



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 8, 2021 – 02:06 PM EDT

PDB ID : 7K1H
Title : EGFR L858R/V948R in complex with osimertinib and allosteric inhibitor JBJ-09-063
Authors : Beyett, T.S.; Eck, M.J.
Deposited on : 2020-09-07
Resolution : 2.60 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 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 : 2.23.1
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) : 2.23.1

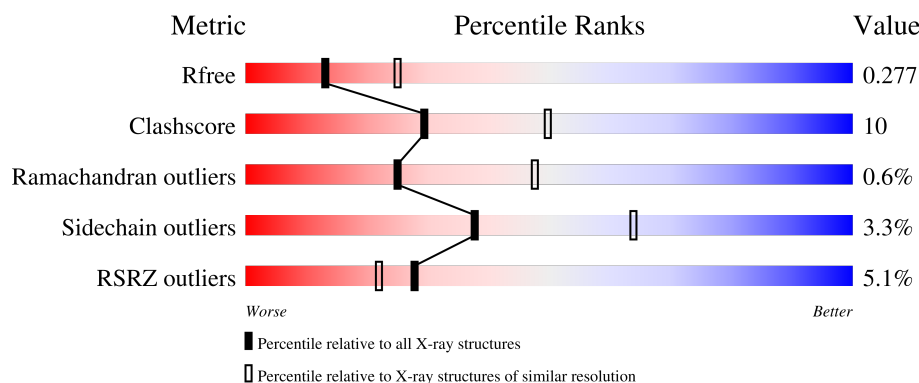
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	331	<div> <div>4%</div> <div>69%</div> <div>19%</div> <div>12%</div> </div>
1	B	331	<div> <div>2%</div> <div>69%</div> <div>19%</div> <div>12%</div> </div>
1	C	331	<div> <div>5%</div> <div>62%</div> <div>23%</div> <div>12%</div> </div>
1	D	331	<div> <div>6%</div> <div>72%</div> <div>15%</div> <div>12%</div> </div>
1	E	331	<div> <div>6%</div> <div>66%</div> <div>21%</div> <div>13%</div> </div>

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Mol	Chain	Length	Quality of chain
1	F	331	<div><div></div><div>4%</div><div>66%</div><div>21%</div><div>12%</div></div>

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 14645 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 Epidermal growth factor receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	291	Total	C	N	O	S	0	0	0
			2352	1508	402	424	18			
1	A	291	Total	C	N	O	S	0	0	0
			2349	1507	402	422	18			
1	C	290	Total	C	N	O	S	0	0	0
			2344	1504	401	421	18			
1	D	292	Total	C	N	O	S	0	0	0
			2358	1513	404	423	18			
1	E	289	Total	C	N	O	S	0	0	0
			2335	1499	399	419	18			
1	F	290	Total	C	N	O	S	0	0	0
			2344	1504	401	421	18			

There are 30 discrepancies between the modelled and reference sequences:

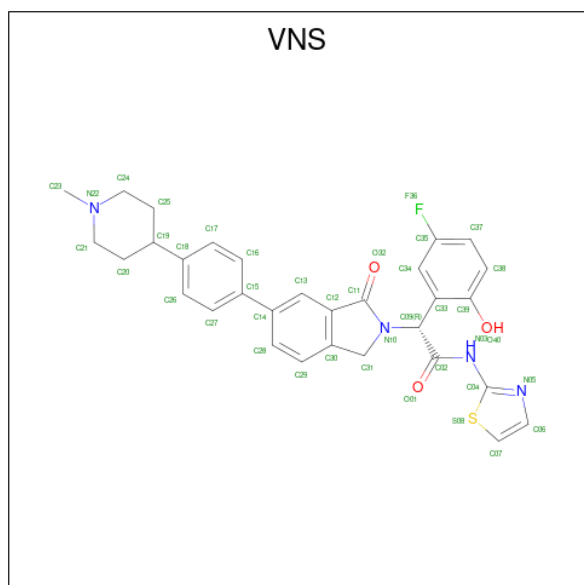
Chain	Residue	Modelled	Actual	Comment	Reference
B	692	GLY	-	expression tag	UNP P00533
B	693	SER	-	expression tag	UNP P00533
B	694	THR	-	expression tag	UNP P00533
B	858	ARG	LEU	engineered mutation	UNP P00533
B	948	ARG	VAL	engineered mutation	UNP P00533
A	692	GLY	-	expression tag	UNP P00533
A	693	SER	-	expression tag	UNP P00533
A	694	THR	-	expression tag	UNP P00533
A	858	ARG	LEU	engineered mutation	UNP P00533
A	948	ARG	VAL	engineered mutation	UNP P00533
C	692	GLY	-	expression tag	UNP P00533
C	693	SER	-	expression tag	UNP P00533
C	694	THR	-	expression tag	UNP P00533
C	858	ARG	LEU	engineered mutation	UNP P00533
C	948	ARG	VAL	engineered mutation	UNP P00533
D	692	GLY	-	expression tag	UNP P00533
D	693	SER	-	expression tag	UNP P00533

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Chain	Residue	Modelled	Actual	Comment	Reference
D	694	THR	-	expression tag	UNP P00533
D	858	ARG	LEU	engineered mutation	UNP P00533
D	948	ARG	VAL	engineered mutation	UNP P00533
E	692	GLY	-	expression tag	UNP P00533
E	693	SER	-	expression tag	UNP P00533
E	694	THR	-	expression tag	UNP P00533
E	858	ARG	LEU	engineered mutation	UNP P00533
E	948	ARG	VAL	engineered mutation	UNP P00533
F	692	GLY	-	expression tag	UNP P00533
F	693	SER	-	expression tag	UNP P00533
F	694	THR	-	expression tag	UNP P00533
F	858	ARG	LEU	engineered mutation	UNP P00533
F	948	ARG	VAL	engineered mutation	UNP P00533

- Molecule 2 is (2R)-2-(5-fluoro-2-hydroxyphenyl)-2-{6-[4-(1-methylpiperidin-4-yl)phenyl]-1-oxo-1,3-dihydro-2H-isindol-2-yl}-N-(1,3-thiazol-2-yl)acetamide (three-letter code: VNS) (formula: C₃₁H₂₉FN₄O₃S) (labeled as "Ligand of Interest" by depositor).



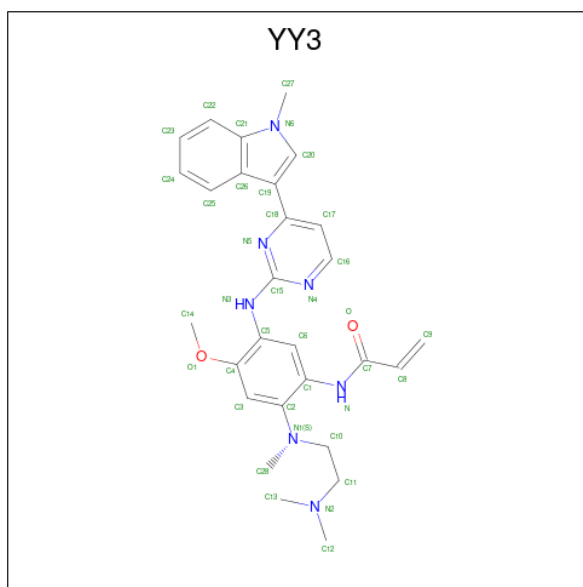
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	B	1	Total	C	F	N	O	S	0	0
			40	31	1	4	3	1		
2	A	1	Total	C	F	N	O	S	0	0
			40	31	1	4	3	1		
2	C	1	Total	C	F	N	O	S	0	0
			40	31	1	4	3	1		
2	D	1	Total	C	F	N	O	S	0	0
			40	31	1	4	3	1		

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	E	1	Total	C	F	N	O	S	0	0
			40	31	1	4	3	1		
2	F	1	Total	C	F	N	O	S	0	0
			40	31	1	4	3	1		

- Molecule 3 is N-(2-{[2-(dimethylamino)ethyl](methyl)amino}-4-methoxy-5-{[4-(1-methyl-1H-indol-3-yl)pyrimidin-2-yl]amino}phenyl)prop-2-enamide (three-letter code: YY3) (formula: C₂₈H₃₃N₇O₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	B	1	Total	C	N	O	0	0
			37	28	7	2		
3	A	1	Total	C	N	O	0	0
			37	28	7	2		
3	C	1	Total	C	N	O	0	0
			37	28	7	2		
3	D	1	Total	C	N	O	0	0
			37	28	7	2		
3	E	1	Total	C	N	O	0	0
			37	28	7	2		
3	F	1	Total	C	N	O	0	0
			37	28	7	2		

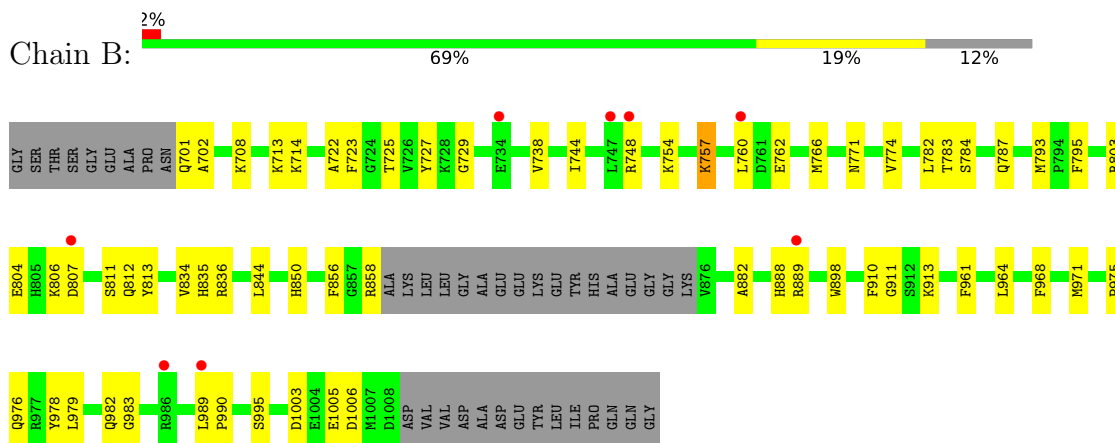
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	17	Total 17	O 17	0	0
4	A	23	Total 23	O 23	0	0
4	C	16	Total 16	O 16	0	0
4	D	22	Total 22	O 22	0	0
4	E	13	Total 13	O 13	0	0
4	F	10	Total 10	O 10	0	0

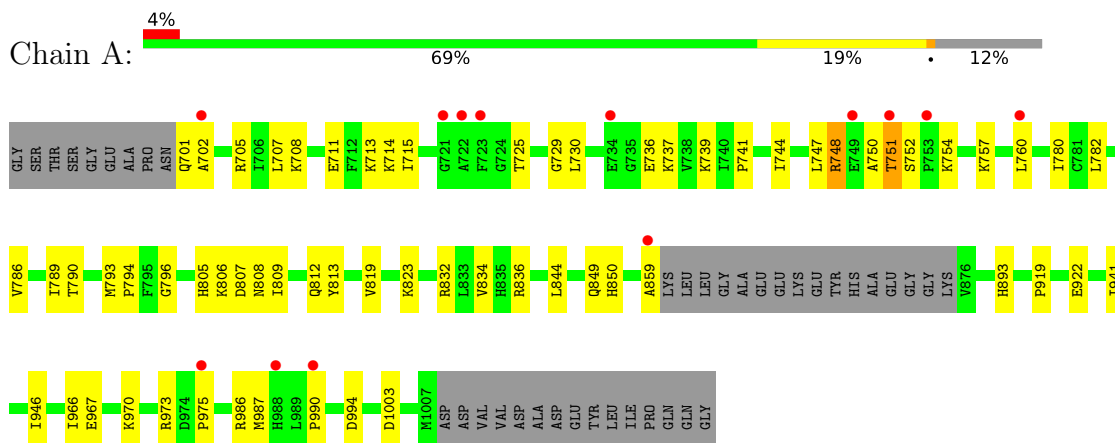
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

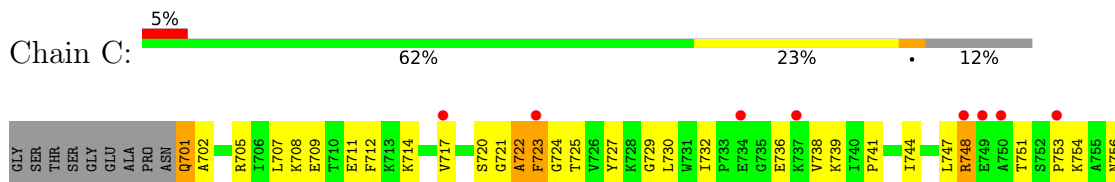
- Molecule 1: Epidermal growth factor receptor



- Molecule 1: Epidermal growth factor receptor

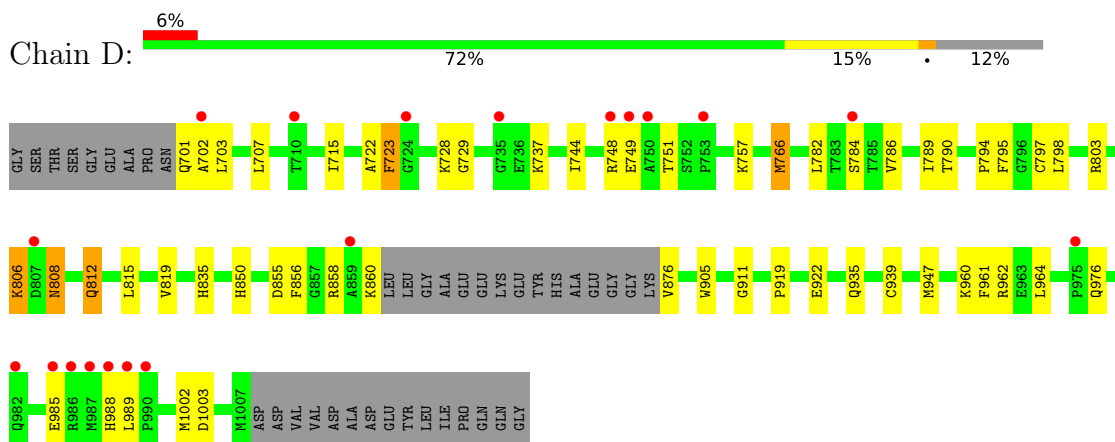


- Molecule 1: Epidermal growth factor receptor

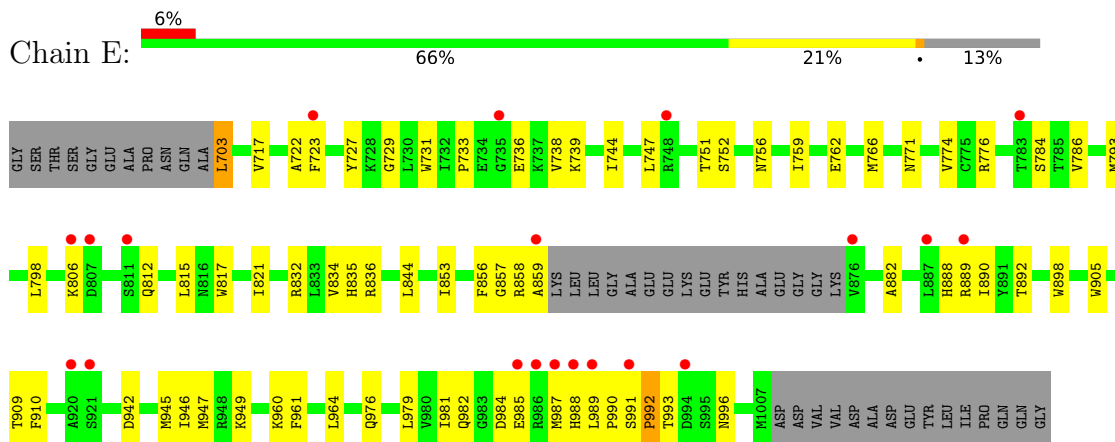




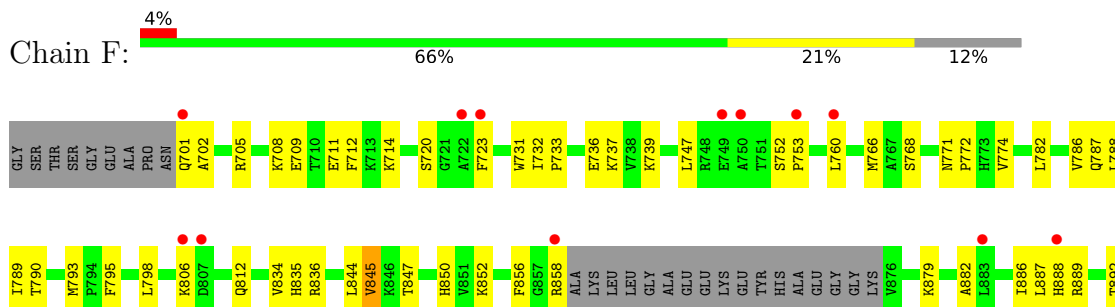
- Molecule 1: Epidermal growth factor receptor



- Molecule 1: Epidermal growth factor receptor



- Molecule 1: Epidermal growth factor receptor





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	66.85Å 88.34Å 93.84Å 118.25° 87.05° 106.71°	Depositor
Resolution (Å)	46.69 – 2.60 45.35 – 2.60	Depositor EDS
% Data completeness (in resolution range)	92.8 (46.69-2.60) 80.5 (45.35-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.53 (at 2.61Å)	Xtriage
Refinement program	PHENIX 1.11.1 _2575	Depositor
R, R_{free}	0.231 , 0.275 0.240 , 0.277	Depositor DCC
R_{free} test set	1975 reflections (3.84%)	wwPDB-VP
Wilson B-factor (Å ²)	43.6	Xtriage
Anisotropy	0.395	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 48.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	14645	wwPDB-VP
Average B, all atoms (Å ²)	67.0	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 29.13 % 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 1.6349e-03. 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: YY3, VNS

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	0.41	0/2401	0.62	1/3247 (0.0%)
1	B	0.42	0/2404	0.62	0/3251
1	C	0.40	0/2396	0.65	2/3240 (0.1%)
1	D	0.39	0/2410	0.63	1/3258 (0.0%)
1	E	0.42	0/2387	0.65	0/3228
1	F	0.41	0/2396	0.63	0/3240
All	All	0.40	0/14394	0.63	4/19464 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	751	THR	CB-CA-C	-8.31	89.16	111.60
1	C	806	LYS	CB-CA-C	-5.82	98.76	110.40
1	C	797	CYS	CA-CB-SG	5.82	124.47	114.00
1	D	797	CYS	CA-CB-SG	5.26	123.47	114.00

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	2349	0	2390	39	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	2352	0	2389	46	0
1	C	2344	0	2385	64	0
1	D	2358	0	2403	47	0
1	E	2335	0	2377	56	0
1	F	2344	0	2385	39	0
2	A	40	0	0	1	0
2	B	40	0	0	0	0
2	C	40	0	0	2	0
2	D	40	0	0	2	0
2	E	40	0	0	0	0
2	F	40	0	0	1	0
3	A	37	0	31	1	0
3	B	37	0	31	1	0
3	C	37	0	32	1	0
3	D	37	0	31	0	0
3	E	37	0	31	0	0
3	F	37	0	31	0	0
4	A	23	0	0	1	0
4	B	17	0	0	1	0
4	C	16	0	0	3	0
4	D	22	0	0	2	0
4	E	13	0	0	1	0
4	F	10	0	0	0	0
All	All	14645	0	14516	277	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

