Full wwPDB X-ray Structure Validation Report (i)

May 25, 2026 – 06:38 PM JST

PDB ID	:	9V7Y / pdb_00009v7y
Title	:	Crystal structure of class II HMG-CoA reductase from Ruegeria pomeroyi(Silicibacter pomeroyi))
Authors	:	Xue, H.
Deposited on	:	2025-05-28
Resolution	:	2.64 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:

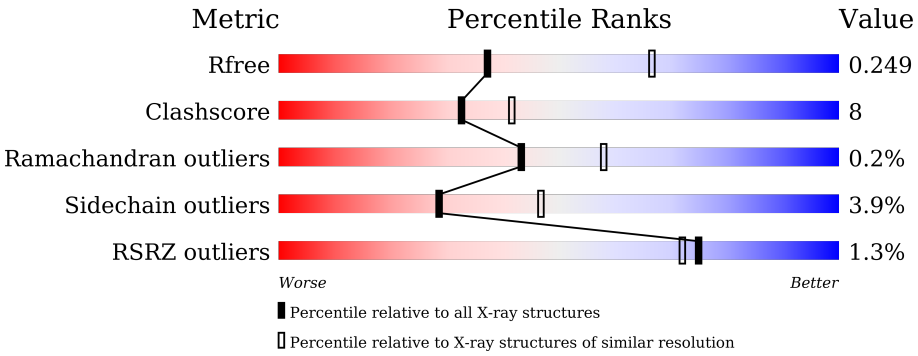
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
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 2.64 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	2053 (2.66-2.62)
Clashscore	190562	2097 (2.66-2.62)
Ramachandran outliers	187476	2066 (2.66-2.62)
Sidechain outliers	187428	2066 (2.66-2.62)
RSRZ outliers	180081	2052 (2.66-2.62)

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	423	76% 15% 8%
1	B	423	74% 17% 8%
1	C	423	75% 15% 8%
1	D	423	74% 17% 8%
1	E	423	3% 72% 19% 8%
1	F	423	74% 17% 8%

2 Entry composition (i)

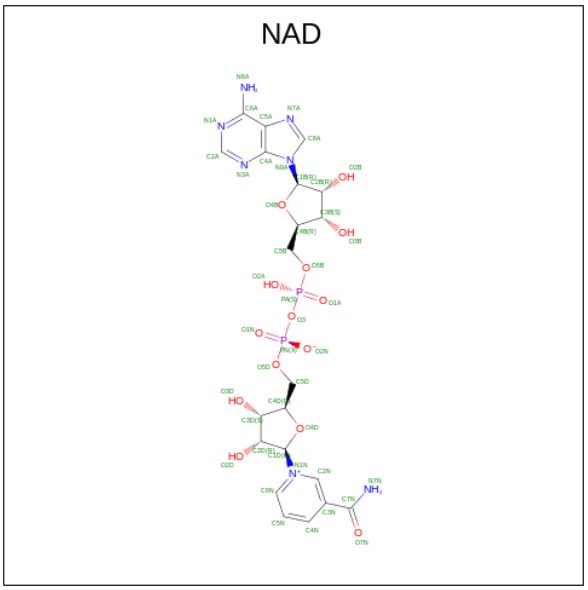
There are 4 unique types of molecules in this entry. The entry contains 17945 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 3-hydroxy-3-methylglutaryl coenzyme A reductase.

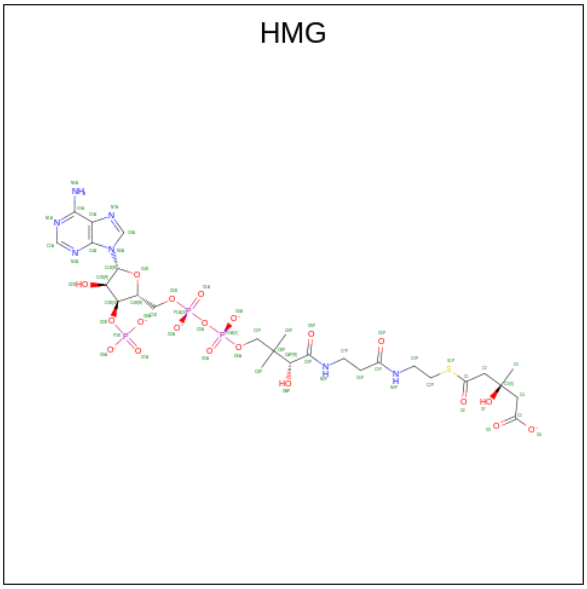
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	389	Total	C	N	O	S	0	0	0
			2867	1786	531	534	16			
1	B	389	Total	C	N	O	S	0	0	0
			2867	1786	531	534	16			
1	C	389	Total	C	N	O	S	0	0	0
			2867	1786	531	534	16			
1	D	389	Total	C	N	O	S	0	0	0
			2867	1786	531	534	16			
1	E	389	Total	C	N	O	S	0	0	0
			2867	1786	531	534	16			
1	F	389	Total	C	N	O	S	0	0	0
			2867	1786	531	534	16			

- Molecule 2 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (CCD ID: NAD) (formula: $C_{21}H_{27}N_7O_{14}P_2$) (labeled as "Ligand of Interest" by depositor).



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	C	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		

- Molecule 3 is 3-HYDROXY-3-METHYLGLUTARYL-COENZYME A (CCD ID: HMG) (formula: $C_{27}H_{39}N_7O_{20}P_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	S	0	0
			58	27	7	20	3	1		
3	B	1	Total	C	N	O	P	S	0	0
			58	27	7	20	3	1		
3	C	1	Total	C	N	O	P	S	0	0
			58	27	7	20	3	1		
3	D	1	Total	C	N	O	P	S	0	0
			58	27	7	20	3	1		
3	E	1	Total	C	N	O	P	S	0	0
			58	27	7	20	3	1		

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
3	F	1	Total	C	N	O	P	S	0	0
			58	27	7	20	3	1		

- Molecule 4 is water.

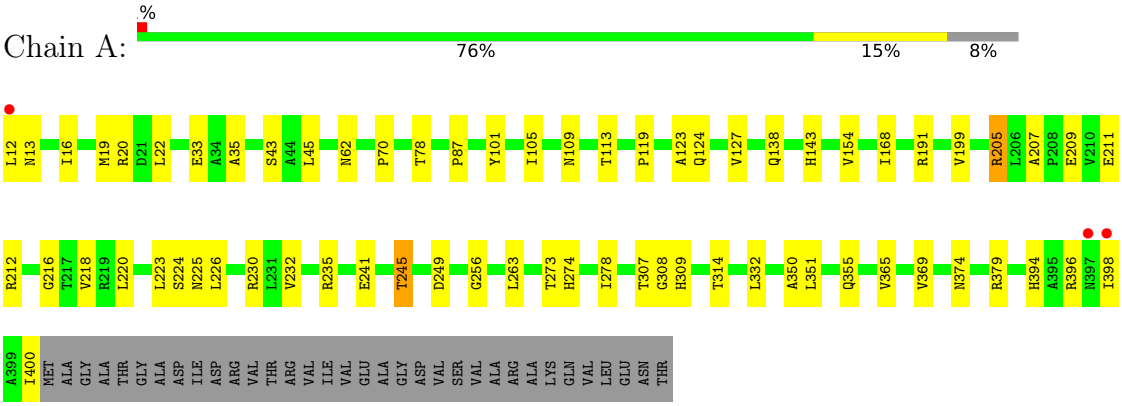
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	40	Total	O	0	0
			40	40		
4	B	26	Total	O	0	0
			26	26		
4	C	22	Total	O	0	0
			22	22		
4	D	19	Total	O	0	0
			19	19		
4	E	9	Total	O	0	0
			9	9		
4	F	15	Total	O	0	0
			15	15		

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.

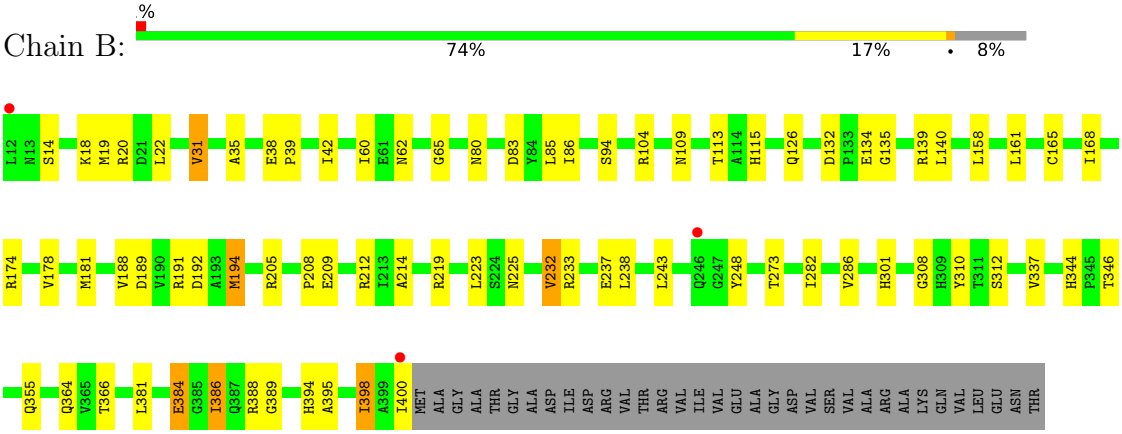
• Molecule 1: 3-hydroxy-3-methylglutaryl coenzyme A reductase

Chain A:



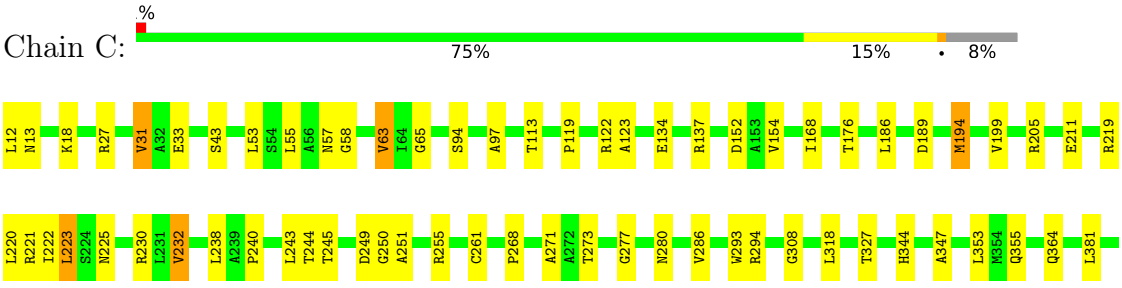
• Molecule 1: 3-hydroxy-3-methylglutaryl coenzyme A reductase

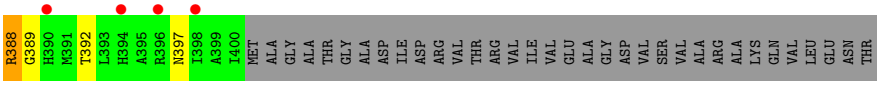
Chain B:



• Molecule 1: 3-hydroxy-3-methylglutaryl coenzyme A reductase

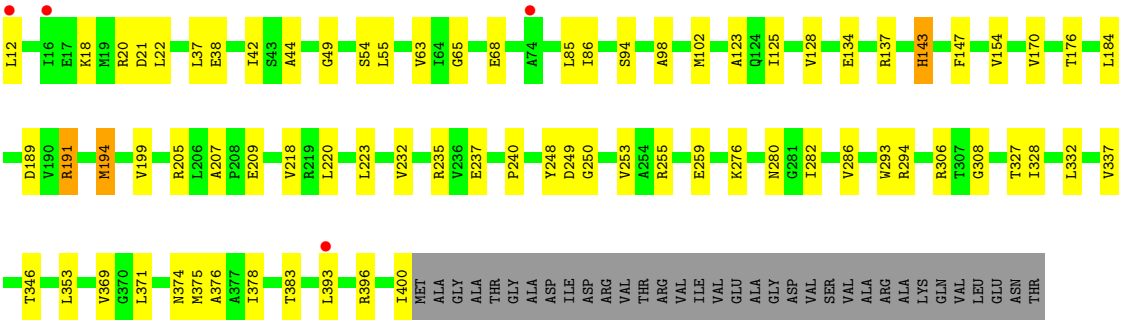
Chain C:





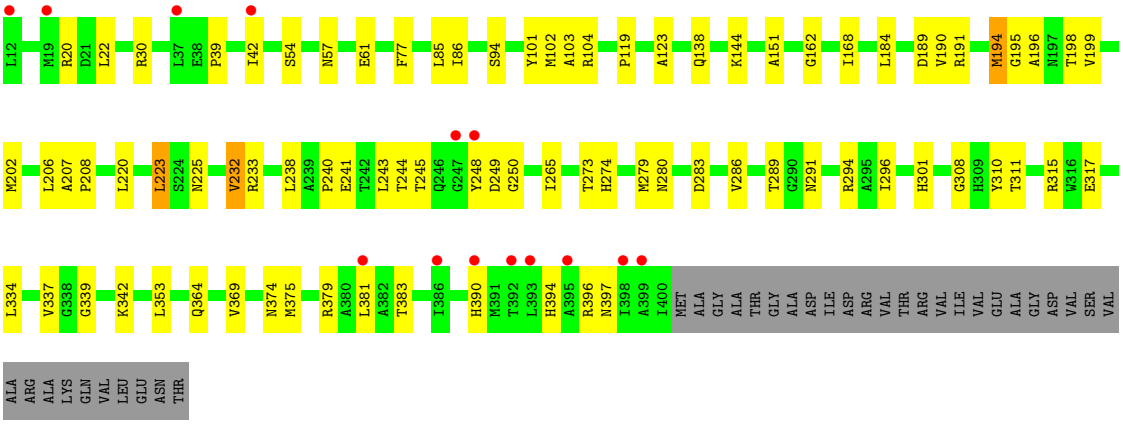
• Molecule 1: 3-hydroxy-3-methylglutaryl coenzyme A reductase

Chain D:



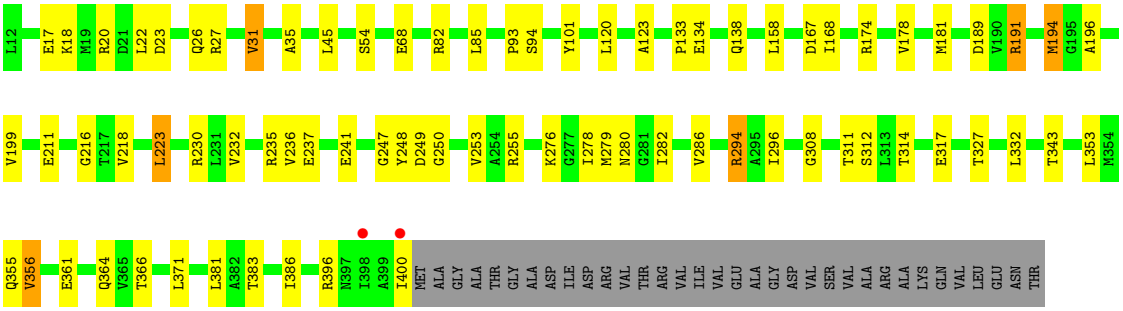
• Molecule 1: 3-hydroxy-3-methylglutaryl coenzyme A reductase

Chain E:



• Molecule 1: 3-hydroxy-3-methylglutaryl coenzyme A reductase

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	71.69Å 180.51Å 203.89Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.09 – 2.64 46.09 – 2.64	Depositor EDS
% Data completeness (in resolution range)	99.9 (46.09-2.64) 99.9 (46.09-2.64)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.99 (at 2.65Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.198 , 0.249 0.198 , 0.249	Depositor DCC
R_{free} test set	3909 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å^2)	54.9	Xtriage
Anisotropy	0.083	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 46.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.44$, $< L^2 > = 0.26$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	17945	wwPDB-VP
Average B, all atoms (Å^2)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.15% 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: HMG, 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	0.45	0/2907	0.61	0/3954
1	B	0.41	0/2907	0.59	0/3954
1	C	0.52	1/2907 (0.0%)	0.61	1/3954 (0.0%)
1	D	0.36	0/2907	0.53	0/3954
1	E	0.36	0/2907	0.58	0/3954
1	F	0.35	0/2907	0.53	0/3954
All	All	0.41	1/17442 (0.0%)	0.58	1/23724 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	219	ARG	CA-C	16.48	1.60	1.52

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	219	ARG	O-C-N	6.72	125.80	120.83

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	2867	0	2922	44	0
1	B	2867	0	2922	56	0
1	C	2867	0	2922	46	0
1	D	2867	0	2922	45	0
1	E	2867	0	2922	57	0
1	F	2867	0	2922	54	0
2	A	44	0	26	1	0
2	B	44	0	26	4	0
2	C	44	0	26	2	0
2	D	44	0	26	2	0
2	E	44	0	26	2	0
2	F	44	0	26	2	0
3	A	58	0	39	9	0
3	B	58	0	39	3	0
3	C	58	0	39	4	0
3	D	58	0	39	3	0
3	E	58	0	39	3	0
3	F	58	0	39	3	0
4	A	40	0	0	5	0
4	B	26	0	0	2	0
4	C	22	0	0	4	0
4	D	19	0	0	2	0
4	E	9	0	0	3	0
4	F	15	0	0	2	0
All	All	17945	0	17922	281	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 8.

