Full wwPDB X-ray Structure Validation Report (i)

Jun 8, 2026 – 12:11 PM JST

PDB ID	:	9VDB / pdb_00009vdb
Title	:	Crystal Structure of Dioxin Dioxygenase from Rhizorhabdus wittichii RW1
Authors	:	Kayastha, A.; Kumar, P.
Deposited on	:	2025-06-07
Resolution	:	2.70 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

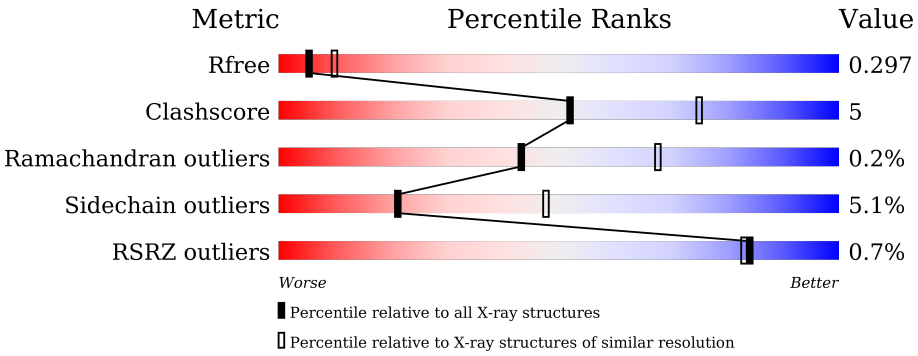
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.70 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	3538 (2.70-2.70)
Clashscore	190562	3843 (2.70-2.70)
Ramachandran outliers	187476	3778 (2.70-2.70)
Sidechain outliers	187428	3778 (2.70-2.70)
RSRZ outliers	180081	3538 (2.70-2.70)

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	435	83% 14%
2	B	179	2% 75% 18%

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 4921 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.

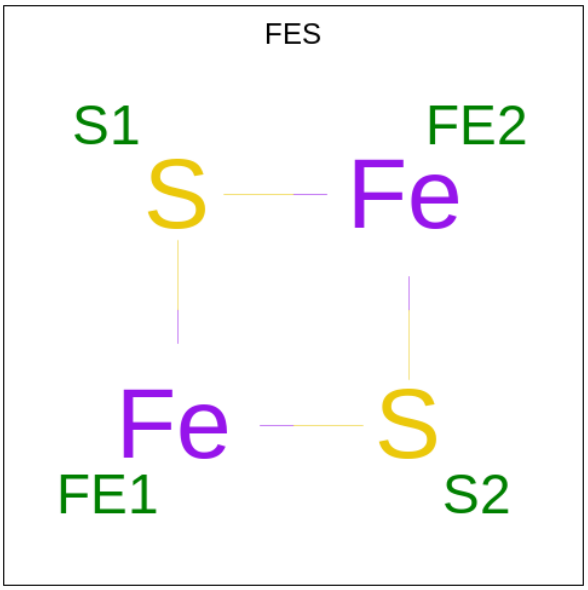
- Molecule 1 is a protein called Ring hydroxylating dioxygenase, alpha subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	427	Total	C	N	O	S	0	0	0
			3353	2113	600	623	17			

- Molecule 2 is a protein called Aromatic-ring-hydroxylating dioxygenase, beta subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	171	Total	C	N	O	S	0	0	0
			1422	907	256	257	2			

- Molecule 3 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2) (labeled as "Ligand of Interest" by depositor).



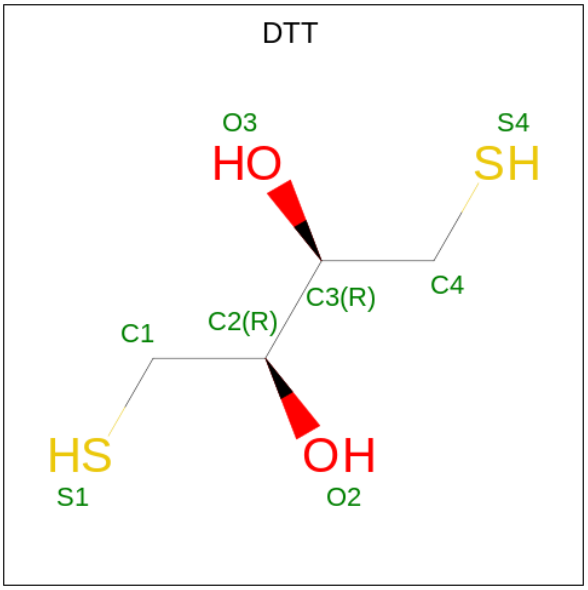
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	Fe	S	0	0
			4	2	2		

- Molecule 4 is FE (II) ION (CCD ID: FE2) (formula: Fe) (labeled as "Ligand of Interest" by

depositor).

