Full wwPDB X-ray Structure Validation Report ⓘ

Sep 24, 2025 – 05:26 am BST

PDB ID	:	5ODI / pdb_00005odi
Title	:	Heterodisulfide reductase / [NiFe]-hydrogenase complex from Methanothermo-coccus thermolithotrophicus cocrystallized with CoM-SH
Authors	:	Wagner, T.; Koch, J.; Ermler, U.; Shima, S.
Deposited on	:	2017-07-05
Resolution	:	2.40 Å(reported)

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

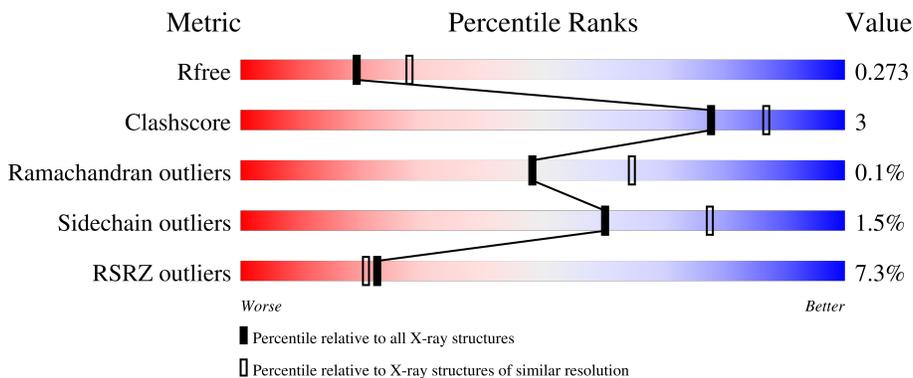|		
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

1   Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.40 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	Percentile Ranks	Value
Rfree		0.273
Clashscore		3
Ramachandran outliers		0.1%
Sidechain outliers		1.5%
RSRZ outliers		7.3%

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	4642 (2.40-2.40)
Clashscore	180529	5218 (2.40-2.40)
Ramachandran outliers	177936	5158 (2.40-2.40)
Sidechain outliers	177891	5159 (2.40-2.40)
RSRZ outliers	164620	4642 (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 <=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	654	3% / 90% / 9%
1	G	654	12% / 91% / 7% ·
2	B	291	24% / 93% / 7%
2	H	291	3% / 92% / 8%
3	C	184	15% / 92% / 8% ·

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Mol	Chain	Length	Quality of chain
3	I	184	% 91% 9% ·
4	D	140	90% 8% ·
4	J	140	10% 91% 8% ·
5	E	299	92% 8% ·
5	K	299	11% 91% 9% ·
6	F	473	% 89% 5% 5%
6	L	473	8% 87% 6% · 5%
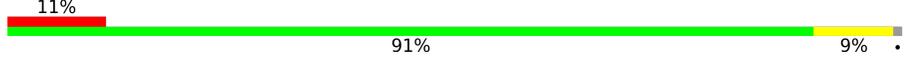
The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
12	COM	H	303	-	X	-	-
15	NFU	F	501	-	-	X	-

2 Entity composition ⓘ

There are 18 unique types of molecules in this entry. The entry contains 31986 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 Heterodisulfide reductase, subunit A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	651	Total 4970	C 3137	N 844	O 940	S 49	0	0	0
1	G	652	Total 4979	C 3142	N 845	O 943	S 49	0	0	0

- Molecule 2 is a protein called Heterodisulfide reductase, subunit B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	291	Total 2236	C 1420	N 379	O 413	S 24	0	0	0
2	H	291	Total 2236	C 1420	N 379	O 413	S 24	0	0	0

- Molecule 3 is a protein called Heterodisulfide reductase, subunit C.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	184	Total 1426	C 890	N 247	O 275	S 14	0	0	0
3	I	183	Total 1416	C 885	N 246	O 271	S 14	0	0	0

- Molecule 4 is a protein called Methyl-viologen reducing hydrogenase, subunit D.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	137	Total 1097	C 698	N 187	O 200	S 12	0	0	0
4	J	138	Total 1106	C 703	N 188	O 203	S 12	0	0	0

- Molecule 5 is a protein called Methyl-viologen reducing hydrogenase, subunit G.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	E	297	Total 2249	C 1419	N 367	O 444	S 19	0	0	0
5	K	297	Total 2257	C 1424	N 370	O 444	S 19	0	1	0

- Molecule 6 is a protein called Methyl-viologen reducing hydrogenase, subunit A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	F	447	Total 3521	C 2230	N 600	O 672	S 19	0	0	0
6	L	447	Total 3521	C 2230	N 600	O 672	S 19	0	0	0

- Molecule 7 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2$).
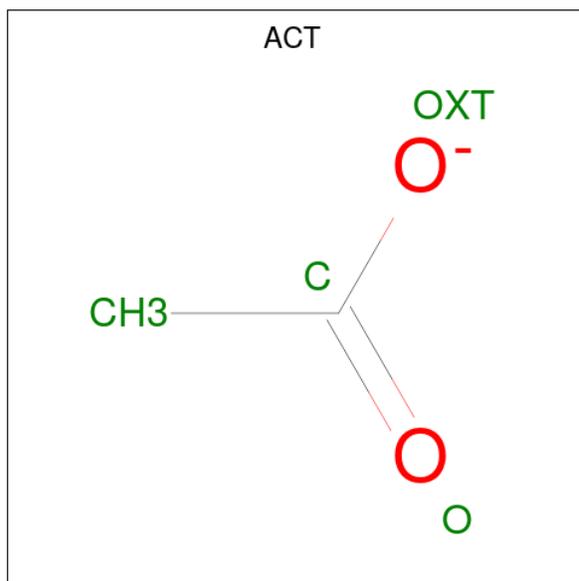
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total 4	C 2	O 2	0	0
7	D	1	Total 4	C 2	O 2	0	0
7	G	1	Total 4	C 2	O 2	0	0

- Molecule 8 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).
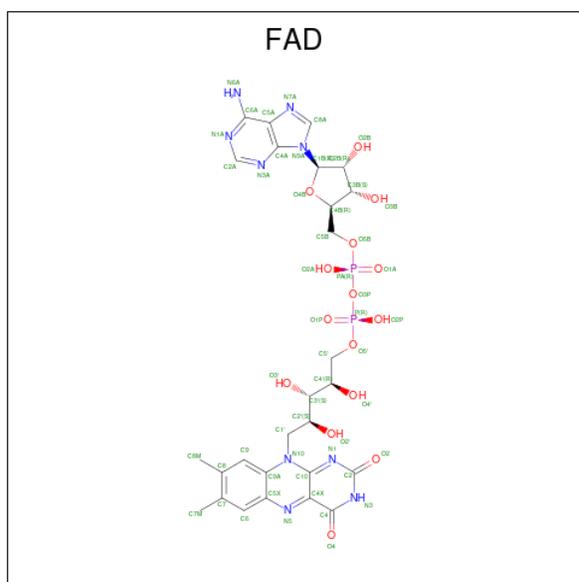
FAD

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

- Molecule 9 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4).
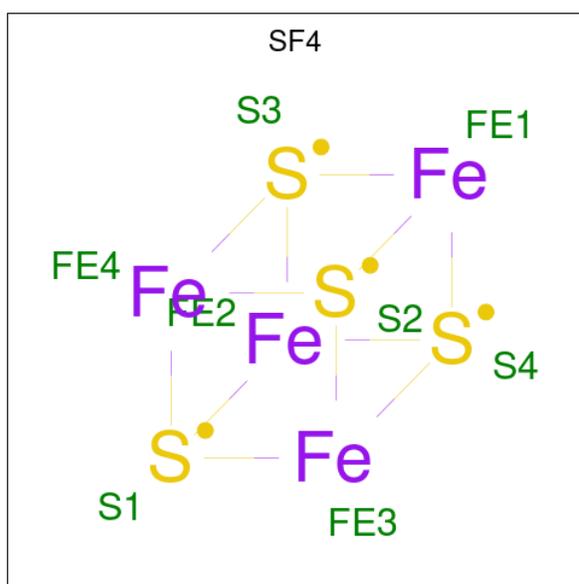
SF4

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total	Fe	S	0	0
			8	4	4		
9	A	1	Total	Fe	S	0	0
			8	4	4		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total 8	Fe 4	S 4	0	0
9	A	1	Total 8	Fe 4	S 4	0	0
9	A	1	Total 8	Fe 4	S 4	0	0
9	A	1	Total 8	Fe 4	S 4	0	0
9	C	1	Total 8	Fe 4	S 4	0	0
9	C	1	Total 8	Fe 4	S 4	0	0
9	E	1	Total 8	Fe 4	S 4	0	0
9	E	1	Total 8	Fe 4	S 4	0	0
9	E	1	Total 8	Fe 4	S 4	0	0
9	G	1	Total 8	Fe 4	S 4	0	0
9	G	1	Total 8	Fe 4	S 4	0	0
9	G	1	Total 8	Fe 4	S 4	0	0
9	G	1	Total 8	Fe 4	S 4	0	0
9	G	1	Total 8	Fe 4	S 4	0	0
9	G	1	Total 8	Fe 4	S 4	0	0
9	I	1	Total 8	Fe 4	S 4	0	0
9	I	1	Total 8	Fe 4	S 4	0	0
9	K	1	Total 8	Fe 4	S 4	0	0
9	K	1	Total 8	Fe 4	S 4	0	0
9	K	1	Total 8	Fe 4	S 4	0	0

- Molecule 10 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).

GOL
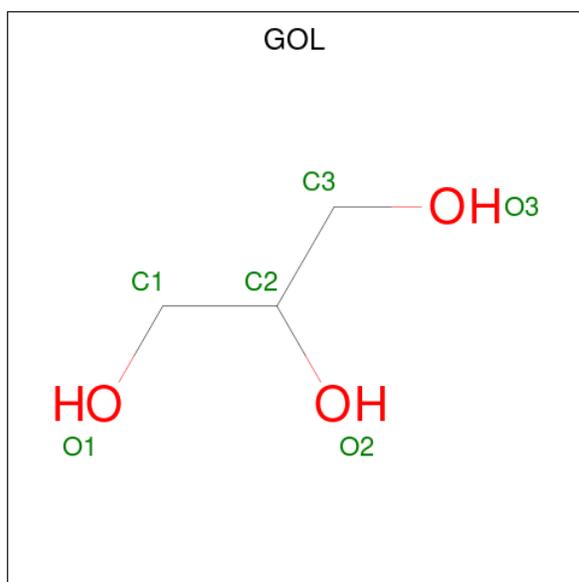
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	A	1	Total 6	C 3	O 3	0	0
10	A	1	Total 6	C 3	O 3	0	0
10	G	1	Total 6	C 3	O 3	0	0
10	H	1	Total 6	C 3	O 3	0	0
10	K	1	Total 6	C 3	O 3	0	0

- Molecule 11 is Non-cubane [4Fe-4S]-cluster (CCD ID: 9S8) (formula: Fe_4S_4).

