



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 10, 2023 – 04:12 AM EDT

PDB ID : 7SNM
Title : Lanosterol-bound P450 domain of the CYP51-ferredoxin fusion protein from *Methylococcus capsulatus*
Authors : Lepesheva, G.I.; Hargrove, T.; Wawrzak, Z.
Deposited on : 2021-10-28
Resolution : 2.55 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 ⓘ 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 ⓘ](#)) 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

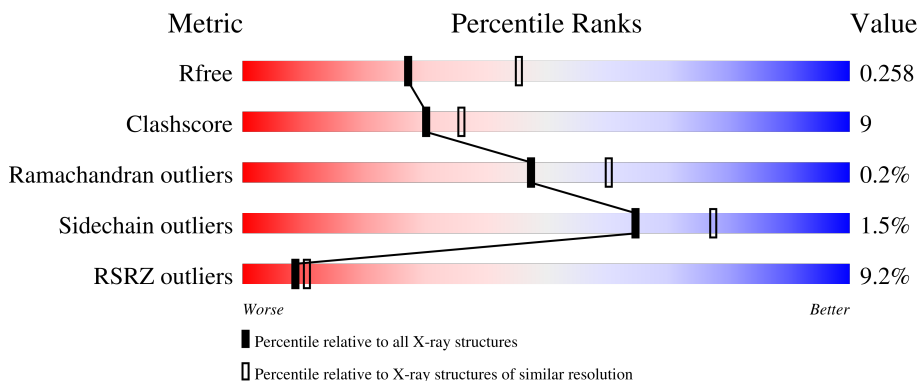
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.55 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}	130704	1284 (2.56-2.52)
Clashscore	141614	1332 (2.56-2.52)
Ramachandran outliers	138981	1315 (2.56-2.52)
Sidechain outliers	138945	1315 (2.56-2.52)
RSRZ outliers	127900	1272 (2.56-2.52)

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 $\leq 5\%$. 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	551	
1	B	551	
1	C	551	
1	D	551	

2 Entry composition [i](#)

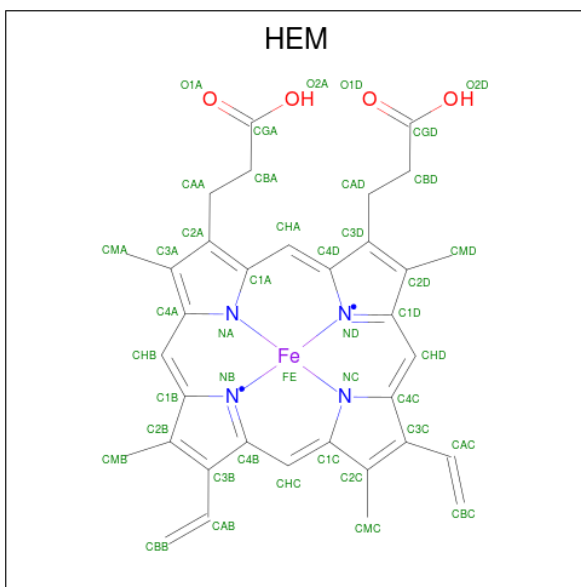
There are 4 unique types of molecules in this entry. The entry contains 14767 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Cytochrome P450 51.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	443	Total 3574	C 2278	N 638	O 635	S 23	0	0	0
1	B	443	Total 3568	C 2275	N 635	O 635	S 23	0	0	0
1	C	440	Total 3530	C 2253	N 624	O 630	S 23	0	0	0
1	D	439	Total 3458	C 2212	N 602	O 622	S 22	0	0	0

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



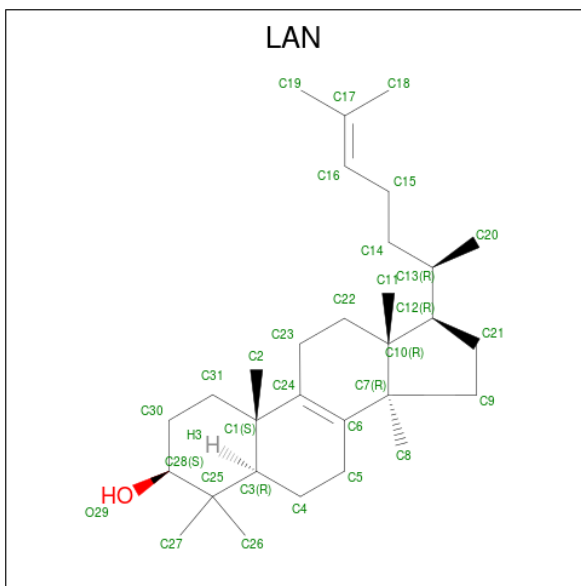
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Fe	N			O
2	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
2	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

Continued on next page...

Continued from previous page...

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

- Molecule 3 is LANOSTEROL (three-letter code: LAN) (formula: C₃₀H₅₀O) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	C O	0	0
			31	30 1		
3	B	1	Total	C O	0	0
			31	30 1		
3	C	1	Total	C O	0	0
			31	30 1		
3	D	1	Total	C O	0	0
			31	30 1		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	103	Total	O	0	0
			103	103		
4	B	95	Total	O	0	0
			95	95		
4	C	66	Total	O	0	0
			66	66		

Continued on next page...

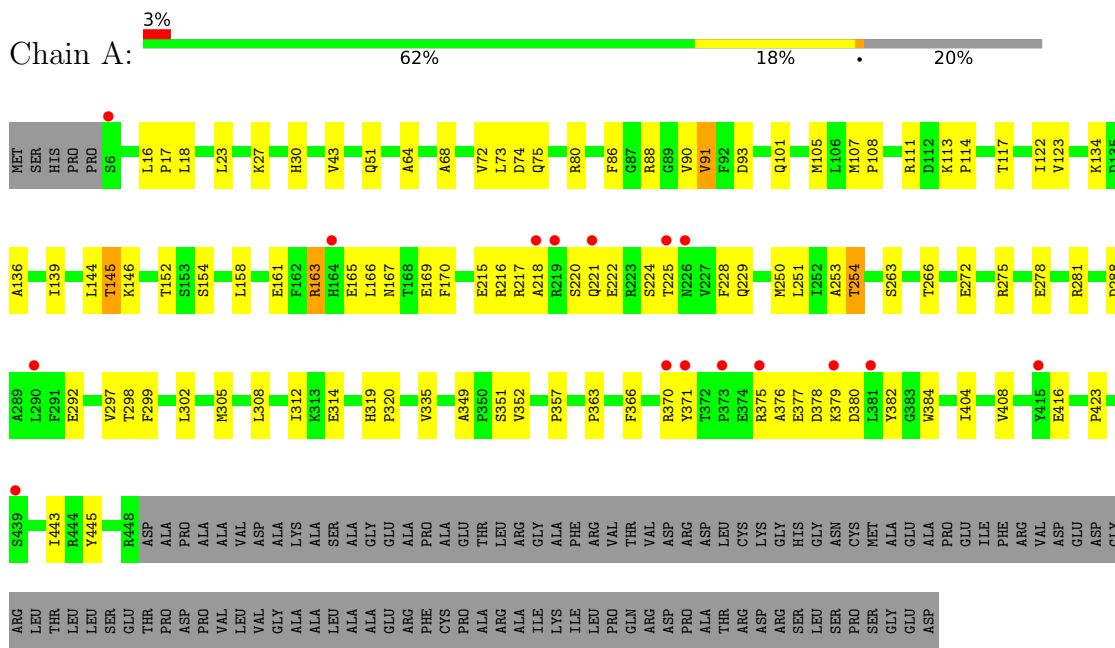
Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	77	Total	O	0	0
			77	77		

