



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 11:14 AM UTC

PDB ID : 1RV7 / pdb_00001rv7
Title : Crystal structures of a Multidrug-Resistant HIV-1 Protease Reveal an Expanded Active Site Cavity
Authors : Logsdon, B.C.; Vickrey, J.F.; Martin, P.; Proteasa, G.; Koepke, J.I.; Terlecky, S.R.; Wawrzak, Z.; Winters, M.A.; Merigan, T.C.; Kovari, L.C.
Deposited on : 2003-12-12
Resolution : 2.70 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)
Xtrriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

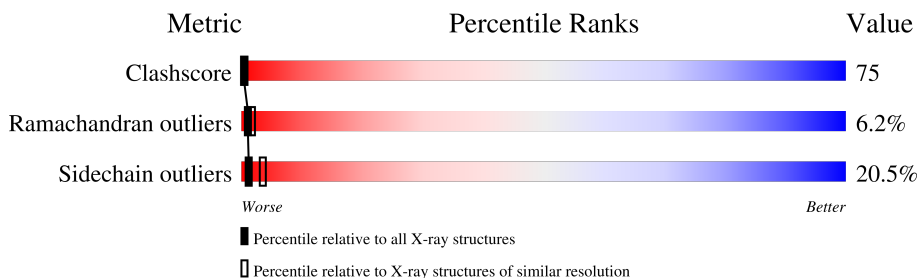
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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	190562	3843 (2.70-2.70)
Ramachandran outliers	187476	3778 (2.70-2.70)
Sidechain outliers	187428	3778 (2.70-2.70)

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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	99	
1	B	99	

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
2	AB1	B	1001	-	X	X	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 1592 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.

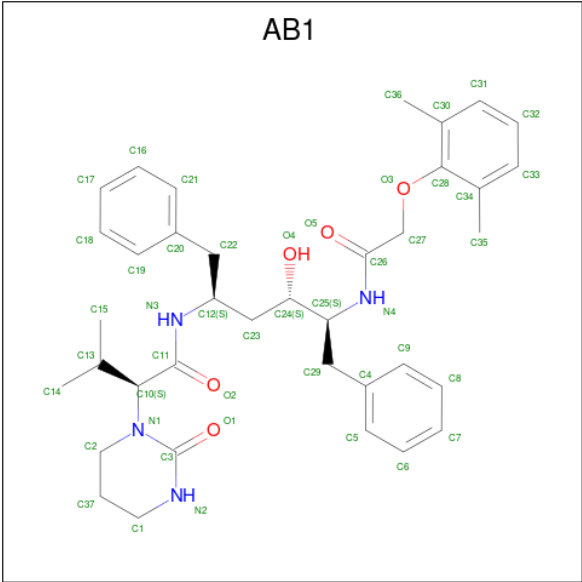
- Molecule 1 is a protein called protease.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	99	Total	C	N	O	S	0	0	0
			755	486	132	134	3			
1	B	99	Total	C	N	O	S	0	0	0
			755	486	132	134	3			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	25	ASN	ASP	engineered mutation	UNP Q9QM22
A	36	VAL	MET	engineered mutation	UNP Q9QM22
A	84	VAL	ILE	engineered mutation	UNP Q9QM22
B	25	ASN	ASP	engineered mutation	UNP Q9QM22
B	36	VAL	MET	engineered mutation	UNP Q9QM22
B	84	VAL	ILE	engineered mutation	UNP Q9QM22

- Molecule 2 is N-{1-BENZYL-4-[2-(2,6-DIMETHYL-PHENOXY)-ACETYLAMINO]-3-HYDROXY-5-PHENYL-PENTYL}-3-METHYL-2-(2-OXO-TETRAHYDRO-PYRIMIDIN-1-YL)-BUTYRAMIDE (CCD ID: AB1) (formula: C₃₇H₄₈N₄O₅).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	B	1	Total	C	N	O	0	0
			46	37	4	5		

- Molecule 3 is water.

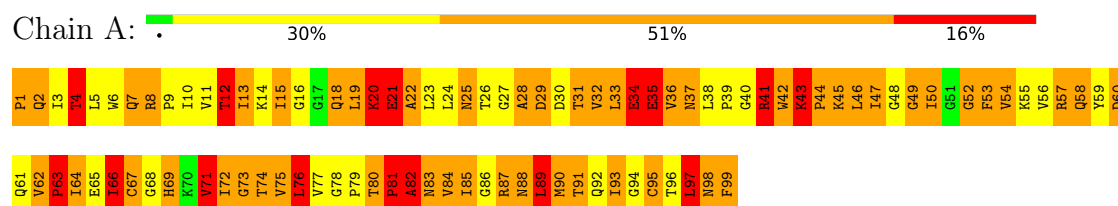
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	36	Total	O	0	0
			36	36		

3 Residue-property plots

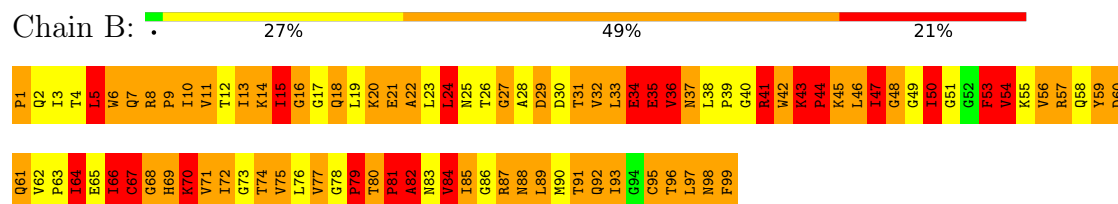
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded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

Note EDS was not executed.

- Molecule 1: protease



- Molecule 1: protease



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 41	Depositor
Cell constants a, b, c, α , β , γ	44.98 Å 44.98 Å 103.68 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.70	Depositor
% Data completeness (in resolution range)	97.3 (20.00-2.70)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	REFMAC 5.1.24	Depositor
R, R_{free}	0.271 , 0.350	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	1592	wwPDB-VP
Average B, all atoms (Å ²)	41.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: AB1

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	5.02	224/769 (29.1%)	3.15	107/1044 (10.2%)
1	B	4.83	197/769 (25.6%)	2.91	98/1044 (9.4%)
All	All	4.92	421/1538 (27.4%)	3.03	205/2088 (9.8%)

