



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 6, 2017 – 10:06 PM EST

PDB ID : 4KYA
Title : Crystal structure of non-classical TS inhibitor 3 in complex with Toxoplasma gondii TS-DHFR
Authors : Sharma, H.; Anderson, K.S.
Deposited on : unknown
Resolution : 3.26 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 : 1.7.2 (RC1), CSD as538be (2017)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20030345
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) : rb-20030345

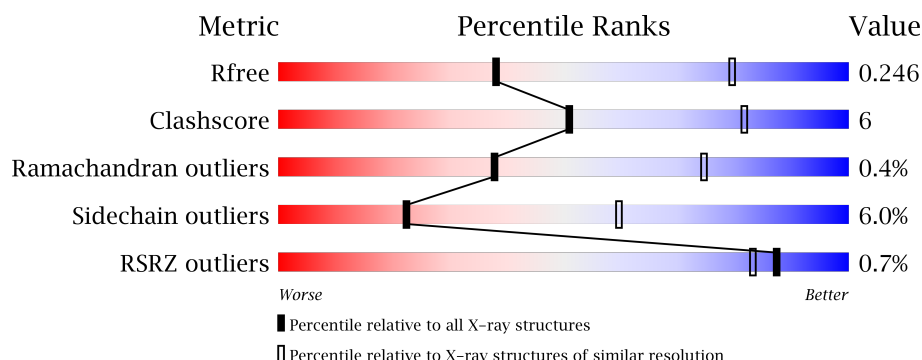
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.26 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	1852 (3.32-3.20)
Clashscore	112137	2036 (3.32-3.20)
Ramachandran outliers	110173	2000 (3.32-3.20)
Sidechain outliers	110143	1998 (3.32-3.20)
RSRZ outliers	101464	1861 (3.32-3.20)

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.

Mol	Chain	Length	Quality of chain
1	A	566	<div> <div style="width: 100%; height: 10px; background: linear-gradient(to right, red 1%, orange 1%, yellow 15%, green 74%, grey 10%);"></div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1% 74% 15% 10% </div> </div>
1	B	566	<div> <div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow 14%, green 72%, grey 13%);"></div> <div style="display: flex; justify-content: space-between; width: 100%;"> 72% 14% 13% </div> </div>
1	C	566	<div> <div style="width: 100%; height: 10px; background: linear-gradient(to right, red 1%, orange 1%, yellow 17%, green 73%, grey 10%);"></div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1% 73% 17% 10% </div> </div>
1	D	566	<div> <div style="width: 100%; height: 10px; background: linear-gradient(to right, yellow 16%, green 69%, grey 13%);"></div> <div style="display: flex; justify-content: space-between; width: 100%;"> 69% 16% 13% </div> </div>
1	E	566	<div> <div style="width: 100%; height: 10px; background: linear-gradient(to right, red 1%, orange 1%, yellow 16%, green 73%, grey 10%);"></div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1% 73% 16% 10% </div> </div>

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Mol	Chain	Length	Quality of chain
1	F	566	
1	G	566	
1	H	566	

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	1UG	A	702	-	-	-	X
3	1UG	B	702	-	-	-	X
3	1UG	C	702	-	-	-	X
3	1UG	D	702	-	-	-	X
3	1UG	E	702	-	-	-	X
3	1UG	F	702	-	-	-	X
3	1UG	G	702	-	-	-	X
3	1UG	H	702	-	-	-	X
4	FOL	A	703	-	-	-	X
4	FOL	B	703	-	-	-	X
4	FOL	C	703	-	-	-	X
4	FOL	E	703	-	-	-	X
4	FOL	F	703	-	-	-	X
4	FOL	G	703	-	-	-	X
4	FOL	H	703	-	-	-	X

2 Entry composition

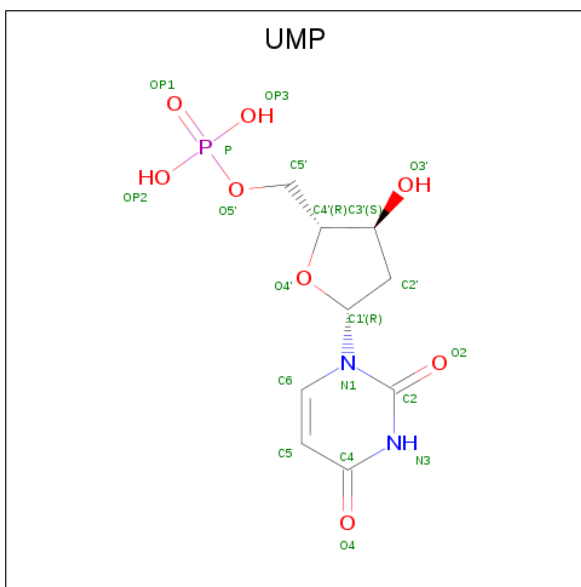
There are 5 unique types of molecules in this entry. The entry contains 33184 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Bifunctional dihydrofolate reductase-thymidylate synthase.

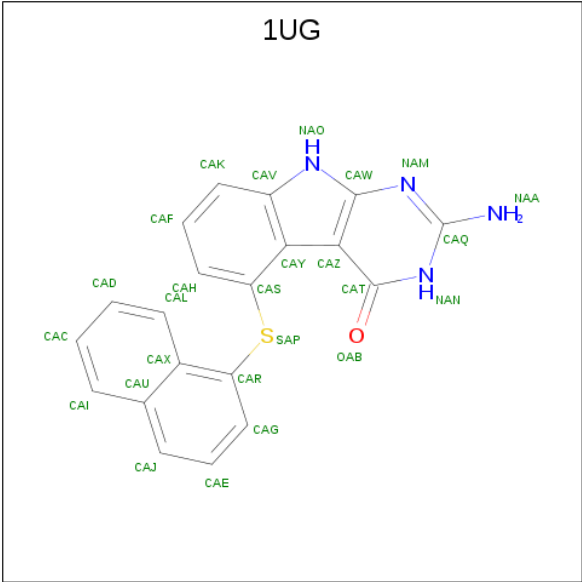
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	510	Total	C	N	O	S	0	2	0
			4096	2618	718	735	25			
1	B	491	Total	C	N	O	S	0	1	0
			3948	2531	682	710	25			
1	C	510	Total	C	N	O	S	0	2	0
			4096	2618	718	735	25			
1	D	491	Total	C	N	O	S	0	1	0
			3948	2531	682	710	25			
1	E	510	Total	C	N	O	S	0	2	0
			4096	2618	718	735	25			
1	F	491	Total	C	N	O	S	0	1	0
			3948	2531	682	710	25			
1	G	510	Total	C	N	O	S	0	2	0
			4096	2618	718	735	25			
1	H	491	Total	C	N	O	S	0	1	0
			3948	2531	682	710	25			

- Molecule 2 is 2'-DEOXYURIDINE 5'-MONOPHOSPHATE (three-letter code: UMP) (formula: C₉H₁₃N₂O₈P).



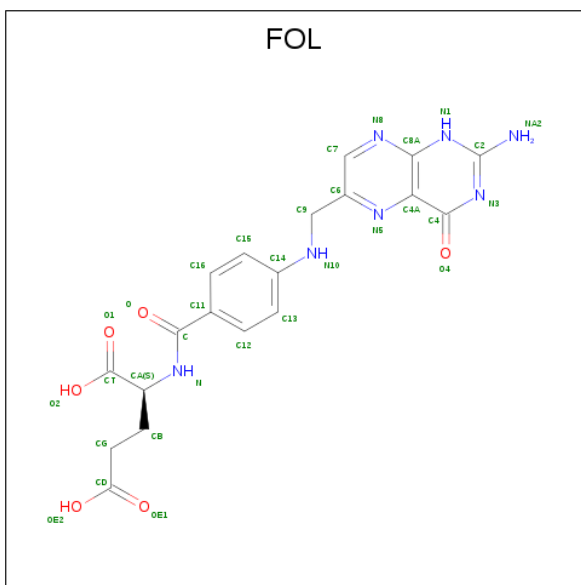
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	B	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	C	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	D	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	E	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	F	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	G	1	Total	C	N	O	P	0	0
			20	9	2	8	1		
2	H	1	Total	C	N	O	P	0	0
			20	9	2	8	1		

- Molecule 3 is 2-Amino-5-(1-naphthylsulfanyl)-3,9-dihydro-4H-pyrimido[4,5-b]indol-4-one (three-letter code: 1UG) (formula: C₂₀H₁₄N₄OS).



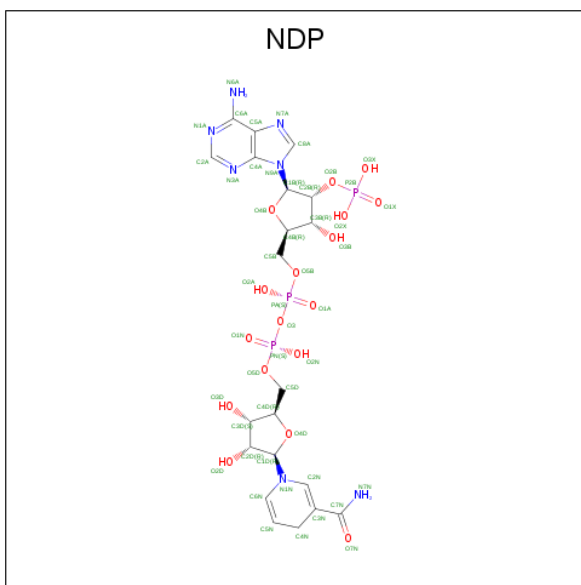
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	B	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	C	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	D	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	E	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	F	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	G	1	Total	C	N	O	S	0	0
			26	20	4	1	1		
3	H	1	Total	C	N	O	S	0	0
			26	20	4	1	1		

- Molecule 4 is FOLIC ACID (three-letter code: FOL) (formula: C₁₉H₁₉N₇O₆).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total 32	C 19	N 7	O 6	0	0
4	B	1	Total 32	C 19	N 7	O 6	0	0
4	C	1	Total 32	C 19	N 7	O 6	0	0
4	D	1	Total 32	C 19	N 7	O 6	0	0
4	E	1	Total 32	C 19	N 7	O 6	0	0
4	F	1	Total 32	C 19	N 7	O 6	0	0
4	G	1	Total 32	C 19	N 7	O 6	0	0
4	H	1	Total 32	C 19	N 7	O 6	0	0

- Molecule 5 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).

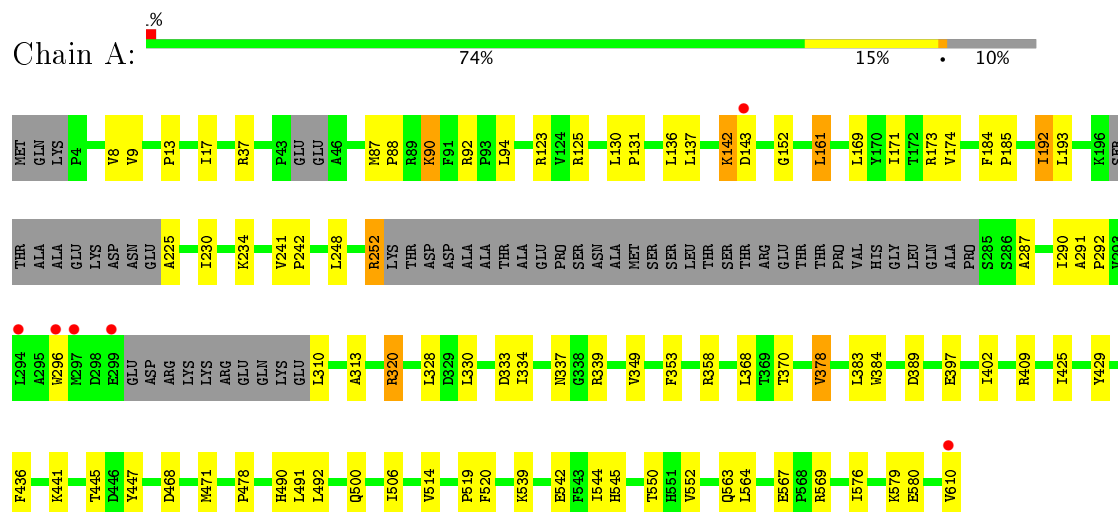


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	A	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	B	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	C	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	D	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	E	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	F	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	G	1	Total 48	C 21	N 7	O 17	P 3	0	0
5	H	1	Total 48	C 21	N 7	O 17	P 3	0	0

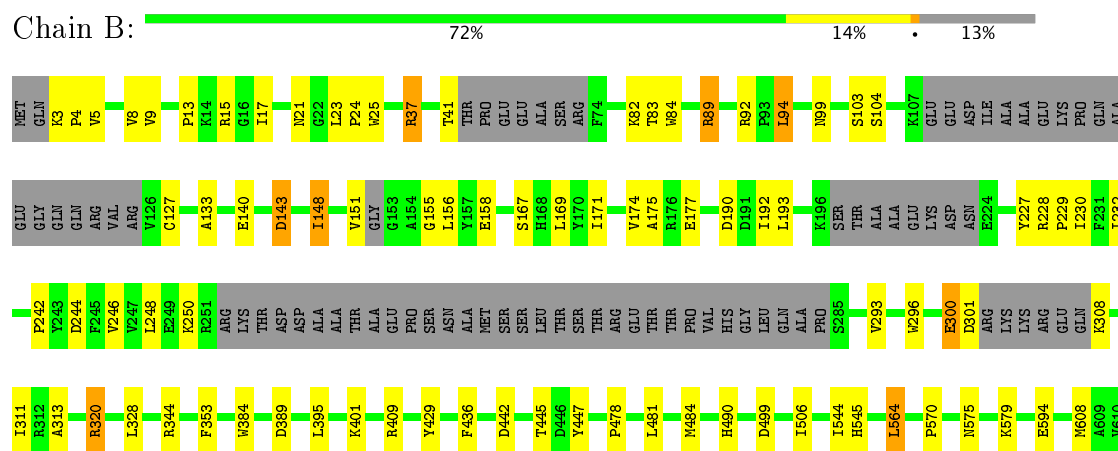
3 Residue-property plots [i](#)

