Full wwPDB X-ray Structure Validation Report ⓘ

Nov 9, 2024 – 10:57 am GMT

PDB ID	:	4AC9
Title	:	CRYSTAL STRUCTURE OF TRANSLATION ELONGATION FACTOR SELB FROM METHANOCOCCUS MARIPALUDIS IN COMPLEX WITH GDP
Authors	:	Leibundgut, M.; Frick, C.; Thanbichler, M.; Boeck, A.; Ban, N.
Deposited on	:	2011-12-14
Resolution	:	3.03 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
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

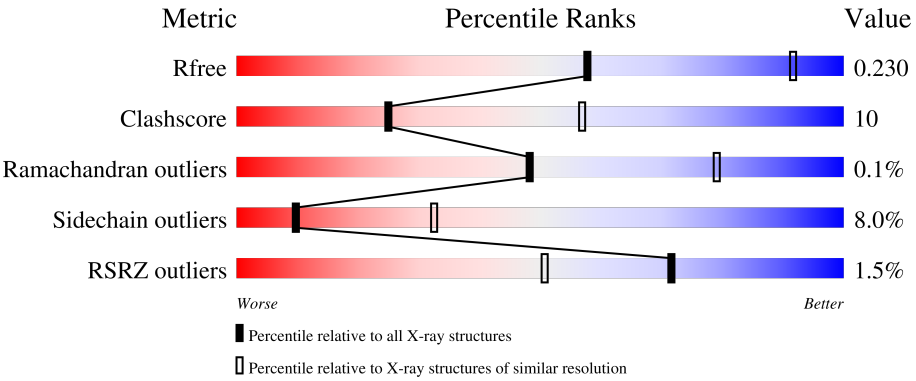
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.03 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}	164625	3418 (3.08-3.00)
Clashscore	180529	3811 (3.08-3.00)
Ramachandran outliers	177936	3656 (3.08-3.00)
Sidechain outliers	177891	3658 (3.08-3.00)
RSRZ outliers	164620	3430 (3.08-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. 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 <=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	482	67% 24% 7%
1	B	482	67% 25% 5%
1	C	482	74% 23%
1	D	482	3% 68% 25%

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 14628 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 MJ0495-LIKE PROTEIN.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	448	Total	C	Hg	N	O	S	0	0	0
			3475	2220	4	593	644	14			
1	B	456	Total	C	Hg	N	O	S	0	0	0
			3533	2257	4	603	655	14			
1	C	471	Total	C	Hg	N	O	S	0	0	0
			3651	2327	4	627	679	14			
1	D	467	Total	C	Hg	N	O	S	0	0	0
			3615	2305	4	618	675	13			

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-13	MET	-	expression tag	UNP Q8J307
A	-12	HIS	-	expression tag	UNP Q8J307
A	-11	HIS	-	expression tag	UNP Q8J307
A	-10	HIS	-	expression tag	UNP Q8J307
A	-9	HIS	-	expression tag	UNP Q8J307
A	-8	HIS	-	expression tag	UNP Q8J307
A	-7	HIS	-	expression tag	UNP Q8J307
A	-6	SER	-	expression tag	UNP Q8J307
A	-5	ILE	-	expression tag	UNP Q8J307
A	-4	GLU	-	expression tag	UNP Q8J307
A	-3	GLY	-	expression tag	UNP Q8J307
A	-2	ARG	-	expression tag	UNP Q8J307
A	-1	PRO	-	expression tag	UNP Q8J307
A	0	HIS	-	expression tag	UNP Q8J307
B	-13	MET	-	expression tag	UNP Q8J307
B	-12	HIS	-	expression tag	UNP Q8J307
B	-11	HIS	-	expression tag	UNP Q8J307
B	-10	HIS	-	expression tag	UNP Q8J307
B	-9	HIS	-	expression tag	UNP Q8J307
B	-8	HIS	-	expression tag	UNP Q8J307
B	-7	HIS	-	expression tag	UNP Q8J307

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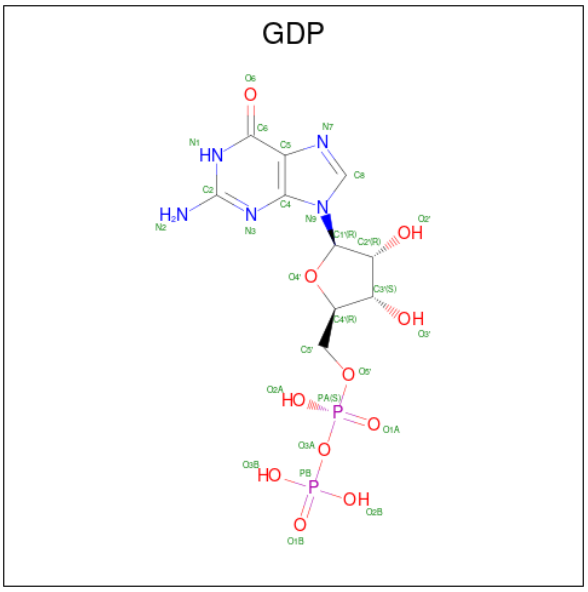
Chain	Residue	Modelled	Actual	Comment	Reference
B	-6	SER	-	expression tag	UNP Q8J307
B	-5	ILE	-	expression tag	UNP Q8J307
B	-4	GLU	-	expression tag	UNP Q8J307
B	-3	GLY	-	expression tag	UNP Q8J307
B	-2	ARG	-	expression tag	UNP Q8J307
B	-1	PRO	-	expression tag	UNP Q8J307
B	0	HIS	-	expression tag	UNP Q8J307
C	-13	MET	-	expression tag	UNP Q8J307
C	-12	HIS	-	expression tag	UNP Q8J307
C	-11	HIS	-	expression tag	UNP Q8J307
C	-10	HIS	-	expression tag	UNP Q8J307
C	-9	HIS	-	expression tag	UNP Q8J307
C	-8	HIS	-	expression tag	UNP Q8J307
C	-7	HIS	-	expression tag	UNP Q8J307
C	-6	SER	-	expression tag	UNP Q8J307
C	-5	ILE	-	expression tag	UNP Q8J307
C	-4	GLU	-	expression tag	UNP Q8J307
C	-3	GLY	-	expression tag	UNP Q8J307
C	-2	ARG	-	expression tag	UNP Q8J307
C	-1	PRO	-	expression tag	UNP Q8J307
C	0	HIS	-	expression tag	UNP Q8J307
D	-13	MET	-	expression tag	UNP Q8J307
D	-12	HIS	-	expression tag	UNP Q8J307
D	-11	HIS	-	expression tag	UNP Q8J307
D	-10	HIS	-	expression tag	UNP Q8J307
D	-9	HIS	-	expression tag	UNP Q8J307
D	-8	HIS	-	expression tag	UNP Q8J307
D	-7	HIS	-	expression tag	UNP Q8J307
D	-6	SER	-	expression tag	UNP Q8J307
D	-5	ILE	-	expression tag	UNP Q8J307
D	-4	GLU	-	expression tag	UNP Q8J307
D	-3	GLY	-	expression tag	UNP Q8J307
D	-2	ARG	-	expression tag	UNP Q8J307
D	-1	PRO	-	expression tag	UNP Q8J307
D	0	HIS	-	expression tag	UNP Q8J307

- Molecule 2 is GUANOSINE-5'-DIPHOSPHATE (three-letter code: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).

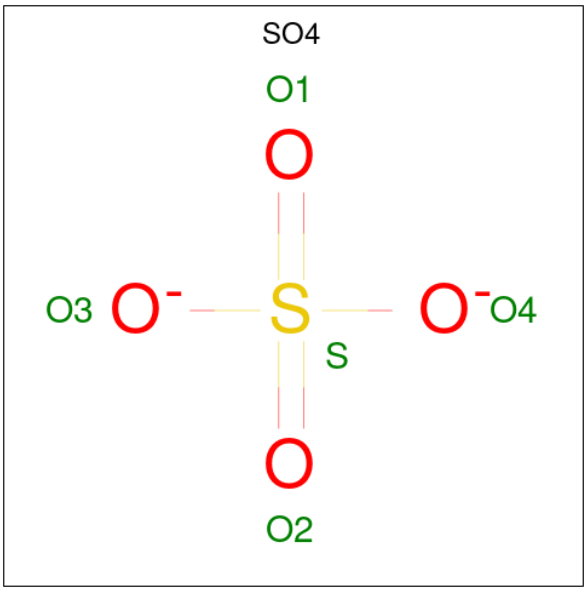


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			28	10	5	11	2		
2	B	1	Total	C	N	O	P	0	0
			28	10	5	11	2		
2	C	1	Total	C	N	O	P	0	0
			28	10	5	11	2		

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

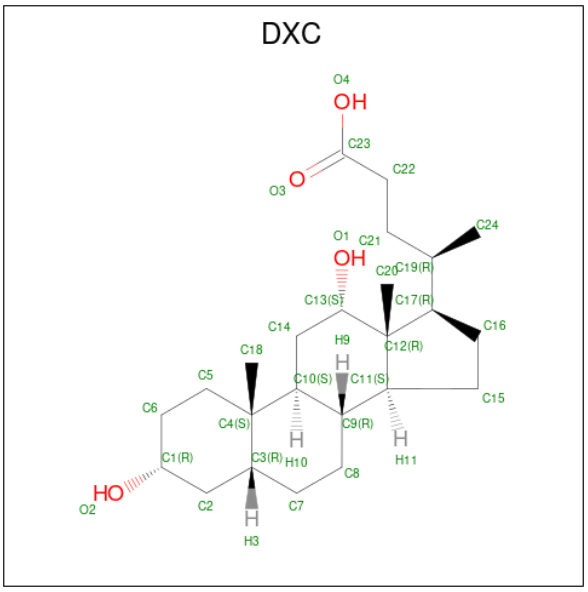
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Mg	0	0
			1	1		
3	B	1	Total	Mg	0	0
			1	1		
3	C	1	Total	Mg	0	0
			1	1		

- Molecule 4 is SULFATE ION (three-letter code: SO4) (formula: O_4S).



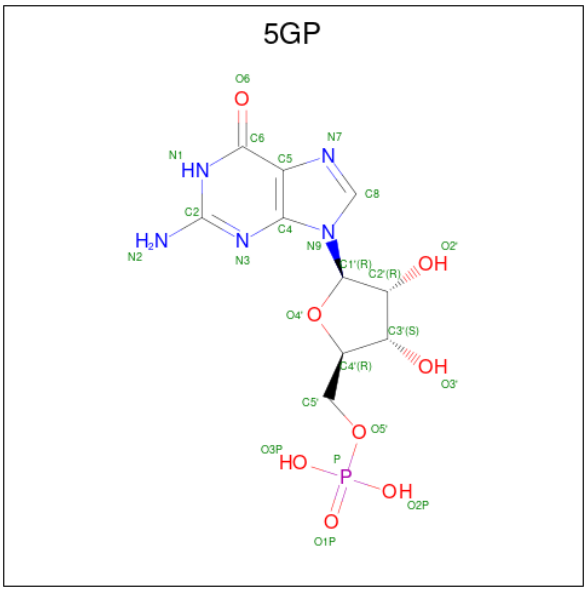
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total O S 5 4 1	0	0
4	B	1	Total O S 5 4 1	0	0
4	C	1	Total O S 5 4 1	0	0
4	C	1	Total O S 5 4 1	0	0
4	C	1	Total O S 5 4 1	0	0
4	C	1	Total O S 5 4 1	0	0
4	C	1	Total O S 5 4 1	0	0

- Molecule 5 is (3ALPHA,5BETA,12ALPHA)-3,12-DIHYDROXYCHOLAN-24-OIC ACID (three-letter code: DXC) (formula: $C_{24}H_{40}O_4$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total C O 28 24 4	0	0
5	C	1	Total C O 28 24 4	0	0
5	C	1	Total C O 28 24 4	0	0
5	C	1	Total C O 28 24 4	0	0
5	C	1	Total C O 28 24 4	0	0
5	C	1	Total C O 28 24 4	0	0
5	C	1	Total C O 28 24 4	0	0

- Molecule 6 is GUANOSINE-5'-MONOPHOSPHATE (three-letter code: 5GP) (formula: $C_{10}H_{14}N_5O_8P$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	B	1	Total	C	N	O	P	0	0
			24	10	5	8	1		

- Molecule 7 is water.

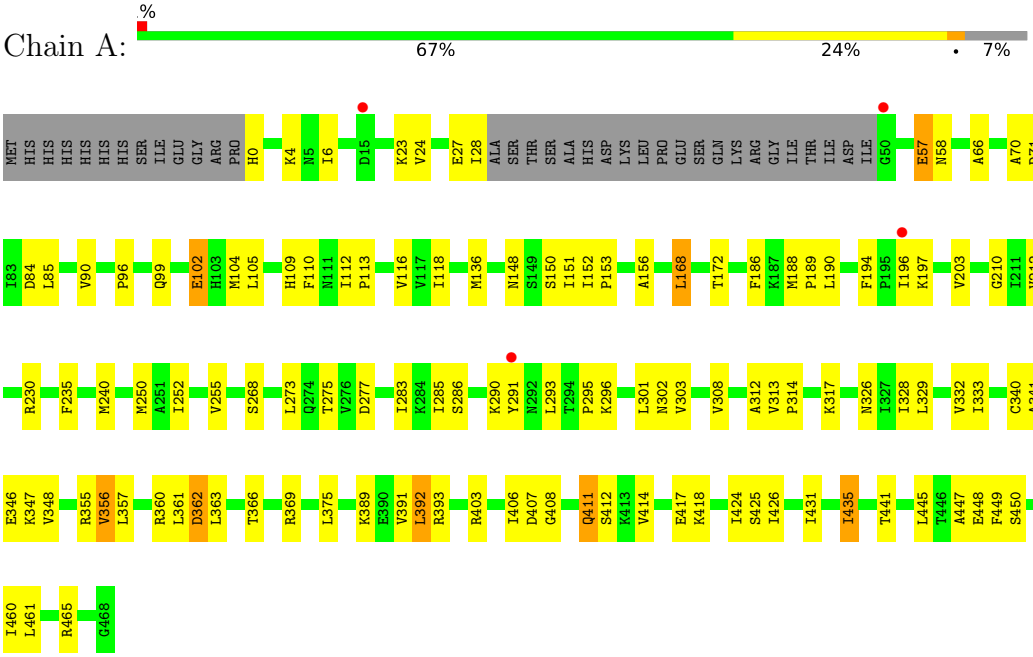
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	4	Total	O	0	0
			4	4		
7	B	4	Total	O	0	0
			4	4		
7	C	4	Total	O	0	0
			4	4		

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide 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.