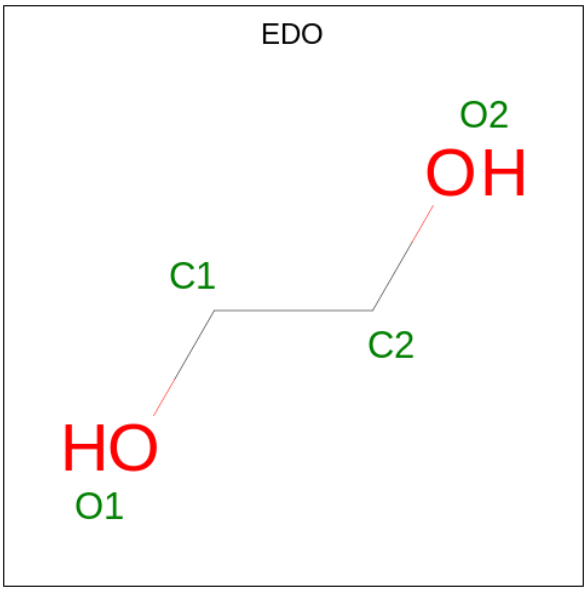
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Fe 1 1	0	0

- Molecule 5 is 2,3-DIHYDROXY-1,4-DITHIOBUTANE (CCD ID: DTT) (formula: $C_4H_{10}O_2S_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O S 8 4 2 2	0	0

- Molecule 6 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).

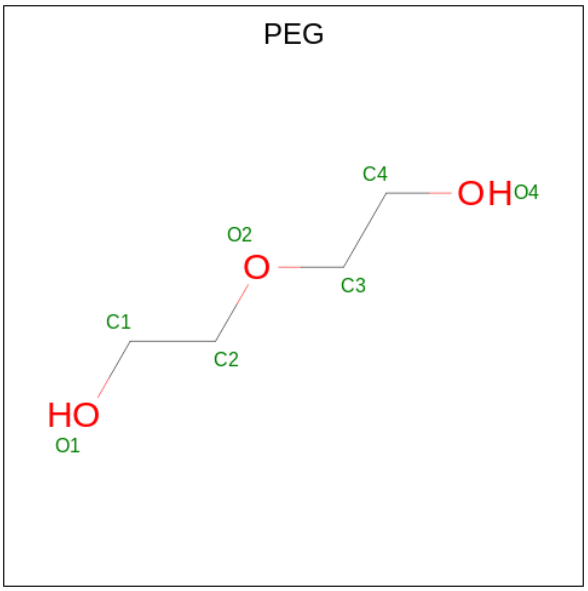


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0

- Molecule 7 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Na 1 1	0	0

- Molecule 8 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	B	1	Total C O 7 4 3	0	0

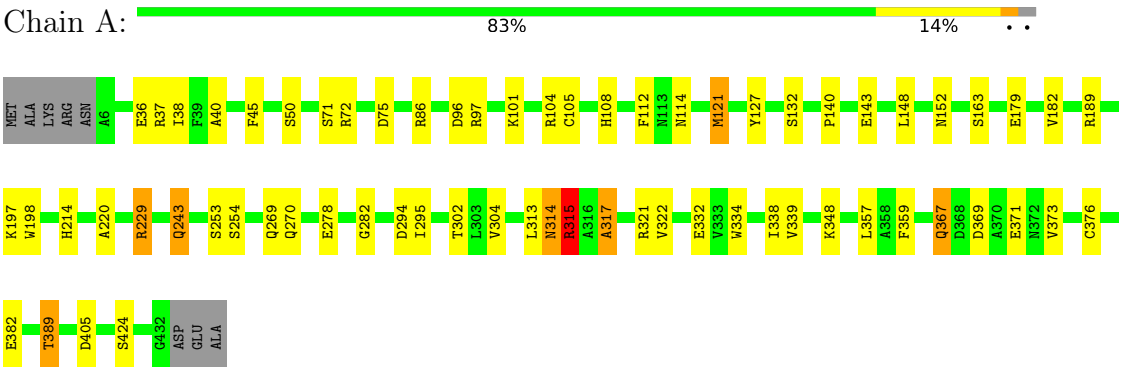
- Molecule 9 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	58	Total O 58 58	0	0
9	B	27	Total O 27 27	0	0

