Full wwPDB X-ray Structure Validation Report ⓘ

Sep 24, 2023 – 07:02 AM EDT

PDB ID	:	5U91
Title	:	Crystal structure of Tre/loxLTR complex
Authors	:	Meinke, G.; Karpinski, J.; Buchholz, F.; Bohm, A.
Deposited on	:	2016-12-15
Resolution	:	3.10 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 types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

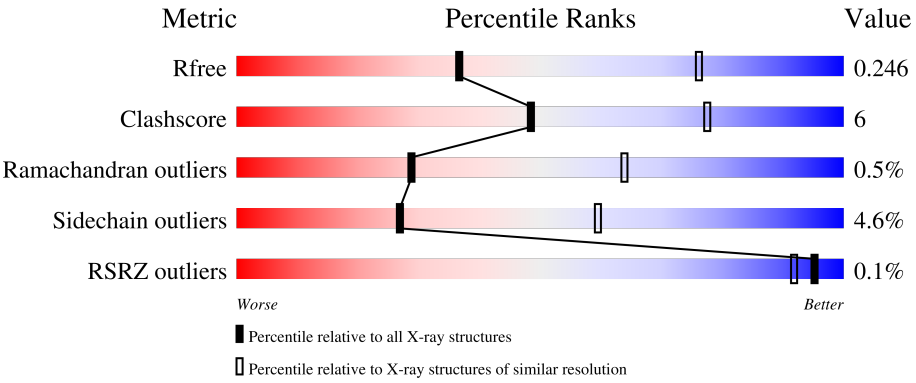
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.10 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	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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	345	81% 13% • •
1	B	345	80% 13% • 5%
1	E	345	77% 16% • 6%
1	F	345	75% 17% • 7%
2	C	37	62% 38%

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Mol	Chain	Length	Quality of chain
2	G	37	76% 24%
3	D	37	86% 14%
3	H	37	76% 22%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 13259 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 Tre recombinase protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	330	Total	C	N	O	S	0	0	0
			2560	1594	486	466	14			
1	B	327	Total	C	N	O	S	0	0	0
			2558	1590	487	466	15			
1	E	326	Total	C	N	O	S	0	0	0
			2562	1594	487	467	14			
1	F	320	Total	C	N	O	S	0	0	0
			2522	1571	482	454	15			

- Molecule 2 is a DNA chain called DNA (37-MER).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	37	Total	C	N	O	P	0	0	0
			744	357	135	216	36			
2	G	37	Total	C	N	O	P	0	0	0
			744	357	135	216	36			

- Molecule 3 is a DNA chain called DNA (37-MER).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	D	37	Total	C	N	O	P	0	0	0
			767	366	141	224	36			
3	H	37	Total	C	N	O	P	0	0	0
			767	366	141	224	36			

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	8	Total	O	0	0
			8	8		
4	B	9	Total	O	0	0
			9	9		

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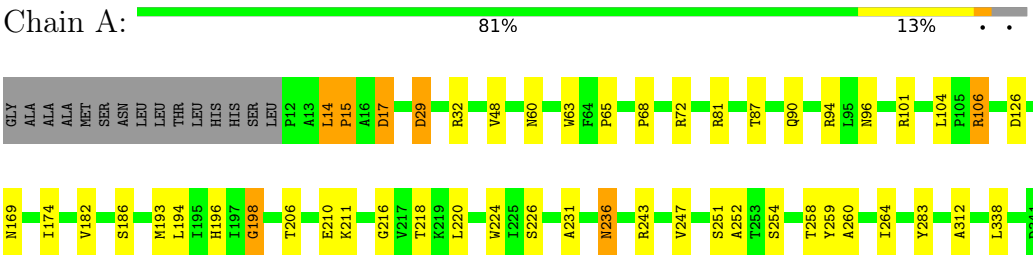
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	E	3	Total O 3 3	0	0
4	F	1	Total O 1 1	0	0
4	C	2	Total O 2 2	0	0
4	D	5	Total O 5 5	0	0
4	G	2	Total O 2 2	0	0
4	H	5	Total O 5 5	0	0

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.

