Full wwPDB X-ray Structure Validation Report ⓘ

Nov 5, 2023 – 10:15 AM EST

PDB ID	:	1D5Z
Title	:	X-RAY CRYSTAL STRUCTURE OF HLA-DR4 COMPLEXED WITH PEPTIDOMIMETIC AND SEB
Authors	:	Swain, A.; Crowther, R.; Kammlott, U.
Deposited on	:	1999-10-12
Resolution	:	2.00 Å(reported)

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

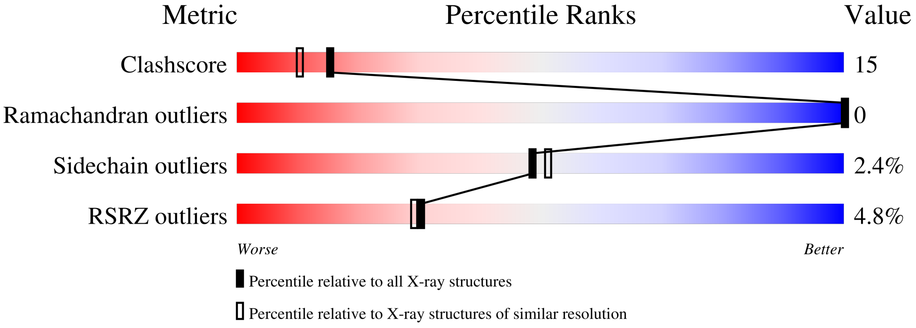
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

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

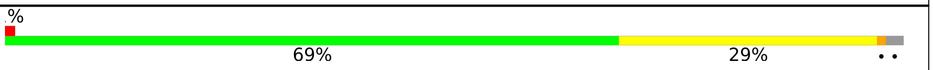
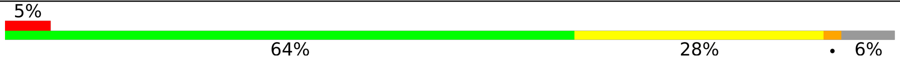
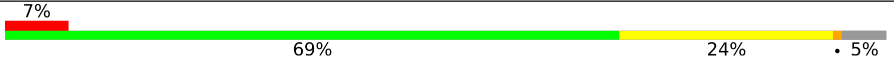
The reported resolution of this entry is 2.00 Å.

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	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

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	181	
2	B	192	
3	C	239	
4	D	8	

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 5041 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 PROTEIN (HLA CLASS II HISTOCOMPATIBILITY ANTIGEN).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
1	A	178	Total C N O S 1465 950 238 272 5	0	0	0

- Molecule 2 is a protein called PROTEIN (HLA CLASS II HISTOCOMPATIBILITY ANTIGEN).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	B	181	Total C N O S 1490 944 259 282 5	0	0	0

- Molecule 3 is a protein called PROTEIN (ENTEROTOXIN TYPE B).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
3	C	226	Total C N O S 1888 1211 305 362 10	0	0	0

- Molecule 4 is a protein called PROTEIN (PEPTIDOMIMETIC INHIBITOR).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
4	D	8	Total C N O 61 39 12 10	0	0	1

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	49	Total O 49 49	0	0
5	B	44	Total O 44 44	0	0
5	C	43	Total O 43 43	0	0

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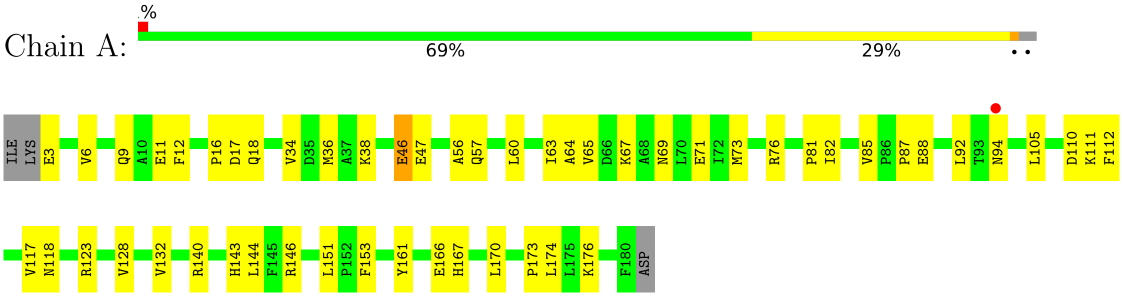
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
5	D	1	1	1	0	0