All (281) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:58:GLY:HA3	1:E:396:ARG:HD3	1.54	0.86
1:A:124:GLN:OE1	4:A:601:HOH:O	1.94	0.84
1:B:83:ASP:O	4:B:601:HOH:O	1.98	0.82
1:A:256:GLY:HA2	1:B:219:ARG:HE	1.48	0.77
1:C:189:ASP:OD2	4:C:601:HOH:O	2.05	0.74
1:D:134:GLU:OE2	4:D:601:HOH:O	2.05	0.73
1:C:152:ASP:OD2	4:C:602:HOH:O	2.07	0.72
1:A:225:ASN:HD22	1:B:273:THR:HA	1.57	0.70
1:B:312:SER:O	4:B:602:HOH:O	2.12	0.67
1:C:134:GLU:OE2	4:C:603:HOH:O	2.11	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:301:HIS:ND1	1:B:310:TYR:OH	2.27	0.67
1:B:194:MET:HE1	2:B:501:NAD:H71N	1.58	0.66
1:A:273:THR:HA	1:B:225:ASN:HD22	1.60	0.66
1:C:244:THR:HG23	1:C:249:ASP:HA	1.77	0.66
1:D:294:ARG:NH1	1:F:280:ASN:OD1	2.29	0.65
1:A:220:LEU:HD22	1:B:381:LEU:HB3	1.78	0.65
1:C:225:ASN:HD22	1:E:273:THR:HA	1.62	0.65
1:F:383:THR:O	4:F:601:HOH:O	2.15	0.64
1:E:22:LEU:HD21	1:E:30:ARG:HG3	1.80	0.64
1:C:232:VAL:HG21	1:C:364:GLN:HA	1.80	0.63
1:F:194:MET:HE1	2:F:501:NAD:H71N	1.63	0.63
1:F:82:ARG:NH2	1:F:355:GLN:O	2.30	0.63
1:F:276:LYS:HZ2	1:F:280:ASN:HD21	1.45	0.62
1:A:123:ALA:HB2	1:A:199:VAL:HB	1.80	0.62
1:B:189:ASP:OD1	1:B:191:ARG:HD2	1.99	0.62
1:C:97:ALA:HB2	1:E:61:GLU:HG2	1.81	0.62
1:C:280:ASN:OD1	1:E:294:ARG:NH1	2.34	0.61
1:E:189:ASP:OD1	1:E:191:ARG:HD2	2.00	0.61
1:E:194:MET:HE1	2:E:501:NAD:H71N	1.66	0.60
1:E:315:ARG:HG3	1:F:134:GLU:HG3	1.82	0.60
1:A:20:ARG:NH2	4:A:602:HOH:O	2.32	0.60
1:A:123:ALA:HA	1:A:223:LEU:HA	1.82	0.60
1:E:119:PRO:HG3	4:E:601:HOH:O	2.00	0.60
3:D:502:HMG:O4	3:D:502:HMG:H61	2.02	0.60
1:F:123:ALA:HA	1:F:223:LEU:HA	1.84	0.60
1:E:238:LEU:HD13	1:E:243:LEU:HD21	1.84	0.60
1:C:273:THR:HA	1:E:225:ASN:HD22	1.67	0.59
1:D:248:TYR:CE1	1:D:383:THR:HB	2.38	0.59
1:B:248:TYR:CE1	1:B:384:GLU:HG3	2.38	0.59
1:D:280:ASN:OD1	1:F:294:ARG:NH1	2.36	0.58
1:E:301:HIS:ND1	1:E:310:TYR:OH	2.35	0.58
1:F:235:ARG:HD2	1:F:237:GLU:OE2	2.04	0.57
1:F:276:LYS:NZ	1:F:280:ASN:HD21	2.02	0.57
1:E:123:ALA:HB2	1:E:199:VAL:HB	1.87	0.56
1:C:222:ILE:HD12	1:E:381:LEU:HD21	1.87	0.56
1:E:337:VAL:HG12	1:E:342:LYS:HE2	1.87	0.56
1:A:154:VAL:HG22	1:A:205:ARG:HG3	1.87	0.56
3:D:502:HMG:H7P1	3:D:502:HMG:OAP	2.05	0.56
1:A:308:GLY:O	1:B:308:GLY:O	2.24	0.56
1:B:194:MET:HE2	2:B:501:NAD:H2D	1.88	0.55
3:A:502:HMG:O4	3:A:502:HMG:H61	2.06	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:502:HMG:H3B	4:F:603:HOH:O	2.06	0.54
1:E:279:MET:HE3	1:E:283:ASP:OD1	2.07	0.54
1:F:178:VAL:CG2	1:F:181:MET:HE3	2.37	0.54
1:B:194:MET:CE	2:B:501:NAD:H2D	2.38	0.54
3:A:502:HMG:H7P1	3:A:502:HMG:OAP	2.07	0.54
1:E:248:TYR:CE1	1:E:383:THR:HB	2.43	0.53
1:C:134:GLU:OE2	1:C:137:ARG:HD3	2.08	0.53
1:E:317:GLU:OE2	1:F:133:PRO:HD2	2.08	0.53
1:D:220:LEU:HD22	1:F:381:LEU:HB3	1.90	0.53
3:F:502:HMG:H7P1	3:F:502:HMG:OAP	2.09	0.53
1:C:57:ASN:HA	1:C:63:VAL:HG21	1.90	0.53
1:C:12:LEU:HD12	1:C:355:GLN:OE1	2.09	0.53
1:F:134:GLU:HG2	1:F:174:ARG:HH22	1.73	0.53
1:D:235:ARG:HD2	1:D:237:GLU:OE2	2.08	0.52
1:E:151:ALA:HB2	1:E:206:LEU:HD21	1.90	0.52
1:F:134:GLU:HG2	1:F:174:ARG:NH2	2.25	0.52
1:F:311:THR:OG1	1:F:312:SER:N	2.43	0.52
1:A:232:VAL:HG11	1:A:332:LEU:HD12	1.93	0.51
1:F:396:ARG:O	1:F:400:ILE:HG12	2.11	0.51
1:E:244:THR:HG23	1:E:249:ASP:HA	1.92	0.51
3:A:502:HMG:H2A1	1:B:62:ASN:OD1	2.11	0.51
1:F:356:VAL:HG12	1:F:361:GLU:HG2	1.92	0.51
1:B:134:GLU:HG2	1:B:174:ARG:HH22	1.76	0.51
1:B:282:ILE:HG12	1:B:366:THR:HG22	1.92	0.51
1:C:308:GLY:O	1:E:308:GLY:O	2.29	0.51
1:F:279:MET:HE1	1:F:296:ILE:HG22	1.93	0.51
1:A:101:TYR:HD2	3:A:502:HMG:H133	1.76	0.51
1:A:273:THR:HG23	1:B:225:ASN:ND2	2.25	0.51
1:A:154:VAL:CG2	1:A:205:ARG:HG3	2.42	0.50
1:B:18:LYS:O	1:B:22:LEU:HD13	2.10	0.50
1:B:140:LEU:HD11	1:B:214:ALA:HB2	1.93	0.50
1:D:18:LYS:O	1:D:22:LEU:HD13	2.10	0.50
1:A:87:PRO:HG3	1:A:350:ALA:HB1	1.94	0.50
1:C:268:PRO:HA	1:C:271:ALA:HB3	1.94	0.50
1:D:328:ILE:HB	1:D:371:LEU:HD13	1.93	0.50
1:A:105:ILE:O	1:A:109:ASN:ND2	2.44	0.50
1:A:113:THR:HG21	1:A:235:ARG:NH2	2.26	0.49
1:C:53:LEU:HD11	1:C:65:GLY:HA2	1.95	0.49
1:D:94:SER:HA	1:D:393:LEU:HD12	1.92	0.49
1:E:240:PRO:O	1:E:250:GLY:HA3	2.12	0.49
1:C:240:PRO:O	1:C:250:GLY:HA3	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:286:VAL:HG11	1:C:293:TRP:HA	1.94	0.49
1:B:388:ARG:HG3	1:B:389:GLY:H	1.77	0.49
1:D:125:ILE:HD12	1:D:184:LEU:HD22	1.93	0.49
1:F:232:VAL:HG21	1:F:364:GLN:HA	1.94	0.49
1:C:194:MET:HE3	2:C:501:NAD:H2D	1.94	0.49
1:E:104:ARG:HH11	1:E:104:ARG:HG2	1.77	0.49
1:C:388:ARG:O	1:C:392:THR:HG23	2.13	0.49
1:F:101:TYR:CD2	3:F:502:HMG:H133	2.48	0.49
1:C:119:PRO:HA	1:C:230:ARG:HG3	1.95	0.49
1:E:198:THR:HG22	1:E:202:MET:HE3	1.93	0.49
1:B:31:VAL:HG22	1:B:85:LEU:HD13	1.94	0.48
1:E:233:ARG:HB3	1:F:138:GLN:NE2	2.28	0.48
1:F:93:PRO:O	1:F:94:SER:HB2	2.13	0.48
1:F:120:LEU:O	1:F:230:ARG:HB2	2.12	0.48
1:F:282:ILE:O	1:F:286:VAL:HG23	2.13	0.48
1:D:240:PRO:O	1:D:250:GLY:HA3	2.13	0.48
1:B:205:ARG:O	1:B:208:PRO:HD2	2.13	0.48
1:D:102:MET:SD	1:D:375:MET:HG2	2.53	0.48
1:A:207:ALA:HB1	1:A:218:VAL:HG11	1.95	0.48
1:B:104:ARG:HG2	1:B:104:ARG:HH11	1.78	0.48
1:C:251:ALA:HB1	1:C:255:ARG:HH22	1.79	0.48
1:A:256:GLY:CA	1:B:219:ARG:HE	2.23	0.48
1:F:232:VAL:HG11	1:F:332:LEU:HD12	1.95	0.48
1:B:126:GLN:NE2	1:B:181:MET:HE2	2.28	0.48
1:D:308:GLY:O	1:F:308:GLY:O	2.31	0.48
1:E:190:VAL:O	2:E:501:NAD:H2A	2.13	0.48
1:A:245:THR:HG21	1:A:379:ARG:HH21	1.79	0.48
3:A:502:HMG:O7A	4:A:602:HOH:O	2.20	0.48
1:D:65:GLY:HA3	1:F:45:LEU:O	2.14	0.48
3:E:502:HMG:OAP	3:E:502:HMG:H7P1	2.14	0.48
1:D:235:ARG:HB2	1:D:327:THR:HG22	1.96	0.47
1:F:31:VAL:HG22	1:F:85:LEU:HD13	1.96	0.47
1:A:16:ILE:HD12	1:A:19:MET:HE1	1.96	0.47
1:A:35:ALA:O	1:A:355:GLN:NE2	2.42	0.47
1:B:394:HIS:O	1:B:398:ILE:HB	2.14	0.47
1:D:20:ARG:HD2	1:D:21:ASP:OD1	2.14	0.47
1:F:35:ALA:HB2	1:F:353:LEU:HD12	1.97	0.47
1:C:194:MET:HE1	2:C:501:NAD:H71N	1.80	0.47
1:E:274:HIS:CE1	1:E:374:ASN:HD21	2.32	0.47
1:A:20:ARG:HH22	3:A:502:HMG:H5'2	1.79	0.47
1:C:12:LEU:HD23	1:C:13:ASN:N	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:154:VAL:HG22	1:C:205:ARG:HG2	1.96	0.47
1:D:37:LEU:HD11	1:D:353:LEU:HD13	1.97	0.47
1:E:86:ILE:HD13	1:E:369:VAL:HG22	1.96	0.47
1:B:135:GLY:O	1:B:139:ARG:HG3	2.15	0.47
1:B:80:ASN:OD1	1:B:113:THR:HA	2.16	0.46
1:E:85:LEU:HB2	1:E:353:LEU:HD11	1.97	0.46
1:A:119:PRO:HA	1:A:230:ARG:HG3	1.96	0.46
1:B:165:CYS:HA	1:B:188:VAL:HA	1.97	0.46
1:B:178:VAL:CG2	1:B:181:MET:HE3	2.46	0.46
1:D:86:ILE:HD13	1:D:369:VAL:HG22	1.97	0.46
1:F:168:ILE:O	1:F:168:ILE:HG13	2.15	0.46
1:F:167:ASP:OD1	1:F:168:ILE:N	2.48	0.46
1:A:245:THR:HG22	4:A:605:HOH:O	2.15	0.46
1:F:249:ASP:O	1:F:253:VAL:HG23	2.16	0.46
1:A:20:ARG:NH2	3:A:502:HMG:H5'2	2.31	0.46
1:C:273:THR:HG22	3:C:502:HMG:O4	2.16	0.46
1:C:318:LEU:HD23	1:C:318:LEU:HA	1.82	0.46
1:E:39:PRO:HA	1:E:42:ILE:HD12	1.98	0.46
1:E:144:LYS:HG3	1:E:168:ILE:HG12	1.98	0.46
1:C:389:GLY:HA3	3:C:502:HMG:H141	1.97	0.46
1:A:365:VAL:O	1:A:369:VAL:HG23	2.16	0.46
1:E:101:TYR:CD2	3:E:502:HMG:H133	2.51	0.46
1:E:279:MET:HE1	1:E:296:ILE:HG22	1.98	0.46
1:F:189:ASP:OD1	1:F:191:ARG:HD2	2.16	0.46
1:A:211:GLU:HG3	1:A:216:GLY:O	2.17	0.45
1:C:255:ARG:HG3	1:C:255:ARG:HH11	1.81	0.45
1:D:143:HIS:HB3	1:D:147:PHE:CE2	2.51	0.45
1:B:398:ILE:HD12	1:B:398:ILE:HA	1.79	0.45
1:A:101:TYR:CD2	3:A:502:HMG:H133	2.51	0.45
1:A:45:LEU:O	1:B:65:GLY:HA3	2.17	0.45
1:B:386:ILE:HD12	1:B:386:ILE:HA	1.64	0.45
1:B:189:ASP:OD2	1:B:191:ARG:NH1	2.50	0.45
1:D:98:ALA:HB1	1:D:376:ALA:HB1	1.99	0.45
1:D:207:ALA:HB1	1:D:218:VAL:HG11	1.99	0.45
1:D:189:ASP:OD1	1:D:191:ARG:HD2	2.16	0.45
1:F:249:ASP:OD1	1:F:250:GLY:N	2.49	0.45
1:B:35:ALA:O	1:B:355:GLN:NE2	2.50	0.45
1:B:94:SER:HB2	3:B:502:HMG:H2P2	1.98	0.45
1:F:158:LEU:HD12	1:F:191:ARG:HG2	1.99	0.45
1:F:255:ARG:HG3	1:F:255:ARG:HH11	1.82	0.45
1:F:278:ILE:HD11	1:F:314:THR:HG23	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:388:ARG:HG3	1:B:389:GLY:N	2.32	0.44
1:D:20:ARG:NH2	3:D:502:HMG:H5'2	2.33	0.44
1:C:122:ARG:HA	1:C:186:LEU:O	2.17	0.44
1:E:286:VAL:HG13	1:E:291:ASN:HB2	1.99	0.44
1:E:294:ARG:HG2	1:E:294:ARG:HH11	1.83	0.44
1:F:17:GLU:HB3	1:F:18:LYS:HD2	1.99	0.44
1:C:277:GLY:O	1:C:280:ASN:HB2	2.17	0.44
1:A:168:ILE:O	1:A:168:ILE:HG13	2.17	0.44
1:A:263:LEU:HD12	1:A:263:LEU:HA	1.84	0.44
1:B:192:ASP:HB2	2:B:501:NAD:H62A	1.83	0.44
3:C:502:HMG:H2'	3:C:502:HMG:N3A	2.32	0.44
1:D:123:ALA:HB2	1:D:199:VAL:HB	2.00	0.44
1:F:236:VAL:HG12	1:F:371:LEU:HD21	2.00	0.43
1:A:307:THR:O	1:A:309:HIS:N	2.51	0.43
1:E:245:THR:HG23	4:E:603:HOH:O	2.18	0.43
1:B:19:MET:HE1	1:B:31:VAL:HG23	1.99	0.43
1:E:102:MET:SD	1:E:375:MET:HE2	2.58	0.43
1:E:123:ALA:HA	1:E:223:LEU:HA	2.00	0.43
1:E:317:GLU:OE2	1:F:174:ARG:NH1	2.32	0.43
3:A:502:HMG:H122	3:A:502:HMG:O9P	2.18	0.43
1:C:27:ARG:NH1	1:E:57:ASN:OD1	2.48	0.43
1:C:123:ALA:HB2	1:C:199:VAL:HB	2.01	0.43
1:D:44:ALA:HB1	1:D:346:THR:HA	2.00	0.43
1:B:209:GLU:CD	1:B:212:ARG:HH21	2.26	0.43
1:D:249:ASP:O	1:D:253:VAL:HG23	2.18	0.43
1:E:194:MET:HE3	1:E:196:ALA:HB2	2.01	0.43
1:D:194:MET:HE3	2:D:501:NAD:H2D	1.99	0.43
1:D:276:LYS:HE2	1:F:294:ARG:HB3	2.01	0.43
1:E:162:GLY:C	1:E:191:ARG:HD3	2.44	0.43
1:E:394:HIS:HD2	1:E:397:ASN:HD22	1.66	0.43
1:D:68:GLU:HG2	1:F:68:GLU:HG2	2.00	0.43
1:D:332:LEU:HD23	1:D:332:LEU:HA	1.74	0.43
1:A:351:LEU:HD23	1:A:351:LEU:HA	1.86	0.43
1:D:86:ILE:HD13	1:D:369:VAL:CG2	2.48	0.43
1:B:344:HIS:CE1	1:B:346:THR:HB	2.54	0.42
1:D:137:ARG:HG3	1:D:170:VAL:CG1	2.49	0.42
1:E:77:PHE:CE1	1:E:103:ALA:HB2	2.54	0.42
1:E:379:ARG:NH2	4:E:603:HOH:O	2.51	0.42
1:A:70:PRO:HB2	1:B:60:ILE:HD13	2.01	0.42
1:C:294:ARG:NH1	1:E:280:ASN:OD1	2.53	0.42
1:C:344:HIS:HB3	1:C:347:ALA:CB	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:396:ARG:O	1:D:400:ILE:HG12	2.18	0.42
1:F:20:ARG:H	1:F:20:ARG:HG2	1.64	0.42
1:A:274:HIS:CE1	1:A:374:ASN:HD21	2.38	0.42
1:D:123:ALA:HA	1:D:223:LEU:HA	2.00	0.42
1:D:306:ARG:NH2	4:D:605:HOH:O	2.52	0.42
1:E:207:ALA:HB3	1:E:208:PRO:HD3	2.02	0.42
1:A:78:THR:N	4:A:608:HOH:O	2.41	0.42
1:D:38:GLU:O	1:D:42:ILE:HG13	2.19	0.42
1:B:238:LEU:HD13	1:B:243:LEU:HD21	2.01	0.42
2:D:501:NAD:H2D	2:D:501:NAD:H2N	1.79	0.42
1:A:209:GLU:CD	1:A:212:ARG:HH21	2.28	0.42
1:C:381:LEU:HB3	1:E:220:LEU:CD2	2.50	0.42
1:F:211:GLU:HG3	1:F:218:VAL:HG23	2.00	0.42
1:D:374:ASN:O	1:D:378:ILE:HG12	2.20	0.42
1:F:123:ALA:HB2	1:F:199:VAL:HB	2.02	0.42
1:F:194:MET:HG3	1:F:196:ALA:H	1.84	0.42
1:C:55:LEU:HD12	1:C:55:LEU:HA	1.82	0.41
1:E:20:ARG:H	1:E:20:ARG:HG2	1.64	0.41
1:A:62:ASN:OD1	3:B:502:HMG:H2A1	2.19	0.41
1:A:278:ILE:HD11	1:A:314:THR:HG23	2.01	0.41
1:A:394:HIS:O	1:A:398:ILE:HG12	2.19	0.41
1:B:14:SER:HB3	1:B:83:ASP:HB3	2.02	0.41
1:E:94:SER:OG	1:E:390:HIS:HA	2.20	0.41
1:E:138:GLN:NE2	1:F:327:THR:HB	2.35	0.41
1:A:138:GLN:NE2	1:C:327:THR:HB	2.35	0.41
1:D:282:ILE:O	1:D:286:VAL:HG23	2.20	0.41
1:E:381:LEU:HD11	3:E:502:HMG:H61	2.02	0.41
1:B:232:VAL:HG21	1:B:364:GLN:HA	2.03	0.41
1:B:395:ALA:O	1:B:398:ILE:HG22	2.21	0.41
1:C:94:SER:HB3	3:C:502:HMG:H4	1.85	0.41
1:C:220:LEU:C	1:C:221:ARG:HG3	2.45	0.41
1:E:189:ASP:CG	1:E:191:ARG:HH11	2.28	0.41
1:A:224:SER:HA	1:B:273:THR:OG1	2.21	0.41
1:D:63:VAL:O	1:F:27:ARG:HD2	2.21	0.41
1:B:38:GLU:O	1:B:42:ILE:HG13	2.19	0.41
1:B:126:GLN:HE21	1:B:181:MET:HE2	1.85	0.41
3:B:502:HMG:O4	3:B:502:HMG:H61	2.20	0.41
1:D:293:TRP:NE1	1:D:294:ARG:HD3	2.35	0.41
1:E:194:MET:HG3	1:E:195:GLY:N	2.35	0.41
1:F:191:ARG:HB2	2:F:501:NAD:N1A	2.36	0.41
1:F:282:ILE:HG12	1:F:366:THR:HG22	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:501:NAD:H2D	2:A:501:NAD:H2N	1.86	0.41
1:C:344:HIS:HB3	1:C:347:ALA:HB3	2.02	0.41
1:E:334:LEU:HD23	1:E:334:LEU:HA	1.83	0.41
1:F:247:GLY:C	1:F:248:TYR:CG	2.99	0.41
1:C:238:LEU:HD13	1:C:243:LEU:HD21	2.02	0.41
1:C:261:CYS:SG	4:C:618:HOH:O	2.34	0.41
1:D:12:LEU:HD21	1:D:85:LEU:HG	2.03	0.41
1:D:55:LEU:HD12	1:D:55:LEU:HA	1.94	0.41
1:E:289:THR:OG1	1:E:291:ASN:ND2	2.50	0.41
1:B:39:PRO:HA	1:B:42:ILE:HD12	2.03	0.41
1:C:31:VAL:HG13	1:C:353:LEU:HD13	2.03	0.41
1:E:232:VAL:HG21	1:E:364:GLN:HA	2.03	0.41
1:F:23:ASP:HB2	1:F:26:GLN:HG3	2.03	0.41
1:B:109:ASN:HB3	1:B:237:GLU:O	2.21	0.40
1:B:115:HIS:NE2	1:B:233:ARG:HD2	2.36	0.40
1:B:132:ASP:OD1	1:B:132:ASP:N	2.54	0.40
1:C:123:ALA:HA	1:C:223:LEU:HA	2.03	0.40
1:A:12:LEU:HD23	1:A:13:ASN:N	2.37	0.40
1:B:158:LEU:HA	1:B:161:LEU:HD12	2.02	0.40
1:B:168:ILE:O	1:B:168:ILE:HG13	2.20	0.40
1:B:282:ILE:O	1:B:286:VAL:HG23	2.21	0.40
1:D:184:LEU:HD23	1:D:184:LEU:C	2.46	0.40
1:D:255:ARG:O	1:D:259:GLU:HG3	2.22	0.40
1:F:211:GLU:HG2	1:F:216:GLY:O	2.21	0.40
1:D:154:VAL:HG13	1:D:205:ARG:NH1	2.37	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	387/423 (92%)	369 (95%)	18 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	387/423 (92%)	368 (95%)	19 (5%)	0	100	100
1	C	387/423 (92%)	372 (96%)	15 (4%)	0	100	100
1	D	387/423 (92%)	368 (95%)	17 (4%)	2 (0%)	24	36
1	E	387/423 (92%)	370 (96%)	16 (4%)	1 (0%)	36	50
1	F	387/423 (92%)	373 (96%)	13 (3%)	1 (0%)	36	50
All	All	2322/2538 (92%)	2220 (96%)	98 (4%)	4 (0%)	43	58

