WORLDWIDE PDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Jun 12, 2024 – 12:21 AM EDT

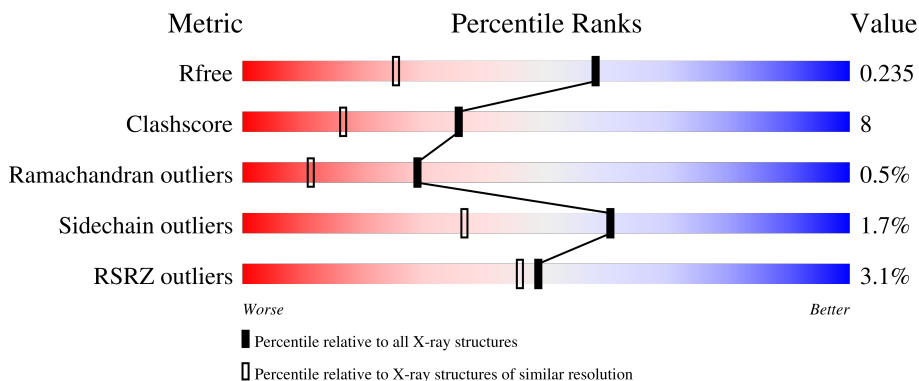|		
PDB ID	:	2QDK
Title	:	X-ray structure of the unliganded uridine phosphorylase from Salmonella typhimurium at 1.62A resolution
Authors	:	Timofeev, V.I.; Pavlyuk, B.P.; Lashkov, A.A.; Gabdoulkhakov, A.G.; Mikhailov, A.M.
Deposited on	:	2007-06-21
Resolution	:	1.62 Å(reported)

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 1.62 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
Rfree		0.235
Clashscore		8
Ramachandran outliers		0.5%
Sidechain outliers		1.7%
RSRZ outliers		3.1%

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))
R_{free}	130704	4693 (1.64-1.60)
Clashscore	141614	5002 (1.64-1.60)
Ramachandran outliers	138981	4888 (1.64-1.60)
Sidechain outliers	138945	4887 (1.64-1.60)
RSRZ outliers	127900	4609 (1.64-1.60)

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

Mol	Chain	Length	Quality of chain
1	A	252	4% ▮ 85% / 15%
1	B	252	% ▮ 77% / 17% · 6%
1	C	252	4% ▮ 81% / 13% · 5%
1	D	252	2% ▮ 88% / 8% · ·
1	E	252	5% ▮ 82% / 15% · ·

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Mol	Chain	Length	Quality of chain
1	F	252	

2%

83% 14%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 12851 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 Uridine phosphorylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	252	Total	C	N	O	S	0	18	0
			1994	1256	343	381	14			
1	B	238	Total	C	N	O	S	0	15	0
			1876	1186	331	347	12			
1	C	240	Total	C	N	O	S	0	11	0
			1866	1173	328	354	11			
1	D	244	Total	C	N	O	S	0	11	0
			1899	1196	332	360	11			
1	E	248	Total	C	N	O	S	0	12	0
			1934	1217	341	364	12			
1	F	245	Total	C	N	O	S	0	12	0
			1901	1201	330	358	12			

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	246	Total	O	0	5
			250	250		
2	B	215	Total	O	0	0
			215	215		
2	C	221	Total	O	0	2
			223	223		
2	D	210	Total	O	0	3
			212	212		
2	E	252	Total	O	0	1
			253	253		
2	F	224	Total	O	0	3
			228	228		

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: Uridine phosphorylase

Chain A:

• Molecule 1: Uridine phosphorylase

Chain B:

• Molecule 1: Uridine phosphorylase

Chain C:

• Molecule 1: Uridine phosphorylase

Chain D:

SER K3 K13 R30 M38 D39 K40 L44 E49 R54 A55 E56 L57 E127 S158 Y163 R175 E196 A200 I228 P229 N230 ALA GLU THR MET LYS GLN THR E238 S239 E247 R250 L253

