



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 08:00 PM GMT

PDB ID : 1IA4
Title : Candida albicans dihydrofolate reductase complex in which the dihydronicotinamide moiety of dihydro-nicotinamide-adenine-dinucleotide phosphate (NADPH) is displaced by 5- $\{[4-(4\text{-MORPHOLINYL})\text{PHENYL}]\text{SULFANYL}\}$ -2,4-QUINAZOLINEDIAMIN (GW2021)
Authors : Whitlow, M.; Howard, A.J.; Kuyper, L.F.
Deposited on : 2001-03-22
Resolution : 1.85 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 ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

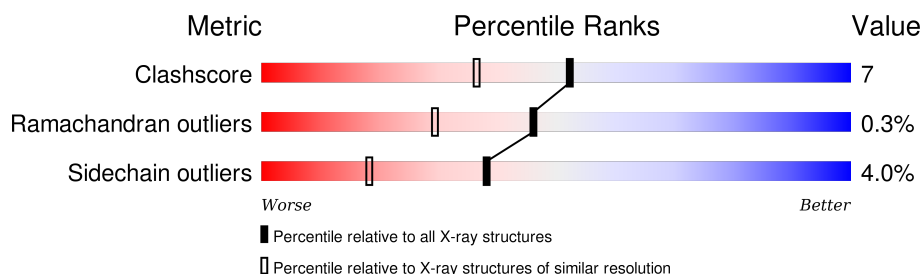
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.85 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	102246	1898 (1.86-1.86)
Ramachandran outliers	100387	1875 (1.86-1.86)
Sidechain outliers	100360	1875 (1.86-1.86)

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 $\leq 5\%$. 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.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	192	 74% 21% . .
1	B	192	 78% 18% . .

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 3659 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 DIHYDROFOLATE REDUCTASE.

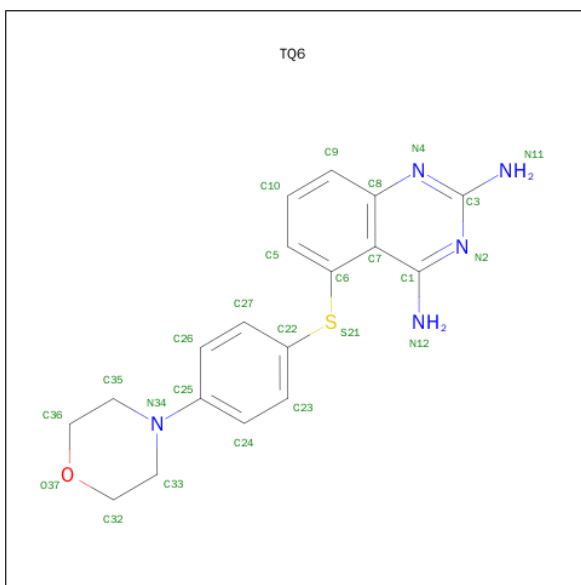
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	192	Total	C	N	O	S	0	10	0
			1586	1017	271	294	4			
1	B	192	Total	C	N	O	S	0	12	0
			1594	1025	264	301	4			

- Molecule 2 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).



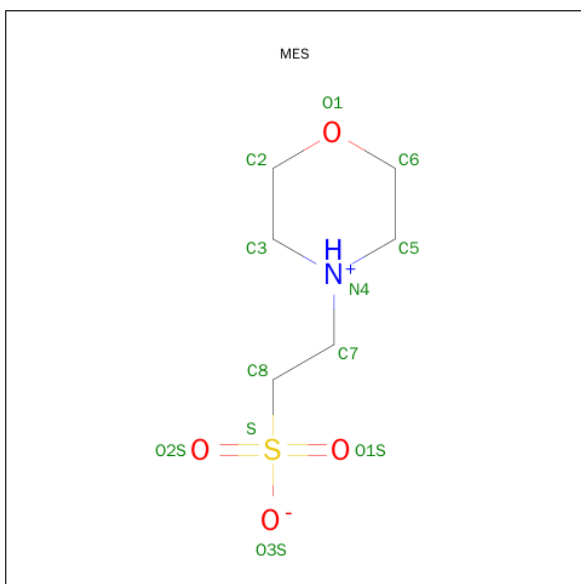
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			35	13	5	14	3		
2	B	1	Total	C	N	O	P	0	0
			39	15	5	16	3		

- Molecule 3 is 5-(4-MORPHOLIN-4-YL-PHENYLSULFANYL)-2,4-QUINAZOLINEDIAMINE (three-letter code: TQ6) (formula: $C_{18}H_{19}N_5OS$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			25	18	5	1	1		
3	B	1	Total	C	N	O	S	0	0
			25	18	5	1	1		

- Molecule 4 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: $C_6H_{13}NO_4S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	N	O	S	0	0
			12	6	1	4	1		

- Molecule 5 is water.

