Full wwPDB X-ray Structure Validation Report ⓘ

Oct 9, 2023 – 01:04 PM EDT

PDB ID	:	7TS9
Title	:	Structure of rat neuronal nitric oxide synthase R349A heme domain in complex with 6-(3-(dimethylamino)propyl)-4-methylpyridin-2-amine
Authors	:	Li, H.; Poulos, T.L.
Deposited on	:	2022-01-31
Resolution	:	1.85 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 1.85 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		0.276
Clashscore		7
Ramachandran outliers		0.5%
Sidechain outliers		5.7%
RSRZ outliers		20.9%

Worse   *Better*

▊ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
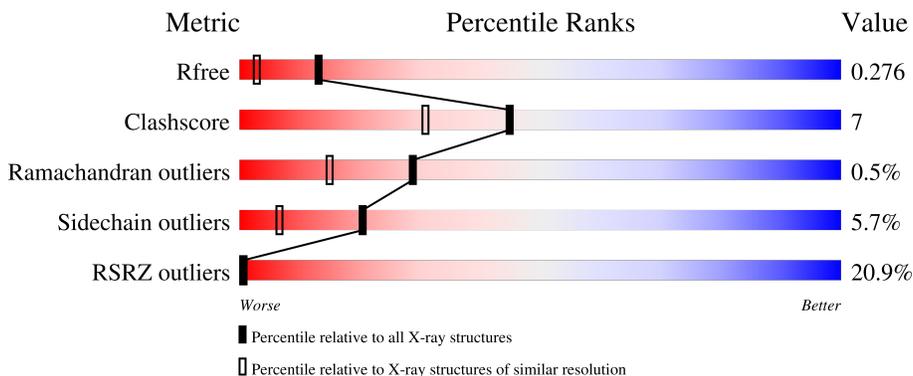
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	2469 (1.86-1.86)
Clashscore	141614	2625 (1.86-1.86)
Ramachandran outliers	138981	2592 (1.86-1.86)
Sidechain outliers	138945	2592 (1.86-1.86)
RSRZ outliers	127900	2436 (1.86-1.86)

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	422	20% / 77% / 20% / ··

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 3569 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 Nitric oxide synthase, brain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	412	Total 3355	C 2148	N 572	O 613	S 22	0	2	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	349	ALA	ARG	engineered mutation	UNP P29476
A	718	LEU	-	expression tag	UNP P29476

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).
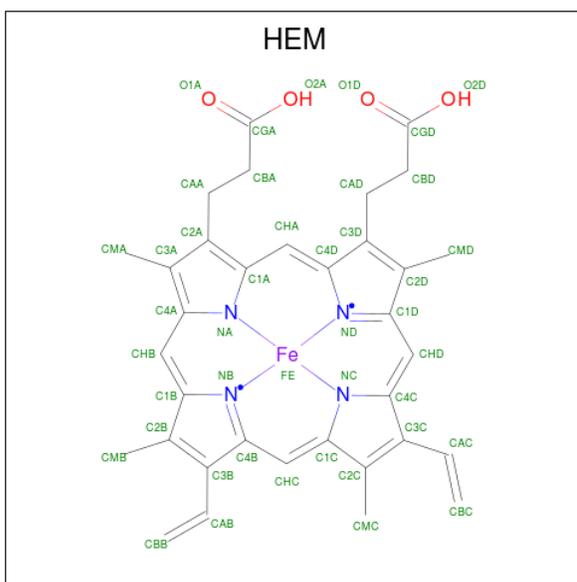
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 3 is 5,6,7,8-TETRAHYDROBIOPTERIN (three-letter code: H4B) (formula:

$C_9H_{15}N_5O_3$).
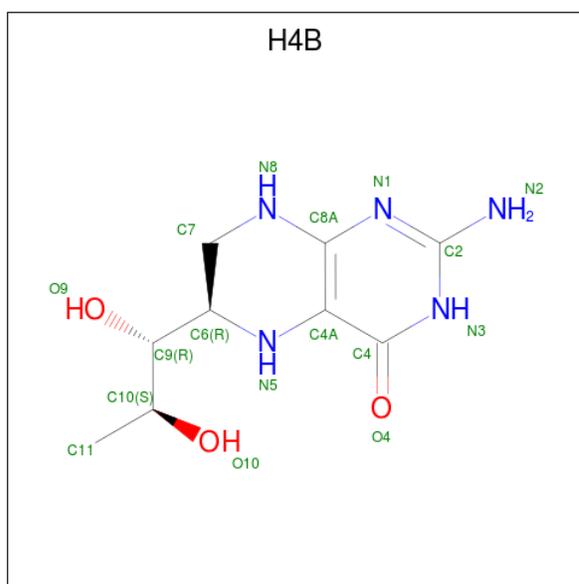
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 17	C 9	N 5	O 3	0	0

