR:HG22	1:A:37:LYS:HB3	1.96	0.48
1:A:498:LYS:HB3	1:A:499:PRO:HD3	1.95	0.48
1:A:166:ASP:HB3	1:A:169:ALA:HB3	1.96	0.47
1:C:282:THR:O	1:C:286:VAL:HG23	2.13	0.47
1:E:330:THR:HG22	1:E:505:MET:HE2	1.96	0.47
1:F:92:PHE:HE1	1:G:102:ILE:HB	1.78	0.47
1:B:105:ASN:HB3	1:B:153:LEU:HD21	1.97	0.47
1:B:449:GLY:HA3	1:B:465:LYS:HE3	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:131:ILE:HD13	1:G:162:PRO:HB3	1.94	0.47
1:D:328:ILE:O	1:D:332:SER:HB2	2.14	0.47
1:F:480:ASP:HB3	1:F:483:PHE:HB3	1.96	0.47
1:H:12:PRO:HG3	1:H:344:ARG:HD2	1.95	0.47
1:F:33:THR:HB	1:F:39:GLY:HA3	1.95	0.47
1:F:241:GLY:N	1:F:246:ARG:O	2.48	0.47
1:H:411:GLY:HA3	1:H:467:ASP:HA	1.95	0.47
1:H:521:ILE:O	1:H:525:TRP:HD1	1.97	0.47
1:C:382:ASN:HD22	1:C:382:ASN:H	1.62	0.47
1:C:384:LYS:O	1:C:386:TYR:N	2.41	0.47
1:D:361:LEU:HD11	1:D:380:ILE:HG22	1.96	0.47
1:B:200:ARG:HG2	1:B:238:LEU:HD11	1.96	0.47
1:C:286:VAL:HG12	1:C:290:LYS:HE3	1.95	0.47
1:C:497:THR:O	1:C:500:ILE:HG22	2.15	0.47
1:E:381:ASP:C	1:E:383:SER:H	2.17	0.47
1:F:322:GLN:O	1:F:326:LYS:HE3	2.15	0.47
1:A:244:PRO:HA	1:A:248:HIS:HB2	1.97	0.47
1:B:52:LYS:HG3	1:B:343:ASP:O	2.14	0.47
1:C:345:LEU:O	1:C:347:LYS:N	2.48	0.47
1:C:102:ILE:HG13	1:C:141:VAL:HG12	1.96	0.47
1:C:200:ARG:NH1	1:C:245:PHE:O	2.46	0.47
1:C:518:GLU:OE1	1:C:518:GLU:N	2.48	0.47
1:B:12:PRO:HG3	1:B:344:ARG:HD2	1.97	0.47
1:C:371:GLU:C	1:C:373:LEU:H	2.17	0.47
1:F:121:VAL:HA	1:F:161:ILE:O	2.15	0.47
1:H:56:TYR:HB2	1:H:96:MET:HE2	1.97	0.47
1:H:326:LYS:NZ	1:H:463:GLU:OE2	2.47	0.47
1:A:323:THR:OG1	1:A:412:ARG:NH2	2.43	0.46
1:F:46:MET:HA	1:F:80:THR:O	2.15	0.46
1:F:398:MET:HB2	1:F:405:PRO:HG3	1.98	0.46
1:G:509:GLU:HG3	1:G:510:ASN:N	2.29	0.46
1:B:373:LEU:O	1:B:374:LYS:C	2.53	0.46
1:F:34:PRO:HG2	1:F:37:LYS:HB2	1.97	0.46
1:G:258:LEU:O	1:G:262:SER:HB2	2.15	0.46
1:G:137:ARG:O	1:G:141:VAL:HG23	2.16	0.46
1:G:167:VAL:HB	1:G:207:TYR:CD2	2.50	0.46
1:H:328:ILE:O	1:H:332:SER:HB2	2.15	0.46
1:A:525:TRP:CZ3	1:A:528:ARG:HD2	2.50	0.46
1:C:347:LYS:HE2	1:C:347:LYS:HB3	1.87	0.46
1:E:33:THR:HB	1:E:39:GLY:HA3	1.96	0.46
1:E:282:THR:O	1:E:286:VAL:HG23	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:163:LEU:HA	1:G:197:MET:O	2.15	0.46
1:G:473:GLU:O	1:G:476:ASN:ND2	2.48	0.46
1:C:5:CYS:HA	1:C:265:LYS:O	2.16	0.46
1:G:35:GLN:NE2	1:G:40:LEU:O	2.48	0.46
1:A:18:TYR:OH	1:A:343:ASP:OD1	2.24	0.46
1:A:170:LEU:CD1	1:A:203:THR:HG21	2.46	0.46
1:C:83:ILE:HB	1:C:84:PRO:HD2	1.98	0.46
1:E:252:GLU:HG2	1:E:253:ASN:OD1	2.15	0.46
1:E:381:ASP:HB2	1:E:383:SER:OG	2.16	0.46
1:F:53:LEU:HG	1:F:53:LEU:O	2.15	0.46
1:A:411:GLY:CA	1:A:471:VAL:HG23	2.46	0.46
1:E:179:GLU:O	1:E:183:ILE:HG13	2.16	0.46
1:F:125:ILE:HD13	1:F:125:ILE:HA	1.81	0.46
1:F:453:LYS:O	1:F:454:LYS:HB2	2.14	0.46
1:G:193:ASP:HA	1:G:233:THR:H	1.81	0.46
1:A:236:PRO:HB2	1:A:264:ILE:HD13	1.98	0.46
1:C:172:ASN:CG	1:C:172:ASN:O	2.55	0.46
1:C:525:TRP:CZ3	1:C:528:ARG:HD2	2.51	0.46
1:H:201:SER:HB3	1:H:246:ARG:HD2	1.98	0.46
1:B:208:GLY:HA2	1:B:320:TYR:CD1	2.51	0.45
1:F:195:ARG:HG3	1:F:235:SER:O	2.16	0.45
1:F:21:ILE:HD12	1:F:55:PRO:HD3	1.97	0.45
1:C:346:THR:O	1:C:347:LYS:HE3	2.16	0.45
1:C:384:LYS:HD3	1:C:385:GLU:N	2.29	0.45
1:A:183:ILE:HG22	1:A:187:LYS:HE2	1.98	0.45
1:B:58:GLN:HA	1:B:61:GLN:OE1	2.17	0.45
1:B:490:TYR:HA	1:B:493:LEU:HD12	1.97	0.45
1:H:524:GLU:O	1:H:528:ARG:HG3	2.17	0.45
1:A:201:SER:HB3	1:A:246:ARG:HD2	1.99	0.45
1:C:12:PRO:HG3	1:C:344:ARG:HD2	1.99	0.45
1:C:373:LEU:O	1:C:377:ILE:HG13	2.16	0.45
1:A:513:ARG:HG2	1:A:513:ARG:NH1	2.32	0.45
1:F:250:SER:HB3	1:F:253:ASN:ND2	2.31	0.45
1:C:173:ILE:O	1:C:177:LEU:HG	2.16	0.45
1:E:172:ASN:HB2	1:E:175:ARG:NH2	2.32	0.45
1:E:310:LYS:HG2	1:E:367:LEU:HD22	1.98	0.45
1:E:342:ARG:HG2	4:E:882:HOH:O	2.16	0.45
1:G:213:VAL:HG21	1:G:433:TYR:OH	2.16	0.45
1:H:345:LEU:O	1:H:346:THR:HG23	2.17	0.45
1:B:305:ASP:O	1:B:309:MET:HG3	2.17	0.45
1:B:365:ALA:O	1:B:374:LYS:HE2	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:363:ASN:O	1:C:367:LEU:CD1	2.66	0.44