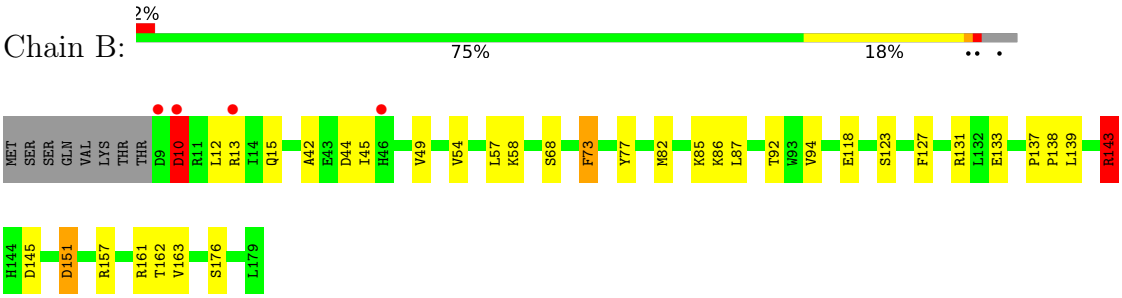
3 Residue-property plots (i)

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

• Molecule 1: Ring hydroxylating dioxygenase, alpha subunit



• Molecule 2: Aromatic-ring-hydroxylating dioxygenase, beta subunit



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 2 3	Depositor
Cell constants a, b, c, α, β, γ	137.57Å 137.57Å 137.57Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	23.96 – 2.70 23.96 – 2.70	Depositor EDS
% Data completeness (in resolution range)	98.6 (23.96-2.70) 98.6 (23.96-2.70)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.29 (at 2.71Å)	Xtriage
Refinement program	REFMAC 5.8.0403	Depositor
R, R_{free}	0.232 , 0.297 0.232 , 0.297	Depositor DCC
R_{free} test set	1152 reflections (4.79%)	wwPDB-VP
Wilson B-factor (Å^2)	39.1	Xtriage
Anisotropy	0.000	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 27.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.57$, $< L^2 > = 0.43$	Xtriage
Estimated twinning fraction	0.000 for l,-k,h	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	4921	wwPDB-VP
Average B, all atoms (Å^2)	46.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.41% of the height of the origin peak. No significant pseudotranslation is detected.*

[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: EDO, FES, NA, PEG, FE2, DTT

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	0.60	0/3451	1.28	11/4686 (0.2%)
2	B	0.57	0/1457	1.29	5/1972 (0.3%)
All	All	0.59	0/4908	1.28	16/6658 (0.2%)

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	4
2	B	0	1
All	All	0	5

There are no bond length outliers.

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	389	THR	CB-CA-C	7.30	122.13	109.65
1	A	367	GLN	CB-CA-C	-6.63	99.73	110.74
1	A	317	ALA	CA-C-N	-6.42	113.14	122.06
1	A	317	ALA	C-N-CA	-6.42	113.14	122.06
2	B	143	ARG	CG-CD-NE	-6.37	98.00	112.00
1	A	75	ASP	CA-CB-CG	6.28	118.88	112.60
2	B	157	ARG	CG-CD-NE	-6.03	98.73	112.00
1	A	229	ARG	CB-CA-C	5.99	119.62	109.50
2	B	73	PHE	CA-CB-CG	5.93	119.73	113.80
1	A	314	ASN	CB-CA-C	5.69	119.61	110.16
1	A	243	GLN	CB-CA-C	5.67	120.66	109.66
1	A	38	ILE	CB-CA-C	5.53	115.97	111.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	10	ASP	CB-CA-C	5.34	118.95	109.65
1	A	97	ARG	CB-CG-CD	-5.32	99.06	111.30
1	A	382	GLU	CB-CA-C	5.26	119.06	110.96
2	B	118	GLU	CB-CG-CD	5.19	121.43	112.60

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	104	ARG	Sidechain
1	A	315	ARG	Sidechain
1	A	37	ARG	Sidechain
1	A	72	ARG	Sidechain
2	B	13	ARG	Sidechain

5.2 Too-close contacts (i)

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	3353	0	3147	33	0
2	B	1422	0	1403	17	0
3	A	4	0	0	1	0
4	A	1	0	0	0	0
5	A	8	0	10	1	0
6	A	20	0	30	1	0
6	B	20	0	30	0	0
7	A	1	0	0	0	0
8	B	7	0	10	1	0
9	A	58	0	0	3	0
9	B	27	0	0	0	0
All	All	4921	0	4630	48	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 5.

