Full wwPDB X-ray Structure Validation Report (i)

Apr 21, 2026 – 04:36 pm BST

PDB ID	:	9QYJ / pdb_00009qyj
Title	:	Crystal structure of human S-adenosyl-L-homocysteine hydrolase in complex with adenosine and cadmium ions.
Authors	:	Malecki, P.H.; Imiolczyk, B.; Gawel, M.; Stepniewska, M.; Brzezinski, K.
Deposited on	:	2025-04-18
Resolution	:	1.93 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 (i) 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 (i)) were used in the production of this report:

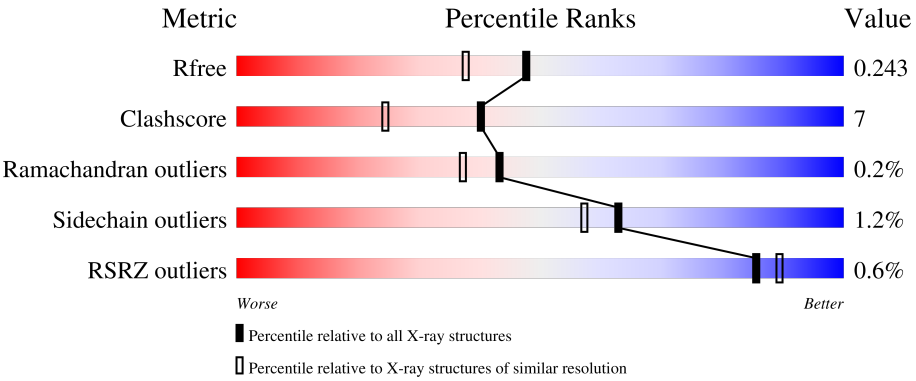
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 1.93 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1452 (1.94-1.94)
Clashscore	190562	1494 (1.94-1.94)
Ramachandran outliers	187476	1479 (1.94-1.94)
Sidechain outliers	187428	1479 (1.94-1.94)
RSRZ outliers	180081	1453 (1.94-1.94)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	431	87% 12%
1	B	431	84% 15%
1	C	431	% 82% 17%
1	D	431	% 84% 16%
1	E	431	86% 13%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	431	82% 17%
1	G	431	% 84% 14%
1	H	431	2% 80% 19%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 28621 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.

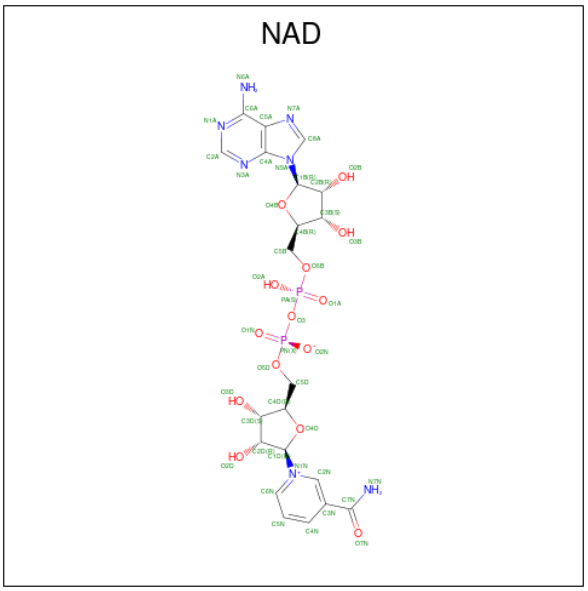
- Molecule 1 is a protein called Adenosylhomocysteinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	430	Total	C	N	O	S	0	1	0
			3336	2115	573	622	26			
1	B	430	Total	C	N	O	S	0	1	0
			3336	2115	573	622	26			
1	D	430	Total	C	N	O	S	0	1	0
			3336	2115	573	622	26			
1	E	430	Total	C	N	O	S	0	1	0
			3336	2115	573	622	26			
1	F	429	Total	C	N	O	S	0	1	0
			3328	2111	572	619	26			
1	G	429	Total	C	N	O	S	0	1	0
			3328	2111	572	619	26			
1	C	429	Total	C	N	O	S	0	1	0
			3328	2111	572	619	26			
1	H	429	Total	C	N	O	S	0	1	0
			3328	2111	572	619	26			

There are 8 discrepancies between the modelled and reference sequences:

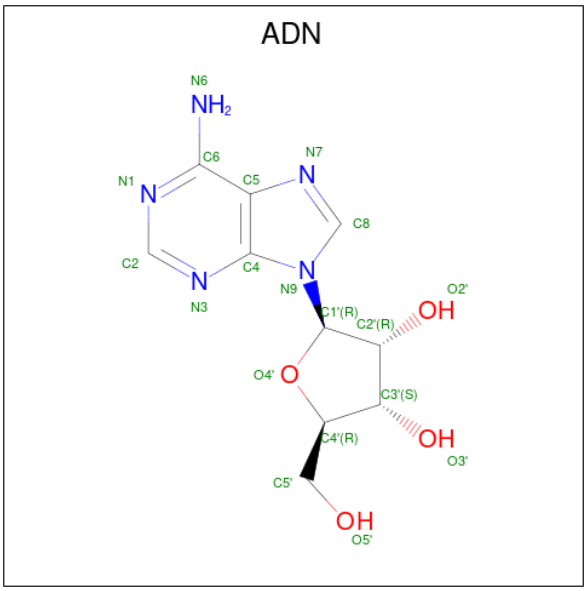
Chain	Residue	Modelled	Actual	Comment	Reference
A	86	ASN	ASP	variant	UNP P23526
B	86	ASN	ASP	variant	UNP P23526
D	86	ASN	ASP	variant	UNP P23526
E	86	ASN	ASP	variant	UNP P23526
F	86	ASN	ASP	variant	UNP P23526
G	86	ASN	ASP	variant	UNP P23526
C	86	ASN	ASP	variant	UNP P23526
H	86	ASN	ASP	variant	UNP P23526

- Molecule 2 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (CCD ID: NAD) (formula: $C_{21}H_{27}N_7O_{14}P_2$).



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

- Molecule 3 is ADENOSINE (CCD ID: ADN) (formula: $C_{10}H_{13}N_5O_4$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O 19 10 5 4	0	0
3	B	1	Total C N O 19 10 5 4	0	0
3	D	1	Total C N O 19 10 5 4	0	0
3	E	1	Total C N O 19 10 5 4	0	0
3	F	1	Total C N O 19 10 5 4	0	0
3	G	1	Total C N O 19 10 5 4	0	0
3	C	1	Total C N O 19 10 5 4	0	0
3	H	1	Total C N O 19 10 5 4	0	0

- Molecule 4 is CADMIUM ION (CCD ID: CD) (formula: Cd).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	6	Total Cd 7 7	0	1
4	B	6	Total Cd 7 7	0	1
4	D	6	Total Cd 7 7	0	1
4	E	6	Total Cd 7 7	0	1

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	F	6	Total Cd 7 7	0	1
4	G	4	Total Cd 5 5	0	1
4	C	5	Total Cd 6 6	0	1
4	H	6	Total Cd 7 7	0	1

- Molecule 5 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total K 1 1	0	0
5	B	1	Total K 1 1	0	0
5	D	1	Total K 1 1	0	0
5	E	1	Total K 1 1	0	0
5	F	1	Total K 1 1	0	0
5	G	1	Total K 1 1	0	0
5	C	1	Total K 1 1	0	0
5	H	1	Total K 1 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	214	Total O 215 215	0	2
6	B	230	Total O 232 232	0	3
6	D	154	Total O 158 158	0	5
6	E	196	Total O 199 199	0	3
6	F	176	Total O 176 176	0	1

Continued on next page...

Continued from previous page...

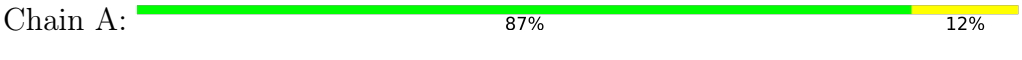
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	G	138	Total O 143 143	0	5
6	C	152	Total O 152 152	0	1
6	H	123	Total O 125 125	0	2

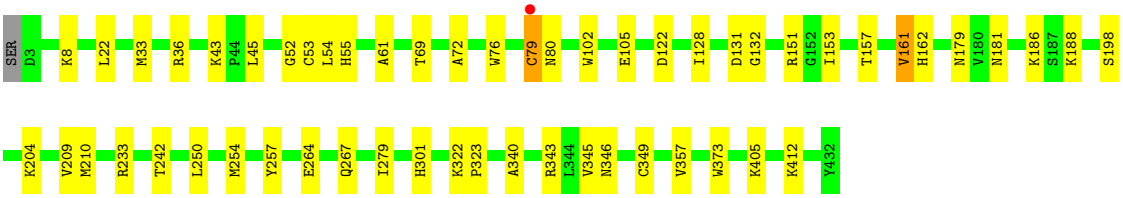
3 Residue-property plots (i)

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: Adenosylhomocysteinase

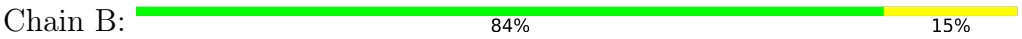
Chain A:

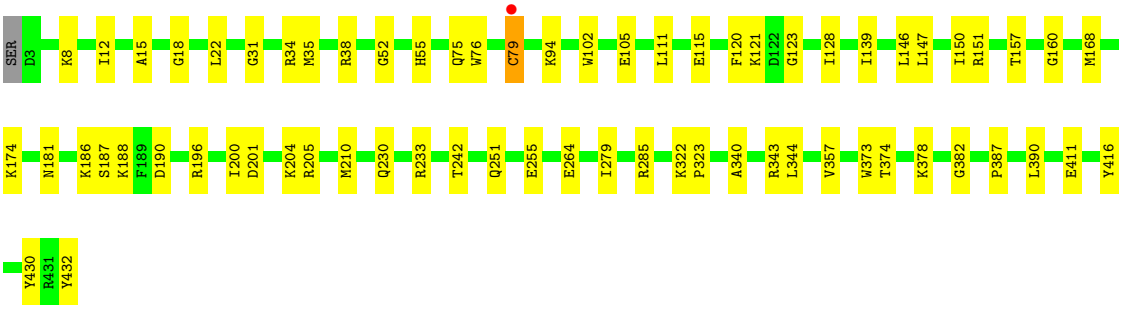




• Molecule 1: Adenosylhomocysteinase

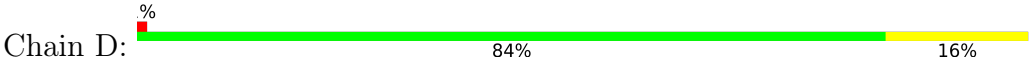
Chain B:

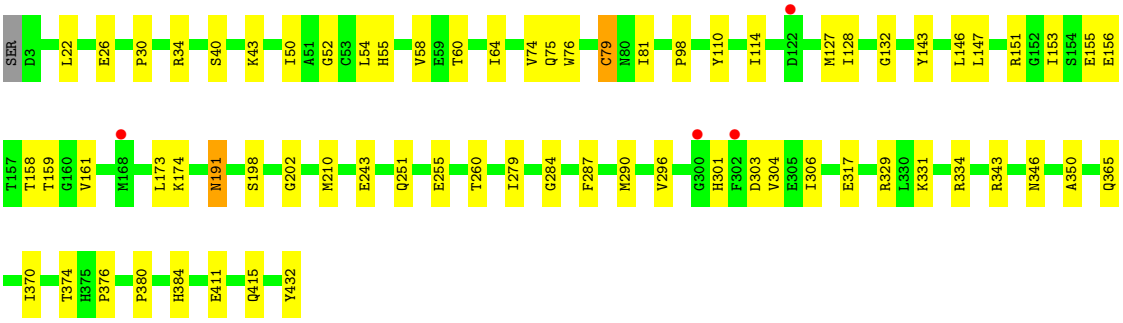




• Molecule 1: Adenosylhomocysteinase

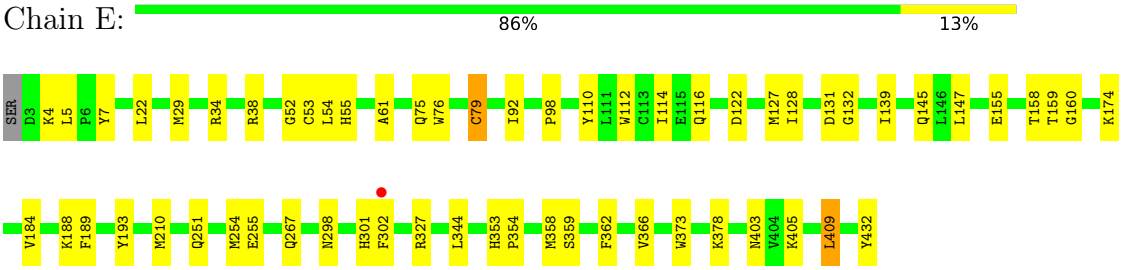
Chain D:





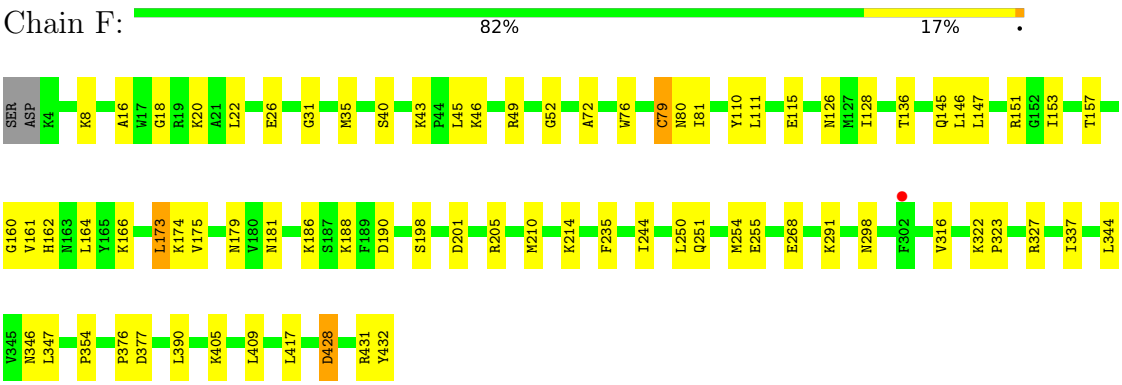
• Molecule 1: Adenosylhomocysteinase

Chain E:



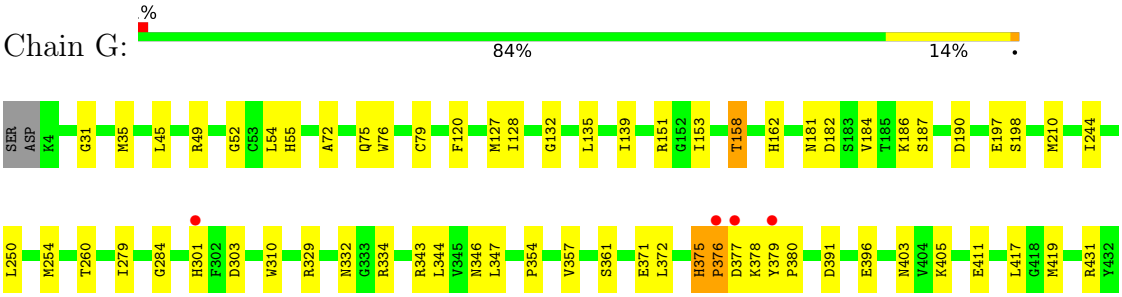
• Molecule 1: Adenosylhomocysteinase

Chain F:



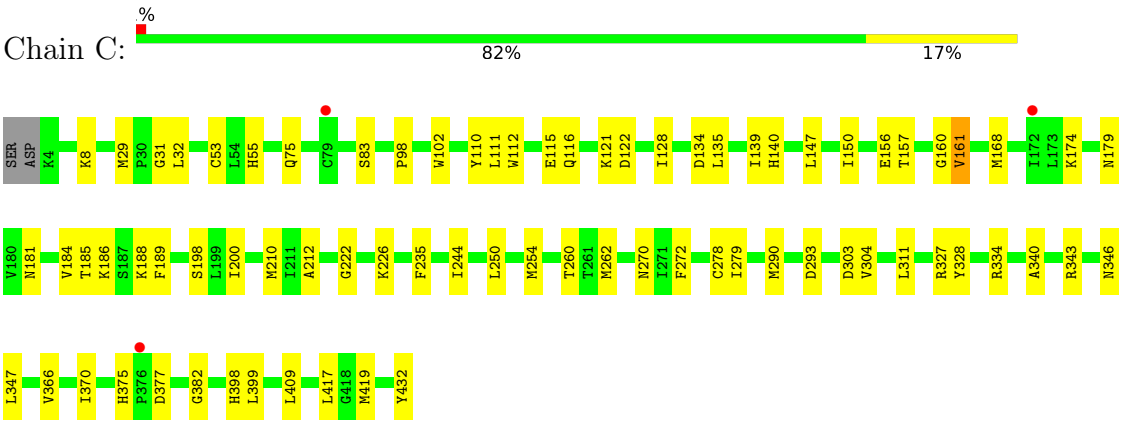
• Molecule 1: Adenosylhomocysteinase

Chain G:



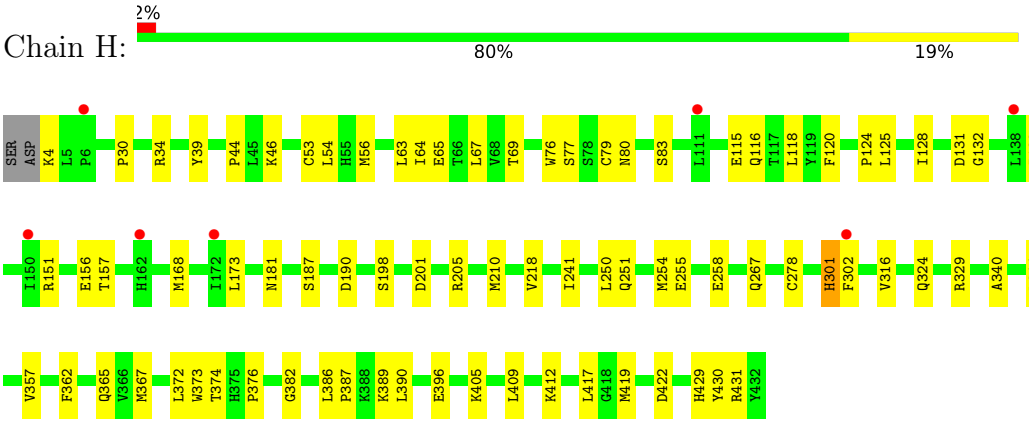
• Molecule 1: Adenosylhomocysteinase

Chain C:



• Molecule 1: Adenosylhomocysteinase

Chain H:


2%
80%
19%
SER ASP K4 L5 P6 P30 R34 Y39 P44 L45 K46 C53 L54 H55 M56 L63 I64 E65 T66 L67 V68 T69 W76 S77 S78 C79 N80 S83 L111 E115 Q116 T117 L118 Y119 F120 P124 L125 I128 D131 G132 L138 I139 Y143 L146
I150 R151 E156 T157 H162 M168 I172 L173 N181 S187 D190 S198 D201 R205 M210 V218 I241 L250 Q251 M254 E255 E258 Q267 C278 H301 F302 V316 Q324 R329 A340 L344 V345 N346 P354
V357 F362 Q365 V366 M367 L372 W373 T374 H375 P376 G382 L386 P387 K388 K389 L390 E396 K405 L409 K412 L417 G418 M419 D422 H429 Y430 R431 Y432

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	82.19Å 89.71Å 124.30Å 96.44° 89.92° 105.82°	Depositor
Resolution (Å)	74.59 – 1.93 74.59 – 1.93	Depositor EDS
% Data completeness (in resolution range)	53.1 (74.59-1.93) 53.1 (74.59-1.93)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.03 (at 1.92Å)	Xtriage
Refinement program	PHENIX 1.21.2_5419+SVN	Depositor
R, R_{free}	0.176 , 0.244 0.177 , 0.243	Depositor DCC
R_{free} test set	1361 reflections (0.53%)	wwPDB-VP
Wilson B-factor (Å^2)	26.5	Xtriage
Anisotropy	0.055	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 41.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	28621	wwPDB-VP
Average B, all atoms (Å^2)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.10% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ADN, CD, K, NAD

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	0.37	0/3400	0.60	0/4601
1	B	0.39	0/3400	0.58	0/4601
1	C	0.32	0/3392	0.52	0/4590
1	D	0.34	0/3400	0.55	0/4601
1	E	0.37	0/3400	0.57	0/4601
1	F	0.35	0/3392	0.55	0/4590
1	G	0.33	0/3392	0.54	0/4590
1	H	0.30	0/3392	0.49	0/4590
All	All	0.35	0/27168	0.55	0/36764

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

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	3336	0	3347	38	0
1	B	3336	0	3346	45	0
1	C	3328	0	3342	53	0
1	D	3336	0	3346	44	0
1	E	3336	0	3346	38	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	3328	0	3342	53	0
1	G	3328	0	3342	52	0
1	H	3328	0	3342	62	0
2	A	44	0	26	2	0
2	B	44	0	26	1	0
2	C	44	0	26	1	0
2	D	44	0	26	2	0
2	E	44	0	26	1	0
2	F	44	0	26	1	0
2	G	44	0	26	2	0
2	H	44	0	26	3	0
3	A	19	0	13	1	0
3	B	19	0	13	1	0
3	C	19	0	13	1	0
3	D	19	0	13	1	0
3	E	19	0	13	1	0
3	F	19	0	13	1	0
3	G	19	0	13	1	0
3	H	19	0	13	3	0
4	A	7	0	0	0	0
4	B	7	0	0	0	0
4	C	6	0	0	0	0
4	D	7	0	0	0	0
4	E	7	0	0	0	0
4	F	7	0	0	0	0
4	G	5	0	0	0	0
4	H	7	0	0	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0
5	E	1	0	0	0	0
5	F	1	0	0	0	0
5	G	1	0	0	0	0
5	H	1	0	0	0	0
6	A	215	0	0	3	0
6	B	232	0	0	10	0
6	C	152	0	0	5	0
6	D	158	0	0	5	0
6	E	199	0	0	1	0
6	F	176	0	0	4	0
6	G	143	0	0	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	H	125	0	0	4	0
All	All	28621	0	27065	359	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 7.

