Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 03:02 PM GMT

PDB ID	:	4BCF
Title	:	Structure of CDK9 in complex with cyclin T and a 2-amino-4-heteroaryl-pyrimidine inhibitor
Authors	:	Hole, A.J.; Baumli, S.; Wang, S.; Endicott, J.A.; Noble, M.E.M.
Deposited on	:	2012-10-02
Resolution	:	3.01 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
http://wwpdb.org/validation/2016/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The following versions of software and data (see references ①) were used in the production of this report:

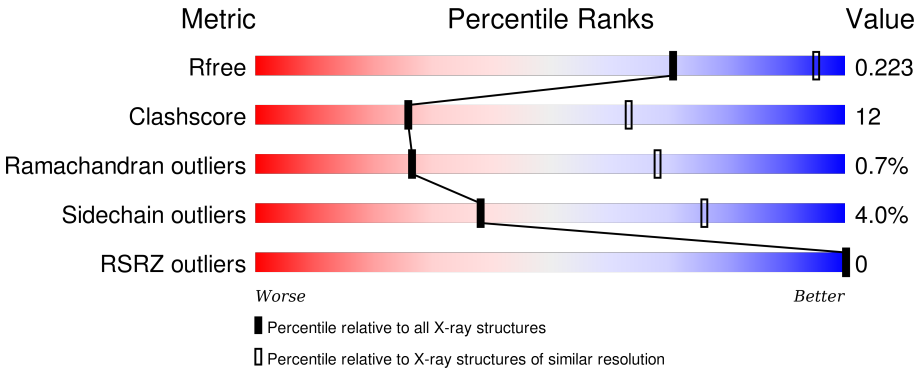
MolProbity	:	4.02b-467
Mogul	:	1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix)	:	1.9-1692
EDS	:	rb-20026688
Percentile statistics	:	20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac	:	5.8.0135
CCP4	:	6.5.0
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	trunk26865

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 3.01 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}	91344	1773 (3.04-3.00)
Clashscore	102246	2117 (3.04-3.00)
Ramachandran outliers	100387	2050 (3.04-3.00)
Sidechain outliers	100360	2053 (3.04-3.00)
RSRZ outliers	91569	1788 (3.04-3.00)

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 on the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria. 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	331	67% 24% • 7%
2	B	260	77% 18% • •

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 4597 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 CYCLIN-DEPENDENT KINASE 9.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	308	Total	C	N	O	P	S	0	0	0
			2489	1596	428	450	1	14			

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	EXPRESSION TAG	UNP P50750
A	1	PRO	-	EXPRESSION TAG	UNP P50750
A	97	ALA	GLY	CONFLICT	UNP P50750

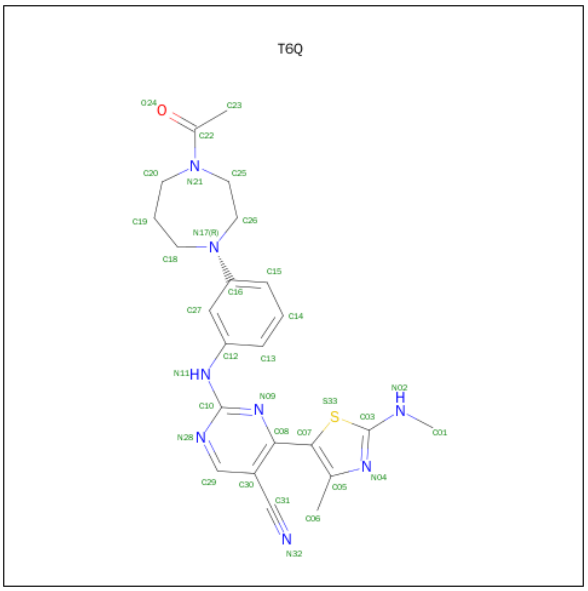
- Molecule 2 is a protein called CYCLIN-T1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	252	Total	C	N	O	S	0	0	0
			2061	1318	360	374	9			

There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	0	GLY	-	EXPRESSION TAG	UNP O60563
B	1	PRO	-	EXPRESSION TAG	UNP O60563
B	77	ARG	GLN	ENGINEERED MUTATION	UNP O60563
B	96	GLY	GLU	ENGINEERED MUTATION	UNP O60563
B	241	LEU	PHE	ENGINEERED MUTATION	UNP O60563

- Molecule 3 is 2-[[3-(4-ETHANOYL-1,4-DIAZEPAN-1-YL)PHENYL]AMINO]-4-[4-METHYL-2-(METHYLAMINO)-1,3-THIAZOL-5-YL]PYRIMIDINE-5-CARBONITRILE (three-letter code: T6Q) (formula: $C_{23}H_{26}N_8OS$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			33	23	8	1	1		

- Molecule 4 is water.