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
1	B	0	3

All (421) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	35	GLU	C-O	23.15	1.52	1.23
1	B	57	ARG	C-O	-17.57	1.02	1.24
1	B	90	MET	SD-CE	-17.51	1.35	1.79
1	A	50	ILE	C-O	17.16	1.46	1.23
1	B	81	PRO	CA-C	16.72	1.76	1.52
1	B	66	ILE	C-O	-16.68	1.06	1.24
1	B	56	VAL	C-O	15.80	1.42	1.24
1	B	80	THR	CA-CB	15.61	1.78	1.53
1	A	8	ARG	C-O	15.21	1.44	1.24
1	B	41	ARG	NE-CZ	15.04	1.49	1.33
1	A	56	VAL	C-O	14.97	1.41	1.23
1	A	89	LEU	C-O	-14.92	1.04	1.24
1	A	37	ASN	CA-C	-14.74	1.34	1.52
1	B	35	GLU	C-O	14.62	1.42	1.24
1	B	72	ILE	C-O	14.60	1.39	1.24
1	A	36	VAL	N-CA	14.31	1.64	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	62	VAL	CA-C	14.24	1.64	1.53
1	A	98	ASN	C-O	14.21	1.40	1.24
1	B	32	VAL	CA-CB	-14.10	1.37	1.54
1	A	31	THR	CA-C	-14.03	1.35	1.52
1	B	82	ALA	CA-CB	14.01	1.77	1.53
1	A	61	GLN	C-O	-13.88	1.04	1.23
1	A	7	GLN	CG-CD	13.74	1.86	1.52
1	A	74	THR	CA-C	13.32	1.69	1.52
1	A	73	GLY	C-O	13.25	1.40	1.24
1	A	60	ASP	N-CA	13.18	1.62	1.45
1	B	93	ILE	CA-CB	13.11	1.69	1.54
1	A	26	THR	CA-CB	-13.07	1.31	1.53
1	B	33	LEU	C-O	-13.04	1.06	1.23
1	B	59	TYR	C-O	-12.94	1.04	1.23
1	A	9	PRO	C-O	-12.87	1.07	1.24
1	B	20	LYS	C-O	-12.84	1.07	1.23
1	B	19	LEU	N-CA	-12.78	1.30	1.46
1	A	50	ILE	CA-CB	12.64	1.66	1.53
1	B	44	PRO	CA-C	12.64	1.69	1.52
1	B	61	GLN	C-O	-12.22	1.08	1.23
1	A	44	PRO	CA-C	12.19	1.67	1.52
1	A	49	GLY	C-O	12.16	1.37	1.24
1	A	53	PHE	CA-CB	12.15	1.70	1.53
1	A	69	HIS	C-O	-12.14	1.07	1.23
1	B	87	ARG	CA-C	-12.07	1.36	1.52
1	B	56	VAL	CA-CB	11.76	1.70	1.54
1	B	12	THR	N-CA	-11.69	1.30	1.46
1	B	78	GLY	C-O	11.68	1.39	1.24
1	B	62	VAL	CA-CB	11.61	1.69	1.54
1	A	93	ILE	C-O	-11.50	1.10	1.24
1	A	94	GLY	C-O	11.46	1.38	1.24
1	B	71	VAL	CB-CG2	11.36	1.90	1.52
1	B	3	ILE	C-O	-11.36	1.10	1.24
1	A	61	GLN	CA-C	-11.27	1.39	1.53
1	A	66	ILE	CA-CB	11.26	1.69	1.54
1	B	4	THR	N-CA	-11.26	1.31	1.46
1	B	54	VAL	CA-C	-11.20	1.38	1.52
1	A	90	MET	C-N	-11.20	1.18	1.34
1	B	50	ILE	N-CA	11.15	1.60	1.46
1	A	85	ILE	C-N	-11.14	1.21	1.33
1	B	50	ILE	CA-CB	11.13	1.69	1.54
1	A	85	ILE	N-CA	11.13	1.60	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	29	ASP	CG-OD2	11.09	1.46	1.25
1	A	21	GLU	CD-OE1	11.04	1.46	1.25
1	A	15	ILE	CA-CB	-11.02	1.39	1.54
1	B	1	PRO	CA-C	-10.97	1.29	1.52
1	B	35	GLU	CD-OE1	10.86	1.46	1.25
1	A	50	ILE	CA-C	10.84	1.63	1.53
1	A	78	GLY	N-CA	10.74	1.59	1.44
1	A	93	ILE	CA-CB	10.68	1.66	1.54
1	B	45	LYS	CA-C	10.57	1.65	1.52
1	A	34	GLU	CB-CG	10.55	1.84	1.52
1	A	11	VAL	N-CA	-10.53	1.30	1.45
1	B	42	TRP	CB-CG	-10.46	1.17	1.50
1	B	23	LEU	CG-CD2	-10.46	1.18	1.52
1	B	37	ASN	C-O	10.34	1.36	1.23
1	A	86	GLY	C-O	-10.31	1.14	1.23
1	B	67	CYS	CA-C	-10.25	1.39	1.52
1	A	32	VAL	N-CA	10.09	1.58	1.46
1	A	82	ALA	C-N	10.07	1.46	1.33
1	B	64	ILE	CG1-CD1	10.04	1.91	1.51
1	B	46	LEU	CA-C	-9.98	1.40	1.52
1	B	48	GLY	C-O	9.92	1.37	1.23
1	B	36	VAL	CA-C	-9.83	1.40	1.52
1	B	56	VAL	CA-C	9.81	1.65	1.52
1	A	7	GLN	CD-NE2	9.80	1.53	1.33
1	A	35	GLU	C-N	9.80	1.47	1.33
1	A	12	THR	CB-OG1	9.78	1.59	1.43
1	B	92	GLN	C-O	-9.73	1.11	1.24
1	A	84	VAL	CA-CB	-9.64	1.41	1.54
1	A	28	ALA	C-O	-9.64	1.12	1.24
1	A	63	PRO	CG-CD	9.60	1.83	1.50
1	B	75	VAL	N-CA	-9.57	1.35	1.46
1	A	7	GLN	C-O	9.56	1.35	1.23
1	B	50	ILE	CG1-CD1	9.54	1.89	1.51
1	A	80	THR	C-O	9.48	1.36	1.24
1	A	34	GLU	CG-CD	9.48	1.75	1.52
1	A	54	VAL	C-O	-9.43	1.12	1.24
1	B	37	ASN	N-CA	9.40	1.57	1.46
1	A	13	ILE	CB-CG2	-9.40	1.21	1.52
1	A	42	TRP	CA-CB	-9.37	1.38	1.53
1	B	85	ILE	N-CA	9.34	1.59	1.46
1	B	93	ILE	N-CA	9.34	1.56	1.46
1	B	87	ARG	C-O	-9.30	1.12	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	68	GLY	C-O	-9.18	1.10	1.24
1	A	57	ARG	C-O	-9.15	1.12	1.24
1	A	92	GLN	C-O	-9.15	1.11	1.24
1	B	78	GLY	CA-C	9.15	1.65	1.51
1	B	24	LEU	CA-CB	-9.13	1.41	1.52
1	A	42	TRP	CA-C	-9.13	1.41	1.52
1	A	32	VAL	CA-CB	-9.12	1.43	1.54
1	B	88	ASN	C-N	-9.08	1.20	1.33
1	A	6	TRP	N-CA	-9.07	1.34	1.46
1	A	87	ARG	CB-CG	-9.05	1.25	1.52
1	A	25	ASN	N-CA	9.03	1.57	1.46
1	B	90	MET	C-O	-9.02	1.12	1.24
1	B	82	ALA	C-O	8.98	1.35	1.24
1	A	76	LEU	N-CA	8.96	1.56	1.46
1	A	90	MET	CA-C	-8.95	1.41	1.52
1	B	98	ASN	C-O	8.90	1.34	1.23
1	B	7	GLN	CD-OE1	8.90	1.40	1.23
1	A	62	VAL	C-N	-8.89	1.22	1.33
1	B	59	TYR	CA-CB	-8.86	1.40	1.53
1	B	14	LYS	CE-NZ	8.86	1.75	1.49
1	B	85	ILE	CA-C	-8.85	1.41	1.52
1	B	28	ALA	CA-C	-8.84	1.41	1.52
1	A	10	ILE	CA-CB	8.81	1.64	1.54
1	B	50	ILE	C-O	8.81	1.34	1.24
1	A	69	HIS	CA-CB	8.78	1.64	1.52
1	A	35	GLU	CB-CG	8.77	1.78	1.52
1	A	84	VAL	C-O	-8.75	1.15	1.24
1	A	89	LEU	CA-C	-8.69	1.40	1.52
1	A	4	THR	CA-CB	-8.67	1.38	1.53
1	A	77	VAL	C-O	8.65	1.33	1.24
1	A	81	PRO	C-O	8.63	1.35	1.24
1	A	82	ALA	N-CA	-8.61	1.35	1.46
1	A	37	ASN	CG-OD1	8.61	1.40	1.23
1	A	20	LYS	CA-C	-8.58	1.42	1.52
1	B	27	GLY	C-O	-8.58	1.14	1.23
1	A	96	THR	CA-C	-8.57	1.42	1.52
1	A	41	ARG	CA-C	-8.56	1.41	1.52
1	B	13	ILE	CA-CB	-8.54	1.41	1.54
1	B	62	VAL	N-CA	-8.54	1.36	1.46
1	A	79	PRO	CA-C	-8.53	1.40	1.52
1	A	16	GLY	C-N	8.47	1.43	1.33
1	B	57	ARG	NE-CZ	-8.46	1.23	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	8	ARG	CA-C	8.39	1.63	1.52
1	B	84	VAL	CA-C	-8.38	1.42	1.52
1	A	36	VAL	CB-CG1	-8.31	1.25	1.52
1	B	20	LYS	CE-NZ	8.27	1.74	1.49
1	A	97	LEU	CA-C	8.23	1.62	1.52
1	B	97	LEU	C-O	-8.22	1.14	1.23
1	A	29	ASP	CB-CG	-8.20	1.31	1.52
1	A	90	MET	C-O	-8.18	1.14	1.24
1	B	38	LEU	CA-C	-8.16	1.44	1.52
1	B	34	GLU	CD-OE2	8.15	1.40	1.25
1	A	7	GLN	CA-C	8.14	1.62	1.52
1	A	1	PRO	CA-C	-8.13	1.35	1.52
1	B	60	ASP	C-O	-8.12	1.13	1.23
1	B	53	PHE	CE2-CZ	-8.12	1.14	1.38
1	A	74	THR	N-CA	8.06	1.56	1.46
1	B	35	GLU	CA-C	8.04	1.63	1.52
1	B	1	PRO	CG-CD	8.04	1.78	1.50
1	A	32	VAL	CA-C	-7.91	1.43	1.52
1	A	60	ASP	C-O	-7.88	1.13	1.23
1	B	61	GLN	CB-CG	7.86	1.76	1.52
1	A	49	GLY	N-CA	7.84	1.57	1.45
1	A	55	LYS	C-O	7.81	1.33	1.23
1	B	83	ASN	CA-C	-7.77	1.42	1.52
1	A	47	ILE	CA-CB	-7.77	1.43	1.54
1	B	93	ILE	C-O	7.77	1.34	1.24
1	A	29	ASP	N-CA	-7.73	1.35	1.46
1	B	53	PHE	CD1-CE1	-7.73	1.15	1.38
1	B	40	GLY	CA-C	-7.71	1.43	1.52
1	B	14	LYS	CD-CE	7.65	1.75	1.52
1	A	76	LEU	C-O	-7.61	1.14	1.23
1	A	44	PRO	C-O	7.59	1.33	1.23
1	A	1	PRO	CG-CD	7.58	1.76	1.50
1	B	36	VAL	CA-CB	7.58	1.64	1.54
1	A	25	ASN	CA-C	-7.57	1.43	1.52
1	B	59	TYR	CZ-OH	-7.57	1.22	1.38
1	B	9	PRO	N-CA	-7.56	1.37	1.47
1	B	53	PHE	CA-C	-7.51	1.43	1.53
1	B	42	TRP	CA-CB	-7.51	1.40	1.53
1	B	90	MET	N-CA	-7.49	1.36	1.46
1	B	6	TRP	CG-CD2	7.48	1.57	1.43
1	A	14	LYS	N-CA	-7.48	1.37	1.46
1	A	2	GLN	CA-CB	-7.47	1.41	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	43	LYS	CA-C	-7.46	1.44	1.52
1	A	95	CYS	N-CA	7.45	1.55	1.46
1	A	27	GLY	CA-C	7.44	1.62	1.51
1	A	14	LYS	CA-C	7.43	1.61	1.52
1	A	34	GLU	CD-OE2	7.43	1.39	1.25
1	A	35	GLU	CG-CD	7.43	1.70	1.52
1	A	81	PRO	CA-C	7.42	1.62	1.52
1	A	1	PRO	CB-CG	7.40	1.86	1.49
1	A	29	ASP	CA-C	-7.38	1.42	1.52
1	B	20	LYS	N-CA	-7.38	1.36	1.45
1	A	23	LEU	N-CA	7.31	1.54	1.46
1	B	28	ALA	N-CA	-7.30	1.36	1.46
1	B	41	ARG	CZ-NH2	7.30	1.43	1.33
1	A	35	GLU	CD-OE2	7.28	1.39	1.25
1	A	19	LEU	CG-CD1	-7.28	1.28	1.52
1	B	83	ASN	CG-OD1	7.26	1.37	1.23
1	A	73	GLY	CA-C	7.25	1.59	1.51
1	B	60	ASP	C-N	-7.23	1.23	1.33
1	A	60	ASP	CA-C	-7.20	1.44	1.52
1	B	41	ARG	CG-CD	7.18	1.74	1.52
1	A	63	PRO	N-CA	-7.17	1.38	1.47
1	B	41	ARG	N-CA	7.14	1.55	1.45
1	B	65	GLU	N-CA	-7.13	1.37	1.46
1	B	77	VAL	CA-C	-7.10	1.43	1.52
