



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 8, 2023 – 08:34 AM EDT

PDB ID : 6E6E
Title : DGY-06-116, a novel and selective covalent inhibitor of SRC kinase
Authors : Gurbani, D.; Bera, A.; Westover, K.
Deposited on : 2018-07-24
Resolution : 2.15 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
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) : 2.35.1

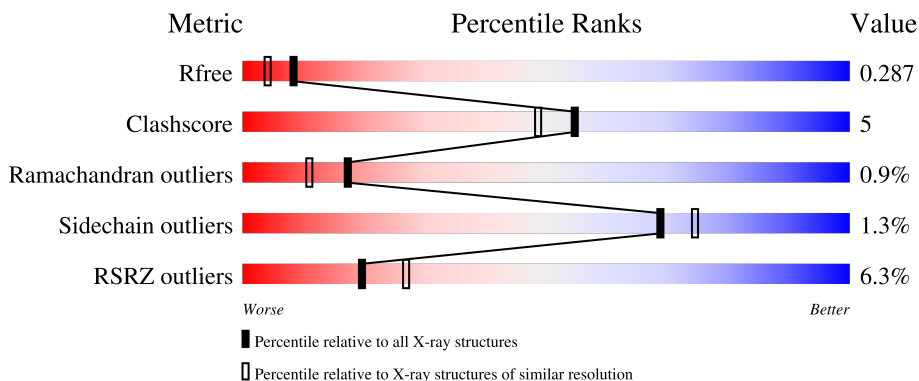
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.15 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.



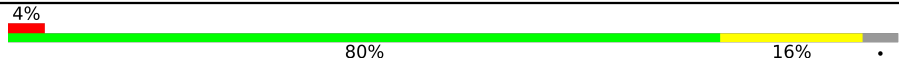

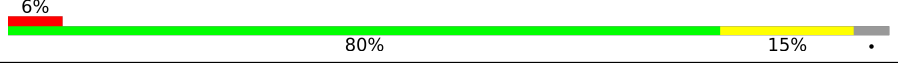
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1479 (2.16-2.16)
Clashscore	141614	1585 (2.16-2.16)
Ramachandran outliers	138981	1560 (2.16-2.16)
Sidechain outliers	138945	1559 (2.16-2.16)
RSRZ outliers	127900	1456 (2.16-2.16)

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 $\leq 5\%$. 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	276	
1	B	276	
1	C	276	
1	D	276	
1	E	276	

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Mol	Chain	Length	Quality of chain
1	F	276	
1	G	276	
1	H	276	

2 Entry composition [i](#)

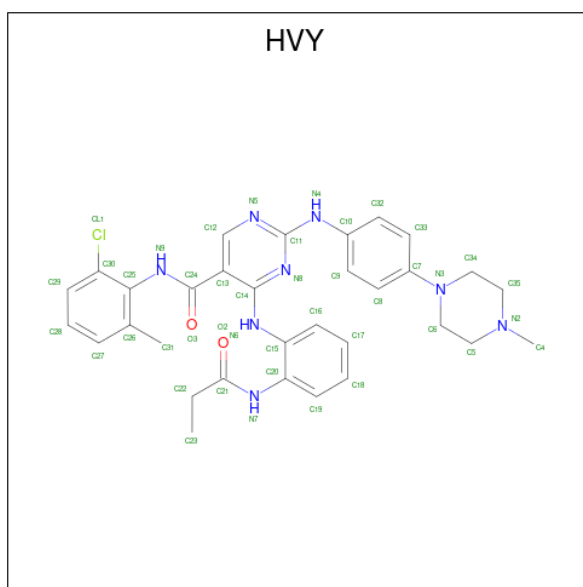
There are 3 unique types of molecules in this entry. The entry contains 17919 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Proto-oncogene tyrosine-protein kinase Src.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	266	2153	1384	361	391	17	0	2	0
1	B	266	2153	1384	361	391	17	0	2	0
1	C	266	2140	1375	358	391	16	0	0	0
1	D	266	2157	1388	360	393	16	0	2	0
1	E	266	2145	1379	358	391	17	0	1	0
1	F	266	2140	1375	358	391	16	0	0	0
1	G	264	2126	1366	355	389	16	0	0	0
1	H	264	2126	1366	355	389	16	0	0	0

- Molecule 2 is N-(2-chloro-6-methylphenyl)-2-{{[4-(4-methylpiperazin-1-yl)phenyl]amino}}-4-{{[2-(propanoylamino)phenyl]amino}}pyrimidine-5-carboxamide (three-letter code: HVY) (formula: C₃₂H₃₅ClN₈O₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Cl	N			O
2	A	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	B	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	C	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	D	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	E	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	F	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	G	1	Total 43	C 32	Cl 1	N 8	O 2	0	0
2	H	1	Total 43	C 32	Cl 1	N 8	O 2	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	52	Total 52	O 52	0	0
3	B	51	Total 51	O 51	0	0
3	C	62	Total 62	O 62	0	0
3	D	44	Total 44	O 44	0	0

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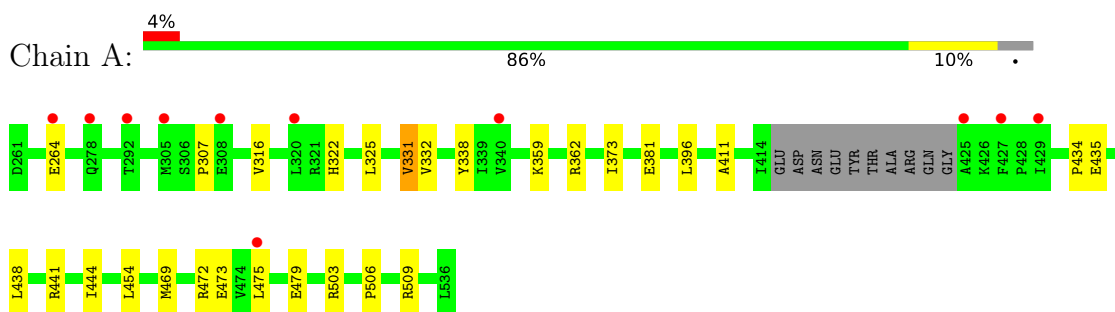
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	E	59	Total O 59 59	0	0
3	F	63	Total O 63 63	0	0
3	G	48	Total O 48 48	0	0
3	H	56	Total O 56 56	0	0

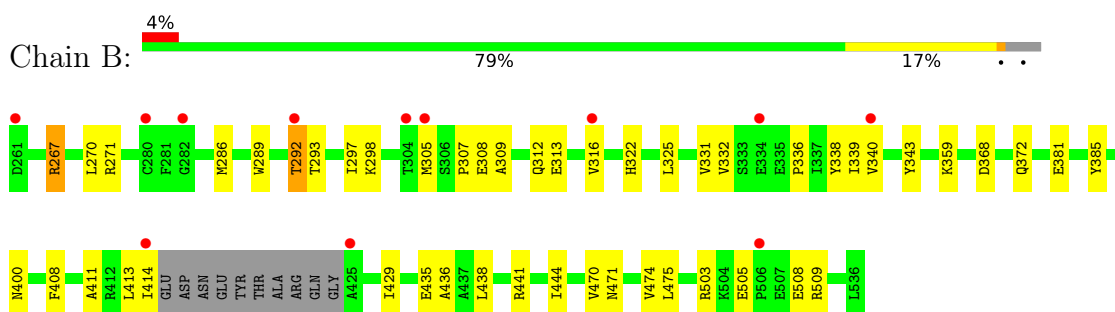
3 Residue-property plots [i](#)

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.

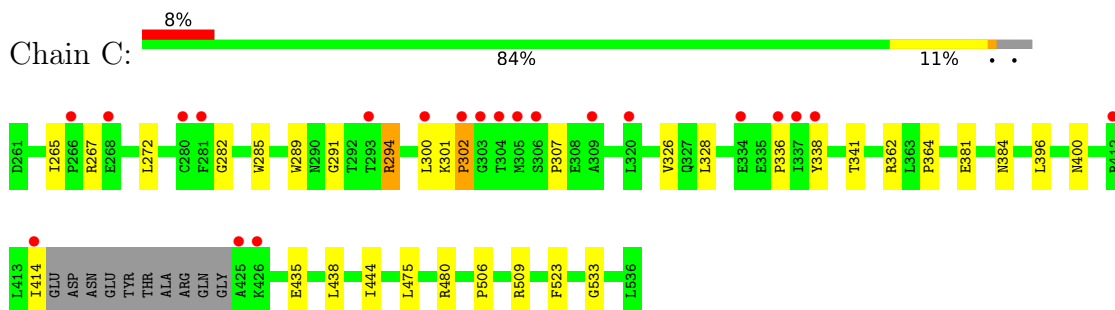
- Molecule 1: Proto-oncogene tyrosine-protein kinase Src



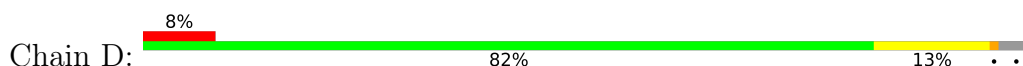
- Molecule 1: Proto-oncogene tyrosine-protein kinase Src

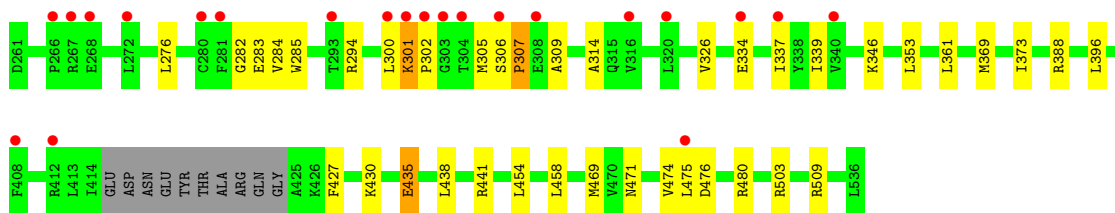


- Molecule 1: Proto-oncogene tyrosine-protein kinase Src

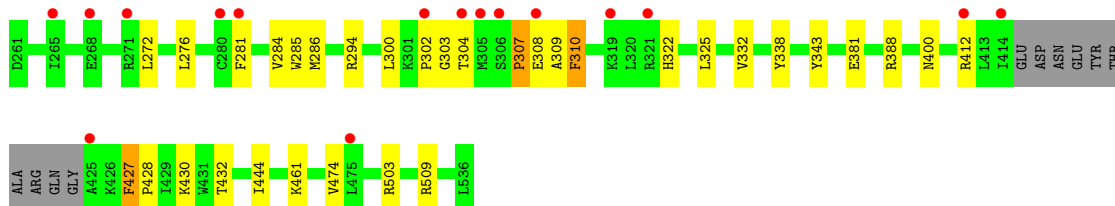
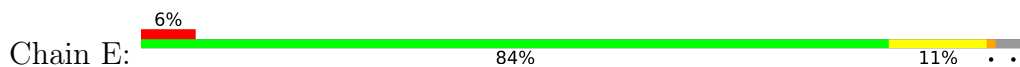


- Molecule 1: Proto-oncogene tyrosine-protein kinase Src

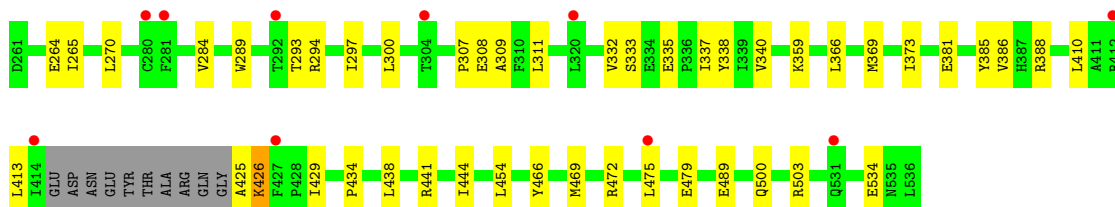
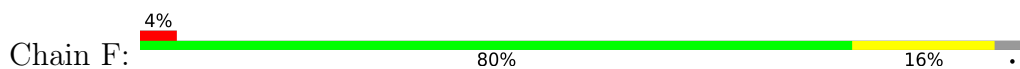




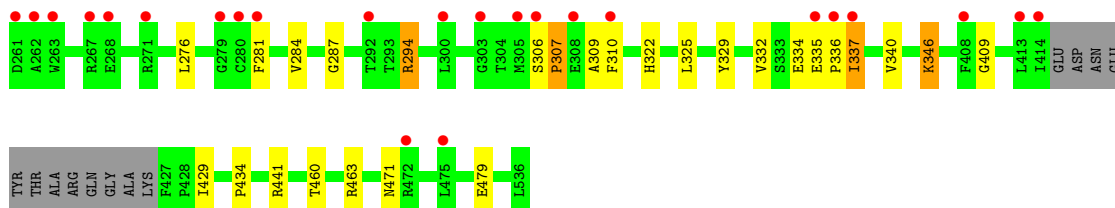
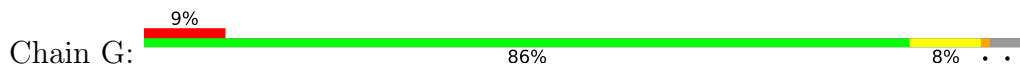
- Molecule 1: Proto-oncogene tyrosine-protein kinase Src