1:D:154:ASP:O	1:D:157:SER:CB	2.59	0.44
1:G:365:ALA:HB1	1:G:374:LYS:HG3	1.99	0.44
1:A:48:ASP:HB3	1:A:52:LYS:HE3	1.98	0.44
1:C:33:THR:HB	1:C:39:GLY:HA3	1.98	0.44
1:C:191:LEU:HG	4:C:749:HOH:O	2.17	0.44
1:C:515:SER:O	1:C:519:LEU:HG	2.18	0.44
1:E:403:MET:O	1:E:404:PRO:C	2.53	0.44
1:H:25:PRO:HA	1:H:62:ILE:HG12	1.98	0.44
1:C:363:ASN:O	1:C:367:LEU:HD12	2.17	0.44
1:D:361:LEU:HD21	1:D:380:ILE:HG21	1.99	0.44
1:G:7:MET:HA	1:G:44:GLU:O	2.17	0.44
1:F:83:ILE:HG22	1:F:97:SER:HB2	2.00	0.44
1:A:170:LEU:HB3	1:A:219:ALA:HB2	1.99	0.44
1:B:506:GLY:O	1:B:507:LEU:HD23	2.17	0.44
1:C:365:ALA:HB2	1:C:377:ILE:HG21	1.99	0.44
1:E:461:ARG:HD3	4:E:781:HOH:O	2.17	0.44
1:G:33:THR:O	1:G:39:GLY:HA3	2.17	0.44
1:B:373:LEU:HA	1:B:376:GLU:OE2	2.18	0.44
1:E:103:GLU:O	1:E:107:GLN:HG3	2.18	0.44
1:B:106:VAL:HG13	1:B:151:THR:HB	1.99	0.44
1:H:333:PHE:CE2	1:H:505:MET:HG3	2.53	0.44
1:F:57:HIS:ND1	1:F:57:HIS:N	2.66	0.44
1:H:90:SER:OG	1:H:93:ARG:HD2	2.18	0.44
1:D:190:ILE:H	1:D:190:ILE:HG13	1.66	0.44
1:H:196:ILE:O	1:H:196:ILE:HG13	2.18	0.44
1:B:201:SER:HB3	1:B:246:ARG:HD2	1.99	0.43
1:C:337:PHE:HE1	1:C:519:LEU:HD22	1.83	0.43
1:D:42:ILE:CG2	1:D:43:GLU:N	2.81	0.43
1:E:52:LYS:C	1:E:54:THR:H	2.22	0.43
1:B:204:ALA:HA	1:B:208:GLY:O	2.18	0.43
1:G:79:VAL:O	1:G:117:ILE:HG23	2.18	0.43
1:G:229:LYS:HD3	1:G:230:HIS:CE1	2.53	0.43
1:B:1:MET:HG2	1:B:2:LYS:N	2.33	0.43
1:D:98:ILE:HA	1:D:101:ILE:HD12	1.99	0.43
1:F:451:VAL:HA	1:F:498:LYS:HD2	1.99	0.43
1:C:409:GLY:HA2	1:C:412:ARG:NH2	2.33	0.43
1:D:1:MET:O	1:D:78:ARG:NH1	2.50	0.43
1:H:403:MET:O	1:H:404:PRO:C	2.55	0.43
1:A:475:LEU:O	1:A:476:ASN:C	2.57	0.43
1:C:248:HIS:CE1	1:C:253:ASN:HD21	2.35	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:328:ILE:HG23	1:D:329:ASP:N	2.34	0.43
1:H:1:MET:HG2	1:H:2:LYS:N	2.33	0.43
1:A:433:TYR:CE2	1:A:436:LEU:HD13	2.54	0.43
1:A:56:TYR:CD1	1:E:96:MET:HG3	2.53	0.43
1:C:337:PHE:CE1	1:C:519:LEU:HD22	2.53	0.43
1:A:315:ILE:HG13	1:A:373:LEU:HD21	1.99	0.43
1:B:200:ARG:HD2	1:B:200:ARG:O	2.18	0.43
1:B:464:TYR:O	1:B:467:ASP:HB2	2.19	0.43
1:D:499:PRO:HG2	1:E:496:THR:CG2	2.48	0.43
1:D:48:ASP:OD1	1:D:82:ARG:HD3	2.19	0.43
1:F:512:MET:HE3	1:F:513:ARG:HD3	2.01	0.43
1:G:319:HIS:HE1	1:G:416:GLU:OE1	2.02	0.43
1:G:463:GLU:O	1:G:466:GLU:HB2	2.19	0.43
1:H:13:ASP:O	1:H:536:ILE:HG22	2.19	0.43
1:A:335:SER:HA	1:A:338:ILE:HG12	2.01	0.42
1:E:380:ILE:H	1:E:380:ILE:HG13	1.68	0.42
1:E:521:ILE:O	1:E:522:LEU:C	2.56	0.42
1:B:456:ILE:HD13	1:B:456:ILE:HA	1.86	0.42
1:D:440:LEU:HD13	1:D:471:VAL:HG13	2.01	0.42
1:G:237:ILE:HG23	1:G:266:THR:HB	2.00	0.42
1:H:35:GLN:HE21	1:H:35:GLN:HB2	1.56	0.42
1:B:498:LYS:HB3	1:B:499:PRO:HD3	2.01	0.42
1:D:324:PHE:CD2	1:D:324:PHE:C	2.92	0.42
1:F:198:ILE:HG21	1:F:216:VAL:HG13	2.00	0.42
1:G:178:ASP:O	1:G:182:GLU:HB2	2.18	0.42
1:G:403:MET:O	1:G:404:PRO:C	2.58	0.42
1:A:33:THR:HB	1:A:39:GLY:HA3	2.01	0.42
1:A:33:THR:O	1:A:39:GLY:HA3	2.20	0.42
1:B:277:HIS:CD2	1:B:277:HIS:N	2.85	0.42
1:B:442:PHE:CD2	1:B:442:PHE:C	2.93	0.42
1:C:197:MET:HG3	1:C:237:ILE:HB	2.01	0.42
1:H:83:ILE:HB	1:H:84:PRO:HD2	2.01	0.42
1:D:7:MET:HA	1:D:44:GLU:HB3	2.02	0.42
1:E:122:VAL:HG11	1:E:134:PHE:CE2	2.54	0.42
1:A:146:ASN:OD1	1:A:152:LYS:HA	2.20	0.42
1:C:365:ALA:HB1	1:C:374:LYS:HG3	2.02	0.42
1:D:209:LEU:HD13	1:D:245:PHE:HA	2.01	0.42
1:D:250:SER:OG	1:D:251:GLU:N	2.52	0.42
1:F:132:SER:HB3	1:F:187:LYS:NZ	2.35	0.42
1:G:201:SER:HB3	1:G:246:ARG:HD2	2.00	0.42
1:G:361:LEU:HD21	1:G:377:ILE:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:237:ILE:HG23	1:B:266:THR:HB	2.02	0.42
1:E:122:VAL:HG11	1:E:134:PHE:CD2	2.54	0.42
1:F:206:SER:HB2	1:F:207:TYR:CD2	2.55	0.42
1:A:270:GLN:O	1:A:274:ARG:HG3	2.19	0.42
1:A:361:LEU:HD11	1:A:380:ILE:HB	2.02	0.42
1:A:518:GLU:H	1:A:518:GLU:CD	2.22	0.42
1:C:25:PRO:HA	1:C:62:ILE:HG12	2.02	0.42
1:C:448:ASN:HB3	1:C:451:VAL:HG22	2.02	0.42
1:F:101:ILE:HG23	1:F:117:ILE:HD13	2.02	0.42
1:B:56:TYR:N	4:B:768:HOH:O	2.53	0.42
