



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 10, 2026 – 12:54 PM UTC

PDB ID : 8QCH / pdb_00008qch
Title : Human Adenosine deaminase-like protein in complex with compound AT8001
Authors : Zimmerger, C.; canard, B.; Ferron, F.
Deposited on : 2023-08-26
Resolution : 2.44 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

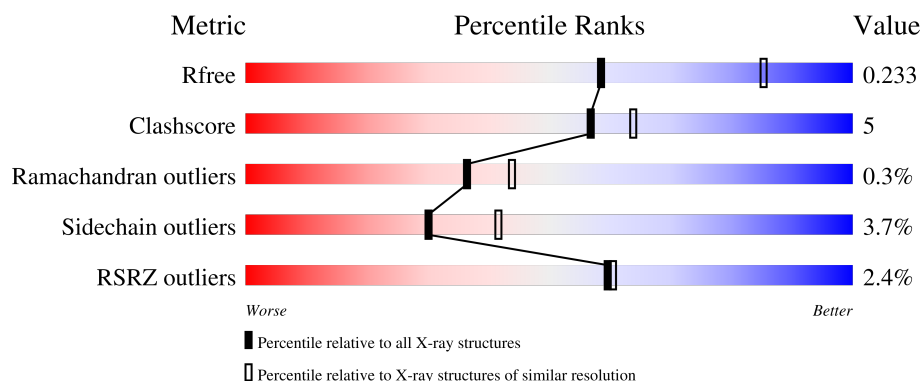
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.44 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	2340 (2.46-2.42)
Clashscore	190562	2400 (2.46-2.42)
Ramachandran outliers	187476	2379 (2.46-2.42)
Sidechain outliers	187428	2379 (2.46-2.42)
RSRZ outliers	180081	2340 (2.46-2.42)

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	355	0% 86% 9% ..
1	B	355	3% 85% 11% ..
1	C	355	0% 84% 11% ..
1	D	355	2% 86% 10% ..
1	E	355	3% 86% 9% ..

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	355	 2% 84% 12% . .
1	G	355	 4% 86% 10% . .
1	H	355	 3% 85% 13% ..

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	SO4	B	1004	-	-	X	-

2 Entry composition

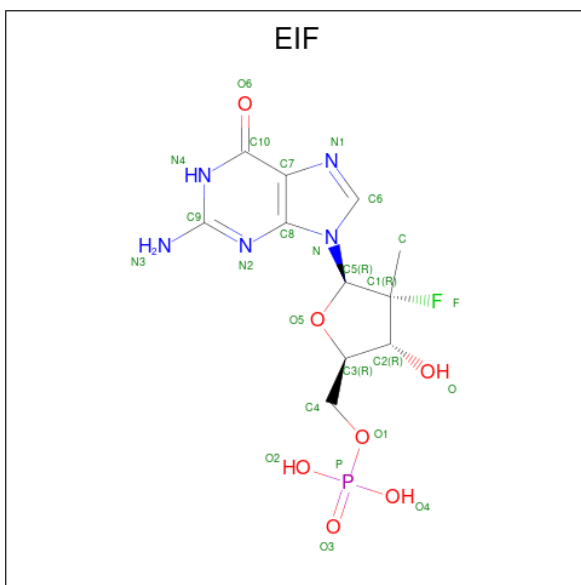
There are 7 unique types of molecules in this entry. The entry contains 23207 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Adenosine deaminase-like protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	344	Total	C	N	O	S	0	0	0
			2746	1745	468	525	8			
1	B	344	Total	C	N	O	S	0	0	0
			2742	1742	467	525	8			
1	C	344	Total	C	N	O	S	0	0	0
			2746	1745	468	525	8			
1	D	346	Total	C	N	O	S	0	0	0
			2761	1754	471	527	9			
1	E	344	Total	C	N	O	S	0	0	0
			2746	1745	468	525	8			
1	F	344	Total	C	N	O	S	0	0	0
			2746	1745	468	525	8			
1	G	349	Total	C	N	O	S	0	0	0
			2786	1769	476	532	9			
1	H	350	Total	C	N	O	S	0	0	0
			2795	1774	477	535	9			

- Molecule 2 is [(2 {R},3 {R},4 {R},5 {R})-5-(2-azanyl-6-oxidanylidene-1 {H}-purin-9-yl)-4-fluoranyl-4-methyl-3-oxidanyl-oxolan-2-yl]methyl dihydrogen phosphate (CCD ID: EIF) (formula: C₁₁H₁₅FN₅O₇P) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	B	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	C	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	D	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	E	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	F	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	G	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0
2	H	1	Total 25	C 11	F 1	N 5	O 7	P 1	0	0

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

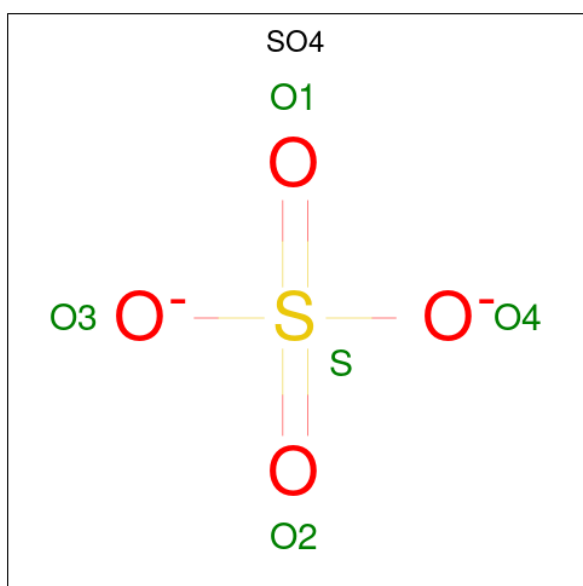
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Zn	0	0
			1	1		
3	B	1	Total	Zn	0	0
			1	1		
3	C	1	Total	Zn	0	0
			1	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	D	1	Total	Zn	0	0
			1	1		
3	E	1	Total	Zn	0	0
			1	1		
3	F	1	Total	Zn	0	0
			1	1		
3	G	1	Total	Zn	0	0
			1	1		
3	H	1	Total	Zn	0	0
			1	1		

- Molecule 4 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



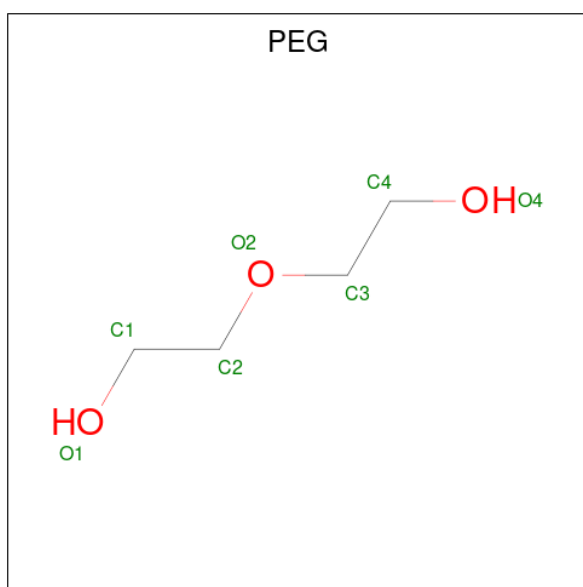
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	O	S	0	0
			5	4	1		
4	A	1	Total	O	S	0	0
			5	4	1		
4	A	1	Total	O	S	0	0
			5	4	1		
4	B	1	Total	O	S	0	0
			5	4	1		
4	B	1	Total	O	S	0	0
			5	4	1		
4	C	1	Total	O	S	0	0
			5	4	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	O	S	0	0
			5	4	1		
4	D	1	Total	O	S	0	0
			5	4	1		
4	D	1	Total	O	S	0	0
			5	4	1		
4	E	1	Total	O	S	0	0
			5	4	1		
4	E	1	Total	O	S	0	0
			5	4	1		
4	F	1	Total	O	S	0	0
			5	4	1		
4	F	1	Total	O	S	0	0
			5	4	1		
4	F	1	Total	O	S	0	0
			5	4	1		
4	F	1	Total	O	S	0	0
			5	4	1		
4	G	1	Total	O	S	0	0
			5	4	1		
4	H	1	Total	O	S	0	0
			5	4	1		

- Molecule 5 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	D	1	Total C O 7 4 3	0	0
5	D	1	Total C O 7 4 3	0	0
5	E	1	Total C O 7 4 3	0	0
5	G	1	Total C O 7 4 3	0	0

- Molecule 6 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	H	1	Total Na 1 1	0	0

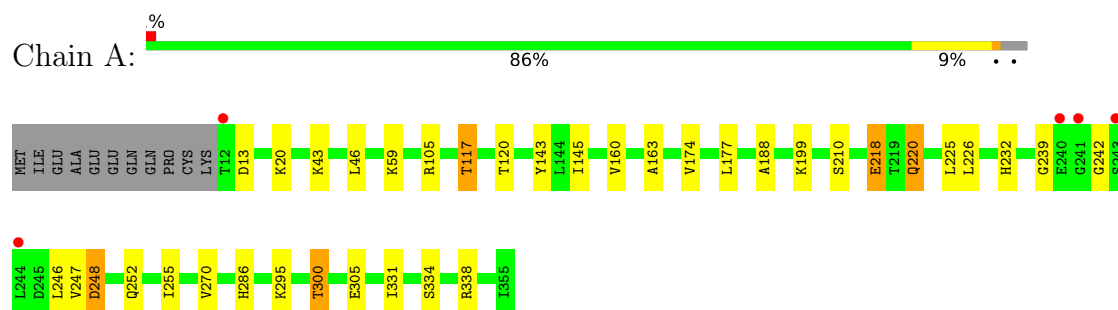
- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	124	Total O 124 124	0	0
7	B	106	Total O 106 106	0	0
7	C	107	Total O 107 107	0	0
7	D	56	Total O 56 56	0	0
7	E	114	Total O 114 114	0	0
7	F	104	Total O 104 104	0	0
7	G	99	Total O 99 99	0	0
7	H	107	Total O 107 107	0	0

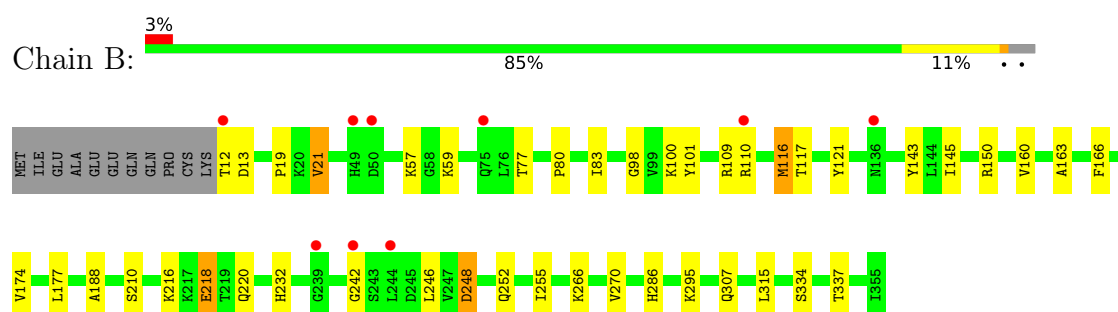
3 Residue-property plots [i](#)

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.