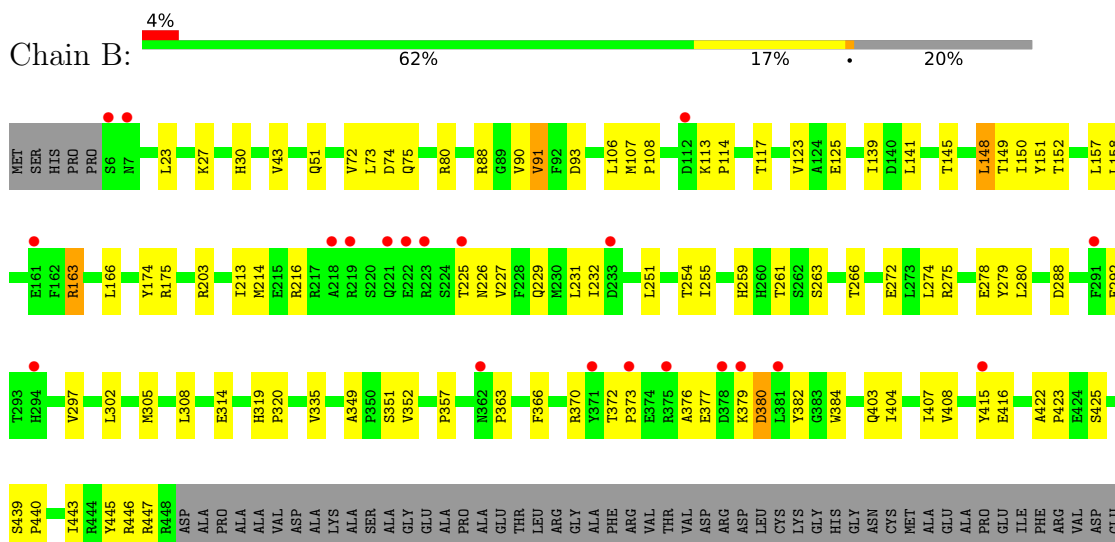
3 Residue-property plots

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: Cytochrome P450 51

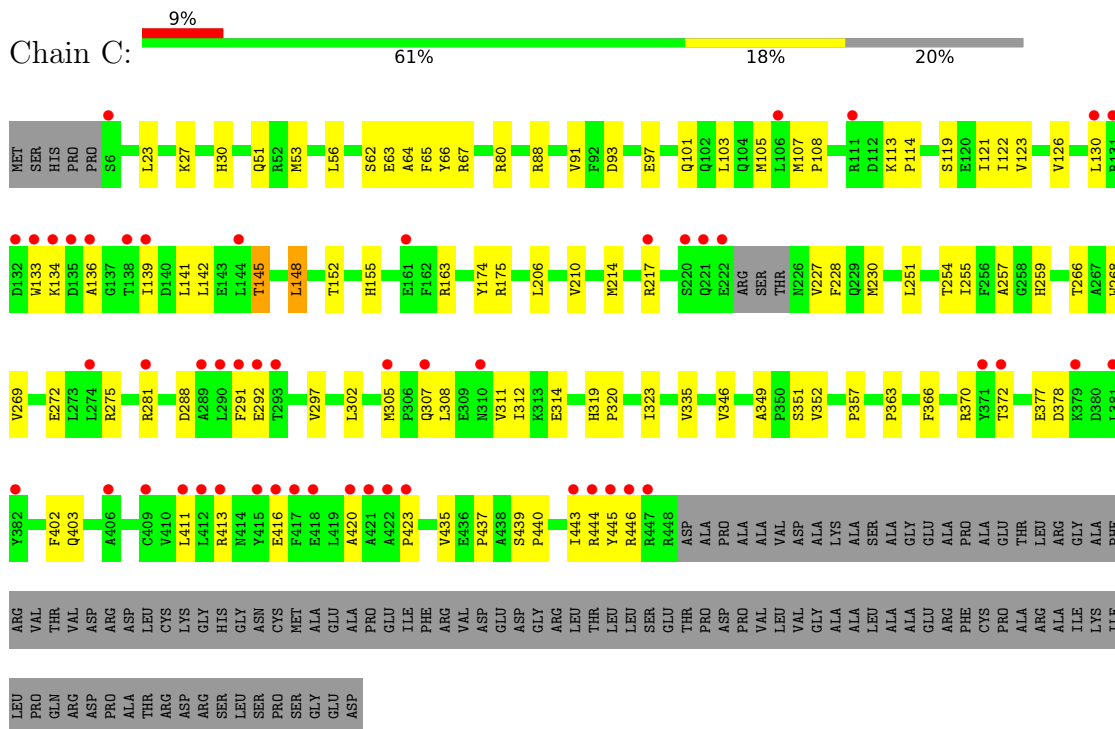


- Molecule 1: Cytochrome P450 51

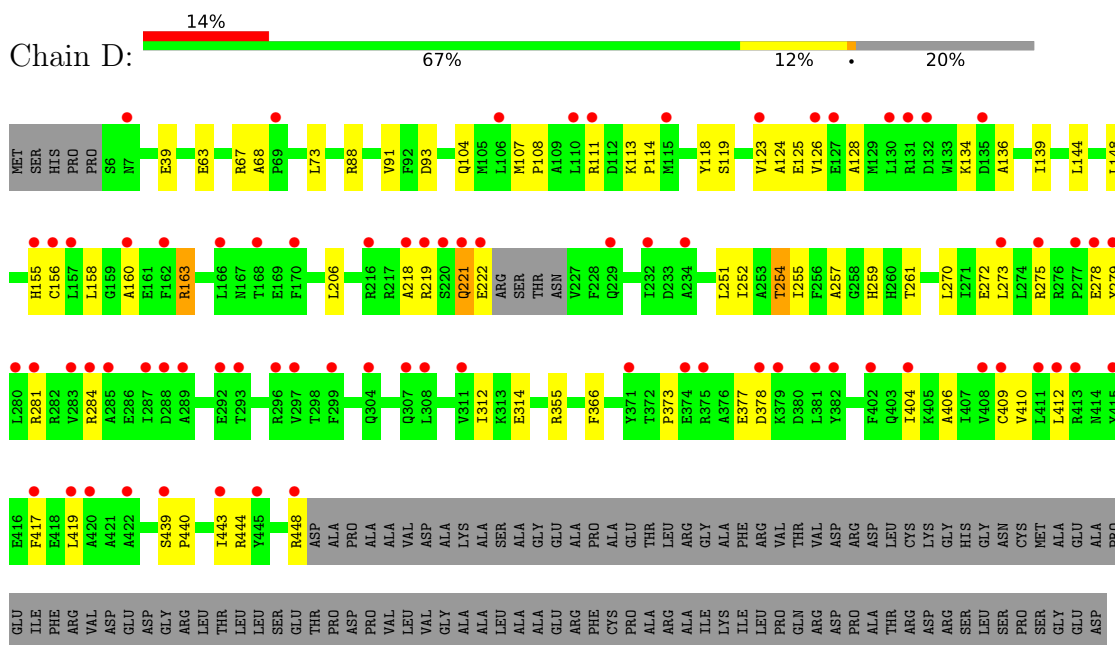


ASP
GLY
ARG
LEU
THR
LEU
SER
GLU
THR
PRO
ASP
PRO
VAL
VAL
LEU
GLY
ALA
LEU
LEU
ALA
ALA
ALA
GLU
GLY
PHE
PHE
CYS
PRO
ALA
ARG
ALA
ILE
LYS
ILE
LEU
PRO
GLN
ARG
ASP
PRO
ALA
THR
ARG
ASP
ARG
SER
LEU
SER
SER
SER
GLY
GLY
ASP

● Molecule 1: Cytochrome P450 51



● Molecule 1: Cytochrome P450 51



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	73.21Å 206.16Å 81.43Å 90.00° 114.09° 90.00°	Depositor
Resolution (Å)	74.45 – 2.55 74.34 – 2.55	Depositor EDS
% Data completeness (in resolution range)	99.0 (74.45-2.55) 99.0 (74.34-2.55)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.80 (at 2.55Å)	Xtrriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.204 , 0.246 0.208 , 0.258	Depositor DCC
R_{free} test set	3792 reflections (5.36%)	wwPDB-VP
Wilson B-factor (Å ²)	30.1	Xtrriage
Anisotropy	0.312	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 54.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.042 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	14767	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.76% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 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, LAN

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	0.62	0/3657	0.74	0/4944
1	B	0.62	0/3651	0.74	0/4937
1	C	0.62	0/3612	0.74	0/4887
1	D	0.62	0/3539	0.71	0/4795
All	All	0.62	0/14459	0.73	0/19563

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 [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	3574	0	3584	80	0
1	B	3568	0	3573	72	0
1	C	3530	0	3514	70	0
1	D	3458	0	3396	41	0
2	A	43	0	30	2	0
2	B	43	0	30	4	0
2	C	43	0	30	1	0
2	D	43	0	30	2	0
3	A	31	0	50	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	31	0	50	5	0
3	C	31	0	50	2	0
3	D	31	0	50	2	0
4	A	103	0	0	0	0
4	B	95	0	0	0	0
4	C	66	0	0	0	0
4	D	77	0	0	0	0
All	All	14767	0	14387	268	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 9.