1	B	13	ILE	CA-C	7.09	1.62	1.53
1	A	47	ILE	CA-C	-7.07	1.43	1.52
1	B	29	ASP	N-CA	7.05	1.55	1.46
1	A	71	VAL	C-O	7.04	1.31	1.23
1	B	16	GLY	CA-C	7.04	1.61	1.51
1	B	64	ILE	CB-CG2	7.04	1.75	1.52
1	A	83	ASN	N-CA	7.04	1.55	1.46
1	B	21	GLU	CA-C	7.03	1.61	1.52
1	B	68	GLY	N-CA	7.01	1.55	1.45
1	B	48	GLY	C-N	7.00	1.43	1.33
1	A	53	PHE	C-O	-6.98	1.15	1.24
1	B	35	GLU	N-CA	6.95	1.55	1.46
1	B	65	GLU	C-O	-6.95	1.15	1.23
1	A	24	LEU	CA-C	-6.94	1.43	1.52
1	B	91	THR	N-CA	-6.92	1.37	1.46
1	B	31	THR	CA-C	-6.91	1.44	1.52
1	A	58	GLN	CA-C	6.90	1.61	1.52
1	B	43	LYS	N-CA	-6.90	1.33	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	10	ILE	C-O	-6.90	1.15	1.23
1	A	28	ALA	C-N	-6.89	1.23	1.33
1	B	53	PHE	CD2-CE2	-6.88	1.18	1.38
1	A	30	ASP	C-O	-6.88	1.15	1.23
1	A	87	ARG	N-CA	-6.87	1.38	1.46
1	A	13	ILE	CA-CB	-6.86	1.45	1.54
1	B	30	ASP	CG-OD1	6.81	1.38	1.25
1	A	53	PHE	CA-C	-6.81	1.44	1.52
1	B	84	VAL	C-O	6.81	1.31	1.23
1	B	3	ILE	N-CA	6.78	1.56	1.46
1	A	6	TRP	CE2-CZ2	-6.77	1.25	1.39
1	A	20	LYS	C-O	-6.76	1.15	1.23
1	A	22	ALA	C-O	-6.76	1.15	1.23
1	A	55	LYS	CA-CB	-6.76	1.43	1.53
1	A	74	THR	CB-OG1	-6.74	1.32	1.43
1	B	79	PRO	CB-CG	6.74	1.83	1.49
1	B	46	LEU	C-O	-6.71	1.15	1.23
1	A	95	CYS	CB-SG	-6.69	1.59	1.81
1	B	59	TYR	CA-C	-6.66	1.44	1.53
1	B	6	TRP	N-CA	-6.65	1.37	1.46
1	B	14	LYS	CG-CD	6.64	1.72	1.52
1	B	62	VAL	CA-C	6.63	1.59	1.52
1	B	90	MET	C-N	-6.63	1.25	1.33
1	B	8	ARG	N-CA	-6.61	1.35	1.46
1	A	62	VAL	C-O	6.61	1.32	1.24
1	A	71	VAL	CA-C	-6.61	1.44	1.52
1	A	93	ILE	N-CA	6.60	1.53	1.46
1	A	11	VAL	CA-CB	-6.59	1.46	1.54
1	A	60	ASP	CB-CG	6.58	1.68	1.52
1	B	20	LYS	CD-CE	6.57	1.72	1.52
1	A	16	GLY	CA-C	6.57	1.60	1.51
1	B	46	LEU	CG-CD1	-6.56	1.30	1.52
1	A	3	ILE	CA-CB	-6.55	1.45	1.54
1	B	5	LEU	CA-C	6.52	1.61	1.53
1	A	99	PHE	CE2-CZ	-6.50	1.19	1.38
1	A	38	LEU	N-CA	-6.49	1.40	1.45
1	A	21	GLU	CA-C	6.49	1.61	1.52
1	B	1	PRO	C-O	-6.49	1.10	1.23
1	B	44	PRO	CB-CG	6.49	1.82	1.49
1	A	62	VAL	CB-CG2	-6.48	1.31	1.52
1	B	74	THR	CA-C	-6.47	1.44	1.52
1	A	38	LEU	C-O	-6.43	1.17	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	97	LEU	N-CA	-6.41	1.37	1.46
1	A	56	VAL	C-N	6.41	1.42	1.33
1	B	10	ILE	N-CA	-6.40	1.39	1.46
1	B	46	LEU	N-CA	-6.40	1.38	1.45
1	A	43	LYS	CD-CE	6.39	1.71	1.52
1	B	24	LEU	N-CA	-6.38	1.38	1.46
1	A	87	ARG	CA-C	6.38	1.61	1.52
1	B	97	LEU	N-CA	-6.37	1.38	1.46
1	A	76	LEU	CA-C	-6.36	1.44	1.52
1	B	53	PHE	C-O	-6.36	1.15	1.23
1	A	18	GLN	CA-C	6.35	1.62	1.53
1	B	66	ILE	N-CA	6.35	1.53	1.46
1	A	34	GLU	CD-OE1	6.32	1.37	1.25
1	A	9	PRO	CB-CG	-6.30	1.18	1.49
1	A	2	GLN	CG-CD	6.29	1.67	1.52
1	B	87	ARG	C-N	-6.28	1.25	1.33
1	A	20	LYS	CG-CD	-6.26	1.33	1.52
1	B	45	LYS	C-O	6.25	1.31	1.23
1	A	38	LEU	CA-C	-6.25	1.46	1.52
1	A	85	ILE	CA-C	-6.23	1.45	1.52
1	B	71	VAL	CB-CG1	6.22	1.73	1.52
1	B	76	LEU	CA-C	-6.22	1.45	1.52
1	A	74	THR	CB-CG2	-6.21	1.32	1.52
1	B	75	VAL	C-O	-6.20	1.17	1.23
1	A	35	GLU	CD-OE1	6.19	1.37	1.25
1	A	7	GLN	CD-OE1	6.16	1.35	1.23
1	A	38	LEU	CG-CD2	6.16	1.72	1.52
1	B	76	LEU	N-CA	6.13	1.53	1.46
1	B	59	TYR	N-CA	-6.11	1.36	1.46
1	A	31	THR	CA-CB	-6.09	1.44	1.53
1	A	77	VAL	C-N	6.08	1.42	1.33
1	A	80	THR	CA-CB	6.07	1.63	1.53
1	B	59	TYR	CB-CG	6.06	1.65	1.51
1	B	77	VAL	C-O	-6.06	1.17	1.24
1	A	57	ARG	CA-C	-6.04	1.45	1.52
1	A	85	ILE	C-O	6.03	1.31	1.24
1	B	44	PRO	C-N	6.02	1.41	1.33
1	B	82	ALA	CA-C	6.01	1.60	1.52
1	B	2	GLN	C-O	-6.00	1.16	1.24
1	B	13	ILE	CB-CG2	-5.98	1.32	1.52
1	A	72	ILE	CA-CB	-5.98	1.45	1.54
1	B	60	ASP	CG-OD2	5.97	1.36	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	88	ASN	C-O	5.97	1.31	1.24
1	A	56	VAL	CA-C	5.97	1.59	1.52
1	B	65	GLU	CD-OE2	5.96	1.36	1.25
1	B	96	THR	C-O	5.96	1.32	1.23
1	A	3	ILE	CB-CG2	5.93	1.72	1.52
1	A	23	LEU	CA-CB	-5.92	1.44	1.53
1	A	49	GLY	CA-C	5.91	1.61	1.51
1	A	71	VAL	N-CA	5.91	1.53	1.46
1	A	76	LEU	CA-CB	5.90	1.63	1.53
1	A	63	PRO	C-N	5.89	1.40	1.33
1	B	97	LEU	CB-CG	5.84	1.65	1.53
1	A	79	PRO	CG-CD	5.84	1.70	1.50
1	B	70	LYS	CG-CD	5.83	1.70	1.52
1	B	29	ASP	CG-OD1	5.81	1.36	1.25
1	B	55	LYS	CA-CB	-5.80	1.44	1.53
1	B	38	LEU	C-O	-5.80	1.17	1.24
1	B	50	ILE	C-N	5.80	1.41	1.33
1	A	4	THR	CA-C	-5.79	1.45	1.52
1	A	40	GLY	C-O	-5.79	1.17	1.24
1	B	99	PHE	CE2-CZ	-5.79	1.21	1.38
1	A	54	VAL	CA-C	-5.77	1.46	1.52
1	A	39	PRO	CG-CD	5.76	1.70	1.50
1	B	51	GLY	N-CA	5.75	1.53	1.45
1	A	37	ASN	CG-ND2	5.75	1.45	1.33
1	A	25	ASN	C-O	5.71	1.30	1.24
1	A	90	MET	CG-SD	5.69	1.95	1.80
1	A	41	ARG	CZ-NH2	5.69	1.40	1.33
1	B	2	GLN	CD-OE1	-5.67	1.12	1.23
1	A	89	LEU	CA-CB	5.66	1.62	1.53
1	A	23	LEU	CB-CG	-5.66	1.42	1.53
1	A	5	LEU	C-N	-5.65	1.26	1.34
1	A	59	TYR	CG-CD2	5.64	1.51	1.39
1	A	72	ILE	C-O	-5.64	1.17	1.24
1	B	54	VAL	CA-CB	-5.61	1.47	1.54
1	A	48	GLY	CA-C	-5.60	1.45	1.52
1	B	41	ARG	C-O	5.60	1.31	1.23
1	B	31	THR	N-CA	-5.59	1.39	1.46
1	A	33	LEU	C-O	-5.58	1.16	1.24
1	A	69	HIS	CA-C	-5.58	1.45	1.52
1	B	23	LEU	CA-C	5.58	1.59	1.52
1	B	35	GLU	C-N	5.58	1.41	1.33
1	B	91	THR	CB-CG2	-5.56	1.34	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	87	ARG	CG-CD	-5.56	1.35	1.52
1	B	66	ILE	CG1-CD1	-5.55	1.30	1.51
1	B	50	ILE	CB-CG2	5.54	1.70	1.52
1	A	13	ILE	C-O	-5.54	1.17	1.24
1	A	4	THR	CB-OG1	5.53	1.52	1.43
1	A	15	ILE	N-CA	-5.52	1.39	1.46
1	A	95	CYS	CA-C	-5.52	1.45	1.52
1	A	30	ASP	CA-CB	5.52	1.63	1.54
1	A	65	GLU	CA-C	-5.52	1.46	1.52
1	B	83	ASN	C-O	-5.49	1.17	1.23
1	A	53	PHE	N-CA	-5.47	1.39	1.46
1	B	15	ILE	CA-CB	-5.46	1.47	1.54
1	A	5	LEU	CA-C	5.45	1.59	1.53
1	A	39	PRO	CB-CG	-5.45	1.22	1.49
1	A	38	LEU	CB-CG	-5.44	1.42	1.53
1	A	33	LEU	CG-CD2	5.43	1.70	1.52
1	A	12	THR	N-CA	-5.42	1.39	1.46
1	A	64	ILE	C-O	5.41	1.29	1.23
1	A	82	ALA	C-O	-5.41	1.17	1.24
1	A	37	ASN	CA-CB	-5.40	1.41	1.53
1	A	99	PHE	C-OXT	5.40	1.34	1.23
1	A	30	ASP	CA-C	-5.39	1.46	1.52
1	B	9	PRO	CA-C	-5.39	1.44	1.52
1	A	2	GLN	CD-OE1	-5.38	1.13	1.23
1	A	77	VAL	N-CA	5.38	1.53	1.46
1	A	72	ILE	CA-C	5.37	1.59	1.52
1	A	13	ILE	CA-C	5.36	1.59	1.52
1	B	89	LEU	CA-C	-5.35	1.45	1.52
1	A	73	GLY	C-N	5.34	1.40	1.33
1	A	45	LYS	CA-CB	-5.34	1.44	1.53
1	B	62	VAL	CB-CG1	5.33	1.70	1.52
1	B	9	PRO	C-O	-5.30	1.17	1.24
1	B	58	GLN	CA-C	-5.30	1.46	1.52
1	A	8	ARG	CZ-NH1	5.29	1.40	1.32
1	B	42	TRP	CD2-CE3	5.28	1.48	1.40
1	B	30	ASP	CB-CG	5.28	1.65	1.52
1	B	2	GLN	CA-C	-5.26	1.46	1.52
1	B	91	THR	CB-OG1	5.26	1.52	1.43
1	B	73	GLY	C-O	-5.25	1.16	1.23
1	A	71	VAL	CB-CG1	-5.25	1.35	1.52
1	B	7	GLN	CD-NE2	5.24	1.44	1.33
1	B	74	THR	CB-OG1	5.24	1.52	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	11	VAL	CB-CG1	5.23	1.69	1.52
1	B	32	VAL	CA-C	-5.21	1.46	1.52
1	A	34	GLU	C-O	-5.21	1.17	1.24
1	A	3	ILE	N-CA	-5.20	1.39	1.46
1	A	18	GLN	CG-CD	5.20	1.65	1.52
1	B	70	LYS	C-O	-5.17	1.17	1.24
1	B	57	ARG	N-CA	-5.16	1.39	1.46
1	A	59	TYR	N-CA	-5.14	1.39	1.46
1	B	29	ASP	CG-OD2	5.13	1.35	1.25
1	B	54	VAL	CB-CG2	-5.13	1.35	1.52
1	B	2	GLN	N-CA	5.12	1.52	1.46
1	A	86	GLY	C-N	-5.11	1.27	1.33
1	A	45	LYS	CB-CG	-5.11	1.37	1.52
1	A	42	TRP	CB-CG	-5.11	1.34	1.50
1	A	80	THR	N-CA	5.09	1.53	1.46
1	B	32	VAL	C-O	-5.09	1.18	1.24
1	B	45	LYS	CD-CE	5.08	1.67	1.52
1	A	97	LEU	CB-CG	5.07	1.63	1.53
1	A	10	ILE	C-O	-5.07	1.18	1.24
1	B	47	ILE	CB-CG1	-5.06	1.43	1.53
1	B	18	GLN	CA-CB	-5.05	1.45	1.53
1	A	75	VAL	N-CA	-5.03	1.39	1.46
1	B	3	ILE	CA-CB	-5.03	1.47	1.53
1	A	6	TRP	CE3-CZ3	-5.03	1.23	1.38
1	B	18	GLN	CD-NE2	-5.03	1.22	1.33
1	B	35	GLU	CG-CD	5.03	1.64	1.52
1	B	91	THR	CA-CB	5.00	1.61	1.53