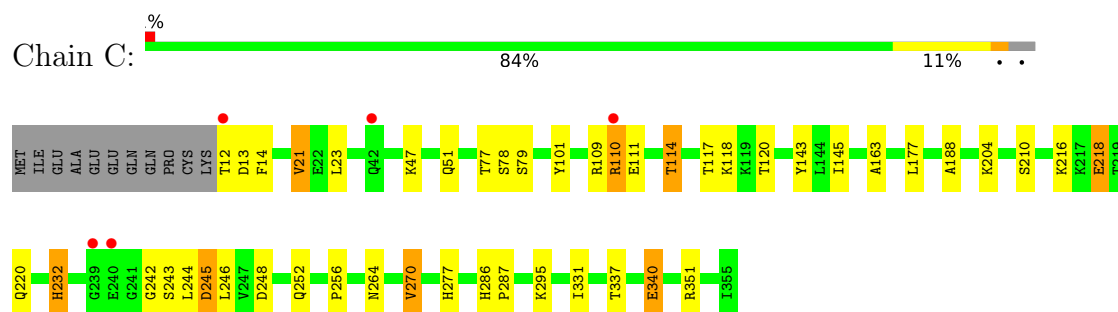
- Molecule 1: Adenosine deaminase-like protein



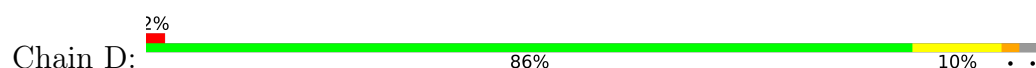
- Molecule 1: Adenosine deaminase-like protein

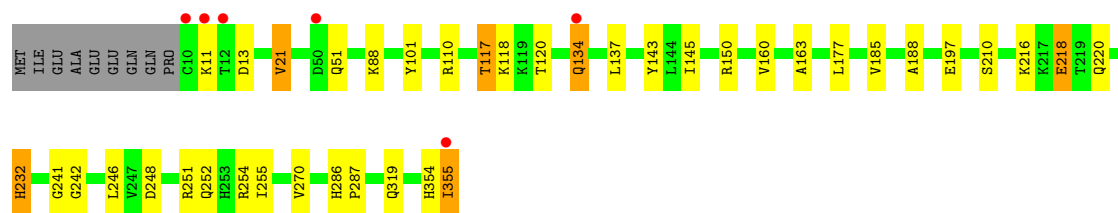


- Molecule 1: Adenosine deaminase-like protein

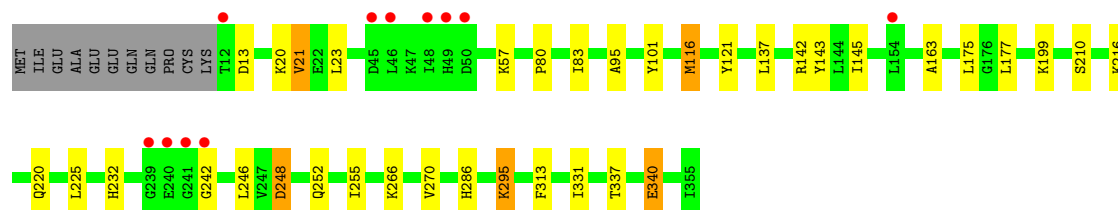
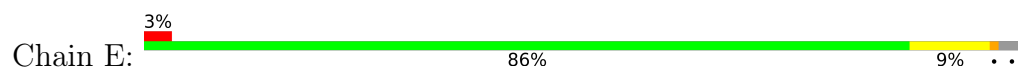


- Molecule 1: Adenosine deaminase-like protein

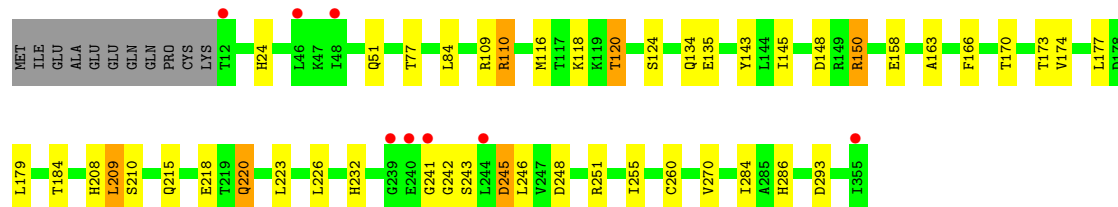
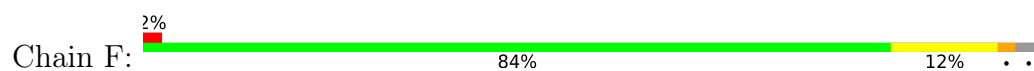




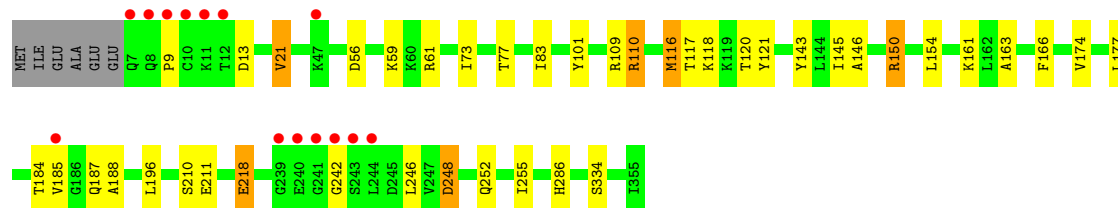
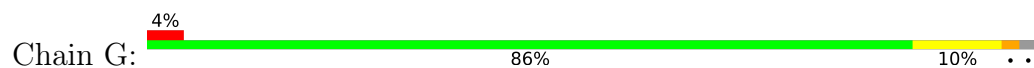
- Molecule 1: Adenosine deaminase-like protein



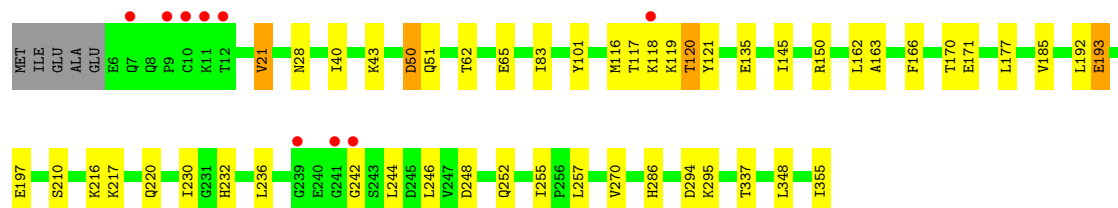
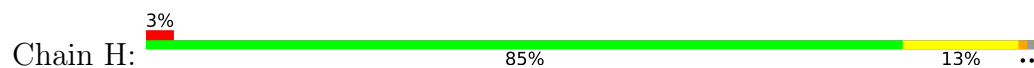
- Molecule 1: Adenosine deaminase-like protein



- Molecule 1: Adenosine deaminase-like protein



- Molecule 1: Adenosine deaminase-like protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	142.76Å 142.98Å 156.40Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	105.53 – 2.44 105.53 – 2.44	Depositor EDS
% Data completeness (in resolution range)	99.7 (105.53-2.44) 99.7 (105.53-2.44)	Depositor EDS
R_{merge}	0.36	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.67 (at 2.45Å)	Xtriage
Refinement program	BUSTER 2.10.4	Depositor
R, R_{free}	0.214 , 0.243 0.202 , 0.233	Depositor DCC
R_{free} test set	5715 reflections (4.81%)	wwPDB-VP
Wilson B-factor (Å ²)	40.6	Xtriage
Anisotropy	0.427	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 47.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.000 for k,h,-l	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	23207	wwPDB-VP
Average B, all atoms (Å ²)	50.0	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 22.84 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.2556e-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: EIF, ZN, NA, SO4, PEG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	A	0.65	0/2801	1.05	1/3786 (0.0%)
1	B	0.65	1/2797 (0.0%)	1.03	1/3782 (0.0%)
1	C	0.67	0/2801	1.05	2/3786 (0.1%)
1	D	0.65	0/2816	1.04	0/3805
1	E	0.65	1/2801 (0.0%)	1.02	1/3786 (0.0%)
1	F	0.65	0/2801	1.06	2/3786 (0.1%)
1	G	0.65	1/2842 (0.0%)	1.05	0/3841
1	H	0.68	1/2851 (0.0%)	1.07	6/3853 (0.2%)
All	All	0.66	4/22510 (0.0%)	1.05	13/30425 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	116	MET	SD-CE	-6.64	1.62	1.79
1	G	116	MET	SD-CE	-6.39	1.63	1.79
1	H	40	ILE	CG1-CD1	-5.96	1.28	1.51
1	B	116	MET	SD-CE	-5.26	1.66	1.79

The worst 5 of 13 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	50	ASP	CA-CB-CG	6.65	119.25	112.60
1	F	245	ASP	CA-CB-CG	6.64	119.24	112.60
1	B	13	ASP	N-CA-C	6.36	118.21	111.28
1	C	245	ASP	CA-CB-CG	6.35	118.95	112.60
1	A	220	GLN	CB-CG-CD	5.98	122.77	112.60

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2746	0	2758	20	0
1	B	2742	0	2747	28	0
1	C	2746	0	2758	37	0
1	D	2761	0	2776	27	0
1	E	2746	0	2758	27	0
1	F	2746	0	2758	26	0
1	G	2786	0	2799	22	0
1	H	2795	0	2805	23	0
2	A	25	0	0	0	0
2	B	25	0	0	0	0
2	C	25	0	0	0	0
2	D	25	0	0	0	0
2	E	25	0	0	0	0
2	F	25	0	0	0	0
2	G	25	0	0	1	0
2	H	25	0	0	1	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	F	1	0	0	0	0
3	G	1	0	0	0	0
3	H	1	0	0	0	0
4	A	15	0	0	1	0
4	B	10	0	0	2	0
4	C	10	0	0	1	0
4	D	10	0	0	0	0
4	E	10	0	0	1	0
4	F	20	0	0	0	0
4	G	5	0	0	1	0
4	H	5	0	0	1	0
5	D	14	0	20	3	0
5	E	7	0	10	1	0
5	G	7	0	10	0	0
6	H	1	0	0	0	0
7	A	124	0	0	6	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	B	106	0	0	5	0
7	C	107	0	0	8	0
7	D	56	0	0	4	0
7	E	114	0	0	7	0
7	F	104	0	0	3	0
7	G	99	0	0	2	0
7	H	107	0	0	1	0
All	All	23207	0	22199	203	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.

The worst 5 of 203 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:100:LYS:HG2	7:B:1101:HOH:O	1.17	1.27
1:G:56:ASP:HB2	1:G:59:LYS:HD3	1.44	0.98
1:C:351:ARG:HH12	1:D:134:GLN:NE2	1.65	0.91
1:F:170:THR:HG21	1:F:174:VAL:H	1.38	0.88
1:B:174:VAL:HG13	7:B:1115:HOH:O	1.78	0.83

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	342/355 (96%)	334 (98%)	7 (2%)	1 (0%)	36	44
1	B	342/355 (96%)	336 (98%)	5 (2%)	1 (0%)	36	44
1	C	342/355 (96%)	333 (97%)	8 (2%)	1 (0%)	36	44
1	D	344/355 (97%)	337 (98%)	6 (2%)	1 (0%)	36	44

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	342/355 (96%)	337 (98%)	4 (1%)	1 (0%)	36	44
1	F	342/355 (96%)	337 (98%)	4 (1%)	1 (0%)	36	44
1	G	347/355 (98%)	339 (98%)	7 (2%)	1 (0%)	36	44
1	H	348/355 (98%)	338 (97%)	8 (2%)	2 (1%)	21	25
All	All	2749/2840 (97%)	2691 (98%)	49 (2%)	9 (0%)	36	44

5 of 9 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	171	GLU
1	A	232	HIS
1	B	232	HIS
1	C	232	HIS
1	E	232	HIS

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	309/319 (97%)	299 (97%)	10 (3%)	34	46
1	B	308/319 (97%)	301 (98%)	7 (2%)	44	57
1	C	309/319 (97%)	296 (96%)	13 (4%)	26	37
1	D	311/319 (98%)	299 (96%)	12 (4%)	28	40
1	E	309/319 (97%)	301 (97%)	8 (3%)	40	53
1	F	309/319 (97%)	296 (96%)	13 (4%)	26	37
1	G	314/319 (98%)	300 (96%)	14 (4%)	24	34
1	H	315/319 (99%)	300 (95%)	15 (5%)	23	32
All	All	2484/2552 (97%)	2392 (96%)	92 (4%)	30	41

5 of 92 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	179	LEU
1	G	184	THR
1	F	210	SER
1	G	61	ARG
1	G	218	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 65 such sidechains are listed below:

Mol	Chain	Res	Type
1	H	71	GLN
1	H	220	GLN
1	D	28	ASN
1	C	347	HIS
1	H	237	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 38 ligands modelled in this entry, 9 are monoatomic - leaving 29 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	EIF	A	401	-	23,27,27	0.34	0	32,43,43	0.39	0
4	SO4	F	404	-	4,4,4	0.29	0	6,6,6	0.26	0
4	SO4	B	1004	-	4,4,4	0.31	0	6,6,6	0.24	0
4	SO4	F	405	-	4,4,4	0.30	0	6,6,6	0.18	0
5	PEG	D	401	-	6,6,6	0.16	0	5,5,5	0.21	0
2	EIF	E	402	-	23,27,27	0.23	0	32,43,43	0.45	0
4	SO4	B	1003	-	4,4,4	0.35	0	6,6,6	0.31	0
2	EIF	B	1001	-	23,27,27	0.43	0	32,43,43	0.32	0
4	SO4	E	405	-	4,4,4	0.31	0	6,6,6	0.47	0
4	SO4	C	403	-	4,4,4	0.29	0	6,6,6	0.40	0
5	PEG	D	402	-	6,6,6	0.16	0	5,5,5	0.11	0
4	SO4	G	404	-	4,4,4	0.28	0	6,6,6	0.80	0
4	SO4	C	404	-	4,4,4	0.25	0	6,6,6	0.82	0
2	EIF	H	401	-	23,27,27	0.34	0	32,43,43	0.39	0
4	SO4	D	406	-	4,4,4	0.34	0	6,6,6	0.39	0
2	EIF	D	403	-	23,27,27	0.42	0	32,43,43	0.48	0
5	PEG	E	401	-	6,6,6	0.20	0	5,5,5	0.08	0
2	EIF	F	401	-	23,27,27	0.37	0	32,43,43	0.39	0
4	SO4	F	406	-	4,4,4	0.32	0	6,6,6	0.36	0
4	SO4	E	404	-	4,4,4	0.31	0	6,6,6	0.25	0
2	EIF	G	402	-	23,27,27	0.28	0	32,43,43	0.40	0
4	SO4	A	405	-	4,4,4	0.32	0	6,6,6	0.15	0
4	SO4	F	403	-	4,4,4	0.27	0	6,6,6	0.73	0
4	SO4	H	403	-	4,4,4	0.26	0	6,6,6	0.27	0
2	EIF	C	401	-	23,27,27	0.25	0	32,43,43	0.39	0
4	SO4	D	405	-	4,4,4	0.31	0	6,6,6	0.70	0
4	SO4	A	404	-	4,4,4	0.35	0	6,6,6	0.24	0
4	SO4	A	403	-	4,4,4	0.30	0	6,6,6	0.24	0
5	PEG	G	401	-	6,6,6	0.15	0	5,5,5	0.16	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	EIF	A	401	-	-	3/9/30/30	0/3/3/3
2	EIF	D	403	-	-	4/9/30/30	0/3/3/3
5	PEG	E	401	-	-	3/4/4/4	-
2	EIF	F	401	-	-	5/9/30/30	0/3/3/3
2	EIF	E	402	-	-	3/9/30/30	0/3/3/3

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	EIF	C	401	-	-	4/9/30/30	0/3/3/3
5	PEG	D	401	-	-	2/4/4/4	-
2	EIF	B	1001	-	-	3/9/30/30	0/3/3/3
5	PEG	D	402	-	-	2/4/4/4	-
2	EIF	G	402	-	-	4/9/30/30	0/3/3/3
5	PEG	G	401	-	-	3/4/4/4	-
2	EIF	H	401	-	-	5/9/30/30	0/3/3/3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 41 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	EIF	C4-O1-P-O3
2	A	401	EIF	C4-O1-P-O2
2	B	1001	EIF	C4-O1-P-O4
2	B	1001	EIF	C4-O1-P-O2
2	C	401	EIF	C3-C4-O1-P

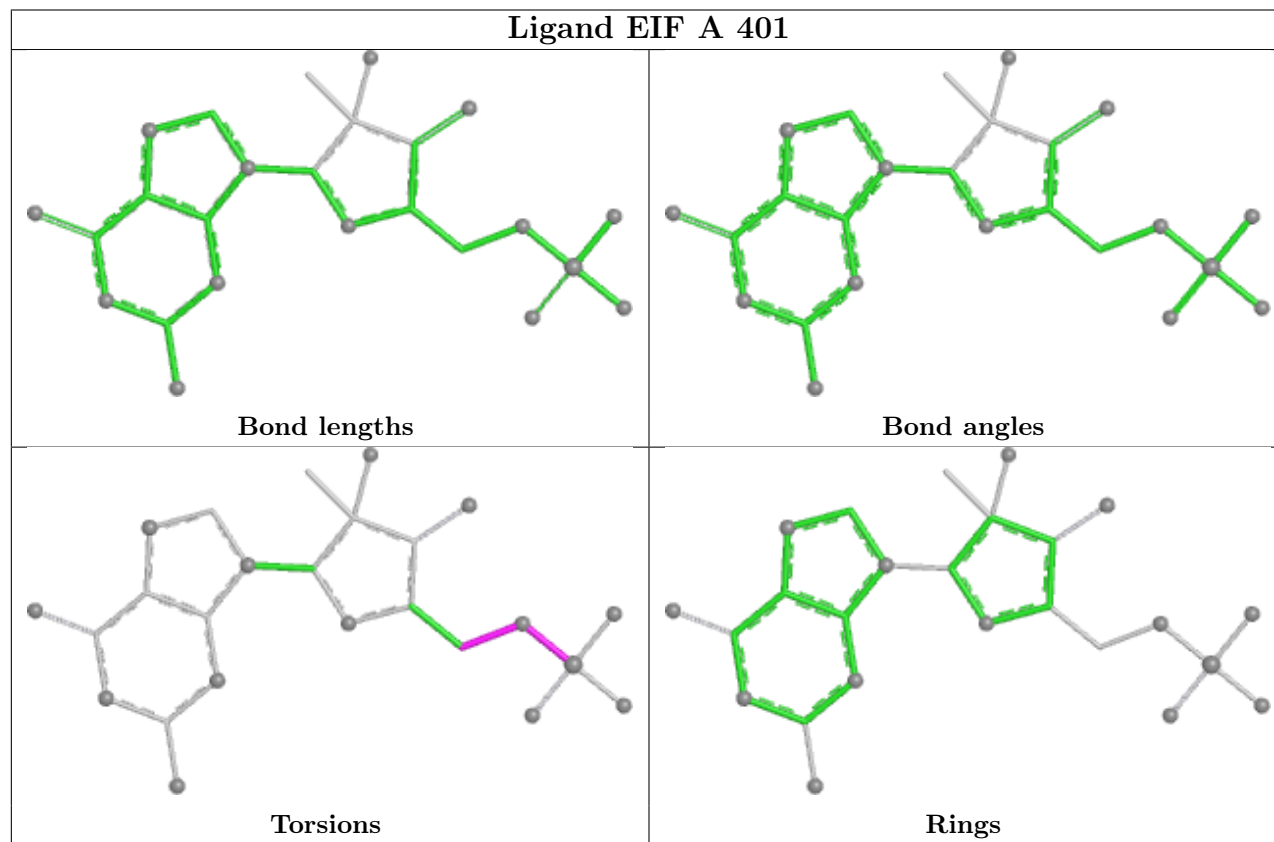
There are no ring outliers.

10 monomers are involved in 13 short contacts:

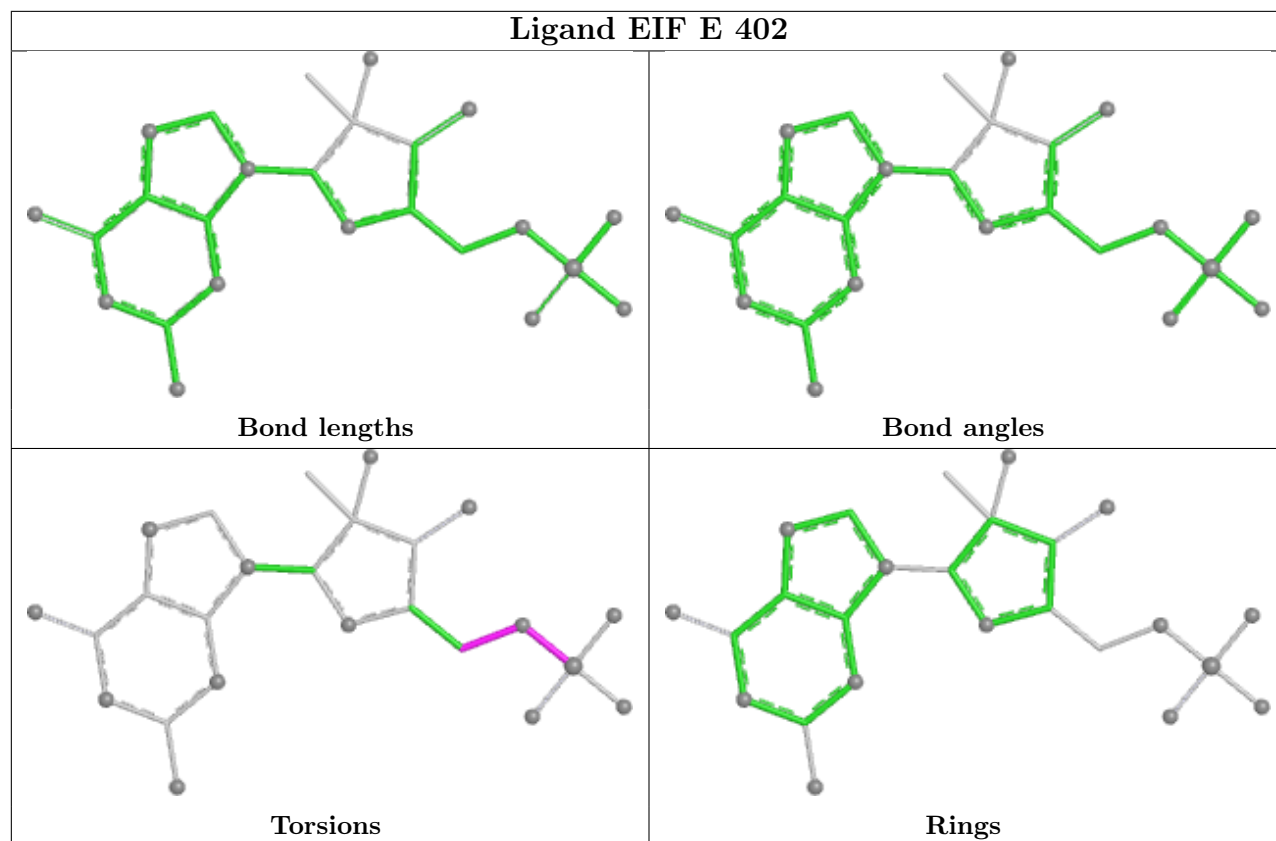
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1004	SO4	2	0
5	D	401	PEG	3	0
4	E	405	SO4	1	0
4	G	404	SO4	1	0
4	C	404	SO4	1	0
2	H	401	EIF	1	0
5	E	401	PEG	1	0
2	G	402	EIF	1	0
4	A	405	SO4	1	0
4	H	403	SO4	1	0

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

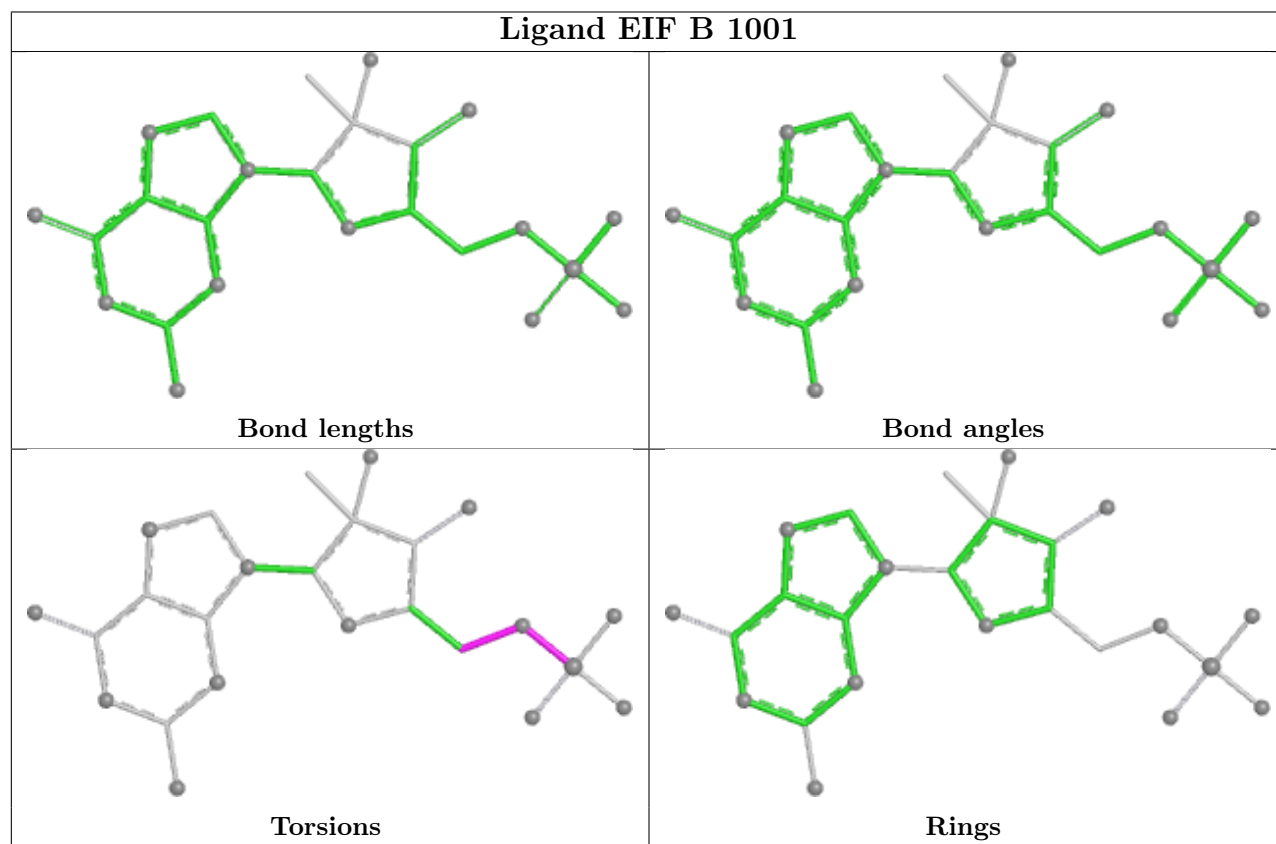
within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question 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.



