



wwPDB X-ray Structure Validation Summary Report

Mar 9, 2026 – 01:42 AM UTC

PDB ID : 1FDV / pdb_00001fdv
Title : HUMAN 17-BETA-HYDROXYSTEROID-DEHYDROGENASE TYPE 1
MUTANT H221L COMPLEXED WITH NAD⁺
Authors : Mazza, C.; Breton, R.; Housset, D.; Fontecilla-Camps, J.-C.
Deposited on : 1998-01-15
Resolution : 3.10 Å (reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the  symbol.

The types of validation reports are described at

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

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

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

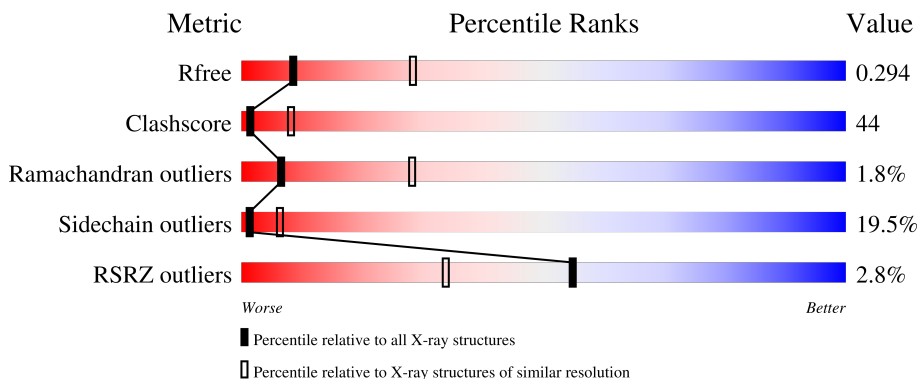
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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	1456 (3.10-3.10)
Clashscore	190562	1539 (3.10-3.10)
Ramachandran outliers	187476	1467 (3.10-3.10)
Sidechain outliers	187428	1467 (3.10-3.10)
RSRZ outliers	180081	1456 (3.10-3.10)

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

Mol	Chain	Length	Quality of chain
1	A	327	
1	B	327	
1	C	327	
1	D	327	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NAD	A	361	X	-	-	-
3	NAD	B	364	X	-	-	-

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 8812 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 17-BETA-HYDROXYSTEROID DEHYDROGENASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	285	2179	1384	384	399	12	0	0	0
1	B	275	2104	1334	373	386	11	0	0	0
1	C	285	2179	1384	384	399	12	0	0	0
1	D	275	2104	1334	373	386	11	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

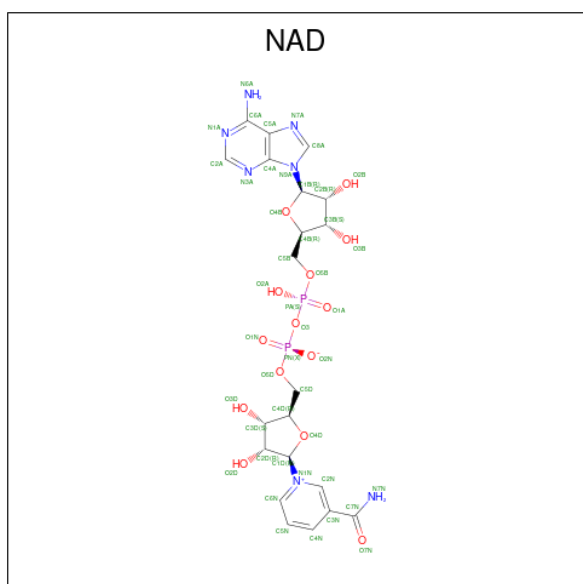
Chain	Residue	Modelled	Actual	Comment	Reference
A	221	LEU	HIS	engineered mutation	UNP P14061
A	301	ARG	ALA	conflict	UNP P14061
B	221	LEU	HIS	engineered mutation	UNP P14061
B	301	ARG	ALA	conflict	UNP P14061
C	221	LEU	HIS	engineered mutation	UNP P14061
C	301	ARG	ALA	conflict	UNP P14061
D	221	LEU	HIS	engineered mutation	UNP P14061
D	301	ARG	ALA	conflict	UNP P14061

- Molecule 2 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



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

- Molecule 3 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (CCD ID: NAD) (formula: $C_{21}H_{27}N_7O_{14}P_2$).



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

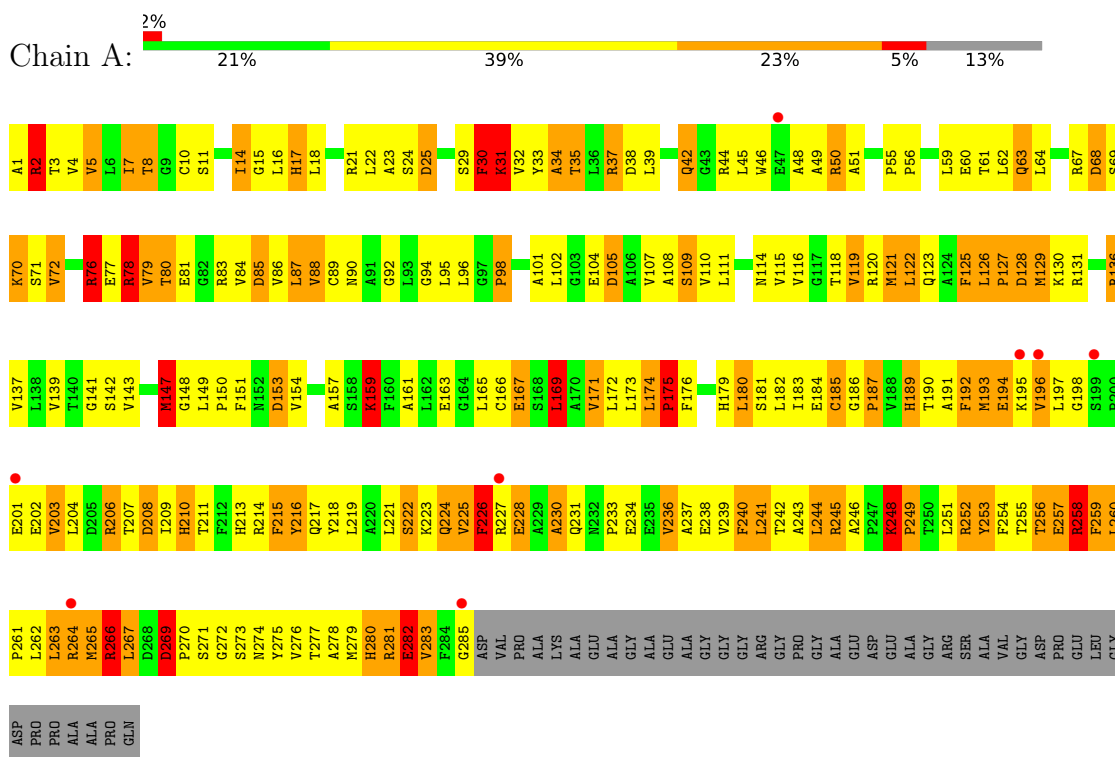
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	8	Total	O	0	0
			8	8		
4	B	11	Total	O	0	0
			11	11		
4	C	18	Total	O	0	0
			18	18		
4	D	13	Total	O	0	0
			13	13		

