



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 20, 2026 – 04:36 PM UTC

PDB ID : 1LVW / pdb\_00001lvw  
Title : Crystal structure of glucose-1-phosphate thymidyltransferase, RmlA, complex with dTDP  
Authors : Dong, A.; Christendat, D.; Pai, E.F.; Northeast Structural Genomics Consortium (NESG)  
Deposited on : 2002-05-29  
Resolution : 1.70 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<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>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

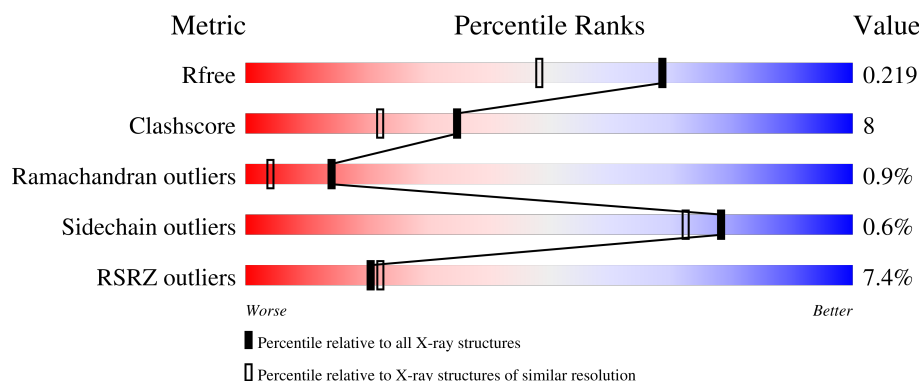
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.70 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))
$R_{free}$	180053	5551 (1.70-1.70)
Clashscore	190562	5924 (1.70-1.70)
Ramachandran outliers	187476	5846 (1.70-1.70)
Sidechain outliers	187428	5846 (1.70-1.70)
RSRZ outliers	180081	5554 (1.70-1.70)

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  $\geq 3$ , 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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	295	<div> <div>4%</div> <div>86%</div> <div>14%</div> </div>
1	B	295	<div> <div>5%</div> <div>82%</div> <div>16%</div> <div>..</div> </div>
1	C	295	<div> <div>6%</div> <div>79%</div> <div>18%</div> <div>..</div> </div>
1	D	295	<div> <div>14%</div> <div>78%</div> <div>19%</div> <div>..</div> </div>

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 10472 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 glucose-1-phosphate thymidyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	295	Total	C	N	O	S	0	7	0
			2392	1529	408	447	8			
1	B	292	Total	C	N	O	S	0	7	0
			2376	1521	402	444	9			
1	C	292	Total	C	N	O	S	0	4	0
			2341	1503	397	433	8			
1	D	291	Total	C	N	O	S	0	4	0
			2339	1499	396	436	8			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	cloning artifact	UNP O27819
A	-1	ALA	-	cloning artifact	UNP O27819
A	0	HIS	-	cloning artifact	UNP O27819
B	-2	GLY	-	cloning artifact	UNP O27819
B	-1	ALA	-	cloning artifact	UNP O27819
B	0	HIS	-	cloning artifact	UNP O27819
C	-2	GLY	-	cloning artifact	UNP O27819
C	-1	ALA	-	cloning artifact	UNP O27819
C	0	HIS	-	cloning artifact	UNP O27819
D	-2	GLY	-	cloning artifact	UNP O27819
D	-1	ALA	-	cloning artifact	UNP O27819
D	0	HIS	-	cloning artifact	UNP O27819

- Molecule 2 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

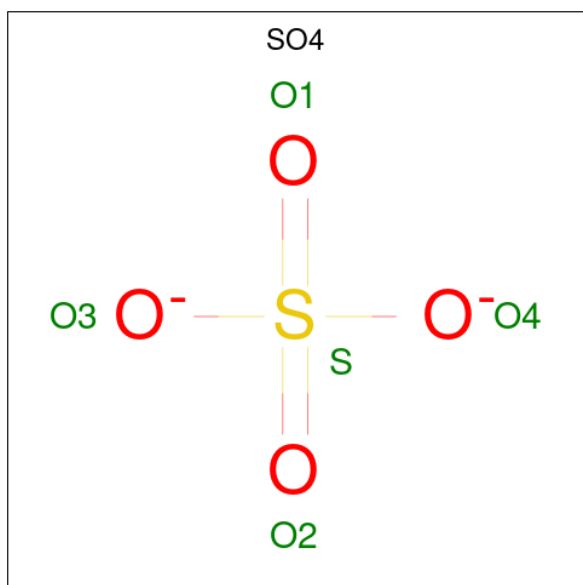
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Cl	0	0
			1	1		
2	B	1	Total	Cl	0	0
			1	1		

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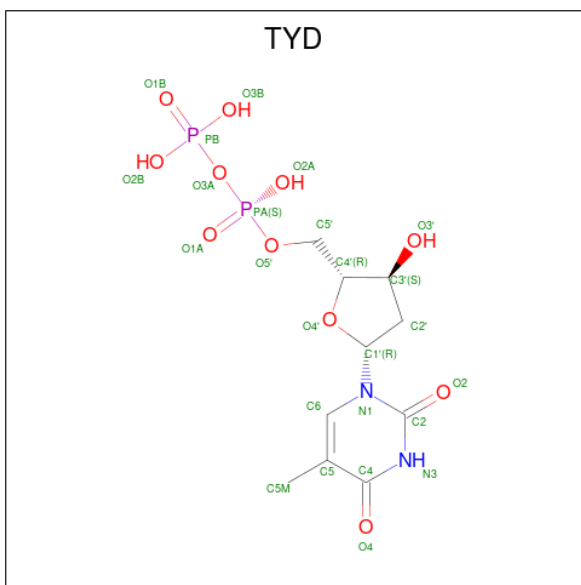
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	C	2	Total	Cl	0	0
			2	2		
2	D	1	Total	Cl	0	0
			1	1		

- Molecule 3 is SULFATE ION (CCD ID: SO4) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	D	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is THYMIDINE-5'-DIPHOSPHATE (CCD ID: TYD) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>11</sub>P<sub>2</sub>).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	A	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	B	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	B	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	C	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	C	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	D	1	Total 25	C 10	N 2	O 11	P 2	0	0
4	D	1	Total 25	C 10	N 2	O 11	P 2	0	0

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula:  $\text{C}_3\text{H}_8\text{O}_3$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			6	3	3		
5	A	1	Total	C	O	0	0
			6	3	3		
5	A	1	Total	C	O	0	0
			6	3	3		
5	B	1	Total	C	O	0	0
			6	3	3		
5	B	1	Total	C	O	0	0
			6	3	3		
5	B	1	Total	C	O	0	0
			6	3	3		
5	C	1	Total	C	O	0	0
			6	3	3		
5	C	1	Total	C	O	0	0
			6	3	3		
5	C	1	Total	C	O	0	0
			6	3	3		
5	D	1	Total	C	O	0	0
			6	3	3		
5	D	1	Total	C	O	0	0
			6	3	3		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	221	Total	O	0	0
			221	221		

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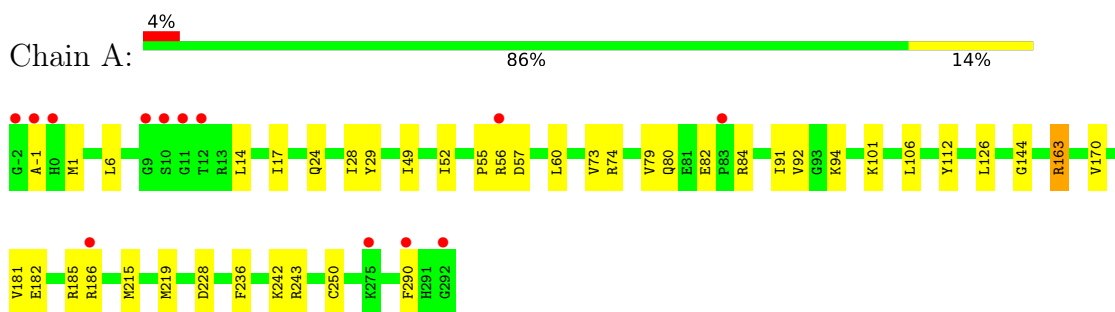
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	B	218	Total 218	O 218	0	0
6	C	175	Total 175	O 175	0	0
6	D	129	Total 129	O 129	0	0

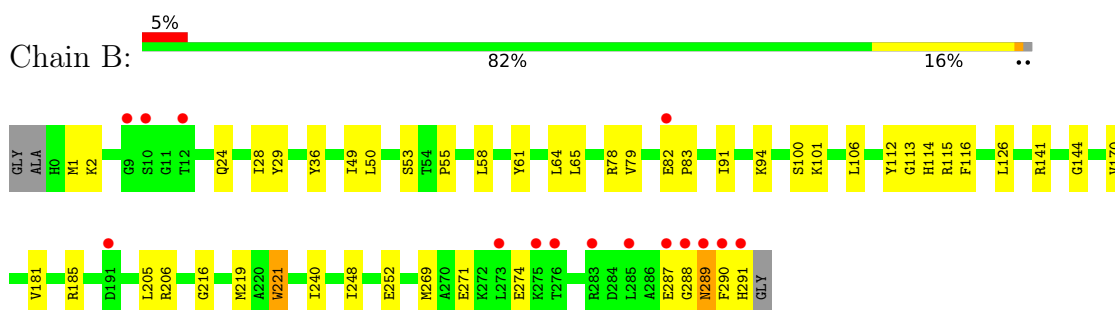
### 3 Residue-property plots [i](#)

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.