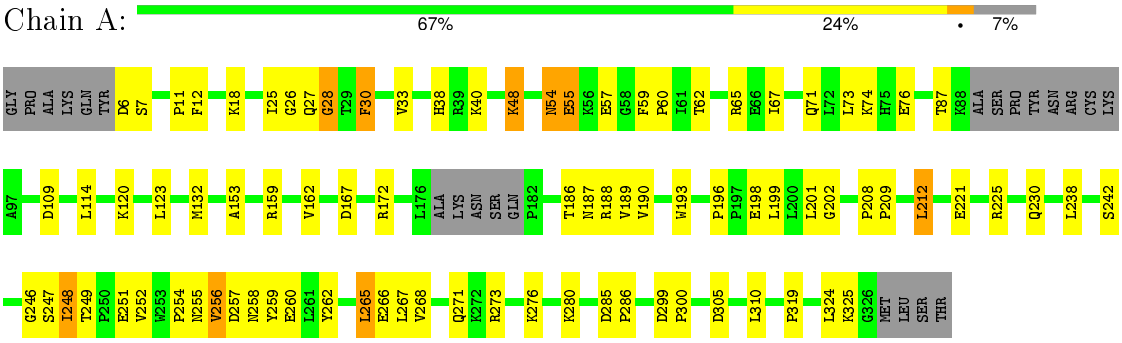
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	7	Total	O	0	0
			7	7		
4	B	7	Total	O	0	0
			7	7		

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

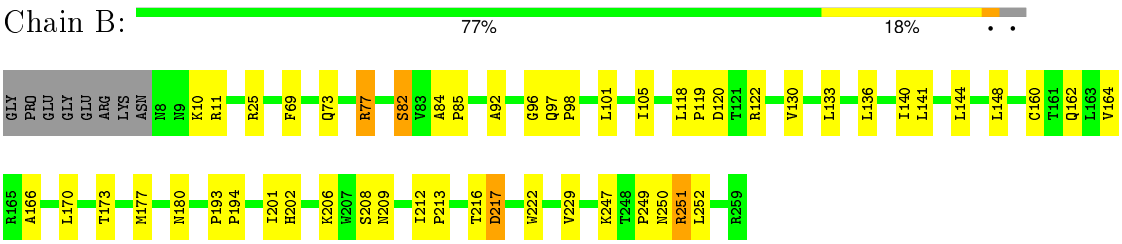
- Molecule 1: CYCLIN-DEPENDENT KINASE 9

Chain A:



- Molecule 2: CYCLIN-T1

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α, β, γ	172.32Å 172.32Å 98.82Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	82.39 – 3.01 82.39 – 3.01	Depositor EDS
% Data completeness (in resolution range)	96.2 (82.39-3.01) 96.2 (82.39-3.01)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.16 (at 3.01Å)	Xtriage
Refinement program	REFMAC 5.7.0029	Depositor
R, R_{free}	0.167 , 0.224 0.167 , 0.223	Depositor DCC
R_{free} test set	1053 reflections (5.33%)	DCC
Wilson B-factor (Å^2)	83.9	Xtriage
Anisotropy	0.229	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 55.4	EDS
Estimated twinning fraction	0.016 for h,-h-k,-l	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Outliers	0 of 20826 reflections	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	4597	wwPDB-VP
Average B, all atoms (Å^2)	90.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.72% 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, 0.375 respectively for untwinned datasets, and 0.333, 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: TPO, T6Q

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	0/2527	0.66	2/3409 (0.1%)
2	B	0.65	0/2114	0.90	3/2879 (0.1%)
All	All	0.54	0/4641	0.78	5/6288 (0.1%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	251	ARG	NE-CZ-NH2	-6.21	117.19	120.30
2	B	251	ARG	NE-CZ-NH1	6.10	123.35	120.30
2	B	148	LEU	CB-CG-CD2	-5.63	101.42	111.00
1	A	18	LYS	CD-CE-NZ	-5.24	99.66	111.70
1	A	212	LEU	CB-CG-CD2	-5.01	102.49	111.00

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	2489	0	2530	80	0
2	B	2061	0	2049	34	0
3	A	33	0	26	7	0
4	A	7	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	B	7	0	0	0	0
All	All	4597	0	4605	114	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 12.

