



# Full wwPDB X-ray Structure Validation Report

Feb 27, 2014 – 04:37 PM GMT

PDB ID : 4DPW  
Title : Crystal structure of Staphylococcus epidermidis D283A mevalonate diphosphate decarboxylase complexed with mevalonate diphosphate and ATPgS  
Authors : Barta, M.L.; McWhorter, W.J.; Geisbrecht, B.V.  
Deposited on : 2012-02-14  
Resolution : 2.60 Å(reported)

This is a full wwPDB 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/ValidationPDFNotes.html>

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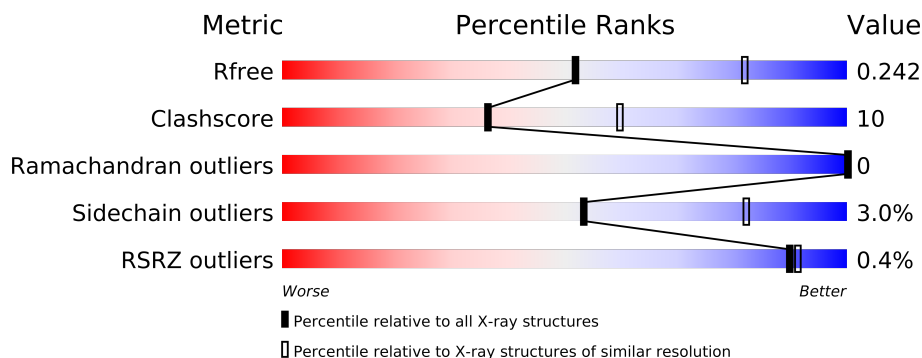
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.15 2013  
Xtriage (Phenix) : dev-1323  
EDS : stable22639  
Percentile statistics : 21963  
Refmac : 5.8.0049  
CCP4 : 6.3.0 (Settle)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : stable22683

# 1 Overall quality at a glance

The reported resolution of this entry is 2.60 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))
$R_{free}$	66092	1718 (2.60-2.60)
Clashscore	79885	2154 (2.60-2.60)
Ramachandran outliers	78287	2113 (2.60-2.60)
Sidechain outliers	78261	2113 (2.60-2.60)
RSRZ outliers	66119	1718 (2.60-2.60)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	332	
1	B	332	
1	C	332	
1	D	332	
1	E	332	
1	F	332	
1	G	332	
1	H	332	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
2	AGS	B	401	-	X

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Mol	Type	Chain	Res	Geometry	Electron density
3	DP6	B	402	-	X
3	DP6	C	402	-	X
3	DP6	D	402	-	X
3	DP6	G	402	-	X
3	DP6	H	402	-	X
4	FMT	A	403	-	X
4	FMT	E	404	-	X
4	FMT	H	403	-	X
5	GOL	E	403	-	X

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 21044 atoms, of which 0 are hydrogen and 0 are deuterium.

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 Mevalonate diphosphate decarboxylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			
1	B	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			
1	C	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			
1	D	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			
1	E	328	Total	C	N	O	S	0	0	0
			2557	1600	443	501	13			
1	F	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			
1	G	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			
1	H	326	Total	C	N	O	S	0	0	0
			2547	1595	441	498	13			

There are 48 discrepancies between the modelled and reference sequences:

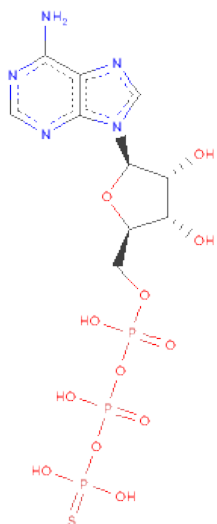
Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
A	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
A	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
A	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
A	0	SER	-	EXPRESSION TAG	UNP Q9FD73
A	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
B	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
B	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
B	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
B	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
B	0	SER	-	EXPRESSION TAG	UNP Q9FD73
B	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
C	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73

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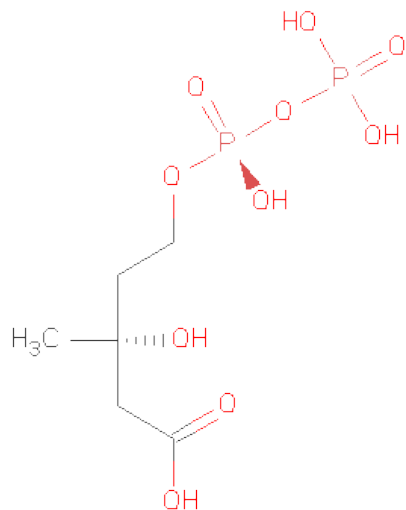
Chain	Residue	Modelled	Actual	Comment	Reference
C	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
C	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
C	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
C	0	SER	-	EXPRESSION TAG	UNP Q9FD73
C	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
D	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
D	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
D	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
D	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
D	0	SER	-	EXPRESSION TAG	UNP Q9FD73
D	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
E	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
E	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
E	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
E	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
E	0	SER	-	EXPRESSION TAG	UNP Q9FD73
E	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
F	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
F	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
F	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
F	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
F	0	SER	-	EXPRESSION TAG	UNP Q9FD73
F	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
G	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
G	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
G	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
G	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
G	0	SER	-	EXPRESSION TAG	UNP Q9FD73
G	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73
H	-4	GLY	-	EXPRESSION TAG	UNP Q9FD73
H	-3	SER	-	EXPRESSION TAG	UNP Q9FD73
H	-2	THR	-	EXPRESSION TAG	UNP Q9FD73
H	-1	GLY	-	EXPRESSION TAG	UNP Q9FD73
H	0	SER	-	EXPRESSION TAG	UNP Q9FD73
H	283	ALA	ASP	ENGINEERED MUTATION	UNP Q9FD73

- Molecule 2 is PHOSPHOTHIOPHOSPHORICACID-ADENYLATE ESTER (three-letter code: AGS) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>12</sub>P<sub>3</sub>S).



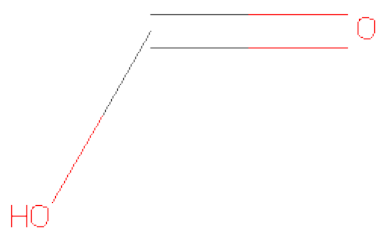
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	B	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	C	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	D	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	E	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	F	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	G	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		
2	H	1	Total	C	N	O	P	S	0	0
			31	10	5	12	3	1		

- Molecule 3 is (3R)-3-HYDROXY-5-{[(R)-HYDROXY(PHOSPHONOOXY)PHOSPHORYL]OXY}-3-METHYLPENTANOICACID (three-letter code: DP6) (formula: C<sub>6</sub>H<sub>14</sub>O<sub>10</sub>P<sub>2</sub>).



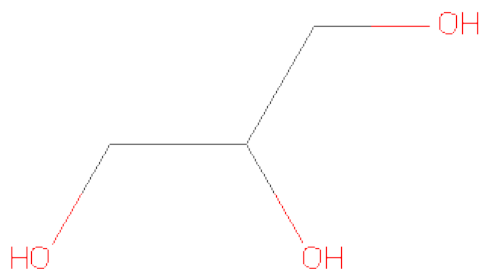
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	O	P	0	0
			18	6	10	2		
3	B	1	Total	C	O	P	0	0
			18	6	10	2		
3	C	1	Total	C	O	P	0	0
			18	6	10	2		
3	D	1	Total	C	O	P	0	0
			18	6	10	2		
3	E	1	Total	C	O	P	0	0
			18	6	10	2		
3	F	1	Total	C	O	P	0	0
			18	6	10	2		
3	G	1	Total	C	O	P	0	0
			18	6	10	2		
3	H	1	Total	C	O	P	0	0
			18	6	10	2		

- Molecule 4 is FORMIC ACID (three-letter code: FMT) (formula: CH<sub>2</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			3	1	2		
4	D	1	Total	C	O	0	0
			3	1	2		
4	E	1	Total	C	O	0	0
			3	1	2		
4	H	1	Total	C	O	0	0
			3	1	2		

- Molecule 5 is GLYCEROL (three-letter code: GOL) (formula:  $C_3H_8O_3$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	E	1	Total	C	O	0	0
			6	3	3		

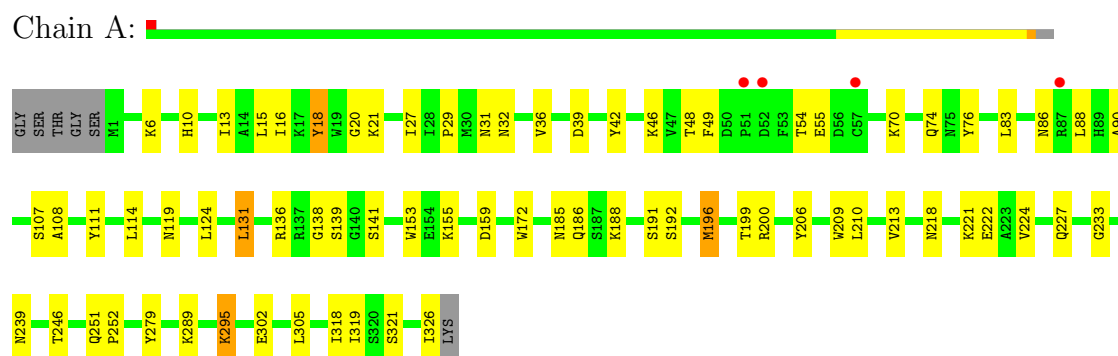
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	20	Total	O	0	0
			20	20		
6	B	39	Total	O	0	0
			39	39		
6	C	28	Total	O	0	0
			28	28		
6	D	42	Total	O	0	0
			42	42		
6	E	33	Total	O	0	0
			33	33		
6	F	27	Total	O	0	0
			27	27		
6	G	42	Total	O	0	0
			42	42		
6	H	17	Total	O	0	0
			17	17		

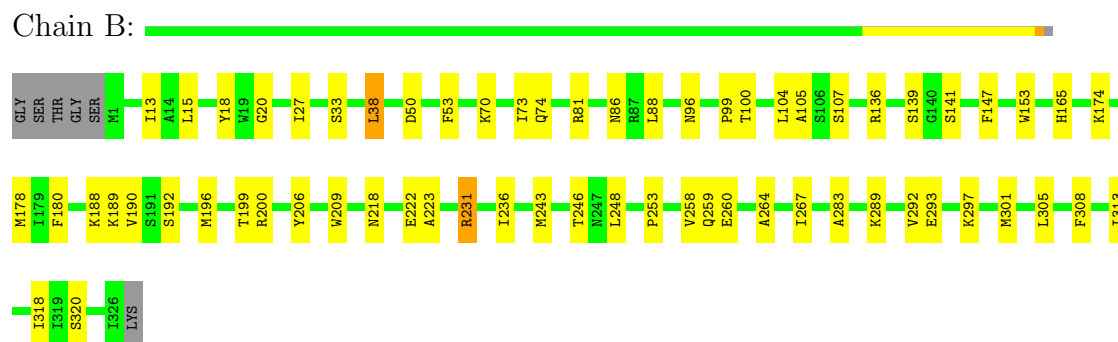
### 3 Residue-property plots

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.