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

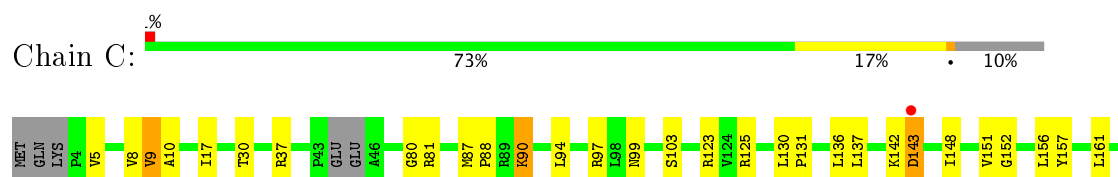
- Molecule 1: Bifunctional dihydrofolate reductase-thymidylate synthase

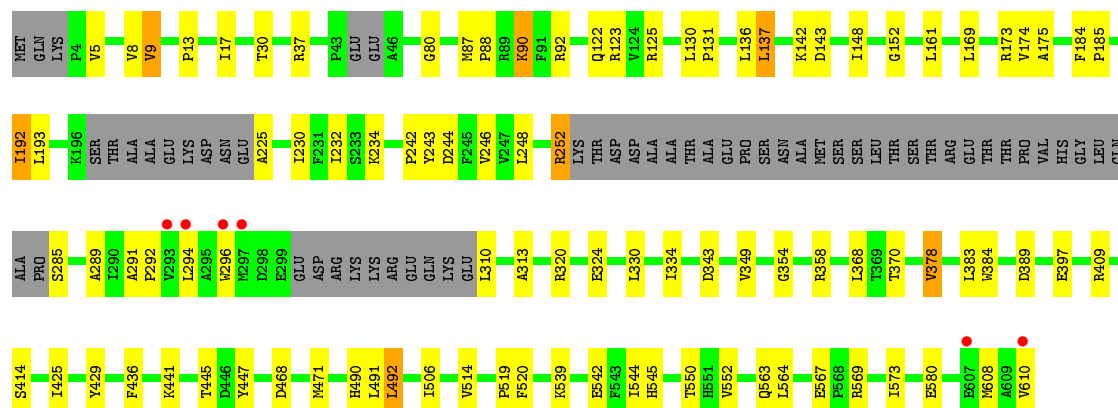
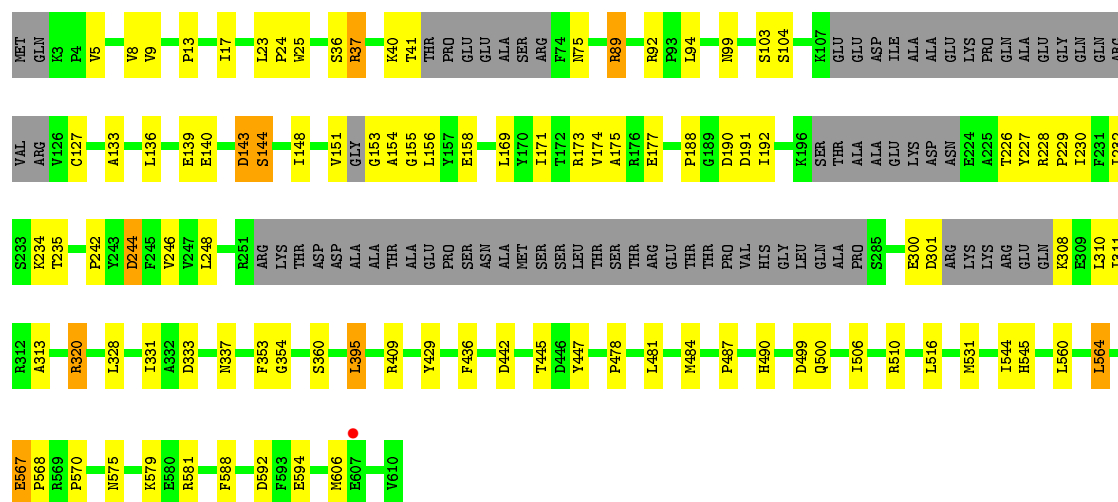


- Molecule 1: Bifunctional dihydrofolate reductase-thymidylate synthase

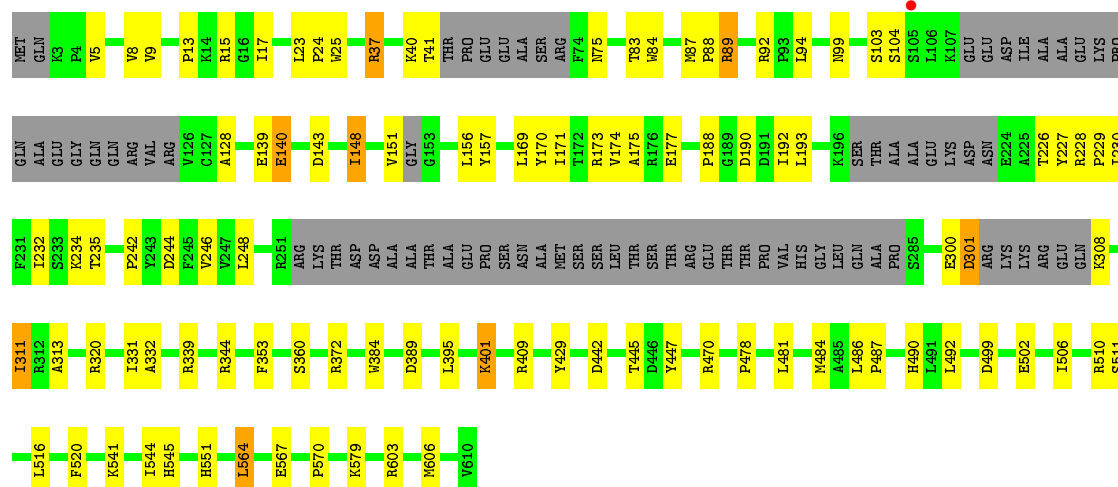
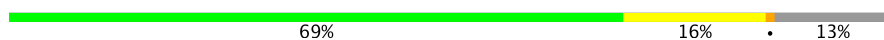


- Molecule 1: Bifunctional dihydrofolate reductase-thymidylate synthase



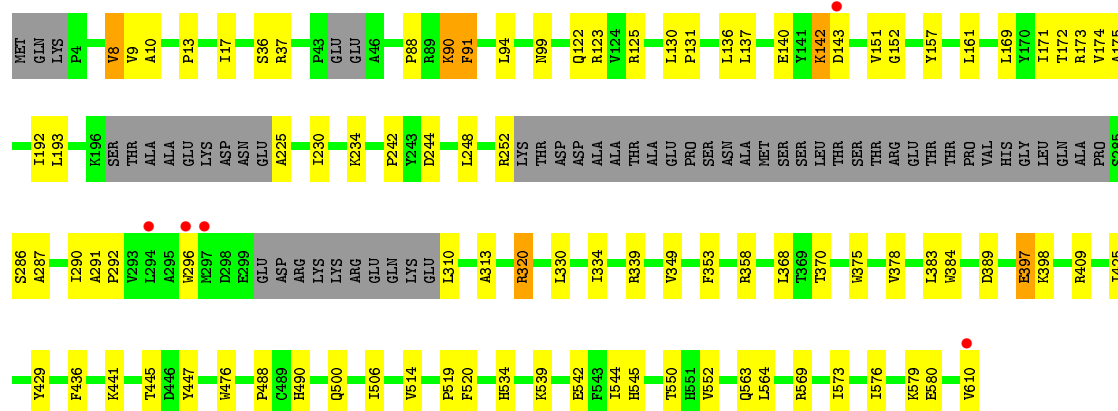


Chain F:



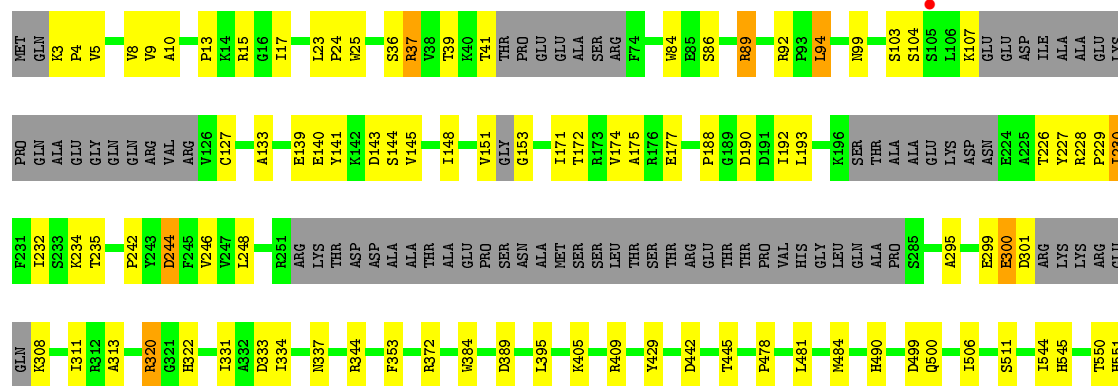
- Molecule 1: Bifunctional dihydrofolate reductase-thymidylate synthase

Chain G:



- Molecule 1: Bifunctional dihydrofolate reductase-thymidylate synthase

Chain H:





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	53.53Å 145.08Å 176.61Å 90.07° 89.96° 90.07°	Depositor
Resolution (Å)	46.66 – 3.26 48.36 – 3.26	Depositor EDS
% Data completeness (in resolution range)	98.5 (46.66-3.26) 98.5 (48.36-3.26)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.38 (at 3.25Å)	Xtriage
Refinement program	REFMAC 5.7.0029, PHENIX 1.9_1692	Depositor
R, R_{free}	0.182 , 0.241 0.191 , 0.246	Depositor DCC
R_{free} test set	4073 reflections (5.26%)	DCC
Wilson B-factor (Å ²)	43.4	Xtriage
Anisotropy	0.073	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , -5.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.448 for h,-k,-l 0.448 for -h,k,-l 0.448 for -h,-k,l	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	33184	wwPDB-VP
Average B, all atoms (Å ²)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.48% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: FOL, NDP, UMP, 1UG

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	0.24	0/4196	0.42	0/5683
1	B	0.24	0/4043	0.43	0/5473
1	C	0.24	0/4196	0.42	0/5683
1	D	0.23	0/4043	0.43	0/5473
1	E	0.24	0/4196	0.42	0/5683
1	F	0.24	0/4043	0.43	0/5473
1	G	0.24	0/4196	0.42	0/5683
1	H	0.24	0/4043	0.43	0/5473
All	All	0.24	0/32956	0.43	0/44624

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	4096	0	4058	47	0
1	B	3948	0	3910	50	0
1	C	4096	0	4058	58	0
1	D	3948	0	3910	59	0
1	E	4096	0	4058	54	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	3948	0	3910	57	0
1	G	4096	0	4058	56	0
1	H	3948	0	3910	49	0
2	A	20	0	11	0	0
2	B	20	0	11	0	0
2	C	20	0	11	0	0
2	D	20	0	11	0	0
2	E	20	0	11	0	0
2	F	20	0	11	0	0
2	G	20	0	11	0	0
2	H	20	0	11	0	0
3	A	26	0	14	2	0
3	B	26	0	14	3	0
3	C	26	0	14	4	0
3	D	26	0	14	1	0
3	E	26	0	14	5	0
3	F	26	0	14	4	0
3	G	26	0	14	3	0
3	H	26	0	14	1	0
4	A	32	0	17	1	0
4	B	32	0	17	4	0
4	C	32	0	17	1	0
4	D	32	0	17	4	0
4	E	32	0	17	1	0
4	F	32	0	17	4	0
4	G	32	0	17	5	0
4	H	32	0	17	4	0
5	A	48	0	26	3	0
5	B	48	0	26	4	0
5	C	48	0	26	3	0
5	D	48	0	26	4	0
5	E	48	0	26	3	0
5	F	48	0	26	5	0
5	G	48	0	26	3	0
5	H	48	0	26	3	0
All	All	33184	0	32416	425	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 6.

