



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 18, 2026 – 12:23 PM UTC

PDB ID : 2D4V / pdb_00002d4v
Title : Crystal structure of NAD dependent isocitrate dehydrogenase from
Acidithiobacillus thiooxidans
Authors : Imada, K.; Tamura, T.; Namba, K.; Inagaki, K.
Deposited on : 2005-10-24
Resolution : 1.90 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

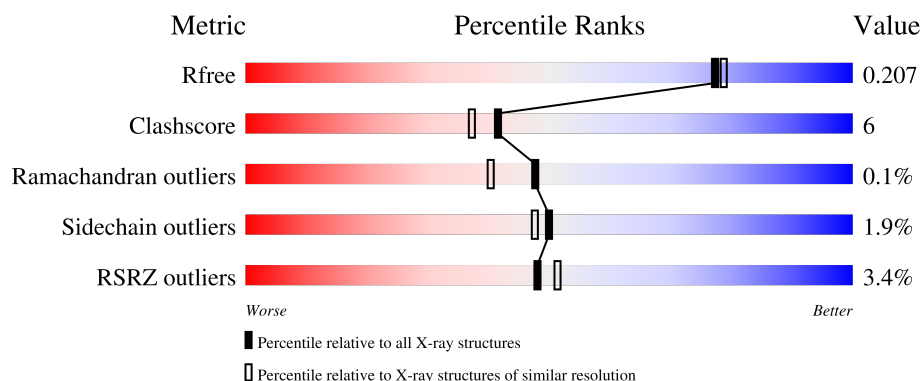
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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	7789 (1.90-1.90)
Clashscore	190562	8410 (1.90-1.90)
Ramachandran outliers	187476	8333 (1.90-1.90)
Sidechain outliers	187428	8333 (1.90-1.90)
RSRZ outliers	180081	7790 (1.90-1.90)

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	429	4% 85% 13%
1	B	429	4% 86% 13%
1	C	429	2% 92% 7%
1	D	429	3% 87% 11%

2 Entry composition [i](#)

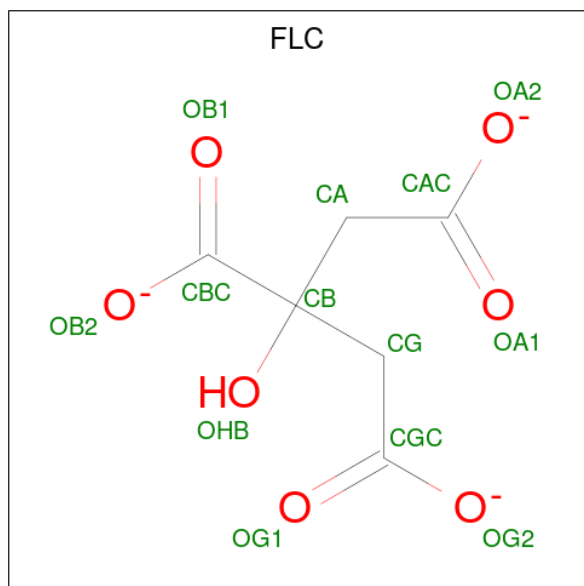
There are 4 unique types of molecules in this entry. The entry contains 14504 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 isocitrate dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	427	Total	C	N	O	S	0	0	0
			3236	2050	562	610	14			
1	B	427	Total	C	N	O	S	0	0	0
			3236	2050	562	610	14			
1	C	427	Total	C	N	O	S	0	0	0
			3235	2050	562	609	14			
1	D	427	Total	C	N	O	S	0	0	0
			3236	2050	562	610	14			

- Molecule 2 is CITRATE ANION (CCD ID: FLC) (formula: $C_6H_5O_7$).



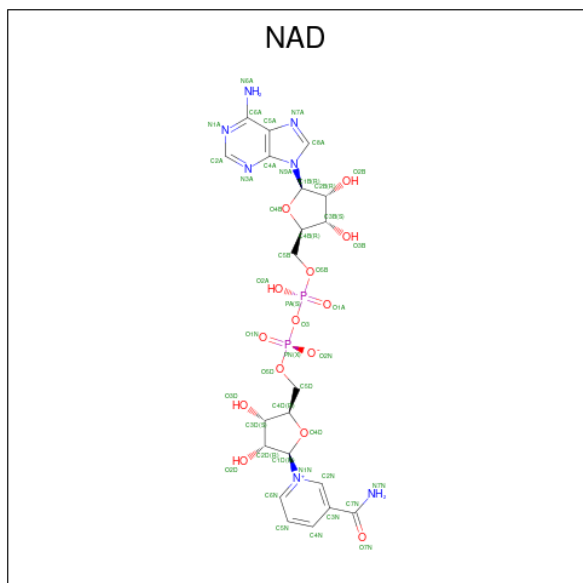
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			13	6	7		
2	B	1	Total	C	O	0	0
			13	6	7		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	C	1	Total	C	O	0	0
			13	6	7		
2	D	1	Total	C	O	0	0
			13	6	7		

- 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
3	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
3	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
3	C	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
3	D	1	Total	C	N	O	P	0	0
			44	21	7	14	2		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	314	Total	O	0	0
			314	314		
4	B	305	Total	O	0	0
			305	305		
4	C	357	Total	O	0	0
			357	357		

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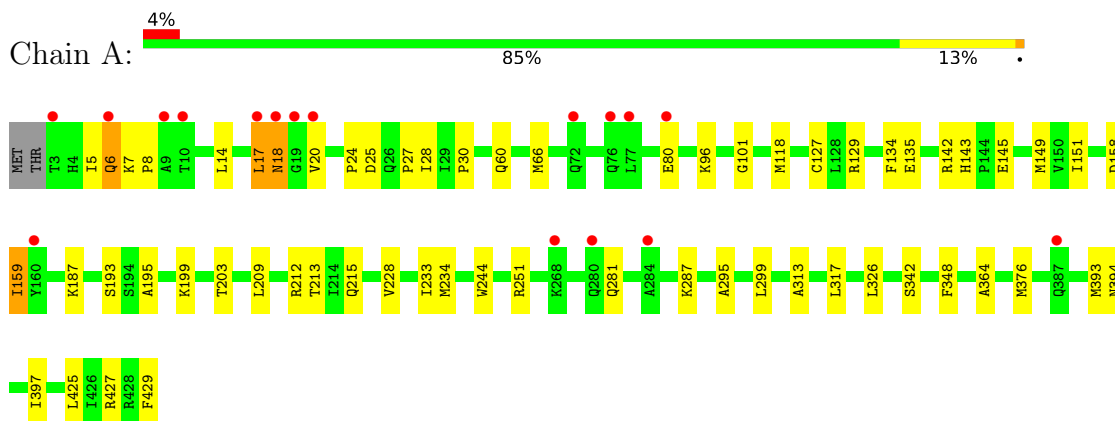
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	357	Total	O	0	0
			357	357		

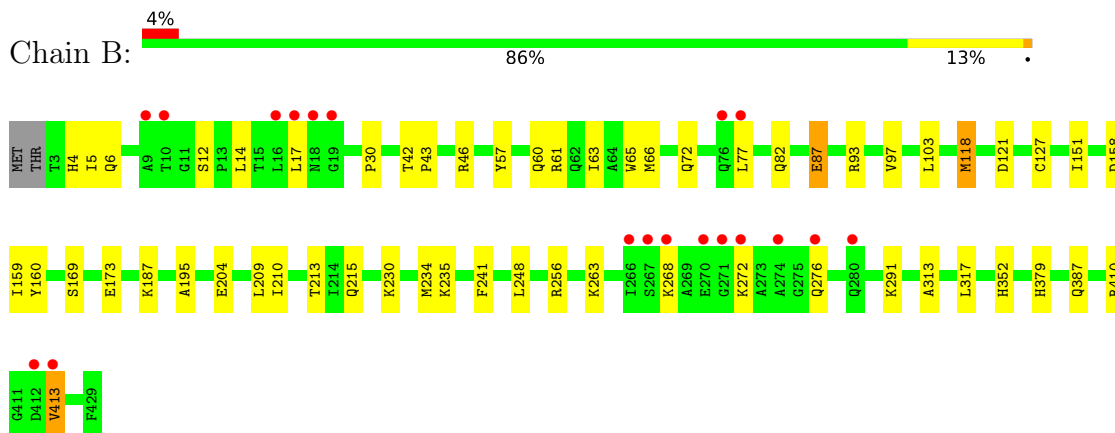
3 Residue-property plots [i](#)

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.