• Molecule 1: Uridine phosphorylase

Chain E:

5%

82% 15%

SER K3 P25 E29 R30 V31 E32 K33 I34 M38 E49 L57 I92 G96 P125 M126 E127 A143 A149 S158 Y163 Q166 R178 R179 F180 K181 Y195 E196 S199 A200 M215 I220 V221 N222 R223 T224 Q225 Q226 GLU ILE PRO N230

A231 E232 T233 M234 K235 Q236 T237 E238 S239 H240 A241 V242 V246 R250 R251 L252 L253

• Molecule 1: Uridine phosphorylase

Chain F:

2%

83% 14%

S2 K3 V6 L9 P28 M38 R48 E49 L57 K60 G68 E80 H101 L108 L116 M126 E127 K145 H152 S158 Y163 E167 R168 Y169 R178 G182 S183 M184 E185 E186 M190 E196 A200 T201 V221

P229 N230 A231 GLU THR MET LYS GLN THR GLU S239 H240 L253

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	89.60Å 125.03Å 134.95Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	6.00 – 1.62 6.00 – 1.62	Depositor EDS
% Data completeness (in resolution range)	(Not available) (6.00-1.62) 95.7 (6.00-1.62)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	2.65 (at 1.62Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.191 , (Not available) 0.184 , 0.235	Depositor DCC
R_{free} test set	9000 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	10.7	Xtriage
Anisotropy	1.135	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.66 , 80.4	EDS
L-test for twinning[2]	$<|L|> = 0.46, <L^2> = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	12851	wwPDB-VP
Average B, all atoms (Å^2)	17.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.62% of the height of the origin peak. No significant pseudotranslation is detected.*

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	0.39	0/2079	0.57	0/2812
1	B	0.34	0/1950	0.54	0/2632
1	C	0.35	0/1927	0.55	0/2606
1	D	0.36	0/1963	0.57	0/2656
1	E	0.39	0/2000	0.57	0/2703
1	F	0.38	0/1967	0.56	0/2660
All	All	0.37	0/11886	0.56	0/16069

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	1994	0	2050	32	0
1	B	1876	0	1944	38	0
1	C	1866	0	1906	37	0
1	D	1899	0	1930	20	0
1	E	1934	0	1980	41	0
1	F	1901	0	1952	28	0
2	A	250	0	0	11	0
2	B	215	0	0	11	0
2	C	223	0	0	14	0
2	D	212	0	0	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	E	253	0	0	10	0
2	F	228	0	0	8	0
All	All	12851	0	11762	188	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 8.

