



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 10:50 AM GMT

PDB ID : 3N6D  
Title : Structure of endothelial nitric oxide synthase H373S single mutant heme domain complexed with 6,6'-(2,2'-(5-amino-1,3-phenylene)bis(ethane-2,1-diyl))bis(4-methylpyridin-2-amine)  
Authors : Delker, S.L.; Li, H.; Poulos, T.L.  
Deposited on : 2010-05-25  
Resolution : 3.05 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](mailto:validation@mail.wwpdb.org)  
A user guide is available at  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20026688  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

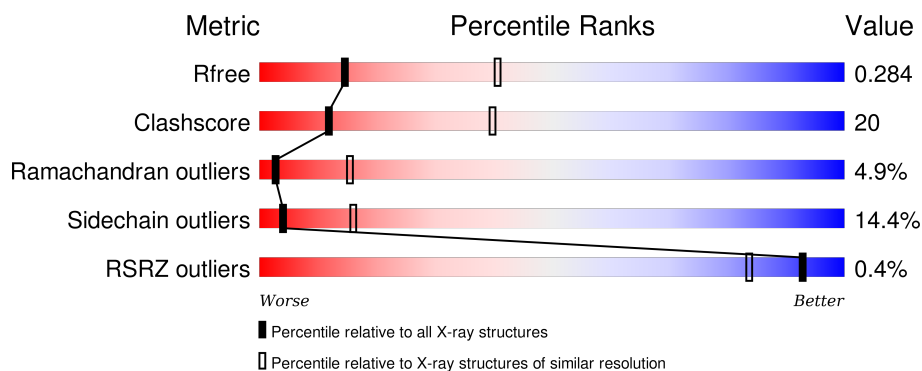
# 1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 3.05 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))
$R_{free}$	91344	1191 (3.10-3.02)
Clashscore	102246	1303 (3.10-3.02)
Ramachandran outliers	100387	1254 (3.10-3.02)
Sidechain outliers	100360	1254 (3.10-3.02)
RSRZ outliers	91569	1197 (3.10-3.02)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	444	
1	B	444	

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
3	H4B	A	600	-	-	-	X
3	H4B	B	600	-	-	-	X
4	CAD	B	950	-	-	-	X
5	XFN	A	800	-	-	-	X
5	XFN	B	800	-	-	-	X

## 2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 6612 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.

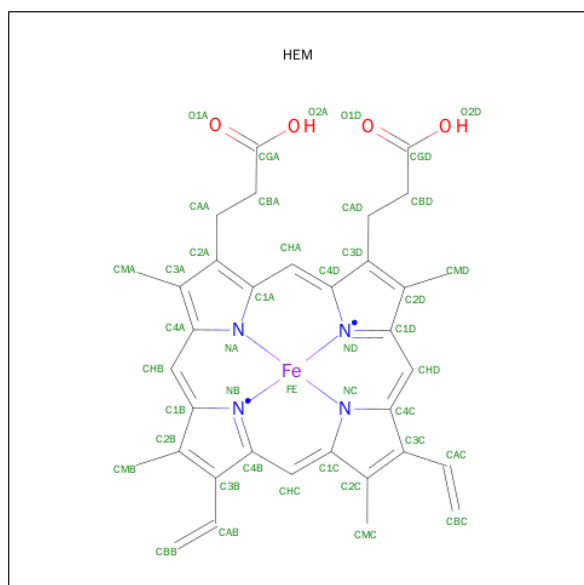
- Molecule 1 is a protein called Nitric oxide synthase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	404	Total	C	N	O	S	0	0	0
			3205	2038	562	589	16			
1	B	403	Total	C	N	O	S	0	0	0
			3205	2037	564	588	16			

There are 4 discrepancies between the modelled and reference sequences:

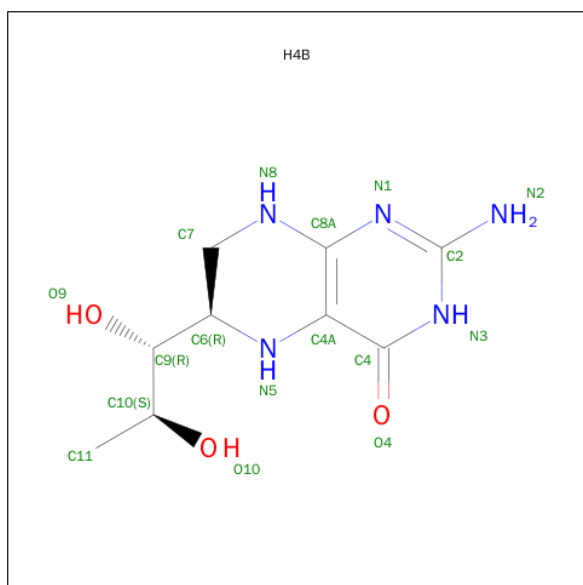
Chain	Residue	Modelled	Actual	Comment	Reference
A	100	ARG	CYS	SEE REMARK 999	UNP P29476
A	373	SER	HIS	ENGINEERED MUTATION	UNP P29476
B	100	ARG	CYS	SEE REMARK 999	UNP P29476
B	373	SER	HIS	ENGINEERED MUTATION	UNP P29476

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula:  $C_{34}H_{32}FeN_4O_4$ ).



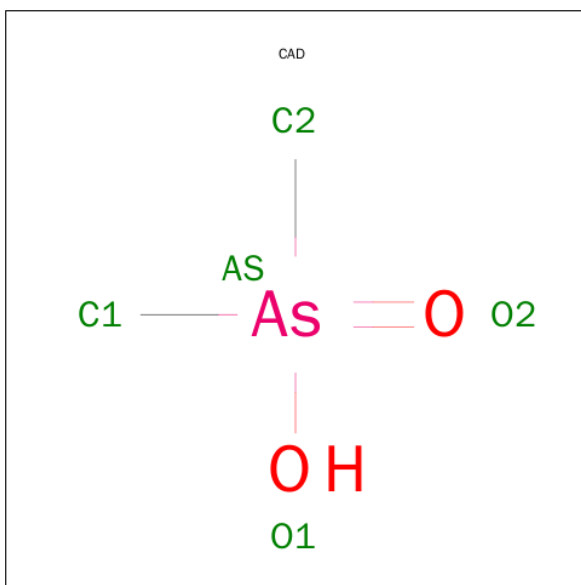
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 3 is 5,6,7,8-TETRAHYDROBIOPTERIN (three-letter code: H4B) (formula:  $C_9H_{15}N_5O_3$ ).



