



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 11, 2022 – 06:00 PM EDT

PDB ID : 1MCE
Title : PRINCIPLES AND PITFALLS IN DESIGNING SITE DIRECTED PEPTIDE LIGANDS
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Deposited on : 1993-02-25
Resolution : 2.70 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
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.27

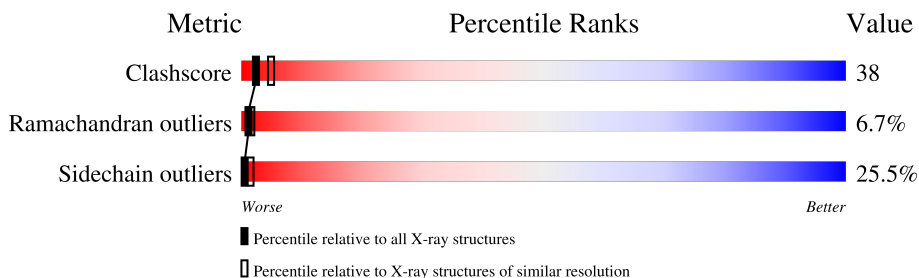
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)

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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	216	 28% 53% 17% •
1	B	216	 35% 49% 14% •
2	P	6	 33% 17% 50%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 3256 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 Immunoglobulin lambda-1 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	216	1605	1000	266	334	5	0	0	0
1	B	216	1605	1000	266	334	5	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	PRO	-	expression tag	UNP P0DOX8
B	1	PRO	-	expression tag	UNP P0DOX8

- Molecule 2 is a protein called PEPTIDE N-ACETYL-L-GLN-D-PHE-L-HIS-D-PRO-B-AL A-OH.

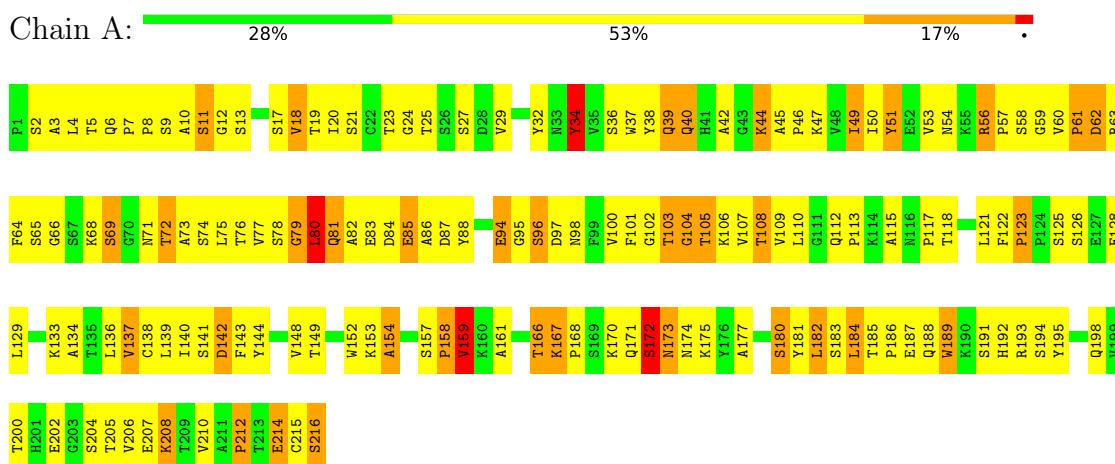
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	P	6	46	30	8	8	0	0	0