All (425) 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:E:313:ALA:O	1:E:320:ARG:NH2	2.14	0.79
1:A:313:ALA:O	1:A:320:ARG:NH2	2.16	0.77
1:F:244:ASP:HB2	1:F:570:PRO:HG3	1.66	0.76
1:G:313:ALA:O	1:G:320:ARG:NH2	2.17	0.76
1:B:313:ALA:O	1:B:320:ARG:NH1	2.19	0.74
1:D:175:ALA:HB3	1:D:242:PRO:HG2	1.69	0.74
1:F:175:ALA:HB3	1:F:242:PRO:HG2	1.70	0.74
1:A:370:THR:HG23	1:A:563:GLN:HE21	1.52	0.74
1:F:313:ALA:O	1:F:320:ARG:NH1	2.20	0.74
1:C:313:ALA:O	1:C:320:ARG:NH2	2.16	0.73
1:H:313:ALA:O	1:H:320:ARG:NH1	2.22	0.72
1:H:175:ALA:HB3	1:H:242:PRO:HG2	1.70	0.72
1:B:175:ALA:HB3	1:B:242:PRO:HG2	1.72	0.72
3:A:702:1UG:OAB	3:A:702:1UG:SAP	2.50	0.70
1:C:175:ALA:HB3	1:C:242:PRO:HG2	1.71	0.70
1:B:244:ASP:HB2	1:B:570:PRO:HG3	1.74	0.69
1:D:313:ALA:O	1:D:320:ARG:NH1	2.25	0.69
3:F:702:1UG:OAB	3:F:702:1UG:SAP	2.54	0.66
1:C:125:ARG:HG2	1:C:136:LEU:HD21	1.77	0.65
1:H:481:LEU:HA	1:H:484:MET:HE2	1.79	0.65
1:A:125:ARG:HG2	1:A:136:LEU:HD21	1.78	0.65
3:G:702:1UG:SAP	3:G:702:1UG:OAB	2.55	0.64
3:C:702:1UG:SAP	3:C:702:1UG:OAB	2.56	0.64
1:F:94:LEU:H	1:F:99:ASN:HD21	1.46	0.63
1:G:125:ARG:HG2	1:G:136:LEU:HD21	1.79	0.63
1:D:244:ASP:HB2	1:D:570:PRO:HG3	1.81	0.62
1:G:370:THR:HG23	1:G:563:GLN:HE21	1.64	0.62
1:C:313:ALA:HB2	1:C:564:LEU:HD22	1.81	0.62
1:G:296:TRP:HB3	1:H:37:ARG:HG2	1.80	0.62
1:G:313:ALA:HB2	1:G:564:LEU:HD22	1.80	0.62
3:E:702:1UG:SAP	3:E:702:1UG:OAB	2.58	0.61
1:E:125:ARG:HG2	1:E:136:LEU:HD21	1.82	0.60
1:A:313:ALA:HB2	1:A:564:LEU:HD22	1.83	0.60
4:A:703:FOL:C7	5:A:704:NDP:H42N	2.32	0.59
1:C:287:ALA:HA	1:C:290:ILE:HD12	1.84	0.59
1:A:152:GLY:HA3	5:A:704:NDP:H5N	1.83	0.59
1:G:506:ILE:HG12	1:G:544:ILE:HB	1.84	0.59
3:B:702:1UG:SAP	3:B:702:1UG:OAB	2.61	0.59
1:E:491:LEU:HD12	1:E:492:LEU:HB2	1.84	0.59
1:F:481:LEU:HA	1:F:484:MET:HE2	1.84	0.59
1:A:514:VAL:HB	1:A:552:VAL:HG12	1.85	0.58
1:E:175:ALA:HB3	1:E:242:PRO:HG2	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:370:THR:HG23	1:C:563:GLN:HE21	1.67	0.58
1:H:244:ASP:HB2	1:H:570:PRO:HG3	1.85	0.58
1:E:608:MET:HG3	3:E:702:1UG:H6	1.85	0.58
1:C:94:LEU:H	1:C:99:ASN:HD21	1.52	0.58
3:D:702:1UG:SAP	3:D:702:1UG:OAB	2.62	0.58
1:E:192:ILE:HD12	1:E:193:LEU:HG	1.85	0.58
1:A:192:ILE:HD12	1:A:193:LEU:HG	1.87	0.57
1:H:506:ILE:HG12	1:H:544:ILE:HB	1.86	0.57
1:H:89:ARG:HA	1:H:92:ARG:HG3	1.86	0.57
1:G:520:PHE:CE2	3:G:702:1UG:H2	2.39	0.57
1:H:8:VAL:HG12	4:H:703:FOL:HN1	1.70	0.57
4:C:703:FOL:C7	5:C:704:NDP:H42N	2.34	0.57
1:C:225:ALA:HA	1:C:252:ARG:HA	1.86	0.56
1:B:8:VAL:HG12	4:B:703:FOL:HN1	1.70	0.56
1:G:287:ALA:HA	1:G:290:ILE:HD12	1.87	0.56
1:H:405:LYS:HD2	1:H:608:MET:HE3	1.86	0.56
1:C:520:PHE:CE2	3:C:702:1UG:H2	2.41	0.56
1:E:514:VAL:HB	1:E:552:VAL:HG12	1.86	0.56
1:D:481:LEU:HA	1:D:484:MET:HE2	1.86	0.56
1:C:88:PRO:HB2	1:C:90:LYS:HE3	1.88	0.56
1:G:152:GLY:HA3	5:G:704:NDP:H5N	1.86	0.56
1:E:313:ALA:HB2	1:E:564:LEU:HD22	1.88	0.56
1:G:242:PRO:HB3	1:G:573:ILE:HG13	1.88	0.56
1:G:225:ALA:HA	1:G:252:ARG:HA	1.88	0.56
4:D:703:FOL:C7	5:D:704:NDP:H42N	2.36	0.56
1:F:232:ILE:HG12	1:F:246:VAL:HG12	1.88	0.56
1:C:375:TRP:HA	1:C:378:VAL:HG13	1.87	0.56
1:D:8:VAL:HG12	4:D:703:FOL:HN1	1.71	0.55
1:E:370:THR:HG23	1:E:563:GLN:HE21	1.71	0.55
1:G:169:LEU:HD12	1:G:248:LEU:HD12	1.88	0.55
1:B:232:ILE:HG12	1:B:246:VAL:HG12	1.88	0.55
1:A:225:ALA:HA	1:A:252:ARG:HA	1.89	0.55
4:E:703:FOL:C7	5:E:704:NDP:H42N	2.36	0.55
4:G:703:FOL:C7	5:G:704:NDP:H42N	2.35	0.55
1:E:88:PRO:HB2	1:E:90:LYS:HE3	1.89	0.55
1:D:442:ASP:OD1	1:D:445:THR:OG1	2.24	0.55
1:G:94:LEU:H	1:G:99:ASN:HD21	1.55	0.55
1:A:506:ILE:HG12	1:A:544:ILE:HB	1.89	0.55
1:F:442:ASP:OD1	1:F:445:THR:OG1	2.23	0.55
1:B:481:LEU:HA	1:B:484:MET:HE2	1.88	0.54
1:C:192:ILE:HD12	1:C:193:LEU:HG	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:520:PHE:CZ	3:F:702:1UG:H2	2.43	0.54
1:D:506:ILE:HG12	1:D:544:ILE:HB	1.88	0.54
1:E:506:ILE:HG12	1:E:544:ILE:HB	1.90	0.54
1:A:88:PRO:HB2	1:A:90:LYS:HE3	1.87	0.54
1:H:94:LEU:H	1:H:99:ASN:HD21	1.56	0.54
3:H:702:1UG:OAB	3:H:702:1UG:SAP	2.65	0.54
1:G:375:TRP:HA	1:G:378:VAL:HG13	1.89	0.54
1:F:8:VAL:HG12	4:F:703:FOL:HN1	1.73	0.54
1:D:94:LEU:H	1:D:99:ASN:HD21	1.55	0.53
4:B:703:FOL:C7	5:B:704:NDP:H42N	2.38	0.53
1:C:173:ARG:HH22	1:C:569:ARG:HA	1.74	0.53
1:D:232:ILE:HG12	1:D:246:VAL:HG12	1.91	0.53
1:B:5:VAL:HG13	1:B:148:ILE:HD11	1.90	0.53
1:C:339:ARG:HH12	1:D:500:GLN:HG2	1.74	0.53
1:B:575:ASN:HB2	1:B:594:GLU:HG2	1.90	0.53
1:G:192:ILE:HD12	1:G:193:LEU:HG	1.90	0.53
4:F:703:FOL:C7	5:F:704:NDP:H42N	2.39	0.53
1:E:289:ALA:O	1:F:170:TYR:OH	2.27	0.53
1:C:242:PRO:HB3	1:C:573:ILE:HG13	1.91	0.52
1:C:368:LEU:HD23	1:C:519:PRO:HB3	1.89	0.52
1:B:313:ALA:HB2	1:B:564:LEU:HD13	1.91	0.52
1:H:232:ILE:HG12	1:H:246:VAL:HG12	1.91	0.52
1:C:173:ARG:NH2	1:C:569:ARG:HA	2.24	0.52
1:C:296:TRP:HB3	1:D:37:ARG:HG2	1.92	0.52
1:E:152:GLY:HA3	5:E:704:NDP:H5N	1.92	0.52
1:B:89:ARG:H	1:B:89:ARG:HE	1.57	0.52
1:H:499:ASP:OD1	1:H:499:ASP:N	2.43	0.52
1:A:296:TRP:HB3	1:B:37:ARG:HG2	1.91	0.52
1:B:94:LEU:H	1:B:99:ASN:HD21	1.56	0.52
1:E:80:GLY:N	1:E:152:GLY:O	2.42	0.52
1:G:175:ALA:HB3	1:G:242:PRO:HG2	1.92	0.52
1:A:173:ARG:HH22	1:A:569:ARG:HA	1.75	0.52
1:H:9:VAL:HG23	1:H:171:ILE:HA	1.92	0.52
1:A:173:ARG:NH2	1:A:569:ARG:HA	2.25	0.51
1:B:9:VAL:HG23	1:B:171:ILE:HA	1.91	0.51
1:H:192:ILE:HD12	1:H:248:LEU:HD21	1.92	0.51
1:B:506:ILE:HG12	1:B:544:ILE:HB	1.92	0.51
1:E:17:ILE:O	5:E:704:NDP:H2N	2.11	0.51
1:F:40:LYS:HA	1:F:75:ASN:HD22	1.75	0.51
1:A:87:MET:HE1	1:A:94:LEU:HG	1.93	0.51
1:C:384:TRP:CD1	1:C:389:ASP:HB3	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:703:FOL:C7	5:H:704:NDP:H42N	2.40	0.51
1:E:520:PHE:CD2	3:E:702:1UG:H2	2.46	0.51
1:F:192:ILE:HD12	1:F:248:LEU:HD21	1.92	0.51
1:E:296:TRP:HB3	1:F:37:ARG:HG2	1.93	0.51
1:A:87:MET:O	1:A:92:ARG:NH2	2.44	0.51
1:C:152:GLY:HA3	5:C:704:NDP:H5N	1.92	0.51
1:F:313:ALA:HB2	1:F:564:LEU:HD13	1.92	0.51
1:A:402:ILE:HD12	3:A:702:1UG:H2	1.92	0.50
1:B:103:SER:OG	1:B:104:SER:N	2.43	0.50
1:H:313:ALA:HB2	1:H:564:LEU:HD13	1.92	0.50
1:H:84:TRP:CE2	1:H:92:ARG:HD2	2.47	0.50
1:A:287:ALA:HA	1:A:290:ILE:HD12	1.93	0.50
1:C:334:ILE:HD11	1:C:550:THR:HG22	1.93	0.50
1:D:313:ALA:HB3	1:D:320:ARG:HH12	1.76	0.50
1:E:384:TRP:CD1	1:E:389:ASP:HB3	2.47	0.50
1:E:173:ARG:HH22	1:E:569:ARG:HA	1.77	0.50
1:B:17:ILE:O	5:B:704:NDP:H2N	2.11	0.50
1:C:339:ARG:NH1	1:D:499:ASP:OD1	2.44	0.50
1:H:372:ARG:HB3	1:H:603:ARG:HG2	1.94	0.50
1:H:384:TRP:CD1	1:H:389:ASP:HB3	2.47	0.50
1:H:151:VAL:HB	4:H:703:FOL:H7	1.94	0.50
1:D:103:SER:OG	5:D:704:NDP:O1X	2.25	0.49
1:E:173:ARG:NH2	1:E:569:ARG:HA	2.27	0.49
1:D:313:ALA:HB2	1:D:564:LEU:HD13	1.94	0.49
1:B:15:ARG:HG2	1:B:193:LEU:HD13	1.93	0.49
1:C:17:ILE:O	5:C:704:NDP:H2N	2.13	0.49
1:E:291:ALA:HA	1:E:294:LEU:HB2	1.94	0.49
1:D:192:ILE:HD12	1:D:248:LEU:HD21	1.93	0.49
1:G:368:LEU:HD23	1:G:519:PRO:HB3	1.93	0.49
1:E:225:ALA:HA	1:E:252:ARG:HA	1.95	0.49
1:F:9:VAL:HG12	1:F:157:TYR:CZ	2.47	0.49
1:C:445:THR:HB	1:C:447:TYR:CZ	2.48	0.49
1:D:300:GLU:HA	1:D:301:ASP:HA	1.57	0.49
1:A:468:ASP:HB3	1:A:471:MET:HE3	1.94	0.49
1:B:384:TRP:CD1	1:B:389:ASP:HB3	2.48	0.49
1:C:514:VAL:HB	1:C:552:VAL:HG12	1.93	0.49
1:C:520:PHE:CD2	3:C:702:1UG:H2	2.47	0.49
1:C:436:PHE:CE2	1:D:478:PRO:HD2	2.48	0.48
1:F:89:ARG:HA	1:F:92:ARG:HG3	1.95	0.48
1:E:334:ILE:HD11	1:E:550:THR:HG22	1.94	0.48
4:F:703:FOL:C6	5:F:704:NDP:H42N	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:9:VAL:HG23	1:G:171:ILE:HA	1.96	0.48
1:D:103:SER:OG	1:D:104:SER:N	2.44	0.48
1:B:84:TRP:CE2	1:B:92:ARG:HD2	2.48	0.48
1:C:370:THR:CG2	1:C:563:GLN:HE21	2.27	0.48
1:E:169:LEU:HD12	1:E:248:LEU:HD12	1.96	0.48
1:F:499:ASP:OD1	1:F:499:ASP:N	2.47	0.48
1:A:291:ALA:N	1:A:292:PRO:HD2	2.29	0.48
1:B:151:VAL:HB	4:B:703:FOL:H7	1.96	0.48
1:F:481:LEU:HD23	1:F:484:MET:HE1	1.95	0.48
1:A:17:ILE:O	5:A:704:NDP:H2N	2.14	0.47
1:C:506:ILE:HG12	1:C:544:ILE:HB	1.94	0.47
1:A:445:THR:HB	1:A:447:TYR:CZ	2.49	0.47
1:D:192:ILE:HD11	1:D:229:PRO:HD3	1.96	0.47
1:E:368:LEU:HD23	1:E:519:PRO:HB3	1.95	0.47
1:B:300:GLU:HA	1:B:301:ASP:HA	1.56	0.47
1:A:169:LEU:HD12	1:A:248:LEU:HD12	1.95	0.47
1:H:103:SER:OG	1:H:104:SER:N	2.48	0.47
4:H:703:FOL:C6	5:H:704:NDP:H42N	2.45	0.47
1:F:384:TRP:CD1	1:F:389:ASP:HB3	2.49	0.47
1:D:17:ILE:O	5:D:704:NDP:H2N	2.15	0.47
1:H:481:LEU:HD23	1:H:484:MET:HE1	1.97	0.47
1:F:84:TRP:CE2	1:F:92:ARG:HD2	2.49	0.47
4:B:703:FOL:C6	5:B:704:NDP:H42N	2.45	0.47
1:E:520:PHE:CE2	3:E:702:1UG:H2	2.50	0.47
1:G:173:ARG:NH2	1:G:569:ARG:HA	2.29	0.47
1:G:291:ALA:N	1:G:292:PRO:HD2	2.30	0.47
1:C:81:ARG:HB2	1:C:103:SER:HB2	1.97	0.47
1:G:173:ARG:HH22	1:G:569:ARG:HA	1.80	0.47
1:G:290:ILE:HD13	1:H:230:ILE:HG21	1.96	0.47
1:C:291:ALA:N	1:C:292:PRO:HD2	2.30	0.47
1:E:506:ILE:HG13	1:F:353:PHE:CE2	2.50	0.47
1:A:339:ARG:NH1	1:B:499:ASP:OD1	2.48	0.47
1:A:436:PHE:CE1	1:B:478:PRO:HD2	2.50	0.47
1:H:227:TYR:HB3	1:H:248:LEU:HD23	1.98	0.46
1:H:442:ASP:OD1	1:H:445:THR:OG1	2.26	0.46
4:D:703:FOL:C6	5:D:704:NDP:H42N	2.46	0.46
1:F:192:ILE:HD11	1:F:229:PRO:HD3	1.98	0.46
1:F:520:PHE:CE1	3:F:702:1UG:H2	2.50	0.46
1:A:368:LEU:HD23	1:A:519:PRO:HB3	1.96	0.46
1:E:436:PHE:CE2	1:F:478:PRO:HD2	2.51	0.46
1:F:103:SER:OG	5:F:704:NDP:O1X	2.27	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:384:TRP:HH2	1:G:425:ILE:HD13	1.81	0.46
1:D:151:VAL:HB	4:D:703:FOL:H7	1.98	0.46
1:E:370:THR:CG2	1:E:563:GLN:HE21	2.29	0.46
1:F:300:GLU:HA	1:F:301:ASP:HA	1.51	0.46
1:G:576:ILE:HB	1:G:579:LYS:HE2	1.98	0.46
1:G:370:THR:CG2	1:G:563:GLN:HE21	2.26	0.46
1:F:506:ILE:HG12	1:F:544:ILE:HB	1.97	0.46
1:E:354:GLY:HA3	1:F:544:ILE:HD13	1.97	0.46
1:H:141:TYR:O	1:H:145:VAL:HG12	2.16	0.46
1:B:89:ARG:HA	1:B:92:ARG:HG3	1.97	0.45
1:D:151:VAL:O	1:D:153:GLY:N	2.49	0.45