1:C:125:ILE:HD13	1:C:125:ILE:HA	1.80	0.42
1:C:442:PHE:C	1:C:442:PHE:CD2	2.94	0.42
1:C:459:GLU:O	1:C:463:GLU:HG3	2.19	0.42
1:E:337:PHE:HE1	1:E:519:LEU:HD22	1.85	0.42
1:E:432:ILE:C	1:E:434:PRO:HD3	2.40	0.42
1:G:122:VAL:HA	1:G:123:PRO:HD3	1.76	0.42
1:H:207:TYR:HE1	1:H:364:VAL:CG1	2.32	0.42
1:A:382:ASN:O	1:A:384:LYS:N	2.53	0.41
1:B:195:ARG:HG3	1:B:235:SER:O	2.20	0.41
1:B:497:THR:O	1:B:500:ILE:HG22	2.20	0.41
1:D:257:ILE:HD13	1:D:257:ILE:HA	1.94	0.41
1:F:307:ASP:O	1:F:311:GLU:HG2	2.21	0.41
1:B:84:PRO:HB3	1:B:89:GLU:CD	2.40	0.41
1:B:357:GLU:HB2	1:B:388:VAL:HG22	2.02	0.41
1:E:205:MET:CE	1:E:389:PRO:HD2	2.51	0.41
1:G:214:LEU:O	1:G:218:MET:HG3	2.21	0.41
1:H:5:CYS:HB3	1:H:293:ILE:HG13	2.01	0.41
1:D:305:ASP:O	1:D:306:LYS:C	2.59	0.41
1:E:183:ILE:HG22	1:E:187:LYS:HE2	2.02	0.41
1:F:44:GLU:HG3	1:F:78:ARG:HB2	2.02	0.41
1:F:330:THR:HG23	1:F:505:MET:CE	2.50	0.41
1:B:120:VAL:CG2	1:B:160:ILE:HD13	2.50	0.41
1:C:20:SER:OG	1:C:23:GLN:HG3	2.20	0.41
1:D:195:ARG:HG3	1:D:235:SER:HB3	2.02	0.41
1:D:244:PRO:HA	1:D:248:HIS:HB2	2.02	0.41
1:F:456:ILE:HD13	1:F:456:ILE:HA	1.74	0.41
1:G:24:GLU:O	1:G:27:GLU:HB3	2.19	0.41
1:G:83:ILE:HB	1:G:84:PRO:HD2	2.01	0.41
1:A:452:SER:HB3	1:A:456:ILE:HG13	2.02	0.41
1:D:110:GLU:CG	1:D:151:THR:OG1	2.69	0.41
1:E:105:ASN:HB3	1:E:153:LEU:HD21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:11:HIS:CD2	2:G:615:AUC:C1	3.04	0.41
1:H:433:TYR:CG	1:H:436:LEU:HB2	2.55	0.41
1:B:398:MET:HB3	1:B:403:MET:O	2.21	0.41
1:B:458:GLU:HA	1:B:458:GLU:OE1	2.21	0.41
1:D:244:PRO:HB2	1:D:406:GLU:HG2	2.02	0.41
1:E:456:ILE:CG2	1:E:457:ASP:N	2.84	0.41
1:F:525:TRP:CZ2	1:H:525:TRP:CZ2	3.09	0.41
1:G:302:SER:O	1:G:305:ASP:HB2	2.21	0.41
1:C:208:GLY:HA2	1:C:320:TYR:CE1	2.56	0.41
1:D:57:HIS:O	1:D:61:GLN:HG3	2.20	0.41
1:D:453:LYS:HD3	1:D:461:ARG:NH2	2.36	0.41
1:E:122:VAL:HA	1:E:123:PRO:HD3	1.85	0.41
1:E:432:ILE:O	1:E:434:PRO:HD3	2.21	0.41
1:E:456:ILE:HG22	1:E:457:ASP:O	2.20	0.41
1:G:238:LEU:HD23	1:G:240:CYS:HB3	2.02	0.41
1:H:289:LEU:C	1:H:291:GLU:H	2.23	0.41
1:C:122:VAL:HG11	1:C:134:PHE:CE2	2.56	0.41
1:D:411:GLY:HA2	1:D:471:VAL:CG2	2.52	0.41
1:E:483:PHE:CD2	1:E:483:PHE:C	2.94	0.41
1:G:138:VAL:O	1:G:142:VAL:HG23	2.20	0.41
1:A:122:VAL:HG11	1:A:134:PHE:CE2	2.55	0.40
1:F:106:VAL:HG13	1:F:151:THR:HB	2.03	0.40
1:F:131:ILE:H	1:F:131:ILE:HG13	1.74	0.40
1:H:3:ILE:HD13	1:H:78:ARG:NH2	2.37	0.40
1:A:174:ASP:O	1:A:178:ASP:HB2	2.21	0.40
1:C:46:MET:HA	1:C:80:THR:O	2.20	0.40
1:C:508:GLU:HG3	1:C:511:VAL:HB	2.03	0.40
1:H:229:LYS:HA	1:H:229:LYS:HD3	1.80	0.40
1:A:21:ILE:H	1:A:21:ILE:HG12	1.73	0.40
1:A:166:ASP:HB3	1:A:169:ALA:CB	2.50	0.40
1:B:398:MET:HB2	1:B:405:PRO:HD3	2.04	0.40
1:E:311:GLU:O	1:E:315:ILE:HD12	2.21	0.40
1:F:200:ARG:NH1	1:F:245:PHE:O	2.49	0.40
1:H:5:CYS:SG	1:H:290:LYS:HA	2.61	0.40
1:H:7:MET:HA	1:H:44:GLU:HB3	2.03	0.40
1:A:447:ALA:HB1	1:A:468:MET:SD	2.61	0.40
1:B:21:ILE:HD11	1:H:21:ILE:CD1	2.52	0.40
1:B:499:PRO:HB2	1:G:496:THR:HG23	2.03	0.40
1:C:5:CYS:HB3	1:C:293:ILE:HG12	2.03	0.40
1:C:159:ARG:HH21	1:C:194:LEU:HD12	1.87	0.40
1:E:73:PRO:HA	1:E:77:VAL:O	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:48:ASP:HB2	2:F:614:AUC:C1	2.52	0.40
1:H:138:VAL:HG21	1:H:160:ILE:HD11	2.04	0.40
1:A:415:ASN:O	1:A:419:THR:HG23	2.21	0.40
1:B:86:ALA:HB2	1:B:94:GLN:CD	2.42	0.40
1:D:150:LYS:HD3	1:D:150:LYS:HA	1.83	0.40
1:G:33:THR:HA	1:G:34:PRO:HD2	1.85	0.40
1:H:333:PHE:HE2	1:H:505:MET:HG3	1.87	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	521/560 (93%)	496 (95%)	24 (5%)	1 (0%)	47 79
1	B	525/560 (94%)	486 (93%)	38 (7%)	1 (0%)	47 79
1	C	526/560 (94%)	483 (92%)	31 (6%)	12 (2%)	6 27
1	D	522/560 (93%)	484 (93%)	34 (6%)	4 (1%)	19 53
1	E	520/560 (93%)	484 (93%)	28 (5%)	8 (2%)	10 38
1	F	525/560 (94%)	486 (93%)	35 (7%)	4 (1%)	19 53
1	G	523/560 (93%)	478 (91%)	42 (8%)	3 (1%)	25 60
1	H	521/560 (93%)	496 (95%)	23 (4%)	2 (0%)	34 69
All	All	4183/4480 (93%)	3893 (93%)	255 (6%)	35 (1%)	19 53