3 Residue-property plots

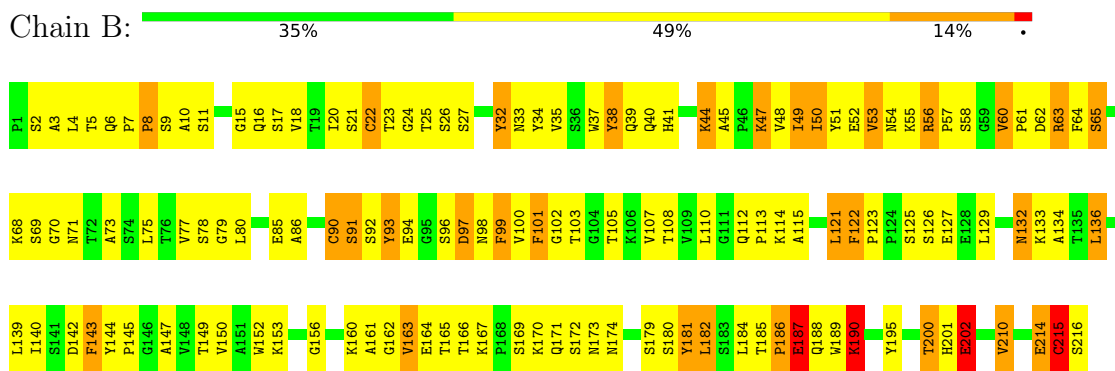
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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.

Note EDS was not executed.

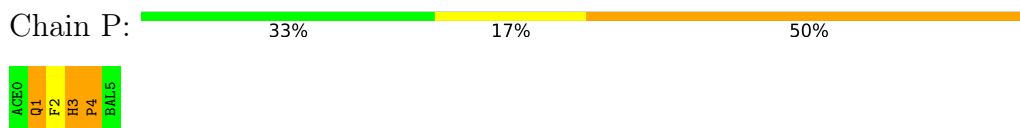
- Molecule 1: Immunoglobulin lambda-1 light chain



- Molecule 1: Immunoglobulin lambda-1 light chain



- Molecule 2: PEPTIDE N-ACETYL-L-GLN-D-PHE-L-HIS-D-PRO-B-ALA-OH



4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α , β , γ	72.30Å 72.30Å 185.90Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	6.00 – 2.70	Depositor
% Data completeness (in resolution range)	(Not available) (6.00-2.70)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	PROLSQ, X-PLOR	Depositor
R, R_{free}	0.191 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	3256	wwPDB-VP
Average B, all atoms (Å ²)	0.0	wwPDB-VP

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: ACE, BAL, DPR, DPN

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	0.85	0/1644	1.46	12/2241 (0.5%)
1	B	0.82	0/1644	1.41	8/2241 (0.4%)
2	P	1.07	0/19	1.85	0/23
All	All	0.84	0/3307	1.44	20/4505 (0.4%)

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
2	P	0	1

There are no bond length outliers.

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	34	TYR	CA-CB-CG	8.58	129.70	113.40
1	B	93	TYR	CA-CB-CG	7.98	128.55	113.40
1	A	34	TYR	CB-CG-CD1	7.56	125.54	121.00
1	B	202	GLU	CA-CB-CG	6.09	126.79	113.40
1	A	56	ARG	NE-CZ-NH1	6.06	123.33	120.30
1	A	181	TYR	CA-CB-CG	5.59	124.03	113.40
1	A	79	GLY	N-CA-C	-5.55	99.24	113.10
1	A	80	LEU	CB-CA-C	5.55	120.74	110.20
1	B	189	TRP	CA-CB-CG	5.54	124.23	113.70
1	A	184	LEU	CA-CB-CG	5.52	127.99	115.30
1	A	214	GLU	N-CA-C	5.42	125.65	111.00
1	B	56	ARG	NE-CZ-NH1	5.40	123.00	120.30
1	A	94	GLU	CA-CB-CG	5.36	125.19	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	132	ASN	CA-CB-CG	5.35	125.17	113.40
1	A	104	GLY	C-N-CA	5.33	135.02	121.70
1	B	63	ARG	NE-CZ-NH1	5.32	122.96	120.30
1	B	190	LYS	CA-CB-CG	5.29	125.04	113.40
1	A	51	TYR	CA-CB-CG	5.22	123.33	113.40
1	B	187	GLU	CA-CB-CG	5.17	124.78	113.40
1	A	34	TYR	CB-CG-CD2	-5.01	118.00	121.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	P	4	DPR	Peptide

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1605	0	1540	131	0
1	B	1605	0	1540	119	0
2	P	46	0	37	10	0
All	All	3256	0	3117	242	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 38.

