



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 28, 2024 – 08:19 pm BST

PDB ID : 8S3B
Title : Crystal structure of *Medicago truncatula* glutamate dehydrogenase 2 in complex with 3-(1H-Tetrazol-5-yl)benzoic acid and NAD
Authors : Grzechowiak, M.; Ruszkowski, M.
Deposited on : 2024-02-19
Resolution : 2.30 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.002 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.38.2

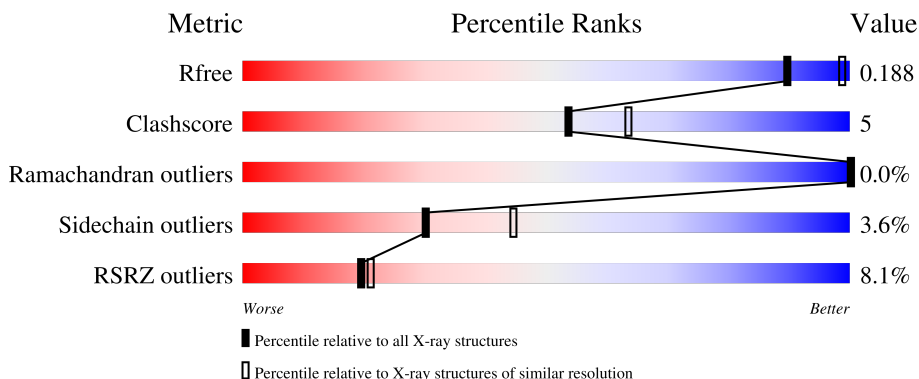
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 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}	164625	5963 (2.30-2.30)
Clashscore	180529	6698 (2.30-2.30)
Ramachandran outliers	177936	6640 (2.30-2.30)
Sidechain outliers	177891	6640 (2.30-2.30)
RSRZ outliers	164620	5963 (2.30-2.30)

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	414	 87% 10% ..
1	B	414	 87% 11% ..
1	C	414	 88% 9% ..
1	D	414	 87% 12% .
1	E	414	 87% 11% .

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Mol	Chain	Length	Quality of chain
1	F	414	 %
1	G	414	 13%
1	H	414	 10%
1	I	414	 6%
1	J	414	 17%
1	K	414	 17%
1	L	414	 21%

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
2	A1H40	A	601	-	X	-	-
2	A1H40	K	501	-	X	-	-

2 Entry composition i

There are 11 unique types of molecules in this entry. The entry contains 39595 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 Glutamate dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	410	3135	1978	550	592	15	0	1	0
1	B	410	3126	1973	548	590	15	0	0	0
1	C	410	3126	1973	548	590	15	0	0	0
1	D	412	3139	1981	550	592	16	0	0	0
1	E	409	3118	1969	546	588	15	0	0	0
1	F	410	3126	1973	548	590	15	0	0	0
1	G	410	3135	1978	550	592	15	0	1	0
1	H	410	3137	1979	552	591	15	0	1	0
1	I	409	3118	1969	546	588	15	0	0	0
1	J	409	3118	1969	546	588	15	0	0	0
1	K	408	3113	1966	545	587	15	0	0	0
1	L	409	3118	1969	546	588	15	0	0	0

There are 36 discrepancies between the modelled and reference sequences:

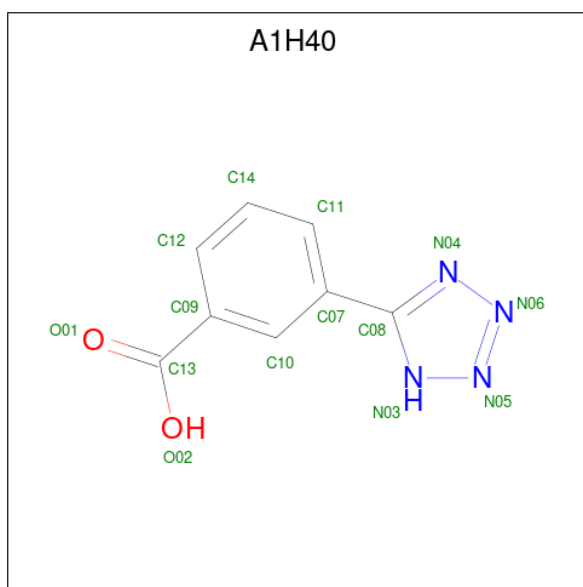
Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	SER	-	expression tag	UNP G7JYL4
A	-1	ASN	-	expression tag	UNP G7JYL4
A	0	ALA	-	expression tag	UNP G7JYL4
B	-2	SER	-	expression tag	UNP G7JYL4
B	-1	ASN	-	expression tag	UNP G7JYL4

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Chain	Residue	Modelled	Actual	Comment	Reference
B	0	ALA	-	expression tag	UNP G7JYL4
C	-2	SER	-	expression tag	UNP G7JYL4
C	-1	ASN	-	expression tag	UNP G7JYL4
C	0	ALA	-	expression tag	UNP G7JYL4
D	-2	SER	-	expression tag	UNP G7JYL4
D	-1	ASN	-	expression tag	UNP G7JYL4
D	0	ALA	-	expression tag	UNP G7JYL4
E	-2	SER	-	expression tag	UNP G7JYL4
E	-1	ASN	-	expression tag	UNP G7JYL4
E	0	ALA	-	expression tag	UNP G7JYL4
F	-2	SER	-	expression tag	UNP G7JYL4
F	-1	ASN	-	expression tag	UNP G7JYL4
F	0	ALA	-	expression tag	UNP G7JYL4
G	-2	SER	-	expression tag	UNP G7JYL4
G	-1	ASN	-	expression tag	UNP G7JYL4
G	0	ALA	-	expression tag	UNP G7JYL4
H	-2	SER	-	expression tag	UNP G7JYL4
H	-1	ASN	-	expression tag	UNP G7JYL4
H	0	ALA	-	expression tag	UNP G7JYL4
I	-2	SER	-	expression tag	UNP G7JYL4
I	-1	ASN	-	expression tag	UNP G7JYL4
I	0	ALA	-	expression tag	UNP G7JYL4
J	-2	SER	-	expression tag	UNP G7JYL4
J	-1	ASN	-	expression tag	UNP G7JYL4
J	0	ALA	-	expression tag	UNP G7JYL4
K	-2	SER	-	expression tag	UNP G7JYL4
K	-1	ASN	-	expression tag	UNP G7JYL4
K	0	ALA	-	expression tag	UNP G7JYL4
L	-2	SER	-	expression tag	UNP G7JYL4
L	-1	ASN	-	expression tag	UNP G7JYL4
L	0	ALA	-	expression tag	UNP G7JYL4

- Molecule 2 is 3-(1 {H}-1,2,3,4-tetrazol-5-yl)benzoic acid (three-letter code: A1H40) (formula: C₈H₆N₄O₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	Total 14	8	4	2	0	0
2	B	1	Total 14	8	4	2	0	0
2	C	1	Total 14	8	4	2	0	0
2	D	1	Total 14	8	4	2	0	0
2	H	1	Total 14	8	4	2	0	0
2	K	1	Total 14	8	4	2	0	0

- Molecule 3 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	C	1	Total C O 4 2 2	0	0
3	C	1	Total C O 4 2 2	0	0
3	D	1	Total C O 4 2 2	0	0
3	E	1	Total C O 4 2 2	0	0
3	F	1	Total C O 4 2 2	0	0

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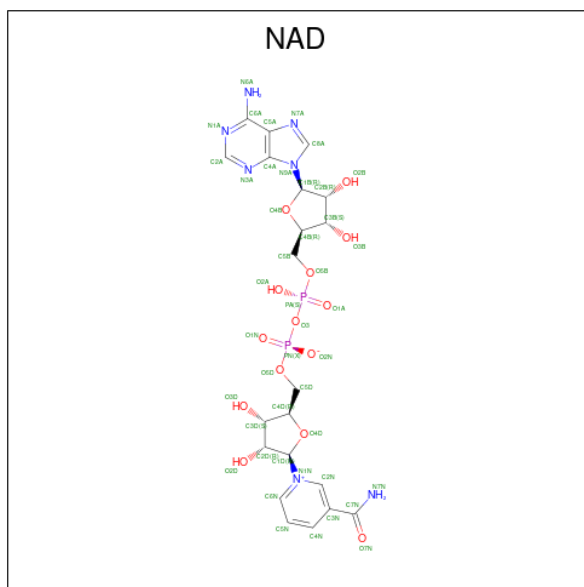
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	F	1	Total 4	C 2	O 2	0	0
3	G	1	Total 4	C 2	O 2	0	0
3	G	1	Total 4	C 2	O 2	0	0
3	G	1	Total 4	C 2	O 2	0	0
3	H	1	Total 4	C 2	O 2	0	0
3	I	1	Total 4	C 2	O 2	0	0
3	I	1	Total 4	C 2	O 2	0	0
3	I	1	Total 4	C 2	O 2	0	0
3	I	1	Total 4	C 2	O 2	0	0
3	I	1	Total 4	C 2	O 2	0	0
3	J	1	Total 4	C 2	O 2	0	0
3	K	1	Total 4	C 2	O 2	0	0
3	K	1	Total 4	C 2	O 2	0	0
3	K	1	Total 4	C 2	O 2	0	0
3	L	1	Total 4	C 2	O 2	0	0

- Molecule 4 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).



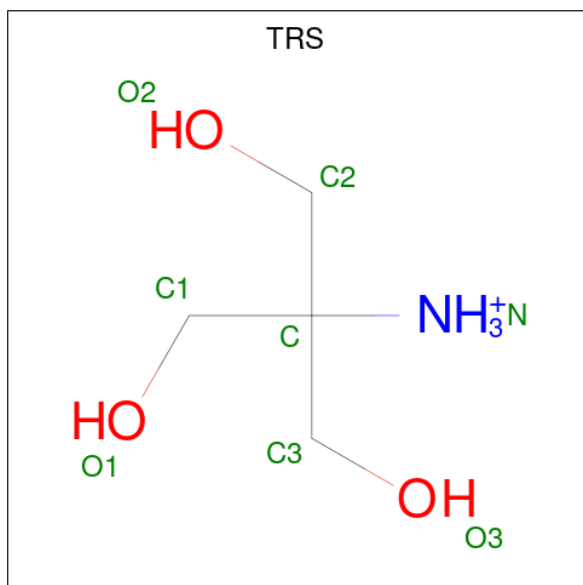
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 7 4 3	0	0
4	C	1	Total C O 7 4 3	0	0
4	C	1	Total C O 7 4 3	0	0
4	D	1	Total C O 7 4 3	0	0
4	E	1	Total C O 7 4 3	0	0
4	F	1	Total C O 7 4 3	0	0
4	G	1	Total C O 7 4 3	0	0
4	H	1	Total C O 7 4 3	0	0

- Molecule 5 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (three-letter code: NAD) (formula: $C_{21}H_{27}N_7O_{14}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf		
			Total	C	N	O			P	
5	A	1	Total	44	21	7	14	2	0	0
5	B	1	Total	44	21	7	14	2	0	0
5	C	1	Total	44	21	7	14	2	0	0
5	D	1	Total	44	21	7	14	2	0	0
5	E	1	Total	44	21	7	14	2	0	0
5	F	1	Total	44	21	7	14	2	0	0
5	G	1	Total	44	21	7	14	2	0	0
5	H	1	Total	44	21	7	14	2	0	0
5	I	1	Total	44	21	7	14	2	0	0
5	J	1	Total	44	21	7	14	2	0	0
5	K	1	Total	44	21	7	14	2	0	0
5	L	1	Total	44	21	7	14	2	0	0

- Molecule 6 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: TRS) (formula: C₄H₁₂NO₃).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
6	A	1	8	4	1	3	0	0
6	D	1	8	4	1	3	0	0
6	G	1	8	4	1	3	0	0
6	H	1	8	4	1	3	0	0
6	I	1	8	4	1	3	0	0
6	K	1	8	4	1	3	0	0
6	L	1	8	4	1	3	0	0

- Molecule 7 is CALCIUM ION (three-letter code: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

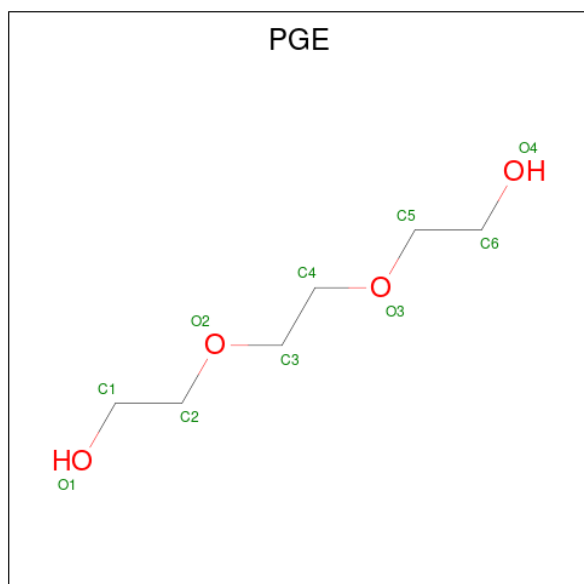
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Ca		
7	A	1	1	1	0	0
7	B	1	1	1	0	0
7	C	1	1	1	0	0
7	D	1	1	1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	E	1	Total Ca 1 1	0	0
7	F	1	Total Ca 1 1	0	0
7	G	1	Total Ca 1 1	0	0
7	H	1	Total Ca 1 1	0	0
7	I	1	Total Ca 1 1	0	0
7	J	1	Total Ca 1 1	0	0
7	K	1	Total Ca 1 1	0	0
7	L	1	Total Ca 1 1	0	0

- Molecule 8 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: C₆H₁₄O₄).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	B	1	Total C O 10 6 4	0	0

- Molecule 9 is TETRAETHYLENE GLYCOL (three-letter code: PG4) (formula: C₈H₁₈O₅).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	B	1	Total	C O	0	0
			13	8 5		

- Molecule 10 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	F	1	Total	Na	0	0
			1	1		
10	G	1	Total	Na	0	0
			1	1		
10	I	1	Total	Na	0	0
			1	1		

- Molecule 11 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	A	133	Total	O	0	0
			133	133		
11	B	183	Total	O	0	0
			183	183		
11	C	135	Total	O	0	0
			135	135		
11	D	134	Total	O	0	0
			134	134		
11	E	97	Total	O	0	0
			97	97		

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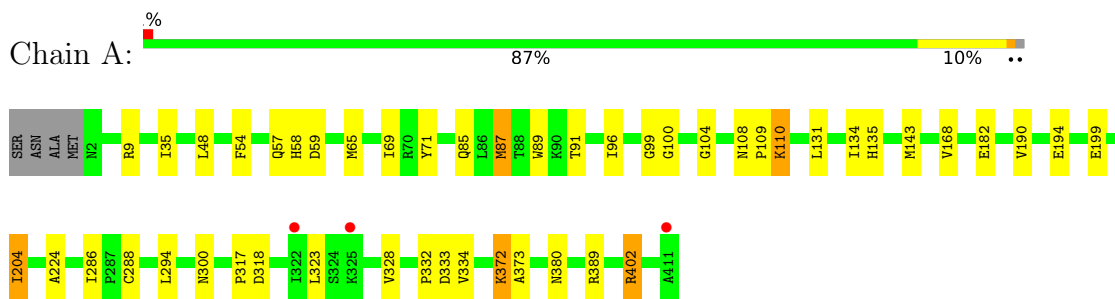
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	F	81	Total 81	O 81	0	0
11	G	85	Total 85	O 85	0	0
11	H	81	Total 81	O 81	0	0
11	I	82	Total 82	O 82	0	0
11	J	73	Total 73	O 73	0	0
11	K	62	Total 62	O 62	0	0
11	L	62	Total 62	O 62	0	0

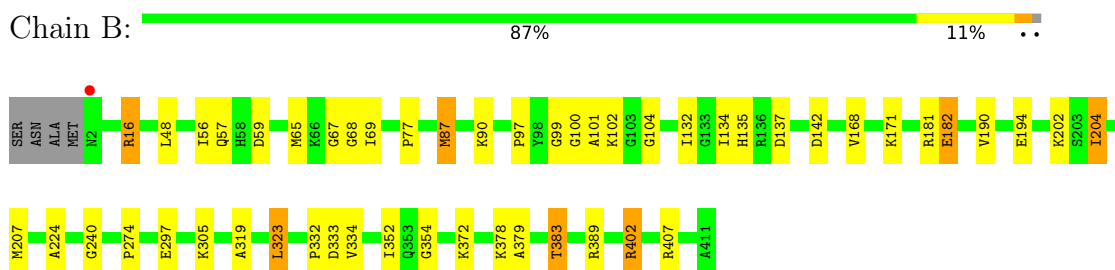
3 Residue-property plots [i](#)

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.

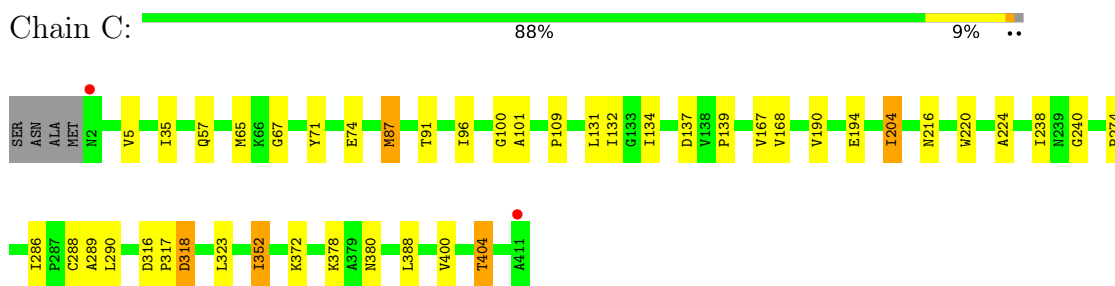
- Molecule 1: Glutamate dehydrogenase



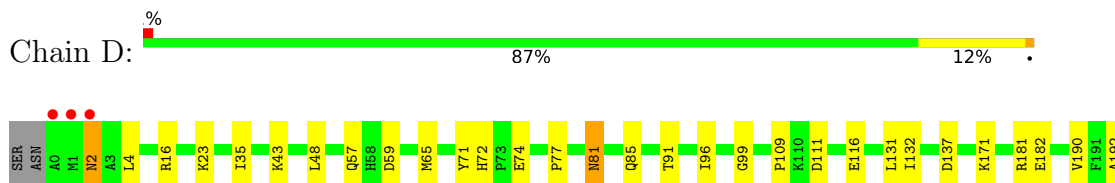
- Molecule 1: Glutamate dehydrogenase



- Molecule 1: Glutamate dehydrogenase

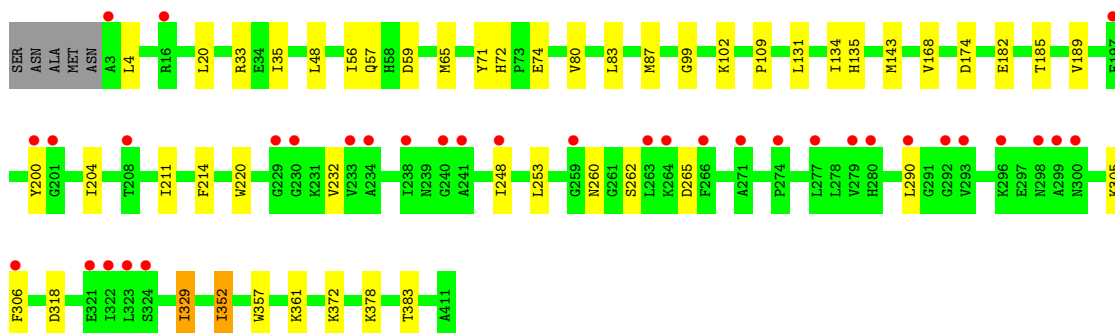
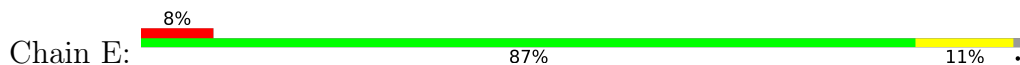


- Molecule 1: Glutamate dehydrogenase

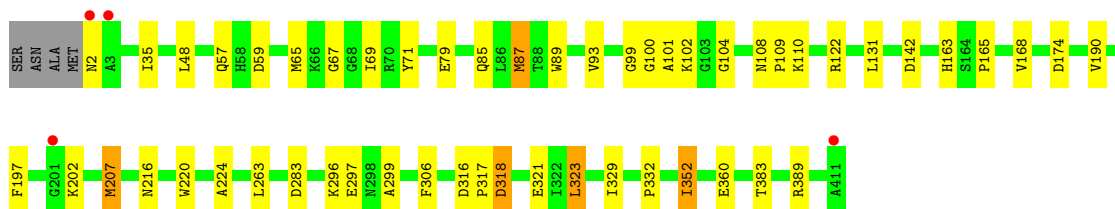
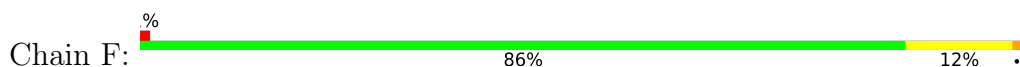




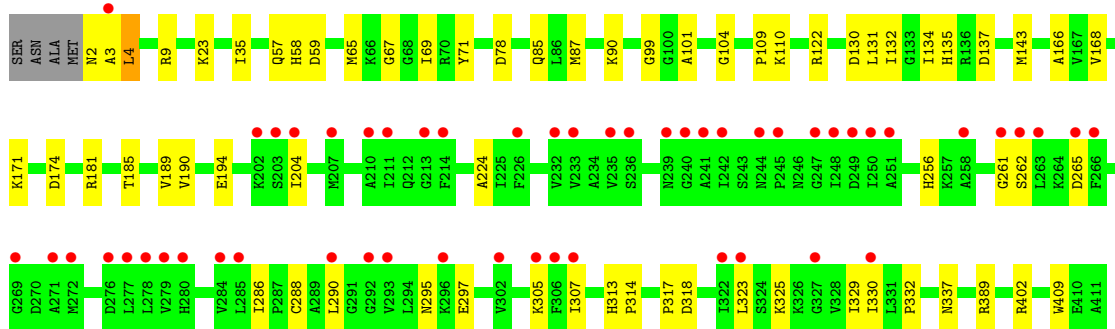
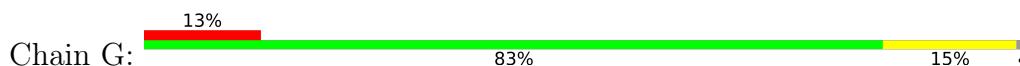
- Molecule 1: Glutamate dehydrogenase



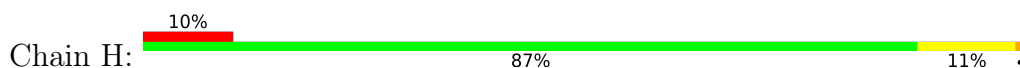
- Molecule 1: Glutamate dehydrogenase

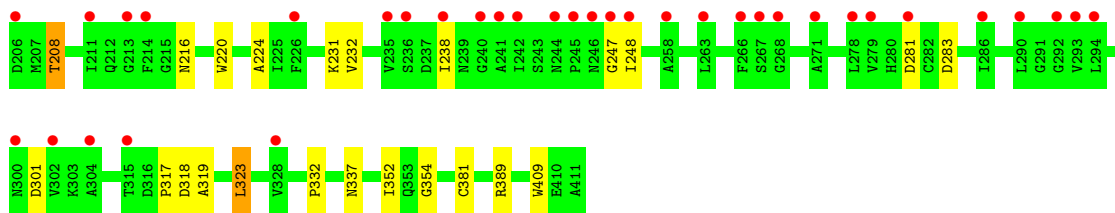


- Molecule 1: Glutamate dehydrogenase

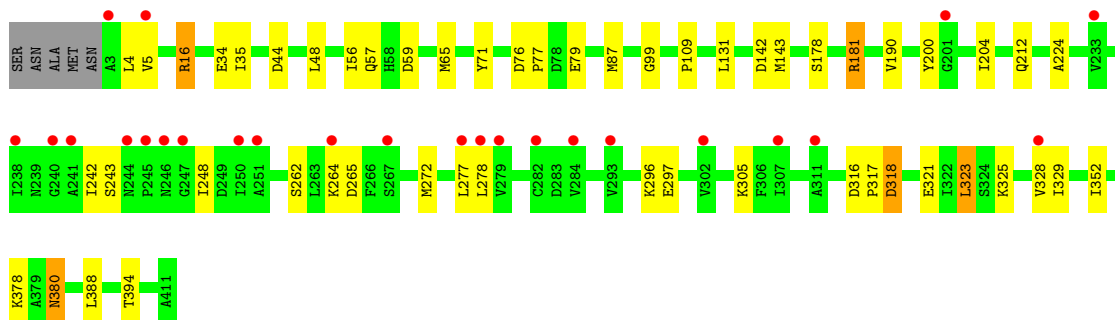
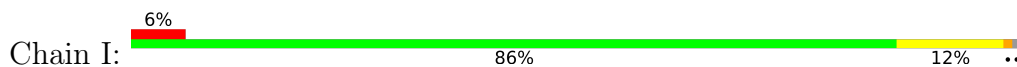


- Molecule 1: Glutamate dehydrogenase

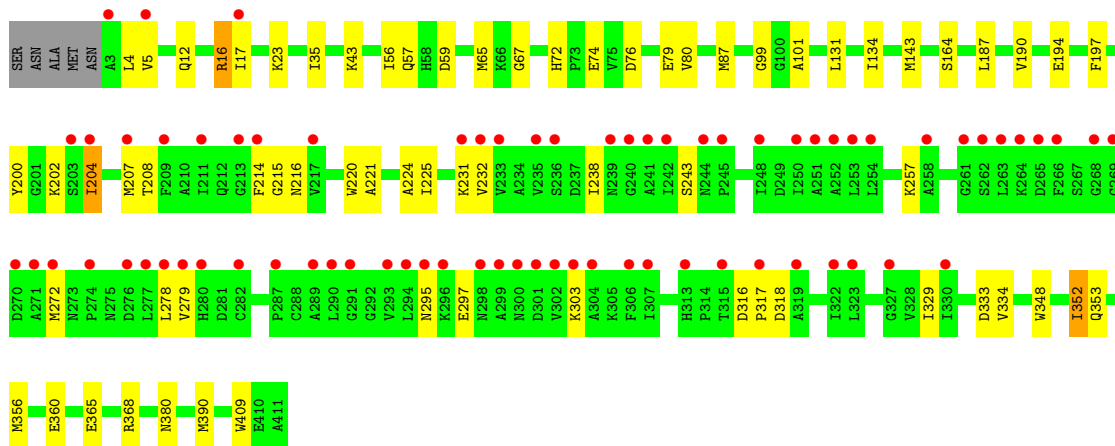
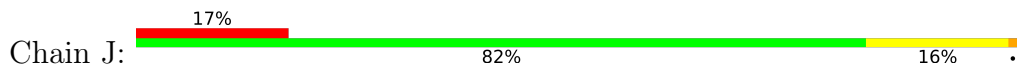




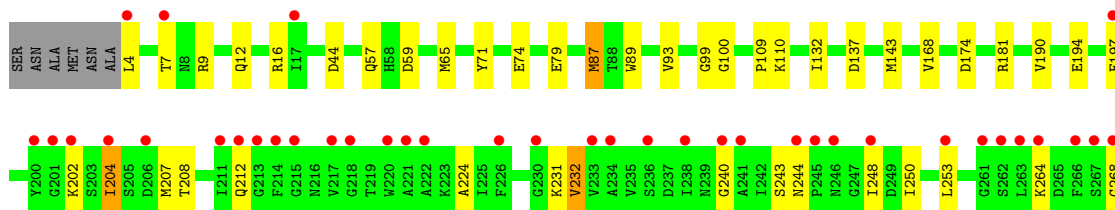
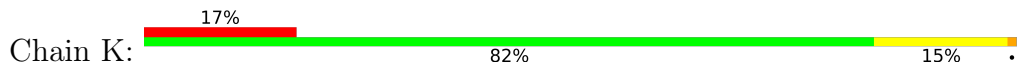
- Molecule 1: Glutamate dehydrogenase

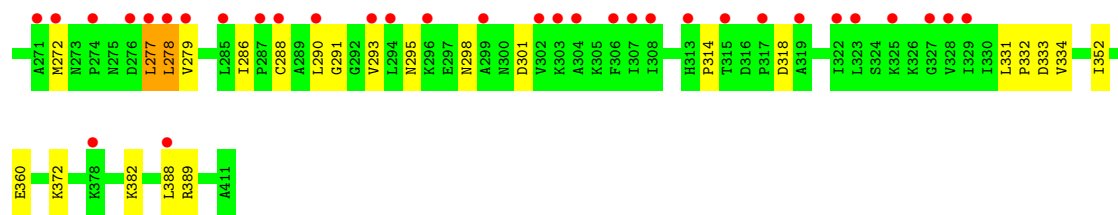


- Molecule 1: Glutamate dehydrogenase

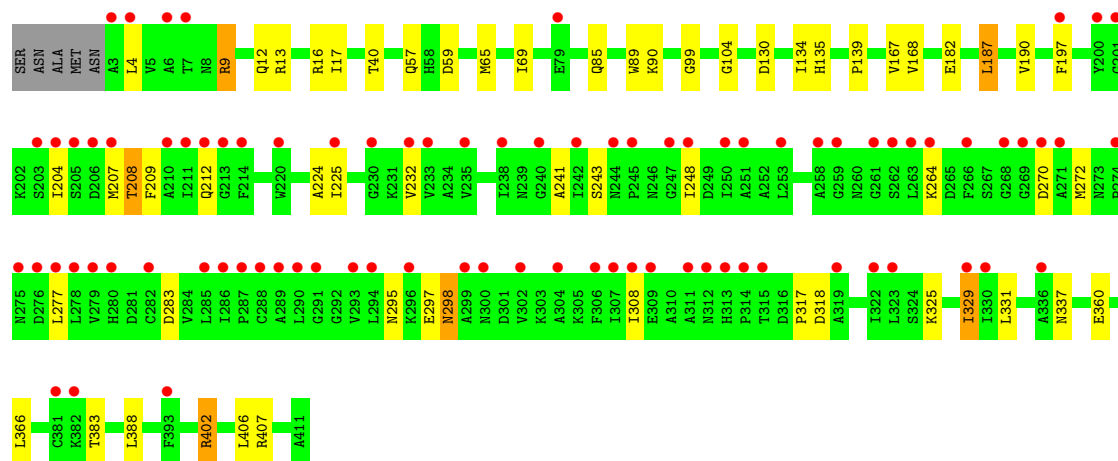
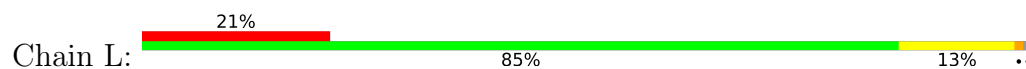


- Molecule 1: Glutamate dehydrogenase





● Molecule 1: Glutamate dehydrogenase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	99.81Å 109.86Å 156.37Å 79.00° 78.48° 72.22°	Depositor
Resolution (Å)	65.69 – 2.30 65.69 – 2.30	Depositor EDS
% Data completeness (in resolution range)	84.0 (65.69-2.30) 84.4 (65.69-2.30)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.10 (at 2.29Å)	Xtrriage
Refinement program	PHENIX 1.18.1_3865	Depositor
R, R_{free}	0.169 , 0.188 0.169 , 0.188	Depositor DCC
R_{free} test set	271616 reflections (0.50%)	wwPDB-VP
Wilson B-factor (Å ²)	33.6	Xtrriage
Anisotropy	0.006	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 48.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	39595	wwPDB-VP
Average B, all atoms (Å ²)	48.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.01% of the height of the origin peak. No significant pseudotranslation is detected.*