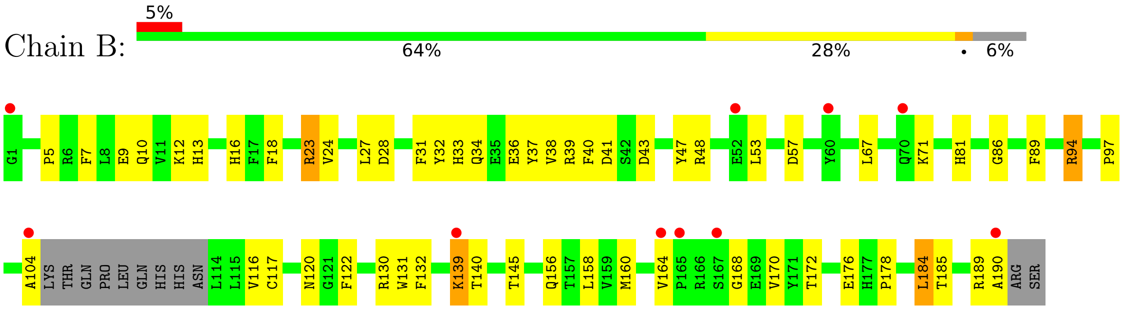
3 Residue-property plots ⓘ

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

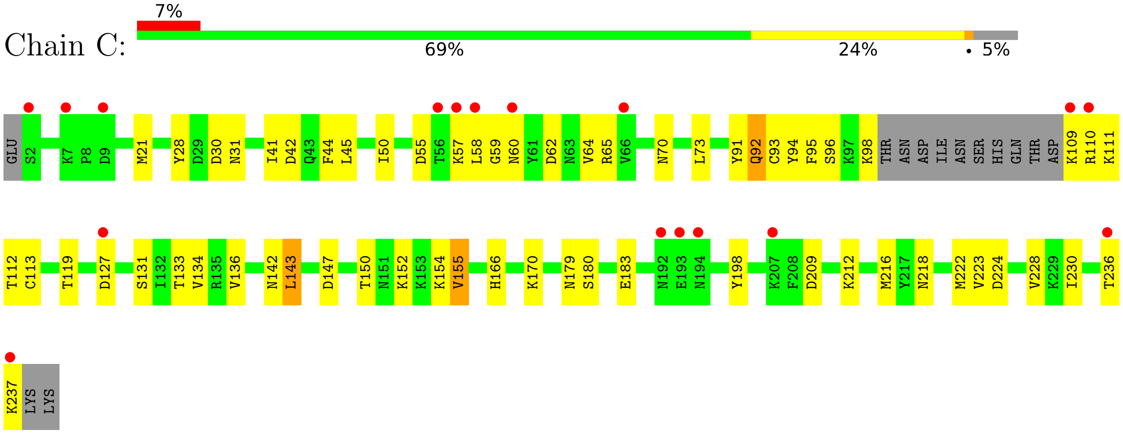
- Molecule 1: PROTEIN (HLA CLASS II HISTOCOMPATIBILITY ANTIGEN)



- Molecule 2: PROTEIN (HLA CLASS II HISTOCOMPATIBILITY ANTIGEN)



- Molecule 3: PROTEIN (ENTEROTOXIN TYPE B)



- Molecule 4: PROTEIN (PEPTIDOMIMETIC INHIBITOR)

Chain D:

4 Data and refinement statistics ⓘ

Property	**Value**	**Source**
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	78.34Å 100.17Å 100.17Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.45 – 2.00 19.44 – 2.00	Depositor EDS
% Data completeness (in resolution range)	94.1 (19.45-2.00) 94.1 (19.44-2.00)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.59 (at 2.01Å)	Xtriage
Refinement program	CNS 0.9	Depositor
R, R_{free}	0.234 , 0.265 0.234 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	16.6	Xtriage
Anisotropy	0.534	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.41 , 48.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.023 for -h,l,k	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	5041	wwPDB-VP
Average B, all atoms (Å^2)	19.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.16% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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