All (35) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	346	THR
1	C	347	LYS
1	C	357	GLU

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Mol	Chain	Res	Type
1	D	384	LYS
1	C	385	GLU
1	D	381	ASP
1	E	89	GLU
1	E	370	ASP
1	F	294	ALA
1	F	343	ASP
1	G	209	LEU
1	G	358	VAL
1	H	356	ARG
1	C	2	LYS
1	C	89	GLU
1	C	294	ALA
1	C	424	GLU
1	E	53	LEU
1	E	374	LYS
1	F	124	MET
1	A	383	SER
1	B	89	GLU
1	E	361	LEU
1	E	471	VAL
1	F	89	GLU
1	C	130	GLU
1	D	382	ASN
1	E	535	SER
1	G	53	LEU
1	H	290	LYS
1	C	476	ASN
1	C	471	VAL
1	D	236	PRO
1	E	168	PRO
1	C	377	ILE

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	462/493 (94%)	433 (94%)	29 (6%)	18	48
1	B	462/493 (94%)	430 (93%)	32 (7%)	15	44
1	C	463/493 (94%)	429 (93%)	34 (7%)	14	41
1	D	463/493 (94%)	435 (94%)	28 (6%)	19	50
1	E	461/493 (94%)	431 (94%)	30 (6%)	17	46
1	F	461/493 (94%)	424 (92%)	37 (8%)	12	37
1	G	462/493 (94%)	432 (94%)	30 (6%)	17	46
1	H	462/493 (94%)	433 (94%)	29 (6%)	18	48
All	All	3696/3944 (94%)	3447 (93%)	249 (7%)	16	45

