Full wwPDB X-ray Structure Validation Report ⓘ

Mar 29, 2026 – 11:51 PM UTC

PDB ID	:	6UVG / pdb_00006uvg
Title	:	Crystal structure of BCL-XL bound to compound 13: (R)-2-(3-([1,1'-Biphenyl]-4-carbonyl)-3-(4-methylbenzyl)ureido)-3-(((3R,5R,7R)-adamantan-1-ylmethyl)sulfonyl)propanoic acid
Authors	:	Roy, M.J.; Lessene, G.; Czabotar, P.E.
Deposited on	:	2019-11-02
Resolution	:	2.10 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:

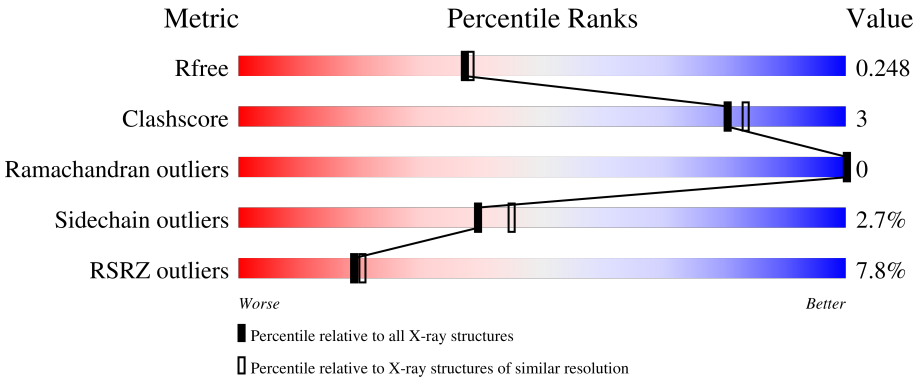
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal 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 (i)

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

The reported resolution of this entry is 2.10 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	6658 (2.10-2.10)
Clashscore	190562	7164 (2.10-2.10)
Ramachandran outliers	187476	7099 (2.10-2.10)
Sidechain outliers	187428	7100 (2.10-2.10)
RSRZ outliers	180081	6662 (2.10-2.10)

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	158	84% 8% • 8%
1	B	158	2% 84% 6% • 9%
1	C	158	82% • • 13%
1	D	158	14% 77% 11% • 11%

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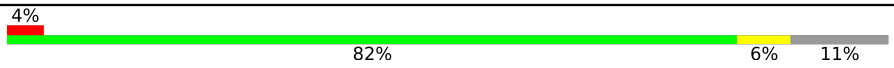
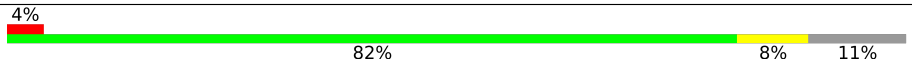
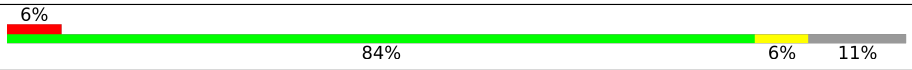
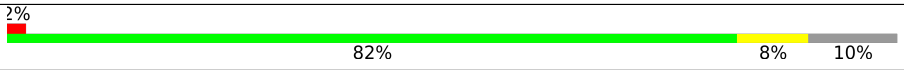
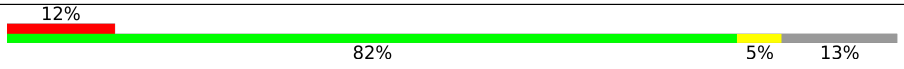
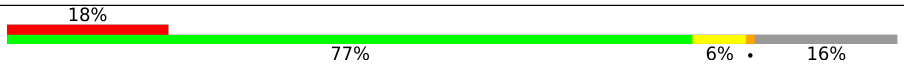
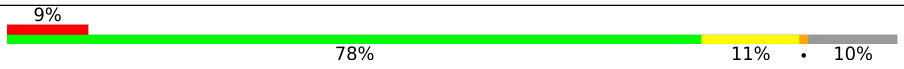
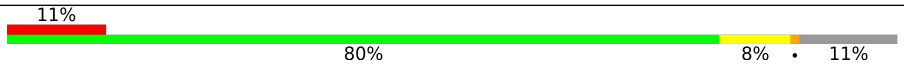
Mol	Chain	Length	Quality of chain
1	E	158	
1	F	158	
1	G	158	
1	H	158	
1	I	158	
1	J	158	
1	K	158	
1	L	158	

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 14083 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 Bcl-2-like protein 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	145	Total	C	N	O	S	0	1	0
			1174	749	198	222	5			
1	B	144	Total	C	N	O	S	0	0	0
			1154	739	192	218	5			
1	C	138	Total	C	N	O	S	0	0	0
			1116	714	188	210	4			
1	D	140	Total	C	N	O	S	0	0	0
			1082	691	181	206	4			
1	E	140	Total	C	N	O	S	0	0	0
			1132	724	191	213	4			
1	F	141	Total	C	N	O	S	0	0	0
			1114	710	189	211	4			
1	G	141	Total	C	N	O	S	0	0	0
			1131	724	189	213	5			
1	H	142	Total	C	N	O	S	0	0	0
			1142	730	193	215	4			
1	I	138	Total	C	N	O	S	0	0	0
			1043	673	178	188	4			
1	J	133	Total	C	N	O	S	0	0	0
			1028	662	171	191	4			
1	K	142	Total	C	N	O	S	0	0	0
			1133	723	191	215	4			
1	L	140	Total	C	N	O	S	0	0	0
			1074	691	180	198	5			

There are 60 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	GLY	-	expression tag	UNP Q07817
A	-4	PRO	-	expression tag	UNP Q07817
A	-3	LEU	-	expression tag	UNP Q07817
A	-2	GLY	-	expression tag	UNP Q07817
A	-1	SER	-	expression tag	UNP Q07817

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-5	GLY	-	expression tag	UNP Q07817
B	-4	PRO	-	expression tag	UNP Q07817
B	-3	LEU	-	expression tag	UNP Q07817
B	-2	GLY	-	expression tag	UNP Q07817
B	-1	SER	-	expression tag	UNP Q07817
C	-4	GLY	-	expression tag	UNP Q07817
C	-3	PRO	-	expression tag	UNP Q07817
C	-2	LEU	-	expression tag	UNP Q07817
C	-1	GLY	-	expression tag	UNP Q07817
C	0	SER	-	expression tag	UNP Q07817
D	-5	GLY	-	expression tag	UNP Q07817
D	-4	PRO	-	expression tag	UNP Q07817
D	-3	LEU	-	expression tag	UNP Q07817
D	-2	GLY	-	expression tag	UNP Q07817
D	-1	SER	-	expression tag	UNP Q07817
E	-4	GLY	-	expression tag	UNP Q07817
E	-3	PRO	-	expression tag	UNP Q07817
E	-2	LEU	-	expression tag	UNP Q07817
E	-1	GLY	-	expression tag	UNP Q07817
E	0	SER	-	expression tag	UNP Q07817
F	-4	GLY	-	expression tag	UNP Q07817
F	-3	PRO	-	expression tag	UNP Q07817
F	-2	LEU	-	expression tag	UNP Q07817
F	-1	GLY	-	expression tag	UNP Q07817
F	0	SER	-	expression tag	UNP Q07817
G	-5	GLY	-	expression tag	UNP Q07817
G	-4	PRO	-	expression tag	UNP Q07817
G	-3	LEU	-	expression tag	UNP Q07817
G	-2	GLY	-	expression tag	UNP Q07817
G	-1	SER	-	expression tag	UNP Q07817
H	-4	GLY	-	expression tag	UNP Q07817
H	-3	PRO	-	expression tag	UNP Q07817
H	-2	LEU	-	expression tag	UNP Q07817
H	-1	GLY	-	expression tag	UNP Q07817
H	0	SER	-	expression tag	UNP Q07817
I	-4	GLY	-	expression tag	UNP Q07817
I	-3	PRO	-	expression tag	UNP Q07817
I	-2	LEU	-	expression tag	UNP Q07817
I	-1	GLY	-	expression tag	UNP Q07817
I	0	SER	-	expression tag	UNP Q07817
J	-4	GLY	-	expression tag	UNP Q07817
J	-3	PRO	-	expression tag	UNP Q07817

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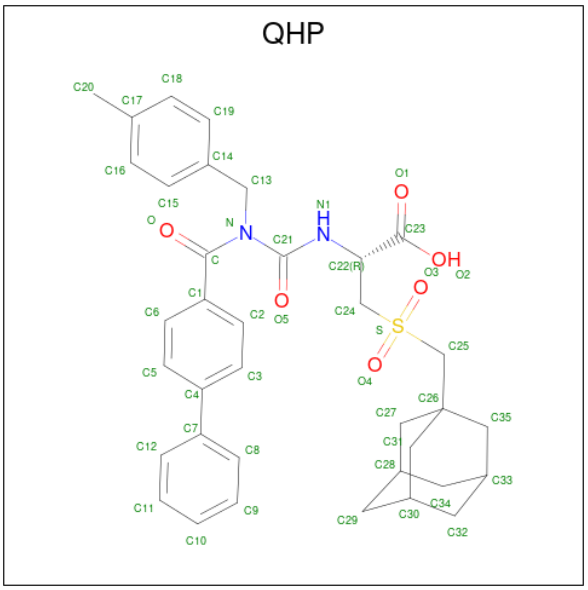
Chain	Residue	Modelled	Actual	Comment	Reference
J	-2	LEU	-	expression tag	UNP Q07817
J	-1	GLY	-	expression tag	UNP Q07817
J	0	SER	-	expression tag	UNP Q07817
K	-5	GLY	-	expression tag	UNP Q07817
K	-4	PRO	-	expression tag	UNP Q07817
K	-3	LEU	-	expression tag	UNP Q07817
K	-2	GLY	-	expression tag	UNP Q07817
K	-1	SER	-	expression tag	UNP Q07817
L	-5	GLY	-	expression tag	UNP Q07817
L	-4	PRO	-	expression tag	UNP Q07817
L	-3	LEU	-	expression tag	UNP Q07817
L	-2	GLY	-	expression tag	UNP Q07817
L	-1	SER	-	expression tag	UNP Q07817

- Molecule 2 is (R)-2-(3-([1,1'-Biphenyl]-4-carbonyl)-3-(4-methylbenzyl)ureido)-3-(((3R,5R,7R)-adamantan-1-ylmethyl)sulfonyl)propanoic acid (CCD ID: QHP) (formula: $C_{36}H_{40}N_2O_6S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	B	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	C	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	D	1	Total	C	N	O	S	0	0
			45	36	2	6	1		

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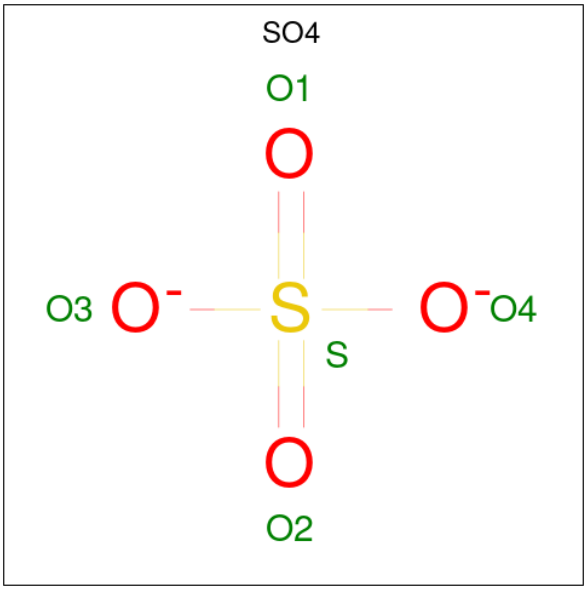
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	E	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	F	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	G	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	H	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	I	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	J	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	K	1	Total	C	N	O	S	0	0
			45	36	2	6	1		
2	L	1	Total	C	N	O	S	0	0
			45	36	2	6	1		

- Molecule 3 is SULFATE ION (CCD ID: SO4) (formula: O_4S).



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

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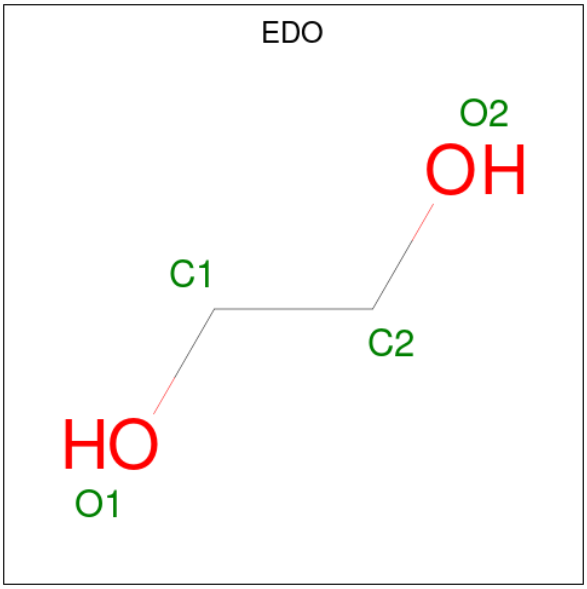
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total O S 5 4 1	0	0
3	H	1	Total O S 5 4 1	0	0
3	J	1	Total O S 5 4 1	0	0
3	K	1	Total O S 5 4 1	0	0
3	L	1	Total O S 5 4 1	0	0

- Molecule 4 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



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

- Molecule 5 is water.

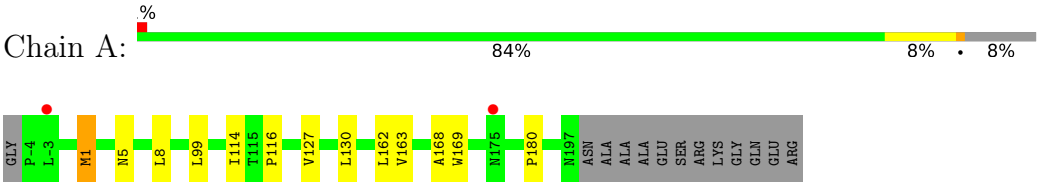
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	44	Total O 44 44	0	0
5	B	25	Total O 25 25	0	0
5	C	24	Total O 24 24	0	0
5	D	1	Total O 1 1	0	0
5	E	14	Total O 14 14	0	0
5	F	4	Total O 4 4	0	0
5	G	13	Total O 13 13	0	0
5	H	23	Total O 23 23	0	0
5	I	1	Total O 1 1	0	0
5	J	4	Total O 4 4	0	0
5	K	3	Total O 3 3	0	0
5	L	4	Total O 4 4	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.