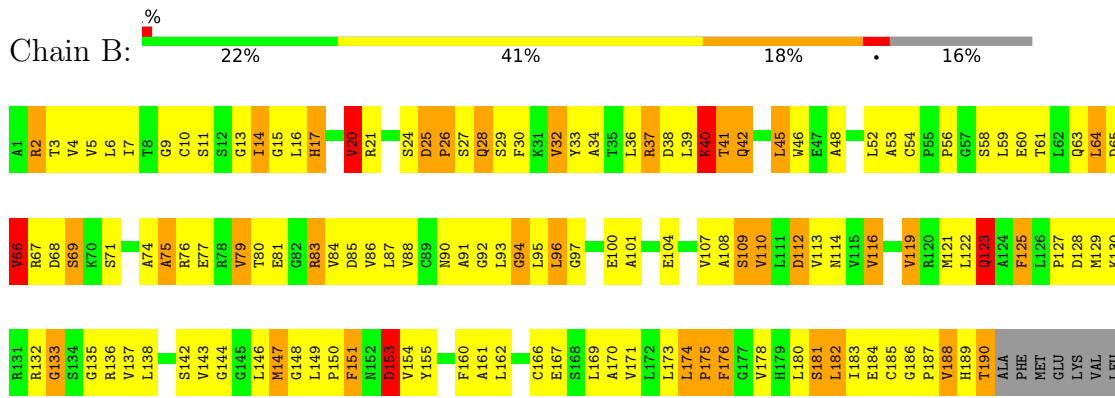
3 Residue-property plots

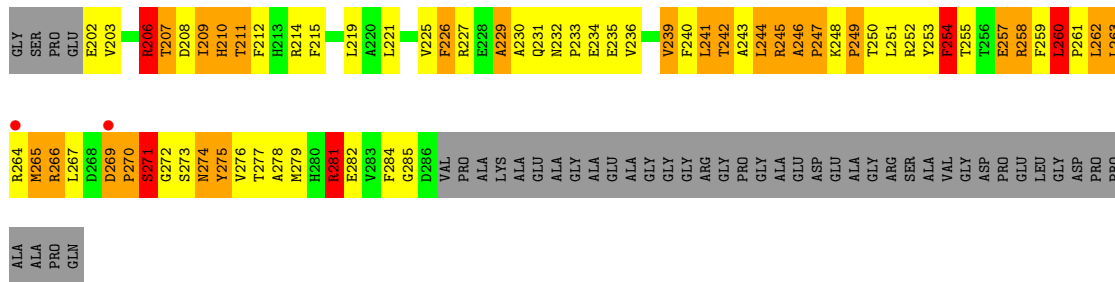
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

• Molecule 1: 17-BETA-HYDROXYSTEROID DEHYDROGENASE

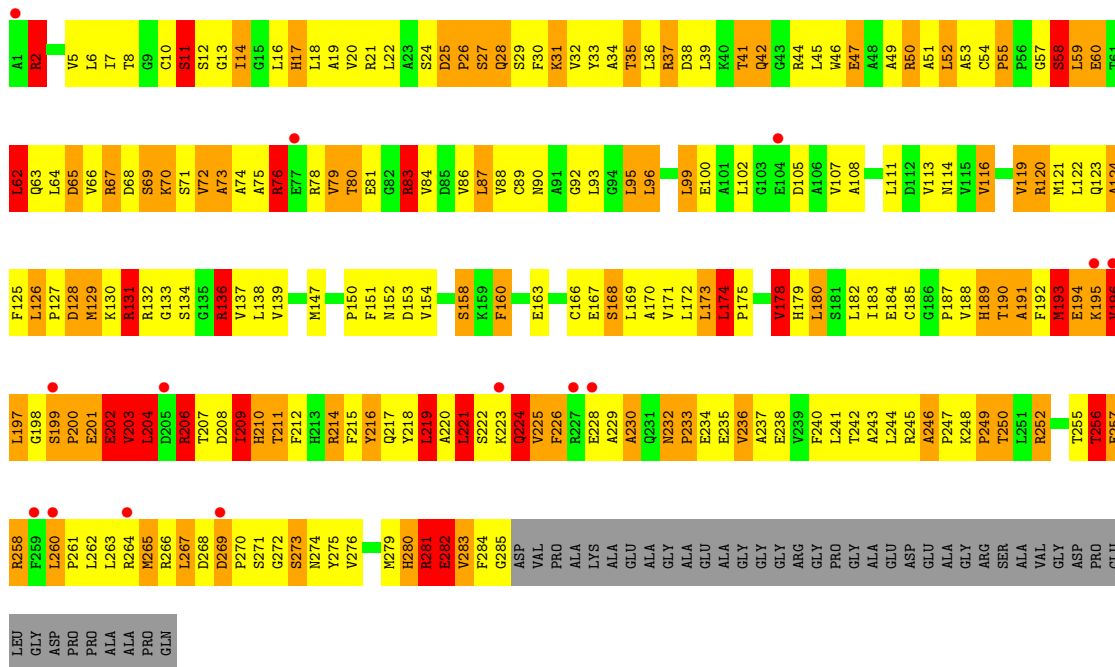
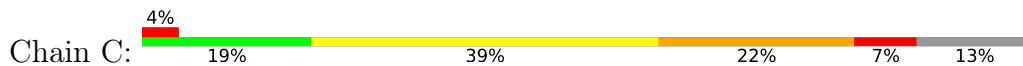


