



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 03:16 PM UTC

PDB ID : 1HNV / pdb_00001hnv
Title : STRUCTURE OF HIV-1 RT(SLASH)TIBO R 86183 COMPLEX REVEALS
SIMILARITY IN THE BINDING OF DIVERSE NONNUCLEOSIDE IN-
HIBITORS
Authors : Das, K.; Ding, J.; Arnold, E.
Deposited on : 1995-03-30
Resolution : 3.00 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

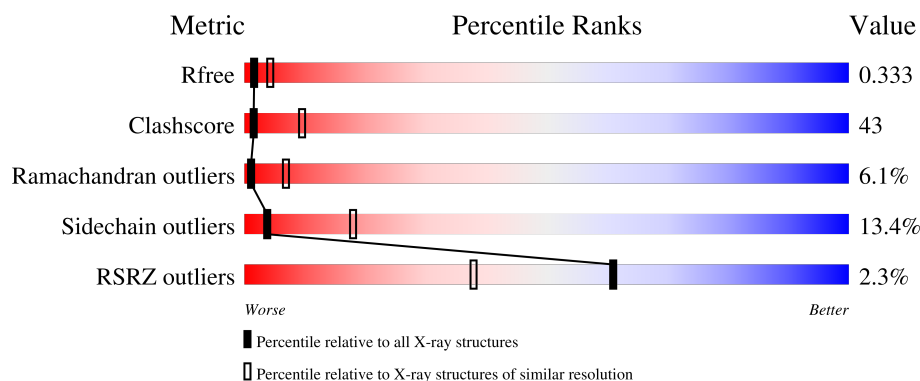
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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}	180053	2672 (3.00-3.00)
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (3.00-3.00)

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	558	2% 33% 54% 12% .
2	B	427	3% 29% 49% 19% .

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 7833 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 HIV-1 REVERSE TRANSCRIPTASE (SUBUNIT P66).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	558	Total	C	N	O	S	0	0	0
			4370	2827	725	812	6			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	280	SER	CYS	conflict	UNP P03366

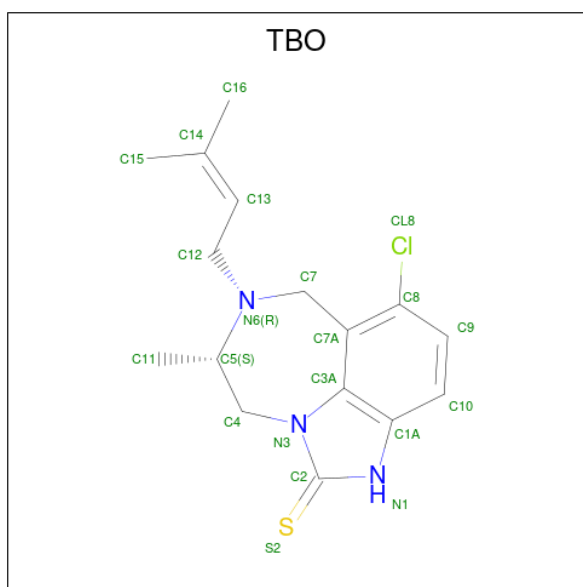
- Molecule 2 is a protein called HIV-1 REVERSE TRANSCRIPTASE (SUBUNIT P51).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	427	Total	C	N	O	S	0	0	0
			3442	2240	567	630	5			

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	280	SER	CYS	conflict	UNP P03366

- Molecule 3 is 5-CHLORO-8-METHYL-7-(3-METHYL-BUT-2-ENYL)-6,7,8,9-TETRAHYDRO-2H-2,7,9A-TRIAZA-BENZO[CD]AZULENE-1-THIONE (CCD ID: TBO) (formula: C₁₆H₂₀ClN₃S).

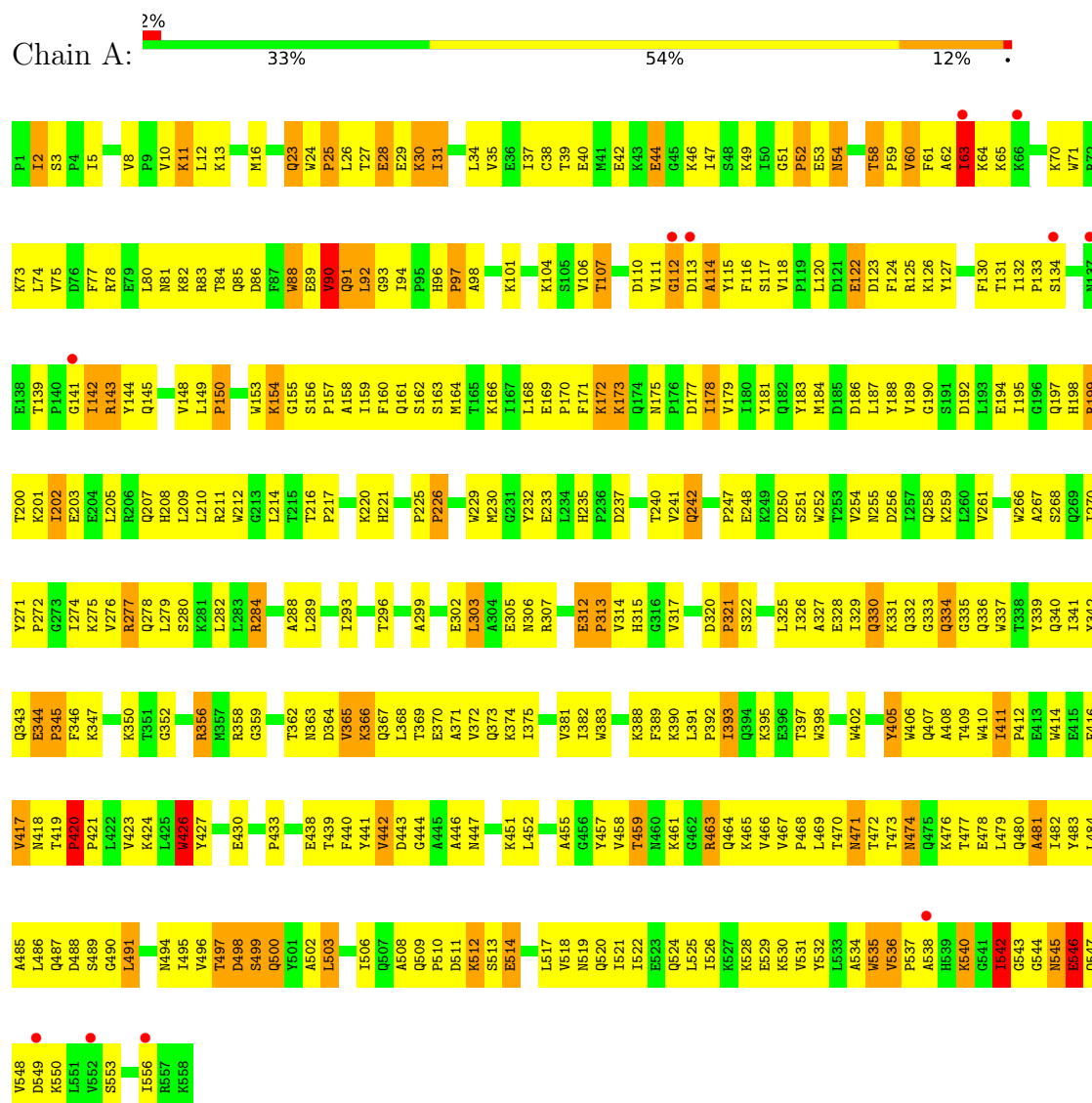


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	Cl	N	S		
3	A	1	21	16	1	3	1	0	0

3 Residue-property plots

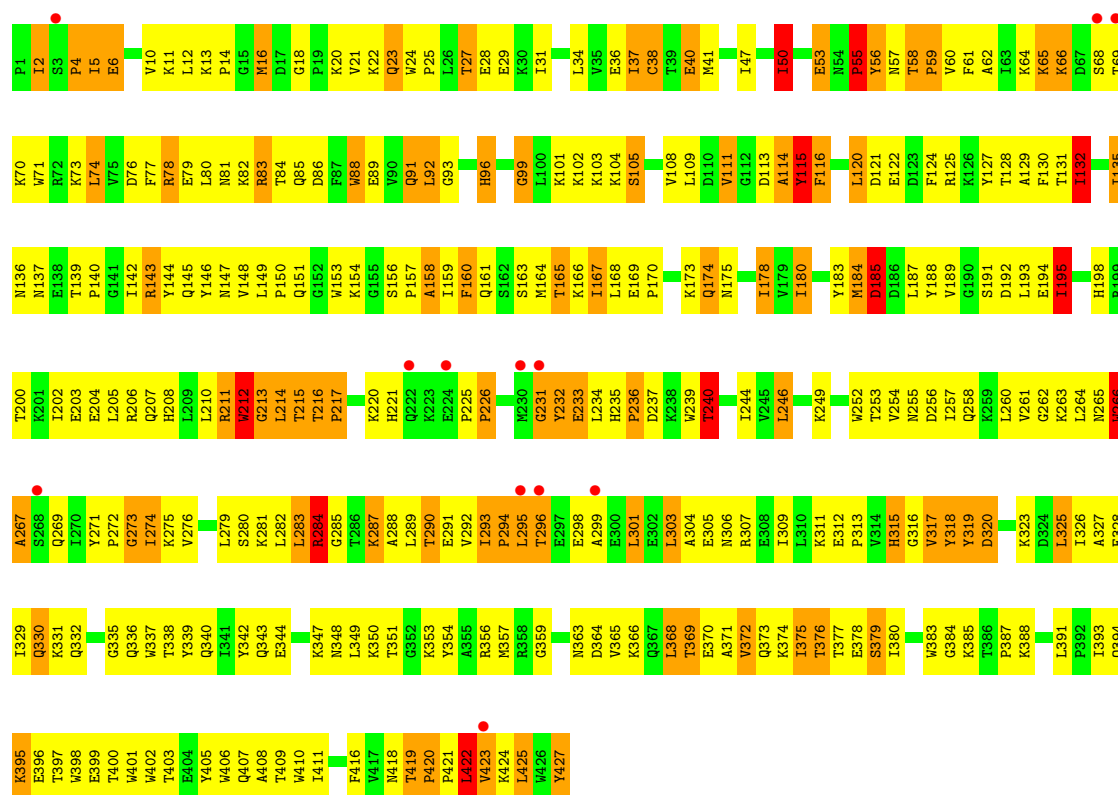
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: HIV-1 REVERSE TRANSCRIPTASE (SUBUNIT P66)



• Molecule 2: HIV-1 REVERSE TRANSCRIPTASE (SUBUNIT P51)





4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	227.20Å 70.20Å 105.70Å 90.00° 105.60° 90.00°	Depositor
Resolution (Å)	10.00 – 3.00 10.00 – 3.00	Depositor EDS
% Data completeness (in resolution range)	83.2 (10.00-3.00) 83.7 (10.00-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.75 (at 2.81Å)	Xtriage
Refinement program	X-PLOR 3.1	Depositor
R, R_{free}	0.249 , 0.356 0.247 , 0.333	Depositor DCC
R_{free} test set	1594 reflections (4.96%)	wwPDB-VP
Wilson B-factor (Å ²)	55.2	Xtriage
Anisotropy	0.023	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.16 , 44.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	7833	wwPDB-VP
Average B, all atoms (Å ²)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.50% 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

