Full wwPDB X-ray Structure Validation Report (i)

May 14, 2020 – 02:33 am BST

PDB ID	:	6CK1
Title	:	Crystal structure of Paracoccus denitrificans AztD
Authors	:	Yukl, E.T.
Deposited on	:	2018-02-27
Resolution	:	2.15 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 following versions of software and data (see references (i)) were used in the production of this report:

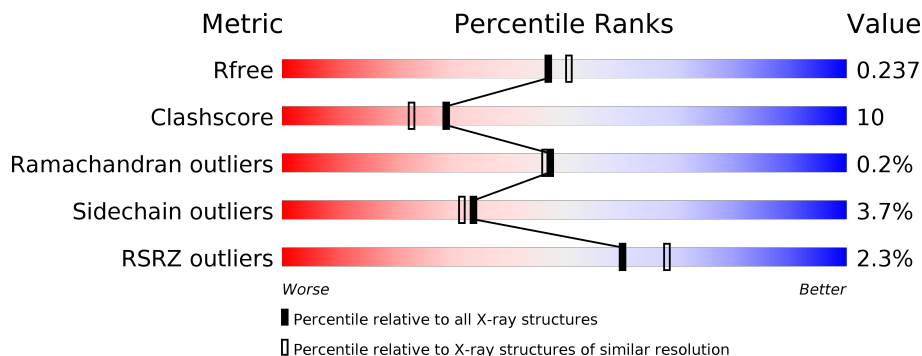|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.15 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	Percentile Ranks	Value
Rfree		0.237
Clashscore		10
Ramachandran outliers		0.2%
Sidechain outliers		3.7%
RSRZ outliers		2.3%

Worse ← → Better

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1479 (2.16-2.16)
Clashscore	141614	1585 (2.16-2.16)
Ramachandran outliers	138981	1560 (2.16-2.16)
Sidechain outliers	138945	1559 (2.16-2.16)
RSRZ outliers	127900	1456 (2.16-2.16)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	408	4% · 75% · 14% · 8%
1	B	408	% · 77% · 12% · 9%
1	C	408	2% · 73% · 15% · 10%
1	D	408	% · 75% · 15% · 8%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 12084 atoms, of which 10 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 A1B2F4 protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	372	Total	C	N	O	S	0	0	0
			2793	1765	487	537	4			
1	A	375	Total	C	N	O	S	0	2	0
			2832	1784	495	549	4			
1	C	366	Total	C	N	O	S	0	1	0
			2747	1738	475	530	4			
1	D	375	Total	C	N	O	S	0	2	0
			2841	1790	499	548	4			

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	2	Total	Zn	0	0
			2	2		
2	A	2	Total	Zn	0	0
			2	2		
2	D	2	Total	Zn	0	0
			2	2		
2	C	2	Total	Zn	0	0
			2	2		

- Molecule 3 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).

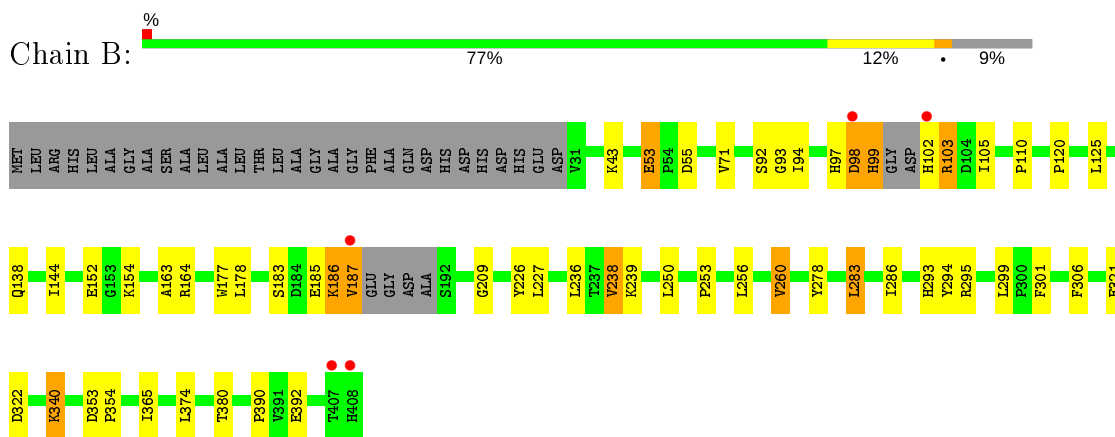| Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	C	1	Total 17	C 4	H 10	O 3	0	0

• Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	230	Total 230	O 230	0	0
4	A	194	Total 196	O 196	0	2
4	C	186	Total 186	O 186	0	0
4	D	234	Total 234	O 234	0	0

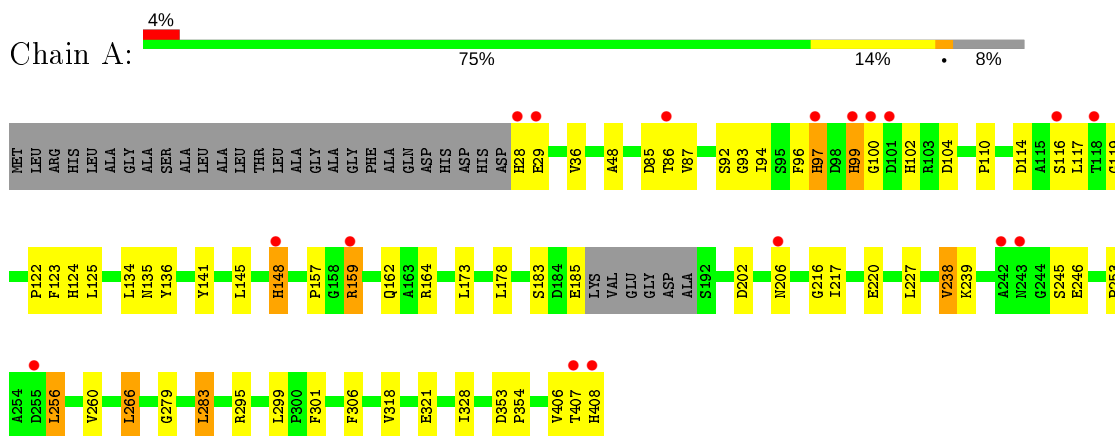# 3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA and DNA 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.
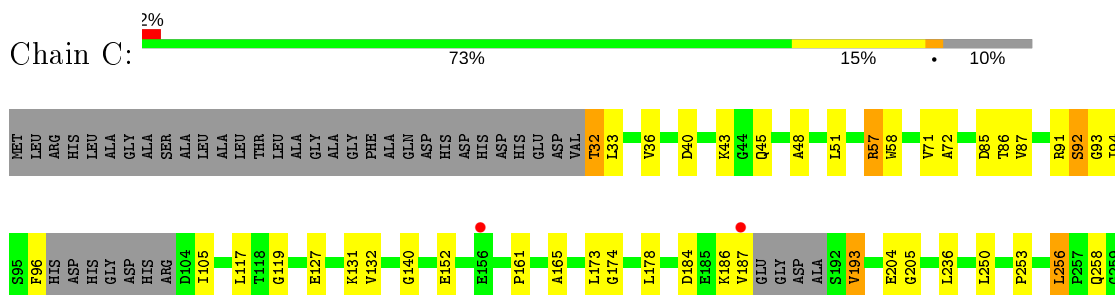
- Molecule 1: A1B2F4 protein
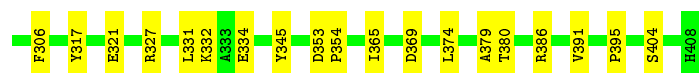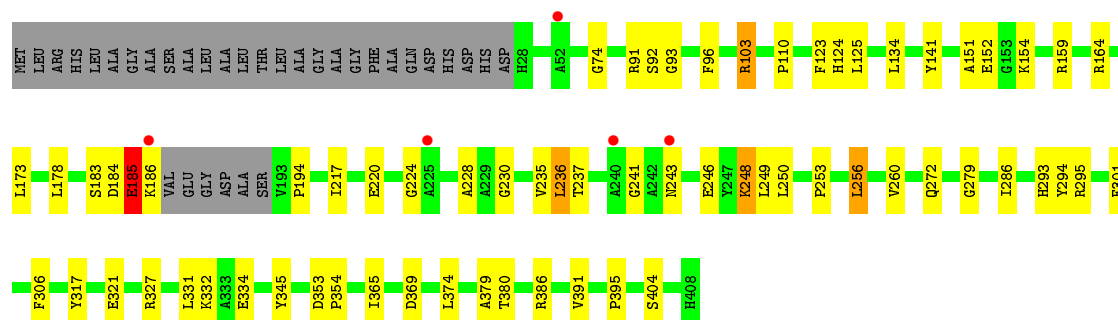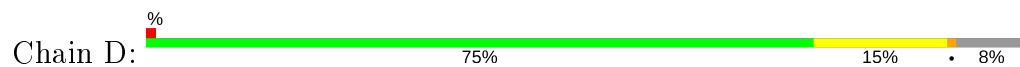