All (268) 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:117:THR:HG23	1:B:373:PRO:HB3	1.43	1.00
1:B:225:THR:HG22	1:B:226:ASN:H	1.43	0.82
1:A:117:THR:CG2	1:B:373:PRO:HB3	2.11	0.81
1:B:149:THR:HA	1:B:152:THR:HG22	1.68	0.75
1:A:371:TYR:HA	1:A:375:ARG:NH1	2.03	0.73
1:A:117:THR:HG23	1:B:373:PRO:CB	2.18	0.73
1:B:415:TYR:CE1	1:B:447:ARG:HG2	2.24	0.72
2:B:601:HEM:HMC2	2:B:601:HEM:HBC2	1.72	0.71
1:B:149:THR:HA	1:B:152:THR:CG2	2.20	0.71
1:C:142:LEU:O	1:C:145:THR:HG22	1.91	0.70
1:C:145:THR:OG1	1:C:266:THR:HG23	1.91	0.70
1:B:376:ALA:HA	1:B:379:LYS:HD3	1.74	0.69
1:C:307:GLN:O	1:C:311:VAL:HG13	1.93	0.69
1:B:225:THR:O	1:B:229:GLN:HB2	1.94	0.68
1:A:145:THR:OG1	1:A:266:THR:HG23	1.93	0.67
1:D:257:ALA:HB2	3:D:602:LAN:H211	1.75	0.67
1:A:370:ARG:HH21	1:A:377:GLU:HB3	1.60	0.66
1:A:272:GLU:HG2	1:A:366:PHE:CE2	2.31	0.66
1:B:152:THR:HG23	1:B:403:GLN:OE1	1.96	0.66
2:D:601:HEM:HBC2	2:D:601:HEM:HMC2	1.79	0.65
3:B:602:LAN:H2C3	3:B:602:LAN:H262	1.78	0.65
1:A:371:TYR:HA	1:A:375:ARG:HH12	1.61	0.65
1:C:416:GLU:O	1:C:445:TYR:HA	1.97	0.65
1:D:272:GLU:HG2	1:D:366:PHE:CE2	2.33	0.63
1:C:174:TYR:CZ	1:C:255:ILE:HD12	2.34	0.63
1:A:370:ARG:NH2	1:A:384:TRP:CD1	2.67	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:272:GLU:HG2	1:C:366:PHE:CE1	2.34	0.63
1:B:225:THR:HG22	1:B:226:ASN:N	2.13	0.63
1:D:125:GLU:OE2	1:D:163:ARG:NH2	2.31	0.63
2:A:601:HEM:HBC2	2:A:601:HEM:HMC2	1.80	0.63
1:B:251:LEU:O	1:B:254:THR:HG22	1.99	0.63
3:A:602:LAN:H262	3:A:602:LAN:H2C3	1.81	0.62
3:C:602:LAN:H262	3:C:602:LAN:H2C3	1.82	0.62
1:A:17:PRO:O	1:A:18:LEU:HB2	2.00	0.62
1:B:114:PRO:O	1:B:117:THR:HB	2.00	0.61
3:D:602:LAN:H2C3	3:D:602:LAN:H262	1.82	0.61
1:A:114:PRO:O	1:A:117:THR:HB	1.99	0.61
1:B:445:TYR:O	1:B:446:ARG:HG3	2.01	0.61
1:B:157:LEU:O	1:B:227:VAL:HG11	2.01	0.60
1:A:161:GLU:HB3	1:A:217:ARG:HH21	1.65	0.60
1:B:272:GLU:HG2	1:B:366:PHE:CE1	2.36	0.60
1:D:255:ILE:O	1:D:259:HIS:HB3	2.01	0.60
1:C:349:ALA:HB1	1:C:352:VAL:HG13	1.85	0.59
1:B:370:ARG:HH21	1:B:377:GLU:HB3	1.68	0.58
1:D:124:ALA:O	1:D:128:ALA:N	2.37	0.58
1:A:349:ALA:HB1	1:A:352:VAL:HG13	1.86	0.58
1:B:158:LEU:HD21	1:B:254:THR:HG21	1.84	0.58
1:C:210:VAL:O	1:C:214:MET:HG3	2.04	0.58
1:D:439:SER:HB3	1:D:440:PRO:HD3	1.86	0.58
1:A:225:THR:OG1	1:D:39:GLU:HG3	2.04	0.57
1:B:349:ALA:HB1	1:B:352:VAL:HG13	1.86	0.57
1:B:90:VAL:HG12	1:B:91:VAL:HG23	1.87	0.57
1:A:154:SER:CB	1:A:166:LEU:HD11	2.35	0.57
1:B:148:LEU:O	1:B:152:THR:HG22	2.04	0.57
1:B:227:VAL:O	1:B:231:LEU:HG	2.05	0.57
1:B:372:THR:HB	1:B:373:PRO:HD2	1.85	0.57
1:D:155:HIS:CE1	1:D:160:ALA:HB2	2.41	0.56
1:C:269:VAL:HG21	1:C:312:ILE:HG22	1.87	0.56
1:A:122:ILE:HG12	1:A:152:THR:HG23	1.88	0.56
1:B:107:MET:N	1:B:108:PRO:HD2	2.21	0.56
1:C:268:TRP:CE2	1:C:437:PRO:HG3	2.39	0.56
1:C:130:LEU:HD11	1:C:411:LEU:HD23	1.88	0.56
1:C:302:LEU:HD12	1:C:402:PHE:CE1	2.40	0.56
1:D:417:PHE:HA	1:D:444:ARG:O	2.05	0.56
1:B:72:VAL:HG23	1:B:73:LEU:HD13	1.88	0.55
1:A:218:ALA:O	1:A:221:GLN:HB2	2.07	0.55
1:C:439:SER:HB2	1:C:440:PRO:HD3	1.88	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:601:HEM:HBC2	2:B:601:HEM:CMC	2.36	0.55
1:C:227:VAL:O	1:C:230:MET:HB3	2.06	0.55
1:B:149:THR:CA	1:B:152:THR:HG22	2.37	0.55
1:A:375:ARG:NH1	1:A:377:GLU:OE2	2.40	0.54
1:B:213:ILE:HG12	1:B:216:ARG:HH22	1.72	0.54
1:A:224:SER:HA	1:A:229:GLN:HG3	1.89	0.54
1:C:268:TRP:NE1	1:C:437:PRO:HG3	2.22	0.54
1:A:107:MET:N	1:A:108:PRO:HD2	2.23	0.54
1:B:214:MET:HG2	1:B:232:ILE:HG12	1.89	0.54
1:B:278:GLU:HG2	1:B:279:TYR:N	2.22	0.54
1:C:142:LEU:HD12	1:C:145:THR:HG21	1.90	0.53
2:D:601:HEM:HBC2	2:D:601:HEM:CMC	2.38	0.53
2:A:601:HEM:HBC2	2:A:601:HEM:CMC	2.38	0.53
1:B:372:THR:HB	1:B:373:PRO:CD	2.39	0.53
1:C:107:MET:N	1:C:108:PRO:HD2	2.24	0.52
1:D:111:ARG:O	1:D:114:PRO:HD2	2.09	0.52
1:D:406:ALA:HA	1:D:409:CYS:SG	2.49	0.52
1:C:30:HIS:CD2	1:C:351:SER:HB2	2.44	0.52
1:C:142:LEU:HD12	1:C:145:THR:CG2	2.39	0.52
1:A:101:GLN:O	1:A:105:MET:HG3	2.10	0.52
1:C:288:ASP:O	1:C:292:GLU:HG2	2.11	0.51
1:B:370:ARG:NH2	1:B:384:TRP:CD1	2.78	0.51
1:A:161:GLU:HB3	1:A:217:ARG:NH2	2.25	0.51
1:C:136:ALA:HB2	1:C:446:ARG:HG2	1.92	0.51
1:D:113:LYS:HB2	1:D:114:PRO:HD3	1.93	0.51
1:B:113:LYS:HB2	1:B:114:PRO:HD3	1.93	0.50
1:A:90:VAL:HG12	1:A:91:VAL:HG23	1.92	0.50
1:A:416:GLU:O	1:A:445:TYR:HA	2.11	0.50
1:A:113:LYS:HB2	1:A:114:PRO:HD3	1.93	0.50
1:B:415:TYR:CZ	1:B:447:ARG:HG2	2.45	0.50
1:A:302:LEU:HD23	1:A:305:MET:HE2	1.93	0.50
1:C:152:THR:HG22	1:C:403:GLN:OE1	2.12	0.50
1:A:145:THR:HG21	1:A:263:SER:O	2.11	0.50
1:C:123:VAL:HG21	1:C:297:VAL:CG2	2.42	0.49
1:A:111:ARG:O	1:A:114:PRO:HD2	2.12	0.49
1:B:30:HIS:CD2	1:B:351:SER:HB2	2.46	0.49
1:D:119:SER:O	1:D:123:VAL:HG23	2.12	0.49
1:D:221:GLN:O	1:D:222:GLU:C	2.51	0.49
1:B:23:LEU:O	1:B:27:LYS:HG2	2.12	0.49
1:A:30:HIS:CD2	1:A:351:SER:HB2	2.47	0.49
1:A:225:THR:HG22	1:A:225:THR:O	2.13	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:106:LEU:HB2	3:B:602:LAN:H192	1.94	0.49
1:C:23:LEU:O	1:C:27:LYS:HG2	2.13	0.49
1:D:257:ALA:O	1:D:261:THR:OG1	2.27	0.49
1:C:103:LEU:HD23	3:C:602:LAN:H183	1.94	0.49
1:A:23:LEU:O	1:A:27:LYS:HG2	2.13	0.48
1:C:101:GLN:O	1:C:105:MET:HG3	2.12	0.48
1:A:298:THR:HG22	1:A:299:PHE:H	1.77	0.48
1:B:416:GLU:O	1:B:445:TYR:HA	2.13	0.48
1:B:305:MET:HE3	1:B:308:LEU:HD23	1.94	0.48
1:A:72:VAL:HG23	1:A:73:LEU:HD13	1.95	0.48
1:D:439:SER:HB3	1:D:440:PRO:CD	2.43	0.48
1:C:122:ILE:HG12	1:C:152:THR:HG23	1.94	0.48
1:C:445:TYR:O	1:C:446:ARG:HG3	2.14	0.48
1:A:250:MET:O	1:A:254:THR:HB	2.14	0.47
1:B:275:ARG:HD2	1:B:423:PRO:O	2.14	0.47
1:C:113:LYS:CB	1:C:114:PRO:HD3	2.44	0.47
1:D:377:GLU:HG2	1:D:378:ASP:N	2.28	0.47
1:A:117:THR:CB	1:B:373:PRO:HB3	2.45	0.47
1:C:126:VAL:HG22	1:C:148:LEU:HD11	1.96	0.47
1:C:370:ARG:C	1:C:372:THR:H	2.17	0.47
1:D:284:ARG:HD3	1:D:448:ARG:NH1	2.28	0.47
1:C:377:GLU:HG2	1:C:378:ASP:N	2.29	0.47
1:C:255:ILE:O	1:C:259:HIS:HB3	2.15	0.47
1:A:275:ARG:HD2	1:A:423:PRO:O	2.15	0.47
1:B:174:TYR:OH	1:B:255:ILE:HD12	2.15	0.47
1:C:291:PHE:CG	1:C:413:ARG:HD3	2.50	0.47
1:C:305:MET:HE3	1:C:308:LEU:HD23	1.97	0.47
1:A:51:GLN:HE22	1:A:80:ARG:HH22	1.63	0.47
1:A:377:GLU:HG2	1:A:378:ASP:N	2.30	0.47
1:C:141:LEU:O	1:C:145:THR:HB	2.15	0.47
1:C:51:GLN:OE1	1:C:53:MET:CE	2.63	0.46
1:C:420:ALA:HA	1:C:444:ARG:NH1	2.31	0.46
1:A:139:ILE:HG13	1:A:443:ILE:HG22	1.96	0.46
1:C:206:LEU:O	1:C:210:VAL:HG23	2.16	0.46
1:A:123:VAL:HG21	1:A:297:VAL:CG1	2.45	0.46
1:D:312:ILE:HG21	1:D:404:ILE:HD11	1.96	0.46
1:C:269:VAL:CG2	1:C:312:ILE:HG22	2.46	0.46
1:C:56:LEU:HG	1:C:346:VAL:HG23	1.98	0.46
1:C:63:GLU:HG3	1:C:67:ARG:HD3	1.98	0.46
1:B:88:ARG:HA	1:B:93:ASP:OD2	2.16	0.45
1:A:68:ALA:CB	1:A:73:LEU:HD22	2.46	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:217:ARG:HH12	1:A:228:PHE:HE2	1.62	0.45
1:B:254:THR:HB	3:B:602:LAN:H193	1.98	0.45
1:D:270:LEU:CD1	1:D:412:LEU:HD21	2.46	0.45
1:B:439:SER:HB2	1:B:440:PRO:HD3	1.98	0.45
1:D:406:ALA:O	1:D:410:VAL:HG23	2.16	0.45
1:B:272:GLU:HG2	1:B:366:PHE:CD1	2.51	0.45
1:C:175:ARG:HD2	1:C:175:ARG:HA	1.67	0.45
1:A:375:ARG:HD3	1:A:377:GLU:OE2	2.16	0.45
1:B:123:VAL:HG21	1:B:297:VAL:CG1	2.47	0.45
1:C:217:ARG:NH1	1:C:228:PHE:HE2	2.14	0.45
1:B:404:ILE:O	1:B:408:VAL:HG13	2.16	0.45
1:B:74:ASP:OD1	1:B:75:GLN:N	2.50	0.45
1:A:254:THR:OG1	3:A:602:LAN:C19	2.66	0.44
1:A:88:ARG:HA	1:A:93:ASP:OD2	2.16	0.44
1:C:88:ARG:HA	1:C:93:ASP:OD2	2.17	0.44
1:A:217:ARG:NH1	1:A:228:PHE:CE2	2.85	0.44
1:C:257:ALA:HB1	2:C:601:HEM:C3C	2.52	0.44
1:D:88:ARG:HA	1:D:93:ASP:OD2	2.18	0.44
1:C:139:ILE:HG13	1:C:443:ILE:HG22	2.00	0.44
1:A:163:ARG:HD2	1:A:166:LEU:HD12	1.99	0.44
1:B:308:LEU:HD11	1:B:408:VAL:HG21	1.99	0.44
1:C:123:VAL:CG2	1:C:297:VAL:CG2	2.95	0.44
1:B:125:GLU:OE2	1:B:163:ARG:NH2	2.51	0.44
1:B:152:THR:HG21	1:B:407:ILE:HD11	1.98	0.44
1:C:62:SER:O	1:C:66:TYR:CD2	2.71	0.44
1:C:51:GLN:HE22	1:C:80:ARG:HH22	1.65	0.43
1:C:308:LEU:O	1:C:311:VAL:HG22	2.18	0.43
1:A:220:SER:C	1:A:222:GLU:H	2.22	0.43
1:B:51:GLN:HE22	1:B:80:ARG:HH22	1.67	0.43
1:B:302:LEU:HD23	1:B:305:MET:HE2	1.99	0.43
1:D:278:GLU:HG2	1:D:279:TYR:N	2.33	0.43
1:A:220:SER:C	1:A:222:GLU:N	2.71	0.43
1:A:312:ILE:HG21	1:A:404:ILE:HD11	1.99	0.43
2:B:601:HEM:C3D	3:B:602:LAN:H203	2.53	0.43
1:B:357:PRO:HA	1:B:363:PRO:HG3	2.00	0.43
1:A:117:THR:OG1	1:B:373:PRO:HB3	2.18	0.43
1:A:404:ILE:O	1:A:408:VAL:HG13	2.19	0.43
1:D:118:TYR:CE1	1:D:156:CYS:O	2.71	0.43
1:D:278:GLU:HG2	1:D:279:TYR:CD2	2.54	0.43
1:B:254:THR:CB	3:B:602:LAN:H193	2.48	0.43
1:C:228:PHE:HE1	1:C:251:LEU:HD11	1.83	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:126:VAL:HG22	1:D:148:LEU:HD21	2.00	0.43
1:A:308:LEU:HD11	1:A:408:VAL:HG21	2.01	0.43
1:A:376:ALA:HA	1:A:379:LYS:HE2	2.01	0.43
1:D:134:LYS:O	1:D:136:ALA:N	2.46	0.43
1:B:139:ILE:HG13	1:B:443:ILE:HG22	2.01	0.42
1:C:251:LEU:O	1:C:255:ILE:HG13	2.19	0.42
1:C:314:GLU:OE1	1:C:314:GLU:HA	2.19	0.42
1:A:146:LYS:HA	1:A:263:SER:OG	2.19	0.42
1:B:274:LEU:HD23	1:B:280:LEU:HD22	2.01	0.42
1:C:217:ARG:NH1	1:C:228:PHE:CE2	2.87	0.42
1:C:323:ILE:HD13	1:C:435:VAL:CG2	2.49	0.42
1:D:206:LEU:HD23	1:D:252:ILE:CG1	2.49	0.42
1:A:74:ASP:OD1	1:A:75:GLN:N	2.52	0.42
1:C:134:LYS:O	1:C:136:ALA:N	2.52	0.42
1:A:167:ASN:H	1:A:170:PHE:HB2	1.85	0.42
1:D:144:LEU:HD13	1:D:144:LEU:HA	1.96	0.42
1:A:288:ASP:O	1:A:292:GLU:HG2	2.19	0.42
1:B:255:ILE:O	1:B:259:HIS:HB3	2.20	0.42
1:B:288:ASP:O	1:B:292:GLU:HG2	2.20	0.42
1:A:220:SER:HB2	1:A:222:GLU:HG2	2.00	0.42
1:B:150:ILE:HG22	1:B:166:LEU:HD21	2.01	0.42
1:D:158:LEU:HD21	1:D:254:THR:HG21	2.01	0.42
1:A:319:HIS:N	1:A:320:PRO:CD	2.83	0.42
1:B:263:SER:O	1:B:266:THR:HG22	2.18	0.42
1:C:323:ILE:HG21	1:C:435:VAL:HG21	2.02	0.42
1:A:376:ALA:HA	1:A:379:LYS:HD3	2.02	0.42
1:C:65:PHE:CD1	1:C:346:VAL:HG22	2.55	0.42
1:A:43:VAL:HG21	1:A:335:VAL:HG23	2.02	0.42
1:C:217:ARG:HH12	1:C:228:PHE:HE2	1.67	0.42
1:C:370:ARG:C	1:C:372:THR:N	2.74	0.42
1:A:165:GLU:OE2	1:A:216:ARG:NH2	2.52	0.41
1:C:130:LEU:O	1:C:133:TRP:HB2	2.19	0.41
1:A:16:LEU:HD12	1:A:23:LEU:HD12	2.02	0.41
1:C:121:ILE:HG23	1:C:155:HIS:CG	2.55	0.41
1:A:272:GLU:HG2	1:A:366:PHE:CD2	2.55	0.41
1:B:151:TYR:CD1	1:B:166:LEU:HD23	2.55	0.41
1:B:380:ASP:C	1:B:382:TYR:H	2.23	0.41
1:D:63:GLU:HG2	1:D:67:ARG:HD3	2.02	0.41
1:A:305:MET:HE3	1:A:308:LEU:HD23	2.03	0.41
1:B:175:ARG:HD2	1:B:175:ARG:HA	1.65	0.41
1:C:439:SER:HB2	1:C:440:PRO:CD	2.49	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:139:ILE:HG13	1:D:443:ILE:HG22	2.01	0.41
1:A:134:LYS:O	1:A:136:ALA:N	2.54	0.41
1:A:314:GLU:OE1	1:A:314:GLU:HA	2.21	0.41
1:B:123:VAL:CG2	1:B:297:VAL:CG1	2.98	0.41
1:D:275:ARG:HG3	1:D:419:LEU:HD21	2.02	0.41
1:D:314:GLU:HA	1:D:314:GLU:OE1	2.20	0.41
1:A:221:GLN:O	1:A:221:GLN:HG3	2.21	0.41
1:B:43:VAL:HG21	1:B:335:VAL:HG23	2.02	0.41
1:D:104:GLN:O	1:D:108:PRO:HD3	2.21	0.41
1:A:86:PHE:CE1	1:A:253:ALA:HA	2.56	0.41
1:A:263:SER:O	1:A:266:THR:HG22	2.20	0.41
1:B:422:ALA:O	1:B:425:SER:HB3	2.21	0.41
1:D:218:ALA:O	1:D:219:ARG:C	2.58	0.41
1:B:314:GLU:OE1	1:B:314:GLU:HA	2.20	0.41
1:A:123:VAL:CG2	1:A:297:VAL:CG1	2.99	0.41
1:A:145:THR:CG2	1:A:263:SER:O	2.68	0.41
1:A:215:GLU:HA	1:A:215:GLU:OE2	2.20	0.41
1:A:380:ASP:C	1:A:382:TYR:H	2.25	0.41
1:B:141:LEU:O	1:B:145:THR:HG23	2.21	0.41
1:C:97:GLU:H	1:C:97:GLU:CD	2.24	0.41
1:C:357:PRO:HA	1:C:363:PRO:HG3	2.02	0.41
1:D:107:MET:N	1:D:108:PRO:HD2	2.36	0.41
1:A:27:LYS:HA	1:A:27:LYS:HD3	1.88	0.41
1:A:158:LEU:HD13	1:A:251:LEU:HD22	2.02	0.41
1:C:319:HIS:N	1:C:320:PRO:CD	2.84	0.41
1:D:107:MET:HB2	1:D:108:PRO:HD3	2.01	0.41
1:A:64:ALA:CB	1:A:335:VAL:HG12	2.51	0.40
1:B:319:HIS:N	1:B:320:PRO:CD	2.84	0.40
1:D:158:LEU:HD22	1:D:251:LEU:HD23	2.03	0.40
1:A:357:PRO:HA	1:A:363:PRO:HG3	2.03	0.40
1:C:51:GLN:HB3	1:C:53:MET:CE	2.52	0.40
1:D:68:ALA:CB	1:D:73:LEU:HD22	2.52	0.40
1:D:272:GLU:HG2	1:D:366:PHE:CD2	2.55	0.40
1:A:278:GLU:HA	1:A:281:ARG:HD3	2.04	0.40
1:C:64:ALA:CB	1:C:335:VAL:HG12	2.52	0.40
1:B:261:THR:HB	2:B:601:HEM:C3B	2.57	0.40
1:C:275:ARG:HD2	1:C:423:PRO:O	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	441/551 (80%)	412 (93%)	28 (6%)	1 (0%)	47	60
1	B	441/551 (80%)	415 (94%)	25 (6%)	1 (0%)	47	60
1	C	436/551 (79%)	409 (94%)	26 (6%)	1 (0%)	47	60
1	D	435/551 (79%)	412 (95%)	22 (5%)	1 (0%)	47	60
All	All	1753/2204 (80%)	1648 (94%)	101 (6%)	4 (0%)	47	60