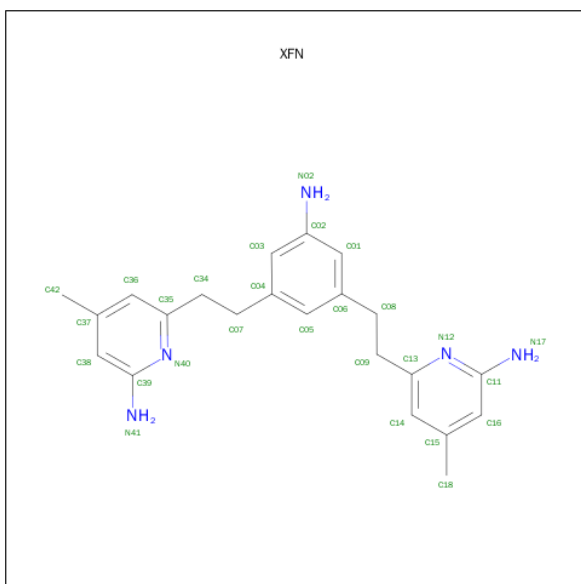
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			17	9	5	3		
3	B	1	Total	C	N	O	0	0
			17	9	5	3		

- Molecule 4 is CACODYLIC ACID (three-letter code: CAD) (formula:  $C_2H_7AsO_2$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	As	C	0	0
			3	1	2		
4	B	1	Total	As	C	0	0
			3	1	2		

- Molecule 5 is 6,6'-[(5-AMINOBENZENE-1,3-DIYL)DIETHANE-2,1-DIYL]BIS(4-METHYL PYRIDIN-2-AMINE) (three-letter code: XFN) (formula: C<sub>22</sub>H<sub>27</sub>N<sub>5</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	N	0	0
			27	22	5		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	B	1	Total	C	N	0	0
			27	22	5		

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

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

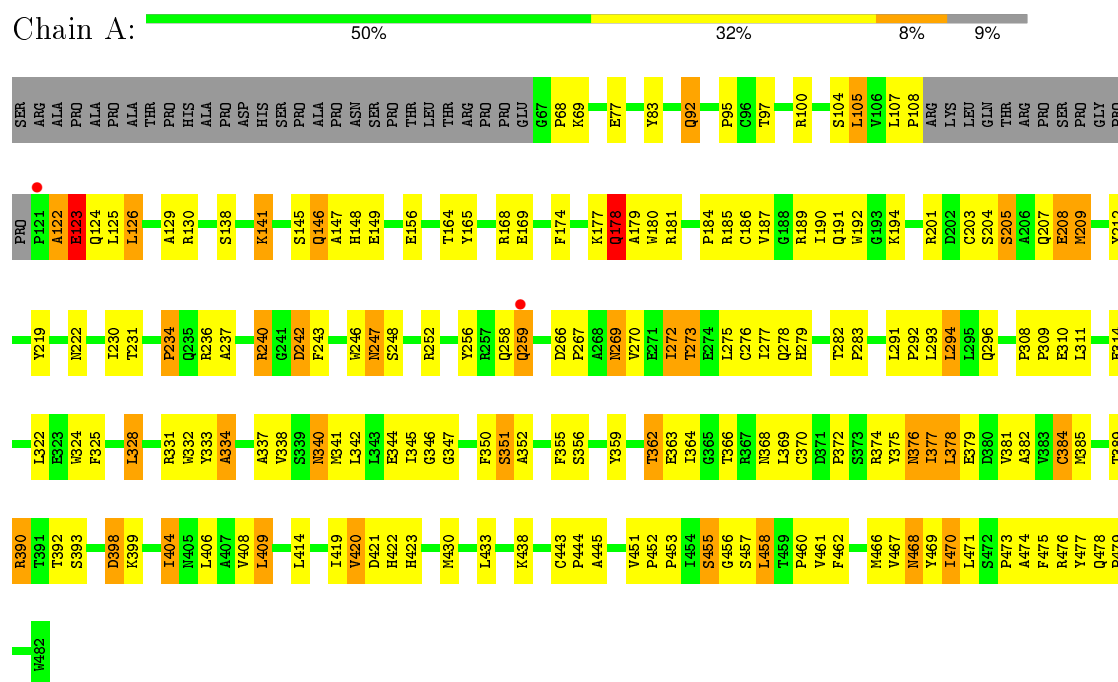
- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	13	Total	O	0	0
			13	13		
7	B	8	Total	O	0	0
			8	8		

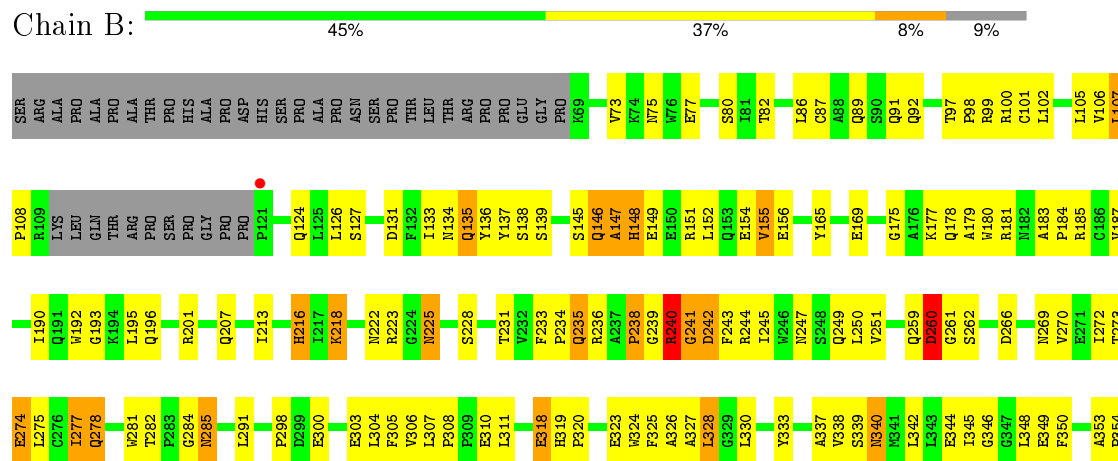
### 3 Residue-property plots

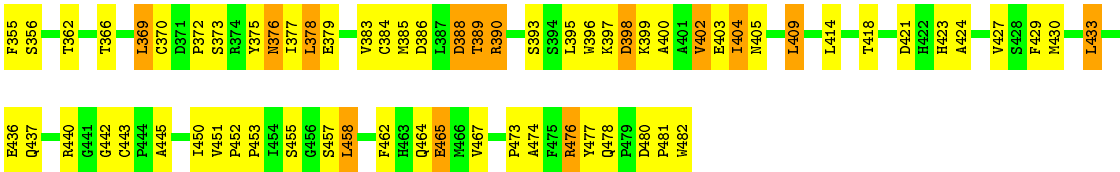
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according 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



