



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 6, 2023 – 06:33 PM JST

PDB ID : 7XRE
Title : Crystal structure of DgpA
Authors : Ma, W.; He, P.
Deposited on : 2022-05-10
Resolution : 2.76 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.32.1
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.32.1

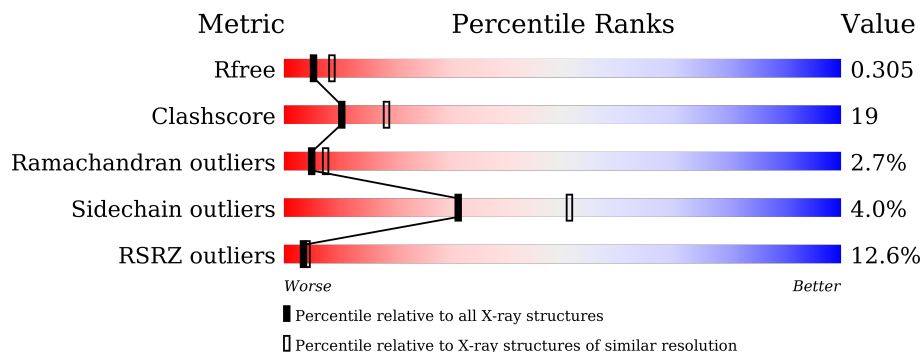
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.76 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}	130704	1235 (2.78-2.74)
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)
RSRZ outliers	127900	1207 (2.78-2.74)

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	367	 20% 57% 32% 6% ..
1	B	367	 6% 72% 25% .
1	C	367	 13% 63% 32% ..
1	D	367	 11% 63% 34% ..
1	E	367	 7% 74% 24% ..
1	F	367	 14% 63% 30% ..

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 16550 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.

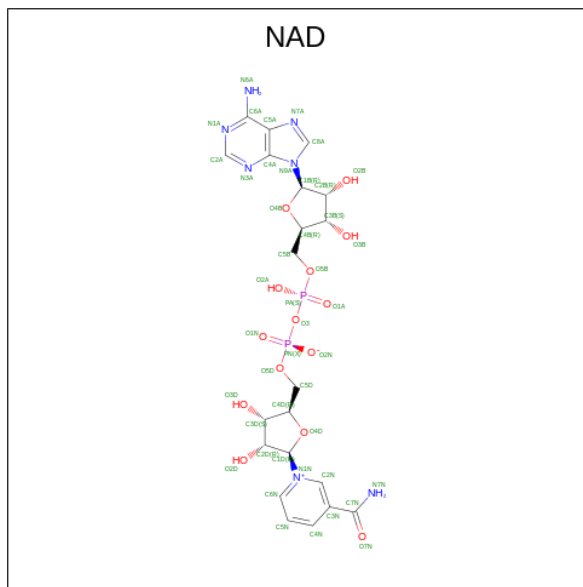
- Molecule 1 is a protein called DgpA.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
1	A	355	2662	1666	463	518	6	9	0	0	0
1	B	357	2702	1695	466	524	7	10	0	0	0
1	C	363	2742	1723	472	530	7	10	0	0	0
1	D	361	2734	1718	469	530	7	10	0	0	0
1	E	360	2717	1704	469	527	7	10	0	0	0
1	F	355	2691	1691	463	520	7	10	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	expression tag	UNP A0A3Q9WWX8
A	?	-	GLU	deletion	UNP A0A3Q9WWX8
B	0	GLY	-	expression tag	UNP A0A3Q9WWX8
B	?	-	GLU	deletion	UNP A0A3Q9WWX8
C	0	GLY	-	expression tag	UNP A0A3Q9WWX8
C	?	-	GLU	deletion	UNP A0A3Q9WWX8
D	0	GLY	-	expression tag	UNP A0A3Q9WWX8
D	?	-	GLU	deletion	UNP A0A3Q9WWX8
E	0	GLY	-	expression tag	UNP A0A3Q9WWX8
E	?	-	GLU	deletion	UNP A0A3Q9WWX8
F	0	GLY	-	expression tag	UNP A0A3Q9WWX8
F	?	-	GLU	deletion	UNP A0A3Q9WWX8

- Molecule 2 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (three-letter code: NAD) (formula: C₂₁H₂₇N₇O₁₄P₂) (labeled as "Ligand of Interest" by depositor).



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

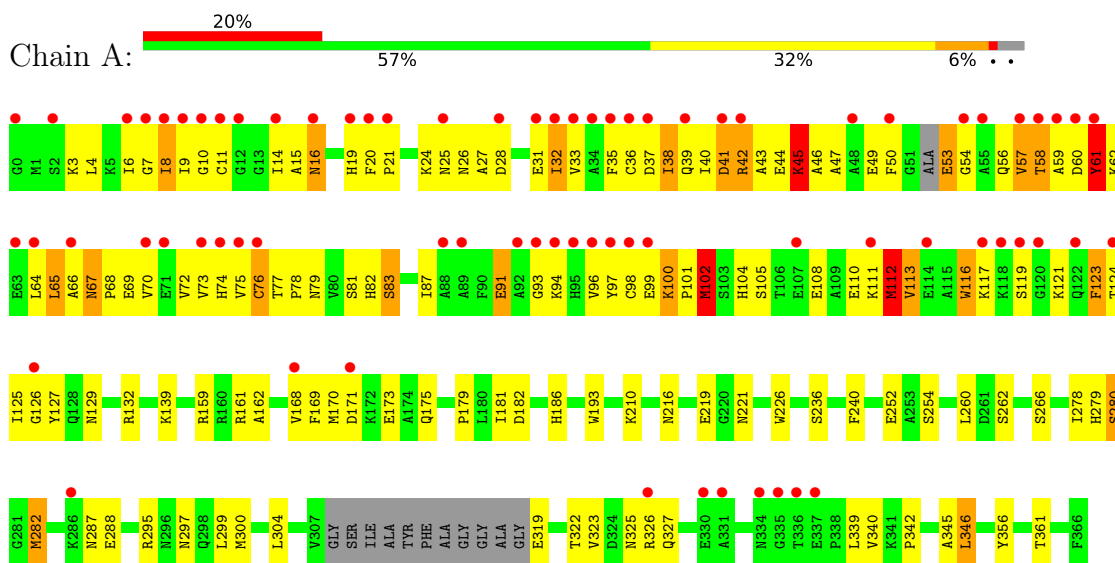
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	10	Total	O	0	0
			10	10		
3	B	11	Total	O	0	0
			11	11		
3	C	4	Total	O	0	0
			4	4		
3	D	3	Total	O	0	0
			3	3		
3	E	4	Total	O	0	0
			4	4		
3	F	6	Total	O	0	0
			6	6		

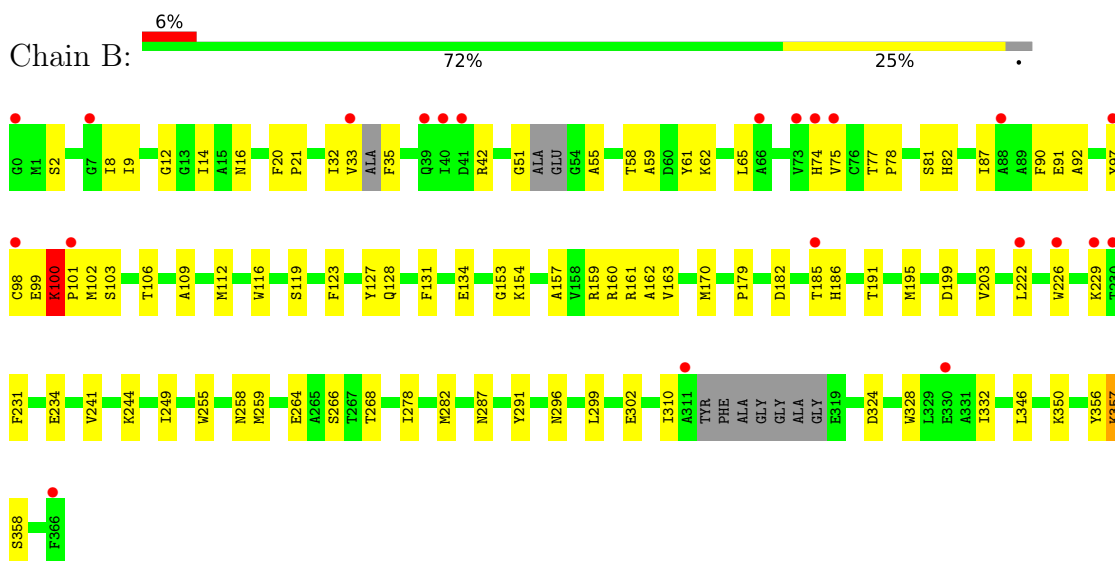
3 Residue-property plots [i](#)

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: DgpA

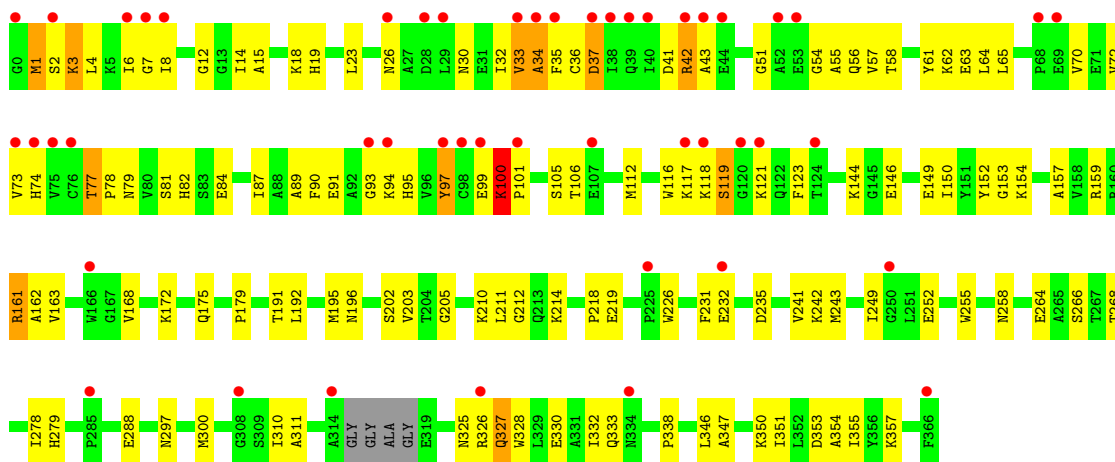


- Molecule 1: DgpA



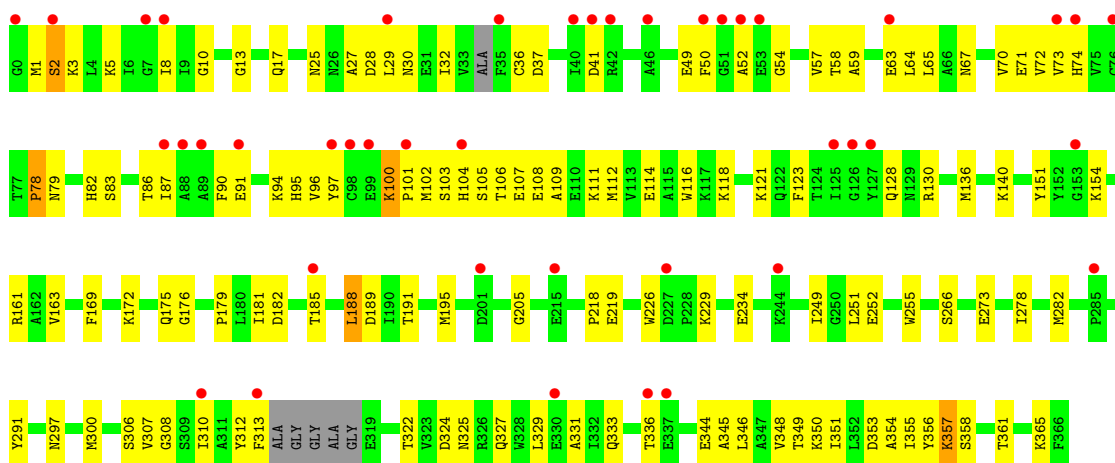
- Molecule 1: DgpA

Chain C: 




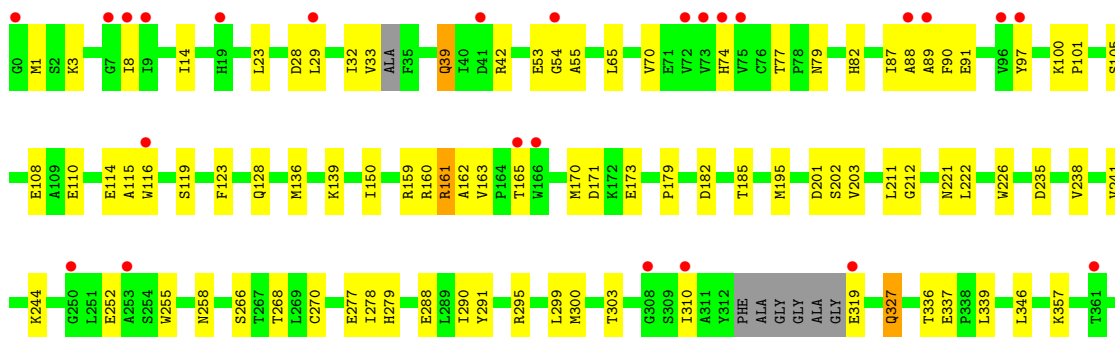
• Molecule 1: DgpA

Chain D: 



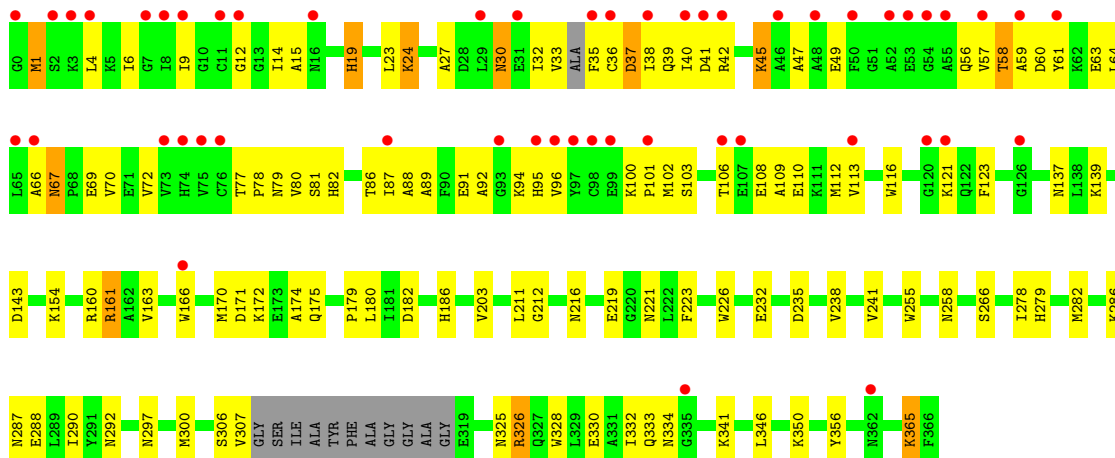
• Molecule 1: DgpA

Chain E: 





- Molecule 1: DgpA



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	94.79Å 130.76Å 206.68Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	17.08 – 2.76 26.04 – 2.76	Depositor EDS
% Data completeness (in resolution range)	98.5 (17.08-2.76) 93.9 (26.04-2.76)	Depositor EDS
R_{merge}	0.18	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.46 (at 2.76Å)	Xtrriage
Refinement program	PHENIX 1.16_3549	Depositor
R, R_{free}	0.235 , 0.294 0.253 , 0.305	Depositor DCC
R_{free} test set	3318 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	62.3	Xtrriage
Anisotropy	0.174	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 42.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	16550	wwPDB-VP
Average B, all atoms (Å ²)	73.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.85% 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

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	0.40	0/2701	0.68	3/3638 (0.1%)
1	B	0.33	1/2741 (0.0%)	0.51	3/3687 (0.1%)
1	C	0.30	0/2784	0.55	0/3750
1	D	0.31	0/2775	0.53	0/3735
1	E	0.28	0/2757	0.48	0/3711
1	F	0.34	1/2731 (0.0%)	0.59	1/3676 (0.0%)
All	All	0.33	2/16489 (0.0%)	0.56	7/22197 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	100	LYS	C-N	8.38	1.50	1.34
1	F	67	ASN	C-N	6.87	1.47	1.34

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	67	ASN	CB-CA-C	-12.64	85.12	110.40
1	B	99	GLU	O-C-N	6.38	132.91	122.70
1	A	57	VAL	C-N-CA	5.64	135.81	121.70
1	A	102	MSE	CG-SE-CE	5.60	111.21	98.90
1	B	99	GLU	CA-C-N	-5.50	105.11	117.20
1	B	99	GLU	C-N-CA	5.29	134.92	121.70
1	A	112	MSE	CG-SE-CE	5.27	110.50	98.90

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	2662	0	2533	170	0
1	B	2702	0	2603	65	0
1	C	2742	0	2650	135	0
1	D	2734	0	2638	93	0
1	E	2717	0	2613	58	0
1	F	2691	0	2599	108	0
2	A	44	0	26	12	0
2	B	44	0	25	6	0
2	C	44	0	25	4	0
2	D	44	0	25	4	0
2	E	44	0	24	4	0
2	F	44	0	26	4	0
3	A	10	0	0	1	0
3	B	11	0	0	1	0
3	C	4	0	0	0	0
3	D	3	0	0	0	0
3	E	4	0	0	1	0
3	F	6	0	0	2	0
All	All	16550	0	15787	605	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 19.