1:G:506:ILE:HG13	1:H:353:PHE:CE2	2.50	0.45
1:H:333:ASP:OD1	1:H:337:ASN:ND2	2.46	0.45
1:E:242:PRO:HB3	1:E:573:ILE:HG13	1.99	0.45
1:G:490:HIS:CD2	1:G:490:HIS:H	2.34	0.45
1:H:127:CYS:SG	1:H:133:ALA:HA	2.56	0.45
1:A:506:ILE:HG13	1:B:353:PHE:CE2	2.51	0.45
1:B:3:LYS:N	1:B:4:PRO:HD3	2.31	0.45
1:B:442:ASP:OD1	1:B:445:THR:OG1	2.30	0.45
1:C:169:LEU:HD12	1:C:248:LEU:HD12	1.98	0.45
1:D:17:ILE:HD11	1:D:154:ALA:HB2	1.99	0.45
1:C:381:GLU:OE1	3:C:702:IUG:H13	2.16	0.45
1:E:378:VAL:HG12	1:E:520:PHE:CE2	2.52	0.45
1:G:445:THR:HB	1:G:447:TYR:CZ	2.51	0.45
1:G:514:VAL:HB	1:G:552:VAL:HG12	1.97	0.45
1:A:370:THR:CG2	1:A:563:GLN:HE21	2.24	0.45
1:B:13:PRO:HD3	1:B:174:VAL:O	2.17	0.45
1:D:567:GLU:HA	1:D:568:PRO:HD3	1.83	0.45
1:E:445:THR:HB	1:E:447:TYR:CZ	2.52	0.45
1:D:490:HIS:CD2	1:D:490:HIS:H	2.35	0.45
1:G:151:VAL:HG13	4:G:703:FOL:H7	1.98	0.45
1:D:143:ASP:N	1:D:143:ASP:OD1	2.50	0.45
1:E:137:LEU:HD12	1:E:137:LEU:HA	1.85	0.45
1:B:167:SER:HA	1:B:250:LYS:HE2	1.99	0.44
1:F:169:LEU:HB2	1:F:248:LEU:HB2	1.98	0.44
1:F:490:HIS:H	1:F:490:HIS:CD2	2.35	0.44
1:H:13:PRO:HD3	1:H:174:VAL:O	2.17	0.44
1:H:17:ILE:O	5:H:704:NDP:H2N	2.18	0.44
1:B:445:THR:HB	1:B:447:TYR:CZ	2.52	0.44
1:C:378:VAL:HG12	1:C:520:PHE:CE2	2.52	0.44
1:F:83:THR:OG1	5:F:704:NDP:O2A	2.28	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:88:PRO:HB2	1:G:90:LYS:HE3	1.99	0.44
1:D:328:LEU:HD22	1:D:564:LEU:HD22	1.99	0.44
1:F:103:SER:O	1:F:128:ALA:HA	2.17	0.44
1:F:5:VAL:HG13	1:F:148:ILE:HD11	1.98	0.44
1:G:334:ILE:HG21	1:G:552:VAL:HG13	1.98	0.44
1:G:17:ILE:O	5:G:704:NDP:H2N	2.17	0.44
1:E:291:ALA:N	1:E:292:PRO:HD2	2.33	0.44
1:F:188:PRO:HB2	1:F:226:THR:HA	1.99	0.44
1:G:173:ARG:HD3	1:G:244:ASP:OD1	2.18	0.44
1:F:151:VAL:HB	4:F:703:FOL:H7	2.00	0.44
1:H:232:ILE:HG22	1:H:322:HIS:HB2	1.99	0.44
1:C:30:THR:HB	1:C:243:TYR:OH	2.18	0.44
1:D:40:LYS:HA	1:D:75:ASN:HD22	1.82	0.44
1:F:487:PRO:O	1:F:510:ARG:NH1	2.39	0.44
1:G:8:VAL:HG22	4:G:703:FOL:HN1	1.83	0.44
1:G:88:PRO:HG2	1:G:91:PHE:HB2	1.99	0.44
1:A:130:LEU:HB3	1:A:131:PRO:HD3	1.99	0.44
1:A:490:HIS:CD2	1:A:490:HIS:H	2.36	0.44
1:C:506:ILE:HG13	1:D:353:PHE:CE2	2.52	0.44
1:G:334:ILE:HD11	1:G:550:THR:HG22	1.99	0.44
1:G:520:PHE:CD2	3:G:702:1UG:H2	2.53	0.44
1:H:3:LYS:N	1:H:4:PRO:HD3	2.32	0.44
1:D:13:PRO:HD3	1:D:174:VAL:O	2.18	0.43
1:F:13:PRO:HD3	1:F:174:VAL:O	2.18	0.43
1:H:192:ILE:HD11	1:H:229:PRO:HD3	2.00	0.43
1:A:161:LEU:HA	1:A:161:LEU:HD12	1.77	0.43
1:A:333:ASP:OD1	1:A:337:ASN:ND2	2.51	0.43
1:B:490:HIS:CD2	1:B:490:HIS:H	2.35	0.43
1:C:9:VAL:HG23	1:C:171:ILE:HA	1.99	0.43
1:D:333:ASP:OD1	1:D:337:ASN:ND2	2.50	0.43
1:E:468:ASP:HB3	1:E:471:MET:HE3	2.00	0.43
1:H:511:SER:OG	1:H:551:HIS:HE1	2.01	0.43
1:A:378:VAL:HG12	1:A:520:PHE:CE2	2.53	0.43
1:B:481:LEU:HD23	1:B:484:MET:HE1	1.99	0.43
1:D:499:ASP:N	1:D:499:ASP:OD1	2.47	0.43
1:G:436:PHE:CE1	1:H:478:PRO:HD2	2.52	0.43
1:A:241:VAL:HA	1:A:242:PRO:HD3	1.85	0.43
1:A:384:TRP:CD1	1:A:389:ASP:HB3	2.53	0.43
1:D:89:ARG:HA	1:D:92:ARG:HG3	2.00	0.43
3:E:702:1UG:H7	3:E:702:1UG:CAT	2.47	0.43
1:H:15:ARG:HG2	1:H:193:LEU:HD13	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:5:VAL:HG13	1:H:148:ILE:HD11	1.99	0.43
1:D:23:LEU:HA	1:D:24:PRO:HD3	1.80	0.43
1:F:227:TYR:HB3	1:F:248:LEU:HD23	1.99	0.43
1:B:127:CYS:SG	1:B:133:ALA:HA	2.58	0.43
1:B:192:ILE:HD12	1:B:248:LEU:HD21	2.00	0.43
1:B:89:ARG:H	1:B:89:ARG:NE	2.16	0.43
1:D:9:VAL:HG23	1:D:171:ILE:HA	2.01	0.43
1:E:334:ILE:HG21	1:E:552:VAL:HG13	2.00	0.43
1:F:520:PHE:CE2	3:F:702:1UG:H2	2.54	0.43
1:G:384:TRP:CD1	1:G:389:ASP:HB3	2.54	0.43
1:B:143:ASP:OD1	1:B:143:ASP:N	2.50	0.43
1:B:23:LEU:HA	1:B:24:PRO:HD3	1.77	0.43
1:D:169:LEU:HB2	1:D:248:LEU:HB2	2.00	0.43
1:C:353:PHE:CE2	1:D:506:ILE:HG13	2.54	0.43
1:G:353:PHE:CE2	1:H:506:ILE:HG13	2.54	0.43
1:A:358:ARG:HD3	1:A:542:GLU:OE1	2.19	0.43
1:F:311:ILE:HD11	1:F:332:ALA:HA	2.00	0.43
1:A:384:TRP:HH2	1:A:425:ILE:HD13	1.83	0.42
1:F:15:ARG:HG2	1:F:193:LEU:HD13	2.00	0.42
1:G:36:SER:HB2	4:G:703:FOL:HB1	2.00	0.42
1:A:384:TRP:CH2	1:A:425:ILE:HD13	2.54	0.42
1:B:227:TYR:HB3	1:B:248:LEU:HD23	2.00	0.42
1:D:516:LEU:HD13	1:D:606:MET:HB2	2.00	0.42
1:G:358:ARG:NH1	1:G:542:GLU:OE2	2.52	0.42
1:A:328:LEU:HD21	1:A:370:THR:HG21	2.00	0.42
1:D:531:MET:HE3	1:D:588:PHE:CG	2.54	0.42
1:E:384:TRP:HH2	1:E:425:ILE:HD13	1.84	0.42
1:H:151:VAL:O	1:H:153:GLY:N	2.53	0.42
1:A:13:PRO:HD3	1:A:174:VAL:O	2.19	0.42
1:D:581:ARG:NH2	1:D:592:ASP:OD1	2.52	0.42
1:E:87:MET:HE2	1:E:87:MET:HB3	1.84	0.42
1:G:339:ARG:NH1	1:H:499:ASP:OD1	2.51	0.42
1:A:576:ILE:HB	1:A:579:LYS:HE2	2.01	0.42
1:D:155:GLY:HA2	1:D:158:GLU:CD	2.39	0.42
1:E:87:MET:O	1:E:92:ARG:NH2	2.53	0.42
1:G:10:ALA:HA	1:G:172:THR:HB	2.01	0.42
1:B:192:ILE:HD11	1:B:229:PRO:HD3	2.00	0.42
1:C:130:LEU:HB3	1:C:131:PRO:HD3	2.02	0.42
1:C:192:ILE:H	1:C:192:ILE:HG13	1.57	0.42
1:C:94:LEU:HB3	1:C:97:ARG:CZ	2.50	0.42
1:D:395:LEU:HD12	1:D:395:LEU:HA	1.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:156:LEU:HA	1:F:156:LEU:HD12	1.86	0.42
4:G:703:FOL:C6	4:G:703:FOL:H13	2.50	0.42
1:H:300:GLU:HA	1:H:301:ASP:HA	1.60	0.42
1:C:10:ALA:HA	1:C:172:THR:HB	2.02	0.42
1:D:156:LEU:HD12	1:D:156:LEU:HA	1.84	0.42
1:D:487:PRO:O	1:D:510:ARG:NH1	2.41	0.42
1:E:173:ARG:HD3	1:E:244:ASP:OD1	2.20	0.42
1:F:23:LEU:HA	1:F:24:PRO:HD3	1.79	0.42
1:G:151:VAL:O	1:G:157:TYR:OH	2.36	0.42
1:A:142:LYS:HA	1:A:142:LYS:HD3	1.84	0.42
1:C:328:LEU:HD21	1:C:370:THR:HG21	2.01	0.42
1:D:188:PRO:HB2	1:D:226:THR:HA	2.01	0.42
1:D:234:LYS:HG2	1:D:235:THR:N	2.35	0.42
1:F:445:THR:HB	1:F:447:TYR:CZ	2.55	0.42
1:G:384:TRP:CH2	1:G:425:ILE:HD13	2.55	0.42
1:C:151:VAL:O	1:C:157:TYR:OH	2.37	0.42
1:C:490:HIS:H	1:C:490:HIS:CD2	2.38	0.42
1:G:142:LYS:HD3	1:G:142:LYS:HA	1.82	0.42
1:H:23:LEU:HA	1:H:24:PRO:HD3	1.81	0.42
1:C:334:ILE:HG21	1:C:552:VAL:HG13	2.01	0.41
1:D:94:LEU:HB2	1:D:99:ASN:HD21	1.85	0.41
1:E:130:LEU:HB3	1:E:131:PRO:HD3	2.02	0.41
1:F:234:LYS:HG2	1:F:235:THR:N	2.35	0.41
1:B:293:VAL:HA	1:B:296:TRP:CD1	2.55	0.41
1:C:384:TRP:CH2	1:C:425:ILE:HD13	2.55	0.41
1:C:5:VAL:HG23	1:C:148:ILE:HG22	2.02	0.41
1:D:227:TYR:HB3	1:D:248:LEU:HD23	2.02	0.41
1:B:83:THR:OG1	5:B:704:NDP:O2A	2.27	0.41
1:E:30:THR:HB	1:E:243:TYR:OH	2.20	0.41
1:E:358:ARG:HD3	1:E:542:GLU:OE1	2.20	0.41
1:D:5:VAL:HG13	1:D:148:ILE:HD11	2.02	0.41
1:F:516:LEU:HD13	1:F:606:MET:HB2	2.02	0.41
1:A:491:LEU:HD12	1:A:492:LEU:HB2	2.03	0.41
1:C:176:ARG:HG3	1:C:242:PRO:HD2	2.02	0.41
1:E:384:TRP:CH2	1:E:425:ILE:HD13	2.55	0.41
1:F:103:SER:OG	1:F:104:SER:N	2.52	0.41
1:G:13:PRO:HD3	1:G:174:VAL:O	2.20	0.41
1:G:358:ARG:HD3	1:G:542:GLU:OE1	2.21	0.41
1:F:9:VAL:HG23	1:F:171:ILE:HA	2.03	0.41
1:F:372:ARG:HB3	1:F:603:ARG:HG2	2.03	0.41
1:F:486:LEU:HD23	1:F:486:LEU:HA	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:184:PHE:CG	1:A:185:PRO:HD2	2.56	0.41
1:A:353:PHE:CE2	1:B:506:ILE:HG13	2.56	0.41
1:B:169:LEU:HB2	1:B:248:LEU:HB2	2.03	0.41
1:D:445:THR:HB	1:D:447:TYR:CZ	2.55	0.41
1:E:13:PRO:HD3	1:E:174:VAL:O	2.21	0.41
1:F:502:GLU:HB3	1:F:541:LYS:HB2	2.03	0.41
1:G:476:TRP:HE3	1:G:488:PRO:HG2	1.86	0.41
1:H:234:LYS:HG2	1:H:235:THR:N	2.36	0.41
1:C:358:ARG:HD3	1:C:542:GLU:OE1	2.20	0.41
1:C:87:MET:HE1	1:C:94:LEU:HG	2.03	0.41
1:E:490:HIS:CD2	1:E:490:HIS:H	2.37	0.41
1:F:511:SER:OG	1:F:551:HIS:HE1	2.03	0.41
1:G:130:LEU:HB3	1:G:131:PRO:HD3	2.02	0.41
1:A:478:PRO:HD2	1:B:436:PHE:CE1	2.56	0.41
1:D:173:ARG:HD3	1:D:244:ASP:HB3	2.02	0.41
1:A:334:ILE:HD11	1:A:550:THR:HG22	2.01	0.41
1:C:358:ARG:NH2	1:D:354:GLY:O	2.54	0.41
1:D:331:ILE:HD13	1:D:560:LEU:HD22	2.03	0.41
1:E:232:ILE:HG12	1:E:246:VAL:HG12	2.02	0.41
1:E:9:VAL:HG11	1:E:184:PHE:CD1	2.56	0.41
1:F:17:ILE:O	5:F:704:NDP:H2N	2.21	0.41
1:H:10:ALA:HA	1:H:172:THR:HB	2.03	0.41
1:H:295:ALA:O	1:H:299:GLU:HG3	2.21	0.41
1:B:156:LEU:HD12	1:B:156:LEU:HA	1.86	0.40
1:C:386:ILE:O	1:C:434:ARG:NH2	2.53	0.40
1:E:192:ILE:H	1:E:192:ILE:HG13	1.57	0.40
1:E:324:GLU:HG3	1:E:368:LEU:HD12	2.03	0.40
1:G:378:VAL:HG12	1:G:520:PHE:CE2	2.57	0.40
1:H:188:PRO:HB2	1:H:226:THR:HA	2.04	0.40
1:B:608:MET:CE	3:B:702:1UG:H6	2.51	0.40
1:C:9:VAL:HG11	1:C:184:PHE:CD1	2.55	0.40
1:F:140:GLU:HG2	1:F:140:GLU:H	1.71	0.40
1:H:490:HIS:H	1:H:490:HIS:CD2	2.38	0.40
1:B:155:GLY:HA2	1:B:158:GLU:HG2	2.03	0.40
1:B:608:MET:HE2	3:B:702:1UG:H6	2.03	0.40
1:B:21:ASN:OD1	1:B:82:LYS:HB3	2.21	0.40
1:C:142:LYS:O	1:C:143:ASP:HB3	2.20	0.40
1:C:80:GLY:N	1:C:152:GLY:O	2.52	0.40
1:D:127:CYS:SG	1:D:133:ALA:HA	2.60	0.40
1:F:87:MET:HA	1:F:88:PRO:HD2	1.88	0.40
1:G:534:HIS:CE1	1:G:579:LYS:HD3	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:328:LEU:HD22	1:B:564:LEU:HD22	2.04	0.40
1:C:354:GLY:HA3	1:D:544:ILE:HD13	2.03	0.40
1:D:575:ASN:HB2	1:D:594:GLU:HG2	2.04	0.40
1:E:137:LEU:HD23	1:E:148:ILE:HD13	2.02	0.40
1:E:378:VAL:HG12	1:E:520:PHE:CD2	2.56	0.40
1:F:173:ARG:CZ	1:F:570:PRO:HD3	2.51	0.40
1:H:334:ILE:HD11	1:H:550:THR:HG22	2.03	0.40
1:G:339:ARG:HH12	1:H:500:GLN:HG2	1.86	0.40
1:A:9:VAL:HG23	1:A:171:ILE:HA	2.04	0.40
1:D:143:ASP:O	1:D:144:SER:HB2	2.22	0.40
1:C:478:PRO:HD2	1:D:436:PHE:CE1	2.56	0.40
1:E:184:PHE:CG	1:E:185:PRO:HD2	2.56	0.40
1:F:401:LYS:HG2	1:F:401:LYS:H	1.69	0.40
1:G:397:GLU:OE2	1:G:398:LYS:HG3	2.21	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	502/566 (89%)	482 (96%)	19 (4%)	1 (0%)	51	84
1	B	478/566 (84%)	447 (94%)	29 (6%)	2 (0%)	38	74
1	C	502/566 (89%)	485 (97%)	15 (3%)	2 (0%)	38	74
1	D	478/566 (84%)	448 (94%)	27 (6%)	3 (1%)	28	68
1	E	502/566 (89%)	486 (97%)	15 (3%)	1 (0%)	51	84
1	F	478/566 (84%)	448 (94%)	28 (6%)	2 (0%)	38	74
1	G	502/566 (89%)	485 (97%)	15 (3%)	2 (0%)	38	74
1	H	478/566 (84%)	449 (94%)	25 (5%)	4 (1%)	22	62
All	All	3920/4528 (87%)	3730 (95%)	173 (4%)	17 (0%)	38	74