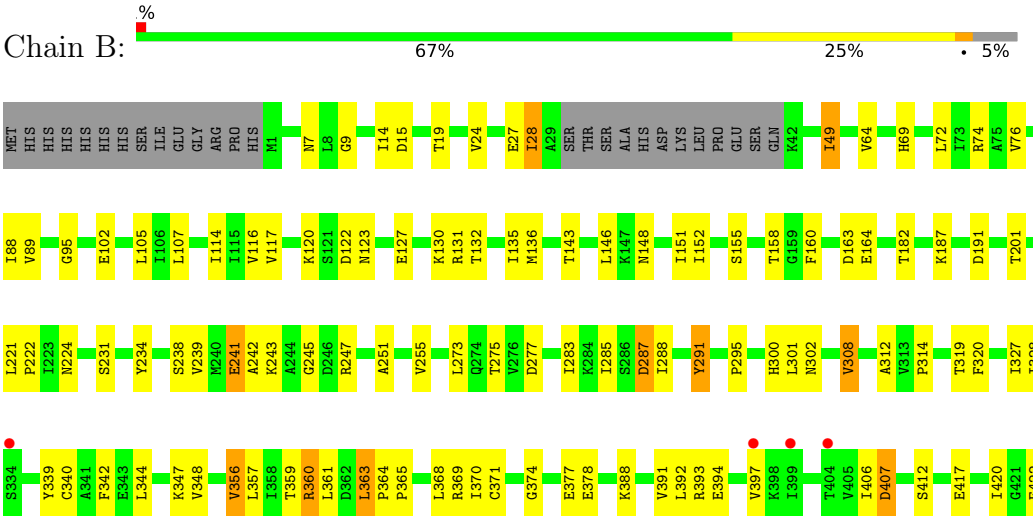
• Molecule 1: MJ0495-LIKE PROTEIN

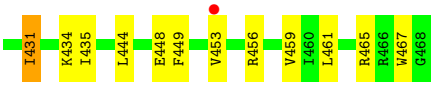
Chain A:



• Molecule 1: MJ0495-LIKE PROTEIN

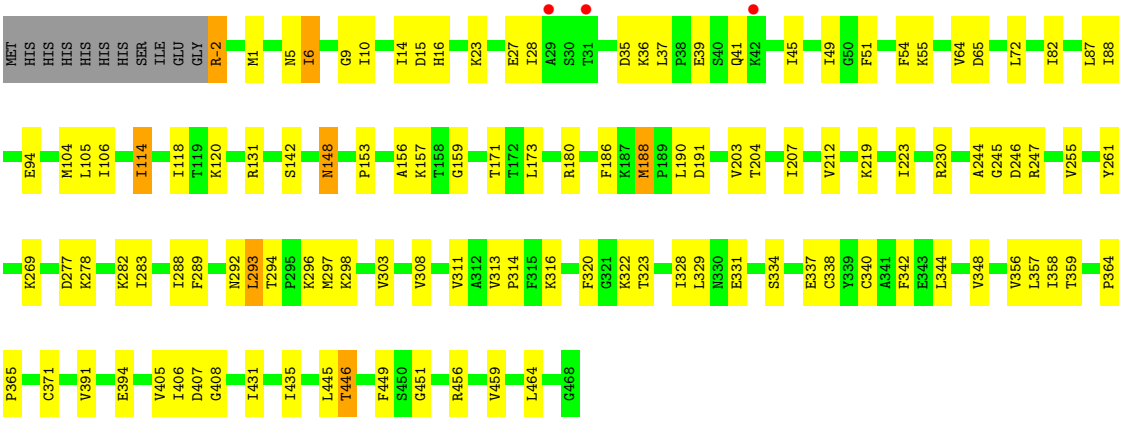
Chain B:





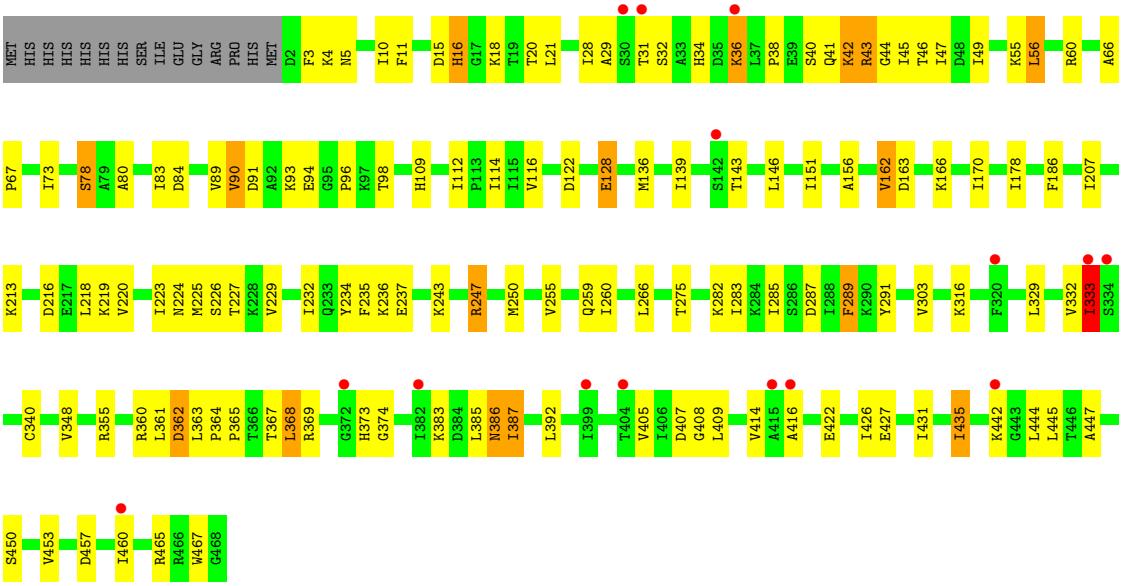
• Molecule 1: MJ0495-LIKE PROTEIN

Chain C:



• Molecule 1: MJ0495-LIKE PROTEIN

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 1 2	Depositor
Cell constants a, b, c, α, β, γ	146.92Å 146.92Å 297.48Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.98 – 3.03 19.98 – 3.03	Depositor EDS
% Data completeness (in resolution range)	89.1 (19.98-3.03) 92.0 (19.98-3.03)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.51 (at 3.01Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE: 1.8_1069)	Depositor
R, R_{free}	0.190 , 0.222 0.198 , 0.230	Depositor DCC
R_{free} test set	2980 reflections (4.20%)	wwPDB-VP
Wilson B-factor (Å^2)	84.9	Xtriage
Anisotropy	0.373	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 110.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.036 for -h,-k,l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	14628	wwPDB-VP
Average B, all atoms (Å^2)	145.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.12% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, MG, DXC, CMH, 5GP, GDP

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	0.25	0/3484	0.50	0/4684
1	B	0.25	0/3541	0.49	0/4760
1	C	0.24	0/3664	0.49	0/4929
1	D	0.26	0/3626	0.52	0/4878
All	All	0.25	0/14315	0.50	0/19251

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

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	3475	0	3655	69	0
1	B	3533	0	3727	76	0
1	C	3651	0	3837	65	0
1	D	3615	0	3799	78	0
2	A	28	0	12	0	0
2	B	28	0	12	2	0
2	C	28	0	12	1	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	1	0	0	0	0
4	B	10	0	0	2	0
4	C	25	0	0	0	0
5	B	28	0	39	1	0
5	C	168	0	234	10	0
6	B	24	0	12	2	0
7	A	4	0	0	0	0
7	B	4	0	0	0	0
7	C	4	0	0	0	0
All	All	14628	0	15339	288	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 10.

