Full wwPDB X-ray Structure Validation Report ⓘ

Oct 23, 2021 – 09:04 AM EDT

PDB ID	:	1JCK
Title	:	T-CELL RECEPTOR BETA CHAIN COMPLEXED WITH SEC3 SUPER-ANTIGEN
Authors	:	Fields, B.A.; Mariuzza, R.A.
Deposited on	:	1996-10-22
Resolution	:	3.50 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

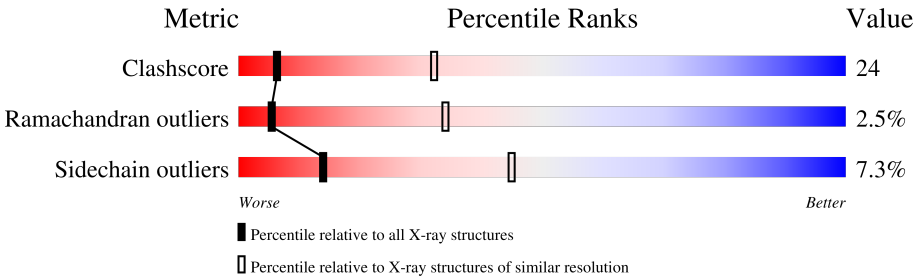
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.23.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.2

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 3.50 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)

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%

Mol	Chain	Length	Quality of chain
1	A	238	55% 41% .
1	C	238	55% 42% .
2	B	239	56% 40% .
2	D	239	58% 38% .

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 7540 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 14.3.D T CELL ANTIGEN RECEPTOR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	238	Total	C	N	O	S	170	0	0
			1826	1146	325	349	6			
1	C	238	Total	C	N	O	S	170	0	0
			1826	1146	325	349	6			

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	24	GLN	ASN	engineered mutation	GB 1791255
A	74	GLN	ASN	engineered mutation	GB 1791255
A	?	-	GLN	deletion	GB 1791255
A	99	GLY	-	insertion	GB 1791255
A	100	SER	-	insertion	GB 1791255
A	101	TYR	-	insertion	GB 1791255
A	121	GLN	ASN	engineered mutation	GB 1791255
C	24	GLN	ASN	engineered mutation	GB 1791255
C	74	GLN	ASN	engineered mutation	GB 1791255
C	?	-	GLN	deletion	GB 1791255
C	99	GLY	-	insertion	GB 1791255
C	100	SER	-	insertion	GB 1791255
C	101	TYR	-	insertion	GB 1791255
C	121	GLN	ASN	engineered mutation	GB 1791255

- Molecule 2 is a protein called STAPHYLOCOCCAL ENTEROTOXIN C3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	239	Total	C	N	O	S	190	0	0
			1944	1229	319	386	10			
2	D	239	Total	C	N	O	S	190	0	0
			1944	1229	319	386	10			

There are 18 discrepancies between the modelled and reference sequences:

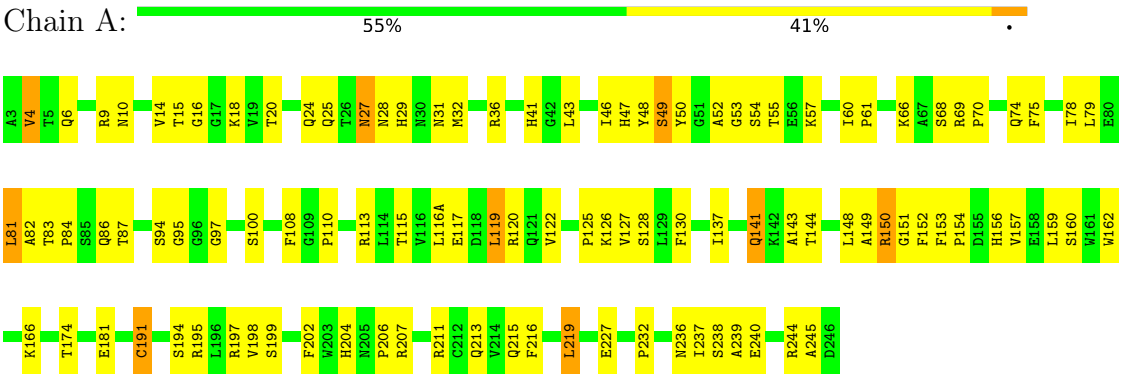
Chain	Residue	Modelled	Actual	Comment	Reference
B	54	ASN	SER	conflict	UNP P0A0L5
B	59	ASN	LYS	conflict	UNP P0A0L5
B	75	ASN	LYS	conflict	UNP P0A0L5
B	106	SER	GLY	conflict	UNP P0A0L5
B	133	ILE	VAL	conflict	UNP P0A0L5
B	191	SER	ASN	conflict	UNP P0A0L5
B	216	ILE	MET	conflict	UNP P0A0L5
B	218	LYS	ASN	conflict	UNP P0A0L5
B	222	MET	THR	conflict	UNP P0A0L5
D	54	ASN	SER	conflict	UNP P0A0L5
D	59	ASN	LYS	conflict	UNP P0A0L5
D	75	ASN	LYS	conflict	UNP P0A0L5
D	106	SER	GLY	conflict	UNP P0A0L5
D	133	ILE	VAL	conflict	UNP P0A0L5
D	191	SER	ASN	conflict	UNP P0A0L5
D	216	ILE	MET	conflict	UNP P0A0L5
D	218	LYS	ASN	conflict	UNP P0A0L5
D	222	MET	THR	conflict	UNP P0A0L5

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. 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. 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.