- Molecule 4 is 6-[3-(dimethylamino)propyl]-4-methylpyridin-2-amine (three-letter code: KL0) (formula: $C_{11}H_{19}N_3$) (labeled as "Ligand of Interest" by depositor).
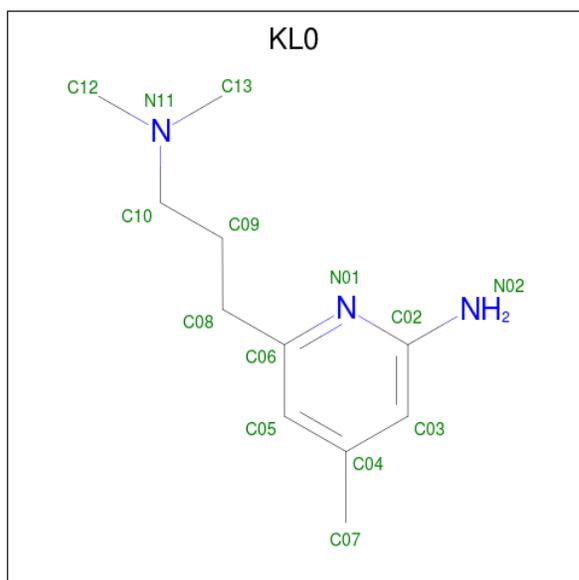
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 14	C 11	N 3	0	0

• Molecule 5 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).
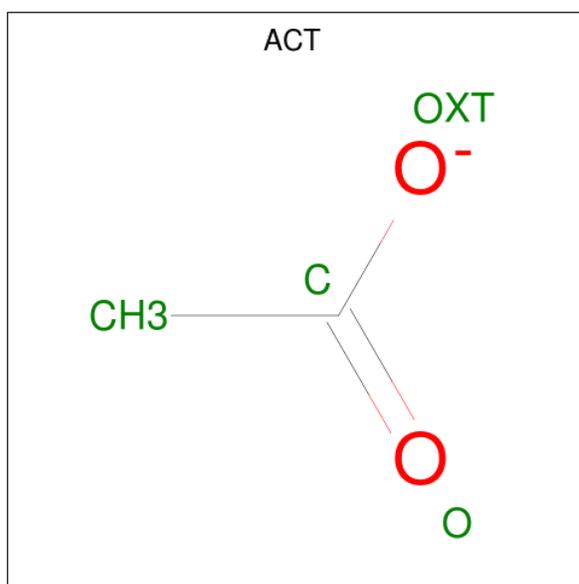
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total 4	C 2	O 2	0	0

• Molecule 6 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total 1	Zn 1	0	0

• Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	135	Total 135	O 135	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: Nitric oxide synthase, brain
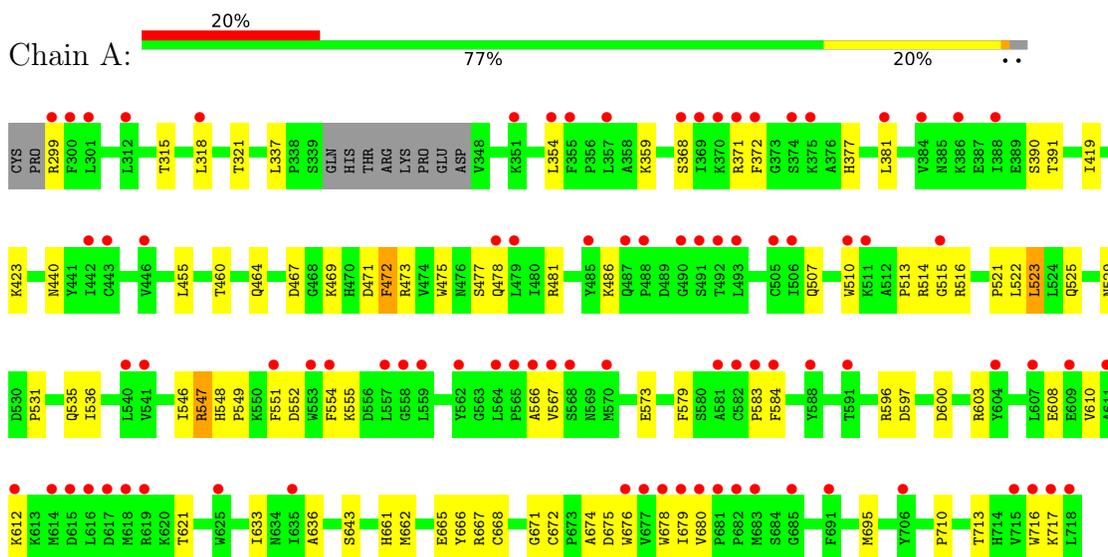
4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	49.04Å 114.50Å 164.37Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	33.39 – 1.85 39.58 – 1.85	Depositor EDS
% Data completeness (in resolution range)	92.5 (33.39-1.85) 94.8 (39.58-1.85)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.22 (at 1.85Å)	Xtriage
Refinement program	PHENIX 1.11.1_2575	Depositor
R, R_{free}	0.230 , 0.278 0.234 , 0.276	Depositor DCC
R_{free} test set	1900 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	31.4	Xtriage
Anisotropy	1.530	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 72.2	EDS
L-test for twinning[2]	$< |L| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	3569	wwPDB-VP
Average B, all atoms (Å^2)	84.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.13% 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: KL0, H4B, ZN, ACT, HEM

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	0.36	0/3454	0.51	0/4684

There are no bond length outliers.

There are no bond angle outliers.

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	3355	0	3274	43	0
2	A	43	0	30	2	0
3	A	17	0	15	0	0
4	A	14	0	0	0	0
5	A	4	0	3	1	0
6	A	1	0	0	0	0
7	A	135	0	0	3	0
All	All	3569	0	3322	44	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 7.

All (44) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:716:TRP:HD1	1:A:717:LYS:H	1.43	0.64
1:A:372:PHE:O	1:A:377:HIS:ND1	2.27	0.63
1:A:522:LEU:HG	1:A:536:ILE:HD11	1.81	0.61
1:A:674:ALA:HB3	1:A:695:MET:HB3	1.82	0.60
1:A:667:ARG:NH1	1:A:668[A]:CYS:SG	2.76	0.58
1:A:610:VAL:HG21	1:A:633:ILE:HD11	1.86	0.56
1:A:510:TRP:CD1	1:A:521:PRO:HG3	2.43	0.53
1:A:536:ILE:H	1:A:536:ILE:HD12	1.75	0.50
2:A:801:HEM:HBB2	2:A:801:HEM:HHC	1.94	0.49
1:A:523:LEU:HD22	1:A:531:PRO:HB2	1.95	0.48
1:A:464:GLN:HB3	1:A:579:PHE:CE2	2.49	0.48
1:A:475:TRP:HB2	1:A:523:LEU:HB3	1.96	0.47
1:A:440:ASN:ND2	7:A:903:HOH:O	2.37	0.47
1:A:471:ASP:O	1:A:472:PHE:HB2	2.14	0.47
1:A:460:THR:O	1:A:583:PRO:HD2	2.15	0.47
1:A:467:ASP:OD2	1:A:469:LYS:HG2	2.14	0.47
1:A:525:GLN:HG3	1:A:529:ASN:O	2.14	0.47
1:A:478:GLN:HB2	1:A:481:ARG:HG3	1.97	0.46
1:A:548:HIS:CG	1:A:549:PRO:HD2	2.51	0.46
1:A:597:ASP:OD1	1:A:603:ARG:NH2	2.47	0.45
1:A:548:HIS:CD2	1:A:636:ALA:HB2	2.51	0.45
1:A:419:ILE:HG22	5:A:804:ACT:H1	1.99	0.45
1:A:678:TRP:CZ3	2:A:801:HEM:HBA2	2.52	0.44
1:A:419:ILE:HG13	1:A:661:HIS:HB2	1.99	0.44
1:A:547:ARG:NH1	1:A:643:SER:HB2	2.33	0.44
1:A:299:ARG:HG3	1:A:318:LEU:HD21	1.99	0.43
1:A:612:LYS:HE2	1:A:612:LYS:HB3	1.63	0.43
1:A:469:LYS:HE2	1:A:469:LYS:HB3	1.91	0.43
1:A:473:ARG:NH2	1:A:710:PRO:HD3	2.33	0.43
1:A:567:VAL:HB	1:A:584:PHE:CE1	2.54	0.42
1:A:475:TRP:CZ2	1:A:531:PRO:HG3	2.55	0.42
1:A:676:TRP:CZ2	1:A:680:VAL:HG21	2.54	0.42
1:A:477:SER:N	7:A:909:HOH:O	2.53	0.42
1:A:486:LYS:HG2	7:A:936:HOH:O	2.20	0.42
1:A:546:ILE:HG22	1:A:554:PHE:HE2	1.85	0.41
1:A:513:PRO:O	1:A:515:GLY:N	2.54	0.41
1:A:666:TYR:CE2	1:A:671:GLY:HA2	2.55	0.41
1:A:675:ASP:O	1:A:679:ILE:HG12	2.21	0.41
1:A:359:LYS:HG3	1:A:381:LEU:HD11	2.03	0.41
1:A:596:ARG:O	1:A:600:ASP:HB2	2.21	0.41
1:A:665:GLU:CB	1:A:672:CYS:HB2	2.51	0.41
1:A:551:PHE:O	1:A:554:PHE:HB2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:608:GLU:O	1:A:612:LYS:HG3	2.21	0.41
1:A:566:ALA:HA	1:A:584:PHE:O	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	410/422 (97%)	383 (93%)	25 (6%)	2 (0%)	29	15

