



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 11:37 AM UTC

PDB ID : 2YYA / pdb_00002yya
Title : Crystal structure of GAR synthetase from Aquifex aeolicus
Authors : Baba, S.; Kanagawa, M.; Kuramitsu, S.; Yokoyama, S.; Kawai, G.; Sampei, G.; RIKEN Structural Genomics/Proteomics Initiative (RSGI)
Deposited on : 2007-04-27
Resolution : 2.40 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
Xtriage (Phenix)	:	2.0
EDS	:	3.0
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

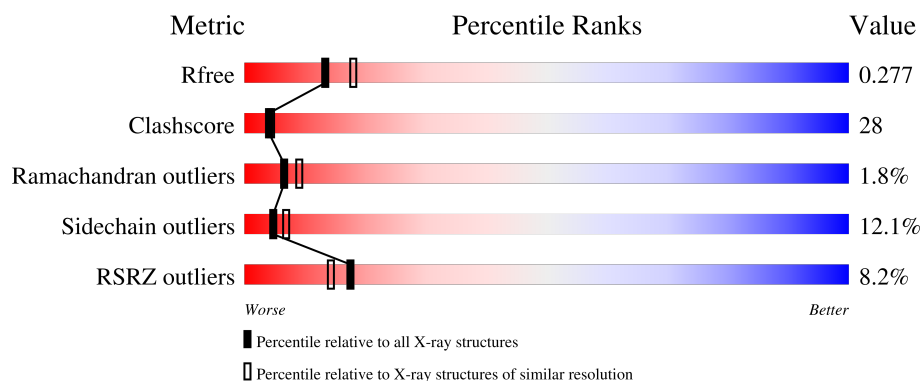
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 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	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

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	424	<div> <div>7%</div> <div>33%</div> <div>43%</div> <div>20%</div> <div>.</div> </div>
1	B	424	<div> <div>9%</div> <div>34%</div> <div>41%</div> <div>18%</div> <div>6%</div> </div>

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 6553 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 Phosphoribosylamine--glycine ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	423	Total	C	N	O	S	0	0	0
			3236	2069	548	608	11			
1	B	423	Total	C	N	O	S	0	0	0
			3228	2065	548	604	11			

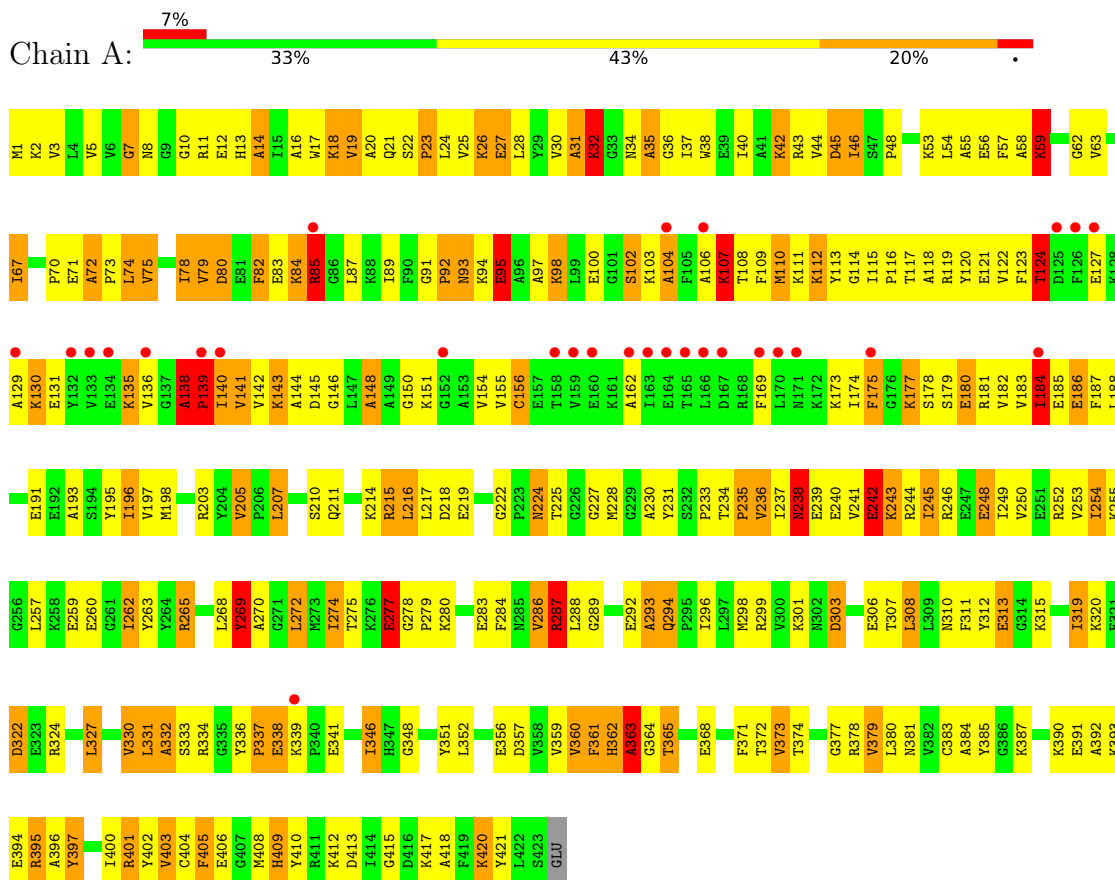
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	38	Total	O	0	0
			38	38		
2	B	51	Total	O	0	0
			51	51		

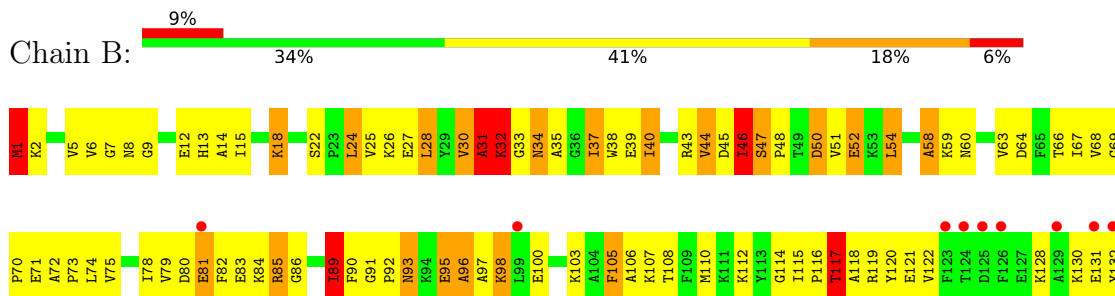
3 Residue-property plots

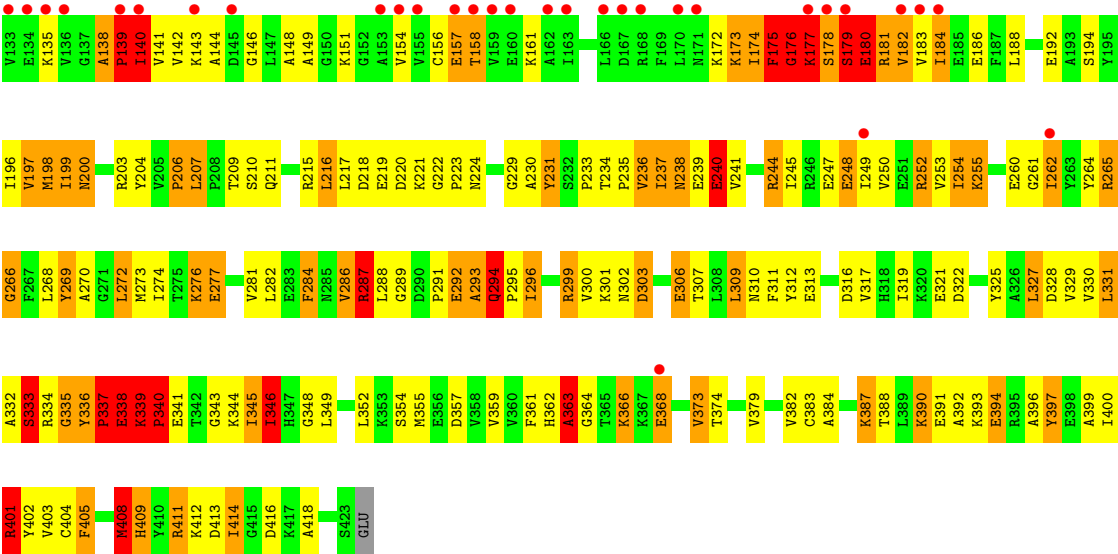
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Phosphoribosylamine--glycine ligase



• Molecule 1: Phosphoribosylamine--glycine ligase





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	97.26Å 45.15Å 103.48Å 90.00° 103.87° 90.00°	Depositor
Resolution (Å)	49.55 – 2.40 49.55 – 2.40	Depositor EDS
% Data completeness (in resolution range)	92.9 (49.55-2.40) 97.2 (49.55-2.40)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.10 (at 2.39Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.225 , 0.249 0.228 , 0.277	Depositor DCC
R_{free} test set	1694 reflections (4.80%)	wwPDB-VP
Wilson B-factor (Å ²)	34.6	Xtriage
Anisotropy	1.100	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 51.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	6553	wwPDB-VP
Average B, all atoms (Å ²)	51.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.32% 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

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	2.22	122/3297 (3.7%)	2.16	139/4447 (3.1%)
1	B	2.17	121/3289 (3.7%)	2.15	165/4436 (3.7%)
All	All	2.20	243/6586 (3.7%)	2.15	304/8883 (3.4%)

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	A	0	5
1	B	0	11
All	All	0	16

All (243) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	284	PHE	CA-C	-10.91	1.39	1.52
1	A	31	ALA	CA-C	-10.64	1.40	1.53
1	B	183	VAL	C-N	10.53	1.45	1.33
1	A	379	VAL	CA-CB	9.84	1.64	1.55
1	A	2	LYS	C-O	-9.77	1.12	1.24
1	A	337	PRO	C-N	9.61	1.45	1.33
1	B	336	TYR	CA-C	9.44	1.62	1.53
1	A	205	VAL	C-O	8.90	1.31	1.23
1	A	19	VAL	CA-CB	8.83	1.65	1.54
1	A	217	LEU	C-N	8.75	1.45	1.33
1	A	174	ILE	C-N	8.59	1.45	1.33
1	A	409	HIS	C-O	-8.56	1.13	1.23
1	A	332	ALA	C-O	8.48	1.33	1.23
1	A	25	VAL	CA-CB	8.46	1.65	1.54
1	A	18	LYS	C-O	-8.34	1.14	1.24
1	A	338	GLU	C-N	-8.34	1.22	1.33

