Full wwPDB X-ray Structure Validation Report (i)

Jun 12, 2024 – 06:13 AM EDT

PDB ID	:	1WYE
Title	:	Crystal structure of 2-keto-3-deoxygluconate kinase (form 1) from Sulfolobus Tokodaii
Authors	:	Toyoda, T.; Suzuki, K.; Hossain, M.T.; Koike, I.; Sekiguchi, T.; Takenaka, A.
Deposited on	:	2005-02-12
Resolution	:	2.80 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

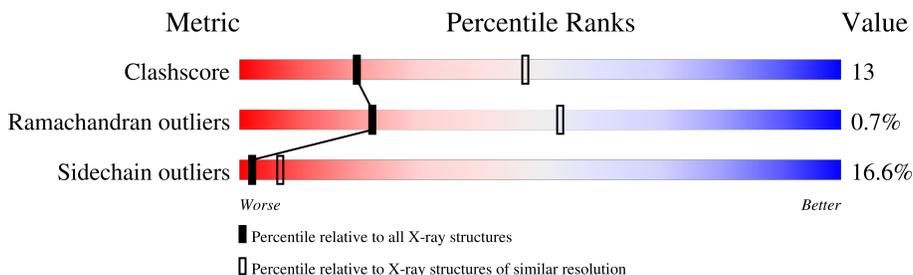|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

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 2.80 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	Percentile Ranks	Value
Clashscore		13
Ramachandran outliers		0.7%
Sidechain outliers		16.6%

Worse   *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	311	61% 31% 8% •
1	B	311	61% 31% 7% ••
1	C	311	63% 31% 5% •
1	D	311	63% 31% 6% •
1	E	311	60% 34% 5% ••
1	F	311	65% 28% 6% •

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 14836 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 2-keto-3-deoxygluconate kinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	309	Total	C	N	O	S	0	0	0
			2410	1548	389	466	7			
1	B	309	Total	C	N	O	S	0	0	0
			2410	1548	389	466	7			
1	C	309	Total	C	N	O	S	0	0	0
			2410	1548	389	466	7			
1	D	309	Total	C	N	O	S	0	0	0
			2410	1548	389	466	7			
1	E	309	Total	C	N	O	S	0	0	0
			2410	1548	389	466	7			
1	F	309	Total	C	N	O	S	0	0	0
			2406	1545	388	466	7			

- Molecule 2 is water.

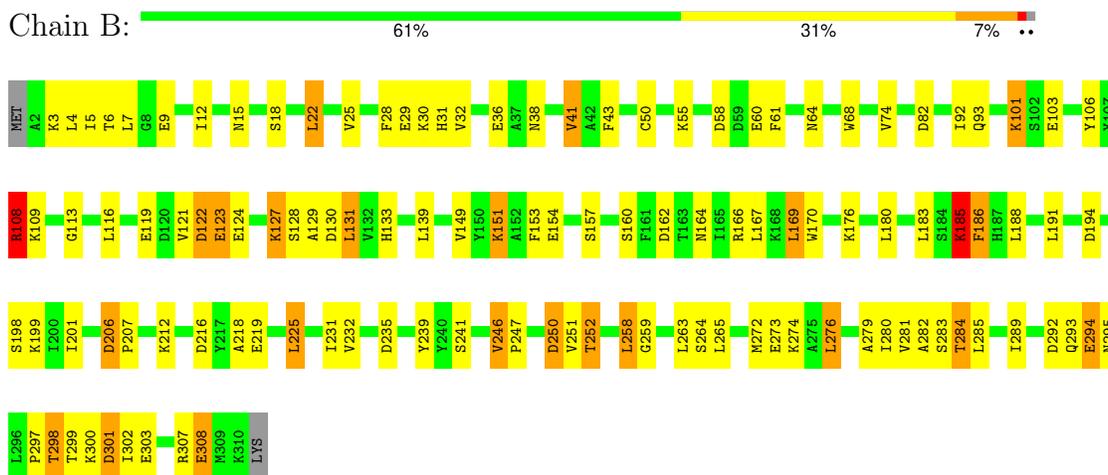| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	55	Total	O	0	0
			55	55		
2	B	45	Total	O	0	0
			45	45		
2	C	71	Total	O	0	0
			71	71		
2	D	79	Total	O	0	0
			79	79		
2	E	76	Total	O	0	0
			76	76		
2	F	54	Total	O	0	0
			54	54		

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.

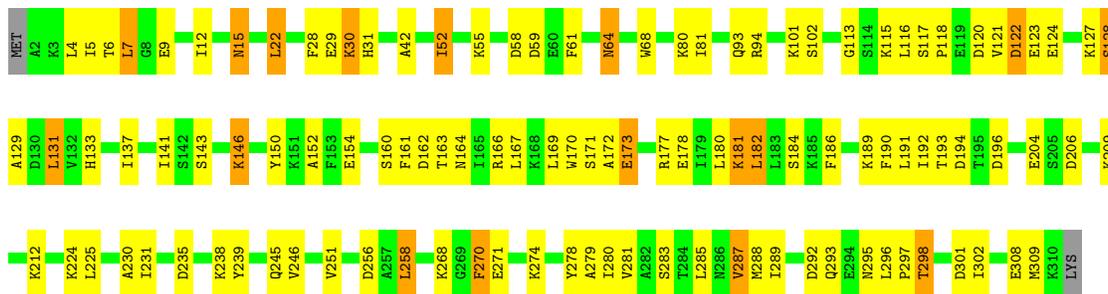• Molecule 1: 2-keto-3-deoxygluconate kinase
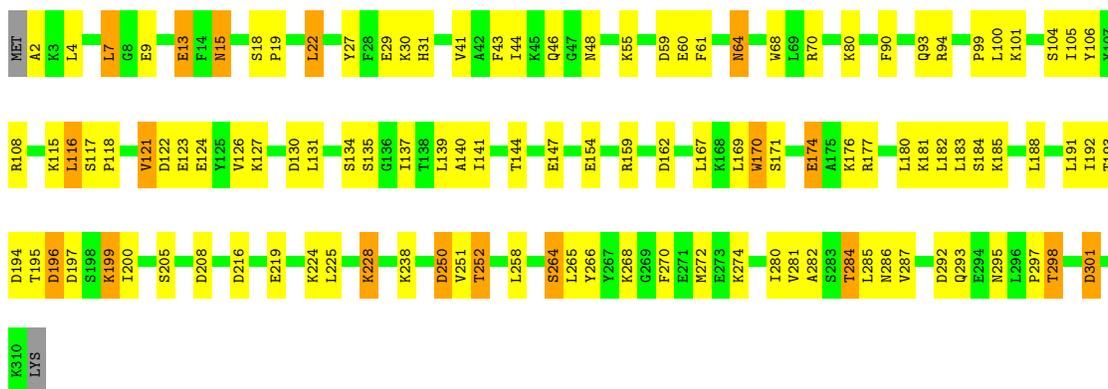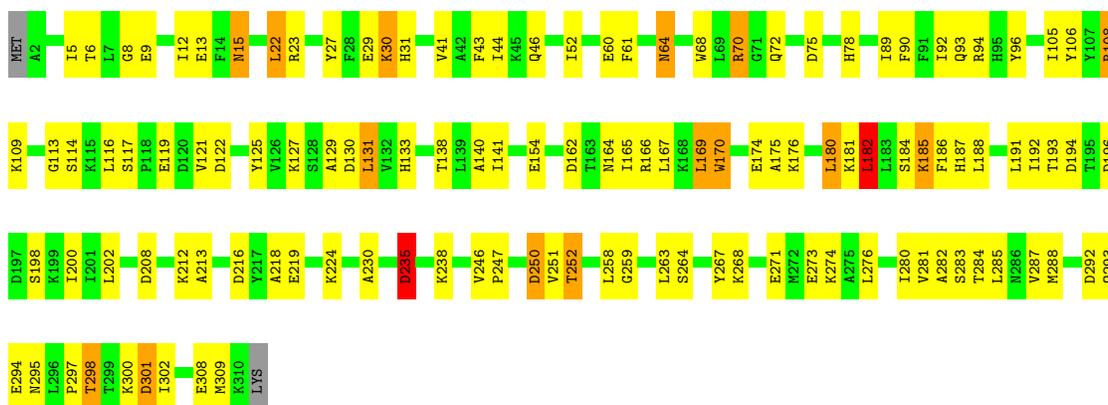
Chain A:

