



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 02:11 PM UTC

PDB ID : 4BNJ / pdb_00004bnj
Title : Crystal structure of S. aureus FabI in complex with NADP and 5-methyl-2-phenoxyphenol
Authors : Schiebel, J.; Chang, A.; Bommineni, G.R.; Tonge, P.J.; Kisker, C.
Deposited on : 2013-05-15
Resolution : 2.40 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:

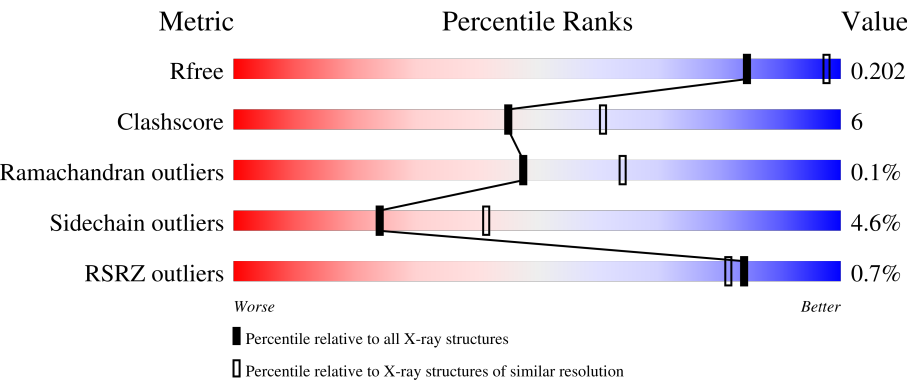
MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal 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 i

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

The reported resolution of this entry is 2.40 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	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

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	282	% 77% 12% • 10%
1	B	282	% 77% 12% • 10%
1	C	282	79% 11% • 10%
1	D	282	79% 10% • 10%
1	E	282	% 77% 12% • 10%

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Mol	Chain	Length	Quality of chain
1	F	282	 % 76% 14% 10%
1	G	282	 83% 7% 10%
1	H	282	 % 77% 11% 10%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	GLU	E	1258	-	-	X	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 17560 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 ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH].

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	255	Total	C	N	O	S	0	14	0
			2065	1298	360	402	5			
1	B	255	Total	C	N	O	S	0	11	0
			2045	1285	357	398	5			
1	C	255	Total	C	N	O	S	0	5	0
			1992	1255	344	389	4			
1	D	255	Total	C	N	O	S	0	3	0
			1978	1246	341	387	4			
1	E	255	Total	C	N	O	S	0	12	0
			2051	1289	357	400	5			
1	F	255	Total	C	N	O	S	0	13	0
			2059	1294	360	400	5			
1	G	255	Total	C	N	O	S	0	4	0
			1986	1251	344	387	4			
1	H	255	Total	C	N	O	S	0	6	0
			2000	1260	347	389	4			

There are 216 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-25	MET	-	expression tag	UNP Q7A6D8
A	-24	LYS	-	expression tag	UNP Q7A6D8
A	-23	HIS	-	expression tag	UNP Q7A6D8
A	-22	HIS	-	expression tag	UNP Q7A6D8
A	-21	HIS	-	expression tag	UNP Q7A6D8
A	-20	HIS	-	expression tag	UNP Q7A6D8
A	-19	HIS	-	expression tag	UNP Q7A6D8
A	-18	HIS	-	expression tag	UNP Q7A6D8
A	-17	PRO	-	expression tag	UNP Q7A6D8
A	-16	MET	-	expression tag	UNP Q7A6D8
A	-15	SER	-	expression tag	UNP Q7A6D8
A	-14	ASP	-	expression tag	UNP Q7A6D8

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-13	TYR	-	expression tag	UNP Q7A6D8
A	-12	ASP	-	expression tag	UNP Q7A6D8
A	-11	ILE	-	expression tag	UNP Q7A6D8
A	-10	PRO	-	expression tag	UNP Q7A6D8
A	-9	THR	-	expression tag	UNP Q7A6D8
A	-8	THR	-	expression tag	UNP Q7A6D8
A	-7	GLU	-	expression tag	UNP Q7A6D8
A	-6	ASN	-	expression tag	UNP Q7A6D8
A	-5	LEU	-	expression tag	UNP Q7A6D8
A	-4	TYR	-	expression tag	UNP Q7A6D8
A	-3	PHE	-	expression tag	UNP Q7A6D8
A	-2	GLN	-	expression tag	UNP Q7A6D8
A	-1	GLY	-	expression tag	UNP Q7A6D8
A	0	ALA	-	expression tag	UNP Q7A6D8
A	2	VAL	LEU	engineered mutation	UNP Q7A6D8
B	-25	MET	-	expression tag	UNP Q7A6D8
B	-24	LYS	-	expression tag	UNP Q7A6D8
B	-23	HIS	-	expression tag	UNP Q7A6D8
B	-22	HIS	-	expression tag	UNP Q7A6D8
B	-21	HIS	-	expression tag	UNP Q7A6D8
B	-20	HIS	-	expression tag	UNP Q7A6D8
B	-19	HIS	-	expression tag	UNP Q7A6D8
B	-18	HIS	-	expression tag	UNP Q7A6D8
B	-17	PRO	-	expression tag	UNP Q7A6D8
B	-16	MET	-	expression tag	UNP Q7A6D8
B	-15	SER	-	expression tag	UNP Q7A6D8
B	-14	ASP	-	expression tag	UNP Q7A6D8
B	-13	TYR	-	expression tag	UNP Q7A6D8
B	-12	ASP	-	expression tag	UNP Q7A6D8
B	-11	ILE	-	expression tag	UNP Q7A6D8
B	-10	PRO	-	expression tag	UNP Q7A6D8
B	-9	THR	-	expression tag	UNP Q7A6D8
B	-8	THR	-	expression tag	UNP Q7A6D8
B	-7	GLU	-	expression tag	UNP Q7A6D8
B	-6	ASN	-	expression tag	UNP Q7A6D8
B	-5	LEU	-	expression tag	UNP Q7A6D8
B	-4	TYR	-	expression tag	UNP Q7A6D8
B	-3	PHE	-	expression tag	UNP Q7A6D8
B	-2	GLN	-	expression tag	UNP Q7A6D8
B	-1	GLY	-	expression tag	UNP Q7A6D8
B	0	ALA	-	expression tag	UNP Q7A6D8
B	2	VAL	LEU	engineered mutation	UNP Q7A6D8

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-25	MET	-	expression tag	UNP Q7A6D8
C	-24	LYS	-	expression tag	UNP Q7A6D8
C	-23	HIS	-	expression tag	UNP Q7A6D8
C	-22	HIS	-	expression tag	UNP Q7A6D8
C	-21	HIS	-	expression tag	UNP Q7A6D8
C	-20	HIS	-	expression tag	UNP Q7A6D8
C	-19	HIS	-	expression tag	UNP Q7A6D8
C	-18	HIS	-	expression tag	UNP Q7A6D8
C	-17	PRO	-	expression tag	UNP Q7A6D8
C	-16	MET	-	expression tag	UNP Q7A6D8
C	-15	SER	-	expression tag	UNP Q7A6D8
C	-14	ASP	-	expression tag	UNP Q7A6D8
C	-13	TYR	-	expression tag	UNP Q7A6D8
C	-12	ASP	-	expression tag	UNP Q7A6D8
C	-11	ILE	-	expression tag	UNP Q7A6D8
C	-10	PRO	-	expression tag	UNP Q7A6D8
C	-9	THR	-	expression tag	UNP Q7A6D8
C	-8	THR	-	expression tag	UNP Q7A6D8
C	-7	GLU	-	expression tag	UNP Q7A6D8
C	-6	ASN	-	expression tag	UNP Q7A6D8
C	-5	LEU	-	expression tag	UNP Q7A6D8
C	-4	TYR	-	expression tag	UNP Q7A6D8
C	-3	PHE	-	expression tag	UNP Q7A6D8
C	-2	GLN	-	expression tag	UNP Q7A6D8
C	-1	GLY	-	expression tag	UNP Q7A6D8
C	0	ALA	-	expression tag	UNP Q7A6D8
C	2	VAL	LEU	engineered mutation	UNP Q7A6D8
D	-25	MET	-	expression tag	UNP Q7A6D8
D	-24	LYS	-	expression tag	UNP Q7A6D8
D	-23	HIS	-	expression tag	UNP Q7A6D8
D	-22	HIS	-	expression tag	UNP Q7A6D8
D	-21	HIS	-	expression tag	UNP Q7A6D8
D	-20	HIS	-	expression tag	UNP Q7A6D8
D	-19	HIS	-	expression tag	UNP Q7A6D8
D	-18	HIS	-	expression tag	UNP Q7A6D8
D	-17	PRO	-	expression tag	UNP Q7A6D8
D	-16	MET	-	expression tag	UNP Q7A6D8
D	-15	SER	-	expression tag	UNP Q7A6D8
D	-14	ASP	-	expression tag	UNP Q7A6D8
D	-13	TYR	-	expression tag	UNP Q7A6D8
D	-12	ASP	-	expression tag	UNP Q7A6D8
D	-11	ILE	-	expression tag	UNP Q7A6D8

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-10	PRO	-	expression tag	UNP Q7A6D8
D	-9	THR	-	expression tag	UNP Q7A6D8
D	-8	THR	-	expression tag	UNP Q7A6D8
D	-7	GLU	-	expression tag	UNP Q7A6D8
D	-6	ASN	-	expression tag	UNP Q7A6D8
D	-5	LEU	-	expression tag	UNP Q7A6D8
D	-4	TYR	-	expression tag	UNP Q7A6D8
D	-3	PHE	-	expression tag	UNP Q7A6D8
D	-2	GLN	-	expression tag	UNP Q7A6D8
D	-1	GLY	-	expression tag	UNP Q7A6D8
D	0	ALA	-	expression tag	UNP Q7A6D8
D	2	VAL	LEU	engineered mutation	UNP Q7A6D8
E	-25	MET	-	expression tag	UNP Q7A6D8
E	-24	LYS	-	expression tag	UNP Q7A6D8
E	-23	HIS	-	expression tag	UNP Q7A6D8
E	-22	HIS	-	expression tag	UNP Q7A6D8
E	-21	HIS	-	expression tag	UNP Q7A6D8
E	-20	HIS	-	expression tag	UNP Q7A6D8
E	-19	HIS	-	expression tag	UNP Q7A6D8
E	-18	HIS	-	expression tag	UNP Q7A6D8
E	-17	PRO	-	expression tag	UNP Q7A6D8
E	-16	MET	-	expression tag	UNP Q7A6D8
E	-15	SER	-	expression tag	UNP Q7A6D8
E	-14	ASP	-	expression tag	UNP Q7A6D8
E	-13	TYR	-	expression tag	UNP Q7A6D8
E	-12	ASP	-	expression tag	UNP Q7A6D8
E	-11	ILE	-	expression tag	UNP Q7A6D8
E	-10	PRO	-	expression tag	UNP Q7A6D8
E	-9	THR	-	expression tag	UNP Q7A6D8
E	-8	THR	-	expression tag	UNP Q7A6D8
E	-7	GLU	-	expression tag	UNP Q7A6D8
E	-6	ASN	-	expression tag	UNP Q7A6D8
E	-5	LEU	-	expression tag	UNP Q7A6D8
E	-4	TYR	-	expression tag	UNP Q7A6D8
E	-3	PHE	-	expression tag	UNP Q7A6D8
E	-2	GLN	-	expression tag	UNP Q7A6D8
E	-1	GLY	-	expression tag	UNP Q7A6D8
E	0	ALA	-	expression tag	UNP Q7A6D8
E	2	VAL	LEU	engineered mutation	UNP Q7A6D8
F	-25	MET	-	expression tag	UNP Q7A6D8
F	-24	LYS	-	expression tag	UNP Q7A6D8
F	-23	HIS	-	expression tag	UNP Q7A6D8

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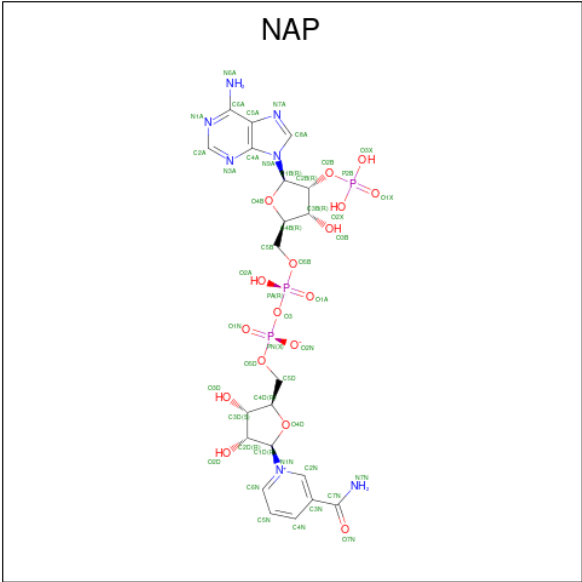
Chain	Residue	Modelled	Actual	Comment	Reference
F	-22	HIS	-	expression tag	UNP Q7A6D8
F	-21	HIS	-	expression tag	UNP Q7A6D8
F	-20	HIS	-	expression tag	UNP Q7A6D8
F	-19	HIS	-	expression tag	UNP Q7A6D8
F	-18	HIS	-	expression tag	UNP Q7A6D8
F	-17	PRO	-	expression tag	UNP Q7A6D8
F	-16	MET	-	expression tag	UNP Q7A6D8
F	-15	SER	-	expression tag	UNP Q7A6D8
F	-14	ASP	-	expression tag	UNP Q7A6D8
F	-13	TYR	-	expression tag	UNP Q7A6D8
F	-12	ASP	-	expression tag	UNP Q7A6D8
F	-11	ILE	-	expression tag	UNP Q7A6D8
F	-10	PRO	-	expression tag	UNP Q7A6D8
F	-9	THR	-	expression tag	UNP Q7A6D8
F	-8	THR	-	expression tag	UNP Q7A6D8
F	-7	GLU	-	expression tag	UNP Q7A6D8
F	-6	ASN	-	expression tag	UNP Q7A6D8
F	-5	LEU	-	expression tag	UNP Q7A6D8
F	-4	TYR	-	expression tag	UNP Q7A6D8
F	-3	PHE	-	expression tag	UNP Q7A6D8
F	-2	GLN	-	expression tag	UNP Q7A6D8
F	-1	GLY	-	expression tag	UNP Q7A6D8
F	0	ALA	-	expression tag	UNP Q7A6D8
F	2	VAL	LEU	engineered mutation	UNP Q7A6D8
G	-25	MET	-	expression tag	UNP Q7A6D8
G	-24	LYS	-	expression tag	UNP Q7A6D8
G	-23	HIS	-	expression tag	UNP Q7A6D8
G	-22	HIS	-	expression tag	UNP Q7A6D8
G	-21	HIS	-	expression tag	UNP Q7A6D8
G	-20	HIS	-	expression tag	UNP Q7A6D8
G	-19	HIS	-	expression tag	UNP Q7A6D8
G	-18	HIS	-	expression tag	UNP Q7A6D8
G	-17	PRO	-	expression tag	UNP Q7A6D8
G	-16	MET	-	expression tag	UNP Q7A6D8
G	-15	SER	-	expression tag	UNP Q7A6D8
G	-14	ASP	-	expression tag	UNP Q7A6D8
G	-13	TYR	-	expression tag	UNP Q7A6D8
G	-12	ASP	-	expression tag	UNP Q7A6D8
G	-11	ILE	-	expression tag	UNP Q7A6D8
G	-10	PRO	-	expression tag	UNP Q7A6D8
G	-9	THR	-	expression tag	UNP Q7A6D8
G	-8	THR	-	expression tag	UNP Q7A6D8