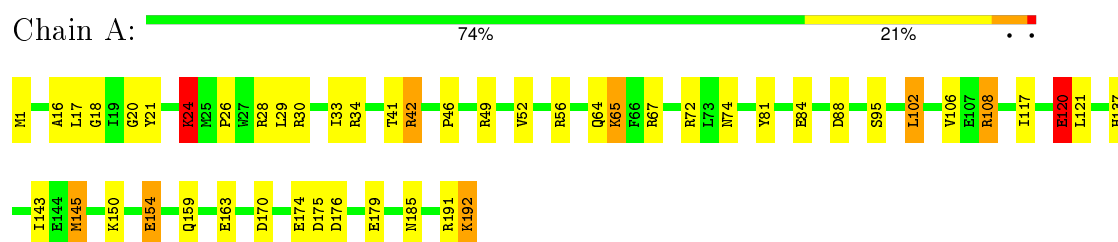
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	144	Total	O	0	8
			152	152		
5	B	175	Total	O	0	4
			179	179		

3 Residue-property plots [i](#)

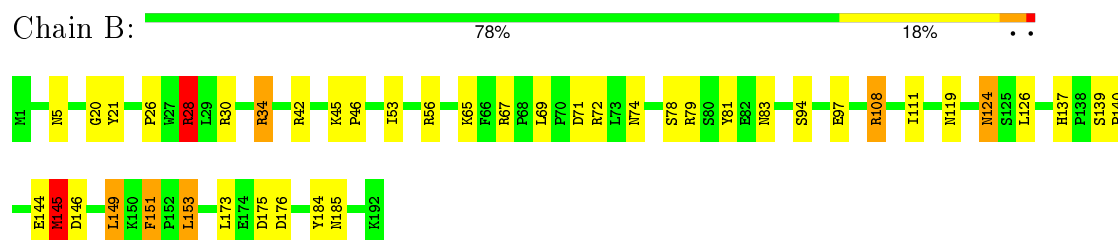
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according 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 ($\text{RSRZ} > 2$). 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.

Note EDS was not executed.

• Molecule 1: DIHYDROFOLATE REDUCTASE



• Molecule 1: DIHYDROFOLATE REDUCTASE



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section will therefore be incomplete.

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	77.05Å 67.09Å 38.54Å 90.00° 93.43° 90.00°	Depositor
Resolution (Å)	10.00 – 1.85	Depositor
% Data completeness (in resolution range)	97.6 (10.00-1.85)	Depositor
R_{merge}	0.07	Depositor
R_{sym}	0.07	Depositor
Refinement program	PROFFT	Depositor
R, R_{free}	0.159 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	3659	wwPDB-VP
Average B, all atoms (Å ²)	22.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NDP, TQ6, MES

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	1.22	2/1673 (0.1%)	1.96	36/2267 (1.6%)
1	B	1.17	0/1692	1.69	25/2292 (1.1%)
All	All	1.20	2/3365 (0.1%)	1.83	61/4559 (1.3%)

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
1	B	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	174	GLU	CD-OE1	-5.63	1.19	1.25
1	A	81	TYR	CG-CD2	5.12	1.45	1.39