• Molecule 1: 2-keto-3-deoxygluconate kinase
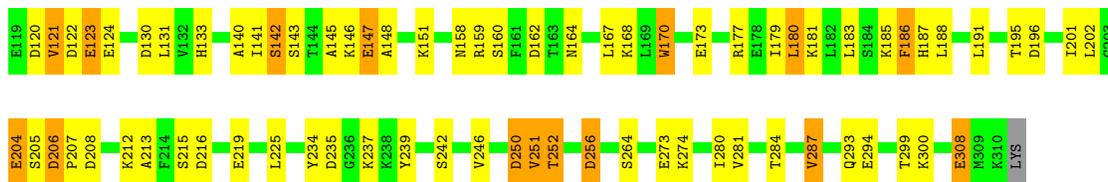
Chain B:

• Molecule 1: 2-keto-3-deoxygluconate kinase

Chain C:

MET A2 K3 L4 I5 T6 L7 G8 E9 I12 N15 L22 F28 E29 K30 H31 A42 I52 K55 D58 D59 E60 F61 N64 W68 K80 I81 Q93 R94 K101 S102 G113 S114 K115 L116 S117 P118 E119 D120 V121 D122 E123 E124 K127 S128

A129 D130 L131 V132 H133 I137 I141 S142 S143 K146 Y150 K151 A152 F153 E154 S160 F161 D162 T163 N164 I165 R166 L167 K168 L169 W170 S171 A172 E173 R177 E178 I179 L180 K181 L182 L183 S184 K185 F186 K189 F190 L191 I192 T193 D194 T195 D196 E204 S205 D206 K209

K212 K224 L225 A230 I231 D235 K238 Y239 Q245 V246 V251 D256 A257 L258 K268 G269 F270 E271 K274 Y278 A279 I280 V281 A282 S283 T284 L285 N286 V287 M288 I289 D292 Q293 E294 N295 L296 P297 T298 D301 I302 E308 M309 K310 LYS

• Molecule 1: 2-keto-3-deoxygluconate kinase

Chain D: 63% 31% 6% •

MET A2 K3 L4 L7 G8 E9 E13 F14 N15 S18 P19 L22 Y27 F28 E29 K30 H31 V41 A42 F43 I44 K45 Q46 G47 N48 K55 D59 E60 F61 N64 W68 L69 R70 K80 F90 Q93 R94 P99 L100 K101 S104 I105 Y106 Y107

R108 K115 L116 S117 P118 V121 D122 E123 E124 Y125 V126 K127 D130 L131 S134 S135 G136 I137 T138 L139 A140 I141 T144 E147 E154 R159 D162 L167 K168 L169 W170 S171 E174 A175 K176 R177 L180 K181 L182 L183 S184 K185 L188 L191 I192 T193

D194 T195 D196 D197 S198 K199 I200 S205 D208 D216 E219 K224 L225 K228 K238 D250 V251 T252 L258 S264 L265 Y266 Y267 K268 G269 F270 E271 M272 E273 K274 I280 V281 A282 S283 T284 L285 N286 V287 D292 Q293 E294 N295 L296 P297 T298 D301

K310 LYS

• Molecule 1: 2-keto-3-deoxygluconate kinase

Chain E: 60% 34% 5% ••

MET A2 I5 T6 L7 G8 E9 I12 E13 F14 N15 L22 R23 Y27 F28 E29 K30 H31 V41 A42 F43 I44 K45 Q46 I52 E60 F61 N64 W68 L69 R70 G71 Q72 D75 H78 I89 F90 F91 I92 Q93 R94 H95 Y96 I105 Y106 Y107 R108

K109 G113 S114 K115 L116 S117 P118 E119 D120 V121 D122 Y125 V126 K127 S128 A129 D130 L131 V132 H133 T138 L139 A140 I141 E154 D162 T163 N164 I165 R166 L167 K168 L169 W170 E174 A175 K176 L180 K181 L182 L183 S184 K185 F186 H187 L188 L191 I192 T193 D194 T195 D196

D197 S198 K199 I200 L201 L202 D208 D216 Y217 A218 E219 K224 A230 D235 K238 V246 P247 D250 V251 T252 L258 G259 L263 S264 Y267 K268 E271 M272 E273 K274 A275 L276 I280 V281 A282 S283 T284 L285 N286 V287 M288 D292 Q293

E294 N295 L296 P297 T298 T299 K300 D301 I302 E308 M309 K310 LYS

• Molecule 1: 2-keto-3-deoxygluconate kinase

Chain F: 65% 28% 6% •

MET A2 K3 L4 L7 I12 N15 P21 L22 E29 K30 H31 S35 C40 V41 A42 F43 I44 K45 Q46 G47 N48 E49 C50 D58 D59 E60 N64 E67 W68 K80 I81 I89 I92 Q93 R94 H95 Y96 R108 K109 G110 S111 L116 S117 P118

E119 D120 V121 D122 E123 E124 D130 L131 V132 H133 A140 I141 S142 S143 T144 A145 K146 E147 A148 K151 N158 R159 S160 F161 D162 T163 N164 L167 K168 L169 W170 E173 R177 E178 I179 L180 K181 L182 L183 S184 K185 F186 H187 L188 L191 T195 D196 I201 L202 G203

E204 S205 D206 P207 D208 K212 A213 F214 S215 D216 E219 L225 Y234 D235 G236 K237 K238 Y239 S242 V246 D250 V251 T252 D256 S264 E273 K274 I280 V281 T284 V287 Q293 E294 T299 K300 E308 M309 K310 LYS

4 Data and refinement statistics ⓘ

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

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	84.67Å 149.10Å 161.10Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	50.00 – 2.80	Depositor
% Data completeness (in resolution range)	99.8 (50.00-2.80)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	REFMAC 5.1.24	Depositor
R, R_{free}	0.179 , 0.270	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	14836	wwPDB-VP
Average B, all atoms (Å^2)	32.0	wwPDB-VP

5   Model quality (i)

5.1   Standard geometry (i)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	0.77	0/2461	0.94	10/3324 (0.3%)
1	B	0.78	0/2461	0.93	12/3324 (0.4%)
1	C	0.81	0/2461	0.95	7/3324 (0.2%)
1	D	0.80	0/2461	0.97	8/3324 (0.2%)
1	E	0.79	0/2461	0.96	12/3324 (0.4%)
1	F	0.73	0/2457	0.94	8/3320 (0.2%)
All	All	0.78	0/14762	0.95	57/19940 (0.3%)

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	1
1	F	0	1
All	All	0	2

There are no bond length outliers.