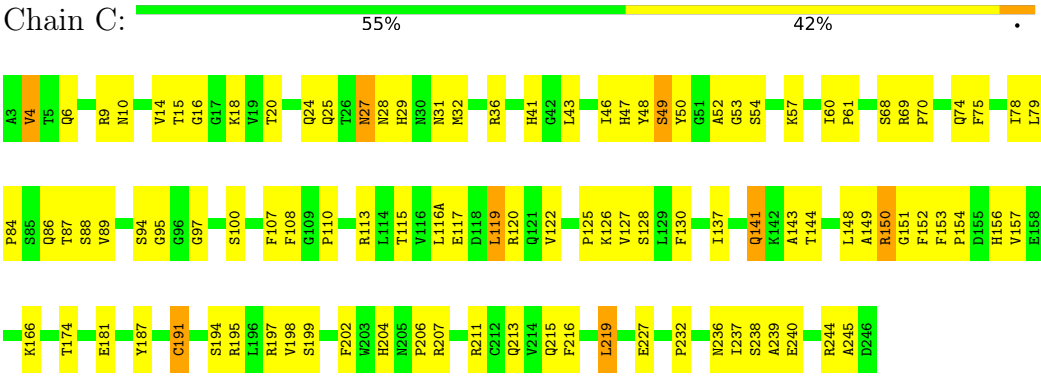
• Molecule 1: 14.3.D T CELL ANTIGEN RECEPTOR

Chain A:



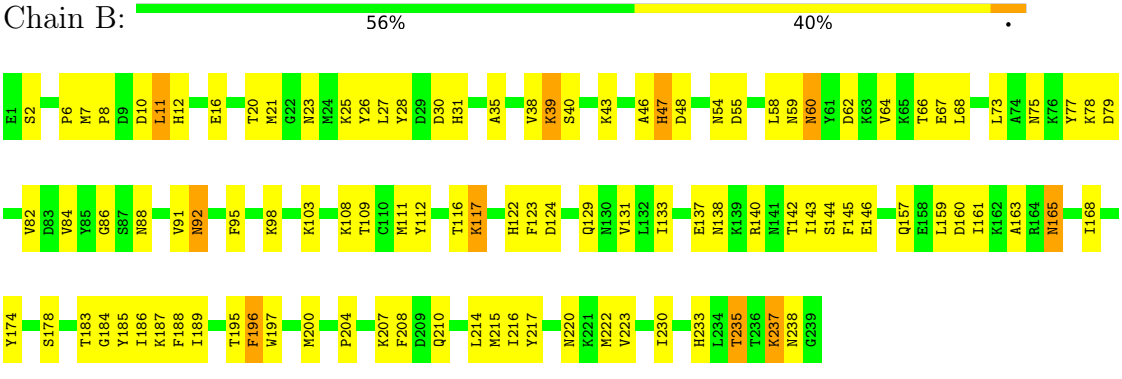
• Molecule 1: 14.3.D T CELL ANTIGEN RECEPTOR

Chain C:



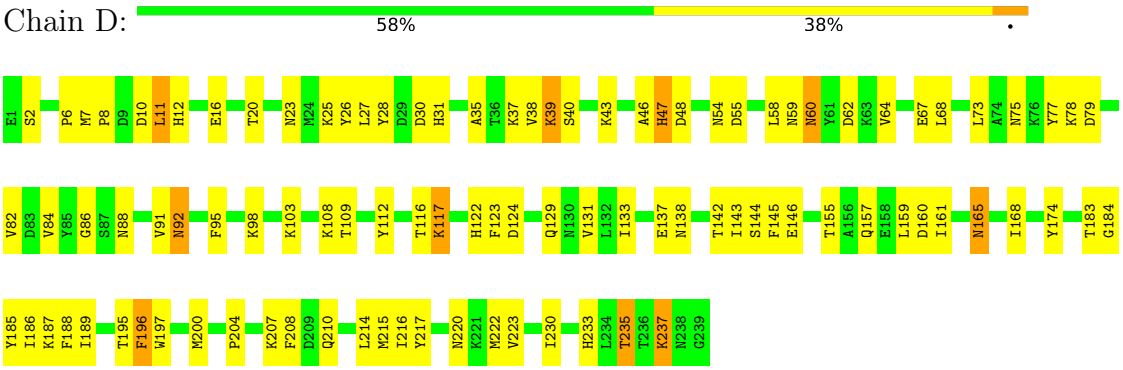
• Molecule 2: STAPHYLOCOCCAL ENTEROTOXIN C3

Chain B:



• Molecule 2: STAPHYLOCOCCAL ENTEROTOXIN C3

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	82.40Å 87.60Å 71.40Å 90.00° 93.30° 90.00°	Depositor
Resolution (Å)	8.00 – 3.50 30.09 – 3.30	Depositor EDS
% Data completeness (in resolution range)	82.8 (8.00-3.50) 85.6 (30.09-3.30)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.96 (at 3.31Å)	Xtriage
Refinement program	X-PLOR 3.1	Depositor
R, R_{free}	0.238 , 0.328 0.280 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	39.2	Xtriage
Anisotropy	0.801	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 126.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.86	EDS
Total number of atoms	7540	wwPDB-VP
Average B, all atoms (Å^2)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 49.40 % 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 7.4980e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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	0.46	0/1878	0.71	0/2558
1	C	0.46	0/1878	0.71	0/2558
2	B	0.42	0/1985	0.66	0/2673
2	D	0.42	0/1985	0.66	0/2673
All	All	0.44	0/7726	0.69	0/10462

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	1826	0	1695	86	0
1	C	1826	0	1695	87	7
2	B	1944	0	1881	76	2
2	D	1944	0	1881	76	5
All	All	7540	0	7152	321	7

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 24.

