



# wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 9, 2020 – 07:49 AM BST

PDB ID : 6K5H  
Title : Structural and catalytic analysis of two diverse uridine phosphorylases in the oomycete *Phytophthora capsici*.  
Authors : Yang, C.C.; Zhang, X.G.  
Deposited on : 2019-05-28  
Resolution : 2.50 Å(reported)

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

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<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.13.1  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.13.1

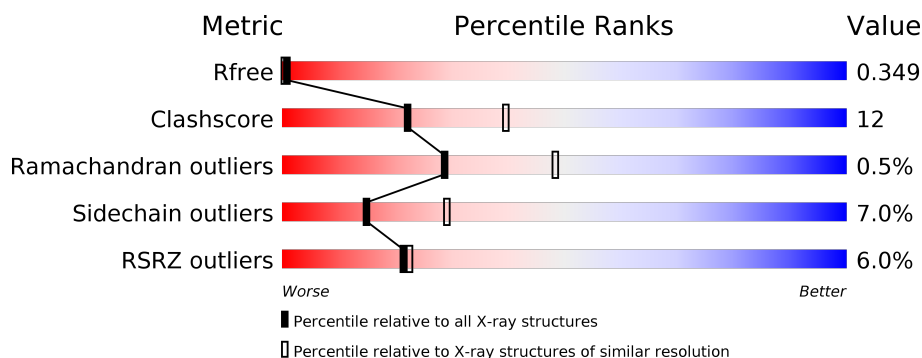
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.50 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))
$R_{free}$	130704	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria 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	309	<div> <div>5%</div> <div> <div></div> <div>72%</div> <div>19%</div> <div>• 7%</div> </div> </div>
1	B	309	<div> <div>6%</div> <div> <div></div> <div>62%</div> <div>28%</div> <div>• 7%</div> </div> </div>
1	C	309	<div> <div>5%</div> <div> <div></div> <div>72%</div> <div>18%</div> <div>• 7%</div> </div> </div>
1	D	309	<div> <div>6%</div> <div> <div></div> <div>68%</div> <div>23%</div> <div>• 7%</div> </div> </div>

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	URA	A	401	-	X	-	-
2	URA	B	401	-	X	-	-
2	URA	C	401	-	X	-	-
2	URA	D	401	-	X	-	-

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 17465 atoms, of which 8607 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 Uridine phosphorylase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	287	Total	C	H	N	O	S	0	0	0
			4291	1340	2144	375	420	12			
1	B	286	Total	C	H	N	O	S	0	0	0
			4273	1334	2133	374	421	11			
1	C	287	Total	C	H	N	O	S	0	0	0
			4277	1337	2136	372	420	12			
1	D	288	Total	C	H	N	O	S	0	0	0
			4297	1342	2145	376	423	11			

There are 52 discrepancies between the modelled and reference sequences:

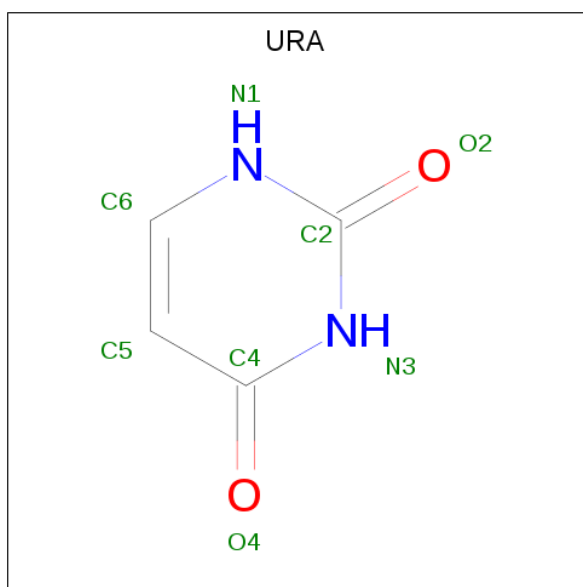
Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	MET	-	expression tag	UNP A0A410UCT3
A	0	GLY	-	expression tag	UNP A0A410UCT3
A	297	ALA	-	expression tag	UNP A0A410UCT3
A	298	ALA	-	expression tag	UNP A0A410UCT3
A	299	ALA	-	expression tag	UNP A0A410UCT3
A	300	LEU	-	expression tag	UNP A0A410UCT3
A	301	GLU	-	expression tag	UNP A0A410UCT3
A	302	HIS	-	expression tag	UNP A0A410UCT3
A	303	HIS	-	expression tag	UNP A0A410UCT3
A	304	HIS	-	expression tag	UNP A0A410UCT3
A	305	HIS	-	expression tag	UNP A0A410UCT3
A	306	HIS	-	expression tag	UNP A0A410UCT3
A	307	HIS	-	expression tag	UNP A0A410UCT3
B	-1	MET	-	expression tag	UNP A0A410UCT3
B	0	GLY	-	expression tag	UNP A0A410UCT3
B	297	ALA	-	expression tag	UNP A0A410UCT3
B	298	ALA	-	expression tag	UNP A0A410UCT3
B	299	ALA	-	expression tag	UNP A0A410UCT3
B	300	LEU	-	expression tag	UNP A0A410UCT3
B	301	GLU	-	expression tag	UNP A0A410UCT3
B	302	HIS	-	expression tag	UNP A0A410UCT3

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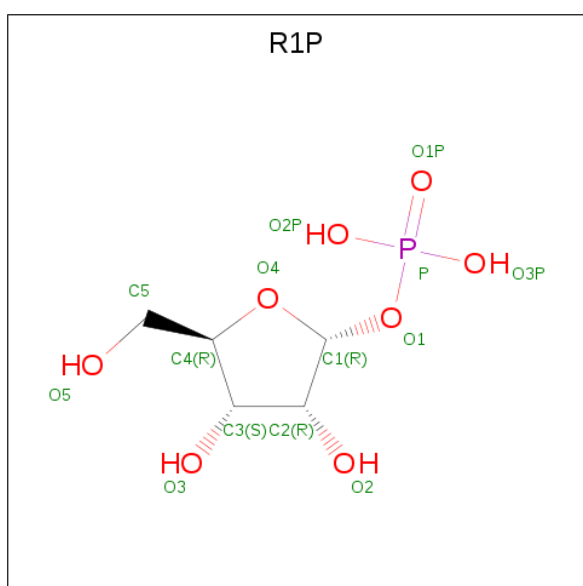
Chain	Residue	Modelled	Actual	Comment	Reference
B	303	HIS	-	expression tag	UNP A0A410UCT3
B	304	HIS	-	expression tag	UNP A0A410UCT3
B	305	HIS	-	expression tag	UNP A0A410UCT3
B	306	HIS	-	expression tag	UNP A0A410UCT3
B	307	HIS	-	expression tag	UNP A0A410UCT3
C	-1	MET	-	expression tag	UNP A0A410UCT3
C	0	GLY	-	expression tag	UNP A0A410UCT3
C	297	ALA	-	expression tag	UNP A0A410UCT3
C	298	ALA	-	expression tag	UNP A0A410UCT3
C	299	ALA	-	expression tag	UNP A0A410UCT3
C	300	LEU	-	expression tag	UNP A0A410UCT3
C	301	GLU	-	expression tag	UNP A0A410UCT3
C	302	HIS	-	expression tag	UNP A0A410UCT3
C	303	HIS	-	expression tag	UNP A0A410UCT3
C	304	HIS	-	expression tag	UNP A0A410UCT3
C	305	HIS	-	expression tag	UNP A0A410UCT3
C	306	HIS	-	expression tag	UNP A0A410UCT3
C	307	HIS	-	expression tag	UNP A0A410UCT3
D	-1	MET	-	expression tag	UNP A0A410UCT3
D	0	GLY	-	expression tag	UNP A0A410UCT3
D	297	ALA	-	expression tag	UNP A0A410UCT3
D	298	ALA	-	expression tag	UNP A0A410UCT3
D	299	ALA	-	expression tag	UNP A0A410UCT3
D	300	LEU	-	expression tag	UNP A0A410UCT3
D	301	GLU	-	expression tag	UNP A0A410UCT3
D	302	HIS	-	expression tag	UNP A0A410UCT3
D	303	HIS	-	expression tag	UNP A0A410UCT3
D	304	HIS	-	expression tag	UNP A0A410UCT3
D	305	HIS	-	expression tag	UNP A0A410UCT3
D	306	HIS	-	expression tag	UNP A0A410UCT3
D	307	HIS	-	expression tag	UNP A0A410UCT3

- Molecule 2 is URACIL (three-letter code: URA) (formula:  $C_4H_4N_2O_2$ ) (labeled as "Ligand of Interest" by author).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	0	0
			12	4	4	2	2		
2	B	1	Total	C	H	N	O	0	0
			12	4	4	2	2		
2	C	1	Total	C	H	N	O	0	0
			12	4	4	2	2		
2	D	1	Total	C	H	N	O	0	0
			12	4	4	2	2		

- Molecule 3 is 1-O-phosphono-alpha-D-ribofuranose (three-letter code: R1P) (formula:  $C_5H_{11}O_8P$ ) (labeled as "Ligand of Interest" by author).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	H	O	P	0	0
			22	5	8	8	1		
3	B	1	Total	C	H	O	P	0	0
			22	5	8	8	1		
3	C	1	Total	C	H	O	P	0	0
			22	5	8	8	1		
3	D	1	Total	C	H	O	P	0	0
			23	5	9	8	1		