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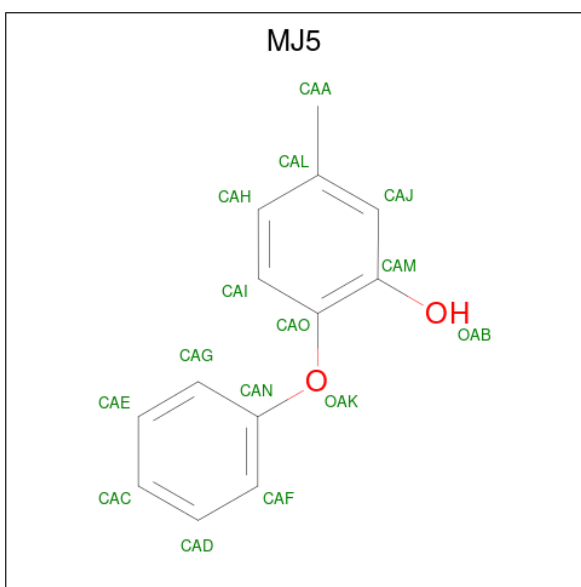
Chain	Residue	Modelled	Actual	Comment	Reference
G	-7	GLU	-	expression tag	UNP Q7A6D8
G	-6	ASN	-	expression tag	UNP Q7A6D8
G	-5	LEU	-	expression tag	UNP Q7A6D8
G	-4	TYR	-	expression tag	UNP Q7A6D8
G	-3	PHE	-	expression tag	UNP Q7A6D8
G	-2	GLN	-	expression tag	UNP Q7A6D8
G	-1	GLY	-	expression tag	UNP Q7A6D8
G	0	ALA	-	expression tag	UNP Q7A6D8
G	2	VAL	LEU	engineered mutation	UNP Q7A6D8
H	-25	MET	-	expression tag	UNP Q7A6D8
H	-24	LYS	-	expression tag	UNP Q7A6D8
H	-23	HIS	-	expression tag	UNP Q7A6D8
H	-22	HIS	-	expression tag	UNP Q7A6D8
H	-21	HIS	-	expression tag	UNP Q7A6D8
H	-20	HIS	-	expression tag	UNP Q7A6D8
H	-19	HIS	-	expression tag	UNP Q7A6D8
H	-18	HIS	-	expression tag	UNP Q7A6D8
H	-17	PRO	-	expression tag	UNP Q7A6D8
H	-16	MET	-	expression tag	UNP Q7A6D8
H	-15	SER	-	expression tag	UNP Q7A6D8
H	-14	ASP	-	expression tag	UNP Q7A6D8
H	-13	TYR	-	expression tag	UNP Q7A6D8
H	-12	ASP	-	expression tag	UNP Q7A6D8
H	-11	ILE	-	expression tag	UNP Q7A6D8
H	-10	PRO	-	expression tag	UNP Q7A6D8
H	-9	THR	-	expression tag	UNP Q7A6D8
H	-8	THR	-	expression tag	UNP Q7A6D8
H	-7	GLU	-	expression tag	UNP Q7A6D8
H	-6	ASN	-	expression tag	UNP Q7A6D8
H	-5	LEU	-	expression tag	UNP Q7A6D8
H	-4	TYR	-	expression tag	UNP Q7A6D8
H	-3	PHE	-	expression tag	UNP Q7A6D8
H	-2	GLN	-	expression tag	UNP Q7A6D8
H	-1	GLY	-	expression tag	UNP Q7A6D8
H	0	ALA	-	expression tag	UNP Q7A6D8
H	2	VAL	LEU	engineered mutation	UNP Q7A6D8

- Molecule 2 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NAP) (formula: C₂₁H₂₈N₇O₁₇P₃).



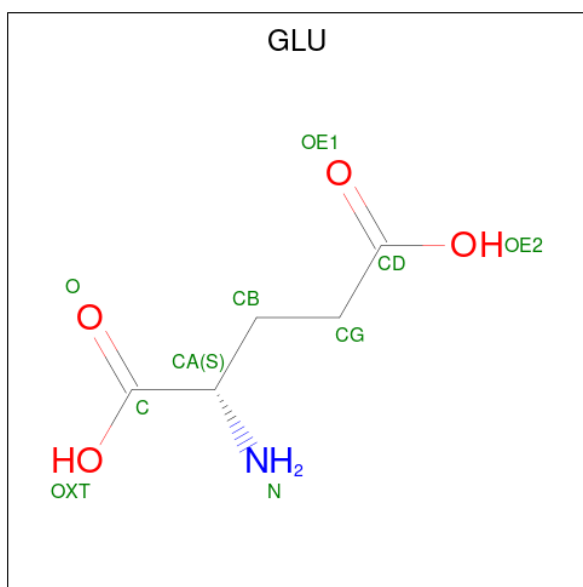
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	B	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	C	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	D	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	E	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	F	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	G	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
2	H	1	Total	C	N	O	P	0	0
			48	21	7	17	3		

- Molecule 3 is 5-methyl-2-phenoxyphenol (CCD ID: MJ5) (formula: C₁₃H₁₂O₂).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			15	13	2		
3	B	1	Total	C	O	0	0
			15	13	2		
3	C	1	Total	C	O	0	0
			15	13	2		
3	D	1	Total	C	O	0	0
			15	13	2		
3	E	1	Total	C	O	0	0
			15	13	2		
3	F	1	Total	C	O	0	0
			15	13	2		
3	G	1	Total	C	O	0	0
			15	13	2		
3	H	1	Total	C	O	0	0
			15	13	2		

- Molecule 4 is GLUTAMIC ACID (CCD ID: GLU) (formula: C₅H₉NO₄).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			10	5	1	4		
4	A	1	Total	C	N	O	0	0
			10	5	1	4		
4	B	1	Total	C	N	O	0	0
			10	5	1	4		
4	B	1	Total	C	N	O	0	0
			10	5	1	4		
4	C	1	Total	C	N	O	0	0
			10	5	1	4		
4	E	1	Total	C	N	O	0	0
			10	5	1	4		
4	E	1	Total	C	N	O	0	0
			9	5	1	3		
4	F	1	Total	C	N	O	0	0
			10	5	1	4		
4	G	1	Total	C	N	O	0	0
			10	5	1	4		
4	G	1	Total	C	N	O	0	0
			10	5	1	4		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	120	Total	O	0	0
			120	120		
5	B	98	Total	O	0	0
			98	98		

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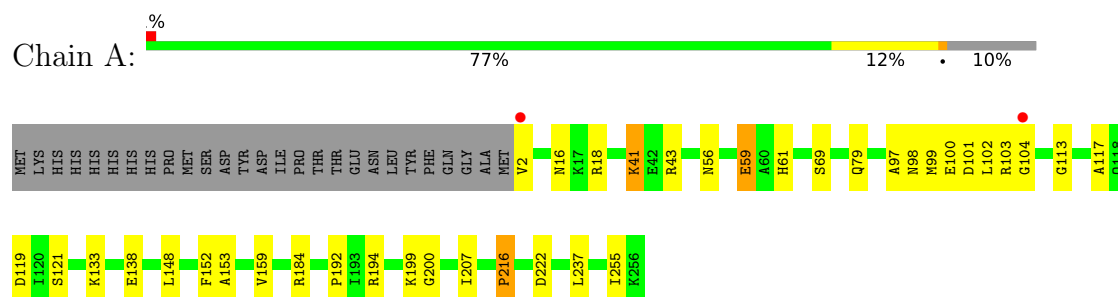
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	C	98	Total 98	O 98	0	0
5	D	78	Total 78	O 78	0	0
5	E	112	Total 112	O 112	0	0
5	F	105	Total 105	O 105	0	0
5	G	97	Total 97	O 97	0	0
5	H	73	Total 73	O 73	0	0

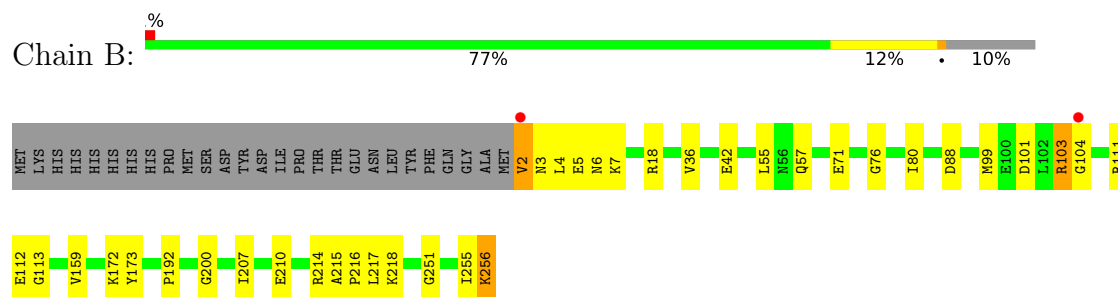
3 Residue-property plots

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

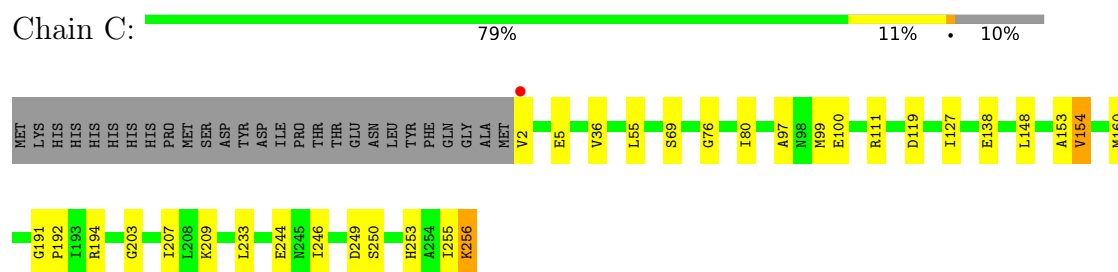
• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]



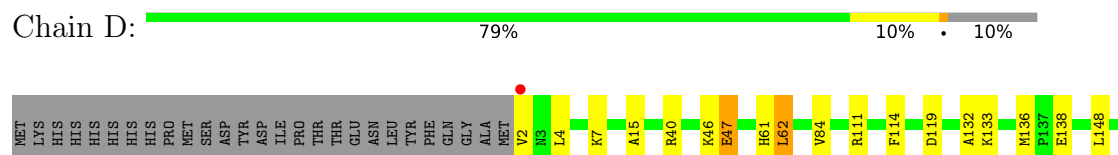
• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]



• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]

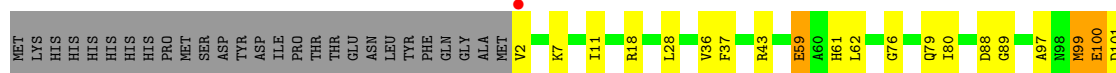
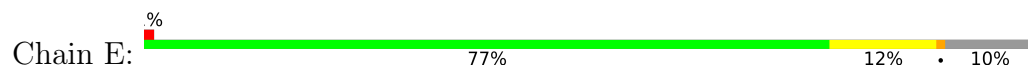


• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]

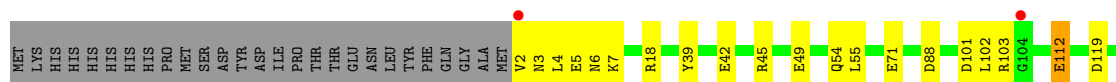
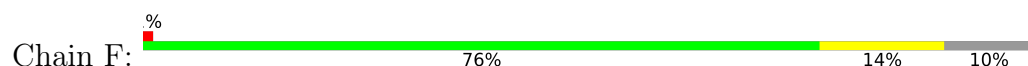




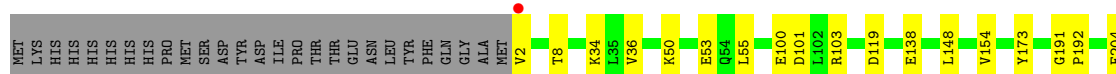
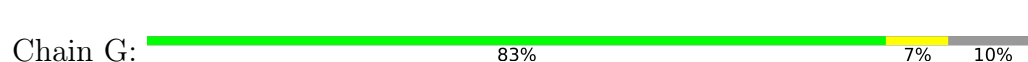
• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]



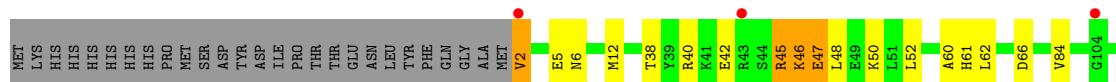
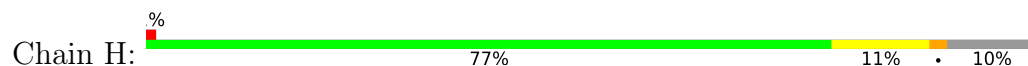
• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]



• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]



• Molecule 1: ENOYL-[ACYL-CARRIER-PROTEIN] REDUCTASE [NADPH]



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	89.86Å 94.52Å 94.83Å 98.17° 111.87° 97.33°	Depositor
Resolution (Å)	49.29 – 2.40 49.29 – 2.40	Depositor EDS
% Data completeness (in resolution range)	98.2 (49.29-2.40) 98.2 (49.29-2.40)	Depositor EDS
R_{merge}	0.01	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.10 (at 2.39Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, R_{free}	0.138 , 0.192 0.152 , 0.202	Depositor DCC
R_{free} test set	5485 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	36.6	Xtriage
Anisotropy	0.492	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 45.1	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	0.97	EDS
Total number of atoms	17560	wwPDB-VP
Average B, all atoms (Å ²)	49.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.10% 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: NAP, MJ5

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	0.64	0/2107	1.01	0/2835
1	B	0.65	0/2078	1.03	2/2797 (0.1%)
1	C	0.66	0/2028	1.02	2/2732 (0.1%)
1	D	0.63	0/2008	1.00	0/2706
1	E	0.67	0/2087	1.01	1/2809 (0.0%)
1	F	0.64	0/2098	0.99	1/2823 (0.0%)
1	G	0.67	0/2019	1.03	2/2720 (0.1%)
1	H	0.60	0/2039	0.99	0/2746
All	All	0.65	0/16464	1.01	8/22168 (0.0%)

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	3	ASN	N-CA-C	7.25	120.24	109.59
1	B	57	GLN	CA-C-N	-7.01	112.47	120.04
1	B	57	GLN	C-N-CA	-7.01	112.47	120.04
1	E	36	VAL	N-CA-C	-5.50	100.56	108.48
1	G	36	VAL	N-CA-C	-5.40	100.42	108.46
1	C	253	HIS	N-CA-C	-5.21	106.18	112.54
1	G	204	PHE	N-CA-C	5.17	117.58	111.33
1	C	36	VAL	N-CA-C	-5.08	100.89	108.46

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	2065	0	2086	39	0
1	B	2045	0	2061	33	0
1	C	1992	0	2009	24	0
1	D	1978	0	1990	19	0
1	E	2051	0	2067	37	0
1	F	2059	0	2080	31	0
1	G	1986	0	2003	18	0
1	H	2000	0	2022	23	0
2	A	48	0	25	0	0
2	B	48	0	25	0	0
2	C	48	0	25	0	0
2	D	48	0	25	1	0
2	E	48	0	25	0	0
2	F	48	0	25	0	0
2	G	48	0	25	1	0
2	H	48	0	25	1	0
3	A	15	0	11	0	0
3	B	15	0	11	0	0
3	C	15	0	11	1	0
3	D	15	0	12	0	0
3	E	15	0	11	0	0
3	F	15	0	11	0	0
3	G	15	0	12	0	0
3	H	15	0	11	1	0
4	A	20	0	10	3	0
4	B	20	0	10	2	0
4	C	10	0	5	2	0
4	E	19	0	10	5	0
4	F	10	0	5	2	0
4	G	20	0	10	0	0
5	A	120	0	0	5	0
5	B	98	0	0	1	0
5	C	98	0	0	6	0
5	D	78	0	0	1	0
5	E	112	0	0	3	0
5	F	105	0	0	4	0
5	G	97	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	H	73	0	0	0	0
All	All	17560	0	16658	197	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 6.