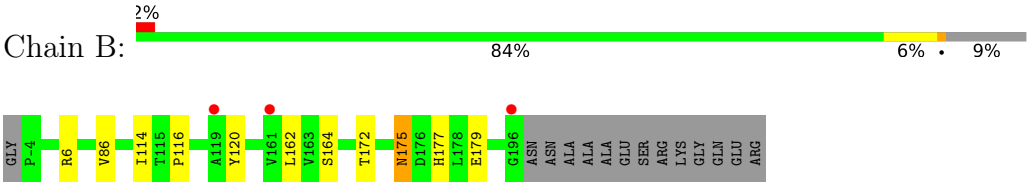
• Molecule 1: Bcl-2-like protein 1

Chain A:



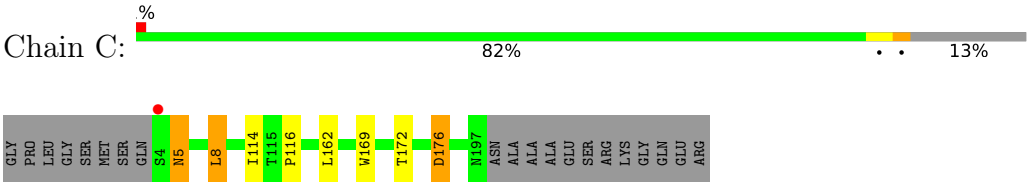
• Molecule 1: Bcl-2-like protein 1

Chain B:



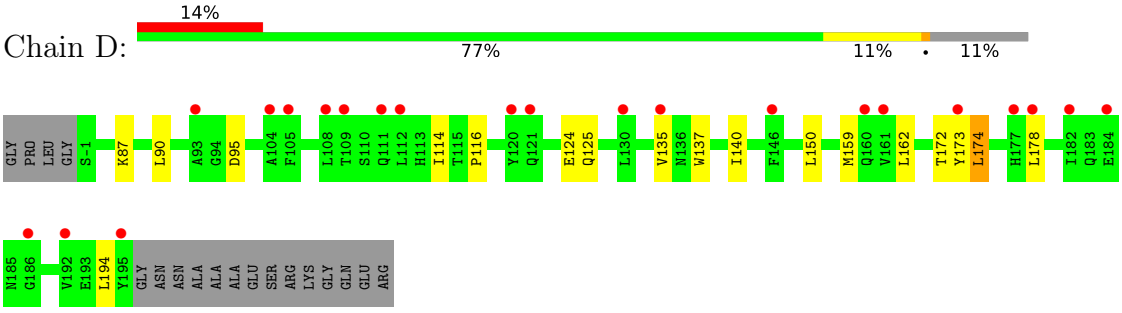
• Molecule 1: Bcl-2-like protein 1

Chain C:



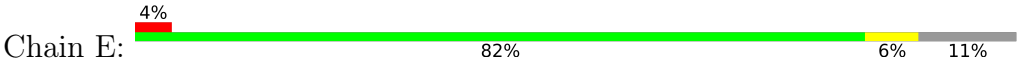
• Molecule 1: Bcl-2-like protein 1

Chain D:



• Molecule 1: Bcl-2-like protein 1

Chain E:

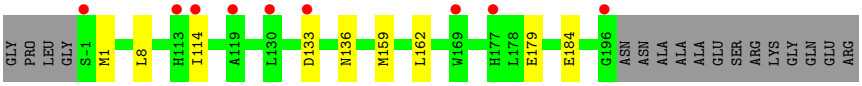


• Molecule 1: Bcl-2-like protein 1

Chain F:

• Molecule 1: Bcl-2-like protein 1

Chain G:

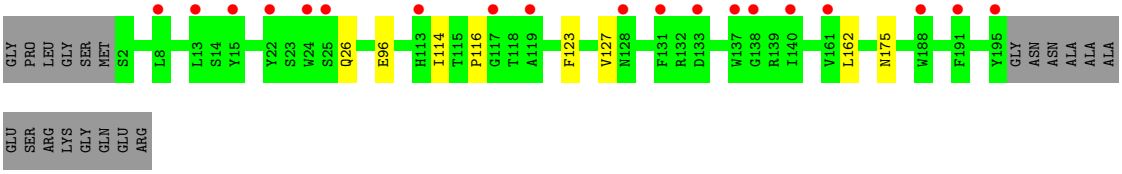


• Molecule 1: Bcl-2-like protein 1

Chain H:

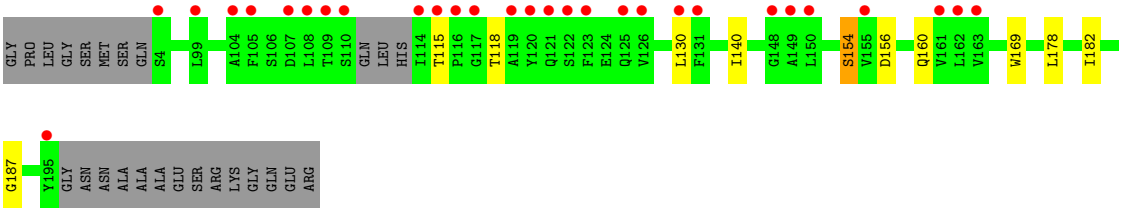
• Molecule 1: Bcl-2-like protein 1

Chain I:



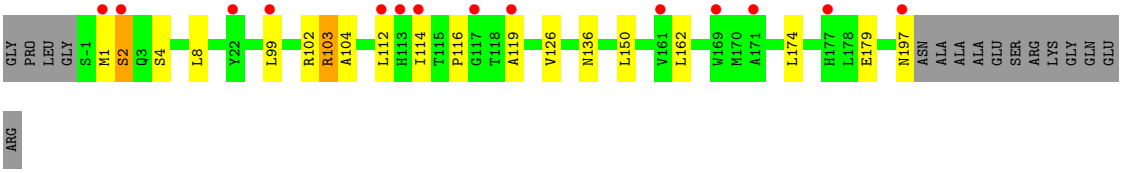
• Molecule 1: Bcl-2-like protein 1

Chain J:

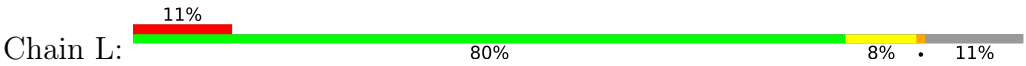


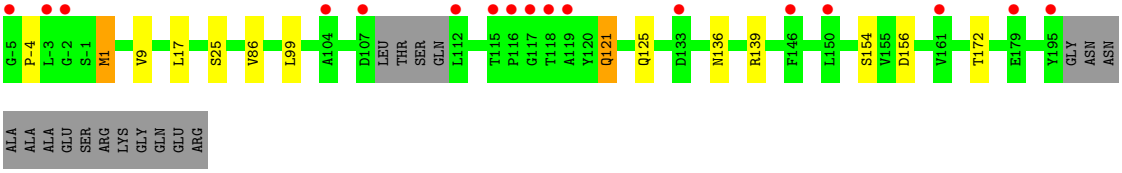
• Molecule 1: Bcl-2-like protein 1

Chain K:



• Molecule 1: Bcl-2-like protein 1





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	92.59Å 103.70Å 111.12Å 90.00° 111.20° 90.00°	Depositor
Resolution (Å)	30.22 – 2.10 30.22 – 2.10	Depositor EDS
% Data completeness (in resolution range)	98.7 (30.22-2.10) 98.9 (30.22-2.10)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.12 (at 2.10Å)	Xtriage
Refinement program	BUSTER	Depositor
R, R_{free}	0.205 , 0.228 0.220 , 0.248	Depositor DCC
R_{free} test set	5651 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	47.1	Xtriage
Anisotropy	0.222	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 51.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	14083	wwPDB-VP
Average B, all atoms (Å^2)	72.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.25% 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, QHP, EDO

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	0.99	0/1203	1.32	2/1628 (0.1%)
1	B	0.85	0/1183	1.29	3/1602 (0.2%)
1	C	0.90	0/1144	1.32	1/1551 (0.1%)
1	D	0.89	0/1109	1.39	3/1508 (0.2%)
1	E	0.91	0/1160	1.34	2/1571 (0.1%)
1	F	0.85	0/1141	1.39	0/1547
1	G	0.83	0/1158	1.31	2/1568 (0.1%)
1	H	0.89	0/1170	1.29	1/1585 (0.1%)
1	I	0.87	0/1070	1.38	1/1458 (0.1%)
1	J	0.88	0/1053	1.38	3/1432 (0.2%)
1	K	0.85	0/1160	1.37	9/1573 (0.6%)
1	L	0.87	0/1101	1.40	3/1494 (0.2%)
All	All	0.88	0/13652	1.35	30/18517 (0.2%)

There are no bond length outliers.

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	5	ASN	N-CA-C	-7.76	103.95	113.50
1	K	174	LEU	CA-C-N	6.56	128.97	120.44
1	K	174	LEU	C-N-CA	6.56	128.97	120.44
1	A	1	MET	CA-C-N	6.54	129.34	120.38
1	A	1	MET	C-N-CA	6.54	129.34	120.38
1	B	120	TYR	CA-C-N	6.28	128.98	120.38
1	B	120	TYR	C-N-CA	6.28	128.98	120.38
1	D	95	ASP	CA-CB-CG	5.86	118.46	112.60
1	L	156	ASP	CA-CB-CG	5.69	118.29	112.60
1	K	102	ARG	CA-C-N	5.65	132.33	121.54
1	K	102	ARG	C-N-CA	5.65	132.33	121.54
1	L	25	SER	CA-C-N	5.56	127.73	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	L	25	SER	C-N-CA	5.56	127.73	120.28
1	J	156	ASP	CA-CB-CG	5.54	118.14	112.60
1	G	133	ASP	CA-CB-CG	-5.49	107.11	112.60
1	K	103	ARG	CA-C-N	5.46	127.60	120.28
1	K	103	ARG	C-N-CA	5.46	127.60	120.28
1	J	154	SER	CA-C-N	5.38	127.82	120.46
1	J	154	SER	C-N-CA	5.38	127.82	120.46
1	K	136	ASN	CA-CB-CG	5.30	117.90	112.60
1	E	3	GLN	CA-C-N	5.26	127.76	120.29
1	E	3	GLN	C-N-CA	5.26	127.76	120.29
1	D	87	LYS	CA-C-N	5.25	127.26	120.44
1	D	87	LYS	C-N-CA	5.25	127.26	120.44
1	B	175	ASN	CA-CB-CG	5.18	117.78	112.60
1	I	175	ASN	CA-CB-CG	5.09	117.69	112.60
1	H	136	ASN	CA-CB-CG	5.05	117.65	112.60
1	G	136	ASN	CA-CB-CG	5.05	117.65	112.60
1	K	1	MET	CA-C-N	5.02	127.76	120.79
1	K	1	MET	C-N-CA	5.02	127.76	120.79

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1174	0	1119	8	0
1	B	1154	0	1098	7	0
1	C	1116	0	1053	6	0
1	D	1082	0	982	8	0
1	E	1132	0	1076	6	0
1	F	1114	0	1037	9	0
1	G	1131	0	1074	4	0
1	H	1142	0	1080	8	0
1	I	1043	0	948	3	0
1	J	1028	0	938	5	0
1	K	1133	0	1067	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	L	1074	0	980	6	0
2	A	45	0	0	0	0
2	B	45	0	0	0	0
2	C	45	0	0	2	0
2	D	45	0	0	1	0
2	E	45	0	0	0	0
2	F	45	0	0	0	0
2	G	45	0	0	0	0
2	H	45	0	0	0	0
2	I	45	0	0	0	0
2	J	45	0	0	0	0
2	K	45	0	0	0	0
2	L	45	0	0	0	0
3	A	5	0	0	0	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
3	H	5	0	0	0	0
3	J	5	0	0	0	0
3	K	5	0	0	0	0
3	L	5	0	0	0	0
4	A	4	0	6	0	0
4	E	4	0	6	0	0
4	G	8	0	12	0	0
4	H	4	0	6	2	0
5	A	44	0	0	1	0
5	B	25	0	0	1	0
5	C	24	0	0	0	0
5	D	1	0	0	0	0
5	E	14	0	0	0	0
5	F	4	0	0	0	0
5	G	13	0	0	0	0
5	H	23	0	0	0	0
5	I	1	0	0	0	0
5	J	4	0	0	0	0
5	K	3	0	0	0	0
5	L	4	0	0	0	0
All	All	14083	0	12482	69	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 3.

All (69) 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:114:ILE:HG13	1:D:150:LEU:HD22	1.52	0.90
1:A:1:MET:SD	1:B:179:GLU:HG2	2.20	0.82
1:G:8:LEU:HD21	1:H:86:VAL:HG23	1.62	0.80
1:B:164:SER:HB2	1:K:2:SER:HB2	1.67	0.74
1:C:114:ILE:HD12	1:C:169:TRP:HZ3	1.55	0.72
1:G:1:MET:SD	1:H:179:GLU:HG3	2.34	0.68
1:E:114:ILE:HG13	1:E:162:LEU:HD13	1.76	0.68
1:K:103:ARG:HG3	1:K:104:ALA:H	1.59	0.66
1:J:118:THR:HG23	1:J:169:TRP:HH2	1.60	0.66
1:C:8:LEU:HD23	1:D:90:LEU:HD22	1.80	0.64
1:K:179:GLU:HG2	1:L:1:MET:HG2	1.81	0.63
1:K:114:ILE:HG22	1:K:162:LEU:HD13	1.79	0.62
1:F:189:ASP:O	1:F:192:VAL:HG22	1.99	0.62
1:I:116:PRO:HA	1:I:162:LEU:HD21	1.83	0.60
1:D:116:PRO:HA	1:D:162:LEU:HD21	1.85	0.59
1:B:116:PRO:HA	1:B:162:LEU:HD21	1.85	0.59
1:L:136:ASN:OD1	1:L:139:ARG:HG3	2.03	0.59
1:H:83:MET:O	1:H:86:VAL:HG22	2.05	0.56
1:I:114:ILE:HG13	1:I:162:LEU:HD13	1.88	0.56
1:D:114:ILE:CG1	1:D:150:LEU:HD22	2.31	0.56
1:K:114:ILE:CD1	1:K:150:LEU:HD13	2.37	0.55
1:A:127:VAL:O	1:A:130:LEU:HB2	2.08	0.54
1:H:127:VAL:O	1:H:130:LEU:HB2	2.10	0.52
1:I:123:PHE:O	1:I:127:VAL:HG23	2.09	0.52
1:K:116:PRO:HA	1:K:162:LEU:HD21	1.90	0.52
1:F:133:ASP:HB2	1:F:139:ARG:HH22	1.75	0.52
1:C:114:ILE:HD12	1:C:169:TRP:CZ3	2.41	0.52
1:D:174:LEU:HA	1:D:178:LEU:HB2	1.92	0.51
1:G:114:ILE:HG13	1:G:162:LEU:HD13	1.92	0.50
1:K:8:LEU:HD21	1:L:86:VAL:HG12	1.93	0.50
1:H:139:ARG:HE	4:H:303:EDO:H11	1.76	0.50
1:A:5:ASN:HD22	1:B:175:ASN:ND2	2.10	0.49
1:A:114:ILE:HD12	1:A:169:TRP:HZ3	1.77	0.49
1:A:116:PRO:HA	1:A:162:LEU:HD21	1.94	0.49
1:K:112:LEU:HB2	1:K:126:VAL:HG21	1.95	0.48
1:K:114:ILE:HD12	1:K:150:LEU:HD13	1.93	0.48
1:K:103:ARG:CG	1:K:104:ALA:H	2.26	0.48
1:H:139:ARG:HE	4:H:303:EDO:C1	2.27	0.48
1:F:133:ASP:HB2	1:F:139:ARG:HH12	1.79	0.48
1:D:124:GLU:HA	1:D:173:TYR:HE2	1.79	0.48
1:H:114:ILE:HD12	1:H:169:TRP:HZ3	1.78	0.48
1:C:116:PRO:HA	1:C:162:LEU:HD21	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:172:THR:O	1:C:176:ASP:HB2	2.15	0.46
1:A:8:LEU:HD21	1:B:86:VAL:HG12	1.99	0.45
1:A:180:PRO:HD3	5:A:401:HOH:O	2.15	0.45
1:J:118:THR:HG23	1:J:169:TRP:CH2	2.46	0.45
1:J:140:ILE:HG12	1:J:178:LEU:HD13	1.99	0.45
2:C:301:QHP:C23	1:K:119:ALA:HA	2.47	0.45
2:D:301:QHP:C13	2:D:301:QHP:C6	2.95	0.44
1:L:121:GLN:O	1:L:125:GLN:HG2	2.17	0.44
1:F:130:LEU:HD13	1:F:139:ARG:HG3	1.99	0.44
1:E:7:GLU:HB3	1:F:83:MET:HE2	1.98	0.44
1:E:116:PRO:HA	1:E:162:LEU:HD21	2.00	0.43
2:C:301:QHP:O1	1:K:119:ALA:HA	2.18	0.43
1:J:115:THR:O	1:J:118:THR:HG22	2.18	0.43
1:B:172:THR:HG21	1:L:172:THR:OG1	2.19	0.43
1:C:5:ASN:HD22	1:D:174:LEU:HD22	1.84	0.43
1:B:177:HIS:HE1	5:B:401:HOH:O	2.00	0.42
1:A:168:ALA:HB1	1:L:-4:PRO:HB2	2.01	0.42
1:H:26:GLN:O	1:H:86:VAL:HG13	2.20	0.42
1:J:182:ILE:HG22	1:J:187:GLY:HA2	2.02	0.41
1:F:136:ASN:OD1	1:F:139:ARG:HD3	2.20	0.41
1:E:180:PRO:O	1:E:184:GLU:HG3	2.20	0.41
1:F:83:MET:HG3	1:F:87:LYS:HE3	2.03	0.41
1:G:114:ILE:O	1:G:159:MET:HE1	2.21	0.41
1:D:137:TRP:CE3	1:D:140:ILE:HD11	2.57	0.40
1:F:130:LEU:HD11	1:F:139:ARG:O	2.21	0.40
1:E:8:LEU:HG	1:F:83:MET:HE1	2.03	0.40
1:E:114:ILE:HG12	1:E:166:ILE:HD11	2.03	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	144/158 (91%)	143 (99%)	1 (1%)	0	100	100
1	B	142/158 (90%)	142 (100%)	0	0	100	100
1	C	136/158 (86%)	135 (99%)	1 (1%)	0	100	100
1	D	138/158 (87%)	133 (96%)	5 (4%)	0	100	100
1	E	138/158 (87%)	136 (99%)	2 (1%)	0	100	100
1	F	139/158 (88%)	137 (99%)	2 (1%)	0	100	100
1	G	139/158 (88%)	137 (99%)	2 (1%)	0	100	100
1	H	140/158 (89%)	139 (99%)	1 (1%)	0	100	100
1	I	136/158 (86%)	136 (100%)	0	0	100	100
1	J	129/158 (82%)	126 (98%)	3 (2%)	0	100	100
1	K	140/158 (89%)	137 (98%)	3 (2%)	0	100	100
1	L	136/158 (86%)	135 (99%)	1 (1%)	0	100	100
All	All	1657/1896 (87%)	1636 (99%)	21 (1%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	124/131 (95%)	122 (98%)	2 (2%)	55	64
1	B	121/131 (92%)	119 (98%)	2 (2%)	53	62
1	C	116/131 (88%)	114 (98%)	2 (2%)	53	62
1	D	106/131 (81%)	100 (94%)	6 (6%)	18	17
1	E	118/131 (90%)	117 (99%)	1 (1%)	73	81
1	F	112/131 (86%)	108 (96%)	4 (4%)	31	34
1	G	117/131 (89%)	115 (98%)	2 (2%)	53	62
1	H	118/131 (90%)	115 (98%)	3 (2%)	42	48
1	I	98/131 (75%)	96 (98%)	2 (2%)	48	56