5.1 Standard geometry

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

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	0.80	0/4484	1.28	50/6113 (0.8%)
2	B	0.89	2/3541 (0.1%)	1.34	55/4822 (1.1%)
All	All	0.84	2/8025 (0.0%)	1.31	105/10935 (1.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	372	VAL	CA-CB	-6.57	1.46	1.54
2	B	5	ILE	CA-CB	5.85	1.62	1.54

All (105) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	134	SER	N-CA-C	12.99	128.60	112.23
1	A	288	ALA	N-CA-C	-12.62	95.50	112.03
1	A	420	PRO	N-CA-C	12.48	125.92	110.70
2	B	422	LEU	N-CA-C	-12.01	98.27	111.36
2	B	50	ILE	N-CA-C	9.57	120.21	108.53
2	B	204	GLU	N-CA-C	-9.47	100.94	111.07
2	B	58	THR	CA-C-N	9.45	131.66	119.84
2	B	58	THR	C-N-CA	9.45	131.66	119.84
2	B	215	THR	N-CA-C	-9.08	95.35	109.25

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	18	GLY	CA-C-N	8.51	128.54	119.78
2	B	18	GLY	C-N-CA	8.51	128.54	119.78
1	A	503	LEU	N-CA-C	-8.35	102.14	111.07
2	B	96	HIS	CA-C-N	8.29	130.20	119.84
2	B	96	HIS	C-N-CA	8.29	130.20	119.84
1	A	312	GLU	CA-C-N	8.21	128.72	119.93
1	A	312	GLU	C-N-CA	8.21	128.72	119.93
2	B	194	GLU	N-CA-C	-7.92	98.75	110.23
1	A	382	ILE	N-CA-C	7.74	118.75	111.48
1	A	344	GLU	CA-C-N	7.66	129.42	119.84
1	A	344	GLU	C-N-CA	7.66	129.42	119.84
2	B	2	ILE	N-CA-C	7.65	125.24	109.34
1	A	8	VAL	CA-C-N	7.56	127.84	119.90
1	A	8	VAL	C-N-CA	7.56	127.84	119.90
1	A	37	ILE	N-CA-C	-7.43	103.61	110.82
2	B	40	GLU	N-CA-C	-7.43	103.12	111.07
1	A	159	ILE	N-CA-C	-7.39	103.13	110.30
2	B	225	PRO	N-CA-CB	7.25	110.11	103.08
2	B	62	ALA	N-CA-C	-7.20	98.59	110.17
1	A	92	LEU	N-CA-C	-7.17	103.45	113.20
2	B	78	ARG	N-CA-C	7.07	119.60	111.11
1	A	54	ASN	CA-C-N	7.06	126.76	119.56
1	A	54	ASN	C-N-CA	7.06	126.76	119.56
1	A	154	LYS	N-CA-C	6.84	119.58	111.71
1	A	5	ILE	N-CA-C	6.82	118.49	109.21
2	B	158	ALA	N-CA-C	-6.77	103.36	111.69
2	B	108	VAL	N-CA-C	6.75	118.01	107.28
1	A	23	GLN	N-CA-C	6.66	120.37	109.72
1	A	455	ALA	N-CA-C	-6.64	100.12	110.42
2	B	295	LEU	N-CA-C	6.54	124.73	110.80
1	A	235	HIS	CA-C-N	6.53	126.22	119.56
1	A	235	HIS	C-N-CA	6.53	126.22	119.56
1	A	463	ARG	N-CA-C	6.51	118.53	109.15
1	A	542	ILE	N-CA-C	-6.50	100.37	109.21
2	B	226	PRO	N-CA-CB	6.35	109.91	103.25
1	A	382	ILE	CB-CA-C	-6.32	106.34	111.71
1	A	293	ILE	CA-C-N	6.23	127.63	119.84
1	A	293	ILE	C-N-CA	6.23	127.63	119.84
2	B	375	ILE	N-CA-C	-6.22	104.78	110.82
2	B	284	ARG	N-CA-C	6.19	120.30	112.87
2	B	175	ASN	CA-C-N	6.17	125.57	118.85
2	B	175	ASN	C-N-CA	6.17	125.57	118.85

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	83	ARG	N-CA-C	6.16	117.67	111.07
1	A	113	ASP	N-CA-C	-6.14	103.13	111.55
1	A	420	PRO	CA-C-N	-6.14	112.17	119.84
1	A	420	PRO	C-N-CA	-6.14	112.17	119.84
2	B	66	LYS	N-CA-C	6.13	119.70	111.24
1	A	514	GLU	N-CA-C	-6.04	102.51	111.81
1	A	365	VAL	N-CA-C	-6.03	104.64	110.42
1	A	242	GLN	N-CA-C	6.01	123.08	109.81
1	A	388	LYS	N-CA-C	-5.98	101.43	110.28
1	A	161	GLN	N-CA-C	-5.93	104.00	111.11
2	B	68	SER	N-CA-C	5.90	119.78	111.52
1	A	535	TRP	N-CA-C	5.82	117.92	108.26
1	A	169	GLU	N-CA-C	5.80	122.63	109.81
2	B	419	THR	CA-C-N	5.78	126.33	120.38
2	B	419	THR	C-N-CA	5.78	126.33	120.38
1	A	481	ALA	N-CA-C	-5.76	105.14	111.82
2	B	303	LEU	N-CA-C	-5.76	104.69	110.97
2	B	221	HIS	N-CA-C	5.71	118.45	107.44
1	A	498	ASP	N-CA-C	-5.66	105.49	112.90
2	B	65	LYS	N-CA-C	5.66	118.89	110.52
2	B	409	THR	N-CA-C	5.63	117.50	111.36
2	B	246	LEU	N-CA-C	-5.62	101.23	109.50
1	A	313	PRO	N-CA-C	5.62	120.42	111.26
1	A	500	GLN	N-CA-C	-5.60	104.67	112.45
2	B	23	GLN	N-CA-C	5.52	117.23	108.67
2	B	132	ILE	CA-C-N	5.48	125.45	120.03
2	B	132	ILE	C-N-CA	5.48	125.45	120.03
1	A	250	ASP	N-CA-C	-5.42	102.44	110.46
1	A	166	LYS	N-CA-C	-5.41	105.03	111.03
2	B	294	PRO	N-CA-C	5.39	120.93	113.98
2	B	145	GLN	N-CA-C	-5.38	101.12	109.14
1	A	442	VAL	N-CA-C	5.38	116.29	110.21
2	B	237	ASP	N-CA-C	-5.36	106.61	112.72
2	B	320	ASP	N-CA-C	-5.33	99.79	109.44
2	B	216	THR	CA-C-N	5.30	126.46	119.84
2	B	216	THR	C-N-CA	5.30	126.46	119.84
2	B	231	GLY	N-CA-C	-5.30	106.07	112.48
2	B	267	ALA	N-CA-C	-5.29	104.93	111.33
2	B	220	LYS	N-CA-C	5.27	117.71	111.33
2	B	151	GLN	N-CA-C	5.21	116.77	111.14
1	A	44	GLU	N-CA-C	-5.17	106.81	113.01
1	A	366	LYS	N-CA-C	-5.15	104.93	111.11

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	212	TRP	N-CA-C	5.14	121.76	110.80
2	B	265	ASN	N-CA-C	5.13	118.00	111.69
2	B	53	GLU	N-CA-C	-5.12	106.29	112.54
1	A	173	LYS	N-CA-C	-5.11	105.41	111.69
1	A	346	PHE	N-CA-C	5.11	121.93	113.50
2	B	376	THR	N-CA-C	5.06	116.49	110.97
2	B	174	GLN	N-CA-C	-5.05	106.97	113.23
2	B	266	TRP	N-CA-C	-5.03	106.31	112.90
1	A	216	THR	N-CA-C	-5.02	99.51	109.10
2	B	167	ILE	N-CA-C	-5.01	105.51	110.62
1	A	499	SER	N-CA-C	5.00	117.68	110.28
2	B	368	LEU	N-CA-C	-5.00	105.48	111.03

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	56	TYR	Sidechain

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	4370	0	4265	381	0
2	B	3442	0	3405	320	0
3	A	21	0	20	7	0
All	All	7833	0	7690	667	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 43.

All (667) 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:92:LEU:HD11	2:B:22:LYS:NZ	1.25	1.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:13:LYS:HB2	1:A:16:MET:HG3	1.29	1.10
1:A:92:LEU:CD1	2:B:22:LYS:NZ	2.16	1.08
2:B:139:THR:HG22	2:B:140:PRO:HD2	1.36	1.08
1:A:542:ILE:HG23	1:A:545:ASN:HB2	1.35	1.03
1:A:92:LEU:HD11	2:B:22:LYS:HZ1	1.24	0.95
2:B:86:ASP:O	2:B:89:GLU:HG2	1.68	0.93
1:A:130:PHE:CE1	1:A:144:TYR:HB2	2.04	0.92
1:A:114:ALA:HB1	1:A:160:PHE:CZ	2.04	0.92
1:A:261:VAL:HG13	1:A:276:VAL:HG11	1.53	0.90
1:A:419:THR:HB	1:A:420:PRO:HD2	1.53	0.90
1:A:183:TYR:CA	1:A:184:MET:N	2.35	0.90
2:B:369:THR:HG21	2:B:405:TYR:HB2	1.52	0.89
1:A:92:LEU:CD1	2:B:22:LYS:HZ3	1.79	0.89
2:B:292:VAL:HG12	2:B:294:PRO:HD3	1.53	0.89
1:A:479:LEU:HA	1:A:482:ILE:HD12	1.53	0.89
1:A:540:LYS:HE3	1:A:540:LYS:HA	1.54	0.88
1:A:46:LYS:HE2	1:A:116:PHE:HB3	1.56	0.87
2:B:143:ARG:HG2	2:B:143:ARG:HH11	1.41	0.86
1:A:543:GLY:HA3	2:B:284:ARG:O	1.76	0.85
1:A:525:LEU:HD23	1:A:531:VAL:HG21	1.59	0.85
1:A:107:THR:HG21	1:A:202:ILE:HG13	1.57	0.85
1:A:171:PHE:HB2	1:A:208:HIS:CD2	2.12	0.85
1:A:420:PRO:HB2	1:A:421:PRO:HD3	1.59	0.84
1:A:240:THR:HG23	1:A:270:ILE:HG21	1.59	0.84
2:B:330:GLN:HE21	2:B:340:GLN:HE22	1.27	0.83
2:B:330:GLN:NE2	2:B:340:GLN:HE22	1.76	0.83
1:A:92:LEU:CD1	2:B:22:LYS:HZ1	1.83	0.83
1:A:58:THR:HG22	1:A:59:PRO:HD2	1.60	0.82
1:A:328:GLU:HA	1:A:390:LYS:HB2	1.62	0.82
1:A:111:VAL:HG12	1:A:114:ALA:HB2	1.60	0.82
2:B:323:LYS:HB2	2:B:343:GLN:OE1	1.81	0.80
2:B:306:ASN:O	2:B:309:ILE:HG22	1.81	0.80
1:A:397:THR:HG21	1:A:424:LYS:HA	1.64	0.79
1:A:479:LEU:HB2	1:A:517:LEU:HD21	1.64	0.79
2:B:28:GLU:HA	2:B:31:ILE:HD12	1.64	0.78
1:A:543:GLY:H	2:B:284:ARG:HA	1.48	0.78
1:A:88:TRP:NE1	2:B:143:ARG:HD2	1.98	0.78
1:A:114:ALA:HB1	1:A:160:PHE:CE2	2.20	0.76
2:B:326:ILE:HD12	2:B:388:LYS:HE2	1.66	0.76
1:A:47:ILE:HG21	1:A:144:TYR:HB3	1.68	0.75
2:B:128:THR:CB	2:B:146:TYR:HB2	2.16	0.75

