



# Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 06:41 PM GMT

PDB ID : 1BZY  
Title : HUMAN HGPRTASE WITH TRANSITION STATE INHIBITOR  
Authors : Shi, W.; Li, C.; Tyler, P.C.; Furneaux, R.H.; Grubmeyer, C.; Schramm, V.L.;  
Almo, S.C.  
Deposited on : 1998-11-05  
Resolution : 2.00 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 (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

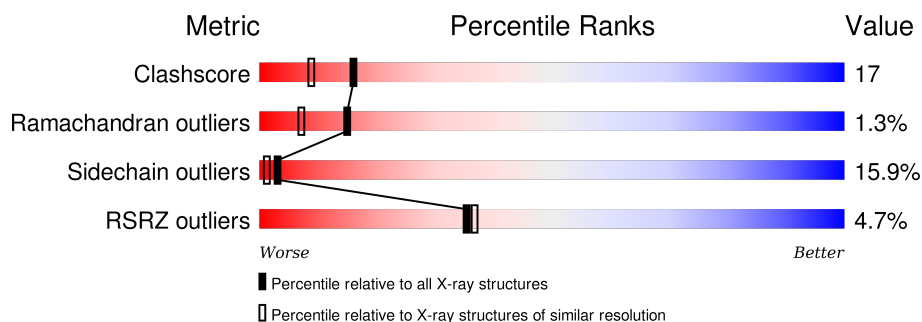
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.00 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	7340 (2.00-2.00)
Ramachandran outliers	100387	7248 (2.00-2.00)
Sidechain outliers	100360	7247 (2.00-2.00)
RSRZ outliers	91569	6262 (2.00-2.00)

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  $\geq 3$ , 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	217	<div> <div>4%</div> <div>61% 32% 6%</div> </div>
1	B	217	<div> <div>4%</div> <div>62% 30% 6%</div> </div>
1	C	217	<div> <div>6%</div> <div>58% 33% 7%</div> </div>
1	D	217	<div> <div>5%</div> <div>56% 37% 6%</div> </div>

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 7216 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.

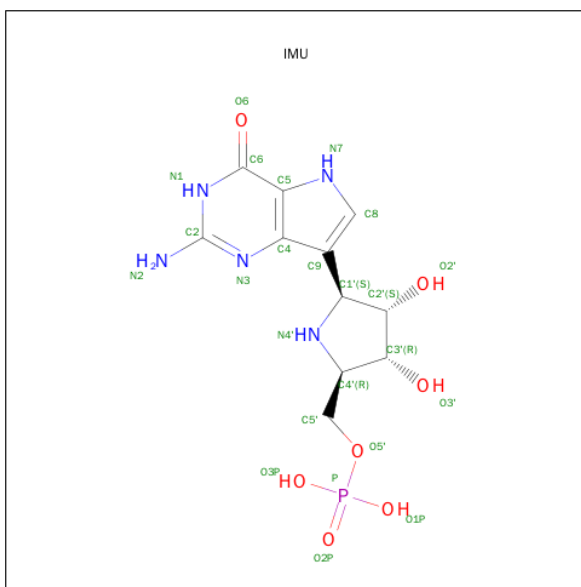
- Molecule 1 is a protein called HYPOXANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	214	Total	C	N	O	S	0	0	0
			1695	1083	284	318	10			
1	B	214	Total	C	N	O	S	0	0	0
			1695	1083	284	318	10			
1	C	214	Total	C	N	O	S	0	0	0
			1695	1083	284	318	10			
1	D	214	Total	C	N	O	S	0	0	0
			1695	1083	284	318	10			

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

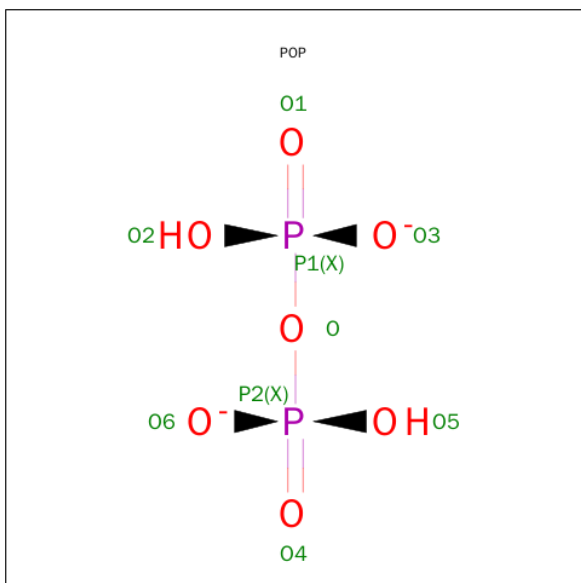
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	2	Total	Mg	0	0
			2	2		
2	A	2	Total	Mg	0	0
			2	2		
2	D	2	Total	Mg	0	0
			2	2		
2	C	2	Total	Mg	0	0
			2	2		

- Molecule 3 is PHOSPHORIC ACID MONO-[5-(2-AMINO-4-OXO-4,5-DIHYDRO-3H-PYRROLO[3,2-D]PYRIMIDIN-7-YL)-3,4-DIHYDROXY-PYRROLIDIN-2-YLMETHYL] ESTER (three-letter code: IMU) (formula: C<sub>11</sub>H<sub>16</sub>N<sub>5</sub>O<sub>7</sub>P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			24	11	5	7	1		
3	B	1	Total	C	N	O	P	0	0
			24	11	5	7	1		
3	C	1	Total	C	N	O	P	0	0
			24	11	5	7	1		
3	D	1	Total	C	N	O	P	0	0
			24	11	5	7	1		

- Molecule 4 is PYROPHOSPHATE 2- (three-letter code: POP) (formula:  $\text{H}_2\text{O}_7\text{P}_2$ ).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total O P 9 7 2	0	0
4	B	1	Total O P 9 7 2	0	0
4	C	1	Total O P 9 7 2	0	0
4	D	1	Total O P 9 7 2	0	0