9S8

W O R L D W I D E
PDB
PROTEIN DATA BANK
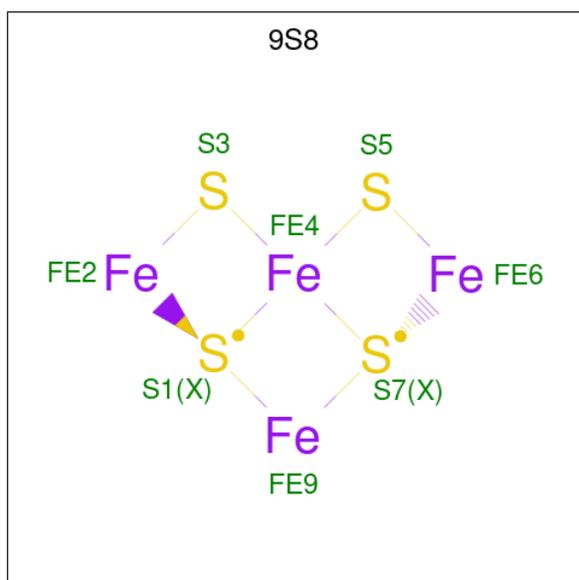
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
11	B	1	Total 8	Fe 4	S 4	0	0
11	B	1	Total 8	Fe 4	S 4	0	0
11	H	1	Total 8	Fe 4	S 4	0	0
11	H	1	Total 8	Fe 4	S 4	0	0

- Molecule 12 is 1-THIOETHANESULFONIC ACID (CCD ID: COM) (formula: $C_2H_6O_3S_2$).
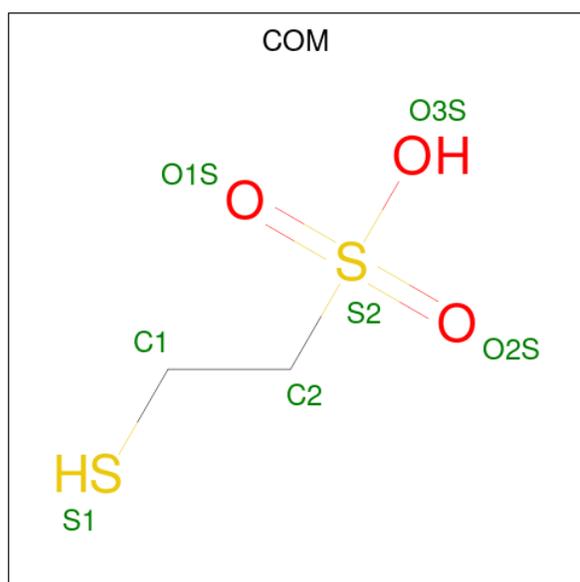
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
12	B	1	Total 7	C 2	O 3	S 2	0	0
12	H	1	Total 7	C 2	O 3	S 2	0	0

- Molecule 13 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2).

FES
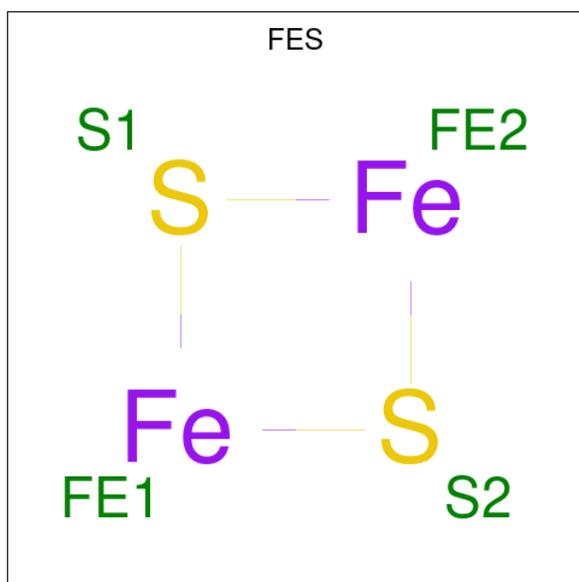
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
13	D	1	Total	Fe	S	0	0
			4	2	2		
13	J	1	Total	Fe	S	0	0
			4	2	2		

• Molecule 14 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (CCD ID: TRS) (formula: $C_4H_{12}NO_3$).

TRS
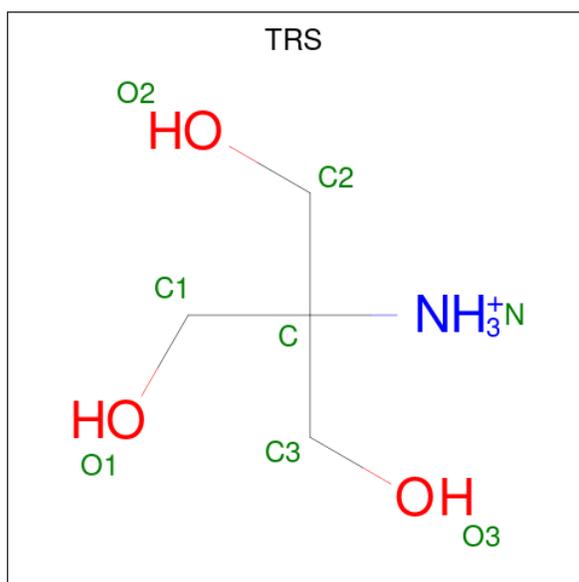
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
14	D	1	Total	C	N	O	0	0
			8	4	1	3		

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- Molecule 15 is formyl[bis(hydrocyanato-1kappaC)]ironnickel(Fe-Ni) (CCD ID: NFU) (formula: C_3HFeN_2NiO).
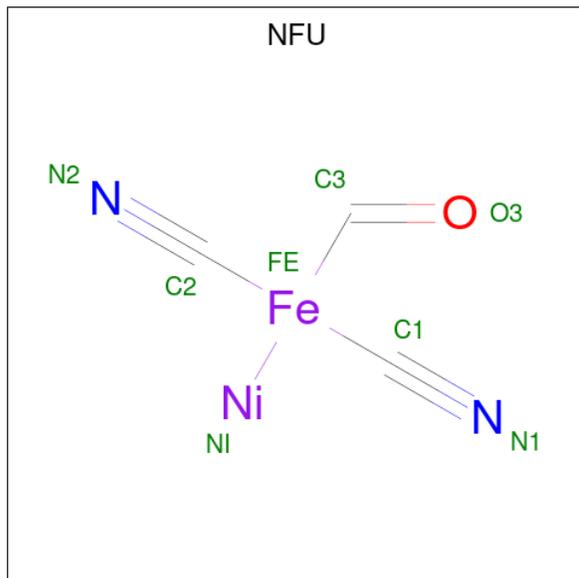
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
15	F	1	Total	C	Fe	N	Ni	O	0	0
			8	3	1	2	1	1		
15	L	1	Total	C	Fe	N	Ni	O	0	0
			8	3	1	2	1	1		

- Molecule 16 is FE (III) ION (CCD ID: FE) (formula: Fe).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
16	F	1	Total	Fe	0	0
			1	1		
16	L	1	Total	Fe	0	0
			1	1		

- Molecule 17 is 3,6,9,12,15,18,21,24,27,30,33,36,39-TRIDECAOXAHENTETRACONTANE-1,41-DIOL (CCD ID: PE3) (formula: $C_{28}H_{58}O_{15}$).

PE3
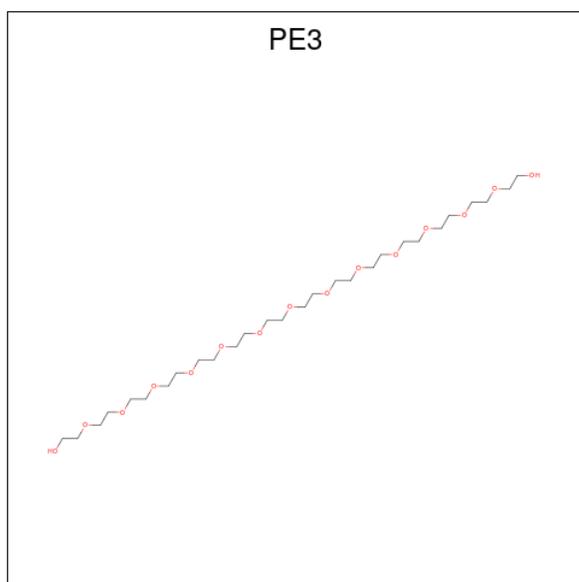
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
17	G	1	Total 14	C 9	O 5	0	0

- Molecule 18 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
18	A	125	Total 125	O 125	0	0
18	B	14	Total 14	O 14	0	0
18	C	19	Total 19	O 19	0	0
18	D	36	Total 36	O 36	0	0
18	E	49	Total 49	O 49	0	0
18	F	65	Total 65	O 65	0	0
18	G	87	Total 87	O 87	0	0
18	H	23	Total 23	O 23	0	0
18	I	27	Total 27	O 27	0	0
18	J	5	Total 5	O 5	0	0
18	K	42	Total 42	O 42	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
18	L	62	Total 62	O 62	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: Heterodisulfide reductase, subunit A
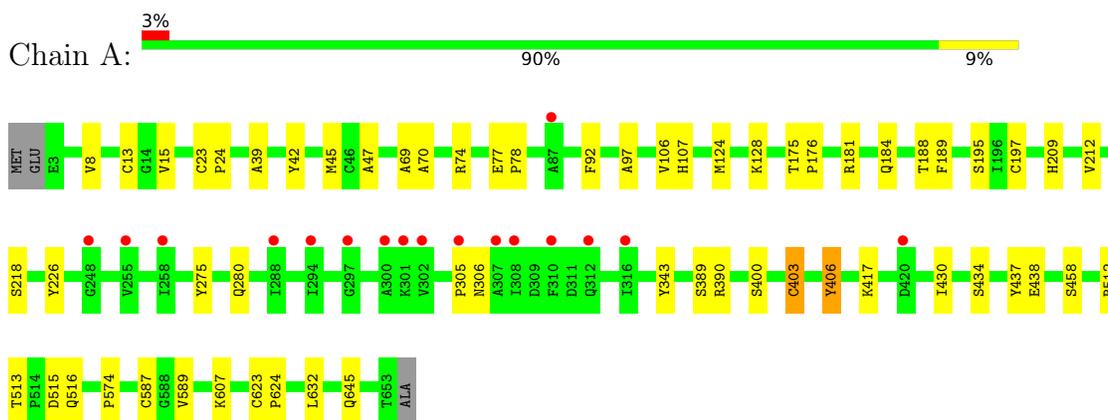
• Molecule 1: Heterodisulfide reductase, subunit A

• Molecule 2: Heterodisulfide reductase, subunit B

A136 E137 K138 V139 E140 R141 P142 L143 N144 I145 N146 V147 H150 H154 K157 P158 V161 A167 E168 R169 L173 I176 T180 K183 S184 V185 P186 I220 V228 P232 F238 I243 K248 F249 Y253 V257 L258 Q262 L263 L264 G265 L266

A267 M268 G269 M270 D271 L275 A276 L277 S278 V279 V284 L287 L288 K289 K290 I291

• Molecule 2: Heterodisulfide reductase, subunit B

Chain H:

3%
92% 8%

M1 M11 V18 G38 C42 P43 F51 D52 Q53 C78 E87 Y113 K114 G115 H121 E124 L125 I135 K138 I145 H154 P158 K162 H163 L164 M211 V228 P232 K248 F249 L258 L275 A276 L277 S278 V279 L287

I291

• Molecule 3: Heterodisulfide reductase, subunit C

Chain C:

15%
92% 8%

M1 G19 P23 V28 L31 Y35 R49 D66 Y81 I96 N102 M116 V121 L122 K123 Y124 G125 H126 A127 V128 P129 A130 L137 R138 I141 G142 L143 A147 P148 I149 A150 Q151 F152 L157 K165 I173 W177 E178 K179 G180 A181

L182 K183 E184

• Molecule 3: Heterodisulfide reductase, subunit C

Chain I:

%
91% 9%

M1 G19 I22 V28 L31 Y35 S43 R49 C77 I96 N102 H114 K115 M116 V121 G125 N131 D156 L182 K183 GLU

• Molecule 4: Methyl-viologen reducing hydrogenase, subunit D

Chain D:

90% 8%

MET SER GLU W4 G10 C16 T17 R36 S43 F63 V64 G65 G66 C67 H68 W106 S110 K140

• Molecule 4: Methyl-viologen reducing hydrogenase, subunit D

Chain J:

10%
91% 8%

MET SER E3 F11 N14 W15 C16 P32 I37 M41 E47 P48 D60 G65 G66 C67 H68 L69 G70 Y74 E90 L91 W106 I107 K125 L134 L138 D139 K140

• Molecule 5: Methyl-viologen reducing hydrogenase, subunit G

Chain E:

• Molecule 5: Methyl-viologen reducing hydrogenase, subunit G

Chain K:

• Molecule 6: Methyl-viologen reducing hydrogenase, subunit A

Chain F:

• Molecule 6: Methyl-viologen reducing hydrogenase, subunit A

Chain L:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	370.53Å 97.08Å 135.15Å 90.00° 109.43° 90.00°	Depositor
Resolution (Å)	48.54 – 2.40 48.54 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.9 (48.54-2.40) 99.9 (48.54-2.40)	Depositor EDS
R_{merge}	0.19	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.36 (at 2.39Å)	Xtriage
Refinement program	BUSTER 2.10.1	Depositor
R, R_{free}	0.202 , 0.241 0.230 , 0.273	Depositor DCC
R_{free} test set	8805 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å^2)	31.8	Xtriage
Anisotropy	0.135	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 64.6	EDS
L-test for twinning[2]	$< |L| > = 0.38, < L^2 > = 0.20$	Xtriage
Estimated twinning fraction	0.046 for -h-2*l,-k,l	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	31986	wwPDB-VP
Average B, all atoms (Å^2)	64.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.27% 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: 9S8, NFU, FAD, COM, ACT, FE, SF4, TRS, PE3, GOL, FES

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	0.59	0/5062	0.96	4/6841 (0.1%)
1	G	0.54	0/5071	0.96	6/6853 (0.1%)
2	B	0.46	0/2277	0.87	0/3070
2	H	0.48	0/2277	0.89	0/3070
3	C	0.51	0/1447	0.88	1/1946 (0.1%)
3	I	0.51	0/1437	0.86	0/1934
4	D	0.64	0/1123	1.03	1/1508 (0.1%)
4	J	0.51	0/1132	0.97	2/1520 (0.1%)
5	E	0.57	0/2288	0.96	3/3102 (0.1%)
5	K	0.51	0/2299	0.95	3/3116 (0.1%)
6	F	0.54	0/3590	0.97	6/4853 (0.1%)
6	L	0.51	0/3590	0.97	6/4853 (0.1%)
All	All	0.54	0/31593	0.95	32/42666 (0.1%)

There are no bond length outliers.