All (114) 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:54:ASN:HB2	1:A:55:GLU:CA	1.50	1.38
1:A:54:ASN:CB	1:A:55:GLU:HA	1.65	1.24
1:A:265:LEU:HD13	1:A:267:LEU:H	1.15	1.08
1:A:268:VAL:HG21	1:A:271:GLN:HG3	1.50	0.92
1:A:265:LEU:CD1	1:A:267:LEU:H	1.85	0.89
1:A:238:LEU:HB3	1:A:267:LEU:HD11	1.54	0.88
1:A:249:THR:HG22	1:A:251:GLU:H	1.36	0.88
1:A:252:VAL:HG22	1:A:273:ARG:NH2	1.89	0.87
1:A:30:PHE:H	1:A:30:PHE:HD1	1.20	0.86
1:A:255:ASN:C	1:A:257:ASP:H	1.79	0.85
1:A:265:LEU:HD13	1:A:267:LEU:N	1.96	0.81
1:A:26:GLY:HA2	1:A:30:PHE:CE2	2.19	0.77
1:A:252:VAL:HG22	1:A:273:ARG:HH21	1.47	0.76
1:A:196:PRO:HB2	1:A:198:GLU:OE1	1.86	0.76
1:A:30:PHE:CD1	1:A:30:PHE:N	2.54	0.74
1:A:167:ASP:HB2	3:A:1327:T6Q:H013	1.71	0.71
1:A:123:LEU:HD23	1:A:319:PRO:HD2	1.72	0.70
1:A:255:ASN:C	1:A:257:ASP:N	2.45	0.69
1:A:265:LEU:HD22	1:A:267:LEU:HD12	1.74	0.68
1:A:54:ASN:HB2	1:A:55:GLU:HA	0.72	0.67
1:A:255:ASN:O	1:A:257:ASP:N	2.28	0.67
1:A:187:ASN:ND2	1:A:202:GLY:HA2	2.09	0.67
1:A:54:ASN:CB	1:A:55:GLU:CA	2.39	0.66
2:B:77:ARG:CG	2:B:77:ARG:HH11	2.09	0.65
1:A:254:PRO:O	1:A:255:ASN:HB2	1.95	0.65
1:A:252:VAL:CG2	1:A:273:ARG:HH21	2.11	0.63
1:A:266:GLU:O	1:A:266:GLU:HG3	1.99	0.62
1:A:324:LEU:O	1:A:325:LYS:HG3	2.00	0.62
2:B:166:ALA:HB1	2:B:170:LEU:HB3	1.82	0.61
1:A:212:LEU:HD13	1:A:305:ASP:HA	1.82	0.61
1:A:276:LYS:O	1:A:280:LYS:HB2	2.00	0.60
1:A:26:GLY:HA2	1:A:30:PHE:HE2	1.65	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:268:VAL:HG21	1:A:271:GLN:CG	2.26	0.59
2:B:84:ALA:HB3	2:B:85:PRO:HD3	1.84	0.59
1:A:73:LEU:O	1:A:74:LYS:HD3	2.03	0.58
1:A:6:ASP:O	1:A:7:SER:OG	2.20	0.58
2:B:193:PRO:N	2:B:194:PRO:CD	2.67	0.57
3:A:1327:T6Q:H27	3:A:1327:T6Q:N09	2.19	0.57
2:B:105:ILE:HD11	2:B:130:VAL:HA	1.86	0.57
2:B:160:CYS:SG	2:B:201:ILE:HD13	2.45	0.57
1:A:167:ASP:HB2	3:A:1327:T6Q:C01	2.35	0.57
2:B:105:ILE:CD1	2:B:130:VAL:HA	2.35	0.56
2:B:180:ASN:OD1	2:B:251:ARG:HD2	2.05	0.56
1:A:54:ASN:HB2	1:A:55:GLU:C	2.23	0.56
1:A:132:MET:CE	1:A:162:VAL:HA	2.35	0.56
1:A:187:ASN:HD21	1:A:202:GLY:HA2	1.71	0.55
1:A:38:HIS:CE1	1:A:40:LYS:HB2	2.42	0.54
1:A:189:VAL:HG23	1:A:199:LEU:HD13	1.89	0.54
2:B:77:ARG:HH11	2:B:77:ARG:HG3	1.73	0.53
2:B:92:ALA:HB1	2:B:97:GLN:O	2.08	0.52
1:A:242:SER:HA	1:A:246:GLY:O	2.09	0.52
1:A:251:GLU:OE1	1:A:252:VAL:HG23	2.10	0.52
1:A:114:LEU:O	1:A:225:ARG:HD2	2.09	0.51
1:A:247:SER:HB3	1:A:268:VAL:HG23	1.91	0.51
2:B:173:THR:O	2:B:177:MET:HG2	2.10	0.51
2:B:247:LYS:O	2:B:249:PRO:HD3	2.10	0.51
1:A:238:LEU:HB3	1:A:267:LEU:CD1	2.33	0.51
1:A:248:ILE:HG22	1:A:256:VAL:HG21	1.92	0.51