All (277) 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:C:723:PHE:H	1:C:748:ARG:HH11	1.20	0.87
1:A:836:ARG:HD3	1:A:859:ALA:HB3	1.59	0.83
1:D:808:ASN:O	1:D:808:ASN:ND2	2.14	0.80
1:E:989:LEU:HG	1:E:990:PRO:HD2	1.62	0.80
1:A:760:LEU:HD21	1:A:782:LEU:HD21	1.63	0.79
1:C:723:PHE:H	1:C:748:ARG:NH1	1.80	0.78
1:E:812:GLN:HG2	1:E:989:LEU:HD22	1.65	0.78
1:C:722:ALA:HB1	1:C:858:ARG:HH12	1.51	0.75
1:C:970:LYS:HG3	1:C:973:ARG:NH2	2.03	0.72
1:D:715:ILE:HD11	1:D:728:LYS:HD3	1.70	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:892:THR:HG23	1:F:895:SER:H	1.55	0.72
1:B:748:ARG:HG2	1:B:748:ARG:O	1.89	0.71
1:E:976:GLN:NE2	4:E:1401:HOH:O	2.22	0.71
1:C:970:LYS:HG3	1:C:973:ARG:HH21	1.53	0.71
1:C:722:ALA:HB1	1:C:858:ARG:NH1	2.06	0.70
1:B:738:VAL:HG21	1:A:794:PRO:HB2	1.73	0.70
1:F:732:ILE:HG22	1:F:739:LYS:HG2	1.75	0.69
1:F:701:GLN:HG2	1:F:702:ALA:H	1.59	0.67
1:C:723:PHE:N	1:C:748:ARG:HH11	1.89	0.67
1:A:701:GLN:HG2	1:A:702:ALA:H	1.59	0.67
1:C:961:PHE:HA	1:C:964:LEU:HD12	1.77	0.67
1:C:790:THR:HG23	2:C:1301:VNS:S08	2.37	0.65
1:C:806:LYS:HG2	1:C:910:PHE:HB3	1.79	0.65
1:D:701:GLN:HG2	1:D:702:ALA:H	1.61	0.65
1:D:960:LYS:HD3	1:D:962:ARG:HE	1.62	0.65
1:B:771:ASN:HB3	1:B:774:VAL:HG22	1.80	0.64
1:F:790:THR:HG23	2:F:1301:VNS:S08	2.37	0.64
1:B:989:LEU:HG	1:B:990:PRO:HD2	1.80	0.64
1:E:806:LYS:HD2	1:E:910:PHE:CB	2.29	0.63
1:C:723:PHE:HB3	1:C:747:LEU:HD22	1.78	0.63
1:E:905:TRP:HD1	1:E:947:MET:HE1	1.66	0.61
1:B:813:TYR:OH	1:B:990:PRO:HD3	2.00	0.61
1:E:806:LYS:NZ	1:E:909:THR:O	2.34	0.61
1:C:714:LYS:HD2	1:C:727:TYR:CG	2.36	0.61
1:E:834:VAL:HG12	1:E:836:ARG:HG3	1.83	0.61
1:B:807:ASP:CG	1:B:982:GLN:HE22	2.04	0.60
1:D:766:MET:HE2	2:D:1301:VNS:O40	2.01	0.60
1:E:992:PRO:O	1:E:996:ASN:ND2	2.32	0.60
1:E:961:PHE:HA	1:E:964:LEU:HD12	1.84	0.60
1:C:732:ILE:HG12	1:C:739:LYS:HG2	1.83	0.60
1:D:790:THR:HG23	2:D:1301:VNS:S08	2.42	0.60
1:C:816:ASN:HA	1:C:819:VAL:HG12	1.85	0.59
1:C:888:HIS:O	1:C:889:ARG:HG2	2.03	0.59
1:B:701:GLN:HG2	1:B:702:ALA:H	1.68	0.59
1:B:713:LYS:HZ1	1:B:714:LYS:HE2	1.68	0.59
1:B:760:LEU:HD21	1:B:782:LEU:HD11	1.84	0.59
1:B:806:LYS:HZ2	1:B:910:PHE:HD1	1.50	0.59
1:C:999:ARG:HG2	1:C:1003:ASP:HB3	1.85	0.58
1:C:701:GLN:HE21	1:C:701:GLN:N	2.01	0.58
1:C:812:GLN:HG2	1:C:989:LEU:HG	1.86	0.58
1:B:834:VAL:HG11	1:B:836:ARG:HH11	1.67	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:748:ARG:O	1:B:748:ARG:CG	2.52	0.57
1:D:985:GLU:O	1:D:988:HIS:HE1	1.86	0.57
1:B:754:LYS:O	1:B:757:LYS:HG3	2.03	0.57
1:B:913:LYS:HE3	1:E:960:LYS:HZ2	1.70	0.57
1:D:701:GLN:N	4:D:1403:HOH:O	2.36	0.57
1:E:821:ILE:HG23	1:E:853:ILE:HD11	1.87	0.56
1:A:707:LEU:HD22	1:A:789:ILE:HD12	1.87	0.56
1:E:806:LYS:HD2	1:E:910:PHE:HB2	1.88	0.55
1:C:956:ASP:HB2	4:C:1408:HOH:O	2.06	0.55
1:F:760:LEU:HD13	1:F:782:LEU:HD11	1.87	0.55
1:F:732:ILE:CG2	1:F:739:LYS:HG2	2.36	0.55
1:E:942:ASP:O	1:E:946:ILE:HG12	2.07	0.55
1:F:835:HIS:CD2	1:F:856:PHE:HB3	2.42	0.55
1:A:919:PRO:HD2	1:A:922:GLU:OE1	2.07	0.55
1:E:703:LEU:HB3	1:E:776:ARG:NH1	2.22	0.55
1:C:988:HIS:CG	1:C:989:LEU:N	2.75	0.54
1:F:708:LYS:O	1:F:711:GLU:HG2	2.07	0.54
1:B:888:HIS:C	1:B:889:ARG:HG2	2.28	0.54
1:A:729:GLY:HA3	1:A:744:ILE:HD12	1.90	0.54
1:D:751:THR:HG21	1:D:786:VAL:HG23	1.90	0.53
1:D:1002:MET:HE1	1:E:731:TRP:HZ3	1.72	0.53
1:F:887:LEU:HD21	1:F:924:SER:HB2	1.90	0.53
1:C:720:SER:HA	1:C:725:THR:HA	1.89	0.53
1:B:722:ALA:HA	1:E:832:ARG:HH12	1.73	0.53
1:C:708:LYS:O	1:C:711:GLU:HG2	2.09	0.53
1:F:771:ASN:HB3	1:F:774:VAL:HG12	1.90	0.53
1:C:758:GLU:OE2	2:C:1301:VNS:C21	2.57	0.53
1:A:966:ILE:O	1:A:970:LYS:HD3	2.08	0.53
1:F:747:LEU:HD12	1:F:786:VAL:HB	1.91	0.53
1:D:835:HIS:CD2	1:D:856:PHE:HB3	2.45	0.52
1:C:736:GLU:HG2	1:F:795:PHE:HE2	1.74	0.52
1:C:988:HIS:CG	1:C:989:LEU:H	2.28	0.52
1:B:913:LYS:HE3	1:E:960:LYS:NZ	2.25	0.52
1:C:994:ASP:OD1	1:F:705:ARG:NH1	2.44	0.52
1:F:731:TRP:CH2	1:F:733:PRO:HG3	2.45	0.52
1:E:985:GLU:N	1:E:985:GLU:OE1	2.42	0.51
1:F:905:TRP:HD1	1:F:947:MET:HE1	1.75	0.51
1:C:990:PRO:HB2	1:C:994:ASP:HB3	1.91	0.51
1:A:834:VAL:HG12	1:A:836:ARG:HG3	1.92	0.51
1:C:783:THR:OG1	1:C:785:THR:O	2.27	0.51
1:B:762:GLU:O	1:B:766:MET:HG2	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:793:MET:HG3	1:E:844:LEU:HB3	1.92	0.51
1:B:701:GLN:HG2	1:B:702:ALA:N	2.26	0.50
1:B:983:GLY:N	4:B:1405:HOH:O	2.44	0.50
1:E:729:GLY:HA3	1:E:744:ILE:HD12	1.93	0.50
1:D:985:GLU:C	1:D:988:HIS:HE1	2.14	0.50
1:D:961:PHE:HA	1:D:964:LEU:HD12	1.94	0.50
1:E:771:ASN:HB3	1:E:774:VAL:HG22	1.94	0.50
1:B:968:PHE:HA	1:B:971:MET:HE2	1.94	0.49
1:D:701:GLN:HG2	1:D:702:ALA:N	2.27	0.49
1:F:834:VAL:HG12	1:F:836:ARG:HG3	1.94	0.49
1:A:941:ILE:H	1:A:941:ILE:HD12	1.77	0.49
1:A:701:GLN:HG2	1:A:702:ALA:N	2.25	0.49
1:F:793:MET:HG3	1:F:844:LEU:HB3	1.95	0.49
1:A:946:ILE:HD11	1:A:967:GLU:HG2	1.95	0.49
1:C:834:VAL:HG12	1:C:836:ARG:HG3	1.94	0.49
1:C:724:GLY:CA	1:C:748:ARG:H	2.26	0.49
1:F:772:PRO:O	1:F:852:LYS:HE3	2.13	0.49
1:B:882:ALA:HA	1:B:898:TRP:CD2	2.48	0.49
1:E:806:LYS:NZ	1:E:910:PHE:HB2	2.28	0.49
1:B:722:ALA:HA	1:E:832:ARG:NH1	2.28	0.49
1:B:729:GLY:HA3	1:B:744:ILE:HD12	1.94	0.49
1:C:754:LYS:O	1:C:757:LYS:HG3	2.13	0.49
1:D:723:PHE:HZ	1:D:860:LYS:HB3	1.77	0.49
1:C:717:VAL:HG22	1:C:727:TYR:CE2	2.48	0.48
1:D:703:LEU:HD12	4:D:1403:HOH:O	2.13	0.48
1:C:753:PRO:HA	1:C:756:ASN:HB2	1.93	0.48
1:B:806:LYS:HD2	1:B:910:PHE:CG	2.48	0.48
1:A:725:THR:OG1	1:A:748:ARG:NH2	2.47	0.48
1:E:992:PRO:C	1:E:996:ASN:HD22	2.14	0.48
1:C:723:PHE:CA	1:C:748:ARG:HH11	2.26	0.48
1:D:919:PRO:HD2	1:D:922:GLU:OE1	2.13	0.48
1:B:804:GLU:OE2	1:A:737:LYS:HE3	2.13	0.48
1:D:729:GLY:HA3	1:D:744:ILE:CD1	2.44	0.48
1:D:751:THR:HG21	1:D:786:VAL:CG2	2.44	0.48
1:C:920:ALA:O	4:C:1401:HOH:O	2.20	0.48
1:E:991:SER:O	1:E:993:THR:N	2.46	0.47
1:D:976:GLN:NE2	1:D:985:GLU:HG3	2.27	0.47
1:B:835:HIS:CD2	1:B:856:PHE:HB3	2.49	0.47
3:B:1302:YY3:H25	3:B:1302:YY3:N5	2.29	0.47
1:D:723:PHE:H	1:D:748:ARG:HE	1.61	0.47
1:C:723:PHE:O	1:C:748:ARG:N	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:888:HIS:O	1:B:889:ARG:HG2	2.14	0.47
1:A:747:LEU:HD12	1:A:786:VAL:HB	1.96	0.47
1:A:793:MET:HG3	1:A:844:LEU:HB3	1.95	0.47
1:C:721:GLY:HA3	3:C:1302:YY3:H32	1.96	0.47
1:D:812:GLN:HG2	1:D:989:LEU:HG	1.97	0.47
1:D:935:GLN:NE2	1:D:939:CYS:O	2.48	0.47
1:F:945:MET:O	1:F:949:LYS:HG3	2.14	0.47
1:D:850:HIS:ND1	1:D:1003:ASP:OD2	2.37	0.46
1:E:722:ALA:O	1:E:723:PHE:HB2	2.15	0.46
1:C:757:LYS:HD2	1:C:758:GLU:N	2.30	0.46
1:F:701:GLN:HG2	1:F:702:ALA:N	2.28	0.46
1:E:888:HIS:HB2	1:E:890:ILE:HG12	1.96	0.46
1:E:945:MET:O	1:E:949:LYS:HG3	2.16	0.46
1:A:850:HIS:ND1	1:A:1003:ASP:OD2	2.49	0.46
1:E:905:TRP:CD1	1:E:947:MET:HE1	2.49	0.46
1:B:978:TYR:O	1:B:979:LEU:HD23	2.15	0.46
1:D:985:GLU:C	1:D:988:HIS:CE1	2.89	0.46
1:A:941:ILE:HD12	1:A:941:ILE:N	2.31	0.46
1:C:751:THR:HG21	1:C:786:VAL:HG23	1.97	0.46
1:C:904:VAL:O	1:C:908:MET:HG2	2.16	0.46
1:C:978:TYR:O	1:C:979:LEU:HD23	2.16	0.46
1:E:717:VAL:HG22	1:E:727:TYR:CE2	2.51	0.46
1:D:795:PHE:HE2	1:E:736:GLU:HG2	1.81	0.45
1:B:850:HIS:ND1	1:B:1003:ASP:OD2	2.50	0.45
1:D:722:ALA:O	1:D:723:PHE:HB2	2.16	0.45
1:E:982:GLN:CD	1:E:982:GLN:H	2.18	0.45
1:C:730:LEU:HD23	1:C:741:PRO:HA	1.98	0.45
1:F:788:LEU:C	1:F:789:ILE:HD12	2.37	0.45
1:B:806:LYS:CD	1:B:910:PHE:HB2	2.47	0.45
1:D:812:GLN:HG2	1:D:989:LEU:CD1	2.46	0.45
1:D:855:ASP:HB3	1:D:858:ARG:HH21	1.80	0.45
1:E:836:ARG:HH12	1:E:857:GLY:HA2	1.82	0.45
1:A:796:GLY:HA2	3:A:1302:YY3:C6	2.46	0.45
1:C:923:ILE:N	4:C:1401:HOH:O	2.50	0.45
1:F:955:ALA:HA	1:F:958:ARG:HE	1.80	0.45
1:D:702:ALA:HB1	1:E:993:THR:HG22	1.99	0.45
1:B:795:PHE:HE1	1:A:736:GLU:HG2	1.83	0.44
1:E:888:HIS:O	1:E:889:ARG:HG2	2.16	0.44
1:B:811:SER:OG	1:B:975:PRO:HB2	2.18	0.44
1:A:760:LEU:HD23	1:A:780:ILE:HD13	1.99	0.44
1:F:709:GLU:HA	1:F:712:PHE:CE2	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:850:HIS:ND1	1:F:1003:ASP:OD2	2.50	0.44
1:B:812:GLN:HG2	1:B:989:LEU:HD22	1.99	0.44
1:C:724:GLY:HA2	1:C:748:ARG:H	1.82	0.44
1:D:794:PRO:HB2	1:E:738:VAL:HG11	1.99	0.44
1:A:757:LYS:HA	1:A:757:LYS:HD3	1.67	0.44
1:C:793:MET:HG3	1:C:844:LEU:HB3	2.00	0.44
1:F:905:TRP:CD1	1:F:947:MET:HE1	2.52	0.44
1:B:795:PHE:HE1	1:A:736:GLU:CG	2.30	0.44
1:D:806:LYS:HB2	1:D:806:LYS:HE2	1.81	0.44
1:D:976:GLN:HE22	1:D:985:GLU:HG3	1.83	0.44
1:B:783:THR:OG1	1:B:784:SER:N	2.51	0.44
1:A:990:PRO:HB2	1:A:994:ASP:HB3	1.98	0.44
1:C:705:ARG:NH2	1:C:711:GLU:OE2	2.51	0.44
1:F:888:HIS:C	1:F:889:ARG:HG2	2.38	0.44
1:B:812:GLN:HG3	1:B:989:LEU:HD13	1.99	0.44
1:A:819:VAL:CG1	1:A:823:LYS:HE2	2.47	0.43
1:C:797:CYS:HA	1:C:844:LEU:HA	2.00	0.43
1:C:832:ARG:HG2	1:C:893:HIS:CE1	2.53	0.43
1:B:803:ARG:HG3	1:B:911:GLY:HA3	2.01	0.43
1:E:759:ILE:HD13	1:E:786:VAL:HG21	1.99	0.43
1:B:725:THR:HB	1:B:727:TYR:CE1	2.54	0.43
1:A:832:ARG:NH2	1:A:893:HIS:CE1	2.87	0.43
1:C:729:GLY:HA3	1:C:744:ILE:HD12	2.01	0.43
1:C:809:ILE:HD12	1:C:817:TRP:HH2	1.83	0.43
1:D:701:GLN:N	1:D:701:GLN:OE1	2.52	0.43
1:A:808:ASN:HA	1:A:987:MET:HE2	1.99	0.43
1:E:806:LYS:CD	1:E:910:PHE:HB2	2.49	0.43
1:E:857:GLY:O	1:E:859:ALA:N	2.52	0.43
1:C:832:ARG:CZ	1:C:893:HIS:HE1	2.32	0.43
1:F:892:THR:OG1	1:F:893:HIS:N	2.51	0.43
1:E:723:PHE:HB3	1:E:747:LEU:HD22	2.00	0.42
1:E:988:HIS:HB3	1:E:989:LEU:H	1.68	0.42
1:E:751:THR:CG2	1:E:756:ASN:HD21	2.32	0.42
1:E:981:ILE:HB	1:E:984:ASP:HB2	2.01	0.42
1:F:701:GLN:OE1	1:F:701:GLN:N	2.52	0.42
1:E:731:TRP:CZ3	1:E:733:PRO:HG3	2.54	0.42
1:E:812:GLN:CG	1:E:989:LEU:HD22	2.42	0.42
1:E:960:LYS:HD3	1:E:960:LYS:N	2.34	0.42
1:A:973:ARG:NH2	4:A:1404:HOH:O	2.34	0.42
1:C:882:ALA:HA	1:C:898:TRP:CD2	2.54	0.42
1:E:836:ARG:NH1	1:E:857:GLY:O	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:961:PHE:O	1:F:965:ILE:HG13	2.20	0.42
1:A:790:THR:HG22	2:A:1301:VNS:C07	2.49	0.42
1:C:701:GLN:HG2	1:C:702:ALA:N	2.34	0.42
1:D:707:LEU:CD2	1:D:789:ILE:HD12	2.49	0.42
1:D:723:PHE:CZ	1:D:860:LYS:HB3	2.53	0.42
1:B:729:GLY:HA3	1:B:744:ILE:CD1	2.49	0.42
1:A:805:HIS:O	1:A:809:ILE:HG12	2.20	0.42
1:C:709:GLU:HA	1:C:712:PHE:CE2	2.55	0.42
1:C:885:SER:OG	1:C:890:ILE:O	2.24	0.42
1:D:798:LEU:HD12	1:D:798:LEU:HA	1.83	0.42
1:E:882:ALA:HA	1:E:898:TRP:CD2	2.55	0.42
1:F:845:VAL:HG23	1:F:847:THR:O	2.19	0.42
1:A:813:TYR:OH	1:A:990:PRO:HD3	2.20	0.42
1:B:701:GLN:N	1:B:701:GLN:OE1	2.53	0.41
1:B:714:LYS:NZ	1:B:787:GLN:OE1	2.50	0.41
1:C:701:GLN:N	1:C:701:GLN:NE2	2.68	0.41
1:D:737:LYS:O	1:D:737:LYS:HG2	2.20	0.41
1:D:782:LEU:HD23	1:D:786:VAL:HG22	2.02	0.41
1:C:923:ILE:O	1:C:926:ILE:HG13	2.20	0.41
1:D:812:GLN:HG2	1:D:989:LEU:CG	2.50	0.41
1:D:960:LYS:HD3	1:D:962:ARG:HH21	1.85	0.41
1:B:793:MET:HG3	1:B:844:LEU:HB3	2.02	0.41
1:C:701:GLN:CG	1:C:702:ALA:H	2.33	0.41
1:D:1002:MET:HE3	1:D:1002:MET:HB2	1.82	0.41
1:A:849:GLN:NE2	1:A:990:PRO:HG3	2.35	0.41
1:E:984:ASP:O	1:E:988:HIS:CE1	2.73	0.41
1:B:708:LYS:HB2	1:B:708:LYS:HE2	1.65	0.41
1:A:752:SER:C	1:A:754:LYS:N	2.74	0.41
1:D:729:GLY:HA3	1:D:744:ILE:HD12	2.03	0.41
1:D:803:ARG:HG3	1:D:911:GLY:HA3	2.03	0.41
1:D:905:TRP:HD1	1:D:947:MET:HE1	1.85	0.41
1:B:701:GLN:CG	1:B:702:ALA:H	2.32	0.41
1:C:781:CYS:SG	1:C:783:THR:HG23	2.61	0.41
1:F:882:ALA:HA	1:F:898:TRP:CD2	2.56	0.41
1:B:961:PHE:HA	1:B:964:LEU:HD12	2.02	0.41
1:A:701:GLN:CG	1:A:702:ALA:H	2.30	0.41
1:C:701:GLN:HG2	1:C:702:ALA:H	1.86	0.41
1:D:815:LEU:O	1:D:819:VAL:HG23	2.21	0.41
1:E:798:LEU:HD11	1:E:817:TRP:CE3	2.56	0.41
1:E:835:HIS:CD2	1:E:856:PHE:HB3	2.56	0.41
1:F:714:LYS:NZ	1:F:787:GLN:OE1	2.32	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:798:LEU:HG	1:F:907:LEU:HD21	2.03	0.41
1:F:879:LYS:HD3	1:F:914:PRO:O	2.21	0.41
1:F:882:ALA:O	1:F:886:ILE:HG13	2.20	0.41
1:C:772:PRO:O	1:C:852:LYS:HE3	2.20	0.41
1:C:938:ILE:HD12	1:C:979:LEU:HD22	2.02	0.41
1:D:850:HIS:HD1	1:D:1003:ASP:CG	2.22	0.41
1:E:815:LEU:HD21	1:E:979:LEU:HG	2.02	0.41
1:E:991:SER:O	1:E:992:PRO:C	2.58	0.41
1:A:730:LEU:HD13	1:A:739:LYS:HD2	2.03	0.40
1:A:730:LEU:HD23	1:A:741:PRO:HA	2.03	0.40
1:A:812:GLN:OE1	1:A:975:PRO:HG3	2.21	0.40
1:C:738:VAL:HG11	1:F:795:PHE:HA	2.02	0.40
1:E:739:LYS:HE2	1:E:739:LYS:HB3	1.88	0.40
1:F:798:LEU:HD12	1:F:798:LEU:HA	1.76	0.40
1:F:955:ALA:HA	1:F:958:ARG:NE	2.36	0.40
1:C:858:ARG:HB2	1:C:858:ARG:NH2	2.36	0.40
1:E:762:GLU:O	1:E:766:MET:HG2	2.22	0.40
1:E:889:ARG:HG3	1:E:889:ARG:O	2.22	0.40
1:F:941:ILE:HG22	1:F:945:MET:HG2	2.03	0.40
1:A:705:ARG:HG3	1:A:705:ARG:HH11	1.86	0.40
1:A:705:ARG:NH2	1:A:711:GLU:OE2	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	287/331 (87%)	280 (98%)	6 (2%)	1 (0%)	41	64
1	B	287/331 (87%)	277 (96%)	9 (3%)	1 (0%)	41	64
1	C	286/331 (86%)	276 (96%)	6 (2%)	4 (1%)	11	22
1	D	288/331 (87%)	280 (97%)	7 (2%)	1 (0%)	41	64