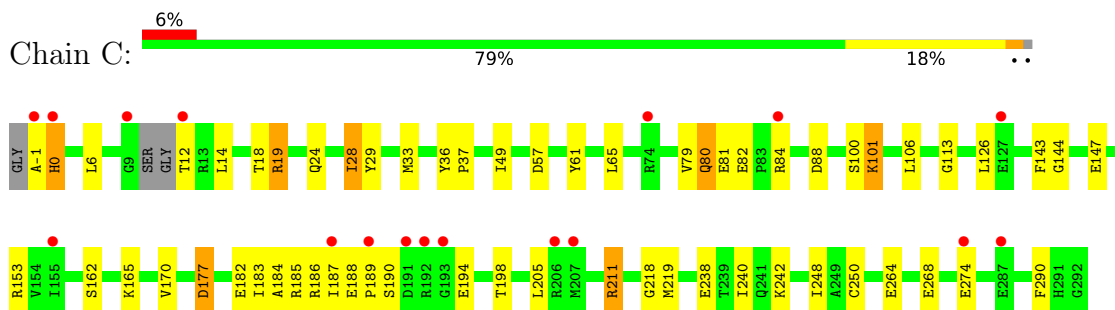
- Molecule 1: glucose-1-phosphate thymidyltransferase



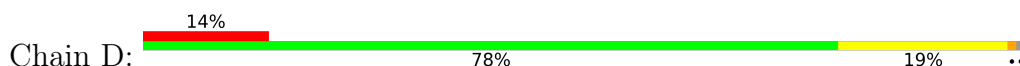
- Molecule 1: glucose-1-phosphate thymidyltransferase

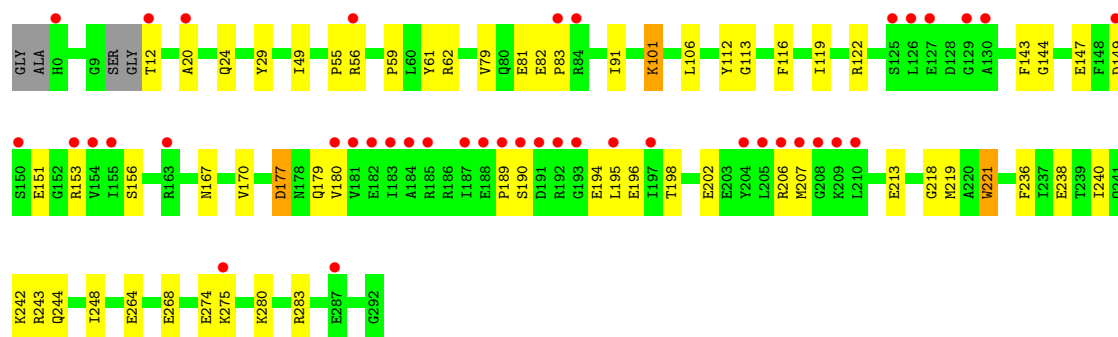


- Molecule 1: glucose-1-phosphate thymidyltransferase



- Molecule 1: glucose-1-phosphate thymidyltransferase





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	112.68Å 115.88Å 116.91Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	31.52 – 1.70 31.52 – 1.70	Depositor EDS
% Data completeness (in resolution range)	95.9 (31.52-1.70) 95.9 (31.52-1.70)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.05	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.34 (at 1.70Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, $R_{free}$	0.187 , 0.215 0.193 , 0.219	Depositor DCC
$R_{free}$ test set	8072 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	15.4	Xtriage
Anisotropy	0.096	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.39 , 43.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.015 for -h,l,k 0.016 for -l,-k,-h 0.015 for k,h,-l 0.003 for k,l,h 0.003 for l,h,k	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	10472	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.09% of the height of the origin peak. No significant pseudotranslation is detected.*

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

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, TYD, CL, GOL

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	0.65	0/2442	1.01	9/3299 (0.3%)
1	B	0.66	1/2425 (0.0%)	1.00	11/3275 (0.3%)
1	C	0.64	0/2389	1.00	14/3228 (0.4%)
1	D	0.58	0/2387	0.99	9/3224 (0.3%)
All	All	0.63	1/9643 (0.0%)	1.00	43/13026 (0.3%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	269	MET	SD-CE	5.22	1.92	1.79

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	91	ILE	N-CA-C	-9.88	101.75	110.74
1	B	170	VAL	N-CA-C	8.86	115.62	107.56
1	C	101	LYS	N-CA-C	-8.56	99.49	110.53
1	C	170	VAL	N-CA-C	7.85	114.70	107.56
1	D	101	LYS	N-CA-C	-7.51	100.41	110.55
1	A	170	VAL	N-CA-C	7.18	114.09	107.56
1	A	101	LYS	N-CA-C	-6.87	101.27	110.55
1	B	101	LYS	N-CA-C	-6.85	101.70	110.53
1	D	170	VAL	N-CA-C	6.75	113.70	107.56
1	B	144	GLY	N-CA-C	-6.73	98.18	111.31
1	A	91[A]	ILE	N-CA-C	-6.54	105.36	111.45
1	A	91[B]	ILE	N-CA-C	-6.54	105.36	111.45
1	C	144	GLY	N-CA-C	-6.43	99.83	111.15
1	B	91	ILE	N-CA-C	-6.37	105.53	111.45
1	D	49	ILE	N-CA-C	6.06	117.49	108.46
1	A	144	GLY	N-CA-C	-6.05	100.50	111.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	250	CYS	N-CA-C	-5.97	99.42	108.67
1	A	84	ARG	N-CA-C	5.88	120.30	113.18
1	C	28	ILE	N-CA-C	-5.79	98.37	106.53
1	C	143	PHE	N-CA-C	5.69	117.88	109.69
1	B	287	GLU	N-CA-C	-5.63	106.27	113.02
1	D	177	ASP	N-CA-C	-5.55	102.55	110.59
1	D	144	GLY	N-CA-C	-5.48	101.50	111.15
1	C	65	LEU	N-CA-C	5.46	120.22	113.50
1	C	274	GLU	N-CA-C	5.46	120.38	111.37
1	B	288	GLY	N-CA-C	5.37	121.08	114.69
1	C	162	SER	N-CA-C	-5.37	106.23	112.89
1	A	49	ILE	N-CA-C	5.32	115.56	108.11
1	A	28	ILE	N-CA-C	-5.29	99.07	106.53
1	B	49	ILE	N-CA-C	5.28	115.73	108.12
1	C	100	SER	N-CA-C	5.28	117.68	110.55
1	C	250	CYS	N-CA-C	-5.25	99.20	108.23
1	C	80	GLN	N-CA-C	-5.24	97.17	107.69
1	C	57	ASP	N-CA-C	5.23	119.93	113.50
1	B	216	GLY	N-CA-C	5.20	120.58	112.31
1	C	177	ASP	N-CA-C	-5.20	103.18	110.35
1	C	49	ILE	N-CA-C	5.19	115.95	108.48
1	D	213	GLU	N-CA-C	-5.12	101.34	109.59
1	B	141	ARG	N-CA-C	5.12	121.13	109.81
1	B	65	LEU	N-CA-C	5.06	119.53	112.90
1	B	221	TRP	N-CA-C	-5.04	99.05	108.02
1	D	180	VAL	N-CA-C	5.01	117.32	111.05
1	D	221	TRP	N-CA-C	-5.01	99.25	108.02

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	2392	0	2367	33	0
1	B	2376	0	2359	38	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2341	0	2324	40	0
1	D	2339	0	2311	44	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	2	0	0	1	0
2	D	1	0	0	1	0
3	A	5	0	0	0	0
3	D	5	0	0	0	0
4	A	50	0	26	3	0
4	B	50	0	26	2	0
4	C	50	0	26	2	0
4	D	50	0	26	3	0
5	A	18	0	24	0	0
5	B	18	0	24	1	0
5	C	18	0	24	0	0
5	D	12	0	16	2	0
6	A	221	0	0	0	0
6	B	218	0	0	2	0
6	C	175	0	0	1	0
6	D	129	0	0	2	0
All	All	10472	0	9553	145	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 8.