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	359	VAL	CA-CB	8.29	1.65	1.54
1	A	43	ARG	N-CA	-8.24	1.36	1.46
1	B	135	LYS	C-N	8.22	1.41	1.33
1	A	224	ASN	N-CA	-8.21	1.36	1.46
1	A	401	ARG	C-O	8.20	1.34	1.24
1	B	338	GLU	CA-C	-8.03	1.47	1.52
1	A	237	ILE	C-N	8.01	1.45	1.33
1	B	117	THR	CA-CB	7.88	1.64	1.53
1	B	199	ILE	CA-CB	7.86	1.64	1.54
1	A	239	GLU	C-N	7.83	1.44	1.33
1	B	175	PHE	C-N	7.81	1.44	1.33
1	B	157	GLU	C-O	7.76	1.33	1.24
1	B	37	ILE	C-O	7.65	1.34	1.24
1	B	70	PRO	N-CA	7.51	1.54	1.46
1	A	363	ALA	C-O	7.51	1.33	1.24
1	A	330	VAL	CA-CB	7.46	1.62	1.54
1	B	25	VAL	CA-CB	7.45	1.63	1.54
1	B	363	ALA	C-O	7.41	1.33	1.24
1	A	193	ALA	CA-CB	-7.37	1.41	1.53
1	B	411	ARG	C-O	7.37	1.32	1.23
1	B	374	THR	C-O	7.29	1.32	1.23
1	A	30	VAL	CA-C	7.28	1.61	1.52
1	B	292	GLU	C-N	-7.26	1.24	1.34
1	A	44	VAL	C-O	-7.23	1.16	1.24
1	A	313	GLU	CA-C	-7.22	1.43	1.53
1	B	328	ASP	C-O	7.16	1.32	1.24
1	A	11	ARG	N-CA	7.15	1.55	1.46
1	B	46	ILE	CA-CB	7.11	1.63	1.54
1	A	55	ALA	CA-CB	-7.05	1.42	1.53
1	A	135	LYS	C-N	7.03	1.42	1.33
1	A	406	GLU	CA-C	-7.01	1.44	1.52
1	A	59	LYS	N-CA	6.99	1.54	1.46
1	B	183	VAL	CA-CB	6.94	1.62	1.54
1	B	39	GLU	N-CA	-6.92	1.37	1.46
1	A	327	LEU	C-O	6.91	1.32	1.23
1	B	131	GLU	C-O	6.91	1.33	1.24
1	B	197	VAL	N-CA	-6.91	1.38	1.46
1	B	132	TYR	C-N	6.90	1.42	1.33
1	A	214	LYS	C-O	-6.90	1.15	1.24
1	B	13	HIS	C-O	6.83	1.32	1.24
1	A	148	ALA	C-N	6.81	1.43	1.33
1	B	299	ARG	CA-CB	6.77	1.65	1.53

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	231	TYR	N-CA	6.77	1.54	1.45
1	B	262	ILE	CA-CB	6.76	1.61	1.54
1	B	248	GLU	C-N	6.76	1.42	1.33
1	B	349	LEU	C-O	6.74	1.32	1.24
1	A	187	PHE	CA-C	6.73	1.61	1.52
1	A	245	ILE	CA-CB	6.69	1.63	1.54
1	A	303	ASP	C-O	-6.68	1.15	1.24
1	A	277	GLU	N-CA	6.65	1.54	1.46
1	A	320	LYS	N-CA	6.64	1.54	1.46
1	B	239	GLU	CA-C	6.60	1.61	1.52
1	B	409	HIS	CA-C	6.58	1.60	1.52
1	A	58	ALA	CA-CB	-6.53	1.43	1.53
1	A	35	ALA	C-O	6.51	1.32	1.24
1	A	17	TRP	C-O	6.49	1.31	1.24
1	B	384	ALA	N-CA	-6.49	1.37	1.45
1	B	181	ARG	C-N	6.45	1.42	1.33
1	B	300	VAL	CA-CB	6.45	1.61	1.53
1	B	198	MET	CA-C	6.45	1.61	1.52
1	A	293	ALA	N-CA	6.45	1.54	1.46
1	B	403	VAL	CA-CB	6.44	1.66	1.55
1	A	373	VAL	CA-C	6.39	1.60	1.52
1	B	352	LEU	C-O	6.39	1.32	1.24
1	B	382	VAL	CA-CB	-6.36	1.46	1.53
1	B	217	LEU	C-N	6.35	1.42	1.33
1	A	106	ALA	C-N	-6.33	1.25	1.33
1	A	79	VAL	N-CA	6.33	1.54	1.46
1	B	207	LEU	N-CA	-6.32	1.38	1.45
1	B	40	ILE	C-N	-6.32	1.25	1.33
1	A	197	VAL	N-CA	-6.31	1.39	1.46
1	B	343	GLY	C-O	-6.30	1.15	1.23
1	B	18	LYS	C-O	-6.28	1.16	1.24
1	B	158	THR	C-N	6.28	1.42	1.33
1	B	66	THR	CA-CB	6.27	1.64	1.53
1	B	128	LYS	C-O	6.26	1.32	1.24
1	A	42	LYS	CA-CB	-6.25	1.43	1.53
1	A	207	LEU	C-O	6.24	1.30	1.24
1	A	23	PRO	C-O	6.24	1.32	1.24
1	A	378	ARG	CA-C	-6.24	1.45	1.52
1	A	40	ILE	C-O	-6.22	1.15	1.24
1	B	176	GLY	C-N	6.22	1.43	1.33
1	B	328	ASP	CG-OD1	-6.21	1.13	1.25
1	B	31	ALA	CA-C	-6.20	1.45	1.53

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	87	LEU	N-CA	6.19	1.53	1.46
1	A	124	THR	CA-CB	6.18	1.63	1.54
1	A	324	ARG	N-CA	6.18	1.53	1.46
1	A	5	VAL	CA-CB	6.17	1.62	1.54
1	A	23	PRO	N-CA	6.15	1.55	1.47
1	A	75	VAL	CA-CB	6.15	1.61	1.54
1	A	130	LYS	C-O	6.14	1.31	1.24
1	B	196	ILE	CA-CB	6.13	1.62	1.54
1	B	141	VAL	CA-CB	6.11	1.62	1.54
1	B	329	VAL	C-O	-6.11	1.17	1.24
1	B	355	MET	CA-C	-6.10	1.45	1.52
1	A	110	MET	CA-C	-6.10	1.44	1.52
1	B	181	ARG	N-CA	6.10	1.54	1.46
1	B	405	PHE	CA-CB	6.10	1.64	1.53
1	A	293	ALA	C-O	-6.09	1.17	1.24
1	A	378	ARG	N-CA	-6.06	1.38	1.46
1	B	200	ASN	CA-C	6.06	1.62	1.53
1	B	269	TYR	N-CA	-6.06	1.38	1.46
1	A	306	GLU	C-O	-6.05	1.17	1.24
1	A	274	ILE	CA-CB	6.04	1.59	1.53
1	B	89	ILE	C-O	6.03	1.30	1.24
1	A	250	VAL	CA-C	5.99	1.60	1.52
1	B	402	TYR	C-O	-5.98	1.15	1.24
1	B	332	ALA	C-O	5.94	1.30	1.23
1	A	236	VAL	C-O	5.93	1.31	1.24
1	B	284	PHE	C-O	-5.92	1.16	1.24
1	B	302	ASN	C-O	-5.92	1.17	1.23
1	B	329	VAL	CA-C	5.90	1.60	1.52
1	B	281	VAL	C-O	5.89	1.30	1.24
1	B	32	LYS	C-O	5.88	1.31	1.24
1	B	346	ILE	CA-CB	5.88	1.61	1.54
1	A	413	ASP	CA-CB	5.87	1.61	1.53
1	A	184	ILE	CA-CB	5.86	1.61	1.53
1	A	412	LYS	CA-C	5.86	1.60	1.52
1	B	399	ALA	C-O	-5.86	1.17	1.24
1	A	286	VAL	CA-C	5.85	1.60	1.53
1	B	345	ILE	CA-CB	5.82	1.59	1.54
1	B	44	VAL	N-CA	-5.82	1.39	1.46
1	B	293	ALA	C-O	-5.82	1.16	1.24
1	A	322	ASP	N-CA	5.81	1.53	1.46
1	A	136	VAL	C-O	5.80	1.31	1.24
1	A	227	GLY	N-CA	5.79	1.53	1.45

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	360	VAL	CA-CB	5.79	1.60	1.54
1	A	270	ALA	CA-CB	5.75	1.61	1.53
1	A	62	GLY	C-O	5.75	1.32	1.24
1	B	142	VAL	CA-CB	5.74	1.60	1.54
1	B	45	ASP	N-CA	-5.73	1.39	1.46
1	B	310	ASN	CA-C	-5.72	1.45	1.52
1	A	85	ARG	C-N	5.70	1.39	1.33
1	A	417	LYS	C-O	-5.68	1.17	1.24
1	B	403	VAL	C-O	-5.68	1.18	1.24
1	A	315	LYS	C-O	5.67	1.32	1.23
1	A	269	TYR	N-CA	-5.67	1.39	1.46
1	B	40	ILE	C-O	-5.66	1.16	1.23
1	A	322	ASP	C-O	5.65	1.30	1.23
1	A	385	TYR	N-CA	5.65	1.53	1.45
1	B	329	VAL	N-CA	5.63	1.53	1.46
1	B	40	ILE	N-CA	5.62	1.51	1.46
1	A	16	ALA	CA-C	-5.60	1.45	1.52
1	A	254	ILE	CA-CB	5.60	1.60	1.54
1	B	240	GLU	N-CA	5.59	1.53	1.46
1	A	292	GLU	CA-C	-5.58	1.45	1.52
1	A	331	LEU	N-CA	5.58	1.53	1.46
1	B	15	ILE	CA-C	5.58	1.59	1.52
1	A	241	VAL	CA-CB	-5.58	1.47	1.54
1	B	327	LEU	CG-CD2	5.58	1.71	1.52
1	A	238	ASN	C-N	5.55	1.41	1.33
1	B	357	ASP	N-CA	5.55	1.54	1.46
1	B	394	GLU	N-CA	-5.55	1.39	1.46
1	A	210	SER	CA-C	-5.54	1.45	1.52
1	B	6	VAL	CA-CB	5.54	1.60	1.54
1	B	302	ASN	N-CA	5.54	1.52	1.46
1	B	63	VAL	CA-CB	5.51	1.61	1.54
1	B	24	LEU	C-O	-5.51	1.17	1.24
1	A	341	GLU	CA-C	-5.49	1.45	1.52
1	B	34	ASN	CA-C	-5.49	1.46	1.52
1	B	414	ILE	CA-CB	5.48	1.60	1.54
1	A	85	ARG	CD-NE	5.47	1.53	1.46
1	B	289	GLY	C-O	5.47	1.31	1.23
1	A	3	VAL	N-CA	5.44	1.52	1.46
1	A	97	ALA	N-CA	5.44	1.53	1.46
1	B	397	TYR	C-O	-5.44	1.17	1.24
1	B	58	ALA	N-CA	5.44	1.52	1.46
1	B	400	ILE	CA-C	5.44	1.59	1.52

