



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 03:31 AM UTC

PDB ID : 5PGM / pdb_00005pgm
Title : SACCHAROMYCES CEREVISIAE PHOSPHOGLYCERATE MUTASE
Authors : Rigden, D.J.; Phillips, S.E.V.; Fothergill-Gilmore, L.A.
Deposited on : 1998-08-19
Resolution : 2.12 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtrriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

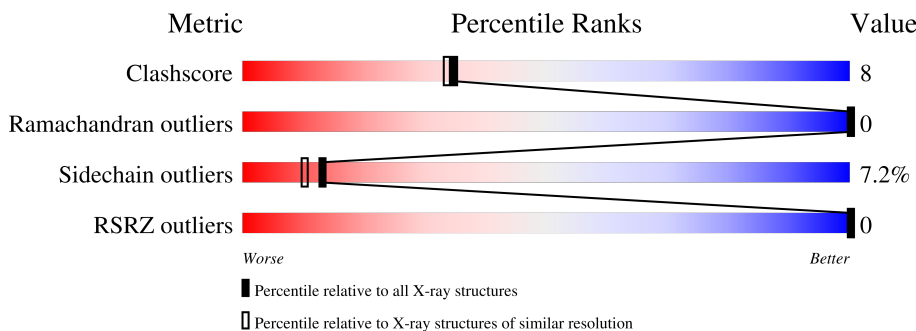
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.12 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	190562	8817 (2.14-2.10)
Ramachandran outliers	187476	8738 (2.14-2.10)
Sidechain outliers	187428	8739 (2.14-2.10)
RSRZ outliers	180081	8294 (2.14-2.10)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	246	
1	B	246	
1	C	246	
1	D	246	
1	E	246	
1	F	246	

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Mol	Chain	Length	Quality of chain
1	G	246	 70% 23% • 5%
1	H	246	 73% 20% • •

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 16692 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 PHOSPHOGLYCERATE MUTASE 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	D	235	1873	1199	323	350	1	0	0	0
1	C	235	1873	1199	323	350	1	0	0	0
1	A	234	1868	1196	322	349	1	0	0	0
1	B	235	1873	1199	323	350	1	0	0	0
1	E	234	1868	1196	322	349	1	0	0	0
1	F	235	1873	1199	323	350	1	0	0	0
1	G	234	1868	1196	322	349	1	0	0	0
1	H	235	1873	1199	323	350	1	0	0	0

- Molecule 2 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



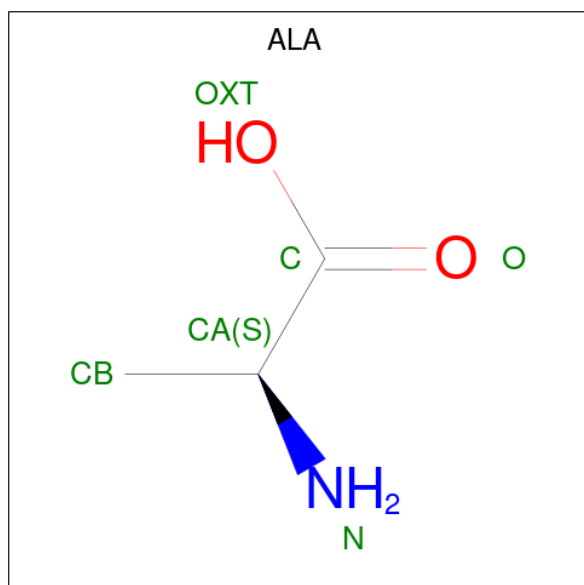
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	D	1	Total	O	S	0	0
			5	4	1		
2	D	1	Total	O	S	0	0
			5	4	1		
2	C	1	Total	O	S	0	0
			5	4	1		
2	C	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	E	1	Total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

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	H	1	Total	O	S	0	0
			5	4	1		
2	H	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is ALANINE (CCD ID: ALA) (formula: C₃H₇NO₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	E	1	Total	C	N	O	0	0
			5	3	1	1		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	201	Total	O	0	0
			201	201		
4	C	185	Total	O	0	0
			185	185		
4	A	223	Total	O	0	0
			223	223		
4	B	211	Total	O	0	0
			211	211		
4	E	201	Total	O	0	0
			201	201		
4	F	185	Total	O	0	0
			185	185		

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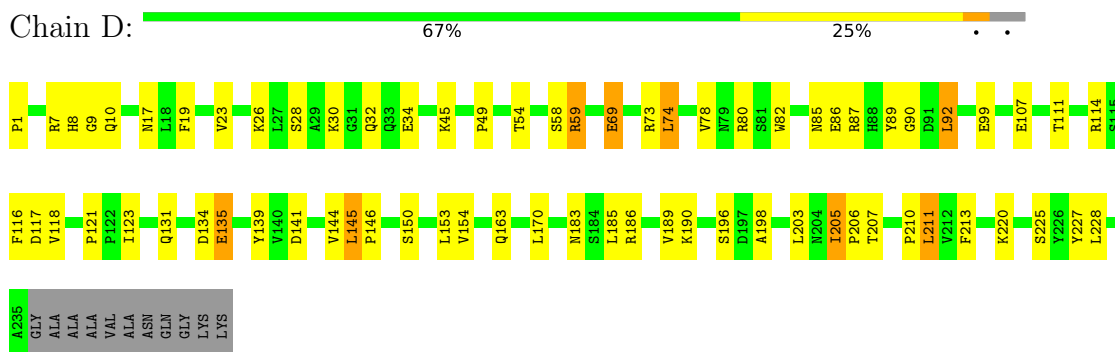
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	G	221	Total 221	O 221	0	0
4	H	211	Total 211	O 211	0	0

