Full wwPDB X-ray Structure Validation Report ⓘ

Nov 22, 2023 – 02:55 PM JST

PDB ID	:	7YNH
Title	:	Catalytic intermediate of copper amine oxidase determined by serial femtosecond X-ray crystallography using a single-flow liquid jet system
Authors	:	Murakawa, T.; Okajima, T.
Deposited on	:	2022-07-31
Resolution	:	1.94 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:

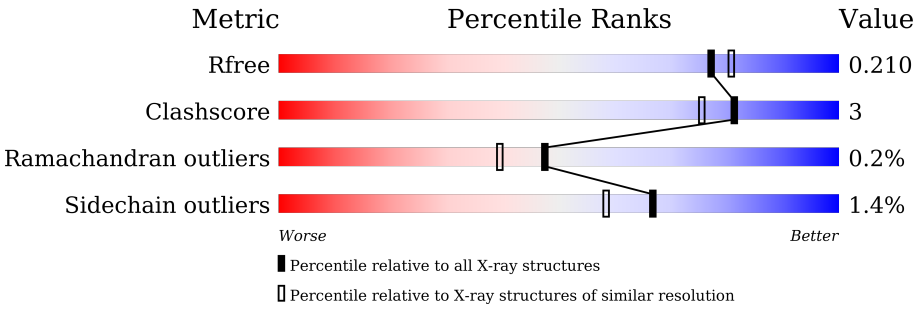
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 1.94 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	4310 (1.96-1.92)
Clashscore	141614	1023 (1.94-1.94)
Ramachandran outliers	138981	1007 (1.94-1.94)
Sidechain outliers	138945	1007 (1.94-1.94)

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%

Mol	Chain	Length	Quality of chain
1	A	620	93% 7%
1	B	620	91% 8%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 10951 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.

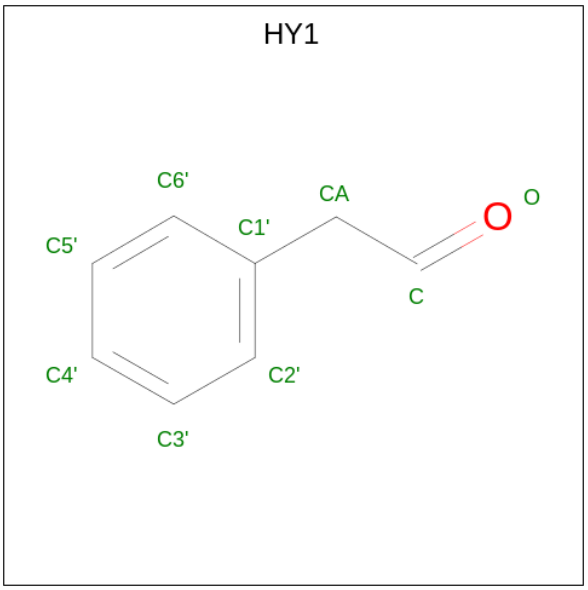
- Molecule 1 is a protein called Phenylethylamine oxidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	620	Total	C	N	O	S	0	23	0
			5014	3176	880	948	10			
1	B	620	Total	C	N	O	S	0	25	0
			5023	3181	882	950	10			

- Molecule 2 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Na	0	0
			1	1		
2	B	1	Total	Na	0	0
			1	1		

- Molecule 3 is PHENYLACETALDEHYDE (three-letter code: HY1) (formula: C_8H_8O) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 9 8 1	0	1
3	B	1	Total C O 9 8 1	0	1

- Molecule 4 is COPPER (II) ION (three-letter code: CU) (formula: Cu).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Cu 1 1	0	0
4	B	1	Total Cu 1 1	0	0

- Molecule 5 is water.