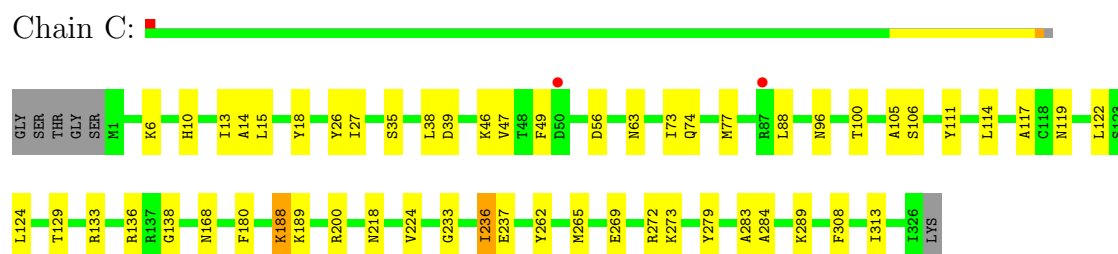
- Molecule 1: Mevalonate diphosphate decarboxylase



- Molecule 1: Mevalonate diphosphate decarboxylase

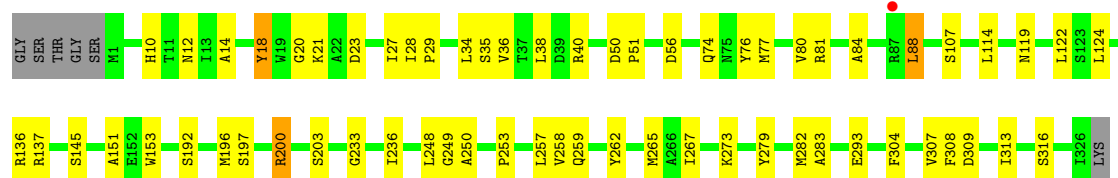


- Molecule 1: Mevalonate diphosphate decarboxylase



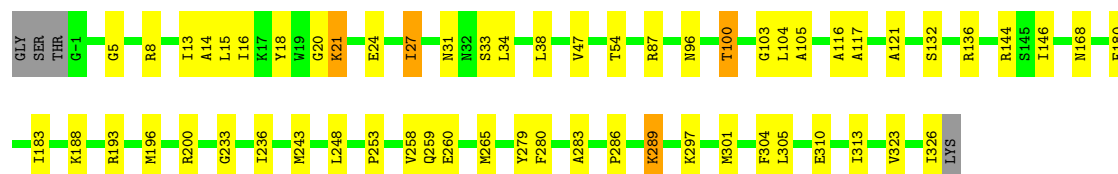
- Molecule 1: Mevalonate diphosphate decarboxylase





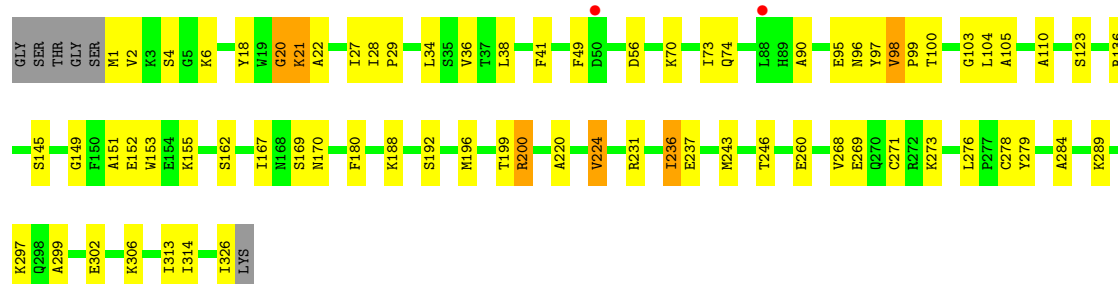
- Molecule 1: Mevalonate diphosphate decarboxylase

Chain E:



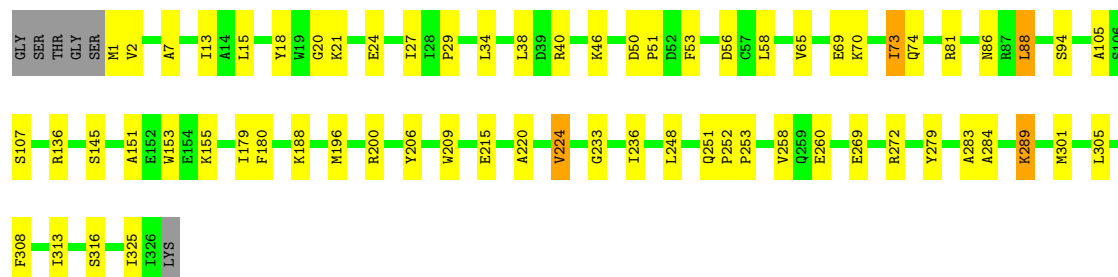
- Molecule 1: Mevalonate diphosphate decarboxylase

Chain F:



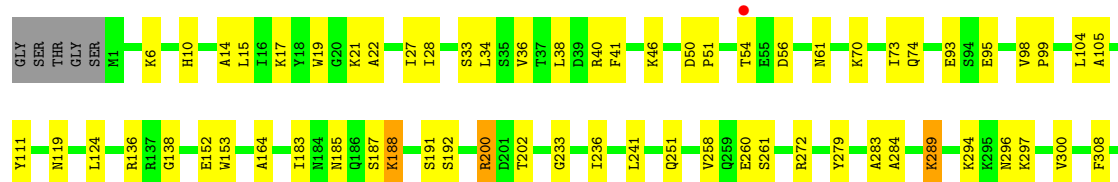
- Molecule 1: Mevalonate diphosphate decarboxylase

Chain G:



- Molecule 1: Mevalonate diphosphate decarboxylase

Chain H:



I313	
I314	
A315	
I326	
LYS	

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	96.46Å 99.44Å 314.42Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.36 – 2.60 46.55 – 2.60	Depositor EDS
% Data completeness (in resolution range)	95.2 (46.36-2.60) 94.6 (46.55-2.60)	Depositor EDS
$R_{merge}$	0.20	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.52 (at 2.61Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7_650)	Depositor
R, $R_{free}$	0.199 , 0.251 0.192 , 0.242	Depositor DCC
$R_{free}$ test set	1917 reflections (2.17%)	DCC
Wilson B-factor (Å <sup>2</sup> )	46.2	Xtriage
Anisotropy	0.161	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 22.1	EDS
Estimated twinning fraction	0.026 for k,h,-l	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	1 of 91509 reflections (0.001%)	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	21044	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 25.18 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 3.3286e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, FMT, AGS, DP6

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	0.43	0/2591	0.54	0/3500
1	B	0.47	0/2591	0.56	0/3500
1	C	0.45	0/2591	0.57	1/3500 (0.0%)
1	D	0.49	0/2591	0.55	0/3500
1	E	0.47	0/2601	0.59	0/3513
1	F	0.43	0/2591	0.58	2/3500 (0.1%)
1	G	0.48	0/2591	0.57	0/3500
1	H	0.43	0/2591	0.55	0/3500
All	All	0.46	0/20738	0.56	3/28013 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	20	GLY	N-CA-C	-5.89	98.38	113.10
1	C	189	LYS	CB-CA-C	5.43	121.26	110.40
1	F	98	VAL	CB-CA-C	5.04	120.97	111.40

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2547	0	2505	52	0
1	B	2547	0	2505	45	0
1	C	2547	0	2505	45	0
1	D	2547	0	2505	55	0
1	E	2557	0	2513	55	0
1	F	2547	0	2505	61	0
1	G	2547	0	2505	48	0
1	H	2547	0	2505	44	0
2	A	31	0	12	2	0
2	B	31	0	12	6	0
2	C	31	0	12	4	0
2	D	31	0	12	4	0
2	E	31	0	12	2	0
2	F	31	0	12	4	0
2	G	31	0	12	8	0
2	H	31	0	12	4	0
3	A	18	0	10	1	0
3	B	18	0	10	6	0
3	C	18	0	10	3	0
3	D	18	0	10	8	0
3	E	18	0	10	7	0
3	F	18	0	10	3	0
3	G	18	0	10	6	0
3	H	18	0	10	6	0
4	A	3	0	1	0	0
4	D	3	0	1	0	0
4	E	3	0	1	0	0
4	H	3	0	1	0	0
5	E	6	0	8	4	0
6	A	20	0	0	1	0
6	B	39	0	0	0	0
6	C	28	0	0	2	0
6	D	42	0	0	2	0
6	E	33	0	0	1	0
6	F	27	0	0	1	0
6	G	42	0	0	2	0
6	H	17	0	0	1	0
All	All	21044	0	20236	424	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 10.

