Full wwPDB X-ray Structure Validation Report (i)

Jul 16, 2023 – 08:06 PM EDT

PDB ID	:	3N1Q
Title	:	Crystal Structure of DhhN bound to CDOFn3
Authors	:	Kavran, J.M.; Leahy, D.J.
Deposited on	:	2010-05-16
Resolution	:	2.89 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:

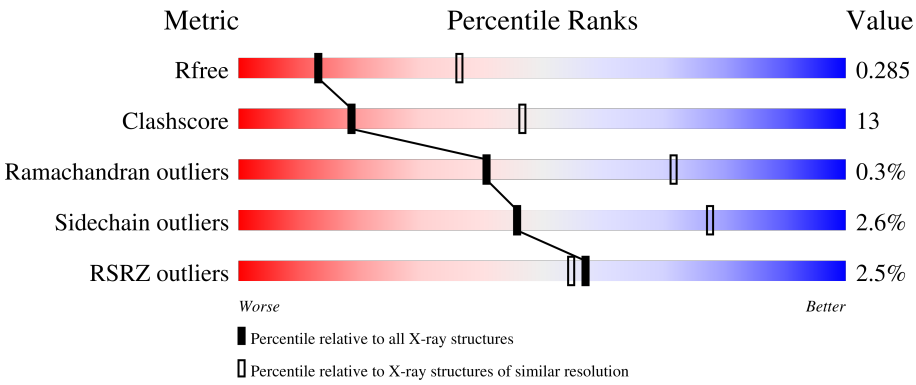
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.34
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.34

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 2.89 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	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	170	57% 30% • 11%
1	B	170	% 65% 23% • 11%
1	E	170	2% 58% 28% • 12%
2	C	102	2% 64% 22% 15%
2	D	102	5% 66% 19% • 15%

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Mol	Chain	Length	Quality of chain
2	F	102	6% 62% 22% • 15%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 5767 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 Desert hedgehog protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	B	151	1208	753	224	227	4	0	0	0
1	A	151	1208	753	224	227	4	0	0	0
1	E	150	1199	748	222	225	4	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	20	GLY	-	expression tag	UNP O43323
B	21	SER	-	expression tag	UNP O43323
B	22	GLY	-	expression tag	UNP O43323
B	23	PRO	-	expression tag	UNP O43323
A	20	GLY	-	expression tag	UNP O43323
A	21	SER	-	expression tag	UNP O43323
A	22	GLY	-	expression tag	UNP O43323
A	23	PRO	-	expression tag	UNP O43323
E	20	GLY	-	expression tag	UNP O43323
E	21	SER	-	expression tag	UNP O43323
E	22	GLY	-	expression tag	UNP O43323
E	23	PRO	-	expression tag	UNP O43323

- Molecule 2 is a protein called Cell adhesion molecule-related/down-regulated by oncogenes.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	87	714	450	114	144	6	0	0	0
2	D	87	714	450	114	144	6	0	0	0
2	F	87	714	450	114	144	6	0	0	0

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	823	GLY	-	expression tag	UNP Q4KMG0
C	824	SER	-	expression tag	UNP Q4KMG0
C	825	THR	-	expression tag	UNP Q4KMG0
D	823	GLY	-	expression tag	UNP Q4KMG0
D	824	SER	-	expression tag	UNP Q4KMG0
D	825	THR	-	expression tag	UNP Q4KMG0
F	823	GLY	-	expression tag	UNP Q4KMG0
F	824	SER	-	expression tag	UNP Q4KMG0
F	825	THR	-	expression tag	UNP Q4KMG0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total Zn 1 1	0	0
3	A	1	Total Zn 1 1	0	0
3	E	1	Total Zn 1 1	0	0

- Molecule 4 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	2	Total Ca 2 2	0	0
4	A	2	Total Ca 2 2	0	0
4	E	2	Total Ca 2 2	0	0

- Molecule 5 is water.

