Full wwPDB X-ray Structure Validation Report (i)

Oct 23, 2021 – 03:41 PM EDT

PDB ID	:	1A8T
Title	:	METALLO-BETA-LACTAMASE IN COMPLEX WITH L-159,061
Authors	:	Fitzgerald, P.M.D.; Toney, J.H.; Grover, N.; Vanderwall, D.
Deposited on	:	1998-03-23
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 (i) symbol.

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

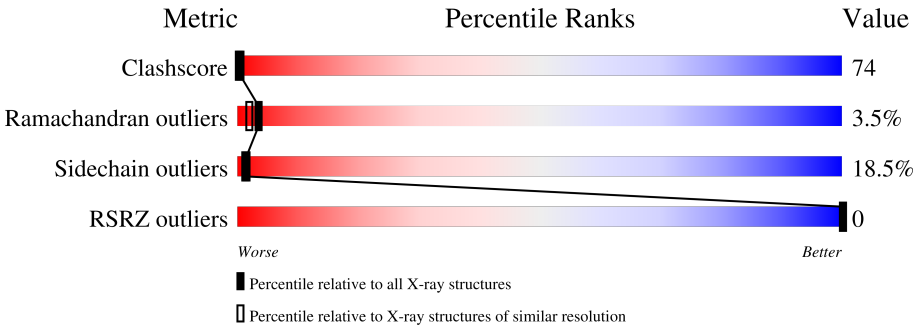
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.23.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.55 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))
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 <=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	232	23% 58% 16%
1	B	232	22% 53% 20%

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	061	A	250	-	-	X	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 3735 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 METALLO-BETA-LACTAMASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	230	Total	C	N	O	S	0	0	0
			1764	1117	293	345	9			
1	B	228	Total	C	N	O	S	0	0	0
			1750	1109	290	342	9			

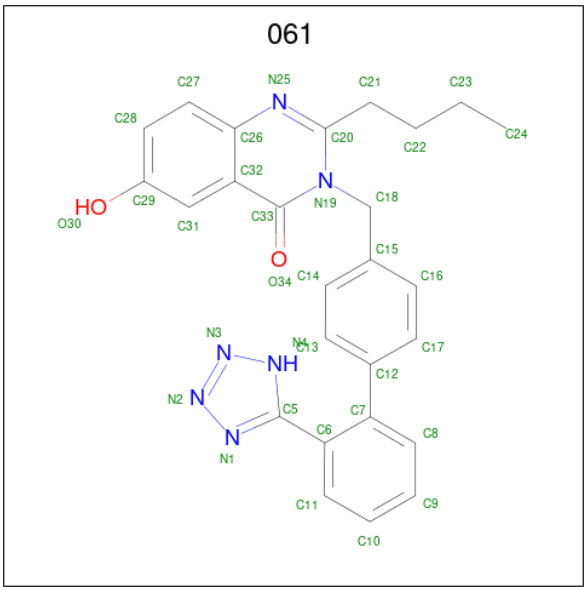
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	171	THR	ALA	engineered mutation	UNP P25910
A	208	ASN	ASP	conflict	UNP P25910
B	171	THR	ALA	engineered mutation	UNP P25910
B	208	ASN	ASP	conflict	UNP P25910

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total	Zn	0	0
			2	2		
2	B	2	Total	Zn	0	0
			2	2		

- Molecule 3 is 2-BUTYL-6-HYDROXY-3-[2'-(1H-TETRAZOL-5-YL)-BIPHENYL-4-YLMETHYL]-3H-QUINAZOLIN-4-ONE (three-letter code: 061) (formula: $C_{26}H_{24}N_6O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O 34 26 6 2	0	0

- Molecule 4 is water.

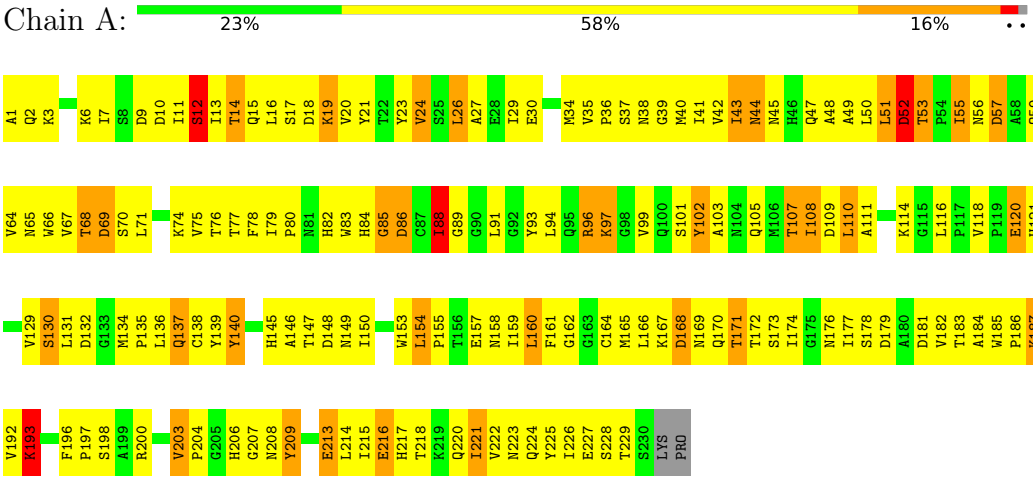
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	93	Total O 93 93	0	0
4	B	90	Total O 90 90	0	0

3 Residue-property plots (i)

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

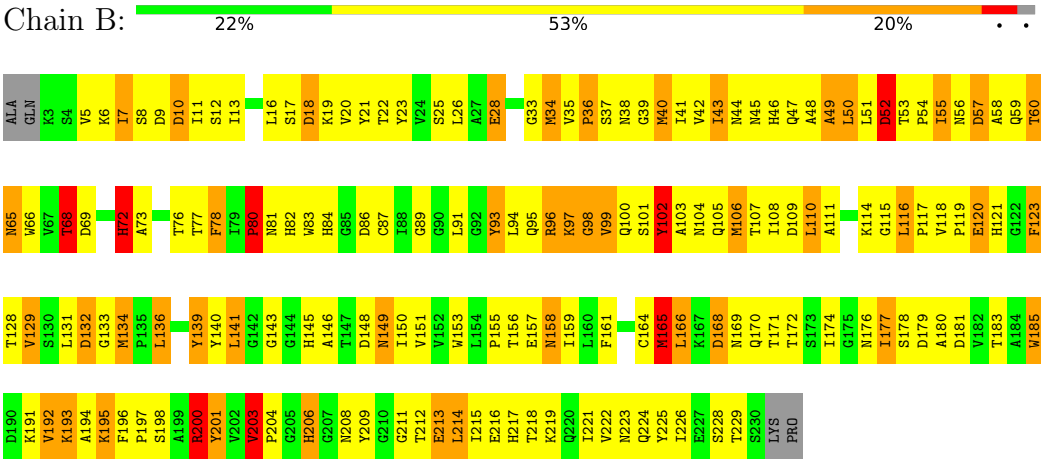
• Molecule 1: METALLO-BETA-LACTAMASE

Chain A:



• Molecule 1: METALLO-BETA-LACTAMASE

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	71.36Å 170.23Å 40.66Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 2.55 27.34 – 2.36	Depositor EDS
% Data completeness (in resolution range)	75.0 (10.00-2.55) 65.7 (27.34-2.36)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.08	Depositor
$< I/\sigma(I) >$ [1]	2.00 (at 2.36Å)	Xtriage
Refinement program	PROLSQ	Depositor
R, R_{free}	0.181 , 0.319 0.180 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	11.7	Xtriage
Anisotropy	0.633	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.26 , 86.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.41$, $< L^2 > = 0.24$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.87	EDS
Total number of atoms	3735	wwPDB-VP
Average B, all atoms (Å^2)	8.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.45% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, 061

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	0.92	0/1804	1.87	35/2460 (1.4%)
1	B	0.86	0/1790	1.91	38/2441 (1.6%)
All	All	0.89	0/3594	1.89	73/4901 (1.5%)

There are no bond length outliers.