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	91	VAL
1	B	91	VAL
1	C	91	VAL
1	D	91	VAL

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	381/466 (82%)	376 (99%)	5 (1%)	69	80
1	B	380/466 (82%)	376 (99%)	4 (1%)	73	83
1	C	374/466 (80%)	368 (98%)	6 (2%)	62	77
1	D	360/466 (77%)	353 (98%)	7 (2%)	57	72
All	All	1495/1864 (80%)	1473 (98%)	22 (2%)	65	77

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	144	LEU
1	A	145	THR
1	A	163	ARG
1	A	169	GLU
1	A	254	THR
1	B	148	LEU
1	B	163	ARG
1	B	203	ARG
1	B	380	ASP
1	C	119	SER
1	C	145	THR
1	C	148	LEU
1	C	163	ARG
1	C	254	THR
1	C	281	ARG
1	D	163	ARG
1	D	221	GLN
1	D	254	THR
1	D	273	LEU
1	D	281	ARG
1	D	355	ARG
1	D	373	PRO

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	30	HIS
1	A	310	ASN
1	B	221	GLN

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](#)

8 ligands are modelled in this entry.

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	B	601	1	41,50,50	1.36	7 (17%)	45,82,82	2.02	17 (37%)
3	LAN	A	602	-	34,34,34	0.38	0	56,56,56	0.66	0
2	HEM	A	601	1	41,50,50	1.37	7 (17%)	45,82,82	1.94	11 (24%)
3	LAN	C	602	-	34,34,34	0.39	0	56,56,56	0.64	0
2	HEM	C	601	1	41,50,50	1.36	7 (17%)	45,82,82	2.00	10 (22%)
3	LAN	D	602	-	34,34,34	0.38	0	56,56,56	0.64	0
3	LAN	B	602	-	34,34,34	0.39	0	56,56,56	0.63	0
2	HEM	D	601	1	41,50,50	1.37	7 (17%)	45,82,82	2.02	11 (24%)

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	B	601	1	-	2/12/54/54	-
3	LAN	A	602	-	-	3/10/82/82	0/4/4/4
2	HEM	A	601	1	-	3/12/54/54	-
3	LAN	C	602	-	-	0/10/82/82	0/4/4/4
2	HEM	C	601	1	-	3/12/54/54	-
3	LAN	D	602	-	-	0/10/82/82	0/4/4/4
3	LAN	B	602	-	-	1/10/82/82	0/4/4/4
2	HEM	D	601	1	-	4/12/54/54	-

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	601	HEM	C1B-NB	-3.58	1.34	1.40
2	C	601	HEM	C1B-NB	-3.57	1.34	1.40
2	A	601	HEM	C1B-NB	-3.56	1.34	1.40
2	B	601	HEM	C1B-NB	-3.54	1.34	1.40
2	D	601	HEM	C4D-ND	-3.46	1.34	1.40
2	C	601	HEM	C4D-ND	-3.42	1.34	1.40
2	A	601	HEM	C4D-ND	-3.42	1.34	1.40
2	B	601	HEM	C4D-ND	-3.40	1.34	1.40
2	B	601	HEM	FE-NB	2.78	2.10	1.96
2	A	601	HEM	FE-NB	2.75	2.10	1.96
2	D	601	HEM	FE-NB	2.72	2.10	1.96
2	C	601	HEM	FE-NB	2.72	2.10	1.96
2	D	601	HEM	C1D-ND	-2.29	1.34	1.38
2	A	601	HEM	C1D-ND	-2.26	1.34	1.38
2	D	601	HEM	FE-ND	-2.24	1.85	1.96
2	B	601	HEM	C1D-ND	-2.21	1.34	1.38
2	C	601	HEM	C1D-ND	-2.21	1.34	1.38
2	C	601	HEM	FE-ND	-2.18	1.86	1.96
2	B	601	HEM	CHB-C1B	2.16	1.40	1.35
2	B	601	HEM	FE-ND	-2.16	1.86	1.96
2	C	601	HEM	C4B-NB	-2.16	1.34	1.38
2	A	601	HEM	C4B-NB	-2.16	1.34	1.38
2	D	601	HEM	C4B-NB	-2.15	1.34	1.38
2	A	601	HEM	FE-ND	-2.14	1.86	1.96
2	B	601	HEM	C4B-NB	-2.13	1.34	1.38
2	A	601	HEM	CHB-C1B	2.08	1.40	1.35
2	D	601	HEM	CHB-C1B	2.03	1.40	1.35
2	C	601	HEM	CHB-C1B	2.03	1.40	1.35

All (49) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	601	HEM	CHC-C4B-NB	5.82	130.75	124.43
2	D	601	HEM	CHC-C4B-NB	5.38	130.27	124.43
2	C	601	HEM	CHC-C4B-NB	5.31	130.20	124.43
2	A	601	HEM	CHC-C4B-NB	5.21	130.09	124.43
2	D	601	HEM	CHD-C1D-ND	5.10	129.97	124.43
2	B	601	HEM	CHD-C1D-ND	4.91	129.77	124.43
2	C	601	HEM	CHD-C1D-ND	4.68	129.52	124.43
2	A	601	HEM	CHD-C1D-ND	4.48	129.30	124.43
2	C	601	HEM	CHB-C1B-NB	4.04	129.37	124.38
2	C	601	HEM	CHA-C4D-ND	3.99	129.31	124.38
2	D	601	HEM	CHB-C1B-NB	3.83	129.12	124.38