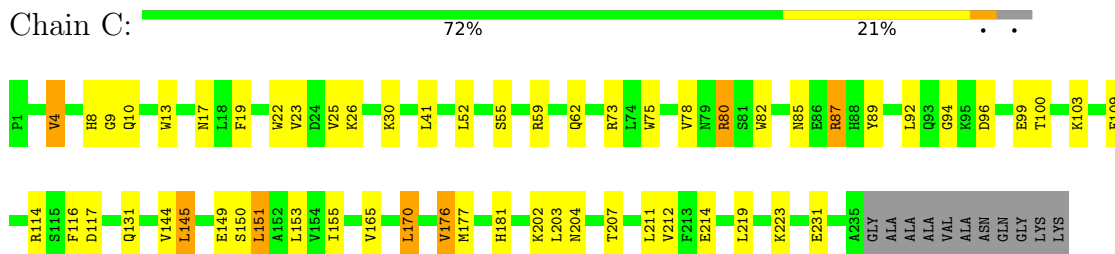
3 Residue-property plots

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

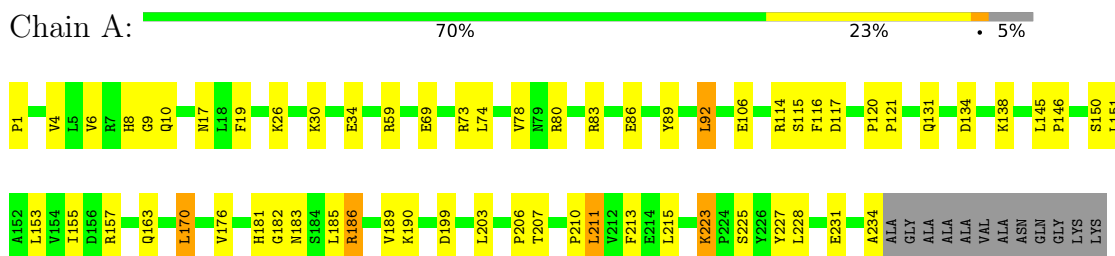
- Molecule 1: PHOSPHOGLYCERATE MUTASE 1



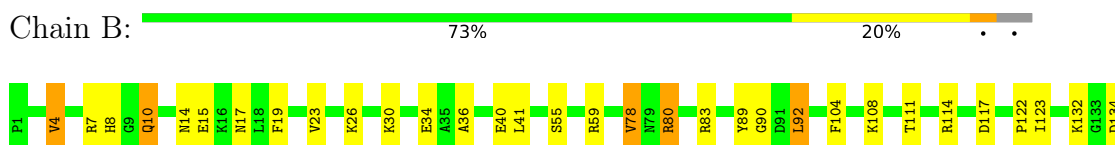
- Molecule 1: PHOSPHOGLYCERATE MUTASE 1



- Molecule 1: PHOSPHOGLYCERATE MUTASE 1



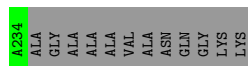
- Molecule 1: PHOSPHOGLYCERATE MUTASE 1





- Molecule 1: PHOSPHOGLYCERATE MUTASE 1

Chain E: 67% 25% 5%



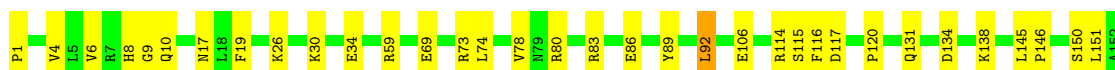
- Molecule 1: PHOSPHOGLYCERATE MUTASE 1

Chain F: 72% 21% 5%



- Molecule 1: PHOSPHOGLYCERATE MUTASE 1

Chain G: 70% 23% 5%



- Molecule 1: PHOSPHOGLYCERATE MUTASE 1

Chain H: 73% 20% 5%



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	82.50Å 93.26Å 147.33Å 90.00° 90.15° 90.00°	Depositor
Resolution (Å)	30.00 – 2.12 30.00 – 2.12	Depositor EDS
% Data completeness (in resolution range)	89.5 (30.00-2.12) 89.6 (30.00-2.12)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$	-	Xtrriage
Refinement program	X-PLOR 3.851	Depositor
R, R_{free}	0.196 , 0.228 0.200 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	19.2	Xtrriage
Anisotropy	0.557	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 22.5	EDS
L-test for twinning ¹	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.459 for h,-k,-l	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	16692	wwPDB-VP
Average B, all atoms (Å ²)	23.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.59% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Theoretical 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](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	A	0.95	2/1912 (0.1%)	1.21	14/2592 (0.5%)
1	B	0.91	0/1917	1.19	10/2599 (0.4%)
1	C	0.90	1/1917 (0.1%)	1.19	11/2599 (0.4%)
1	D	0.90	1/1917 (0.1%)	1.20	15/2599 (0.6%)
1	E	0.90	1/1912 (0.1%)	1.20	15/2592 (0.6%)
1	F	0.90	1/1917 (0.1%)	1.19	9/2599 (0.3%)
1	G	0.95	1/1912 (0.1%)	1.21	14/2592 (0.5%)
1	H	0.91	0/1917	1.19	10/2599 (0.4%)
All	All	0.92	7/15321 (0.0%)	1.20	98/20771 (0.5%)

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	118	VAL	CA-CB	6.23	1.60	1.53
1	E	118	VAL	CA-CB	6.21	1.60	1.53
1	A	6	VAL	CA-CB	5.41	1.61	1.54
1	G	6	VAL	CA-CB	5.36	1.61	1.54
1	F	176	VAL	CA-CB	5.23	1.60	1.54
1	C	176	VAL	CA-CB	5.19	1.60	1.54
1	A	121	PRO	CA-C	5.03	1.54	1.51