All (73) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	181	ASP	CA-CB-CG	14.20	144.64	113.40
1	B	106	MET	CA-CB-CG	11.87	133.48	113.30
1	B	165	MET	CA-CB-CG	10.39	130.96	113.30
1	A	168	ASP	CB-CA-C	-9.70	91.01	110.40
1	A	18	ASP	CB-CG-OD1	9.41	126.77	118.30
1	A	96	ARG	NE-CZ-NH2	-8.75	115.92	120.30
1	A	136	LEU	N-CA-CB	8.10	126.60	110.40
1	B	9	ASP	CB-CG-OD1	-7.71	111.36	118.30
1	A	168	ASP	CA-CB-CG	7.51	129.93	113.40
1	A	198	SER	N-CA-CB	-7.34	99.48	110.50
1	B	21	TYR	CB-CG-CD2	7.06	125.24	121.00
1	B	185	TRP	CA-CB-CG	6.85	126.71	113.70
1	B	50	LEU	CA-C-O	6.79	134.35	120.10
1	A	52	ASP	CA-CB-CG	6.76	128.27	113.40
1	A	44	ASN	N-CA-CB	6.75	122.75	110.60
1	A	86	ASP	CB-CG-OD1	6.70	124.33	118.30
1	A	69	ASP	CB-CG-OD2	6.63	124.26	118.30
1	B	139	TYR	CB-CA-C	-6.59	97.22	110.40
1	A	140	TYR	CB-CG-CD1	-6.59	117.05	121.00
1	A	209	TYR	CA-CB-CG	6.57	125.89	113.40
1	A	102	TYR	CB-CG-CD2	6.54	124.93	121.00
1	B	55	ILE	CB-CA-C	-6.53	98.55	111.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	61	GLU	OE1-CD-OE2	-6.49	115.52	123.30
1	B	21	TYR	CB-CG-CD1	-6.41	117.16	121.00
1	A	88	ILE	CB-CA-C	-6.37	98.87	111.60
1	A	52	ASP	N-CA-CB	6.33	122.00	110.60
1	B	206	HIS	CA-CB-CG	-6.29	102.90	113.60
1	B	86	ASP	CB-CG-OD1	6.27	123.94	118.30
1	B	229	THR	N-CA-CB	6.27	122.22	110.30
1	A	34	MET	CA-CB-CG	-6.27	102.65	113.30
1	B	181	ASP	CB-CG-OD1	6.16	123.84	118.30
1	A	125	ASP	CB-CG-OD1	6.14	123.82	118.30
1	A	9	ASP	CB-CG-OD1	-6.09	112.82	118.30
1	B	213	GLU	N-CA-CB	-6.07	99.67	110.60
1	B	99	VAL	N-CA-CB	6.04	124.78	111.50
1	B	203	VAL	CG1-CB-CG2	-5.91	101.44	110.90
1	A	57	ASP	CB-CG-OD1	5.86	123.58	118.30
1	B	72	HIS	N-CA-CB	5.79	121.03	110.60
1	B	201	TYR	N-CA-CB	5.76	120.97	110.60
1	A	168	ASP	O-C-N	5.66	131.75	122.70
1	B	10	ASP	CB-CG-OD2	-5.65	113.22	118.30
1	B	127	LEU	N-CA-CB	5.65	121.69	110.40
1	B	181	ASP	N-CA-C	-5.65	95.75	111.00
1	A	52	ASP	CB-CA-C	-5.62	99.17	110.40
1	A	169	ASN	CB-CA-C	-5.61	99.17	110.40
1	A	30	GLU	CB-CG-CD	5.57	129.25	114.20
1	A	193	LYS	N-CA-CB	5.54	120.57	110.60
1	B	200	ARG	NE-CZ-NH1	5.49	123.04	120.30
1	A	168	ASP	CB-CG-OD2	5.48	123.23	118.30
1	A	213	GLU	CA-CB-CG	-5.45	101.42	113.40
1	B	127	LEU	CA-CB-CG	-5.43	102.80	115.30
1	B	129	VAL	CB-CA-C	-5.43	101.08	111.40
1	A	213	GLU	N-CA-CB	-5.43	100.83	110.60
1	A	51	LEU	C-N-CA	5.36	135.11	121.70
1	A	12	SER	CB-CA-C	-5.36	99.92	110.10
1	B	34	MET	CA-CB-CG	5.36	122.41	113.30
1	B	93	TYR	CB-CG-CD2	-5.36	117.79	121.00
1	B	200	ARG	CD-NE-CZ	5.34	131.08	123.60
1	A	24	VAL	CG1-CB-CG2	-5.33	102.37	110.90
1	B	46	HIS	CA-C-O	5.32	131.28	120.10
1	B	97	LYS	CA-C-N	-5.32	105.56	116.20
1	B	168	ASP	CB-CA-C	-5.26	99.87	110.40
1	B	96	ARG	NE-CZ-NH2	-5.26	117.67	120.30
1	B	28	GLU	CA-C-O	5.25	131.12	120.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	35	VAL	CB-CA-C	-5.24	101.45	111.40
1	A	53	THR	CB-CA-C	-5.21	97.54	111.60
1	B	49	ALA	CA-C-O	-5.14	109.30	120.10
1	B	69	ASP	CB-CG-OD1	5.13	122.91	118.30
1	A	18	ASP	CB-CG-OD2	-5.12	113.69	118.30
1	A	200	ARG	NE-CZ-NH1	5.11	122.86	120.30
1	B	68	THR	CA-CB-CG2	-5.11	105.24	112.40
1	B	193	LYS	CD-CE-NZ	5.09	123.42	111.70
1	B	102	TYR	CB-CG-CD1	-5.04	117.97	121.00

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	1764	0	1723	244	0
1	B	1750	0	1707	275	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
3	A	34	0	24	14	0
4	A	93	0	0	17	0
4	B	90	0	0	17	0
All	All	3735	0	3454	518	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 74.

All (518) 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:47:GLN:HA	4:B:291:HOH:O	1.30	1.27
3:A:250:061:H17	3:A:250:061:N4	1.47	1.25
3:A:250:061:HN4	3:A:250:061:C17	1.50	1.24
3:A:250:061:N4	3:A:250:061:C17	2.01	1.23

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:68:THR:O	1:B:72:HIS:HA	1.34	1.22
1:A:168:ASP:OD1	1:A:207:GLY:HA3	1.48	1.13
1:A:185:TRP:HB3	1:A:186:PRO:HD3	1.22	1.09
1:B:28:GLU:HG2	1:B:34:MET:HA	1.13	1.09
1:A:225:TYR:O	1:A:229:THR:HG23	1.53	1.07
1:B:44:ASN:O	1:B:47:GLN:HB2	1.55	1.07
1:A:105:GLN:NE2	1:A:108:ILE:HG21	1.69	1.06
1:A:40:MET:HE1	1:A:154:LEU:HD11	1.29	1.05
1:B:165:MET:CE	1:B:188:THR:HG22	1.86	1.05
1:A:121:HIS:HD2	1:B:126:SER:OG	1.38	1.04
3:A:250:061:H182	3:A:250:061:H222	1.35	1.03
1:B:45:ASN:O	1:B:47:GLN:HG3	1.58	1.03
1:B:187:LYS:NZ	4:B:315:HOH:O	1.92	1.02
1:A:218:THR:O	1:A:222:VAL:HG23	1.59	1.02
1:B:54:PRO:HD2	1:B:60:THR:HG23	1.42	1.00
1:B:53:THR:HG23	1:B:78:PHE:CE2	1.96	1.00
1:B:41:ILE:HD11	1:B:63:LEU:HD11	1.40	0.99
1:A:185:TRP:HB3	1:A:186:PRO:CD	1.89	0.99
1:B:28:GLU:HG2	1:B:34:MET:CA	1.93	0.99
1:B:217:HIS:O	1:B:221:ILE:HG13	1.62	0.99
1:B:165:MET:HG2	1:B:166:LEU:HD23	1.43	0.97
1:B:91:LEU:HD23	1:B:117:PRO:HB2	1.47	0.97
1:B:62:MET:HA	1:B:65:ASN:HB2	1.47	0.96
1:B:153:TRP:O	1:B:155:PRO:HD3	1.65	0.95
1:B:176:ASN:HA	4:B:285:HOH:O	1.65	0.94
1:B:143:GLY:HA2	1:B:149:ASN:HD21	1.31	0.94
1:A:13:ILE:HD13	1:A:23:TYR:HB3	1.48	0.94
1:B:47:GLN:NE2	1:B:132:ASP:HB2	1.83	0.93
1:B:68:THR:O	1:B:72:HIS:CA	2.15	0.93
1:A:40:MET:CE	1:A:154:LEU:HD11	1.98	0.92
1:B:63:LEU:O	1:B:63:LEU:HD12	1.69	0.91
1:A:88:ILE:HG22	1:A:91:LEU:CD2	2.01	0.91
1:B:16:LEU:HD11	1:B:22:THR:OG1	1.70	0.90
1:B:155:PRO:HB3	4:B:301:HOH:O	1.71	0.89
1:B:16:LEU:CD1	1:B:22:THR:OG1	2.20	0.89
1:A:220:GLN:HG2	1:A:224:GLN:HE21	1.38	0.89
1:B:165:MET:HE3	1:B:188:THR:HG22	1.51	0.88
1:B:201:TYR:HE2	4:B:317:HOH:O	1.54	0.88
1:B:176:ASN:C	1:B:177:ILE:HD13	1.93	0.88
1:A:218:THR:HA	1:A:221:ILE:HD12	1.54	0.88
1:B:62:MET:HA	1:B:65:ASN:CB	2.03	0.88