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	J	99/131 (76%)	96 (97%)	3 (3%)	36 41
1	K	117/131 (89%)	113 (97%)	4 (3%)	32 35
1	L	103/131 (79%)	97 (94%)	6 (6%)	18 16
All	All	1349/1572 (86%)	1312 (97%)	37 (3%)	39 45

All (37) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	99	LEU
1	A	163	VAL
1	B	6	ARG
1	B	114	ILE
1	C	8	LEU
1	C	176	ASP
1	D	125	GLN
1	D	135	VAL
1	D	159	MET
1	D	172	THR
1	D	174	LEU
1	D	194	LEU
1	E	113	HIS
1	F	3	GLN
1	F	99	LEU
1	F	113	HIS
1	F	162	LEU
1	G	179	GLU
1	G	184	GLU
1	H	6	ARG
1	H	8	LEU
1	H	99	LEU
1	I	26	GLN
1	I	96	GLU
1	J	130	LEU
1	J	154	SER
1	J	160	GLN
1	K	2	SER
1	K	4	SER
1	K	99	LEU
1	K	197	ASN
1	L	1	MET
1	L	9	VAL

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Mol	Chain	Res	Type
1	L	17	LEU
1	L	99	LEU
1	L	121	GLN
1	L	154	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (33) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3	GLN
1	A	26	GLN
1	A	125	GLN
1	B	3	GLN
1	B	111	GLN
1	B	175	ASN
1	C	5	ASN
1	C	88	GLN
1	C	121	GLN
1	C	125	GLN
1	C	160	GLN
1	D	26	GLN
1	D	175	ASN
1	D	183	GLN
1	D	185	ASN
1	E	3	GLN
1	E	26	GLN
1	E	111	GLN
1	E	185	ASN
1	F	26	GLN
1	F	111	GLN
1	F	175	ASN
1	F	185	ASN
1	G	111	GLN
1	H	183	GLN
1	H	185	ASN
1	I	136	ASN
1	I	175	ASN
1	I	177	HIS
1	J	160	GLN
1	K	160	GLN
1	K	175	ASN
1	L	121	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

25 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	QHP	H	301	-	48,50,50	1.17	2 (4%)	68,74,74	0.66	1 (1%)
2	QHP	E	301	-	48,50,50	0.93	1 (2%)	68,74,74	0.61	2 (2%)
3	SO4	L	302	-	4,4,4	0.32	0	6,6,6	0.14	0
3	SO4	H	302	-	4,4,4	0.29	0	6,6,6	0.08	0
2	QHP	C	301	-	48,50,50	0.57	0	68,74,74	0.60	2 (2%)
3	SO4	D	302	-	4,4,4	0.39	0	6,6,6	0.23	0
2	QHP	A	301	-	48,50,50	1.02	1 (2%)	68,74,74	0.58	0
3	SO4	A	302	-	4,4,4	0.27	0	6,6,6	0.22	0
2	QHP	J	301	-	48,50,50	0.99	1 (2%)	68,74,74	0.57	2 (2%)
3	SO4	B	302	-	4,4,4	0.26	0	6,6,6	0.15	0
4	EDO	H	303	-	3,3,3	0.55	0	2,2,2	0.47	0
4	EDO	E	302	-	3,3,3	0.63	0	2,2,2	0.26	0
2	QHP	G	301	-	48,50,50	0.63	1 (2%)	68,74,74	0.75	1 (1%)
2	QHP	I	301	-	48,50,50	0.73	1 (2%)	68,74,74	0.38	0
4	EDO	G	302	-	3,3,3	0.63	0	2,2,2	0.15	0
3	SO4	C	302	-	4,4,4	0.33	0	6,6,6	0.19	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	SO4	J	302	-	4,4,4	0.26	0	6,6,6	0.20	0
4	EDO	A	303	-	3,3,3	0.46	0	2,2,2	0.59	0
2	QHP	L	301	-	48,50,50	0.79	1 (2%)	68,74,74	0.34	0
2	QHP	K	301	-	48,50,50	0.48	0	68,74,74	0.54	1 (1%)
2	QHP	B	301	-	48,50,50	0.69	1 (2%)	68,74,74	0.62	1 (1%)
2	QHP	F	301	-	48,50,50	0.95	1 (2%)	68,74,74	0.61	1 (1%)
2	QHP	D	301	-	48,50,50	0.74	1 (2%)	68,74,74	0.51	0
3	SO4	K	302	-	4,4,4	0.35	0	6,6,6	0.19	0
4	EDO	G	303	-	3,3,3	0.59	0	2,2,2	0.35	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
4	EDO	A	303	-	-	0/1/1/1	-
2	QHP	A	301	-	-	5/39/66/66	0/7/6/6
2	QHP	L	301	-	-	5/39/66/66	0/7/6/6
2	QHP	K	301	-	-	14/39/66/66	0/7/6/6
4	EDO	E	302	-	-	0/1/1/1	-
2	QHP	J	301	-	-	10/39/66/66	0/7/6/6
2	QHP	B	301	-	-	6/39/66/66	0/7/6/6
2	QHP	H	301	-	-	6/39/66/66	0/7/6/6
2	QHP	F	301	-	-	7/39/66/66	0/7/6/6
2	QHP	E	301	-	-	9/39/66/66	0/7/6/6
2	QHP	D	301	-	-	15/39/66/66	0/7/6/6
2	QHP	G	301	-	-	7/39/66/66	0/7/6/6
2	QHP	C	301	-	-	5/39/66/66	0/7/6/6
2	QHP	I	301	-	-	13/39/66/66	0/7/6/6
4	EDO	G	302	-	-	0/1/1/1	-
4	EDO	H	303	-	-	0/1/1/1	-
4	EDO	G	303	-	-	1/1/1/1	-

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	301	QHP	C24-C22	7.06	1.58	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	301	QHP	C24-C22	6.02	1.58	1.53
2	J	301	QHP	C24-C22	5.99	1.58	1.53
2	F	301	QHP	C24-C22	5.53	1.57	1.53
2	E	301	QHP	C24-C22	5.38	1.57	1.53
2	L	301	QHP	C24-C22	4.24	1.56	1.53
2	I	301	QHP	C24-C22	4.13	1.56	1.53
2	D	301	QHP	C24-C22	3.83	1.56	1.53
2	B	301	QHP	C24-C22	3.48	1.56	1.53
2	G	301	QHP	C24-C22	2.68	1.55	1.53
2	H	301	QHP	C-N	2.15	1.44	1.39

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	G	301	QHP	C22-C24-S	4.38	119.61	113.49
2	H	301	QHP	C22-C24-S	4.16	119.31	113.49
2	F	301	QHP	C22-C24-S	3.24	118.03	113.49
2	E	301	QHP	C22-C24-S	3.04	117.74	113.49
2	B	301	QHP	C22-C24-S	2.61	117.14	113.49
2	J	301	QHP	O4-S-C25	-2.47	102.79	108.22
2	J	301	QHP	C22-C24-S	2.38	116.82	113.49
2	C	301	QHP	O3-S-C25	2.34	113.36	108.22
2	C	301	QHP	O4-S-C25	-2.32	103.12	108.22
2	E	301	QHP	O3-S-C25	2.11	112.85	108.22
2	K	301	QHP	O4-S-C25	-2.09	103.63	108.22

There are no chirality outliers.

All (103) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	301	QHP	C22-C24-S-C25
2	D	301	QHP	C23-C22-C24-S
2	D	301	QHP	N1-C22-C24-S
2	D	301	QHP	S-C25-C26-C35
2	D	301	QHP	S-C25-C26-C31
2	D	301	QHP	S-C25-C26-C27
2	E	301	QHP	N-C21-N1-C22
2	E	301	QHP	C23-C22-C24-S
2	E	301	QHP	N1-C22-C24-S
2	F	301	QHP	N1-C22-C24-S
2	G	301	QHP	N1-C22-C24-S
2	H	301	QHP	N1-C22-C24-S

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Mol	Chain	Res	Type	Atoms
2	I	301	QHP	C23-C22-C24-S
2	I	301	QHP	N1-C22-C24-S
2	I	301	QHP	C14-C13-N-C
2	I	301	QHP	O-C-N-C21
2	I	301	QHP	C1-C-N-C21
2	I	301	QHP	O-C-N-C13
2	I	301	QHP	C1-C-N-C13
2	K	301	QHP	O5-C21-N1-C22
2	K	301	QHP	N-C21-N1-C22
2	K	301	QHP	C23-C22-C24-S
2	K	301	QHP	C22-C24-S-C25
2	L	301	QHP	O-C-N-C21
2	J	301	QHP	C3-C4-C7-C8
2	J	301	QHP	C3-C4-C7-C12
2	J	301	QHP	C5-C4-C7-C12
2	J	301	QHP	C5-C4-C7-C8
2	F	301	QHP	N-C21-N1-C22
2	E	301	QHP	O5-C21-N1-C22
2	I	301	QHP	N1-C22-C23-O2
2	I	301	QHP	N1-C22-C23-O1
2	K	301	QHP	C3-C4-C7-C8
2	A	301	QHP	O-C-N-C21
2	B	301	QHP	O-C-N-C21
2	C	301	QHP	O-C-N-C21
2	D	301	QHP	O-C-N-C21
2	E	301	QHP	O-C-N-C21
2	F	301	QHP	O-C-N-C21
2	G	301	QHP	O-C-N-C21
2	H	301	QHP	O-C-N-C21
2	J	301	QHP	O-C-N-C21
2	K	301	QHP	O-C-N-C21
2	B	301	QHP	C22-C24-S-O4
2	D	301	QHP	C22-C24-S-O4
2	K	301	QHP	C22-C24-S-O3
2	I	301	QHP	C24-C22-C23-O2
2	I	301	QHP	C24-C22-C23-O1
2	C	301	QHP	C1-C-N-C21
2	D	301	QHP	C1-C-N-C21
2	G	301	QHP	C1-C-N-C21
2	J	301	QHP	C1-C-N-C21
2	K	301	QHP	C1-C-N-C21
2	L	301	QHP	C1-C-N-C21

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Mol	Chain	Res	Type	Atoms
2	D	301	QHP	O-C-C1-C6
2	A	301	QHP	C22-C24-S-C25
2	C	301	QHP	C22-C24-S-C25
2	F	301	QHP	C22-C24-S-C25
2	G	301	QHP	C22-C24-S-C25
2	J	301	QHP	C22-C24-S-C25
2	A	301	QHP	O-C-N-C13
2	B	301	QHP	O-C-N-C13
2	C	301	QHP	O-C-N-C13
2	E	301	QHP	O-C-N-C13
2	F	301	QHP	O-C-N-C13
2	L	301	QHP	O-C-N-C13
4	G	303	EDO	O1-C1-C2-O2
2	I	301	QHP	C14-C13-N-C21
2	K	301	QHP	C5-C4-C7-C8
2	D	301	QHP	C22-C24-S-O3
2	G	301	QHP	C22-C24-S-O4
2	J	301	QHP	C22-C24-S-O4
2	D	301	QHP	C3-C4-C7-C12
2	D	301	QHP	N-C-C1-C6
2	K	301	QHP	C26-C25-S-C24
2	K	301	QHP	C3-C4-C7-C12
2	A	301	QHP	C1-C-N-C13
2	B	301	QHP	C1-C-N-C13
2	C	301	QHP	C1-C-N-C13
2	D	301	QHP	O-C-N-C13
2	D	301	QHP	C1-C-N-C13
2	E	301	QHP	C1-C-N-C13
2	F	301	QHP	C1-C-N-C13
2	G	301	QHP	O-C-N-C13
2	G	301	QHP	C1-C-N-C13
2	H	301	QHP	O-C-N-C13
2	H	301	QHP	C1-C-N-C13
2	J	301	QHP	O-C-N-C13
2	J	301	QHP	C1-C-N-C13
2	K	301	QHP	O-C-N-C13
2	K	301	QHP	C1-C-N-C13
2	L	301	QHP	C1-C-N-C13
2	A	301	QHP	C1-C-N-C21
2	E	301	QHP	C1-C-N-C21
2	B	301	QHP	C3-C4-C7-C8
2	E	301	QHP	C22-C24-S-O4

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Mol	Chain	Res	Type	Atoms
2	F	301	QHP	C22-C24-S-O3
2	H	301	QHP	C22-C24-S-O4
2	I	301	QHP	C22-C24-S-O4
2	L	301	QHP	C22-C24-S-O4
2	H	301	QHP	C23-C22-N1-C21
2	D	301	QHP	O-C-C1-C2
2	K	301	QHP	N1-C22-C24-S

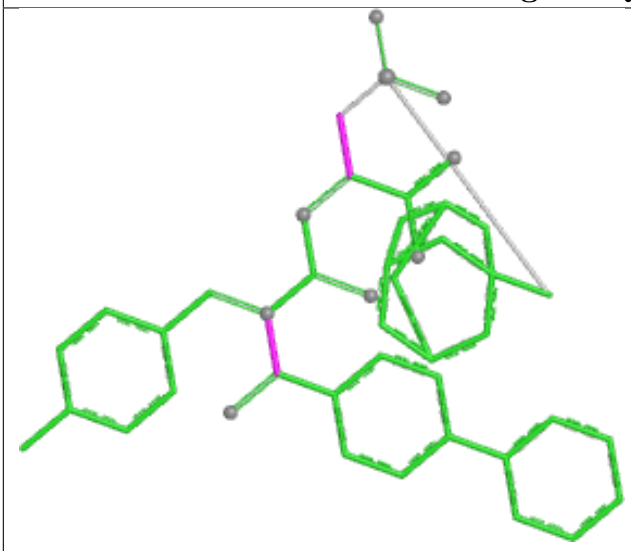
There are no ring outliers.

3 monomers are involved in 5 short contacts:

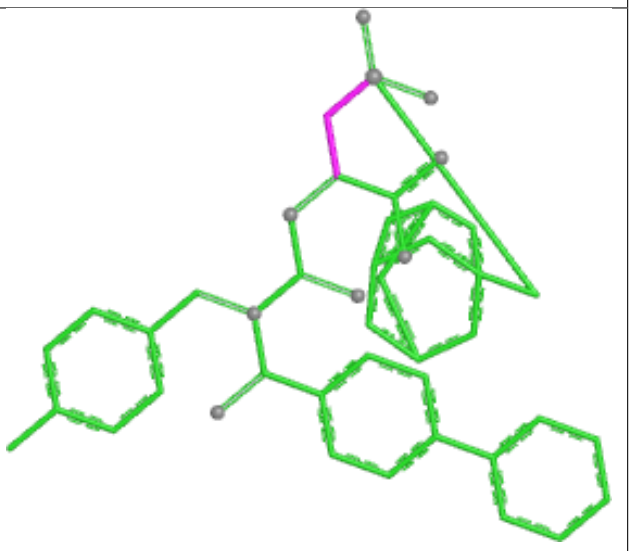
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	301	QHP	2	0
4	H	303	EDO	2	0
2	D	301	QHP	1	0

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.