- Molecule 1: A1B2F4 protein

- Molecule 1: A1B2F4 protein

V260 L265 L266 I271 Q272 V273 G279 L283 L299 P300 F301 F306 E321 V341 T342 D353 P354 E364 R377 I378 A379 R386 S404 G405 V406 T407 H408

• Molecule 1: A1B2F4 protein

Chain D:

%

75% 15% • 8%

MET LEU ARG HIS LEU ALA GLY ALA SER ALA LEU ALA LEU THR LEU ALA GLY ALA GLY PHE ALA GLN ASP HIS ASP HIS ASP H28 A52 G74 R91 S92 G93 F96 R103 P110 F123 H124 L125 L134 Y141 A151 E152 G153 K154 R159 R164

L173 L178 S183 D184 E185 K186 VAL GLU GLY ASP ALA SER V193 P194 I217 E220 G224 A225 A228 A229 G230 V235 L236 T237 A240 G241 A242 N243 E246 Y247 K248 L249 L250 P253 L256 V260 Q272 G279 I286 H293 Y294 R295 F301

F306 Y317 E321 R327 L331 K332 A333 E334 Y345 D353 P354 I365 D369 L374 A379 T380 R386 V391 P395 S404 H408

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	89.51Å 96.38Å 175.52Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	79.74 – 2.15 79.74 – 2.15	Depositor EDS
% Data completeness (in resolution range)	96.8 (79.74-2.15) 96.8 (79.74-2.15)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	2.27 (at 2.14Å)	Xtriage
Refinement program	PHENIX (1.12_2829: ???)	Depositor
R, R_{free}	0.179 , 0.237 0.179 , 0.237	Depositor DCC
R_{free} test set	4048 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	25.0	Xtriage
Anisotropy	0.411	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 41.6	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	0.95	EDS
Total number of atoms	12084	wwPDB-VP
Average B, all atoms (Å^2)	32.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.67% 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 (i)

5.1 Standard geometry (i)

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

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	0.45	0/2904	0.65	1/3961 (0.0%)
1	B	0.48	0/2862	0.67	0/3902
1	C	0.47	0/2814	0.69	1/3837 (0.0%)
1	D	0.46	0/2913	0.67	0/3970
All	All	0.46	0/11493	0.67	2/15670 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	D	0	1
All	All	0	2

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	283	LEU	CA-CB-CG	6.34	129.88	115.30
1	A	266	LEU	CA-CB-CG	6.21	129.57	115.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	116[A]	SER	Peptide
1	D	185	GLU	Peptide

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	2832	0	2716	61	0
1	B	2793	0	2703	40	0
1	C	2747	0	2662	58	0
1	D	2841	0	2732	53	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
3	C	7	10	10	0	0
4	A	196	0	0	9	0
4	B	230	0	0	4	1
4	C	186	0	0	7	0
4	D	234	0	0	6	1
All	All	12074	10	10823	212	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 10.