All (249) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	CYS
1	A	16	GLU
1	A	37	LYS
1	A	69	ASN
1	A	78	ARG
1	A	91	VAL
1	A	147	LYS
1	A	174	ASP
1	A	182	GLU
1	A	211	SER
1	A	265	LYS
1	A	299	ARG
1	A	300	ASN
1	A	302	SER
1	A	330	THR
1	A	344	ARG
1	A	362	ASP
1	A	368	VAL
1	A	372	VAL
1	A	388	VAL
1	A	433	TYR
1	A	452	SER
1	A	454	LYS
1	A	469	LYS
1	A	486	GLU
1	A	492	THR
1	A	495	LYS

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Mol	Chain	Res	Type
1	A	510	ASN
1	A	516	THR
1	B	2	LYS
1	B	5	CYS
1	B	91	VAL
1	B	93	ARG
1	B	120	VAL
1	B	153	LEU
1	B	166	ASP
1	B	172	ASN
1	B	174	ASP
1	B	193	ASP
1	B	200	ARG
1	B	201	SER
1	B	202	ASP
1	B	203	THR
1	B	211	SER
1	B	225	LYS
1	B	298	PRO
1	B	344	ARG
1	B	361	LEU
1	B	375	GLN
1	B	383	SER
1	B	384	LYS
1	B	385	GLU
1	B	390	ARG
1	B	420	LYS
1	B	433	TYR
1	B	454	LYS
1	B	469	LYS
1	B	508	GLU
1	B	510	ASN
1	B	516	THR
1	B	523	ASN
1	C	5	CYS
1	C	60	SER
1	C	88	LYS
1	C	97	SER
1	C	130	GLU
1	C	147	LYS
1	C	155	LEU
1	C	172	ASN