All (605) 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:110:GLU:HA	1:A:113:VAL:CG1	1.50	1.38
1:C:33:VAL:CG2	1:C:56:GLN:H	1.46	1.29
1:C:100:LYS:HB3	1:C:101:PRO:CD	1.62	1.27
1:A:110:GLU:CA	1:A:113:VAL:CG1	2.18	1.20
1:A:110:GLU:CA	1:A:113:VAL:HG12	1.70	1.18
1:C:7:GLY:HA2	1:C:34:ALA:HB2	1.19	1.17
1:A:25:ASN:HD22	1:A:322:THR:HG21	1.02	1.15
1:A:25:ASN:ND2	1:A:322:THR:HG21	1.66	1.10
1:A:91:GLU:OE1	1:A:116:TRP:HB2	1.51	1.09

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:33:VAL:HG23	1:C:55:ALA:CB	1.81	1.09
1:A:82:HIS:O	1:A:112:MSE:HE2	1.51	1.09
1:C:100:LYS:HB3	1:C:101:PRO:HD3	1.33	1.07
1:C:33:VAL:CG2	1:C:55:ALA:HB1	1.84	1.07
1:C:8:ILE:H	1:C:34:ALA:HB1	1.07	1.06
1:A:110:GLU:HA	1:A:113:VAL:HG12	1.10	1.06
1:C:8:ILE:H	1:C:34:ALA:CB	1.69	1.05
1:C:33:VAL:HG23	1:C:55:ALA:HB1	1.08	1.05
1:A:56:GLN:HB2	1:A:58:THR:HG22	1.39	1.03
1:A:110:GLU:HA	1:A:113:VAL:HG11	1.37	1.02
1:C:33:VAL:CG2	1:C:56:GLN:N	2.20	1.02
1:C:33:VAL:HG21	1:C:56:GLN:H	1.25	1.00
1:A:100:LYS:HB3	1:A:101:PRO:HD3	1.43	1.00
1:D:70:VAL:HG13	1:D:94:LYS:HE2	1.45	0.99
1:A:110:GLU:O	1:A:113:VAL:HG13	1.61	0.99
1:B:100:LYS:HB3	1:B:101:PRO:HD3	1.43	0.98
1:F:40:ILE:CD1	1:F:58:THR:O	2.11	0.98
1:A:119:SER:HB3	1:A:121:LYS:NZ	1.79	0.98
1:A:56:GLN:HB2	1:A:58:THR:CG2	1.96	0.94
1:A:119:SER:HB3	1:A:121:LYS:HZ2	1.30	0.92
1:A:7:GLY:O	1:A:73:VAL:HA	1.68	0.92
1:A:110:GLU:C	1:A:113:VAL:HG12	1.89	0.92
1:A:110:GLU:O	1:A:113:VAL:CG1	2.17	0.91
1:A:116:TRP:CD1	1:A:123:PHE:HB2	2.05	0.91
1:C:33:VAL:HG23	1:C:56:GLN:N	1.86	0.91
1:C:100:LYS:HB3	1:C:101:PRO:HD2	1.51	0.90
1:C:79:ASN:HB2	1:C:175:GLN:HA	1.54	0.90
1:A:91:GLU:OE1	1:A:116:TRP:CB	2.19	0.89
1:D:70:VAL:HG13	1:D:94:LYS:CE	2.01	0.89
1:B:100:LYS:HE2	2:B:401:NAD:C2N	2.03	0.89
1:F:100:LYS:NZ	1:F:182:ASP:O	2.05	0.88
1:C:35:PHE:O	1:C:43:ALA:HB1	1.73	0.88
1:D:70:VAL:O	1:D:94:LYS:HE3	1.74	0.88
1:C:100:LYS:CB	1:C:101:PRO:CD	2.49	0.87
1:A:20:PHE:HB2	1:A:21:PRO:HD3	1.57	0.87
1:B:8:ILE:HD13	1:B:20:PHE:HE1	1.40	0.86
1:A:82:HIS:C	1:A:112:MSE:CE	2.43	0.86
1:D:100:LYS:HB3	1:D:101:PRO:HD3	1.58	0.86
1:C:6:ILE:HB	1:C:32:ILE:HG22	1.60	0.84
1:A:32:ILE:H	1:A:32:ILE:HD12	1.40	0.84
1:A:119:SER:CB	1:A:121:LYS:NZ	2.41	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:110:GLU:C	1:A:113:VAL:CG1	2.45	0.81
1:C:310:ILE:HG22	1:C:311:ALA:H	1.45	0.81
1:A:56:GLN:CB	1:A:58:THR:HG22	2.11	0.81
1:C:7:GLY:CA	1:C:34:ALA:HB2	2.08	0.80
1:A:82:HIS:C	1:A:112:MSE:HE2	2.01	0.80
1:C:8:ILE:N	1:C:34:ALA:HB1	1.91	0.80
1:E:100:LYS:HB2	2:E:401:NAD:H2N	1.64	0.80
1:F:72:VAL:HG22	1:F:95:HIS:HB2	1.64	0.80
1:C:32:ILE:O	1:C:51:GLY:HA2	1.83	0.78
1:A:110:GLU:CA	1:A:113:VAL:HG11	2.03	0.78
1:F:14:ILE:HD12	2:F:401:NAD:C2N	2.14	0.78
1:C:8:ILE:N	1:C:34:ALA:CB	2.47	0.78
1:A:60:ASP:O	1:A:62:LYS:N	2.17	0.77
1:C:195:MSE:HE1	1:C:249:ILE:HG12	1.66	0.77
1:A:82:HIS:O	1:A:112:MSE:CE	2.30	0.77
1:C:211:LEU:N	1:C:235:ASP:OD2	2.17	0.76
1:F:15:ALA:HA	1:F:19:HIS:HB2	1.65	0.76
1:A:25:ASN:HD22	1:A:322:THR:CG2	1.92	0.76
1:C:58:THR:HG21	1:C:64:LEU:HB2	1.67	0.76
1:D:70:VAL:CG1	1:D:94:LYS:HE2	2.16	0.76
1:F:109:ALA:HA	1:F:112:MSE:HE3	1.68	0.75
1:F:108:GLU:OE2	3:F:502:HOH:O	2.04	0.75
1:B:191:THR:HG22	1:B:195:MSE:HE2	1.69	0.74
1:C:33:VAL:HG23	1:C:55:ALA:CA	2.17	0.74
1:F:14:ILE:HD12	2:F:401:NAD:C3N	2.16	0.74
1:F:40:ILE:HD11	1:F:58:THR:O	1.86	0.74
1:A:94:LYS:O	1:A:121:LYS:HD2	1.86	0.74
1:B:100:LYS:CE	2:B:401:NAD:C2N	2.66	0.74
1:D:82:HIS:O	1:D:86:THR:OG1	2.06	0.74
1:A:6:ILE:HA	1:A:72:VAL:HB	1.69	0.73
1:A:38:ILE:HG21	2:A:401:NAD:C8A	2.18	0.73
1:F:292:ASN:OD1	3:F:501:HOH:O	2.04	0.73
1:C:79:ASN:OD1	1:C:101:PRO:HG2	1.89	0.73
1:F:106:THR:HG23	1:F:350:LYS:HG2	1.69	0.73
1:A:83:SER:HA	1:A:112:MSE:HE3	1.70	0.73
1:E:100:LYS:HB3	1:E:101:PRO:HD3	1.69	0.73
1:C:354:ALA:HA	1:C:357:LYS:HE2	1.71	0.72
1:A:62:LYS:O	1:A:65:LEU:HG	1.90	0.72
1:B:170:MSE:HE1	1:B:226:TRP:HB2	1.70	0.72
1:C:23:LEU:O	1:C:30:ASN:ND2	2.21	0.72
1:A:32:ILE:HD12	1:A:32:ILE:N	2.05	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:42:ARG:CG	1:A:42:ARG:HH21	2.02	0.72
1:A:119:SER:CB	1:A:121:LYS:HZ1	2.00	0.72
1:B:102:MSE:HE3	1:B:109:ALA:HB1	1.72	0.71
1:F:33:VAL:HG21	1:F:70:VAL:HG12	1.72	0.71
1:B:109:ALA:HA	1:B:112:MSE:HE3	1.73	0.71
1:D:3:LYS:NZ	1:D:27:ALA:O	2.23	0.71
1:A:42:ARG:HB3	1:A:42:ARG:NH2	2.05	0.71
1:A:42:ARG:HH21	1:A:42:ARG:HB3	1.53	0.71
1:D:130:ARG:NH2	1:D:189:ASP:OD1	2.22	0.71
1:A:38:ILE:CG2	2:A:401:NAD:N9A	2.54	0.70
1:F:102:MSE:HE3	1:F:109:ALA:HB1	1.73	0.70
1:B:100:LYS:HD3	1:B:182:ASP:O	1.90	0.70
1:C:191:THR:HG22	1:C:195:MSE:HE2	1.73	0.70
1:C:79:ASN:HA	1:C:82:HIS:CD2	2.27	0.70
1:A:39:GLN:H	1:A:42:ARG:HD2	1.56	0.70
1:A:83:SER:N	1:A:112:MSE:HE3	2.06	0.69
1:C:33:VAL:CB	1:C:55:ALA:HB1	2.21	0.69
1:C:243:MSE:HE3	1:C:249:ILE:HD12	1.75	0.69
1:F:40:ILE:HD13	1:F:58:THR:O	1.90	0.69
1:A:38:ILE:HG23	2:A:401:NAD:C1B	2.23	0.68
1:F:91:GLU:OE2	1:F:116:TRP:HA	1.92	0.68
1:E:65:LEU:HD13	1:E:89:ALA:HB1	1.75	0.68
1:E:201:ASP:HB2	1:E:244:LYS:HG2	1.76	0.68
1:D:28:ASP:HB2	1:D:29:LEU:HD22	1.75	0.68
1:D:313:PHE:HA	1:F:223:PHE:HE1	1.57	0.68
1:D:64:LEU:C	1:D:64:LEU:HD23	2.13	0.68
1:F:88:ALA:O	1:F:92:ALA:N	2.25	0.68
1:F:332:ILE:HG13	1:F:333:GLN:H	1.58	0.68
1:C:90:PHE:O	1:C:94:LYS:HG2	1.94	0.68
1:A:83:SER:CA	1:A:112:MSE:HE3	2.25	0.67
1:A:56:GLN:CB	1:A:58:THR:CG2	2.71	0.67
1:A:78:PRO:HG3	1:A:168:VAL:HG11	1.77	0.67
1:C:26:ASN:HD22	1:C:326:ARG:HH11	1.41	0.66
1:A:45:LYS:HA	1:A:49:GLU:HG3	1.77	0.66
1:E:77:THR:O	1:E:82:HIS:HE1	1.78	0.66
1:A:60:ASP:C	1:A:62:LYS:H	1.99	0.65
1:D:100:LYS:HB2	2:D:401:NAD:H2N	1.77	0.65
1:F:332:ILE:HG13	1:F:333:GLN:N	2.11	0.65
1:A:100:LYS:CB	1:A:101:PRO:HD3	2.21	0.65
1:E:87:ILE:O	1:E:89:ALA:N	2.30	0.65
1:A:3:LYS:HG2	1:A:31:GLU:HG3	1.76	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:7:GLY:HA2	1:C:34:ALA:CB	2.11	0.65
1:F:116:TRP:CD1	1:F:123:PHE:HB2	2.31	0.65
1:A:38:ILE:O	1:A:38:ILE:HG12	1.96	0.65
1:E:268:THR:HG23	1:E:277:GLU:HB3	1.78	0.65
1:E:8:ILE:HD13	1:E:74:HIS:HB2	1.79	0.65
1:D:128:GLN:HE22	2:D:401:NAD:H72N	1.43	0.65
1:F:6:ILE:HD12	1:F:72:VAL:HB	1.79	0.65
1:A:119:SER:HB2	1:A:121:LYS:HZ1	1.61	0.64
1:B:100:LYS:CB	1:B:101:PRO:HD3	2.15	0.64
1:C:214:LYS:HE3	1:D:273:GLU:OE2	1.98	0.64
1:F:58:THR:HG22	1:F:60:ASP:H	1.61	0.64
1:A:42:ARG:HH21	1:A:42:ARG:CB	2.09	0.64
1:A:65:LEU:HD23	1:A:65:LEU:N	2.13	0.64
1:E:105:SER:HB3	1:E:108:GLU:HB2	1.80	0.64
1:C:161:ARG:NH2	1:C:258:ASN:OD1	2.23	0.63
1:D:37:ASP:OD1	2:D:401:NAD:O2B	2.15	0.63
1:D:29:LEU:HD12	1:D:333:GLN:HE22	1.62	0.63
1:D:95:HIS:CE1	1:D:121:LYS:HD3	2.32	0.63
1:A:15:ALA:HA	1:A:19:HIS:HB2	1.80	0.63
1:D:96:VAL:HG23	1:D:123:PHE:CD1	2.33	0.63
1:D:100:LYS:HE3	1:D:101:PRO:HD3	1.81	0.62
2:F:401:NAD:O1N	2:F:401:NAD:H6N	1.99	0.62
1:E:212:GLY:O	1:E:226:TRP:HZ3	1.82	0.62
1:A:110:GLU:CB	1:A:113:VAL:HG11	2.29	0.62
1:A:20:PHE:HB3	1:A:50:PHE:CE1	2.34	0.62
1:B:8:ILE:HD13	1:B:20:PHE:CE1	2.29	0.62
1:A:56:GLN:OE1	1:A:56:GLN:N	2.20	0.62
1:A:25:ASN:ND2	1:A:322:THR:CG2	2.56	0.62
1:B:100:LYS:HE2	2:B:401:NAD:H2N	1.82	0.62
1:C:152:TYR:OH	1:D:252:GLU:OE2	2.16	0.62
1:A:16:ASN:HA	1:A:20:PHE:CD2	2.35	0.61
1:A:38:ILE:HG21	2:A:401:NAD:N9A	2.15	0.61
1:E:161:ARG:HG2	1:E:221:ASN:HA	1.82	0.61
1:A:38:ILE:HG23	2:A:401:NAD:H1B	1.82	0.61
1:A:170:MSE:HE1	1:A:226:TRP:HB2	1.81	0.61
1:A:42:ARG:HH21	1:A:42:ARG:HG2	1.65	0.61
1:A:116:TRP:NE1	1:A:123:PHE:HB2	2.16	0.61
1:B:154:LYS:HB2	1:B:268:THR:HB	1.83	0.61
1:D:73:VAL:HG23	1:D:96:VAL:HG12	1.83	0.61
1:D:205:GLY:HA3	1:D:355:ILE:HG23	1.81	0.61
1:A:6:ILE:N	1:A:31:GLU:O	2.22	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:38:ILE:HG13	1:F:39:GLN:N	2.15	0.60
1:F:58:THR:HG22	1:F:60:ASP:N	2.17	0.60
1:A:56:GLN:CG	1:A:58:THR:CG2	2.80	0.60
1:C:100:LYS:HD2	1:C:101:PRO:HD3	1.84	0.60
1:C:100:LYS:HB2	2:C:401:NAD:H2N	1.83	0.60
1:A:96:VAL:HG13	1:A:123:PHE:CD1	2.37	0.59
1:A:56:GLN:HB2	1:A:58:THR:HG21	1.84	0.59
1:F:103:SER:HB3	1:F:112:MSE:HE1	1.83	0.59
1:A:113:VAL:HG23	1:A:117:LYS:HE3	1.83	0.59
1:E:179:PRO:HB3	1:E:255:TRP:CD1	2.38	0.59
1:E:279:HIS:HB2	1:E:288:GLU:HB2	1.84	0.59
1:E:89:ALA:O	1:E:91:GLU:N	2.36	0.59
1:F:47:ALA:CB	1:F:57:VAL:HG11	2.33	0.59
1:A:3:LYS:HG2	1:A:31:GLU:CG	2.32	0.59
1:D:188:LEU:HG	1:D:251:LEU:CD1	2.33	0.59
1:C:219:GLU:HG2	1:D:297:ASN:HA	1.85	0.58
1:F:56:GLN:HG2	1:F:56:GLN:O	2.03	0.58
1:B:33:VAL:HA	1:B:55:ALA:HB1	1.85	0.58
1:B:356:TYR:C	1:B:358:SER:H	2.06	0.58
1:A:56:GLN:HG3	1:A:58:THR:CG2	2.32	0.58
1:D:361:THR:O	1:D:361:THR:HG22	2.02	0.58
1:A:169:PHE:HA	1:A:175:GLN:HG3	1.84	0.58
1:C:100:LYS:CD	1:C:101:PRO:HD3	2.34	0.58
1:A:102:MSE:HE3	1:A:345:ALA:HB3	1.85	0.58
1:D:107:GLU:O	1:D:111:LYS:HG2	2.04	0.58
1:E:33:VAL:HG23	1:E:70:VAL:HG12	1.85	0.58
1:F:100:LYS:HB3	1:F:101:PRO:HD3	1.85	0.58
1:A:82:HIS:C	1:A:112:MSE:HE3	2.23	0.57
1:A:75:VAL:HG22	1:A:98:CYS:HA	1.85	0.57