All (57) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	122	ASP	CB-CG-OD2	8.20	125.68	118.30
1	F	162	ASP	CB-CG-OD2	7.92	125.43	118.30
1	A	216	ASP	CB-CG-OD2	7.89	125.40	118.30
1	F	250	ASP	CB-CG-OD2	7.87	125.38	118.30
1	A	206	ASP	CB-CG-OD2	7.43	124.99	118.30
1	C	162	ASP	CB-CG-OD2	7.28	124.85	118.30
1	E	130	ASP	CB-CG-OD2	6.84	124.46	118.30
1	B	130	ASP	CB-CG-OD2	6.81	124.43	118.30
1	B	122	ASP	CB-CG-OD2	6.67	124.31	118.30
1	A	197	ASP	CB-CG-OD2	6.64	124.28	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	F	235	ASP	CB-CG-OD2	6.62	124.25	118.30
1	D	197	ASP	CB-CG-OD2	6.58	124.22	118.30
1	F	256	ASP	CB-CG-OD2	6.54	124.19	118.30
1	E	208	ASP	CB-CG-OD2	6.53	124.18	118.30
1	A	122	ASP	CB-CG-OD2	6.48	124.13	118.30
1	D	250	ASP	CB-CG-OD2	6.45	124.10	118.30
1	B	301	ASP	CB-CG-OD2	6.41	124.07	118.30
1	F	130	ASP	CB-CG-OD2	6.13	123.82	118.30
1	D	301	ASP	CB-CG-OD2	6.13	123.82	118.30
1	E	162	ASP	CB-CG-OD2	6.05	123.75	118.30
1	B	194	ASP	CB-CG-OD2	6.03	123.73	118.30
1	E	250	ASP	CB-CG-OD2	5.96	123.66	118.30
1	B	58	ASP	CB-CG-OD2	5.92	123.62	118.30
1	F	216	ASP	CB-CG-OD2	5.90	123.61	118.30
1	C	120	ASP	CB-CG-OD2	5.88	123.60	118.30
1	C	196	ASP	CB-CG-OD2	5.77	123.50	118.30
1	D	162	ASP	CB-CG-OD2	5.73	123.45	118.30
1	E	301	ASP	CB-CG-OD2	5.71	123.44	118.30
1	D	130	ASP	CB-CG-OD2	5.71	123.43	118.30
1	B	250	ASP	CB-CG-OD2	5.70	123.43	118.30
1	C	58	ASP	CB-CG-OD2	5.70	123.42	118.30
1	E	75	ASP	CB-CG-OD2	5.69	123.42	118.30
1	D	196	ASP	CB-CG-OD2	5.64	123.38	118.30
1	B	235	ASP	CB-CG-OD2	5.62	123.36	118.30
1	E	216	ASP	CB-CG-OD2	5.55	123.30	118.30
1	D	208	ASP	CB-CG-OD2	5.50	123.25	118.30
1	B	82	ASP	CB-CG-OD2	5.49	123.24	118.30
1	E	292	ASP	CB-CG-OD2	5.49	123.24	118.30
1	A	162	ASP	CB-CG-OD2	5.48	123.23	118.30
1	C	256	ASP	CB-CG-OD2	5.40	123.16	118.30
1	E	70	ARG	NE-CZ-NH1	-5.38	117.61	120.30
1	F	7	LEU	CA-CB-CG	5.37	127.64	115.30
1	C	122	ASP	CB-CG-OD2	5.29	123.06	118.30
1	A	116	LEU	CA-CB-CG	5.28	127.44	115.30
1	B	162	ASP	CB-CG-OD2	5.25	123.02	118.30
1	E	182	LEU	CA-CB-CG	5.25	127.36	115.30
1	B	108	ARG	NE-CZ-NH2	-5.22	117.69	120.30
1	A	277	ASP	CB-CG-OD1	5.21	122.99	118.30
1	F	120	ASP	CB-CG-OD2	5.15	122.94	118.30
1	D	59	ASP	CB-CG-OD2	5.15	122.94	118.30
1	B	206	ASP	CB-CG-OD2	5.14	122.93	118.30
1	E	196	ASP	CB-CG-OD2	5.13	122.92	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	180	LEU	CA-CB-CG	5.09	127.02	115.30
1	A	194	ASP	CB-CG-OD2	5.09	122.88	118.30
1	A	301	ASP	CB-CG-OD2	5.08	122.88	118.30
1	C	59	ASP	CB-CG-OD2	5.06	122.86	118.30
1	A	130	ASP	CB-CG-OD2	5.04	122.84	118.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	155	ILE	Peptide
1	F	234	TYR	Peptide

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2410	0	2392	63	0
1	B	2410	0	2392	65	0
1	C	2410	0	2392	61	0
1	D	2410	0	2392	70	0
1	E	2410	0	2392	67	0
1	F	2406	0	2381	57	0
2	A	55	0	0	3	0
2	B	45	0	0	3	0
2	C	71	0	0	3	0
2	D	79	0	0	5	0
2	E	76	0	0	3	0
2	F	54	0	0	2	0
All	All	14836	0	14341	369	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 13.