All (197) 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:F:42[A]:GLU:OE1	1:F:45[A]:ARG:NH1	2.02	0.93
1:A:104[B]:GLY:HA3	1:E:43:ARG:HH22	1.35	0.91
1:E:148:LEU:HD21	1:G:256:LYS:HD2	1.51	0.90
1:B:103[A]:ARG:CG	1:B:103[A]:ARG:HH11	1.85	0.90
1:B:103[A]:ARG:HH11	1:B:103[A]:ARG:HG2	1.35	0.89
4:E:1258:GLU:O	4:E:1258:GLU:HG2	1.74	0.87
1:A:43:ARG:HH22	1:E:104[B]:GLY:HA3	1.42	0.83
1:E:18[A]:ARG:HH22	1:E:199:LYS:HE2	1.42	0.83
1:G:103:ARG:HG2	1:G:103:ARG:HH11	1.44	0.83
1:F:101[B]:ASP:O	1:F:102[B]:LEU:HD23	1.80	0.81
1:C:244:GLU:OE1	5:C:2095:HOH:O	2.00	0.79
1:A:18[A]:ARG:HH22	1:A:199:LYS:HE3	1.50	0.77
1:A:100[A]:GLU:HG3	1:E:43:ARG:HG2	1.67	0.76
1:C:203:GLY:H	4:C:1259:GLU:HB3	1.51	0.74
1:B:103[B]:ARG:HH11	1:B:103[B]:ARG:HG3	1.52	0.73
1:B:103[A]:ARG:HG2	1:B:103[A]:ARG:NH1	2.04	0.71
1:B:18:ARG:NH2	5:B:2016:HOH:O	2.24	0.70
4:A:1259:GLU:O	4:A:1259:GLU:HG3	1.92	0.70
1:F:101[B]:ASP:HB3	1:F:159:VAL:CG1	2.21	0.69
1:E:97:ALA:HB3	1:E:102[B]:LEU:HD11	1.74	0.68
1:G:2:VAL:O	1:G:2:VAL:HG13	1.94	0.68
1:B:101[A]:ASP:OD2	1:B:113:GLY:HA3	1.94	0.67
5:E:2098:HOH:O	1:H:239[A]:SER:O	2.13	0.67
1:A:18[A]:ARG:NH2	1:A:199:LYS:HE3	2.10	0.67
1:G:101:ASP:OD1	5:G:2051:HOH:O	2.13	0.66
1:A:18[A]:ARG:HD3	5:A:2012:HOH:O	1.94	0.66
4:E:1258:GLU:OE1	5:E:2091:HOH:O	2.12	0.66
1:C:194:ARG:HH11	1:C:194:ARG:HG2	1.59	0.65
5:F:2092:HOH:O	1:G:239[A]:SER:O	2.15	0.65
5:A:2108:HOH:O	1:D:239[A]:SER:O	2.14	0.65
1:E:184:ARG:HH21	4:E:1260:GLU:HG2	1.63	0.63
5:A:2086:HOH:O	1:B:172:LYS:NZ	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104[B]:GLY:HA3	1:E:43:ARG:NH2	2.12	0.63
1:E:192:PRO:HG3	1:E:207:ILE:HG22	1.79	0.62
1:G:192:PRO:HG3	1:G:207:ILE:HG22	1.80	0.62
1:A:41:LYS:HE3	1:E:100[B]:GLU:HG3	1.80	0.62
1:B:101[B]:ASP:HB3	1:B:159:VAL:CG1	2.30	0.62
1:B:103[A]:ARG:CG	1:B:103[A]:ARG:NH1	2.55	0.61
1:B:103[B]:ARG:HG3	1:B:103[B]:ARG:NH1	2.15	0.61
1:B:103[B]:ARG:HG2	1:B:104[B]:GLY:N	2.14	0.61
1:F:112:GLU:HG3	5:F:2056:HOH:O	2.01	0.61
1:A:133:LYS:HD3	5:A:2077:HOH:O	2.01	0.60
1:B:3:ASN:HD21	1:B:5:GLU:HG3	1.66	0.60
1:A:148:LEU:HD21	1:C:256:LYS:HD3	1.84	0.59
1:H:5:GLU:O	1:H:6:ASN:HB2	2.03	0.59
1:F:102[B]:LEU:CB	1:F:200:GLY:O	2.50	0.59
1:A:103[B]:ARG:HH12	4:A:1259:GLU:HA	1.67	0.59
1:E:103[B]:ARG:NH1	4:E:1258:GLU:O	2.36	0.59
1:B:216:PRO:HG2	1:B:251:GLY:HA3	1.86	0.58
1:C:203:GLY:N	4:C:1259:GLU:HB3	2.19	0.58
1:H:194[A]:ARG:HG3	1:H:194[A]:ARG:HH11	1.69	0.58
1:F:102[B]:LEU:HB2	1:F:200:GLY:O	2.04	0.58
1:B:5:GLU:O	1:B:6:ASN:HB2	2.04	0.57
1:A:98:ASN:HB3	1:A:100[B]:GLU:HG3	1.86	0.57
1:G:103:ARG:HG2	1:G:103:ARG:NH1	2.17	0.57
1:C:76:GLY:O	1:C:80:ILE:HG13	2.04	0.57
1:F:101[B]:ASP:HB3	1:F:159:VAL:HG11	1.86	0.56
1:A:18[A]:ARG:CD	5:A:2012:HOH:O	2.52	0.56
1:F:5:GLU:O	1:F:6:ASN:HB2	2.06	0.56
1:F:255:ILE:O	1:H:256:LYS:HE2	2.06	0.56
1:B:2:VAL:N	1:C:2:VAL:N	2.54	0.56
1:B:101[B]:ASP:HB3	1:B:159:VAL:HG11	1.89	0.55
1:C:192:PRO:HG3	1:C:207:ILE:HG22	1.87	0.55
1:F:112:GLU:CG	5:F:2056:HOH:O	2.55	0.55
1:A:43:ARG:NH2	1:E:104[B]:GLY:HA3	2.17	0.55
1:C:154:VAL:HG11	5:C:2065:HOH:O	2.07	0.55
1:A:2:VAL:HG13	1:A:2:VAL:O	2.07	0.54
1:A:41:LYS:HE2	1:E:100[B]:GLU:OE2	2.07	0.54
1:A:192:PRO:HG3	1:A:207:ILE:HG22	1.90	0.54
1:B:76:GLY:O	1:B:80:ILE:HG13	2.08	0.54
1:A:117:ALA:O	1:A:121:SER:HB2	2.08	0.53
1:H:40:ARG:HD3	2:H:1258:NAP:C6A	2.39	0.53
1:C:2:VAL:HG13	1:C:2:VAL:O	2.07	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:1258:GLU:O	4:E:1258:GLU:CG	2.48	0.53
1:A:101[A]:ASP:HB3	1:A:159:VAL:CG1	2.38	0.53
1:F:103[A]:ARG:HH22	4:F:1258:GLU:HB2	1.74	0.53
1:C:119:ASP:OD1	1:D:111:ARG:NH1	2.40	0.52
1:G:50:LYS:O	1:G:53:GLU:HG2	2.10	0.52
1:B:255:ILE:O	1:D:256:LYS:HE2	2.09	0.52
1:D:192:PRO:HG3	1:D:207:ILE:HG22	1.91	0.52
1:E:256:LYS:HG2	1:G:148:LEU:HD21	1.91	0.52
1:B:192:PRO:HG3	1:B:207:ILE:HG22	1.92	0.52
1:D:61:HIS:C	1:D:62:LEU:HD12	2.36	0.51
1:F:101[B]:ASP:HB3	1:F:159:VAL:HG12	1.91	0.51
1:E:18[A]:ARG:NH2	1:E:199:LYS:HE2	2.20	0.51
1:E:111:ARG:NH1	1:F:119:ASP:OD1	2.40	0.51
1:E:7:LYS:HA	1:E:88:ASP:OD2	2.10	0.51
1:E:99[B]:MET:HE1	1:E:103[B]:ARG:NE	2.25	0.51
1:F:71[A]:GLU:HG2	5:F:2042:HOH:O	2.11	0.50
1:F:249:ASP:O	1:F:250:SER:HB2	2.11	0.50
1:H:42:GLU:O	1:H:45:ARG:N	2.38	0.50
1:E:101[B]:ASP:OD2	1:E:113:GLY:HA3	2.12	0.49
1:B:215:ALA:O	1:B:218:LYS:HD2	2.13	0.49
1:F:101[B]:ASP:O	1:F:159:VAL:HG12	2.12	0.49
1:H:249:ASP:O	1:H:250:SER:HB2	2.10	0.49
1:A:59:GLU:HG3	1:A:61:HIS:NE2	2.27	0.49
1:A:237:LEU:HD22	1:D:228:LYS:HB3	1.94	0.49
1:E:76:GLY:O	1:E:80:ILE:HG13	2.13	0.49
1:A:18[A]:ARG:HH22	1:A:199:LYS:CE	2.24	0.49
1:E:99[B]:MET:HE1	1:E:103[B]:ARG:HE	1.76	0.49
1:G:173:TYR:CZ	1:H:153:ALA:HA	2.48	0.49
1:C:249:ASP:O	1:C:250:SER:HB2	2.13	0.49
1:A:101[B]:ASP:OD2	1:A:113:GLY:HA3	2.13	0.49
1:A:194:ARG:HG2	1:A:194:ARG:HH11	1.78	0.48
1:A:101[A]:ASP:HB3	1:A:159:VAL:HG11	1.94	0.48
1:F:214:ARG:NH2	1:H:210:GLU:OE2	2.44	0.48
1:F:7:LYS:HA	1:F:88:ASP:OD2	2.13	0.48
1:D:114:PHE:C	1:D:114:PHE:CD1	2.92	0.47
1:E:102[A]:LEU:HB2	1:E:200:GLY:O	2.14	0.47
1:B:103[A]:ARG:HH22	4:B:1259:GLU:HB2	1.79	0.47
1:C:192:PRO:CG	1:C:207:ILE:HG22	2.44	0.47
1:A:184:ARG:HH21	4:A:1260:GLU:HG2	1.80	0.47
1:F:192:PRO:HG3	1:F:207:ILE:HG22	1.97	0.47
1:G:119:ASP:OD1	1:H:111:ARG:NH1	2.38	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:8:THR:HA	1:G:34:LYS:O	2.15	0.47
1:F:102[B]:LEU:HB3	1:F:200:GLY:O	2.15	0.47
1:C:97:ALA:HB2	1:C:160:MET:HE2	1.96	0.46
1:E:138:GLU:O	1:E:138:GLU:HG3	2.15	0.46
1:A:222:ASP:OD1	1:A:222:ASP:C	2.58	0.46
5:C:2068:HOH:O	1:D:172:LYS:NZ	2.48	0.46
1:A:119:ASP:OD1	1:B:111:ARG:NH1	2.47	0.46
1:F:2:VAL:HG13	1:F:2:VAL:O	2.16	0.46
1:A:100[A]:GLU:HB3	1:E:196:LEU:HD21	1.98	0.46
1:A:216:PRO:O	1:D:179:GLY:HA3	2.16	0.46
1:B:103[A]:ARG:HH11	1:B:103[A]:ARG:HG3	1.77	0.46
1:C:154:VAL:CG1	5:C:2065:HOH:O	2.63	0.46
1:H:45:ARG:C	1:H:47:GLU:H	2.23	0.46
1:C:192:PRO:HG3	1:C:207:ILE:CG2	2.46	0.45
1:D:2:VAL:O	1:D:2:VAL:HG13	2.17	0.45
1:B:7:LYS:HA	1:B:88:ASP:OD2	2.16	0.45
1:C:153:ALA:HA	1:D:173:TYR:CZ	2.52	0.45
1:B:5:GLU:O	1:B:6:ASN:CB	2.64	0.45
1:B:101[B]:ASP:HB3	1:B:159:VAL:HG12	1.99	0.45
1:H:179:GLY:N	1:H:180:PRO:CD	2.80	0.45
1:C:111:ARG:NH1	1:D:119:ASP:OD1	2.49	0.44
1:D:15:ALA:O	1:D:47:GLU:HG2	2.16	0.44
1:D:222:ASP:OD1	1:D:222:ASP:C	2.60	0.44
1:C:233:LEU:HD21	1:C:246:ILE:HD12	1.99	0.44
1:D:220:ASN:HB3	5:D:2062:HOH:O	2.17	0.44
1:C:194:ARG:HG2	1:C:194:ARG:NH1	2.29	0.44
1:D:132:ALA:O	1:D:136:MET:HG3	2.18	0.44
1:F:5:GLU:O	1:F:6:ASN:CB	2.65	0.44
1:F:103[A]:ARG:HH12	4:F:1258:GLU:HB2	1.82	0.44
1:F:184:ARG:HD2	1:F:241:VAL:O	2.18	0.44
1:E:101[A]:ASP:HB3	1:E:159:VAL:CG1	2.48	0.44
1:H:12:MET:HG2	1:H:38:THR:OG1	2.18	0.44
1:G:103:ARG:NH1	1:G:103:ARG:CG	2.77	0.44
1:A:18[A]:ARG:NH2	1:A:199:LYS:CE	2.81	0.43
1:B:103[B]:ARG:NH1	1:B:103[B]:ARG:CG	2.74	0.43
1:D:40:ARG:HD3	2:D:1258:NAP:C6A	2.48	0.43
1:E:18[B]:ARG:HD3	5:E:2015:HOH:O	2.19	0.43
1:A:99[A]:MET:CE	1:E:99[A]:MET:SD	3.07	0.43
1:A:102[A]:LEU:HB2	1:A:200:GLY:O	2.18	0.43
1:B:256:LYS:HE3	1:D:148:LEU:HD21	2.00	0.43
1:A:99[B]:MET:HE3	1:A:99[B]:MET:HB3	1.62	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:89:GLY:HA3	1:E:141:SER:O	2.18	0.43
1:H:66:ASP:OD1	1:H:66:ASP:C	2.62	0.43
1:E:11:ILE:HD11	1:E:28:LEU:HD12	2.01	0.43
1:E:99[A]:MET:HE3	1:E:99[A]:MET:HB3	1.92	0.43
1:E:249:ASP:O	1:E:250:SER:HB2	2.18	0.43
1:F:18[A]:ARG:NH2	1:F:194:ARG:HD2	2.33	0.43
1:A:16:ASN:HD21	1:A:18[A]:ARG:HH11	1.66	0.43
1:B:217:LEU:O	1:B:218:LYS:HB2	2.18	0.43
1:C:160:MET:HE3	3:C:1257:MJ5:CAC	2.48	0.43
1:C:154:VAL:HG13	5:C:2071:HOH:O	2.19	0.42
1:C:191:GLY:HA3	5:C:2097:HOH:O	2.19	0.42
1:B:99[A]:MET:SD	1:B:200:GLY:HA2	2.59	0.42
1:H:204:PHE:HA	1:H:207:ILE:HG13	2.00	0.42
1:E:148:LEU:HD21	1:G:256:LYS:CD	2.36	0.42
1:H:61:HIS:C	1:H:62:LEU:HD12	2.44	0.42
1:H:112[A]:GLU:CD	1:H:112[A]:GLU:H	2.27	0.42
1:F:171:VAL:HG13	1:F:185:VAL:HG12	2.01	0.42
1:H:209:LYS:HE2	1:H:213:GLU:OE2	2.19	0.42
1:A:153:ALA:HA	1:B:173:TYR:CZ	2.53	0.42
1:F:39:TYR:CE2	1:F:45[A]:ARG:HB2	2.54	0.42
1:A:43:ARG:HA	1:A:43:ARG:HD2	1.93	0.41
1:F:39:TYR:CE2	1:F:45[B]:ARG:HB2	2.54	0.41
1:H:45:ARG:C	1:H:47:GLU:N	2.78	0.41
1:A:97:ALA:HB3	1:A:102[B]:LEU:HD11	2.03	0.41
1:A:152:PHE:CG	1:C:256:LYS:HG3	2.56	0.41
1:E:59:GLU:HG3	1:E:61:HIS:NE2	2.35	0.41
1:G:2:VAL:O	1:G:2:VAL:CG1	2.65	0.41
1:E:37:PHE:HB2	1:E:62:LEU:HD23	2.03	0.41
1:E:148:LEU:CD2	1:G:256:LYS:HD2	2.36	0.41
1:F:2:VAL:HG21	1:F:235:SER:CB	2.51	0.41
1:F:103[B]:ARG:HA	1:F:156:ASN:OD1	2.21	0.41
1:B:103[A]:ARG:HH22	4:B:1259:GLU:CB	2.33	0.40
1:B:210:GLU:HG2	1:B:214:ARG:HD3	2.03	0.40
1:H:60:ALA:HB1	1:H:62:LEU:HD13	2.02	0.40
1:H:194[A]:ARG:HG3	1:H:194[A]:ARG:NH1	2.34	0.40
1:H:201:VAL:CG2	3:H:1257:MJ5:HAF	2.52	0.40
1:E:2:VAL:HG12	1:H:2:VAL:N	2.36	0.40
1:D:160:MET:O	1:D:164:LYS:HG2	2.22	0.40
1:G:191:GLY:HA3	5:G:2097:HOH:O	2.22	0.40
1:E:196:LEU:HD12	1:E:196:LEU:HA	1.92	0.40
1:G:192:PRO:HA	2:G:1259:NAP:O7N	2.22	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	267/282 (95%)	257 (96%)	10 (4%)	0	100	100
1	B	264/282 (94%)	251 (95%)	13 (5%)	0	100	100
1	C	258/282 (92%)	247 (96%)	11 (4%)	0	100	100
1	D	256/282 (91%)	243 (95%)	11 (4%)	2 (1%)	16	25
1	E	265/282 (94%)	255 (96%)	10 (4%)	0	100	100
1	F	266/282 (94%)	251 (94%)	15 (6%)	0	100	100
1	G	257/282 (91%)	247 (96%)	10 (4%)	0	100	100
1	H	259/282 (92%)	244 (94%)	14 (5%)	1 (0%)	30	43
All	All	2092/2256 (93%)	1995 (95%)	94 (4%)	3 (0%)	48	64