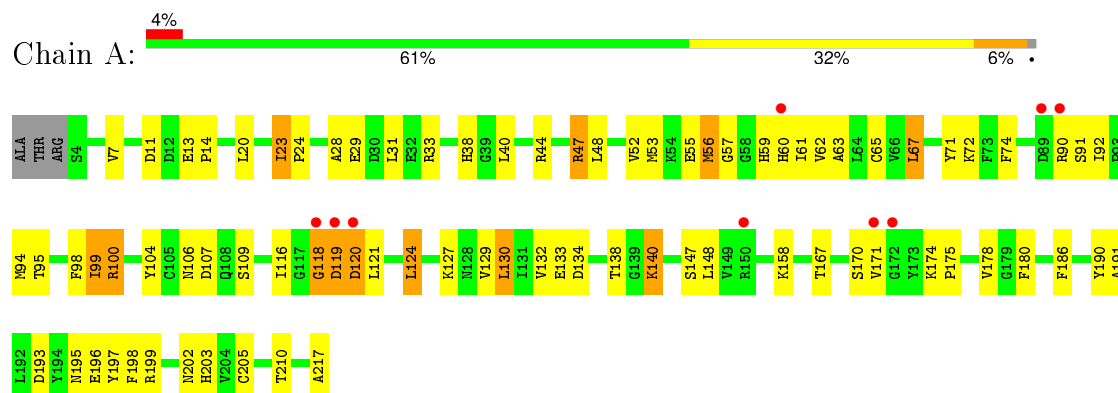
- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	84	Total O 84 84	0	0
5	B	75	Total O 75 75	0	0
5	C	71	Total O 71 71	0	0
5	D	66	Total O 66 66	0	0

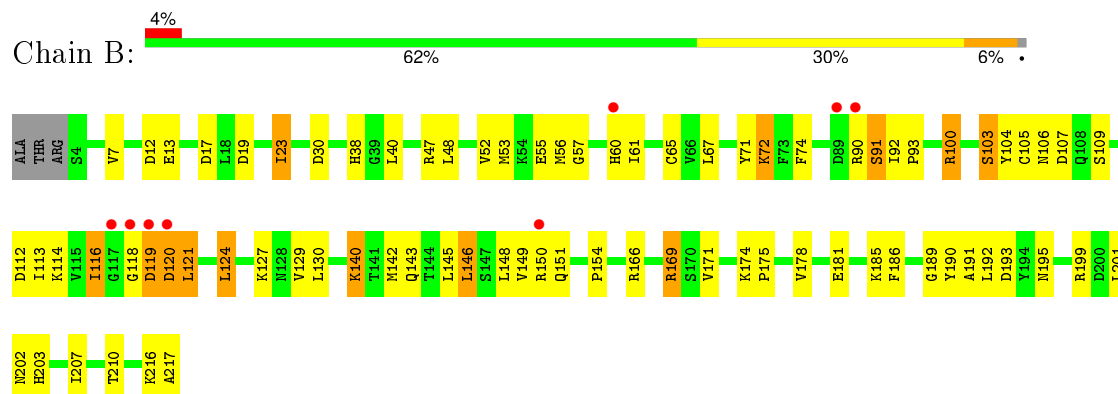
### 3 Residue-property plots [i](#)

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.

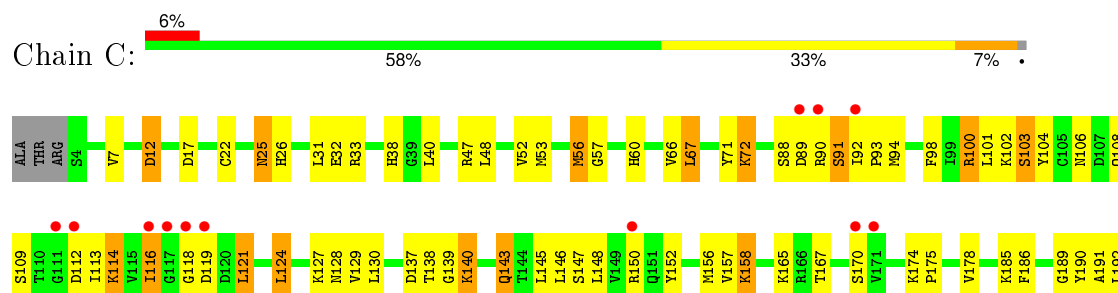
#### • Molecule 1: HYPOXANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE



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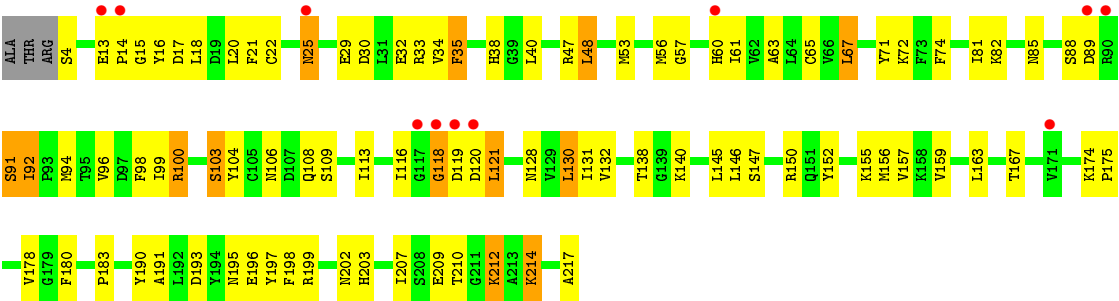


#### • Molecule 1: HYPOXANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE





● Molecule 1: HYPOXANTHINE-GUANINE PHOSPHORIBOSYLTRANSFERASE



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	52.96Å 102.01Å 144.27Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 2.00 9.99 – 2.00	Depositor EDS
% Data completeness (in resolution range)	79.0 (10.00-2.00) 81.9 (9.99-2.00)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.04	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	6.54 (at 2.01Å)	Xtriage
Refinement program	X-PLOR 3.8	Depositor
R, $R_{free}$	0.190 , 0.249 0.198 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	DCC
Wilson B-factor (Å <sup>2</sup> )	13.7	Xtriage
Anisotropy	0.371	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.46 , 76.8	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtriage
Outliers	0 of 43408 reflections	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	7216	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	16.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.57% 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, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

## 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: MG, IMU, POP

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	0.33	0/1728	0.65	0/2334
1	B	0.34	0/1728	0.65	0/2334
1	C	0.33	0/1728	0.64	0/2334
1	D	0.35	0/1728	0.65	0/2334
All	All	0.34	0/6912	0.65	0/9336

There are no bond length outliers.