All (242) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2:SER:HA	1:B:100:VAL:HG13	1.41	1.03
1:B:35:VAL:HB	1:B:53:VAL:HG12	1.53	0.90
1:A:6:GLN:HB3	1:A:104:GLY:H	1.33	0.89
1:B:94:GLU:HB3	1:B:98:ASN:HB3	1.59	0.85
1:A:3:ALA:HB1	1:A:103:THR:OG1	1.81	0.80
1:B:10:ALA:O	1:B:107:VAL:HA	1.81	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:149:THR:HB	1:B:200:THR:HG23	1.62	0.80
1:A:69:SER:O	1:A:72:THR:HG22	1.82	0.79
1:A:57:PRO:HB3	1:B:99:PHE:HE1	1.47	0.79
1:A:57:PRO:HD2	1:A:60:VAL:HG21	1.64	0.79
1:A:166:THR:HG22	1:B:169:SER:HB2	1.64	0.79
1:A:20:ILE:O	1:A:74:SER:HA	1.83	0.79
1:A:122:PHE:HB2	1:A:137:VAL:HG12	1.65	0.78
1:B:38:TYR:HE1	1:B:91:SER:HB2	1.49	0.78
1:A:85:GLU:HA	1:A:107:VAL:O	1.84	0.77
1:A:115:ALA:HB3	1:A:144:TYR:H	1.49	0.75
1:A:94:GLU:HB3	1:A:98:ASN:HB2	1.67	0.75
1:A:12:GLY:HA3	1:A:80:LEU:HD23	1.69	0.74
1:A:11:SER:HA	1:A:108:THR:O	1.87	0.74
1:B:32:TYR:HE2	1:B:93:TYR:HD2	1.36	0.74
1:B:214:GLU:O	1:B:215:CYS:HB3	1.89	0.71
1:B:136:LEU:HD13	1:B:182:LEU:HB3	1.72	0.71
1:A:65:SER:O	1:A:75:LEU:HD12	1.93	0.69
1:A:152:TRP:HE1	1:A:180:SER:HB3	1.57	0.69
1:A:171:GLN:HB2	1:B:164:GLU:HG3	1.75	0.69
1:B:186:PRO:O	1:B:190:LYS:HB3	1.94	0.68
1:B:56:ARG:HD2	1:B:60:VAL:HG12	1.76	0.68
1:A:63:ARG:HB2	1:A:78:SER:O	1.95	0.67
1:A:122:PHE:O	1:A:136:LEU:HD12	1.93	0.67
1:B:153:LYS:HD2	1:B:156:GLY:O	1.95	0.67
1:B:166:THR:HG22	1:B:167:LYS:O	1.94	0.66
2:P:1:GLN:HE21	2:P:2:DPN:HB3	1.61	0.65
1:B:9:SER:HB2	1:B:147:ALA:HB3	1.77	0.65
1:B:47:LYS:HD2	1:B:49:ILE:HD12	1.79	0.65
1:A:54:ASN:HB2	1:A:66:GLY:O	1.97	0.64
1:A:86:ALA:O	1:A:106:LYS:HA	1.98	0.64
1:B:38:TYR:CE1	1:B:91:SER:HB2	2.31	0.64
1:B:134:ALA:HB3	1:B:184:LEU:O	1.98	0.64
1:B:49:ILE:HG13	1:B:60:VAL:HG13	1.80	0.63
1:B:143:PHE:HD1	1:B:143:PHE:H	1.46	0.63
1:A:19:THR:HA	1:A:75:LEU:O	1.98	0.63
1:A:12:GLY:HA3	1:A:80:LEU:CD2	2.28	0.62
1:A:17:SER:HA	1:A:77:VAL:O	1.98	0.62
1:A:5:THR:HB	1:A:23:THR:HB	1.80	0.62
1:B:121:LEU:HD13	1:B:210:VAL:HB	1.81	0.62
1:A:138:CYS:HB2	1:A:152:TRP:CZ2	2.36	0.61
1:B:4:LEU:HA	1:B:23:THR:O	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:115:ALA:HB3	1:A:144:TYR:N	2.15	0.61
1:B:134:ALA:HB3	1:B:184:LEU:C	2.22	0.60
1:B:18:VAL:HG12	1:B:80:LEU:HG	1.84	0.60
1:A:117:PRO:HB3	1:A:143:PHE:HB3	1.82	0.60
1:B:15:GLY:O	1:B:79:GLY:HA2	2.02	0.60
1:A:34:TYR:HD2	2:P:3:HIS:ND1	2.00	0.60
1:A:82:ALA:HA	1:A:109:VAL:HG21	1.84	0.60
1:B:49:ILE:HG13	1:B:60:VAL:CG1	2.32	0.59
1:A:25:THR:HA	1:A:71:ASN:ND2	2.17	0.59
1:B:23:THR:HA	1:B:71:ASN:O	2.02	0.59
1:B:32:TYR:HE2	1:B:93:TYR:CD2	2.21	0.59
1:A:46:PRO:HD2	1:B:101:PHE:HE2	1.68	0.58
1:B:163:VAL:HG23	1:B:181:TYR:O	2.02	0.58