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Mol	Chain	Res	Type
1	C	175	ARG
1	C	200	ARG
1	C	201	SER
1	C	206	SER
1	C	211	SER
1	C	235	SER
1	C	262	SER
1	C	280	GLU
1	C	295	GLN
1	C	300	ASN
1	C	304	GLU
1	C	325	LEU
1	C	332	SER
1	C	344	ARG
1	C	364	VAL
1	C	369	LYS
1	C	382	ASN
1	C	384	LYS
1	C	424	GLU
1	C	433	TYR
1	C	452	SER
1	C	466	GLU
1	C	469	LYS
1	C	476	ASN
1	C	502	MET
1	C	508	GLU
1	D	2	LYS
1	D	68	SER
1	D	150	LYS
1	D	157	SER
1	D	173	ILE
1	D	200	ARG
1	D	201	SER
1	D	211	SER
1	D	229	LYS
1	D	262	SER
1	D	293	ILE
1	D	297	LYS
1	D	332	SER
1	D	344	ARG
1	D	358	VAL
1	D	364	VAL

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Mol	Chain	Res	Type
1	D	371	GLU
1	D	372	VAL
1	D	374	LYS
1	D	382	ASN
1	D	384	LYS
1	D	388	VAL
1	D	433	TYR
1	D	452	SER
1	D	453	LYS
1	D	456	ILE
1	D	469	LYS
1	D	509	GLU
1	E	2	LYS
1	E	5	CYS
1	E	88	LYS
1	E	91	VAL
1	E	97	SER
1	E	147	LYS
1	E	172	ASN
1	E	200	ARG
1	E	211	SER
1	E	232	VAL
1	E	235	SER
1	E	262	SER
1	E	304	GLU
1	E	330	THR
1	E	332	SER
1	E	364	VAL
1	E	368	VAL
1	E	380	ILE
1	E	382	ASN
1	E	433	TYR
1	E	452	SER
1	E	454	LYS
1	E	469	LYS
1	E	473	GLU
1	E	502	MET
1	E	505	MET
1	E	509	GLU
1	E	516	THR
1	E	531	LYS
1	E	535	SER

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Mol	Chain	Res	Type
1	F	1	MET
1	F	2	LYS
1	F	30	LYS
1	F	35	GLN
1	F	82	ARG
1	F	89	GLU
1	F	91	VAL
1	F	96	MET
1	F	119	GLU
1	F	124	MET
1	F	125	ILE
1	F	126	GLU
1	F	155	LEU
1	F	174	ASP
1	F	200	ARG
1	F	201	SER
1	F	202	ASP
1	F	206	SER
1	F	262	SER
1	F	280	GLU
1	F	332	SER
1	F	340	LYS
1	F	361	LEU
1	F	367	LEU
1	F	368	VAL
1	F	381	ASP
1	F	385	GLU
1	F	393	SER
1	F	418	LYS
1	F	419	THR
1	F	433	TYR
1	F	452	SER
1	F	456	ILE
1	F	516	THR
1	F	523	ASN
1	F	531	LYS
1	F	535	SER
1	G	35	GLN
1	G	78	ARG
1	G	97	SER
1	G	111	LEU
1	G	147	LYS

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Mol	Chain	Res	Type
1	G	150	LYS
1	G	154	ASP
1	G	192	LYS
1	G	200	ARG
1	G	201	SER
1	G	202	ASP
1	G	211	SER
1	G	291	GLU
1	G	302	SER
1	G	304	GLU
1	G	344	ARG
1	G	371	GLU
1	G	376	GLU
1	G	378	LEU
1	G	381	ASP
1	G	383	SER
1	G	384	LYS
1	G	424	GLU
1	G	430	LEU
1	G	433	TYR
1	G	454	LYS
1	G	469	LYS
1	G	505	MET
1	G	509	GLU
1	G	531	LYS
1	H	2	LYS
1	H	30	LYS
1	H	35	GLN
1	H	59	THR
1	H	60	SER
1	H	109	LYS
1	H	150	LYS
1	H	173	ILE
1	H	193	ASP
1	H	200	ARG
1	H	202	ASP
1	H	211	SER
1	H	229	LYS
1	H	291	GLU
1	H	293	ILE
1	H	297	LYS
1	H	303	GLU

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Mol	Chain	Res	Type
1	H	322	GLN
1	H	332	SER
1	H	354	TYR
1	H	380	ILE
1	H	433	TYR
1	H	475	LEU
1	H	486	GLU
1	H	502	MET
1	H	508	GLU
1	H	509	GLU
1	H	511	VAL
1	H	531	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	69	ASN
1	A	230	HIS
1	A	510	ASN
1	B	23	GLN
1	B	69	ASN
1	B	448	ASN
1	B	514	ASN
1	C	69	ASN
1	C	172	ASN
1	C	363	ASN
1	C	382	ASN
1	C	476	ASN
1	E	107	GLN
1	F	253	ASN
1	F	363	ASN
1	G	172	ASN
1	G	230	HIS
1	H	69	ASN
1	H	107	GLN
1	H	375	GLN