All (288) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:283:ILE:HG13	1:D:340:CMH:HB3	1.50	0.91
1:C:283:ILE:HG12	1:C:358:ILE:HD11	1.58	0.85
1:D:223:ILE:HG21	1:D:259:GLN:HB3	1.57	0.84
1:C:283:ILE:HD13	1:C:340:CMH:HB3	1.66	0.78
1:C:36:LYS:HB2	1:C:156:ALA:O	1.84	0.77
1:A:313:VAL:HG23	1:A:341:ALA:HB3	1.66	0.77
1:B:105:LEU:HB3	1:B:370:ILE:HD11	1.67	0.75
1:B:191:ASP:OD2	1:B:247:ARG:NH1	2.19	0.73
1:D:116:VAL:HG11	1:D:136:MET:HG2	1.70	0.73
1:B:82:ILE:HG23	1:B:245:GLY:HA2	1.70	0.73
1:A:152:ILE:HD11	1:A:168:LEU:HD22	1.70	0.73
1:D:416:ALA:HB1	1:D:445:LEU:HD21	1.71	0.73
1:B:422:GLU:H	1:B:435:ILE:HG22	1.54	0.72
1:A:435:ILE:HD11	1:A:445:LEU:HD22	1.73	0.71
1:A:426:ILE:HB	1:A:431:ILE:HG23	1.74	0.70
1:B:377:GLU:HG2	1:B:378:GLU:HG3	1.73	0.69
1:A:66:ALA:HB1	1:A:71:ASP:HB3	1.75	0.69
1:C:308:VAL:HG21	1:C:344:LEU:HD13	1.75	0.68
1:A:360:ARG:HG2	1:A:363:LEU:HG	1.76	0.67
1:D:29:ALA:HB2	1:D:56:LEU:HG	1.75	0.67
1:B:69:HIS:NE2	1:B:102:GLU:OE1	2.22	0.66
1:D:43:ARG:HB3	1:D:45:ILE:HG12	1.76	0.66
1:C:82:ILE:HG23	1:C:245:GLY:HA2	1.79	0.65
1:C:6:ILE:HD12	1:C:173:LEU:HD13	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:362:ASP:N	1:A:362:ASP:OD1	2.27	0.65
4:B:1472:SO4:O2	1:C:55:LYS:NZ	2.30	0.64
1:B:302:ASN:HB2	1:B:357:LEU:HB3	1.79	0.63
1:A:283:ILE:HD12	1:A:340:CMH:HB3	1.80	0.63
1:B:407:ASP:HB2	1:B:444:LEU:HD22	1.81	0.63
1:C:188:MET:HG3	1:C:207:ILE:HG12	1.81	0.63
1:B:361:LEU:HD23	1:B:369:ARG:HD2	1.82	0.62
1:A:393:ARG:NH2	1:A:411:GLN:OE1	2.33	0.61
1:C:191:ASP:OD2	1:C:247:ARG:NH1	2.30	0.61
1:B:158:THR:HG23	1:D:363:LEU:HB3	1.83	0.61
1:C:292:ASN:HD22	1:C:331:GLU:HG3	1.64	0.61
1:D:56:LEU:HD22	1:D:170:ILE:HD11	1.81	0.60
1:C:-2:ARG:HE	5:C:1476:DXC:H21	1.66	0.60
1:B:360:ARG:NH1	1:B:371:CMH:SG	2.75	0.60
1:B:391:VAL:HB	1:B:465:ARG:HD3	1.83	0.59
1:B:288:ILE:HB	6:B:1474:5GP:HN22	1.66	0.59
1:D:93:LYS:HA	1:D:128:GLU:HG2	1.83	0.59
1:C:15:ASP:O	1:C:120:LYS:NZ	2.30	0.59
1:C:36:LYS:HD2	1:C:157:LYS:HA	1.84	0.59
1:B:426:ILE:HB	1:B:431:ILE:HG23	1.84	0.59
1:D:387:ILE:HG13	1:D:467:TRP:HB3	1.85	0.59
1:A:240:MET:HE1	1:B:95:GLY:HA3	1.85	0.59
1:B:114:ILE:HG12	1:B:146:LEU:HD22	1.85	0.58
1:D:3:PHE:HE2	1:D:55:LYS:HE3	1.68	0.58
1:A:295:PRO:HG3	1:A:328:ILE:HD11	1.84	0.58
1:B:224:ASN:O	1:B:224:ASN:ND2	2.35	0.58
1:A:116:VAL:HB	1:A:151:ILE:HG12	1.84	0.58
1:C:118:ILE:HB	1:C:153:PRO:HA	1.86	0.57
1:C:105:LEU:HD11	1:C:288:ILE:HD11	1.86	0.57
1:D:36:LYS:HB3	1:D:236:LYS:HD2	1.87	0.57
1:D:422:GLU:H	1:D:435:ILE:HG22	1.69	0.57
1:B:86:ALA:HB3	1:B:114:ILE:HG22	1.86	0.57
1:B:287:ASP:OD1	1:B:287:ASP:N	2.31	0.57
1:C:338:CMH:HB3	1:C:340:CMH:CM	2.35	0.57
1:D:122:ASP:OD1	1:D:122:ASP:N	2.39	0.56
1:A:105:LEU:O	1:A:109:HIS:ND1	2.33	0.56
1:D:387:ILE:HD12	1:D:467:TRP:HE3	1.69	0.56
1:B:116:VAL:HB	1:B:151:ILE:HG12	1.88	0.55
1:C:49:ILE:HD11	5:C:1475:DXC:H161	1.88	0.55
1:C:88:ILE:HD13	1:C:104:MET:HG2	1.88	0.55
1:C:219:LYS:HE2	1:C:269:LYS:HA	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:109:HIS:NE2	1:A:286:SER:OG	2.30	0.55
1:C:88:ILE:HD12	1:C:114:ILE:HD13	1.88	0.55
1:D:218:LEU:HD11	1:D:229:VAL:HG22	1.88	0.55
1:D:409:LEU:HD12	1:D:445:LEU:HD12	1.88	0.55
1:C:407:ASP:OD1	1:C:408:GLY:N	2.41	0.54
1:D:21:LEU:HD22	1:D:89:VAL:HG11	1.89	0.54
1:D:28:ILE:HG22	1:D:162:VAL:HG13	1.89	0.54
1:A:190:LEU:HD13	1:A:203:VAL:HG11	1.89	0.54
1:D:34:HIS:CD2	1:D:236:LYS:HB2	2.42	0.54
1:B:340:CMH:HB2	1:B:342:PHE:CE2	2.43	0.54
1:B:361:LEU:HA	1:B:369:ARG:HD2	1.89	0.53
1:A:361:LEU:HA	1:A:369:ARG:HD2	1.89	0.53
1:B:74:ARG:NH2	4:B:1471:SO4:O4	2.40	0.53
1:D:83:ILE:HG22	1:D:112:ILE:HD13	1.91	0.53
1:B:143:THR:HG21	1:B:146:LEU:HB2	1.91	0.53
1:D:218:LEU:HD13	1:D:266:LEU:HD11	1.89	0.53
1:B:329:LEU:HB3	1:B:332:VAL:HB	1.91	0.52
1:D:67:PRO:HA	1:D:78:SER:HB2	1.91	0.52
1:C:23:LYS:O	1:C:27:GLU:HB2	2.09	0.52
1:C:406:ILE:HD11	1:C:449:PHE:HZ	1.74	0.52
1:B:231:SER:HB3	1:B:251:ALA:HB3	1.91	0.52
1:B:239:VAL:HG12	1:B:241:GLU:H	1.74	0.52
1:B:388:LYS:HA	1:B:467:TRP:H	1.74	0.52
1:C:431:ILE:HG12	1:C:451:GLY:HA3	1.92	0.52
1:B:72:LEU:O	1:B:76:VAL:HG23	2.10	0.51
1:D:303:VAL:HB	1:D:348:VAL:HG11	1.93	0.51
1:B:201:THR:OG1	1:B:255:VAL:O	2.18	0.51
1:A:345:GLU:HG2	1:A:346:GLU:HG3	1.92	0.51
1:B:314:PRO:HA	1:B:339:TYR:O	2.10	0.51
1:C:282:LYS:HE2	1:C:337:GLU:HG2	1.93	0.50
1:B:285:ILE:HG13	1:B:371:CMH:O	2.11	0.50
1:C:289:PHE:CZ	1:C:371:CMH:HB2	2.46	0.50
1:D:225:MET:SD	1:D:255:VAL:HG13	2.52	0.50
1:B:9:GLY:HA2	1:B:64:VAL:HB	1.94	0.50
1:D:232:ILE:HG12	1:D:250:MET:HG2	1.93	0.50
1:D:435:ILE:HG13	1:D:447:ALA:HB2	1.93	0.50
1:C:5:ASN:ND2	1:C:246:ASP:OD1	2.32	0.50
1:C:186:PHE:CZ	1:C:188:MET:HB2	2.47	0.50
1:D:360:ARG:HD3	1:D:362:ASP:HB2	1.93	0.50
1:D:363:LEU:HD13	1:D:369:ARG:HH11	1.75	0.50
1:A:230:ARG:NH2	6:B:1474:5GP:O2'	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:424:ILE:HD12	1:B:459:VAL:HG11	1.93	0.49
1:C:16:HIS:NE2	1:C:94:GLU:OE2	2.44	0.49
1:D:3:PHE:CE2	1:D:55:LYS:HE3	2.48	0.49
1:D:40:SER:O	1:D:44:GLY:HA2	2.13	0.49
1:A:99:GLN:HA	1:A:102:GLU:HG3	1.95	0.49
1:A:308:VAL:HG21	1:A:344:LEU:HD13	1.95	0.48
1:C:28:ILE:HG22	1:C:54:PHE:HB2	1.95	0.48
1:C:303:VAL:HG22	1:C:356:VAL:HG22	1.95	0.48
1:C:320:PHE:CZ	1:C:464:LEU:HD11	2.48	0.48
1:A:219:LYS:HE2	1:A:268:SER:O	2.14	0.48
1:B:234:TYR:HB3	1:B:239:VAL:HG21	1.95	0.48
1:B:363:LEU:HD13	1:B:364:PRO:HD2	1.96	0.48
1:D:367:THR:HG22	1:D:368:LEU:HG	1.95	0.48
1:A:110:PHE:HD1	1:A:355:ARG:HD2	1.77	0.48
1:B:24:VAL:O	1:B:28:ILE:HG22	2.14	0.48
1:A:70:ALA:HA	1:A:73:ILE:HD12	1.94	0.48
1:A:328:ILE:HG22	1:A:389:LYS:HA	1.95	0.48
1:D:282:LYS:O	1:D:374:GLY:HA3	2.14	0.48
1:B:160:PHE:CZ	1:D:98:THR:HG23	2.49	0.48
1:D:15:ASP:OD1	1:D:16:HIS:ND1	2.47	0.48
1:A:24:VAL:HG21	1:A:156:ALA:HB1	1.96	0.47
1:C:106:ILE:HG12	1:C:357:LEU:HD21	1.96	0.47
1:D:4:LYS:NZ	1:D:178:ILE:O	2.47	0.47
1:D:20:THR:HG23	1:D:156:ALA:HB2	1.95	0.47
1:D:427:GLU:HG2	1:D:460:ILE:HG13	1.94	0.47
5:C:1479:DXC:H161	5:C:1479:DXC:H212	1.54	0.47
1:D:10:ILE:HD13	1:D:21:LEU:HD23	1.96	0.47
1:B:212:VAL:HG23	1:B:242:ALA:HB3	1.96	0.47
1:C:131:ARG:NH2	5:C:1477:DXC:O4	2.41	0.47
1:B:152:ILE:HD11	1:B:164:GLU:HB2	1.97	0.47
5:C:1479:DXC:H203	5:C:1479:DXC:H19	1.74	0.47
1:D:80:ALA:HB1	1:D:112:ILE:HD12	1.96	0.47
1:B:187:LYS:HD2	1:B:273:LEU:HD11	1.97	0.47
1:B:397:VAL:O	1:B:456:ARG:N	2.45	0.47
1:B:49:ILE:N	5:B:1473:DXC:O3	2.47	0.47
1:C:316:LYS:HD3	1:C:329:LEU:HD21	1.97	0.46
1:D:109:HIS:CG	1:D:373:HIS:CE1	3.03	0.46
1:A:118:ILE:HB	1:A:153:PRO:HA	1.96	0.46
1:A:328:ILE:HG21	1:A:389:LYS:HD2	1.97	0.46
1:D:15:ASP:HA	1:D:18:LYS:HE2	1.97	0.46
1:C:156:ALA:N	2:C:1469:GDP:O6	2.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:406:ILE:HD11	1:C:449:PHE:CZ	2.49	0.46
1:B:283:ILE:HD13	1:B:374:GLY:HA3	1.97	0.46
1:D:114:ILE:HG12	1:D:146:LEU:HD22	1.96	0.46
1:A:4:LYS:HG2	1:A:6:ILE:HD11	1.96	0.46
1:A:285:ILE:HG23	1:A:291:TYR:CD2	2.50	0.46
1:C:36:LYS:CD	1:C:157:LYS:HA	2.46	0.46
1:C:322:LYS:HG3	1:C:323:THR:H	1.80	0.46
1:D:91:ASP:HB3	1:D:94:GLU:HB2	1.97	0.46
1:D:11:PHE:CE2	1:D:66:ALA:HB1	2.51	0.46
1:A:285:ILE:HG12	1:A:291:TYR:CE2	2.51	0.46
1:B:393:ARG:HB2	1:B:461:LEU:HD23	1.97	0.46
1:C:296:LYS:H	1:C:313:VAL:HG12	1.80	0.46
1:A:431:ILE:HD11	1:A:450:SER:O	2.15	0.46
1:C:289:PHE:CE1	1:C:371:CMH:HB2	2.51	0.46
5:C:1475:DXC:H221	5:C:1475:DXC:H243	1.69	0.46
1:D:56:LEU:HD21	1:D:166:LYS:HG3	1.97	0.46
1:A:23:LYS:O	1:A:27:GLU:HG2	2.16	0.45
1:D:90:VAL:HG21	1:D:136:MET:HE1	1.97	0.45
1:C:9:GLY:HA2	1:C:64:VAL:HB	1.97	0.45
1:C:35:ASP:HA	1:C:159:GLY:HA3	1.99	0.45
1:A:314:PRO:O	1:A:328:ILE:HD12	2.17	0.45
1:A:196:ILE:HG23	1:A:197:LYS:H	1.81	0.45
1:D:116:VAL:HB	1:D:151:ILE:HG12	1.99	0.45
1:A:227:THR:HG21	1:A:255:VAL:HG22	1.99	0.45
1:A:456:ARG:O	1:A:458:LYS:NZ	2.32	0.45
1:B:122:ASP:HA	1:D:365:PRO:HD3	1.99	0.45
1:D:84:ASP:O	1:D:112:ILE:HG23	2.17	0.45
1:B:301:LEU:HD11	1:B:356:VAL:HG13	1.98	0.45
1:A:275:THR:HG22	1:A:347:LYS:HD2	1.98	0.44
1:B:130:LYS:HD2	1:B:130:LYS:HA	1.74	0.44
1:C:49:ILE:HD12	1:C:204:THR:HG21	1.99	0.44
1:B:312:ALA:HB1	1:B:340:CMH:SG	2.57	0.44
5:C:1478:DXC:H241	5:C:1478:DXC:H222	1.55	0.44
1:D:73:ILE:H	1:D:73:ILE:HG13	1.60	0.44
1:B:114:ILE:HD13	1:B:146:LEU:HD13	2.00	0.44
1:B:406:ILE:HD11	1:B:449:PHE:HZ	1.83	0.44
1:B:295:PRO:HB3	1:B:328:ILE:HD11	2.00	0.44
1:C:49:ILE:HG13	1:C:51:PHE:CD1	2.53	0.44
1:D:287:ASP:HB2	1:D:291:TYR:HE1	1.83	0.44
1:A:312:ALA:HB1	1:A:340:CMH:SG	2.58	0.44
1:C:293:LEU:HD22	1:C:371:CMH:CM	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:5:ASN:HD22	1:D:243:LYS:HE3	1.82	0.43
1:C:28:ILE:CG2	1:C:54:PHE:HB2	2.48	0.43
1:D:405:VAL:HG11	1:D:444:LEU:HB3	2.00	0.43
1:A:110:PHE:HE1	1:A:355:ARG:HB3	1.82	0.43
1:A:85:LEU:HD13	1:A:172:THR:HG21	2.00	0.43
1:A:392:LEU:HA	1:A:461:LEU:O	2.17	0.43
1:C:180:ARG:HB3	1:C:244:ALA:HB3	2.00	0.43
1:C:405:VAL:HG22	1:C:446:THR:HG23	1.99	0.43
1:D:223:ILE:HD13	1:D:259:GLN:O	2.18	0.43
1:D:407:ASP:OD1	1:D:408:GLY:N	2.51	0.43
1:D:442:LYS:HD3	1:D:442:LYS:HA	1.79	0.43
1:A:313:VAL:CG2	1:A:341:ALA:HB3	2.43	0.43
1:B:89:VAL:HA	1:B:117:VAL:O	2.18	0.43
1:B:120:LYS:HD3	2:B:1469:GDP:C4	2.54	0.43
1:B:221:LEU:HG	1:B:222:PRO:HA	2.01	0.43
1:C:10:ILE:HD13	1:C:87:LEU:HB2	2.01	0.43
1:D:5:ASN:OD1	1:D:234:TYR:OH	2.27	0.43
1:D:316:LYS:HB2	1:D:329:LEU:HD13	1.99	0.43
1:A:406:ILE:HD11	1:A:449:PHE:CZ	2.54	0.43
1:B:360:ARG:O	1:B:369:ARG:HB3	2.19	0.43
1:A:317:LYS:HG2	1:A:326:ASN:OD1	2.19	0.43
1:B:82:ILE:HD13	1:B:206:THR:HG22	2.01	0.43
1:A:302:ASN:HB2	1:A:357:LEU:HB3	2.00	0.43
1:A:303:VAL:HG22	1:A:356:VAL:HG22	2.00	0.43
1:C:39:GLU:H	1:C:39:GLU:HG2	1.66	0.43
1:C:148:ASN:OD1	1:C:148:ASN:N	2.51	0.43
1:D:247:ARG:HD2	1:D:247:ARG:HA	1.76	0.43
1:A:105:LEU:HD22	1:A:109:HIS:HE1	1.84	0.42
1:A:406:ILE:HD11	1:A:449:PHE:HZ	1.83	0.42
1:A:186:PHE:HA	1:A:210:GLY:HA3	2.01	0.42
1:D:213:LYS:O	1:D:216:ASP:HB2	2.19	0.42
1:B:364:PRO:HA	1:B:365:PRO:HD3	1.80	0.42
1:C:313:VAL:HA	1:C:314:PRO:HD3	1.81	0.42
1:D:223:ILE:HD11	1:D:260:ILE:HG12	2.01	0.42
1:B:88:ILE:HD11	1:B:107:LEU:HD12	2.01	0.42
1:B:392:LEU:HA	1:B:461:LEU:O	2.20	0.42
1:B:417:GLU:O	1:B:420:ILE:HG12	2.19	0.42
1:C:364:PRO:HA	1:C:365:PRO:HD3	1.77	0.42
1:A:96:PRO:HB3	1:A:136:MET:HE1	2.02	0.42
1:A:290:LYS:HD3	1:A:290:LYS:HA	1.82	0.42
1:A:355:ARG:HG2	1:A:375:LEU:HD23	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:7:ASN:ND2	1:B:245:GLY:O	2.50	0.42
1:B:130:LYS:NZ	1:D:96:PRO:O	2.34	0.42
1:B:434:LYS:O	1:B:448:GLU:HG2	2.19	0.42
1:A:84:ASP:O	1:A:113:PRO:HG2	2.19	0.42
1:B:127:GLU:O	1:B:131:ARG:HG3	2.19	0.42
1:A:414:VAL:HG12	1:A:418:LYS:HE3	2.01	0.42
1:B:243:LYS:HB3	1:B:243:LYS:HE2	1.72	0.42
1:C:39:GLU:OE2	1:C:41:GLN:NE2	2.53	0.42
1:D:45:ILE:HB	1:D:47:ILE:HG13	2.00	0.42
1:A:340:CMH:HB2	1:A:342:PHE:CE2	2.55	0.42
1:A:407:ASP:OD1	1:A:408:GLY:N	2.53	0.42
1:A:431:ILE:HG13	1:A:450:SER:HB2	2.02	0.42
1:D:332:VAL:HG12	1:D:333:ILE:O	2.20	0.42
1:D:363:LEU:HA	1:D:364:PRO:HD3	1.84	0.42
1:D:426:ILE:HB	1:D:431:ILE:HG12	2.01	0.42
1:B:132:THR:HA	1:B:135:ILE:HD12	2.01	0.42
5:C:1480:DXC:H221	5:C:1480:DXC:H243	1.66	0.42
1:A:188:MET:HA	1:A:189:PRO:HD3	1.87	0.41
1:B:277:ASP:HB2	1:B:347:LYS:HE3	2.02	0.41
1:B:363:LEU:HD22	1:B:363:LEU:HA	1.92	0.41
1:C:277:ASP:O	1:C:344:LEU:HG	2.20	0.41
1:A:112:ILE:HA	1:A:113:PRO:HD2	1.84	0.41
1:D:5:ASN:OD1	1:D:60:ARG:HD3	2.19	0.41
1:A:57:GLU:HB3	1:A:58:ASN:H	1.56	0.41
1:A:293:LEU:HD13	1:A:329:LEU:HD23	2.02	0.41
1:B:291:TYR:HD1	1:B:333:ILE:HG22	1.85	0.41
1:C:298:LYS:HE3	1:C:311:VAL:HG22	2.01	0.41
1:D:362:ASP:O	1:D:364:PRO:HD3	2.20	0.41
1:D:431:ILE:HB	1:D:450:SER:O	2.21	0.41
1:C:49:ILE:HG12	5:C:1475:DXC:H222	2.01	0.41
1:D:392:LEU:HD11	1:D:460:ILE:HG23	2.01	0.41
1:B:155:SER:HB3	1:B:160:PHE:HB3	2.03	0.41
1:A:150:SER:HB2	1:A:168:LEU:HD21	2.01	0.41
1:B:308:VAL:HG21	1:B:348:VAL:HG21	2.03	0.41
1:C:1:MET:HB2	5:C:1476:DXC:C6	2.50	0.41
1:C:357:LEU:HD12	1:C:357:LEU:HA	1.89	0.41
1:A:301:LEU:HD23	1:A:344:LEU:HD21	2.02	0.41
1:C:36:LYS:HG2	1:C:37:LEU:N	2.36	0.41
1:C:340:CMH:HB2	1:C:342:PHE:CZ	2.55	0.41
1:A:296:LYS:HE2	1:A:296:LYS:HB3	1.80	0.41
1:C:36:LYS:HG2	1:C:37:LEU:H	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:190:LEU:HD22	1:C:203:VAL:HB	2.02	0.41
1:D:186:PHE:HE1	1:D:207:ILE:HD13	1.85	0.41
1:D:285:ILE:HD11	1:D:291:TYR:HB2	2.02	0.41
1:D:385:LEU:O	1:D:386:ASN:OD1	2.39	0.41
1:B:320:PHE:CE2	1:B:327:ILE:HD11	2.56	0.41
1:A:293:LEU:HD22	1:A:329:LEU:HD23	2.02	0.40
1:A:425:SER:HB2	1:A:460:ILE:HG13	2.04	0.40
1:B:363:LEU:HD22	1:B:364:PRO:HD2	2.03	0.40
1:D:163:ASP:N	1:D:163:ASP:OD1	2.54	0.40
1:D:219:LYS:HE3	1:D:224:ASN:OD1	2.21	0.40
1:A:329:LEU:HA	1:A:329:LEU:HD12	1.85	0.40
1:A:391:VAL:HG21	1:A:465:ARG:HD3	2.03	0.40
1:A:447:ALA:HB3	1:A:449:PHE:CE2	2.57	0.40
1:B:300:HIS:HB2	1:B:359:THR:O	2.22	0.40
1:B:15:ASP:N	2:B:1469:GDP:O1B	2.55	0.40
1:C:72:LEU:HD23	1:C:72:LEU:HA	1.97	0.40
1:D:38:PRO:HB3	1:D:42:LYS:HD2	2.02	0.40
1:D:289:PHE:HD1	1:D:289:PHE:HA	1.76	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	440/482 (91%)	428 (97%)	12 (3%)	0	100	100
1	B	448/482 (93%)	433 (97%)	15 (3%)	0	100	100
1	C	465/482 (96%)	452 (97%)	13 (3%)	0	100	100
1	D	461/482 (96%)	440 (95%)	19 (4%)	2 (0%)	30	62
All	All	1814/1928 (94%)	1753 (97%)	59 (3%)	2 (0%)	48	79