All (321) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:116(A):LEU:HD11	1:A:119:LEU:HD23	1.41	1.01
1:C:116(A):LEU:HD11	1:C:119:LEU:HD23	1.41	1.00
1:A:49:SER:HB2	1:A:54:SER:O	1.75	0.86
2:D:35:ALA:HB3	2:D:84:VAL:HB	1.59	0.85
1:C:49:SER:HB2	1:C:54:SER:O	1.75	0.84
2:B:35:ALA:HB3	2:B:84:VAL:HB	1.59	0.84
1:A:125:PRO:HB3	1:A:152:PHE:HB3	1.64	0.80
2:D:11:LEU:HD22	2:D:183:THR:HB	1.64	0.79
2:B:35:ALA:HB1	2:B:38:VAL:HG21	1.64	0.79
2:D:35:ALA:HB1	2:D:38:VAL:HG21	1.64	0.79
2:B:11:LEU:HD22	2:B:183:THR:HB	1.64	0.78
1:C:125:PRO:HB3	1:C:152:PHE:HB3	1.64	0.78
2:B:123:PHE:CZ	2:B:129:GLN:HB2	2.20	0.77
2:D:123:PHE:CZ	2:D:129:GLN:HB2	2.20	0.76
1:C:16:GLY:HA2	1:C:81:LEU:HD13	1.68	0.74
1:A:16:GLY:HA2	1:A:81:LEU:HD13	1.68	0.73
1:A:46:ILE:HG23	1:A:60:ILE:O	1.89	0.73
2:B:54:ASN:HA	2:B:62:ASP:HA	1.70	0.73
2:B:189:ILE:HG12	2:B:195:THR:HG22	1.71	0.73
2:D:54:ASN:HA	2:D:62:ASP:HA	1.70	0.73
2:D:159:LEU:HD13	2:D:230:ILE:HD11	1.70	0.73
2:D:189:ILE:HG12	2:D:195:THR:HG22	1.71	0.73
1:C:46:ILE:HG23	1:C:60:ILE:O	1.89	0.72
2:B:159:LEU:HD13	2:B:230:ILE:HD11	1.70	0.72
1:A:174:THR:HA	1:A:194:SER:HA	1.72	0.70
1:C:174:THR:HA	1:C:194:SER:HA	1.72	0.69
1:C:126:LYS:O	1:C:149:ALA:HA	1.93	0.69
1:A:126:LYS:O	1:A:149:ALA:HA	1.93	0.68
1:C:120:ARG:HG3	1:C:120:ARG:HH11	1.60	0.67
1:A:120:ARG:HG3	1:A:120:ARG:HH11	1.60	0.67
2:D:16:GLU:HB3	2:D:204:PRO:HB3	1.77	0.67
2:B:16:GLU:HB3	2:B:204:PRO:HB3	1.77	0.65
1:A:48:TYR:HE2	1:A:50:TYR:CZ	2.16	0.64
1:A:144:THR:HG21	1:A:198:VAL:HG22	1.79	0.63
1:C:144:THR:HG21	1:C:198:VAL:HG22	1.79	0.62
2:B:25:LYS:HD3	2:B:174:TYR:O	2.00	0.62
1:C:52:ALA:HA	1:C:69:ARG:HG3	1.82	0.62
1:C:48:TYR:HE2	1:C:50:TYR:CZ	2.16	0.62
2:D:25:LYS:HD3	2:D:174:TYR:O	2.00	0.61
1:A:20:THR:HG23	1:A:78:ILE:HG12	1.83	0.61
2:B:43:LYS:HG2	2:B:48:ASP:O	2.01	0.61
1:A:52:ALA:HA	1:A:69:ARG:HG3	1.82	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:43:LYS:HG2	2:D:48:ASP:O	2.01	0.60
1:C:127:VAL:HG22	1:C:149:ALA:HB2	1.84	0.59
2:B:160:ASP:OD1	2:B:186:ILE:HG21	2.03	0.59
1:C:31:ASN:ND2	1:C:50:TYR:HD1	2.01	0.59
1:A:157:VAL:HA	1:A:215:GLN:O	2.03	0.59
1:A:31:ASN:ND2	1:A:50:TYR:HD1	2.01	0.58
1:C:54:SER:HA	2:D:23:ASN:OD1	2.03	0.58
2:B:116:THR:HG22	2:B:222:MET:SD	2.43	0.58
1:C:20:THR:HG23	1:C:78:ILE:HG12	1.83	0.58
1:A:127:VAL:HG22	1:A:149:ALA:HB2	1.84	0.58
2:D:39:LYS:HE3	2:D:79:ASP:HA	1.85	0.58
2:D:116:THR:HG22	2:D:222:MET:SD	2.43	0.58
2:D:160:ASP:OD1	2:D:186:ILE:HG21	2.03	0.58
1:A:54:SER:HA	2:B:23:ASN:OD1	2.03	0.58
2:D:11:LEU:HD11	2:D:185:TYR:HD1	1.68	0.58
2:B:131:VAL:O	2:B:146:GLU:HA	2.04	0.58
1:C:157:VAL:HA	1:C:215:GLN:O	2.03	0.58
1:A:31:ASN:ND2	1:A:50:TYR:CD1	2.73	0.57
2:B:39:LYS:HE3	2:B:79:ASP:HA	1.85	0.57
1:C:31:ASN:ND2	1:C:50:TYR:CD1	2.73	0.57
2:B:123:PHE:CE2	2:B:129:GLN:HB2	2.40	0.57
2:D:35:ALA:HB1	2:D:38:VAL:CG2	2.34	0.57
1:A:128:SER:HB2	1:A:130:PHE:CZ	2.39	0.57
1:A:159:LEU:HD23	1:A:160:SER:N	2.19	0.57
1:C:122:VAL:HG22	1:C:154:PRO:HD3	1.86	0.57
1:C:128:SER:HB2	1:C:130:PHE:CZ	2.39	0.57
1:C:159:LEU:HD23	1:C:160:SER:N	2.19	0.57
2:D:188:PHE:HB2	2:D:196:PHE:O	2.04	0.57
2:B:11:LEU:HD11	2:B:185:TYR:HD1	1.68	0.57
2:B:20:THR:HB	2:B:23:ASN:ND2	2.20	0.57
2:D:131:VAL:O	2:D:146:GLU:HA	2.04	0.57
2:D:174:TYR:OH	2:D:200:MET:HB3	2.05	0.56
1:A:113:ARG:NH1	1:A:156:HIS:HA	2.20	0.56
2:B:174:TYR:OH	2:B:200:MET:HB3	2.05	0.56
2:B:188:PHE:HB2	2:B:196:PHE:O	2.04	0.56
2:D:123:PHE:CE2	2:D:129:GLN:HB2	2.40	0.56
1:A:122:VAL:HG22	1:A:154:PRO:HD3	1.86	0.56