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	47	GLU
1	H	46	LYS
1	D	46	LYS

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	221/234 (94%)	212 (96%)	9 (4%)	27	46
1	B	218/234 (93%)	207 (95%)	11 (5%)	22	38
1	C	213/234 (91%)	201 (94%)	12 (6%)	19	33
1	D	211/234 (90%)	203 (96%)	8 (4%)	29	49
1	E	219/234 (94%)	212 (97%)	7 (3%)	34	56
1	F	220/234 (94%)	210 (96%)	10 (4%)	24	42
1	G	212/234 (91%)	207 (98%)	5 (2%)	43	65
1	H	214/234 (92%)	202 (94%)	12 (6%)	19	33
All	All	1728/1872 (92%)	1654 (96%)	74 (4%)	24	44

All (74) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	41	LYS
1	A	56	ASN
1	A	59	GLU
1	A	69	SER
1	A	79	GLN
1	A	138[A]	GLU
1	A	138[B]	GLU
1	A	216	PRO
1	A	255	ILE
1	B	2	VAL
1	B	4	LEU
1	B	36	VAL
1	B	42[A]	GLU
1	B	42[B]	GLU
1	B	55	LEU
1	B	71	GLU
1	B	103[A]	ARG
1	B	103[B]	ARG
1	B	112	GLU
1	B	256	LYS
1	C	5	GLU
1	C	55	LEU
1	C	69	SER
1	C	99	MET
1	C	100	GLU
1	C	127	ILE
1	C	138	GLU

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Mol	Chain	Res	Type
1	C	148	LEU
1	C	154	VAL
1	C	209	LYS
1	C	255	ILE
1	C	256	LYS
1	D	4	LEU
1	D	7	LYS
1	D	62	LEU
1	D	84	VAL
1	D	133	LYS
1	D	138	GLU
1	D	216	PRO
1	D	256	LYS
1	E	59	GLU
1	E	79	GLN
1	E	99[A]	MET
1	E	99[B]	MET
1	E	100[A]	GLU
1	E	100[B]	GLU
1	E	199	LYS
1	F	4	LEU
1	F	54	GLN
1	F	55	LEU
1	F	112	GLU
1	F	127	ILE
1	F	133	LYS
1	F	154	VAL
1	F	209	LYS
1	F	218	LYS
1	F	256	LYS
1	G	55	LEU
1	G	100	GLU
1	G	138	GLU
1	G	154	VAL
1	G	256	LYS
1	H	2	VAL
1	H	45	ARG
1	H	46	LYS
1	H	47	GLU
1	H	48	LEU
1	H	50	LYS
1	H	52	LEU

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Mol	Chain	Res	Type
1	H	84	VAL
1	H	155	GLN
1	H	207	ILE
1	H	216	PRO
1	H	255	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	ASN
1	A	253	HIS
1	B	3	ASN
1	B	68	GLN
1	B	170	ASN
1	C	3	ASN
1	C	130	HIS
1	D	54	GLN
1	D	68	GLN
1	E	3	ASN
1	F	56	ASN
1	G	98	ASN
1	G	130	HIS
1	H	64	GLN
1	H	68	GLN
1	H	79	GLN
1	H	170	ASN
1	H	253	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

26 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	NAP	A	1257	-	50,52,52	1.60	6 (12%)	71,80,80	1.93	13 (18%)
4	GLU	A	1260	-	8,9,9	1.15	0	8,11,11	1.15	1 (12%)
4	GLU	G	1260	-	8,9,9	1.06	0	8,11,11	1.25	1 (12%)
3	MJ5	G	1257	-	16,16,16	0.79	0	21,21,21	0.81	0
2	NAP	F	1259	-	50,52,52	1.58	3 (6%)	71,80,80	1.65	14 (19%)
2	NAP	G	1259	-	50,52,52	1.49	4 (8%)	71,80,80	1.93	18 (25%)
2	NAP	D	1258	-	50,52,52	1.53	4 (8%)	71,80,80	1.68	15 (21%)
4	GLU	E	1260	-	7,8,9	1.11	0	4,9,11	1.44	1 (25%)
4	GLU	A	1259	-	8,9,9	1.22	1 (12%)	8,11,11	1.11	1 (12%)
3	MJ5	A	1258	-	16,16,16	0.60	0	21,21,21	1.04	1 (4%)
3	MJ5	D	1257	-	16,16,16	0.59	0	21,21,21	0.81	0
4	GLU	C	1259	-	8,9,9	1.13	0	8,11,11	1.43	1 (12%)
2	NAP	E	1259	-	50,52,52	1.51	3 (6%)	71,80,80	1.83	13 (18%)
4	GLU	E	1258	-	8,9,9	1.16	0	8,11,11	0.91	0
3	MJ5	E	1257	-	16,16,16	0.69	0	21,21,21	1.04	2 (9%)
3	MJ5	B	1257	-	16,16,16	0.66	0	21,21,21	1.06	2 (9%)
3	MJ5	F	1257	-	16,16,16	0.81	0	21,21,21	1.19	3 (14%)
4	GLU	B	1260	-	8,9,9	1.05	0	8,11,11	1.44	2 (25%)
3	MJ5	H	1257	-	16,16,16	0.68	0	21,21,21	0.81	0
2	NAP	C	1258	-	50,52,52	1.55	7 (14%)	71,80,80	1.72	15 (21%)
2	NAP	B	1258	-	50,52,52	1.54	3 (6%)	71,80,80	1.88	14 (19%)
4	GLU	G	1258	-	8,9,9	1.31	1 (12%)	8,11,11	0.92	0
2	NAP	H	1258	-	50,52,52	1.68	5 (10%)	71,80,80	1.78	13 (18%)
3	MJ5	C	1257	-	16,16,16	0.73	0	21,21,21	1.16	2 (9%)
4	GLU	B	1259	-	8,9,9	1.21	1 (12%)	8,11,11	0.93	0
4	GLU	F	1258	-	8,9,9	1.25	1 (12%)	8,11,11	1.08	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAP	A	1257	-	-	6/35/67/67	0/5/5/5
4	GLU	A	1260	-	-	6/9/9/9	-
4	GLU	G	1260	-	-	5/9/9/9	-
3	MJ5	G	1257	-	-	0/4/4/4	0/2/2/2
2	NAP	F	1259	-	-	6/35/67/67	0/5/5/5
2	NAP	G	1259	-	-	7/35/67/67	0/5/5/5
2	NAP	D	1258	-	-	6/35/67/67	0/5/5/5
4	GLU	E	1260	-	-	4/6/7/9	-
4	GLU	A	1259	-	-	3/9/9/9	-
3	MJ5	A	1258	-	-	0/4/4/4	0/2/2/2
3	MJ5	D	1257	-	-	0/4/4/4	0/2/2/2
4	GLU	C	1259	-	-	3/9/9/9	-
2	NAP	E	1259	-	-	6/35/67/67	0/5/5/5
4	GLU	E	1258	-	-	5/9/9/9	-
3	MJ5	E	1257	-	-	0/4/4/4	0/2/2/2
3	MJ5	B	1257	-	-	0/4/4/4	0/2/2/2
3	MJ5	F	1257	-	-	0/4/4/4	0/2/2/2
4	GLU	B	1260	-	-	4/9/9/9	-
3	MJ5	H	1257	-	-	0/4/4/4	0/2/2/2
2	NAP	C	1258	-	-	5/35/67/67	0/5/5/5
2	NAP	B	1258	-	-	6/35/67/67	0/5/5/5
4	GLU	G	1258	-	-	5/9/9/9	-
2	NAP	H	1258	-	-	8/35/67/67	0/5/5/5
3	MJ5	C	1257	-	-	0/4/4/4	0/2/2/2
4	GLU	B	1259	-	-	4/9/9/9	-
4	GLU	F	1258	-	-	3/9/9/9	-

All (39) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	1258	NAP	O7N-C7N	9.04	1.41	1.24
2	F	1259	NAP	O7N-C7N	8.58	1.40	1.24
2	B	1258	NAP	O7N-C7N	8.47	1.39	1.24
2	A	1257	NAP	O7N-C7N	8.21	1.39	1.24
2	C	1258	NAP	O7N-C7N	8.12	1.39	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	1259	NAP	O7N-C7N	8.04	1.39	1.24
2	E	1259	NAP	O7N-C7N	8.00	1.39	1.24
2	D	1258	NAP	O7N-C7N	7.93	1.38	1.24
2	H	1258	NAP	C2A-N3A	2.95	1.39	1.33
2	H	1258	NAP	C2N-N1N	2.71	1.38	1.35
2	E	1259	NAP	C2A-N3A	2.70	1.38	1.33
2	D	1258	NAP	C2A-N1A	2.68	1.38	1.33
2	A	1257	NAP	C2A-N3A	2.64	1.38	1.33
2	F	1259	NAP	C2A-N3A	2.60	1.38	1.33
2	D	1258	NAP	C2A-N3A	2.60	1.38	1.33
2	F	1259	NAP	C2A-N1A	2.56	1.38	1.33
2	C	1258	NAP	C2A-N3A	2.49	1.38	1.33
2	C	1258	NAP	C2A-N1A	2.35	1.38	1.33
2	G	1259	NAP	C2A-N3A	2.33	1.38	1.33
2	C	1258	NAP	PA-O3	2.32	1.62	1.59
2	G	1259	NAP	C2A-N1A	2.31	1.38	1.33
2	A	1257	NAP	C8A-N7A	2.30	1.36	1.31
4	G	1258	GLU	CG-CD	2.29	1.55	1.50
2	B	1258	NAP	C2A-N3A	2.28	1.38	1.33
2	E	1259	NAP	C2A-N1A	2.26	1.37	1.33
2	H	1258	NAP	C2A-N1A	2.25	1.37	1.33
2	C	1258	NAP	P2B-O2B	2.23	1.63	1.59
2	A	1257	NAP	C2A-N1A	2.20	1.37	1.33
2	C	1258	NAP	C5A-N7A	-2.18	1.35	1.39
2	D	1258	NAP	PA-O3	2.16	1.61	1.59
4	F	1258	GLU	CG-CD	2.15	1.55	1.50
2	B	1258	NAP	P2B-O2B	2.14	1.63	1.59
2	A	1257	NAP	O4B-C4B	-2.13	1.40	1.45
2	H	1258	NAP	PA-O3	2.07	1.61	1.59
4	B	1259	GLU	CG-CD	2.07	1.55	1.50
2	A	1257	NAP	P2B-O2B	2.07	1.63	1.59
2	G	1259	NAP	C8A-N7A	2.06	1.35	1.31
2	C	1258	NAP	C8A-N7A	2.02	1.35	1.31
4	A	1259	GLU	CG-CD	2.01	1.55	1.50

