



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 14, 2017 – 12:17 am GMT

PDB ID : 1X7Y  
Title : Crystal structure of the human mitochondrial branched-chain alpha-ketoacid dehydrogenase  
Authors : Wynn, R.M.; Kato, M.; Machius, M.; Chuang, J.L.; Li, J.; Tomchick, D.R.; Chuang, D.T.  
Deposited on : 2004-08-16  
Resolution : 1.57 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](mailto: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.

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

MolProbity : 4.02b-467  
Mogul : 1.7.2 (RC1), CSD as538be (2017)  
Xtriage (Phenix) : 1.9-1692  
EDS : trunk28620  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
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) : recalc28949

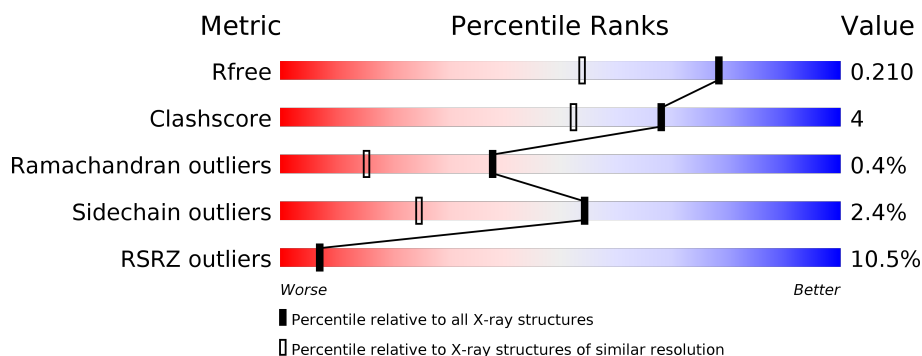
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 1.57 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))
$R_{free}$	100719	4211 (1.60-1.56)
Clashscore	112137	4539 (1.60-1.56)
Ramachandran outliers	110173	4423 (1.60-1.56)
Sidechain outliers	110143	4420 (1.60-1.56)
RSRZ outliers	101464	4232 (1.60-1.56)

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  $\geq 3$ , 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.

Mol	Chain	Length	Quality of chain
1	A	400	
2	B	342	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	K	A	801	-	-	-	X
3	K	B	802	-	-	-	X
4	MN	A	803	-	-	-	X

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 6425 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 2-oxoisovalerate dehydrogenase alpha subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	369	Total	C	N	O	S	0	12	0
			3053	1927	541	565	20			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	292	ASN	SER	ENGINEERED	UNP P12694

- Molecule 2 is a protein called 2-oxoisovalerate dehydrogenase beta subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	329	Total	C	N	O	S	0	6	0
			2613	1679	433	486	15			

- Molecule 3 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	1	Total	K	0	0
			1	1		
3	A	1	Total	K	0	0
			1	1		

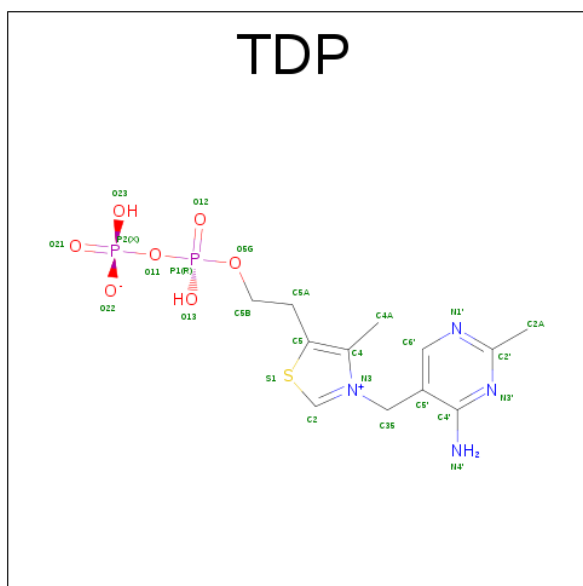
- Molecule 4 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Mn	0	0
			1	1		