All (205) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	62	VAL	N-CA-C	14.18	123.65	107.77
1	A	93	ILE	N-CA-C	-13.60	98.60	113.43
1	A	77	VAL	N-CA-C	13.00	126.73	107.75
1	A	53	PHE	CA-C-O	-11.92	107.07	120.54
1	A	85	ILE	CA-C-N	-10.88	111.37	122.69
1	A	85	ILE	C-N-CA	-10.88	111.37	122.69
1	A	36	VAL	CA-C-N	-10.87	106.63	122.94
1	A	36	VAL	C-N-CA	-10.87	106.63	122.94
1	A	49	GLY	CA-C-O	10.81	130.43	118.86
1	B	91	THR	N-CA-C	-10.73	99.66	111.36
1	A	68	GLY	N-CA-C	-10.73	101.41	115.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	35	GLU	N-CA-C	-10.18	95.22	110.28
1	B	40	GLY	N-CA-C	-9.79	102.05	112.04
1	B	93	ILE	N-CA-C	-9.69	102.87	113.43
1	A	62	VAL	CB-CA-C	-9.42	99.95	110.78
1	B	78	GLY	CA-C-N	8.96	131.04	119.84
1	B	78	GLY	C-N-CA	8.96	131.04	119.84
1	B	54	VAL	CA-C-O	-8.89	110.93	120.36
1	B	69	HIS	CA-C-O	8.64	130.11	120.43
1	A	8	ARG	CA-C-N	8.53	130.50	119.84
1	A	8	ARG	C-N-CA	8.53	130.50	119.84
1	B	57	ARG	CA-C-N	8.51	134.05	121.72
1	B	57	ARG	C-N-CA	8.51	134.05	121.72
1	A	13	ILE	N-CA-C	8.50	121.38	108.71
1	A	37	ASN	CA-C-O	-8.50	111.52	120.70
1	A	52	GLY	CA-C-O	-8.48	114.20	121.66
1	B	77	VAL	CA-C-N	8.40	135.06	121.87
1	B	77	VAL	C-N-CA	8.40	135.06	121.87
1	A	50	ILE	O-C-N	8.30	131.34	122.45
1	A	72	ILE	N-CA-C	8.13	120.89	107.24
1	B	86	GLY	CA-C-O	-8.10	106.48	120.57
1	B	71	VAL	CG1-CB-CG2	8.10	128.61	110.80
1	A	19	LEU	CA-C-O	-8.04	112.02	121.11
1	A	8	ARG	O-C-N	7.91	129.19	121.28
1	B	48	GLY	O-C-N	7.70	132.71	122.70
1	A	67	CYS	N-CA-C	7.66	121.71	111.30
1	B	53	PHE	N-CA-C	7.58	119.74	110.41
1	A	27	GLY	CA-C-O	7.50	128.30	119.45
1	A	21	GLU	CG-CD-OE2	-7.49	101.17	118.40
1	B	66	ILE	CB-CA-C	-7.46	99.44	110.33
1	A	88	ASN	CA-C-O	-7.41	109.92	120.51
1	A	41	ARG	CA-C-O	-7.38	112.66	121.66
1	A	54	VAL	N-CA-CB	7.37	120.35	110.26
1	B	56	VAL	CA-C-N	-7.34	112.87	123.00
1	B	56	VAL	C-N-CA	-7.34	112.87	123.00
1	B	12	THR	OG1-CB-CG2	-7.31	94.69	109.30
1	A	46	LEU	CD1-CG-CD2	-7.26	94.82	110.80
1	A	62	VAL	CA-C-O	7.24	124.48	119.20
1	A	66	ILE	CA-C-O	-7.23	112.70	120.36
1	A	22	ALA	N-CA-C	7.02	119.74	109.07
1	A	37	ASN	CB-CA-C	-6.99	96.01	109.37
1	A	58	GLN	N-CA-C	6.96	120.24	107.99
1	A	64	ILE	CA-C-N	-6.95	112.85	122.93