All (369) 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:C:30:LYS:HE2	1:C:64:ASN:OD1	1.44	1.17
1:E:184:SER:O	1:E:185:LYS:HG2	1.56	1.05
1:A:146:LYS:HE2	1:A:178:GLU:OE1	1.56	1.04
1:A:15:ASN:HD21	1:A:94:ARG:HD3	1.23	1.00
1:D:258:LEU:HD11	1:D:280:ILE:HD13	1.42	1.00
1:B:298:THR:HG22	1:B:301:ASP:H	1.27	1.00
1:C:15:ASN:HD21	1:C:94:ARG:HD3	1.28	0.97
1:D:70:ARG:O	1:E:70:ARG:HD2	1.72	0.90
1:A:68:TRP:HE1	1:A:293:GLN:NE2	1.71	0.89
1:D:298:THR:HG22	1:D:301:ASP:H	1.36	0.88
1:B:6:THR:HG22	1:B:133:HIS:HB3	1.55	0.87
1:C:298:THR:HG22	1:C:301:ASP:H	1.38	0.86
1:B:68:TRP:HE1	1:B:293:GLN:NE2	1.73	0.86
1:A:298:THR:HG22	1:A:301:ASP:H	1.42	0.85
1:A:160:SER:HB2	1:A:190:PHE:HB2	1.56	0.85
1:E:5:ILE:HD12	1:E:129:ALA:HB2	1.59	0.85
1:C:5:ILE:HD12	1:C:129:ALA:HB2	1.60	0.83
1:F:29:GLU:OE2	1:F:31:HIS:HE1	1.61	0.83
1:D:30:LYS:HE3	1:D:64:ASN:OD1	1.79	0.82
1:E:15:ASN:HD21	1:E:94:ARG:HD3	1.42	0.81
1:D:258:LEU:CD1	1:D:280:ILE:HD13	2.09	0.81
1:D:266:TYR:HD2	1:D:272:MET:HE1	1.46	0.81
1:C:127:LYS:O	1:C:128:SER:HB3	1.79	0.80
1:D:30:LYS:CE	1:D:64:ASN:OD1	2.30	0.79
1:E:192:ILE:HG22	1:E:224:LYS:HE2	1.67	0.77
1:D:280:ILE:O	1:D:284:THR:HG22	1.85	0.76
1:D:7:LEU:CD1	1:D:116:LEU:HD11	2.15	0.76
1:D:258:LEU:HD11	1:D:280:ILE:CD1	2.16	0.75
1:E:298:THR:HG22	1:E:301:ASP:H	1.51	0.75
1:F:15:ASN:HD21	1:F:94:ARG:HD3	1.52	0.74
1:B:241:SER:HB3	1:B:276:LEU:HD23	1.69	0.74
1:C:68:TRP:HE1	1:C:293:GLN:NE2	1.85	0.74
1:E:5:ILE:CD1	1:E:129:ALA:HB2	2.18	0.74
1:A:244:TYR:HB2	1:A:284:THR:HG21	1.68	0.74
1:F:280:ILE:O	1:F:284:THR:HG23	1.87	0.73
1:D:280:ILE:O	1:D:284:THR:CG2	2.37	0.72
1:C:124:GLU:HB2	2:C:363:HOH:O	1.90	0.71
1:B:12:ILE:HG13	1:B:61:PHE:HB3	1.73	0.70
1:A:93:GLN:HE22	1:B:60:GLU:HG3	1.55	0.70
1:B:276:LEU:O	1:B:280:ILE:HG12	1.91	0.70
1:E:117:SER:OG	1:E:119:GLU:HG2	1.91	0.70
1:F:12:ILE:HB	1:F:89:ILE:HG22	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:22:LEU:HD13	1:B:93:GLN:HG3	1.73	0.69
1:C:127:LYS:O	1:C:128:SER:CB	2.39	0.69
1:B:68:TRP:HE1	1:B:293:GLN:HE22	1.40	0.69
1:D:29:GLU:OE2	1:D:31:HIS:HE1	1.75	0.69
1:D:7:LEU:HD13	1:D:116:LEU:HD11	1.75	0.69
1:F:187:HIS:HB2	2:F:342:HOH:O	1.93	0.68
1:E:68:TRP:HE1	1:E:293:GLN:NE2	1.90	0.68
1:C:225:LEU:HD11	1:C:231:ILE:HD11	1.75	0.68
1:C:146:LYS:HE2	1:C:178:GLU:OE1	1.94	0.68
1:C:15:ASN:ND2	1:C:94:ARG:HD3	2.08	0.66
1:A:299:THR:O	1:A:303:GLU:HG3	1.96	0.66
1:B:308:GLU:HB3	2:B:348:HOH:O	1.96	0.65
1:E:114:SER:HA	1:E:141:ILE:HD12	1.79	0.65
1:E:250:ASP:OD1	1:E:252:THR:HG23	1.96	0.64
1:E:298:THR:HG23	2:E:322:HOH:O	1.95	0.64
1:D:106:TYR:CD2	1:D:108:ARG:HD2	2.32	0.64
1:D:68:TRP:HE1	1:D:293:GLN:NE2	1.95	0.64
1:E:280:ILE:O	1:E:284:THR:HG23	1.97	0.64
1:F:68:TRP:HE1	1:F:293:GLN:NE2	1.95	0.64
1:B:281:VAL:HA	1:B:284:THR:HG23	1.80	0.64
1:A:22:LEU:HB2	1:A:93:GLN:NE2	2.12	0.64
1:E:247:PRO:HD2	1:E:288:MET:HE3	1.80	0.64
1:C:181:LYS:O	1:C:184:SER:HB2	1.98	0.63
1:A:201:ILE:HG22	1:A:202:LEU:HG	1.80	0.63
1:E:106:TYR:HB3	1:E:108:ARG:HG2	1.80	0.63
1:F:239:TYR:CD2	1:F:273:GLU:HB3	2.34	0.63
1:B:92:ILE:HD13	1:B:252:THR:HG21	1.80	0.62
1:E:93:GLN:HE22	1:F:60:GLU:HG3	1.62	0.62
1:D:281:VAL:HA	1:D:284:THR:HG23	1.81	0.62
1:F:92:ILE:HD13	1:F:252:THR:HG21	1.80	0.62
1:A:22:LEU:HD22	1:A:105:ILE:HD13	1.82	0.62
1:F:204:GLU:OE2	1:F:204:GLU:HA	1.99	0.62
1:D:282:ALA:HA	1:D:297:PRO:HG3	1.82	0.62
1:C:298:THR:HG21	2:C:354:HOH:O	1.99	0.61
1:D:99:PRO:O	1:D:100:LEU:HB2	2.01	0.61
1:F:29:GLU:OE2	1:F:31:HIS:CE1	2.49	0.61
1:D:266:TYR:HD2	1:D:272:MET:CE	2.14	0.61
1:B:298:THR:HG22	1:B:301:ASP:N	2.08	0.61
1:C:298:THR:CG2	1:C:301:ASP:H	2.12	0.61
1:D:199:LYS:HG2	1:D:205:SER:HB3	1.82	0.60
1:A:68:TRP:HE1	1:A:293:GLN:HE22	1.49	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:15:ASN:ND2	1:A:94:ARG:HD3	2.06	0.60
1:A:199:LYS:O	1:A:203:GLY:HA2	2.01	0.60
1:B:297:PRO:HB2	1:B:302:ILE:HG13	1.84	0.60
1:C:55:LYS:HG3	1:C:80:LYS:HB2	1.82	0.60
1:C:172:ALA:HB3	1:C:173:GLU:OE2	2.01	0.59
1:E:46:GLN:HB2	1:E:264:SER:OG	2.02	0.59
1:B:101:LYS:HE3	1:F:308:GLU:HG2	1.84	0.59
1:B:250:ASP:OD1	1:B:252:THR:CG2	2.50	0.59
1:D:137:ILE:O	1:D:141:ILE:HG23	2.02	0.59
1:B:121:VAL:HG22	1:B:151:LYS:HD3	1.85	0.59
1:D:30:LYS:HE2	1:D:64:ASN:OD1	2.01	0.59
1:E:285:LEU:O	1:E:295:ASN:ND2	2.36	0.58
1:C:68:TRP:HE1	1:C:293:GLN:HE21	1.49	0.58
1:A:45:LYS:HD3	1:A:296:LEU:O	2.03	0.58
1:B:29:GLU:OE2	1:B:31:HIS:HE1	1.86	0.58
1:A:55:LYS:HG3	1:A:80:LYS:HB2	1.85	0.58
1:A:35:SER:HA	1:A:256:ASP:OD2	2.04	0.57
1:A:162:ASP:OD1	1:A:224:LYS:NZ	2.33	0.57
1:E:43:PHE:HA	1:E:264:SER:HB2	1.86	0.57
1:A:278:TYR:OH	1:A:303:GLU:OE2	2.17	0.57
1:E:247:PRO:HD2	1:E:288:MET:CE	2.34	0.57
1:A:22:LEU:HB2	1:A:93:GLN:HE21	1.69	0.56
1:E:15:ASN:HD21	1:E:94:ARG:CD	2.15	0.56
1:A:38:ASN:OD1	1:A:293:GLN:HG3	2.06	0.56
1:A:281:VAL:HG22	1:A:302:ILE:HG12	1.87	0.56
1:B:250:ASP:OD1	1:B:252:THR:HG22	2.05	0.56
1:F:250:ASP:OD1	1:F:252:THR:HG23	2.06	0.56
1:C:12:ILE:HG13	1:C:61:PHE:HB3	1.86	0.56
1:B:282:ALA:HA	1:B:297:PRO:HG2	1.87	0.56
1:C:225:LEU:HD11	1:C:231:ILE:CD1	2.35	0.56
1:C:246:VAL:CG1	1:C:288:MET:HG2	2.36	0.56
1:F:121:VAL:O	1:F:151:LYS:HE2	2.05	0.56
1:B:188:LEU:O	1:B:218:ALA:HA	2.06	0.55
1:C:251:VAL:HG12	1:C:287:VAL:HG22	1.88	0.55
1:D:117:SER:HB2	1:D:118:PRO:CD	2.36	0.55
1:A:206:ASP:OD1	1:A:209:LYS:HB2	2.06	0.55
1:A:159:ARG:NH1	1:A:187:HIS:O	2.39	0.55
1:B:36:GLU:HB2	2:B:345:HOH:O	2.05	0.55
1:D:2:ALA:N	1:D:48:ASN:HD22	2.04	0.55
1:A:177:ARG:CB	1:A:177:ARG:HH11	2.20	0.55
1:C:204:GLU:HG2	1:C:209:LYS:HB3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:258:LEU:CD2	1:C:280:ILE:HD13	2.37	0.55
