Full wwPDB X-ray Structure Validation Report (i)

Nov 5, 2023 – 02:57 PM EST

PDB ID	:	8E37
Title	:	Structure of Campylobacter concisus wild-type SeMet PglC
Authors	:	Vuksanovic, N.; Ray, L.C.; Imperiali, B.; Allen, K.N.
Deposited on	:	2022-08-16
Resolution	:	3.01 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:

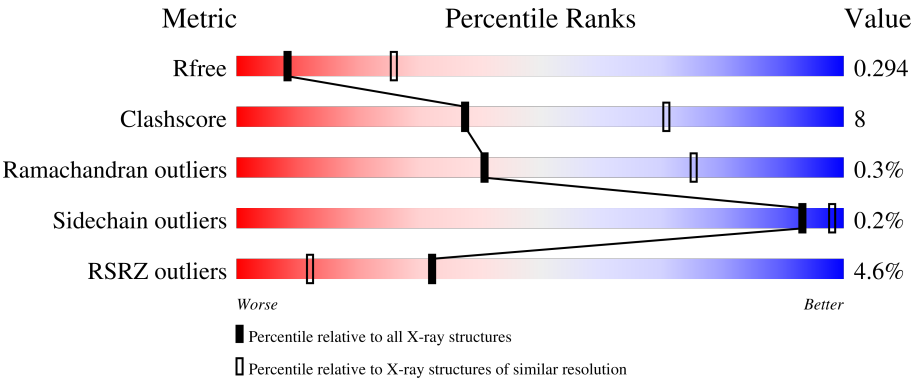
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, 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 3.01 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	2399 (3.04-3.00)
Clashscore	141614	2734 (3.04-3.00)
Ramachandran outliers	138981	2640 (3.04-3.00)
Sidechain outliers	138945	2643 (3.04-3.00)
RSRZ outliers	127900	2287 (3.04-3.00)

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	205	3% 67% 23% 10%
1	B	205	3% 71% 19% 10%
1	C	205	4% 73% 18% 10%
1	D	205	6% 75% 16% 10%
1	E	205	6% 70% 19% · 10%

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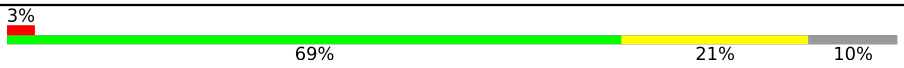
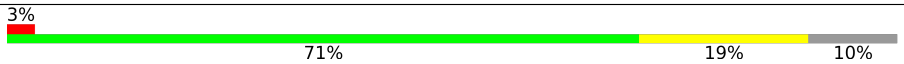
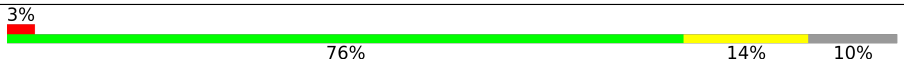
Mol	Chain	Length	Quality of chain
1	F	205	
1	G	205	
1	H	205	

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 12088 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 N,N'-diacetylbacilliosaminyl-1-phosphate transferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	A	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	C	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	D	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	E	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	F	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	G	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			
1	H	185	Total	C	N	O	Se	0	0	0
			1511	988	256	263	4			

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-3	SER	-	expression tag	UNP A7ZET4
B	-2	GLY	-	expression tag	UNP A7ZET4
B	-1	SER	-	expression tag	UNP A7ZET4
B	0	GLY	-	expression tag	UNP A7ZET4
A	-3	SER	-	expression tag	UNP A7ZET4
A	-2	GLY	-	expression tag	UNP A7ZET4
A	-1	SER	-	expression tag	UNP A7ZET4
A	0	GLY	-	expression tag	UNP A7ZET4
C	-3	SER	-	expression tag	UNP A7ZET4
C	-2	GLY	-	expression tag	UNP A7ZET4
C	-1	SER	-	expression tag	UNP A7ZET4
C	0	GLY	-	expression tag	UNP A7ZET4
D	-3	SER	-	expression tag	UNP A7ZET4