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	285/331 (86%)	275 (96%)	8 (3%)	2 (1%)	22	43
1	F	286/331 (86%)	277 (97%)	8 (3%)	1 (0%)	41	64
All	All	1719/1986 (87%)	1665 (97%)	44 (3%)	10 (1%)	25	47

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	722	ALA
1	C	1006	ASP
1	E	858	ARG
1	A	750	ALA
1	D	723	PHE
1	F	1006	ASP
1	B	1006	ASP
1	C	748	ARG
1	E	992	PRO
1	C	723	PHE

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	260/290 (90%)	251 (96%)	9 (4%)	36	62
1	B	261/290 (90%)	255 (98%)	6 (2%)	50	75
1	C	260/290 (90%)	251 (96%)	9 (4%)	36	62
1	D	261/290 (90%)	253 (97%)	8 (3%)	40	66
1	E	259/290 (89%)	254 (98%)	5 (2%)	57	79
1	F	260/290 (90%)	246 (95%)	14 (5%)	22	44
All	All	1561/1740 (90%)	1510 (97%)	51 (3%)	38	64

All (51) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	723	PHE
1	B	757	LYS
1	B	858	ARG
1	B	976	GLN
1	B	995	SER
1	B	1005	GLU
1	A	708	LYS
1	A	713	LYS
1	A	714	LYS
1	A	715	ILE
1	A	748	ARG
1	A	751	THR
1	A	806	LYS
1	A	807	ASP
1	A	986	ARG
1	C	701	GLN
1	C	707	LEU
1	C	757	LYS
1	C	804	GLU
1	C	807	ASP
1	C	832	ARG
1	C	858	ARG
1	C	954	ASP
1	C	986	ARG
1	D	749	GLU
1	D	757	LYS
1	D	766	MET
1	D	784	SER
1	D	806	LYS
1	D	808	ASN
1	D	812	GLN
1	D	876	VAL
1	E	703	LEU
1	E	752	SER
1	E	784	SER
1	E	892	THR
1	E	987	MET
1	F	720	SER
1	F	723	PHE
1	F	736	GLU
1	F	737	LYS
1	F	752	SER
1	F	753	PRO

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Mol	Chain	Res	Type
1	F	766	MET
1	F	768	SER
1	F	806	LYS
1	F	812	GLN
1	F	845	VAL
1	F	858	ARG
1	F	976	GLN
1	F	993	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	816	ASN
1	C	893	HIS
1	C	988	HIS
1	D	888	HIS
1	D	988	HIS
1	E	988	HIS
1	E	996	ASN
1	F	812	GLN
1	F	988	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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](#)

12 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	VNS	E	1301	-	43,45,45	2.70	15 (34%)	54,65,65	4.37	24 (44%)
3	YY3	A	1302	1	38,40,40	1.85	11 (28%)	50,56,56	2.10	18 (36%)
3	YY3	D	1302	-	38,40,40	2.11	11 (28%)	50,56,56	3.18	16 (32%)
2	VNS	A	1301	-	43,45,45	3.18	19 (44%)	54,65,65	4.63	28 (51%)
2	VNS	B	1301	-	43,45,45	3.01	16 (37%)	54,65,65	4.70	25 (46%)
3	YY3	B	1302	-	38,40,40	1.88	10 (26%)	50,56,56	2.76	18 (36%)
3	YY3	E	1302	-	38,40,40	1.98	10 (26%)	50,56,56	2.99	17 (34%)
3	YY3	F	1302	-	38,40,40	1.98	12 (31%)	50,56,56	2.77	17 (34%)
2	VNS	D	1301	-	43,45,45	3.17	17 (39%)	54,65,65	4.52	26 (48%)
3	YY3	C	1302	1	38,40,40	1.79	7 (18%)	50,56,56	2.79	16 (32%)
2	VNS	C	1301	-	43,45,45	3.04	19 (44%)	54,65,65	4.53	26 (48%)
2	VNS	F	1301	-	43,45,45	3.11	20 (46%)	54,65,65	4.72	29 (53%)

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	VNS	E	1301	-	-	2/22/46/46	0/6/6/6
3	YY3	A	1302	1	-	10/21/25/25	0/4/4/4
3	YY3	D	1302	-	-	5/21/25/25	0/4/4/4
2	VNS	A	1301	-	-	3/22/46/46	0/6/6/6
2	VNS	B	1301	-	-	2/22/46/46	0/6/6/6
3	YY3	B	1302	-	-	6/21/25/25	0/4/4/4
3	YY3	E	1302	-	-	9/21/25/25	0/4/4/4
3	YY3	F	1302	-	-	6/21/25/25	0/4/4/4
2	VNS	D	1301	-	-	1/22/46/46	0/6/6/6
3	YY3	C	1302	1	-	5/21/25/25	0/4/4/4
2	VNS	C	1301	-	-	4/22/46/46	0/6/6/6

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	VNS	F	1301	-	-	2/22/46/46	0/6/6/6

All (167) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1301	VNS	C09-C02	11.35	1.66	1.54
2	A	1301	VNS	C09-C02	10.76	1.65	1.54
2	C	1301	VNS	C09-C02	10.30	1.65	1.54
2	B	1301	VNS	C09-C02	9.56	1.64	1.54
2	F	1301	VNS	C09-C02	9.41	1.64	1.54
2	F	1301	VNS	C11-N10	8.99	1.45	1.36
2	B	1301	VNS	C11-N10	8.80	1.44	1.36
2	D	1301	VNS	C11-N10	8.72	1.44	1.36
2	C	1301	VNS	C11-N10	8.71	1.44	1.36
2	A	1301	VNS	C11-N10	8.52	1.44	1.36
2	E	1301	VNS	C09-C02	8.08	1.63	1.54
2	E	1301	VNS	C11-N10	7.55	1.43	1.36
3	D	1302	YY3	C7-N	6.67	1.46	1.35
3	C	1302	YY3	C7-N	6.18	1.46	1.35
3	E	1302	YY3	C7-N	5.69	1.45	1.35
2	A	1301	VNS	O01-C02	-5.63	1.12	1.23
2	D	1301	VNS	C02-N03	5.57	1.48	1.35
2	A	1301	VNS	C02-N03	5.43	1.47	1.35
2	B	1301	VNS	C02-N03	5.40	1.47	1.35
2	F	1301	VNS	C02-N03	5.25	1.47	1.35
2	E	1301	VNS	O01-C02	-5.25	1.13	1.23
2	F	1301	VNS	O01-C02	-5.24	1.13	1.23
2	C	1301	VNS	C02-N03	5.18	1.47	1.35
2	C	1301	VNS	O01-C02	-5.11	1.13	1.23
2	D	1301	VNS	O01-C02	-5.06	1.13	1.23
2	E	1301	VNS	C02-N03	5.00	1.46	1.35
2	B	1301	VNS	O01-C02	-4.98	1.13	1.23
3	B	1302	YY3	C7-N	4.88	1.43	1.35
2	A	1301	VNS	C31-N10	4.81	1.50	1.46
2	A	1301	VNS	C33-C09	4.79	1.58	1.52
2	B	1301	VNS	C33-C09	4.77	1.58	1.52
2	F	1301	VNS	C33-C09	4.74	1.58	1.52
2	D	1301	VNS	C31-N10	4.71	1.50	1.46
3	E	1302	YY3	C9-C8	4.70	1.53	1.30
2	D	1301	VNS	C04-N03	4.70	1.44	1.36
2	F	1301	VNS	C31-N10	4.69	1.50	1.46
2	E	1301	VNS	C33-C09	4.51	1.58	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	E	1302	YY3	C19-C18	-4.49	1.43	1.49
2	A	1301	VNS	C04-N03	4.46	1.44	1.36
3	D	1302	YY3	C19-C18	-4.45	1.43	1.49
2	D	1301	VNS	C33-C09	4.39	1.57	1.52
2	C	1301	VNS	C33-C09	4.35	1.57	1.52
3	D	1302	YY3	C9-C8	4.32	1.51	1.30
2	F	1301	VNS	C04-N03	4.32	1.44	1.36
2	C	1301	VNS	C31-N10	4.32	1.50	1.46
2	B	1301	VNS	C04-N03	4.29	1.44	1.36
3	F	1302	YY3	C19-C18	-4.28	1.43	1.49
2	B	1301	VNS	C31-N10	4.25	1.50	1.46
2	F	1301	VNS	C09-N10	4.22	1.51	1.46
2	F	1301	VNS	C15-C14	4.22	1.59	1.49
2	A	1301	VNS	C15-C14	4.17	1.59	1.49
2	C	1301	VNS	C04-N03	4.13	1.43	1.36
3	A	1302	YY3	C8-C7	-4.10	1.41	1.48
3	C	1302	YY3	C19-C18	-4.08	1.43	1.49
3	B	1302	YY3	C9-C8	3.97	1.50	1.30
2	E	1301	VNS	C04-N03	3.94	1.43	1.36
2	B	1301	VNS	C09-N10	3.87	1.50	1.46
3	A	1302	YY3	C19-C18	-3.86	1.44	1.49
3	F	1302	YY3	C9-C8	3.83	1.49	1.30
2	C	1301	VNS	C15-C14	3.77	1.58	1.49
2	D	1301	VNS	C15-C14	3.72	1.58	1.49
2	B	1301	VNS	C15-C14	3.68	1.58	1.49
3	D	1302	YY3	C1-N	3.61	1.48	1.41
2	A	1301	VNS	C09-N10	3.61	1.50	1.46
3	B	1302	YY3	C19-C18	-3.57	1.44	1.49
3	A	1302	YY3	C2-N1	3.56	1.49	1.41
2	C	1301	VNS	C09-N10	3.55	1.50	1.46
3	F	1302	YY3	C8-C7	-3.53	1.42	1.48
3	B	1302	YY3	C8-C7	-3.52	1.42	1.48
2	E	1301	VNS	C31-N10	3.46	1.49	1.46
3	F	1302	YY3	C7-N	3.46	1.41	1.35
3	F	1302	YY3	C10-C11	3.45	1.64	1.51
2	E	1301	VNS	C15-C14	3.43	1.57	1.49
3	F	1302	YY3	C2-N1	3.43	1.49	1.41
3	E	1302	YY3	C20-N6	-3.18	1.33	1.38
2	D	1301	VNS	C09-N10	3.17	1.50	1.46
2	F	1301	VNS	C18-C19	3.09	1.58	1.52
3	E	1302	YY3	C8-C7	-3.09	1.43	1.48
3	C	1302	YY3	C9-C8	3.07	1.45	1.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	1302	YY3	C11-N2	3.06	1.57	1.46
3	F	1302	YY3	C5-N3	3.05	1.48	1.39
2	F	1301	VNS	C17-C16	2.99	1.44	1.38
2	A	1301	VNS	C39-C33	2.97	1.43	1.40
3	D	1302	YY3	C20-N6	-2.94	1.33	1.38
3	A	1302	YY3	C9-C8	2.91	1.44	1.30
2	A	1301	VNS	C17-C16	2.91	1.44	1.38
2	D	1301	VNS	C39-C33	2.86	1.43	1.40
2	F	1301	VNS	C34-C35	2.81	1.42	1.37
2	F	1301	VNS	C39-C33	2.80	1.43	1.40
2	D	1301	VNS	C17-C16	2.80	1.43	1.38
2	E	1301	VNS	C34-C35	2.77	1.42	1.37
2	E	1301	VNS	C39-C33	2.74	1.43	1.40
3	A	1302	YY3	C11-N2	2.72	1.56	1.46
3	A	1302	YY3	C10-C11	2.72	1.61	1.51
2	B	1301	VNS	C18-C19	2.71	1.57	1.52
2	C	1301	VNS	C17-C16	2.70	1.43	1.38
2	C	1301	VNS	C18-C19	2.66	1.57	1.52
2	B	1301	VNS	C34-C35	2.66	1.42	1.37
2	A	1301	VNS	C34-C35	2.63	1.42	1.37
2	D	1301	VNS	F36-C35	-2.61	1.30	1.36
2	B	1301	VNS	C17-C16	2.61	1.43	1.38
2	B	1301	VNS	C39-C33	2.60	1.43	1.40
3	B	1302	YY3	C20-N6	-2.54	1.34	1.38
3	D	1302	YY3	C5-N3	2.53	1.46	1.39
2	E	1301	VNS	C17-C16	2.48	1.43	1.38
3	A	1302	YY3	C15-N3	2.47	1.41	1.36
2	C	1301	VNS	C34-C35	2.47	1.41	1.37
3	F	1302	YY3	C10-N1	2.46	1.54	1.46
2	A	1301	VNS	C18-C19	2.45	1.57	1.52
2	C	1301	VNS	C39-C33	2.45	1.43	1.40
2	F	1301	VNS	C13-C12	2.45	1.43	1.39
2	C	1301	VNS	C27-C26	2.44	1.43	1.38
2	D	1301	VNS	C34-C35	2.44	1.41	1.37
2	B	1301	VNS	F36-C35	-2.43	1.30	1.36
2	A	1301	VNS	C13-C12	2.42	1.43	1.39
3	A	1302	YY3	C20-N6	-2.40	1.34	1.38
3	C	1302	YY3	C1-N	2.40	1.46	1.41
3	C	1302	YY3	C20-N6	-2.39	1.34	1.38
2	C	1301	VNS	C29-C28	2.39	1.43	1.38
2	D	1301	VNS	C18-C19	2.38	1.57	1.52
2	E	1301	VNS	F36-C35	-2.38	1.30	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1302	YY3	C5-N3	2.38	1.46	1.39
3	B	1302	YY3	C11-N2	2.38	1.54	1.46
2	A	1301	VNS	F36-C35	-2.38	1.30	1.36
3	F	1302	YY3	C15-N3	2.33	1.41	1.36
2	B	1301	VNS	C13-C12	2.30	1.43	1.39
3	E	1302	YY3	C5-N3	2.30	1.46	1.39
2	C	1301	VNS	F36-C35	-2.29	1.30	1.36
2	F	1301	VNS	C31-C30	2.29	1.53	1.50
2	D	1301	VNS	C13-C12	2.28	1.43	1.39
3	B	1302	YY3	C15-N3	2.27	1.41	1.36
3	A	1302	YY3	O-C7	-2.27	1.20	1.24
2	E	1301	VNS	C18-C19	2.26	1.56	1.52
2	D	1301	VNS	C27-C26	2.26	1.42	1.38
3	B	1302	YY3	C10-C11	2.25	1.59	1.51
2	A	1301	VNS	C27-C26	2.24	1.42	1.38
3	D	1302	YY3	C11-N2	2.23	1.54	1.46
3	F	1302	YY3	C18-N5	-2.22	1.31	1.34
2	A	1301	VNS	C29-C28	2.22	1.42	1.38
2	E	1301	VNS	C29-C28	2.22	1.42	1.38
3	D	1302	YY3	C10-C11	2.21	1.59	1.51
2	F	1301	VNS	C12-C11	2.21	1.52	1.48
2	C	1301	VNS	C31-C30	2.19	1.53	1.50
2	A	1301	VNS	C31-C30	2.19	1.53	1.50
2	B	1301	VNS	C27-C26	2.17	1.42	1.38
2	F	1301	VNS	C27-C26	2.17	1.42	1.38
2	E	1301	VNS	C27-C26	2.15	1.42	1.38
3	F	1302	YY3	O-C7	-2.14	1.20	1.24
2	F	1301	VNS	F36-C35	-2.14	1.31	1.36
3	B	1302	YY3	C25-C26	-2.14	1.37	1.42
2	D	1301	VNS	C29-C28	2.13	1.42	1.38
3	E	1302	YY3	C15-N3	2.12	1.40	1.36
3	D	1302	YY3	C5-C4	-2.12	1.35	1.40
3	C	1302	YY3	C5-N3	2.12	1.45	1.39
3	E	1302	YY3	O-C7	-2.11	1.20	1.24
3	E	1302	YY3	C1-N	2.11	1.45	1.41
2	A	1301	VNS	C37-C35	2.10	1.41	1.37
2	C	1301	VNS	C37-C35	2.10	1.41	1.37
2	F	1301	VNS	C29-C28	2.09	1.42	1.38
2	C	1301	VNS	C26-C18	2.09	1.42	1.39
3	D	1302	YY3	O-C7	-2.09	1.20	1.24
3	D	1302	YY3	C15-N3	2.08	1.40	1.36
3	C	1302	YY3	C2-N1	2.08	1.46	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1302	YY3	C1-C2	2.07	1.42	1.40
3	A	1302	YY3	C3-C4	2.07	1.42	1.38
2	F	1301	VNS	C37-C35	2.05	1.41	1.37
3	E	1302	YY3	C1-C2	2.05	1.42	1.40