2:D:6:PRO:HB3	2:D:197:TRP:CH2	2.41	0.56
2:B:6:PRO:HB3	2:B:197:TRP:CH2	2.41	0.56
2:B:35:ALA:HB1	2:B:38:VAL:CG2	2.34	0.56
1:C:113:ARG:NH1	1:C:156:HIS:HA	2.20	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:20:THR:HB	2:D:23:ASN:ND2	2.20	0.56
2:B:82:VAL:HG12	2:B:117:LYS:HA	1.89	0.55
2:D:82:VAL:HG12	2:D:117:LYS:HA	1.89	0.55
2:B:133:ILE:N	2:B:145:PHE:O	2.38	0.54
1:C:31:ASN:HA	1:C:49:SER:O	2.08	0.54
1:C:237:ILE:N	1:C:237:ILE:HD12	2.23	0.54
1:C:69:ARG:HD2	1:C:74:GLN:O	2.08	0.53
2:D:7:MET:HB3	2:D:10:ASP:CG	2.29	0.53
1:A:237:ILE:N	1:A:237:ILE:HD12	2.23	0.53
2:D:186:ILE:HG23	2:D:186:ILE:O	2.08	0.53
1:A:31:ASN:HA	1:A:49:SER:O	2.08	0.53
2:B:186:ILE:HG23	2:B:186:ILE:O	2.08	0.53
2:B:86:GLY:HA2	2:B:161:ILE:CD1	2.39	0.53
2:D:31:HIS:CE1	2:D:88:ASN:O	2.62	0.53
2:B:7:MET:HB3	2:B:10:ASP:CG	2.29	0.53
1:C:83:THR:OG1	1:C:86:GLN:NE2	2.42	0.53
2:B:48:ASP:HB3	2:B:67:GLU:HG2	1.91	0.53
1:C:27:ASN:HB2	1:C:29:HIS:CD2	2.44	0.53
1:A:48:TYR:HE2	1:A:50:TYR:HH	1.55	0.52
1:C:68:SER:OG	1:C:70:PRO:HD3	2.09	0.52
1:A:27:ASN:HB2	1:A:29:HIS:CD2	2.44	0.52
1:A:69:ARG:HD2	1:A:74:GLN:O	2.08	0.52
2:B:31:HIS:CE1	2:B:88:ASN:O	2.62	0.52
2:D:165:ASN:C	2:D:165:ASN:HD22	2.13	0.52
1:A:68:SER:OG	1:A:70:PRO:HD3	2.09	0.52
1:A:83:THR:OG1	1:A:86:GLN:NE2	2.42	0.52
2:B:16:GLU:CB	2:B:204:PRO:HB3	2.39	0.52
1:C:25:GLN:HG2	1:C:32:MET:CE	2.39	0.52
2:D:48:ASP:HB3	2:D:67:GLU:HG2	1.91	0.52
2:D:86:GLY:HA2	2:D:161:ILE:CD1	2.39	0.52
2:B:7:MET:HG3	2:B:8:PRO:HD2	1.92	0.52
2:D:7:MET:HG3	2:D:8:PRO:HD2	1.92	0.52
2:B:165:ASN:HD22	2:B:165:ASN:C	2.13	0.52
2:D:16:GLU:CB	2:D:204:PRO:HB3	2.39	0.51
1:C:150:ARG:CZ	1:C:151:GLY:HA3	2.41	0.51
1:A:25:GLN:HG2	1:A:32:MET:CE	2.39	0.51
2:D:183:THR:OG1	2:D:235:THR:HB	2.11	0.51
1:A:29:HIS:HD2	1:A:94:SER:OG	1.94	0.51
1:A:150:ARG:CZ	1:A:151:GLY:HA3	2.41	0.51
2:D:86:GLY:HA2	2:D:161:ILE:HD11	1.93	0.51
1:A:162:TRP:HA	1:A:166:LYS:O	2.11	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:174:THR:HG23	1:A:194:SER:HB2	1.93	0.51
2:B:95:PHE:CE2	2:B:108:LYS:HB2	2.46	0.51
2:B:112:TYR:CZ	2:B:215:MET:HG2	2.46	0.51
2:B:183:THR:OG1	2:B:235:THR:HB	2.11	0.51
2:D:159:LEU:CD1	2:D:230:ILE:HD11	2.40	0.51
2:D:133:ILE:N	2:D:145:PHE:O	2.38	0.51
1:A:157:VAL:HG12	1:A:216:PHE:HA	1.93	0.50
1:C:29:HIS:HD2	1:C:94:SER:OG	1.94	0.50
2:D:95:PHE:CE2	2:D:108:LYS:HB2	2.46	0.50
1:C:162:TRP:HA	1:C:166:LYS:O	2.11	0.50
2:D:75:ASN:HA	2:D:78:LYS:NZ	2.26	0.50
2:B:31:HIS:NE2	2:B:88:ASN:OD1	2.45	0.50
2:B:187:LYS:HE3	2:B:189:ILE:HD11	1.94	0.50
1:C:48:TYR:HE2	1:C:50:TYR:HH	1.58	0.50
2:B:159:LEU:CD1	2:B:230:ILE:HD11	2.40	0.50
1:C:174:THR:HG23	1:C:194:SER:HB2	1.93	0.50
2:D:31:HIS:NE2	2:D:88:ASN:OD1	2.45	0.50
2:B:75:ASN:HA	2:B:78:LYS:NZ	2.26	0.50
1:C:157:VAL:HG12	1:C:216:PHE:HA	1.93	0.50
2:D:112:TYR:CZ	2:D:215:MET:HG2	2.46	0.50
2:D:187:LYS:HE3	2:D:189:ILE:HD11	1.94	0.49
1:C:15:THR:HG23	1:C:83:THR:HA	1.95	0.49
2:B:86:GLY:HA2	2:B:161:ILE:HD11	1.93	0.49
2:B:188:PHE:HB3	2:B:196:PHE:CE1	2.47	0.49
1:A:83:THR:HB	1:A:84:PRO:CD	2.43	0.49
2:B:55:ASP:OD2	2:B:60:ASN:HB2	2.12	0.49
1:C:46:ILE:HG22	1:C:47:HIS:CD2	2.48	0.49
1:A:15:THR:HG23	1:A:83:THR:HA	1.95	0.48
1:A:46:ILE:HG22	1:A:47:HIS:CD2	2.48	0.48
2:D:12:HIS:O	2:D:183:THR:HG22	2.14	0.48
2:D:55:ASP:OD2	2:D:60:ASN:HB2	2.12	0.48
2:D:188:PHE:HB3	2:D:196:PHE:CE1	2.47	0.48
1:C:9:ARG:CZ	1:C:110:PRO:HB2	2.44	0.48
1:C:83:THR:HB	1:C:84:PRO:CD	2.43	0.48
1:C:204:HIS:HA	1:C:244:ARG:O	2.14	0.48
2:D:11:LEU:HD11	2:D:185:TYR:CD1	2.48	0.48