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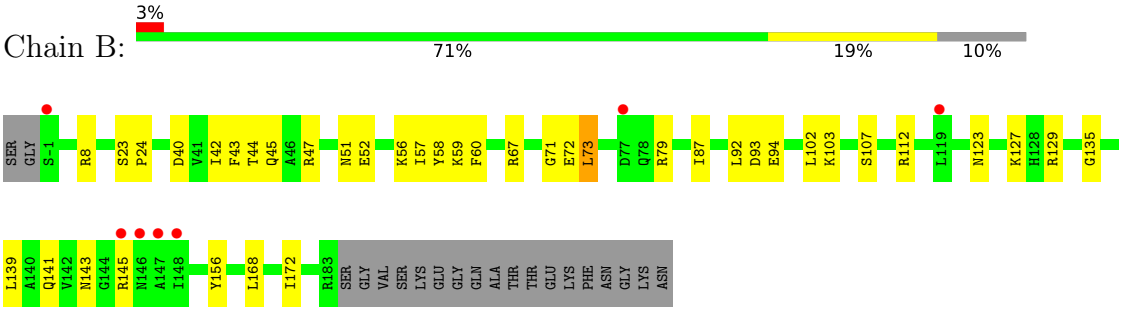
Chain	Residue	Modelled	Actual	Comment	Reference
D	-2	GLY	-	expression tag	UNP A7ZET4
D	-1	SER	-	expression tag	UNP A7ZET4
D	0	GLY	-	expression tag	UNP A7ZET4
E	-3	SER	-	expression tag	UNP A7ZET4
E	-2	GLY	-	expression tag	UNP A7ZET4
E	-1	SER	-	expression tag	UNP A7ZET4
E	0	GLY	-	expression tag	UNP A7ZET4
F	-3	SER	-	expression tag	UNP A7ZET4
F	-2	GLY	-	expression tag	UNP A7ZET4
F	-1	SER	-	expression tag	UNP A7ZET4
F	0	GLY	-	expression tag	UNP A7ZET4
G	-3	SER	-	expression tag	UNP A7ZET4
G	-2	GLY	-	expression tag	UNP A7ZET4
G	-1	SER	-	expression tag	UNP A7ZET4
G	0	GLY	-	expression tag	UNP A7ZET4
H	-3	SER	-	expression tag	UNP A7ZET4
H	-2	GLY	-	expression tag	UNP A7ZET4
H	-1	SER	-	expression tag	UNP A7ZET4
H	0	GLY	-	expression tag	UNP A7ZET4

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.

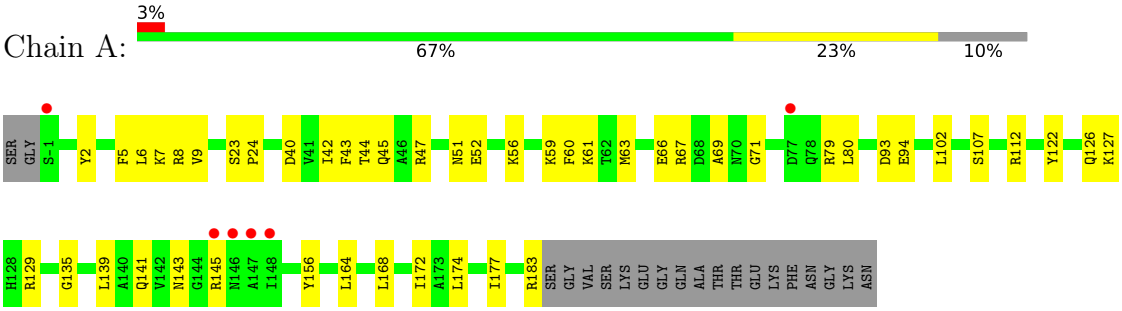
• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

Chain B:



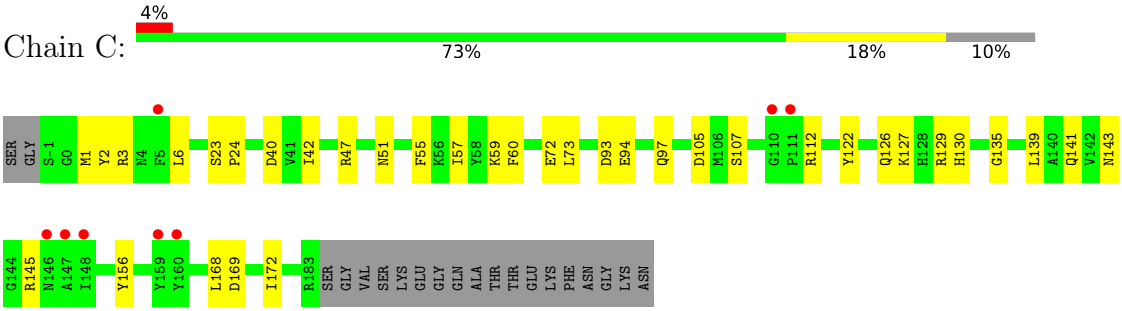
• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