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:253:THR:HG22	2:B:289:LEU:O	1.85	0.75
2:B:85:GLN:HG3	2:B:154:LYS:HB3	1.68	0.74
2:B:257:ILE:O	2:B:261:VAL:HG23	1.87	0.74
2:B:320:ASP:CG	2:B:323:LYS:HG2	2.12	0.74
1:A:498:ASP:HB2	1:A:538:ALA:HB2	1.68	0.74
2:B:328:GLU:O	2:B:339:TYR:HA	1.88	0.74
1:A:47:ILE:CG2	1:A:144:TYR:HB3	2.18	0.74
2:B:285:GLY:HA3	2:B:287:LYS:HD2	1.69	0.74
2:B:325:LEU:HD21	2:B:385:LYS:HG3	1.70	0.73
1:A:156:SER:HB2	1:A:157:PRO:HD3	1.69	0.73
2:B:292:VAL:HG12	2:B:294:PRO:CD	2.18	0.73
1:A:439:THR:OG1	2:B:288:ALA:HA	1.89	0.73
2:B:128:THR:HB	2:B:146:TYR:HB2	1.71	0.73
2:B:139:THR:HG22	2:B:140:PRO:CD	2.18	0.72
2:B:158:ALA:O	2:B:161:GLN:HB2	1.89	0.72
1:A:123:ASP:O	1:A:126:LYS:HG2	1.90	0.72
1:A:458:VAL:HG22	1:A:464:GLN:HG2	1.72	0.72
2:B:253:THR:CG2	2:B:290:THR:HA	2.19	0.72
1:A:255:ASN:HA	1:A:258:GLN:OE1	1.89	0.72
1:A:408:ALA:HB3	2:B:393:ILE:HG13	1.70	0.72
1:A:333:GLY:O	1:A:334:GLN:HG2	1.90	0.71
1:A:398:TRP:CZ2	1:A:411:ILE:HG12	2.25	0.71
1:A:329:ILE:HD11	1:A:375:ILE:HD12	1.73	0.71
1:A:474:ASN:HD22	1:A:474:ASN:H	1.36	0.71
2:B:319:TYR:CE2	2:B:383:TRP:HD1	2.09	0.70
1:A:97:PRO:HG2	1:A:232:TYR:CD2	2.26	0.70
1:A:426:TRP:CE3	1:A:426:TRP:HA	2.27	0.70
1:A:92:LEU:HD11	2:B:22:LYS:HZ3	0.85	0.70
2:B:195:ILE:HD12	2:B:195:ILE:H	1.55	0.70
2:B:193:LEU:HD12	2:B:198:HIS:HA	1.74	0.69
2:B:69:THR:HG22	2:B:70:LYS:H	1.58	0.69
1:A:540:LYS:HA	1:A:540:LYS:CE	2.16	0.69
1:A:326:ILE:O	1:A:341:ILE:HA	1.91	0.69
2:B:132:ILE:CG2	2:B:142:ILE:HB	2.22	0.69
2:B:366:LYS:O	2:B:369:THR:HG22	1.92	0.69
2:B:99:GLY:HA2	2:B:102:LYS:HD2	1.75	0.69
2:B:160:PHE:CE2	2:B:164:MET:HE2	2.27	0.69
2:B:325:LEU:H	2:B:325:LEU:HD23	1.56	0.69
2:B:203:GLU:HA	2:B:206:ARG:HG3	1.74	0.69
1:A:317:VAL:HG11	1:A:347:LYS:HE3	1.75	0.68
1:A:61:PHE:HB3	1:A:74:LEU:HD23	1.73	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:34:LEU:HD21	1:A:62:ALA:HB2	1.76	0.68
1:A:132:ILE:O	1:A:142:ILE:HG12	1.94	0.68
2:B:2:ILE:O	2:B:4:PRO:HD3	1.94	0.68
2:B:280:SER:HA	2:B:283:LEU:HD23	1.76	0.68
1:A:486:LEU:HA	1:A:489:SER:HG	1.59	0.67
2:B:65:LYS:HG3	2:B:66:LYS:N	2.07	0.67
1:A:509:GLN:N	1:A:510:PRO:HD3	2.09	0.67
2:B:330:GLN:HE21	2:B:340:GLN:NE2	1.91	0.67
2:B:163:SER:O	2:B:167:ILE:HG12	1.94	0.67
1:A:73:LYS:HG2	1:A:74:LEU:N	2.10	0.67
1:A:277:ARG:HD3	1:A:278:GLN:NE2	2.10	0.67
2:B:57:ASN:OD1	2:B:58:THR:N	2.28	0.66
1:A:96:HIS:CD2	1:A:98:ALA:HB3	2.30	0.66
2:B:114:ALA:O	2:B:116:PHE:N	2.29	0.66
2:B:115:TYR:HD1	2:B:115:TYR:H	1.42	0.66
1:A:373:GLN:NE2	2:B:397:THR:HA	2.09	0.66
1:A:474:ASN:H	1:A:474:ASN:ND2	1.92	0.66
1:A:26:LEU:HG	1:A:27:THR:N	2.11	0.66
1:A:420:PRO:HB2	1:A:421:PRO:CD	2.26	0.65
1:A:261:VAL:HG13	1:A:276:VAL:CG1	2.26	0.65
2:B:160:PHE:HE2	2:B:164:MET:HE2	1.62	0.65
2:B:304:ALA:O	2:B:307:ARG:HB3	1.96	0.65
2:B:92:LEU:HB3	2:B:158:ALA:HB1	1.77	0.65
1:A:23:GLN:HG2	1:A:24:TRP:N	2.11	0.65
2:B:61:PHE:HE1	2:B:76:ASP:HB2	1.62	0.65
2:B:64:LYS:HE2	2:B:71:TRP:CZ2	2.32	0.65
1:A:503:LEU:HD13	1:A:535:TRP:HB2	1.79	0.65
1:A:398:TRP:HZ2	1:A:411:ILE:HG12	1.61	0.64
1:A:441:TYR:O	1:A:548:VAL:HG11	1.98	0.64
2:B:139:THR:CG2	2:B:140:PRO:HD2	2.20	0.64
1:A:106:VAL:HG12	1:A:107:THR:N	2.12	0.64
1:A:328:GLU:CA	1:A:390:LYS:HB2	2.28	0.64
1:A:430:GLU:HG3	1:A:530:LYS:HG2	1.80	0.64
2:B:5:ILE:HG22	2:B:6:GLU:N	2.12	0.64
2:B:344:GLU:O	2:B:347:LYS:HB2	1.98	0.64
1:A:363:ASN:OD1	1:A:365:VAL:N	2.30	0.64
2:B:253:THR:HG23	2:B:291:GLU:H	1.62	0.64
2:B:253:THR:HG21	2:B:290:THR:HA	1.79	0.64
1:A:433:PRO:HG2	2:B:255:ASN:CG	2.23	0.64
1:A:473:THR:H	1:A:476:LYS:HD2	1.63	0.64
2:B:21:VAL:HB	2:B:59:PRO:HD3	1.79	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:369:THR:OG1	1:A:398:TRP:CZ3	2.50	0.63
1:A:30:LYS:HZ1	1:A:71:TRP:CB	2.11	0.63
1:A:438:GLU:O	1:A:440:PHE:HD1	1.80	0.63
1:A:240:THR:HG22	1:A:241:VAL:N	2.14	0.63
1:A:438:GLU:HG2	1:A:459:THR:HB	1.81	0.63
2:B:77:PHE:O	2:B:81:ASN:HB2	1.98	0.63
1:A:118:VAL:O	1:A:148:VAL:HA	1.99	0.63
2:B:143:ARG:HH11	2:B:143:ARG:CG	2.11	0.63
1:A:418:ASN:O	1:A:419:THR:HG23	1.98	0.63
1:A:229:TRP:CZ3	3:A:559:TBO:H151	2.34	0.62
2:B:79:GLU:O	2:B:83:ARG:HG3	1.99	0.62
2:B:115:TYR:HD2	2:B:156:SER:HB3	1.64	0.62
1:A:10:VAL:HG12	1:A:124:PHE:CE1	2.34	0.62
1:A:202:ILE:HG21	1:A:221:HIS:CB	2.29	0.62
1:A:410:TRP:NE1	2:B:401:TRP:CZ3	2.67	0.62
1:A:208:HIS:O	1:A:211:ARG:HB2	2.00	0.62
1:A:518:VAL:O	1:A:522:ILE:HG13	1.99	0.62
1:A:329:ILE:HD12	1:A:391:LEU:CD2	2.30	0.62
1:A:433:PRO:HG2	2:B:255:ASN:HB2	1.81	0.62
2:B:5:ILE:HG22	2:B:6:GLU:H	1.64	0.62
1:A:46:LYS:HG2	1:A:148:VAL:HG21	1.80	0.61
2:B:78:ARG:O	2:B:82:LYS:HG3	2.00	0.61
1:A:63:ILE:HG12	1:A:64:LYS:H	1.64	0.61
2:B:160:PHE:CE2	2:B:164:MET:HB2	2.35	0.61
2:B:266:TRP:HA	2:B:266:TRP:CE3	2.35	0.61
2:B:27:THR:O	2:B:31:ILE:HG13	2.01	0.61
1:A:447:ASN:O	1:A:451:LYS:N	2.34	0.61
1:A:130:PHE:CZ	1:A:144:TYR:HB2	2.36	0.61
1:A:341:ILE:HD13	1:A:350:LYS:HB3	1.83	0.61
1:A:465:LYS:HD3	1:A:488:ASP:OD2	2.01	0.61
1:A:479:LEU:HB3	1:A:521:ILE:HD11	1.82	0.61
1:A:101:LYS:HD3	1:A:321:PRO:CD	2.31	0.61
2:B:65:LYS:HG3	2:B:66:LYS:H	1.66	0.60
2:B:315:HIS:O	2:B:317:VAL:N	2.34	0.60
2:B:350:LYS:HG2	2:B:351:THR:H	1.66	0.60
1:A:521:ILE:O	1:A:525:LEU:HD12	2.01	0.60
2:B:132:ILE:HG23	2:B:142:ILE:HB	1.83	0.60
2:B:269:GLN:OE1	2:B:269:GLN:HA	2.00	0.60
2:B:249:LYS:HB2	2:B:252:TRP:CE3	2.37	0.60
1:A:104:LYS:HG3	1:A:192:ASP:HA	1.84	0.60
1:A:325:LEU:HD11	1:A:383:TRP:CB	2.31	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:340:GLN:HA	2:B:351:THR:HG22	1.84	0.60
2:B:10:VAL:HG22	2:B:88:TRP:CH2	2.37	0.60
2:B:79:GLU:HG3	2:B:83:ARG:HD2	1.84	0.60
2:B:125:ARG:HE	2:B:147:ASN:HA	1.66	0.60
1:A:77:PHE:HB3	1:A:80:LEU:HB3	1.83	0.59
1:A:337:TRP:HE1	1:A:367:GLN:NE2	1.98	0.59
1:A:508:ALA:HB3	1:A:510:PRO:HG3	1.83	0.59
1:A:88:TRP:CD1	2:B:143:ARG:HD2	2.37	0.59
1:A:433:PRO:HG2	2:B:255:ASN:CB	2.32	0.59
2:B:91:GLN:C	2:B:93:GLY:H	2.10	0.59
1:A:317:VAL:CG1	1:A:347:LYS:HE3	2.32	0.59
1:A:267:ALA:HB1	1:A:271:TYR:HD2	1.66	0.59
1:A:412:PRO:O	1:A:414:TRP:HD1	1.86	0.59
2:B:183:TYR:HB3	2:B:188:TYR:HE2	1.68	0.59
2:B:296:THR:HB	2:B:299:ALA:CB	2.33	0.59
1:A:23:GLN:HG2	1:A:24:TRP:H	1.67	0.58
2:B:231:GLY:C	2:B:233:GLU:H	2.11	0.58
1:A:153:TRP:CH2	1:A:155:GLY:HA3	2.38	0.58
2:B:292:VAL:CG1	2:B:294:PRO:HD3	2.31	0.58
2:B:376:THR:O	2:B:377:THR:C	2.46	0.58
1:A:77:PHE:CZ	1:A:150:PRO:HB3	2.38	0.58
1:A:47:ILE:HD13	1:A:130:PHE:HZ	1.69	0.58
1:A:85:GLN:NE2	2:B:53:GLU:O	2.37	0.58
2:B:254:VAL:HB	2:B:289:LEU:O	2.03	0.58
1:A:465:LYS:O	1:A:466:VAL:HG23	2.04	0.58
1:A:466:VAL:HG12	1:A:467:VAL:N	2.18	0.57
2:B:180:ILE:HG23	2:B:189:VAL:HG22	1.85	0.57
1:A:199:ARG:HB2	1:A:199:ARG:CZ	2.34	0.57
2:B:343:GLN:HG3	2:B:349:LEU:HD11	1.87	0.57
1:A:92:LEU:HD11	2:B:22:LYS:CE	2.26	0.57
2:B:423:VAL:HG12	2:B:427:TYR:HE1	1.68	0.57
2:B:206:ARG:HH21	2:B:217:PRO:C	2.12	0.57
2:B:296:THR:HB	2:B:299:ALA:HB3	1.85	0.57
1:A:164:MET:SD	1:A:168:LEU:HD21	2.45	0.57
2:B:193:LEU:HB2	2:B:198:HIS:HB2	1.86	0.57
1:A:375:ILE:HG21	1:A:389:PHE:HE1	1.69	0.56
2:B:85:GLN:HG3	2:B:154:LYS:CB	2.33	0.56
2:B:210:LEU:HD12	2:B:214:LEU:HA	1.88	0.56
2:B:393:ILE:HG21	2:B:398:TRP:HB2	1.87	0.56
1:A:303:LEU:HD12	1:A:303:LEU:C	2.30	0.56
2:B:253:THR:HG23	2:B:291:GLU:N	2.20	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:91:GLN:OE1	1:A:91:GLN:HA	1.92	0.56
1:A:199:ARG:HD3	1:A:220:LYS:O	2.05	0.56
1:A:439:THR:HG23	2:B:289:LEU:HG	1.88	0.56
1:A:277:ARG:HD2	1:A:334:GLN:OE1	2.06	0.56
1:A:339:TYR:CZ	1:A:352:GLY:HA3	2.40	0.56
2:B:28:GLU:HB2	2:B:135:ILE:HD11	1.88	0.56
2:B:391:LEU:O	2:B:416:PHE:HA	2.05	0.56
1:A:278:GLN:HB2	1:A:299:ALA:HA	1.86	0.56
1:A:420:PRO:O	1:A:421:PRO:C	2.45	0.56
2:B:213:GLY:C	2:B:215:THR:N	2.63	0.56
1:A:375:ILE:HG21	1:A:389:PHE:CE1	2.40	0.56
1:A:393:ILE:HB	1:A:423:VAL:HB	1.87	0.56
2:B:232:TYR:O	2:B:234:LEU:HG	2.05	0.56
2:B:252:TRP:O	2:B:292:VAL:HG13	2.05	0.56
1:A:369:THR:HG1	1:A:398:TRP:HZ3	1.46	0.56
1:A:395:LYS:HD2	1:A:414:TRP:CZ2	2.41	0.56
2:B:239:TRP:O	2:B:240:THR:HG23	2.06	0.55
1:A:111:VAL:HG12	1:A:111:VAL:O	2.06	0.55
1:A:194:GLU:O	1:A:198:HIS:N	2.39	0.55
1:A:486:LEU:HA	1:A:489:SER:OG	2.07	0.55
1:A:517:LEU:O	1:A:521:ILE:HG13	2.07	0.55
2:B:38:CYS:HB3	2:B:144:TYR:CE2	2.41	0.55
2:B:266:TRP:HA	2:B:266:TRP:HE3	1.70	0.55
1:A:303:LEU:HD11	1:A:307:ARG:HH21	1.72	0.55
1:A:356:ARG:CB	1:A:367:GLN:NE2	2.69	0.55
2:B:160:PHE:HE2	2:B:164:MET:CE	2.20	0.55
2:B:320:ASP:H	2:B:343:GLN:HE22	1.55	0.55
1:A:416:PHE:CD1	1:A:417:VAL:N	2.74	0.55
2:B:320:ASP:N	2:B:343:GLN:HE22	2.05	0.55
2:B:282:LEU:HD11	2:B:293:ILE:O	2.07	0.55
2:B:365:VAL:HG22	2:B:393:ILE:HD11	1.89	0.55
1:A:139:THR:C	1:A:141:GLY:H	2.14	0.55
1:A:458:VAL:O	1:A:458:VAL:HG12	2.06	0.55
2:B:292:VAL:O	2:B:293:ILE:HD13	2.07	0.55
2:B:81:ASN:OD1	2:B:154:LYS:N	2.37	0.55
2:B:5:ILE:CG2	2:B:6:GLU:H	2.21	0.54
2:B:80:LEU:O	2:B:81:ASN:C	2.50	0.54
1:A:106:VAL:CG1	1:A:107:THR:N	2.70	0.54
1:A:188:TYR:CE2	3:A:559:TBO:H163	2.42	0.54
1:A:325:LEU:HD11	1:A:383:TRP:CG	2.42	0.54
1:A:512:LYS:NZ	1:A:512:LYS:HB2	2.22	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:377:THR:O	2:B:380:ILE:HB	2.07	0.54
1:A:482:ILE:HG21	1:A:506:ILE:HD11	1.88	0.54
2:B:354:TYR:HE1	2:B:374:LYS:HZ2	1.56	0.54
