Full wwPDB X-ray Structure Validation Report ⓘ

Oct 27, 2023 – 08:30 AM EDT

PDB ID	:	3JUR
Title	:	The crystal structure of a hyperthermoactive Exopolygalacturonase from Thermotoga maritima
Authors	:	Pijning, T.; van Pouderoyen, G.; Kluskens, L.D.; van der Oost, J.; Dijkstra, B.W.
Deposited on	:	2009-09-15
Resolution	:	2.05 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:

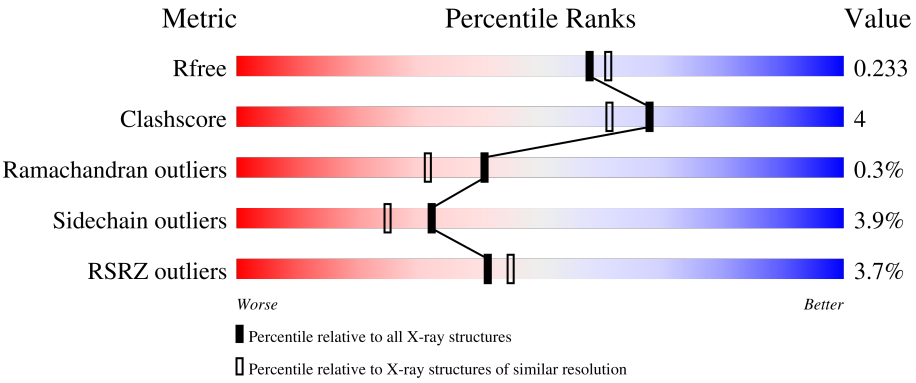
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.05 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}	130704	1692 (2.04-2.04)
Clashscore	141614	1773 (2.04-2.04)
Ramachandran outliers	138981	1752 (2.04-2.04)
Sidechain outliers	138945	1752 (2.04-2.04)
RSRZ outliers	127900	1672 (2.04-2.04)

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	448	6% 87% 11%
1	B	448	2% 89% 10%
1	C	448	2% 89% 9%
1	D	448	5% 86% 12%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 15294 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 Exo-poly-alpha-D-galacturonosidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	444	Total	C	N	O	S	0	1	0
			3528	2233	616	665	14			
1	B	444	Total	C	N	O	S	0	2	0
			3533	2234	619	666	14			
1	C	444	Total	C	N	O	S	0	2	0
			3532	2233	620	665	14			
1	D	446	Total	C	N	O	S	0	1	0
			3545	2243	618	669	15			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	216	ILE	VAL	conflict	UNP Q9WYR8
B	216	ILE	VAL	conflict	UNP Q9WYR8
C	216	ILE	VAL	conflict	UNP Q9WYR8
D	216	ILE	VAL	conflict	UNP Q9WYR8

- Molecule 2 is water.

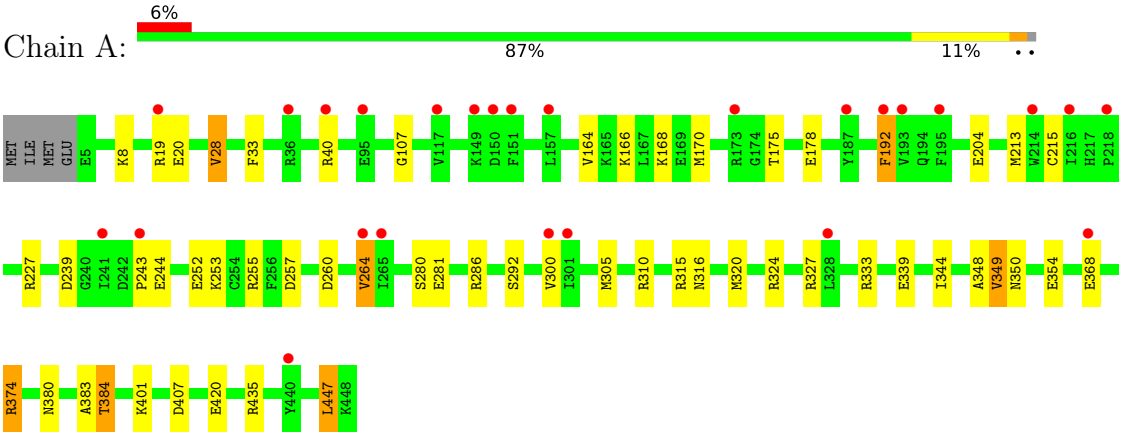
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	239	Total	O	0	0
			239	239		
2	B	365	Total	O	0	0
			365	365		
2	C	283	Total	O	0	0
			283	283		
2	D	269	Total	O	0	0
			269	269		

3 Residue-property plots (i)

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.