Chain A:



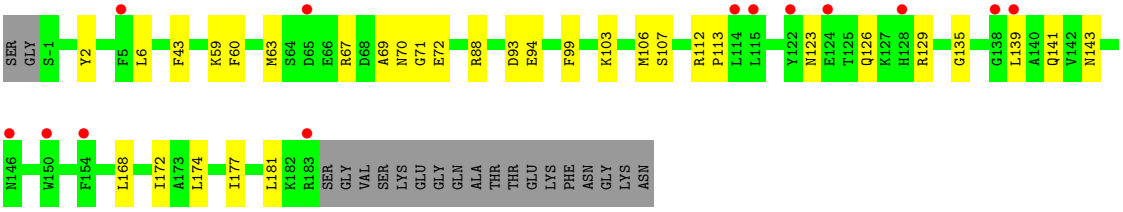
• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

Chain C:



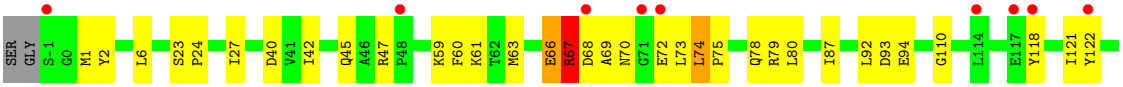
• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

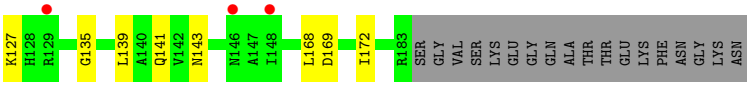
Chain D:



• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

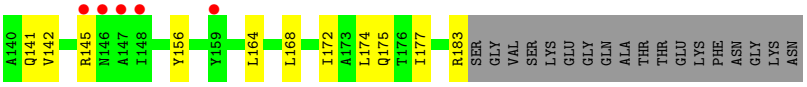
Chain E:





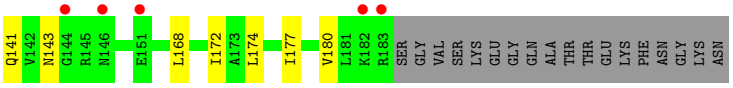
• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

Chain F:



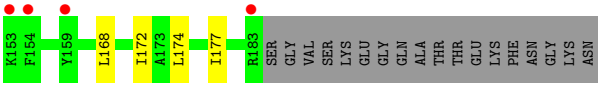
• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

Chain G:



• Molecule 1: N,N'-diacetylbacilliosaminyl-1-phosphate transferase

Chain H:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	142.82Å 142.82Å 192.56Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	37.99 – 3.01 39.92 – 3.01	Depositor EDS
% Data completeness (in resolution range)	82.1 (37.99-3.01) 77.0 (39.92-3.01)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.67 (at 3.01Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.266 , 0.296 0.265 , 0.294	Depositor DCC
R_{free} test set	1938 reflections (5.15%)	wwPDB-VP
Wilson B-factor (Å^2)	83.8	Xtriage
Anisotropy	0.268	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 45.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.42$, $< L^2 > = 0.25$	Xtriage
Estimated twinning fraction	0.117 for -h,-k,l	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	12088	wwPDB-VP
Average B, all atoms (Å^2)	111.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 18.30% 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

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	0.25	0/1538	0.48	0/2065
1	B	0.25	0/1538	0.49	0/2065
1	C	0.25	0/1538	0.49	0/2065
1	D	0.25	0/1538	0.50	0/2065
1	E	0.24	0/1538	0.52	0/2065
1	F	0.25	0/1538	0.51	0/2065
1	G	0.25	0/1538	0.49	0/2065
1	H	0.25	0/1538	0.50	0/2065
All	All	0.25	0/12304	0.50	0/16520