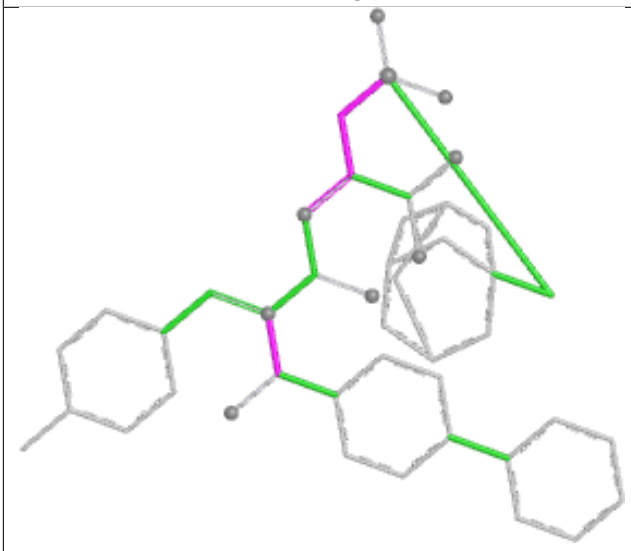
Ligand QHP H 301



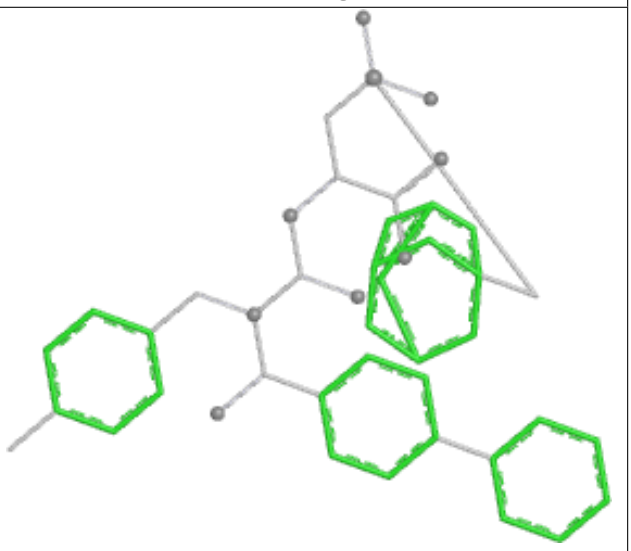
Bond lengths



Bond angles

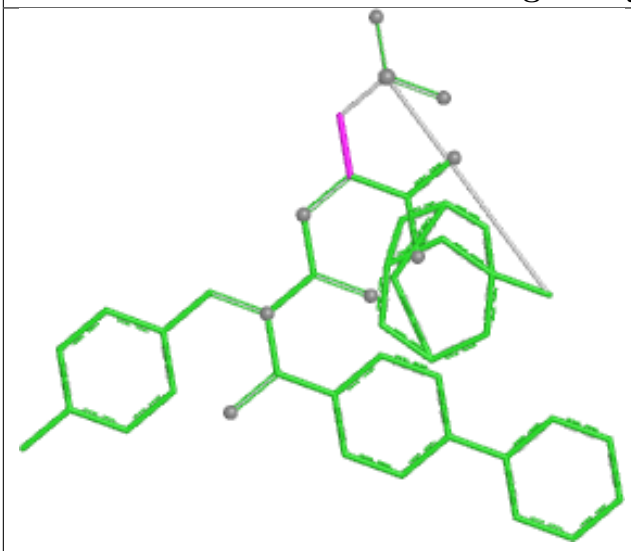


Torsions



Rings

Ligand QHP E 301



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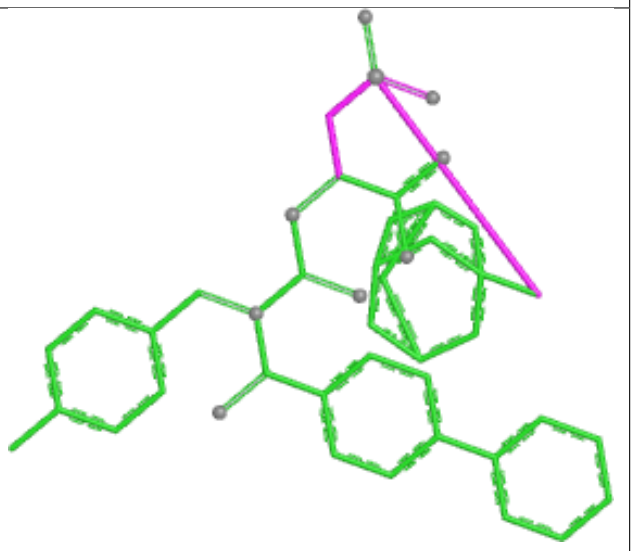
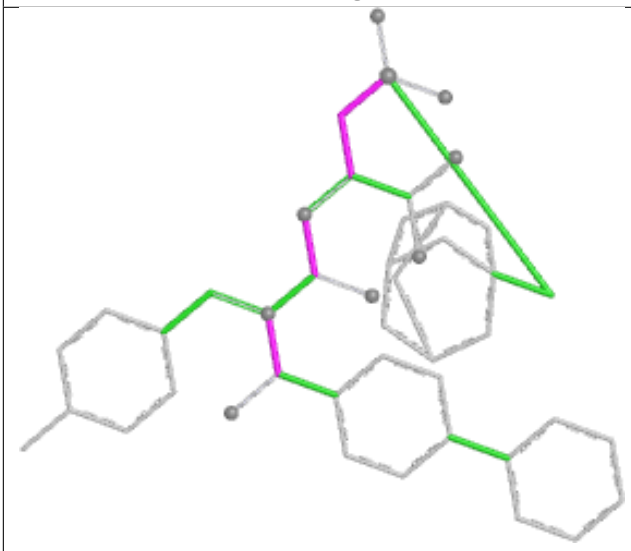


Bond angles



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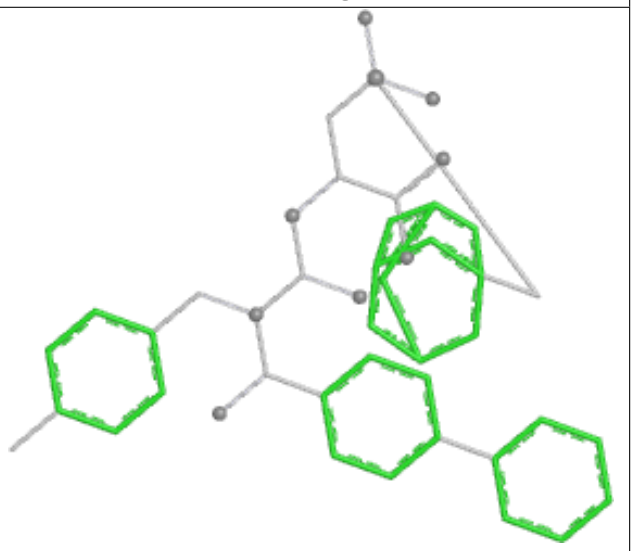
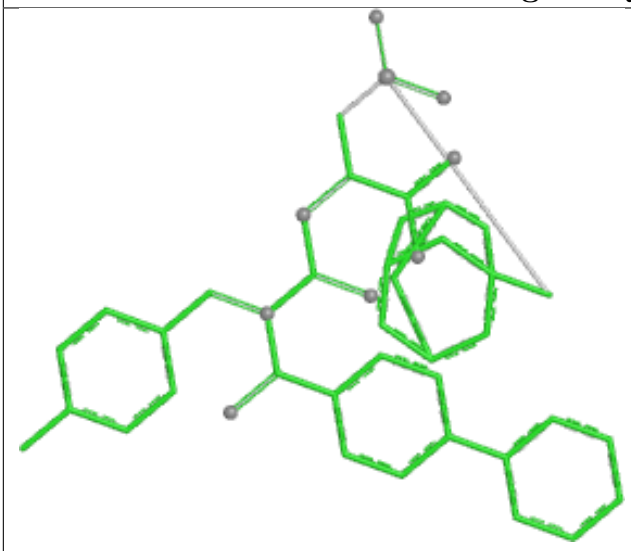


Rings

Ligand QHP C 301



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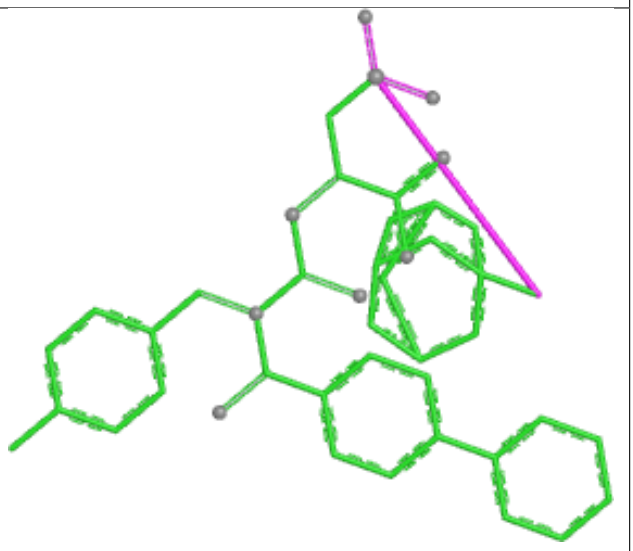
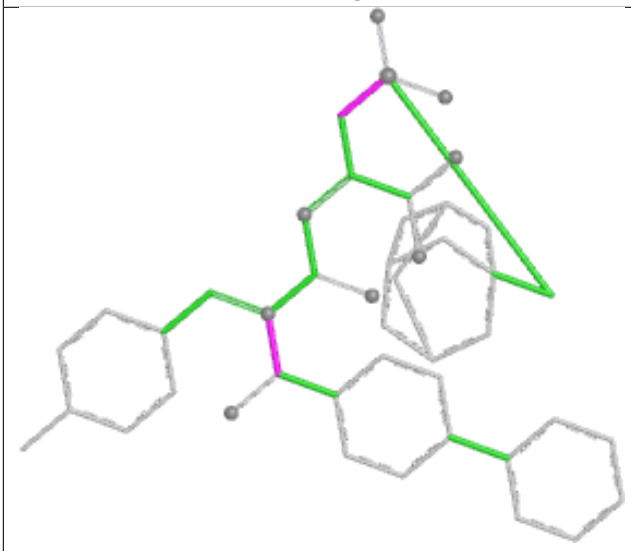


Bond angles



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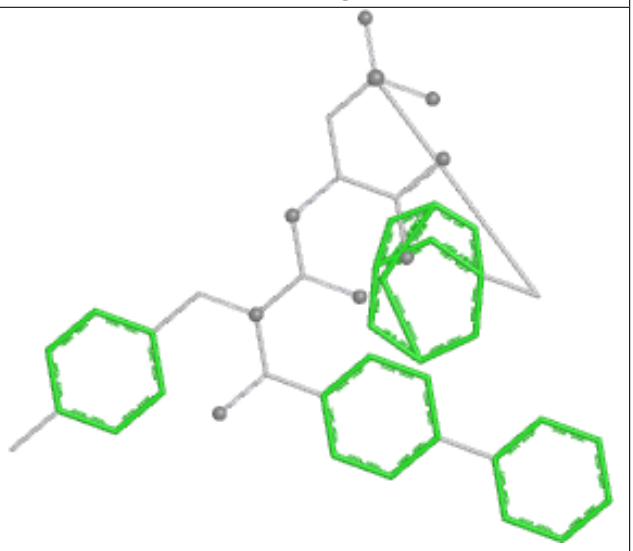
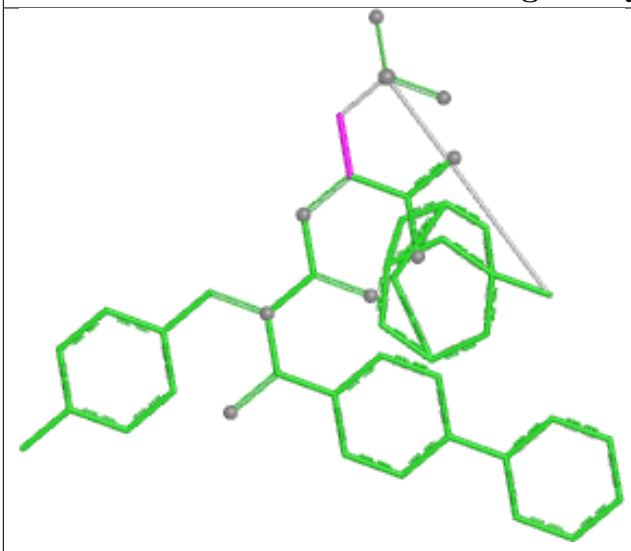


Rings

Ligand QHP A 301



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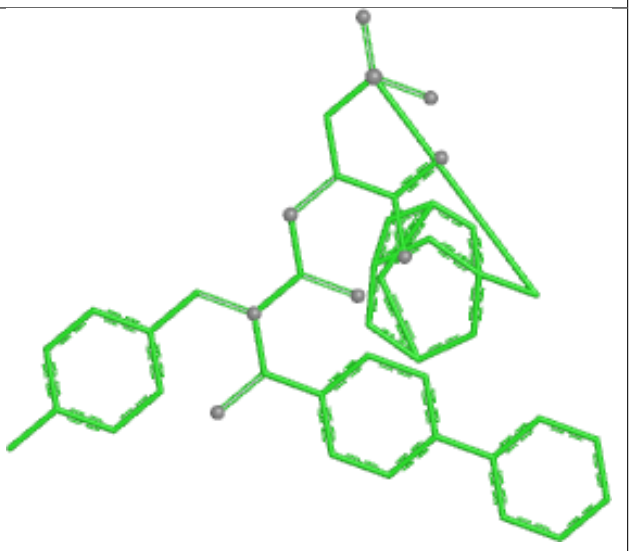
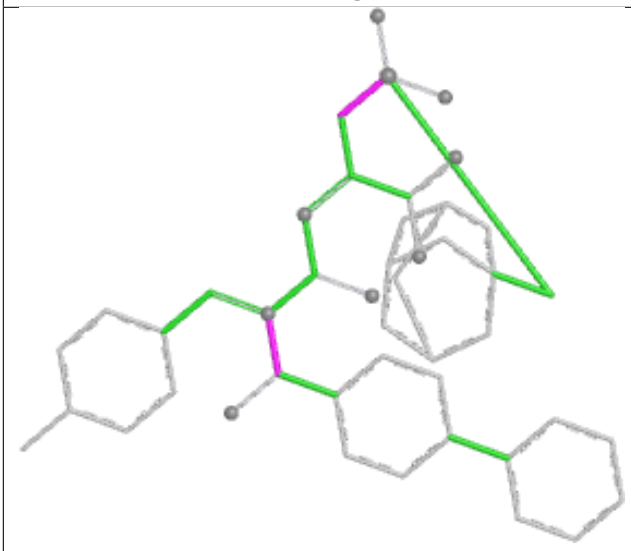


Bond angles



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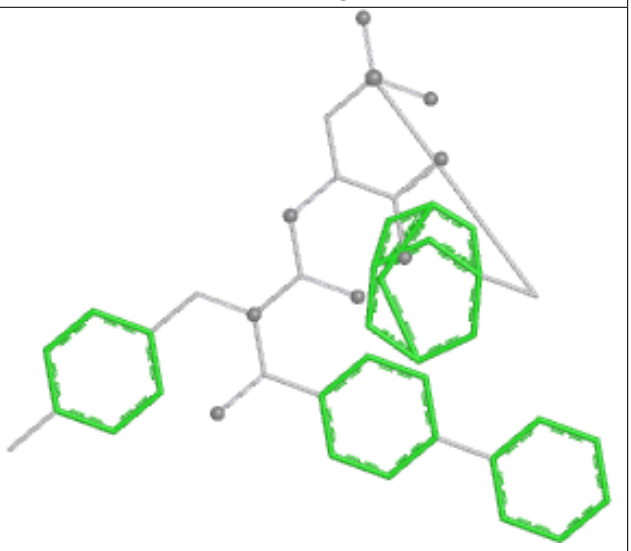
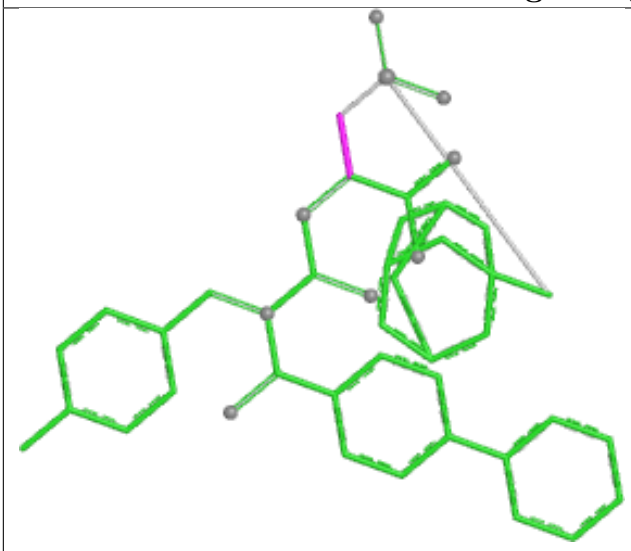


Rings

Ligand QHP J 301



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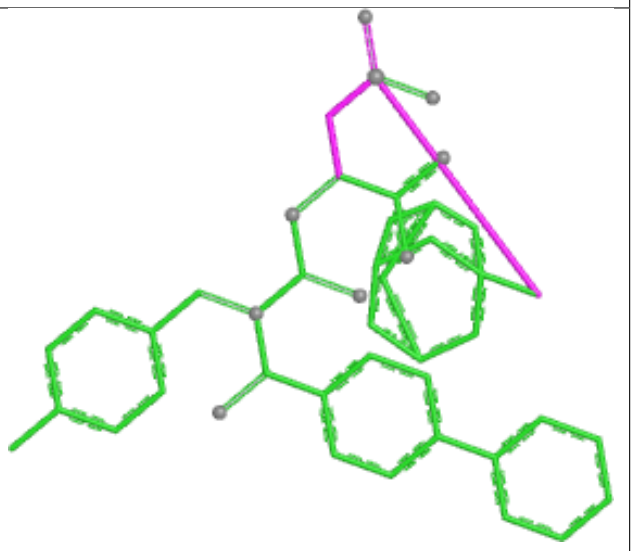