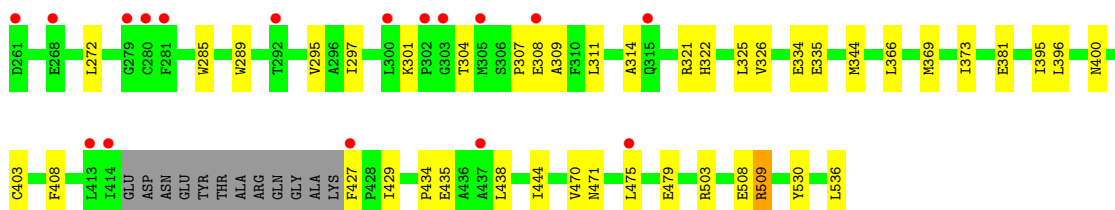
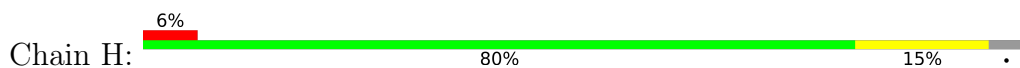
- Molecule 1: Proto-oncogene tyrosine-protein kinase Src



- Molecule 1: Proto-oncogene tyrosine-protein kinase Src



- Molecule 1: Proto-oncogene tyrosine-protein kinase Src



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	63.53Å 84.03Å 120.11Å 89.96° 90.05° 90.12°	Depositor
Resolution (Å)	43.66 – 2.15 48.87 – 2.15	Depositor EDS
% Data completeness (in resolution range)	90.8 (43.66-2.15) 90.9 (48.87-2.15)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.77 (at 2.16Å)	Xtriage
Refinement program	PHENIX 1.14rc3_3199	Depositor
R, R_{free}	0.250 , 0.285 0.252 , 0.287	Depositor DCC
R_{free} test set	5992 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å ²)	32.1	Xtriage
Anisotropy	0.490	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 22.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	0.358 for h,-k,-l 0.358 for -h,k,-l 0.437 for -h,-k,l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	17919	wwPDB-VP
Average B, all atoms (Å ²)	46.0	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 90.36 % 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 2.3765e-08. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

²Theoretical 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: HVY

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	0.24	0/2211	0.40	0/2992
1	B	0.24	0/2211	0.41	0/2992
1	C	0.24	0/2192	0.41	0/2968
1	D	0.25	0/2213	0.43	0/2996
1	E	0.24	0/2200	0.42	0/2978
1	F	0.24	0/2192	0.42	0/2968
1	G	0.24	0/2178	0.40	0/2950
1	H	0.25	0/2178	0.42	0/2950
All	All	0.24	0/17575	0.41	0/23794

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [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	2153	0	2155	16	0
1	B	2153	0	2155	27	0
1	C	2140	0	2133	22	0
1	D	2157	0	2149	22	0
1	E	2145	0	2142	22	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	2140	0	2133	26	0
1	G	2126	0	2115	16	0
1	H	2126	0	2115	24	0
2	A	43	0	0	3	0
2	B	43	0	0	2	0
2	C	43	0	0	2	0
2	D	43	0	0	2	0
2	E	43	0	0	2	0
2	F	43	0	0	3	0
2	G	43	0	0	2	0
2	H	43	0	0	2	0
3	A	52	0	0	0	0
3	B	51	0	0	0	0
3	C	62	0	0	0	0
3	D	44	0	0	0	0
3	E	59	0	0	2	0
3	F	63	0	0	1	0
3	G	48	0	0	0	0
3	H	56	0	0	0	0
All	All	17919	0	17097	181	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 5.

All (181) 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:E:388:ARG:HH21	1:E:427:PHE:HZ	1.34	0.75
1:H:435:GLU:OE2	1:H:509:ARG:NH2	2.21	0.73
1:B:309:ALA:HA	1:B:312:GLN:HG2	1.72	0.71
1:E:304:THR:HG23	1:E:307:PRO:HD3	1.71	0.70
1:H:429:ILE:HD12	1:H:471:ASN:HB3	1.74	0.68
1:G:441:ARG:NE	1:H:400:ASN:OD1	2.27	0.67
1:B:267:ARG:HH22	1:B:336:PRO:HD2	1.61	0.66
1:B:332:VAL:HB	1:B:338:TYR:HB2	1.76	0.66
1:B:297:ILE:HG12	1:B:340:VAL:HG12	1.80	0.64
1:C:435:GLU:OE2	1:C:509:ARG:NH2	2.28	0.64
1:A:359:LYS:O	1:A:362[B]:ARG:NH2	2.32	0.62
1:A:503:ARG:HB2	1:A:509:ARG:HG2	1.82	0.61
2:A:601:HVV:O3	2:A:601:HVV:N6	2.34	0.61
2:H:601:HVV:O3	2:H:601:HVV:N6	2.33	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:438:LEU:HD21	1:A:475:LEU:HD21	1.83	0.60
1:C:267:ARG:NH2	1:C:336:PRO:HG2	2.17	0.59
1:F:308:GLU:H	1:F:311:LEU:HD13	1.66	0.59
1:A:373:ILE:HD13	1:A:454:LEU:HD21	1.83	0.59
2:E:601:HVV:O3	2:E:601:HVV:N6	2.35	0.58
1:D:307:PRO:HD2	1:D:309:ALA:H	1.69	0.58
1:F:466:TYR:HB3	1:F:469:MET:HE2	1.83	0.58
1:B:413:LEU:HG	1:B:414:ILE:HG23	1.85	0.57
1:B:292:THR:O	1:B:292:THR:OG1	2.23	0.57
1:F:500:GLN:HA	1:F:503:ARG:HG3	1.86	0.57
1:F:381:GLU:HG3	1:F:444:ILE:HG12	1.86	0.56
1:B:381:GLU:HG3	1:B:444:ILE:HG12	1.86	0.56
1:E:381:GLU:HG3	1:E:444:ILE:HG12	1.87	0.56
2:F:601:HVV:O3	2:F:601:HVV:N6	2.38	0.56
1:C:272:LEU:HD22	1:E:302:PRO:HB2	1.87	0.56
1:F:297:ILE:HG12	1:F:340:VAL:HG22	1.87	0.56
1:G:322:HIS:HB3	1:G:325:LEU:HG	1.87	0.55
1:B:503:ARG:NH1	1:B:508:GLU:O	2.40	0.55
1:E:332:VAL:HB	1:E:338:TYR:HB2	1.89	0.55
1:E:400:ASN:OD1	1:F:441:ARG:NH2	2.40	0.55
1:C:300:LEU:O	1:C:302:PRO:HD3	2.07	0.55
1:E:300:LEU:HD21	1:E:308:GLU:H	1.71	0.55
1:B:322:HIS:HB3	1:B:325:LEU:HG	1.88	0.54
1:F:359:LYS:NZ	3:F:702:HOH:O	2.35	0.54
2:G:601:HVV:O3	2:G:601:HVV:N6	2.35	0.54
1:D:388:ARG:HB3	1:D:427:PHE:HE2	1.73	0.54
2:D:601:HVV:O3	2:D:601:HVV:N6	2.41	0.54
1:E:400:ASN:ND2	3:E:704:HOH:O	2.36	0.54
1:F:425:ALA:O	1:F:426:LYS:HB3	2.09	0.53
1:H:381:GLU:HG3	1:H:444:ILE:HG12	1.91	0.53
2:B:601:HVV:O3	2:B:601:HVV:N6	2.42	0.53
1:C:326:VAL:HG21	1:C:396:LEU:HD12	1.89	0.52
1:B:429:ILE:HD12	1:B:471:ASN:HB3	1.91	0.52
1:E:322:HIS:HB3	1:E:325:LEU:HG	1.92	0.52
1:C:282:GLY:HA2	1:C:302:PRO:HB3	1.90	0.52
1:G:434:PRO:HB2	1:G:479:GLU:OE2	2.09	0.52
1:G:281:PHE:CE2	1:G:409:GLY:HA3	2.45	0.52
1:H:307:PRO:O	1:H:309:ALA:N	2.40	0.52
1:H:326:VAL:HG21	1:H:396:LEU:HD12	1.92	0.52
1:B:503:ARG:HB2	1:B:509:ARG:HG2	1.92	0.51
1:H:325:LEU:HD22	1:H:408:PHE:HZ	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:601:HVY:N6	2:C:601:HVY:O3	2.38	0.51
1:F:300:LEU:HD23	1:F:337:ILE:HD12	1.92	0.51
1:A:441:ARG:NE	1:B:400:ASN:OD1	2.43	0.50
1:D:361:LEU:HD13	1:D:369:MET:HE1	1.92	0.50
1:E:276:LEU:HD21	1:E:286:MET:HB2	1.92	0.50
1:F:438:LEU:HD21	1:F:475:LEU:HD21	1.93	0.50
1:A:381:GLU:HG3	1:A:444:ILE:HG12	1.94	0.50
1:C:400:ASN:OD1	1:D:441:ARG:NE	2.44	0.50
1:D:476:ASP:O	1:D:480:ARG:HG2	2.12	0.50
1:D:334:GLU:O	1:D:337:ILE:HG12	2.12	0.49
1:F:284:VAL:HG21	2:F:601:HVY:C16	2.42	0.49
1:H:438:LEU:HD21	1:H:475:LEU:HD21	1.94	0.49
1:F:307:PRO:O	1:F:309:ALA:N	2.43	0.49
1:A:469:MET:HE3	1:A:473:GLU:HG2	1.93	0.49
1:C:328:LEU:HA	1:C:341:THR:HG22	1.94	0.49
1:H:272:LEU:HD23	1:H:285:TRP:CG	2.47	0.49
1:G:281:PHE:HE2	1:G:409:GLY:HA3	1.77	0.49
1:F:366:LEU:HA	1:F:369:MET:HE3	1.95	0.49
1:H:366:LEU:HA	1:H:369:MET:HE2	1.94	0.49
1:C:285:TRP:CZ2	1:E:302:PRO:HB3	2.48	0.48
1:A:435:GLU:OE2	1:A:509:ARG:NH2	2.41	0.48
1:D:430:LYS:NZ	1:D:471:ASN:OD1	2.41	0.48
1:C:438:LEU:HD21	1:C:475:LEU:HD21	1.95	0.48
1:G:276:LEU:HD12	1:G:284:VAL:HG12	1.95	0.48
1:D:435:GLU:OE2	1:D:509:ARG:NH2	2.40	0.48
1:D:276:LEU:HD12	1:D:284:VAL:HG12	1.95	0.48
1:H:322:HIS:HB3	1:H:325:LEU:HG	1.95	0.48
1:A:332:VAL:HB	1:A:338:TYR:HB2	1.96	0.48
1:C:362:ARG:NH1	1:C:533:GLY:O	2.46	0.48
1:A:506:PRO:HA	1:A:509:ARG:HG3	1.96	0.47
1:F:289:TRP:HB3	1:F:293:THR:HB	1.96	0.47
1:H:373:ILE:HD12	1:H:395:ILE:HD12	1.96	0.47
1:A:434:PRO:HB2	1:A:479:GLU:OE2	2.14	0.47
1:B:435:GLU:OE2	1:B:509:ARG:NH2	2.43	0.47
1:C:282:GLY:N	1:C:302:PRO:HB3	2.29	0.47
1:E:503:ARG:HB2	1:E:509:ARG:HG2	1.97	0.47
1:D:353:LEU:HD11	1:D:458:LEU:HD23	1.97	0.47
1:C:282:GLY:CA	1:C:302:PRO:HB3	2.45	0.47
1:H:285:TRP:N	1:H:297:ILE:O	2.36	0.46
1:H:434:PRO:HB2	1:H:479:GLU:OE2	2.15	0.46
1:G:429:ILE:HD11	1:G:471:ASN:HB3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:373:ILE:HD11	1:H:403:CYS:HB3	1.97	0.46
1:B:289:TRP:HB3	1:B:293:THR:OG1	2.16	0.46
1:H:509:ARG:H	1:H:509:ARG:HG2	1.52	0.46
1:C:267:ARG:HH22	1:C:336:PRO:HG2	1.80	0.45
1:H:289:TRP:HB2	1:H:295:VAL:HG11	1.98	0.45
1:C:336:PRO:CB	1:E:304:THR:HB	2.47	0.45
1:G:287:GLY:O	1:G:294:ARG:HA	2.17	0.45
1:D:300:LEU:HD11	1:D:306:SER:O	2.17	0.45
1:F:332:VAL:HB	1:F:338:TYR:HB2	1.97	0.45
1:D:285:TRP:CH2	1:F:335:GLU:HB3	2.52	0.44
1:G:332:VAL:O	1:G:337:ILE:HA	2.18	0.44
1:B:270:LEU:HD23	1:B:289:TRP:HA	1.99	0.44
1:H:311:LEU:HD12	1:H:314:ALA:HB3	1.99	0.44
1:F:429:ILE:HD12	1:F:475:LEU:HB2	2.00	0.44
2:A:601:HVY:C9	2:A:601:HVY:N8	2.79	0.44
1:E:272:LEU:HD23	1:E:285:TRP:CG	2.52	0.44
1:F:489:GLU:OE2	1:F:534:GLU:HB3	2.18	0.44
1:G:334:GLU:O	1:G:337:ILE:N	2.49	0.44
1:F:265:ILE:HD11	1:F:270:LEU:HD11	2.00	0.44
2:H:601:HVY:N8	2:H:601:HVY:C9	2.81	0.44
1:B:286[B]:MET:HG3	1:B:343:TYR:CE1	2.52	0.44
1:F:385:TYR:CE1	1:F:413:LEU:HD13	2.53	0.44
1:H:530:TYR:OH	1:H:536:LEU:OXT	2.34	0.44
1:C:506:PRO:HA	1:C:509:ARG:HG3	2.00	0.44
1:D:469:MET:HE2	1:D:474:VAL:HG22	2.00	0.44
1:E:286:MET:HG3	1:E:343:TYR:CE1	2.53	0.43
1:B:316:VAL:HG11	1:B:411:ALA:HB3	1.99	0.43
1:B:368:ASP:OD2	1:B:372:GLN:NE2	2.51	0.43
1:B:470:VAL:O	1:B:474:VAL:HG23	2.19	0.43
1:H:470:VAL:HG22	1:H:471:ASN:H	1.83	0.43
1:C:381:GLU:HG3	1:C:444:ILE:HG12	2.00	0.43
2:E:601:HVY:N8	2:E:601:HVY:C32	2.81	0.43
1:F:388:ARG:HD3	1:F:410:LEU:O	2.18	0.43
1:A:396:LEU:HD21	2:A:601:HVY:N7	2.33	0.43
1:D:282:GLY:HA2	1:D:302:PRO:HG2	2.00	0.43
1:D:301:LYS:N	1:D:302:PRO:HD2	2.34	0.43
1:H:308:GLU:HA	1:H:311:LEU:HB3	1.99	0.43
1:B:436:ALA:HA	1:B:441:ARG:H	1.84	0.43
1:D:326:VAL:HG21	1:D:396:LEU:HD12	2.01	0.43
1:E:300:LEU:HB2	1:E:310:PHE:CE1	2.54	0.43
1:E:428:PRO:O	1:E:432:THR:OG1	2.23	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:311:LEU:HD11	1:F:337:ILE:HD13	2.00	0.43
1:C:364:PRO:HA	1:C:523:PHE:CE2	2.54	0.42
2:F:601:HVY:C9	2:F:601:HVY:N8	2.81	0.42
1:G:460:THR:O	1:G:463:ARG:HG2	2.19	0.42
1:A:322:HIS:HB3	1:A:325:LEU:HG	1.99	0.42
2:D:601:HVY:N8	2:D:601:HVY:C9	2.81	0.42
1:D:438:LEU:HD21	1:D:475:LEU:HD21	2.01	0.42
2:B:601:HVY:C9	2:B:601:HVY:N8	2.81	0.42
1:F:434:PRO:HB2	1:F:479:GLU:OE2	2.20	0.42
1:A:264:GLU:HA	1:A:331:VAL:O	2.20	0.42
1:B:325:LEU:HD22	1:B:408:PHE:HZ	1.85	0.42
1:C:362:ARG:HA	1:C:362:ARG:HD3	1.85	0.42
1:G:307:PRO:HD2	1:G:309:ALA:H	1.83	0.42
1:H:344:MET:HG3	1:H:396:LEU:HB3	2.02	0.42
1:D:283:GLU:HB2	1:D:302:PRO:HG3	2.02	0.42
1:C:338:TYR:CE1	1:E:303:GLY:HA3	2.54	0.42
1:F:386:VAL:HG22	1:F:388:ARG:HG3	2.01	0.42
1:E:412:ARG:NH1	3:E:705:HOH:O	2.39	0.41
1:D:346:LYS:HA	1:D:346:LYS:HD3	1.79	0.41
1:E:276:LEU:HD12	1:E:284:VAL:HG12	2.01	0.41
1:E:307:PRO:C	1:E:309:ALA:H	2.23	0.41
1:F:373:ILE:HD13	1:F:454:LEU:HD21	2.02	0.41
2:C:601:HVY:N8	2:C:601:HVY:C9	2.83	0.41
1:F:308:GLU:HA	1:F:311:LEU:HB2	2.01	0.41
1:G:335:GLU:N	1:G:336:PRO:HD2	2.35	0.41
1:A:316:VAL:HG11	1:A:411:ALA:HB3	2.03	0.41
1:A:472:ARG:HH11	1:B:359:LYS:NZ	2.18	0.41
1:B:298:LYS:NZ	1:B:313:GLU:OE1	2.34	0.41
1:C:265:ILE:HG21	1:C:289:TRP:HZ2	1.85	0.41
1:D:283:GLU:CB	1:D:302:PRO:HG3	2.50	0.41
1:G:306:SER:HB3	1:G:310:PHE:HB2	2.03	0.41
1:G:329:TYR:HB2	1:G:340:VAL:HG12	2.03	0.41
1:G:346:LYS:HD2	1:G:346:LYS:HA	1.72	0.41
1:H:301:LYS:HD3	1:H:304:THR:HG21	2.03	0.41
1:C:384:ASN:HB3	1:C:414:ILE:HB	2.03	0.41
1:D:314:ALA:HB2	1:D:339:ILE:HD13	2.02	0.41
1:E:430:LYS:HG2	1:E:474:VAL:HG21	2.02	0.41
1:B:436:ALA:HA	1:B:441:ARG:N	2.36	0.40
1:B:438:LEU:HD21	1:B:475:LEU:HD12	2.02	0.40
2:G:601:HVY:N8	2:G:601:HVY:C9	2.84	0.40
1:B:385:TYR:CE1	1:B:413:LEU:HD13	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:331:VAL:HG12	1:B:339:ILE:HG12	2.02	0.40
1:D:373:ILE:HD13	1:D:454:LEU:HD21	2.04	0.40
1:H:503:ARG:NH1	1:H:508:GLU:O	2.54	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	264/276 (96%)	254 (96%)	9 (3%)	1 (0%)	34	29
1	B	264/276 (96%)	251 (95%)	11 (4%)	2 (1%)	19	12
1	C	262/276 (95%)	246 (94%)	12 (5%)	4 (2%)	10	5
1	D	264/276 (96%)	249 (94%)	11 (4%)	4 (2%)	10	5
1	E	263/276 (95%)	252 (96%)	8 (3%)	3 (1%)	14	8
1	F	262/276 (95%)	246 (94%)	15 (6%)	1 (0%)	34	29
1	G	260/276 (94%)	247 (95%)	10 (4%)	3 (1%)	13	7
1	H	260/276 (94%)	246 (95%)	13 (5%)	1 (0%)	34	29
All	All	2099/2208 (95%)	1991 (95%)	89 (4%)	19 (1%)	17	11