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	1511	0	1580	33	0
1	B	1511	0	1580	25	0
1	C	1511	0	1580	22	1
1	D	1511	0	1580	22	0
1	E	1511	0	1580	33	0
1	F	1511	0	1580	29	1
1	G	1511	0	1580	26	0
1	H	1511	0	1580	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	12088	0	12640	191	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (191) 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:D:72:GLU:OE2	1:E:47:ARG:NH1	2.10	0.85
1:E:68:ASP:O	1:E:70:ASN:N	2.11	0.84
1:A:69:ALA:HB2	1:C:3:ARG:HH22	1.49	0.78
1:B:79:ARG:NH2	1:H:69:ALA:O	2.18	0.77
1:C:112:ARG:O	1:C:129:ARG:NH2	2.16	0.77
1:A:112:ARG:O	1:A:129:ARG:NH2	2.19	0.76
1:C:2:TYR:HA	1:C:6:LEU:HB2	1.68	0.74
1:A:61:LYS:NZ	1:G:70:ASN:OD1	2.19	0.74
1:A:79:ARG:NH2	1:G:69:ALA:O	2.21	0.74
1:F:2:TYR:HA	1:F:6:LEU:HB2	1.70	0.74
1:A:127:LYS:HE2	1:G:54:ILE:HG21	1.70	0.72
1:A:122:TYR:O	1:A:127:LYS:NZ	2.23	0.70
1:B:44:THR:HB	1:B:56:LYS:HB3	1.73	0.70
1:F:63:MSE:HG2	1:F:80:LEU:HD13	1.74	0.69
1:A:145:ARG:NH2	1:A:156:TYR:OH	2.26	0.69
1:C:139:LEU:O	1:C:143:ASN:ND2	2.26	0.67
1:E:63:MSE:HG2	1:E:80:LEU:HD13	1.76	0.67
1:G:60:PHE:HB2	1:G:93:ASP:HA	1.75	0.67
1:B:145:ARG:NH2	1:B:156:TYR:OH	2.26	0.67
1:E:74:LEU:HG	1:E:75:PRO:HD2	1.77	0.65
1:D:70:ASN:OD1	1:E:61:LYS:NZ	2.26	0.65
1:D:139:LEU:O	1:D:143:ASN:ND2	2.28	0.65
1:D:69:ALA:O	1:E:79:ARG:NH2	2.26	0.65
1:F:112:ARG:O	1:F:129:ARG:NH2	2.30	0.64
1:B:59:LYS:NZ	1:B:94:GLU:OE1	2.30	0.64
1:G:8:ARG:NH2	1:G:102:LEU:O	2.30	0.64
1:B:112:ARG:O	1:B:129:ARG:NH2	2.31	0.63
1:A:183:ARG:HD3	1:F:183:ARG:HB3	1.79	0.62
1:E:67:ARG:HH12	1:E:78:GLN:HB2	1.65	0.62
1:H:60:PHE:HB2	1:H:93:ASP:HA	1.81	0.62
1:H:63:MSE:HE1	1:H:76:ASP:HA	1.82	0.62
1:A:67:ARG:NH1	1:A:71:GLY:O	2.33	0.61
1:A:139:LEU:O	1:A:143:ASN:ND2	2.31	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:63:MSE:HG2	1:A:80:LEU:HD13	1.81	0.61
1:D:60:PHE:HB2	1:D:93:ASP:HA	1.82	0.61
1:D:59:LYS:NZ	1:D:94:GLU:OE1	2.31	0.61
1:D:67:ARG:NH1	1:D:71:GLY:O	2.30	0.60
1:E:67:ARG:NH2	1:E:75:PRO:O	2.35	0.60
1:D:106:MSE:HE2	1:D:113:PRO:HG2	1.84	0.60
1:H:2:TYR:HA	1:H:6:LEU:HB2	1.82	0.60
1:A:59:LYS:NZ	1:A:94:GLU:OE1	2.36	0.59
1:B:139:LEU:O	1:B:143:ASN:ND2	2.28	0.59
1:E:2:TYR:HA	1:E:6:LEU:HB2	1.86	0.58
1:E:60:PHE:HB2	1:E:93:ASP:HA	1.85	0.57
1:G:141:GLN:N	1:G:141:GLN:OE1	2.38	0.57
1:A:168:LEU:O	1:A:172:ILE:HG12	2.04	0.57
1:A:44:THR:HB	1:A:56:LYS:HB3	1.86	0.57
1:C:2:TYR:OH	1:C:169:ASP:OD2	2.14	0.56
1:C:1:MSE:HB3	1:C:6:LEU:HD13	1.87	0.55
1:C:145:ARG:NH2	1:C:156:TYR:OH	2.39	0.55
1:B:60:PHE:HB2	1:B:93:ASP:HA	1.87	0.55
1:A:60:PHE:HB2	1:A:93:ASP:HA	1.89	0.55
1:F:63:MSE:HE1	1:F:76:ASP:HA	1.89	0.55
1:E:139:LEU:O	1:E:143:ASN:ND2	2.28	0.54
1:F:118:TYR:HD1	1:F:121:ILE:HD12	1.72	0.54
1:G:112:ARG:O	1:G:129:ARG:NH2	2.41	0.54
1:C:60:PHE:HB2	1:C:93:ASP:HA	1.88	0.54
1:A:8:ARG:NH2	1:A:102:LEU:O	2.41	0.54