All (145) 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:B:82:GLU:HG3	1:B:83:PRO:HD2	1.31	1.07
1:B:82:GLU:HG3	1:B:83:PRO:CD	2.12	0.80
1:C:19:ARG:HH11	1:C:19:ARG:CG	1.93	0.80
1:C:12:THR:HG22	1:C:14:LEU:H	1.45	0.80
1:B:55:PRO:HG3	1:B:79:VAL:HG11	1.65	0.77
1:D:280:LYS:HE3	1:D:283:ARG:HH22	1.52	0.73
1:A:236:PHE:HE1	1:C:240:ILE:HD11	1.54	0.73
1:B:94:LYS:HE3	1:B:185:ARG:NH2	2.03	0.73
1:A:182:GLU:HG3	1:A:186:ARG:NH1	2.06	0.71
1:B:94:LYS:HE3	1:B:185:ARG:HH22	1.56	0.70
1:C:81:GLU:HB2	1:C:84:ARG:HH21	1.56	0.70
1:A:242:LYS:CE	1:A:243:ARG:HH12	2.06	0.69
1:B:78:ARG:HH11	1:B:78:ARG:HB3	1.58	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:291:HIS:HB2	1:D:167:ASN:OD1	1.93	0.68
1:B:78:ARG:HB3	1:B:78:ARG:NH1	2.09	0.67
1:A:182:GLU:HG3	1:A:186:ARG:CZ	2.24	0.67
1:C:198:THR:HG22	2:C:4003:CL:CL	2.32	0.67
1:D:20:ALA:C	1:D:56:ARG:HH12	2.03	0.66
1:A:163:ARG:HH11	1:A:163:ARG:HB3	1.61	0.65
1:D:280:LYS:HG3	1:D:283:ARG:NH2	2.11	0.64
1:C:190:SER:OG	1:C:194:GLU:HG2	1.98	0.64
1:C:153:ARG:HB2	1:C:211:ARG:NH2	2.13	0.63
1:B:113:GLY:HA3	1:B:219[A]:MET:HE3	1.82	0.61
1:C:147:GLU:OE1	1:C:165:LYS:HD3	2.02	0.60
1:C:19:ARG:HH11	1:C:19:ARG:HG3	1.65	0.60
1:A:242:LYS:HE2	1:A:243:ARG:HH12	1.66	0.60
1:A:73:VAL:C	1:A:74:ARG:HD3	2.27	0.60
1:B:55:PRO:HG3	1:B:79:VAL:CG1	2.31	0.60
5:B:2011:GOL:H11	1:D:221:TRP:O	2.01	0.59
1:B:113:GLY:HA3	1:B:219[A]:MET:CE	2.32	0.59
1:C:240:ILE:HG21	1:C:248[B]:ILE:HD11	1.83	0.59
1:D:143:PHE:HE1	5:D:2006:GOL:H32	1.68	0.59
1:C:19:ARG:HH11	1:C:19:ARG:HG2	1.66	0.58
1:B:94:LYS:HG3	1:B:181:VAL:HG11	1.86	0.58
1:C:-1:ALA:O	1:C:0:HIS:O	2.20	0.58
1:A:56:ARG:HH12	1:A:60:LEU:HD11	1.67	0.58
1:D:280:LYS:HE3	1:D:283:ARG:NH2	2.18	0.58
1:B:113:GLY:HA3	1:B:219[B]:MET:SD	2.44	0.58
1:B:206:ARG:NE	6:B:1671:HOH:O	2.36	0.58
1:A:106:LEU:HB3	4:A:3001:TYD:H4'	1.86	0.57
1:C:101:LYS:HG2	1:C:177:ASP:HA	1.86	0.57
1:B:252:GLU:HG2	6:B:1430:HOH:O	2.04	0.57
1:D:198:THR:HG22	2:D:4004:CL:CL	2.42	0.57
1:D:238[A]:GLU:OE2	1:D:242:LYS:HE3	2.06	0.56
1:D:190:SER:HB3	1:D:196:GLU:OE2	2.04	0.56
1:D:147:GLU:HB3	1:D:156:SER:HB3	1.86	0.56
1:A:74:ARG:HD3	1:A:74:ARG:N	2.20	0.55
1:D:112:TYR:CE2	1:D:240:ILE:HD13	2.42	0.55
1:D:143:PHE:CE1	5:D:2006:GOL:H32	2.42	0.54
1:A:185:ARG:HB3	1:A:185:ARG:NH1	2.22	0.54
1:D:149:ASP:OD2	1:D:153:ARG:HB3	2.08	0.54
1:C:12:THR:HG21	1:C:18:THR:OG1	2.08	0.54
1:A:1:MET:HE1	1:A:126[A]:LEU:CD2	2.38	0.54
1:B:64:LEU:HA	1:C:19:ARG:HD3	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:84:ARG:HD2	1:C:88:ASP:OD2	2.09	0.53
1:B:112:TYR:OH	1:D:218:GLY:HA2	2.09	0.53
1:C:264:GLU:O	1:C:268:GLU:HG3	2.10	0.52
1:D:12:THR:N	6:D:1133:HOH:O	2.42	0.52
1:A:56:ARG:NH2	1:A:57:ASP:OD1	2.42	0.52
1:D:106:LEU:HB3	4:D:3007:TYD:H4'	1.92	0.52
1:B:116:PHE:HB2	1:B:219[A]:MET:HE1	1.93	0.51
1:B:24:GLN:HB2	1:B:61:TYR:OH	2.09	0.51
1:A:215:MET:HE3	1:A:219:MET:HE2	1.93	0.51
1:C:113:GLY:HA3	1:C:219:MET:SD	2.51	0.51
1:D:206:ARG:O	1:D:206:ARG:HG3	2.11	0.51
1:A:112:TYR:OH	1:C:218:GLY:HA2	2.11	0.51
1:D:113:GLY:HA3	1:D:219:MET:SD	2.51	0.50
1:A:55:PRO:HG3	1:A:79:VAL:HG11	1.93	0.50
1:C:182:GLU:OE2	1:C:185:ARG:NE	2.45	0.50
1:D:244:GLN:HB3	6:D:1059:HOH:O	2.10	0.50
1:D:240:ILE:HG21	1:D:248[A]:ILE:HD11	1.93	0.49
1:B:94:LYS:CE	1:B:185:ARG:NH2	2.73	0.49
1:C:19:ARG:HG3	1:C:19:ARG:NH1	2.27	0.49
1:B:106:LEU:HD13	4:B:3003:TYD:H5'1	1.94	0.49
1:C:81:GLU:H	1:C:84:ARG:NH2	2.10	0.49
1:A:182:GLU:CG	1:A:186:ARG:CZ	2.91	0.48
1:A:55:PRO:HG3	1:A:79:VAL:CG1	2.43	0.48
1:D:119:ILE:HG22	1:D:122:ARG:NH2	2.28	0.48
1:B:289:ASN:O	1:B:290:PHE:HB2	2.13	0.48
1:A:80:GLN:HG2	1:A:82:GLU:O	2.14	0.48
1:B:53[A]:SER:OG	1:B:58:LEU:CD1	2.62	0.48
1:B:106:LEU:HB3	4:B:3003:TYD:H4'	1.96	0.47
1:D:106:LEU:HD13	4:D:3007:TYD:H5'1	1.95	0.47
1:D:81:GLU:C	1:D:82:GLU:HG3	2.39	0.47
1:A:182:GLU:CG	1:A:186:ARG:NH2	2.77	0.47
1:A:242:LYS:HE2	1:A:243:ARG:HH22	1.79	0.47
1:B:271:GLU:O	1:B:274:GLU:HG2	2.15	0.47
1:B:221:TRP:O	1:D:243[B]:ARG:HG2	2.15	0.46
1:D:59:PRO:HA	1:D:62:ARG:HD2	1.98	0.46
1:C:211:ARG:HD3	6:C:1477:HOH:O	2.16	0.46
1:D:236:PHE:CZ	1:D:240:ILE:HD11	2.50	0.46
1:C:12:THR:HG22	1:C:14:LEU:N	2.23	0.45
1:B:1:MET:HE1	1:B:126[A]:LEU:CD2	2.47	0.45
1:D:198:THR:O	1:D:202:GLU:HG2	2.17	0.45
1:C:6:LEU:HG	4:C:3005:TYD:C2	2.47	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:106:LEU:HB3	4:C:3005:TYD:H4'	1.99	0.45
1:D:116:PHE:CD1	1:D:219:MET:HE1	2.51	0.45
1:C:238:GLU:OE2	1:C:242:LYS:HE3	2.16	0.44
1:A:163:ARG:HH11	1:A:163:ARG:CB	2.28	0.44
1:A:228[B]:ASP:OD1	1:D:238[B]:GLU:OE2	2.34	0.44
1:B:112:TYR:CZ	1:D:218:GLY:HA2	2.53	0.44
1:C:82:GLU:O	1:C:84:ARG:HG3	2.18	0.44
1:C:183:ILE:O	1:C:187:ILE:HG23	2.16	0.44
1:C:79[A]:VAL:CG1	1:C:80:GLN:N	2.79	0.44
1:B:78:ARG:HH11	1:B:78:ARG:CB	2.29	0.44
1:D:106:LEU:HD13	4:D:3007:TYD:C5'	2.47	0.44
1:B:114:HIS:CD2	1:B:115:ARG:HG3	2.53	0.43
1:C:205:LEU:C	1:C:205:LEU:HD23	2.44	0.43
1:D:24:GLN:HB2	1:D:61:TYR:OH	2.18	0.43
1:C:24:GLN:HB2	1:C:61:TYR:OH	2.19	0.43
1:D:55:PRO:HG3	1:D:79:VAL:HG21	2.00	0.43
1:A:112:TYR:CZ	1:C:218:GLY:HA2	2.54	0.43
1:D:149:ASP:OD1	1:D:149:ASP:C	2.61	0.43
1:B:53[A]:SER:OG	1:B:58:LEU:HD13	2.18	0.43
1:D:177:ASP:OD1	1:D:179:GLN:HB2	2.18	0.43
1:B:240:ILE:HG21	1:B:248:ILE:HD11	2.02	0.42
1:D:81:GLU:O	1:D:82:GLU:HG3	2.20	0.42
1:A:106:LEU:HD13	4:A:3001:TYD:C5'	2.50	0.42
1:A:14:LEU:O	1:A:17:ILE:HG12	2.20	0.42
1:B:50:LEU:HD11	1:B:78:ARG:HG2	2.01	0.42
1:D:202:GLU:O	1:D:206:ARG:HG2	2.20	0.41
1:C:33:MET:O	1:C:37:PRO:HD2	2.20	0.41
1:C:184:ALA:O	1:C:187:ILE:HG12	2.20	0.41
1:A:56:ARG:HH12	1:A:60:LEU:CD1	2.32	0.41
1:A:163:ARG:HH11	1:A:163:ARG:CG	2.33	0.41
1:B:2[A]:LYS:HE3	1:B:100:SER:OG	2.19	0.41
1:C:126:LEU:C	1:C:126:LEU:HD12	2.45	0.41
1:D:149:ASP:OD1	1:D:151:GLU:N	2.50	0.41
1:A:1:MET:CE	1:A:126[A]:LEU:HD21	2.50	0.41
1:B:205:LEU:C	1:B:205:LEU:HD23	2.46	0.41
1:B:64:LEU:HD12	1:C:19:ARG:HD3	2.03	0.41
1:D:274:GLU:O	1:D:275:LYS:CB	2.68	0.41
1:A:6:LEU:HG	4:A:3001:TYD:O2	2.21	0.41
1:A:52:ILE:HD13	1:A:92[B]:VAL:CG2	2.51	0.41
1:C:182:GLU:HG3	1:C:186:ARG:CZ	2.51	0.41
1:D:101:LYS:HG2	1:D:177:ASP:HA	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:28:ILE:HB	1:B:36:TYR:CE1	2.57	0.40
1:C:188:GLU:HA	1:C:189:PRO:HD3	1.94	0.40
1:D:190:SER:OG	1:D:194:GLU:HB2	2.21	0.40
1:A:94:LYS:HG3	1:A:181:VAL:HG11	2.03	0.40
1:B:289:ASN:HD22	1:B:289:ASN:HA	1.61	0.40
1:A:185:ARG:HH11	1:A:185:ARG:CB	2.35	0.40
1:C:28:ILE:HB	1:C:36:TYR:CE1	2.56	0.40
1:D:82:GLU:HA	1:D:83:PRO:HD3	1.91	0.40
1:D:264:GLU:OE2	1:D:268:GLU:HG3	2.22	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	300/295 (102%)	294 (98%)	3 (1%)	3 (1%)	12	3
1	B	297/295 (101%)	290 (98%)	6 (2%)	1 (0%)	36	22
1	C	292/295 (99%)	283 (97%)	6 (2%)	3 (1%)	12	3
1	D	291/295 (99%)	281 (97%)	7 (2%)	3 (1%)	12	3
All	All	1180/1180 (100%)	1148 (97%)	22 (2%)	10 (1%)	14	5

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	0	HIS
1	D	207	MET
1	A	-1	ALA
1	D	29	TYR
1	A	290	PHE
1	B	29	TYR

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Mol	Chain	Res	Type
1	C	29	TYR
1	A	29	TYR
1	C	290	PHE
1	D	189	PRO

### 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	252/248 (102%)	250 (99%)	2 (1%)	73	65
1	B	252/248 (102%)	251 (100%)	1 (0%)	84	80
1	C	245/248 (99%)	243 (99%)	2 (1%)	73	65
1	D	245/248 (99%)	244 (100%)	1 (0%)	84	80
All	All	994/992 (100%)	988 (99%)	6 (1%)	78	72

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	24	GLN
1	A	163	ARG
1	B	289	ASN
1	C	19	ARG
1	C	211	ARG
1	D	195	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	24	GLN
1	B	289	ASN
1	C	24	GLN
1	D	24	GLN
1	D	178	ASN
1	D	201	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