All (98) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	117	ASP	N-CA-C	7.67	122.72	112.30
1	H	117	ASP	N-CA-C	7.64	122.69	112.30
1	H	138	LYS	N-CA-C	7.52	121.56	112.38
1	G	106	GLU	N-CA-C	7.52	119.47	111.28
1	B	138	LYS	N-CA-C	7.51	121.55	112.38
1	A	106	GLU	N-CA-C	7.49	119.44	111.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	10	GLN	N-CA-C	7.12	120.03	110.35
1	H	10	GLN	N-CA-C	7.11	120.02	110.35
1	D	10	GLN	N-CA-C	6.85	120.17	110.23
1	F	114	ARG	N-CA-C	6.84	121.30	112.41
1	C	114	ARG	N-CA-C	6.83	121.29	112.41
1	E	10	GLN	N-CA-C	6.83	120.13	110.23
1	B	214	GLU	N-CA-C	-6.74	98.26	109.24
1	H	214	GLU	N-CA-C	-6.72	98.28	109.24
1	E	114	ARG	N-CA-C	6.68	122.97	113.02
1	D	114	ARG	N-CA-C	6.67	122.95	113.02
1	G	10	GLN	N-CA-C	6.60	119.55	110.24
1	G	163	GLN	N-CA-C	6.58	118.11	111.07
1	A	10	GLN	N-CA-C	6.57	119.51	110.24
1	A	163	GLN	N-CA-C	6.57	118.10	111.07
1	A	186	ARG	N-CA-C	-6.54	104.15	111.28
1	G	186	ARG	N-CA-C	-6.52	104.17	111.28
1	D	163	GLN	N-CA-C	6.43	118.28	111.28
1	E	163	GLN	N-CA-C	6.42	118.28	111.28
1	E	117	ASP	N-CA-C	6.36	122.49	113.02
1	F	165	VAL	N-CA-C	6.35	116.52	110.74
1	D	117	ASP	N-CA-C	6.33	122.45	113.02
1	A	114	ARG	N-CA-C	6.32	122.44	113.02
1	G	114	ARG	N-CA-C	6.30	122.41	113.02
1	G	199	ASP	N-CA-C	6.30	119.13	111.82
1	A	199	ASP	N-CA-C	6.30	119.12	111.82
1	C	165	VAL	N-CA-C	6.28	116.46	110.74
1	D	121	PRO	N-CA-C	-6.18	103.97	110.58
1	E	121	PRO	N-CA-C	-6.16	103.99	110.58
1	B	165	VAL	N-CA-C	6.15	116.33	110.74
1	H	165	VAL	N-CA-C	6.15	116.33	110.74
1	E	58	SER	N-CA-C	6.12	118.46	111.11
1	F	214	GLU	N-CA-C	-6.12	98.75	108.73
1	E	145	LEU	CA-C-N	6.12	126.03	119.85
1	E	145	LEU	C-N-CA	6.12	126.03	119.85
1	D	145	LEU	CA-C-N	6.12	126.03	119.85
1	D	145	LEU	C-N-CA	6.12	126.03	119.85
1	D	58	SER	N-CA-C	6.12	118.45	111.11
1	C	214	GLU	N-CA-C	-6.12	98.76	108.73
1	H	114	ARG	N-CA-C	6.08	120.56	112.30
1	B	114	ARG	N-CA-C	6.06	120.54	112.30
1	D	150	SER	N-CA-C	-6.02	100.60	109.81
1	E	150	SER	N-CA-C	-6.01	100.61	109.81

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	116	PHE	N-CA-C	5.97	117.59	111.14
1	F	116	PHE	N-CA-C	5.96	117.58	111.14
1	E	135	GLU	N-CA-C	5.93	117.75	111.28
1	C	75	TRP	N-CA-C	5.91	120.11	113.01
1	F	75	TRP	N-CA-C	5.90	120.09	113.01
1	D	135	GLU	N-CA-C	5.89	117.70	111.28
1	A	150	SER	N-CA-C	-5.78	101.65	110.14
1	G	150	SER	N-CA-C	-5.76	101.67	110.14
1	A	115	SER	N-CA-C	-5.66	103.06	110.53
1	B	80	ARG	NE-CZ-NH2	-5.66	114.11	119.20
1	G	181	HIS	N-CA-C	5.65	118.00	109.41
1	A	181	HIS	N-CA-C	5.63	117.96	109.41
1	H	80	ARG	NE-CZ-NH2	-5.63	114.14	119.20
1	E	205	ILE	CA-C-N	5.62	125.55	119.76
1	E	205	ILE	C-N-CA	5.62	125.55	119.76
1	D	205	ILE	CA-C-N	5.62	125.55	119.76
1	D	205	ILE	C-N-CA	5.62	125.55	119.76
1	G	115	SER	N-CA-C	-5.56	103.04	110.55
1	G	117	ASP	N-CA-C	5.54	121.92	113.61
1	A	117	ASP	N-CA-C	5.54	121.92	113.61
1	A	146	PRO	N-CA-C	5.54	120.18	111.38
1	G	223	LYS	CA-C-N	5.53	125.54	119.90
1	G	223	LYS	C-N-CA	5.53	125.54	119.90
1	G	146	PRO	N-CA-C	5.52	120.16	111.38
1	A	223	LYS	CA-C-N	5.51	125.52	119.90
1	A	223	LYS	C-N-CA	5.51	125.52	119.90
1	B	212	VAL	N-CA-C	5.44	115.79	108.17
1	A	138	LYS	N-CA-C	5.43	119.01	112.38
1	G	138	LYS	N-CA-C	5.43	119.01	112.38
1	H	212	VAL	N-CA-C	5.42	115.76	108.17
1	F	117	ASP	N-CA-C	5.41	121.72	113.61
1	C	117	ASP	N-CA-C	5.41	121.72	113.61
1	D	69	GLU	N-CA-C	-5.32	105.37	111.07
1	E	69	GLU	N-CA-C	-5.32	105.38	111.07
1	D	220	LYS	N-CA-C	-5.26	102.19	110.14
1	E	220	LYS	N-CA-C	-5.24	102.23	110.14
1	F	150	SER	N-CA-C	-5.20	102.49	110.14
1	F	181	HIS	N-CA-C	5.20	116.18	108.86
1	C	150	SER	N-CA-C	-5.18	102.52	110.14
1	C	181	HIS	N-CA-C	5.18	116.16	108.86
1	H	147	GLU	N-CA-C	-5.15	106.41	113.30
1	C	10	GLN	N-CA-C	5.13	117.73	110.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	55	SER	N-CA-C	-5.13	101.91	109.86
1	H	55	SER	N-CA-C	-5.13	101.91	109.86
1	B	147	GLU	N-CA-C	-5.12	106.44	113.30
1	F	10	GLN	N-CA-C	5.12	117.72	110.50
1	D	146	PRO	N-CA-C	5.06	119.42	111.38
1	E	146	PRO	N-CA-C	5.04	119.39	111.38
1	C	145	LEU	CA-C-N	5.01	124.91	119.85
1	C	145	LEU	C-N-CA	5.01	124.91	119.85