All (61) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	30[A]	ARG	NE-CZ-NH1	20.24	130.42	120.30
1	A	30[B]	ARG	NE-CZ-NH1	20.24	130.42	120.30
1	A	108	ARG	NE-CZ-NH1	-16.69	111.96	120.30
1	A	49	ARG	NE-CZ-NH2	-15.92	112.34	120.30
1	B	108	ARG	NE-CZ-NH1	14.40	127.50	120.30
1	A	67	ARG	NE-CZ-NH1	13.59	127.10	120.30
1	B	79	ARG	NE-CZ-NH2	-13.21	113.69	120.30
1	A	30[A]	ARG	NE-CZ-NH2	-13.12	113.74	120.30
1	A	30[B]	ARG	NE-CZ-NH2	-13.12	113.74	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	56	ARG	CD-NE-CZ	11.84	140.18	123.60
1	A	191	ARG	NE-CZ-NH1	10.13	125.36	120.30
1	A	67	ARG	CD-NE-CZ	8.76	135.87	123.60
1	B	72	ARG	NE-CZ-NH1	8.64	124.62	120.30
1	B	145	MET	CA-CB-CG	8.52	127.78	113.30
1	B	56	ARG	NE-CZ-NH1	-8.25	116.17	120.30
1	A	49	ARG	NE-CZ-NH1	8.10	124.35	120.30
1	A	67	ARG	NE-CZ-NH2	-7.86	116.37	120.30
1	B	79	ARG	NE-CZ-NH1	7.80	124.20	120.30
1	B	56	ARG	NE-CZ-NH2	7.73	124.17	120.30
1	A	42[A]	ARG	NE-CZ-NH1	7.53	124.06	120.30
1	A	42[B]	ARG	NE-CZ-NH1	7.53	124.06	120.30
1	A	154	GLU	CA-CB-CG	7.46	129.82	113.40
1	B	119	ASN	CB-CA-C	7.27	124.95	110.40
1	A	34	ARG	NE-CZ-NH1	7.21	123.91	120.30
1	A	28	ARG	CD-NE-CZ	7.20	133.68	123.60
1	B	97	GLU	OE1-CD-OE2	-7.12	114.75	123.30
1	A	120	GLU	CA-CB-CG	6.76	128.28	113.40
1	A	81	TYR	CB-CG-CD1	6.74	125.04	121.00
1	A	34	ARG	CD-NE-CZ	6.65	132.91	123.60
1	B	34	ARG	NE-CZ-NH2	-6.64	116.98	120.30
1	A	175	ASP	CB-CG-OD1	6.59	124.23	118.30
1	A	108	ARG	NH1-CZ-NH2	6.54	126.60	119.40
1	B	67	ARG	NE-CZ-NH2	6.49	123.54	120.30
1	B	145	MET	CB-CG-SD	-6.37	93.28	112.40
1	A	81	TYR	CB-CG-CD2	-6.36	117.19	121.00
1	B	56	ARG	CD-NE-CZ	6.31	132.43	123.60
1	B	184	TYR	CB-CG-CD1	6.31	124.79	121.00
1	B	34	ARG	NE-CZ-NH1	6.27	123.44	120.30
1	A	72	ARG	NE-CZ-NH1	6.23	123.42	120.30
1	A	192	LYS	CA-CB-CG	6.09	126.81	113.40
1	A	95	SER	N-CA-CB	6.08	119.61	110.50
1	B	71	ASP	CB-CG-OD1	6.05	123.75	118.30
1	B	184	TYR	CB-CG-CD2	-5.85	117.49	121.00
1	B	153	LEU	CB-CA-C	5.77	121.16	110.20
1	A	88	ASP	CB-CG-OD1	-5.75	113.13	118.30
1	A	28	ARG	NE-CZ-NH1	5.38	122.99	120.30
1	B	42	ARG	NE-CZ-NH2	5.38	122.99	120.30
1	B	149	LEU	O-C-N	5.29	131.16	122.70
1	A	102	LEU	CA-CB-CG	5.26	127.40	115.30
1	A	179	GLU	OE1-CD-OE2	5.21	129.56	123.30
1	A	150	LYS	CA-CB-CG	5.21	124.86	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	17	LEU	CB-CA-C	5.19	120.05	110.20
1	B	175	ASP	CB-CG-OD2	-5.16	113.65	118.30
1	B	151[A]	PHE	CA-CB-CG	5.14	126.23	113.90
1	B	151[B]	PHE	CA-CB-CG	5.14	126.23	113.90
1	B	146	ASP	CB-CG-OD1	5.12	122.91	118.30
1	A	52	VAL	CA-CB-CG2	5.08	118.53	110.90
1	B	28	ARG	NE-CZ-NH1	5.06	122.83	120.30
1	A	24	LYS	CA-CB-CG	5.04	124.49	113.40
1	A	84	GLU	N-CA-CB	-5.00	101.59	110.60
1	A	108	ARG	CB-CG-CD	-5.00	98.59	111.60

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	34	ARG	Sidechain

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	1586	0	1611	19	0
1	B	1594	0	1611	26	0
2	A	35	0	14	1	0
2	B	39	0	18	0	0
3	A	25	0	19	0	0
3	B	25	0	19	0	0
4	A	12	0	13	0	0
4	B	12	0	13	1	0
5	A	152	0	0	3	0
5	B	179	0	0	4	0
All	All	3659	0	3318	45	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 7.