• Molecule 1: 17-BETA-HYDROXYSTEROID DEHYDROGENASE

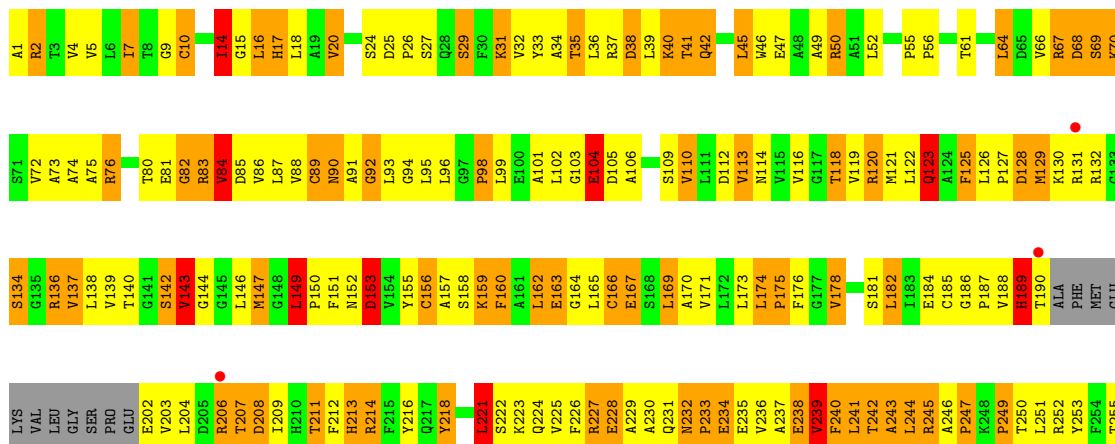
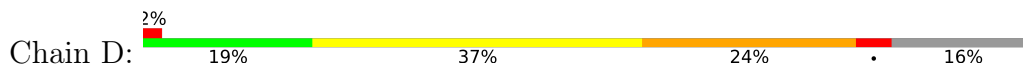




● Molecule 1: 17-BETA-HYDROXYSTEROID DEHYDROGENASE



● Molecule 1: 17-BETA-HYDROXYSTEROID DEHYDROGENASE



T256	ASP
E257	PRO
R258	GLU
F259	LEU
L260	GLY
P261	ASP
L262	PRO
L263	PRO
R264	ALA
M265	ALA
R266	PRO
L267	PRO
D268	GLN
D269	
F270	
S271	
G272	
S273	
M274	
Y275	
V276	
T277	
A278	
M279	
H280	
R281	
E282	
V283	
F284	
G285	
D286	
VAL	
PRO	
ALA	
LYS	
ALA	
ALA	
GLU	
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SER	
ALA	
VAL	
GLY	

ASP
PRO
GLU
LEU
GLY
ASP
PRO
PRO
ALA
ALA
PRO
GLN

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	115.12Å 79.11Å 120.47Å 90.00° 91.93° 90.00°	Depositor
Resolution (Å)	10.00 – 3.10 10.00 – 3.10	Depositor EDS
% Data completeness (in resolution range)	83.0 (10.00-3.10) 82.6 (10.00-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.15	Depositor
$\langle I/\sigma(I) \rangle$ ¹	12.36 (at 2.99Å)	Xtrriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.219 , 0.295 0.218 , 0.294	Depositor DCC
R_{free} test set	1805 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	48.7	Xtrriage
Anisotropy	0.086	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.17 , 41.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	0.001 for l,k,-h 0.018 for h,-k,-l 0.117 for l,-k,h	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	8812	wwPDB-VP
Average B, all atoms (Å ²)	22.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.13% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, 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	1.11	2/2219 (0.1%)	2.45	150/3010 (5.0%)
1	B	1.10	0/2141	2.39	125/2904 (4.3%)
1	C	1.14	1/2219 (0.0%)	2.48	157/3010 (5.2%)
1	D	1.10	1/2141 (0.0%)	2.40	133/2904 (4.6%)
All	All	1.11	4/8720 (0.0%)	2.43	565/11828 (4.8%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	258	ARG	N-CA	-5.30	1.39	1.46
1	D	94	GLY	N-CA	5.26	1.49	1.44
1	A	31	LYS	CA-CB	-5.13	1.45	1.53
1	C	190	THR	C-O	5.13	1.30	1.24

The worst 5 of 565 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	2	ARG	CD-NE-CZ	13.80	143.72	124.40
1	A	196	VAL	N-CA-C	13.75	129.50	113.42
1	C	67	ARG	CD-NE-CZ	13.52	143.32	124.40
1	B	160	PHE	CA-CB-CG	13.04	126.84	113.80
1	B	2	ARG	CD-NE-CZ	12.66	142.12	124.40

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	2179	0	2225	211	0
1	B	2104	0	2145	170	0
1	C	2179	0	2225	228	0
1	D	2104	0	2145	196	0
2	A	5	0	0	1	0
2	B	5	0	0	0	0
2	C	5	0	0	0	0
2	D	5	0	0	0	0
3	A	44	0	25	6	0
3	B	44	0	26	9	0
3	C	44	0	24	5	0
3	D	44	0	26	12	0
4	A	8	0	0	0	0
4	B	11	0	0	3	0
4	C	18	0	0	3	0
4	D	13	0	0	0	0
All	All	8812	0	8841	755	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 44.