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	429	TYR
1	H	429	TYR
1	E	429	TYR
1	F	429	TYR
1	H	144	SER
1	A	429	TYR
1	B	429	TYR
1	C	429	TYR
1	D	144	SER
1	F	139	GLU
1	G	429	TYR
1	G	286	SER
1	B	94	LEU
1	C	286	SER
1	D	139	GLU
1	H	94	LEU
1	H	139	GLU

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	444/491 (90%)	417 (94%)	27 (6%)	22	59
1	B	431/491 (88%)	409 (95%)	22 (5%)	28	65
1	C	444/491 (90%)	420 (95%)	24 (5%)	26	63
1	D	431/491 (88%)	406 (94%)	25 (6%)	23	61
1	E	444/491 (90%)	412 (93%)	32 (7%)	17	51
1	F	431/491 (88%)	404 (94%)	27 (6%)	21	58
1	G	444/491 (90%)	418 (94%)	26 (6%)	23	60
1	H	431/491 (88%)	403 (94%)	28 (6%)	20	56
All	All	3500/3928 (89%)	3289 (94%)	211 (6%)	22	60

All (211) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	VAL
1	A	37	ARG
1	A	90	LYS
1	A	123	ARG
1	A	137	LEU
1	A	142	LYS
1	A	143	ASP
1	A	161	LEU
1	A	192	ILE
1	A	230	ILE
1	A	234	LYS
1	A	252	ARG
1	A	310	LEU
1	A	320	ARG
1	A	330	LEU
1	A	349	VAL
1	A	378	VAL
1	A	383	LEU
1	A	397	GLU
1	A	409	ARG
1	A	441	LYS
1	A	500	GLN
1	A	539	LYS
1	A	545	HIS
1	A	567	GLU
1	A	580	GLU
1	A	610	VAL
1	B	25	TRP
1	B	37	ARG
1	B	41	THR
1	B	89	ARG
1	B	140	GLU
1	B	143	ASP
1	B	148	ILE
1	B	177	GLU
1	B	190	ASP
1	B	228	ARG
1	B	230	ILE
1	B	300	GLU
1	B	308	LYS
1	B	311	ILE
1	B	320	ARG
1	B	344	ARG

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Mol	Chain	Res	Type
1	B	395	LEU
1	B	401	LYS
1	B	409	ARG
1	B	545	HIS
1	B	564	LEU
1	B	579	LYS
1	C	8	VAL
1	C	9	VAL
1	C	37	ARG
1	C	90	LYS
1	C	123	ARG
1	C	137	LEU
1	C	143	ASP
1	C	156	LEU
1	C	161	LEU
1	C	192	ILE
1	C	230	ILE
1	C	234	LYS
1	C	252	ARG
1	C	310	LEU
1	C	349	VAL
1	C	383	LEU
1	C	397	GLU
1	C	409	ARG
1	C	500	GLN
1	C	545	HIS
1	C	567	GLU
1	C	580	GLU
1	C	599	VAL
1	C	610	VAL
1	D	25	TRP
1	D	36	SER
1	D	37	ARG
1	D	41	THR
1	D	89	ARG
1	D	136	LEU
1	D	140	GLU
1	D	143	ASP
1	D	177	GLU
1	D	190	ASP
1	D	191	ASP
1	D	228	ARG

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Mol	Chain	Res	Type
1	D	230	ILE
1	D	244	ASP
1	D	308	LYS
1	D	310	LEU
1	D	311	ILE
1	D	320	ARG
1	D	360	SER
1	D	395	LEU
1	D	409	ARG
1	D	545	HIS
1	D	564	LEU
1	D	567	GLU
1	D	579	LYS
1	E	5	VAL
1	E	8	VAL
1	E	9	VAL
1	E	37	ARG
1	E	90	LYS
1	E	122	GLN
1	E	123	ARG
1	E	137	LEU
1	E	142	LYS
1	E	143	ASP
1	E	161	LEU
1	E	192	ILE
1	E	230	ILE
1	E	234	LYS
1	E	252	ARG
1	E	285	SER
1	E	310	LEU
1	E	330	LEU
1	E	343	ASP
1	E	349	VAL
1	E	378	VAL
1	E	383	LEU
1	E	397	GLU
1	E	409	ARG
1	E	414	SER
1	E	441	LYS
1	E	492	LEU
1	E	539	LYS
1	E	545	HIS

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Mol	Chain	Res	Type
1	E	567	GLU
1	E	580	GLU
1	E	610	VAL
1	F	25	TRP
1	F	37	ARG
1	F	41	THR
1	F	89	ARG
1	F	140	GLU
1	F	143	ASP
1	F	148	ILE
1	F	177	GLU
1	F	190	ASP
1	F	228	ARG
1	F	230	ILE
1	F	301	ASP
1	F	308	LYS
1	F	311	ILE
1	F	331	ILE
1	F	339	ARG
1	F	344	ARG
1	F	360	SER
1	F	395	LEU
1	F	401	LYS
1	F	409	ARG
1	F	470	ARG
1	F	492	LEU
1	F	545	HIS
1	F	564	LEU
1	F	567	GLU
1	F	579	LYS
1	G	8	VAL
1	G	37	ARG
1	G	90	LYS
1	G	91	PHE
1	G	122	GLN
1	G	123	ARG
1	G	137	LEU
1	G	140	GLU
1	G	142	LYS
1	G	143	ASP
1	G	161	LEU
1	G	230	ILE

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Mol	Chain	Res	Type
1	G	234	LYS
1	G	310	LEU
1	G	320	ARG
1	G	330	LEU
1	G	349	VAL
1	G	383	LEU
1	G	397	GLU
1	G	409	ARG
1	G	441	LYS
1	G	500	GLN
1	G	539	LYS
1	G	545	HIS
1	G	580	GLU
1	G	610	VAL
1	H	25	TRP
1	H	36	SER
1	H	37	ARG
1	H	39	THR
1	H	41	THR
1	H	86	SER
1	H	89	ARG
1	H	107	LYS
1	H	140	GLU
1	H	143	ASP
1	H	177	GLU
1	H	190	ASP
1	H	228	ARG
1	H	230	ILE
1	H	244	ASP
1	H	300	GLU
1	H	308	LYS
1	H	311	ILE
1	H	320	ARG
1	H	331	ILE
1	H	344	ARG
1	H	395	LEU
1	H	409	ARG
1	H	545	HIS
1	H	564	LEU
1	H	567	GLU
1	H	573	ILE
1	H	579	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	99	ASN
1	A	117	GLN
1	A	239	ASN
1	A	450	GLN
1	A	500	GLN
1	A	534	HIS
1	A	563	GLN
1	A	575	ASN
1	B	99	ASN
1	B	450	GLN
1	C	99	ASN
1	C	117	GLN
1	C	239	ASN
1	C	563	GLN
1	C	575	ASN
1	D	99	ASN
1	E	99	ASN
1	E	117	GLN
1	E	239	ASN
1	E	500	GLN
1	E	563	GLN
1	E	575	ASN
1	F	99	ASN
1	G	99	ASN
1	G	117	GLN
1	G	239	ASN
1	G	500	GLN
1	G	563	GLN
1	G	575	ASN
1	H	168	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 ⓘ