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	191	ARG
1	D	191	ARG
1	E	339	GLY
1	D	49	GLY

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	285/310 (92%)	272 (95%)	13 (5%)	24	39
1	B	285/310 (92%)	274 (96%)	11 (4%)	28	47
1	C	285/310 (92%)	270 (95%)	15 (5%)	20	34
1	D	285/310 (92%)	277 (97%)	8 (3%)	38	58
1	E	285/310 (92%)	277 (97%)	8 (3%)	38	58
1	F	285/310 (92%)	274 (96%)	11 (4%)	28	47
All	All	1710/1860 (92%)	1644 (96%)	66 (4%)	28	47

All (66) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	22	LEU
1	A	33	GLU

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Mol	Chain	Res	Type
1	A	43	SER
1	A	127	VAL
1	A	143	HIS
1	A	191	ARG
1	A	205	ARG
1	A	226	LEU
1	A	241	GLU
1	A	245	THR
1	A	249	ASP
1	A	396	ARG
1	A	400	ILE
1	B	20	ARG
1	B	31	VAL
1	B	86	ILE
1	B	194	MET
1	B	223	LEU
1	B	232	VAL
1	B	337	VAL
1	B	384	GLU
1	B	386	ILE
1	B	398	ILE
1	B	400	ILE
1	C	18	LYS
1	C	31	VAL
1	C	33	GLU
1	C	43	SER
1	C	63	VAL
1	C	113	THR
1	C	168	ILE
1	C	176	THR
1	C	194	MET
1	C	211	GLU
1	C	223	LEU
1	C	232	VAL
1	C	245	THR
1	C	388	ARG
1	C	397	ASN
1	D	54	SER
1	D	128	VAL
1	D	143	HIS
1	D	176	THR
1	D	194	MET

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Mol	Chain	Res	Type
1	D	209	GLU
1	D	232	VAL
1	D	337	VAL
1	E	54	SER
1	E	184	LEU
1	E	194	MET
1	E	223	LEU
1	E	232	VAL
1	E	241	GLU
1	E	265	ILE
1	E	311	THR
1	F	22	LEU
1	F	31	VAL
1	F	54	SER
1	F	194	MET
1	F	223	LEU
1	F	241	GLU
1	F	294	ARG
1	F	317	GLU
1	F	343	THR
1	F	356	VAL
1	F	386	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	76	ASN
1	A	225	ASN
1	A	373	GLN
1	C	225	ASN
1	C	387	GLN
1	E	138	GLN
1	E	225	ASN
1	E	364	GLN
1	E	387	GLN
1	E	397	ASN
1	F	225	ASN
1	F	280	ASN
1	F	355	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)

12 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	NAD	B	501	-	45,48,48	1.16	4 (8%)	63,73,73	1.72	10 (15%)
3	HMG	A	502	-	55,60,60	0.59	1 (1%)	75,90,90	1.06	6 (8%)
3	HMG	D	502	-	55,60,60	0.60	0	75,90,90	1.05	8 (10%)
3	HMG	F	502	-	55,60,60	0.60	0	75,90,90	1.05	4 (5%)
2	NAD	C	501	-	45,48,48	1.17	4 (8%)	63,73,73	1.65	9 (14%)
2	NAD	E	501	-	45,48,48	1.19	4 (8%)	63,73,73	1.71	9 (14%)
2	NAD	D	501	-	45,48,48	1.17	5 (11%)	63,73,73	1.61	10 (15%)
3	HMG	E	502	-	55,60,60	0.61	0	75,90,90	1.04	5 (6%)
2	NAD	F	501	-	45,48,48	1.15	4 (8%)	63,73,73	1.65	10 (15%)
3	HMG	B	502	-	55,60,60	0.60	1 (1%)	75,90,90	0.90	4 (5%)
2	NAD	A	501	-	45,48,48	1.19	4 (8%)	63,73,73	1.78	14 (22%)
3	HMG	C	502	-	55,60,60	0.60	1 (1%)	75,90,90	1.00	3 (4%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the

Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAD	B	501	-	-	18/30/62/62	0/5/5/5
3	HMG	A	502	-	-	19/60/77/77	0/3/3/3
3	HMG	D	502	-	-	19/60/77/77	0/3/3/3
3	HMG	F	502	-	-	16/60/77/77	0/3/3/3
2	NAD	C	501	-	-	13/30/62/62	0/5/5/5
2	NAD	E	501	-	-	17/30/62/62	0/5/5/5
2	NAD	D	501	-	-	12/30/62/62	0/5/5/5
3	HMG	E	502	-	-	19/60/77/77	0/3/3/3
2	NAD	F	501	-	-	10/30/62/62	0/5/5/5
3	HMG	B	502	-	-	19/60/77/77	0/3/3/3
2	NAD	A	501	-	-	16/30/62/62	0/5/5/5
3	HMG	C	502	-	-	22/60/77/77	0/3/3/3