All (48) 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)
2:B:86:LYS:NZ	2:B:92:THR:HG23	1.98	0.79
2:B:86:LYS:HZ2	2:B:92:THR:HG23	1.50	0.77
1:A:282:GLY:HA2	5:A:503:DTT:H11	1.72	0.72
1:A:371:GLU:HB2	2:B:94:VAL:HG23	1.73	0.69
1:A:367:GLN:NE2	9:A:601:HOH:O	2.30	0.63
1:A:295:ILE:HD13	1:A:405:ASP:HB3	1.82	0.61
2:B:10:ASP:OD1	2:B:10:ASP:N	2.33	0.59
1:A:45:PHE:HE1	1:A:148:LEU:HD22	1.68	0.58
2:B:145:ASP:OD1	2:B:161:ARG:HG3	2.04	0.57
1:A:143:GLU:HB3	6:A:507:EDO:H11	1.86	0.57
1:A:322:VAL:HB	1:A:334:TRP:HB2	1.85	0.57
2:B:143:ARG:HB3	2:B:163:VAL:HG22	1.87	0.56
1:A:220:ALA:O	2:B:82:MET:HG2	2.06	0.56
2:B:85:LYS:HG3	8:B:201:PEG:H41	1.89	0.54
1:A:357:LEU:O	1:A:357:LEU:HG	2.07	0.54
1:A:317:ALA:HB2	1:A:359:PHE:CZ	2.44	0.52
2:B:151:ASP:OD1	2:B:151:ASP:N	2.36	0.52
1:A:108:HIS:HB2	3:A:501:FES:S2	2.50	0.50
2:B:49:VAL:HG22	2:B:163:VAL:HB	1.93	0.50
1:A:45:PHE:CE1	1:A:148:LEU:HD22	2.47	0.49
1:A:314:ASN:O	1:A:317:ALA:O	2.31	0.48
2:B:87:LEU:HD21	2:B:176:SER:O	2.14	0.48
1:A:339:VAL:HG21	1:A:348:LYS:HG2	1.95	0.47
2:B:49:VAL:HB	2:B:73:PHE:HB2	1.96	0.47
2:B:127:PHE:HB3	2:B:139:LEU:HB2	1.97	0.47
1:A:197:LYS:O	1:A:198:TRP:C	2.59	0.46
2:B:45:ILE:HG22	2:B:77:TYR:HB2	1.98	0.46
1:A:121:MET:HE2	1:A:127:TYR:CG	2.50	0.46
1:A:243:GLN:HB2	1:A:253:SER:O	2.16	0.45
1:A:189:ARG:HD2	1:A:332:GLU:OE1	2.16	0.45
1:A:313:LEU:HD12	1:A:313:LEU:N	2.32	0.44
1:A:269:GLN:O	1:A:270:GLN:HB2	2.18	0.44
1:A:254:SER:HB3	1:A:304:VAL:HB	2.01	0.43
1:A:214:HIS:CE1	1:A:369:ASP:OD1	2.72	0.42
2:B:42:ALA:HB1	2:B:44:ASP:OD1	2.20	0.42
1:A:132:SER:HA	9:A:610:HOH:O	2.19	0.42
2:B:57:LEU:O	2:B:58:LYS:C	2.62	0.42
1:A:321:ARG:HA	1:A:334:TRP:O	2.20	0.41
1:A:96:ASP:OD1	1:A:189:ARG:NH2	2.54	0.41
1:A:140:PRO:HD2	1:A:152:ASN:O	2.21	0.41
1:A:112:PHE:CD1	1:A:112:PHE:N	2.89	0.41
1:A:114:ASN:OD1	1:A:114:ASN:N	2.46	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:198:TRP:CH2	1:A:376:CYS:HB3	2.56	0.41
1:A:182:VAL:HG21	1:A:338:ILE:HD11	2.03	0.41
2:B:137:PRO:HA	2:B:138:PRO:HD2	1.84	0.40
1:A:229:ARG:HE	1:A:229:ARG:HB2	1.81	0.40
1:A:315:ARG:HD2	9:A:606:HOH:O	2.20	0.40
1:A:36:GLU:O	1:A:40:ALA:HB3	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	425/435 (98%)	399 (94%)	25 (6%)	1 (0%)	43 68
2	B	169/179 (94%)	160 (95%)	9 (5%)	0	100 100
All	All	594/614 (97%)	559 (94%)	34 (6%)	1 (0%)	43 68