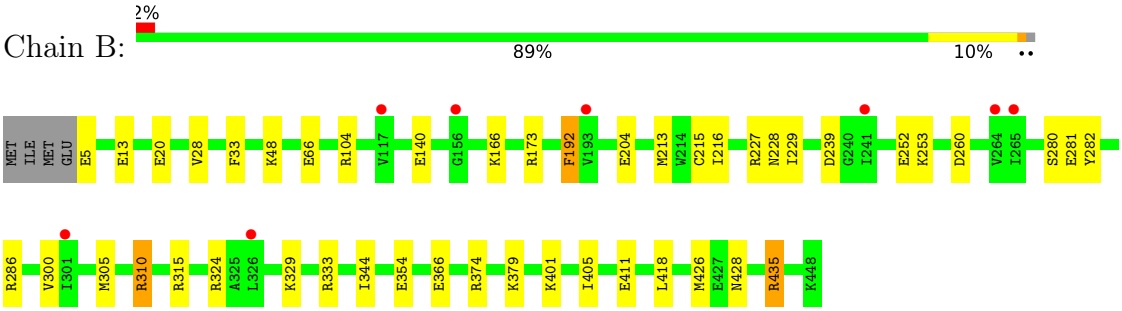
• Molecule 1: Exo-poly-alpha-D-galacturonosidase

Chain A:



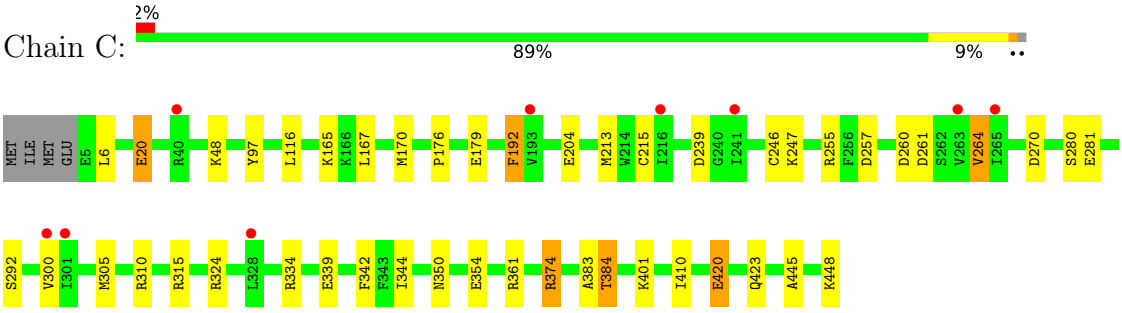
• Molecule 1: Exo-poly-alpha-D-galacturonosidase

Chain B:



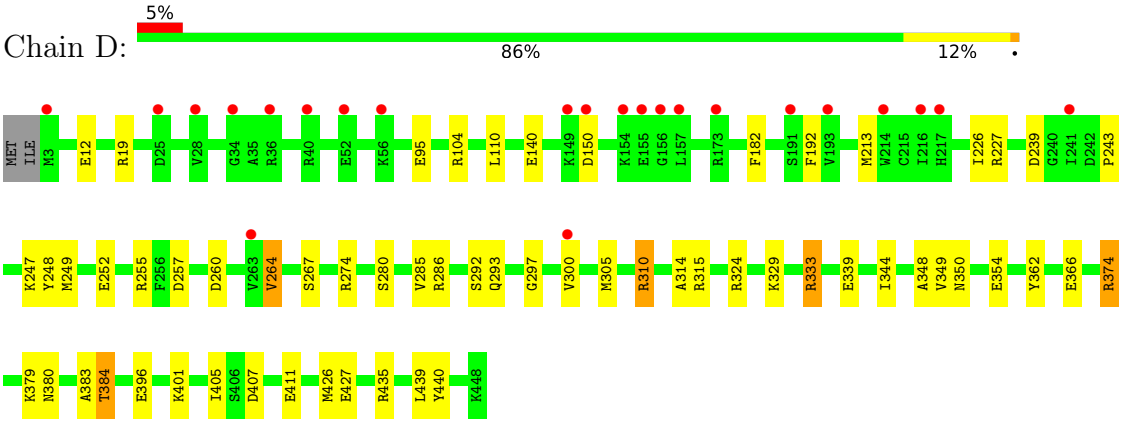
• Molecule 1: Exo-poly-alpha-D-galacturonosidase

