Full wwPDB X-ray Structure Validation Report ⓘ

May 26, 2020 – 08:21 pm BST

PDB ID	:	5Z18
Title	:	The crystal structure of Ruminococcus gnavus beta-glucuronidase
Authors	:	Dashnyam, P.; Lin, H.Y.; Lin, C.H.
Deposited on	:	2017-12-25
Resolution	:	2.50 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 following versions of software and data (see references ①) were used in the production of this report:

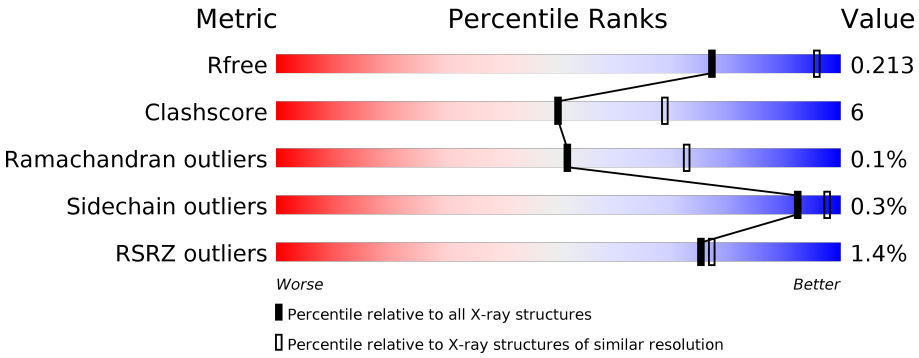
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

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 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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 on 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	627	82% 11% 7%
1	B	627	82% 11% 7%
1	C	627	82% 11% 6%
1	D	627	83% 11% 6%
1	E	627	80% 13% 7%
1	F	627	79% 14% 7%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 30433 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 Beta-glucuronidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	586	Total	C	N	O	S	0	0	0
			4811	3105	780	902	24			
1	B	586	Total	C	N	O	S	0	0	0
			4811	3105	780	902	24			
1	C	588	Total	C	N	O	S	0	0	0
			4829	3117	784	904	24			
1	D	591	Total	C	N	O	S	0	0	0
			4858	3137	788	909	24			
1	E	586	Total	C	N	O	S	0	0	0
			4810	3104	782	900	24			
1	F	582	Total	C	N	O	S	0	0	0
			4773	3079	776	894	24			

There are 150 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-23	MET	-	initiating methionine	UNP Q6W7J7
A	-22	HIS	-	expression tag	UNP Q6W7J7
A	-21	HIS	-	expression tag	UNP Q6W7J7
A	-20	HIS	-	expression tag	UNP Q6W7J7
A	-19	HIS	-	expression tag	UNP Q6W7J7
A	-18	HIS	-	expression tag	UNP Q6W7J7
A	-17	HIS	-	expression tag	UNP Q6W7J7
A	-16	SER	-	expression tag	UNP Q6W7J7
A	-15	SER	-	expression tag	UNP Q6W7J7
A	-14	GLY	-	expression tag	UNP Q6W7J7
A	-13	VAL	-	expression tag	UNP Q6W7J7
A	-12	ASP	-	expression tag	UNP Q6W7J7
A	-11	LEU	-	expression tag	UNP Q6W7J7
A	-10	GLY	-	expression tag	UNP Q6W7J7
A	-9	THR	-	expression tag	UNP Q6W7J7
A	-8	GLU	-	expression tag	UNP Q6W7J7
A	-7	ASN	-	expression tag	UNP Q6W7J7