There are no bond angle outliers.

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	1695	0	1706	53	0
1	B	1695	0	1706	58	0
1	C	1695	0	1706	58	0
1	D	1695	0	1706	75	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
2	C	2	0	0	0	0
2	D	2	0	0	0	0
3	A	24	0	13	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	24	0	13	1	0
3	C	24	0	13	1	0
3	D	24	0	13	0	0
4	A	9	0	0	0	0
4	B	9	0	0	0	0
4	C	9	0	0	1	0
4	D	9	0	0	0	0
5	A	84	0	0	4	0
5	B	75	0	0	4	0
5	C	71	0	0	3	0
5	D	66	0	0	4	0
All	All	7216	0	6876	233	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 (233) 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:D:106:ASN:HD22	1:D:195:ASN:HD21	1.08	1.01
1:C:53:MET:HA	1:C:92:ILE:HD11	1.43	1.01
1:A:99:ILE:HD12	1:A:118:GLY:HA3	1.44	0.99
1:C:106:ASN:HD21	1:C:217:ALA:H	1.03	0.98
1:B:100:ARG:HG2	1:B:116:ILE:HB	1.46	0.96
1:D:38:HIS:H	1:D:203:HIS:HD2	1.08	0.96
1:A:57:GLY:HA2	1:A:92:ILE:HG12	1.51	0.93
1:A:106:ASN:HD21	1:A:217:ALA:H	1.12	0.92
1:C:38:HIS:H	1:C:203:HIS:HD2	1.18	0.90
1:B:143:GLN:NE2	1:B:171:VAL:HG11	1.86	0.90
1:C:106:ASN:HD22	1:C:195:ASN:HD21	1.15	0.89
1:A:106:ASN:HD22	1:A:195:ASN:HD21	1.17	0.89
1:B:38:HIS:H	1:B:203:HIS:HD2	1.20	0.89
1:C:106:ASN:ND2	1:C:195:ASN:HD21	1.73	0.87
1:A:38:HIS:H	1:A:203:HIS:HD2	1.23	0.85
1:D:106:ASN:HD21	1:D:217:ALA:H	1.23	0.85
1:D:61:ILE:CG2	1:D:94:MET:HG2	2.06	0.85
1:C:57:GLY:HA2	1:C:92:ILE:HG12	1.58	0.84
1:C:91:SER:O	1:C:93:PRO:HD3	1.78	0.83
1:D:175:PRO:HG2	1:D:178:VAL:HG22	1.58	0.83
1:B:106:ASN:HD22	1:B:195:ASN:HD21	1.28	0.82
1:B:100:ARG:HD2	5:B:632:HOH:O	1.80	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:106:ASN:HD21	1:B:217:ALA:H	1.29	0.80
1:C:57:GLY:HA3	1:C:90:ARG:NH2	1.96	0.80
1:B:175:PRO:HG2	1:B:178:VAL:HG22	1.62	0.79
1:A:175:PRO:HG2	1:A:178:VAL:HG22	1.66	0.78
1:D:106:ASN:ND2	1:D:195:ASN:HD21	1.80	0.78
1:D:53:MET:HB2	1:D:92:ILE:HD11	1.68	0.76
1:A:106:ASN:ND2	1:A:195:ASN:HD21	1.84	0.74
1:D:38:HIS:H	1:D:203:HIS:CD2	2.00	0.74
1:C:106:ASN:HD21	1:C:217:ALA:N	1.84	0.73
1:A:100:ARG:HG2	1:A:116:ILE:HB	1.70	0.73
1:B:104:TYR:CE1	1:B:109:SER:HB2	2.23	0.72
1:C:113:ILE:HD11	1:C:140:LYS:HB3	1.71	0.72
1:B:169:ARG:HG3	1:B:169:ARG:HH11	1.53	0.71
1:D:119:ASP:C	1:D:121:LEU:H	1.93	0.71
1:D:61:ILE:HD11	1:D:130:LEU:HB2	1.74	0.70
1:D:61:ILE:HG22	1:D:94:MET:HG2	1.72	0.69
1:D:67:LEU:HD21	1:D:98:PHE:HD2	1.56	0.69
1:A:118:GLY:HA2	5:A:695:HOH:O	1.90	0.69
1:A:53:MET:HA	1:A:92:ILE:HD11	1.73	0.69
1:A:38:HIS:H	1:A:203:HIS:CD2	2.09	0.68
1:C:189:GLY:HA2	1:C:201:LEU:HB3	1.73	0.68
1:A:57:GLY:HA2	1:A:92:ILE:CG1	2.23	0.67
1:C:199:ARG:HD2	1:D:96:VAL:HG22	1.76	0.67
1:D:106:ASN:ND2	1:D:217:ALA:H	1.91	0.67
1:B:169:ARG:HG3	1:B:169:ARG:NH1	2.08	0.66
1:B:106:ASN:ND2	1:B:195:ASN:HD21	1.94	0.65
1:C:25:ASN:HD21	1:D:91:SER:HB2	1.63	0.64
1:C:186:PHE:HD2	1:C:207:ILE:HD11	1.62	0.64
1:C:12:ASP:HB3	5:C:652:HOH:O	1.97	0.63
1:C:100:ARG:HD3	5:C:674:HOH:O	1.98	0.63
1:D:63:ALA:HB2	1:D:94:MET:CE	2.30	0.62
1:C:32:GLU:C	1:C:33:ARG:HG2	2.18	0.62
1:D:100:ARG:HG2	1:D:116:ILE:HB	1.83	0.61
1:B:119:ASP:C	1:B:121:LEU:H	2.05	0.60
1:B:113:ILE:HD11	1:B:140:LYS:HB3	1.81	0.60
1:C:57:GLY:HA3	1:C:90:ARG:HH22	1.66	0.60
1:C:26:HIS:HD2	1:D:91:SER:OG	1.85	0.60
1:B:189:GLY:HA2	1:B:201:LEU:HB3	1.84	0.59
1:D:106:ASN:HD22	1:D:195:ASN:ND2	1.90	0.59
1:B:38:HIS:H	1:B:203:HIS:CD2	2.11	0.59
1:C:38:HIS:H	1:C:203:HIS:CD2	2.09	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:200:ASP:HA	1:D:82:LYS:HD3	1.83	0.59
1:C:57:GLY:HA2	1:C:92:ILE:CG1	2.32	0.58
1:B:118:GLY:C	1:B:120:ASP:H	2.07	0.58
1:A:23:ILE:HG12	5:A:712:HOH:O	2.02	0.58
1:B:52:VAL:HG13	1:B:56:MET:HE3	1.87	0.57
1:D:81:ILE:HG23	1:D:92:ILE:HD12	1.86	0.57