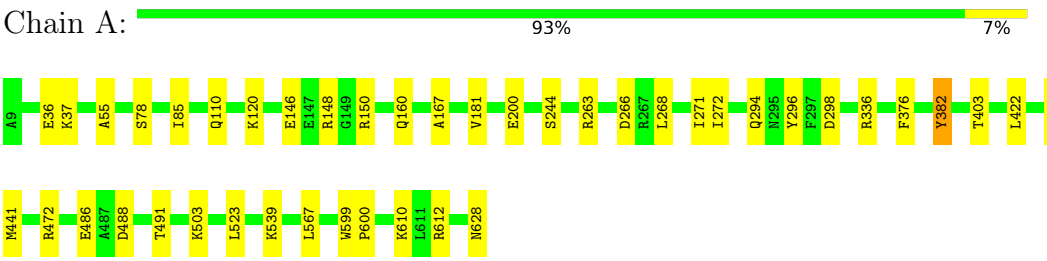
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	433	Total O 433 433	0	2
5	B	459	Total O 459 459	0	3

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. 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. 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.

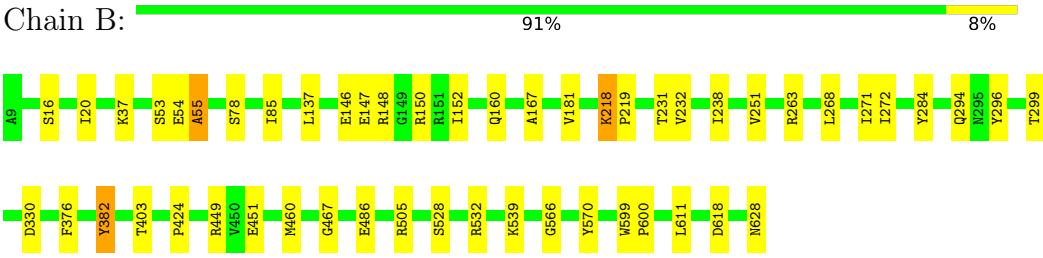
- Molecule 1: Phenylethylamine oxidase

Chain A:



- Molecule 1: Phenylethylamine oxidase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	192.51Å 64.61Å 158.24Å 90.00° 116.86° 90.00°	Depositor
Resolution (Å)	29.76 – 1.94 32.84 – 1.34	Depositor EDS
% Data completeness (in resolution range)	100.0 (29.76-1.94) 63.3 (32.84-1.34)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.05 (at 1.34Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.178 , 0.209 0.178 , 0.210	Depositor DCC
R_{free} test set	17970 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	7.5	Xtriage
Anisotropy	0.276	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 41.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	10951	wwPDB-VP
Average B, all atoms (Å^2)	31.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 69.05 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 3.9469e-06. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: CU, TYQ, NA, HY1

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	0.43	0/5168	0.67	0/7032
1	B	0.43	0/5177	0.70	1/7044 (0.0%)
All	All	0.43	0/10345	0.68	1/14076 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	330	ASP	CB-CG-OD1	5.47	123.22	118.30

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	5014	0	4893	24	0
1	B	5023	0	4900	27	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	9	0	8	0	0
3	B	9	0	8	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	433	0	0	5	0
5	B	459	0	0	4	0
All	All	10951	0	9809	51	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 3.