1:A:297:ASN:HA	1:F:219:GLU:HG2	1.86	0.57
1:E:77:THR:O	2:E:401:NAD:H4D	2.04	0.57
1:B:75:VAL:HG22	1:B:98:CYS:HA	1.87	0.57
1:C:26:ASN:ND2	1:C:326:ARG:HD2	2.19	0.57
1:D:114:GLU:OE1	1:D:118:LYS:NZ	2.34	0.57
1:A:279:HIS:HB2	1:A:288:GLU:HB2	1.86	0.57
1:C:252:GLU:OE2	1:D:154:LYS:HE3	2.04	0.57
1:C:3:LYS:HG3	1:C:4:LEU:H	1.69	0.57
1:C:100:LYS:CB	1:C:101:PRO:HD3	2.19	0.57
1:C:72:VAL:HG13	1:C:95:HIS:HB2	1.86	0.56
1:D:64:LEU:HD23	1:D:64:LEU:O	2.05	0.56
1:C:65:LEU:HD23	1:C:90:PHE:HA	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:300:MSE:HE1	1:E:291:TYR:CE2	2.40	0.56
1:A:26:ASN:OD1	1:A:326:ARG:HB2	2.05	0.56
1:B:159:ARG:HD3	1:B:162:ALA:HB3	1.88	0.56
1:B:90:PHE:C	1:B:92:ALA:H	2.09	0.56
1:A:74:HIS:CD2	1:A:97:TYR:HB3	2.40	0.56
1:C:7:GLY:O	1:C:73:VAL:HA	2.06	0.56
1:C:327:GLN:OE1	1:C:338:PRO:HA	2.05	0.56
1:C:87:ILE:O	1:C:89:ALA:N	2.33	0.55
1:C:23:LEU:HD13	1:C:32:ILE:HG21	1.87	0.55
1:A:93:GLY:H	1:A:121:LYS:HE3	1.71	0.55
1:A:3:LYS:CG	1:A:31:GLU:HG3	2.36	0.55
1:C:279:HIS:HB2	1:C:288:GLU:HB2	1.88	0.55
1:D:195:MSE:HE1	1:D:249:ILE:HG13	1.88	0.55
1:E:161:ARG:NH2	1:E:258:ASN:OD1	2.38	0.55
1:C:33:VAL:HG23	1:C:55:ALA:C	2.27	0.55
1:F:47:ALA:HB2	1:F:57:VAL:HG11	1.89	0.55
1:C:15:ALA:HA	1:C:19:HIS:HB2	1.89	0.55
1:C:70:VAL:HG12	1:C:94:LYS:NZ	2.22	0.55
1:D:218:PRO:HG3	1:D:226:TRP:CD2	2.42	0.55
1:A:304:LEU:HD23	1:D:300:MSE:HG2	1.88	0.54
1:F:171:ASP:HB3	1:F:174:ALA:HB3	1.89	0.54
1:A:3:LYS:HB3	1:A:31:GLU:HG3	1.89	0.54
1:A:91:GLU:OE1	1:A:116:TRP:CA	2.56	0.54
1:B:77:THR:OG1	1:B:81:SER:OG	2.22	0.54
1:A:159:ARG:HD3	1:A:162:ALA:HB3	1.90	0.54
1:A:280:SER:OG	1:A:287:ASN:OD1	2.24	0.54
1:B:12:GLY:O	1:B:16:ASN:ND2	2.36	0.54
1:D:91:GLU:OE2	1:D:116:TRP:HA	2.07	0.54
1:D:351:ILE:O	1:D:355:ILE:HG13	2.07	0.54
1:C:203:VAL:HG22	1:C:241:VAL:HG13	1.90	0.54
1:B:163:VAL:HG22	1:B:255:TRP:HB3	1.90	0.54
1:C:65:LEU:CD2	1:C:90:PHE:HA	2.38	0.54
1:C:242:LYS:NZ	1:D:205:GLY:O	2.41	0.54
1:C:159:ARG:HD3	1:C:162:ALA:HB3	1.90	0.54
1:D:71:GLU:O	1:D:94:LYS:HB3	2.07	0.54
1:F:266:SER:HB3	1:F:278:ILE:O	2.08	0.54
1:A:37:ASP:CB	1:A:43:ALA:HB2	2.38	0.54
1:A:100:LYS:HG3	1:A:186:HIS:CE1	2.43	0.54
1:C:195:MSE:HE1	1:C:249:ILE:CG1	2.37	0.53
1:A:38:ILE:CG2	2:A:401:NAD:C4A	2.86	0.53
1:F:67:ASN:OD1	1:F:69:GLU:N	2.29	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:72:VAL:HG21	1:C:332:ILE:HD12	1.90	0.53
1:F:80:VAL:HG23	1:F:175:GLN:HA	1.90	0.53
1:A:171:ASP:OD2	1:A:173:GLU:HG2	2.07	0.53
1:E:77:THR:O	1:E:82:HIS:CE1	2.62	0.53
1:B:90:PHE:O	1:B:92:ALA:N	2.41	0.53
1:C:179:PRO:HB3	1:C:255:TRP:CD1	2.44	0.53
1:B:179:PRO:HD2	1:B:234:GLU:HG2	1.89	0.53
1:D:106:THR:HG23	1:D:353:ASP:OD2	2.09	0.53
1:A:91:GLU:OE1	1:A:116:TRP:HA	2.09	0.53
1:C:61:TYR:O	1:C:64:LEU:N	2.42	0.53
1:C:346:LEU:O	1:C:350:LYS:HG3	2.08	0.53
1:C:353:ASP:O	1:C:357:LYS:HG3	2.09	0.53
1:C:297:ASN:HA	1:D:219:GLU:HG2	1.90	0.52
1:F:45:LYS:HE3	1:F:45:LYS:HA	1.91	0.52
1:C:3:LYS:HG3	1:C:4:LEU:N	2.24	0.52
1:E:336:THR:HG22	1:E:337:GLU:H	1.71	0.52
1:A:8:ILE:HD11	1:A:11:CYS:SG	2.48	0.52
1:E:357:LYS:HB3	1:E:364:ILE:HD11	1.90	0.52
1:F:172:LYS:H	1:F:232:GLU:HG3	1.74	0.52
1:F:58:THR:CG2	1:F:60:ASP:H	2.22	0.52
1:C:347:ALA:O	1:C:351:ILE:HG13	2.09	0.52
1:D:188:LEU:HG	1:D:251:LEU:HD12	1.92	0.52
1:D:331:ALA:HA	1:D:336:THR:OG1	2.10	0.52
1:D:100:LYS:NZ	1:D:181:ILE:O	2.41	0.52
1:C:266:SER:HB3	1:C:278:ILE:O	2.09	0.52
1:E:150:ILE:HD12	1:E:195:MSE:HA	1.92	0.52
1:B:259:MSE:HG2	1:E:270:CYS:SG	2.50	0.52
1:C:74:HIS:CD2	1:C:97:TYR:HB3	2.45	0.51
1:F:36:CYS:O	1:F:37:ASP:HB2	2.10	0.51
1:F:64:LEU:O	1:F:64:LEU:HD23	2.10	0.51
1:A:100:LYS:HB3	1:A:101:PRO:CD	2.30	0.51
1:E:39:GLN:HG2	1:E:42:ARG:HE	1.76	0.51
1:C:191:THR:HG22	1:C:195:MSE:CE	2.39	0.51
1:A:252:GLU:OE2	1:F:154:LYS:NZ	2.30	0.51
1:F:113:VAL:HG23	1:F:116:TRP:HE3	1.75	0.51
1:F:326:ARG:NH1	1:F:330:GLU:OE2	2.43	0.51
1:F:235:ASP:OD1	1:F:235:ASP:N	2.44	0.51
1:A:38:ILE:CG2	2:A:401:NAD:C1B	2.87	0.51
1:F:330:GLU:O	1:F:334:ASN:HB2	2.11	0.51
1:A:76:CYS:O	2:A:401:NAD:H51N	2.10	0.51
1:B:160:ARG:HD3	1:E:299:LEU:HD13	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:32:ILE:HG12	3:E:502:HOH:O	2.11	0.51
1:F:139:LYS:HE2	1:F:143:ASP:OD2	2.10	0.51
1:B:9:ILE:HD13	1:B:61:TYR:HB2	1.93	0.51
1:B:100:LYS:HG3	1:B:186:HIS:NE2	2.26	0.51
1:C:36:CYS:O	1:C:37:ASP:HB2	2.10	0.50
1:C:58:THR:CG2	1:C:64:LEU:HB2	2.39	0.50
1:F:79:ASN:H	1:F:175:GLN:HG3	1.75	0.50
1:A:161:ARG:HG3	1:A:221:ASN:HA	1.93	0.50
1:C:70:VAL:HG12	1:C:94:LYS:HZ3	1.75	0.50
1:C:163:VAL:HG22	1:C:255:TRP:HB3	1.93	0.50
1:D:324:ASP:O	1:D:327:GLN:HG3	2.10	0.50
1:D:179:PRO:HB3	1:D:255:TRP:CD1	2.46	0.50
1:F:23:LEU:O	1:F:30:ASN:ND2	2.26	0.50
1:D:70:VAL:O	1:D:94:LYS:CE	2.53	0.50
1:D:266:SER:HB3	1:D:278:ILE:O	2.11	0.50
1:A:99:GLU:OE2	1:A:99:GLU:HA	2.11	0.50
1:C:36:CYS:SG	1:C:37:ASP:N	2.82	0.50
1:E:235:ASP:OD1	1:E:235:ASP:N	2.41	0.50
1:E:266:SER:HB3	1:E:278:ILE:O	2.12	0.50
1:F:70:VAL:O	1:F:94:LYS:HD2	2.12	0.50
1:A:240:PHE:HZ	1:F:238:VAL:HG23	1.77	0.50
1:F:58:THR:HG21	1:F:63:GLU:HB3	1.93	0.50
1:B:116:TRP:O	1:B:119:SER:OG	2.23	0.49
1:A:266:SER:HB3	1:A:278:ILE:O	2.12	0.49
1:C:61:TYR:O	1:C:63:GLU:N	2.45	0.49
1:A:260:LEU:HD21	1:F:290:ILE:HG21	1.95	0.49
1:B:296:ASN:ND2	1:F:137:ASN:O	2.45	0.49
1:D:25:ASN:HD22	1:D:322:THR:HG21	1.77	0.49
1:D:169:PHE:HA	1:D:175:GLN:HG3	1.95	0.49
1:A:20:PHE:HB3	1:A:50:PHE:CZ	2.46	0.49
1:A:104:HIS:ND1	1:A:104:HIS:N	2.60	0.49
1:A:179:PRO:HA	1:A:182:ASP:HB3	1.94	0.49
1:B:291:TYR:HE1	1:F:300:MSE:HE1	1.76	0.49
1:D:108:GLU:O	1:D:112:MSE:HG3	2.12	0.49
1:F:38:ILE:HG13	1:F:39:GLN:H	1.76	0.49
1:C:116:TRP:CD1	1:C:123:PHE:HB2	2.48	0.49
1:A:56:GLN:CG	1:A:58:THR:HG22	2.41	0.49
1:E:165:THR:HA	1:E:170:MSE:HE2	1.95	0.49
1:E:171:ASP:OD1	1:E:173:GLU:HB2	2.13	0.49
1:A:116:TRP:CZ2	1:A:342:PRO:HG2	2.48	0.49
1:D:79:ASN:HB2	1:D:175:GLN:HA	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:222:LEU:HD22	1:B:282:MSE:SE	2.63	0.49
1:A:61:TYR:CD1	1:A:61:TYR:C	2.86	0.49
1:B:328:TRP:CZ2	1:B:332:ILE:HD11	2.47	0.49
1:D:102:MSE:HE2	1:D:109:ALA:HB1	1.95	0.49
1:E:79:ASN:HA	1:E:82:HIS:CG	2.48	0.49
1:A:327:GLN:HE22	1:A:339:LEU:N	2.10	0.48
1:C:172:LYS:HB2	1:C:232:GLU:HB2	1.95	0.48
1:A:60:ASP:C	1:A:62:LYS:N	2.64	0.48
1:D:346:LEU:O	1:D:350:LYS:HG3	2.13	0.48
1:D:100:LYS:HB3	1:D:101:PRO:CD	2.35	0.48
1:E:211:LEU:N	1:E:235:ASP:OD2	2.46	0.48
1:A:79:ASN:ND2	1:A:175:GLN:OE1	2.47	0.48
1:C:77:THR:OG1	1:C:82:HIS:ND1	2.44	0.48
1:F:170:MSE:O	1:F:232:GLU:HG2	2.13	0.48
1:C:12:GLY:H	1:C:15:ALA:HB3	1.78	0.48
1:E:79:ASN:HA	1:E:82:HIS:CD2	2.48	0.48
1:F:57:VAL:HG23	1:F:57:VAL:O	2.12	0.48
1:B:42:ARG:NH2	2:B:401:NAD:O3B	2.47	0.48
1:C:77:THR:HB	1:C:81:SER:HB2	1.96	0.48
1:D:67:ASN:O	1:D:70:VAL:HG12	2.14	0.48
1:D:106:THR:O	1:D:109:ALA:HB3	2.14	0.48
1:F:45:LYS:O	1:F:49:GLU:HG3	2.13	0.48
1:A:39:GLN:HB2	1:A:42:ARG:CD	2.44	0.48
1:C:1:MSE:SE	1:C:1:MSE:C	3.02	0.48
1:E:110:GLU:HG3	1:E:346:LEU:HD11	1.96	0.48
1:E:357:LYS:HB3	1:E:364:ILE:CD1	2.43	0.47
1:D:65:LEU:HD22	1:D:90:PHE:HA	1.95	0.47
1:F:33:VAL:CG2	1:F:70:VAL:HG12	2.43	0.47
1:A:42:ARG:NH2	1:A:42:ARG:CB	2.73	0.47
1:A:125:ILE:O	1:A:127:TYR:N	2.43	0.47
1:C:14:ILE:HG13	1:C:18:LYS:HB3	1.95	0.47
1:D:8:ILE:HD13	1:D:74:HIS:HB2	1.95	0.47
1:D:32:ILE:HD12	1:D:50:PHE:O	2.14	0.47
1:D:310:ILE:HG22	1:D:310:ILE:O	2.13	0.47
1:F:63:GLU:O	1:F:66:ALA:HB3	2.14	0.47
1:C:205:GLY:HA3	1:C:355:ILE:HG23	1.96	0.47
1:D:104:HIS:HB2	1:D:176:GLY:HA3	1.96	0.47
1:C:32:ILE:O	1:C:32:ILE:HD12	2.14	0.47
1:A:6:ILE:O	1:A:33:VAL:N	2.32	0.47
1:A:39:GLN:HB2	1:A:42:ARG:HD2	1.96	0.47
1:B:102:MSE:HE1	1:B:346:LEU:HB2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:72:VAL:HG13	1:D:95:HIS:HB2	1.97	0.47
1:A:116:TRP:NE1	1:A:123:PHE:CB	2.78	0.47
1:C:23:LEU:C	1:C:30:ASN:HD21	2.13	0.47
1:D:344:GLU:O	1:D:348:VAL:HG23	2.14	0.47
1:D:354:ALA:HA	1:D:357:LYS:HB2	1.97	0.47
1:E:116:TRP:CD1	1:E:123:PHE:HB2	2.50	0.47
1:F:32:ILE:HG22	1:F:35:PHE:HE1	1.79	0.47
1:F:161:ARG:NH2	1:F:258:ASN:OD1	2.33	0.47
1:A:62:LYS:HA	1:A:65:LEU:HD21	1.97	0.47
1:A:73:VAL:HG23	1:A:96:VAL:HA	1.96	0.47
1:A:110:GLU:HG3	1:A:346:LEU:HD11	1.97	0.47
1:B:103:SER:HB2	1:B:112:MSE:HE1	1.97	0.47
1:B:199:ASP:HB3	1:B:244:LYS:HE3	1.97	0.47
1:C:42:ARG:NH2	1:C:42:ARG:HA	2.29	0.47
1:D:356:TYR:O	1:D:358:SER:N	2.38	0.47
1:F:9:ILE:HD12	1:F:9:ILE:N	2.29	0.47
1:A:73:VAL:HG23	1:A:96:VAL:HG23	1.97	0.47
1:C:78:PRO:HB3	1:C:168:VAL:HG21	1.96	0.47
1:C:100:LYS:HE2	2:C:401:NAD:C2N	2.45	0.47
1:A:110:GLU:CB	1:A:113:VAL:CG1	2.87	0.46
1:F:78:PRO:O	1:F:81:SER:OG	2.16	0.46
1:A:20:PHE:HB2	1:A:21:PRO:CD	2.37	0.46
2:A:401:NAD:H8A	2:A:401:NAD:H2B	1.76	0.46
1:B:266:SER:HB3	1:B:278:ILE:O	2.15	0.46
1:C:32:ILE:HD12	1:C:32:ILE:C	2.34	0.46
1:A:129:ASN:O	1:A:132:ARG:HG3	2.16	0.46
1:A:100:LYS:CB	1:A:101:PRO:CD	2.92	0.46
1:A:102:MSE:HG3	1:A:125:ILE:HD12	1.97	0.46