Of 26 ligands modelled in this entry, 5 are monoatomic - leaving 21 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$
5	GOL	A	2007	-	5,5,5	0.31	0	5,5,5	0.32	0
5	GOL	A	2009	-	5,5,5	0.37	0	5,5,5	0.32	0
3	SO4	A	5001	-	4,4,4	0.41	0	6,6,6	0.14	0
4	TYD	C	3005	-	25,26,26	1.51	7 (28%)	38,40,40	1.06	2 (5%)
4	TYD	A	3002	-	25,26,26	1.78	4 (16%)	38,40,40	1.05	2 (5%)
4	TYD	A	3001	-	25,26,26	1.48	6 (24%)	38,40,40	0.90	2 (5%)
4	TYD	B	3003	-	25,26,26	1.47	4 (16%)	38,40,40	1.04	1 (2%)
4	TYD	D	3008	-	25,26,26	1.67	5 (20%)	38,40,40	0.81	0
5	GOL	B	2002	-	5,5,5	0.39	0	5,5,5	0.22	0
4	TYD	D	3007	-	25,26,26	1.53	7 (28%)	38,40,40	1.03	4 (10%)
4	TYD	C	3006	-	25,26,26	1.46	4 (16%)	38,40,40	0.91	1 (2%)
3	SO4	D	5002	-	4,4,4	0.48	0	6,6,6	0.33	0
5	GOL	B	2008	-	5,5,5	0.46	0	5,5,5	0.21	0
5	GOL	A	2005	-	5,5,5	0.38	0	5,5,5	0.23	0
5	GOL	B	2011	-	5,5,5	0.16	0	5,5,5	0.27	0
5	GOL	C	2001	-	5,5,5	0.30	0	5,5,5	0.30	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	GOL	C	2003	-	5,5,5	0.37	0	5,5,5	0.28	0
5	GOL	C	2010	-	5,5,5	0.22	0	5,5,5	0.32	0
4	TYD	B	3004	-	25,26,26	2.07	5 (20%)	38,40,40	1.00	1 (2%)
5	GOL	D	2006	-	5,5,5	0.34	0	5,5,5	0.42	0
5	GOL	D	2004	-	5,5,5	0.27	0	5,5,5	0.22	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
5	GOL	A	2007	-	-	0/4/4/4	-
5	GOL	A	2009	-	-	2/4/4/4	-
4	TYD	C	3005	-	-	5/16/28/28	0/2/2/2
4	TYD	A	3002	-	-	0/16/28/28	0/2/2/2
4	TYD	A	3001	-	-	1/16/28/28	0/2/2/2
4	TYD	B	3003	-	-	2/16/28/28	0/2/2/2
4	TYD	D	3008	-	-	0/16/28/28	0/2/2/2
5	GOL	B	2002	-	-	0/4/4/4	-
4	TYD	D	3007	-	-	1/16/28/28	0/2/2/2
4	TYD	C	3006	-	-	1/16/28/28	0/2/2/2
5	GOL	B	2008	-	-	0/4/4/4	-
5	GOL	A	2005	-	-	0/4/4/4	-
5	GOL	B	2011	-	-	0/4/4/4	-
5	GOL	C	2001	-	-	0/4/4/4	-
5	GOL	C	2003	-	-	0/4/4/4	-
5	GOL	C	2010	-	-	0/4/4/4	-
4	TYD	B	3004	-	-	2/16/28/28	0/2/2/2
5	GOL	D	2006	-	-	0/4/4/4	-
5	GOL	D	2004	-	-	0/4/4/4	-

All (42) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	3004	TYD	PA-O3A	-8.14	1.50	1.59
4	A	3002	TYD	PA-O3A	-6.50	1.52	1.59
4	D	3008	TYD	PA-O3A	-5.67	1.53	1.59
4	B	3003	TYD	PA-O3A	-4.51	1.54	1.59
4	A	3001	TYD	PA-O3A	-4.39	1.54	1.59
4	C	3005	TYD	PA-O3A	-4.37	1.54	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	3007	TYD	PA-O3A	-3.86	1.55	1.59
4	C	3006	TYD	PA-O3A	-3.47	1.55	1.59
4	D	3008	TYD	PB-O1B	-2.80	1.41	1.50
4	B	3004	TYD	PB-O2B	-2.78	1.44	1.54
4	A	3002	TYD	PB-O1B	-2.78	1.41	1.50
4	B	3004	TYD	PB-O1B	-2.69	1.42	1.50
4	A	3002	TYD	PB-O2B	-2.67	1.44	1.54
4	C	3006	TYD	PB-O2B	-2.62	1.45	1.54
4	D	3007	TYD	PB-O3B	2.61	1.64	1.54
4	C	3006	TYD	PB-O1B	-2.59	1.42	1.50
4	D	3007	TYD	PB-O1B	-2.53	1.42	1.50
4	D	3007	TYD	O4-C4	-2.48	1.18	1.23
4	A	3001	TYD	PB-O3B	2.46	1.64	1.54
4	B	3004	TYD	PA-O2A	-2.46	1.44	1.55
4	D	3008	TYD	PA-O2A	-2.42	1.44	1.55
4	D	3008	TYD	PB-O2B	-2.39	1.45	1.54
4	C	3005	TYD	C6-N1	2.33	1.42	1.38
4	C	3006	TYD	PA-O2A	-2.32	1.44	1.55
4	B	3003	TYD	PB-O3B	2.32	1.63	1.54
4	A	3001	TYD	PB-O1B	-2.28	1.43	1.50
4	C	3005	TYD	PB-O3B	2.27	1.63	1.54
4	B	3004	TYD	PB-O3B	2.26	1.63	1.54
4	A	3001	TYD	C6-N1	2.26	1.41	1.38
4	C	3005	TYD	PB-O2B	-2.24	1.46	1.54
4	C	3005	TYD	O4-C4	-2.23	1.19	1.23
4	D	3007	TYD	PB-O2B	-2.23	1.46	1.54
4	A	3001	TYD	PA-O2A	-2.22	1.45	1.55
4	A	3001	TYD	PB-O2B	-2.21	1.46	1.54
4	D	3008	TYD	C6-N1	2.18	1.41	1.38
4	B	3003	TYD	PA-O2A	-2.13	1.45	1.55
4	D	3007	TYD	PA-O2A	-2.09	1.45	1.55
4	C	3005	TYD	PA-O2A	-2.07	1.45	1.55
4	A	3002	TYD	C6-N1	2.06	1.41	1.38
4	D	3007	TYD	C6-N1	2.04	1.41	1.38
4	B	3003	TYD	PB-O2B	-2.02	1.47	1.54
4	C	3005	TYD	PB-O1B	-2.01	1.44	1.50

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	3002	TYD	C5M-C5-C4	2.90	121.88	118.78
4	C	3005	TYD	C6-C5-C4	-2.49	115.97	118.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	3007	TYD	O2B-PB-O3A	2.47	112.93	104.64
4	B	3004	TYD	O2A-PA-O3A	-2.21	101.30	107.27
4	A	3001	TYD	O5'-C5'-C4'	2.19	116.46	108.99
4	D	3007	TYD	C5-C4-N3	2.16	117.20	115.32
4	B	3003	TYD	C6-C5-C4	-2.15	116.25	118.02
4	D	3007	TYD	C6-C5-C4	-2.13	116.27	118.02
4	C	3005	TYD	O2B-PB-O3A	2.12	111.74	104.64
4	A	3001	TYD	O2B-PB-O3A	2.06	111.55	104.64
4	A	3002	TYD	O2A-PA-O3A	-2.05	101.73	107.27
4	C	3006	TYD	O2B-PB-O3A	2.04	111.49	104.64
4	D	3007	TYD	O5'-C5'-C4'	2.00	115.81	108.99

There are no chirality outliers.

All (14) torsion outliers are listed below:

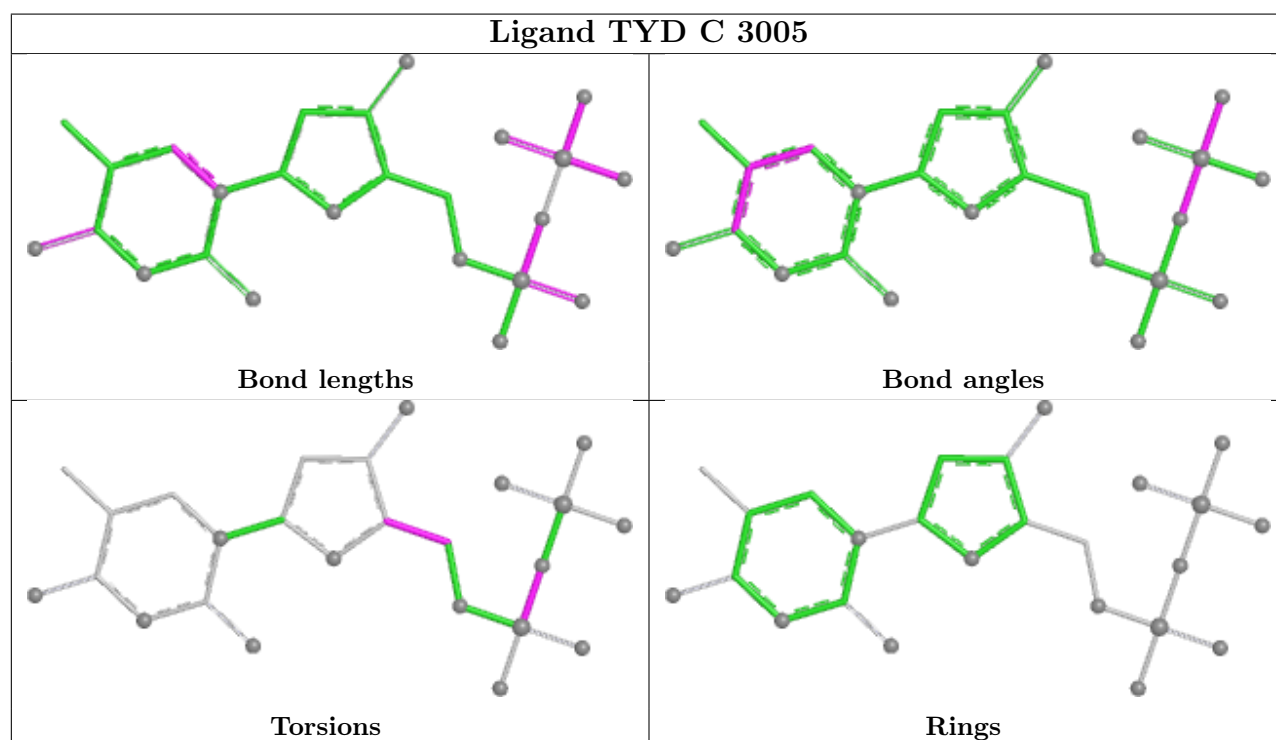
Mol	Chain	Res	Type	Atoms
5	A	2009	GOL	O2-C2-C3-O3
4	C	3005	TYD	O4'-C4'-C5'-O5'
4	A	3001	TYD	PB-O3A-PA-O5'
4	B	3003	TYD	PB-O3A-PA-O5'
4	C	3005	TYD	PB-O3A-PA-O5'
5	A	2009	GOL	C1-C2-C3-O3
4	C	3005	TYD	C3'-C4'-C5'-O5'
4	B	3004	TYD	PB-O3A-PA-O1A
4	D	3007	TYD	PA-O3A-PB-O1B
4	B	3004	TYD	PB-O3A-PA-O2A
4	B	3003	TYD	PB-O3A-PA-O2A
4	C	3005	TYD	PB-O3A-PA-O1A
4	C	3005	TYD	PB-O3A-PA-O2A
4	C	3006	TYD	PB-O3A-PA-O2A

There are no ring outliers.