32 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	UMP	A	701	-	17,21,21	1.11	1 (5%)	23,31,31	2.26	4 (17%)
3	1UG	A	702	-	27,30,30	1.67	6 (22%)	32,44,44	2.60	13 (40%)
4	FOL	A	703	-	27,34,34	1.26	3 (11%)	35,47,47	2.40	12 (34%)
5	NDP	A	704	-	43,52,52	1.05	2 (4%)	49,80,80	1.57	4 (8%)
2	UMP	B	701	-	17,21,21	1.13	1 (5%)	23,31,31	2.19	4 (17%)
3	1UG	B	702	-	27,30,30	1.64	6 (22%)	32,44,44	2.56	14 (43%)
4	FOL	B	703	-	27,34,34	1.23	3 (11%)	35,47,47	2.25	13 (37%)
5	NDP	B	704	-	43,52,52	1.06	2 (4%)	49,80,80	1.54	4 (8%)
2	UMP	C	701	-	17,21,21	1.10	1 (5%)	23,31,31	2.26	6 (26%)
3	1UG	C	702	-	27,30,30	1.65	5 (18%)	32,44,44	2.47	12 (37%)
4	FOL	C	703	-	27,34,34	1.26	3 (11%)	35,47,47	2.39	13 (37%)
5	NDP	C	704	-	43,52,52	1.05	2 (4%)	49,80,80	1.58	5 (10%)
2	UMP	D	701	-	17,21,21	1.12	1 (5%)	23,31,31	2.18	4 (17%)
3	1UG	D	702	-	27,30,30	1.65	6 (22%)	32,44,44	2.60	14 (43%)
4	FOL	D	703	-	27,34,34	1.23	3 (11%)	35,47,47	2.22	13 (37%)
5	NDP	D	704	-	43,52,52	1.06	2 (4%)	49,80,80	1.51	3 (6%)
2	UMP	E	701	-	17,21,21	1.12	1 (5%)	23,31,31	2.26	5 (21%)
3	1UG	E	702	-	27,30,30	1.64	5 (18%)	32,44,44	2.45	12 (37%)
4	FOL	E	703	-	27,34,34	1.26	3 (11%)	35,47,47	2.36	12 (34%)
5	NDP	E	704	-	43,52,52	1.06	2 (4%)	49,80,80	1.56	3 (6%)
2	UMP	F	701	-	17,21,21	1.13	1 (5%)	23,31,31	2.18	6 (26%)
3	1UG	F	702	-	27,30,30	1.62	5 (18%)	32,44,44	2.51	13 (40%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	FOL	F	703	-	27,34,34	1.22	3 (11%)	35,47,47	2.25	13 (37%)
5	NDP	F	704	-	43,52,52	1.05	2 (4%)	49,80,80	1.52	3 (6%)
2	UMP	G	701	-	17,21,21	1.12	1 (5%)	23,31,31	2.25	6 (26%)
3	1UG	G	702	-	27,30,30	1.64	5 (18%)	32,44,44	2.47	13 (40%)
4	FOL	G	703	-	27,34,34	1.25	3 (11%)	35,47,47	2.37	12 (34%)
5	NDP	G	704	-	43,52,52	1.05	2 (4%)	49,80,80	1.56	3 (6%)
2	UMP	H	701	-	17,21,21	1.12	1 (5%)	23,31,31	2.18	6 (26%)
3	1UG	H	702	-	27,30,30	1.64	6 (22%)	32,44,44	2.59	14 (43%)
4	FOL	H	703	-	27,34,34	1.23	3 (11%)	35,47,47	2.26	13 (37%)
5	NDP	H	704	-	43,52,52	1.06	2 (4%)	49,80,80	1.52	4 (8%)

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	UMP	A	701	-	-	0/6/22/22	0/2/2/2
3	1UG	A	702	-	-	0/4/4/4	0/5/5/5
4	FOL	A	703	-	-	0/16/22/22	0/3/3/3
5	NDP	A	704	-	-	0/30/77/77	0/5/5/5
2	UMP	B	701	-	-	0/6/22/22	0/2/2/2
3	1UG	B	702	-	-	0/4/4/4	0/5/5/5
4	FOL	B	703	-	-	0/16/22/22	0/3/3/3
5	NDP	B	704	-	-	0/30/77/77	0/5/5/5
2	UMP	C	701	-	-	0/6/22/22	0/2/2/2
3	1UG	C	702	-	-	0/4/4/4	0/5/5/5
4	FOL	C	703	-	-	0/16/22/22	0/3/3/3
5	NDP	C	704	-	-	0/30/77/77	0/5/5/5
2	UMP	D	701	-	-	0/6/22/22	0/2/2/2
3	1UG	D	702	-	-	0/4/4/4	0/5/5/5
4	FOL	D	703	-	-	0/16/22/22	0/3/3/3
5	NDP	D	704	-	-	0/30/77/77	0/5/5/5
2	UMP	E	701	-	-	0/6/22/22	0/2/2/2
3	1UG	E	702	-	-	0/4/4/4	0/5/5/5
4	FOL	E	703	-	-	0/16/22/22	0/3/3/3
5	NDP	E	704	-	-	0/30/77/77	0/5/5/5
2	UMP	F	701	-	-	0/6/22/22	0/2/2/2
3	1UG	F	702	-	-	0/4/4/4	0/5/5/5
4	FOL	F	703	-	-	0/16/22/22	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NDP	F	704	-	-	0/30/77/77	0/5/5/5
2	UMP	G	701	-	-	0/6/22/22	0/2/2/2
3	1UG	G	702	-	-	0/4/4/4	0/5/5/5
4	FOL	G	703	-	-	0/16/22/22	0/3/3/3
5	NDP	G	704	-	-	0/30/77/77	0/5/5/5
2	UMP	H	701	-	-	0/6/22/22	0/2/2/2
3	1UG	H	702	-	-	0/4/4/4	0/5/5/5
4	FOL	H	703	-	-	0/16/22/22	0/3/3/3
5	NDP	H	704	-	-	0/30/77/77	0/5/5/5

All (92) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	702	1UG	CAK-CAV	-3.69	1.35	1.41
3	D	702	1UG	CAK-CAV	-3.69	1.35	1.41
3	H	702	1UG	CAK-CAV	-3.66	1.35	1.41
3	A	702	1UG	CAK-CAV	-3.65	1.35	1.41
3	G	702	1UG	CAK-CAV	-3.63	1.35	1.41
3	E	702	1UG	CAK-CAV	-3.59	1.35	1.41
3	B	702	1UG	CAK-CAV	-3.58	1.35	1.41
3	F	702	1UG	CAK-CAV	-3.56	1.35	1.41
2	G	701	UMP	C2-N3	-3.18	1.31	1.38
2	A	701	UMP	C2-N3	-3.11	1.32	1.38
2	E	701	UMP	C2-N3	-3.11	1.32	1.38
2	C	701	UMP	C2-N3	-3.07	1.32	1.38
2	B	701	UMP	C2-N3	-3.03	1.32	1.38
2	F	701	UMP	C2-N3	-3.01	1.32	1.38
2	D	701	UMP	C2-N3	-2.99	1.32	1.38
2	H	701	UMP	C2-N3	-2.97	1.32	1.38
3	A	702	1UG	CAZ-CAW	-2.95	1.35	1.43
3	E	702	1UG	CAZ-CAW	-2.94	1.35	1.43
3	C	702	1UG	CAZ-CAW	-2.93	1.35	1.43
3	F	702	1UG	CAZ-CAW	-2.92	1.35	1.43
3	G	702	1UG	CAZ-CAW	-2.92	1.35	1.43
3	D	702	1UG	CAZ-CAW	-2.89	1.35	1.43
3	B	702	1UG	CAZ-CAW	-2.88	1.35	1.43
3	H	702	1UG	CAZ-CAW	-2.87	1.35	1.43
4	A	703	FOL	C8A-N8	-2.78	1.32	1.37
4	E	703	FOL	C8A-N8	-2.75	1.32	1.37
4	C	703	FOL	C8A-N8	-2.72	1.33	1.37
3	A	702	1UG	CAZ-CAY	-2.71	1.36	1.42
3	G	702	1UG	CAZ-CAY	-2.65	1.36	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	702	1UG	CAZ-CAY	-2.65	1.36	1.42
4	G	703	FOL	C8A-N8	-2.63	1.33	1.37
3	C	702	1UG	CAZ-CAY	-2.63	1.36	1.42
4	B	703	FOL	C8A-N8	-2.59	1.33	1.37
4	D	703	FOL	C8A-N8	-2.57	1.33	1.37
4	F	703	FOL	C8A-N8	-2.57	1.33	1.37
3	E	702	1UG	CAZ-CAY	-2.54	1.36	1.42
4	H	703	FOL	C8A-N8	-2.52	1.33	1.37
3	B	702	1UG	CAZ-CAY	-2.46	1.37	1.42
3	D	702	1UG	CAZ-CAY	-2.46	1.37	1.42
3	H	702	1UG	CAZ-CAY	-2.45	1.37	1.42
3	A	702	1UG	CAJ-CAU	-2.04	1.37	1.41
3	B	702	1UG	CAQ-NAN	2.02	1.39	1.35
3	D	702	1UG	CAQ-NAN	2.03	1.39	1.35
3	H	702	1UG	CAQ-NAN	2.05	1.39	1.35
3	G	702	1UG	CAS-SAP	2.16	1.85	1.78
4	F	703	FOL	C4-C4A	2.18	1.45	1.41
3	F	702	1UG	CAS-SAP	2.18	1.85	1.78
3	E	702	1UG	CAS-SAP	2.21	1.85	1.78
4	B	703	FOL	C4-C4A	2.22	1.45	1.41
4	H	703	FOL	C4-C4A	2.23	1.45	1.41
4	D	703	FOL	C4-C4A	2.24	1.45	1.41
4	G	703	FOL	C4-C4A	2.25	1.45	1.41
3	C	702	1UG	CAS-SAP	2.28	1.85	1.78
3	B	702	1UG	CAS-SAP	2.28	1.85	1.78
3	H	702	1UG	CAS-SAP	2.29	1.85	1.78
4	E	703	FOL	C4-C4A	2.31	1.45	1.41
4	C	703	FOL	C4-C4A	2.32	1.45	1.41
3	D	702	1UG	CAS-SAP	2.33	1.86	1.78
4	A	703	FOL	C4-C4A	2.34	1.45	1.41
3	A	702	1UG	CAS-SAP	2.34	1.86	1.78
5	A	704	NDP	C6N-C5N	2.47	1.37	1.33
5	D	704	NDP	C6N-C5N	2.49	1.37	1.33
5	G	704	NDP	C6N-C5N	2.53	1.37	1.33
5	F	704	NDP	C6N-C5N	2.54	1.38	1.33
5	H	704	NDP	C6N-C5N	2.54	1.38	1.33
5	E	704	NDP	C6N-C5N	2.54	1.38	1.33
5	C	704	NDP	C6N-C5N	2.55	1.38	1.33
5	B	704	NDP	C6N-C5N	2.58	1.38	1.33
5	C	704	NDP	C5A-C4A	2.85	1.46	1.40
5	H	704	NDP	C5A-C4A	2.88	1.47	1.40
5	A	704	NDP	C5A-C4A	2.90	1.47	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	704	NDP	C5A-C4A	2.90	1.47	1.40
5	G	704	NDP	C5A-C4A	2.91	1.47	1.40
5	F	704	NDP	C5A-C4A	2.93	1.47	1.40
5	E	704	NDP	C5A-C4A	2.94	1.47	1.40
5	D	704	NDP	C5A-C4A	2.96	1.47	1.40
3	F	702	1UG	CAT-NAN	3.81	1.39	1.33
4	F	703	FOL	C7-N8	3.83	1.38	1.31
4	H	703	FOL	C7-N8	3.87	1.38	1.31
4	D	703	FOL	C7-N8	3.87	1.38	1.31
3	A	702	1UG	CAT-NAN	3.88	1.40	1.33
4	B	703	FOL	C7-N8	3.91	1.38	1.31
3	G	702	1UG	CAT-NAN	3.95	1.40	1.33
3	C	702	1UG	CAT-NAN	3.97	1.40	1.33
4	A	703	FOL	C7-N8	4.03	1.38	1.31
3	E	702	1UG	CAT-NAN	4.04	1.40	1.33
4	G	703	FOL	C7-N8	4.04	1.38	1.31
4	E	703	FOL	C7-N8	4.06	1.38	1.31
4	C	703	FOL	C7-N8	4.08	1.38	1.31
3	D	702	1UG	CAT-NAN	4.15	1.40	1.33
3	B	702	1UG	CAT-NAN	4.18	1.40	1.33
3	H	702	1UG	CAT-NAN	4.19	1.40	1.33