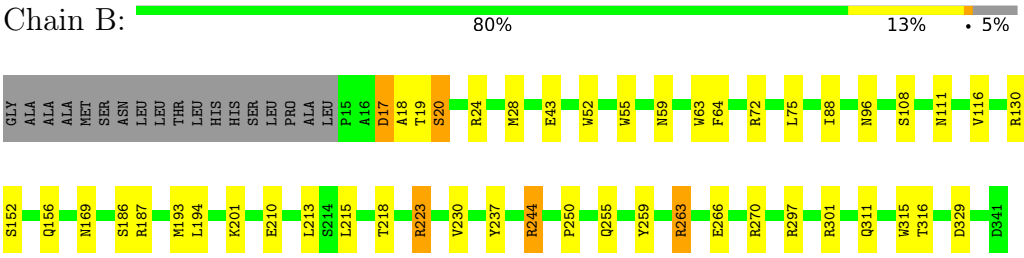
• Molecule 1: Tre recombinase protein

Chain A:



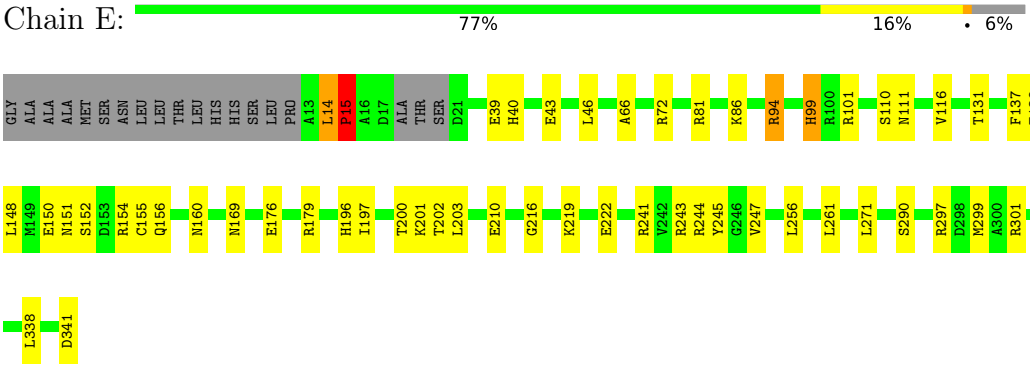
• Molecule 1: Tre recombinase protein

Chain B:



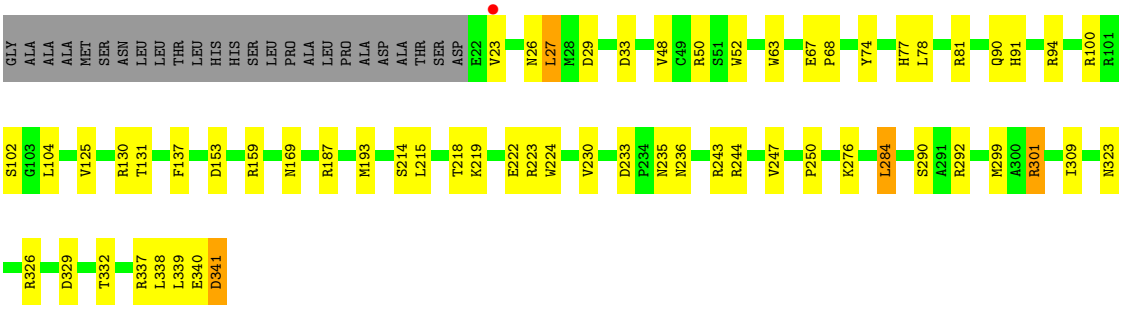
• Molecule 1: Tre recombinase protein

Chain E:



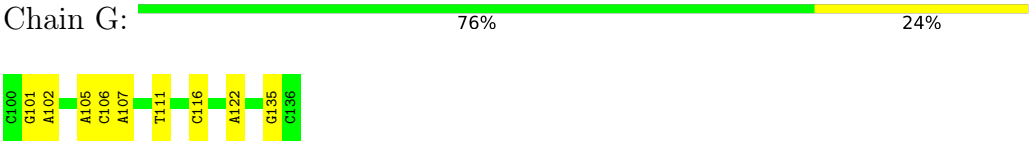
• Molecule 1: Tre recombinase protein

Chain F:

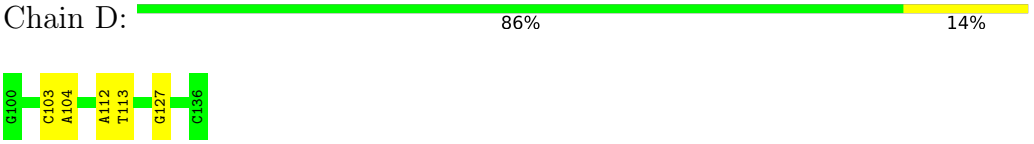


- Molecule 2: DNA (37-MER)

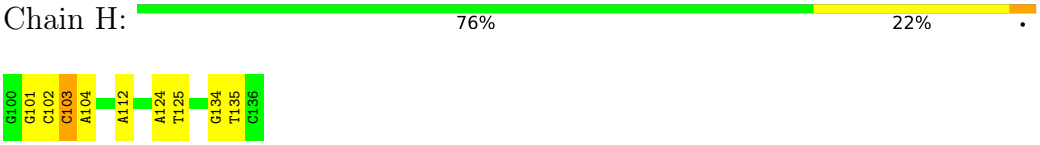
- Molecule 2: DNA (37-MER)



- Molecule 3: DNA (37-MER)



- Molecule 3: DNA (37-MER)



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	70.26Å 193.39Å 89.02Å 90.00° 111.25° 90.00°	Depositor
Resolution (Å)	82.97 – 3.10 82.97 – 3.10	Depositor EDS
% Data completeness (in resolution range)	90.6 (82.97-3.10) 90.5 (82.97-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.63 (at 3.13Å)	Xtriage
Refinement program	PHENIX dev_1839	Depositor
R, R_{free}	0.209 , 0.253 0.199 , 0.246	Depositor DCC
R_{free} test set	1821 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	52.5	Xtriage
Anisotropy	0.665	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 4.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.056 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	13259	wwPDB-VP
Average B, all atoms (Å^2)	56.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.48% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.24	0/2606	0.38	0/3532
1	B	0.25	0/2603	0.41	0/3522
1	E	0.23	0/2606	0.38	0/3524
1	F	0.22	0/2566	0.38	0/3468
2	C	0.54	0/833	0.91	0/1280
2	G	0.53	0/833	0.90	0/1280
3	D	0.54	0/861	0.92	0/1331
3	H	0.57	0/861	0.96	1/1331 (0.1%)
All	All	0.34	0/13769	0.59	1/19268 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	H	103	DC	C1'-O4'-C4'	-5.16	104.94	110.10

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	2560	0	2528	37	0
1	B	2558	0	2535	28	0
1	E	2562	0	2550	35	0
1	F	2522	0	2523	44	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	744	0	417	12	0
2	G	744	0	417	7	0
3	D	767	0	421	4	0
3	H	767	0	421	5	0
4	A	8	0	0	0	0
4	B	9	0	0	3	0
4	C	2	0	0	0	0
4	D	5	0	0	0	0
4	E	3	0	0	0	0
4	F	1	0	0	0	0
4	G	2	0	0	0	0
4	H	5	0	0	0	0
All	All	13259	0	11812	149	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 6.