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501	NAD	C5A-C4A	4.98	1.48	1.39
2	E	501	NAD	C5A-C4A	4.92	1.48	1.39
2	A	501	NAD	C5A-C4A	4.82	1.48	1.39
2	F	501	NAD	C5A-C4A	4.77	1.47	1.39
2	C	501	NAD	C5A-C4A	4.75	1.47	1.39
2	D	501	NAD	C5A-C4A	4.72	1.47	1.39
2	A	501	NAD	C5A-C6A	3.37	1.50	1.41
2	C	501	NAD	C5A-C6A	3.28	1.50	1.41
2	F	501	NAD	C5A-C6A	3.00	1.49	1.41
2	B	501	NAD	C5A-C6A	2.89	1.49	1.41
2	E	501	NAD	C5A-C6A	2.86	1.49	1.41
2	D	501	NAD	C5A-C6A	2.72	1.48	1.41
2	E	501	NAD	C8A-N7A	2.52	1.36	1.31
2	B	501	NAD	C8A-N7A	2.39	1.36	1.31
2	E	501	NAD	C5A-N7A	-2.37	1.34	1.39
2	A	501	NAD	O4D-C1D	2.36	1.44	1.41
2	D	501	NAD	C5A-N7A	-2.34	1.34	1.39
2	A	501	NAD	C8A-N7A	2.34	1.36	1.31
2	F	501	NAD	C8A-N7A	2.32	1.36	1.31
2	C	501	NAD	O4D-C1D	2.27	1.44	1.41
2	C	501	NAD	C8A-N7A	2.26	1.35	1.31
3	C	502	HMG	O2-C1	2.17	1.24	1.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	501	NAD	O4D-C1D	2.16	1.44	1.41
2	D	501	NAD	C8A-N7A	2.14	1.35	1.31
3	B	502	HMG	O2-C1	2.11	1.24	1.21
2	B	501	NAD	C5A-N7A	-2.09	1.35	1.39
3	A	502	HMG	O2-C1	2.09	1.24	1.21
2	F	501	NAD	C5A-N7A	-2.03	1.35	1.39

All (92) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	501	NAD	C5A-C4A-N3A	-6.68	118.04	126.75
2	B	501	NAD	C5A-C4A-N3A	-6.64	118.08	126.75
2	F	501	NAD	C5A-C4A-N3A	-6.61	118.13	126.75
2	E	501	NAD	C5A-C4A-N3A	-6.60	118.14	126.75
2	D	501	NAD	C5A-C4A-N3A	-6.47	118.31	126.75
2	A	501	NAD	C5A-C4A-N3A	-6.28	118.56	126.75
2	B	501	NAD	N3A-C4A-N9A	5.30	135.81	127.08
2	D	501	NAD	N3A-C4A-N9A	5.07	135.43	127.08
2	F	501	NAD	N3A-C4A-N9A	5.05	135.40	127.08
2	E	501	NAD	N3A-C4A-N9A	4.89	135.14	127.08
3	E	502	HMG	OAP-CAP-CBP	-4.77	99.03	110.25
2	C	501	NAD	N3A-C4A-N9A	4.73	134.87	127.08
2	A	501	NAD	N3A-C4A-N9A	4.70	134.82	127.08
3	A	502	HMG	OAP-CAP-CBP	-4.33	100.05	110.25
3	F	502	HMG	OAP-CAP-CBP	-4.23	100.29	110.25
2	A	501	NAD	C2A-N3A-C4A	4.05	121.32	111.75
2	A	501	NAD	C4A-C5A-N7A	-3.99	105.75	110.62
3	D	502	HMG	O6A-CCP-CBP	-3.96	104.18	110.55
2	F	501	NAD	C4A-C5A-N7A	-3.94	105.82	110.62
3	C	502	HMG	C7P-C6P-C5P	3.91	118.87	112.36
2	B	501	NAD	C2A-N3A-C4A	3.87	120.90	111.75
2	E	501	NAD	C4A-C5A-N7A	-3.86	105.91	110.62
2	F	501	NAD	C2A-N3A-C4A	3.86	120.87	111.75
2	C	501	NAD	C2A-N3A-C4A	3.81	120.75	111.75
2	C	501	NAD	C4A-C5A-N7A	-3.81	105.98	110.62
3	C	502	HMG	C2P-S1P-C1	3.76	113.57	101.87
3	F	502	HMG	C2P-S1P-C1	3.71	113.42	101.87
2	D	501	NAD	C2A-N3A-C4A	3.56	120.17	111.75
2	E	501	NAD	C2A-N3A-C4A	3.52	120.06	111.75
2	F	501	NAD	C5A-N7A-C8A	3.40	108.35	103.51
2	D	501	NAD	C4A-C5A-N7A	-3.32	106.57	110.62
2	E	501	NAD	C5A-N7A-C8A	3.24	108.11	103.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501	NAD	C4A-C5A-N7A	-3.22	106.69	110.62
3	F	502	HMG	C7P-C6P-C5P	3.16	117.61	112.36
2	A	501	NAD	C5A-N7A-C8A	3.11	107.93	103.51
3	B	502	HMG	C2P-S1P-C1	3.05	111.36	101.87
2	C	501	NAD	C3B-C2B-C1B	3.02	107.17	101.43
3	C	502	HMG	O3B-C3B-C2B	-3.00	100.82	111.68
2	B	501	NAD	O4D-C1D-C2D	-2.97	102.58	106.93
2	A	501	NAD	C6A-C5A-N7A	2.95	137.52	132.02
3	D	502	HMG	C7P-N8P-C9P	2.94	127.83	122.59
2	A	501	NAD	C6N-N1N-C2N	-2.90	119.33	121.97
3	A	502	HMG	C2P-S1P-C1	2.87	110.80	101.87
2	A	501	NAD	N3A-C2A-N1A	-2.82	124.19	128.60
2	C	501	NAD	C5A-N7A-C8A	2.78	107.46	103.51
2	F	501	NAD	N3A-C2A-N1A	-2.75	124.31	128.60
2	D	501	NAD	C5A-N7A-C8A	2.74	107.40	103.51
2	E	501	NAD	C3B-C2B-C1B	2.72	106.58	101.43
2	A	501	NAD	C4A-N9A-C8A	2.71	108.67	105.73
2	B	501	NAD	C5A-N7A-C8A	2.71	107.36	103.51
3	A	502	HMG	C2B-C1B-N9A	2.69	120.12	113.30
2	B	501	NAD	N3A-C2A-N1A	-2.69	124.40	128.60
3	D	502	HMG	OAP-CAP-CBP	-2.64	104.03	110.25
2	A	501	NAD	O4D-C1D-C2D	-2.59	103.13	106.93
3	A	502	HMG	CDP-CBP-CCP	2.59	112.45	108.23
2	F	501	NAD	C6A-C5A-N7A	2.57	136.81	132.02
2	B	501	NAD	C3B-C2B-C1B	2.56	106.29	101.43
2	E	501	NAD	C3D-C2D-C1D	2.56	104.83	100.98
3	B	502	HMG	C7P-C6P-C5P	2.55	116.60	112.36
3	F	502	HMG	C7P-N8P-C9P	2.54	127.12	122.59
3	E	502	HMG	C7P-C6P-C5P	-2.53	108.14	112.36
3	D	502	HMG	C2P-S1P-C1	2.52	109.72	101.87
2	C	501	NAD	C6A-C5A-N7A	2.46	136.60	132.02
2	D	501	NAD	N3A-C2A-N1A	-2.43	124.80	128.60
2	F	501	NAD	C4A-N9A-C8A	2.40	108.33	105.73
3	A	502	HMG	C7P-N8P-C9P	2.38	126.84	122.59
3	B	502	HMG	O9A-P3B-O8A	2.37	116.71	107.64
2	A	501	NAD	C3D-C2D-C1D	2.36	104.53	100.98
2	E	501	NAD	N3A-C2A-N1A	-2.35	124.93	128.60
2	D	501	NAD	C3N-C7N-N7N	2.33	120.54	117.75
2	D	501	NAD	C3B-C2B-C1B	2.32	105.84	101.43
2	C	501	NAD	C3D-C2D-C1D	2.31	104.45	100.98
3	E	502	HMG	C2P-S1P-C1	2.30	109.02	101.87
3	E	502	HMG	C2B-C1B-N9A	2.29	119.10	113.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	502	HMG	C3P-N4P-C5P	2.26	127.03	122.84
3	E	502	HMG	C7P-N8P-C9P	2.24	126.58	122.59
2	D	501	NAD	C4A-N9A-C8A	2.16	108.07	105.73
2	B	501	NAD	C6A-C5A-N7A	2.15	136.03	132.02
2	C	501	NAD	O4D-C1D-C2D	-2.15	103.78	106.93
2	A	501	NAD	C3B-C2B-C1B	2.14	105.50	101.43
3	A	502	HMG	O9A-P3B-O8A	2.13	115.79	107.64
2	E	501	NAD	C6A-C5A-N7A	2.11	135.96	132.02
2	F	501	NAD	N9A-C8A-N7A	-2.11	111.03	113.91
2	A	501	NAD	N9A-C8A-N7A	-2.11	111.03	113.91
3	D	502	HMG	CDP-CBP-CCP	-2.10	104.80	108.23
2	F	501	NAD	C3B-C2B-C1B	2.09	105.40	101.43
3	D	502	HMG	C2B-C1B-N9A	2.08	118.57	113.30
3	D	502	HMG	O3-C5-C4	-2.06	116.93	122.94
2	D	501	NAD	O4D-C1D-C2D	-2.05	103.93	106.93
3	B	502	HMG	CDP-CBP-CCP	2.03	111.55	108.23
2	A	501	NAD	O7N-C7N-C3N	2.02	122.05	119.63
2	B	501	NAD	C6N-N1N-C2N	-2.00	120.15	121.97

There are no chirality outliers.

All (200) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	NAD	C5B-O5B-PA-O2A
2	A	501	NAD	C5B-O5B-PA-O3
2	A	501	NAD	C5D-O5D-PN-O1N
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	C5B-O5B-PA-O3
2	B	501	NAD	PA-O3-PN-O5D
2	B	501	NAD	C5D-O5D-PN-O1N
2	B	501	NAD	C5D-O5D-PN-O2N
2	B	501	NAD	C3D-C4D-C5D-O5D
2	B	501	NAD	O4D-C1D-N1N-C2N
2	B	501	NAD	O4D-C1D-N1N-C6N
2	B	501	NAD	C2D-C1D-N1N-C6N
2	C	501	NAD	PN-O3-PA-O5B
2	C	501	NAD	C5D-O5D-PN-O1N
2	C	501	NAD	O4D-C1D-N1N-C2N
2	C	501	NAD	O4D-C1D-N1N-C6N

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Mol	Chain	Res	Type	Atoms
2	C	501	NAD	C2D-C1D-N1N-C6N
2	D	501	NAD	C5B-O5B-PA-O3
2	D	501	NAD	C5D-O5D-PN-O1N
2	D	501	NAD	O4D-C1D-N1N-C2N
2	D	501	NAD	O4D-C1D-N1N-C6N
2	D	501	NAD	C2D-C1D-N1N-C6N
2	E	501	NAD	C5B-O5B-PA-O1A
2	E	501	NAD	C5B-O5B-PA-O2A
2	E	501	NAD	C5B-O5B-PA-O3
2	E	501	NAD	C5D-O5D-PN-O1N
2	E	501	NAD	C5D-O5D-PN-O2N
2	E	501	NAD	O4D-C1D-N1N-C2N
2	E	501	NAD	O4D-C1D-N1N-C6N
2	E	501	NAD	C2D-C1D-N1N-C6N
2	F	501	NAD	C5D-O5D-PN-O1N
2	F	501	NAD	O4D-C1D-N1N-C6N
2	F	501	NAD	C2D-C1D-N1N-C6N
3	A	502	HMG	CAP-C9P-N8P-C7P
3	A	502	HMG	O5P-C5P-C6P-C7P
3	A	502	HMG	O2-C1-S1P-C2P
3	A	502	HMG	C2-C1-S1P-C2P
3	B	502	HMG	O4B-C4B-C5B-O5B
3	B	502	HMG	C3B-C4B-C5B-O5B
3	B	502	HMG	OAP-CAP-CBP-CCP
3	B	502	HMG	C9P-CAP-CBP-CCP
3	B	502	HMG	OAP-CAP-CBP-CDP
3	B	502	HMG	C9P-CAP-CBP-CDP
3	B	502	HMG	OAP-CAP-CBP-CEP
3	B	502	HMG	C9P-CAP-CBP-CEP
3	B	502	HMG	O2-C1-S1P-C2P
3	B	502	HMG	C2-C1-S1P-C2P
3	C	502	HMG	CCP-O6A-P2A-O4A
3	C	502	HMG	CCP-O6A-P2A-O3A
3	C	502	HMG	CBP-CCP-O6A-P2A
3	C	502	HMG	O4B-C4B-C5B-O5B
3	C	502	HMG	C3B-C4B-C5B-O5B
3	C	502	HMG	N8P-C9P-CAP-OAP
3	C	502	HMG	C5P-C6P-C7P-N8P
3	D	502	HMG	C3B-C4B-C5B-O5B
3	D	502	HMG	CAP-C9P-N8P-C7P
3	D	502	HMG	C2-C1-S1P-C2P
3	E	502	HMG	C3B-C4B-C5B-O5B

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Mol	Chain	Res	Type	Atoms
3	E	502	HMG	C3B-O3B-P3B-O9A
3	E	502	HMG	CAP-C9P-N8P-C7P
3	E	502	HMG	O5P-C5P-C6P-C7P
3	E	502	HMG	N4P-C5P-C6P-C7P
3	F	502	HMG	CAP-C9P-N8P-C7P
3	F	502	HMG	O5P-C5P-C6P-C7P
3	E	502	HMG	O9P-C9P-N8P-C7P
2	A	501	NAD	O4B-C4B-C5B-O5B
2	A	501	NAD	C3B-C4B-C5B-O5B
2	C	501	NAD	O4B-C4B-C5B-O5B
2	D	501	NAD	O4B-C4B-C5B-O5B
2	D	501	NAD	C3B-C4B-C5B-O5B
2	E	501	NAD	O4B-C4B-C5B-O5B
2	E	501	NAD	C3B-C4B-C5B-O5B
2	E	501	NAD	C3D-C4D-C5D-O5D
2	F	501	NAD	O4B-C4B-C5B-O5B
3	A	502	HMG	C3B-C4B-C5B-O5B
3	D	502	HMG	O4B-C4B-C5B-O5B
3	E	502	HMG	O4B-C4B-C5B-O5B
3	A	502	HMG	O9P-C9P-N8P-C7P
3	D	502	HMG	O9P-C9P-N8P-C7P
3	F	502	HMG	O9P-C9P-N8P-C7P
3	A	502	HMG	N4P-C5P-C6P-C7P
3	F	502	HMG	N4P-C5P-C6P-C7P
3	A	502	HMG	O4B-C4B-C5B-O5B
3	D	502	HMG	C4B-C3B-O3B-P3B
3	E	502	HMG	C2B-C3B-O3B-P3B
3	F	502	HMG	C4B-C3B-O3B-P3B
3	F	502	HMG	C2B-C3B-O3B-P3B
3	C	502	HMG	C2B-C3B-O3B-P3B
3	D	502	HMG	C2B-C3B-O3B-P3B
3	E	502	HMG	C4B-C3B-O3B-P3B
2	B	501	NAD	C3B-C4B-C5B-O5B
2	C	501	NAD	C3B-C4B-C5B-O5B
2	F	501	NAD	C3B-C4B-C5B-O5B
3	B	502	HMG	C5P-C6P-C7P-N8P
2	B	501	NAD	O4D-C4D-C5D-O5D
3	C	502	HMG	O5P-C5P-C6P-C7P
3	F	502	HMG	C3-C4-C5-O4
3	C	502	HMG	O9P-C9P-CAP-OAP
2	A	501	NAD	C3D-C4D-C5D-O5D
3	F	502	HMG	C3-C4-C5-O3