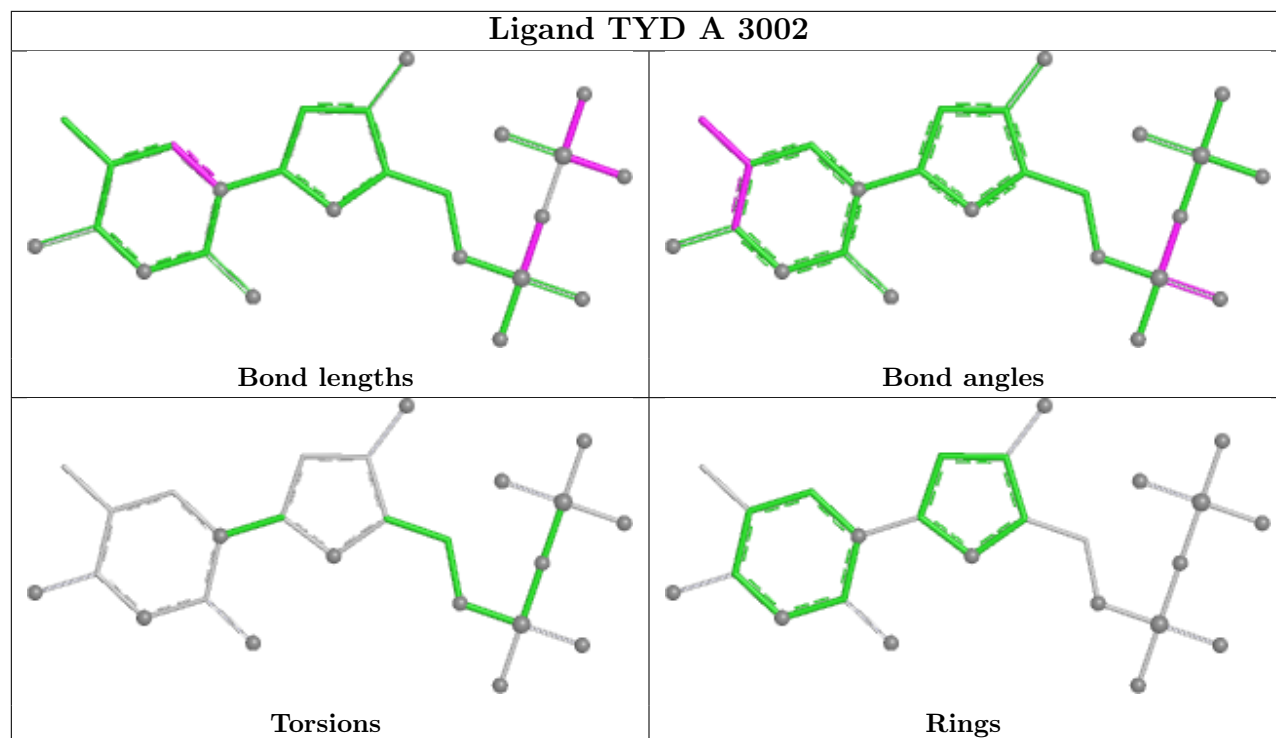
6 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	3005	TYD	2	0
4	A	3001	TYD	3	0
4	B	3003	TYD	2	0
4	D	3007	TYD	3	0
5	B	2011	GOL	1	0
5	D	2006	GOL	2	0

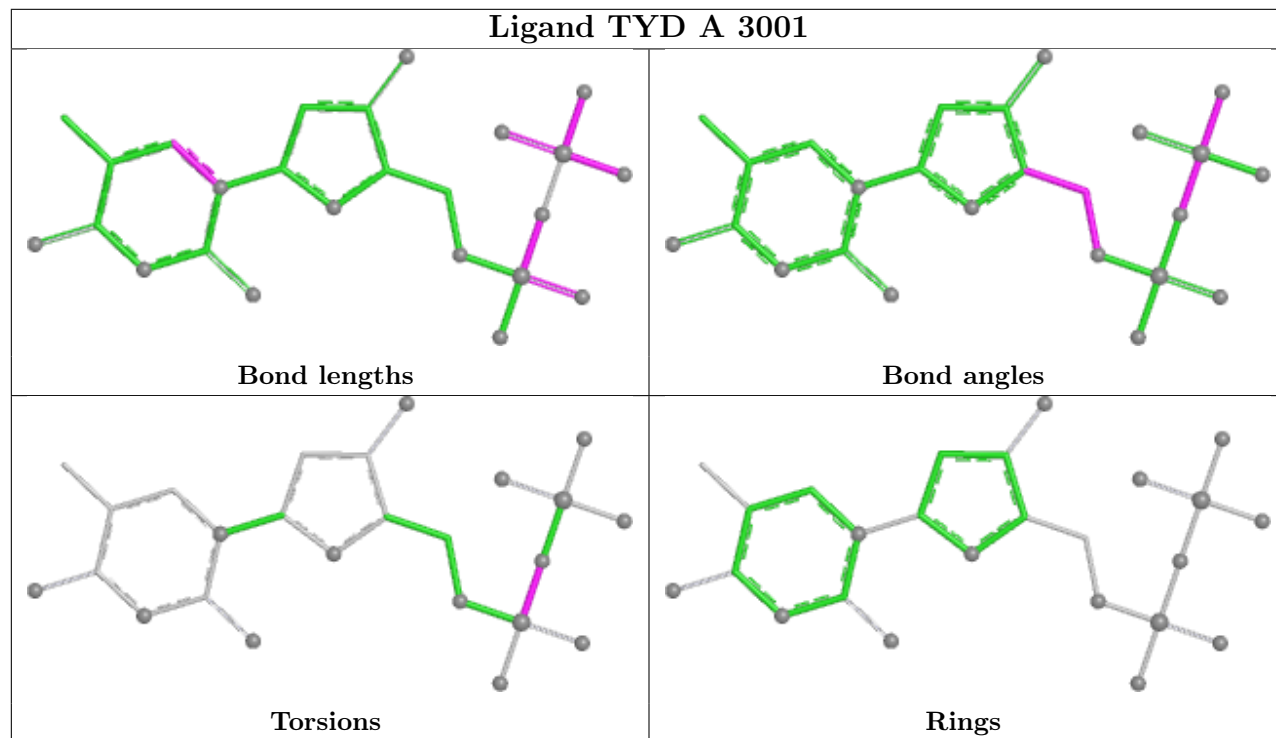
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 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.