All (149) 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:194:LEU:HD23	1:A:196:HIS:CE1	1.39	1.53
1:A:194:LEU:CD2	1:A:196:HIS:CE1	2.30	1.13
1:F:23:VAL:HG23	1:F:102:SER:HB2	1.35	1.05
1:A:194:LEU:HD23	1:A:196:HIS:HE1	1.23	0.96
1:A:194:LEU:HD23	1:A:196:HIS:NE2	1.81	0.95
1:F:23:VAL:HG21	1:F:104:LEU:HD11	1.52	0.89
1:A:194:LEU:CD2	1:A:196:HIS:NE2	2.38	0.86
1:B:72:ARG:HD3	4:B:405:HOH:O	1.77	0.83
1:B:263:ARG:NH2	1:B:266:GLU:OE2	2.19	0.76
1:F:23:VAL:CG2	1:F:102:SER:HB2	2.14	0.76
1:E:72:ARG:HG3	1:E:116:VAL:HG11	1.72	0.72
1:F:27:LEU:HD21	1:F:102:SER:HB3	1.72	0.70
1:F:23:VAL:HG23	1:F:102:SER:CB	2.17	0.69
1:F:244:ARG:HA	2:G:105:DA:H5"	1.75	0.69
1:F:27:LEU:CD2	1:F:102:SER:HB3	2.23	0.68
1:F:332:THR:O	1:F:337:ARG:NH1	2.28	0.67
1:E:247:VAL:HG21	2:G:135:DG:H5"	1.76	0.67
1:F:187:ARG:NH2	1:F:222:GLU:OE2	2.28	0.67
1:F:341:ASP:OD1	1:F:341:ASP:N	2.28	0.67
1:A:186:SER:OG	1:A:196:HIS:CE1	2.49	0.66
1:B:301:ARG:NH2	1:B:329:ASP:O	2.30	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:78:LEU:HD13	1:F:91:HIS:HD2	1.63	0.63
3:H:101:DG:H1'	3:H:102:DC:H5'	1.78	0.63
1:F:301:ARG:NH2	1:F:329:ASP:O	2.32	0.63
1:A:94:ARG:NH2	2:C:122:DA:OP2	2.33	0.62
1:B:152:SER:O	1:B:223:ARG:NH2	2.35	0.60
1:F:23:VAL:HG21	1:F:104:LEU:CD1	2.28	0.60
1:A:14:LEU:HB2	1:A:15:PRO:HD3	1.84	0.60
1:A:210:GLU:O	1:A:210:GLU:CG	2.50	0.59
1:F:299:MET:HE2	1:F:309:ILE:HG12	1.83	0.59
1:B:259:TYR:O	1:B:263:ARG:HG2	2.03	0.59
1:A:87:THR:HG22	3:D:113:DT:H6	1.68	0.58
1:F:23:VAL:HG13	1:F:23:VAL:O	2.02	0.58
1:A:65:PRO:HB3	1:A:104:LEU:HD13	1.85	0.58
1:B:315:TRP:HE1	2:C:116:DC:H5'	1.69	0.57
1:A:194:LEU:HD21	1:A:196:HIS:NE2	2.17	0.57
1:E:299:MET:HE2	1:E:309:ILE:HG12	1.87	0.57
1:A:72:ARG:NH1	1:F:33:ASP:OD1	2.38	0.57
1:A:198:GLY:O	1:B:130:ARG:NH2	2.38	0.57
1:A:236:ASN:HA	1:A:252:ALA:HB2	1.88	0.56
1:A:81:ARG:NH2	3:D:112:DA:OP1	2.36	0.56
1:E:156:GLN:HG3	1:E:160:ASN:HD21	1.70	0.56
1:E:297:ARG:HH22	1:E:327:ASN:HD21	1.52	0.55
1:B:43:GLU:OE1	4:B:401:HOH:O	2.17	0.55
1:A:193:MET:HG3	1:A:218:THR:HG23	1.88	0.55
1:F:292:ARG:NH1	2:G:116:DC:OP2	2.39	0.55
1:B:55:TRP:O	1:B:59:ASN:HB2	2.08	0.54
1:B:201:LYS:NZ	2:C:116:DC:OP1	2.36	0.54
1:E:256:LEU:HD22	1:E:261:LEU:HD13	1.89	0.53
1:B:72:ARG:HG3	1:B:116:VAL:HG11	1.91	0.53
1:A:101:ARG:O	1:B:111:ASN:ND2	2.42	0.53