2:B:311:LYS:O	2:B:313:PRO:HD3	2.07	0.54
1:A:90:VAL:O	1:A:91:GLN:NE2	2.40	0.54
1:A:466:VAL:CG1	1:A:467:VAL:N	2.70	0.54
2:B:398:TRP:O	2:B:400:THR:N	2.41	0.54
1:A:101:LYS:HD3	1:A:321:PRO:HD3	1.89	0.54
2:B:132:ILE:HG22	2:B:142:ILE:O	2.08	0.54
2:B:309:ILE:HG12	2:B:309:ILE:O	2.07	0.54
2:B:10:VAL:HG11	2:B:153:TRP:CH2	2.42	0.53
2:B:38:CYS:O	2:B:41:MET:HB2	2.07	0.53
2:B:165:THR:HG22	2:B:166:LYS:N	2.22	0.53
1:A:411:ILE:HG22	1:A:414:TRP:CD1	2.43	0.53
2:B:38:CYS:HB3	2:B:144:TYR:HE2	1.73	0.53
2:B:402:TRP:CG	2:B:403:THR:N	2.76	0.53
2:B:130:PHE:CE2	2:B:144:TYR:HD2	2.26	0.53
1:A:74:LEU:O	1:A:75:VAL:HG23	2.09	0.53
1:A:275:LYS:CB	1:A:336:GLN:HE22	2.22	0.53
2:B:400:THR:HG22	2:B:401:TRP:CD1	2.43	0.53
1:A:276:VAL:HG12	1:A:276:VAL:O	2.06	0.53
1:A:410:TRP:CD1	2:B:401:TRP:CE3	2.96	0.53
2:B:10:VAL:HG11	2:B:153:TRP:HH2	1.74	0.53
1:A:150:PRO:HB2	1:A:153:TRP:HB3	1.91	0.53
1:A:479:LEU:HB3	1:A:521:ILE:CD1	2.39	0.53
1:A:542:ILE:HG12	1:A:544:GLY:N	2.24	0.53
1:A:443:ASP:CG	1:A:444:GLY:H	2.16	0.52
1:A:208:HIS:HE1	1:A:212:TRP:HE1	1.56	0.52
2:B:373:GLN:NE2	2:B:406:TRP:CD2	2.78	0.52
1:A:51:GLY:N	1:A:52:PRO:CD	2.72	0.52
1:A:255:ASN:C	1:A:259:LYS:HE3	2.35	0.52
1:A:540:LYS:HE3	1:A:540:LYS:CA	2.33	0.52
1:A:277:ARG:HD2	1:A:334:GLN:CD	2.35	0.52
1:A:496:VAL:HG22	1:A:534:ALA:HB3	1.92	0.52
2:B:136:ASN:CG	2:B:136:ASN:O	2.52	0.52
2:B:281:LYS:C	2:B:283:LEU:H	2.17	0.52
1:A:92:LEU:HD21	2:B:22:LYS:HE2	1.91	0.52
1:A:511:ASP:OD2	1:A:512:LYS:HG3	2.10	0.52
1:A:479:LEU:O	1:A:482:ILE:N	2.42	0.52
2:B:28:GLU:O	2:B:31:ILE:N	2.42	0.52
2:B:78:ARG:HD3	2:B:411:ILE:HG22	1.92	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:198:HIS:O	2:B:202:ILE:HG12	2.09	0.52
2:B:239:TRP:HE3	2:B:350:LYS:HE3	1.74	0.52
2:B:159:ILE:C	2:B:161:GLN:H	2.17	0.52
1:A:88:TRP:HE3	1:A:88:TRP:HA	1.75	0.52
1:A:116:PHE:O	1:A:148:VAL:HB	2.10	0.52
1:A:320:ASP:C	1:A:322:SER:H	2.18	0.52
1:A:410:TRP:CD1	2:B:401:TRP:CZ3	2.97	0.52
1:A:427:TYR:OH	1:A:510:PRO:HD2	2.10	0.52
1:A:531:VAL:HG12	1:A:532:TYR:H	1.75	0.52
2:B:260:LEU:HD21	2:B:303:LEU:HD13	1.92	0.52
1:A:252:TRP:CZ3	1:A:256:ASP:HB3	2.44	0.51
1:A:397:THR:CG2	1:A:424:LYS:HA	2.38	0.51
1:A:63:ILE:HG12	1:A:64:LYS:N	2.25	0.51
1:A:88:TRP:HA	1:A:88:TRP:CE3	2.44	0.51
1:A:433:PRO:HG3	1:A:532:TYR:CE2	2.46	0.51
2:B:160:PHE:CG	2:B:160:PHE:O	2.63	0.51
2:B:128:THR:OG1	2:B:146:TYR:HB2	2.10	0.51
2:B:329:ILE:HA	2:B:338:THR:O	2.09	0.51
1:A:531:VAL:HG12	1:A:532:TYR:N	2.25	0.51
2:B:167:ILE:O	2:B:208:HIS:NE2	2.39	0.51
1:A:519:ASN:HA	1:A:522:ILE:HD12	1.91	0.51
1:A:208:HIS:CE1	1:A:212:TRP:HE1	2.28	0.51
1:A:410:TRP:HD1	2:B:401:TRP:CD2	2.28	0.51
2:B:109:LEU:HD12	2:B:187:LEU:HD23	1.91	0.51
2:B:115:TYR:OH	2:B:185:ASP:HA	2.11	0.51
2:B:336:GLN:HB3	2:B:353:LYS:HE2	1.92	0.51
1:A:89:GLU:CD	1:A:92:LEU:HB2	2.36	0.51
1:A:40:GLU:O	1:A:44:GLU:HG2	2.11	0.51
2:B:31:ILE:CD1	2:B:135:ILE:HG13	2.41	0.51
2:B:73:LYS:NZ	2:B:130:PHE:CZ	2.79	0.51
2:B:206:ARG:HE	2:B:217:PRO:HB2	1.76	0.51
1:A:544:GLY:O	1:A:548:VAL:HG22	2.11	0.51
2:B:203:GLU:HG3	2:B:206:ARG:HD3	1.92	0.50
2:B:232:TYR:O	2:B:234:LEU:N	2.43	0.50
2:B:350:LYS:HG2	2:B:351:THR:N	2.26	0.50
1:A:23:GLN:HG3	1:A:59:PRO:CB	2.41	0.50
1:A:171:PHE:CB	1:A:208:HIS:CD2	2.89	0.50
1:A:254:VAL:HB	1:A:289:LEU:HA	1.93	0.50
1:A:498:ASP:HB2	1:A:538:ALA:CB	2.41	0.50
2:B:34:LEU:O	2:B:38:CYS:HB2	2.10	0.50
2:B:120:LEU:HD12	2:B:121:ASP:H	1.77	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:136:ASN:O	2:B:137:ASN:C	2.52	0.50
1:A:443:ASP:HB3	1:A:548:VAL:HB	1.93	0.50
2:B:71:TRP:H	2:B:71:TRP:CD1	2.29	0.50
2:B:330:GLN:NE2	2:B:340:GLN:NE2	2.51	0.50
1:A:143:ARG:HG3	1:A:143:ARG:HH11	1.77	0.50
1:A:512:LYS:HB2	1:A:512:LYS:HZ3	1.77	0.50
2:B:47:ILE:HD12	2:B:130:PHE:HZ	1.76	0.50
2:B:50:ILE:HD11	2:B:144:TYR:O	2.11	0.50
1:A:81:ASN:OD1	1:A:154:LYS:N	2.44	0.50
1:A:270:ILE:O	1:A:272:PRO:HD3	2.11	0.50
1:A:70:LYS:HD3	1:A:70:LYS:N	2.27	0.50
2:B:5:ILE:CG2	2:B:6:GLU:N	2.75	0.50
2:B:20:LYS:HE2	2:B:56:TYR:CD1	2.46	0.50
1:A:207:GLN:HB3	1:A:211:ARG:HH12	1.77	0.50
2:B:370:GLU:O	2:B:373:GLN:N	2.44	0.50
2:B:36:GLU:O	2:B:37:ILE:C	2.55	0.49
2:B:422:LEU:C	2:B:424:LYS:H	2.20	0.49
1:A:96:HIS:HD2	1:A:98:ALA:HB3	1.75	0.49
1:A:178:ILE:HD11	1:A:201:LYS:HG3	1.95	0.49
2:B:303:LEU:HD21	2:B:307:ARG:NH2	2.26	0.49
2:B:85:GLN:HA	2:B:88:TRP:HB2	1.93	0.49
2:B:125:ARG:HG2	2:B:146:TYR:O	2.12	0.49
1:A:441:TYR:CD2	1:A:544:GLY:HA3	2.47	0.49
1:A:459:THR:HG21	1:A:463:ARG:HD2	1.94	0.49
1:A:11:LYS:HE3	1:A:11:LYS:HA	1.95	0.49
2:B:264:LEU:HB3	2:B:274:ILE:HD11	1.94	0.49
1:A:3:SER:N	1:A:117:SER:O	2.45	0.49
1:A:420:PRO:CB	1:A:421:PRO:HD3	2.37	0.49
2:B:423:VAL:CG1	2:B:427:TYR:HE1	2.25	0.49
1:A:26:LEU:HD21	1:A:30:LYS:HB2	1.95	0.49
1:A:479:LEU:O	1:A:482:ILE:HB	2.12	0.49
2:B:28:GLU:CB	2:B:135:ILE:HD11	2.42	0.49
2:B:213:GLY:O	2:B:215:THR:N	2.46	0.49
2:B:369:THR:CG2	2:B:370:GLU:N	2.76	0.49
1:A:34:LEU:HD13	1:A:60:VAL:HG11	1.94	0.48
1:A:484:LEU:O	1:A:486:LEU:N	2.45	0.48
2:B:398:TRP:C	2:B:400:THR:N	2.70	0.48
2:B:427:TYR:OXT	2:B:427:TYR:CD1	2.66	0.48
1:A:181:TYR:HB3	3:A:559:TBO:H121	1.94	0.48
1:A:199:ARG:HB2	1:A:199:ARG:NH1	2.27	0.48
1:A:241:VAL:HG11	1:A:266:TRP:CD1	2.48	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:365:VAL:O	1:A:366:LYS:C	2.56	0.48
1:A:452:LEU:HD23	1:A:470:THR:HA	1.94	0.48
1:A:482:ILE:HD13	1:A:506:ILE:HD11	1.95	0.48
1:A:27:THR:HG23	1:A:30:LYS:H	1.77	0.48
1:A:47:ILE:HG22	1:A:144:TYR:HB3	1.96	0.48
1:A:124:PHE:O	1:A:127:TYR:N	2.47	0.48
1:A:233:GLU:HB3	1:A:240:THR:O	2.13	0.48
1:A:271:TYR:HE1	1:A:314:VAL:H	1.60	0.48
1:A:143:ARG:HG3	1:A:143:ARG:NH1	2.27	0.48
1:A:542:ILE:HG12	1:A:544:GLY:H	1.78	0.48
1:A:546:GLU:O	1:A:549:ASP:HB2	2.14	0.48
2:B:57:ASN:HA	2:B:129:ALA:O	2.12	0.48
1:A:35:VAL:O	1:A:38:CYS:N	2.47	0.48
1:A:77:PHE:O	1:A:80:LEU:N	2.46	0.48
1:A:484:LEU:O	1:A:487:GLN:N	2.45	0.48
2:B:12:LEU:HD23	2:B:84:THR:HG23	1.95	0.48
2:B:253:THR:H	2:B:256:ASP:HB2	1.78	0.48
2:B:255:ASN:O	2:B:258:GLN:HB2	2.13	0.48
1:A:419:THR:HB	1:A:420:PRO:CD	2.34	0.48
2:B:319:TYR:CZ	2:B:383:TRP:CD1	3.02	0.48
1:A:254:VAL:HG12	1:A:258:GLN:NE2	2.29	0.48
2:B:131:THR:OG1	2:B:143:ARG:NH1	2.47	0.48
1:A:484:LEU:O	1:A:485:ALA:C	2.56	0.47
1:A:518:VAL:HG12	1:A:522:ILE:HD11	1.96	0.47
1:A:545:ASN:O	1:A:546:GLU:C	2.56	0.47
2:B:260:LEU:HD21	2:B:303:LEU:CD1	2.44	0.47
2:B:343:GLN:HE21	2:B:349:LEU:HD11	1.78	0.47
2:B:64:LYS:CE	2:B:71:TRP:CZ2	2.97	0.47
2:B:401:TRP:CD1	2:B:401:TRP:N	2.82	0.47
1:A:240:THR:CG2	1:A:241:VAL:N	2.77	0.47
2:B:154:LYS:HE2	2:B:184:MET:SD	2.55	0.47
1:A:329:ILE:O	1:A:392:PRO:HD3	2.14	0.47
1:A:439:THR:HA	1:A:494:ASN:HB2	1.95	0.47
1:A:2:ILE:HG22	1:A:3:SER:N	2.29	0.47
1:A:124:PHE:O	1:A:125:ARG:C	2.57	0.47
1:A:120:LEU:HD13	1:A:149:LEU:HD23	1.96	0.47
1:A:276:VAL:O	1:A:280:SER:HB2	2.15	0.47
1:A:410:TRP:HA	1:A:410:TRP:CE3	2.50	0.47
1:A:441:TYR:HD2	1:A:544:GLY:HA3	1.80	0.47
2:B:213:GLY:C	2:B:215:THR:H	2.22	0.47
2:B:419:THR:HA	2:B:420:PRO:HD2	1.62	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:373:GLN:O	1:A:374:LYS:C	2.57	0.47
2:B:203:GLU:HA	2:B:206:ARG:CG	2.43	0.47
1:A:110:ASP:O	1:A:217:PRO:HD2	2.14	0.47
1:A:203:GLU:HA	1:A:203:GLU:OE1	2.13	0.47
1:A:395:LYS:HA	1:A:414:TRP:HH2	1.80	0.47
1:A:483:TYR:HE1	1:A:524:GLN:HE21	1.63	0.47
1:A:491:LEU:HB3	1:A:529:GLU:OE1	2.15	0.47
2:B:178:ILE:O	2:B:178:ILE:HG22	2.14	0.47
1:A:240:THR:HG22	1:A:241:VAL:O	2.15	0.47
2:B:28:GLU:O	2:B:29:GLU:C	2.56	0.47
2:B:61:PHE:CE1	2:B:76:ASP:HB2	2.48	0.47
2:B:207:GLN:O	2:B:208:HIS:C	2.57	0.47
1:A:230:MET:O	1:A:232:TYR:CD1	2.68	0.46
1:A:230:MET:O	1:A:232:TYR:HD1	1.99	0.46
1:A:275:LYS:HG2	1:A:332:GLN:NE2	2.30	0.46
1:A:369:THR:O	1:A:370:GLU:C	2.57	0.46
1:A:442:VAL:HG12	1:A:443:ASP:N	2.30	0.46
2:B:103:LYS:HD3	2:B:192:ASP:OD1	2.15	0.46
1:A:320:ASP:C	1:A:322:SER:N	2.73	0.46
2:B:406:TRP:CD1	2:B:408:ALA:H	2.33	0.46
1:A:77:PHE:CE1	1:A:150:PRO:HB3	2.50	0.46
1:A:229:TRP:CE3	3:A:559:TBO:H151	2.51	0.46
2:B:91:GLN:C	2:B:93:GLY:N	2.74	0.46
2:B:111:VAL:O	2:B:111:VAL:CG1	2.63	0.46
1:A:237:ASP:OD1	1:A:237:ASP:N	2.48	0.46
1:A:320:ASP:O	1:A:343:GLN:NE2	2.48	0.46
1:A:440:PHE:CE2	1:A:457:TYR:CE1	3.03	0.46
2:B:12:LEU:HD23	2:B:84:THR:CG2	2.45	0.46
2:B:111:VAL:HG12	2:B:115:TYR:HE1	1.79	0.46
2:B:298:GLU:O	2:B:301:LEU:HB2	2.15	0.46
2:B:342:TYR:HB3	2:B:348:ASN:HA	1.98	0.46
1:A:81:ASN:OD1	1:A:153:TRP:HA	2.16	0.46
2:B:327:ALA:HB2	2:B:387:PRO:HB2	1.98	0.46
1:A:189:VAL:HG21	1:A:205:LEU:CD2	2.46	0.46
1:A:482:ILE:CD1	1:A:502:ALA:HB1	2.46	0.46
1:A:252:TRP:HZ3	1:A:256:ASP:HB3	1.81	0.46
1:A:509:GLN:N	1:A:510:PRO:CD	2.78	0.46
1:A:543:GLY:N	2:B:284:ARG:HA	2.24	0.46
2:B:210:LEU:HD12	2:B:210:LEU:HA	1.69	0.46
1:A:92:LEU:HD21	2:B:22:LYS:CE	2.46	0.45
1:A:363:ASN:OD1	1:A:364:ASP:N	2.49	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:472:THR:OG1	1:A:477:THR:HG23	2.16	0.45
2:B:130:PHE:CZ	2:B:144:TYR:HB2	2.52	0.45
2:B:281:LYS:C	2:B:283:LEU:N	2.74	0.45
1:A:34:LEU:HD12	1:A:132:ILE:HG23	1.97	0.45
1:A:86:ASP:O	2:B:55:PRO:HG3	2.16	0.45
1:A:179:VAL:HG12	3:A:559:TBO:H112	1.97	0.45
2:B:246:LEU:HD13	2:B:264:LEU:HD21	1.98	0.45
1:A:61:PHE:C	1:A:74:LEU:HB3	2.42	0.45
1:A:91:GLN:C	1:A:93:GLY:H	2.24	0.45
