



# Full wwPDB X-ray Structure Validation Report ⓘ

Sep 25, 2023 – 07:59 AM EDT

PDB ID : 5VQM  
Title : Clostridium difficile TcdB-GTD bound to PA41 Fab  
Authors : Kroh, H.K.; Spiller, B.W.; Lacy, D.B.  
Deposited on : 2017-05-09  
Resolution : 2.79 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467  
Xtriage (Phenix) : 1.13  
EDS : 2.35.1  
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) : 2.35.1

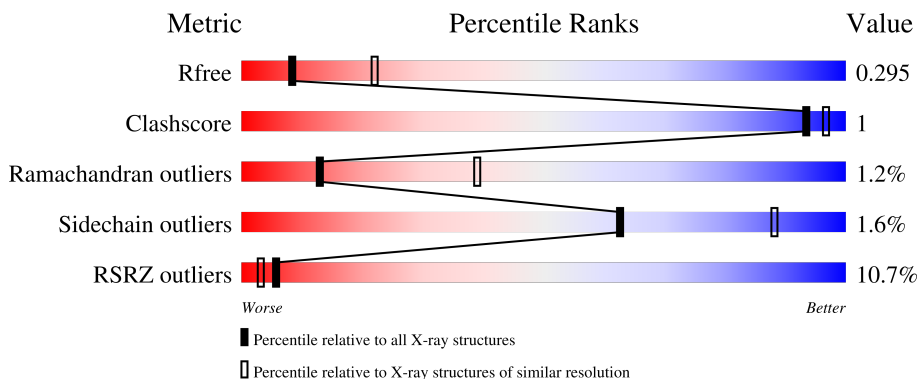
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.79 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	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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

Mol	Chain	Length	Quality of chain
1	A	557	
1	B	557	
2	C	214	
2	L	214	
3	D	222	

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Mol	Chain	Length	Quality of chain
3	H	222	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into three segments: a red segment on the left labeled '18%', a large green segment in the middle labeled '86%', and a yellow segment on the right labeled '11%'. A small grey dot is visible at the end of the bar.</p>

## 2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 30126 atoms, of which 14828 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 Toxin B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	A	528	8494	2726	4197	697	859	15	0	0	0
1	B	528	8494	2726	4197	697	859	15	0	0	0

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	545	HIS	-	expression tag	UNP C9YJ35
A	546	ALA	-	expression tag	UNP C9YJ35
A	547	GLY	-	expression tag	UNP C9YJ35
A	548	LEU	-	expression tag	UNP C9YJ35
A	549	ARG	-	expression tag	UNP C9YJ35
A	550	GLY	-	expression tag	UNP C9YJ35
A	551	SER	-	expression tag	UNP C9YJ35
A	552	HIS	-	expression tag	UNP C9YJ35
A	553	HIS	-	expression tag	UNP C9YJ35
A	554	HIS	-	expression tag	UNP C9YJ35
A	555	HIS	-	expression tag	UNP C9YJ35
A	556	HIS	-	expression tag	UNP C9YJ35
A	557	HIS	-	expression tag	UNP C9YJ35
B	545	HIS	-	expression tag	UNP C9YJ35
B	546	ALA	-	expression tag	UNP C9YJ35
B	547	GLY	-	expression tag	UNP C9YJ35
B	548	LEU	-	expression tag	UNP C9YJ35
B	549	ARG	-	expression tag	UNP C9YJ35
B	550	GLY	-	expression tag	UNP C9YJ35
B	551	SER	-	expression tag	UNP C9YJ35
B	552	HIS	-	expression tag	UNP C9YJ35
B	553	HIS	-	expression tag	UNP C9YJ35
B	554	HIS	-	expression tag	UNP C9YJ35
B	555	HIS	-	expression tag	UNP C9YJ35
B	556	HIS	-	expression tag	UNP C9YJ35

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Chain	Residue	Modelled	Actual	Comment	Reference
B	557	HIS	-	expression tag	UNP C9YJ35

- Molecule 2 is a protein called PA41 FAB LIGHT CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
2	L	214	3250	1033	1605	277	330	5	0	0	0
2	C	214	3241	1033	1596	277	330	5	0	0	0

- Molecule 3 is a protein called PA41 FAB HEAVY CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
3	H	216	3250	1035	1616	275	317	7	0	0	0
3	D	216	3251	1035	1617	275	317	7	0	0	0

- Molecule 4 is water.