1:C:124:LEU:HG	1:C:129:VAL:HG21	1.88	0.56
1:B:175:PRO:HG2	1:B:178:VAL:CG2	2.33	0.56
1:B:91:SER:O	1:B:93:PRO:HD3	2.04	0.56
1:D:140:LYS:HG3	5:D:775:HOH:O	2.05	0.55
1:D:175:PRO:HG2	1:D:178:VAL:CG2	2.31	0.55
1:A:121:LEU:HA	1:A:124:LEU:HD22	1.89	0.55
1:D:74:PHE:HA	1:D:132:VAL:HG11	1.88	0.55
1:B:90:ARG:NH2	1:B:91:SER:H	2.04	0.55
1:B:190:TYR:O	1:B:191:ALA:HB3	2.07	0.55
1:C:103:SER:HA	1:C:114:LYS:NZ	2.23	0.54
1:A:63:ALA:HB2	1:A:94:MET:CE	2.38	0.54
1:B:53:MET:SD	1:B:92:ILE:HG13	2.48	0.54
1:D:163:LEU:HD23	1:D:180:PHE:HB2	1.90	0.54
1:A:67:LEU:HD22	1:A:98:PHE:HB3	1.90	0.53
1:C:100:ARG:HD2	1:C:116:ILE:HD12	1.89	0.53
1:C:121:LEU:O	1:C:124:LEU:HB2	2.09	0.53
1:D:18:LEU:HD23	1:D:34:VAL:HG23	1.90	0.53
1:C:53:MET:CA	1:C:92:ILE:HD11	2.28	0.53
1:A:63:ALA:HB2	1:A:94:MET:HE2	1.90	0.53
1:D:65:CYS:HB2	1:D:74:PHE:CD1	2.44	0.52
1:C:53:MET:O	1:C:90:ARG:NH2	2.41	0.52
1:A:118:GLY:O	1:A:120:ASP:N	2.42	0.52
1:D:119:ASP:C	1:D:121:LEU:N	2.61	0.52
1:C:52:VAL:HG13	1:C:56:MET:HE3	1.90	0.52
1:D:138:THR:OG1	1:D:140:LYS:HG2	2.09	0.52
1:D:104:TYR:CE1	1:D:109:SER:HB2	2.45	0.52
1:A:53:MET:SD	1:A:92:ILE:HD11	2.50	0.51
1:D:13:GLU:CD	1:D:15:GLY:H	2.13	0.51
1:B:53:MET:HA	1:B:92:ILE:HD11	1.93	0.51
1:D:106:ASN:HD21	1:D:217:ALA:N	2.02	0.51
1:A:106:ASN:HD21	1:A:217:ALA:N	1.95	0.51
1:A:65:CYS:HB2	1:A:74:PHE:CD1	2.46	0.51
1:B:169:ARG:NH2	5:B:789:HOH:O	2.42	0.50
1:C:106:ASN:HD22	1:C:195:ASN:ND2	1.97	0.50
1:D:67:LEU:HB2	1:D:100:ARG:HB2	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:67:LEU:HD22	1:C:98:PHE:HB3	1.93	0.50
1:D:67:LEU:HD21	1:D:98:PHE:CD2	2.41	0.50
1:D:57:GLY:HA2	1:D:92:ILE:HG12	1.94	0.50
1:D:53:MET:HE2	1:D:92:ILE:HD11	1.94	0.49
1:B:192:LEU:HB3	3:B:300:IMU:N2	2.26	0.49
1:D:89:ASP:OD1	1:D:89:ASP:N	2.45	0.49
1:D:30:ASP:OD1	1:D:214:LYS:HE2	2.12	0.49
1:D:121:LEU:HB3	1:D:152:TYR:CD1	2.47	0.49
1:B:112:ASP:O	1:B:114:LYS:HD2	2.11	0.49
1:B:148:LEU:O	1:B:151:GLN:HB2	2.13	0.49
1:A:62:VAL:HG22	1:A:95:THR:OG1	2.13	0.49
1:D:88:SER:HB3	5:D:661:HOH:O	2.12	0.49
1:D:195:ASN:O	1:D:196:GLU:HB2	2.12	0.49
1:D:13:GLU:OE1	1:D:14:PRO:HD2	2.12	0.49
1:A:107:ASP:HB2	1:A:186:PHE:CD1	2.47	0.49
1:D:35:PHE:HE2	1:D:183:PRO:HD2	1.78	0.49
1:B:143:GLN:HE22	1:B:171:VAL:HG11	1.72	0.49
1:A:23:ILE:HD11	1:A:28:ALA:HA	1.94	0.48
1:B:120:ASP:HB2	5:B:573:HOH:O	2.12	0.48
1:C:192:LEU:HB3	3:C:300:IMU:N2	2.28	0.48
1:A:13:GLU:OE2	1:A:14:PRO:HD2	2.12	0.48
1:C:138:THR:HA	1:C:170:SER:HA	1.95	0.48
1:B:124:LEU:HG	1:B:129:VAL:HG21	1.93	0.48
1:C:186:PHE:CD2	1:C:207:ILE:HD11	2.44	0.48
1:D:72:LYS:HD2	1:D:72:LYS:HA	1.66	0.48
1:B:57:GLY:HA2	1:B:92:ILE:CG1	2.43	0.48
1:C:190:TYR:O	1:C:191:ALA:HB3	2.14	0.48
1:D:72:LYS:HG2	1:D:191:ALA:HB2	1.95	0.48
1:C:137:ASP:OD2	1:C:165:LYS:HE2	2.14	0.48
1:D:150:ARG:HB2	5:D:776:HOH:O	2.12	0.48
1:C:121:LEU:HB3	1:C:152:TYR:CD1	2.49	0.47
1:A:92:ILE:O	1:A:94:MET:HG3	2.14	0.47
1:D:53:MET:SD	1:D:92:ILE:CG1	3.02	0.47
1:B:216:LYS:HE3	1:B:216:LYS:HB3	1.61	0.47
1:A:52:VAL:HG13	1:A:56:MET:HE3	1.96	0.47
1:C:25:ASN:ND2	1:D:91:SER:HB2	2.28	0.47
1:D:16:TYR:HB3	1:D:21:PHE:HE1	1.79	0.47
1:D:53:MET:SD	1:D:92:ILE:HG12	2.54	0.47
1:C:67:LEU:CD2	1:C:98:PHE:HB3	2.44	0.47
1:C:104:TYR:CE1	1:C:109:SER:HB2	2.49	0.47
1:B:105:CYS:O	1:B:106:ASN:HB2	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:25:ASN:C	1:D:25:ASN:ND2	2.68	0.47
1:A:190:TYR:O	1:A:191:ALA:HB3	2.15	0.47
1:A:104:TYR:CE1	1:A:109:SER:HB2	2.49	0.47
1:B:169:ARG:CG	1:B:169:ARG:HH11	2.22	0.47
1:D:197:TYR:O	1:D:198:PHE:HB2	2.15	0.47
1:B:112:ASP:HB3	1:B:114:LYS:NZ	2.31	0.46
1:A:124:LEU:HG	1:A:129:VAL:HG21	1.96	0.46
1:B:103:SER:HB3	1:B:113:ILE:HA	1.97	0.46
1:B:118:GLY:O	1:B:120:ASP:N	2.47	0.46
1:D:190:TYR:O	1:D:191:ALA:HB3	2.16	0.46