- Molecule 1: Nitric oxide synthase





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	57.22Å 106.67Å 156.78Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	38.59 – 3.05 38.59 – 3.05	Depositor EDS
% Data completeness (in resolution range)	99.0 (38.59-3.05) 98.9 (38.59-3.05)	Depositor EDS
$R_{merge}$	0.12	Depositor
$R_{sym}$	0.12	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.54 (at 3.06Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, $R_{free}$	0.199 , 0.289 0.199 , 0.284	Depositor DCC
$R_{free}$ test set	922 reflections (5.18%)	DCC
Wilson B-factor (Å <sup>2</sup> )	67.0	Xtriage
Anisotropy	0.359	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 65.6	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	0 of 18707 reflections	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	6612	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.19% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: HEM, ZN, CAD, H4B, XFN

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	0.75	0/3294	0.80	2/4487 (0.0%)
1	B	0.72	0/3293	0.81	1/4484 (0.0%)
All	All	0.73	0/6587	0.81	3/8971 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	328	LEU	CA-CB-CG	6.34	129.88	115.30
1	B	369	LEU	CA-CB-CG	-5.87	101.80	115.30
1	A	240	ARG	NE-CZ-NH1	5.56	123.08	120.30

There are no chirality outliers.

There are no planarity outliers.

### 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	3205	0	3113	126	0
1	B	3205	0	3117	135	0
2	A	43	0	30	3	0
2	B	43	0	30	7	0
3	A	17	0	15	1	0
3	B	17	0	15	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	3	0	0	3	0
4	B	3	0	0	2	0
5	A	27	0	27	3	0
5	B	27	0	27	4	0
6	A	1	0	0	1	0
7	A	13	0	0	0	0
7	B	8	0	0	0	0
All	All	6612	0	6374	261	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 20.