Chain C:



• Molecule 1: Exo-poly-alpha-D-galacturonosidase

Chain D:


5%
86%
12%
MET
ILE
M3
E12
R19
D25
V28
G34
A35
R36
R40
E52
K56
E95
R104
L110
E140
K149
D150
K154
E155
G156
L157
R173
F182
S191
F192
V193
M213
W214
C215
I216
H217
I226
R227
D239
G240
I241
D242
P243
K247
Y248
M249
E252
R255
F256
D257
D260
V263
V264
S267
R274
S280
V285
R286
S292
Q293
G297
V300
M305
R310
A314
R315
R324
K329
R333
E339
I344
A348
V349
N350
E354
Y362
E366
R374
K379
N380
A383
T384
E396
K401
I405
S406
D407
E411
M426
E427
R435
L439
Y440
K448

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	63.27Å 155.90Å 200.65Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.43 – 2.05 33.89 – 2.05	Depositor EDS
% Data completeness (in resolution range)	91.3 (34.43-2.05) 91.3 (33.89-2.05)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.81 (at 2.05Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.175 , 0.220 0.186 , 0.233	Depositor DCC
R_{free} test set	5742 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	28.9	Xtriage
Anisotropy	0.083	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 38.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	15294	wwPDB-VP
Average B, all atoms (Å^2)	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.84% of the height of the origin peak. No significant pseudotranslation is detected.*

[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	0.42	0/3596	0.57	1/4852 (0.0%)
1	B	0.46	0/3603	0.59	0/4860
1	C	0.42	0/3602	0.58	0/4859
1	D	0.41	0/3613	0.56	0/4874
All	All	0.43	0/14414	0.57	1/19445 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	447	LEU	CA-CB-CG	5.48	127.91	115.30

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	3528	0	3538	28	0
1	B	3533	0	3548	25	0
1	C	3532	0	3548	28	0
1	D	3545	0	3553	28	0
2	A	239	0	0	3	0
2	B	365	0	0	1	0
2	C	283	0	0	3	0
2	D	269	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	15294	0	14187	107	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 4.