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:28:GLU:OE2	1:B:34:MET:HB2	1.73	0.87
1:B:49:ALA:HB2	1:B:131:LEU:HD13	1.57	0.87
3:A:250:061:H17	3:A:250:061:HN4	0.70	0.86
1:A:121:HIS:CD2	1:B:126:SER:OG	2.27	0.85
1:A:177:ILE:O	1:A:177:ILE:HG13	1.77	0.85
1:A:120:GLU:HA	1:B:124:THR:OG1	1.78	0.83
1:B:165:MET:HG2	1:B:166:LEU:CD2	2.06	0.83
1:A:220:GLN:HG2	1:A:224:GLN:NE2	1.92	0.83
1:B:165:MET:HE1	1:B:188:THR:HG22	1.59	0.83
1:B:55:ILE:HG12	1:B:55:ILE:O	1.74	0.83
1:A:105:GLN:NE2	1:A:108:ILE:CG2	2.42	0.83
1:A:145:HIS:O	4:A:331:HOH:O	1.96	0.83
1:A:88:ILE:HG22	1:A:91:LEU:HD22	1.61	0.82
1:B:114:LYS:HB3	1:B:116:LEU:HD11	1.60	0.82
1:B:116:LEU:HB3	1:B:117:PRO:HD2	1.61	0.82
1:B:7:ILE:HD12	1:B:13:ILE:HG12	1.61	0.81
1:A:168:ASP:OD1	1:A:207:GLY:CA	2.26	0.81
1:B:63:LEU:HD12	1:B:63:LEU:C	2.01	0.81
1:B:136:LEU:N	1:B:136:LEU:HD23	1.94	0.81
1:B:53:THR:HG23	1:B:78:PHE:HE2	1.45	0.81
1:B:195:LYS:HD3	1:B:196:PHE:CE2	2.16	0.80
1:A:24:VAL:HA	1:A:37:SER:O	1.81	0.80
1:B:58:ALA:O	1:B:61:GLU:HB3	1.83	0.78
1:B:45:ASN:CB	1:B:132:ASP:OD2	2.32	0.78
1:A:220:GLN:CG	1:A:224:GLN:HE21	1.97	0.77
3:A:250:061:H222	3:A:250:061:C18	2.11	0.77
1:A:47:GLN:HG2	1:A:76:THR:HG21	1.64	0.77
1:A:13:ILE:HD13	1:A:23:TYR:CB	2.13	0.77
1:B:77:THR:HG22	1:B:78:PHE:N	1.98	0.77
1:A:82:HIS:HA	1:A:148:ASP:OD2	1.84	0.77
1:A:68:THR:HG22	1:A:69:ASP:N	1.99	0.77
1:A:40:MET:HE1	1:A:154:LEU:CD1	2.12	0.77
1:A:182:VAL:O	1:A:186:PRO:HD2	1.85	0.77
1:B:177:ILE:HD13	1:B:177:ILE:N	1.97	0.76
1:A:1:ALA:O	1:A:2:GLN:HG3	1.84	0.76
1:B:45:ASN:HB2	1:B:132:ASP:OD2	1.86	0.75
1:B:26:LEU:HB3	1:B:34:MET:SD	2.27	0.75
1:A:40:MET:HG3	1:A:51:LEU:HD12	1.69	0.75
1:A:43:ILE:HD11	1:A:71:LEU:HB3	1.69	0.74
1:B:52:ASP:OD1	1:B:81:ASN:HB2	1.87	0.74
1:B:143:GLY:HA2	1:B:149:ASN:ND2	2.02	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:64:VAL:HG12	1:A:64:VAL:O	1.87	0.74
1:A:14:THR:HG21	1:A:209:TYR:HE2	1.52	0.74
1:A:154:LEU:N	1:A:154:LEU:HD23	2.03	0.73
1:A:61:GLU:CG	1:A:61:GLU:O	2.34	0.73
1:A:146:ALA:HA	1:A:179:ASP:O	1.88	0.73
1:B:108:ILE:HG12	1:B:119:PRO:HD2	1.68	0.73
1:A:13:ILE:CD1	1:A:23:TYR:HB3	2.17	0.73
1:B:131:LEU:O	1:B:133:GLY:N	2.22	0.73
1:A:182:VAL:O	1:A:186:PRO:CD	2.36	0.73
1:B:68:THR:HA	1:B:73:ALA:H	1.54	0.73
1:B:91:LEU:O	1:B:95:GLN:HG3	1.90	0.72
1:A:118:VAL:HB	4:A:266:HOH:O	1.90	0.72
1:B:157:GLU:O	1:B:200:ARG:NH1	2.22	0.72
1:A:64:VAL:O	1:A:64:VAL:CG1	2.38	0.72
1:B:91:LEU:HB3	1:B:117:PRO:CB	2.19	0.72
1:A:24:VAL:HG12	1:A:38:ASN:OD1	1.89	0.71
1:A:224:GLN:O	1:A:228:SER:HB2	1.90	0.71
1:B:91:LEU:CD2	1:B:117:PRO:HB2	2.18	0.70
1:A:74:LYS:O	1:A:76:THR:HG23	1.91	0.70
1:A:1:ALA:O	1:A:2:GLN:CG	2.40	0.70
1:B:23:TYR:CE2	1:B:39:GLY:HA3	2.25	0.70
1:B:106:MET:HE3	1:B:140:TYR:CE2	2.26	0.70
1:A:105:GLN:HE22	1:A:108:ILE:HG21	1.55	0.70
1:A:20:VAL:HG21	1:A:159:ILE:HD12	1.73	0.70
1:A:167:LYS:HG2	1:A:218:THR:HG23	1.74	0.70
1:A:82:HIS:HE1	1:A:164:CYS:HB2	1.57	0.69
1:A:107:THR:OG1	1:A:148:ASP:OD2	2.10	0.69
1:B:193:LYS:HA	4:B:329:HOH:O	1.91	0.69
1:A:108:ILE:HG22	1:A:109:ASP:N	2.08	0.69
1:B:106:MET:O	1:B:110:LEU:HD22	1.93	0.69
1:A:29:ILE:HG21	3:A:250:061:H9	1.75	0.68
1:A:3:LYS:CG	1:A:3:LYS:O	2.39	0.68
1:A:103:ALA:O	1:A:123:PHE:CE1	2.46	0.68
1:A:223:ASN:HA	1:A:226:ILE:HG12	1.75	0.68
1:A:57:ASP:HB3	1:A:93:TYR:HB2	1.75	0.68
1:B:94:LEU:HB3	1:B:99:VAL:CG2	2.24	0.68
1:A:40:MET:HB2	1:A:51:LEU:CG	2.23	0.67
1:A:88:ILE:HG22	1:A:91:LEU:HD23	1.74	0.67
1:A:75:VAL:HG12	1:A:99:VAL:HG21	1.75	0.67
1:B:68:THR:C	1:B:72:HIS:HA	2.14	0.67
1:B:133:GLY:O	4:B:318:HOH:O	2.11	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:61:GLU:O	1:A:61:GLU:HG2	1.93	0.67
1:B:83:TRP:HZ2	1:B:179:ASP:OD2	1.78	0.66
1:B:168:ASP:HB3	1:B:171:THR:HG23	1.76	0.66
1:A:204:PRO:HD3	1:A:209:TYR:HA	1.77	0.66
1:A:88:ILE:CG2	1:A:91:LEU:HD23	2.25	0.66
1:A:45:ASN:ND2	1:A:132:ASP:OD2	2.29	0.66
1:A:64:VAL:HG11	4:A:299:HOH:O	1.95	0.66
1:B:114:LYS:CB	1:B:116:LEU:HD11	2.25	0.66
1:A:15:GLN:NE2	1:A:21:TYR:CZ	2.63	0.66
1:A:40:MET:HB2	1:A:51:LEU:HG	1.77	0.65
1:B:62:MET:CA	1:B:65:ASN:HB2	2.23	0.65
1:B:157:GLU:C	1:B:200:ARG:HH11	1.99	0.65
1:A:118:VAL:O	4:A:266:HOH:O	2.13	0.65
1:B:157:GLU:O	1:B:158:ASN:HB2	1.94	0.65
1:A:78:PHE:CE1	1:A:80:PRO:HD3	2.32	0.65
1:B:45:ASN:HB3	1:B:132:ASP:OD2	1.96	0.65
1:A:14:THR:HG22	1:A:16:LEU:HD21	1.79	0.65
1:A:41:ILE:HG23	1:A:50:LEU:CD1	2.27	0.65
1:A:88:ILE:CG2	1:A:91:LEU:CD2	2.74	0.65
1:B:53:THR:HB	1:B:60:THR:HG23	1.78	0.65
1:B:25:SER:OG	1:B:59:GLN:NE2	2.30	0.64
1:A:94:LEU:O	1:A:99:VAL:HB	1.97	0.64
1:B:64:VAL:HG21	1:B:93:TYR:HE2	1.63	0.64
1:A:105:GLN:OE1	1:B:127:LEU:HD11	1.97	0.64
1:B:42:VAL:CG1	1:B:134:MET:HE1	2.28	0.64
3:A:250:061:C17	3:A:250:061:C5	2.72	0.64
1:B:37:SER:OG	1:B:206:HIS:CE1	2.51	0.64
1:B:47:GLN:CA	4:B:291:HOH:O	2.06	0.63
1:B:80:PRO:CD	1:B:103:ALA:HB2	2.29	0.63
1:A:41:ILE:HG21	1:A:67:VAL:HG11	1.80	0.63
1:B:83:TRP:CZ2	1:B:179:ASP:OD2	2.51	0.63
1:B:176:ASN:O	1:B:177:ILE:HD13	1.99	0.63
1:B:16:LEU:HD11	1:B:22:THR:HG1	1.64	0.63
1:A:218:THR:HA	1:A:221:ILE:CD1	2.26	0.62
1:B:131:LEU:C	1:B:133:GLY:N	2.52	0.62
1:A:83:TRP:O	1:A:88:ILE:HD11	1.98	0.62
1:A:137:GLN:NE2	1:A:153:TRP:HD1	1.96	0.62