2:B:342:TYR:CB	2:B:348:ASN:HA	2.46	0.45
2:B:421:PRO:HG2	2:B:424:LYS:HB2	1.98	0.45
1:A:54:ASN:HD21	1:A:126:LYS:HA	1.81	0.45
1:A:267:ALA:HB1	1:A:271:TYR:CD2	2.47	0.45
1:A:467:VAL:HG13	1:A:468:PRO:HD2	1.98	0.45
2:B:330:GLN:CD	2:B:340:GLN:HE22	2.25	0.45
1:A:443:ASP:CG	1:A:444:GLY:N	2.74	0.45
2:B:214:LEU:HG	2:B:214:LEU:O	2.17	0.45
2:B:202:ILE:O	2:B:205:LEU:N	2.49	0.45
1:A:133:PRO:HB3	1:A:139:THR:CB	2.47	0.45
2:B:96:HIS:CD2	2:B:384:GLY:HA3	2.51	0.45
1:A:89:GLU:O	1:A:90:VAL:C	2.59	0.45
1:A:171:PHE:CE2	1:A:205:LEU:HA	2.51	0.45
1:A:482:ILE:HD11	1:A:502:ALA:HB1	1.99	0.45
2:B:114:ALA:C	2:B:116:PHE:N	2.75	0.45
2:B:266:TRP:CE3	2:B:269:GLN:HB2	2.52	0.45
2:B:279:LEU:HD12	2:B:279:LEU:HA	1.84	0.45
2:B:395:LYS:O	2:B:396:GLU:C	2.60	0.45
1:A:398:TRP:NE1	1:A:402:TRP:CD1	2.85	0.45
1:A:31:ILE:O	1:A:35:VAL:HG23	2.17	0.44
1:A:209:LEU:HB3	1:A:214:LEU:HB2	1.99	0.44
1:A:371:ALA:C	1:A:373:GLN:N	2.74	0.44
1:A:459:THR:CG2	1:A:463:ARG:HD2	2.47	0.44
2:B:160:PHE:CD2	2:B:164:MET:HB2	2.52	0.44
2:B:299:ALA:C	2:B:301:LEU:N	2.73	0.44
2:B:393:ILE:O	2:B:416:PHE:HB3	2.17	0.44
2:B:422:LEU:O	2:B:424:LYS:N	2.50	0.44
1:A:194:GLU:HB2	1:A:197:GLN:HB3	1.97	0.44
1:A:320:ASP:O	1:A:322:SER:N	2.50	0.44
1:A:369:THR:OG1	1:A:398:TRP:HZ3	1.95	0.44
2:B:319:TYR:CD2	2:B:383:TRP:HD1	2.35	0.44
1:A:82:LYS:HA	1:A:82:LYS:HD3	1.76	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:275:LYS:HB3	1:A:336:GLN:HE22	1.82	0.44
1:A:302:GLU:O	1:A:305:GLU:HB3	2.17	0.44
2:B:105:SER:HA	2:B:234:LEU:O	2.18	0.44
2:B:210:LEU:HD13	2:B:215:THR:O	2.17	0.44
2:B:253:THR:HB	2:B:256:ASP:OD1	2.16	0.44
2:B:380:ILE:O	2:B:384:GLY:HA2	2.17	0.44
2:B:398:TRP:O	2:B:399:GLU:C	2.60	0.44
2:B:206:ARG:HB3	2:B:206:ARG:NH1	2.33	0.44
2:B:394:GLN:HG2	2:B:397:THR:H	1.83	0.44
1:A:106:VAL:CG1	1:A:107:THR:H	2.30	0.44
1:A:477:THR:O	1:A:481:ALA:N	2.50	0.44
2:B:56:TYR:CE2	2:B:127:TYR:CE1	3.06	0.44
2:B:164:MET:O	2:B:164:MET:SD	2.75	0.44
1:A:367:GLN:O	1:A:368:LEU:C	2.60	0.44
2:B:325:LEU:HD11	2:B:383:TRP:CE3	2.53	0.44
1:A:368:LEU:CD2	1:A:393:ILE:HG21	2.47	0.44
1:A:426:TRP:HA	1:A:426:TRP:HE3	1.80	0.44
1:A:139:THR:C	1:A:141:GLY:N	2.76	0.44
1:A:490:GLY:O	1:A:528:LYS:CE	2.65	0.44
2:B:81:ASN:ND2	2:B:154:LYS:HG3	2.32	0.44
2:B:104:LYS:O	2:B:235:HIS:HA	2.17	0.44
2:B:231:GLY:C	2:B:233:GLU:N	2.76	0.44
2:B:394:GLN:O	2:B:395:LYS:C	2.61	0.44
1:A:106:VAL:HA	1:A:190:GLY:HA2	2.00	0.43
1:A:172:LYS:HA	1:A:175:ASN:O	2.18	0.43
1:A:433:PRO:CG	2:B:255:ASN:CG	2.89	0.43
1:A:446:ALA:CB	1:A:472:THR:O	2.66	0.43
2:B:368:LEU:O	2:B:372:VAL:HG23	2.18	0.43
1:A:381:VAL:HG22	2:B:25:PRO:HG3	1.99	0.43
2:B:149:LEU:HD23	2:B:149:LEU:HA	1.83	0.43
2:B:183:TYR:CE2	2:B:184:MET:HG3	2.53	0.43
2:B:256:ASP:O	2:B:257:ILE:C	2.62	0.43
1:A:38:CYS:SG	1:A:132:ILE:HD11	2.59	0.43
1:A:122:GLU:HA	1:A:125:ARG:NE	2.33	0.43
1:A:178:ILE:HG22	1:A:189:VAL:HG13	2.01	0.43
2:B:13:LYS:HA	2:B:14:PRO:HD2	1.83	0.43
1:A:326:ILE:HG21	1:A:342:TYR:CE1	2.53	0.43
1:A:327:ALA:O	1:A:389:PHE:HA	2.18	0.43
1:A:328:GLU:HA	1:A:390:LYS:O	2.18	0.43
1:A:419:THR:CB	1:A:420:PRO:HD2	2.35	0.43
1:A:478:GLU:CD	1:A:499:SER:HB2	2.43	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:500:GLN:OE1	1:A:500:GLN:HA	2.18	0.43
2:B:59:PRO:HB2	2:B:76:ASP:HB3	1.99	0.43
2:B:318:TYR:O	2:B:320:ASP:N	2.52	0.43
2:B:365:VAL:HG11	2:B:401:TRP:HB2	2.01	0.43
1:A:274:ILE:HA	1:A:306:ASN:OD1	2.18	0.43
1:A:461:LYS:C	1:A:463:ARG:H	2.26	0.43
2:B:160:PHE:O	2:B:160:PHE:CD2	2.72	0.43
2:B:253:THR:O	2:B:256:ASP:HB2	2.19	0.43
1:A:97:PRO:HG2	1:A:232:TYR:CG	2.53	0.43
1:A:111:VAL:O	1:A:112:GLY:C	2.62	0.43
1:A:371:ALA:O	1:A:372:VAL:C	2.61	0.43
1:A:442:VAL:HG13	1:A:481:ALA:HB1	2.01	0.43
1:A:495:ILE:HG22	1:A:496:VAL:N	2.34	0.43
2:B:10:VAL:HG13	2:B:88:TRP:CE2	2.54	0.43
1:A:334:GLN:CG	1:A:335:GLY:H	2.31	0.43
1:A:418:ASN:OD1	1:A:419:THR:N	2.51	0.43
2:B:23:GLN:NE2	2:B:24:TRP:O	2.52	0.43
1:A:255:ASN:O	1:A:259:LYS:HE3	2.18	0.43
1:A:279:LEU:HD11	1:A:303:LEU:HB2	2.00	0.43
2:B:391:LEU:HD23	2:B:391:LEU:HA	1.79	0.43
1:A:325:LEU:HD11	1:A:383:TRP:HB2	2.00	0.43
2:B:40:GLU:O	2:B:41:MET:C	2.62	0.43
2:B:74:LEU:C	2:B:74:LEU:HD23	2.44	0.43
2:B:101:LYS:O	2:B:236:PRO:HB2	2.17	0.43
2:B:271:TYR:O	2:B:273:GLY:N	2.52	0.43
2:B:354:TYR:CD2	2:B:371:ALA:HB2	2.54	0.43
1:A:490:GLY:O	1:A:528:LYS:HE2	2.18	0.42
1:A:497:THR:HG22	1:A:498:ASP:H	1.83	0.42
2:B:211:ARG:HB2	2:B:212:TRP:H	1.66	0.42
2:B:338:THR:HG22	2:B:339:TYR:N	2.33	0.42
2:B:164:MET:O	2:B:168:LEU:HD12	2.19	0.42
2:B:339:TYR:O	2:B:340:GLN:HG3	2.19	0.42
1:A:34:LEU:CD2	1:A:62:ALA:HB2	2.48	0.42
1:A:90:VAL:HG13	1:A:158:ALA:HA	2.00	0.42
1:A:122:GLU:O	1:A:122:GLU:HG3	2.19	0.42
2:B:266:TRP:HZ3	2:B:269:GLN:NE2	2.18	0.42
2:B:330:GLN:CG	2:B:340:GLN:HE22	2.31	0.42
1:A:312:GLU:HA	1:A:313:PRO:HD2	1.74	0.42
1:A:410:TRP:HA	1:A:410:TRP:HE3	1.83	0.42
2:B:373:GLN:C	2:B:375:ILE:N	2.76	0.42
1:A:170:PRO:O	1:A:173:LYS:HB3	2.20	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:480:GLN:HA	1:A:517:LEU:HD11	2.01	0.42
1:A:547:GLN:O	1:A:550:LYS:N	2.52	0.42
1:A:229:TRP:CH2	3:A:559:TBO:H151	2.55	0.42
1:A:406:TRP:HH2	2:B:418:ASN:HA	1.83	0.42
2:B:335:GLY:HA3	2:B:357:MET:HA	2.02	0.42
1:A:271:TYR:HA	1:A:272:PRO:HD3	1.76	0.42
1:A:518:VAL:O	1:A:519:ASN:C	2.62	0.42
2:B:114:ALA:O	2:B:115:TYR:C	2.62	0.42
2:B:319:TYR:CE2	2:B:383:TRP:CD1	2.98	0.42
2:B:363:ASN:O	2:B:366:LYS:HB3	2.19	0.42
1:A:317:VAL:HG11	1:A:347:LYS:HB3	2.01	0.42
1:A:550:LYS:HA	1:A:550:LYS:HD3	1.82	0.42
2:B:79:GLU:HG3	2:B:83:ARG:HH11	1.85	0.42
2:B:369:THR:O	2:B:370:GLU:C	2.60	0.42
1:A:24:TRP:HA	1:A:25:PRO:HD2	1.72	0.42
1:A:225:PRO:N	1:A:226:PRO:HD2	2.35	0.42
1:A:362:THR:HG22	1:A:363:ASN:N	2.35	0.42
1:A:440:PHE:CE2	1:A:459:THR:HG22	2.55	0.42
2:B:10:VAL:HG12	2:B:11:LYS:N	2.35	0.42
2:B:84:THR:HG21	2:B:124:PHE:CE1	2.55	0.42
2:B:274:ILE:CG1	2:B:275:LYS:N	2.82	0.42
2:B:276:VAL:HG22	2:B:276:VAL:O	2.20	0.42
2:B:312:GLU:H	2:B:312:GLU:HG3	1.67	0.42
1:A:329:ILE:HD11	1:A:375:ILE:CD1	2.46	0.42
1:A:406:TRP:CH2	2:B:418:ASN:HA	2.55	0.42
1:A:486:LEU:CA	1:A:489:SER:HG	2.28	0.42
2:B:154:LYS:C	2:B:157:PRO:HD2	2.45	0.42
1:A:197:GLN:O	1:A:200:THR:HB	2.20	0.41
1:A:277:ARG:CD	1:A:334:GLN:OE1	2.67	0.41
2:B:77:PHE:CD1	2:B:80:LEU:HD23	2.55	0.41
2:B:216:THR:HA	2:B:217:PRO:HD3	1.65	0.41
2:B:262:GLY:O	2:B:263:LYS:C	2.63	0.41
2:B:393:ILE:CG2	2:B:398:TRP:HB2	2.49	0.41
2:B:255:ASN:O	2:B:256:ASP:C	2.62	0.41
2:B:143:ARG:CG	2:B:143:ARG:NH1	2.75	0.41
2:B:315:HIS:O	2:B:315:HIS:CD2	2.74	0.41
2:B:325:LEU:CD1	2:B:383:TRP:CE3	3.03	0.41
1:A:42:GLU:OE2	1:A:49:LYS:HG2	2.21	0.41
1:A:49:LYS:HA	1:A:144:TYR:HA	2.01	0.41
1:A:111:VAL:CG1	1:A:114:ALA:HB2	2.41	0.41
1:A:162:SER:O	1:A:163:SER:C	2.64	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:170:PRO:HG2	1:A:171:PHE:H	1.86	0.41
1:A:247:PRO:O	1:A:252:TRP:CH2	2.74	0.41
1:A:439:THR:CG2	2:B:289:LEU:HG	2.50	0.41
1:A:511:ASP:CG	1:A:512:LYS:HG3	2.45	0.41
1:A:115:TYR:CD1	1:A:156:SER:HB3	2.55	0.41
1:A:171:PHE:CZ	1:A:205:LEU:HB2	2.55	0.41
1:A:248:GLU:HG3	1:A:248:GLU:O	2.21	0.41
1:A:314:VAL:HG12	1:A:315:HIS:N	2.34	0.41
1:A:410:TRP:CE3	1:A:411:ILE:N	2.86	0.41
1:A:469:LEU:HD13	1:A:477:THR:HG22	2.03	0.41
2:B:113:ASP:O	2:B:116:PHE:HB2	2.20	0.41
1:A:47:ILE:HG23	1:A:145:GLN:O	2.21	0.41
1:A:208:HIS:CE1	1:A:212:TRP:NE1	2.88	0.41
1:A:503:LEU:HD22	1:A:535:TRP:CD1	2.55	0.41
1:A:12:LEU:HD22	1:A:83:ARG:O	2.20	0.41
1:A:23:GLN:HG3	1:A:59:PRO:HB2	2.02	0.41
1:A:111:VAL:O	1:A:114:ALA:HB2	2.21	0.41
1:A:189:VAL:HG21	1:A:205:LEU:HD22	2.03	0.41
1:A:408:ALA:HB3	2:B:393:ILE:CG1	2.43	0.41
1:A:470:THR:O	1:A:471:ASN:HB2	2.21	0.41
2:B:103:LYS:HD2	2:B:191:SER:C	2.46	0.41
2:B:159:ILE:O	2:B:161:GLN:N	2.53	0.41
2:B:267:ALA:C	2:B:269:GLN:H	2.29	0.41
1:A:329:ILE:HD12	1:A:391:LEU:HD21	2.00	0.41
2:B:74:LEU:HD21	2:B:411:ILE:HD12	2.03	0.41
2:B:364:ASP:O	2:B:365:VAL:C	2.64	0.41
1:A:28:GLU:O	1:A:31:ILE:HB	2.21	0.40
1:A:148:VAL:O	1:A:150:PRO:HD3	2.21	0.40
1:A:536:VAL:HA	1:A:537:PRO:HD2	1.91	0.40
2:B:206:ARG:HB3	2:B:206:ARG:CZ	2.51	0.40
1:A:331:LYS:HE3	1:A:334:GLN:O	2.20	0.40
2:B:335:GLY:O	2:B:337:TRP:HD1	2.04	0.40
2:B:378:GLU:O	2:B:379:SER:C	2.64	0.40
1:A:84:THR:HG22	1:A:85:GLN:N	2.36	0.40
2:B:13:LYS:O	2:B:16:MET:HB2	2.20	0.40
2:B:191:SER:HB2	2:B:193:LEU:HG	2.03	0.40
1:A:188:TYR:CD2	3:A:559:TBO:H163	2.57	0.40
1:A:226:PRO:O	1:A:226:PRO:HG2	2.21	0.40
1:A:282:LEU:C	1:A:284:ARG:H	2.30	0.40
1:A:405:TYR:O	2:B:331:LYS:HD3	2.22	0.40
1:A:547:GLN:C	1:A:549:ASP:N	2.76	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:77:PHE:CE2	2:B:150:PRO:HB2	2.57	0.40
2:B:109:LEU:HD12	2:B:187:LEU:CD2	2.51	0.40
2:B:165:THR:O	2:B:168:LEU:N	2.47	0.40
2:B:169:GLU:HB3	2:B:170:PRO:CD	2.51	0.40
2:B:213:GLY:O	2:B:214:LEU:C	2.65	0.40
1:A:317:VAL:CG1	1:A:347:LYS:HB3	2.51	0.40
1:A:329:ILE:HG22	1:A:330:GLN:N	2.37	0.40
1:A:458:VAL:C	1:A:459:THR:O	2.64	0.40
1:A:491:LEU:HD23	1:A:491:LEU:HA	1.71	0.40
2:B:349:LEU:H	2:B:349:LEU:HG	1.60	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	554/558 (99%)	426 (77%)	104 (19%)	24 (4%)	2	12
2	B	425/427 (100%)	322 (76%)	67 (16%)	36 (8%)	0	3
All	All	979/985 (99%)	748 (76%)	171 (18%)	60 (6%)	1	7