All (107) 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:350:ASN:H	1:A:384:THR:HG22	1.39	0.85
1:C:350:ASN:H	1:C:384:THR:HG22	1.43	0.84
1:D:350:ASN:H	1:D:384:THR:HG22	1.46	0.79
1:B:435:ARG:NH2	1:D:411:GLU:OE1	2.28	0.67
1:D:274:ARG:NH2	1:D:333:ARG:O	2.28	0.66
1:C:384:THR:HG23	2:C:770:HOH:O	1.97	0.65
1:C:97:TYR:CE1	1:C:116:LEU:HD22	2.33	0.63
1:C:384:THR:CG2	2:C:770:HOH:O	2.49	0.61
1:B:28:VAL:HG13	1:B:33:PHE:HE2	1.69	0.57
1:B:20:GLU:OE2	1:B:227[B]:ARG:NH1	2.38	0.56
1:C:361:ARG:NH2	1:C:420:GLU:OE1	2.40	0.55
1:A:192:PHE:HB3	1:A:215:CYS:O	2.07	0.55
1:B:324:ARG:HA	1:B:354:GLU:O	2.09	0.53
1:A:20:GLU:OE2	1:A:227:ARG:NH1	2.42	0.52
1:A:28:VAL:HG13	1:A:33:PHE:HE2	1.74	0.52
1:D:226:ILE:HD12	1:D:249:MET:CE	2.40	0.51
1:C:315:ARG:HA	1:C:344:ILE:O	2.11	0.50
1:A:324:ARG:HA	1:A:354:GLU:O	2.12	0.50
1:C:20:GLU:HG2	2:C:888:HOH:O	2.10	0.50
1:A:380:ASN:HA	1:A:407:ASP:O	2.12	0.50
1:B:216:ILE:HD11	1:B:229:ILE:HD13	1.93	0.49
1:D:310:ARG:HA	1:D:339:GLU:O	2.12	0.49
1:A:333:ARG:HD2	2:A:450:HOH:O	2.13	0.49
1:A:239:ASP:OD1	1:A:260:ASP:HB3	2.12	0.49
1:A:348:ALA:O	1:A:383:ALA:HA	2.11	0.49
1:B:28:VAL:HG13	1:B:33:PHE:CE2	2.48	0.49
1:C:270:ASP:OD1	1:C:334:ARG:HD3	2.14	0.48
1:B:374:ARG:HA	1:B:401:LYS:O	2.14	0.48
1:D:243:PRO:HG3	1:D:249:MET:HE1	1.96	0.48
1:D:333:ARG:HD3	1:D:366:GLU:O	2.13	0.47
1:B:192:PHE:HB3	1:B:215:CYS:O	2.15	0.47
1:D:252:GLU:HA	1:D:286:ARG:O	2.14	0.47
1:D:315:ARG:HA	1:D:344:ILE:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:204:GLU:HA	1:A:227:ARG:O	2.14	0.47
1:C:6:LEU:HB3	1:C:342:PHE:CZ	2.50	0.47
1:D:19:ARG:NH1	2:D:571:HOH:O	2.40	0.46
1:D:324:ARG:HA	1:D:354:GLU:O	2.15	0.46
1:A:315:ARG:HA	1:A:344:ILE:O	2.15	0.46
1:C:310:ARG:HA	1:C:339:GLU:O	2.16	0.46
1:A:374:ARG:HA	1:A:401:LYS:O	2.16	0.46
1:C:257:ASP:HA	1:C:292:SER:HB2	1.98	0.46
1:B:252:GLU:HA	1:B:286:ARG:O	2.17	0.45
1:A:320:MET:HG2	1:A:349:VAL:HG13	1.97	0.45
1:A:435:ARG:NH2	2:A:974:HOH:O	2.40	0.45
1:B:315:ARG:HA	1:B:344:ILE:O	2.16	0.45
1:C:176:PRO:HG2	1:C:179:GLU:HB2	1.98	0.45
1:D:239:ASP:OD1	1:D:260:ASP:HB3	2.17	0.45
1:B:411[A]:GLU:OE1	1:B:411[A]:GLU:HA	2.17	0.44
1:C:264:VAL:HG13	1:C:300:VAL:HB	1.99	0.44
1:D:257:ASP:HA	1:D:292:SER:HB2	1.97	0.44
1:D:264:VAL:HG13	1:D:300:VAL:HB	1.99	0.44
1:D:110:LEU:HD12	1:D:182:PHE:CD2	2.52	0.44
1:D:405:ILE:O	1:D:426:MET:HA	2.17	0.44
1:A:264:VAL:HG13	1:A:300:VAL:HB	2.00	0.43
1:A:310:ARG:HA	1:A:339:GLU:O	2.18	0.43