1:A:107:ASP:HA	1:A:186:PHE:CE1	2.51	0.46
1:A:31:LEU:HD22	1:A:205:CYS:HB2	1.96	0.46
1:D:99:ILE:HG13	1:D:118:GLY:HA3	1.98	0.46
1:C:197:TYR:O	1:C:198:PHE:HB2	2.16	0.46
1:C:175:PRO:HG2	1:C:178:VAL:HG22	1.96	0.46
1:D:53:MET:O	1:D:57:GLY:HA3	2.15	0.46
1:A:100:ARG:HD2	5:A:696:HOH:O	2.15	0.46
1:C:31:LEU:HD22	1:C:205:CYS:HB2	1.97	0.46
1:C:116:ILE:O	1:C:116:ILE:HG22	2.15	0.46
1:B:166:ARG:HD3	1:B:181:GLU:OE1	2.16	0.46
1:D:100:ARG:CG	1:D:116:ILE:HB	2.45	0.46
1:B:90:ARG:CZ	1:B:90:ARG:HA	2.45	0.46
1:A:140:LYS:HE3	1:A:140:LYS:HB2	1.71	0.46
1:A:74:PHE:HA	1:A:132:VAL:HG11	1.99	0.45
1:A:72:LYS:HD2	1:A:72:LYS:HA	1.72	0.45
1:D:57:GLY:HA2	1:D:92:ILE:HG23	1.98	0.45
1:C:200:ASP:CA	1:D:82:LYS:HD3	2.47	0.45
1:C:157:VAL:O	1:C:158:LYS:HD2	2.17	0.45
1:D:56:MET:CE	1:D:130:LEU:HG	2.47	0.45
1:B:72:LYS:HD2	1:B:72:LYS:HA	1.51	0.45
1:C:128:ASN:HD22	1:C:156:MET:HB3	1.81	0.45
1:D:103:SER:HB3	1:D:113:ILE:HA	1.99	0.44
1:D:207:ILE:HG23	1:D:212:LYS:HD2	1.99	0.44
1:D:193:ASP:HB3	1:D:199:ARG:HG2	2.00	0.44
1:D:30:ASP:HB3	1:D:198:PHE:HZ	1.83	0.44
1:C:100:ARG:CD	1:C:116:ILE:HD12	2.48	0.44
1:B:169:ARG:CZ	5:B:789:HOH:O	2.65	0.44
1:B:112:ASP:OD2	1:B:114:LYS:HE3	2.18	0.44
1:B:193:ASP:HB3	1:B:199:ARG:HG3	2.00	0.44
1:A:138:THR:O	1:A:171:VAL:HG23	2.18	0.44
1:A:55:GLU:OE2	1:A:158:LYS:NZ	2.44	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:128:ASN:HD21	1:D:155:LYS:HE3	1.83	0.43
1:B:23:ILE:O	1:B:23:ILE:HG13	2.18	0.43
1:A:7:VAL:HB	1:A:180:PHE:CD2	2.54	0.43
1:B:116:ILE:HG22	1:B:116:ILE:O	2.18	0.43
1:A:197:TYR:O	1:A:198:PHE:HB2	2.19	0.43
1:C:72:LYS:HD2	1:C:72:LYS:HA	1.77	0.43
1:A:167:THR:O	1:A:170:SER:HB3	2.19	0.43
1:B:57:GLY:O	1:B:90:ARG:NH2	2.51	0.43
1:D:32:GLU:C	1:D:33:ARG:HG2	2.39	0.42
1:B:7:VAL:HG22	1:D:20:LEU:HD13	2.01	0.42
1:A:193:ASP:HB3	1:A:199:ARG:HG2	2.01	0.42
1:C:139:GLY:O	1:C:143:GLN:HB2	2.19	0.42
1:C:57:GLY:HA3	1:C:90:ARG:HH21	1.82	0.42
1:B:65:CYS:HB2	1:B:74:PHE:CD1	2.54	0.42
1:B:124:LEU:HG	1:B:129:VAL:CG2	2.50	0.42
1:B:12:ASP:O	1:B:13:GLU:C	2.57	0.42
1:D:106:ASN:HD21	1:D:217:ALA:CB	2.33	0.42
1:C:199:ARG:NH2	4:C:400:POP:O3	2.41	0.42
1:A:7:VAL:HG23	1:A:44:ARG:HD3	2.02	0.42
1:A:59:HIS:O	1:A:92:ILE:HG23	2.19	0.42
1:D:85:ASN:OD1	1:D:91:SER:HA	2.19	0.42
1:C:202:ASN:ND2	5:C:528:HOH:O	2.44	0.42
1:A:20:LEU:HD13	1:C:7:VAL:HG22	2.02	0.42
1:A:24:PRO:HD3	5:A:713:HOH:O	2.20	0.42
1:B:53:MET:HA	1:B:92:ILE:CD1	2.50	0.41
1:A:133:GLU:HG3	1:A:134:ASP:N	2.35	0.41
1:B:149:VAL:HG12	1:B:154:PRO:HG3	2.02	0.41
1:B:119:ASP:C	1:B:121:LEU:N	2.73	0.41
1:D:156:MET:HG2	1:D:157:VAL:N	2.35	0.41
1:C:103:SER:HA	1:C:114:LYS:HZ2	1.85	0.41
1:A:106:ASN:ND2	1:A:217:ALA:H	1.96	0.41
1:C:25:ASN:HD21	1:D:91:SER:CB	2.30	0.41
1:D:131:ILE:HB	1:D:159:VAL:HG22	2.03	0.41
1:D:100:ARG:HD2	5:D:702:HOH:O	2.21	0.41
1:B:142:MET:HG3	1:B:146:LEU:HD22	2.02	0.41
1:D:48:LEU:HD12	1:D:48:LEU:HA	1.93	0.41
1:B:100:ARG:CG	1:B:116:ILE:HB	2.33	0.40
1:B:112:ASP:CG	1:B:114:LYS:HE3	2.42	0.40
1:A:33:ARG:O	1:A:205:CYS:HB3	2.20	0.40
1:D:193:ASP:HB3	1:D:199:ARG:CG	2.51	0.40
1:A:118:GLY:O	1:A:121:LEU:HG	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:195:ASN:O	1:A:196:GLU:HB2	2.21	0.40
1:C:66:VAL:HG13	1:C:101:LEU:HD23	2.04	0.40
1:B:107:ASP:HA	1:B:186:PHE:CE1	2.56	0.40
1:A:56:MET:HE3	1:A:130:LEU:HG	2.03	0.40
1:B:47:ARG:HA	1:D:22:CYS:SG	2.62	0.40
1:A:47:ARG:HA	1:C:22:CYS:SG	2.61	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	212/217 (98%)	201 (95%)	9 (4%)	2 (1%)	21	13
1	B	212/217 (98%)	201 (95%)	7 (3%)	4 (2%)	10	4
1	C	212/217 (98%)	200 (94%)	9 (4%)	3 (1%)	14	6
1	D	212/217 (98%)	199 (94%)	11 (5%)	2 (1%)	21	13
All	All	848/868 (98%)	801 (94%)	36 (4%)	11 (1%)	15	7