All (260) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	1301	VNS	C31-N10-C11	-21.30	104.35	113.12
2	C	1301	VNS	C31-N10-C11	-21.07	104.45	113.12
2	A	1301	VNS	C31-N10-C11	-21.06	104.45	113.12
2	B	1301	VNS	C31-N10-C11	-21.06	104.45	113.12
2	D	1301	VNS	C31-N10-C11	-20.99	104.48	113.12
2	E	1301	VNS	C31-N10-C11	-20.19	104.81	113.12
2	B	1301	VNS	C30-C31-N10	16.13	107.55	102.18
2	F	1301	VNS	C30-C31-N10	15.94	107.49	102.18
2	D	1301	VNS	C30-C31-N10	15.41	107.31	102.18
2	A	1301	VNS	C30-C31-N10	15.26	107.27	102.18
2	C	1301	VNS	C30-C31-N10	14.80	107.11	102.18
2	E	1301	VNS	C30-C31-N10	14.39	106.97	102.18
3	D	1302	YY3	C8-C7-N	14.05	123.09	113.84
3	F	1302	YY3	C9-C8-C7	-13.75	106.54	122.27
3	D	1302	YY3	C9-C8-C7	-11.87	108.69	122.27
3	E	1302	YY3	C9-C8-C7	-11.62	108.98	122.27
3	B	1302	YY3	C9-C8-C7	-10.89	109.81	122.27
2	A	1301	VNS	C12-C11-N10	10.86	112.85	106.44
3	C	1302	YY3	C8-C7-N	10.81	120.96	113.84
3	E	1302	YY3	C8-C7-N	10.79	120.95	113.84
2	C	1301	VNS	C12-C11-N10	10.78	112.80	106.44
2	F	1301	VNS	C12-C11-N10	10.66	112.73	106.44
2	E	1301	VNS	C12-C11-N10	10.63	112.71	106.44
2	D	1301	VNS	C12-C11-N10	10.46	112.61	106.44
3	C	1302	YY3	C9-C8-C7	-10.19	110.61	122.27
2	B	1301	VNS	C12-C11-N10	10.11	112.41	106.44
3	B	1302	YY3	C8-C7-N	9.07	119.81	113.84
2	B	1301	VNS	C24-C25-C19	7.64	120.08	111.04
2	A	1301	VNS	O32-C11-N10	-7.61	119.53	125.24
2	E	1301	VNS	O32-C11-N10	-7.54	119.59	125.24
2	F	1301	VNS	O32-C11-N10	-7.43	119.67	125.24
2	B	1301	VNS	O32-C11-N10	-7.27	119.79	125.24
2	F	1301	VNS	C30-C12-C11	-7.20	105.08	108.94
2	D	1301	VNS	O32-C11-N10	-7.13	119.90	125.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	1301	VNS	O32-C11-N10	-7.10	119.92	125.24
2	A	1301	VNS	C30-C12-C11	-7.00	105.19	108.94
2	B	1301	VNS	C30-C12-C11	-6.91	105.24	108.94
2	D	1301	VNS	C30-C12-C11	-6.82	105.28	108.94
2	E	1301	VNS	C30-C12-C11	-6.70	105.35	108.94
2	C	1301	VNS	C30-C12-C11	-6.45	105.49	108.94
2	A	1301	VNS	C24-N22-C21	5.64	117.42	109.52
2	F	1301	VNS	C24-C25-C19	5.45	117.48	111.04
3	D	1302	YY3	O-C7-C8	-4.97	114.78	122.72
3	E	1302	YY3	O-C7-C8	-4.93	114.84	122.72
2	B	1301	VNS	C20-C19-C18	-4.92	101.26	112.79
3	F	1302	YY3	C6-C5-C4	-4.92	112.97	118.91
3	A	1302	YY3	C3-C2-C1	-4.91	112.80	120.04
3	B	1302	YY3	C6-C5-C4	-4.71	113.22	118.91
2	B	1301	VNS	C21-C20-C19	4.66	116.56	111.04
3	C	1302	YY3	O-C7-C8	-4.59	115.39	122.72
3	A	1302	YY3	C6-C5-C4	-4.55	113.41	118.91
2	F	1301	VNS	C26-C18-C17	-4.54	112.63	118.29
3	E	1302	YY3	C6-C5-C4	-4.53	113.44	118.91
3	C	1302	YY3	C6-C5-C4	-4.52	113.45	118.91
3	A	1302	YY3	C8-C7-N	4.47	116.78	113.84
2	C	1301	VNS	C24-N22-C21	4.47	115.77	109.52
3	D	1302	YY3	C6-C5-C4	-4.43	113.56	118.91
3	B	1302	YY3	O-C7-C8	-4.40	115.69	122.72
2	E	1301	VNS	C24-N22-C21	4.38	115.65	109.52
2	B	1301	VNS	C26-C18-C17	-4.29	112.94	118.29
2	C	1301	VNS	C24-C25-C19	4.24	116.06	111.04
2	C	1301	VNS	C23-N22-C24	-4.18	104.41	110.66
2	C	1301	VNS	C26-C18-C17	-4.17	113.08	118.29
3	E	1302	YY3	C18-C19-C26	4.16	132.04	123.90
2	D	1301	VNS	C24-N22-C21	4.15	115.33	109.52
3	F	1302	YY3	C3-C2-C1	-4.13	113.94	120.04
2	F	1301	VNS	C23-N22-C24	-4.10	104.53	110.66
2	A	1301	VNS	C23-N22-C24	-4.05	104.60	110.66
2	A	1301	VNS	C26-C18-C17	-4.04	113.25	118.29
2	D	1301	VNS	C26-C18-C17	-4.03	113.26	118.29
2	C	1301	VNS	C20-C19-C18	-4.01	103.39	112.79
2	F	1301	VNS	C24-N22-C21	3.92	115.00	109.52
2	B	1301	VNS	C23-N22-C24	-3.90	104.83	110.66
3	F	1302	YY3	N4-C15-N5	-3.90	122.85	126.55
2	E	1301	VNS	C26-C18-C17	-3.90	113.43	118.29
2	E	1301	VNS	C23-N22-C24	-3.87	104.87	110.66

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	1301	VNS	C23-N22-C21	-3.83	104.93	110.66
3	B	1302	YY3	C3-C2-C1	-3.81	114.41	120.04
2	F	1301	VNS	C16-C15-C14	3.81	127.96	121.36
2	A	1301	VNS	C23-N22-C21	-3.79	104.99	110.66
2	D	1301	VNS	C23-N22-C24	-3.79	105.00	110.66
3	B	1302	YY3	C18-C19-C26	3.76	131.25	123.90
2	C	1301	VNS	C23-N22-C21	-3.75	105.05	110.66
3	F	1302	YY3	C18-N5-C15	3.74	119.78	116.69
2	D	1301	VNS	C20-C19-C18	-3.74	104.03	112.79
3	A	1302	YY3	C18-C19-C26	3.74	131.21	123.90
2	F	1301	VNS	C20-C19-C18	-3.74	104.03	112.79
2	B	1301	VNS	C23-N22-C21	-3.73	105.08	110.66
3	E	1302	YY3	C3-C2-C1	-3.69	114.59	120.04
3	A	1302	YY3	N4-C15-N5	-3.66	123.08	126.55
3	C	1302	YY3	C18-C19-C26	3.61	130.95	123.90
3	B	1302	YY3	N4-C15-N5	-3.60	123.13	126.55
2	D	1301	VNS	C24-C25-C19	3.59	115.29	111.04
2	A	1301	VNS	C20-C19-C18	-3.53	104.52	112.79
2	F	1301	VNS	C23-N22-C21	-3.52	105.39	110.66
3	C	1302	YY3	C3-C2-C1	-3.49	114.89	120.04
2	A	1301	VNS	C16-C15-C14	3.48	127.39	121.36
3	D	1302	YY3	N4-C15-N5	-3.47	123.26	126.55
2	E	1301	VNS	C25-C19-C18	3.47	120.92	112.79
3	E	1302	YY3	C19-C18-N5	3.47	120.68	116.14
2	F	1301	VNS	C21-C20-C19	3.46	115.14	111.04
3	A	1302	YY3	C4-C5-N3	3.43	124.97	117.78
2	D	1301	VNS	C23-N22-C21	-3.42	105.55	110.66
3	F	1302	YY3	C11-C10-N1	3.40	117.73	112.31
3	D	1302	YY3	C18-C19-C26	3.38	130.51	123.90
2	C	1301	VNS	C33-C34-C35	3.35	122.94	118.59
3	E	1302	YY3	N4-C15-N5	-3.35	123.38	126.55
3	C	1302	YY3	N4-C15-N5	-3.33	123.39	126.55
3	F	1302	YY3	C1-N-C7	3.30	134.75	127.15
3	A	1302	YY3	C19-C18-N5	3.28	120.44	116.14
2	B	1301	VNS	C16-C15-C14	3.26	127.01	121.36
2	F	1301	VNS	C33-C34-C35	3.23	122.79	118.59
3	F	1302	YY3	C16-C17-C18	-3.22	114.18	117.22
3	E	1302	YY3	C17-C18-C19	-3.22	116.86	121.04
2	A	1301	VNS	C20-C21-N22	3.22	115.53	111.22
2	D	1301	VNS	O01-C02-C09	-3.18	116.71	120.97
3	A	1302	YY3	C9-C8-C7	-3.13	118.69	122.27
2	A	1301	VNS	C24-C25-C19	3.13	114.74	111.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1301	VNS	O01-C02-C09	-3.12	116.79	120.97
3	B	1302	YY3	C18-N5-C15	3.12	119.26	116.69
2	B	1301	VNS	C24-N22-C21	3.12	113.88	109.52
3	F	1302	YY3	C18-C19-C26	3.11	129.99	123.90
2	D	1301	VNS	C16-C15-C14	3.09	126.71	121.36
3	E	1302	YY3	O1-C4-C5	3.08	118.58	114.80
3	D	1302	YY3	C3-C2-C1	-3.08	115.49	120.04
3	D	1302	YY3	C2-C3-C4	3.07	124.45	117.91
2	B	1301	VNS	C33-C34-C35	3.06	122.57	118.59
2	D	1301	VNS	C33-C34-C35	3.06	122.56	118.59
2	A	1301	VNS	C33-C34-C35	3.03	122.53	118.59
2	F	1301	VNS	C28-C14-C13	-3.02	113.89	118.16
3	A	1302	YY3	C2-C1-N	3.02	124.23	118.58
3	C	1302	YY3	O1-C4-C5	3.00	118.48	114.80
2	A	1301	VNS	C25-C19-C18	2.97	119.77	112.79
2	F	1301	VNS	C20-C21-N22	2.97	115.20	111.22
2	F	1301	VNS	C27-C15-C16	-2.96	111.70	117.59
3	E	1302	YY3	O1-C4-C3	-2.95	119.05	124.12
2	C	1301	VNS	C21-C20-C19	2.89	114.46	111.04
2	D	1301	VNS	C31-N10-C09	2.89	126.56	123.86
2	A	1301	VNS	C28-C14-C13	-2.89	114.08	118.16
2	E	1301	VNS	C33-C34-C35	2.89	122.34	118.59
3	C	1302	YY3	O1-C4-C3	-2.88	119.16	124.12
3	A	1302	YY3	O1-C4-C5	2.87	118.33	114.80
2	A	1301	VNS	C27-C15-C16	-2.87	111.86	117.59
2	C	1301	VNS	C31-N10-C09	2.85	126.53	123.86
3	B	1302	YY3	C4-C5-N3	2.85	123.76	117.78
2	B	1301	VNS	C27-C15-C16	-2.84	111.93	117.59
2	F	1301	VNS	O01-C02-C09	-2.83	117.18	120.97
2	B	1301	VNS	O01-C02-C09	-2.83	117.18	120.97
2	C	1301	VNS	O01-C02-C09	-2.83	117.18	120.97
2	B	1301	VNS	C13-C12-C11	2.82	134.08	129.36
2	C	1301	VNS	C28-C14-C13	-2.82	114.18	118.16
2	D	1301	VNS	C28-C14-C13	-2.81	114.19	118.16
3	C	1302	YY3	C2-C3-C4	2.81	123.89	117.91
2	E	1301	VNS	C20-C19-C18	-2.80	106.23	112.79
3	F	1302	YY3	O1-C4-C3	-2.79	119.31	124.12
3	E	1302	YY3	C2-C3-C4	2.79	123.86	117.91
2	C	1301	VNS	C29-C30-C12	-2.79	117.78	120.31
3	F	1302	YY3	C4-C5-N3	2.77	123.58	117.78
2	E	1301	VNS	C28-C14-C13	-2.76	114.26	118.16
2	B	1301	VNS	C28-C14-C13	-2.75	114.27	118.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	1302	YY3	O-C7-C8	-2.75	118.33	122.72
3	F	1302	YY3	C2-C3-C4	2.74	123.75	117.91
2	F	1301	VNS	C31-N10-C09	2.74	126.42	123.86
2	D	1301	VNS	C27-C15-C16	-2.74	112.14	117.59
2	C	1301	VNS	C27-C15-C16	-2.73	112.15	117.59
2	F	1301	VNS	C13-C12-C11	2.73	133.92	129.36
3	A	1302	YY3	C17-C18-C19	-2.72	117.51	121.04
2	E	1301	VNS	C29-C30-C12	-2.72	117.85	120.31
2	A	1301	VNS	C13-C12-C11	2.70	133.88	129.36
2	E	1301	VNS	C31-N10-C09	2.68	126.37	123.86
3	B	1302	YY3	O1-C4-C5	2.67	118.07	114.80
2	E	1301	VNS	C27-C15-C16	-2.66	112.29	117.59
3	F	1302	YY3	O1-C4-C5	2.66	118.06	114.80
3	D	1302	YY3	O1-C4-C5	2.64	118.03	114.80
3	B	1302	YY3	C2-C3-C4	2.63	123.51	117.91
3	A	1302	YY3	C2-C3-C4	2.62	123.50	117.91
3	D	1302	YY3	C6-C1-C2	-2.61	116.92	119.67
2	A	1301	VNS	C31-N10-C09	2.61	126.30	123.86
3	B	1302	YY3	C19-C18-N5	2.59	119.53	116.14
3	A	1302	YY3	C16-N4-C15	2.58	117.73	115.45
2	F	1301	VNS	C29-C30-C12	-2.55	118.00	120.31
2	A	1301	VNS	C21-C20-C19	2.55	114.05	111.04
3	A	1302	YY3	O1-C4-C3	-2.54	119.75	124.12
2	C	1301	VNS	C20-C21-N22	2.54	114.62	111.22
2	D	1301	VNS	C29-C30-C12	-2.52	118.02	120.31
3	E	1302	YY3	C4-C5-N3	2.51	123.05	117.78
2	D	1301	VNS	C13-C12-C11	2.51	133.56	129.36
3	D	1302	YY3	O1-C4-C3	-2.51	119.81	124.12
2	E	1301	VNS	C38-C39-C33	2.50	122.69	120.41
3	C	1302	YY3	C19-C18-N5	2.48	119.39	116.14
2	F	1301	VNS	C26-C27-C15	2.48	124.70	121.13
2	E	1301	VNS	C13-C12-C11	2.46	133.47	129.36
2	A	1301	VNS	C29-C30-C12	-2.45	118.09	120.31
3	B	1302	YY3	C5-C6-C1	2.45	128.47	121.59
3	D	1302	YY3	C16-N4-C15	2.44	117.61	115.45
2	F	1301	VNS	C25-C19-C18	2.44	118.51	112.79
2	E	1301	VNS	C17-C16-C15	2.43	124.63	121.13
2	D	1301	VNS	C25-C19-C18	2.43	118.48	112.79
3	E	1302	YY3	C16-N4-C15	2.43	117.60	115.45
2	C	1301	VNS	C16-C15-C14	2.42	125.55	121.36
3	A	1302	YY3	C6-C1-N	-2.41	115.53	121.90
2	A	1301	VNS	C38-C39-C33	2.40	122.60	120.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	1302	YY3	C8-C7-N	2.40	115.42	113.84
3	A	1302	YY3	C11-C10-N1	2.39	116.13	112.31
3	B	1302	YY3	O1-C4-C3	-2.39	120.01	124.12
2	C	1301	VNS	C37-C35-C34	-2.39	120.19	123.29
2	D	1301	VNS	C21-C20-C19	2.37	113.84	111.04
2	B	1301	VNS	C26-C27-C15	2.37	124.54	121.13
2	C	1301	VNS	C13-C12-C11	2.36	133.31	129.36
3	C	1302	YY3	C4-C5-N3	2.36	122.73	117.78
3	D	1302	YY3	C18-N5-C15	2.35	118.63	116.69
3	C	1302	YY3	C16-N4-C15	2.34	117.52	115.45
3	A	1302	YY3	C5-C6-C1	2.33	128.15	121.59
2	F	1301	VNS	C38-C39-C33	2.33	122.53	120.41
2	B	1301	VNS	C20-C21-N22	2.33	114.34	111.22
2	D	1301	VNS	C20-C21-N22	2.29	114.30	111.22
2	A	1301	VNS	C26-C27-C15	2.29	124.43	121.13
2	B	1301	VNS	C38-C39-C33	2.27	122.48	120.41
3	B	1302	YY3	C16-N4-C15	2.27	117.46	115.45
3	E	1302	YY3	C5-C6-C1	2.26	127.95	121.59
2	C	1301	VNS	C17-C16-C15	2.26	124.39	121.13
2	F	1301	VNS	C27-C26-C18	2.26	123.47	121.20
2	E	1301	VNS	C04-N03-C02	-2.25	124.00	129.02
3	D	1302	YY3	C16-C17-C18	-2.24	115.11	117.22
3	B	1302	YY3	C22-C21-N6	-2.24	130.22	132.14
2	F	1301	VNS	C37-C35-C34	-2.23	120.39	123.29
3	E	1302	YY3	C10-N1-C2	2.23	126.20	117.16
2	A	1301	VNS	C17-C16-C15	2.23	124.34	121.13
3	F	1302	YY3	C10-N1-C2	2.23	126.17	117.16
3	B	1302	YY3	C10-N1-C2	2.22	126.16	117.16
2	B	1301	VNS	C16-C17-C18	2.22	123.43	121.20
2	D	1301	VNS	C26-C27-C15	2.22	124.32	121.13
2	C	1301	VNS	C25-C19-C18	2.21	117.98	112.79
2	E	1301	VNS	C27-C26-C18	2.20	123.41	121.20
2	A	1301	VNS	C04-N03-C02	-2.19	124.15	129.02
3	E	1302	YY3	C11-C10-N1	2.18	115.79	112.31
2	B	1301	VNS	C29-C30-C12	-2.18	118.33	120.31
2	D	1301	VNS	C37-C35-C34	-2.16	120.48	123.29
3	F	1302	YY3	C16-N4-C15	2.14	117.35	115.45
2	B	1301	VNS	C37-C35-C34	-2.14	120.51	123.29
2	F	1301	VNS	C16-C17-C18	2.13	123.34	121.20
2	A	1301	VNS	C37-C35-C34	-2.11	120.55	123.29
2	D	1301	VNS	C17-C16-C15	2.11	124.17	121.13
2	F	1301	VNS	C17-C16-C15	2.09	124.14	121.13

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	1301	VNS	O01-C02-C09	-2.09	118.17	120.97
2	A	1301	VNS	C27-C26-C18	2.07	123.28	121.20
2	F	1301	VNS	C29-C28-C14	2.07	124.11	121.13
3	D	1302	YY3	C5-C6-C1	2.07	127.41	121.59
2	C	1301	VNS	C27-C26-C18	2.07	123.28	121.20
3	B	1302	YY3	C16-C17-C18	-2.07	115.27	117.22
3	C	1302	YY3	C5-C6-C1	2.06	127.40	121.59
2	C	1301	VNS	C38-C39-C33	2.06	122.29	120.41
3	C	1302	YY3	C16-C17-C18	-2.06	115.28	117.22
2	E	1301	VNS	C16-C15-C14	2.05	124.91	121.36
3	C	1302	YY3	C17-C18-C19	-2.04	118.38	121.04
2	E	1301	VNS	C37-C35-C34	-2.04	120.64	123.29
2	D	1301	VNS	C38-C39-C33	2.04	122.27	120.41
2	B	1301	VNS	C17-C16-C15	2.03	124.06	121.13
3	D	1302	YY3	C19-C18-N5	2.03	118.80	116.14
3	A	1302	YY3	C16-C17-C18	-2.01	115.33	117.22

There are no chirality outliers.