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	42	LYS
1	D	333	ILE

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	382/412 (93%)	350 (92%)	32 (8%)	9 31
1	B	388/412 (94%)	360 (93%)	28 (7%)	12 37
1	C	402/412 (98%)	372 (92%)	30 (8%)	11 35
1	D	398/412 (97%)	362 (91%)	36 (9%)	8 28
All	All	1570/1648 (95%)	1444 (92%)	126 (8%)	10 32

All (126) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	0	HIS
1	A	28	ILE
1	A	57	GLU
1	A	82	ILE
1	A	90	VAL
1	A	102	GLU
1	A	104	MET
1	A	148	ASN
1	A	168	LEU
1	A	194	PHE
1	A	212	VAL
1	A	235	PHE
1	A	250	MET
1	A	252	ILE
1	A	273	LEU
1	A	277	ASP
1	A	332	VAL
1	A	333	ILE
1	A	348	VAL
1	A	356	VAL

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Mol	Chain	Res	Type
1	A	362	ASP
1	A	366	THR
1	A	392	LEU
1	A	403	ARG
1	A	411	GLN
1	A	412	SER
1	A	417	GLU
1	A	424	ILE
1	A	435	ILE
1	A	441	THR
1	A	448	GLU
1	A	458	LYS
1	B	14	ILE
1	B	19	THR
1	B	27	GLU
1	B	28	ILE
1	B	49	ILE
1	B	123	ASN
1	B	136	MET
1	B	148	ASN
1	B	163	ASP
1	B	182	THR
1	B	212	VAL
1	B	238	SER
1	B	241	GLU
1	B	275	THR
1	B	287	ASP
1	B	291	TYR
1	B	308	VAL
1	B	319	THR
1	B	344	LEU
1	B	356	VAL
1	B	360	ARG
1	B	363	LEU
1	B	368	LEU
1	B	394	GLU
1	B	407	ASP
1	B	412	SER
1	B	431	ILE
1	B	453	VAL
1	C	-2	ARG
1	C	6	ILE

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Mol	Chain	Res	Type
1	C	14	ILE
1	C	45	ILE
1	C	65	ASP
1	C	114	ILE
1	C	142	SER
1	C	148	ASN
1	C	171	THR
1	C	188	MET
1	C	212	VAL
1	C	223	ILE
1	C	230	ARG
1	C	255	VAL
1	C	261	TYR
1	C	278	LYS
1	C	293	LEU
1	C	294	THR
1	C	297	MET
1	C	328	ILE
1	C	334	SER
1	C	348	VAL
1	C	359	THR
1	C	391	VAL
1	C	394	GLU
1	C	435	ILE
1	C	445	LEU
1	C	446	THR
1	C	456	ARG
1	C	459	VAL
1	D	16	HIS
1	D	31	THR
1	D	32	SER
1	D	36	LYS
1	D	41	GLN
1	D	43	ARG
1	D	46	THR
1	D	49	ILE
1	D	56	LEU
1	D	78	SER
1	D	90	VAL
1	D	128	GLU
1	D	139	ILE
1	D	143	THR

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Mol	Chain	Res	Type
1	D	162	VAL
1	D	220	VAL
1	D	226	SER
1	D	227	THR
1	D	235	PHE
1	D	237	GLU
1	D	247	ARG
1	D	275	THR
1	D	289	PHE
1	D	333	ILE
1	D	355	ARG
1	D	361	LEU
1	D	362	ASP
1	D	368	LEU
1	D	383	LYS
1	D	386	ASN
1	D	387	ILE
1	D	414	VAL
1	D	435	ILE
1	D	453	VAL
1	D	457	ASP
1	D	465	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	292	ASN
1	D	373	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

16 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
1	CMH	C	264	1	5,7,8	0.59	0	1,7,9	0.73	0
1	CMH	D	338	1	5,7,8	0.58	0	1,7,9	1.00	0
1	CMH	A	340	1	5,7,8	0.71	0	1,7,9	0.62	0
1	CMH	A	264	1	5,7,8	0.57	0	1,7,9	0.02	0
1	CMH	D	264	1	5,7,8	0.57	0	1,7,9	0.60	0
1	CMH	B	340	1	5,7,8	0.75	0	1,7,9	0.32	0
1	CMH	B	371	1	5,7,8	0.55	0	1,7,9	0.88	0
1	CMH	C	338	1	5,7,8	0.57	0	1,7,9	0.72	0
1	CMH	A	338	1	5,7,8	0.63	0	1,7,9	0.65	0
1	CMH	B	338	1	5,7,8	0.69	0	1,7,9	0.65	0
1	CMH	A	371	1	5,7,8	0.54	0	1,7,9	0.56	0
1	CMH	C	340	1	5,7,8	0.72	0	1,7,9	0.53	0
1	CMH	C	371	1	5,7,8	0.61	0	1,7,9	0.54	0
1	CMH	D	340	1	5,7,8	0.58	0	1,7,9	0.19	0
1	CMH	B	264	1	5,7,8	0.60	0	1,7,9	0.96	0
1	CMH	D	371	1	5,7,8	0.61	0	1,7,9	0.57	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
1	CMH	C	264	1	-	0/0/6/8	-
1	CMH	D	338	1	-	0/0/6/8	-
1	CMH	A	340	1	-	0/0/6/8	-
1	CMH	A	264	1	-	0/0/6/8	-
1	CMH	D	264	1	-	0/0/6/8	-
1	CMH	B	340	1	-	0/0/6/8	-
1	CMH	B	371	1	-	0/0/6/8	-
1	CMH	C	338	1	-	0/0/6/8	-
1	CMH	A	338	1	-	0/0/6/8	-
1	CMH	B	338	1	-	0/0/6/8	-
1	CMH	A	371	1	-	0/0/6/8	-
1	CMH	C	340	1	-	0/0/6/8	-
1	CMH	C	371	1	-	0/0/6/8	-
1	CMH	D	340	1	-	0/0/6/8	-
1	CMH	B	264	1	-	0/0/6/8	-
1	CMH	D	371	1	-	0/0/6/8	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

7 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	340	CMH	3	0
1	B	340	CMH	2	0
1	B	371	CMH	2	0
1	C	338	CMH	1	0
1	C	340	CMH	3	0
1	C	371	CMH	3	0
1	D	340	CMH	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 21 ligands modelled in this entry, 3 are monoatomic - leaving 18 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	GDP	A	1469	3	24,30,30	0.94	1 (4%)	30,47,47	1.24	4 (13%)
4	SO4	C	1473	-	4,4,4	0.14	0	6,6,6	0.04	0
4	SO4	B	1472	-	4,4,4	0.14	0	6,6,6	0.04	0
4	SO4	C	1472	-	4,4,4	0.14	0	6,6,6	0.05	0
4	SO4	B	1471	-	4,4,4	0.15	0	6,6,6	0.04	0
2	GDP	B	1469	3	24,30,30	0.94	1 (4%)	30,47,47	1.25	5 (16%)
5	DXC	B	1473	-	31,31,31	1.67	6 (19%)	49,49,49	1.38	7 (14%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	DXC	C	1475	-	31,31,31	1.70	6 (19%)	49,49,49	1.52	11 (22%)
5	DXC	C	1476	-	31,31,31	1.67	6 (19%)	49,49,49	1.46	8 (16%)
5	DXC	C	1477	-	31,31,31	1.66	6 (19%)	49,49,49	1.46	9 (18%)
4	SO4	C	1474	-	4,4,4	0.14	0	6,6,6	0.05	0
5	DXC	C	1479	-	31,31,31	1.66	6 (19%)	49,49,49	1.49	8 (16%)
4	SO4	C	1481	-	4,4,4	0.13	0	6,6,6	0.05	0
5	DXC	C	1478	-	31,31,31	1.66	6 (19%)	49,49,49	1.56	9 (18%)
5	DXC	C	1480	-	31,31,31	1.69	6 (19%)	49,49,49	1.46	9 (18%)
4	SO4	C	1471	-	4,4,4	0.14	0	6,6,6	0.05	0
6	5GP	B	1474	-	22,26,26	1.26	2 (9%)	26,40,40	1.32	4 (15%)
2	GDP	C	1469	3	24,30,30	0.95	1 (4%)	30,47,47	1.29	4 (13%)

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	GDP	A	1469	3	-	6/12/32/32	0/3/3/3
5	DXC	B	1473	-	-	2/9/71/71	0/4/4/4
5	DXC	C	1475	-	-	2/9/71/71	0/4/4/4
2	GDP	B	1469	3	-	6/12/32/32	0/3/3/3
5	DXC	C	1476	-	-	4/9/71/71	0/4/4/4
5	DXC	C	1477	-	-	3/9/71/71	0/4/4/4
5	DXC	C	1479	-	-	6/9/71/71	0/4/4/4
5	DXC	C	1478	-	-	2/9/71/71	0/4/4/4
5	DXC	C	1480	-	-	4/9/71/71	0/4/4/4
6	5GP	B	1474	-	-	3/6/26/26	0/3/3/3
2	GDP	C	1469	3	-	5/12/32/32	0/3/3/3

All (47) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	1480	DXC	C12-C13	-4.12	1.48	1.54
5	C	1475	DXC	C12-C13	-4.02	1.48	1.54
6	B	1474	5GP	C5-C6	-4.02	1.39	1.47
5	C	1477	DXC	C12-C13	-3.92	1.48	1.54
5	B	1473	DXC	C12-C13	-3.82	1.48	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	1478	DXC	C12-C13	-3.80	1.48	1.54
5	C	1476	DXC	C12-C13	-3.78	1.48	1.54
5	C	1479	DXC	C12-C13	-3.69	1.48	1.54
5	C	1476	DXC	C12-C11	-3.27	1.49	1.55
5	C	1476	DXC	C18-C4	-3.22	1.48	1.54
5	C	1475	DXC	C20-C12	-3.20	1.49	1.54
5	C	1477	DXC	C18-C4	-3.19	1.48	1.54
5	C	1479	DXC	C20-C12	-3.18	1.49	1.54
5	C	1478	DXC	C20-C12	-3.17	1.49	1.54
5	B	1473	DXC	C18-C4	-3.12	1.48	1.54
5	C	1479	DXC	C12-C11	-3.11	1.50	1.55
5	B	1473	DXC	C20-C12	-3.10	1.49	1.54
5	C	1475	DXC	C18-C4	-3.09	1.48	1.54
5	C	1480	DXC	C18-C4	-3.08	1.49	1.54
5	C	1479	DXC	C18-C4	-3.04	1.49	1.54
5	C	1480	DXC	C12-C11	-3.02	1.50	1.55
5	C	1475	DXC	C12-C11	-3.01	1.50	1.55
5	C	1476	DXC	C20-C12	-3.00	1.49	1.54
5	C	1480	DXC	C20-C12	-2.99	1.49	1.54
5	C	1478	DXC	C18-C4	-2.99	1.49	1.54
5	C	1477	DXC	C12-C11	-2.98	1.50	1.55
5	B	1473	DXC	O1-C13	-2.95	1.38	1.43
5	C	1480	DXC	O1-C13	-2.94	1.38	1.43
5	C	1475	DXC	O1-C13	-2.93	1.38	1.43
5	C	1478	DXC	O1-C13	-2.87	1.38	1.43
5	C	1477	DXC	C20-C12	-2.87	1.49	1.54
5	C	1479	DXC	O1-C13	-2.85	1.38	1.43
5	C	1477	DXC	O1-C13	-2.83	1.38	1.43
5	C	1476	DXC	O1-C13	-2.81	1.38	1.43
5	B	1473	DXC	C12-C11	-2.80	1.50	1.55
5	C	1478	DXC	C12-C11	-2.72	1.50	1.55
6	B	1474	5GP	C6-N1	-2.70	1.33	1.37
5	C	1476	DXC	C4-C10	-2.61	1.51	1.56
5	C	1477	DXC	C4-C10	-2.55	1.51	1.56
5	B	1473	DXC	C4-C10	-2.45	1.51	1.56
5	C	1478	DXC	C4-C10	-2.41	1.51	1.56
2	C	1469	GDP	C6-N1	-2.38	1.34	1.37
5	C	1475	DXC	C4-C10	-2.37	1.51	1.56
5	C	1480	DXC	C4-C10	-2.32	1.51	1.56
2	A	1469	GDP	C6-N1	-2.30	1.34	1.37
2	B	1469	GDP	C6-N1	-2.29	1.34	1.37
5	C	1479	DXC	C4-C10	-2.25	1.52	1.56

All (78) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	1469	GDP	PA-O3A-PB	-3.75	119.95	132.83
5	C	1478	DXC	C22-C21-C19	-3.72	107.73	114.52
5	C	1479	DXC	C8-C9-C10	3.62	114.98	110.49
5	C	1478	DXC	C11-C9-C10	-3.51	104.39	109.09
5	C	1476	DXC	C18-C4-C5	-3.41	102.76	108.26
5	C	1478	DXC	C8-C9-C10	3.41	114.72	110.49
5	C	1476	DXC	C8-C9-C10	3.38	114.68	110.49
5	C	1477	DXC	C18-C4-C5	-3.37	102.83	108.26
5	C	1479	DXC	C18-C4-C5	-3.31	102.93	108.26
2	A	1469	GDP	PA-O3A-PB	-3.25	121.68	132.83
5	C	1480	DXC	C18-C4-C5	-3.25	103.03	108.26
5	C	1475	DXC	C18-C4-C5	-3.23	103.06	108.26
5	C	1479	DXC	C12-C17-C19	-3.19	115.69	119.50
5	C	1475	DXC	C8-C9-C10	3.16	114.41	110.49
6	B	1474	5GP	C5-C6-N1	3.16	119.52	113.95
5	B	1473	DXC	C10-C14-C13	-3.12	110.18	114.30
5	C	1475	DXC	C11-C9-C10	-3.12	104.92	109.09
5	C	1478	DXC	C18-C4-C5	-3.09	103.28	108.26
5	C	1477	DXC	C8-C9-C10	3.06	114.28	110.49
5	B	1473	DXC	C18-C4-C5	-3.02	103.39	108.26
5	C	1475	DXC	C22-C21-C19	-2.92	109.18	114.52
5	C	1477	DXC	C10-C4-C3	2.88	112.62	108.58
5	C	1476	DXC	C10-C4-C3	2.87	112.61	108.58
5	C	1477	DXC	C14-C10-C4	-2.86	110.78	113.73
2	B	1469	GDP	PA-O3A-PB	-2.81	123.19	132.83
5	C	1479	DXC	C18-C4-C3	-2.78	105.64	110.36
5	C	1479	DXC	C11-C9-C10	-2.75	105.40	109.09
5	C	1480	DXC	C8-C9-C10	2.72	113.87	110.49
6	B	1474	5GP	O3P-P-O5'	-2.71	99.51	106.73
5	C	1480	DXC	C10-C4-C3	2.69	112.36	108.58
2	C	1469	GDP	C3'-C2'-C1'	2.65	104.97	100.98
5	C	1480	DXC	C18-C4-C3	-2.64	105.88	110.36
5	C	1480	DXC	C22-C21-C19	-2.63	109.71	114.52
5	C	1477	DXC	C11-C9-C10	-2.63	105.57	109.09
5	C	1478	DXC	C10-C4-C3	2.63	112.27	108.58
5	C	1475	DXC	C10-C14-C13	-2.61	110.85	114.30
5	C	1475	DXC	C18-C4-C3	-2.61	105.94	110.36
5	C	1476	DXC	C18-C4-C3	-2.55	106.03	110.36
5	C	1476	DXC	C11-C9-C10	-2.55	105.68	109.09
2	B	1469	GDP	C3'-C2'-C1'	2.54	104.80	100.98
5	B	1473	DXC	C8-C9-C10	2.53	113.64	110.49
5	C	1477	DXC	C17-C12-C11	2.49	102.60	100.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	C	1475	DXC	C10-C4-C3	2.48	112.06	108.58
5	C	1475	DXC	C24-C19-C21	-2.45	106.52	110.36
5	C	1478	DXC	C24-C19-C21	-2.43	106.56	110.36
6	B	1474	5GP	C8-N7-C5	2.43	107.61	102.99
5	C	1479	DXC	C10-C4-C3	2.41	111.96	108.58
5	B	1473	DXC	C18-C4-C3	-2.40	106.30	110.36
2	C	1469	GDP	C8-N7-C5	2.38	107.52	102.99
2	A	1469	GDP	C8-N7-C5	2.36	107.49	102.99
2	B	1469	GDP	C8-N7-C5	2.36	107.48	102.99
5	C	1477	DXC	C18-C4-C3	-2.35	106.38	110.36
2	C	1469	GDP	C5-C6-N1	2.34	118.08	113.95
5	C	1478	DXC	C17-C12-C11	2.33	102.44	100.09
2	A	1469	GDP	C5-C6-N1	2.32	118.06	113.95
5	C	1480	DXC	C11-C9-C10	-2.32	105.98	109.09
2	B	1469	GDP	C5-C6-N1	2.32	118.05	113.95
2	A	1469	GDP	C3'-C2'-C1'	2.30	104.45	100.98
6	B	1474	5GP	C2-N1-C6	-2.28	120.90	125.10
5	C	1479	DXC	C17-C12-C11	2.28	102.39	100.09
5	C	1480	DXC	C10-C14-C13	-2.21	111.38	114.30
5	B	1473	DXC	C11-C9-C10	-2.21	106.13	109.09
5	B	1473	DXC	C24-C19-C21	-2.19	106.92	110.36
5	C	1480	DXC	C17-C12-C11	2.19	102.30	100.09
5	C	1480	DXC	C11-C12-C13	-2.18	105.38	107.40
5	C	1476	DXC	C14-C10-C4	-2.17	111.48	113.73
5	C	1478	DXC	C18-C4-C3	-2.12	106.77	110.36
5	C	1476	DXC	C7-C8-C9	-2.11	108.67	112.14
5	C	1477	DXC	O4-C23-C22	2.10	120.78	114.03
5	C	1475	DXC	C17-C12-C11	2.10	102.21	100.09
5	C	1476	DXC	C4-C10-C9	-2.09	110.23	112.42
2	B	1469	GDP	O3B-PB-O3A	2.08	111.59	104.64
5	C	1478	DXC	C20-C12-C11	2.07	114.45	111.21
5	C	1477	DXC	C10-C14-C13	-2.07	111.57	114.30
5	B	1473	DXC	C10-C4-C3	2.06	111.48	108.58
5	C	1475	DXC	O4-C23-C22	2.02	120.51	114.03
5	C	1475	DXC	O1-C13-C12	-2.02	107.62	111.03
5	C	1479	DXC	O4-C23-C22	2.01	120.50	114.03