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	514	ARG
1	A	472	PHE

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	369/377 (98%)	348 (94%)	21 (6%)	20	6

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	315	THR
1	A	321	THR
1	A	337	LEU
1	A	354	LEU
1	A	368	SER
1	A	371	ARG
1	A	390	SER
1	A	391	THR
1	A	423	LYS
1	A	455	LEU
1	A	507	GLN
1	A	516	ARG
1	A	523	LEU
1	A	535	GLN
1	A	547	ARG
1	A	552	ASP
1	A	555	LYS
1	A	573	GLU
1	A	621	THR
1	A	662	MET
1	A	713	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3   RNA (i)

There are no RNA molecules in this entry.

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

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

5.5   Carbohydrates (i)

There are no monosaccharides in this entry.

5.6   Ligand geometry (i)

Of 5 ligands modelled in this entry, 1 is monoatomic - leaving 4 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	$\#\|Z\| > 2$
2	HEM	A	801	1	41,50,50	1.61	9 (21%)	45,82,82	1.64	11 (24%)
5	ACT	A	804	-	3,3,3	0.77	0	3,3,3	0.70	0
3	H4B	A	802	-	16,18,18	1.05	1 (6%)	11,26,26	2.61	4 (36%)
4	KL0	A	803	-	14,14,14	0.31	0	18,18,18	1.68	4 (22%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HEM	A	801	1	-	8/12/54/54	-
3	H4B	A	802	-	-	0/8/17/17	0/2/2/2
4	KL0	A	803	-	-	0/6/6/6	0/1/1/1

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	801	HEM	C3C-C2C	-3.45	1.35	1.40
2	A	801	HEM	C3C-CAC	3.19	1.54	1.47
2	A	801	HEM	CAB-C3B	3.08	1.55	1.47
2	A	801	HEM	CAA-C2A	2.75	1.56	1.52
2	A	801	HEM	CMD-C2D	2.54	1.56	1.50
2	A	801	HEM	CMC-C2C	2.38	1.57	1.51
2	A	801	HEM	FE-NB	2.26	2.08	1.96
3	A	802	H4B	C4A-C4	-2.23	1.38	1.41
2	A	801	HEM	C3B-C2B	-2.15	1.32	1.37
2	A	801	HEM	CMA-C3A	2.12	1.56	1.51

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	802	H4B	C8A-C4A-C4	6.34	120.20	114.57