All (261) 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:B:476:ARG:HH11	1:B:476:ARG:CG	1.72	1.02
1:B:342:LEU:HD23	1:B:476:ARG:HD2	1.41	0.99
1:B:97:THR:HB	1:B:98:PRO:HD2	1.43	0.99
1:B:476:ARG:HG3	1:B:476:ARG:NH1	1.56	0.98
1:B:423:HIS:O	1:B:427:VAL:HG23	1.62	0.97
1:B:464:GLN:O	1:B:464:GLN:HG3	1.66	0.95
1:B:476:ARG:HH11	1:B:476:ARG:HG3	0.79	0.92
1:A:384:CYS:HB3	4:A:950:CAD:AS	2.28	0.92
1:B:328:LEU:HB3	1:B:330:LEU:HD13	1.52	0.90
1:B:384:CYS:SG	4:B:950:CAD:AS	2.90	0.90
1:A:248:SER:HA	1:A:340:ASN:HB3	1.56	0.88
1:A:377:ILE:HG13	1:A:378:LEU:H	1.37	0.88
1:B:338:VAL:O	1:B:354:PRO:HA	1.74	0.87
2:B:500:HEM:HBB2	2:B:500:HEM:HHC	1.56	0.86
1:A:372:PRO:HA	1:A:376:ASN:HB2	1.58	0.86
1:A:384:CYS:SG	4:A:950:CAD:AS	2.96	0.83
1:A:337:ALA:HA	1:A:356:SER:HB3	1.59	0.82
1:A:419:ILE:HG13	1:A:420:VAL:H	1.48	0.78
1:B:236:ARG:HD3	1:B:242:ASP:OD1	1.84	0.78
1:B:281:TRP:HB2	1:B:304:LEU:HD21	1.65	0.78
1:A:201:ARG:HA	1:A:234:PRO:HD3	1.69	0.74
1:B:409:LEU:HD11	1:B:421:ASP:HB3	1.69	0.74
1:A:384:CYS:CB	4:A:950:CAD:AS	2.95	0.74
1:A:203:CYS:HA	1:A:208:GLU:OE1	1.86	0.74
1:B:178:GLN:HE22	1:B:181:ARG:HH11	1.36	0.74
1:A:314:GLU:HA	1:A:333:TYR:HA	1.69	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:350:PHE:O	1:A:352:ALA:N	2.21	0.72
1:A:342:LEU:HD23	1:A:476:ARG:HB2	1.70	0.72
1:A:308:PRO:HB2	1:A:311:LEU:HB2	1.71	0.72
1:A:145:SER:O	1:A:148:HIS:HB3	1.90	0.71
1:B:398:ASP:N	1:B:398:ASP:OD1	2.21	0.71
1:B:233:PHE:HB3	1:B:234:PRO:HD2	1.71	0.70
1:B:106:VAL:HG12	1:B:107:LEU:HG	1.73	0.70
1:B:97:THR:HB	1:B:98:PRO:CD	2.23	0.68
1:B:165:TYR:OH	1:B:346:GLY:O	2.10	0.68
1:B:366:THR:HG21	1:B:453:PRO:HB2	1.75	0.68
1:A:204:SER:O	1:A:205:SER:HB3	1.92	0.68
1:B:175:GLY:HA3	1:B:345:ILE:HD13	1.76	0.68
6:A:900:ZN:ZN	1:B:101:CYS:SG	1.82	0.67
1:A:178:GLN:HB3	1:A:473:PRO:HG2	1.77	0.67
1:B:218:LYS:HB2	1:B:311:LEU:HD21	1.77	0.67
1:A:246:TRP:HB2	1:A:294:LEU:HB3	1.77	0.67
1:A:362:THR:HG21	1:A:422:HIS:HB3	1.78	0.67
1:B:233:PHE:HB3	1:B:234:PRO:CD	2.26	0.65
1:A:325:PHE:HA	1:A:328:LEU:CD2	2.27	0.65
1:B:477:TYR:OH	2:B:500:HEM:O1D	2.12	0.65
1:A:178:GLN:HE22	1:A:181:ARG:HH11	1.45	0.65
1:B:477:TYR:CD1	5:B:800:XFN:H18A	2.32	0.64
1:B:135:GLN:O	1:B:139:SER:HB3	1.97	0.64
1:A:247:ASN:HD21	1:A:293:LEU:HA	1.62	0.63
1:A:180:TRP:CE3	1:A:192:TRP:HA	2.33	0.63
1:B:260:ASP:C	1:B:262:SER:H	2.01	0.62
1:B:86:LEU:HD21	1:B:440:ARG:HE	1.64	0.62
1:B:476:ARG:CG	1:B:476:ARG:NH1	2.43	0.62
1:B:370:CYS:HB3	1:B:378:LEU:HD22	1.81	0.62
1:A:362:THR:CG2	1:A:422:HIS:HB3	2.30	0.61
2:B:500:HEM:HBA1	5:B:800:XFN:H07A	1.80	0.61
1:A:243:PHE:O	1:A:352:ALA:HB2	2.00	0.61
1:B:97:THR:CB	1:B:98:PRO:HD2	2.24	0.61
1:B:340:ASN:HD22	1:B:340:ASN:C	2.05	0.60
1:A:364:ILE:HB	1:A:408:VAL:HG11	1.84	0.60
1:A:189:ARG:O	1:A:190:ILE:C	2.40	0.60
1:A:382:ALA:HA	1:A:385:MET:HB2	1.83	0.60
1:A:291:LEU:HD23	1:A:292:PRO:HD2	1.83	0.60
1:B:436:GLU:HB3	1:B:442:GLY:O	2.02	0.59
1:A:269:ASN:O	1:A:273:THR:OG1	2.21	0.58
1:B:464:GLN:CG	1:B:464:GLN:O	2.39	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:337:ALA:CA	1:A:356:SER:HB3	2.30	0.58
1:A:230:ILE:HD12	1:A:355:PHE:HB3	1.85	0.58
1:A:377:ILE:HG13	1:A:378:LEU:N	2.14	0.58
1:A:338:VAL:HB	1:A:355:PHE:CE1	2.39	0.58
1:B:218:LYS:HB2	1:B:311:LEU:CD2	2.34	0.57
1:B:274:GLU:HA	1:B:277:ILE:HB	1.85	0.57
1:A:325:PHE:HA	1:A:328:LEU:HD23	1.86	0.57
1:B:146:GLN:O	1:B:147:ALA:C	2.43	0.57
1:B:179:ALA:HB1	1:B:474:ALA:HA	1.87	0.56
1:B:177:LYS:HE2	1:B:193:GLY:O	2.05	0.56
2:A:500:HEM:CGA	3:A:600:H4B:HN3	2.18	0.56
1:A:445:ALA:HB3	1:A:466:MET:HB3	1.86	0.56
1:B:260:ASP:C	1:B:262:SER:N	2.58	0.56
1:A:372:PRO:HA	1:A:376:ASN:CB	2.34	0.56
1:B:86:LEU:CD2	1:B:440:ARG:HE	2.19	0.55
1:B:238:PRO:HG2	1:B:239:GLY:H	1.71	0.55
1:A:364:ILE:O	1:A:369:LEU:HG	2.05	0.55
1:B:155:VAL:HG12	1:B:156:GLU:N	2.21	0.55
1:A:340:ASN:ND2	1:A:341:MET:HG3	2.22	0.55
1:A:247:ASN:OD1	1:A:247:ASN:N	2.39	0.55