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	275	TYR	N-CA-C	7.41	118.39	108.38
5	E	176	LEU	N-CA-C	7.15	119.98	111.33
5	K	176	LEU	N-CA-C	7.04	119.84	111.33
6	L	397	VAL	N-CA-C	6.76	118.28	107.73
1	G	93	LEU	N-CA-C	-6.37	105.08	112.92
6	L	79	VAL	N-CA-C	-6.33	104.58	110.53
6	L	9	VAL	N-CA-C	-6.30	100.64	109.21
6	F	79	VAL	N-CA-C	-6.28	104.63	110.53
5	K	178	GLU	CB-CG-CD	6.17	123.10	112.60
1	A	275	TYR	N-CA-C	6.14	116.67	108.38
1	A	430	ILE	N-CA-C	-5.74	100.04	108.54
6	F	80	PHE	N-CA-C	-5.69	100.02	109.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	F	397	VAL	N-CA-C	5.68	116.59	107.73
6	L	80	PHE	N-CA-C	-5.63	100.12	109.46
6	L	44	PHE	CA-CB-CG	5.55	119.35	113.80
1	G	199	LEU	N-CA-C	5.55	117.19	111.03
1	A	15	VAL	N-CA-C	-5.51	107.90	113.47
6	F	36	VAL	N-CA-C	5.51	116.81	111.91
1	A	13	CYS	N-CA-C	-5.50	103.79	111.39
5	E	19	LEU	N-CA-C	-5.45	105.34	111.28
4	J	32	PRO	N-CA-C	5.38	117.27	110.70
4	J	60	ASP	N-CA-C	-5.35	106.60	113.23
6	F	44	PHE	CA-CB-CG	5.31	119.11	113.80
1	G	193	ASP	N-CA-C	-5.31	103.88	110.41
1	G	193	ASP	CA-CB-CG	5.22	117.82	112.60
5	E	178	GLU	CB-CG-CD	5.21	121.46	112.60
6	F	290	ASN	CA-CB-CG	5.18	117.78	112.60
1	G	433	PHE	N-CA-C	5.14	119.82	113.50
6	L	207	GLU	N-CA-C	-5.13	105.38	111.69
5	K	264	ASN	N-CA-C	-5.12	104.86	111.71
3	C	66	ASP	CA-CB-CG	5.06	117.66	112.60
4	D	43	SER	N-CA-C	-5.04	106.40	112.54

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	4970	0	4967	43	0
1	G	4979	0	4974	40	0
2	B	2236	0	2244	13	0
2	H	2236	0	2243	12	1
3	C	1426	0	1441	8	0
3	I	1416	0	1435	8	0
4	D	1097	0	1068	7	0
4	J	1106	0	1074	10	0
5	E	2249	0	2252	9	1

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	K	2257	0	2265	14	0
6	F	3521	0	3503	14	0
6	L	3521	0	3503	14	0
7	A	4	0	3	1	0
7	D	4	0	3	0	0
7	G	4	0	3	0	0
8	A	53	0	31	0	0
8	G	53	0	31	0	0
9	A	48	0	0	0	0
9	C	16	0	0	0	0
9	E	24	0	0	0	0
9	G	48	0	0	1	0
9	I	16	0	0	0	0
9	K	24	0	0	0	0
10	A	12	0	16	0	0
10	G	6	0	8	0	0
10	H	6	0	8	0	0
10	K	6	0	8	0	0
11	B	16	0	0	0	0
11	H	16	0	0	1	0
12	B	7	0	6	1	0
12	H	7	0	6	2	0
13	D	4	0	0	0	0
13	J	4	0	0	0	0
14	D	8	0	12	0	0
15	F	8	0	0	2	0
15	L	8	0	0	1	0
16	F	1	0	0	0	0
16	L	1	0	0	0	0
17	G	14	0	16	0	0
18	A	125	0	0	1	0
18	B	14	0	0	0	0
18	C	19	0	0	0	0
18	D	36	0	0	1	0
18	E	49	0	0	0	0
18	F	65	0	0	0	0
18	G	87	0	0	1	0
18	H	23	0	0	0	0
18	I	27	0	0	0	0
18	J	5	0	0	0	0
18	K	42	0	0	0	0
18	L	62	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	31986	0	31120	170	1

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 3.