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	1868	0	1889	30	0
1	B	1873	0	1894	27	0
1	C	1873	0	1894	29	0
1	D	1873	0	1894	36	0
1	E	1868	0	1889	36	0
1	F	1873	0	1894	29	0
1	G	1868	0	1889	30	0
1	H	1873	0	1894	27	0
2	A	10	0	0	0	0
2	B	10	0	0	0	0
2	C	10	0	0	0	0
2	D	10	0	0	0	0
2	E	10	0	0	0	0
2	F	10	0	0	0	0
2	G	10	0	0	0	0
2	H	10	0	0	0	0
3	E	5	0	4	0	0
4	A	223	0	0	4	1
4	B	211	0	0	2	3
4	C	185	0	0	2	2
4	D	201	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	E	201	0	0	2	0
4	F	185	0	0	2	2
4	G	221	0	0	4	1
4	H	211	0	0	2	3
All	All	16692	0	15141	227	6

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 (227) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:234:ALA:O	1:G:234:ALA:O	2.01	0.79
1:G:231:GLU:HG2	4:G:773:HOH:O	1.82	0.79
1:A:231:GLU:HG2	4:A:610:HOH:O	1.82	0.79
1:H:10:GLN:NE2	1:H:15:GLU:HG2	2.00	0.76
1:B:10:GLN:NE2	1:B:15:GLU:HG2	2.00	0.76
1:F:4:VAL:HG13	1:F:212:VAL:HG22	1.72	0.72
1:C:4:VAL:HG13	1:C:212:VAL:HG22	1.72	0.72
1:G:134:ASP:HB3	4:G:638:HOH:O	1.89	0.71
1:A:134:ASP:HB3	4:A:474:HOH:O	1.89	0.71
1:B:7:ARG:HD3	1:B:207:THR:HG22	1.75	0.69
1:H:7:ARG:HD3	1:H:207:THR:HG22	1.75	0.69
1:D:69:GLU:HG3	1:C:62:GLN:NE2	2.08	0.69
1:E:69:GLU:HG3	1:F:62:GLN:NE2	2.08	0.69
1:D:134:ASP:HB3	4:D:470:HOH:O	1.92	0.68
1:E:134:ASP:HB3	4:E:470:HOH:O	1.92	0.68
1:A:8:HIS:CE1	1:A:59:ARG:HD2	2.31	0.66
1:G:8:HIS:CE1	1:G:59:ARG:HD2	2.31	0.66
1:F:100:THR:HG22	1:F:109:PHE:HD2	1.62	0.65
1:C:100:THR:HG22	1:C:109:PHE:HD2	1.62	0.65
1:B:26:LYS:HE2	4:B:442:HOH:O	1.98	0.64
1:H:26:LYS:HE2	4:H:442:HOH:O	1.98	0.64
1:A:78:VAL:HG13	1:B:78:VAL:HG13	1.81	0.63
1:G:78:VAL:HG13	1:H:78:VAL:HG13	1.81	0.63
1:B:4:VAL:HG13	1:B:212:VAL:HG22	1.80	0.62
1:H:4:VAL:HG13	1:H:212:VAL:HG22	1.80	0.62
1:B:8:HIS:CE1	1:B:59:ARG:HD2	2.36	0.61
1:H:8:HIS:CE1	1:H:59:ARG:HD2	2.36	0.61
1:C:170:LEU:HD13	1:C:176:VAL:CG2	2.32	0.59
1:C:8:HIS:CE1	1:C:59:ARG:HD2	2.37	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:8:HIS:CE1	1:F:59:ARG:HD2	2.37	0.59
1:F:170:LEU:HD13	1:F:176:VAL:CG2	2.32	0.59
1:B:104:PHE:HB3	1:B:108:LYS:HB3	1.85	0.58
1:H:104:PHE:HB3	1:H:108:LYS:HB3	1.85	0.58
1:E:8:HIS:CE1	1:E:59:ARG:HD2	2.40	0.57
1:D:8:HIS:CE1	1:D:59:ARG:HD2	2.40	0.57
1:D:19:PHE:HB2	1:D:92:LEU:O	2.03	0.57
1:E:19:PHE:HB2	1:E:92:LEU:O	2.03	0.57
1:F:8:HIS:NE2	1:F:59:ARG:HD2	2.20	0.56
1:C:8:HIS:NE2	1:C:59:ARG:HD2	2.20	0.56
1:F:26:LYS:HE3	4:F:564:HOH:O	2.06	0.55
1:C:26:LYS:HE3	4:C:564:HOH:O	2.06	0.55
1:C:170:LEU:HD13	1:C:176:VAL:HG23	1.89	0.55
1:B:30:LYS:O	1:B:34:GLU:HG3	2.06	0.54
1:G:185:LEU:O	1:G:189:VAL:HG23	2.07	0.54
1:C:151:LEU:O	1:C:155:ILE:HG13	2.07	0.54
1:A:185:LEU:O	1:A:189:VAL:HG23	2.07	0.54
1:F:151:LEU:O	1:F:155:ILE:HG13	2.07	0.54
1:F:170:LEU:HD13	1:F:176:VAL:HG23	1.89	0.54
1:H:30:LYS:O	1:H:34:GLU:HG3	2.06	0.54
1:G:116:PHE:CE1	1:G:190:LYS:HE3	2.43	0.54
1:A:116:PHE:CE1	1:A:190:LYS:HE3	2.43	0.54
1:H:36:ALA:O	1:H:40:GLU:HG2	2.07	0.54
1:C:55:SER:HB2	1:C:85:ASN:OD1	2.08	0.53
1:B:36:ALA:O	1:B:40:GLU:HG2	2.07	0.53
1:F:55:SER:HB2	1:F:85:ASN:OD1	2.08	0.53
1:D:185:LEU:O	1:D:189:VAL:HG23	2.08	0.53
1:E:185:LEU:O	1:E:189:VAL:HG23	2.08	0.53
1:D:186:ARG:HD3	1:D:203:LEU:O	2.09	0.52
1:C:19:PHE:HB2	1:C:92:LEU:O	2.09	0.52
1:F:19:PHE:HB2	1:F:92:LEU:O	2.09	0.52
1:G:30:LYS:O	1:G:34:GLU:HG3	2.10	0.52
1:A:30:LYS:O	1:A:34:GLU:HG3	2.10	0.52
1:E:186:ARG:HD3	1:E:203:LEU:O	2.09	0.52
1:D:206:PRO:HD2	1:D:227:TYR:OH	2.10	0.52
1:E:206:PRO:HD2	1:E:227:TYR:OH	2.10	0.52