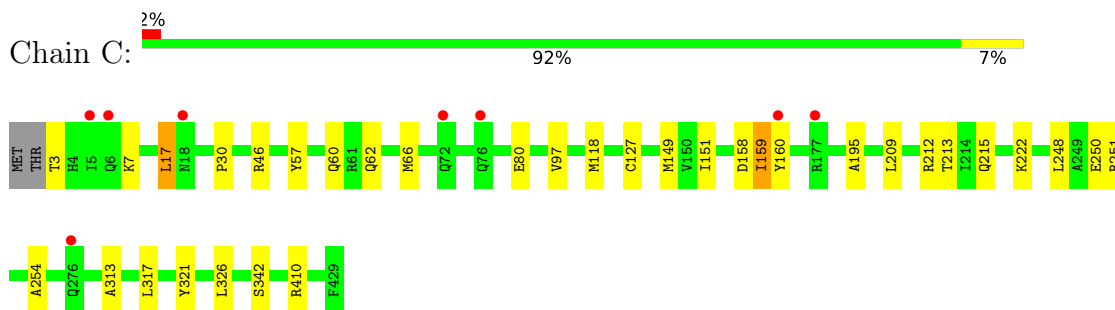
• Molecule 1: isocitrate dehydrogenase



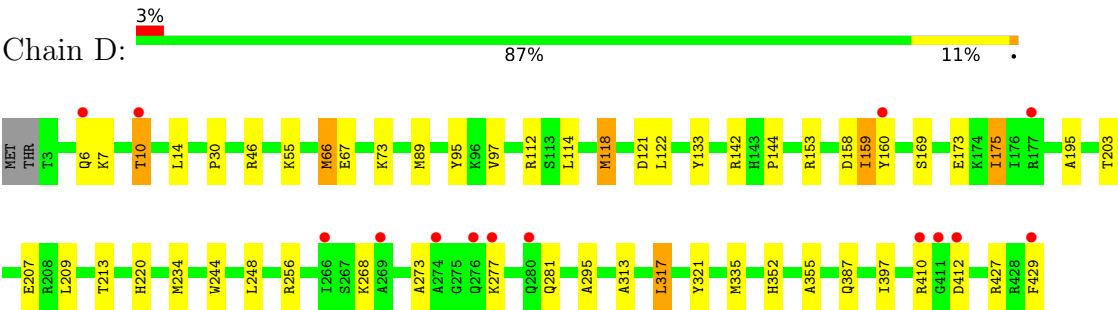
• Molecule 1: isocitrate dehydrogenase



• Molecule 1: isocitrate dehydrogenase



● Molecule 1: isocitrate dehydrogenase



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	125.98Å 125.98Å 267.77Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 1.90 20.00 – 1.90	Depositor EDS
% Data completeness (in resolution range)	93.1 (20.00-1.90) 93.0 (20.00-1.90)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	7.03 (at 1.90Å)	Xtriage
Refinement program	REFMAC 5.0	Depositor
R, R_{free}	0.179 , 0.203 0.183 , 0.207	Depositor DCC
R_{free} test set	7915 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	11.9	Xtriage
Anisotropy	0.181	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.40 , 41.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	14504	wwPDB-VP
Average B, all atoms (Å ²)	13.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.50% 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: NAD, FLC

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	0.63	2/3300 (0.1%)	0.95	6/4473 (0.1%)
1	B	0.60	1/3300 (0.0%)	0.93	3/4473 (0.1%)
1	C	0.67	2/3299 (0.1%)	0.95	2/4473 (0.0%)
1	D	0.72	3/3300 (0.1%)	0.95	3/4473 (0.1%)
All	All	0.66	8/13199 (0.1%)	0.94	14/17892 (0.1%)

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	118	MET	SD-CE	-11.18	1.51	1.79
1	C	149	MET	SD-CE	-7.68	1.60	1.79
1	D	66	MET	SD-CE	-7.02	1.61	1.79
1	A	118	MET	SD-CE	-6.86	1.62	1.79
1	C	118	MET	SD-CE	-6.33	1.63	1.79
1	D	355	ALA	CA-CB	5.77	1.56	1.52
1	A	149	MET	SD-CE	-5.65	1.65	1.79
1	B	118	MET	SD-CE	-5.14	1.66	1.79

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	20	VAL	N-CA-C	6.85	118.42	109.58
1	C	195	ALA	N-CA-C	-6.28	102.08	110.55
1	D	295	ALA	N-CA-C	5.79	118.06	111.11
1	D	195	ALA	N-CA-C	-5.78	102.75	110.55
1	C	342	SER	N-CA-C	-5.58	101.32	109.63
1	D	352	HIS	N-CA-C	5.46	117.13	110.41
1	A	342	SER	N-CA-C	-5.28	101.84	109.29
1	A	101	GLY	N-CA-C	-5.27	105.85	112.23
1	A	195	ALA	N-CA-C	-5.25	103.46	110.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	352	HIS	N-CA-C	5.21	117.25	110.53
1	B	195	ALA	N-CA-C	-5.17	103.57	110.55
1	B	235	LYS	N-CA-C	5.14	116.96	111.36
1	A	364	ALA	N-CA-C	5.12	117.46	110.24
1	A	295	ALA	N-CA-C	5.04	117.42	111.33

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	3236	0	3246	46	0
1	B	3236	0	3246	49	0
1	C	3235	0	3246	26	0
1	D	3236	0	3246	54	0
2	A	13	0	5	1	0
2	B	13	0	5	0	0
2	C	13	0	5	0	0
2	D	13	0	5	1	0
3	A	44	0	26	1	0
3	B	44	0	26	0	0
3	C	44	0	26	0	0
3	D	44	0	26	0	0
4	A	314	0	0	14	0
4	B	305	0	0	19	2
4	C	357	0	0	13	0
4	D	357	0	0	19	0
All	All	14504	0	13108	169	2

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 6.