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	801	HEM	C3B-C2B-C1B	3.83	109.33	106.49
2	A	801	HEM	C4B-CHC-C1C	3.81	127.59	122.56
4	A	803	KL0	C02-N01-C06	3.81	120.98	118.10
4	A	803	KL0	C04-C05-C06	-3.16	118.25	120.32
2	A	801	HEM	C4A-C3A-C2A	3.08	109.14	107.00
3	A	802	H4B	C2-N3-C4	2.92	120.57	115.93
4	A	803	KL0	C10-C09-C08	-2.82	105.46	113.20
3	A	802	H4B	N1-C2-N3	-2.73	121.14	125.42
2	A	801	HEM	CAD-CBD-CGD	-2.47	108.29	113.60
2	A	801	HEM	C1B-NB-C4B	2.47	107.62	105.07
2	A	801	HEM	C4D-ND-C1D	2.43	107.58	105.07
2	A	801	HEM	C2B-C1B-NB	-2.36	107.04	109.84
2	A	801	HEM	CHC-C4B-NB	2.34	126.97	124.43
2	A	801	HEM	C2C-C3C-C4C	2.30	108.50	106.90
3	A	802	H4B	C2-N1-C8A	2.23	119.55	114.54
4	A	803	KL0	N02-C02-N01	2.20	119.96	116.49
2	A	801	HEM	CAA-C2A-C3A	-2.15	121.06	127.25
2	A	801	HEM	C3D-C4D-ND	-2.12	107.80	110.17

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	801	HEM	C1A-C2A-CAA-CBA
2	A	801	HEM	C3A-C2A-CAA-CBA
2	A	801	HEM	C2A-CAA-CBA-CGA
2	A	801	HEM	C3D-CAD-CBD-CGD
2	A	801	HEM	C4D-C3D-CAD-CBD
2	A	801	HEM	C2D-C3D-CAD-CBD
2	A	801	HEM	CAD-CBD-CGD-O1D
2	A	801	HEM	CAD-CBD-CGD-O2D

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	801	HEM	2	0
5	A	804	ACT	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 HEM A 801