1:E:201:LYS:HG3	1:E:202:THR:HG23	1.91	0.53
1:E:14:LEU:HB3	1:E:15:PRO:HD2	1.90	0.53
1:F:153:ASP:OD1	1:F:223:ARG:NH2	2.40	0.53
1:E:139:ARG:HH21	1:F:339:LEU:HA	1.74	0.52
1:E:156:GLN:O	1:E:160:ASN:ND2	2.43	0.52
1:F:26:ASN:O	1:F:29:ASP:CB	2.57	0.52
1:F:323:ASN:O	1:F:326:ARG:NH1	2.42	0.52
1:E:14:LEU:HD22	1:E:46:LEU:HD22	1.91	0.52
1:B:138:GLU:OE2	1:B:297:ARG:NH1	2.40	0.51
1:E:241:ARG:NH1	1:E:243:ARG:HG2	2.26	0.51
1:A:132:LYS:HB3	1:A:283:TYR:HD2	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:48:VAL:HG21	1:F:94:ARG:HG3	1.93	0.51
1:A:174:ILE:HD12	1:A:258:THR:HB	1.92	0.51
1:E:241:ARG:HH11	1:E:243:ARG:HG2	1.76	0.50
1:A:210:GLU:O	1:A:210:GLU:HG3	2.11	0.50
1:F:74:TYR:CZ	1:F:78:LEU:HD11	2.47	0.49
1:A:251:SER:OG	1:A:254:SER:N	2.45	0.49
1:A:132:LYS:HB3	1:A:283:TYR:CD2	2.48	0.49
1:F:233:ASP:O	1:F:236:ASN:HB2	2.13	0.49
1:A:159:ARG:HB2	1:A:224:TRP:CZ3	2.48	0.48
1:B:244:ARG:NH1	2:C:103:DC:O2	2.46	0.48
1:F:50:ARG:NH1	2:G:111:DT:OP2	2.46	0.48
1:A:243:ARG:HB2	1:A:247:VAL:HG13	1.94	0.48
1:F:193:MET:HG3	1:F:218:THR:HG23	1.95	0.48
1:F:90:GLN:O	1:F:94:ARG:HG2	2.12	0.48
1:E:197:ILE:O	1:F:130:ARG:NH2	2.47	0.48
1:B:24:ARG:O	1:B:28:MET:HB2	2.14	0.47
1:E:200:THR:HG22	1:F:130:ARG:NH1	2.29	0.47
3:D:103:DC:H2"	3:D:104:DA:C8	2.50	0.47
1:E:94:ARG:NH1	2:G:122:DA:OP2	2.38	0.47
1:B:75:LEU:HD22	1:B:88:ILE:HG23	1.96	0.47
3:H:134:DG:H2"	3:H:135:DT:H5'	1.97	0.47
1:E:94:ARG:HD3	1:E:94:ARG:HA	1.71	0.46
2:C:106:DC:H2'	2:C:107:DA:C8	2.50	0.46
1:E:244:ARG:HG3	1:E:245:TYR:CD2	2.51	0.46
2:G:101:DG:H2"	2:G:102:DA:C8	2.51	0.46
2:G:106:DC:H2'	2:G:107:DA:C8	2.51	0.46
1:B:194:LEU:HD11	1:E:327:ASN:HA	1.99	0.45
1:B:96:ASN:HD21	1:B:108:SER:HB2	1.81	0.45
1:F:243:ARG:HB2	1:F:247:VAL:HG13	1.99	0.45
1:B:169:ASN:ND2	1:B:213:LEU:HA	2.31	0.45
1:E:203:LEU:HD13	1:F:125:VAL:HG22	1.99	0.45
1:A:259:TYR:CD1	1:A:259:TYR:O	2.70	0.45
1:B:52:TRP:NE1	1:B:63:TRP:HB2	2.31	0.45
1:B:19:THR:O	1:B:20:SER:O	2.34	0.45
1:A:29:ASP:OD1	1:A:29:ASP:N	2.50	0.44
1:A:186:SER:HB2	1:A:196:HIS:HE1	1.82	0.44
1:E:81:ARG:NH2	3:H:112:DA:OP1	2.50	0.44
1:E:138:GLU:OE2	1:E:301:ARG:NH2	2.42	0.44
1:F:48:VAL:HG22	1:F:91:HIS:ND1	2.33	0.44
2:C:101:DG:H2'	2:C:102:DA:C8	2.53	0.44
1:A:186:SER:CB	1:A:196:HIS:HE1	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:17:ASP:OD1	1:B:18:ALA:N	2.51	0.43