All (424) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:21:LYS:HZ3	1:A:196:MET:HE1	0.95	1.03
1:G:215:GLU:HG3	6:G:540:HOH:O	1.56	1.03
1:F:96:ASN:HD22	1:F:100:THR:HG22	1.19	1.03
1:A:18:TYR:O	3:A:402:DP6:H3A3	1.57	1.02
1:G:18:TYR:O	3:G:402:DP6:H3A1	1.59	1.02
1:C:18:TYR:O	3:C:402:DP6:H3A3	1.60	1.01
1:F:96:ASN:HD22	1:F:100:THR:CG2	1.75	0.99
1:F:99:PRO:HG2	1:F:104:LEU:HD22	1.40	0.98
1:H:188:LYS:HE2	1:H:284:ALA:O	1.63	0.96
1:E:20:GLY:HA2	1:E:196:MET:HG2	1.48	0.96
1:A:21:LYS:NZ	1:A:196:MET:HE1	1.78	0.95
1:E:305:LEU:HD22	1:E:310:GLU:HG2	1.46	0.95
1:A:13:ILE:HG21	1:A:289:LYS:HD2	1.48	0.93
1:G:308:PHE:HB2	1:G:313:ILE:HD11	1.48	0.93
1:F:98:VAL:HG23	1:F:99:PRO:HD2	1.51	0.91
1:H:105:ALA:HA	2:H:401:AGS:O2G	1.68	0.91
1:D:107:SER:HB3	2:D:401:AGS:H5'2	1.54	0.90
1:F:96:ASN:ND2	1:F:100:THR:HG22	1.85	0.90
1:A:21:LYS:HZ3	1:A:196:MET:CE	1.84	0.89
2:G:401:AGS:O2B	2:G:401:AGS:S1G	2.32	0.88
1:A:39:ASP:HB3	1:A:319:ILE:HB	1.56	0.88
1:H:14:ALA:HB3	3:H:402:DP6:O2	1.74	0.87
1:D:18:TYR:O	3:D:402:DP6:H3A3	1.74	0.87
1:D:27:ILE:O	1:D:136:ARG:HD3	1.75	0.86
1:C:18:TYR:O	3:C:402:DP6:C3A	2.24	0.85
1:F:18:TYR:O	3:F:402:DP6:H3A3	1.80	0.82
1:B:283:ALA:H	1:B:289:LYS:HZ3	1.27	0.81
2:A:401:AGS:S1G	2:A:401:AGS:O2B	2.39	0.81
1:C:283:ALA:H	1:C:289:LYS:HZ3	1.28	0.80
1:C:308:PHE:HB2	1:C:313:ILE:HD11	1.65	0.78
1:E:20:GLY:H	1:E:196:MET:CG	1.95	0.78
1:F:20:GLY:H	1:F:196:MET:CG	1.97	0.77
1:E:305:LEU:CD2	1:E:310:GLU:HG2	2.15	0.76
2:H:401:AGS:S1G	2:H:401:AGS:O2B	2.44	0.76
1:E:258:VAL:HG12	1:E:259:GLN:H	1.50	0.76
1:G:18:TYR:O	3:G:402:DP6:C3A	2.34	0.76
1:H:183:ILE:HG23	1:H:260:GLU:OE1	1.86	0.76
1:G:105:ALA:HA	2:G:401:AGS:S1G	2.26	0.76
1:D:283:ALA:HA	3:D:402:DP6:O2	1.86	0.76
1:D:56:ASP:HB2	1:D:74:GLN:HG2	1.67	0.75
1:G:308:PHE:CB	1:G:313:ILE:HD11	2.17	0.75
1:F:38:LEU:HD13	1:F:180:PHE:HZ	1.50	0.75
1:D:262:TYR:HA	1:D:265:MET:CE	2.16	0.75

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:105:ALA:HA	2:C:401:AGS:O3B	1.87	0.74
1:E:38:LEU:HD13	1:E:180:PHE:HZ	1.52	0.74
1:F:99:PRO:HG2	1:F:104:LEU:CD2	2.17	0.74
1:F:29:PRO:HD3	1:F:153:TRP:CZ2	2.23	0.74
1:D:18:TYR:O	3:D:402:DP6:C3A	2.36	0.73
1:E:283:ALA:H	1:E:289:LYS:NZ	1.87	0.73
1:B:13:ILE:HG12	1:B:38:LEU:HD11	1.71	0.72
1:B:15:LEU:HB3	1:B:236:ILE:HG21	1.70	0.72
1:E:20:GLY:N	1:E:196:MET:CG	2.53	0.72
1:E:20:GLY:N	1:E:196:MET:HG3	2.05	0.71
1:F:21:LYS:HA	1:F:29:PRO:HA	1.73	0.71
1:D:257:LEU:HD22	1:D:282:MET:CE	2.20	0.71
1:H:272:ARG:NH1	6:H:515:HOH:O	2.24	0.71
1:E:20:GLY:H	1:E:196:MET:HG3	1.55	0.71
1:F:56:ASP:HB2	1:F:74:GLN:HG2	1.74	0.69
2:D:401:AGS:O1B	2:D:401:AGS:S1G	2.50	0.69
1:B:308:PHE:HB2	1:B:313:ILE:HD11	1.73	0.68
1:A:20:GLY:H	1:A:196:MET:HG2	1.58	0.68
1:C:262:TYR:HA	1:C:265:MET:HE3	1.75	0.68
1:E:20:GLY:CA	1:E:196:MET:HG2	2.24	0.67
1:G:27:ILE:O	1:G:136:ARG:HD3	1.94	0.67
1:C:38:LEU:HD13	1:C:180:PHE:HZ	1.60	0.67
1:A:27:ILE:O	1:A:136:ARG:HD3	1.95	0.67
1:H:33:SER:HB3	1:H:153:TRP:HB3	1.76	0.67
1:G:18:TYR:HE2	3:G:402:DP6:O2A	1.79	0.66
1:E:96:ASN:HD22	1:E:100:THR:HB	1.60	0.66
1:C:289:LYS:HD2	1:C:289:LYS:N	2.11	0.66
1:D:257:LEU:HD22	1:D:282:MET:HE1	1.76	0.66
1:C:283:ALA:H	1:C:289:LYS:NZ	1.92	0.66
1:F:98:VAL:CG2	1:F:99:PRO:HD2	2.24	0.65
1:G:34:LEU:HD12	1:G:151:ALA:O	1.95	0.65
1:E:27:ILE:O	1:E:136:ARG:HD3	1.97	0.65
1:E:38:LEU:HD13	1:E:180:PHE:CZ	2.31	0.65
1:D:262:TYR:HA	1:D:265:MET:HE2	1.78	0.65
1:F:18:TYR:OH	1:F:21:LYS:HG2	1.96	0.65
1:B:107:SER:HB3	1:B:139:SER:OG	1.98	0.64
1:B:27:ILE:O	1:B:136:ARG:HD3	1.97	0.64
1:D:253:PRO:HG2	1:E:265:MET:SD	2.38	0.64
1:D:262:TYR:HA	1:D:265:MET:HE3	1.80	0.64
1:E:15:LEU:HB3	1:E:236:ILE:HG21	1.80	0.63
1:D:258:VAL:HG12	1:D:259:GLN:H	1.63	0.63
1:C:289:LYS:H	1:C:289:LYS:HD2	1.63	0.63

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:188:LYS:HA	5:E:403:GOL:H31	1.81	0.63
1:H:308:PHE:HB2	1:H:313:ILE:HD11	1.79	0.63
1:F:103:GLY:O	1:F:104:LEU:HD12	1.98	0.63
1:B:318:ILE:HD13	1:B:318:ILE:N	2.12	0.62
1:H:105:ALA:HA	2:H:401:AGS:PG	2.38	0.62
1:D:248:LEU:O	1:D:253:PRO:HB3	2.00	0.61
1:H:119:ASN:HA	1:H:124:LEU:HD12	1.82	0.61
1:B:105:ALA:HA	2:B:401:AGS:O3B	2.00	0.61
1:D:27:ILE:O	1:D:136:ARG:CD	2.47	0.61
1:B:283:ALA:H	1:B:289:LYS:NZ	1.98	0.61
1:H:283:ALA:H	1:H:289:LYS:NZ	1.99	0.61
1:E:146:ILE:HA	1:E:323:VAL:HG23	1.83	0.61
1:C:6:LYS:HG3	1:C:46:LYS:HB2	1.83	0.61
1:G:58:LEU:HD22	1:G:73:ILE:HD13	1.82	0.61
1:E:283:ALA:CB	3:E:402:DP6:O2	2.48	0.60
1:C:218:ASN:ND2	6:C:515:HOH:O	2.35	0.60
1:A:20:GLY:N	1:A:196:MET:HG2	2.16	0.60
1:F:99:PRO:CG	1:F:104:LEU:HD22	2.25	0.60
1:H:15:LEU:HB3	1:H:236:ILE:HG21	1.84	0.60
1:D:233:GLY:HA3	1:D:279:TYR:CD1	2.36	0.59
1:F:18:TYR:HE2	3:F:402:DP6:O1A	1.85	0.59
1:G:180:PHE:CE2	1:G:289:LYS:HG2	2.38	0.59
1:A:233:GLY:HA3	1:A:279:TYR:CD1	2.37	0.59
1:F:20:GLY:N	1:F:196:MET:CG	2.66	0.59
1:H:56:ASP:HB2	1:H:74:GLN:HG2	1.85	0.59
1:A:21:LYS:HE2	6:A:519:HOH:O	2.03	0.58
2:G:401:AGS:O3G	3:G:402:DP6:O1A	2.21	0.58
1:F:22:ALA:N	1:F:28:ILE:O	2.32	0.58
1:A:70:LYS:O	1:A:74:GLN:HG2	2.03	0.58
2:B:401:AGS:O3G	3:B:402:DP6:O2A	2.22	0.58
1:C:96:ASN:HD22	1:C:100:THR:HB	1.69	0.58
1:E:8:ARG:HB2	1:E:326:ILE:HD11	1.85	0.58
1:H:283:ALA:H	1:H:289:LYS:HZ1	1.50	0.58
1:D:233:GLY:O	1:D:236:ILE:HG13	2.04	0.58
1:E:168:ASN:ND2	6:E:532:HOH:O	2.36	0.58
1:G:70:LYS:O	1:G:73:ILE:HG22	2.04	0.58
2:H:401:AGS:O3G	3:H:402:DP6:O1A	2.21	0.58
1:E:38:LEU:CD1	1:E:180:PHE:HZ	2.16	0.58
1:F:20:GLY:HA2	1:F:196:MET:HG2	1.86	0.57
1:C:106:SER:N	2:C:401:AGS:O1B	2.37	0.57
1:A:13:ILE:HD12	1:A:289:LYS:HD3	1.86	0.57
1:F:269:GLU:OE2	1:F:273:LYS:HE3	2.04	0.57