All (170) 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)
6:F:442:CYS:SG	6:F:445:CYS:HB2	2.00	1.02
11:H:302:9S8:S5	12:H:303:COM:S1	2.75	0.84
1:G:187:LYS:HD2	1:G:413:LEU:HD11	1.60	0.84
1:G:596:TYR:OH	4:J:74:TYR:HA	1.79	0.82
1:G:595:PRO:CG	4:J:74:TYR:O	2.27	0.82
1:G:194:CYS:HB2	1:G:197:CYS:SG	2.21	0.80
6:L:442:CYS:SG	6:L:445:CYS:HB2	2.21	0.80
5:E:109:LYS:HE3	5:E:121:ILE:HD11	1.64	0.78
2:H:145:ILE:HD12	2:H:287:LEU:HD11	1.67	0.77
1:A:623:CYS:SG	1:A:624:PRO:HD3	2.25	0.76
1:A:587:CYS:SG	1:A:589:VAL:HG23	2.28	0.74
1:G:595:PRO:HG2	4:J:74:TYR:O	1.88	0.74
6:F:442:CYS:HB3	15:F:501:NFU:N2	2.05	0.72
1:G:592:LYS:HB2	5:K:262:ILE:HG12	1.73	0.71
1:G:359:ILE:HG21	1:G:413:LEU:HD23	1.79	0.64
1:G:592:LYS:CB	5:K:262:ILE:HG12	2.27	0.64
1:G:595:PRO:HG3	4:J:74:TYR:O	1.96	0.62
5:K:277:ILE:O	5:K:280:LYS:NZ	2.33	0.61
4:D:68:HIS:HA	4:D:106:TRP:HB3	1.83	0.59
1:G:400:SER:HB2	1:G:403:CYS:SG	2.43	0.59
1:A:74:ARG:HD3	18:D:309:HOH:O	2.02	0.59
3:C:19:GLY:HA3	3:C:28:VAL:HG21	1.85	0.59
3:I:19:GLY:HA3	3:I:28:VAL:HG21	1.85	0.58
1:A:92:PHE:CZ	1:A:574:PRO:HD2	2.37	0.58
3:C:157:LEU:C	3:C:157:LEU:HD23	2.28	0.58
4:J:90:GLU:HB2	5:K:280:LYS:HE2	1.86	0.57
1:A:188:THR:HG23	1:A:195:SER:HB2	1.86	0.57
4:J:68:HIS:HA	4:J:106:TRP:HB3	1.84	0.57
6:F:410:VAL:HG22	6:F:432:MET:HE2	1.87	0.56
1:G:587:CYS:SG	1:G:589:VAL:HG23	2.45	0.56
2:B:78:CYS:SG	2:B:232:PRO:HD2	2.46	0.56
6:F:220:PHE:CE2	6:F:222:SER:HB3	2.40	0.55
6:L:435:LEU:C	6:L:435:LEU:HD13	2.32	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:42:CYS:SG	2:H:43:PRO:C	2.91	0.53
2:H:78:CYS:SG	2:H:232:PRO:HD2	2.49	0.53
4:D:10:GLY:HA2	4:D:63:PHE:O	2.09	0.53
2:H:154:HIS:ND1	12:H:303:COM:S1	2.80	0.52
1:G:579:VAL:HG22	1:G:632:LEU:CD2	2.39	0.52
1:G:153:VAL:HG22	1:G:551:VAL:HG22	1.92	0.52
6:F:435:LEU:C	6:F:435:LEU:HD13	2.34	0.52
5:E:106:LYS:HA	5:E:110:THR:OG1	2.10	0.51
2:B:11:MET:HG3	2:B:18:VAL:HB	1.91	0.51
2:H:11:MET:HG3	2:H:18:VAL:HB	1.91	0.51
5:K:70:LYS:O	5:K:74:GLU:HG3	2.11	0.51
1:A:512:ARG:O	4:D:110:SER:HB3	2.11	0.51
5:E:64:GLU:HG2	5:E:127:PRO:HB3	1.92	0.51
2:B:53:GLN:NE2	3:C:23:PRO:HD3	2.25	0.50
2:B:42:CYS:SG	2:B:43:PRO:C	2.94	0.50
4:D:16:CYS:HB2	4:D:67:CYS:SG	2.52	0.50
2:B:158:PRO:HG3	3:C:81:TYR:CD2	2.47	0.49
1:A:434:SER:HB3	1:A:437:TYR:CE1	2.47	0.49
3:I:121:VAL:O	3:I:125:GLY:HA2	2.12	0.49
6:L:375:ARG:C	6:L:398:ALA:HB1	2.38	0.49
1:A:406:TYR:C	1:A:406:TYR:CD1	2.91	0.49
1:G:10:VAL:HA	1:G:69:ALA:HB3	1.95	0.48
1:G:77:GLU:N	1:G:78:PRO:CD	2.76	0.48
5:E:105:ASP:O	5:E:109:LYS:HB2	2.13	0.48
1:G:575:ILE:HD12	4:J:41:MET:HG3	1.94	0.48
5:K:41:LEU:HD13	6:L:129:LEU:HD21	1.95	0.48
3:C:157:LEU:HD23	3:C:157:LEU:O	2.13	0.48
1:G:579:VAL:HG22	1:G:632:LEU:HD23	1.95	0.48
5:K:64:GLU:HG3	5:K:127:PRO:HB3	1.96	0.48
3:C:121:VAL:O	3:C:125:GLY:HA2	2.13	0.48
6:F:442:CYS:SG	6:F:445:CYS:CB	2.89	0.48
2:H:51:PHE:CZ	3:I:114:HIS:HB3	2.49	0.48
1:A:8:VAL:O	1:A:39:ALA:HA	2.14	0.47
1:A:305:PRO:O	1:A:306:ASN:OD1	2.31	0.47
1:A:587:CYS:SG	1:A:589:VAL:CG2	3.00	0.47
1:G:92:PHE:CD2	1:G:135:LEU:HB2	2.49	0.47
6:F:442:CYS:HB3	15:F:501:NFU:C2	2.43	0.47
1:A:47:ALA:HA	1:G:200:ALA:HB1	1.96	0.47
1:G:612:VAL:CG1	1:G:617:CYS:SG	3.02	0.47
2:H:113:TYR:CE2	2:H:115:GLY:HA2	2.49	0.47
1:A:623:CYS:SG	1:A:632:LEU:HD13	2.55	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:400:SER:HB2	1:A:403:CYS:SG	2.54	0.47
4:D:63:PHE:CD2	4:D:63:PHE:C	2.92	0.47
5:K:85:CYS:SG	5:K:90:GLY:HA3	2.55	0.47
4:D:17:THR:HG21	4:D:65:GLY:HA3	1.96	0.47
1:G:196:ILE:HG23	1:G:200:ALA:HB2	1.96	0.47
2:B:145:ILE:HD13	2:B:287:LEU:HD11	1.97	0.47
6:F:290:ASN:HB3	6:F:375:ARG:C	2.40	0.47
1:G:623:CYS:SG	1:G:624:PRO:HD3	2.55	0.47
1:A:437:TYR:CD1	1:A:437:TYR:N	2.83	0.46
5:K:228:CYS:HB2	5:K:229:PRO:HD3	1.96	0.46
2:B:113:TYR:CE2	2:B:115:GLY:HA2	2.50	0.46
2:B:263:LEU:C	2:B:263:LEU:HD13	2.41	0.46
1:G:71:CYS:O	1:G:96:PHE:CE1	2.69	0.46
1:G:69:ALA:HA	1:G:97:ALA:HB3	1.97	0.46
1:A:437:TYR:N	1:A:437:TYR:HD1	2.14	0.46
6:L:13:GLU:HB3	6:L:442:CYS:HA	1.98	0.46
1:G:209:HIS:HB3	1:G:212:VAL:HB	1.97	0.45
6:L:64:CYS:CB	15:L:501:NFU:C1	2.94	0.45
5:E:228:CYS:HB2	5:E:229:PRO:HD3	1.98	0.45
1:A:209:HIS:HB3	1:A:212:VAL:HB	1.98	0.45
6:F:328:HIS:CE1	6:F:438:ALA:HA	2.51	0.45
6:L:328:HIS:CE1	6:L:438:ALA:HA	2.51	0.45
1:G:612:VAL:HG11	1:G:617:CYS:SG	2.57	0.45
1:A:197:CYS:SG	1:G:44:TYR:CD1	3.10	0.45
6:L:14:GLY:HA3	6:L:443:LEU:HB2	1.97	0.45
6:F:13:GLU:HB3	6:F:442:CYS:HA	1.99	0.44
1:G:389:SER:O	1:G:390:ARG:C	2.58	0.44
6:L:106:LEU:HD12	6:L:110:MET:SD	2.57	0.44
1:A:515:ASP:O	1:A:516:GLN:HB2	2.18	0.44
1:A:188:THR:CG2	1:A:195:SER:HB2	2.47	0.44
1:A:189:PHE:C	1:A:189:PHE:CD1	2.96	0.44
1:A:305:PRO:O	1:A:306:ASN:CG	2.60	0.44
1:A:458:SER:HB2	3:I:43:SER:OG	2.18	0.44
2:B:43:PRO:HB2	2:B:48:PHE:CD1	2.53	0.44
5:K:15:CYS:SG	5:K:83:GLY:HA3	2.58	0.44
1:A:181:ARG:O	1:A:184:GLN:N	2.47	0.44
1:A:406:TYR:C	1:A:406:TYR:HD1	2.26	0.44
6:F:14:GLY:HA3	6:F:443:LEU:HB2	1.98	0.44
1:A:69:ALA:HA	1:A:97:ALA:HB3	2.00	0.44
1:A:128:LYS:HB2	1:A:645:GLN:HG3	1.99	0.44
1:G:621:GLY:C	1:G:624:PRO:HD2	2.43	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:623:CYS:N	1:G:624:PRO:HD2	2.32	0.44
5:E:85:CYS:SG	5:E:90:GLY:HA3	2.58	0.43
1:A:77:GLU:HB3	1:A:78:PRO:HD3	2.00	0.43
6:L:77:ASP:O	6:L:80:PHE:O	2.36	0.43
2:B:121:HIS:O	2:B:124:GLU:HG3	2.19	0.43
1:A:106:VAL:HG23	1:A:107:HIS:CE1	2.53	0.43
1:A:124:MET:HE1	4:D:36:ARG:HB3	2.01	0.43
4:J:47:GLU:HB2	4:J:48:PRO:HD2	2.00	0.43
6:L:397:VAL:O	6:L:398:ALA:C	2.61	0.43
1:A:23:CYS:O	1:A:24:PRO:C	2.62	0.43
1:A:389:SER:O	1:A:390:ARG:C	2.61	0.43
3:C:116:MET:HE2	3:C:182:LEU:HD12	2.01	0.42
1:G:194:CYS:CB	1:G:197:CYS:SG	3.02	0.42
1:A:42:TYR:HB3	1:A:45:MET:SD	2.59	0.42
2:H:121:HIS:O	2:H:124:GLU:HG3	2.19	0.42
1:A:438:GLU:HG3	18:G:861:HOH:O	2.19	0.42
3:I:116:MET:HE2	3:I:182:LEU:HD12	2.00	0.42
1:A:417:LYS:HD3	7:A:701:ACT:H2	2.00	0.42
6:F:290:ASN:OD1	6:F:291:THR:HG23	2.19	0.42
2:B:154:HIS:ND1	12:B:303:COM:S1	2.89	0.42
5:E:203:ASP:OD1	5:E:204:PRO:HD2	2.19	0.42
1:G:592:LYS:HB3	5:K:262:ILE:HG12	2.01	0.42
1:G:400:SER:O	1:G:401:ASN:HB3	2.19	0.41
6:L:7:GLU:HA	6:L:8:PRO:HA	1.89	0.41
4:J:48:PRO:HD2	5:K:254:SER:HB2	2.02	0.41
1:A:175:THR:HB	1:A:176:PRO:CD	2.51	0.41
1:G:381:ILE:HG12	1:G:488:LEU:HB3	2.02	0.41
1:A:587:CYS:HB2	5:E:218:ILE:HG22	2.02	0.41
1:A:343:TYR:HB3	18:A:840:HOH:O	2.20	0.41
1:G:627:CYS:HB2	1:G:632:LEU:HD12	2.03	0.41
1:A:197:CYS:HB3	9:G:704:SF4:S4	2.60	0.41
3:C:31:LEU:HB3	3:C:96:ILE:HD13	2.03	0.41
3:I:31:LEU:HB3	3:I:96:ILE:HD13	2.03	0.41
2:H:53:GLN:HB3	3:I:22:ILE:HG22	2.03	0.41
2:H:158:PRO:O	2:H:162:LYS:HG2	2.20	0.41
5:K:253:ILE:O	5:K:254:SER:C	2.64	0.41
1:A:226:TYR:CD1	1:A:226:TYR:N	2.88	0.41
2:H:228:VAL:HA	2:H:258:LEU:O	2.21	0.41
4:J:16:CYS:SG	4:J:67:CYS:SG	3.18	0.41
5:E:21:ASP:HB3	5:E:153:PRO:HG3	2.03	0.41
1:G:189:PHE:HB2	1:G:190:PRO:HA	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:L:409:GLY:O	6:L:413:VAL:HG23	2.21	0.41
1:A:77:GLU:N	1:A:78:PRO:CD	2.85	0.40
5:K:20:LEU:C	5:K:22:LEU:H	2.29	0.40
2:B:157:LYS:HA	2:B:158:PRO:C	2.47	0.40
2:B:228:VAL:HA	2:B:258:LEU:O	2.21	0.40
6:F:272:LEU:HD11	6:F:446:ALA:HB1	2.03	0.40
1:G:226:TYR:CD1	1:G:226:TYR:N	2.88	0.40
6:L:272:LEU:HD11	6:L:446:ALA:HB1	2.04	0.40
1:A:280:GLN:N	1:A:280:GLN:CD	2.80	0.40
1:A:197:CYS:SG	1:G:44:TYR:HD1	2.45	0.40
6:F:37:GLU:HG2	6:F:38:VAL:N	2.36	0.40
1:G:153:VAL:CG2	1:G:551:VAL:HG22	2.50	0.40
1:G:623:CYS:N	1:G:624:PRO:CD	2.84	0.40
2:H:38:GLY:HA3	3:I:156:ASP:OD2	2.21	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:201:ASN:N	2:H:248:LYS:O[4_556]	2.11	0.09

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	649/654 (99%)	619 (95%)	29 (4%)	1 (0%)	44	59
1	G	650/654 (99%)	617 (95%)	33 (5%)	0	100	100
2	B	289/291 (99%)	275 (95%)	14 (5%)	0	100	100
2	H	289/291 (99%)	276 (96%)	13 (4%)	0	100	100
3	C	182/184 (99%)	178 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	I	181/184 (98%)	177 (98%)	4 (2%)	0	100	100
4	D	135/140 (96%)	130 (96%)	5 (4%)	0	100	100
4	J	136/140 (97%)	133 (98%)	3 (2%)	0	100	100
5	E	295/299 (99%)	279 (95%)	16 (5%)	0	100	100
5	K	296/299 (99%)	278 (94%)	18 (6%)	0	100	100
6	F	445/473 (94%)	421 (95%)	22 (5%)	2 (0%)	30	44
6	L	445/473 (94%)	421 (95%)	22 (5%)	2 (0%)	30	44
All	All	3992/4082 (98%)	3804 (95%)	183 (5%)	5 (0%)	48	65

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	F	398	ALA
6	L	398	ALA
6	L	291	THR
1	A	70	ALA
6	F	38	VAL

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	539/541 (100%)	534 (99%)	5 (1%)	75	88
1	G	540/541 (100%)	529 (98%)	11 (2%)	50	70
2	B	242/242 (100%)	241 (100%)	1 (0%)	89	95
2	H	242/242 (100%)	238 (98%)	4 (2%)	56	75
3	C	157/157 (100%)	153 (98%)	4 (2%)	42	63
3	I	156/157 (99%)	152 (97%)	4 (3%)	41	62
4	D	116/119 (98%)	116 (100%)	0	100	100
4	J	117/119 (98%)	117 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	E	254/256 (99%)	251 (99%)	3 (1%)	67	82
5	K	255/256 (100%)	250 (98%)	5 (2%)	50	70
6	F	386/410 (94%)	381 (99%)	5 (1%)	65	81
6	L	386/410 (94%)	378 (98%)	8 (2%)	48	69
All	All	3390/3450 (98%)	3340 (98%)	50 (2%)	60	77

All (50) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	218	SER
1	A	403	CYS
1	A	406	TYR
1	A	513	THR
1	A	607	LYS
2	B	42	CYS
3	C	35	TYR
3	C	49	ARG
3	C	66	ASP
3	C	102	ASN
5	E	8	TRP
5	E	111	THR
5	E	238	CYS
6	F	65	GLN
6	F	102	HIS
6	F	290	ASN
6	F	315	LYS
6	F	435	LEU
1	G	5	ARG
1	G	42	TYR
1	G	194	CYS
1	G	359	ILE
1	G	403	CYS
1	G	413	LEU
1	G	420	ASP
1	G	513	THR
1	G	579	VAL
1	G	617	CYS
1	G	651	ARG
2	H	42	CYS
2	H	87	GLU
2	H	125	LEU

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Mol	Chain	Res	Type
2	H	211	MET
3	I	35	TYR
3	I	49	ARG
3	I	77	CYS
3	I	102	ASN
5	K	8	TRP
5	K	77	LYS
5	K	111	THR
5	K	235	CYS
5	K	238	CYS
6	L	65	GLN
6	L	102	HIS
6	L	283	GLU
6	L	290	ASN
6	L	351	ILE
6	L	368	VAL
6	L	435	LEU
6	L	445	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	102	HIS
1	A	229	ASN
1	A	251	GLN
1	A	401	ASN
1	A	459	GLN
2	B	213	ASN
2	B	262	GLN
3	C	109	ASN
5	E	37	HIS
5	E	248	GLN
5	E	264	ASN
1	G	12	HIS
1	G	229	ASN
1	G	292	HIS
1	G	401	ASN
2	H	262	GLN
3	I	106	GLN
3	I	109	ASN
5	K	37	HIS
5	K	248	GLN