All (60) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	52	PRO
1	A	90	VAL
1	A	345	PRO
1	A	358	ARG
1	A	420	PRO
2	B	115	TYR
2	B	226	PRO
2	B	295	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	316	GLY
2	B	317	VAL
1	A	25	PRO
1	A	112	GLY
1	A	284	ARG
1	A	556	ILE
2	B	296	THR
2	B	423	VAL
2	B	425	LEU
1	A	122	GLU
1	A	242	GLN
1	A	251	SER
1	A	277	ARG
1	A	356	ARG
2	B	59	PRO
2	B	160	PHE
2	B	211	ARG
2	B	212	TRP
2	B	214	LEU
2	B	233	GLU
2	B	395	LYS
1	A	114	ALA
1	A	426	TRP
1	A	546	GLU
2	B	114	ALA
2	B	116	PHE
2	B	319	TYR
2	B	4	PRO
2	B	148	VAL
2	B	185	ASP
2	B	240	THR
1	A	29	GLU
1	A	195	ILE
1	A	459	THR
2	B	195	ILE
2	B	232	TYR
2	B	244	ILE
2	B	272	PRO
2	B	273	GLY
1	A	63	ILE
1	A	226	PRO
2	B	37	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	420	PRO
2	B	213	GLY
2	B	359	GLY
1	A	321	PRO
1	A	359	GLY
2	B	55	PRO
2	B	99	GLY
2	B	217	PRO
2	B	236	PRO
2	B	135	ILE