All (51) 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:110:GLN:NE2	5:A:803:HOH:O	2.20	0.74
1:A:599:TRP:CD2	1:A:600:PRO:HA	2.32	0.65
1:B:599:TRP:CD2	1:B:600:PRO:HA	2.35	0.60
1:A:298:ASP:OD2	5:A:802:HOH:O	2.16	0.60
1:A:432:GLN:HE22	1:A:523:LEU:H	1.51	0.59
1:B:294:GLN:HG3	1:B:296[A]:TYR:CZ	2.40	0.57
1:A:160:GLN:HG3	1:A:167:ALA:HB2	1.87	0.56
1:A:78:SER:HB2	1:A:85:ILE:HD11	1.88	0.56
1:A:263[A]:ARG:HG2	1:A:268:LEU:HD13	1.88	0.55
1:A:294:GLN:HG3	1:A:296[A]:TYR:CZ	2.43	0.54
1:B:460:MET:HG3	1:B:467:GLY:CA	2.39	0.53
1:B:271:ILE:HG22	1:B:272:ILE:HG13	1.90	0.53
1:B:78:SER:HB2	1:B:85:ILE:HD11	1.91	0.52
1:A:146:GLU:O	1:A:150:ARG:HD3	2.10	0.52
1:B:160:GLN:HG3	1:B:167:ALA:HB2	1.92	0.51
1:B:460:MET:HG3	1:B:467:GLY:HA3	1.93	0.51
1:A:271:ILE:HG22	1:A:272:ILE:HG13	1.92	0.50
1:B:146:GLU:O	1:B:150:ARG:HD3	2.13	0.49
1:A:36:GLU:H	1:A:36:GLU:CD	2.16	0.49
1:B:53:SER:C	1:B:55:ALA:H	2.17	0.47
1:B:37:LYS:HE3	5:B:1074:HOH:O	2.12	0.47
1:B:147:GLU:HG2	1:B:152:ILE:HG13	1.97	0.47
1:B:566[B]:GLY:HA2	1:B:570:TYR:CZ	2.51	0.46
1:B:137:LEU:HD22	1:B:296[A]:TYR:CZ	2.50	0.46
1:B:263[A]:ARG:HG2	1:B:268:LEU:HD13	1.97	0.46
1:B:218:LYS:HB2	1:B:219:PRO:HD2	1.99	0.45
1:B:528:SER:O	1:B:532[A]:ARG:HG3	2.17	0.45
1:A:36:GLU:OE1	1:A:36:GLU:N	2.48	0.45
1:B:232:VAL:HG22	1:B:238:ILE:CD1	2.47	0.45
1:A:120:LYS:HD3	1:A:120:LYS:C	2.38	0.45
1:B:148:ARG:NH1	5:B:831:HOH:O	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:441:MET:HE3	1:A:441:MET:HB3	1.87	0.44
1:B:451:GLU:HG3	5:B:801:HOH:O	2.18	0.44
1:B:382[B]:TYQ:HD2	1:B:403:THR:O	2.17	0.44
1:A:37:LYS:HE3	5:A:865:HOH:O	2.17	0.43
1:A:488:ASP:HB3	1:A:491[A]:THR:HG22	2.00	0.43
1:A:610:LYS:NZ	1:A:612:ARG:HD2	2.33	0.43
1:B:505:ARG:HD3	1:B:618:ASP:HB3	2.01	0.43
1:A:422:LEU:HD11	1:A:428:ALA:HB2	2.01	0.43
1:B:299:THR:HA	1:B:304:VAL:HG13	2.02	0.42
1:B:231:THR:HG23	5:B:1168:HOH:O	2.20	0.42
1:A:382[B]:TYQ:HD2	1:A:403:THR:O	2.19	0.42
1:B:486[B]:GLU:HG2	1:B:539:LYS:HD2	2.02	0.41
1:A:200:GLU:HB2	5:A:1063:HOH:O	2.19	0.41
1:A:567:LEU:HD23	1:A:567:LEU:HA	1.79	0.41
1:A:486[B]:GLU:OE2	1:A:539:LYS:NZ	2.42	0.41
1:B:251:VAL:CG2	1:B:306:GLN:HB3	2.51	0.41
1:B:16:SER:O	1:B:20:ILE:HG12	2.21	0.41
1:A:266:ASP:OD1	1:A:266:ASP:N	2.50	0.40
1:B:284:TYR:CD1	1:B:294:GLN:HG2	2.56	0.40
1:A:148:ARG:HD2	5:A:881:HOH:O	2.20	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	639/620 (103%)	620 (97%)	18 (3%)	1 (0%)	47	39
1	B	641/620 (103%)	621 (97%)	18 (3%)	2 (0%)	41	32
All	All	1280/1240 (103%)	1241 (97%)	36 (3%)	3 (0%)	47	39