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Mol	Chain	Res	Type	Atoms
3	A	502	HMG	O9P-C9P-CAP-CBP
3	E	502	HMG	O9P-C9P-CAP-CBP
3	B	502	HMG	C3-C4-C5-O3
3	D	502	HMG	C3-C4-C5-O3
3	D	502	HMG	N8P-C9P-CAP-CBP
3	B	502	HMG	C3-C4-C5-O4
3	D	502	HMG	C3-C4-C5-O4
3	C	502	HMG	C4B-C3B-O3B-P3B
3	C	502	HMG	O2-C1-S1P-C2P
3	D	502	HMG	O2-C1-S1P-C2P
3	E	502	HMG	O2-C1-S1P-C2P
3	F	502	HMG	O2-C1-S1P-C2P
3	A	502	HMG	P1A-O3A-P2A-O6A
3	E	502	HMG	P1A-O3A-P2A-O6A
2	E	501	NAD	O4D-C4D-C5D-O5D
3	F	502	HMG	N8P-C9P-CAP-OAP
3	C	502	HMG	C2-C1-S1P-C2P
3	E	502	HMG	C2-C1-S1P-C2P
3	F	502	HMG	C2-C1-S1P-C2P
2	A	501	NAD	C5D-O5D-PN-O3
2	C	501	NAD	C5D-O5D-PN-O3
2	F	501	NAD	C5D-O5D-PN-O3
2	D	501	NAD	C2B-C1B-N9A-C4A
3	B	502	HMG	C1-C2-C3-C4
2	A	501	NAD	C5B-O5B-PA-O1A
2	A	501	NAD	C5D-O5D-PN-O2N
2	B	501	NAD	C5B-O5B-PA-O1A
2	B	501	NAD	C5B-O5B-PA-O2A
2	C	501	NAD	C5D-O5D-PN-O2N
2	F	501	NAD	C5D-O5D-PN-O2N
3	C	502	HMG	C5B-O5B-P1A-O2A
3	D	502	HMG	O5P-C5P-C6P-C7P
3	A	502	HMG	C1-C2-C3-O7
3	B	502	HMG	C1-C2-C3-O7
3	D	502	HMG	C1-C2-C3-O7
3	E	502	HMG	C1-C2-C3-O7
3	D	502	HMG	N4P-C5P-C6P-C7P
3	C	502	HMG	CAP-CBP-CCP-O6A
3	A	502	HMG	C3-C4-C5-O4
2	B	501	NAD	O4B-C4B-C5B-O5B
3	C	502	HMG	CEP-CBP-CCP-O6A
2	B	501	NAD	C2B-C1B-N9A-C4A

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Mol	Chain	Res	Type	Atoms
3	C	502	HMG	N4P-C5P-C6P-C7P
2	B	501	NAD	C2B-C1B-N9A-C8A
2	D	501	NAD	C2B-C1B-N9A-C8A
3	D	502	HMG	OAP-CAP-CBP-CEP
3	A	502	HMG	C3-C4-C5-O3
3	D	502	HMG	O9P-C9P-CAP-CBP
3	F	502	HMG	O9P-C9P-CAP-CBP
3	A	502	HMG	CDP-CBP-CCP-O6A
3	C	502	HMG	CDP-CBP-CCP-O6A
3	F	502	HMG	CDP-CBP-CCP-O6A
3	E	502	HMG	C3-C4-C5-O4
2	E	501	NAD	C2B-C1B-N9A-C8A
3	A	502	HMG	N8P-C9P-CAP-CBP
3	E	502	HMG	N8P-C9P-CAP-CBP
3	F	502	HMG	N8P-C9P-CAP-CBP
3	B	502	HMG	C1-C2-C3-C6
3	A	502	HMG	C1-C2-C3-C4
3	D	502	HMG	C1-C2-C3-C4
3	E	502	HMG	C1-C2-C3-C4
2	A	501	NAD	O4B-C1B-N9A-C8A
2	D	501	NAD	O4B-C1B-N9A-C8A
2	F	501	NAD	O4B-C1B-N9A-C8A
3	E	502	HMG	C3-C4-C5-O3
3	D	502	HMG	P2A-O3A-P1A-O1A
3	C	502	HMG	C3-C4-C5-O3
2	B	501	NAD	O4B-C1B-N9A-C8A
2	A	501	NAD	C2B-C1B-N9A-C8A
2	C	501	NAD	C2B-C1B-N9A-C8A
3	E	502	HMG	C2B-C1B-N9A-C8A
3	B	502	HMG	C3B-O3B-P3B-O7A
2	C	501	NAD	C2B-C1B-N9A-C4A
2	E	501	NAD	C2B-C1B-N9A-C4A
3	C	502	HMG	C3-C4-C5-O4
2	C	501	NAD	O4B-C1B-N9A-C8A
2	E	501	NAD	O4B-C1B-N9A-C8A
2	F	501	NAD	C2B-C1B-N9A-C8A
3	B	502	HMG	O5P-C5P-C6P-C7P
2	B	501	NAD	C5D-O5D-PN-O3
2	B	501	NAD	C2D-C1D-N1N-C2N
2	C	501	NAD	C2D-C1D-N1N-C2N
2	D	501	NAD	C2D-C1D-N1N-C2N
2	E	501	NAD	C5D-O5D-PN-O3

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Mol	Chain	Res	Type	Atoms
2	E	501	NAD	C2D-C1D-N1N-C2N
2	F	501	NAD	C2D-C1D-N1N-C2N
3	A	502	HMG	C5B-O5B-P1A-O3A
3	C	502	HMG	C5B-O5B-P1A-O3A
3	F	502	HMG	C1-C2-C3-C4
3	A	502	HMG	C2B-C1B-N9A-C8A
3	D	502	HMG	C2B-C1B-N9A-C8A
2	D	501	NAD	C5D-O5D-PN-O2N
3	A	502	HMG	C5B-O5B-P1A-O2A
3	F	502	HMG	C5B-O5B-P1A-O1A
3	C	502	HMG	S1P-C2P-C3P-N4P
2	A	501	NAD	C2B-C1B-N9A-C4A
3	B	502	HMG	N4P-C5P-C6P-C7P

There are no ring outliers.

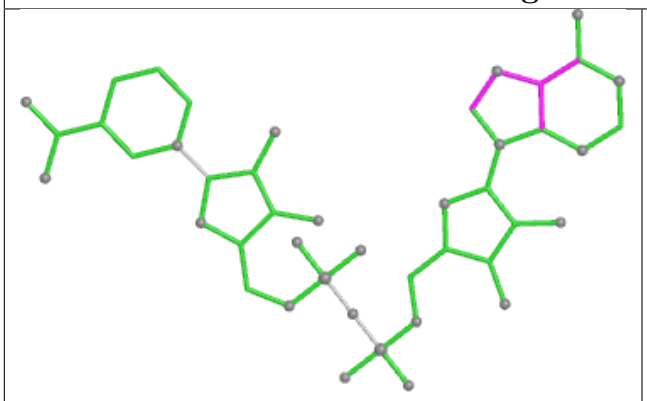
12 monomers are involved in 38 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	501	NAD	4	0
3	A	502	HMG	9	0
3	D	502	HMG	3	0
3	F	502	HMG	3	0
2	C	501	NAD	2	0
2	E	501	NAD	2	0
2	D	501	NAD	2	0
3	E	502	HMG	3	0
2	F	501	NAD	2	0
3	B	502	HMG	3	0
2	A	501	NAD	1	0
3	C	502	HMG	4	0

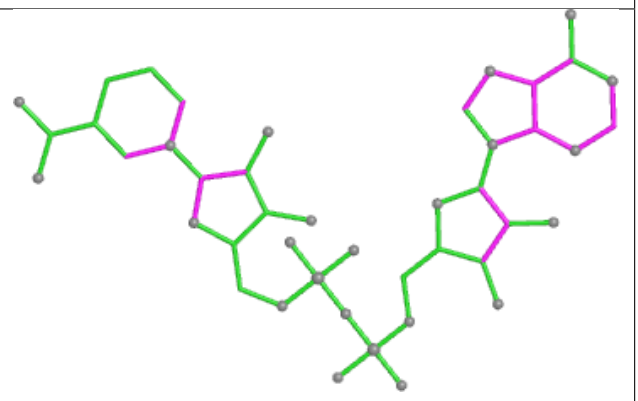
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

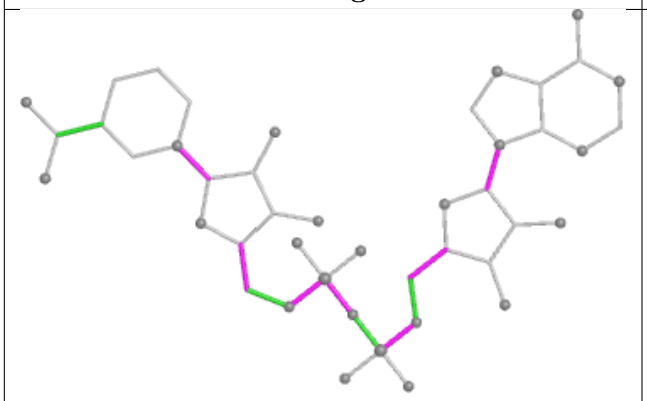
Ligand NAD B 501



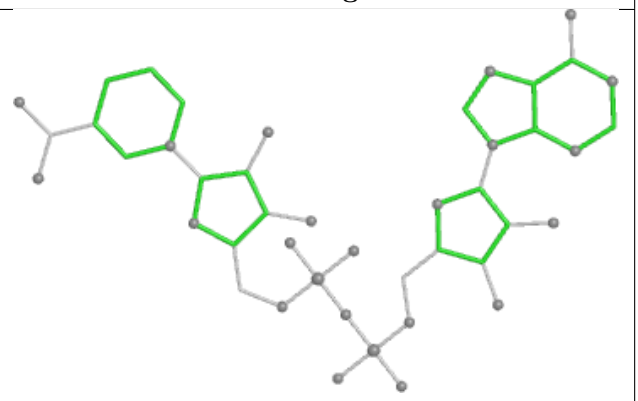
Bond lengths



Bond angles

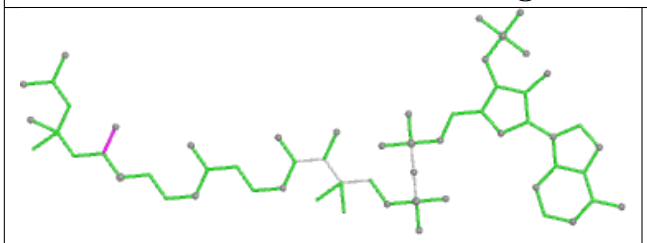


Torsions



Rings

Ligand HMG A 502



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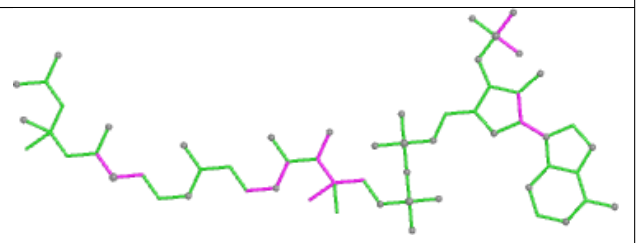
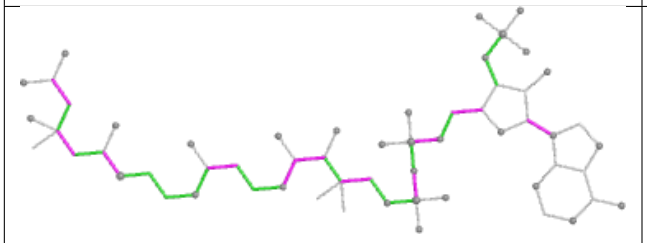


Bond angles



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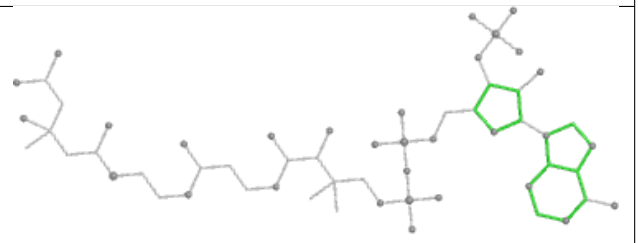
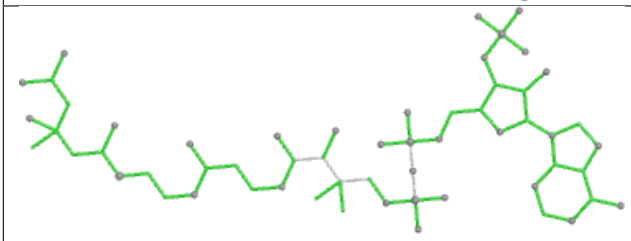


Rings

Ligand HMG D 502



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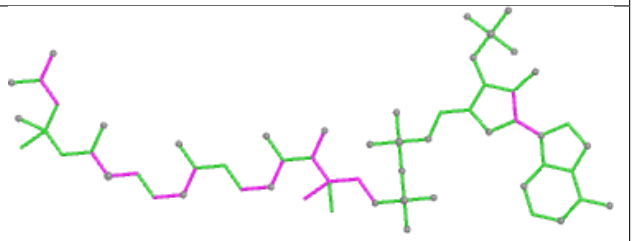
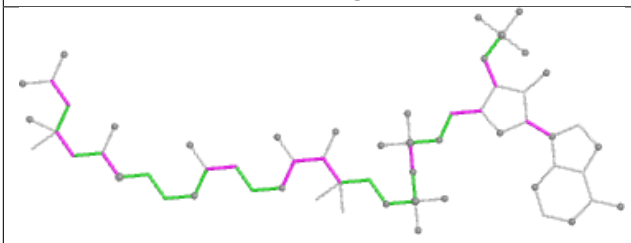


Bond angles



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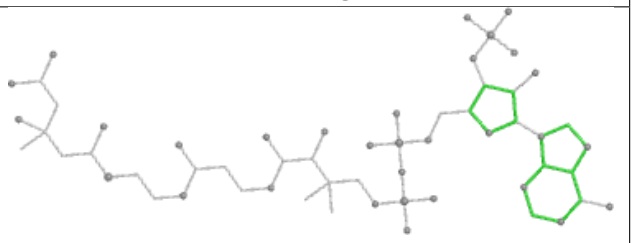
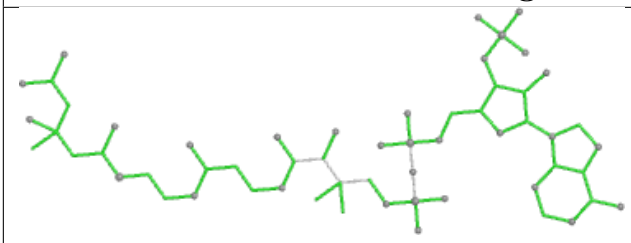


Rings

Ligand HMG F 502



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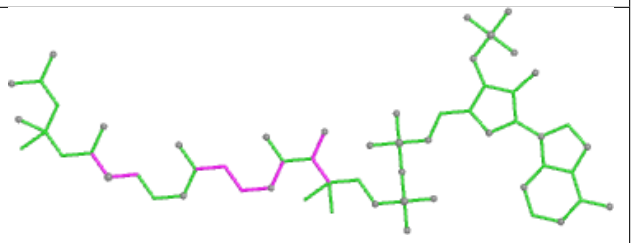
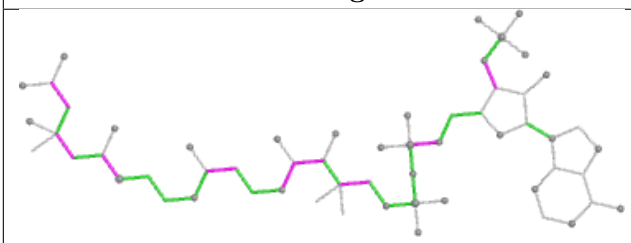
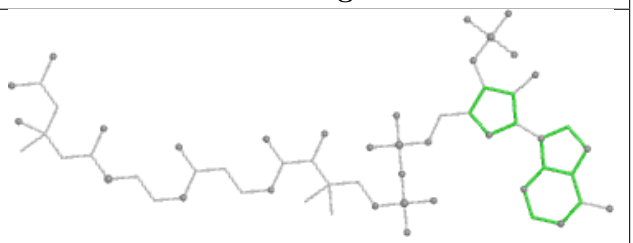