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

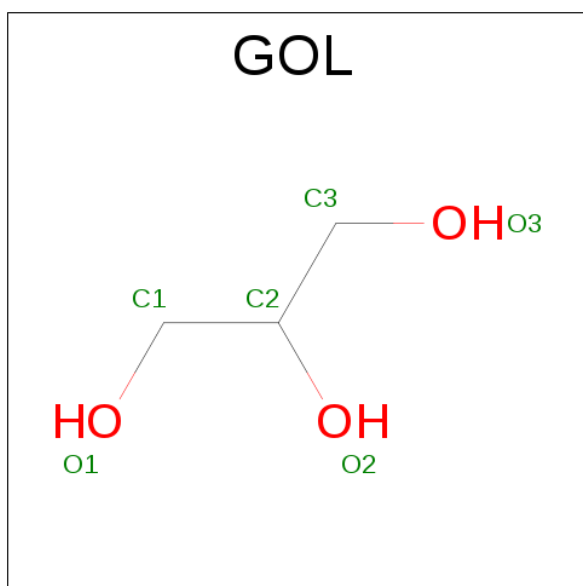
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	Cl	0	0
			1	1		

- Molecule 6 is THIAMIN DIPHOSPHATE (three-letter code: TDP) (formula:  $C_{12}H_{18}N_4O_7P_2S$ ).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
6	A	1	Total	C	N	O	P	S	0	0
			26	12	4	7	2	1		

- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula:  $C_3H_8O_3$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	B	1	Total	C	O	0	0
			6	3	3		

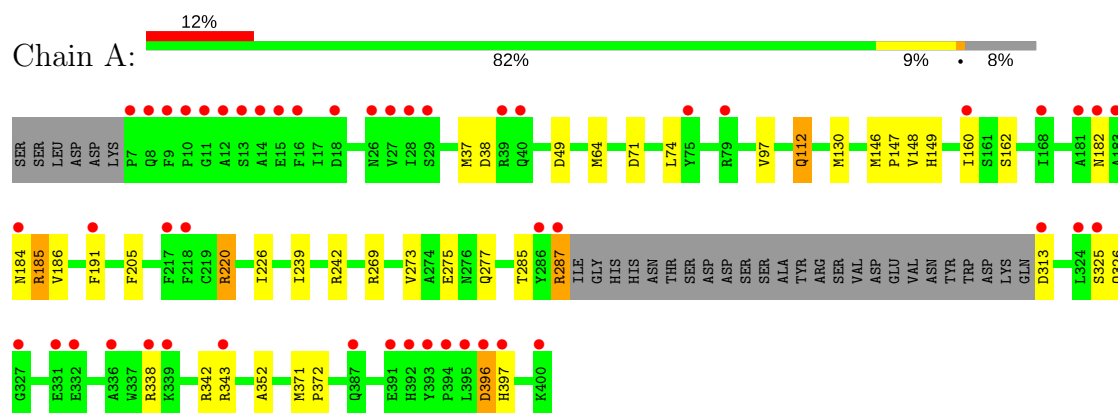
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	414	Total	O	0	0
			414	414		
8	B	309	Total	O	0	0
			309	309		

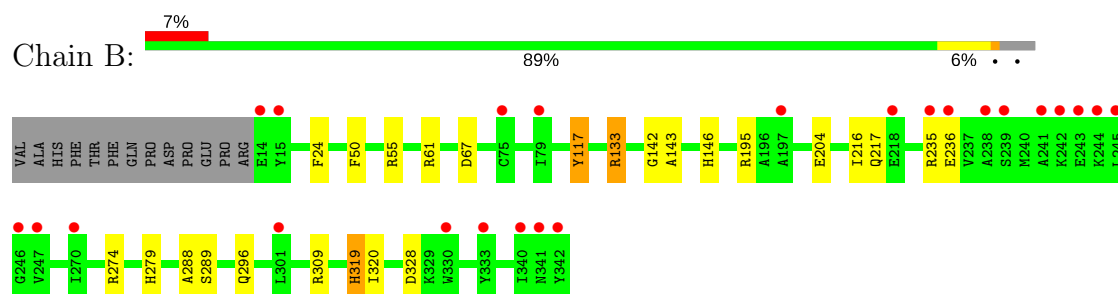
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of 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: 2-oxoisovalerate dehydrogenase alpha subunit



- Molecule 2: 2-oxoisovalerate dehydrogenase beta subunit



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	145.67Å 145.67Å 69.24Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	50.00 – 1.57 32.23 – 1.57	Depositor EDS
% Data completeness (in resolution range)	99.7 (50.00-1.57) 99.7 (32.23-1.57)	Depositor EDS
$R_{merge}$	0.05	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.18 (at 1.57Å)	Xtriage
Refinement program	REFMAC 5.2.0003	Depositor
R, $R_{free}$	0.150 , 0.167 0.203 , 0.210	Depositor DCC
$R_{free}$ test set	1511 reflections (1.29%)	DCC
Wilson B-factor (Å <sup>2</sup> )	15.2	Xtriage
Anisotropy	0.391	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.39 , 68.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	0.018 for -h,-k,l	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	6425	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	13.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.23% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: TDP, GOL, K, MN, CL