1:A:259:GLN:N	1:A:259:GLN:HE21	2.04	0.55
1:A:184:PRO:HG3	1:A:468:ASN:HD21	1.72	0.55
1:A:478:GLN:HB2	1:A:479:PRO:HD2	1.89	0.55
1:B:310:GLU:OE1	1:B:310:GLU:N	2.36	0.54
1:A:237:ALA:HB3	1:A:240:ARG:HB3	1.88	0.54
1:B:430:MET:O	1:B:433:LEU:HB2	2.06	0.54
1:B:251:VAL:HB	1:B:333:TYR:CD1	2.42	0.54
1:A:381:VAL:HG21	1:A:404:ILE:HD11	1.89	0.54
1:A:125:LEU:O	1:A:126:LEU:C	2.46	0.54
1:A:369:LEU:O	1:A:377:ILE:HG12	2.08	0.53
2:B:500:HEM:CBB	2:B:500:HEM:HHC	2.33	0.53
2:B:500:HEM:HBB2	2:B:500:HEM:CHC	2.31	0.53
1:B:379:GLU:O	1:B:383:VAL:HG23	2.09	0.53
1:A:340:ASN:HD22	1:A:340:ASN:C	2.10	0.53
1:A:236:ARG:HG2	1:A:242:ASP:OD2	2.09	0.53
1:A:186:CYS:HB2	2:A:500:HEM:C4D	2.44	0.52
1:B:445:ALA:HB1	1:B:450:ILE:HG13	1.91	0.52
1:A:275:LEU:O	1:A:279:HIS:HB2	2.09	0.52
1:B:75:ASN:OD1	1:B:77:GLU:N	2.42	0.52
1:A:468:ASN:HD22	1:A:469:TYR:H	1.57	0.52
1:A:207:GLN:O	1:A:208:GLU:C	2.48	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:342:LEU:HD12	1:A:351:SER:H	1.74	0.51
1:B:235:GLN:NE2	1:B:348:LEU:HD22	2.24	0.51
1:B:266:ASP:HB3	1:B:269:ASN:HD22	1.76	0.51
1:B:243:PHE:CE1	1:B:298:PRO:HD3	2.46	0.51
1:B:369:LEU:HB3	1:B:377:ILE:HD11	1.91	0.51
1:A:398:ASP:OD1	1:A:398:ASP:N	2.44	0.51
1:A:364:ILE:HA	1:A:368:ASN:HD22	1.75	0.51
1:B:308:PRO:HG2	1:B:311:LEU:HD12	1.93	0.51
1:B:477:TYR:HD1	5:B:800:XFN:H18A	1.72	0.50
1:A:406:LEU:HB2	1:B:395:LEU:HD12	1.92	0.50
1:B:247:ASN:HB3	1:B:249:GLN:O	2.11	0.50
1:B:181:ARG:HD3	1:B:440:ARG:NH1	2.27	0.50
1:A:457:SER:HA	1:A:462:PHE:CD1	2.46	0.50
1:A:409:LEU:HD22	1:B:393:SER:HB2	1.93	0.50
1:B:389:THR:O	1:B:390:ARG:C	2.49	0.50
1:B:134:ASN:O	1:B:138:SER:HB3	2.11	0.50
1:B:178:GLN:HB3	1:B:473:PRO:HG2	1.92	0.50
1:A:105:LEU:HA	1:B:465:GLU:HG2	1.94	0.49
1:B:231:THR:O	1:B:353:ALA:HA	2.12	0.49
1:B:362:THR:O	1:B:366:THR:HB	2.12	0.49
1:B:137:TYR:HB2	1:B:148:HIS:CD2	2.47	0.49
1:B:342:LEU:O	1:B:342:LEU:HG	2.11	0.49
1:A:184:PRO:CG	1:A:468:ASN:HD21	2.24	0.49
1:B:355:PHE:CD1	2:B:500:HEM:HAC	2.48	0.49
1:B:266:ASP:HB2	1:B:375:TYR:CE1	2.48	0.49
1:B:319:HIS:CG	1:B:320:PRO:HD2	2.48	0.49
1:B:178:GLN:HE22	1:B:181:ARG:NH1	2.07	0.48
1:A:366:THR:O	1:A:370:CYS:HB2	2.13	0.48
1:B:455:SER:OG	1:B:458:LEU:HD22	2.13	0.48
1:A:381:VAL:O	1:A:385:MET:HG3	2.14	0.48
1:B:75:ASN:HB3	1:B:80:SER:HB2	1.95	0.48
1:B:337:ALA:HB2	1:B:356:SER:HB3	1.96	0.48
1:A:457:SER:HA	1:A:462:PHE:CG	2.48	0.48
1:A:252:ARG:NH1	1:A:269:ASN:OD1	2.46	0.48
1:B:464:GLN:O	1:B:465:GLU:C	2.52	0.48
1:B:398:ASP:O	1:B:399:LYS:C	2.52	0.48
1:A:107:LEU:HA	1:A:108:PRO:HD3	1.69	0.48
1:A:322:LEU:HD13	1:A:324:TRP:CZ2	2.49	0.48
1:B:403:GLU:O	1:B:404:ILE:C	2.49	0.48
1:B:151:ARG:O	1:B:151:ARG:HG3	2.13	0.47
1:B:457:SER:HA	1:B:462:PHE:CG	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:195:LEU:HG	1:B:196:GLN:N	2.28	0.47
1:B:239:GLY:O	1:B:240:ARG:HB3	2.14	0.47
1:B:135:GLN:HE21	1:B:135:GLN:HB2	1.63	0.47
1:B:369:LEU:O	1:B:377:ILE:HG13	2.15	0.47
1:A:389:THR:O	1:A:390:ARG:C	2.53	0.47
1:B:213:ILE:HD11	1:B:245:ILE:HD11	1.96	0.47
1:B:423:HIS:O	1:B:424:ALA:C	2.53	0.46
1:A:314:GLU:HB3	1:A:332:TRP:O	2.15	0.46
1:A:338:VAL:CG2	5:A:800:XFN:H36	2.45	0.46
1:A:177:LYS:O	1:A:178:GLN:C	2.53	0.46
1:B:178:GLN:NE2	1:B:181:ARG:HH11	2.07	0.46
1:B:151:ARG:HA	1:B:154:GLU:OE2	2.16	0.46
1:A:433:LEU:HD23	1:A:443:CYS:HB3	1.98	0.46
1:A:186:CYS:HB2	2:A:500:HEM:ND	2.31	0.46
1:A:177:LYS:O	1:A:179:ALA:N	2.48	0.46
1:B:303:GLU:HB2	1:B:305:PHE:CE2	2.51	0.45
1:A:363:GLU:OE1	5:A:800:XFN:N40	2.49	0.45
1:A:126:LEU:HD11	1:A:156:GLU:HG3	1.97	0.45
1:A:468:ASN:ND2	1:A:469:TYR:H	2.14	0.45
1:B:342:LEU:HD11	1:B:349:GLU:HB3	1.98	0.45
1:A:414:LEU:O	1:A:414:LEU:HG	2.15	0.45
1:B:89:GLN:O	1:B:91:GLN:HG2	2.16	0.45
1:A:345:ILE:O	1:A:347:GLY:N	2.50	0.45
1:B:245:ILE:HG21	1:B:339:SER:HB3	1.99	0.45
1:A:430:MET:HG3	1:A:460:PRO:HB2	1.99	0.45
1:B:180:TRP:CE3	1:B:192:TRP:HA	2.52	0.45
1:A:246:TRP:NE1	1:A:296:GLN:OE1	2.29	0.45