All (212) 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:186:LYS:HA	1:B:187:VAL:HG23	1.27	1.07
1:A:117:LEU:HD11	1:A:145:LEU:HD11	1.41	1.02
1:D:253:PRO:HD2	1:D:256:LEU:HD22	1.47	0.95
1:B:186:LYS:HA	1:B:187:VAL:CG2	2.00	0.91
1:D:295:ARG:NH1	1:D:331:LEU:O	2.05	0.88
1:C:253:PRO:HD2	1:C:256:LEU:HD22	1.56	0.87
1:A:164:ARG:HH12	1:A:185:GLU:H	1.19	0.85
1:A:141:TYR:HB2	1:A:159:ARG:HD2	1.66	0.76
1:B:253:PRO:HD2	1:B:256:LEU:HD22	1.67	0.76
1:A:202:ASP:OD2	1:A:206:ASN:HB2	1.84	0.75
1:B:93:GLY:HA2	4:B:643:HOH:O	1.86	0.75
1:A:93:GLY:HA2	4:A:737:HOH:O	1.85	0.75
1:D:124[B]:HIS:ND1	4:D:601:HOH:O	2.19	0.75
1:A:260:VAL:HG21	1:A:279:GLY:HA2	1.68	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:117:LEU:HD22	1:A:157:PRO:HG3	1.67	0.75
1:B:97:HIS:O	1:B:99:HIS:N	2.21	0.74
1:C:71:VAL:HG11	1:C:132:VAL:HG21	1.68	0.73
1:B:53:GLU:OE1	1:B:55:ASP:HB2	1.89	0.72
1:A:260:VAL:CG2	1:A:279:GLY:HA2	2.20	0.71
1:B:322:ASP:O	1:B:340:LYS:HE2	1.90	0.71
1:C:271:ILE:HG13	1:C:273:VAL:HG12	1.74	0.70
1:D:152:GLU:HG3	1:D:154:LYS:NZ	2.07	0.69
1:A:117:LEU:HD11	1:A:145:LEU:CD1	2.21	0.69
1:C:283:LEU:CD2	1:C:299:LEU:HD21	2.22	0.69
1:A:253:PRO:HD2	1:A:256:LEU:HD22	1.75	0.68
1:A:283:LEU:HD22	1:A:299:LEU:HD21	1.77	0.67
1:D:96:PHE:CD1	1:D:103:ARG:HD3	2.30	0.67
1:C:260:VAL:HG21	1:C:279:GLY:CA	2.25	0.66
1:C:32:THR:HG21	4:C:775:HOH:O	1.94	0.66
1:D:379:ALA:HB2	1:D:386:ARG:NE	2.10	0.66
1:A:162:GLN:OE1	4:A:601:HOH:O	2.12	0.66
1:A:124[B]:HIS:ND1	4:A:603:HOH:O	2.29	0.66
1:C:260:VAL:CG2	1:C:279:GLY:HA2	2.26	0.65
1:A:260:VAL:HG21	1:A:279:GLY:CA	2.26	0.64
1:D:391:VAL:HG21	1:D:395:PRO:HB3	1.79	0.64
1:A:85:ASP:HB3	1:A:119:GLY:O	1.97	0.64
1:B:186:LYS:HA	1:B:187:VAL:CB	2.28	0.64
1:B:164:ARG:NH2	1:B:187:VAL:HG22	2.13	0.63
1:D:91:ARG:NH1	1:D:151:ALA:O	2.32	0.62
1:C:260:VAL:HG21	1:C:279:GLY:HA3	1.81	0.62
1:A:318:VAL:HG12	1:A:328:ILE:HD11	1.83	0.61
1:B:209:GLY:HA3	4:B:790:HOH:O	2.01	0.61
1:D:92:SER:HB3	1:D:93:GLY:HA2	1.83	0.61
1:C:260:VAL:CG2	1:C:279:GLY:CA	2.81	0.59
1:D:103:ARG:HD2	1:D:404:SER:O	2.02	0.59
1:B:92:SER:HB3	1:B:94:ILE:H	1.68	0.59
1:C:93:GLY:HA2	4:C:621:HOH:O	2.04	0.58
1:D:241:GLY:HA3	1:D:246:GLU:OE1	2.03	0.58
1:C:204:GLU:OE1	4:C:601:HOH:O	2.16	0.58
1:A:141:TYR:CB	1:A:159:ARG:HD2	2.34	0.58
1:D:253:PRO:HD2	1:D:256:LEU:CD2	2.29	0.58
1:A:99:HIS:N	1:A:100:GLY:HA3	2.19	0.57