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:77:MET:CE	1:D:114:LEU:HD21	2.35	0.57
1:F:192:SER:O	1:F:196:MET:HB2	2.04	0.57
1:D:304:PHE:HB3	1:D:313:ILE:CD1	2.34	0.57
1:C:56:ASP:HB2	1:C:74:GLN:HG2	1.86	0.57
1:A:302:GLU:HA	1:A:305:LEU:HD12	1.87	0.56
1:A:13:ILE:CG2	1:A:289:LYS:HD2	2.29	0.56
1:H:19:TRP:CE3	3:H:402:DP6:H3A1	2.39	0.56
1:F:20:GLY:N	1:F:196:MET:HG2	2.19	0.56
1:E:304:PHE:HB3	1:E:313:ILE:CD1	2.35	0.56
1:A:199:THR:HG21	1:A:246:THR:OG1	2.05	0.56
1:E:286:PRO:CD	5:E:403:GOL:H12	2.35	0.56
1:C:233:GLY:HA3	1:C:279:TYR:CD1	2.41	0.56
1:F:105:ALA:HA	2:F:401:AGS:PG	2.45	0.56
1:E:305:LEU:HD22	1:E:310:GLU:CG	2.28	0.56
1:A:188:LYS:HE3	2:A:401:AGS:O3A	2.05	0.56
1:F:20:GLY:CA	1:F:196:MET:HG2	2.37	0.55
1:F:6:LYS:HG2	1:F:326:ILE:HG13	1.89	0.55
2:D:401:AGS:O1A	2:D:401:AGS:O3G	2.24	0.55
1:D:192:SER:O	1:D:196:MET:HB2	2.07	0.55
1:B:248:LEU:O	1:B:253:PRO:HB3	2.06	0.55
1:E:193:ARG:HH21	3:E:402:DP6:PB	2.29	0.54
1:G:283:ALA:H	1:G:289:LYS:NZ	2.05	0.54
1:D:283:ALA:CA	3:D:402:DP6:O2	2.55	0.54
1:D:262:TYR:CD1	1:D:265:MET:CE	2.90	0.54
1:E:96:ASN:ND2	1:E:100:THR:HB	2.22	0.54
1:E:258:VAL:HG12	1:E:259:GLN:N	2.21	0.54
1:G:81:ARG:HD3	1:G:88:LEU:O	2.07	0.54
1:D:23:ASP:HB3	1:D:28:ILE:HG12	1.88	0.54
1:H:10:HIS:HB3	1:H:38:LEU:O	2.07	0.54
1:A:86:ASN:ND2	1:A:88:LEU:HD12	2.22	0.54
1:F:70:LYS:O	1:F:74:GLN:HG3	2.06	0.54
1:D:77:MET:HE1	1:D:114:LEU:HD21	1.89	0.54
1:E:14:ALA:HB3	3:E:402:DP6:O1	2.08	0.54
1:C:119:ASN:HA	1:C:124:LEU:HD12	1.88	0.54
1:E:21:LYS:HD3	1:E:27:ILE:HG23	1.88	0.54
1:G:179:ILE:HD13	1:G:301:MET:HG3	1.90	0.54
1:E:20:GLY:CA	1:E:196:MET:CG	2.85	0.53
1:G:94:SER:OG	2:G:401:AGS:N6	2.37	0.53
1:A:29:PRO:HD3	1:A:153:TRP:CZ2	2.43	0.53
1:D:81:ARG:HD3	1:D:88:LEU:O	2.09	0.53
1:G:50:ASP:HB3	1:G:53:PHE:CE2	2.43	0.53
1:C:73:ILE:O	1:C:77:MET:HG2	2.09	0.53

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:293:GLU:HB2	6:D:512:HOH:O	2.09	0.52
1:G:21:LYS:NZ	3:G:402:DP6:O2B	2.29	0.52
1:B:297:LYS:HE3	1:B:301:MET:HE1	1.92	0.52
1:G:18:TYR:CE2	3:G:402:DP6:O2A	2.60	0.52
1:D:34:LEU:HD12	1:D:151:ALA:O	2.09	0.52
1:A:172:TRP:CG	1:A:227:GLN:HG2	2.44	0.52
1:E:13:ILE:HG12	1:E:38:LEU:HD11	1.92	0.52
1:E:304:PHE:HB3	1:E:313:ILE:HD11	1.91	0.52
1:A:13:ILE:HD12	1:A:289:LYS:CD	2.40	0.52
1:B:223:ALA:HB2	1:B:231:ARG:HG2	1.92	0.52
1:F:38:LEU:HD13	1:F:180:PHE:CZ	2.36	0.51
1:B:33:SER:HB3	1:B:153:TRP:HB3	1.92	0.51
1:G:29:PRO:HD3	1:G:153:TRP:CZ2	2.45	0.51
1:H:233:GLY:HA3	1:H:279:TYR:CD1	2.45	0.51
1:F:199:THR:HG21	1:F:246:THR:OG1	2.09	0.51
1:B:15:LEU:HB3	1:B:236:ILE:CG2	2.39	0.51
1:D:304:PHE:HB3	1:D:313:ILE:HD13	1.93	0.51
1:D:308:PHE:HB2	1:D:313:ILE:HD11	1.91	0.51
1:G:7:ALA:HB2	1:G:325:ILE:HD13	1.92	0.51
1:H:15:LEU:HD22	1:H:236:ILE:HD12	1.91	0.51
1:C:188:LYS:NZ	2:C:401:AGS:O2A	2.32	0.51
1:B:258:VAL:CG1	1:B:259:GLN:N	2.72	0.51
1:F:1:MET:HG2	1:F:2:VAL:H	1.75	0.51
1:C:188:LYS:HE2	1:C:284:ALA:O	2.10	0.51
1:G:29:PRO:HG2	1:G:155:LYS:CB	2.41	0.51
1:H:202:THR:HB	1:H:251:GLN:HB3	1.93	0.51
1:B:189:LYS:O	1:B:189:LYS:HG3	2.10	0.51
1:D:21:LYS:NZ	3:D:402:DP6:O1B	2.42	0.50
1:A:119:ASN:OD1	1:A:124:LEU:HB2	2.11	0.50
1:E:283:ALA:H	1:E:289:LYS:HZ2	1.58	0.50
1:G:1:MET:HG2	1:G:2:VAL:H	1.75	0.50
1:F:49:PHE:CE2	1:F:90:ALA:HB2	2.47	0.50
1:B:264:ALA:HA	1:B:267:ILE:HD12	1.92	0.50
1:A:13:ILE:CD1	1:A:289:LYS:HD3	2.42	0.50
2:E:401:AGS:S1G	2:E:401:AGS:O1B	2.70	0.50
1:G:65:VAL:HB	1:G:69:GLU:HB2	1.94	0.50
2:C:401:AGS:O2A	2:C:401:AGS:O2B	2.30	0.50
1:C:27:ILE:O	1:C:27:ILE:HG22	2.12	0.49
1:G:40:ARG:HB3	1:G:316:SER:HB2	1.94	0.49
1:F:70:LYS:O	1:F:73:ILE:HG22	2.13	0.49
1:A:36:VAL:HB	1:A:318:ILE:HD12	1.93	0.49
1:H:21:LYS:HD3	1:H:27:ILE:HA	1.95	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:21:LYS:HE3	1:F:27:ILE:HG23	1.95	0.49
1:C:27:ILE:O	1:C:136:ARG:HD3	2.11	0.49
1:F:152:GLU:HB2	1:F:167:ILE:HD11	1.93	0.49
1:C:168:ASN:O	6:C:524:HOH:O	2.20	0.49
1:B:86:ASN:ND2	1:B:88:LEU:HD12	2.27	0.49
1:F:98:VAL:CG2	1:F:99:PRO:CD	2.91	0.49
1:A:6:LYS:HD3	1:A:326:ILE:HG13	1.93	0.49
1:F:220:ALA:O	1:F:224:VAL:HG13	2.12	0.49
1:F:278:CYS:C	1:F:279:TYR:CD1	2.85	0.48
2:G:401:AGS:O1A	2:G:401:AGS:O3B	2.30	0.48
1:D:20:GLY:N	1:D:196:MET:HG2	2.27	0.48
1:C:49:PHE:HB3	1:C:88:LEU:HB3	1.95	0.48
1:A:10:HIS:CD2	1:A:39:ASP:HA	2.49	0.48
1:E:283:ALA:HB2	3:E:402:DP6:O2	2.13	0.48
1:A:20:GLY:H	1:A:196:MET:CG	2.25	0.48
1:B:105:ALA:HA	2:B:401:AGS:PG	2.54	0.48
1:H:6:LYS:HD3	1:H:326:ILE:HG13	1.94	0.48
1:F:27:ILE:O	1:F:136:ARG:HD3	2.14	0.48
1:B:50:ASP:HB3	1:B:53:PHE:CD2	2.48	0.48
1:H:19:TRP:HE3	3:H:402:DP6:H3A1	1.77	0.48
1:F:70:LYS:HA	1:F:73:ILE:HG22	1.96	0.48
1:D:258:VAL:HG12	1:D:259:GLN:N	2.27	0.48
1:C:237:GLU:OE1	1:C:272:ARG:NH2	2.47	0.48
1:G:188:LYS:HZ3	1:G:284:ALA:HB3	1.77	0.48
1:D:283:ALA:CB	3:D:402:DP6:O2	2.62	0.48
1:G:38:LEU:HD13	1:G:180:PHE:HZ	1.78	0.48
1:A:221:LYS:O	1:A:224:VAL:HG22	2.14	0.47
1:G:15:LEU:HB3	1:G:236:ILE:HG21	1.96	0.47
1:A:136:ARG:NH2	1:A:159:ASP:O	2.46	0.47
1:G:248:LEU:O	1:G:253:PRO:HB3	2.15	0.47
1:A:196:MET:HE3	1:A:196:MET:HB3	1.73	0.47
2:B:401:AGS:O1B	2:B:401:AGS:O2A	2.33	0.47
1:H:27:ILE:O	1:H:136:ARG:HD3	2.14	0.47
1:D:119:ASN:OD1	1:D:124:LEU:HB2	2.14	0.47
1:H:241:LEU:HD23	1:H:241:LEU:HA	1.77	0.47
1:D:262:TYR:CD1	1:D:265:MET:HE3	2.50	0.47
1:B:141:SER:OG	3:B:402:DP6:O1A	2.21	0.47
1:G:13:ILE:HG12	1:G:38:LEU:HD11	1.96	0.47
1:C:111:TYR:CD1	1:C:138:GLY:HA3	2.50	0.47
1:E:183:ILE:HD13	1:E:260:GLU:HB3	1.97	0.47
1:D:137:ARG:NH1	6:D:520:HOH:O	2.48	0.46
1:H:111:TYR:CD1	1:H:138:GLY:HA3	2.51	0.46