2:B:91:VAL:O	2:B:92:ASN:HB2	2.13	0.48
1:C:127:VAL:HG12	1:C:239:ALA:HB2	1.95	0.48
1:A:49:SER:OG	1:A:69:ARG:NH1	2.43	0.48
2:D:6:PRO:HB3	2:D:197:TRP:CZ2	2.49	0.48
2:B:75:ASN:HA	2:B:78:LYS:HZ3	1.78	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:77:TYR:HD2	2:B:82:VAL:HG11	1.79	0.47
1:A:9:ARG:CZ	1:A:110:PRO:HB2	2.44	0.47
2:B:6:PRO:HB3	2:B:197:TRP:CZ2	2.49	0.47
1:C:204:HIS:CD2	1:C:244:ARG:O	2.68	0.47
1:A:122:VAL:HA	1:A:153:PHE:O	2.14	0.47
1:A:125:PRO:CB	1:A:152:PHE:HB3	2.41	0.47
1:A:204:HIS:HA	1:A:244:ARG:O	2.14	0.47
2:D:20:THR:HB	2:D:23:ASN:HD22	1.79	0.47
2:D:91:VAL:O	2:D:92:ASN:HB2	2.13	0.47
1:A:127:VAL:HG12	1:A:239:ALA:HB2	1.95	0.47
1:C:122:VAL:HA	1:C:153:PHE:O	2.14	0.47
1:C:150:ARG:HB2	1:C:181:GLU:OE2	2.14	0.47
1:A:204:HIS:CD2	1:A:244:ARG:O	2.68	0.47
2:B:12:HIS:O	2:B:183:THR:HG22	2.14	0.47
2:D:208:PHE:CE2	2:D:210:GLN:HG2	2.50	0.47
2:B:11:LEU:HD11	2:B:185:TYR:CD1	2.48	0.47
1:C:162:TRP:HB2	1:C:211:ARG:HB3	1.97	0.47
2:D:77:TYR:HD2	2:D:82:VAL:HG11	1.79	0.47
1:A:79:LEU:HD23	1:A:86:GLN:OE1	2.15	0.47
2:D:143:ILE:HG22	2:D:144:SER:N	2.30	0.47
2:B:143:ILE:HG22	2:B:144:SER:N	2.30	0.47
1:C:60:ILE:O	1:C:60:ILE:HG13	2.15	0.47
1:A:10:ASN:OD1	1:A:156:HIS:HB3	2.14	0.46
1:A:150:ARG:HB2	1:A:181:GLU:OE2	2.14	0.46
2:B:208:PHE:CE2	2:B:210:GLN:HG2	2.50	0.46
2:B:20:THR:HB	2:B:23:ASN:HD22	1.79	0.46
1:C:10:ASN:OD1	1:C:156:HIS:HB3	2.14	0.46
1:C:79:LEU:HD23	1:C:86:GLN:OE1	2.15	0.46
2:D:75:ASN:HA	2:D:78:LYS:HZ3	1.78	0.46
1:A:60:ILE:O	1:A:60:ILE:HG13	2.15	0.46
1:A:162:TRP:HB2	1:A:211:ARG:HB3	1.97	0.46
1:C:29:HIS:CD2	1:C:94:SER:OG	2.68	0.46
1:A:29:HIS:CD2	1:A:94:SER:OG	2.68	0.46
1:A:82:ALA:HA	1:A:86:GLN:OE1	2.16	0.46
2:B:208:PHE:HE2	2:B:210:GLN:HG2	1.81	0.46
1:C:211:ARG:HG3	1:C:240:GLU:HG2	1.98	0.46
2:B:184:GLY:HA2	2:B:233:HIS:O	2.16	0.46
1:C:53:GLY:HA3	2:D:26:TYR:CE2	2.51	0.46
1:C:204:HIS:O	1:C:206:PRO:HD3	2.15	0.46
1:A:204:HIS:O	1:A:206:PRO:HD3	2.15	0.46
1:C:36:ARG:O	1:C:36:ARG:HG3	2.16	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:184:GLY:HA2	2:D:233:HIS:O	2.16	0.46
1:A:53:GLY:HA3	2:B:26:TYR:CE2	2.51	0.45
2:D:123:PHE:HZ	2:D:129:GLN:HB2	1.79	0.45
1:C:18:LYS:HA	1:C:79:LEU:O	2.16	0.45
2:D:196:PHE:HZ	2:D:223:VAL:HG11	1.81	0.45
1:A:211:ARG:HG3	1:A:240:GLU:HG2	1.98	0.45
1:C:82:ALA:HA	1:C:86:GLN:OE1	2.16	0.45
1:C:119:LEU:HD13	1:C:219:LEU:HD11	1.99	0.45
2:D:208:PHE:HE2	2:D:210:GLN:HG2	1.81	0.45
1:A:29:HIS:CG	1:A:95:GLY:HA2	2.52	0.45
1:C:46:ILE:HG22	1:C:47:HIS:HD2	1.81	0.45
1:C:49:SER:OG	1:C:69:ARG:NH1	2.43	0.45
1:A:18:LYS:HA	1:A:79:LEU:O	2.16	0.45
1:C:4:VAL:HA	1:C:24:GLN:O	2.17	0.45
1:A:68:SER:O	1:A:75:PHE:HD1	2.00	0.44
2:D:58:LEU:HG	2:D:58:LEU:O	2.17	0.44
1:A:14:VAL:HA	1:A:116(A):LEU:O	2.18	0.44
1:A:36:ARG:HB3	1:A:46:ILE:HD11	1.99	0.44
1:C:125:PRO:HB3	1:C:152:PHE:CD2	2.52	0.44
1:A:4:VAL:HA	1:A:24:GLN:O	2.17	0.44
1:C:14:VAL:HA	1:C:116(A):LEU:O	2.18	0.44
2:D:35:ALA:CB	2:D:84:VAL:HB	2.40	0.44
1:C:150:ARG:HB3	1:C:191:CYS:SG	2.58	0.44
1:C:237:ILE:HG22	1:C:238:SER:N	2.32	0.44
2:D:77:TYR:CD2	2:D:82:VAL:HG11	2.53	0.44
1:A:119:LEU:HD13	1:A:219:LEU:HD11	1.99	0.44
1:A:144:THR:HB	1:A:197:ARG:HA	2.00	0.44
2:B:159:LEU:O	2:B:163:ALA:N	2.48	0.44
2:B:196:PHE:HZ	2:B:223:VAL:HG11	1.81	0.44
1:A:6:GLN:HB2	1:A:110:PRO:HG2	2.00	0.44
1:C:36:ARG:HB3	1:C:46:ILE:HD11	1.99	0.44
1:C:125:PRO:CB	1:C:152:PHE:HB3	2.41	0.44
1:C:6:GLN:HB2	1:C:110:PRO:HG2	2.00	0.44
2:D:28:TYR:HB2	2:D:168:ILE:HD11	2.00	0.44
