



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 12, 2023 – 05:47 PM EDT

PDB ID : 4N7V
Title : Crystal structure of human Plk4 cryptic polo box (CPB) in complex with a Cep152 N-terminal fragment
Authors : Park, S.-Y.; Park, J.-E.; Tian, L.; Kim, T.-S.; Yang, W.; Lee, K.S.
Deposited on : 2013-10-16
Resolution : 2.76 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

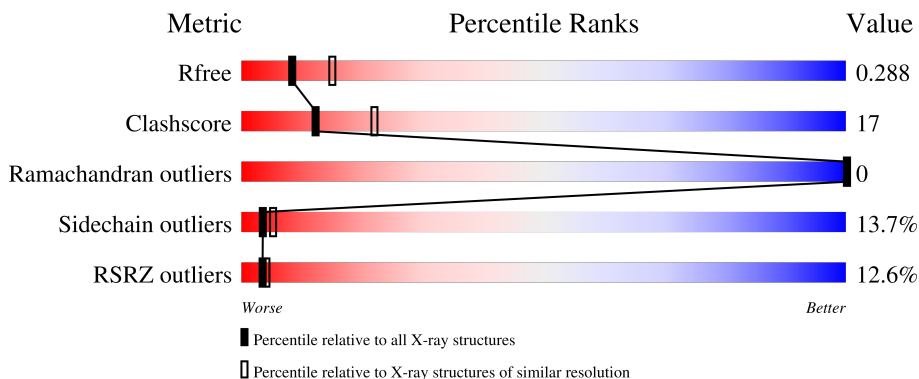
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.76 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	1235 (2.78-2.74)
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)
RSRZ outliers	127900	1207 (2.78-2.74)

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 $\leq 5\%$. 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	229	 10% 65% 28% 7%
1	B	229	 13% 63% 27% 7%
2	C	60	 12% 32% 20% 45%

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 3920 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 Serine/threonine-protein kinase PLK4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	222	Total 1810	C 1158	N 307	O 339	S 6	0	0	0
1	B	222	Total 1810	C 1158	N 307	O 339	S 6	0	0	0

- Molecule 2 is a protein called Centrosomal protein of 152 kDa.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	33	Total 284	C 171	N 41	O 71	S 1	0	0	0

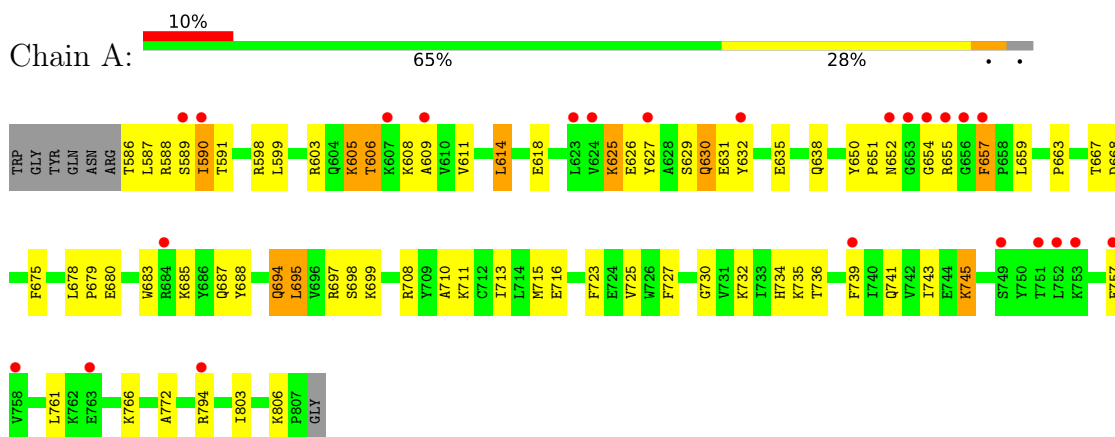
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
3	A	10	Total 10	O 10	0	0
3	B	3	Total 3	O 3	0	0
3	C	3	Total 3	O 3	0	0