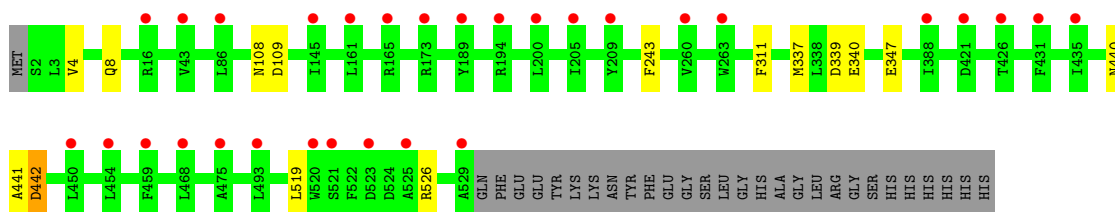
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	41	Total 41	O 41	0	0
4	L	14	Total 14	O 14	0	0
4	H	14	Total 14	O 14	0	0
4	B	57	Total 57	O 57	0	0
4	C	11	Total 11	O 11	0	0
4	D	9	Total 9	O 9	0	0

### 3 Residue-property plots

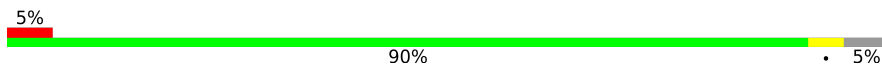
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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.

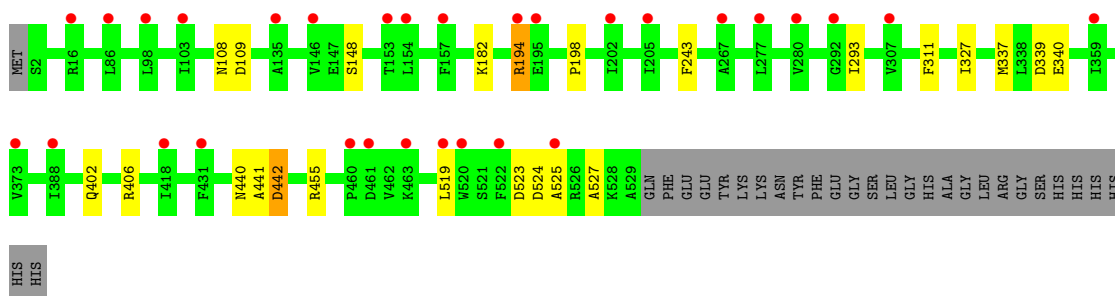
- Molecule 1: Toxin B

Chain A: 



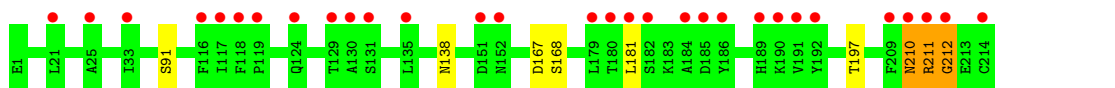
- Molecule 1: Toxin B

Chain B: 



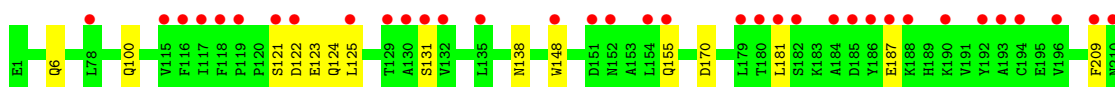
- Molecule 2: PA41 FAB LIGHT CHAIN

Chain L: 



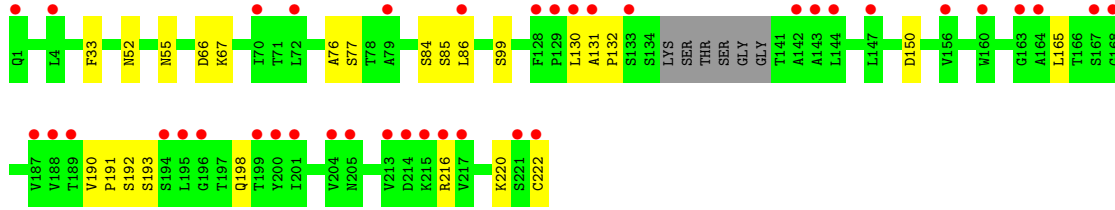
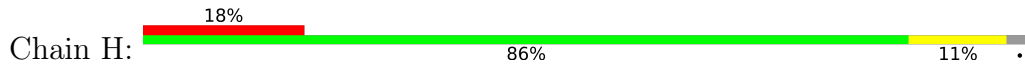
- Molecule 2: PA41 FAB LIGHT CHAIN