All (55) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	1302	YY3	C11-C10-N1-C28
3	B	1302	YY3	N-C7-C8-C9
3	B	1302	YY3	O-C7-C8-C9
3	A	1302	YY3	C3-C2-N1-C10
3	A	1302	YY3	N-C7-C8-C9
3	A	1302	YY3	O-C7-C8-C9
3	C	1302	YY3	C11-C10-N1-C28
3	C	1302	YY3	N-C7-C8-C9
3	C	1302	YY3	O-C7-C8-C9
3	D	1302	YY3	N-C7-C8-C9
3	D	1302	YY3	O-C7-C8-C9
3	E	1302	YY3	C10-C11-N2-C13
3	E	1302	YY3	C3-C2-N1-C10
3	E	1302	YY3	N-C7-C8-C9
3	E	1302	YY3	O-C7-C8-C9
3	F	1302	YY3	N-C7-C8-C9
3	F	1302	YY3	O-C7-C8-C9
3	F	1302	YY3	C5-C4-O1-C14
3	E	1302	YY3	N1-C10-C11-N2
3	A	1302	YY3	N1-C10-C11-N2
3	D	1302	YY3	N1-C10-C11-N2

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Mol	Chain	Res	Type	Atoms
3	F	1302	YY3	C3-C4-O1-C14
3	B	1302	YY3	C1-C2-N1-C10
3	D	1302	YY3	C1-C2-N1-C10
3	A	1302	YY3	C10-C11-N2-C13
3	A	1302	YY3	C10-C11-N2-C12
3	E	1302	YY3	C11-C10-N1-C28
3	E	1302	YY3	C10-C11-N2-C12
2	A	1301	VNS	C17-C18-C19-C20
2	C	1301	VNS	C26-C18-C19-C20
3	D	1302	YY3	C3-C2-N1-C10
3	F	1302	YY3	N1-C10-C11-N2
2	A	1301	VNS	C26-C18-C19-C20
2	C	1301	VNS	C17-C18-C19-C20
3	B	1302	YY3	C10-C11-N2-C12
3	B	1302	YY3	C10-C11-N2-C13
2	B	1301	VNS	C02-C09-N10-C31
2	A	1301	VNS	C02-C09-N10-C31
2	F	1301	VNS	C02-C09-N10-C31
3	A	1302	YY3	C6-C1-N-C7
2	B	1301	VNS	C33-C09-N10-C31
2	C	1301	VNS	C33-C09-N10-C31
2	F	1301	VNS	C33-C09-N10-C31
3	E	1302	YY3	C1-C2-N1-C10
2	D	1301	VNS	C17-C18-C19-C25
3	A	1302	YY3	C1-C2-N1-C10
3	A	1302	YY3	C2-C1-N-C7
3	C	1302	YY3	C1-C2-N1-C28
3	A	1302	YY3	C3-C2-N1-C28
3	C	1302	YY3	C3-C2-N1-C28
3	E	1302	YY3	C3-C2-N1-C28
3	F	1302	YY3	C3-C2-N1-C28
2	C	1301	VNS	C02-C09-N10-C31
2	E	1301	VNS	C26-C18-C19-C20
2	E	1301	VNS	C17-C18-C19-C20

There are no ring outliers.

7 monomers are involved in 9 short contacts:

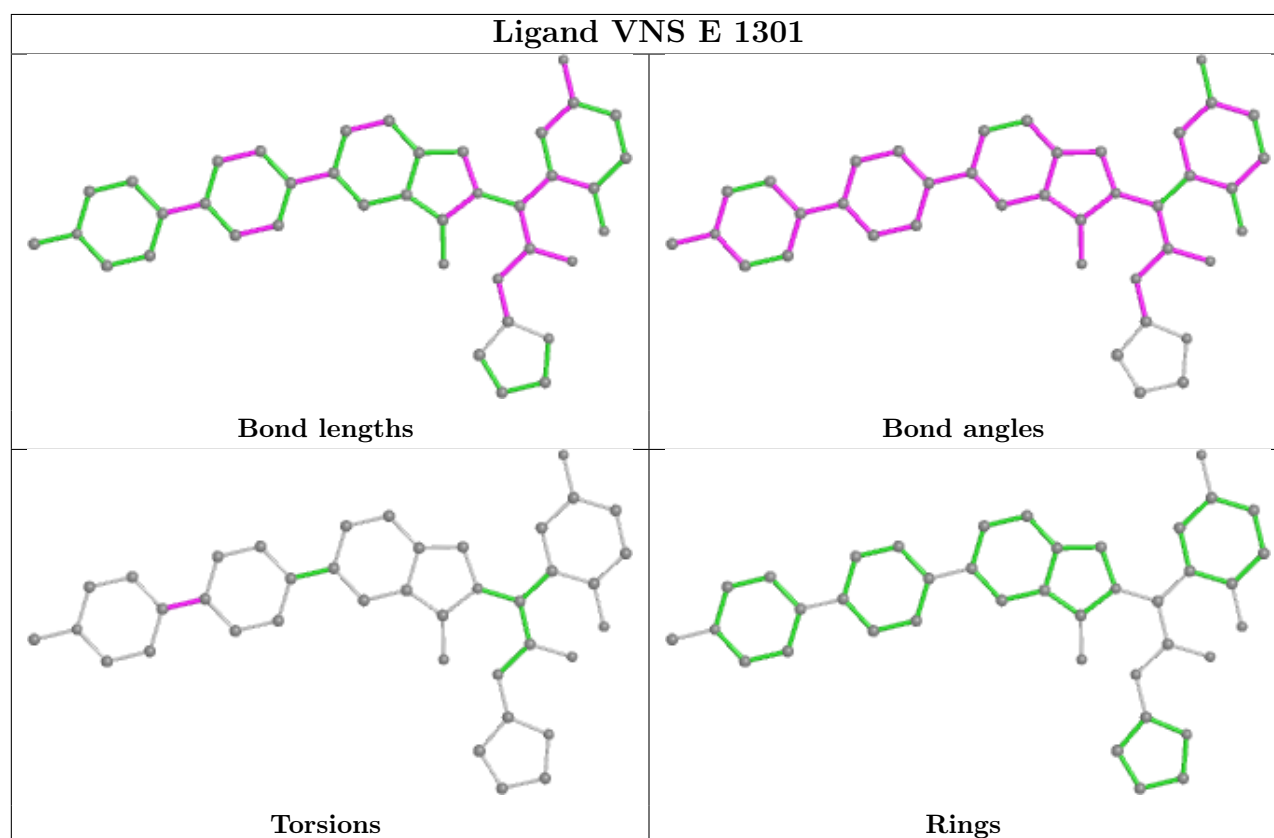
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1302	YY3	1	0
2	A	1301	VNS	1	0
3	B	1302	YY3	1	0

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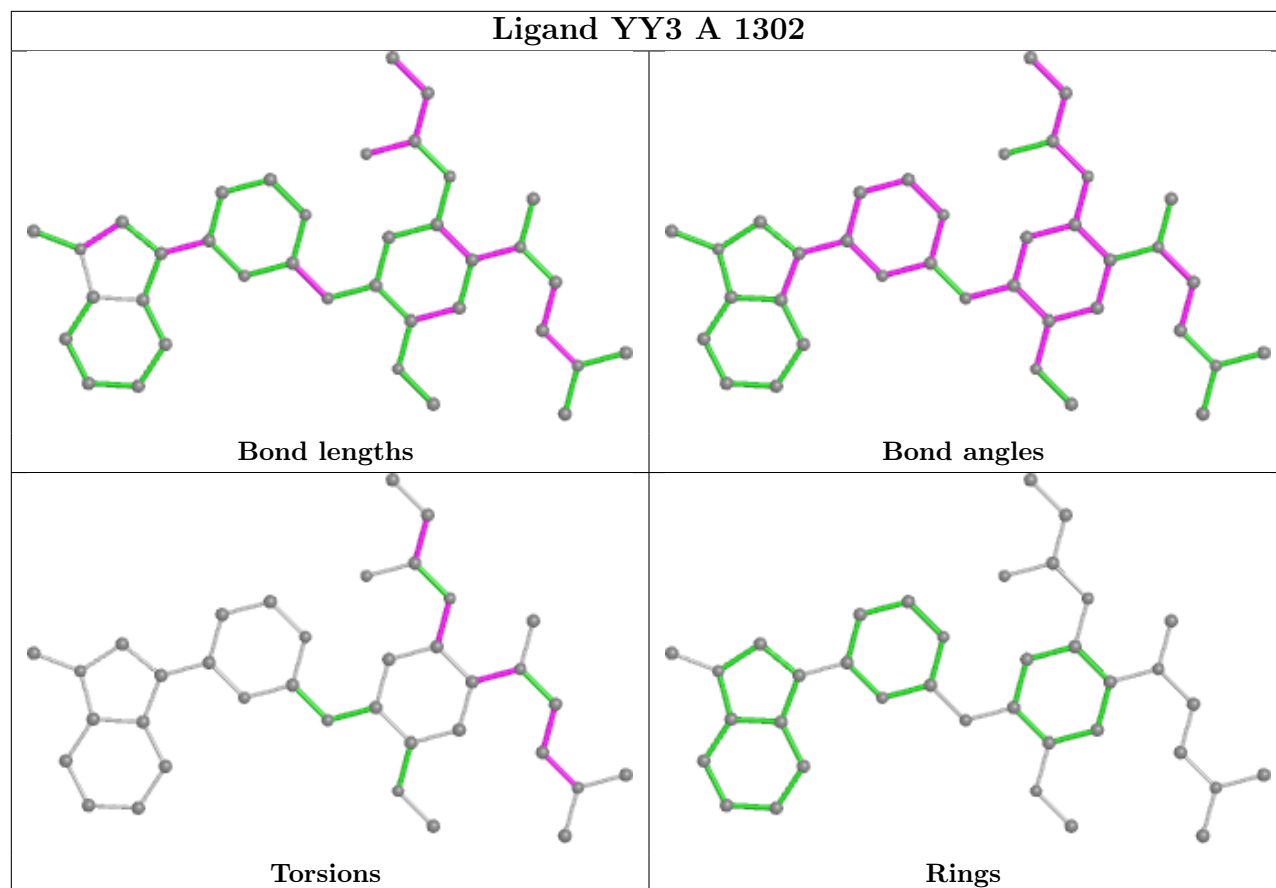
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	1301	VNS	2	0
3	C	1302	YY3	1	0
2	C	1301	VNS	2	0
2	F	1301	VNS	1	0

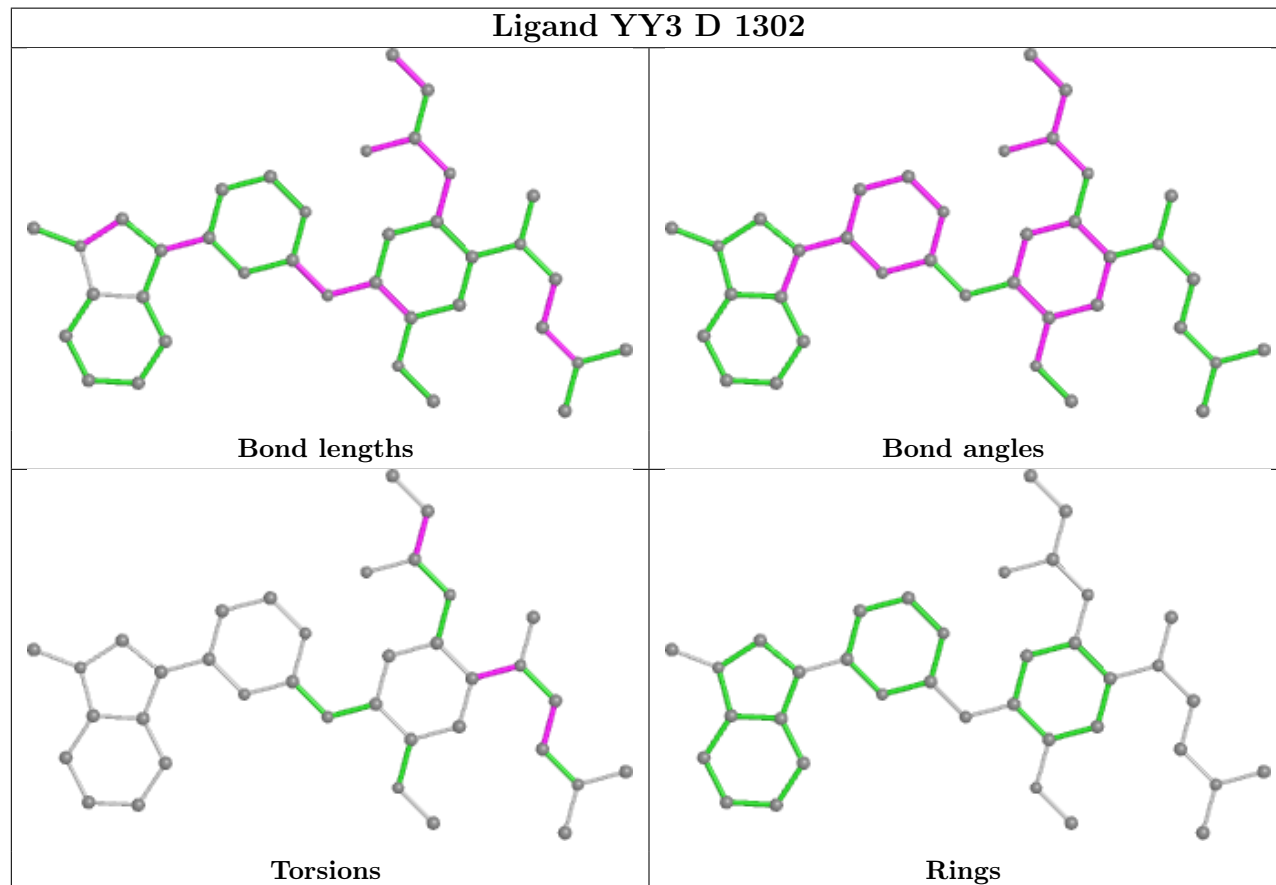
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