1:A:97:GLY:O	1:A:100:SER:HB3	2.18	0.44
1:A:127:VAL:HG22	1:A:149:ALA:CB	2.48	0.44
1:A:150:ARG:HB3	1:A:191:CYS:SG	2.58	0.44
1:C:68:SER:O	1:C:75:PHE:HD1	2.00	0.44
2:B:58:LEU:O	2:B:58:LEU:HG	2.17	0.44
1:C:29:HIS:CG	1:C:95:GLY:HA2	2.52	0.44
1:C:97:GLY:O	1:C:100:SER:HB3	2.18	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:196:PHE:CD1	2:D:196:PHE:N	2.86	0.44
1:A:237:ILE:HG22	1:A:238:SER:N	2.32	0.43
1:A:36:ARG:O	1:A:36:ARG:HG3	2.16	0.43
2:B:77:TYR:CD2	2:B:82:VAL:HG11	2.53	0.43
2:B:95:PHE:CZ	2:B:108:LYS:HB2	2.54	0.43
1:A:83:THR:HB	1:A:84:PRO:HD2	1.99	0.43
1:A:125:PRO:HB3	1:A:152:PHE:CD2	2.52	0.43
1:A:128:SER:HB2	1:A:130:PHE:CE2	2.53	0.43
1:C:83:THR:HB	1:C:84:PRO:HD2	1.99	0.43
1:C:219:LEU:HD23	1:C:232:PRO:HG2	2.00	0.43
1:A:46:ILE:HG22	1:A:47:HIS:HD2	1.81	0.43
2:B:48:ASP:CB	2:B:67:GLU:HG2	2.49	0.43
1:C:87:THR:HG23	1:C:115:THR:HA	2.00	0.43
2:B:28:TYR:HB2	2:B:168:ILE:HD11	2.00	0.43
1:C:25:GLN:HG2	1:C:32:MET:SD	2.58	0.43
1:A:130:PHE:HE2	1:A:148:LEU:HB3	1.83	0.43
2:D:86:GLY:HA3	2:D:157:GLN:NE2	2.34	0.43
1:A:125:PRO:HB3	1:A:152:PHE:CB	2.43	0.43
1:A:219:LEU:HD23	1:A:232:PRO:HG2	2.00	0.43
2:B:138:ASN:OD1	2:B:235:THR:HA	2.19	0.43
1:C:128:SER:HB2	1:C:130:PHE:CE2	2.53	0.43
1:C:199:SER:OG	1:C:202:PHE:HB2	2.19	0.43
2:B:55:ASP:HB3	2:B:60:ASN:H	1.84	0.42
2:B:196:PHE:N	2:B:196:PHE:CD1	2.86	0.42
1:C:127:VAL:HG22	1:C:149:ALA:CB	2.48	0.42
1:A:25:GLN:HG2	1:A:32:MET:SD	2.58	0.42
1:A:199:SER:OG	1:A:202:PHE:HB2	2.19	0.42
1:C:57:LYS:HB3	1:C:61:PRO:CG	2.49	0.42
1:C:130:PHE:HE2	1:C:148:LEU:HB3	1.83	0.42
2:D:48:ASP:CB	2:D:67:GLU:HG2	2.49	0.42
1:A:87:THR:HG23	1:A:115:THR:HA	2.00	0.42
1:C:144:THR:HB	1:C:197:ARG:HA	2.00	0.42
1:A:28:ASN:O	1:A:28:ASN:ND2	2.53	0.42
2:B:216:ILE:HG13	2:B:217:TYR:CE1	2.54	0.42
1:C:28:ASN:O	1:C:28:ASN:ND2	2.53	0.42
2:D:216:ILE:HG13	2:D:217:TYR:CE1	2.54	0.42
1:A:57:LYS:HB3	1:A:61:PRO:CG	2.49	0.42
2:B:86:GLY:HA3	2:B:157:GLN:NE2	2.34	0.42
2:D:55:ASP:HB3	2:D:60:ASN:H	1.84	0.42
2:D:95:PHE:CZ	2:D:108:LYS:HB2	2.54	0.42
2:D:138:ASN:OD1	2:D:235:THR:HA	2.19	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:29:HIS:CD2	1:A:95:GLY:HA2	2.55	0.42
1:C:29:HIS:CD2	1:C:95:GLY:HA2	2.55	0.42
2:B:47:HIS:HB2	2:B:68:LEU:O	2.20	0.42
1:C:125:PRO:HB3	1:C:152:PHE:CB	2.43	0.42
2:D:40:SER:HB3	2:D:78:LYS:O	2.20	0.41
2:B:40:SER:HB3	2:B:78:LYS:O	2.20	0.41
2:B:35:ALA:CB	2:B:84:VAL:HB	2.40	0.41
1:C:27:ASN:HD22	1:C:29:HIS:HD2	1.68	0.41
1:C:43:LEU:HD21	1:C:108:PHE:CZ	2.56	0.41
2:D:215:MET:C	2:D:217:TYR:N	2.74	0.41
1:A:27:ASN:HD22	1:A:29:HIS:HD2	1.68	0.41
1:C:120:ARG:HG3	1:C:120:ARG:NH1	2.32	0.41
1:A:66:LYS:HB2	1:A:78:ILE:HB	2.03	0.41
2:B:21:MET:HG2	2:B:178:SER:O	2.21	0.41
2:B:66:THR:HA	2:B:111:MET:O	2.21	0.41
2:D:27:LEU:HD22	2:D:214:LEU:HD11	2.02	0.41
2:D:64:VAL:HG22	2:D:109:THR:CG2	2.51	0.41
1:C:6:GLN:HE21	1:C:6:GLN:HB3	1.71	0.41
2:D:88:ASN:HB2	2:D:109:THR:OG1	2.21	0.41
1:A:54:SER:O	1:A:55:THR:HG23	2.22	0.40
2:B:64:VAL:HG22	2:B:109:THR:CG2	2.51	0.40
2:B:137:GLU:HG3	2:B:142:THR:OG1	2.21	0.40
2:B:215:MET:C	2:B:217:TYR:N	2.74	0.40
1:C:88:SER:OG	1:C:89:VAL:N	2.54	0.40
2:D:47:HIS:HB2	2:D:68:LEU:O	2.20	0.40
1:A:43:LEU:HD21	1:A:108:PHE:CZ	2.56	0.40
2:D:31:HIS:HE1	2:D:88:ASN:O	2.05	0.40
1:A:148:LEU:HD11	1:A:191:CYS:SG	2.61	0.40
1:C:27:ASN:HD22	1:C:29:HIS:CD2	2.39	0.40
2:B:27:LEU:HD22	2:B:214:LEU:HD11	2.02	0.40
2:B:88:ASN:HB2	2:B:109:THR:OG1	2.21	0.40
2:D:137:GLU:HG3	2:D:142:THR:OG1	2.21	0.40
2:D:155:THR:HA	2:D:222:MET:HA	2.03	0.40