All (188) 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:39[B]:ASP:HB3	1:A:56[B]:GLU:HG3	1.25	1.08
1:C:179:ARG:HB3	2:C:448:HOH:O	1.57	1.01
1:E:25:PRO:HG3	2:E:486:HOH:O	1.65	0.96
1:A:39[B]:ASP:HB3	1:A:56[B]:GLU:CG	2.00	0.90
1:D:229:PRO:HA	1:D:230:ASN:C	1.90	0.90
1:E:34:ILE:HD12	2:E:486:HOH:O	1.74	0.88
1:E:149:ALA:HB2	1:E:240[B]:HIS:HE1	1.39	0.86
1:E:149:ALA:HB2	1:E:240[B]:HIS:CE1	2.10	0.85
1:C:225:GLN:O	1:C:226:GLN:HB2	1.78	0.83
1:E:149:ALA:CB	1:E:240[B]:HIS:HE1	1.94	0.81
1:A:91:ARG:HD3	2:A:460:HOH:O	1.81	0.79
1:F:201:THR:HB	2:F:455:HOH:O	1.81	0.79
1:C:223:ARG:CG	1:C:223:ARG:HH11	1.98	0.77
1:C:223:ARG:HH11	1:C:223:ARG:HG2	1.51	0.76
1:C:177:VAL:HG13	2:C:448:HOH:O	1.85	0.75
1:C:225:GLN:O	1:C:226:GLN:CB	2.34	0.74
1:B:144:ALA:HB1	1:B:151:THR:HG21	1.70	0.74
1:C:224:THR:O	1:C:225:GLN:HG3	1.87	0.73
1:E:178:ARG:HA	1:E:181:LYS:HE2	1.71	0.73
1:E:30[A]:ARG:NH1	1:E:33:LYS:HD3	2.04	0.72
1:E:230:ASN:HA	2:E:483:HOH:O	1.88	0.72
1:E:225:GLN:O	1:E:226:GLN:HB2	1.91	0.70
1:C:223:ARG:HG2	1:C:223:ARG:NH1	2.05	0.68
1:B:141:VAL:O	1:B:145[B]:LYS:HG2	1.94	0.67
2:C:434:HOH:O	1:F:49:GLU:HB2	1.94	0.66
1:E:179:ARG:NH2	2:E:475:HOH:O	2.28	0.66
1:A:56[B]:GLU:OE1	1:A:59:GLY:HA2	1.96	0.66
1:E:3:LYS:N	1:E:3:LYS:HE2	2.10	0.65
1:F:184[B]:MET:HE2	2:F:440:HOH:O	1.94	0.65
1:B:57:LEU:HD21	1:B:250[B]:ARG:HG2	1.77	0.65
1:F:221:VAL:HB	1:F:229:PRO:HG3	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:30[A]:ARG:CZ	1:E:33:LYS:HD3	2.27	0.64
1:C:95:THR:O	1:C:219:VAL:HA	1.98	0.64
1:C:215:MET:HB3	2:C:444:HOH:O	1.97	0.64
1:C:147:ILE:HG21	1:C:243[A]:LYS:HD3	1.80	0.63
1:C:224:THR:C	1:C:225:GLN:HG3	2.15	0.63
1:B:214:GLY:HA2	2:B:456:HOH:O	1.98	0.62
1:A:38:MET:HG2	1:A:57:LEU:HD13	1.80	0.62
1:E:30[B]:ARG:HH12	1:E:92[B]:ILE:HG13	1.65	0.62
1:B:84:LEU:HD13	2:B:438:HOH:O	1.99	0.61
1:D:238:GLU:N	1:D:238:GLU:CD	2.53	0.61
1:F:6:VAL:HG21	2:F:469:HOH:O	2.01	0.60
1:E:30[A]:ARG:NH2	1:E:242:VAL:HG21	2.16	0.60
1:A:178:ARG:HB2	1:F:186[A]:GLU:OE2	2.01	0.60
1:A:39[B]:ASP:OD1	1:A:40:LYS:HG2	2.02	0.59
1:A:199:SER:HA	2:A:460:HOH:O	2.02	0.59
1:E:30[B]:ARG:HH12	1:E:92[B]:ILE:CG1	2.16	0.58
1:F:60:LYS:HB2	1:F:253:LEU:HD13	1.85	0.58