1:A:53:GLU:HB3	1:A:54:GLY:H	1.64	0.46
1:C:79:ASN:O	1:C:82:HIS:HB2	2.16	0.46
1:E:128:GLN:HE22	2:E:401:NAD:H72N	1.62	0.46
1:A:14:ILE:HG13	2:A:401:NAD:C5N	2.46	0.46
1:B:35:PHE:CE2	1:B:51:GLY:HA2	2.50	0.46
1:D:179:PRO:HA	1:D:182:ASP:HB3	1.96	0.46
1:F:211:LEU:N	1:F:235:ASP:OD2	2.36	0.46
1:E:100:LYS:HD3	1:E:185:THR:OG1	2.15	0.46
1:E:136:MSE:HA	1:E:139:LYS:HB3	1.97	0.46
1:F:86:THR:HG23	1:F:96:VAL:HG21	1.97	0.46
1:A:77:THR:HB	1:A:81:SER:OG	2.16	0.46
1:C:157:ALA:HA	1:C:264:GLU:HA	1.97	0.46
1:D:83:SER:HA	1:D:112:MSE:SE	2.65	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:109:ALA:HA	1:D:112:MSE:HE3	1.98	0.46
1:A:8:ILE:HG13	1:A:8:ILE:O	2.15	0.46
1:A:139:LYS:HG2	1:A:193:TRP:CZ2	2.51	0.46
1:C:91:GLU:C	1:C:93:GLY:H	2.19	0.46
1:C:192:LEU:O	1:C:196:ASN:N	2.49	0.46
1:A:216:ASN:OD1	1:A:216:ASN:N	2.44	0.45
1:B:153:GLY:O	1:B:249:ILE:HA	2.16	0.45
1:D:58:THR:OG1	1:D:59:ALA:N	2.49	0.45
1:D:78:PRO:HD3	2:D:401:NAD:H52A	1.98	0.45
1:D:356:TYR:C	1:D:358:SER:H	2.17	0.45
1:B:302:GLU:HG2	1:F:300:MSE:SE	2.66	0.45
1:E:327:GLN:OE1	1:E:339:LEU:N	2.46	0.45
1:F:163:VAL:HG22	1:F:255:TRP:HB3	1.97	0.45
1:F:346:LEU:O	1:F:350:LYS:HG3	2.16	0.45
1:A:9:ILE:HG22	1:A:10:GLY:N	2.31	0.45
1:F:100:LYS:HG3	1:F:186:HIS:CE1	2.51	0.45
1:C:150:ILE:HB	1:C:195:MSE:HG2	1.99	0.45
1:D:310:ILE:C	1:D:312:TYR:H	2.19	0.45
1:E:203:VAL:HG22	1:E:241:VAL:HG13	1.98	0.45
1:A:219:GLU:HG3	1:F:297:ASN:HA	1.99	0.45
1:C:79:ASN:N	1:C:175:GLN:OE1	2.49	0.45
1:D:102:MSE:HE3	1:D:112:MSE:HE3	1.99	0.45
1:A:110:GLU:HB3	1:A:113:VAL:HG11	1.98	0.45
1:A:319:GLU:O	1:A:323:VAL:HG23	2.17	0.45
1:E:14:ILE:HD12	1:E:14:ILE:HA	1.83	0.45
1:B:203:VAL:HG22	1:B:241:VAL:HG13	1.98	0.45
1:F:36:CYS:SG	1:F:61:TYR:HA	2.57	0.45
1:A:82:HIS:CD2	1:A:82:HIS:H	2.35	0.45
1:B:161:ARG:NH2	1:B:258:ASN:OD1	2.50	0.45
1:C:26:ASN:ND2	1:C:326:ARG:HB2	2.32	0.45
1:C:34:ALA:O	1:C:56:GLN:O	2.35	0.45
1:C:77:THR:HG1	1:C:82:HIS:HD1	1.63	0.45
1:D:195:MSE:HE1	1:D:249:ILE:CG1	2.47	0.45
1:E:159:ARG:HD3	1:E:162:ALA:HB3	1.99	0.45
1:A:119:SER:HB2	1:A:121:LYS:NZ	2.23	0.44
1:F:36:CYS:SG	1:F:37:ASP:N	2.90	0.44
1:A:295:ARG:HB3	1:A:300:MSE:SE	2.68	0.44
1:C:34:ALA:HA	1:C:64:LEU:HD11	1.99	0.44
1:A:82:HIS:HB3	1:A:112:MSE:HE1	2.00	0.44
1:A:67:ASN:C	1:A:69:GLU:H	2.20	0.44
1:A:70:VAL:HG12	1:A:72:VAL:H	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:286:LYS:NZ	1:F:287:ASN:H	2.15	0.44
1:A:19:HIS:CE1	1:A:74:HIS:ND1	2.85	0.44
1:F:179:PRO:HB3	1:F:255:TRP:CD1	2.53	0.44
1:D:308:GLY:H	1:F:282:MSE:HG2	1.83	0.44
1:C:106:THR:HG22	1:C:350:LYS:HA	2.00	0.44
1:D:163:VAL:HG22	1:D:255:TRP:HB3	2.00	0.44
1:F:40:ILE:HD11	1:F:57:VAL:O	2.17	0.44
1:B:106:THR:CG2	1:B:350:LYS:HA	2.48	0.44
1:C:119:SER:C	1:C:121:LYS:H	2.21	0.44
1:B:77:THR:O	1:B:82:HIS:NE2	2.50	0.44
1:E:23:LEU:HD13	1:E:32:ILE:HD11	2.00	0.44
1:A:91:GLU:CD	1:A:116:TRP:HB2	2.29	0.43
1:C:93:GLY:C	1:C:94:LYS:HD2	2.38	0.43
1:C:310:ILE:HG22	1:C:311:ALA:N	2.23	0.43
1:D:136:MSE:O	1:D:140:LYS:HG3	2.18	0.43
1:F:40:ILE:HD13	1:F:59:ALA:CA	2.47	0.43
1:F:77:THR:O	1:F:82:HIS:NE2	2.51	0.43
1:C:41:ASP:OD2	1:C:42:ARG:NE	2.51	0.43
1:B:128:GLN:HE22	2:B:401:NAD:H72N	1.67	0.43
1:C:100:LYS:CB	1:C:101:PRO:HD2	2.35	0.43
1:D:63:GLU:HG3	1:D:63:GLU:O	2.18	0.43
1:E:100:LYS:NZ	1:E:182:ASP:O	2.37	0.43
1:F:38:ILE:HA	1:F:59:ALA:O	2.18	0.43
1:A:39:GLN:O	1:A:41:ASP:N	2.52	0.43
1:B:116:TRP:CD1	1:B:123:PHE:HB2	2.54	0.43
1:C:116:TRP:O	1:C:119:SER:OG	2.22	0.43
1:D:2:SER:O	1:D:333:GLN:NE2	2.52	0.43
1:E:115:ALA:O	1:E:119:SER:HB3	2.18	0.43
1:F:91:GLU:CD	1:F:116:TRP:HA	2.39	0.43
1:A:300:MSE:HE1	1:D:291:TYR:CE2	2.53	0.43
1:C:93:GLY:O	1:C:94:LYS:HD2	2.19	0.43
1:D:310:ILE:C	1:D:312:TYR:N	2.72	0.43
1:E:290:ILE:HG12	1:E:303:THR:HG22	2.00	0.43
1:C:6:ILE:CB	1:C:32:ILE:HG22	2.41	0.43
1:E:100:LYS:HB2	2:E:401:NAD:C2N	2.42	0.43
1:A:98:CYS:O	1:A:125:ILE:HA	2.19	0.43
1:C:325:ASN:O	1:C:328:TRP:HB3	2.19	0.43
1:E:163:VAL:HG22	1:E:255:TRP:HB3	2.00	0.43
1:F:365:LYS:HE2	1:F:365:LYS:H	1.83	0.43
1:A:38:ILE:HG21	2:A:401:NAD:C4A	2.49	0.43
1:B:14:ILE:HD13	2:B:401:NAD:C4N	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:95:HIS:ND1	1:F:121:LYS:HB3	2.33	0.43
1:C:33:VAL:CA	1:C:55:ALA:HB1	2.49	0.42
1:C:72:VAL:HG21	1:C:332:ILE:CD1	2.48	0.42
1:C:117:LYS:C	1:C:118:LYS:HD3	2.40	0.42
1:F:279:HIS:HB2	1:F:288:GLU:HB2	2.00	0.42
1:A:3:LYS:CB	1:A:31:GLU:HG3	2.49	0.42
1:B:356:TYR:C	1:B:358:SER:N	2.71	0.42
1:C:300:MSE:HE1	1:E:291:TYR:CD2	2.54	0.42
1:D:179:PRO:HD2	1:D:234:GLU:HG2	2.01	0.42
1:F:24:LYS:O	1:F:27:ALA:N	2.51	0.42
1:F:161:ARG:HG2	1:F:221:ASN:HA	2.01	0.42
1:A:236:SER:HB3	1:A:254:SER:HB2	2.01	0.42
1:A:262:SER:HB3	1:A:282:MSE:HG3	2.00	0.42
1:C:153:GLY:O	1:C:249:ILE:HA	2.19	0.42
1:F:86:THR:O	1:F:89:ALA:N	2.52	0.42
1:B:195:MSE:HE1	1:B:249:ILE:HG12	2.00	0.42
1:B:229:LYS:HA	1:B:229:LYS:HD3	1.82	0.42
1:C:212:GLY:O	1:C:226:TRP:HZ3	2.01	0.42
1:F:341:LYS:HB2	1:F:341:LYS:HE2	1.80	0.42
1:A:4:LEU:HD23	1:A:4:LEU:HA	1.79	0.42
1:A:299:LEU:HB3	1:F:160:ARG:CZ	2.49	0.42
1:F:203:VAL:HG22	1:F:241:VAL:HG13	2.00	0.42
1:B:74:HIS:CD2	1:B:97:TYR:HB3	2.54	0.42
1:D:345:ALA:O	1:D:349:THR:HG23	2.20	0.42
1:A:361:THR:O	1:A:361:THR:HG22	2.20	0.42
1:B:62:LYS:O	3:B:501:HOH:O	2.21	0.42
1:C:326:ARG:O	1:C:330:GLU:HG3	2.20	0.42
1:A:124:THR:OG1	1:A:340:VAL:O	2.26	0.42
1:D:365:LYS:HB2	1:D:365:LYS:HE2	1.68	0.42
1:A:116:TRP:HE3	1:A:117:LYS:HD2	1.85	0.42
1:C:26:ASN:HD22	1:C:326:ARG:HD2	1.83	0.42
1:C:218:PRO:HG3	1:C:226:TRP:CD2	2.54	0.42
1:D:191:THR:HG22	1:D:195:MSE:HE3	2.01	0.42
1:E:53:GLU:O	1:E:55:ALA:N	2.53	0.42
1:F:325:ASN:O	1:F:328:TRP:HB3	2.20	0.42
1:A:116:TRP:CE3	1:A:117:LYS:HD2	2.55	0.42
1:B:58:THR:OG1	1:B:59:ALA:N	2.53	0.42
1:B:131:PHE:CD1	1:B:324:ASP:HB2	2.54	0.42
1:C:41:ASP:HB2	1:C:42:ARG:NH1	2.35	0.42
1:F:56:GLN:OE1	1:F:67:ASN:HB2	2.20	0.42
1:F:58:THR:HG22	1:F:59:ALA:N	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:64:LEU:C	1:A:66:ALA:H	2.24	0.41
1:D:100:LYS:HZ2	1:D:185:THR:HG21	1.84	0.41
1:D:218:PRO:HG3	1:D:226:TRP:CE2	2.55	0.41
1:E:28:ASP:OD2	1:E:29:LEU:HD12	2.20	0.41
1:E:238:VAL:HG12	1:E:252:GLU:HG3	2.02	0.41
1:F:79:ASN:OD1	1:F:101:PRO:HG2	2.19	0.41
1:F:106:THR:O	1:F:110:GLU:HG3	2.19	0.41
1:D:191:THR:HG22	1:D:195:MSE:CE	2.50	0.41
1:F:216:ASN:O	1:F:219:GLU:HB2	2.20	0.41
1:A:82:HIS:CB	1:A:112:MSE:HE1	2.50	0.41
1:B:20:PHE:HB2	1:B:21:PRO:HD3	2.01	0.41
1:B:134:GLU:OE2	1:B:287:ASN:HB3	2.21	0.41
1:B:299:LEU:HD13	1:E:160:ARG:HD3	2.01	0.41
1:B:356:TYR:O	1:B:358:SER:N	2.54	0.41
1:C:112:MSE:H	1:C:112:MSE:HG2	1.71	0.41
1:D:282:MSE:HE2	1:D:282:MSE:HB3	1.94	0.41
1:A:19:HIS:HE1	1:A:74:HIS:ND1	2.18	0.41
1:D:172:LYS:HE2	1:D:176:GLY:O	2.21	0.41
1:E:295:ARG:HB3	1:E:300:MSE:SE	2.71	0.41
1:B:127:TYR:OH	1:B:185:THR:OG1	2.30	0.41
1:C:65:LEU:HD12	1:C:65:LEU:H	1.85	0.41
1:C:172:LYS:O	1:C:172:LYS:HD3	2.21	0.41
1:C:77:THR:O	2:C:401:NAD:H4D	2.20	0.41
1:C:154:LYS:HB2	1:C:268:THR:HB	2.02	0.41
1:D:102:MSE:O	1:D:112:MSE:HE1	2.19	0.41
1:E:114:GLU:HA	1:E:114:GLU:OE2	2.21	0.41
1:F:4:LEU:O	1:F:30:ASN:HA	2.21	0.41
1:F:212:GLY:HA2	1:F:226:TRP:CH2	2.56	0.41
1:A:181:ILE:HG23	1:A:356:TYR:HE2	1.84	0.41
1:B:8:ILE:HD12	1:B:32:ILE:HG21	2.03	0.41
1:C:33:VAL:HG13	1:C:34:ALA:H	1.85	0.41
1:C:99:GLU:OE2	2:C:401:NAD:H2N	2.21	0.41
1:E:222:LEU:HD13	1:F:307:VAL:HG21	2.03	0.41
1:B:102:MSE:CE	1:B:109:ALA:HB1	2.47	0.41
1:F:12:GLY:HA3	2:F:401:NAD:O5B	2.21	0.41
1:F:139:LYS:HE2	1:F:143:ASP:CG	2.42	0.41
1:A:58:THR:OG1	1:A:59:ALA:N	2.54	0.40
1:A:108:GLU:HA	1:A:111:LYS:HB2	2.02	0.40
2:A:401:NAD:H3B	2:A:401:NAD:O2A	2.21	0.40
1:B:65:LEU:HD13	1:B:90:PHE:HA	2.02	0.40
1:B:157:ALA:HA	1:B:264:GLU:HA	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:144:LYS:HB2	1:C:146:GLU:HG3	2.03	0.40
1:F:41:ASP:OD1	1:F:42:ARG:HG3	2.22	0.40
1:F:100:LYS:HB3	1:F:100:LYS:HE3	1.87	0.40
1:A:10:GLY:O	1:A:76:CYS:HB2	2.21	0.40
1:A:260:LEU:CD1	1:F:292:ASN:HB3	2.52	0.40
1:E:319:GLU:HA	1:E:319:GLU:OE2	2.21	0.40
1:F:33:VAL:O	1:F:35:PHE:HD1	2.03	0.40
1:F:180:LEU:HD23	1:F:356:TYR:CE2	2.56	0.40
1:A:62:LYS:C	1:A:65:LEU:HG	2.39	0.40
1:A:73:VAL:O	1:A:97:TYR:N	2.48	0.40
1:A:210:LYS:NZ	3:A:503:HOH:O	2.54	0.40
1:C:210:LYS:HD2	1:D:151:TYR:CD1	2.56	0.40
1:D:73:VAL:HG23	1:D:96:VAL:CG1	2.51	0.40
1:F:32:ILE:HG22	1:F:35:PHE:CE1	2.56	0.40
1:F:161:ARG:HD2	1:F:219:GLU:O	2.21	0.40
1:B:106:THR:HG22	1:B:350:LYS:HA	2.01	0.40
1:C:33:VAL:HA	1:C:55:ALA:HB1	2.03	0.40
1:C:168:VAL:HG22	1:C:175:GLN:HG2	2.04	0.40
1:D:325:ASN:O	1:D:329:LEU:HG	2.22	0.40
1:F:166:TRP:HZ3	1:F:223:PHE:CG	2.40	0.40
1:B:179:PRO:HD3	1:B:255:TRP:CE3	2.56	0.40
1:D:310:ILE:O	1:D:312:TYR:N	2.55	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	349/367 (95%)	301 (86%)	30 (9%)	18 (5%)	2 2
1	B	349/367 (95%)	320 (92%)	23 (7%)	6 (2%)	9 16
1	C	359/367 (98%)	311 (87%)	36 (10%)	12 (3%)	4 5