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:20:GLY:H	1:D:196:MET:CG	2.28	0.46
1:C:77:MET:CE	1:C:114:LEU:HD21	2.45	0.46
1:B:70:LYS:O	1:B:74:GLN:HG3	2.16	0.46
1:F:236:ILE:HG13	1:F:237:GLU:N	2.29	0.46
1:B:96:ASN:HD22	1:B:100:THR:HB	1.80	0.46
1:C:49:PHE:CD1	1:C:122:LEU:HD21	2.51	0.46
1:H:40:ARG:CZ	1:H:314:ILE:HG23	2.46	0.46
1:A:10:HIS:CD2	1:A:42:TYR:HB3	2.50	0.46
1:E:103:GLY:O	1:E:104:LEU:HD23	2.15	0.46
1:A:46:LYS:HE3	1:A:48:THR:CG2	2.46	0.46
1:F:34:LEU:HD12	1:F:151:ALA:O	2.15	0.46
1:H:61:ASN:HA	1:H:95:GLU:OE1	2.16	0.46
1:C:18:TYR:O	3:C:402:DP6:H3A2	2.14	0.46
1:E:297:LYS:HG2	1:E:301:MET:HE2	1.97	0.46
1:H:188:LYS:HE3	1:H:188:LYS:HB3	1.56	0.46
1:C:273:LYS:HD3	1:C:273:LYS:HA	1.74	0.46
1:F:95:GLU:HB3	1:F:97:TYR:CE1	2.51	0.46
1:B:174:LYS:HE3	1:B:320:SER:OG	2.15	0.46
3:B:402:DP6:O2A	3:B:402:DP6:O2B	2.34	0.46
1:D:50:ASP:OD1	1:D:51:PRO:HD2	2.16	0.46
1:G:252:PRO:O	6:G:536:HOH:O	2.20	0.46
1:E:105:ALA:HA	2:E:401:AGS:PG	2.56	0.46
1:D:273:LYS:HD3	1:D:273:LYS:HA	1.64	0.46
1:B:13:ILE:HG12	1:B:38:LEU:CD1	2.44	0.45
1:H:297:LYS:HE3	1:H:315:ALA:HB1	1.98	0.45
1:H:296:ASN:O	1:H:300:VAL:HG23	2.16	0.45
1:A:21:LYS:HD3	1:A:27:ILE:HA	1.99	0.45
1:G:40:ARG:CB	1:G:316:SER:HB2	2.47	0.45
1:D:262:TYR:CD1	1:D:265:MET:HE1	2.52	0.45
1:E:5:GLY:N	1:E:121:ALA:HB2	2.32	0.45
1:B:20:GLY:H	1:B:196:MET:CG	2.30	0.45
1:H:70:LYS:O	1:H:74:GLN:HG3	2.16	0.45
1:F:188:LYS:HE3	2:F:401:AGS:O3A	2.15	0.45
1:G:251:GLN:HA	1:G:252:PRO:HA	1.87	0.45
1:G:56:ASP:HB2	1:G:74:GLN:HG3	1.98	0.45
1:G:107:SER:HB3	2:G:401:AGS:H5'2	1.98	0.45
1:A:319:ILE:HG12	1:A:321:SER:H	1.81	0.45
1:B:18:TYR:O	3:B:402:DP6:H3A3	2.16	0.45
1:F:36:VAL:HA	1:F:149:GLY:O	2.17	0.45
1:A:206:TYR:CE2	1:A:210:LEU:HD11	2.52	0.45
1:B:206:TYR:O	1:B:209:TRP:HB3	2.16	0.45
1:F:18:TYR:OH	1:F:21:LYS:HE3	2.16	0.45

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:15:LEU:HB3	1:E:236:ILE:CG2	2.47	0.45
1:B:20:GLY:N	1:B:196:MET:HG3	2.32	0.45
2:D:401:AGS:O3G	3:D:402:DP6:O2A	2.34	0.45
1:D:29:PRO:HD3	1:D:153:TRP:CZ2	2.52	0.45
1:D:12:ASN:HB2	1:D:36:VAL:O	2.17	0.45
1:E:33:SER:OG	1:E:144:ARG:NH1	2.50	0.45
1:B:199:THR:HG21	1:B:246:THR:OG1	2.16	0.44
1:F:96:ASN:ND2	1:F:100:THR:CG2	2.56	0.44
1:G:107:SER:OG	2:G:401:AGS:O2G	2.32	0.44
1:C:13:ILE:HG12	1:C:38:LEU:HD11	1.98	0.44
1:E:146:ILE:HA	1:E:323:VAL:CG2	2.45	0.44
1:F:231:ARG:O	6:F:510:HOH:O	2.21	0.44
1:A:49:PHE:CE2	1:A:90:ALA:HB2	2.52	0.44
1:F:98:VAL:HG23	1:F:99:PRO:CD	2.36	0.44
1:F:49:PHE:CD2	1:F:90:ALA:HB2	2.53	0.44
1:A:15:LEU:HD21	1:A:36:VAL:HG22	2.00	0.44
1:H:21:LYS:O	1:H:200:ARG:HD3	2.16	0.44
1:D:10:HIS:HB3	1:D:38:LEU:O	2.18	0.44
1:G:233:GLY:HA3	1:G:279:TYR:CG	2.53	0.44
1:H:73:ILE:HA	1:H:73:ILE:HD12	1.77	0.44
1:D:257:LEU:HD22	1:D:282:MET:HE2	1.99	0.44
1:F:268:VAL:O	1:F:271:CYS:HB2	2.17	0.44
1:A:31:ASN:ND2	1:A:213:VAL:HG21	2.33	0.44
1:F:155:LYS:O	1:F:162:SER:HB2	2.18	0.44
1:H:41:PHE:HB3	1:H:98:VAL:HB	2.00	0.44
1:H:289:LYS:HE3	1:H:289:LYS:H	1.83	0.44
1:C:38:LEU:CD1	1:C:180:PHE:HZ	2.28	0.44
2:B:401:AGS:S1G	3:B:402:DP6:H21	2.58	0.43
1:D:233:GLY:HA3	1:D:279:TYR:CG	2.53	0.43
1:B:178:MET:HG2	1:B:180:PHE:CE1	2.53	0.43
1:F:200:ARG:O	1:F:200:ARG:HD2	2.19	0.43
1:F:18:TYR:CE2	3:F:402:DP6:O1A	2.68	0.43
1:B:292:VAL:HG22	1:B:293:GLU:O	2.18	0.43
1:C:77:MET:HE1	1:C:114:LEU:HD21	2.00	0.43
1:D:203:SER:HA	1:D:249:GLY:O	2.19	0.43
1:A:107:SER:HB3	1:A:139:SER:OG	2.18	0.43
1:B:86:ASN:HD22	1:B:88:LEU:HD12	1.84	0.43
1:C:14:ALA:HA	1:C:35:SER:HB3	2.01	0.43
1:H:15:LEU:HD11	1:H:36:VAL:HG13	2.00	0.43
1:G:180:PHE:CD2	1:G:289:LYS:HG2	2.52	0.43
1:F:110:ALA:HB1	2:F:401:AGS:C6	2.49	0.43
1:C:269:GLU:OE2	1:C:273:LYS:HE3	2.18	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:206:TYR:O	1:A:209:TRP:HB3	2.18	0.43
1:A:111:TYR:CD1	1:A:138:GLY:HA3	2.53	0.43
1:B:218:ASN:O	1:B:222:GLU:HG3	2.19	0.43
1:C:129:THR:O	1:C:133:ARG:HG3	2.17	0.43
1:G:258:VAL:HG12	1:G:260:GLU:H	1.84	0.43
1:H:98:VAL:HG22	1:H:99:PRO:O	2.19	0.43
1:G:269:GLU:OE1	1:G:272:ARG:NH1	2.52	0.43
1:E:248:LEU:O	1:E:253:PRO:HB3	2.18	0.43
1:F:188:LYS:NZ	1:F:284:ALA:O	2.44	0.43
1:E:233:GLY:HA3	1:E:279:TYR:CD1	2.54	0.43
1:B:99:PRO:HG2	1:B:104:LEU:HD12	2.01	0.43
1:C:26:TYR:O	1:C:27:ILE:HB	2.19	0.42
1:B:188:LYS:HZ3	1:B:192:SER:HB3	1.84	0.42
1:B:73:ILE:HD12	1:B:73:ILE:HA	1.89	0.42
1:A:76:TYR:CE2	1:A:114:LEU:HD23	2.54	0.42
1:A:16:ILE:HA	1:A:239:ASN:OD1	2.18	0.42
1:D:267:ILE:HD11	1:D:307:VAL:HG21	1.99	0.42
1:G:50:ASP:HA	1:G:51:PRO:HD3	1.77	0.42
1:B:147:PHE:CZ	1:B:165:HIS:HA	2.54	0.42
1:A:185:ASN:HB3	1:A:186:GLN:OE1	2.20	0.42
1:G:206:TYR:O	1:G:209:TRP:HB3	2.19	0.42
1:F:41:PHE:HB3	1:F:98:VAL:HB	2.02	0.42
1:C:10:HIS:ND1	1:C:38:LEU:O	2.53	0.42
2:F:401:AGS:O1B	2:F:401:AGS:S1G	2.78	0.42
1:H:22:ALA:N	1:H:28:ILE:O	2.41	0.42
1:H:191:SER:O	1:H:192:SER:C	2.58	0.42
1:A:218:ASN:O	1:A:222:GLU:HG2	2.19	0.42
1:A:32:ASN:OD1	1:A:155:LYS:HD3	2.20	0.42
1:F:273:LYS:HD3	1:F:273:LYS:HA	1.62	0.42
1:B:81:ARG:HD3	1:B:88:LEU:O	2.20	0.42
1:G:94:SER:CB	2:G:401:AGS:HN62	2.33	0.42
1:B:258:VAL:HG12	1:B:260:GLU:H	1.85	0.42
1:B:258:VAL:HG12	1:B:259:GLN:N	2.35	0.42
1:D:14:ALA:HA	1:D:35:SER:HB3	2.02	0.42
1:E:47:VAL:HG12	1:E:117:ALA:HB1	2.02	0.42
1:B:289:LYS:N	1:B:289:LYS:HD2	2.35	0.42
1:E:286:PRO:HG3	5:E:403:GOL:H12	2.02	0.42
2:B:401:AGS:O1A	2:B:401:AGS:O3G	2.37	0.41
1:A:192:SER:O	1:A:196:MET:HB2	2.20	0.41
1:H:40:ARG:NH2	1:H:314:ILE:HG23	2.35	0.41
1:A:108:ALA:HB2	1:A:141:SER:HB2	2.02	0.41
3:E:402:DP6:O3B	3:E:402:DP6:O2A	2.39	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:220:ALA:O	1:G:224:VAL:HG13	2.20	0.41
1:E:286:PRO:CG	5:E:403:GOL:H12	2.51	0.41
1:C:10:HIS:CE1	1:C:39:ASP:O	2.74	0.41
1:G:86:ASN:ND2	1:G:88:LEU:HD12	2.35	0.41
1:D:203:SER:HA	1:D:250:ALA:HA	2.02	0.41
1:F:313:ILE:C	1:F:314:ILE:HD12	2.41	0.41
1:H:50:ASP:HA	1:H:51:PRO:HD3	1.91	0.41
1:A:131:LEU:HD23	1:A:131:LEU:HA	1.79	0.41
1:A:191:SER:O	1:A:192:SER:C	2.59	0.41
1:F:38:LEU:CD1	1:F:180:PHE:HZ	2.28	0.41
1:E:265:MET:HG2	1:E:280:PHE:CE1	2.56	0.41
1:F:276:LEU:HD21	1:F:299:ALA:HB1	2.03	0.41
1:E:16:ILE:HB	1:E:34:LEU:HB3	2.03	0.41
1:E:116:ALA:CB	1:E:323:VAL:HG11	2.50	0.41
1:H:15:LEU:N	1:H:34:LEU:O	2.47	0.41
1:E:304:PHE:HB3	1:E:313:ILE:HD13	2.02	0.41
1:H:17:LYS:CD	3:H:402:DP6:O2	2.69	0.41
1:C:188:LYS:HG3	1:C:188:LYS:H	1.59	0.41
1:C:262:TYR:HA	1:C:265:MET:CE	2.48	0.41
1:C:38:LEU:HD13	1:C:180:PHE:CZ	2.48	0.41
1:D:84:ALA:CB	1:D:122:LEU:HD13	2.50	0.41
1:A:295:LYS:HG2	1:A:295:LYS:H	1.58	0.41
1:D:84:ALA:HB2	1:D:122:LEU:HD13	2.01	0.41
1:H:46:LYS:HB3	1:H:93:GLU:HB3	2.02	0.41
1:G:20:GLY:HA2	1:G:196:MET:HG2	2.03	0.41
1:F:169:SER:O	1:F:170:ASN:HB2	2.21	0.41
1:B:305:LEU:HD23	1:B:313:ILE:HD13	2.02	0.40
1:H:152:GLU:O	1:H:164:ALA:HA	2.21	0.40
1:G:305:LEU:HA	1:G:305:LEU:HD23	1.92	0.40
1:E:21:LYS:NZ	3:E:402:DP6:O2B	2.50	0.40
1:B:188:LYS:HD3	1:B:190:VAL:O	2.21	0.40
1:A:251:GLN:HA	1:A:252:PRO:HA	1.89	0.40
1:C:47:VAL:HG12	1:C:117:ALA:HB1	2.02	0.40
3:H:402:DP6:O1	3:H:402:DP6:O3A	2.34	0.40
1:C:262:TYR:CD1	1:C:265:MET:HE3	2.56	0.40
3:B:402:DP6:H52	3:B:402:DP6:H21	1.63	0.40
1:E:116:ALA:HB2	1:E:323:VAL:HG11	2.03	0.40
1:G:196:MET:HE2	1:G:196:MET:HB2	1.92	0.40
1:C:15:LEU:HB3	1:C:236:ILE:HG21	2.04	0.40
1:D:40:ARG:HB3	1:D:316:SER:HB2	2.03	0.40
1:D:18:TYR:HE2	3:D:402:DP6:O6	2.04	0.40
1:E:193:ARG:NH2	3:E:402:DP6:O3B	2.54	0.40