1:D:238:GLU:N	1:D:238:GLU:OE2	2.37	0.58
1:B:57:LEU:HB3	1:B:253:LEU:HD11	1.86	0.58
1:E:30[A]:ARG:HH21	1:E:242:VAL:HG21	1.70	0.57
1:C:177:VAL:CG1	2:C:448:HOH:O	2.49	0.57
1:E:158:SER:HB3	1:E:200:ALA:HB2	1.86	0.57
1:A:231:ALA:O	1:A:235:LYS:HG2	2.04	0.56
1:F:158:SER:HB3	1:F:200:ALA:HB2	1.87	0.56
1:C:239:SER:O	1:C:243[B]:LYS:HG3	2.06	0.56
1:D:229:PRO:CA	1:D:230:ASN:C	2.70	0.56
1:B:57:LEU:CD2	1:B:250[B]:ARG:HG2	2.36	0.56
1:C:158:SER:HB3	1:C:200:ALA:HB2	1.88	0.55
1:E:246:VAL:O	1:E:250[B]:ARG:HG3	2.06	0.55
1:E:234:MET:HE2	2:E:483:HOH:O	2.06	0.55
1:D:30[B]:ARG:NH2	2:D:354:HOH:O	2.40	0.54
1:C:203:LEU:HD21	2:C:444:HOH:O	2.06	0.54
1:A:30:ARG:CZ	2:A:351:HOH:O	2.56	0.54
1:F:230:ASN:O	1:F:231:ALA:CB	2.55	0.54
1:F:127:GLU:H	1:F:127:GLU:CD	2.11	0.54
1:B:94:THR:HG22	2:B:374:HOH:O	2.07	0.54
1:B:168:ARG:HD2	2:B:282:HOH:O	2.08	0.53
1:B:16:LEU:HD13	2:B:438:HOH:O	2.07	0.53
1:B:38:MET:SD	1:B:62:VAL:HG21	2.49	0.53
1:D:158:SER:HB3	1:D:200:ALA:HB2	1.90	0.53
1:D:40:LYS:HD3	1:D:56[B]:GLU:OE1	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:7:PHE:HB2	1:D:228:ILE:HD11	1.91	0.53
1:A:158:SER:HB3	1:A:200:ALA:HB2	1.90	0.52
1:A:77:ALA:HB1	2:A:487:HOH:O	2.08	0.52
1:D:127[A]:GLU:HB2	2:D:439:HOH:O	2.08	0.52
1:D:238:GLU:HA	2:D:445:HOH:O	2.08	0.52
1:A:236:GLN:HG2	2:A:484:HOH:O	2.10	0.52
1:C:203:LEU:HD11	2:C:444:HOH:O	2.10	0.52
1:C:223:ARG:HD2	2:C:318:HOH:O	2.09	0.52
1:C:162:PHE:HE1	1:C:168[B]:ARG:NH2	2.08	0.51
1:F:38:MET:HG2	1:F:57[A]:LEU:HD13	1.92	0.51
1:A:91:ARG:HB3	1:A:215[B]:MET:HG3	1.91	0.51
1:F:9:LEU:HD12	2:F:469:HOH:O	2.10	0.51
1:C:138:THR:O	1:C:142[B]:GLU:HG2	2.11	0.51
1:B:144:ALA:CB	1:B:151:THR:HG21	2.40	0.51
1:F:182:GLY:O	1:F:185[B]:GLU:HG3	2.09	0.51
2:C:434:HOH:O	1:F:68:GLY:HA2	2.10	0.51
1:B:158:SER:HB3	1:B:200:ALA:HB2	1.93	0.51
2:D:439:HOH:O	1:F:116:LEU:HD21	2.10	0.51
1:E:3:LYS:N	1:E:3:LYS:CE	2.74	0.51
1:E:222:ASN:OD1	1:E:224:THR:HG22	2.11	0.51
1:A:247:GLU:HG3	1:A:251[A]:ARG:HH12	1.77	0.50
1:C:96:GLY:HA2	1:C:221:VAL:O	2.11	0.50
1:A:151[B]:THR:HG21	2:A:326:HOH:O	2.12	0.50
1:B:49[A]:GLU:CG	1:E:49:GLU:HB3	2.41	0.50
1:B:94:THR:HG23	2:B:442:HOH:O	2.11	0.49
1:B:186:GLU:CD	1:F:178:ARG:HH21	2.15	0.49