Bond angles

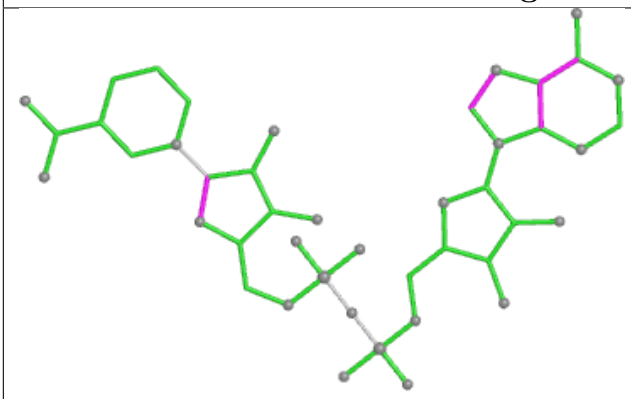


Torsions



Rings

Ligand NAD C 501



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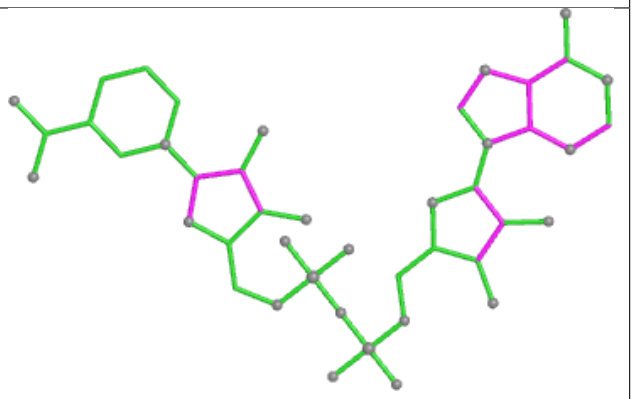

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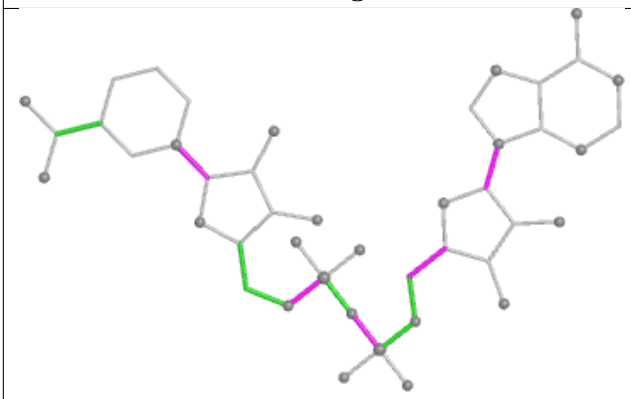

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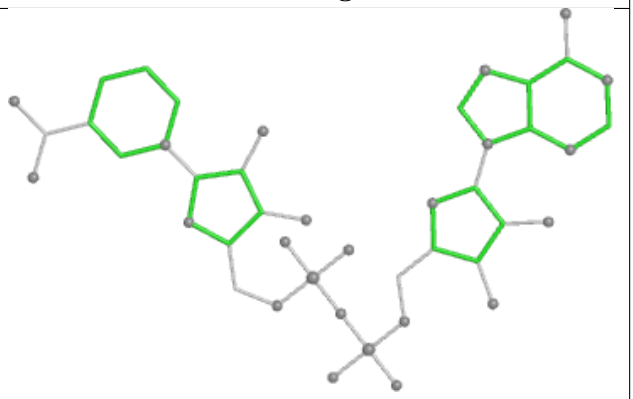

Rings

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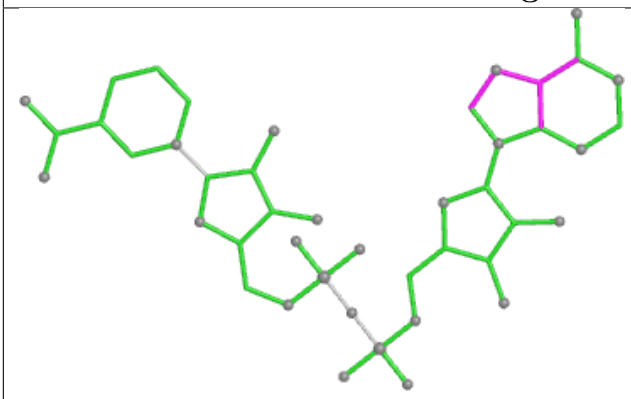

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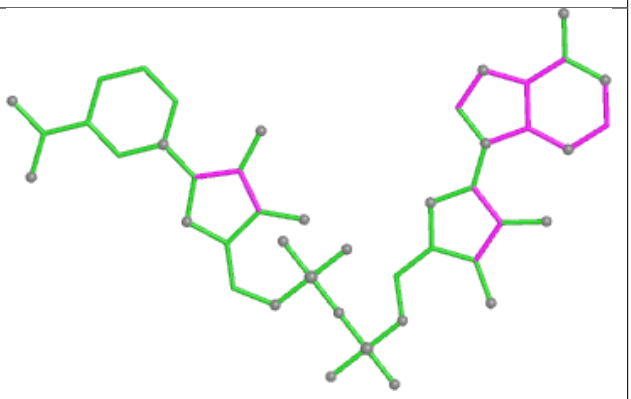
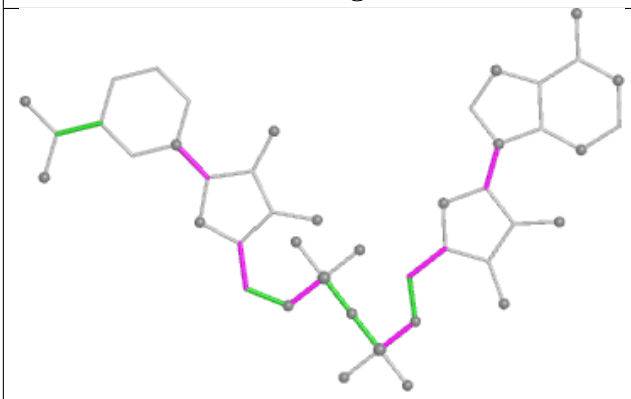


Bond angles



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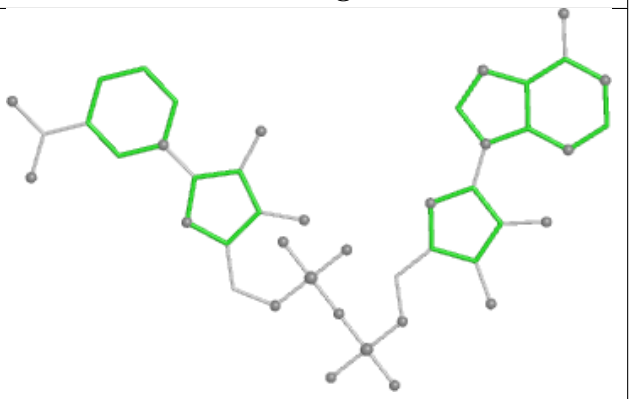

Rings

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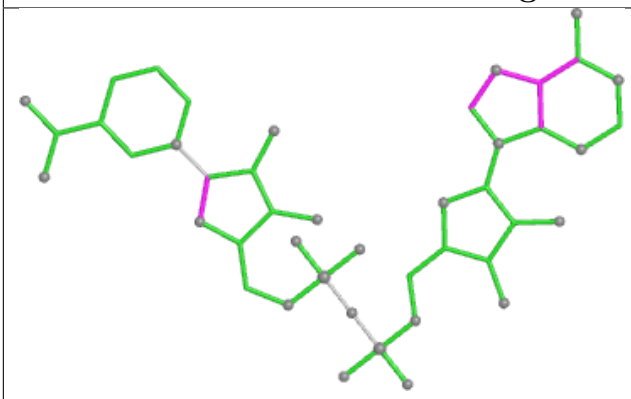

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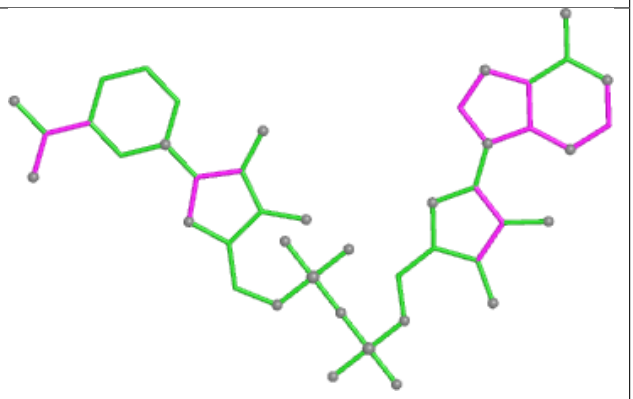

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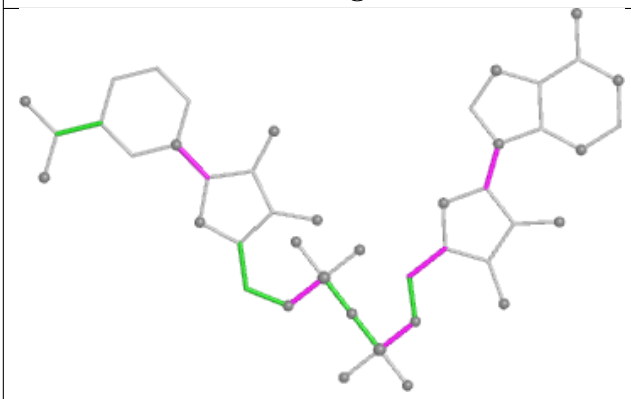

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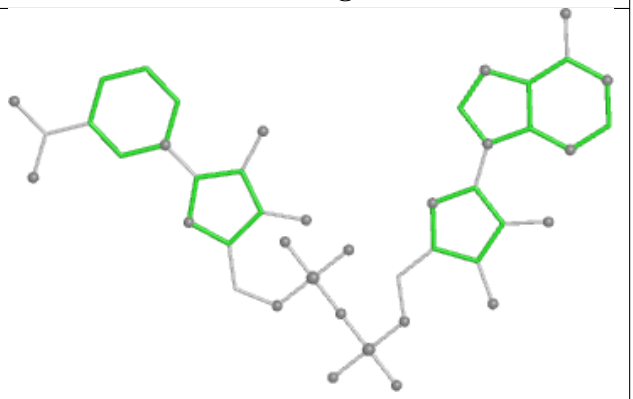
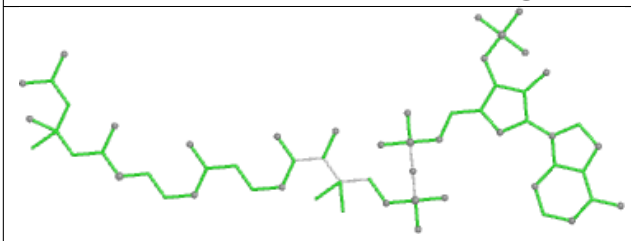


Rings

Ligand HMG E 502



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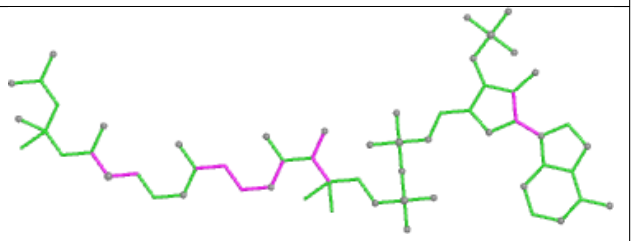

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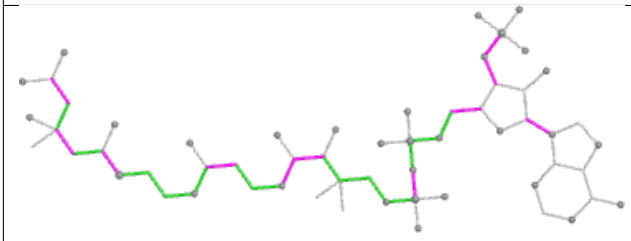

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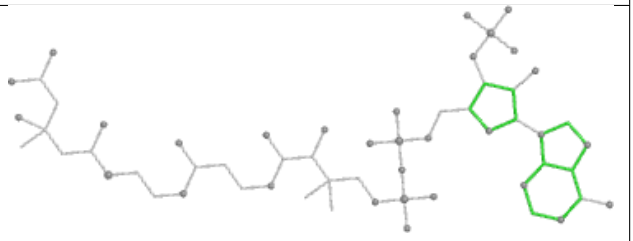
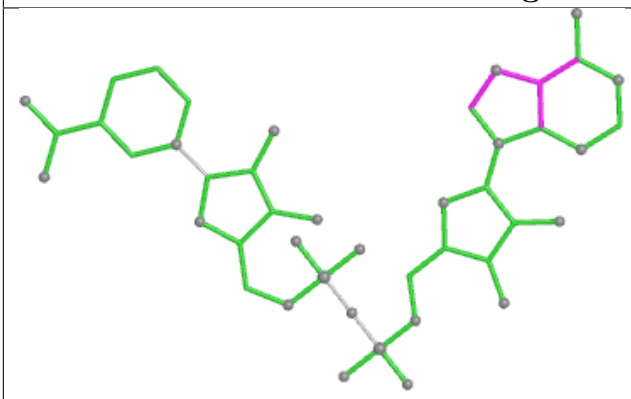


Rings

Ligand NAD F 501



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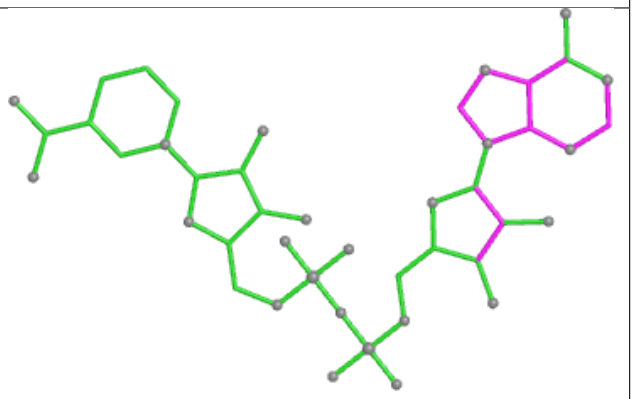

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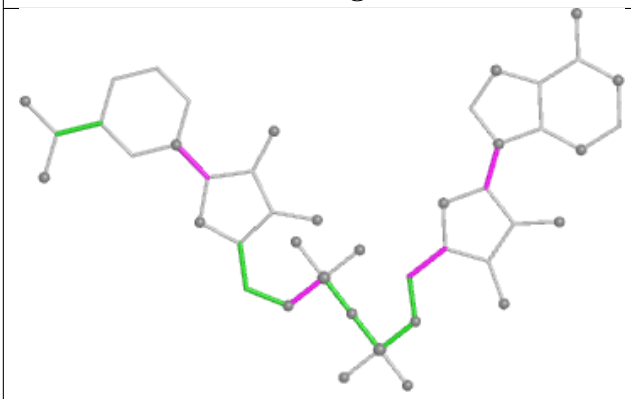