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	55	ALA
1	A	55	ALA
1	B	54	GLU

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	535/513 (104%)	527 (98%)	8 (2%)	65	56
1	B	535/513 (104%)	527 (98%)	8 (2%)	65	56
All	All	1070/1026 (104%)	1054 (98%)	16 (2%)	67	56

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	181	VAL
1	A	244	SER
1	A	336	ARG
1	A	376	PHE
1	A	472[A]	ARG
1	A	472[B]	ARG
1	A	503	LYS
1	A	628	ASN
1	B	181	VAL
1	B	218	LYS
1	B	376	PHE
1	B	424	PRO
1	B	449[A]	ARG
1	B	449[B]	ARG
1	B	611	LEU
1	B	628	ASN

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	110	GLN
1	A	432	GLN
1	B	110	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)

4 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
1	TYQ	A	382[A]	-	13,14,15	1.19	2 (15%)	15,19,21	2.27	3 (20%)
1	TYQ	B	382[A]	-	13,14,15	1.25	1 (7%)	15,19,21	2.11	4 (26%)
1	TYQ	B	382[B]	-	13,14,15	1.00	0	15,19,21	2.04	4 (26%)
1	TYQ	A	382[B]	-	13,14,15	1.06	0	15,19,21	1.77	2 (13%)

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
1	TYQ	A	382[A]	-	-	1/5/6/8	0/1/1/1
1	TYQ	B	382[A]	-	-	2/5/6/8	0/1/1/1
1	TYQ	B	382[B]	-	-	3/5/6/8	0/1/1/1
1	TYQ	A	382[B]	-	-	3/5/6/8	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	382[A]	TYQ	CB-CG	-3.21	1.47	1.51
1	A	382[A]	TYQ	CB-CG	-2.84	1.47	1.51
1	A	382[A]	TYQ	CE2-CZ	2.37	1.43	1.40

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	382[A]	TYQ	CB-CA-C	-5.83	100.53	111.47
1	A	382[A]	TYQ	CB-CA-C	-5.40	101.34	111.47
1	B	382[B]	TYQ	CG-CB-CA	-5.40	106.17	114.53
1	A	382[B]	TYQ	CG-CB-CA	-4.55	107.49	114.53
1	A	382[A]	TYQ	OH-CZ-CE2	4.16	123.21	116.25
1	B	382[B]	TYQ	OH-CZ-CE2	3.11	121.46	116.25
1	A	382[B]	TYQ	OH-CZ-CE2	2.89	121.08	116.25
1	B	382[A]	TYQ	CE1-CZ-CE2	2.88	122.18	119.44
1	B	382[A]	TYQ	OH-CZ-CE2	2.78	120.91	116.25
1	A	382[A]	TYQ	CE1-CZ-CE2	2.69	122.01	119.44
1	B	382[B]	TYQ	CE1-CZ-CE2	2.21	121.54	119.44
1	B	382[A]	TYQ	CD2-CG-CD1	2.06	120.65	118.17
1	B	382[B]	TYQ	OZ-CD1-CG	2.06	124.17	118.89

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	382[A]	TYQ	N-CA-CB-CG
1	A	382[B]	TYQ	C-CA-CB-CG
1	B	382[A]	TYQ	O-C-CA-CB
1	B	382[A]	TYQ	N-CA-CB-CG
1	B	382[B]	TYQ	C-CA-CB-CG
1	A	382[B]	TYQ	CA-CB-CG-CD2
1	B	382[B]	TYQ	CA-CB-CG-CD2
1	A	382[B]	TYQ	N-CA-CB-CG
1	B	382[B]	TYQ	N-CA-CB-CG

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	B	382[B]	TYQ	1	0
1	A	382[B]	TYQ	1	0