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: PG4, CA, NA, NAD, PEG, A1H40, PGE, EDO, TRS

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	0.45	0/3197	0.59	0/4328
1	B	0.47	0/3188	0.61	0/4316
1	C	0.44	0/3188	0.60	0/4316
1	D	0.47	0/3201	0.60	0/4333
1	E	0.42	0/3180	0.59	0/4305
1	F	0.42	0/3188	0.58	0/4316
1	G	0.41	0/3197	0.56	0/4328
1	H	0.40	0/3199	0.56	0/4330
1	I	0.41	0/3180	0.56	0/4305
1	J	0.41	0/3180	0.56	0/4305
1	K	0.40	0/3175	0.56	0/4298
1	L	0.40	0/3180	0.55	0/4305
All	All	0.43	0/38253	0.58	0/51785

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3135	0	3117	27	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	3126	0	3110	36	0
1	C	3126	0	3110	27	0
1	D	3139	0	3127	29	0
1	E	3118	0	3104	26	0
1	F	3126	0	3110	29	0
1	G	3135	0	3117	37	0
1	H	3137	0	3122	27	0
1	I	3118	0	3104	27	0
1	J	3118	0	3104	40	0
1	K	3113	0	3099	38	0
1	L	3118	0	3104	33	0
2	A	14	0	0	0	0
2	B	14	0	0	1	0
2	C	14	0	0	0	0
2	D	14	0	0	0	0
2	H	14	0	0	0	0
2	K	14	0	0	0	0
3	A	20	0	30	3	0
3	B	16	0	24	4	0
3	C	8	0	12	2	0
3	D	4	0	6	1	0
3	E	4	0	6	0	0
3	F	8	0	12	1	0
3	G	12	0	18	1	0
3	H	4	0	6	0	0
3	I	20	0	30	5	0
3	J	4	0	6	0	0
3	K	12	0	18	1	0
3	L	4	0	6	0	0
4	A	7	0	10	1	0
4	C	14	0	20	2	0
4	D	7	0	10	0	0
4	E	7	0	10	1	0
4	F	7	0	10	2	0
4	G	7	0	10	0	0
4	H	7	0	10	1	0
5	A	44	0	26	0	0
5	B	44	0	26	0	0
5	C	44	0	26	3	0
5	D	44	0	26	1	0
5	E	44	0	26	0	0
5	F	44	0	26	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	G	44	0	26	0	0
5	H	44	0	26	2	0
5	I	44	0	26	0	0
5	J	44	0	26	2	0
5	K	44	0	26	0	0
5	L	44	0	26	0	0
6	A	8	0	12	0	0
6	D	8	0	12	0	0
6	G	8	0	12	0	0
6	H	8	0	12	1	0
6	I	8	0	12	1	0
6	K	8	0	12	1	0
6	L	8	0	12	0	0
7	A	1	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
7	D	1	0	0	0	0
7	E	1	0	0	0	0
7	F	1	0	0	0	0
7	G	1	0	0	0	0
7	H	1	0	0	0	0
7	I	1	0	0	0	0
7	J	1	0	0	0	0
7	K	1	0	0	0	0
7	L	1	0	0	0	0
8	B	10	0	14	2	0
9	B	13	0	18	4	0
10	F	1	0	0	0	0
10	G	1	0	0	0	0
10	I	1	0	0	0	0
11	A	133	0	0	4	0
11	B	183	0	0	3	0
11	C	135	0	0	0	0
11	D	134	0	0	1	0
11	E	97	0	0	0	0
11	F	81	0	0	0	0
11	G	85	0	0	1	0
11	H	81	0	0	2	0
11	I	82	0	0	0	0
11	J	73	0	0	3	0
11	K	62	0	0	0	0
11	L	62	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	39595	0	38010	364	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (364) 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:G:194:GLU:HG3	1:G:204:ILE:HD11	1.59	0.82
1:D:334:VAL:HG21	1:D:393:PHE:CE2	2.21	0.75
1:J:134:ILE:HD11	1:J:164:SER:HB3	1.69	0.74
1:J:76:ASP:HB3	1:J:79:GLU:HG3	1.70	0.74
1:G:204:ILE:HD12	1:G:204:ILE:H	1.53	0.73
1:D:72:HIS:CD2	1:D:74:GLU:HG2	2.24	0.72
1:E:72:HIS:CD2	1:E:74:GLU:HG2	2.25	0.72
1:A:35:ILE:HD13	1:A:131:LEU:HD13	1.72	0.70
1:I:243:SER:OG	1:I:272:MET:SD	2.49	0.69
1:B:402:ARG:NH1	1:G:174:ASP:OD2	2.26	0.68
1:F:202:LYS:NZ	4:F:601:PEG:O4	2.27	0.68
1:H:9:ARG:CZ	1:H:317:PRO:HG3	2.24	0.68
1:E:248:ILE:HG21	1:E:253:LEU:HD12	1.75	0.67
1:G:35:ILE:HD13	1:G:131:LEU:HD13	1.77	0.67
1:H:231:LYS:HD2	1:H:247:GLY:HA3	1.77	0.66
1:C:91:THR:HG22	1:C:96:ILE:HD11	1.76	0.66
1:G:134:ILE:HD12	1:G:166:ALA:HB3	1.79	0.65
1:K:202:LYS:HD3	1:K:207:MET:HE3	1.79	0.64
1:L:208:THR:HG23	1:L:283:ASP:H	1.60	0.64
1:A:323:LEU:HD12	1:A:328:VAL:HG21	1.78	0.64
1:C:134:ILE:HD13	3:C:505:EDO:H11	1.80	0.64
1:B:190:VAL:HG21	1:B:224:ALA:HB3	1.81	0.63
1:B:16:ARG:HD2	1:D:111:ASP:OD2	1.99	0.62
1:G:4:LEU:HD11	1:G:78:ASP:HB3	1.81	0.62
1:D:351:ASN:HA	3:D:603:EDO:H12	1.81	0.62
1:A:58:HIS:CD2	1:A:85[B]:GLN:HG2	2.34	0.62
1:K:232:VAL:HG11	1:K:250:ILE:CG1	2.29	0.62
1:J:221:ALA:O	1:J:225:ILE:HG12	2.00	0.61
1:J:365:GLU:OE1	1:J:368:ARG:NH1	2.32	0.61
1:H:208:THR:HG23	1:H:283:ASP:H	1.65	0.61
1:B:56:ILE:HD11	3:B:502:EDO:H21	1.82	0.60
1:J:194:GLU:HG2	1:J:204:ILE:HD11	1.83	0.60
1:J:204:ILE:HD12	1:J:204:ILE:H	1.66	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:295:ASN:OD1	1:L:298:ASN:ND2	2.32	0.60
1:F:296:LYS:NZ	1:F:297:GLU:OE2	2.29	0.60
1:I:378:LYS:NZ	3:I:904:EDO:O2	2.29	0.60
1:G:332:PRO:HG3	1:G:389:ARG:HA	1.82	0.60
1:K:232:VAL:HG11	1:K:250:ILE:HG12	1.84	0.59
1:F:57:GLN:HB3	1:F:65:MET:SD	2.43	0.59
1:A:9:ARG:CZ	1:A:317:PRO:HG3	2.31	0.59
1:F:67:GLY:HA3	1:F:101:ALA:O	2.00	0.59
1:K:240:GLY:HA3	1:K:264:LYS:HD3	1.82	0.59
1:B:171:LYS:O	1:B:181:ARG:NH1	2.28	0.59
1:E:72:HIS:HD2	1:E:74:GLU:HG2	1.66	0.58
1:K:277:LEU:O	1:K:278:LEU:HB2	2.02	0.58
1:K:57:GLN:HB3	1:K:65:MET:SD	2.44	0.58
1:K:71:TYR:HB3	1:K:109:PRO:HG3	1.86	0.58
1:C:378:LYS:NZ	4:C:502:PEG:O2	2.32	0.58
1:C:400:VAL:O	1:C:404:THR:HG23	2.04	0.58
1:E:57:GLN:HB3	1:E:65:MET:SD	2.44	0.57
1:J:57:GLN:HB3	1:J:65:MET:SD	2.43	0.57
1:E:352:ILE:HD11	1:H:354:GLY:HA3	1.86	0.57
1:F:71:TYR:HB3	1:F:109:PRO:HG3	1.86	0.57
1:H:332:PRO:HG3	1:H:389:ARG:HA	1.86	0.57
1:K:264:LYS:NZ	1:K:272:MET:O	2.37	0.57
1:L:190:VAL:HG21	1:L:224:ALA:HB3	1.85	0.57
1:B:57:GLN:HB3	1:B:65:MET:SD	2.45	0.57
1:K:360:GLU:H	1:K:360:GLU:CD	2.08	0.57
1:A:199:GLU:HB3	4:A:605:PEG:H41	1.85	0.56
1:I:77:PRO:HB3	3:I:905:EDO:H21	1.88	0.56
1:J:12:GLN:O	1:J:16:ARG:HG2	2.04	0.56
1:B:372:LYS:HD2	11:B:780:HOH:O	2.05	0.56
1:K:190:VAL:HG21	1:K:224:ALA:HB3	1.88	0.56
1:H:171:LYS:O	1:H:181:ARG:NH1	2.37	0.55
1:K:194:GLU:HG2	1:K:204:ILE:HD12	1.87	0.55
1:C:352:ILE:HD11	1:D:353:GLN:C	2.27	0.55
1:H:190:VAL:HG21	1:H:224:ALA:HB3	1.88	0.55
1:I:76:ASP:HB3	1:I:79:GLU:OE2	2.07	0.55
1:L:297:GLU:HG2	1:L:298:ASN:HD22	1.71	0.55
1:D:72:HIS:HD2	1:D:74:GLU:HG2	1.71	0.55
1:C:290:LEU:HD11	5:C:506:NAD:N7A	2.22	0.55
1:L:204:ILE:HD11	1:L:225:ILE:HG12	1.89	0.55
1:A:71:TYR:HB3	1:A:109:PRO:HG3	1.89	0.54
1:E:378:LYS:NZ	4:E:801:PEG:O2	2.40	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:190:VAL:HG21	1:I:224:ALA:HB3	1.88	0.54
3:A:606:EDO:H11	11:A:768:HOH:O	2.06	0.54
1:H:238:ILE:HD13	5:H:505:NAD:N7A	2.23	0.54
1:A:402:ARG:NH1	1:E:174:ASP:OD2	2.40	0.54
1:G:58:HIS:CD2	1:G:85[B]:GLN:HG2	2.42	0.54
1:A:91:THR:HG22	1:A:96:ILE:HD11	1.90	0.53
1:K:244:ASN:ND2	1:K:268:GLY:O	2.38	0.53
1:K:248:ILE:HG21	1:K:253:LEU:HD12	1.91	0.53
1:L:197:PHE:CE2	1:L:207:MET:HG3	2.42	0.53
1:A:48:LEU:O	1:D:23:LYS:HD3	2.08	0.53
1:A:108:ASN:HD21	1:A:110:LYS:HE3	1.74	0.53
1:D:35:ILE:HG13	1:D:131:LEU:HD13	1.91	0.53
1:E:134:ILE:HG13	1:E:135:HIS:CD2	2.44	0.53
1:D:57:GLN:HB3	1:D:65:MET:SD	2.48	0.53
1:J:200:TYR:OH	1:J:329:ILE:HD12	2.09	0.53
1:C:240:GLY:HA2	1:C:274:PRO:HG3	1.91	0.53
1:D:307:ILE:HG23	1:D:330:ILE:HG12	1.89	0.53
1:E:71:TYR:HB3	1:E:109:PRO:HG3	1.91	0.52
1:E:72:HIS:HD2	1:E:74:GLU:H	1.57	0.52
1:F:48:LEU:O	1:G:23:LYS:HD3	2.09	0.52
1:F:59:ASP:O	1:F:99:GLY:HA3	2.09	0.52
1:J:216:ASN:O	1:J:220:TRP:HD1	1.92	0.52
1:A:57:GLN:HB3	1:A:65:MET:SD	2.50	0.52
1:C:194:GLU:HG2	1:C:204:ILE:HD12	1.92	0.52
1:G:57:GLN:HB3	1:G:65:MET:SD	2.49	0.52
1:A:134:ILE:HG13	1:A:135:HIS:CD2	2.44	0.52
1:J:17:ILE:HD12	1:J:390:MET:HE2	1.90	0.52
1:I:378:LYS:NZ	3:I:904:EDO:O1	2.39	0.52
1:A:190:VAL:HG21	1:A:224:ALA:HB3	1.91	0.52
1:D:2:ASN:OD1	1:D:2:ASN:N	2.40	0.51
1:G:59:ASP:O	1:G:99:GLY:HA3	2.10	0.51
1:H:134:ILE:HD11	1:H:164:SER:HB3	1.91	0.51
1:F:207:MET:HE2	1:F:283:ASP:HB3	1.93	0.51
1:J:43:LYS:NZ	11:J:705:HOH:O	2.43	0.51
1:L:241:ALA:HB3	1:L:272:MET:HB3	1.93	0.51
1:D:71:TYR:HB3	1:D:109:PRO:HG3	1.92	0.51
1:G:90:LYS:NZ	1:G:337:ASN:OD1	2.38	0.51
6:H:503:TRS:N	11:H:601:HOH:O	2.20	0.51
1:L:232:VAL:O	1:L:248:ILE:HD12	2.11	0.51
1:L:57:GLN:HB3	1:L:65:MET:SD	2.51	0.50
1:C:67:GLY:HA3	1:C:101:ALA:O	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:332:PRO:HG3	1:D:389:ARG:HA	1.93	0.50
1:E:72:HIS:CD2	1:E:74:GLU:H	2.29	0.50
1:B:332:PRO:HG3	1:B:389:ARG:HA	1.93	0.50
1:I:321:GLU:O	1:I:325:LYS:HG3	2.12	0.50
1:B:97:PRO:HG3	3:G:702:EDO:H22	1.92	0.50
1:I:57:GLN:HB3	1:I:65:MET:SD	2.52	0.50
1:I:262:SER:HB2	1:I:265:ASP:OD2	2.12	0.50
1:F:190:VAL:HG21	1:F:224:ALA:HB3	1.94	0.49
1:L:187:LEU:HD13	1:L:366:LEU:HD23	1.93	0.49
1:I:323:LEU:HB3	1:I:328:VAL:HB	1.93	0.49
1:C:57:GLN:HB3	1:C:65:MET:SD	2.52	0.49
1:D:194:GLU:HG2	1:D:204:ILE:HD12	1.95	0.49
1:F:296:LYS:HB3	1:F:318:ASP:HB3	1.95	0.49
1:K:295:ASN:OD1	1:K:298:ASN:ND2	2.45	0.49
1:L:402:ARG:NH1	1:L:406:LEU:HD11	2.27	0.49
1:G:58:HIS:NE2	1:G:85[B]:GLN:HG2	2.27	0.49
1:J:35:ILE:HG13	1:J:131:LEU:HD13	1.94	0.49
1:H:35:ILE:HG13	1:H:131:LEU:HD13	1.95	0.49
1:K:331:LEU:HD12	1:K:388:LEU:HD13	1.95	0.49
1:A:372:LYS:HG2	11:A:708:HOH:O	2.13	0.49
1:B:379:ALA:O	1:B:383:THR:HG23	2.13	0.49
1:H:134:ILE:HG12	1:H:166:ALA:HB3	1.95	0.49
1:J:17:ILE:HD12	1:J:390:MET:CE	2.42	0.49
1:B:378:LYS:HZ2	9:B:506:PG4:H51	1.78	0.49
1:J:356:MET:HE3	11:J:766:HOH:O	2.13	0.48
1:G:190:VAL:HG21	1:G:224:ALA:HB3	1.94	0.48
1:A:333:ASP:OD1	1:A:334:VAL:N	2.45	0.48
1:A:372:LYS:NZ	11:A:708:HOH:O	2.45	0.48
1:C:238:ILE:HD13	5:C:506:NAD:C5A	2.43	0.48
1:D:319:ALA:O	1:D:323:LEU:HD22	2.13	0.48
1:B:87:MET:HB3	1:B:100:GLY:CA	2.44	0.48
1:E:59:ASP:O	1:E:99:GLY:HA3	2.12	0.48
1:E:182:GLU:HG2	1:E:220:TRP:NE1	2.28	0.48
1:J:190:VAL:HG21	1:J:224:ALA:HB3	1.95	0.48
1:B:59:ASP:O	1:B:99:GLY:HA3	2.13	0.48
1:H:70:ARG:NH1	11:H:602:HOH:O	2.21	0.48
1:H:238:ILE:HD13	5:H:505:NAD:C5A	2.44	0.48
1:A:194:GLU:HG2	1:A:204:ILE:HD12	1.97	0.47
3:K:506:EDO:H12	1:L:40:THR:HB	1.96	0.47
1:B:240:GLY:HA2	1:B:274:PRO:HG3	1.96	0.47
1:J:59:ASP:O	1:J:99:GLY:HA3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:357:TRP:CE2	1:E:361:LYS:HE3	2.49	0.47
1:I:35:ILE:HG13	1:I:131:LEU:HD13	1.97	0.47
1:F:306:PHE:HE2	4:F:601:PEG:H41	1.80	0.47
1:I:242:ILE:HG23	1:I:248:ILE:HD13	1.96	0.47
1:J:67:GLY:HA3	1:J:101:ALA:O	2.15	0.47
1:A:69:ILE:HG23	1:A:104:GLY:HA2	1.97	0.47
1:A:85[A]:GLN:HG2	1:A:89:TRP:NE1	2.29	0.47
1:C:240:GLY:CA	1:C:274:PRO:HG3	2.44	0.47
1:E:200:TYR:OH	1:E:329:ILE:HD12	2.15	0.47
1:G:130:ASP:OD1	1:G:130:ASP:N	2.48	0.47
1:J:238:ILE:HD13	5:J:602:NAD:C5A	2.45	0.47
1:H:57:GLN:HB3	1:H:65:MET:SD	2.54	0.47
1:K:12:GLN:O	1:K:16:ARG:HG2	2.15	0.47
1:K:194:GLU:CG	1:K:204:ILE:HD12	2.44	0.47
1:K:243:SER:HB2	1:K:272:MET:SD	2.55	0.47
1:L:182:GLU:HB3	11:L:815:HOH:O	2.14	0.47
1:A:332:PRO:HG3	1:A:389:ARG:HA	1.97	0.47
1:E:56:ILE:HD13	1:E:80:VAL:CG1	2.45	0.47
1:B:194:GLU:HG2	1:B:204:ILE:HD12	1.96	0.46
1:C:35:ILE:HG13	1:C:131:LEU:HD13	1.97	0.46
1:D:286:ILE:HG22	1:D:288:CYS:SG	2.54	0.46
1:I:16:ARG:HD3	1:I:16:ARG:HA	1.78	0.46
1:J:202:LYS:NZ	11:J:704:HOH:O	2.42	0.46
1:L:308:ILE:HG23	1:L:331:LEU:HD23	1.97	0.46
1:G:307:ILE:HG23	1:G:330:ILE:HG12	1.97	0.46
1:K:87:MET:HB3	1:K:100:GLY:CA	2.45	0.46
1:K:291:GLY:HA2	1:K:314:PRO:HA	1.97	0.46
1:D:72:HIS:HD2	1:D:74:GLU:H	1.63	0.46
1:F:299:ALA:HB1	1:F:323:LEU:HD13	1.97	0.46
1:G:295:ASN:OD1	1:G:297:GLU:HG2	2.15	0.46
1:B:67:GLY:HA3	1:B:101:ALA:O	2.15	0.46
1:D:132:ILE:HA	1:D:137:ASP:HB3	1.97	0.46
1:I:59:ASP:O	1:I:99:GLY:HA3	2.16	0.46
1:J:204:ILE:H	1:J:204:ILE:CD1	2.27	0.46
1:L:85:GLN:HG2	1:L:89:TRP:NE1	2.31	0.46
1:J:76:ASP:CB	1:J:79:GLU:HG3	2.42	0.46
1:J:197:PHE:CE2	1:J:207:MET:HG3	2.51	0.46
1:J:348:TRP:O	1:J:352:ILE:HG23	2.16	0.46
1:D:91:THR:HG22	1:D:96:ILE:HD11	1.97	0.46
1:F:35:ILE:HD13	1:F:131:LEU:HD13	1.96	0.46
1:J:295:ASN:OD1	1:J:297:GLU:HG2	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:12:GLN:HB3	1:L:16:ARG:HH12	1.81	0.45
1:L:212:GLN:HB2	1:L:277:LEU:HD22	1.98	0.45
1:H:216:ASN:O	1:H:220:TRP:HD1	1.98	0.45
1:K:208:THR:HA	1:K:231:LYS:O	2.16	0.45
1:I:71:TYR:HB3	1:I:109:PRO:HG3	1.99	0.45
1:I:296:LYS:HB3	1:I:318:ASP:HB3	1.98	0.45
3:F:604:EDO:H12	1:G:409:TRP:CZ3	2.51	0.45
1:B:134:ILE:HG13	1:B:135:HIS:CD2	2.52	0.45
1:C:190:VAL:HG21	1:C:224:ALA:HB3	1.99	0.45
3:B:505:EDO:H12	1:J:409:TRP:HZ3	1.82	0.45
1:F:89:TRP:O	1:F:93:VAL:HG23	2.15	0.45
1:F:360:GLU:OE1	1:F:360:GLU:N	2.50	0.45
1:G:402:ARG:NH2	1:K:174:ASP:OD2	2.49	0.45
1:J:279:VAL:O	1:J:303:LYS:HG3	2.16	0.45
1:A:108:ASN:ND2	1:A:110:LYS:HE3	2.32	0.45
1:D:192:ALA:HB1	1:D:335:TYR:CE2	2.52	0.45
1:H:132:ILE:HA	1:H:137:ASP:HB3	1.99	0.45
1:B:207:MET:SD	8:B:504:PGE:H5	2.57	0.45
1:C:289:ALA:C	1:C:290:LEU:HD12	2.38	0.45
1:F:352:ILE:HD11	1:J:353:GLN:C	2.37	0.45
1:B:305:LYS:HA	1:B:305:LYS:HD3	1.66	0.45
1:C:87:MET:HB3	1:C:100:GLY:CA	2.47	0.45
1:D:171:LYS:O	1:D:181:ARG:NH1	2.38	0.45
1:F:87:MET:HB3	1:F:100:GLY:CA	2.47	0.45
1:L:134:ILE:HG13	1:L:135:HIS:CD2	2.51	0.45
1:L:243:SER:N	1:L:270:ASP:O	2.49	0.45
1:D:59:ASP:O	1:D:99:GLY:HA3	2.17	0.44
1:E:83:LEU:HB3	1:E:102:LYS:HE3	1.99	0.44
1:F:316:ASP:HB2	1:F:317:PRO:HD2	1.98	0.44
1:B:182:GLU:HG3	11:B:720:HOH:O	2.17	0.44
1:B:87:MET:HB3	1:B:100:GLY:HA3	1.98	0.44
1:C:316:ASP:HB2	1:C:317:PRO:HD2	1.97	0.44
1:D:398:ASN:O	1:D:402:ARG:HG3	2.17	0.44
1:J:390:MET:HE2	1:J:390:MET:HB3	1.81	0.44
1:B:319:ALA:O	1:B:323:LEU:HD22	2.17	0.44
1:D:85:GLN:NE2	11:D:707:HOH:O	2.44	0.44
1:F:85:GLN:HG2	1:F:89:TRP:NE1	2.32	0.44
1:G:402:ARG:HG2	11:G:864:HOH:O	2.17	0.44
1:L:9:ARG:CZ	1:L:317:PRO:HG3	2.48	0.44
1:A:87:MET:HB3	1:A:100:GLY:CA	2.48	0.44
1:B:68:GLY:H	2:B:501:A1H40:C13	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:77:PRO:O	1:D:81:ASN:HB2	2.18	0.44
1:G:9:ARG:NE	1:G:317:PRO:HG3	2.33	0.44
1:A:373:ALA:HA	11:A:767:HOH:O	2.17	0.44
1:K:333:ASP:OD1	1:K:334:VAL:N	2.51	0.44
1:F:317:PRO:O	1:F:321:GLU:HG3	2.18	0.44
1:A:59:ASP:O	1:A:99:GLY:HA3	2.18	0.44
1:J:316:ASP:HB2	1:J:317:PRO:HD2	1.99	0.44
1:G:325:LYS:N	1:G:325:LYS:HD2	2.33	0.43
1:G:181:ARG:HE	1:G:181:ARG:HB2	1.67	0.43
1:G:262:SER:HB3	1:G:265:ASP:OD2	2.18	0.43
1:H:381:CYS:HB3	4:H:504:PEG:H21	2.00	0.43
1:I:34:GLU:HG2	1:I:56:ILE:HD12	1.99	0.43
1:C:220:TRP:CZ2	3:C:503:EDO:H11	2.53	0.43
1:C:388:LEU:HG	4:C:502:PEG:H32	1.99	0.43
1:F:216:ASN:O	1:F:220:TRP:HD1	2.01	0.43
1:H:232:VAL:O	1:H:248:ILE:HD12	2.19	0.43
1:J:215:GLY:HA3	5:J:602:NAD:O5B	2.18	0.43
1:K:279:VAL:HG12	1:K:301:ASP:O	2.18	0.43
1:B:407:ARG:O	1:G:122:ARG:NH2	2.51	0.43
3:B:505:EDO:H12	1:J:409:TRP:CZ3	2.53	0.43
1:I:178:SER:O	1:I:181:ARG:HD3	2.19	0.43
1:B:333:ASP:OD1	1:B:334:VAL:N	2.51	0.43
1:G:134:ILE:HG22	1:G:135:HIS:CD2	2.54	0.43
1:I:388:LEU:HG	3:I:904:EDO:H12	2.01	0.43
1:C:318:ASP:OD1	1:C:318:ASP:N	2.52	0.43
1:E:262:SER:OG	1:E:265:ASP:OD2	2.32	0.43
1:G:69:ILE:HG23	1:G:104:GLY:HA2	1.99	0.43
1:H:319:ALA:O	1:H:323:LEU:HD22	2.18	0.43
1:A:294:LEU:HD23	1:A:294:LEU:HA	1.90	0.43
1:F:69:ILE:HG23	1:F:104:GLY:HA2	2.00	0.43
1:H:72:HIS:CD2	1:H:73:PRO:HD2	2.53	0.43
1:J:333:ASP:OD1	1:J:334:VAL:N	2.51	0.43
1:F:122:ARG:NH2	1:L:407:ARG:O	2.52	0.43
1:H:51:TYR:CE1	3:I:901:EDO:H12	2.53	0.43
1:J:243:SER:HB2	1:J:272:MET:SD	2.59	0.43
1:K:44:ASP:OD2	6:K:504:TRS:H22	2.18	0.43
1:K:89:TRP:O	1:K:93:VAL:HG23	2.19	0.43
1:L:12:GLN:HB3	1:L:16:ARG:NH1	2.33	0.43
1:C:132:ILE:HA	1:C:137:ASP:HB3	2.01	0.43
1:J:56:ILE:HD13	1:J:80:VAL:CG1	2.49	0.43
1:B:69:ILE:HG23	1:B:104:GLY:HA2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:108:ASN:OD1	1:F:110:LYS:HG2	2.19	0.42
1:I:200:TYR:OH	1:I:329:ILE:HD12	2.19	0.42
1:J:214:PHE:CD2	1:J:257:LYS:HD2	2.53	0.42
1:B:202:LYS:NZ	8:B:504:PGE:H52	2.34	0.42
1:E:35:ILE:HG13	1:E:131:LEU:HD13	1.99	0.42
1:E:211:ILE:HD13	1:E:232:VAL:HG13	2.00	0.42
1:I:142:ASP:OD1	1:I:143:MET:N	2.47	0.42
1:L:264:LYS:HE2	1:L:264:LYS:HB3	1.83	0.42
1:D:333:ASP:OD1	1:D:334:VAL:N	2.51	0.42
1:L:90:LYS:NZ	1:L:337:ASN:OD1	2.48	0.42
1:B:378:LYS:NZ	9:B:506:PG4:H42	2.35	0.42
1:G:313:HIS:N	1:G:314:PRO:HD3	2.33	0.42
1:K:212:GLN:HE22	1:K:293:VAL:HG11	1.84	0.42
1:L:130:ASP:OD1	1:L:130:ASP:N	2.50	0.42
1:E:33:ARG:HG2	1:E:35:ILE:HD11	2.00	0.42
1:G:71:TYR:HB3	1:G:109:PRO:HG3	2.02	0.42
1:L:13:ARG:O	1:L:17:ILE:HG13	2.19	0.42
1:A:286:ILE:HG22	1:A:288:CYS:SG	2.60	0.42
1:F:197:PHE:CE2	1:F:207:MET:HG3	2.55	0.42
1:H:90:LYS:NZ	1:H:337:ASN:OD1	2.51	0.42
1:I:380:ASN:ND2	1:I:394:THR:OG1	2.45	0.42
1:K:132:ILE:HA	1:K:137:ASP:HB3	2.02	0.42
3:A:607:EDO:H12	1:H:135:HIS:CE1	2.55	0.42
1:B:378:LYS:NZ	9:B:506:PG4:H51	2.35	0.42
5:D:605:NAD:O1N	5:D:605:NAD:N7N	2.53	0.42
1:C:286:ILE:HG22	1:C:288:CYS:SG	2.60	0.42
1:E:56:ILE:HD13	1:E:80:VAL:HG12	2.01	0.42
1:G:286:ILE:HG22	1:G:288:CYS:SG	2.60	0.42
1:H:9:ARG:NE	1:H:317:PRO:HG3	2.35	0.42
1:B:354:GLY:HA3	1:K:352:ILE:HD11	2.02	0.41
1:G:2:ASN:HB3	1:G:3:ALA:H	1.58	0.41
1:G:171:LYS:O	1:G:181:ARG:NH1	2.51	0.41
1:J:360:GLU:CD	1:J:360:GLU:H	2.23	0.41
1:K:286:ILE:HG22	1:K:288:CYS:SG	2.59	0.41
1:C:238:ILE:HD13	5:C:506:NAD:N7A	2.35	0.41
1:L:207:MET:HB2	1:L:209:PHE:CE1	2.55	0.41
1:B:77:PRO:HA	3:B:502:EDO:H22	2.02	0.41
1:E:185:THR:O	1:E:189:VAL:HG23	2.21	0.41
1:J:72:HIS:CE1	1:J:74:GLU:HG3	2.55	0.41
1:K:332:PRO:HG3	1:K:389:ARG:HA	2.02	0.41
1:L:139:PRO:HD2	1:L:167:VAL:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:102:LYS:NZ	1:F:142:ASP:OD2	2.53	0.41
1:I:212:GLN:OE1	1:I:278:LEU:HD21	2.21	0.41
1:F:163:HIS:NE2	1:F:165:PRO:HG3	2.35	0.41
1:H:67:GLY:HA3	1:H:101:ALA:O	2.20	0.41
1:K:253:LEU:HD23	1:K:253:LEU:O	2.20	0.41
1:B:132:ILE:HA	1:B:137:ASP:HB3	2.02	0.41
1:B:378:LYS:HZ2	9:B:506:PG4:H42	1.84	0.41
1:C:216:ASN:O	1:C:220:TRP:HD1	2.03	0.41
1:F:174:ASP:OD1	1:L:402:ARG:NH1	2.54	0.41
1:G:67:GLY:HA3	1:G:101:ALA:O	2.21	0.41
1:I:212:GLN:HB2	1:I:277:LEU:HD12	2.03	0.41
1:L:297:GLU:HG2	1:L:298:ASN:ND2	2.36	0.41
1:B:48:LEU:O	1:J:23:LYS:HD3	2.20	0.41
1:E:305:LYS:HE3	1:E:306:PHE:CE2	2.56	0.41
1:H:409:TRP:CE2	1:I:48:LEU:HD11	2.55	0.41
1:J:208:THR:HG22	1:J:231:LYS:HB2	2.03	0.41
1:C:87:MET:HB3	1:C:100:GLY:HA3	2.01	0.41
1:D:251:ALA:O	1:D:255:LYS:HG3	2.21	0.41
1:F:332:PRO:HG3	1:F:389:ARG:HA	2.03	0.41
1:G:9:ARG:CZ	1:G:317:PRO:HG3	2.51	0.41
1:K:240:GLY:CA	1:K:264:LYS:HD3	2.50	0.41
1:K:382:LYS:HA	1:K:382:LYS:HD3	1.86	0.41
1:L:329:ILE:HD11	1:L:388:LEU:HD11	2.03	0.41
1:L:69:ILE:HG23	1:L:104:GLY:HA2	2.02	0.41
1:B:102:LYS:NZ	1:B:142:ASP:OD2	2.49	0.40
1:G:132:ILE:HA	1:G:137:ASP:HB3	2.03	0.40
1:H:194:GLU:HG2	1:H:204:ILE:HD12	2.03	0.40
1:A:54:PHE:CG	3:A:603:EDO:H11	2.56	0.40
1:C:71:TYR:HB3	1:C:109:PRO:HG3	2.03	0.40
1:G:256:HIS:CD2	1:G:261:GLY:HA3	2.56	0.40
1:I:44:ASP:OD2	6:I:902:TRS:H21	2.22	0.40
1:K:197:PHE:CE2	1:K:207:MET:HG3	2.56	0.40
1:D:43:LYS:NZ	1:D:116:GLU:OE1	2.54	0.40
1:D:190:VAL:HG21	1:D:224:ALA:HB3	2.02	0.40
1:K:59:ASP:O	1:K:99:GLY:HA3	2.22	0.40
1:B:90:LYS:HE2	11:B:761:HOH:O	2.21	0.40
1:C:139:PRO:HD2	1:C:167:VAL:O	2.22	0.40
1:E:20:LEU:HD12	1:E:20:LEU:HA	1.92	0.40
1:K:248:ILE:HG21	1:K:253:LEU:CD1	2.51	0.40
1:E:214:PHE:CE2	1:E:253:LEU:HD22	2.56	0.40
1:G:185:THR:O	1:G:189:VAL:HG23	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:316:ASP:HB2	1:I:317:PRO:HD2	2.03	0.40
1:K:264:LYS:HA	1:K:264:LYS:HD2	1.84	0.40
1:L:59:ASP:O	1:L:99:GLY:HA3	2.21	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	409/414 (99%)	396 (97%)	13 (3%)	0	100	100
1	B	408/414 (99%)	397 (97%)	11 (3%)	0	100	100
1	C	408/414 (99%)	396 (97%)	12 (3%)	0	100	100
1	D	410/414 (99%)	400 (98%)	10 (2%)	0	100	100
1	E	407/414 (98%)	395 (97%)	12 (3%)	0	100	100
1	F	408/414 (99%)	398 (98%)	10 (2%)	0	100	100
1	G	409/414 (99%)	399 (98%)	10 (2%)	0	100	100
1	H	409/414 (99%)	394 (96%)	15 (4%)	0	100	100
1	I	407/414 (98%)	395 (97%)	12 (3%)	0	100	100
1	J	407/414 (98%)	393 (97%)	14 (3%)	0	100	100
1	K	406/414 (98%)	393 (97%)	12 (3%)	1 (0%)	44	55
1	L	407/414 (98%)	392 (96%)	15 (4%)	0	100	100
All	All	4895/4968 (98%)	4748 (97%)	146 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	K	278	LEU