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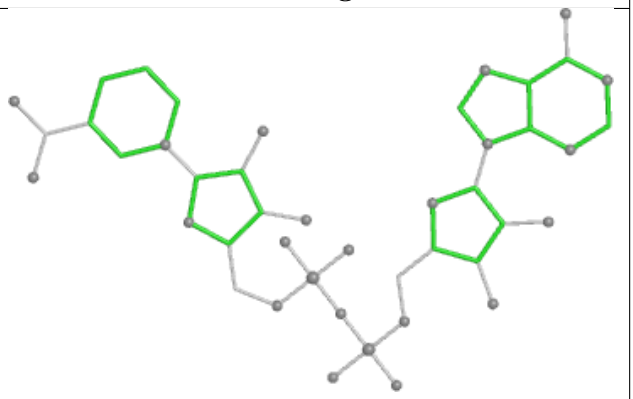
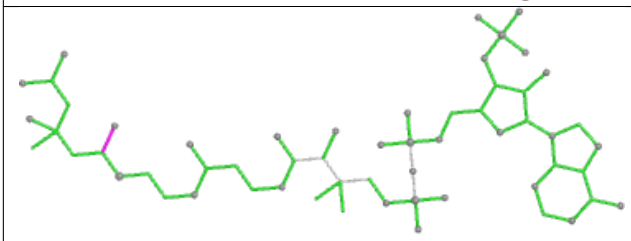


Rings

Ligand HMG B 502



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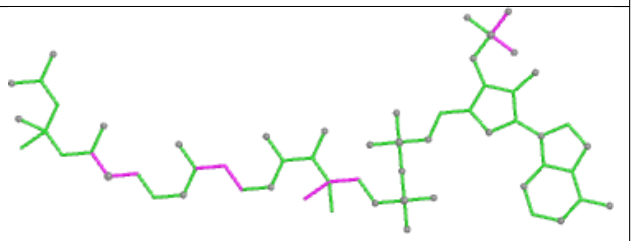
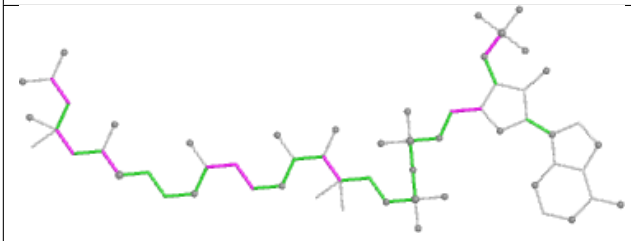
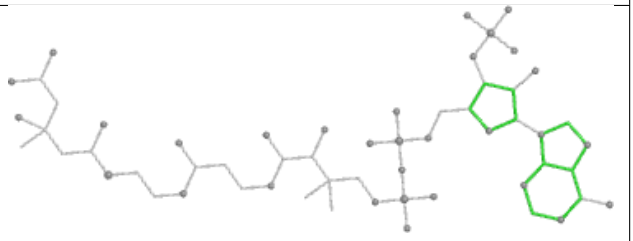


Bond angles

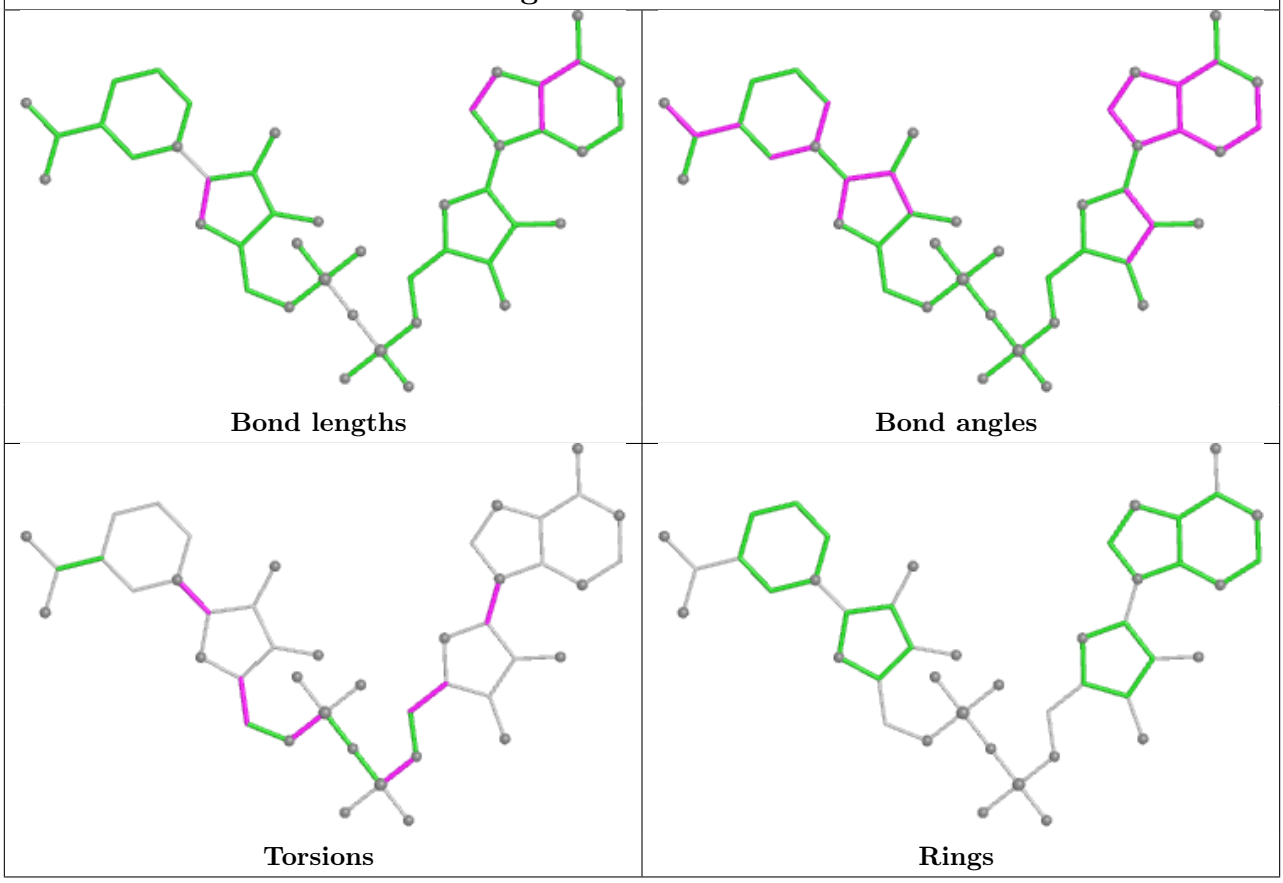


Torsions

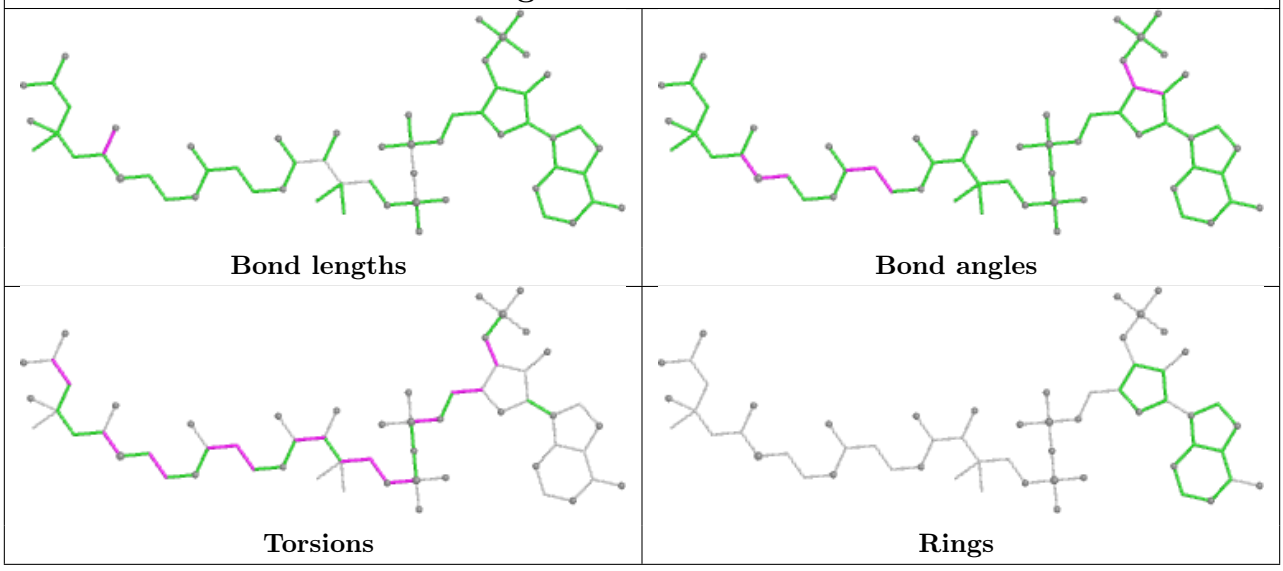


Rings

Ligand NAD A 501



Ligand HMG C 502



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	389/423 (91%)	-0.37	3 (0%)	82	80	29, 46, 85, 119	0
1	B	389/423 (91%)	-0.21	3 (0%)	82	80	30, 53, 100, 122	0
1	C	389/423 (91%)	-0.31	4 (1%)	79	76	33, 51, 94, 145	0
1	D	389/423 (91%)	-0.13	4 (1%)	79	76	42, 61, 102, 141	0
1	E	389/423 (91%)	-0.01	14 (3%)	46	40	33, 64, 124, 165	0
1	F	389/423 (91%)	-0.09	2 (0%)	87	85	42, 64, 97, 130	0
All	All	2334/2538 (91%)	-0.19	30 (1%)	75	72	29, 57, 104, 165	0

All (30) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	400	ILE	3.7
1	E	37	LEU	3.6
1	D	16	ILE	3.5
1	E	390	HIS	3.5
1	E	381	LEU	3.2
1	B	246	GLN	3.1
1	E	398	ILE	3.1
1	C	390	HIS	2.9
1	C	394	HIS	2.8
1	B	12	LEU	2.7
1	A	398	ILE	2.7
1	E	247	GLY	2.7
1	E	395	ALA	2.6
1	E	393	LEU	2.6
1	E	386	ILE	2.6
1	E	392	THR	2.5
1	F	400	ILE	2.5
1	D	12	LEU	2.5
1	A	12	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	C	398	ILE	2.4
1	E	399	ALA	2.3
1	E	248	TYR	2.2
1	A	397	ASN	2.2
1	C	396	ARG	2.2
1	D	74	ALA	2.2
1	E	12	LEU	2.2
1	F	398	ILE	2.2
1	D	393	LEU	2.2
1	E	42	ILE	2.1
1	E	19	MET	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)

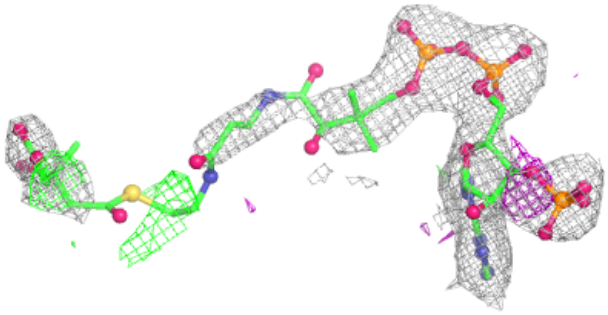
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

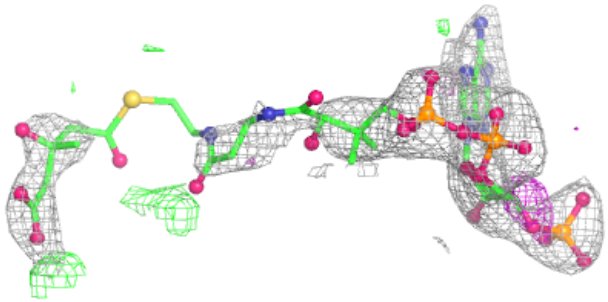
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	HMG	E	502	58/58	0.81	0.15	57,95,140,144	0
3	HMG	B	502	58/58	0.87	0.13	41,74,96,135	0
3	HMG	D	502	58/58	0.88	0.12	60,79,95,133	0
3	HMG	C	502	58/58	0.88	0.13	54,75,97,111	0
2	NAD	A	501	44/44	0.90	0.11	47,59,81,93	0
3	HMG	A	502	58/58	0.90	0.11	43,72,86,113	0
2	NAD	F	501	44/44	0.91	0.09	60,76,80,88	0
2	NAD	E	501	44/44	0.91	0.10	55,71,77,81	0
3	HMG	F	502	58/58	0.91	0.12	61,81,110,132	0
2	NAD	D	501	44/44	0.93	0.09	61,69,72,73	0
2	NAD	C	501	44/44	0.94	0.08	49,56,69,74	0
2	NAD	B	501	44/44	0.94	0.07	46,58,66,67	0

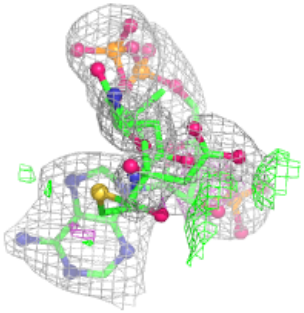
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around HMG E 502:

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

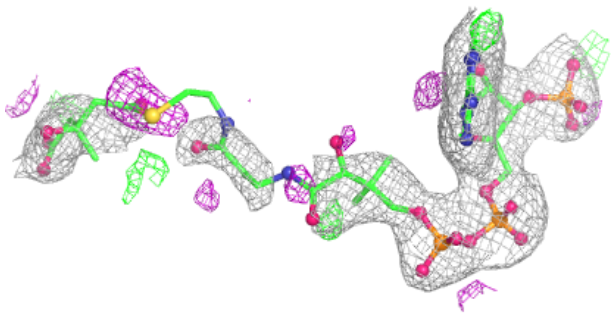


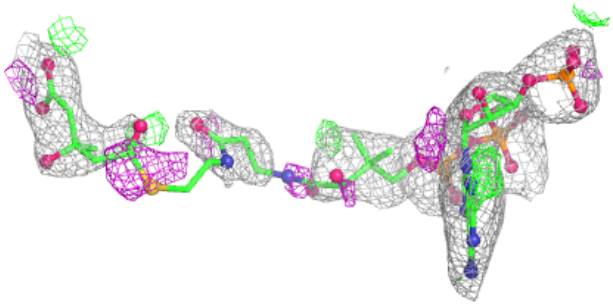


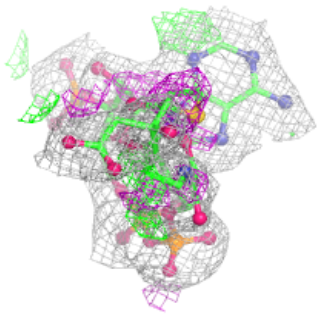


Electron density around HMG B 502:

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

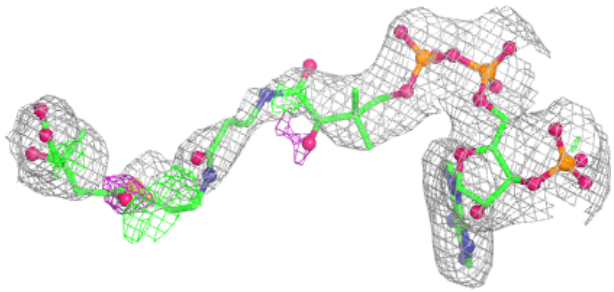


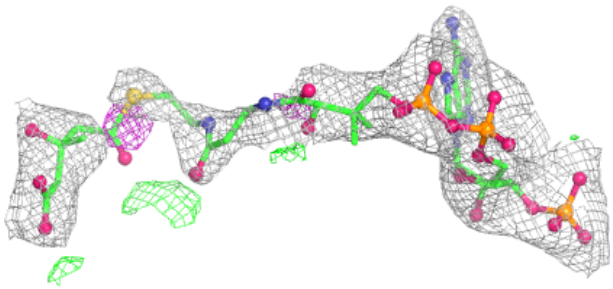


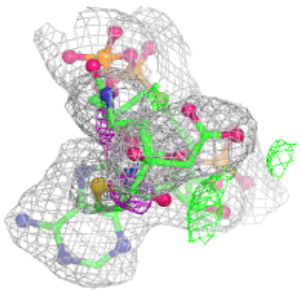


Electron density around HMG D 502:

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

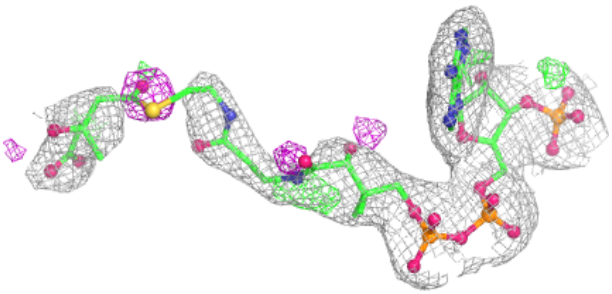


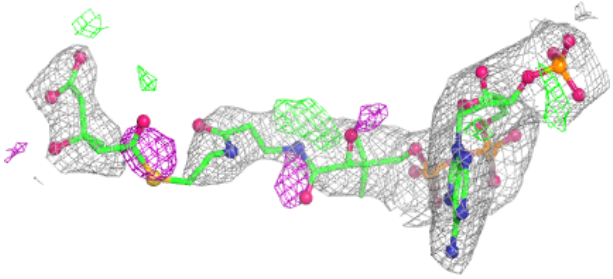


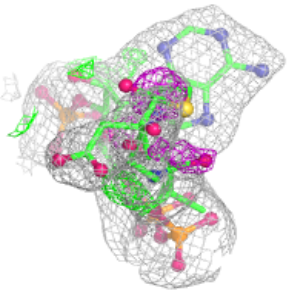


Electron density around HMG C 502:

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

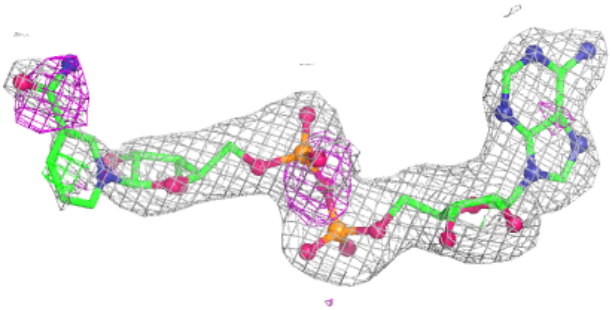


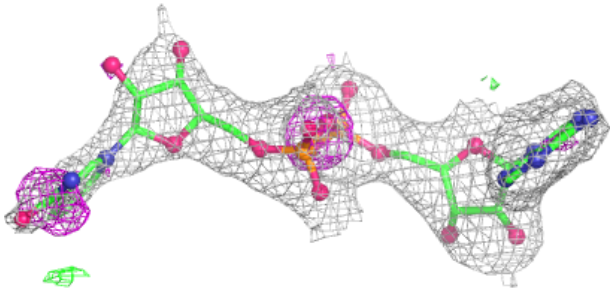


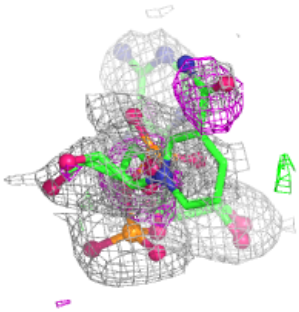


Electron density around NAD A 501:

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

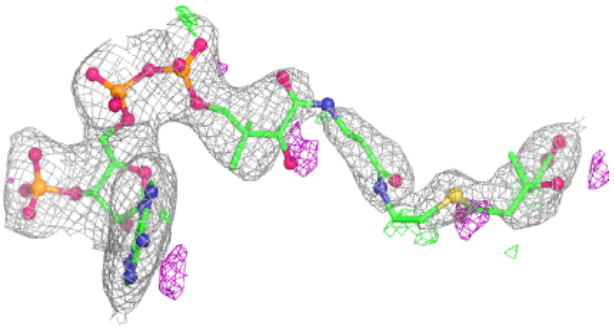


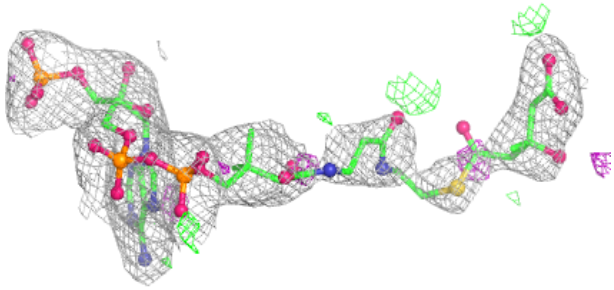


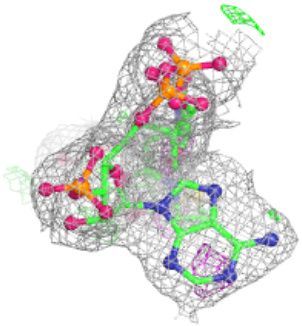


Electron density around HMG A 502:

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

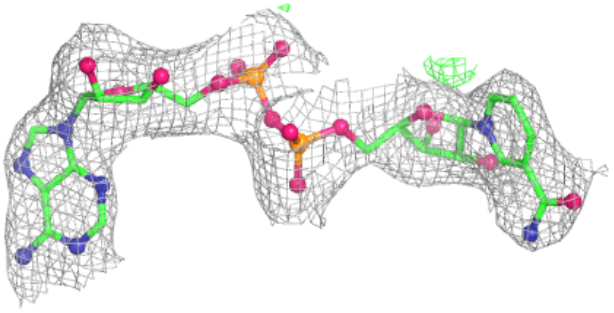


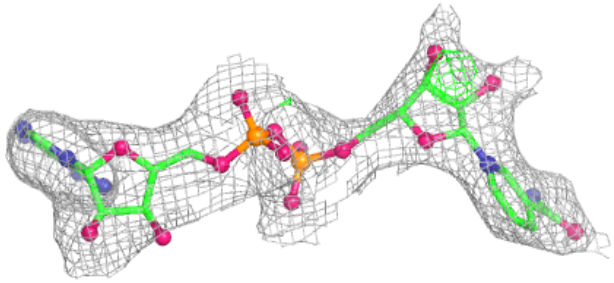


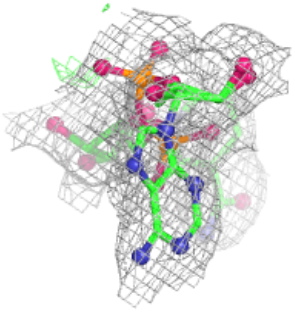


Electron density around NAD F 501:

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

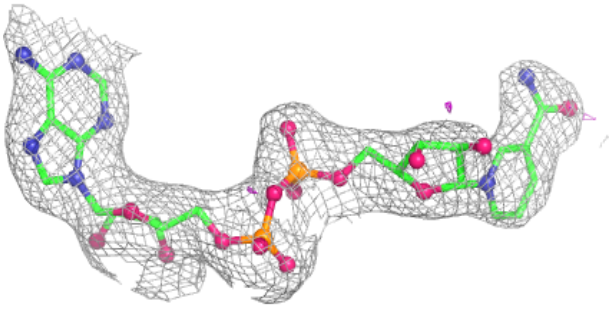


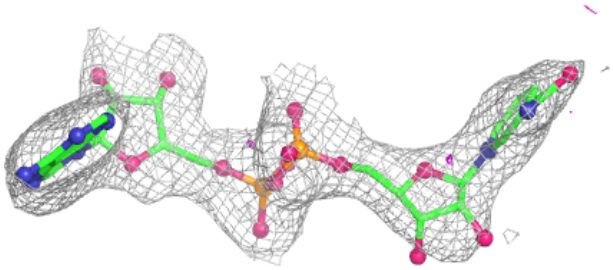


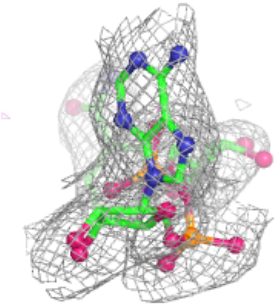


Electron density around NAD E 501:

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

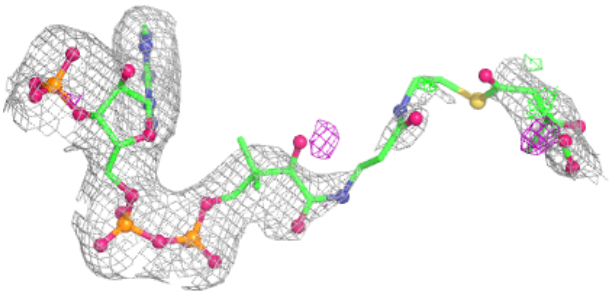


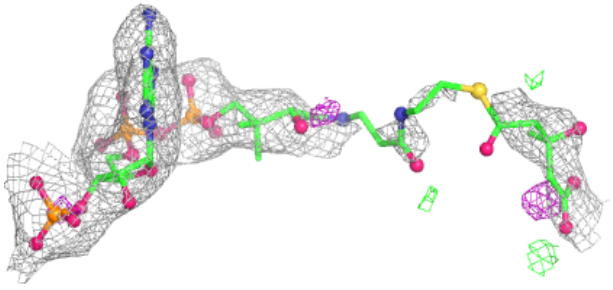


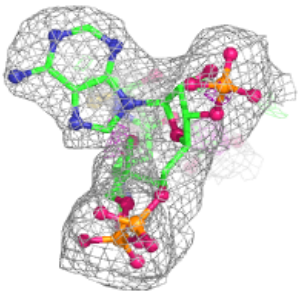


Electron density around HMG F 502:

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

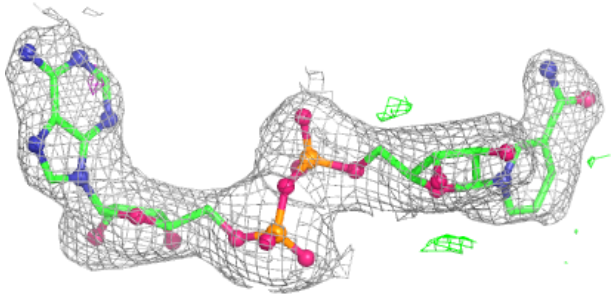


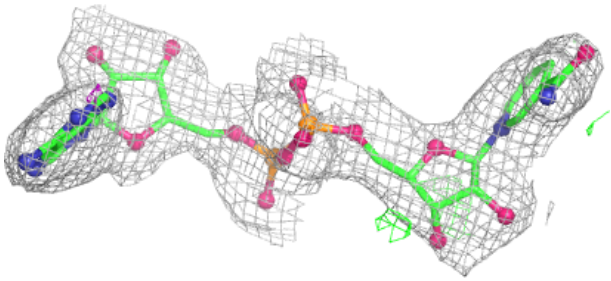


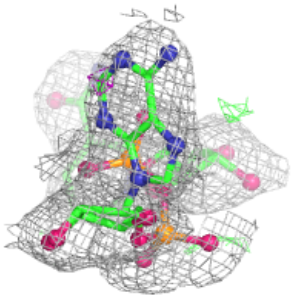


Electron density around NAD D 501:

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

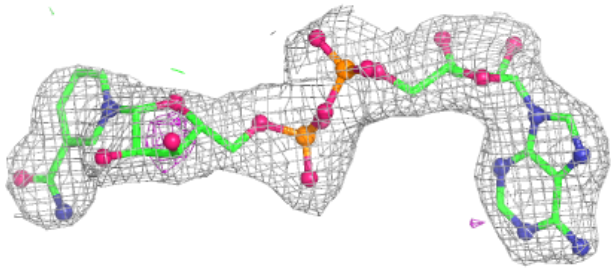


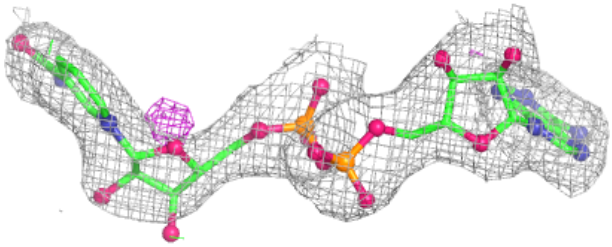


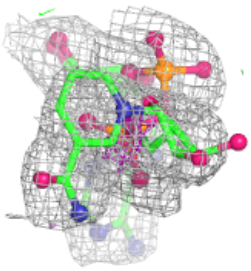


Electron density around NAD C 501:

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

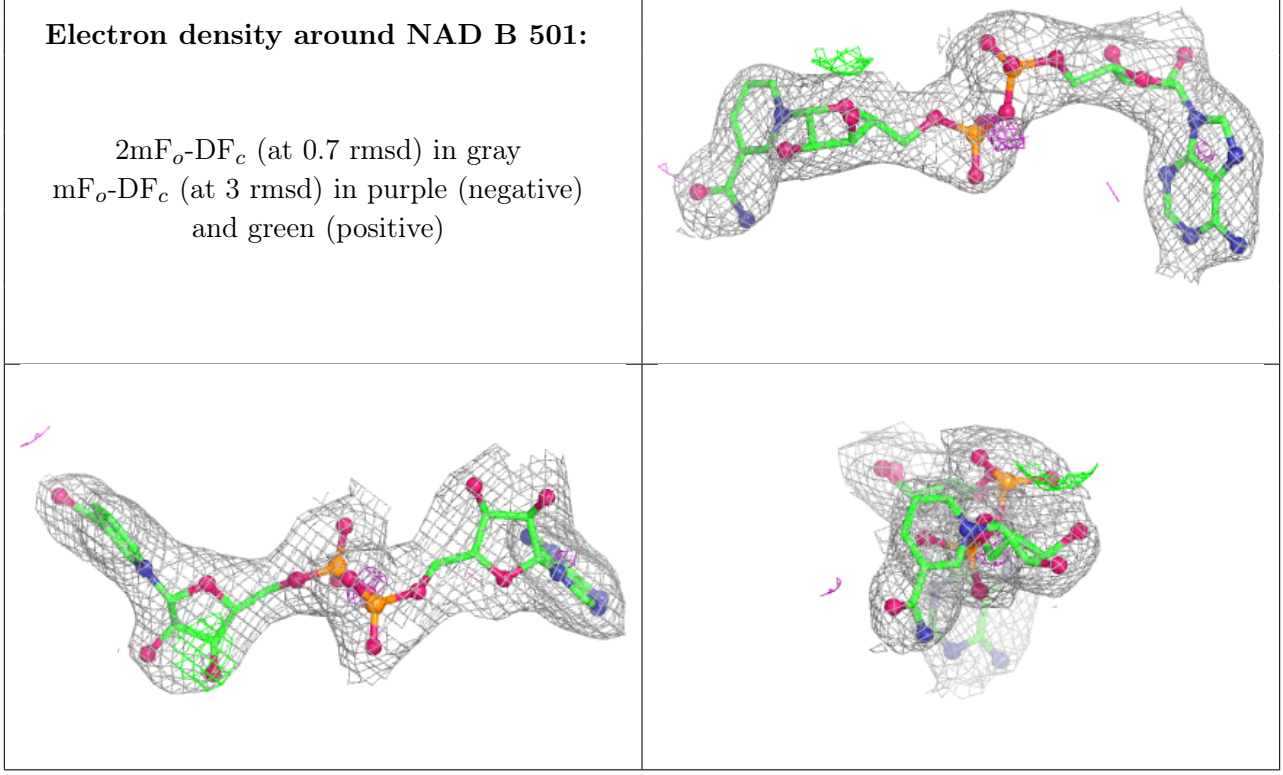






Electron density around NAD B 501:

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



6.5 Other polymers (i)

There are no such residues in this entry.