1:C:223:ARG:HH11	1:C:223:ARG:CB	2.25	0.49
1:C:30[A]:ARG:HD3	2:C:364:HOH:O	2.13	0.49
1:E:31:VAL:HA	2:E:486:HOH:O	2.12	0.49
1:A:110:THR:OG1	1:A:215[B]:MET:HE3	2.13	0.48
1:B:7[A]:PHE:HD2	1:B:8:HIS:CE1	2.32	0.48
1:E:251:ARG:NH2	2:E:488:HOH:O	2.41	0.48
1:C:162:PHE:CE1	1:C:168[B]:ARG:NH2	2.81	0.47
1:B:149:ALA:O	1:B:151:THR:HG23	2.15	0.47
1:F:108:LEU:HD22	1:F:152:HIS:HB2	1.96	0.47
1:A:100:PRO:HD3	1:A:188[B]:GLN:HE21	1.79	0.47
1:B:31:VAL:HG13	1:B:64:VAL:HG12	1.96	0.47
1:C:223:ARG:HG3	2:C:345:HOH:O	2.13	0.47
1:A:247:GLU:HG3	1:A:251[A]:ARG:NH1	2.30	0.47
1:D:247:GLU:OE2	1:D:250[A]:ARG:HD3	2.15	0.47
1:E:29:GLU:HB3	2:E:496:HOH:O	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:49:GLU:HB3	1:F:49:GLU:HB3	1.97	0.46
1:B:105:GLY:HA3	2:B:441:HOH:O	2.14	0.46
1:E:3:LYS:N	1:E:3:LYS:HZ3	2.13	0.46
1:C:249:ALA:O	1:C:253:LEU:HG	2.15	0.46
1:B:203:LEU:HD22	2:B:456:HOH:O	2.15	0.46
1:B:138:THR:O	1:B:142[B]:GLU:HG3	2.16	0.45
1:B:201:THR:O	1:B:205:MET:HG2	2.17	0.45
1:D:127[B]:GLU:HB2	2:D:439:HOH:O	2.17	0.45
1:E:220:ILE:HG21	1:E:234:MET:HG3	1.97	0.45
1:B:203:LEU:CD2	2:B:456:HOH:O	2.63	0.45
1:C:69:ILE:HD11	1:F:48:ARG:HD3	1.99	0.45
1:D:38:MET:HG2	1:D:57:LEU:HD13	1.98	0.45
1:C:205:MET:O	1:C:209[B]:GLN:HG2	2.17	0.45
1:C:126:MET:HE1	2:C:460:HOH:O	2.16	0.44
1:D:13:LYS:HB2	1:D:13:LYS:HE2	1.58	0.44
2:C:434:HOH:O	1:F:28:PRO:HD3	2.16	0.44
1:A:49:GLU:HB3	1:D:49:GLU:HB3	1.99	0.44
1:E:143:ALA:HA	2:E:488:HOH:O	2.17	0.44
1:C:168[B]:ARG:HG2	1:C:223:ARG:NH2	2.32	0.44
1:E:125:PRO:HB2	1:E:127[B]:GLU:OE1	2.17	0.44
1:B:243:LYS:HD2	2:B:447:HOH:O	2.16	0.44
1:F:80:GLU:HB3	2:F:469:HOH:O	2.17	0.44
1:C:57:LEU:HB3	1:C:253:LEU:HD11	1.99	0.44
1:A:2:SER:HA	2:A:452:HOH:O	2.17	0.44
1:A:247:GLU:OE2	1:A:251[B]:ARG:NH2	2.50	0.44
1:A:230:ASN:OD1	1:A:233:THR:HG22	2.18	0.44
1:B:132:ALA:CB	2:B:456:HOH:O	2.65	0.44
1:B:141:VAL:CG1	1:B:145[B]:LYS:HE2	2.48	0.43
1:E:38:MET:HG2	1:E:57:LEU:HD21	1.99	0.43
1:E:222:ASN:HB3	1:E:225:GLN:HB2	2.00	0.43
1:B:144:ALA:HB1	1:B:151:THR:CG2	2.46	0.43
1:E:166:GLN:HG2	1:E:195:TYR:CG	2.54	0.43
1:E:230:ASN:HB3	1:E:231:ALA:H	1.55	0.43
1:A:38:MET:HE3	2:A:462:HOH:O	2.19	0.43