1:B:76:THR:C	1:B:99:VAL:HG13	2.20	0.62
1:A:7:ILE:HD11	1:A:13:ILE:HG13	1.82	0.62
1:A:61:GLU:OE1	4:A:260:HOH:O	2.16	0.62
1:B:55:ILE:O	1:B:55:ILE:CG1	2.47	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:79:ILE:HD13	1:A:138:CYS:SG	2.40	0.61
3:A:250:061:H182	3:A:250:061:C22	2.19	0.61
1:B:219:LYS:O	1:B:222:VAL:HG12	1.99	0.61
1:B:91:LEU:HB3	1:B:117:PRO:HB2	1.82	0.61
1:B:38:ASN:O	4:B:266:HOH:O	2.15	0.61
1:A:43:ILE:CD1	1:A:71:LEU:HB3	2.31	0.61
1:A:120:GLU:HA	1:B:124:THR:HG1	1.65	0.61
1:B:203:VAL:HG13	1:B:209:TYR:HB3	1.83	0.61
1:B:7:ILE:HG22	1:B:8:SER:N	2.16	0.60
1:B:165:MET:CE	1:B:188:THR:CG2	2.74	0.60
1:B:44:ASN:HB3	1:B:131:LEU:HD23	1.83	0.60
1:B:47:GLN:NE2	1:B:132:ASP:CB	2.62	0.60
1:B:224:GLN:HB3	4:B:309:HOH:O	2.02	0.60
1:B:7:ILE:CD1	1:B:13:ILE:HG12	2.31	0.60
1:B:72:HIS:CE1	4:B:283:HOH:O	2.55	0.60
1:A:62:MET:HG3	4:A:343:HOH:O	2.00	0.60
1:B:111:ALA:HA	1:B:116:LEU:CD1	2.32	0.60
1:B:94:LEU:HB3	1:B:99:VAL:HG23	1.82	0.60
1:B:82:HIS:NE2	1:B:84:HIS:HB2	2.17	0.59
1:A:204:PRO:HG3	1:A:214:LEU:CD1	2.31	0.59
1:B:7:ILE:HG12	1:B:66:TRP:CG	2.37	0.59
1:B:102:TYR:O	1:B:103:ALA:HB2	2.01	0.59
1:B:174:ILE:HG12	1:B:177:ILE:HD11	1.84	0.59
1:A:82:HIS:CE1	1:A:164:CYS:HB2	2.37	0.59
1:A:103:ALA:O	1:A:123:PHE:CD1	2.56	0.59
1:B:7:ILE:HD12	1:B:13:ILE:CG1	2.31	0.59
1:A:7:ILE:CD1	1:A:13:ILE:CG1	2.81	0.59
1:A:120:GLU:CA	1:B:124:THR:OG1	2.51	0.58
1:B:168:ASP:OD1	1:B:208:ASN:O	2.20	0.58
1:A:217:HIS:O	1:A:221:ILE:HG13	2.02	0.58
1:B:185:TRP:HB3	1:B:186:PRO:CD	2.34	0.58
1:A:165:MET:O	1:A:218:THR:HG21	2.03	0.58
1:B:165:MET:HE3	1:B:188:THR:CG2	2.27	0.58
1:B:196:PHE:N	1:B:197:PRO:CD	2.66	0.58
1:A:227:GLU:HG3	1:A:227:GLU:O	2.03	0.58
1:A:78:PHE:HD1	1:A:101:SER:HG	1.50	0.58
1:B:38:ASN:OD1	1:B:38:ASN:N	2.30	0.58
1:B:123:PHE:HZ	1:B:150:ILE:HG21	1.68	0.58
1:A:7:ILE:HD12	1:A:13:ILE:HG12	1.86	0.58
1:A:185:TRP:N	1:A:186:PRO:HD2	2.18	0.58
1:A:7:ILE:HD12	1:A:13:ILE:CG1	2.34	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:84:HIS:O	1:A:86:ASP:N	2.37	0.58
1:A:41:ILE:HG12	1:A:50:LEU:HD11	1.84	0.58
1:A:108:ILE:CG2	1:A:109:ASP:N	2.66	0.58
1:B:196:PHE:N	1:B:197:PRO:HD3	2.18	0.57
1:B:111:ALA:HA	1:B:116:LEU:HD12	1.85	0.57
1:A:153:TRP:O	1:A:155:PRO:CD	2.52	0.57
1:B:131:LEU:C	1:B:133:GLY:H	2.06	0.57
1:B:157:GLU:HB3	1:B:200:ARG:NH1	2.20	0.57
1:A:40:MET:CG	1:A:51:LEU:HD12	2.35	0.56
1:A:123:PHE:HA	1:B:128:THR:O	2.05	0.56
1:B:104:ASN:HD21	1:B:106:MET:HG3	1.69	0.56
1:B:157:GLU:HB3	1:B:200:ARG:HH12	1.71	0.56
1:A:167:LYS:HG3	1:A:221:ILE:HD13	1.86	0.56
1:B:215:ILE:HG22	1:B:215:ILE:O	2.04	0.56
1:A:224:GLN:O	1:A:228:SER:CB	2.54	0.56
1:B:77:THR:CG2	1:B:78:PHE:N	2.68	0.56
1:A:14:THR:HG22	1:A:16:LEU:CD2	2.36	0.56
1:A:59:GLN:N	4:A:277:HOH:O	2.36	0.56
1:A:137:GLN:CG	4:A:328:HOH:O	2.53	0.56
1:B:185:TRP:HB3	1:B:186:PRO:HD3	1.87	0.56
1:A:26:LEU:CD2	1:A:36:PRO:HB3	2.36	0.56
1:A:2:GLN:HE22	1:A:16:LEU:HA	1.71	0.55
1:B:7:ILE:CD1	1:B:13:ILE:CG1	2.85	0.55
1:A:185:TRP:CB	1:A:186:PRO:CD	2.69	0.55
1:A:193:LYS:HB3	1:A:215:ILE:HG21	1.88	0.55
1:B:166:LEU:HD23	1:B:166:LEU:N	2.22	0.55
1:A:65:ASN:ND2	4:A:264:HOH:O	1.80	0.55
1:B:95:GLN:O	1:B:98:GLY:HA2	2.07	0.55
1:A:12:SER:O	1:A:23:TYR:HB2	2.07	0.55
1:A:167:LYS:HG3	1:A:221:ILE:CD1	2.37	0.55
1:B:7:ILE:HG12	1:B:66:TRP:CD1	2.42	0.55
1:A:84:HIS:O	1:A:85:GLY:C	2.44	0.54
1:B:114:LYS:HG3	1:B:114:LYS:O	2.06	0.54
1:A:220:GLN:O	1:A:221:ILE:C	2.44	0.54
1:A:162:GLY:HA3	1:A:166:LEU:HD12	1.90	0.54
1:A:154:LEU:HG	1:A:159:ILE:HB	1.89	0.54
1:B:68:THR:O	1:B:72:HIS:N	2.40	0.54
1:B:211:GLY:O	1:B:214:LEU:HB2	2.08	0.54
1:A:85:GLY:O	1:A:89:GLY:HA3	2.07	0.54
1:B:82:HIS:CE1	1:B:87:CYS:SG	3.01	0.54
1:B:146:ALA:O	1:B:149:ASN:ND2	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:42:VAL:CG1	1:B:134:MET:CE	2.85	0.54
1:A:140:TYR:OH	1:A:147:THR:O	2.21	0.53
1:B:52:ASP:OD1	1:B:81:ASN:CB	2.56	0.53
1:B:63:LEU:C	1:B:63:LEU:CD1	2.74	0.53
1:A:20:VAL:HG13	1:A:40:MET:HE3	1.91	0.53
1:A:60:THR:N	4:A:277:HOH:O	2.39	0.53
1:B:149:ASN:N	1:B:149:ASN:HD22	2.06	0.53
1:B:141:LEU:HD13	1:B:192:VAL:HG23	1.91	0.53
1:B:106:MET:CE	1:B:140:TYR:CE2	2.92	0.53
1:A:185:TRP:CD1	1:A:189:LEU:HD11	2.43	0.53
1:A:14:THR:HG21	1:A:209:TYR:CE2	2.40	0.52
1:A:137:GLN:HG2	4:A:328:HOH:O	2.09	0.52
1:A:2:GLN:NE2	1:A:16:LEU:HA	2.24	0.52
1:B:25:SER:O	1:B:36:PRO:HA	2.09	0.52
1:B:41:ILE:CD1	1:B:63:LEU:HD11	2.25	0.52
1:B:146:ALA:HA	1:B:179:ASP:O	2.09	0.52
1:B:28:GLU:CG	1:B:34:MET:HA	2.09	0.52
1:B:93:TYR:OH	1:B:97:LYS:HE2	2.09	0.52
1:A:157:GLU:O	1:A:159:ILE:HG13	2.08	0.52
1:B:157:GLU:HB2	1:B:159:ILE:HG12	1.92	0.52
1:A:24:VAL:CA	1:A:37:SER:O	2.56	0.52
1:B:55:ILE:HG23	1:B:56:ASN:N	2.24	0.52
1:A:17:SER:OG	1:A:20:VAL:HB	2.10	0.52
1:B:57:ASP:OD1	1:B:93:TYR:N	2.43	0.52
1:B:80:PRO:O	1:B:80:PRO:HG2	2.10	0.52
1:B:95:GLN:O	1:B:98:GLY:N	2.43	0.51
1:B:99:VAL:HG12	1:B:100:GLN:N	2.26	0.51
1:B:165:MET:CG	1:B:166:LEU:HD23	2.29	0.51
1:B:19:LYS:HB3	1:B:43:ILE:O	2.09	0.51
1:B:91:LEU:HB3	1:B:117:PRO:HB3	1.89	0.51
1:B:136:LEU:N	1:B:136:LEU:CD2	2.68	0.51
1:B:217:HIS:HE1	4:B:297:HOH:O	1.93	0.51
1:A:168:ASP:HB2	1:A:170:GLN:H	1.75	0.51