1:A:252:ARG:HD3	1:A:269:ASN:OD1	2.17	0.44
1:A:338:VAL:HG23	5:A:800:XFN:H36	1.98	0.44
1:A:185:ARG:NH1	1:A:477:TYR:HE2	2.15	0.44
1:B:277:ILE:HG22	1:B:278:GLN:N	2.31	0.44
1:A:77:GLU:HG3	1:B:372:PRO:HG2	1.99	0.44
1:A:399:LYS:HG3	1:B:402:VAL:HG11	1.98	0.44
1:B:480:ASP:C	1:B:482:TRP:H	2.21	0.44
2:B:500:HEM:CBA	5:B:800:XFN:H07A	2.45	0.44
1:A:308:PRO:HA	1:A:309:PRO:HD3	1.83	0.44
1:B:216:HIS:C	1:B:216:HIS:CD2	2.91	0.44
1:B:222:ASN:HB3	1:B:225:ASN:O	2.18	0.44
1:B:106:VAL:HA	1:B:185:ARG:HH22	1.82	0.44
1:B:400:ALA:O	1:B:403:GLU:N	2.49	0.44
1:B:480:ASP:O	1:B:482:TRP:N	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:183:ALA:HA	1:B:184:PRO:HD3	1.82	0.43
1:B:259:GLN:O	1:B:261:GLY:N	2.45	0.43
1:A:359:TYR:CD2	1:A:364:ILE:HD11	2.53	0.43
1:B:274:GLU:HG3	1:B:274:GLU:H	1.58	0.43
1:B:307:LEU:HA	1:B:308:PRO:HD2	1.94	0.43
1:B:303:GLU:HB2	1:B:305:PHE:HE2	1.82	0.43
1:B:344:GLU:HG3	1:B:476:ARG:HH21	1.84	0.43
1:B:342:LEU:N	1:B:478:GLN:HE21	2.17	0.43
1:A:451:VAL:HG22	1:A:461:VAL:HG23	2.01	0.43
1:A:374:ARG:HD2	1:A:374:ARG:HA	1.85	0.43
1:B:340:ASN:C	1:B:340:ASN:ND2	2.72	0.43
1:B:240:ARG:NH1	1:B:241:GLY:O	2.51	0.43
1:A:419:ILE:HG13	1:A:420:VAL:N	2.25	0.43
1:B:306:VAL:O	1:B:308:PRO:HD3	2.19	0.43
1:A:191:GLN:O	1:A:192:TRP:C	2.57	0.42
1:A:322:LEU:HD13	1:A:324:TRP:CH2	2.53	0.42
1:B:451:VAL:HA	1:B:452:PRO:HD2	1.90	0.42
1:A:455:SER:HB3	1:A:458:LEU:HD23	2.01	0.42
1:B:326:ALA:C	1:B:328:LEU:H	2.20	0.42
1:B:249:GLN:HA	1:B:337:ALA:O	2.18	0.42
1:A:366:THR:HG21	1:A:453:PRO:HB2	2.01	0.42
1:A:333:TYR:O	1:A:334:ALA:C	2.55	0.42
1:A:129:ALA:O	1:A:130:ARG:C	2.56	0.42
1:B:250:LEU:HD23	1:B:250:LEU:HA	1.59	0.42
1:A:146:GLN:O	1:A:147:ALA:C	2.58	0.42
1:B:396:TRP:CZ3	1:B:397:LYS:HG2	2.55	0.42
1:A:340:ASN:C	1:A:340:ASN:ND2	2.73	0.42
1:A:345:ILE:HA	1:A:473:PRO:HB3	2.02	0.42
1:A:184:PRO:CB	1:A:468:ASN:HD21	2.32	0.42
1:B:455:SER:OG	1:B:458:LEU:CD2	2.67	0.42
1:A:68:PRO:HD2	1:A:83:TYR:CZ	2.54	0.42
1:B:244:ARG:HA	1:B:244:ARG:HD2	1.73	0.42
1:B:318:GLU:HB3	1:B:326:ALA:HB2	2.02	0.42
1:B:324:TRP:CE3	4:B:950:CAD:C1	3.02	0.42
1:A:208:GLU:O	1:A:209:MET:C	2.57	0.42
1:B:284:GLY:O	1:B:285:ASN:HB3	2.20	0.42
1:A:337:ALA:CB	1:A:356:SER:HB3	2.50	0.42
1:A:393:SER:HB2	1:B:409:LEU:HD22	2.00	0.42
1:A:125:LEU:HD23	1:A:125:LEU:C	2.40	0.42
1:A:444:PRO:HA	1:A:467:VAL:O	2.20	0.42
1:A:92:GLN:HG2	1:A:470:ILE:HB	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:421:ASP:OD1	1:A:423:HIS:N	2.53	0.42
1:B:328:LEU:HB3	1:B:330:LEU:CD1	2.36	0.41
1:A:277:ILE:HD11	1:A:283:PRO:HB3	2.01	0.41
1:A:104:SER:OG	1:A:105:LEU:N	2.53	0.41
1:B:369:LEU:HA	1:B:369:LEU:HD23	1.87	0.41
1:B:395:LEU:HD22	1:B:398:ASP:OD2	2.19	0.41
1:B:73:VAL:N	1:B:82:THR:O	2.48	0.41
1:A:164:THR:OG1	1:A:165:TYR:N	2.53	0.41
1:B:235:GLN:HB3	1:B:350:PHE:CE2	2.54	0.41
1:B:145:SER:O	1:B:146:GLN:C	2.59	0.41
1:A:138:SER:O	1:A:141:LYS:HE3	2.20	0.41
1:A:205:SER:HG	1:A:208:GLU:H	1.64	0.41
1:A:269:ASN:HB2	1:A:272:ILE:HG23	2.03	0.41
1:B:259:GLN:C	1:B:261:GLY:H	2.24	0.41
1:A:341:MET:CE	1:A:475:PHE:HB3	2.51	0.41
1:B:136:TYR:O	1:B:139:SER:N	2.54	0.41
1:A:374:ARG:HB3	1:A:375:TYR:H	1.52	0.41
1:A:451:VAL:HA	1:A:452:PRO:HD3	1.93	0.41
1:A:256:TYR:O	1:A:258:GLN:NE2	2.46	0.41
1:A:471:LEU:O	1:A:474:ALA:HB2	2.21	0.40
1:B:273:THR:HG23	1:B:291:LEU:HD21	2.03	0.40
1:A:377:ILE:HD11	1:A:404:ILE:HD13	2.03	0.40
1:B:178:GLN:HB3	1:B:473:PRO:CG	2.50	0.40
1:A:122:ALA:O	1:A:123:GLU:C	2.59	0.40
1:A:266:ASP:HA	1:A:267:PRO:HD3	1.90	0.40
1:A:219:TYR:O	1:A:222:ASN:HB2	2.21	0.40
1:A:168:ARG:O	1:A:169:GLU:C	2.59	0.40
1:B:429:PHE:O	1:B:430:MET:C	2.58	0.40
1:A:455:SER:HB3	1:A:458:LEU:CD2	2.52	0.40
1:B:275:LEU:HA	1:B:275:LEU:HD23	1.92	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	400/444 (90%)	331 (83%)	53 (13%)	16 (4%)	4	19
1	B	399/444 (90%)	322 (81%)	54 (14%)	23 (6%)	2	11
All	All	799/888 (90%)	653 (82%)	107 (13%)	39 (5%)	3	15

