Full wwPDB X-ray Structure Validation Report (i)

Jan 20, 2025 – 09:56 pm GMT

PDB ID	:	9H8P
Title	:	Eugenol Oxidase (EUGO) from Rhodococcus jostii RHA1, mutant DTT
Authors	:	Rozeboom, H.J.; Fraaije, M.W.
Deposited on	:	2024-10-29
Resolution	:	1.47 Å(reported)

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

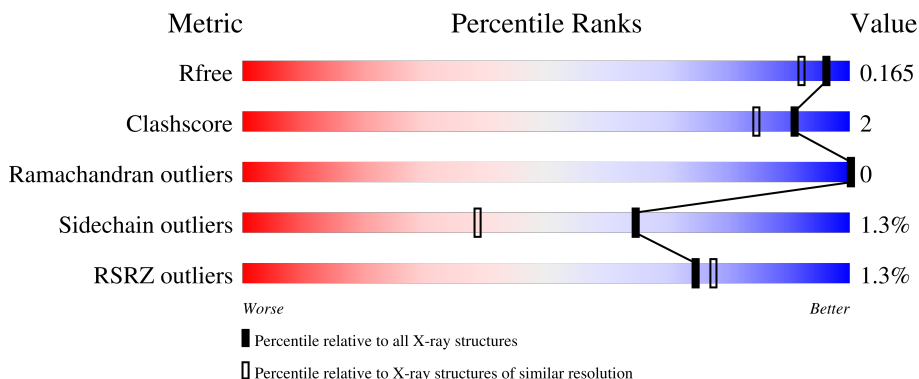|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1   Overall quality at a glance ⓘ

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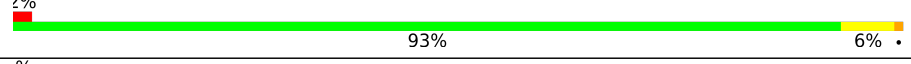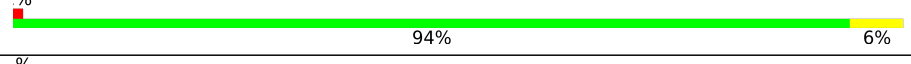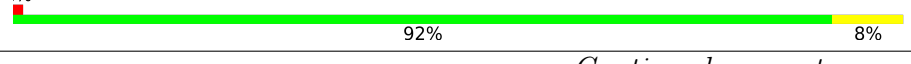*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.47 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	Percentile Ranks	Value
Rfree		0.165
Clashscore		2
Ramachandran outliers		0
Sidechain outliers		1.3%
RSRZ outliers		1.3%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	164625	6131 (1.50-1.46)
Clashscore	180529	6623 (1.50-1.46)
Ramachandran outliers	177936	6521 (1.50-1.46)
Sidechain outliers	177891	6518 (1.50-1.46)
RSRZ outliers	164620	6132 (1.50-1.46)

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

Mol	Chain	Length	Quality of chain
1	A	526	.% / 93% / 6% ·
1	B	526	.% / 93% / 6%
1	C	526	2% / 93% / 6% ·
1	D	526	.% / 94% / 6%
1	E	526	.% / 92% / 8%

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Mol	Chain	Length	Quality of chain
1	F	526	2% ██ ████████████████████████ 94% ███ 6%
1	G	526	% ██ ████████████████████████ 93% ███ 6% •
1	H	526	2% ██ ████████████████████████ 95% █ •

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
6	CL	E	604	-	-	X	-

2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 36894 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 Probable vanillyl-alcohol oxidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	525	Total	C	N	O	S	0	0	0
			4133	2634	700	775	24			
1	B	525	Total	C	N	O	S	0	1	0
			4141	2639	701	776	25			
1	C	525	Total	C	N	O	S	0	1	0
			4141	2638	701	778	24			
1	D	525	Total	C	N	O	S	0	1	0
			4141	2639	701	776	25			
1	E	525	Total	C	N	O	S	0	1	0
			4141	2639	701	776	25			
1	F	525	Total	C	N	O	S	0	1	0
			4141	2639	701	776	25			
1	G	525	Total	C	N	O	S	0	1	0
			4141	2640	701	776	24			
1	H	525	Total	C	N	O	S	0	1	0
			4141	2638	701	778	24			

There are 64 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	81	HIS	SER	engineered mutation	UNP Q0SBK1
A	394	VAL	SER	engineered mutation	UNP Q0SBK1
A	423	MET	ALA	engineered mutation	UNP Q0SBK1
A	425	THR	GLN	engineered mutation	UNP Q0SBK1
A	427	THR	ILE	engineered mutation	UNP Q0SBK1
A	434	TYR	HIS	engineered mutation	UNP Q0SBK1
A	445	ASP	ILE	engineered mutation	UNP Q0SBK1
A	518	PRO	SER	engineered mutation	UNP Q0SBK1
B	81	HIS	SER	engineered mutation	UNP Q0SBK1
B	394	VAL	SER	engineered mutation	UNP Q0SBK1
B	423	MET	ALA	engineered mutation	UNP Q0SBK1
B	425	THR	GLN	engineered mutation	UNP Q0SBK1
B	427	THR	ILE	engineered mutation	UNP Q0SBK1

WORLDWIDE
wwPDB
PROTEIN DATA BANK

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Chain	Residue	Modelled	Actual	Comment	Reference
B	434	TYR	HIS	engineered mutation	UNP Q0SBK1
B	445	ASP	ILE	engineered mutation	UNP Q0SBK1
B	518	PRO	SER	engineered mutation	UNP Q0SBK1
C	81	HIS	SER	engineered mutation	UNP Q0SBK1
C	394	VAL	SER	engineered mutation	UNP Q0SBK1
C	423	MET	ALA	engineered mutation	UNP Q0SBK1
C	425	THR	GLN	engineered mutation	UNP Q0SBK1
C	427	THR	ILE	engineered mutation	UNP Q0SBK1
C	434	TYR	HIS	engineered mutation	UNP Q0SBK1
C	445	ASP	ILE	engineered mutation	UNP Q0SBK1
C	518	PRO	SER	engineered mutation	UNP Q0SBK1
D	81	HIS	SER	engineered mutation	UNP Q0SBK1
D	394	VAL	SER	engineered mutation	UNP Q0SBK1
D	423	MET	ALA	engineered mutation	UNP Q0SBK1
D	425	THR	GLN	engineered mutation	UNP Q0SBK1
D	427	THR	ILE	engineered mutation	UNP Q0SBK1
D	434	TYR	HIS	engineered mutation	UNP Q0SBK1
D	445	ASP	ILE	engineered mutation	UNP Q0SBK1
D	518	PRO	SER	engineered mutation	UNP Q0SBK1
E	81	HIS	SER	engineered mutation	UNP Q0SBK1
E	394	VAL	SER	engineered mutation	UNP Q0SBK1
E	423	MET	ALA	engineered mutation	UNP Q0SBK1
E	425	THR	GLN	engineered mutation	UNP Q0SBK1
E	427	THR	ILE	engineered mutation	UNP Q0SBK1
E	434	TYR	HIS	engineered mutation	UNP Q0SBK1
E	445	ASP	ILE	engineered mutation	UNP Q0SBK1
E	518	PRO	SER	engineered mutation	UNP Q0SBK1
F	81	HIS	SER	engineered mutation	UNP Q0SBK1
F	394	VAL	SER	engineered mutation	UNP Q0SBK1
F	423	MET	ALA	engineered mutation	UNP Q0SBK1
F	425	THR	GLN	engineered mutation	UNP Q0SBK1
F	427	THR	ILE	engineered mutation	UNP Q0SBK1
F	434	TYR	HIS	engineered mutation	UNP Q0SBK1
F	445	ASP	ILE	engineered mutation	UNP Q0SBK1
F	518	PRO	SER	engineered mutation	UNP Q0SBK1
G	81	HIS	SER	engineered mutation	UNP Q0SBK1
G	394	VAL	SER	engineered mutation	UNP Q0SBK1
G	423	MET	ALA	engineered mutation	UNP Q0SBK1
G	425	THR	GLN	engineered mutation	UNP Q0SBK1
G	427	THR	ILE	engineered mutation	UNP Q0SBK1
G	434	TYR	HIS	engineered mutation	UNP Q0SBK1
G	445	ASP	ILE	engineered mutation	UNP Q0SBK1

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Chain	Residue	Modelled	Actual	Comment	Reference
G	518	PRO	SER	engineered mutation	UNP Q0SBK1
H	81	HIS	SER	engineered mutation	UNP Q0SBK1
H	394	VAL	SER	engineered mutation	UNP Q0SBK1
H	423	MET	ALA	engineered mutation	UNP Q0SBK1
H	425	THR	GLN	engineered mutation	UNP Q0SBK1
H	427	THR	ILE	engineered mutation	UNP Q0SBK1
H	434	TYR	HIS	engineered mutation	UNP Q0SBK1
H	445	ASP	ILE	engineered mutation	UNP Q0SBK1
H	518	PRO	SER	engineered mutation	UNP Q0SBK1

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).

FAD
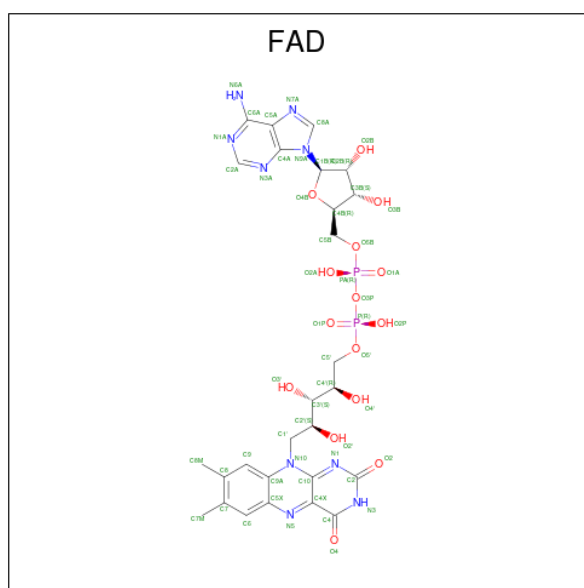
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	B	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	C	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	D	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	E	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	F	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	G	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	H	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 3 is 2-[3-(2-HYDROXY-1,1-DIHYDROXYMETHYL-ETHYLAMINO)-PROPYL AMINO]-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: B3P) (formula: $C_{11}H_{26}N_2O_6$).
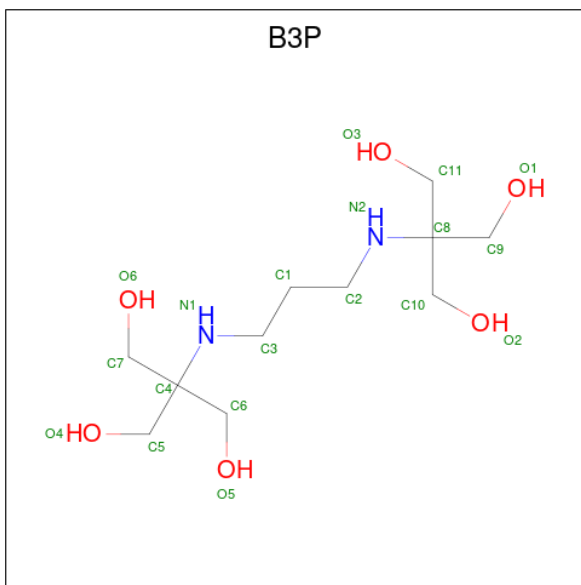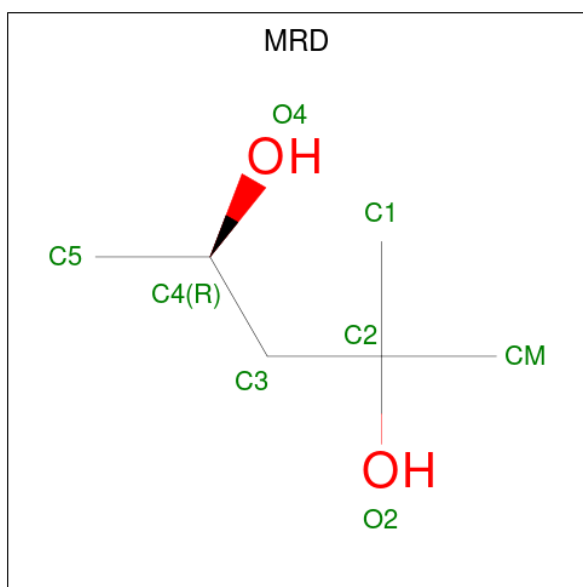