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:209:TRP:CZ3	1:B:243:MET:HB2	2.57	0.40
1:D:76:TYR:O	1:D:80:VAL:HG23	2.22	0.40
1:D:200:ARG:HH11	1:D:200:ARG:HD2	1.75	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone ⓘ

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	324/332 (98%)	307 (95%)	17 (5%)	0	100	100
1	B	324/332 (98%)	315 (97%)	9 (3%)	0	100	100
1	C	324/332 (98%)	314 (97%)	10 (3%)	0	100	100
1	D	324/332 (98%)	315 (97%)	9 (3%)	0	100	100
1	E	326/332 (98%)	312 (96%)	14 (4%)	0	100	100
1	F	324/332 (98%)	316 (98%)	8 (2%)	0	100	100
1	G	324/332 (98%)	314 (97%)	10 (3%)	0	100	100
1	H	324/332 (98%)	314 (97%)	10 (3%)	0	100	100
All	All	2594/2656 (98%)	2507 (97%)	87 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 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	274/278 (99%)	266 (97%)	8 (3%)	55	83

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	274/278 (99%)	271 (99%)	3 (1%)	84	96
1	C	274/278 (99%)	269 (98%)	5 (2%)	71	91
1	D	274/278 (99%)	268 (98%)	6 (2%)	64	89
1	E	275/278 (99%)	263 (96%)	12 (4%)	39	68
1	F	274/278 (99%)	261 (95%)	13 (5%)	36	65
1	G	274/278 (99%)	266 (97%)	8 (3%)	55	83
1	H	274/278 (99%)	264 (96%)	10 (4%)	47	76
All	All	2193/2224 (99%)	2128 (97%)	65 (3%)	53	82

All (65) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	18	TYR
1	A	54	THR
1	A	55	GLU
1	A	83	LEU
1	A	131	LEU
1	A	196	MET
1	A	200	ARG
1	A	295	LYS
1	B	38	LEU
1	B	200	ARG
1	B	231	ARG
1	C	63	ASN
1	C	188	LYS
1	C	200	ARG
1	C	224	VAL
1	C	236	ILE
1	D	18	TYR
1	D	88	LEU
1	D	145	SER
1	D	197	SER
1	D	200	ARG
1	D	309	ASP
1	E	18	TYR
1	E	21	LYS
1	E	24	GLU
1	E	27	ILE
1	E	31	ASN
1	E	54	THR

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Mol	Chain	Res	Type
1	E	87	ARG
1	E	100	THR
1	E	132	SER
1	E	200	ARG
1	E	243	MET
1	E	289	LYS
1	F	4	SER
1	F	21	LYS
1	F	123	SER
1	F	145	SER
1	F	200	ARG
1	F	224	VAL
1	F	236	ILE
1	F	243	MET
1	F	260	GLU
1	F	289	LYS
1	F	297	LYS
1	F	302	GLU
1	F	306	LYS
1	G	24	GLU
1	G	46	LYS
1	G	73	ILE
1	G	88	LEU
1	G	145	SER
1	G	200	ARG
1	G	224	VAL
1	G	289	LYS
1	H	54	THR
1	H	104	LEU
1	H	185	ASN
1	H	187	SER
1	H	188	LYS
1	H	200	ARG
1	H	258	VAL
1	H	261	SER
1	H	289	LYS
1	H	294	LYS

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

Mol	Chain	Res	Type
1	A	10	HIS

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Mol	Chain	Res	Type
1	F	303	GLN
1	G	74	GLN

### 5.3.3 RNA ⓘ

There are no RNA chains 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 ⓘ

21 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	AGS	A	401	-	33,33,33	2.43	11 (33%)	52,52,52	2.55	13 (25%)
3	DP6	A	402	-	17,17,17	1.83	5 (29%)	26,26,26	1.21	2 (7%)
4	FMT	A	403	-	2,2,2	0.65	0	1,1,1	0.24	0
2	AGS	B	401	-	33,33,33	2.43	11 (33%)	52,52,52	2.56	13 (25%)
3	DP6	B	402	-	17,17,17	1.93	5 (29%)	26,26,26	1.15	3 (11%)
2	AGS	C	401	-	33,33,33	2.43	11 (33%)	52,52,52	2.53	12 (23%)
3	DP6	C	402	-	17,17,17	1.83	5 (29%)	26,26,26	1.20	2 (7%)
2	AGS	D	401	-	33,33,33	2.44	11 (33%)	52,52,52	2.45	12 (23%)
3	DP6	D	402	-	17,17,17	1.83	4 (23%)	26,26,26	1.21	2 (7%)
4	FMT	D	403	-	2,2,2	0.64	0	1,1,1	0.24	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	AGS	E	401	-	33,33,33	2.43	11 (33%)	52,52,52	2.56	13 (25%)
3	DP6	E	402	-	17,17,17	1.82	5 (29%)	26,26,26	1.21	2 (7%)
5	GOL	E	403	-	5,5,5	0.33	0	5,5,5	0.25	0
4	FMT	E	404	-	2,2,2	0.65	0	1,1,1	0.24	0
2	AGS	F	401	-	33,33,33	2.44	11 (33%)	52,52,52	2.56	13 (25%)
3	DP6	F	402	-	17,17,17	1.90	5 (29%)	26,26,26	1.30	3 (11%)
2	AGS	G	401	-	33,33,33	2.42	11 (33%)	52,52,52	2.56	13 (25%)
3	DP6	G	402	-	17,17,17	1.94	5 (29%)	26,26,26	1.25	2 (7%)
2	AGS	H	401	-	33,33,33	2.44	11 (33%)	52,52,52	2.56	13 (25%)
3	DP6	H	402	-	17,17,17	1.85	5 (29%)	26,26,26	1.20	2 (7%)
4	FMT	H	403	-	2,2,2	0.65	0	1,1,1	0.24	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
2	AGS	A	401	-	-	0/21/38/38	0/1/3/3
3	DP6	A	402	-	-	0/19/19/19	0/0/0/0
4	FMT	A	403	-	-	0/0/0/0	0/0/0/0
2	AGS	B	401	-	-	0/21/38/38	0/1/3/3
3	DP6	B	402	-	-	0/19/19/19	0/0/0/0
2	AGS	C	401	-	-	0/21/38/38	0/1/3/3
3	DP6	C	402	-	-	0/19/19/19	0/0/0/0
2	AGS	D	401	-	-	0/21/38/38	0/1/3/3
3	DP6	D	402	-	-	0/19/19/19	0/0/0/0
4	FMT	D	403	-	-	0/0/0/0	0/0/0/0
2	AGS	E	401	-	-	0/21/38/38	0/1/3/3
3	DP6	E	402	-	-	0/19/19/19	0/0/0/0
5	GOL	E	403	-	-	0/4/4/4	0/0/0/0
4	FMT	E	404	-	-	0/0/0/0	0/0/0/0
2	AGS	F	401	-	-	0/21/38/38	0/1/3/3
3	DP6	F	402	-	-	0/19/19/19	0/0/0/0
2	AGS	G	401	-	-	0/21/38/38	0/1/3/3
3	DP6	G	402	-	-	0/19/19/19	0/0/0/0
2	AGS	H	401	-	-	0/21/38/38	0/1/3/3
3	DP6	H	402	-	-	0/19/19/19	0/0/0/0
4	FMT	H	403	-	-	0/0/0/0	0/0/0/0