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	119	ASP
1	B	119	ASP
1	C	116	ILE
1	B	116	ILE
1	B	120	ASP
1	C	103	SER
1	D	118	GLY
1	B	103	SER
1	D	103	SER

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Mol	Chain	Res	Type
1	A	118	GLY
1	C	118	GLY

### 5.3.2 Protein sidechains ⓘ

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	189/191 (99%)	163 (86%)	26 (14%)	4	2
1	B	189/191 (99%)	161 (85%)	28 (15%)	4	1
1	C	189/191 (99%)	151 (80%)	38 (20%)	1	0
1	D	189/191 (99%)	161 (85%)	28 (15%)	4	1
All	All	756/764 (99%)	636 (84%)	120 (16%)	3	1

All (120) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	ASP
1	A	23	ILE
1	A	29	GLU
1	A	40	LEU
1	A	47	ARG
1	A	48	LEU
1	A	56	MET
1	A	60	HIS
1	A	61	ILE
1	A	67	LEU
1	A	71	TYR
1	A	90	ARG
1	A	91	SER
1	A	99	ILE
1	A	100	ARG
1	A	119	ASP
1	A	120	ASP
1	A	124	LEU
1	A	127	LYS

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Mol	Chain	Res	Type
1	A	130	LEU
1	A	140	LYS
1	A	147	SER
1	A	148	LEU
1	A	174	LYS
1	A	202	ASN
1	A	210	THR
1	B	17	ASP
1	B	19	ASP
1	B	23	ILE
1	B	30	ASP
1	B	40	LEU
1	B	48	LEU
1	B	55	GLU
1	B	60	HIS
1	B	61	ILE
1	B	67	LEU
1	B	71	TYR
1	B	72	LYS
1	B	91	SER
1	B	100	ARG
1	B	121	LEU
1	B	124	LEU
1	B	127	LYS
1	B	130	LEU
1	B	140	LYS
1	B	145	LEU
1	B	146	LEU
1	B	150	ARG
1	B	169	ARG
1	B	174	LYS
1	B	185	LYS
1	B	202	ASN
1	B	207	ILE
1	B	210	THR
1	C	12	ASP
1	C	17	ASP
1	C	25	ASN
1	C	40	LEU
1	C	47	ARG
1	C	48	LEU
1	C	56	MET