All (359) 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:344:LEU:HD11	1:G:347:LEU:HD12	1.56	0.85
1:F:210:MET:HE3	1:G:354:PRO:HG2	1.60	0.83
1:B:181:ASN:HA	1:B:186:LYS:HD2	1.60	0.83
1:C:147:LEU:HD23	1:C:174:LYS:HB2	1.65	0.78
1:G:198:SER:HB2	1:G:346:ASN:HB2	1.69	0.73
1:F:428:ASP:OD1	1:F:428:ASP:N	2.24	0.70
1:B:120:PHE:O	1:B:121:LYS:HB3	1.94	0.68
1:F:432:TYR:O	1:C:188:LYS:NZ	2.26	0.68
1:H:168:MET:HE3	1:H:382:GLY:HA2	1.75	0.68
1:C:128:ILE:HD11	1:C:139:ILE:HD12	1.76	0.68
1:C:290:MET:O	1:C:334:ARG:NH1	2.26	0.67
1:A:188:LYS:NZ	1:B:432:TYR:O	2.29	0.66
1:E:34:ARG:HD2	1:E:38:ARG:HH21	1.61	0.66
1:G:128:ILE:HB	1:G:153:ILE:HG12	1.77	0.65
1:G:376:PRO:HD2	1:G:378:LYS:H	1.61	0.65
2:G:501:NAD:C4N	3:G:502:ADN:H3'	2.27	0.65
1:H:417:LEU:HB3	1:H:419:MET:HE3	1.78	0.64
1:F:161:VAL:HG21	1:F:179:ASN:CG	2.22	0.64
1:A:22:LEU:HD21	1:A:61:ALA:HB3	1.79	0.64
1:G:375:HIS:ND1	1:G:376:PRO:HD3	2.13	0.63
1:D:151:ARG:HD2	1:D:376:PRO:HB3	1.81	0.63
1:F:40:SER:O	1:F:43:LYS:NZ	2.29	0.63
1:A:54:LEU:HG	1:A:131:ASP:HB2	1.82	0.62
1:A:79[A]:CYS:HB2	6:A:686[A]:HOH:O	1.99	0.62
1:A:412:LYS:HE2	1:B:279:ILE:HD12	1.82	0.61
2:D:501:NAD:C4N	3:D:502:ADN:H3'	2.30	0.61
1:C:200:ILE:HG21	1:C:235:PHE:HE2	1.66	0.61
1:H:39:TYR:CD1	1:H:44:PRO:HG3	2.36	0.61
1:H:301:HIS:H	2:H:501:NAD:H1D	1.66	0.61
1:G:417:LEU:HB3	1:G:419:MET:HE3	1.82	0.61
1:D:75:GLN:HG2	1:D:98:PRO:HB2	1.81	0.61
1:H:387:PRO:HD2	1:H:390:LEU:HD12	1.83	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:29:MET:HG2	1:E:359:SER:HB2	1.83	0.60
1:B:34:ARG:HG3	6:B:709:HOH:O	2.00	0.60
1:E:54:LEU:HD13	1:E:131:ASP:HB2	1.82	0.59
1:E:409:LEU:HD12	1:E:409:LEU:H	1.67	0.59
1:H:64:ILE:HA	1:H:67:LEU:HD12	1.83	0.59
1:C:198:SER:HB2	1:C:346:ASN:HB2	1.84	0.59
1:G:244:ILE:HD13	1:H:409:LEU:HD21	1.85	0.59
1:C:8:LYS:HG2	1:C:102:TRP:CZ3	2.37	0.59
1:F:157:THR:HG23	1:F:160:GLY:H	1.68	0.58
1:E:22:LEU:HD21	1:E:61:ALA:HB3	1.85	0.58
1:H:128:ILE:HD11	1:H:139:ILE:HD12	1.86	0.58
1:F:251:GLN:O	1:F:255:GLU:HG2	2.03	0.58
1:C:157:THR:HG23	1:C:160:GLY:H	1.69	0.57
1:F:214:LYS:NZ	6:F:607:HOH:O	2.37	0.57
1:F:268:GLU:O	1:F:291:LYS:NZ	2.37	0.57
1:E:75:GLN:HG2	1:E:98:PRO:HB2	1.87	0.57
1:F:188:LYS:NZ	6:F:602:HOH:O	2.28	0.57
1:H:316:VAL:HG11	1:H:329:ARG:NH2	2.20	0.56
1:A:204:LYS:NZ	1:A:209:VAL:O	2.35	0.56
1:B:357:VAL:HB	1:E:210:MET:SD	2.45	0.56
1:E:132:GLY:HA3	1:E:301:HIS:CE1	2.41	0.56
1:H:30:PRO:O	1:H:34:ARG:HG2	2.05	0.56
1:F:405:LYS:HB2	1:C:260:THR:HA	1.86	0.56
1:G:132:GLY:HA3	1:G:301:HIS:CE1	2.41	0.56
1:F:210:MET:HE3	1:G:354:PRO:CG	2.34	0.55
2:E:501:NAD:C4N	3:E:502:ADN:H3'	2.35	0.55
1:H:118:LEU:HA	1:H:125:LEU:HD23	1.87	0.55
1:H:367:MET:HE2	1:H:386:LEU:HD21	1.89	0.55
2:A:501:NAD:C4N	3:A:502:ADN:H3'	2.36	0.55
1:G:375:HIS:HB3	1:G:376:PRO:HD3	1.88	0.55
1:C:303:ASP:HB3	1:C:343:ARG:HD2	1.89	0.55
1:A:210:MET:HE2	1:E:254:MET:HE1	1.89	0.55
1:H:367:MET:HE1	1:H:390:LEU:HB3	1.89	0.54
1:E:251:GLN:O	1:E:255:GLU:HG2	2.07	0.54
1:G:279:ILE:HD12	1:H:412:LYS:HE2	1.90	0.54
1:G:403:ASN:OD1	1:G:405:LYS:NZ	2.41	0.54
1:A:357:VAL:HB	1:D:210:MET:SD	2.48	0.54
1:D:22:LEU:HD12	1:D:58:VAL:HG13	1.90	0.54
1:C:279:ILE:HG22	1:C:304:VAL:HB	1.89	0.54
1:F:111:LEU:O	1:F:115:GLU:HG3	2.07	0.54
1:C:122:ASP:OD1	1:C:122:ASP:N	2.39	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:181:ASN:HA	1:A:186:LYS:HD2	1.89	0.54
1:B:157:THR:HG23	1:B:160:GLY:H	1.73	0.54
1:C:121:LYS:NZ	6:C:604:HOH:O	2.33	0.54
1:C:200:ILE:HG21	1:C:235:PHE:CE2	2.44	0.53
1:F:8:LYS:NZ	6:F:609:HOH:O	2.41	0.53
1:G:128:ILE:HG23	1:G:135:LEU:HD23	1.89	0.53
1:C:75:GLN:HG2	1:C:98:PRO:HB2	1.90	0.53
1:B:344:LEU:HD12	1:B:344:LEU:H	1.74	0.53
2:F:501:NAD:C4N	3:F:502:ADN:H3'	2.38	0.53
1:H:143:TYR:HB3	1:H:146:LEU:CD1	2.39	0.53
1:E:128:ILE:HD11	1:E:139:ILE:HD12	1.89	0.53
1:B:94:LYS:HD2	6:B:815:HOH:O	2.08	0.53
1:D:260:THR:HA	1:E:405:LYS:HB2	1.91	0.53
1:D:411:GLU:O	1:D:415:GLN:HG3	2.07	0.53
1:F:181:ASN:HA	1:F:186:LYS:HD2	1.91	0.53
1:F:327:ARG:HG3	1:F:337:ILE:HG12	1.91	0.53
1:B:79[A]:CYS:HB2	6:B:674[A]:HOH:O	2.07	0.53
1:E:362:PHE:O	1:E:366:VAL:HG23	2.09	0.52
1:F:198:SER:HB2	1:F:346:ASN:HB2	1.91	0.52
1:G:158:THR:HG22	1:G:162:HIS:CE1	2.44	0.52
1:C:29:MET:HE2	1:C:32:LEU:HD12	1.91	0.52
1:A:264:GLU:O	1:A:267:GLN:HG3	2.08	0.52
1:G:431:ARG:HA	1:H:431:ARG:HD3	1.91	0.52
1:H:151:ARG:NH1	1:H:373:TRP:O	2.42	0.52
1:F:162:HIS:HB3	6:C:707:HOH:O	2.10	0.52
1:G:303:ASP:HB3	1:G:343:ARG:HG2	1.91	0.52
1:H:143:TYR:HB3	1:H:146:LEU:HD13	1.91	0.52
1:D:251:GLN:O	1:D:255:GLU:HG2	2.10	0.52
1:D:296:VAL:HG12	1:D:306:ILE:HD13	1.92	0.52
1:D:279:ILE:HG22	1:D:304:VAL:HB	1.91	0.51
1:H:374:THR:C	1:H:376:PRO:HD3	2.35	0.51
1:H:389:LYS:HE3	1:H:422:ASP:O	2.11	0.51
1:D:143:TYR:HB3	1:D:146:LEU:HD12	1.92	0.51
1:C:156:GLU:O	1:C:186:LYS:HE2	2.11	0.51
1:D:55:HIS:CE1	6:D:670[A]:HOH:O	2.64	0.51
1:B:55:HIS:CE1	6:B:674[A]:HOH:O	2.64	0.51
1:H:132:GLY:HA3	1:H:301:HIS:CE1	2.45	0.51
1:B:233:ARG:HG3	6:B:689:HOH:O	2.11	0.51
1:C:210:MET:HE2	1:C:212:ALA:HB3	1.92	0.51
1:H:367:MET:CE	1:H:390:LEU:HB3	2.40	0.51
1:D:380:PRO:HD2	1:D:384:HIS:CE1	2.46	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:45:LEU:HB3	1:F:72:ALA:HB2	1.93	0.50
1:H:4:LYS:HG3	6:H:618:HOH:O	2.11	0.50
1:G:417:LEU:HD21	1:H:278:CYS:HB2	1.94	0.50
1:B:340:ALA:O	1:B:343:ARG:HB2	2.12	0.50
1:E:147:LEU:HD13	1:E:174:LYS:HB2	1.94	0.50
1:G:45:LEU:HB3	1:G:72:ALA:HB2	1.94	0.50
1:H:4:LYS:NZ	1:H:116:GLN:O	2.33	0.50
1:B:251:GLN:O	1:B:255:GLU:HG2	2.11	0.50
2:B:501:NAD:C4N	3:B:502:ADN:H3'	2.41	0.50
1:F:417:LEU:HD21	1:C:278:CYS:HB2	1.94	0.50
1:H:198:SER:HB2	1:H:346:ASN:HB2	1.93	0.50
1:H:301:HIS:HD1	1:H:302:PHE:HD1	1.58	0.50
1:E:122:ASP:OD1	1:E:122:ASP:N	2.44	0.49
1:G:52:GLY:HA3	1:G:76:TRP:CE3	2.46	0.49
1:H:302:PHE:HB2	6:H:670:HOH:O	2.11	0.49
1:D:146:LEU:HA	6:D:688:HOH:O	2.11	0.49
1:H:251:GLN:O	1:H:255:GLU:HG2	2.12	0.49
1:A:405:LYS:NZ	1:B:264:GLU:OE1	2.45	0.49
1:F:188:LYS:NZ	1:C:432:TYR:O	2.45	0.49
1:B:102:TRP:O	1:B:105:GLU:HG3	2.13	0.49
1:F:145:GLN:HG2	1:F:146:LEU:HD12	1.93	0.49
1:C:112:TRP:O	1:C:116:GLN:HG2	2.12	0.49
1:C:375:HIS:C	1:C:377:ASP:H	2.20	0.49
1:H:115:GLU:HA	1:H:118:LEU:HG	1.93	0.49
1:H:157:THR:HG21	1:H:301:HIS:CD2	2.48	0.49
1:B:75:GLN:HG3	1:B:120:PHE:CE2	2.48	0.49
1:D:128:ILE:HB	1:D:153:ILE:HG12	1.94	0.49
1:D:81:ILE:HG22	1:D:110:TYR:HB2	1.95	0.48
1:H:250:LEU:O	1:H:254:MET:HG2	2.14	0.48
1:B:196:ARG:NH1	1:B:230:GLN:OE1	2.40	0.48
1:G:279:ILE:HD11	1:H:412:LYS:HG2	1.95	0.48
1:C:250:LEU:O	1:C:254:MET:HG2	2.14	0.48
1:H:168:MET:HE2	1:H:173:LEU:HB3	1.95	0.48
1:B:18:GLY:O	1:B:22:LEU:HD13	2.14	0.48
1:G:250:LEU:O	1:G:254:MET:HG2	2.14	0.48
1:D:284:GLY:HA2	1:D:287:PHE:HD2	1.79	0.48
1:E:54:LEU:O	1:E:55:HIS:C	2.57	0.48
1:F:201:ASP:O	1:F:205:ARG:HG3	2.13	0.48
1:C:128:ILE:HG13	1:C:150:ILE:HG21	1.95	0.48
2:C:501:NAD:C4N	3:C:502:ADN:H3'	2.44	0.48
1:H:46:LYS:HA	1:H:46:LYS:HD3	1.61	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:54:LEU:HG	1:H:131:ASP:HB2	1.95	0.48
1:B:38:ARG:NH1	6:B:612:HOH:O	2.47	0.48
1:H:301:HIS:HA	1:H:344:LEU:HD21	1.96	0.48
1:E:110:TYR:CZ	1:E:114:ILE:HD11	2.49	0.48
1:A:340:ALA:O	1:A:343:ARG:HB2	2.14	0.47
1:D:317:GLU:HG2	1:D:329:ARG:HB3	1.95	0.47
1:C:111:LEU:O	1:C:115:GLU:HG3	2.15	0.47
1:B:15:ALA:CB	1:B:94:LYS:HG3	2.44	0.47
1:B:111:LEU:O	1:B:115:GLU:HG3	2.15	0.47
1:F:166:LYS:HB2	1:F:166:LYS:HE3	1.59	0.47
1:F:205:ARG:O	1:F:322:LYS:NZ	2.44	0.47
1:F:431:ARG:CZ	1:C:184:VAL:HG22	2.45	0.47
1:A:128:ILE:HB	1:A:153:ILE:HG12	1.96	0.47
1:G:127:MET:HE1	1:G:372:LEU:HB2	1.95	0.47
1:C:110:TYR:OH	1:C:134:ASP:OD2	2.24	0.47
1:C:270:ASN:HB3	6:C:667:HOH:O	2.14	0.47
1:H:396:GLU:HG3	6:H:708:HOH:O	2.15	0.47
1:A:53:CYS:SG	1:A:79[B]:CYS:HB3	2.54	0.47
1:D:132:GLY:HA3	1:D:301:HIS:CE1	2.50	0.47
1:F:49:ARG:N	1:F:126:ASN:OD1	2.33	0.47
1:B:31:GLY:O	1:B:35:MET:HG2	2.15	0.47
1:B:146:LEU:O	1:B:150:ILE:HG13	2.14	0.47
1:G:344:LEU:HD11	1:G:347:LEU:CD1	2.39	0.47
1:A:250:LEU:O	1:A:254:MET:HG2	2.15	0.47
1:G:75:GLN:HE22	1:G:120:PHE:HA	1.79	0.47
1:A:52:GLY:HA3	1:A:76:TRP:CZ3	2.50	0.46
1:E:184:VAL:HG21	1:E:432:TYR:CE2	2.50	0.46
6:A:614:HOH:O	1:B:188:LYS:NZ	2.47	0.46
1:E:189:PHE:HA	1:E:193:TYR:CD2	2.50	0.46
1:H:151:ARG:HD3	1:H:372:LEU:O	2.15	0.46
1:G:49:ARG:HD2	1:G:120:PHE:HB2	1.97	0.46
1:G:260:THR:HA	1:H:405:LYS:HB2	1.98	0.46
1:B:8:LYS:HD3	1:B:102:TRP:CH2	2.51	0.46
1:B:120:PHE:HB2	1:B:123:GLY:O	2.16	0.46
1:D:52:GLY:HA3	1:D:76:TRP:CE3	2.50	0.46
1:D:79[A]:CYS:HB3	6:D:670[A]:HOH:O	2.15	0.46
1:G:75:GLN:NE2	1:G:120:PHE:HA	2.31	0.46
1:B:151:ARG:HD2	1:B:373:TRP:HA	1.98	0.46
1:H:80:ASN:HB3	1:H:83:SER:HB3	1.97	0.45
1:D:155:GLU:HG3	1:D:161:VAL:HG23	1.98	0.45
1:D:147:LEU:HD13	1:D:174:LYS:HB2	1.98	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:16:ALA:O	1:F:20:LYS:HG3	2.17	0.45
1:H:63:LEU:HB2	1:H:362:PHE:CD2	2.52	0.45
1:F:81:ILE:HG22	1:F:110:TYR:HB2	1.98	0.45
1:G:186:LYS:HD2	1:G:190:ASP:HB3	1.98	0.45
1:G:329:ARG:NH1	6:G:604:HOH:O	2.32	0.45
1:G:371:GLU:O	1:G:375:HIS:HB2	2.16	0.45
1:D:411:GLU:HB3	6:D:673:HOH:O	2.17	0.45
1:A:188:LYS:NZ	6:B:608:HOH:O	2.50	0.45
1:A:301:HIS:N	6:A:607:HOH:O	2.49	0.45
1:E:34:ARG:HE	1:E:34:ARG:HB2	1.52	0.45
1:H:64:ILE:HD11	1:H:76:TRP:CD2	2.51	0.45
1:F:210:MET:SD	1:G:357:VAL:HB	2.56	0.45
2:A:501:NAD:O2A	1:B:430:TYR:OH	2.28	0.45
1:D:243:GLU:OE2	2:D:501:NAD:O2B	2.30	0.45
1:C:139:ILE:HG22	1:C:147:LEU:HD12	1.99	0.45
1:B:210:MET:HB2	1:E:354:PRO:HB2	1.98	0.45
1:D:110:TYR:CZ	1:D:114:ILE:HD11	2.52	0.45
1:D:370:ILE:O	1:D:374:THR:HB	2.16	0.45
1:C:293:ASP:CG	1:C:327:ARG:HH21	2.25	0.45
1:D:40:SER:O	1:D:43:LYS:HG2	2.16	0.44
1:E:298:ASN:ND2	1:E:302:PHE:O	2.50	0.44
1:F:18:GLY:O	1:F:22:LEU:HD13	2.17	0.44
1:H:324:GLN:HG3	1:H:340:ALA:HA	1.98	0.44
1:B:168:MET:SD	1:B:382:GLY:HA2	2.58	0.44
1:F:22:LEU:O	1:F:26:GLU:HG3	2.17	0.44
1:F:409:LEU:HD21	1:C:244:ILE:HD13	1.99	0.44
1:C:181:ASN:HA	1:C:186:LYS:HD2	1.98	0.44
1:E:4:LYS:HG2	1:E:5:LEU:H	1.83	0.44
1:F:250:LEU:O	1:F:254:MET:HG2	2.16	0.44
1:A:33:MET:HE1	1:A:36:ARG:CZ	2.48	0.44
1:D:191:ASN:OD1	1:D:191:ASN:N	2.49	0.44
1:G:128:ILE:HD11	1:G:139:ILE:HD12	1.99	0.44
1:A:161:VAL:HG21	1:A:179:ASN:OD1	2.18	0.44
1:A:279:ILE:HG23	1:B:416:TYR:CZ	2.53	0.44
1:H:201:ASP:O	1:H:205:ARG:HG3	2.17	0.44
1:H:218:VAL:HB	1:H:241:ILE:HD13	1.99	0.44
1:D:52:GLY:HA3	1:D:76:TRP:CZ3	2.53	0.44
1:G:184:VAL:HG23	1:G:391:ASP:OD2	2.17	0.44
1:E:145:GLN:OE1	1:E:145:GLN:N	2.39	0.44
1:G:162:HIS:HD2	6:G:717:HOH:O	2.00	0.44
1:C:161:VAL:HG21	1:C:179:ASN:OD1	2.17	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:ARG:HD2	1:A:373:TRP:CE3	2.52	0.44
1:A:405:LYS:HB2	1:A:405:LYS:HE3	1.89	0.44
1:A:198:SER:HB2	1:A:346:ASN:HB2	2.00	0.43
1:C:210:MET:HB2	1:H:354:PRO:HB2	1.99	0.43
1:A:80:ASN:HD21	1:A:343:ARG:HG2	1.83	0.43
1:A:132:GLY:HA3	1:A:301:HIS:CE1	2.54	0.43
1:A:162:HIS:HB3	6:B:754:HOH:O	2.17	0.43
1:C:140:HIS:CD2	1:C:147:LEU:HD21	2.54	0.43
1:D:331:LYS:NZ	6:D:619:HOH:O	2.52	0.43
1:F:322:LYS:HB2	1:F:323:PRO:HD2	1.99	0.43
1:G:379:TYR:CD2	1:G:380:PRO:HD2	2.53	0.43
1:H:156:GLU:HG3	3:H:502:ADN:O3'	2.17	0.43
1:B:322:LYS:HB2	1:B:323:PRO:HD2	1.99	0.43
1:D:432:TYR:O	1:E:188:LYS:NZ	2.51	0.43
1:F:31:GLY:O	1:F:35:MET:HG2	2.19	0.43
1:G:375:HIS:HB3	1:G:376:PRO:CD	2.47	0.43
1:H:53:CYS:HA	1:H:77:SER:O	2.19	0.43
1:A:22:LEU:HD23	1:A:22:LEU:HA	1.86	0.43
1:A:53:CYS:O	1:A:79[A]:CYS:SG	2.77	0.43
1:B:181:ASN:O	1:B:187:SER:HB3	2.18	0.43
1:G:184:VAL:HG22	1:H:431:ARG:CZ	2.48	0.43
1:A:8:LYS:HG2	1:A:102:TRP:CZ3	2.54	0.43
1:D:22:LEU:O	1:D:26:GLU:HG3	2.19	0.43
1:G:182:ASP:OD2	1:H:429:HIS:NE2	2.52	0.43
1:G:284:GLY:HA3	1:G:310:TRP:CE2	2.53	0.43
1:H:65:GLU:O	1:H:69:THR:OG1	2.32	0.43
1:F:235:PHE:CE2	1:G:197:GLU:HA	2.54	0.43
1:G:411:GLU:HA	1:G:411:GLU:OE1	2.19	0.43
1:H:258:GLU:OE1	6:H:601:HOH:O	2.21	0.43
1:E:132:GLY:HA3	1:E:301:HIS:NE2	2.34	0.42
1:F:244:ILE:HD13	1:C:409:LEU:HD21	2.01	0.42
1:G:31:GLY:O	1:G:35:MET:HG2	2.18	0.42
1:D:173:LEU:C	1:D:174:LYS:HD2	2.44	0.42
1:E:344:LEU:HD23	1:E:344:LEU:HA	1.73	0.42
1:E:378:LYS:O	1:E:378:LYS:HD3	2.19	0.42
1:F:254:MET:HE1	1:H:210:MET:HE2	2.00	0.42
1:G:332:ASN:OD1	1:G:334:ARG:HB2	2.19	0.42
2:G:501:NAD:O2A	1:H:430:TYR:OH	2.31	0.42
1:C:185:THR:HA	1:C:189:PHE:CD1	2.54	0.42
2:H:501:NAD:H6N	2:H:501:NAD:H2D	1.82	0.42
1:A:128:ILE:HD12	1:A:153:ILE:HG12	2.01	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:202:GLY:HA2	1:D:350:ALA:HB2	2.02	0.42
1:C:210:MET:SD	1:H:357:VAL:HB	2.60	0.42
1:C:340:ALA:O	1:C:343:ARG:HB2	2.19	0.42
1:B:201:ASP:O	1:B:205:ARG:HG3	2.19	0.42
1:B:387:PRO:HG2	1:B:390:LEU:HG	2.00	0.42
1:D:30:PRO:O	1:D:34:ARG:HD2	2.19	0.42
1:G:151:ARG:NH1	1:G:377:ASP:HB3	2.35	0.42
1:G:375:HIS:CB	1:G:376:PRO:HD3	2.50	0.42
2:H:501:NAD:C3N	3:H:502:ADN:H5'2	2.49	0.42
1:D:198:SER:HB2	1:D:346:ASN:HB2	2.00	0.42
1:E:52:GLY:HA3	1:E:76:TRP:CE3	2.55	0.42
1:E:112:TRP:O	1:E:116:GLN:HG2	2.20	0.42
1:C:262:MET:HE1	1:C:272:PHE:CE2	2.55	0.42
1:A:102:TRP:O	1:A:105:GLU:HG3	2.19	0.42
1:D:50:ILE:HA	1:D:127:MET:HB3	2.02	0.42
1:F:20:LYS:HE3	6:F:757:HOH:O	2.20	0.42
1:H:120:PHE:HE1	1:H:125:LEU:HB3	1.84	0.42
1:H:190:ASP:OD2	3:H:502:ADN:O2'	2.34	0.42
1:E:409:LEU:HD12	1:E:409:LEU:N	2.34	0.42
1:G:181:ASN:O	1:G:187:SER:HB3	2.19	0.42
1:F:298:ASN:O	1:F:344:LEU:HA	2.20	0.42
1:G:344:LEU:HD12	1:G:344:LEU:O	2.20	0.42
1:H:181:ASN:O	1:H:187:SER:HB3	2.19	0.41
1:H:362:PHE:HA	1:H:365:GLN:HB2	2.02	0.41
1:A:233:ARG:HD3	1:A:257:TYR:CE1	2.55	0.41
1:C:417:LEU:HB3	1:C:419:MET:HE3	2.02	0.41
1:B:128:ILE:HD11	1:B:139:ILE:HD13	2.03	0.41
1:F:153:ILE:HG13	1:F:175:VAL:HG11	2.01	0.41
1:F:354:PRO:HB2	1:G:210:MET:HB2	2.03	0.41
1:G:186:LYS:HD3	1:G:361:SER:OG	2.21	0.41
1:B:147:LEU:HD13	1:B:174:LYS:HG3	2.02	0.41
1:F:79[B]:CYS:O	1:F:79[B]:CYS:SG	2.78	0.41
1:F:377:ASP:OD1	1:F:377:ASP:N	2.52	0.41
1:C:135:LEU:O	1:C:139:ILE:HG13	2.21	0.41
1:F:173:LEU:O	1:F:174:LYS:HD2	2.20	0.41
1:G:254:MET:HE1	1:C:210:MET:HE2	2.02	0.41
1:C:222:GLY:O	1:C:226:LYS:HG3	2.20	0.41
1:B:204:LYS:NZ	1:E:354:PRO:HG3	2.36	0.41
1:E:127:MET:HE2	1:E:373:TRP:HE3	1.85	0.41
1:E:353:HIS:HB2	1:E:358:MET:SD	2.61	0.41
1:A:54:LEU:O	1:A:55:HIS:C	2.63	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:290:MET:O	1:D:334:ARG:NH1	2.53	0.41
1:F:128:ILE:HB	1:F:153:ILE:HG12	2.01	0.41
1:F:390:LEU:HD23	1:F:390:LEU:HA	1.89	0.41
1:C:83:SER:HB2	1:C:347:LEU:HB3	2.01	0.41
1:B:190:ASP:OD1	1:B:190:ASP:C	2.63	0.41
1:B:344:LEU:HD11	6:B:741:HOH:O	2.19	0.41
1:B:411:GLU:OE1	1:B:411:GLU:HA	2.21	0.41
1:D:64:ILE:HG23	1:D:74:VAL:HG21	2.03	0.41
1:D:303:ASP:HB3	1:D:343:ARG:HG2	2.03	0.41
1:F:52:GLY:HA3	1:F:76:TRP:CE3	2.56	0.41
1:F:136:THR:HG21	1:F:164:LEU:HD21	2.02	0.41
1:F:151:ARG:HD3	1:F:376:PRO:HB3	2.03	0.41
1:F:186:LYS:O	1:F:190:ASP:N	2.52	0.41
1:C:366:VAL:O	1:C:370:ILE:HG13	2.21	0.41
1:B:52:GLY:HA3	1:B:76:TRP:CZ3	2.56	0.41
1:C:235:PHE:HD1	1:C:235:PHE:HA	1.77	0.41
1:A:43:LYS:NZ	1:A:69:THR:O	2.47	0.40
1:A:45:LEU:HB3	1:A:72:ALA:HB2	2.04	0.40
1:D:54:LEU:O	1:D:55:HIS:C	2.64	0.40
1:E:327:ARG:HD3	6:E:691:HOH:O	2.20	0.40
1:C:311:LEU:HB3	1:C:328:TYR:CE2	2.56	0.40
1:H:419:MET:HE2	1:H:419:MET:HB3	1.89	0.40
1:D:156:GLU:HB2	1:D:365:GLN:NE2	2.37	0.40
1:H:56:MET:HE1	1:H:64:ILE:CD1	2.51	0.40
1:B:285:ARG:HD3	6:B:653:HOH:O	2.21	0.40
1:D:156:GLU:HB2	1:D:365:GLN:HE21	1.87	0.40
1:E:155:GLU:CD	1:E:160:GLY:HA3	2.45	0.40
1:F:147:LEU:HD13	1:F:174:LYS:HB2	2.02	0.40
1:G:54:LEU:O	1:G:55:HIS:C	2.64	0.40
1:C:31:GLY:HA3	1:C:398:HIS:CE1	2.56	0.40
1:C:53:CYS:HB2	1:C:135:LEU:HD22	2.02	0.40
1:C:168:MET:SD	1:C:382:GLY:HA2	2.61	0.40
1:C:188:LYS:NZ	6:C:601:HOH:O	2.28	0.40
1:A:322:LYS:HB2	1:A:323:PRO:HD2	2.03	0.40
1:A:345:VAL:O	1:A:349:CYS:HB2	2.22	0.40
1:B:12:ILE:HG12	1:B:94:LYS:HG2	2.03	0.40
1:E:53:CYS:SG	1:E:79[B]:CYS:HA	2.61	0.40
1:C:55:HIS:CD2	6:C:647[B]:HOH:O	2.75	0.40
1:D:60:THR:O	1:D:64:ILE:HG13	2.21	0.40
1:E:92:ILE:HD13	1:E:92:ILE:HA	1.98	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	429/431 (100%)	413 (96%)	16 (4%)	0	100	100
1	B	429/431 (100%)	413 (96%)	16 (4%)	0	100	100
1	C	428/431 (99%)	409 (96%)	19 (4%)	0	100	100
1	D	429/431 (100%)	416 (97%)	13 (3%)	0	100	100
1	E	429/431 (100%)	414 (96%)	14 (3%)	1 (0%)	43	37
1	F	428/431 (99%)	416 (97%)	11 (3%)	1 (0%)	43	37
1	G	428/431 (99%)	410 (96%)	16 (4%)	2 (0%)	24	15
1	H	428/431 (99%)	413 (96%)	13 (3%)	2 (0%)	24	15
All	All	3428/3448 (99%)	3304 (96%)	118 (3%)	6 (0%)	43	37