1:D:121:VAL:HG23	1:D:126:VAL:HG21	1.88	0.55
1:E:6:THR:HG22	1:E:133:HIS:HB3	1.89	0.55
1:C:278:TYR:CD2	1:C:302:ILE:HG21	2.42	0.54
1:B:106:TYR:HB3	1:B:108:ARG:HG2	1.88	0.54
1:D:117:SER:HB2	1:D:118:PRO:HD2	1.88	0.54
1:D:106:TYR:HB3	1:D:108:ARG:HG2	1.90	0.54
1:B:299:THR:O	1:B:303:GLU:HG3	2.07	0.54
1:E:202:LEU:HD13	1:E:213:ALA:HB3	1.88	0.54
1:C:258:LEU:HB2	1:C:283:SER:HB3	1.89	0.54
1:C:55:LYS:CG	1:C:80:LYS:HB2	2.37	0.54
1:F:44:ILE:O	1:F:44:ILE:HG13	2.07	0.54
1:D:9:GLU:HB3	2:D:385:HOH:O	2.07	0.54
1:E:41:VAL:HA	1:E:44:ILE:HG22	1.88	0.54
1:B:289:ILE:HG22	1:D:19:PRO:HG2	1.89	0.53
1:F:183:LEU:CD2	1:F:188:LEU:HD11	2.37	0.53
1:C:206:ASP:HB3	1:C:209:LYS:HB2	1.90	0.53
1:D:298:THR:HG22	1:D:301:ASP:N	2.16	0.53
1:D:68:TRP:HE1	1:D:293:GLN:HE21	1.56	0.53
1:D:286:ASN:ND2	2:D:312:HOH:O	2.42	0.53
1:E:60:GLU:HG3	1:F:93:GLN:HE22	1.72	0.53
1:E:13:GLU:HG3	1:E:90:PHE:CZ	2.44	0.53
1:C:164:ASN:OD1	1:C:166:ARG:NH2	2.39	0.53
1:E:284:THR:HG22	2:E:363:HOH:O	2.09	0.52
1:A:161:PHE:CE2	1:A:163:THR:HA	2.44	0.52
1:E:22:LEU:H	1:E:93:GLN:NE2	2.07	0.52
1:A:8:GLY:HA2	1:A:138:THR:HG23	1.92	0.52
1:B:259:GLY:O	1:B:263:LEU:HG	2.09	0.52
1:C:133:HIS:HA	1:C:160:SER:O	2.08	0.52
1:A:176:LYS:HE2	1:A:201:ILE:O	2.10	0.52
1:B:22:LEU:HG	1:B:28:PHE:CZ	2.44	0.52
1:B:176:LYS:HD2	1:B:201:ILE:O	2.09	0.52
1:A:42:ALA:HB3	1:A:260:GLY:HA3	1.92	0.52
1:B:38:ASN:ND2	1:B:292:ASP:HB3	2.25	0.52
1:F:40:CYS:O	1:F:44:ILE:HG22	2.10	0.52
1:A:25:VAL:O	1:B:30:LYS:HE3	2.11	0.51
1:D:224:LYS:HG2	1:D:258:LEU:HD22	1.93	0.51
1:F:133:HIS:HA	1:F:160:SER:O	2.10	0.51
1:D:192:ILE:HG22	1:D:224:LYS:HE2	1.92	0.51
1:B:123:GLU:HG2	1:B:127:LYS:NZ	2.26	0.51
1:D:15:ASN:HD21	1:D:94:ARG:HD3	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:177:ARG:HB3	1:A:177:ARG:NH1	2.25	0.51
1:A:239:TYR:CE2	1:A:241:SER:HB2	2.46	0.51
1:B:121:VAL:CG2	1:B:151:LYS:HG2	2.41	0.51
1:E:68:TRP:HE1	1:E:293:GLN:HE21	1.60	0.50
1:A:145:ALA:O	1:A:148:ALA:HB3	2.11	0.50
1:D:270:PHE:CD1	1:D:274:LYS:HD3	2.46	0.50
1:E:23:ARG:NH1	1:F:67:GLU:OE2	2.39	0.50
1:B:31:HIS:HD2	1:B:294:GLU:OE2	1.95	0.50
1:B:241:SER:OG	1:B:280:ILE:HG13	2.12	0.50
1:C:246:VAL:CG1	1:C:288:MET:CG	2.90	0.50
1:E:22:LEU:HD22	1:E:105:ILE:HD13	1.94	0.50
1:A:250:ASP:OD1	1:A:252:THR:HG23	2.12	0.50
1:F:239:TYR:HD2	1:F:273:GLU:HB3	1.75	0.50
1:C:193:THR:OG1	1:C:194:ASP:N	2.45	0.49
1:D:280:ILE:O	1:D:284:THR:HG23	2.10	0.49
1:D:7:LEU:HD11	1:D:116:LEU:HD11	1.91	0.49
1:D:13:GLU:HB2	1:D:90:PHE:CE1	2.48	0.49
1:A:4:LEU:O	1:A:50:CYS:HA	2.13	0.49
1:D:46:GLN:HE21	1:D:265:LEU:HD21	1.77	0.49
1:E:9:GLU:HG3	1:E:113:GLY:HA3	1.94	0.49
1:D:2:ALA:N	1:D:48:ASN:ND2	2.61	0.49
1:F:41:VAL:HG21	1:F:293:GLN:NE2	2.28	0.49
1:B:32:VAL:HG21	1:B:68:TRP:CB	2.42	0.49
1:A:108:ARG:HG3	2:A:316:HOH:O	2.13	0.49
1:E:78:HIS:HE1	2:E:358:HOH:O	1.96	0.49
1:E:297:PRO:HB2	1:E:302:ILE:HG13	1.95	0.49
1:F:22:LEU:H	1:F:93:GLN:NE2	2.11	0.49
1:D:43:PHE:HA	1:D:264:SER:HB2	1.95	0.48
1:E:6:THR:HA	1:E:133:HIS:O	2.13	0.48
1:B:22:LEU:HG	1:B:28:PHE:HZ	1.79	0.48
1:C:22:LEU:H	1:C:93:GLN:NE2	2.12	0.48
1:B:285:LEU:HD12	1:B:297:PRO:HG3	1.95	0.48
1:E:140:ALA:HB2	1:E:170:TRP:CE2	2.48	0.48
1:D:115:LYS:HE2	2:D:372:HOH:O	2.13	0.48
1:A:204:GLU:OE1	1:A:209:LYS:HD2	2.12	0.48
1:B:9:GLU:HG3	1:B:113:GLY:HA3	1.95	0.48
1:B:108:ARG:HD3	2:B:338:HOH:O	2.14	0.48
1:E:29:GLU:OE1	1:E:31:HIS:HE1	1.96	0.48
1:A:179:ILE:HD13	1:A:201:ILE:HD11	1.96	0.48
1:A:289:ILE:HD11	1:A:295:ASN:HB2	1.96	0.48
1:C:231:ILE:HA	1:C:239:TYR:O	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:117:SER:HB3	1:D:144:THR:HB	1.95	0.48
1:E:182:LEU:HD22	1:E:186:PHE:HD1	1.79	0.48
1:F:21:PRO:HG3	1:F:96:TYR:CE1	2.49	0.47
1:D:104:SER:C	1:D:105:ILE:HD13	2.35	0.47
1:F:35:SER:HA	1:F:256:ASP:OD2	2.14	0.47
1:F:251:VAL:HG23	1:F:287:VAL:HG22	1.95	0.47
1:E:165:ILE:HG21	1:E:200:ILE:HD13	1.96	0.47
1:A:155:ILE:HG22	1:A:155:ILE:O	2.13	0.47
1:A:297:PRO:HA	1:E:96:TYR:OH	2.15	0.47
1:C:258:LEU:HD21	1:C:280:ILE:HD13	1.96	0.47
1:A:185:LYS:H	1:A:185:LYS:HD2	1.78	0.47
1:B:225:LEU:HD21	1:B:231:ILE:HD11	1.96	0.47
1:E:27:TYR:CE2	1:F:29:GLU:HG3	2.49	0.47
1:A:117:SER:HB2	1:A:118:PRO:HD2	1.97	0.47
1:B:5:ILE:HD12	1:B:129:ALA:HB2	1.96	0.47
1:E:166:ARG:HB2	1:E:169:LEU:HD22	1.96	0.47
1:F:58:ASP:HB2	1:F:81:ILE:CG2	2.45	0.47
1:B:166:ARG:HB2	1:B:169:LEU:HD22	1.97	0.46
1:E:182:LEU:HD22	1:E:186:PHE:CD1	2.50	0.46
1:B:280:ILE:O	1:B:283:SER:HB3	2.16	0.46
1:C:163:THR:CG2	1:C:193:THR:HB	2.45	0.46
1:A:37:ALA:O	1:A:40:CYS:HB2	2.14	0.46
1:D:122:ASP:O	1:D:126:VAL:HG23	2.15	0.46
1:B:31:HIS:CD2	1:B:294:GLU:OE2	2.68	0.46
1:F:48:ASN:HD22	1:F:48:ASN:HA	1.56	0.46
1:C:289:ILE:HD11	1:C:295:ASN:HB2	1.98	0.46
1:A:36:GLU:OE2	1:A:135:SER:HB3	2.16	0.46
1:B:231:ILE:HA	1:B:239:TYR:O	2.15	0.46
1:D:251:VAL:HG23	2:D:373:HOH:O	2.14	0.46
1:E:164:ASN:OD1	1:E:166:ARG:NH2	2.38	0.46
1:F:21:PRO:HG3	1:F:96:TYR:CZ	2.50	0.46
1:F:145:ALA:O	1:F:148:ALA:HB3	2.16	0.46
1:F:180:LEU:HD13	1:F:201:ILE:CG2	2.46	0.46
1:C:9:GLU:HG3	1:C:113:GLY:HA3	1.96	0.46
1:C:29:GLU:OE2	1:C:31:HIS:HE1	1.99	0.46
1:C:137:ILE:O	1:C:141:ILE:HG23	2.16	0.46
1:C:171:SER:HB2	1:C:173:GLU:HG2	1.97	0.46
1:A:8:GLY:HA2	1:A:138:THR:CG2	2.46	0.46
1:A:64:ASN:C	1:A:64:ASN:HD22	2.16	0.46
1:B:149:VAL:O	1:B:153:PHE:HB2	2.16	0.46
1:F:206:ASP:HA	1:F:207:PRO:HD2	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:118:PRO:HA	1:A:121:VAL:HG13	1.97	0.45
1:B:4:LEU:HD12	1:B:131:LEU:O	2.15	0.45
1:C:154:GLU:HB3	1:C:186:PHE:HE2	1.82	0.45