All (127) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	401	AGS	PG-S1G	7.62	2.04	1.90
2	F	401	AGS	PG-S1G	7.57	2.04	1.90
2	A	401	AGS	PG-S1G	7.57	2.04	1.90
2	B	401	AGS	PG-S1G	7.55	2.04	1.90
2	D	401	AGS	PG-S1G	7.54	2.04	1.90
2	E	401	AGS	PG-S1G	7.53	2.04	1.90
2	G	401	AGS	PG-S1G	7.52	2.04	1.90
2	C	401	AGS	PG-S1G	7.52	2.04	1.90
2	C	401	AGS	C2'-C1'	-5.27	1.46	1.53
2	D	401	AGS	C2'-C1'	-5.22	1.46	1.53
2	F	401	AGS	C2'-C1'	-5.21	1.46	1.53
2	B	401	AGS	C2'-C1'	-5.21	1.46	1.53
2	E	401	AGS	C2'-C1'	-5.20	1.46	1.53
2	G	401	AGS	C2'-C1'	-5.19	1.46	1.53
2	H	401	AGS	C2'-C1'	-5.19	1.46	1.53
2	A	401	AGS	C2'-C1'	-5.18	1.46	1.53
2	D	401	AGS	C2'-C3'	-4.26	1.41	1.53
2	C	401	AGS	C2'-C3'	-4.21	1.41	1.53
2	H	401	AGS	PG-O3G	-4.16	1.47	1.56
2	F	401	AGS	PG-O3G	-4.15	1.47	1.56
2	C	401	AGS	PG-O3G	-4.15	1.47	1.56
2	B	401	AGS	PG-O3G	-4.14	1.47	1.56
2	E	401	AGS	PG-O3G	-4.14	1.47	1.56
2	G	401	AGS	PG-O3G	-4.13	1.47	1.56
2	D	401	AGS	PG-O3G	-4.12	1.47	1.56
2	A	401	AGS	PG-O3G	-4.11	1.47	1.56
2	F	401	AGS	C2'-C3'	-4.09	1.42	1.53
2	E	401	AGS	C2'-C3'	-4.09	1.42	1.53
2	B	401	AGS	C2'-C3'	-4.08	1.42	1.53
2	H	401	AGS	C2'-C3'	-4.08	1.42	1.53
2	G	401	AGS	C2'-C3'	-4.07	1.42	1.53
2	A	401	AGS	C2'-C3'	-4.07	1.42	1.53
3	G	402	DP6	O3A-C3	-4.06	1.37	1.44
3	B	402	DP6	O3A-C3	-4.05	1.37	1.44
3	B	402	DP6	C4-C3	-4.01	1.49	1.53
3	F	402	DP6	O3A-C3	-3.95	1.37	1.44
3	D	402	DP6	C4-C3	-3.88	1.49	1.53
3	H	402	DP6	O3A-C3	-3.87	1.38	1.44
3	C	402	DP6	O3A-C3	-3.87	1.38	1.44
3	E	402	DP6	O3A-C3	-3.86	1.38	1.44
3	A	402	DP6	O3A-C3	-3.85	1.38	1.44
3	D	402	DP6	O3A-C3	-3.84	1.38	1.44
3	G	402	DP6	C4-C3	-3.84	1.49	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	402	DP6	C4-C3	-3.83	1.49	1.53
3	A	402	DP6	C4-C3	-3.81	1.49	1.53
3	F	402	DP6	C4-C3	-3.80	1.49	1.53
3	C	402	DP6	C4-C3	-3.77	1.49	1.53
3	E	402	DP6	C4-C3	-3.76	1.49	1.53
2	A	401	AGS	PG-O3B	-3.57	1.57	1.60
2	F	401	AGS	PG-O3B	-3.55	1.57	1.60
2	G	401	AGS	PG-O3B	-3.55	1.57	1.60
2	C	401	AGS	PG-O3B	-3.53	1.57	1.60
2	H	401	AGS	PG-O3B	-3.53	1.57	1.60
2	B	401	AGS	PG-O3B	-3.53	1.57	1.60
2	E	401	AGS	PG-O3B	-3.49	1.57	1.60
2	D	401	AGS	PG-O3B	-3.48	1.57	1.60
2	H	401	AGS	PG-O2G	-3.48	1.49	1.56
2	D	401	AGS	PG-O2G	-3.46	1.49	1.56
2	C	401	AGS	PG-O2G	-3.45	1.49	1.56
2	F	401	AGS	PG-O2G	-3.44	1.49	1.56
2	G	401	AGS	PG-O2G	-3.43	1.49	1.56
2	B	401	AGS	PG-O2G	-3.42	1.49	1.56
2	E	401	AGS	PG-O2G	-3.41	1.49	1.56
2	A	401	AGS	PG-O2G	-3.40	1.49	1.56
3	G	402	DP6	C3A-C3	-3.18	1.49	1.52
2	C	401	AGS	PB-O3B	-2.97	1.54	1.59
3	B	402	DP6	C3A-C3	-2.95	1.49	1.52
2	E	401	AGS	PB-O3B	-2.91	1.54	1.59
2	H	401	AGS	PB-O3B	-2.89	1.54	1.59
2	G	401	AGS	PB-O3B	-2.89	1.54	1.59
2	B	401	AGS	PB-O3B	-2.89	1.54	1.59
2	D	401	AGS	PB-O3B	-2.89	1.54	1.59
2	A	401	AGS	PB-O3B	-2.88	1.54	1.59
2	F	401	AGS	PB-O3B	-2.87	1.54	1.59
3	H	402	DP6	C3A-C3	-2.82	1.49	1.52
3	F	402	DP6	C3A-C3	-2.81	1.49	1.52
3	E	402	DP6	C3A-C3	-2.78	1.49	1.52
3	A	402	DP6	C3A-C3	-2.77	1.49	1.52
3	D	402	DP6	C3A-C3	-2.76	1.49	1.52
3	C	402	DP6	C3A-C3	-2.74	1.49	1.52
3	F	402	DP6	PB-O6	-2.63	1.55	1.60
2	G	401	AGS	O4'-C4'	-2.61	1.38	1.45
2	B	401	AGS	O4'-C4'	-2.61	1.38	1.45
2	E	401	AGS	O4'-C4'	-2.60	1.38	1.45
2	A	401	AGS	O4'-C4'	-2.59	1.39	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	401	AGS	O4'-C4'	-2.58	1.39	1.45
2	F	401	AGS	O4'-C4'	-2.57	1.39	1.45
3	G	402	DP6	PB-O6	-2.52	1.55	1.60
2	D	401	AGS	O4'-C4'	-2.51	1.39	1.45
2	C	401	AGS	O4'-C4'	-2.51	1.39	1.45
3	B	402	DP6	PB-O6	-2.45	1.55	1.60
3	F	402	DP6	PA-O6	-2.40	1.55	1.59
3	A	402	DP6	PB-O6	-2.31	1.56	1.60
3	E	402	DP6	PB-O6	-2.30	1.56	1.60
3	H	402	DP6	PB-O6	-2.29	1.56	1.60
3	C	402	DP6	PB-O6	-2.29	1.56	1.60
3	D	402	DP6	PB-O6	-2.28	1.56	1.60
2	E	401	AGS	C6-N6	2.25	1.42	1.35
2	F	401	AGS	C6-N6	2.24	1.42	1.35
2	H	401	AGS	C6-N6	2.24	1.42	1.35
2	A	401	AGS	C6-N6	2.23	1.42	1.35
2	B	401	AGS	C6-N6	2.23	1.42	1.35
2	G	401	AGS	C6-N6	2.23	1.42	1.35
2	C	401	AGS	C6-N6	2.22	1.42	1.35
3	B	402	DP6	PA-O6	-2.22	1.55	1.59
2	D	401	AGS	C6-N6	2.21	1.42	1.35
3	G	402	DP6	PA-O6	-2.19	1.55	1.59
2	D	401	AGS	C3'-C4'	-2.17	1.47	1.53
2	C	401	AGS	C3'-C4'	-2.16	1.47	1.53
3	H	402	DP6	PA-O6	-2.09	1.56	1.59
2	D	401	AGS	C1'-N9	-2.08	1.42	1.48
2	H	401	AGS	C3'-C4'	-2.08	1.47	1.53
2	A	401	AGS	C1'-N9	-2.07	1.42	1.48
2	A	401	AGS	C3'-C4'	-2.07	1.47	1.53
2	B	401	AGS	C1'-N9	-2.07	1.42	1.48
3	C	402	DP6	PA-O6	-2.06	1.56	1.59
2	G	401	AGS	C1'-N9	-2.06	1.42	1.48
2	E	401	AGS	C1'-N9	-2.06	1.42	1.48
2	C	401	AGS	C1'-N9	-2.05	1.42	1.48
2	G	401	AGS	C3'-C4'	-2.05	1.47	1.53
2	F	401	AGS	C3'-C4'	-2.05	1.47	1.53
3	A	402	DP6	PA-O6	-2.05	1.56	1.59
2	H	401	AGS	C1'-N9	-2.04	1.42	1.48
2	F	401	AGS	C1'-N9	-2.04	1.42	1.48
2	E	401	AGS	C3'-C4'	-2.04	1.47	1.53
2	B	401	AGS	C3'-C4'	-2.03	1.47	1.53
3	E	402	DP6	PA-O6	-2.02	1.56	1.59

All (120) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	401	AGS	N3-C2-N1	-10.22	120.17	128.71
2	G	401	AGS	N3-C2-N1	-10.22	120.17	128.71
2	E	401	AGS	N3-C2-N1	-10.21	120.18	128.71
2	B	401	AGS	N3-C2-N1	-10.16	120.21	128.71
2	H	401	AGS	N3-C2-N1	-10.15	120.22	128.71
2	A	401	AGS	N3-C2-N1	-10.14	120.23	128.71
2	C	401	AGS	N3-C2-N1	-10.14	120.23	128.71
2	D	401	AGS	N3-C2-N1	-10.13	120.24	128.71
2	C	401	AGS	O3B-PG-S1G	-9.77	110.19	114.53
2	H	401	AGS	O3B-PG-S1G	-9.34	110.38	114.53
2	G	401	AGS	O3B-PG-S1G	-9.32	110.39	114.53
2	F	401	AGS	O3B-PG-S1G	-9.30	110.40	114.53
2	E	401	AGS	O3B-PG-S1G	-9.30	110.40	114.53
2	B	401	AGS	O3B-PG-S1G	-9.25	110.42	114.53
2	A	401	AGS	O3B-PG-S1G	-9.20	110.44	114.53
2	D	401	AGS	O3B-PG-S1G	-8.58	110.72	114.53
2	F	401	AGS	N3-C4-N9	4.42	133.42	125.43
2	B	401	AGS	N3-C4-N9	4.41	133.40	125.43
3	F	402	DP6	PA-O6-PB	-4.41	118.74	131.68
2	H	401	AGS	N3-C4-N9	4.41	133.40	125.43
2	C	401	AGS	N3-C4-N9	4.40	133.38	125.43
2	D	401	AGS	N3-C4-N9	4.40	133.37	125.43
2	A	401	AGS	N3-C4-N9	4.39	133.36	125.43
2	E	401	AGS	N3-C4-N9	4.39	133.35	125.43
2	G	401	AGS	N3-C4-N9	4.38	133.34	125.43
3	G	402	DP6	PA-O6-PB	-4.18	119.42	131.68
3	D	402	DP6	PA-O6-PB	-4.12	119.59	131.68
3	E	402	DP6	PA-O6-PB	-4.12	119.61	131.68
2	A	401	AGS	PA-O3A-PB	-4.11	119.63	131.68
2	E	401	AGS	PA-O3A-PB	-4.10	119.66	131.68
2	F	401	AGS	PA-O3A-PB	-4.09	119.68	131.68
2	H	401	AGS	PA-O3A-PB	-4.09	119.68	131.68
3	A	402	DP6	PA-O6-PB	-4.09	119.68	131.68
2	B	401	AGS	PA-O3A-PB	-4.09	119.70	131.68
2	G	401	AGS	PA-O3A-PB	-4.08	119.71	131.68
2	D	401	AGS	PA-O3A-PB	-4.07	119.76	131.68
3	H	402	DP6	PA-O6-PB	-4.05	119.81	131.68
3	C	402	DP6	PA-O6-PB	-4.00	119.97	131.68
2	H	401	AGS	O3A-PB-O3B	3.92	109.63	101.66
2	A	401	AGS	O3A-PB-O3B	3.91	109.61	101.66
2	G	401	AGS	O3A-PB-O3B	3.90	109.59	101.66
2	E	401	AGS	O3A-PB-O3B	3.90	109.59	101.66