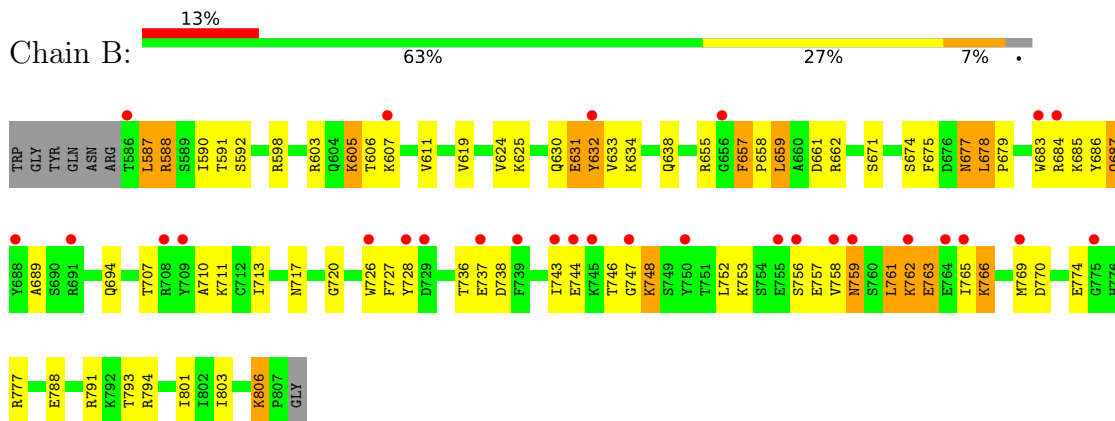
3 Residue-property plots [i](#)

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.

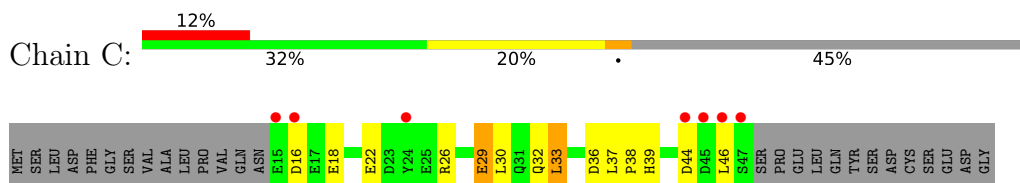
- Molecule 1: Serine/threonine-protein kinase PLK4



- Molecule 1: Serine/threonine-protein kinase PLK4



- Molecule 2: Centrosomal protein of 152 kDa



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	126.55Å 63.94Å 79.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	37.26 – 2.76 37.26 – 2.76	Depositor EDS
% Data completeness (in resolution range)	92.0 (37.26-2.76) 90.9 (37.26-2.76)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	0.06	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.28 (at 2.77Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8.2_1309)	Depositor
R, R_{free}	0.258 , 0.288 0.258 , 0.288	Depositor DCC
R_{free} test set	1586 reflections (10.00%)	wwPDB-VP
Wilson B-factor (Å ²)	75.5	Xtrriage
Anisotropy	0.121	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 51.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	3920	wwPDB-VP
Average B, all atoms (Å ²)	49.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.20% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.27	0/1852	0.49	0/2501
1	B	0.24	0/1852	0.49	1/2501 (0.0%)
2	C	0.26	0/287	0.47	0/387
All	All	0.25	0/3991	0.49	1/5389 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	747	GLY	N-CA-C	-6.20	97.61	113.10

There are no chirality outliers.

There are no planarity outliers.

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	1810	0	1821	66	0
1	B	1810	0	1821	62	0
2	C	284	0	240	10	0
3	A	10	0	0	0	0
3	B	3	0	0	0	0
3	C	3	0	0	0	0
All	All	3920	0	3882	132	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 17.