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	307	PRO
1	D	301	LYS
1	D	305	MET
1	D	307	PRO
1	G	307	PRO
1	B	307	PRO
1	B	305	MET

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Mol	Chain	Res	Type
1	E	307	PRO
1	C	294	ARG
1	D	294	ARG
1	E	427	PHE
1	G	294	ARG
1	G	337	ILE
1	E	281	PHE
1	F	426	LYS
1	H	334	GLU
1	C	307	PRO
1	C	302	PRO
1	C	291	GLY

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	232/238 (98%)	231 (100%)	1 (0%)	91	93
1	B	232/238 (98%)	227 (98%)	5 (2%)	52	55
1	C	230/238 (97%)	227 (99%)	3 (1%)	69	74
1	D	232/238 (98%)	230 (99%)	2 (1%)	78	83
1	E	231/238 (97%)	228 (99%)	3 (1%)	69	74
1	F	230/238 (97%)	226 (98%)	4 (2%)	60	65
1	G	229/238 (96%)	228 (100%)	1 (0%)	91	93
1	H	229/238 (96%)	225 (98%)	4 (2%)	60	65
All	All	1845/1904 (97%)	1822 (99%)	23 (1%)	69	76

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	331	VAL
1	B	267	ARG
1	B	271	ARG

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Mol	Chain	Res	Type
1	B	292	THR
1	B	308	GLU
1	B	505	GLU
1	C	294	ARG
1	C	301	LYS
1	C	480	ARG
1	D	435	GLU
1	D	503	ARG
1	E	294	ARG
1	E	310	PHE
1	E	461	LYS
1	F	264	GLU
1	F	294	ARG
1	F	333	SER
1	F	472	ARG
1	G	346	LYS
1	H	321	ARG
1	H	335	GLU
1	H	427	PHE
1	H	509	ARG

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

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

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
2	HVY	F	601	1	47,47,47	1.71	7 (14%)	63,65,65	1.87	14 (22%)
2	HVY	H	601	1	47,47,47	1.72	8 (17%)	63,65,65	1.93	16 (25%)
2	HVY	C	601	1	47,47,47	1.73	8 (17%)	63,65,65	1.85	13 (20%)
2	HVY	B	601	1	47,47,47	1.72	7 (14%)	63,65,65	1.93	15 (23%)
2	HVY	D	601	1	47,47,47	1.71	7 (14%)	63,65,65	1.89	17 (26%)
2	HVY	G	601	1	47,47,47	1.73	8 (17%)	63,65,65	1.91	14 (22%)
2	HVY	E	601	1	47,47,47	1.74	8 (17%)	63,65,65	1.89	13 (20%)
2	HVY	A	601	1	47,47,47	1.73	8 (17%)	63,65,65	1.93	16 (25%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HVY	F	601	1	-	5/26/36/36	0/5/5/5
2	HVY	H	601	1	-	5/26/36/36	0/5/5/5
2	HVY	C	601	1	-	5/26/36/36	0/5/5/5
2	HVY	B	601	1	-	4/26/36/36	0/5/5/5
2	HVY	D	601	1	-	4/26/36/36	0/5/5/5
2	HVY	G	601	1	-	5/26/36/36	0/5/5/5
2	HVY	E	601	1	-	5/26/36/36	0/5/5/5
2	HVY	A	601	1	-	5/26/36/36	0/5/5/5

All (61) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	601	HVY	C31-C26	-5.85	1.39	1.51
2	G	601	HVY	C31-C26	-5.84	1.39	1.51
2	H	601	HVY	C31-C26	-5.81	1.39	1.51
2	F	601	HVY	C31-C26	-5.78	1.39	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	601	HVY	C31-C26	-5.74	1.39	1.51
2	A	601	HVY	C31-C26	-5.72	1.39	1.51
2	B	601	HVY	C31-C26	-5.72	1.39	1.51
2	D	601	HVY	C31-C26	-5.71	1.39	1.51
2	B	601	HVY	C13-C24	-5.14	1.39	1.50
2	G	601	HVY	C13-C24	-5.14	1.39	1.50
2	A	601	HVY	C13-C24	-5.14	1.39	1.50
2	E	601	HVY	C13-C24	-5.11	1.39	1.50
2	D	601	HVY	C13-C24	-5.10	1.39	1.50
2	C	601	HVY	C13-C24	-5.09	1.39	1.50
2	F	601	HVY	C13-C24	-5.06	1.39	1.50
2	B	601	HVY	C25-N9	-5.00	1.33	1.43
2	H	601	HVY	C13-C24	-4.99	1.40	1.50
2	D	601	HVY	C25-N9	-4.96	1.33	1.43
2	C	601	HVY	C25-N9	-4.94	1.34	1.43
2	G	601	HVY	C25-N9	-4.92	1.34	1.43
2	A	601	HVY	C25-N9	-4.92	1.34	1.43
2	E	601	HVY	C25-N9	-4.90	1.34	1.43
2	F	601	HVY	C25-N9	-4.82	1.34	1.43
2	H	601	HVY	C25-N9	-4.80	1.34	1.43
2	E	601	HVY	C20-N7	-4.29	1.33	1.41
2	F	601	HVY	C20-N7	-4.24	1.33	1.41
2	G	601	HVY	C20-N7	-4.17	1.33	1.41
2	A	601	HVY	C20-N7	-4.14	1.33	1.41
2	C	601	HVY	C20-N7	-4.14	1.33	1.41
2	B	601	HVY	C20-N7	-4.11	1.33	1.41
2	D	601	HVY	C20-N7	-4.06	1.34	1.41
2	H	601	HVY	C20-N7	-4.02	1.34	1.41
2	H	601	HVY	C12-N5	3.17	1.41	1.34
2	E	601	HVY	C12-N5	3.07	1.40	1.34
2	A	601	HVY	C12-N5	3.06	1.40	1.34
2	B	601	HVY	C12-N5	3.03	1.40	1.34
2	F	601	HVY	C12-N5	3.02	1.40	1.34
2	D	601	HVY	C12-N5	3.00	1.40	1.34
2	G	601	HVY	C12-N5	2.99	1.40	1.34
2	C	601	HVY	C12-N5	2.97	1.40	1.34
2	A	601	HVY	C13-C14	-2.86	1.38	1.42
2	H	601	HVY	C13-C14	-2.79	1.39	1.42
2	E	601	HVY	C13-C14	-2.72	1.39	1.42
2	G	601	HVY	C13-C14	-2.68	1.39	1.42
2	C	601	HVY	C13-C14	-2.64	1.39	1.42
2	F	601	HVY	C13-C14	-2.61	1.39	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	601	HVY	C13-C14	-2.57	1.39	1.42
2	D	601	HVY	C13-C14	-2.56	1.39	1.42
2	C	601	HVY	C10-N4	-2.31	1.35	1.40
2	G	601	HVY	C10-N4	-2.29	1.35	1.40
2	D	601	HVY	C10-N4	-2.26	1.35	1.40
2	E	601	HVY	C10-N4	-2.26	1.35	1.40
2	B	601	HVY	C10-N4	-2.25	1.35	1.40
2	F	601	HVY	C10-N4	-2.25	1.35	1.40
2	A	601	HVY	C10-N4	-2.23	1.35	1.40
2	H	601	HVY	C10-N4	-2.20	1.35	1.40
2	H	601	HVY	C15-N6	-2.16	1.33	1.39
2	G	601	HVY	C15-N6	-2.12	1.34	1.39
2	C	601	HVY	C15-N6	-2.11	1.34	1.39
2	E	601	HVY	C15-N6	-2.11	1.34	1.39
2	A	601	HVY	C15-N6	-2.08	1.34	1.39