1:C:301:PHE:HB3	1:C:321:GLU:HG2	1.86	0.57
1:B:283:LEU:HD22	1:B:299:LEU:HD21	1.88	0.56
1:D:248:LYS:O	1:D:248:LYS:HG3	2.04	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:152:GLU:HG3	1:D:154:LYS:HZ2	1.71	0.55
1:D:345:TYR:OH	1:D:369:ASP:OD1	2.20	0.55
1:C:283:LEU:HD22	1:C:299:LEU:HD21	1.89	0.55
1:D:92:SER:O	1:D:110:PRO:HB3	2.07	0.55
1:B:227:LEU:HB3	1:B:238:VAL:HG13	1.88	0.54
1:C:71:VAL:HG13	1:C:127:GLU:CD	2.29	0.54
1:D:332:LYS:HE2	1:D:334:GLU:OE2	2.07	0.54
1:C:40:ASP:CG	1:C:43:LYS:HG2	2.29	0.53
1:A:92:SER:HB3	1:A:94:ILE:H	1.73	0.53
1:D:301:PHE:HB3	1:D:321:GLU:HG2	1.90	0.53
1:D:224:GLY:O	4:D:602:HOH:O	2.19	0.53
1:A:318:VAL:CG1	1:A:328:ILE:HD11	2.39	0.53
1:D:125:LEU:HD12	1:D:134:LEU:HD21	1.91	0.53
1:D:332:LYS:HE2	1:D:334:GLU:CD	2.30	0.53
1:C:173:LEU:HD23	1:C:174:GLY:N	2.25	0.52
1:A:238:VAL:HA	1:A:246:GLU:O	2.09	0.52
1:B:43:LYS:NZ	1:B:392:GLU:OE2	2.34	0.52
1:C:260:VAL:HG22	4:C:711:HOH:O	2.10	0.52
1:A:99:HIS:HB3	1:A:102:HIS:CE1	2.44	0.52
1:C:71:VAL:CG1	1:C:132:VAL:HG21	2.39	0.52
1:B:183:SER:OG	1:B:185:GLU:HG3	2.10	0.52
1:A:260:VAL:HG22	4:A:753:HOH:O	2.09	0.52
1:B:374:LEU:HD23	1:B:390:PRO:HA	1.91	0.51
1:D:164:ARG:HH11	1:D:184:ASP:HA	1.74	0.51
1:B:295:ARG:HD2	4:B:601:HOH:O	2.10	0.51
1:A:87:VAL:HG21	1:A:134:LEU:HD13	1.93	0.51
1:A:92:SER:HB3	1:A:93:GLY:HA2	1.92	0.51
1:C:71:VAL:HG11	1:C:132:VAL:CG2	2.37	0.51
1:C:258:GLN:NE2	4:C:605:HOH:O	2.44	0.51
1:C:260:VAL:HG22	1:C:279:GLY:HA2	1.93	0.50
1:A:301:PHE:HB3	1:A:321:GLU:HG2	1.94	0.50
1:B:102:HIS:O	1:B:103:ARG:HB2	2.11	0.50
1:D:91:ARG:HH12	1:D:152:GLU:HA	1.76	0.50
1:A:173:LEU:HB3	1:A:178:LEU:HD13	1.92	0.50
1:D:249:LEU:HD23	1:D:250:LEU:N	2.27	0.50
1:C:71:VAL:HG13	1:C:127:GLU:OE2	2.12	0.50
1:C:71:VAL:HG12	1:C:72:ALA:N	2.27	0.49
1:A:102:HIS:HD2	1:A:406:VAL:HG21	1.77	0.49
1:B:186:LYS:CA	1:B:187:VAL:CB	2.90	0.49
1:D:260:VAL:HG22	4:D:771:HOH:O	2.12	0.49
1:C:96:PHE:CE1	1:C:105:ILE:HB	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:99:HIS:CB	1:A:100:GLY:HA2	2.42	0.49
1:D:220:GLU:HA	1:D:228:ALA:O	2.13	0.48
1:B:186:LYS:CB	1:B:187:VAL:HB	2.44	0.48
1:A:227:LEU:HB3	1:A:238:VAL:HG13	1.94	0.48
1:D:224:GLY:HA3	1:D:272:GLN:OE1	2.13	0.48
1:A:260:VAL:CG2	1:A:279:GLY:CA	2.89	0.48
1:C:271:ILE:HG13	1:C:273:VAL:CG1	2.43	0.48
1:C:96:PHE:CE1	1:C:105:ILE:HD12	2.49	0.47
1:B:152:GLU:OE2	1:B:154:LYS:NZ	2.41	0.47