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-6	LEU	-	expression tag	UNP Q6W7J7
A	-5	TYR	-	expression tag	UNP Q6W7J7
A	-4	PHE	-	expression tag	UNP Q6W7J7
A	-3	GLN	-	expression tag	UNP Q6W7J7
A	-2	SER	-	expression tag	UNP Q6W7J7
A	-1	ASN	-	expression tag	UNP Q6W7J7
A	0	GLY	-	expression tag	UNP Q6W7J7
A	1	MET	-	expression tag	UNP Q6W7J7
B	-23	MET	-	initiating methionine	UNP Q6W7J7
B	-22	HIS	-	expression tag	UNP Q6W7J7
B	-21	HIS	-	expression tag	UNP Q6W7J7
B	-20	HIS	-	expression tag	UNP Q6W7J7
B	-19	HIS	-	expression tag	UNP Q6W7J7
B	-18	HIS	-	expression tag	UNP Q6W7J7
B	-17	HIS	-	expression tag	UNP Q6W7J7
B	-16	SER	-	expression tag	UNP Q6W7J7
B	-15	SER	-	expression tag	UNP Q6W7J7
B	-14	GLY	-	expression tag	UNP Q6W7J7
B	-13	VAL	-	expression tag	UNP Q6W7J7
B	-12	ASP	-	expression tag	UNP Q6W7J7
B	-11	LEU	-	expression tag	UNP Q6W7J7
B	-10	GLY	-	expression tag	UNP Q6W7J7
B	-9	THR	-	expression tag	UNP Q6W7J7
B	-8	GLU	-	expression tag	UNP Q6W7J7
B	-7	ASN	-	expression tag	UNP Q6W7J7
B	-6	LEU	-	expression tag	UNP Q6W7J7
B	-5	TYR	-	expression tag	UNP Q6W7J7
B	-4	PHE	-	expression tag	UNP Q6W7J7
B	-3	GLN	-	expression tag	UNP Q6W7J7
B	-2	SER	-	expression tag	UNP Q6W7J7
B	-1	ASN	-	expression tag	UNP Q6W7J7
B	0	GLY	-	expression tag	UNP Q6W7J7
B	1	MET	-	expression tag	UNP Q6W7J7
C	-23	MET	-	initiating methionine	UNP Q6W7J7
C	-22	HIS	-	expression tag	UNP Q6W7J7
C	-21	HIS	-	expression tag	UNP Q6W7J7
C	-20	HIS	-	expression tag	UNP Q6W7J7
C	-19	HIS	-	expression tag	UNP Q6W7J7
C	-18	HIS	-	expression tag	UNP Q6W7J7
C	-17	HIS	-	expression tag	UNP Q6W7J7
C	-16	SER	-	expression tag	UNP Q6W7J7
C	-15	SER	-	expression tag	UNP Q6W7J7

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-14	GLY	-	expression tag	UNP Q6W7J7
C	-13	VAL	-	expression tag	UNP Q6W7J7
C	-12	ASP	-	expression tag	UNP Q6W7J7
C	-11	LEU	-	expression tag	UNP Q6W7J7
C	-10	GLY	-	expression tag	UNP Q6W7J7
C	-9	THR	-	expression tag	UNP Q6W7J7
C	-8	GLU	-	expression tag	UNP Q6W7J7
C	-7	ASN	-	expression tag	UNP Q6W7J7
C	-6	LEU	-	expression tag	UNP Q6W7J7
C	-5	TYR	-	expression tag	UNP Q6W7J7
C	-4	PHE	-	expression tag	UNP Q6W7J7
C	-3	GLN	-	expression tag	UNP Q6W7J7
C	-2	SER	-	expression tag	UNP Q6W7J7
C	-1	ASN	-	expression tag	UNP Q6W7J7
C	0	GLY	-	expression tag	UNP Q6W7J7
C	1	MET	-	expression tag	UNP Q6W7J7
D	-23	MET	-	initiating methionine	UNP Q6W7J7
D	-22	HIS	-	expression tag	UNP Q6W7J7
D	-21	HIS	-	expression tag	UNP Q6W7J7
D	-20	HIS	-	expression tag	UNP Q6W7J7
D	-19	HIS	-	expression tag	UNP Q6W7J7
D	-18	HIS	-	expression tag	UNP Q6W7J7
D	-17	HIS	-	expression tag	UNP Q6W7J7
D	-16	SER	-	expression tag	UNP Q6W7J7
D	-15	SER	-	expression tag	UNP Q6W7J7
D	-14	GLY	-	expression tag	UNP Q6W7J7
D	-13	VAL	-	expression tag	UNP Q6W7J7
D	-12	ASP	-	expression tag	UNP Q6W7J7
D	-11	LEU	-	expression tag	UNP Q6W7J7
D	-10	GLY	-	expression tag	UNP Q6W7J7
D	-9	THR	-	expression tag	UNP Q6W7J7
D	-8	GLU	-	expression tag	UNP Q6W7J7
D	-7	ASN	-	expression tag	UNP Q6W7J7
D	-6	LEU	-	expression tag	UNP Q6W7J7
D	-5	TYR	-	expression tag	UNP Q6W7J7
D	-4	PHE	-	expression tag	UNP Q6W7J7
D	-3	GLN	-	expression tag	UNP Q6W7J7
D	-2	SER	-	expression tag	UNP Q6W7J7
D	-1	ASN	-	expression tag	UNP Q6W7J7
D	0	GLY	-	expression tag	UNP Q6W7J7
D	1	MET	-	expression tag	UNP Q6W7J7
E	-23	MET	-	initiating methionine	UNP Q6W7J7