All (118) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	601	HVY	N5-C11-N8	-8.48	118.52	126.55
2	A	601	HVY	N5-C11-N8	-8.38	118.61	126.55
2	F	601	HVY	N5-C11-N8	-8.28	118.70	126.55
2	D	601	HVY	N5-C11-N8	-8.27	118.71	126.55
2	E	601	HVY	N5-C11-N8	-8.25	118.73	126.55
2	B	601	HVY	N5-C11-N8	-8.14	118.84	126.55
2	C	601	HVY	N5-C11-N8	-8.10	118.88	126.55
2	G	601	HVY	N5-C11-N8	-8.02	118.95	126.55
2	B	601	HVY	C34-N3-C6	4.79	122.10	111.52
2	F	601	HVY	C34-N3-C6	4.40	121.23	111.52
2	H	601	HVY	C15-N6-C14	-4.38	118.68	129.63
2	G	601	HVY	C15-N6-C14	-4.34	118.80	129.63
2	C	601	HVY	C15-N6-C14	-4.33	118.81	129.63
2	E	601	HVY	C15-N6-C14	-4.31	118.86	129.63
2	B	601	HVY	C15-N6-C14	-4.28	118.94	129.63
2	D	601	HVY	C15-N6-C14	-4.20	119.15	129.63
2	G	601	HVY	C34-N3-C6	4.08	120.52	111.52
2	A	601	HVY	C15-N6-C14	-4.07	119.46	129.63
2	C	601	HVY	C34-N3-C6	3.98	120.31	111.52
2	F	601	HVY	C15-N6-C14	-3.86	120.00	129.63
2	E	601	HVY	C34-N3-C6	3.83	119.96	111.52
2	G	601	HVY	C13-C12-N5	-3.82	118.52	124.28
2	H	601	HVY	C12-N5-C11	3.81	121.63	115.88

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	HVY	C13-C12-N5	-3.77	118.59	124.28
2	H	601	HVY	C13-C12-N5	-3.75	118.62	124.28
2	C	601	HVY	C12-N5-C11	3.75	121.53	115.88
2	G	601	HVY	C12-N5-C11	3.71	121.48	115.88
2	A	601	HVY	C13-C14-N6	-3.69	115.98	120.01
2	E	601	HVY	C13-C12-N5	-3.69	118.72	124.28
2	A	601	HVY	C13-C12-N5	-3.67	118.74	124.28
2	H	601	HVY	C13-C14-N6	-3.65	116.02	120.01
2	E	601	HVY	C12-N5-C11	3.64	121.37	115.88
2	A	601	HVY	C12-N5-C11	3.63	121.36	115.88
2	B	601	HVY	C13-C12-N5	-3.63	118.81	124.28
2	D	601	HVY	C12-N5-C11	3.60	121.31	115.88
2	G	601	HVY	C12-C13-C14	3.59	118.07	114.55
2	G	601	HVY	C13-C14-N6	-3.59	116.08	120.01
2	D	601	HVY	C13-C12-N5	-3.57	118.89	124.28
2	B	601	HVY	C12-N5-C11	3.56	121.24	115.88
2	A	601	HVY	C12-C13-C14	3.49	117.97	114.55
2	F	601	HVY	C12-N5-C11	3.46	121.11	115.88
2	E	601	HVY	C12-C13-C14	3.46	117.94	114.55
2	F	601	HVY	C13-C12-N5	-3.43	119.11	124.28
2	E	601	HVY	C13-C14-N6	-3.43	116.26	120.01
2	B	601	HVY	C12-C13-C14	3.42	117.90	114.55
2	C	601	HVY	C12-C13-C14	3.41	117.89	114.55
2	D	601	HVY	C12-C13-C14	3.38	117.85	114.55
2	F	601	HVY	C13-C14-N6	-3.37	116.33	120.01
2	C	601	HVY	C13-C14-N6	-3.34	116.36	120.01
2	F	601	HVY	C12-C13-C14	3.29	117.77	114.55
2	H	601	HVY	C12-C13-C14	3.18	117.66	114.55
2	D	601	HVY	C13-C14-N6	-3.05	116.67	120.01
2	B	601	HVY	C13-C14-N6	-2.89	116.84	120.01
2	D	601	HVY	C34-N3-C6	2.86	117.82	111.52
2	A	601	HVY	C34-N3-C6	2.82	117.75	111.52
2	F	601	HVY	C11-N8-C14	2.80	122.80	116.39
2	A	601	HVY	N6-C14-N8	2.79	123.27	119.12
2	G	601	HVY	C30-C25-N9	-2.77	117.83	121.14
2	G	601	HVY	C25-N9-C24	-2.74	116.63	123.39
2	F	601	HVY	N6-C14-N8	2.72	123.17	119.12
2	D	601	HVY	C11-N8-C14	2.71	122.60	116.39
2	E	601	HVY	C20-N7-C21	-2.71	117.06	126.57
2	A	601	HVY	C11-N8-C14	2.70	122.58	116.39
2	E	601	HVY	C25-N9-C24	-2.69	116.75	123.39
2	B	601	HVY	C11-N8-C14	2.68	122.53	116.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	601	HVY	C20-N7-C21	-2.68	117.15	126.57
2	H	601	HVY	C34-N3-C6	2.67	117.42	111.52
2	E	601	HVY	C30-C25-N9	-2.67	117.95	121.14
2	E	601	HVY	C11-N8-C14	2.64	122.44	116.39
2	G	601	HVY	N6-C14-N8	2.63	123.03	119.12
2	H	601	HVY	C11-N8-C14	2.59	122.33	116.39
2	E	601	HVY	N6-C14-N8	2.57	122.94	119.12
2	B	601	HVY	C6-C5-N2	2.55	113.69	110.80
2	H	601	HVY	C25-N9-C24	-2.51	117.19	123.39
2	A	601	HVY	C20-N7-C21	-2.50	117.79	126.57
2	G	601	HVY	C11-N8-C14	2.49	122.09	116.39
2	F	601	HVY	C20-N7-C21	-2.48	117.84	126.57
2	H	601	HVY	C25-C30-CL1	2.48	122.11	119.27
2	C	601	HVY	C11-N8-C14	2.48	122.07	116.39
2	H	601	HVY	C20-N7-C21	-2.48	117.86	126.57
2	A	601	HVY	C25-N9-C24	-2.48	117.28	123.39
2	D	601	HVY	C35-N2-C5	2.47	112.98	109.52
2	H	601	HVY	C14-C13-C24	-2.44	119.88	120.69
2	A	601	HVY	C35-N2-C5	2.44	112.93	109.52
2	F	601	HVY	C25-C30-CL1	2.44	122.06	119.27
2	H	601	HVY	N6-C14-N8	2.43	122.74	119.12
2	D	601	HVY	N6-C14-N8	2.41	122.70	119.12
2	C	601	HVY	C20-N7-C21	-2.38	118.20	126.57
2	H	601	HVY	C35-N2-C5	2.37	112.84	109.52
2	C	601	HVY	N6-C14-N8	2.34	122.61	119.12
2	C	601	HVY	C25-N9-C24	-2.32	117.65	123.39
2	B	601	HVY	C20-N7-C21	-2.32	118.42	126.57
2	B	601	HVY	C25-N9-C24	-2.29	117.72	123.39
2	D	601	HVY	C25-C30-CL1	2.28	121.88	119.27
2	D	601	HVY	C20-N7-C21	-2.26	118.61	126.57
2	B	601	HVY	N6-C14-N8	2.26	122.48	119.12
2	E	601	HVY	N4-C11-N8	2.21	124.43	116.92
2	F	601	HVY	C25-N9-C24	-2.20	117.95	123.39
2	G	601	HVY	N4-C11-N8	2.19	124.36	116.92
2	C	601	HVY	N4-C11-N8	2.17	124.30	116.92
2	D	601	HVY	N4-C11-N8	2.15	124.22	116.92
2	D	601	HVY	C14-C13-C24	2.15	121.41	120.69
2	D	601	HVY	C29-C30-C25	-2.15	118.54	121.96
2	B	601	HVY	C29-C30-C25	-2.15	118.55	121.96
2	H	601	HVY	N4-C11-N8	2.14	124.18	116.92
2	A	601	HVY	N4-C11-N8	2.13	124.14	116.92
2	F	601	HVY	C29-C30-C25	-2.12	118.58	121.96

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	601	HVY	C25-N9-C24	-2.10	118.21	123.39
2	A	601	HVY	C29-C30-C25	-2.09	118.64	121.96
2	A	601	HVY	C14-C13-C24	-2.08	120.00	120.69
2	B	601	HVY	N4-C11-N8	2.08	123.97	116.92
2	C	601	HVY	C29-C30-C25	-2.08	118.66	121.96
2	B	601	HVY	C14-C13-C24	2.07	121.39	120.69
2	A	601	HVY	C25-C30-CL1	2.07	121.64	119.27
2	D	601	HVY	C4-N2-C35	-2.06	107.58	110.66
2	H	601	HVY	C29-C30-C25	-2.05	118.70	121.96
2	F	601	HVY	N4-C11-N8	2.03	123.81	116.92
2	G	601	HVY	C33-C7-N3	-2.01	118.61	121.38

There are no chirality outliers.

All (38) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	HVY	C12-C13-C24-O3
2	B	601	HVY	C12-C13-C24-O3
2	C	601	HVY	C12-C13-C24-O3
2	D	601	HVY	C12-C13-C24-O3
2	E	601	HVY	C12-C13-C24-O3
2	F	601	HVY	C12-C13-C24-O3
2	G	601	HVY	C12-C13-C24-O3
2	H	601	HVY	C12-C13-C24-O3
2	A	601	HVY	C12-C13-C24-N9
2	B	601	HVY	C12-C13-C24-N9
2	C	601	HVY	C12-C13-C24-N9
2	D	601	HVY	C12-C13-C24-N9
2	E	601	HVY	C12-C13-C24-N9
2	F	601	HVY	C12-C13-C24-N9
2	G	601	HVY	C12-C13-C24-N9
2	H	601	HVY	C12-C13-C24-N9
2	E	601	HVY	C15-C20-N7-C21
2	E	601	HVY	C19-C20-N7-C21
2	G	601	HVY	C15-C20-N7-C21
2	G	601	HVY	C19-C20-N7-C21
2	A	601	HVY	C19-C20-N7-C21
2	F	601	HVY	C19-C20-N7-C21
2	E	601	HVY	C20-C15-N6-C14
2	B	601	HVY	C20-C15-N6-C14
2	C	601	HVY	C20-C15-N6-C14
2	D	601	HVY	C20-C15-N6-C14