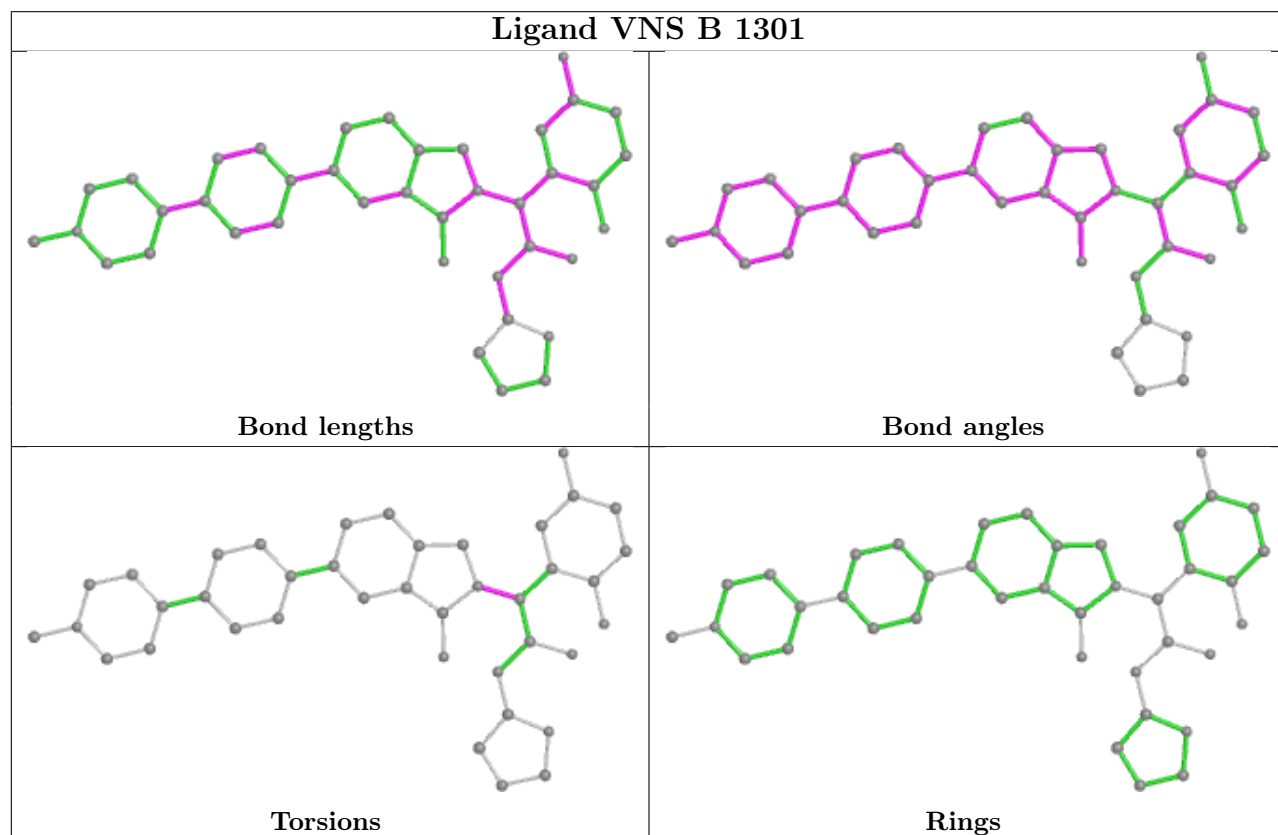
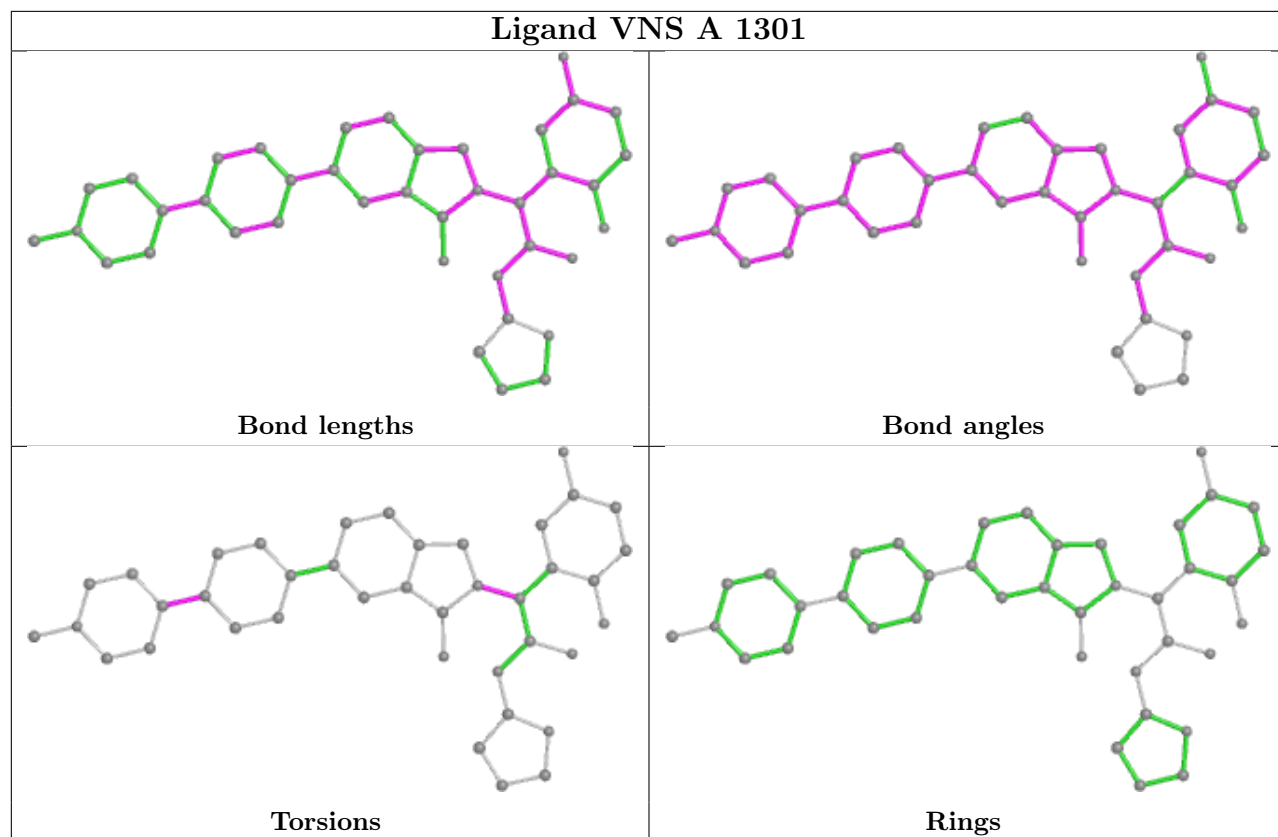


Ligand YY3 A 1302

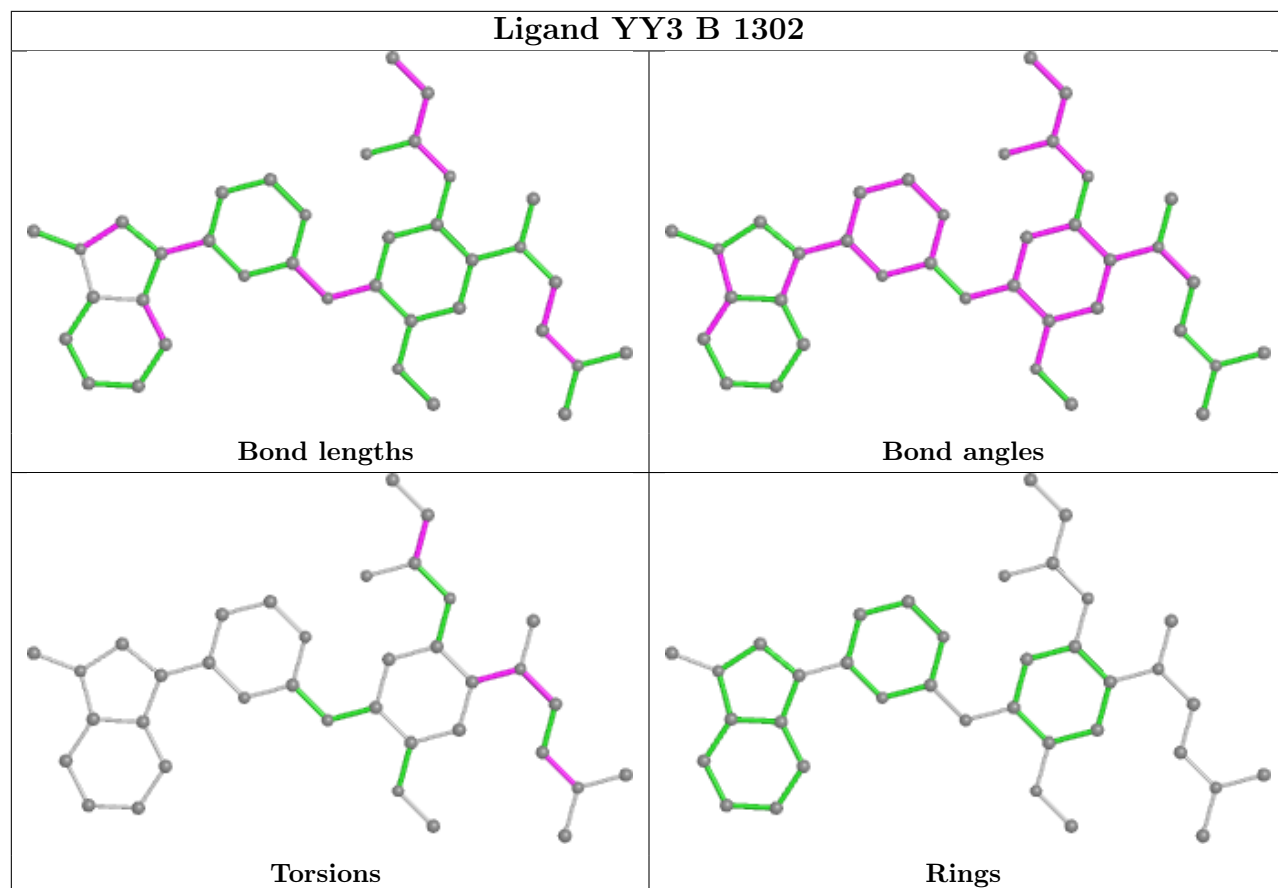


Ligand YY3 D 1302

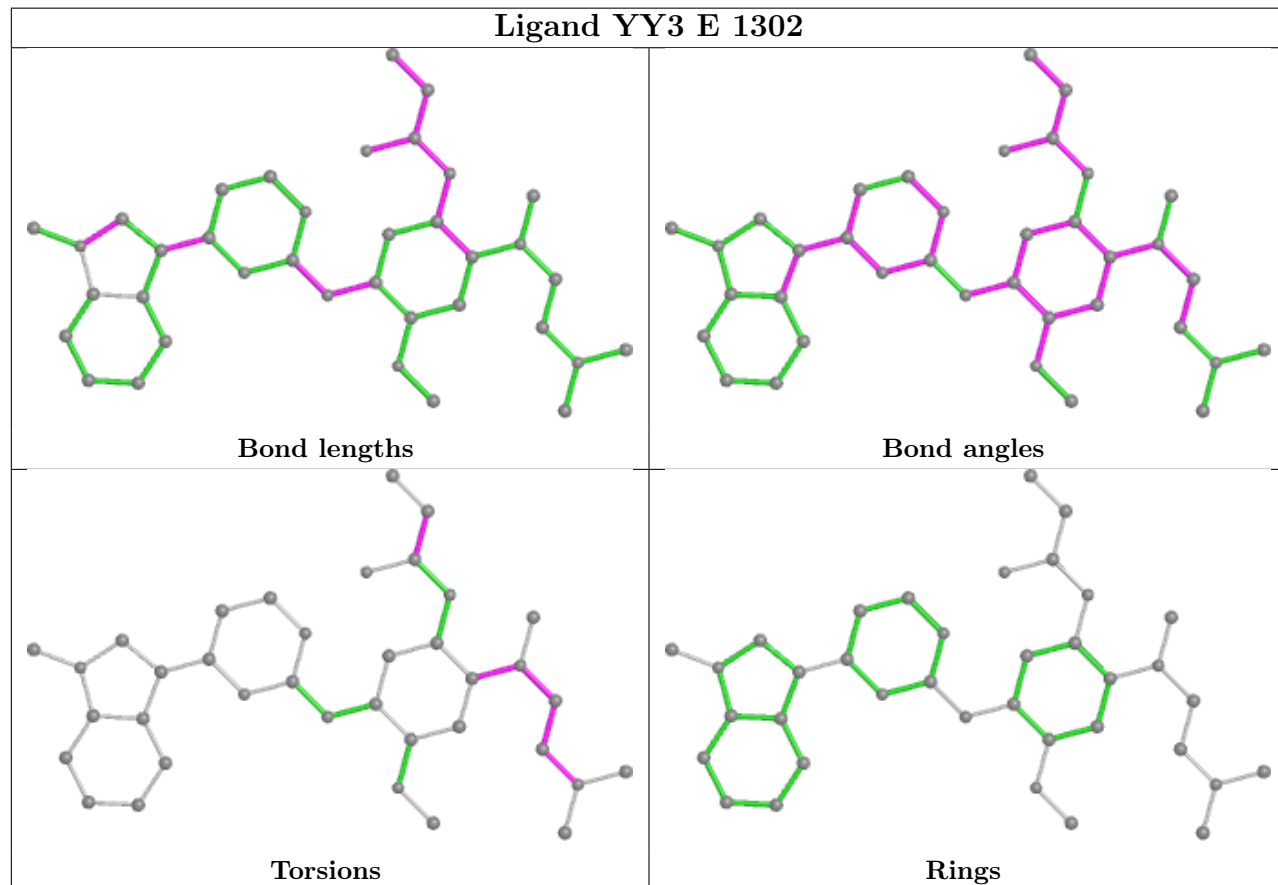


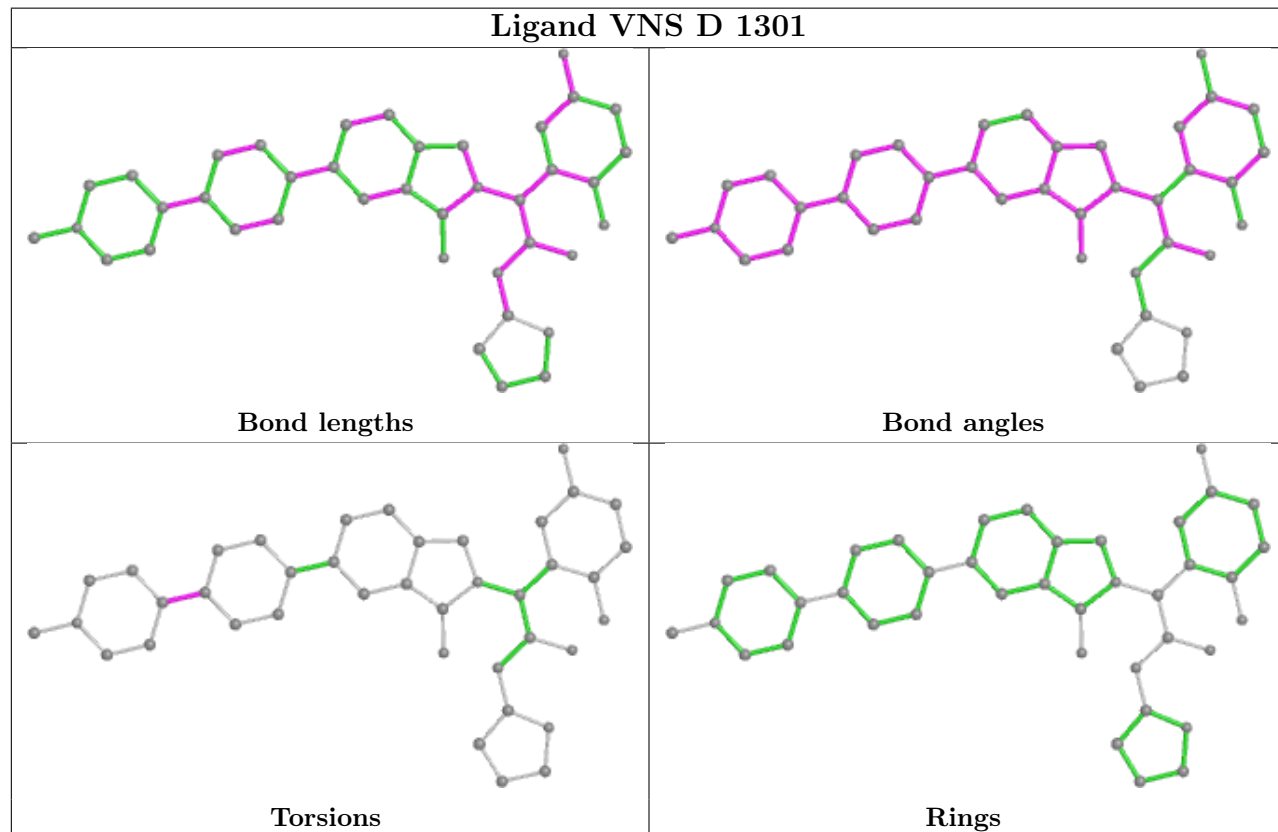
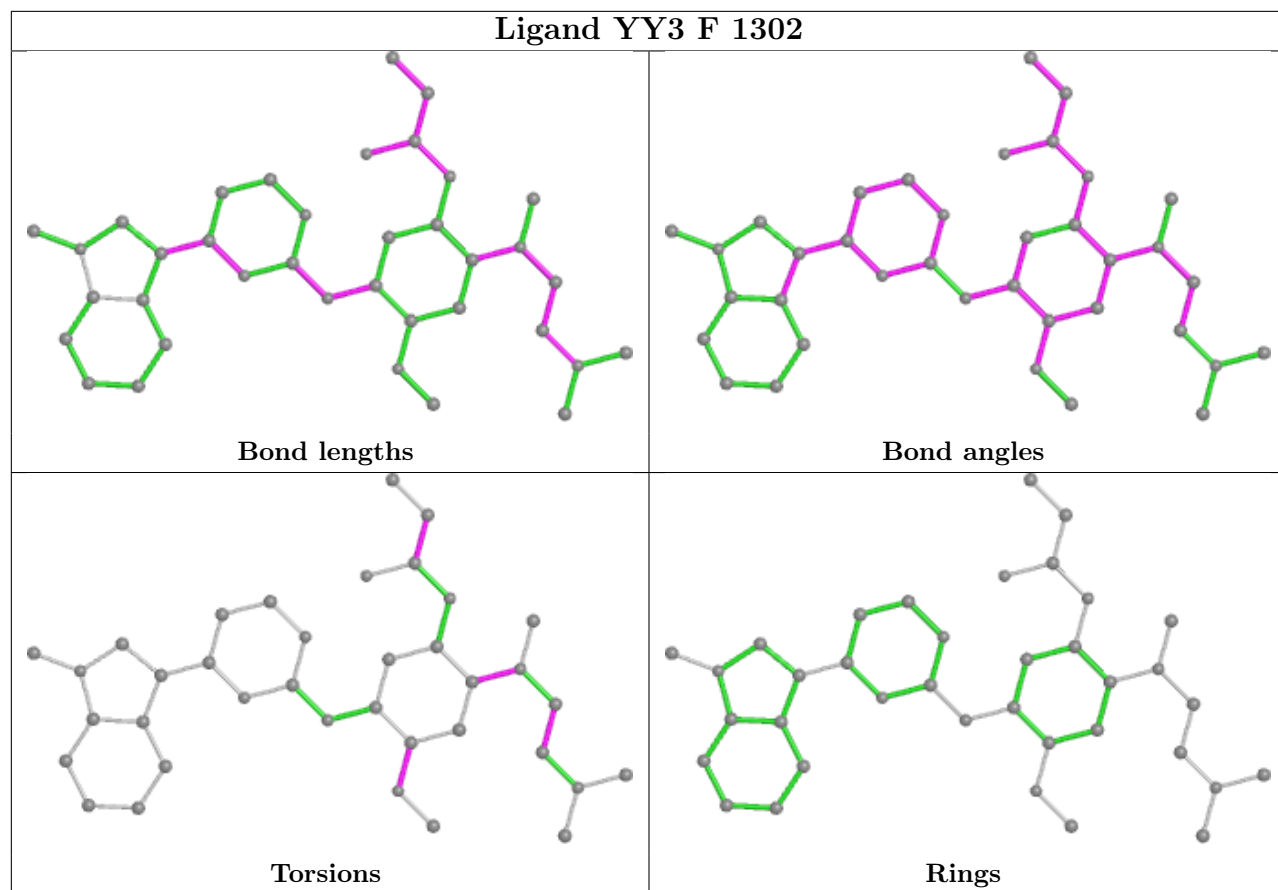