1:C:40:ASP:OD2	1:C:43:LYS:HG2	2.13	0.47
1:D:249:LEU:HD23	1:D:249:LEU:C	2.34	0.47
1:A:117:LEU:CD1	1:A:145:LEU:HD11	2.28	0.47
1:D:185:GLU:O	1:D:186:LYS:CG	2.62	0.47
1:B:226:TYR:CZ	1:B:239:LYS:HD2	2.49	0.47
1:B:186:LYS:HB3	1:B:187:VAL:HB	1.96	0.47
1:C:161:PRO:HG2	1:C:205:GLY:HA3	1.97	0.47
1:A:92:SER:O	1:A:110:PRO:HB3	2.15	0.46
1:A:86:THR:HB	4:A:772:HOH:O	2.15	0.46
1:C:92:SER:N	1:C:93:GLY:HA2	2.29	0.46
1:C:184:ASP:O	1:C:184:ASP:OD1	2.33	0.46
1:C:140:GLY:HA2	1:C:165:ALA:HA	1.97	0.46
1:D:185:GLU:OE2	1:D:194:PRO:HG2	2.14	0.46
1:D:253:PRO:HD3	1:D:294:TYR:CD1	2.50	0.46
1:D:260:VAL:CG2	1:D:279:GLY:HA2	2.45	0.46
1:D:91:ARG:HH12	1:D:152:GLU:CA	2.29	0.46
1:C:265:LEU:O	1:C:266:LEU:HD12	2.16	0.46
1:C:51:LEU:C	1:C:51:LEU:HD23	2.36	0.46
1:A:123:PHE:HB3	4:A:638:HOH:O	2.15	0.46
1:A:164:ARG:NH1	1:A:183:SER:O	2.46	0.46
1:D:237:THR:HG1	1:D:248:LYS:HG3	1.81	0.46
1:A:96:PHE:HA	1:A:104:ASP:O	2.15	0.46
1:D:123:PHE:HB3	4:D:686:HOH:O	2.16	0.45
1:A:117:LEU:HD12	1:A:134:LEU:CD1	2.46	0.45
1:C:406:VAL:HG11	1:C:408:HIS:NE2	2.32	0.45
1:C:57:ARG:HG3	1:C:58:TRP:N	2.31	0.45
1:A:119:GLY:HA3	1:A:136:TYR:CE1	2.51	0.45
1:D:164:ARG:NH1	1:D:184:ASP:HA	2.32	0.45
1:A:125:LEU:HD23	1:A:125:LEU:C	2.38	0.45
1:A:148:HIS:HB2	4:A:788:HOH:O	2.16	0.45
1:A:92:SER:CB	1:A:94:ILE:H	2.30	0.45
1:A:117:LEU:CD1	1:A:134:LEU:HD12	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:260:VAL:HG12	1:B:278:TYR:CE2	2.51	0.44
1:C:85:ASP:HB3	1:C:119:GLY:O	2.17	0.44
1:D:185:GLU:O	1:D:186:LYS:HG2	2.17	0.44
1:C:36:VAL:O	1:C:48:ALA:HA	2.17	0.44
1:C:341:VAL:HG23	1:C:342:THR:HG23	2.00	0.44
1:C:71:VAL:CG1	1:C:132:VAL:CG2	2.95	0.44
1:D:237:THR:OG1	1:D:248:LYS:HG3	2.17	0.44
1:B:163:ALA:HB2	4:B:815:HOH:O	2.17	0.44
1:D:228:ALA:HA	1:D:236:LEU:O	2.18	0.44
1:C:178:LEU:HD12	1:C:178:LEU:N	2.33	0.44
1:A:178:LEU:HD12	1:A:178:LEU:N	2.33	0.43
1:B:144:ILE:HD13	1:B:177:TRP:CH2	2.53	0.43
1:B:92:SER:O	1:B:110:PRO:HB3	2.17	0.43
1:C:186:LYS:O	1:C:187:VAL:HG23	2.18	0.43
1:C:43:LYS:HD2	1:C:45:GLN:OE1	2.18	0.43
1:C:173:LEU:HD23	1:C:173:LEU:C	2.38	0.43
1:D:74:GLY:O	1:D:92:SER:HB2	2.17	0.43
1:A:99:HIS:HB3	1:A:100:GLY:HA2	1.99	0.43
1:B:98:ASP:OD1	1:B:103:ARG:HG3	2.18	0.43
1:C:96:PHE:CZ	1:C:105:ILE:HD12	2.54	0.43
1:A:96:PHE:C	1:A:97:HIS:HD1	2.18	0.43
1:D:353:ASP:HB3	1:D:354:PRO:HD2	1.99	0.43
1:A:239:LYS:HB2	1:A:239:LYS:HE3	1.64	0.43