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	330/332 (99%)	319 (97%)	11 (3%)	33	48
1	B	329/332 (99%)	319 (97%)	10 (3%)	36	52
1	C	329/332 (99%)	318 (97%)	11 (3%)	33	48
1	D	330/332 (99%)	319 (97%)	11 (3%)	33	48
1	E	328/332 (99%)	315 (96%)	13 (4%)	27	40
1	F	329/332 (99%)	318 (97%)	11 (3%)	33	48
1	G	330/332 (99%)	320 (97%)	10 (3%)	36	52
1	H	330/332 (99%)	319 (97%)	11 (3%)	33	48
1	I	328/332 (99%)	315 (96%)	13 (4%)	27	40
1	J	328/332 (99%)	316 (96%)	12 (4%)	29	43
1	K	328/332 (99%)	312 (95%)	16 (5%)	21	31
1	L	328/332 (99%)	316 (96%)	12 (4%)	29	43
All	All	3947/3984 (99%)	3806 (96%)	141 (4%)	30	44

All (141) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	87	MET
1	A	110	LYS
1	A	143	MET
1	A	168	VAL
1	A	182	GLU
1	A	204	ILE
1	A	300	ASN
1	A	318	ASP
1	A	372	LYS
1	A	380	ASN
1	A	402	ARG
1	B	16	ARG
1	B	87	MET
1	B	168	VAL

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Mol	Chain	Res	Type
1	B	182	GLU
1	B	204	ILE
1	B	297	GLU
1	B	323	LEU
1	B	352	ILE
1	B	383	THR
1	B	402	ARG
1	C	5	VAL
1	C	74	GLU
1	C	87	MET
1	C	168	VAL
1	C	204	ILE
1	C	318	ASP
1	C	323	LEU
1	C	352	ILE
1	C	372	LYS
1	C	380	ASN
1	C	404	THR
1	D	2	ASN
1	D	4	LEU
1	D	16	ARG
1	D	48	LEU
1	D	81	ASN
1	D	182	GLU
1	D	204	ILE
1	D	307	ILE
1	D	323	LEU
1	D	380	ASN
1	D	383	THR
1	E	4	LEU
1	E	48	LEU
1	E	87	MET
1	E	143	MET
1	E	168	VAL
1	E	204	ILE
1	E	260	ASN
1	E	290	LEU
1	E	318	ASP
1	E	329	ILE
1	E	352	ILE
1	E	372	LYS
1	E	383	THR

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Mol	Chain	Res	Type
1	F	2	ASN
1	F	79	GLU
1	F	87	MET
1	F	168	VAL
1	F	207	MET
1	F	263	LEU
1	F	318	ASP
1	F	323	LEU
1	F	329	ILE
1	F	352	ILE
1	F	383	THR
1	G	4	LEU
1	G	87	MET
1	G	110	LYS
1	G	143	MET
1	G	168	VAL
1	G	290	LEU
1	G	305	LYS
1	G	318	ASP
1	G	323	LEU
1	G	329	ILE
1	H	4	LEU
1	H	79	GLU
1	H	87	MET
1	H	168	VAL
1	H	204	ILE
1	H	208	THR
1	H	281	ASP
1	H	301	ASP
1	H	318	ASP
1	H	323	LEU
1	H	352	ILE
1	I	4	LEU
1	I	5	VAL
1	I	16	ARG
1	I	87	MET
1	I	181	ARG
1	I	204	ILE
1	I	264	LYS
1	I	297	GLU
1	I	305	LYS
1	I	318	ASP

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Mol	Chain	Res	Type
1	I	323	LEU
1	I	352	ILE
1	I	380	ASN
1	J	4	LEU
1	J	5	VAL
1	J	16	ARG
1	J	87	MET
1	J	143	MET
1	J	187	LEU
1	J	204	ILE
1	J	232	VAL
1	J	278	LEU
1	J	318	ASP
1	J	352	ILE
1	J	380	ASN
1	K	4	LEU
1	K	7	THR
1	K	9	ARG
1	K	74	GLU
1	K	79	GLU
1	K	87	MET
1	K	110	LYS
1	K	143	MET
1	K	168	VAL
1	K	181	ARG
1	K	204	ILE
1	K	232	VAL
1	K	277	LEU
1	K	290	LEU
1	K	318	ASP
1	K	372	LYS
1	L	4	LEU
1	L	9	ARG
1	L	168	VAL
1	L	187	LEU
1	L	208	THR
1	L	298	ASN
1	L	318	ASP
1	L	325	LYS
1	L	329	ILE
1	L	360	GLU
1	L	383	THR

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Mol	Chain	Res	Type
1	L	402	ARG

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

Mol	Chain	Res	Type
1	D	72	HIS
1	E	72	HIS
1	E	85	GLN
1	G	72	HIS
1	G	380	ASN
1	H	216	ASN
1	I	380	ASN
1	K	72	HIS
1	L	298	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 79 ligands modelled in this entry, 15 are monoatomic - leaving 64 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
4	PEG	E	801	-	6,6,6	0.22	0	5,5,5	0.24	0
4	PEG	C	502	-	6,6,6	0.27	0	5,5,5	0.19	0
6	TRS	I	902	10	7,7,7	0.53	0	9,9,9	0.97	0
3	EDO	B	503	-	3,3,3	0.31	0	2,2,2	1.24	0
5	NAD	B	508	-	42,48,48	0.71	1 (2%)	50,73,73	0.87	2 (4%)
3	EDO	I	904	-	3,3,3	0.52	0	2,2,2	0.35	0
2	A1H40	A	601	-	15,15,15	1.40	3 (20%)	20,20,20	3.09	11 (55%)
2	A1H40	H	501	-	15,15,15	1.39	3 (20%)	20,20,20	2.19	9 (45%)
3	EDO	F	604	-	3,3,3	0.51	0	2,2,2	0.64	0
3	EDO	C	503	-	3,3,3	0.43	0	2,2,2	0.57	0
3	EDO	E	802	-	3,3,3	0.43	0	2,2,2	1.06	0
4	PEG	C	504	-	6,6,6	0.21	0	5,5,5	0.17	0
3	EDO	D	603	-	3,3,3	0.58	0	2,2,2	0.55	0
3	EDO	K	506	-	3,3,3	0.47	0	2,2,2	0.80	0
2	A1H40	D	602	-	15,15,15	1.49	3 (20%)	20,20,20	2.92	9 (45%)
3	EDO	I	901	-	3,3,3	0.57	0	2,2,2	0.09	0
3	EDO	A	607	-	3,3,3	0.40	0	2,2,2	1.14	0
3	EDO	L	702	-	3,3,3	0.54	0	2,2,2	0.84	0
5	NAD	K	505	-	42,48,48	0.66	1 (2%)	50,73,73	0.80	2 (4%)
9	PG4	B	506	-	12,12,12	0.29	0	11,11,11	0.15	0
3	EDO	F	602	-	3,3,3	0.56	0	2,2,2	0.96	0
3	EDO	G	705	-	3,3,3	0.42	0	2,2,2	1.14	0
3	EDO	I	903	-	3,3,3	0.69	0	2,2,2	0.23	0
3	EDO	I	906	-	3,3,3	0.41	0	2,2,2	1.29	0
5	NAD	H	505	-	42,48,48	0.60	0	50,73,73	0.82	3 (6%)
3	EDO	G	702	-	3,3,3	0.49	0	2,2,2	0.38	0
5	NAD	I	907	-	42,48,48	0.63	0	50,73,73	0.79	2 (4%)
5	NAD	J	602	-	42,48,48	0.62	0	50,73,73	0.80	2 (4%)
3	EDO	J	601	-	3,3,3	0.40	0	2,2,2	1.02	0
5	NAD	C	506	-	42,48,48	0.61	0	50,73,73	0.79	2 (4%)
4	PEG	H	504	-	6,6,6	0.19	0	5,5,5	0.19	0
8	PGE	B	504	-	9,9,9	0.39	0	8,8,8	0.34	0
4	PEG	F	601	-	6,6,6	0.15	0	5,5,5	0.15	0
5	NAD	D	605	-	42,48,48	0.68	1 (2%)	50,73,73	0.81	2 (4%)
3	EDO	A	606	-	3,3,3	0.65	0	2,2,2	0.35	0
3	EDO	C	505	-	3,3,3	0.52	0	2,2,2	0.90	0
2	A1H40	C	501	-	15,15,15	1.29	2 (13%)	20,20,20	2.49	7 (35%)
3	EDO	B	505	-	3,3,3	0.46	0	2,2,2	0.67	0
5	NAD	G	706	-	42,48,48	0.59	0	50,73,73	0.79	2 (4%)
5	NAD	L	703	-	42,48,48	0.61	0	50,73,73	0.82	3 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	TRS	D	601	-	7,7,7	0.65	0	9,9,9	1.42	2 (22%)
2	A1H40	K	501	-	15,15,15	1.33	3 (20%)	20,20,20	2.18	9 (45%)
6	TRS	K	504	10	7,7,7	0.60	0	9,9,9	1.17	0
3	EDO	B	507	-	3,3,3	0.60	0	2,2,2	0.45	0
3	EDO	A	604	-	3,3,3	0.48	0	2,2,2	0.40	0
3	EDO	G	703	10	3,3,3	0.44	0	2,2,2	0.69	0
3	EDO	H	502	-	3,3,3	0.46	0	2,2,2	1.15	0
5	NAD	E	803	-	42,48,48	0.59	0	50,73,73	0.80	2 (4%)
6	TRS	H	503	-	7,7,7	0.35	0	9,9,9	0.98	1 (11%)
5	NAD	F	603	-	42,48,48	0.63	0	50,73,73	0.80	1 (2%)
4	PEG	A	605	-	6,6,6	0.21	0	5,5,5	0.18	0
6	TRS	A	609	-	7,7,7	0.56	0	9,9,9	1.22	1 (11%)
3	EDO	K	503	-	3,3,3	0.47	0	2,2,2	0.71	0
4	PEG	D	604	-	6,6,6	0.20	0	5,5,5	0.15	0
3	EDO	A	602	-	3,3,3	0.54	0	2,2,2	1.04	0
2	A1H40	B	501	-	15,15,15	1.44	3 (20%)	20,20,20	1.75	5 (25%)
5	NAD	A	608	-	42,48,48	0.59	0	50,73,73	0.84	2 (4%)
3	EDO	K	502	-	3,3,3	0.41	0	2,2,2	1.21	0
6	TRS	L	701	-	7,7,7	0.28	0	9,9,9	0.66	0
3	EDO	B	502	-	3,3,3	0.48	0	2,2,2	0.18	0
6	TRS	G	701	-	7,7,7	0.54	0	9,9,9	0.73	0
4	PEG	G	704	-	6,6,6	0.15	0	5,5,5	0.11	0
3	EDO	I	905	-	3,3,3	0.37	0	2,2,2	0.76	0
3	EDO	A	603	-	3,3,3	0.55	0	2,2,2	0.14	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	PEG	E	801	-	-	0/4/4/4	-
4	PEG	C	502	-	-	0/4/4/4	-
6	TRS	I	902	10	-	6/9/9/9	-
3	EDO	B	503	-	-	1/1/1/1	-
5	NAD	B	508	-	-	1/26/62/62	0/5/5/5
3	EDO	I	904	-	-	1/1/1/1	-
2	A1H40	A	601	-	-	7/8/8/8	0/2/2/2
2	A1H40	H	501	-	-	4/8/8/8	0/2/2/2
3	EDO	F	604	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	EDO	C	503	-	-	0/1/1/1	-
3	EDO	E	802	-	-	0/1/1/1	-
4	PEG	C	504	-	-	1/4/4/4	-
3	EDO	D	603	-	-	0/1/1/1	-
3	EDO	K	506	-	-	1/1/1/1	-
2	A1H40	D	602	-	-	4/8/8/8	0/2/2/2
3	EDO	I	901	-	-	0/1/1/1	-
3	EDO	A	607	-	-	0/1/1/1	-
3	EDO	L	702	-	-	1/1/1/1	-
5	NAD	K	505	-	-	1/26/62/62	0/5/5/5
9	PG4	B	506	-	-	5/10/10/10	-
3	EDO	F	602	-	-	1/1/1/1	-
3	EDO	G	705	-	-	1/1/1/1	-
3	EDO	I	903	-	-	1/1/1/1	-
3	EDO	I	906	-	-	1/1/1/1	-
5	NAD	H	505	-	-	1/26/62/62	0/5/5/5
3	EDO	G	702	-	-	0/1/1/1	-
5	NAD	I	907	-	-	1/26/62/62	0/5/5/5
5	NAD	J	602	-	-	1/26/62/62	0/5/5/5
3	EDO	J	601	-	-	1/1/1/1	-
5	NAD	C	506	-	-	1/26/62/62	0/5/5/5
4	PEG	H	504	-	-	0/4/4/4	-
8	PGE	B	504	-	-	5/7/7/7	-
4	PEG	F	601	-	-	0/4/4/4	-
5	NAD	D	605	-	-	1/26/62/62	0/5/5/5
3	EDO	A	606	-	-	1/1/1/1	-
3	EDO	C	505	-	-	0/1/1/1	-
2	A1H40	C	501	-	-	4/8/8/8	0/2/2/2
3	EDO	B	505	-	-	0/1/1/1	-
5	NAD	G	706	-	-	1/26/62/62	0/5/5/5
5	NAD	L	703	-	-	1/26/62/62	0/5/5/5
6	TRS	D	601	-	-	1/9/9/9	-
2	A1H40	K	501	-	-	8/8/8/8	0/2/2/2
6	TRS	K	504	10	-	9/9/9/9	-
3	EDO	B	507	-	-	1/1/1/1	-
3	EDO	A	604	-	-	0/1/1/1	-
3	EDO	G	703	10	-	1/1/1/1	-
3	EDO	H	502	-	-	1/1/1/1	-
5	NAD	E	803	-	-	1/26/62/62	0/5/5/5
6	TRS	H	503	-	-	1/9/9/9	-
5	NAD	F	603	-	-	1/26/62/62	0/5/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	PEG	A	605	-	-	0/4/4/4	-
6	TRS	A	609	-	-	1/9/9/9	-
3	EDO	K	503	-	-	1/1/1/1	-
4	PEG	D	604	-	-	0/4/4/4	-
3	EDO	A	602	-	-	1/1/1/1	-
2	A1H40	B	501	-	-	4/8/8/8	0/2/2/2
5	NAD	A	608	-	-	1/26/62/62	0/5/5/5
3	EDO	K	502	-	-	1/1/1/1	-
6	TRS	L	701	-	-	9/9/9/9	-
3	EDO	B	502	-	-	0/1/1/1	-
6	TRS	G	701	-	-	3/9/9/9	-
4	PEG	G	704	-	-	1/4/4/4	-
3	EDO	I	905	-	-	1/1/1/1	-
3	EDO	A	603	-	-	0/1/1/1	-

All (20) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	602	A1H40	C08-N04	3.06	1.37	1.33
2	B	501	A1H40	C08-N04	3.03	1.37	1.33
2	B	501	A1H40	C09-C13	2.91	1.55	1.49
2	H	501	A1H40	C08-N04	2.87	1.37	1.33
2	D	602	A1H40	C09-C13	2.76	1.55	1.49
2	K	501	A1H40	C08-N04	2.73	1.37	1.33
2	A	601	A1H40	C10-C09	-2.67	1.35	1.39
2	B	501	A1H40	C08-N03	2.56	1.36	1.33
2	H	501	A1H40	C09-C13	2.54	1.54	1.49
2	C	501	A1H40	C08-N04	2.54	1.36	1.33
5	D	605	NAD	C2N-N1N	2.41	1.37	1.35
2	H	501	A1H40	C08-N03	2.32	1.36	1.33
5	B	508	NAD	C2N-N1N	2.32	1.37	1.35
2	K	501	A1H40	C09-C13	2.21	1.54	1.49
2	D	602	A1H40	C08-N03	2.13	1.36	1.33
2	A	601	A1H40	C08-N03	2.09	1.36	1.33
2	C	501	A1H40	C10-C09	-2.09	1.36	1.39
2	K	501	A1H40	C08-N03	2.08	1.36	1.33
2	A	601	A1H40	C08-N04	2.07	1.36	1.33
5	K	505	NAD	C2N-N1N	2.05	1.37	1.35

All (79) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	601	A1H40	C10-C07-C08	-8.23	107.95	120.05
2	D	602	A1H40	C10-C07-C08	-7.53	108.97	120.05
2	C	501	A1H40	C10-C07-C08	-6.61	110.33	120.05
2	A	601	A1H40	C11-C07-C08	4.74	128.84	120.79
2	K	501	A1H40	C10-C07-C08	-4.73	113.09	120.05
2	D	602	A1H40	C12-C09-C13	4.67	129.59	120.39
2	D	602	A1H40	C11-C07-C08	4.63	128.65	120.79
2	H	501	A1H40	C10-C07-C08	-4.58	113.31	120.05
2	A	601	A1H40	C12-C09-C13	4.40	129.04	120.39
2	A	601	A1H40	C10-C09-C13	-4.05	112.64	119.98
2	C	501	A1H40	C10-C09-C13	-4.02	112.70	119.98
2	D	602	A1H40	C10-C09-C13	-4.02	112.70	119.98
2	C	501	A1H40	C12-C09-C13	4.00	128.25	120.39
2	C	501	A1H40	C11-C07-C08	3.87	127.37	120.79
2	B	501	A1H40	C11-C07-C10	3.82	123.56	118.16
2	K	501	A1H40	N04-C08-N03	-3.68	107.28	111.39
2	A	601	A1H40	C11-C07-C10	3.55	123.18	118.16
2	A	601	A1H40	O02-C13-C09	3.52	123.98	114.85
2	D	602	A1H40	C07-C08-N03	3.31	129.73	124.12
2	H	501	A1H40	C11-C07-C10	3.27	122.79	118.16
2	H	501	A1H40	C12-C09-C13	3.05	126.40	120.39
2	B	501	A1H40	O02-C13-O01	-3.01	116.66	123.35
2	D	602	A1H40	C11-C07-C10	2.98	122.38	118.16
2	D	602	A1H40	O02-C13-O01	-2.98	116.73	123.35
2	C	501	A1H40	C11-C07-C10	2.92	122.30	118.16
2	H	501	A1H40	O02-C13-O01	-2.89	116.94	123.35
2	K	501	A1H40	C08-N04-N06	2.87	107.42	104.87
2	K	501	A1H40	C11-C07-C08	2.81	125.57	120.79
2	A	601	A1H40	C07-C08-N04	2.81	128.87	124.12
2	K	501	A1H40	C08-N03-N05	2.79	107.35	104.87
2	K	501	A1H40	C12-C09-C13	2.77	125.85	120.39
2	B	501	A1H40	C07-C10-C09	-2.75	118.11	121.09
2	H	501	A1H40	N04-C08-N03	-2.64	108.44	111.39
2	B	501	A1H40	C14-C12-C09	2.62	123.44	120.34
5	H	505	NAD	C6N-N1N-C2N	-2.58	119.62	121.97
2	H	501	A1H40	C14-C12-C09	2.57	123.39	120.34
6	D	601	TRS	C3-C-N	-2.54	100.41	107.98
2	K	501	A1H40	C07-C08-N03	2.51	128.38	124.12
5	J	602	NAD	C6N-N1N-C2N	-2.51	119.69	121.97
5	K	505	NAD	C6N-N1N-C2N	-2.46	119.73	121.97
2	K	501	A1H40	C10-C09-C13	-2.44	115.56	119.98
6	D	601	TRS	O1-C1-C	2.43	118.71	111.00
5	B	508	NAD	C6N-N1N-C2N	-2.42	119.77	121.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	501	A1H40	C07-C08-N03	2.40	128.19	124.12
5	K	505	NAD	C5A-C6A-N6A	2.36	123.93	120.35
5	C	506	NAD	C5A-C6A-N6A	2.33	123.89	120.35
5	D	605	NAD	C5A-C6A-N6A	2.31	123.87	120.35
6	H	503	TRS	O1-C1-C	-2.29	103.74	111.00
2	A	601	A1H40	C14-C11-C07	-2.27	117.71	120.56
2	H	501	A1H40	C14-C11-C07	-2.26	117.73	120.56
2	K	501	A1H40	C11-C07-C10	2.25	121.34	118.16
5	C	506	NAD	C6N-N1N-C2N	-2.24	119.93	121.97
2	A	601	A1H40	C08-N03-N05	2.24	106.86	104.87
5	L	703	NAD	C5A-C6A-N6A	2.24	123.75	120.35
2	C	501	A1H40	N04-C08-N03	-2.23	108.90	111.39
2	H	501	A1H40	C07-C08-N03	2.23	127.90	124.12
6	A	609	TRS	O1-C1-C	2.23	118.06	111.00
5	B	508	NAD	C5A-C6A-N6A	2.22	123.73	120.35
5	I	907	NAD	C6N-N1N-C2N	-2.22	119.95	121.97
5	H	505	NAD	C5A-C6A-N6A	2.21	123.70	120.35
5	D	605	NAD	C6N-N1N-C2N	-2.20	119.96	121.97
5	G	706	NAD	C5A-C6A-N6A	2.19	123.69	120.35
5	I	907	NAD	C5A-C6A-N6A	2.19	123.68	120.35
5	L	703	NAD	C6N-N1N-C2N	-2.19	119.98	121.97
2	B	501	A1H40	O02-C13-C09	2.17	120.47	114.85
5	E	803	NAD	C5A-C6A-N6A	2.17	123.64	120.35
5	F	603	NAD	C6N-N1N-C2N	-2.16	120.01	121.97
2	D	602	A1H40	C14-C11-C07	-2.15	117.86	120.56
5	A	608	NAD	C5A-C6A-N6A	2.13	123.59	120.35
5	L	703	NAD	O4B-C1B-C2B	-2.11	103.84	106.93
2	A	601	A1H40	N04-C08-N03	-2.10	109.04	111.39
5	G	706	NAD	C6N-N1N-C2N	-2.08	120.08	121.97
2	D	602	A1H40	N04-C08-N03	-2.07	109.08	111.39
5	E	803	NAD	C6N-N1N-C2N	-2.04	120.12	121.97
5	J	602	NAD	C5A-C6A-N6A	2.03	123.44	120.35
2	A	601	A1H40	O01-C13-C09	-2.02	116.07	121.45
5	A	608	NAD	C6N-N1N-C2N	-2.01	120.14	121.97
2	H	501	A1H40	C12-C09-C10	-2.01	116.86	119.24
5	H	505	NAD	O4B-C1B-C2B	-2.00	104.00	106.93

There are no chirality outliers.

All (102) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	609	TRS	N-C-C3-O3

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Mol	Chain	Res	Type	Atoms
6	I	902	TRS	C2-C-C1-O1
6	I	902	TRS	C3-C-C1-O1
6	I	902	TRS	N-C-C1-O1
6	I	902	TRS	C2-C-C3-O3
6	I	902	TRS	N-C-C3-O3
6	K	504	TRS	C2-C-C3-O3
6	L	701	TRS	C2-C-C1-O1
6	L	701	TRS	C1-C-C2-O2
6	L	701	TRS	C3-C-C2-O2
6	L	701	TRS	N-C-C2-O2
6	L	701	TRS	C1-C-C3-O3
6	L	701	TRS	C2-C-C3-O3
6	L	701	TRS	N-C-C3-O3
2	B	501	A1H40	C10-C09-C13-O01
2	B	501	A1H40	C12-C09-C13-O02
2	B	501	A1H40	C12-C09-C13-O01
2	C	501	A1H40	C10-C09-C13-O01
2	C	501	A1H40	C12-C09-C13-O02
2	B	501	A1H40	C10-C09-C13-O02
2	C	501	A1H40	C12-C09-C13-O01
2	A	601	A1H40	C12-C09-C13-O01
2	C	501	A1H40	C10-C09-C13-O02
2	A	601	A1H40	C10-C09-C13-O01
2	A	601	A1H40	C12-C09-C13-O02
2	A	601	A1H40	C10-C09-C13-O02
9	B	506	PG4	O3-C5-C6-O4
8	B	504	PGE	O1-C1-C2-O2
8	B	504	PGE	O3-C5-C6-O4
2	D	602	A1H40	C12-C09-C13-O02
2	D	602	A1H40	C12-C09-C13-O01
8	B	504	PGE	O2-C3-C4-O3
3	A	602	EDO	O1-C1-C2-O2
3	A	606	EDO	O1-C1-C2-O2
3	F	602	EDO	O1-C1-C2-O2
3	G	705	EDO	O1-C1-C2-O2
2	K	501	A1H40	C12-C09-C13-O02
2	D	602	A1H40	C10-C09-C13-O02
6	K	504	TRS	C2-C-C1-O1
6	K	504	TRS	C3-C-C2-O2
6	K	504	TRS	C1-C-C3-O3
6	L	701	TRS	C3-C-C1-O1
2	K	501	A1H40	C12-C09-C13-O01

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Mol	Chain	Res	Type	Atoms
2	D	602	A1H40	C10-C09-C13-O01
2	K	501	A1H40	C10-C09-C13-O02
2	K	501	A1H40	C10-C09-C13-O01
3	K	503	EDO	O1-C1-C2-O2
2	K	501	A1H40	C10-C07-C08-N03
2	K	501	A1H40	C11-C07-C08-N03
3	I	903	EDO	O1-C1-C2-O2
8	B	504	PGE	C1-C2-O2-C3
2	H	501	A1H40	C10-C07-C08-N03
9	B	506	PG4	C6-C5-O3-C4
6	D	601	TRS	N-C-C2-O2
6	G	701	TRS	C3-C-C1-O1
6	I	902	TRS	C1-C-C3-O3
6	K	504	TRS	N-C-C1-O1
6	K	504	TRS	C1-C-C2-O2
6	K	504	TRS	N-C-C2-O2
2	H	501	A1H40	C11-C07-C08-N03
2	K	501	A1H40	C10-C07-C08-N04
2	K	501	A1H40	C11-C07-C08-N04
3	B	503	EDO	O1-C1-C2-O2
3	H	502	EDO	O1-C1-C2-O2
3	L	702	EDO	O1-C1-C2-O2
8	B	504	PGE	C3-C4-O3-C5
2	H	501	A1H40	C10-C07-C08-N04
2	H	501	A1H40	C11-C07-C08-N04
2	A	601	A1H40	C10-C07-C08-N04
3	K	506	EDO	O1-C1-C2-O2
6	G	701	TRS	C2-C-C1-O1
2	A	601	A1H40	C11-C07-C08-N04
3	G	703	EDO	O1-C1-C2-O2
3	I	904	EDO	O1-C1-C2-O2
5	E	803	NAD	O4B-C4B-C5B-O5B
5	G	706	NAD	O4B-C4B-C5B-O5B
5	I	907	NAD	O4B-C4B-C5B-O5B
9	B	506	PG4	C3-C4-O3-C5
9	B	506	PG4	C5-C6-O4-C7
5	D	605	NAD	O4B-C4B-C5B-O5B
5	F	603	NAD	O4B-C4B-C5B-O5B
5	J	602	NAD	O4B-C4B-C5B-O5B
5	K	505	NAD	O4B-C4B-C5B-O5B
5	L	703	NAD	O4B-C4B-C5B-O5B
3	I	905	EDO	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
3	I	906	EDO	O1-C1-C2-O2
3	J	601	EDO	O1-C1-C2-O2
9	B	506	PG4	O2-C3-C4-O3
4	G	704	PEG	O1-C1-C2-O2
5	A	608	NAD	O4B-C4B-C5B-O5B
5	B	508	NAD	O4B-C4B-C5B-O5B
5	C	506	NAD	O4B-C4B-C5B-O5B
5	H	505	NAD	O4B-C4B-C5B-O5B
6	G	701	TRS	N-C-C1-O1
6	H	503	TRS	C2-C-C1-O1
6	K	504	TRS	C3-C-C1-O1
6	K	504	TRS	N-C-C3-O3
6	L	701	TRS	N-C-C1-O1
2	A	601	A1H40	C10-C07-C08-N03
3	B	507	EDO	O1-C1-C2-O2
3	K	502	EDO	O1-C1-C2-O2
4	C	504	PEG	C1-C2-O2-C3

There are no ring outliers.