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	454/498 (91%)	394 (87%)	60 (13%)	4	18
2	B	367/389 (94%)	317 (86%)	50 (14%)	3	17
All	All	821/887 (93%)	711 (87%)	110 (13%)	4	18

All (110) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	ILE
1	A	11	LYS
1	A	28	GLU
1	A	30	LYS
1	A	31	ILE
1	A	39	THR
1	A	53	GLU
1	A	58	THR
1	A	60	VAL
1	A	63	ILE
1	A	65	LYS
1	A	78	ARG
1	A	88	TRP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	90	VAL
1	A	91	GLN
1	A	94	ILE
1	A	97	PRO
1	A	107	THR
1	A	131	THR
1	A	142	ILE
1	A	143	ARG
1	A	150	PRO
1	A	172	LYS
1	A	177	ASP
1	A	178	ILE
1	A	186	ASP
1	A	187	LEU
1	A	199	ARG
1	A	202	ILE
1	A	210	LEU
1	A	268	SER
1	A	296	THR
1	A	303	LEU
1	A	330	GLN
1	A	334	GLN
1	A	340	GLN
1	A	344	GLU
1	A	345	PRO
1	A	393	ILE
1	A	405	TYR
1	A	407	GLN
1	A	409	THR
1	A	411	ILE
1	A	417	VAL
1	A	426	TRP
1	A	471	ASN
1	A	474	ASN
1	A	491	LEU
1	A	497	THR
1	A	512	LYS
1	A	513	SER
1	A	514	GLU
1	A	520	GLN
1	A	526	ILE
1	A	536	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	540	LYS
1	A	542	ILE
1	A	545	ASN
1	A	546	GLU
1	A	553	SER
2	B	6	GLU
2	B	16	MET
2	B	27	THR
2	B	38	CYS
2	B	50	ILE
2	B	55	PRO
2	B	60	VAL
2	B	74	LEU
2	B	88	TRP
2	B	91	GLN
2	B	92	LEU
2	B	105	SER
2	B	111	VAL
2	B	115	TYR
2	B	120	LEU
2	B	122	GLU
2	B	132	ILE
2	B	143	ARG
2	B	165	THR
2	B	173	LYS
2	B	174	GLN
2	B	178	ILE
2	B	180	ILE
2	B	184	MET
2	B	185	ASP
2	B	195	ILE
2	B	200	THR
2	B	240	THR
2	B	266	TRP
2	B	274	ILE
2	B	283	LEU
2	B	284	ARG
2	B	287	LYS
2	B	290	THR
2	B	293	ILE
2	B	301	LEU
2	B	305	GLU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	315	HIS
2	B	318	TYR
2	B	325	LEU
2	B	330	GLN
2	B	332	GLN
2	B	356	ARG
2	B	369	THR
2	B	379	SER
2	B	407	GLN
2	B	410	TRP
2	B	422	LEU
2	B	425	LEU
2	B	427	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (26) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	54	ASN
1	A	96	HIS
1	A	208	HIS
1	A	235	HIS
1	A	265	ASN
1	A	269	GLN
1	A	332	GLN
1	A	336	GLN
1	A	340	GLN
1	A	367	GLN
1	A	373	GLN
1	A	407	GLN
1	A	464	GLN
1	A	474	ASN
1	A	507	GLN
1	A	524	GLN
1	A	539	HIS
2	B	147	ASN
2	B	207	GLN
2	B	255	ASN
2	B	315	HIS
2	B	330	GLN
2	B	340	GLN
2	B	343	GLN
2	B	394	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	418	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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	$\# Z > 2$
3	TBO	A	559	-	22,23,23	2.77	7 (31%)	19,34,34	3.26	9 (47%)