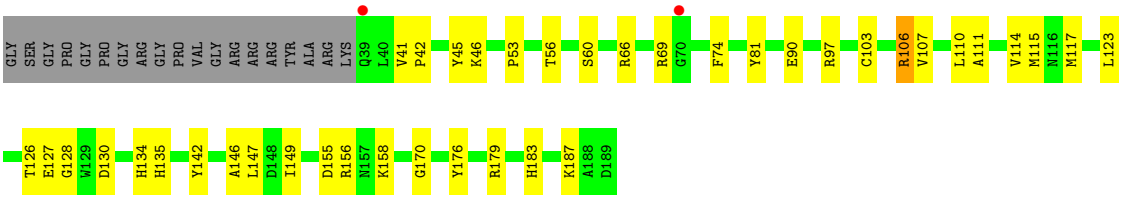
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	E	1	Total O 1 1	0	0

3 Residue-property plots (i)

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

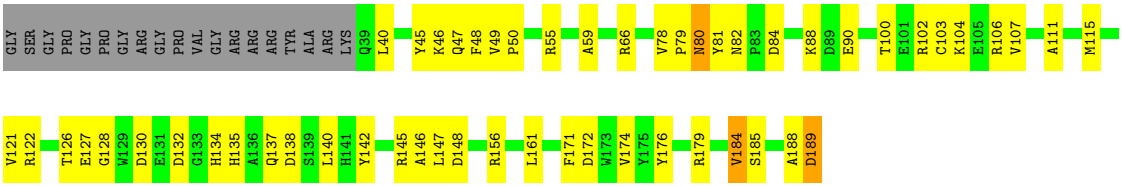
• Molecule 1: Desert hedgehog protein

Chain B:



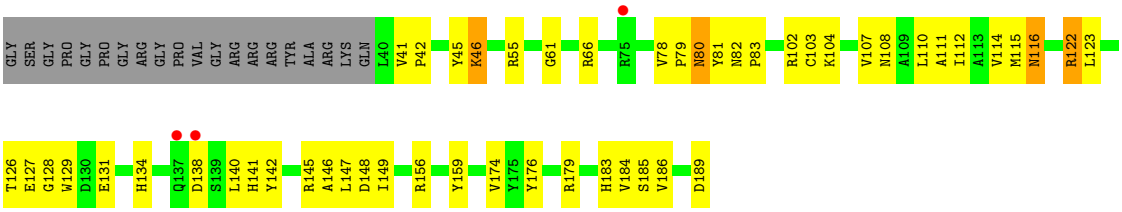
• Molecule 1: Desert hedgehog protein

Chain A:



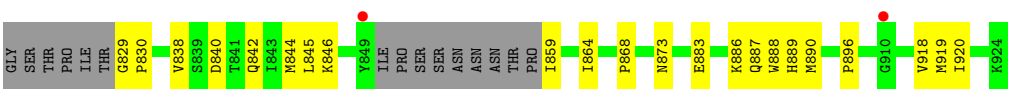
• Molecule 1: Desert hedgehog protein

Chain E:



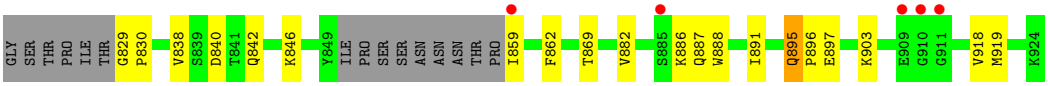
• Molecule 2: Cell adhesion molecule-related/down-regulated by oncogenes

Chain C:



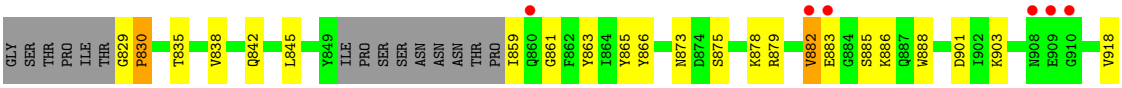
• Molecule 2: Cell adhesion molecule-related/down-regulated by oncogenes

Chain D:



• Molecule 2: Cell adhesion molecule-related/down-regulated by oncogenes

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	45.72Å 100.27Å 97.26Å 90.00° 98.98° 90.00°	Depositor
Resolution (Å)	22.73 – 2.89 22.73 – 2.89	Depositor EDS
% Data completeness (in resolution range)	89.6 (22.73-2.89) 99.5 (22.73-2.89)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.64 (at 2.89Å)	Xtriage
Refinement program	PHENIX (phenix.refine)	Depositor
R, R_{free}	0.237 , 0.288 0.239 , 0.285	Depositor DCC
R_{free} test set	989 reflections (5.11%)	wwPDB-VP
Wilson B-factor (Å^2)	33.2	Xtriage
Anisotropy	0.108	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 17.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.85	EDS
Total number of atoms	5767	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.52% 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, CA