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-22	HIS	-	expression tag	UNP Q6W7J7
E	-21	HIS	-	expression tag	UNP Q6W7J7
E	-20	HIS	-	expression tag	UNP Q6W7J7
E	-19	HIS	-	expression tag	UNP Q6W7J7
E	-18	HIS	-	expression tag	UNP Q6W7J7
E	-17	HIS	-	expression tag	UNP Q6W7J7
E	-16	SER	-	expression tag	UNP Q6W7J7
E	-15	SER	-	expression tag	UNP Q6W7J7
E	-14	GLY	-	expression tag	UNP Q6W7J7
E	-13	VAL	-	expression tag	UNP Q6W7J7
E	-12	ASP	-	expression tag	UNP Q6W7J7
E	-11	LEU	-	expression tag	UNP Q6W7J7
E	-10	GLY	-	expression tag	UNP Q6W7J7
E	-9	THR	-	expression tag	UNP Q6W7J7
E	-8	GLU	-	expression tag	UNP Q6W7J7
E	-7	ASN	-	expression tag	UNP Q6W7J7
E	-6	LEU	-	expression tag	UNP Q6W7J7
E	-5	TYR	-	expression tag	UNP Q6W7J7
E	-4	PHE	-	expression tag	UNP Q6W7J7
E	-3	GLN	-	expression tag	UNP Q6W7J7
E	-2	SER	-	expression tag	UNP Q6W7J7
E	-1	ASN	-	expression tag	UNP Q6W7J7
E	0	GLY	-	expression tag	UNP Q6W7J7
E	1	MET	-	expression tag	UNP Q6W7J7
F	-23	MET	-	initiating methionine	UNP Q6W7J7
F	-22	HIS	-	expression tag	UNP Q6W7J7
F	-21	HIS	-	expression tag	UNP Q6W7J7
F	-20	HIS	-	expression tag	UNP Q6W7J7
F	-19	HIS	-	expression tag	UNP Q6W7J7
F	-18	HIS	-	expression tag	UNP Q6W7J7
F	-17	HIS	-	expression tag	UNP Q6W7J7
F	-16	SER	-	expression tag	UNP Q6W7J7
F	-15	SER	-	expression tag	UNP Q6W7J7
F	-14	GLY	-	expression tag	UNP Q6W7J7
F	-13	VAL	-	expression tag	UNP Q6W7J7
F	-12	ASP	-	expression tag	UNP Q6W7J7
F	-11	LEU	-	expression tag	UNP Q6W7J7
F	-10	GLY	-	expression tag	UNP Q6W7J7
F	-9	THR	-	expression tag	UNP Q6W7J7
F	-8	GLU	-	expression tag	UNP Q6W7J7
F	-7	ASN	-	expression tag	UNP Q6W7J7
F	-6	LEU	-	expression tag	UNP Q6W7J7

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Chain	Residue	Modelled	Actual	Comment	Reference
F	-5	TYR	-	expression tag	UNP Q6W7J7
F	-4	PHE	-	expression tag	UNP Q6W7J7
F	-3	GLN	-	expression tag	UNP Q6W7J7
F	-2	SER	-	expression tag	UNP Q6W7J7
F	-1	ASN	-	expression tag	UNP Q6W7J7
F	0	GLY	-	expression tag	UNP Q6W7J7
F	1	MET	-	expression tag	UNP Q6W7J7

- Molecule 2 is water.