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 6 ligands modelled in this entry, 4 are monoatomic - leaving 2 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	$\#\|Z\| > 2$
3	HY1	B	702[D]	-	9,9,9	2.13	2 (22%)	10,10,10	1.40	2 (20%)
3	HY1	A	702[D]	-	9,9,9	2.09	2 (22%)	10,10,10	1.26	2 (20%)

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
3	HY1	B	702[D]	-	-	3/3/3/3	0/1/1/1
3	HY1	A	702[D]	-	-	0/3/3/3	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	702[D]	HY1	CA-C1'	5.30	1.62	1.52
3	A	702[D]	HY1	CA-C1'	5.12	1.62	1.52
3	A	702[D]	HY1	C5'-C4'	2.10	1.43	1.38
3	B	702[D]	HY1	C5'-C4'	2.08	1.43	1.38

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	702[D]	HY1	C1'-CA-C	-3.61	105.95	114.17
3	A	702[D]	HY1	C1'-CA-C	-2.43	108.62	114.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	702[D]	HY1	O-C-CA	-2.38	119.99	126.64
3	B	702[D]	HY1	O-C-CA	-2.09	120.79	126.64

There are no chirality outliers.

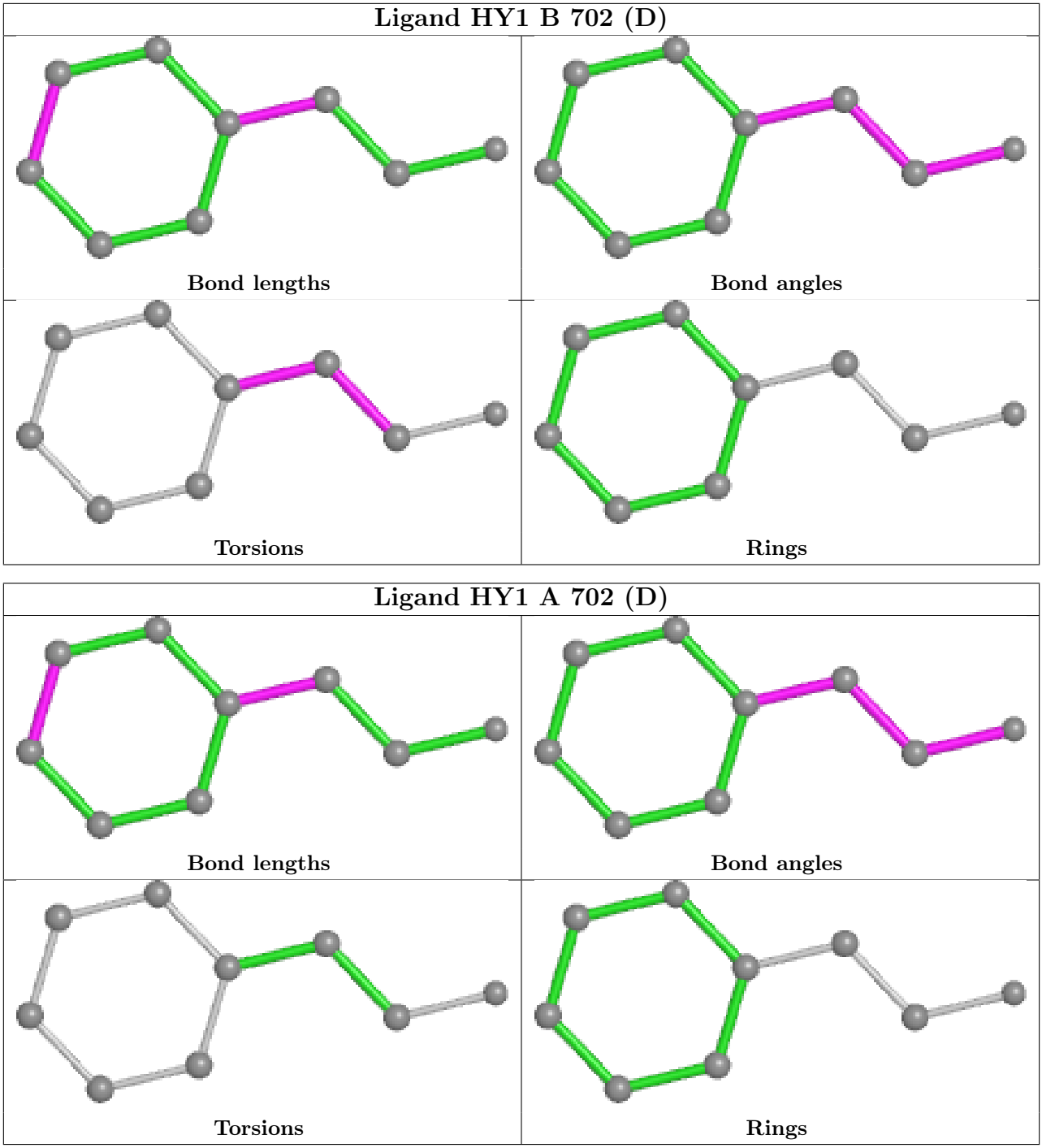
All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	702[D]	HY1	C2'-C1'-CA-C
3	B	702[D]	HY1	O-C-CA-C1'
3	B	702[D]	HY1	C6'-C1'-CA-C