1:B:61:GLU:O	1:B:65:ASN:HB2	2.10	0.51
1:B:80:PRO:HD3	1:B:102:TYR:O	2.10	0.51
1:A:64:VAL:HG22	1:A:75:VAL:HG21	1.92	0.51
1:B:94:LEU:HB3	1:B:99:VAL:HG21	1.93	0.51
1:B:139:TYR:HB2	1:B:151:VAL:HG22	1.93	0.51
1:B:219:LYS:C	1:B:222:VAL:HG12	2.30	0.51
1:B:7:ILE:HG22	1:B:8:SER:HB2	1.91	0.51
1:B:114:LYS:HB3	1:B:116:LEU:CD1	2.38	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:105:GLN:HE21	1:A:108:ILE:CG2	2.21	0.51
1:B:121:HIS:CD2	1:B:121:HIS:H	2.28	0.51
1:B:64:VAL:HG11	1:B:94:LEU:CD2	2.40	0.50
1:A:207:GLY:HA2	3:A:250:061:O30	2.10	0.50
1:B:78:PHE:C	1:B:78:PHE:CD1	2.84	0.50
1:B:105:GLN:NE2	1:B:109:ASP:OD1	2.44	0.50
1:A:59:GLN:HA	1:A:62:MET:HB2	1.92	0.50
1:A:135:PRO:HG2	1:A:155:PRO:HG2	1.93	0.50
1:B:64:VAL:CG2	1:B:93:TYR:HE2	2.24	0.50
1:B:189:LEU:HD22	1:B:215:ILE:HG23	1.93	0.50
1:A:50:LEU:O	1:A:78:PHE:HA	2.11	0.50
1:A:105:GLN:O	1:A:105:GLN:HG3	2.11	0.50
1:A:153:TRP:O	1:A:155:PRO:HD3	2.10	0.50
1:B:56:ASN:OD1	1:B:56:ASN:O	2.29	0.50
1:A:29:ILE:HG21	3:A:250:061:C9	2.42	0.50
1:A:41:ILE:HG12	1:A:50:LEU:CD1	2.42	0.50
1:A:223:ASN:HA	1:A:226:ILE:CG1	2.42	0.50
1:B:42:VAL:HG11	1:B:134:MET:CE	2.41	0.50
1:A:110:LEU:HG	1:A:114:LYS:HE3	1.94	0.49
1:B:5:VAL:HG23	1:B:5:VAL:O	2.12	0.49
1:A:145:HIS:CE1	3:A:250:061:N1	2.81	0.49
1:B:82:HIS:HE1	1:B:164:CYS:SG	2.35	0.49
1:A:105:GLN:OE1	1:B:127:LEU:CD1	2.60	0.49
1:A:82:HIS:CA	1:A:148:ASP:OD2	2.55	0.49
1:A:185:TRP:N	1:A:186:PRO:CD	2.74	0.49
1:A:12:SER:O	1:A:23:TYR:HA	2.13	0.49
1:A:23:TYR:CE1	1:A:39:GLY:HA3	2.48	0.49
1:B:91:LEU:CB	1:B:117:PRO:HB2	2.42	0.49
1:B:42:VAL:HG12	1:B:134:MET:HE1	1.93	0.49
1:B:83:TRP:O	1:B:83:TRP:CE3	2.66	0.49
1:B:219:LYS:O	1:B:223:ASN:HB2	2.13	0.49
1:A:40:MET:HB2	1:A:51:LEU:HB2	1.93	0.49
1:B:17:SER:HB3	1:B:20:VAL:HG23	1.95	0.49
1:B:42:VAL:HG11	1:B:134:MET:HE3	1.94	0.49
1:B:82:HIS:HA	1:B:148:ASP:OD2	2.12	0.49
1:B:95:GLN:O	1:B:98:GLY:CA	2.61	0.49
1:B:37:SER:OG	1:B:206:HIS:HE1	1.96	0.48
1:A:77:THR:HG22	1:A:78:PHE:N	2.28	0.48
1:A:137:GLN:HG3	4:A:328:HOH:O	2.11	0.48
1:A:154:LEU:HB2	1:A:157:GLU:HB2	1.93	0.48
1:A:41:ILE:HA	1:A:50:LEU:HD12	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:24:VAL:O	1:A:24:VAL:CG2	2.61	0.48
1:B:176:ASN:OD1	1:B:178:SER:N	2.46	0.48
1:B:195:LYS:HD3	1:B:196:PHE:CZ	2.48	0.48
1:A:145:HIS:CD2	1:A:164:CYS:HB3	2.49	0.48
1:A:24:VAL:O	1:A:24:VAL:HG23	2.12	0.48
1:A:111:ALA:HB1	1:A:116:LEU:HB2	1.96	0.48
1:B:195:LYS:CD	1:B:196:PHE:CE2	2.93	0.48
1:A:220:GLN:O	1:A:223:ASN:N	2.46	0.48
1:A:14:THR:CG2	1:A:16:LEU:HD21	2.44	0.48
1:A:88:ILE:HD13	1:A:116:LEU:HD13	1.94	0.48
1:B:6:LYS:HG2	1:B:11:ILE:O	2.14	0.47
1:A:137:GLN:OE1	1:A:155:PRO:HG3	2.14	0.47
1:A:189:LEU:O	1:A:193:LYS:N	2.47	0.47
1:B:168:ASP:HB3	1:B:171:THR:CG2	2.43	0.47
1:B:157:GLU:O	1:B:200:ARG:HD3	2.15	0.47
1:A:41:ILE:HG23	1:A:50:LEU:HD12	1.96	0.47
1:B:48:ALA:N	4:B:291:HOH:O	2.46	0.47
1:B:165:MET:HE1	1:B:188:THR:CG2	2.38	0.47
1:A:7:ILE:HD11	1:A:13:ILE:CG1	2.43	0.47
1:A:49:ALA:HA	1:A:77:THR:HB	1.96	0.47
1:B:7:ILE:HD11	1:B:13:ILE:HG13	1.97	0.47
1:B:80:PRO:HD3	1:B:103:ALA:HB2	1.97	0.47
1:B:168:ASP:O	1:B:170:GLN:N	2.48	0.47
1:A:41:ILE:HG23	1:A:50:LEU:HD13	1.96	0.47
1:B:80:PRO:O	1:B:80:PRO:CG	2.62	0.47
1:A:167:LYS:HE3	1:A:173:SER:O	2.15	0.47
1:B:36:PRO:HB2	4:B:286:HOH:O	2.14	0.46
1:B:62:MET:HA	1:B:65:ASN:HB3	1.90	0.46
1:B:116:LEU:CB	1:B:117:PRO:HD2	2.33	0.46
1:A:15:GLN:NE2	1:A:21:TYR:OH	2.48	0.46
1:A:153:TRP:O	1:A:155:PRO:HD2	2.15	0.46
1:B:174:ILE:HG23	1:B:177:ILE:HD11	1.98	0.46
1:A:15:GLN:CD	1:A:21:TYR:CE2	2.89	0.46
1:B:16:LEU:CG	1:B:22:THR:OG1	2.64	0.46
1:A:153:TRP:HE3	1:A:160:LEU:HB2	1.80	0.46
1:B:78:PHE:CE1	1:B:80:PRO:HB3	2.50	0.46
1:B:82:HIS:HB2	1:B:148:ASP:OD2	2.15	0.46
1:B:83:TRP:HB3	1:B:107:THR:HG23	1.97	0.46
1:B:206:HIS:CD2	1:B:206:HIS:N	2.83	0.46
1:B:225:TYR:O	1:B:228:SER:HB3	2.14	0.46
1:A:139:TYR:O	1:A:150:ILE:HB	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:145:HIS:CE1	3:A:250:061:N2	2.83	0.46
1:B:16:LEU:HD23	1:B:16:LEU:HA	1.74	0.46
1:B:97:LYS:HA	1:B:97:LYS:HD3	1.71	0.46
1:A:61:GLU:O	1:A:61:GLU:HG3	2.14	0.46
1:A:65:ASN:O	1:A:68:THR:HB	2.16	0.46
1:B:157:GLU:O	1:B:158:ASN:CB	2.63	0.46
1:B:53:THR:HB	1:B:60:THR:CG2	2.45	0.46
1:A:41:ILE:HD11	1:A:63:LEU:HD11	1.97	0.46
1:B:55:ILE:HD11	4:B:264:HOH:O	2.14	0.46
1:B:101:SER:HB2	1:B:120:GLU:H	1.81	0.45
1:B:195:LYS:HG2	1:B:196:PHE:CD2	2.51	0.45
1:A:188:THR:O	1:A:192:VAL:HG23	2.15	0.45
1:B:77:THR:HG22	1:B:78:PHE:H	1.79	0.45
1:A:153:TRP:CE3	1:A:160:LEU:HB2	2.51	0.45
1:A:223:ASN:HA	1:A:226:ILE:CD1	2.46	0.45
1:A:223:ASN:OD1	1:A:226:ILE:HD11	2.16	0.45
1:B:195:LYS:HG3	1:B:196:PHE:CE1	2.50	0.45
1:B:25:SER:OG	1:B:54:PRO:HB3	2.16	0.45
1:B:219:LYS:HA	1:B:222:VAL:HG12	1.98	0.45
1:A:43:ILE:HD11	1:A:71:LEU:CB	2.43	0.45
1:A:56:ASN:O	4:A:277:HOH:O	2.20	0.45
1:A:171:THR:O	1:A:217:HIS:HE1	2.00	0.45
1:A:176:ASN:C	1:A:176:ASN:OD1	2.53	0.45
1:A:55:ILE:HD13	1:A:55:ILE:HA	1.66	0.45
1:B:51:LEU:N	1:B:51:LEU:HD23	2.31	0.45
1:B:57:ASP:O	1:B:61:GLU:HB2	2.17	0.45
1:A:40:MET:CB	1:A:51:LEU:HD12	2.47	0.45
1:A:49:ALA:HB2	1:A:131:LEU:HD13	1.99	0.45
1:A:153:TRP:CH2	1:A:158:ASN:HA	2.52	0.45
1:A:27:ALA:N	4:A:296:HOH:O	2.49	0.44