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	332	ALA	N-CA	5.43	1.52	1.45
1	A	45	ASP	N-CA	-5.42	1.38	1.46
1	B	413	ASP	CA-CB	5.42	1.60	1.53
1	B	244	ARG	C-O	5.41	1.30	1.24
1	A	78	ILE	CA-CB	5.40	1.61	1.54
1	B	321	GLU	N-CA	-5.40	1.38	1.46
1	B	316	ASP	C-O	5.40	1.30	1.24
1	A	339	LYS	C-N	5.40	1.40	1.33
1	A	175	PHE	C-N	-5.39	1.26	1.33
1	A	84	LYS	C-O	5.37	1.30	1.24
1	A	19	VAL	N-CA	-5.37	1.40	1.46
1	B	140	ILE	CA-C	5.36	1.58	1.53
1	A	13	HIS	C-O	5.36	1.30	1.24
1	A	116	PRO	C-N	-5.34	1.26	1.33
1	B	96	ALA	N-CA	5.34	1.52	1.46
1	A	74	LEU	C-O	5.33	1.30	1.24
1	A	95	GLU	CA-CB	5.33	1.61	1.53
1	B	156	CYS	C-N	5.33	1.40	1.33
1	A	14	ALA	N-CA	5.33	1.52	1.46
1	A	225	THR	CA-C	5.32	1.61	1.53
1	A	250	VAL	CA-CB	5.32	1.60	1.54
1	B	357	ASP	C-N	-5.31	1.25	1.33
1	B	270	ALA	CA-CB	5.30	1.60	1.53
1	A	141	VAL	CA-CB	5.29	1.61	1.54
1	B	28	LEU	CG-CD1	-5.29	1.35	1.52
1	A	5	VAL	C-O	5.28	1.30	1.24
1	B	28	LEU	C-O	-5.27	1.17	1.24
1	A	2	LYS	N-CA	-5.27	1.39	1.46
1	A	307	THR	N-CA	5.27	1.52	1.46
1	B	366	LYS	C-O	-5.27	1.17	1.23
1	B	313	GLU	C-O	-5.25	1.16	1.24
1	B	354	SER	CA-C	-5.25	1.46	1.52
1	A	142	VAL	CA-CB	5.24	1.60	1.54
1	B	97	ALA	CA-C	5.23	1.60	1.52
1	A	85	ARG	NE-CZ	5.22	1.38	1.33
1	A	135	LYS	C-O	5.22	1.30	1.24
1	B	262	ILE	N-CA	5.21	1.52	1.46
1	A	306	GLU	N-CA	-5.20	1.40	1.46
1	B	254	ILE	CA-CB	5.20	1.61	1.54
1	A	263	TYR	CA-C	5.19	1.59	1.52
1	B	220	ASP	CA-C	-5.17	1.45	1.52
1	A	405	PHE	CA-CB	5.17	1.62	1.53

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	401	ARG	C-O	5.14	1.30	1.24
1	B	392	ALA	C-O	-5.13	1.17	1.24
1	B	216	LEU	CA-C	-5.13	1.45	1.52
1	B	359	VAL	CA-CB	5.12	1.60	1.54
1	A	37	ILE	CA-C	5.12	1.59	1.52
1	B	221	LYS	C-O	-5.09	1.17	1.23
1	B	85	ARG	N-CA	5.08	1.52	1.46
1	B	43	ARG	N-CA	-5.08	1.39	1.46
1	B	33	GLY	C-O	-5.06	1.17	1.23
1	A	384	ALA	N-CA	-5.05	1.39	1.46
1	B	154	VAL	CA-CB	5.05	1.59	1.53
1	A	373	VAL	CA-CB	5.04	1.63	1.54
1	A	235	PRO	CA-C	5.04	1.61	1.52
1	A	154	VAL	CA-CB	5.01	1.60	1.53
1	B	198	MET	N-CA	5.01	1.52	1.46
1	A	418	ALA	CA-C	5.00	1.59	1.52
1	B	50	ASP	CG-OD2	5.00	1.34	1.25

All (304) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	174	ILE	O-C-N	19.56	141.65	121.90
1	B	339	LYS	CA-C-N	17.01	141.10	119.84
1	B	339	LYS	C-N-CA	17.01	141.10	119.84
1	B	175	PHE	O-C-N	14.19	140.84	122.96
1	B	157	GLU	O-C-N	-13.46	107.49	122.03
1	A	104	ALA	CA-C-N	12.79	137.07	120.44
1	A	104	ALA	C-N-CA	12.79	137.07	120.44
1	A	356	GLU	O-C-N	12.34	138.26	122.95
1	A	107	LYS	O-C-N	-11.62	107.28	122.39
1	A	156	CYS	CA-C-N	11.42	136.73	120.28
1	A	156	CYS	C-N-CA	11.42	136.73	120.28
1	B	341	GLU	O-C-N	11.18	137.88	123.01
1	B	336	TYR	O-C-N	11.12	132.05	121.27
1	A	238	ASN	CA-C-O	11.10	136.38	120.51
1	A	84	LYS	O-C-N	11.10	134.85	122.20
1	B	337	PRO	CA-C-N	11.02	135.55	122.44
1	B	337	PRO	C-N-CA	11.02	135.55	122.44
1	B	177	LYS	O-C-N	-10.96	107.65	122.33
1	A	296	ILE	N-CA-C	-10.81	100.05	110.42
1	A	31	ALA	CA-C-N	10.71	141.99	121.54
1	A	31	ALA	C-N-CA	10.71	141.99	121.54

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	174	ILE	CA-C-N	-10.54	105.78	122.65
1	A	174	ILE	C-N-CA	-10.54	105.78	122.65
1	B	172	LYS	CA-C-N	10.46	141.52	121.54
1	B	172	LYS	C-N-CA	10.46	141.52	121.54
1	B	294	GLN	O-C-N	10.26	133.11	121.32
1	A	218	ASP	CA-C-N	10.12	136.45	122.19
1	A	218	ASP	C-N-CA	10.12	136.45	122.19
1	A	361	PHE	O-C-N	10.04	135.78	123.13
1	A	40	ILE	N-CA-C	9.81	122.62	113.10
1	A	243	LYS	CA-C-N	9.64	133.74	120.63
1	A	243	LYS	C-N-CA	9.64	133.74	120.63
1	B	345	ILE	CA-C-N	-9.51	109.48	122.98
1	B	345	ILE	C-N-CA	-9.51	109.48	122.98
1	A	254	ILE	N-CA-C	9.42	119.47	110.42
1	B	139	PRO	O-C-N	-9.16	103.69	121.10
1	A	139	PRO	CA-C-N	9.08	138.32	121.97
1	A	139	PRO	C-N-CA	9.08	138.32	121.97
1	A	357	ASP	CA-C-N	8.93	135.68	122.91
1	A	357	ASP	C-N-CA	8.93	135.68	122.91
1	A	143	LYS	CA-C-N	-8.79	107.89	120.82
1	A	143	LYS	C-N-CA	-8.79	107.89	120.82
1	A	224	ASN	N-CA-C	-8.68	95.61	109.59
1	A	74	LEU	CA-C-N	8.68	131.55	120.70
1	A	74	LEU	C-N-CA	8.68	131.55	120.70
1	B	391	GLU	N-CA-C	8.67	122.85	111.75
1	B	219	GLU	CA-C-N	8.65	138.07	121.54
1	B	219	GLU	C-N-CA	8.65	138.07	121.54
1	B	299	ARG	N-CA-C	-8.63	102.77	113.38
1	B	9	GLY	CA-C-N	8.60	129.46	120.00
1	B	9	GLY	C-N-CA	8.60	129.46	120.00
1	A	108	THR	N-CA-C	-8.48	102.52	113.12
1	B	139	PRO	CA-C-N	8.41	132.98	120.95
1	B	139	PRO	C-N-CA	8.41	132.98	120.95
1	A	237	ILE	O-C-N	8.41	133.09	122.57
1	A	392	ALA	N-CA-C	-8.37	102.24	111.36
1	B	396	ALA	CA-C-N	8.33	132.12	120.29
1	B	396	ALA	C-N-CA	8.33	132.12	120.29
1	B	346	ILE	N-CA-C	-8.30	95.49	107.77
1	B	229	GLY	N-CA-C	-8.27	98.63	110.63
1	B	218	ASP	CA-C-N	8.16	133.75	122.07
1	B	218	ASP	C-N-CA	8.16	133.75	122.07
1	B	180	GLU	O-C-N	8.15	133.45	121.72