There are no ring outliers.

No monomer is involved in short contacts.

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.



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

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

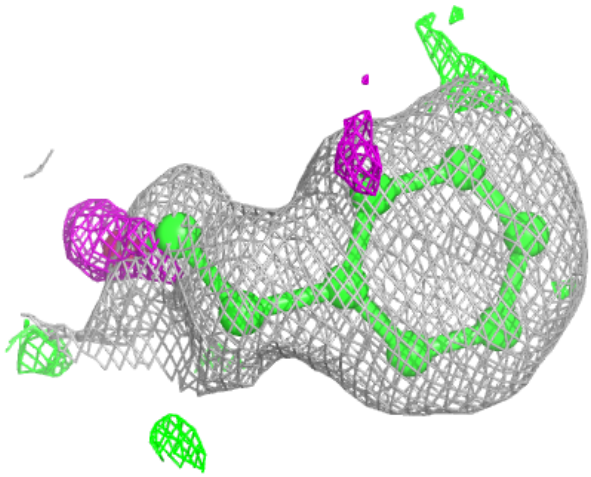
6.4 Ligands

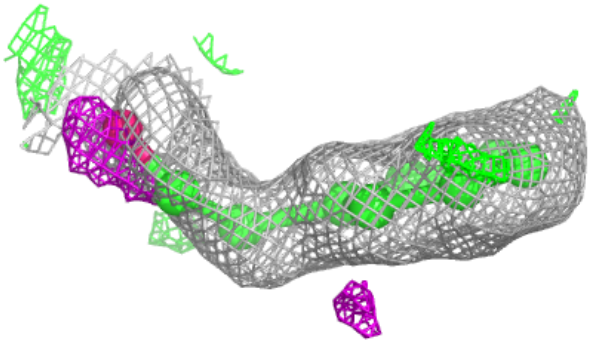
Unable to reproduce the depositors R factor - this section is therefore empty.

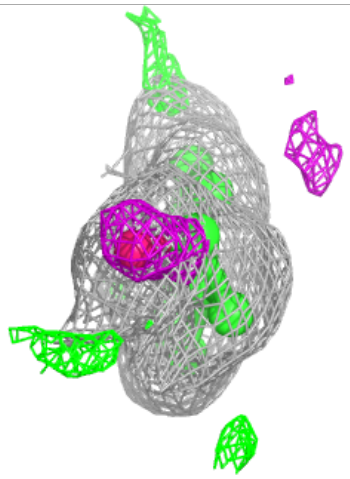
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around HY1 A 702 (D):