1:G:2:TYR:HA	1:G:6:LEU:HB2	1.90	0.54
1:B:141:GLN:OE1	1:B:141:GLN:N	2.39	0.54
1:E:141:GLN:OE1	1:E:141:GLN:N	2.40	0.53
1:F:44:THR:HB	1:F:56:LYS:HB3	1.90	0.53
1:C:72:GLU:HG3	1:C:73:LEU:H	1.74	0.53
1:E:2:TYR:OH	1:E:169:ASP:OD2	2.16	0.53
1:E:66:GLU:O	1:E:67:ARG:HB2	2.09	0.53
1:E:67:ARG:NE	1:E:74:LEU:HB3	2.23	0.52
1:B:43:PHE:CZ	1:B:59:LYS:HD2	2.44	0.52
1:E:118:TYR:CD1	1:E:121:ILE:HD12	2.45	0.52
1:D:141:GLN:N	1:D:141:GLN:OE1	2.41	0.52
1:E:122:TYR:O	1:E:127:LYS:NZ	2.42	0.52
1:B:52:GLU:OE1	1:H:116:VAL:HG21	2.10	0.51
1:A:126:GLN:O	1:A:129:ARG:HG2	2.10	0.51
1:F:7:LYS:HD2	1:F:164:LEU:HD21	1.92	0.51
1:A:67:ARG:HD2	1:A:71:GLY:O	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:67:ARG:NH1	1:B:73:LEU:HG	2.26	0.51
1:F:59:LYS:NZ	1:F:94:GLU:OE1	2.44	0.50
1:F:8:ARG:NH2	1:F:102:LEU:O	2.42	0.50
1:F:141:GLN:OE1	1:F:141:GLN:N	2.41	0.50
1:A:47:ARG:NH1	1:G:72:GLU:OE2	2.44	0.50
1:H:47:ARG:HD2	1:H:114:LEU:O	2.11	0.50
1:E:72:GLU:N	1:E:72:GLU:OE1	2.45	0.50
1:F:67:ARG:HD2	1:F:71:GLY:O	2.12	0.49
1:B:40:ASP:O	1:B:42:ILE:N	2.37	0.49
1:B:45:GLN:HB2	1:B:57:ILE:HB	1.95	0.49
1:B:8:ARG:NH2	1:B:102:LEU:O	2.43	0.49
1:E:27:ILE:HD11	1:G:27:ILE:HD11	1.95	0.49
1:D:126:GLN:O	1:D:129:ARG:HG2	2.12	0.49
1:A:52:GLU:OE1	1:G:116:VAL:HG21	2.13	0.49
1:G:47:ARG:HG3	1:G:57:ILE:HD12	1.95	0.49
1:E:59:LYS:NZ	1:E:94:GLU:OE1	2.45	0.49
1:F:168:LEU:O	1:F:172:ILE:HG12	2.12	0.49
1:E:40:ASP:O	1:E:42:ILE:N	2.39	0.48
1:H:40:ASP:O	1:H:42:ILE:N	2.40	0.48
1:D:63:MSE:HE3	1:D:88:ARG:HH22	1.78	0.48
1:F:40:ASP:O	1:F:42:ILE:N	2.39	0.48
1:H:141:GLN:N	1:H:141:GLN:OE1	2.44	0.48
1:A:51:ASN:ND2	1:G:120:PRO:HG3	2.28	0.48
1:F:142:VAL:HB	1:F:175:GLN:HB3	1.96	0.48
1:H:63:MSE:HE2	1:H:79:ARG:HB2	1.95	0.48
1:E:1:MSE:H	1:E:1:MSE:SE	2.47	0.48
1:E:118:TYR:HD1	1:E:121:ILE:HD12	1.79	0.47
1:B:168:LEU:O	1:B:172:ILE:HG12	2.14	0.47
1:A:174:LEU:O	1:A:177:ILE:HG13	2.14	0.47
1:D:112:ARG:O	1:D:129:ARG:NH2	2.47	0.47
1:F:17:PHE:CE1	1:H:20:ILE:HG13	2.49	0.47
1:C:168:LEU:O	1:C:172:ILE:HG12	2.14	0.47
1:G:67:ARG:HD3	1:G:71:GLY:O	2.14	0.47
1:D:177:ILE:O	1:D:181:LEU:HG	2.14	0.47
1:D:168:LEU:O	1:D:172:ILE:HG12	2.14	0.47
1:D:174:LEU:O	1:D:177:ILE:HG13	2.15	0.47
1:E:73:LEU:O	1:E:74:LEU:HB2	2.15	0.47
1:B:87:ILE:HG23	1:B:92:LEU:HB2	1.97	0.47
1:B:47:ARG:NH1	1:H:72:GLU:OE2	2.47	0.46
1:B:123:ASN:O	1:B:127:LYS:HG3	2.15	0.46
1:E:168:LEU:O	1:E:172:ILE:HG12	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:126:GLN:O	1:C:129:ARG:HG2	2.14	0.46
1:D:2:TYR:HA	1:D:6:LEU:HB2	1.96	0.46
1:H:47:ARG:HG3	1:H:57:ILE:HD12	1.98	0.46
1:A:141:GLN:N	1:A:141:GLN:OE1	2.47	0.46
1:D:107:SER:O	1:D:135:GLY:HA2	2.16	0.46
1:G:5:PHE:O	1:G:9:VAL:HG23	2.16	0.46
1:C:143:ASN:HB3	1:C:145:ARG:NH1	2.31	0.45
1:C:47:ARG:HG3	1:C:57:ILE:HD12	1.98	0.45
1:G:168:LEU:O	1:G:172:ILE:HG12	2.17	0.45
1:F:139:LEU:HA	1:F:172:ILE:HD12	1.98	0.45