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			19	11	2	6		
3	A	1	Total	C	N	O	0	0
			19	11	2	6		
3	B	1	Total	C	N	O	0	0
			19	11	2	6		
3	C	1	Total	C	N	O	0	0
			19	11	2	6		
3	D	1	Total	C	N	O	0	0
			19	11	2	6		
3	E	1	Total	C	N	O	0	0
			19	11	2	6		
3	F	1	Total	C	N	O	0	0
			19	11	2	6		
3	H	1	Total	C	N	O	0	0
			19	11	2	6		

- Molecule 4 is (4S)-2-METHYL-2,4-PENTANEDIOL (three-letter code: MPD) (formula: $C_6H_{14}O_2$).
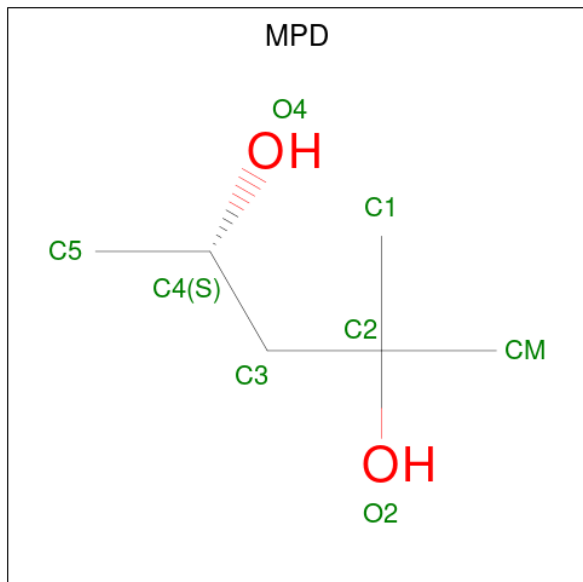
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 8	C 6	O 2	0	0
4	B	1	Total 8	C 6	O 2	0	0
4	E	1	Total 8	C 6	O 2	0	0
4	F	1	Total 8	C 6	O 2	0	0

- Molecule 5 is (4R)-2-METHYLPENTANE-2,4-DIOL (three-letter code: MRD) (formula: $C_6H_{14}O_2$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total 8	C 6	O 2	0	0

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total 1	Cl 1	0	0
6	B	1	Total 1	Cl 1	0	0
6	C	1	Total 1	Cl 1	0	0
6	D	2	Total 2	Cl 2	0	0
6	E	1	Total 1	Cl 1	0	0
6	F	1	Total 1	Cl 1	0	0
6	G	1	Total 1	Cl 1	0	0
6	H	1	Total 1	Cl 1	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	443	Total 443	O 443	0	0
7	B	392	Total 392	O 392	0	0
7	C	373	Total 373	O 373	0	0
7	D	410	Total 410	O 410	0	0
7	E	441	Total 441	O 441	0	0
7	F	407	Total 407	O 407	0	0
7	G	320	Total 320	O 320	0	0
7	H	363	Total 363	O 363	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: Probable vanillyl-alcohol oxidase
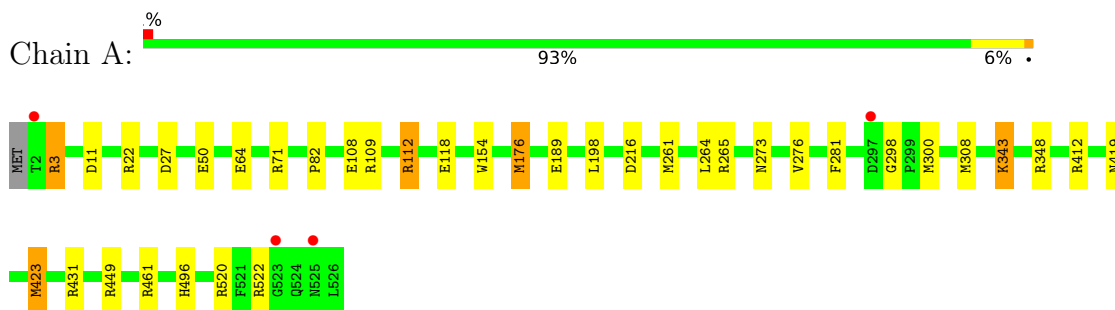
Chain A:

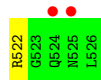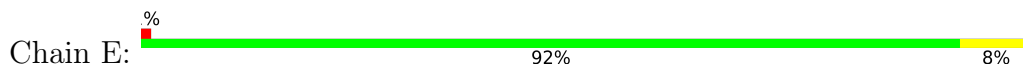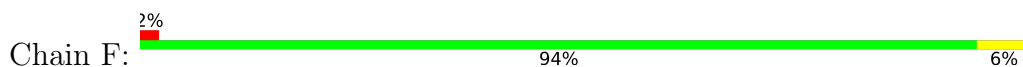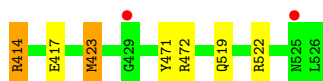- Molecule 1: Probable vanillyl-alcohol oxidase

Chain B:

- Molecule 1: Probable vanillyl-alcohol oxidase

Chain C:

- Molecule 1: Probable vanillyl-alcohol oxidase

Chain D:

• Molecule 1: Probable vanillyl-alcohol oxidase

Chain E:

92%   8%

• Molecule 1: Probable vanillyl-alcohol oxidase

Chain F:

2%   94%   6%

• Molecule 1: Probable vanillyl-alcohol oxidase

Chain G:

%   93%   6%

• Molecule 1: Probable vanillyl-alcohol oxidase

Chain H:

2%   95%
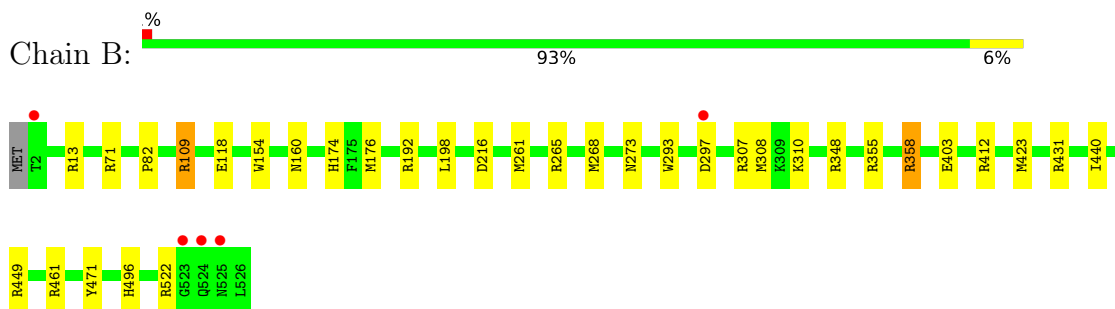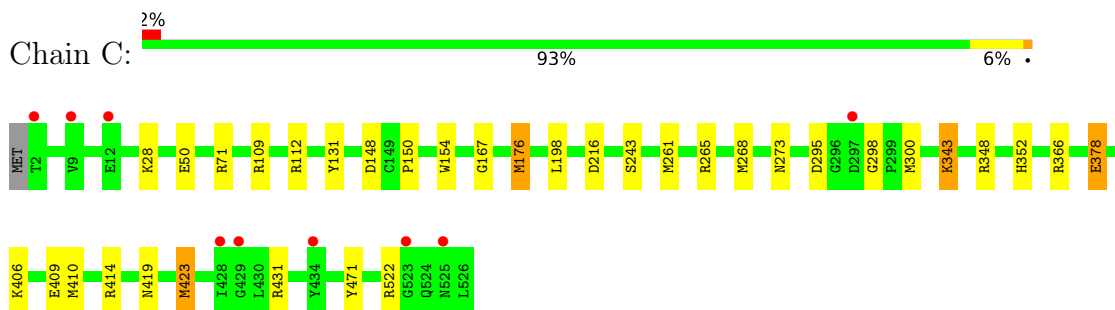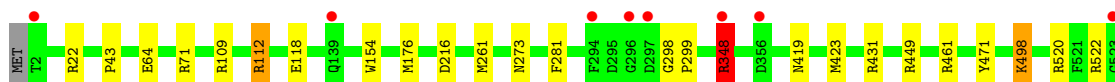
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	90.35Å 110.23Å 117.26Å 89.75° 89.50° 68.43°	Depositor
Resolution (Å)	102.72 – 1.47 102.72 – 1.47	Depositor EDS
% Data completeness (in resolution range)	92.2 (102.72-1.47) 92.5 (102.72-1.47)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.62 (at 1.46Å)	Xtriage
Refinement program	REFMAC 5.8.0430	Depositor
R, R_{free}	0.149 , 0.165 0.149 , 0.165	Depositor DCC
R_{free} test set	35174 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å^2)	14.7	Xtriage
Anisotropy	0.264	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 31.7	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.013 for h,h-k,-l 0.056 for -h,-k,l 0.011 for -h,-h+k,-l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	36894	wwPDB-VP
Average B, all atoms (Å^2)	18.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.70% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality ⓘ

5.1   Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: CL, FAD, MRD, MPD, B3P

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	0.63	0/4242	1.02	31/5757 (0.5%)
1	B	0.60	0/4250	1.01	22/5767 (0.4%)
1	C	0.60	1/4250 (0.0%)	0.98	20/5768 (0.3%)
1	D	0.63	2/4250 (0.0%)	1.01	20/5767 (0.3%)
1	E	0.67	0/4250	1.03	24/5767 (0.4%)
1	F	0.62	0/4250	0.96	17/5767 (0.3%)
1	G	0.53	1/4250 (0.0%)	0.94	17/5768 (0.3%)
1	H	0.57	0/4250	0.97	17/5768 (0.3%)
All	All	0.61	4/33992 (0.0%)	0.99	168/46129 (0.4%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	2
1	C	0	1
1	D	0	1
1	E	0	2
1	F	0	3
1	G	0	4
1	H	0	3
All	All	0	18

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	378	GLU	CD-OE1	5.83	1.32	1.25
1	D	465	GLU	CD-OE1	5.63	1.31	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	64	GLU	CD-OE1	5.44	1.31	1.25
1	G	378	GLU	CD-OE1	5.12	1.31	1.25