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	H	301	HIS
1	E	7	TYR
1	G	375	HIS
1	G	376	PRO
1	H	124	PRO
1	F	80	ASN

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	355/355 (100%)	349 (98%)	6 (2%)	53 44
1	B	355/355 (100%)	349 (98%)	6 (2%)	53 44
1	C	354/355 (100%)	352 (99%)	2 (1%)	78 78
1	D	355/355 (100%)	350 (99%)	5 (1%)	59 52
1	E	355/355 (100%)	348 (98%)	7 (2%)	48 39
1	F	354/355 (100%)	347 (98%)	7 (2%)	48 39
1	G	354/355 (100%)	350 (99%)	4 (1%)	65 60
1	H	354/355 (100%)	351 (99%)	3 (1%)	73 71
All	All	2836/2840 (100%)	2796 (99%)	40 (1%)	63 52

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	79[A]	CYS
1	A	79[B]	CYS
1	A	122	ASP
1	A	157	THR
1	A	161	VAL
1	A	242	THR
1	B	79[A]	CYS
1	B	79[B]	CYS
1	B	200	ILE
1	B	242	THR
1	B	374	THR
1	B	378	LYS
1	D	79[A]	CYS
1	D	79[B]	CYS
1	D	158	THR
1	D	159	THR
1	D	191	ASN
1	E	79[A]	CYS
1	E	79[B]	CYS
1	E	158	THR
1	E	159	THR
1	E	267	GLN
1	E	403	ASN
1	E	409	LEU
1	F	46	LYS
1	F	79[A]	CYS
1	F	79[B]	CYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	F	173	LEU
1	F	316	VAL
1	F	347	LEU
1	F	428	ASP
1	G	79[A]	CYS
1	G	79[B]	CYS
1	G	158	THR
1	G	396	GLU
1	C	161	VAL
1	C	399	LEU
1	H	79[A]	CYS
1	H	79[B]	CYS
1	H	267	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	80	ASN
1	A	137	ASN
1	A	163	ASN
1	A	170	ASN
1	A	320	ASN
1	A	365	GLN
1	A	415	GLN
1	B	170	ASN
1	B	301	HIS
1	B	324	GLN
1	B	360	ASN
1	B	365	GLN
1	B	375	HIS
1	D	162	HIS
1	D	163	ASN
1	D	320	ASN
1	E	248	ASN
1	E	301	HIS
1	E	369	GLN
1	E	375	HIS
1	E	403	ASN
1	F	162	HIS
1	G	162	HIS
1	G	170	ASN
1	G	301	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	G	360	ASN
1	C	75	GLN
1	C	301	HIS
1	C	312	ASN
1	C	314	ASN
1	H	75	GLN
1	H	163	ASN
1	H	324	GLN
1	H	365	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 77 ligands modelled in this entry, 61 are monoatomic - leaving 16 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	$\#\|Z\| > 2$
3	ADN	B	502	-	21,21,21	0.33	0	31,31,31	0.47	0
3	ADN	D	502	-	21,21,21	0.26	0	31,31,31	0.50	0
3	ADN	G	502	-	21,21,21	0.25	0	31,31,31	0.44	0
3	ADN	H	502	-	21,21,21	0.30	0	31,31,31	0.41	0
2	NAD	E	501	-	45,48,48	0.33	0	63,73,73	0.46	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	NAD	D	501	-	45,48,48	0.34	0	63,73,73	0.54	0
2	NAD	F	501	-	45,48,48	0.32	0	63,73,73	0.64	0
2	NAD	A	501	-	45,48,48	0.39	0	63,73,73	0.52	0
3	ADN	E	502	-	21,21,21	0.30	0	31,31,31	0.49	0
2	NAD	H	501	-	45,48,48	0.34	0	63,73,73	0.45	0
3	ADN	A	502	-	21,21,21	0.26	0	31,31,31	0.51	0
2	NAD	B	501	-	45,48,48	0.37	0	63,73,73	0.58	0
2	NAD	C	501	-	45,48,48	0.32	0	63,73,73	0.50	0
3	ADN	C	502	-	21,21,21	0.23	0	31,31,31	0.47	0
3	ADN	F	502	-	21,21,21	0.26	0	31,31,31	0.45	0
2	NAD	G	501	-	45,48,48	0.35	0	63,73,73	0.55	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
3	ADN	B	502	-	-	1/6/22/22	0/3/3/3
3	ADN	D	502	-	-	0/6/22/22	0/3/3/3
3	ADN	G	502	-	-	0/6/22/22	0/3/3/3
3	ADN	H	502	-	-	1/6/22/22	0/3/3/3
2	NAD	E	501	-	-	6/30/62/62	0/5/5/5
2	NAD	D	501	-	-	5/30/62/62	0/5/5/5
2	NAD	F	501	-	-	6/30/62/62	0/5/5/5
2	NAD	A	501	-	-	6/30/62/62	0/5/5/5
3	ADN	E	502	-	-	0/6/22/22	0/3/3/3
2	NAD	H	501	-	-	5/30/62/62	0/5/5/5
3	ADN	A	502	-	-	0/6/22/22	0/3/3/3
2	NAD	B	501	-	-	5/30/62/62	0/5/5/5
2	NAD	C	501	-	-	7/30/62/62	0/5/5/5
3	ADN	C	502	-	-	2/6/22/22	0/3/3/3
3	ADN	F	502	-	-	0/6/22/22	0/3/3/3
2	NAD	G	501	-	-	7/30/62/62	0/5/5/5

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (51) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	NAD	O4D-C1D-N1N-C2N
2	A	501	NAD	O4D-C1D-N1N-C6N
2	A	501	NAD	C2D-C1D-N1N-C2N
2	A	501	NAD	C2D-C1D-N1N-C6N
2	B	501	NAD	O4D-C1D-N1N-C2N
2	B	501	NAD	O4D-C1D-N1N-C6N
2	B	501	NAD	C2D-C1D-N1N-C2N
2	B	501	NAD	C2D-C1D-N1N-C6N
2	D	501	NAD	O4D-C1D-N1N-C2N
2	D	501	NAD	O4D-C1D-N1N-C6N
2	D	501	NAD	C2D-C1D-N1N-C2N
2	D	501	NAD	C2D-C1D-N1N-C6N
2	E	501	NAD	O4D-C1D-N1N-C2N
2	E	501	NAD	O4D-C1D-N1N-C6N
2	E	501	NAD	C2D-C1D-N1N-C2N
2	E	501	NAD	C2D-C1D-N1N-C6N
2	F	501	NAD	O4D-C1D-N1N-C2N
2	F	501	NAD	O4D-C1D-N1N-C6N
2	F	501	NAD	C2D-C1D-N1N-C2N
2	F	501	NAD	C2D-C1D-N1N-C6N
2	G	501	NAD	O4D-C1D-N1N-C2N
2	G	501	NAD	O4D-C1D-N1N-C6N
2	G	501	NAD	C2D-C1D-N1N-C2N
2	G	501	NAD	C2D-C1D-N1N-C6N
2	C	501	NAD	O4D-C1D-N1N-C2N
2	C	501	NAD	O4D-C1D-N1N-C6N
2	C	501	NAD	C2D-C1D-N1N-C2N
2	C	501	NAD	C2D-C1D-N1N-C6N
2	H	501	NAD	O4D-C1D-N1N-C2N
2	H	501	NAD	O4D-C1D-N1N-C6N
2	H	501	NAD	C2D-C1D-N1N-C2N
2	H	501	NAD	C2D-C1D-N1N-C6N
2	G	501	NAD	O4B-C4B-C5B-O5B
2	A	501	NAD	O4B-C4B-C5B-O5B
2	G	501	NAD	C3B-C4B-C5B-O5B
2	E	501	NAD	O4B-C4B-C5B-O5B
3	C	502	ADN	O4'-C4'-C5'-O5'
2	C	501	NAD	O4B-C4B-C5B-O5B
3	C	502	ADN	C3'-C4'-C5'-O5'
2	H	501	NAD	O4B-C4B-C5B-O5B
3	B	502	ADN	C3'-C4'-C5'-O5'
2	D	501	NAD	O4B-C4B-C5B-O5B
2	A	501	NAD	C3B-C4B-C5B-O5B

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
2	E	501	NAD	C3B-C4B-C5B-O5B
3	H	502	ADN	C2'-C1'-N9-C8
2	G	501	NAD	C5B-O5B-PA-O3
2	C	501	NAD	C5B-O5B-PA-O3
2	C	501	NAD	C3B-C4B-C5B-O5B
2	F	501	NAD	C2B-C1B-N9A-C8A
2	B	501	NAD	O4B-C4B-C5B-O5B
2	F	501	NAD	O4B-C4B-C5B-O5B

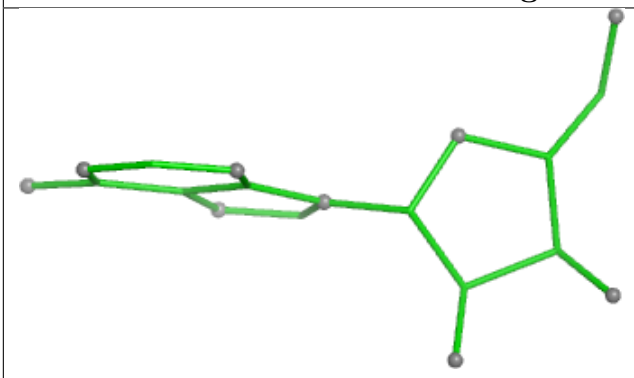
There are no ring outliers.