1:A:187:ASN:ND2	1:A:202:GLY:CA	2.75	0.50
1:A:265:LEU:HD12	1:A:266:GLU:N	2.27	0.50
1:A:187:ASN:HD21	1:A:202:GLY:CA	2.25	0.49
1:A:132:MET:HE1	1:A:162:VAL:HA	1.94	0.49
3:A:1327:T6Q:C31	3:A:1327:T6Q:H061	2.42	0.49
1:A:30:PHE:CE2	3:A:1327:T6Q:H252	2.48	0.49
2:B:217:ASP:OD1	2:B:217:ASP:N	2.46	0.48
2:B:82:SER:HB3	2:B:136:LEU:HD21	1.95	0.48
1:A:123:LEU:HD23	1:A:319:PRO:CD	2.40	0.48
2:B:118:LEU:HD12	2:B:119:PRO:HD2	1.96	0.48
2:B:222:TRP:CD1	2:B:229:VAL:HG12	2.49	0.48
1:A:38:HIS:HE1	1:A:40:LYS:HB2	1.78	0.47
1:A:262:TYR:O	1:A:265:LEU:HG	2.13	0.47
2:B:69:PHE:CZ	2:B:73:GLN:HG3	2.50	0.47
1:A:257:ASP:O	1:A:259:TYR:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:187:ASN:OD1	1:A:187:ASN:O	2.32	0.47
1:A:12:PHE:CE2	2:B:11:ARG:HD3	2.50	0.47
1:A:208:PRO:N	1:A:209:PRO:CD	2.78	0.47
2:B:140:ILE:O	2:B:144:LEU:HG	2.15	0.46
1:A:33:VAL:HG22	1:A:48:LYS:HG3	1.98	0.46
1:A:55:GLU:C	1:A:57:GLU:H	2.19	0.46
1:A:59:PHE:HA	1:A:60:PRO:HD3	1.87	0.45
2:B:96:GLY:C	2:B:98:PRO:HD3	2.38	0.45
1:A:299:ASP:HA	1:A:300:PRO:HD2	1.82	0.44
2:B:101:LEU:CD1	2:B:133:LEU:HD22	2.48	0.44
1:A:201:LEU:HD13	1:A:259:TYR:HD2	1.81	0.44
1:A:256:VAL:O	1:A:256:VAL:HG22	2.18	0.44
1:A:187:ASN:ND2	1:A:202:GLY:C	2.71	0.44
2:B:212:ILE:HA	2:B:213:PRO:HD3	1.86	0.44
2:B:193:PRO:N	2:B:194:PRO:HD3	2.32	0.44
2:B:120:ASP:C	2:B:122:ARG:H	2.21	0.44
1:A:114:LEU:HD13	1:A:221:GLU:HG2	1.98	0.44
1:A:167:ASP:CG	3:A:1327:T6Q:H012	2.38	0.43
1:A:67:ILE:O	1:A:71:GLN:HG3	2.18	0.43
2:B:141:LEU:HA	2:B:141:LEU:HD23	1.91	0.42
1:A:12:PHE:CZ	2:B:11:ARG:HD3	2.54	0.42
2:B:133:LEU:HD23	2:B:133:LEU:C	2.40	0.42
1:A:285:ASP:HA	1:A:286:PRO:HD3	1.84	0.42
2:B:252:LEU:HD23	2:B:252:LEU:HA	1.94	0.42
2:B:202:HIS:NE2	2:B:206:LYS:HE3	2.34	0.42
1:A:167:ASP:CG	3:A:1327:T6Q:C01	2.88	0.42
2:B:193:PRO:HB2	2:B:194:PRO:HD3	2.02	0.42
1:A:249:THR:HG22	1:A:251:GLU:N	2.18	0.41
1:A:186:TPO:HG23	1:A:188:ARG:HG3	2.02	0.41
2:B:160:CYS:SG	2:B:201:ILE:CD1	3.08	0.41
1:A:109:ASP:OD2	1:A:153:ALA:O	2.38	0.41
1:A:27:GLN:O	1:A:28:GLY:C	2.59	0.41
2:B:208:SER:O	2:B:209:ASN:HB2	2.20	0.41
1:A:266:GLU:O	1:A:266:GLU:CG	2.67	0.41
2:B:249:PRO:O	2:B:250:ASN:HB2	2.21	0.41
1:A:193:TRP:CD1	1:A:230:GLN:HA	2.56	0.41
1:A:65:ARG:HB3	1:A:65:ARG:HE	1.65	0.41
1:A:259:TYR:O	1:A:260:GLU:C	2.59	0.40
1:A:248:ILE:CG2	1:A:256:VAL:HG21	2.51	0.40
2:B:162:GLN:C	2:B:164:VAL:H	2.25	0.40
1:A:310:LEU:HD23	1:A:310:LEU:HA	1.89	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	301/331 (91%)	265 (88%)	32 (11%)	4 (1%)	15 52
2	B	250/260 (96%)	240 (96%)	10 (4%)	0	100 100
All	All	551/591 (93%)	505 (92%)	42 (8%)	4 (1%)	26 68