Ligand YY3 B 1302

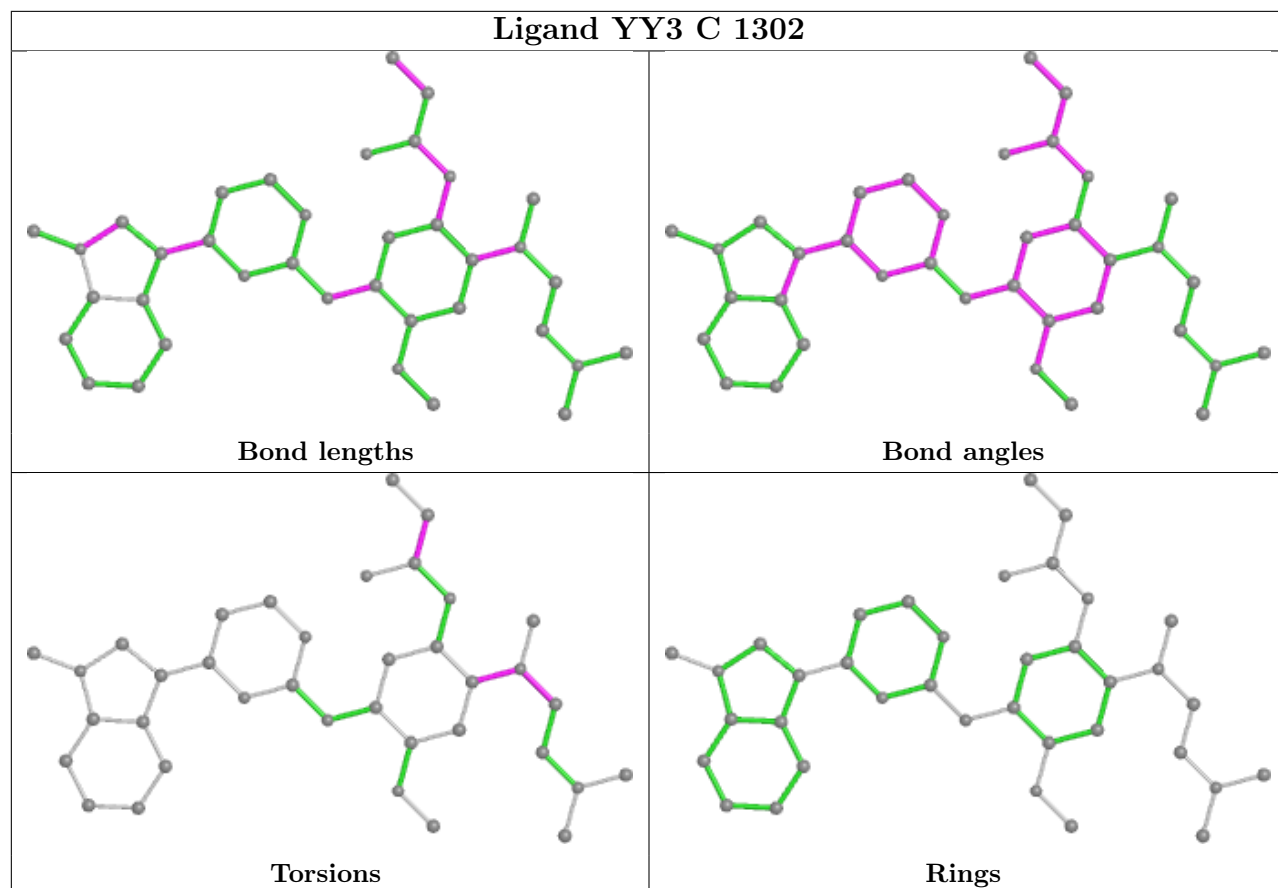


Ligand YY3 E 1302

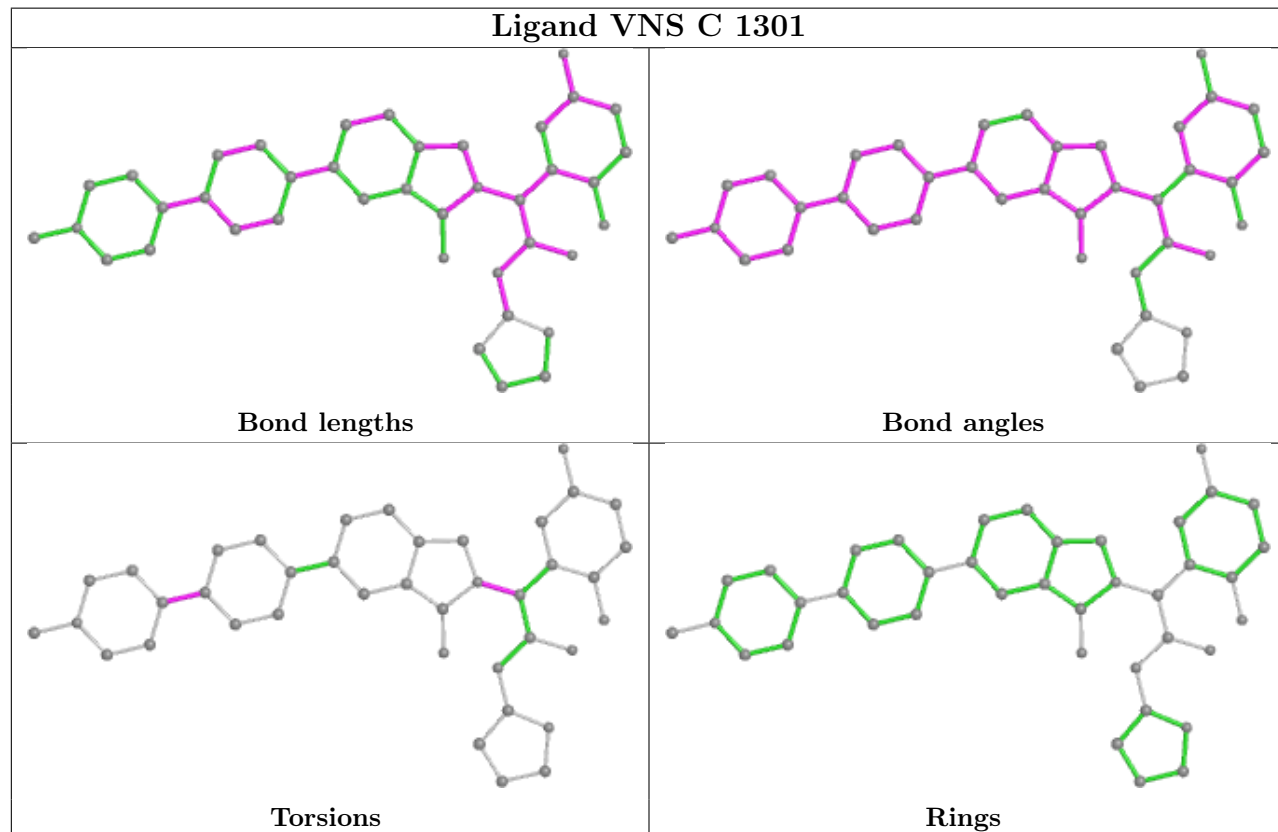


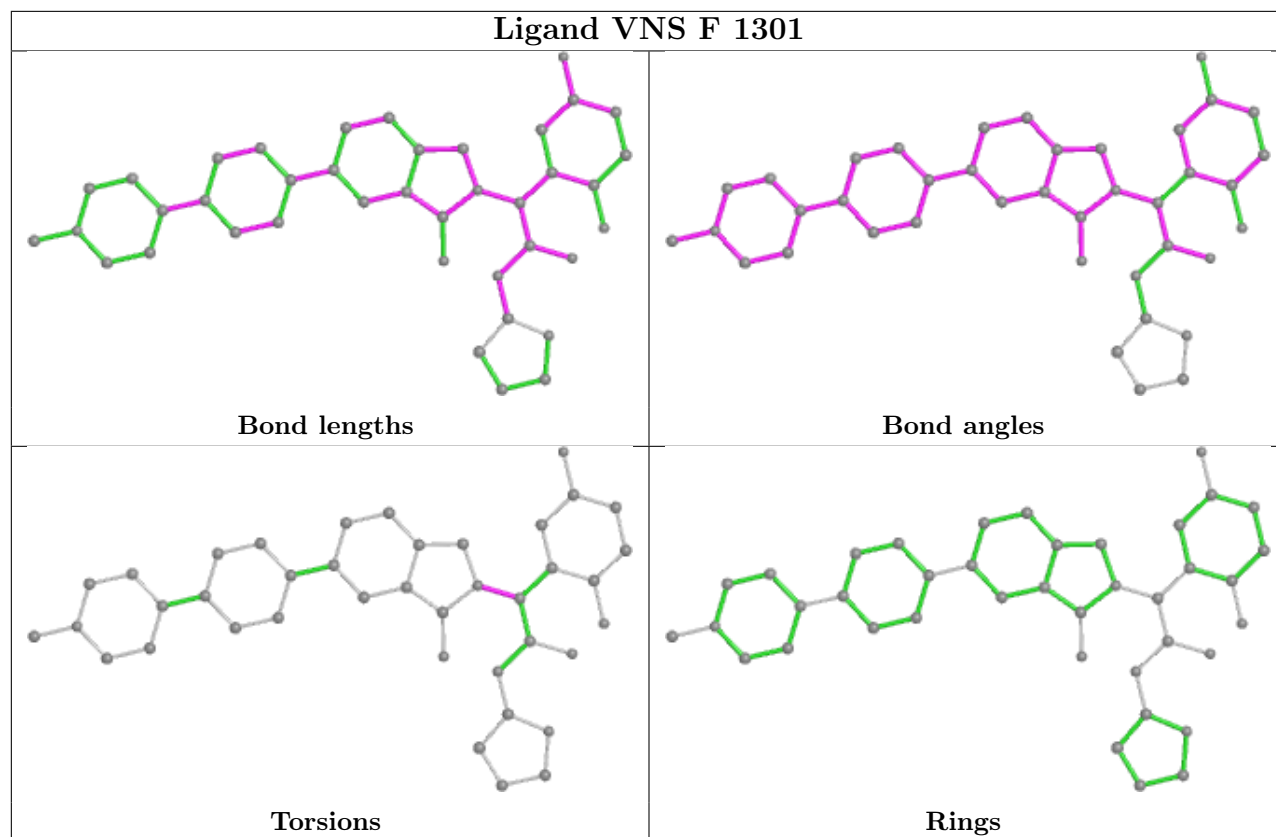


Ligand YY3 C 1302



Ligand VNS C 1301





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, 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	291/331 (87%)	0.20	13 (4%) 33 26	42, 67, 97, 112	0
1	B	291/331 (87%)	0.16	8 (2%) 54 48	33, 62, 95, 113	0
1	C	290/331 (87%)	0.31	16 (5%) 25 19	37, 67, 103, 114	0
1	D	292/331 (88%)	0.24	19 (6%) 18 14	39, 65, 96, 111	0
1	E	289/331 (87%)	0.27	20 (6%) 16 12	37, 67, 96, 115	0
1	F	290/331 (87%)	0.29	13 (4%) 33 26	50, 74, 105, 122	0
All	All	1743/1986 (87%)	0.24	89 (5%) 28 22	33, 67, 100, 122	0

All (89) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	753	PRO	5.3
1	F	723	PHE	4.9
1	A	859	ALA	4.8
1	C	807	ASP	4.6
1	E	985	GLU	4.6
1	D	748	ARG	4.4
1	E	887	LEU	4.3
1	D	986	ARG	4.3
1	F	807	ASP	4.1
1	B	748	ARG	4.1
1	D	859	ALA	4.1
1	E	988	HIS	4.0
1	E	807	ASP	3.9
1	E	876	VAL	3.9
1	A	702	ALA	3.8
1	E	921	SER	3.8
1	C	986	ARG	3.8
1	D	702	ALA	3.7
1	E	986	ARG	3.7

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Mol	Chain	Res	Type	RSRZ
1	D	735	GLY	3.7
1	F	760	LEU	3.6
1	A	749	GLU	3.6
1	D	784	SER	3.5
1	E	989	LEU	3.5
1	E	859	ALA	3.3
1	E	889	ARG	3.2
1	C	889	ARG	3.2
1	F	701	GLN	3.2
1	E	783	THR	3.1
1	A	990	PRO	3.0
1	A	723	PHE	3.0
1	E	748	ARG	3.0
1	B	747	LEU	2.9
1	B	986	ARG	2.9
1	F	988	HIS	2.9
1	E	806	LYS	2.9
1	D	982	GLN	2.9
1	B	734	GLU	2.9
1	D	807	ASP	2.8
1	D	710	THR	2.7
1	B	760	LEU	2.7
1	D	749	GLU	2.7
1	D	987	MET	2.7
1	A	751	THR	2.7
1	E	723	PHE	2.7
1	C	749	GLU	2.7
1	F	749	GLU	2.6
1	C	734	GLU	2.6
1	E	987	MET	2.6
1	D	988	HIS	2.6
1	D	750	ALA	2.5
1	C	760	LEU	2.5
1	B	807	ASP	2.5
1	D	985	GLU	2.5
1	F	883	LEU	2.5
1	E	994	ASP	2.5
1	F	750	ALA	2.4
1	C	988	HIS	2.4
1	A	721	GLY	2.4
1	B	889	ARG	2.4
1	D	990	PRO	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	750	ALA	2.4
1	A	722	ALA	2.3
1	C	717	VAL	2.3
1	E	735	GLY	2.3
1	C	723	PHE	2.3
1	A	760	LEU	2.3
1	F	888	HIS	2.3
1	E	920	ALA	2.3
1	F	722	ALA	2.3
1	E	991	SER	2.2
1	C	992	PRO	2.2
1	F	858	ARG	2.2
1	A	753	PRO	2.2
1	D	975	PRO	2.2
1	A	975	PRO	2.2
1	A	734	GLU	2.1
1	F	753	PRO	2.1
1	B	989	LEU	2.1
1	A	988	HIS	2.1
1	C	748	ARG	2.1
1	F	806	LYS	2.1
1	C	973	ARG	2.1
1	C	753	PRO	2.1
1	C	783	THR	2.1
1	D	724	GLY	2.0
1	C	737	LYS	2.0
1	D	989	LEU	2.0
1	E	811	SER	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.

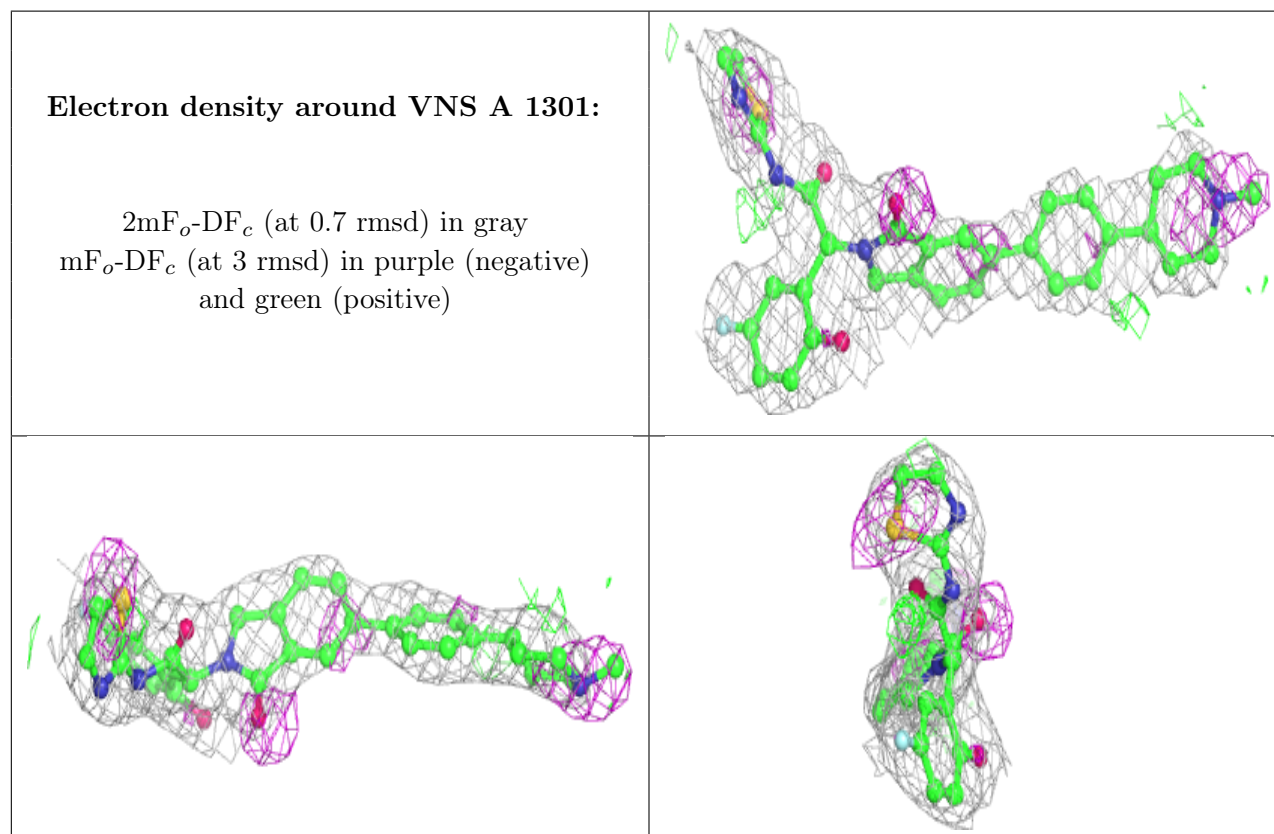
6.4 Ligands [i](#)

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.

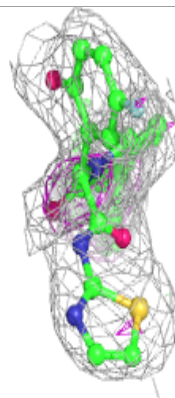
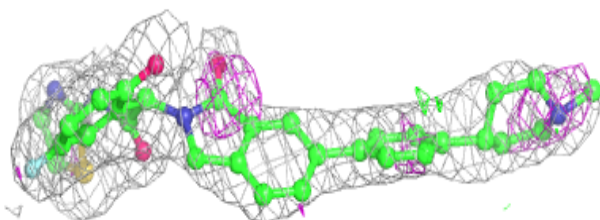
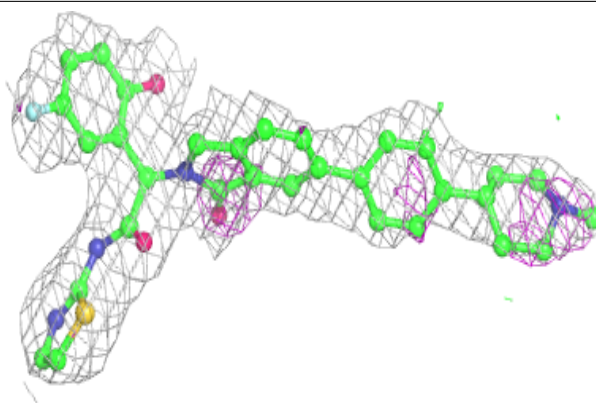
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	VNS	A	1301	40/40	0.86	0.24	30,30,30,30	0
2	VNS	D	1301	40/40	0.88	0.21	30,30,30,30	0
2	VNS	C	1301	40/40	0.89	0.21	30,30,30,30	0
2	VNS	F	1301	40/40	0.89	0.21	30,30,30,30	0
3	YY3	A	1302	37/37	0.89	0.22	30,30,30,30	0
3	YY3	B	1302	37/37	0.90	0.19	30,30,30,30	0
2	VNS	B	1301	40/40	0.90	0.21	30,30,30,30	0
3	YY3	F	1302	37/37	0.90	0.20	30,30,30,30	0
3	YY3	D	1302	37/37	0.91	0.18	30,30,30,30	0
3	YY3	C	1302	37/37	0.91	0.19	30,30,30,30	0
3	YY3	E	1302	37/37	0.92	0.18	30,30,30,30	0
2	VNS	E	1301	40/40	0.92	0.22	30,30,30,30	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.