1:B:163:TYR:HB2	1:B:164:PRO:CD	2.49	0.43
1:C:242:VAL:O	1:C:245:VAL:HG12	2.19	0.43
1:E:166:GLN:HG2	1:E:195:TYR:CD1	2.54	0.43
1:E:199:SER:HB3	1:E:215:MET:CE	2.49	0.43
1:E:220:ILE:HG13	1:E:221:VAL:HG13	2.00	0.43
1:B:80:GLU:O	1:B:84:LEU:HG	2.18	0.42
1:B:247:GLU:O	1:B:250[A]:ARG:HG2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:175:ARG:NH1	2:D:373:HOH:O	2.52	0.42
1:F:145[B]:LYS:HB2	1:F:145[B]:LYS:HE3	1.77	0.42
1:A:56[B]:GLU:OE1	1:A:59:GLY:CA	2.64	0.42
1:A:105:GLY:HA2	1:A:237[A]:THR:HG22	2.01	0.42
1:C:223:ARG:HH11	1:C:223:ARG:HB3	1.84	0.42
1:D:127[B]:GLU:HG3	1:F:126:MET:SD	2.60	0.42
1:F:38:MET:SD	1:F:57[B]:LEU:HG	2.60	0.42
1:A:26:GLY:HA3	2:A:480:HOH:O	2.19	0.42
1:E:30[B]:ARG:NH1	1:E:92[B]:ILE:HG13	2.32	0.42
1:C:205:MET:HB2	1:C:205:MET:HE2	1.83	0.42
1:E:30[B]:ARG:HA	1:E:33:LYS:HD2	2.01	0.42
1:B:57:LEU:HB3	1:B:253:LEU:CD1	2.48	0.41
1:B:199:SER:O	1:B:203:LEU:HG	2.21	0.41
1:D:44:LEU:HD11	1:D:54:ARG:HB2	2.02	0.41
1:E:30[B]:ARG:NH1	1:E:92[B]:ILE:CG1	2.82	0.41
1:A:179:ARG:HG3	2:A:451:HOH:O	2.21	0.41
1:D:253:LEU:HD12	1:D:253:LEU:HA	1.90	0.41
1:F:101:HIS:CE1	2:F:358:HOH:O	2.73	0.41
1:F:190:MET:HE1	2:F:444:HOH:O	2.20	0.41
1:A:87:ARG:HB3	2:A:498:HOH:O	2.21	0.41
1:B:99:GLN:HA	1:B:100:PRO:HD3	1.94	0.41
1:B:96:GLY:HA2	1:B:221:VAL:O	2.21	0.41
1:B:16:LEU:HG	1:B:63:ILE:HG13	2.03	0.41
1:B:138:THR:O	1:B:142[A]:GLU:HG2	2.21	0.41
1:E:57:LEU:HD13	1:E:250[B]:ARG:HG2	2.01	0.41
1:B:48:ARG:HB3	1:B:49[B]:GLU:OE1	2.21	0.41
1:C:24:VAL:O	1:C:24:VAL:HG23	2.21	0.41
1:A:183:SER:HA	1:A:186:GLU:OE1	2.22	0.40
1:F:3:LYS:HD2	2:F:448:HOH:O	2.21	0.40
1:F:167:GLU:HG2	1:F:169:TYR:CE1	2.56	0.40
1:A:215[B]:MET:HG2	1:A:216:VAL:N	2.35	0.40
1:C:33:LYS:HD2	2:C:424:HOH:O	2.21	0.40
1:E:237:THR:HA	2:E:365:HOH:O	2.20	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	268/252 (106%)	264 (98%)	3 (1%)	1 (0%)	34	15
1	B	249/252 (99%)	244 (98%)	4 (2%)	1 (0%)	34	15
1	C	247/252 (98%)	242 (98%)	4 (2%)	1 (0%)	34	15
1	D	251/252 (100%)	247 (98%)	3 (1%)	1 (0%)	34	15
1	E	256/252 (102%)	251 (98%)	3 (1%)	2 (1%)	19	5
1	F	253/252 (100%)	250 (99%)	2 (1%)	1 (0%)	34	15
All	All	1524/1512 (101%)	1498 (98%)	19 (1%)	7 (0%)	29	11