1:E:39:GLU:O	1:E:43:GLU:HG3	2.18	0.43
1:E:216:GLY:O	1:E:219:LYS:HG2	2.18	0.43
1:A:96:ASN:ND2	1:A:106:ARG:HB3	2.33	0.43
1:B:186:SER:CB	4:B:402:HOH:O	2.65	0.43
1:F:137:PHE:HB2	1:F:290:SER:HB3	2.00	0.43
1:B:186:SER:HB2	1:B:187:ARG:H	1.70	0.43
1:B:193:MET:HG3	1:B:218:THR:HG23	2.00	0.43
1:F:159:ARG:HB2	1:F:224:TRP:CZ3	2.54	0.43
1:A:260:ALA:O	1:A:264:ILE:HG13	2.19	0.42
1:F:230:VAL:HG12	1:F:250:PRO:HB3	2.01	0.42
1:A:17:ASP:HB3	1:A:63:TRP:HE1	1.83	0.42
1:A:48:VAL:HG21	1:A:94:ARG:HG3	2.00	0.42
1:E:146:ARG:O	1:E:150:GLU:HB2	2.20	0.42
1:E:176:GLU:HG2	1:E:179:ARG:NH2	2.34	0.42
1:B:230:VAL:HG12	1:B:250:PRO:HB3	2.01	0.42
1:E:101:ARG:HD3	1:E:101:ARG:HA	1.85	0.42
2:C:124:DA:H2'	2:C:125:DT:C6	2.55	0.42
3:H:103:DC:H2"	3:H:104:DA:C8	2.55	0.42
1:E:66:ALA:H	1:E:99:HIS:CE1	2.38	0.42
1:E:137:PHE:HB2	1:E:290:SER:HB3	2.02	0.42
1:F:27:LEU:C	1:F:29:ASP:N	2.72	0.42
1:F:48:VAL:HG11	1:F:94:ARG:HB2	2.01	0.42
1:F:77:HIS:O	1:F:81:ARG:HG3	2.20	0.42
1:F:276:LYS:HB2	1:F:284:LEU:HD23	2.02	0.42
1:A:182:VAL:HG11	1:A:231:ALA:HA	2.02	0.41
1:E:261:LEU:HD12	1:E:261:LEU:HA	1.84	0.41
3:H:124:DA:H2'	3:H:125:DT:C6	2.55	0.41
2:C:128:DC:H2'	2:C:129:DA:C8	2.55	0.41
1:B:210:GLU:HG3	1:E:326:ARG:HD2	2.02	0.41
1:E:203:LEU:HG	1:F:131:THR:HG23	2.03	0.41
1:F:52:TRP:NE1	1:F:63:TRP:HB2	2.36	0.41
1:F:214:SER:O	1:F:218:THR:OG1	2.24	0.41
1:B:237:TYR:CZ	1:B:255:GLN:HB3	2.56	0.41
2:C:100:DC:H2'	2:C:101:DG:C8	2.55	0.41
2:C:110:DC:O2	3:D:127:DG:N2	2.38	0.41
1:A:96:ASN:HD22	1:A:96:ASN:HA	1.68	0.40
2:C:100:DC:H2'	2:C:101:DG:H8	1.86	0.40
1:E:219:LYS:HA	1:E:222:GLU:HG2	2.03	0.40
1:A:211:LYS:NZ	1:A:312:ALA:O	2.54	0.40
1:A:216:GLY:O	1:A:220:LEU:HD13	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:40:HIS:HA	1:E:43:GLU:HG3	2.03	0.40
1:E:196:HIS:ND1	1:E:210:GLU:OE1	2.54	0.40
1:F:67:GLU:HA	1:F:68:PRO:HD3	1.93	0.40
1:F:215:LEU:O	1:F:219:LYS:HG2	2.21	0.40
2:C:115:DA:H1'	2:C:116:DC:OP1	2.22	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	328/345 (95%)	307 (94%)	17 (5%)	4 (1%)	13	44
1	B	325/345 (94%)	308 (95%)	15 (5%)	2 (1%)	25	59
1	E	322/345 (93%)	307 (95%)	14 (4%)	1 (0%)	41	73
1	F	318/345 (92%)	296 (93%)	22 (7%)	0	100	100
All	All	1293/1380 (94%)	1218 (94%)	68 (5%)	7 (0%)	29	64