All (168) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	176	MET	CG-SD-CE	-15.31	75.70	100.20
1	C	176	MET	CG-SD-CE	-13.89	77.97	100.20
1	E	22	ARG	NE-CZ-NH2	-13.55	113.52	120.30
1	A	22	ARG	NE-CZ-NH1	13.34	126.97	120.30
1	B	176	MET	CG-SD-CE	-13.05	79.31	100.20
1	D	71	ARG	NE-CZ-NH2	-13.01	113.80	120.30
1	E	176	MET	CG-SD-CE	-11.95	81.08	100.20
1	A	176	MET	CG-SD-CE	-10.95	82.69	100.20
1	D	109	ARG	NE-CZ-NH2	-10.62	114.99	120.30
1	C	109	ARG	NE-CZ-NH2	-10.52	115.04	120.30
1	H	118	GLU	CG-CD-OE2	-9.81	98.67	118.30
1	D	118	GLU	CG-CD-OE2	-9.81	98.68	118.30
1	E	118	GLU	CG-CD-OE2	-9.79	98.72	118.30
1	A	118	GLU	CG-CD-OE2	-9.79	98.73	118.30
1	D	355	ARG	NE-CZ-NH1	-9.79	115.41	120.30
1	E	522	ARG	NE-CZ-NH1	9.53	125.06	120.30
1	G	109	ARG	NE-CZ-NH2	-9.48	115.56	120.30
1	H	261	MET	CG-SD-CE	-9.22	85.45	100.20
1	G	109	ARG	NE-CZ-NH1	9.08	124.84	120.30
1	G	378	GLU	CG-CD-OE2	-9.07	100.15	118.30
1	C	71	ARG	NE-CZ-NH2	-8.78	115.91	120.30
1	B	109	ARG	NE-CZ-NH2	-8.74	115.93	120.30
1	H	461	ARG	NE-CZ-NH1	8.66	124.63	120.30
1	G	22	ARG	NE-CZ-NH2	-8.63	115.98	120.30
1	B	522	ARG	NE-CZ-NH1	8.61	124.61	120.30
1	D	358	ARG	NE-CZ-NH2	-8.45	116.08	120.30
1	A	261	MET	CG-SD-CE	-8.42	86.72	100.20
1	B	261	MET	CG-SD-CE	-8.41	86.75	100.20
1	C	431	ARG	NE-CZ-NH2	-8.38	116.11	120.30
1	H	109	ARG	NE-CZ-NH2	-8.29	116.15	120.30
1	B	403	GLU	CG-CD-OE1	8.17	134.64	118.30
1	H	109	ARG	NE-CZ-NH1	8.14	124.37	120.30
1	F	522	ARG	NE-CZ-NH1	8.12	124.36	120.30
1	E	265	ARG	NE-CZ-NH2	-8.03	116.28	120.30
1	A	522	ARG	NE-CZ-NH2	-7.90	116.35	120.30
1	F	461	ARG	NE-CZ-NH2	-7.89	116.36	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	410	MET	CG-SD-CE	-7.81	87.71	100.20
1	D	522	ARG	NE-CZ-NH2	-7.81	116.40	120.30
1	G	71	ARG	NE-CZ-NH2	-7.80	116.40	120.30
1	E	109	ARG	NE-CZ-NH2	-7.77	116.42	120.30
1	G	522	ARG	NE-CZ-NH1	7.77	124.18	120.30
1	A	265	ARG	NE-CZ-NH2	-7.65	116.47	120.30
1	D	118	GLU	OE1-CD-OE2	7.61	132.43	123.30
1	E	412	ARG	NE-CZ-NH2	-7.56	116.52	120.30
1	A	109	ARG	NE-CZ-NH2	-7.54	116.53	120.30
1	B	358	ARG	NE-CZ-NH2	-7.42	116.59	120.30
1	F	358	ARG	NE-CZ-NH2	-7.40	116.60	120.30
1	F	109	ARG	NE-CZ-NH1	7.38	123.99	120.30
1	F	192	ARG	NE-CZ-NH2	-7.37	116.61	120.30
1	F	13	ARG	NE-CZ-NH2	-7.34	116.63	120.30
1	E	109	ARG	NE-CZ-NH1	7.27	123.93	120.30
1	C	109	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	B	431	ARG	NE-CZ-NH2	-7.18	116.71	120.30
1	B	310	LYS	CD-CE-NZ	7.17	128.19	111.70
1	F	109	ARG	NE-CZ-NH2	-7.07	116.77	120.30
1	G	300	MET	CG-SD-CE	-7.07	88.90	100.20
1	H	522	ARG	NE-CZ-NH2	-6.91	116.85	120.30
1	A	3	ARG	NE-CZ-NH2	-6.88	116.86	120.30
1	C	414	ARG	NE-CZ-NH1	6.88	123.74	120.30
1	D	64	GLU	CG-CD-OE1	6.87	132.04	118.30
1	B	403	GLU	CG-CD-OE2	-6.84	104.61	118.30
1	A	461	ARG	NE-CZ-NH2	-6.83	116.89	120.30
1	F	22	ARG	NE-CZ-NH2	-6.83	116.89	120.30
1	C	265	ARG	NE-CZ-NH2	-6.79	116.91	120.30
1	A	522	ARG	NE-CZ-NH1	6.77	123.69	120.30
1	G	192	ARG	NE-CZ-NH2	-6.77	116.92	120.30
1	D	414	ARG	NE-CZ-NH2	-6.77	116.92	120.30
1	A	22	ARG	NH1-CZ-NH2	-6.75	111.98	119.40
1	F	265	ARG	NE-CZ-NH2	-6.74	116.93	120.30
1	H	64	GLU	CG-CD-OE1	6.71	131.72	118.30
1	A	308	MET	CG-SD-CE	6.69	110.90	100.20
1	E	64	GLU	CG-CD-OE1	6.68	131.65	118.30
1	H	522	ARG	NE-CZ-NH1	6.67	123.64	120.30
1	F	522	ARG	NE-CZ-NH2	-6.62	116.99	120.30
1	F	472	ARG	NE-CZ-NH2	-6.61	117.00	120.30
1	H	118	GLU	CG-CD-OE1	6.60	131.50	118.30
1	F	402	ARG	CG-CD-NE	6.51	125.47	111.80
1	C	343	LYS	CD-CE-NZ	6.46	126.56	111.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	412	ARG	NE-CZ-NH1	-6.42	117.09	120.30
1	C	522	ARG	NE-CZ-NH2	-6.42	117.09	120.30
1	E	264	LEU	CB-CG-CD1	6.42	121.91	111.00
1	G	472	ARG	NE-CZ-NH2	-6.42	117.09	120.30
1	E	461	ARG	NE-CZ-NH1	6.41	123.50	120.30
1	F	403	GLU	CG-CD-OE1	6.40	131.10	118.30
1	E	118	GLU	CG-CD-OE1	6.33	130.97	118.30
1	D	522	ARG	NE-CZ-NH1	6.32	123.46	120.30
1	E	250	LYS	CD-CE-NZ	6.31	126.22	111.70
1	E	358	ARG	NE-CZ-NH2	-6.30	117.15	120.30
1	B	358	ARG	CB-CG-CD	6.29	127.96	111.60
1	G	261	MET	CG-SD-CE	-6.29	90.14	100.20
1	B	109	ARG	NE-CZ-NH1	6.25	123.42	120.30
1	E	36	GLU	OE1-CD-OE2	-6.25	115.80	123.30
1	A	118	GLU	CG-CD-OE1	6.22	130.74	118.30
1	A	520	ARG	NE-CZ-NH2	-6.22	117.19	120.30
1	D	109	ARG	CD-NE-CZ	6.16	132.23	123.60
1	C	414	ARG	NE-CZ-NH2	6.16	123.38	120.30
1	H	71	ARG	NE-CZ-NH2	-6.13	117.23	120.30
1	A	71	ARG	NE-CZ-NH2	-6.09	117.26	120.30
1	G	423	MET	CB-CG-SD	-6.08	94.16	112.40
1	A	423	MET	CG-SD-CE	-6.05	90.52	100.20
1	B	358	ARG	NE-CZ-NH1	6.04	123.32	120.30
1	E	151	ASP	CB-CG-OD2	-6.04	112.86	118.30
1	C	112	ARG	NE-CZ-NH2	-6.04	117.28	120.30
1	E	472	ARG	NE-CZ-NH2	-6.03	117.28	120.30
1	C	378	GLU	CG-CD-OE2	-6.03	106.24	118.30
1	A	118	GLU	OE1-CD-OE2	6.01	130.51	123.30
1	C	414	ARG	NH1-CZ-NH2	-5.96	112.85	119.40
1	A	431	ARG	CB-CA-C	-5.94	98.52	110.40
1	A	112	ARG	NE-CZ-NH2	5.93	123.27	120.30
1	C	268	MET	CG-SD-CE	5.86	109.58	100.20
1	A	64	GLU	CG-CD-OE2	-5.85	106.59	118.30
1	A	300	MET	CG-SD-CE	5.85	109.57	100.20
1	E	118	GLU	OE1-CD-OE2	5.84	130.31	123.30
1	E	522	ARG	NE-CZ-NH2	-5.84	117.38	120.30
1	E	261	MET	CG-SD-CE	-5.83	90.87	100.20
1	A	461	ARG	NE-CZ-NH1	5.83	123.21	120.30
1	D	209	TYR	CB-CG-CD1	5.80	124.48	121.00
1	B	71	ARG	NE-CZ-NH2	-5.79	117.41	120.30
1	E	109	ARG	CD-NE-CZ	5.78	131.70	123.60
1	C	423	MET	CG-SD-CE	-5.77	90.96	100.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	522	ARG	NE-CZ-NH2	-5.77	117.42	120.30
1	H	64	GLU	CG-CD-OE2	-5.76	106.77	118.30
1	E	64	GLU	CG-CD-OE2	-5.72	106.85	118.30
1	B	118	GLU	CG-CD-OE2	-5.71	106.87	118.30
1	D	355	ARG	CD-NE-CZ	5.70	131.58	123.60
1	D	412	ARG	NE-CZ-NH1	-5.64	117.48	120.30
1	A	64	GLU	CG-CD-OE1	5.60	129.50	118.30
1	B	109	ARG	CD-NE-CZ	5.59	131.42	123.60
1	D	109	ARG	NE-CZ-NH1	5.59	123.09	120.30
1	A	343	LYS	CD-CE-NZ	5.57	124.50	111.70
1	A	112	ARG	CG-CD-NE	-5.53	100.18	111.80
1	G	308	MET	CG-SD-CE	5.53	109.04	100.20
1	B	355	ARG	CG-CD-NE	-5.50	100.26	111.80
1	G	378	GLU	CG-CD-OE1	5.49	129.28	118.30
1	H	112	ARG	CG-CD-NE	-5.49	100.28	111.80
1	F	449	ARG	CG-CD-NE	5.48	123.30	111.80
1	B	461	ARG	NE-CZ-NH2	-5.45	117.57	120.30
1	E	402	ARG	NE-CZ-NH1	5.45	123.02	120.30
1	H	118	GLU	OE1-CD-OE2	5.43	129.81	123.30
1	A	27	ASP	CB-CG-OD2	5.40	123.16	118.30
1	G	402	ARG	CD-NE-CZ	5.38	131.13	123.60
1	C	366	ARG	NE-CZ-NH1	-5.36	117.62	120.30
1	A	423	MET	CB-CG-SD	-5.35	96.36	112.40
1	B	192	ARG	NE-CZ-NH2	-5.32	117.64	120.30
1	A	264	LEU	CB-CG-CD1	5.31	120.03	111.00
1	B	268	MET	CG-SD-CE	5.28	108.65	100.20
1	A	276	VAL	CA-CB-CG2	5.26	118.79	110.90
1	A	449	ARG	CG-CD-NE	5.22	122.77	111.80
1	F	278	ARG	NE-CZ-NH2	-5.22	117.69	120.30
1	E	414	ARG	NE-CZ-NH1	-5.21	117.69	120.30
1	C	261	MET	CG-SD-CE	-5.19	91.89	100.20
1	F	353	GLU	CG-CD-OE1	5.18	128.66	118.30
1	G	250	LYS	CD-CE-NZ	5.18	123.61	111.70
1	C	300	MET	CG-SD-CE	-5.16	91.94	100.20
1	H	431	ARG	NE-CZ-NH2	5.15	122.88	120.30
1	A	109	ARG	CD-NE-CZ	5.14	130.79	123.60
1	D	135	TYR	CB-CG-CD1	-5.13	117.92	121.00
1	D	192	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	H	348	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	C	409	GLU	OE1-CD-OE2	5.09	129.41	123.30
1	D	71	ARG	NH1-CZ-NH2	5.09	125.00	119.40
1	D	355	ARG	CG-CD-NE	-5.08	101.13	111.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	64	GLU	CG-CD-OE2	-5.06	108.18	118.30
1	H	520	ARG	NE-CZ-NH2	-5.05	117.77	120.30
1	G	264	LEU	CB-CG-CD1	5.04	119.57	111.00
1	F	115	GLU	OE1-CD-OE2	5.01	129.32	123.30
1	B	265	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	G	522	ARG	NE-CZ-NH2	-5.01	117.80	120.30

There are no chirality outliers.

All (18) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	112	ARG	Sidechain
1	A	348	ARG	Sidechain
1	B	109	ARG	Sidechain
1	B	348	ARG	Sidechain
1	C	348	ARG	Sidechain
1	D	348	ARG	Sidechain
1	E	22	ARG	Sidechain
1	E	348	ARG	Sidechain
1	F	20	ARG	Sidechain
1	F	348	ARG	Sidechain
1	F	449	ARG	Sidechain
1	G	290	ARG	Sidechain
1	G	348	ARG	Sidechain
1	G	355	ARG	Sidechain
1	G	414	ARG	Sidechain
1	H	112	ARG	Sidechain
1	H	22	ARG	Sidechain
1	H	348	ARG	Sidechain

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	4133	0	4000	16	0
1	B	4141	0	4008	9	0
1	C	4141	0	4003	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	4141	0	4008	9	0
1	E	4141	0	4008	14	0
1	F	4141	0	4008	9	0
1	G	4141	0	4010	15	0
1	H	4141	0	4003	10	0
2	A	53	0	30	1	0
2	B	53	0	30	1	0
2	C	53	0	30	1	0
2	D	53	0	30	1	0
2	E	53	0	30	1	0
2	F	53	0	30	1	0
2	G	53	0	30	1	0
2	H	53	0	30	1	0
3	A	38	0	52	0	0
3	B	19	0	26	0	0
3	C	19	0	26	0	0
3	D	19	0	26	3	0
3	E	19	0	26	0	0
3	F	19	0	26	0	0
3	H	19	0	26	3	0
4	A	8	0	14	1	0
4	B	8	0	14	0	0
4	E	8	0	14	0	0
4	F	8	0	14	0	0
5	A	8	0	14	0	0
6	A	1	0	0	1	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	2	0	0	0	0
6	E	1	0	0	2	0
6	F	1	0	0	0	0
6	G	1	0	0	0	0
6	H	1	0	0	0	0
7	A	443	0	0	9	0
7	B	392	0	0	5	0
7	C	373	0	0	3	0
7	D	410	0	0	4	0
7	E	441	0	0	2	0
7	F	407	0	0	4	0
7	G	320	0	0	2	0
7	H	363	0	0	8	0
All	All	36894	0	32566	103	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 2.