All (169) 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:127:CYS:SG	4:A:3296:HOH:O	1.96	1.09
1:B:187:LYS:NZ	4:B:3263:HOH:O	1.86	1.08
1:A:429:PHE:OXT	4:A:3235:HOH:O	1.71	1.06
1:B:276:GLN:HG2	4:B:3260:HOH:O	1.63	0.98
1:A:287:LYS:HE2	4:D:3583:HOH:O	1.75	0.86
1:C:17:LEU:HD13	4:C:3557:HOH:O	1.77	0.84
1:D:10:THR:HG23	4:D:3585:HOH:O	1.77	0.84
1:D:277:LYS:O	1:D:277:LYS:HD3	1.76	0.84
1:B:215:GLN:HG2	4:B:3324:HOH:O	1.78	0.83
1:B:4:HIS:CG	1:B:77:LEU:HD21	2.13	0.83
1:B:151:ILE:HG13	4:B:3398:HOH:O	1.80	0.80
1:D:6:GLN:HB3	4:D:3651:HOH:O	1.81	0.80
1:C:317:LEU:HG	4:C:3526:HOH:O	1.79	0.79
1:D:114:LEU:HD23	4:D:3549:HOH:O	1.82	0.79
1:D:7:LYS:HD2	4:D:3560:HOH:O	1.80	0.79
1:D:89:MET:HG2	4:D:3642:HOH:O	1.85	0.76
1:B:4:HIS:CG	1:B:77:LEU:CD2	2.69	0.76
1:A:234:MET:HG3	4:B:3366:HOH:O	1.87	0.74
1:A:394:ASN:HA	4:A:3262:HOH:O	1.85	0.74
1:C:159:ILE:HD13	1:D:234:MET:SD	2.28	0.74
1:A:5:ILE:HD11	4:A:3149:HOH:O	1.88	0.73
1:C:46:ARG:NH2	4:C:3536:HOH:O	2.22	0.72
1:B:268:LYS:NZ	4:B:3298:HOH:O	2.21	0.72
1:B:4:HIS:HB3	1:B:77:LEU:HD21	1.72	0.71
1:B:4:HIS:CB	1:B:77:LEU:HD21	2.22	0.70
1:D:55:LYS:HE3	1:D:429:PHE:OXT	1.91	0.69
1:A:134:PHE:HB3	4:A:3262:HOH:O	1.93	0.68
1:D:277:LYS:HD3	1:D:277:LYS:C	2.18	0.68
1:D:112:ARG:O	4:D:3549:HOH:O	2.12	0.67
1:D:121:ASP:OD2	1:D:122:LEU:CD1	2.43	0.67
1:C:127:CYS:SG	4:C:3463:HOH:O	1.92	0.67
1:A:60:GLN:C	4:A:3299:HOH:O	2.37	0.66
1:A:427:ARG:HD2	4:A:3232:HOH:O	1.94	0.66
1:A:233:ILE:HG22	4:B:3366:HOH:O	1.96	0.66
1:C:160:TYR:HE1	4:C:3526:HOH:O	1.79	0.66
1:D:30:PRO:HD2	1:D:97:VAL:O	1.97	0.65
1:A:17:LEU:CD1	1:A:18:ASN:ND2	2.60	0.64
1:D:10:THR:HA	4:D:3585:HOH:O	1.97	0.64
1:C:151:ILE:HD11	1:C:326:LEU:HD12	1.80	0.64
1:A:142:ARG:CZ	1:B:410:ARG:HD3	2.27	0.64
1:B:379:HIS:CE1	4:B:3357:HOH:O	2.51	0.63
1:A:17:LEU:HD13	1:A:18:ASN:ND2	2.14	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:160:TYR:CE1	4:C:3526:HOH:O	2.50	0.63
1:B:387:GLN:HG2	4:B:3378:HOH:O	1.99	0.63
1:B:60:GLN:NE2	4:B:3370:HOH:O	2.31	0.62
1:D:277:LYS:HZ2	1:D:281:GLN:HB2	1.64	0.62
1:C:3:THR:N	4:C:3462:HOH:O	2.33	0.62
1:C:317:LEU:HD21	1:C:321:TYR:CZ	2.35	0.62
1:B:72:GLN:HG2	4:B:3233:HOH:O	2.00	0.61
1:A:6:GLN:NE2	1:A:7:LYS:O	2.33	0.61
1:A:17:LEU:HD13	1:A:18:ASN:HD22	1.66	0.61
1:D:427:ARG:HD2	4:D:3615:HOH:O	2.00	0.61
1:A:159:ILE:HD11	1:A:317:LEU:HD12	1.82	0.61
1:A:60:GLN:O	4:A:3299:HOH:O	2.16	0.60
1:B:5:ILE:HD13	1:B:87:GLU:HG3	1.84	0.59
1:D:387:GLN:HA	1:D:387:GLN:OE1	2.01	0.59
1:C:209:LEU:C	1:C:209:LEU:HD13	2.27	0.59
1:B:209:LEU:C	1:B:209:LEU:HD13	2.28	0.58
1:B:30:PRO:HD2	1:B:97:VAL:O	2.03	0.57
1:A:213:THR:HG21	1:A:313:ALA:HB2	1.87	0.57
4:A:3285:HOH:O	1:B:187:LYS:HE2	2.05	0.57
1:A:143:HIS:HD2	1:A:145:GLU:OE2	1.88	0.57
1:B:291:LYS:HG3	4:B:3320:HOH:O	2.04	0.56
1:B:410:ARG:O	1:B:413:VAL:HG13	2.06	0.56
1:B:169:SER:O	1:B:173:GLU:HG3	2.05	0.56
1:A:427:ARG:NH2	4:A:3268:HOH:O	2.30	0.56
1:C:410:ARG:NH1	4:C:3447:HOH:O	2.39	0.55
1:A:317:LEU:C	1:A:317:LEU:HD23	2.31	0.55
1:B:12:SER:HB3	4:B:3382:HOH:O	2.06	0.54
1:B:60:GLN:CD	4:B:3370:HOH:O	2.51	0.54
1:A:96:LYS:HE2	4:A:3166:HOH:O	2.07	0.54
1:A:129:ARG:HD2	4:A:3296:HOH:O	2.08	0.54
1:D:153:ARG:NH2	1:D:160:TYR:CE2	2.76	0.54
1:B:4:HIS:CD2	1:B:77:LEU:HD21	2.43	0.53
1:D:277:LYS:C	1:D:277:LYS:CD	2.82	0.53
1:B:317:LEU:C	1:B:317:LEU:HD23	2.34	0.53
1:A:142:ARG:NH1	1:B:410:ARG:HD3	2.24	0.52
1:B:213:THR:HG21	1:B:313:ALA:HB2	1.91	0.52
1:D:89:MET:SD	1:D:118:MET:HG2	2.49	0.52
1:D:317:LEU:HD21	1:D:321:TYR:CZ	2.45	0.52
1:A:209:LEU:C	1:A:209:LEU:HD13	2.34	0.52
1:A:251:ARG:HA	1:D:256:ARG:NH1	2.25	0.52
1:B:30:PRO:HA	1:B:66:MET:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:210:ILE:HD11	1:B:241:PHE:CZ	2.46	0.51
1:D:55:LYS:CE	1:D:429:PHE:OXT	2.58	0.51
1:A:193:SER:OG	1:B:204:GLU:HG3	2.11	0.50
1:C:62:GLN:NE2	4:C:3548:HOH:O	2.31	0.50
1:C:222:LYS:NZ	4:C:3438:HOH:O	2.24	0.50
1:A:393:MET:HA	1:A:425:LEU:HD21	1.94	0.50
1:C:30:PRO:HA	1:C:66:MET:O	2.12	0.50
1:B:4:HIS:CB	1:B:77:LEU:CD2	2.90	0.49
1:C:30:PRO:HD2	1:C:97:VAL:O	2.13	0.49
2:D:3301:FLC:CBC	2:D:3301:FLC:OG2	2.61	0.49
1:D:6:GLN:CB	4:D:3651:HOH:O	2.52	0.49
1:C:213:THR:HG21	1:C:313:ALA:HB2	1.95	0.49
1:A:143:HIS:CD2	1:A:145:GLU:OE2	2.65	0.48
1:B:410:ARG:O	1:B:413:VAL:CG1	2.61	0.48
1:D:244:TRP:CB	4:D:3631:HOH:O	2.62	0.48
1:D:277:LYS:NZ	1:D:281:GLN:HB2	2.28	0.48
2:A:3001:FLC:HG1	3:A:2001:NAD:C4N	2.44	0.48
1:A:159:ILE:HG23	1:A:199:LYS:HB2	1.96	0.47
1:B:256:ARG:NH1	4:B:3311:HOH:O	2.42	0.47
1:B:263:LYS:NZ	4:B:3260:HOH:O	2.42	0.47
1:A:135:GLU:N	4:A:3289:HOH:O	2.47	0.47
1:D:213:THR:HG21	1:D:313:ALA:HB2	1.97	0.47
1:B:57:TYR:CG	1:B:61:ARG:HD2	2.50	0.47
1:B:103:LEU:HD11	1:B:118:MET:HE1	1.97	0.47
1:B:77:LEU:C	1:B:77:LEU:HD23	2.40	0.47
1:A:251:ARG:HA	1:D:256:ARG:HH12	1.79	0.46
1:D:220:HIS:HE1	4:D:3483:HOH:O	1.97	0.46
1:B:159:ILE:O	1:B:159:ILE:HG13	2.14	0.46
1:D:209:LEU:C	1:D:209:LEU:HD13	2.41	0.46
1:D:169:SER:O	1:D:173:GLU:HG3	2.15	0.46
1:D:175:ILE:O	1:D:175:ILE:HG13	2.13	0.46
1:B:42:THR:HB	1:B:43:PRO:HD3	1.97	0.46
1:A:212:ARG:HA	1:A:215:GLN:HE21	1.81	0.45
1:D:244:TRP:HB3	4:D:3631:HOH:O	2.16	0.45
1:D:30:PRO:HA	1:D:66:MET:O	2.16	0.45
1:B:87:GLU:HB3	4:B:3169:HOH:O	2.16	0.45
1:D:46:ARG:HD3	4:D:3384:HOH:O	2.17	0.45
1:D:335:MET:HE1	1:D:397:ILE:CD1	2.47	0.44
1:D:427:ARG:NH1	4:D:3615:HOH:O	2.37	0.44
1:D:203:THR:HG22	1:D:244:TRP:CE2	2.52	0.44
1:D:159:ILE:HD11	1:D:317:LEU:HD12	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:ILE:HD11	1:A:326:LEU:HD12	1.99	0.44
1:B:151:ILE:CG1	4:B:3398:HOH:O	2.53	0.44
1:D:67:GLU:OE2	1:D:73:LYS:NZ	2.45	0.44
1:D:66:MET:HE1	1:D:95:TYR:CE1	2.52	0.43
1:C:410:ARG:O	4:C:3216:HOH:O	2.21	0.43
1:B:230:LYS:HB3	1:B:234:MET:HE3	2.00	0.43
1:A:30:PRO:HA	1:A:66:MET:O	2.19	0.43
1:D:277:LYS:NZ	1:D:281:GLN:OE1	2.48	0.43
1:C:248:LEU:C	1:C:248:LEU:HD23	2.44	0.43
1:A:17:LEU:CD1	1:A:18:ASN:HD22	2.27	0.42
1:B:158:ASP:C	1:B:160:TYR:H	2.26	0.42
1:D:273:ALA:HB1	4:D:3493:HOH:O	2.18	0.42
1:B:272:LYS:O	1:B:276:GLN:HG3	2.19	0.42
1:D:207:GLU:HG3	4:D:3631:HOH:O	2.19	0.42
1:A:25:ASP:C	1:A:27:PRO:HD3	2.44	0.42
1:C:7:LYS:NZ	4:C:3487:HOH:O	2.34	0.42
1:D:10:THR:CG2	4:D:3585:HOH:O	2.52	0.42
1:D:273:ALA:CB	4:D:3493:HOH:O	2.67	0.42
1:B:248:LEU:C	1:B:248:LEU:HD23	2.44	0.42
1:C:57:TYR:O	1:C:60:GLN:HG3	2.20	0.42
1:B:127:CYS:SG	4:B:3234:HOH:O	1.93	0.42
1:A:8:PRO:HG2	1:A:28:ILE:HG12	2.02	0.42
1:A:348:PHE:CZ	1:A:376:MET:HA	2.55	0.41
1:A:281:GLN:NE2	4:A:3288:HOH:O	2.31	0.41
1:C:158:ASP:C	1:C:160:TYR:H	2.28	0.41
1:C:212:ARG:HD2	1:C:215:GLN:HE22	1.85	0.41
1:D:317:LEU:HD23	1:D:317:LEU:O	2.20	0.41
1:A:142:ARG:NH2	1:B:410:ARG:HD3	2.34	0.41
1:A:17:LEU:HD11	1:A:18:ASN:ND2	2.32	0.41
1:A:299:LEU:HD23	1:A:299:LEU:HA	1.87	0.41
1:C:250:GLU:O	1:C:254:ALA:HB2	2.21	0.41
1:A:14:LEU:HD23	1:A:24:PRO:HD2	2.03	0.41
1:A:393:MET:SD	1:A:397:ILE:CD1	3.09	0.41
1:B:93:ARG:NH2	1:B:121:ASP:O	2.53	0.41
1:C:251:ARG:NH2	4:C:3502:HOH:O	2.51	0.41
1:C:410:ARG:NH1	1:D:142:ARG:CZ	2.83	0.41
1:D:121:ASP:OD2	1:D:122:LEU:HD12	2.19	0.41
1:D:317:LEU:HD21	1:D:321:TYR:CE1	2.56	0.41
1:D:133:TYR:CD1	1:D:144:PRO:HB2	2.56	0.41
1:D:158:ASP:C	1:D:160:TYR:H	2.29	0.41
1:A:203:THR:HG22	1:A:244:TRP:CE2	2.55	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:248:LEU:HD23	1:D:248:LEU:C	2.47	0.40
1:D:55:LYS:NZ	1:D:429:PHE:OXT	2.55	0.40
1:D:158:ASP:C	1:D:160:TYR:N	2.79	0.40
1:B:46:ARG:HH11	1:B:65:TRP:CG	2.39	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:3178:HOH:O	4:B:3178:HOH:O[7_555]	1.30	0.90
4:B:3117:HOH:O	4:B:3178:HOH:O[7_555]	2.10	0.10