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	TBO	A	559	-	-	2/5/17/17	0/2/3/3

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	559	TBO	C2-N1	8.64	1.43	1.36
3	A	559	TBO	C10-C9	4.36	1.45	1.38
3	A	559	TBO	C4-N3	-4.16	1.42	1.46
3	A	559	TBO	C1A-N1	3.86	1.45	1.38
3	A	559	TBO	C7-N6	-2.99	1.43	1.47
3	A	559	TBO	C12-N6	2.68	1.52	1.47
3	A	559	TBO	C10-C1A	2.13	1.43	1.39

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	559	TBO	C16-C14-C15	7.19	131.13	114.59
3	A	559	TBO	C3A-N3-C2	-7.10	106.68	109.95
3	A	559	TBO	C1A-N1-C2	-5.54	106.55	110.67
3	A	559	TBO	C15-C14-C13	-5.12	107.28	122.66
3	A	559	TBO	C10-C1A-C3A	-3.01	117.77	121.46
3	A	559	TBO	C9-C8-C7A	-2.91	118.77	122.53
3	A	559	TBO	C12-N6-C7	2.64	116.67	112.07
3	A	559	TBO	C10-C1A-N1	2.35	135.57	130.83
3	A	559	TBO	C12-C13-C14	2.24	130.84	127.12

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	559	TBO	C13-C12-N6-C5
3	A	559	TBO	C13-C12-N6-C7

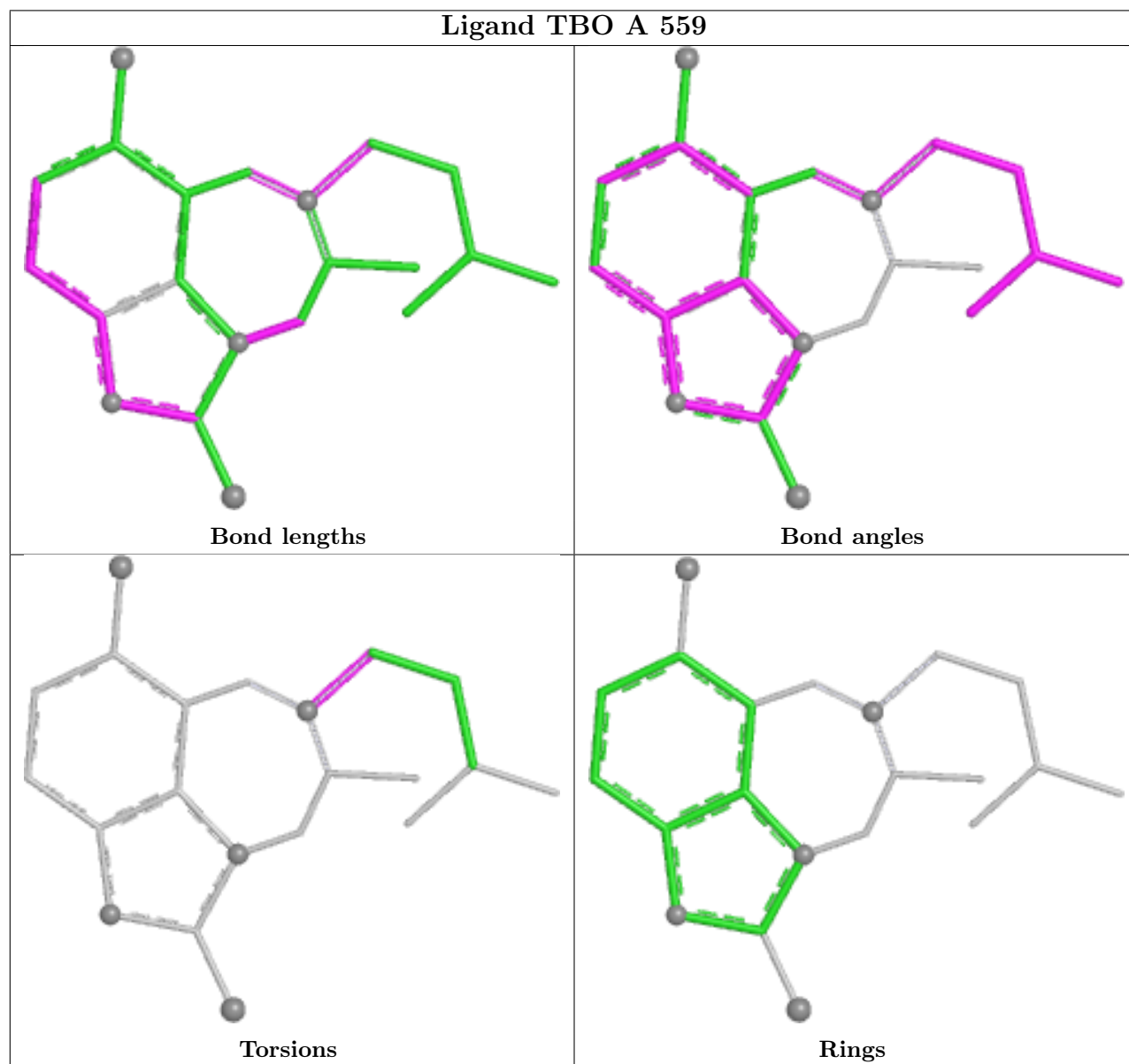
There are no ring outliers.

1 monomer is involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	559	TBO	7	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	558/558 (100%)	-0.00	11 (1%) 65 41	10, 43, 60, 67	0
2	B	427/427 (100%)	-0.08	12 (2%) 55 32	10, 35, 61, 69	0
All	All	985/985 (100%)	-0.03	23 (2%) 61 38	10, 41, 60, 69	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	231	GLY	4.9
1	A	112	GLY	4.2
2	B	224	GLU	3.2
1	A	552	VAL	3.2
1	A	538	ALA	3.1
2	B	230	MET	3.0
1	A	134	SER	2.9
1	A	66	LYS	2.9
2	B	299	ALA	2.7
2	B	222	GLN	2.7
2	B	69	THR	2.6
2	B	296	THR	2.5
1	A	141	GLY	2.4
2	B	268	SER	2.4
1	A	113	ASP	2.2
2	B	68	SER	2.2
1	A	137	ASN	2.2
1	A	549	ASP	2.2
2	B	3	SER	2.2
1	A	63	ILE	2.1
1	A	556	ILE	2.1
2	B	295	LEU	2.1
2	B	423	VAL	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](#)

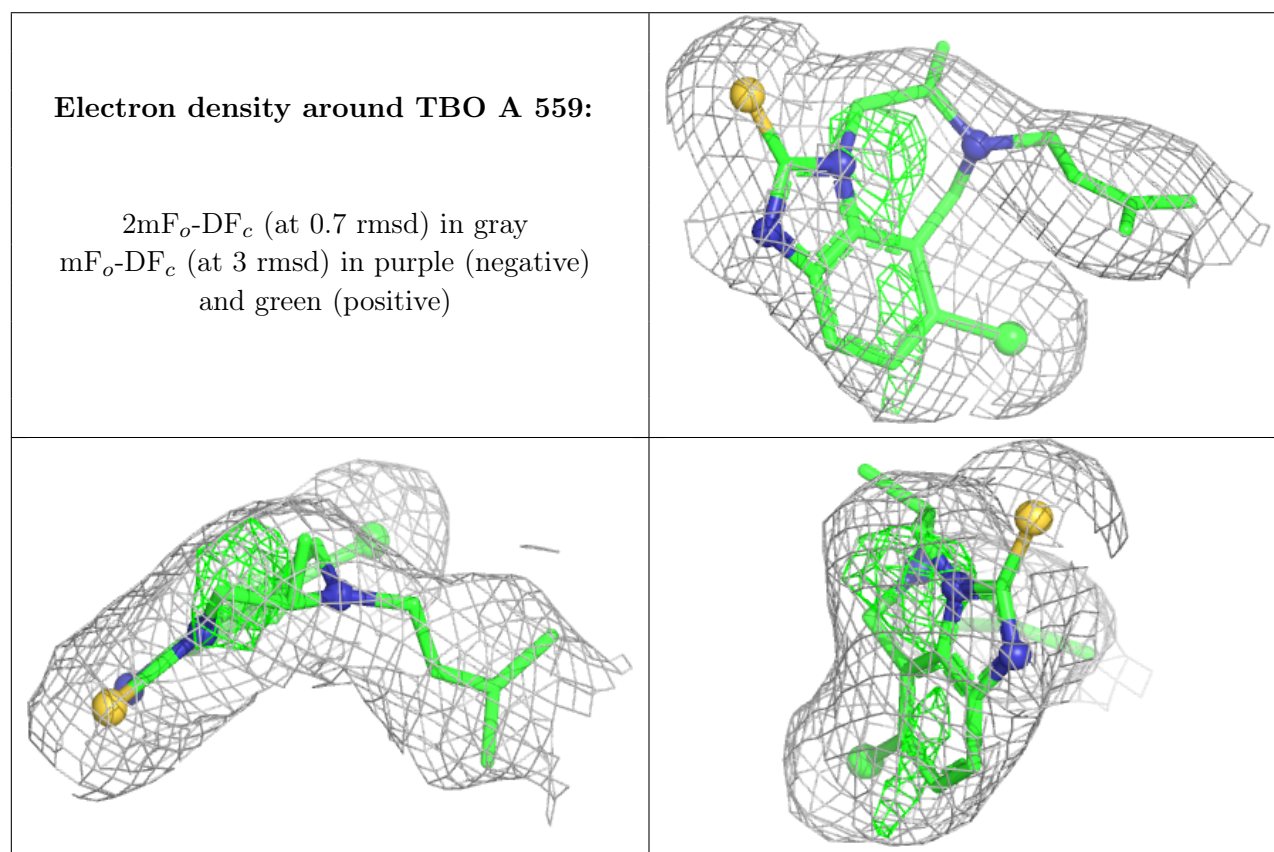
There are no oligosaccharides in this entry.

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($\text{\AA}^2$)	Q<0.9
3	TBO	A	559	21/21	0.94	0.11	45,45,45,45	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.



6.5 Other polymers [i](#)

There are no such residues in this entry.