All (132) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1257	NAP	N3A-C2A-N1A	-6.76	118.34	128.58
2	A	1257	NAP	C3N-C7N-N7N	6.13	125.29	117.74
2	G	1259	NAP	C3N-C7N-N7N	6.10	125.25	117.74
2	D	1258	NAP	N3A-C2A-N1A	-5.92	119.61	128.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	1259	NAP	N3A-C2A-N1A	-5.46	120.32	128.58
2	B	1258	NAP	N9A-C8A-N7A	-5.46	106.19	113.94
2	B	1258	NAP	N3A-C2A-N1A	-5.34	120.51	128.58
2	F	1259	NAP	N3A-C2A-N1A	-5.29	120.57	128.58
2	H	1258	NAP	N3A-C2A-N1A	-5.22	120.69	128.58
2	G	1259	NAP	O7N-C7N-C3N	-5.18	113.27	119.60
2	E	1259	NAP	C3N-C7N-N7N	5.17	124.11	117.74
2	E	1259	NAP	N9A-C8A-N7A	-5.11	106.69	113.94
2	E	1259	NAP	N3A-C2A-N1A	-5.04	120.96	128.58
2	H	1258	NAP	N9A-C8A-N7A	-4.79	107.14	113.94
2	C	1258	NAP	C3N-C7N-N7N	4.67	123.50	117.74
2	B	1258	NAP	C5A-C4A-N3A	-4.64	120.33	126.72
2	C	1258	NAP	N3A-C2A-N1A	-4.57	121.67	128.58
2	E	1259	NAP	C5A-C4A-N3A	-4.51	120.51	126.72
2	H	1258	NAP	C3N-C7N-N7N	4.44	123.21	117.74
2	C	1258	NAP	N9A-C8A-N7A	-4.42	107.66	113.94
2	B	1258	NAP	C5A-N7A-C8A	4.39	110.35	103.45
2	A	1257	NAP	N9A-C8A-N7A	-4.36	107.75	113.94
2	G	1259	NAP	C5A-C4A-N3A	-4.30	120.80	126.72
2	C	1258	NAP	C5A-N7A-C8A	4.28	110.18	103.45
2	E	1259	NAP	C5A-N7A-C8A	4.28	110.18	103.45
2	D	1258	NAP	N9A-C8A-N7A	-4.27	107.88	113.94
2	A	1257	NAP	O7N-C7N-C3N	-4.20	114.46	119.60
2	D	1258	NAP	C3N-C7N-N7N	4.11	122.80	117.74
2	G	1259	NAP	N9A-C8A-N7A	-4.06	108.18	113.94
2	F	1259	NAP	N9A-C8A-N7A	-4.00	108.26	113.94
2	C	1258	NAP	C5A-C4A-N3A	-3.94	121.29	126.72
2	B	1258	NAP	C2A-N3A-C4A	3.93	121.43	111.83
2	C	1258	NAP	C4A-C5A-N7A	-3.76	106.28	110.58
2	F	1259	NAP	C5A-C4A-N3A	-3.72	121.59	126.72
2	G	1259	NAP	C5A-N7A-C8A	3.71	109.28	103.45
2	E	1259	NAP	O7N-C7N-N7N	-3.58	117.45	122.62
2	H	1258	NAP	C5A-C4A-N3A	-3.56	121.82	126.72
2	H	1258	NAP	C5A-N7A-C8A	3.55	109.03	103.45
2	H	1258	NAP	C4A-N9A-C8A	3.53	109.45	105.74
2	D	1258	NAP	C5A-C4A-N3A	-3.43	121.99	126.72
2	A	1257	NAP	C2A-N3A-C4A	3.35	120.02	111.83
2	A	1257	NAP	C5A-C4A-N3A	-3.34	122.11	126.72
2	D	1258	NAP	C2A-N3A-C4A	3.33	119.95	111.83
2	D	1258	NAP	C5A-N7A-C8A	3.31	108.66	103.45
2	E	1259	NAP	C4A-N9A-C8A	3.28	109.18	105.74
2	B	1258	NAP	C4A-C5A-N7A	-3.27	106.84	110.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1258	NAP	C4A-N9A-C8A	3.27	109.17	105.74
2	B	1258	NAP	C3N-C7N-N7N	3.26	121.76	117.74
2	E	1259	NAP	C2A-N3A-C4A	3.26	119.79	111.83
2	A	1257	NAP	C4A-N9A-C8A	3.25	109.15	105.74
2	H	1258	NAP	C2B-C1B-N9A	-3.23	108.43	113.75
2	A	1257	NAP	O3-PN-O1N	-3.23	100.99	110.70
2	E	1259	NAP	N3A-C4A-N9A	3.22	132.64	127.17
3	C	1257	MJ5	CAM-CAJ-CAL	-3.15	118.34	121.03
2	G	1259	NAP	C2A-N3A-C4A	3.14	119.50	111.83
2	F	1259	NAP	C5A-N7A-C8A	3.14	108.38	103.45
2	H	1258	NAP	C2A-N3A-C4A	3.12	119.45	111.83
2	F	1259	NAP	O3-PN-O1N	-3.08	101.43	110.70
2	E	1259	NAP	C4A-C5A-N7A	-3.04	107.11	110.58
2	F	1259	NAP	C4A-N9A-C8A	3.02	108.91	105.74
2	F	1259	NAP	N3A-C4A-N9A	3.02	132.30	127.17
2	B	1258	NAP	C6N-N1N-C2N	-3.01	119.31	121.88
2	F	1259	NAP	C2A-N3A-C4A	3.01	119.17	111.83
2	B	1258	NAP	N3A-C4A-N9A	2.97	132.22	127.17
2	G	1259	NAP	O4B-C1B-N9A	2.94	113.73	108.09
2	A	1257	NAP	C5A-N7A-C8A	2.89	108.00	103.45
2	F	1259	NAP	C3N-C7N-N7N	2.88	121.28	117.74
2	H	1258	NAP	N3A-C4A-N9A	2.87	132.04	127.17
2	D	1258	NAP	O4B-C1B-N9A	2.85	113.57	108.09
2	G	1259	NAP	O3-PN-O1N	-2.85	102.13	110.70
2	D	1258	NAP	O7N-C7N-N7N	-2.80	118.56	122.62
2	C	1258	NAP	C2A-N3A-C4A	2.80	118.67	111.83
2	G	1259	NAP	N3A-C4A-N9A	2.78	131.90	127.17
2	E	1259	NAP	O3-PN-O1N	-2.75	102.43	110.70
3	E	1257	MJ5	CAM-CAJ-CAL	-2.75	118.69	121.03
2	G	1259	NAP	C4A-C5A-N7A	-2.74	107.45	110.58
4	B	1260	GLU	CG-CB-CA	-2.72	107.63	113.86
2	D	1258	NAP	C4A-N9A-C8A	2.72	108.59	105.74
2	B	1258	NAP	C2B-C1B-N9A	-2.68	109.33	113.75
2	C	1258	NAP	O7N-C7N-N7N	-2.63	118.81	122.62
2	C	1258	NAP	O2A-PA-O3	-2.58	100.30	107.27
3	B	1257	MJ5	CAI-CAH-CAL	-2.57	118.41	121.37
3	F	1257	MJ5	OAB-CAM-CAO	-2.57	114.10	120.13
2	A	1257	NAP	N3A-C4A-N9A	2.56	131.52	127.17
2	G	1259	NAP	C2N-C3N-C4N	2.55	121.23	118.26
2	E	1259	NAP	O2N-PN-O1N	2.53	124.20	112.44
2	D	1258	NAP	O5B-C5B-C4B	-2.50	100.47	108.99
2	F	1259	NAP	O4B-C1B-N9A	2.49	112.87	108.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	1259	NAP	O4B-C1B-C2B	-2.48	102.31	106.59
2	F	1259	NAP	C2N-C3N-C4N	2.47	121.13	118.26
2	C	1258	NAP	C2N-C3N-C4N	2.46	121.12	118.26
2	E	1259	NAP	C6N-N1N-C2N	-2.46	119.79	121.88
2	D	1258	NAP	N3A-C4A-N9A	2.44	131.31	127.17
2	H	1258	NAP	O2N-PN-O1N	2.42	123.72	112.44
4	A	1259	GLU	OE1-CD-CG	-2.39	115.53	123.09
2	D	1258	NAP	C4D-O4D-C1D	-2.33	107.79	109.92
2	C	1258	NAP	C6A-C5A-C4A	2.33	120.36	117.18
4	A	1260	GLU	OE1-CD-CG	-2.33	115.72	123.09
2	G	1259	NAP	C2B-C1B-N9A	-2.32	109.94	113.75
2	H	1258	NAP	O7N-C7N-C3N	-2.31	116.78	119.60
2	A	1257	NAP	O4B-C1B-N9A	2.29	112.49	108.09
2	F	1259	NAP	O2N-PN-O1N	2.29	123.08	112.44
4	E	1260	GLU	OE1-CD-CG	-2.26	115.92	123.09
3	F	1257	MJ5	CAM-CAJ-CAL	-2.26	119.10	121.03
2	G	1259	NAP	C6A-C5A-C4A	2.24	120.24	117.18
2	F	1259	NAP	O7N-C7N-C3N	-2.24	116.86	119.60
3	B	1257	MJ5	CAA-CAL-CAJ	-2.22	117.91	120.92
4	G	1260	GLU	OE1-CD-CG	-2.22	116.06	123.09
2	C	1258	NAP	O2N-PN-O1N	2.21	122.73	112.44
2	G	1259	NAP	C4N-C3N-C7N	-2.19	115.09	121.06
4	B	1260	GLU	OE1-CD-CG	-2.19	116.14	123.09
2	G	1259	NAP	O2N-PN-O1N	2.18	122.60	112.44
2	D	1258	NAP	C2B-C1B-N9A	-2.18	110.17	113.75
2	C	1258	NAP	C6N-N1N-C2N	-2.17	120.03	121.88
2	G	1259	NAP	C6N-N1N-C1D	-2.16	115.50	119.73
2	B	1258	NAP	O4B-C1B-C2B	-2.15	102.89	106.59
2	B	1258	NAP	O4B-C1B-N9A	2.14	112.20	108.09
2	D	1258	NAP	C4A-C5A-N7A	-2.14	108.14	110.58
3	C	1257	MJ5	CAJ-CAM-CAO	2.11	121.86	119.81
2	A	1257	NAP	C2B-C1B-N9A	-2.11	110.28	113.75
3	E	1257	MJ5	CAJ-CAM-CAO	2.10	121.84	119.81
2	C	1258	NAP	N3A-C4A-N9A	2.09	130.73	127.17
2	D	1258	NAP	O4B-C1B-C2B	-2.09	103.00	106.59
2	B	1258	NAP	O3-PA-O1A	-2.09	104.43	110.70
2	H	1258	NAP	C6N-N1N-C2N	-2.05	120.14	121.88
4	C	1259	GLU	OE1-CD-CG	-2.05	116.60	123.09
3	A	1258	MJ5	CAM-CAJ-CAL	-2.04	119.29	121.03
3	F	1257	MJ5	OAB-CAM-CAJ	2.04	124.95	119.45
2	H	1258	NAP	C4A-C5A-N7A	-2.04	108.25	110.58
2	A	1257	NAP	C2N-C3N-C4N	2.03	120.61	118.26

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	1259	NAP	C2B-C1B-N9A	-2.02	110.42	113.75
2	C	1258	NAP	C4A-N9A-C8A	2.02	107.86	105.74

There are no chirality outliers.

All (92) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1257	NAP	C5D-O5D-PN-O3
2	A	1257	NAP	C5D-O5D-PN-O1N
2	A	1257	NAP	C5D-O5D-PN-O2N
2	A	1257	NAP	O4D-C1D-N1N-C2N
2	B	1258	NAP	PN-O3-PA-O5B
2	B	1258	NAP	C5D-O5D-PN-O3
2	B	1258	NAP	C5D-O5D-PN-O1N
2	B	1258	NAP	C5D-O5D-PN-O2N
2	B	1258	NAP	O4D-C1D-N1N-C2N
2	C	1258	NAP	PN-O3-PA-O5B
2	C	1258	NAP	C5D-O5D-PN-O3
2	C	1258	NAP	C5D-O5D-PN-O1N
2	C	1258	NAP	O4D-C1D-N1N-C2N
2	D	1258	NAP	C5D-O5D-PN-O3
2	D	1258	NAP	C5D-O5D-PN-O1N
2	D	1258	NAP	C5D-O5D-PN-O2N
2	E	1259	NAP	C5D-O5D-PN-O3
2	E	1259	NAP	C5D-O5D-PN-O1N
2	E	1259	NAP	C5D-O5D-PN-O2N
2	E	1259	NAP	O4D-C1D-N1N-C2N
2	F	1259	NAP	C5D-O5D-PN-O3
2	F	1259	NAP	C5D-O5D-PN-O1N
2	F	1259	NAP	C5D-O5D-PN-O2N
2	G	1259	NAP	C5D-O5D-PN-O3
2	G	1259	NAP	C5D-O5D-PN-O1N
2	G	1259	NAP	C5D-O5D-PN-O2N
2	G	1259	NAP	O4D-C1D-N1N-C2N
2	H	1258	NAP	PN-O3-PA-O5B
2	H	1258	NAP	C5D-O5D-PN-O3
2	H	1258	NAP	C5D-O5D-PN-O1N
2	H	1258	NAP	C5D-O5D-PN-O2N
2	H	1258	NAP	O4D-C1D-N1N-C2N
4	A	1260	GLU	N-CA-CB-CG
4	A	1260	GLU	C-CA-CB-CG
4	B	1260	GLU	N-CA-CB-CG

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Mol	Chain	Res	Type	Atoms
4	C	1259	GLU	N-CA-CB-CG
4	E	1260	GLU	N-CA-CB-CG
4	E	1260	GLU	C-CA-CB-CG
4	G	1258	GLU	N-CA-CB-CG
4	G	1258	GLU	C-CA-CB-CG
4	G	1260	GLU	N-CA-CB-CG
4	G	1260	GLU	C-CA-CB-CG
4	A	1260	GLU	OXT-C-CA-N
4	A	1259	GLU	OXT-C-CA-N
4	E	1258	GLU	OXT-C-CA-N
4	C	1259	GLU	CA-CB-CG-CD
4	A	1259	GLU	O-C-CA-N
4	A	1260	GLU	O-C-CA-N
2	A	1257	NAP	PN-O3-PA-O5B
2	D	1258	NAP	PN-O3-PA-O5B
2	E	1259	NAP	PN-O3-PA-O5B
2	F	1259	NAP	PN-O3-PA-O5B
2	G	1259	NAP	PN-O3-PA-O5B
4	B	1260	GLU	C-CA-CB-CG
4	C	1259	GLU	C-CA-CB-CG
4	E	1258	GLU	C-CA-CB-CG
4	A	1259	GLU	CA-CB-CG-CD
4	F	1258	GLU	CA-CB-CG-CD
4	B	1259	GLU	CA-CB-CG-CD
4	G	1260	GLU	CA-CB-CG-CD
4	E	1258	GLU	O-C-CA-CB
4	E	1258	GLU	OXT-C-CA-CB
4	E	1258	GLU	CA-CB-CG-CD
4	E	1260	GLU	OE1-CD-CG-CB
4	G	1258	GLU	OE1-CD-CG-CB
4	G	1260	GLU	OE1-CD-CG-CB
4	G	1260	GLU	OE2-CD-CG-CB
4	B	1259	GLU	OE1-CD-CG-CB
4	E	1260	GLU	OE2-CD-CG-CB
4	G	1258	GLU	OE2-CD-CG-CB
2	A	1257	NAP	O4D-C1D-N1N-C6N
2	B	1258	NAP	O4D-C1D-N1N-C6N
2	C	1258	NAP	O4D-C1D-N1N-C6N
2	D	1258	NAP	O4D-C1D-N1N-C2N
2	D	1258	NAP	O4D-C1D-N1N-C6N
2	E	1259	NAP	O4D-C1D-N1N-C6N
2	F	1259	NAP	O4D-C1D-N1N-C2N

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Mol	Chain	Res	Type	Atoms
2	F	1259	NAP	O4D-C1D-N1N-C6N
2	G	1259	NAP	O4D-C1D-N1N-C6N
2	H	1258	NAP	O4D-C1D-N1N-C6N
4	B	1259	GLU	OE2-CD-CG-CB
4	F	1258	GLU	OE2-CD-CG-CB
4	B	1260	GLU	OE2-CD-CG-CB
4	A	1260	GLU	OE1-CD-CG-CB
4	A	1260	GLU	OE2-CD-CG-CB
4	F	1258	GLU	OE1-CD-CG-CB
4	B	1260	GLU	OE1-CD-CG-CB
4	G	1258	GLU	CA-CB-CG-CD
2	H	1258	NAP	PA-O3-PN-O2N
2	H	1258	NAP	O4B-C4B-C5B-O5B
4	B	1259	GLU	O-C-CA-CB
2	G	1259	NAP	PA-O3-PN-O2N