5.3.3 RNA

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 41 ligands modelled in this entry, 27 are modelled with single atom - leaving 14 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	AUC	D	603	-	4,4,4	1.85	2 (50%)	-		
2	AUC	B	610	-	4,4,4	1.78	2 (50%)	-		
2	AUC	A	631	-	4,4,4	1.83	2 (50%)	-		
2	AUC	G	615	1	4,4,4	1.74	2 (50%)	-		
2	AUC	C	602	-	4,4,4	1.83	2 (50%)	-		
3	MLI	C	901	-	6,6,6	1.05	0	7,7,7	1.18	1 (14%)
3	MLI	D	901	-	6,6,6	1.16	0	7,7,7	1.07	1 (14%)
2	AUC	F	614	-	4,4,4	1.77	2 (50%)	-		
2	AUC	A	607	-	4,4,4	1.82	2 (50%)	-		
2	AUC	H	611	-	4,4,4	1.80	2 (50%)	-		
3	MLI	H	901	-	6,6,6	1.07	0	7,7,7	1.01	0
3	MLI	A	901	-	6,6,6	1.13	0	7,7,7	1.33	0
2	AUC	E	606	-	4,4,4	1.86	2 (50%)	-		
3	MLI	E	901	-	6,6,6	1.17	0	7,7,7	1.46	1 (14%)

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
3	MLI	D	901	-	-	1/4/4/4	-
3	MLI	C	901	-	-	4/4/4/4	-
3	MLI	H	901	-	-	2/4/4/4	-
3	MLI	A	901	-	-	2/4/4/4	-
3	MLI	E	901	-	-	2/4/4/4	-

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	606	AUC	AU-C1	-2.74	1.79	1.98
2	D	603	AUC	AU-C1	-2.65	1.79	1.98
2	A	607	AUC	AU-C2	-2.62	1.80	1.98
2	H	611	AUC	AU-C2	-2.62	1.80	1.98
2	A	631	AUC	AU-C2	-2.62	1.80	1.98
2	C	602	AUC	AU-C2	-2.60	1.80	1.98
2	B	610	AUC	AU-C2	-2.54	1.80	1.98
2	A	631	AUC	AU-C1	-2.52	1.80	1.98
2	C	602	AUC	AU-C1	-2.52	1.80	1.98
2	D	603	AUC	AU-C2	-2.52	1.80	1.98
2	G	615	AUC	AU-C2	-2.51	1.80	1.98
2	F	614	AUC	AU-C1	-2.47	1.81	1.98
2	E	606	AUC	AU-C2	-2.46	1.81	1.98
2	F	614	AUC	AU-C2	-2.45	1.81	1.98
2	A	607	AUC	AU-C1	-2.45	1.81	1.98
2	B	610	AUC	AU-C1	-2.44	1.81	1.98
2	H	611	AUC	AU-C1	-2.39	1.81	1.98
2	G	615	AUC	AU-C1	-2.32	1.82	1.98

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	E	901	MLI	O8-C3-C1	-2.61	114.46	122.08
3	D	901	MLI	C3-C1-C2	-2.11	105.49	112.87
3	C	901	MLI	C3-C1-C2	-2.05	105.69	112.87

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	E	901	MLI	C3-C1-C2-O6
3	E	901	MLI	C3-C1-C2-O7

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Mol	Chain	Res	Type	Atoms
3	C	901	MLI	C3-C1-C2-O7
3	C	901	MLI	C3-C1-C2-O6
3	C	901	MLI	C2-C1-C3-O9
3	H	901	MLI	C2-C1-C3-O9
3	A	901	MLI	C2-C1-C3-O8
3	A	901	MLI	C2-C1-C3-O9
3	C	901	MLI	C2-C1-C3-O8
3	H	901	MLI	C2-C1-C3-O8
3	D	901	MLI	C2-C1-C3-O9

There are no ring outliers.

10 monomers are involved in 28 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	603	AUC	2	0
2	B	610	AUC	4	0
2	A	631	AUC	2	0
2	G	615	AUC	5	0
2	C	602	AUC	2	0
3	D	901	MLI	1	0
2	F	614	AUC	4	0
2	A	607	AUC	2	0
2	H	611	AUC	4	0
2	E	606	AUC	2	0

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	525/560 (93%)	-0.08	1 (0%)	95	90	39, 55, 74, 101	1 (0%)
1	B	529/560 (94%)	-0.01	3 (0%)	89	78	46, 67, 99, 110	0
1	C	530/560 (94%)	0.09	10 (1%)	66	49	42, 64, 116, 128	1 (0%)
1	D	526/560 (93%)	0.10	8 (1%)	73	57	41, 60, 95, 122	0
1	E	524/560 (93%)	0.04	5 (0%)	82	68	40, 58, 101, 169	1 (0%)
1	F	529/560 (94%)	0.05	2 (0%)	92	84	51, 69, 110, 118	3 (0%)
1	G	527/560 (94%)	0.43	27 (5%)	28	17	59, 75, 103, 123	1 (0%)
1	H	527/560 (94%)	0.04	6 (1%)	80	65	46, 62, 82, 125	5 (0%)
All	All	4217/4480 (94%)	0.08	62 (1%)	73	57	39, 64, 98, 169	12 (0%)

All (62) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	510	ASN	4.2
1	G	357	GLU	4.1
1	C	356	ARG	3.9
1	C	384	LYS	3.8
1	C	358	VAL	3.8
1	G	369	LYS	3.6
1	G	414	LEU	3.6
1	G	421	TYR	3.5
1	G	424	GLU	3.5
1	C	386	TYR	3.5
1	G	37	LYS	3.5
1	C	368	VAL	3.5
1	H	150	LYS	3.3
1	C	359	ALA	3.2
1	G	36	ASP	3.2
1	G	150	LYS	3.2