Bond lengths and bond angles in the following residue types are not validated in this section: ALC, ACE, ODA, NH2

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	0.43	0/1510	0.73	1/2059 (0.0%)
2	B	0.37	0/1530	0.66	0/2079
3	C	0.37	0/1931	0.62	0/2596
4	D	0.88	0/28	1.20	0/34
All	All	0.39	0/4999	0.67	1/6768 (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
4	D	0	2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	88	GLU	N-CA-C	-5.30	96.69	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	D	807	ODA	Mainchain,Peptide

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	1465	0	1403	52	0
2	B	1490	0	1398	53	0
3	C	1888	0	1832	63	0
4	D	61	0	63	3	0
5	A	49	0	0	0	0
5	B	44	0	0	0	0
5	C	43	0	0	2	0
5	D	1	0	0	0	0
All	All	5041	0	4696	143	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 15.

All (143) 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)
3:C:92:GLN:HE21	3:C:92:GLN:HA	1.36	0.90
3:C:223:VAL:HB	3:C:228:VAL:HG11	1.52	0.89
3:C:58:LEU:CD1	3:C:60:ASN:ND2	2.39	0.85
3:C:152:LYS:HB2	3:C:155:VAL:HG13	1.59	0.83
3:C:183:GLU:HB2	3:C:237:LYS:HG2	1.63	0.81
2:B:81:HIS:HE1	4:D:803:ACE:O	1.65	0.80
3:C:224:ASP:O	3:C:228:VAL:HG13	1.83	0.78
2:B:18:PHE:HB2	2:B:23:ARG:HB3	1.68	0.75
3:C:223:VAL:HB	3:C:228:VAL:CG1	2.17	0.74
3:C:58:LEU:HD11	3:C:60:ASN:ND2	2.03	0.73
3:C:166:HIS:CE1	3:C:170:LYS:HE3	2.24	0.73
1:A:3:GLU:OE2	2:B:16:HIS:ND1	2.22	0.72
2:B:170:VAL:HG22	2:B:189:ARG:HG3	1.72	0.71
3:C:110:ARG:HG3	3:C:111:LYS:H	1.56	0.70
3:C:198:TYR:HB3	3:C:216:MET:HE1	1.75	0.68
3:C:223:VAL:CB	3:C:228:VAL:HG11	2.23	0.67
2:B:97:PRO:HB3	2:B:122:PHE:HB3	1.76	0.66
1:A:82:ILE:HB	2:B:33:HIS:ND1	2.10	0.66
1:A:118:ASN:HB2	1:A:166:GLU:HB2	1.78	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:67:LYS:HD3	3:C:96:SER:HB3	1.80	0.63
3:C:95:PHE:CZ	3:C:111:LYS:HB2	2.32	0.63
1:A:36:MET:HE2	3:C:45:LEU:HD11	1.80	0.62
3:C:58:LEU:HD13	3:C:60:ASN:ND2	2.13	0.62
2:B:120:ASN:ND2	2:B:156:GLN:HB2	2.15	0.61
3:C:62:ASP:OD2	3:C:109:LYS:HA	2.00	0.61
1:A:36:MET:CE	3:C:45:LEU:HD11	2.30	0.61
1:A:94:ASN:O	1:A:94:ASN:OD1	2.19	0.60
3:C:70:ASN:OD1	3:C:73:LEU:HD23	2.02	0.60
3:C:92:GLN:HA	3:C:92:GLN:NE2	2.12	0.60
2:B:172:THR:HG23	2:B:185:THR:HG23	1.84	0.59
3:C:60:ASN:O	3:C:110:ARG:HB3	2.03	0.59
1:A:166:GLU:HG2	1:A:173:PRO:HG3	1.84	0.59
3:C:119:THR:HG22	3:C:222:MET:CE	2.33	0.58
2:B:47:TYR:OH	2:B:71:LYS:HE2	2.03	0.58
3:C:180:SER:O	3:C:237:LYS:HE2	2.04	0.58
3:C:65:ARG:HB2	3:C:95:PHE:CD2	2.38	0.58
2:B:7:PHE:HA	2:B:33:HIS:HE1	1.69	0.57
1:A:143:HIS:HD2	2:B:12:LYS:NZ	2.02	0.57