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	247	GLU	N-CA-C	7.98	119.67	110.97
1	B	236	VAL	CB-CA-C	-7.96	101.69	111.88
1	B	178	SER	CA-C-N	-7.93	110.72	122.86
1	B	178	SER	C-N-CA	-7.93	110.72	122.86
1	A	244	ARG	N-CA-C	7.93	119.83	111.03
1	A	74	LEU	O-C-N	7.85	130.51	122.03
1	B	413	ASP	N-CA-C	-7.85	102.21	112.41
1	A	396	ALA	CA-C-O	-7.79	112.22	120.55
1	A	110	MET	O-C-N	-7.79	113.99	122.09
1	B	182	VAL	O-C-N	-7.75	114.81	123.10
1	B	354	SER	CA-C-N	7.69	133.45	121.99
1	B	354	SER	C-N-CA	7.69	133.45	121.99
1	A	338	GLU	N-CA-C	-7.69	101.12	111.96
1	B	177	LYS	CA-C-N	7.66	131.04	120.63
1	B	177	LYS	C-N-CA	7.66	131.04	120.63
1	B	32	LYS	CB-CA-C	7.60	125.54	110.42
1	B	93	ASN	N-CA-C	-7.55	98.66	110.36
1	B	31	ALA	CA-C-N	7.53	135.93	121.54
1	B	31	ALA	C-N-CA	7.53	135.93	121.54
1	A	20	ALA	N-CA-C	-7.44	104.08	113.01
1	A	107	LYS	CA-C-N	7.36	136.65	122.53
1	A	107	LYS	C-N-CA	7.36	136.65	122.53
1	B	69	GLY	CA-C-N	-7.32	112.68	120.66
1	B	69	GLY	C-N-CA	-7.32	112.68	120.66
1	B	140	ILE	N-CA-C	7.28	117.98	110.05
1	B	31	ALA	O-C-N	7.25	132.62	122.83
1	B	47	SER	CA-C-N	-7.24	112.17	119.56
1	B	47	SER	C-N-CA	-7.24	112.17	119.56
1	B	355	MET	O-C-N	7.22	132.21	122.82
1	B	368	GLU	CB-CA-C	7.11	122.22	111.70
1	B	174	ILE	O-C-N	-7.09	113.71	122.57
1	A	67	ILE	N-CA-C	-7.04	98.34	108.48
1	A	106	ALA	O-C-N	7.02	131.36	122.23
1	B	287	ARG	CB-CG-CD	7.00	127.41	111.30
1	A	5	VAL	N-CA-C	-6.86	98.58	108.53
1	A	32	LYS	N-CA-C	-6.84	96.23	110.80
1	B	348	GLY	N-CA-C	6.84	125.15	115.30
1	A	418	ALA	N-CA-C	6.81	121.04	112.87
1	A	72	ALA	CA-C-N	-6.79	111.58	119.32
1	A	72	ALA	C-N-CA	-6.79	111.58	119.32
1	B	335	GLY	O-C-N	-6.79	113.88	122.70
1	A	236	VAL	CA-C-N	6.78	134.18	121.97

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	236	VAL	C-N-CA	6.78	134.18	121.97
1	B	239	GLU	N-CA-C	6.73	119.18	111.11
1	A	362	HIS	CA-C-N	6.71	134.35	121.54
1	A	362	HIS	C-N-CA	6.71	134.35	121.54
1	B	266	GLY	N-CA-C	6.71	119.91	110.38
1	A	129	ALA	CA-C-N	6.70	134.34	121.54
1	A	129	ALA	C-N-CA	6.70	134.34	121.54
1	A	287	ARG	NE-CZ-NH2	-6.68	113.19	119.20
1	A	143	LYS	O-C-N	6.67	131.08	123.27
1	A	346	ILE	CB-CA-C	-6.59	101.95	110.98
1	B	272	LEU	N-CA-C	6.55	120.14	109.59
1	A	143	LYS	N-CA-C	6.53	119.04	108.34
1	A	360	VAL	CA-C-N	6.52	132.37	123.11
1	A	360	VAL	C-N-CA	6.52	132.37	123.11
1	B	408	MET	CG-SD-CE	-6.49	86.63	100.90
1	B	74	LEU	N-CA-C	-6.48	102.70	112.04
1	A	67	ILE	CA-CB-CG1	6.47	121.40	110.40
1	B	400	ILE	N-CA-C	6.47	117.99	110.62
1	A	98	LYS	N-CA-C	-6.43	105.44	113.28
1	A	239	GLU	CA-C-N	-6.43	111.16	120.29
1	A	239	GLU	C-N-CA	-6.43	111.16	120.29
1	A	272	LEU	N-CA-C	6.41	120.08	110.14
1	B	98	LYS	N-CA-C	-6.41	105.42	113.18
1	B	287	ARG	NE-CZ-NH2	-6.37	113.47	119.20
1	A	255	LYS	N-CA-CB	6.37	119.24	110.01
1	B	32	LYS	N-CA-C	-6.37	97.24	110.80
1	A	391	GLU	N-CA-C	6.35	119.01	111.33
1	A	337	PRO	CA-C-N	-6.34	112.59	122.42
1	A	337	PRO	C-N-CA	-6.34	112.59	122.42
1	B	46	ILE	CB-CA-C	-6.33	101.51	110.12
1	A	243	LYS	CB-CG-CD	6.33	125.85	111.30
1	B	156	CYS	CA-C-N	6.29	129.18	120.63
1	B	156	CYS	C-N-CA	6.29	129.18	120.63
1	B	355	MET	CA-C-N	6.29	130.68	121.31
1	B	355	MET	C-N-CA	6.29	130.68	121.31
1	B	313	GLU	CA-C-N	-6.28	116.05	123.08
1	B	313	GLU	C-N-CA	-6.28	116.05	123.08
1	B	287	ARG	NE-CZ-NH1	6.27	127.77	121.50
1	B	392	ALA	N-CA-C	-6.26	103.99	111.69
1	B	176	GLY	CA-C-N	6.25	131.30	120.68
1	B	176	GLY	C-N-CA	6.25	131.30	120.68
1	B	384	ALA	CA-C-N	6.23	130.33	121.42

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	384	ALA	C-N-CA	6.23	130.33	121.42
1	B	72	ALA	CA-C-N	-6.22	113.72	119.82
1	B	72	ALA	C-N-CA	-6.22	113.72	119.82
1	A	330	VAL	N-CA-CB	6.20	117.89	110.95
1	B	368	GLU	CB-CG-CD	6.17	123.10	112.60
1	A	242	GLU	O-C-N	6.16	128.44	122.03
1	A	138	ALA	O-C-N	6.14	128.17	121.23
1	B	140	ILE	CA-C-N	6.14	131.58	123.11
1	B	140	ILE	C-N-CA	6.14	131.58	123.11
1	A	287	ARG	CB-CG-CD	6.11	125.35	111.30
1	A	93	ASN	CA-C-N	6.09	128.94	120.29
1	A	93	ASN	C-N-CA	6.09	128.94	120.29
1	B	206	PRO	N-CA-C	6.09	120.54	111.41
1	A	365	THR	O-C-N	-6.08	115.32	123.23
1	A	348	GLY	N-CA-C	6.07	123.73	115.30
1	B	207	LEU	N-CA-C	-6.07	99.63	109.82
1	A	262	ILE	CB-CA-C	-6.06	102.68	110.98
1	B	331	LEU	N-CA-C	6.04	118.57	108.96
1	B	363	ALA	CA-C-N	6.04	133.25	121.41
1	B	363	ALA	C-N-CA	6.04	133.25	121.41
1	A	214	LYS	N-CA-C	6.04	117.94	111.36
1	B	178	SER	O-C-N	6.03	128.55	122.03
1	B	262	ILE	CA-C-N	-6.03	114.16	122.30
1	B	262	ILE	C-N-CA	-6.03	114.16	122.30
1	B	222	GLY	N-CA-C	-6.02	100.05	112.34
1	B	100	GLU	N-CA-C	-6.02	105.97	113.55
1	B	338	GLU	CA-C-N	6.02	130.16	122.64
1	B	338	GLU	C-N-CA	6.02	130.16	122.64
1	A	330	VAL	N-CA-C	6.00	117.43	108.54
1	A	59	LYS	N-CA-C	6.00	118.34	111.02
1	B	154	VAL	N-CA-C	5.99	115.47	106.42
1	A	196	ILE	CG1-CB-CG2	-5.98	92.75	110.70
1	A	63	VAL	CA-C-N	5.95	130.66	120.72
1	A	63	VAL	C-N-CA	5.95	130.66	120.72
1	A	403	VAL	CB-CA-C	5.95	120.21	110.69
1	A	387	LYS	N-CA-C	-5.94	104.81	111.28
1	A	334	ARG	N-CA-C	-5.90	101.55	110.28
1	A	219	GLU	CA-C-N	5.89	131.11	122.63
1	A	219	GLU	C-N-CA	5.89	131.11	122.63
1	B	362	HIS	CA-C-N	5.89	132.78	121.54
1	B	362	HIS	C-N-CA	5.89	132.78	121.54
1	A	332	ALA	CA-C-N	-5.87	110.28	122.07

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	332	ALA	C-N-CA	-5.87	110.28	122.07
1	B	237	ILE	CA-C-N	-5.86	111.81	122.12
1	B	237	ILE	C-N-CA	-5.86	111.81	122.12
1	B	172	LYS	O-C-N	5.85	130.47	122.46
1	A	67	ILE	CB-CA-C	-5.83	101.94	110.62
1	B	286	VAL	CB-CA-C	5.82	120.83	111.29
1	B	142	VAL	N-CA-C	5.80	116.46	107.99
1	B	390	LYS	N-CA-C	5.80	118.07	111.11
1	A	254	ILE	N-CA-CB	5.79	117.32	110.55
1	A	312	TYR	CA-C-N	-5.79	113.36	122.79
1	A	312	TYR	C-N-CA	-5.79	113.36	122.79
1	B	336	TYR	CA-C-N	5.76	140.82	127.00
1	B	336	TYR	C-N-CA	5.76	140.82	127.00
1	A	308	LEU	N-CA-C	5.75	117.24	110.97
1	A	140	ILE	N-CA-C	5.75	121.29	109.34
1	B	336	TYR	C-N-CD	-5.75	107.96	120.60
1	A	364	GLY	O-C-N	-5.71	115.27	122.70
1	A	216	LEU	N-CA-C	5.70	117.58	111.36
1	A	32	LYS	CA-C-N	-5.70	112.59	121.42
1	A	32	LYS	C-N-CA	-5.70	112.59	121.42
1	B	220	ASP	O-C-N	5.68	130.15	122.59
1	B	183	VAL	O-C-N	5.68	129.74	123.10
1	A	84	LYS	CD-CE-NZ	5.65	129.97	111.90
1	A	127	GLU	CA-C-N	5.62	128.86	120.31
1	A	127	GLU	C-N-CA	5.62	128.86	120.31
1	B	368	GLU	N-CA-C	-5.62	100.62	108.54
1	A	283	GLU	N-CA-C	5.61	116.79	108.60
1	B	175	PHE	CA-C-N	5.61	132.41	121.41
1	B	175	PHE	C-N-CA	5.61	132.41	121.41
1	B	379	VAL	N-CA-C	5.61	116.38	111.56
1	B	26	LYS	CD-CE-NZ	5.60	129.82	111.90
1	B	28	LEU	CA-C-O	-5.60	114.65	120.70
1	B	235	PRO	CA-C-N	5.57	127.78	120.60
1	B	235	PRO	C-N-CA	5.57	127.78	120.60
1	B	252	ARG	N-CA-C	5.56	117.42	111.36
1	A	395	ARG	CD-NE-CZ	5.55	132.18	124.40
1	A	205	VAL	CA-C-O	5.54	122.94	119.51
1	B	107	LYS	CA-C-N	5.54	128.16	120.63
1	B	107	LYS	C-N-CA	5.54	128.16	120.63
1	A	104	ALA	O-C-N	-5.52	115.04	122.43
1	B	309	LEU	CB-CG-CD1	-5.50	94.20	110.70
1	A	395	ARG	NE-CZ-NH2	-5.49	114.26	119.20