There are no chirality outliers.

All (43) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1469	GDP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
2	A	1469	GDP	C5'-O5'-PA-O2A
2	B	1469	GDP	C5'-O5'-PA-O1A
2	B	1469	GDP	C5'-O5'-PA-O2A
2	C	1469	GDP	C5'-O5'-PA-O1A
2	C	1469	GDP	C5'-O5'-PA-O2A
2	C	1469	GDP	O4'-C4'-C5'-O5'
6	B	1474	5GP	C3'-C4'-C5'-O5'
5	C	1479	DXC	C12-C17-C19-C24
5	C	1479	DXC	C24-C19-C21-C22
5	C	1479	DXC	C16-C17-C19-C24
5	C	1479	DXC	C12-C17-C19-C21
5	C	1476	DXC	C24-C19-C21-C22
5	C	1479	DXC	C16-C17-C19-C21
2	C	1469	GDP	C3'-C4'-C5'-O5'
5	C	1479	DXC	C17-C19-C21-C22
5	C	1477	DXC	C24-C19-C21-C22
5	C	1476	DXC	C17-C19-C21-C22
5	C	1477	DXC	C17-C19-C21-C22
2	A	1469	GDP	O4'-C4'-C5'-O5'
2	A	1469	GDP	C3'-C4'-C5'-O5'
6	B	1474	5GP	O4'-C4'-C5'-O5'
2	B	1469	GDP	PA-O3A-PB-O1B
5	C	1480	DXC	C12-C17-C19-C24
2	B	1469	GDP	PA-O3A-PB-O3B
2	B	1469	GDP	C5'-O5'-PA-O3A
5	C	1480	DXC	C12-C17-C19-C21
5	C	1480	DXC	C16-C17-C19-C24
5	C	1480	DXC	C16-C17-C19-C21
6	B	1474	5GP	C5'-O5'-P-O1P
2	B	1469	GDP	PB-O3A-PA-O2A
5	C	1478	DXC	C17-C19-C21-C22
5	C	1478	DXC	C12-C17-C19-C24
5	B	1473	DXC	C21-C22-C23-O4
5	C	1475	DXC	C21-C22-C23-O4
5	C	1476	DXC	C21-C22-C23-O4
5	B	1473	DXC	C21-C22-C23-O3
5	C	1475	DXC	C21-C22-C23-O3
5	C	1476	DXC	C21-C22-C23-O3
2	A	1469	GDP	C5'-O5'-PA-O3A
2	C	1469	GDP	C5'-O5'-PA-O3A
2	A	1469	GDP	PB-O3A-PA-O2A
5	C	1477	DXC	C21-C22-C23-O4

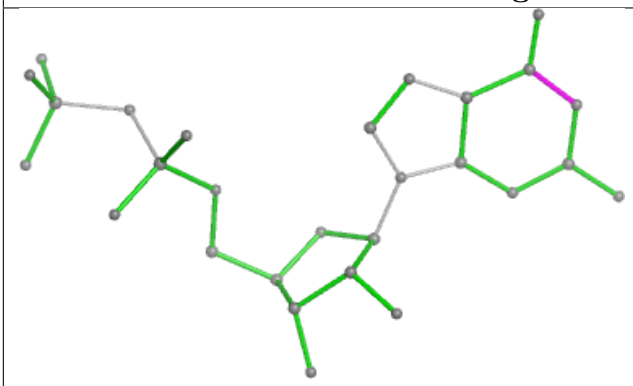
There are no ring outliers.

12 monomers are involved in 18 short contacts:

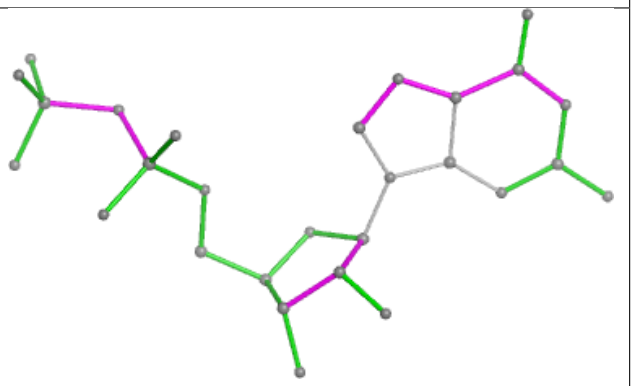
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1472	SO4	1	0
4	B	1471	SO4	1	0
2	B	1469	GDP	2	0
5	B	1473	DXC	1	0
5	C	1475	DXC	3	0
5	C	1476	DXC	2	0
5	C	1477	DXC	1	0
5	C	1479	DXC	2	0
5	C	1478	DXC	1	0
5	C	1480	DXC	1	0
6	B	1474	5GP	2	0
2	C	1469	GDP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