1:G:69:GLU:OE2	1:H:26:LYS:HE3	2.08	0.52
1:A:69:GLU:OE2	1:B:26:LYS:HE3	2.08	0.52
1:E:87:ARG:HB2	1:E:154:VAL:HG21	1.93	0.51
1:D:87:ARG:HB2	1:D:154:VAL:HG21	1.93	0.51
1:E:80:ARG:HG2	1:E:80:ARG:HH11	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:80:ARG:HH11	1:D:80:ARG:HG2	1.76	0.50
1:C:8:HIS:CE1	1:C:59:ARG:CD	2.93	0.50
1:F:8:HIS:CE1	1:F:59:ARG:CD	2.93	0.50
1:F:96:ASP:HB3	1:F:99:GLU:HB2	1.93	0.50
1:B:23:VAL:O	1:B:59:ARG:NH2	2.45	0.50
1:C:96:ASP:HB3	1:C:99:GLU:HB2	1.93	0.50
1:H:23:VAL:O	1:H:59:ARG:NH2	2.45	0.50
1:B:7:ARG:CD	1:B:207:THR:HG22	2.42	0.49
1:E:206:PRO:HD2	1:E:227:TYR:CE1	2.47	0.49
1:D:30:LYS:O	1:D:34:GLU:HG3	2.13	0.49
1:D:206:PRO:HD2	1:D:227:TYR:CE1	2.47	0.49
1:C:13:TRP:CZ3	1:C:94:GLY:HA2	2.47	0.49
1:E:30:LYS:O	1:E:34:GLU:HG3	2.13	0.49
1:F:13:TRP:CZ3	1:F:94:GLY:HA2	2.47	0.49
1:D:69:GLU:HA	1:D:74:LEU:HD22	1.94	0.49
1:A:80:ARG:HH11	1:A:80:ARG:HG2	1.77	0.49
1:E:206:PRO:HD2	1:E:227:TYR:CZ	2.47	0.49
1:G:80:ARG:HG2	1:G:80:ARG:HH11	1.77	0.49
1:H:7:ARG:CD	1:H:207:THR:HG22	2.42	0.49
1:E:69:GLU:HA	1:E:74:LEU:HD22	1.94	0.49
1:D:206:PRO:HD2	1:D:227:TYR:CZ	2.47	0.49
1:A:186:ARG:HD3	1:A:203:LEU:O	2.12	0.49
1:C:23:VAL:O	1:C:59:ARG:NH2	2.46	0.49
1:F:23:VAL:O	1:F:59:ARG:NH2	2.46	0.49
1:G:186:ARG:HD3	1:G:203:LEU:O	2.12	0.49
1:B:8:HIS:NE2	1:B:59:ARG:HD2	2.27	0.49
1:H:8:HIS:NE2	1:H:59:ARG:HD2	2.27	0.49
1:D:49:PRO:O	1:D:73:ARG:NH1	2.44	0.49
1:B:185:LEU:O	1:B:189:VAL:HG23	2.13	0.49
1:E:49:PRO:O	1:E:73:ARG:NH1	2.44	0.49
1:C:52:LEU:HD13	1:C:177:MET:HE2	1.95	0.48
1:H:185:LEU:O	1:H:189:VAL:HG23	2.13	0.48
1:F:52:LEU:HD13	1:F:177:MET:HE2	1.95	0.48
1:G:170:LEU:HD13	1:G:176:VAL:HG23	1.94	0.48
1:A:170:LEU:HD13	1:A:176:VAL:HG23	1.94	0.48
1:D:23:VAL:O	1:D:59:ARG:NH2	2.46	0.48
1:A:78:VAL:CG1	1:B:78:VAL:HG13	2.43	0.48
1:E:23:VAL:O	1:E:59:ARG:NH2	2.46	0.48
1:G:78:VAL:CG1	1:H:78:VAL:HG13	2.43	0.48
1:F:103:LYS:O	1:F:103:LYS:HG2	2.13	0.48
1:D:196:SER:C	1:D:198:ALA:N	2.71	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:9:GLY:HA2	1:A:207:THR:HB	1.95	0.48
1:B:122:PRO:HA	1:B:148:THR:HB	1.96	0.48
1:H:122:PRO:HA	1:H:148:THR:HB	1.96	0.48
1:C:103:LYS:HG2	1:C:103:LYS:O	2.13	0.48
1:E:196:SER:C	1:E:198:ALA:N	2.71	0.48
1:C:9:GLY:HA2	1:C:207:THR:HB	1.96	0.48
1:G:9:GLY:HA2	1:G:207:THR:HB	1.95	0.48
1:C:87:ARG:HD3	1:C:149:GLU:O	2.14	0.48
1:F:87:ARG:HD3	1:F:149:GLU:O	2.14	0.48
1:F:9:GLY:HA2	1:F:207:THR:HB	1.96	0.47
1:E:210:PRO:HB2	1:E:228:LEU:HD12	1.96	0.47
1:G:26:LYS:HE3	4:G:686:HOH:O	2.13	0.47
1:D:210:PRO:HB2	1:D:228:LEU:HD12	1.96	0.47
1:A:26:LYS:HE3	4:A:522:HOH:O	2.13	0.47
1:D:1:PRO:HA	4:D:447:HOH:O	2.15	0.47
1:A:210:PRO:HB2	1:A:228:LEU:HD12	1.96	0.47
1:E:1:PRO:HA	4:E:447:HOH:O	2.15	0.47
1:G:210:PRO:HB2	1:G:228:LEU:HD12	1.96	0.47
1:D:8:HIS:NE2	1:D:59:ARG:HD2	2.30	0.47
1:E:8:HIS:NE2	1:E:59:ARG:HD2	2.30	0.47
1:D:116:PHE:CE1	1:D:190:LYS:HE3	2.50	0.47
1:E:116:PHE:CE1	1:E:190:LYS:HE3	2.50	0.47
1:G:73:ARG:NH2	1:H:135:GLU:OE1	2.49	0.47
1:G:223:LYS:NZ	4:G:565:HOH:O	2.47	0.47
1:A:73:ARG:NH2	1:B:135:GLU:OE1	2.49	0.46
1:B:211:LEU:HD13	1:B:213:PHE:HE1	1.80	0.46
1:H:211:LEU:HD13	1:H:213:PHE:HE1	1.80	0.46
1:A:131:GLN:CD	1:A:131:GLN:N	2.74	0.46
1:G:131:GLN:N	1:G:131:GLN:CD	2.74	0.46
1:E:135:GLU:OE1	1:F:73:ARG:NH2	2.49	0.46
1:D:135:GLU:OE1	1:C:73:ARG:NH2	2.49	0.45
1:E:131:GLN:N	1:E:131:GLN:CD	2.74	0.45
1:D:131:GLN:N	1:D:131:GLN:CD	2.74	0.45
1:F:144:VAL:HG22	1:F:144:VAL:O	2.16	0.45
1:C:144:VAL:O	1:C:144:VAL:HG22	2.16	0.45