1:G:174:LEU:O	1:G:177:ILE:HG13	2.17	0.45
1:G:177:ILE:O	1:G:180:VAL:HG22	2.17	0.45
1:C:107:SER:O	1:C:135:GLY:HA2	2.16	0.45
1:H:168:LEU:O	1:H:172:ILE:HG12	2.16	0.45
1:F:93:ASP:N	1:F:93:ASP:OD1	2.50	0.45
1:F:7:LYS:HE2	1:F:164:LEU:HD11	1.99	0.45
1:F:44:THR:HA	1:F:57:ILE:O	2.17	0.45
1:A:7:LYS:HE2	1:A:164:LEU:HD11	1.98	0.44
1:A:23:SER:OG	1:A:24:PRO:HD3	2.17	0.44
1:A:2:TYR:HA	1:A:6:LEU:HB2	1.99	0.44
1:F:109:ILE:HG23	1:F:172:ILE:HG21	1.98	0.44
1:D:123:ASN:OD1	1:D:126:GLN:N	2.40	0.44
1:E:67:ARG:NH1	1:E:78:GLN:HB2	2.31	0.44
1:F:100:ASN:HB3	1:F:106:MSE:HG3	2.00	0.44
1:H:32:PHE:HZ	1:H:83:PHE:CD1	2.35	0.44
1:C:55:PHE:CD2	1:C:105:ASP:HB3	2.53	0.44
1:G:107:SER:O	1:G:135:GLY:HA2	2.18	0.44
1:H:8:ARG:NH2	1:H:102:LEU:O	2.46	0.44
1:B:72:GLU:OE1	1:B:72:GLU:N	2.51	0.43
1:A:43:PHE:CZ	1:A:59:LYS:HD2	2.52	0.43
1:E:139:LEU:HA	1:E:172:ILE:HD12	2.00	0.43
1:C:122:TYR:O	1:C:127:LYS:NZ	2.50	0.43
1:G:100:ASN:HB3	1:G:106:MSE:HG3	2.00	0.43
1:C:51:ASN:N	1:C:130:HIS:O	2.48	0.43
1:C:141:GLN:OE1	1:C:141:GLN:N	2.48	0.43
1:E:23:SER:OG	1:E:24:PRO:HD3	2.18	0.43
1:G:74:LEU:HB2	1:G:79:ARG:HG3	2.01	0.43
1:C:59:LYS:NZ	1:C:97:GLN:OE1	2.50	0.43
1:E:110:GLY:N	1:E:135:GLY:HA3	2.33	0.43
1:G:43:PHE:CZ	1:G:59:LYS:HD2	2.53	0.43
1:A:45:GLN:HG2	1:G:72:GLU:OE1	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:99:PHE:O	1:D:103:LYS:HG2	2.19	0.43
1:B:23:SER:OG	1:B:24:PRO:HD3	2.18	0.42
1:C:59:LYS:NZ	1:C:94:GLU:OE1	2.45	0.42
1:E:87:ILE:HG23	1:E:92:LEU:HB2	2.01	0.42
1:D:43:PHE:CZ	1:D:59:LYS:HD2	2.53	0.42
1:H:47:ARG:HG3	1:H:57:ILE:CD1	2.49	0.42
1:A:5:PHE:O	1:A:9:VAL:HG23	2.19	0.42
1:A:40:ASP:O	1:A:42:ILE:N	2.42	0.42
1:C:23:SER:OG	1:C:24:PRO:HD3	2.19	0.42
1:F:43:PHE:CZ	1:F:59:LYS:HD2	2.54	0.42
1:G:139:LEU:O	1:G:143:ASN:ND2	2.43	0.42
1:B:51:ASN:ND2	1:H:120:PRO:HG3	2.35	0.42
1:B:93:ASP:N	1:B:93:ASP:OD1	2.53	0.42
1:G:99:PHE:O	1:G:103:LYS:HG2	2.19	0.42
1:A:66:GLU:HB3	1:A:79:ARG:HG2	2.02	0.41
1:H:23:SER:OG	1:H:24:PRO:HD3	2.19	0.41
1:A:107:SER:O	1:A:135:GLY:HA2	2.19	0.41
1:D:72:GLU:OE1	1:E:45:GLN:HG2	2.19	0.41
1:F:174:LEU:O	1:F:177:ILE:HG13	2.20	0.41
1:H:174:LEU:O	1:H:177:ILE:HG13	2.20	0.41
1:F:118:TYR:CD1	1:F:121:ILE:HD12	2.54	0.41
1:C:40:ASP:O	1:C:42:ILE:N	2.44	0.41
1:E:66:GLU:HB2	1:E:67:ARG:H	1.66	0.41
1:F:63:MSE:HE2	1:F:63:MSE:HB3	1.85	0.41
1:G:47:ARG:HG3	1:G:57:ILE:CD1	2.50	0.41
1:D:93:ASP:N	1:D:93:ASP:OD1	2.54	0.41
1:H:114:LEU:HD12	1:H:129:ARG:HH12	1.86	0.41
1:B:58:TYR:OH	1:B:103:LYS:NZ	2.54	0.40
1:E:66:GLU:HG3	1:E:79:ARG:HG2	2.03	0.40
1:F:1:MSE:O	1:F:5:PHE:HB3	2.22	0.40
1:F:60:PHE:HB2	1:F:93:ASP:HA	2.04	0.40
1:F:145:ARG:NH2	1:F:156:TYR:OH	2.54	0.40
1:B:67:ARG:NH1	1:B:71:GLY:O	2.54	0.40
1:B:107:SER:O	1:B:135:GLY:HA2	2.22	0.40
1:A:93:ASP:N	1:A:93:ASP:OD1	2.54	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:72:GLU:OE2	1:F:47:ARG:NH1[4_565]	2.16	0.04