All (39) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	234	PRO
1	A	420	VAL
1	B	146	GLN
1	B	240	ARG
1	B	260	ASP
1	B	285	ASN
1	A	92	GLN
1	A	123	GLU
1	A	205	SER
1	A	346	GLY
1	A	351	SER
1	B	241	GLY
1	B	390	ARG
1	B	465	GLU
1	A	122	ALA
1	A	178	GLN
1	B	148	HIS
1	B	238	PRO
1	B	388	ASP
1	A	334	ALA
1	A	378	LEU
1	B	147	ALA
1	B	235	GLN
1	B	325	PHE
1	B	327	ALA
1	B	376	ASN
1	B	386	ASP
1	A	95	PRO
1	A	456	GLY
1	B	108	PRO
1	B	277	ILE
1	B	373	SER
1	A	376	ASN

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Mol	Chain	Res	Type
1	B	190	ILE
1	B	443	CYS
1	B	481	PRO
1	A	377	ILE
1	B	404	ILE
1	A	404	ILE

### 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	343/377 (91%)	298 (87%)	45 (13%)	5	19
1	B	343/377 (91%)	289 (84%)	54 (16%)	3	13
All	All	686/754 (91%)	587 (86%)	99 (14%)	4	16

All (99) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	69	LYS
1	A	97	THR
1	A	100	ARG
1	A	105	LEU
1	A	123	GLU
1	A	124	GLN
1	A	126	LEU
1	A	141	LYS
1	A	146	GLN
1	A	149	GLU
1	A	174	PHE
1	A	178	GLN
1	A	187	VAL
1	A	194	LYS
1	A	208	GLU
1	A	209	MET
1	A	212	TYR

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Mol	Chain	Res	Type
1	A	231	THR
1	A	242	ASP
1	A	247	ASN
1	A	259	GLN
1	A	269	ASN
1	A	270	VAL
1	A	272	ILE
1	A	273	THR
1	A	276	CYS
1	A	278	GLN
1	A	282	THR
1	A	294	LEU
1	A	310	GLU
1	A	331	ARG
1	A	340	ASN
1	A	344	GLU
1	A	362	THR
1	A	379	GLU
1	A	384	CYS
1	A	390	ARG
1	A	392	THR
1	A	398	ASP
1	A	409	LEU
1	A	438	LYS
1	A	455	SER
1	A	458	LEU
1	A	468	ASN
1	A	470	ILE
1	B	87	CYS
1	B	92	GLN
1	B	99	ARG
1	B	100	ARG
1	B	102	LEU
1	B	105	LEU
1	B	107	LEU
1	B	124	GLN
1	B	126	LEU
1	B	127	SER
1	B	131	ASP
1	B	133	ILE
1	B	135	GLN
1	B	149	GLU

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Mol	Chain	Res	Type
1	B	152	LEU
1	B	155	VAL
1	B	169	GLU
1	B	187	VAL
1	B	201	ARG
1	B	207	GLN
1	B	216	HIS
1	B	218	LYS
1	B	223	ARG
1	B	225	ASN
1	B	228	SER
1	B	240	ARG
1	B	242	ASP
1	B	260	ASP
1	B	270	VAL
1	B	272	ILE
1	B	274	GLU
1	B	278	GLN
1	B	282	THR
1	B	300	GLU
1	B	318	GLU
1	B	323	GLU
1	B	328	LEU
1	B	340	ASN
1	B	376	ASN
1	B	378	LEU
1	B	385	MET
1	B	388	ASP
1	B	389	THR
1	B	398	ASP
1	B	402	VAL
1	B	405	ASN
1	B	409	LEU
1	B	414	LEU
1	B	418	THR
1	B	433	LEU
1	B	437	GLN
1	B	458	LEU
1	B	467	VAL
1	B	476	ARG

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

Mol	Chain	Res	Type
1	A	91	GLN
1	A	146	GLN
1	A	153	GLN
1	A	178	GLN
1	A	191	GLN
1	A	259	GLN
1	A	340	ASN
1	A	368	ASN
1	A	376	ASN
1	A	468	ASN
1	B	124	GLN
1	B	178	GLN
1	B	222	ASN
1	B	225	ASN
1	B	235	GLN
1	B	247	ASN
1	B	340	ASN
1	B	376	ASN

### 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 carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 1 is monoatomic - leaving 8 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	500	1	30,50,50	2.25	8 (26%)	24,82,82	2.26	9 (37%)
3	H4B	A	600	-	13,18,18	1.00	1 (7%)	11,26,26	2.83	5 (45%)
5	XFN	A	800	-	29,29,29	0.92	0	40,40,40	2.03	6 (15%)
4	CAD	A	950	-	0,2,4	0.00	-	0,1,6	0.00	-
2	HEM	B	500	-	30,50,50	2.12	7 (23%)	24,82,82	2.31	8 (33%)
3	H4B	B	600	-	13,18,18	1.04	1 (7%)	11,26,26	2.66	5 (45%)
5	XFN	B	800	-	29,29,29	0.94	2 (6%)	40,40,40	2.84	18 (45%)
4	CAD	B	950	-	0,2,4	0.00	-	0,1,6	0.00	-

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	500	1	-	0/10/54/54	0/0/8/8
3	H4B	A	600	-	-	0/8/17/17	0/2/2/2
5	XFN	A	800	-	-	0/10/10/10	0/3/3/3
4	CAD	A	950	-	-	0/0/0/0	0/0/0/0
2	HEM	B	500	-	-	0/10/54/54	0/0/8/8
3	H4B	B	600	-	-	0/8/17/17	0/2/2/2
5	XFN	B	800	-	-	0/10/10/10	0/3/3/3
4	CAD	B	950	-	-	0/0/0/0	0/0/0/0

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	500	HEM	C3B-C4B	-7.83	1.44	1.51
2	A	500	HEM	C3B-C4B	-7.37	1.45	1.51
2	A	500	HEM	C3D-C4D	-5.88	1.44	1.51
2	B	500	HEM	C3D-C4D	-4.22	1.46	1.51
2	B	500	HEM	C2C-C1C	-3.99	1.45	1.52
2	A	500	HEM	C2C-C1C	-3.82	1.45	1.52
2	B	500	HEM	C2D-C1D	-2.54	1.43	1.51
2	A	500	HEM	C2B-C1B	-2.44	1.43	1.51
2	A	500	HEM	C2D-C1D	-2.17	1.44	1.51
2	B	500	HEM	C1A-CHA	-2.06	1.34	1.39
5	B	800	XFN	C05-C04	2.01	1.42	1.39
2	A	500	HEM	C3C-CAC	2.22	1.55	1.51
2	B	500	HEM	C3C-CAC	2.24	1.55	1.51
5	B	800	XFN	C05-C06	2.28	1.43	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	600	H4B	C4-N3	2.35	1.37	1.33
3	B	600	H4B	C4-N3	2.37	1.37	1.33
2	B	500	HEM	C3B-CAB	2.44	1.55	1.51
2	A	500	HEM	C3B-CAB	2.68	1.56	1.51
2	A	500	HEM	FE-ND	2.82	2.12	1.97