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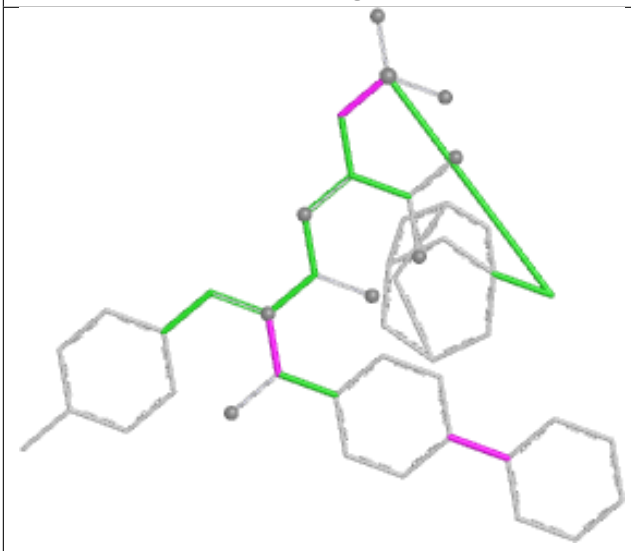

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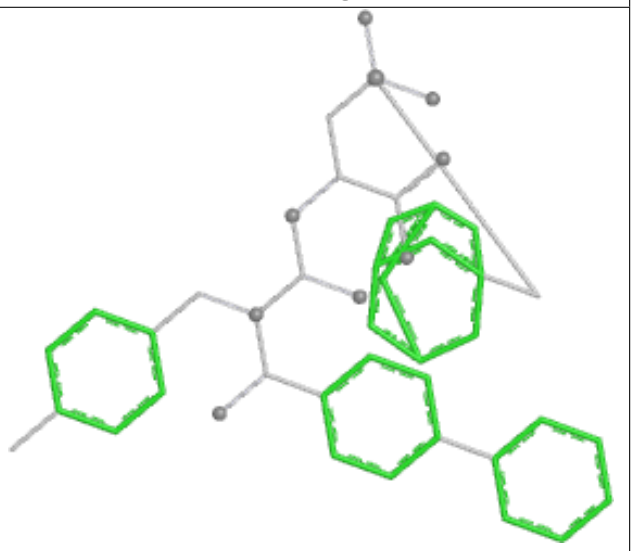
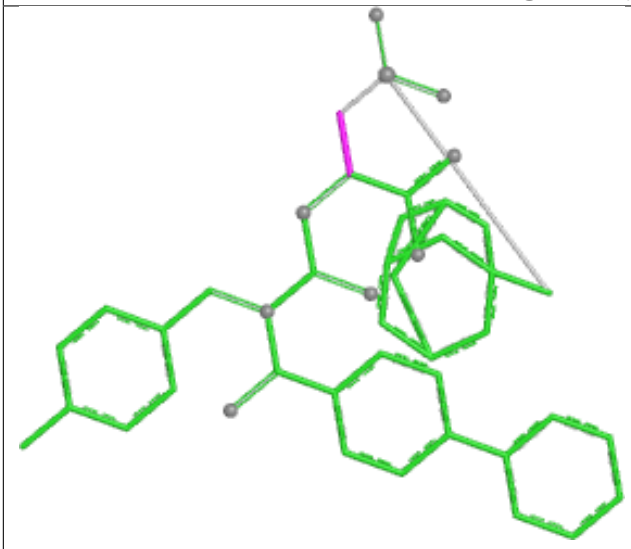


Rings

Ligand QHP G 301



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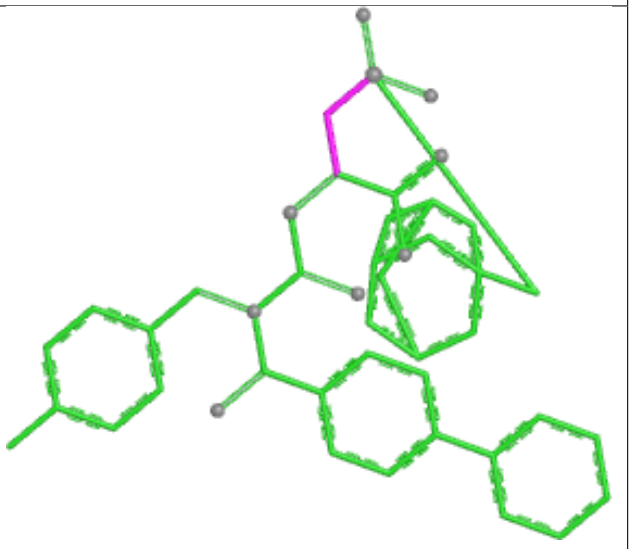

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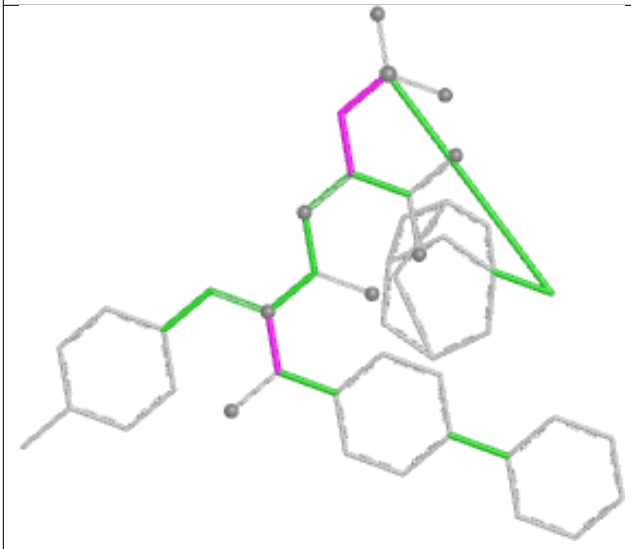

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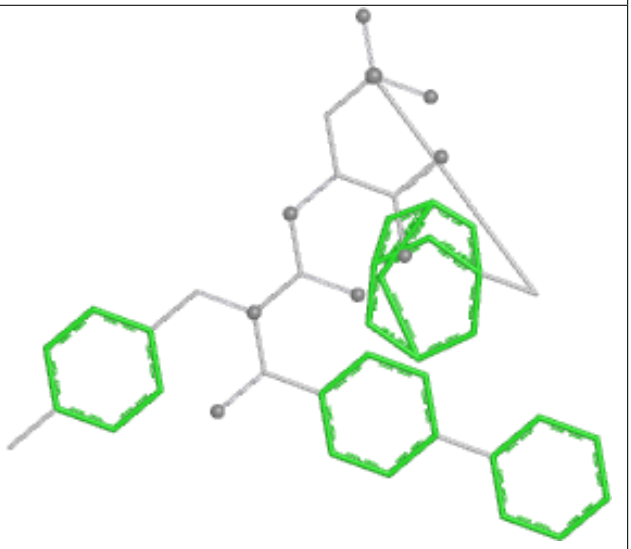
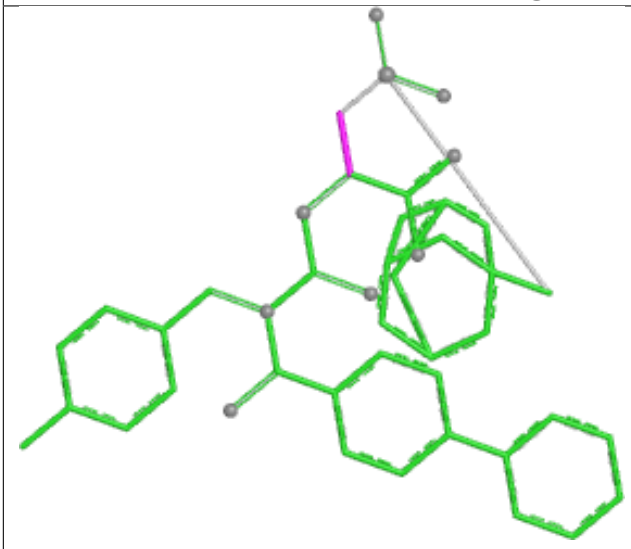


Rings

Ligand QHP I 301



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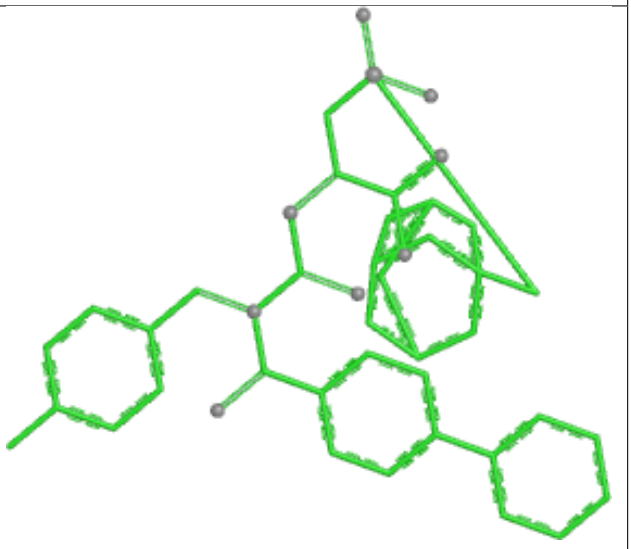

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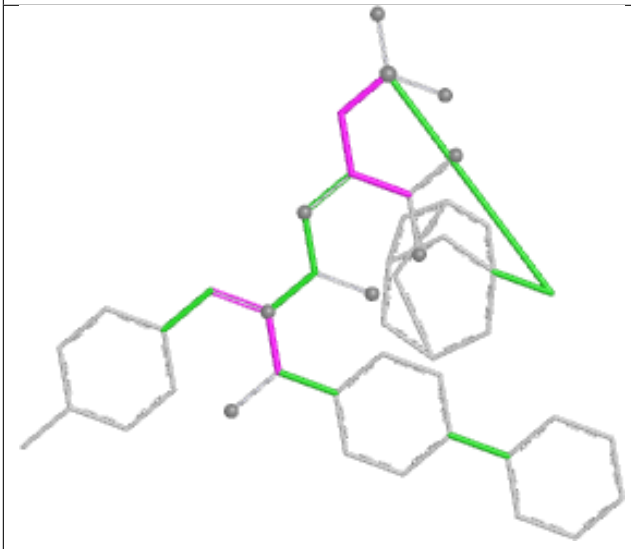

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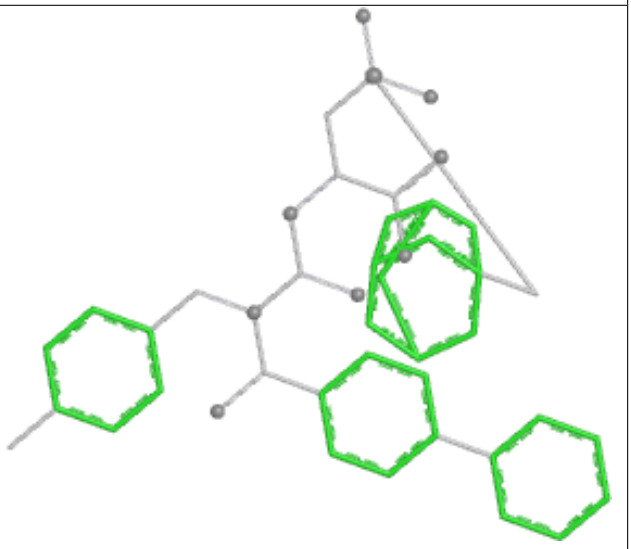
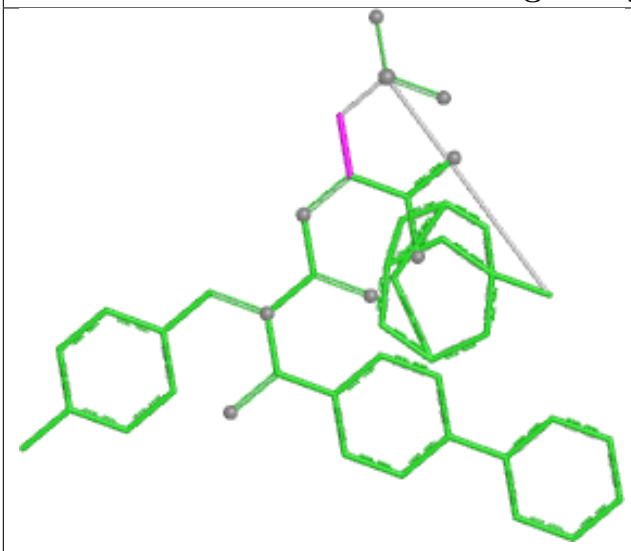
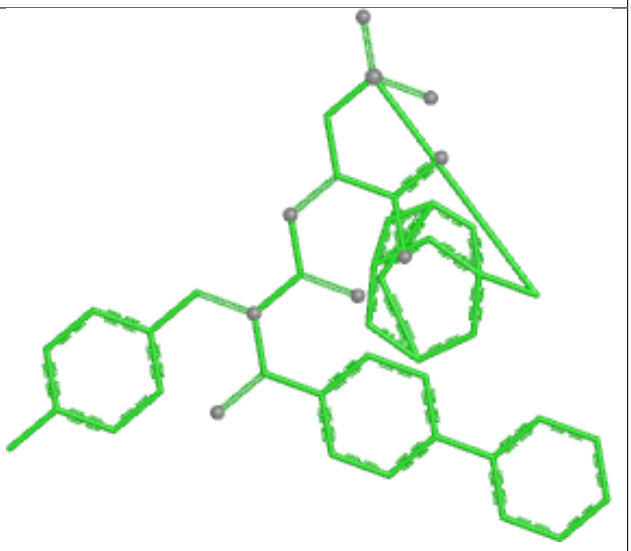


Rings

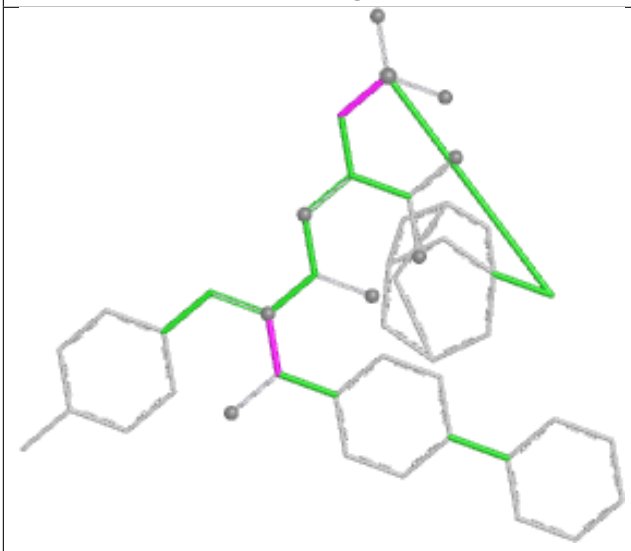
Ligand QHP L 301



Bond lengths



Bond angles



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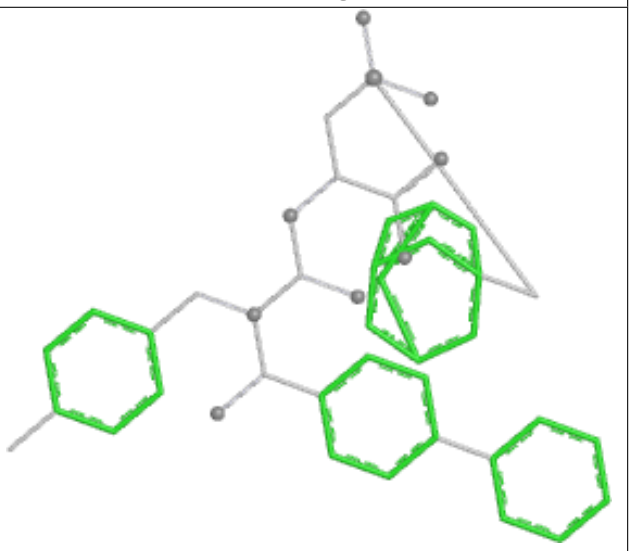
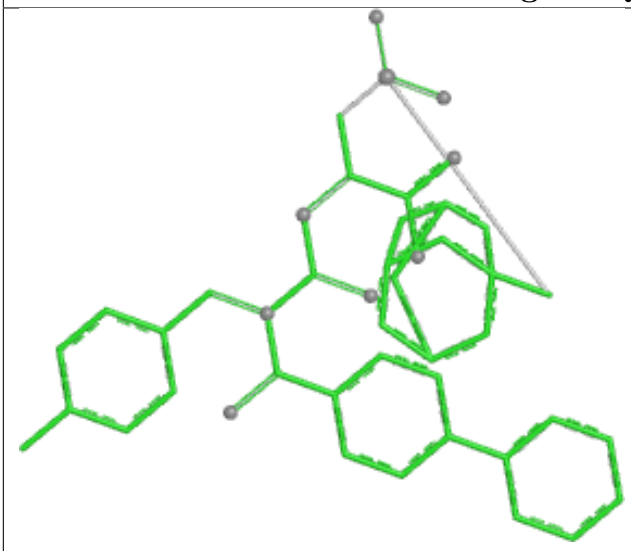
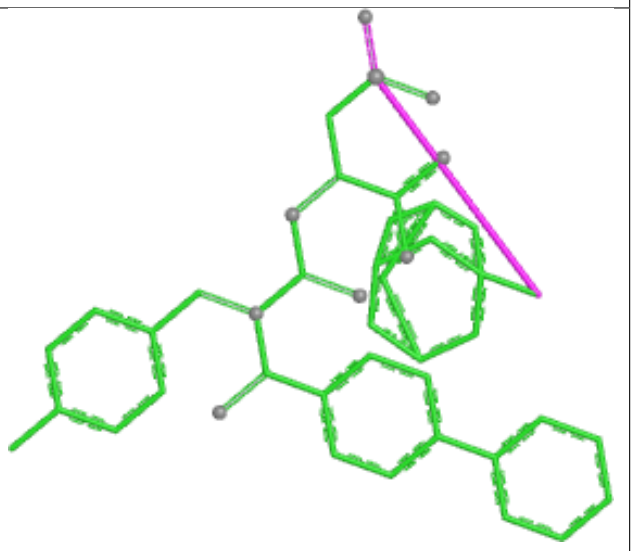