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	50	SER

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	343/350 (98%)	329 (96%)	14 (4%)	27 56
2	B	149/157 (95%)	138 (93%)	11 (7%)	13 32
All	All	492/507 (97%)	467 (95%)	25 (5%)	21 48

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

Mol	Chain	Res	Type
1	A	71	SER
1	A	86	ARG
1	A	101	LYS
1	A	105	CYS
1	A	121	MET
1	A	163	SER
1	A	179	GLU
1	A	278	GLU
1	A	294	ASP
1	A	302	THR
1	A	315	ARG
1	A	373	VAL
1	A	389	THR
1	A	424	SER
2	B	10	ASP
2	B	12	LEU
2	B	15	GLN
2	B	54	VAL
2	B	68	SER
2	B	123	SER
2	B	131	ARG
2	B	133	GLU
2	B	143	ARG
2	B	151	ASP
2	B	162	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	108	HIS
1	A	318	HIS
1	A	342	ASN
1	A	425	HIS

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 15 ligands modelled in this entry, 2 are monoatomic - leaving 13 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	$\#\|Z\| > 2$
6	EDO	B	203	-	3,3,3	0.27	0	2,2,2	0.74	0
6	EDO	A	504	-	3,3,3	0.09	0	2,2,2	0.31	0
8	PEG	B	201	-	6,6,6	0.19	0	5,5,5	0.17	0
5	DTT	A	503	-	7,7,7	0.63	0	4,8,8	1.28	0
6	EDO	B	202	-	3,3,3	0.26	0	2,2,2	0.47	0
6	EDO	B	205	-	3,3,3	0.21	0	2,2,2	0.48	0
6	EDO	A	505	-	3,3,3	0.29	0	2,2,2	0.52	0
6	EDO	B	204	-	3,3,3	0.44	0	2,2,2	0.83	0
6	EDO	B	206	-	3,3,3	0.08	0	2,2,2	0.12	0
6	EDO	A	507	-	3,3,3	0.18	0	2,2,2	0.55	0
6	EDO	A	506	-	3,3,3	0.11	0	2,2,2	0.05	0
6	EDO	A	508	-	3,3,3	0.17	0	2,2,2	0.14	0
3	FES	A	501	1	0,4,4	-	-	-		

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
6	EDO	B	203	-	-	1/1/1/1	-
6	EDO	A	504	-	-	0/1/1/1	-
8	PEG	B	201	-	-	3/4/4/4	-
5	DTT	A	503	-	-	4/8/8/8	-
6	EDO	B	202	-	-	1/1/1/1	-
6	EDO	B	205	-	-	1/1/1/1	-
6	EDO	A	505	-	-	1/1/1/1	-
6	EDO	B	204	-	-	0/1/1/1	-
6	EDO	B	206	-	-	1/1/1/1	-
6	EDO	A	507	-	-	1/1/1/1	-
6	EDO	A	506	-	-	0/1/1/1	-
6	EDO	A	508	-	-	1/1/1/1	-
3	FES	A	501	1	-	-	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	503	DTT	C1-C2-C3-O3
5	A	503	DTT	C1-C2-C3-C4
5	A	503	DTT	O2-C2-C3-O3
5	A	503	DTT	O2-C2-C3-C4
8	B	201	PEG	O1-C1-C2-O2
8	B	201	PEG	O2-C3-C4-O4
6	A	505	EDO	O1-C1-C2-O2
6	B	203	EDO	O1-C1-C2-O2
6	B	205	EDO	O1-C1-C2-O2
6	B	202	EDO	O1-C1-C2-O2
6	A	508	EDO	O1-C1-C2-O2
6	B	206	EDO	O1-C1-C2-O2
8	B	201	PEG	C4-C3-O2-C2
6	A	507	EDO	O1-C1-C2-O2

There are no ring outliers.