29 monomers are involved in 43 short contacts:

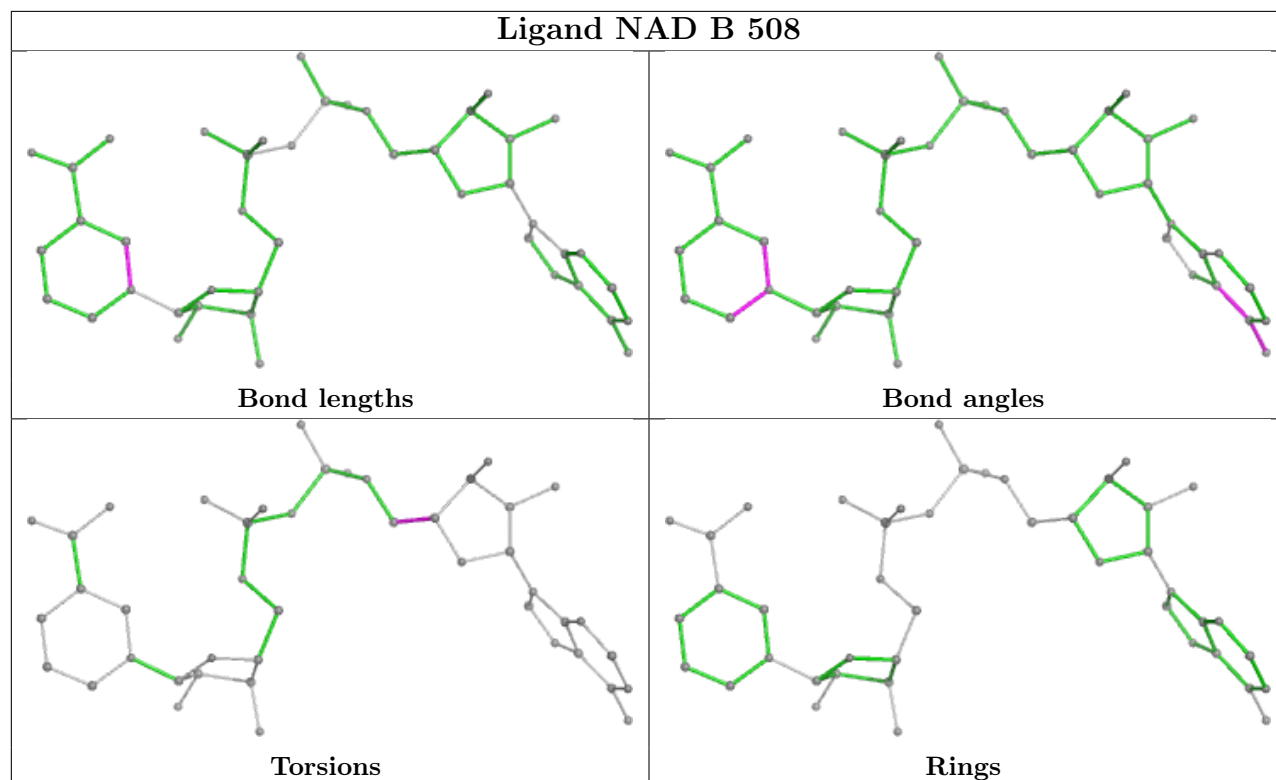
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	E	801	PEG	1	0
4	C	502	PEG	2	0
6	I	902	TRS	1	0
3	I	904	EDO	3	0
3	F	604	EDO	1	0
3	C	503	EDO	1	0
3	D	603	EDO	1	0
3	K	506	EDO	1	0
3	I	901	EDO	1	0
3	A	607	EDO	1	0
9	B	506	PG4	4	0
5	H	505	NAD	2	0
3	G	702	EDO	1	0
5	J	602	NAD	2	0
5	C	506	NAD	3	0
4	H	504	PEG	1	0
8	B	504	PGE	2	0
4	F	601	PEG	2	0
5	D	605	NAD	1	0
3	A	606	EDO	1	0

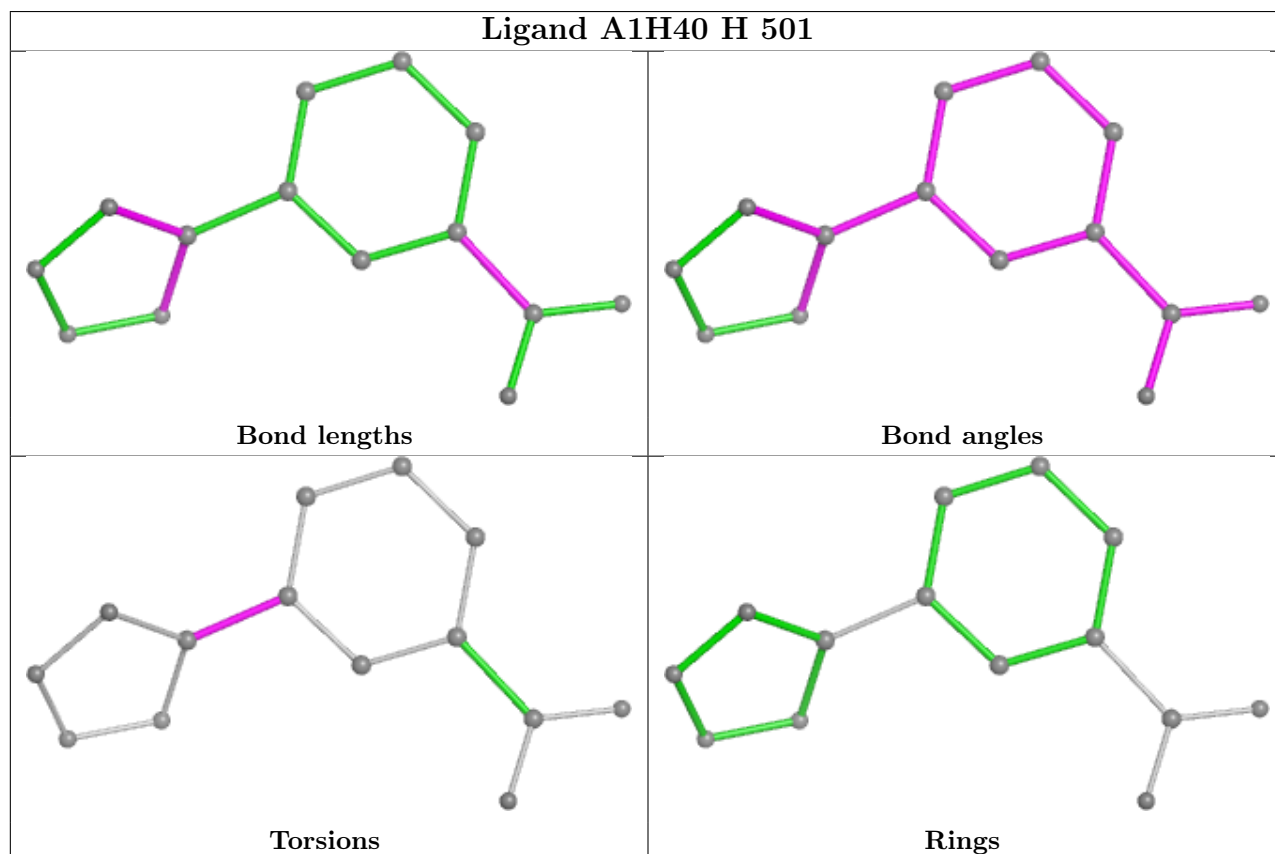
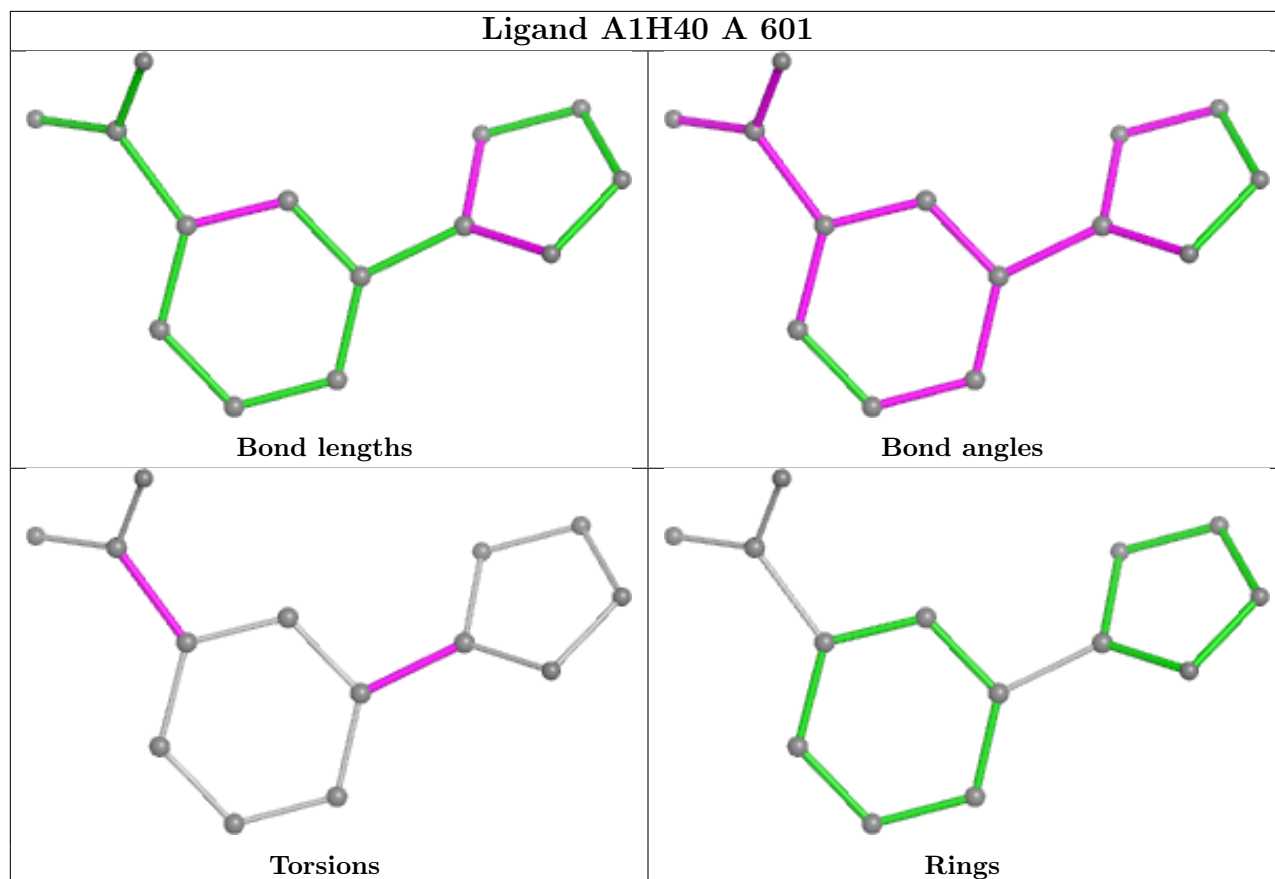
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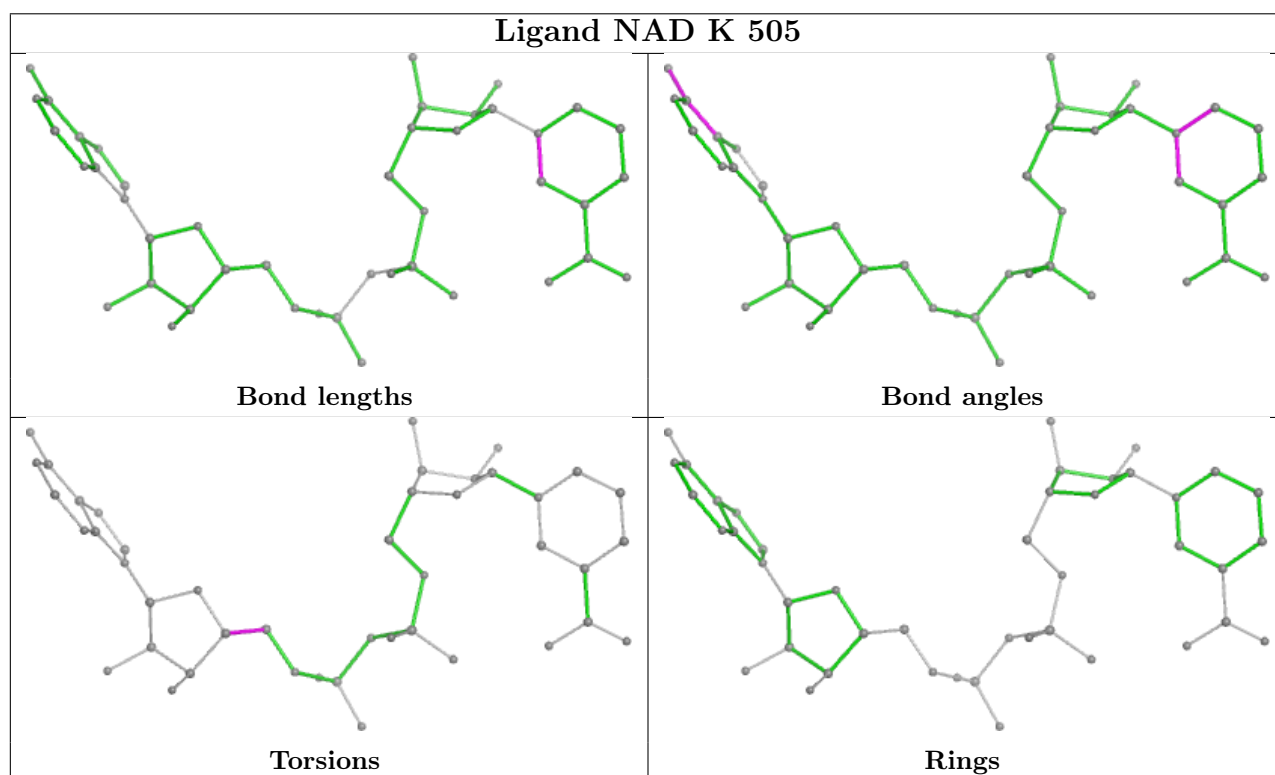
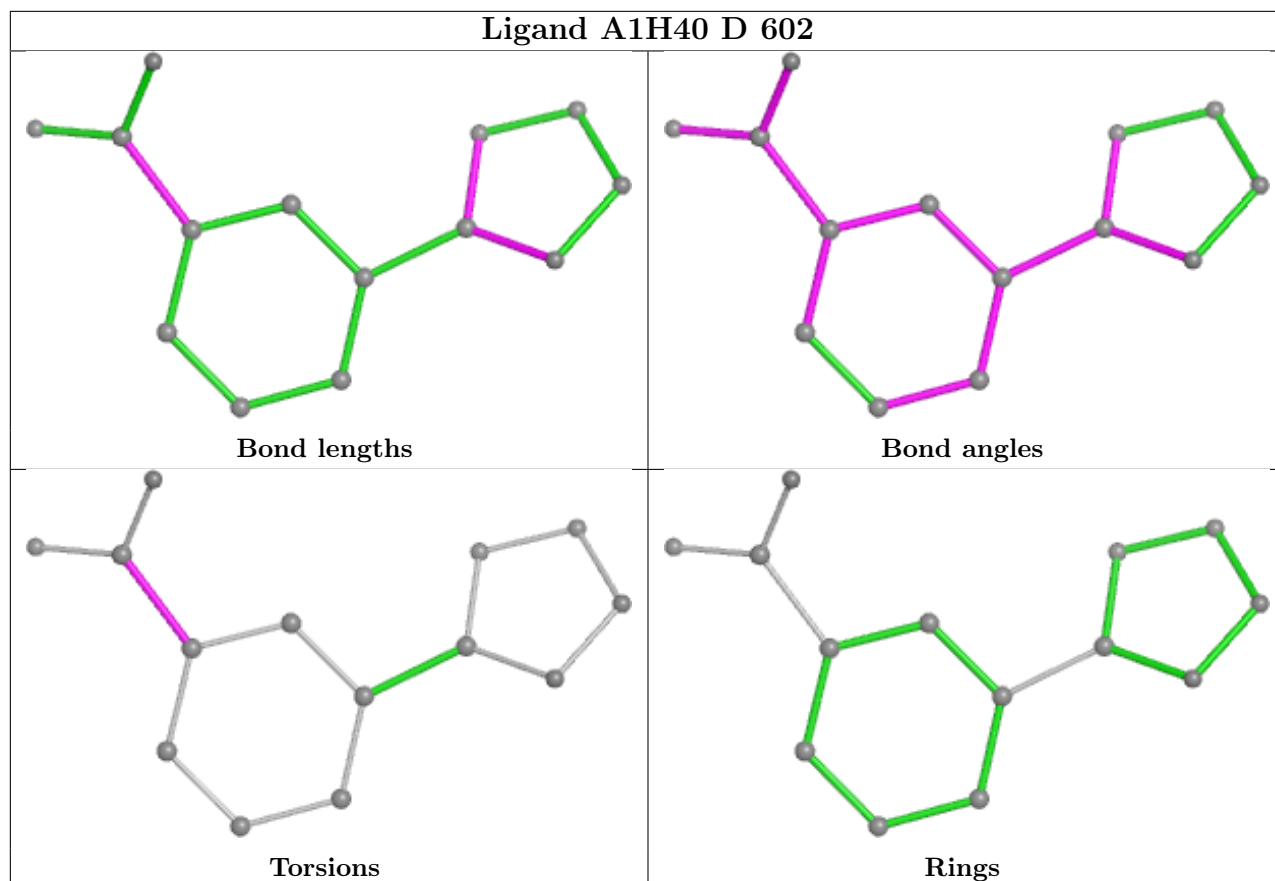
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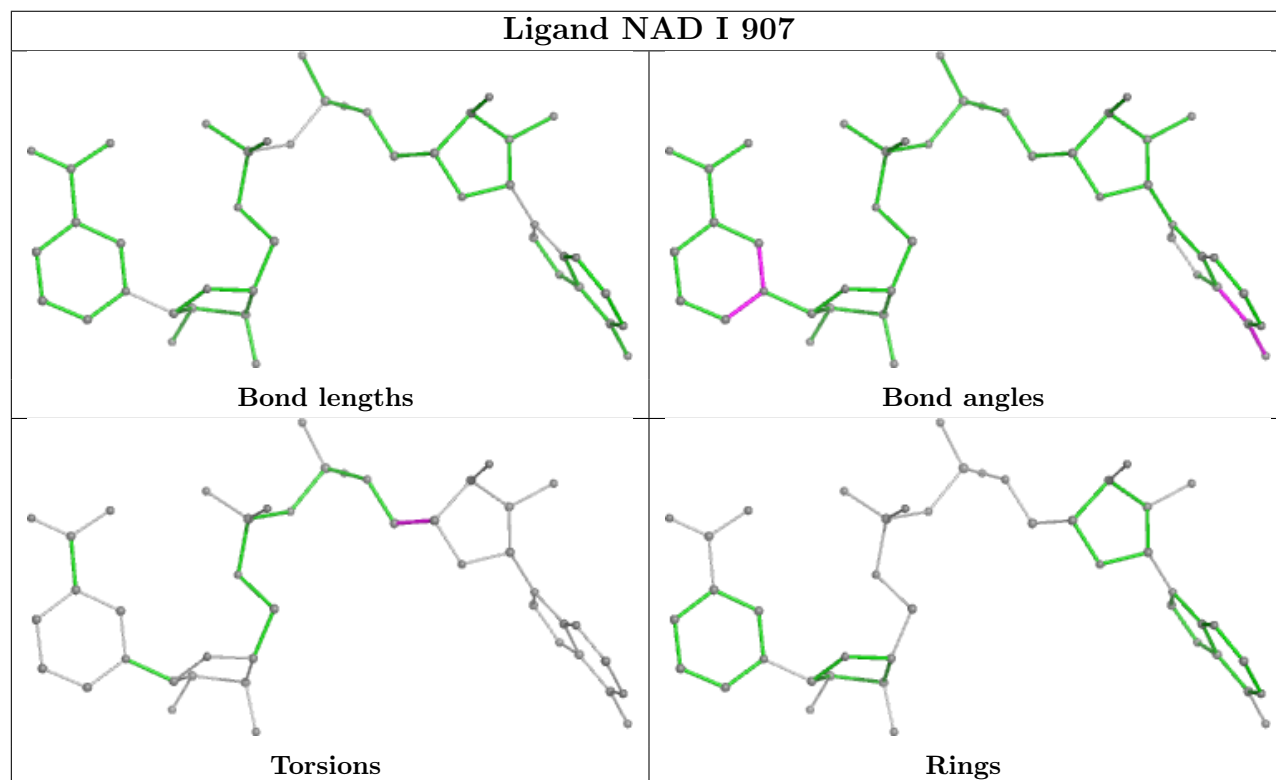
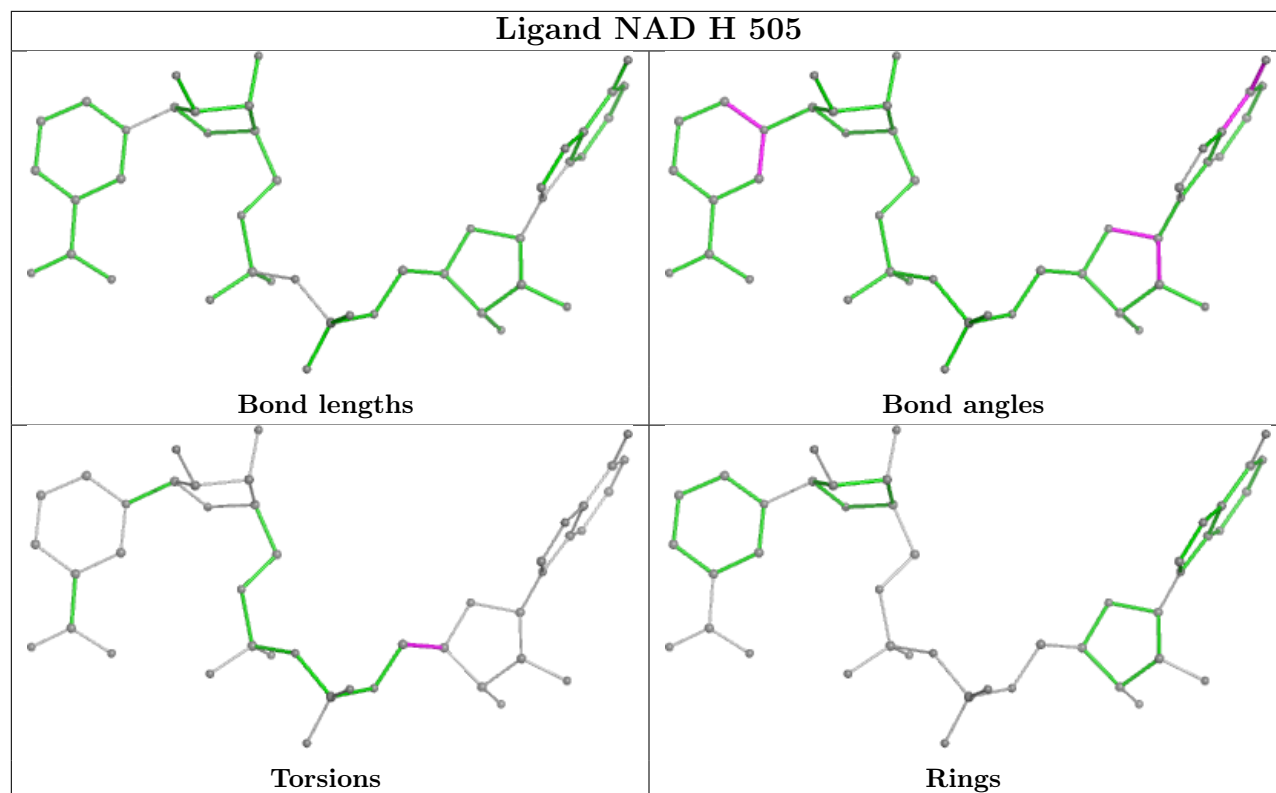
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	505	EDO	1	0
3	B	505	EDO	2	0
6	K	504	TRS	1	0
6	H	503	TRS	1	0
4	A	605	PEG	1	0
2	B	501	A1H40	1	0
3	B	502	EDO	2	0
3	I	905	EDO	1	0
3	A	603	EDO	1	0

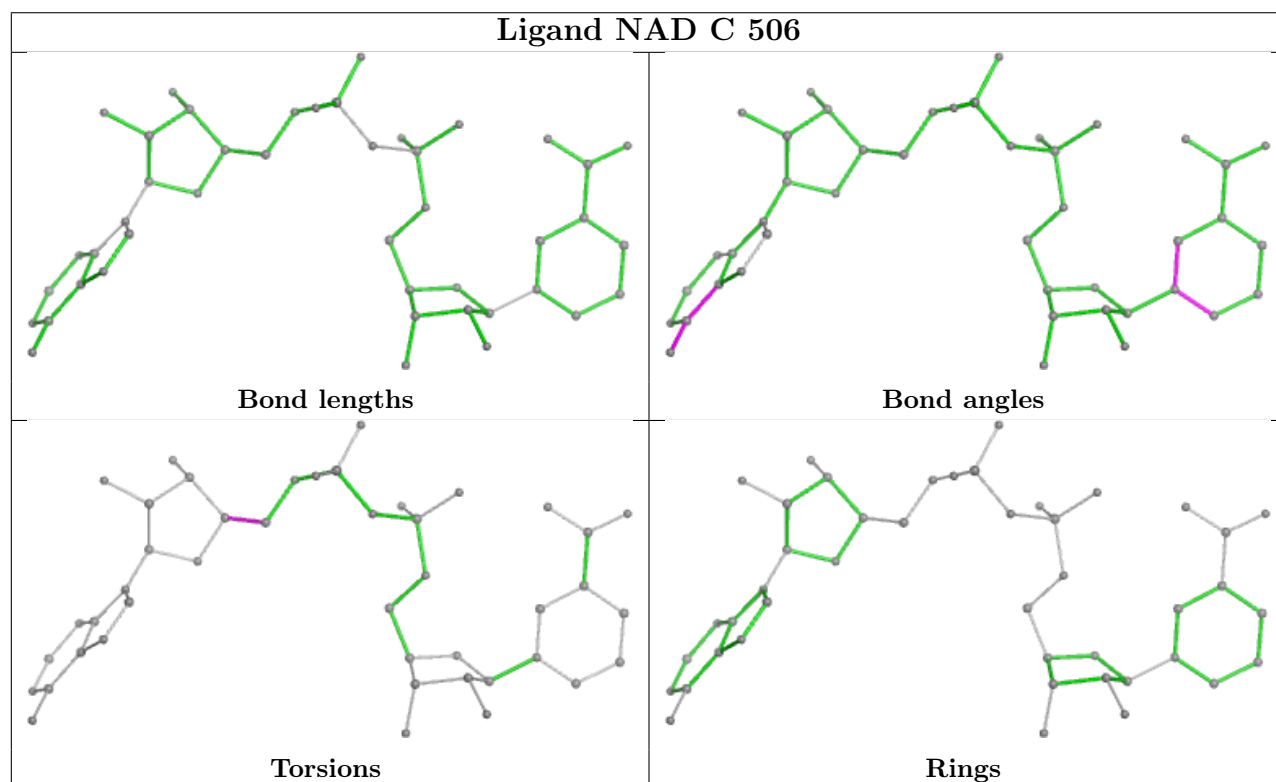
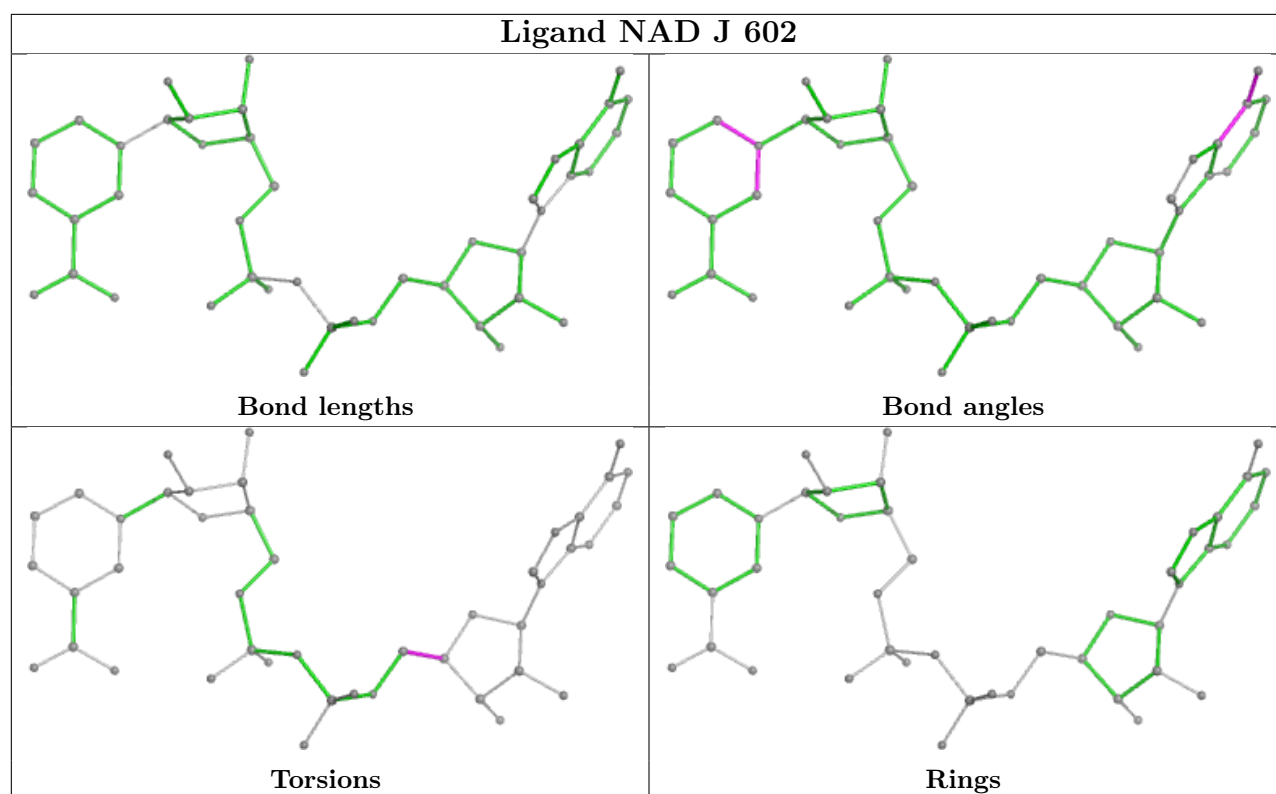
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