3:C:65:ARG:HD2	3:C:95:PHE:HB3	1.87	0.57
3:C:223:VAL:CG2	3:C:228:VAL:HG11	2.36	0.56
1:A:144:LEU:HD21	2:B:34:GLN:NE2	2.20	0.56
1:A:46:GLU:HG3	1:A:47:GLU:N	2.19	0.55
1:A:3:GLU:N	2:B:18:PHE:CE2	2.75	0.55
3:C:119:THR:HG22	3:C:222:MET:HE3	1.87	0.55
1:A:71:GLU:OE1	3:C:98:LYS:HG2	2.06	0.55
3:C:152:LYS:HD2	3:C:155:VAL:HG12	1.88	0.55
2:B:27:LEU:HD23	2:B:41:ASP:HA	1.88	0.54
2:B:104:ALA:HB2	2:B:116:VAL:HG23	1.90	0.54
1:A:117:VAL:HG22	1:A:167:HIS:HD2	1.72	0.54
2:B:168:GLY:HA2	2:B:190:ALA:O	2.08	0.53
1:A:105:LEU:HG	1:A:153:PHE:CE1	2.44	0.53
2:B:172:THR:CG2	2:B:185:THR:HG23	2.39	0.53
1:A:81:PRO:HB3	2:B:5:PRO:HB3	1.92	0.52
2:B:164:VAL:O	2:B:164:VAL:HG13	2.10	0.52
1:A:17:ASP:O	1:A:18:GLN:HB2	2.09	0.52
1:A:36:MET:CE	1:A:63:ILE:HG21	2.40	0.52
1:A:144:LEU:CD2	2:B:34:GLN:HE21	2.22	0.52
1:A:140:ARG:CG	1:A:146:ARG:HG3	2.40	0.51
2:B:67:LEU:HD21	4:D:809:LEU:HD21	1.91	0.51
3:C:113:CYS:HB3	5:C:1006:HOH:O	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:60:LEU:HD23	3:C:65:ARG:HH12	1.75	0.49
2:B:28:ASP:O	2:B:39:ARG:HA	2.13	0.49
2:B:32:TYR:O	2:B:33:HIS:HB2	2.13	0.49
3:C:21:MET:HB2	3:C:179:ASN:HA	1.93	0.49
3:C:236:THR:HG22	3:C:237:LYS:N	2.27	0.49
1:A:12:PHE:HA	2:B:9:GLU:O	2.12	0.49
1:A:34:VAL:HG13	1:A:56:ALA:HB1	1.93	0.49
2:B:38:VAL:HG11	2:B:57:ASP:HB2	1.93	0.49
3:C:133:THR:HG22	3:C:147:ASP:OD1	2.13	0.49
2:B:10:GLN:HB2	2:B:31:PHE:HB2	1.95	0.48
1:A:36:MET:HE1	3:C:45:LEU:HD21	1.96	0.48
2:B:7:PHE:HA	2:B:33:HIS:CE1	2.49	0.48
3:C:41:ILE:HD11	3:C:50:ILE:HG22	1.96	0.47
3:C:154:LYS:HB3	3:C:222:MET:HE1	1.96	0.47
2:B:37:TYR:HD1	2:B:38:VAL:HG13	1.79	0.47
2:B:67:LEU:C	2:B:67:LEU:HD13	2.34	0.47
3:C:131:SER:HB3	3:C:147:ASP:HB3	1.97	0.47
2:B:86:GLY:HA2	2:B:89:PHE:CE2	2.50	0.47
2:B:130:ARG:NH2	2:B:176:GLU:OE1	2.48	0.47
1:A:64:ALA:O	3:C:96:SER:HB2	2.15	0.46
2:B:13:HIS:ND1	2:B:28:ASP:OD1	2.46	0.46
3:C:110:ARG:CG	3:C:111:LYS:H	2.27	0.46
3:C:136:VAL:O	3:C:142:ASN:HA	2.16	0.46
1:A:170:LEU:HD13	1:A:174:LEU:HB2	1.97	0.46
1:A:64:ALA:HA	3:C:44:PHE:CE1	2.50	0.46
1:A:132:VAL:HG12	1:A:151:LEU:HD13	1.98	0.46
3:C:28:TYR:O	3:C:166:HIS:HD2	1.99	0.45
1:A:92:LEU:HD23	1:A:92:LEU:N	2.30	0.45
1:A:110:ASP:OD1	1:A:146:ARG:HG2	2.16	0.45
3:C:91:TYR:O	3:C:92:GLN:HB2	2.17	0.45
3:C:95:PHE:CE2	3:C:111:LYS:HB2	2.51	0.45
3:C:150:THR:OG1	3:C:155:VAL:HG11	2.16	0.45
2:B:31:PHE:CE2	2:B:36:GLU:HB2	2.53	0.44
2:B:67:LEU:HD21	4:D:809:LEU:CD2	2.47	0.44
1:A:111:LYS:HG2	1:A:140:ARG:CZ	2.47	0.44
1:A:85:VAL:HG21	2:B:34:GLN:HE22	1.83	0.44
1:A:140:ARG:HG3	1:A:146:ARG:HG3	1.98	0.44