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	401	AGS	O3A-PB-O3B	3.89	109.58	101.66
2	B	401	AGS	O3A-PB-O3B	3.89	109.58	101.66
2	F	401	AGS	O3A-PB-O3B	3.88	109.56	101.66
2	C	401	AGS	PA-O3A-PB	-3.85	120.38	131.68
2	C	401	AGS	PB-O3B-PG	-3.69	119.21	131.81
2	C	401	AGS	O3A-PB-O3B	3.66	109.11	101.66
2	A	401	AGS	PB-O3B-PG	-3.63	119.39	131.81
2	H	401	AGS	PB-O3B-PG	-3.62	119.43	131.81
2	B	401	AGS	PB-O3B-PG	-3.62	119.42	131.81
2	E	401	AGS	PB-O3B-PG	-3.62	119.43	131.81
2	F	401	AGS	PB-O3B-PG	-3.62	119.43	131.81
2	G	401	AGS	PB-O3B-PG	-3.62	119.45	131.81
2	D	401	AGS	PB-O3B-PG	-3.50	119.84	131.81
2	G	401	AGS	C3'-C2'-C1'	3.22	105.95	100.91
2	F	401	AGS	C3'-C2'-C1'	3.22	105.95	100.91
2	B	401	AGS	C3'-C2'-C1'	3.22	105.95	100.91
3	B	402	DP6	PA-O6-PB	-3.22	122.25	131.68
2	A	401	AGS	C3'-C2'-C1'	3.21	105.94	100.91
2	E	401	AGS	C3'-C2'-C1'	3.20	105.91	100.91
2	H	401	AGS	C3'-C2'-C1'	3.18	105.89	100.91
2	H	401	AGS	C4'-O4'-C1'	-3.18	106.30	109.75
2	B	401	AGS	C4'-O4'-C1'	-3.18	106.30	109.75
2	A	401	AGS	C4'-O4'-C1'	-3.16	106.32	109.75
2	F	401	AGS	C4'-O4'-C1'	-3.15	106.33	109.75
2	E	401	AGS	C4'-O4'-C1'	-3.15	106.33	109.75
2	G	401	AGS	C4'-O4'-C1'	-3.12	106.36	109.75
2	C	401	AGS	C3'-C2'-C1'	2.83	105.34	100.91
2	D	401	AGS	C3'-C2'-C1'	2.72	105.17	100.91
2	B	401	AGS	C5-C4-N3	-2.69	119.85	125.70
2	F	401	AGS	C5-C4-N3	-2.66	119.90	125.70
2	C	401	AGS	C5-C4-N3	-2.66	119.91	125.70
2	A	401	AGS	C5-C4-N3	-2.66	119.91	125.70
2	G	401	AGS	C5-C4-N3	-2.66	119.92	125.70
2	H	401	AGS	C5-C4-N3	-2.66	119.92	125.70
2	E	401	AGS	C5-C4-N3	-2.66	119.92	125.70
2	D	401	AGS	C5-C4-N3	-2.63	119.97	125.70
3	F	402	DP6	C3-C2-C1	2.54	119.16	114.53
2	B	401	AGS	C4-C5-N7	-2.46	107.42	109.52
2	C	401	AGS	C4-C5-N7	-2.44	107.43	109.52
2	G	401	AGS	C4-C5-N7	-2.44	107.43	109.52
2	A	401	AGS	C4-C5-N7	-2.44	107.44	109.52
2	F	401	AGS	C4-C5-N7	-2.42	107.45	109.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	401	AGS	C4-C5-N7	-2.41	107.46	109.52
2	D	401	AGS	C4-C5-N7	-2.40	107.47	109.52
2	F	401	AGS	C2-N3-C4	2.39	120.83	114.01
2	H	401	AGS	C2-N3-C4	2.39	120.80	114.01
2	H	401	AGS	C4-C5-N7	-2.38	107.48	109.52
2	B	401	AGS	C2-N3-C4	2.38	120.80	114.01
2	E	401	AGS	C2-N3-C4	2.38	120.79	114.01
2	A	401	AGS	C2-N3-C4	2.38	120.78	114.01
2	G	401	AGS	C2-N3-C4	2.38	120.78	114.01
2	D	401	AGS	C2-N3-C4	2.37	120.75	114.01
2	C	401	AGS	C2-N3-C4	2.37	120.75	114.01
2	H	401	AGS	C8-N9-C4	2.33	108.68	106.90
2	C	401	AGS	O5'-C5'-C4'	2.33	117.48	108.94
2	F	401	AGS	C8-N9-C4	2.31	108.66	106.90
2	A	401	AGS	O5'-C5'-C4'	2.31	117.42	108.94
2	H	401	AGS	O5'-C5'-C4'	2.31	117.40	108.94
2	F	401	AGS	O5'-C5'-C4'	2.31	117.40	108.94
2	D	401	AGS	C8-N9-C4	2.30	108.66	106.90
2	B	401	AGS	O5'-C5'-C4'	2.30	117.39	108.94
2	G	401	AGS	O5'-C5'-C4'	2.30	117.38	108.94
2	E	401	AGS	O5'-C5'-C4'	2.30	117.38	108.94
2	D	401	AGS	O5'-C5'-C4'	2.29	117.34	108.94
2	C	401	AGS	C8-N9-C4	2.28	108.64	106.90
2	E	401	AGS	C8-N9-C4	2.27	108.63	106.90
2	G	401	AGS	C8-N9-C4	2.26	108.62	106.90
2	A	401	AGS	C8-N9-C4	2.23	108.60	106.90
2	B	401	AGS	C8-N9-C4	2.23	108.60	106.90
3	B	402	DP6	C3-C2-C1	2.19	118.51	114.53
3	D	402	DP6	O5-C5-C4	2.15	117.55	109.34
3	E	402	DP6	O5-C5-C4	2.15	117.52	109.34
3	C	402	DP6	O5-C5-C4	2.13	117.46	109.34
3	B	402	DP6	O5-C5-C4	2.12	117.44	109.34
3	H	402	DP6	O5-C5-C4	2.12	117.43	109.34
3	A	402	DP6	O5-C5-C4	2.10	117.36	109.34
3	F	402	DP6	O5-C5-C4	2.10	117.34	109.34
3	G	402	DP6	O5-C5-C4	2.05	117.16	109.34

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

## 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, 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	326/332 (98%)	-0.15	4 (1%) 75 77	38, 54, 77, 96	0
1	B	326/332 (98%)	-0.31	0 100 100	34, 46, 62, 77	0
1	C	326/332 (98%)	-0.30	2 (0%) 86 89	36, 49, 69, 97	0
1	D	326/332 (98%)	-0.36	1 (0%) 91 92	35, 45, 65, 86	0
1	E	328/332 (98%)	-0.30	0 100 100	34, 47, 67, 96	0
1	F	326/332 (98%)	-0.33	2 (0%) 86 89	36, 49, 70, 88	0
1	G	326/332 (98%)	-0.37	0 100 100	32, 44, 63, 88	0
1	H	326/332 (98%)	-0.19	1 (0%) 91 92	36, 56, 74, 87	0
All	All	2610/2656 (98%)	-0.29	10 (0%) 90 91	32, 49, 70, 97	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	88	LEU	3.5
1	D	87	ARG	2.9
1	A	51	PRO	2.8
1	F	50	ASP	2.6
1	H	54	THR	2.4
1	C	87	ARG	2.3
1	A	87	ARG	2.3
1	A	57	CYS	2.3
1	A	52	ASP	2.1
1	C	50	ASP	2.1

### 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

### 6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

### 6.4 Ligands ⓘ

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	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
5	GOL	E	403	6/6	0.36	10.57	57,59,61,63	0
4	FMT	H	403	3/3	0.24	6.77	59,59,62,64	0
3	DP6	G	402	18/18	0.21	4.15	37,44,64,74	0
4	FMT	A	403	3/3	0.20	3.31	68,68,70,71	0
3	DP6	C	402	18/18	0.19	3.21	40,48,58,63	18
4	FMT	E	404	3/3	0.30	3.15	66,66,67,68	0
3	DP6	B	402	18/18	0.21	2.70	38,48,67,67	0
2	AGS	B	401	31/31	0.20	2.40	37,44,57,77	0
3	DP6	D	402	18/18	0.20	2.39	36,50,66,66	0
3	DP6	H	402	18/18	0.21	2.15	42,54,71,71	0
2	AGS	A	401	31/31	0.20	1.44	41,51,70,79	0
3	DP6	E	402	18/18	0.18	1.36	31,40,56,63	0
2	AGS	G	401	31/31	0.20	1.23	34,41,57,83	0
2	AGS	E	401	31/31	0.18	0.95	34,46,66,68	0
3	DP6	F	402	18/18	0.18	0.89	39,51,66,76	0
2	AGS	H	401	31/31	0.18	0.81	45,60,72,80	0
2	AGS	C	401	31/31	0.16	0.76	37,52,60,80	0
2	AGS	F	401	31/31	0.18	0.61	35,53,68,82	0
2	AGS	D	401	31/31	0.16	0.24	36,44,53,68	0
4	FMT	D	403	3/3	0.14	-0.06	54,54,62,65	0
3	DP6	A	402	18/18	0.13	-0.78	38,47,57,57	0

### 6.5 Other polymers ⓘ

There are no such residues in this entry.