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	425/429 (99%)	411 (97%)	13 (3%)	1 (0%)	43	36
1	B	425/429 (99%)	409 (96%)	16 (4%)	0	100	100
1	C	425/429 (99%)	410 (96%)	15 (4%)	0	100	100
1	D	425/429 (99%)	411 (97%)	14 (3%)	0	100	100
All	All	1700/1716 (99%)	1641 (96%)	58 (3%)	1 (0%)	48	40

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	158	ASP

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	331/333 (99%)	324 (98%)	7 (2%)	47	44
1	B	331/333 (99%)	324 (98%)	7 (2%)	47	44
1	C	331/333 (99%)	328 (99%)	3 (1%)	70	73
1	D	331/333 (99%)	323 (98%)	8 (2%)	43	38
All	All	1324/1332 (99%)	1299 (98%)	25 (2%)	50	47

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	GLN
1	A	17	LEU
1	A	18	ASN
1	A	80	GLU
1	A	159	ILE
1	A	187	LYS
1	A	228	VAL
1	B	6	GLN
1	B	14	LEU
1	B	17	LEU
1	B	63	ILE
1	B	82	GLN
1	B	87	GLU
1	B	413	VAL
1	C	17	LEU
1	C	80	GLU
1	C	159	ILE
1	D	10	THR
1	D	14	LEU
1	D	159	ILE
1	D	175	ILE
1	D	268	LYS
1	D	317	LEU
1	D	410	ARG
1	D	412	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	ASN
1	A	82	GLN
1	A	120	GLN
1	A	143	HIS
1	A	215	GLN
1	A	276	GLN
1	A	281	GLN
1	B	4	HIS
1	B	18	ASN
1	B	60	GLN
1	B	82	GLN
1	B	120	GLN
1	B	220	HIS
1	B	361	GLN
1	C	18	ASN
1	C	22	GLN
1	C	120	GLN
1	C	215	GLN
1	D	62	GLN
1	D	143	HIS
1	D	220	HIS

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	FLC	D	3301	-	12,12,12	1.31	1 (8%)	17,17,17	1.50	3 (17%)
3	NAD	C	2201	-	46,48,48	1.57	4 (8%)	64,73,73	1.63	14 (21%)
2	FLC	C	3201	-	12,12,12	1.50	1 (8%)	17,17,17	1.50	4 (23%)
2	FLC	A	3001	-	12,12,12	1.22	1 (8%)	17,17,17	1.75	4 (23%)
3	NAD	A	2001	-	46,48,48	1.51	4 (8%)	64,73,73	1.54	12 (18%)
3	NAD	D	2301	-	46,48,48	1.56	6 (13%)	64,73,73	1.59	11 (17%)
3	NAD	B	2101	-	46,48,48	1.56	5 (10%)	64,73,73	1.44	9 (14%)
2	FLC	B	3101	-	12,12,12	1.45	1 (8%)	17,17,17	1.49	3 (17%)

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	FLC	D	3301	-	-	8/16/16/16	-
3	NAD	C	2201	-	-	5/30/62/62	0/5/5/5
2	FLC	C	3201	-	-	10/16/16/16	-
2	FLC	A	3001	-	-	10/16/16/16	-
3	NAD	A	2001	-	-	3/30/62/62	0/5/5/5
3	NAD	D	2301	-	-	4/30/62/62	0/5/5/5
3	NAD	B	2101	-	-	3/30/62/62	0/5/5/5
2	FLC	B	3101	-	-	8/16/16/16	-

All (23) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	2301	NAD	O7N-C7N	8.23	1.39	1.24
3	B	2101	NAD	O7N-C7N	8.23	1.39	1.24
3	C	2201	NAD	O7N-C7N	8.11	1.39	1.24
3	A	2001	NAD	O7N-C7N	7.74	1.38	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	3201	FLC	CB-CBC	-4.73	1.48	1.53
2	B	3101	FLC	CB-CBC	-4.50	1.48	1.53
2	D	3301	FLC	CB-CBC	-4.05	1.49	1.53
2	A	3001	FLC	CB-CBC	-3.57	1.49	1.53
3	A	2001	NAD	C2A-N3A	2.93	1.39	1.33
3	C	2201	NAD	C2A-N3A	2.71	1.38	1.33
3	B	2101	NAD	C2A-N1A	2.60	1.38	1.33
3	D	2301	NAD	C2N-N1N	2.55	1.37	1.35
3	A	2001	NAD	C2A-N1A	2.49	1.38	1.33
3	C	2201	NAD	C8A-N7A	2.40	1.36	1.31
3	B	2101	NAD	C2A-N3A	2.33	1.38	1.33
3	A	2001	NAD	C8A-N7A	2.31	1.36	1.31
3	D	2301	NAD	PA-O3	2.28	1.62	1.59
3	C	2201	NAD	C2A-N1A	2.26	1.37	1.33
3	D	2301	NAD	C2A-N3A	2.23	1.37	1.33
3	B	2101	NAD	C8A-N7A	2.14	1.35	1.31
3	D	2301	NAD	C2A-N1A	2.14	1.37	1.33
3	D	2301	NAD	C8A-N7A	2.12	1.35	1.31
3	B	2101	NAD	C2N-N1N	2.09	1.37	1.35