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	64	ILE	C-N-CA	-6.95	112.85	122.93
1	B	63	PRO	N-CD-CG	6.92	113.58	103.20
1	A	53	PHE	N-CA-CB	6.92	121.58	110.16
1	A	84	VAL	O-C-N	-6.92	115.91	123.03
1	A	39	PRO	N-CA-C	6.90	122.06	111.57
1	A	85	ILE	N-CA-C	-6.88	98.52	108.36
1	A	66	ILE	N-CA-C	-6.85	98.26	108.12
1	B	64	ILE	N-CA-C	-6.83	98.84	108.80
1	B	79	PRO	N-CA-C	6.82	126.52	112.47
1	B	34	GLU	N-CA-C	-6.80	98.84	109.25
1	B	54	VAL	O-C-N	6.79	130.54	123.20
1	B	59	TYR	CA-C-O	-6.79	113.39	121.60
1	A	12	THR	N-CA-C	-6.77	97.37	108.41
1	B	65	GLU	N-CA-CB	-6.76	99.03	111.13
1	A	93	ILE	N-CA-CB	6.74	119.63	112.21
1	B	7	GLN	CA-CB-CG	-6.71	100.69	114.10
1	B	39	PRO	CA-C-N	-6.66	112.17	122.69
1	B	39	PRO	C-N-CA	-6.66	112.17	122.69
1	B	95	CYS	N-CA-CB	-6.66	100.01	110.06
1	A	31	THR	CA-C-O	-6.63	113.44	120.40
1	B	43	LYS	O-C-N	-6.62	115.44	121.66
1	A	76	LEU	N-CA-CB	6.56	119.62	109.97
1	B	75	VAL	CA-C-O	-6.51	114.38	121.28
1	B	26	THR	CA-C-O	6.50	127.30	119.10
1	A	89	LEU	CD1-CG-CD2	-6.50	96.51	110.80
1	A	35	GLU	O-C-N	6.49	130.81	122.89
1	B	62	VAL	CA-C-N	6.49	127.96	119.84
1	B	62	VAL	C-N-CA	6.49	127.96	119.84
1	A	5	LEU	N-CA-CB	-6.45	101.84	111.25
1	B	66	ILE	N-CA-CB	6.44	120.92	111.52
1	A	32	VAL	N-CA-C	6.43	117.17	108.17
1	B	51	GLY	CA-C-O	6.43	127.85	119.69
1	A	91	THR	N-CA-C	-6.41	104.38	111.82
1	A	34	GLU	N-CA-C	-6.38	97.21	110.80
1	B	1	PRO	CA-C-N	6.35	131.22	122.77
1	B	1	PRO	C-N-CA	6.35	131.22	122.77
1	A	59	TYR	CA-C-O	-6.34	113.63	120.92
1	A	26	THR	CA-C-O	6.33	127.16	119.31
1	A	41	ARG	O-C-N	6.30	130.16	123.03
1	A	78	GLY	O-C-N	-6.30	115.47	121.77
1	B	8	ARG	N-CA-C	6.30	120.61	109.58
1	B	58	GLN	N-CA-C	6.30	118.88	109.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	82	ALA	CA-C-O	-6.28	111.53	120.51
1	B	34	GLU	CG-CD-OE2	6.27	132.83	118.40
1	B	24	LEU	N-CA-CB	-6.21	100.07	109.88
1	A	15	ILE	CA-C-O	6.09	128.39	120.78
1	B	41	ARG	NE-CZ-NH2	6.08	124.67	119.20
1	B	32	VAL	CB-CA-C	-6.07	101.78	110.83
1	B	93	ILE	N-CA-CB	6.06	118.88	112.21
1	A	87	ARG	CA-C-O	6.03	126.94	120.55
1	B	41	ARG	NH1-CZ-NH2	-6.02	111.47	119.30
1	A	3	ILE	CA-CB-CG1	6.01	120.62	110.40
1	B	86	GLY	O-C-N	5.99	130.48	122.70
1	B	44	PRO	CA-C-N	5.96	132.40	121.85
1	B	44	PRO	C-N-CA	5.96	132.40	121.85
1	B	10	ILE	O-C-N	-5.92	115.43	122.77
1	A	38	LEU	CA-C-N	5.92	126.11	120.31
1	A	38	LEU	C-N-CA	5.92	126.11	120.31
1	B	35	GLU	CG-CD-OE2	-5.92	104.79	118.40
1	B	43	LYS	CA-C-N	-5.92	113.87	119.85
1	B	43	LYS	C-N-CA	-5.92	113.87	119.85
1	B	96	THR	O-C-N	5.91	130.90	122.74
1	A	5	LEU	CA-C-N	-5.91	111.33	120.31
1	A	5	LEU	C-N-CA	-5.91	111.33	120.31
1	B	53	PHE	CA-C-O	-5.89	115.27	121.99
1	B	37	ASN	CB-CA-C	-5.85	100.00	109.72
1	B	64	ILE	CB-CA-C	5.85	119.47	110.82
1	A	23	LEU	N-CA-C	5.84	117.92	108.41
1	B	87	ARG	N-CA-CB	5.80	119.28	110.28
1	A	16	GLY	CA-C-O	-5.79	111.84	119.25
1	A	63	PRO	CA-C-O	-5.78	115.02	121.32
1	A	65	GLU	CA-C-O	-5.78	114.59	120.71
1	A	8	ARG	NE-CZ-NH2	-5.76	114.01	119.20
1	A	91	THR	OG1-CB-CG2	-5.74	97.81	109.30
1	A	76	LEU	CB-CG-CD1	-5.74	93.49	110.70
1	B	47	ILE	CA-CB-CG1	5.71	120.11	110.40
1	A	11	VAL	O-C-N	-5.71	116.93	122.92
1	A	9	PRO	CA-C-N	5.65	130.04	122.93
1	A	9	PRO	C-N-CA	5.65	130.04	122.93
1	A	15	ILE	CB-CA-C	-5.64	102.03	111.29
1	B	1	PRO	CB-CA-C	-5.64	99.38	110.10
1	B	15	ILE	CA-C-N	-5.64	110.97	121.07
1	B	15	ILE	C-N-CA	-5.64	110.97	121.07
1	A	89	LEU	N-CA-CB	5.62	119.21	110.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	34	GLU	CG-CD-OE1	-5.60	105.51	118.40
1	A	1	PRO	CB-CG-CD	-5.59	88.21	106.10
1	B	7	GLN	CA-C-N	-5.56	111.73	121.35
1	B	7	GLN	C-N-CA	-5.56	111.73	121.35
1	B	19	LEU	CB-CG-CD1	5.56	127.37	110.70
1	B	62	VAL	N-CA-C	5.56	120.88	108.88
1	A	4	THR	CA-CB-OG1	5.55	117.92	109.60
1	A	83	ASN	CB-CA-C	-5.52	102.04	109.71
1	A	96	THR	CA-CB-CG2	-5.51	101.13	110.50
1	B	66	ILE	CA-CB-CG1	5.50	119.75	110.40
1	A	80	THR	OG1-CB-CG2	-5.48	98.34	109.30
1	B	60	ASP	CA-C-O	5.44	126.85	120.43
1	A	9	PRO	O-C-N	-5.42	115.32	122.64
1	A	64	ILE	CG1-CB-CG2	-5.41	94.47	110.70
1	B	24	LEU	N-CA-C	5.39	117.25	108.63
1	A	3	ILE	N-CA-CB	5.36	120.07	111.23
1	B	60	ASP	CB-CG-OD2	5.36	130.73	118.40
1	B	93	ILE	O-C-N	5.36	127.66	122.25
1	A	7	GLN	N-CA-C	-5.35	101.55	110.17
1	A	57	ARG	CB-CG-CD	5.35	123.61	111.30
1	A	4	THR	CA-C-N	-5.35	115.20	123.17
1	A	4	THR	C-N-CA	-5.35	115.20	123.17
1	A	65	GLU	CA-C-N	-5.34	115.56	122.99
1	A	65	GLU	C-N-CA	-5.34	115.56	122.99
1	B	36	VAL	CA-CB-CG1	5.33	119.47	110.40
1	A	43	LYS	CB-CA-C	-5.32	101.22	109.20
1	B	12	THR	CA-C-O	5.32	126.55	120.54
1	A	48	GLY	N-CA-C	-5.32	102.33	111.47
1	B	4	THR	O-C-N	-5.32	115.52	122.59
1	A	30	ASP	CB-CA-C	-5.30	99.80	110.30
1	A	32	VAL	CB-CA-C	-5.30	102.94	110.83
1	B	1	PRO	N-CA-CB	5.30	108.83	103.00
1	B	4	THR	CA-C-O	5.30	128.08	120.51
1	A	91	THR	CA-CB-OG1	-5.29	101.67	109.60
1	B	36	VAL	N-CA-CB	5.29	119.96	111.23
1	B	79	PRO	CA-C-O	5.29	130.23	120.60
1	B	74	THR	O-C-N	5.28	129.61	122.59
1	B	25	ASN	CB-CA-C	-5.28	104.00	111.76
1	A	64	ILE	CA-CB-CG2	5.27	119.46	110.50
1	A	37	ASN	N-CA-C	-5.27	100.81	109.40
1	B	98	ASN	N-CA-C	5.24	118.00	109.24
1	A	82	ALA	N-CA-CB	-5.24	101.64	110.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	30	ASP	N-CA-C	-5.21	101.49	109.41
1	A	54	VAL	O-C-N	5.19	128.85	122.72
1	B	13	ILE	CA-CB-CG2	-5.19	101.67	110.50
1	A	37	ASN	O-C-N	5.19	129.98	123.23
1	B	11	VAL	CA-C-O	-5.19	115.85	121.92
1	A	57	ARG	N-CA-C	5.15	118.00	109.46
1	B	47	ILE	CG1-CB-CG2	-5.14	95.28	110.70
1	B	89	LEU	CA-C-N	-5.14	112.50	120.31
1	B	89	LEU	C-N-CA	-5.14	112.50	120.31
1	B	45	LYS	CB-CA-C	5.13	120.87	109.94
1	A	89	LEU	CB-CG-CD2	5.12	126.05	110.70
1	B	33	LEU	N-CA-C	5.11	117.90	109.72
1	B	44	PRO	CB-CG-CD	-5.11	89.73	106.10
1	B	57	ARG	NE-CZ-NH1	-5.10	116.40	121.50
1	A	10	ILE	N-CA-CB	-5.10	104.87	110.99
1	B	21	GLU	CB-CG-CD	-5.09	103.94	112.60
1	A	8	ARG	CA-C-O	-5.09	114.71	119.80
1	A	66	ILE	CA-CB-CG1	5.09	119.05	110.40
1	A	29	ASP	CB-CG-OD1	-5.08	106.72	118.40
1	B	25	ASN	N-CA-C	5.07	117.33	107.71
1	B	54	VAL	CB-CA-C	-5.06	102.94	110.33
1	A	44	PRO	CB-CG-CD	-5.04	89.97	106.10
1	B	22	ALA	CA-C-O	-5.03	115.35	120.89
1	B	50	ILE	O-C-N	5.03	128.86	122.57
1	A	41	ARG	NE-CZ-NH2	5.03	123.73	119.20
1	B	15	ILE	O-C-N	-5.01	116.35	122.61

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	43	LYS	Mainchain
1	B	59	TYR	Sidechain
1	B	81	PRO	Peptide

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	755	0	799	119	0
1	B	755	0	799	140	2
2	B	46	0	47	22	0
3	A	36	0	0	0	2
All	All	1592	0	1645	239	2

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 75.