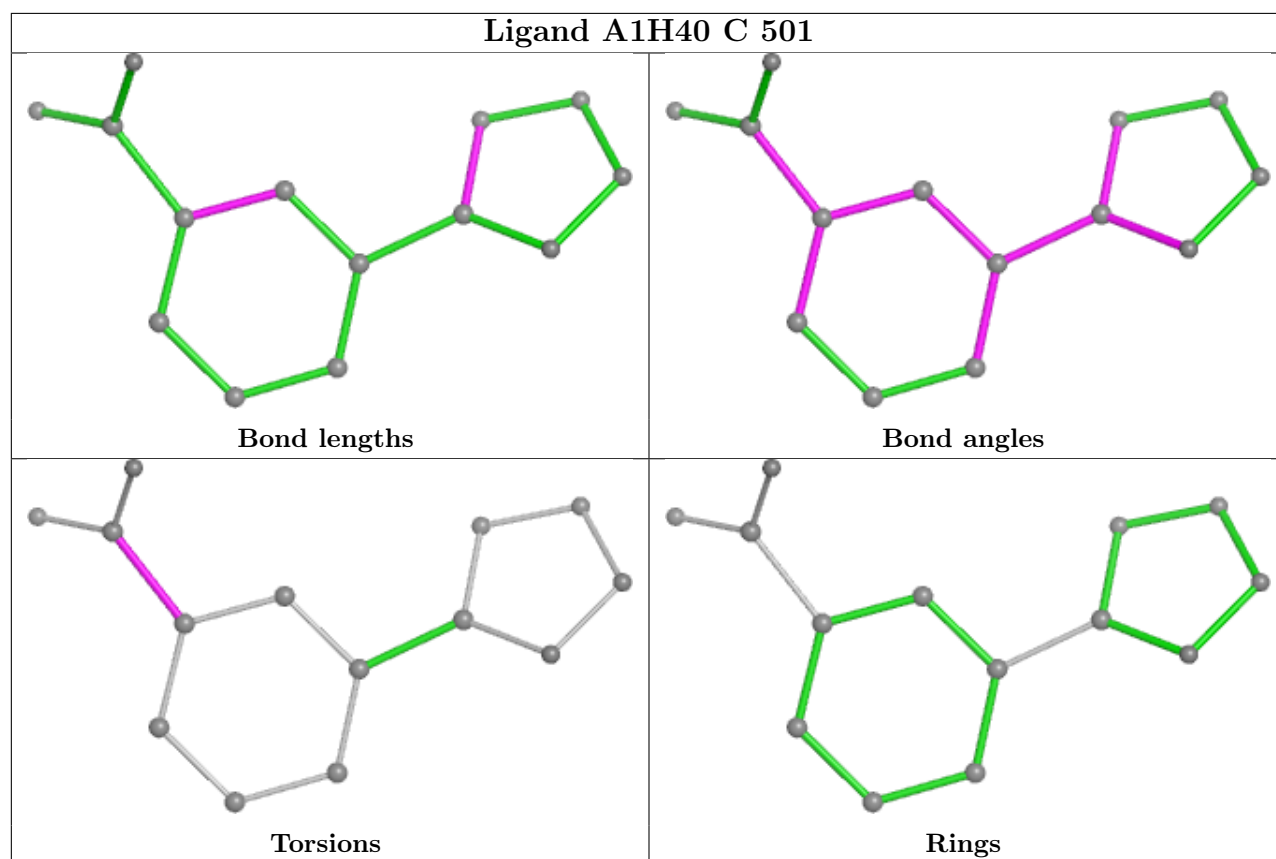
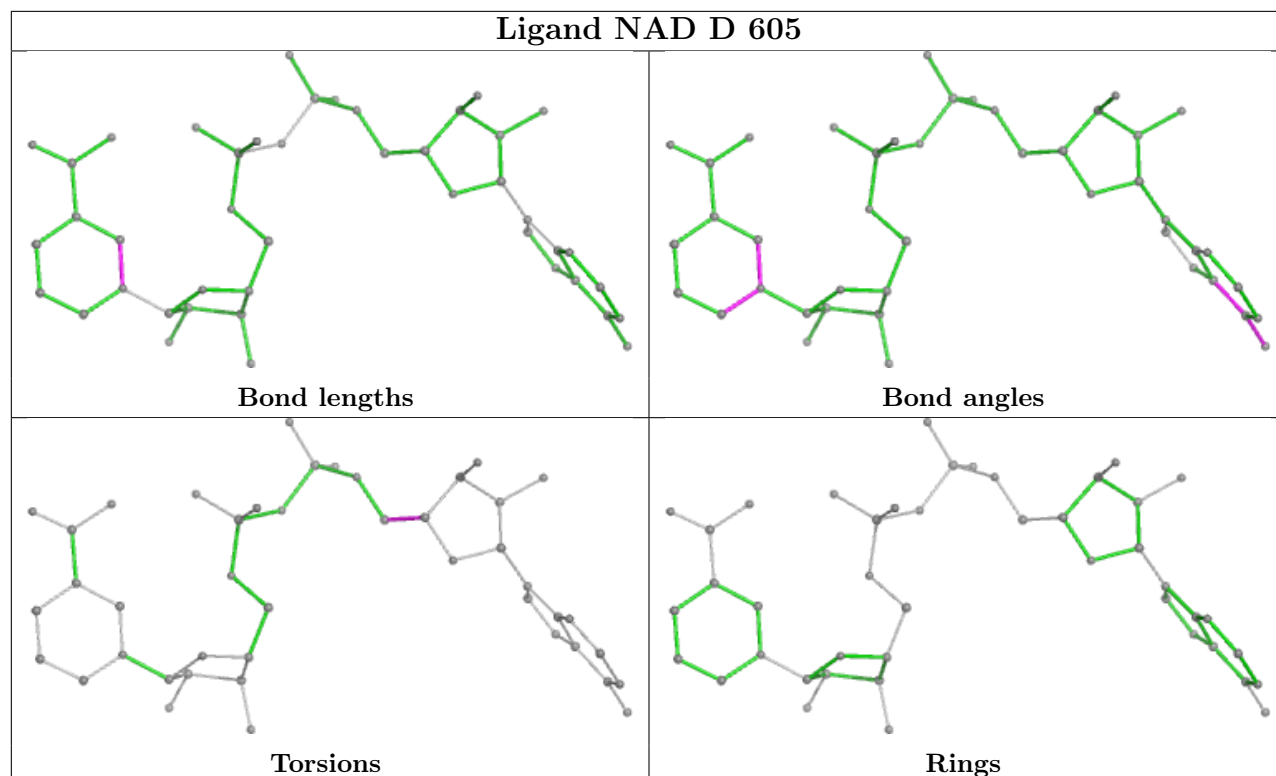


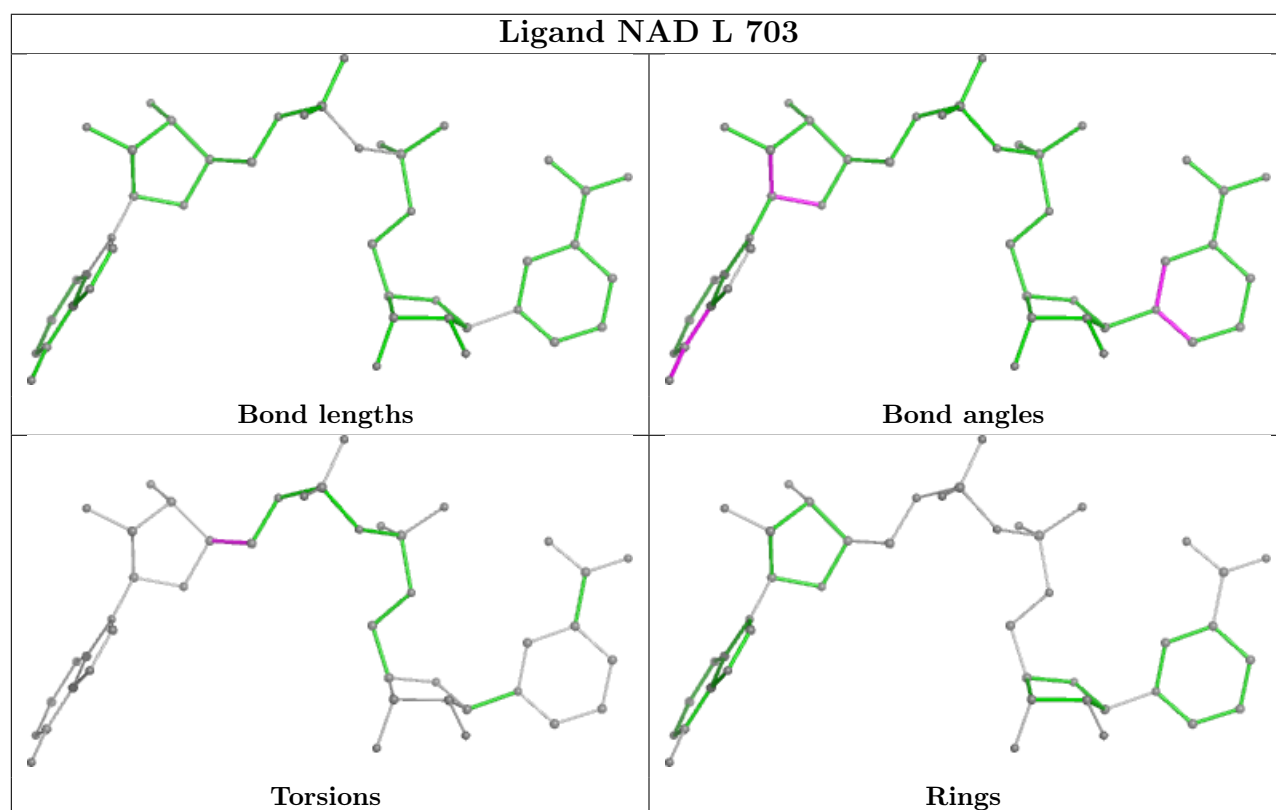
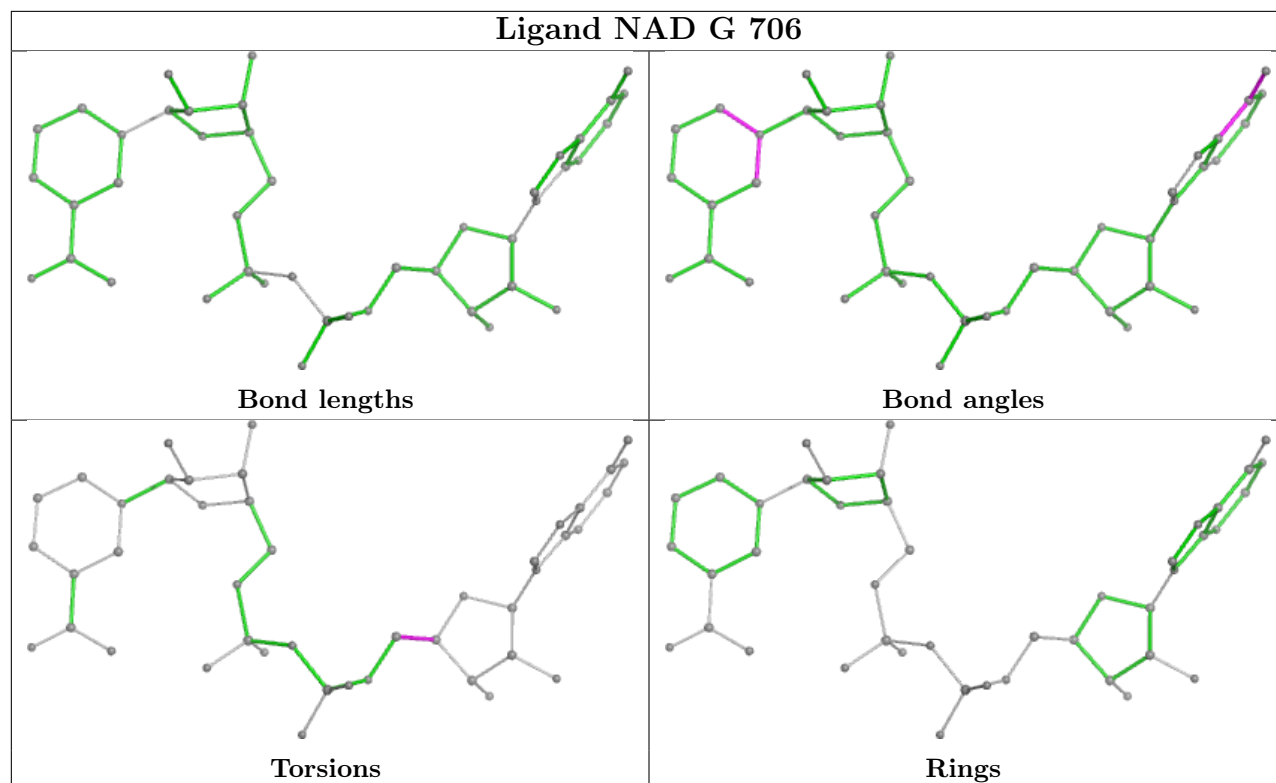


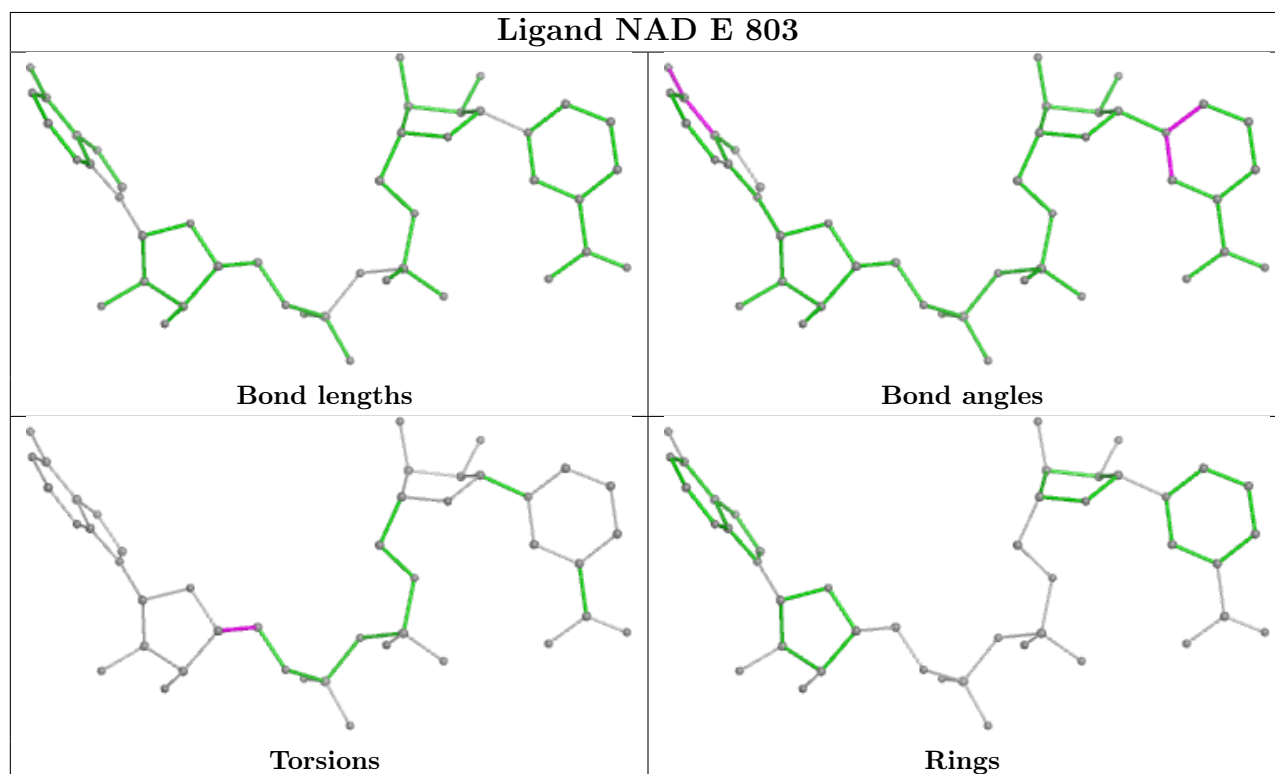
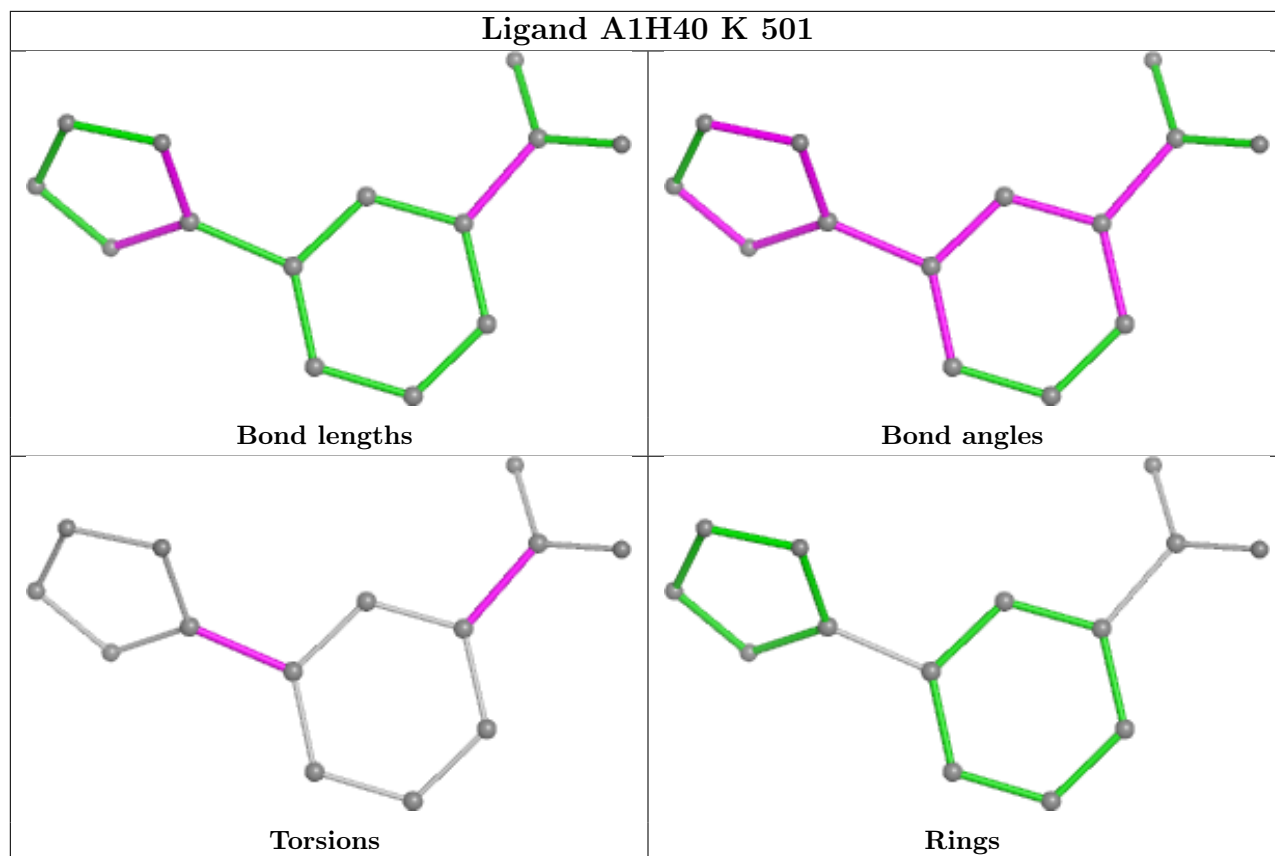


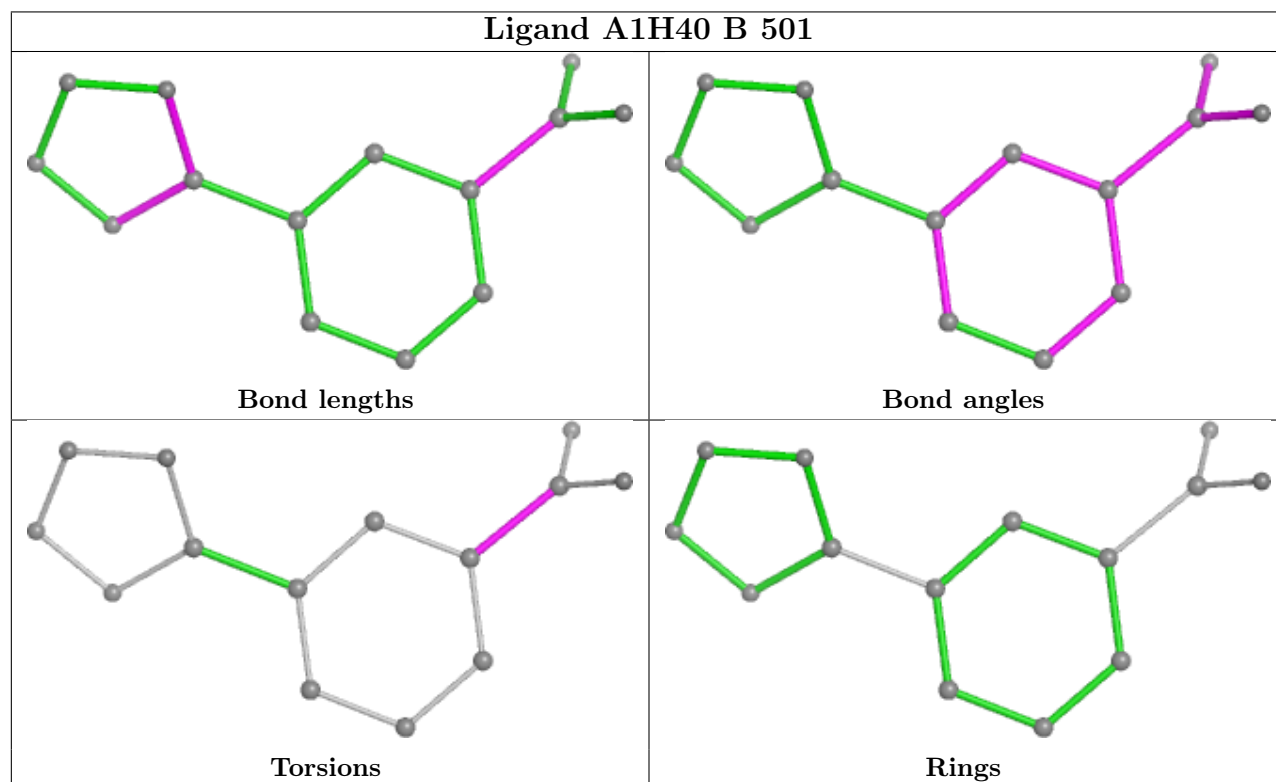
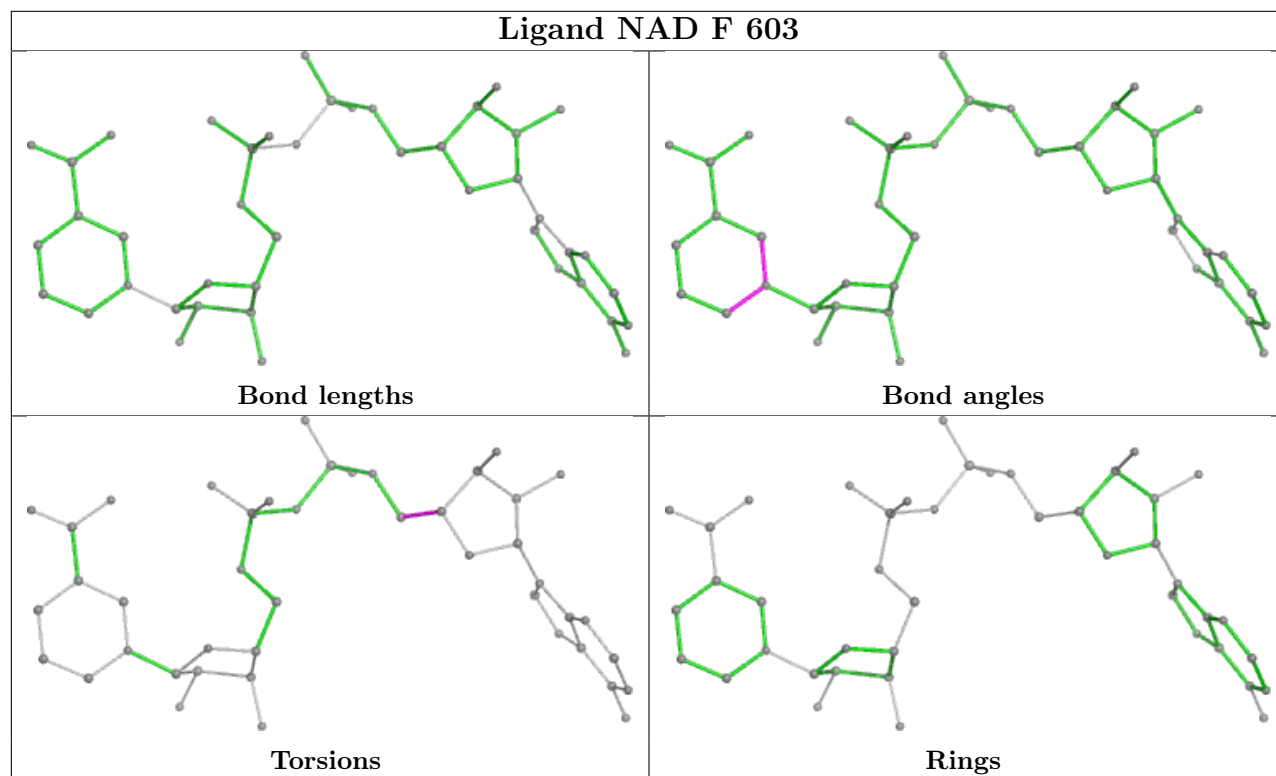


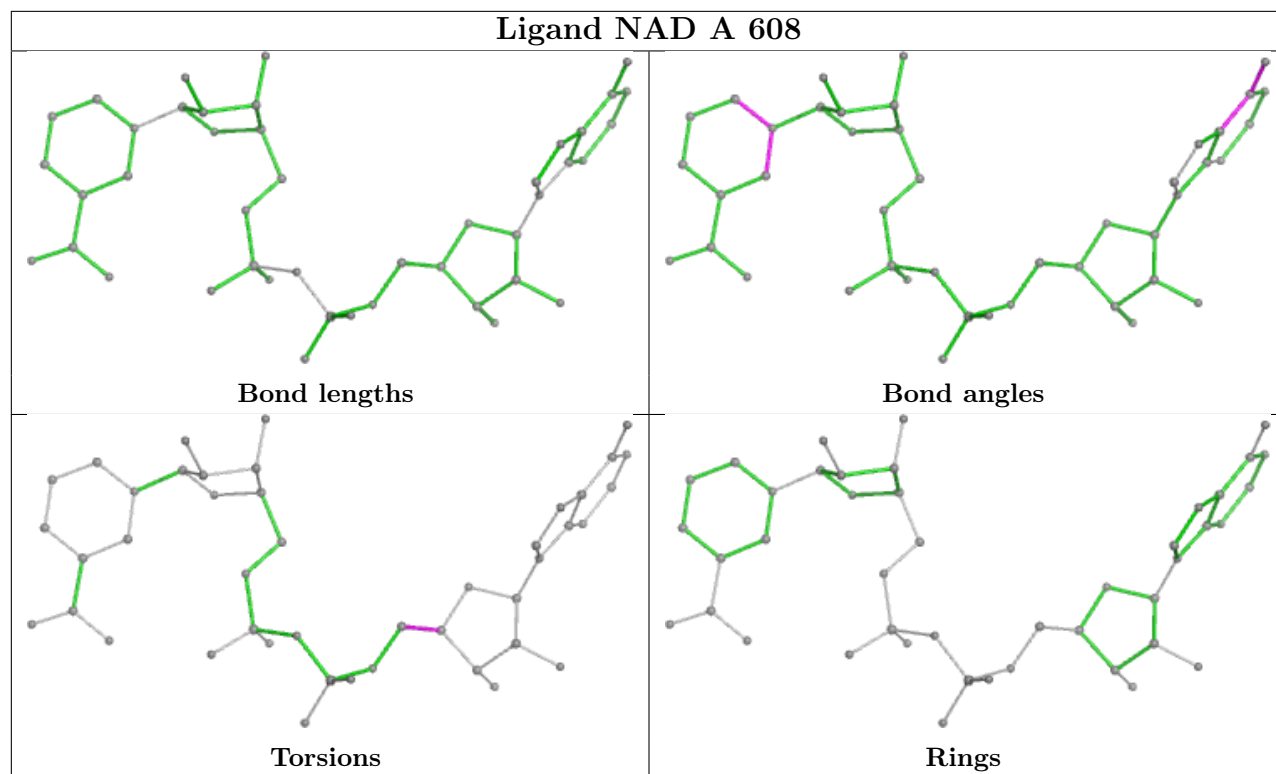












5.7 Other polymers [i](#)

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	410/414 (99%)	-0.10	3 (0%) 84 84	15, 35, 64, 80	1 (0%)
1	B	410/414 (99%)	-0.48	1 (0%) 92 92	21, 30, 46, 87	0
1	C	410/414 (99%)	-0.22	2 (0%) 87 88	23, 35, 58, 96	0
1	D	412/414 (99%)	-0.09	5 (1%) 76 76	20, 34, 70, 96	0
1	E	409/414 (98%)	0.33	35 (8%) 18 19	21, 44, 97, 122	0
1	F	410/414 (99%)	0.09	4 (0%) 79 79	25, 41, 69, 92	0
1	G	410/414 (99%)	0.52	53 (12%) 9 10	17, 46, 102, 119	1 (0%)
1	H	410/414 (99%)	0.51	41 (10%) 14 15	19, 46, 100, 120	1 (0%)
1	I	409/414 (98%)	0.39	25 (6%) 28 30	24, 46, 97, 144	0
1	J	409/414 (98%)	0.64	72 (17%) 4 6	24, 49, 106, 126	0
1	K	408/414 (98%)	0.71	72 (17%) 4 6	26, 55, 117, 132	0
1	L	409/414 (98%)	0.80	85 (20%) 3 4	28, 53, 117, 147	0
All	All	4916/4968 (98%)	0.26	398 (8%) 19 21	15, 40, 100, 147	3 (0%)

All (398) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	3	ALA	5.5
1	J	241	ALA	5.1
1	H	268	GLY	5.1
1	D	0	ALA	5.0
1	J	242	ILE	5.0
1	L	271	ALA	4.8
1	J	3	ALA	4.6
1	A	411	ALA	4.3
1	K	290	LEU	4.2
1	K	271	ALA	4.2
1	E	241	ALA	4.1

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Mol	Chain	Res	Type	RSRZ
1	I	278	LEU	3.9
1	J	290	LEU	3.9
1	K	201	GLY	3.9
1	C	411	ALA	3.9
1	J	293	VAL	3.8
1	H	279	VAL	3.8
1	J	263	LEU	3.8
1	H	328	VAL	3.8
1	L	382	LYS	3.7
1	G	327	GLY	3.7
1	L	250	ILE	3.7
1	L	285	LEU	3.6
1	K	233	VAL	3.6
1	K	299	ALA	3.6
1	L	79	GLU	3.5
1	G	266	PHE	3.5
1	L	290	LEU	3.4
1	E	3	ALA	3.4
1	I	246	ASN	3.4
1	K	240	GLY	3.4
1	J	248	ILE	3.4
1	J	235	VAL	3.4
1	J	262	SER	3.4
1	K	212	GLN	3.4
1	J	233	VAL	3.4
1	K	293	VAL	3.4
1	L	302	VAL	3.4
1	J	266	PHE	3.3
1	J	279	VAL	3.3
1	L	235	VAL	3.3
1	G	290	LEU	3.3
1	D	271	ALA	3.3
1	K	302	VAL	3.3
1	H	247	GLY	3.3
1	K	315	THR	3.3
1	G	236	SER	3.3
1	I	293	VAL	3.3
1	L	247	GLY	3.3
1	G	3	ALA	3.3
1	K	211	ILE	3.2
1	K	268	GLY	3.2
1	L	213	GLY	3.2