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Mol	Chain	Res	Type
5	K	264	ASN
6	L	78	ASN
6	L	394	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 46 ligands modelled in this entry, 2 are monoatomic - leaving 44 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	#$|Z| > 2$
11	9S8	H	301	2	2,10,10	1.65	1 (50%)	-		
11	9S8	H	302	2	2,10,10	0.85	0	-		
9	SF4	A	706	1	0,12,12	-	-	-		
7	ACT	D	202	-	3,3,3	1.01	0	3,3,3	1.07	0
7	ACT	A	701	-	3,3,3	1.01	0	3,3,3	1.07	0
9	SF4	A	704	1	0,12,12	-	-	-		
10	GOL	G	710	-	5,5,5	0.32	0	5,5,5	0.42	0
10	GOL	H	304	-	5,5,5	0.34	0	5,5,5	0.15	0
15	NFU	L	501	6	2,7,7	0.95	0	-		
12	COM	B	303	-	6,6,6	1.40	2 (33%)	7,8,8	3.01	4 (57%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
9	SF4	E	302	5	0,12,12	-	-	-		
9	SF4	G	705	1	0,12,12	-	-	-		
10	GOL	K	304	-	5,5,5	0.42	0	5,5,5	0.36	0
9	SF4	I	202	3	0,12,12	-	-	-		
13	FES	J	200	4	0,4,4	-	-	-		
9	SF4	A	708	1	0,12,12	-	-	-		
9	SF4	E	303	5	0,12,12	-	-	-		
9	SF4	I	201	3	0,12,12	-	-	-		
15	NFU	F	501	6	2,7,7	1.48	0	-		
11	9S8	B	301	2	2,10,10	0.88	0	-		
9	SF4	C	202	3	0,12,12	-	-	-		
9	SF4	G	706	1	0,12,12	-	-	-		
9	SF4	A	707	1	0,12,12	-	-	-		
13	FES	D	201	4	0,4,4	-	-	-		
9	SF4	K	302	5	0,12,12	-	-	-		
8	FAD	A	702	-	53,58,58	1.36	7 (13%)	68,89,89	1.39	12 (17%)
9	SF4	G	709	1	0,12,12	-	-	-		
9	SF4	K	303	5	0,12,12	-	-	-		
9	SF4	G	707	1	0,12,12	-	-	-		
10	GOL	A	709	-	5,5,5	0.38	0	5,5,5	0.38	0
9	SF4	E	301	5	0,12,12	-	-	-		
9	SF4	A	703	1	0,12,12	-	-	-		
9	SF4	K	301	5	0,12,12	-	-	-		
10	GOL	A	710	-	5,5,5	0.35	0	5,5,5	0.45	0
9	SF4	G	704	1	0,12,12	-	-	-		
9	SF4	G	708	1	0,12,12	-	-	-		
14	TRS	D	203	-	7,7,7	0.39	0	9,9,9	0.63	0
9	SF4	C	201	3	0,12,12	-	-	-		
17	PE3	G	701	-	13,13,42	0.58	0	12,12,41	0.25	0
9	SF4	A	705	1	0,12,12	-	-	-		
12	COM	H	303	-	6,6,6	1.37	2 (33%)	7,8,8	3.48	4 (57%)
7	ACT	G	702	-	3,3,3	1.15	0	3,3,3	0.91	0
8	FAD	G	703	-	53,58,58	1.32	6 (11%)	68,89,89	1.37	9 (13%)
11	9S8	B	302	2	2,10,10	1.24	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
11	9S8	H	301	2	-	-	0/3/3/3

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wwPDB
PROTEIN DATA BANK

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	9S8	H	302	2	-	-	0/3/3/3
9	SF4	A	706	1	-	-	0/6/5/5
10	GOL	G	710	-	-	4/4/4/4	-
9	SF4	A	704	1	-	-	0/6/5/5
10	GOL	H	304	-	-	0/4/4/4	-
12	COM	B	303	-	-	1/4/4/4	-
9	SF4	E	302	5	-	-	0/6/5/5
9	SF4	G	705	1	-	-	0/6/5/5
10	GOL	K	304	-	-	2/4/4/4	-
9	SF4	I	202	3	-	-	0/6/5/5
13	FES	J	200	4	-	-	0/1/1/1
9	SF4	A	708	1	-	-	0/6/5/5
9	SF4	E	303	5	-	-	0/6/5/5
9	SF4	I	201	3	-	-	0/6/5/5
11	9S8	B	301	2	-	-	0/3/3/3
9	SF4	C	202	3	-	-	0/6/5/5
9	SF4	G	706	1	-	-	0/6/5/5
9	SF4	A	707	1	-	-	0/6/5/5
13	FES	D	201	4	-	-	0/1/1/1
9	SF4	K	302	5	-	-	0/6/5/5
8	FAD	A	702	-	-	3/30/50/50	0/6/6/6
9	SF4	G	709	1	-	-	0/6/5/5
9	SF4	K	303	5	-	-	0/6/5/5
9	SF4	G	707	1	-	-	0/6/5/5
10	GOL	A	709	-	-	3/4/4/4	-
9	SF4	E	301	5	-	-	0/6/5/5
9	SF4	A	703	1	-	-	0/6/5/5
9	SF4	K	301	5	-	-	0/6/5/5
10	GOL	A	710	-	-	2/4/4/4	-
9	SF4	G	704	1	-	-	0/6/5/5
9	SF4	G	708	1	-	-	0/6/5/5
14	TRS	D	203	-	-	3/9/9/9	-
17	PE3	G	701	-	-	6/11/11/40	-
9	SF4	C	201	3	-	-	0/6/5/5
9	SF4	A	705	1	-	-	0/6/5/5
12	COM	H	303	-	-	3/4/4/4	-
8	FAD	G	703	-	-	1/30/50/50	0/6/6/6
11	9S8	B	302	2	-	-	0/3/3/3

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	702	FAD	C9A-C5X	5.76	1.50	1.41
8	G	703	FAD	C9A-C5X	5.65	1.50	1.41
8	A	702	FAD	C8-C7	3.41	1.49	1.40
8	G	703	FAD	C8-C7	3.25	1.49	1.40
8	G	703	FAD	C4X-N5	2.69	1.36	1.30
8	A	702	FAD	C4-N3	-2.64	1.33	1.38
8	G	703	FAD	C4-N3	-2.58	1.34	1.38
8	A	702	FAD	C5A-C4A	2.39	1.47	1.40
12	B	303	COM	O1S-S2	2.31	1.51	1.45
8	A	702	FAD	C4X-N5	2.31	1.35	1.30
8	A	702	FAD	C5X-N5	-2.30	1.35	1.39
8	G	703	FAD	C5A-C4A	2.29	1.47	1.40
8	A	702	FAD	O4B-C1B	2.17	1.44	1.41
12	H	303	COM	O2S-S2	2.11	1.51	1.45
12	H	303	COM	O1S-S2	2.11	1.51	1.45
12	B	303	COM	O2S-S2	2.10	1.51	1.45
8	G	703	FAD	C5X-N5	-2.09	1.35	1.39
11	H	301	9S8	S3-FE4	-2.09	2.20	2.24

All (29) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	H	303	COM	O2S-S2-C2	5.16	113.13	106.92
12	H	303	COM	O3S-S2-O2S	-5.10	98.82	111.27
12	H	303	COM	O3S-S2-C2	4.80	113.53	105.77
12	B	303	COM	O3S-S2-O2S	-4.64	99.94	111.27
12	B	303	COM	O2S-S2-C2	4.14	111.89	106.92
12	B	303	COM	O3S-S2-C2	4.04	112.30	105.77
8	G	703	FAD	P-O3P-PA	-3.78	119.87	132.83
8	G	703	FAD	N3A-C2A-N1A	-3.73	122.85	128.68
8	A	702	FAD	N3A-C2A-N1A	-3.54	123.14	128.68
8	G	703	FAD	O4-C4-C4X	-3.15	118.24	126.60
8	A	702	FAD	P-O3P-PA	-2.89	122.90	132.83
12	H	303	COM	O1S-S2-C2	2.74	110.22	106.92
8	A	702	FAD	O4-C4-C4X	-2.65	119.56	126.60
12	B	303	COM	O1S-S2-C2	2.62	110.07	106.92
8	G	703	FAD	C4A-C5A-N7A	-2.60	106.69	109.40
8	A	702	FAD	C4X-C10-N1	-2.53	118.85	124.73
8	A	702	FAD	O4'-C4'-C5'	-2.46	104.38	109.92
8	G	703	FAD	C4X-C4-N3	2.45	119.42	113.19
8	A	702	FAD	C4-C4X-N5	2.43	121.69	118.23
8	G	703	FAD	C4X-C10-N1	-2.33	119.32	124.73
8	G	703	FAD	C9A-C5X-N5	-2.31	119.92	122.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	A	702	FAD	O2-C2-N1	-2.27	118.07	121.83
8	G	703	FAD	C2A-N1A-C6A	2.25	122.61	118.75
8	A	702	FAD	C4X-C4-N3	2.24	118.89	113.19
8	A	702	FAD	C10-N1-C2	2.17	121.23	116.90
8	A	702	FAD	C4A-C5A-N7A	-2.14	107.17	109.40
8	A	702	FAD	C4X-C10-N10	2.11	119.56	116.48
8	G	703	FAD	C4-N3-C2	-2.10	121.76	125.64
8	A	702	FAD	C9A-C5X-N5	-2.08	120.17	122.43