All (103) 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:G:44:TYR:CZ	1:G:382[A]:LEU:HD11	2.00	0.96
3:H:602:B3P:H92	7:H:816:HOH:O	1.72	0.89
1:A:343:LYS:CE	7:A:3409:HOH:O	2.24	0.83
1:C:343:LYS:CE	7:C:800:HOH:O	2.27	0.82
1:G:44:TYR:OH	1:G:382[A]:LEU:HD11	1.81	0.81
1:A:343:LYS:HE3	7:A:3409:HOH:O	1.81	0.81
1:A:108:GLU:HG2	7:A:3389:HOH:O	1.84	0.77
1:F:108:GLU:HG2	7:F:784:HOH:O	1.85	0.75
1:E:189:GLU:HG2	6:E:604:CL:CL	2.26	0.73
1:B:358:ARG:HD2	7:B:1030:HOH:O	1.91	0.71
1:D:356:ASP:OD1	3:D:604:B3P:H91	1.92	0.69
1:B:82:PRO:HD2	7:B:731:HOH:O	1.92	0.69
1:A:108:GLU:OE2	7:A:3201:HOH:O	2.12	0.68
1:D:75:GLU:HG3	7:D:1068:HOH:O	1.92	0.68
1:D:36:GLU:OE1	7:D:701:HOH:O	2.12	0.68
1:C:343:LYS:HE2	7:C:800:HOH:O	1.92	0.67
1:G:82:PRO:HD2	7:G:758:HOH:O	1.95	0.66
1:G:44:TYR:OH	1:G:382[A]:LEU:CD1	2.43	0.65
1:C:343:LYS:HE3	7:C:800:HOH:O	1.94	0.65
1:G:382[A]:LEU:HD12	7:G:771:HOH:O	1.98	0.63
1:H:348:ARG:HD2	7:H:1031:HOH:O	1.98	0.63
1:D:361:HIS:ND1	3:D:604:B3P:H112	2.14	0.62
1:F:139:GLN:HG3	7:F:769:HOH:O	1.99	0.62
1:A:82:PRO:HD2	7:A:3229:HOH:O	1.99	0.62
7:D:1025:HOH:O	1:F:413:ASN:HB2	2.00	0.62
1:H:449:ARG:CZ	7:H:733:HOH:O	2.48	0.61
1:E:282:MET:SD	1:E:423[B]:MET:HG2	2.42	0.59
1:C:295[B]:ASP:CG	1:C:295[B]:ASP:O	2.40	0.58
1:C:295[B]:ASP:O	1:C:295[B]:ASP:OD1	2.22	0.57
2:B:601:FAD:O5B	2:B:601:FAD:H8A	2.06	0.56
1:A:412:ARG:NH1	7:A:3202:HOH:O	2.20	0.56
1:A:343:LYS:HE2	7:A:3409:HOH:O	1.99	0.55
1:G:44:TYR:CZ	1:G:382[A]:LEU:CD1	2.82	0.55
2:E:601:FAD:O5B	2:E:601:FAD:H8A	2.07	0.55
1:G:243:SER:H	1:G:352:HIS:CD2	2.25	0.55
1:C:243:SER:H	1:C:352:HIS:CD2	2.24	0.55
1:E:243:SER:H	1:E:352:HIS:CD2	2.25	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:112:ARG:NH2	7:D:704:HOH:O	2.38	0.54
1:B:449:ARG:CZ	7:B:733:HOH:O	2.55	0.54
1:F:243:SER:H	1:F:352:HIS:CD2	2.26	0.53
1:D:356:ASP:OD1	3:D:604:B3P:C9	2.56	0.53
1:F:470:GLU:HG2	7:F:885:HOH:O	2.08	0.53
1:A:298:GLY:HA2	1:A:419:ASN:ND2	2.24	0.52
1:G:414:ARG:NH1	1:G:417:GLU:OE1	2.44	0.51
1:A:3:ARG:HH11	1:A:11:ASP:CG	2.15	0.50
1:H:43:PRO:O	3:H:602:B3P:H101	2.10	0.50
1:E:243:SER:H	1:E:352:HIS:HD2	1.60	0.50
1:C:243:SER:H	1:C:352:HIS:HD2	1.58	0.50
1:G:44:TYR:HH	1:G:382[A]:LEU:HD11	1.76	0.49
2:G:601:FAD:H8A	2:G:601:FAD:O5B	2.12	0.49
1:F:243:SER:H	1:F:352:HIS:HD2	1.59	0.49
2:H:601:FAD:O5B	2:H:601:FAD:H8A	2.11	0.49
2:C:601:FAD:H8A	2:C:601:FAD:O5B	2.12	0.48
1:G:243:SER:H	1:G:352:HIS:HD2	1.59	0.48
2:F:601:FAD:O5B	2:F:601:FAD:H8A	2.13	0.47
1:G:382[A]:LEU:HD13	1:G:388:GLY:O	2.14	0.47
1:E:50:GLU:HA	1:E:50:GLU:OE1	2.14	0.47
1:E:189:GLU:CG	6:E:604:CL:CL	2.99	0.47
1:E:449:ARG:CZ	7:E:781:HOH:O	2.62	0.47
1:A:108:GLU:CG	7:A:3389:HOH:O	2.50	0.47
1:H:299:PRO:HD3	1:H:419:ASN:HD22	1.80	0.47
1:A:50:GLU:HA	1:A:50:GLU:OE1	2.14	0.47
1:E:298:GLY:HA2	1:E:419:ASN:ND2	2.30	0.46
1:H:348:ARG:CG	7:H:1031:HOH:O	2.64	0.46
1:A:176:MET:HE1	4:A:604:MPD:H52	1.98	0.45
1:B:13:ARG:NE	1:B:13:ARG:HA	2.32	0.45
1:H:281:PHE:HB3	1:H:423:MET:HG2	1.98	0.45
1:F:50:GLU:HA	1:F:50:GLU:OE1	2.16	0.45
1:G:281:PHE:HB3	1:G:423:MET:HG2	1.98	0.45
2:A:601:FAD:O5B	2:A:601:FAD:H8A	2.17	0.44
1:H:498:LYS:HE2	7:H:898:HOH:O	2.18	0.44
1:C:298:GLY:HA2	1:C:419:ASN:ND2	2.32	0.44
2:D:601:FAD:H8A	2:D:601:FAD:O5B	2.18	0.44
1:E:3:ARG:HD3	1:E:11:ASP:OD1	2.18	0.44
1:G:131:TYR:CZ	1:G:150:PRO:HD3	2.53	0.44
3:H:602:B3P:C9	7:H:816:HOH:O	2.46	0.44
1:C:50:GLU:HA	1:C:50:GLU:OE1	2.17	0.43
1:E:362:VAL:HG23	7:E:748:HOH:O	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:348:ARG:CD	7:H:1031:HOH:O	2.64	0.43
1:B:423[A]:MET:SD	1:B:440:ILE:HD12	2.58	0.43
1:H:348:ARG:HG2	7:H:1031:HOH:O	2.18	0.43
1:E:293:TRP:CD2	1:E:308:MET:HG2	2.54	0.43
1:H:298:GLY:HA2	1:H:419:ASN:ND2	2.34	0.42
1:B:160:ASN:ND2	1:B:174:HIS:ND1	2.67	0.42
1:B:293:TRP:CD2	1:B:308:MET:HG2	2.55	0.42
1:A:281:PHE:HB3	1:A:423:MET:HG2	2.01	0.42
1:D:356:ASP:HB3	1:G:519:GLN:NE2	2.35	0.41
1:A:3:ARG:NH1	1:A:11:ASP:OD2	2.39	0.41
1:C:176:MET:HB2	1:C:176:MET:HE3	1.90	0.41
1:E:281:PHE:HB3	1:E:423[A]:MET:HG2	2.01	0.41
1:E:131:TYR:CZ	1:E:150:PRO:HD3	2.56	0.41
7:A:3347:HOH:O	1:B:496:HIS:HE1	2.04	0.41
1:B:307:ARG:HD2	7:B:1033:HOH:O	2.21	0.41
1:F:237:ARG:HA	1:F:238:PRO:HD3	1.95	0.41
1:E:237:ARG:HA	1:E:238:PRO:HD3	1.96	0.40
1:C:148:ASP:OD1	1:C:167:GLY:HA3	2.22	0.40
1:F:291:THR:HG23	7:F:1085:HOH:O	2.19	0.40
1:A:189:GLU:HB2	6:A:606:CL:CL	2.59	0.40
1:A:496:HIS:HE1	7:B:780:HOH:O	2.04	0.40
1:D:389:GLY:O	1:D:440:ILE:HA	2.22	0.40
1:G:44:TYR:CE1	1:G:382[A]:LEU:CD1	3.04	0.40
1:C:131:TYR:CZ	1:C:150:PRO:HD3	2.56	0.40
1:D:131:TYR:CZ	1:D:150:PRO:HD3	2.55	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	523/526 (99%)	512 (98%)	11 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	524/526 (100%)	513 (98%)	11 (2%)	0	100	100
1	C	524/526 (100%)	512 (98%)	12 (2%)	0	100	100
1	D	524/526 (100%)	512 (98%)	12 (2%)	0	100	100
1	E	524/526 (100%)	511 (98%)	13 (2%)	0	100	100
1	F	524/526 (100%)	513 (98%)	11 (2%)	0	100	100
1	G	524/526 (100%)	512 (98%)	12 (2%)	0	100	100
1	H	524/526 (100%)	512 (98%)	12 (2%)	0	100	100
All	All	4191/4208 (100%)	4097 (98%)	94 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	434/435 (100%)	430 (99%)	4 (1%)	75	55
1	B	435/435 (100%)	429 (99%)	6 (1%)	62	36
1	C	435/435 (100%)	426 (98%)	9 (2%)	48	19
1	D	435/435 (100%)	429 (99%)	6 (1%)	62	36
1	E	435/435 (100%)	431 (99%)	4 (1%)	75	55
1	F	435/435 (100%)	429 (99%)	6 (1%)	62	36
1	G	435/435 (100%)	429 (99%)	6 (1%)	62	36
1	H	435/435 (100%)	430 (99%)	5 (1%)	70	46
All	All	3479/3480 (100%)	3433 (99%)	46 (1%)	65	39

All (46) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	154	TRP
1	A	198	LEU

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Mol	Chain	Res	Type
1	A	216	ASP
1	A	273	ASN
1	B	154	TRP
1	B	198	LEU
1	B	216	ASP
1	B	273	ASN
1	B	297	ASP
1	B	471	TYR
1	C	28	LYS
1	C	154	TRP
1	C	198	LEU
1	C	216	ASP
1	C	273	ASN
1	C	378	GLU
1	C	406	LYS
1	C	423	MET
1	C	471	TYR
1	D	41	ARG
1	D	154	TRP
1	D	198	LEU
1	D	216	ASP
1	D	273	ASN
1	D	471	TYR
1	E	154	TRP
1	E	216	ASP
1	E	273	ASN
1	E	471	TYR
1	F	154	TRP
1	F	216	ASP
1	F	273	ASN
1	F	297	ASP
1	F	310	LYS
1	F	471	TYR
1	G	154	TRP
1	G	198	LEU
1	G	216	ASP
1	G	273	ASN
1	G	378	GLU
1	G	471	TYR
1	H	154	TRP
1	H	216	ASP
1	H	273	ASN

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Mol	Chain	Res	Type
1	H	471	TYR
1	H	498	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	256	GLN
1	A	419	ASN
1	A	496	HIS
1	B	160	ASN
1	B	256	GLN
1	B	496	HIS
1	B	506	ASN
1	C	205	GLN
1	C	256	GLN
1	C	267	ASN
1	C	352	HIS
1	C	419	ASN
1	C	475	ASN
1	C	506	ASN
1	D	205	GLN
1	D	267	ASN
1	D	371	ASN
1	D	413	ASN
1	D	419	ASN
1	D	506	ASN
1	E	205	GLN
1	E	256	GLN
1	E	352	HIS
1	E	419	ASN
1	E	506	ASN
1	F	205	GLN
1	F	267	ASN
1	F	352	HIS
1	F	506	ASN
1	G	205	GLN
1	G	352	HIS
1	G	506	ASN
1	H	205	GLN
1	H	267	ASN
1	H	419	ASN
1	H	506	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 30 ligands modelled in this entry, 9 are monoatomic - leaving 21 for Mogul analysis.