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	0.23	0/1235	0.38	0/1673
1	B	0.25	0/1235	0.39	0/1673
1	E	0.25	0/1226	0.43	1/1661 (0.1%)
2	C	0.22	0/732	0.39	0/987
2	D	0.21	0/732	0.37	0/987
2	F	0.22	0/732	0.37	0/987
All	All	0.23	0/5892	0.39	1/7968 (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	B	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	46	LYS	C-N-CA	5.39	135.18	121.70

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	117	MET	Mainchain

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	1208	0	1165	42	0
1	B	1208	0	1165	26	0
1	E	1199	0	1157	34	0
2	C	714	0	655	18	0
2	D	714	0	655	16	0
2	F	714	0	655	23	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	E	1	0	0	0	0
4	A	2	0	0	0	0
4	B	2	0	0	0	0
4	E	2	0	0	0	0
5	E	1	0	0	0	0
All	All	5767	0	5452	148	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 13.

All (148) 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)
2:F:882:VAL:HG12	2:F:883:GLU:H	1.01	1.12
2:F:882:VAL:HG11	2:F:886:LYS:HD2	1.35	1.08
2:F:861:GLY:HA2	2:F:883:GLU:O	1.53	1.06
2:F:882:VAL:HG12	2:F:883:GLU:N	1.70	1.02
2:F:882:VAL:CG1	2:F:886:LYS:HD2	2.04	0.86
2:F:861:GLY:CA	2:F:883:GLU:O	2.29	0.81
1:B:66:ARG:HG3	1:B:142:TYR:HB3	1.65	0.78
1:A:55:ARG:HH12	1:A:138:ASP:HB3	1.49	0.76
1:B:103:CYS:O	1:B:107:VAL:HG23	1.87	0.74
1:A:103:CYS:O	1:A:107:VAL:HG23	1.87	0.74
2:F:886:LYS:HD3	2:F:888:TRP:O	1.87	0.73
1:A:84:ASP:HA	1:A:122:ARG:HD3	1.70	0.73
1:A:137:GLN:O	1:A:138:ASP:HB2	1.87	0.72
1:A:55:ARG:NH1	1:A:138:ASP:HB3	2.04	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:882:VAL:CG1	2:F:883:GLU:H	1.81	0.69
2:F:882:VAL:CG1	2:F:883:GLU:N	2.45	0.67
1:E:103:CYS:O	1:E:107:VAL:HG23	1.94	0.66
1:E:66:ARG:HG3	1:E:142:TYR:HB3	1.78	0.65
1:A:55:ARG:HH12	1:A:138:ASP:CB	2.09	0.65
1:A:66:ARG:HG3	1:A:142:TYR:HB3	1.79	0.64
1:A:88:LYS:HE2	2:D:869:THR:HG23	1.78	0.64
2:C:844:MET:HE3	2:C:888:TRP:HE1	1.63	0.63
1:A:128:GLY:HA2	1:A:147:LEU:HD23	1.79	0.63
2:C:844:MET:CE	2:C:888:TRP:HE1	2.12	0.62
1:E:80:ASN:HD22	1:E:81:TYR:N	1.98	0.61
1:E:45:TYR:CE1	1:E:179:ARG:HG3	2.35	0.61
1:A:80:ASN:HD21	1:A:82:ASN:HB2	1.64	0.61
1:E:80:ASN:ND2	1:E:82:ASN:H	1.99	0.61
1:B:106:ARG:HD3	1:B:170:GLY:C	2.22	0.60
1:E:156:ARG:HD3	1:E:159:TYR:CE2	2.36	0.59
1:A:55:ARG:NH2	1:A:138:ASP:O	2.35	0.59
1:A:174:VAL:HG22	1:A:184:VAL:HG13	1.85	0.58
1:B:146:ALA:HB1	1:B:183:HIS:CE1	2.39	0.58
1:A:90:GLU:HG3	2:D:918:VAL:HG11	1.86	0.57
1:A:84:ASP:CA	1:A:122:ARG:HD3	2.35	0.57
1:A:121:VAL:HG12	1:A:122:ARG:N	2.20	0.57
2:C:838:VAL:HG23	2:C:842:GLN:HB2	1.89	0.55
1:B:45:TYR:O	1:B:46:LYS:HB2	2.07	0.55