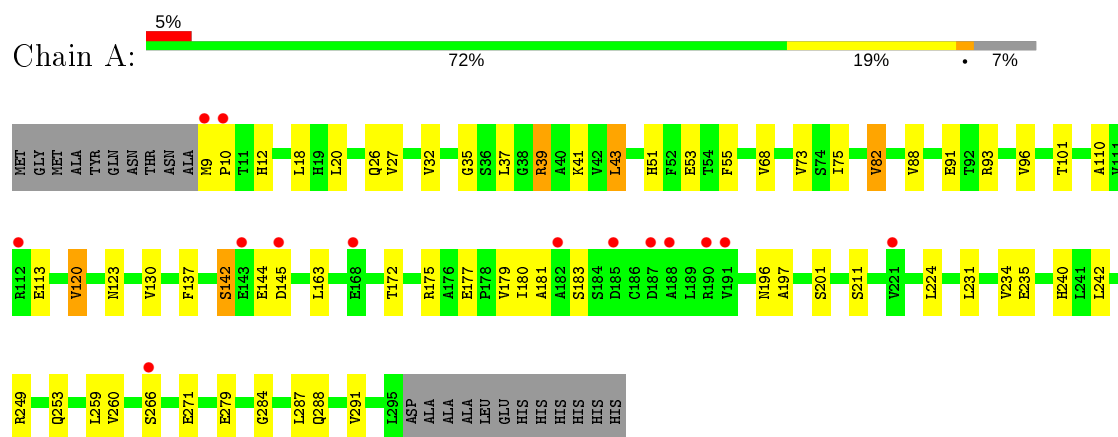
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	41	Total	O	0	0
			41	41		
4	B	50	Total	O	0	0
			50	50		
4	C	44	Total	O	0	0
			44	44		
4	D	55	Total	O	0	0
			55	55		

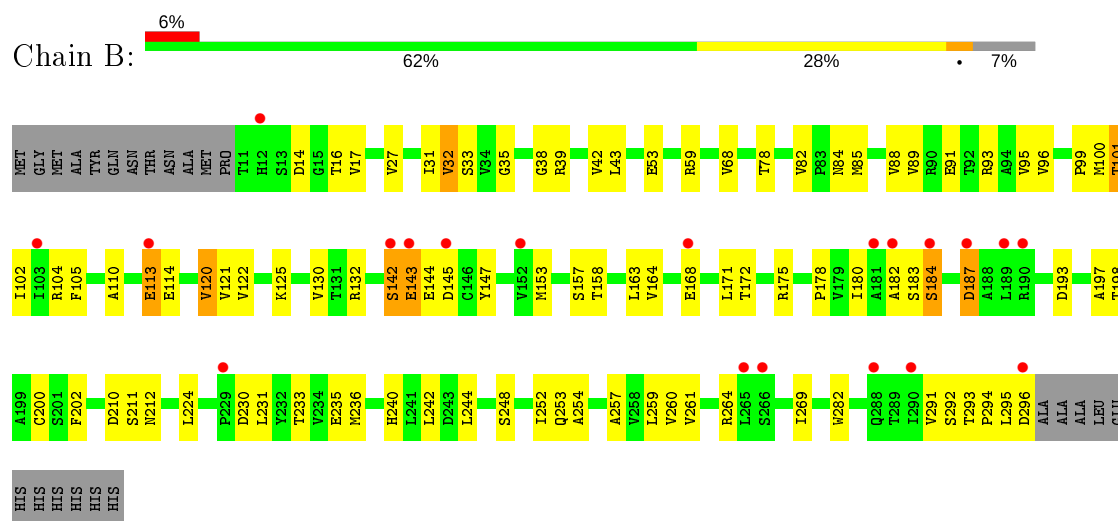
### 3 Residue-property plots

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.

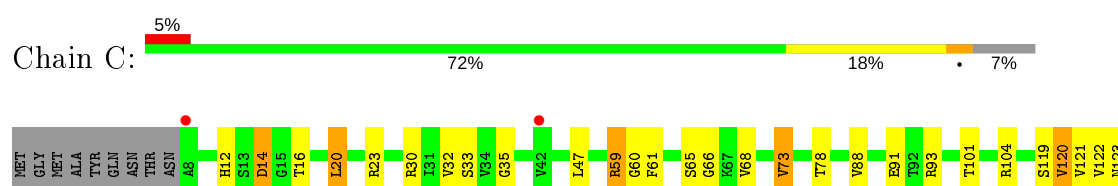
- Molecule 1: Uridine phosphorylase



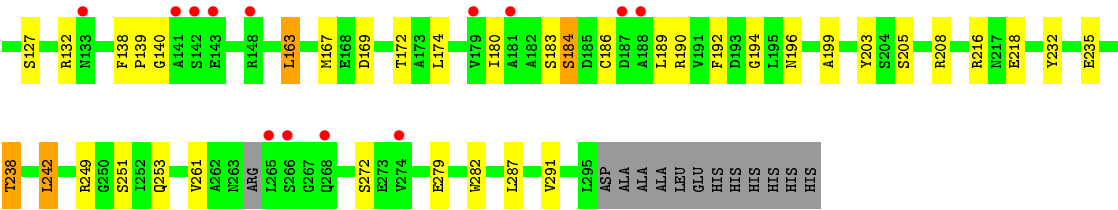
- Molecule 1: Uridine phosphorylase



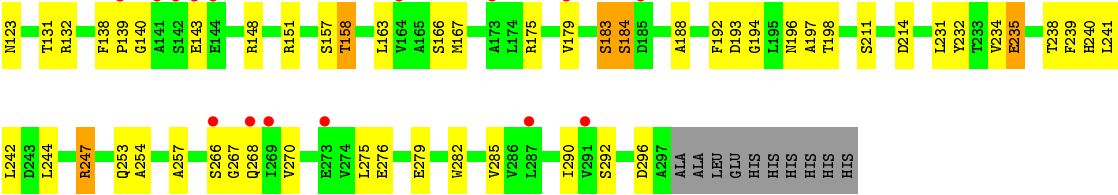
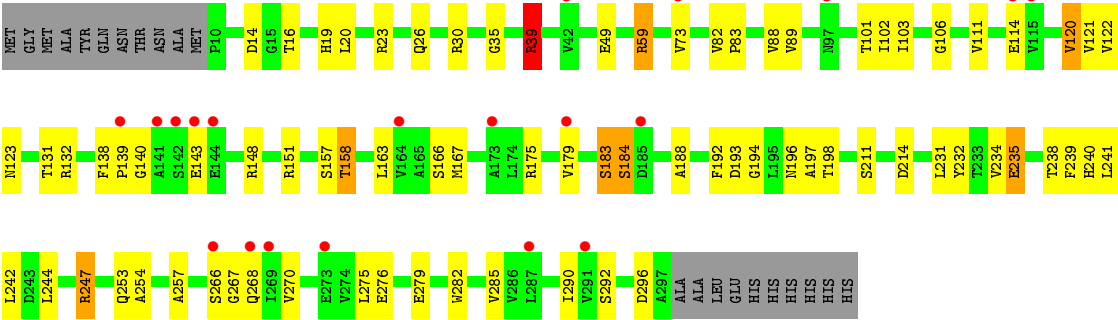
- Molecule 1: Uridine phosphorylase







● Molecule 1: Uridine phosphorylase



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 2 <sub>1</sub> 2 <sub>1</sub> 2 <sub>1</sub>	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	66.97Å 97.69Å 188.87Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.84 – 2.50 48.84 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.0 (48.84-2.50) 99.1 (48.84-2.50)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.82 (at 2.51Å)	Xtriage
Refinement program	PHENIX 1.13 _2998	Depositor
R, $R_{free}$	0.256 , 0.349 0.256 , 0.349	Depositor DCC
$R_{free}$ test set	2169 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	33.8	Xtriage
Anisotropy	0.133	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.39 , 49.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.58$ , $\langle L^2 \rangle = 0.43$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	17465	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 66.65 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.8392e-06. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<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 [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: URA, R1P

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	0.66	0/2181	0.76	0/2961
1	B	0.73	3/2173 (0.1%)	0.80	0/2950
1	C	0.63	1/2174 (0.0%)	0.81	1/2951 (0.0%)
1	D	0.71	1/2186 (0.0%)	0.82	2/2968 (0.1%)
All	All	0.69	5/8714 (0.1%)	0.80	3/11830 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	200	CYS	CB-SG	8.62	1.97	1.82
1	C	279	GLU	CB-CG	-6.09	1.40	1.52
1	B	32	VAL	CB-CG1	5.85	1.65	1.52
1	B	292	SER	C-N	-5.37	1.21	1.34
1	D	89	VAL	CB-CG1	5.37	1.64	1.52

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	39	ARG	NE-CZ-NH2	-5.70	117.45	120.30
1	D	193	ASP	CB-CG-OD1	-5.51	113.34	118.30
1	C	242	LEU	CB-CG-CD1	5.34	120.08	111.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	184	SER	Peptide

## 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	2147	2144	2144	44	0
1	B	2140	2133	2132	69	0
1	C	2141	2136	2135	40	0
1	D	2152	2145	2145	46	0
2	A	8	4	3	0	0
2	B	8	4	3	0	0
2	C	8	4	3	0	0
2	D	8	4	3	0	0
3	A	14	8	0	4	0
3	B	14	8	0	1	0
3	C	14	8	0	2	0
3	D	14	9	0	2	0
4	A	41	0	0	4	0
4	B	50	0	0	7	0
4	C	44	0	0	6	0
4	D	55	0	0	9	0
All	All	8858	8607	8568	201	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 12.