1:A:101:PHE:HE2	1:B:48:VAL:HG12	1.68	0.58
1:B:3:ALA:O	1:B:24:GLY:HA2	2.02	0.58
1:B:68:LYS:HD2	1:B:69:SER:N	2.17	0.58
1:A:171:GLN:C	1:A:173:ASN:H	2.06	0.58
1:B:34:TYR:HE1	2:P:2:DPN:HA	1.68	0.58
1:A:12:GLY:O	1:A:13:SER:HB3	2.04	0.58
1:A:125:SER:O	1:A:129:LEU:HB2	2.04	0.58
1:A:136:LEU:HD11	1:A:210:VAL:HG11	1.85	0.57
1:A:13:SER:H	1:A:80:LEU:HD23	1.69	0.57
1:B:17:SER:HA	1:B:77:VAL:O	2.05	0.57
1:A:57:PRO:O	1:A:59:GLY:N	2.34	0.56
1:B:39:GLN:HG2	1:B:49:ILE:HD13	1.87	0.56
1:A:10:ALA:HB1	1:A:18:VAL:HG21	1.88	0.56
1:A:142:ASP:O	1:A:175:LYS:HD2	2.06	0.56
1:B:8:PRO:O	1:B:105:THR:HA	2.05	0.56
1:A:122:PHE:HB3	1:B:122:PHE:HD2	1.70	0.56
1:A:37:TRP:O	1:A:49:ILE:HG13	2.06	0.55
1:A:6:GLN:HB3	1:A:104:GLY:N	2.15	0.55
1:A:128:GLU:HG3	1:A:133:LYS:O	2.07	0.55
1:A:79:GLY:O	1:A:81:GLN:NE2	2.39	0.55
1:B:170:LYS:NZ	1:B:174:ASN:ND2	2.55	0.55
1:A:68:LYS:HA	1:A:73:ALA:HA	1.89	0.55
1:B:61:PRO:HG2	1:B:64:PHE:CD1	2.42	0.55
1:B:184:LEU:HD11	1:B:195:TYR:CE1	2.41	0.55
1:A:215:CYS:SG	1:B:214:GLU:O	2.64	0.54
1:B:52:GLU:OE1	1:B:55:LYS:HE3	2.06	0.54
1:B:44:LYS:HG2	1:B:45:ALA:O	2.07	0.54
1:B:170:LYS:HZ2	1:B:174:ASN:HD22	1.55	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:46:PRO:HD2	1:B:101:PHE:CE2	2.42	0.54
1:A:57:PRO:HB3	1:B:99:PHE:CE1	2.37	0.54
1:A:121:LEU:HD21	1:A:210:VAL:HG12	1.90	0.54
1:A:84:ASP:O	1:A:85:GLU:C	2.45	0.54
1:A:87:ASP:OD2	1:A:106:LYS:HG3	2.08	0.53
1:B:57:PRO:HD2	1:B:60:VAL:HG21	1.90	0.53
1:A:60:VAL:HG12	1:A:64:PHE:HD2	1.73	0.53
1:A:82:ALA:C	1:A:84:ASP:H	2.12	0.53
1:A:95:GLY:O	1:A:97:ASP:N	2.42	0.53
1:B:112:GLN:HB3	1:B:113:PRO:HD2	1.89	0.53
1:B:112:GLN:HB3	1:B:113:PRO:CD	2.39	0.52
1:B:162:GLY:O	1:B:182:LEU:HD23	2.08	0.52
1:A:62:ASP:OD1	1:A:79:GLY:HA3	2.10	0.51
1:A:140:ILE:HG22	1:A:143:PHE:CD1	2.46	0.51
1:A:173:ASN:C	1:A:175:LYS:H	2.12	0.51
1:A:198:GLN:HG3	1:A:206:VAL:O	2.10	0.51
1:A:153:LYS:O	1:A:195:TYR:HD1	1.93	0.51
1:B:164:GLU:O	1:B:180:SER:HA	2.11	0.51
2:P:1:GLN:NE2	2:P:2:DPN:HB3	2.25	0.51
1:B:187:GLU:O	1:B:190:LYS:HE2	2.11	0.51
1:B:48:VAL:HG21	2:P:2:DPN:HE2	1.93	0.51
1:A:66:GLY:HA2	1:A:74:SER:O	2.11	0.50
1:A:84:ASP:O	1:A:86:ALA:HB2	2.11	0.50
1:A:173:ASN:N	1:A:173:ASN:HD22	2.10	0.50
1:B:161:ALA:O	1:B:163:VAL:HG12	2.11	0.50
2:P:1:GLN:HB2	2:P:3:HIS:CD2	2.47	0.50
1:A:46:PRO:O	1:A:47:LYS:HE2	2.11	0.50
1:A:154:ALA:HA	1:A:195:TYR:CD1	2.47	0.50
1:B:34:TYR:OH	2:P:3:HIS:HA	2.12	0.49
1:B:56:ARG:HB3	1:B:60:VAL:HB	1.94	0.49
1:B:56:ARG:HD2	1:B:60:VAL:CG1	2.42	0.49
1:B:165:THR:HA	1:B:179:SER:O	2.13	0.49
1:B:185:THR:O	1:B:188:GLN:N	2.45	0.49
1:A:140:ILE:HG22	1:A:143:PHE:CE1	2.48	0.49
1:A:21:SER:HA	1:A:73:ALA:O	2.12	0.49