1:B:66:GLU:CD	1:B:66:GLU:H	2.21	0.43
1:C:339:GLU:HA	1:C:374:ARG:O	2.19	0.43
1:A:166:LYS:O	1:A:170:MET:HG3	2.18	0.43
1:C:281:GLU:HA	1:C:310:ARG:O	2.19	0.43
1:A:243:PRO:HD2	1:A:264:VAL:O	2.18	0.43
1:B:216:ILE:CD1	1:B:229:ILE:HD13	2.48	0.43
1:B:239:ASP:OD1	1:B:260:ASP:HB3	2.19	0.43
1:C:192:PHE:HB3	1:C:215:CYS:O	2.19	0.43
1:A:19:ARG:NH2	2:A:472:HOH:O	2.51	0.42
1:C:261:ASP:CB	1:C:264:VAL:HG22	2.49	0.42
1:C:374:ARG:HA	1:C:401:LYS:O	2.19	0.42
1:D:380:ASN:HA	1:D:407:ASP:O	2.20	0.42
1:D:226:ILE:HD12	1:D:249:MET:HE3	2.00	0.42
1:B:300:VAL:HG11	1:B:329:LYS:HE2	2.01	0.42
1:A:300:VAL:HG22	1:A:327:ARG:HB3	2.00	0.42
1:B:428:ASN:HB2	2:B:758:HOH:O	2.19	0.42
1:A:164:VAL:O	1:A:168:LYS:HG2	2.20	0.42
1:C:383:ALA:HB3	1:C:410:ILE:HG12	2.01	0.42
1:B:333:ARG:HG3	1:B:366:GLU:O	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:257:ASP:HA	1:A:292:SER:HB2	2.01	0.42
1:C:170:MET:HB2	1:C:170:MET:HE3	1.87	0.42
1:B:281:GLU:HA	1:B:310:ARG:O	2.20	0.41
1:D:247:LYS:HE2	1:D:248:TYR:CE2	2.54	0.41
1:D:396:GLU:HG3	2:D:470:HOH:O	2.20	0.41
1:A:286:ARG:HA	1:A:315:ARG:O	2.20	0.41
1:B:227[A]:ARG:HG2	1:B:228:ASN:OD1	2.20	0.41
1:B:418:LEU:C	1:B:418:LEU:HD23	2.41	0.41
1:C:261:ASP:HB2	1:C:264:VAL:CG2	2.50	0.41
1:C:239:ASP:OD1	1:C:260:ASP:HB3	2.20	0.41
1:D:348:ALA:O	1:D:383:ALA:HA	2.20	0.41
1:D:426:MET:HB2	1:D:439:LEU:HB3	2.03	0.41
1:A:204:GLU:OE2	1:A:227:ARG:NH2	2.53	0.41
1:A:252:GLU:HA	1:A:286:ARG:O	2.20	0.41
1:A:281:GLU:HA	1:A:310:ARG:O	2.21	0.41
1:B:405:ILE:O	1:B:426:MET:HA	2.20	0.41
1:C:324:ARG:HA	1:C:354:GLU:O	2.21	0.41
1:D:297:GLY:HA2	1:D:324:ARG:O	2.20	0.41
1:A:107:GLY:HA2	1:A:244:GLU:OE1	2.21	0.40
1:B:228:ASN:HA	1:B:253:LYS:O	2.21	0.40
1:B:13:GLU:HG2	1:B:282:TYR:CE1	2.56	0.40
1:B:411[A]:GLU:OE2	1:D:411:GLU:HG3	2.20	0.40
1:C:246:CYS:O	1:C:280:SER:HA	2.20	0.40
1:C:247:LYS:HG3	1:C:281:GLU:HG3	2.03	0.40
1:C:167:LEU:HA	1:C:170:MET:HE2	2.03	0.40
1:D:285:VAL:O	1:D:314:ALA:HA	2.21	0.40
1:D:427:GLU:OE2	1:D:440[B]:TYR:OH	2.35	0.40
1:A:178:GLU:CD	1:A:178:GLU:H	2.25	0.40
1:D:329:LYS:HD2	1:D:362:TYR:CE1	2.56	0.40
1:D:374:ARG:HA	1:D:401:LYS:O	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	443/448 (99%)	419 (95%)	23 (5%)	1 (0%)	47	39
1	B	444/448 (99%)	416 (94%)	27 (6%)	1 (0%)	47	39
1	C	444/448 (99%)	421 (95%)	22 (5%)	1 (0%)	47	39
1	D	445/448 (99%)	424 (95%)	19 (4%)	2 (0%)	34	24
All	All	1776/1792 (99%)	1680 (95%)	91 (5%)	5 (0%)	41	31