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	397	TYR	O-C-N	-5.48	116.31	122.12
1	B	105	PHE	CA-C-N	5.48	129.04	120.82
1	B	105	PHE	C-N-CA	5.48	129.04	120.82
1	B	333	SER	N-CA-C	5.46	118.56	110.48
1	B	349	LEU	N-CA-C	5.45	122.40	110.80
1	B	330	VAL	CB-CA-C	-5.41	104.75	111.08
1	A	246	ARG	NE-CZ-NH1	-5.40	116.10	121.50
1	B	2	LYS	N-CA-C	-5.40	98.41	108.02
1	B	339	LYS	C-N-CD	-5.40	102.87	125.00
1	A	80	ASP	CA-C-N	5.39	127.51	120.28
1	A	80	ASP	C-N-CA	5.39	127.51	120.28
1	B	336	TYR	N-CA-C	5.38	115.79	109.60
1	A	219	GLU	O-C-N	-5.37	115.22	122.41
1	B	89	ILE	N-CA-C	5.36	116.00	108.17
1	A	331	LEU	N-CA-C	5.34	117.01	108.41
1	B	85	ARG	NE-CZ-NH1	-5.34	116.16	121.50
1	A	32	LYS	CB-CA-C	5.31	120.99	110.42
1	B	176	GLY	O-C-N	5.30	129.59	122.70
1	B	236	VAL	N-CA-C	5.30	115.92	110.36
1	A	286	VAL	CA-C-O	5.29	125.43	120.14
1	A	26	LYS	N-CA-C	-5.29	107.49	114.31
1	B	30	VAL	CA-C-O	-5.28	115.16	121.28
1	B	339	LYS	O-C-N	-5.27	114.14	121.47
1	B	207	LEU	CA-C-N	5.27	125.26	119.89
1	B	207	LEU	C-N-CA	5.27	125.26	119.89
1	B	346	ILE	CB-CA-C	-5.26	103.31	110.42
1	B	269	TYR	CB-CA-C	5.24	118.68	110.19
1	B	346	ILE	CA-CB-CG1	5.24	119.31	110.40
1	A	7	GLY	CA-C-O	-5.23	118.09	122.33
1	B	131	GLU	O-C-N	-5.22	115.00	122.41
1	B	404	CYS	CA-C-O	-5.22	115.15	120.89
1	B	91	GLY	N-CA-C	-5.22	101.70	112.34
1	B	128	LYS	CA-C-N	5.21	129.31	120.88
1	B	128	LYS	C-N-CA	5.21	129.31	120.88
1	A	361	PHE	CA-C-N	-5.19	113.68	120.95
1	A	361	PHE	C-N-CA	-5.19	113.68	120.95
1	B	85	ARG	NE-CZ-NH2	5.19	123.87	119.20
1	B	303	ASP	N-CA-C	-5.17	100.08	108.41
1	A	351	TYR	N-CA-CB	5.17	118.97	110.39
1	B	299	ARG	CG-CD-NE	-5.16	100.64	112.00
1	A	248	GLU	N-CA-C	5.16	119.28	112.89
1	A	222	GLY	CA-C-N	5.15	125.88	120.11

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	222	GLY	C-N-CA	5.15	125.88	120.11
1	B	34	ASN	N-CA-C	-5.14	101.09	108.60
1	B	254	ILE	N-CA-C	5.13	120.01	109.34
1	A	82	PHE	N-CA-C	-5.12	105.78	111.36
1	B	50	ASP	CB-CA-C	-5.12	104.49	112.07
1	B	64	ASP	N-CA-C	5.12	121.71	110.80
1	A	92	PRO	N-CA-C	5.12	119.35	111.21
1	B	329	VAL	N-CA-C	5.11	116.05	108.23
1	A	43	ARG	CA-C-N	5.11	129.76	123.12
1	A	43	ARG	C-N-CA	5.11	129.76	123.12
1	B	255	LYS	N-CA-CB	5.11	118.17	110.30
1	A	110	MET	CA-C-N	-5.10	112.19	120.71
1	A	110	MET	C-N-CA	-5.10	112.19	120.71
1	A	74	LEU	N-CA-C	-5.10	105.37	111.03
1	B	1	MET	CG-SD-CE	-5.10	89.67	100.90
1	B	140	ILE	O-C-N	-5.09	116.16	122.52
1	B	340	PRO	CA-C-N	5.08	128.55	121.02
1	B	340	PRO	C-N-CA	5.08	128.55	121.02
1	B	404	CYS	N-CA-C	5.08	116.79	108.76
1	A	156	CYS	O-C-N	-5.08	116.73	123.13
1	A	401	ARG	CD-NE-CZ	5.06	131.49	124.40
1	A	403	VAL	CA-C-N	-5.06	111.64	121.91
1	A	403	VAL	C-N-CA	-5.06	111.64	121.91
1	A	269	TYR	N-CA-C	-5.05	100.17	108.41
1	B	60	ASN	N-CA-C	5.05	117.44	111.33
1	A	91	GLY	N-CA-C	-5.04	102.06	112.34
1	B	299	ARG	NE-CZ-NH1	-5.03	116.47	121.50
1	B	32	LYS	CA-C-N	-5.02	113.63	121.42
1	B	32	LYS	C-N-CA	-5.02	113.63	121.42
1	B	306	GLU	N-CA-C	5.02	117.13	111.11
1	B	345	ILE	N-CA-C	5.02	117.71	109.78

There are no chirality outliers.

All (16) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	138	ALA	Peptide
1	A	139	PRO	Peptide
1	A	238	ASN	Peptide
1	A	31	ALA	Peptide
1	A	371	PHE	Peptide
1	B	138	ALA	Peptide

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Group
1	B	139	PRO	Peptide
1	B	173	LYS	Peptide
1	B	174	ILE	Peptide
1	B	179	SER	Peptide
1	B	31	ALA	Peptide
1	B	337	PRO	Peptide
1	B	338	GLU	Peptide
1	B	339	LYS	Peptide
1	B	340	PRO	Peptide
1	B	50	ASP	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	3236	0	3194	183	0
1	B	3228	0	3180	174	0
2	A	38	0	0	4	0
2	B	51	0	0	1	0
All	All	6553	0	6374	355	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 28.

All (355) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:337:PRO:HD2	1:B:338:GLU:CD	1.49	1.37
1:B:337:PRO:HD2	1:B:338:GLU:OE2	1.38	1.18
1:A:103:LYS:HD2	1:A:143:LYS:HE2	1.27	1.11
1:B:265:ARG:HG2	1:B:265:ARG:HH11	0.94	1.09
1:A:103:LYS:CD	1:A:143:LYS:HE2	1.85	1.05
1:A:46:ILE:HD13	1:A:53:LYS:HG2	1.51	0.93
1:B:194:SER:HB3	1:B:269:TYR:HE1	1.30	0.93
1:A:71:GLU:HB3	1:A:287:ARG:HD2	1.50	0.92
1:B:265:ARG:HG2	1:B:265:ARG:NH1	1.68	0.91

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:207:LEU:HD23	1:B:319:ILE:CD1	2.00	0.91
1:B:103:LYS:CD	1:B:143:LYS:HE2	2.01	0.91
1:B:337:PRO:CD	1:B:338:GLU:OE2	2.19	0.90
1:B:265:ARG:HH11	1:B:265:ARG:CG	1.84	0.88
1:A:184:ILE:N	1:A:184:ILE:HD12	1.90	0.86
1:A:215:ARG:NH1	1:A:224:ASN:HD22	1.73	0.86
1:A:124:THR:HG21	1:A:181:ARG:NH1	1.90	0.86
1:B:90:PHE:CE2	1:B:266:GLY:HA2	2.10	0.86
1:B:337:PRO:CD	1:B:338:GLU:CD	2.44	0.85
1:B:103:LYS:HD3	1:B:143:LYS:HE2	1.57	0.85
1:B:110:MET:HG2	1:B:115:ILE:HB	1.60	0.83
1:B:116:PRO:HG2	1:B:249:ILE:HD11	1.58	0.83
1:A:59:LYS:HE2	1:A:85:ARG:HH21	1.44	0.82
1:B:177:LYS:HE2	1:B:180:GLU:OE2	1.78	0.82
1:A:207:LEU:HD23	1:A:319:ILE:HD12	1.60	0.82
1:A:140:ILE:HG23	1:A:141:VAL:H	1.45	0.81
1:B:138:ALA:HB1	1:B:157:GLU:O	1.80	0.81
1:B:120:TYR:O	1:B:121:GLU:HG2	1.80	0.81
1:A:103:LYS:HE3	1:A:143:LYS:HE3	1.63	0.80
1:B:294:GLN:HE21	1:B:294:GLN:N	1.79	0.80
1:B:79:VAL:HG22	1:B:89:ILE:HD12	1.63	0.80
1:B:210:SER:HB3	1:B:296:ILE:HD11	1.63	0.78
1:B:51:VAL:HG23	1:B:81:GLU:OE2	1.84	0.78
1:A:115:ILE:O	1:A:117:THR:HG22	1.86	0.76
1:A:140:ILE:HG23	1:A:141:VAL:N	2.02	0.75
1:B:336:TYR:CD1	1:B:337:PRO:HA	2.20	0.75
1:A:260:GLU:HB2	1:A:262:ILE:HG13	1.67	0.75
1:B:194:SER:HB3	1:B:269:TYR:CE1	2.18	0.75
1:B:238:ASN:C	1:B:238:ASN:HD22	1.94	0.75
1:B:176:GLY:O	1:B:180:GLU:HG2	1.87	0.74
1:A:207:LEU:HD23	1:A:319:ILE:CD1	2.18	0.74
1:B:390:LYS:HE2	1:B:394:GLU:OE2	1.88	0.73
1:A:216:LEU:O	1:A:409:HIS:HE1	1.71	0.73
1:B:236:VAL:HG12	1:B:274:ILE:HG13	1.70	0.72
1:B:71:GLU:HB3	1:B:287:ARG:HD2	1.71	0.72
1:A:403:VAL:O	1:A:404:CYS:HB2	1.89	0.72
1:B:405:PHE:O	1:B:408:MET:HG2	1.90	0.72
1:A:215:ARG:HH12	1:A:224:ASN:HD22	1.38	0.71
1:A:95:GLU:OE1	1:A:95:GLU:HA	1.90	0.71
1:A:207:LEU:CD2	1:A:319:ILE:CD1	2.69	0.71
1:B:198:MET:HE1	1:B:307:THR:HG22	1.73	0.70