There are no chirality outliers.
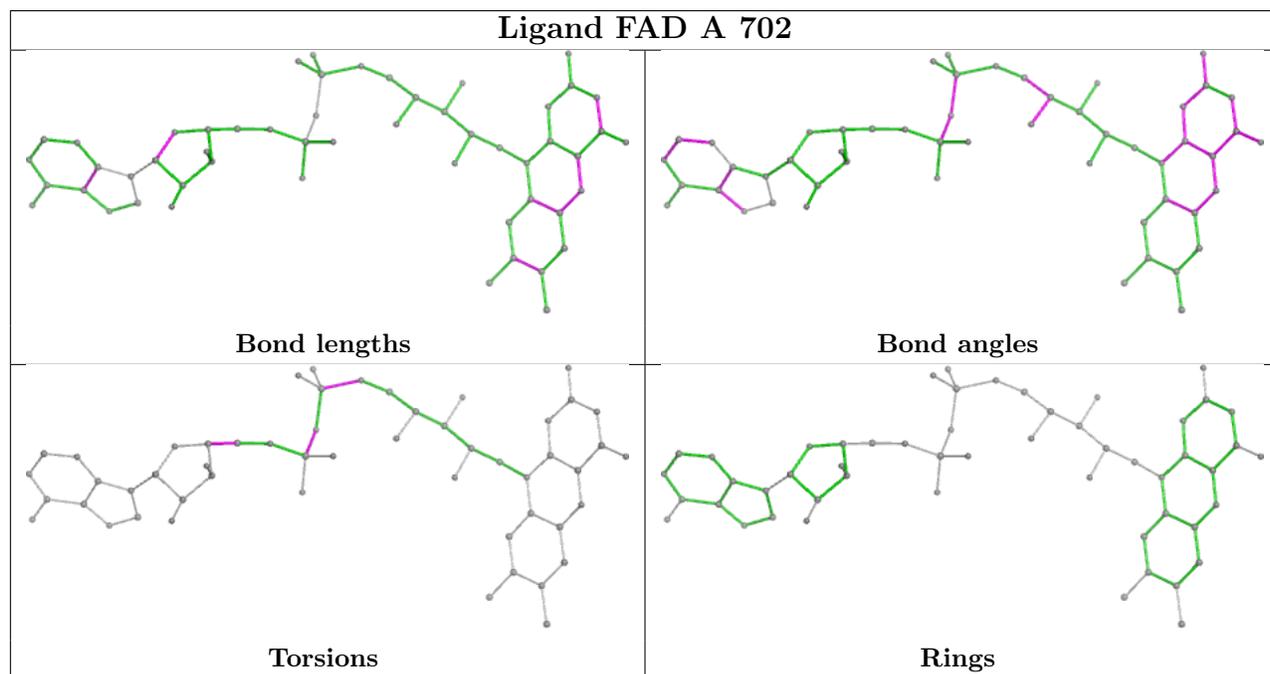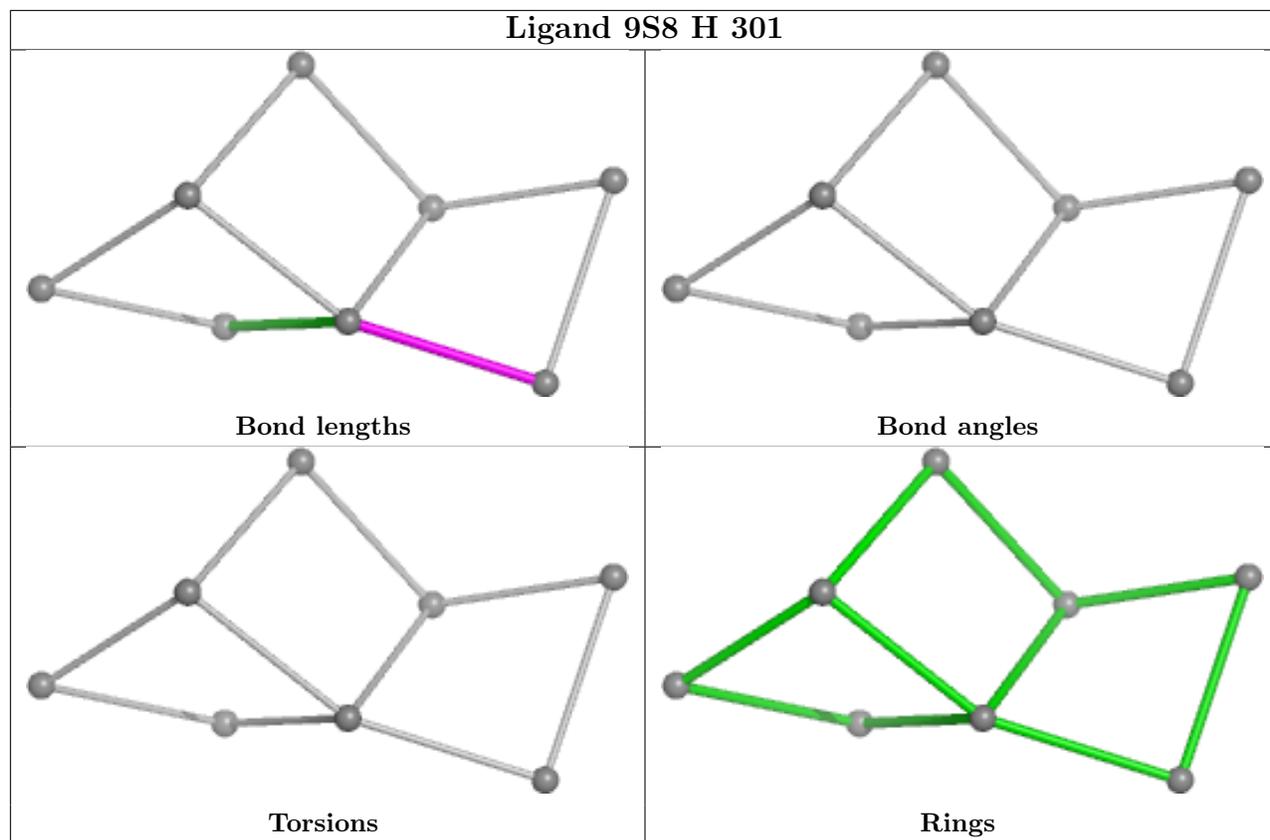
All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	A	709	GOL	C1-C2-C3-O3
10	G	710	GOL	O1-C1-C2-O2
10	G	710	GOL	O1-C1-C2-C3
10	K	304	GOL	C1-C2-C3-O3
12	H	303	COM	C1-C2-S2-O2S
14	D	203	TRS	C2-C-C1-O1
14	D	203	TRS	C3-C-C1-O1
14	D	203	TRS	N-C-C1-O1
17	G	701	PE3	O34-C35-C36-O37
10	A	709	GOL	O1-C1-C2-C3
10	A	709	GOL	O2-C2-C3-O3
10	K	304	GOL	O2-C2-C3-O3
8	A	702	FAD	P-O3P-PA-O5B
17	G	701	PE3	C39-C38-O37-C36
17	G	701	PE3	C36-C35-O34-C33
17	G	701	PE3	O31-C32-C33-O34
10	A	710	GOL	O1-C1-C2-C3
12	H	303	COM	S1-C1-C2-S2
17	G	701	PE3	C35-C36-O37-C38
8	G	703	FAD	O4B-C4B-C5B-O5B
12	H	303	COM	C1-C2-S2-O1S
12	B	303	COM	C1-C2-S2-O3S
17	G	701	PE3	C32-C33-O34-C35
10	G	710	GOL	C1-C2-C3-O3
10	A	710	GOL	O1-C1-C2-O2
10	G	710	GOL	O2-C2-C3-O3
8	A	702	FAD	O4B-C4B-C5B-O5B
8	A	702	FAD	C5'-O5'-P-O1P

There are no ring outliers.

7 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	H	302	9S8	1	0
7	A	701	ACT	1	0
15	L	501	NFU	1	0
12	B	303	COM	1	0
15	F	501	NFU	2	0
9	G	704	SF4	1	0
12	H	303	COM	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 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 9S8 H 301

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD A 702

Bond lengths

Bond angles

Torsions

Rings

Ligand PE3 G 701

Bond lengths

Bond angles

Torsions

Rings

Ligand FAD G 703

Bond lengths

Bond angles

Torsions

Rings
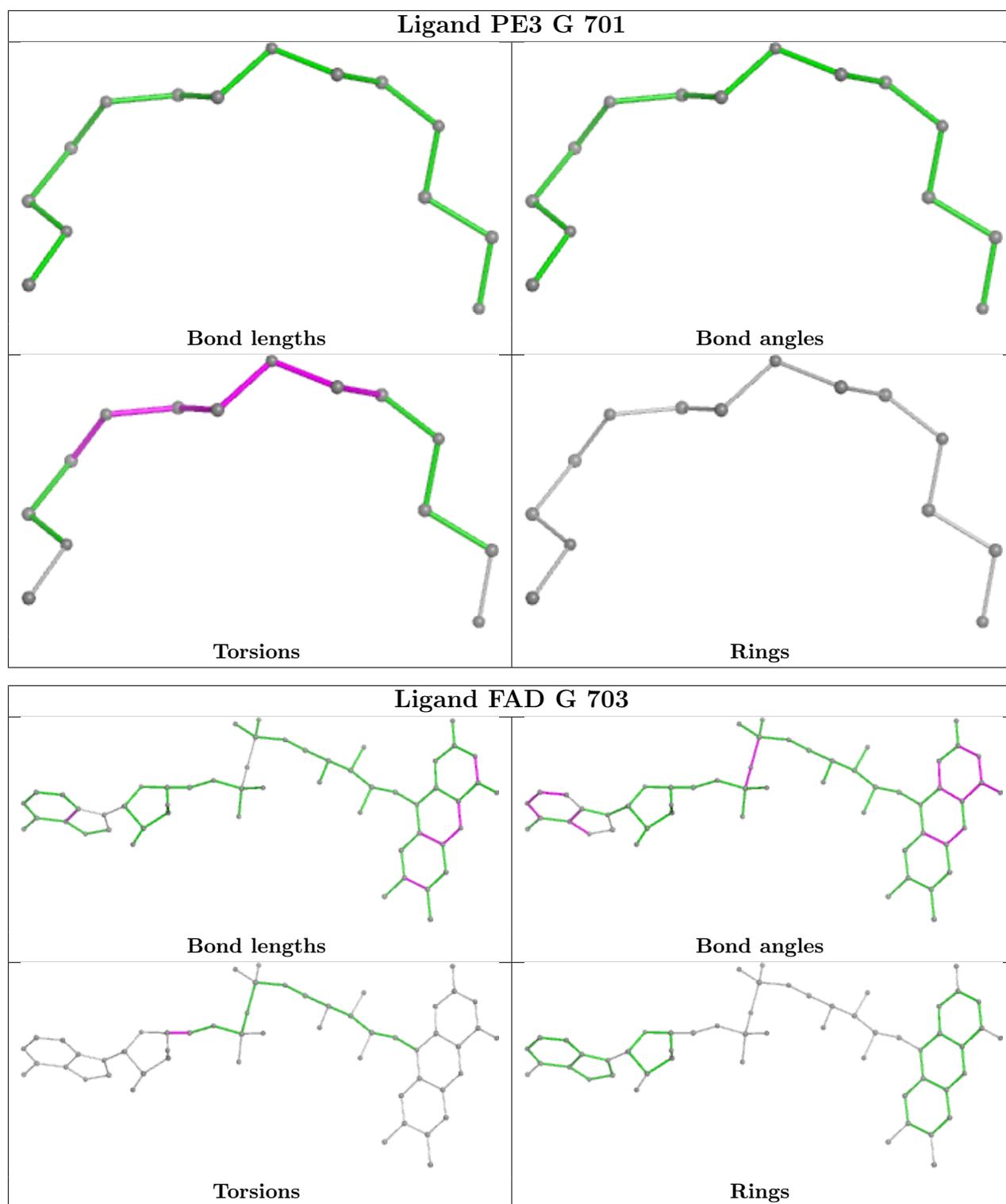
5.7 Other polymers ⓘ

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(Å^2)	Q<0.9
1	A	651/654 (99%)	-0.04	17 (2%)	57	54	15, 43, 106, 161	0
1	G	652/654 (99%)	0.67	78 (11%)	10	8	23, 64, 144, 221	0
2	B	291/291 (100%)	1.40	69 (23%)	2	2	41, 93, 144, 165	0
2	H	291/291 (100%)	0.51	9 (3%)	51	48	37, 68, 105, 132	0
3	C	184/184 (100%)	0.68	27 (14%)	7	6	22, 60, 141, 156	0
3	I	183/184 (99%)	0.21	1 (0%)	87	85	26, 51, 93, 123	0
4	D	137/140 (97%)	-0.49	0	100	100	21, 37, 64, 118	0
4	J	138/140 (98%)	1.05	14 (10%)	14	12	47, 67, 97, 202	0
5	E	297/299 (99%)	-0.15	1 (0%)	90	88	19, 42, 76, 92	0
5	K	297/299 (99%)	0.68	33 (11%)	12	10	28, 62, 122, 165	1 (0%)
6	F	447/473 (94%)	0.13	7 (1%)	70	67	26, 52, 85, 102	0
6	L	447/473 (94%)	0.64	36 (8%)	19	17	28, 66, 139, 177	0
All	All	4015/4082 (98%)	0.43	292 (7%)	22	21	15, 58, 123, 221	1 (0%)

All (292) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	135	ILE	6.1
2	B	5	PHE	6.1
1	G	308	ILE	5.1
2	B	10	ILE	5.0
1	G	601	LEU	4.9
1	G	302	VAL	4.7
2	B	249	PHE	4.7
2	B	266	LEU	4.5
2	B	287	LEU	4.3
2	B	77	VAL	4.3
1	G	610	ALA	4.2

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Mol	Chain	Res	Type	RSRZ
2	B	288	LEU	4.1
6	L	356	ILE	4.1
1	G	612	VAL	4.1
1	G	300	ALA	4.0
1	G	307	ALA	4.0
2	B	291	ILE	4.0
3	C	143	LEU	3.9
1	G	595	PRO	3.9
1	G	609	VAL	3.8
1	G	297	GLY	3.7
6	L	185	LEU	3.7
2	B	26	MET	3.7
5	K	197	ASN	3.7
1	G	608	VAL	3.7
1	G	298	LEU	3.6
3	C	128	VAL	3.6
1	G	258	ILE	3.6
1	G	294	ILE	3.6
2	B	220	ILE	3.6
5	K	255	ALA	3.5
4	J	65	GLY	3.5
2	B	176	ILE	3.5
2	B	136	ALA	3.5
2	B	29	LEU	3.5
5	K	209	LEU	3.5
6	L	364	VAL	3.5
3	C	127	ALA	3.5
6	L	181	ARG	3.4
1	G	602	VAL	3.4
5	K	298	LEU	3.4
2	B	228	VAL	3.4
6	L	352	VAL	3.4
2	B	253	TYR	3.4
3	C	150	ALA	3.3
5	K	256	LEU	3.3
1	G	617	CYS	3.3
1	G	248	GLY	3.3
3	C	141	ILE	3.3
6	L	345	LEU	3.3
3	C	148	PRO	3.3
2	B	145	ILE	3.3
2	B	143	LEU	3.3