1:B:13:ILE:HD13	1:B:13:ILE:HA	1.79	0.44
1:B:221:ILE:O	1:B:224:GLN:HB3	2.17	0.44
1:A:20:VAL:HG22	1:A:42:VAL:HG22	1.98	0.44
1:B:123:PHE:CZ	1:B:150:ILE:HG21	2.49	0.44
1:A:75:VAL:HG12	1:A:99:VAL:CG2	2.46	0.44
1:A:216:GLU:H	1:A:216:GLU:HG3	1.47	0.44
1:B:145:HIS:O	1:B:180:ALA:HB2	2.18	0.44
1:B:174:ILE:CG1	1:B:177:ILE:HD11	2.46	0.44
1:B:35:VAL:HA	1:B:36:PRO:HD3	1.82	0.44
1:B:168:ASP:O	1:B:171:THR:HG23	2.18	0.44
1:B:40:MET:HG3	1:B:161:PHE:HB2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:114:LYS:CG	1:B:116:LEU:HD11	2.47	0.44
1:A:12:SER:O	1:A:23:TYR:CB	2.66	0.44
1:A:40:MET:HE3	1:A:40:MET:HB3	1.93	0.44
1:A:79:ILE:HG23	1:A:102:TYR:O	2.17	0.44
1:A:196:PHE:N	1:A:197:PRO:CD	2.81	0.44
1:B:195:LYS:CG	1:B:196:PHE:CE2	3.01	0.44
1:A:14:THR:CG2	1:A:16:LEU:CD2	2.96	0.44
1:B:108:ILE:HG23	1:B:118:VAL:CG1	2.48	0.44
1:B:157:GLU:CB	1:B:200:ARG:NH1	2.81	0.44
1:A:20:VAL:HG13	1:A:40:MET:CE	2.49	0.43
1:B:65:ASN:HD22	1:B:65:ASN:HA	1.54	0.43
1:A:10:ASP:O	1:A:11:ILE:HG12	2.18	0.43
1:B:120:GLU:HB2	1:B:121:HIS:CD2	2.52	0.43
1:B:111:ALA:HB1	1:B:116:LEU:HB2	1.99	0.43
1:B:191:LYS:HA	1:B:194:ALA:HB3	2.00	0.43
1:A:57:ASP:O	1:A:60:THR:HB	2.18	0.43
1:A:79:ILE:CD1	1:A:138:CYS:SG	3.06	0.43
1:B:54:PRO:O	1:B:89:GLY:HA3	2.18	0.43
1:B:203:VAL:HA	1:B:204:PRO:HD3	1.82	0.43
1:A:47:GLN:CG	1:A:76:THR:HG21	2.43	0.43
1:A:55:ILE:HG22	1:A:56:ASN:HD22	1.84	0.43
1:A:74:LYS:HE3	4:A:336:HOH:O	2.19	0.43
1:A:161:PHE:CD1	1:A:203:VAL:CG1	3.02	0.43
1:B:17:SER:N	1:B:20:VAL:O	2.44	0.43
1:B:115:GLY:C	1:B:116:LEU:HG	2.35	0.43
1:A:154:LEU:N	1:A:154:LEU:CD2	2.74	0.43
1:B:5:VAL:O	1:B:5:VAL:CG2	2.67	0.43
1:B:64:VAL:CG2	1:B:93:TYR:CE2	3.01	0.43
1:A:40:MET:HB2	1:A:51:LEU:CB	2.49	0.43
1:B:41:ILE:HG22	1:B:43:ILE:HD12	2.01	0.43
1:A:97:LYS:HD2	1:A:97:LYS:HA	1.62	0.42
1:B:104:ASN:OD1	4:B:253:HOH:O	2.21	0.42
1:B:157:GLU:C	1:B:200:ARG:NH1	2.67	0.42
1:B:195:LYS:NZ	1:B:195:LYS:CB	2.82	0.42
1:A:44:ASN:ND2	4:A:259:HOH:O	2.51	0.42
1:A:203:VAL:HG22	1:A:209:TYR:HB3	2.00	0.42
1:B:16:LEU:HG	1:B:22:THR:OG1	2.19	0.42
1:B:127:LEU:HD23	1:B:129:VAL:HG23	2.02	0.42
1:A:105:GLN:O	1:A:108:ILE:HB	2.20	0.42
1:A:145:HIS:CD2	1:A:164:CYS:CB	3.03	0.42
1:A:185:TRP:O	1:A:188:THR:HB	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:203:VAL:HA	1:A:204:PRO:HD3	1.81	0.42
1:B:64:VAL:HG21	1:B:93:TYR:CE2	2.48	0.42
1:B:176:ASN:C	1:B:176:ASN:OD1	2.57	0.42
1:A:110:LEU:HA	1:A:110:LEU:HD12	1.44	0.42
1:B:49:ALA:HB2	1:B:131:LEU:CD1	2.39	0.42
1:A:88:ILE:H	1:A:88:ILE:HG13	1.38	0.42
1:A:161:PHE:CE1	1:A:203:VAL:CG1	3.03	0.42
1:A:168:ASP:CB	1:A:170:GLN:H	2.32	0.42
1:B:157:GLU:CA	1:B:200:ARG:NH1	2.82	0.42
1:A:14:THR:HG22	1:A:14:THR:O	2.19	0.42
1:A:23:TYR:OH	1:A:52:ASP:O	2.34	0.42
1:B:23:TYR:O	1:B:38:ASN:HA	2.20	0.42
1:B:47:GLN:HE21	1:B:47:GLN:HB3	1.51	0.42
1:B:222:VAL:O	1:B:226:ILE:HD12	2.20	0.42
1:B:222:VAL:CG1	1:B:223:ASN:N	2.81	0.42
1:A:181:ASP:O	1:A:185:TRP:N	2.52	0.42
1:B:76:THR:C	1:B:99:VAL:CG1	2.88	0.42
1:A:222:VAL:HG23	1:A:222:VAL:H	1.57	0.42
1:B:57:ASP:OD1	1:B:93:TYR:HB2	2.19	0.42
1:B:166:LEU:HA	1:B:218:THR:HG21	2.01	0.42
1:A:88:ILE:CG2	1:A:91:LEU:HD22	2.40	0.41
1:A:19:LYS:HG2	1:A:43:ILE:O	2.20	0.41
1:A:206:HIS:NE2	3:A:250:061:N1	2.68	0.41
1:B:28:GLU:HA	1:B:33:GLY:O	2.19	0.41
1:A:40:MET:HB2	1:A:51:LEU:HD12	2.02	0.41
1:B:101:SER:HB3	1:B:119:PRO:HA	2.02	0.41
1:A:48:ALA:HB3	1:A:75:VAL:HA	2.01	0.41
1:A:84:HIS:C	1:A:86:ASP:N	2.74	0.41
1:B:13:ILE:HD13	1:B:23:TYR:HA	2.02	0.41
1:B:168:ASP:C	1:B:170:GLN:H	2.23	0.41
1:B:54:PRO:HB3	1:B:59:GLN:HE21	1.86	0.41
1:A:188:THR:O	1:A:191:LYS:N	2.53	0.41
1:B:20:VAL:CG1	1:B:40:MET:CE	2.98	0.41
1:A:40:MET:HB2	1:A:51:LEU:CD1	2.50	0.41
1:B:82:HIS:CA	1:B:148:ASP:OD2	2.69	0.41
1:B:104:ASN:ND2	1:B:106:MET:HB2	2.35	0.41
1:A:13:ILE:HD12	1:A:13:ILE:HG23	1.71	0.41
1:A:12:SER:O	1:A:23:TYR:CA	2.69	0.41
1:A:26:LEU:HD23	1:A:36:PRO:HB3	2.03	0.41
1:A:43:ILE:O	1:A:43:ILE:HG22	2.20	0.41
1:A:187:LYS:HG3	4:A:342:HOH:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:45:ASN:C	1:B:47:GLN:N	2.73	0.41
1:B:215:ILE:O	1:B:215:ILE:CG2	2.68	0.41
1:A:88:ILE:HG21	1:A:91:LEU:HD23	1.99	0.41
1:A:129:VAL:CG1	1:A:130:SER:N	2.84	0.41
1:A:161:PHE:CD1	1:A:203:VAL:HG12	2.56	0.41
1:B:17:SER:OG	1:B:18:ASP:N	2.54	0.41
1:B:149:ASN:ND2	1:B:149:ASN:N	2.69	0.41
1:B:153:TRP:CD1	1:B:155:PRO:HG3	2.56	0.41
1:A:124:THR:OG1	1:B:129:VAL:HA	2.21	0.40
1:A:185:TRP:O	1:A:188:THR:N	2.37	0.40
1:A:124:THR:O	1:A:125:ASP:OD1	2.39	0.40
1:A:183:THR:OG1	1:A:184:ALA:N	2.54	0.40
1:B:189:LEU:HD23	1:B:189:LEU:HA	1.98	0.40
1:A:66:TRP:C	1:A:68:THR:H	2.25	0.40
1:A:185:TRP:O	1:A:186:PRO:C	2.60	0.40
1:B:34:MET:N	4:B:310:HOH:O	2.54	0.40
1:B:41:ILE:HD11	1:B:63:LEU:CD1	2.30	0.40
1:B:153:TRP:CG	1:B:196:PHE:CE1	3.10	0.40
1:B:212:THR:C	1:B:214:LEU:N	2.74	0.40
1:B:216:GLU:O	1:B:217:HIS:C	2.59	0.40
1:A:96:ARG:HD3	1:A:96:ARG:O	2.21	0.40
1:B:91:LEU:HD12	1:B:91:LEU:HA	1.94	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	228/232 (98%)	191 (84%)	34 (15%)	3 (1%)	12	16
1	B	226/232 (97%)	176 (78%)	37 (16%)	13 (6%)	1	0
All	All	454/464 (98%)	367 (81%)	71 (16%)	16 (4%)	3	2