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	183/205 (89%)	177 (97%)	6 (3%)	0	100 100
1	B	183/205 (89%)	175 (96%)	7 (4%)	1 (0%)	29 66
1	C	183/205 (89%)	177 (97%)	6 (3%)	0	100 100
1	D	183/205 (89%)	176 (96%)	7 (4%)	0	100 100
1	E	183/205 (89%)	171 (93%)	8 (4%)	4 (2%)	6 30
1	F	183/205 (89%)	175 (96%)	8 (4%)	0	100 100
1	G	183/205 (89%)	176 (96%)	7 (4%)	0	100 100
1	H	183/205 (89%)	177 (97%)	6 (3%)	0	100 100
All	All	1464/1640 (89%)	1404 (96%)	55 (4%)	5 (0%)	41 75

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	67	ARG
1	E	69	ALA
1	E	74	LEU
1	B	73	LEU
1	E	66	GLU

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	165/176 (94%)	165 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	B	165/176 (94%)	165 (100%)	0	100 100
1	C	165/176 (94%)	165 (100%)	0	100 100
1	D	165/176 (94%)	165 (100%)	0	100 100
1	E	165/176 (94%)	164 (99%)	1 (1%)	86 95
1	F	165/176 (94%)	165 (100%)	0	100 100
1	G	165/176 (94%)	165 (100%)	0	100 100
1	H	165/176 (94%)	163 (99%)	2 (1%)	71 89
All	All	1320/1408 (94%)	1317 (100%)	3 (0%)	93 98