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Mol	Chain	Res	Type	RSRZ
2	B	33	LEU	3.2
1	G	25	ASP	3.2
2	H	249	PHE	3.2
1	A	308	ILE	3.2
1	G	54	ILE	3.2
2	B	275	LEU	3.2
2	H	164	LEU	3.2
2	B	279	VAL	3.2
1	G	310	PHE	3.2
1	G	615	ALA	3.2
1	G	613	ILE	3.1
6	L	351	ILE	3.1
6	L	80	PHE	3.1
1	G	304	GLY	3.1
1	G	637	PHE	3.1
6	L	187	LEU	3.1
1	A	301	LYS	3.1
2	B	248	LYS	3.1
2	B	142	PRO	3.1
3	C	147	ALA	3.1
1	G	616	LEU	3.0
3	C	152	PHE	3.0
6	L	363	VAL	3.0
1	G	594	CYS	3.0
2	B	180	THR	3.0
1	G	593	GLN	3.0
2	B	15	TYR	3.0
4	J	134	LEU	3.0
2	B	147	VAL	3.0
6	F	2	VAL	3.0
1	G	596	TYR	3.0
5	K	273	LEU	3.0
6	L	353	GLY	3.0
2	B	270	MET	3.0
1	G	314	PRO	3.0
2	B	284	VAL	3.0
2	B	276	ALA	3.0
4	J	140	LYS	2.9
5	K	189	VAL	2.9
3	C	142	GLY	2.9
2	H	291	ILE	2.9
1	G	42	TYR	2.9

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Mol	Chain	Res	Type	RSRZ
4	J	11	PHE	2.9
1	G	43	LYS	2.9
3	C	137	LEU	2.8
3	C	129	PRO	2.8
2	B	108	LYS	2.8
5	K	190	ALA	2.8
5	K	195	LYS	2.8
1	A	255	VAL	2.8
1	A	297	GLY	2.8
1	G	626	GLY	2.8
1	G	299	CYS	2.8
2	H	275	LEU	2.7
3	I	131	ASN	2.7
1	A	310	PHE	2.7
2	B	173	LEU	2.7
6	L	77	ASP	2.7
2	H	135	ILE	2.7
3	C	123	LYS	2.7
5	K	261	GLY	2.7
2	B	34	VAL	2.7
2	B	257	VAL	2.7
2	B	268	MET	2.7
1	G	653	THR	2.7
2	B	24	THR	2.7
5	K	4	ILE	2.7
5	K	278	LYS	2.7
1	G	591	VAL	2.7
1	G	23	CYS	2.7
6	L	2	VAL	2.6
1	G	625	ALA	2.6
3	C	181	ALA	2.6
1	G	44	TYR	2.6
3	C	138	ARG	2.6
3	C	122	LEU	2.6
2	B	185	VAL	2.6
1	G	69	ALA	2.6
1	G	241	ILE	2.6
3	C	149	ILE	2.6
4	J	70	GLY	2.6
1	G	614	SER	2.6
5	K	184	LYS	2.6
2	B	186	PRO	2.6

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Mol	Chain	Res	Type	RSRZ
5	K	194	ILE	2.6
1	G	70	ALA	2.6
2	H	276	ALA	2.6
5	K	202	PRO	2.6
3	C	124	TYR	2.6
3	C	179	LYS	2.5
4	J	91	LEU	2.5
2	B	31	VAL	2.5
1	G	6	ILE	2.5
3	C	157	LEU	2.5
4	J	106	TRP	2.5
1	G	255	VAL	2.5
1	G	598	ALA	2.5
6	F	329	TYR	2.5
1	G	620	CYS	2.5
2	B	183	LYS	2.5
6	L	186	LYS	2.5
1	G	26	VAL	2.5
1	G	9	TYR	2.5
2	B	290	LYS	2.5
2	B	258	LEU	2.5
1	A	302	VAL	2.5
1	G	232	VAL	2.5
1	G	464	PRO	2.5
1	G	288	ILE	2.5
6	F	204	LYS	2.5
5	K	198	TYR	2.5
1	G	46	CYS	2.4
2	B	130	ILE	2.4
4	J	107	ILE	2.4
5	K	272	ILE	2.4
2	B	144	ASN	2.4
6	L	4	LEU	2.4
5	K	160	VAL	2.4
5	K	268	VAL	2.4
6	L	342	VAL	2.4
2	B	39	ALA	2.4
1	A	294	ILE	2.4
5	K	115	LYS	2.4
6	L	357	ARG	2.4
2	B	271	ASP	2.4
5	K	215	CYS	2.4

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Mol	Chain	Res	Type	RSRZ
2	B	132	VAL	2.4
2	B	262	GLN	2.4
3	C	173	ILE	2.4
2	B	277	LEU	2.4
5	K	208	LEU	2.4
1	G	618	LYS	2.4
2	B	161	VAL	2.4
1	A	307	ALA	2.4
3	C	182	LEU	2.3
6	L	346	LEU	2.3
1	G	29	PHE	2.3
6	L	22	PHE	2.3
2	B	167	ALA	2.3
2	B	263	LEU	2.3
1	A	258	ILE	2.3
6	L	358	ALA	2.3
1	G	592	LYS	2.3
1	G	45	MET	2.3
4	J	32	PRO	2.3
5	K	213	TYR	2.3
1	G	461	ILE	2.3
5	K	191	ILE	2.3
5	K	214	ILE	2.3
3	C	130	ALA	2.3
2	B	30	GLY	2.3
2	B	38	GLY	2.3
2	H	277	LEU	2.3
4	J	138	LEU	2.3
1	A	420	ASP	2.3
4	J	14	ASN	2.3
1	G	10	VAL	2.3
6	L	84	ILE	2.3
1	A	288	ILE	2.2
6	L	76	VAL	2.2
1	G	642	LEU	2.2
2	B	7	LEU	2.2
2	B	106	LEU	2.2
1	G	68	VAL	2.2
2	B	16	ALA	2.2
1	G	623	CYS	2.2
6	L	24	ASP	2.2
1	G	570	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
6	F	364	VAL	2.2
2	B	138	LYS	2.2
6	L	83	LYS	2.2
6	L	81	GLY	2.2
1	G	96	PHE	2.2
1	A	305	PRO	2.2
6	L	360	PRO	2.2
1	G	575	ILE	2.2
4	J	37	ILE	2.2
2	B	289	LYS	2.2
2	H	279	VAL	2.2
3	C	165	LYS	2.2
6	L	368	VAL	2.2
2	B	265	GLY	2.1
5	K	196	ARG	2.1
1	G	253	SER	2.1
5	K	260	PHE	2.1
1	A	312	GLN	2.1
1	G	583	ILE	2.1
2	B	126	ILE	2.1
2	B	243	ILE	2.1
2	H	138	LYS	2.1
3	C	177	TRP	2.1
1	A	300	ALA	2.1
3	C	180	GLY	2.1
5	K	182	ARG	2.1
6	L	285	GLY	2.1
1	G	628	PRO	2.1
6	L	21	SER	2.1
3	C	151	GLN	2.1
5	K	183	LYS	2.1
6	L	300	LYS	2.1
6	F	357	ARG	2.1
1	A	248	GLY	2.1
6	L	365	GLY	2.1
1	G	611	GLU	2.1
2	B	150	HIS	2.1
2	B	139	VAL	2.1
6	L	91	LEU	2.1
1	G	600	ARG	2.1
1	G	621	GLY	2.1
6	L	281	GLY	2.1

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Mol	Chain	Res	Type	RSRZ
5	K	270	PRO	2.1
6	F	87	THR	2.1
1	G	301	LYS	2.1
5	K	275	LYS	2.1
6	L	174	LYS	2.1
1	G	252	CYS	2.1
1	G	37	VAL	2.0
2	B	117	VAL	2.0
2	B	141	ARG	2.0
1	A	87	ALA	2.0
4	J	48	PRO	2.0
2	B	122	PHE	2.0
2	B	238	PHE	2.0
4	J	125	LYS	2.0
1	G	633	GLU	2.0
1	G	256	CYS	2.0
1	G	296	CYS	2.0
6	F	140	ILE	2.0
1	G	306	ASN	2.0
5	E	201	ASN	2.0
5	K	201	ASN	2.0
6	L	284	ASP	2.0
6	L	355	ASP	2.0
2	B	48	PHE	2.0
1	G	109	HIS	2.0
3	C	116	MET	2.0
1	A	316	ILE	2.0
5	K	277	ILE	2.0
2	B	169	ARG	2.0

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 ⓘ

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.
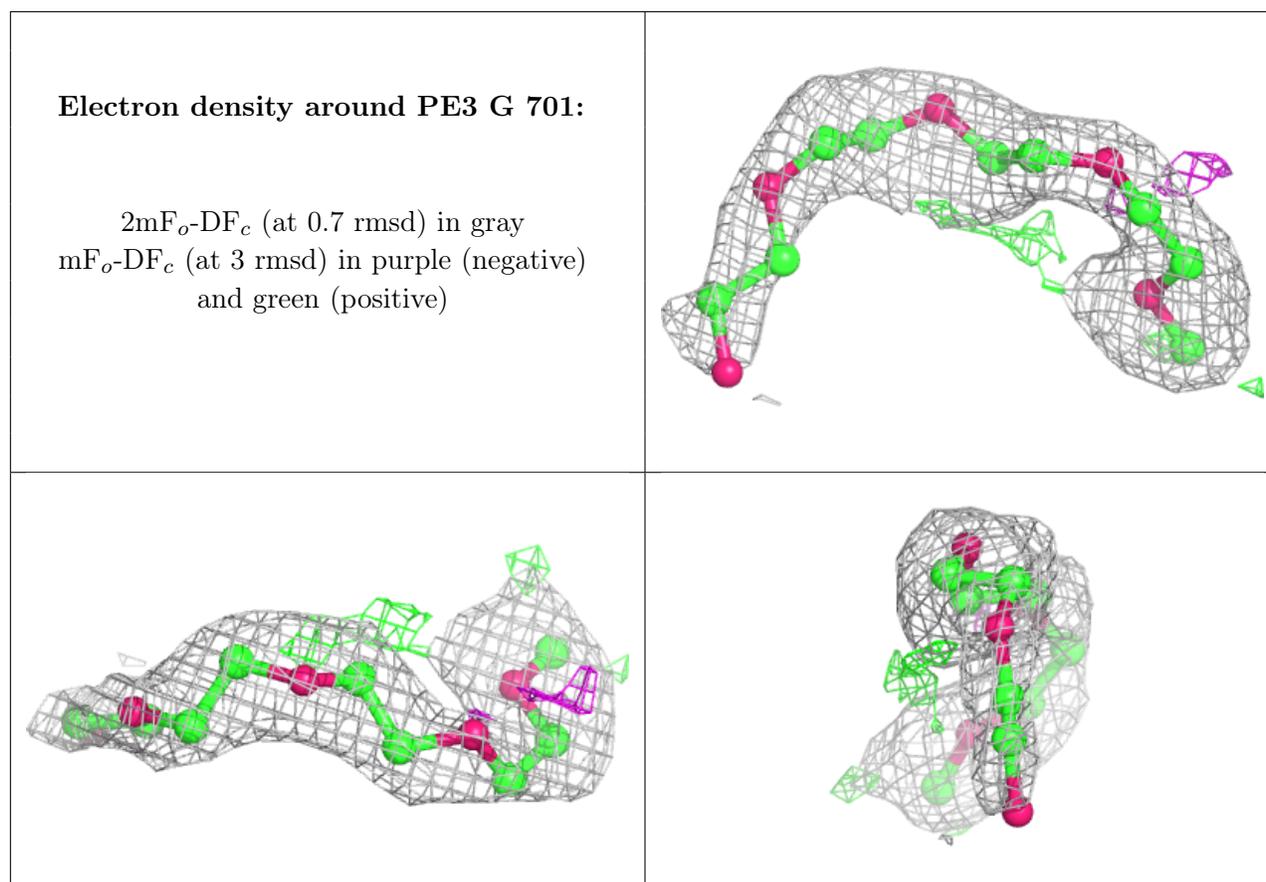
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	ACT	G	702	4/4	0.46	0.18	108,110,110,110	0
10	GOL	H	304	6/6	0.64	0.27	95,96,99,101	0
7	ACT	A	701	4/4	0.69	0.28	62,66,66,67	0
17	PE3	G	701	14/43	0.69	0.17	50,58,74,76	0
7	ACT	D	202	4/4	0.70	0.24	78,79,80,82	0
10	GOL	K	304	6/6	0.82	0.14	54,55,61,62	0
14	TRS	D	203	8/8	0.86	0.13	41,54,56,61	0
10	GOL	A	710	6/6	0.87	0.14	42,49,49,52	0
10	GOL	G	710	6/6	0.89	0.14	46,51,55,59	0
11	9S8	B	302	8/8	0.90	0.08	68,80,86,90	0
10	GOL	A	709	6/6	0.92	0.10	44,49,50,53	0
9	SF4	A	707	8/8	0.93	0.07	98,101,104,105	0
12	COM	B	303	7/7	0.93	0.11	62,64,70,75	0
9	SF4	G	708	8/8	0.94	0.06	61,67,71,72	0
9	SF4	G	707	8/8	0.95	0.05	103,106,108,111	0
11	9S8	H	302	8/8	0.95	0.06	46,51,58,58	0
9	SF4	A	708	8/8	0.95	0.06	70,71,79,81	0
12	COM	H	303	7/7	0.95	0.10	42,46,57,61	0
9	SF4	K	303	8/8	0.95	0.06	63,68,75,77	0
9	SF4	G	704	8/8	0.95	0.06	67,76,84,84	0
9	SF4	G	709	8/8	0.96	0.05	46,52,58,58	0
9	SF4	G	706	8/8	0.96	0.05	81,82,85,86	0
9	SF4	A	706	8/8	0.96	0.05	34,39,44,45	0
11	9S8	B	301	8/8	0.96	0.06	57,67,69,74	0
8	FAD	G	703	53/53	0.96	0.08	8,32,52,54	0
11	9S8	H	301	8/8	0.97	0.05	41,49,55,59	0
9	SF4	I	201	8/8	0.97	0.05	25,27,29,29	0
9	SF4	K	302	8/8	0.97	0.04	42,50,53,53	0
9	SF4	A	705	8/8	0.98	0.04	24,32,36,41	0
9	SF4	G	705	8/8	0.98	0.03	15,17,20,26	0
8	FAD	A	702	53/53	0.98	0.06	11,27,49,53	0
9	SF4	A	703	8/8	0.98	0.03	13,18,20,24	0
9	SF4	A	704	8/8	0.98	0.03	12,21,28,31	0
9	SF4	C	201	8/8	0.98	0.04	24,27,33,40	0
9	SF4	C	202	8/8	0.98	0.05	29,37,45,47	0
9	SF4	I	202	8/8	0.98	0.05	36,37,49,53	0
9	SF4	K	301	8/8	0.98	0.05	37,41,49,50	0