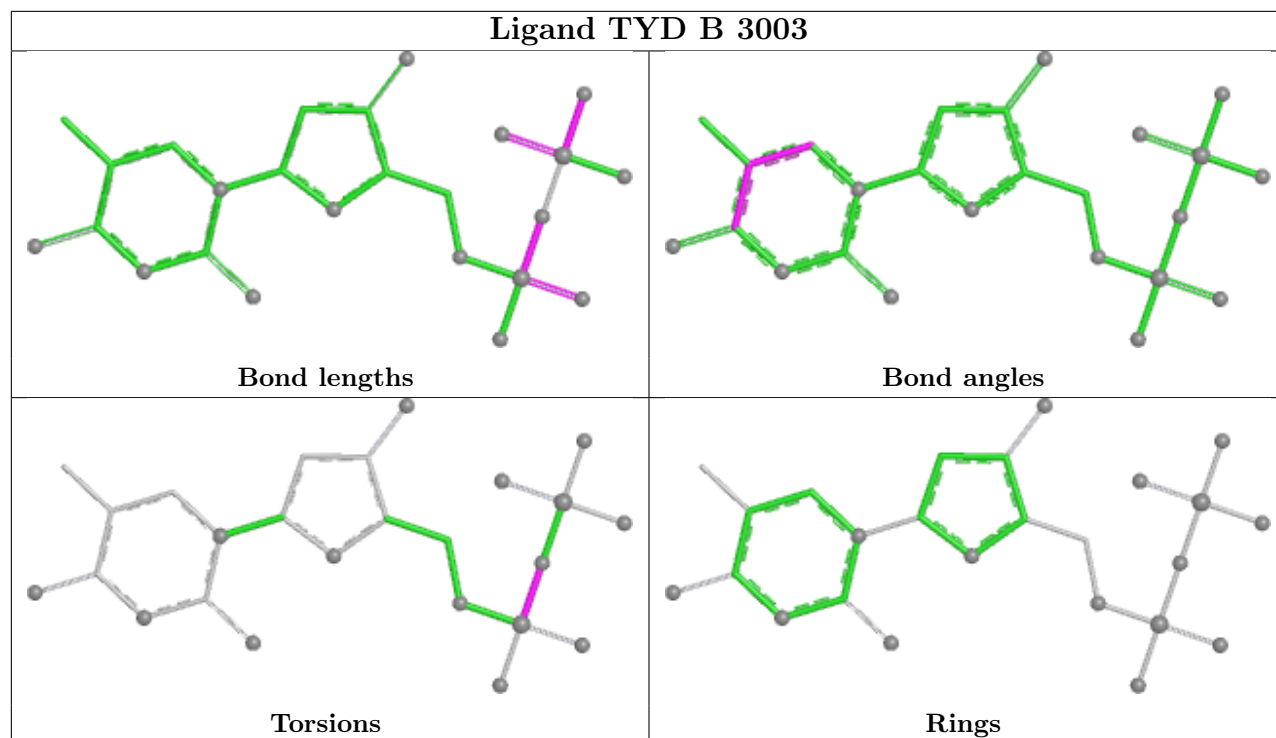
## Ligand TYD A 3002



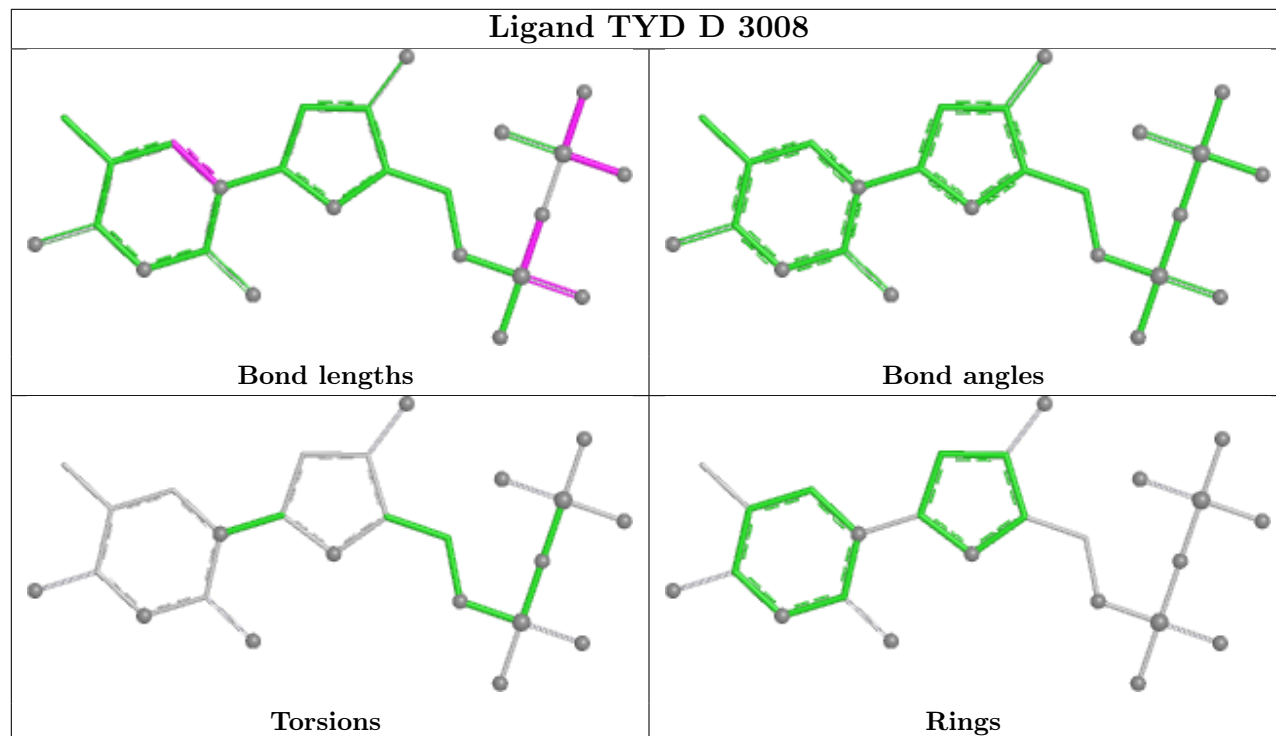
## Ligand TYD A 3001



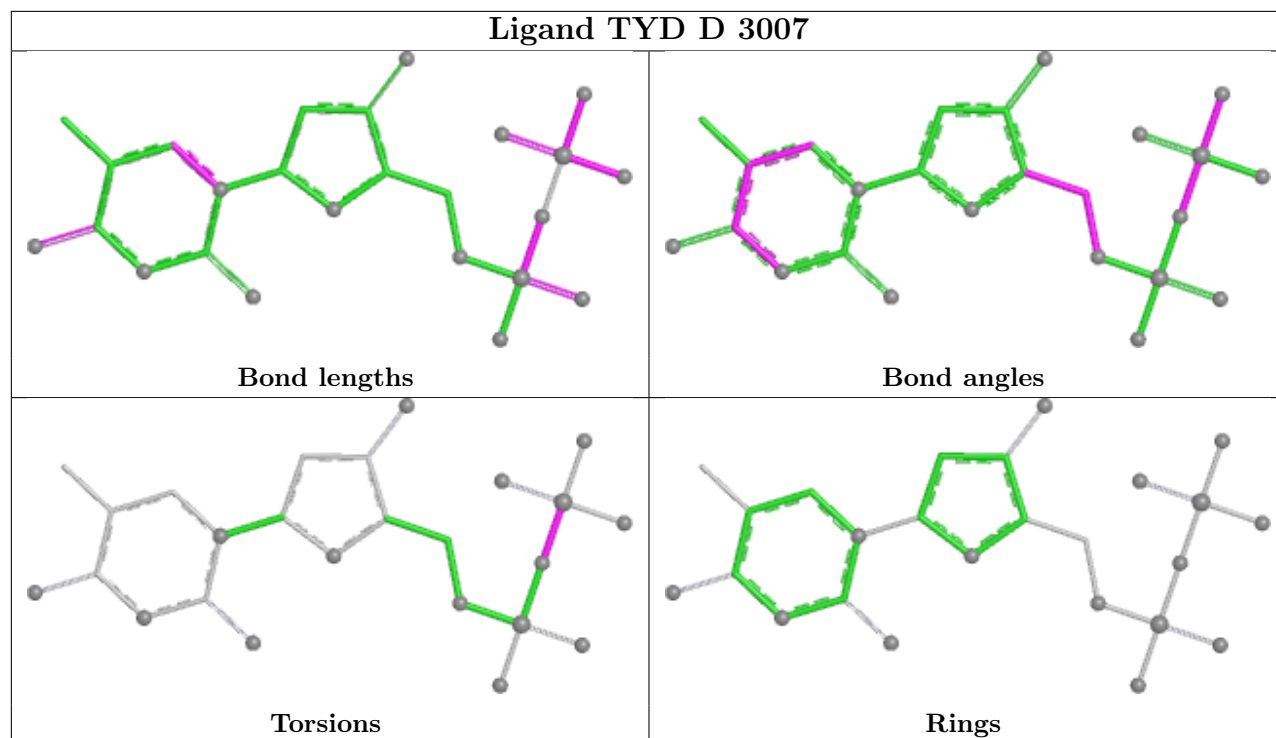
## Ligand TYD B 3003



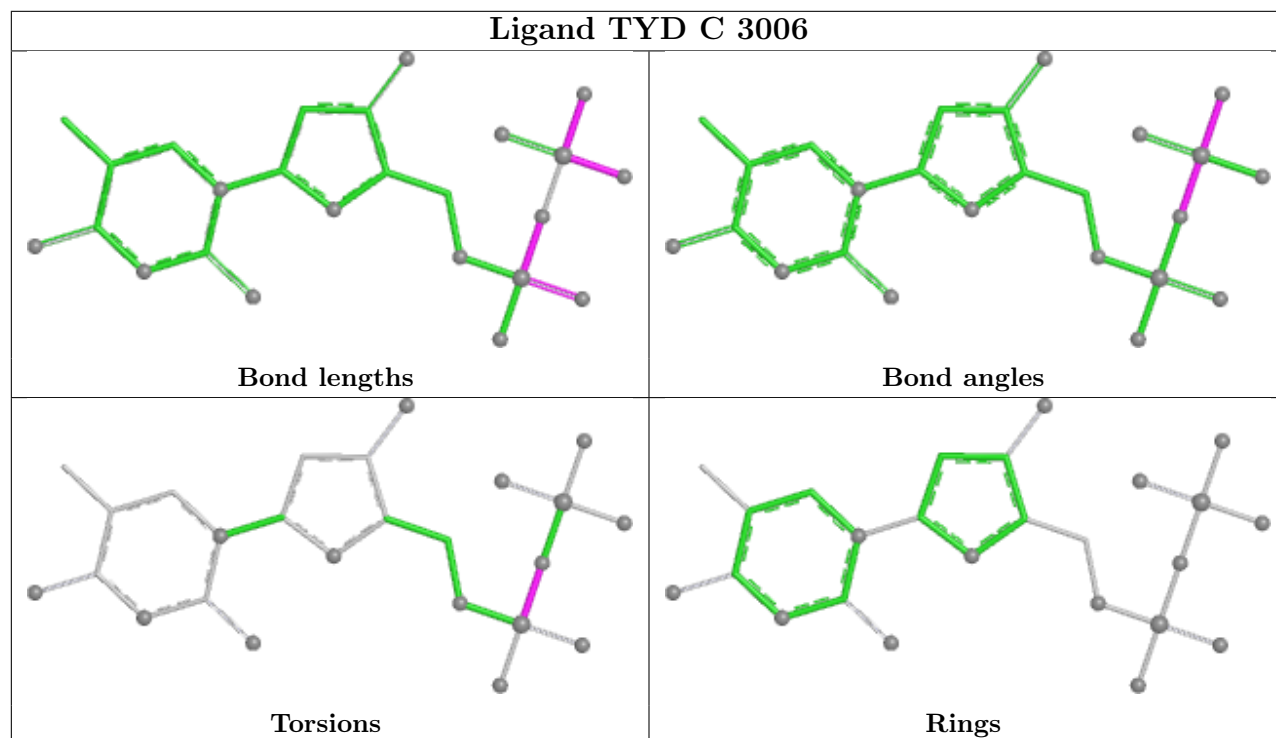
## Ligand TYD D 3008

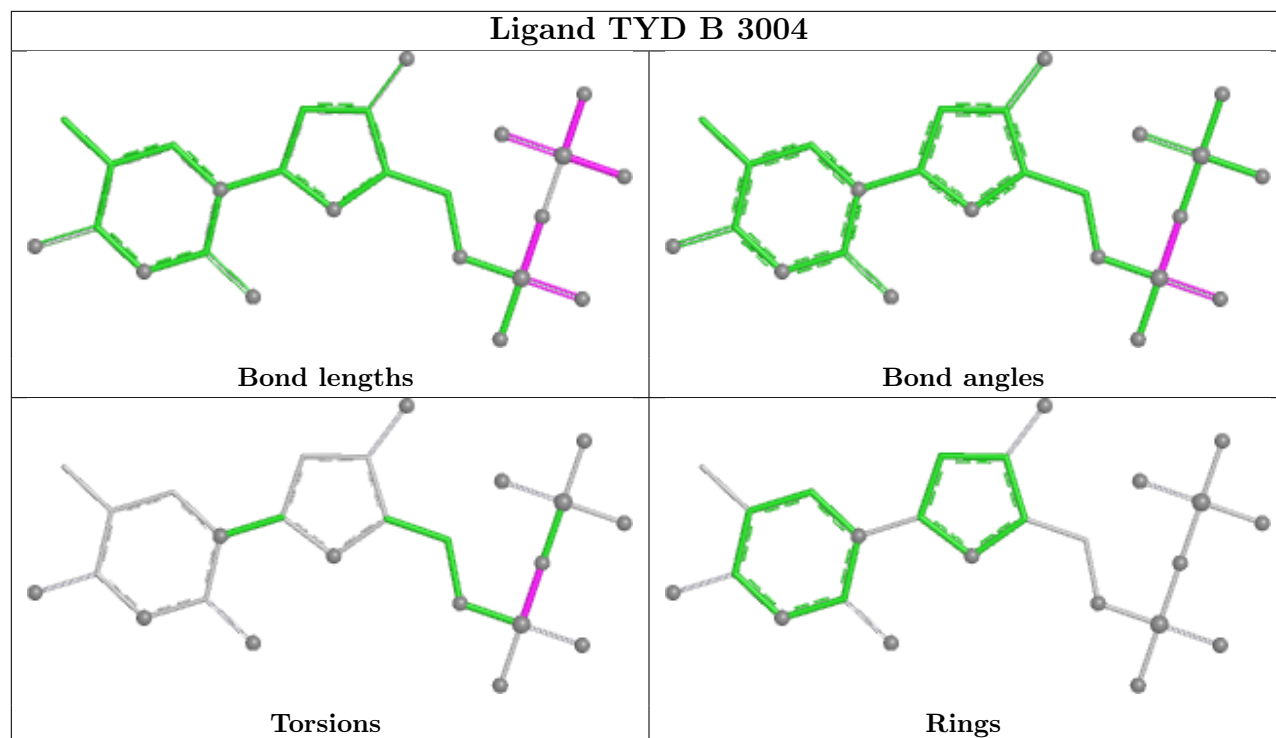


## Ligand TYD D 3007



## Ligand TYD C 3006





## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	295/295 (100%)	-0.15	13 (4%) 39 42	6, 15, 34, 50	7 (2%)
1	B	292/295 (98%)	-0.08	15 (5%) 33 37	5, 16, 34, 65	7 (2%)
1	C	292/295 (98%)	0.19	17 (5%) 29 32	5, 19, 40, 59	4 (1%)
1	D	291/295 (98%)	0.68	41 (14%) 6 6	6, 24, 47, 60	4 (1%)
All	All	1170/1180 (99%)	0.16	86 (7%) 20 22	5, 18, 40, 65	22 (1%)

All (86) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	290	PHE	8.5
1	B	289	ASN	7.0
1	A	-2	GLY	6.8
1	C	-1	ALA	6.7
1	B	291	HIS	6.7
1	A	-1	ALA	5.2
1	C	193	GLY	5.1
1	A	9	GLY	4.9
1	C	191	ASP	4.2
1	B	288	GLY	4.0
1	C	12	THR	4.0
1	D	189	PRO	3.9
1	D	205	LEU	3.7
1	D	192	ARG	3.7
1	D	195	LEU	3.6
1	D	187	ILE	3.5
1	D	193	GLY	3.5
1	A	83	PRO	3.5
1	D	207	MET	3.5
1	D	155	ILE	3.4
1	D	191	ASP	3.3