1:H:19:PHE:HB2	1:H:92:LEU:O	2.17	0.45
1:B:19:PHE:HB2	1:B:92:LEU:O	2.17	0.45
1:B:206:PRO:HD2	1:B:227:TYR:OH	2.17	0.45
1:H:206:PRO:HD2	1:H:227:TYR:OH	2.17	0.45
1:B:8:HIS:CE1	1:B:59:ARG:CD	2.99	0.45
1:H:8:HIS:CE1	1:H:59:ARG:CD	2.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:82:TRP:O	1:D:85:ASN:HB2	2.17	0.44
1:E:82:TRP:O	1:E:85:ASN:HB2	2.17	0.44
1:G:1:PRO:HD2	1:G:215:LEU:O	2.16	0.44
1:A:1:PRO:HD2	1:A:215:LEU:O	2.16	0.44
1:D:196:SER:C	1:D:198:ALA:H	2.26	0.44
1:E:196:SER:C	1:E:198:ALA:H	2.26	0.44
1:G:19:PHE:HB2	1:G:92:LEU:O	2.17	0.44
1:A:19:PHE:HB2	1:A:92:LEU:O	2.17	0.44
1:E:86:GLU:OE1	1:E:183:ASN:HB2	2.17	0.44
1:D:86:GLU:OE1	1:D:183:ASN:HB2	2.17	0.44
1:D:141:ASP:O	1:D:144:VAL:HG12	2.17	0.43
1:D:45:LYS:N	1:D:45:LYS:HD2	2.33	0.43
1:A:223:LYS:NZ	4:A:623:HOH:O	2.50	0.43
1:E:9:GLY:HA2	1:E:207:THR:HB	2.00	0.43
1:E:141:ASP:O	1:E:144:VAL:HG12	2.17	0.43
1:D:9:GLY:HA2	1:D:207:THR:HB	2.00	0.43
1:E:45:LYS:HD2	1:E:45:LYS:N	2.34	0.43
1:A:213:PHE:CE2	1:A:225:SER:HB3	2.54	0.43
1:G:213:PHE:CE2	1:G:225:SER:HB3	2.54	0.43
1:C:13:TRP:CD2	1:C:25:VAL:HG21	2.54	0.43
1:A:182:GLY:O	1:A:186:ARG:HG3	2.19	0.43
1:F:13:TRP:CD2	1:F:25:VAL:HG21	2.54	0.43
1:G:182:GLY:O	1:G:186:ARG:HG3	2.19	0.43
1:A:211:LEU:HG	1:A:227:TYR:CE1	2.54	0.42
1:E:54:THR:OG1	1:E:80:ARG:HG2	2.18	0.42
1:G:211:LEU:HG	1:G:227:TYR:CE1	2.54	0.42
1:D:54:THR:OG1	1:D:80:ARG:HG2	2.18	0.42
1:A:206:PRO:HD2	1:A:227:TYR:CE1	2.53	0.42
1:D:90:GLY:C	1:D:123:ILE:HB	2.45	0.42
1:G:73:ARG:HH22	1:H:135:GLU:CD	2.28	0.42
1:A:73:ARG:HH22	1:B:135:GLU:CD	2.28	0.42
1:A:86:GLU:OE1	1:A:183:ASN:HB2	2.19	0.42
1:E:90:GLY:C	1:E:123:ILE:HB	2.45	0.42
1:G:206:PRO:HD2	1:G:227:TYR:CE1	2.53	0.42
1:G:86:GLU:OE1	1:G:183:ASN:HB2	2.19	0.42
1:D:211:LEU:CD2	1:D:225:SER:HB2	2.49	0.42
1:E:211:LEU:CD2	1:E:225:SER:HB2	2.49	0.42
1:A:170:LEU:HD13	1:A:176:VAL:CG2	2.50	0.41
1:A:151:LEU:O	1:A:155:ILE:HG13	2.20	0.41
1:E:139:TYR:HB3	1:H:168:LYS:HG3	2.01	0.41
1:G:170:LEU:HD13	1:G:176:VAL:CG2	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:139:TYR:HB3	1:B:168:LYS:HG3	2.01	0.41
1:B:10:GLN:HB2	1:B:14:ASN:HB3	2.02	0.41
1:B:83:ARG:HD2	1:B:161:TYR:HB2	2.02	0.41
1:G:151:LEU:O	1:G:155:ILE:HG13	2.20	0.41
1:H:83:ARG:HD2	1:H:161:TYR:HB2	2.02	0.41
1:B:90:GLY:C	1:B:123:ILE:HB	2.46	0.41
1:F:80:ARG:NH2	4:F:551:HOH:O	2.52	0.41
1:H:90:GLY:C	1:H:123:ILE:HB	2.46	0.41
1:D:7:ARG:NH1	1:D:205:ILE:O	2.50	0.41
1:C:80:ARG:NH2	4:C:551:HOH:O	2.52	0.41
1:H:10:GLN:HB2	1:H:14:ASN:HB3	2.03	0.41
1:E:7:ARG:NH1	1:E:205:ILE:O	2.50	0.41
1:F:203:LEU:HG	1:F:204:ASN:N	2.34	0.41
1:D:211:LEU:HD13	1:D:213:PHE:CE1	2.56	0.41
1:C:100:THR:HG22	1:C:109:PHE:CD2	2.49	0.41
1:C:203:LEU:HG	1:C:204:ASN:N	2.35	0.41
1:C:131:GLN:N	1:C:131:GLN:CD	2.79	0.41
1:F:100:THR:HG22	1:F:109:PHE:CD2	2.49	0.41
1:F:131:GLN:N	1:F:131:GLN:CD	2.79	0.41
1:E:211:LEU:HD13	1:E:213:PHE:CE1	2.56	0.40
1:C:223:LYS:HB3	1:C:223:LYS:HE2	1.87	0.40
1:B:26:LYS:HB2	4:B:547:HOH:O	2.21	0.40
1:H:26:LYS:HB2	4:H:547:HOH:O	2.21	0.40
1:D:211:LEU:HD22	1:D:225:SER:HB2	2.02	0.40
1:A:83:ARG:HD3	1:A:157:ARG:O	2.20	0.40
1:E:28:SER:O	1:E:32:GLN:HG3	2.22	0.40
1:D:28:SER:O	1:D:32:GLN:HG3	2.22	0.40
1:C:22:TRP:HB3	1:C:131:GLN:HG2	2.03	0.40
1:E:211:LEU:HD22	1:E:225:SER:HB2	2.02	0.40
1:F:22:TRP:HB3	1:F:131:GLN:HG2	2.03	0.40
1:F:223:LYS:HB3	1:F:223:LYS:HE2	1.87	0.40
1:G:83:ARG:HD3	1:G:157:ARG:O	2.20	0.40
1:C:82:TRP:O	1:C:85:ASN:HB2	2.21	0.40
1:F:82:TRP:O	1:F:85:ASN:HB2	2.21	0.40