All (132) 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:632:TYR:CD2	1:A:655:ARG:O	1.75	1.39
1:A:632:TYR:HD2	1:A:655:ARG:O	1.08	1.23
1:A:632:TYR:CE2	1:A:655:ARG:HB3	1.79	1.17
1:B:744:GLU:HB2	1:B:748:LYS:HB3	1.15	1.09
1:A:632:TYR:HE2	1:A:655:ARG:HB3	0.94	1.08
1:A:632:TYR:HE2	1:A:655:ARG:CB	1.74	0.99
1:B:761:LEU:O	1:B:762:LYS:HG2	1.67	0.95
1:B:744:GLU:HB2	1:B:748:LYS:CB	2.03	0.88
1:B:746:THR:C	1:B:748:LYS:H	1.75	0.88
1:A:632:TYR:HD2	1:A:655:ARG:C	1.75	0.87
1:B:761:LEU:C	1:B:762:LYS:HG2	1.95	0.86
1:B:752:LEU:HD13	1:B:758:VAL:HB	1.60	0.83
1:A:587:LEU:HB2	1:A:683:TRP:CE2	2.17	0.79
1:B:746:THR:O	1:B:746:THR:HG23	1.81	0.78
1:A:688:TYR:HE2	2:C:38:PRO:O	1.67	0.78
1:B:746:THR:C	1:B:748:LYS:N	2.35	0.77
1:B:763:GLU:HA	1:B:766:LYS:HB3	1.66	0.77
1:B:744:GLU:CB	1:B:748:LYS:HB3	2.07	0.76
1:B:746:THR:O	1:B:748:LYS:N	2.19	0.75
1:B:746:THR:HG22	1:B:748:LYS:HZ3	1.52	0.74
1:A:688:TYR:CE2	2:C:38:PRO:O	2.41	0.74
1:B:744:GLU:HB3	1:B:748:LYS:HE2	1.70	0.74
1:B:762:LYS:O	1:B:765:ILE:N	2.20	0.73
1:B:744:GLU:HG3	1:B:748:LYS:HG2	1.72	0.71
1:A:632:TYR:CE2	1:A:655:ARG:CB	2.61	0.71
1:B:746:THR:CG2	1:B:748:LYS:HZ3	2.03	0.70
1:B:736:THR:OG1	1:B:737:GLU:N	2.25	0.69
1:A:655:ARG:N	1:A:655:ARG:HD2	2.08	0.69
1:A:606:THR:HG23	1:A:608:LYS:H	1.59	0.68
2:C:22:GLU:OE2	2:C:26:ARG:NH1	2.27	0.67
1:B:632:TYR:OH	1:B:634:LYS:NZ	2.28	0.67
1:B:746:THR:CG2	1:B:748:LYS:NZ	2.59	0.66
1:A:588:ARG:HD2	1:A:675:PHE:HE2	1.62	0.64
1:A:654:GLY:C	1:A:655:ARG:HD2	2.19	0.63
1:A:651:PRO:HA	1:A:667:THR:HG21	1.82	0.61
1:B:685:LYS:O	1:B:686:TYR:HB3	2.01	0.61
1:B:761:LEU:O	1:B:762:LYS:CG	2.47	0.61
2:C:37:LEU:O	2:C:39:HIS:ND1	2.33	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:590:ILE:HB	1:A:687:GLN:NE2	2.16	0.60
1:B:588:ARG:HE	1:B:675:PHE:HE2	1.49	0.60
1:A:611:VAL:HG21	1:A:688:TYR:HE1	1.67	0.60
1:A:654:GLY:O	1:A:655:ARG:HB2	2.03	0.58
1:A:761:LEU:HD22	1:A:766:LYS:HB3	1.85	0.58
1:A:632:TYR:CD2	1:A:655:ARG:C	2.59	0.58
1:B:744:GLU:CB	1:B:748:LYS:HE2	2.32	0.58