All (45) 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:5[B]:ASN:ND2	5:B:283:HOH:O	1.84	1.07
1:B:5[B]:ASN:OD1	5:B:297:HOH:O	1.99	0.79
1:B:124:ASN:HD22	1:B:126:LEU:H	1.34	0.74
1:B:28:ARG:HH11	1:B:30:ARG:HG2	1.53	0.73
1:B:5[B]:ASN:ND2	1:B:108:ARG:HH11	1.87	0.72
1:B:5[B]:ASN:HD21	1:B:108:ARG:HH11	1.40	0.68
1:B:53:ILE:HB	1:B:111[A]:ILE:HD13	1.83	0.61
1:B:21:TYR:HB2	1:B:145:MET:HA	1.84	0.60
1:B:83:ASN:ND2	1:B:94:SER:H	2.00	0.59
1:B:137:HIS:HD2	1:B:139:SER:H	1.49	0.59
1:A:176:ASP:H	1:A:185:ASN:HD21	1.52	0.57
1:A:117:ILE:HG23	1:A:121[A]:LEU:HD12	1.87	0.55
1:B:69:LEU:HD22	4:B:202:MES:H82	1.88	0.54
1:B:137:HIS:CD2	1:B:139:SER:H	2.27	0.53
1:A:41[B]:THR:HG21	5:A:446:HOH:O	2.09	0.53
1:B:83:ASN:HD21	1:B:94:SER:H	1.55	0.53
1:B:151[A]:PHE:HB2	1:B:153:LEU:HD13	1.91	0.52
1:A:120:GLU:HG2	2:A:193:NDP:H61A	1.76	0.51
1:B:176:ASP:H	1:B:185:ASN:ND2	2.08	0.50
1:A:176:ASP:H	1:A:185:ASN:ND2	2.10	0.49
1:A:18:GLY:HA3	1:A:145:MET:CE	2.45	0.47
1:A:65:LYS:CD	1:A:65:LYS:H	2.27	0.47
1:A:64:GLN:HG2	1:A:65:LYS:HE3	1.97	0.46
1:A:159:GLN:HE21	1:A:163:GLU:HG3	1.81	0.46
1:B:78:SER:HB3	1:B:81:TYR:CG	2.51	0.45
1:B:5[B]:ASN:ND2	1:B:108:ARG:NH1	2.62	0.45
1:A:108:ARG:HD2	5:A:485:HOH:O	2.16	0.45
1:B:176:ASP:H	1:B:185:ASN:HD21	1.64	0.44
1:A:21:TYR:O	1:A:24:LYS:HD2	2.18	0.44
1:B:20:GLY:HA2	1:B:26:PRO:HD3	1.99	0.44
1:B:45:LYS:HA	1:B:46:PRO:HD3	1.86	0.43
1:A:16:ALA:HB3	5:A:260[B]:HOH:O	2.19	0.43
1:B:30:ARG:NH1	5:B:339:HOH:O	2.52	0.43
1:B:124:ASN:ND2	1:B:126:LEU:H	2.09	0.42
1:A:20:GLY:O	1:A:145:MET:HG3	2.19	0.42
1:A:20:GLY:HA2	1:A:26:PRO:HD3	2.01	0.42
1:A:137:HIS:CD2	1:A:143:ILE:HD11	2.55	0.42
1:B:144:GLU:HB2	5:B:384:HOH:O	2.19	0.42
1:A:42[A]:ARG:NH1	1:A:170:ASP:H	2.18	0.41
1:B:139:SER:HA	1:B:140:PRO:HD2	1.86	0.41
1:A:29:LEU:O	1:A:33[A]:ILE:HG12	2.20	0.41
1:B:149:LEU:HD22	1:B:151[A]:PHE:CZ	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:29:LEU:O	1:A:33[B]:ILE:HG13	2.21	0.41
1:A:1:MET:HE1	1:A:106:VAL:O	2.21	0.41
1:B:149:LEU:HD22	1:B:151[A]:PHE:CE1	2.56	0.41

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	200/192 (104%)	195 (98%)	4 (2%)	1 (0%)	34	17
1	B	202/192 (105%)	196 (97%)	6 (3%)	0	100	100
All	All	402/384 (105%)	391 (97%)	10 (2%)	1 (0%)	46	36

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	46	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	184/177 (104%)	176 (96%)	8 (4%)	35	16
1	B	186/177 (105%)	178 (96%)	8 (4%)	35	16

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
All	All	370/354 (104%)	354 (96%)	16 (4%)	38	16