Bond lengths

Bond angles

Torsions

Rings

Ligand KL0 A 803

Bond lengths

Bond angles

Torsions

Rings
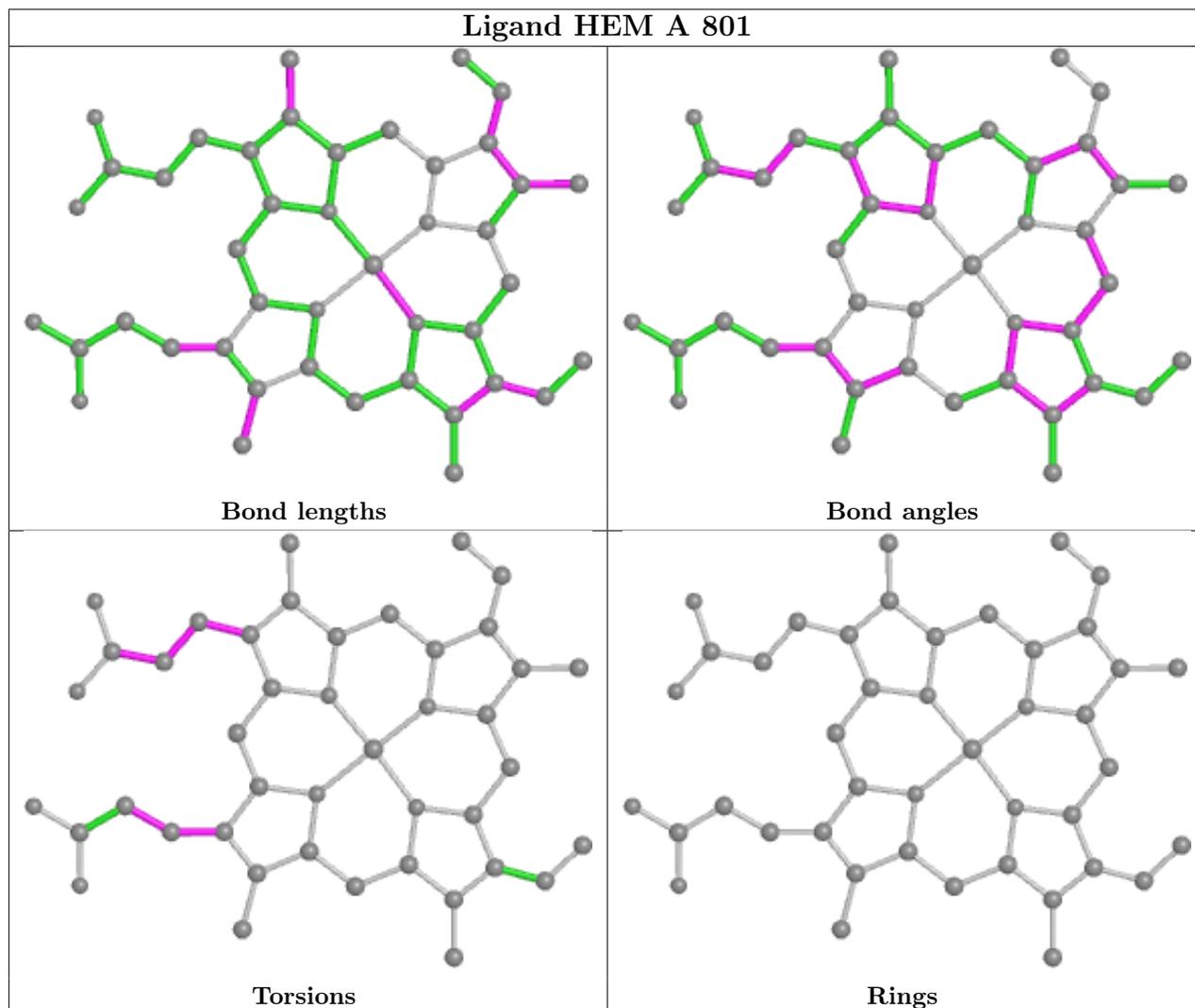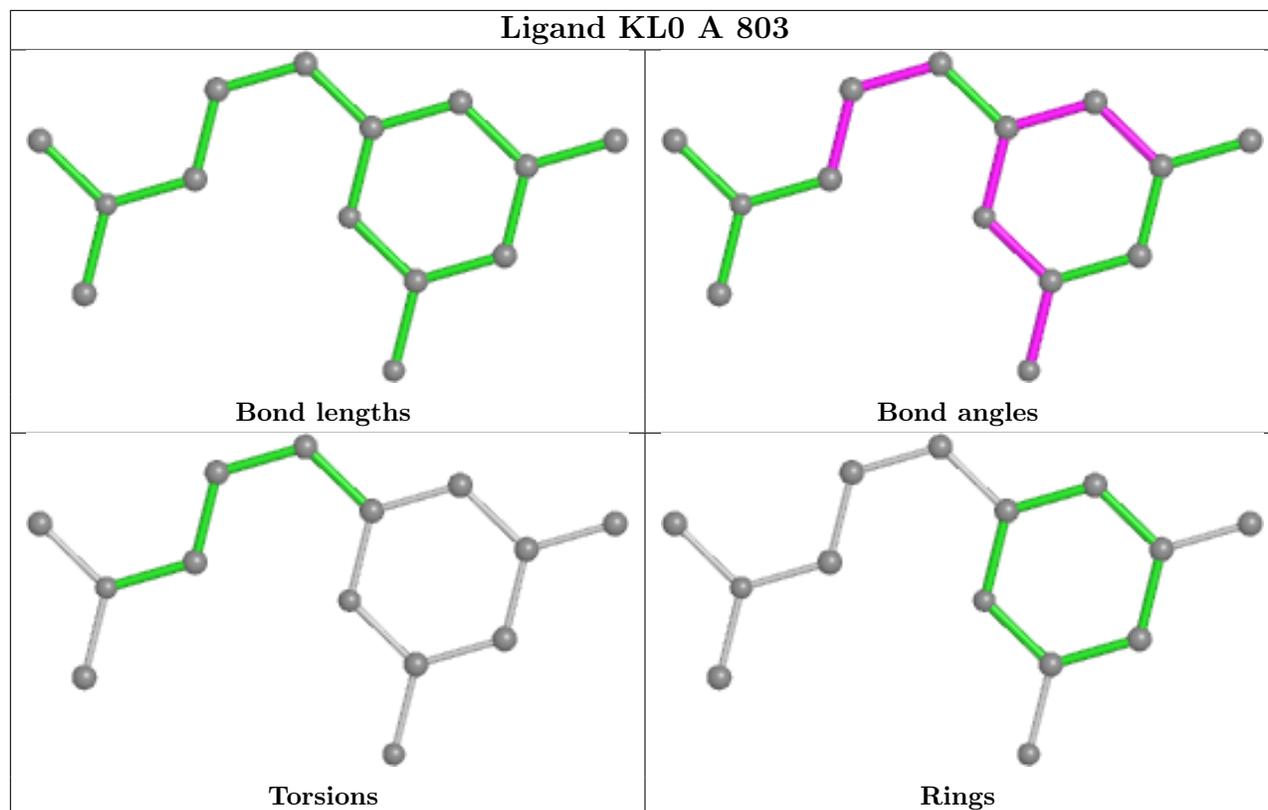
5.7 Other polymers ⓘ