1:A:100:THR:HB	1:A:189:ASP:OD2	2.08	0.54
1:A:80:ASN:ND2	1:A:82:ASN:H	2.06	0.53
1:A:140:LEU:HD12	1:A:185:SER:HB2	1.91	0.52
1:A:55:ARG:HH22	1:A:138:ASP:C	2.13	0.52
1:E:80:ASN:HD22	1:E:80:ASN:C	2.13	0.52
1:E:111:ALA:O	1:E:115:MET:HG3	2.10	0.52
1:B:110:LEU:O	1:B:114:VAL:HG23	2.09	0.52
2:C:883:GLU:OE2	2:C:886:LYS:HG2	2.11	0.51
2:F:866:TYR:HA	2:F:901:ASP:O	2.10	0.51
2:F:838:VAL:HG22	2:F:842:GLN:HB2	1.93	0.50
1:A:126:THR:O	1:A:127:GLU:HG2	2.12	0.50
2:F:886:LYS:NZ	2:F:888:TRP:CH2	2.79	0.50
2:D:903:LYS:HB3	2:D:918:VAL:HG22	1.94	0.50
1:E:146:ALA:HB1	1:E:183:HIS:CE1	2.46	0.50
1:A:127:GLU:O	1:A:147:LEU:HA	2.12	0.50
2:F:865:TYR:HA	2:F:878:LYS:O	2.12	0.49
1:A:55:ARG:NH2	1:A:138:ASP:C	2.65	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:111:ALA:O	1:B:115:MET:HG3	2.13	0.49
1:A:49:VAL:HA	1:A:50:PRO:C	2.33	0.49
2:C:842:GLN:HB3	2:C:890:MET:SD	2.53	0.49
1:E:123:LEU:HD11	1:E:149:ILE:HB	1.93	0.49
1:E:126:THR:O	1:E:127:GLU:HG2	2.12	0.49
2:D:895:GLN:NE2	2:D:895:GLN:HA	2.28	0.48
1:E:55:ARG:HA	1:E:61:GLY:O	2.13	0.48
1:E:102:ARG:HB2	1:E:189:ASP:OD1	2.13	0.48
2:F:835:THR:HG22	2:F:845:LEU:HB3	1.94	0.48
2:D:840:ASP:O	2:D:896:PRO:HA	2.13	0.48
2:F:873:ASN:OD1	2:F:875:SER:HB2	2.14	0.48
1:B:123:LEU:HD11	1:B:149:ILE:HB	1.95	0.48
2:C:868:PRO:HG3	1:E:83:PRO:CG	2.43	0.48
1:B:53:PRO:HB2	1:B:56:THR:HG23	1.96	0.48
1:A:111:ALA:O	1:A:115:MET:HG3	2.14	0.47
1:A:179:ARG:HD2	2:D:897:GLU:OE1	2.15	0.47
1:E:108:ASN:O	1:E:112:ILE:HG13	2.14	0.47
2:F:863:TYR:CD2	2:F:879:ARG:HD2	2.49	0.47
1:A:156:ARG:HD3	1:A:179:ARG:O	2.14	0.47
2:C:844:MET:HE3	2:C:888:TRP:NE1	2.28	0.47
1:B:134:HIS:HB3	2:C:919:MET:SD	2.55	0.47
2:F:859:ILE:HD12	2:F:859:ILE:N	2.30	0.47
1:A:140:LEU:HB2	1:A:146:ALA:HB2	1.97	0.46
1:E:122:ARG:HH11	1:E:122:ARG:CG	2.28	0.46
2:C:859:ILE:HD12	2:C:859:ILE:N	2.31	0.46
1:E:80:ASN:HD21	1:E:82:ASN:HB2	1.80	0.46
1:B:127:GLU:OE2	1:B:127:GLU:HA	2.15	0.46
2:F:865:TYR:CE1	2:F:879:ARG:HD3	2.51	0.46
2:D:846:LYS:C	2:D:846:LYS:HD3	2.36	0.46
1:B:155:ASP:OD2	1:B:158:LYS:HG3	2.16	0.45
1:A:134:HIS:HB3	2:D:919:MET:SD	2.56	0.45
1:B:81:TYR:HA	1:B:97:ARG:NH1	2.32	0.45
1:A:127:GLU:HB2	1:A:148:ASP:HB2	1.98	0.45
2:D:886:LYS:HE3	2:D:888:TRP:O	2.16	0.45
1:A:80:ASN:C	1:A:80:ASN:HD22	2.19	0.45
1:E:78:VAL:HA	1:E:79:PRO:HD3	1.83	0.45
2:F:886:LYS:NZ	2:F:888:TRP:CZ2	2.84	0.45
2:C:846:LYS:HG2	2:C:888:TRP:HD1	1.81	0.45
1:A:59:ALA:O	1:A:172:ASP:HB3	2.17	0.45
1:B:126:THR:O	1:B:127:GLU:HG2	2.17	0.45
1:E:116:ASN:HD22	1:E:116:ASN:C	2.20	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:130:ASP:OD2	1:A:135:HIS:HD2	2.00	0.44