All (6) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:681:HOH:O	4:H:510:HOH:O[1_655]	1.68	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:C:681:HOH:O	4:B:510:HOH:O[1_655]	1.88	0.32
4:A:585:HOH:O	4:H:594:HOH:O[2_555]	1.95	0.25
4:F:687:HOH:O	4:H:593:HOH:O[1_655]	2.04	0.16
4:C:687:HOH:O	4:B:593:HOH:O[1_655]	2.07	0.13
4:B:594:HOH:O	4:G:748:HOH:O[2_556]	2.13	0.07

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	232/246 (94%)	228 (98%)	4 (2%)	0	100	100
1	B	233/246 (95%)	229 (98%)	4 (2%)	0	100	100
1	C	233/246 (95%)	226 (97%)	7 (3%)	0	100	100
1	D	233/246 (95%)	224 (96%)	9 (4%)	0	100	100
1	E	232/246 (94%)	223 (96%)	9 (4%)	0	100	100
1	F	233/246 (95%)	226 (97%)	7 (3%)	0	100	100
1	G	232/246 (94%)	228 (98%)	4 (2%)	0	100	100
1	H	233/246 (95%)	229 (98%)	4 (2%)	0	100	100
All	All	1861/1968 (95%)	1813 (97%)	48 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	202/207 (98%)	192 (95%)	10 (5%)	22	21
1	B	202/207 (98%)	184 (91%)	18 (9%)	9	6
1	C	202/207 (98%)	186 (92%)	16 (8%)	11	8
1	D	202/207 (98%)	188 (93%)	14 (7%)	14	11
1	E	202/207 (98%)	188 (93%)	14 (7%)	14	11
1	F	202/207 (98%)	186 (92%)	16 (8%)	11	8
1	G	202/207 (98%)	192 (95%)	10 (5%)	22	21
1	H	202/207 (98%)	184 (91%)	18 (9%)	9	6
All	All	1616/1656 (98%)	1500 (93%)	116 (7%)	13	10

All (116) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	17	ASN
1	D	26	LYS
1	D	59	ARG
1	D	74	LEU
1	D	78	VAL
1	D	89	TYR
1	D	92	LEU
1	D	99	GLU
1	D	107	GLU
1	D	111	THR
1	D	145	LEU
1	D	153	LEU
1	D	170	LEU
1	D	211	LEU
1	C	4	VAL
1	C	17	ASN
1	C	30	LYS
1	C	41	LEU
1	C	78	VAL
1	C	80	ARG
1	C	87	ARG
1	C	89	TYR
1	C	145	LEU
1	C	151	LEU
1	C	153	LEU
1	C	170	LEU
1	C	202	LYS

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Mol	Chain	Res	Type
1	C	211	LEU
1	C	219	LEU
1	C	231	GLU
1	A	4	VAL
1	A	17	ASN
1	A	74	LEU
1	A	89	TYR
1	A	92	LEU
1	A	120	PRO
1	A	145	LEU
1	A	153	LEU
1	A	170	LEU
1	A	211	LEU
1	B	4	VAL
1	B	17	ASN
1	B	41	LEU
1	B	78	VAL
1	B	80	ARG
1	B	89	TYR
1	B	92	LEU
1	B	111	THR
1	B	132	LYS
1	B	134	ASP
1	B	145	LEU
1	B	151	LEU
1	B	153	LEU
1	B	170	LEU
1	B	211	LEU
1	B	219	LEU
1	B	221	PRO
1	B	231	GLU
1	E	17	ASN
1	E	26	LYS
1	E	59	ARG
1	E	74	LEU
1	E	78	VAL
1	E	89	TYR
1	E	92	LEU
1	E	99	GLU
1	E	107	GLU
1	E	111	THR
1	E	145	LEU