Chain C: 

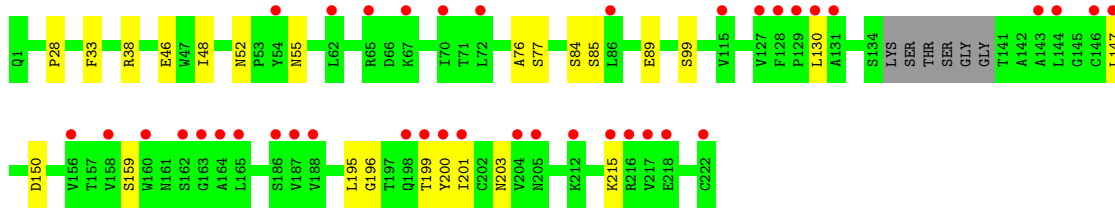
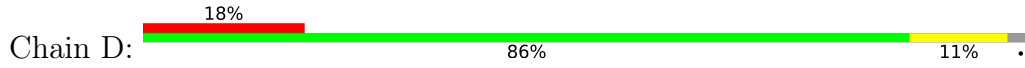




• Molecule 3: PA41 FAB HEAVY CHAIN



• Molecule 3: PA41 FAB HEAVY CHAIN



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	96.13Å 251.74Å 224.45Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	60.85 – 2.79 60.85 – 2.79	Depositor EDS
% Data completeness (in resolution range)	99.8 (60.85-2.79) 99.9 (60.85-2.79)	Depositor EDS
$R_{merge}$	0.16	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.58 (at 2.77Å)	Xtrriage
Refinement program	PHENIX (1.12_2829)	Depositor
R, $R_{free}$	0.240 , 0.292 0.240 , 0.295	Depositor DCC
$R_{free}$ test set	2503 reflections (3.68%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	68.1	Xtrriage
Anisotropy	0.188	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 54.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.53$ , $\langle L^2 \rangle = 0.37$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	30126	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	98.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 48.92 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 8.0281e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.24	0/4374	0.38	0/5905
1	B	0.24	0/4374	0.38	0/5905
2	C	0.26	0/1682	0.44	0/2283
2	L	0.25	0/1682	0.45	0/2283
3	D	0.25	0/1674	0.44	0/2283
3	H	0.25	0/1674	0.45	0/2283
All	All	0.25	0/15460	0.41	0/20942

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4297	4197	4197	8	0
1	B	4297	4197	4197	12	0
2	C	1645	1596	1605	8	0
2	L	1645	1605	1605	3	0
3	D	1634	1617	1617	6	0
3	H	1634	1616	1617	8	0
4	A	41	0	0	0	0
4	B	57	0	0	1	0
4	C	11	0	0	0	0
4	D	9	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	H	14	0	0	0	0
4	L	14	0	0	0	0
All	All	15298	14828	14838	41	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 1.