1:B:105:ILE:O	1:B:105:ILE:HG23	2.19	0.43
1:A:36:VAL:O	1:A:48:ALA:HA	2.18	0.43
1:A:100:GLY:C	1:A:102:HIS:H	2.21	0.43
1:D:374:LEU:C	1:D:374:LEU:HD12	2.39	0.43
1:A:407:THR:O	1:A:408:HIS:CG	2.71	0.43
1:D:125:LEU:C	1:D:125:LEU:HD23	2.39	0.43
1:D:243:ASN:HB2	4:D:712:HOH:O	2.18	0.43
1:D:317:TYR:OH	1:D:327:ARG:HD3	2.18	0.43
1:A:117:LEU:HD12	1:A:134:LEU:HD12	2.01	0.43
1:A:295:ARG:HD2	4:A:609:HOH:O	2.19	0.42
1:C:127:GLU:HA	1:C:131:LYS:O	2.19	0.42
1:C:300:PRO:HD3	4:C:723:HOH:O	2.18	0.42
1:A:122:PRO:HA	1:A:135:ASN:O	2.19	0.42
1:A:99:HIS:N	1:A:100:GLY:CA	2.82	0.42
1:B:178:LEU:N	1:B:178:LEU:HD12	2.34	0.42
1:B:301:PHE:HB3	1:B:321:GLU:HG2	2.01	0.42
1:C:51:LEU:HD21	1:C:364:GLU:OE1	2.19	0.42
1:A:124[B]:HIS:NE2	1:A:220:GLU:OE1	2.43	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:217:ILE:HA	1:D:230:GLY:O	2.19	0.42
1:C:91:ARG:HB3	1:C:91:ARG:NH1	2.33	0.42
1:D:260:VAL:HG22	1:D:279:GLY:HA2	2.02	0.42
1:A:99:HIS:ND1	1:A:100:GLY:HA2	2.35	0.42
1:C:353:ASP:HB3	1:C:354:PRO:HD2	2.01	0.42
1:C:91:ARG:HH11	1:C:91:ARG:CB	2.33	0.42
1:C:193:VAL:HG23	4:C:763:HOH:O	2.20	0.42
1:D:141:TYR:HB2	1:D:159[B]:ARG:HD2	2.01	0.42
1:D:286:ILE:HA	1:D:293:HIS:O	2.18	0.42
1:D:295:ARG:HG2	4:D:826:HOH:O	2.19	0.42
1:A:29:GLU:N	1:A:29:GLU:OE1	2.53	0.42
1:B:120:PRO:HB2	1:B:138:GLN:HB2	2.01	0.41
1:C:379:ALA:HB2	1:C:386:ARG:NE	2.35	0.41
1:D:173:LEU:HB3	1:D:178:LEU:HD13	2.02	0.41
1:B:164:ARG:HH22	1:B:187:VAL:HG22	1.84	0.41
1:B:253:PRO:HD3	1:B:294:TYR:CD1	2.55	0.41
1:B:92:SER:CB	1:B:94:ILE:H	2.31	0.41
1:C:87:VAL:HB	1:C:117:LEU:HB2	2.02	0.41
1:D:365:ILE:HD11	1:D:380:THR:HG22	2.01	0.41
1:C:283:LEU:HD21	1:C:299:LEU:HD21	1.97	0.41
1:A:353:ASP:HB3	1:A:354:PRO:HD2	2.02	0.41
1:C:33:LEU:CD1	1:C:94:ILE:HD11	2.51	0.41
1:A:114:ASP:N	4:A:602:HOH:O	2.14	0.41
1:A:117:LEU:CD2	1:A:157:PRO:HD3	2.51	0.41
1:B:125:LEU:C	1:B:125:LEU:HD23	2.42	0.41
1:C:260:VAL:HG21	1:C:279:GLY:HA2	1.90	0.41
1:B:185:GLU:C	1:B:186:LYS:HD3	2.41	0.40
1:A:216:GLY:O	1:A:217:ILE:C	2.60	0.40
1:B:353:ASP:HB3	1:B:354:PRO:HD2	2.03	0.40
1:C:186:LYS:HD3	1:C:187:VAL:H	1.86	0.40
1:B:286:ILE:HA	1:B:293:HIS:O	2.21	0.40
1:B:365:ILE:HD11	1:B:380:THR:HG22	2.03	0.40
1:C:71:VAL:CG1	1:C:72:ALA:N	2.85	0.40
1:D:235:VAL:HG21	1:D:286:ILE:HD13	2.03	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)
4:B:806:HOH:O	4:D:796:HOH:O[3_544]	1.76	0.44