The worst 5 of 201 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)
3:A:402:R1P:O4	3:A:402:R1P:C1	1.64	1.23
1:D:188:ALA:O	4:D:501:HOH:O	1.88	0.91
1:B:39:ARG:NH2	4:B:501:HOH:O	2.03	0.90
1:A:20:LEU:HD21	1:A:88:VAL:HA	1.54	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:130:VAL:HG21	1:B:224:LEU:HD11	1.54	0.89

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	285/309 (92%)	267 (94%)	18 (6%)	0	100	100
1	B	284/309 (92%)	262 (92%)	21 (7%)	1 (0%)	34	54
1	C	283/309 (92%)	273 (96%)	7 (2%)	3 (1%)	14	26
1	D	286/309 (93%)	268 (94%)	16 (6%)	2 (1%)	22	39
All	All	1138/1236 (92%)	1070 (94%)	62 (5%)	6 (0%)	29	48

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	267	GLY
1	C	139	PRO
1	C	14	ASP
1	D	139	PRO
1	B	143	GLU

### 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	237/253 (94%)	222 (94%)	15 (6%)	18	34
1	B	236/253 (93%)	221 (94%)	15 (6%)	17	33
1	C	236/253 (93%)	221 (94%)	15 (6%)	17	33
1	D	237/253 (94%)	216 (91%)	21 (9%)	9	19
All	All	946/1012 (94%)	880 (93%)	66 (7%)	15	29

5 of 66 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	296	ASP
1	C	163	LEU
1	D	235	GLU
1	C	20	LEU
1	C	73	VAL

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 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 monosaccharides in this entry.

## 5.6 Ligand geometry ⓘ

8 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
3	R1P	D	402	-	13,14,14	5.26	6 (46%)	20,21,21	1.47	3 (15%)
3	R1P	C	402	-	13,14,14	5.16	5 (38%)	20,21,21	2.37	6 (30%)
2	URA	D	401	-	6,8,8	4.41	5 (83%)	4,10,10	8.71	3 (75%)
2	URA	C	401	-	6,8,8	4.64	5 (83%)	4,10,10	8.84	3 (75%)
3	R1P	B	402	-	13,14,14	4.87	7 (53%)	20,21,21	1.58	3 (15%)
3	R1P	A	402	-	13,14,14	5.37	6 (46%)	20,21,21	1.18	2 (10%)
2	URA	B	401	-	6,8,8	5.29	6 (100%)	4,10,10	8.30	3 (75%)
2	URA	A	401	-	6,8,8	5.13	6 (100%)	4,10,10	9.49	2 (50%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	R1P	D	402	-	-	0/6/23/23	0/1/1/1
2	URA	A	401	-	-	-	0/1/1/1
2	URA	D	401	-	-	-	0/1/1/1
2	URA	C	401	-	-	-	0/1/1/1
3	R1P	B	402	-	-	0/6/23/23	0/1/1/1
3	R1P	A	402	-	-	2/6/23/23	0/1/1/1
2	URA	B	401	-	-	-	0/1/1/1
3	R1P	C	402	-	-	2/6/23/23	0/1/1/1

The worst 5 of 46 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	402	R1P	C1-C2	-13.15	1.36	1.52
3	C	402	R1P	C1-C2	-12.61	1.36	1.52
3	A	402	R1P	O4-C1	12.60	1.64	1.41
3	A	402	R1P	C1-C2	-12.18	1.37	1.52
3	C	402	R1P	O4-C1	11.64	1.62	1.41

The worst 5 of 25 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	401	URA	N1-C2-N3	-13.94	117.35	128.43

*Continued on next page...*

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	401	URA	C6-N1-C2	12.97	120.81	114.42
2	A	401	URA	C6-N1-C2	12.73	120.70	114.42
2	C	401	URA	N1-C2-N3	-12.57	118.44	128.43
2	C	401	URA	C6-N1-C2	12.09	120.38	114.42

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	402	R1P	C3-C4-C5-O5
3	A	402	R1P	O4-C4-C5-O5
3	C	402	R1P	C1-O1-P-O2P
3	C	402	R1P	C1-O1-P-O3P

There are no ring outliers.

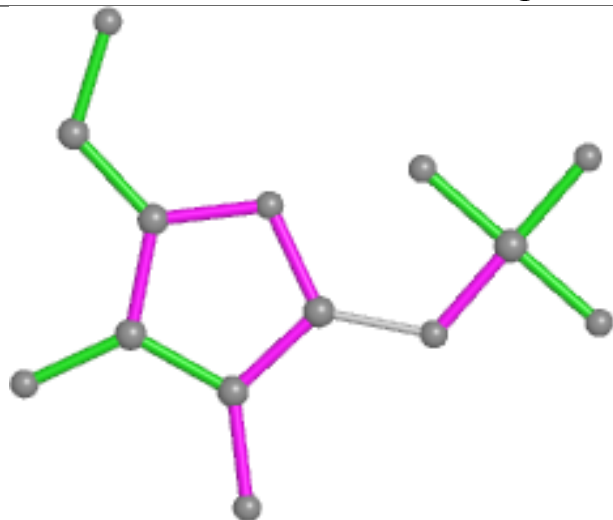
4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	402	R1P	2	0
3	C	402	R1P	2	0
3	B	402	R1P	1	0
3	A	402	R1P	4	0

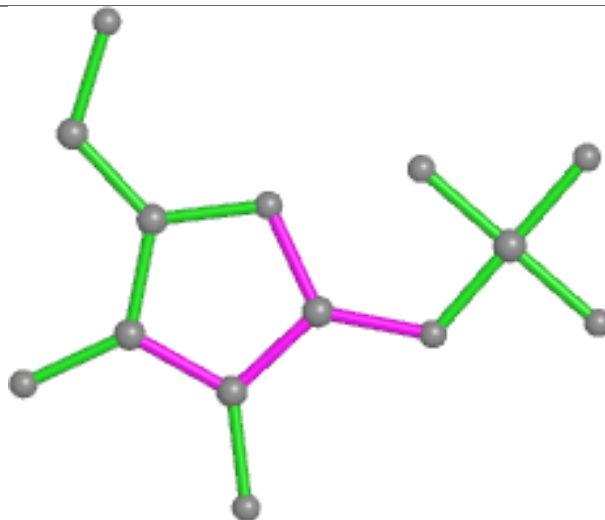
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