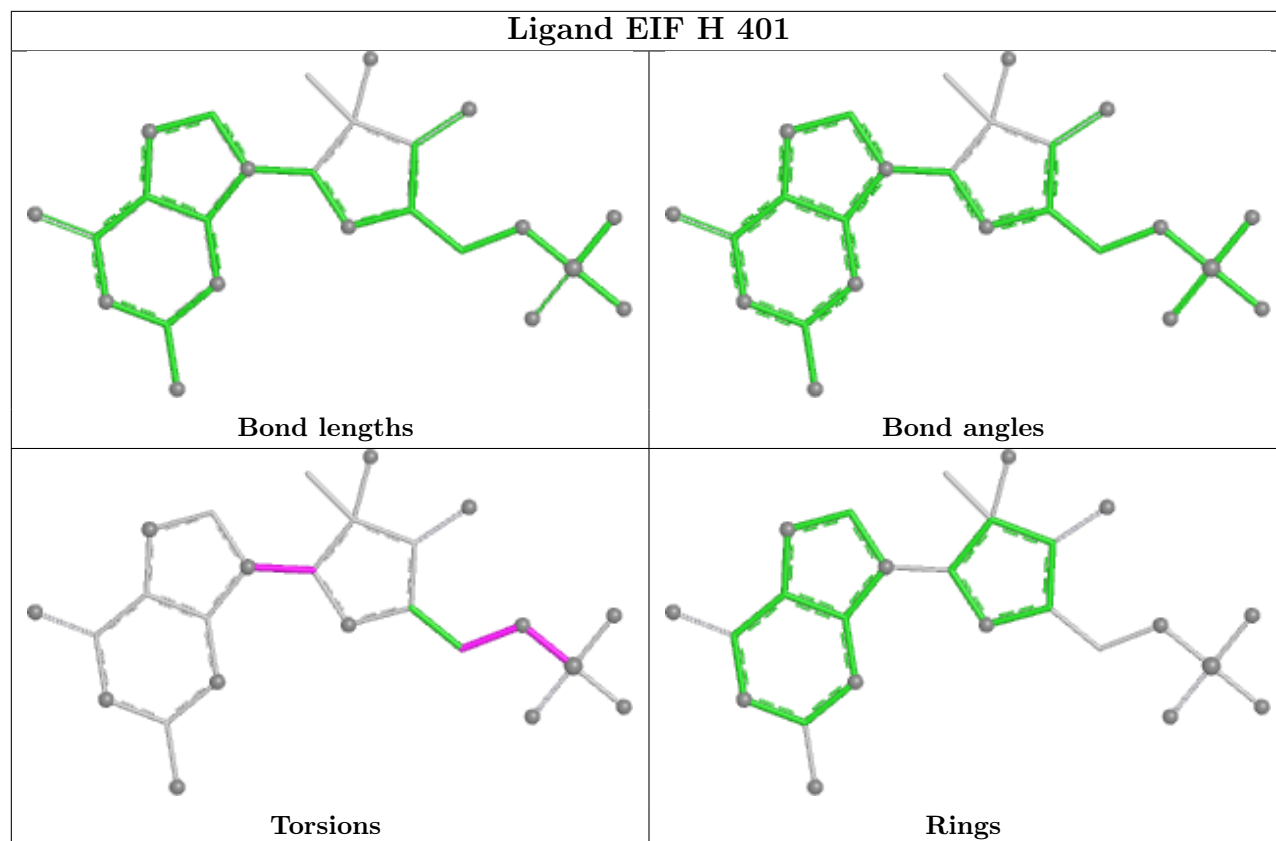
Ligand EIF E 402



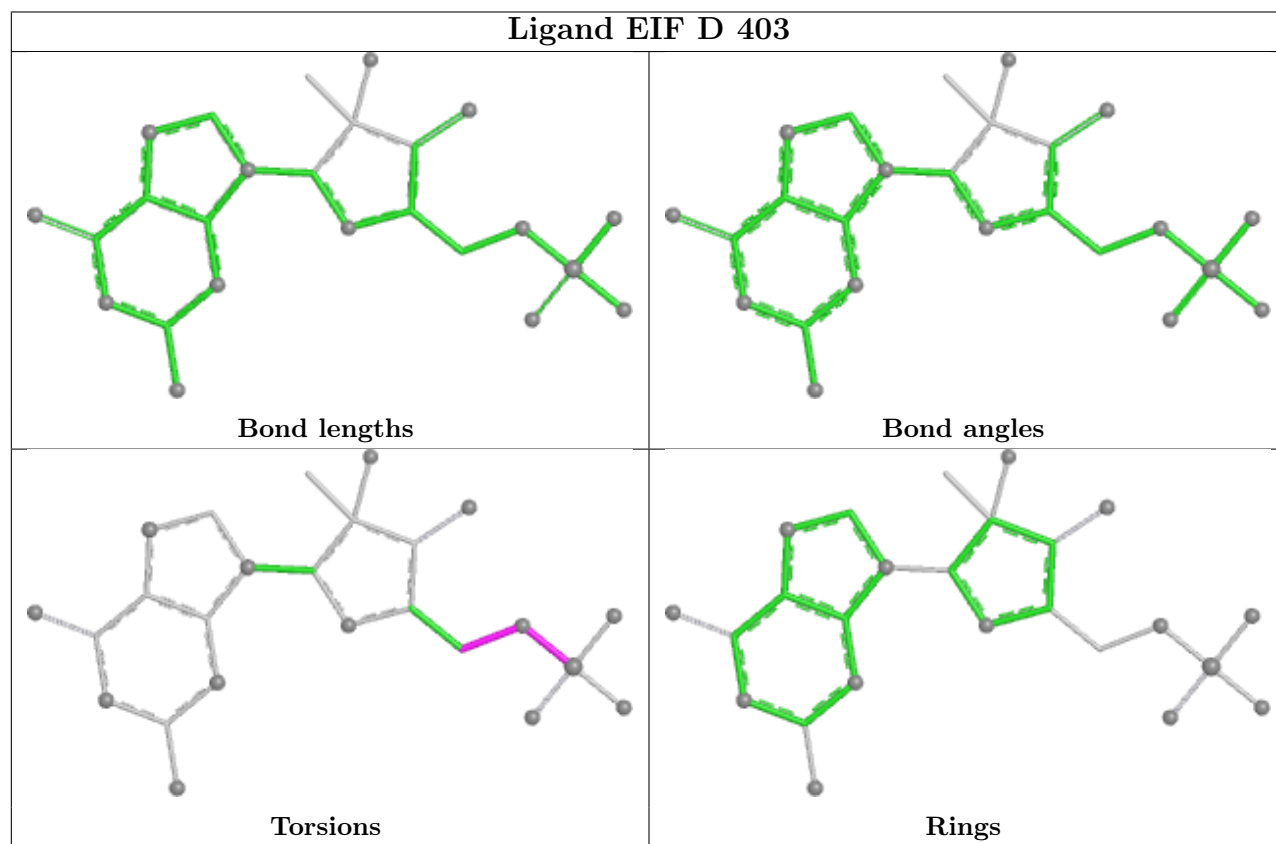
Ligand EIF B 1001



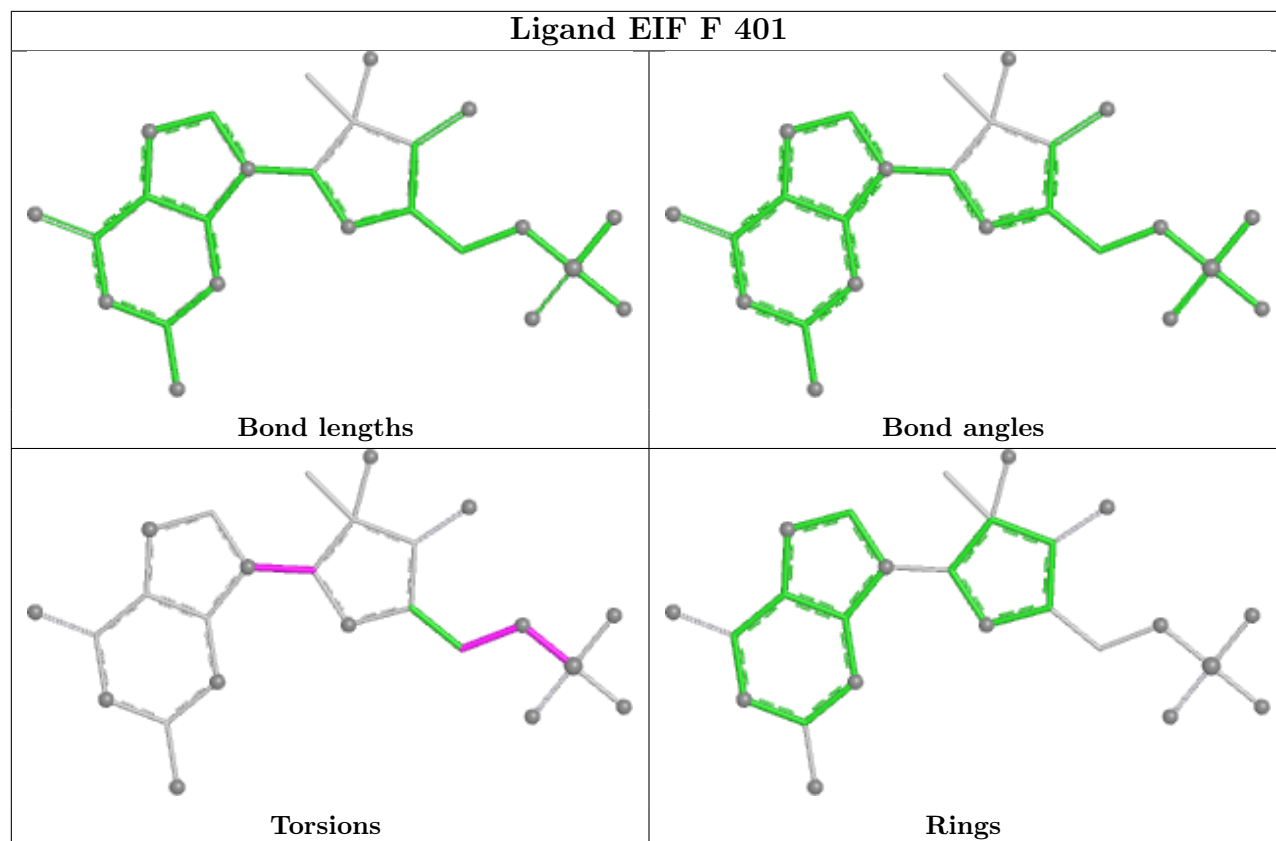
Ligand EIF H 401



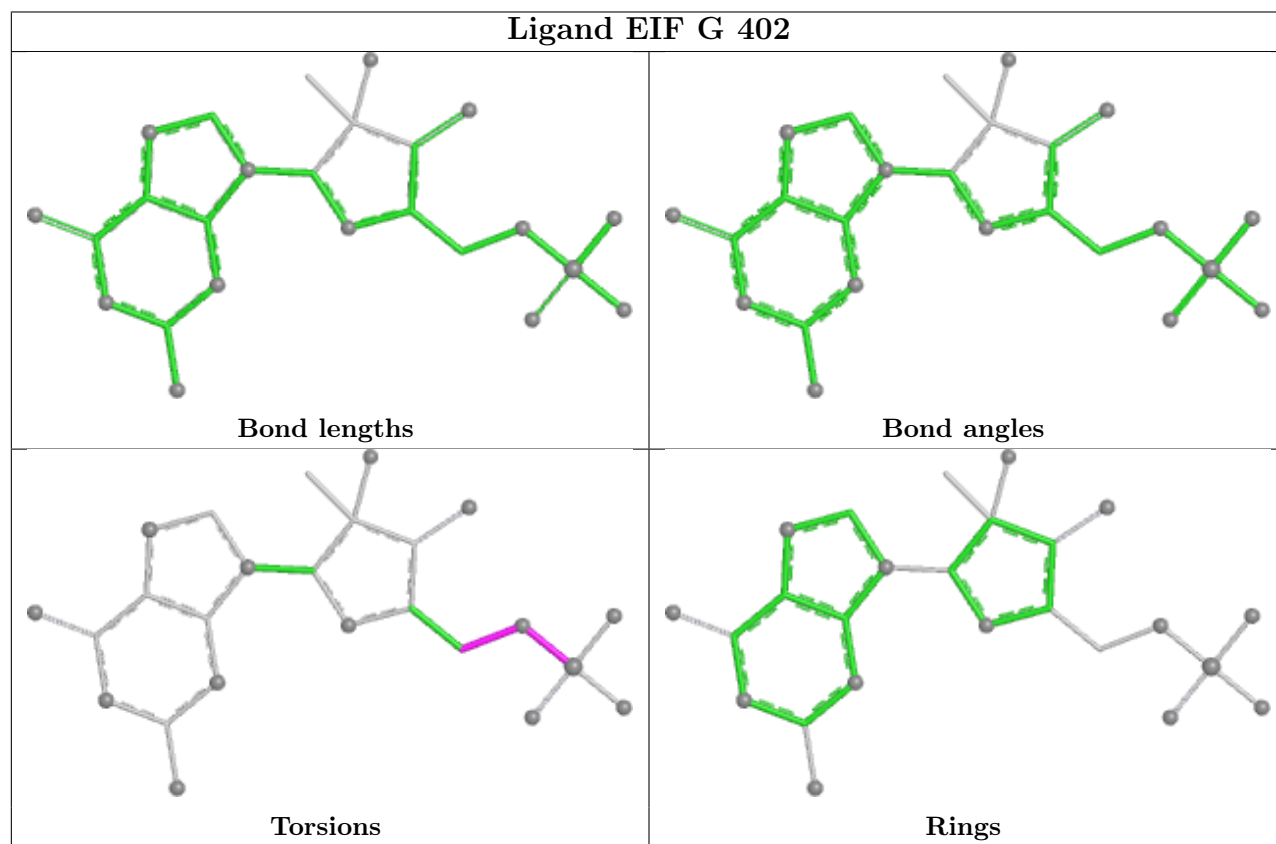
Ligand EIF D 403

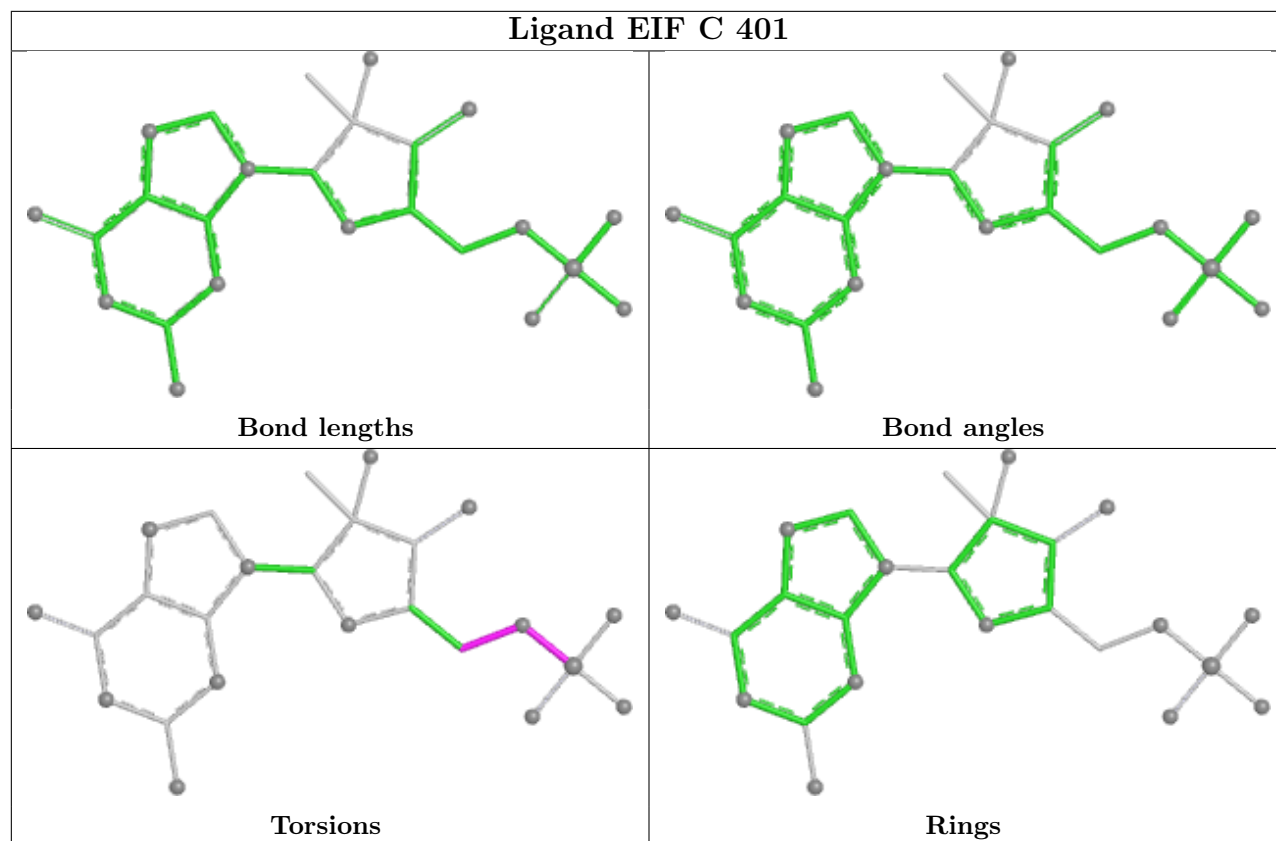


Ligand EIF F 401



Ligand EIF G 402





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

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

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	344/355 (96%)	0.03	5 (1%) 72 73	32, 45, 68, 87	0
1	B	344/355 (96%)	0.12	9 (2%) 57 57	32, 49, 73, 87	0
1	C	344/355 (96%)	0.06	5 (1%) 72 73	26, 47, 66, 88	0
1	D	346/355 (97%)	0.10	6 (1%) 69 70	29, 47, 69, 88	0
1	E	344/355 (96%)	0.07	11 (3%) 50 49	30, 45, 67, 100	0
1	F	344/355 (96%)	0.09	8 (2%) 61 62	29, 47, 69, 96	0
1	G	349/355 (98%)	0.20	14 (4%) 42 39	30, 51, 74, 107	0
1	H	350/355 (98%)	0.29	9 (2%) 57 57	32, 54, 77, 111	0
All	All	2765/2840 (97%)	0.12	67 (2%) 59 60	26, 48, 73, 111	0

The worst 5 of 67 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	241	GLY	4.4
1	E	46	LEU	4.1
1	H	12	THR	4.0
1	E	48	ILE	3.9
1	H	9	PRO	3.7

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

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
4	SO4	D	406	5/5	0.86	0.16	92,92,92,92	0
5	PEG	D	401	7/7	0.86	0.18	50,52,55,55	0
4	SO4	F	403	5/5	0.88	0.15	73,74,74,74	0
4	SO4	F	405	5/5	0.88	0.17	123,123,123,123	0
4	SO4	A	403	5/5	0.88	0.14	109,109,109,109	0
4	SO4	E	404	5/5	0.89	0.13	80,80,80,80	0
4	SO4	D	405	5/5	0.89	0.14	69,69,69,70	0