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	213	MET
1	C	213	MET
1	A	213	MET
1	D	213	MET
1	D	267	SER

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	387/390 (99%)	370 (96%)	17 (4%)	28	21
1	B	388/390 (100%)	376 (97%)	12 (3%)	40	33
1	C	388/390 (100%)	376 (97%)	12 (3%)	40	33
1	D	389/390 (100%)	370 (95%)	19 (5%)	25	17
All	All	1552/1560 (100%)	1492 (96%)	60 (4%)	32	25

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	LYS
1	A	28	VAL
1	A	40	ARG

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Mol	Chain	Res	Type
1	A	175	THR
1	A	192	PHE
1	A	253	LYS
1	A	255	ARG
1	A	264	VAL
1	A	280	SER
1	A	305	MET
1	A	316	ASN
1	A	349	VAL
1	A	368	GLU
1	A	374	ARG
1	A	384	THR
1	A	420	GLU
1	A	447	LEU
1	B	5	GLU
1	B	48	LYS
1	B	104	ARG
1	B	140	GLU
1	B	166	LYS
1	B	173	ARG
1	B	192	PHE
1	B	280	SER
1	B	305	MET
1	B	310	ARG
1	B	379	LYS
1	B	435	ARG
1	C	20	GLU
1	C	48	LYS
1	C	165	LYS
1	C	192	PHE
1	C	255	ARG
1	C	264	VAL
1	C	305	MET
1	C	374	ARG
1	C	384	THR
1	C	420	GLU
1	C	423	GLN
1	C	448	LYS
1	D	12	GLU
1	D	95	GLU
1	D	104	ARG
1	D	140	GLU

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Mol	Chain	Res	Type
1	D	150	ASP
1	D	192	PHE
1	D	227	ARG
1	D	255	ARG
1	D	264	VAL
1	D	280	SER
1	D	293	GLN
1	D	305	MET
1	D	310	ARG
1	D	333	ARG
1	D	349	VAL
1	D	374	ARG
1	D	379	LYS
1	D	384	THR
1	D	435	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	194	GLN
1	C	293	GLN
1	D	293	GLN

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 monosaccharides 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, 95^{th} 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	444/448 (99%)	0.19	26 (5%)	22	24	20, 24, 31, 38	0
1	B	444/448 (99%)	-0.03	8 (1%)	68	71	17, 23, 30, 39	0
1	C	444/448 (99%)	-0.01	9 (2%)	65	69	18, 23, 29, 40	0
1	D	446/448 (99%)	0.16	23 (5%)	27	29	19, 24, 30, 42	0
All	All	1778/1792 (99%)	0.08	66 (3%)	41	45	17, 24, 30, 42	0

All (66) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	157	LEU	3.7
1	A	36	ARG	3.4
1	A	173	ARG	3.2
1	B	156	GLY	3.1
1	D	3	MET	3.0
1	C	265	ILE	3.0
1	A	264	VAL	2.9
1	D	173	ARG	2.9
1	A	265	ILE	2.9
1	D	40	ARG	2.9
1	D	34	GLY	2.8
1	A	193	VAL	2.8
1	C	263	VAL	2.8
1	C	40	ARG	2.7
1	A	241	ILE	2.7
1	A	301	ILE	2.7
1	D	241	ILE	2.7
1	A	117	VAL	2.6
1	D	263	VAL	2.6
1	B	264	VAL	2.6
1	D	154	LYS	2.6

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Mol	Chain	Res	Type	RSRZ
1	D	56	LYS	2.6
1	A	440[A]	TYR	2.5
1	C	301	ILE	2.5
1	A	40	ARG	2.5
1	A	218	PRO	2.5
1	A	192	PHE	2.5
1	D	156	GLY	2.5
1	D	214	TRP	2.5
1	B	193	VAL	2.5
1	B	265	ILE	2.5
1	C	241	ILE	2.5
1	D	193	VAL	2.4
1	D	155	GLU	2.4
1	A	368	GLU	2.4
1	C	328	LEU	2.4
1	C	300	VAL	2.4
1	C	193	VAL	2.4
1	A	187	TYR	2.4
1	A	216	ILE	2.4
1	C	216	ILE	2.4
1	A	195	PHE	2.4
1	D	300	VAL	2.3
1	A	151	PHE	2.3
1	A	157	LEU	2.3
1	D	216	ILE	2.3
1	B	241	ILE	2.3
1	D	25	ASP	2.3
1	A	328	LEU	2.2
1	A	243	PRO	2.2
1	A	19	ARG	2.2
1	D	28	VAL	2.2
1	D	36	ARG	2.1
1	A	214	TRP	2.1
1	B	301	ILE	2.1
1	A	149	LYS	2.1
1	D	191	SER	2.1
1	D	52	GLU	2.0
1	A	300	VAL	2.0
1	B	117	VAL	2.0
1	A	150	ASP	2.0
1	D	149	LYS	2.0
1	A	95	GLU	2.0

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Mol	Chain	Res	Type	RSRZ
1	D	217	HIS	2.0
1	B	326	LEU	2.0
1	D	150	ASP	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 monosaccharides 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.