1:E:93:GLN:NE2	1:F:60:GLU:HG3	2.28	0.45
1:C:6:THR:HA	1:C:133:HIS:O	2.17	0.45
1:C:285:LEU:HD12	1:C:297:PRO:HG3	1.97	0.45
1:F:30:LYS:HB3	1:F:30:LYS:HE2	1.69	0.45
1:F:177:ARG:O	1:F:181:LYS:HB2	2.16	0.45
1:D:171:SER:OG	1:D:174:GLU:HB2	2.17	0.45
1:C:7:LEU:HD11	1:C:152:ALA:HB3	1.97	0.45
1:E:235:ASP:CG	1:E:235:ASP:O	2.54	0.45
1:D:55:LYS:HG3	1:D:80:LYS:HB2	1.98	0.45
1:D:41:VAL:HA	1:D:44:ILE:HG22	1.99	0.45
1:D:250:ASP:OD1	1:D:252:THR:CG2	2.65	0.45
1:E:259:GLY:O	1:E:263:LEU:HG	2.17	0.45
1:F:4:LEU:O	1:F:50:CYS:HA	2.16	0.45
1:C:101:LYS:HD3	2:C:360:HOH:O	2.15	0.44
1:E:30:LYS:HG3	1:E:31:HIS:N	2.30	0.44
1:E:165:ILE:HG12	1:E:175:ALA:HB1	1.99	0.44
1:F:159:ARG:HD3	1:F:186:PHE:HB3	1.99	0.44
1:A:189:LYS:NZ	2:A:318:HOH:O	2.49	0.44
1:C:93:GLN:HE22	1:D:60:GLU:HG3	1.82	0.44
1:D:134:SER:OG	1:D:135:SER:N	2.49	0.44
1:B:41:VAL:HG11	1:B:293:GLN:NE2	2.32	0.44
1:B:265:LEU:HD23	1:B:265:LEU:HA	1.79	0.44
1:D:121:VAL:HA	2:D:313:HOH:O	2.16	0.44
1:B:232:VAL:HB	1:B:276:LEU:HD13	2.00	0.44
1:F:118:PRO:HG3	1:F:147:GLU:HB3	2.00	0.44
1:A:131:LEU:HD11	1:A:160:SER:HB3	2.00	0.44
1:A:140:ALA:HB2	1:A:170:TRP:CE2	2.53	0.44
1:B:123:GLU:H	1:B:123:GLU:CD	2.20	0.44
1:D:225:LEU:HB3	1:D:228:LYS:HB2	1.99	0.44
1:A:136:GLY:HA3	1:A:163:THR:O	2.18	0.44
1:B:55:LYS:O	1:B:113:GLY:HA2	2.17	0.43
1:C:189:LYS:HD3	1:C:190:PHE:CE1	2.52	0.43
1:E:12:ILE:HG13	1:E:61:PHE:HB3	2.00	0.43
1:B:185:LYS:H	1:B:185:LYS:HG2	1.31	0.43
1:B:206:ASP:OD1	1:B:207:PRO:HD2	2.18	0.43
1:D:61:PHE:O	1:D:64:ASN:HB3	2.18	0.43
1:F:183:LEU:HD22	1:F:188:LEU:HD11	2.01	0.43
1:A:4:LEU:HD11	1:A:133:HIS:HB3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:43:PHE:HA	1:B:264:SER:HB2	1.99	0.43
1:E:193:THR:OG1	1:E:194:ASP:N	2.51	0.43
1:E:198:SER:O	1:E:202:LEU:HB2	2.18	0.43
1:A:265:LEU:HD21	1:A:299:THR:HG23	2.01	0.43
1:D:176:LYS:HD3	1:D:200:ILE:O	2.19	0.43
1:F:108:ARG:O	1:F:111:SER:HB3	2.19	0.43
1:C:28:PHE:O	1:D:27:TYR:HA	2.19	0.43
1:C:30:LYS:CE	1:C:64:ASN:OD1	2.38	0.43
1:C:230:ALA:HB3	1:C:280:ILE:HD11	2.01	0.43
1:D:104:SER:O	1:D:105:ILE:HD13	2.18	0.43
1:F:141:ILE:O	1:F:142:SER:HB3	2.19	0.43
1:B:246:VAL:HG22	1:B:247:PRO:HD2	2.00	0.43
1:C:235:ASP:CG	1:C:235:ASP:O	2.56	0.43
1:F:212:LYS:O	1:F:215:SER:OG	2.33	0.43
1:A:171:SER:O	1:A:172:ALA:C	2.57	0.43
1:A:285:LEU:O	1:A:288:MET:HG2	2.19	0.43
1:D:4:LEU:HD22	1:D:43:PHE:CD1	2.54	0.43
1:F:179:ILE:O	1:F:183:LEU:HG	2.19	0.43
1:D:4:LEU:HB2	1:D:43:PHE:CE2	2.54	0.43
1:D:140:ALA:HB2	1:D:170:TRP:CE2	2.54	0.43
1:E:282:ALA:HA	1:E:297:PRO:HG3	2.00	0.43
1:F:43:PHE:CE2	1:F:48:ASN:HB3	2.54	0.42
1:F:140:ALA:HB2	1:F:170:TRP:CE2	2.54	0.42
1:B:133:HIS:HA	1:B:160:SER:O	2.20	0.42
1:E:230:ALA:HB3	1:E:276:LEU:HD11	2.02	0.42
1:E:250:ASP:OD1	1:E:252:THR:CG2	2.66	0.42
1:F:15:ASN:HD21	1:F:94:ARG:CD	2.27	0.42
1:F:15:ASN:N	1:F:29:GLU:O	2.45	0.42
1:F:239:TYR:CD1	1:F:239:TYR:N	2.87	0.42
1:A:55:LYS:HB3	1:A:112:ALA:O	2.20	0.42
1:B:92:ILE:HD13	1:B:252:THR:CG2	2.46	0.42
1:C:161:PHE:CE2	1:C:163:THR:HA	2.54	0.42
1:D:297:PRO:HA	1:F:96:TYR:OH	2.20	0.42
1:A:92:ILE:HG22	1:A:94:ARG:HG2	2.00	0.42
1:A:156:ALA:O	1:A:157:SER:CB	2.67	0.42
1:B:121:VAL:CG2	1:B:121:VAL:O	2.68	0.42
1:C:270:PHE:CD2	1:C:270:PHE:N	2.88	0.42
1:F:168:LYS:NZ	2:F:365:HOH:O	2.29	0.42
1:A:155:ILE:O	1:A:155:ILE:CG2	2.68	0.42
1:E:41:VAL:HG21	1:E:72:GLN:HG3	2.02	0.42
1:A:176:LYS:O	1:A:180:LEU:HD22	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:4:LEU:HD13	1:C:131:LEU:HB3	2.01	0.42
1:E:22:LEU:HD13	1:E:93:GLN:HG3	2.02	0.42
1:E:29:GLU:OE1	1:E:31:HIS:CE1	2.73	0.42
1:D:22:LEU:HD13	1:D:93:GLN:CB	2.50	0.42
1:D:123:GLU:OE1	1:D:123:GLU:N	2.53	0.42
1:E:187:HIS:CE1	1:E:219:GLU:HG3	2.55	0.42
1:F:46:GLN:NE2	1:F:299:THR:OG1	2.53	0.42
1:B:22:LEU:HA	1:B:25:VAL:CG2	2.50	0.41
1:B:250:ASP:OD1	1:B:252:THR:HG23	2.20	0.41
1:C:42:ALA:HA	1:C:296:LEU:HD13	2.02	0.41
1:E:64:ASN:C	1:E:64:ASN:HD22	2.23	0.41
1:C:194:ASP:HB3	1:C:224:LYS:HB2	2.01	0.41
1:E:78:HIS:CD2	1:E:125:TYR:CE2	3.08	0.41
1:C:150:TYR:CE1	1:C:182:LEU:HD23	2.56	0.41
1:E:8:GLY:HA2	1:E:138:THR:HG23	2.01	0.41
1:B:258:LEU:HD13	1:B:279:ALA:HB1	2.01	0.41
1:E:22:LEU:H	1:E:93:GLN:HE21	1.67	0.41
1:B:121:VAL:HG22	1:B:151:LYS:CD	2.48	0.41
1:E:176:LYS:O	1:E:180:LEU:HB2	2.20	0.41
1:F:202:LEU:HD13	1:F:213:ALA:HB3	2.02	0.41
1:B:50:CYS:SG	1:B:74:VAL:HG13	2.60	0.41
1:D:258:LEU:CD1	1:D:280:ILE:CD1	2.89	0.41
1:C:258:LEU:HD13	1:C:279:ALA:HB1	2.03	0.41
1:D:193:THR:OG1	1:D:194:ASP:N	2.54	0.41
1:D:285:LEU:C	1:D:295:ASN:HD22	2.24	0.41
1:E:92:ILE:HD13	1:E:252:THR:HG21	2.03	0.41
1:E:188:LEU:O	1:E:218:ALA:HA	2.21	0.41
1:F:22:LEU:HD12	1:F:22:LEU:HA	1.86	0.41
1:F:64:ASN:C	1:F:64:ASN:HD22	2.24	0.41
1:F:80:LYS:HA	1:F:80:LYS:HD3	1.92	0.41
1:A:95:HIS:CD2	1:A:95:HIS:N	2.89	0.40
1:A:298:THR:HG23	2:A:322:HOH:O	2.21	0.40
1:B:154:GLU:HB3	1:B:186:PHE:HE2	1.86	0.40
1:C:117:SER:HB2	1:C:118:PRO:HD2	2.03	0.40
1:D:13:GLU:HG2	1:D:31:HIS:HB2	2.04	0.40
1:D:183:LEU:HD22	1:D:188:LEU:HD11	2.04	0.40
1:C:6:THR:OG1	1:C:52:ILE:CG1	2.69	0.40
1:C:163:THR:HG23	1:C:193:THR:HB	2.04	0.40
1:E:131:LEU:HG	1:E:267:TYR:OH	2.21	0.40
1:F:31:HIS:HD2	1:F:294:GLU:OE2	2.05	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	307/311 (99%)	283 (92%)	22 (7%)	2 (1%)	22	53
1	B	307/311 (99%)	292 (95%)	12 (4%)	3 (1%)	15	44
1	C	307/311 (99%)	295 (96%)	11 (4%)	1 (0%)	41	72
1	D	307/311 (99%)	291 (95%)	16 (5%)	0	100	100
1	E	307/311 (99%)	293 (95%)	11 (4%)	3 (1%)	15	44
1	F	307/311 (99%)	284 (92%)	19 (6%)	4 (1%)	12	36
All	All	1842/1866 (99%)	1738 (94%)	91 (5%)	13 (1%)	22	53