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	0.90	1/3127 (0.0%)	0.95	9/4225 (0.2%)
2	B	0.90	0/2679	0.94	8/3639 (0.2%)
All	All	0.90	1/5806 (0.0%)	0.94	17/7864 (0.2%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	191	PHE	CE2-CZ	5.46	1.47	1.37

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	133	ARG	NE-CZ-NH2	-8.07	116.27	120.30
2	B	61	ARG	NE-CZ-NH2	-7.32	116.64	120.30
2	B	61	ARG	NE-CZ-NH1	7.09	123.85	120.30
1	A	71	ASP	CB-CG-OD1	7.05	124.65	118.30
1	A	220	ARG	NE-CZ-NH2	-6.15	117.22	120.30
2	B	67	ASP	CB-CG-OD2	6.03	123.73	118.30
1	A	38	ASP	CB-CG-OD2	5.61	123.34	118.30
2	B	117	TYR	CB-CG-CD1	-5.53	117.68	121.00
1	A	112	GLN	CA-CB-CG	-5.52	101.25	113.40
1	A	49	ASP	CB-CG-OD1	5.52	123.27	118.30
1	A	220	ARG	NE-CZ-NH1	5.51	123.06	120.30
1	A	205	PHE	CB-CG-CD2	-5.34	117.06	120.80
2	B	133	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	A	242	ARG	NE-CZ-NH1	5.16	122.88	120.30
2	B	274	ARG	NE-CZ-NH2	-5.08	117.76	120.30
2	B	328	ASP	CB-CG-OD1	5.03	122.83	118.30
1	A	37	MET	CG-SD-CE	-5.01	92.18	100.20

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	3053	0	2949	32	0
2	B	2613	0	2572	16	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	1	0	0	0	0
5	A	1	0	0	1	0
6	A	26	0	16	2	0
7	B	6	0	8	0	0
8	A	414	0	0	10	1
8	B	309	0	0	3	0
All	All	6425	0	5545	50	1

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 4.