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	20	SER
1	E	15	PRO
1	A	68	PRO
1	A	15	PRO
1	A	14	LEU
1	B	17	ASP
1	A	198	GLY

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	264/288 (92%)	251 (95%)	13 (5%)	25 57
1	B	266/288 (92%)	256 (96%)	10 (4%)	33 66
1	E	268/288 (93%)	251 (94%)	17 (6%)	18 48
1	F	264/288 (92%)	255 (97%)	9 (3%)	37 69
All	All	1062/1152 (92%)	1013 (95%)	49 (5%)	27 59

All (49) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	17	ASP
1	A	29	ASP
1	A	32	ARG
1	A	60	ASN
1	A	90	GLN
1	A	106	ARG
1	A	126	ASP
1	A	132	LYS
1	A	169	ASN
1	A	206	THR
1	A	226	SER
1	A	236	ASN
1	A	338	LEU
1	B	64	PHE
1	B	148	LEU
1	B	156	GLN
1	B	215	LEU
1	B	223	ARG
1	B	244	ARG
1	B	263	ARG
1	B	270	ARG
1	B	311	GLN
1	B	316	THR
1	E	14	LEU

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Mol	Chain	Res	Type
1	E	15	PRO
1	E	86	LYS
1	E	94	ARG
1	E	99	HIS
1	E	110	SER
1	E	111	ASN
1	E	131	THR
1	E	148	LEU
1	E	151	ASN
1	E	152	SER
1	E	154	ARG
1	E	155	CYS
1	E	169	ASN
1	E	271	LEU
1	E	338	LEU
1	E	341	ASP
1	F	27	LEU
1	F	100	ARG
1	F	169	ASN
1	F	235	ASN
1	F	284	LEU
1	F	301	ARG
1	F	338	LEU
1	F	340	GLU
1	F	341	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	96	ASN
1	A	196	HIS
1	E	160	ASN
1	F	91	HIS

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

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	330/345 (95%)	-0.37	0 100 100	31, 56, 87, 125	0
1	B	327/345 (94%)	-0.40	0 100 100	24, 45, 77, 112	0
1	E	326/345 (94%)	-0.36	0 100 100	29, 54, 86, 113	0
1	F	320/345 (92%)	-0.31	1 (0%) 94 88	33, 54, 88, 120	0
2	C	37/37 (100%)	-0.71	0 100 100	33, 55, 88, 96	0
2	G	37/37 (100%)	-0.68	0 100 100	34, 61, 89, 101	0
3	D	37/37 (100%)	-0.68	0 100 100	37, 57, 88, 94	0
3	H	37/37 (100%)	-0.69	0 100 100	44, 61, 104, 114	0
All	All	1451/1528 (94%)	-0.40	1 (0%) 95 92	24, 54, 88, 125	0

All (1) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	23	VAL	3.3

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

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.