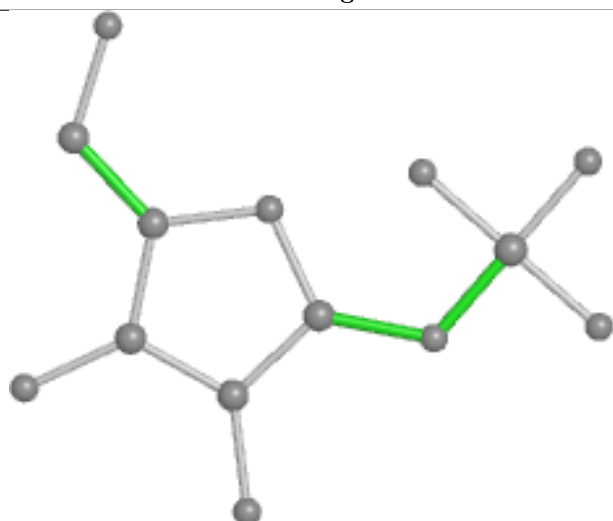
## Ligand R1P D 402



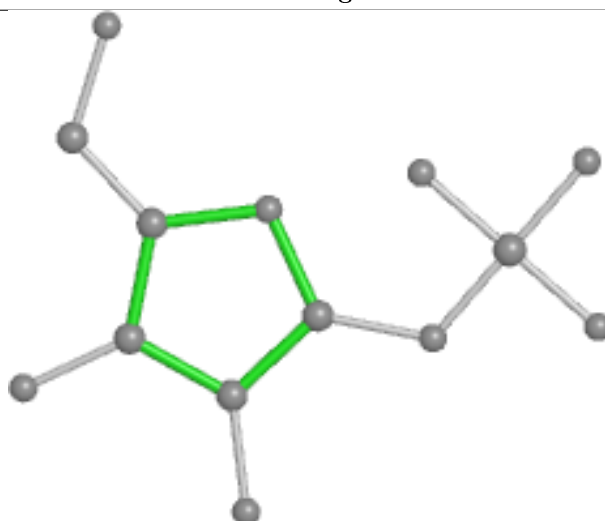
Bond lengths



Bond angles

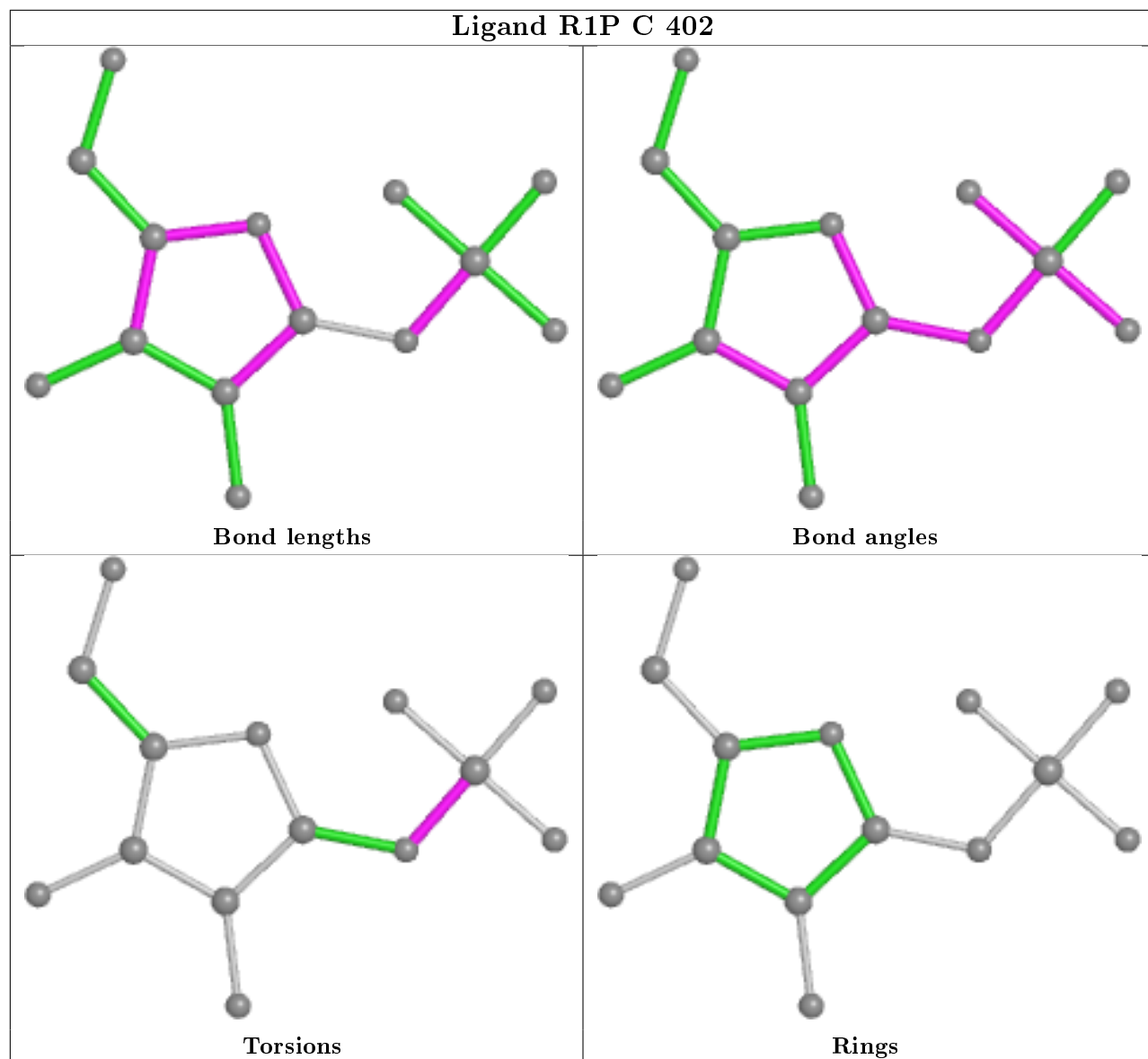


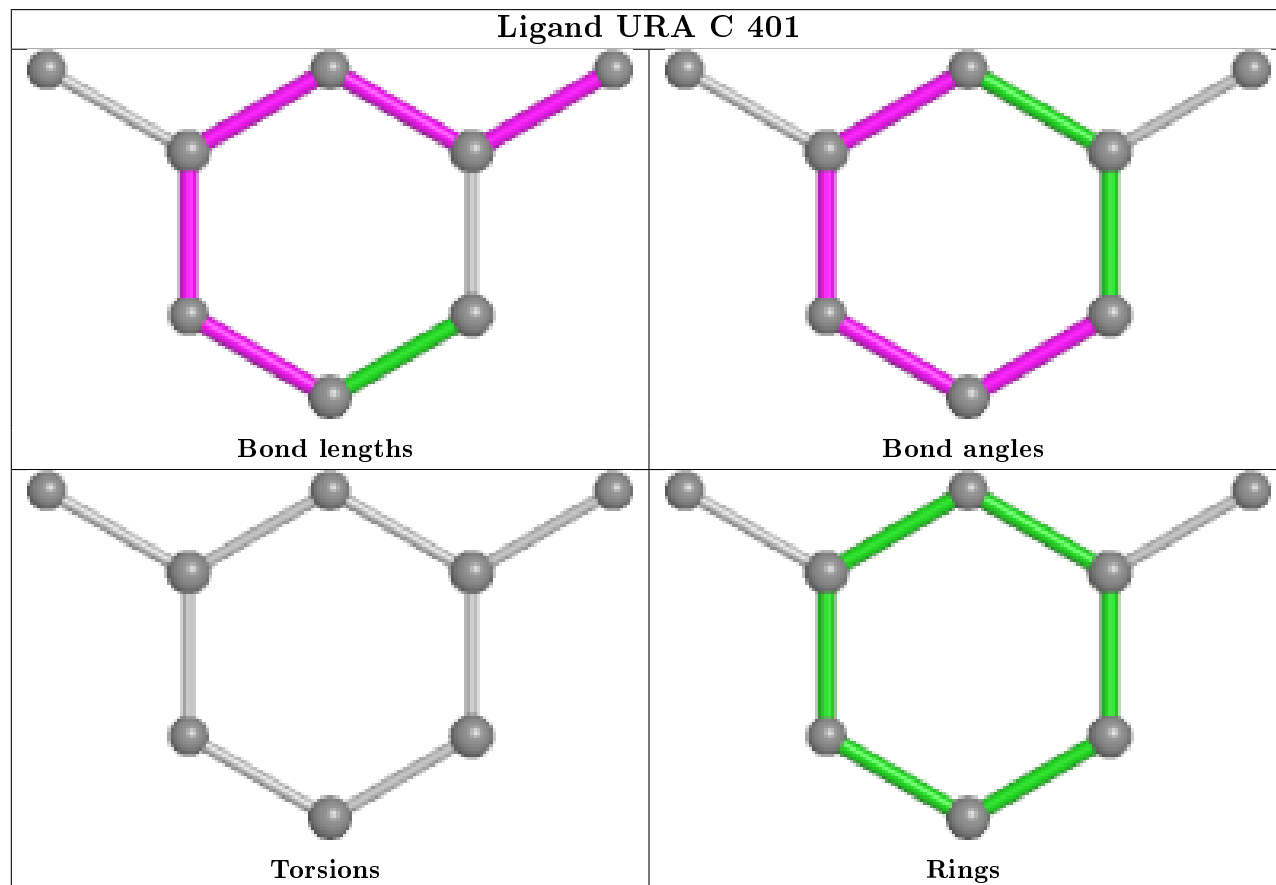
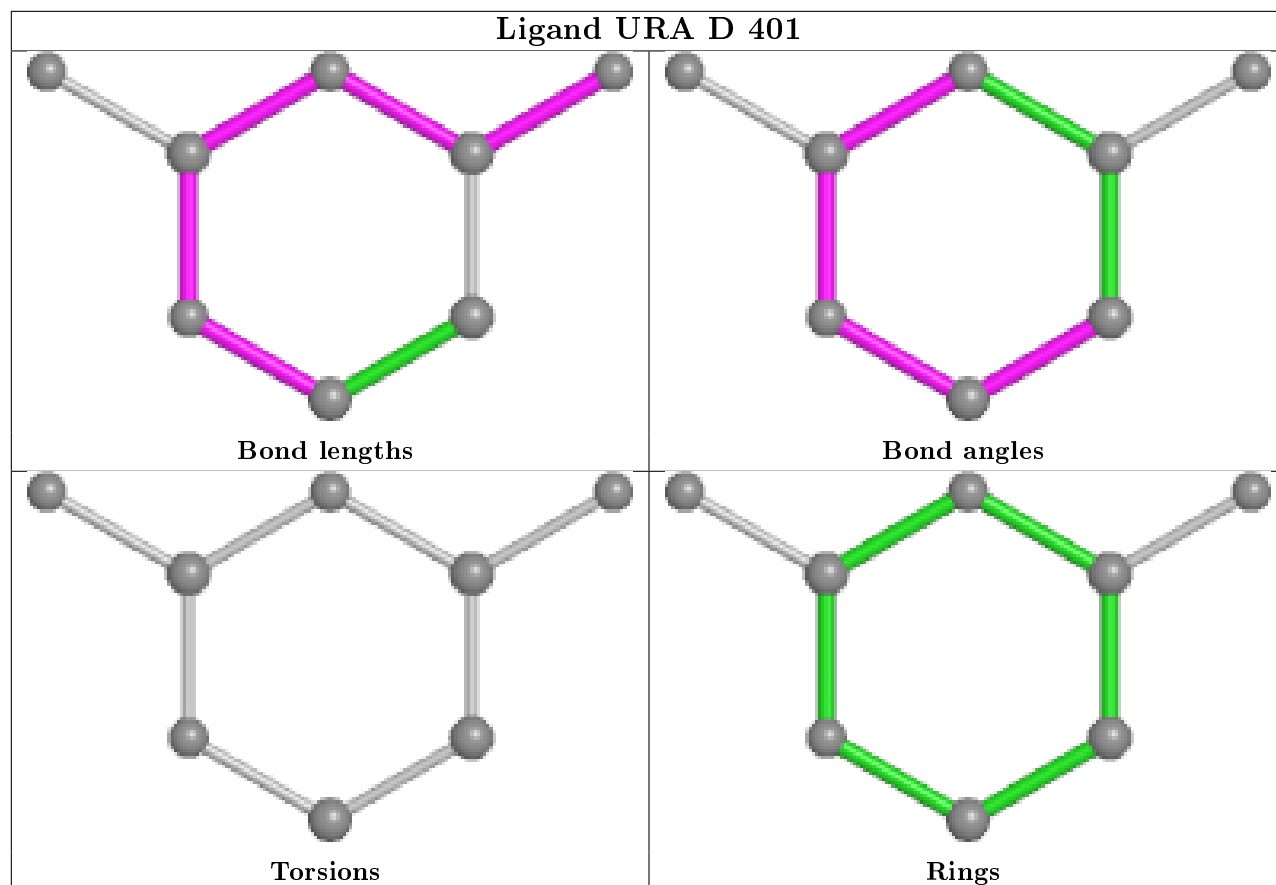
Torsions