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	186	PHE
1	C	128	SER
1	E	185	LYS
1	F	142	SER
1	F	186	PHE
1	F	287	VAL
1	A	157	SER
1	B	185	LYS
1	A	184	SER
1	B	151	LYS
1	E	235	ASP
1	E	22	LEU
1	F	123	GLU

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	257/260 (99%)	211 (82%)	46 (18%)		2	5
1	B	257/260 (99%)	208 (81%)	49 (19%)		1	4
1	C	257/260 (99%)	217 (84%)	40 (16%)		2	8
1	D	257/260 (99%)	216 (84%)	41 (16%)		2	7
1	E	257/260 (99%)	218 (85%)	39 (15%)		3	8
1	F	256/260 (98%)	215 (84%)	41 (16%)		2	7
All	All	1541/1560 (99%)	1285 (83%)	256 (17%)		2	7

All (256) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	GLU
1	A	15	ASN
1	A	18	SER
1	A	22	LEU
1	A	45	LYS
1	A	49	GLU
1	A	55	LYS
1	A	64	ASN
1	A	101	LYS
1	A	109	LYS
1	A	116	LEU
1	A	121	VAL
1	A	123	GLU
1	A	127	LYS
1	A	131	LEU
1	A	139	LEU
1	A	146	LYS
1	A	160	SER
1	A	167	LEU
1	A	169	LEU
1	A	170	TRP
1	A	174	GLU
1	A	176	LYS
1	A	180	LEU
1	A	182	LEU
1	A	185	LYS
1	A	192	ILE