All (239) 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:1:PRO:CG	1:A:1:PRO:CD	1.76	1.61
1:B:64:ILE:CB	1:B:64:ILE:CG2	1.75	1.59
1:A:34:GLU:CD	1:A:34:GLU:CG	1.75	1.58
1:B:82:ALA:CB	1:B:82:ALA:CA	1.77	1.57
1:B:81:PRO:C	1:B:81:PRO:CA	1.76	1.56
1:B:14:LYS:CE	1:B:14:LYS:CD	1.75	1.56
1:B:80:THR:CB	1:B:80:THR:CA	1.78	1.55
1:A:35:GLU:CB	1:A:35:GLU:CG	1.78	1.55
1:B:61:GLN:CB	1:B:61:GLN:CG	1.76	1.55
1:A:1:PRO:CG	1:A:1:PRO:CB	1.86	1.52
1:B:50:ILE:CD1	1:B:50:ILE:CG1	1.89	1.51
1:A:34:GLU:CG	1:A:34:GLU:CB	1.84	1.51
1:B:20:LYS:CE	1:B:20:LYS:NZ	1.74	1.50
1:B:64:ILE:CD1	1:B:64:ILE:CG1	1.90	1.49
1:B:71:VAL:CB	1:B:71:VAL:CG2	1.90	1.48
1:B:14:LYS:CE	1:B:14:LYS:NZ	1.75	1.47
1:B:79:PRO:CB	1:B:79:PRO:CG	1.83	1.47
1:A:7:GLN:CD	1:A:7:GLN:CG	1.86	1.47
1:A:63:PRO:CD	1:A:63:PRO:CG	1.83	1.46
1:B:1:PRO:CD	1:B:1:PRO:CG	1.78	1.44
1:B:44:PRO:CG	1:B:44:PRO:CB	1.82	1.36
1:B:49:GLY:O	1:B:50:ILE:HG23	1.29	1.26
1:B:15:ILE:HD13	1:B:16:GLY:N	1.49	1.25
1:B:81:PRO:HG2	2:B:1001:AB1:C37	1.87	1.03
1:B:82:ALA:HB3	2:B:1001:AB1:C1	1.87	1.03
1:B:81:PRO:CG	2:B:1001:AB1:H6	1.92	0.98
1:A:95:CYS:HA	1:B:98:ASN:O	1.63	0.97
1:B:49:GLY:O	1:B:50:ILE:CG2	2.13	0.95
1:B:80:THR:HG23	1:B:82:ALA:O	1.68	0.94
1:A:34:GLU:HA	1:A:80:THR:HG22	1.50	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:81:PRO:HG2	2:B:1001:AB1:H6	0.96	0.90
1:A:58:GLN:NE2	1:A:60:ASP:OD1	2.06	0.89
1:B:82:ALA:HB3	2:B:1001:AB1:C37	2.02	0.88
1:B:82:ALA:HB3	2:B:1001:AB1:H3	1.55	0.88
1:B:82:ALA:HB3	2:B:1001:AB1:H7	1.54	0.88
1:A:80:THR:OG1	2:B:1001:AB1:H43	1.73	0.88
1:B:34:GLU:O	1:B:35:GLU:O	1.92	0.86
1:B:15:ILE:HD13	1:B:16:GLY:H	1.40	0.84
1:A:98:ASN:HD22	1:B:98:ASN:CG	1.85	0.83
1:A:99:PHE:OXT	1:B:1:PRO:HD2	1.80	0.82
1:A:87:ARG:O	1:A:91:THR:HG23	1.82	0.80
1:A:73:GLY:O	1:A:75:VAL:HG23	1.83	0.79
1:A:15:ILE:HG23	1:A:15:ILE:O	1.81	0.78
1:A:34:GLU:HG3	1:A:35:GLU:O	1.83	0.78
1:B:35:GLU:CD	1:B:57:ARG:HH12	1.90	0.78
1:A:25:ASN:HB3	1:A:28:ALA:HB3	1.65	0.78
1:B:29:ASP:OD1	1:B:87:ARG:NH2	2.17	0.78
1:B:15:ILE:HD13	1:B:15:ILE:C	2.09	0.77
1:B:82:ALA:CB	2:B:1001:AB1:H3	2.15	0.76
1:B:64:ILE:CG2	1:B:64:ILE:CG1	2.63	0.76
1:B:20:LYS:HZ1	1:B:36:VAL:HB	1.50	0.76
1:A:20:LYS:HE3	1:A:36:VAL:HG21	1.66	0.75
1:B:61:GLN:CB	1:B:61:GLN:CD	2.58	0.75
1:B:32:VAL:H	1:B:84:VAL:HG12	1.51	0.74
1:B:5:LEU:C	1:B:7:GLN:H	1.97	0.73
1:B:82:ALA:CB	2:B:1001:AB1:H7	2.19	0.72
1:B:15:ILE:CD1	1:B:16:GLY:N	2.42	0.70
1:A:20:LYS:CE	1:A:36:VAL:HG21	2.22	0.70
1:A:67:CYS:C	1:A:69:HIS:H	1.99	0.70
1:A:35:GLU:CG	1:A:35:GLU:H	2.06	0.68
1:A:35:GLU:CG	1:A:35:GLU:CA	2.70	0.68
1:B:71:VAL:CG2	1:B:71:VAL:CA	2.72	0.68
1:A:15:ILE:HD13	1:A:33:LEU:HD22	1.76	0.68
1:B:64:ILE:C	1:B:64:ILE:HD13	2.20	0.67
1:A:98:ASN:HD22	1:B:98:ASN:ND2	1.92	0.67
1:A:80:THR:HG23	1:A:80:THR:O	1.93	0.67
1:B:80:THR:CG2	1:B:82:ALA:O	2.42	0.67
1:B:47:ILE:HD11	1:B:56:VAL:HG21	1.77	0.66
1:B:16:GLY:C	1:B:18:GLN:H	2.03	0.66
1:A:19:LEU:HD12	1:A:19:LEU:N	2.09	0.66
1:B:47:ILE:HD11	1:B:56:VAL:CG2	2.26	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:61:GLN:CG	1:B:61:GLN:CA	2.71	0.65
1:B:82:ALA:CA	2:B:1001:AB1:H3	2.27	0.65
1:B:46:LEU:N	1:B:46:LEU:HD12	2.12	0.65
1:A:25:ASN:OD1	1:B:27:GLY:HA3	1.97	0.65
1:A:63:PRO:N	1:A:72:ILE:HG13	2.12	0.65
1:A:34:GLU:HA	1:A:80:THR:CG2	2.24	0.64
1:B:20:LYS:NZ	1:B:36:VAL:HB	2.11	0.64
1:B:70:LYS:HB3	1:B:70:LYS:HZ2	1.61	0.64
1:A:8:ARG:HG3	1:B:87:ARG:NH2	2.13	0.64
1:A:15:ILE:O	1:A:15:ILE:CG2	2.38	0.64
1:B:35:GLU:OE1	1:B:57:ARG:NH1	2.30	0.64
1:A:1:PRO:CG	1:A:1:PRO:CA	2.74	0.63
1:B:80:THR:CA	1:B:80:THR:HB	2.15	0.63
1:A:7:GLN:CD	1:A:7:GLN:CB	2.70	0.63
1:B:70:LYS:HZ2	1:B:70:LYS:CB	2.09	0.62
1:A:42:TRP:CE3	1:A:42:TRP:C	2.77	0.62
1:A:81:PRO:O	1:A:82:ALA:HB2	1.98	0.62
1:A:2:GLN:HG3	1:B:98:ASN:OD1	1.98	0.62
1:B:45:LYS:C	1:B:46:LEU:HD12	2.24	0.62
1:A:98:ASN:O	1:B:95:CYS:HA	2.00	0.62
1:A:42:TRP:HE3	1:A:43:LYS:N	1.98	0.61
1:B:71:VAL:HG22	1:B:72:ILE:H	1.64	0.61
1:B:43:LYS:HE3	1:B:60:ASP:OD2	2.01	0.61
1:A:63:PRO:C	1:A:64:ILE:HG13	2.26	0.60
1:B:84:VAL:CG2	2:B:1001:AB1:O1	2.50	0.60
1:A:35:GLU:CG	1:A:35:GLU:N	2.64	0.60
1:A:66:ILE:O	1:A:69:HIS:HB2	2.01	0.60
1:B:47:ILE:N	1:B:47:ILE:HD13	2.16	0.60
1:B:66:ILE:O	1:B:68:GLY:N	2.35	0.59
1:A:62:VAL:C	1:A:72:ILE:HG13	2.27	0.59
1:B:81:PRO:C	1:B:81:PRO:CB	2.73	0.59
1:A:1:PRO:HD2	1:B:99:PHE:OXT	2.03	0.59
1:A:49:GLY:HA2	1:A:52:GLY:O	2.02	0.58
1:B:54:VAL:HG23	1:B:54:VAL:O	2.02	0.58
1:B:81:PRO:CA	1:B:82:ALA:N	2.62	0.57
1:A:15:ILE:HD12	1:A:64:ILE:HG23	1.86	0.57
1:B:84:VAL:HG21	2:B:1001:AB1:O1	2.04	0.57
1:A:7:GLN:OE1	1:A:7:GLN:N	2.38	0.57
1:B:66:ILE:O	1:B:67:CYS:C	2.47	0.57
1:A:72:ILE:O	1:A:72:ILE:HG23	2.03	0.57
1:B:53:PHE:CD1	1:B:53:PHE:N	2.72	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:49:GLY:HA3	1:A:53:PHE:CD1	2.41	0.56
1:A:33:LEU:C	1:A:34:GLU:O	2.41	0.56
1:B:5:LEU:C	1:B:7:GLN:N	2.59	0.56
1:B:80:THR:CA	1:B:80:THR:CG2	2.74	0.55
1:A:42:TRP:HE3	1:A:43:LYS:CA	2.19	0.55
1:B:15:ILE:C	1:B:15:ILE:CD1	2.75	0.55
1:B:34:GLU:OE2	1:B:79:PRO:HA	2.06	0.55
1:A:72:ILE:O	1:A:72:ILE:CG2	2.55	0.55
1:B:64:ILE:HD11	1:B:66:ILE:HG12	1.89	0.55