The worst 5 of 755 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:A:258:ARG:HB2	1:A:258:ARG:HH11	1.08	1.10
1:A:267:LEU:HB3	1:B:267:LEU:HB3	1.36	1.02
1:C:64:LEU:HD21	1:C:72:VAL:HG22	1.43	1.00
1:D:92:GLY:H	3:D:362:NAD:H3D	1.22	0.97
1:A:267:LEU:HA	1:B:267:LEU:HD22	1.44	0.96

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	283/327 (86%)	246 (87%)	34 (12%)	3 (1%)	11	39
1	B	271/327 (83%)	244 (90%)	24 (9%)	3 (1%)	11	39
1	C	283/327 (86%)	235 (83%)	40 (14%)	8 (3%)	4	20
1	D	271/327 (83%)	239 (88%)	26 (10%)	6 (2%)	5	24
All	All	1108/1308 (85%)	964 (87%)	124 (11%)	20 (2%)	6	28

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	209	ILE
1	C	196	VAL
1	C	198	GLY
1	D	209	ILE
1	C	229	ALA

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	235/258 (91%)	182 (77%)	53 (23%)	1	4
1	B	227/258 (88%)	191 (84%)	36 (16%)	2	12
1	C	235/258 (91%)	192 (82%)	43 (18%)	2	8
1	D	227/258 (88%)	179 (79%)	48 (21%)	1	5
All	All	924/1032 (90%)	744 (80%)	180 (20%)	1	6

5 of 180 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	206	ARG
1	D	69	SER
1	C	221	LEU
1	C	282	GLU
1	D	118	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 24 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	17	HIS
1	C	224	GLN
1	C	123	GLN
1	C	231	GLN
1	A	274	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

8 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	SO4	B	400	-	4,4,4	0.66	0	6,6,6	0.26	0
2	SO4	D	402	-	4,4,4	0.68	0	6,6,6	0.35	0
2	SO4	A	401	-	4,4,4	0.64	0	6,6,6	0.37	0
3	NAD	B	364	-	46,48,48	1.58	6 (13%)	64,73,73	1.99	18 (28%)
3	NAD	D	362	-	46,48,48	1.60	6 (13%)	64,73,73	1.90	17 (26%)
2	SO4	C	403	-	4,4,4	0.70	0	6,6,6	0.25	0
3	NAD	C	363	-	46,48,48	1.69	7 (15%)	64,73,73	2.26	22 (34%)
3	NAD	A	361	-	46,48,48	1.86	8 (17%)	64,73,73	2.16	21 (32%)

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	NAD	D	362	-	-	11/30/62/62	0/5/5/5
3	NAD	C	363	-	-	8/30/62/62	0/5/5/5
3	NAD	B	364	-	1/1/11/11	7/30/62/62	0/5/5/5
3	NAD	A	361	-	1/1/11/11	10/30/62/62	0/5/5/5

The worst 5 of 27 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	361	NAD	C2N-N1N	7.26	1.43	1.35
3	C	363	NAD	C2N-N1N	6.67	1.42	1.35
3	D	362	NAD	C2N-N1N	5.97	1.41	1.35
3	B	364	NAD	C2N-N1N	5.86	1.41	1.35
3	D	362	NAD	O4D-C1D	5.19	1.47	1.40

The worst 5 of 78 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	361	NAD	O4B-C1B-N9A	10.24	127.76	108.09
3	B	364	NAD	O7N-C7N-C3N	6.01	126.95	119.60
3	C	363	NAD	C5A-C4A-N3A	-5.57	119.05	126.72
3	A	361	NAD	C5A-C4A-N3A	-5.24	119.51	126.72
3	B	364	NAD	O4B-C1B-N9A	5.21	118.09	108.09

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	A	361	NAD	C1B
3	B	364	NAD	C1B

5 of 36 torsion outliers are listed below:

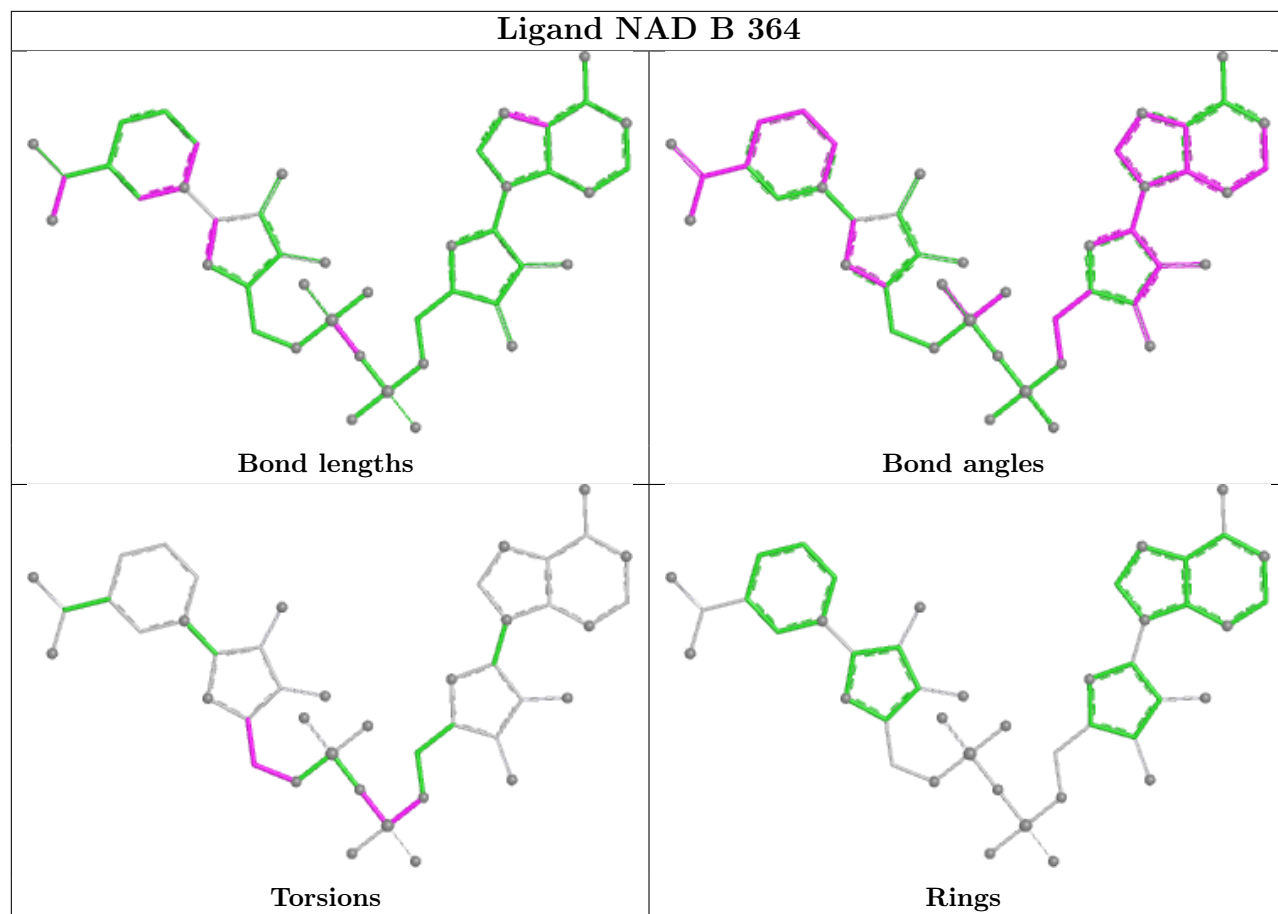
Mol	Chain	Res	Type	Atoms
3	A	361	NAD	PN-O3-PA-O5B
3	A	361	NAD	C5D-O5D-PN-O3
3	A	361	NAD	C5D-O5D-PN-O1N
3	A	361	NAD	O4D-C1D-N1N-C2N
3	A	361	NAD	O4D-C1D-N1N-C6N