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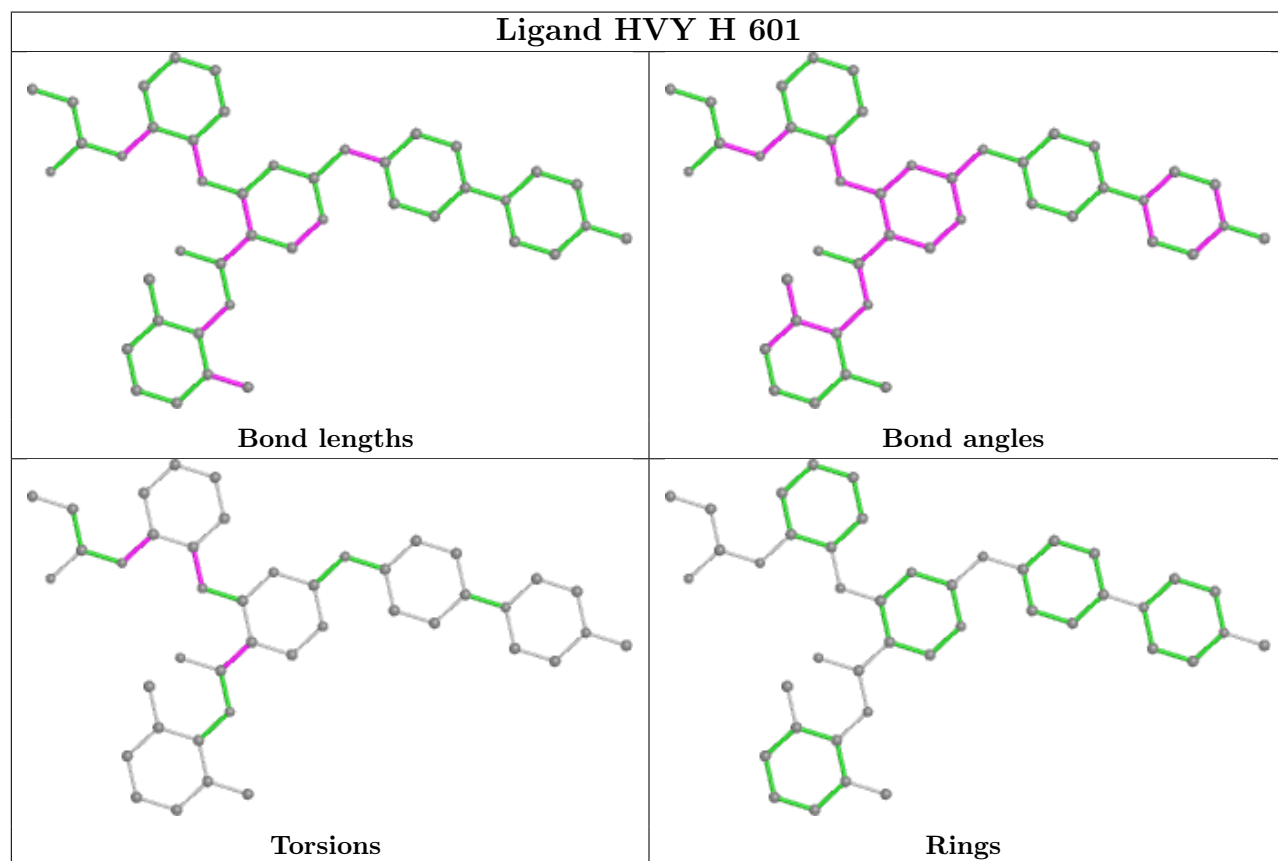
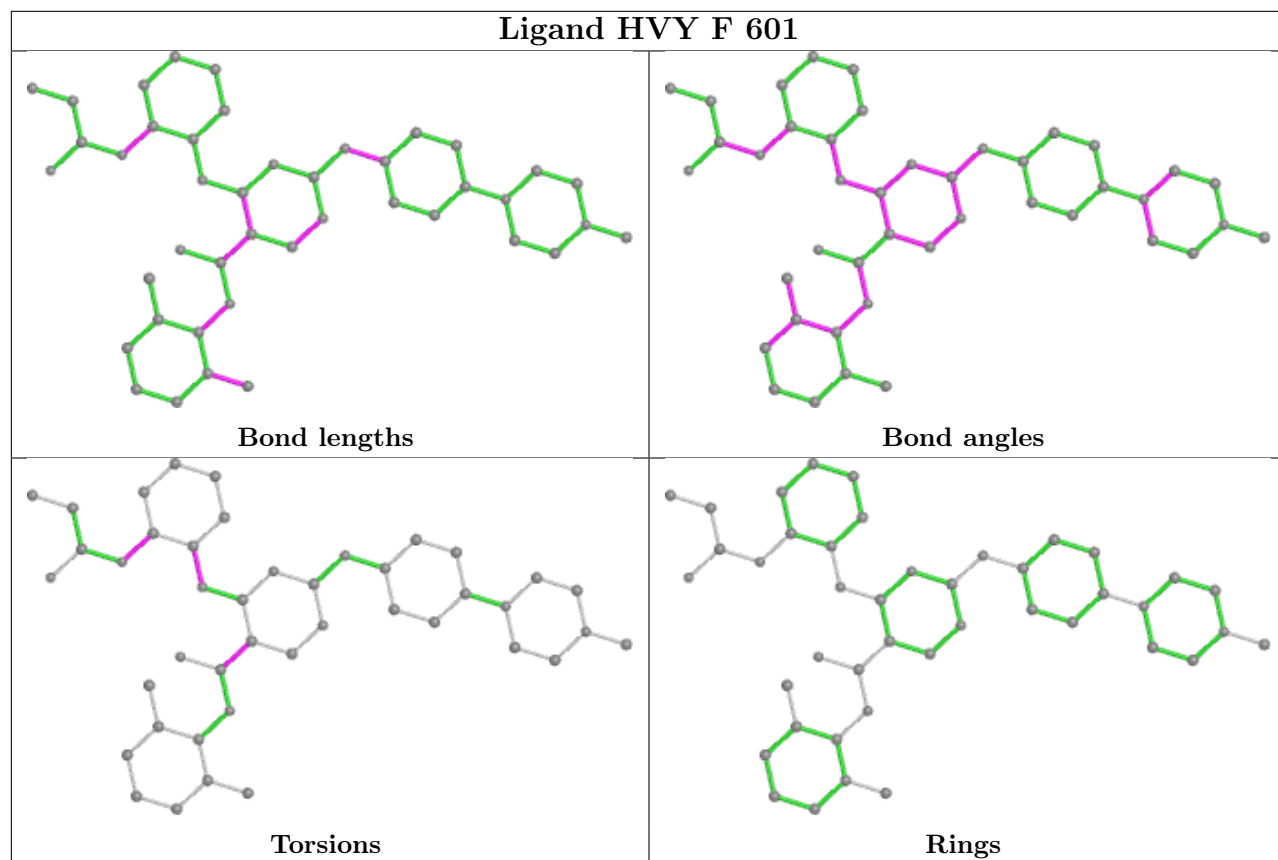
Mol	Chain	Res	Type	Atoms
2	G	601	HVY	C20-C15-N6-C14
2	H	601	HVY	C20-C15-N6-C14
2	A	601	HVY	C20-C15-N6-C14
2	A	601	HVY	C15-C20-N7-C21
2	F	601	HVY	C15-C20-N7-C21
2	C	601	HVY	C19-C20-N7-C21
2	H	601	HVY	C19-C20-N7-C21
2	B	601	HVY	C19-C20-N7-C21
2	D	601	HVY	C19-C20-N7-C21
2	F	601	HVY	C20-C15-N6-C14
2	C	601	HVY	C15-C20-N7-C21
2	H	601	HVY	C15-C20-N7-C21

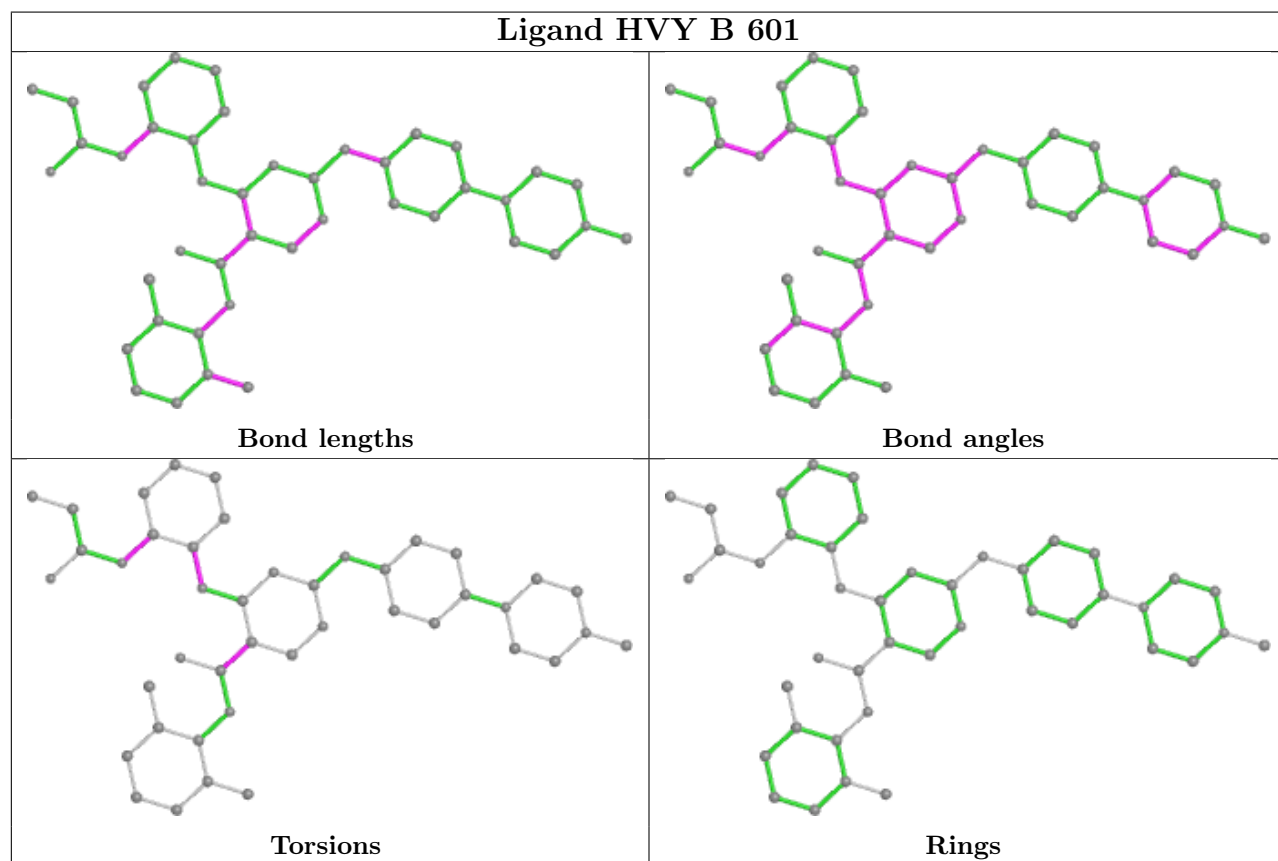
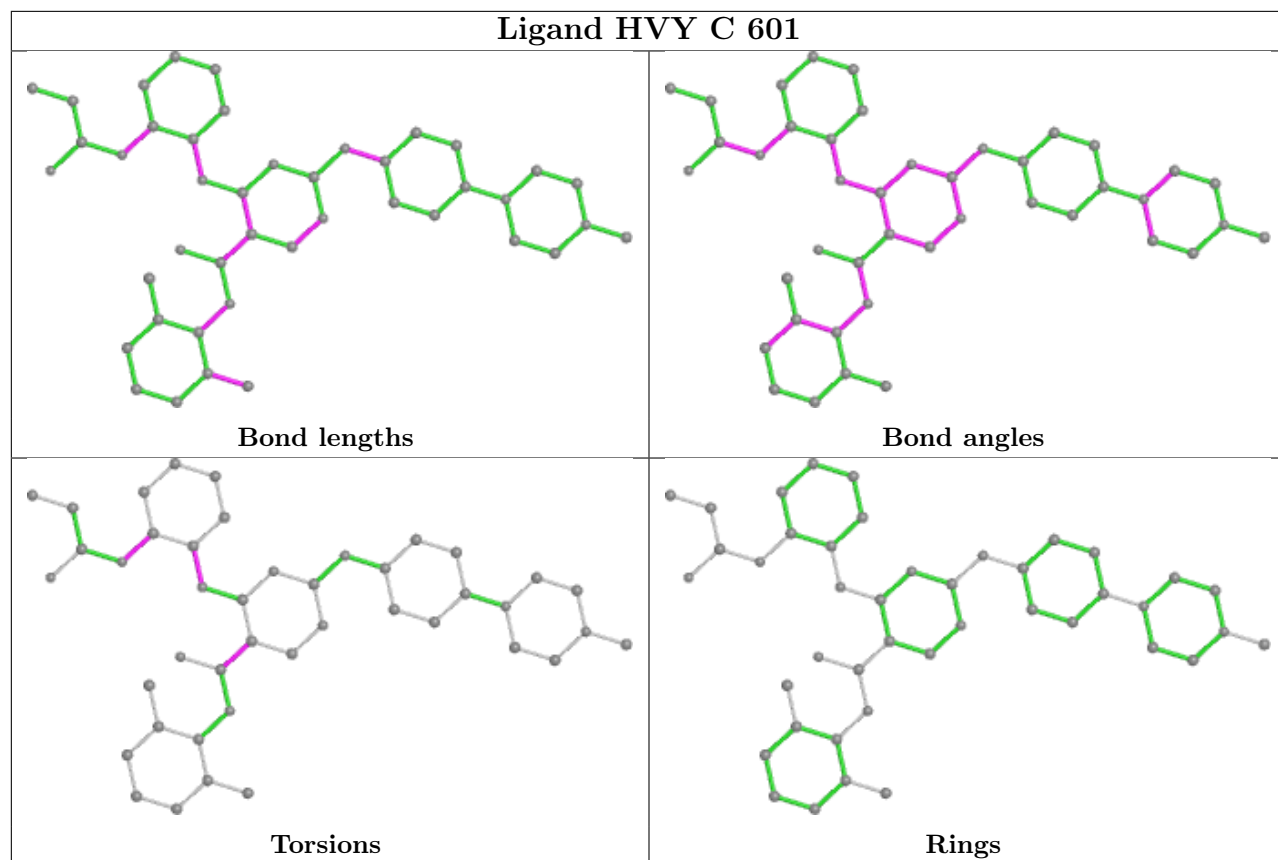
There are no ring outliers.