1:B:49:ILE:O	1:B:60:VAL:HG11	2.13	0.49
1:B:184:LEU:HD11	1:B:195:TYR:CZ	2.47	0.49
1:B:144:TYR:CD1	1:B:145:PRO:HA	2.48	0.48
1:A:4:LEU:HD13	1:A:100:VAL:HG22	1.95	0.48
1:B:185:THR:O	1:B:187:GLU:N	2.46	0.48
1:A:115:ALA:HB2	1:A:175:LYS:NZ	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:139:LEU:C	1:A:140:ILE:HG13	2.34	0.48
1:B:20:ILE:HG23	1:B:105:THR:HG21	1.95	0.48
1:B:35:VAL:HG11	1:B:73:ALA:CB	2.43	0.48
1:B:115:ALA:O	1:B:143:PHE:HA	2.13	0.48
1:B:11:SER:HB3	1:B:110:LEU:HD21	1.96	0.48
1:A:134:ALA:O	1:A:184:LEU:O	2.32	0.48
1:A:167:LYS:HA	1:A:167:LYS:NZ	2.28	0.48
1:B:215:CYS:SG	1:B:216:SER:N	2.87	0.48
1:A:57:PRO:HD2	1:A:60:VAL:CG2	2.42	0.48
1:B:10:ALA:HB3	1:B:107:VAL:HG22	1.94	0.48
1:A:215:CYS:SG	1:A:216:SER:N	2.87	0.47
1:B:32:TYR:HD2	1:B:93:TYR:O	1.97	0.47
1:A:82:ALA:O	1:A:84:ASP:N	2.47	0.47
1:A:171:GLN:NE2	1:A:177:ALA:HB2	2.30	0.47
1:B:52:GLU:O	1:B:54:ASN:N	2.47	0.47
1:A:153:LYS:O	1:A:195:TYR:CD1	2.67	0.47
1:A:184:LEU:HD22	1:A:188:GLN:HB3	1.95	0.47
1:A:38:TYR:O	1:A:49:ILE:HD11	2.14	0.47
1:A:44:LYS:HE2	1:A:45:ALA:O	2.15	0.47
1:A:65:SER:O	1:A:75:LEU:HA	2.14	0.47
1:A:117:PRO:CB	1:A:143:PHE:HB3	2.44	0.47
1:A:121:LEU:CB	1:A:208:LYS:HG3	2.44	0.47
1:A:123:PRO:HA	1:A:136:LEU:CD1	2.45	0.47
1:B:52:GLU:HB2	1:B:55:LYS:HD3	1.96	0.47
1:A:117:PRO:HB2	1:A:140:ILE:HG23	1.97	0.47
1:B:140:ILE:HG22	1:B:143:PHE:CE1	2.50	0.47
2:P:3:HIS:HA	2:P:4:DPR:HD2	1.88	0.47
1:A:36:SER:HA	1:A:51:TYR:HA	1.98	0.46
1:B:4:LEU:O	1:B:102:GLY:HA2	2.14	0.46
1:A:57:PRO:CB	1:B:99:PHE:HE1	2.24	0.46
1:B:85:GLU:HG3	1:B:108:THR:HA	1.97	0.46
1:A:158:PRO:O	1:A:159:VAL:HB	2.15	0.46
1:B:170:LYS:HZ2	1:B:174:ASN:ND2	2.13	0.46
1:B:171:GLN:HB2	1:B:173:ASN:OD1	2.15	0.46
1:A:144:TYR:HD1	1:A:174:ASN:O	1.98	0.46
1:B:65:SER:O	1:B:75:LEU:HD12	2.15	0.46
1:B:171:GLN:NE2	1:B:173:ASN:OD1	2.49	0.46
1:B:152:TRP:CE3	1:B:182:LEU:HD12	2.51	0.45
1:B:57:PRO:HG2	1:B:60:VAL:HG21	1.98	0.45
1:A:62:ASP:CG	1:A:63:ARG:H	2.20	0.45
1:A:38:TYR:HA	1:A:47:LYS:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:51:TYR:CD1	1:B:99:PHE:HZ	2.35	0.45
1:B:32:TYR:CD2	1:B:93:TYR:O	2.69	0.45
1:B:171:GLN:C	1:B:173:ASN:H	2.21	0.45
1:A:40:GLN:NE2	1:A:44:LYS:O	2.49	0.45
1:A:171:GLN:HG3	1:A:172:SER:N	2.32	0.45
1:B:214:GLU:O	1:B:215:CYS:CB	2.63	0.45
1:A:60:VAL:HA	1:A:61:PRO:HD2	1.69	0.44
1:B:214:GLU:OE2	1:B:216:SER:HA	2.17	0.44
1:B:187:GLU:HA	1:B:190:LYS:HD3	2.00	0.44
1:A:79:GLY:O	1:A:81:GLN:HG3	2.18	0.44
1:A:144:TYR:HE1	1:A:174:ASN:ND2	2.15	0.44
1:B:26:SER:HB3	1:B:27:SER:H	1.56	0.44
1:B:37:TRP:HB2	1:B:50:ILE:HG22	2.00	0.44
1:B:123:PRO:HD3	1:B:210:VAL:HG21	2.00	0.44
1:A:80:LEU:HD12	1:A:80:LEU:HA	1.84	0.44