Rings

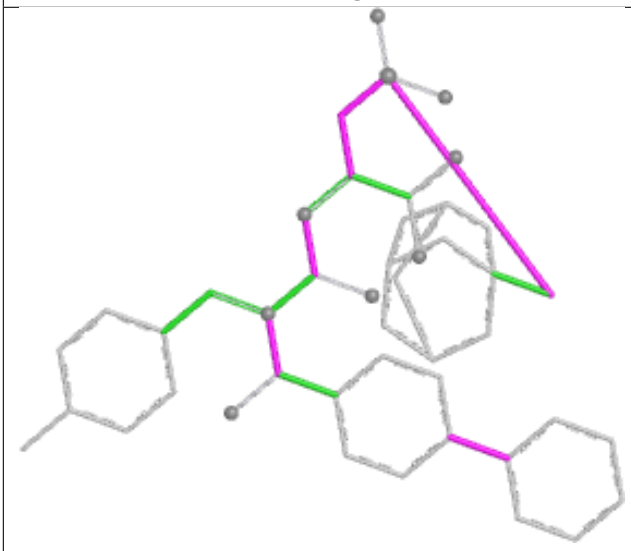
Ligand QHP K 301



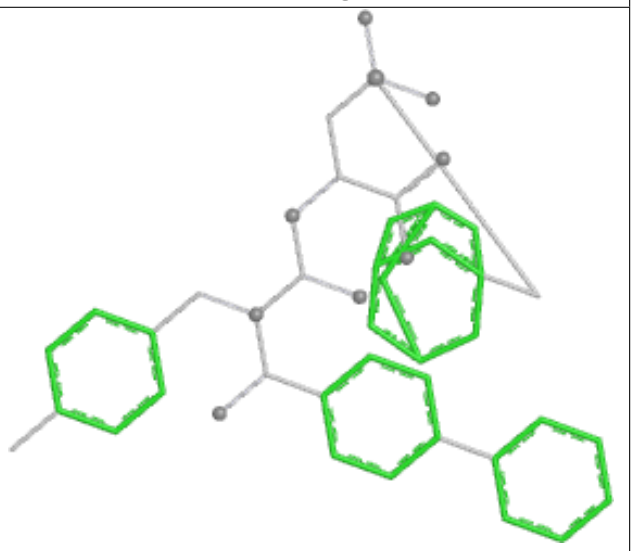
Bond lengths



Bond angles

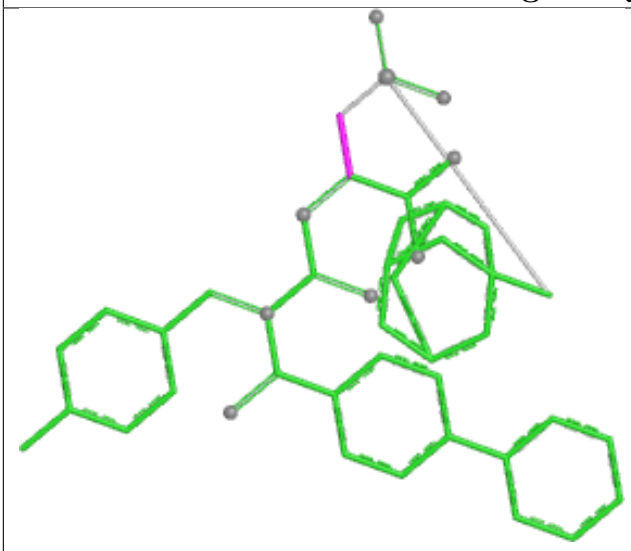


Torsions

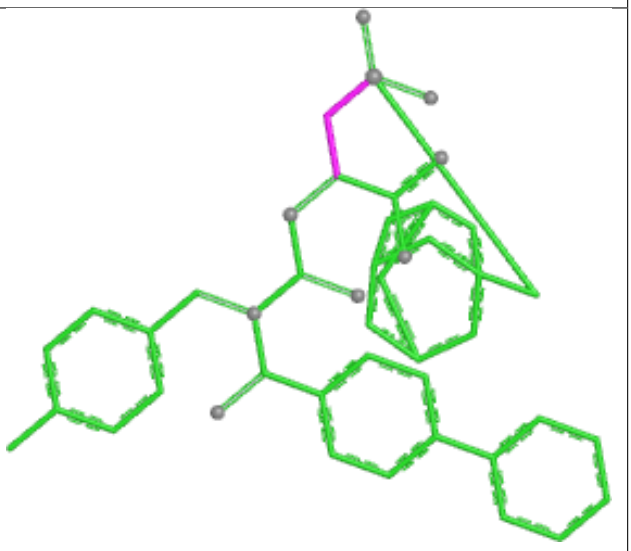


Rings

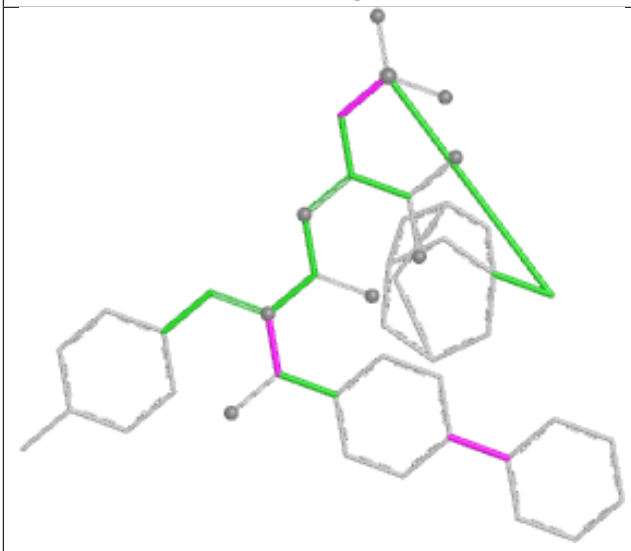
Ligand QHP B 301



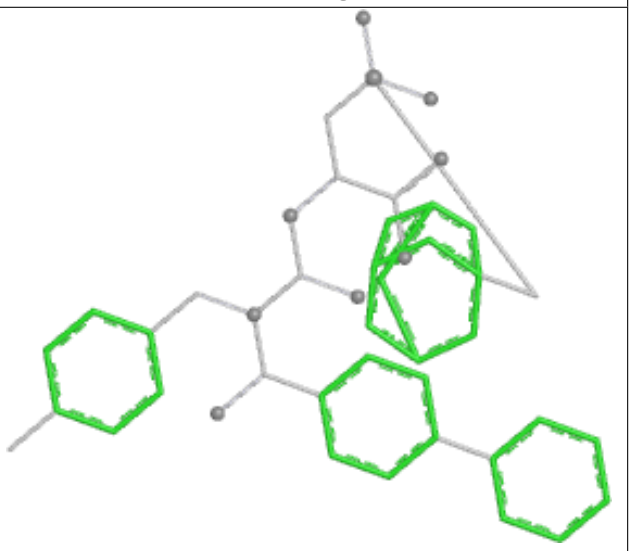
Bond lengths



Bond angles

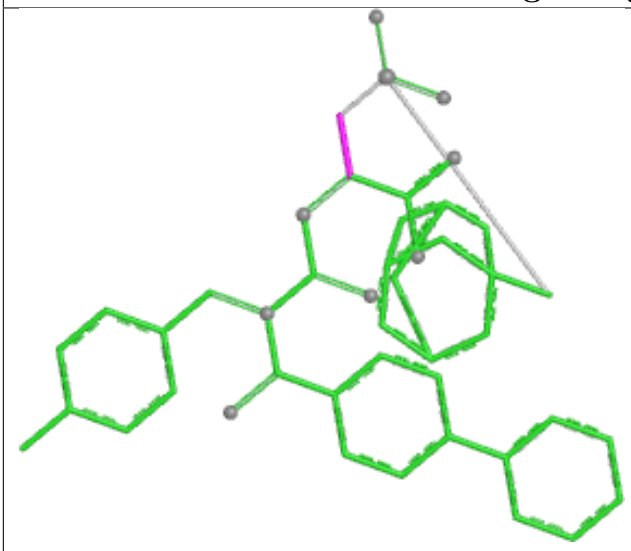


Torsions

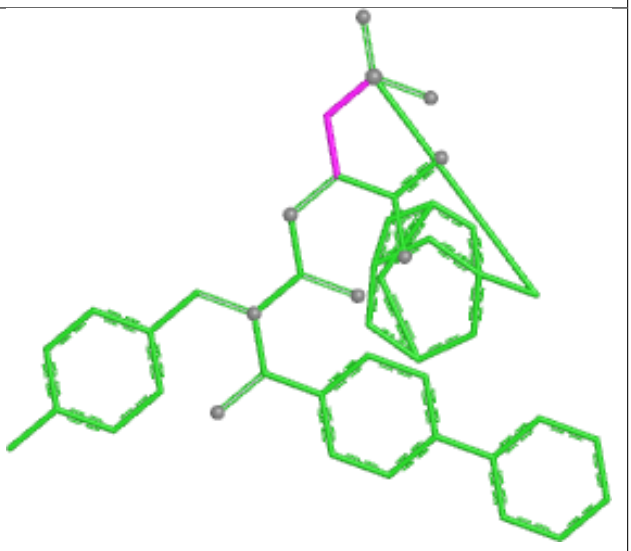


Rings

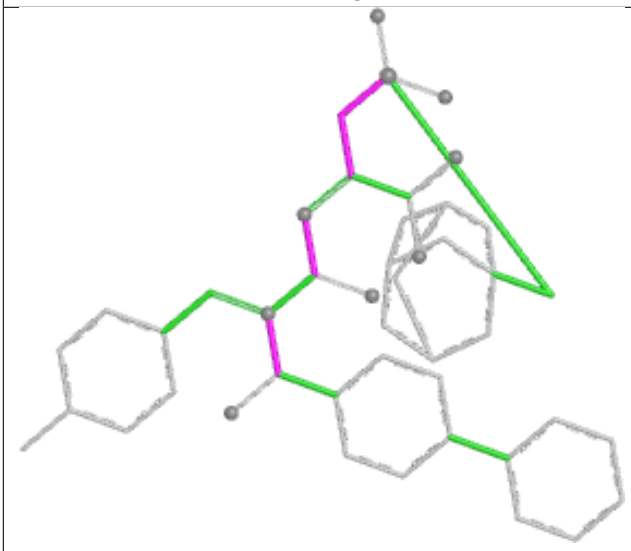
Ligand QHP F 301



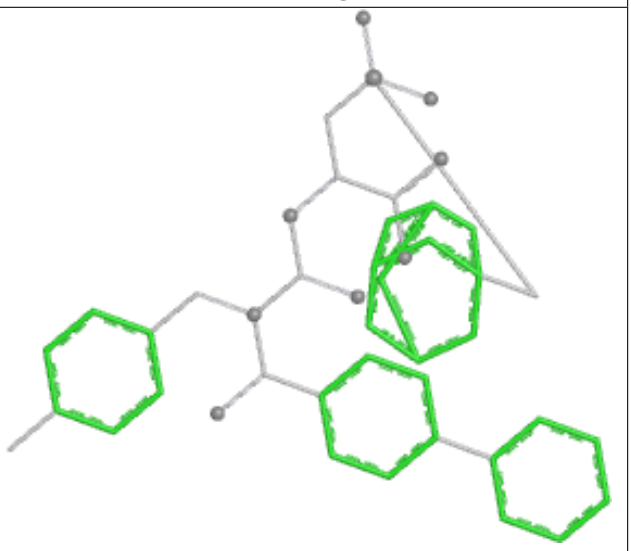
Bond lengths



Bond angles

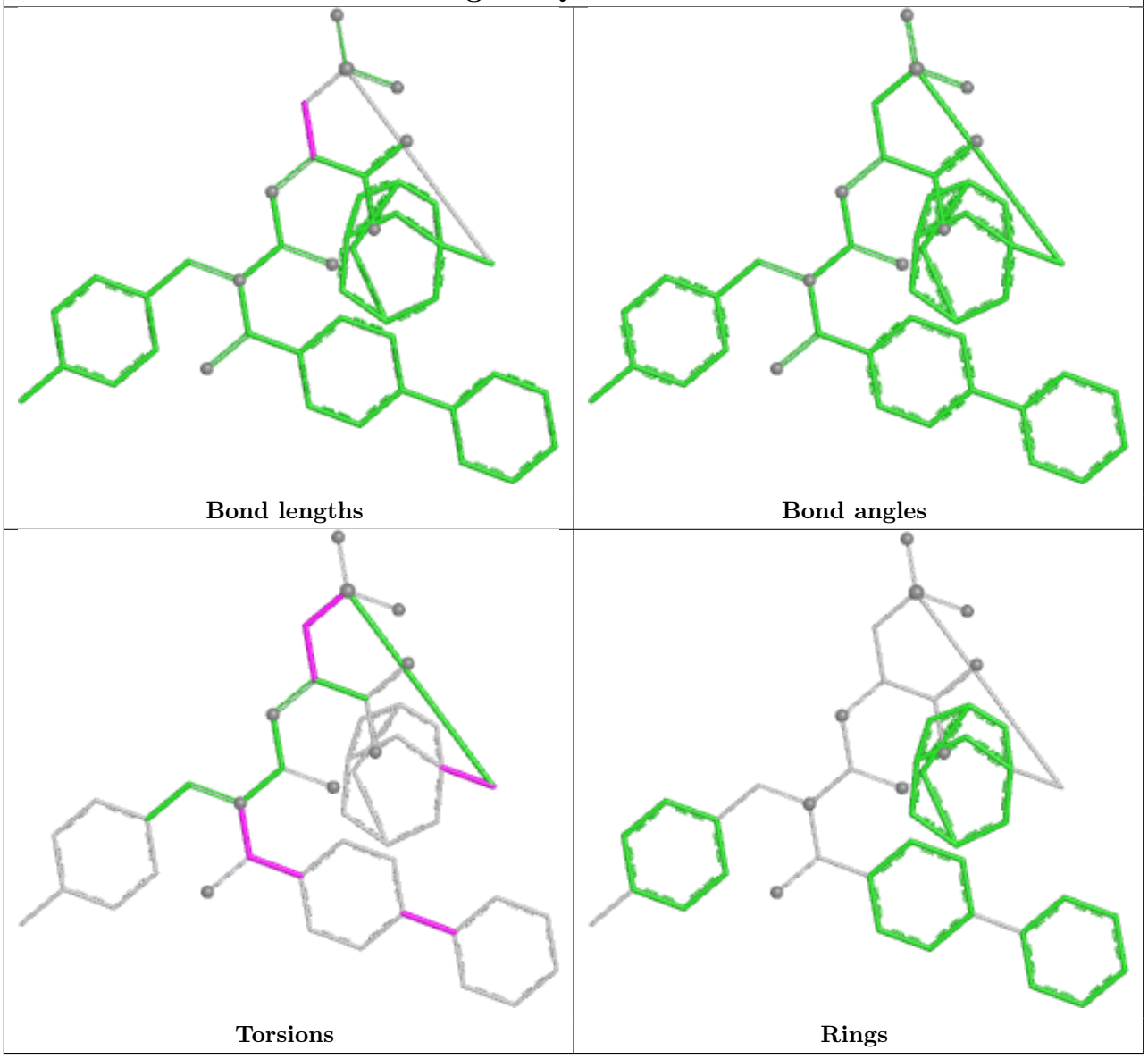


Torsions



Rings

Ligand QHP D 301



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^{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	145/158 (91%)	-0.13	2 (1%) 73 75	21, 45, 77, 95	1 (0%)
1	B	144/158 (91%)	0.15	3 (2%) 63 66	36, 58, 84, 90	0
1	C	138/158 (87%)	0.01	1 (0%) 84 86	36, 52, 81, 101	0
1	D	140/158 (88%)	1.06	22 (15%) 5 5	39, 90, 125, 139	0
1	E	140/158 (88%)	0.37	6 (4%) 40 41	39, 61, 91, 105	0
1	F	141/158 (89%)	0.61	6 (4%) 40 41	41, 84, 116, 130	0
1	G	141/158 (89%)	0.47	9 (6%) 25 27	40, 67, 108, 114	0
1	H	142/158 (89%)	0.14	3 (2%) 63 66	37, 52, 84, 96	0
1	I	138/158 (87%)	1.17	19 (13%) 6 6	58, 92, 124, 132	0
1	J	133/158 (84%)	1.17	29 (21%) 2 2	47, 86, 116, 131	0
1	K	142/158 (89%)	0.81	14 (9%) 13 13	52, 77, 115, 127	0
1	L	140/158 (88%)	0.89	17 (12%) 8 9	58, 82, 112, 139	0
All	All	1684/1896 (88%)	0.55	131 (7%) 19 20	21, 69, 113, 139	1 (0%)