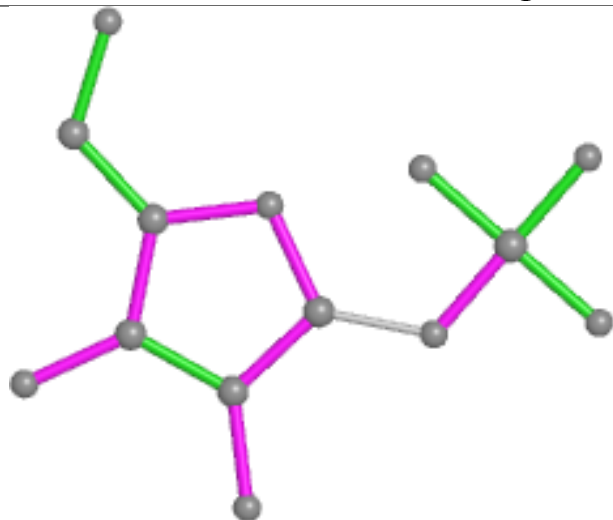
Rings

## Ligand R1P C 402

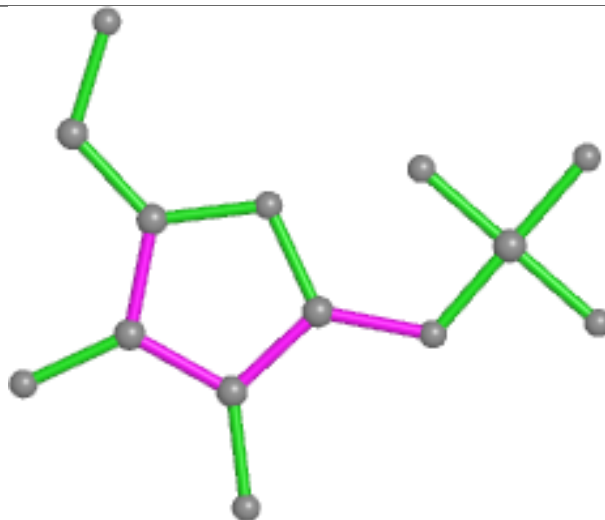




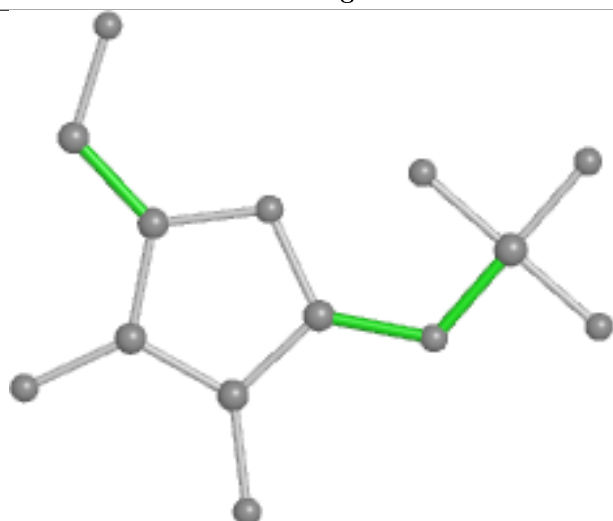
## Ligand R1P B 402



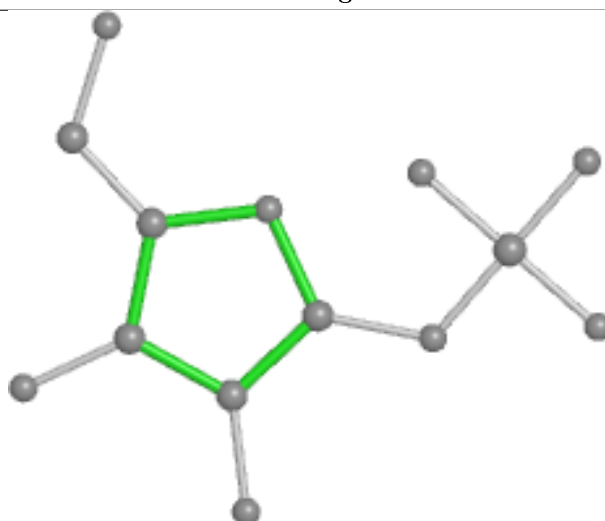
Bond lengths



Bond angles

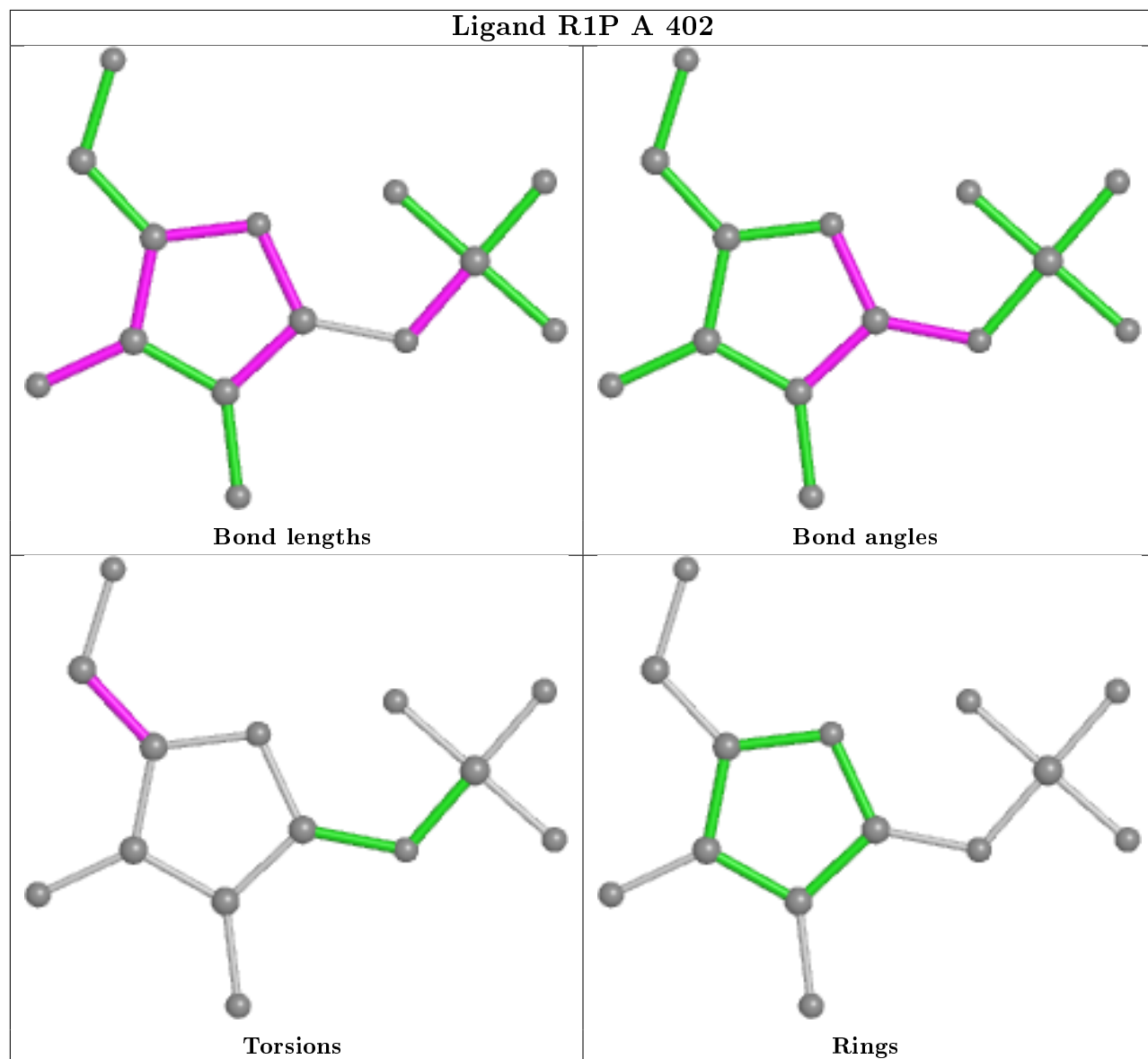


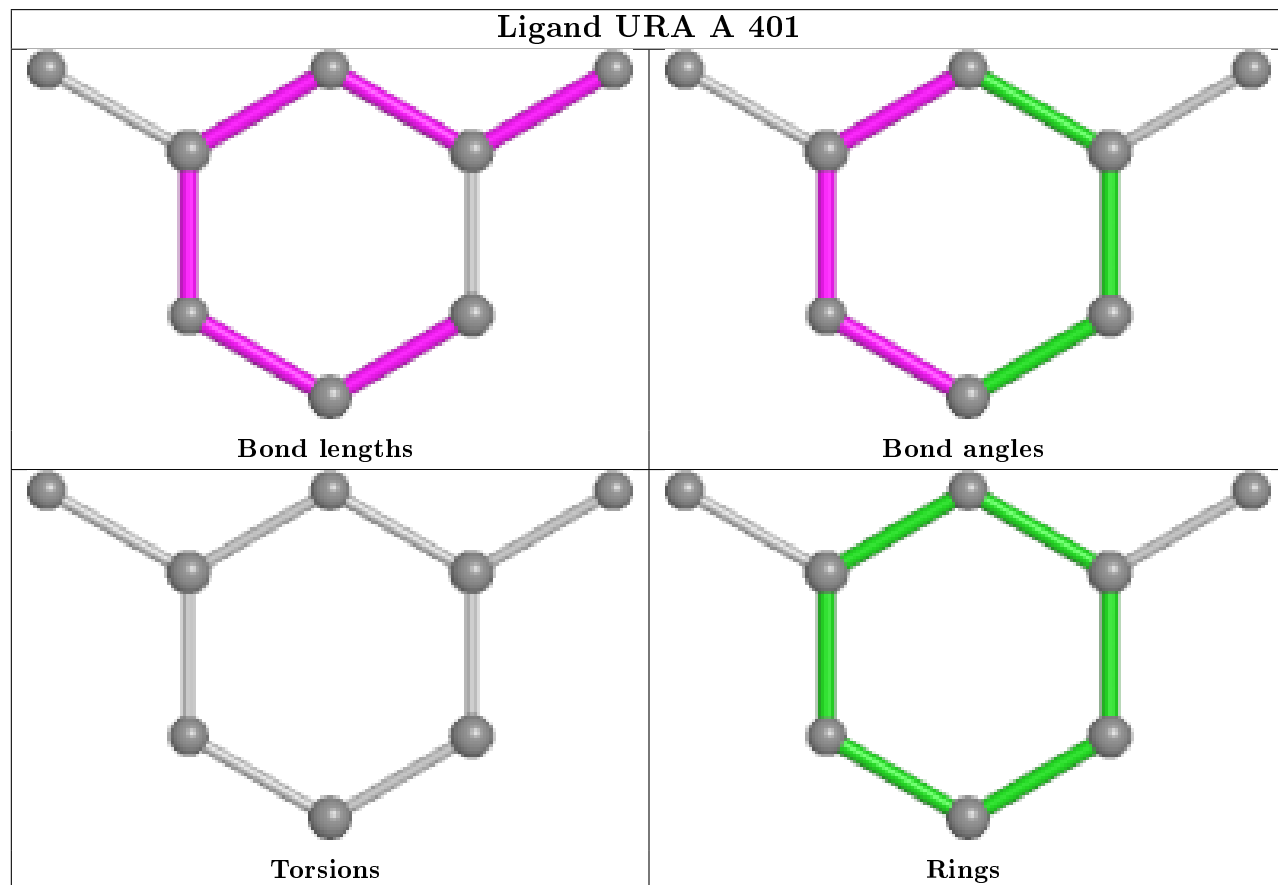
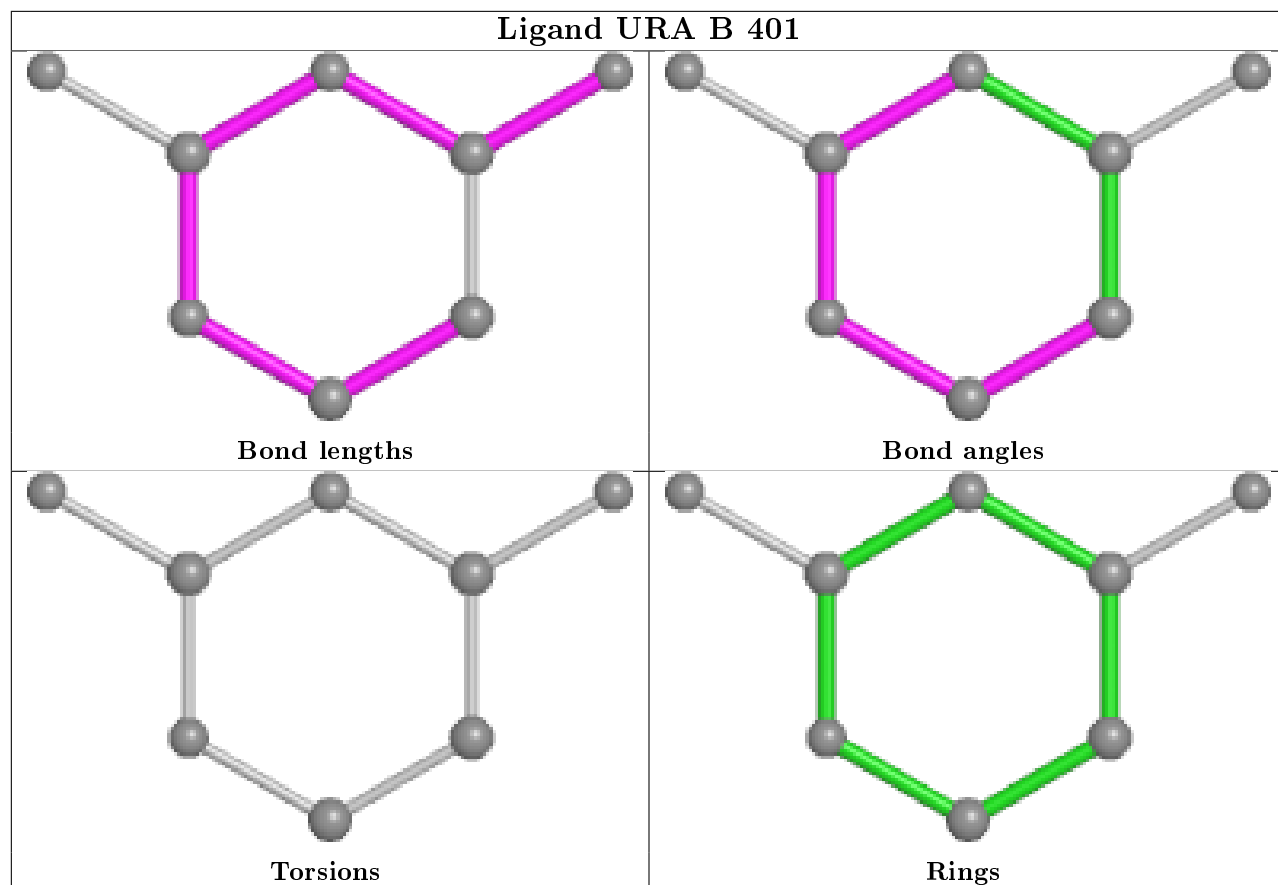
Torsions



Rings

## Ligand R1P A 402





## 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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	287/309 (92%)	0.29	14 (4%) 29 31	21, 35, 65, 93	0
1	B	286/309 (92%)	0.49	20 (6%) 16 16	21, 36, 73, 116	0