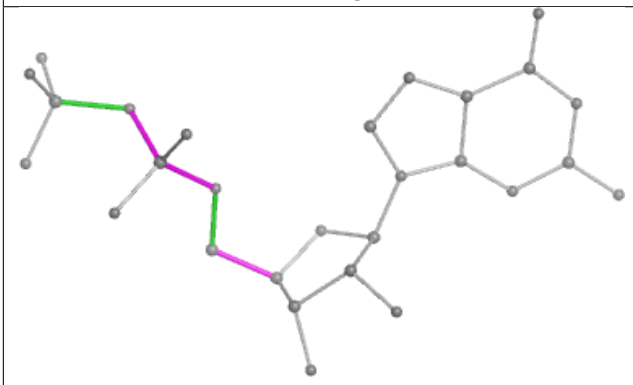
Ligand GDP A 1469



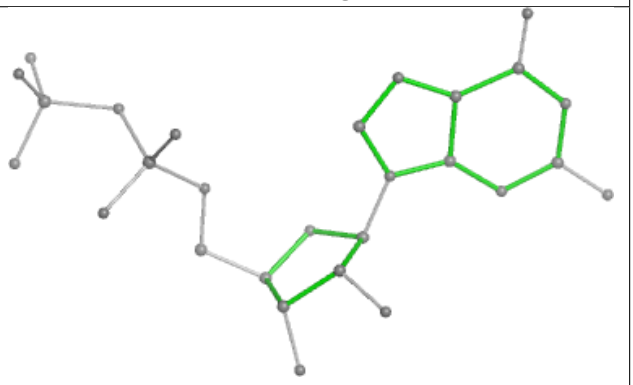
Bond lengths



Bond angles

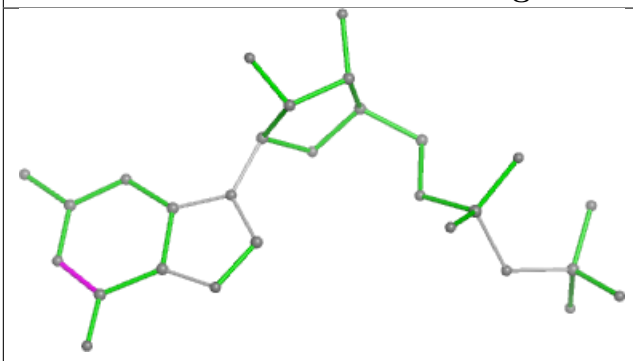


Torsions

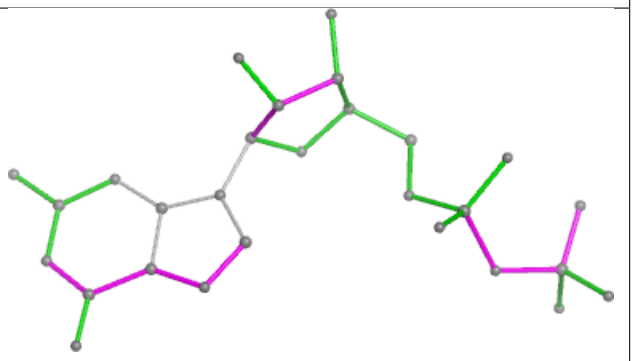


Rings

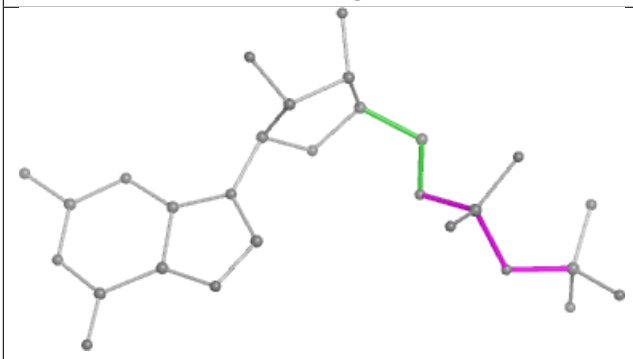
Ligand GDP B 1469



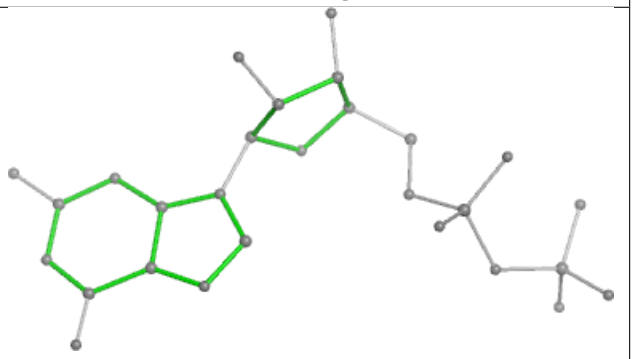
Bond lengths



Bond angles

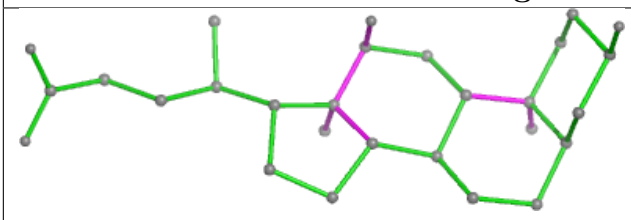


Torsions

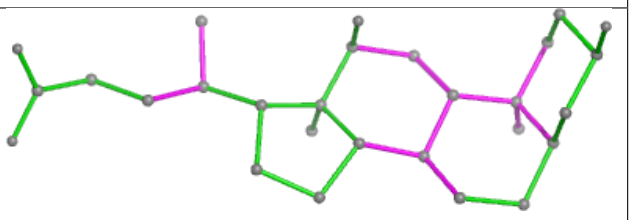


Rings

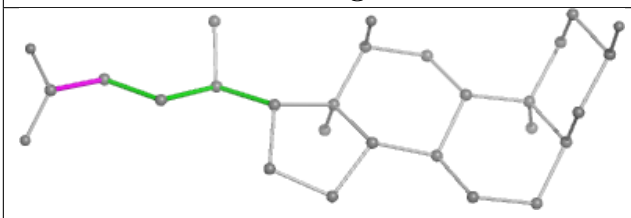
Ligand DXC B 1473



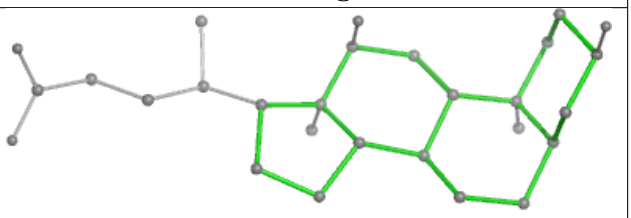
Bond lengths



Bond angles

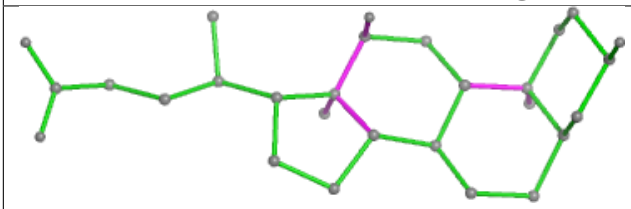


Torsions

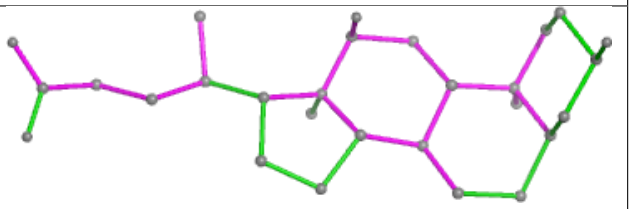


Rings

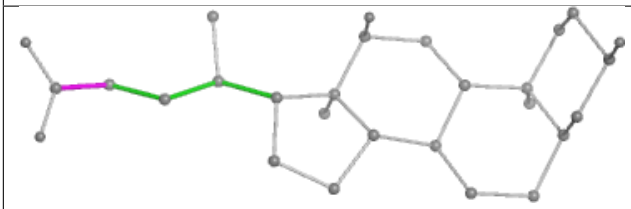
Ligand DXC C 1475



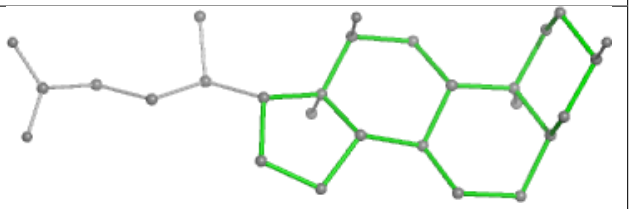
Bond lengths



Bond angles

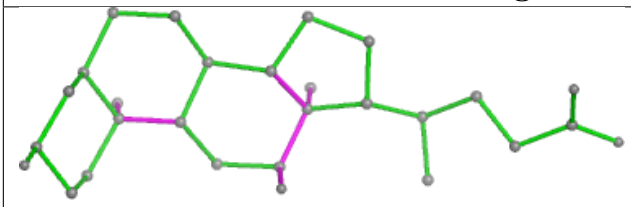


Torsions

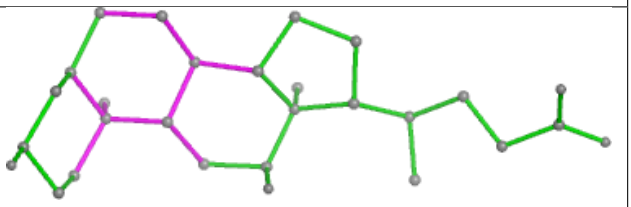


Rings

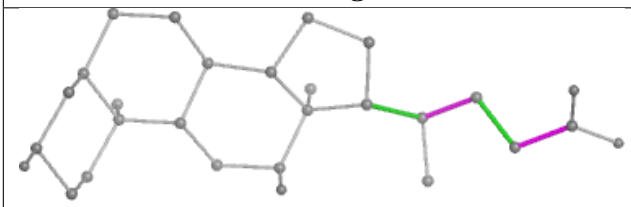
Ligand DXC C 1476



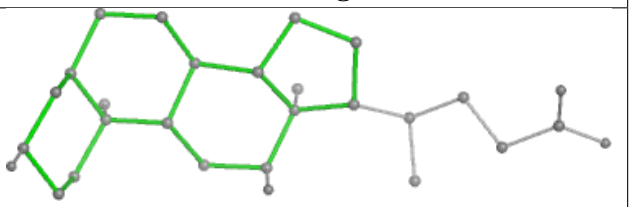
Bond lengths



Bond angles

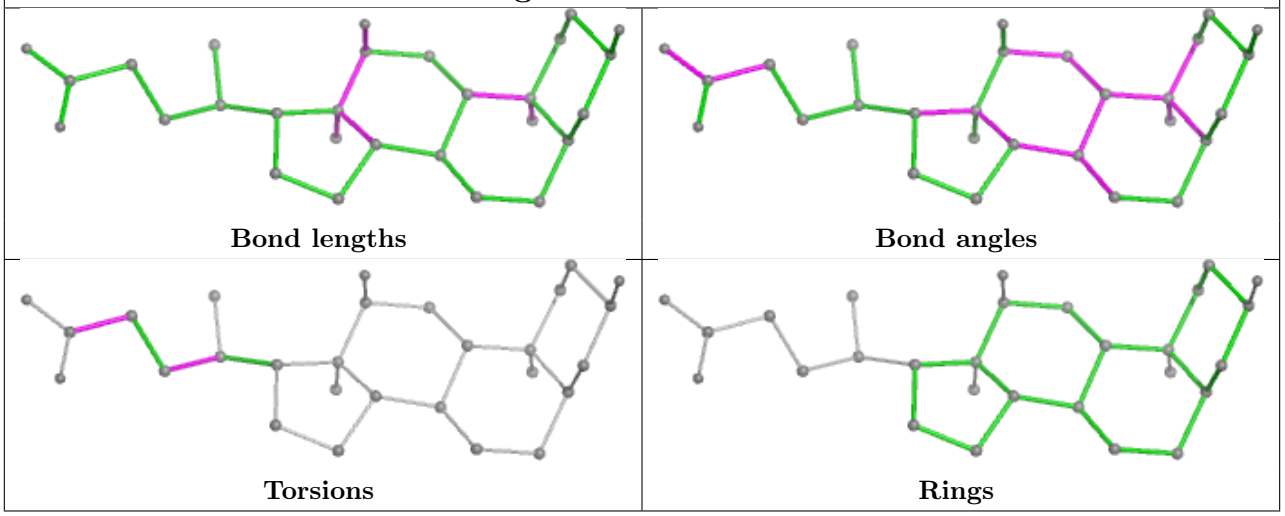


Torsions

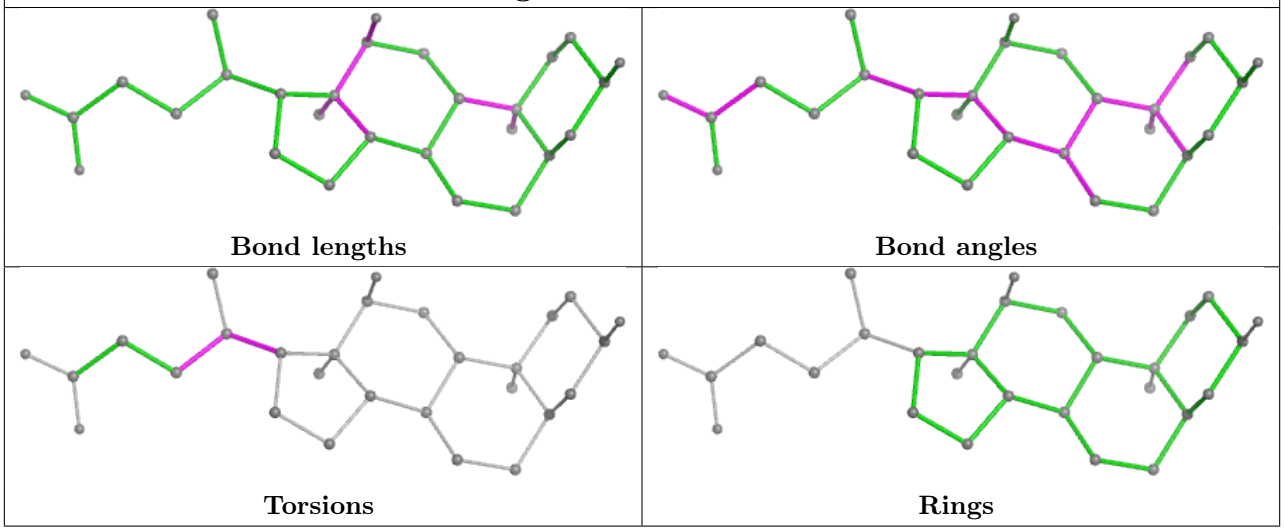


Rings

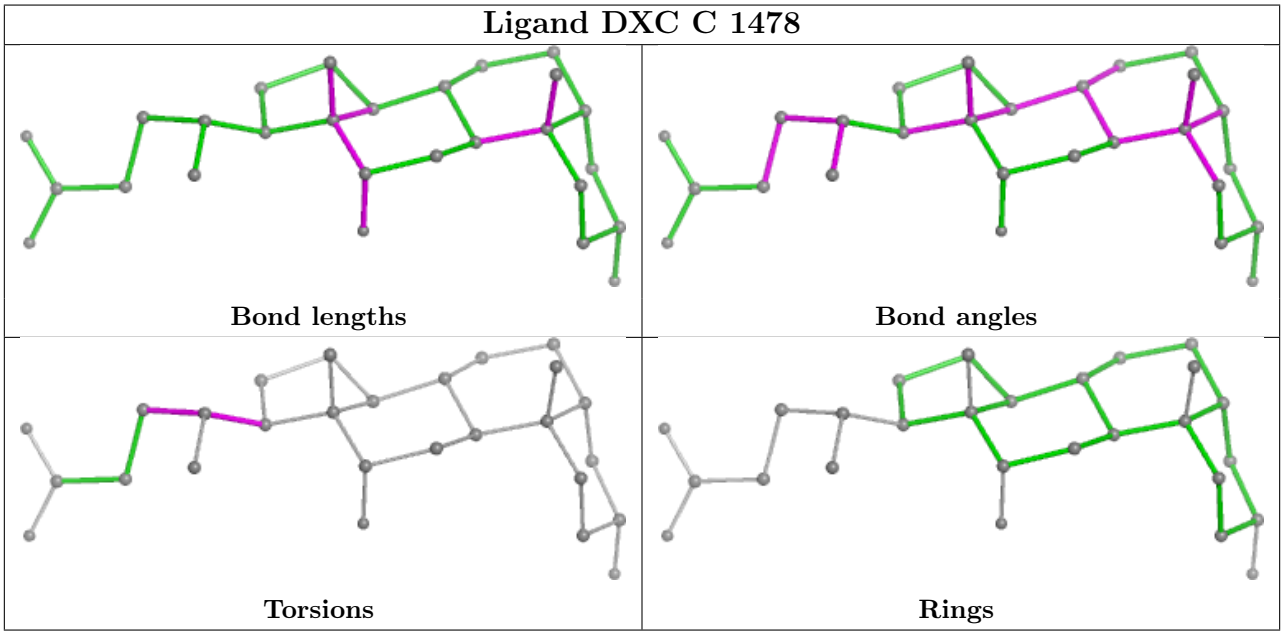
Ligand DXC C 1477



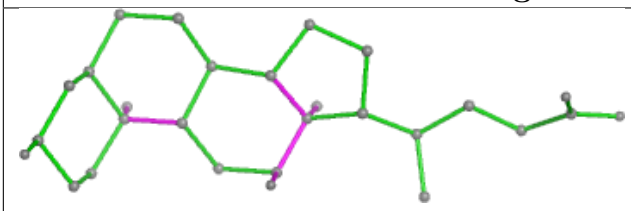
Ligand DXC C 1479



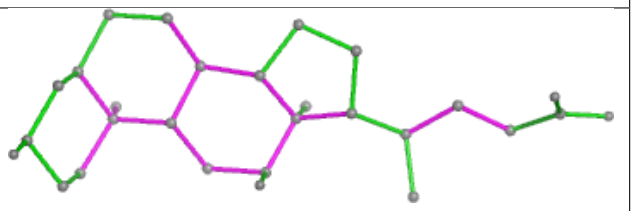
Ligand DXC C 1478



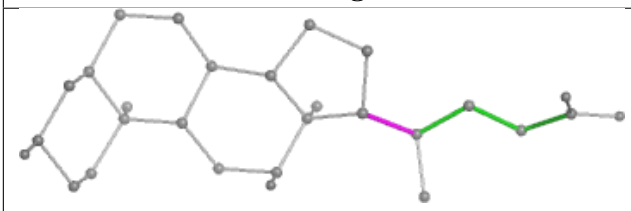
Ligand DXC C 1480



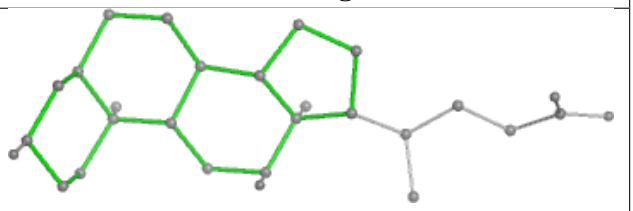
Bond lengths



Bond angles

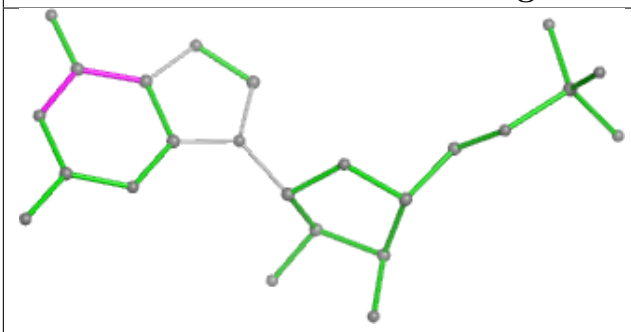


Torsions

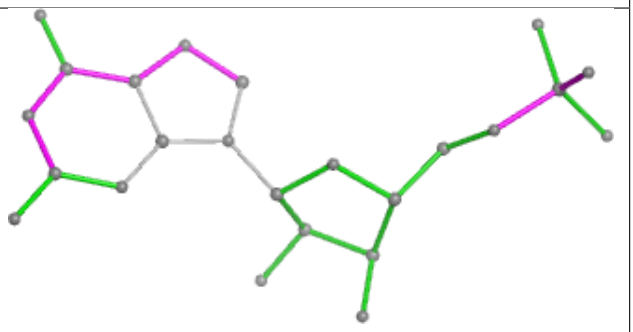


Rings

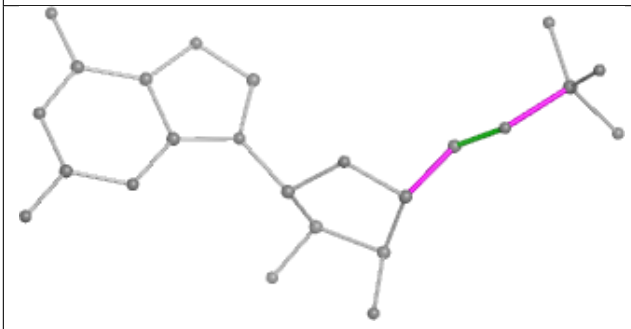
Ligand 5GP B 1474



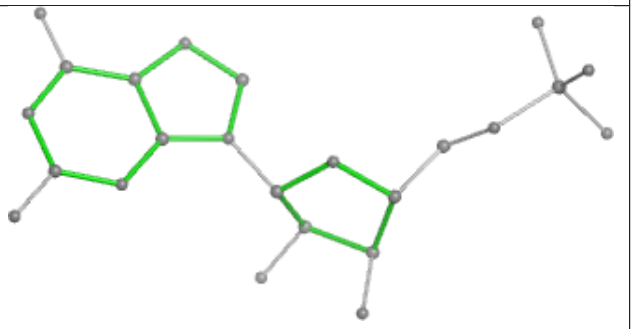
Bond lengths



Bond angles

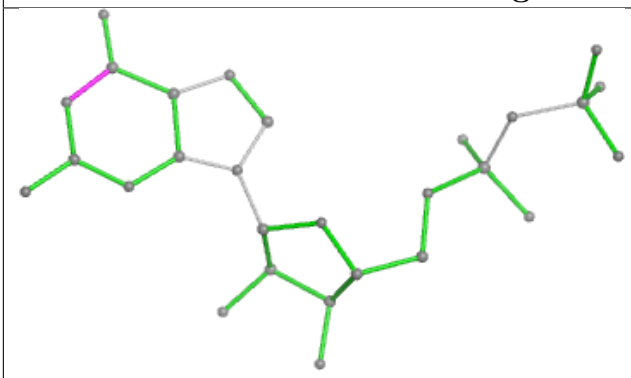


Torsions

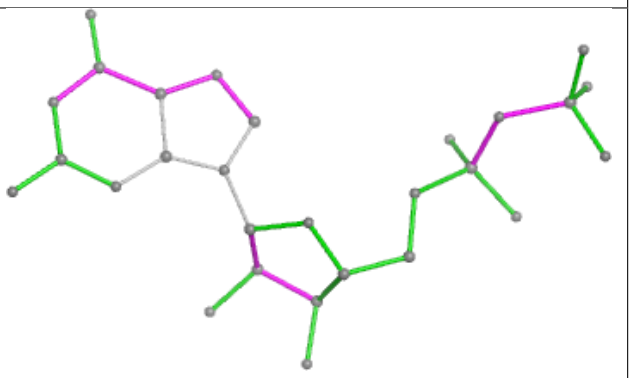


Rings

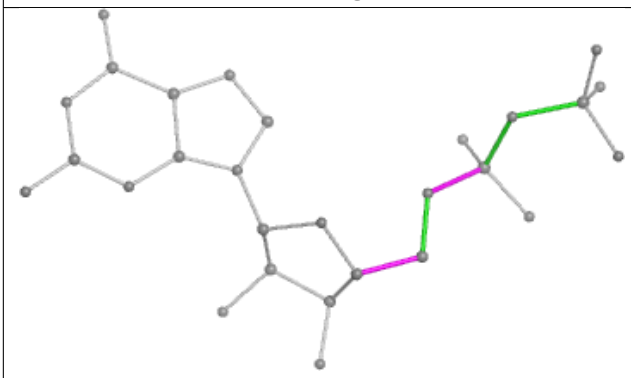
Ligand GDP C 1469



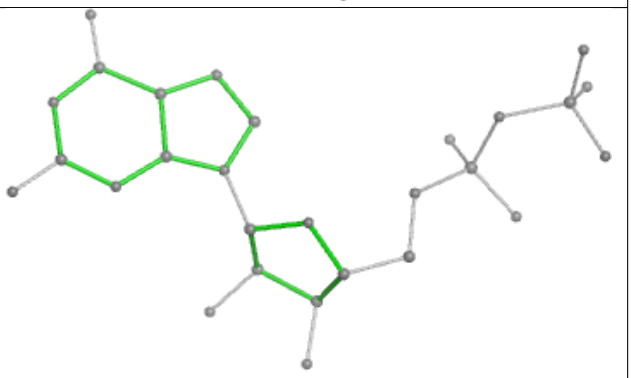
Bond lengths



Bond angles



Torsions



Rings

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^{th} 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	444/482 (92%)	-0.24	4 (0%)	81	63	72, 154, 219, 301	0
1	B	452/482 (93%)	-0.30	5 (1%)	77	58	54, 109, 284, 316	0
1	C	467/482 (96%)	-0.45	3 (0%)	85	71	53, 88, 179, 222	0
1	D	463/482 (96%)	-0.01	15 (3%)	50	30	101, 187, 277, 317	0
All	All	1826/1928 (94%)	-0.25	27 (1%)	71	51	53, 139, 266, 317	0