All (131) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	J	114	ILE	5.6
1	I	195	TYR	5.2
1	J	121	GLN	4.6
1	J	161	VAL	4.3
1	J	110	SER	4.3
1	I	22	TYR	4.1
1	I	161	VAL	4.0
1	J	162	LEU	3.9
1	J	105	PHE	3.9
1	H	197	ASN	3.8
1	I	140	ILE	3.7

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Mol	Chain	Res	Type	RSRZ
1	L	107	ASP	3.6
1	A	-3	LEU	3.5
1	G	196	GLY	3.4
1	I	133	ASP	3.4
1	F	119	ALA	3.4
1	I	128	ASN	3.3
1	F	197	ASN	3.3
1	G	169	TRP	3.3
1	L	-2	GLY	3.3
1	D	135	VAL	3.3
1	J	125	GLN	3.3
1	E	114	ILE	3.2
1	K	112	LEU	3.2
1	B	196	GLY	3.2
1	J	99	LEU	3.1
1	K	22	TYR	3.1
1	L	118	THR	3.1
1	D	109	THR	3.1
1	C	4	SER	3.1
1	K	161	VAL	3.0
1	I	24	TRP	3.0
1	G	133	ASP	3.0
1	J	108	LEU	3.0
1	J	131	PHE	3.0
1	L	161	VAL	3.0
1	F	117	GLY	2.9
1	D	111	GLN	2.9
1	D	112	LEU	2.9
1	K	169	TRP	2.9
1	I	117	GLY	2.9
1	L	115	THR	2.9
1	J	122	SER	2.9
1	D	177	HIS	2.9
1	I	188	TRP	2.8
1	I	25	SER	2.8
1	J	195	TYR	2.8
1	L	-5	GLY	2.8
1	L	112	LEU	2.8
1	I	119	ALA	2.8
1	E	196	GLY	2.7
1	K	117	GLY	2.7
1	I	131	PHE	2.7

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Mol	Chain	Res	Type	RSRZ
1	J	116	PRO	2.7
1	J	150	LEU	2.7
1	D	120	TYR	2.7
1	K	1	MET	2.7
1	G	119	ALA	2.6
1	D	130	LEU	2.6
1	D	105	PHE	2.6
1	D	161	VAL	2.6
1	J	107	ASP	2.6
1	D	160	GLN	2.6
1	F	161	VAL	2.6
1	B	119	ALA	2.6
1	K	2	SER	2.6
1	J	123	PHE	2.5
1	D	195	TYR	2.5
1	J	117	GLY	2.5
1	K	197	ASN	2.5
1	L	150	LEU	2.5
1	L	104	ALA	2.5
1	I	137	TRP	2.5
1	D	192	VAL	2.5
1	J	104	ALA	2.4
1	B	161	VAL	2.4
1	D	104	ALA	2.4
1	K	119	ALA	2.4
1	I	8	LEU	2.4
1	I	113	HIS	2.4
1	J	155	VAL	2.4
1	E	1	MET	2.4
1	L	179	GLU	2.4
1	J	163	VAL	2.4
1	G	-1	SER	2.4
1	H	86	VAL	2.3
1	K	99	LEU	2.3
1	G	113	HIS	2.3
1	E	105	PHE	2.3
1	L	146	PHE	2.3
1	K	171	ALA	2.2
1	D	184	GLU	2.2
1	F	195	TYR	2.2
1	J	115	THR	2.2
1	D	121	GLN	2.2

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Mol	Chain	Res	Type	RSRZ
1	J	120	TYR	2.2
1	A	175	ASN	2.2
1	D	182	ILE	2.2
1	G	114	ILE	2.2
1	K	114	ILE	2.2
1	J	126	VAL	2.2
1	J	119	ALA	2.2
1	G	130	LEU	2.2
1	L	-3	LEU	2.2
1	J	4	SER	2.2
1	G	177	HIS	2.1
1	F	104	ALA	2.1
1	I	15	TYR	2.1
1	K	113	HIS	2.1
1	L	119	ALA	2.1
1	I	13	LEU	2.1
1	I	138	GLY	2.1
1	L	117	GLY	2.1
1	D	108	LEU	2.1
1	E	108	LEU	2.1
1	J	130	LEU	2.1
1	L	116	PRO	2.1
1	D	186	GLY	2.1
1	D	146	PHE	2.1
1	I	191	PHE	2.1
1	J	149	ALA	2.1
1	K	177	HIS	2.0
1	J	109	THR	2.0
1	L	195	TYR	2.0
1	H	4	SER	2.0
1	D	93	ALA	2.0
1	E	175	ASN	2.0
1	D	178	LEU	2.0
1	L	133	ASP	2.0
1	J	148	GLY	2.0
1	D	173	TYR	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)

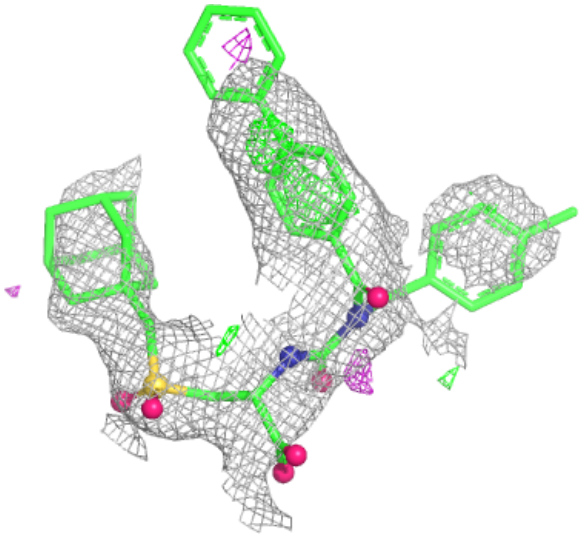
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

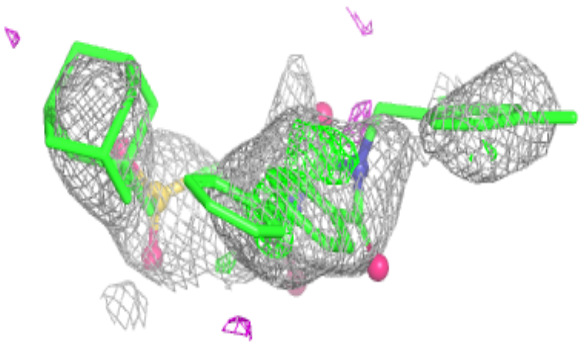
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	SO4	H	302	5/5	0.47	0.18	149,149,150,150	0
3	SO4	L	302	5/5	0.68	0.11	134,134,135,136	0
3	SO4	J	302	5/5	0.69	0.15	133,134,134,135	0
3	SO4	A	302	5/5	0.72	0.12	127,128,129,129	0
4	EDO	A	303	4/4	0.77	0.15	68,68,68,69	0
2	QHP	I	301	45/45	0.79	0.18	127,134,146,147	0
3	SO4	K	302	5/5	0.79	0.10	114,115,116,117	0
2	QHP	D	301	45/45	0.80	0.15	105,115,118,119	0
2	QHP	J	301	45/45	0.81	0.15	94,109,123,128	0
4	EDO	E	302	4/4	0.82	0.12	65,70,73,75	0
3	SO4	B	302	5/5	0.83	0.10	132,133,134,134	0
4	EDO	H	303	4/4	0.84	0.12	65,67,69,73	0
2	QHP	L	301	45/45	0.85	0.12	80,90,105,110	0
4	EDO	G	302	4/4	0.86	0.14	69,71,71,72	0
3	SO4	C	302	5/5	0.86	0.17	138,139,140,140	0
2	QHP	K	301	45/45	0.89	0.12	57,82,98,106	0
3	SO4	D	302	5/5	0.89	0.12	122,123,123,124	0
2	QHP	F	301	45/45	0.91	0.11	80,91,107,110	0
4	EDO	G	303	4/4	0.92	0.11	59,65,67,72	0
2	QHP	B	301	45/45	0.93	0.09	48,64,80,90	0
2	QHP	H	301	45/45	0.94	0.08	39,55,76,81	0
2	QHP	E	301	45/45	0.94	0.09	40,50,68,68	0
2	QHP	G	301	45/45	0.94	0.08	46,62,82,87	0
2	QHP	A	301	45/45	0.95	0.08	33,47,59,73	0
2	QHP	C	301	45/45	0.96	0.07	34,49,58,66	0

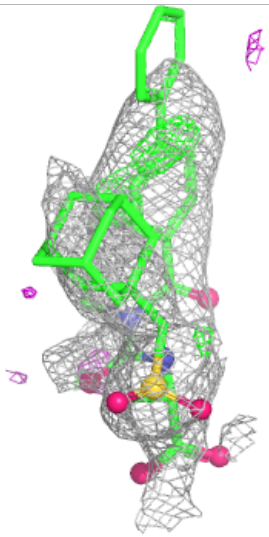
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around QHP I 301:

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

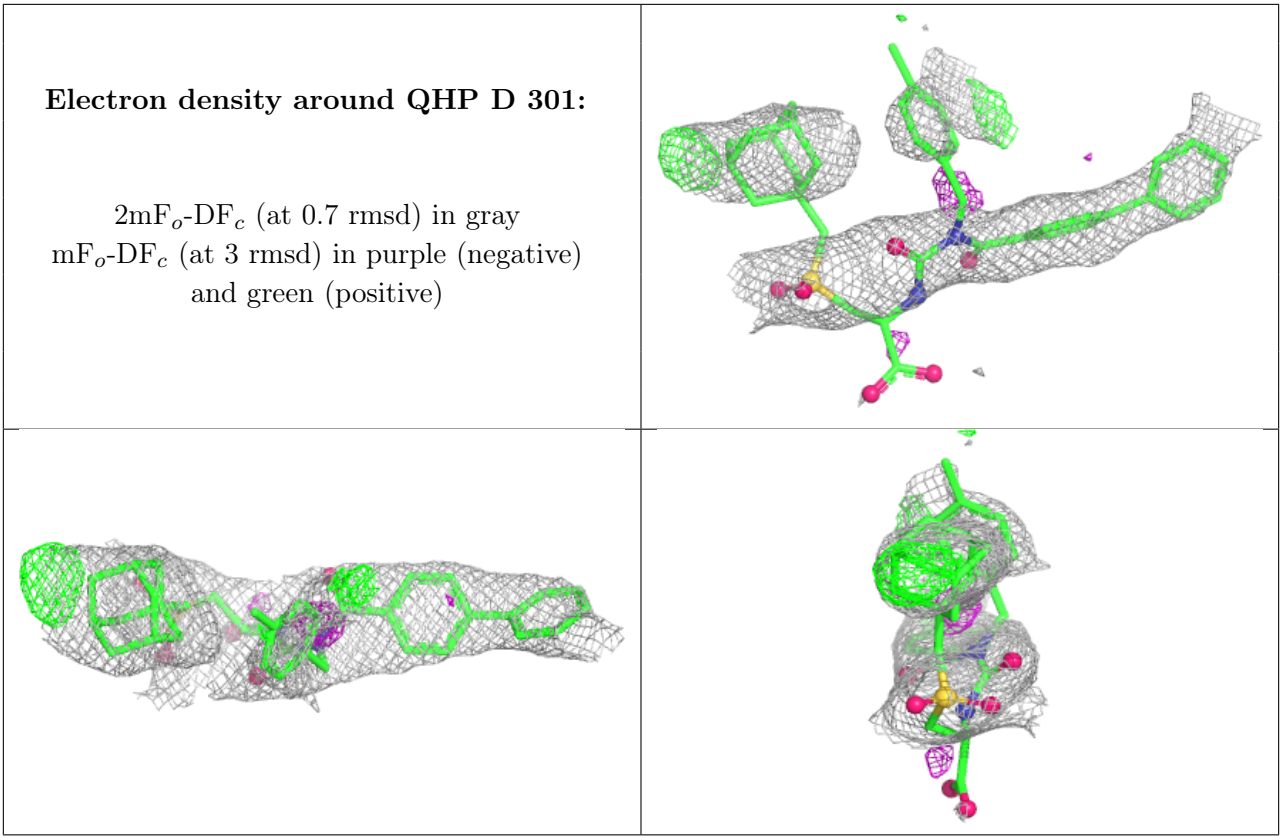






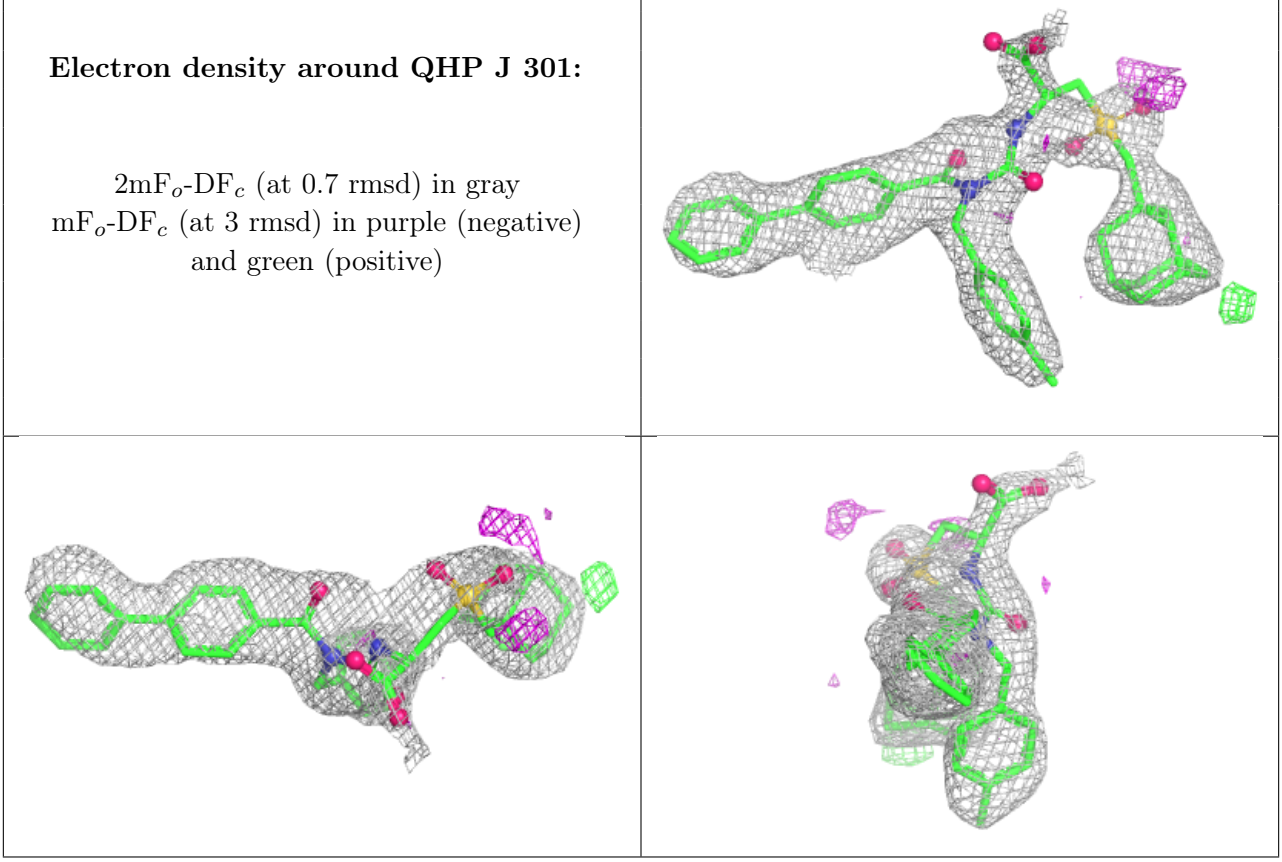
Electron density around QHP D 301:

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



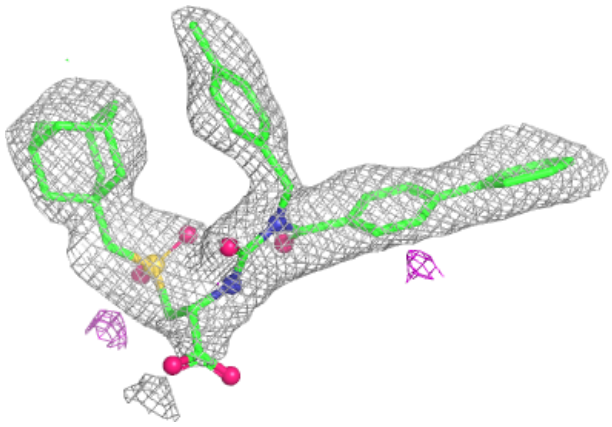
Electron density around QHP J 301:

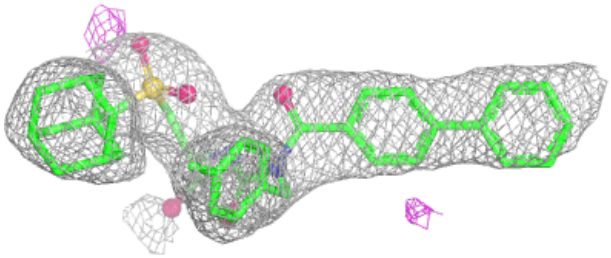
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

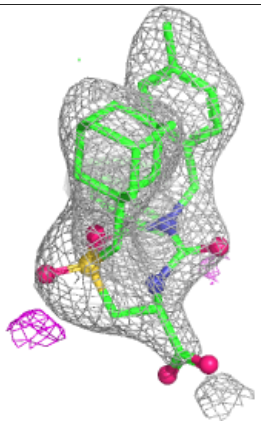


Electron density around QHP L 301:

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

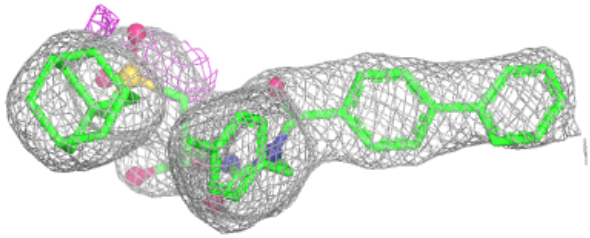


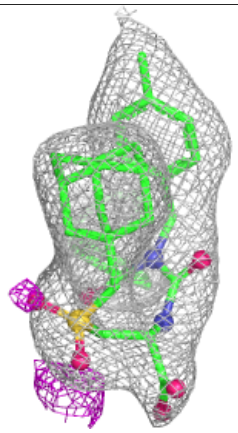




Electron density around QHP K 301:

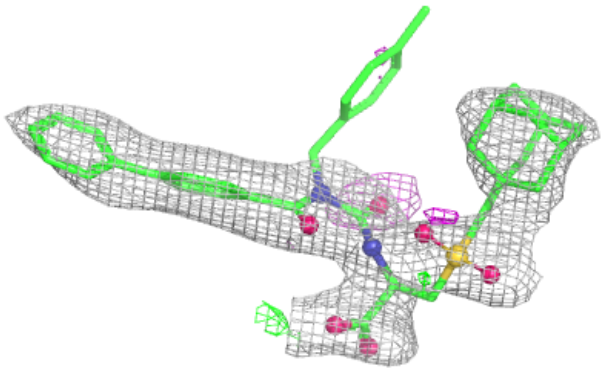
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

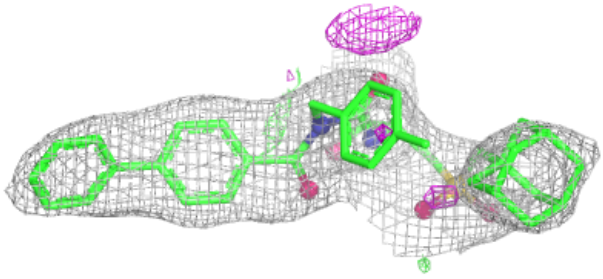


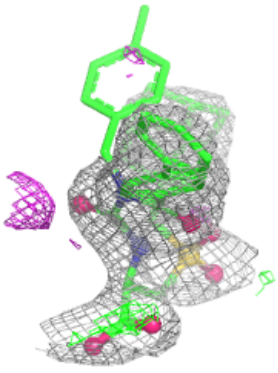


Electron density around QHP F 301:

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

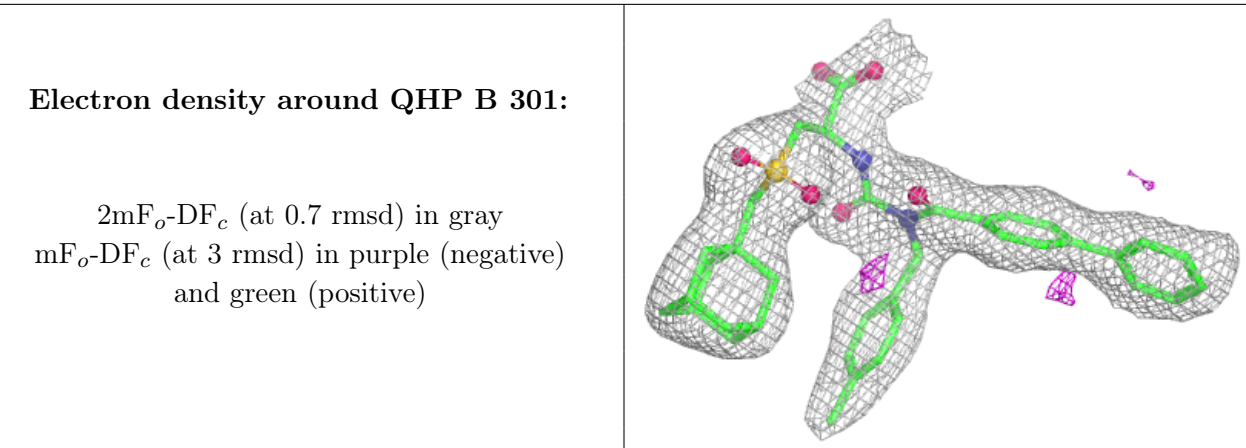


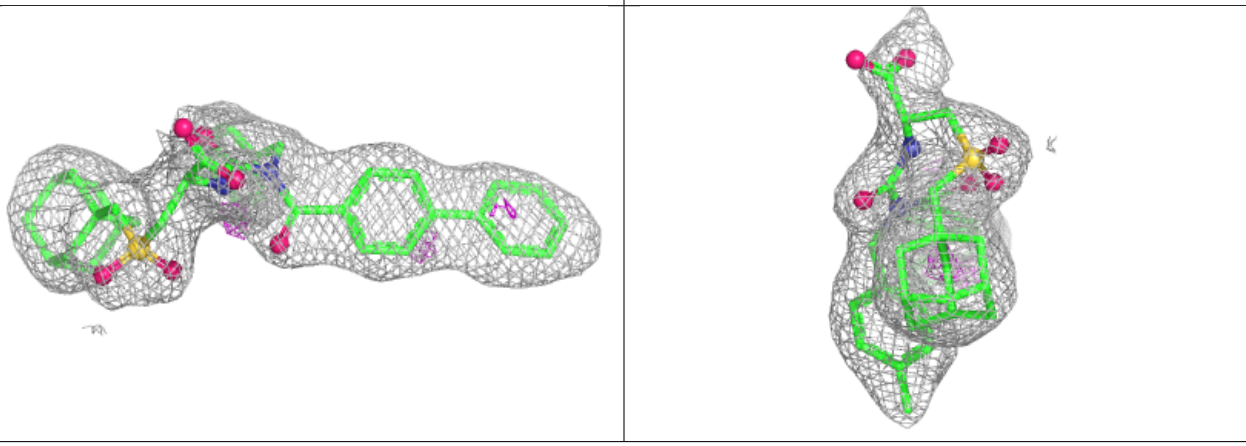




Electron density around QHP B 301:

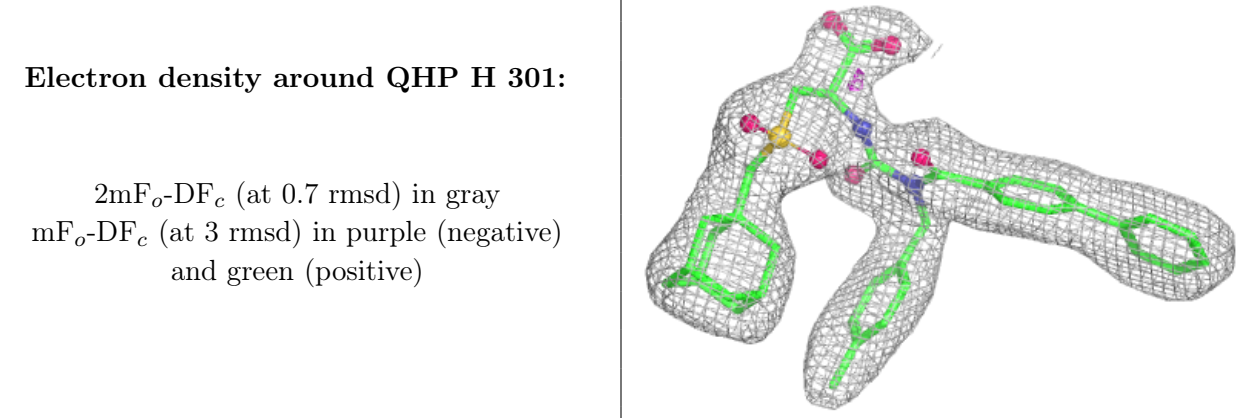
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

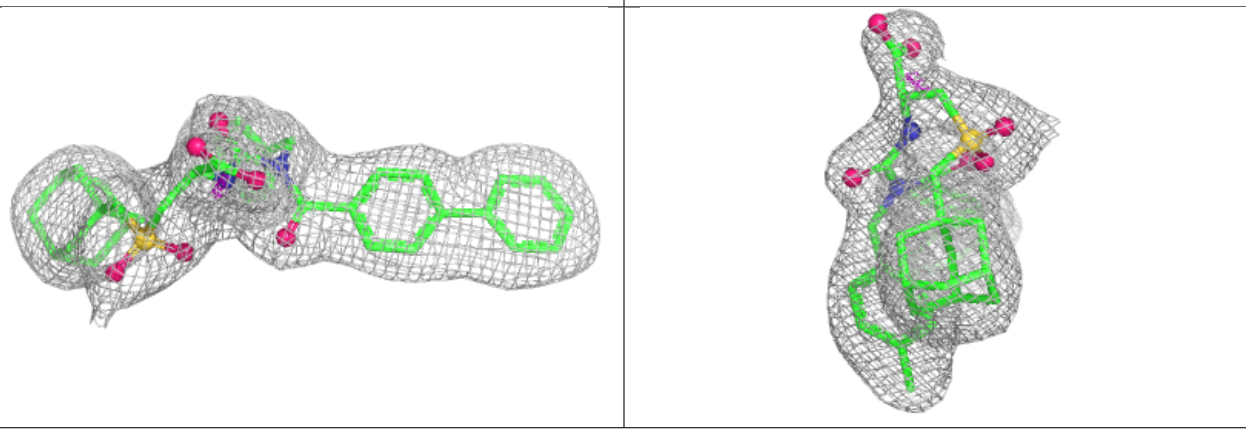




Electron density around QHP H 301:

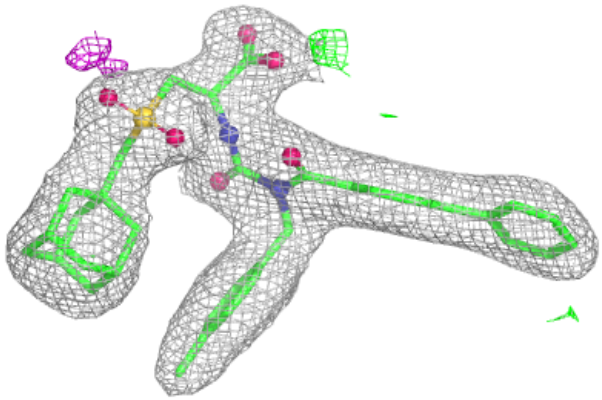
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

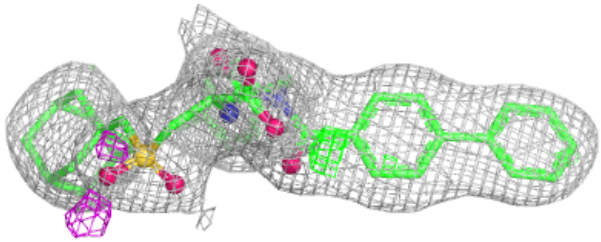


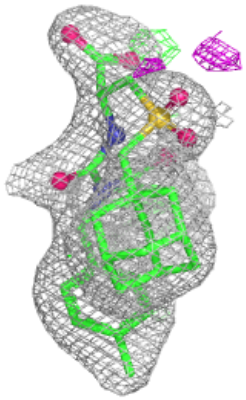


Electron density around QHP E 301:

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

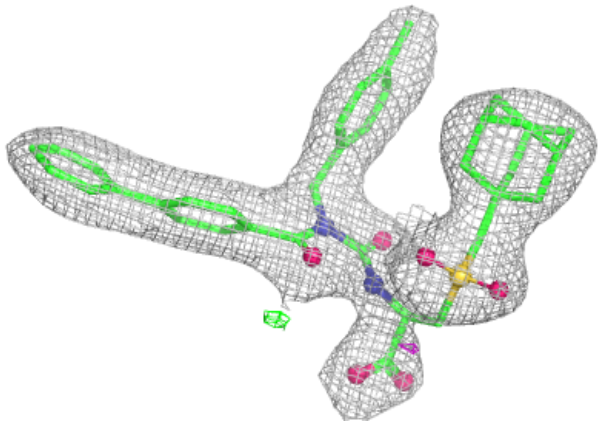


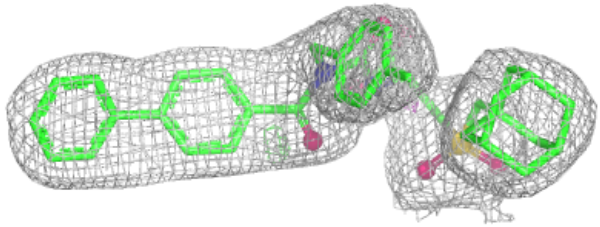


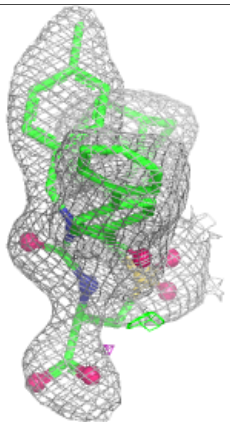


Electron density around QHP G 301:

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

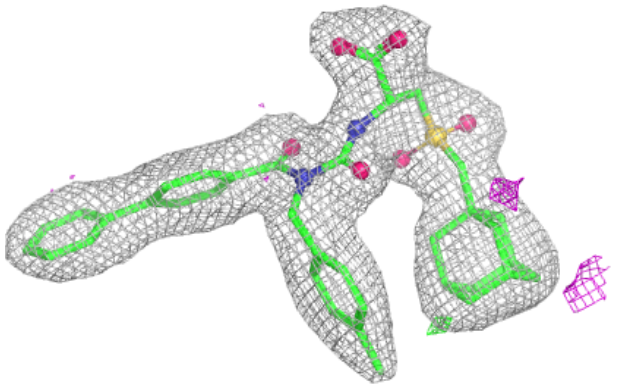


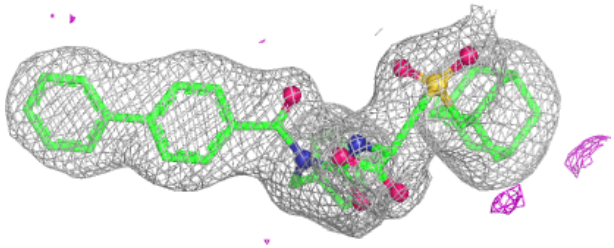


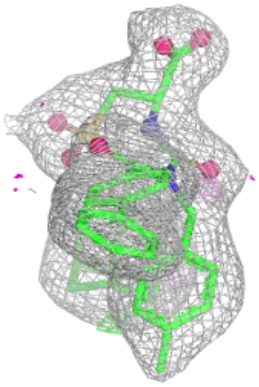


Electron density around QHP A 301:

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

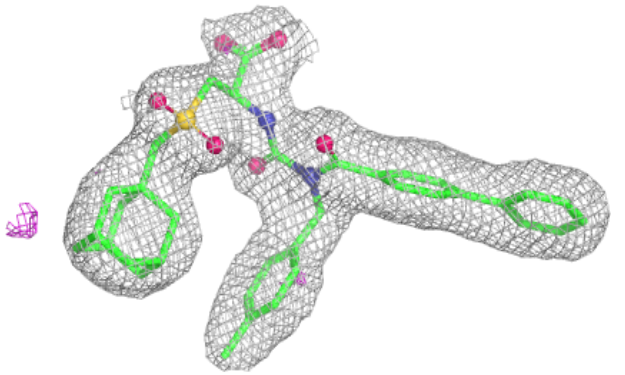


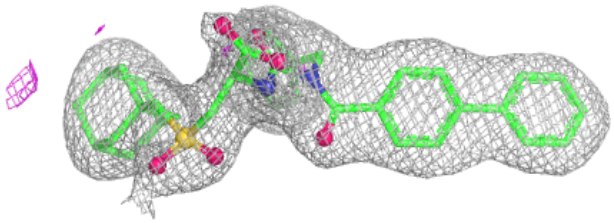


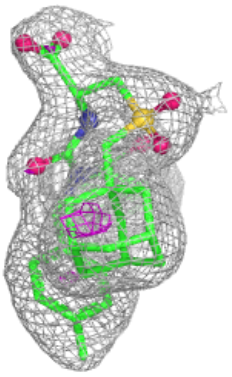


Electron density around QHP C 301:

$2mF_o$-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.