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Mol	Chain	Res	Type	RSRZ
1	B	191	ASP	3.2
1	D	0	HIS	3.2
1	B	285	LEU	3.2
1	D	181	VAL	3.1
1	D	185	ARG	3.1
1	A	292	GLY	3.1
1	C	74	ARG	3.0
1	B	283	ARG	3.0
1	C	192	ARG	2.9
1	D	154	VAL	2.9
1	C	0	HIS	2.9
1	D	183	ILE	2.9
1	A	56	ARG	2.8
1	C	206	ARG	2.8
1	D	129	GLY	2.8
1	C	187	ILE	2.7
1	D	208	GLY	2.7
1	D	127	GLU	2.7
1	D	126	LEU	2.7
1	B	287	GLU	2.7
1	A	10	SER	2.7
1	D	275	LYS	2.7
1	D	163	ARG	2.6
1	D	153	ARG	2.6
1	B	82	GLU	2.6
1	B	10	SER	2.6
1	C	84	ARG	2.6
1	A	11	GLY	2.6
1	C	189	PRO	2.6
1	D	83	PRO	2.5
1	B	275	LYS	2.5
1	D	206	ARG	2.5
1	D	204	TYR	2.5
1	A	290	PHE	2.5
1	D	197	ILE	2.5
1	D	209	LYS	2.5
1	C	127	GLU	2.4
1	D	188	GLU	2.3
1	D	150	SER	2.3
1	D	190	SER	2.3
1	C	274	GLU	2.3
1	D	287	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	12	THR	2.3
1	D	84	ARG	2.3
1	A	275	LYS	2.3
1	D	210	LEU	2.3
1	D	12	THR	2.2
1	D	125	SER	2.2
1	B	273	LEU	2.2
1	A	0	HIS	2.2
1	D	149	ASP	2.2
1	B	9	GLY	2.2
1	D	182	GLU	2.1
1	D	130	ALA	2.1
1	C	207	MET	2.1
1	D	56	ARG	2.1
1	C	9	GLY	2.1
1	C	287	GLU	2.1
1	C	155[A]	ILE	2.1
1	A	12	THR	2.1
1	D	20	ALA	2.0
1	A	186	ARG	2.0
1	B	276	THR	2.0
1	D	184	ALA	2.0
1	D	180	VAL	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no oligosaccharides 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<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.

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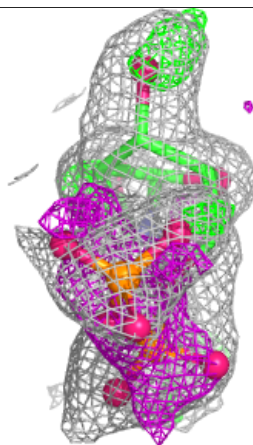
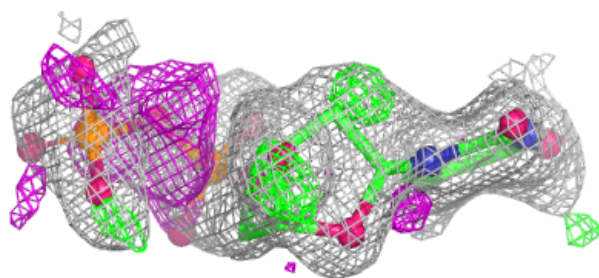
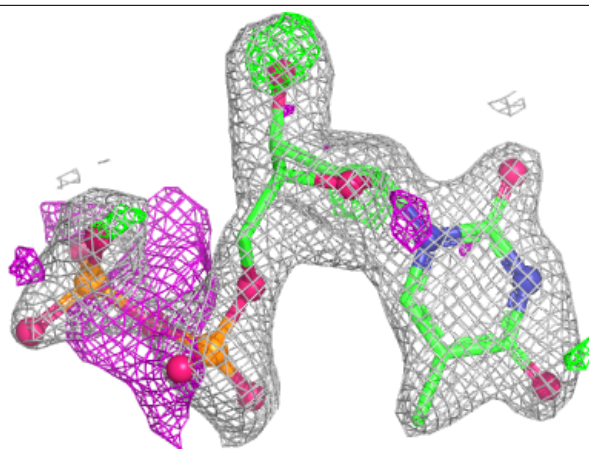
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
4	TYD	D	3007	25/25	0.71	0.17	36,48,57,57	0
5	GOL	B	2008	6/6	0.78	0.17	28,37,41,42	0
3	SO4	A	5001	5/5	0.83	0.12	52,53,53,54	0
4	TYD	A	3001	25/25	0.83	0.12	21,30,54,55	0
4	TYD	C	3005	25/25	0.84	0.12	26,34,47,48	0
5	GOL	A	2007	6/6	0.85	0.14	24,31,33,38	0
5	GOL	B	2011	6/6	0.85	0.12	23,28,30,34	0
4	TYD	B	3003	25/25	0.87	0.12	18,25,51,53	0
5	GOL	A	2009	6/6	0.89	0.13	22,31,33,35	0
5	GOL	C	2010	6/6	0.92	0.10	18,20,22,23	0
5	GOL	D	2006	6/6	0.92	0.11	20,29,31,32	0
5	GOL	C	2003	6/6	0.93	0.11	17,24,28,32	0
3	SO4	D	5002	5/5	0.94	0.12	29,30,31,32	0
5	GOL	D	2004	6/6	0.94	0.09	19,26,30,35	0
2	CL	D	4004	1/1	0.94	0.13	44,44,44,44	0
5	GOL	A	2005	6/6	0.95	0.08	13,18,21,24	0
5	GOL	B	2002	6/6	0.95	0.09	15,19,22,27	0
5	GOL	C	2001	6/6	0.96	0.06	17,22,24,27	0
4	TYD	D	3008	25/25	0.97	0.06	13,16,27,31	0
4	TYD	C	3006	25/25	0.97	0.05	10,12,27,30	0
4	TYD	B	3004	25/25	0.97	0.06	11,13,32,34	0
4	TYD	A	3002	25/25	0.98	0.04	9,12,25,26	0
2	CL	C	4003	1/1	0.98	0.06	26,26,26,26	0
2	CL	A	4001	1/1	0.99	0.03	17,17,17,17	0
2	CL	C	4005	1/1	0.99	0.05	24,24,24,24	0
2	CL	B	4002	1/1	1.00	0.03	16,16,16,16	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.

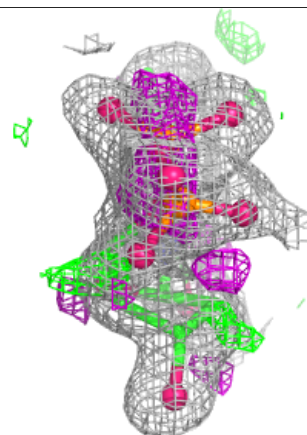
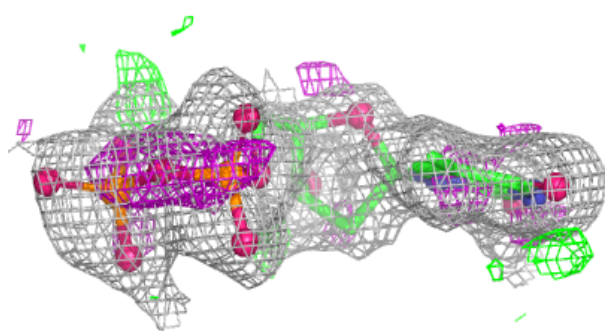
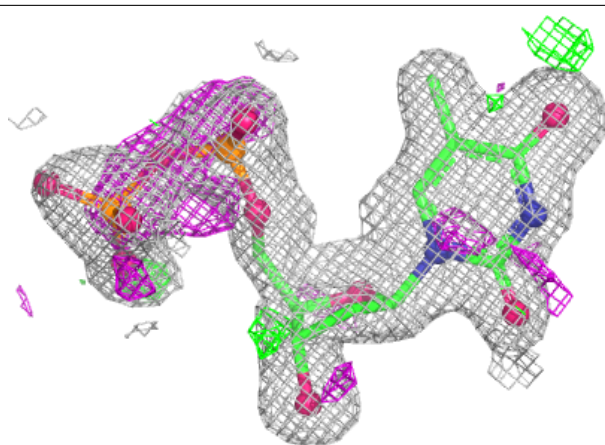
**Electron density around TYD D 3007:**

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

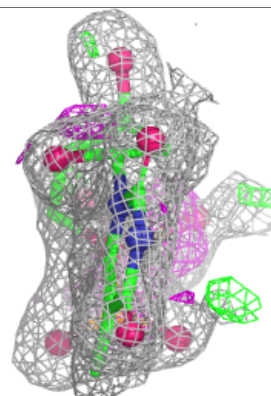
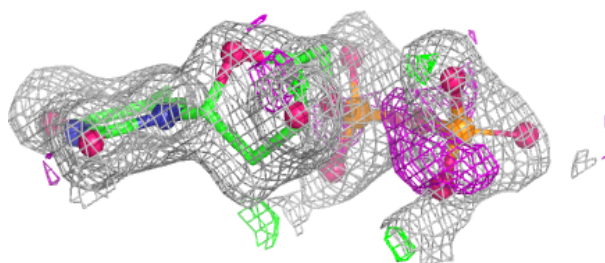
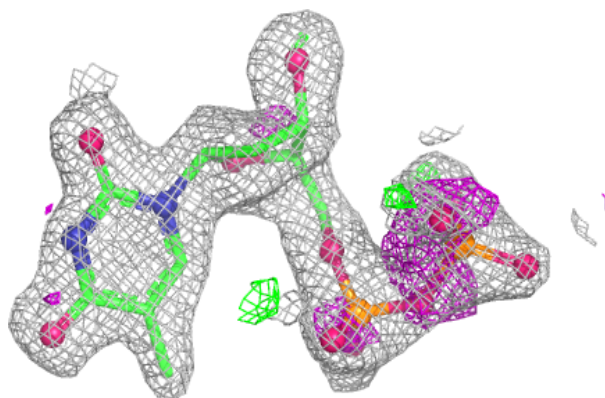


**Electron density around TYD A 3001:**

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

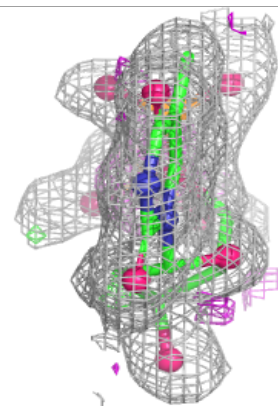
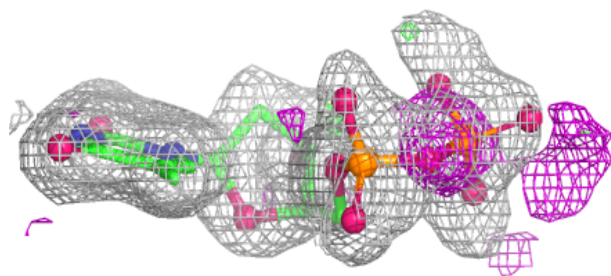
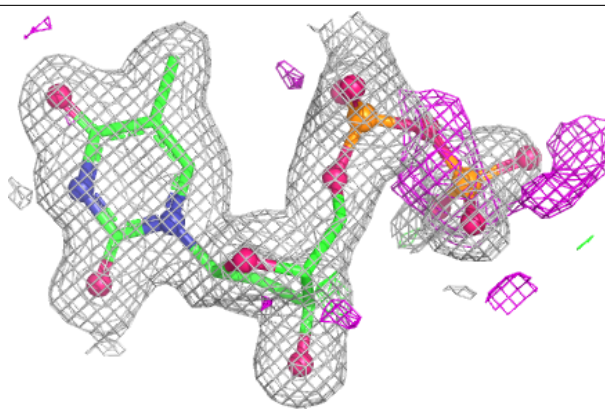
**Electron density around TYD C 3005:**