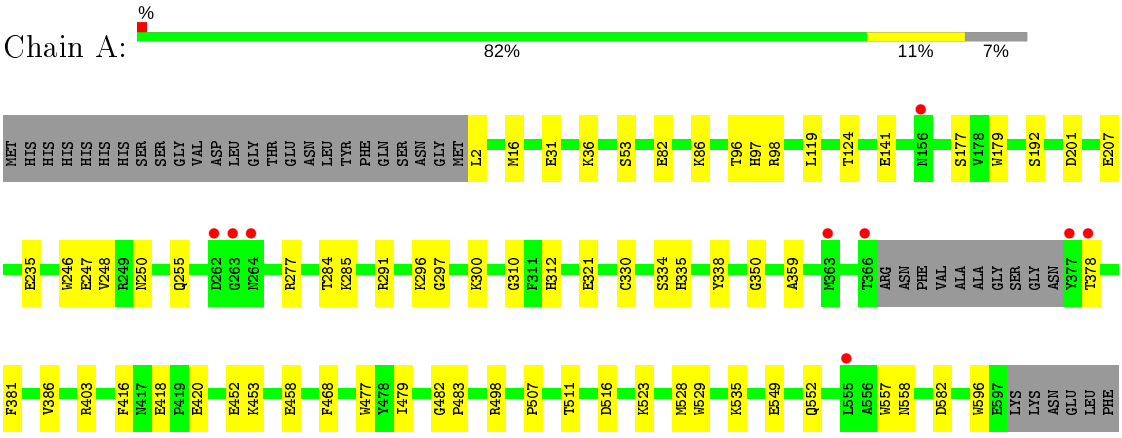
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	265	Total O 265 265	0	0
2	B	240	Total O 240 240	0	0
2	C	268	Total O 268 268	0	0
2	D	224	Total O 224 224	0	0
2	E	250	Total O 250 250	0	0
2	F	294	Total O 294 294	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

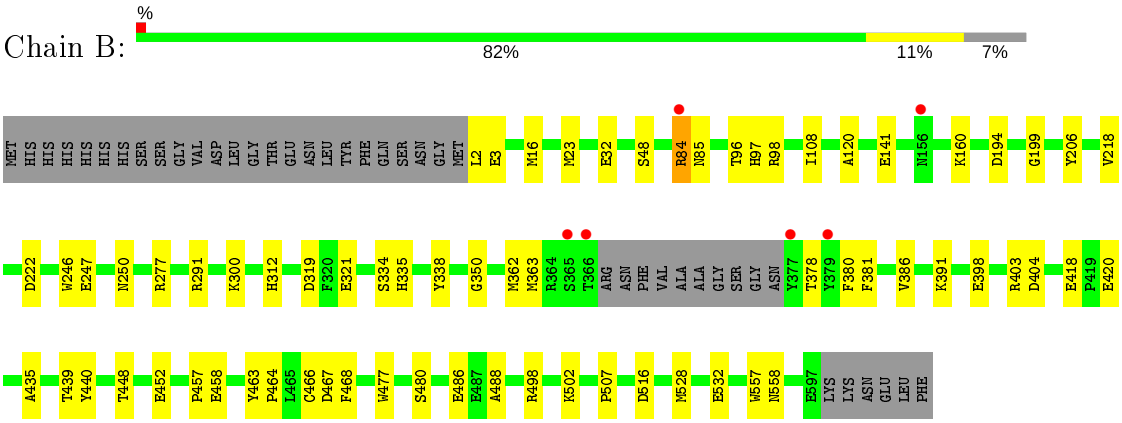
- Molecule 1: Beta-glucuronidase

Chain A:



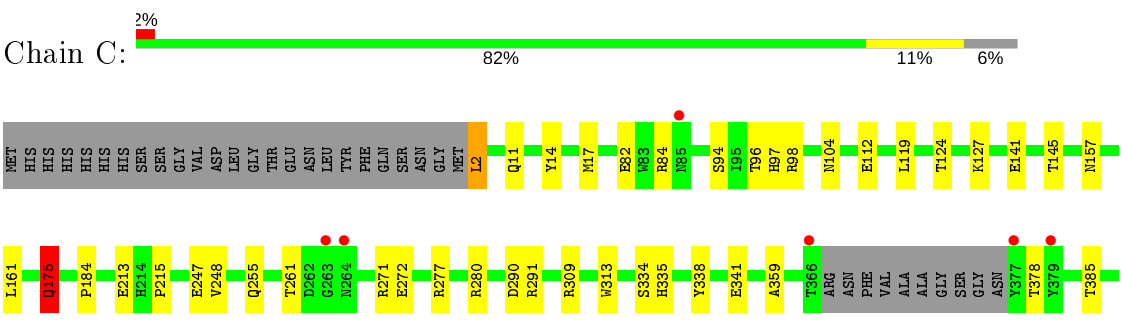
- Molecule 1: Beta-glucuronidase

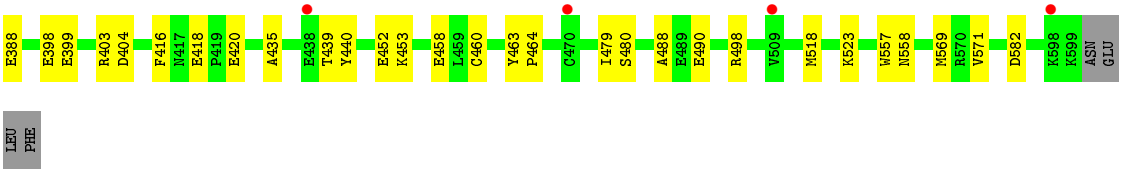
Chain B:



- Molecule 1: Beta-glucuronidase

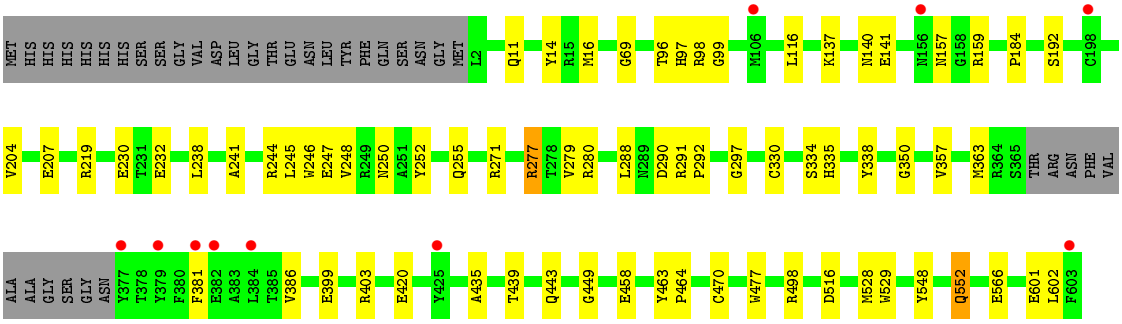
Chain C:





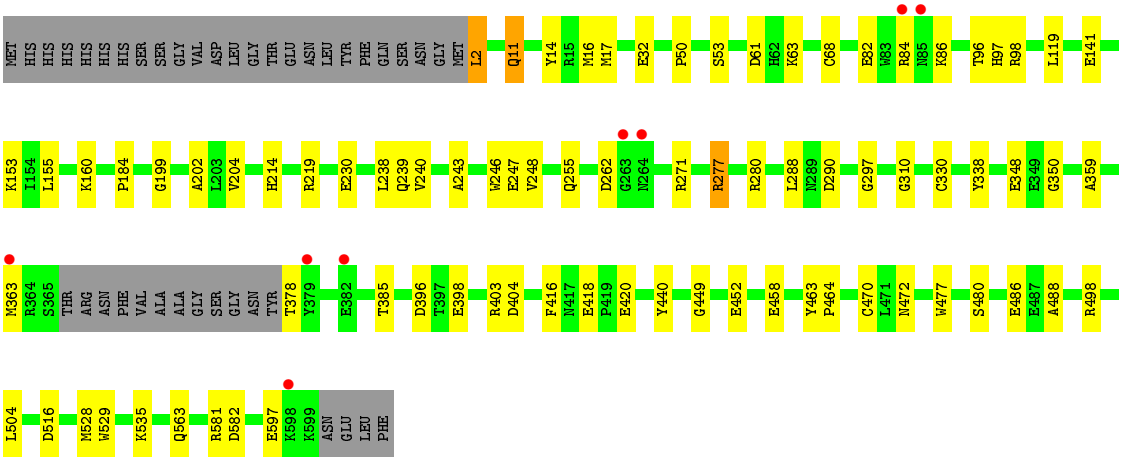
• Molecule 1: Beta-glucuronidase

Chain D:



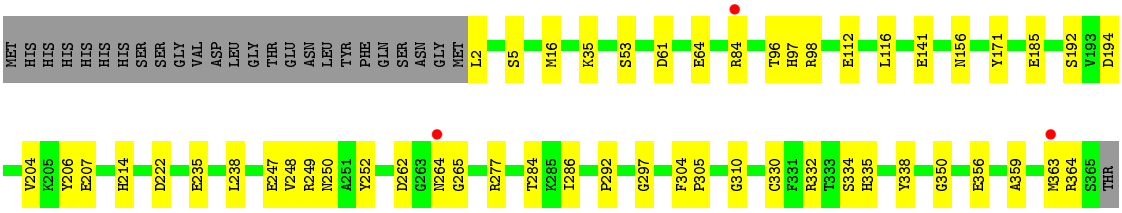
• Molecule 1: Beta-glucuronidase

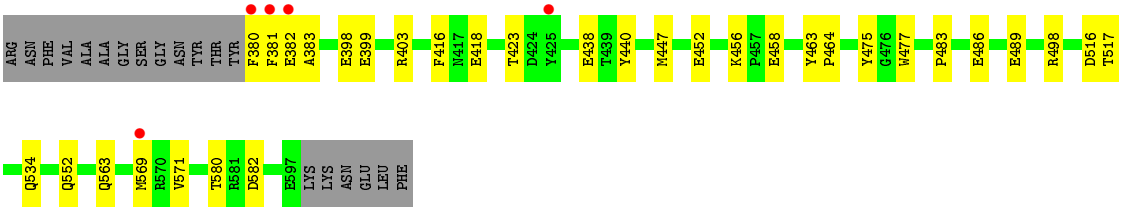
Chain E:



• Molecule 1: Beta-glucuronidase

Chain F:




ARG ASN PHE VAL ALA ALA GLY SER GLY ASN TYR THR TYR
F380 F381 E382 A383 E398 E399 R403 F416 N417 E418 T423 D424 Y425 E438 T439 Y440 M447 E452 K456 P457 E458 Y463 P464 Y475 G476 W477 P483 E486 E489 R498 D516 T517
Q534 Q552 Q563 M569 R570 V571 T580 R581 D582 E597 LYS LYS ASN GLU LEU PHE

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	181.87Å 118.18Å 210.35Å 90.00° 93.45° 90.00°	Depositor
Resolution (Å)	29.03 – 2.50 29.03 – 2.50	Depositor EDS
% Data completeness (in resolution range)	94.3 (29.03-2.50) 94.0 (29.03-2.50)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.45 (at 2.51Å)	Xtriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.167 , 0.209 0.175 , 0.213	Depositor DCC
R_{free} test set	2000 reflections (1.32%)	wwPDB-VP
Wilson B-factor (Å^2)	35.6	Xtriage
Anisotropy	0.391	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 40.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	30433	wwPDB-VP
Average B, all atoms (Å^2)	36.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.38% 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	0.47	0/4949	0.61	1/6711 (0.0%)
1	B	0.46	0/4949	0.61	1/6711 (0.0%)
1	C	0.47	0/4967	0.61	3/6733 (0.0%)
1	D	0.45	0/4997	0.58	0/6773
1	E	0.47	0/4947	0.61	2/6705 (0.0%)
1	F	0.48	0/4909	0.62	0/6655
All	All	0.47	0/29718	0.61	7/40288 (0.0%)

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	2	LEU	CA-CB-CG	6.37	129.96	115.30
1	A	119	LEU	CA-CB-CG	-5.76	102.05	115.30
1	C	2	LEU	CA-CB-CG	5.69	128.39	115.30
1	B	2	LEU	CA-CB-CG	5.69	128.38	115.30
1	C	119	LEU	CA-CB-CG	-5.37	102.95	115.30
1	E	119	LEU	CA-CB-CG	-5.11	103.55	115.30
1	C	175	GLN	CA-CB-CG	5.02	124.45	113.40

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	4811	0	4589	53	0
1	B	4811	0	4589	50	0
1	C	4829	0	4615	55	0
1	D	4858	0	4640	46	1
1	E	4810	0	4599	63	1
1	F	4773	0	4557	70	0
2	A	265	0	0	14	2
2	B	240	0	0	12	4
2	C	268	0	0	14	0
2	D	224	0	0	8	0
2	E	250	0	0	20	0
2	F	294	0	0	23	2
All	All	30433	0	27589	325	5

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 6.