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	412/422 (97%)	1.20	86 (20%)	1	0	40, 79, 144, 177	0

All (86) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	611	ALA	8.2
1	A	551	PHE	7.2
1	A	718	LEU	7.2
1	A	616	LEU	6.8
1	A	369	ILE	6.6
1	A	493	LEU	6.5
1	A	553	TRP	5.4
1	A	355	PHE	5.4
1	A	506	ILE	5.2
1	A	388	ILE	5.1
1	A	351	LYS	5.0
1	A	490	GLY	4.4
1	A	511	LYS	4.4
1	A	299	ARG	4.4
1	A	384	VAL	4.2
1	A	677	VAL	4.1
1	A	492	THR	4.0
1	A	715	VAL	4.0
1	A	717	LYS	4.0
1	A	716	TRP	4.0
1	A	557	LEU	3.9
1	A	479	LEU	3.8
1	A	554	PHE	3.8
1	A	566	ALA	3.6
1	A	374	SER	3.5
1	A	615	ASP	3.5
1	A	588	TYR	3.5

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Mol	Chain	Res	Type	RSRZ
1	A	565	PRO	3.5
1	A	691	PHE	3.5
1	A	491	SER	3.4
1	A	386	LYS	3.3
1	A	487	GLN	3.3
1	A	443	CYS	3.2
1	A	370	LYS	3.2
1	A	706	TYR	3.2
1	A	609	GLU	3.2
1	A	682	PRO	3.1
1	A	318	LEU	3.1
1	A	381	LEU	3.1
1	A	678	TRP	3.0
1	A	618	MET	2.9
1	A	478	GLN	2.9
1	A	488	PRO	2.9
1	A	679	ILE	2.8
1	A	312	LEU	2.8
1	A	604	TYR	2.8
1	A	505	CYS	2.8
1	A	354	LEU	2.8
1	A	607	LEU	2.8
1	A	619	ARG	2.7
1	A	614	MET	2.7
1	A	680	VAL	2.6
1	A	540	LEU	2.6
1	A	300	PHE	2.6
1	A	510	TRP	2.6
1	A	564	LEU	2.5
1	A	676	TRP	2.5
1	A	375	LYS	2.5
1	A	685	GLY	2.4
1	A	567	VAL	2.4
1	A	591	THR	2.4
1	A	515	GLY	2.4
1	A	442	ILE	2.4
1	A	541	VAL	2.4
1	A	485	TYR	2.3
1	A	683	MET	2.3
1	A	562	TYR	2.3
1	A	681	PRO	2.3
1	A	568	SER	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	372	PHE	2.2
1	A	570	MET	2.2
1	A	446	VAL	2.2
1	A	583	PRO	2.1
1	A	635	ILE	2.1
1	A	357	LEU	2.1
1	A	581	ALA	2.1
1	A	368	SER	2.1
1	A	612	LYS	2.1
1	A	371	ARG	2.1
1	A	558	GLY	2.1
1	A	301	LEU	2.0
1	A	584	PHE	2.0
1	A	625	TRP	2.0
1	A	617	ASP	2.0
1	A	559	LEU	2.0
1	A	582	CYS	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
5	ACT	A	804	4/4	0.90	0.29	97,107,110,112	0
4	KL0	A	803	14/14	0.95	0.34	32,57,71,77	0
2	HEM	A	801	43/43	0.96	0.21	33,49,68,72	0
3	H4B	A	802	17/17	0.97	0.22	44,53,61,63	0
6	ZN	A	805	1/1	1.00	0.17	52,52,52,52	1

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 KL0 A 803:

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

Electron density around HEM A 801:

$2mF_o$-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.