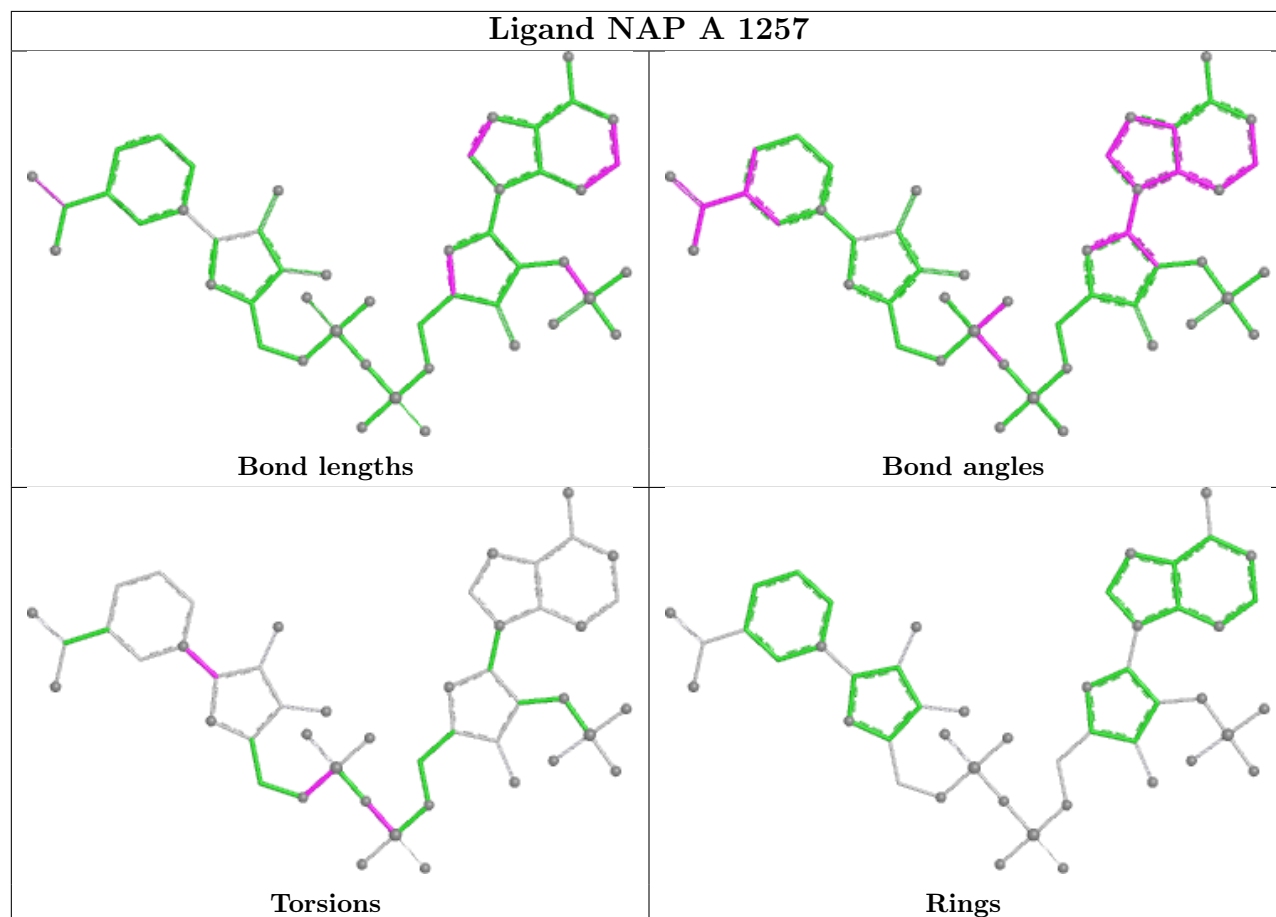
There are no ring outliers.

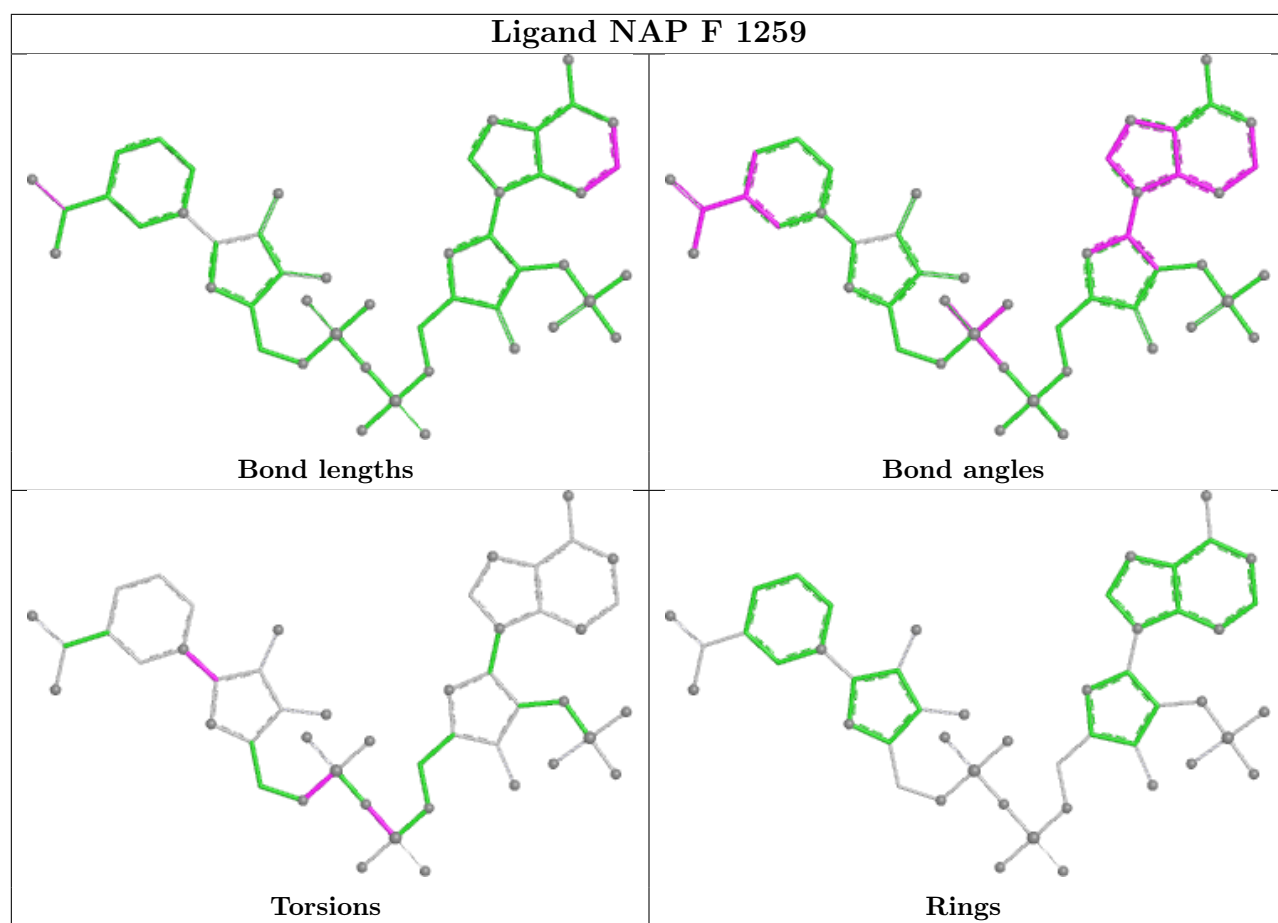
12 monomers are involved in 19 short contacts:

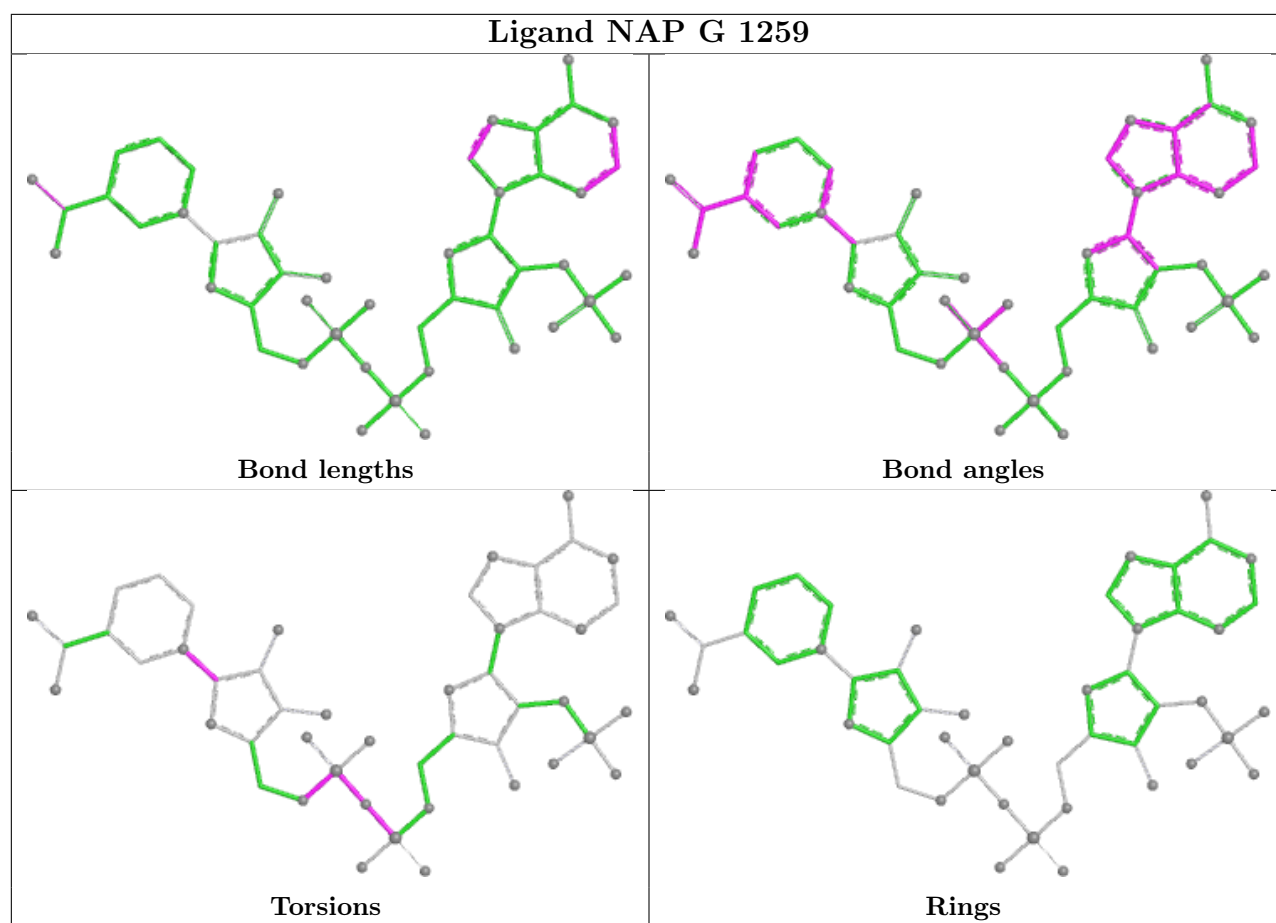
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1260	GLU	1	0
2	G	1259	NAP	1	0
2	D	1258	NAP	1	0
4	E	1260	GLU	1	0
4	A	1259	GLU	2	0
4	C	1259	GLU	2	0
4	E	1258	GLU	4	0
3	H	1257	MJ5	1	0
2	H	1258	NAP	1	0
3	C	1257	MJ5	1	0
4	B	1259	GLU	2	0
4	F	1258	GLU	2	0

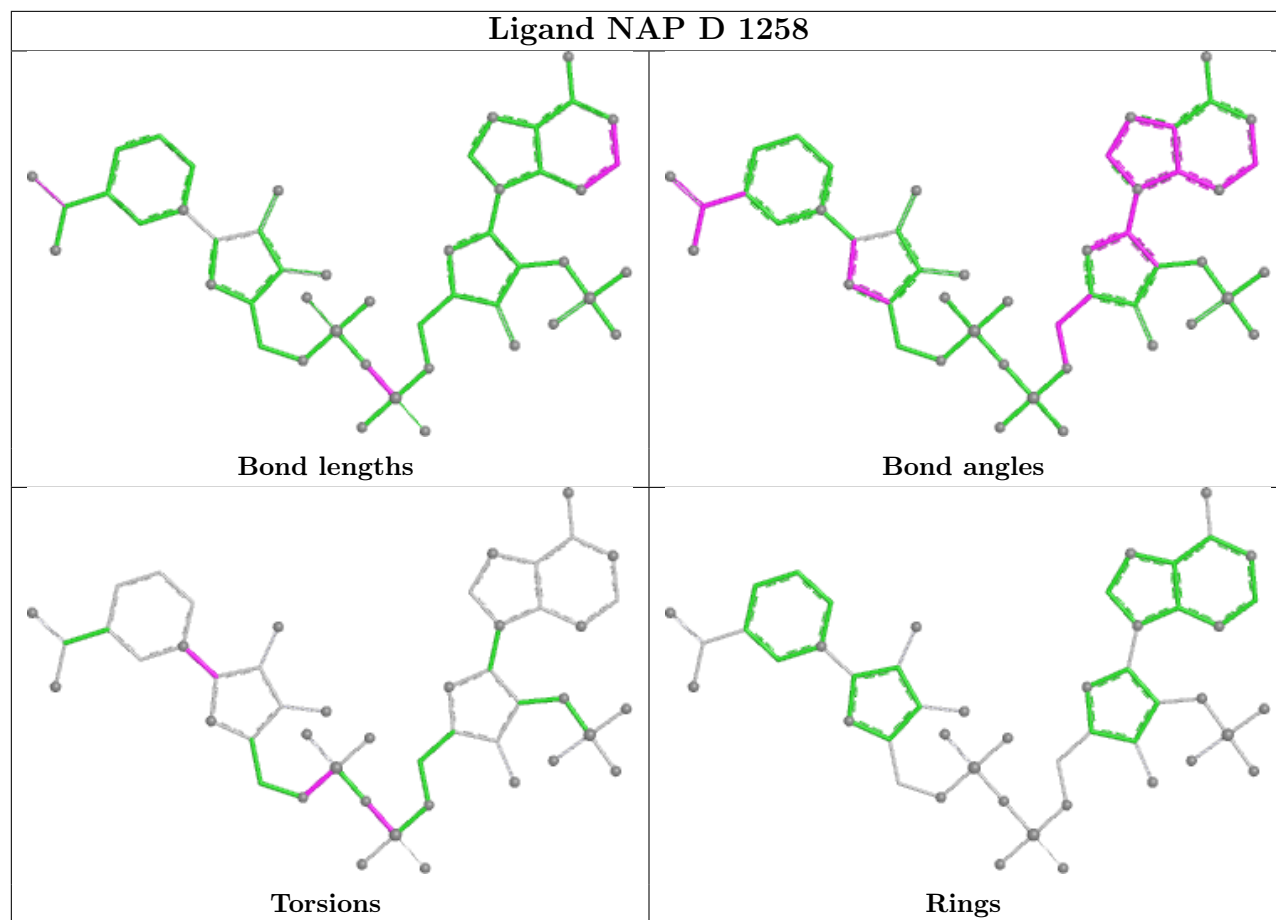
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