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	601	HEM	CHD-C1D-C2D	-3.68	119.23	124.98
2	B	601	HEM	CHD-C1D-C2D	-3.68	119.24	124.98
2	A	601	HEM	CHB-C1B-NB	3.65	128.89	124.38
2	D	601	HEM	CHA-C4D-ND	3.63	128.87	124.38
2	A	601	HEM	CHD-C1D-C2D	-3.58	119.39	124.98
2	C	601	HEM	CHD-C1D-C2D	-3.48	119.54	124.98
2	D	601	HEM	C1B-NB-C4B	3.35	108.53	105.07
2	C	601	HEM	C1B-NB-C4B	3.29	108.47	105.07
2	B	601	HEM	CHA-C4D-ND	3.25	128.40	124.38
2	A	601	HEM	C1B-NB-C4B	3.24	108.42	105.07
2	A	601	HEM	CHA-C4D-ND	3.16	128.28	124.38
2	B	601	HEM	CHB-C1B-NB	3.07	128.17	124.38
2	B	601	HEM	C1B-NB-C4B	3.03	108.20	105.07
2	D	601	HEM	CHA-C4D-C3D	-3.00	119.70	125.33
2	C	601	HEM	CHA-C4D-C3D	-2.94	119.81	125.33
2	A	601	HEM	CHA-C4D-C3D	-2.91	119.87	125.33
2	C	601	HEM	CAD-CBD-CGD	-2.86	107.45	113.60
2	B	601	HEM	CHC-C4B-C3B	-2.76	120.34	124.57
2	B	601	HEM	CHA-C4D-C3D	-2.73	120.20	125.33
2	D	601	HEM	CAD-CBD-CGD	-2.71	107.77	113.60
2	C	601	HEM	CHB-C1B-C2B	-2.62	119.47	126.72
2	D	601	HEM	CAD-C3D-C4D	2.52	129.05	124.66
2	B	601	HEM	CAD-C3D-C4D	2.51	129.04	124.66
2	A	601	HEM	O2D-CGD-CBD	2.46	121.94	114.03
2	B	601	HEM	C4B-C3B-C2B	-2.42	105.19	107.11
2	D	601	HEM	CHB-C1B-C2B	-2.42	120.02	126.72
2	A	601	HEM	CHB-C1B-C2B	-2.38	120.15	126.72
2	A	601	HEM	CAD-C3D-C4D	2.28	128.65	124.66
2	B	601	HEM	CMA-C3A-C4A	-2.25	125.01	128.46
2	B	601	HEM	O2D-CGD-CBD	2.24	121.24	114.03
2	B	601	HEM	CMC-C2C-C3C	2.24	128.86	124.68
2	B	601	HEM	O2A-CGA-CBA	2.09	120.75	114.03
2	B	601	HEM	C4A-C3A-C2A	2.08	108.44	107.00
2	B	601	HEM	O2A-CGA-O1A	-2.06	118.15	123.30
2	B	601	HEM	CHB-C1B-C2B	-2.05	121.04	126.72
2	A	601	HEM	CAA-CBA-CGA	-2.04	108.03	113.76
2	D	601	HEM	CHC-C4B-C3B	-2.03	121.47	124.57
2	C	601	HEM	O2D-CGD-CBD	2.02	120.52	114.03

There are no chirality outliers.

All (16) torsion outliers are listed below:

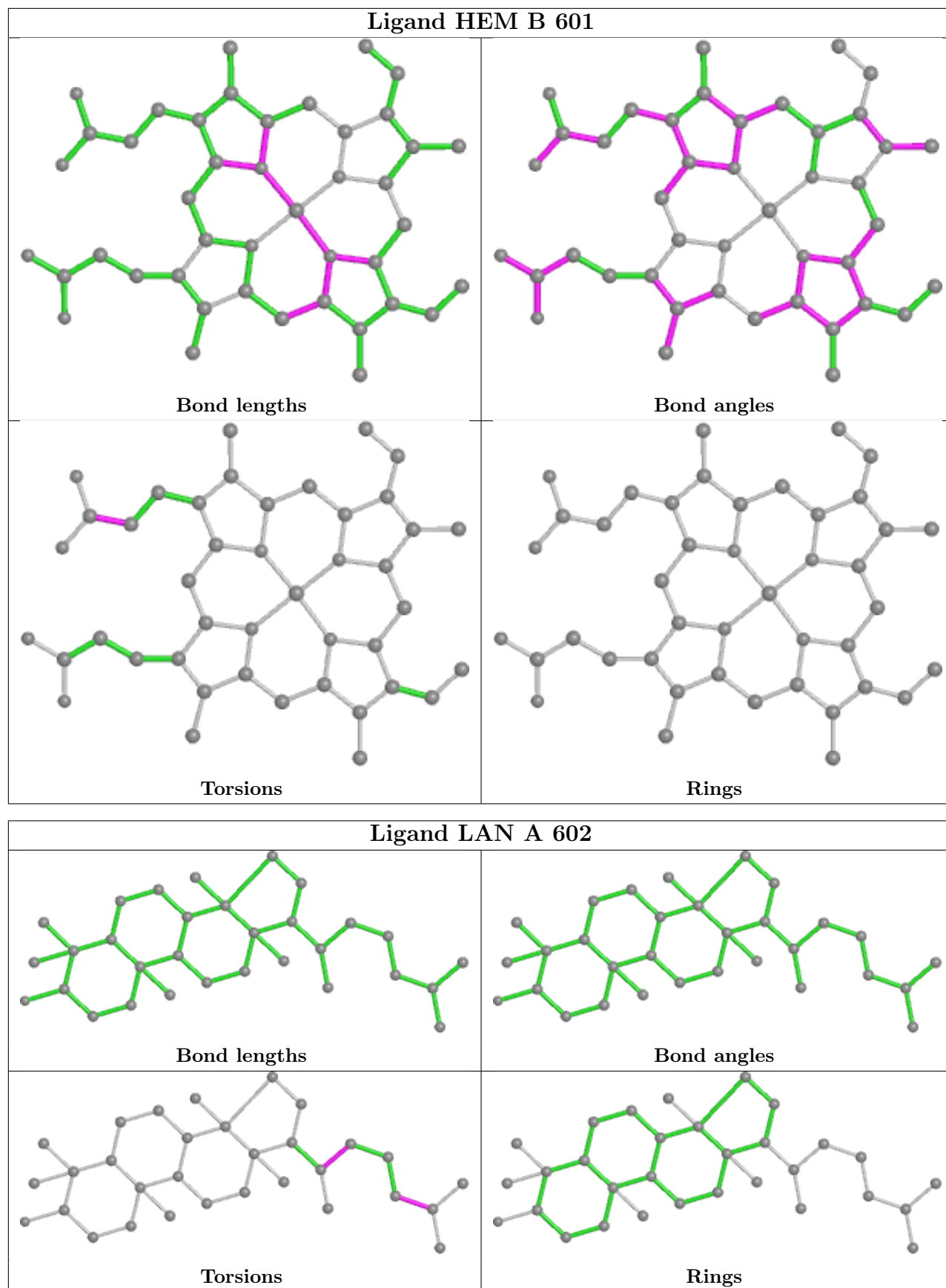
Mol	Chain	Res	Type	Atoms
3	A	602	LAN	C15-C16-C17-C19
3	A	602	LAN	C15-C16-C17-C18
3	B	602	LAN	C20-C13-C14-C15
3	A	602	LAN	C20-C13-C14-C15
2	B	601	HEM	CAD-CBD-CGD-O1D
2	A	601	HEM	CAD-CBD-CGD-O1D
2	A	601	HEM	CAD-CBD-CGD-O2D
2	B	601	HEM	CAD-CBD-CGD-O2D
2	C	601	HEM	CAA-CBA-CGA-O1A
2	C	601	HEM	CAA-CBA-CGA-O2A
2	D	601	HEM	CAD-CBD-CGD-O1D
2	A	601	HEM	CAA-CBA-CGA-O2A
2	D	601	HEM	CAD-CBD-CGD-O2D
2	D	601	HEM	CAA-CBA-CGA-O1A
2	C	601	HEM	CAD-CBD-CGD-O1D
2	D	601	HEM	CAA-CBA-CGA-O2A

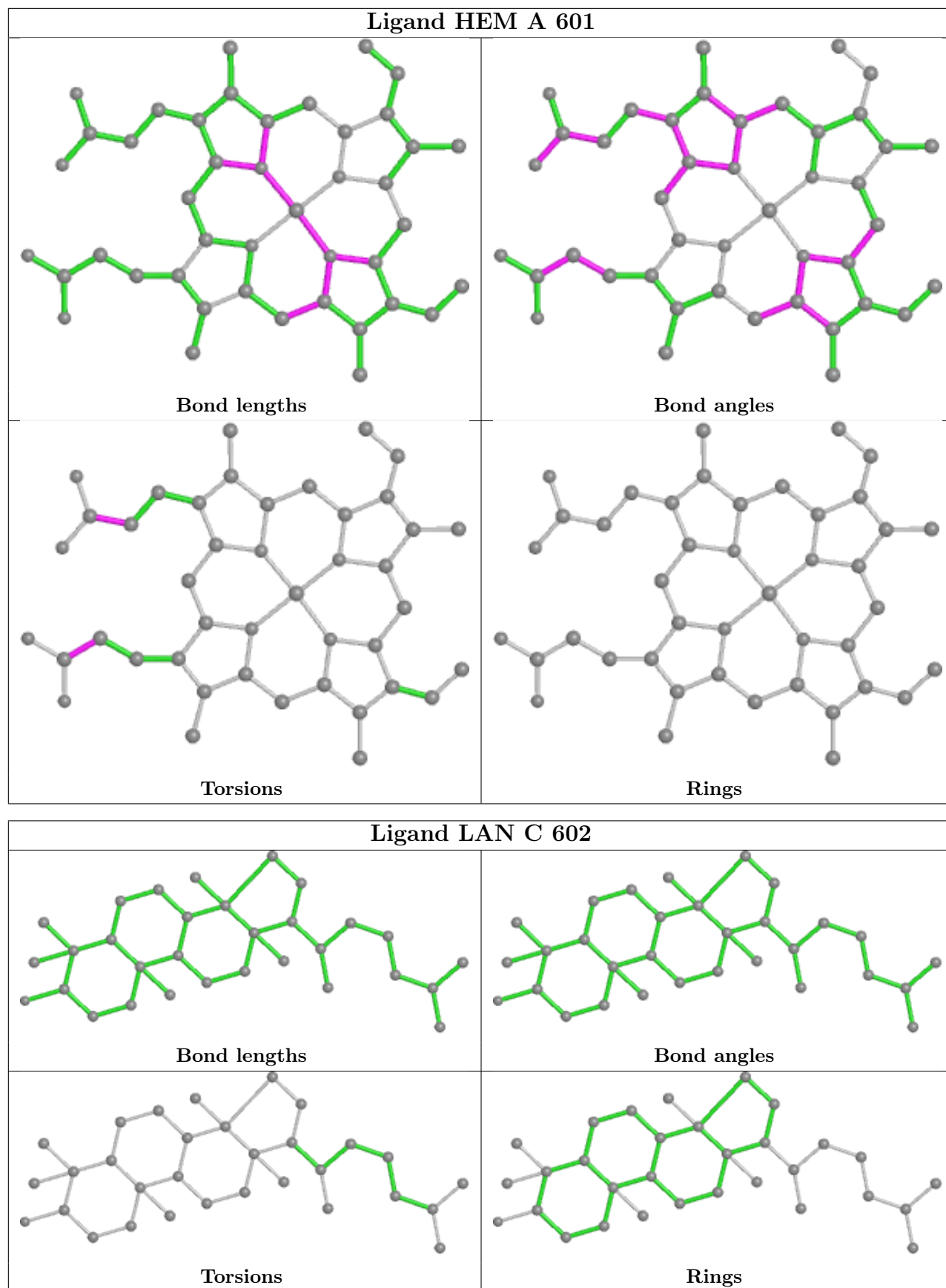
There are no ring outliers.