4 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	B	201	PEG	1	0
5	A	503	DTT	1	0

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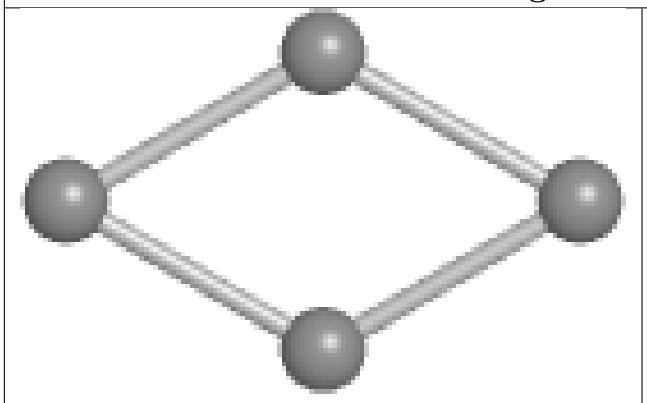
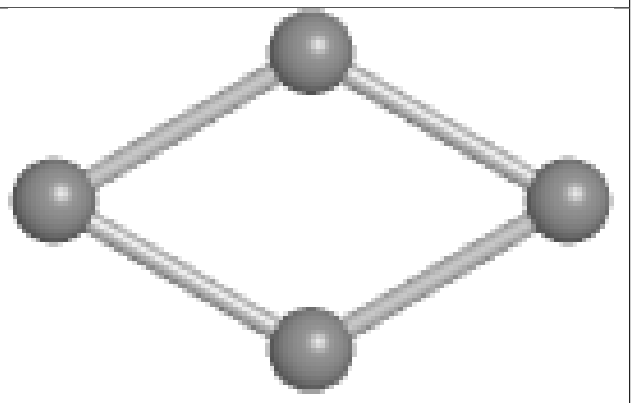
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	507	EDO	1	0
3	A	501	FES	1	0

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.

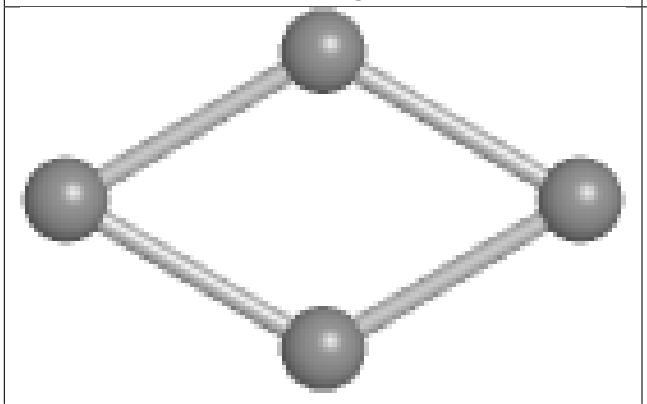
Ligand FES A 501



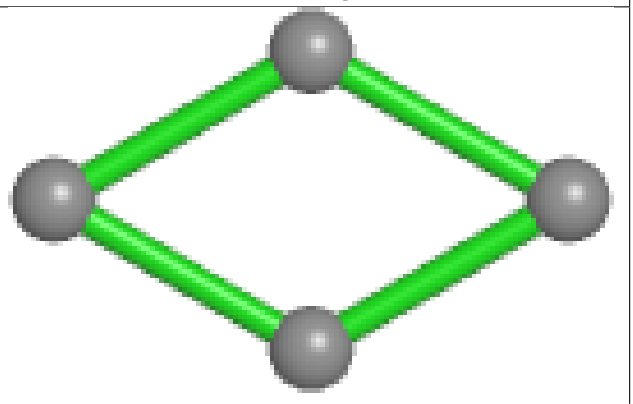
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	427/435 (98%)	-0.01	0	100	100	35, 45, 57, 77	0
2	B	171/179 (95%)	0.04	4 (2%)	61	58	35, 43, 65, 92	0
All	All	598/614 (97%)	0.00	4 (0%)	84	83	35, 45, 60, 92	0

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	46	HIS	2.5
2	B	13	ARG	2.2
2	B	9	ASP	2.1
2	B	10	ASP	2.1

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 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, 95^{th} 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
6	EDO	B	206	4/4	0.43	0.26	89,95,99,105	0