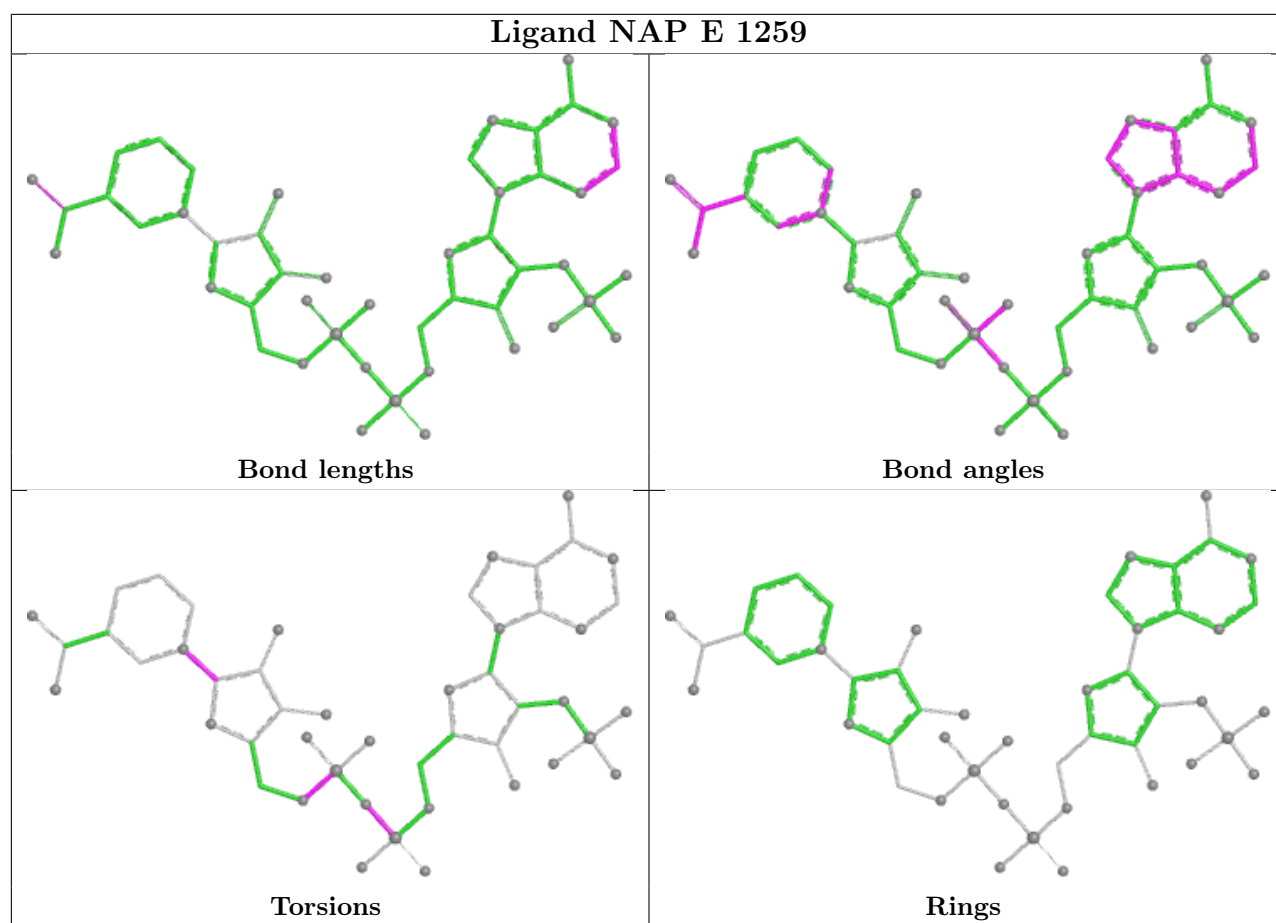
any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

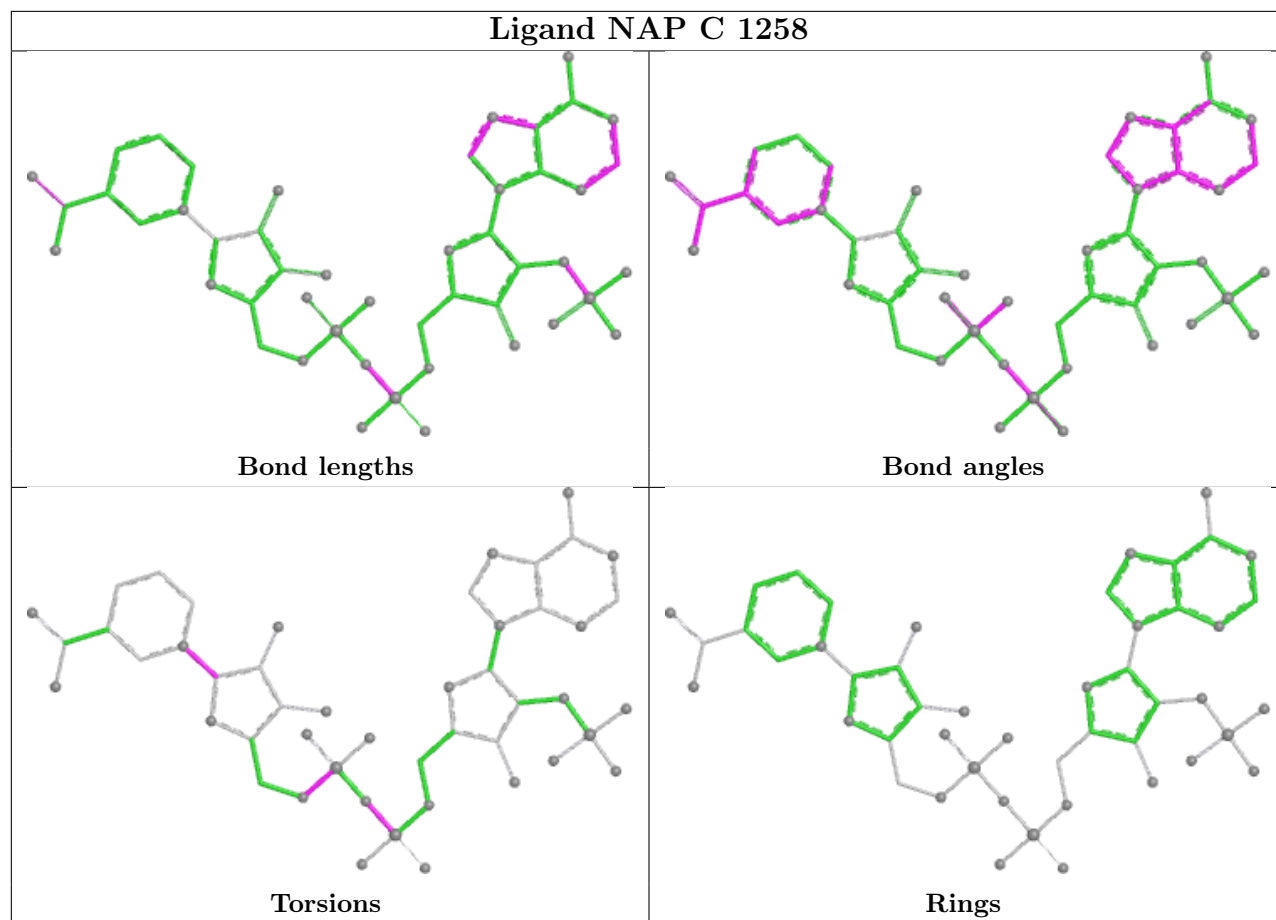


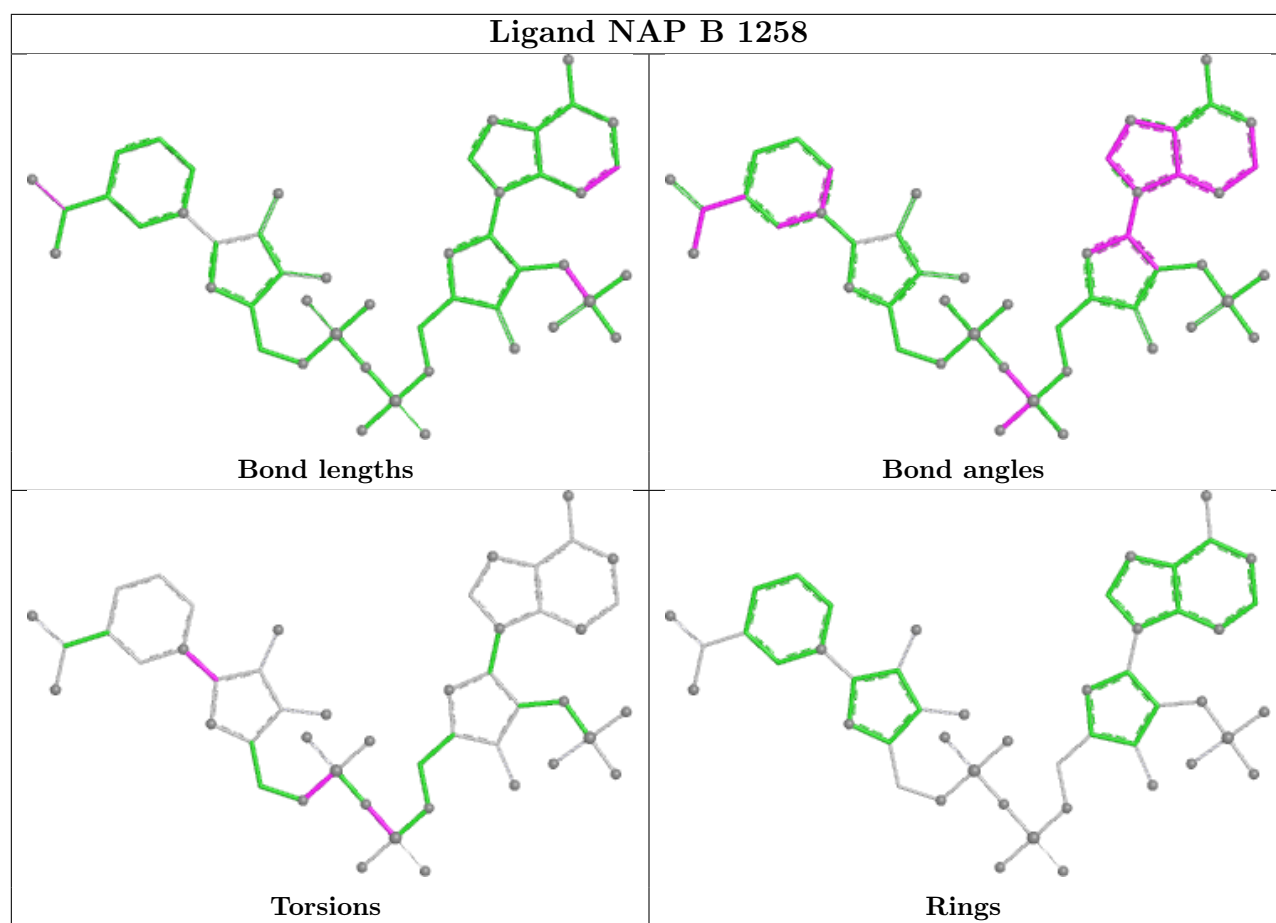


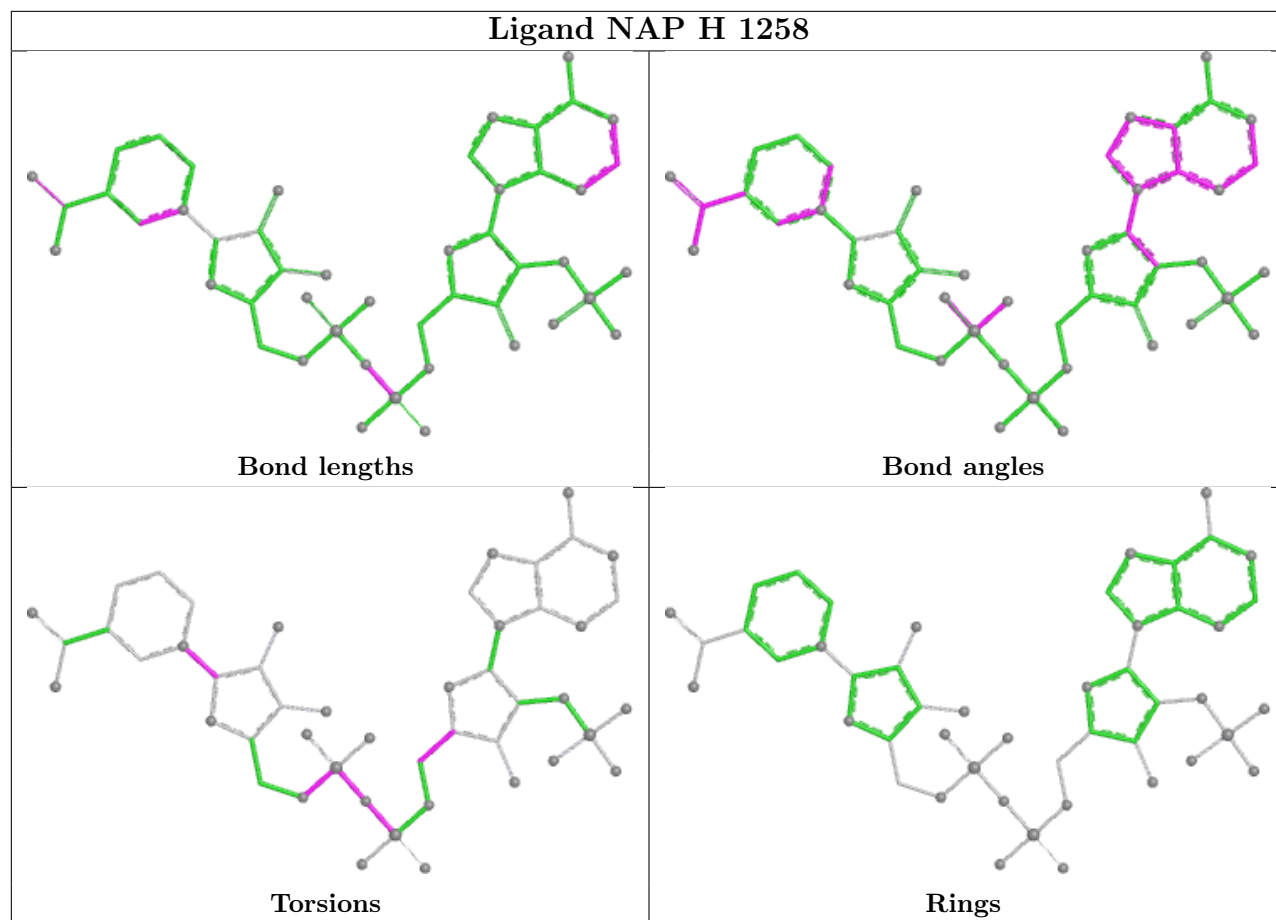












5.7 Other polymers [i](#)

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	255/282 (90%)	-0.61	2 (0%) 82 80	18, 42, 64, 82	14 (5%)
1	B	255/282 (90%)	-0.53	2 (0%) 82 80	19, 44, 69, 82	11 (4%)
1	C	255/282 (90%)	-0.53	1 (0%) 88 86	20, 46, 69, 87	5 (1%)
1	D	255/282 (90%)	-0.45	1 (0%) 88 86	19, 49, 79, 103	3 (1%)
1	E	255/282 (90%)	-0.61	2 (0%) 82 80	19, 43, 66, 83	12 (4%)
1	F	255/282 (90%)	-0.56	2 (0%) 82 80	20, 44, 69, 84	13 (5%)
1	G	255/282 (90%)	-0.48	1 (0%) 88 86	21, 46, 70, 83	4 (1%)
1	H	255/282 (90%)	-0.31	3 (1%) 76 73	19, 51, 86, 109	6 (2%)
All	All	2040/2256 (90%)	-0.51	14 (0%) 84 81	18, 45, 73, 109	68 (3%)

All (14) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	104[A]	GLY	5.3
1	A	104[A]	GLY	5.0
1	F	2	VAL	3.9
1	G	2	VAL	3.7
1	E	2	VAL	3.3
1	A	2	VAL	3.0
1	B	2	VAL	2.9
1	B	104[A]	GLY	2.8
1	H	2	VAL	2.8
1	C	2	VAL	2.7
1	F	104[A]	GLY	2.7
1	D	2	VAL	2.5
1	H	104	GLY	2.2
1	H	43	ARG	2.1