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



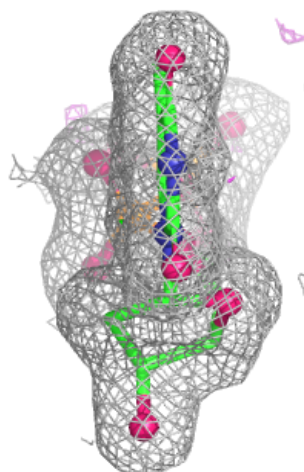
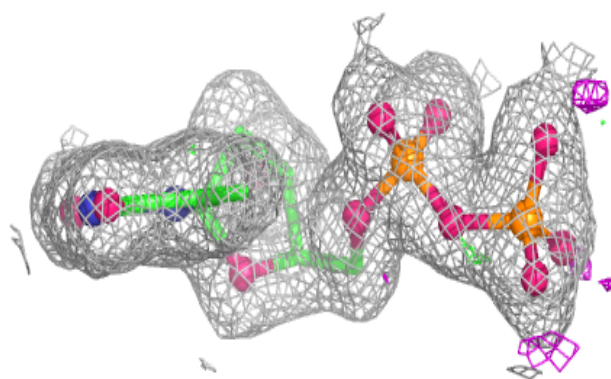
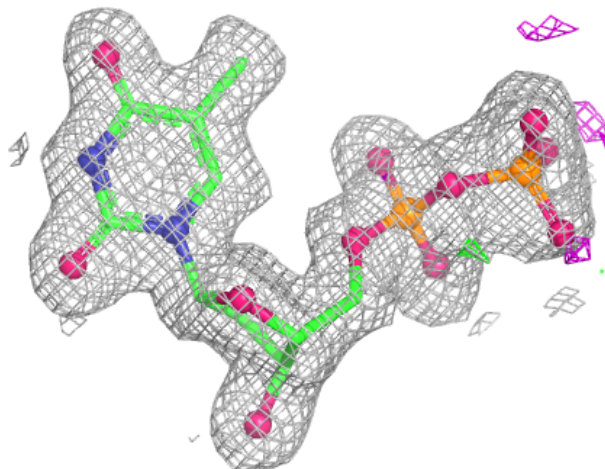
**Electron density around TYD B 3003:**

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



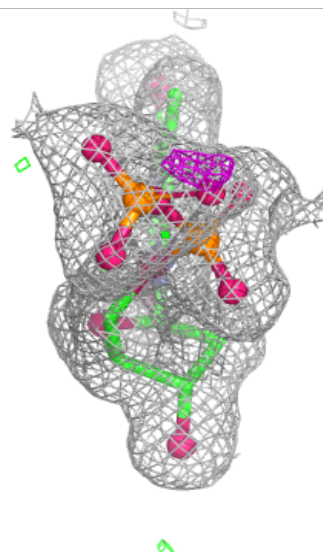
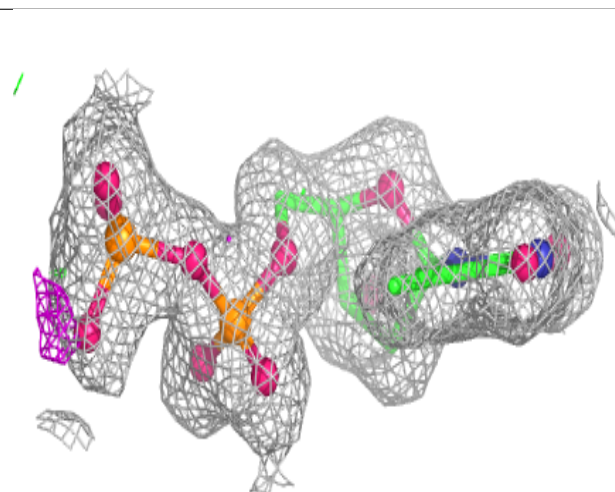
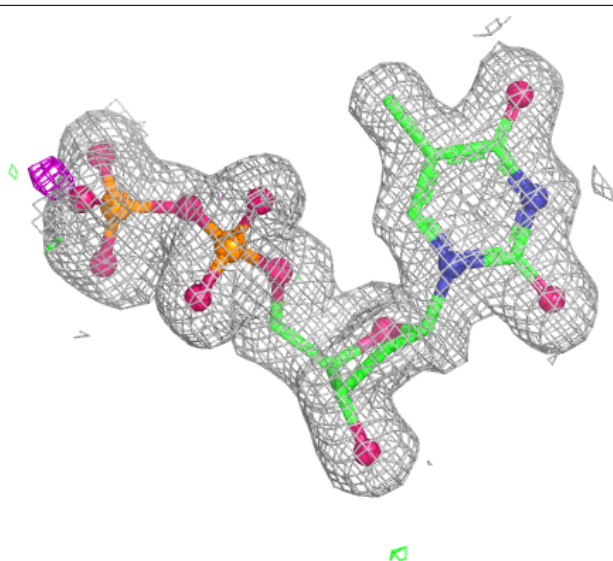
**Electron density around TYD D 3008:**

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



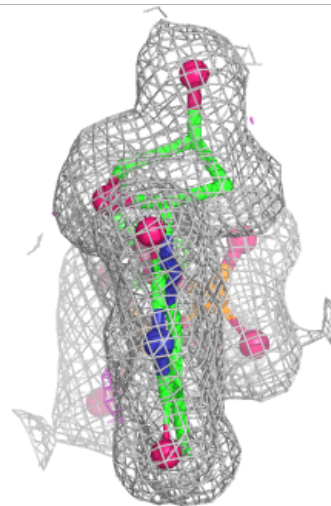
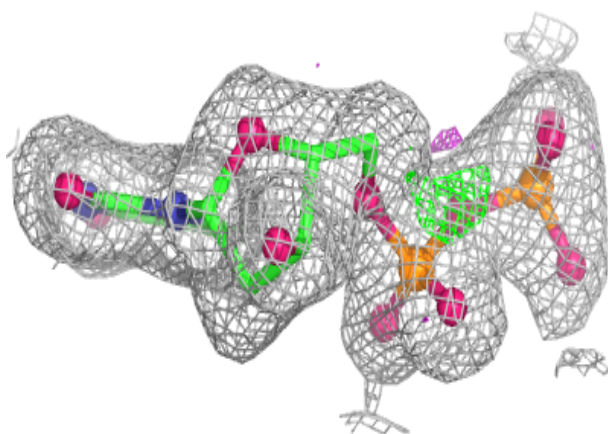
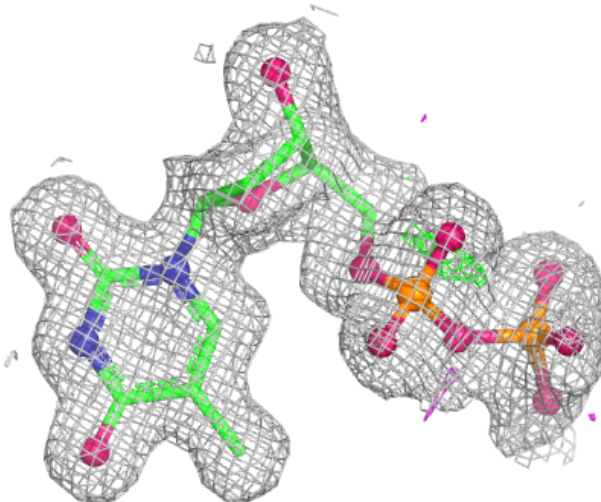
**Electron density around TYD C 3006:**

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



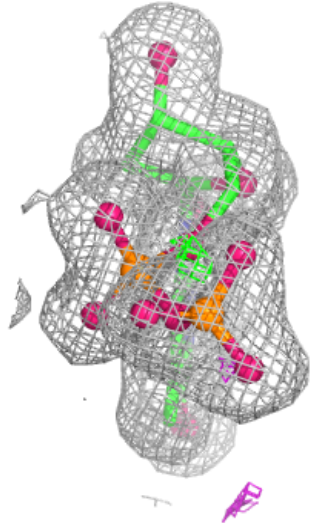
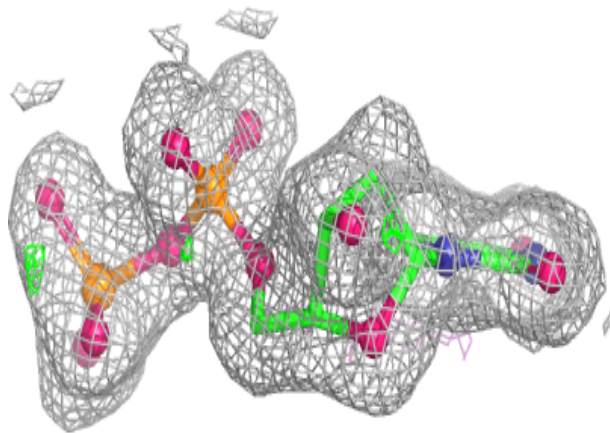
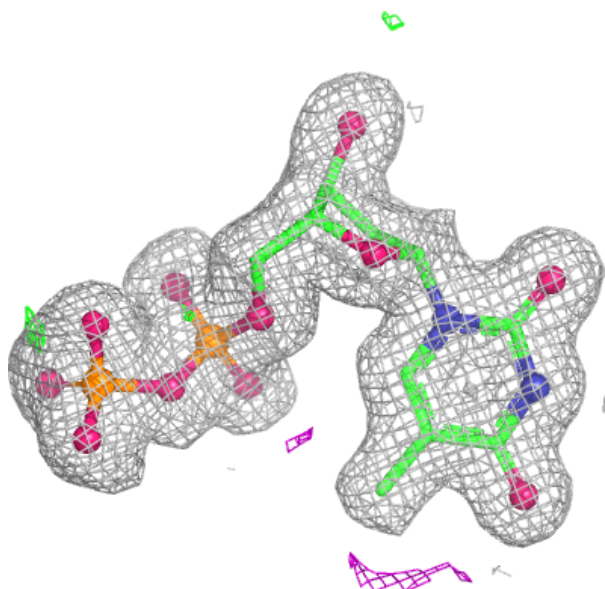
**Electron density around TYD B 3004:**

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



**Electron density around TYD A 3002:**

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



## 6.5 Other polymers ⓘ

There are no such residues in this entry.