All (60) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	2201	NAD	N3A-C2A-N1A	-5.64	120.04	128.58
3	D	2301	NAD	N3A-C2A-N1A	-5.29	120.58	128.58
3	B	2101	NAD	N3A-C2A-N1A	-4.97	121.06	128.58
3	A	2001	NAD	N3A-C2A-N1A	-4.77	121.36	128.58
3	D	2301	NAD	N9A-C8A-N7A	-4.48	107.58	113.94
3	A	2001	NAD	N9A-C8A-N7A	-4.24	107.92	113.94
3	A	2001	NAD	C5A-C4A-N3A	-3.81	121.47	126.72
3	B	2101	NAD	N9A-C8A-N7A	-3.70	108.69	113.94
3	D	2301	NAD	C5A-C4A-N3A	-3.70	121.62	126.72
2	A	3001	FLC	CA-CB-CBC	-3.66	101.95	110.03
3	B	2101	NAD	C5A-C4A-N3A	-3.62	121.73	126.72
3	C	2201	NAD	N9A-C8A-N7A	-3.48	109.00	113.94
3	D	2301	NAD	C5A-N7A-C8A	3.42	108.83	103.45
3	A	2001	NAD	C5A-N7A-C8A	3.41	108.81	103.45
3	C	2201	NAD	C5A-C4A-N3A	-3.40	122.03	126.72
3	C	2201	NAD	C5N-C4N-C3N	-3.37	117.05	120.36
2	A	3001	FLC	OB2-CBC-CB	3.25	119.37	113.14
3	D	2301	NAD	C3N-C7N-N7N	3.21	121.70	117.74
3	C	2201	NAD	C2N-C3N-C4N	3.02	121.77	118.26

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	2101	NAD	C3N-C7N-N7N	2.98	121.41	117.74
2	B	3101	FLC	CA-CB-CBC	-2.94	103.52	110.03
3	C	2201	NAD	C6N-N1N-C2N	-2.92	119.39	121.88
3	D	2301	NAD	O3-PN-O1N	-2.88	102.03	110.70
3	D	2301	NAD	C2A-N3A-C4A	2.85	118.80	111.83
2	C	3201	FLC	OG2-CGC-OG1	-2.84	116.04	123.33
3	B	2101	NAD	C5A-N7A-C8A	2.82	107.88	103.45
2	D	3301	FLC	CA-CB-CBC	-2.81	103.82	110.03
2	D	3301	FLC	OB2-CBC-CB	2.74	118.40	113.14
3	D	2301	NAD	C4A-N9A-C8A	2.73	108.61	105.74
2	A	3001	FLC	OG2-CGC-CG	2.65	122.75	114.35
2	B	3101	FLC	OG2-CGC-CG	2.65	122.75	114.35
2	C	3201	FLC	CA-CB-CBC	-2.63	104.21	110.03
3	A	2001	NAD	O3-PN-O1N	-2.61	102.85	110.70
3	B	2101	NAD	N3A-C4A-N9A	2.59	131.58	127.17
3	C	2201	NAD	C2A-N3A-C4A	2.58	118.14	111.83
3	B	2101	NAD	C2A-N3A-C4A	2.57	118.11	111.83
3	D	2301	NAD	C2B-C1B-N9A	-2.50	107.08	113.30
3	D	2301	NAD	C4A-C5A-N7A	-2.49	107.74	110.58
2	B	3101	FLC	OB2-CBC-CB	2.49	117.91	113.14
3	C	2201	NAD	O3-PN-O1N	-2.45	103.32	110.70
3	A	2001	NAD	C2A-N3A-C4A	2.44	117.80	111.83
3	C	2201	NAD	C5A-N7A-C8A	2.38	107.19	103.45
3	A	2001	NAD	C4A-C5A-N7A	-2.37	107.87	110.58
3	C	2201	NAD	N3A-C4A-N9A	2.34	131.14	127.17
3	D	2301	NAD	N3A-C4A-N9A	2.33	131.13	127.17
3	C	2201	NAD	C4A-N9A-C8A	2.33	108.18	105.74
3	A	2001	NAD	C6A-C5A-C4A	2.33	120.35	117.18
2	C	3201	FLC	OG2-CGC-CG	2.31	121.68	114.35
3	A	2001	NAD	N3A-C4A-N9A	2.28	131.05	127.17
3	B	2101	NAD	C4A-N9A-C8A	2.28	108.13	105.74
3	C	2201	NAD	C2B-C1B-N9A	-2.27	107.67	113.30
3	A	2001	NAD	C3N-C7N-N7N	2.23	120.49	117.74
3	B	2101	NAD	O7N-C7N-C3N	-2.19	116.92	119.60
3	C	2201	NAD	O7N-C7N-C3N	-2.18	116.93	119.60
2	C	3201	FLC	OB2-CBC-CB	2.15	117.27	113.14
3	C	2201	NAD	O2A-PA-O3	-2.08	101.65	107.27
3	A	2001	NAD	C4A-N9A-C8A	2.07	107.91	105.74
3	A	2001	NAD	C6N-N1N-C2N	-2.06	120.12	121.88
2	A	3001	FLC	OG2-CGC-OG1	-2.03	118.11	123.33
2	D	3301	FLC	OG2-CGC-CG	2.01	120.70	114.35

There are no chirality outliers.

All (51) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2001	NAD	O4D-C1D-N1N-C6N
3	B	2101	NAD	O4D-C1D-N1N-C2N
3	B	2101	NAD	O4D-C1D-N1N-C6N
3	C	2201	NAD	C5D-O5D-PN-O3
3	C	2201	NAD	C5D-O5D-PN-O2N
3	C	2201	NAD	O4D-C1D-N1N-C6N
3	D	2301	NAD	O4D-C1D-N1N-C2N
3	D	2301	NAD	O4D-C1D-N1N-C6N
3	D	2301	NAD	C2D-C1D-N1N-C2N
2	C	3201	FLC	CG-CB-CBC-OB2
2	D	3301	FLC	CG-CB-CBC-OB2
2	D	3301	FLC	CG-CB-CBC-OB1
2	D	3301	FLC	CB-CG-CGC-OG1
2	D	3301	FLC	CB-CG-CGC-OG2
2	B	3101	FLC	CB-CG-CGC-OG1
2	B	3101	FLC	CB-CG-CGC-OG2
2	B	3101	FLC	CG-CB-CBC-OB2
2	C	3201	FLC	CA-CB-CBC-OB2
2	C	3201	FLC	CG-CB-CBC-OB1
2	D	3301	FLC	CA-CB-CBC-OB2
2	C	3201	FLC	CB-CG-CGC-OG2
2	C	3201	FLC	OHB-CB-CBC-OB2
2	D	3301	FLC	OHB-CB-CBC-OB2
2	A	3001	FLC	CG-CB-CBC-OB1
2	A	3001	FLC	CG-CB-CBC-OB2
2	B	3101	FLC	CA-CB-CBC-OB1
2	B	3101	FLC	CA-CB-CBC-OB2
2	B	3101	FLC	CG-CB-CBC-OB1
2	D	3301	FLC	CA-CB-CBC-OB1
3	A	2001	NAD	C2D-C1D-N1N-C2N
3	B	2101	NAD	C2D-C1D-N1N-C2N
3	C	2201	NAD	C2D-C1D-N1N-C2N
3	D	2301	NAD	C2D-C1D-N1N-C6N
2	C	3201	FLC	CB-CG-CGC-OG1
3	A	2001	NAD	O4D-C1D-N1N-C2N
3	C	2201	NAD	O4D-C1D-N1N-C2N
2	A	3001	FLC	CA-CB-CBC-OB2
2	C	3201	FLC	CA-CB-CBC-OB1
2	A	3001	FLC	CB-CG-CGC-OG2
2	A	3001	FLC	CB-CG-CGC-OG1
2	A	3001	FLC	OHB-CB-CBC-OB1
2	A	3001	FLC	OHB-CB-CBC-OB2