All (27) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	333	ILE	3.8
1	B	397	VAL	3.4
1	A	196	ILE	3.3
1	D	372	GLY	3.3
1	D	415	ALA	3.1
1	B	399	ILE	3.1
1	D	334	SER	3.0
1	A	15	ASP	2.9
1	D	460	ILE	2.7
1	D	416	ALA	2.6
1	C	29	ALA	2.6
1	B	334	SER	2.6
1	B	404	THR	2.5
1	C	31	THR	2.5
1	A	291	TYR	2.4
1	A	50	GLY	2.4
1	D	30	SER	2.4
1	D	36	LYS	2.4
1	C	42	LYS	2.3
1	D	442	LYS	2.3
1	D	142	SER	2.2

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Mol	Chain	Res	Type	RSRZ
1	D	31	THR	2.2
1	D	320	PHE	2.1
1	D	404	THR	2.1
1	B	453	VAL	2.1
1	D	382	ILE	2.1
1	D	399	ILE	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (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. The B-factors column lists the minimum, median, 95^{th} 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	B-factors(Å^2)	Q<0.9
1	CMH	B	338	8/9	0.64	0.23	124,171,196,199	2
1	CMH	D	338	8/9	0.70	0.17	152,222,227,253	2
1	CMH	B	371	8/9	0.82	0.15	110,130,188,228	2
1	CMH	A	371	8/9	0.83	0.17	133,164,171,190	2
1	CMH	D	340	8/9	0.90	0.14	152,216,232,249	2
1	CMH	A	338	8/9	0.92	0.16	137,150,185,236	2
1	CMH	C	338	8/9	0.92	0.14	58,83,145,240	2
1	CMH	D	371	8/9	0.93	0.15	103,144,150,163	2
1	CMH	C	340	8/9	0.95	0.13	54,75,92,110	2
1	CMH	B	340	8/9	0.96	0.13	120,138,232,238	2
1	CMH	A	340	8/9	0.97	0.12	136,173,185,199	2
1	CMH	A	264	8/9	0.98	0.08	149,163,190,206	2
1	CMH	C	371	8/9	0.98	0.09	57,94,131,132	2
1	CMH	D	264	8/9	0.98	0.07	131,162,186,191	2
1	CMH	C	264	8/9	0.99	0.06	51,90,102,105	0
1	CMH	B	264	8/9	0.99	0.07	49,64,73,84	2

6.3 Carbohydrates (i)

There are no monosaccharides 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. The B-factors column lists the minimum,

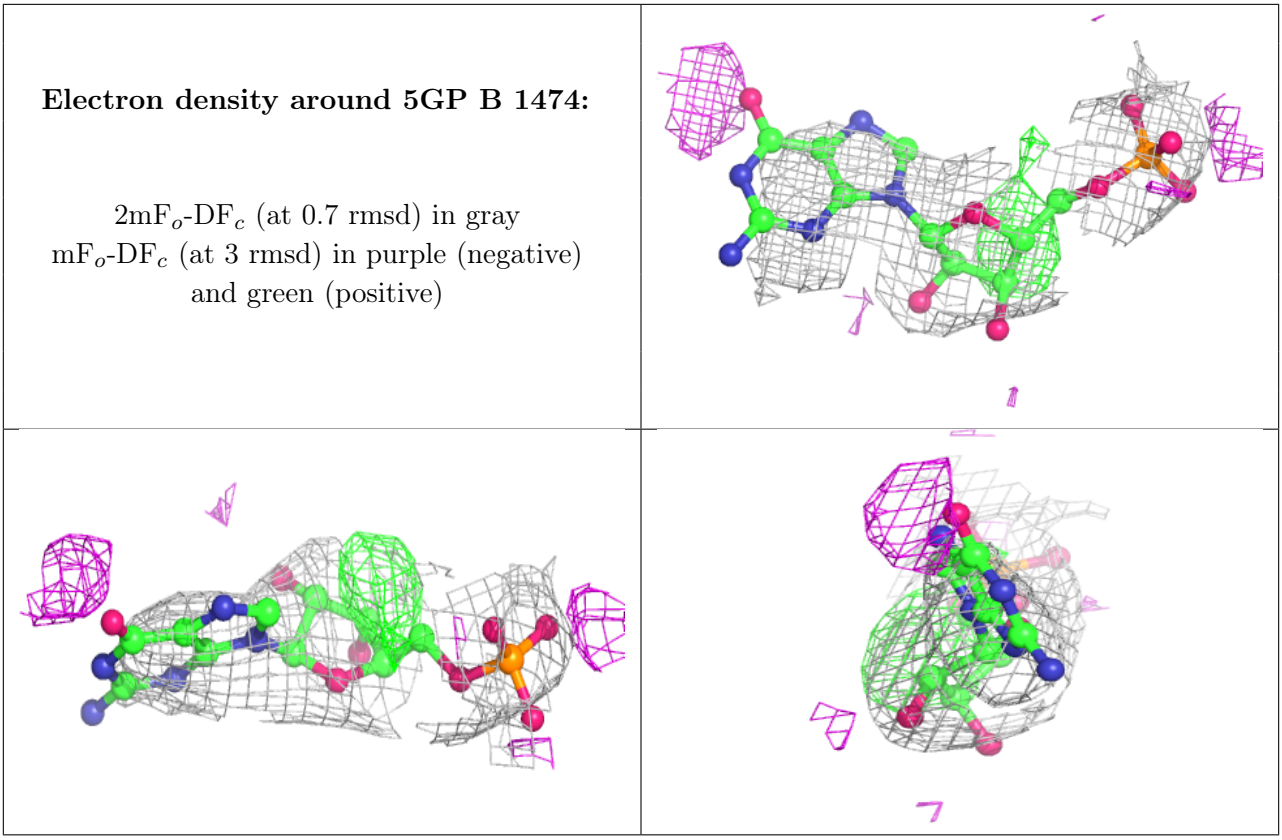
median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	SO4	C	1474	5/5	0.78	0.12	125,199,203,260	5
4	SO4	B	1472	5/5	0.84	0.12	87,206,279,300	0
4	SO4	B	1471	5/5	0.85	0.12	158,172,218,237	0
6	5GP	B	1474	24/24	0.86	0.18	188,232,246,253	0
4	SO4	C	1481	5/5	0.87	0.10	149,157,173,174	5
4	SO4	C	1473	5/5	0.90	0.06	104,155,184,219	5
4	SO4	C	1472	5/5	0.92	0.12	100,129,151,170	0
4	SO4	C	1471	5/5	0.94	0.10	84,115,131,161	0
5	DXC	C	1476	28/28	0.94	0.12	101,121,161,174	0
2	GDP	C	1469	28/28	0.94	0.10	62,99,125,141	28
5	DXC	B	1473	28/28	0.95	0.10	51,71,101,124	0
3	MG	C	1470	1/1	0.95	0.09	152,152,152,152	1
2	GDP	A	1469	28/28	0.95	0.08	78,92,105,106	28
2	GDP	B	1469	28/28	0.96	0.08	67,86,108,130	0
5	DXC	C	1479	28/28	0.96	0.10	48,73,147,183	28
5	DXC	C	1475	28/28	0.96	0.09	51,65,105,114	0
5	DXC	C	1478	28/28	0.97	0.08	60,83,113,138	0
3	MG	A	1470	1/1	0.97	0.05	147,147,147,147	1
5	DXC	C	1480	28/28	0.97	0.09	51,64,91,113	0
5	DXC	C	1477	28/28	0.97	0.08	52,78,126,165	0
3	MG	B	1470	1/1	1.00	0.04	106,106,106,106	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

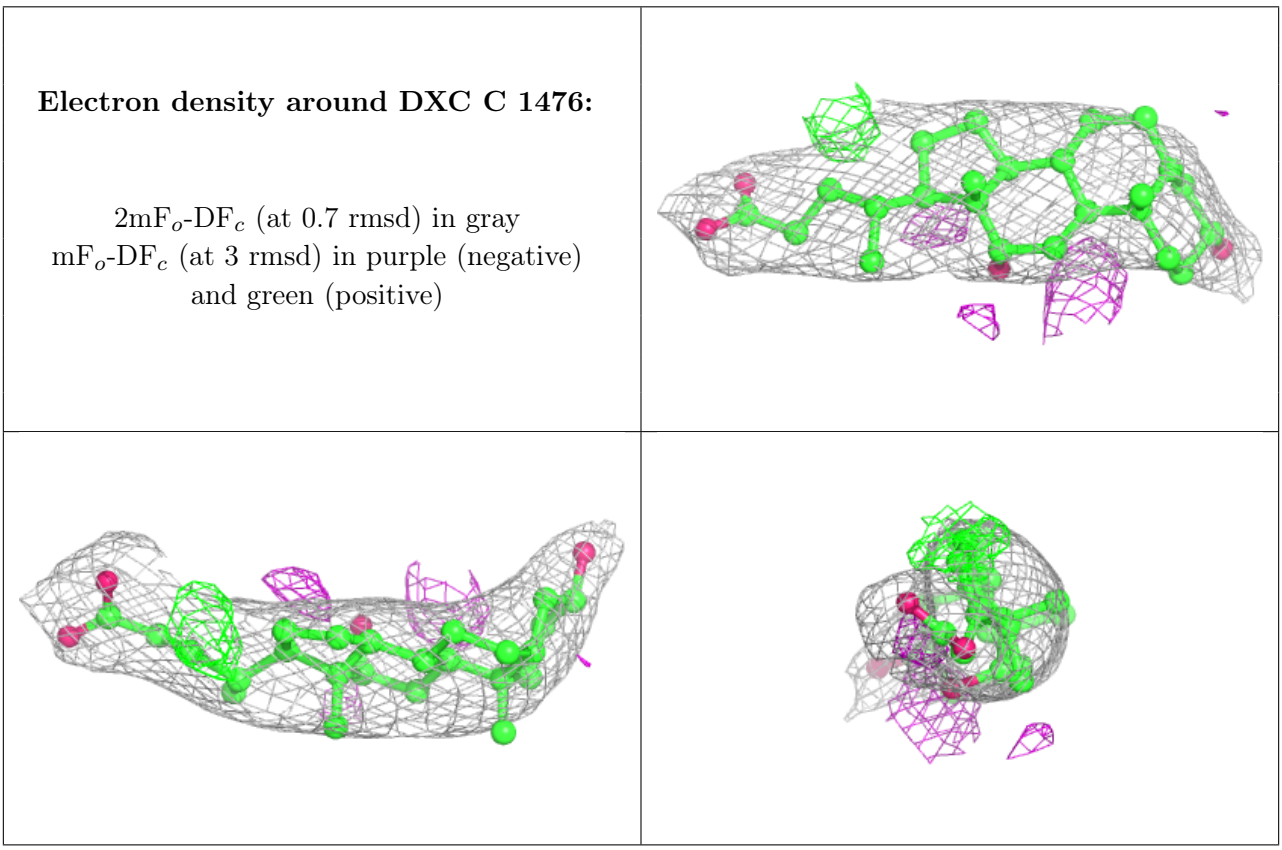
Electron density around 5GP B 1474:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



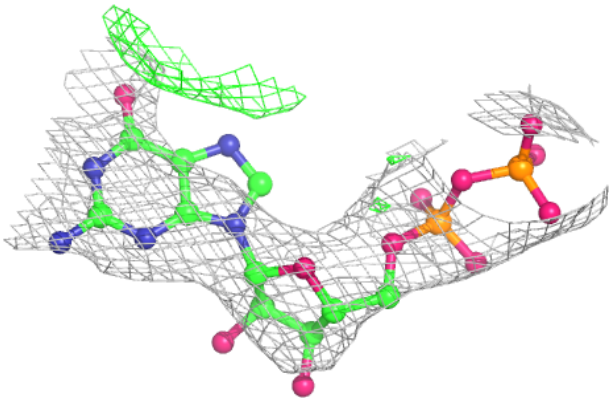
Electron density around DXC C 1476:

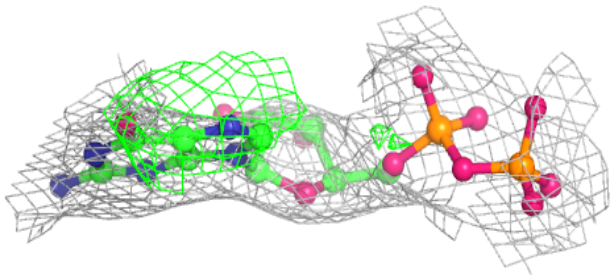
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

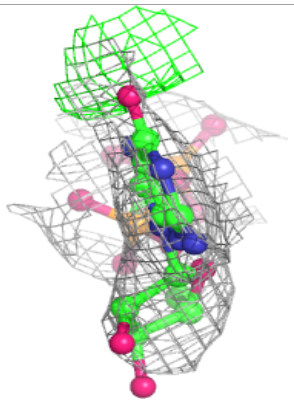


Electron density around GDP C 1469:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

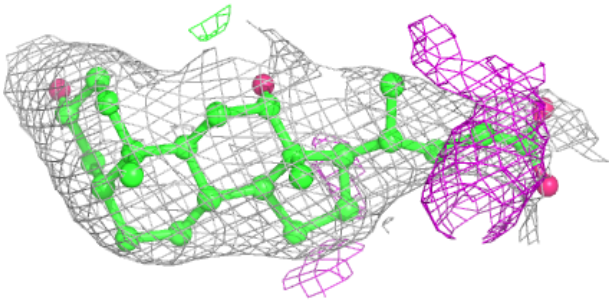


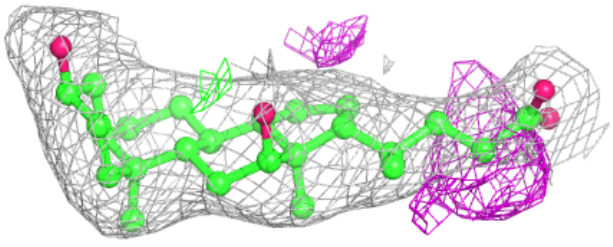


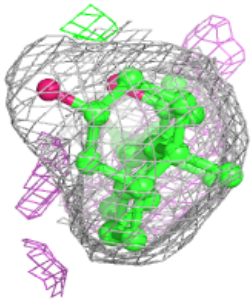


Electron density around DXC B 1473:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