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	28	GLY
1	A	190	VAL
1	A	256	VAL
1	A	258	ASN

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	271/291 (93%)	257 (95%)	14 (5%)	29 67
2	B	230/236 (98%)	224 (97%)	6 (3%)	54 85
All	All	501/527 (95%)	481 (96%)	20 (4%)	38 76

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	PRO
1	A	25	ILE
1	A	30	PHE
1	A	48	LYS
1	A	54	ASN
1	A	55	GLU
1	A	62	THR
1	A	76	GLU
1	A	87	THR
1	A	120	LYS
1	A	159	ARG
1	A	172	ARG
1	A	248	ILE
1	A	265	LEU
2	B	10	LYS
2	B	25	ARG
2	B	77	ARG
2	B	82	SER
2	B	216	THR
2	B	217	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	187	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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	$\#\|Z\|>2$
1	TPO	A	186	1	8,10,11	0.98	0	7,14,16	1.70	2 (28%)

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
1	TPO	A	186	1	-	0/8/11/13	0/0/0/0

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	186	TPO	O3P-P-O1P	2.28	117.93	110.58
1	A	186	TPO	O2P-P-O1P	2.36	118.16	110.58

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	186	TPO	1	0

5.5 Carbohydrates (i)

There are no carbohydrates in this entry.

5.6 Ligand geometry (i)

1 ligand is 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	$\#\|Z\| > 2$
3	T6Q	A	1327	-	31,36,36	2.18	12 (38%)	29,50,50	2.38	6 (20%)

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
3	T6Q	A	1327	-	-	0/13/31/31	0/3/4/4

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1327	T6Q	C08-C07	-3.22	1.41	1.49
3	A	1327	T6Q	C18-N17	-2.57	1.43	1.46
3	A	1327	T6Q	C14-C15	2.13	1.43	1.38
3	A	1327	T6Q	C30-C31	2.31	1.47	1.44
3	A	1327	T6Q	C29-N28	2.44	1.39	1.34
3	A	1327	T6Q	C12-N11	2.51	1.46	1.40
3	A	1327	T6Q	C27-C12	2.62	1.44	1.39
3	A	1327	T6Q	C08-N09	2.77	1.39	1.34
3	A	1327	T6Q	C16-N17	3.34	1.48	1.38
3	A	1327	T6Q	C03-N02	3.63	1.41	1.35
3	A	1327	T6Q	C22-N21	4.23	1.49	1.35
3	A	1327	T6Q	C10-N11	5.62	1.46	1.36

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	1327	T6Q	N28-C10-N09	-4.91	121.44	126.67
3	A	1327	T6Q	C30-C29-N28	-2.09	121.17	124.30
3	A	1327	T6Q	C07-C08-N09	2.39	118.20	114.97
3	A	1327	T6Q	C23-C22-N21	4.43	124.14	118.29
3	A	1327	T6Q	C08-N09-C10	4.97	120.86	116.66
3	A	1327	T6Q	C25-N21-C20	7.15	128.54	116.29

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1327	T6Q	7	0

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	307/331 (92%)	-0.09	0	100	100	54, 88, 152, 184	0
2	B	252/260 (96%)	0.07	0	100	100	51, 76, 139, 180	0
All	All	559/591 (94%)	-0.02	0	100	100	51, 83, 150, 184	0

There are no RSRZ outliers to report.

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95^{th} 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	LLDF	B-factors(Å^2)	Q<0.9
1	TPO	A	186	11/12	0.97	0.16	-	72,85,95,106	0

6.3 Carbohydrates

There are no carbohydrates in this entry.

6.4 Ligands

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95^{th} 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	LLDF	B-factors(Å^2)	Q<0.9
3	T6Q	A	1327	33/33	0.98	0.27	0.82	53,70,147,168	0

6.5 Other polymers (i)

There are no such residues in this entry.