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| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
9	SF4	E	301	8/8	0.98	0.04	18,26,30,32	0
9	SF4	E	302	8/8	0.98	0.03	13,24,27,29	0
9	SF4	E	303	8/8	0.98	0.03	10,16,24,27	0
13	FES	D	201	4/4	0.99	0.04	20,23,33,36	0
15	NFU	F	501	8/8	0.99	0.07	29,36,39,41	0
13	FES	J	200	4/4	0.99	0.04	52,54,59,61	0
16	FE	F	502	1/1	1.00	0.02	35,35,35,35	0
16	FE	L	502	1/1	1.00	0.06	44,44,44,44	0
15	NFU	L	501	8/8	1.00	0.04	28,34,37,41	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 PE3 G 701:

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

Electron density around FAD G 703:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
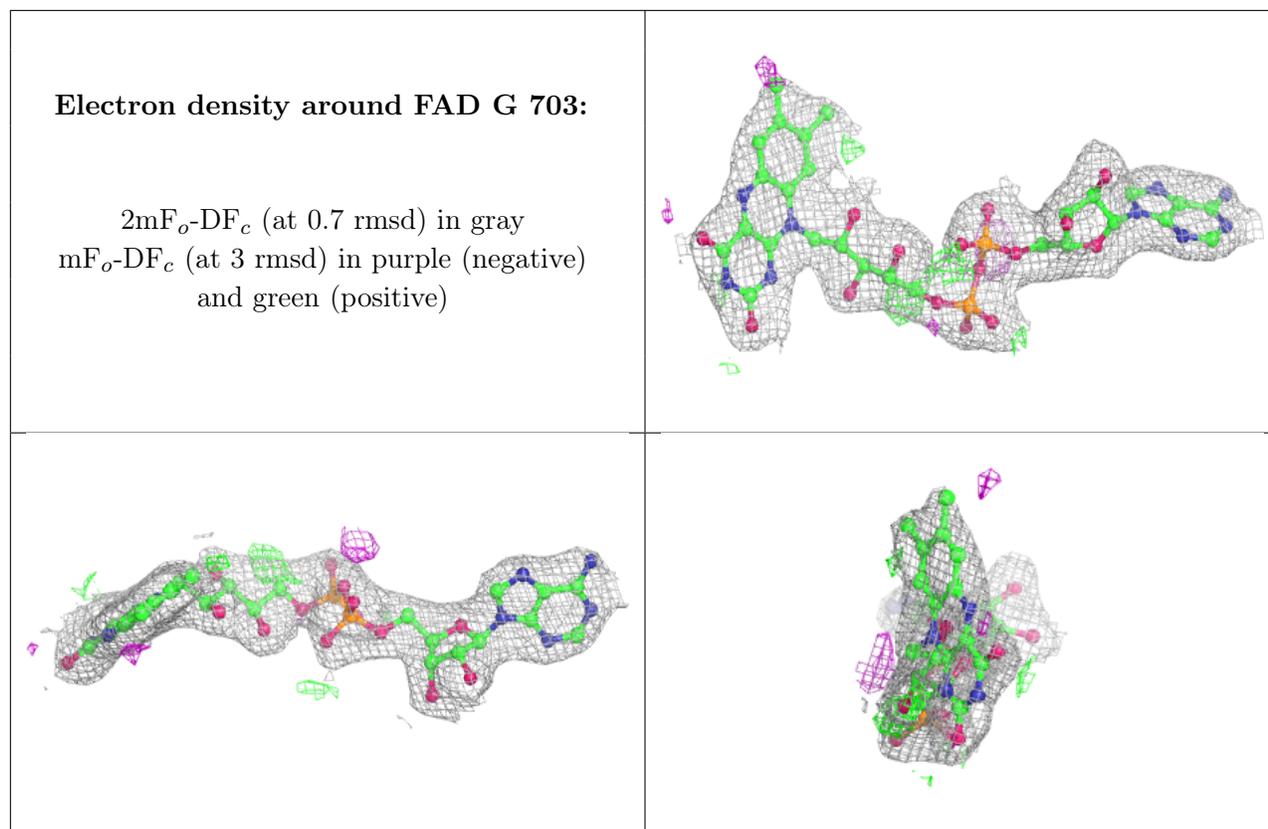
Electron density around 9S8 H 301:

$2mF_o$-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 702:

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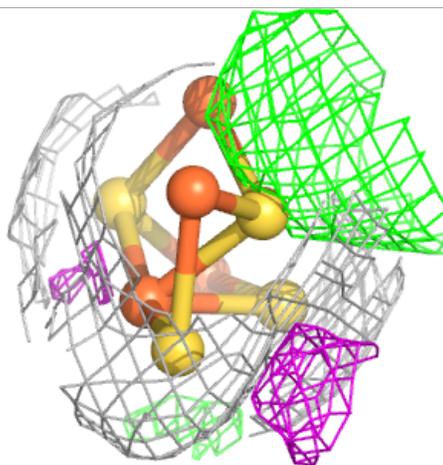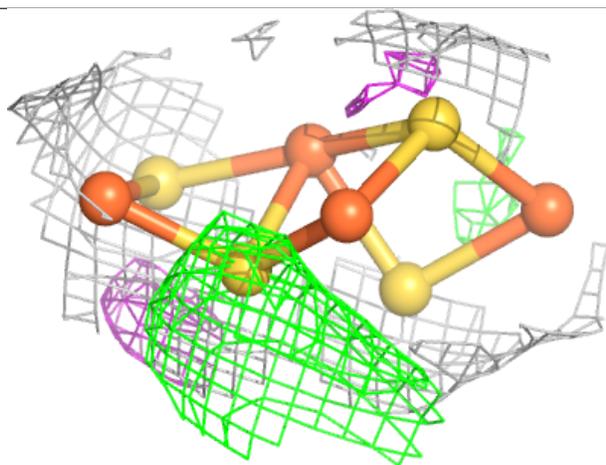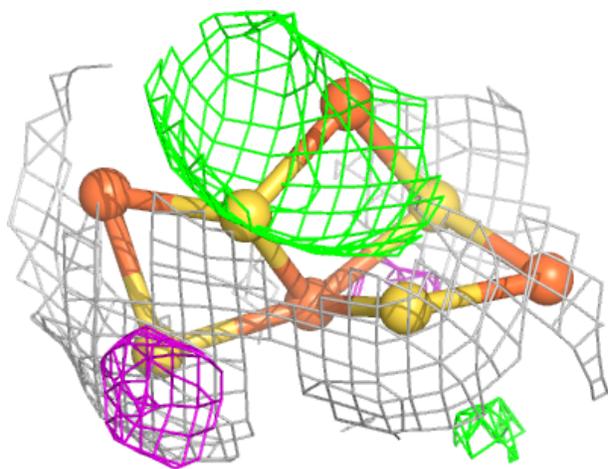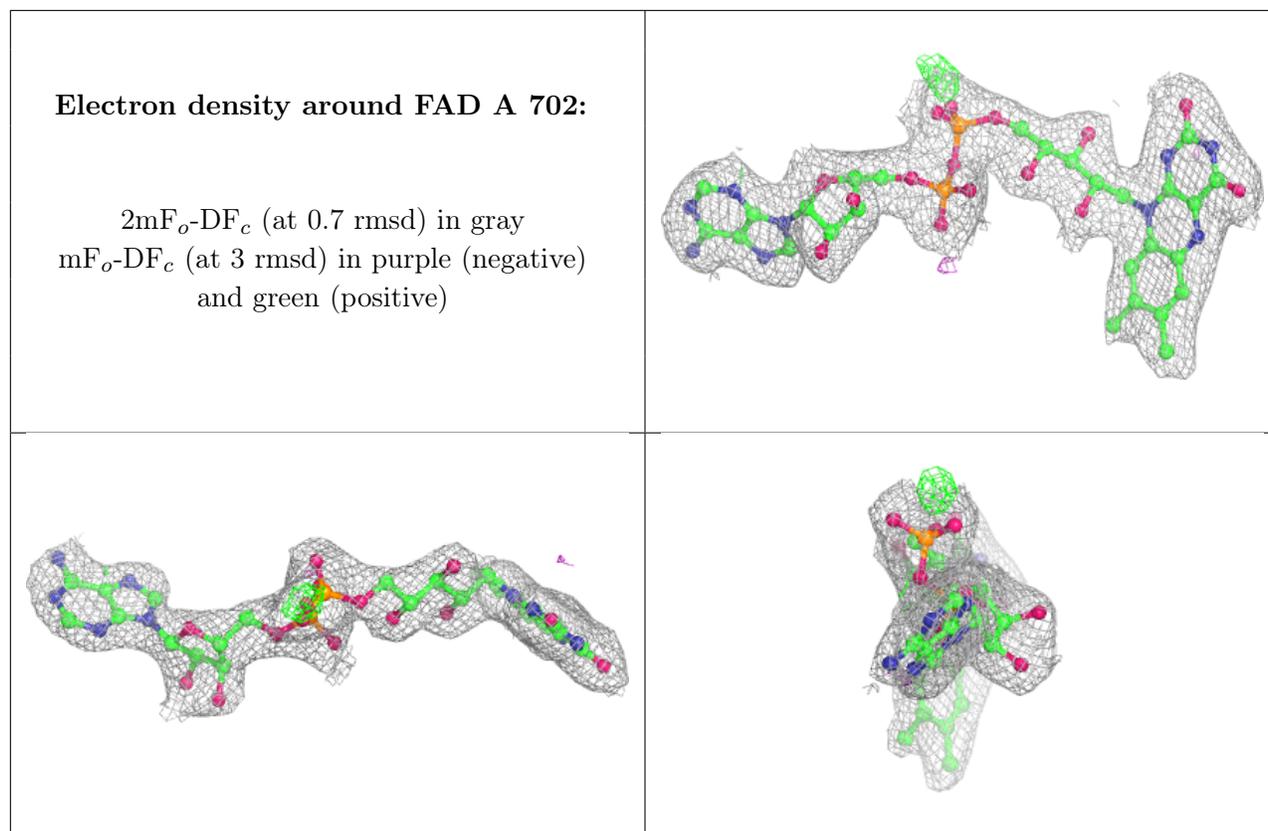
6.5 Other polymers (i)

There are no such residues in this entry.