1:B:98:ASN:ND2	1:B:98:ASN:N	2.53	0.55
1:B:16:GLY:C	1:B:18:GLN:N	2.65	0.54
1:A:42:TRP:HZ3	1:A:44:PRO:HD3	1.72	0.54
1:A:29:ASP:OD1	1:A:29:ASP:C	2.46	0.54
1:A:22:ALA:HB1	1:A:85:ILE:HG13	1.89	0.54
1:A:67:CYS:C	1:A:69:HIS:N	2.66	0.54
1:B:88:ASN:O	1:B:92:GLN:HG2	2.08	0.54
1:A:49:GLY:HA3	1:A:53:PHE:CE1	2.43	0.54
1:B:9:PRO:HB2	1:B:24:LEU:HB2	1.90	0.53
1:B:81:PRO:HG2	2:B:1001:AB1:C1	2.37	0.53
1:A:34:GLU:CG	1:A:35:GLU:O	2.54	0.53
1:A:80:THR:C	1:A:82:ALA:H	2.17	0.53
1:A:45:LYS:HG2	1:A:76:LEU:HD22	1.89	0.53
1:A:35:GLU:H	1:A:35:GLU:HG2	1.73	0.52
1:B:64:ILE:CG2	1:B:64:ILE:CA	2.82	0.52
1:B:82:ALA:HB3	2:B:1001:AB1:N2	2.24	0.52
1:A:4:THR:HA	1:B:96:THR:HG22	1.93	0.51
1:A:99:PHE:CE2	1:B:1:PRO:HG2	2.45	0.51
1:B:66:ILE:C	1:B:68:GLY:N	2.63	0.51
1:A:18:GLN:C	1:A:19:LEU:HD12	2.35	0.51
1:B:80:THR:CB	1:B:80:THR:C	2.75	0.51
1:B:8:ARG:O	1:B:10:ILE:N	2.43	0.51
1:A:98:ASN:HB2	1:B:98:ASN:ND2	2.26	0.51
1:B:87:ARG:O	1:B:91:THR:HG23	2.11	0.50
1:A:93:ILE:HD11	1:A:95:CYS:HB2	1.94	0.50
1:A:98:ASN:ND2	1:B:98:ASN:ND2	2.58	0.50
1:B:47:ILE:HG12	1:B:54:VAL:CG2	2.42	0.50
1:A:41:ARG:HG3	1:A:42:TRP:N	2.26	0.50
1:A:12:THR:OG1	1:A:21:GLU:OE1	2.26	0.50
1:A:50:ILE:HG13	2:B:1001:AB1:H20	1.93	0.50
1:B:81:PRO:C	1:B:81:PRO:HA	2.15	0.49
1:A:82:ALA:O	2:B:1001:AB1:H42	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:49:GLY:HA2	1:A:52:GLY:C	2.37	0.49
1:A:21:GLU:OE1	1:A:21:GLU:HA	2.13	0.49
1:A:1:PRO:CG	1:A:1:PRO:N	2.69	0.49
1:B:35:GLU:HA	1:B:77:VAL:CG1	2.43	0.49
1:A:34:GLU:CG	1:A:34:GLU:C	2.86	0.48
1:B:15:ILE:HD13	1:B:16:GLY:CA	2.40	0.48
1:B:20:LYS:NZ	1:B:20:LYS:CD	2.71	0.48
1:A:93:ILE:HD12	1:B:99:PHE:CD2	2.49	0.48
1:A:42:TRP:C	1:A:42:TRP:CD2	2.88	0.48
1:B:82:ALA:CB	1:B:82:ALA:C	2.79	0.47
1:A:60:ASP:HA	1:A:74:THR:HA	1.97	0.47
1:A:99:PHE:OXT	1:B:1:PRO:CD	2.58	0.47
1:B:98:ASN:O	1:B:99:PHE:HB3	2.14	0.47
1:B:66:ILE:C	1:B:68:GLY:H	2.23	0.47
1:B:64:ILE:CB	1:B:64:ILE:CD1	2.87	0.47
1:A:43:LYS:HB2	1:A:43:LYS:NZ	2.29	0.47
1:A:49:GLY:CA	1:A:52:GLY:O	2.63	0.47
1:A:87:ARG:HD2	1:B:5:LEU:HB3	1.96	0.47
1:A:99:PHE:HD2	1:B:69:HIS:CE1	2.32	0.47
1:B:47:ILE:O	1:B:48:GLY:O	2.31	0.47
1:B:82:ALA:N	2:B:1001:AB1:H3	2.30	0.47
1:B:88:ASN:ND2	1:B:89:LEU:HG	2.29	0.47
1:A:25:ASN:HB3	1:A:28:ALA:CB	2.40	0.47
1:B:60:ASP:O	1:B:61:GLN:C	2.50	0.47
1:B:34:GLU:C	1:B:35:GLU:O	2.58	0.46
1:B:64:ILE:CD1	1:B:64:ILE:C	2.89	0.46
1:A:35:GLU:O	1:A:36:VAL:HG23	2.15	0.46
1:B:80:THR:CB	1:B:80:THR:HA	2.20	0.46
1:A:46:LEU:C	1:A:47:ILE:HG23	2.41	0.46
1:A:43:LYS:O	1:A:58:GLN:HB3	2.15	0.45
1:A:98:ASN:ND2	1:B:98:ASN:CG	2.66	0.45
1:B:47:ILE:CD1	1:B:56:VAL:CG2	2.94	0.45
1:A:97:LEU:HD22	1:B:5:LEU:HD21	1.98	0.45
1:A:89:LEU:HD13	1:A:89:LEU:HA	1.81	0.45
1:B:53:PHE:H	1:B:53:PHE:HD1	1.65	0.45
1:B:71:VAL:CG2	1:B:71:VAL:HB	2.24	0.45
1:A:19:LEU:N	1:A:19:LEU:CD1	2.77	0.44
1:A:80:THR:OG1	1:A:82:ALA:O	2.34	0.44
1:A:34:GLU:CA	1:A:80:THR:CG2	2.93	0.44
1:A:36:VAL:CG1	1:A:37:ASN:N	2.75	0.44
1:B:47:ILE:HB	1:B:48:GLY:H	1.67	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:80:THR:CB	1:B:80:THR:N	2.68	0.44
1:B:81:PRO:CD	2:B:1001:AB1:H21	2.48	0.44
1:B:36:VAL:HG13	1:B:36:VAL:O	2.18	0.44
1:B:97:LEU:C	1:B:98:ASN:ND2	2.76	0.44
1:A:35:GLU:N	1:A:35:GLU:HG2	2.31	0.44
1:A:72:ILE:HG21	1:A:72:ILE:HD13	1.67	0.44
1:A:46:LEU:C	1:A:47:ILE:CG2	2.91	0.44
1:B:11:VAL:HB	1:B:67:CYS:SG	2.57	0.43
1:B:46:LEU:N	1:B:46:LEU:CD1	2.79	0.43
1:A:42:TRP:CE3	1:A:43:LYS:CA	3.00	0.43
1:A:87:ARG:CD	1:B:5:LEU:HB3	2.48	0.43
1:A:83:ASN:C	1:A:84:VAL:CG2	2.91	0.43
1:B:47:ILE:HG23	1:B:47:ILE:HD12	1.34	0.43
1:B:47:ILE:HG12	1:B:54:VAL:HG21	2.01	0.43
1:A:62:VAL:HA	1:A:63:PRO:HD2	1.79	0.43
1:B:47:ILE:HD11	1:B:56:VAL:HG22	1.99	0.42
1:A:33:LEU:HD12	1:A:33:LEU:N	2.34	0.42
1:A:46:LEU:HD22	1:A:53:PHE:HB2	2.00	0.42
1:B:66:ILE:HG13	1:B:93:ILE:HG21	2.01	0.42
1:A:64:ILE:HD11	1:A:75:VAL:CG2	2.50	0.42
1:A:88:ASN:ND2	1:A:89:LEU:HD22	2.35	0.42
1:A:83:ASN:C	1:A:84:VAL:HG23	2.44	0.42
1:A:34:GLU:CA	1:A:80:THR:HG22	2.35	0.42
1:A:42:TRP:CE3	1:A:43:LYS:N	2.81	0.42
1:B:31:THR:HG23	1:B:84:VAL:O	2.19	0.42
1:A:42:TRP:CE2	1:A:57:ARG:HD2	2.55	0.41
1:B:15:ILE:HG12	1:B:64:ILE:HB	2.01	0.41
1:A:4:THR:H	1:A:4:THR:HG23	1.32	0.41
1:B:41:ARG:CZ	1:B:41:ARG:HB3	2.50	0.41
1:B:47:ILE:CD1	1:B:56:VAL:HG22	2.50	0.41
1:B:84:VAL:HG23	2:B:1001:AB1:O1	2.19	0.41
1:A:34:GLU:O	1:A:35:GLU:C	2.63	0.41
1:A:71:VAL:HG13	1:A:72:ILE:N	2.34	0.41
1:A:80:THR:OG1	2:B:1001:AB1:C33	2.58	0.41
1:A:67:CYS:O	1:A:69:HIS:N	2.54	0.41
1:A:90:MET:HB3	1:A:95:CYS:HB3	2.02	0.41
1:B:6:TRP:O	1:B:7:GLN:HG3	2.20	0.41
1:B:22:ALA:HB3	1:B:85:ILE:HD11	2.03	0.41
1:B:33:LEU:HD12	1:B:75:VAL:HG11	2.03	0.41
1:A:31:THR:HG23	1:A:84:VAL:O	2.21	0.40
1:A:80:THR:C	1:A:82:ALA:N	2.79	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:33:LEU:O	1:A:34:GLU:O	2.39	0.40
1:B:70:LYS:HZ3	1:B:70:LYS:HG2	1.48	0.40
1:A:21:GLU:O	1:A:83:ASN:HB2	2.21	0.40
1:B:81:PRO:HD2	2:B:1001:AB1:H21	2.03	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:42:TRP:O	3:A:118:HOH:O[3_565]	1.64	0.56
1:B:41:ARG:NH1	3:A:125:HOH:O[3_565]	2.16	0.04