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:277:GLU:H	1:A:277:GLU:CD	2.00	0.70
1:A:124:THR:HG22	1:A:181:ARG:HG3	1.72	0.69
1:B:393:LYS:O	1:B:397:TYR:HD2	1.75	0.69
1:A:215:ARG:HH12	1:A:224:ASN:HB2	1.56	0.69
1:A:265:ARG:HH11	1:A:265:ARG:HG2	1.57	0.69
1:A:177:LYS:HE2	1:A:180:GLU:OE2	1.92	0.68
1:A:195:TYR:C	1:A:196:ILE:HD12	2.19	0.68
1:A:95:GLU:OE1	1:A:98:LYS:HE2	1.92	0.68
1:A:1:MET:HE3	1:A:24:LEU:HB3	1.75	0.67
1:A:112:LYS:O	1:A:112:LYS:HG2	1.95	0.67
1:A:124:THR:CG2	1:A:181:ARG:NH1	2.58	0.67
1:B:114:GLY:O	1:B:252:ARG:NH1	2.27	0.67
1:A:245:ILE:HA	1:A:249:ILE:HD13	1.75	0.67
1:B:116:PRO:HG2	1:B:249:ILE:CD1	2.25	0.67
1:A:103:LYS:CD	1:A:143:LYS:CE	2.70	0.66
1:B:276:LYS:HG3	1:B:277:GLU:OE2	1.95	0.66
1:A:14:ALA:HA	1:A:361:PHE:CE1	2.31	0.66
1:A:103:LYS:HD2	1:A:143:LYS:CE	2.15	0.66
1:B:294:GLN:H	1:B:294:GLN:NE2	1.95	0.65
1:B:68:VAL:HG23	1:B:89:ILE:HD11	1.79	0.65
1:B:175:PHE:CD1	1:B:175:PHE:N	2.59	0.65
1:A:114:GLY:O	1:A:252:ARG:NH1	2.29	0.65
1:B:175:PHE:H	1:B:175:PHE:HD1	1.42	0.65
1:A:119:ARG:O	1:A:185:GLU:HA	1.96	0.64
1:A:146:GLY:HA3	1:A:178:SER:HB2	1.79	0.64
1:B:59:LYS:HD3	1:B:85:ARG:HB3	1.78	0.64
1:B:199:ILE:CD1	1:B:254:ILE:HD11	2.26	0.64
1:A:111:LYS:O	1:A:113:TYR:N	2.30	0.64
1:A:183:VAL:C	1:A:184:ILE:HD12	2.23	0.64
1:A:8:ASN:OD1	1:A:32:LYS:HB2	1.97	0.64
1:B:210:SER:HB3	1:B:296:ILE:CD1	2.27	0.64
1:B:8:ASN:OD1	1:B:32:LYS:HB2	1.98	0.64
1:A:111:LYS:C	1:A:113:TYR:H	2.06	0.63
1:A:103:LYS:HE3	1:A:143:LYS:CE	2.27	0.63
1:A:207:LEU:CD2	1:A:319:ILE:HD12	2.27	0.63
1:B:393:LYS:NZ	1:B:416:ASP:OD1	2.31	0.63
1:A:109:PHE:O	1:A:113:TYR:HB2	1.98	0.63
1:A:115:ILE:HD13	1:A:253:VAL:HG23	1.80	0.63
1:B:294:GLN:N	1:B:294:GLN:NE2	2.46	0.63
1:A:191:GLU:HG3	1:A:421:TYR:OH	1.99	0.63
1:A:140:ILE:CG2	1:A:141:VAL:N	2.61	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:184:ILE:N	1:A:184:ILE:CD1	2.59	0.62
1:A:333:SER:HB2	2:A:428:HOH:O	2.00	0.62
1:B:277:GLU:CD	1:B:277:GLU:N	2.56	0.62
1:A:215:ARG:NH1	1:A:224:ASN:HB2	2.15	0.61
1:B:1:MET:HE3	1:B:24:LEU:HB3	1.82	0.61
1:B:116:PRO:HD2	1:B:249:ILE:HD13	1.81	0.61
1:B:176:GLY:O	1:B:180:GLU:CG	2.49	0.61
1:B:199:ILE:HD12	1:B:254:ILE:HD11	1.82	0.61
1:A:84:LYS:O	1:B:86:GLY:HA2	2.00	0.61
1:A:7:GLY:HA3	1:A:12:GLU:HG2	1.84	0.60
1:A:139:PRO:HB2	1:A:140:ILE:HG13	1.84	0.60
1:B:51:VAL:CG2	1:B:81:GLU:OE2	2.49	0.60
1:B:89:ILE:HD13	1:B:90:PHE:C	2.27	0.60
1:B:95:GLU:OE2	1:B:262:ILE:HD12	2.02	0.59
1:A:288:LEU:HB3	1:A:293:ALA:HB2	1.82	0.59
1:B:95:GLU:OE1	1:B:98:LYS:HE2	2.02	0.59
1:B:117:THR:HG23	1:B:118:ALA:O	2.03	0.59
1:B:92:PRO:HG3	1:B:286:VAL:HB	1.83	0.59
1:A:115:ILE:CD1	1:A:253:VAL:HG23	2.32	0.59
1:A:156:CYS:SG	1:A:162:ALA:HA	2.43	0.59
1:B:216:LEU:O	1:B:409:HIS:HE1	1.85	0.59
1:A:330:VAL:HG22	1:A:381:ASN:OD1	2.02	0.59
1:B:179:SER:C	1:B:181:ARG:H	2.10	0.58
1:A:120:TYR:CE1	1:A:122:VAL:HG23	2.37	0.58
1:A:253:VAL:HG21	1:A:284:PHE:CZ	2.38	0.58
1:A:113:TYR:OH	1:A:259:GLU:HB2	2.03	0.58
1:A:131:GLU:O	1:A:135:LYS:N	2.36	0.58
1:A:46:ILE:CD1	1:A:53:LYS:HG2	2.32	0.57
1:A:59:LYS:HD3	1:A:85:ARG:HE	1.67	0.57
1:A:238:ASN:O	1:A:242:GLU:HB3	2.03	0.57
1:A:36:GLY:HA3	1:A:362:HIS:CG	2.40	0.57
1:A:119:ARG:HB2	1:A:186:GLU:HG2	1.87	0.57
1:B:288:LEU:HB3	1:B:293:ALA:HB2	1.86	0.57
1:A:224:ASN:ND2	2:A:449:HOH:O	2.38	0.56
1:A:141:VAL:HG22	1:A:155:VAL:HA	1.87	0.56
1:A:393:LYS:O	1:A:397:TYR:HD2	1.89	0.56
1:B:22:SER:HB2	1:B:303:ASP:OD1	2.05	0.56
1:B:210:SER:HA	1:B:231:TYR:O	2.06	0.56
1:A:294:GLN:HE21	1:A:294:GLN:N	2.03	0.56
1:A:83:GLU:HB3	1:B:84:LYS:HA	1.88	0.56
1:B:79:VAL:HB	1:B:93:ASN:HA	1.88	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:309:LEU:O	1:B:312:TYR:HB3	2.05	0.56
1:A:123:PHE:CD2	1:A:184:ILE:HD11	2.41	0.56
1:A:277:GLU:CD	1:A:277:GLU:N	2.63	0.55
1:B:31:ALA:O	1:B:48:PRO:HG3	2.06	0.55
1:A:107:LYS:HE2	1:A:117:THR:OG1	2.07	0.55
1:B:103:LYS:CE	1:B:143:LYS:HE2	2.35	0.55
1:B:277:GLU:CD	1:B:277:GLU:H	2.14	0.55
1:A:35:ALA:HA	1:A:38:TRP:CE3	2.42	0.55
1:A:207:LEU:CD2	1:A:319:ILE:HD11	2.37	0.55
1:A:403:VAL:O	1:A:404:CYS:CB	2.49	0.55
1:A:73:PRO:O	1:A:78:ILE:HG22	2.07	0.54
1:A:110:MET:HB3	1:A:117:THR:HG21	1.89	0.54
1:B:276:LYS:HG3	1:B:277:GLU:CD	2.32	0.54
1:A:123:PHE:CD2	1:A:184:ILE:CD1	2.90	0.54
1:B:46:ILE:O	1:B:47:SER:C	2.47	0.54
1:A:233:PRO:HB3	1:A:299:ARG:NH2	2.23	0.54
1:A:175:PHE:HB2	1:A:179:SER:HB3	1.88	0.54
1:B:7:GLY:HA3	1:B:12:GLU:HG2	1.90	0.54
1:B:215:ARG:HH11	1:B:224:ASN:HD22	1.54	0.54
1:B:199:ILE:HD13	1:B:204:TYR:HB2	1.89	0.54
1:B:34:ASN:ND2	1:B:363:ALA:O	2.41	0.54
1:B:238:ASN:HD21	1:B:240:GLU:HG3	1.73	0.54
1:B:138:ALA:CB	1:B:157:GLU:O	2.53	0.53
1:A:111:LYS:C	1:A:113:TYR:N	2.66	0.53
1:A:95:GLU:OE1	1:A:95:GLU:CA	2.56	0.53
1:B:245:ILE:HD13	1:B:272:LEU:HD11	1.91	0.53
1:A:420:LYS:HG2	2:A:439:HOH:O	2.08	0.53
1:B:215:ARG:NH1	1:B:224:ASN:HD22	2.07	0.53
1:A:26:LYS:O	1:A:27:GLU:HG3	2.08	0.53
1:A:346:ILE:HD12	1:A:372:THR:HG22	1.91	0.52
1:B:335:GLY:O	1:B:338:GLU:OE1	2.26	0.52
1:B:387:LYS:HG2	1:B:388:THR:HG23	1.91	0.52
1:A:140:ILE:HG21	1:A:184:ILE:HG22	1.91	0.52
1:A:215:ARG:HG2	1:A:215:ARG:HH11	1.74	0.52
1:B:345:ILE:HG22	1:B:346:ILE:N	2.23	0.52
1:A:148:ALA:O	1:A:151:LYS:HB2	2.10	0.52
1:B:238:ASN:ND2	1:B:241:VAL:H	2.08	0.52
1:A:115:ILE:HG12	1:A:252:ARG:HB2	1.91	0.51
1:A:299:ARG:NH1	1:A:322:ASP:O	2.40	0.51
1:B:144:ALA:CB	1:B:179:SER:OG	2.58	0.51
1:A:103:LYS:CE	1:A:143:LYS:CE	2.89	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:110:MET:HG2	1:A:115:ILE:HB	1.91	0.51
1:A:249:ILE:HD12	1:A:249:ILE:N	2.26	0.51
1:B:197:VAL:HG12	1:B:206:PRO:HB3	1.91	0.51
1:A:120:TYR:HE1	1:A:122:VAL:HG23	1.75	0.51
1:B:83:GLU:O	1:B:86:GLY:N	2.42	0.51
1:B:34:ASN:OD1	1:B:34:ASN:C	2.53	0.51
1:B:75:VAL:HG12	1:B:75:VAL:O	2.10	0.51
1:B:291:PRO:O	1:B:295:PRO:HD2	2.10	0.51
1:A:215:ARG:NH1	1:A:224:ASN:ND2	2.52	0.50
1:B:207:LEU:HD23	1:B:319:ILE:HD13	1.90	0.50
1:A:177:LYS:CE	1:A:180:GLU:OE2	2.58	0.50
1:A:182:VAL:HG23	1:A:184:ILE:HD11	1.93	0.50
1:A:405:PHE:CE1	1:A:408:MET:HA	2.47	0.50
1:B:260:GLU:OE1	1:B:260:GLU:HA	2.12	0.50
1:A:287:ARG:NH2	1:A:289:GLY:HA2	2.26	0.50
1:B:105:PHE:C	1:B:105:PHE:CD2	2.90	0.50
1:A:104:ALA:HB1	1:A:122:VAL:HG21	1.93	0.50
1:A:245:ILE:HD13	1:A:279:PRO:HB2	1.92	0.50
1:A:118:ALA:HB2	1:A:188:LEU:HD11	1.94	0.50
1:A:56:GLU:HG2	1:A:85:ARG:CZ	2.41	0.49
1:A:102:SER:HA	1:A:145:ASP:O	2.11	0.49
1:B:207:LEU:HD23	1:B:319:ILE:HD12	1.92	0.49
1:B:345:ILE:CG2	1:B:346:ILE:N	2.74	0.49
1:B:337:PRO:HD2	1:B:338:GLU:OE1	2.03	0.49
1:A:124:THR:HG21	1:A:181:ARG:HH12	1.74	0.49
1:A:327:LEU:O	1:A:383:CYS:HA	2.11	0.49
1:B:103:LYS:HE3	1:B:143:LYS:HE2	1.94	0.49
1:A:363:ALA:HB3	1:A:379:VAL:C	2.37	0.49
1:B:148:ALA:CB	1:B:175:PHE:CD2	2.95	0.49
1:B:192:GLU:HA	1:B:272:LEU:O	2.12	0.49
1:B:244:ARG:O	1:B:248:GLU:HG3	2.13	0.49