All (41) 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:B:523:ASP:O	1:B:525:ALA:N	2.25	0.70
2:L:210:ASN:O	2:L:212:GLY:N	2.29	0.65
2:C:121:SER:O	2:C:125:LEU:HG	1.97	0.64
3:H:66:ASP:OD2	1:B:455:ARG:NH1	2.32	0.61
1:B:402:GLN:OE1	1:B:406:ARG:NH1	2.34	0.59
2:C:121:SER:OG	2:C:123:GLU:OE1	2.21	0.58
2:C:124:GLN:OE1	2:C:131:SER:N	2.37	0.58
1:B:293:ILE:O	4:B:601:HOH:O	2.16	0.58
3:H:84:SER:O	3:H:86:LEU:N	2.38	0.57
1:B:440:ASN:O	1:B:442:ASP:N	2.40	0.55
3:H:76:ALA:O	3:H:77:SER:OG	2.25	0.53
3:D:199:THR:O	3:D:201:ILE:N	2.40	0.53
1:A:440:ASN:O	1:A:442:ASP:N	2.40	0.53
3:D:159:SER:O	3:D:203:ASN:N	2.43	0.52
3:H:52:ASN:ND2	3:H:55:ASN:OD1	2.43	0.52
1:B:148:SER:OG	1:B:182:LYS:NZ	2.43	0.52
1:A:339:ASP:OD1	1:A:340:GLU:N	2.45	0.50
3:H:191:PRO:O	3:H:193:SER:N	2.45	0.50
3:D:33:PHE:N	3:D:99:SER:O	2.40	0.50
2:C:122:ASP:HA	2:C:125:LEU:HD12	1.94	0.48
1:B:339:ASP:OD1	1:B:340:GLU:N	2.46	0.48
1:A:108:ASN:OD1	1:A:109:ASP:N	2.48	0.46
1:B:194:ARG:NH2	1:B:198:PRO:O	2.49	0.46
1:B:340:GLU:N	1:B:340:GLU:OE2	2.49	0.46
1:A:340:GLU:N	1:A:340:GLU:OE2	2.49	0.45
1:B:108:ASN:OD1	1:B:109:ASP:N	2.50	0.45
2:C:187:GLU:OE1	2:C:211:ARG:NH2	2.49	0.45
1:A:311:PHE:HB2	1:B:337:MET:HE3	1.98	0.45
1:A:347:GLU:OE2	2:L:91:SER:OG	2.31	0.45
3:H:33:PHE:N	3:H:99:SER:O	2.46	0.45
2:L:167:ASP:OD1	2:L:168:SER:N	2.49	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:52:ASN:ND2	3:D:55:ASN:OD1	2.52	0.43
3:H:131:ALA:N	3:H:132:PRO:CD	2.81	0.43
2:C:148:TRP:O	2:C:155:GLN:N	2.52	0.43
1:A:4:VAL:HG22	1:A:8:GLN:HB2	2.01	0.43
2:C:170:ASP:OD1	2:C:170:ASP:N	2.51	0.43
3:D:76:ALA:O	3:D:77:SER:OG	2.32	0.42
2:C:6:GLN:O	2:C:100:GLN:NE2	2.53	0.42
1:A:337:MET:HE3	1:B:311:PHE:HB2	2.02	0.41
3:D:38:ARG:NH2	3:D:46:GLU:OE1	2.54	0.41
3:H:131:ALA:N	3:H:132:PRO:HD3	2.35	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	526/557 (94%)	498 (95%)	26 (5%)	2 (0%)	34 66
1	B	526/557 (94%)	499 (95%)	23 (4%)	4 (1%)	19 49
2	C	212/214 (99%)	200 (94%)	10 (5%)	2 (1%)	17 46
2	L	212/214 (99%)	198 (93%)	11 (5%)	3 (1%)	11 34
3	D	212/222 (96%)	188 (89%)	17 (8%)	7 (3%)	4 13
3	H	212/222 (96%)	178 (84%)	30 (14%)	4 (2%)	8 26
All	All	1900/1986 (96%)	1761 (93%)	117 (6%)	22 (1%)	13 39

All (22) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	L	211	ARG
3	H	85	SER

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Mol	Chain	Res	Type
3	H	130	LEU
1	B	524	ASP
1	A	441	ALA
2	L	212	GLY
3	H	192	SER
1	B	441	ALA
1	B	442	ASP
2	C	138	ASN
3	D	196	GLY
1	A	442	ASP
2	L	138	ASN
3	H	150	ASP
3	D	84	SER
3	D	85	SER
3	D	200	TYR
3	D	150	ASP
1	B	527	ALA
2	C	212	GLY
3	D	48	ILE
3	D	28	PRO

### 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	481/505 (95%)	478 (99%)	3 (1%)	86	96
1	B	481/505 (95%)	477 (99%)	4 (1%)	81	94
2	C	187/187 (100%)	183 (98%)	4 (2%)	53	84
2	L	187/187 (100%)	183 (98%)	4 (2%)	53	84
3	D	186/190 (98%)	181 (97%)	5 (3%)	44	78
3	H	186/190 (98%)	179 (96%)	7 (4%)	33	67
All	All	1708/1764 (97%)	1681 (98%)	27 (2%)	62	88