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	#$|Z| > 2$
4	MPD	B	603	-	7,7,7	0.82	0	9,10,10	1.06	1 (11%)
2	FAD	E	601	1	53,58,58	0.91	1 (1%)	68,89,89	0.89	2 (2%)
2	FAD	A	601	1	53,58,58	1.04	4 (7%)	68,89,89	1.11	6 (8%)
4	MPD	F	603	-	7,7,7	0.61	0	9,10,10	1.04	1 (11%)
5	MRD	A	605	-	7,7,7	0.19	0	9,10,10	0.85	0
2	FAD	G	601	-	53,58,58	0.76	0	68,89,89	0.93	2 (2%)
4	MPD	E	603	-	7,7,7	0.55	0	9,10,10	1.32	2 (22%)
3	B3P	H	602	-	18,18,18	0.29	0	21,23,23	1.72	6 (28%)
2	FAD	D	601	1	53,58,58	0.97	4 (7%)	68,89,89	0.91	3 (4%)
3	B3P	D	604	-	18,18,18	0.33	0	21,23,23	1.09	1 (4%)
2	FAD	H	601	1	53,58,58	0.84	1 (1%)	68,89,89	0.86	2 (2%)
4	MPD	A	604	-	7,7,7	0.41	0	9,10,10	1.12	1 (11%)
2	FAD	B	601	1	53,58,58	1.07	5 (9%)	68,89,89	0.97	6 (8%)
3	B3P	F	602	-	18,18,18	0.30	0	21,23,23	0.98	1 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z|$ > 2	Counts	RMSZ	#$|Z|$ > 2
3	B3P	B	602	-	18,18,18	0.27	0	21,23,23	1.08	2 (9%)
2	FAD	C	601	-	53,58,58	0.88	1 (1%)	68,89,89	0.95	3 (4%)
3	B3P	E	602	-	18,18,18	0.44	0	21,23,23	1.00	1 (4%)
3	B3P	A	602	-	18,18,18	0.55	0	21,23,23	0.82	1 (4%)
2	FAD	F	601	1	53,58,58	0.94	2 (3%)	68,89,89	0.88	1 (1%)
3	B3P	A	603	-	18,18,18	0.37	0	21,23,23	1.31	3 (14%)
3	B3P	C	602	-	18,18,18	0.38	0	21,23,23	1.19	2 (9%)

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
4	MPD	B	603	-	-	1/5/5/5	-
2	FAD	E	601	1	-	6/30/50/50	0/6/6/6
2	FAD	A	601	1	-	4/30/50/50	0/6/6/6
4	MPD	F	603	-	-	0/5/5/5	-
5	MRD	A	605	-	-	0/5/5/5	-
2	FAD	G	601	-	-	4/30/50/50	0/6/6/6
4	MPD	E	603	-	-	1/5/5/5	-
3	B3P	H	602	-	-	8/28/28/28	-
2	FAD	D	601	1	-	6/30/50/50	0/6/6/6
3	B3P	D	604	-	-	5/28/28/28	-
2	FAD	H	601	1	-	4/30/50/50	0/6/6/6
4	MPD	A	604	-	-	1/5/5/5	-
2	FAD	B	601	1	-	6/30/50/50	0/6/6/6
3	B3P	F	602	-	-	1/28/28/28	-
3	B3P	B	602	-	-	8/28/28/28	-
2	FAD	C	601	-	-	5/30/50/50	0/6/6/6
3	B3P	E	602	-	-	2/28/28/28	-
3	B3P	A	602	-	-	0/28/28/28	-
2	FAD	F	601	1	-	5/30/50/50	0/6/6/6
3	B3P	A	603	-	-	2/28/28/28	-
3	B3P	C	602	-	-	7/28/28/28	-

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	601	FAD	C1'-C2'	-3.16	1.48	1.52
2	B	601	FAD	C4X-N5	2.91	1.36	1.30
2	C	601	FAD	C8A-N7A	-2.82	1.29	1.34
2	D	601	FAD	C8A-N7A	-2.81	1.29	1.34
2	F	601	FAD	C4X-N5	2.79	1.36	1.30
2	A	601	FAD	C8A-N7A	-2.72	1.29	1.34
2	A	601	FAD	O4B-C1B	2.62	1.44	1.41
2	B	601	FAD	C8A-N7A	-2.55	1.30	1.34
2	B	601	FAD	PA-O2A	-2.31	1.44	1.55
2	E	601	FAD	C6-C7	-2.31	1.36	1.39
2	D	601	FAD	O4B-C1B	2.29	1.44	1.41
2	F	601	FAD	C8A-N7A	-2.26	1.30	1.34
2	A	601	FAD	C5'-C4'	2.24	1.55	1.51
2	H	601	FAD	C4X-N5	2.23	1.35	1.30
2	D	601	FAD	C4X-N5	2.16	1.34	1.30
2	B	601	FAD	C5'-C4'	2.11	1.54	1.51
2	A	601	FAD	C2A-N3A	2.08	1.35	1.32
2	D	601	FAD	O2'-C2'	2.00	1.47	1.43

All (47) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	602	B3P	C9-C8-N2	3.79	120.43	109.03
3	D	604	B3P	C3-N1-C4	3.65	121.25	116.08
2	C	601	FAD	C5A-C6A-N6A	3.51	125.69	120.35
3	C	602	B3P	C3-N1-C4	3.32	120.79	116.08
2	A	601	FAD	O2'-C2'-C3'	-3.25	101.19	109.10
3	H	602	B3P	C2-N2-C8	3.20	120.61	116.08
2	D	601	FAD	O2'-C2'-C3'	-3.18	101.36	109.10
2	A	601	FAD	N3A-C2A-N1A	3.07	133.47	128.68
2	B	601	FAD	C1'-C2'-C3'	2.86	117.79	109.79
2	G	601	FAD	C1'-C2'-C3'	2.77	117.53	109.79
2	D	601	FAD	C1'-C2'-C3'	2.70	117.32	109.79
3	A	603	B3P	C3-N1-C4	2.68	119.88	116.08
2	B	601	FAD	O2'-C2'-C3'	-2.66	102.64	109.10
3	A	603	B3P	C5-C4-N1	-2.66	101.04	109.03
3	B	602	B3P	C6-C4-N1	2.65	116.99	109.03
2	E	601	FAD	C1'-C2'-C3'	2.63	117.15	109.79
3	A	602	B3P	C7-C4-C5	-2.59	104.57	110.04
4	B	603	MPD	O4-C4-C3	2.57	121.76	111.36
3	E	602	B3P	C3-N1-C4	2.57	119.73	116.08
2	B	601	FAD	C5A-C6A-N6A	2.52	124.18	120.35
2	B	601	FAD	N3A-C2A-N1A	2.45	132.50	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	601	FAD	C5A-C6A-N6A	2.43	124.05	120.35
2	A	601	FAD	C5A-C6A-N6A	2.43	124.04	120.35
3	B	602	B3P	C2-N2-C8	2.42	119.50	116.08
2	H	601	FAD	O2'-C2'-C3'	-2.41	103.24	109.10
3	H	602	B3P	C10-C8-C9	-2.39	104.99	110.04
3	H	602	B3P	O1-C9-C8	-2.36	106.85	111.63
2	A	601	FAD	C5A-C6A-N1A	-2.35	115.02	120.35
4	E	603	MPD	O2-C2-C3	-2.35	100.99	109.80
3	H	602	B3P	C6-C4-N1	2.32	116.02	109.03
2	F	601	FAD	O2'-C2'-C3'	-2.29	103.52	109.10
2	A	601	FAD	P-O3P-PA	-2.29	124.97	132.83
3	H	602	B3P	C11-C8-C9	-2.26	105.25	110.04
3	A	603	B3P	C11-C8-C9	-2.26	105.26	110.04
2	C	601	FAD	O2'-C2'-C3'	-2.24	103.65	109.10
3	C	602	B3P	C6-C4-N1	2.18	115.59	109.03
4	A	604	MPD	O4-C4-C3	2.16	120.08	111.36
2	D	601	FAD	P-O3P-PA	-2.15	125.44	132.83
2	B	601	FAD	O5'-C5'-C4'	2.14	115.07	109.36
2	B	601	FAD	P-O3P-PA	-2.13	125.53	132.83
4	E	603	MPD	O4-C4-C3	2.12	119.92	111.36
2	A	601	FAD	O4B-C1B-C2B	-2.10	103.86	106.93
2	E	601	FAD	C4-C4X-C10	2.10	120.32	116.79
4	F	603	MPD	O4-C4-C3	2.09	119.80	111.36
3	F	602	B3P	O3-C11-C8	-2.08	107.43	111.63
2	C	601	FAD	C1'-C2'-C3'	2.05	115.50	109.79
2	H	601	FAD	P-O3P-PA	-2.01	125.92	132.83

There are no chirality outliers.

All (76) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	602	B3P	N1-C4-C6-O5
3	B	602	B3P	C5-C4-C6-O5
3	B	602	B3P	C7-C4-C6-O5
3	B	602	B3P	C10-C8-C9-O1
3	B	602	B3P	C11-C8-C9-O1
3	C	602	B3P	C5-C4-C6-O5
3	D	604	B3P	C1-C3-N1-C4
3	H	602	B3P	C5-C4-N1-C3
3	H	602	B3P	C6-C4-N1-C3
3	H	602	B3P	C7-C4-N1-C3
3	H	602	B3P	C10-C8-N2-C2

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Mol	Chain	Res	Type	Atoms
3	H	602	B3P	C11-C8-N2-C2
3	C	602	B3P	C2-C1-C3-N1
3	H	602	B3P	C2-C1-C3-N1
3	B	602	B3P	C6-C4-C7-O6
3	B	602	B3P	N2-C8-C9-O1
3	C	602	B3P	N1-C4-C6-O5
3	D	604	B3P	O3-C11-C8-N2
2	C	601	FAD	C2'-C3'-C4'-O4'
2	H	601	FAD	C2'-C3'-C4'-O4'
2	A	601	FAD	C3'-C4'-C5'-O5'
2	E	601	FAD	C3'-C4'-C5'-O5'
3	C	602	B3P	C6-C4-N1-C3
2	E	601	FAD	C2'-C3'-C4'-O4'
3	C	602	B3P	C1-C2-N2-C8
3	C	602	B3P	C1-C3-N1-C4
2	A	601	FAD	C2'-C3'-C4'-O4'
2	B	601	FAD	C2'-C3'-C4'-O4'
2	D	601	FAD	C2'-C3'-C4'-O4'
2	G	601	FAD	C2'-C3'-C4'-O4'
2	B	601	FAD	C4'-C5'-O5'-P
2	D	601	FAD	O4'-C4'-C5'-O5'
2	D	601	FAD	C2'-C3'-C4'-C5'
2	E	601	FAD	C2'-C3'-C4'-C5'
3	H	602	B3P	N2-C8-C9-O1
2	A	601	FAD	C4'-C5'-O5'-P
2	F	601	FAD	C4'-C5'-O5'-P
2	G	601	FAD	C4'-C5'-O5'-P
2	H	601	FAD	C4'-C5'-O5'-P
2	F	601	FAD	C2'-C3'-C4'-C5'
3	E	602	B3P	C6-C4-C7-O6
3	B	602	B3P	C3-C1-C2-N2
2	B	601	FAD	C2'-C3'-C4'-C5'
2	C	601	FAD	C4'-C5'-O5'-P
2	D	601	FAD	C4'-C5'-O5'-P
2	C	601	FAD	C3'-C4'-C5'-O5'
2	H	601	FAD	C3'-C4'-C5'-O5'
3	H	602	B3P	C9-C8-N2-C2
2	E	601	FAD	O4'-C4'-C5'-O5'
2	F	601	FAD	O4'-C4'-C5'-O5'
2	F	601	FAD	C2'-C3'-C4'-O4'
2	E	601	FAD	C4'-C5'-O5'-P
3	D	604	B3P	C10-C8-C9-O1

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Mol	Chain	Res	Type	Atoms
3	E	602	B3P	C2-C1-C3-N1
3	F	602	B3P	C6-C4-C7-O6
2	E	601	FAD	O3'-C3'-C4'-O4'
3	D	604	B3P	C3-C1-C2-N2
2	C	601	FAD	C2'-C3'-C4'-C5'
2	B	601	FAD	C3'-C4'-C5'-O5'
2	F	601	FAD	C3'-C4'-C5'-O5'
3	C	602	B3P	C7-C4-C6-O5
2	G	601	FAD	O3'-C3'-C4'-O4'
2	H	601	FAD	O3'-C3'-C4'-O4'
2	B	601	FAD	O4'-C4'-C5'-O5'
2	B	601	FAD	O3'-C3'-C4'-O4'
2	C	601	FAD	O3'-C3'-C4'-O4'
3	A	603	B3P	O2-C10-C8-N2
2	A	601	FAD	O3'-C3'-C4'-O4'
2	D	601	FAD	C3'-C4'-C5'-O5'
2	G	601	FAD	C3'-C4'-C5'-O5'
3	A	603	B3P	C9-C8-N2-C2
3	D	604	B3P	O3-C11-C8-C10
2	D	601	FAD	C1'-C2'-C3'-O3'
4	A	604	MPD	C2-C3-C4-O4
4	B	603	MPD	C2-C3-C4-O4
4	E	603	MPD	C2-C3-C4-O4

There are no ring outliers.