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Mol	Chain	Res	Type	RSRZ
1	J	271	ALA	3.2
1	G	322	ILE	3.2
1	J	294	LEU	3.2
1	J	213	GLY	3.2
1	H	242	ILE	3.2
1	L	238	ILE	3.2
1	G	233	VAL	3.2
1	H	244	ASN	3.2
1	J	204	ILE	3.2
1	L	211	ILE	3.2
1	L	329	ILE	3.2
1	J	214	PHE	3.2
1	L	240	GLY	3.2
1	G	261	GLY	3.1
1	L	248	ILE	3.1
1	J	268	GLY	3.1
1	L	268	GLY	3.1
1	H	266	PHE	3.1
1	I	3	ALA	3.1
1	E	322	ILE	3.0
1	L	322	ILE	3.0
1	K	213	GLY	3.0
1	L	266	PHE	3.0
1	H	302	VAL	3.0
1	G	245	PRO	3.0
1	J	322	ILE	3.0
1	H	263	LEU	3.0
1	L	291	GLY	3.0
1	G	235	VAL	3.0
1	K	230	GLY	3.0
1	L	201	GLY	3.0
1	L	263	LEU	3.0
1	G	248	ILE	2.9
1	D	1	MET	2.9
1	J	277	LEU	2.9
1	L	206	ASP	2.9
1	G	207	MET	2.9
1	K	204	ILE	2.9
1	K	263	LEU	2.9
1	L	278	LEU	2.9
1	C	2	ASN	2.9
1	K	264	LYS	2.9

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Mol	Chain	Res	Type	RSRZ
1	H	281	ASP	2.9
1	H	304	ALA	2.9
1	L	210	ALA	2.9
1	L	299	ALA	2.9
1	H	240	GLY	2.9
1	I	277	LEU	2.9
1	I	307	ILE	2.9
1	B	2	ASN	2.9
1	L	288	CYS	2.9
1	L	279	VAL	2.9
1	L	251	ALA	2.9
1	G	202	LYS	2.9
1	L	307	ILE	2.9
1	L	233	VAL	2.8
1	J	299	ALA	2.8
1	K	241	ALA	2.8
1	L	289	ALA	2.8
1	L	253	LEU	2.8
1	G	204	ILE	2.8
1	L	280	HIS	2.8
1	H	214	PHE	2.8
1	L	232	VAL	2.8
1	I	251	ALA	2.8
1	L	319	ALA	2.8
1	L	277	LEU	2.8
1	K	206	ASP	2.8
1	J	251	ALA	2.8
1	I	201	GLY	2.8
1	K	253	LEU	2.8
1	L	323	LEU	2.8
1	H	246	ASN	2.8
1	H	248	ILE	2.8
1	J	250	ILE	2.8
1	H	241	ALA	2.8
1	H	271	ALA	2.8
1	J	319	ALA	2.8
1	H	315	THR	2.8
1	L	261	GLY	2.8
1	L	294	LEU	2.8
1	D	2	ASN	2.8
1	F	2	ASN	2.8
1	J	217	VAL	2.7

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Mol	Chain	Res	Type	RSRZ
1	G	213	GLY	2.7
1	K	294	LEU	2.7
1	J	239	ASN	2.7
1	J	211	ILE	2.7
1	L	242	ILE	2.7
1	K	267	SER	2.7
1	H	245	PRO	2.7
1	K	197	PHE	2.7
1	K	214	PHE	2.7
1	H	235	VAL	2.7
1	J	302	VAL	2.7
1	G	271	ALA	2.7
1	J	254	LEU	2.7
1	K	277	LEU	2.7
1	G	330	ILE	2.7
1	L	287	PRO	2.7
1	I	284	VAL	2.7
1	J	5	VAL	2.7
1	L	293	VAL	2.7
1	K	221	ALA	2.7
1	H	201	GLY	2.7
1	L	259	GLY	2.7
1	J	276	ASP	2.7
1	J	301	ASP	2.7
1	E	279	VAL	2.7
1	I	279	VAL	2.7
1	G	305	LYS	2.7
1	J	296	LYS	2.7
1	L	6	ALA	2.7
1	K	7	THR	2.6
1	L	315	THR	2.6
1	L	204	ILE	2.6
1	K	262	SER	2.6
1	L	264	LYS	2.6
1	G	279	VAL	2.6
1	I	302	VAL	2.6
1	J	253	LEU	2.6
1	K	4	LEU	2.6
1	L	282	CYS	2.6
1	K	236	SER	2.6
1	G	226	PHE	2.6
1	I	233	VAL	2.6

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Mol	Chain	Res	Type	RSRZ
1	I	311	ALA	2.6
1	J	240	GLY	2.6
1	K	278	LEU	2.6
1	J	298	ASN	2.6
1	K	288	CYS	2.6
1	L	314	PRO	2.6
1	I	264	LYS	2.6
1	F	411	ALA	2.6
1	G	258	ALA	2.6
1	K	217	VAL	2.6
1	L	207	MET	2.6
1	K	17	ILE	2.6
1	L	205	SER	2.6
1	L	313	HIS	2.6
1	L	244	ASN	2.5
1	J	269	GLY	2.5
1	J	291	GLY	2.5
1	E	271	ALA	2.5
1	G	284	VAL	2.5
1	K	266	PHE	2.5
1	L	336	ALA	2.5
1	G	278	LEU	2.5
1	K	244	ASN	2.5
1	L	245	PRO	2.5
1	E	238	ILE	2.5
1	H	213	GLY	2.5
1	E	323	LEU	2.5
1	J	274	PRO	2.5
1	E	248	ILE	2.5
1	G	242	ILE	2.5
1	G	203	SER	2.5
1	K	218	GLY	2.5
1	G	293	VAL	2.5
1	H	278	LEU	2.5
1	K	323	LEU	2.5
1	E	298	ASN	2.5
1	L	7	THR	2.5
1	E	274	PRO	2.5
1	E	200	TYR	2.4
1	J	236	SER	2.4
1	L	286	ILE	2.4
1	K	220	TRP	2.4

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Mol	Chain	Res	Type	RSRZ
1	K	222	ALA	2.4
1	G	323	LEU	2.4
1	H	9	ARG	2.4
1	E	299	ALA	2.4
1	H	290	LEU	2.4
1	J	289	ALA	2.4
1	I	328	VAL	2.4
1	K	279	VAL	2.4
1	L	275	ASN	2.4
1	J	207	MET	2.4
1	G	211	ILE	2.4
1	L	308	ILE	2.4
1	L	330	ILE	2.4
1	J	264	LYS	2.4
1	K	306	PHE	2.4
1	L	300	ASN	2.4
1	K	329	ILE	2.4
1	E	277	LEU	2.4
1	E	290	LEU	2.4
1	F	3	ALA	2.4
1	G	239	ASN	2.4
1	I	244	ASN	2.4
1	L	4	LEU	2.4
1	E	208	THR	2.3
1	J	306	PHE	2.3
1	L	296	LYS	2.3
1	G	265	ASP	2.3
1	H	206	ASP	2.3
1	K	238	ILE	2.3
1	K	307	ILE	2.3
1	K	308	ILE	2.3
1	L	262	SER	2.3
1	E	240	GLY	2.3
1	J	258	ALA	2.3
1	J	295	ASN	2.3
1	L	258	ALA	2.3
1	L	312	ASN	2.3
1	I	247	GLY	2.3
1	L	304	ALA	2.3
1	H	286	ILE	2.3
1	J	270	ASP	2.3
1	J	307	ILE	2.3

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Mol	Chain	Res	Type	RSRZ
1	E	201	GLY	2.3
1	G	247	GLY	2.3
1	J	303	LYS	2.3
1	G	244	ASN	2.3
1	G	263	LEU	2.3
1	I	245	PRO	2.3
1	K	287	PRO	2.3
1	E	306	PHE	2.3
1	J	313	HIS	2.3
1	K	313	HIS	2.3
1	J	261	GLY	2.3
1	E	264	LYS	2.2
1	G	272	MET	2.2
1	K	272	MET	2.2
1	L	309	GLU	2.2
1	J	323	LEU	2.2
1	G	251	ALA	2.2
1	H	258	ALA	2.2
1	J	315	THR	2.2
1	J	317	PRO	2.2
1	H	293	VAL	2.2
1	E	197	PHE	2.2
1	G	306	PHE	2.2
1	J	280	HIS	2.2
1	G	249	ASP	2.2
1	G	276	ASP	2.2
1	L	270	ASP	2.2
1	G	240	GLY	2.2
1	I	240	GLY	2.2
1	K	261	GLY	2.2
1	L	230	GLY	2.2
1	L	269	GLY	2.2
1	K	200	TYR	2.2
1	E	16	ARG	2.2
1	K	317	PRO	2.2
1	H	5	VAL	2.2
1	L	197	PHE	2.2
1	L	381	CYS	2.2
1	G	262	SER	2.2
1	K	248	ILE	2.2
1	K	303	LYS	2.2
1	L	203	SER	2.2

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Mol	Chain	Res	Type	RSRZ
1	L	276	ASP	2.2
1	A	322	ILE	2.2
1	G	250	ILE	2.2
1	H	294	LEU	2.2
1	K	246	ASN	2.2
1	K	388	LEU	2.2
1	L	200	TYR	2.2
1	K	304	ALA	2.2
1	K	226	PHE	2.2
1	L	214	PHE	2.2
1	K	296	LYS	2.2
1	E	324	SER	2.2
1	K	215	GLY	2.2
1	K	322	ILE	2.2
1	J	278	LEU	2.2
1	K	285	LEU	2.2
1	I	5	VAL	2.2
1	J	232	VAL	2.2
1	E	266	PHE	2.2
1	J	209	PHE	2.2
1	E	321	GLU	2.1
1	J	203	SER	2.1
1	J	304	ALA	2.1
1	K	234	ALA	2.1
1	G	296	LYS	2.1
1	K	325	LYS	2.1
1	K	378	LYS	2.1
1	L	393	PHE	2.1
1	E	230	GLY	2.1
1	D	248	ILE	2.1
1	J	17	ILE	2.1
1	L	225	ILE	2.1
1	E	300	ASN	2.1
1	H	2	ASN	2.1
1	J	245	PRO	2.1
1	A	325	LYS	2.1
1	K	202	LYS	2.1
1	E	293	VAL	2.1
1	G	302	VAL	2.1
1	G	214	PHE	2.1
1	E	259	GLY	2.1
1	E	292	GLY	2.1

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Mol	Chain	Res	Type	RSRZ
1	H	292	GLY	2.1
1	K	327	GLY	2.1
1	H	204	ILE	2.1
1	J	330	ILE	2.1
1	G	280	HIS	2.1
1	E	263	LEU	2.1
1	E	296	LYS	2.1
1	J	300	ASN	2.1
1	J	287	PRO	2.1
1	L	274	PRO	2.1
1	L	220	TRP	2.1
1	I	241	ALA	2.1
1	J	252	ALA	2.1
1	L	306	PHE	2.1
1	H	267	SER	2.1
1	I	267	SER	2.1
1	J	327	GLY	2.1
1	I	238	ILE	2.1
1	E	280	HIS	2.1
1	G	277	LEU	2.1
1	E	234	ALA	2.1
1	G	241	ALA	2.1
1	H	3	ALA	2.1
1	K	319	ALA	2.1
1	G	232	VAL	2.0
1	K	328	VAL	2.0
1	E	229	GLY	2.0
1	F	201	GLY	2.0
1	G	269	GLY	2.0
1	J	265	ASP	2.0
1	H	236	SER	2.0
1	G	307	ILE	2.0
1	H	238	ILE	2.0
1	I	250	ILE	2.0
1	J	231	LYS	2.0
1	H	300	ASN	2.0
1	J	244	ASN	2.0
1	J	282	CYS	2.0
1	K	245	PRO	2.0
1	J	272	MET	2.0
1	G	210	ALA	2.0
1	L	311	ALA	2.0

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Mol	Chain	Res	Type	RSRZ
1	E	233	VAL	2.0
1	G	292	GLY	2.0
1	H	226	PHE	2.0
1	K	276	ASP	2.0
1	H	211	ILE	2.0
1	L	212	GLN	2.0
1	G	285	LEU	2.0
1	K	274	PRO	2.0
1	I	282	CYS	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	A1H40	K	501	14/14	0.71	0.19	39,47,55,56	14
6	TRS	G	701	8/8	0.71	0.19	47,48,51,53	0
6	TRS	K	504	8/8	0.71	0.19	32,42,47,51	0
2	A1H40	H	501	14/14	0.74	0.22	36,43,46,48	14
2	A1H40	A	601	14/14	0.74	0.20	26,32,37,38	14
2	A1H40	B	501	14/14	0.76	0.20	30,35,39,41	14
5	NAD	L	703	44/44	0.76	0.15	71,87,99,102	0
2	A1H40	C	501	14/14	0.78	0.20	31,36,40,41	14
6	TRS	D	601	8/8	0.79	0.17	39,46,53,53	0
4	PEG	C	502	7/7	0.80	0.15	50,55,57,61	0
2	A1H40	D	602	14/14	0.80	0.15	23,32,35,36	14
6	TRS	A	609	8/8	0.80	0.16	35,40,44,52	0
4	PEG	H	504	7/7	0.81	0.17	60,62,64,65	0
3	EDO	B	507	4/4	0.82	0.17	44,44,46,51	0

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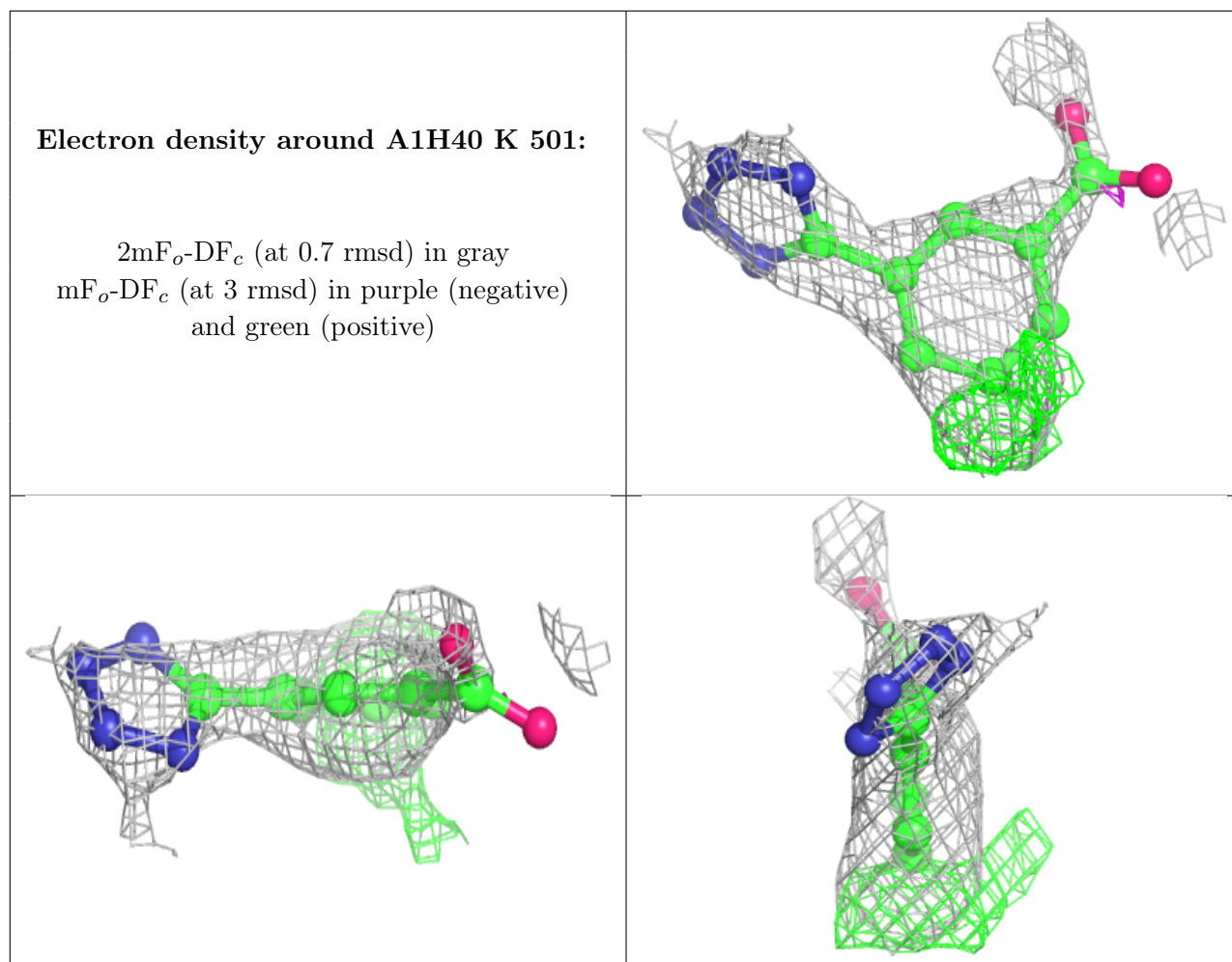
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	PEG	A	605	7/7	0.82	0.17	51,56,62,63	0
3	EDO	A	604	4/4	0.82	0.14	58,58,58,64	0
5	NAD	J	602	44/44	0.83	0.14	68,76,90,93	0
4	PEG	F	601	7/7	0.83	0.16	69,71,75,75	0
5	NAD	K	505	44/44	0.84	0.13	67,82,94,97	0
3	EDO	I	901	4/4	0.84	0.16	52,54,56,56	0
6	TRS	H	503	8/8	0.84	0.15	49,53,57,58	0
4	PEG	G	704	7/7	0.84	0.15	63,65,69,71	0
6	TRS	I	902	8/8	0.85	0.15	29,36,42,47	0
5	NAD	H	505	44/44	0.86	0.12	59,72,83,85	0
3	EDO	A	602	4/4	0.86	0.13	43,43,43,49	0
3	EDO	K	506	4/4	0.86	0.16	42,42,45,47	0
4	PEG	E	801	7/7	0.86	0.14	63,64,68,69	0
5	NAD	G	706	44/44	0.86	0.13	60,71,83,85	0
6	TRS	L	701	8/8	0.86	0.12	48,50,56,56	0
3	EDO	A	606	4/4	0.87	0.13	29,30,31,39	0
3	EDO	G	703	4/4	0.87	0.14	46,49,50,51	0
3	EDO	K	503	4/4	0.88	0.12	36,42,44,49	0
9	PG4	B	506	13/13	0.88	0.13	40,45,56,61	0
3	EDO	F	602	4/4	0.89	0.15	31,31,44,46	0
3	EDO	I	904	4/4	0.89	0.15	58,59,59,62	0
4	PEG	C	504	7/7	0.89	0.13	54,55,62,63	0
3	EDO	G	702	4/4	0.89	0.16	38,40,42,43	0
3	EDO	D	603	4/4	0.89	0.12	30,34,37,43	0
3	EDO	F	604	4/4	0.90	0.11	32,34,40,51	0
3	EDO	I	905	4/4	0.90	0.13	44,46,51,52	0
8	PGE	B	504	10/10	0.90	0.11	40,47,52,55	0
3	EDO	C	505	4/4	0.90	0.14	31,32,38,39	0
3	EDO	B	505	4/4	0.91	0.10	35,38,45,46	0
4	PEG	D	604	7/7	0.91	0.11	50,54,59,61	0
5	NAD	I	907	44/44	0.91	0.11	59,67,74,74	0
3	EDO	L	702	4/4	0.91	0.13	29,31,35,43	0
5	NAD	E	803	44/44	0.91	0.10	54,62,77,78	0
3	EDO	I	903	4/4	0.92	0.11	34,34,36,39	0
3	EDO	C	503	4/4	0.92	0.09	39,39,41,43	0
3	EDO	K	502	4/4	0.93	0.10	31,31,37,40	0
3	EDO	B	503	4/4	0.93	0.10	34,35,35,37	0
3	EDO	A	607	4/4	0.93	0.09	28,29,33,37	0
3	EDO	B	502	4/4	0.93	0.14	38,39,41,44	0
3	EDO	E	802	4/4	0.93	0.10	24,24,36,38	0
3	EDO	I	906	4/4	0.93	0.11	26,26,35,39	0
3	EDO	J	601	4/4	0.93	0.11	28,30,39,43	0

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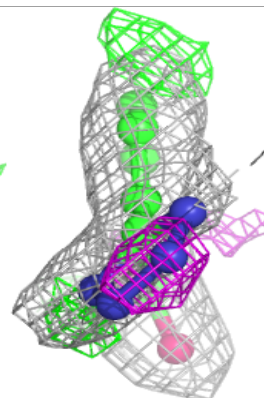
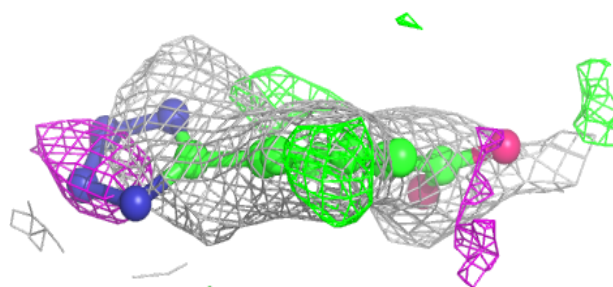
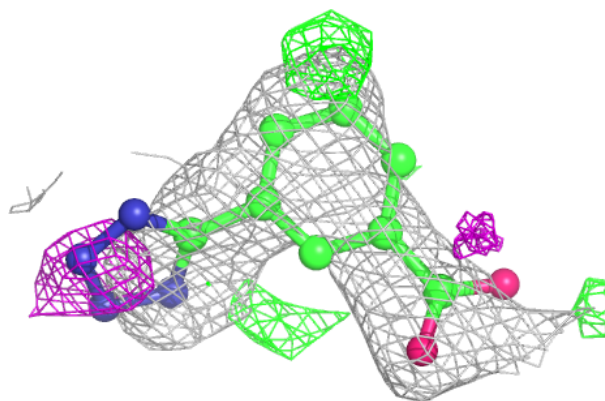
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
10	NA	F	605	1/1	0.93	0.17	34,34,34,34	0
10	NA	I	908	1/1	0.94	0.12	26,26,26,26	0
5	NAD	F	603	44/44	0.95	0.09	35,47,53,56	0
3	EDO	G	705	4/4	0.95	0.10	26,27,34,37	0
3	EDO	H	502	4/4	0.95	0.09	28,31,37,39	0
5	NAD	A	608	44/44	0.95	0.08	33,44,50,54	0
5	NAD	D	605	44/44	0.95	0.08	41,50,55,58	0
3	EDO	A	603	4/4	0.95	0.10	33,36,39,39	0
5	NAD	B	508	44/44	0.96	0.07	26,31,38,47	0
5	NAD	C	506	44/44	0.96	0.07	33,40,45,52	0
7	CA	E	804	1/1	0.98	0.03	30,30,30,30	0
10	NA	G	707	1/1	0.98	0.04	38,38,38,38	0
7	CA	H	506	1/1	0.98	0.04	29,29,29,29	0
7	CA	L	704	1/1	0.99	0.02	30,30,30,30	0
7	CA	F	606	1/1	0.99	0.02	31,31,31,31	0
7	CA	G	708	1/1	0.99	0.03	32,32,32,32	0
7	CA	C	507	1/1	0.99	0.02	26,26,26,26	0
7	CA	I	909	1/1	0.99	0.03	31,31,31,31	0
7	CA	J	603	1/1	0.99	0.02	30,30,30,30	0
7	CA	D	606	1/1	1.00	0.01	18,18,18,18	0
7	CA	K	507	1/1	1.00	0.01	34,34,34,34	0
7	CA	B	509	1/1	1.00	0.02	25,25,25,25	0
7	CA	A	610	1/1	1.00	0.01	21,21,21,21	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.

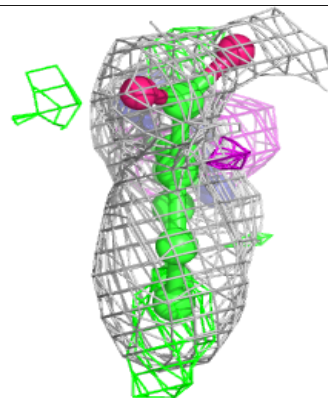
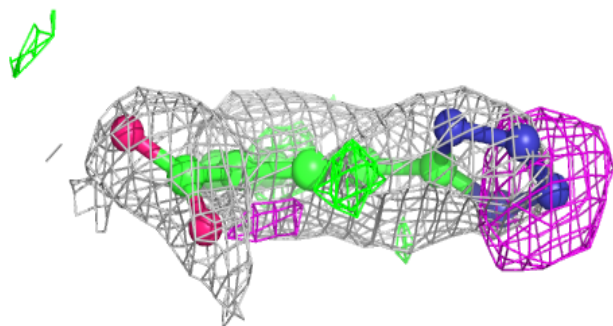
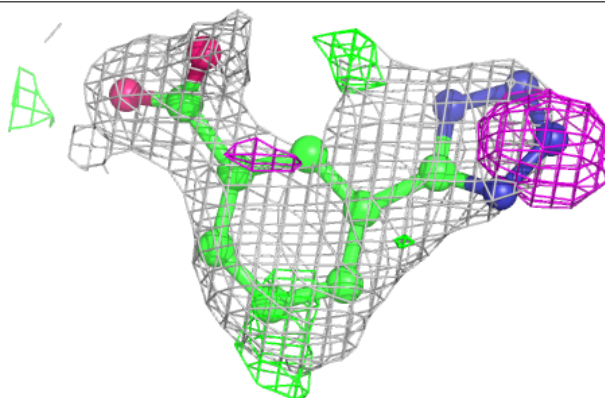


Electron density around A1H40 H 501:

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

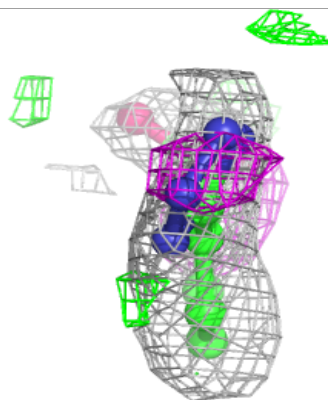
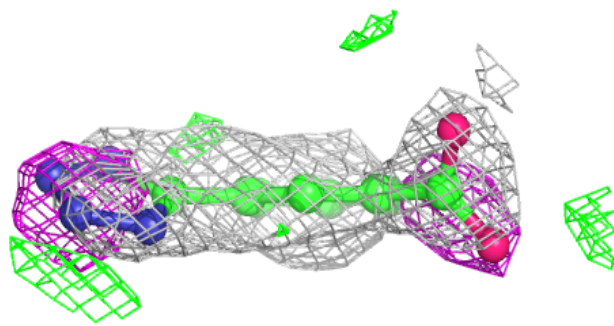
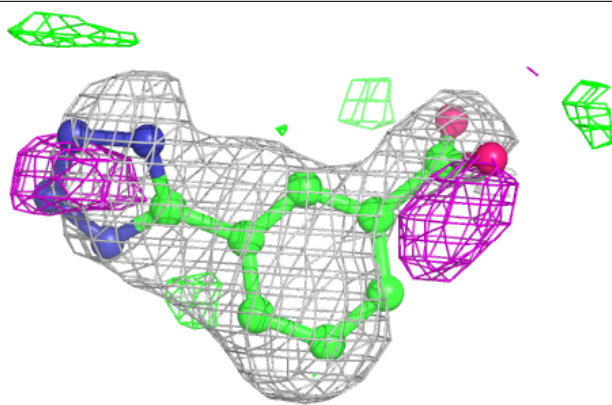
**Electron density around A1H40 A 601:**

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

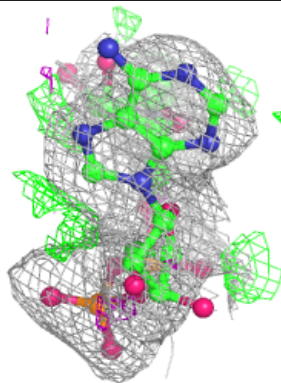
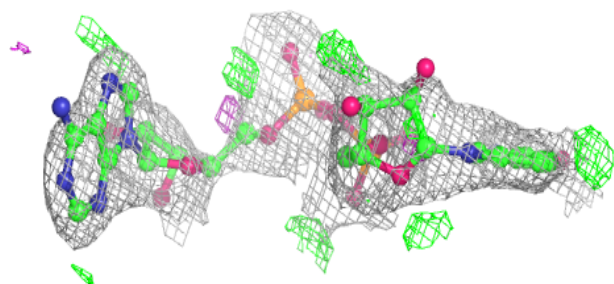
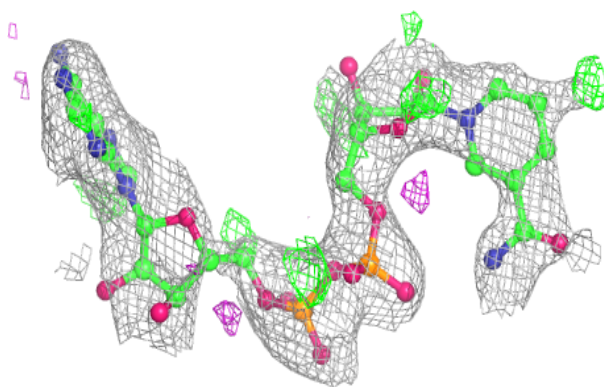


Electron density around A1H40 B 501:

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

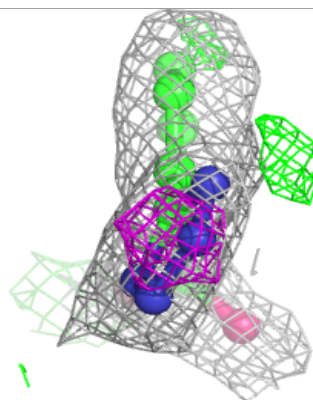
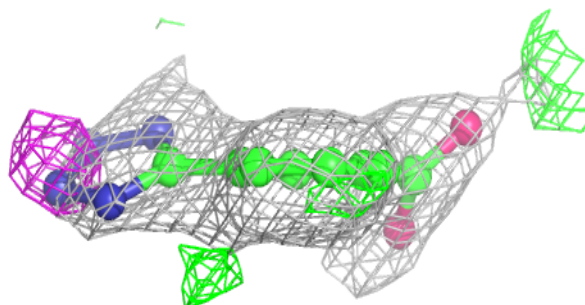
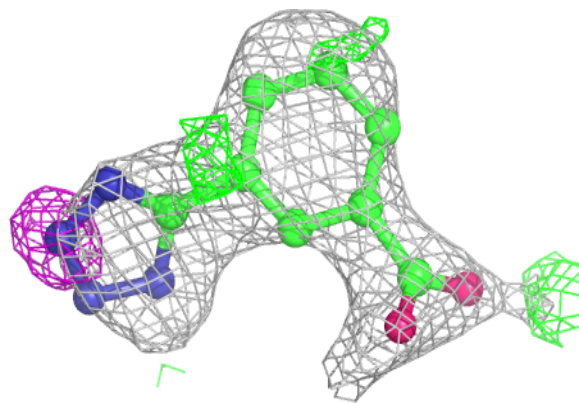
**Electron density around NAD L 703:**