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	163	TYR
1	E	231	ALA
1	F	163	TYR
1	A	163	TYR
1	B	163	TYR
1	C	163	TYR
1	E	163	TYR

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	219/201 (109%)	216 (99%)	3 (1%)	67	46

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	203/201 (101%)	200 (98%)	3 (2%)	65	43
1	C	201/201 (100%)	196 (98%)	5 (2%)	47	21
1	D	205/201 (102%)	200 (98%)	5 (2%)	49	22
1	E	209/201 (104%)	205 (98%)	4 (2%)	57	32
1	F	206/201 (102%)	203 (98%)	3 (2%)	65	43
All	All	1243/1206 (103%)	1220 (98%)	23 (2%)	60	32

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	170[A]	ASP
1	A	170[B]	ASP
1	A	196	GLU
1	B	40	LYS
1	B	196	GLU
1	B	247	GLU
1	C	30[A]	ARG
1	C	30[B]	ARG
1	C	196	GLU
1	C	223	ARG
1	C	225	GLN
1	D	13	LYS
1	D	196	GLU
1	D	238	GLU
1	D	239	SER
1	D	253	LEU
1	E	3	LYS
1	E	92[A]	ILE
1	E	92[B]	ILE
1	E	196	GLU
1	F	3	LYS
1	F	196	GLU
1	F	240	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	225	GLN
1	D	20	GLN

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Mol	Chain	Res	Type
1	E	225	GLN
1	F	101	HIS
1	F	225	GLN
1	F	240	HIS

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 ⓘ

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(Å²)	Q<0.9
1	A	252/252 (100%)	-0.23	11 (4%)	34	30	4, 11, 34, 48	12 (4%)
1	B	238/252 (94%)	-0.21	3 (1%)	77	76	6, 17, 33, 48	4 (1%)
1	C	240/252 (95%)	-0.20	9 (3%)	40	37	5, 14, 37, 49	1 (0%)
1	D	244/252 (96%)	-0.36	4 (1%)	72	71	5, 12, 29, 46	1 (0%)
1	E	248/252 (98%)	-0.30	13 (5%)	27	24	4, 11, 34, 46	5 (2%)
1	F	245/252 (97%)	-0.35	5 (2%)	65	63	5, 12, 30, 42	1 (0%)
All	All	1467/1512 (97%)	-0.27	45 (3%)	49	46	4, 13, 33, 49	24 (1%)

All (45) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	233	THR	11.0
1	E	230	ASN	10.9
1	A	228[A]	ILE	9.5
1	F	231	ALA	8.8
1	B	226	GLN	7.6
1	A	231	ALA	5.1
1	F	239	SER	4.8
1	A	230	ASN	4.4
1	E	234	MET	4.4
1	A	236	GLN	4.3
1	C	226	GLN	4.1
1	C	237	THR	4.1
1	D	230	ASN	4.1
1	A	234	MET	4.0
1	A	2	SER	3.8
1	D	238	GLU	3.8
1	F	2	SER	3.8
1	A	232	GLU	3.7
1	D	253	LEU	3.6

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Mol	Chain	Res	Type	RSRZ
1	D	228	ILE	3.5
1	E	226	GLN	3.3
1	E	232	GLU	3.2
1	C	240	HIS	3.1
1	E	233	THR	3.1
1	A	235	LYS	3.1
1	E	231	ALA	3.1
1	B	240	HIS	3.1
1	E	236	GLN	3.0
1	A	229	PRO	3.0
1	C	224	THR	2.8
1	C	238	GLU	2.7
1	F	3	LYS	2.7
1	C	5	ASP	2.6
1	C	101	HIS	2.6
1	F	253	LEU	2.5
1	A	237[A]	THR	2.4
1	C	225	GLN	2.4
1	E	3	LYS	2.3
1	E	235	LYS	2.3
1	E	238	GLU	2.2
1	E	225	GLN	2.2
1	B	7[A]	PHE	2.1
1	C	4	SER	2.1
1	E	240[A]	HIS	2.1
1	E	96	GLY	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.