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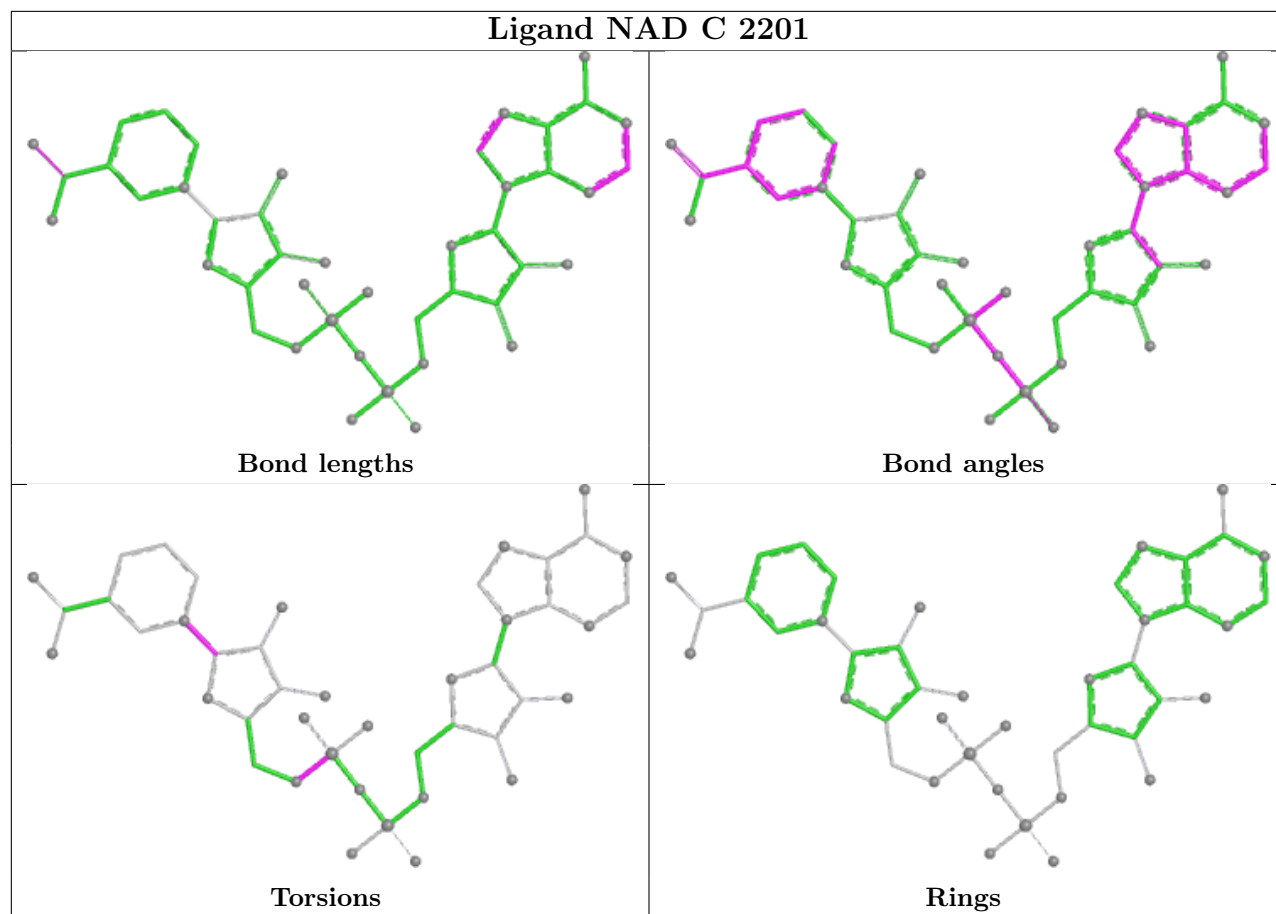
Mol	Chain	Res	Type	Atoms
2	B	3101	FLC	OHB-CB-CBC-OB1
2	B	3101	FLC	OHB-CB-CBC-OB2
2	C	3201	FLC	OHB-CB-CBC-OB1
2	D	3301	FLC	OHB-CB-CBC-OB1
2	A	3001	FLC	CA-CB-CBC-OB1
2	A	3001	FLC	CB-CA-CAC-OA1
2	A	3001	FLC	CB-CA-CAC-OA2
2	C	3201	FLC	CB-CA-CAC-OA1
2	C	3201	FLC	CB-CA-CAC-OA2

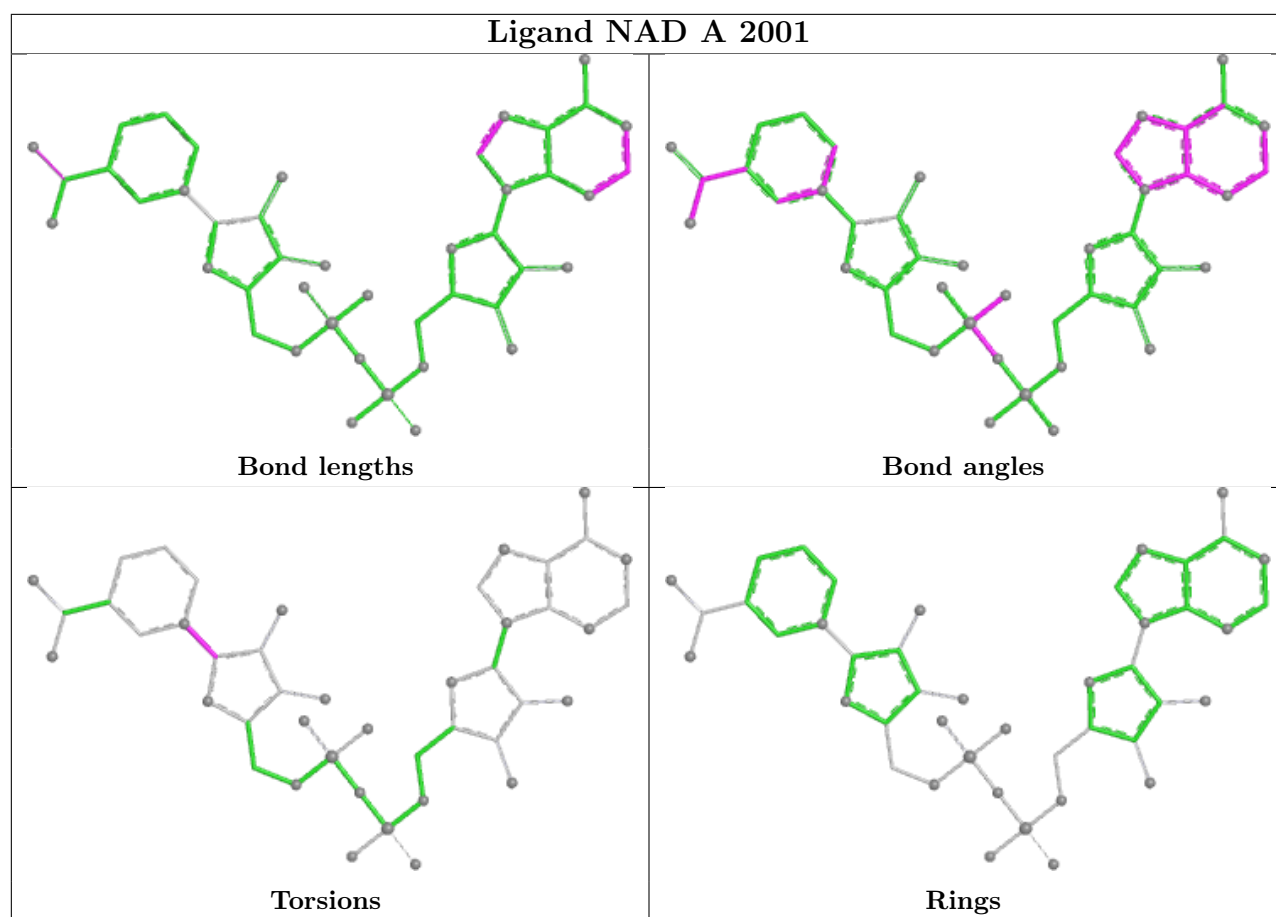
There are no ring outliers.

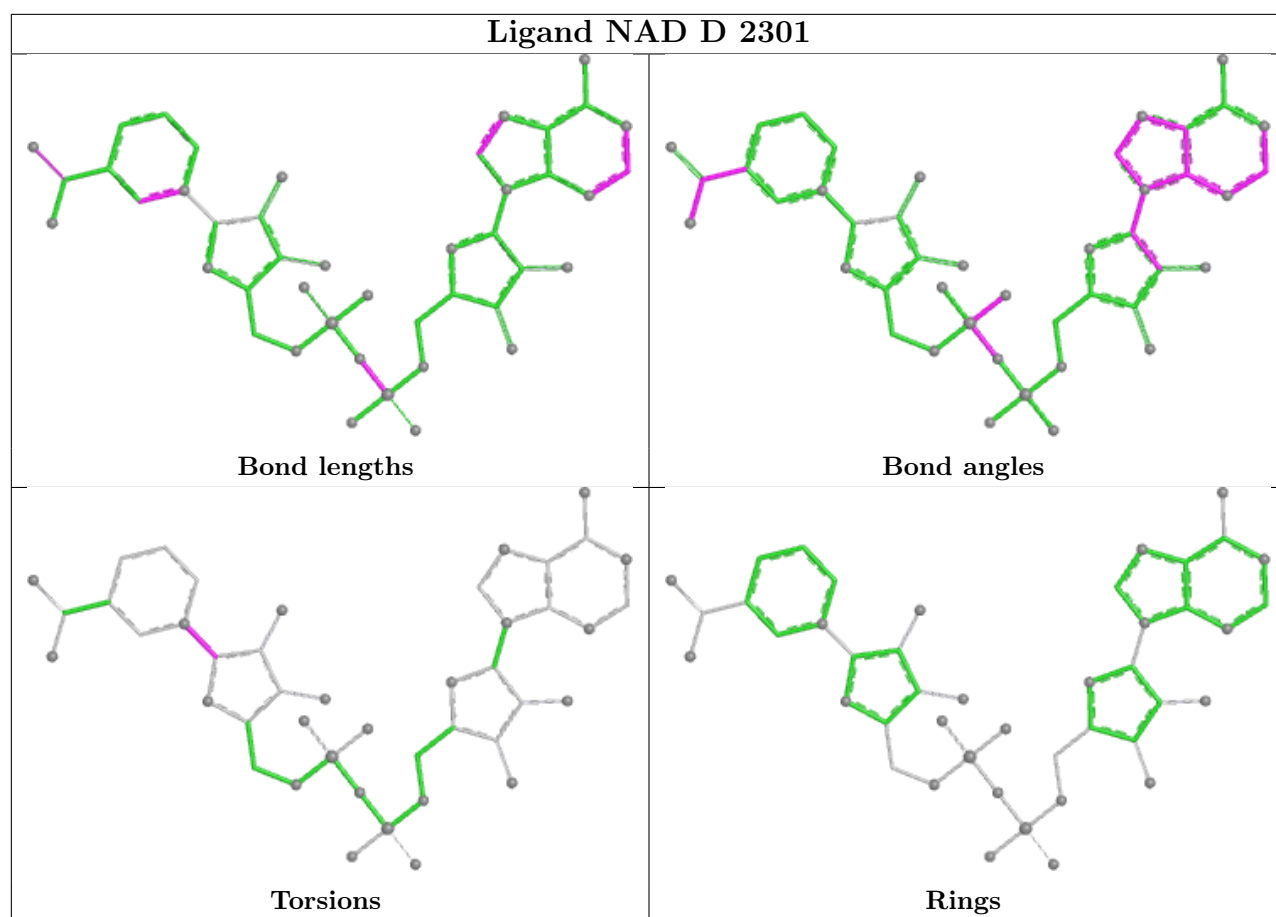
3 monomers are involved in 2 short contacts:

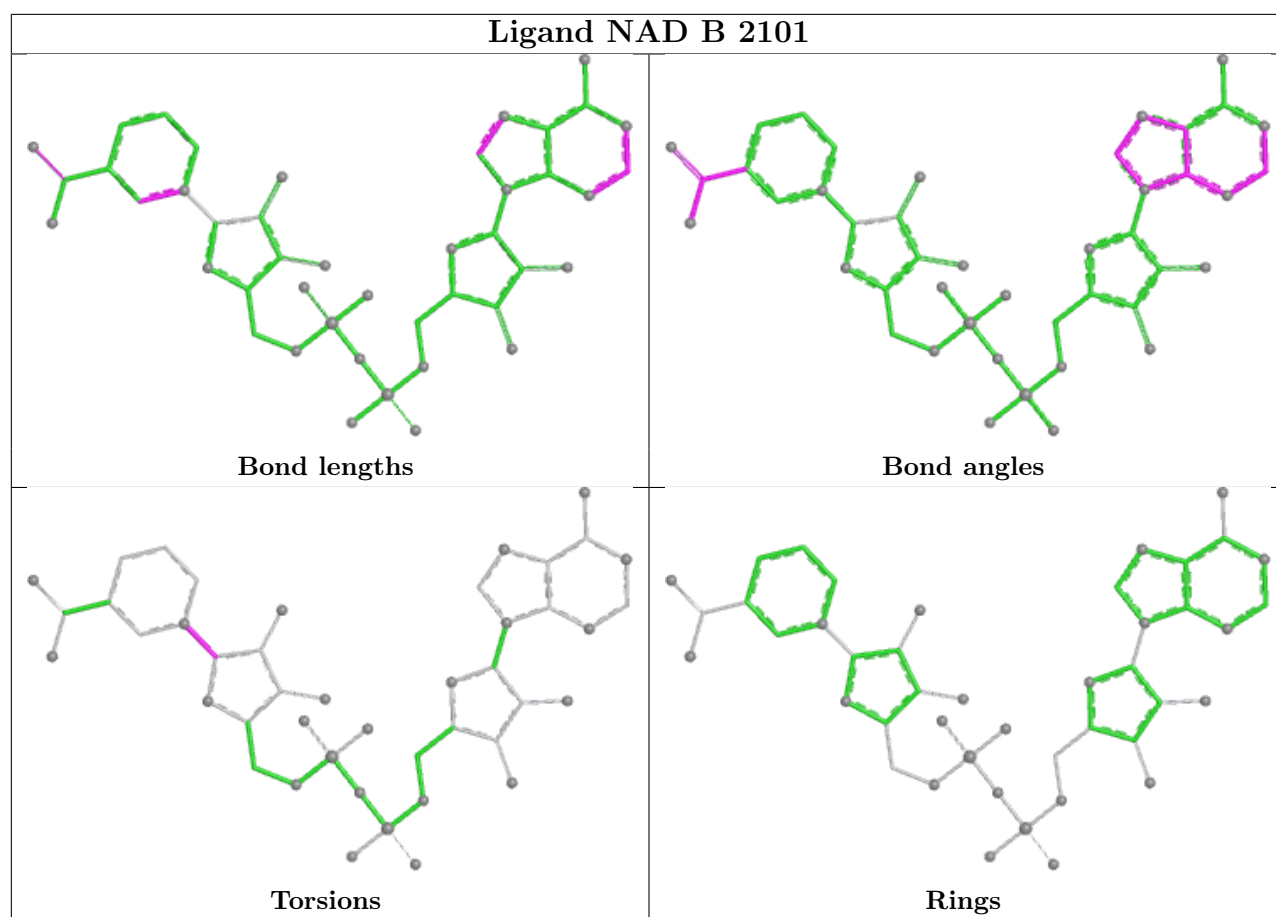
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	3301	FLC	1	0
2	A	3001	FLC	1	0
3	A	2001	NAD	1	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	427/429 (99%)	-0.17	17 (3%) 42 45	5, 11, 27, 35	0
1	B	427/429 (99%)	-0.12	19 (4%) 39 41	5, 11, 30, 41	0
1	C	427/429 (99%)	-0.31	8 (1%) 66 70	5, 9, 22, 32	0
1	D	427/429 (99%)	-0.26	14 (3%) 49 52	4, 9, 24, 39	0
All	All	1708/1716 (99%)	-0.22	58 (3%) 48 51	4, 10, 26, 41	0

All (58) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	269	ALA	4.7
1	B	412	ASP	4.3
1	A	19	GLY	4.3
1	D	412	ASP	4.2
1	A	80	GLU	4.0
1	D	280	GLN	3.9
1	C	18	ASN	3.6
1	D	266	ILE	3.3
1	D	411	GLY	3.3
1	C	276	GLN	3.2
1	B	274	ALA	3.2
1	A	18	ASN	3.1
1	B	17	LEU	3.0
1	A	20	VAL	2.9
1	B	280	GLN	2.9
1	A	280	GLN	2.9
1	D	429	PHE	2.8
1	D	10	THR	2.8
1	C	76	GLN	2.8
1	A	10	THR	2.7
1	B	16	LEU	2.7

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Mol	Chain	Res	Type	RSRZ
1	D	177	ARG	2.7
1	D	6	GLN	2.7
1	C	5	ILE	2.7
1	B	268	LYS	2.6
1	B	18	ASN	2.6
1	B	266	ILE	2.6
1	D	410	ARG	2.5
1	A	3	THR	2.5
1	B	9	ALA	2.5
1	B	276	GLN	2.5
1	B	272	LYS	2.5
1	B	19	GLY	2.4
1	D	276	GLN	2.4
1	B	10	THR	2.4
1	A	76	GLN	2.4
1	A	17	LEU	2.4
1	B	413	VAL	2.3
1	C	72	GLN	2.3
1	A	72	GLN	2.3
1	B	271	GLY	2.3
1	A	284	ALA	2.2
1	D	160	TYR	2.2
1	A	160	TYR	2.2
1	C	160	TYR	2.2
1	D	277	LYS	2.2
1	A	77	LEU	2.2
1	C	6	GLN	2.2
1	B	267	SER	2.2
1	C	177	ARG	2.2
1	B	270	GLU	2.1
1	A	387	GLN	2.1
1	A	9	ALA	2.1
1	D	274	ALA	2.1
1	A	6	GLN	2.0
1	B	77	LEU	2.0
1	A	268	LYS	2.0
1	B	76	GLN	2.0

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

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](#)