1:A:618:GLU:OE1	1:A:638:GLN:NE2	2.36	0.58
1:A:635:GLU:OE1	1:A:685:LYS:NZ	2.37	0.57
1:B:711:LYS:HB3	1:B:726:TRP:HB2	1.88	0.56
1:B:746:THR:HG22	1:B:748:LYS:NZ	2.18	0.55
1:A:711:LYS:HE2	1:A:713:ILE:HD11	1.89	0.55
1:B:710:ALA:HB2	1:B:727:PHE:CD1	2.42	0.55
1:B:603:ARG:NH1	1:B:661:ASP:O	2.40	0.54
1:B:793:THR:OG1	1:B:794:ARG:N	2.40	0.54
1:B:801:ILE:HD12	1:B:803:ILE:HD11	1.89	0.53
1:A:588:ARG:HB2	1:A:675:PHE:CE2	2.43	0.53
1:A:606:THR:HG21	2:C:39:HIS:HD2	1.74	0.52
1:B:674:SER:OG	1:B:677:ASN:OD1	2.20	0.52
1:B:711:LYS:HE2	1:B:713:ILE:HD11	1.92	0.52
1:A:732:LYS:HB2	1:A:743:ILE:HB	1.91	0.51
1:B:774:GLU:OE2	1:B:777:ARG:NH2	2.39	0.51
1:A:590:ILE:H	1:A:590:ILE:HD12	1.75	0.51
1:A:625:LYS:O	1:A:632:TYR:N	2.25	0.51
1:A:587:LEU:O	1:A:588:ARG:HB3	2.10	0.51
1:A:598:ARG:NH2	1:A:716:GLU:OE1	2.34	0.50
1:B:806:LYS:HD3	1:B:806:LYS:H	1.75	0.50
1:B:743:ILE:HG22	1:B:744:GLU:O	2.11	0.50
1:A:734:HIS:HB3	1:A:741:GLN:HB3	1.94	0.49
1:B:752:LEU:HD12	1:B:753:LYS:H	1.78	0.49
1:A:606:THR:HG22	1:A:609:ALA:O	2.13	0.49
1:A:586:THR:O	1:A:589:SER:OG	2.12	0.48
1:A:606:THR:HG22	1:A:609:ALA:H	1.78	0.48
1:B:678:LEU:HD23	1:B:679:PRO:HD2	1.94	0.48
1:B:631:GLU:HB3	1:B:659:LEU:HB2	1.95	0.48
1:A:588:ARG:HB2	1:A:675:PHE:HE2	1.78	0.48
1:A:803:ILE:HG12	1:B:801:ILE:HG22	1.95	0.48
1:B:717:ASN:ND2	1:B:720:GLY:O	2.47	0.48
1:B:763:GLU:HA	1:B:766:LYS:CB	2.41	0.48
1:A:606:THR:HG21	2:C:39:HIS:CD2	2.48	0.47
1:A:587:LEU:HB2	1:A:683:TRP:CD2	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:744:GLU:OE1	1:B:748:LYS:CE	2.62	0.47
1:A:632:TYR:CE2	1:A:655:ARG:O	2.54	0.47
1:A:723:PHE:HB3	1:A:735:LYS:HB2	1.97	0.47
1:B:619:VAL:HG11	1:B:689:ALA:HB1	1.96	0.46
1:A:650:TYR:C	1:A:652:ASN:N	2.68	0.46
1:A:586:THR:O	1:A:589:SER:N	2.43	0.46
1:B:657:PHE:HA	1:B:658:PRO:HD2	1.73	0.45
1:B:756:SER:N	1:B:759:ASN:HD21	2.15	0.45
1:A:632:TYR:CD2	1:A:655:ARG:CA	3.00	0.45
1:A:603:ARG:HH21	1:A:605:LYS:HD2	1.82	0.45
1:A:587:LEU:CB	1:A:683:TRP:CE2	2.95	0.45
1:A:695:LEU:HD12	1:A:695:LEU:HA	1.86	0.45