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Mol	Chain	Res	Type
1	C	60	HIS
1	C	67	LEU
1	C	71	TYR
1	C	72	LYS
1	C	88	SER
1	C	89	ASP
1	C	91	SER
1	C	94	MET
1	C	100	ARG
1	C	102	LYS
1	C	108	GLN
1	C	112	ASP
1	C	114	LYS
1	C	119	ASP
1	C	121	LEU
1	C	124	LEU
1	C	127	LYS
1	C	130	LEU
1	C	140	LYS
1	C	143	GLN
1	C	145	LEU
1	C	146	LEU
1	C	147	SER
1	C	148	LEU
1	C	150	ARG
1	C	158	LYS
1	C	167	THR
1	C	174	LYS
1	C	185	LYS
1	C	202	ASN
1	C	212	LYS
1	D	4	SER
1	D	17	ASP
1	D	25	ASN
1	D	29	GLU
1	D	35	PHE
1	D	40	LEU
1	D	47	ARG
1	D	48	LEU
1	D	60	HIS
1	D	67	LEU
1	D	71	TYR

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Mol	Chain	Res	Type
1	D	91	SER
1	D	92	ILE
1	D	100	ARG
1	D	108	GLN
1	D	120	ASP
1	D	121	LEU
1	D	130	LEU
1	D	145	LEU
1	D	146	LEU
1	D	147	SER
1	D	167	THR
1	D	174	LYS
1	D	202	ASN
1	D	209	GLU
1	D	210	THR
1	D	212	LYS
1	D	214	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	26	HIS
1	A	106	ASN
1	A	128	ASN
1	A	203	HIS
1	B	26	HIS
1	B	106	ASN
1	B	128	ASN
1	B	202	ASN
1	B	203	HIS
1	C	26	HIS
1	C	106	ASN
1	C	128	ASN
1	C	202	ASN
1	C	203	HIS
1	D	25	ASN
1	D	26	HIS
1	D	106	ASN
1	D	108	GLN
1	D	128	ASN
1	D	202	ASN
1	D	203	HIS

### 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 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 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$
3	IMU	A	300	2	25,26,26	2.24	8 (32%)	20,40,40	2.77	6 (30%)
4	POP	A	400	2	8,8,8	1.55	1 (12%)	13,13,13	0.86	0
3	IMU	B	300	2	25,26,26	2.13	8 (32%)	20,40,40	2.72	6 (30%)
4	POP	B	400	2	8,8,8	1.54	1 (12%)	13,13,13	0.89	0
3	IMU	C	300	2	25,26,26	2.10	8 (32%)	20,40,40	2.68	7 (35%)
4	POP	C	400	2	8,8,8	1.83	2 (25%)	13,13,13	0.80	0
3	IMU	D	300	2	25,26,26	2.18	6 (24%)	20,40,40	2.83	8 (40%)
4	POP	D	400	2	8,8,8	1.55	1 (12%)	13,13,13	0.71	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
3	IMU	A	300	2	-	0/6/26/26	0/3/3/3
4	POP	A	400	2	-	0/6/6/6	0/0/0/0
3	IMU	B	300	2	-	0/6/26/26	0/3/3/3
4	POP	B	400	2	-	0/6/6/6	0/0/0/0
3	IMU	C	300	2	-	0/6/26/26	0/3/3/3
4	POP	C	400	2	-	0/6/6/6	0/0/0/0
3	IMU	D	300	2	-	0/6/26/26	0/3/3/3
4	POP	D	400	2	-	0/6/6/6	0/0/0/0

All (35) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	300	IMU	C3'-C4'	-5.40	1.49	1.53
3	D	300	IMU	C3'-C4'	-5.32	1.49	1.53
3	B	300	IMU	C3'-C4'	-4.56	1.49	1.53
3	D	300	IMU	C1'-N4'	-4.43	1.42	1.47
3	C	300	IMU	C3'-C4'	-4.32	1.50	1.53
3	C	300	IMU	C1'-N4'	-4.08	1.42	1.47
3	A	300	IMU	C1'-N4'	-3.94	1.42	1.47
3	B	300	IMU	C1'-N4'	-3.86	1.42	1.47
3	A	300	IMU	C4'-N4'	-3.49	1.42	1.48
3	D	300	IMU	C4'-N4'	-3.15	1.43	1.48
3	B	300	IMU	C8-N7	-3.14	1.30	1.36
3	D	300	IMU	C8-N7	-3.11	1.30	1.36
3	C	300	IMU	C8-N7	-3.03	1.30	1.36
3	A	300	IMU	C8-N7	-2.96	1.30	1.36
3	B	300	IMU	C4'-N4'	-2.96	1.43	1.48
3	C	300	IMU	C4'-N4'	-2.89	1.43	1.48
4	C	400	POP	P1-O	-2.71	1.54	1.61
3	B	300	IMU	C5'-C4'	-2.37	1.47	1.52
3	C	300	IMU	C5'-C4'	-2.15	1.47	1.52
3	C	300	IMU	P-O1P	-2.11	1.47	1.54
3	B	300	IMU	P-O1P	-2.09	1.47	1.54
3	A	300	IMU	C5'-C4'	-2.08	1.47	1.52
3	A	300	IMU	P-O5'	-2.02	1.53	1.60
4	A	400	POP	P2-O6	2.60	1.59	1.50
4	D	400	POP	P2-O6	2.71	1.59	1.50
4	C	400	POP	P2-O6	2.91	1.60	1.50
4	B	400	POP	P2-O6	2.95	1.60	1.50
3	B	300	IMU	C2-N1	3.12	1.40	1.35
3	D	300	IMU	C2-N1	3.15	1.41	1.35
3	C	300	IMU	C2-N1	3.24	1.41	1.35
3	A	300	IMU	C2-N1	3.64	1.41	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	300	IMU	C6-N1	4.05	1.40	1.33
3	A	300	IMU	C6-N1	4.25	1.41	1.33
3	B	300	IMU	C6-N1	4.41	1.41	1.33
3	C	300	IMU	C6-N1	4.52	1.41	1.33