1:A:40:GLN:O	1:A:40:GLN:HG3	2.17	0.44
1:B:96:SER:O	1:B:98:ASN:N	2.50	0.44
1:A:117:PRO:HB3	1:A:143:PHE:CD1	2.53	0.44
1:A:144:TYR:CD1	1:A:174:ASN:O	2.70	0.44
1:A:118:THR:HG23	1:A:142:ASP:OD2	2.17	0.44
1:A:153:LYS:HA	1:A:158:PRO:O	2.18	0.43
1:B:40:GLN:HA	1:B:44:LYS:HD3	1.99	0.43
1:B:123:PRO:HB3	1:B:210:VAL:HG11	2.00	0.43
1:B:201:HIS:O	1:B:202:GLU:C	2.57	0.43
1:A:13:SER:HA	1:A:110:LEU:O	2.19	0.43
1:A:19:THR:HG22	1:A:74:SER:OG	2.18	0.43
1:A:121:LEU:HD12	1:A:137:VAL:O	2.18	0.43
1:B:35:VAL:HA	1:B:91:SER:O	2.18	0.43
1:B:6:GLN:HG3	1:B:90:CYS:SG	2.59	0.43
1:B:37:TRP:HB2	1:B:50:ILE:CG2	2.48	0.43
1:B:51:TYR:O	1:B:55:LYS:HB2	2.19	0.43
1:A:137:VAL:HA	1:A:180:SER:O	2.19	0.43
1:A:189:TRP:CH2	1:A:212:PRO:HA	2.53	0.43
1:A:7:PRO:HA	1:A:8:PRO:HD3	1.75	0.42
1:A:171:GLN:HB2	1:B:164:GLU:CG	2.47	0.42
1:A:184:LEU:HD22	1:A:188:GLN:CB	2.48	0.42
1:B:68:LYS:HD2	1:B:69:SER:H	1.84	0.42
1:A:112:GLN:HA	1:A:113:PRO:HD3	1.68	0.42
1:B:99:PHE:N	1:B:99:PHE:CD1	2.87	0.42
1:B:18:VAL:CG1	1:B:80:LEU:HG	2.49	0.42
1:B:50:ILE:HG23	1:B:51:TYR:N	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:125:SER:O	1:B:129:LEU:HG	2.19	0.42
1:A:171:GLN:HG3	1:A:172:SER:H	1.84	0.42
1:A:61:PRO:HB2	1:A:64:PHE:CE2	2.54	0.42
1:A:3:ALA:HB1	1:A:103:THR:CB	2.49	0.42
1:B:126:SER:O	1:B:129:LEU:HB2	2.20	0.42
1:A:39:GLN:HG2	1:A:88:TYR:CE2	2.54	0.42
1:B:167:LYS:NZ	1:B:167:LYS:HB3	2.35	0.41
1:A:44:LYS:O	1:A:46:PRO:HD3	2.19	0.41
1:B:150:VAL:HG11	1:B:180:SER:CB	2.50	0.41
1:B:152:TRP:CD1	1:B:163:VAL:HG21	2.56	0.41
1:A:24:GLY:N	1:A:29:VAL:HG21	2.36	0.41
1:B:9:SER:CB	1:B:147:ALA:HB3	2.48	0.41
1:B:34:TYR:OH	2:P:4:DPR:HD2	2.20	0.41
1:A:171:GLN:O	1:A:173:ASN:N	2.54	0.41
1:B:41:HIS:CD2	1:B:86:ALA:HB2	2.55	0.41
1:A:85:GLU:HA	1:A:107:VAL:HG12	2.03	0.41
1:A:171:GLN:HG3	1:A:172:SER:OG	2.21	0.41
1:A:208:LYS:HD3	1:A:208:LYS:HA	1.90	0.41
1:A:65:SER:HB2	1:A:76:THR:HB	2.02	0.41
1:A:121:LEU:HB3	1:A:208:LYS:HG3	2.03	0.41
1:A:167:LYS:HA	1:A:168:PRO:HD3	1.81	0.41
1:B:136:LEU:N	1:B:136:LEU:HD12	2.35	0.41
1:A:17:SER:OG	1:A:18:VAL:N	2.54	0.41
1:B:6:GLN:HG3	1:B:22:CYS:HB2	2.02	0.41
1:B:143:PHE:HB2	1:B:201:HIS:NE2	2.36	0.41
1:A:185:THR:HB	1:A:186:PRO:CD	2.52	0.40
1:B:7:PRO:HA	1:B:8:PRO:HD2	1.78	0.40
1:A:171:GLN:CG	1:A:172:SER:N	2.84	0.40
1:A:182:LEU:HD23	1:A:182:LEU:HA	1.89	0.40
1:A:6:GLN:OE1	1:A:102:GLY:HA3	2.22	0.40
1:A:38:TYR:OH	2:P:1:GLN:CG	2.70	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	214/216 (99%)	160 (75%)	36 (17%)	18 (8%)	1	1
1	B	214/216 (99%)	172 (80%)	32 (15%)	10 (5%)	2	4
2	P	2/6 (33%)	1 (50%)	0	1 (50%)	0	0
All	All	430/438 (98%)	333 (77%)	68 (16%)	29 (7%)	1	1