1	C	287/309 (92%)	0.38	15 (5%) 27 29	18, 36, 62, 119	0
1	D	288/309 (93%)	0.55	20 (6%) 16 17	20, 37, 67, 105	0
All	All	1148/1236 (92%)	0.43	69 (6%) 21 22	18, 36, 67, 119	0

The worst 5 of 69 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	143	GLU	8.5
1	D	143	GLU	7.9
1	B	182	ALA	6.8
1	D	141	ALA	5.9
1	B	181	ALA	5.2

### 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 monosaccharides in this entry.

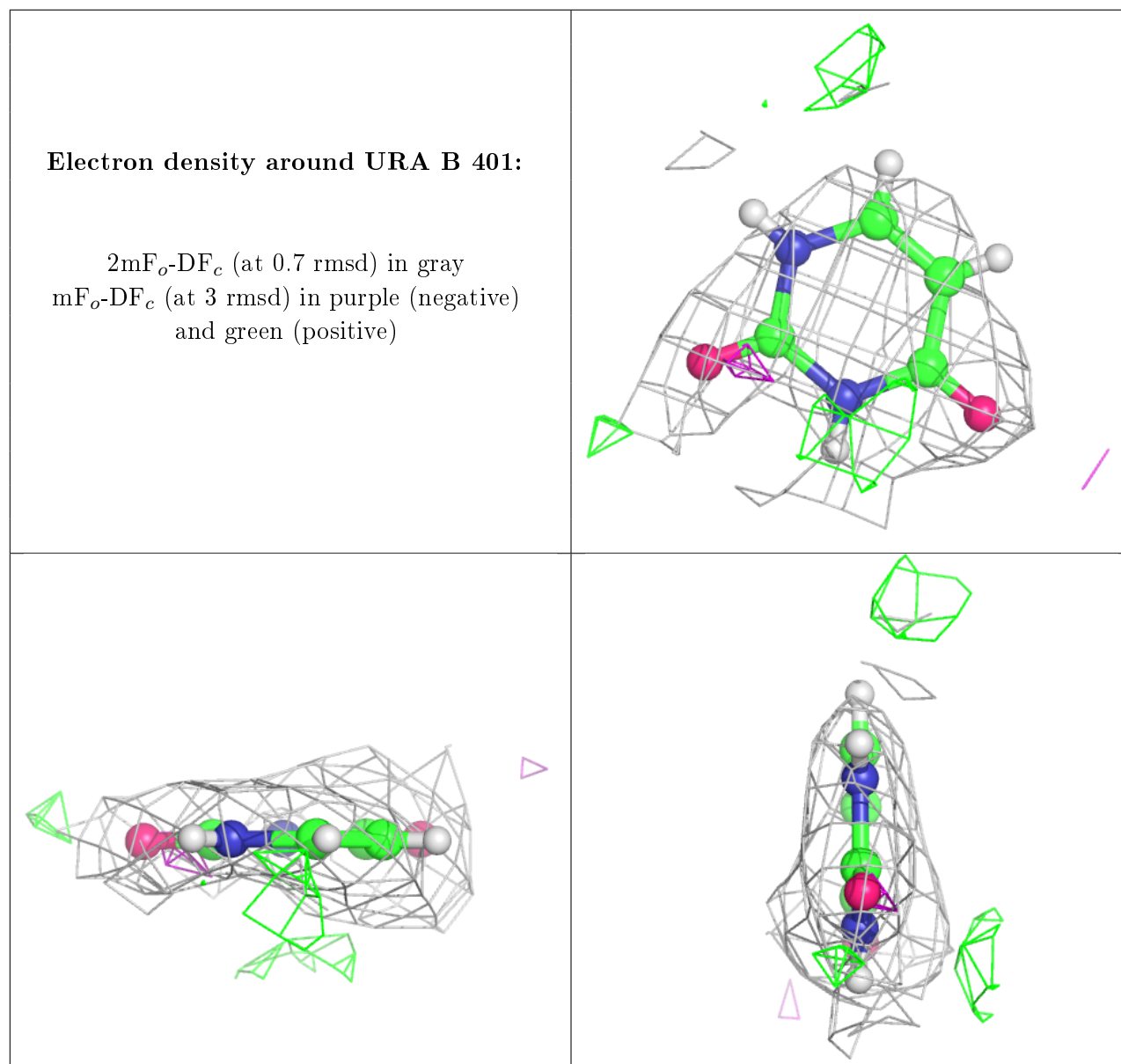
### 6.4 Ligands [i](#)