1:E:134:HIS:HB3	2:F:919:MET:SD	2.57	0.44
1:A:171:PHE:CG	1:A:184:VAL:HG12	2.52	0.44
1:E:127:GLU:HB2	1:E:148:ASP:HB2	1.99	0.44
1:B:146:ALA:O	1:B:147:LEU:HD23	2.17	0.44
2:D:846:LYS:NZ	2:D:887:GLN:HB3	2.33	0.44
1:E:141:HIS:CD2	1:E:183:HIS:HE1	2.35	0.44
2:D:859:ILE:N	2:D:859:ILE:HD12	2.33	0.44
1:E:45:TYR:O	1:E:46:LYS:HB2	2.18	0.44
1:B:134:HIS:CE1	2:C:920:ILE:HB	2.53	0.43
2:C:840:ASP:O	2:C:896:PRO:HA	2.18	0.43
1:A:47:GLN:HG2	1:A:48:PHE:N	2.33	0.43
1:A:79:PRO:HB2	1:A:81:TYR:CE2	2.53	0.43
1:E:140:LEU:HD12	1:E:185:SER:HB2	2.00	0.43
1:E:174:VAL:HG22	1:E:184:VAL:HG12	2.00	0.43
1:B:60:SER:O	1:B:187:LYS:HA	2.18	0.43
1:B:45:TYR:CE1	1:B:179:ARG:HG3	2.54	0.43
1:B:90:GLU:HG3	2:C:918:VAL:HG11	1.99	0.43
1:E:110:LEU:O	1:E:114:VAL:HG23	2.18	0.43
1:A:102:ARG:O	1:A:106:ARG:HG2	2.18	0.43
1:E:78:VAL:HB	1:E:104:LYS:HE3	1.99	0.43
1:E:41:VAL:HA	1:E:42:PRO:HD2	1.82	0.43
1:B:128:GLY:HA2	1:B:147:LEU:HD23	2.00	0.43
1:A:40:LEU:HD23	1:A:40:LEU:HA	1.86	0.43
1:B:134:HIS:HB3	2:C:919:MET:CE	2.49	0.42
2:C:845:LEU:HD21	2:C:889:HIS:HB3	2.01	0.42
2:D:862:PHE:HB2	2:D:882:VAL:HG22	2.01	0.42
1:B:69:ARG:HA	1:B:74:PHE:CD1	2.54	0.42
1:E:129:TRP:CH2	1:E:131:GLU:HB3	2.53	0.42
2:C:887:GLN:HE22	1:A:137:GLN:NE2	2.17	0.42
2:F:829:GLY:HA2	2:F:830:PRO:HD3	1.86	0.42
1:B:130:ASP:OD2	1:B:135:HIS:HD2	2.03	0.42
1:A:145:ARG:HD3	1:A:188:ALA:HA	2.01	0.42
2:C:829:GLY:HA2	2:C:830:PRO:HD3	1.84	0.42
1:A:45:TYR:O	1:A:46:LYS:HB2	2.19	0.42
2:D:829:GLY:HA2	2:D:830:PRO:HD3	1.89	0.41
2:D:842:GLN:HA	2:D:891:ILE:O	2.20	0.41
2:F:903:LYS:HB3	2:F:918:VAL:HG22	2.02	0.41
1:E:55:ARG:HH22	1:E:138:ASP:HB2	1.84	0.41
1:A:121:VAL:CG1	1:A:122:ARG:N	2.82	0.41
1:E:145:ARG:HD2	1:E:186:VAL:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:128:GLY:HA2	1:E:147:LEU:HD23	2.02	0.41
1:E:80:ASN:HD22	1:E:82:ASN:H	1.68	0.41
2:D:838:VAL:HG22	2:D:842:GLN:HB2	2.02	0.41
1:B:127:GLU:O	1:B:147:LEU:HA	2.21	0.41
1:E:141:HIS:NE2	1:E:183:HIS:CE1	2.89	0.41
2:F:845:LEU:HD23	2:F:845:LEU:N	2.36	0.40
1:B:41:VAL:HA	1:B:42:PRO:HD2	1.84	0.40
1:A:78:VAL:HB	1:A:104:LYS:NZ	2.36	0.40
2:D:895:GLN:HA	2:D:896:PRO:HD3	1.85	0.40
1:B:106:ARG:HD3	1:B:170:GLY:O	2.22	0.40
2:C:864:ILE:HD12	2:C:864:ILE:N	2.36	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	149/170 (88%)	143 (96%)	6 (4%)	0	100 100
1	B	149/170 (88%)	143 (96%)	6 (4%)	0	100 100
1	E	148/170 (87%)	139 (94%)	9 (6%)	0	100 100
2	C	83/102 (81%)	83 (100%)	0	0	100 100
2	D	83/102 (81%)	80 (96%)	3 (4%)	0	100 100
2	F	83/102 (81%)	76 (92%)	5 (6%)	2 (2%)	6 22
All	All	695/816 (85%)	664 (96%)	29 (4%)	2 (0%)	41 71