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Mol	Chain	Res	Type
1	E	153	LEU
1	E	170	LEU
1	E	211	LEU
1	F	4	VAL
1	F	17	ASN
1	F	30	LYS
1	F	41	LEU
1	F	78	VAL
1	F	80	ARG
1	F	87	ARG
1	F	89	TYR
1	F	145	LEU
1	F	151	LEU
1	F	153	LEU
1	F	170	LEU
1	F	202	LYS
1	F	211	LEU
1	F	219	LEU
1	F	231	GLU
1	G	4	VAL
1	G	17	ASN
1	G	74	LEU
1	G	89	TYR
1	G	92	LEU
1	G	120	PRO
1	G	145	LEU
1	G	153	LEU
1	G	170	LEU
1	G	211	LEU
1	H	4	VAL
1	H	17	ASN
1	H	41	LEU
1	H	78	VAL
1	H	80	ARG
1	H	89	TYR
1	H	92	LEU
1	H	111	THR
1	H	132	LYS
1	H	134	ASP
1	H	145	LEU
1	H	151	LEU
1	H	153	LEU

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Mol	Chain	Res	Type
1	H	170	LEU
1	H	211	LEU
1	H	219	LEU
1	H	221	PRO
1	H	231	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	17	ASN
1	D	65	ASN
1	D	183	ASN
1	C	17	ASN
1	C	62	GLN
1	C	65	ASN
1	C	79	ASN
1	A	10	GLN
1	A	17	ASN
1	A	33	GLN
1	A	65	ASN
1	A	79	ASN
1	A	143	ASN
1	A	218	ASN
1	B	10	GLN
1	B	17	ASN
1	B	33	GLN
1	B	62	GLN
1	B	65	ASN
1	B	79	ASN
1	E	17	ASN
1	E	65	ASN
1	E	183	ASN
1	F	17	ASN
1	F	62	GLN
1	F	65	ASN
1	F	79	ASN
1	G	10	GLN
1	G	17	ASN
1	G	33	GLN
1	G	65	ASN
1	G	79	ASN
1	G	143	ASN

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Mol	Chain	Res	Type
1	G	218	ASN
1	H	10	GLN
1	H	17	ASN
1	H	33	GLN
1	H	62	GLN
1	H	65	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

17 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	SO4	C	300	-	4,4,4	0.35	0	6,6,6	0.65	0
2	SO4	A	300	-	4,4,4	0.30	0	6,6,6	0.89	0
2	SO4	E	300	-	4,4,4	0.37	0	6,6,6	0.28	0
2	SO4	H	301	-	4,4,4	0.39	0	6,6,6	0.32	0
2	SO4	A	301	-	4,4,4	0.44	0	6,6,6	0.50	0
2	SO4	E	301	-	4,4,4	0.51	0	6,6,6	0.18	0
2	SO4	F	300	-	4,4,4	0.34	0	6,6,6	0.65	0
3	ALA	E	302	-	3,4,5	0.87	0	2,4,6	1.71	1 (50%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	SO4	C	301	-	4,4,4	0.48	0	6,6,6	0.26	0
2	SO4	G	301	-	4,4,4	0.44	0	6,6,6	0.50	0
2	SO4	F	301	-	4,4,4	0.48	0	6,6,6	0.26	0
2	SO4	D	300	-	4,4,4	0.37	0	6,6,6	0.28	0
2	SO4	B	300	-	4,4,4	0.30	0	6,6,6	0.62	0
2	SO4	G	300	-	4,4,4	0.30	0	6,6,6	0.89	0
2	SO4	B	301	-	4,4,4	0.39	0	6,6,6	0.31	0
2	SO4	H	300	-	4,4,4	0.30	0	6,6,6	0.62	0
2	SO4	D	301	-	4,4,4	0.51	0	6,6,6	0.18	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	ALA	E	302	-	-	0/1/2/4	-

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	302	ALA	O-C-CA	-2.42	116.49	124.23

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	234/246 (95%)	-1.77	0 100 100	4, 15, 44, 90	0
1	B	235/246 (95%)	-1.73	0 100 100	6, 18, 43, 79	0
1	C	235/246 (95%)	-1.66	0 100 100	8, 22, 57, 86	0
1	D	235/246 (95%)	-1.69	0 100 100	8, 19, 51, 92	0
1	E	234/246 (95%)	-1.69	0 100 100	8, 19, 51, 92	0
1	F	235/246 (95%)	-1.66	0 100 100	8, 22, 57, 86	0
1	G	234/246 (95%)	-1.77	0 100 100	4, 15, 44, 90	0
1	H	235/246 (95%)	-1.72	0 100 100	6, 18, 43, 79	0
All	All	1877/1968 (95%)	-1.71	0 100 100	4, 19, 50, 92	0

There are no RSRZ outliers to report.

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	ALA	E	302	5/6	0.95	0.06	74,82,88,91	0
2	SO4	F	301	5/5	0.97	0.08	89,91,95,98	0
2	SO4	C	301	5/5	0.97	0.09	89,91,95,98	0
2	SO4	E	301	5/5	0.98	0.07	75,83,86,87	0
2	SO4	B	301	5/5	0.99	0.04	51,53,56,60	0
2	SO4	H	301	5/5	0.99	0.04	51,53,56,60	0
2	SO4	D	301	5/5	0.99	0.06	75,83,86,87	0
2	SO4	C	300	5/5	1.00	0.01	24,29,34,35	0
2	SO4	E	300	5/5	1.00	0.04	38,42,47,48	0
2	SO4	D	300	5/5	1.00	0.04	38,42,47,48	0
2	SO4	F	300	5/5	1.00	0.02	24,29,34,35	0
2	SO4	A	300	5/5	1.00	0.02	24,28,33,35	0
2	SO4	G	300	5/5	1.00	0.02	24,28,33,35	0
2	SO4	G	301	5/5	1.00	0.02	25,33,36,37	0
2	SO4	H	300	5/5	1.00	0.02	17,22,27,28	0
2	SO4	A	301	5/5	1.00	0.02	25,33,36,37	0
2	SO4	B	300	5/5	1.00	0.01	17,22,27,28	0

6.5 Other polymers [i](#)

There are no such residues in this entry.