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<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q< 0.9’ lists the number of atoms with occupancy less than 0.9.



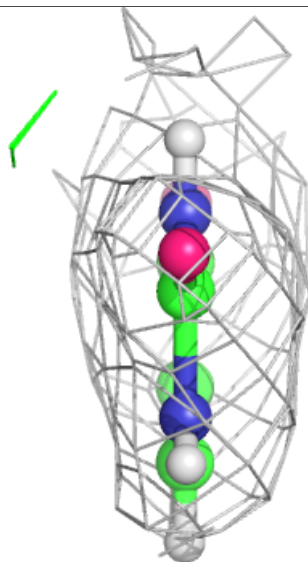
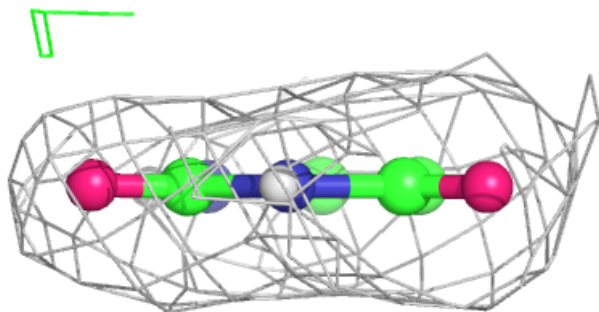
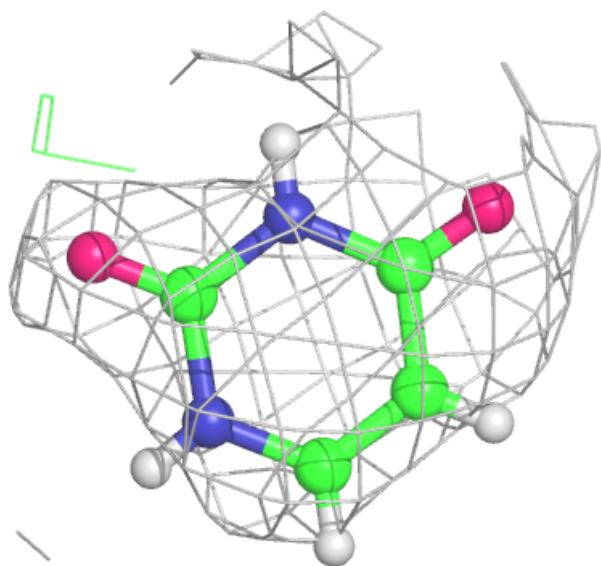
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	URA	B	401	8/8	0.90	0.23	28,35,42,44	0
2	URA	C	401	8/8	0.91	0.20	29,34,44,48	0
2	URA	A	401	8/8	0.92	0.17	28,37,44,47	0
3	R1P	C	402	14/14	0.93	0.18	24,37,45,49	0
2	URA	D	401	8/8	0.94	0.22	28,33,37,44	0
3	R1P	D	402	14/14	0.95	0.14	17,26,42,44	0
3	R1P	A	402	14/14	0.96	0.17	19,33,40,49	0
3	R1P	B	402	14/14	0.98	0.15	20,31,42,47	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.



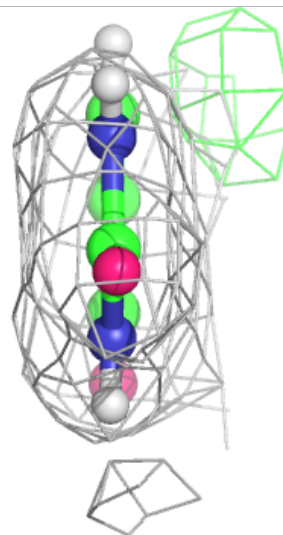
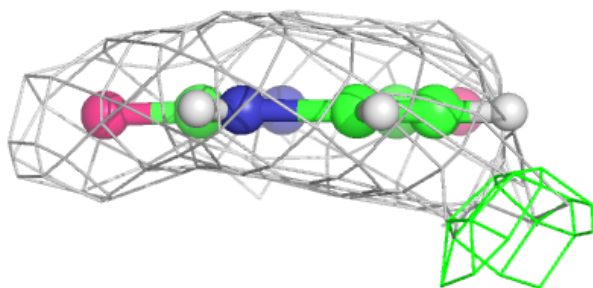
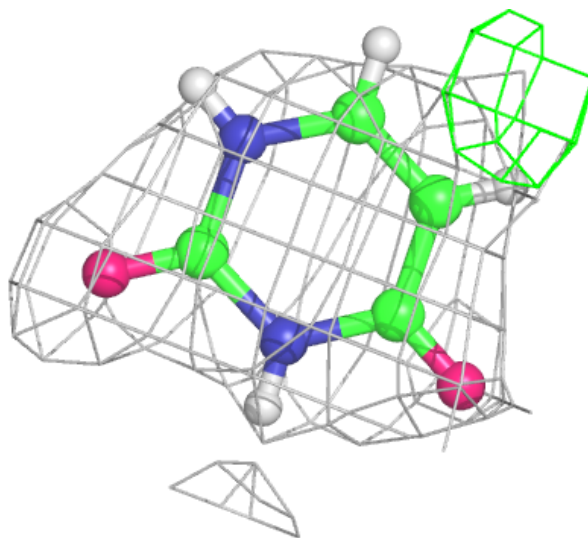
**Electron density around URA C 401:**

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



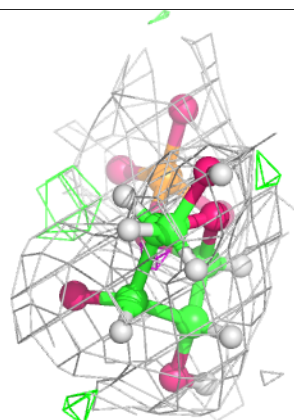
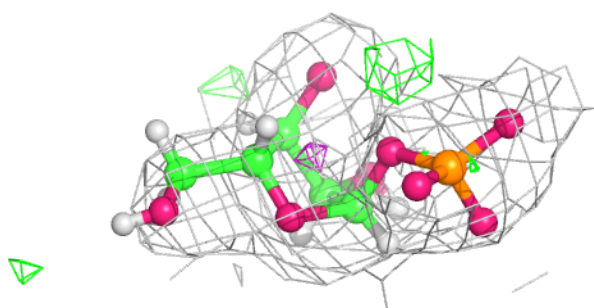
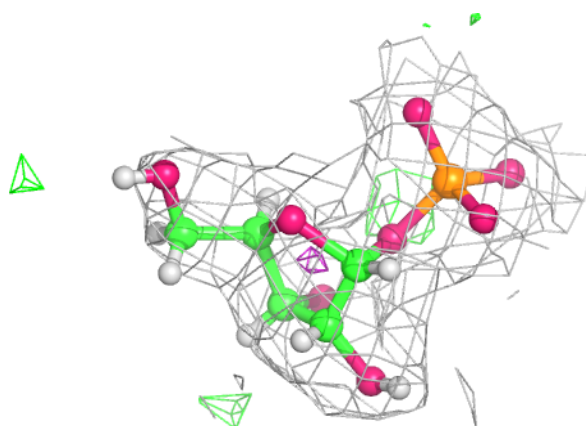
**Electron density around URA A 401:**