16 monomers are involved in 15 short contacts:

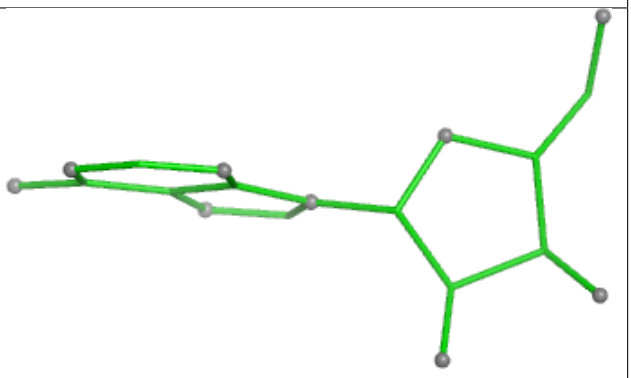
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	502	ADN	1	0
3	D	502	ADN	1	0
3	G	502	ADN	1	0
3	H	502	ADN	3	0
2	E	501	NAD	1	0
2	D	501	NAD	2	0
2	F	501	NAD	1	0
2	A	501	NAD	2	0
3	E	502	ADN	1	0
2	H	501	NAD	3	0
3	A	502	ADN	1	0
2	B	501	NAD	1	0
2	C	501	NAD	1	0
3	C	502	ADN	1	0
3	F	502	ADN	1	0
2	G	501	NAD	2	0