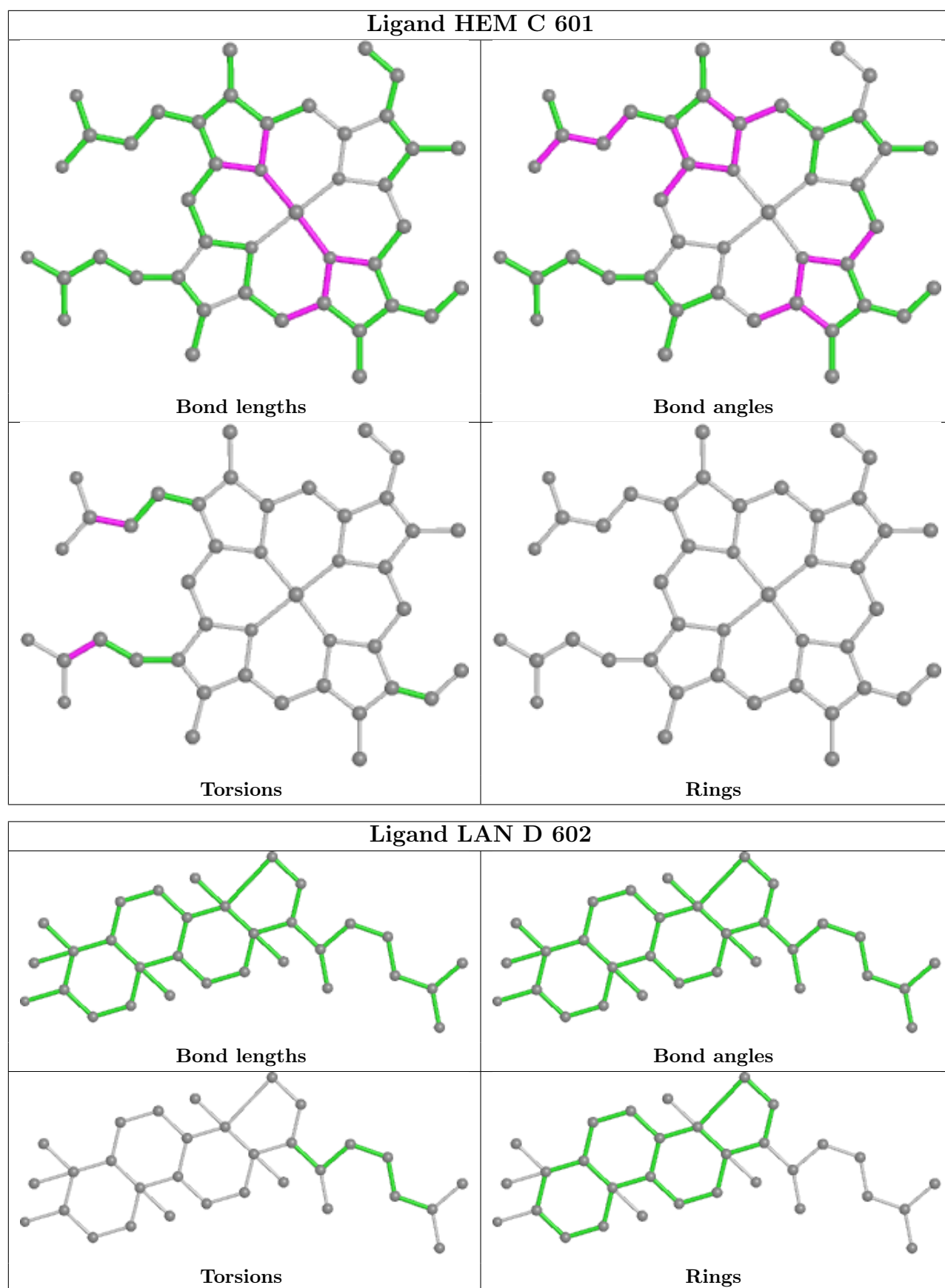
8 monomers are involved in 19 short contacts:

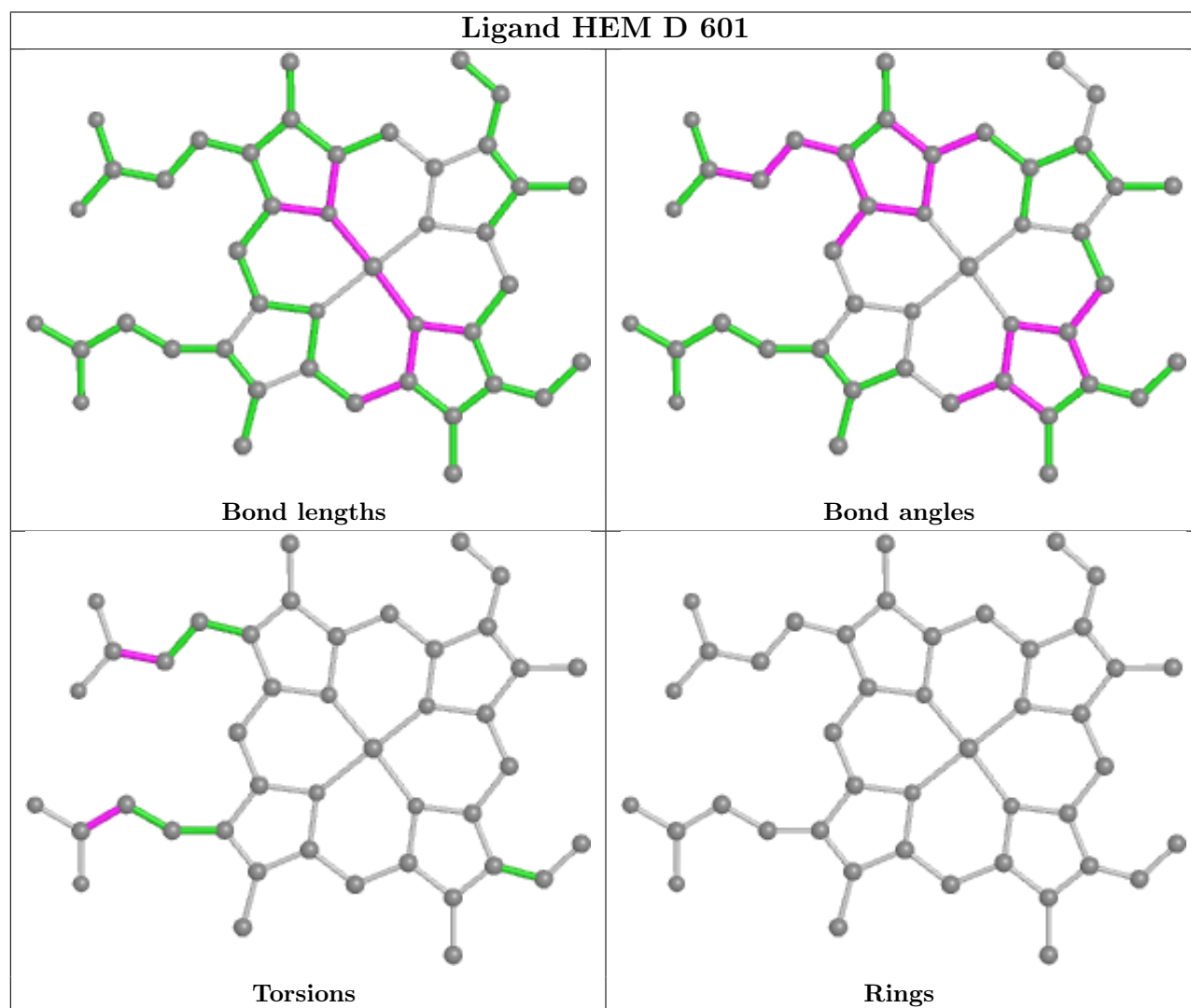
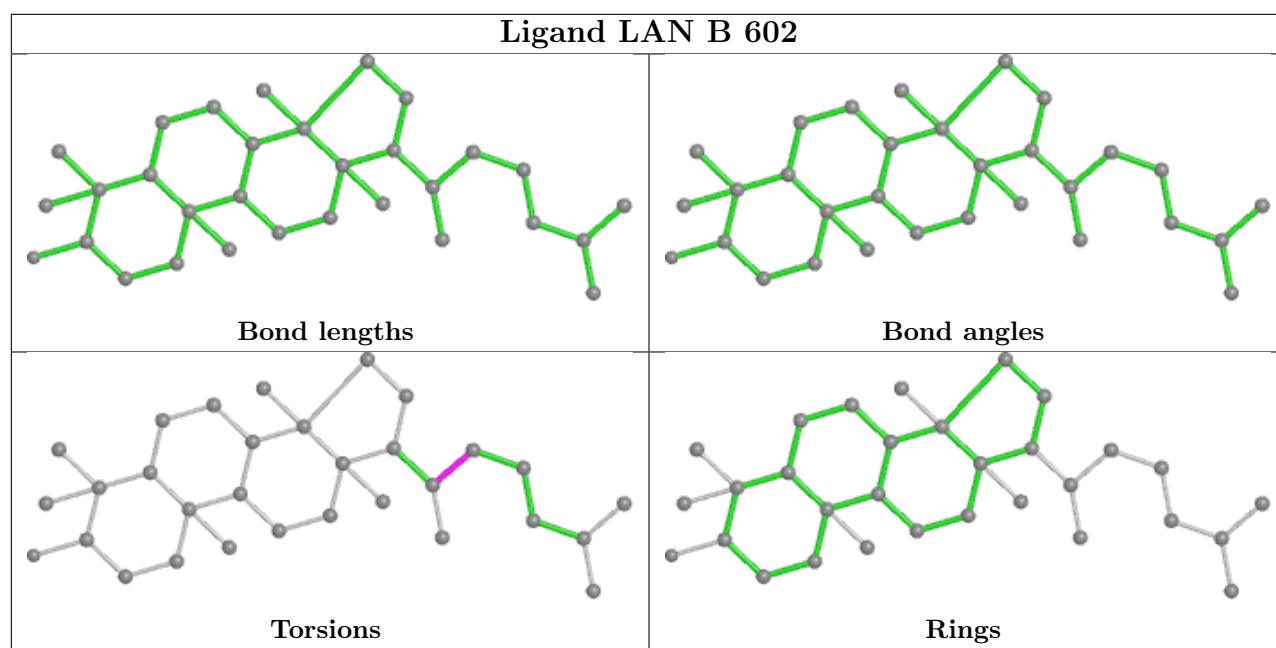
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	601	HEM	4	0
3	A	602	LAN	2	0
2	A	601	HEM	2	0
3	C	602	LAN	2	0
2	C	601	HEM	1	0
3	D	602	LAN	2	0
3	B	602	LAN	5	0
2	D	601	HEM	2	0

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 than 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.