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	D	355/367 (97%)	305 (86%)	38 (11%)	12 (3%)	3	5
1	E	354/367 (96%)	326 (92%)	24 (7%)	4 (1%)	14	25
1	F	349/367 (95%)	311 (89%)	33 (10%)	5 (1%)	11	19
All	All	2115/2202 (96%)	1874 (89%)	184 (9%)	57 (3%)	5	7

All (57) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	40	ILE
1	A	44	GLU
1	A	45	LYS
1	A	58	THR
1	A	100	LYS
1	B	87	ILE
1	C	37	ASP
1	C	77	THR
1	C	100	LYS
1	D	57	VAL
1	D	100	LYS
1	D	306	SER
1	F	58	THR
1	A	28	ASP
1	A	35	PHE
1	A	36	CYS
1	A	46	ALA
1	A	61	TYR
1	A	76	CYS
1	A	126	GLY
1	B	357	LYS
1	C	2	SER
1	C	62	LYS
1	C	84	GLU
1	C	119	SER
1	C	333	GLN
1	D	13	GLY
1	D	49	GLU
1	D	78	PRO
1	D	87	ILE
1	D	307	VAL
1	D	357	LYS
1	E	54	GLY

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Mol	Chain	Res	Type
1	E	88	ALA
1	E	90	PHE
1	E	310	ILE
1	F	37	ASP
1	F	87	ILE
1	A	87	ILE
1	A	102	MSE
1	C	3	LYS
1	C	34	ALA
1	B	91	GLU
1	D	52	ALA
1	F	1	MSE
1	F	306	SER
1	A	47	ALA
1	A	83	SER
1	B	100	LYS
1	B	310	ILE
1	A	27	ALA
1	D	10	GLY
1	C	54	GLY
1	A	68	PRO
1	D	54	GLY
1	C	57	VAL
1	B	78	PRO

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	266/284 (94%)	243 (91%)	23 (9%)	10	18
1	B	276/284 (97%)	272 (99%)	4 (1%)	67	79
1	C	279/284 (98%)	268 (96%)	11 (4%)	32	52
1	D	280/284 (99%)	267 (95%)	13 (5%)	27	46
1	E	276/284 (97%)	269 (98%)	7 (2%)	47	67

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	F	275/284 (97%)	267 (97%)	8 (3%)	42 62
All	All	1652/1704 (97%)	1586 (96%)	66 (4%)	31 51

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

Mol	Chain	Res	Type
1	A	8	ILE
1	A	16	ASN
1	A	24	LYS
1	A	32	ILE
1	A	38	ILE
1	A	41	ASP
1	A	42	ARG
1	A	45	LYS
1	A	53	GLU
1	A	57	VAL
1	A	61	TYR
1	A	65	LEU
1	A	67	ASN
1	A	91	GLU
1	A	105	SER
1	A	112	MSE
1	A	113	VAL
1	A	116	TRP
1	A	123	PHE
1	A	280	SER
1	A	282	MSE
1	A	325	ASN
1	A	346	LEU
1	B	2	SER
1	B	100	LYS
1	B	231	PHE
1	B	357	LYS
1	C	1	MSE
1	C	33	VAL
1	C	42	ARG
1	C	97	TYR
1	C	100	LYS
1	C	105	SER
1	C	149	GLU
1	C	161	ARG
1	C	202	SER

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Mol	Chain	Res	Type
1	C	231	PHE
1	C	327	GLN
1	D	1	MSE
1	D	2	SER
1	D	5	LYS
1	D	17	GLN
1	D	30	ASN
1	D	36	CYS
1	D	41	ASP
1	D	97	TYR
1	D	103	SER
1	D	105	SER
1	D	161	ARG
1	D	188	LEU
1	D	229	LYS
1	E	1	MSE
1	E	3	LYS
1	E	39	GLN
1	E	97	TYR
1	E	161	ARG
1	E	202	SER
1	E	327	GLN
1	F	1	MSE
1	F	19	HIS
1	F	24	LYS
1	F	30	ASN
1	F	45	LYS
1	F	161	ARG
1	F	326	ARG
1	F	365	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	19	HIS
1	A	25	ASN
1	A	30	ASN
1	A	325	ASN
1	A	327	GLN
1	C	26	ASN
1	C	362	ASN
1	D	333	GLN

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Mol	Chain	Res	Type
1	E	129	ASN
1	E	196	ASN
1	E	333	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

6 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	A	401	-	42,48,48	3.84	19 (45%)	50,73,73	2.15	8 (16%)
2	NAD	B	401	-	42,48,48	4.14	18 (42%)	50,73,73	2.46	12 (24%)
2	NAD	C	401	1	42,48,48	3.89	19 (45%)	50,73,73	2.37	11 (22%)
2	NAD	F	401	-	42,48,48	3.82	19 (45%)	50,73,73	2.30	8 (16%)
2	NAD	D	401	-	42,48,48	3.83	19 (45%)	50,73,73	2.28	9 (18%)
2	NAD	E	401	1	42,48,48	3.87	19 (45%)	50,73,73	2.31	10 (20%)

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	A	401	-	-	14/26/62/62	0/5/5/5
2	NAD	B	401	-	-	16/26/62/62	0/5/5/5
2	NAD	C	401	1	-	10/26/62/62	0/5/5/5
2	NAD	F	401	-	-	11/26/62/62	0/5/5/5
2	NAD	D	401	-	-	11/26/62/62	0/5/5/5
2	NAD	E	401	1	-	9/26/62/62	0/5/5/5

All (113) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	NAD	C7N-N7N	12.01	1.55	1.33
2	B	401	NAD	O4D-C1D	-10.79	1.26	1.41
2	E	401	NAD	O4D-C1D	-9.97	1.27	1.41
2	A	401	NAD	O4D-C1D	-9.84	1.27	1.41
2	D	401	NAD	O4D-C1D	-9.78	1.27	1.41
2	F	401	NAD	O4D-C1D	-9.66	1.27	1.41
2	C	401	NAD	O4D-C1D	-9.60	1.27	1.41
2	D	401	NAD	C3B-C4B	-9.16	1.29	1.53
2	A	401	NAD	C3B-C4B	-9.12	1.29	1.53
2	C	401	NAD	C3B-C4B	-9.01	1.30	1.53
2	B	401	NAD	C3B-C4B	-8.99	1.30	1.53
2	F	401	NAD	C3B-C4B	-8.97	1.30	1.53
2	E	401	NAD	C3B-C4B	-8.96	1.30	1.53
2	C	401	NAD	C7N-N7N	8.55	1.49	1.33
2	F	401	NAD	C7N-N7N	8.52	1.49	1.33
2	A	401	NAD	C7N-N7N	8.52	1.49	1.33
2	D	401	NAD	C7N-N7N	8.51	1.49	1.33
2	E	401	NAD	C7N-N7N	8.46	1.49	1.33
2	A	401	NAD	C3D-C4D	-8.25	1.31	1.53
2	E	401	NAD	C3D-C4D	-8.22	1.32	1.53
2	F	401	NAD	C3D-C4D	-8.18	1.32	1.53
2	C	401	NAD	C3D-C4D	-8.15	1.32	1.53
2	D	401	NAD	C3D-C4D	-8.12	1.32	1.53
2	B	401	NAD	C3D-C4D	-8.05	1.32	1.53
2	A	401	NAD	O4B-C4B	7.90	1.62	1.45
2	B	401	NAD	O4D-C4D	7.85	1.62	1.45
2	F	401	NAD	O4D-C4D	7.79	1.62	1.45
2	A	401	NAD	O4D-C4D	7.69	1.62	1.45
2	D	401	NAD	O4D-C4D	7.62	1.62	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	401	NAD	O4B-C4B	7.58	1.61	1.45
2	D	401	NAD	O4B-C4B	7.58	1.61	1.45
2	B	401	NAD	O4B-C4B	7.57	1.61	1.45
2	C	401	NAD	O4D-C4D	7.54	1.61	1.45
2	E	401	NAD	O4B-C4B	7.50	1.61	1.45
2	F	401	NAD	O4B-C4B	7.44	1.61	1.45
2	E	401	NAD	O4D-C4D	7.39	1.61	1.45
2	C	401	NAD	O4B-C1B	-6.53	1.32	1.41
2	B	401	NAD	O4B-C1B	-6.50	1.32	1.41
2	E	401	NAD	O4B-C1B	-6.48	1.32	1.41
2	F	401	NAD	O4B-C1B	-6.38	1.32	1.41
2	D	401	NAD	O4B-C1B	-6.30	1.32	1.41
2	A	401	NAD	O4B-C1B	-6.10	1.32	1.41
2	C	401	NAD	O3D-C3D	5.97	1.57	1.43
2	E	401	NAD	O3D-C3D	5.84	1.56	1.43
2	C	401	NAD	C3N-C7N	5.20	1.58	1.50
2	E	401	NAD	C3N-C7N	5.16	1.58	1.50
2	F	401	NAD	C3N-C7N	4.96	1.58	1.50
2	D	401	NAD	C3N-C7N	4.94	1.58	1.50
2	B	401	NAD	O3D-C3D	4.83	1.54	1.43
2	A	401	NAD	C3N-C7N	4.62	1.57	1.50
2	F	401	NAD	O3D-C3D	4.57	1.53	1.43
2	D	401	NAD	O3D-C3D	4.55	1.53	1.43
2	A	401	NAD	O3D-C3D	4.53	1.53	1.43
2	B	401	NAD	O7N-C7N	-4.44	1.15	1.24
2	D	401	NAD	C6A-N6A	4.29	1.49	1.34
2	E	401	NAD	C6A-N6A	4.27	1.49	1.34
2	C	401	NAD	C6A-N6A	4.25	1.49	1.34
2	B	401	NAD	C6A-N6A	4.24	1.49	1.34
2	F	401	NAD	C6A-N6A	4.23	1.49	1.34
2	A	401	NAD	C6A-N6A	4.19	1.49	1.34
2	B	401	NAD	C2N-C3N	4.01	1.45	1.39
2	A	401	NAD	O3B-C3B	3.34	1.50	1.43
2	F	401	NAD	O3B-C3B	3.33	1.50	1.43
2	E	401	NAD	O3B-C3B	3.27	1.50	1.43
2	B	401	NAD	O3B-C3B	3.25	1.50	1.43
2	C	401	NAD	O3B-C3B	3.24	1.50	1.43
2	D	401	NAD	O3B-C3B	3.18	1.50	1.43
2	F	401	NAD	C2N-N1N	2.92	1.38	1.35
2	D	401	NAD	C2N-N1N	2.91	1.38	1.35
2	C	401	NAD	C2D-C1D	2.87	1.58	1.53
2	D	401	NAD	O2B-C2B	-2.82	1.36	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	401	NAD	C2N-N1N	2.78	1.38	1.35
2	A	401	NAD	C2A-N1A	2.76	1.39	1.33
2	E	401	NAD	O2B-C2B	-2.70	1.36	1.43
2	E	401	NAD	C2A-N1A	2.68	1.38	1.33
2	E	401	NAD	C2D-C1D	2.65	1.57	1.53
2	B	401	NAD	C2A-N1A	2.64	1.38	1.33
2	D	401	NAD	C2A-N1A	2.64	1.38	1.33
2	B	401	NAD	O2B-C2B	-2.64	1.36	1.43
2	C	401	NAD	C2A-N1A	2.64	1.38	1.33
2	F	401	NAD	C2A-N1A	2.60	1.38	1.33
2	C	401	NAD	O2B-C2B	-2.59	1.36	1.43
2	A	401	NAD	C5A-C4A	-2.58	1.34	1.40
2	F	401	NAD	C5A-C4A	-2.54	1.34	1.40
2	A	401	NAD	C2N-N1N	2.53	1.38	1.35
2	F	401	NAD	O2B-C2B	-2.53	1.37	1.43
2	B	401	NAD	C5A-C4A	-2.50	1.34	1.40
2	A	401	NAD	O2B-C2B	-2.50	1.37	1.43
2	C	401	NAD	C5A-C4A	-2.45	1.34	1.40
2	E	401	NAD	C5A-C4A	-2.43	1.34	1.40
2	E	401	NAD	C2N-N1N	2.35	1.37	1.35
2	D	401	NAD	C2A-N3A	2.33	1.35	1.32
2	B	401	NAD	C3N-C7N	2.32	1.54	1.50
2	D	401	NAD	C5A-C4A	-2.31	1.34	1.40
2	A	401	NAD	O7N-C7N	-2.31	1.19	1.24
2	C	401	NAD	O7N-C7N	-2.30	1.19	1.24
2	A	401	NAD	PA-O5B	2.29	1.68	1.59
2	D	401	NAD	C2D-C1D	2.29	1.57	1.53
2	F	401	NAD	O7N-C7N	-2.27	1.19	1.24
2	A	401	NAD	C2D-C1D	2.26	1.57	1.53
2	C	401	NAD	C2A-N3A	2.23	1.35	1.32
2	D	401	NAD	O7N-C7N	-2.22	1.19	1.24
2	B	401	NAD	C2A-N3A	2.20	1.35	1.32
2	E	401	NAD	O7N-C7N	-2.19	1.19	1.24
2	F	401	NAD	C2A-N3A	2.17	1.35	1.32
2	E	401	NAD	C2A-N3A	2.17	1.35	1.32
2	C	401	NAD	PA-O5B	2.13	1.67	1.59
2	F	401	NAD	PA-O5B	2.12	1.67	1.59
2	B	401	NAD	PA-O5B	2.10	1.67	1.59
2	E	401	NAD	PA-O5B	2.08	1.67	1.59
2	D	401	NAD	PA-O5B	2.06	1.67	1.59
2	A	401	NAD	C2A-N3A	2.05	1.35	1.32
2	F	401	NAD	C2D-C1D	2.03	1.56	1.53

All (58) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	401	NAD	C1B-N9A-C4A	-9.29	110.32	126.64
2	B	401	NAD	C1B-N9A-C4A	-9.04	110.76	126.64
2	C	401	NAD	C1B-N9A-C4A	-8.57	111.58	126.64
2	E	401	NAD	C1B-N9A-C4A	-8.54	111.64	126.64
2	D	401	NAD	C1B-N9A-C4A	-8.35	111.97	126.64
2	A	401	NAD	C1B-N9A-C4A	-8.31	112.05	126.64
2	D	401	NAD	C5A-C6A-N6A	8.20	132.81	120.35
2	F	401	NAD	C5A-C6A-N6A	8.11	132.68	120.35
2	B	401	NAD	C5A-C6A-N6A	8.07	132.61	120.35
2	C	401	NAD	C5A-C6A-N6A	8.04	132.56	120.35
2	E	401	NAD	C5A-C6A-N6A	8.02	132.55	120.35
2	A	401	NAD	C5A-C6A-N6A	7.41	131.61	120.35
2	A	401	NAD	N3A-C2A-N1A	-5.96	119.36	128.68
2	F	401	NAD	N3A-C2A-N1A	-5.57	119.97	128.68
2	B	401	NAD	N3A-C2A-N1A	-5.52	120.05	128.68
2	E	401	NAD	N3A-C2A-N1A	-5.51	120.07	128.68
2	C	401	NAD	N3A-C2A-N1A	-5.48	120.11	128.68
2	D	401	NAD	N6A-C6A-N1A	-5.45	107.26	118.57
2	F	401	NAD	N6A-C6A-N1A	-5.44	107.27	118.57
2	D	401	NAD	N3A-C2A-N1A	-5.40	120.24	128.68
2	C	401	NAD	N6A-C6A-N1A	-5.34	107.48	118.57
2	B	401	NAD	N6A-C6A-N1A	-5.31	107.56	118.57
2	E	401	NAD	N6A-C6A-N1A	-5.26	107.66	118.57
2	A	401	NAD	N6A-C6A-N1A	-4.79	108.62	118.57
2	B	401	NAD	C6N-N1N-C2N	-3.99	118.34	121.97
2	B	401	NAD	C3N-C7N-N7N	3.60	122.07	117.75
2	C	401	NAD	C3B-C2B-C1B	3.45	106.17	100.98
2	E	401	NAD	C3B-C2B-C1B	3.44	106.16	100.98
2	C	401	NAD	C6N-N1N-C2N	-3.40	118.87	121.97
2	D	401	NAD	PN-O3-PA	-3.03	122.42	132.83
2	C	401	NAD	PN-O3-PA	-3.02	122.46	132.83
2	E	401	NAD	PN-O3-PA	-2.99	122.55	132.83
2	B	401	NAD	PN-O3-PA	-2.90	122.88	132.83
2	F	401	NAD	PN-O3-PA	-2.81	123.18	132.83
2	F	401	NAD	C3B-C2B-C1B	2.77	105.15	100.98
2	B	401	NAD	O7N-C7N-N7N	-2.77	118.65	122.58
2	E	401	NAD	C6N-N1N-C2N	-2.77	119.45	121.97
2	C	401	NAD	C2D-C3D-C4D	-2.72	97.36	102.64
2	B	401	NAD	C5N-C4N-C3N	2.66	123.49	120.34
2	B	401	NAD	C3B-C2B-C1B	2.62	104.92	100.98
2	A	401	NAD	C3B-C2B-C1B	2.57	104.85	100.98
2	C	401	NAD	C3N-C7N-N7N	2.48	120.72	117.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	401	NAD	PN-O3-PA	-2.44	124.45	132.83
2	E	401	NAD	C2D-C3D-C4D	-2.44	97.90	102.64
2	C	401	NAD	C2B-C3B-C4B	2.39	107.29	102.64
2	B	401	NAD	C3D-C2D-C1D	2.36	104.53	100.98
2	A	401	NAD	C5B-C4B-C3B	-2.35	106.39	115.18
2	E	401	NAD	C2B-C3B-C4B	2.34	107.18	102.64
2	D	401	NAD	C3B-C2B-C1B	2.33	104.49	100.98
2	D	401	NAD	C3D-C2D-C1D	2.33	104.48	100.98
2	E	401	NAD	C3N-C7N-N7N	2.27	120.47	117.75
2	F	401	NAD	C6N-N1N-C2N	-2.27	119.91	121.97
2	C	401	NAD	O7N-C7N-N7N	-2.18	119.48	122.58
2	D	401	NAD	C5B-C4B-C3B	-2.16	107.08	115.18
2	F	401	NAD	O4D-C1D-C2D	-2.12	103.82	106.93
2	B	401	NAD	C2B-C3B-C4B	2.06	106.65	102.64
2	D	401	NAD	C2B-C3B-C4B	2.05	106.62	102.64
2	A	401	NAD	C2N-C3N-C4N	2.05	120.58	118.26

There are no chirality outliers.