3:C:31:ASN:OD1	3:C:57:LYS:HD2	2.17	0.44
2:B:184:LEU:HD12	2:B:185:THR:N	2.33	0.44
3:C:55:ASP:HB3	3:C:59:GLY:HA2	1.99	0.44
3:C:92:GLN:NE2	3:C:94:TYR:HE1	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:143:LEU:HB2	5:C:1021:HOH:O	2.17	0.44
1:A:65:VAL:HG12	1:A:69:ASN:ND2	2.33	0.43
1:A:144:LEU:CD2	2:B:34:GLN:NE2	2.80	0.43
3:C:134:VAL:HG22	3:C:230:ILE:HB	1.99	0.43
2:B:145:THR:CG2	2:B:158:LEU:HB2	2.48	0.43
1:A:123:ARG:HD3	1:A:161:TYR:CE2	2.54	0.43
1:A:176:LYS:HD3	1:A:176:LYS:HA	1.88	0.43
3:C:58:LEU:CD1	3:C:60:ASN:CG	2.87	0.43
3:C:95:PHE:CZ	3:C:111:LYS:CB	3.01	0.43
2:B:94:ARG:NH1	2:B:178:PRO:HB3	2.34	0.43
1:A:87:PRO:HB3	1:A:112:PHE:HB3	2.00	0.43
2:B:40:PHE:HB2	2:B:47:TYR:CE2	2.54	0.43
1:A:92:LEU:HD23	1:A:92:LEU:H	1.83	0.42
1:A:9:GLN:HB3	2:B:13:HIS:HB2	2.02	0.42
2:B:117:CYS:HB2	2:B:131:TRP:CZ2	2.55	0.42
2:B:132:PHE:HB2	2:B:172:THR:HB	2.01	0.42
1:A:12:PHE:C	1:A:12:PHE:CD1	2.93	0.42
1:A:69:ASN:O	1:A:73:MET:HG2	2.20	0.42
1:A:82:ILE:HB	2:B:33:HIS:CE1	2.54	0.42
1:A:123:ARG:CB	1:A:128:VAL:HG21	2.49	0.42
1:A:6:VAL:HG22	2:B:16:HIS:ND1	2.34	0.42
1:A:76:ARG:HB3	2:B:53:LEU:HD22	2.02	0.42
2:B:139:LYS:N	2:B:139:LYS:HD2	2.35	0.42
1:A:38:LYS:O	3:C:212:LYS:NZ	2.50	0.41
2:B:23:ARG:NH2	2:B:43:ASP:OD2	2.53	0.41
3:C:64:VAL:HG22	3:C:112:THR:HG22	2.03	0.41
3:C:109:LYS:O	3:C:110:ARG:HB2	2.21	0.41
2:B:139:LYS:HG2	2:B:140:THR:H	1.86	0.41
3:C:42:ASP:OD2	3:C:98:LYS:HG3	2.21	0.41
2:B:23:ARG:HD3	2:B:24:VAL:N	2.36	0.41
3:C:154:LYS:CB	3:C:222:MET:HE1	2.50	0.41
3:C:152:LYS:HB2	3:C:155:VAL:CG1	2.40	0.41
1:A:36:MET:HE1	1:A:63:ILE:HG21	2.03	0.41
3:C:64:VAL:HG22	3:C:112:THR:CG2	2.51	0.41
1:A:123:ARG:HB3	1:A:128:VAL:HG21	2.02	0.41
3:C:58:LEU:CD1	3:C:60:ASN:HD21	2.32	0.41
1:A:16:PRO:O	1:A:18:GLN:HG3	2.22	0.40
1:A:143:HIS:HD2	2:B:12:LYS:HZ1	1.67	0.40
3:C:93:CYS:SG	3:C:112:THR:C	3.00	0.40
2:B:116:VAL:HG22	2:B:160:MET:HG3	2.03	0.40
1:A:57:GLN:NE2	3:C:209:ASP:OD2	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:94:ARG:HH11	2:B:178:PRO:HB3	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	176/181 (97%)	170 (97%)	6 (3%)	0	100	100
2	B	177/192 (92%)	173 (98%)	4 (2%)	0	100	100
3	C	222/239 (93%)	210 (95%)	12 (5%)	0	100	100
4	D	4/8 (50%)	4 (100%)	0	0	100	100
All	All	579/620 (93%)	557 (96%)	22 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	163/166 (98%)	161 (99%)	2 (1%)	71	76
2	B	161/173 (93%)	156 (97%)	5 (3%)	40	40
3	C	211/225 (94%)	205 (97%)	6 (3%)	43	44
4	D	3/3 (100%)	3 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	538/567 (95%)	525 (98%)	13 (2%)	49 51