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



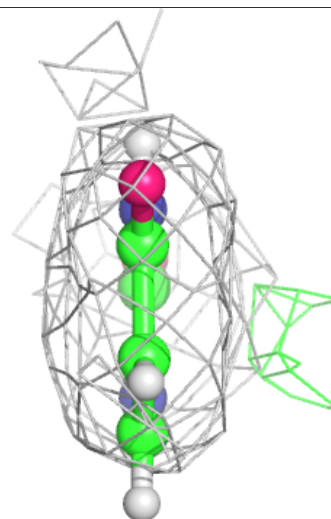
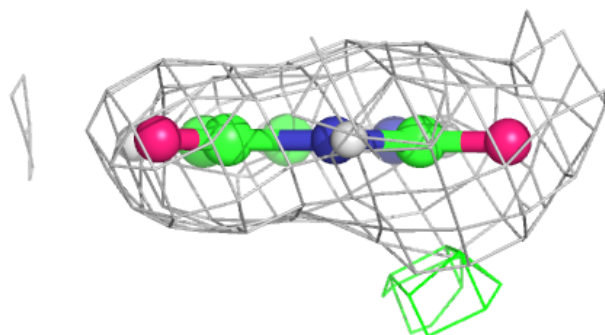
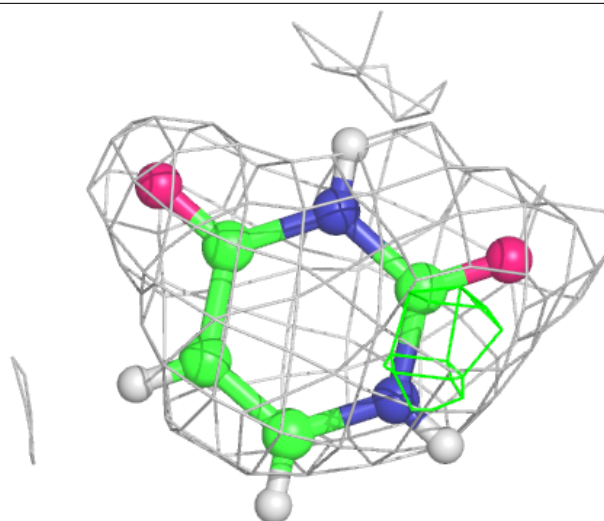
**Electron density around R1P C 402:**

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



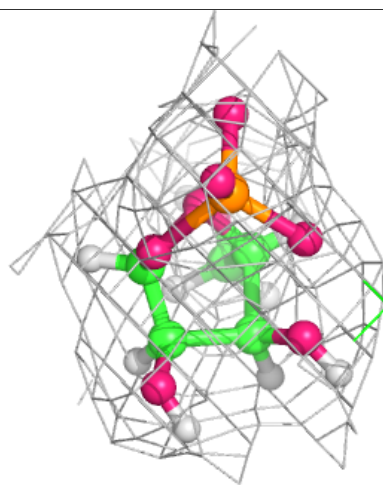
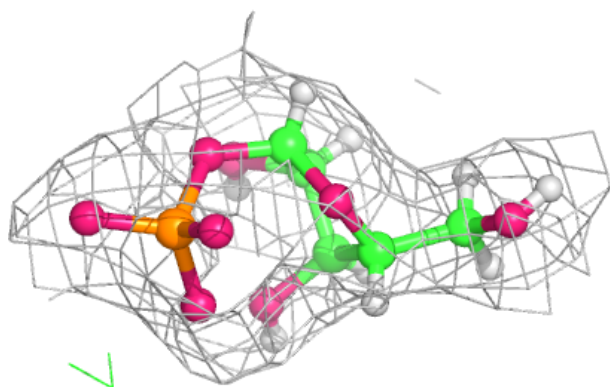
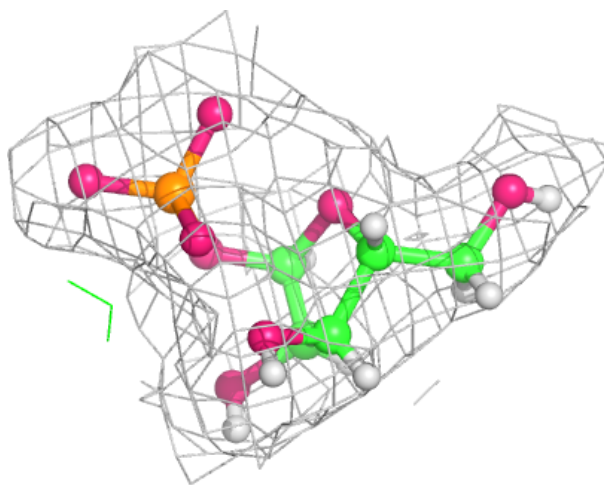
**Electron density around URA D 401:**

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



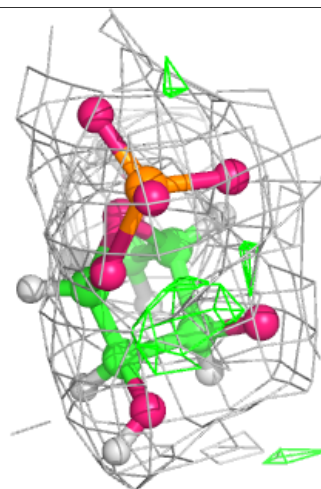
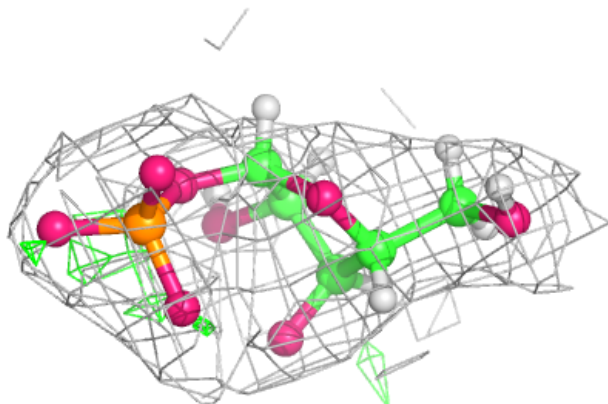
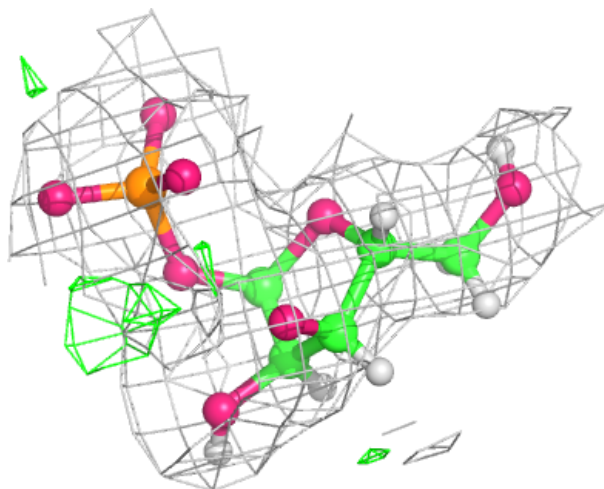
**Electron density around R1P D 402:**

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



**Electron density around R1P A 402:**

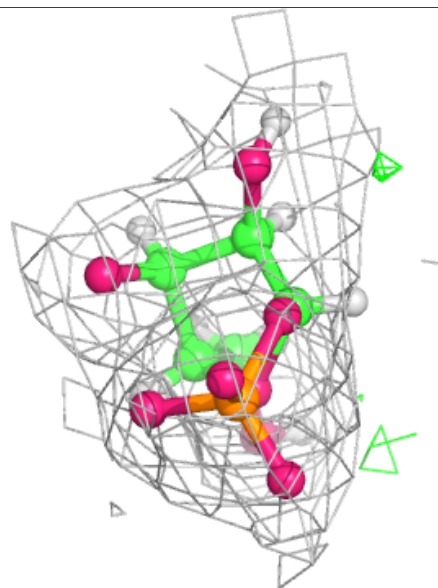
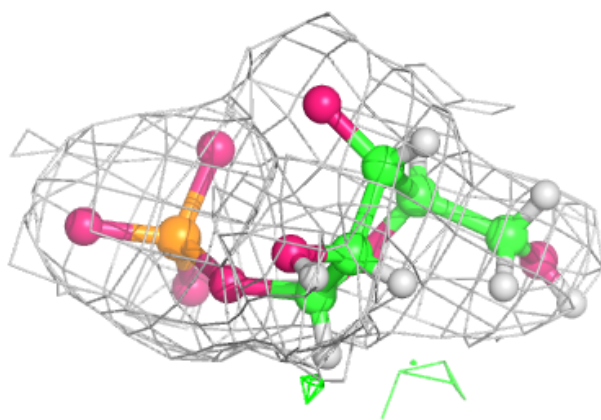
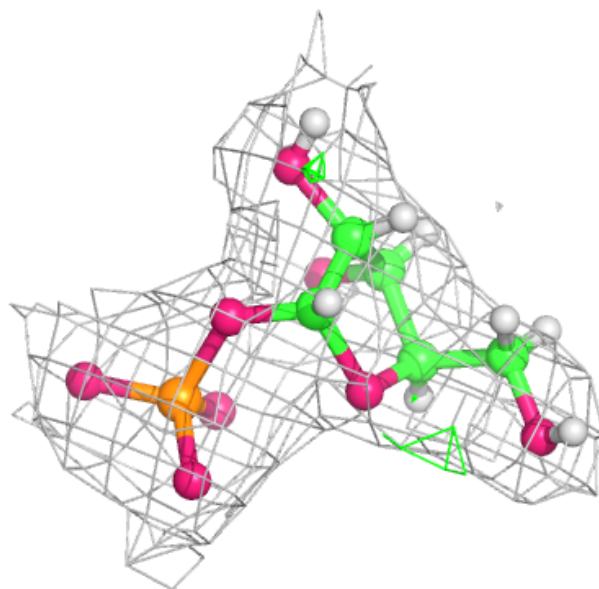
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





**Electron density around R1P B 402:**

$2mF_o-DF_c$  (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.