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	58	SER
1	A	96	SER
1	A	161	ALA
1	A	172	SER
1	A	214	GLU
1	B	8	PRO
1	B	53	VAL
1	B	60	VAL
1	B	97	ASP
2	P	3	HIS
1	A	61	PRO
1	A	83	GLU
1	A	85	GLU
1	A	191	SER
1	B	70	GLY
1	B	172	SER
1	A	42	ALA
1	A	53	VAL
1	A	105	THR
1	A	154	ALA
1	A	158	PRO
1	B	62	ASP
1	B	202	GLU
1	B	215	CYS
1	A	159	VAL
1	B	186	PRO
1	A	62	ASP
1	A	212	PRO
1	A	123	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	181/181 (100%)	132 (73%)	49 (27%)	0	1
1	B	181/181 (100%)	138 (76%)	43 (24%)	0	2
2	P	2/2 (100%)	1 (50%)	1 (50%)	0	0
All	All	364/364 (100%)	271 (74%)	93 (26%)	0	1

All (93) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	SER
1	A	9	SER
1	A	11	SER
1	A	18	VAL
1	A	27	SER
1	A	32	TYR
1	A	34	TYR
1	A	39	GLN
1	A	40	GLN
1	A	44	LYS
1	A	49	ILE
1	A	50	ILE
1	A	56	ARG
1	A	69	SER
1	A	72	THR
1	A	80	LEU
1	A	81	GLN
1	A	96	SER
1	A	103	THR
1	A	105	THR
1	A	108	THR
1	A	126	SER
1	A	137	VAL
1	A	141	SER
1	A	142	ASP
1	A	148	VAL