All (50) 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)
6:A:901:TDP:H2	6:A:901:TDP:C2	0.97	1.48
1:A:186[A]:VAL:CG2	1:A:273[A]:VAL:CG2	1.95	1.42
1:A:186[A]:VAL:CG2	1:A:273[A]:VAL:HG23	1.50	1.37
1:A:186[A]:VAL:HG23	1:A:273[A]:VAL:CG2	1.70	1.11
1:A:186[A]:VAL:HG22	1:A:273[A]:VAL:CG2	1.73	1.09
1:A:338:ARG:HD2	8:A:1279:HOH:O	1.55	1.05
1:A:186[A]:VAL:HG21	1:A:273[A]:VAL:HG23	1.43	1.00
1:A:186[A]:VAL:HG22	1:A:273[A]:VAL:HG23	1.33	0.98
1:A:186[A]:VAL:HG23	1:A:273[A]:VAL:HG21	1.44	0.96
1:A:185:ARG:HG2	8:A:1138:HOH:O	1.69	0.93
1:A:186[A]:VAL:HG22	1:A:273[A]:VAL:HG22	1.52	0.89
2:B:289[C]:SER:OG	2:B:309:ARG:NH1	2.07	0.87
1:A:186[A]:VAL:CG2	1:A:273[A]:VAL:HG22	2.01	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:236:GLU:HG2	8:B:1236:HOH:O	1.79	0.81
2:B:55[A]:ARG:HD2	2:B:195:ARG:HH22	1.47	0.80
2:B:216:ILE:HD12	2:B:235:ARG:HH11	1.45	0.79
1:A:326:GLN:HA	8:A:1053:HOH:O	1.81	0.78
2:B:55[A]:ARG:HD2	2:B:195:ARG:NH2	1.99	0.76
2:B:216:ILE:HD12	2:B:235:ARG:NH1	2.03	0.72
2:B:217:GLN:NE2	8:B:1210:HOH:O	2.23	0.72
5:A:804:CL:CL	6:A:901:TDP:H2	2.28	0.71
1:A:313:ASP:HA	8:A:1169:HOH:O	1.96	0.66
1:A:287:ARG:HD3	8:A:1004:HOH:O	1.99	0.62
1:A:64[B]:MET:SD	1:A:97[B]:VAL:HG21	2.39	0.61
1:A:64[B]:MET:CG	1:A:97[B]:VAL:HG21	2.29	0.61
1:A:74:LEU:HD21	1:A:130[A]:MET:SD	2.40	0.61
1:A:149:HIS:HE1	1:A:162:SER:OG	1.84	0.60
2:B:279:HIS:CE1	2:B:288:ALA:H	2.20	0.59
2:B:279:HIS:HE1	2:B:288:ALA:H	1.49	0.58
1:A:326:GLN:CA	8:A:1053:HOH:O	2.46	0.57
1:A:287:ARG:HG2	8:A:1088:HOH:O	2.04	0.56
1:A:146[B]:MET:HG2	1:A:147:PRO:HD2	1.88	0.55
1:A:64[B]:MET:HG3	1:A:97[B]:VAL:HG21	1.89	0.54
1:A:325:SER:HB3	8:A:1312:HOH:O	2.10	0.51
2:B:55[B]:ARG:HG3	2:B:195:ARG:NH2	2.28	0.49
1:A:186[A]:VAL:HG21	1:A:269:ARG:HG2	1.95	0.48
1:A:396:ASP:OD2	1:A:397[A]:HIS:CE1	2.68	0.46
2:B:142:GLY:O	2:B:146[A]:HIS:HB2	2.15	0.46
1:A:285:THR:HG23	8:A:1173:HOH:O	2.16	0.45
2:B:204:GLU:CD	8:B:1194:HOH:O	2.55	0.45
1:A:275:GLU:OE1	1:A:277:GLN:NE2	2.45	0.44
2:B:55[B]:ARG:HG3	2:B:195:ARG:HH21	1.82	0.43
1:A:371[B]:MET:HA	1:A:372:PRO:HD3	1.82	0.43
1:A:147:PRO:O	1:A:149:HIS:HD2	2.02	0.43
1:A:112:GLN:HA	1:A:160:ILE:HD12	2.01	0.42
1:A:130[A]:MET:HB3	1:A:352:ALA:CB	2.50	0.42
2:B:143:ALA:HB2	2:B:319:HIS:HB2	2.01	0.42
2:B:320:ILE:HD12	2:B:320:ILE:HA	1.97	0.41
1:A:285:THR:CG2	8:A:1173:HOH:O	2.68	0.40
2:B:289[C]:SER:HG	2:B:309:ARG:NH1	2.17	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1072:HOH:O	8:A:1072:HOH:O[5_555]	2.06	0.14

## 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	377/400 (94%)	371 (98%)	4 (1%)	2 (0%)	32	11
2	B	334/342 (98%)	323 (97%)	10 (3%)	1 (0%)	44	21
All	All	711/742 (96%)	694 (98%)	14 (2%)	3 (0%)	38	15

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	226	ILE
1	A	148	VAL
2	B	319	HIS

### 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	319/336 (95%)	310 (97%)	9 (3%)	49	19
2	B	284/289 (98%)	279 (98%)	5 (2%)	64	38
All	All	603/625 (96%)	589 (98%)	14 (2%)	54	26

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	182	ASN
1	A	184	ASN
1	A	185	ARG
1	A	220	ARG
1	A	239	ILE
1	A	287	ARG
1	A	342	ARG
1	A	343	ARG
1	A	396	ASP
2	B	24	PHE
2	B	50	PHE
2	B	117	TYR
2	B	133	ARG
2	B	296	GLN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	149	HIS
1	A	276	ASN
1	A	333	GLN
1	A	340	GLN
1	A	351	GLN
2	B	217	GLN
2	B	279	HIS
2	B	296	GLN

### 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

Of 6 ligands modelled in this entry, 4 are monoatomic - leaving 2 for Mogul analysis.