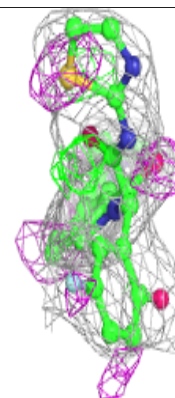
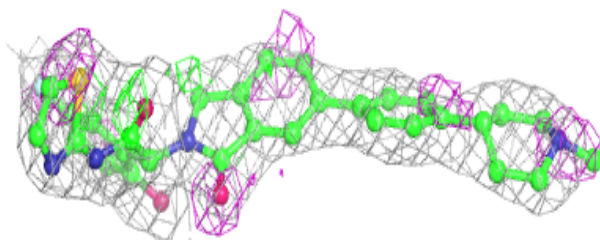
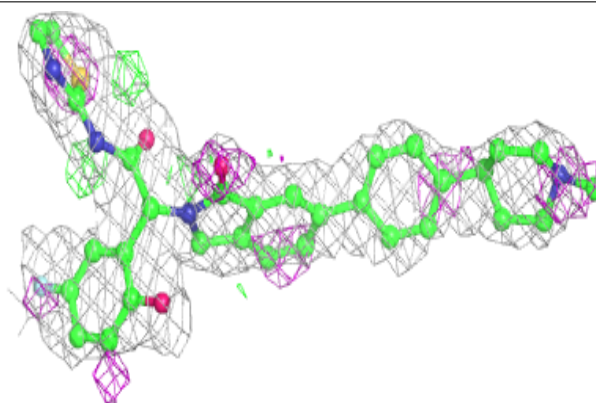


Electron density around VNS D 1301:

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

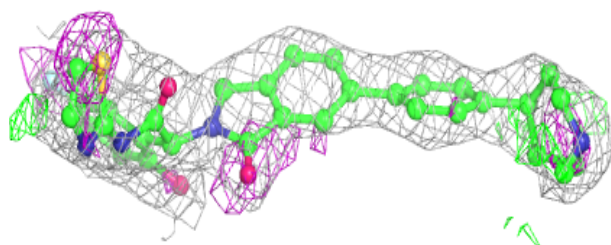
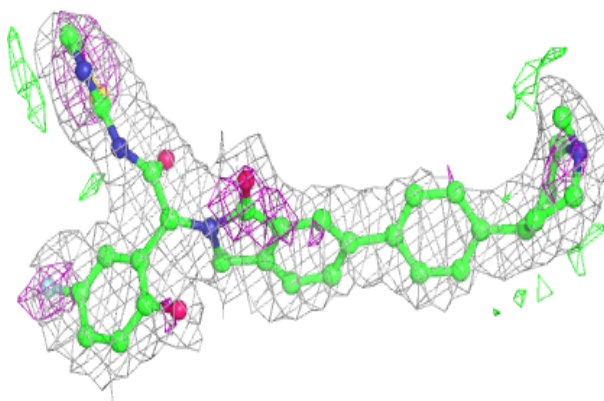
**Electron density around VNS C 1301:**

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

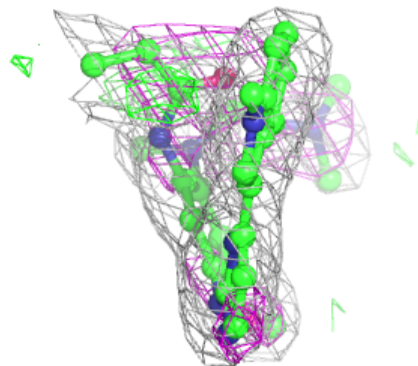
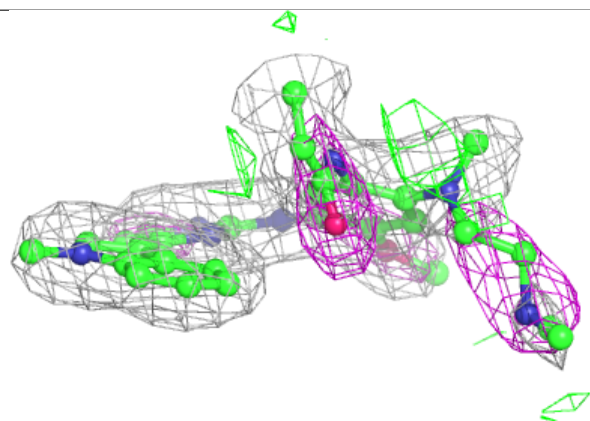
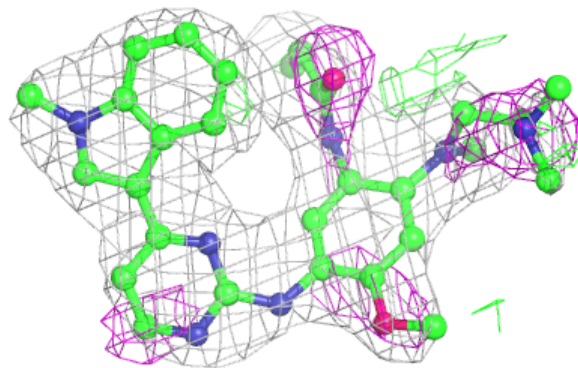


Electron density around VNS F 1301:

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

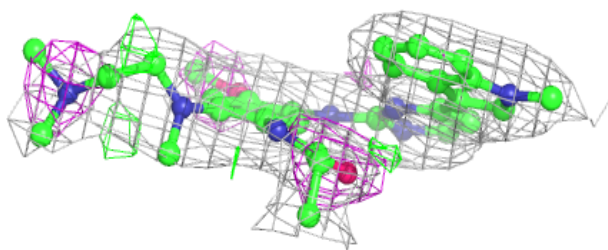
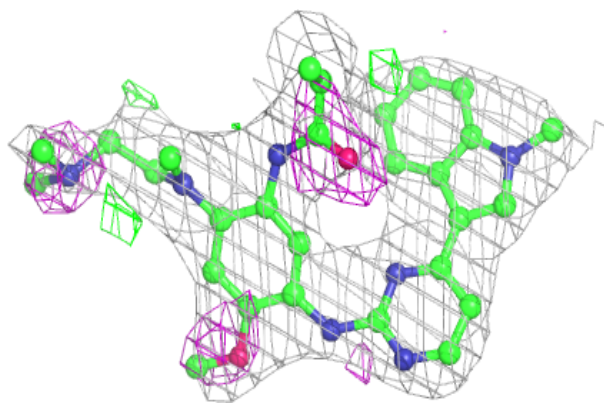
**Electron density around YY3 A 1302:**

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

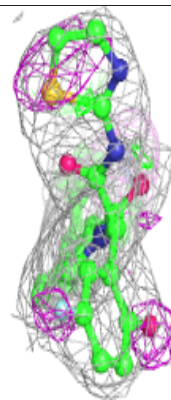
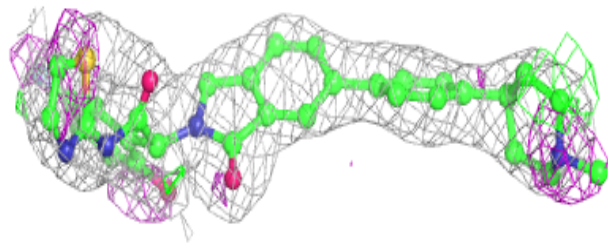
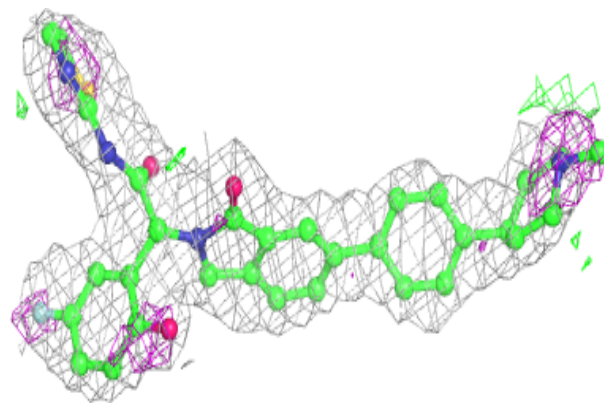


Electron density around YY3 B 1302:

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

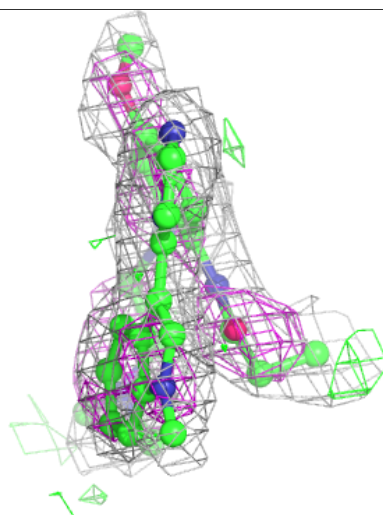
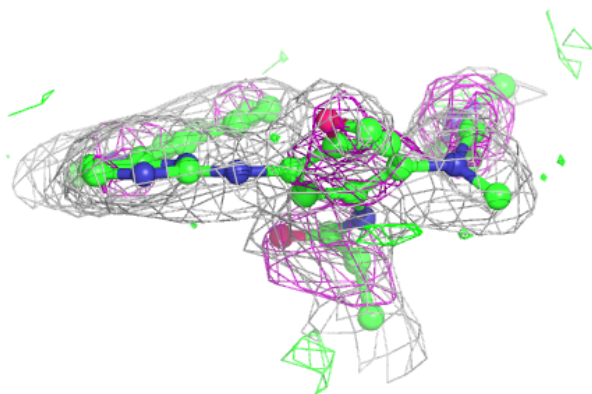
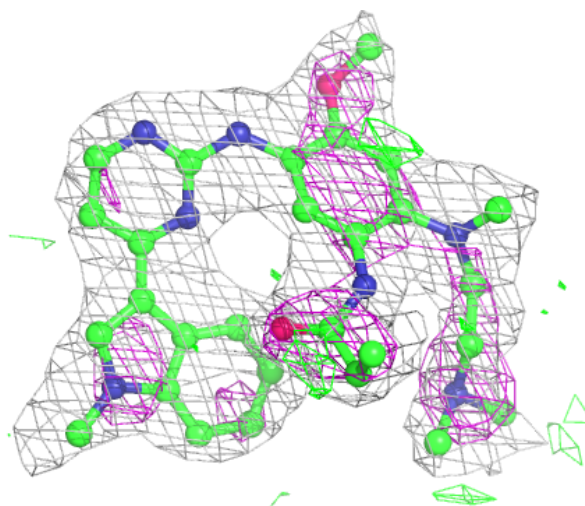
**Electron density around VNS B 1301:**

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



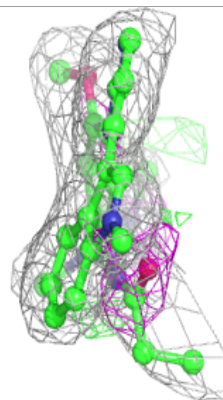
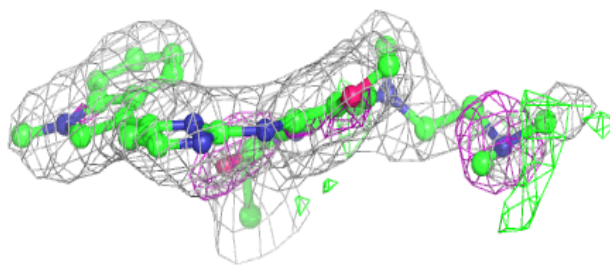
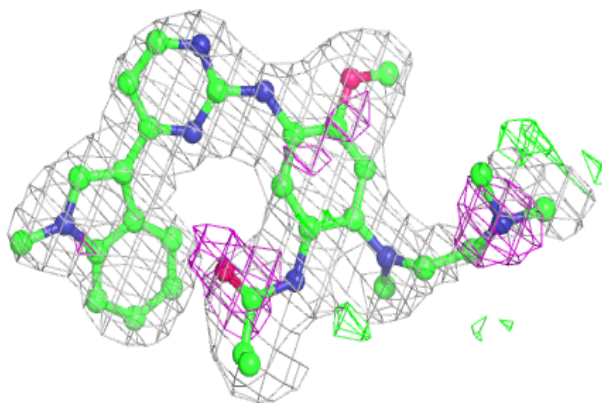
Electron density around YY3 F 1302:

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



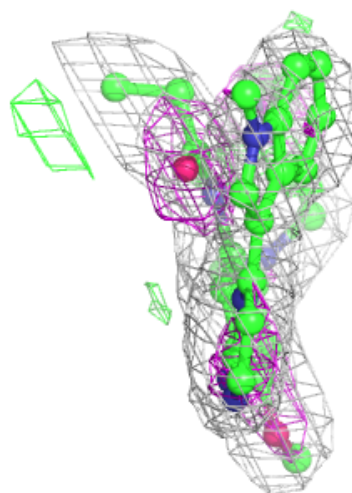
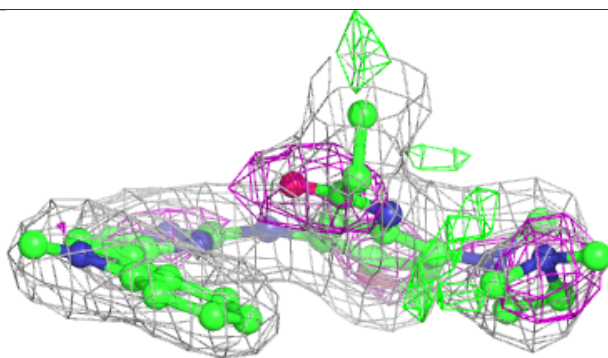
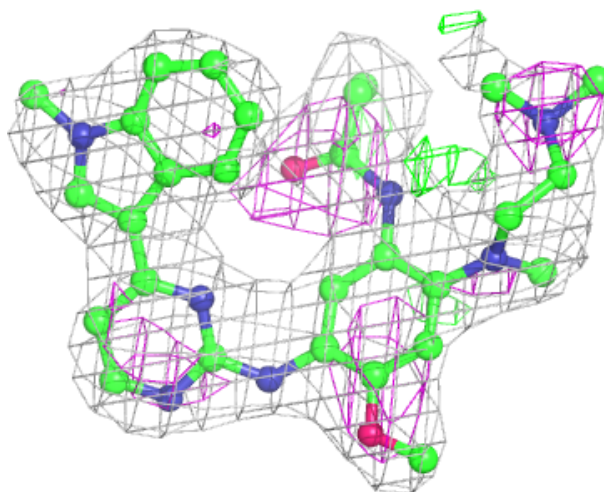
Electron density around YY3 D 1302:

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



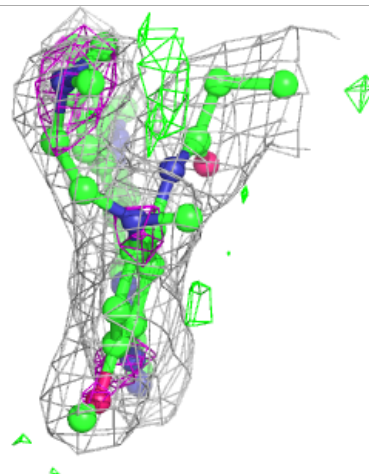
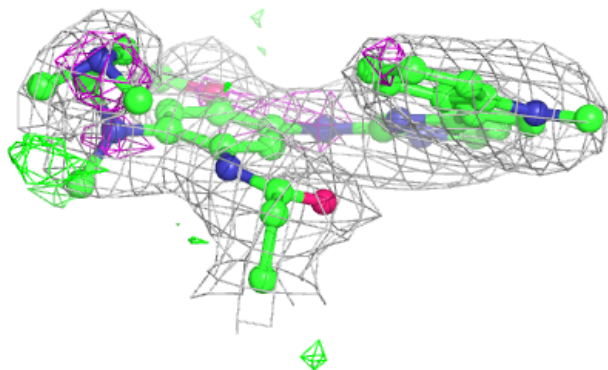
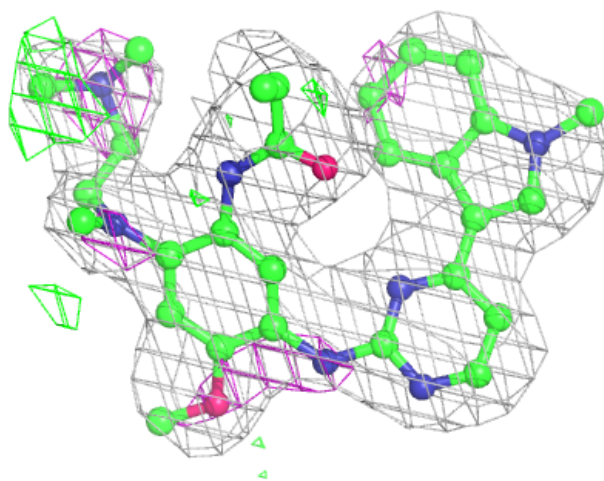
Electron density around YY3 C 1302:

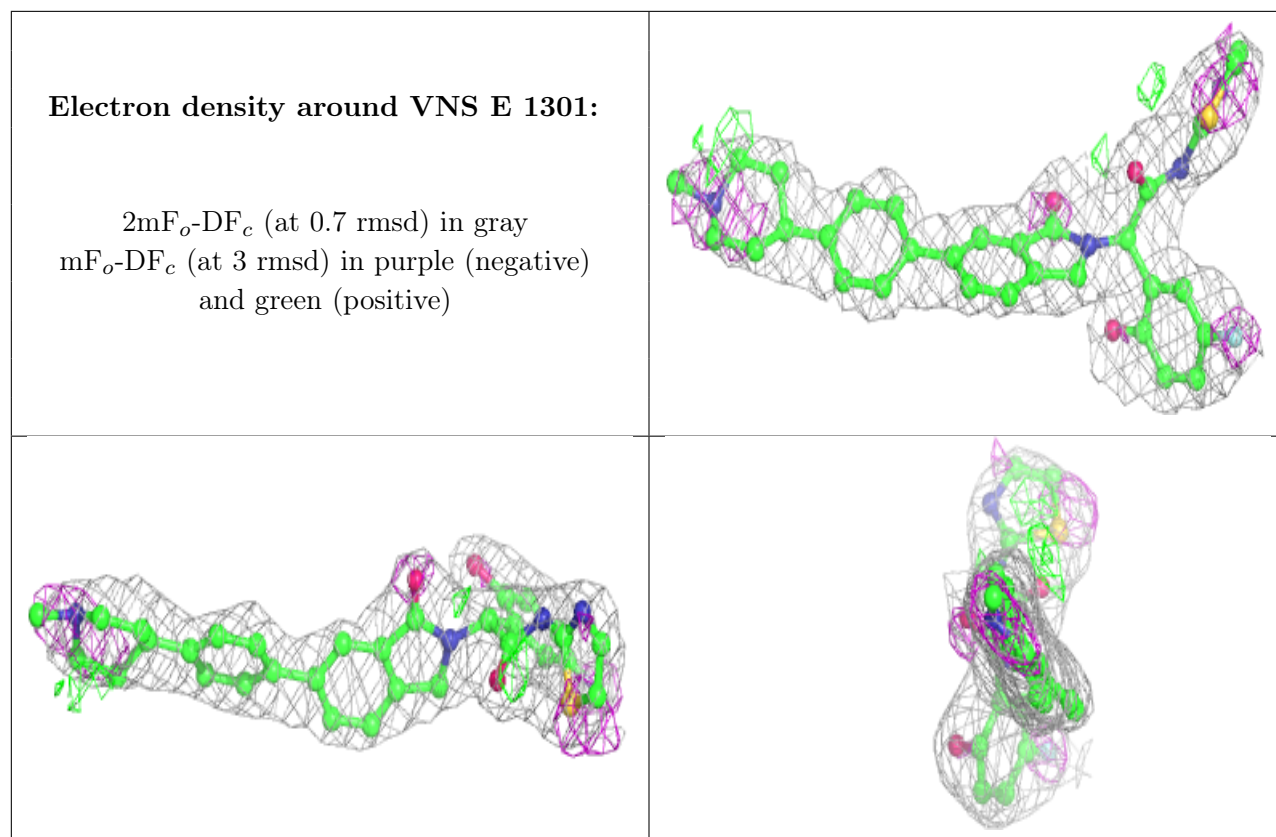
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around YY3 E 1302:

$2mF_o-DF_c$ (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.