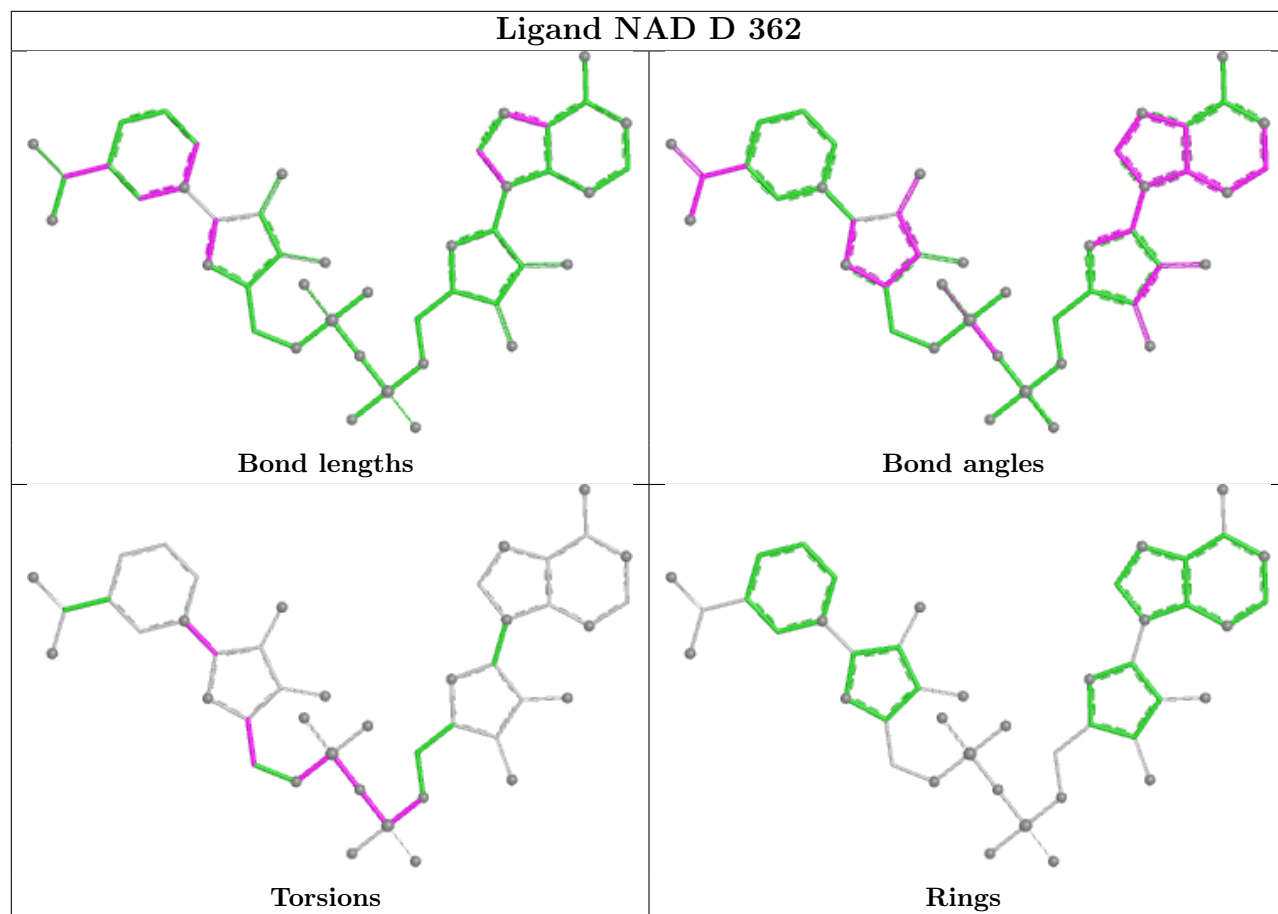
There are no ring outliers.