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

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	443/551 (80%)	0.26	16 (3%) 42 49	13, 38, 97, 138	0
1	B	443/551 (80%)	0.38	21 (4%) 31 38	12, 41, 104, 193	0
1	C	440/551 (79%)	0.77	51 (11%) 4 6	16, 55, 144, 172	0
1	D	439/551 (79%)	0.97	75 (17%) 1 1	15, 71, 153, 204	0
All	All	1765/2204 (80%)	0.59	163 (9%) 9 10	12, 51, 132, 204	0

All (163) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	371	TYR	11.7
1	D	296	ARG	10.1
1	C	379	LYS	7.8
1	D	375	ARG	7.4
1	B	371	TYR	7.0
1	D	379	LYS	6.8
1	D	297	VAL	6.2
1	A	371	TYR	6.2
1	C	132	ASP	5.8
1	A	221	GLN	5.8
1	C	412	LEU	5.3
1	C	136	ALA	5.1
1	A	373	PRO	5.1
1	D	292	GLU	4.9
1	B	225	THR	4.9
1	C	281	ARG	4.9
1	D	411	LEU	4.8
1	C	381	LEU	4.8
1	C	291	PHE	4.7
1	B	219	ARG	4.6
1	D	374	GLU	4.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	281	ARG	4.6
1	D	285	ALA	4.5
1	B	218	ALA	4.4
1	D	381	LEU	4.4
1	C	134	LYS	4.4
1	C	447	ARG	4.3
1	D	304	GLN	4.3
1	C	415	TYR	4.2
1	A	225	THR	4.1
1	C	409	CYS	4.1
1	D	445	TYR	4.1
1	D	420	ALA	4.0
1	A	379	LYS	4.0
1	D	443	ILE	4.0
1	D	307	GLN	4.0
1	C	307	GLN	3.9
1	D	371	TYR	3.9
1	C	133	TRP	3.9
1	D	378	ASP	3.9
1	D	289	ALA	3.9
1	C	131	ARG	3.8
1	B	381	LEU	3.8
1	C	305	MET	3.8
1	B	378	ASP	3.8
1	C	444	ARG	3.8
1	D	293	THR	3.8
1	D	219	ARG	3.7
1	D	448	ARG	3.7
1	D	111	ARG	3.7
1	D	156	CYS	3.6
1	D	127	GLU	3.5
1	C	289	ALA	3.5
1	D	404	ILE	3.5
1	C	416	GLU	3.4
1	D	106	LEU	3.4
1	B	375	ARG	3.4
1	C	292	GLU	3.4
1	D	130	LEU	3.4
1	D	229	GLN	3.4
1	C	420	ALA	3.3
1	A	219	ARG	3.3
1	C	423	PRO	3.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	446	ARG	3.2
1	B	233	ASP	3.2
1	D	220	SER	3.2
1	C	382	TYR	3.2
1	B	362	ASN	3.1
1	C	220	SER	3.1
1	D	299	PHE	3.1
1	D	415	TYR	3.1
1	D	131	ARG	3.1
1	D	166	LEU	3.1
1	A	226	ASN	3.0
1	D	283	VAL	3.0
1	D	408	VAL	3.0
1	C	221	GLN	3.0
1	D	308	LEU	3.0
1	B	373	PRO	3.0
1	C	222	GLU	2.9
1	B	291	PHE	2.9
1	B	6	SER	2.9
1	D	402	PHE	2.9
1	D	221	GLN	2.9
1	A	218	ALA	2.9
1	A	290	LEU	2.9
1	D	311	VAL	2.9
1	C	417	PHE	2.9
1	C	413	ARG	2.9
1	B	7	ASN	2.9
1	D	413	ARG	2.9
1	C	139	ILE	2.9
1	D	168	THR	2.9
1	A	6	SER	2.8
1	D	110	LEU	2.8
1	D	7	ASN	2.8
1	C	418	GLU	2.8
1	D	277	PRO	2.8
1	B	221	GLN	2.7
1	D	287	ILE	2.7
1	A	439	SER	2.7
1	C	135	ASP	2.7
1	D	126	VAL	2.7
1	D	275	ARG	2.7
1	D	409	CYS	2.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	6	SER	2.7
1	C	445	TYR	2.7
1	D	382	TYR	2.7
1	D	234	ALA	2.6
1	D	419	LEU	2.6
1	D	115	MET	2.6
1	C	217	ARG	2.6
1	C	274	LEU	2.6
1	D	162	PHE	2.6
1	D	279	TYR	2.5
1	D	412	LEU	2.5
1	D	232	ILE	2.5
1	D	417	PHE	2.5
1	B	222	GLU	2.5
1	C	106	LEU	2.5
1	C	411	LEU	2.5
1	C	406	ALA	2.5
1	D	170	PHE	2.4
1	A	375	ARG	2.4
1	A	381	LEU	2.4
1	D	280	LEU	2.4
1	B	112	ASP	2.4
1	C	443	ILE	2.4
1	D	216	ARG	2.4
1	D	160	ALA	2.4
1	D	135	ASP	2.4
1	D	123	VAL	2.4
1	D	69	PRO	2.4
1	B	294	HIS	2.3
1	C	138	THR	2.3
1	C	290	LEU	2.3
1	C	422	ALA	2.3
1	D	439	SER	2.3
1	C	372	THR	2.3
1	B	161	GLU	2.3
1	B	379	LYS	2.2
1	A	415	TYR	2.2
1	D	288	ASP	2.2
1	D	422	ALA	2.2
1	A	164	HIS	2.2
1	D	132	ASP	2.2
1	C	130	LEU	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	157	LEU	2.2
1	A	370	ARG	2.2
1	D	284	ARG	2.2
1	C	293	THR	2.2
1	D	218	ALA	2.2
1	C	161	GLU	2.1
1	D	222	GLU	2.1
1	D	278	GLU	2.1
1	B	415	TYR	2.1
1	C	144	LEU	2.1
1	D	155	HIS	2.1
1	B	223	ARG	2.1
1	C	310	ASN	2.0
1	C	111	ARG	2.0
1	D	273	LEU	2.0
1	C	421	ALA	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 monosaccharides 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. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

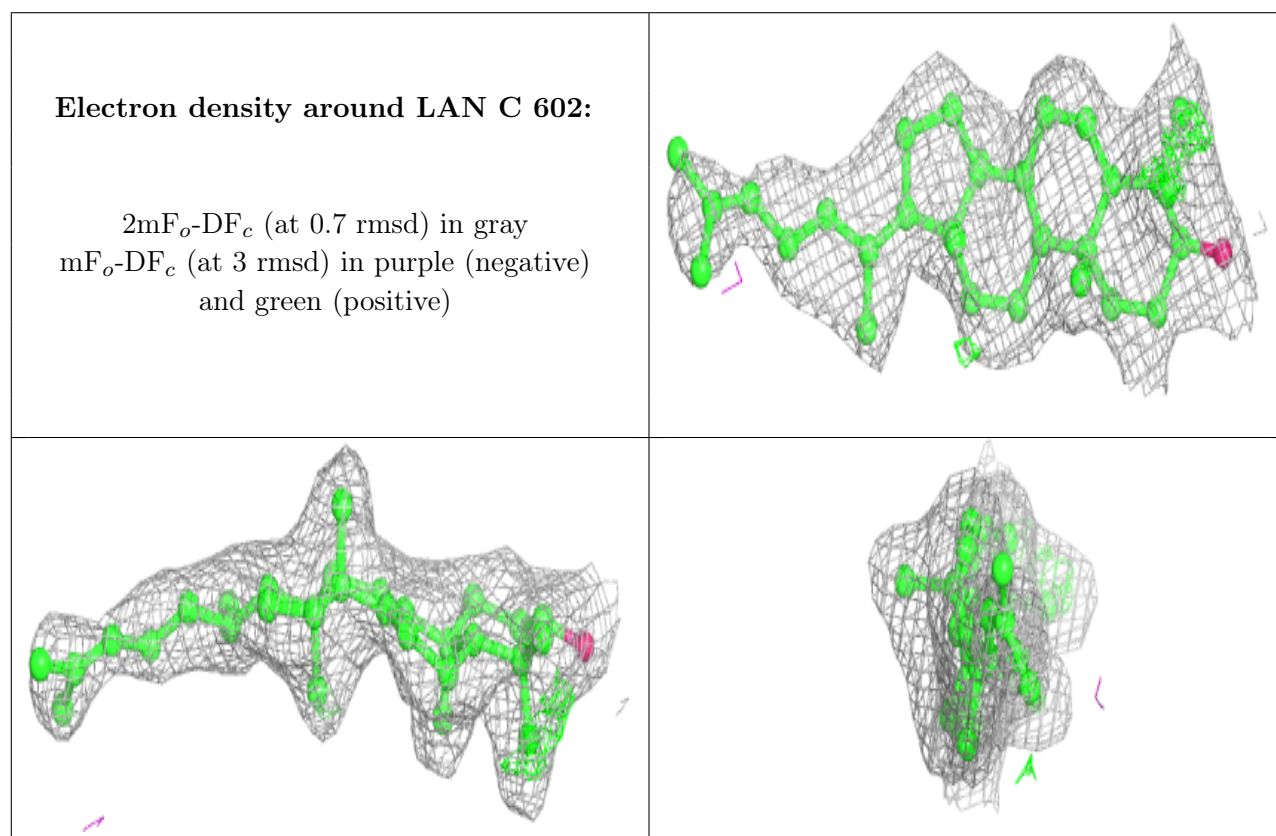
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	LAN	C	602	31/31	0.93	0.18	21,26,50,65	0
3	LAN	A	602	31/31	0.94	0.15	12,12,19,21	0
3	LAN	D	602	31/31	0.94	0.17	24,31,51,69	0
3	LAN	B	602	31/31	0.95	0.17	11,12,60,67	0
2	HEM	D	601	43/43	0.96	0.17	32,40,49,56	0
2	HEM	C	601	43/43	0.97	0.15	27,35,40,41	0
2	HEM	B	601	43/43	0.97	0.13	12,15,21,27	0

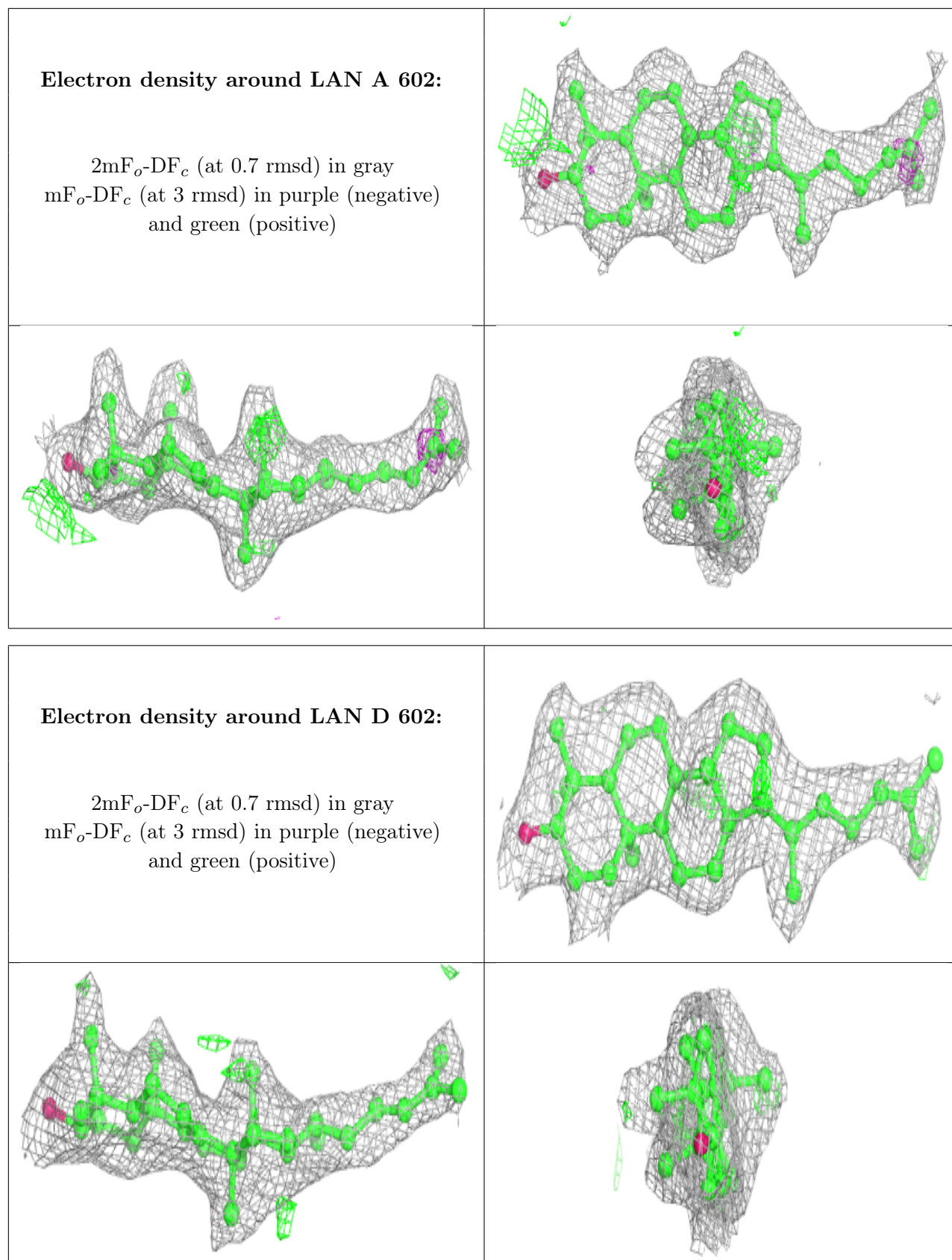
Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	HEM	A	601	43/43	0.98	0.14	12,13,16,17	0