11 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	601	FAD	1	0
2	A	601	FAD	1	0
2	G	601	FAD	1	0
3	H	602	B3P	3	0
2	D	601	FAD	1	0
3	D	604	B3P	3	0
2	H	601	FAD	1	0
4	A	604	MPD	1	0
2	B	601	FAD	1	0
2	C	601	FAD	1	0
2	F	601	FAD	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

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

Ligand FAD E 601	
Bond lengths	Bond angles
Torsions	Rings

Ligand FAD A 601	
Bond lengths	Bond angles
Torsions	Rings

Ligand FAD G 601

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P H 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD D 601

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P D 604

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD H 601

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD B 601

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P F 602

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P B 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD C 601

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P E 602

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P A 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD F 601

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P A 603

Bond lengths

Bond angles

Torsions

Rings

Ligand B3P C 602

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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(Å²)	Q<0.9
1	A	525/526 (99%)	-0.38	4 (0%)	82	86	9, 13, 25, 61	0
1	B	525/526 (99%)	-0.24	5 (0%)	79	82	9, 15, 29, 56	1 (0%)
1	C	525/526 (99%)	-0.14	9 (1%)	69	71	9, 16, 31, 58	1 (0%)
1	D	525/526 (99%)	-0.29	4 (0%)	82	86	9, 14, 29, 53	1 (0%)
1	E	525/526 (99%)	-0.38	7 (1%)	74	77	8, 13, 25, 66	1 (0%)
1	F	525/526 (99%)	-0.29	8 (1%)	71	75	8, 14, 28, 66	1 (0%)
1	G	525/526 (99%)	0.02	5 (0%)	79	82	10, 20, 40, 60	1 (0%)
1	H	525/526 (99%)	-0.08	11 (2%)	63	66	11, 17, 34, 72	1 (0%)
All	All	4200/4208 (99%)	-0.22	53 (1%)	74	77	8, 15, 31, 72	7 (0%)

All (53) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	2	THR	6.0
1	E	2	THR	5.5
1	B	297	ASP	4.5
1	A	525	ASN	3.8
1	C	297	ASP	3.8
1	H	297	ASP	3.8
1	F	297	ASP	3.7
1	C	523	GLY	3.4
1	C	434	TYR	3.4
1	B	525	ASN	3.3
1	H	525	ASN	3.2
1	A	2	THR	3.2
1	A	523	GLY	3.1
1	G	2	THR	3.1
1	C	428	ILE	3.0
1	B	523	GLY	2.9