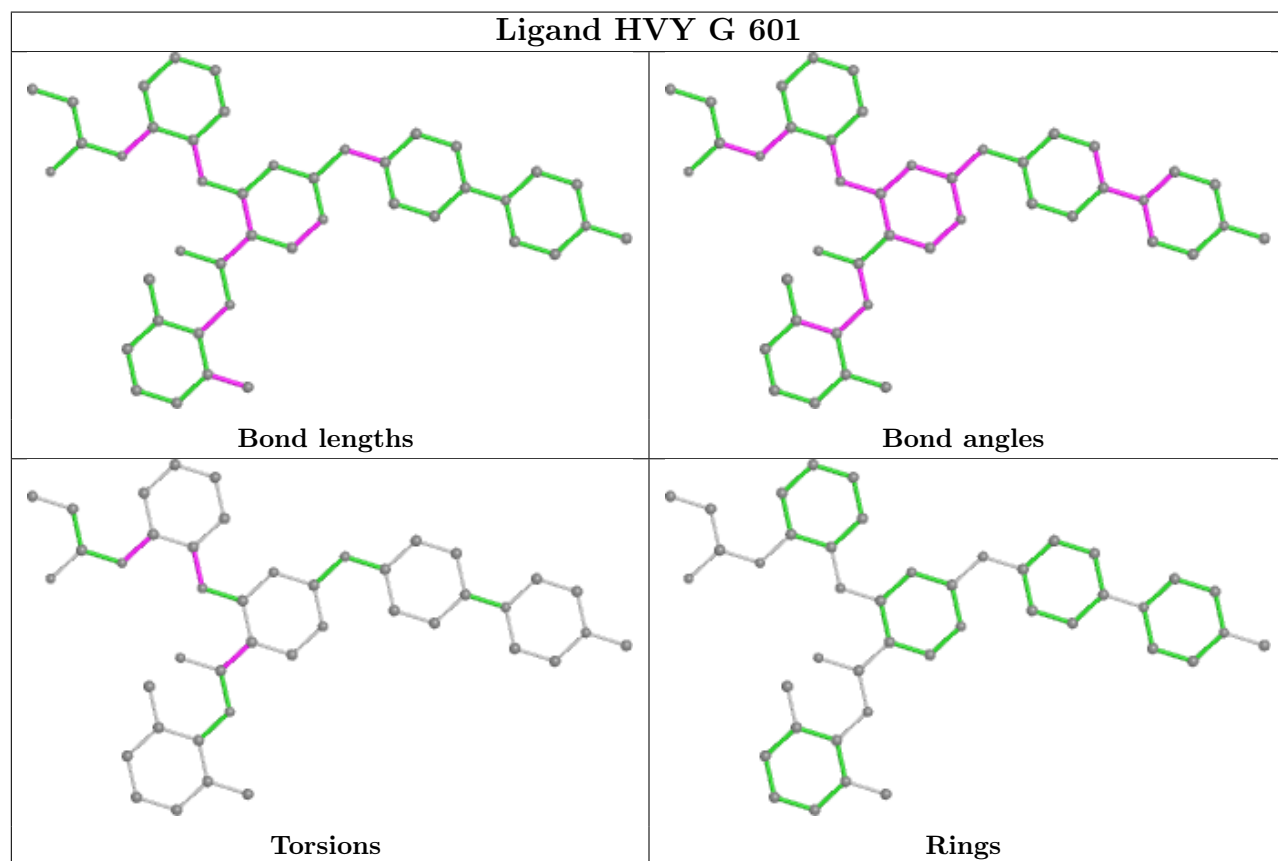
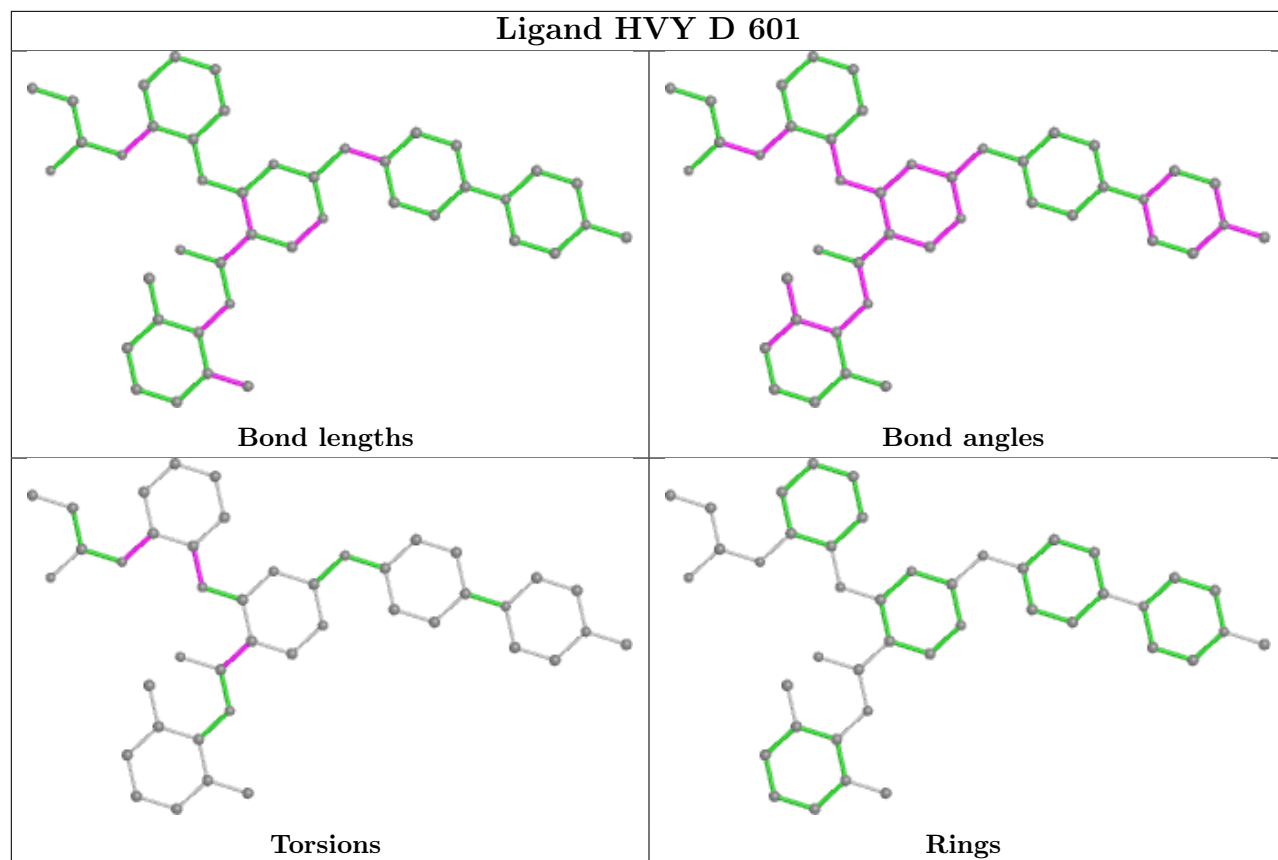
8 monomers are involved in 18 short contacts:

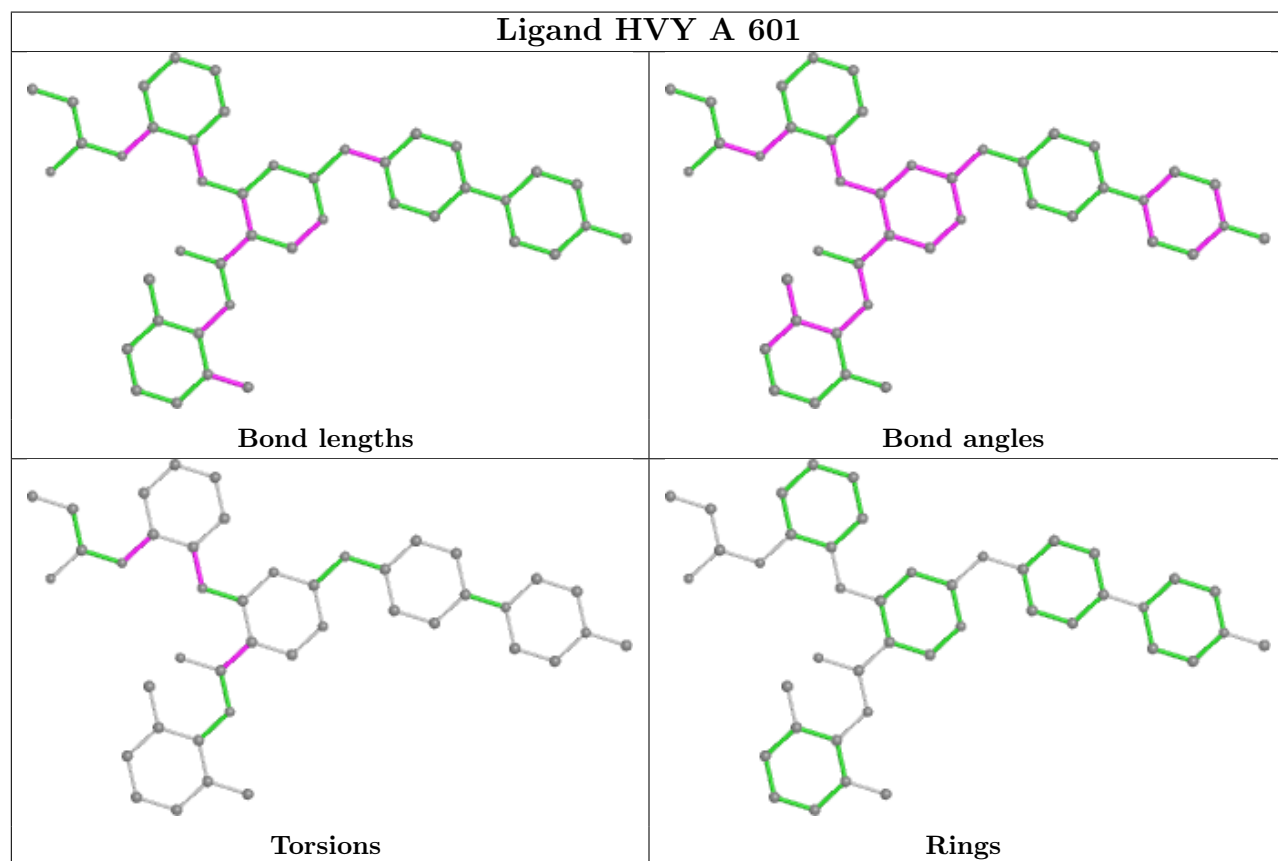
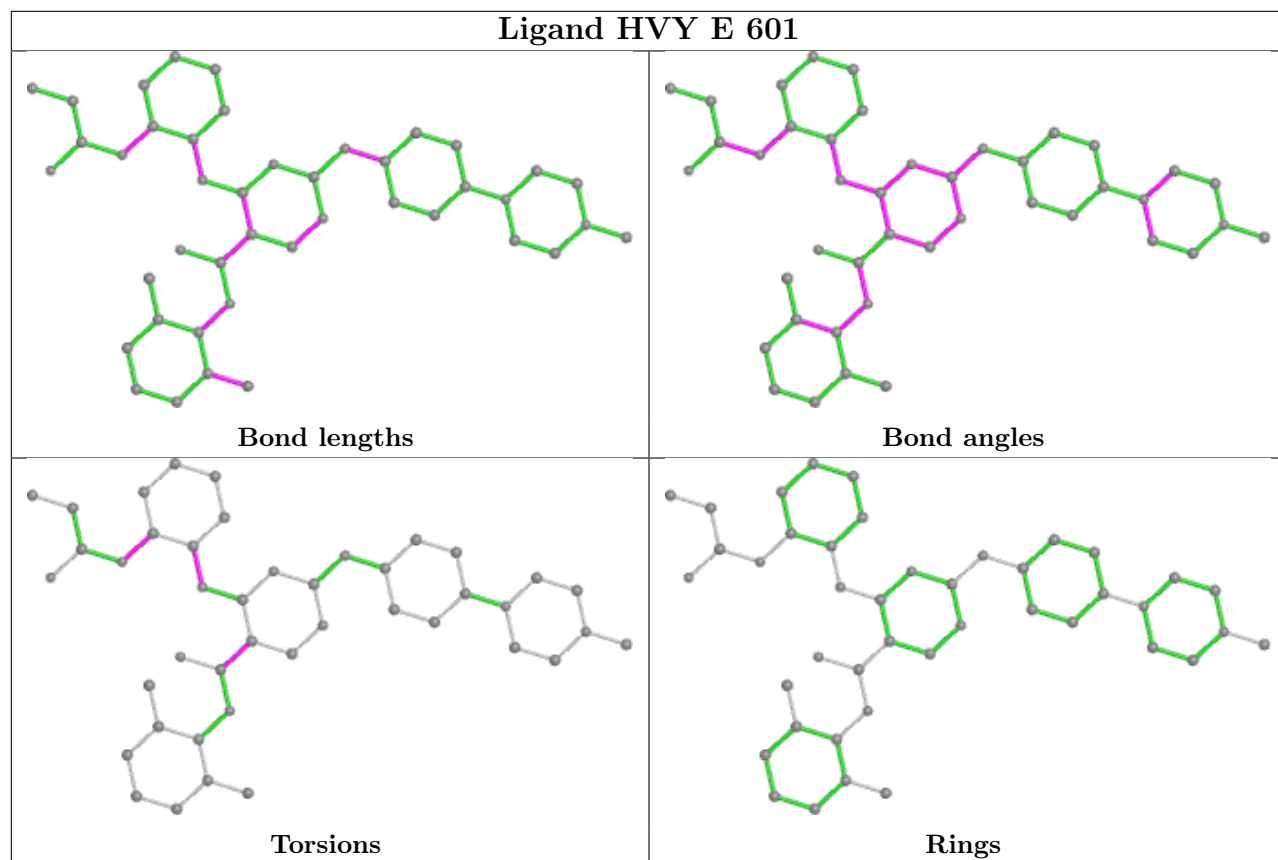
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	601	HVY	3	0
2	H	601	HVY	2	0
2	C	601	HVY	2	0
2	B	601	HVY	2	0
2	D	601	HVY	2	0
2	G	601	HVY	2	0
2	E	601	HVY	2	0
2	A	601	HVY	3	0