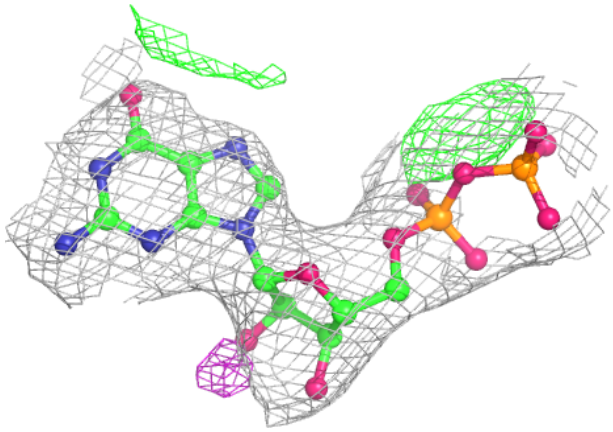


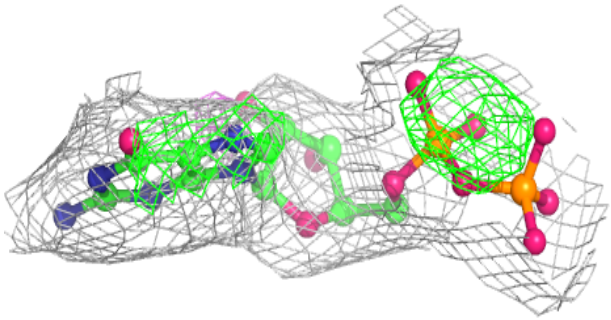


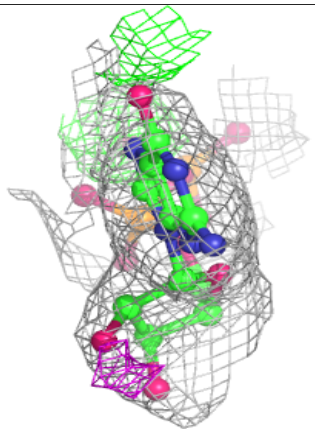


Electron density around GDP A 1469:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

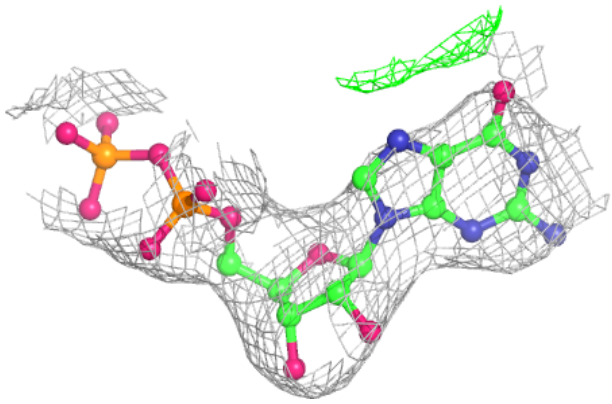


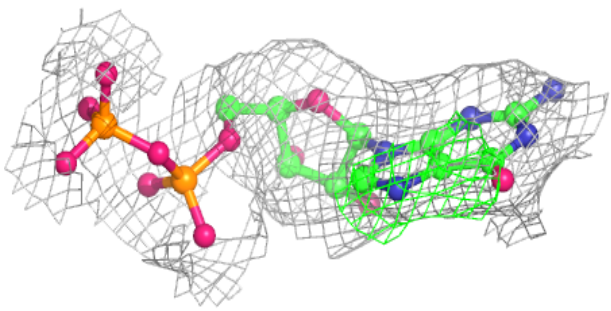


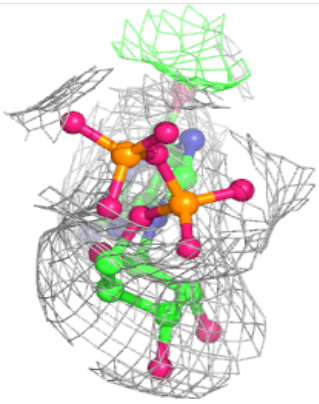


Electron density around GDP B 1469:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

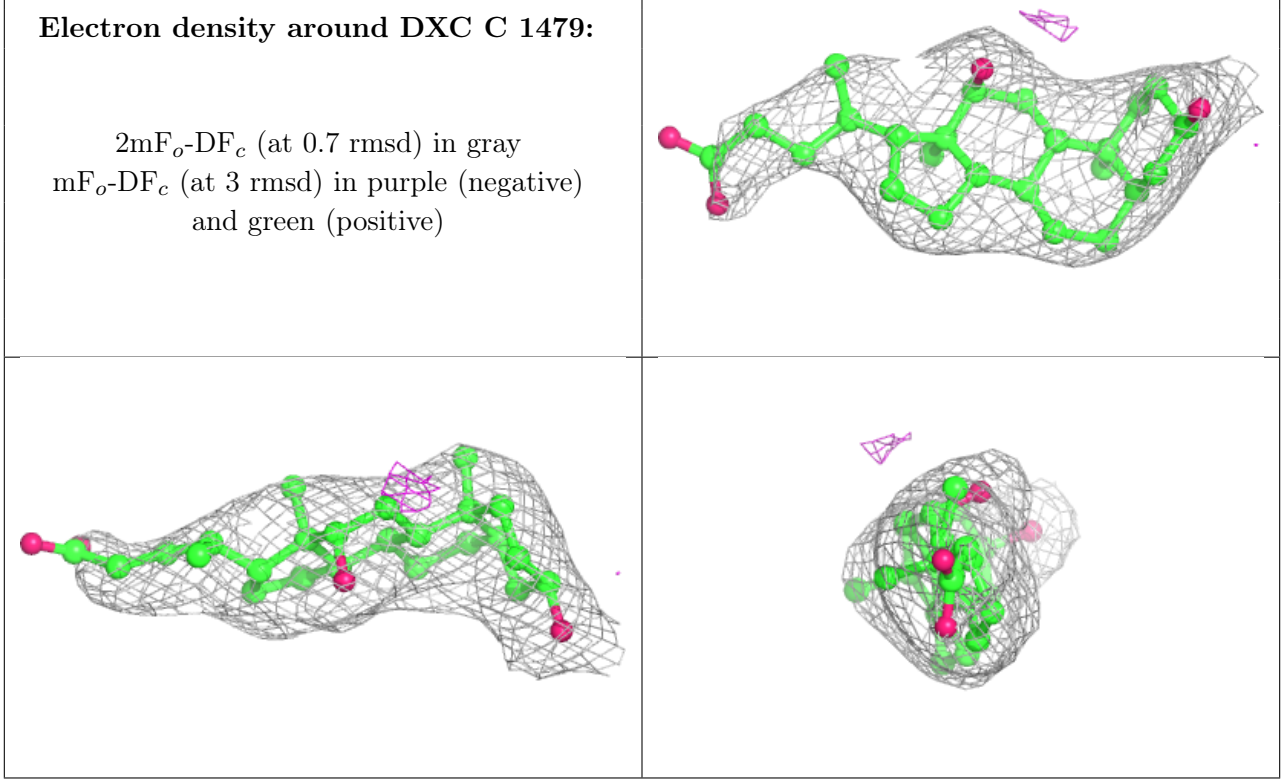






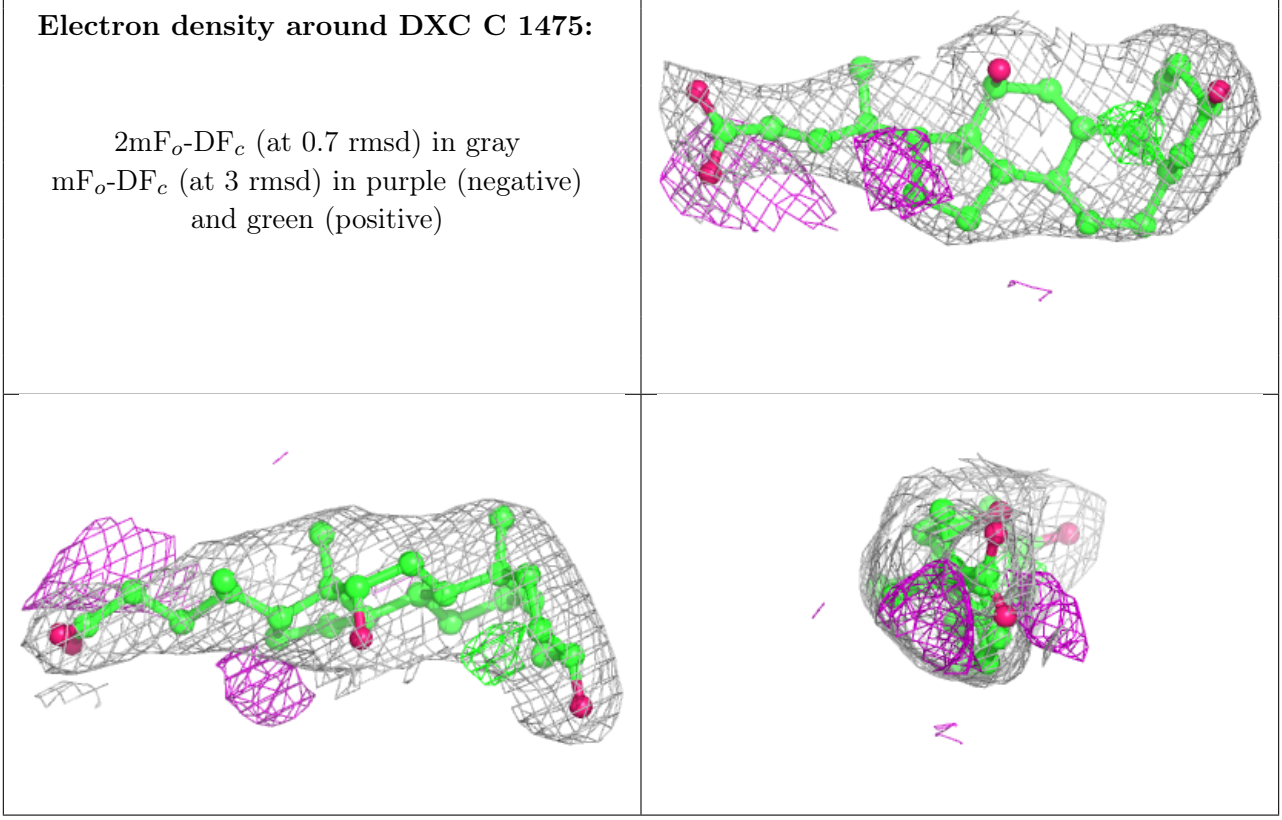
Electron density around DXC C 1479:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



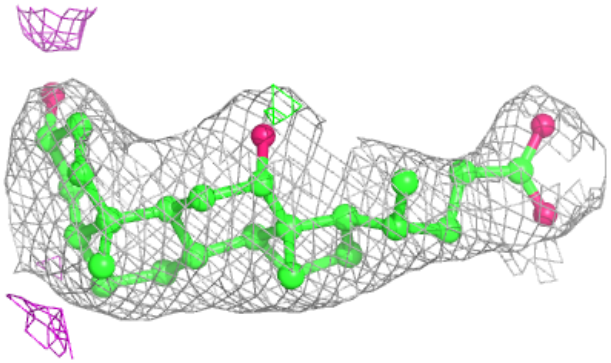
Electron density around DXC C 1475:

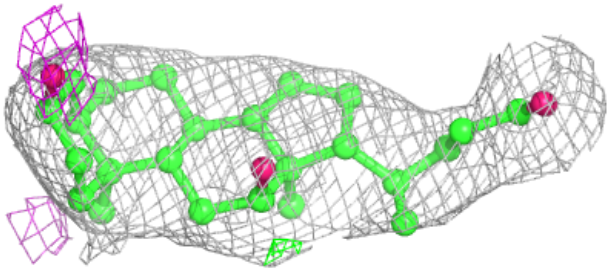
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

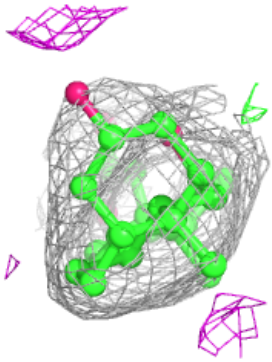


Electron density around DXC C 1478:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

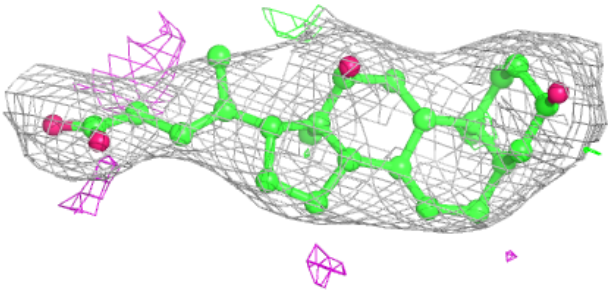


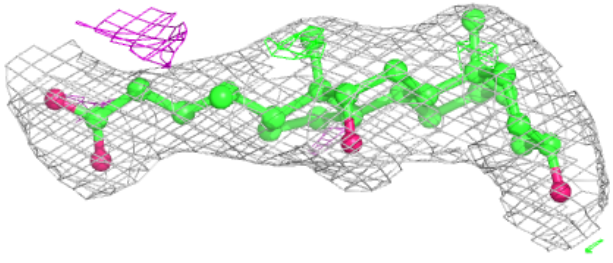


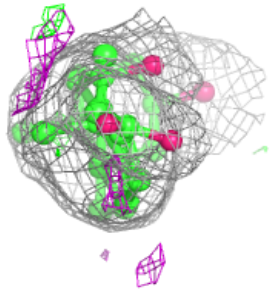


Electron density around DXC C 1480:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

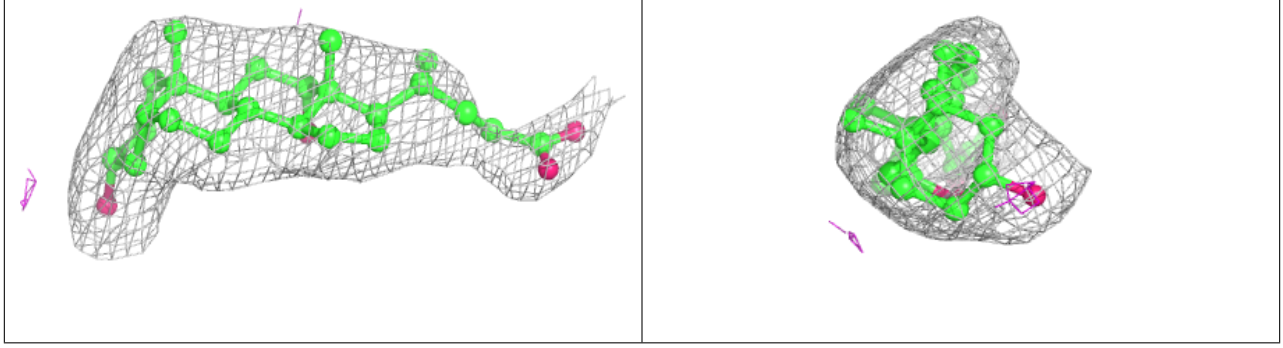






Electron density around DXC C 1477:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers (i)

There are no such residues in this entry.