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	373/408 (91%)	358 (96%)	15 (4%)	0	100	100
1	B	366/408 (90%)	352 (96%)	12 (3%)	2 (0%)	29	22
1	C	361/408 (88%)	348 (96%)	13 (4%)	0	100	100
1	D	373/408 (91%)	358 (96%)	14 (4%)	1 (0%)	41	37
All	All	1473/1632 (90%)	1416 (96%)	54 (4%)	3 (0%)	47	46

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	98	ASP
1	D	185	GLU
1	B	103	ARG

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	293/312 (94%)	282 (96%)	11 (4%)	33	31
1	B	289/312 (93%)	277 (96%)	12 (4%)	30	28
1	C	284/312 (91%)	271 (95%)	13 (5%)	27	23
1	D	293/312 (94%)	286 (98%)	7 (2%)	49	51
All	All	1159/1248 (93%)	1116 (96%)	43 (4%)	34	32

All (43) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	53	GLU
1	B	71	VAL
1	B	99	HIS
1	B	186	LYS
1	B	187	VAL
1	B	236	LEU
1	B	238	VAL
1	B	250	LEU
1	B	260	VAL
1	B	283	LEU
1	B	306	PHE
1	B	340	LYS
1	A	28	HIS
1	A	97	HIS
1	A	99	HIS
1	A	148	HIS
1	A	159	ARG
1	A	238	VAL
1	A	245	SER
1	A	256	LEU
1	A	266	LEU
1	A	283	LEU
1	A	306	PHE
1	C	32	THR
1	C	57	ARG
1	C	86	THR
1	C	92	SER
1	C	152	GLU
1	C	193	VAL
1	C	236	LEU
1	C	250	LEU
1	C	256	LEU
1	C	266	LEU
1	C	306	PHE
1	C	377	ARG
1	C	407	THR
1	D	103	ARG
1	D	183	SER
1	D	185	GLU
1	D	236	LEU
1	D	248	LYS
1	D	256	LEU
1	D	306	PHE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	45	GLN
1	C	56	HIS

5.3.3　RNA (i)

There are no RNA molecules in this entry.

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

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

5.5　Carbohydrates (i)

There are no carbohydrates in this entry.

5.6　Ligand geometry (i)

Of 9 ligands modelled in this entry, 8 are monoatomic - leaving 1 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	$\#|Z| > 2$
3	PEG	C	503	-	6,6,6	0.50	0	5,5,5	0.37	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	PEG	C	503	-	-	0/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

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	375/408 (91%)	-0.13	17 (4%)	33	42	15, 28, 70, 117	0
1	B	372/408 (91%)	-0.32	5 (1%)	77	82	14, 24, 62, 107	0
1	C	366/408 (89%)	-0.20	7 (1%)	66	74	17, 30, 64, 114	0
1	D	375/408 (91%)	-0.37	5 (1%)	77	82	17, 28, 53, 85	0
All	All	1488/1632 (91%)	-0.26	34 (2%)	60	68	14, 27, 64, 117	0

All (34) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	243	ASN	7.9
1	A	99	HIS	5.1
1	C	408	HIS	4.4
1	C	407	THR	4.3
1	A	29	GLU	4.1
1	A	242	ALA	4.1
1	A	408	HIS	4.1
1	A	100	GLY	4.1
1	A	28	HIS	3.7
1	B	187	VAL	3.6
1	B	102	HIS	3.6
1	A	97	HIS	3.4
1	C	405	GLY	3.2
1	A	159	ARG	3.1
1	A	206	ASN	3.0
1	B	98	ASP	2.7
1	A	101	ASP	2.7
1	A	86	THR	2.7
1	C	404	SER	2.6
1	A	407	THR	2.6
1	C	187	VAL	2.6

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Mol	Chain	Res	Type	RSRZ
1	B	408	HIS	2.5
1	A	116[A]	SER	2.5
1	D	186	LYS	2.5
1	D	240	ALA	2.4
1	A	118	THR	2.3
1	D	243	ASN	2.2
1	C	406	VAL	2.2
1	A	255	ASP	2.2
1	D	225	ALA	2.1
1	C	156	GLU	2.1
1	A	148	HIS	2.0
1	B	407	THR	2.0
1	D	52	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 carbohydrates 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(Å^2)	Q<0.9
2	ZN	A	502	1/1	0.69	0.06	98,98,98,98	1
2	ZN	C	502	1/1	0.80	0.08	97,97,97,97	0
2	ZN	B	502	1/1	0.92	0.06	74,74,74,74	1
3	PEG	C	503	7/7	0.93	0.10	33,40,48,52	0
2	ZN	A	501	1/1	0.97	0.05	53,53,53,53	1
2	ZN	D	501	1/1	0.98	0.07	31,31,31,31	0
2	ZN	C	501	1/1	0.98	0.07	41,41,41,41	1
2	ZN	D	502	1/1	0.99	0.08	36,36,36,36	1
2	ZN	B	501	1/1	0.99	0.05	26,26,26,26	1

6.5 Other polymers (i)

There are no such residues in this entry.