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Mol	Chain	Res	Type	RSRZ
1	G	426	ILE	3.1
1	D	297	LYS	3.0
1	H	354	TYR	2.9
1	B	401	LEU	2.8
1	G	315	ILE	2.8
1	G	419	THR	2.8
1	G	375	GLN	2.8
1	G	416	GLU	2.7
1	G	417	ILE	2.7
1	F	359	ALA	2.7
1	G	318	LYS	2.7
1	E	383	SER	2.6
1	G	425	GLY	2.6
1	G	474	ILE	2.5
1	A	359	ALA	2.5
1	B	295	GLN	2.5
1	C	383	SER	2.4
1	G	477	LEU	2.4
1	G	368	VAL	2.4
1	D	171	ALA	2.4
1	E	294	ALA	2.4
1	D	75	LYS	2.4
1	D	368	VAL	2.3
1	D	371	GLU	2.3
1	E	393	SER	2.3
1	G	483	PHE	2.3
1	H	190	ILE	2.3
1	G	358	VAL	2.3
1	G	70	GLY	2.3
1	F	386	TYR	2.2
1	C	207	TYR	2.2
1	H	355	ASN	2.2
1	G	72	ILE	2.2
1	H	346	THR	2.2
1	C	364	VAL	2.2
1	H	191	LEU	2.1
1	E	391	ALA	2.1
1	G	433	TYR	2.1
1	G	418	LYS	2.1
1	D	369	LYS	2.1
1	E	2	LYS	2.1
1	D	346	THR	2.1

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Mol	Chain	Res	Type	RSRZ
1	D	66	LEU	2.0
1	G	479	LEU	2.0
1	G	420	LYS	2.0
1	C	348	ALA	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	AUC	D	640	1/5	0.35	0.20	99,99,99,99	1
2	AUC	F	641	1/5	0.53	0.15	108,108,108,108	1
2	AUC	C	635	1/5	0.73	0.30	76,76,76,76	1
2	AUC	F	627	1/5	0.74	0.14	85,85,85,85	1
2	AUC	B	638	1/5	0.74	0.30	86,86,86,86	1
2	AUC	C	634	1/5	0.80	0.21	82,82,82,82	1
2	AUC	E	628	1/5	0.80	0.25	80,80,80,80	1
2	AUC	F	637	1/5	0.81	0.14	85,85,85,85	1
2	AUC	H	629	1/5	0.82	0.24	85,85,85,85	1
2	AUC	B	630	1/5	0.84	0.23	107,107,107,107	1
2	AUC	A	631	5/5	0.87	0.43	57,58,58,59	5
3	MLI	E	901	7/7	0.87	0.24	41,43,43,44	7
3	MLI	H	901	7/7	0.89	0.32	58,59,61,61	7
3	MLI	D	901	7/7	0.91	0.24	52,54,55,55	7
2	AUC	B	640	1/5	0.92	0.13	93,93,93,93	1
2	AUC	E	619	1/5	0.92	0.16	68,68,68,68	1
2	AUC	B	622	1/5	0.94	0.11	69,69,69,69	1
3	MLI	A	901	7/7	0.94	0.27	40,41,43,43	7
3	MLI	C	901	7/7	0.94	0.18	47,48,49,50	7

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	AUC	C	621	1/5	0.95	0.21	70,70,70,70	1
2	AUC	F	620	1/5	0.95	0.09	69,69,69,69	1
2	AUC	H	617	1/5	0.95	0.13	74,74,74,74	1
2	AUC	G	626	1/5	0.96	0.20	76,76,76,76	1
2	AUC	D	618	1/5	0.97	0.10	82,82,82,82	1
2	AUC	B	610	5/5	0.97	0.14	82,83,84,86	5
2	AUC	F	614	5/5	0.98	0.09	80,82,83,83	5
2	AUC	G	615	5/5	0.99	0.09	69,70,70,73	1
2	AUC	G	616	1/5	0.99	0.04	86,86,86,86	0
2	AUC	A	608	1/5	0.99	0.05	74,74,74,74	0
2	AUC	H	611	5/5	0.99	0.08	73,75,75,76	0
2	AUC	H	612	1/5	0.99	0.04	80,80,80,80	0
2	AUC	A	624	1/5	0.99	0.11	71,71,71,71	1
2	AUC	D	603	5/5	0.99	0.09	75,76,77,78	0
2	AUC	F	613	1/5	0.99	0.04	80,80,80,80	0
2	AUC	D	604	1/5	0.99	0.03	85,85,85,85	0
2	AUC	A	607	5/5	0.99	0.10	65,65,66,67	0
2	AUC	C	601	1/5	0.99	0.04	75,75,75,75	0
2	AUC	E	605	1/5	0.99	0.02	72,72,72,72	0
2	AUC	E	606	5/5	1.00	0.10	72,73,74,74	0
2	AUC	C	602	5/5	1.00	0.08	73,74,77,78	0
2	AUC	B	609	1/5	1.00	0.03	79,79,79,79	0

6.5 Other polymers (i)

There are no such residues in this entry.