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

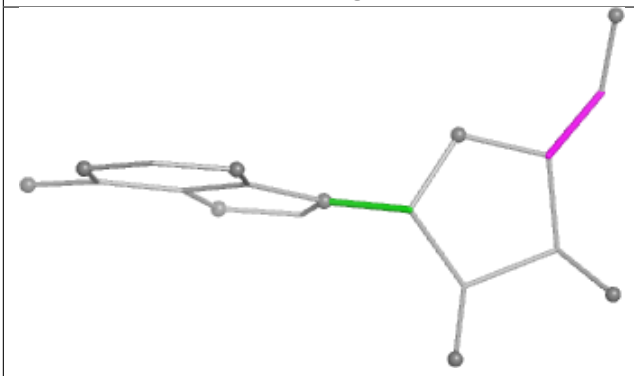
Ligand ADN B 502



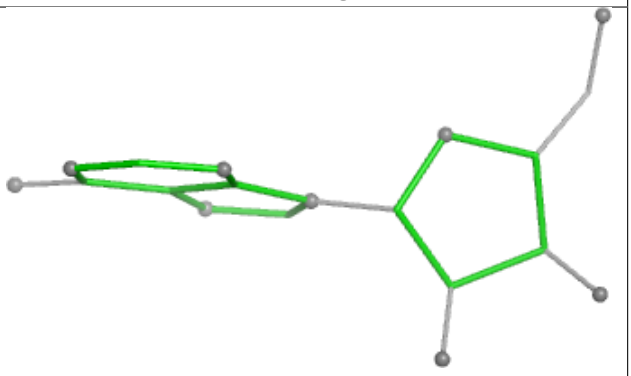
Bond lengths



Bond angles

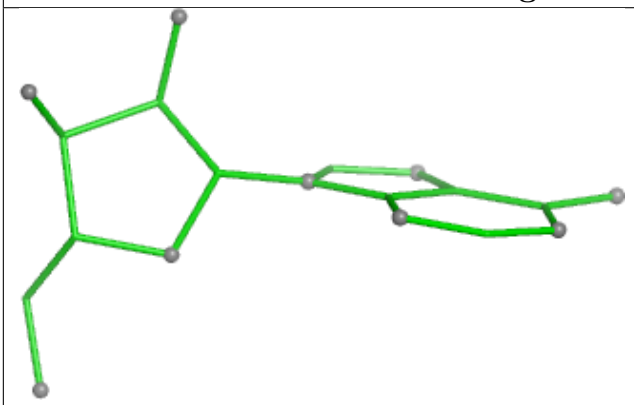


Torsions

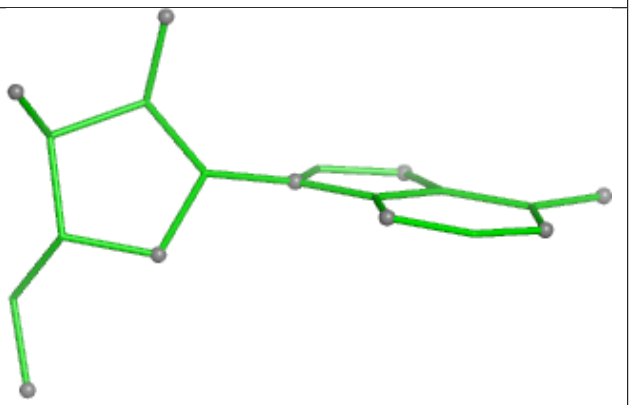


Rings

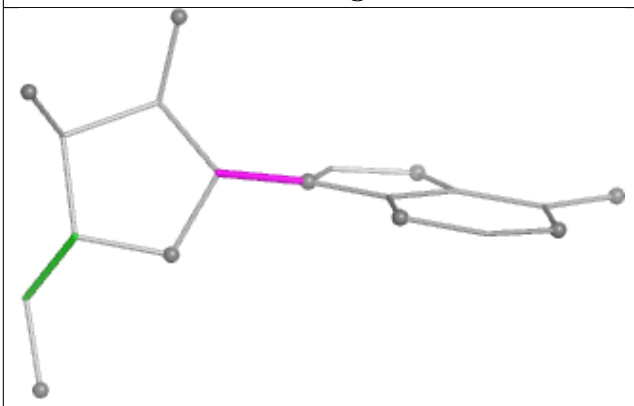
Ligand ADN H 502



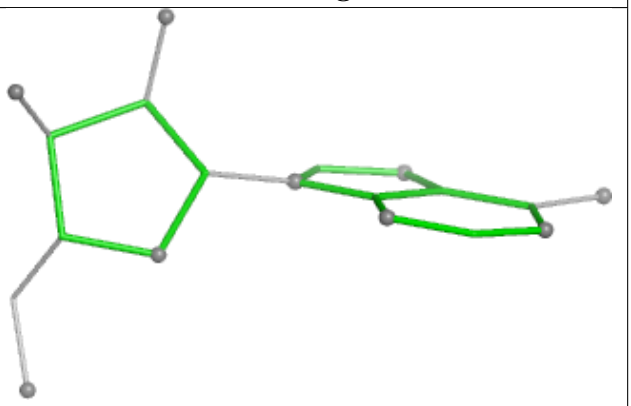
Bond lengths



Bond angles

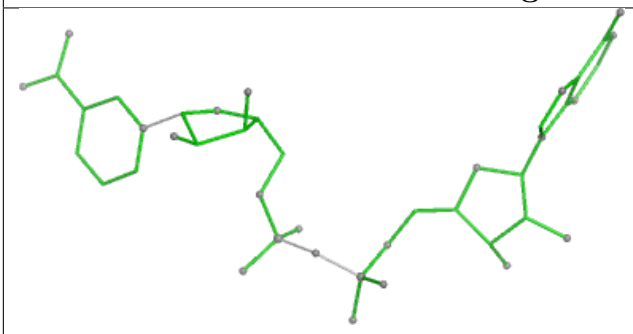


Torsions

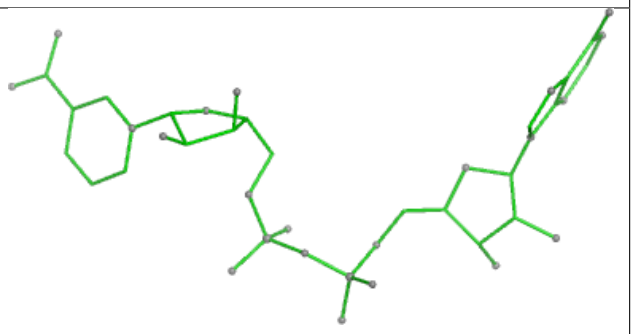


Rings

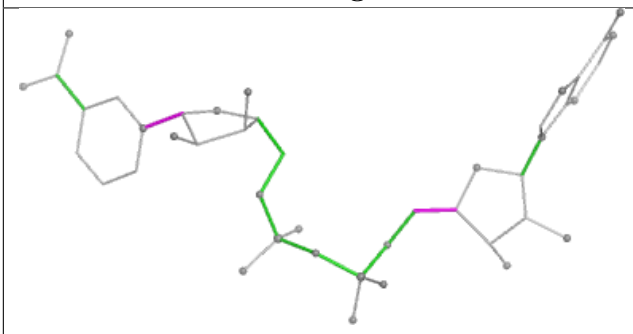
Ligand NAD E 501



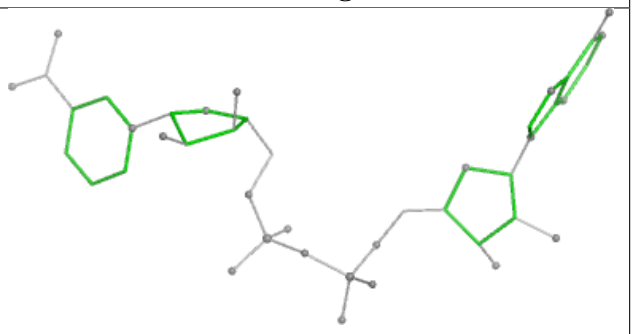
Bond lengths



Bond angles

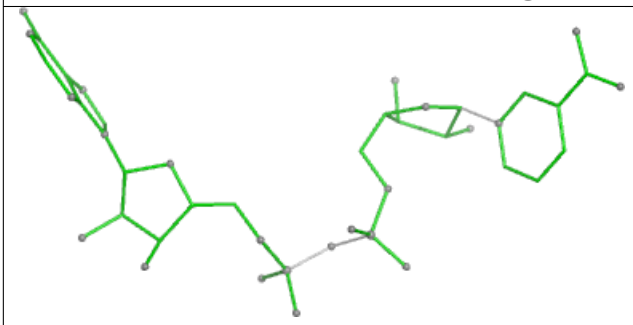


Torsions

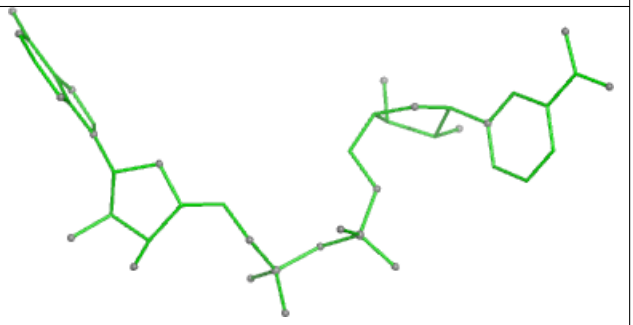


Rings

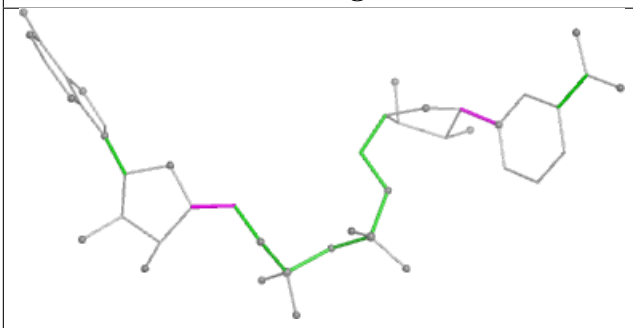
Ligand NAD D 501



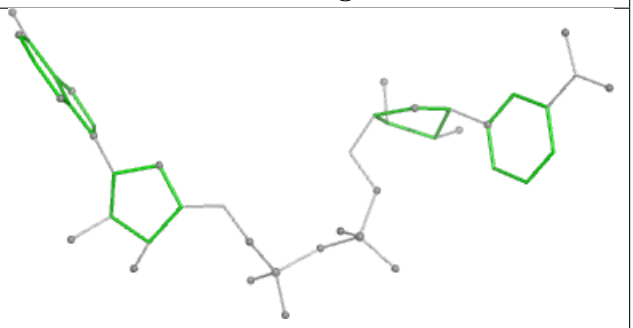
Bond lengths



Bond angles

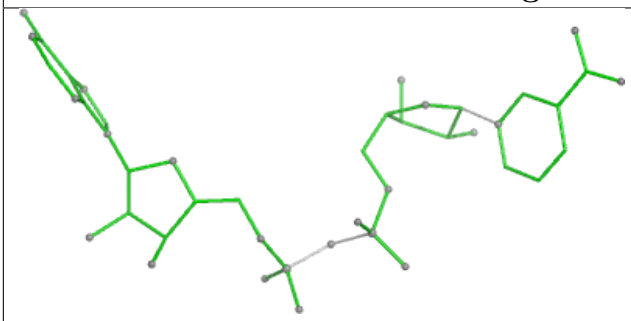


Torsions

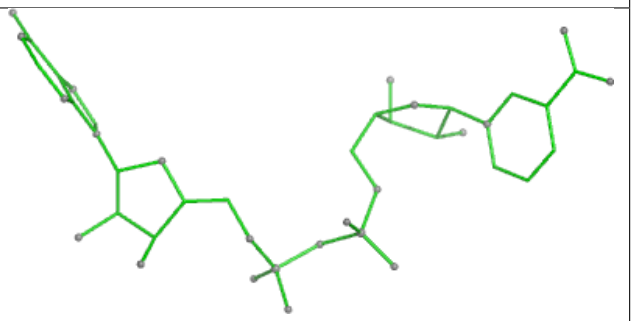


Rings

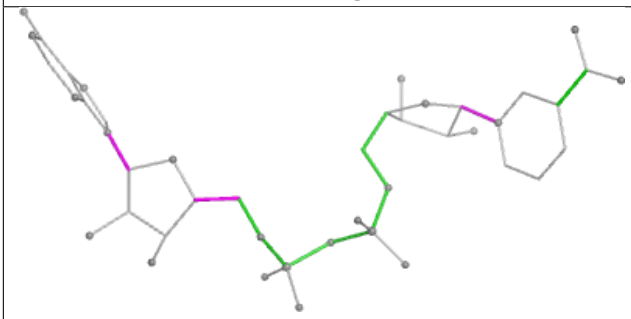
Ligand NAD F 501



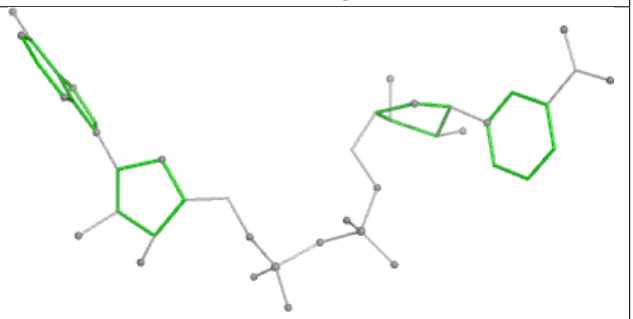
Bond lengths



Bond angles

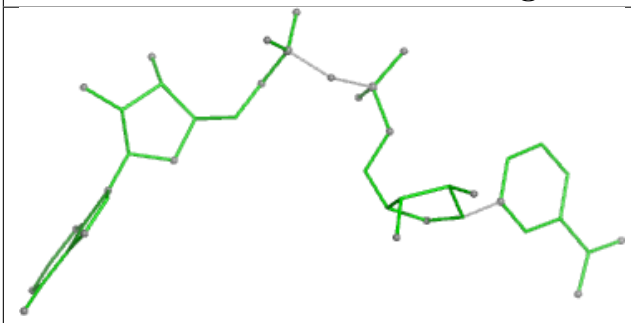


Torsions

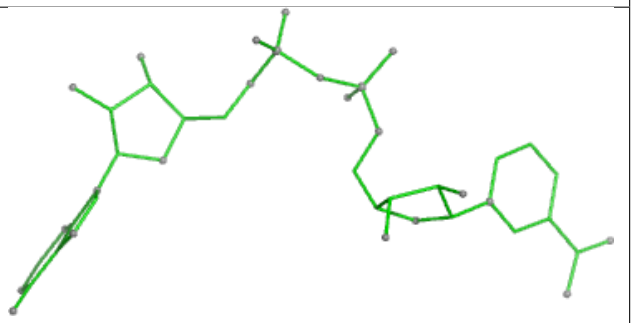


Rings

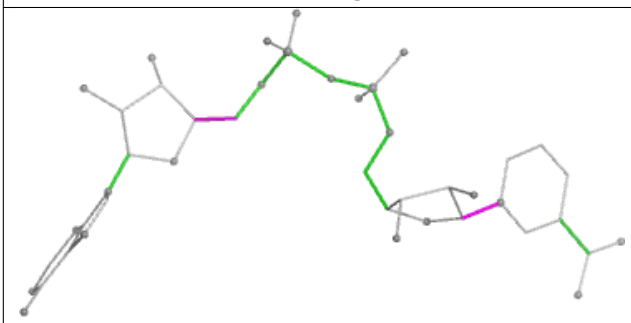
Ligand NAD A 501



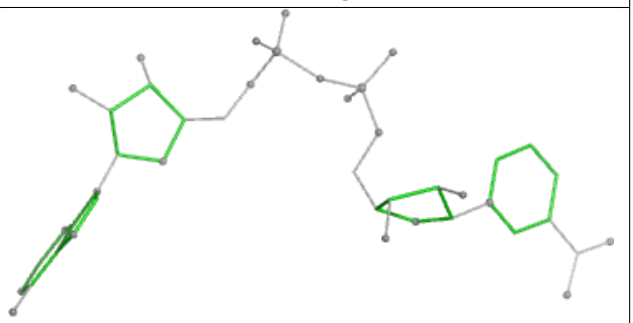
Bond lengths



Bond angles

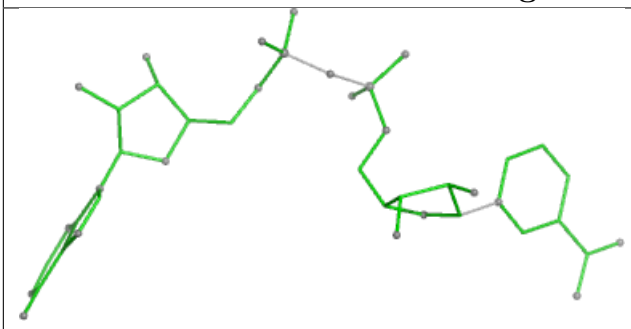


Torsions

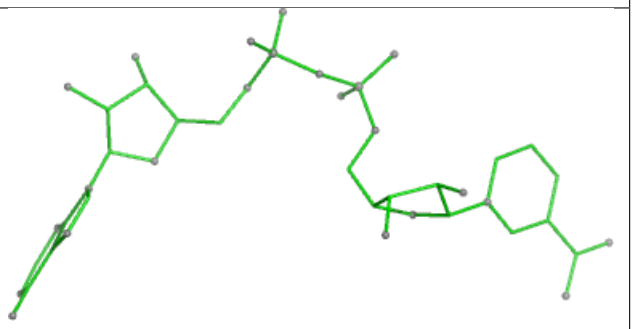


Rings

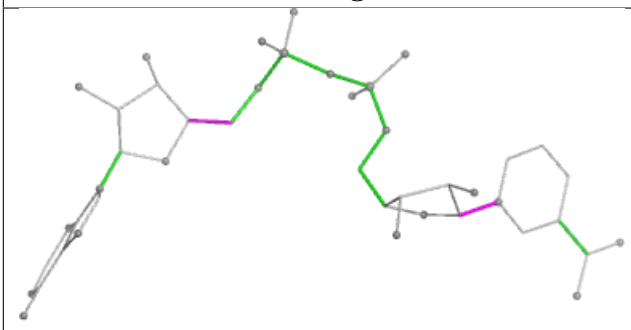
Ligand NAD H 501



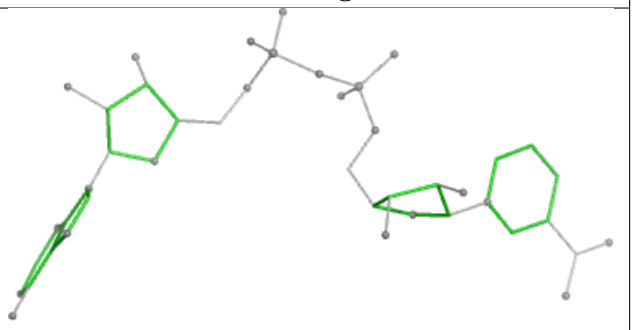
Bond lengths



Bond angles

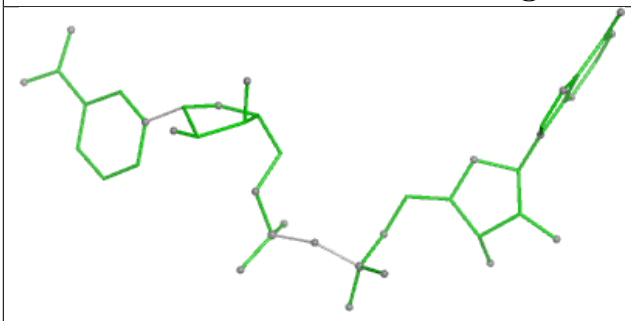


Torsions

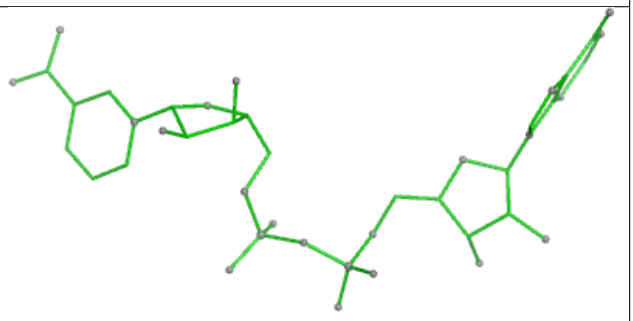


Rings

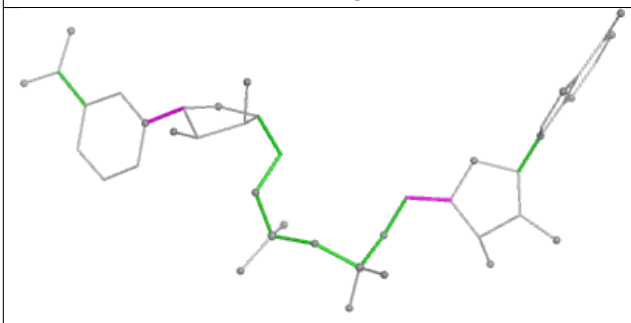
Ligand NAD B 501



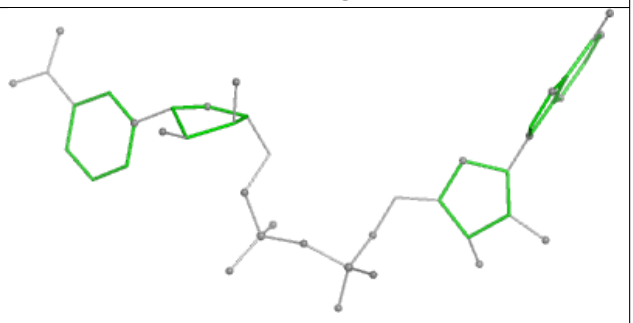
Bond lengths



Bond angles

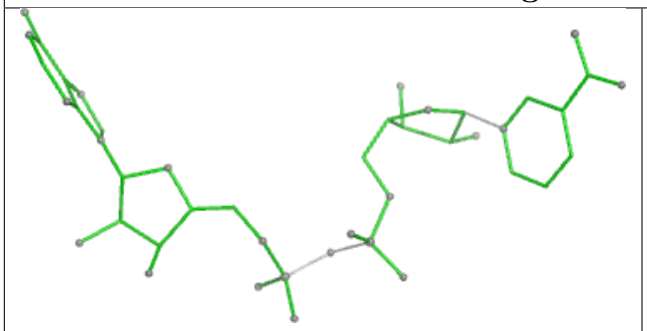


Torsions

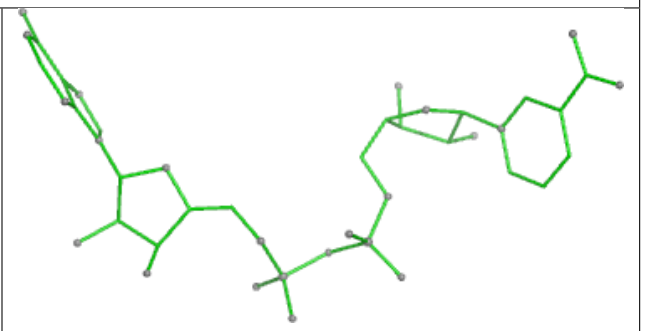


Rings

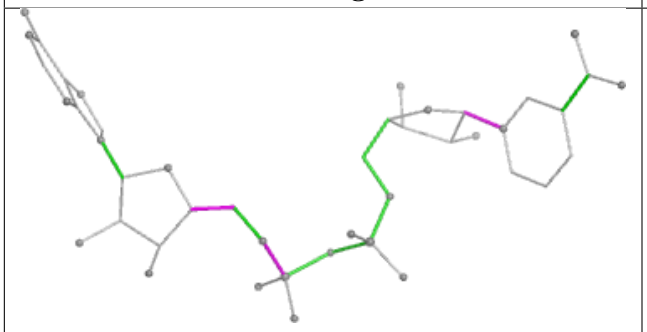
Ligand NAD C 501



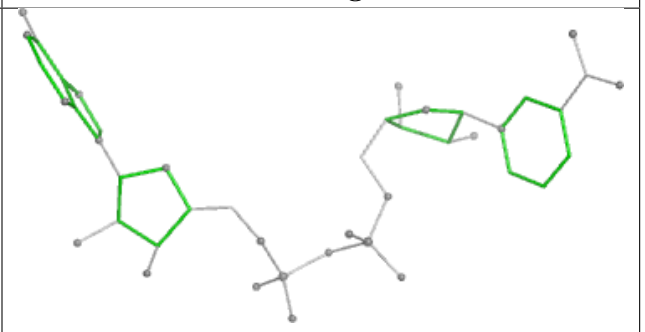
Bond lengths



Bond angles

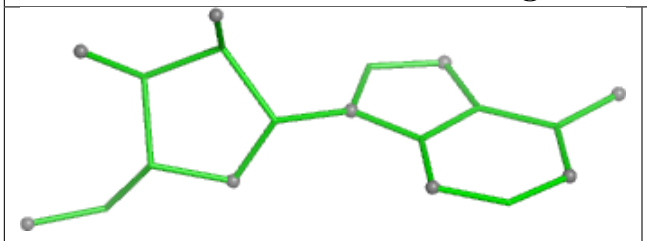


Torsions

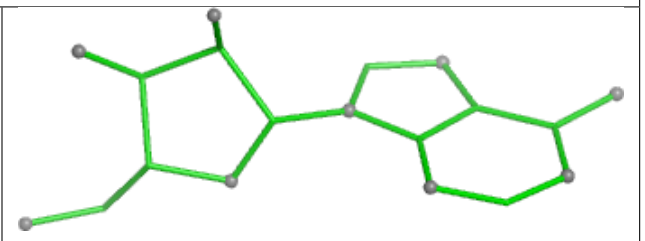


Rings

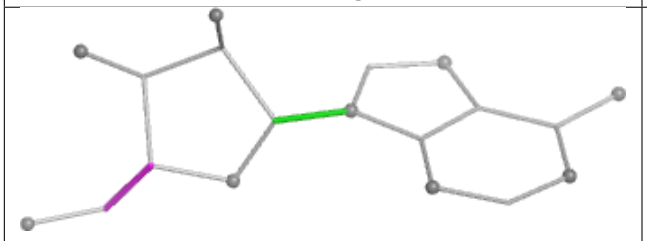
Ligand ADN C 502



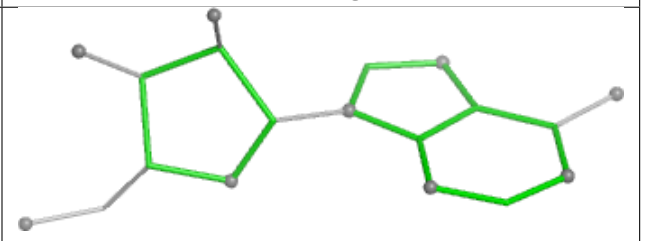
Bond lengths



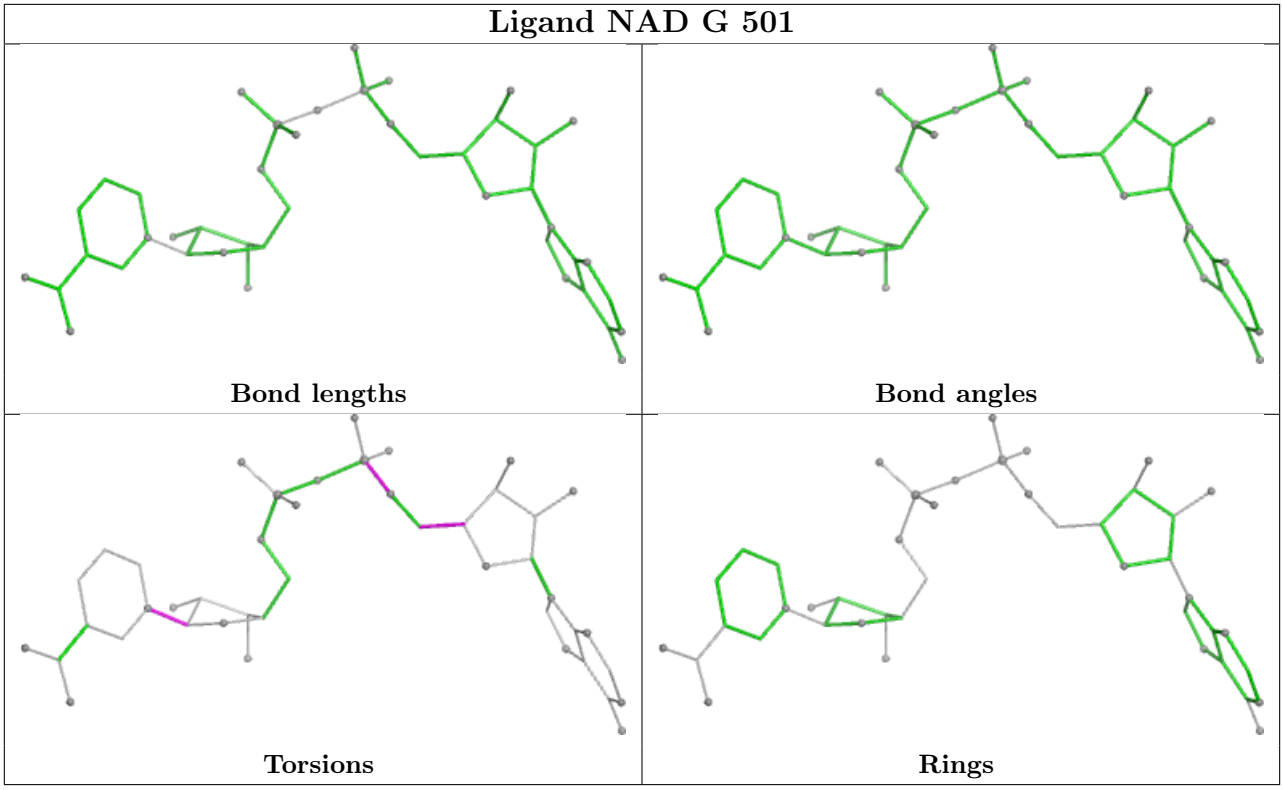
Bond angles



Torsions



Rings



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	430/431 (99%)	-0.41	1 (0%)	91	94	14, 27, 43, 63	1 (0%)
1	B	430/431 (99%)	-0.42	1 (0%)	91	94	14, 26, 43, 63	1 (0%)
1	C	429/431 (99%)	-0.09	3 (0%)	84	88	20, 35, 57, 81	1 (0%)
1	D	430/431 (99%)	-0.19	4 (0%)	81	85	15, 33, 59, 75	1 (0%)
1	E	430/431 (99%)	-0.34	1 (0%)	91	94	14, 30, 48, 72	1 (0%)
1	F	429/431 (99%)	-0.28	1 (0%)	91	94	17, 31, 52, 66	1 (0%)
1	G	429/431 (99%)	-0.09	4 (0%)	81	85	16, 34, 61, 84	1 (0%)
1	H	429/431 (99%)	0.17	7 (1%)	70	77	19, 41, 73, 88	1 (0%)
All	All	3436/3448 (99%)	-0.20	22 (0%)	85	89	14, 32, 58, 88	8 (0%)