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

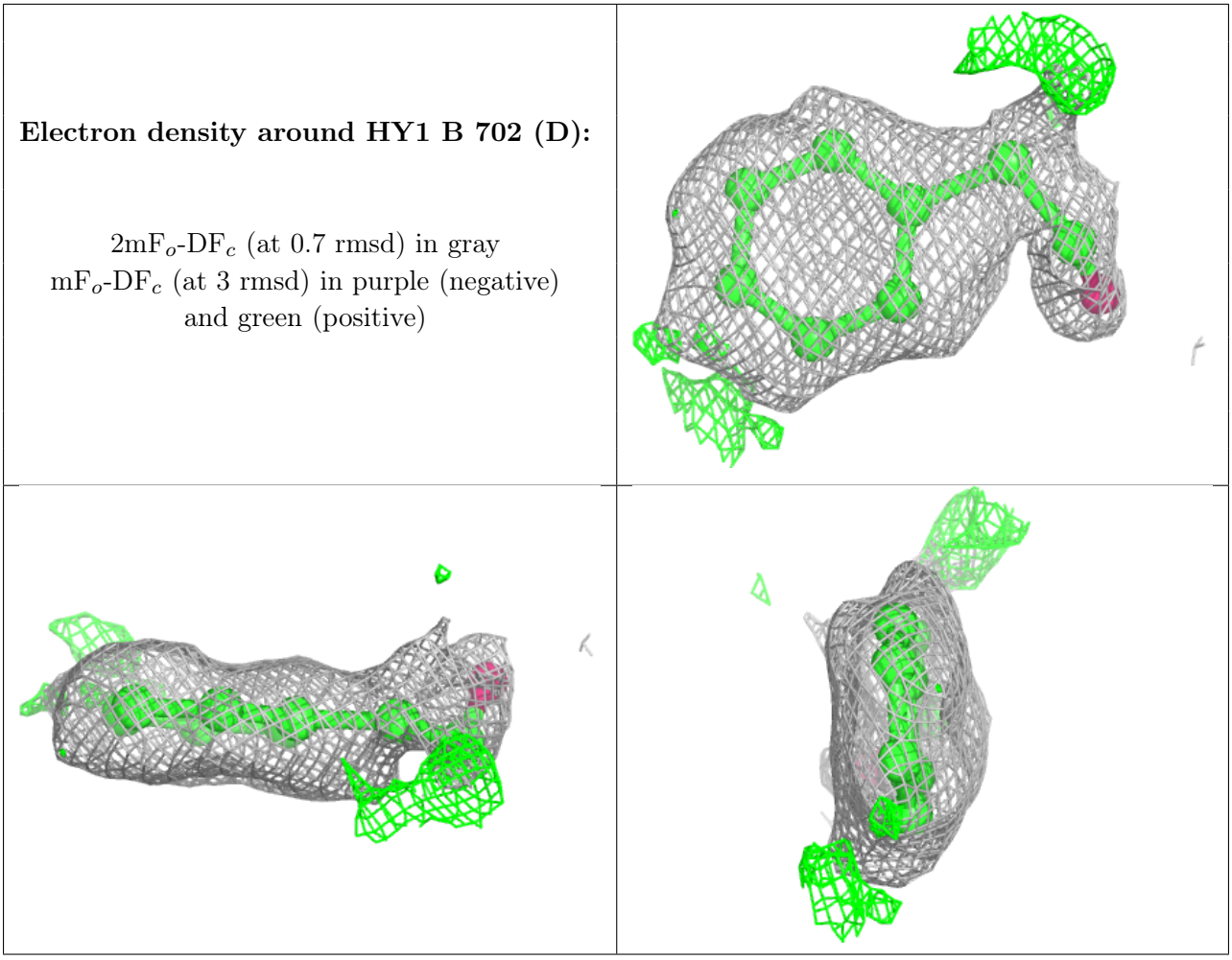






Electron density around HY1 B 702 (D):

$2mF_o$-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

Unable to reproduce the depositors R factor - this section is therefore empty.