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	243	PHE
1	A	519	LEU
1	A	526	ARG
2	L	181	LEU
2	L	197	THR
2	L	210	ASN
2	L	211	ARG
3	H	67	LYS
3	H	165	LEU
3	H	190	VAL
3	H	198	GLN
3	H	216	ARG
3	H	220	LYS
3	H	222	CYS
1	B	194	ARG
1	B	243	PHE
1	B	327	ILE
1	B	519	LEU
2	C	181	LEU
2	C	209	PHE
2	C	213	GLU
2	C	214	CYS
3	D	89	GLU
3	D	130	LEU
3	D	147	LEU
3	D	195	LEU
3	D	215	LYS

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 [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, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	528/557 (94%)	0.68	30 (5%) 23 15	43, 80, 126, 155	0
1	B	528/557 (94%)	0.68	30 (5%) 23 15	50, 81, 138, 195	0
2	C	214/214 (100%)	1.09	37 (17%) 1 1	50, 79, 144, 177	0
2	L	214/214 (100%)	0.87	30 (14%) 2 1	46, 77, 135, 161	0
3	D	216/222 (97%)	1.15	39 (18%) 1 1	59, 107, 163, 192	0
3	H	216/222 (97%)	1.17	39 (18%) 1 1	45, 90, 153, 190	0
All	All	1916/1986 (96%)	0.85	205 (10%) 6 3	43, 83, 142, 195	0

All (205) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	C	181	LEU	7.5
3	H	188	VAL	6.6
3	H	164	ALA	6.4
2	C	130	ALA	6.4
3	H	200	TYR	6.2
3	D	131	ALA	5.9
3	D	216	ARG	5.9
2	C	192	TYR	5.9
3	D	200	TYR	5.9
2	L	181	LEU	5.8
3	D	199	THR	5.2
2	C	185	ASP	5.1
1	A	521	SER	5.1
3	H	195	LEU	5.1
2	C	118	PHE	5.0
2	C	129	THR	5.0
3	D	165	LEU	5.0
2	L	212	GLY	4.9
3	H	196	GLY	4.9

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
3	H	143	ALA	4.8
3	H	130	LEU	4.7
3	D	222	CYS	4.6
3	D	158	VAL	4.6
2	L	129	THR	4.6
1	B	154	LEU	4.5
1	B	461	ASP	4.5
2	C	154	LEU	4.5
2	C	210	ASN	4.5
3	H	201	ILE	4.5
3	D	144	LEU	4.4
3	H	131	ALA	4.4
3	H	216	ARG	4.3
3	H	147	LEU	4.3
3	D	205	ASN	4.3
2	C	117	ILE	4.2
2	C	151	ASP	4.2
3	D	147	LEU	4.2
3	H	222	CYS	4.1
3	H	129	PRO	4.0
2	C	209	PHE	4.0
2	L	190	LYS	4.0
3	H	217	VAL	4.0
3	H	213	VAL	3.9
2	L	184	ALA	3.9
2	L	130	ALA	3.9
3	H	187	VAL	3.9
1	B	522	PHE	3.9
2	C	193	ALA	3.9
2	L	192	TYR	3.8
2	L	210	ASN	3.8
1	B	460	PRO	3.8
1	B	520	TRP	3.8
3	D	187	VAL	3.7
3	H	194	SER	3.7
1	A	165	ARG	3.7
2	C	194	CYS	3.7
2	L	118	PHE	3.6
2	C	119	PRO	3.6
3	D	160	TRP	3.5
3	D	188	VAL	3.5
3	D	218	GLU	3.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
2	L	214	CYS	3.4
1	A	520	TRP	3.4
2	C	155	GLN	3.4
1	A	421	ASP	3.4
2	C	211	ARG	3.4
3	D	130	LEU	3.4
3	D	215	LYS	3.4
2	C	186	TYR	3.4
3	H	163	GLY	3.3
2	C	152	ASN	3.3
3	H	133	SER	3.3
2	L	180	THR	3.3
2	L	186	TYR	3.2
2	C	122	ASP	3.2
1	B	157	PHE	3.1
1	B	202	ILE	3.1
2	C	187	GLU	3.1
3	D	129	PRO	3.1
3	H	214	ASP	3.1
3	D	212	LYS	3.1
2	C	212	GLY	3.1
3	H	160	TRP	3.1
3	D	127	VAL	3.1
2	L	179	LEU	3.1
2	C	190	LYS	3.0
2	L	191	VAL	3.0
2	C	115	VAL	3.0
2	L	182	SER	3.0
1	B	307	VAL	2.9
3	D	143	ALA	2.9
3	D	201	ILE	2.9
3	D	146	CYS	2.9
2	L	209	PHE	2.9
3	D	217	VAL	2.9
3	H	215	LYS	2.9
2	C	182	SER	2.9
3	D	62	LEU	2.9
1	A	145	ILE	2.9
1	A	459	PHE	2.9
3	H	168	GLY	2.8
3	H	199	THR	2.8
3	H	205	ASN	2.8