All (22) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	376	PRO	4.9
1	C	376	PRO	4.0
1	G	301	HIS	3.3
1	G	377	ASP	2.8
1	E	302	PHE	2.8
1	F	302	PHE	2.8
1	C	79[A]	CYS	2.6
1	C	172	ILE	2.5
1	A	79[A]	CYS	2.5
1	H	172	ILE	2.4
1	H	138	LEU	2.4
1	H	111	LEU	2.3
1	H	302	PHE	2.3
1	H	162	HIS	2.3
1	B	79[A]	CYS	2.3
1	D	168	MET	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	150	ILE	2.2
1	D	300	GLY	2.1
1	H	6	PRO	2.1
1	D	302	PHE	2.0
1	G	379	TYR	2.0
1	D	122	ASP	2.0

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

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

6.3 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	CD	F	508	1/1	0.89	0.08	84,84,84,84	1
4	CD	H	508	1/1	0.89	0.08	56,56,56,56	1
4	CD	D	508	1/1	0.92	0.09	83,83,83,83	1
4	CD	A	507	1/1	0.92	0.07	75,75,75,75	1
4	CD	B	508	1/1	0.92	0.07	84,84,84,84	1
4	CD	F	507	1/1	0.93	0.06	84,84,84,84	1
3	ADN	H	502	19/19	0.93	0.07	35,39,49,52	0
4	CD	G	503	1/1	0.93	0.06	94,94,94,94	1
4	CD	C	505	1/1	0.93	0.06	103,103,103,103	1
4	CD	H	506[A]	1/1	0.93	0.07	65,65,65,65	1
4	CD	H	506[B]	1/1	0.93	0.07	66,66,66,66	1
4	CD	E	508	1/1	0.93	0.07	88,88,88,88	1
4	CD	H	507	1/1	0.94	0.07	101,101,101,101	1
4	CD	B	505	1/1	0.94	0.06	56,56,56,56	1
3	ADN	E	502	19/19	0.95	0.05	19,22,28,31	0
4	CD	G	505[A]	1/1	0.95	0.06	57,57,57,57	1
4	CD	G	505[B]	1/1	0.95	0.06	51,51,51,51	1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	CD	E	507	1/1	0.95	0.06	56,56,56,56	1
4	CD	C	507	1/1	0.95	0.06	70,70,70,70	1
4	CD	H	503	1/1	0.95	0.05	81,81,81,81	1
3	ADN	G	502	19/19	0.95	0.06	24,27,37,38	0
4	CD	F	504	1/1	0.95	0.06	61,61,61,61	1
4	CD	B	507	1/1	0.95	0.06	69,69,69,69	1
3	ADN	D	502	19/19	0.95	0.06	23,26,33,43	0
4	CD	F	503[A]	1/1	0.96	0.05	50,50,50,50	1
4	CD	F	503[B]	1/1	0.96	0.05	52,52,52,52	1
4	CD	D	505	1/1	0.96	0.06	79,79,79,79	1
3	ADN	C	502	19/19	0.96	0.05	21,26,39,44	0
4	CD	H	504	1/1	0.96	0.05	70,70,70,70	1
4	CD	H	505	1/1	0.96	0.05	72,72,72,72	1
4	CD	E	506	1/1	0.96	0.05	79,79,79,79	1
3	ADN	B	502	19/19	0.96	0.05	17,21,27,30	0
4	CD	G	504	1/1	0.96	0.05	66,66,66,66	0
4	CD	D	503	1/1	0.96	0.06	80,80,80,80	1
3	ADN	F	502	19/19	0.97	0.05	20,24,29,35	0
4	CD	G	506	1/1	0.97	0.05	73,73,73,73	1
4	CD	C	504[A]	1/1	0.97	0.05	61,61,61,61	1
4	CD	C	504[B]	1/1	0.97	0.05	37,37,37,37	1
4	CD	B	504	1/1	0.97	0.05	69,69,69,69	1
2	NAD	F	501	44/44	0.97	0.05	20,25,29,31	0
2	NAD	G	501	44/44	0.97	0.05	19,26,32,37	0
3	ADN	A	502	19/19	0.97	0.04	17,20,26,35	0
4	CD	A	503[A]	1/1	0.97	0.04	40,40,40,40	1
4	CD	A	503[B]	1/1	0.97	0.04	45,45,45,45	1
4	CD	D	506	1/1	0.97	0.05	65,65,65,65	1
4	CD	A	504	1/1	0.97	0.04	57,57,57,57	1
4	CD	A	506	1/1	0.97	0.04	56,56,56,56	1
2	NAD	E	501	44/44	0.98	0.05	15,22,25,27	0
4	CD	E	503	1/1	0.98	0.04	66,66,66,66	1
4	CD	E	504[A]	1/1	0.98	0.04	46,46,46,46	1
4	CD	E	504[B]	1/1	0.98	0.04	26,26,26,26	1
4	CD	E	505	1/1	0.98	0.04	72,72,72,72	1
2	NAD	A	501	44/44	0.98	0.04	15,21,24,26	0
2	NAD	B	501	44/44	0.98	0.04	14,19,25,26	0
4	CD	C	506	1/1	0.98	0.04	74,74,74,74	1
2	NAD	C	501	44/44	0.98	0.05	20,26,29,32	0
2	NAD	H	501	44/44	0.98	0.04	23,29,36,40	0
4	CD	D	504[A]	1/1	0.98	0.04	51,51,51,51	1
4	CD	D	504[B]	1/1	0.98	0.04	46,46,46,46	1

Continued on next page...

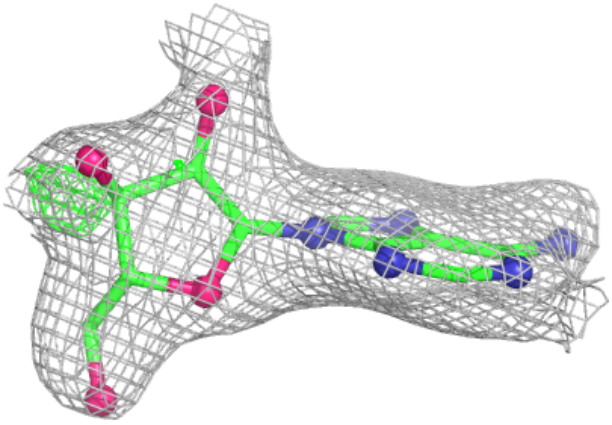
Continued from previous page...

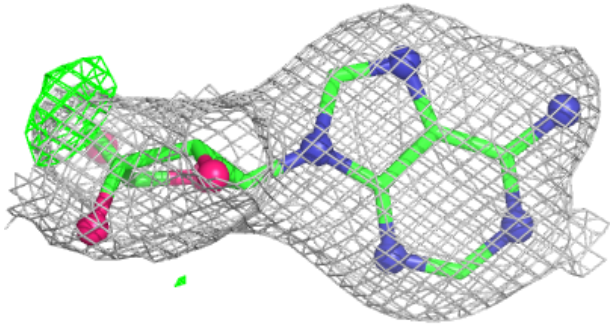
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	CD	F	506	1/1	0.98	0.03	64,64,64,64	1
2	NAD	D	501	44/44	0.98	0.04	18,23,28,29	0
4	CD	A	508	1/1	0.98	0.04	51,51,51,51	1
4	CD	D	507	1/1	0.98	0.04	68,68,68,68	1
5	K	H	509	1/1	0.98	0.03	35,35,35,35	0
4	CD	B	503[B]	1/1	0.99	0.03	45,45,45,45	1
4	CD	A	505	1/1	0.99	0.03	39,39,39,39	0
4	CD	B	503[A]	1/1	0.99	0.03	36,36,36,36	1
5	K	A	509	1/1	0.99	0.03	19,19,19,19	0
5	K	B	509	1/1	0.99	0.04	15,15,15,15	0
5	K	D	509	1/1	0.99	0.03	24,24,24,24	0
5	K	E	509	1/1	0.99	0.03	20,20,20,20	0
5	K	F	509	1/1	0.99	0.05	19,19,19,19	0
5	K	G	507	1/1	0.99	0.02	26,26,26,26	0
4	CD	B	506	1/1	0.99	0.02	40,40,40,40	0
4	CD	C	503	1/1	1.00	0.02	45,45,45,45	0
5	K	C	508	1/1	1.00	0.05	20,20,20,20	0
4	CD	F	505	1/1	1.00	0.01	35,35,35,35	1

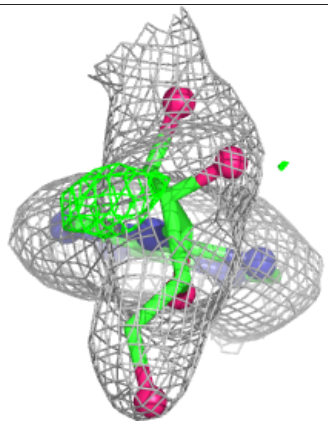
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around ADN H 502:

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

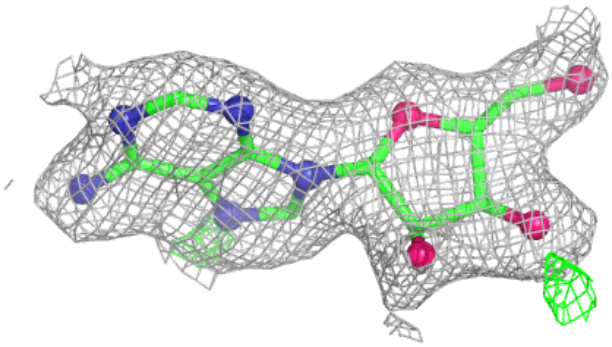


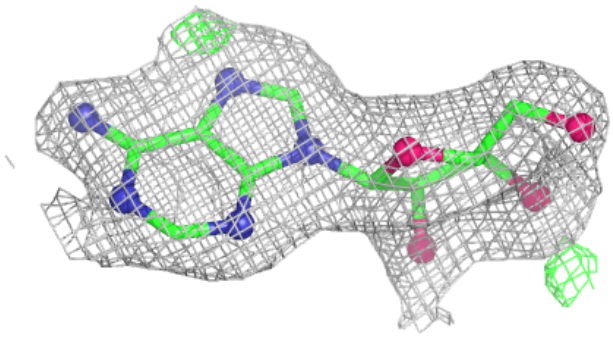


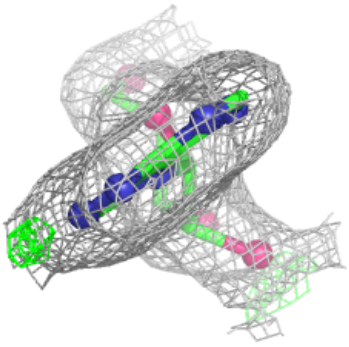


Electron density around ADN C 502:

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

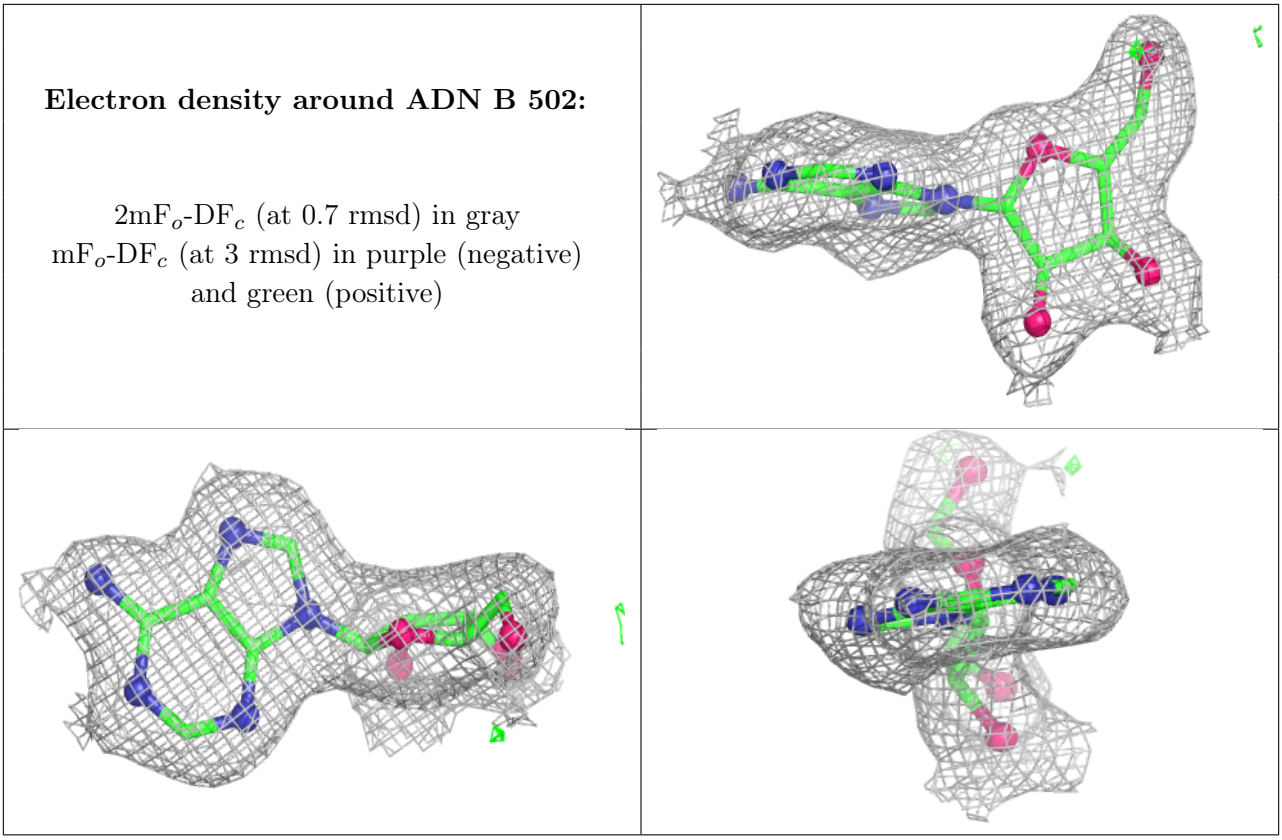






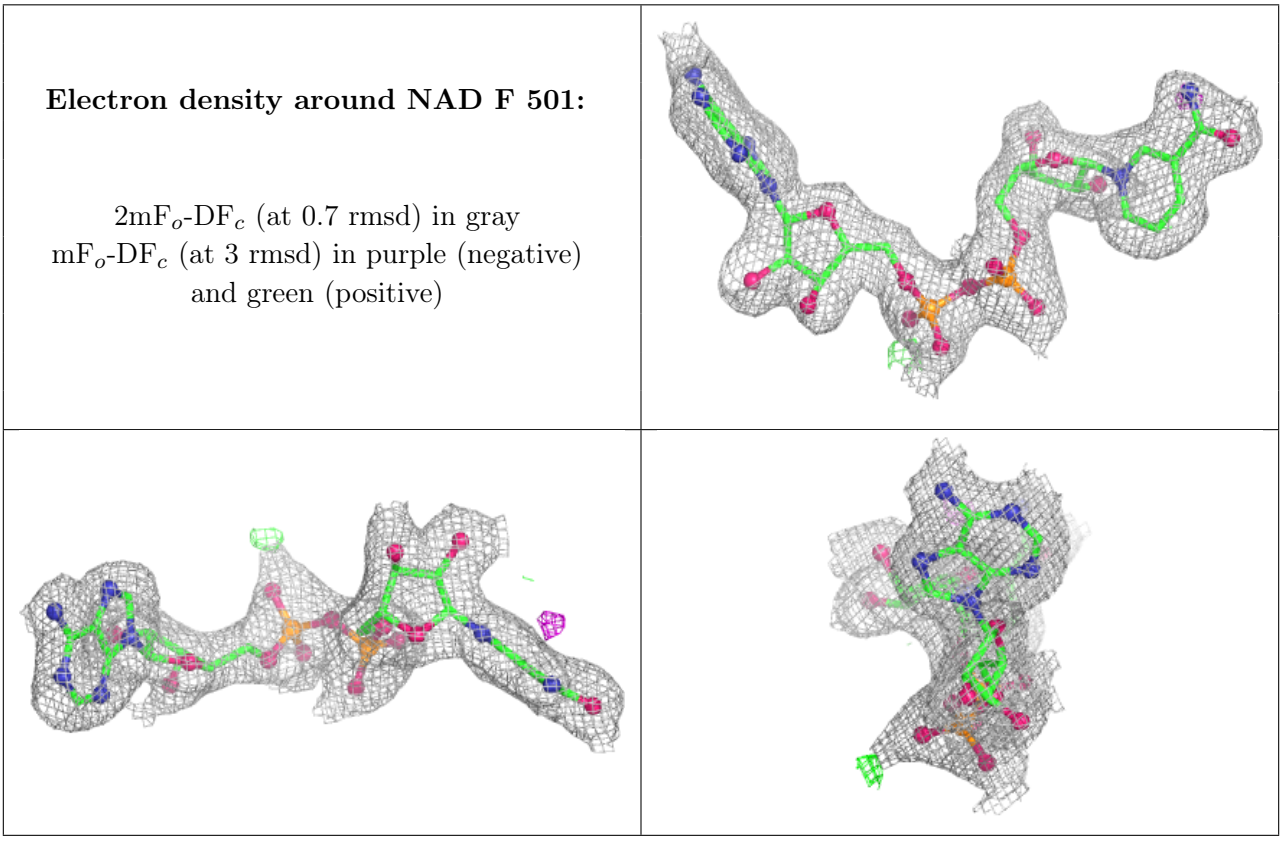
Electron density around ADN B 502:

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



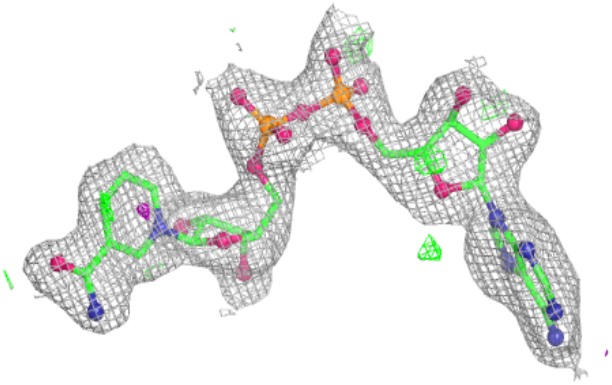
Electron density around NAD F 501:

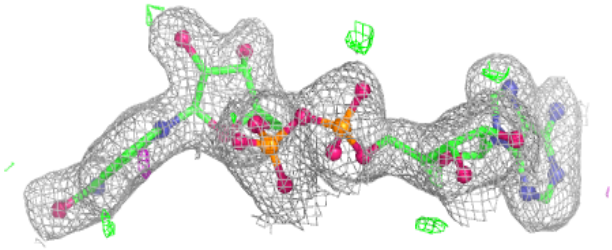
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

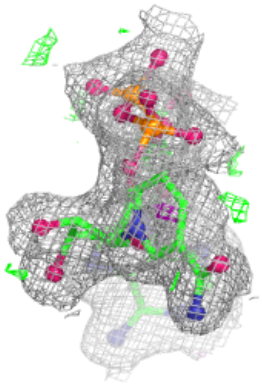


Electron density around NAD G 501:

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

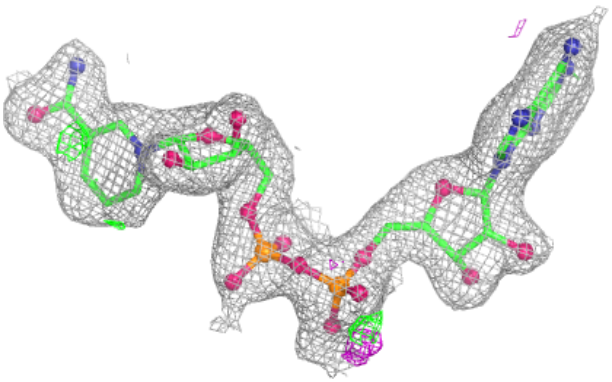


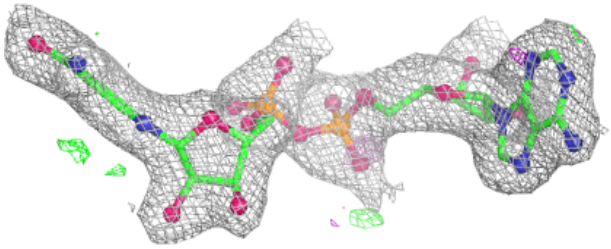


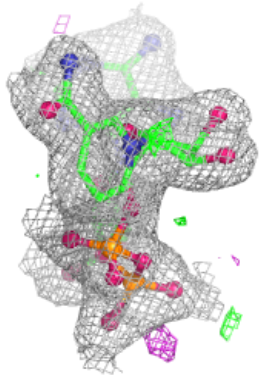


Electron density around NAD E 501:

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

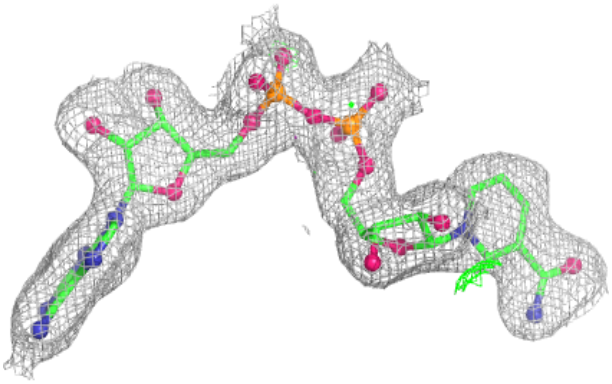


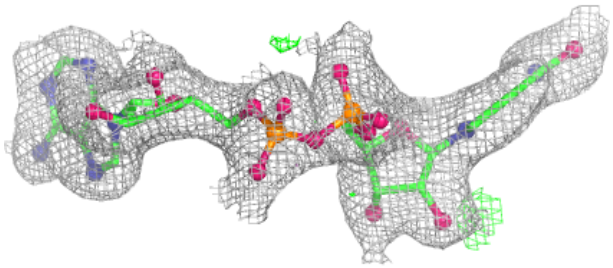


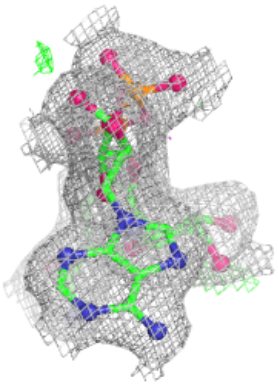


Electron density around NAD A 501:

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

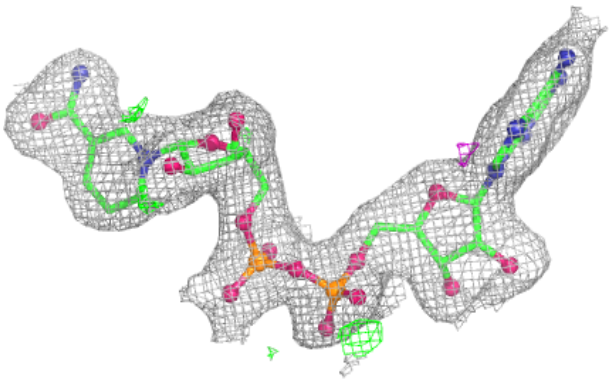


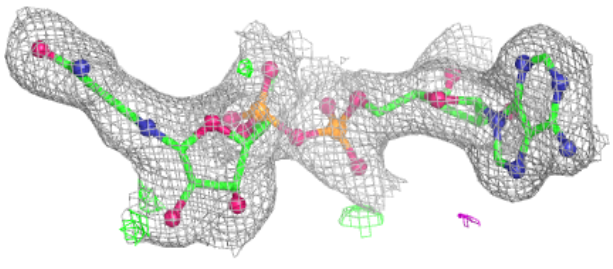


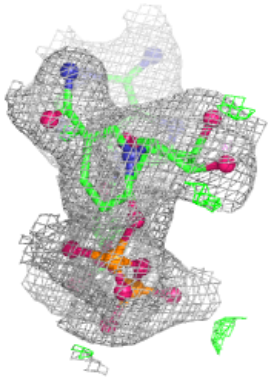


Electron density around NAD B 501:

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

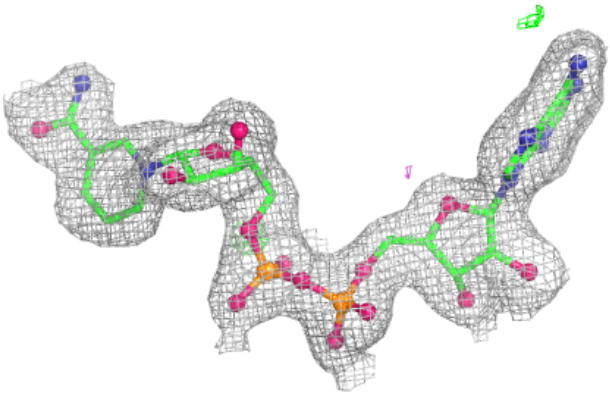


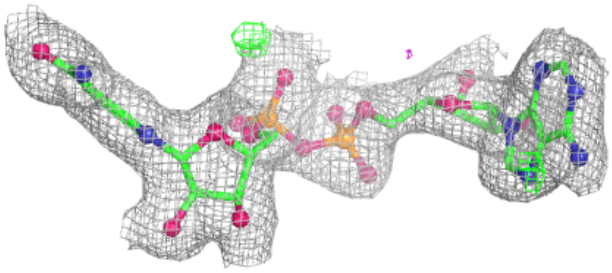


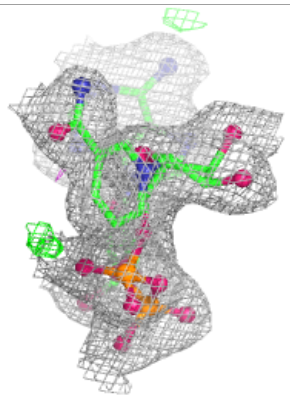


Electron density around NAD C 501:

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

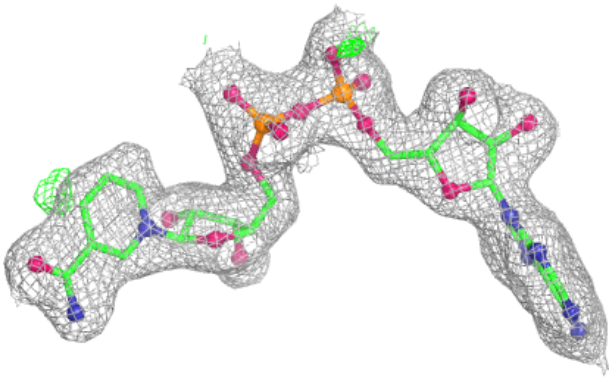


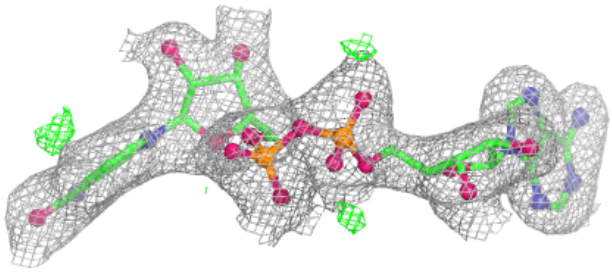


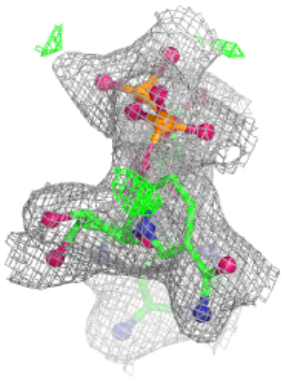


Electron density around NAD H 501:

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

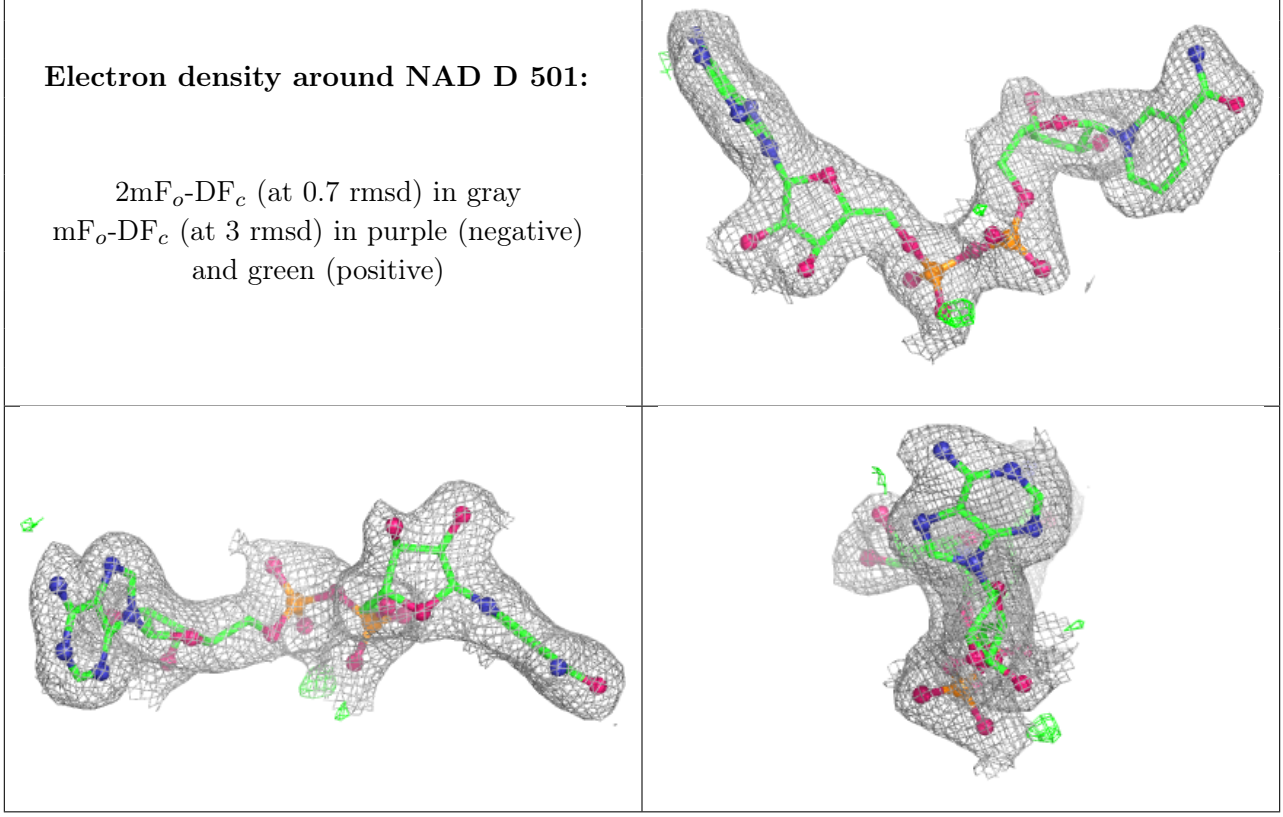






Electron density around NAD D 501:

$2mF_o$-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.