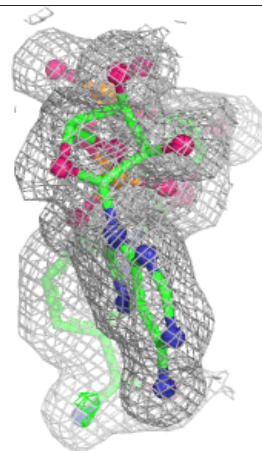
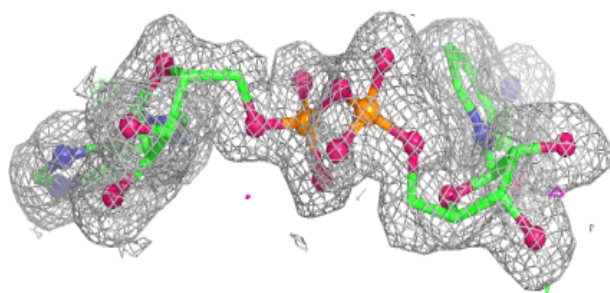
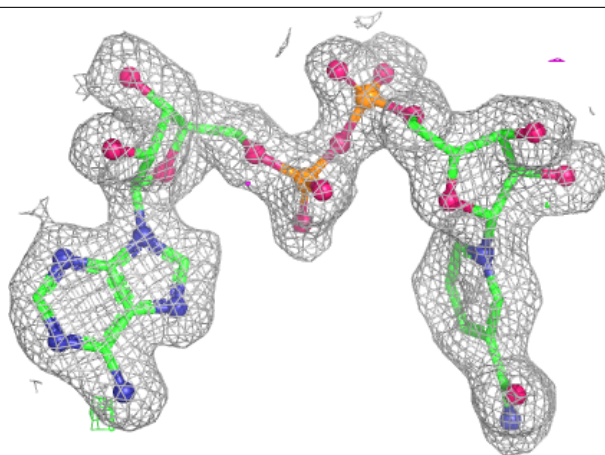
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	FLC	A	3001	13/13	0.92	0.10	19,21,24,24	0
2	FLC	C	3201	13/13	0.93	0.09	13,15,17,19	0
2	FLC	D	3301	13/13	0.93	0.09	14,16,21,23	0
2	FLC	B	3101	13/13	0.95	0.07	16,19,20,21	0
3	NAD	A	2001	44/44	0.98	0.05	6,8,11,16	0
3	NAD	B	2101	44/44	0.98	0.04	7,10,11,12	0
3	NAD	C	2201	44/44	0.98	0.04	3,7,9,10	0
3	NAD	D	2301	44/44	0.98	0.04	4,7,9,11	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.

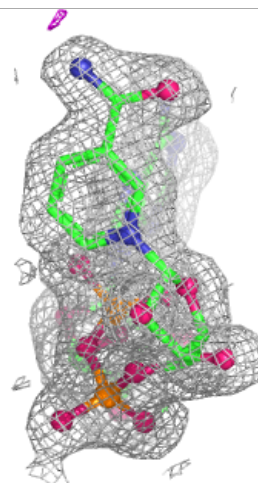
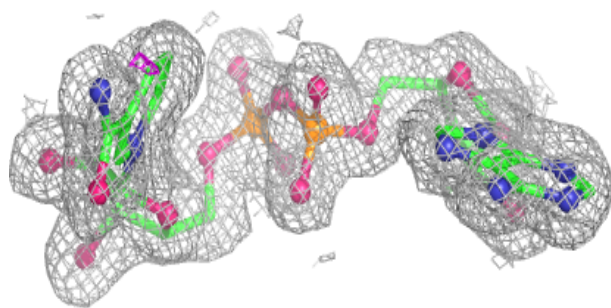
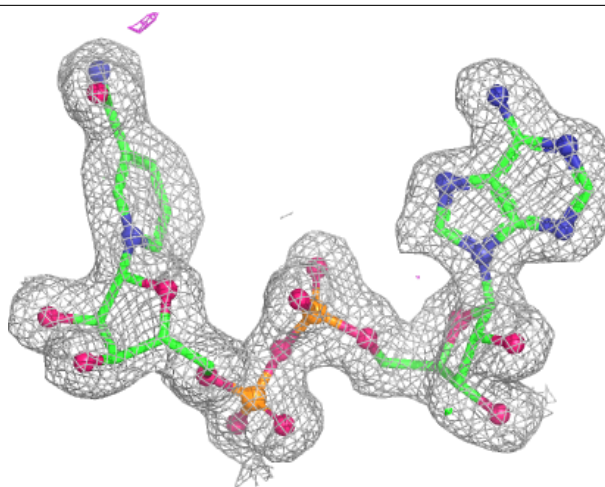
Electron density around NAD A 2001:

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



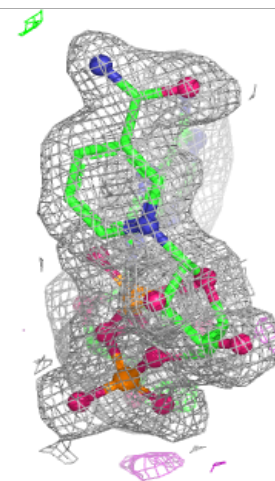
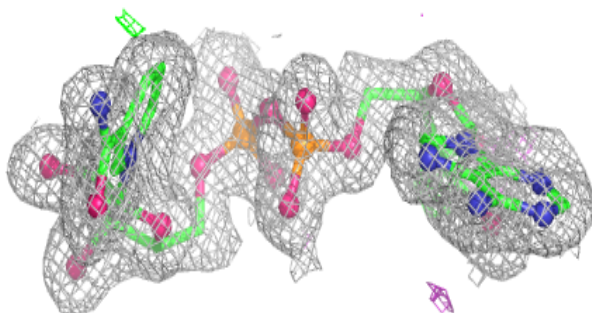
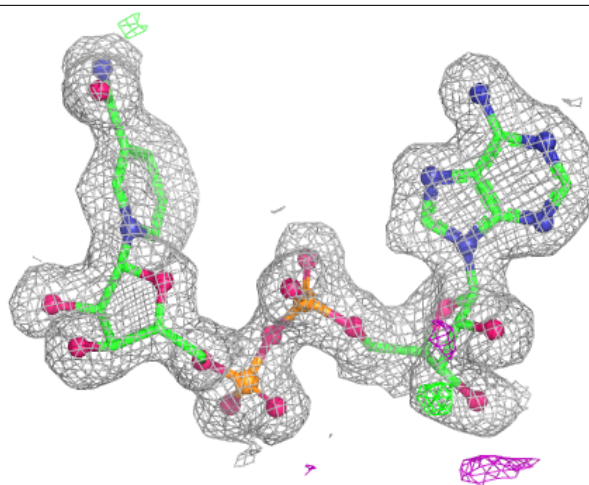
Electron density around NAD B 2101:

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



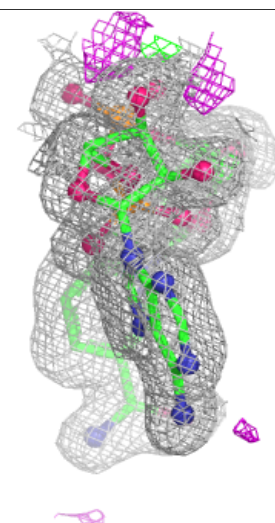
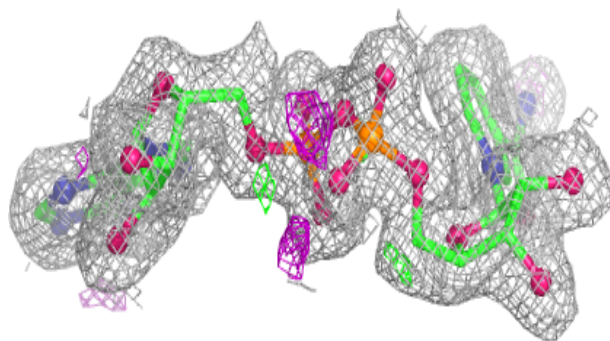
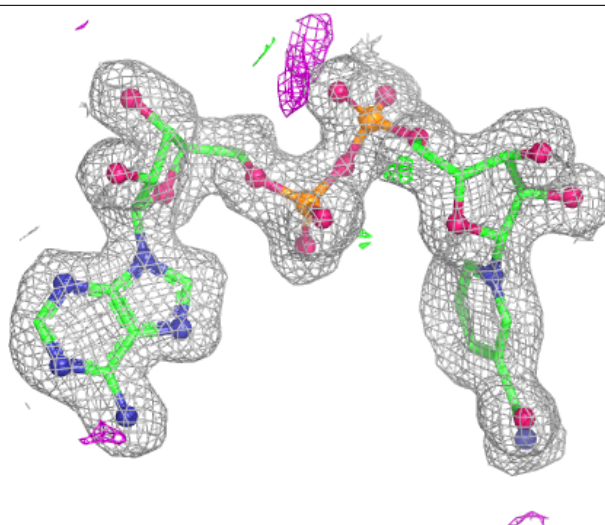
Electron density around NAD C 2201:

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



Electron density around NAD D 2301:

$2mF_o-DF_c$ (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.