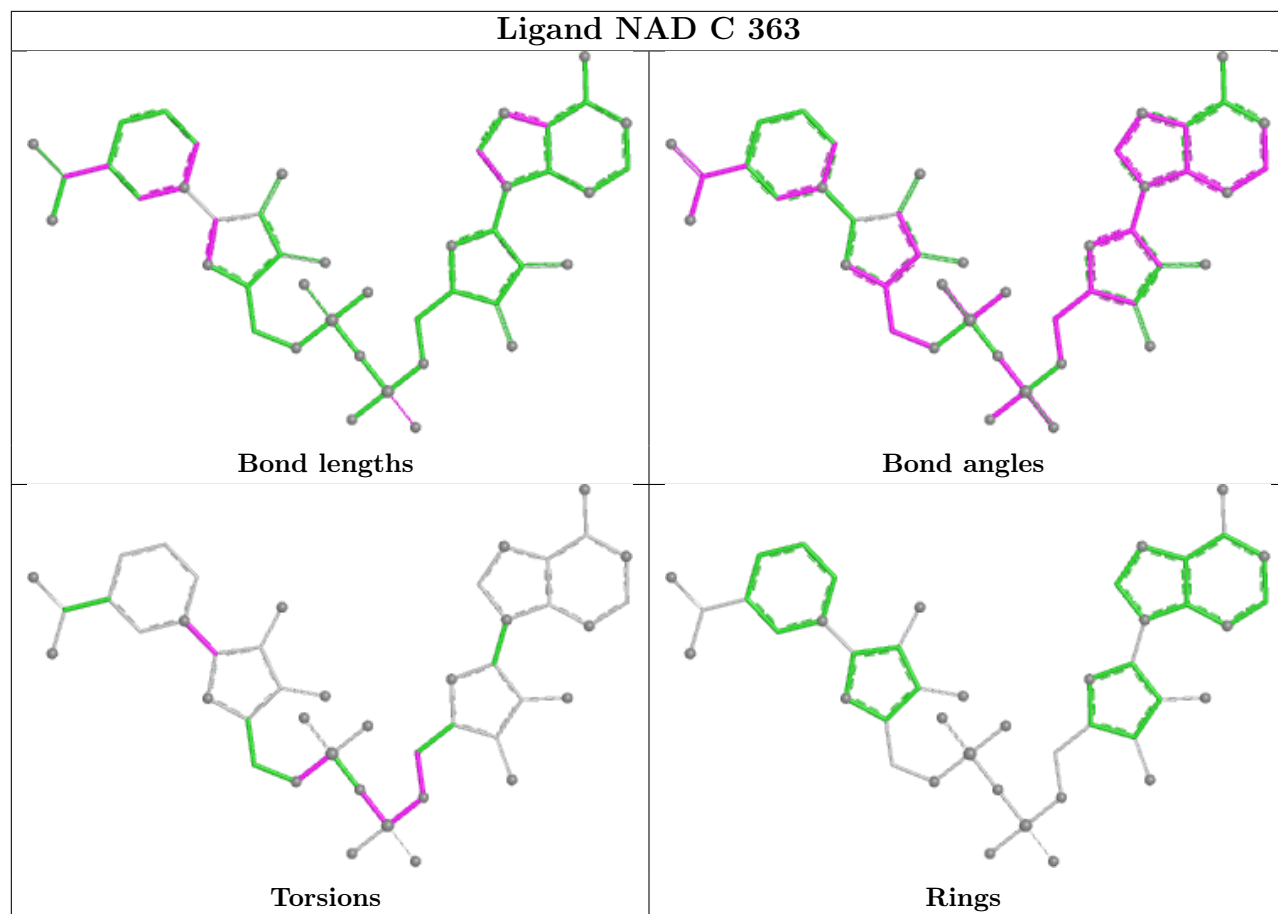
5 monomers are involved in 33 short contacts:

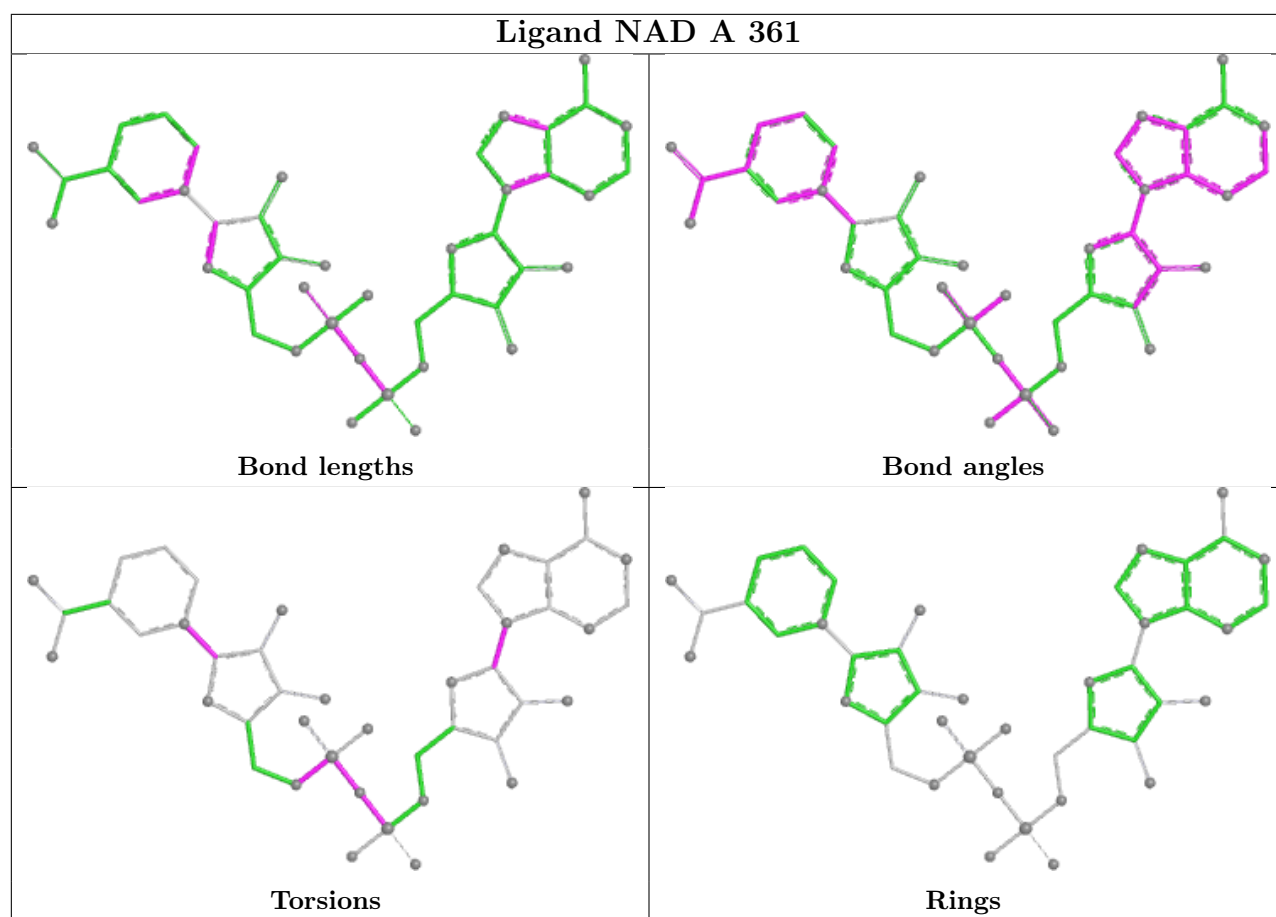
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	SO4	1	0
3	B	364	NAD	9	0
3	D	362	NAD	12	0
3	C	363	NAD	5	0
3	A	361	NAD	6	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	285/327 (87%)	-0.15	8 (2%) 55 34	8, 22, 22, 22	16 (5%)
1	B	275/327 (84%)	-0.23	2 (0%) 84 68	11, 22, 22, 22	8 (2%)
1	C	285/327 (87%)	-0.02	14 (4%) 35 18	7, 22, 22, 22	16 (5%)
1	D	275/327 (84%)	-0.16	7 (2%) 58 37	8, 22, 22, 22	10 (3%)
All	All	1120/1308 (85%)	-0.14	31 (2%) 55 34	7, 22, 22, 22	50 (4%)