4	SO4	A	404	5/5	0.90	0.20	76,76,76,76	0
4	SO4	C	403	5/5	0.90	0.14	94,94,94,94	0
5	PEG	E	401	7/7	0.90	0.13	46,46,48,48	0
4	SO4	B	1003	5/5	0.91	0.15	78,78,78,78	0
4	SO4	F	406	5/5	0.91	0.15	73,73,73,73	0
4	SO4	H	403	5/5	0.92	0.12	77,78,78,78	0
2	EIF	C	401	25/25	0.92	0.10	44,51,52,53	0
4	SO4	G	404	5/5	0.92	0.11	69,70,70,70	0
5	PEG	D	402	7/7	0.93	0.10	45,45,46,46	0
4	SO4	B	1004	5/5	0.93	0.12	69,69,69,69	0
5	PEG	G	401	7/7	0.93	0.10	44,44,45,45	0
2	EIF	F	401	25/25	0.94	0.09	45,48,51,51	0
4	SO4	A	405	5/5	0.94	0.11	63,63,64,64	0
4	SO4	E	405	5/5	0.94	0.09	72,72,72,72	0
2	EIF	B	1001	25/25	0.94	0.09	54,55,57,58	0
6	NA	H	404	1/1	0.94	0.29	54,54,54,54	0
4	SO4	F	404	5/5	0.95	0.12	72,72,72,72	0
2	EIF	A	401	25/25	0.95	0.09	48,54,55,55	0
2	EIF	H	401	25/25	0.95	0.08	53,57,58,59	0
4	SO4	C	404	5/5	0.95	0.09	68,68,68,68	0
2	EIF	E	402	25/25	0.95	0.08	42,45,47,48	0
2	EIF	G	402	25/25	0.96	0.07	48,52,53,54	0
2	EIF	D	403	25/25	0.96	0.07	44,47,48,50	0
3	ZN	H	402	1/1	0.98	0.04	59,59,59,59	0
3	ZN	D	404	1/1	0.99	0.03	50,50,50,50	0
3	ZN	F	402	1/1	0.99	0.05	53,53,53,53	0
3	ZN	A	402	1/1	0.99	0.03	51,51,51,51	0
3	ZN	B	1002	1/1	0.99	0.04	56,56,56,56	0
3	ZN	C	402	1/1	0.99	0.04	53,53,53,53	0
3	ZN	G	403	1/1	1.00	0.03	53,53,53,53	0

Continued on next page...

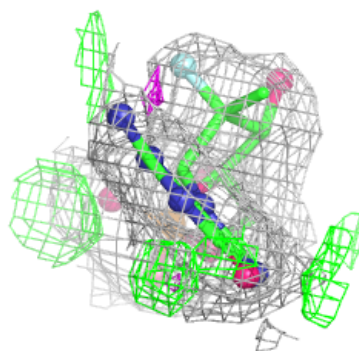
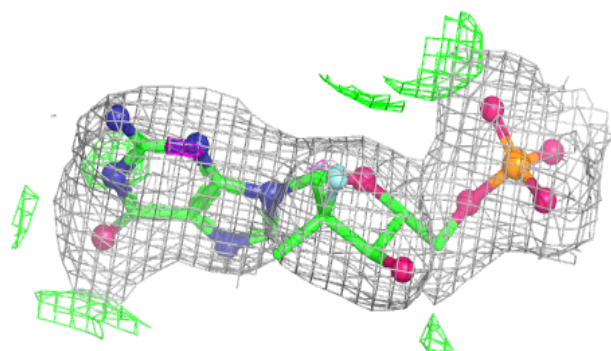
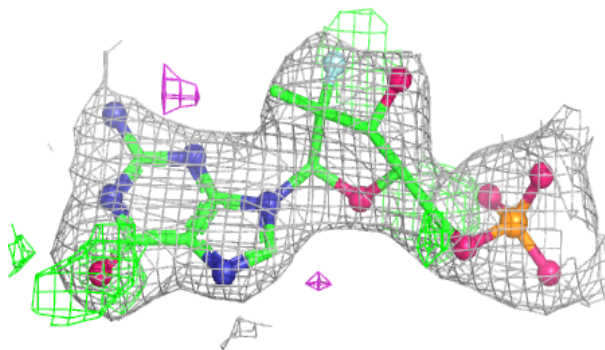
Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	ZN	E	403	1/1	1.00	0.02	50,50,50,50	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.