All (7) 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:187:TYR:CE2	2:D:37:LYS:NZ[2_546]	0.77	1.43
1:C:187:TYR:CE2	2:D:37:LYS:CE[2_546]	1.16	1.04

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:187:TYR:CD2	2:D:37:LYS:NZ[2_546]	1.37	0.83
2:B:238:ASN:OD1	1:C:107:PHE:CE2[2_646]	1.68	0.52
1:C:187:TYR:CZ	2:D:37:LYS:NZ[2_546]	1.77	0.43
1:C:187:TYR:CD2	2:D:37:LYS:CE[2_546]	1.97	0.23
2:B:140:ARG:NH2	1:C:28:ASN:OD1[2_646]	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	236/238 (99%)	207 (88%)	24 (10%)	5 (2%)	7	38
1	C	236/238 (99%)	207 (88%)	24 (10%)	5 (2%)	7	38
2	B	237/239 (99%)	207 (87%)	23 (10%)	7 (3%)	4	30
2	D	237/239 (99%)	207 (87%)	23 (10%)	7 (3%)	4	30
All	All	946/954 (99%)	828 (88%)	94 (10%)	24 (2%)	5	34

All (24) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	141	GLN
1	C	141	GLN
1	A	245	ALA
2	B	30	ASP
2	B	103	LYS
1	C	245	ALA
2	D	30	ASP
2	D	103	LYS
1	A	119	LEU
2	B	46	ALA
2	B	59	ASN
1	C	119	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	D	46	ALA
2	D	59	ASN
2	B	47	HIS
2	B	92	ASN
2	B	237	LYS
2	D	47	HIS
2	D	92	ASN
2	D	237	LYS
1	A	4	VAL
1	A	143	ALA
1	C	4	VAL
1	C	143	ALA