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	24	LYS
1	A	65	LYS
1	A	74	ASN
1	A	102	LEU
1	A	120	GLU
1	A	145	MET
1	A	154	GLU
1	A	192	LYS
1	B	28	ARG
1	B	65[A]	LYS
1	B	65[B]	LYS
1	B	74	ASN
1	B	124	ASN
1	B	145	MET
1	B	173[A]	LEU
1	B	173[B]	LEU

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

Mol	Chain	Res	Type
1	A	47	ASN
1	A	159	GLN
1	A	185	ASN
1	B	83	ASN
1	B	89	ASN
1	B	101	ASN
1	B	123	ASN
1	B	124	ASN
1	B	137	HIS
1	B	185	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

6 ligands 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	NDP	A	193	-	30,37,52	1.49	6 (20%)	36,57,80	1.94	10 (27%)
3	TQ6	A	194	-	28,28,28	1.81	4 (14%)	37,39,39	2.29	15 (40%)
4	MES	A	201	-	11,12,12	2.15	5 (45%)	14,16,16	3.13	5 (35%)
2	NDP	B	195	-	35,42,52	1.62	8 (22%)	46,65,80	1.47	10 (21%)
3	TQ6	B	196	-	28,28,28	1.49	3 (10%)	37,39,39	2.18	13 (35%)
4	MES	B	202	-	11,12,12	1.99	5 (45%)	14,16,16	2.61	2 (14%)

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	NDP	A	193	-	-	0/23/43/77	0/3/3/5
3	TQ6	A	194	-	-	0/8/16/16	0/4/4/4
4	MES	A	201	-	-	0/6/14/14	0/1/1/1
2	NDP	B	195	-	-	0/23/56/77	0/4/4/5
3	TQ6	B	196	-	-	0/8/16/16	0/4/4/4
4	MES	B	202	-	-	0/6/14/14	0/1/1/1

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	195	NDP	O4B-C1B	-3.36	1.37	1.41
2	B	195	NDP	P2B-O2X	-3.25	1.43	1.54
2	A	193	NDP	P2B-O2X	-3.09	1.43	1.54
3	A	194	TQ6	C33-N34	-2.71	1.42	1.46
2	B	195	NDP	PA-O1A	-2.55	1.41	1.51
2	B	195	NDP	PA-O2A	-2.48	1.44	1.54
2	B	195	NDP	C8A-N7A	-2.38	1.30	1.34
2	A	193	NDP	PN-O2N	-2.19	1.45	1.54
2	A	193	NDP	P2B-O3X	-2.17	1.46	1.54
3	B	196	TQ6	C3-N2	-2.13	1.31	1.35
2	B	195	NDP	C2D-C3D	2.06	1.56	1.53
2	A	193	NDP	C3B-C2B	2.14	1.57	1.53
2	A	193	NDP	C2A-N1A	2.28	1.38	1.33
4	A	201	MES	C3-N4	2.32	1.53	1.46
4	B	202	MES	O1-C2	2.44	1.52	1.42
4	B	202	MES	O1-C6	2.61	1.53	1.42
4	A	201	MES	O1-C2	2.63	1.53	1.42
4	B	202	MES	C7-N4	2.64	1.53	1.47
4	B	202	MES	C3-N4	2.72	1.54	1.46
3	A	194	TQ6	C24-C25	2.90	1.45	1.39
4	A	201	MES	O1-C6	3.03	1.55	1.42
4	B	202	MES	C5-N4	3.27	1.55	1.46
4	A	201	MES	C7-N4	3.31	1.55	1.47
2	B	195	NDP	C3B-C4B	3.39	1.62	1.53
2	B	195	NDP	C3B-C2B	3.50	1.61	1.53
3	B	196	TQ6	C33-N34	3.54	1.52	1.46
4	A	201	MES	C5-N4	3.68	1.57	1.46
2	A	193	NDP	P2B-O2B	3.98	1.72	1.60
3	B	196	TQ6	C8-N4	4.68	1.45	1.37
3	A	194	TQ6	C35-N34	5.31	1.54	1.46
3	A	194	TQ6	C8-N4	5.61	1.47	1.37