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

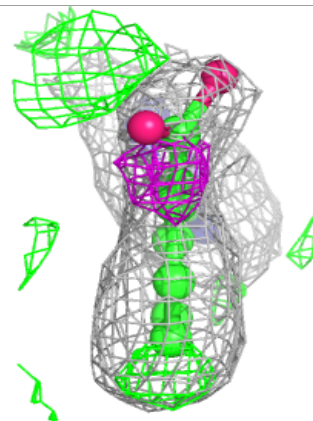
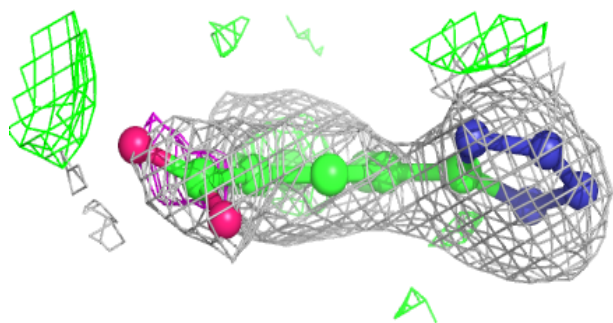
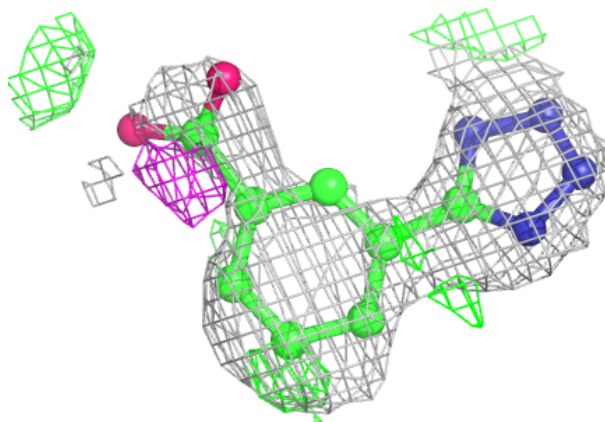


Electron density around A1H40 C 501:

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

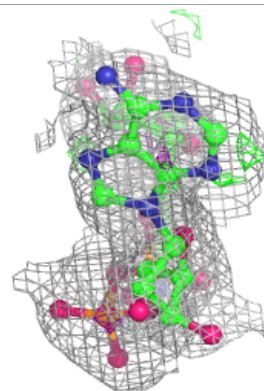
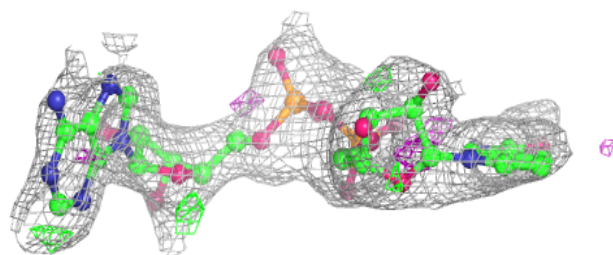
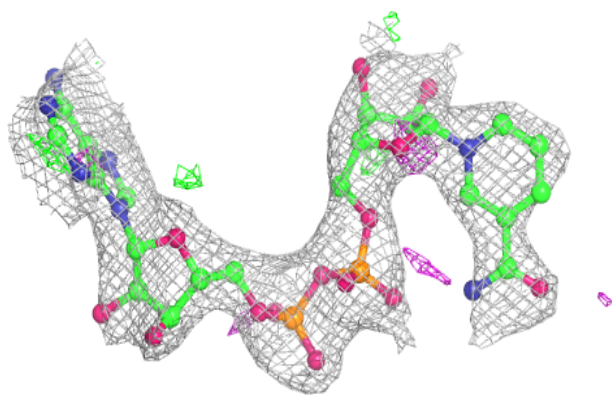
**Electron density around A1H40 D 602:**

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

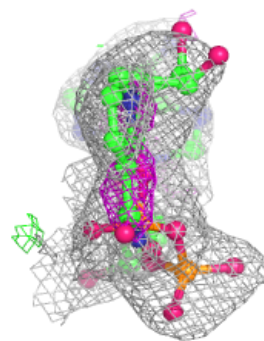
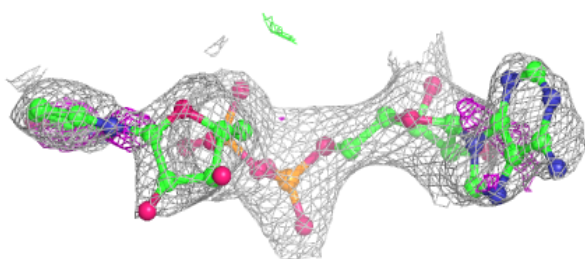
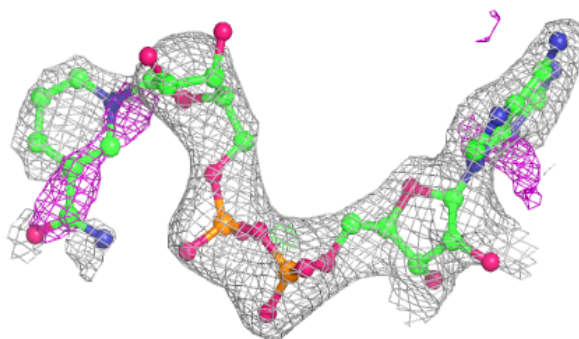


Electron density around NAD J 602:

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

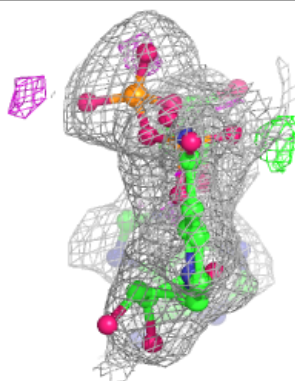
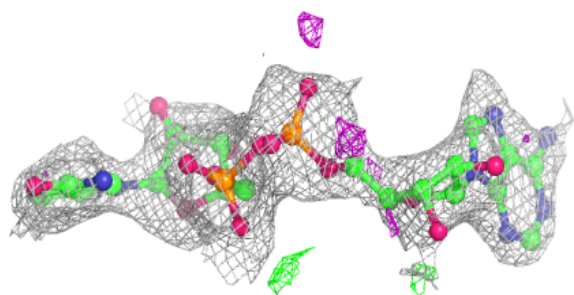
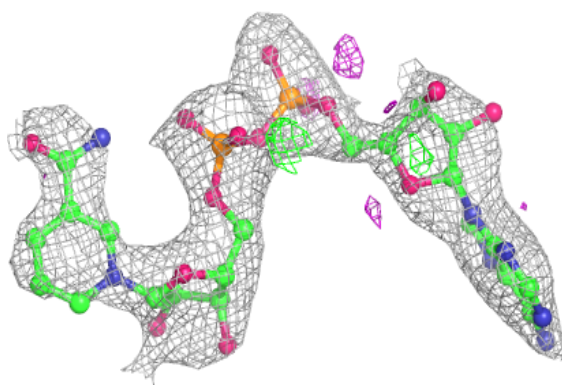
**Electron density around NAD K 505:**

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

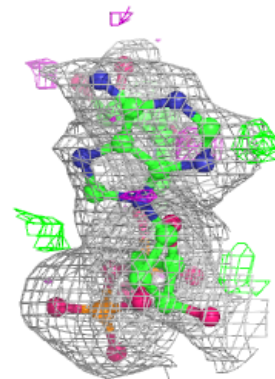
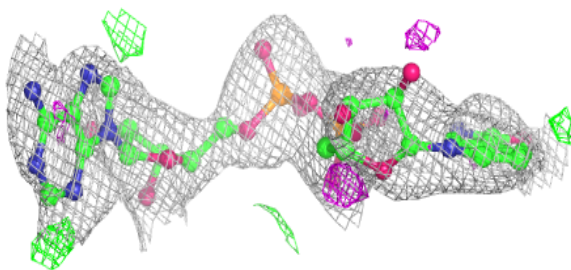
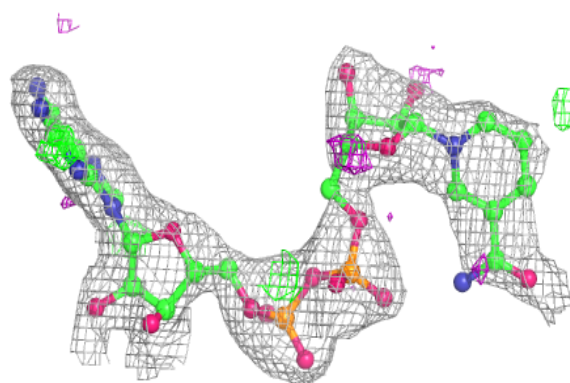


Electron density around NAD H 505:

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

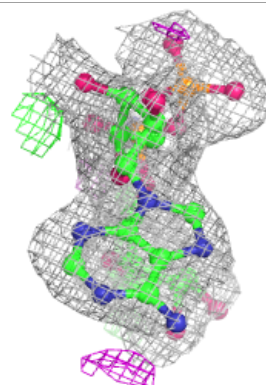
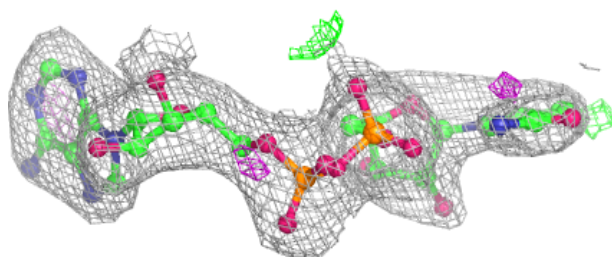
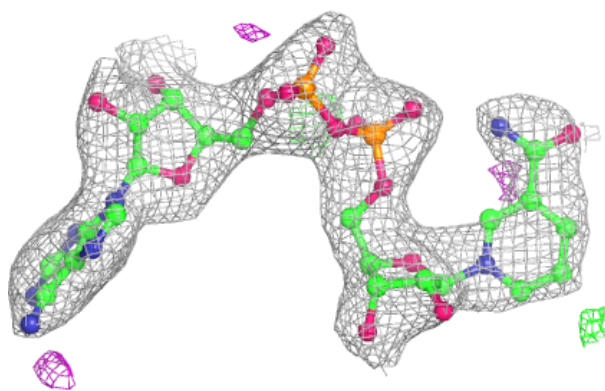
**Electron density around NAD G 706:**

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

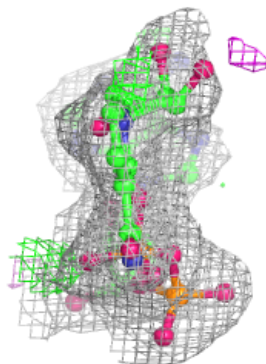
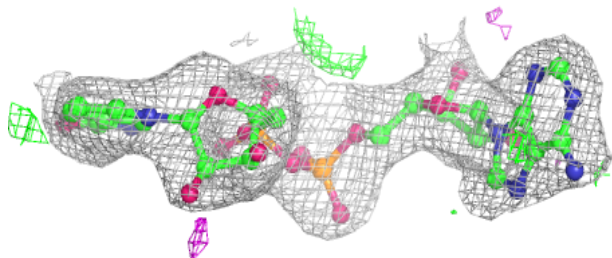
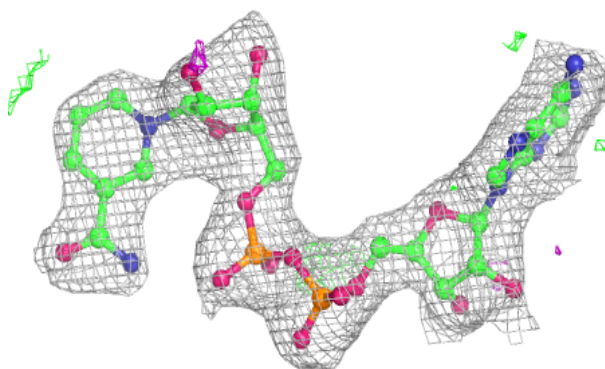


Electron density around NAD I 907:

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

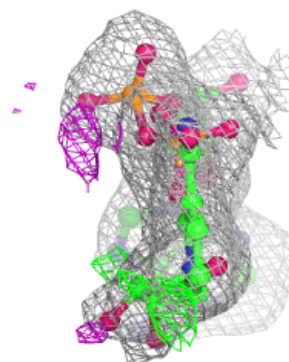
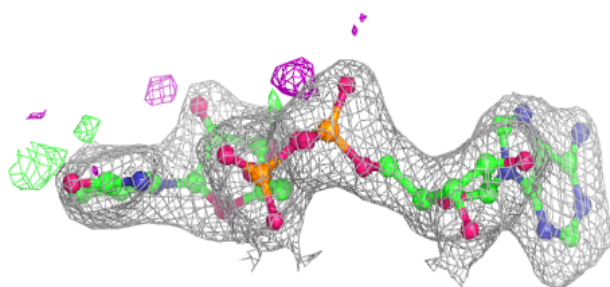
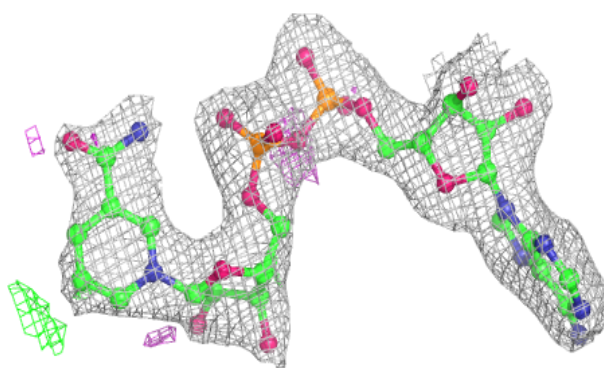
**Electron density around NAD E 803:**

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

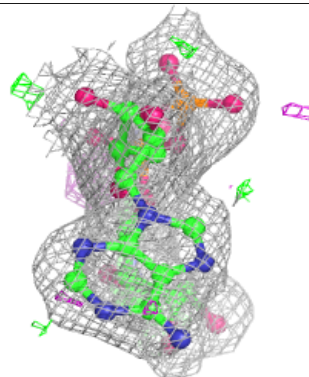
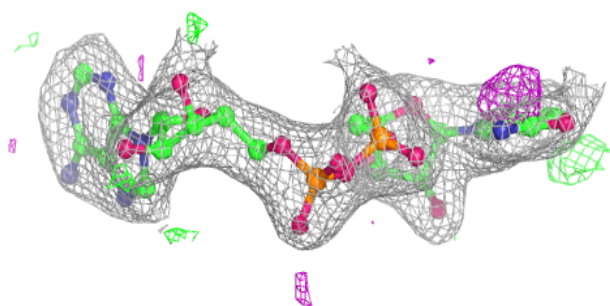
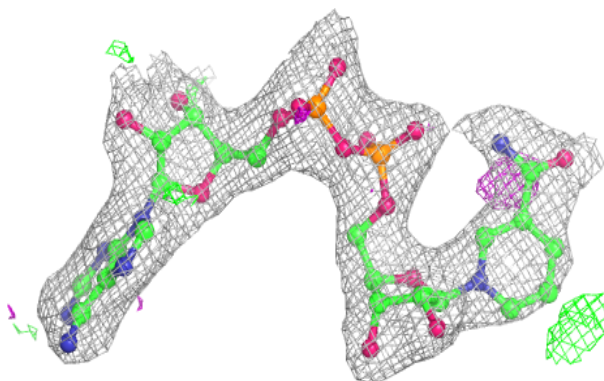


Electron density around NAD F 603:

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

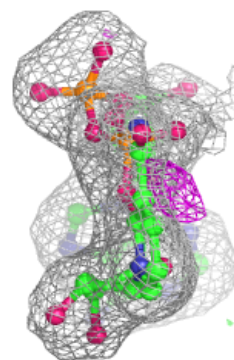
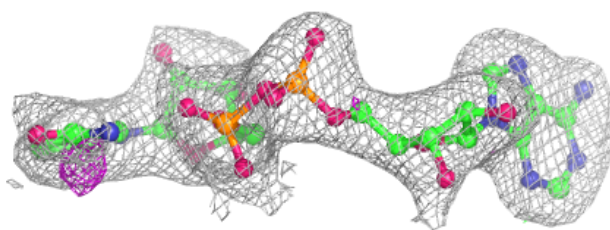
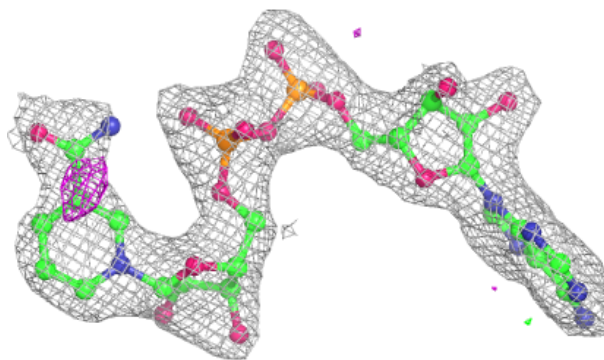
**Electron density around NAD A 608:**

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

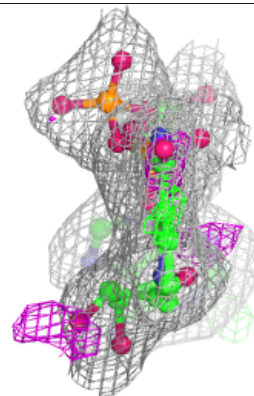
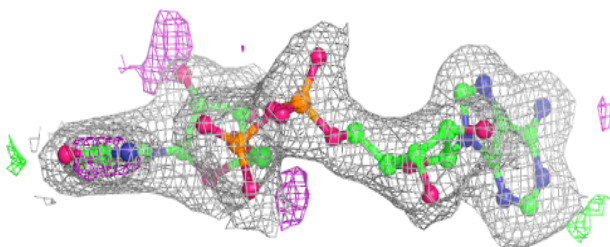
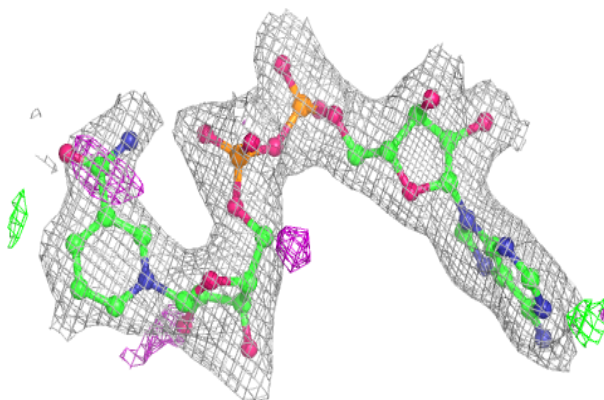


Electron density around NAD D 605:

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

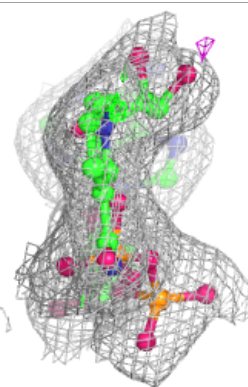
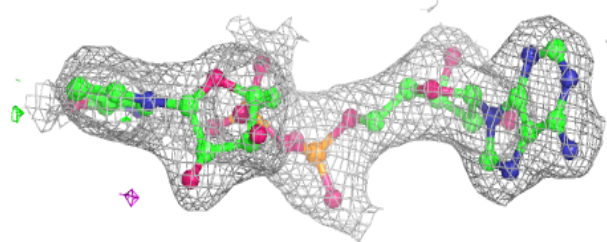
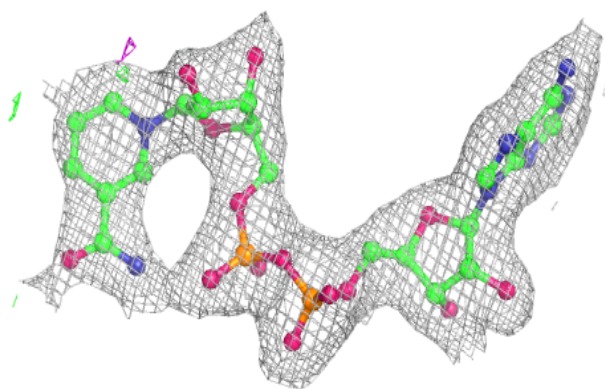
**Electron density around NAD B 508:**

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



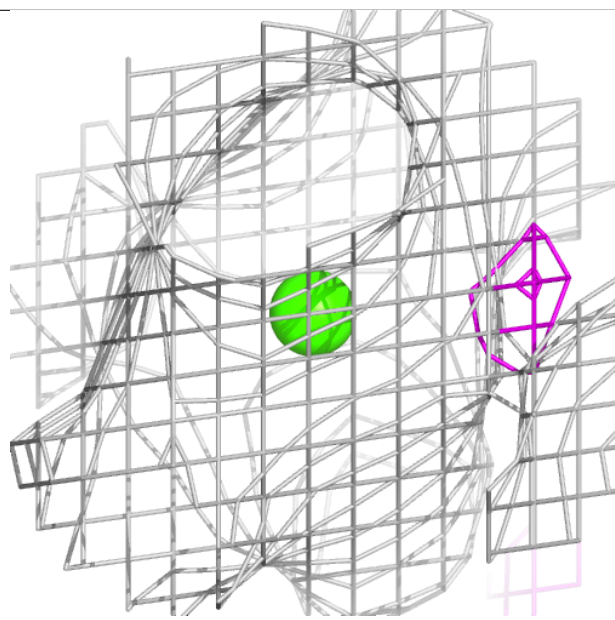
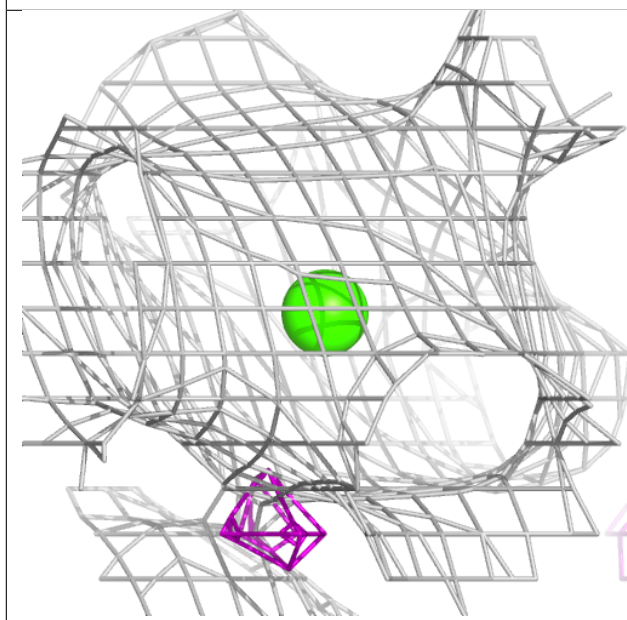
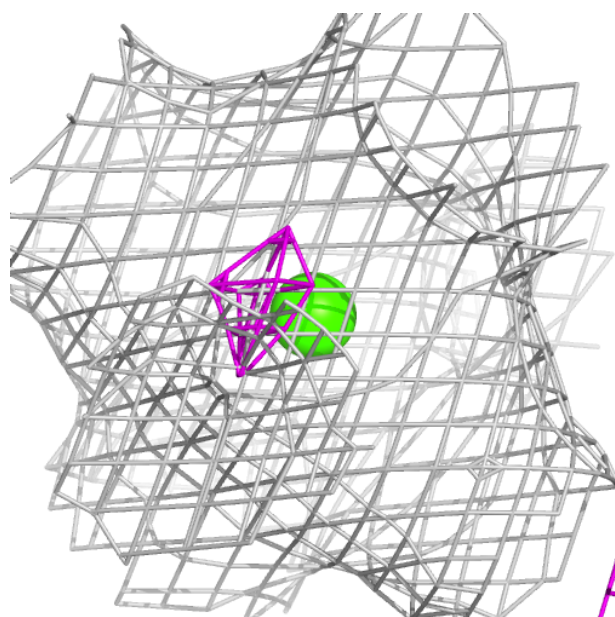
Electron density around NAD C 506:

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



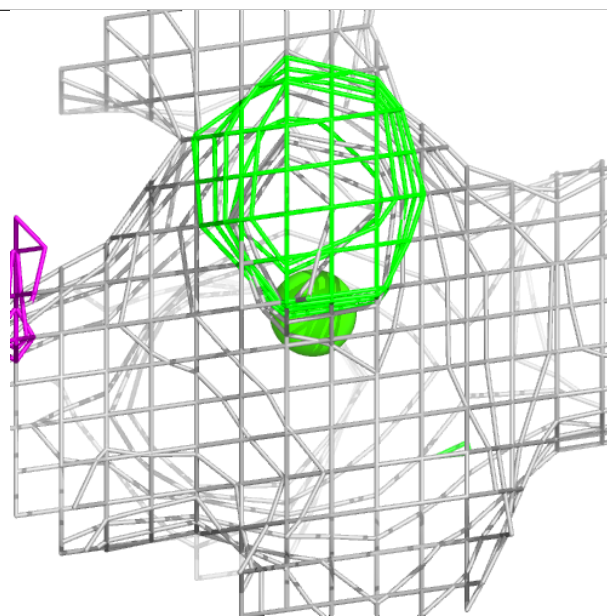
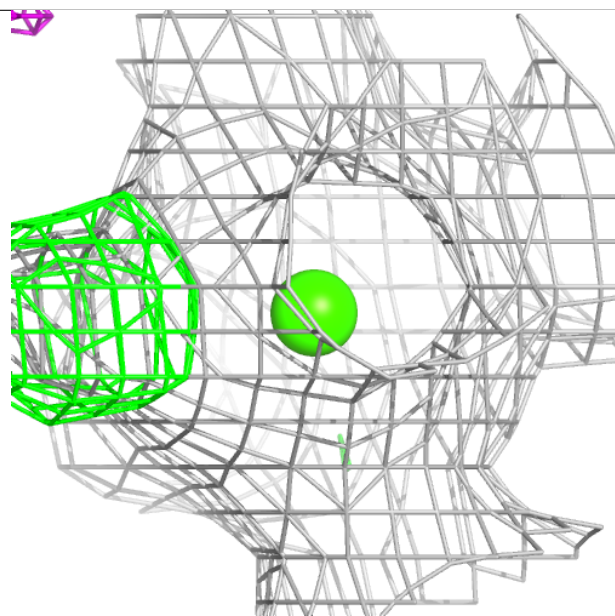
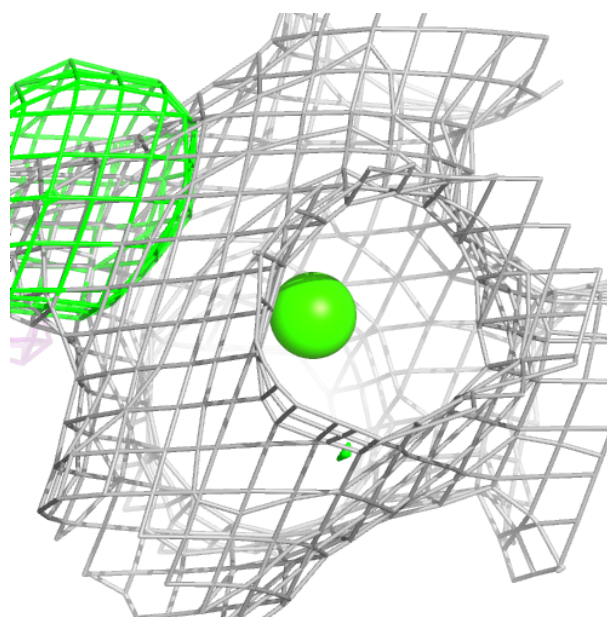
Electron density around CA E 804:

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



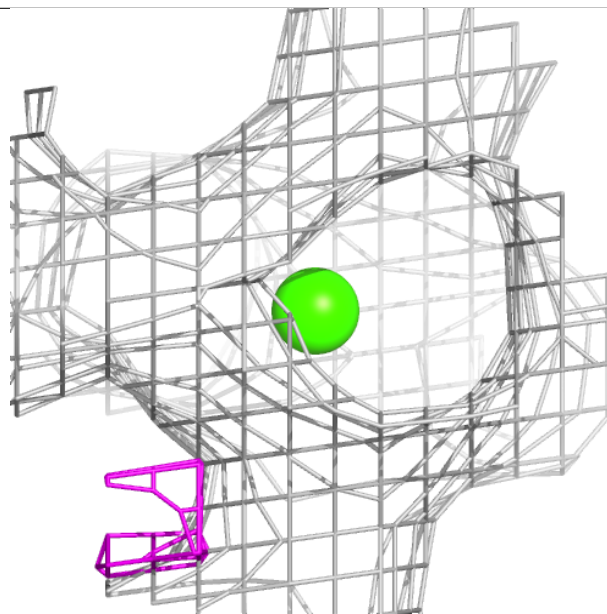
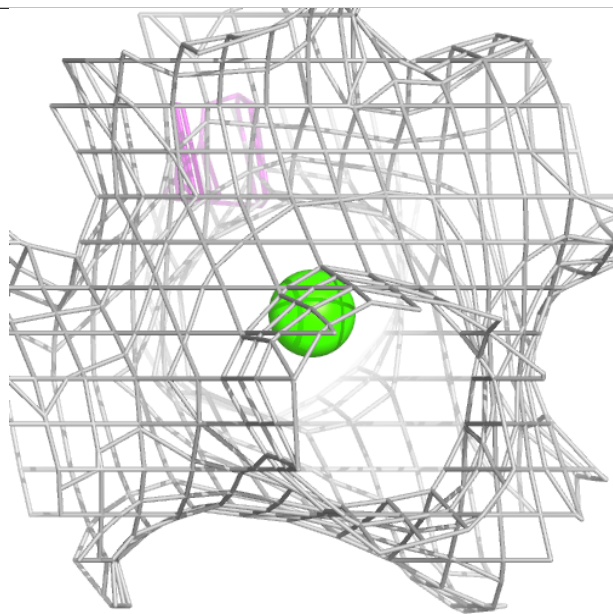
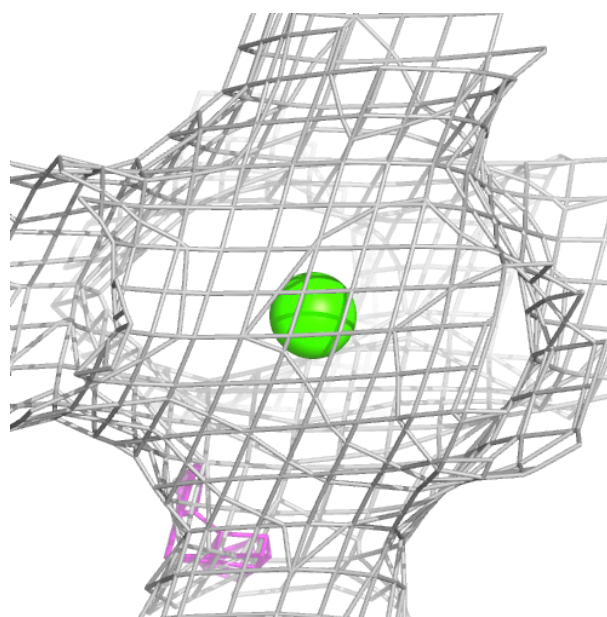
Electron density around CA H 506:

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



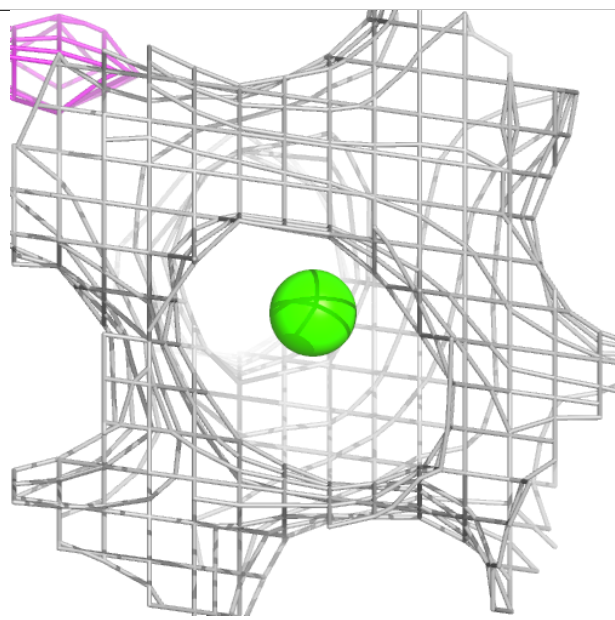
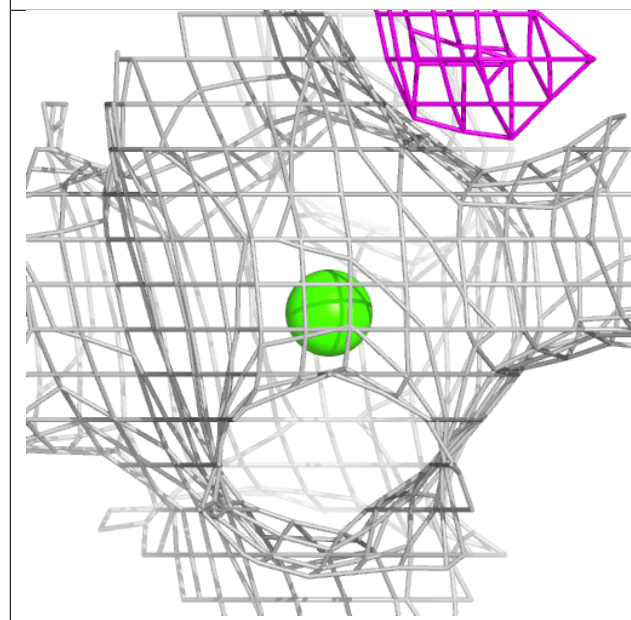
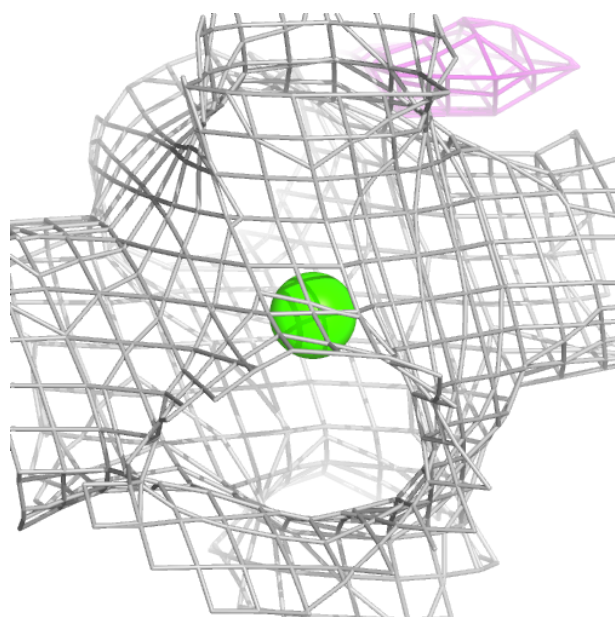
Electron density around CA L 704:

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



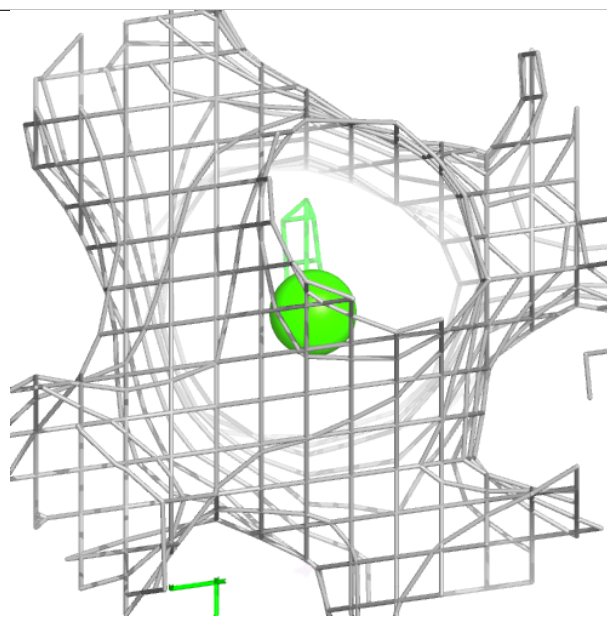
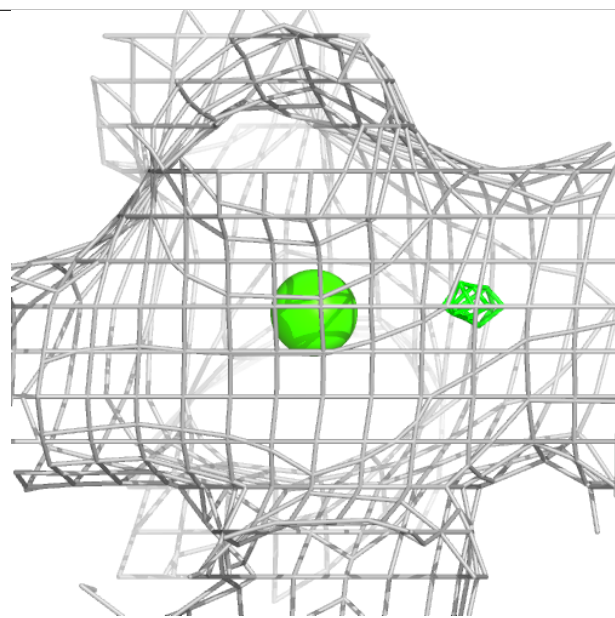
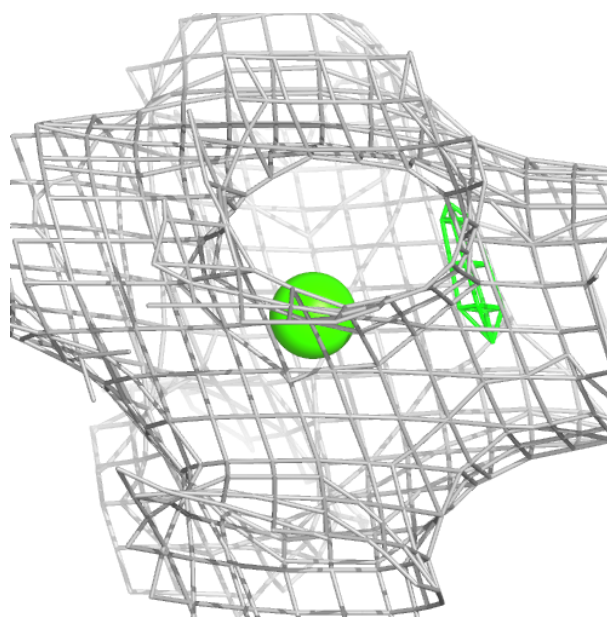
Electron density around CA F 606:

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



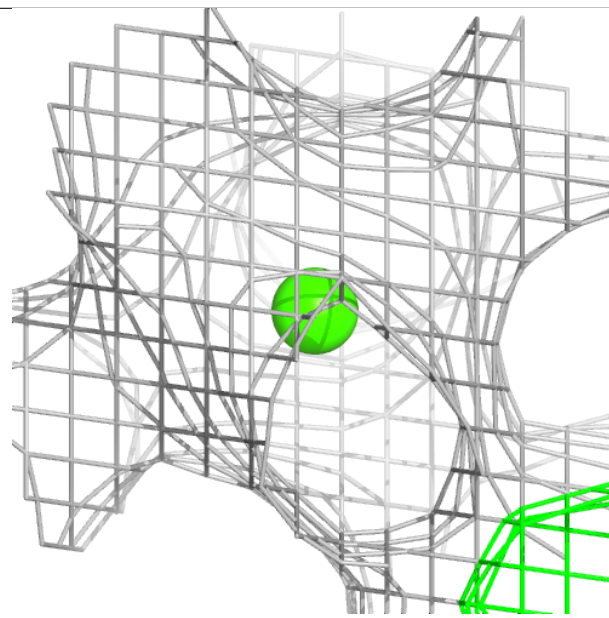
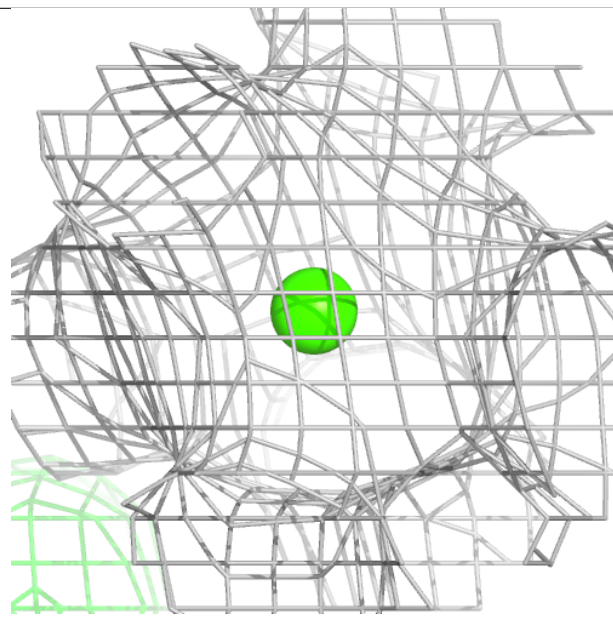
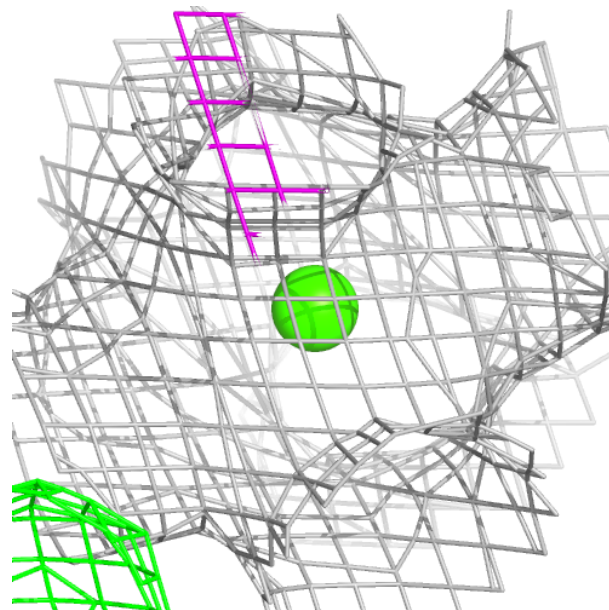
Electron density around CA G 708:

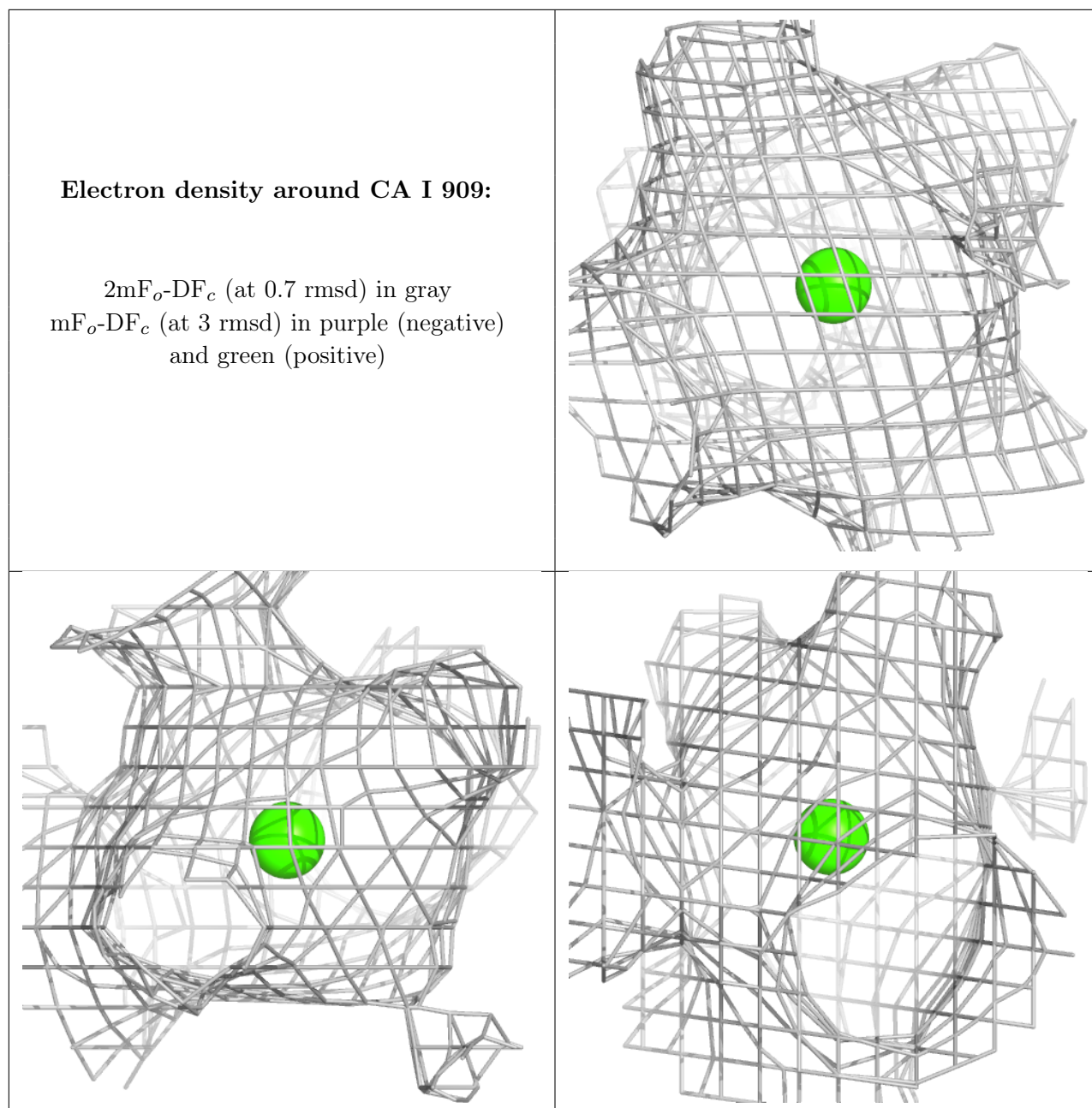
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around CA C 507:

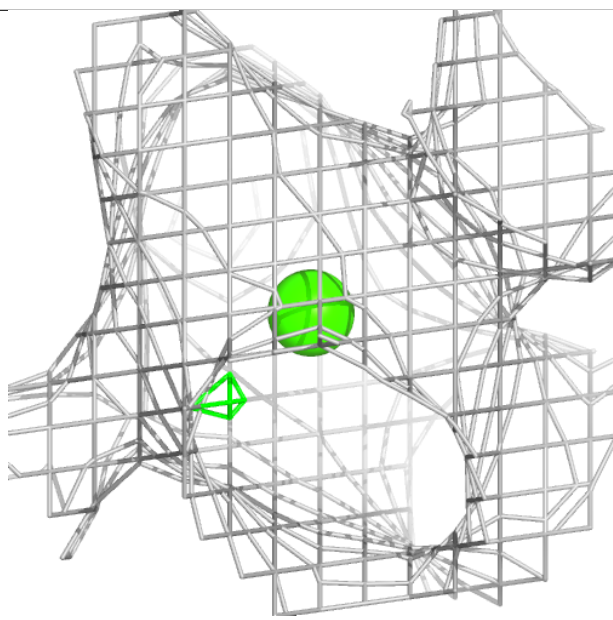
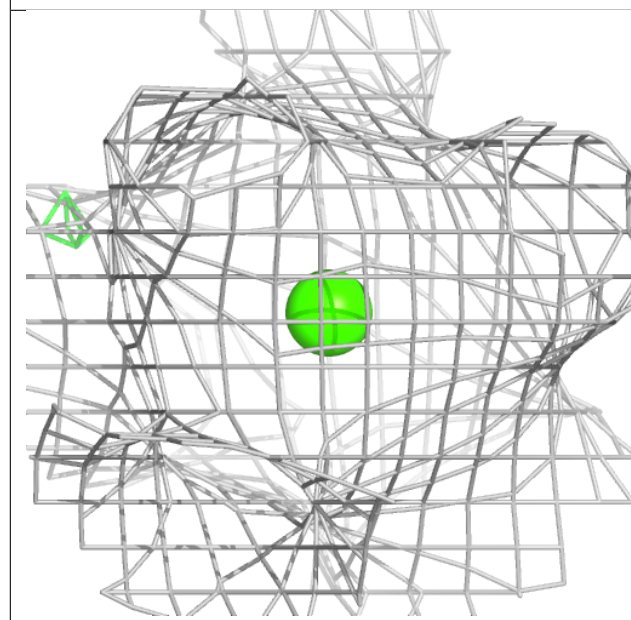
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





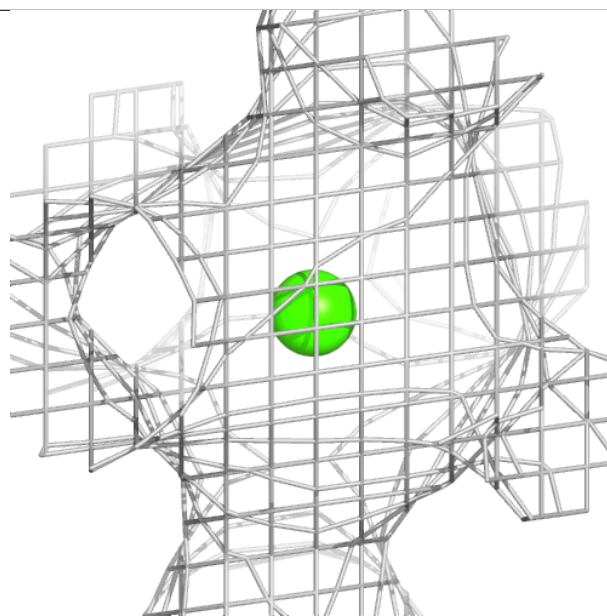
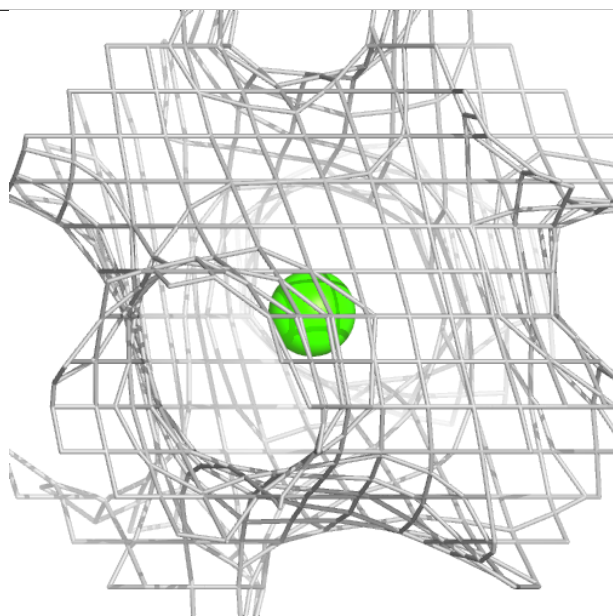
Electron density around CA J 603:

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



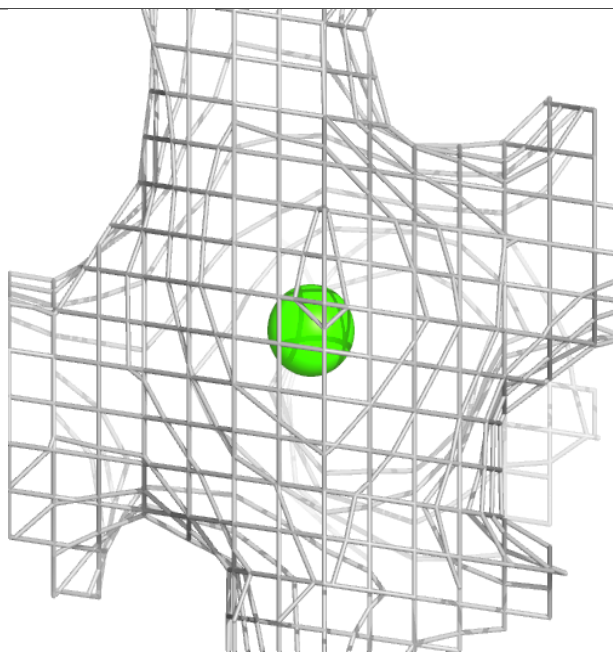
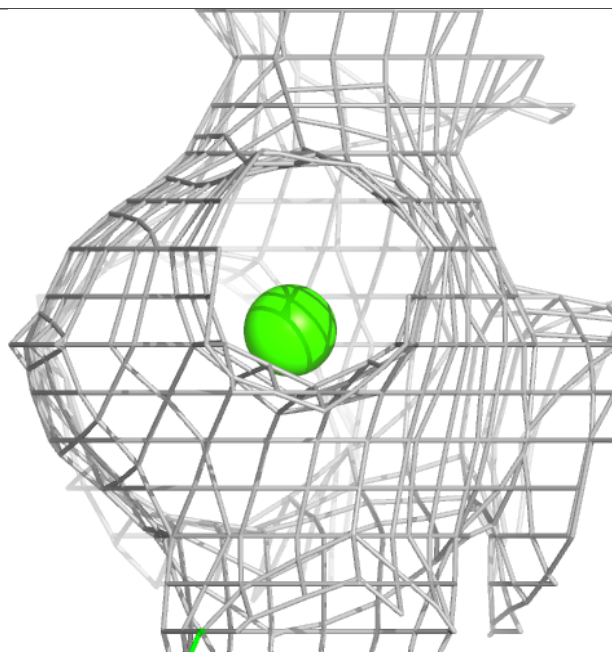
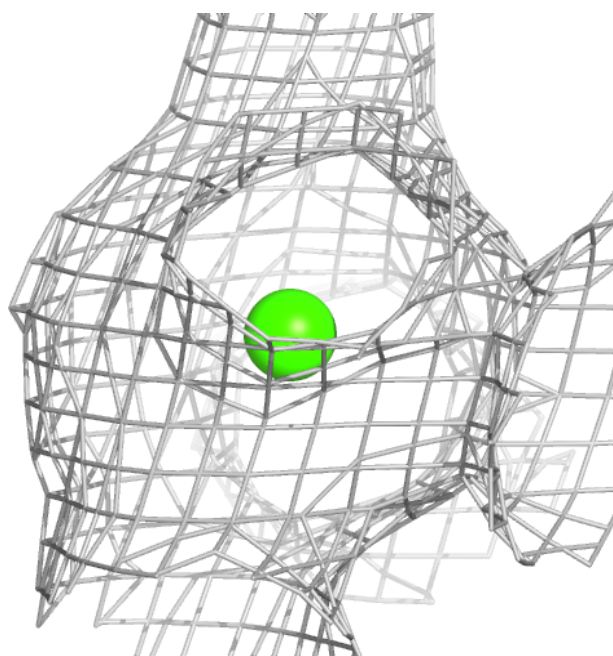
Electron density around CA D 606:

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



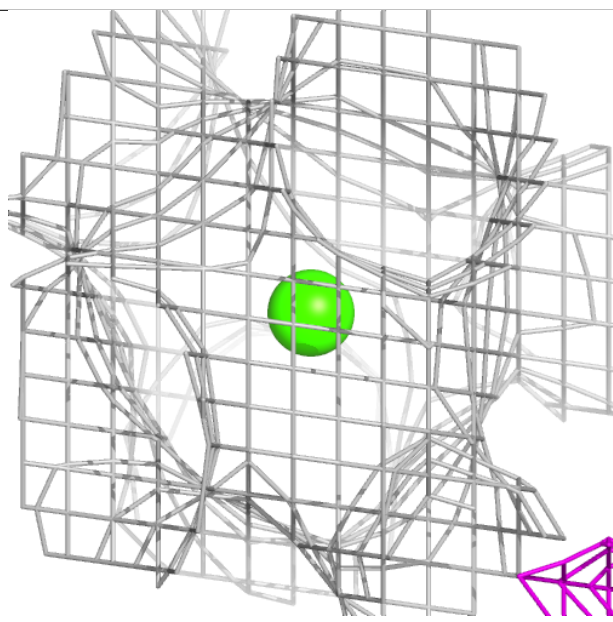
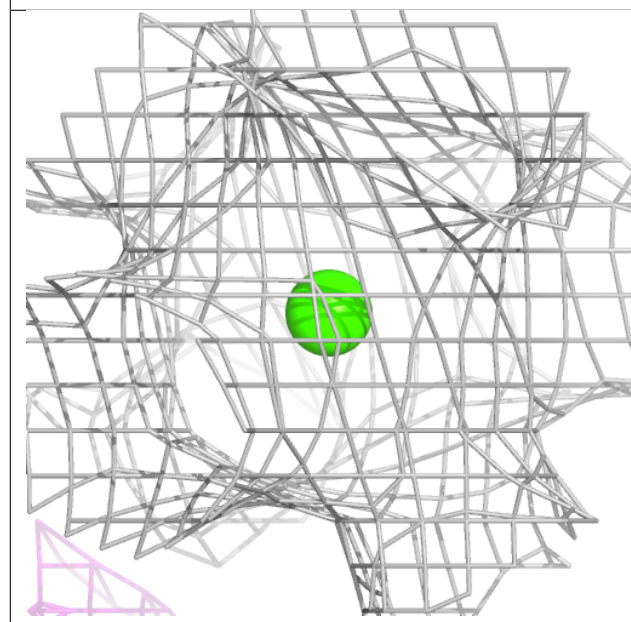
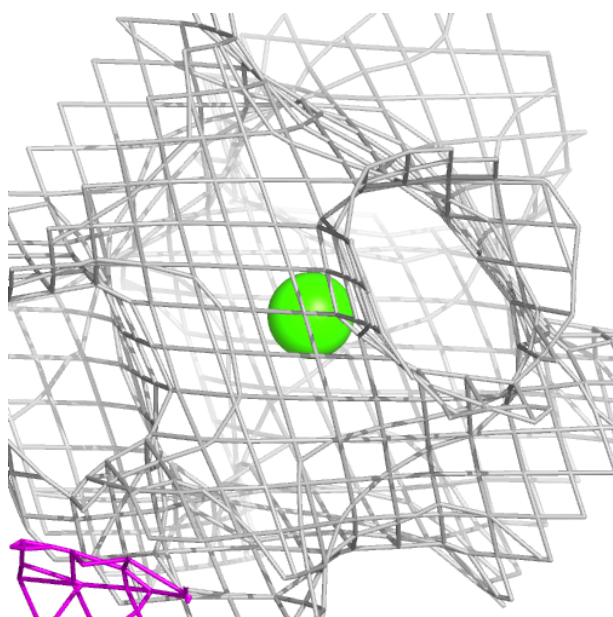
Electron density around CA K 507:

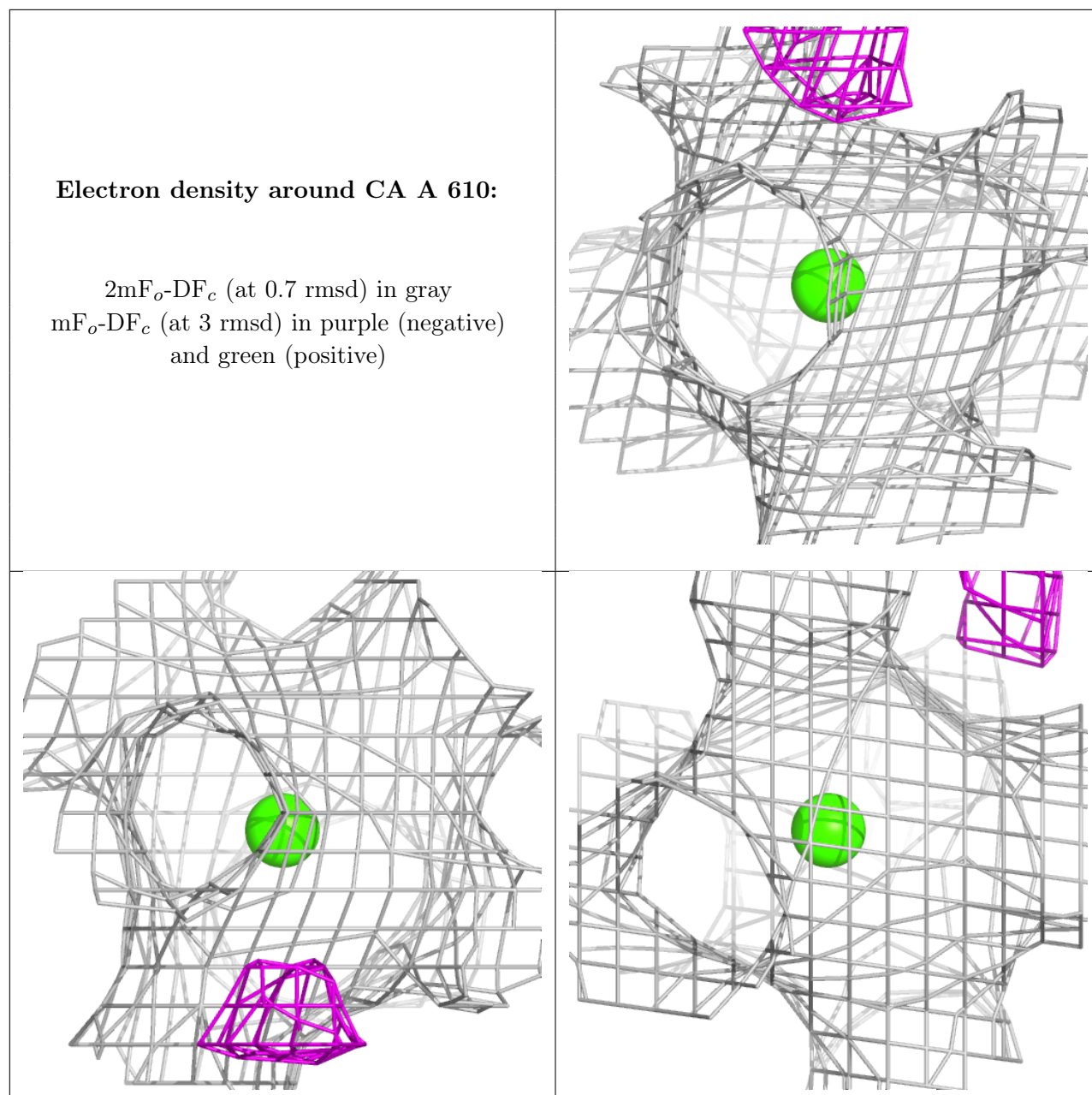
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around CA B 509:

$2mF_o-DF_c$ (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.