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	57	ASP
1	B	132	ASP
1	A	52	ASP
1	A	85	GLY
1	A	221	ILE
1	B	52	ASP
1	B	72	HIS
1	B	127	LEU
1	B	158	ASN
1	B	169	ASN
1	B	61	GLU
1	B	120	GLU
1	B	198	SER
1	B	68	THR
1	B	98	GLY
1	B	80	PRO

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	195/198 (98%)	161 (83%)	34 (17%)	2	2
1	B	194/198 (98%)	156 (80%)	38 (20%)	1	1
All	All	389/396 (98%)	317 (82%)	72 (18%)	1	1

All (72) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	LYS
1	A	12	SER
1	A	14	THR
1	A	19	LYS
1	A	26	LEU
1	A	43	ILE
1	A	53	THR

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Mol	Chain	Res	Type
1	A	55	ILE
1	A	68	THR
1	A	70	SER
1	A	88	ILE
1	A	97	LYS
1	A	107	THR
1	A	108	ILE
1	A	110	LEU
1	A	120	GLU
1	A	124	THR
1	A	130	SER
1	A	134	MET
1	A	137	GLN
1	A	149	ASN
1	A	154	LEU
1	A	160	LEU
1	A	171	THR
1	A	172	THR
1	A	174	ILE
1	A	178	SER
1	A	187	LYS
1	A	190	ASP
1	A	193	LYS
1	A	203	VAL
1	A	208	ASN
1	A	213	GLU
1	A	216	GLU
1	B	7	ILE
1	B	10	ASP
1	B	12	SER
1	B	18	ASP
1	B	36	PRO
1	B	40	MET
1	B	43	ILE
1	B	50	LEU
1	B	52	ASP
1	B	60	THR
1	B	63	LEU
1	B	65	ASN
1	B	68	THR
1	B	72	HIS
1	B	78	PHE

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Mol	Chain	Res	Type
1	B	80	PRO
1	B	96	ARG
1	B	102	TYR
1	B	110	LEU
1	B	116	LEU
1	B	123	PHE
1	B	134	MET
1	B	136	LEU
1	B	141	LEU
1	B	149	ASN
1	B	156	THR
1	B	165	MET
1	B	166	LEU
1	B	172	THR
1	B	177	ILE
1	B	183	THR
1	B	187	LYS
1	B	192	VAL
1	B	195	LYS
1	B	200	ARG
1	B	203	VAL
1	B	213	GLU
1	B	214	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	2	GLN
1	A	15	GLN
1	A	44	ASN
1	A	45	ASN
1	A	82	HIS
1	A	95	GLN
1	A	121	HIS
1	A	137	GLN
1	A	158	ASN
1	A	217	HIS
1	A	220	GLN
1	B	15	GLN
1	B	44	ASN
1	B	47	GLN
1	B	59	GLN

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Mol	Chain	Res	Type
1	B	65	ASN
1	B	72	HIS
1	B	104	ASN
1	B	121	HIS
1	B	149	ASN
1	B	170	GLN
1	B	206	HIS
1	B	217	HIS
1	B	220	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)

Of 5 ligands modelled in this entry, 4 are monoatomic - leaving 1 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	061	A	250	2	38,38,38	1.43	4 (10%)	45,53,53	2.71	19 (42%)

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	061	A	250	2	-	6/16/16/16	0/5/5/5

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	250	061	C33-C32	3.80	1.48	1.41
3	A	250	061	C5-N4	3.71	1.38	1.33
3	A	250	061	C33-N19	-3.53	1.33	1.38
3	A	250	061	C26-N25	-2.72	1.33	1.37