The worst 5 of 31 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	223	LYS	5.6
1	C	264	ARG	5.5
1	A	264	ARG	5.4
1	C	259	PHE	5.3
1	C	196	VAL	5.1

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](#)

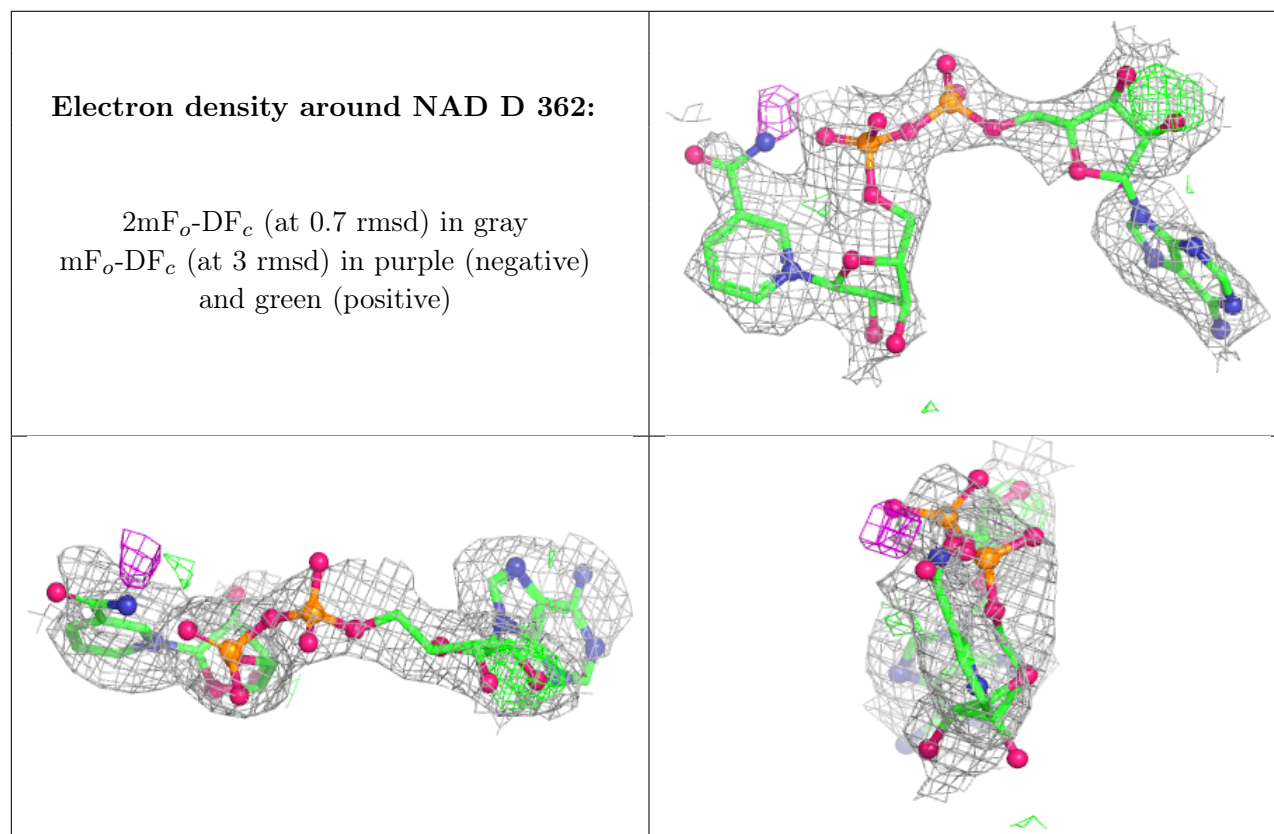
There are no oligosaccharides in this entry.

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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q < 0.9’ lists the number of atoms with occupancy less than 0.9.

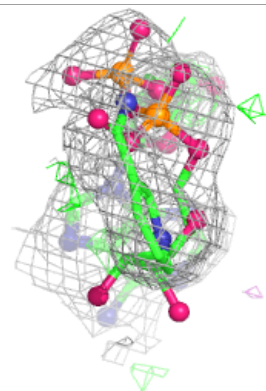
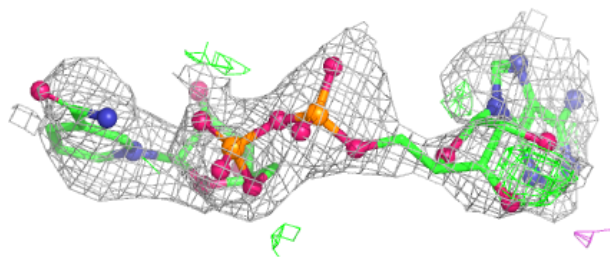
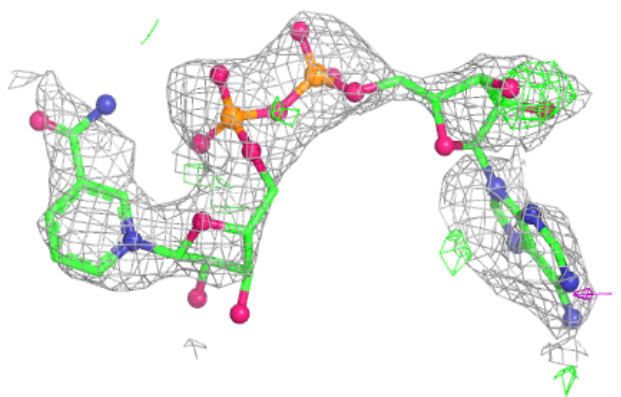
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	NAD	D	362	44/44	0.83	0.15	22,22,22,22	44
3	NAD	B	364	44/44	0.87	0.17	22,22,22,22	44
2	SO4	D	402	5/5	0.94	0.10	22,22,22,22	5
2	SO4	B	400	5/5	0.95	0.22	22,22,22,22	5
3	NAD	A	361	44/44	0.95	0.08	22,22,22,22	0
2	SO4	A	401	5/5	0.96	0.13	22,22,22,22	5
3	NAD	C	363	44/44	0.96	0.08	22,22,22,22	0
2	SO4	C	403	5/5	0.96	0.10	22,22,22,22	5