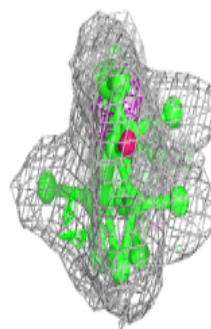
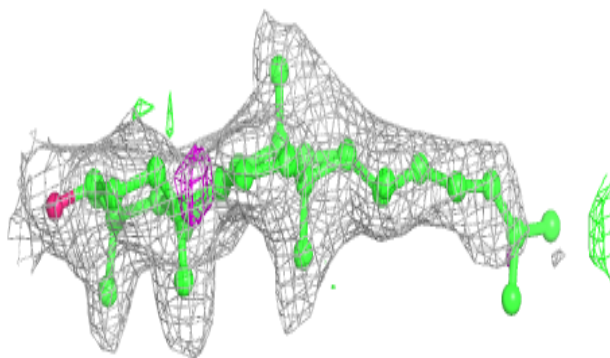
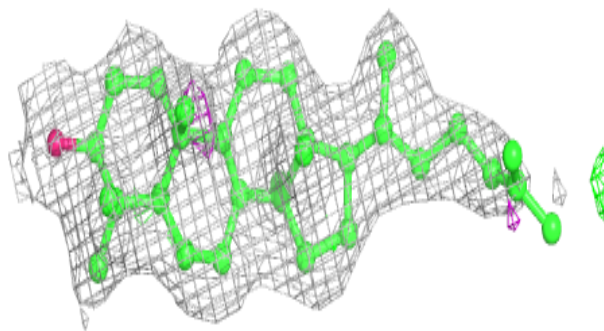
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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



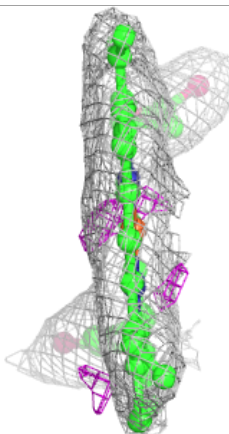
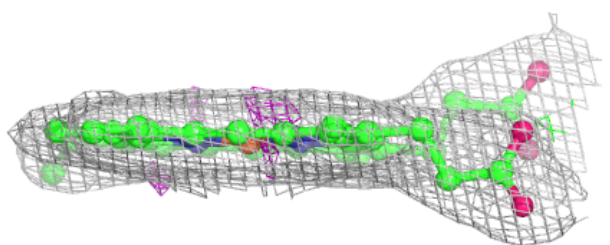
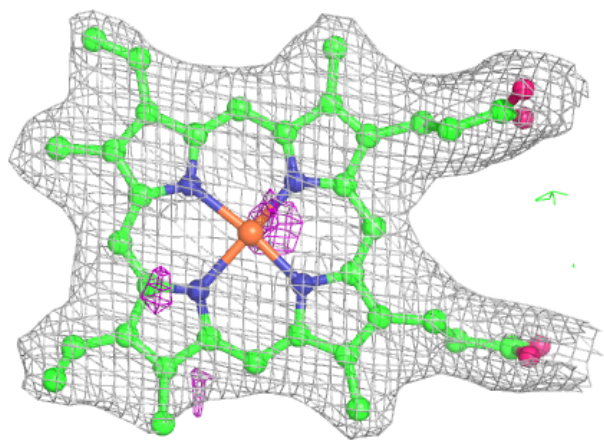


Electron density around LAN B 602:

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

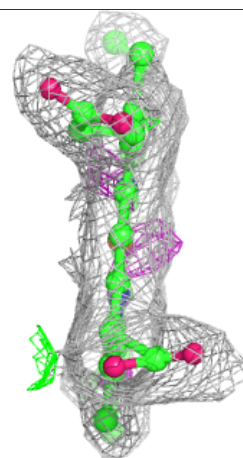
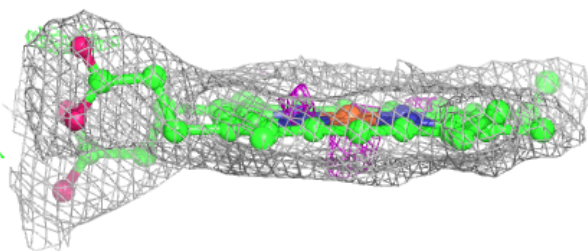
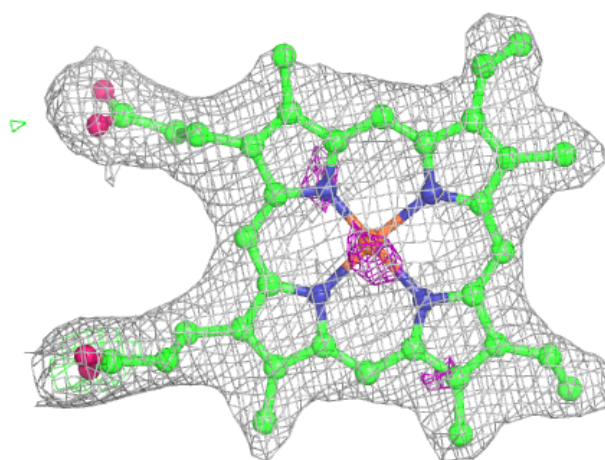
**Electron density around HEM D 601:**

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



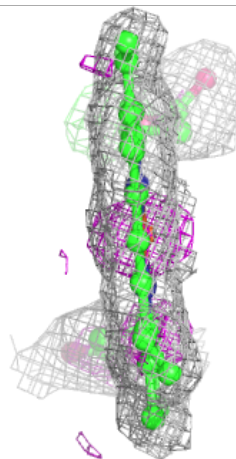
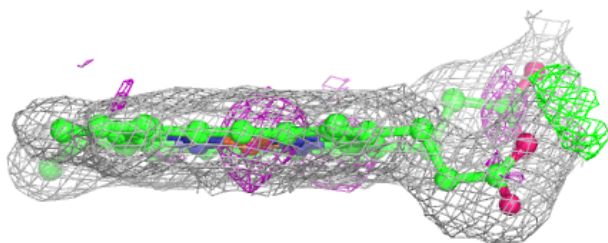
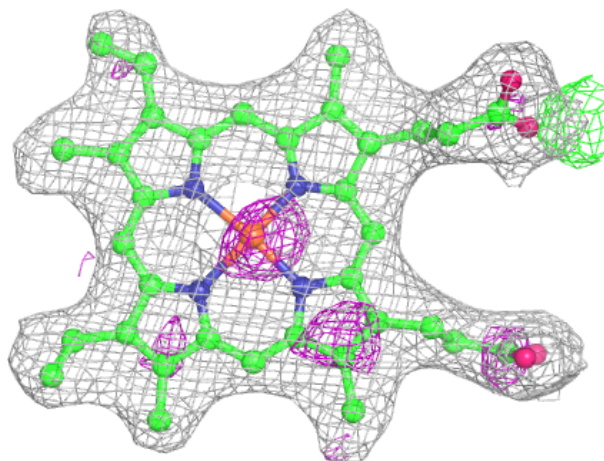
Electron density around HEM C 601:

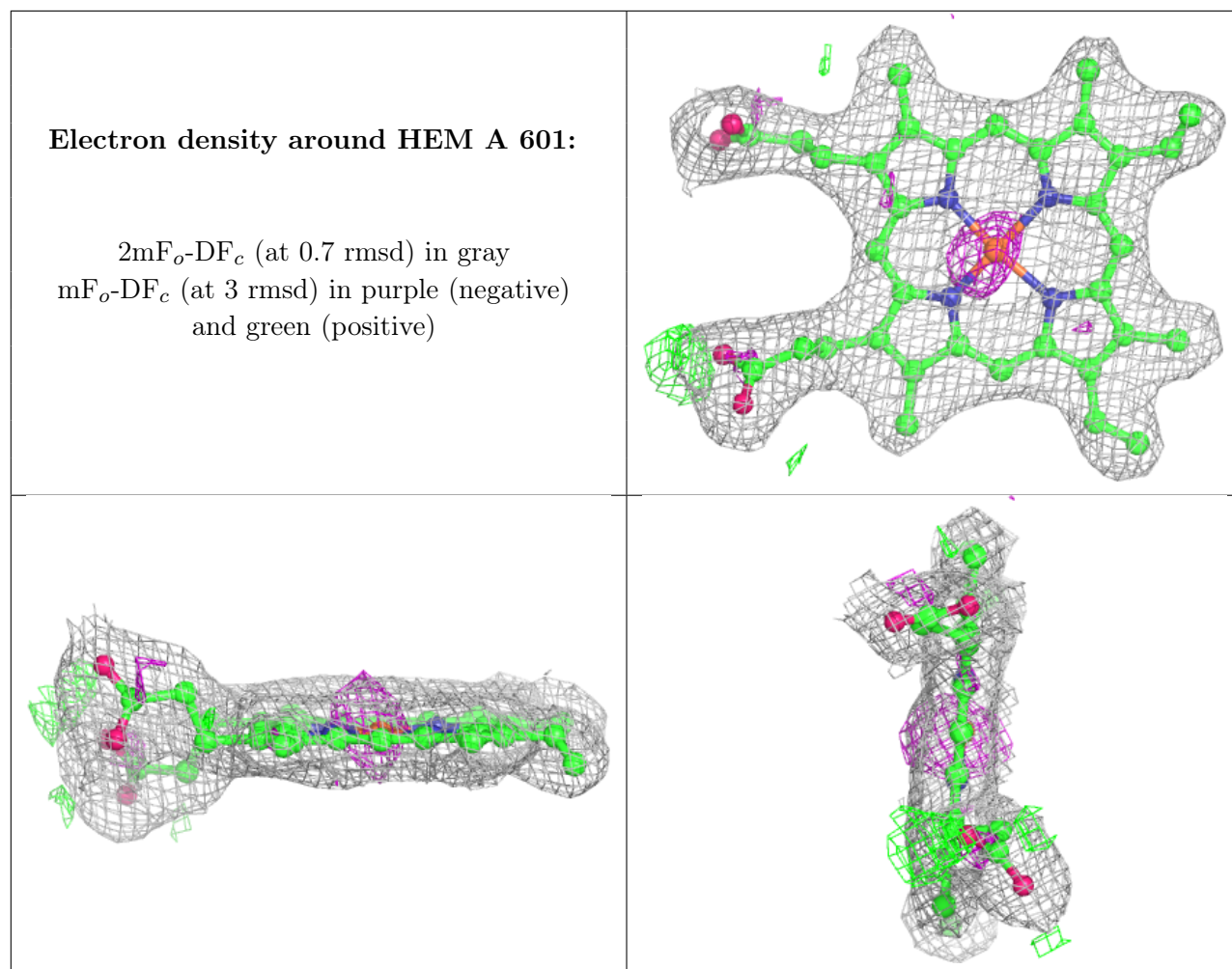
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM B 601:

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





6.5 Other polymers [i](#)

There are no such residues in this entry.