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Mol	Chain	Res	Type	RSRZ
1	D	524	GLN	2.8
1	G	525	ASN	2.8
1	E	525	ASN	2.7
1	H	2	THR	2.6
1	F	523	GLY	2.6
1	F	356	ASP	2.6
1	F	296	GLY	2.6
1	D	2	THR	2.5
1	H	526	LEU	2.5
1	C	429	GLY	2.5
1	H	296	GLY	2.5
1	H	523	GLY	2.5
1	E	4	THR	2.4
1	E	523	GLY	2.4
1	E	524	GLN	2.3
1	H	524	GLN	2.3
1	C	525	ASN	2.3
1	E	189	GLU	2.3
1	B	2	THR	2.2
1	G	356	ASP	2.2
1	H	356	ASP	2.2
1	C	12	GLU	2.2
1	E	526	LEU	2.2
1	D	297	ASP	2.2
1	H	348	ARG	2.1
1	H	294	PHE	2.1
1	F	295	ASP	2.1
1	C	9	VAL	2.1
1	B	524	GLN	2.1
1	A	297	ASP	2.1
1	H	139	GLN	2.1
1	F	525	ASN	2.1
1	G	429	GLY	2.1
1	F	524	GLN	2.0
1	G	256	GLN	2.0
1	D	525	ASN	2.0
1	F	438	LEU	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 ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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
3	B3P	H	602	19/19	0.72	0.19	35,50,64,68	0
3	B3P	B	602	19/19	0.75	0.17	33,42,63,69	0
3	B3P	E	602	19/19	0.77	0.15	30,38,44,47	0
3	B3P	C	602	19/19	0.79	0.15	34,42,49,50	0
5	MRD	A	605	8/8	0.79	0.19	32,37,44,48	0
4	MPD	B	603	8/8	0.80	0.17	25,29,34,35	0
4	MPD	A	604	8/8	0.81	0.17	24,30,36,41	0
3	B3P	A	603	19/19	0.85	0.13	24,30,36,37	0
3	B3P	F	602	19/19	0.85	0.12	23,29,32,35	0
4	MPD	E	603	8/8	0.87	0.15	20,27,35,45	0
3	B3P	D	604	19/19	0.88	0.15	20,33,70,73	0
4	MPD	F	603	8/8	0.91	0.13	23,27,38,44	0
3	B3P	A	602	19/19	0.91	0.09	17,23,25,26	0
6	CL	A	606	1/1	0.96	0.11	26,26,26,26	0
6	CL	C	603	1/1	0.97	0.07	27,27,27,27	0
6	CL	D	602	1/1	0.97	0.08	23,23,23,23	0
6	CL	E	604	1/1	0.97	0.08	24,24,24,24	0
2	FAD	G	601	53/53	0.98	0.05	11,13,17,18	0
2	FAD	A	601	53/53	0.98	0.04	7,9,12,13	0
6	CL	D	603	1/1	0.98	0.10	18,18,18,18	0
2	FAD	B	601	53/53	0.98	0.04	9,11,13,15	0
6	CL	H	603	1/1	0.98	0.05	24,24,24,24	0
6	CL	B	604	1/1	0.99	0.05	19,19,19,19	0
2	FAD	H	601	53/53	0.99	0.04	10,11,14,15	0
2	FAD	D	601	53/53	0.99	0.04	9,10,13,14	0
2	FAD	E	601	53/53	0.99	0.04	7,10,11,13	0
2	FAD	F	601	53/53	0.99	0.04	8,10,12,14	0
6	CL	F	604	1/1	0.99	0.04	19,19,19,19	0
6	CL	G	602	1/1	0.99	0.04	22,22,22,22	0
2	FAD	C	601	53/53	0.99	0.04	10,11,14,15	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.
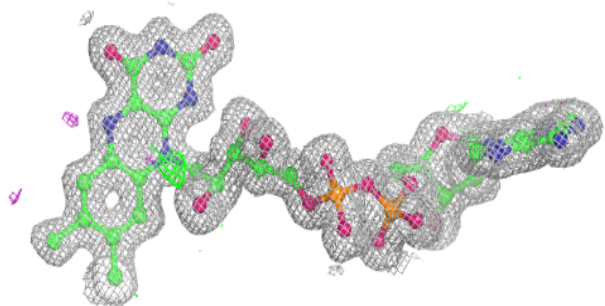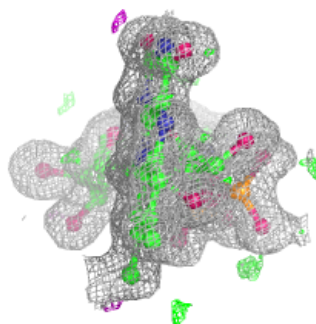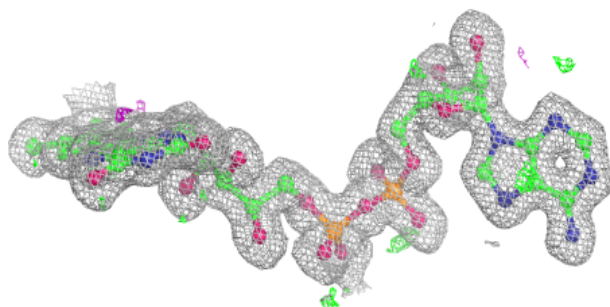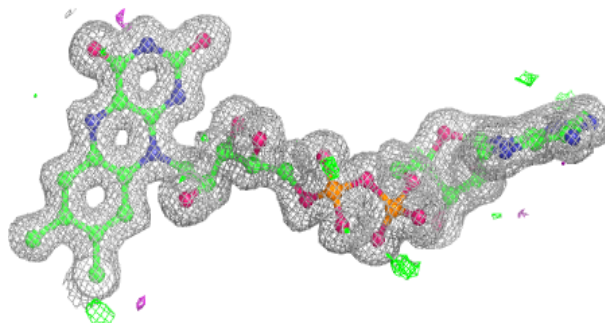
Electron density around B3P H 602:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
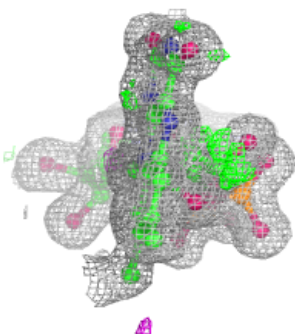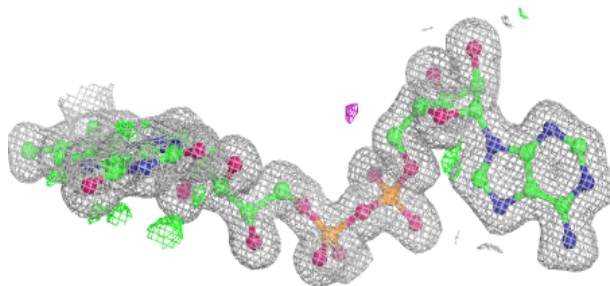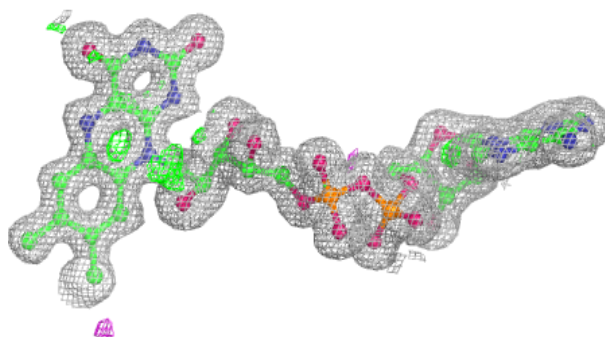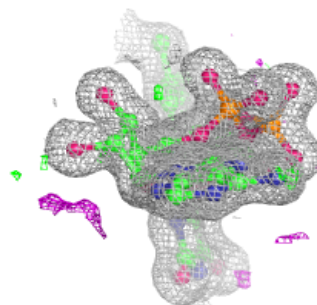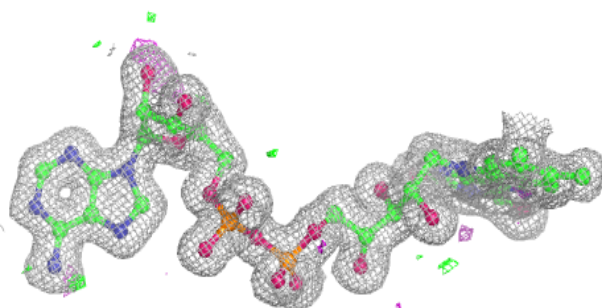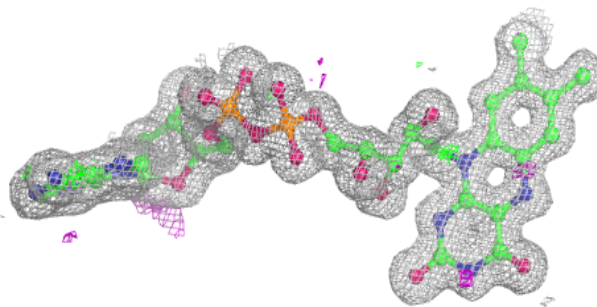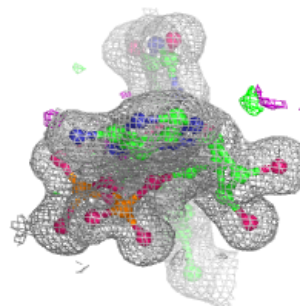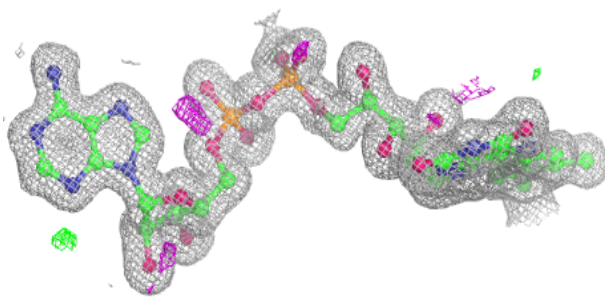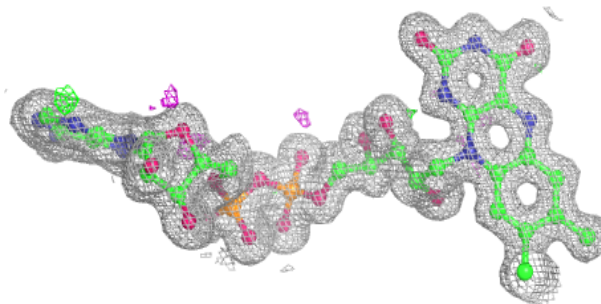mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
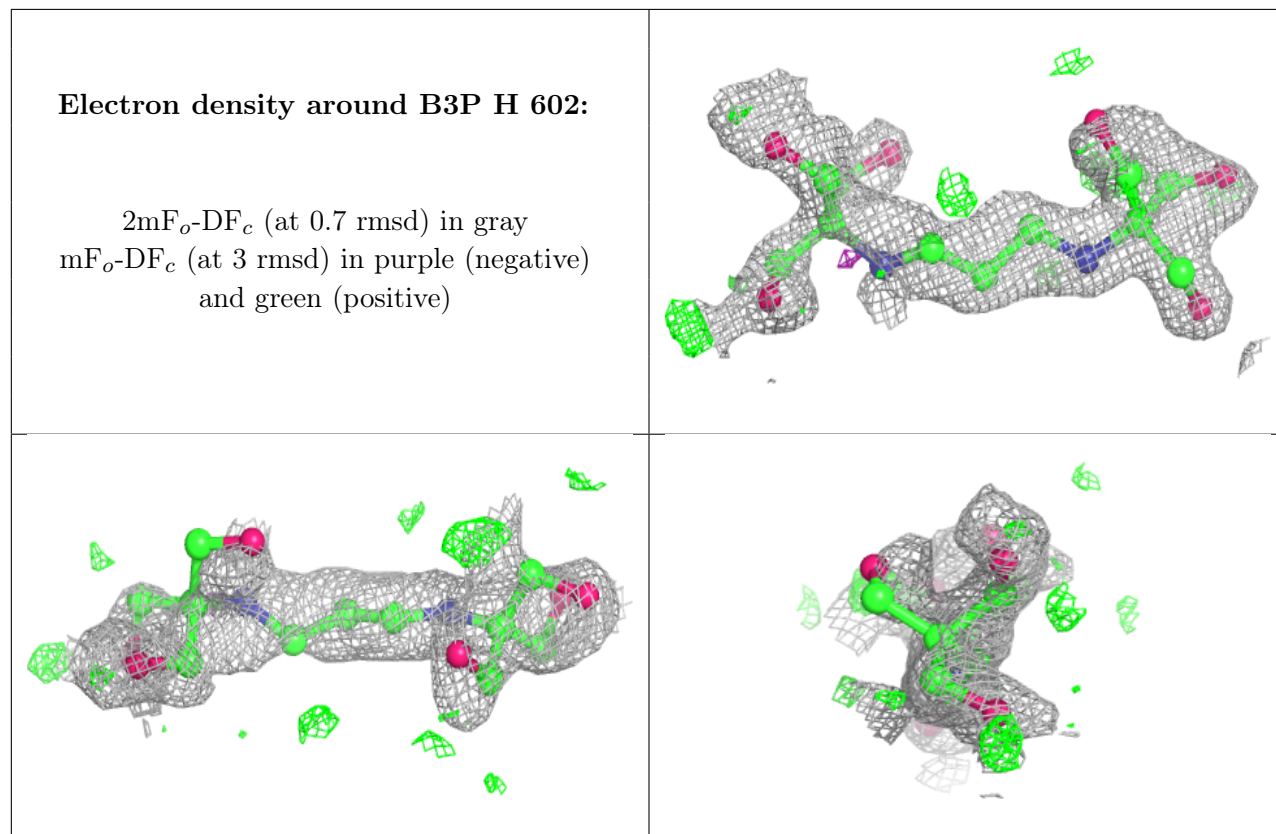
Electron density around B3P B 602:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
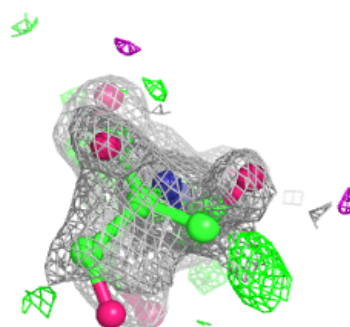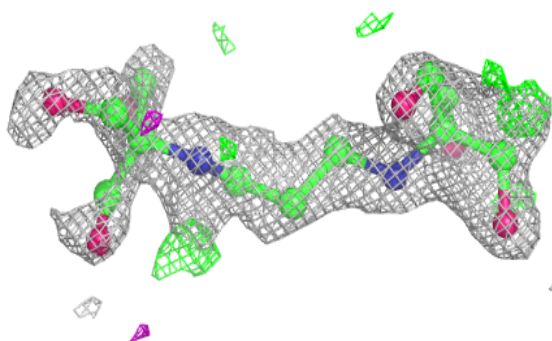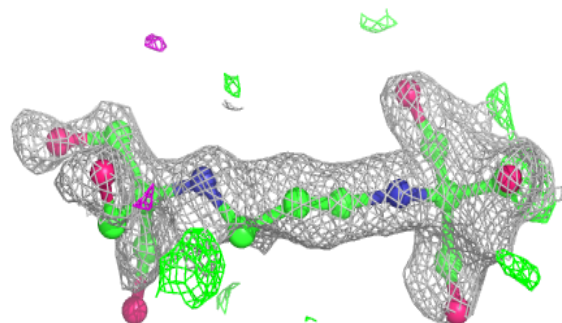
Electron density around B3P E 602:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
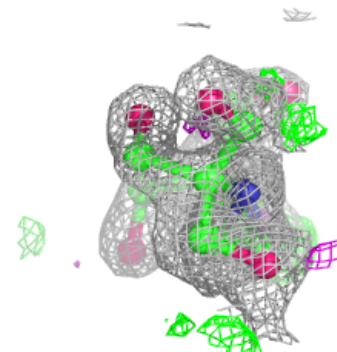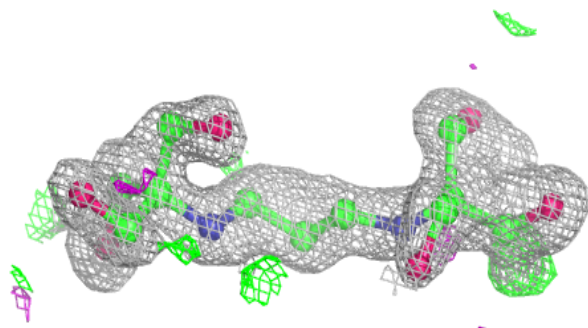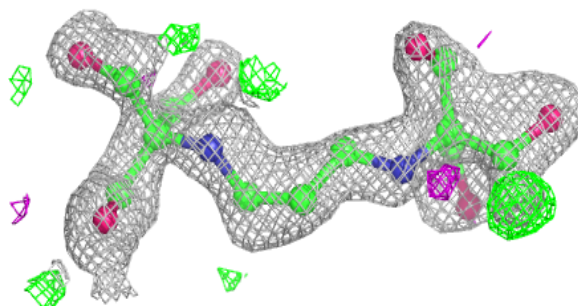
Electron density around B3P C 602:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
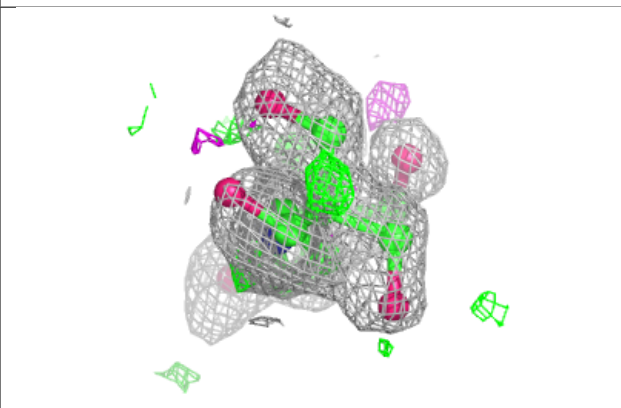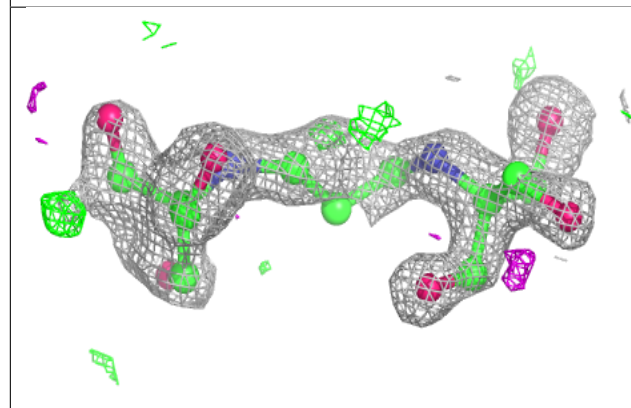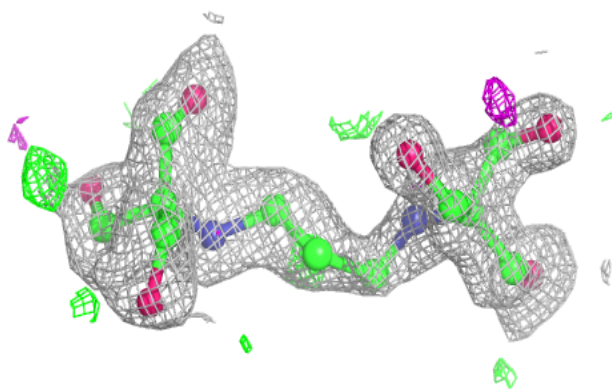
Electron density around B3P A 603:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
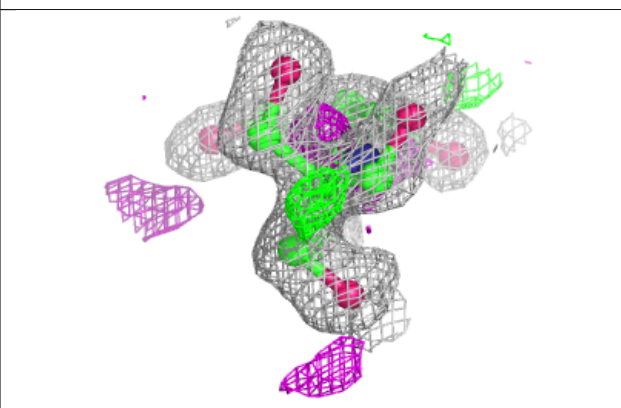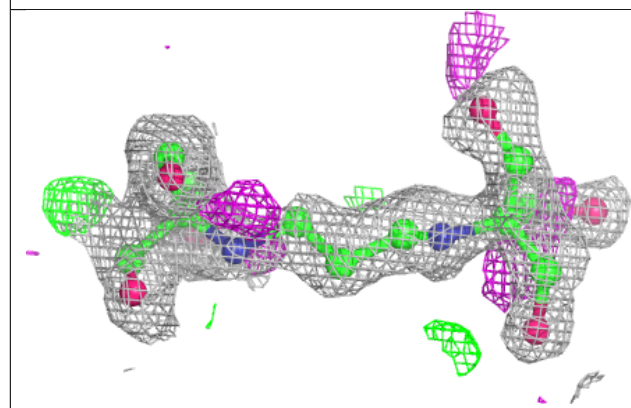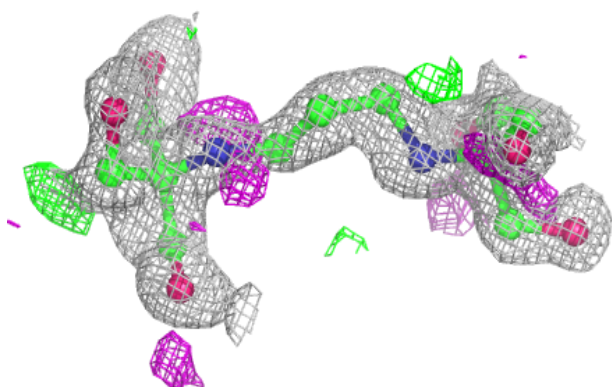
Electron density around B3P F 602:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
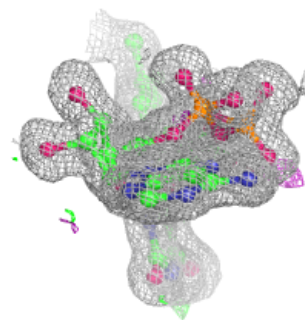mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
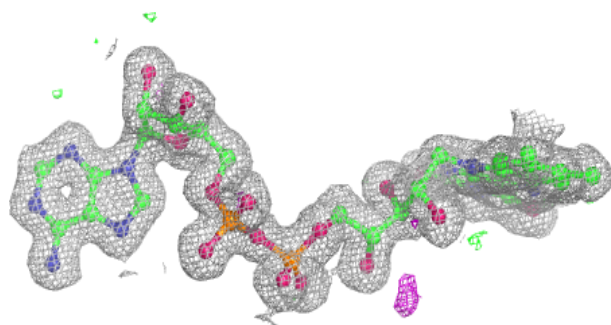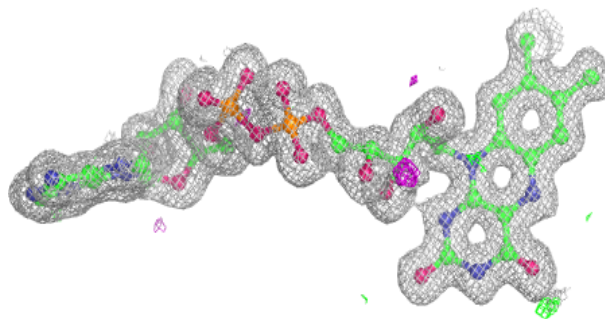and green (positive)
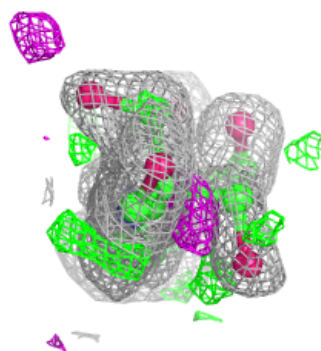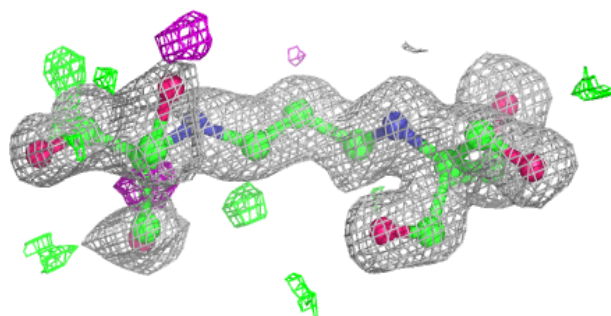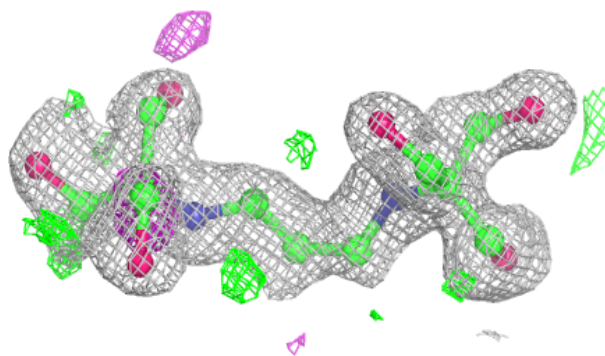
Electron density around B3P D 604:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
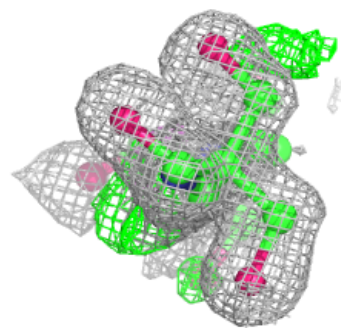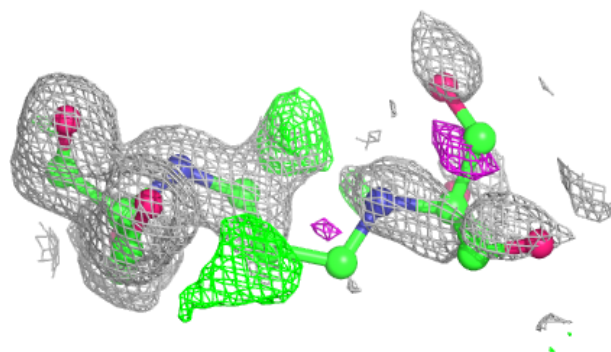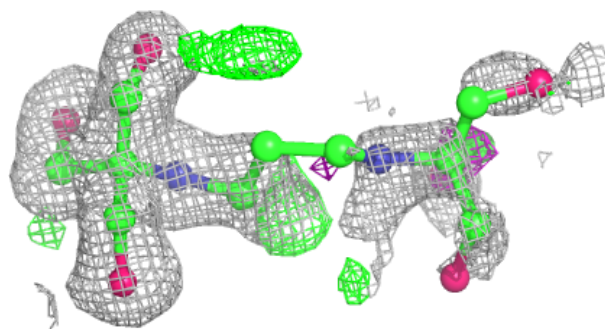
Electron density around B3P A 602:

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mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
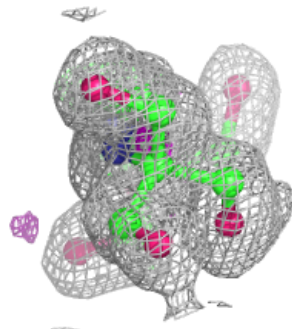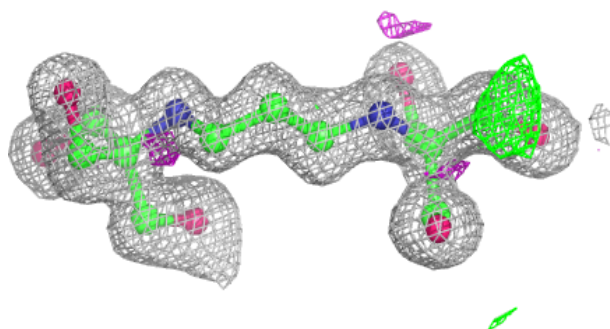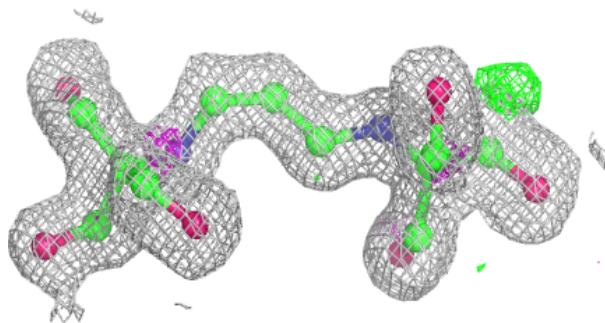
Electron density around FAD G 601:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
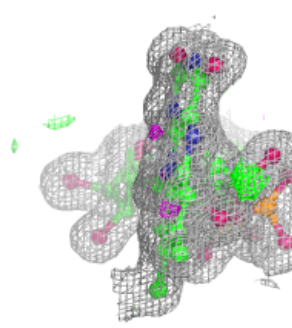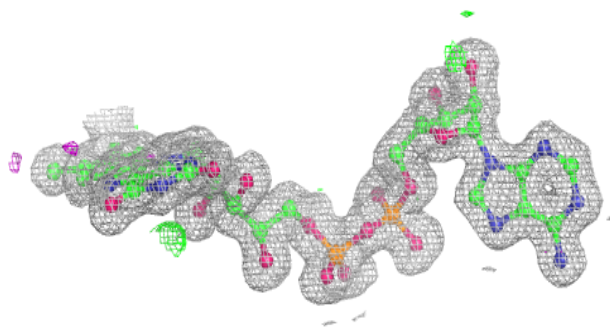
Electron density around FAD A 601:

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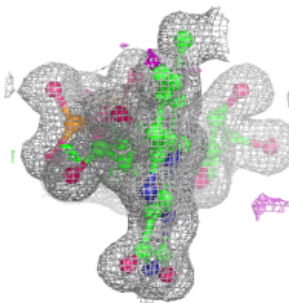mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around FAD B 601:

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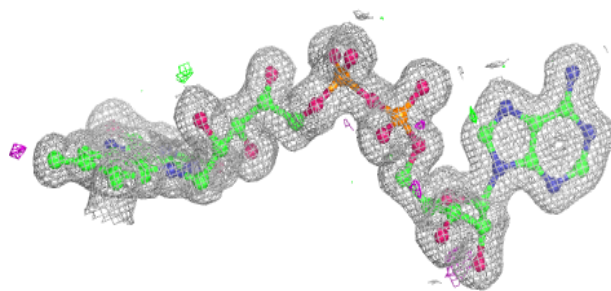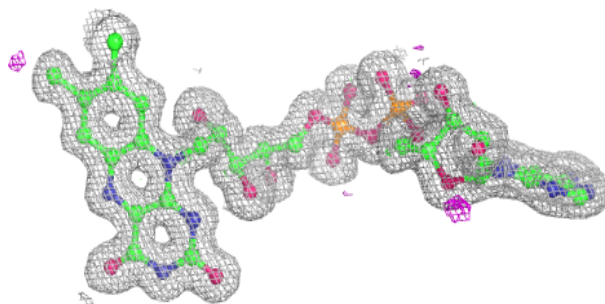and green (positive)

Electron density around FAD H 601:

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

Electron density around FAD D 601:

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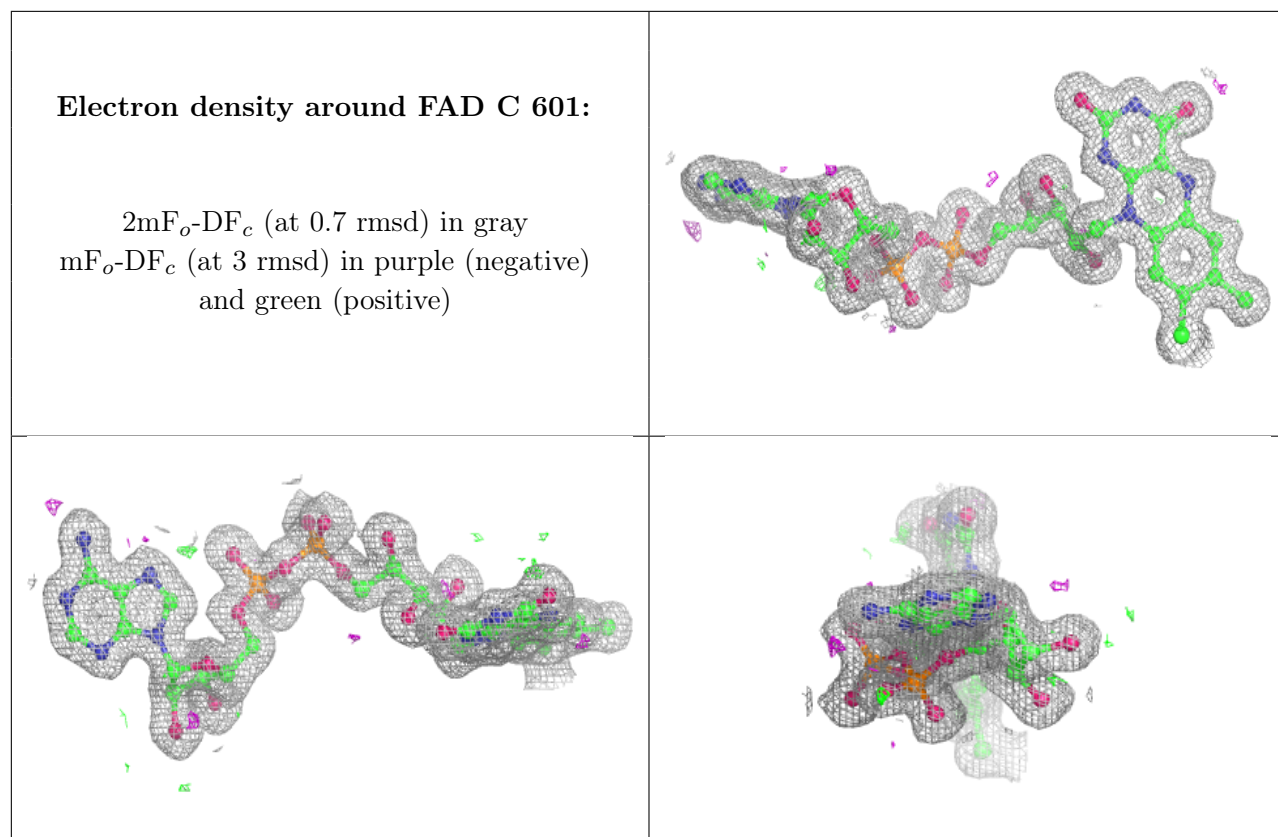mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around FAD E 601:

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

Electron density around FAD F 601:

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

Electron density around FAD C 601:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.