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.









5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th 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	266/276 (96%)	0.32	11 (4%) 37 46	23, 40, 71, 86	2 (0%)
1	B	266/276 (96%)	0.43	12 (4%) 33 42	26, 44, 76, 100	1 (0%)
1	C	266/276 (96%)	0.44	21 (7%) 12 17	24, 41, 80, 100	6 (2%)
1	D	266/276 (96%)	0.48	22 (8%) 11 15	26, 44, 80, 106	3 (1%)
1	E	266/276 (96%)	0.46	16 (6%) 21 29	27, 45, 74, 94	3 (1%)
1	F	266/276 (96%)	0.29	10 (3%) 40 49	25, 40, 72, 81	2 (0%)
1	G	264/276 (95%)	0.48	24 (9%) 9 13	27, 43, 78, 87	6 (2%)
1	H	264/276 (95%)	0.41	17 (6%) 19 26	23, 40, 81, 95	5 (1%)
All	All	2124/2208 (96%)	0.41	133 (6%) 20 27	23, 42, 78, 106	28 (1%)

All (133) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	292	THR	12.5
1	D	304	THR	12.5
1	C	304	THR	9.1
1	C	303	GLY	7.7
1	H	302	PRO	7.5
1	C	414	ILE	6.9
1	E	304	THR	6.4
1	G	281	PHE	6.4
1	D	303	GLY	5.9
1	E	305	MET	5.9
1	F	281	PHE	5.8
1	C	334	GLU	5.7
1	E	281	PHE	5.6
1	C	309	ALA	5.4
1	C	300	LEU	5.3
1	A	425	ALA	5.1

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Mol	Chain	Res	Type	RSRZ
1	H	303	GLY	5.0
1	H	281	PHE	4.9
1	F	280	CYS	4.8
1	B	292	THR	4.8
1	E	412	ARG	4.6
1	E	306	SER	4.5
1	H	414	ILE	4.4
1	A	427	PHE	4.4
1	H	413	LEU	4.4
1	H	280	CYS	4.4
1	H	292	THR	4.2
1	G	414	ILE	4.2
1	D	268	GLU	4.1
1	G	271	ARG	4.1
1	G	262	ALA	4.0
1	F	414	ILE	3.9
1	G	279	GLY	3.9
1	B	305	MET	3.8
1	C	305	MET	3.8
1	H	315	GLN	3.8
1	C	280	CYS	3.7
1	E	308	GLU	3.7
1	D	280	CYS	3.7
1	G	305	MET	3.7
1	D	300	LEU	3.7
1	D	302	PRO	3.6
1	D	412	ARG	3.6
1	F	304	THR	3.6
1	D	267	ARG	3.5
1	C	281	PHE	3.5
1	G	475	LEU	3.5
1	E	475	LEU	3.4
1	G	268	GLU	3.4
1	D	281	PHE	3.4
1	C	336	PRO	3.4
1	B	261	ASP	3.3
1	C	293	THR	3.3
1	E	425	ALA	3.3
1	E	414	ILE	3.2
1	E	280	CYS	3.2
1	D	408	PHE	3.2
1	E	302	PRO	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	305	MET	3.2
1	D	320	LEU	3.1
1	A	429	ILE	3.1
1	C	268	GLU	3.1
1	D	475	LEU	3.1
1	H	308	GLU	3.1
1	C	412	ARG	3.1
1	H	427	PHE	3.1
1	D	293	THR	3.0
1	A	278	GLN	3.0
1	G	472	ARG	3.0
1	G	303	GLY	3.0
1	G	308	GLU	2.9
1	G	280	CYS	2.9
1	G	306	SER	2.9
1	B	282	GLY	2.7
1	F	427	PHE	2.7
1	B	334	GLU	2.7
1	D	308	GLU	2.7
1	C	426	LYS	2.6
1	H	475	LEU	2.6
1	G	408	PHE	2.6
1	H	279	GLY	2.5
1	A	308	GLU	2.5
1	C	320	LEU	2.5
1	G	337	ILE	2.5
1	C	425	ALA	2.5
1	D	306	SER	2.5
1	F	475	LEU	2.5
1	C	266	PRO	2.5
1	B	425	ALA	2.5
1	H	305	MET	2.4
1	D	272	LEU	2.4
1	A	264	GLU	2.4
1	G	335	GLU	2.4
1	B	280	CYS	2.3
1	G	263	TRP	2.3
1	G	267	ARG	2.3
1	B	414	ILE	2.3
1	E	319	LYS	2.3
1	G	300	LEU	2.3
1	H	300	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
1	E	268	GLU	2.3
1	C	338	TYR	2.2
1	F	292	THR	2.2
1	G	336	PRO	2.2
1	H	268	GLU	2.2
1	H	261	ASP	2.2
1	A	340	VAL	2.2
1	F	531	GLN	2.2
1	A	320	LEU	2.2
1	D	301	LYS	2.2
1	F	320	LEU	2.2
1	A	292	THR	2.2
1	D	266	PRO	2.2
1	A	475	LEU	2.2
1	C	302	PRO	2.2
1	G	413	LEU	2.2
1	B	316	VAL	2.2
1	E	271	ARG	2.1
1	C	337	ILE	2.1
1	D	337	ILE	2.1
1	G	261	ASP	2.1
1	D	316	VAL	2.1
1	B	506	PRO	2.1
1	E	265	ILE	2.1
1	D	334	GLU	2.1
1	E	321	ARG	2.0
1	D	340	VAL	2.0
1	G	310	PHE	2.0
1	F	412	ARG	2.0
1	B	304	THR	2.0
1	B	340	VAL	2.0
1	C	306	SER	2.0
1	H	437	ALA	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](#)

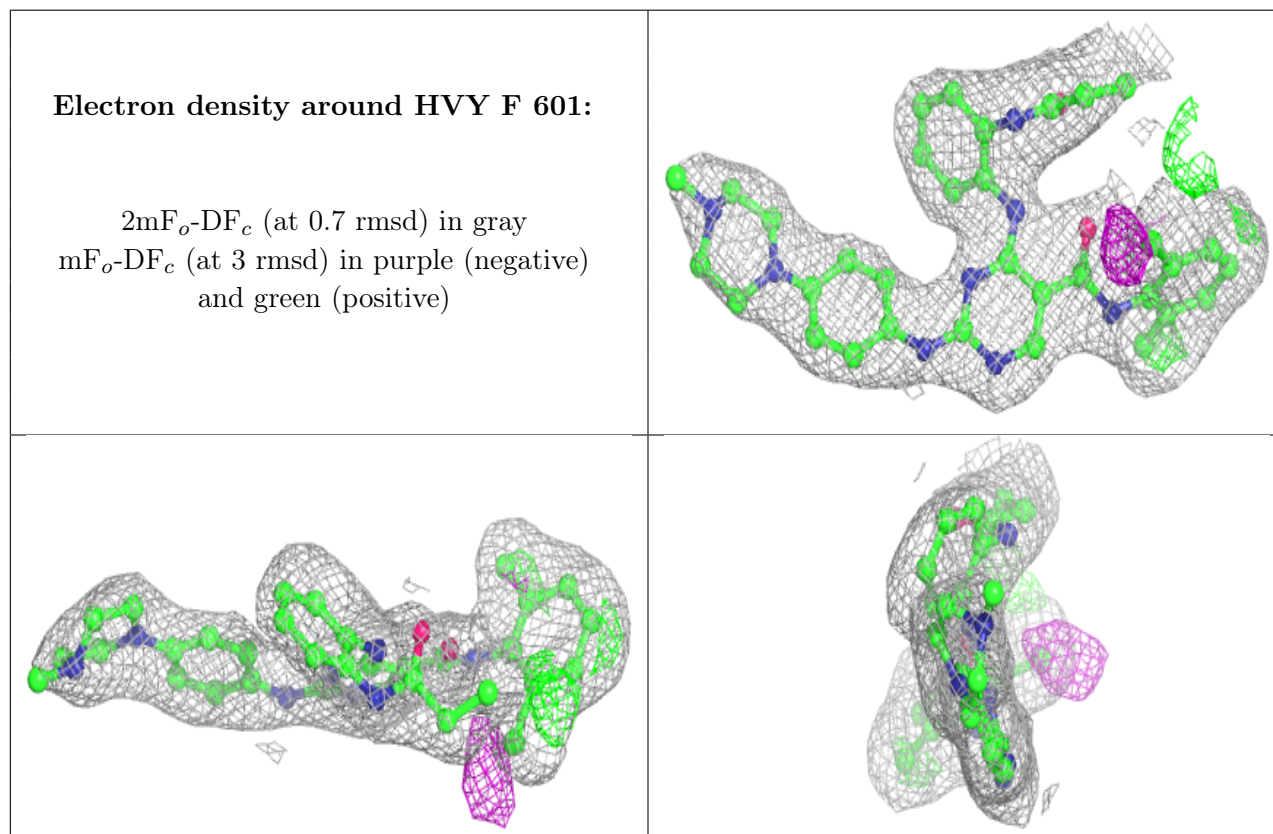
There are no monosaccharides in this entry.

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, 95th 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.

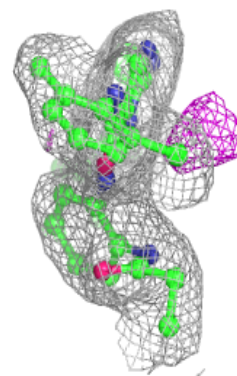
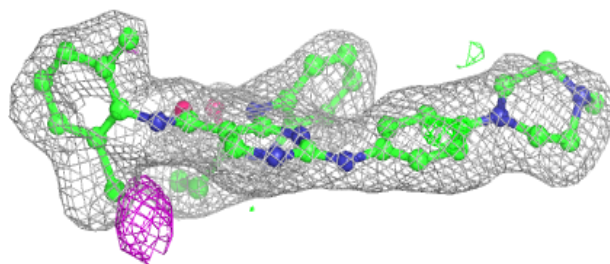
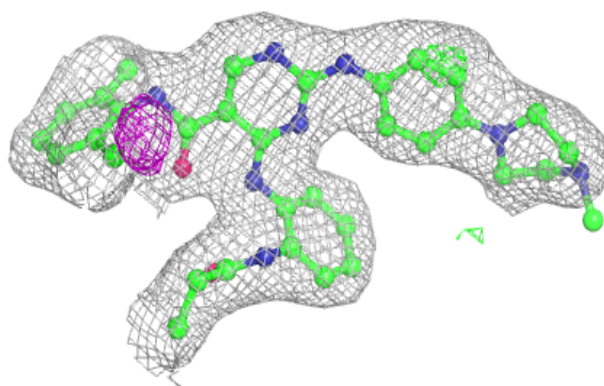
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	HVY	F	601	43/43	0.87	0.14	30,45,58,65	0
2	HVY	H	601	43/43	0.90	0.14	35,44,66,75	0
2	HVY	D	601	43/43	0.92	0.12	31,41,55,61	0
2	HVY	E	601	43/43	0.92	0.12	31,46,56,63	0
2	HVY	B	601	43/43	0.92	0.13	33,43,53,56	0
2	HVY	G	601	43/43	0.92	0.12	29,44,58,62	0
2	HVY	C	601	43/43	0.92	0.12	31,41,52,60	0
2	HVY	A	601	43/43	0.93	0.12	34,42,53,56	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.