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.

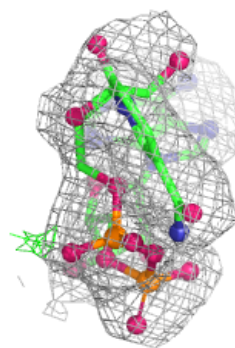
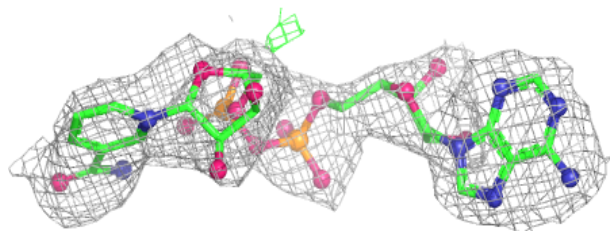
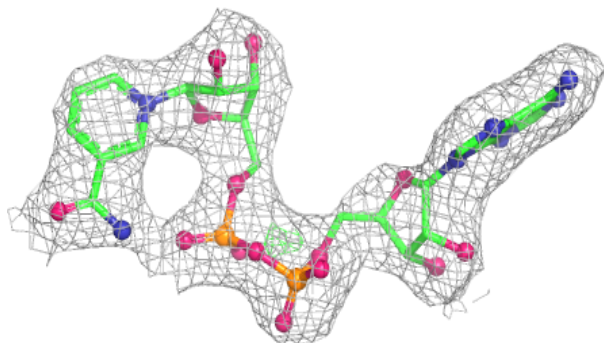


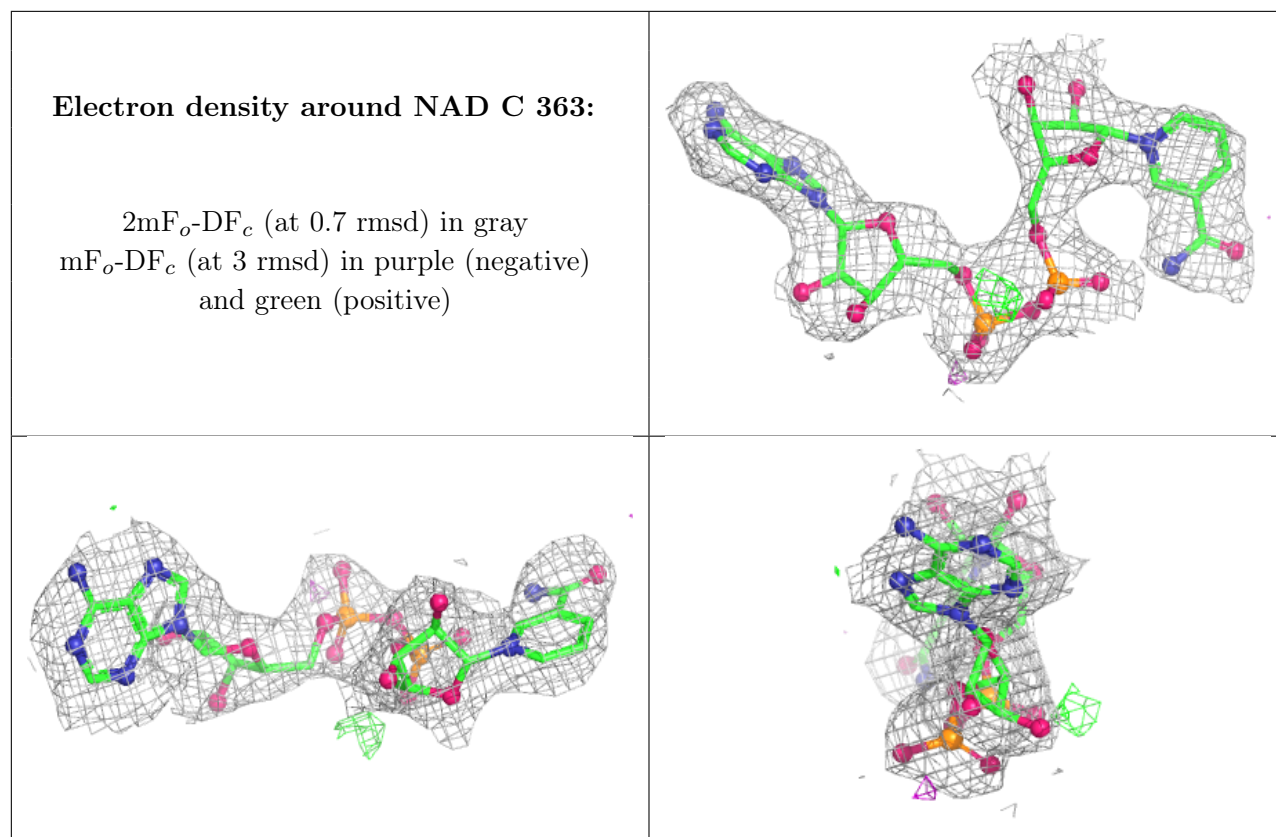
Electron density around NAD B 364:

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

**Electron density around NAD A 361:**

$2mF_o-DF_c$ (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.