1:B:744:GLU:CG	1:B:748:LYS:HG2	2.44	0.45
1:A:588:ARG:HA	1:A:591:THR:O	2.17	0.44
1:A:730:GLY:HA3	1:A:745:LYS:HD2	2.00	0.44
1:A:651:PRO:HG3	1:A:657:PHE:CD2	2.52	0.44
1:A:654:GLY:C	1:A:655:ARG:CD	2.86	0.44
1:B:788:GLU:HA	1:B:791:ARG:NH1	2.33	0.44
1:B:762:LYS:HB2	1:B:765:ILE:HB	2.00	0.44
1:A:678:LEU:HD12	1:A:679:PRO:HD2	2.00	0.44
1:A:699:LYS:HZ3	2:C:29:GLU:HB3	1.82	0.43
1:B:587:LEU:HD23	1:B:683:TRP:CH2	2.54	0.43
1:B:605:LYS:HD3	1:B:605:LYS:H	1.83	0.43
1:B:759:ASN:ND2	1:B:759:ASN:H	2.16	0.43
1:A:698:SER:O	1:A:715:MET:HG2	2.19	0.43
1:A:725:VAL:HG21	1:A:772:ALA:HB1	2.01	0.43
1:B:659:LEU:HD22	1:B:659:LEU:HA	1.78	0.43
1:B:687:GLN:HE21	1:B:687:GLN:HB3	1.65	0.43
1:B:707:THR:HG1	1:B:710:ALA:N	2.16	0.43
1:A:590:ILE:H	1:A:590:ILE:CD1	2.28	0.43
1:A:631:GLU:C	1:A:632:TYR:HD1	2.22	0.43
1:B:625:LYS:HE3	1:B:625:LYS:HB2	1.83	0.43
1:A:599:LEU:HD21	1:A:697:ARG:HG2	2.01	0.43
1:A:694:GLN:OE1	1:A:697:ARG:NH1	2.51	0.42
1:B:591:THR:HG21	1:B:687:GLN:HG2	2.01	0.42
2:C:18:GLU:OE1	2:C:18:GLU:N	2.52	0.42
1:B:606:THR:HG22	1:B:607:LYS:H	1.85	0.42
1:B:686:TYR:C	1:B:686:TYR:CD1	2.92	0.42
1:B:625:LYS:HB3	1:B:632:TYR:HE1	1.85	0.42
2:C:32:GLN:NE2	2:C:36:ASP:OD2	2.53	0.42
1:B:752:LEU:HD12	1:B:753:LYS:N	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:710:ALA:HB2	1:A:727:PHE:CD1	2.55	0.42
1:A:586:THR:N	1:A:589:SER:OG	2.53	0.41
1:A:736:THR:HB	1:A:739:PHE:H	1.84	0.41
1:A:586:THR:HA	1:A:683:TRP:CH2	2.56	0.41
1:A:632:TYR:CE2	1:A:655:ARG:CA	3.03	0.41
1:A:629:SER:O	1:A:630:GLN:NE2	2.54	0.41
1:B:625:LYS:HB3	1:B:632:TYR:CE1	2.56	0.41
1:B:707:THR:OG1	1:B:710:ALA:N	2.50	0.41
1:A:614:LEU:HD11	1:A:663:PRO:HG2	2.02	0.40
2:C:33:LEU:HD12	2:C:33:LEU:HA	1.90	0.40
1:A:587:LEU:O	1:A:588:ARG:CB	2.69	0.40
1:B:746:THR:HG23	1:B:748:LYS:HZ3	1.85	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	220/229 (96%)	209 (95%)	11 (5%)	0	100	100
1	B	220/229 (96%)	196 (89%)	24 (11%)	0	100	100
2	C	31/60 (52%)	27 (87%)	4 (13%)	0	100	100
All	All	471/518 (91%)	432 (92%)	39 (8%)	0	100	100