All (71) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	NAD	C5B-O5B-PA-O1A
2	A	401	NAD	C5B-O5B-PA-O2A
2	A	401	NAD	PN-O3-PA-O5B
2	A	401	NAD	O4D-C1D-N1N-C2N
2	A	401	NAD	O4D-C1D-N1N-C6N
2	A	401	NAD	C2D-C1D-N1N-C2N
2	A	401	NAD	C2D-C1D-N1N-C6N
2	B	401	NAD	C5B-O5B-PA-O1A
2	B	401	NAD	C5B-O5B-PA-O2A
2	B	401	NAD	O4B-C4B-C5B-O5B
2	B	401	NAD	C5D-O5D-PN-O1N
2	B	401	NAD	C5D-O5D-PN-O2N
2	B	401	NAD	O4D-C1D-N1N-C2N
2	B	401	NAD	O4D-C1D-N1N-C6N
2	B	401	NAD	C2D-C1D-N1N-C2N
2	B	401	NAD	C2D-C1D-N1N-C6N
2	C	401	NAD	C5D-O5D-PN-O3
2	C	401	NAD	C5D-O5D-PN-O1N
2	C	401	NAD	C5D-O5D-PN-O2N
2	C	401	NAD	O4D-C4D-C5D-O5D
2	C	401	NAD	C3D-C4D-C5D-O5D

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Mol	Chain	Res	Type	Atoms
2	C	401	NAD	O4D-C1D-N1N-C2N
2	C	401	NAD	O4D-C1D-N1N-C6N
2	C	401	NAD	C2D-C1D-N1N-C2N
2	C	401	NAD	C2D-C1D-N1N-C6N
2	D	401	NAD	C5B-O5B-PA-O1A
2	D	401	NAD	C5B-O5B-PA-O2A
2	D	401	NAD	O4D-C1D-N1N-C2N
2	D	401	NAD	O4D-C1D-N1N-C6N
2	D	401	NAD	C2D-C1D-N1N-C2N
2	D	401	NAD	C2D-C1D-N1N-C6N
2	E	401	NAD	O4D-C1D-N1N-C2N
2	E	401	NAD	O4D-C1D-N1N-C6N
2	E	401	NAD	C2D-C1D-N1N-C2N
2	F	401	NAD	C5B-O5B-PA-O1A
2	F	401	NAD	C5B-O5B-PA-O2A
2	F	401	NAD	PN-O3-PA-O5B
2	F	401	NAD	C3D-C4D-C5D-O5D
2	F	401	NAD	O4D-C1D-N1N-C6N
2	B	401	NAD	C3B-C4B-C5B-O5B
2	D	401	NAD	O4B-C4B-C5B-O5B
2	D	401	NAD	C3B-C4B-C5B-O5B
2	F	401	NAD	O4B-C4B-C5B-O5B
2	F	401	NAD	C3B-C4B-C5B-O5B
2	F	401	NAD	O4D-C4D-C5D-O5D
2	A	401	NAD	O4D-C4D-C5D-O5D
2	A	401	NAD	C4B-C5B-O5B-PA
2	E	401	NAD	O4B-C4B-C5B-O5B
2	B	401	NAD	C5D-O5D-PN-O3
2	F	401	NAD	C4B-C5B-O5B-PA
2	C	401	NAD	O4B-C4B-C5B-O5B
2	B	401	NAD	PA-O3-PN-O1N
2	D	401	NAD	PA-O3-PN-O2N
2	E	401	NAD	PA-O3-PN-O2N
2	A	401	NAD	O4B-C4B-C5B-O5B
2	B	401	NAD	C4B-C5B-O5B-PA
2	A	401	NAD	C3D-C4D-C5D-O5D
2	A	401	NAD	PA-O3-PN-O2N
2	B	401	NAD	PN-O3-PA-O5B
2	A	401	NAD	C3B-C4B-C5B-O5B
2	E	401	NAD	C3B-C4B-C5B-O5B
2	A	401	NAD	C5B-O5B-PA-O3
2	B	401	NAD	C5B-O5B-PA-O3

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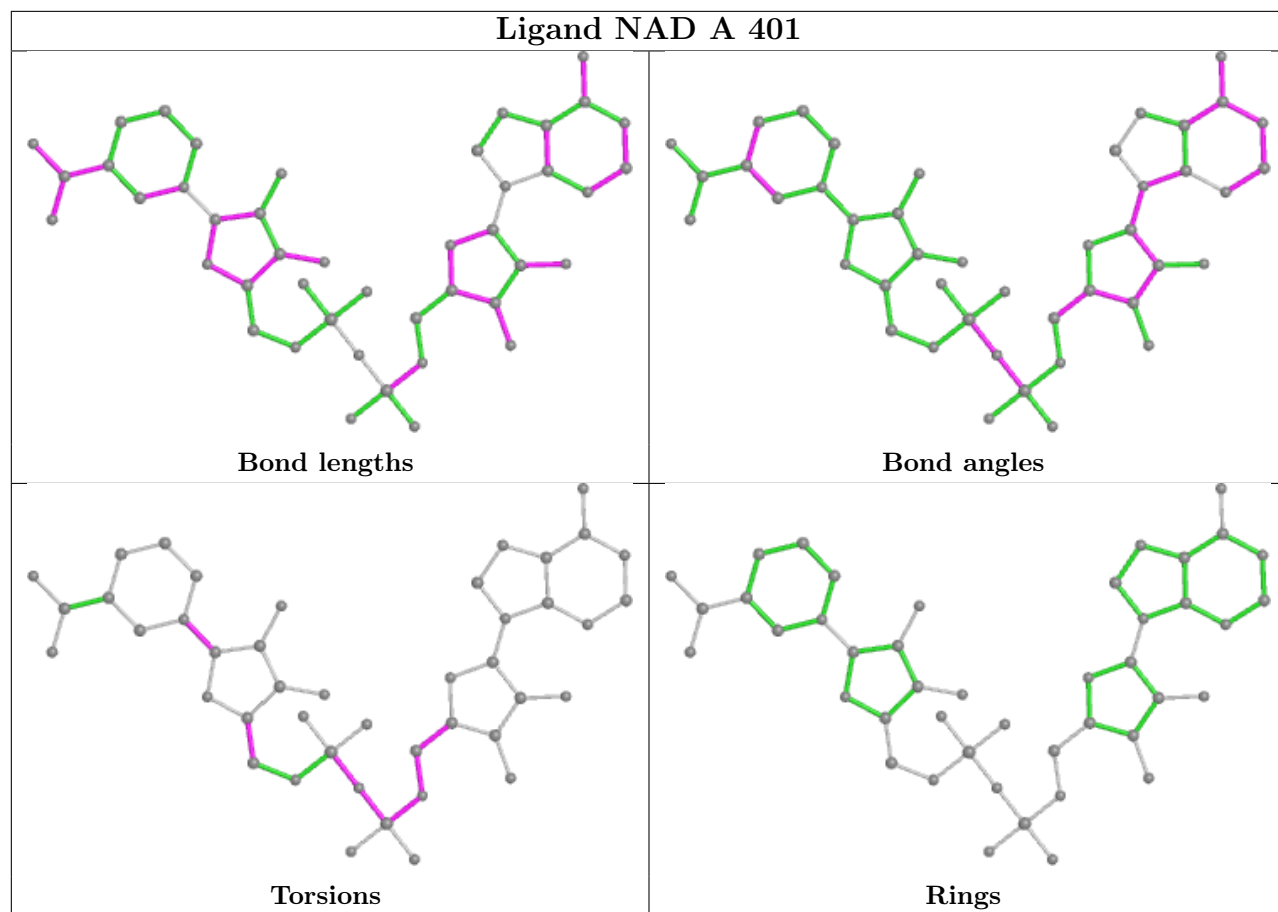
Mol	Chain	Res	Type	Atoms
2	D	401	NAD	C5B-O5B-PA-O3
2	E	401	NAD	C2D-C1D-N1N-C6N
2	F	401	NAD	C5B-O5B-PA-O3
2	F	401	NAD	C2D-C1D-N1N-C2N
2	B	401	NAD	PA-O3-PN-O2N
2	D	401	NAD	PA-O3-PN-O1N
2	E	401	NAD	PA-O3-PN-O1N
2	E	401	NAD	C5D-O5D-PN-O1N

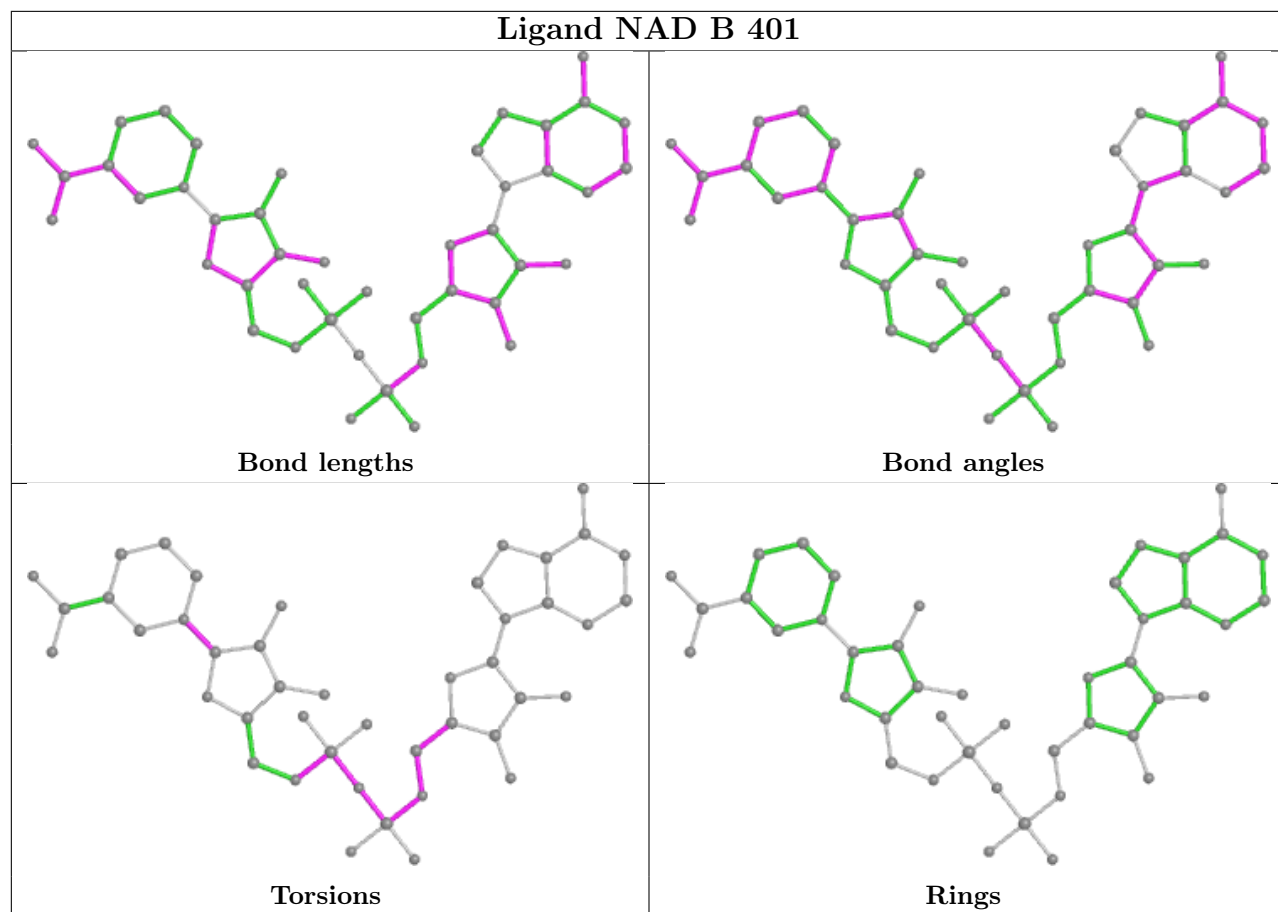
There are no ring outliers.

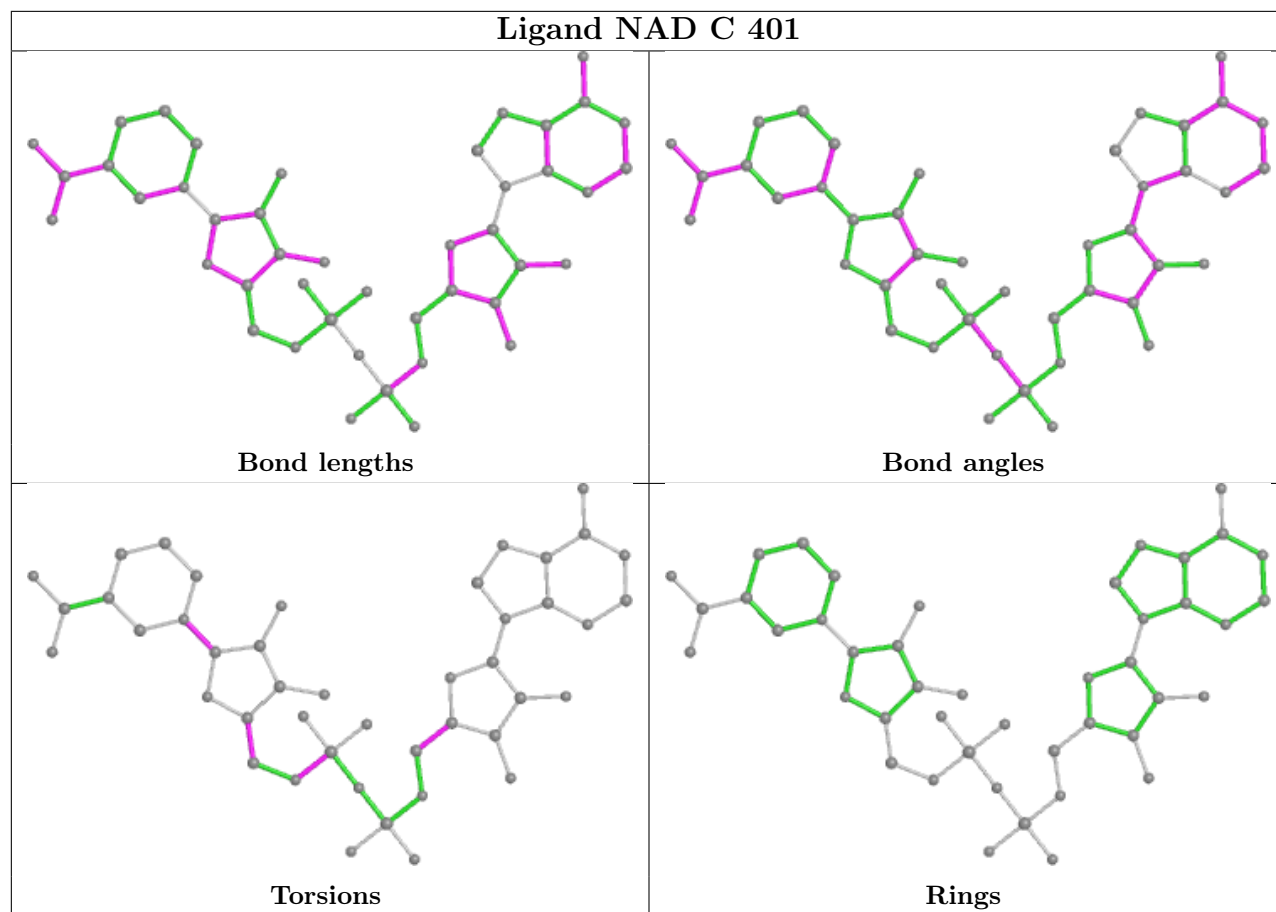
6 monomers are involved in 34 short contacts:

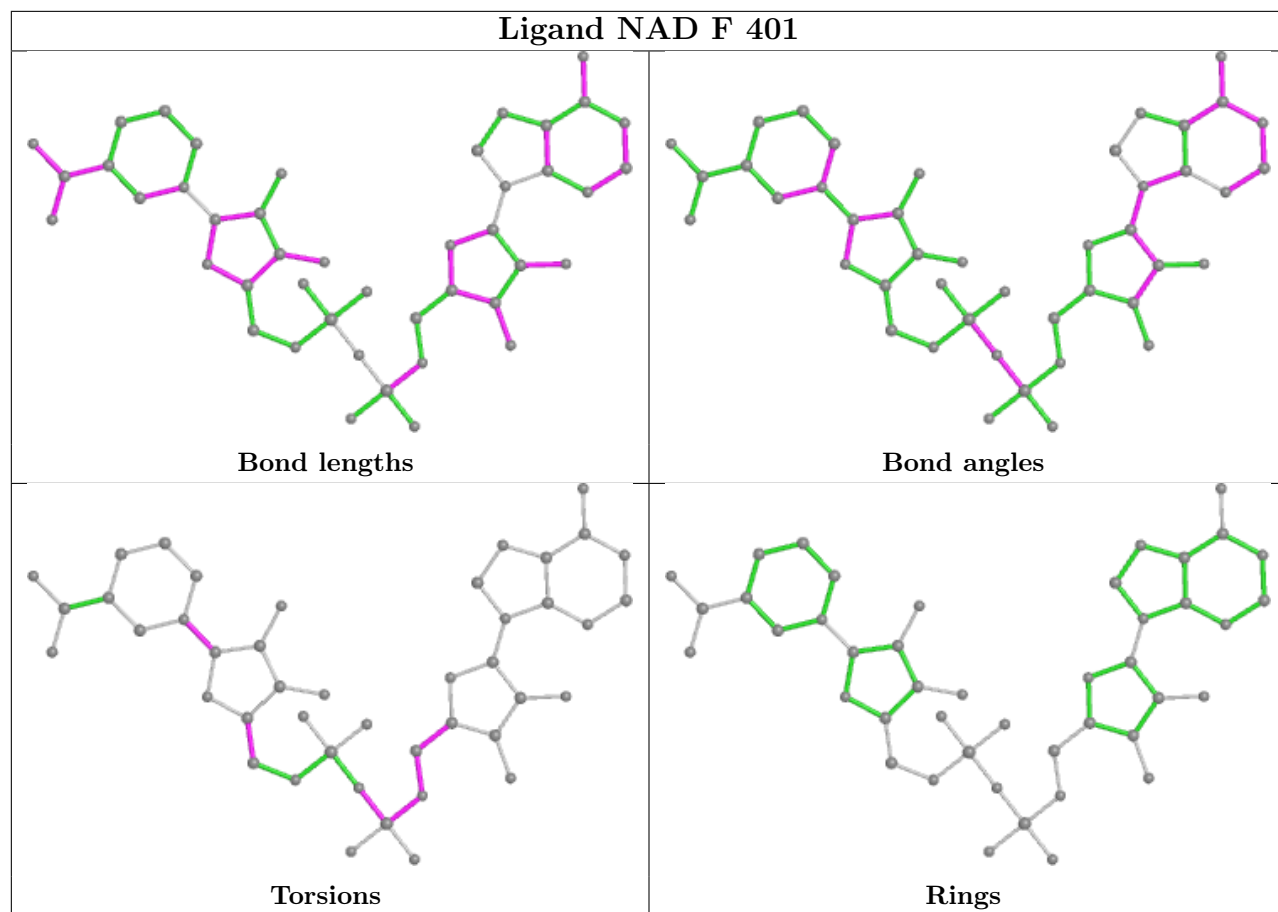
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	NAD	12	0
2	B	401	NAD	6	0
2	C	401	NAD	4	0
2	F	401	NAD	4	0
2	D	401	NAD	4	0
2	E	401	NAD	4	0

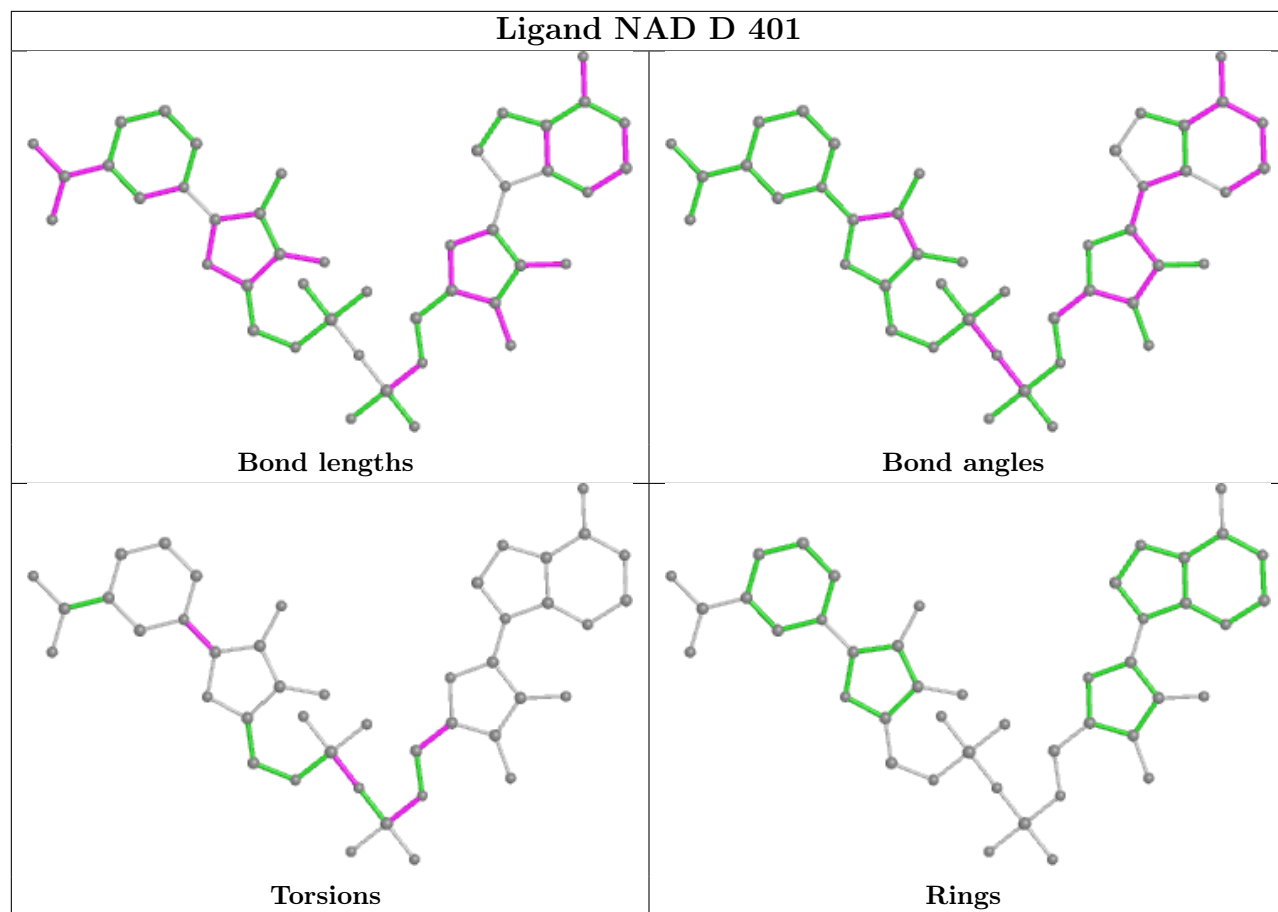
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

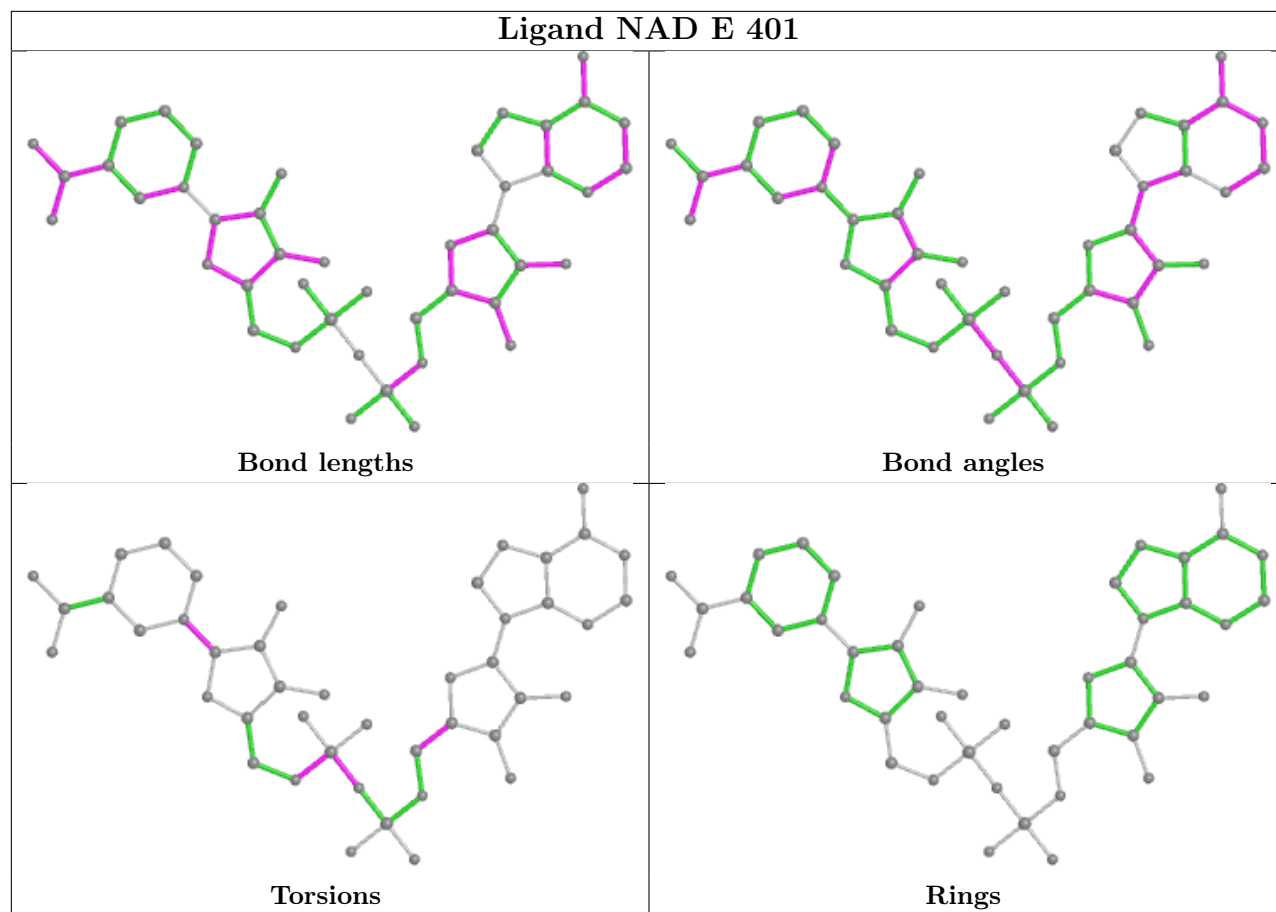












5.7 Other polymers [i](#)

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	345/367 (94%)	0.97	74 (21%) 0 0	30, 69, 127, 134	0
1	B	347/367 (94%)	0.31	22 (6%) 20 24	39, 62, 86, 118	0
1	C	353/367 (96%)	0.80	48 (13%) 3 3	49, 73, 110, 154	0
1	D	351/367 (95%)	0.65	42 (11%) 4 4	30, 71, 104, 125	0
1	E	350/367 (95%)	0.51	26 (7%) 14 17	48, 67, 92, 126	0
1	F	345/367 (94%)	0.75	51 (14%) 2 2	42, 72, 115, 142	0
All	All	2091/2202 (94%)	0.67	263 (12%) 3 4	30, 69, 115, 154	0

All (263) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	0	GLY	16.4
1	E	88	ALA	9.3
1	A	88	ALA	8.1
1	C	40	ILE	7.8
1	D	2	SER	7.3
1	A	93	GLY	7.3
1	A	36	CYS	7.0
1	D	88	ALA	6.8
1	A	35	PHE	6.7
1	F	120	GLY	6.6
1	D	0	GLY	6.4
1	F	42	ARG	6.3
1	C	93	GLY	6.1
1	A	48	ALA	6.0
1	E	74	HIS	6.0
1	A	74	HIS	5.9
1	C	52	ALA	5.8
1	A	34	ALA	5.8
1	A	58	THR	5.6

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Mol	Chain	Res	Type	RSRZ
1	C	43	ALA	5.5
1	A	7	GLY	5.5
1	A	32	ILE	5.5
1	C	38	ILE	5.5
1	F	76	CYS	5.4
1	B	88	ALA	5.4
1	A	334	ASN	5.4
1	D	52	ALA	5.4
1	F	50	PHE	5.3
1	E	7	GLY	5.3
1	A	75	VAL	5.3
1	F	40	ILE	5.2
1	A	54	GLY	5.1
1	C	74	HIS	5.1
1	D	50	PHE	5.1
1	A	8	ILE	5.0
1	C	98	CYS	4.9
1	C	33	VAL	4.9
1	C	0	GLY	4.9
1	B	0	GLY	4.9
1	C	76	CYS	4.8
1	A	33	VAL	4.8
1	F	41	ASP	4.8
1	A	336	THR	4.7
1	C	97	TYR	4.6
1	A	0	GLY	4.6
1	A	98	CYS	4.6
1	A	41	ASP	4.5
1	F	75	VAL	4.5
1	A	330	GLU	4.4
1	F	74	HIS	4.4
1	A	97	TYR	4.4
1	C	28	ASP	4.4
1	C	2	SER	4.3
1	D	74	HIS	4.3
1	A	111	LYS	4.2
1	F	98	CYS	4.2
1	A	42	ARG	4.2
1	F	2	SER	4.2
1	F	7	GLY	4.1
1	A	55	ALA	4.1
1	C	120	GLY	4.1

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Mol	Chain	Res	Type	RSRZ
1	A	120	GLY	4.1
1	C	44	GLU	4.0
1	C	34	ALA	4.0
1	A	76	CYS	4.0
1	A	73	VAL	4.0
1	A	119	SER	3.9
1	F	101	PRO	3.9
1	F	65	LEU	3.9
1	F	97	TYR	3.9
1	D	336	THR	3.8
1	B	75	VAL	3.8
1	A	25	ASN	3.8
1	A	11	CYS	3.8
1	A	70	VAL	3.8
1	B	66	ALA	3.7
1	E	54	GLY	3.7
1	A	59	ALA	3.7
1	A	66	ALA	3.7
1	A	61	TYR	3.6
1	A	60	ASP	3.6
1	E	310	ILE	3.6
1	A	99	GLU	3.6
1	A	335	GLY	3.6
1	E	97	TYR	3.5
1	A	126	GLY	3.5
1	A	89	ALA	3.5
1	A	2	SER	3.5
1	A	118	LYS	3.5
1	C	73	VAL	3.5
1	D	101	PRO	3.4
1	A	96	VAL	3.4
1	D	63	GLU	3.4
1	A	9	ILE	3.4
1	F	55	ALA	3.4
1	A	12	GLY	3.4
1	D	35	PHE	3.3
1	F	59	ALA	3.3
1	A	19	HIS	3.3
1	F	96	VAL	3.3
1	A	117	LYS	3.3
1	C	7	GLY	3.3
1	A	92	ALA	3.3

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Mol	Chain	Res	Type	RSRZ
1	C	285	PRO	3.3
1	C	75	VAL	3.2
1	E	0	GLY	3.2
1	F	3	LYS	3.2
1	C	42	ARG	3.2
1	D	29	LEU	3.2
1	F	9	ILE	3.2
1	F	61	TYR	3.2
1	D	76	CYS	3.2
1	E	29	LEU	3.2
1	D	97	TYR	3.1
1	E	8	ILE	3.1
1	A	31	GLU	3.1
1	D	89	ALA	3.1
1	E	41	ASP	3.0
1	E	9	ILE	3.0
1	A	16	ASN	3.0
1	C	366	PHE	3.0
1	F	48	ALA	3.0
1	A	6	ILE	3.0
1	C	232	GLU	3.0
1	C	334	ASN	3.0
1	B	230	THR	3.0
1	E	19	HIS	3.0
1	E	73	VAL	3.0
1	F	93	GLY	3.0
1	D	310	ILE	2.9
1	F	38	ILE	2.9
1	C	26	ASN	2.9
1	A	39	GLN	2.9
1	D	40	ILE	2.9
1	A	14	ILE	2.9
1	D	98	CYS	2.9
1	D	53	GLU	2.9
1	D	337	GLU	2.9
1	F	53	GLU	2.9
1	B	98	CYS	2.9
1	F	87	ILE	2.8
1	C	53	GLU	2.8
1	F	126	GLY	2.8
1	D	8	ILE	2.8
1	E	366	PHE	2.8