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	GLU
1	A	46	GLU
2	B	23	ARG
2	B	48	ARG
2	B	94	ARG
2	B	139	LYS
2	B	184	LEU
3	C	30	ASP
3	C	92	GLN
3	C	127	ASP
3	C	143	LEU
3	C	155	VAL
3	C	218	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	143	HIS
2	B	34	GLN
2	B	81	HIS
2	B	174	GLN
3	C	60	ASN
3	C	92	GLN
3	C	142	ASN
3	C	166	HIS
3	C	218	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues are modelled in this entry.

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	$\#\|Z\| > 2$
4	ALC	D	804	4	9,11,12	0.60	0	10,13,15	0.55	0
4	ODA	D	807	4	13,17,18	1.53	3 (23%)	9,24,26	0.71	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
4	ALC	D	804	4	-	0/5/14/16	0/1/1/1
4	ODA	D	807	4	-	0/1/33/35	0/1/2/2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	807	ODA	N2-NE2	3.36	1.45	1.41
4	D	807	ODA	CG-CD	2.79	1.54	1.51
4	D	807	ODA	CB-CG	-2.12	1.50	1.53

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.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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	178/181 (98%)	0.06	1 (0%)	89	88	9, 16, 30, 40	0
2	B	181/192 (94%)	0.34	10 (5%)	25	24	9, 18, 36, 41	0
3	C	226/239 (94%)	0.35	17 (7%)	14	13	8, 18, 40, 51	0
4	D	4/8 (50%)	0.00	0	100	100	7, 7, 12, 14	0
All	All	589/620 (95%)	0.25	28 (4%)	30	29	7, 18, 36, 51	0

All (28) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	C	109	LYS	7.5
2	B	165	PRO	5.1
2	B	104	ALA	4.2
3	C	56	THR	3.9
2	B	1	GLY	3.6
3	C	193	GLU	3.5
3	C	110	ARG	3.4
3	C	236	THR	3.4
2	B	60	TYR	2.9
2	B	139	LYS	2.9
3	C	66	VAL	2.8
3	C	60	ASN	2.8
2	B	167	SER	2.8
3	C	9	ASP	2.7
2	B	190	ALA	2.6
3	C	127	ASP	2.6
2	B	52	GLU	2.6
1	A	94	ASN	2.6
3	C	7	LYS	2.5
3	C	57	LYS	2.5
3	C	237	LYS	2.3

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Mol	Chain	Res	Type	RSRZ
3	C	192	ASN	2.3
2	B	70	GLN	2.3
2	B	164	VAL	2.2
3	C	194	ASN	2.2
3	C	207	LYS	2.2
3	C	58	LEU	2.1
3	C	2	SER	2.0

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

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	ODA	D	807	16/17	0.90	0.16	9,16,21,24	0
4	ALC	D	804	11/12	0.94	0.12	3,9,12,13	0

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.