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

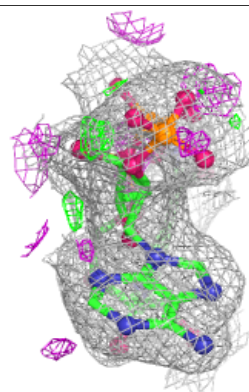
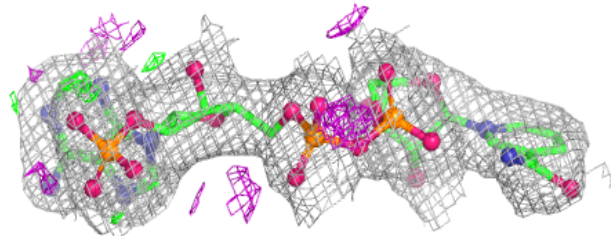
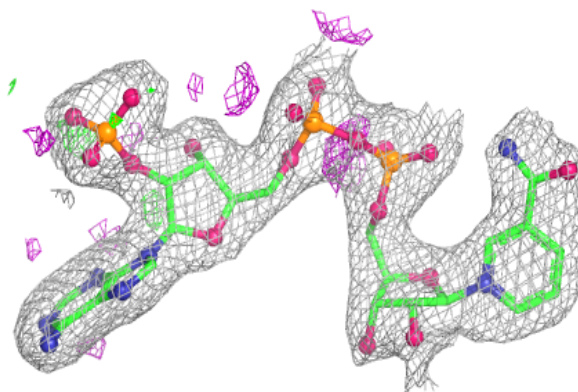
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
4	GLU	A	1259	10/10	0.74	0.18	95,101,101,102	0
4	GLU	C	1259	10/10	0.79	0.21	102,102,108,108	0
4	GLU	F	1258	10/10	0.79	0.20	98,99,104,106	0
4	GLU	G	1258	10/10	0.79	0.22	105,107,113,114	0
4	GLU	B	1259	10/10	0.80	0.21	100,101,106,108	0
4	GLU	E	1258	10/10	0.82	0.19	110,111,114,114	0
4	GLU	B	1260	10/10	0.86	0.20	93,101,104,105	0
4	GLU	E	1260	9/10	0.88	0.21	90,92,93,93	0
4	GLU	A	1260	10/10	0.89	0.18	98,102,104,104	0
4	GLU	G	1260	10/10	0.89	0.18	93,104,106,106	0
3	MJ5	H	1257	15/15	0.95	0.11	60,68,74,75	0
2	NAP	H	1258	48/48	0.96	0.07	44,57,70,74	0
3	MJ5	D	1257	15/15	0.97	0.08	51,57,60,61	0
2	NAP	D	1258	48/48	0.97	0.06	41,48,66,68	0
3	MJ5	C	1257	15/15	0.98	0.05	35,42,46,47	0
2	NAP	G	1259	48/48	0.98	0.05	34,41,48,52	0
3	MJ5	E	1257	15/15	0.98	0.06	35,39,41,42	0
3	MJ5	F	1257	15/15	0.98	0.06	37,42,47,48	0
3	MJ5	G	1257	15/15	0.98	0.06	36,38,48,50	0
2	NAP	C	1258	48/48	0.98	0.06	36,41,45,50	0
3	MJ5	A	1258	15/15	0.98	0.05	33,37,40,41	0
3	MJ5	B	1257	15/15	0.98	0.05	32,39,45,48	0
2	NAP	A	1257	48/48	0.99	0.05	33,39,45,48	0
2	NAP	B	1258	48/48	0.99	0.05	34,41,47,49	0
2	NAP	E	1259	48/48	0.99	0.04	34,39,45,50	0
2	NAP	F	1259	48/48	0.99	0.05	36,41,45,47	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.

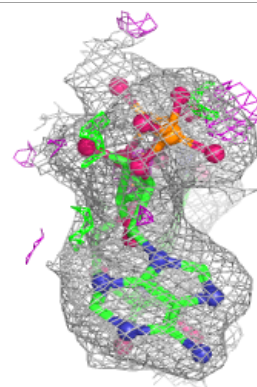
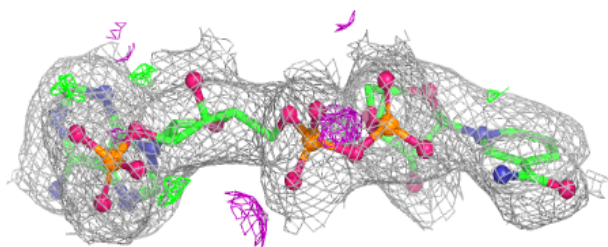
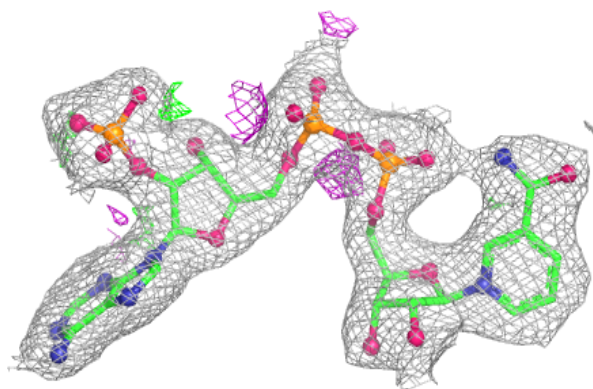
Electron density around NAP H 1258:

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

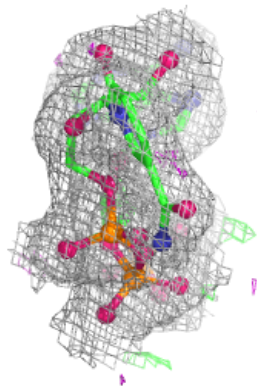
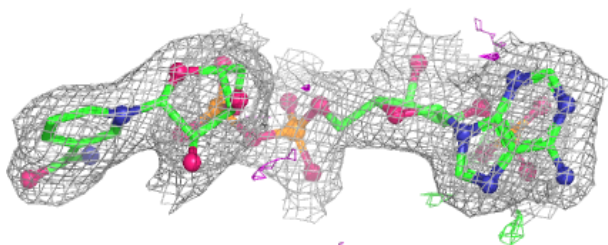
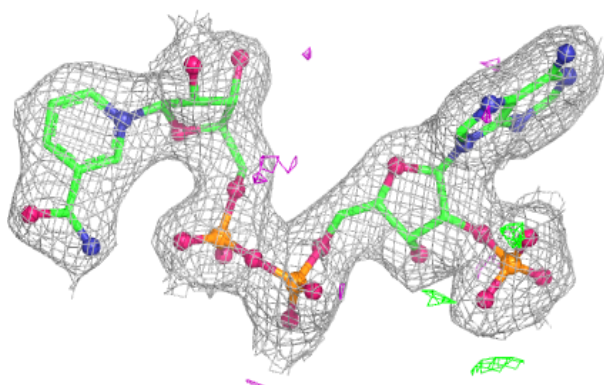


Electron density around NAP D 1258:

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

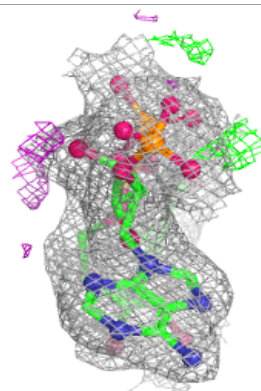
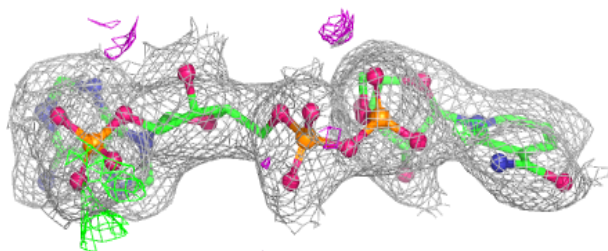
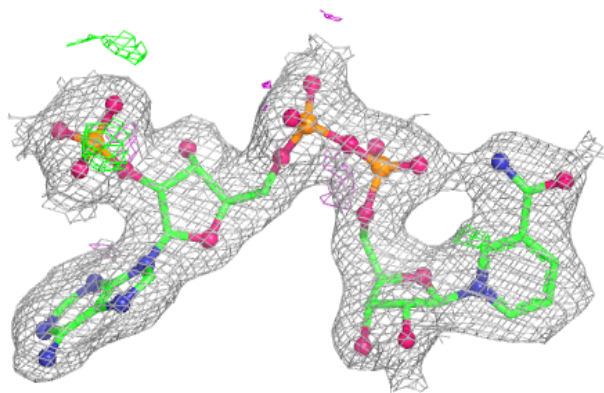
**Electron density around NAP G 1259:**

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

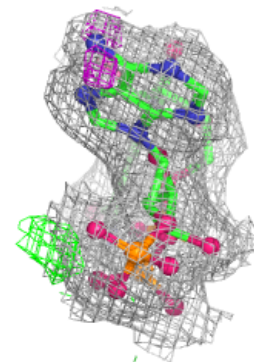
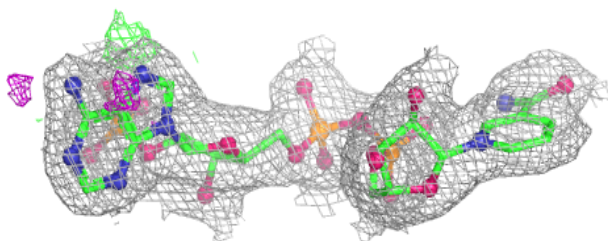
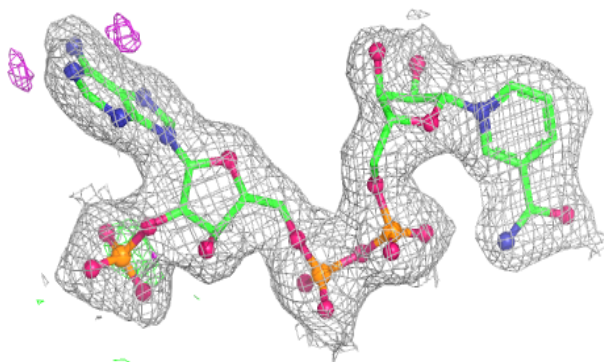


Electron density around NAP C 1258:

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

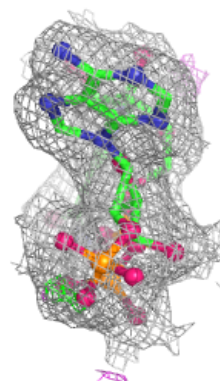
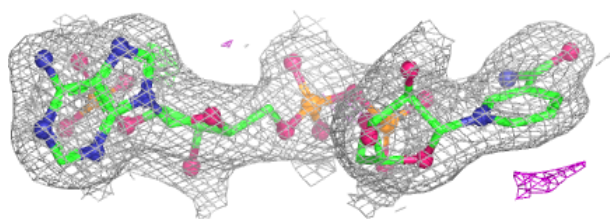
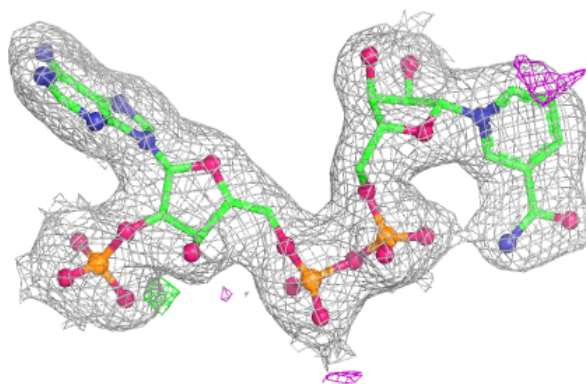
**Electron density around NAP A 1257:**

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

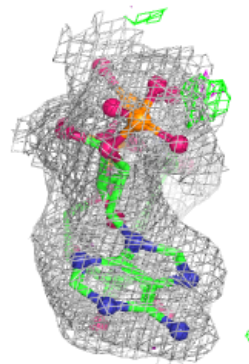
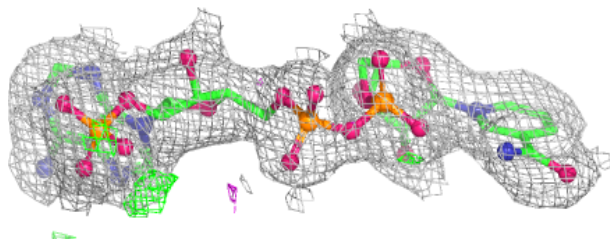
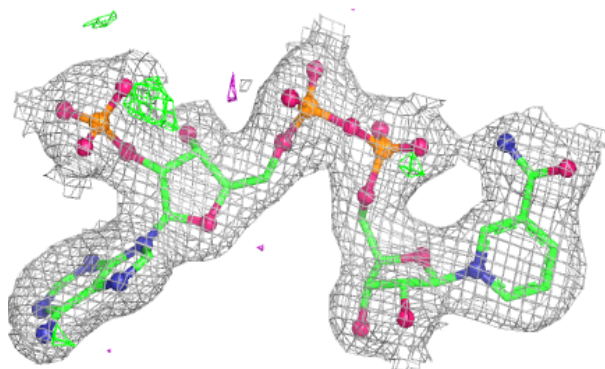


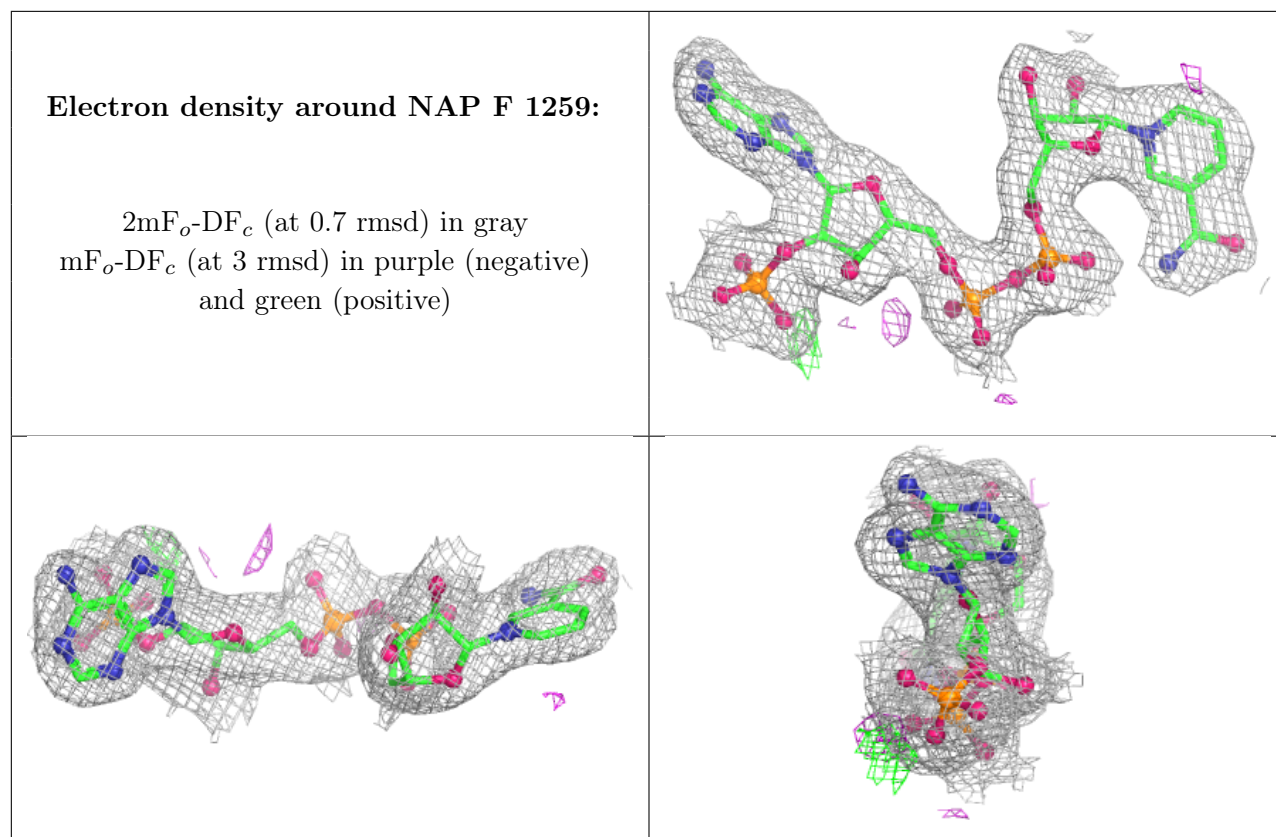
Electron density around NAP B 1258:

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

**Electron density around NAP E 1259:**

$2mF_o-DF_c$ (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.