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	250	061	C32-C26-N25	-8.19	119.16	123.60
3	A	250	061	C15-C18-N19	7.00	123.49	112.63
3	A	250	061	C5-N1-N2	5.42	109.70	104.87
3	A	250	061	C6-C5-N1	5.34	133.19	124.11
3	A	250	061	C32-C33-N19	4.10	118.95	116.15
3	A	250	061	N4-C5-N1	-3.86	107.08	111.39
3	A	250	061	C22-C21-C20	3.74	120.46	112.16
3	A	250	061	C6-C7-C12	-3.47	117.28	122.82
3	A	250	061	C18-C15-C16	-3.32	114.09	120.40
3	A	250	061	N1-N2-N3	-3.15	107.47	109.53
3	A	250	061	C17-C12-C7	-2.94	116.15	120.91
3	A	250	061	C16-C17-C12	-2.78	117.14	121.13
3	A	250	061	C6-C5-N4	-2.64	119.62	124.11
3	A	250	061	N4-N3-N2	2.62	111.25	109.53
3	A	250	061	C18-C15-C14	2.49	125.14	120.40
3	A	250	061	C33-C32-C26	-2.40	116.23	119.39
3	A	250	061	C11-C6-C5	2.33	122.13	118.55
3	A	250	061	C17-C12-C13	2.25	122.08	117.59
3	A	250	061	C8-C7-C6	2.24	120.90	118.67

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	250	061	N1-C5-C6-C11
3	A	250	061	N19-C20-C21-C22

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Mol	Chain	Res	Type	Atoms
3	A	250	061	N25-C20-C21-C22
3	A	250	061	C14-C15-C18-N19
3	A	250	061	C16-C15-C18-N19
3	A	250	061	N4-C5-C6-C11

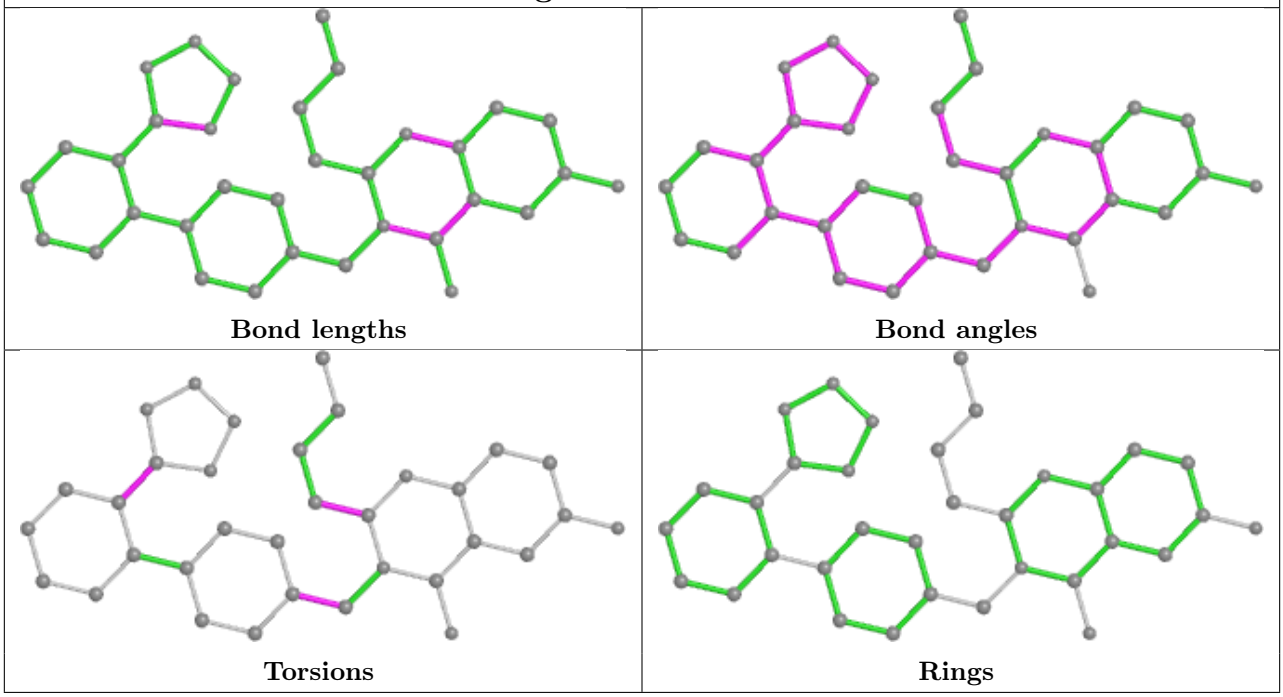
There are no ring outliers.

1 monomer is involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	250	061	14	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand 061 A 250



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, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	230/232 (99%)	-0.68	0	100	100	2, 3, 22, 42	0
1	B	228/232 (98%)	-0.57	0	100	100	2, 9, 25, 32	0
All	All	458/464 (98%)	-0.62	0	100	100	2, 6, 24, 42	0

There are no RSRZ outliers to report.

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

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

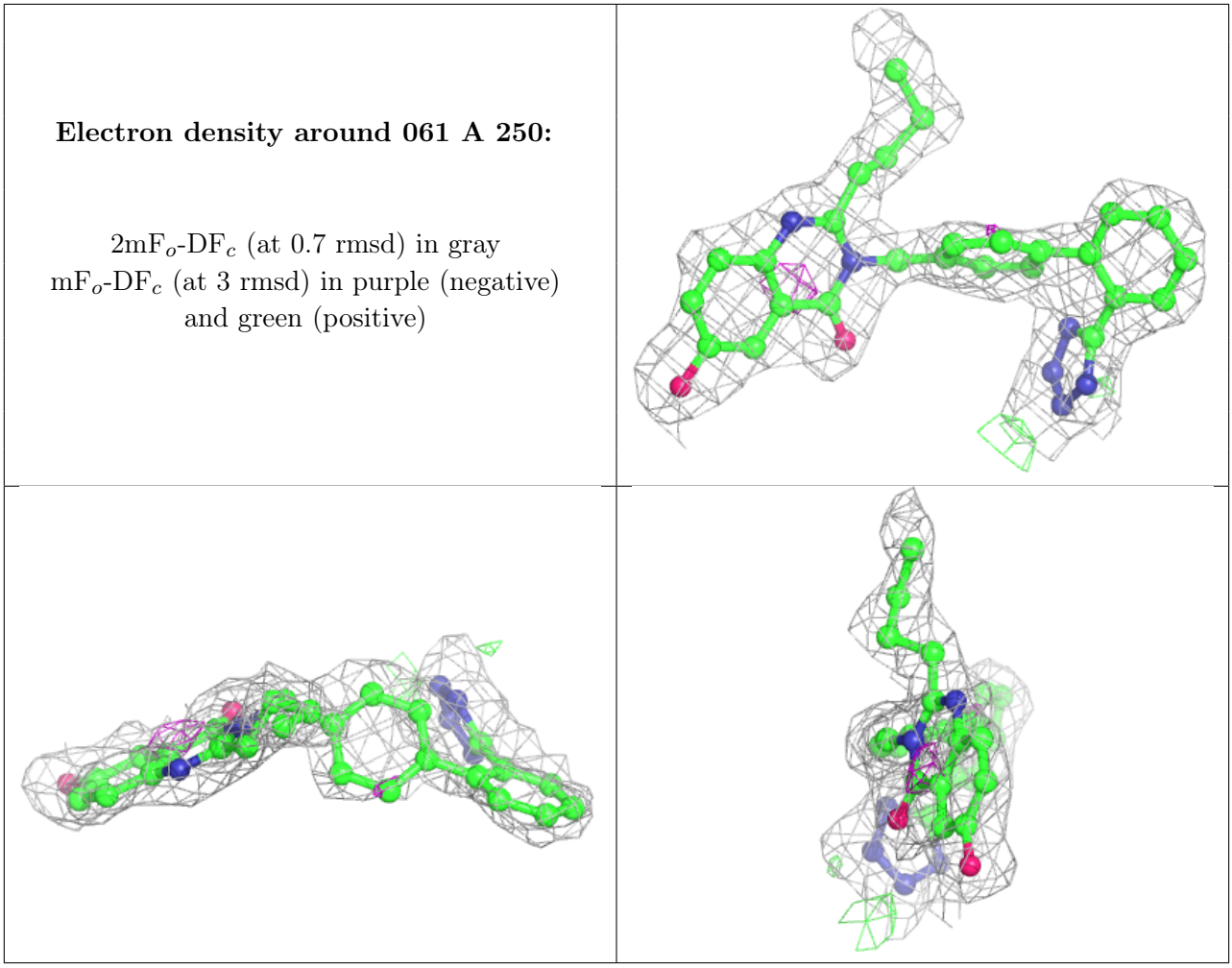
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	061	A	250	34/34	0.93	0.15	10,12,14,14	0
2	ZN	A	252	1/1	0.99	0.03	7,7,7,7	0
2	ZN	B	252	1/1	0.99	0.06	34,34,34,34	0
2	ZN	A	251	1/1	0.99	0.06	2,2,2,2	0
2	ZN	B	251	1/1	1.00	0.02	11,11,11,11	0

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 061 A 250:

$2mF_o$-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.