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	F	882	VAL
2	F	830	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	126/138 (91%)	120 (95%)	6 (5%)	25	58
1	B	126/138 (91%)	123 (98%)	3 (2%)	49	79
1	E	125/138 (91%)	121 (97%)	4 (3%)	39	73
2	C	79/93 (85%)	78 (99%)	1 (1%)	69	90
2	D	79/93 (85%)	78 (99%)	1 (1%)	69	90
2	F	79/93 (85%)	78 (99%)	1 (1%)	69	90
All	All	614/693 (89%)	598 (97%)	16 (3%)	46	77

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	106	ARG
1	B	156	ARG
1	B	176	TYR
2	C	873	ASN
1	A	80	ASN
1	A	132	ASP
1	A	161	LEU
1	A	176	TYR
1	A	184	VAL
1	A	189	ASP
2	D	895	GLN
1	E	80	ASN
1	E	116	ASN
1	E	122	ARG
1	E	176	TYR
2	F	885	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	135	HIS

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Mol	Chain	Res	Type
1	B	183	HIS
2	C	873	ASN
2	C	887	GLN
2	C	905	GLN
1	A	80	ASN
2	D	895	GLN
2	D	905	GLN
1	E	80	ASN
1	E	116	ASN
1	E	135	HIS
1	E	183	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 monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 9 ligands modelled in this entry, 9 are monoatomic - leaving 0 for Mogul analysis.

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	151/170 (88%)	0.05	0	100	100	20, 35, 57, 74	0
1	B	151/170 (88%)	-0.16	2 (1%)	77	77	14, 25, 49, 71	0
1	E	150/170 (88%)	0.16	3 (2%)	65	63	19, 38, 67, 92	0
2	C	87/102 (85%)	0.06	2 (2%)	60	58	12, 33, 65, 86	0
2	D	87/102 (85%)	0.26	5 (5%)	23	19	21, 40, 71, 89	0
2	F	87/102 (85%)	0.25	6 (6%)	16	13	20, 33, 79, 95	0
All	All	713/816 (87%)	0.08	18 (2%)	57	55	12, 33, 68, 95	0

All (18) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	F	910	GLY	4.6
2	F	883	GLU	3.3
2	D	859	ILE	3.3
2	D	909	GLU	3.1
2	F	909	GLU	3.1
1	E	75	ARG	3.0
2	D	885	SER	2.9
1	B	70	GLY	2.8
1	E	138	ASP	2.7
2	F	908	ASN	2.7
2	C	910	GLY	2.6
2	D	910	GLY	2.5
2	F	882	VAL	2.4
2	D	911	GLY	2.4
2	F	860	GLN	2.3
2	C	849	TYR	2.3
1	B	39	GLN	2.1
1	E	137	GLN	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)

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
4	CA	E	191	1/1	0.71	0.23	47,47,47,47	0
3	ZN	A	190	1/1	0.83	0.09	50,50,50,50	0
4	CA	E	192	1/1	0.92	0.13	19,19,19,19	0
4	CA	A	192	1/1	0.93	0.17	22,22,22,22	0
4	CA	A	191	1/1	0.95	0.13	25,25,25,25	0
3	ZN	E	190	1/1	0.96	0.14	66,66,66,66	0
4	CA	B	192	1/1	0.96	0.17	23,23,23,23	0
3	ZN	B	190	1/1	0.96	0.09	46,46,46,46	0
4	CA	B	191	1/1	0.97	0.17	33,33,33,33	0

6.5 Other polymers (i)

There are no such residues in this entry.