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	191/202 (95%)	176 (92%)	15 (8%)	12	41
1	C	191/202 (95%)	176 (92%)	15 (8%)	12	41
2	B	220/220 (100%)	205 (93%)	15 (7%)	16	48
2	D	220/220 (100%)	205 (93%)	15 (7%)	16	48
All	All	822/844 (97%)	762 (93%)	60 (7%)	14	45

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	27	ASN
1	A	41	HIS
1	A	49	SER
1	A	81	LEU
1	A	117	GLU
1	A	137	ILE
1	A	141	GLN
1	A	150	ARG
1	A	191	CYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	195	ARG
1	A	207	ARG
1	A	213	GLN
1	A	219	LEU
1	A	227	GLU
1	A	236	ASN
2	B	2	SER
2	B	11	LEU
2	B	39	LYS
2	B	60	ASN
2	B	73	LEU
2	B	98	LYS
2	B	117	LYS
2	B	122	HIS
2	B	124	ASP
2	B	165	ASN
2	B	196	PHE
2	B	207	LYS
2	B	220	ASN
2	B	235	THR
2	B	237	LYS
1	C	27	ASN
1	C	41	HIS
1	C	49	SER
1	C	81	LEU
1	C	117	GLU
1	C	137	ILE
1	C	141	GLN
1	C	150	ARG
1	C	191	CYS
1	C	195	ARG
1	C	207	ARG
1	C	213	GLN
1	C	219	LEU
1	C	227	GLU
1	C	236	ASN
2	D	2	SER
2	D	11	LEU
2	D	39	LYS
2	D	60	ASN
2	D	73	LEU
2	D	98	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	D	117	LYS
2	D	122	HIS
2	D	124	ASP
2	D	165	ASN
2	D	196	PHE
2	D	207	LYS
2	D	220	ASN
2	D	235	THR
2	D	237	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	24	GLN
1	A	27	ASN
1	A	29	HIS
1	A	74	GLN
1	A	204	HIS
1	A	213	GLN
1	A	236	ASN
2	B	122	HIS
2	B	130	ASN
2	B	157	GLN
2	B	165	ASN
1	C	24	GLN
1	C	27	ASN
1	C	29	HIS
1	C	74	GLN
1	C	204	HIS
1	C	213	GLN
1	C	236	ASN
2	D	122	HIS
2	D	130	ASN
2	D	157	GLN
2	D	165	ASN

5.3.3 RNA

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

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.