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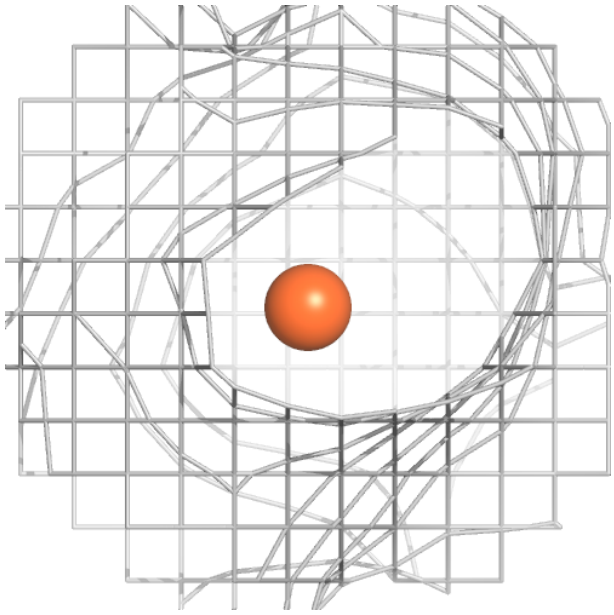
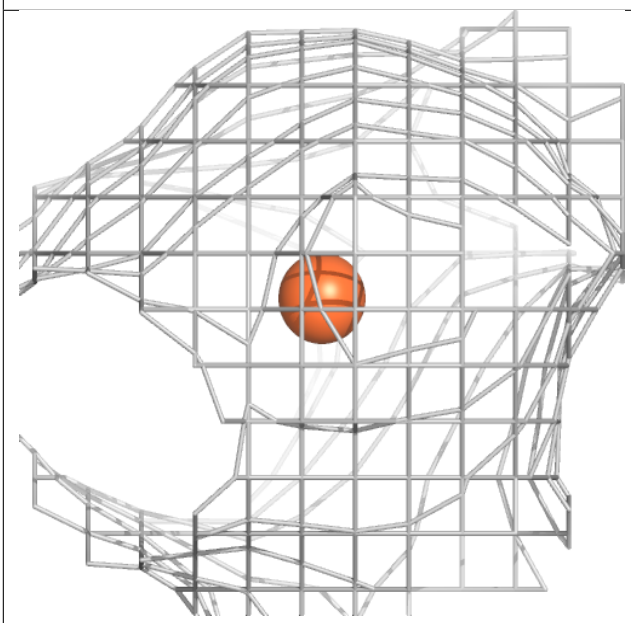
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	DTT	A	503	8/8	0.68	0.19	67,76,86,94	0
6	EDO	B	202	4/4	0.69	0.23	74,77,82,83	0
6	EDO	B	204	4/4	0.76	0.23	62,63,69,72	0
6	EDO	A	508	4/4	0.80	0.20	63,71,74,75	0
6	EDO	B	205	4/4	0.81	0.21	78,79,84,84	0
6	EDO	A	507	4/4	0.82	0.17	63,65,71,75	0
7	NA	A	509	1/1	0.83	0.19	47,47,47,47	0
6	EDO	B	203	4/4	0.84	0.18	53,57,58,59	0
8	PEG	B	201	7/7	0.84	0.16	67,71,75,80	0
6	EDO	A	505	4/4	0.86	0.18	69,74,75,76	0
6	EDO	A	504	4/4	0.91	0.12	65,67,67,68	0
6	EDO	A	506	4/4	0.96	0.09	48,49,49,50	0
4	FE2	A	502	1/1	0.98	0.04	54,54,54,54	0
3	FES	A	501	4/4	0.99	0.04	41,42,42,44	0

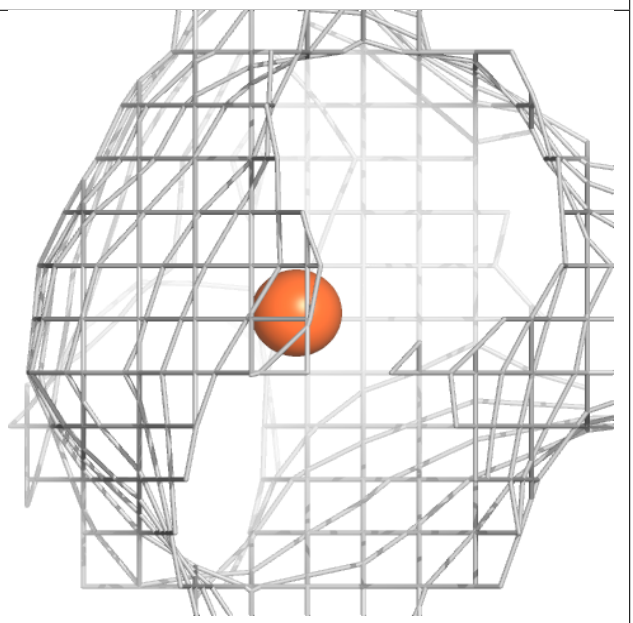
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around FE2 A 502:

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

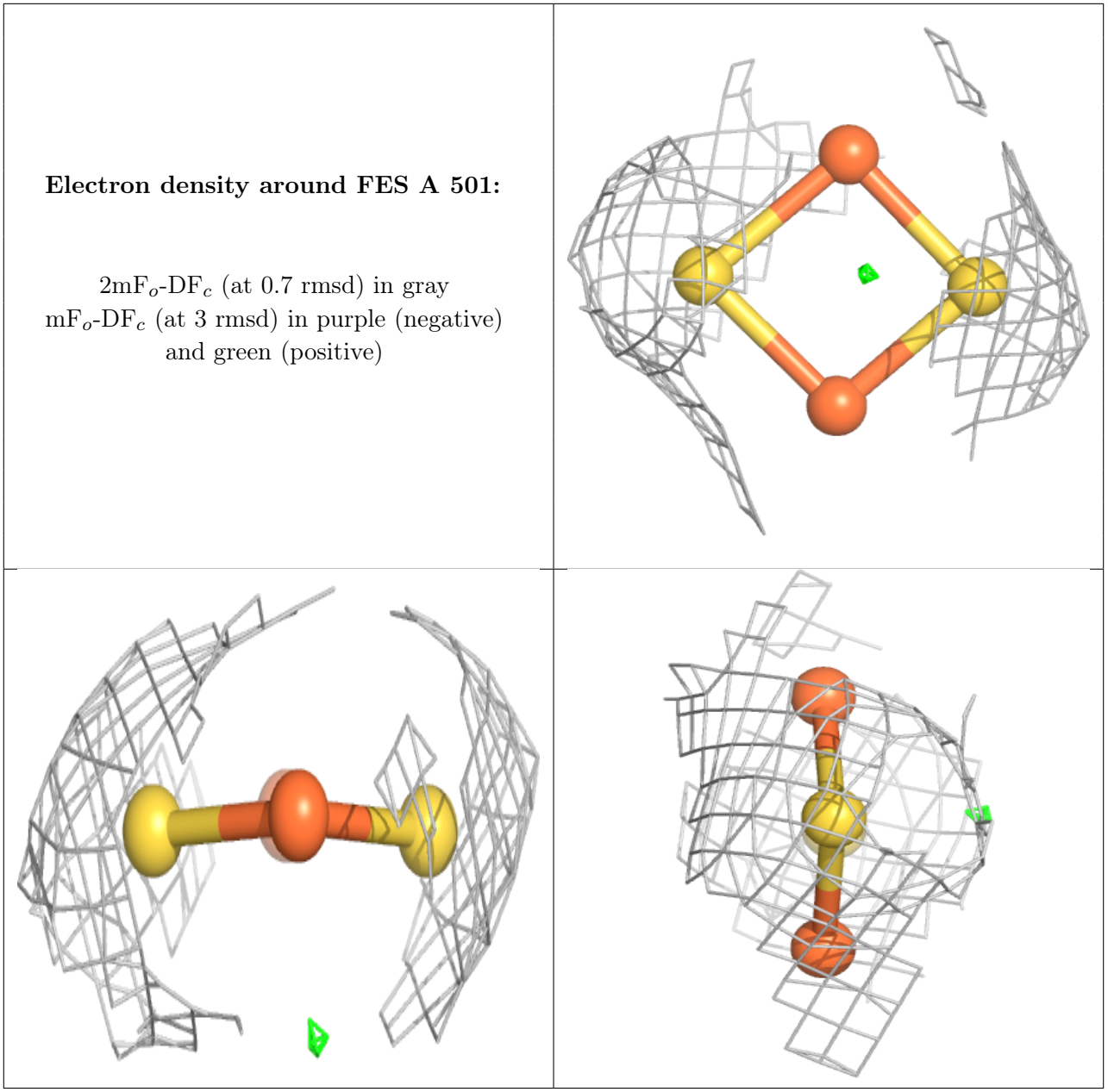






Electron density around FES A 501:

$2mF_o$-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

There are no such residues in this entry.