All (276) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	704	NDP	N3A-C2A-N1A	-7.96	121.93	128.86
5	C	704	NDP	N3A-C2A-N1A	-7.95	121.94	128.86
5	G	704	NDP	N3A-C2A-N1A	-7.92	121.96	128.86
5	E	704	NDP	N3A-C2A-N1A	-7.81	122.06	128.86
5	B	704	NDP	N3A-C2A-N1A	-7.70	122.16	128.86
5	F	704	NDP	N3A-C2A-N1A	-7.66	122.18	128.86
5	H	704	NDP	N3A-C2A-N1A	-7.64	122.20	128.86
5	D	704	NDP	N3A-C2A-N1A	-7.59	122.25	128.86
3	D	702	1UG	NAM-CAQ-NAN	-6.30	118.25	127.46
3	B	702	1UG	NAM-CAQ-NAN	-6.29	118.28	127.46
3	H	702	1UG	NAM-CAQ-NAN	-6.27	118.30	127.46
3	C	702	1UG	NAM-CAQ-NAN	-6.25	118.33	127.46
3	A	702	1UG	NAM-CAQ-NAN	-6.23	118.37	127.46
3	E	702	1UG	NAM-CAQ-NAN	-6.20	118.40	127.46
3	F	702	1UG	NAM-CAQ-NAN	-6.14	118.50	127.46
3	G	702	1UG	NAM-CAQ-NAN	-6.11	118.54	127.46
4	C	703	FOL	C7-C6-N5	-4.90	117.58	120.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	703	FOL	C7-C6-N5	-4.72	117.70	120.80
4	E	703	FOL	C7-C6-N5	-4.71	117.70	120.80
4	G	703	FOL	C7-C6-N5	-4.59	117.78	120.80
4	G	703	FOL	C4A-C4-N3	-4.36	117.28	123.48
4	A	703	FOL	C4A-C4-N3	-4.34	117.31	123.48
4	B	703	FOL	C4A-C4-N3	-4.33	117.32	123.48
4	H	703	FOL	C4A-C4-N3	-4.32	117.33	123.48
4	D	703	FOL	C4A-C4-N3	-4.31	117.35	123.48
4	C	703	FOL	C4A-C4-N3	-4.29	117.37	123.48
4	F	703	FOL	C4A-C4-N3	-4.28	117.40	123.48
4	E	703	FOL	C4A-C4-N3	-4.26	117.42	123.48
4	B	703	FOL	C7-C6-N5	-4.00	118.17	120.80
4	F	703	FOL	C7-C6-N5	-3.98	118.18	120.80
4	H	703	FOL	C7-C6-N5	-3.86	118.27	120.80
4	D	703	FOL	C7-C6-N5	-3.79	118.31	120.80
3	G	702	1UG	CAZ-CAT-NAN	-3.59	120.67	124.12
3	F	702	1UG	CAZ-CAT-NAN	-3.58	120.68	124.12
3	D	702	1UG	CAZ-CAT-NAN	-3.53	120.73	124.12
3	H	702	1UG	CAZ-CAT-NAN	-3.51	120.75	124.12
3	A	702	1UG	CAZ-CAT-NAN	-3.50	120.76	124.12
3	C	702	1UG	CAZ-CAT-NAN	-3.45	120.81	124.12
3	E	702	1UG	CAZ-CAT-NAN	-3.39	120.87	124.12
3	B	702	1UG	CAZ-CAT-NAN	-3.37	120.88	124.12
3	A	702	1UG	CAD-CAC-CAI	-3.35	115.67	120.45
3	H	702	1UG	CAI-CAU-CAJ	-3.32	115.33	123.18
3	D	702	1UG	CAI-CAU-CAJ	-3.26	115.46	123.18
3	B	702	1UG	CAI-CAU-CAJ	-3.24	115.50	123.18
3	D	702	1UG	CAD-CAC-CAI	-3.20	115.89	120.45
3	F	702	1UG	CAD-CAC-CAI	-3.19	115.90	120.45
3	C	702	1UG	CAD-CAC-CAI	-3.18	115.92	120.45
3	A	702	1UG	CAI-CAU-CAJ	-3.17	115.68	123.18
3	B	702	1UG	CAD-CAC-CAI	-3.17	115.93	120.45
3	H	702	1UG	CAD-CAC-CAI	-3.16	115.94	120.45
2	C	701	UMP	O5'-P-OP1	-3.16	97.61	106.47
2	D	701	UMP	O5'-P-OP1	-3.15	97.63	106.47
2	A	701	UMP	O5'-P-OP1	-3.14	97.66	106.47
2	H	701	UMP	O5'-P-OP1	-3.11	97.75	106.47
3	E	702	1UG	CAD-CAC-CAI	-3.10	116.02	120.45
2	B	701	UMP	O5'-P-OP1	-3.10	97.77	106.47
3	G	702	1UG	CAD-CAC-CAI	-3.10	116.03	120.45
3	H	702	1UG	CAG-CAR-SAP	-3.05	109.48	117.47
2	F	701	UMP	O5'-P-OP1	-3.02	98.00	106.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	701	UMP	O5'-P-OP1	-3.02	98.00	106.47
3	C	702	1UG	CAI-CAU-CAJ	-3.02	116.03	123.18
2	E	701	UMP	O5'-P-OP1	-2.99	98.08	106.47
3	G	702	1UG	CAI-CAU-CAJ	-2.96	116.17	123.18
4	E	703	FOL	C4-C4A-C8A	-2.95	117.58	119.96
3	E	702	1UG	CAI-CAU-CAJ	-2.94	116.23	123.18
3	F	702	1UG	CAI-CAU-CAJ	-2.93	116.24	123.18
4	C	703	FOL	C4-C4A-C8A	-2.93	117.59	119.96
4	A	703	FOL	C4-C4A-C8A	-2.91	117.61	119.96
3	A	702	1UG	CAL-CAX-CAU	-2.81	114.26	117.89
3	D	702	1UG	CAG-CAR-SAP	-2.78	110.19	117.47
4	H	703	FOL	C4A-C8A-N8	-2.75	116.88	121.77
4	B	703	FOL	C4A-C8A-N8	-2.74	116.90	121.77
4	F	703	FOL	C4A-C8A-N8	-2.72	116.94	121.77
3	D	702	1UG	CAL-CAX-CAU	-2.70	114.40	117.89
4	C	703	FOL	C4A-C8A-N8	-2.70	116.97	121.77
3	F	702	1UG	CAL-CAX-CAU	-2.68	114.44	117.89
3	H	702	1UG	CAL-CAX-CAU	-2.67	114.45	117.89
4	E	703	FOL	C4A-C8A-N8	-2.65	117.06	121.77
4	D	703	FOL	C4A-C8A-N8	-2.65	117.06	121.77
4	G	703	FOL	C4-C4A-C8A	-2.64	117.82	119.96
4	E	703	FOL	N1-C2-N3	-2.63	123.62	127.46
4	C	703	FOL	N1-C2-N3	-2.63	123.62	127.46
4	A	703	FOL	C4A-C8A-N8	-2.63	117.10	121.77
4	F	703	FOL	N1-C2-N3	-2.61	123.64	127.46
4	G	703	FOL	C4A-C8A-N8	-2.61	117.13	121.77
4	A	703	FOL	N1-C2-N3	-2.59	123.68	127.46
3	C	702	1UG	CAL-CAX-CAU	-2.58	114.56	117.89
3	B	702	1UG	CAL-CAX-CAU	-2.54	114.62	117.89
4	H	703	FOL	N1-C2-N3	-2.53	123.76	127.46
3	B	702	1UG	CAG-CAR-SAP	-2.53	110.83	117.47
4	D	703	FOL	N1-C2-N3	-2.53	123.76	127.46
4	G	703	FOL	N1-C2-N3	-2.52	123.78	127.46
4	B	703	FOL	N1-C2-N3	-2.51	123.80	127.46
3	A	702	1UG	CAG-CAR-SAP	-2.48	110.98	117.47
3	G	702	1UG	CAL-CAX-CAU	-2.40	114.80	117.89
4	F	703	FOL	C4-C4A-C8A	-2.31	118.09	119.96
3	E	702	1UG	CAL-CAX-CAU	-2.29	114.94	117.89
4	G	703	FOL	CB-CA-CT	-2.28	108.97	112.28
3	F	702	1UG	CAG-CAR-SAP	-2.24	111.60	117.47
3	E	702	1UG	CAK-CAF-CAH	-2.22	117.35	120.97
4	D	703	FOL	C4-C4A-C8A	-2.19	118.19	119.96