All (55) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	193	NDP	O2B-P2B-O1X	-5.04	94.53	107.11
3	B	196	TQ6	N4-C3-N2	-4.74	120.22	127.44
3	B	196	TQ6	O37-C32-C33	-3.78	103.18	111.84
3	A	194	TQ6	N4-C3-N2	-3.71	121.79	127.44
3	A	194	TQ6	O37-C36-C35	-3.59	103.60	111.84
2	A	193	NDP	P2B-O2B-C2B	-3.58	112.99	121.56
3	B	196	TQ6	C32-C33-N34	-3.48	103.89	110.02
3	B	196	TQ6	C26-C25-N34	-3.06	117.27	121.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	195	NDP	C2B-C3B-C4B	-2.68	95.50	101.85
2	B	195	NDP	C3B-C2B-C1B	-2.68	97.55	102.73
3	A	194	TQ6	C6-C7-C8	-2.62	114.55	117.49
2	B	195	NDP	O4D-C1D-C2D	-2.54	100.97	106.16
3	A	194	TQ6	N12-C1-N2	-2.52	108.01	116.45
2	A	193	NDP	O2B-C2B-C1B	-2.46	100.43	110.02
2	A	193	NDP	O3B-C3B-C4B	-2.45	103.69	111.05
4	B	202	MES	O2S-S-O1S	-2.40	104.75	113.48
2	B	195	NDP	C1D-C2D-C3D	-2.39	97.80	101.64
2	B	195	NDP	O4B-C4B-C3B	-2.38	100.34	105.15
4	A	201	MES	O3S-S-O2S	-2.38	106.07	111.61
2	B	195	NDP	O3-PA-O5B	-2.31	96.80	102.94
4	A	201	MES	O2S-S-O1S	-2.30	105.08	113.48
3	A	194	TQ6	C27-C22-C23	-2.29	114.42	118.71
2	B	195	NDP	N3A-C2A-N1A	-2.25	127.17	128.89
3	B	196	TQ6	N11-C3-N4	-2.23	113.53	117.80
3	A	194	TQ6	C26-C25-C24	-2.18	114.60	119.13
3	A	194	TQ6	C36-C35-N34	-2.16	106.20	110.02
3	A	194	TQ6	C35-N34-C25	-2.09	112.32	117.92
2	B	195	NDP	O2B-P2B-O1X	-2.06	101.97	107.11
3	B	196	TQ6	C26-C27-C22	2.19	123.42	120.58
3	B	196	TQ6	C23-C24-C25	2.19	123.20	120.36
3	B	196	TQ6	C3-N2-C1	2.22	123.72	116.70
2	B	195	NDP	O4B-C1B-C2B	2.29	110.75	106.60
3	A	194	TQ6	C26-C25-N34	2.32	124.50	121.38
2	A	193	NDP	N6A-C6A-N1A	2.36	124.28	119.20
2	A	193	NDP	O3X-P2B-O2X	2.44	116.68	107.38
3	A	194	TQ6	C27-C26-C25	2.50	123.60	120.36
3	B	196	TQ6	C36-C35-N34	2.57	114.55	110.02
3	B	196	TQ6	C9-C8-C7	2.67	124.30	119.47
2	A	193	NDP	O3B-C3B-C2B	2.68	118.89	111.16
2	A	193	NDP	C4A-C5A-N7A	2.81	112.06	109.48
3	B	196	TQ6	C24-C25-N34	2.87	125.24	121.38
2	B	195	NDP	O2X-P2B-O1X	2.94	120.05	110.58
3	A	194	TQ6	C7-C1-N12	2.96	128.56	122.73
3	A	194	TQ6	C5-C6-C7	3.05	123.52	120.31
3	A	194	TQ6	C24-C23-C22	3.11	124.59	120.58
4	A	201	MES	C2-C3-N4	3.23	115.02	110.12
2	A	193	NDP	C1B-N9A-C4A	3.33	131.97	126.94
4	A	201	MES	O2S-S-C8	3.79	110.14	106.91
3	B	196	TQ6	C35-N34-C33	3.94	119.87	111.59
2	A	193	NDP	O2X-P2B-O1X	4.63	125.50	110.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	194	TQ6	C33-N34-C25	5.37	132.31	117.92
3	B	196	TQ6	N11-C3-N2	5.42	126.18	117.20
3	A	194	TQ6	C32-C33-N34	6.01	120.60	110.02
4	B	202	MES	O1S-S-C8	8.66	114.30	106.91
4	A	201	MES	O1S-S-C8	9.61	115.10	106.91

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	193	NDP	1	0
4	B	202	MES	1	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

EDS was not executed - this section will therefore be empty.

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

EDS was not executed - this section will therefore be empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section will therefore be empty.

6.4 Ligands [i](#)

EDS was not executed - this section will therefore be empty.

6.5 Other polymers [i](#)

EDS was not executed - this section will therefore be empty.