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	97/99 (98%)	81 (84%)	13 (13%)	3 (3%)	3	8
1	B	97/99 (98%)	77 (79%)	11 (11%)	9 (9%)	0	0
All	All	194/198 (98%)	158 (81%)	24 (12%)	12 (6%)	1	2

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	34	GLU
1	A	81	PRO
1	B	35	GLU
1	B	36	VAL
1	B	50	ILE
1	B	82	ALA
1	A	82	ALA
1	B	17	GLY

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Mol	Chain	Res	Type
1	B	67	CYS
1	B	74	THR
1	B	81	PRO
1	B	79	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	83/83 (100%)	67 (81%)	16 (19%)	1	4
1	B	83/83 (100%)	65 (78%)	18 (22%)	1	3
All	All	166/166 (100%)	132 (80%)	34 (20%)	1	3

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	THR
1	A	12	THR
1	A	13	ILE
1	A	20	LYS
1	A	21	GLU
1	A	32	VAL
1	A	35	GLU
1	A	41	ARG
1	A	43	LYS
1	A	54	VAL
1	A	63	PRO
1	A	66	ILE
1	A	71	VAL
1	A	76	LEU
1	A	89	LEU
1	A	97	LEU
1	B	5	LEU
1	B	13	ILE
1	B	15	ILE

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Mol	Chain	Res	Type
1	B	21	GLU
1	B	24	LEU
1	B	34	GLU
1	B	36	VAL
1	B	37	ASN
1	B	41	ARG
1	B	44	PRO
1	B	47	ILE
1	B	50	ILE
1	B	53	PHE
1	B	54	VAL
1	B	64	ILE
1	B	66	ILE
1	B	70	LYS
1	B	84	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	88	ASN
1	A	98	ASN
1	B	69	HIS
1	B	92	GLN
1	B	98	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

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	$\# Z > 2$
2	AB1	B	1001	-	49,49,49	4.69	32 (65%)	60,66,66	3.24	33 (55%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	AB1	B	1001	-	-	4/41/52/52	0/4/4/4

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1001	AB1	C28-C34	16.39	1.68	1.40
2	B	1001	AB1	C28-C30	12.52	1.61	1.40
2	B	1001	AB1	C9-C4	8.34	1.55	1.38
2	B	1001	AB1	C5-C4	7.87	1.54	1.38
2	B	1001	AB1	C17-C16	6.75	1.53	1.38
2	B	1001	AB1	C19-C20	6.47	1.51	1.38
2	B	1001	AB1	C32-C31	6.19	1.49	1.38
2	B	1001	AB1	C6-C5	6.18	1.49	1.38
2	B	1001	AB1	C8-C9	5.47	1.48	1.38
2	B	1001	AB1	C29-C4	5.25	1.63	1.51
2	B	1001	AB1	C35-C34	-4.86	1.41	1.51
2	B	1001	AB1	C32-C33	4.85	1.47	1.38
2	B	1001	AB1	C8-C7	4.74	1.48	1.38
2	B	1001	AB1	C27-C26	4.56	1.60	1.51
2	B	1001	AB1	C13-C10	4.04	1.64	1.54
2	B	1001	AB1	C31-C30	-3.84	1.32	1.39
2	B	1001	AB1	O3-C28	3.79	1.46	1.39
2	B	1001	AB1	C21-C20	3.77	1.46	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1001	AB1	C26-N4	3.71	1.41	1.34
2	B	1001	AB1	C15-C13	3.59	1.65	1.52
2	B	1001	AB1	C10-C11	-3.53	1.48	1.53
2	B	1001	AB1	C16-C21	3.28	1.44	1.38
2	B	1001	AB1	O3-C27	3.28	1.50	1.42
2	B	1001	AB1	O4-C24	-3.20	1.36	1.43
2	B	1001	AB1	C18-C19	2.86	1.43	1.38
2	B	1001	AB1	O2-C11	-2.76	1.18	1.23
2	B	1001	AB1	C22-C20	2.68	1.57	1.51
2	B	1001	AB1	C11-N3	-2.64	1.28	1.34
2	B	1001	AB1	O5-C26	2.39	1.28	1.23
2	B	1001	AB1	C12-N3	2.28	1.51	1.46
2	B	1001	AB1	C14-C13	2.27	1.60	1.52
2	B	1001	AB1	C7-C6	2.04	1.42	1.38

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1001	AB1	C33-C32-C31	9.52	132.49	120.24
2	B	1001	AB1	C16-C21-C20	-6.63	111.29	120.61
2	B	1001	AB1	C36-C30-C28	6.04	130.48	120.80
2	B	1001	AB1	C32-C33-C34	-5.64	112.28	121.14
2	B	1001	AB1	C17-C16-C21	5.51	127.03	120.24
2	B	1001	AB1	C27-O3-C28	5.45	130.69	114.78
2	B	1001	AB1	O2-C11-N3	5.34	132.53	122.96
2	B	1001	AB1	C2-C37-C1	5.19	129.59	111.47
2	B	1001	AB1	C27-C26-N4	-5.14	107.53	116.41
2	B	1001	AB1	C17-C18-C19	-4.58	114.59	120.24
2	B	1001	AB1	C1-N2-C3	4.56	135.72	124.36
2	B	1001	AB1	C22-C20-C21	-4.52	112.50	120.90
2	B	1001	AB1	C18-C19-C20	4.36	126.75	120.61
2	B	1001	AB1	C37-C1-N2	-4.33	100.79	110.19
2	B	1001	AB1	C12-N3-C11	-3.90	117.01	123.29
2	B	1001	AB1	C2-N1-C10	-3.40	113.58	117.52
2	B	1001	AB1	C10-C11-N3	-3.37	109.54	115.59
2	B	1001	AB1	C7-C8-C9	3.30	124.31	120.24
2	B	1001	AB1	O1-C3-N1	3.23	126.99	123.10
2	B	1001	AB1	C22-C20-C19	3.12	126.71	120.90
2	B	1001	AB1	C23-C12-C22	-2.98	109.09	112.44
2	B	1001	AB1	C25-N4-C26	-2.96	118.47	123.40
2	B	1001	AB1	C8-C9-C4	-2.81	116.66	120.61
2	B	1001	AB1	O5-C26-N4	2.74	127.58	122.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1001	AB1	C29-C25-C24	2.71	116.07	111.66
2	B	1001	AB1	C35-C34-C28	2.71	125.14	120.80
2	B	1001	AB1	C22-C12-N3	2.59	115.28	110.34
2	B	1001	AB1	C31-C30-C28	-2.59	113.64	117.75
2	B	1001	AB1	C20-C22-C12	-2.43	108.36	113.71
2	B	1001	AB1	C35-C34-C33	-2.38	115.68	120.28
2	B	1001	AB1	C36-C30-C31	-2.30	115.85	120.28
2	B	1001	AB1	O1-C3-N2	-2.26	116.40	123.65
2	B	1001	AB1	C29-C25-N4	-2.17	107.00	110.08

There are no chirality outliers.

All (4) torsion outliers are listed below:

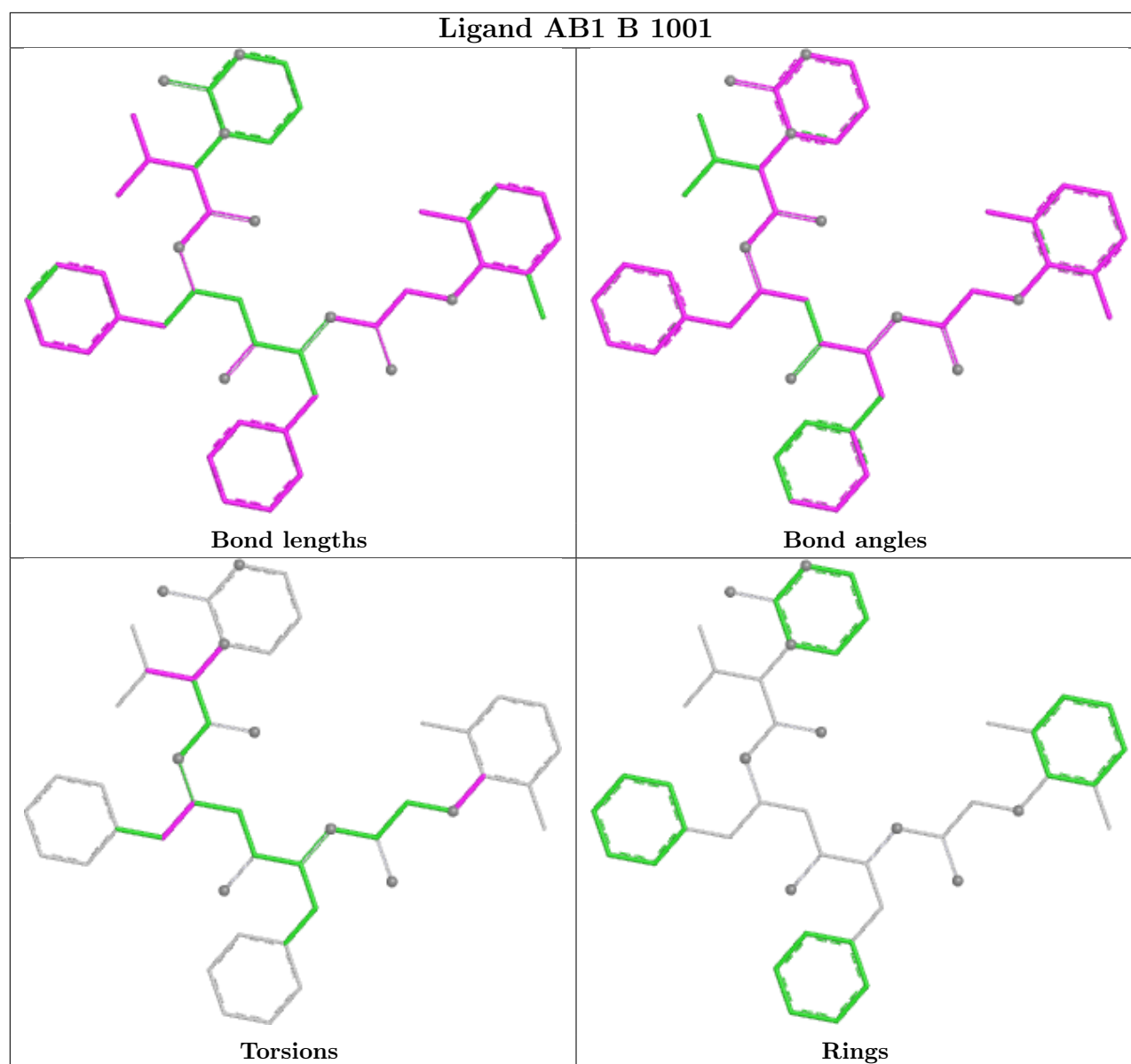
Mol	Chain	Res	Type	Atoms
2	B	1001	AB1	C13-C10-N1-C2
2	B	1001	AB1	C34-C28-O3-C27
2	B	1001	AB1	C11-C10-C13-C14
2	B	1001	AB1	N3-C12-C22-C20

There are no ring outliers.

1 monomer is involved in 22 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	1001	AB1	22	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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	90:MET	C	91:THR	N	1.18

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.