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	H	703	FOL	C4-C4A-C8A	-2.18	118.20	119.96
3	H	702	1UG	CAK-CAF-CAH	-2.17	117.42	120.97
4	A	703	FOL	CB-CA-CT	-2.17	109.14	112.28
4	B	703	FOL	C4-C4A-C8A	-2.16	118.21	119.96
3	G	702	1UG	CAK-CAF-CAH	-2.15	117.46	120.97
3	C	702	1UG	CAK-CAF-CAH	-2.14	117.47	120.97
4	C	703	FOL	CB-CA-CT	-2.12	109.20	112.28
3	A	702	1UG	CAK-CAF-CAH	-2.12	117.51	120.97
2	F	701	UMP	O3'-C3'-C4'	-2.12	101.75	110.13
5	A	704	NDP	C1D-N1N-C2N	-2.12	117.49	121.09
4	H	703	FOL	C4A-C8A-N1	-2.11	118.57	122.11
4	D	703	FOL	C4A-C8A-N1	-2.11	118.58	122.11
3	B	702	1UG	CAK-CAF-CAH	-2.11	117.53	120.97
3	D	702	1UG	CAK-CAF-CAH	-2.09	117.56	120.97
3	F	702	1UG	CAK-CAF-CAH	-2.08	117.57	120.97
4	B	703	FOL	C4A-C8A-N1	-2.08	118.64	122.11
5	C	704	NDP	O2B-C2B-C1B	-2.08	102.32	110.06
4	E	703	FOL	CB-CA-CT	-2.07	109.27	112.28
5	E	704	NDP	O2B-C2B-C1B	-2.07	102.36	110.06
2	H	701	UMP	O3'-C3'-C4'	-2.06	101.97	110.13
4	F	703	FOL	C4A-C8A-N1	-2.04	118.69	122.11
2	G	701	UMP	O3'-C3'-C4'	-2.04	102.08	110.13
5	C	704	NDP	C1D-N1N-C2N	-2.02	117.66	121.09
3	G	702	1UG	CAG-CAR-SAP	-2.01	112.21	117.47
2	C	701	UMP	P-O5'-C5'	2.01	123.83	118.30
2	F	701	UMP	O5'-C5'-C4'	2.01	116.13	109.00
2	G	701	UMP	O4'-C1'-N1	2.01	111.17	107.78
5	D	704	NDP	O2X-P2B-O1X	2.01	118.37	110.50
5	H	704	NDP	O3B-C3B-C2B	2.01	116.91	111.18
5	A	704	NDP	N6A-C6A-N1A	2.02	122.77	118.77
5	G	704	NDP	N6A-C6A-N1A	2.02	122.78	118.77
2	H	701	UMP	O5'-C5'-C4'	2.03	116.19	109.00
3	H	702	1UG	NAA-CAQ-NAM	2.04	121.51	117.75
4	C	703	FOL	C6-C9-N10	2.05	117.74	113.15
4	A	703	FOL	NA2-C2-N1	2.06	121.56	117.75
5	C	704	NDP	N6A-C6A-N1A	2.07	122.87	118.77
3	E	702	1UG	CAT-NAN-CAQ	2.07	119.04	116.06
3	D	702	1UG	NAA-CAQ-NAM	2.09	121.61	117.75
3	B	702	1UG	NAA-CAQ-NAM	2.09	121.61	117.75
5	B	704	NDP	O3B-C3B-C2B	2.10	117.15	111.18
2	B	701	UMP	O4'-C4'-C5'	2.10	116.50	109.40
5	F	704	NDP	O2X-P2B-O1X	2.10	118.73	110.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	H	703	FOL	CA-N-C	2.11	125.03	122.15
2	E	701	UMP	OP3-P-O5'	2.12	112.38	106.73
3	B	702	1UG	CAT-NAN-CAQ	2.13	119.13	116.06
3	G	702	1UG	CAT-NAN-CAQ	2.14	119.14	116.06
5	B	704	NDP	O2X-P2B-O1X	2.14	118.88	110.50
3	C	702	1UG	CAT-NAN-CAQ	2.14	119.14	116.06
2	E	701	UMP	O4'-C1'-N1	2.14	111.39	107.78
4	G	703	FOL	NA2-C2-N1	2.15	121.71	117.75
2	D	701	UMP	O4'-C4'-C5'	2.15	116.66	109.40
2	F	701	UMP	O4'-C4'-C5'	2.15	116.68	109.40
5	H	704	NDP	O2X-P2B-O1X	2.16	118.94	110.50
4	D	703	FOL	NA2-C2-N1	2.16	121.74	117.75
2	G	701	UMP	OP3-P-O5'	2.16	112.49	106.73
3	A	702	1UG	CAT-NAN-CAQ	2.16	119.17	116.06
4	C	703	FOL	NA2-C2-N1	2.19	121.78	117.75
3	F	702	1UG	CAT-NAN-CAQ	2.19	119.20	116.06
3	E	702	1UG	NAA-CAQ-NAM	2.19	121.79	117.75
4	D	703	FOL	CA-N-C	2.19	125.15	122.15
2	A	701	UMP	OP3-P-O5'	2.22	112.64	106.73
2	H	701	UMP	O4'-C4'-C5'	2.22	116.90	109.40
3	H	702	1UG	CAT-NAN-CAQ	2.22	119.25	116.06
2	C	701	UMP	O4'-C1'-N1	2.24	111.55	107.78
4	B	703	FOL	CA-N-C	2.24	125.22	122.15
2	A	701	UMP	O4'-C4'-C5'	2.24	116.98	109.40
3	D	702	1UG	CAT-NAN-CAQ	2.25	119.29	116.06
4	B	703	FOL	NA2-C2-N1	2.25	121.91	117.75
4	E	703	FOL	NA2-C2-N1	2.25	121.91	117.75
4	F	703	FOL	CA-N-C	2.25	125.23	122.15
4	F	703	FOL	NA2-C2-N1	2.26	121.92	117.75
4	H	703	FOL	NA2-C2-N1	2.26	121.92	117.75
2	F	701	UMP	OP3-P-O5'	2.26	112.75	106.73
2	C	701	UMP	OP3-P-O5'	2.27	112.76	106.73
5	B	704	NDP	C2A-N1A-C6A	2.27	122.75	118.77
5	H	704	NDP	C2A-N1A-C6A	2.28	122.76	118.77
3	C	702	1UG	NAA-CAQ-NAM	2.28	121.96	117.75
4	B	703	FOL	CG-CB-CA	2.28	117.75	113.19
5	E	704	NDP	C2A-N1A-C6A	2.28	122.77	118.77
2	D	701	UMP	OP3-P-O5'	2.29	112.83	106.73
5	D	704	NDP	C2A-N1A-C6A	2.29	122.78	118.77
2	H	701	UMP	OP3-P-O5'	2.30	112.85	106.73
2	B	701	UMP	OP3-P-O5'	2.30	112.86	106.73
2	G	701	UMP	O4'-C4'-C5'	2.31	117.19	109.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	F	704	NDP	C2A-N1A-C6A	2.31	122.81	118.77
5	A	704	NDP	C2A-N1A-C6A	2.31	122.82	118.77
2	E	701	UMP	O4'-C4'-C5'	2.33	117.28	109.40
5	G	704	NDP	C2A-N1A-C6A	2.34	122.86	118.77
2	C	701	UMP	O4'-C4'-C5'	2.34	117.32	109.40
3	G	702	1UG	NAA-CAQ-NAM	2.35	122.09	117.75
5	C	704	NDP	C2A-N1A-C6A	2.36	122.89	118.77
4	F	703	FOL	CG-CB-CA	2.44	118.07	113.19
3	F	702	1UG	NAA-CAQ-NAM	2.45	122.27	117.75
4	D	703	FOL	CG-CB-CA	2.46	118.11	113.19
3	A	702	1UG	NAA-CAQ-NAM	2.50	122.36	117.75
4	H	703	FOL	CG-CB-CA	2.55	118.28	113.19
4	F	703	FOL	C6-C7-N8	3.06	126.18	123.09
4	D	703	FOL	C6-C7-N8	3.08	126.21	123.09
4	B	703	FOL	C6-C7-N8	3.13	126.25	123.09
4	H	703	FOL	C6-C7-N8	3.15	126.28	123.09
3	C	702	1UG	CAC-CAD-CAL	3.27	125.10	120.45
3	B	702	1UG	CAR-SAP-CAS	3.40	115.00	103.37
3	G	702	1UG	CAC-CAD-CAL	3.41	125.31	120.45
3	F	702	1UG	CAC-CAD-CAL	3.48	125.41	120.45
3	E	702	1UG	CAC-CAD-CAL	3.59	125.57	120.45
4	E	703	FOL	CA-N-C	3.61	127.10	122.15
4	C	703	FOL	CA-N-C	3.66	127.17	122.15
3	H	702	1UG	CAR-SAP-CAS	3.67	115.94	103.37
3	D	702	1UG	CAR-SAP-CAS	3.69	116.00	103.37
3	A	702	1UG	CAC-CAD-CAL	3.71	125.73	120.45
3	H	702	1UG	CAC-CAD-CAL	3.76	125.81	120.45
3	D	702	1UG	CAC-CAD-CAL	3.77	125.82	120.45
4	G	703	FOL	C6-C7-N8	3.77	126.91	123.09
3	B	702	1UG	CAC-CAD-CAL	3.83	125.91	120.45
4	E	703	FOL	C2-N1-C8A	3.88	119.69	115.16
4	C	703	FOL	C2-N1-C8A	3.88	119.69	115.16
4	A	703	FOL	C2-N1-C8A	3.88	119.69	115.16
4	G	703	FOL	C2-N1-C8A	3.89	119.70	115.16
4	B	703	FOL	C2-N1-C8A	3.96	119.78	115.16
4	E	703	FOL	C6-C7-N8	4.03	127.17	123.09
4	F	703	FOL	C2-N1-C8A	4.05	119.89	115.16
4	H	703	FOL	C2-N1-C8A	4.06	119.90	115.16
4	D	703	FOL	C2-N1-C8A	4.07	119.91	115.16
4	C	703	FOL	C6-C7-N8	4.07	127.21	123.09
4	A	703	FOL	C6-C7-N8	4.12	127.26	123.09
4	A	703	FOL	CA-N-C	4.15	127.83	122.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	703	FOL	C4-N3-C2	4.27	122.21	116.06
4	H	703	FOL	C4-N3-C2	4.29	122.24	116.06
4	B	703	FOL	C4-N3-C2	4.30	122.25	116.06
4	G	703	FOL	CA-N-C	4.30	128.04	122.15
4	F	703	FOL	C4-N3-C2	4.33	122.29	116.06
4	G	703	FOL	C4-N3-C2	4.37	122.34	116.06
4	E	703	FOL	C4-N3-C2	4.44	122.44	116.06
4	C	703	FOL	C4-N3-C2	4.44	122.45	116.06
4	A	703	FOL	C4-N3-C2	4.47	122.49	116.06
3	H	702	1UG	CAT-CAZ-CAW	4.55	117.58	115.02
3	B	702	1UG	CAT-CAZ-CAW	4.57	117.59	115.02
3	D	702	1UG	CAT-CAZ-CAW	4.62	117.62	115.02
3	C	702	1UG	CAI-CAU-CAX	4.69	125.22	119.11
3	E	702	1UG	CAI-CAU-CAX	4.70	125.22	119.11
3	G	702	1UG	CAI-CAU-CAX	4.78	125.33	119.11
3	B	702	1UG	CAI-CAU-CAX	4.85	125.42	119.11
3	E	702	1UG	CAT-CAZ-CAW	4.88	117.77	115.02
3	F	702	1UG	CAI-CAU-CAX	4.90	125.49	119.11
3	H	702	1UG	CAI-CAU-CAX	4.91	125.50	119.11
3	D	702	1UG	CAI-CAU-CAX	4.91	125.50	119.11
3	C	702	1UG	CAT-CAZ-CAW	5.01	117.84	115.02
3	G	702	1UG	CAT-CAZ-CAW	5.22	117.96	115.02
3	A	702	1UG	CAT-CAZ-CAW	5.23	117.96	115.02
3	A	702	1UG	CAI-CAU-CAX	5.25	125.94	119.11
3	F	702	1UG	CAT-CAZ-CAW	5.31	118.01	115.02
3	F	702	1UG	CAQ-NAM-CAW	5.36	121.42	115.16
3	H	702	1UG	CAQ-NAM-CAW	5.41	121.47	115.16
3	G	702	1UG	CAQ-NAM-CAW	5.41	121.48	115.16
3	D	702	1UG	CAQ-NAM-CAW	5.44	121.51	115.16
3	A	702	1UG	CAQ-NAM-CAW	5.51	121.59	115.16
3	E	702	1UG	CAQ-NAM-CAW	5.53	121.62	115.16
3	B	702	1UG	CAQ-NAM-CAW	5.55	121.64	115.16
3	C	702	1UG	CAQ-NAM-CAW	5.58	121.67	115.16
4	A	703	FOL	N8-C8A-N1	5.92	123.69	116.04
4	E	703	FOL	N8-C8A-N1	5.92	123.69	116.04
4	C	703	FOL	N8-C8A-N1	5.97	123.75	116.04
4	G	703	FOL	N8-C8A-N1	6.00	123.80	116.04
4	D	703	FOL	N8-C8A-N1	6.44	124.36	116.04
4	F	703	FOL	N8-C8A-N1	6.45	124.37	116.04
4	B	703	FOL	N8-C8A-N1	6.52	124.46	116.04
4	H	703	FOL	N8-C8A-N1	6.58	124.54	116.04
2	F	701	UMP	C4-N3-C2	8.18	121.16	114.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	701	UMP	C4-N3-C2	8.21	121.18	114.13
2	D	701	UMP	C4-N3-C2	8.23	121.20	114.13
2	H	701	UMP	C4-N3-C2	8.24	121.21	114.13
2	G	701	UMP	C4-N3-C2	8.25	121.22	114.13
2	B	701	UMP	C4-N3-C2	8.29	121.25	114.13
2	A	701	UMP	C4-N3-C2	8.30	121.26	114.13
2	E	701	UMP	C4-N3-C2	8.30	121.26	114.13

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

24 monomers are involved in 63 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	702	1UG	2	0
4	A	703	FOL	1	0
5	A	704	NDP	3	0
3	B	702	1UG	3	0
4	B	703	FOL	4	0
5	B	704	NDP	4	0
3	C	702	1UG	4	0
4	C	703	FOL	1	0
5	C	704	NDP	3	0
3	D	702	1UG	1	0
4	D	703	FOL	4	0
5	D	704	NDP	4	0
3	E	702	1UG	5	0
4	E	703	FOL	1	0
5	E	704	NDP	3	0
3	F	702	1UG	4	0
4	F	703	FOL	4	0
5	F	704	NDP	5	0
3	G	702	1UG	3	0
4	G	703	FOL	5	0
5	G	704	NDP	3	0
3	H	702	1UG	1	0
4	H	703	FOL	4	0
5	H	704	NDP	3	0

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	510/566 (90%)	-0.28	6 (1%) 79 71	13, 30, 69, 99	0
1	B	491/566 (86%)	-0.27	0 100 100	14, 32, 77, 93	0
1	C	510/566 (90%)	-0.26	7 (1%) 75 67	11, 31, 70, 100	0
1	D	491/566 (86%)	-0.20	1 (0%) 94 94	13, 32, 77, 96	0
1	E	510/566 (90%)	-0.28	6 (1%) 79 71	12, 30, 68, 98	0
1	F	491/566 (86%)	-0.23	1 (0%) 94 94	13, 32, 76, 98	0
1	G	510/566 (90%)	-0.27	5 (0%) 82 76	14, 31, 71, 104	0
1	H	491/566 (86%)	-0.25	1 (0%) 94 94	14, 33, 76, 96	0
All	All	4004/4528 (88%)	-0.25	27 (0%) 87 83	11, 31, 74, 104	0

All (27) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	296	TRP	3.7
1	G	294	LEU	3.6
1	E	296	TRP	3.5
1	C	297	MET	3.2
1	A	297	MET	2.8
1	C	294	LEU	2.8
1	C	610	VAL	2.7
1	A	296	TRP	2.7
1	E	294	LEU	2.7
1	C	143	ASP	2.6
1	E	297	MET	2.6
1	G	296	TRP	2.6
1	A	294	LEU	2.5
1	G	143	ASP	2.5
1	A	299	GLU	2.4
1	A	143	ASP	2.4

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Mol	Chain	Res	Type	RSRZ
1	G	297	MET	2.4
1	E	607	GLU	2.3
1	C	607	GLU	2.3
1	D	607	GLU	2.3
1	F	105	SER	2.2
1	E	610	VAL	2.2
1	A	610	VAL	2.2
1	C	299	GLU	2.2
1	G	610	VAL	2.2
1	E	293	VAL	2.1
1	H	105	SER	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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(Å ²)	Q<0.9
3	1UG	H	702	26/26	0.81	0.38	5.28	65,82,104,105	0
3	1UG	B	702	26/26	0.82	0.42	4.78	64,89,110,111	0
3	1UG	G	702	26/26	0.86	0.36	3.43	69,105,114,116	0
3	1UG	D	702	26/26	0.83	0.40	3.42	66,83,105,106	0
4	FOL	B	703	32/32	0.89	0.40	3.05	33,60,87,93	0
3	1UG	A	702	26/26	0.88	0.35	2.90	72,99,113,115	0
4	FOL	A	703	32/32	0.91	0.34	2.82	24,45,67,89	0
3	1UG	F	702	26/26	0.84	0.41	2.69	71,86,107,110	0
4	FOL	C	703	32/32	0.92	0.35	2.61	26,48,68,95	0
3	1UG	E	702	26/26	0.87	0.36	2.55	75,101,115,117	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
4	FOL	E	703	32/32	0.92	0.34	2.50	24,45,71,90	0
3	1UG	C	702	26/26	0.78	0.50	2.46	96,114,132,133	0
4	FOL	F	703	32/32	0.89	0.42	2.17	36,63,87,91	0
4	FOL	G	703	32/32	0.92	0.33	2.16	26,41,68,86	0
4	FOL	H	703	32/32	0.89	0.40	2.02	33,60,88,93	0
2	UMP	H	701	20/20	0.96	0.28	1.84	24,46,68,70	0
4	FOL	D	703	32/32	0.91	0.39	1.69	34,59,86,91	0
2	UMP	E	701	20/20	0.97	0.22	1.63	34,57,75,78	0
2	UMP	D	701	20/20	0.96	0.27	1.38	25,46,67,73	0
2	UMP	F	701	20/20	0.96	0.26	1.12	26,43,68,70	0
2	UMP	C	701	20/20	0.97	0.21	1.06	32,62,81,82	0
2	UMP	G	701	20/20	0.97	0.21	0.91	35,56,72,72	0
2	UMP	B	701	20/20	0.96	0.24	0.74	26,47,70,71	0
2	UMP	A	701	20/20	0.97	0.18	0.29	30,57,70,70	0
5	NDP	H	704	48/48	0.95	0.23	-0.01	35,63,99,108	0
5	NDP	A	704	48/48	0.98	0.18	-0.14	21,34,40,56	0
5	NDP	E	704	48/48	0.98	0.18	-0.18	20,33,42,48	0
5	NDP	B	704	48/48	0.94	0.22	-0.30	35,69,105,110	0
5	NDP	G	704	48/48	0.98	0.18	-0.33	21,32,44,56	0
5	NDP	C	704	48/48	0.98	0.17	-0.40	21,32,43,51	0
5	NDP	F	704	48/48	0.95	0.21	-0.51	30,65,105,108	0
5	NDP	D	704	48/48	0.95	0.21	-0.52	34,65,100,106	0

6.5 Other polymers

There are no such residues in this entry.