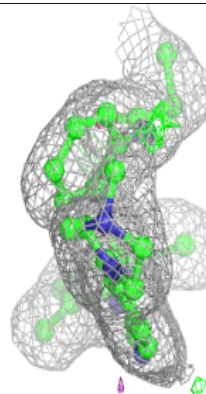
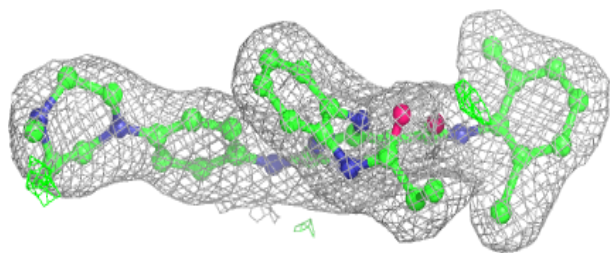
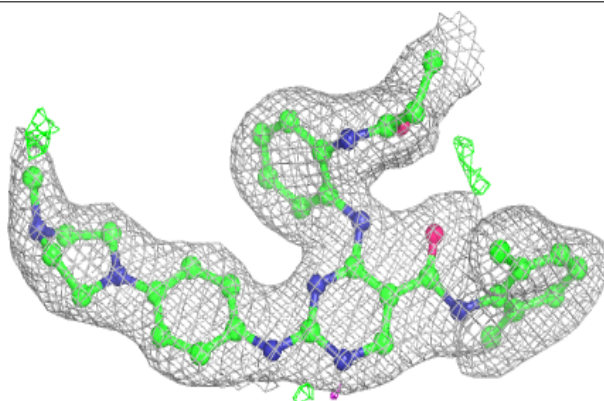


Electron density around HVY H 601:

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

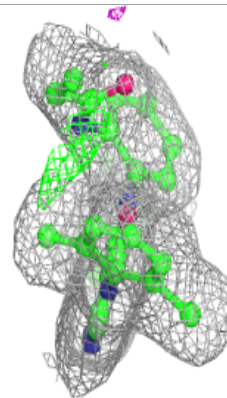
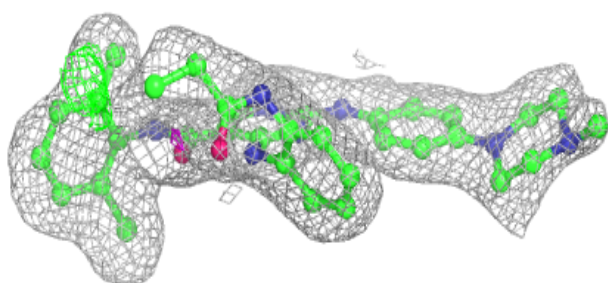
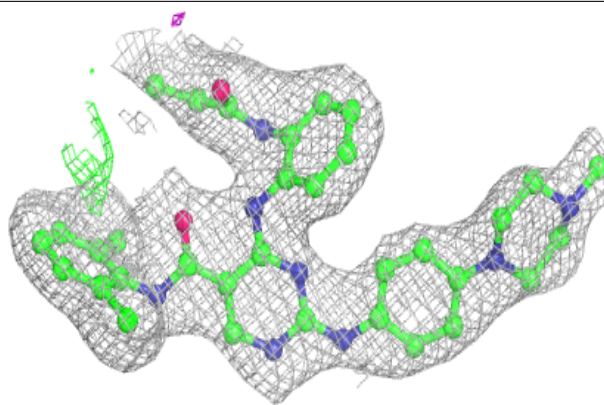
**Electron density around HVY D 601:**

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

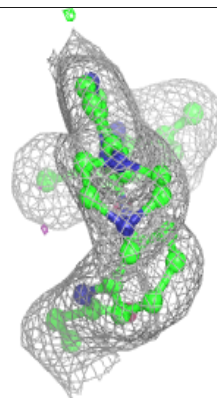
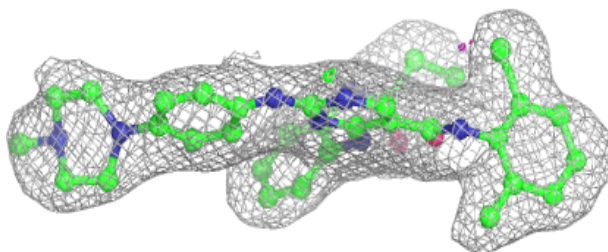
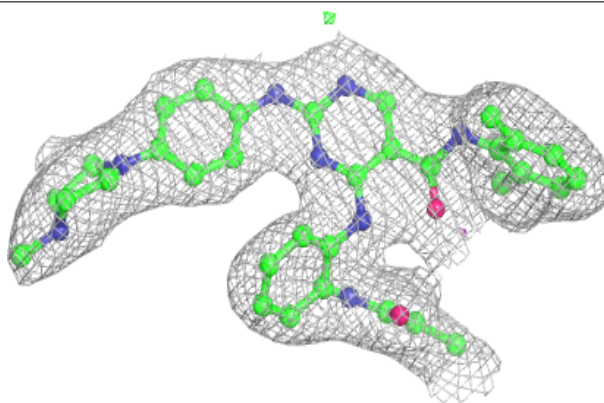


Electron density around HVY E 601:

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

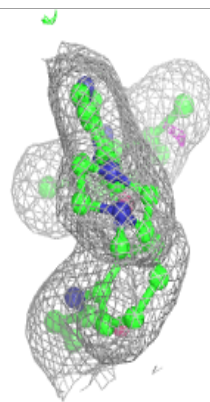
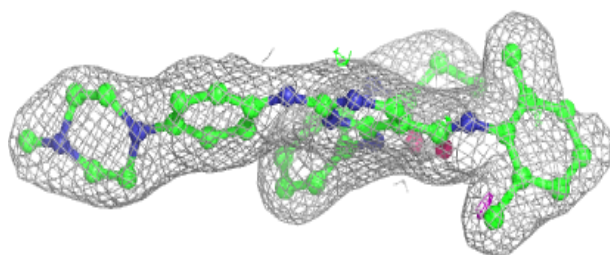
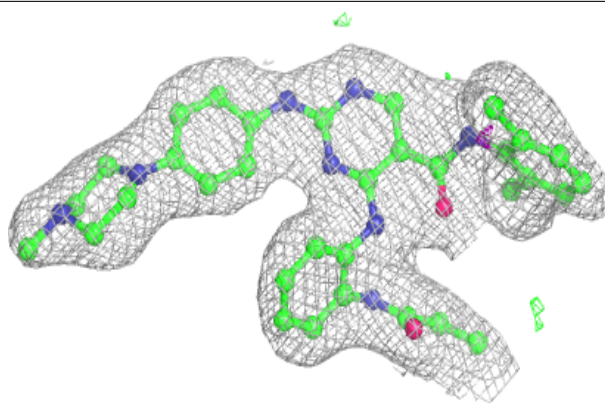
**Electron density around HVY B 601:**

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

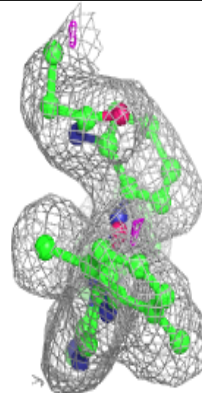
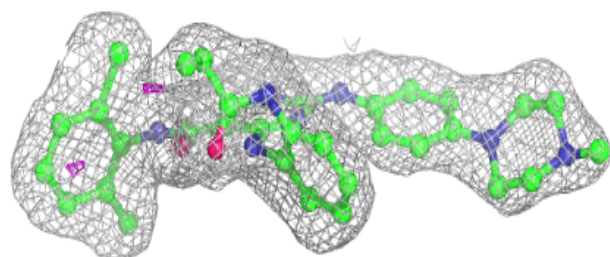
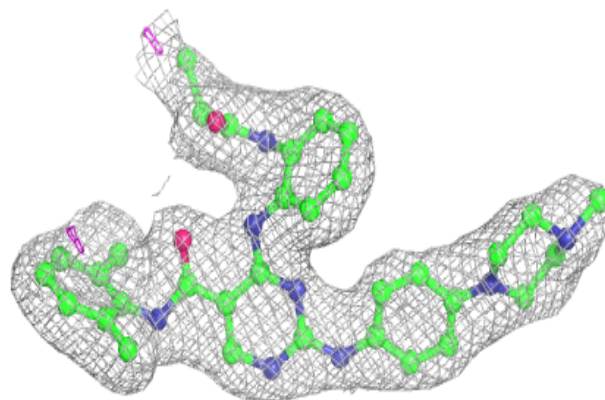


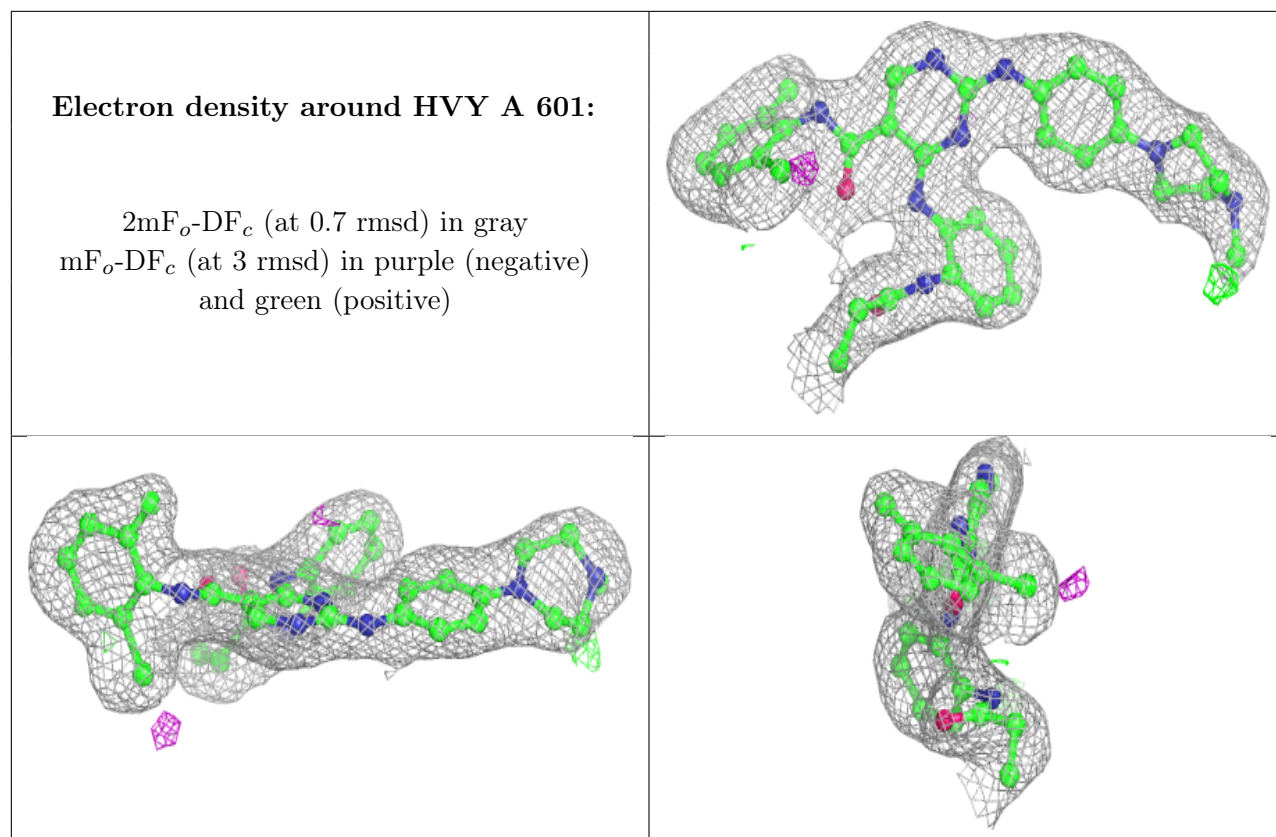
Electron density around HVY G 601:

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

**Electron density around HVY C 601:**

$2mF_o-DF_c$ (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.