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	16	ARG	2.8
3	D	65	ARG	2.8
1	A	435	ILE	2.8
1	B	86	LEU	2.7
3	D	70	ILE	2.7
1	A	16	ARG	2.7
1	A	86	LEU	2.7
1	A	525	ALA	2.7
3	D	162	SER	2.7
3	D	163	GLY	2.7
3	D	115	VAL	2.7
2	C	196	VAL	2.7
3	H	142	ALA	2.6
1	B	98	LEU	2.6
1	A	426	THR	2.6
2	L	119	PRO	2.6
1	B	463	LYS	2.6
2	C	188	LYS	2.6
1	A	529	ALA	2.6
2	C	125	LEU	2.6
3	D	204	VAL	2.6
1	A	468	LEU	2.6
2	L	131	SER	2.5
2	C	184	ALA	2.5
1	B	194	ARG	2.5
2	L	117	ILE	2.5
1	B	519	LEU	2.5
1	B	418	ILE	2.5
1	B	280	VAL	2.5
1	A	161	LEU	2.4
2	L	152	ASN	2.4
3	D	128	PHE	2.4
1	A	454	LEU	2.4
3	D	72	LEU	2.4
1	A	493	LEU	2.4
1	B	135	ALA	2.4
1	A	194	ARG	2.4
3	H	1	GLN	2.4
3	D	198	GLN	2.3
1	A	200	LEU	2.3
3	H	72	LEU	2.3
3	H	79	ALA	2.3

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	388	ILE	2.3
1	B	373	VAL	2.3
2	L	135	LEU	2.3
2	L	211	ARG	2.3
1	B	205	ILE	2.3
1	A	260	VAL	2.3
1	A	263	TRP	2.3
1	A	450	LEU	2.3
2	C	78	LEU	2.3
3	H	221	SER	2.3
2	C	180	THR	2.3
2	L	116	PHE	2.3
3	D	54	TYR	2.3
3	D	156	VAL	2.3
1	B	277	LEU	2.3
1	A	205	ILE	2.3
1	B	431	PHE	2.3
2	L	33	ILE	2.3
1	A	475	ALA	2.2
1	A	189	TYR	2.2
3	H	70	ILE	2.2
2	L	185	ASP	2.2
2	C	135	LEU	2.2
3	H	4	LEU	2.2
3	H	86	LEU	2.2
2	L	151	ASP	2.2
1	B	195	GLU	2.2
3	H	128	PHE	2.2
1	B	146	VAL	2.2
1	B	388	ILE	2.2
3	H	144	LEU	2.2
1	B	153	THR	2.2
1	A	43	VAL	2.1
1	B	103	ILE	2.1
1	B	359	ILE	2.1
3	D	164	ALA	2.1
2	L	124	GLN	2.1
2	L	189	HIS	2.1
2	L	25	ALA	2.1
3	H	189	THR	2.1
2	C	116	PHE	2.1
3	H	167	SER	2.1

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Mol	Chain	Res	Type	RSRZ
3	D	186	SER	2.1
3	H	204	VAL	2.1
1	A	431	PHE	2.1
2	C	131	SER	2.1
2	C	132	VAL	2.1
3	H	156	VAL	2.1
2	C	121	SER	2.1
1	B	292	GLY	2.1
1	A	523	ASP	2.0
2	C	148	TRP	2.0
2	L	21	LEU	2.0
1	B	267	ALA	2.0
1	B	525	ALA	2.0
1	A	209	TYR	2.0
3	D	67	LYS	2.0
1	A	173	ARG	2.0
2	C	179	LEU	2.0
3	D	86	LEU	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](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.