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	300	IMU	C5-C6-N1	-7.76	112.99	123.59
3	D	300	IMU	C5-C6-N1	-7.68	113.09	123.59
3	A	300	IMU	C5-C6-N1	-7.64	113.15	123.59
3	B	300	IMU	C5-C6-N1	-7.58	113.22	123.59
3	A	300	IMU	C9-C1'-N4'	-4.06	107.33	113.38
3	D	300	IMU	C9-C1'-N4'	-4.00	107.42	113.38
3	B	300	IMU	C9-C1'-N4'	-3.44	108.26	113.38
3	B	300	IMU	N3-C2-N1	-3.28	122.45	127.44
3	C	300	IMU	N3-C2-N1	-3.19	122.58	127.44
3	A	300	IMU	N3-C2-N1	-3.11	122.71	127.44
3	D	300	IMU	N3-C2-N1	-3.03	122.82	127.44
3	A	300	IMU	C5'-C4'-C3'	-2.99	108.96	114.11
3	B	300	IMU	C5'-C4'-C3'	-2.98	108.98	114.11
3	C	300	IMU	C9-C1'-N4'	-2.88	109.10	113.38
3	D	300	IMU	C5'-C4'-C3'	-2.71	109.44	114.11
3	C	300	IMU	C5'-C4'-C3'	-2.19	110.33	114.11
3	C	300	IMU	O3P-P-O5'	-2.07	100.59	106.56
3	D	300	IMU	O3P-P-O5'	-2.06	100.63	106.56
3	D	300	IMU	O5'-P-O2P	2.30	112.99	107.14
3	C	300	IMU	C9-C8-N7	3.10	114.71	108.79
3	B	300	IMU	C9-C8-N7	3.35	115.19	108.79
3	D	300	IMU	C9-C8-N7	3.52	115.51	108.79
3	A	300	IMU	C9-C8-N7	3.53	115.53	108.79
3	A	300	IMU	C6-N1-C2	6.01	124.28	115.94
3	C	300	IMU	C6-N1-C2	6.18	124.51	115.94
3	B	300	IMU	C6-N1-C2	6.19	124.53	115.94
3	D	300	IMU	C6-N1-C2	6.37	124.77	115.94

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	300	IMU	1	0
3	C	300	IMU	1	0
4	C	400	POP	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 ⓘ

### 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	214/217 (98%)	-0.10	9 (4%) 40 41	4, 13, 36, 53	0
1	B	214/217 (98%)	-0.07	8 (3%) 45 47	4, 14, 32, 53	0
1	C	214/217 (98%)	0.10	12 (5%) 28 29	6, 16, 39, 50	0
1	D	214/217 (98%)	0.09	11 (5%) 32 33	5, 15, 38, 54	0
All	All	856/868 (98%)	0.00	40 (4%) 35 37	4, 14, 37, 54	0

All (40) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	117	GLY	6.2
1	C	117	GLY	5.8
1	D	117	GLY	4.9
1	A	90	ARG	4.5
1	A	118	GLY	4.2
1	D	119	ASP	4.2
1	C	90	ARG	4.1
1	D	171	VAL	4.0
1	D	89	ASP	3.9
1	B	120	ASP	3.8
1	A	89	ASP	3.8
1	B	150	ARG	3.6
1	D	118	GLY	3.6
1	D	90	ARG	3.6
1	C	118	GLY	3.6
1	A	172	GLY	3.5
1	B	118	GLY	3.5
1	C	116	ILE	3.5
1	C	89	ASP	3.4
1	B	90	ARG	3.4
1	B	119	ASP	3.3

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Mol	Chain	Res	Type	RSRZ
1	A	119	ASP	3.2
1	D	60	HIS	3.0
1	C	119	ASP	2.8
1	A	171	VAL	2.8
1	C	112	ASP	2.6
1	A	120	ASP	2.6
1	D	13	GLU	2.5
1	B	60	HIS	2.5
1	D	120	ASP	2.5
1	D	14	PRO	2.5
1	A	150	ARG	2.4
1	D	25	ASN	2.4
1	B	89	ASP	2.4
1	C	92	ILE	2.3
1	C	171	VAL	2.3
1	C	150	ARG	2.1
1	A	60	HIS	2.1
1	C	170	SER	2.1
1	C	111	GLY	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
2	MG	C	900	1/1	0.88	0.14	1.34	25,25,25,25	0
3	IMU	B	300	24/24	0.96	0.11	0.31	7,10,13,14	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
3	IMU	A	300	24/24	0.96	0.10	0.20	2,7,9,10	0
3	IMU	C	300	24/24	0.94	0.13	0.03	13,22,24,26	0
3	IMU	D	300	24/24	0.96	0.10	-0.08	4,9,13,17	0
4	POP	C	400	9/9	0.96	0.10	-0.72	19,21,24,27	0
4	POP	B	400	9/9	0.98	0.08	-1.17	8,11,20,21	0
2	MG	D	900	1/1	0.96	0.07	-1.40	12,12,12,12	0
4	POP	D	400	9/9	0.99	0.06	-1.80	4,8,13,13	0
2	MG	A	900	1/1	0.99	0.05	-2.19	12,12,12,12	0
4	POP	A	400	9/9	0.99	0.06	-2.22	4,6,10,13	0
2	MG	B	900	1/1	0.99	0.04	-3.60	6,6,6,6	0
2	MG	B	901	1/1	0.98	0.06	-	11,11,11,11	0
2	MG	C	901	1/1	0.88	0.17	-	29,29,29,29	0
2	MG	A	901	1/1	0.98	0.09	-	12,12,12,12	0
2	MG	D	901	1/1	0.98	0.06	-	10,10,10,10	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.