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	$\# Z  > 2$
6	TDP	A	901	4	21,27,27	1.21	4 (19%)	25,40,40	1.92	7 (28%)
7	GOL	B	1001	-	5,5,5	0.48	0	5,5,5	0.86	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
6	TDP	A	901	4	-	0/16/17/17	0/2/2/2
7	GOL	B	1001	-	-	0/4/4/4	0/0/0/0

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	901	TDP	C4A-C4	2.06	1.54	1.49
6	A	901	TDP	P2-O11	2.10	1.63	1.60
6	A	901	TDP	C2'-N3'	2.24	1.38	1.34
6	A	901	TDP	C4'-N3'	2.51	1.38	1.35

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	901	TDP	C5'-C6'-N1'	-2.74	119.24	123.87
6	A	901	TDP	C5'-C4'-N4'	2.02	125.16	122.22
6	A	901	TDP	C6'-C5'-C4'	2.24	118.66	115.68
6	A	901	TDP	C2A-C2'-N1'	2.68	120.08	117.06
6	A	901	TDP	C5-C4-N3	3.23	114.03	107.57
6	A	901	TDP	C6'-N1'-C2'	3.67	122.23	115.88
6	A	901	TDP	C5A-C5-C4	4.97	131.42	127.43

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	901	TDP	2	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

### 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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	369/400 (92%)	0.51	49 (13%) <b>4</b> <b>3</b>	3, 9, 22, 37	0
2	B	329/342 (96%)	0.36	24 (7%) <b>16</b> <b>16</b>	6, 9, 18, 38	0
All	All	698/742 (94%)	0.44	73 (10%) <b>7</b> <b>7</b>	3, 9, 20, 38	0

All (73) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	28	ILE	8.1
2	B	301	LEU	6.1
1	A	8	GLN	5.4
1	A	183	ALA	4.8
1	A	400	LYS	4.4
2	B	15	TYR	4.4
1	A	9	PHE	4.4
1	A	387	GLN	4.2
1	A	396	ASP	4.1
1	A	395	LEU	4.1
1	A	10	PRO	3.9
1	A	7	PRO	3.7
1	A	27	VAL	3.7
1	A	75	TYR	3.7
2	B	342	TYR	3.6
2	B	245	LEU	3.5
2	B	246	GLY	3.5
2	B	270	ILE	3.4
1	A	12	ALA	3.4
1	A	13	SER	3.3
1	A	14	ALA	3.3
1	A	182	ASN	3.2
1	A	16	PHE	3.2
1	A	79	ARG	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	184	ASN	3.1
2	B	340	ILE	3.1
1	A	339	LYS	3.1
1	A	331	GLU	3.0
1	A	313	ASP	3.0
1	A	324	LEU	3.0
2	B	235	ARG	3.0
1	A	325	SER	3.0
1	A	29	SER	2.9
1	A	39	ARG	2.9
1	A	397[A]	HIS	2.9
2	B	341	ASN	2.8
1	A	391	GLU	2.8
1	A	40	GLN	2.8
1	A	26	ASN	2.8
2	B	333	TYR	2.8
1	A	286	TYR	2.7
2	B	330	TRP	2.7
2	B	242	LYS	2.7
2	B	243	GLU	2.6
2	B	239	SER	2.6
1	A	218	PHE	2.6
1	A	168	ILE	2.6
2	B	14	GLU	2.6
1	A	327	GLY	2.5
1	A	18	ASP	2.5
1	A	15	GLU	2.5
1	A	336	ALA	2.4
2	B	238	ALA	2.4
1	A	343	ARG	2.4
1	A	160	ILE	2.4
2	B	79	ILE	2.4
1	A	11	GLY	2.4
1	A	191	PHE	2.4
1	A	287	ARG	2.4
1	A	394	PRO	2.3
2	B	247	VAL	2.3
1	A	392	HIS	2.3
1	A	217	PHE	2.3
1	A	181	ALA	2.3
1	A	338	ARG	2.3
1	A	332	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
2	B	241	ALA	2.2
2	B	197	ALA	2.2
2	B	236	GLU	2.2
2	B	218	GLU	2.1
2	B	244	LYS	2.1
2	B	75	CYS	2.1
1	A	393	TYR	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 6.4 Ligands [i](#)

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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
3	K	B	802	1/1	0.99	0.18	3.26	15,15,15,15	0
3	K	A	801	1/1	0.99	0.17	2.18	12,12,12,12	0
4	MN	A	803	1/1	1.00	0.17	2.04	12,12,12,12	0
7	GOL	B	1001	6/6	0.96	0.08	0.01	6,7,8,8	0
6	TDP	A	901	26/26	0.99	0.04	-2.39	2,2,2,4	0
5	CL	A	804	1/1	0.90	0.08	-	36,36,36,36	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.