1:B:333:SER:O	1:B:334:ARG:C	2.54	0.49
1:A:110:MET:SD	1:A:117:THR:HB	2.53	0.49
1:B:105:PHE:HD2	1:B:106:ALA:N	2.09	0.49
1:B:89:ILE:HD13	1:B:90:PHE:O	2.13	0.49
1:B:73:PRO:O	1:B:78:ILE:HG22	2.12	0.49
1:B:366:LYS:NZ	2:B:452:HOH:O	2.42	0.49
1:B:89:ILE:HD13	1:B:89:ILE:C	2.38	0.48
1:A:245:ILE:HD12	1:A:272:LEU:HD13	1.95	0.48
1:B:105:PHE:O	1:B:108:THR:HB	2.13	0.48
1:B:146:GLY:HA3	1:B:178:SER:HB3	1.95	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:115:ILE:HD13	1:B:253:VAL:HG23	1.96	0.48
1:A:18:LYS:O	1:A:21:GLN:HB2	2.14	0.48
1:B:90:PHE:CE2	1:B:266:GLY:CA	2.90	0.48
1:B:408:MET:HB2	1:B:408:MET:HE2	1.36	0.48
1:A:82:PHE:HB2	1:A:89:ILE:HG21	1.95	0.48
1:B:265:ARG:NH1	1:B:265:ARG:CG	2.49	0.48
1:A:248:GLU:HB2	1:A:249:ILE:HD12	1.96	0.48
1:A:333:SER:N	1:A:377:GLY:O	2.38	0.47
1:B:231:TYR:OH	1:B:418:ALA:HB2	2.14	0.47
1:B:144:ALA:HB1	1:B:179:SER:OG	2.14	0.47
1:B:268:LEU:HD11	1:B:284:PHE:CD1	2.49	0.47
1:A:48:PRO:HA	1:A:54:LEU:HD11	1.96	0.47
1:A:80:ASP:OD2	1:A:94:LYS:HB2	2.15	0.47
1:A:275:THR:HG21	1:A:280:LYS:HD2	1.97	0.47
1:A:95:GLU:OE1	1:A:98:LYS:CE	2.61	0.47
1:A:124:THR:CG2	1:A:181:ARG:HH11	2.27	0.47
1:B:299:ARG:NH1	1:B:322:ASP:O	2.45	0.47
1:A:257:LEU:HD23	1:A:262:ILE:HD12	1.96	0.47
1:A:362:HIS:ND1	1:A:365:THR:HG21	2.30	0.47
1:B:14:ALA:HA	1:B:361:PHE:CE1	2.50	0.47
1:A:92:PRO:HG3	1:A:286:VAL:HB	1.96	0.47
1:B:105:PHE:CD2	1:B:106:ALA:N	2.83	0.47
1:B:241:VAL:O	1:B:245:ILE:HG13	2.14	0.47
1:B:35:ALA:HA	1:B:38:TRP:CE3	2.50	0.46
1:A:138:ALA:HA	1:A:139:PRO:C	2.41	0.46
1:B:68:VAL:CG2	1:B:89:ILE:HD11	2.42	0.46
1:A:336:TYR:CD1	1:A:337:PRO:HA	2.51	0.46
1:B:207:LEU:HD23	1:B:319:ILE:HD11	1.92	0.46
1:B:393:LYS:HD2	1:B:414:ILE:O	2.15	0.46
1:B:96:ALA:HB1	1:B:264:TYR:CD1	2.51	0.46
1:B:112:LYS:HG2	1:B:112:LYS:O	2.16	0.46
1:B:209:THR:HG21	1:B:237:ILE:HG21	1.97	0.46
1:A:32:LYS:HE2	1:A:45:ASP:HA	1.96	0.46
1:B:344:LYS:O	1:B:373:VAL:HA	2.16	0.46
1:A:374:THR:HG22	1:A:379:VAL:HG11	1.97	0.46
1:B:149:ALA:C	1:B:151:LYS:H	2.23	0.46
1:B:307:THR:HG23	1:B:317:VAL:HB	1.97	0.46
1:B:327:LEU:O	1:B:383:CYS:HA	2.15	0.46
1:A:245:ILE:HD13	1:A:279:PRO:CB	2.45	0.46
1:A:32:LYS:HE2	1:A:45:ASP:OD1	2.15	0.45
1:A:269:TYR:CD1	1:A:269:TYR:C	2.94	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:19:VAL:C	1:A:21:GLN:H	2.24	0.45
1:A:19:VAL:C	1:A:21:GLN:N	2.74	0.45
1:B:188:LEU:HD12	1:B:282:LEU:CD2	2.46	0.45
1:A:253:VAL:HG21	1:A:284:PHE:HZ	1.79	0.45
1:B:188:LEU:HB2	1:B:273:MET:HG2	1.99	0.45
1:B:234:THR:OG1	1:B:236:VAL:HG23	2.17	0.45
1:A:107:LYS:HA	1:A:107:LYS:HD3	1.70	0.45
1:B:44:VAL:HG12	1:B:46:ILE:HG12	1.99	0.45
1:A:245:ILE:CD1	1:A:272:LEU:HD13	2.47	0.44
1:B:250:VAL:O	1:B:253:VAL:HB	2.17	0.44
1:B:58:ALA:CB	1:B:82:PHE:CE2	3.00	0.44
1:B:92:PRO:HB2	1:B:96:ALA:HB3	1.98	0.44
1:B:198:MET:O	1:B:204:TYR:HA	2.18	0.44
1:A:245:ILE:HD12	1:A:272:LEU:CD1	2.47	0.44
1:A:253:VAL:HG11	1:A:268:LEU:HD21	1.99	0.44
1:B:237:ILE:HG22	1:B:237:ILE:O	2.16	0.44
1:A:70:PRO:HB2	2:A:454:HOH:O	2.17	0.44
1:B:139:PRO:HB2	1:B:140:ILE:HD12	2.00	0.44
1:B:146:GLY:CA	1:B:178:SER:HB3	2.46	0.44
1:A:238:ASN:O	1:A:242:GLU:CB	2.65	0.44
1:B:119:ARG:NE	1:B:186:GLU:OE2	2.48	0.44
1:B:236:VAL:CG1	1:B:274:ILE:HG13	2.43	0.44
1:B:401:ARG:HE	1:B:401:ARG:HB3	1.47	0.44
1:B:408:MET:HB3	1:B:408:MET:HE3	1.50	0.44
1:A:275:THR:OG1	1:A:278:GLY:O	2.33	0.44
1:B:148:ALA:HB2	1:B:175:PHE:CD2	2.52	0.43
1:B:54:LEU:HD23	1:B:54:LEU:HA	1.81	0.43
1:A:393:LYS:O	1:A:397:TYR:CD2	2.69	0.43
1:B:387:LYS:HB3	1:B:387:LYS:HE3	1.87	0.43
1:A:28:LEU:HA	1:A:28:LEU:HD12	1.76	0.43
1:A:360:VAL:CG1	1:A:380:LEU:HD22	2.48	0.43
1:A:75:VAL:O	1:A:94:LYS:HG3	2.17	0.43
1:B:18:LYS:HA	1:B:18:LYS:HD2	1.81	0.43
1:B:90:PHE:CD2	1:B:266:GLY:HA2	2.52	0.43
1:B:120:TYR:C	1:B:121:GLU:HG2	2.41	0.43
1:B:148:ALA:HB1	1:B:175:PHE:CD2	2.52	0.43
1:A:80:ASP:O	1:A:84:LYS:HG3	2.19	0.43
1:B:260:GLU:O	1:B:261:GLY:C	2.62	0.43
1:A:215:ARG:HH12	1:A:224:ASN:ND2	2.10	0.43
1:A:352:LEU:HD11	1:A:402:TYR:HB2	2.00	0.43
1:A:72:ALA:O	1:A:73:PRO:C	2.60	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:248:GLU:C	1:A:249:ILE:HD12	2.44	0.43
1:A:57:PHE:CD2	1:A:57:PHE:C	2.97	0.43
1:A:121:GLU:O	1:A:184:ILE:HD13	2.19	0.43
1:A:196:ILE:HG13	1:A:269:TYR:HA	2.01	0.43
1:A:401:ARG:HE	1:A:401:ARG:HB3	1.54	0.43
1:B:52:GLU:HB2	1:B:85:ARG:HH22	1.82	0.43
1:B:139:PRO:HB2	1:B:140:ILE:CD1	2.49	0.43
1:A:294:GLN:O	1:A:298:MET:HG3	2.19	0.42
1:B:158:THR:O	1:B:161:LYS:N	2.51	0.42
1:A:310:ASN:O	1:A:311:PHE:C	2.59	0.42
1:B:252:ARG:HH11	1:B:252:ARG:HD2	1.65	0.42
1:A:74:LEU:HA	1:A:74:LEU:HD23	1.53	0.42
1:B:28:LEU:HD12	1:B:28:LEU:HA	1.81	0.42
1:A:100:GLU:OE1	1:A:287:ARG:HD3	2.19	0.42
1:B:216:LEU:HB3	1:B:223:PRO:HD2	2.00	0.42
1:A:34:ASN:OD1	1:A:34:ASN:C	2.62	0.42
1:B:24:LEU:HD11	1:B:306:GLU:HB2	2.00	0.42
1:B:233:PRO:HD2	1:B:325:TYR:CD1	2.54	0.42
1:A:173:LYS:C	1:A:175:PHE:N	2.75	0.42
1:A:211:GLN:O	1:A:230:ALA:HA	2.19	0.42
1:A:59:LYS:HE2	1:A:85:ARG:NH2	2.24	0.42
1:A:260:GLU:HB2	1:A:262:ILE:CG1	2.43	0.42
1:B:95:GLU:OE2	1:B:262:ILE:CD1	2.67	0.42
1:A:7:GLY:CA	1:A:12:GLU:HG2	2.49	0.41
1:A:79:VAL:HB	1:A:93:ASN:HA	2.02	0.41
1:A:143:LYS:O	1:A:144:ALA:C	2.62	0.41
1:A:216:LEU:O	1:A:409:HIS:CE1	2.61	0.41
1:A:400:ILE:HG21	1:A:410:TYR:CZ	2.55	0.41
1:A:22:SER:HA	1:A:23:PRO:HD3	1.72	0.41
1:B:200:ASN:HB2	1:B:311:PHE:CE2	2.55	0.41
1:B:276:LYS:CG	1:B:277:GLU:OE2	2.65	0.41
1:A:390:LYS:HE2	1:A:394:GLU:OE2	2.20	0.41
1:B:238:ASN:C	1:B:238:ASN:ND2	2.66	0.41
1:B:336:TYR:HA	1:B:337:PRO:C	2.44	0.41
1:A:196:ILE:HG13	1:A:269:TYR:HB2	2.03	0.41
1:A:236:VAL:CG1	1:A:274:ILE:HD13	2.51	0.41
1:A:119:ARG:H	1:A:186:GLU:CG	2.33	0.41
1:B:197:VAL:HA	1:B:206:PRO:HA	2.02	0.41
1:B:199:ILE:CD1	1:B:204:TYR:HB2	2.50	0.41
1:B:211:GLN:O	1:B:230:ALA:HA	2.21	0.41
1:A:234:THR:HA	1:A:235:PRO:HD2	1.91	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:308:LEU:HA	1:A:308:LEU:HD23	1.74	0.41
1:B:84:LYS:HE2	1:B:84:LYS:HB3	1.65	0.41
1:A:120:TYR:CD1	1:A:122:VAL:HG23	2.55	0.41
1:A:231:TYR:CE2	1:A:415:GLY:HA2	2.56	0.41
1:B:339:LYS:HA	1:B:340:PRO:HD2	1.71	0.41
1:B:144:ALA:HB2	1:B:179:SER:OG	2.21	0.41
1:A:393:LYS:HG3	1:A:397:TYR:HE2	1.86	0.40
1:B:5:VAL:O	1:B:30:VAL:HA	2.21	0.40
1:B:188:LEU:HD12	1:B:282:LEU:HD23	2.03	0.40
1:A:198:MET:N	1:A:205:VAL:O	2.52	0.40
1:A:395:ARG:HE	1:A:395:ARG:HB2	1.65	0.40
1:A:253:VAL:CG2	1:A:284:PHE:CZ	3.03	0.40
1:B:140:ILE:HG21	1:B:184:ILE:CG2	2.52	0.40
1:B:269:TYR:OH	1:B:292:GLU:OE2	2.26	0.40
1:A:10:GLY:HA2	1:A:362:HIS:O	2.21	0.40
1:A:228:MET:HE1	1:A:332:ALA:HB2	2.03	0.40
1:B:294:GLN:N	1:B:295:PRO:HD2	2.36	0.40
1:A:169:PHE:O	1:A:179:SER:HB2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	421/424 (99%)	383 (91%)	30 (7%)	8 (2%)	6	8
1	B	421/424 (99%)	366 (87%)	48 (11%)	7 (2%)	7	10
All	All	842/848 (99%)	749 (89%)	78 (9%)	15 (2%)	6	9