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Mol	Chain	Res	Type
1	A	149	THR
1	A	157	SER
1	A	159	VAL
1	A	166	THR
1	A	167	LYS
1	A	170	LYS
1	A	172	SER
1	A	173	ASN
1	A	180	SER
1	A	182	LEU
1	A	183	SER
1	A	187	GLU
1	A	189	TRP
1	A	192	HIS
1	A	193	ARG
1	A	194	SER
1	A	200	THR
1	A	202	GLU
1	A	204	SER
1	A	205	THR
1	A	207	GLU
1	A	208	LYS
1	A	216	SER
1	B	5	THR
1	B	16	GLN
1	B	21	SER
1	B	22	CYS
1	B	25	THR
1	B	32	TYR
1	B	33	ASN
1	B	38	TYR
1	B	44	LYS
1	B	47	LYS
1	B	49	ILE
1	B	50	ILE
1	B	58	SER
1	B	63	ARG
1	B	65	SER
1	B	78	SER
1	B	90	CYS
1	B	91	SER
1	B	92	SER

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Mol	Chain	Res	Type
1	B	97	ASP
1	B	99	PHE
1	B	101	PHE
1	B	103	THR
1	B	114	LYS
1	B	121	LEU
1	B	122	PHE
1	B	127	GLU
1	B	132	ASN
1	B	133	LYS
1	B	136	LEU
1	B	139	LEU
1	B	142	ASP
1	B	143	PHE
1	B	160	LYS
1	B	163	VAL
1	B	181	TYR
1	B	182	LEU
1	B	187	GLU
1	B	190	LYS
1	B	200	THR
1	B	210	VAL
1	B	214	GLU
1	B	215	CYS
2	P	1	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	GLN
1	A	40	GLN
1	A	132	ASN
1	A	171	GLN
1	A	173	ASN
1	A	174	ASN
1	B	39	GLN
1	B	41	HIS
1	B	174	ASN
2	P	1	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

3 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	$\# Z > 2$
2	BAL	P	5	2	1,5,5	0.30	0	0,5,5	-	-

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
2	BAL	P	5	2	-	0/1/3/3	-

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.

5.5 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

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.