All (51) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	800	XFN	C36-C35-N40	-5.04	117.27	122.96
5	B	800	XFN	C36-C35-N40	-4.94	117.39	122.96
5	B	800	XFN	C14-C13-N12	-4.47	117.91	122.96
3	B	600	H4B	N3-C2-N1	-4.18	118.68	125.53
3	A	600	H4B	N3-C2-N1	-3.43	119.92	125.53
5	B	800	XFN	C07-C04-C03	-3.19	115.21	120.56
5	A	800	XFN	C14-C13-N12	-3.13	119.43	122.96
5	B	800	XFN	C34-C35-C36	-2.94	117.00	121.13
2	A	500	HEM	CMA-C3A-C4A	-2.90	123.57	128.36
5	B	800	XFN	C34-C07-C04	-2.62	104.63	113.27
5	B	800	XFN	C18-C15-C16	-2.51	117.14	120.95
2	B	500	HEM	C3B-CAB-CBB	-2.25	121.01	124.46
2	A	500	HEM	CBA-CAA-C2A	-2.14	108.69	112.53
2	B	500	HEM	CAA-CBA-CGA	-2.13	108.85	112.75
2	A	500	HEM	C3B-C4B-CHC	2.01	125.99	123.16
5	B	800	XFN	C08-C06-C05	2.04	123.99	120.56
5	B	800	XFN	C09-C13-C14	2.09	124.06	121.13
5	B	800	XFN	N17-C11-N12	2.25	120.61	116.50
5	B	800	XFN	C09-C08-C06	2.31	120.89	113.27
3	A	600	H4B	N2-C2-N3	2.42	121.21	117.20
5	B	800	XFN	C38-C37-C36	2.45	121.20	118.08
3	A	600	H4B	C2-N1-C8A	2.47	120.08	114.54
5	A	800	XFN	C34-C35-N40	2.47	119.34	115.69
2	A	500	HEM	C2D-C3D-C4D	2.64	105.98	101.50
5	B	800	XFN	N41-C39-N40	2.65	121.33	116.50
3	B	600	H4B	C2-N1-C8A	2.78	120.78	114.54
5	A	800	XFN	C07-C34-C35	3.01	118.32	112.53
3	B	600	H4B	N2-C2-N3	3.08	122.30	117.20
5	B	800	XFN	C07-C04-C05	3.14	125.82	120.56
2	B	500	HEM	CBA-CAA-C2A	3.14	118.16	112.53
2	B	500	HEM	CMB-C2B-C3B	3.20	124.51	116.53
2	A	500	HEM	CMD-C2D-C3D	3.29	128.88	114.35
2	B	500	HEM	CMD-C2D-C3D	3.48	129.73	114.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	500	HEM	CMC-C2C-C3C	3.64	125.63	116.53
5	B	800	XFN	C08-C09-C13	3.65	119.54	112.53
2	B	500	HEM	CAD-C3D-C4D	3.68	125.44	112.47
2	A	500	HEM	CAD-C3D-C4D	3.71	125.56	112.47
2	A	500	HEM	CMB-C2B-C3B	3.80	126.01	116.53
3	B	600	H4B	C4-C4A-C8A	3.89	118.08	114.56
2	B	500	HEM	CMC-C2C-C3C	4.08	126.72	116.53
3	B	600	H4B	C4-N3-C2	4.41	122.06	115.94
3	A	600	H4B	C4-N3-C2	4.69	122.45	115.94
5	B	800	XFN	C39-N40-C35	5.16	121.90	118.23
2	A	500	HEM	CAD-C3D-C2D	5.30	128.46	113.22
5	B	800	XFN	C07-C34-C35	5.42	122.96	112.53
5	A	800	XFN	C11-N12-C13	5.92	122.43	118.23
3	A	600	H4B	C4-C4A-C8A	6.02	120.01	114.56
2	B	500	HEM	CAD-C3D-C2D	6.13	130.84	113.22
5	A	800	XFN	C39-N40-C35	6.26	122.68	118.23
5	B	800	XFN	C34-C35-N40	6.69	125.57	115.69
5	B	800	XFN	C11-N12-C13	8.26	124.10	118.23

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

7 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	500	HEM	3	0
3	A	600	H4B	1	0
5	A	800	XFN	3	0
4	A	950	CAD	3	0
2	B	500	HEM	7	0
5	B	800	XFN	4	0
4	B	950	CAD	2	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	404/444 (90%)	-0.31	2 (0%) 91 81	39, 58, 85, 96	0
1	B	403/444 (90%)	-0.40	1 (0%) 95 89	35, 59, 81, 102	0
All	All	807/888 (90%)	-0.36	3 (0%) 93 84	35, 59, 85, 102	0

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	121	PRO	2.9
1	B	121	PRO	2.7
1	A	259	GLN	2.1

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

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

### 6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

### 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
3	H4B	B	600	17/17	0.79	0.39	5.34	104,111,115,115	0
5	XFN	A	800	27/27	0.88	0.36	4.97	60,83,104,104	0
5	XFN	B	800	27/27	0.88	0.35	4.00	59,85,102,102	0
4	CAD	B	950	3/5	0.84	0.41	2.53	158,158,158,158	0
3	H4B	A	600	17/17	0.87	0.29	2.09	83,90,93,94	0
2	HEM	A	500	43/43	0.98	0.22	0.38	38,44,55,62	0
2	HEM	B	500	43/43	0.97	0.19	0.11	30,34,54,59	0
6	ZN	A	900	1/1	1.00	0.12	-0.72	56,56,56,56	0
4	CAD	A	950	3/5	0.98	0.10	-2.35	94,94,94,96	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.