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Mol	Chain	Res	Type	RSRZ
1	D	215	GLU	2.8
1	C	118	LYS	2.8
1	A	21	PRO	2.7
1	F	99	GLU	2.7
1	F	46	ALA	2.7
1	D	91	GLU	2.7
1	A	168	VAL	2.7
1	C	8	ILE	2.7
1	F	57	VAL	2.7
1	A	20	PHE	2.7
1	F	8	ILE	2.7
1	B	74	HIS	2.7
1	A	107	GLU	2.7
1	F	11	CYS	2.7
1	B	185	THR	2.7
1	F	52	ALA	2.6
1	C	69	GLU	2.6
1	C	39	GLN	2.6
1	B	311	ALA	2.6
1	A	95	HIS	2.6
1	A	10	GLY	2.6
1	A	57	VAL	2.6
1	D	46	ALA	2.6
1	A	326	ARG	2.6
1	C	124	THR	2.6
1	C	121	LYS	2.6
1	F	31	GLU	2.6
1	B	229	LYS	2.5
1	E	361	THR	2.5
1	B	101	PRO	2.5
1	A	28	ASP	2.5
1	B	73	VAL	2.5
1	D	104	HIS	2.5
1	B	7	GLY	2.5
1	A	124	THR	2.5
1	A	50	PHE	2.5
1	C	107	GLU	2.5
1	D	7	GLY	2.5
1	C	250	GLY	2.5
1	A	94	LYS	2.5
1	C	308	GLY	2.5
1	D	99	GLU	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	37	ASP	2.4
1	A	114	GLU	2.4
1	D	41	ASP	2.4
1	C	99	GLU	2.4
1	B	41	ASP	2.4
1	A	64	LEU	2.4
1	D	125	ILE	2.4
1	D	330	GLU	2.3
1	E	72	VAL	2.3
1	F	107	GLU	2.3
1	B	39	GLN	2.3
1	C	314	ALA	2.3
1	F	362	ASN	2.3
1	E	96	VAL	2.3
1	A	171	ASP	2.3
1	F	106	THR	2.3
1	A	37	ASP	2.3
1	E	308	GLY	2.3
1	E	253	ALA	2.3
1	C	6	ILE	2.3
1	A	71	GLU	2.3
1	B	40	ILE	2.3
1	F	335	GLY	2.2
1	B	222	LEU	2.2
1	F	16	ASN	2.2
1	F	95	HIS	2.2
1	D	51	GLY	2.2
1	D	185	THR	2.2
1	E	165	THR	2.2
1	D	313	PHE	2.2
1	B	226	TRP	2.2
1	E	166	TRP	2.2
1	C	94	LYS	2.2
1	D	244	LYS	2.2
1	D	227	ASP	2.2
1	B	97	TYR	2.2
1	C	117	LYS	2.1
1	E	75	VAL	2.1
1	F	66	ALA	2.1
1	C	225	PRO	2.1
1	D	153	GLY	2.1
1	A	331	ALA	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	116	TRP	2.1
1	C	29	LEU	2.1
1	D	87	ILE	2.1
1	C	101	PRO	2.1
1	D	127	TYR	2.1
1	D	201	ASP	2.1
1	B	330	GLU	2.1
1	F	4	LEU	2.1
1	F	12	GLY	2.1
1	C	68	PRO	2.1
1	C	166	TRP	2.1
1	F	54	GLY	2.1
1	D	285	PRO	2.1
1	F	121	LYS	2.1
1	F	73	VAL	2.1
1	A	122	GLN	2.1
1	F	36	CYS	2.1
1	B	366	PHE	2.1
1	A	286	LYS	2.0
1	F	29	LEU	2.0
1	B	33	VAL	2.0
1	D	73	VAL	2.0
1	E	89	ALA	2.0
1	D	126	GLY	2.0
1	F	35	PHE	2.0
1	F	113	VAL	2.0
1	C	326	ARG	2.0
1	A	337	GLU	2.0
1	C	35	PHE	2.0
1	E	250	GLY	2.0
1	F	166	TRP	2.0
1	A	63	GLU	2.0
1	D	42	ARG	2.0
1	E	319	GLU	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](#)

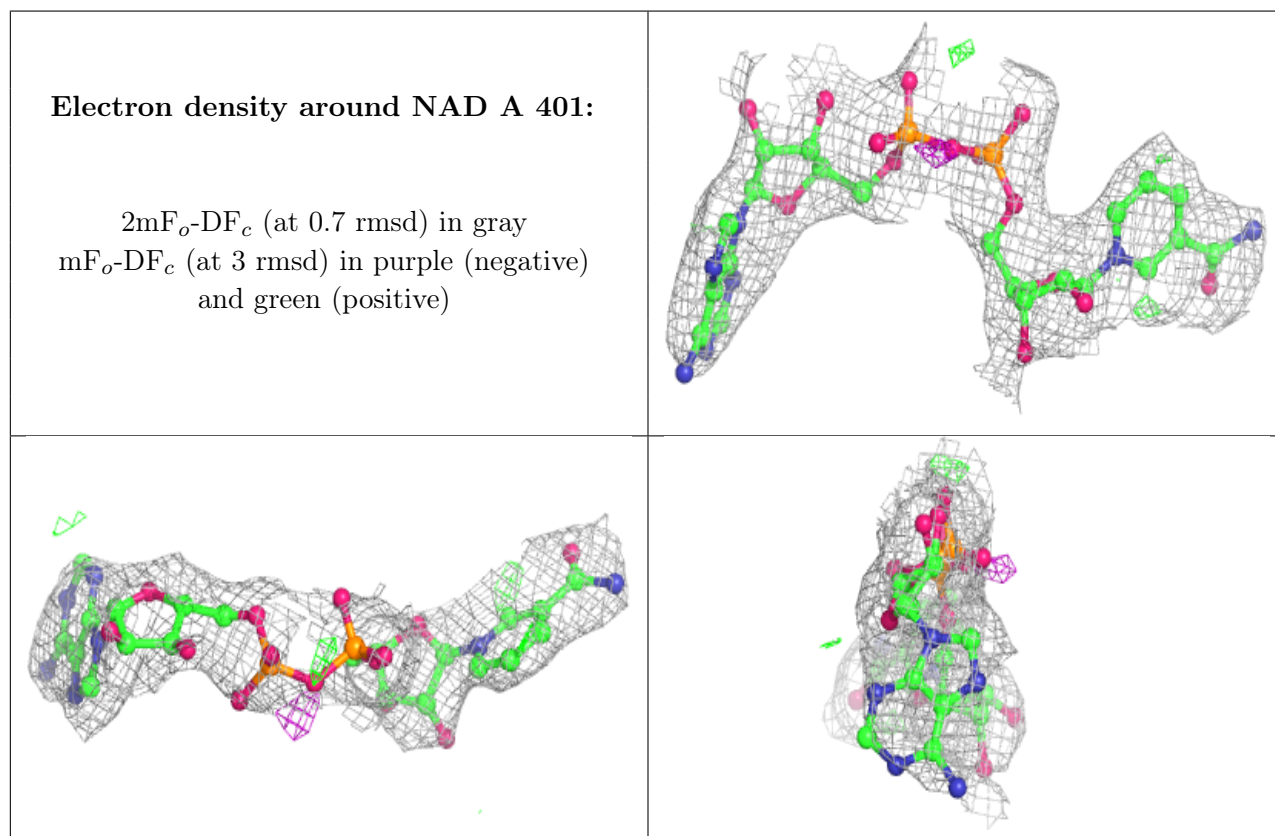
There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

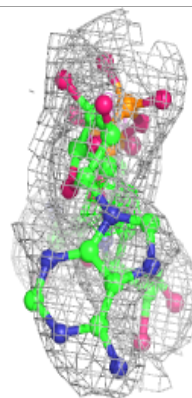
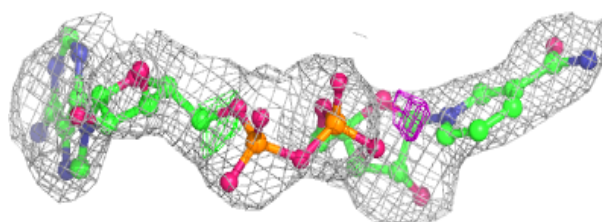
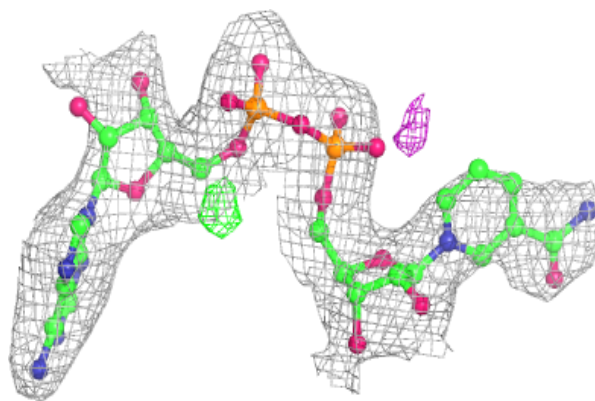
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	NAD	A	401	44/44	0.74	0.23	73,111,120,122	0
2	NAD	F	401	44/44	0.81	0.23	67,98,108,111	0
2	NAD	C	401	44/44	0.88	0.19	71,90,103,106	0
2	NAD	D	401	44/44	0.92	0.20	64,79,88,90	0
2	NAD	E	401	44/44	0.93	0.17	57,68,74,78	0
2	NAD	B	401	44/44	0.93	0.21	63,71,76,78	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.

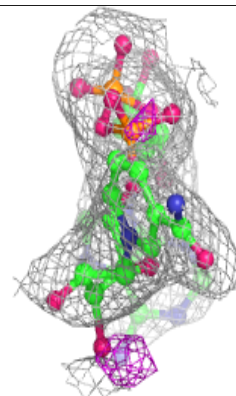
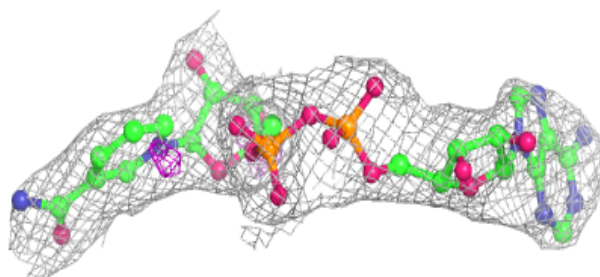
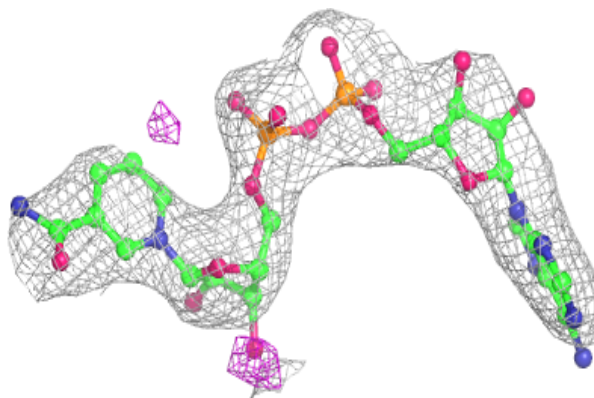


Electron density around NAD F 401:

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

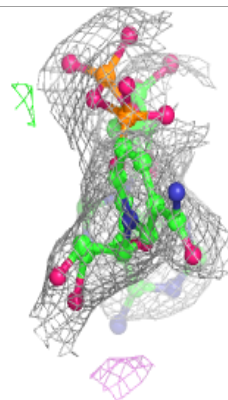
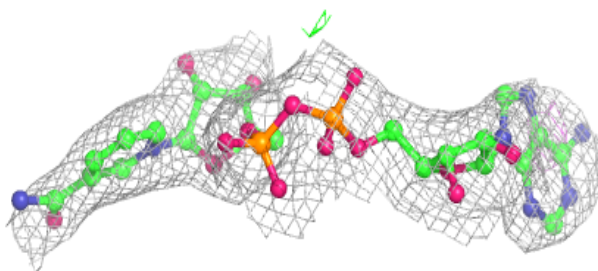
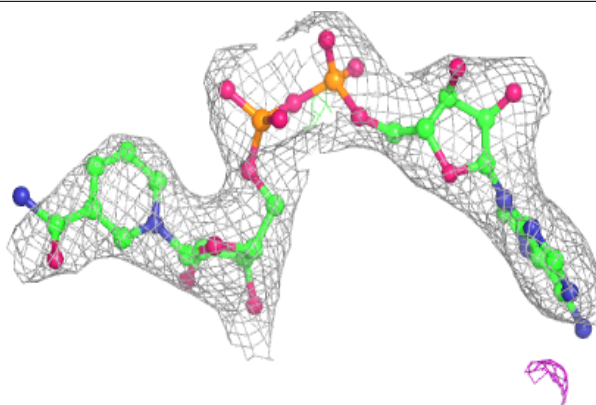
**Electron density around NAD C 401:**

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

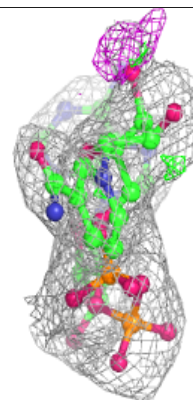
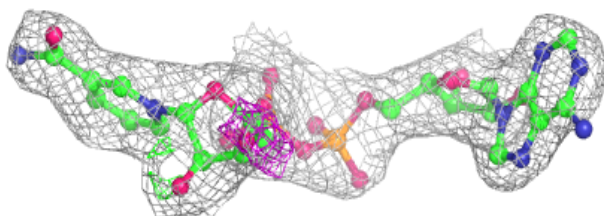
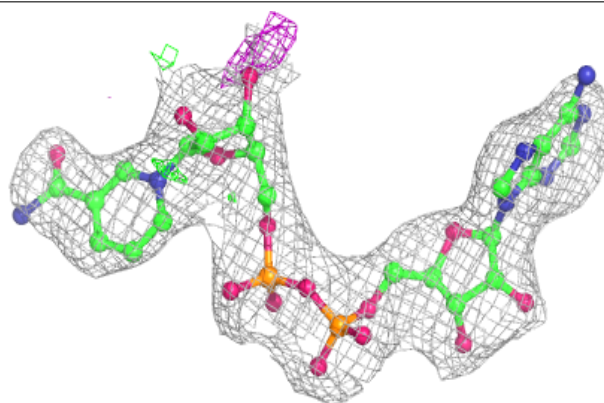


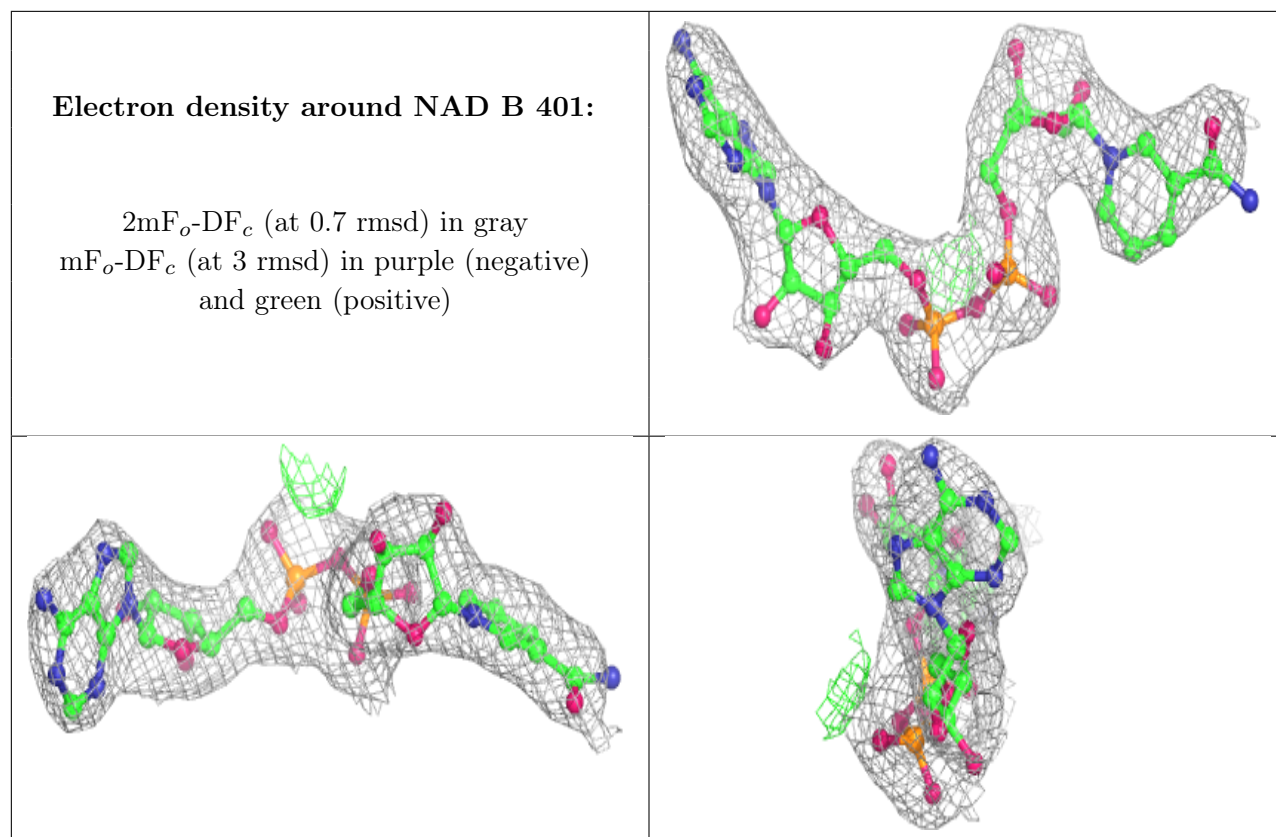
Electron density around NAD D 401:

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

**Electron density around NAD E 401:**

$2mF_o-DF_c$ (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.