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	67	ARG
1	H	47	ARG
1	H	67	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (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	181/205 (88%)	0.07	6 (3%) 46 20	65, 93, 138, 160	0
1	B	181/205 (88%)	0.11	7 (3%) 39 16	62, 92, 148, 179	0
1	C	181/205 (88%)	0.11	8 (4%) 34 13	64, 117, 154, 186	0
1	D	181/205 (88%)	0.23	13 (7%) 15 4	71, 123, 175, 210	0
1	E	181/205 (88%)	0.21	12 (6%) 18 5	62, 123, 168, 189	0
1	F	181/205 (88%)	0.15	7 (3%) 39 16	66, 118, 162, 181	0
1	G	181/205 (88%)	0.14	7 (3%) 39 16	63, 106, 160, 198	0
1	H	181/205 (88%)	0.04	7 (3%) 39 16	64, 100, 148, 185	0
All	All	1448/1640 (88%)	0.13	67 (4%) 32 12	62, 107, 163, 210	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	146	ASN	23.5
1	A	146	ASN	12.0
1	G	183	ARG	12.0
1	H	183	ARG	8.9
1	A	148	ILE	8.9
1	C	148	ILE	8.7
1	D	146	ASN	7.8
1	E	146	ASN	7.4
1	E	148	ILE	6.7
1	B	147	ALA	6.2
1	F	146	ASN	6.1
1	F	122	TYR	5.2
1	A	147	ALA	5.1
1	F	147	ALA	5.0
1	G	146	ASN	4.8
1	G	182	LYS	4.7

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Mol	Chain	Res	Type	RSRZ
1	D	122	TYR	4.6
1	F	148	ILE	4.4
1	B	148	ILE	4.2
1	D	183	ARG	4.1
1	E	114	LEU	3.8
1	F	145	ARG	3.8
1	C	147	ALA	3.6
1	B	-1	SER	3.6
1	H	148	ILE	3.4
1	E	129	ARG	3.3
1	C	111	PRO	3.3
1	D	65	ASP	3.2
1	C	160	TYR	3.2
1	D	5	PHE	3.2
1	D	114	LEU	3.1
1	B	145	ARG	3.1
1	B	77	ASP	3.1
1	G	151	GLU	3.1
1	E	71	GLY	3.1
1	E	122	TYR	3.0
1	D	115	LEU	3.0
1	A	-1	SER	3.0
1	E	48	PRO	2.9
1	D	128	HIS	2.8
1	D	139	LEU	2.8
1	H	153	LYS	2.7
1	C	146	ASN	2.7
1	G	139	LEU	2.6
1	D	150	TRP	2.5
1	B	119	LEU	2.4
1	H	146	ASN	2.4
1	E	68	ASP	2.4
1	A	145	ARG	2.4
1	D	138	GLY	2.4
1	H	154	PHE	2.4
1	D	124	GLU	2.3
1	G	128	HIS	2.3
1	C	110	GLY	2.3
1	D	154	PHE	2.3
1	C	159	TYR	2.3
1	G	144	GLY	2.3
1	F	119	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
1	C	5	PHE	2.2
1	E	-1	SER	2.1
1	E	118	TYR	2.1
1	E	117	GLU	2.1
1	F	159	TYR	2.1
1	A	77	ASP	2.1
1	E	72	GLU	2.1
1	H	152	LYS	2.1
1	H	159	TYR	2.1

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)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.