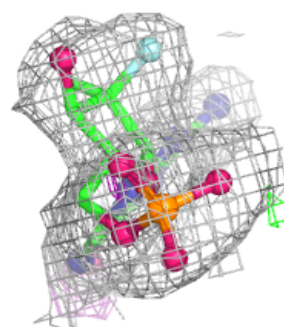
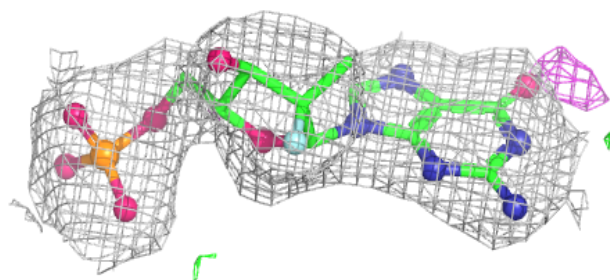
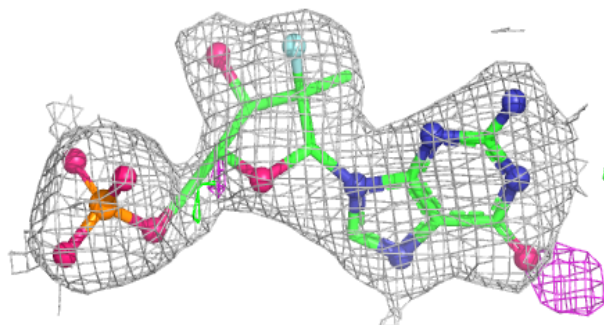
Electron density around EIF C 401:

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

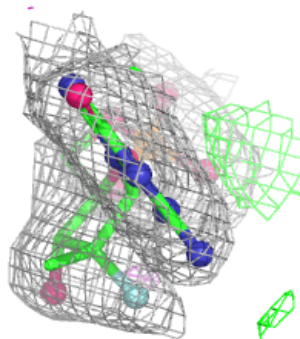
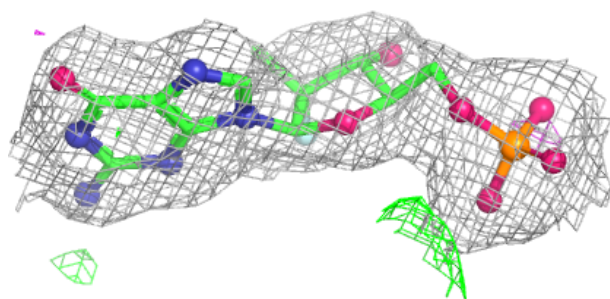
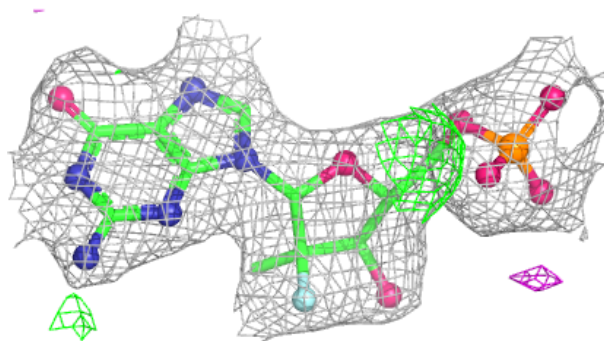


Electron density around EIF F 401:

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

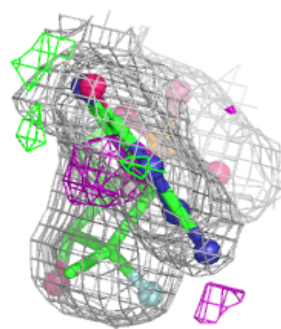
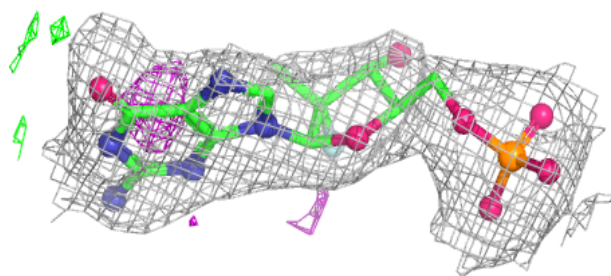
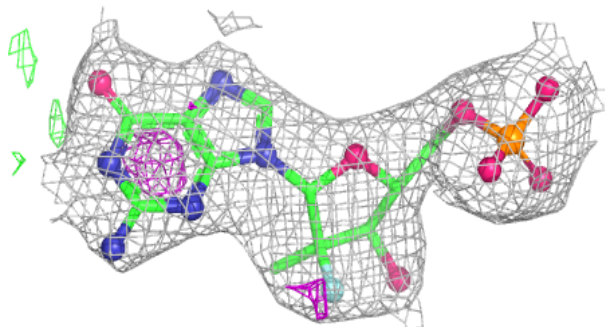
**Electron density around EIF B 1001:**

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

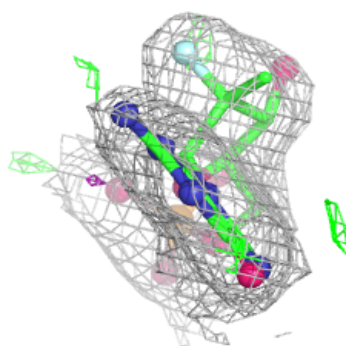
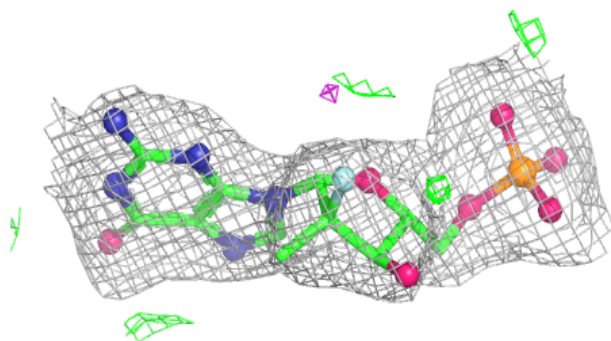
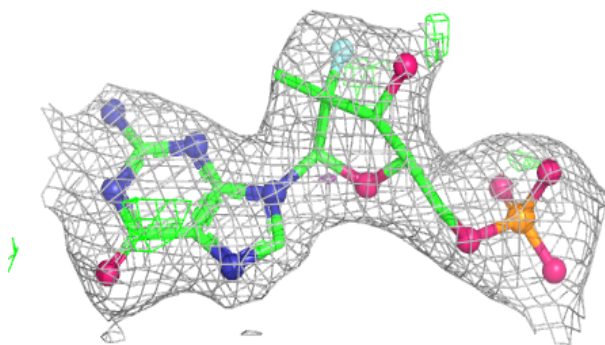


Electron density around EIF A 401:

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

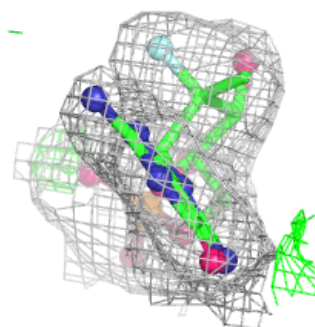
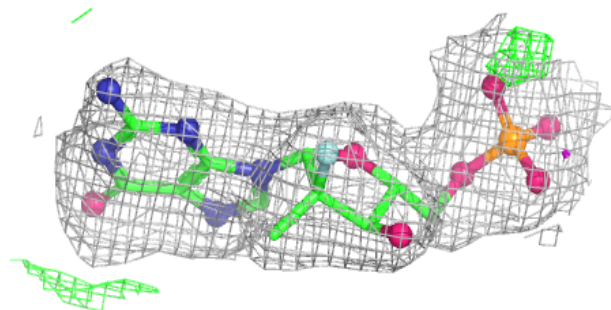
**Electron density around EIF H 401:**

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

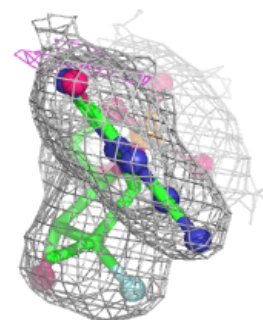
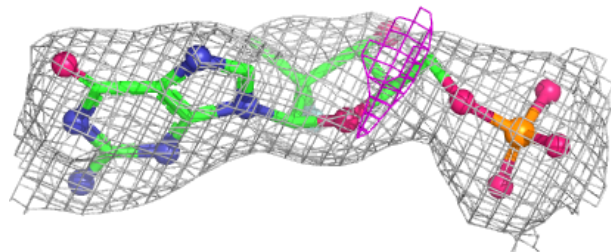
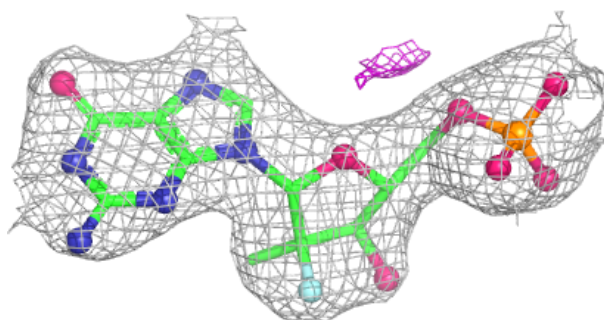


Electron density around EIF E 402:

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

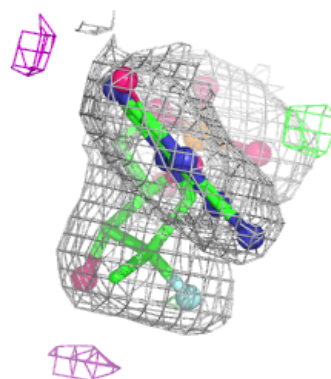
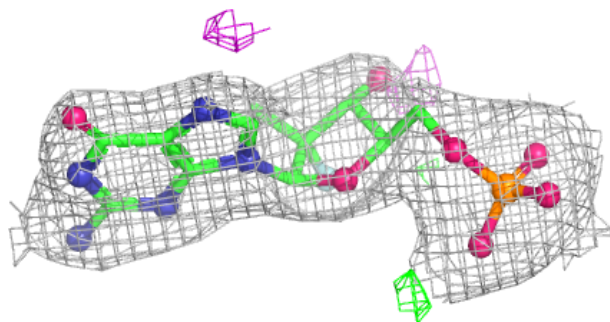
**Electron density around EIF G 402:**

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



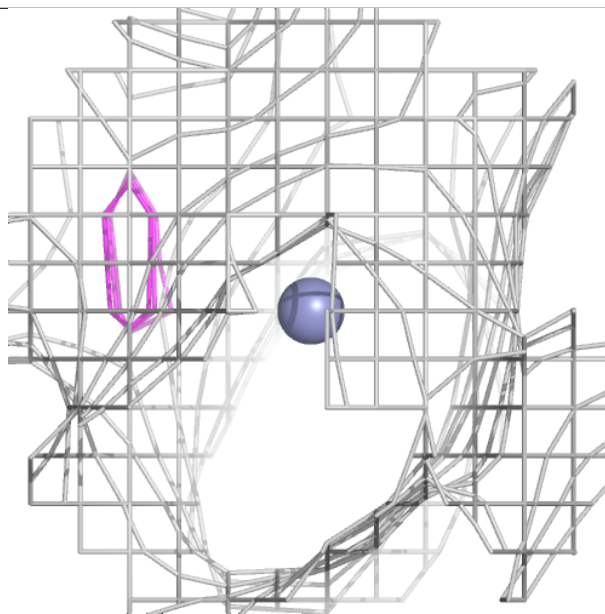
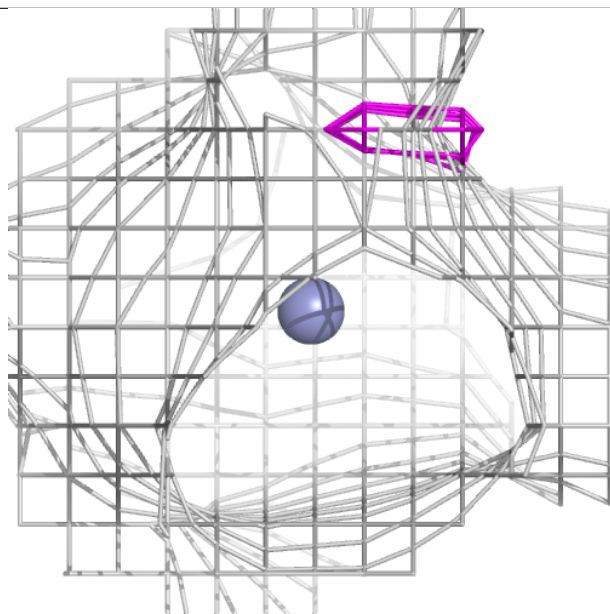
Electron density around EIF D 403:

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



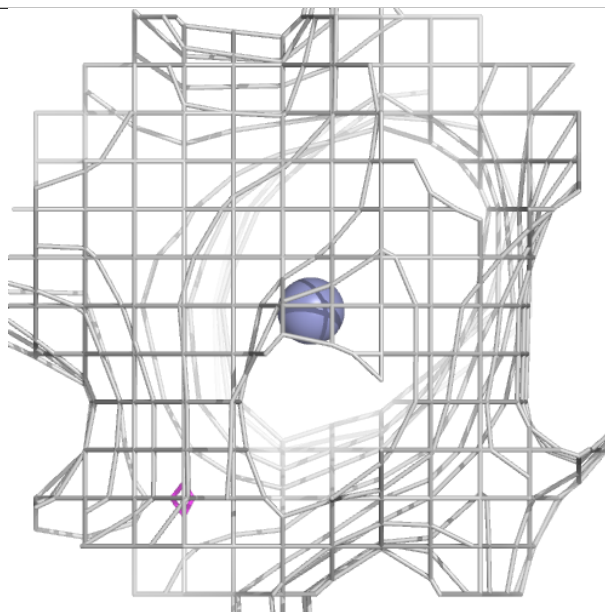
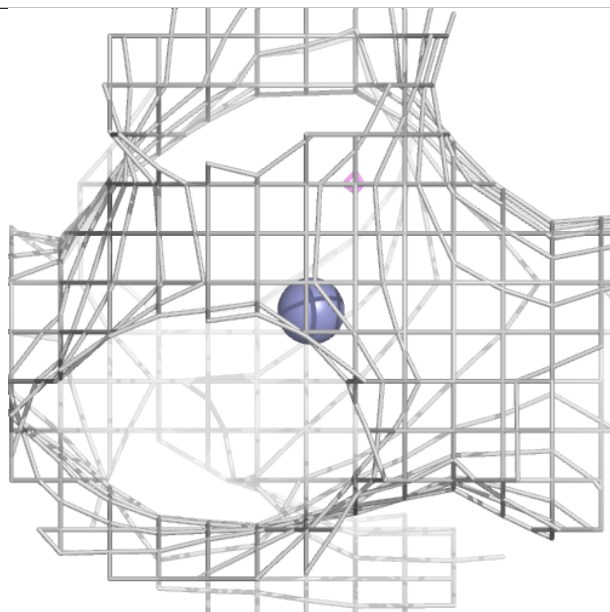
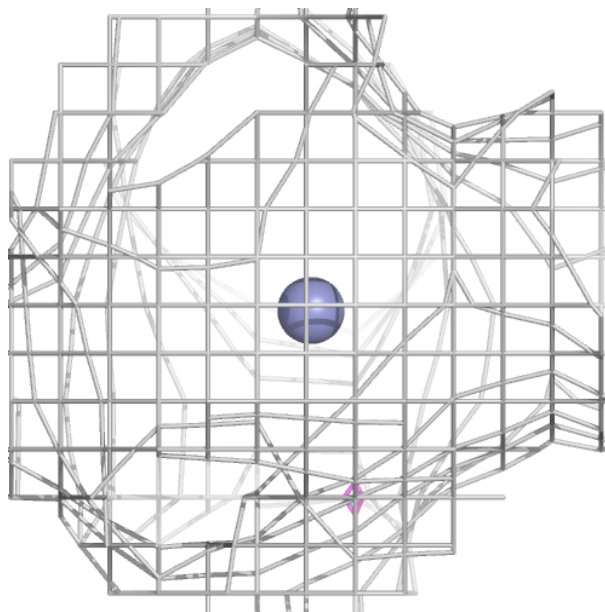
Electron density around ZN H 402:

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



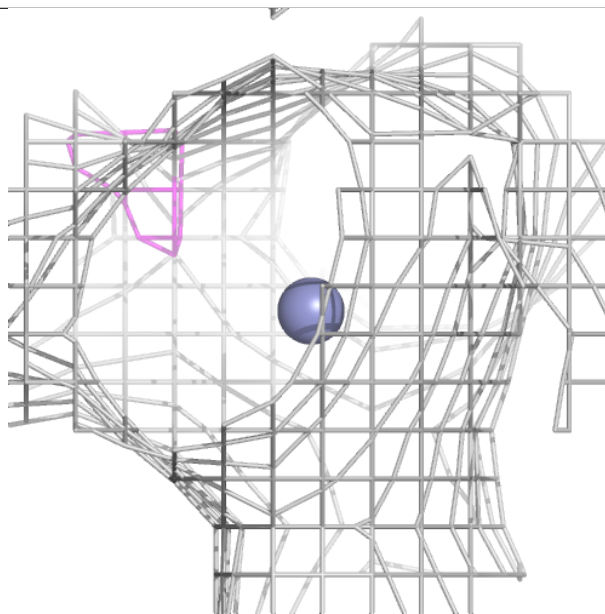
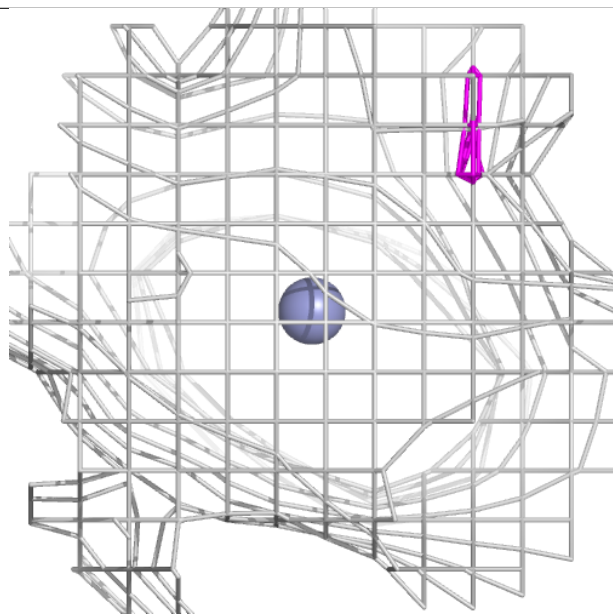
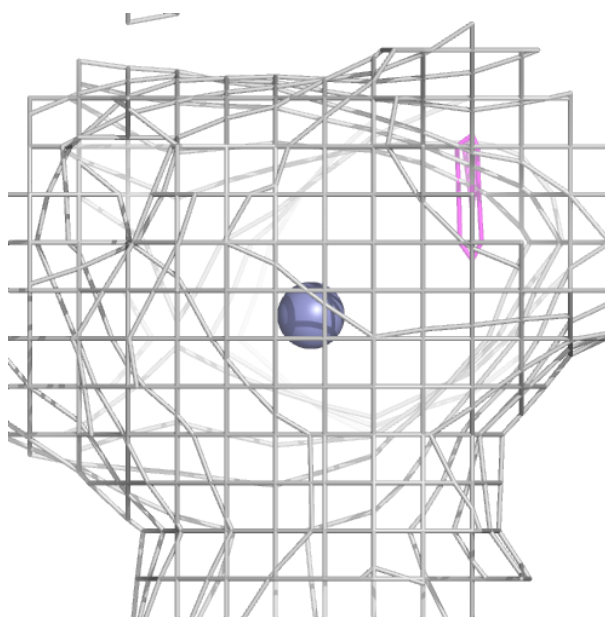
Electron density around ZN D 404:

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



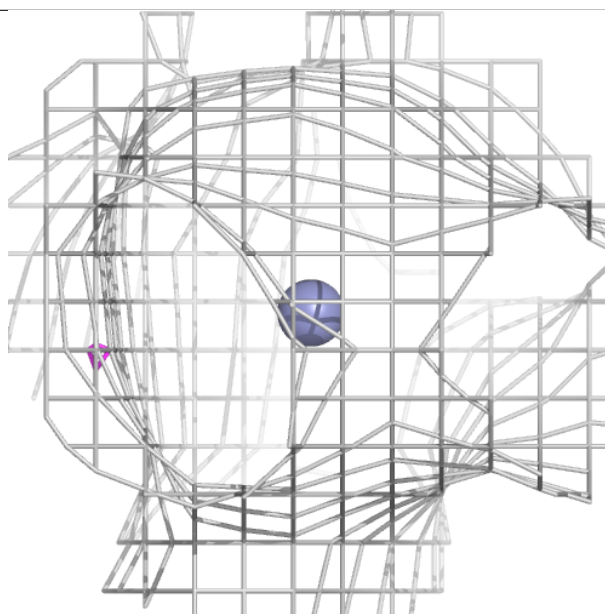
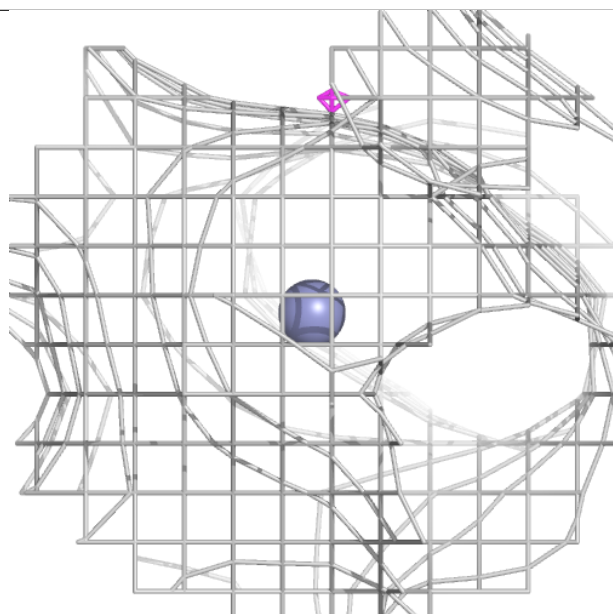
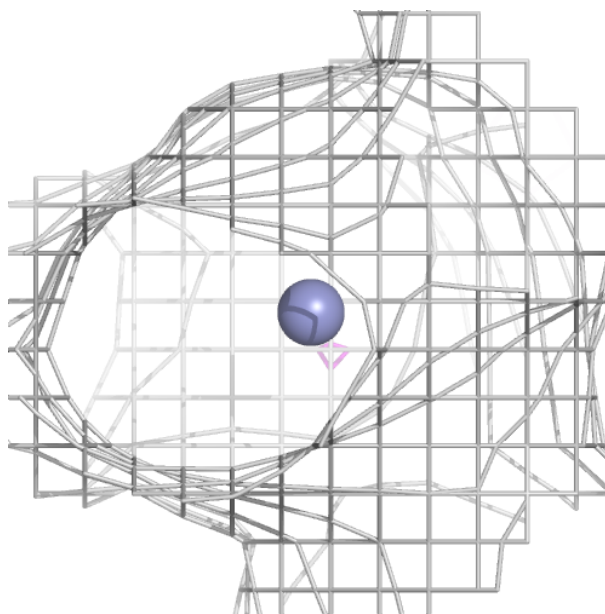
Electron density around ZN F 402:

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



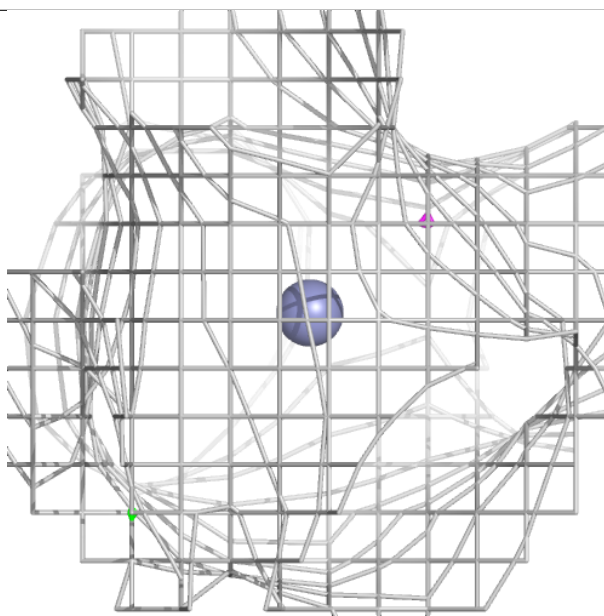
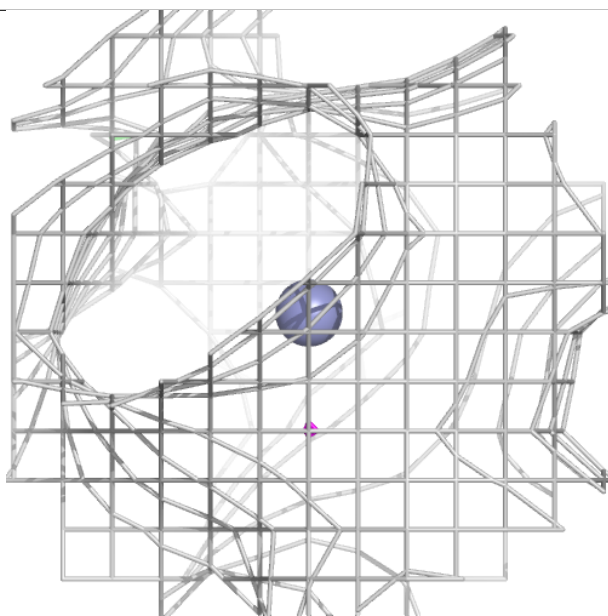
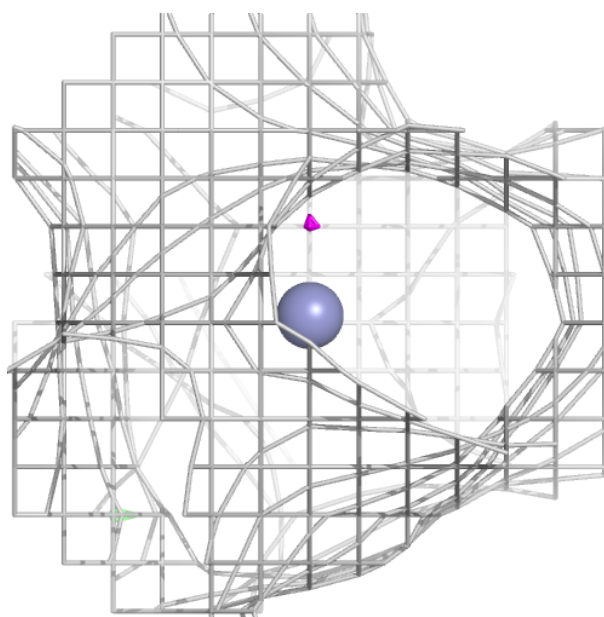
Electron density around ZN A 402:

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



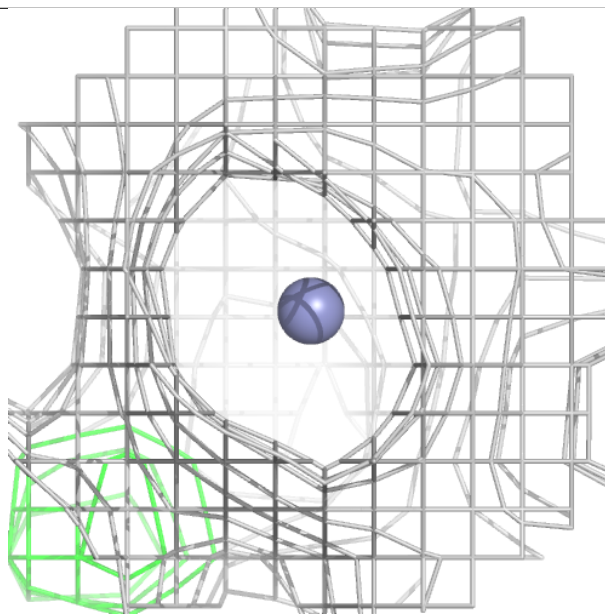
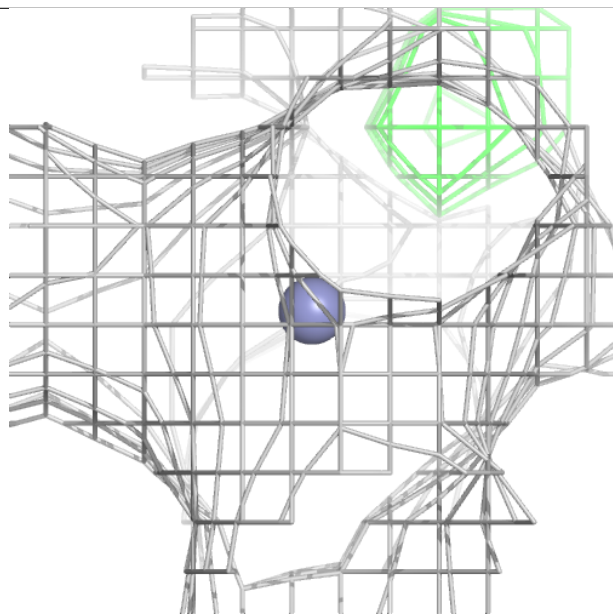
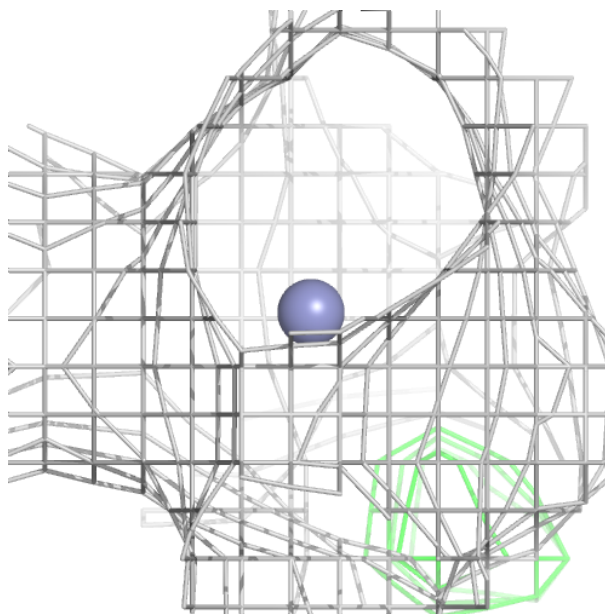
Electron density around ZN B 1002:

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



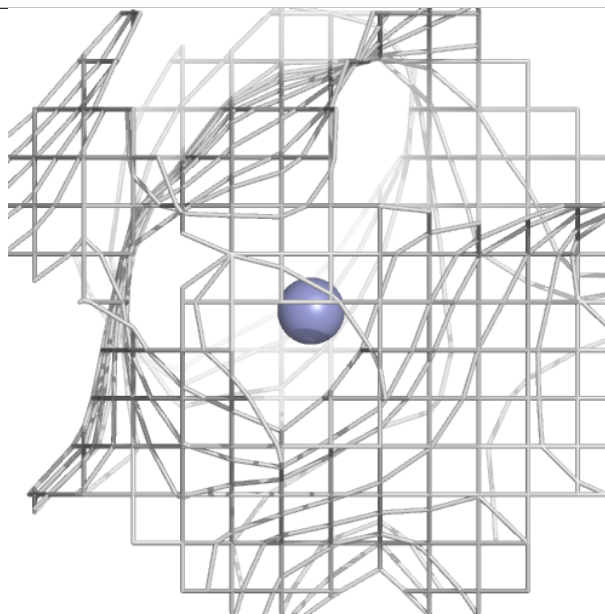
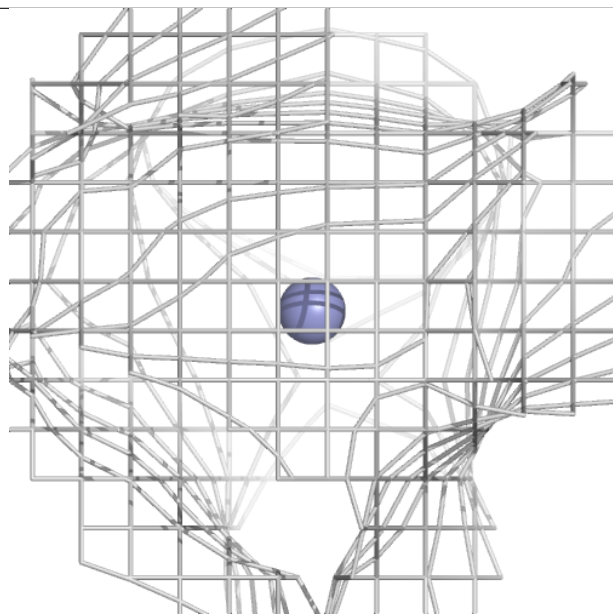
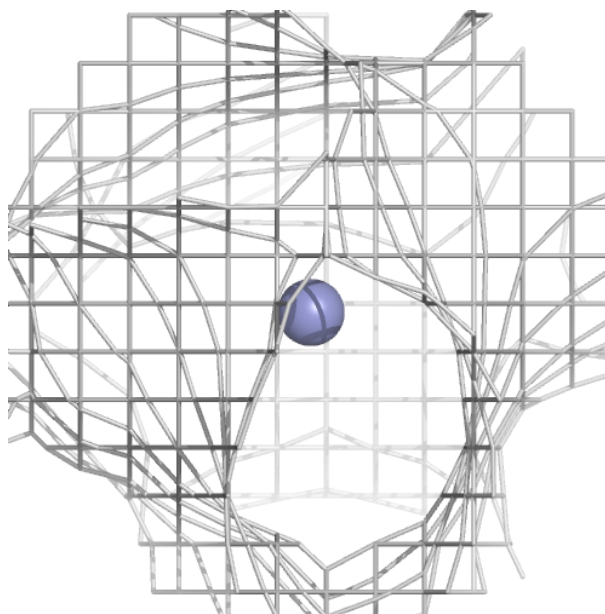
Electron density around ZN C 402:

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



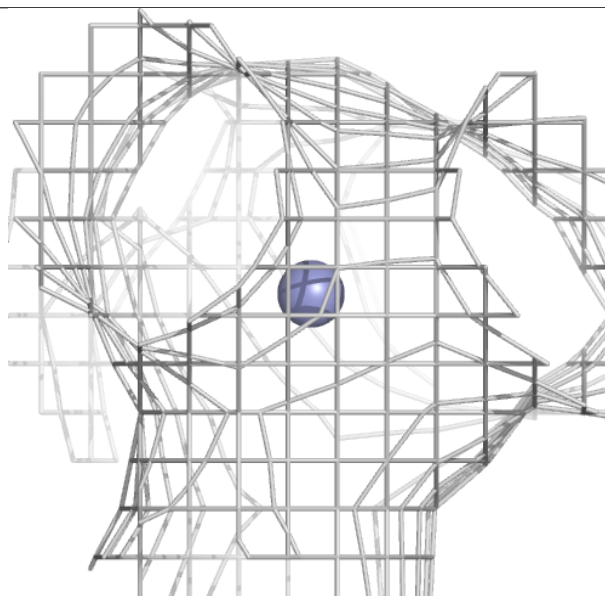
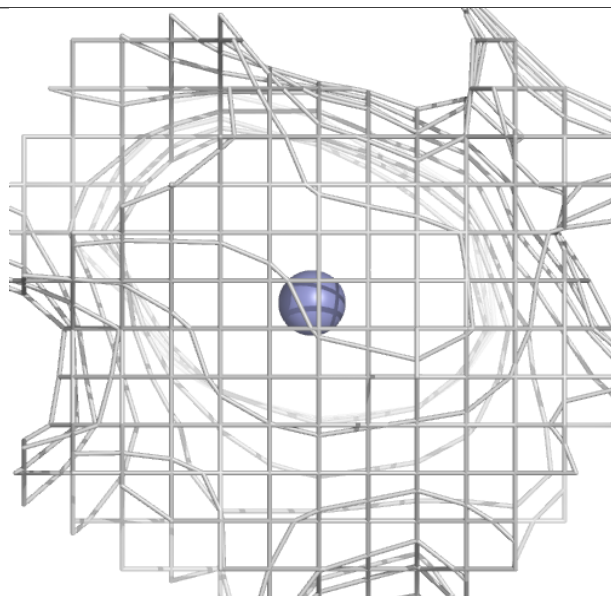
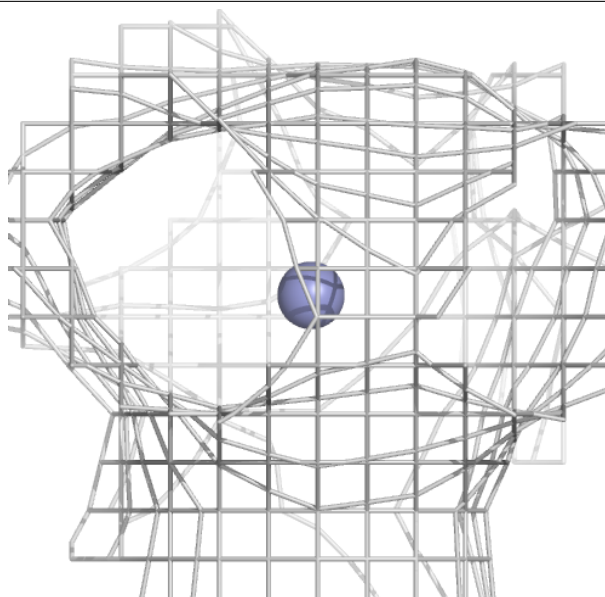
Electron density around ZN G 403:

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



Electron density around ZN E 403:

$2mF_o-DF_c$ (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.