There are no Ramachandran outliers to report.

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	203/208 (98%)	184 (91%)	19 (9%)	8	15
1	B	203/208 (98%)	168 (83%)	35 (17%)	2	3
2	C	33/57 (58%)	27 (82%)	6 (18%)	1	2
All	All	439/473 (93%)	379 (86%)	60 (14%)	3	5

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

Mol	Chain	Res	Type
1	A	590	ILE
1	A	605	LYS
1	A	606	THR
1	A	614	LEU
1	A	625	LYS
1	A	626	GLU
1	A	627	TYR
1	A	630	GLN
1	A	657	PHE
1	A	659	LEU
1	A	668	ASP
1	A	680	GLU
1	A	694	GLN
1	A	695	LEU
1	A	708	ARG
1	A	745	LYS
1	A	757	GLU
1	A	794	ARG
1	A	806	LYS
1	B	587	LEU
1	B	588	ARG
1	B	590	ILE
1	B	592	SER
1	B	598	ARG
1	B	605	LYS
1	B	611	VAL
1	B	624	VAL
1	B	630	GLN
1	B	631	GLU
1	B	632	TYR
1	B	633	VAL

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Mol	Chain	Res	Type
1	B	638	GLN
1	B	655	ARG
1	B	657	PHE
1	B	659	LEU
1	B	662	ARG
1	B	671	SER
1	B	677	ASN
1	B	678	LEU
1	B	684	ARG
1	B	687	GLN
1	B	694	GLN
1	B	728	TYR
1	B	738	ASP
1	B	748	LYS
1	B	757	GLU
1	B	759	ASN
1	B	761	LEU
1	B	762	LYS
1	B	763	GLU
1	B	766	LYS
1	B	769	MET
1	B	770	ASP
1	B	806	LYS
2	C	16	ASP
2	C	29	GLU
2	C	30	LEU
2	C	33	LEU
2	C	44	ASP
2	C	46	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	630	GLN
1	B	759	ASN
2	C	32	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](#)

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, 95th 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	222/229 (96%)	0.81	24 (10%) 5 6	7, 32, 90, 108	0
1	B	222/229 (96%)	0.81	29 (13%) 3 4	13, 52, 108, 137	0
2	C	33/60 (55%)	0.92	7 (21%) 0 0	19, 37, 96, 107	0
All	All	477/518 (92%)	0.81	60 (12%) 3 4	7, 44, 102, 137	0

All (60) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	755	GLU	8.0
1	B	728	TYR	7.2
1	A	652	ASN	6.3
1	B	739	PHE	6.2
1	B	750	TYR	5.5
1	B	745	LYS	5.5
1	A	758	VAL	5.0
1	B	586	THR	4.7
1	A	739	PHE	4.6
1	B	762	LYS	4.6
1	B	756	SER	4.3
1	A	655	ARG	4.3
2	C	46	LEU	4.1
1	A	654	GLY	3.8
1	A	757	GLU	3.8
2	C	45	ASP	3.8
1	B	743	ILE	3.7
1	A	794	ARG	3.6
1	B	656	GLY	3.6
1	A	751	THR	3.6
2	C	16	ASP	3.3
1	B	764	GLU	3.3
1	A	590	ILE	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	656	GLY	3.2
1	A	607	LYS	3.2
1	B	729	ASP	3.1
1	B	747	GLY	3.1
1	A	752	LEU	3.0
1	B	759	ASN	3.0
1	B	632	TYR	2.9
1	B	683	TRP	2.8
1	B	607	LYS	2.8
1	A	763	GLU	2.8
1	B	691	ARG	2.8
1	B	688	TYR	2.8
1	A	632	TYR	2.7
1	B	726	TRP	2.7
2	C	24	TYR	2.7
1	A	627	TYR	2.6
1	A	624	VAL	2.6
1	B	744	GLU	2.6
2	C	15	GLU	2.6
1	A	589	SER	2.6
1	B	684	ARG	2.6
1	A	653	GLY	2.5
1	A	753	LYS	2.5
2	C	47	SER	2.5
1	A	749	SER	2.4
1	A	609	ALA	2.3
1	B	758	VAL	2.3
1	B	737	GLU	2.3
1	B	708	ARG	2.3
1	B	709	TYR	2.3
2	C	44	ASP	2.3
1	A	623	LEU	2.2
1	A	684	ARG	2.2
1	A	657	PHE	2.1
1	B	769	MET	2.0
1	B	765	ILE	2.0
1	B	775	GLY	2.0

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 [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.