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Mol	Chain	Res	Type
1	A	195	THR
1	A	202	LEU
1	A	206	ASP
1	A	208	ASP
1	A	209	LYS
1	A	225	LEU
1	A	238	LYS
1	A	246	VAL
1	A	252	THR
1	A	258	LEU
1	A	268	LYS
1	A	274	LYS
1	A	283	SER
1	A	284	THR
1	A	298	THR
1	A	299	THR
1	A	307	ARG
1	A	308	GLU
1	A	309	MET
1	B	3	LYS
1	B	7	LEU
1	B	15	ASN
1	B	18	SER
1	B	22	LEU
1	B	41	VAL
1	B	64	ASN
1	B	101	LYS
1	B	103	GLU
1	B	108	ARG
1	B	109	LYS
1	B	116	LEU
1	B	119	GLU
1	B	122	ASP
1	B	123	GLU
1	B	124	GLU
1	B	127	LYS
1	B	128	SER
1	B	131	LEU
1	B	139	LEU
1	B	157	SER
1	B	164	ASN
1	B	167	LEU

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Mol	Chain	Res	Type
1	B	169	LEU
1	B	170	TRP
1	B	183	LEU
1	B	185	LYS
1	B	191	LEU
1	B	198	SER
1	B	199	LYS
1	B	212	LYS
1	B	216	ASP
1	B	219	GLU
1	B	225	LEU
1	B	246	VAL
1	B	251	VAL
1	B	252	THR
1	B	258	LEU
1	B	272	MET
1	B	273	GLU
1	B	274	LYS
1	B	276	LEU
1	B	284	THR
1	B	294	GLU
1	B	295	ASN
1	B	298	THR
1	B	300	LYS
1	B	307	ARG
1	B	308	GLU
1	C	7	LEU
1	C	15	ASN
1	C	22	LEU
1	C	30	LYS
1	C	52	ILE
1	C	64	ASN
1	C	81	ILE
1	C	102	SER
1	C	115	LYS
1	C	116	LEU
1	C	121	VAL
1	C	122	ASP
1	C	123	GLU
1	C	131	LEU
1	C	143	SER
1	C	146	LYS

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Mol	Chain	Res	Type
1	C	167	LEU
1	C	169	LEU
1	C	170	TRP
1	C	173	GLU
1	C	177	ARG
1	C	180	LEU
1	C	181	LYS
1	C	182	LEU
1	C	191	LEU
1	C	192	ILE
1	C	212	LYS
1	C	238	LYS
1	C	245	GLN
1	C	258	LEU
1	C	268	LYS
1	C	270	PHE
1	C	271	GLU
1	C	274	LYS
1	C	281	VAL
1	C	287	VAL
1	C	292	ASP
1	C	298	THR
1	C	308	GLU
1	C	309	MET
1	D	7	LEU
1	D	13	GLU
1	D	15	ASN
1	D	18	SER
1	D	22	LEU
1	D	64	ASN
1	D	101	LYS
1	D	116	LEU
1	D	121	VAL
1	D	124	GLU
1	D	127	LYS
1	D	131	LEU
1	D	139	LEU
1	D	147	GLU
1	D	154	GLU
1	D	159	ARG
1	D	167	LEU
1	D	169	LEU

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Mol	Chain	Res	Type
1	D	170	TRP
1	D	174	GLU
1	D	177	ARG
1	D	180	LEU
1	D	181	LYS
1	D	182	LEU
1	D	184	SER
1	D	185	LYS
1	D	191	LEU
1	D	195	THR
1	D	196	ASP
1	D	199	LYS
1	D	216	ASP
1	D	219	GLU
1	D	228	LYS
1	D	238	LYS
1	D	252	THR
1	D	264	SER
1	D	268	LYS
1	D	284	THR
1	D	287	VAL
1	D	292	ASP
1	D	298	THR
1	E	15	ASN
1	E	30	LYS
1	E	52	ILE
1	E	64	ASN
1	E	89	ILE
1	E	108	ARG
1	E	109	LYS
1	E	116	LEU
1	E	121	VAL
1	E	127	LYS
1	E	131	LEU
1	E	154	GLU
1	E	167	LEU
1	E	169	LEU
1	E	170	TRP
1	E	174	GLU
1	E	180	LEU
1	E	181	LYS
1	E	182	LEU

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Mol	Chain	Res	Type
1	E	191	LEU
1	E	212	LYS
1	E	235	ASP
1	E	238	LYS
1	E	246	VAL
1	E	251	VAL
1	E	252	THR
1	E	258	LEU
1	E	268	LYS
1	E	271	GLU
1	E	273	GLU
1	E	274	LYS
1	E	281	VAL
1	E	283	SER
1	E	287	VAL
1	E	294	GLU
1	E	298	THR
1	E	300	LYS
1	E	308	GLU
1	E	309	MET
1	F	7	LEU
1	F	15	ASN
1	F	22	LEU
1	F	44	ILE
1	F	64	ASN
1	F	109	LYS
1	F	116	LEU
1	F	121	VAL
1	F	122	ASP
1	F	123	GLU
1	F	124	GLU
1	F	131	LEU
1	F	143	SER
1	F	146	LYS
1	F	147	GLU
1	F	158	ASN
1	F	164	ASN
1	F	167	LEU
1	F	170	TRP
1	F	173	GLU
1	F	180	LEU
1	F	185	LYS

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Mol	Chain	Res	Type
1	F	191	LEU
1	F	195	THR
1	F	196	ASP
1	F	204	GLU
1	F	205	SER
1	F	206	ASP
1	F	208	ASP
1	F	219	GLU
1	F	225	LEU
1	F	237	LYS
1	F	242	SER
1	F	246	VAL
1	F	251	VAL
1	F	252	THR
1	F	264	SER
1	F	274	LYS
1	F	281	VAL
1	F	300	LYS
1	F	308	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (47) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	15	ASN
1	A	31	HIS
1	A	46	GLN
1	A	48	ASN
1	A	78	HIS
1	A	93	GLN
1	A	164	ASN
1	A	286	ASN
1	A	293	GLN
1	B	15	ASN
1	B	31	HIS
1	B	48	ASN
1	B	93	GLN
1	B	95	HIS
1	B	286	ASN
1	B	293	GLN
1	C	15	ASN
1	C	31	HIS
1	C	46	GLN

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Mol	Chain	Res	Type
1	C	48	ASN
1	C	78	HIS
1	C	93	GLN
1	C	286	ASN
1	C	293	GLN
1	D	15	ASN
1	D	31	HIS
1	D	46	GLN
1	D	93	GLN
1	D	286	ASN
1	D	293	GLN
1	D	295	ASN
1	E	15	ASN
1	E	31	HIS
1	E	46	GLN
1	E	48	ASN
1	E	78	HIS
1	E	93	GLN
1	E	286	ASN
1	E	293	GLN
1	F	15	ASN
1	F	31	HIS
1	F	46	GLN
1	F	48	ASN
1	F	93	GLN
1	F	95	HIS
1	F	286	ASN
1	F	293	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

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.