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	32	LYS
1	A	112	LYS
1	A	139	PRO
1	B	32	LYS
1	B	130	LYS
1	B	364	GLY
1	A	130	LYS
1	A	277	GLU
1	B	173	LYS
1	B	176	GLY
1	B	363	ALA
1	A	303	ASP
1	A	363	ALA
1	B	139	PRO
1	A	150	GLY

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	324/351 (92%)	290 (90%)	34 (10%)	6	10
1	B	321/351 (92%)	277 (86%)	44 (14%)	3	5
All	All	645/702 (92%)	567 (88%)	78 (12%)	5	7

All (78) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	27	GLU
1	A	42	LYS
1	A	46	ILE
1	A	59	LYS
1	A	67	ILE
1	A	85	ARG
1	A	95	GLU
1	A	102	SER
1	A	107	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	124	THR
1	A	139	PRO
1	A	177	LYS
1	A	180	GLU
1	A	184	ILE
1	A	186	GLU
1	A	203	ARG
1	A	215	ARG
1	A	240	GLU
1	A	242	GLU
1	A	243	LYS
1	A	254	ILE
1	A	265	ARG
1	A	269	TYR
1	A	277	GLU
1	A	287	ARG
1	A	294	GLN
1	A	301	LYS
1	A	313	GLU
1	A	319	ILE
1	A	331	LEU
1	A	338	GLU
1	A	368	GLU
1	A	373	VAL
1	A	420	LYS
1	B	1	MET
1	B	27	GLU
1	B	37	ILE
1	B	40	ILE
1	B	46	ILE
1	B	52	GLU
1	B	54	LEU
1	B	67	ILE
1	B	80	ASP
1	B	81	GLU
1	B	89	ILE
1	B	95	GLU
1	B	117	THR
1	B	122	VAL
1	B	139	PRO
1	B	140	ILE
1	B	175	PHE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	177	LYS
1	B	179	SER
1	B	180	GLU
1	B	182	VAL
1	B	184	ILE
1	B	203	ARG
1	B	238	ASN
1	B	240	GLU
1	B	255	LYS
1	B	265	ARG
1	B	276	LYS
1	B	277	GLU
1	B	287	ARG
1	B	294	GLN
1	B	296	ILE
1	B	301	LYS
1	B	331	LEU
1	B	333	SER
1	B	339	LYS
1	B	346	ILE
1	B	368	GLU
1	B	373	VAL
1	B	387	LYS
1	B	401	ARG
1	B	408	MET
1	B	411	ARG
1	B	412	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	224	ASN
1	A	285	ASN
1	A	294	GLN
1	A	310	ASN
1	A	347	HIS
1	A	370	ASN
1	A	409	HIS
1	B	224	ASN
1	B	238	ASN
1	B	294	GLN
1	B	310	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	318	HIS
1	B	409	HIS

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](#)

There are no ligands in this entry.

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	423/424 (99%)	0.20	29 (6%) 23 19	21, 43, 103, 125	0
1	B	423/424 (99%)	0.30	40 (9%) 14 11	21, 46, 114, 137	0
All	All	846/848 (99%)	0.25	69 (8%) 17 14	21, 44, 109, 137	0

All (69) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	153	ALA	5.6
1	B	167	ASP	4.4
1	A	164	GLU	4.2
1	B	179	SER	4.0
1	B	162	ALA	3.8
1	B	182	VAL	3.8
1	A	167	ASP	3.8
1	A	132	TYR	3.7
1	B	171	ASN	3.7
1	A	162	ALA	3.7
1	B	126	PHE	3.6
1	A	140	ILE	3.5
1	A	169	PHE	3.5
1	B	81	GLU	3.4
1	A	166	LEU	3.3
1	A	85	ARG	3.2
1	A	170	LEU	3.1
1	B	136	VAL	2.9
1	B	129	ALA	2.9
1	A	159	VAL	2.9
1	B	163	ILE	2.9
1	A	125	ASP	2.8
1	A	171	ASN	2.8
1	A	106	ALA	2.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	134	GLU	2.8
1	B	177	LYS	2.8
1	B	170	LEU	2.8
1	A	165	THR	2.7
1	B	184	ILE	2.7
1	A	175	PHE	2.7
1	B	139	PRO	2.7
1	A	136	VAL	2.6
1	A	139	PRO	2.6
1	A	184	ILE	2.5
1	B	131	GLU	2.5
1	B	157	GLU	2.5
1	B	133	VAL	2.5
1	A	152	GLY	2.5
1	A	160	GLU	2.4
1	B	143	LYS	2.4
1	A	163	ILE	2.4
1	B	154	VAL	2.4
1	B	123	PHE	2.3
1	B	155	VAL	2.3
1	A	129	ALA	2.3
1	B	145	ASP	2.3
1	B	160	GLU	2.3
1	A	104	ALA	2.3
1	B	168	ARG	2.3
1	B	124	THR	2.3
1	B	132	TYR	2.3
1	A	339	LYS	2.2
1	A	134	GLU	2.2
1	B	140	ILE	2.2
1	B	125	ASP	2.2
1	B	158	THR	2.2
1	A	126	PHE	2.2
1	B	135	LYS	2.2
1	A	133	VAL	2.1
1	B	159	VAL	2.1
1	A	158	THR	2.1
1	B	99	LEU	2.1
1	B	249	ILE	2.1
1	B	178	SER	2.1
1	B	183	VAL	2.1
1	B	166	LEU	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	262	ILE	2.1
1	A	127	GLU	2.0
1	B	368	GLU	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](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.