All (325) 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:2:LEU:N	2:C:702:HOH:O	1.82	1.12
1:F:563:GLN:NE2	2:F:702:HOH:O	1.87	1.06
1:C:213:GLU:OE2	2:C:701:HOH:O	1.82	0.98
1:F:552:GLN:NE2	2:F:704:HOH:O	1.99	0.95
1:F:262:ASP:OD1	2:F:701:HOH:O	1.85	0.94
1:D:255:GLN:OE1	2:D:701:HOH:O	1.86	0.93
1:A:201:ASP:OD1	2:A:701:HOH:O	1.87	0.92
1:E:396:ASP:OD1	2:E:702:HOH:O	1.88	0.91
1:F:364:ARG:HH22	1:F:381:PHE:HB2	1.36	0.89
1:E:472:ASN:O	2:E:703:HOH:O	1.89	0.89
1:E:240:VAL:O	2:E:704:HOH:O	1.91	0.88
1:D:16:MET:SD	2:D:845:HOH:O	2.30	0.88
1:F:222:ASP:OD2	2:F:703:HOH:O	1.89	0.88
1:C:175:GLN:HE21	1:C:309:ARG:HB2	1.41	0.85
1:B:16:MET:SD	2:B:887:HOH:O	2.34	0.85
1:C:272:GLU:OE2	2:C:703:HOH:O	1.95	0.84
1:C:338:TYR:O	1:C:403:ARG:NH2	2.11	0.84
1:E:504:LEU:O	2:E:705:HOH:O	1.98	0.82
1:D:363:MET:SD	2:D:734:HOH:O	2.36	0.82
1:C:490:GLU:OE1	1:F:156:ASN:ND2	2.13	0.81
1:E:202:ALA:N	2:E:704:HOH:O	2.10	0.81
1:A:338:TYR:O	1:A:403:ARG:NH2	2.14	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:321:GLU:OE2	2:B:701:HOH:O	1.98	0.80
1:F:16:MET:SD	2:F:883:HOH:O	2.38	0.80
1:C:112:GLU:OE2	2:C:705:HOH:O	1.99	0.80
1:E:348:GLU:OE2	2:E:706:HOH:O	2.00	0.79
1:C:11:GLN:NE2	2:C:704:HOH:O	1.99	0.79
1:C:523:LYS:NZ	2:C:711:HOH:O	2.16	0.79
1:E:516:ASP:OD2	2:E:707:HOH:O	2.00	0.78
1:B:338:TYR:O	1:B:403:ARG:NH2	2.15	0.77
1:E:199:GLY:O	2:E:708:HOH:O	2.01	0.77
1:C:11:GLN:HG2	1:C:17:MET:HG2	1.68	0.76
1:A:82:GLU:OE2	2:A:703:HOH:O	2.04	0.76
1:A:321:GLU:OE2	2:A:702:HOH:O	2.03	0.75
1:B:528:MET:O	2:B:702:HOH:O	2.03	0.75
1:F:438:GLU:O	2:F:705:HOH:O	2.05	0.75
1:E:239:GLN:OE1	2:E:709:HOH:O	2.04	0.74
1:E:214:HIS:CD2	1:E:262:ASP:HB3	2.23	0.74
1:E:363:MET:SD	2:E:929:HOH:O	2.46	0.72
1:F:489:GLU:OE2	2:F:706:HOH:O	2.07	0.72
1:F:363:MET:SD	2:F:770:HOH:O	2.46	0.72
1:E:247:GLU:OE1	2:E:710:HOH:O	2.08	0.71
1:B:98:ARG:NH2	1:B:141:GLU:O	2.23	0.71
1:E:2:LEU:N	2:E:715:HOH:O	2.24	0.71
1:D:280:ARG:NH1	1:D:290:ASP:OD1	2.24	0.71
1:B:250:ASN:O	2:B:703:HOH:O	2.08	0.70
1:C:582:ASP:OD2	2:C:707:HOH:O	2.09	0.70
1:C:247:GLU:OE1	1:C:291:ARG:NH2	2.24	0.70
1:E:338:TYR:O	1:E:403:ARG:NH2	2.22	0.69
1:D:552:GLN:NE2	1:D:601:GLU:OE2	2.25	0.69
1:B:391:LYS:HD2	2:B:791:HOH:O	1.93	0.69
1:D:548:TYR:O	2:D:702:HOH:O	2.11	0.69
1:F:207:GLU:HG3	1:F:235:GLU:HG2	1.75	0.69
1:F:486:GLU:OE1	2:F:709:HOH:O	2.10	0.69
1:E:63:LYS:O	2:E:711:HOH:O	2.10	0.69
1:F:380:PHE:HZ	1:F:423:THR:HG21	1.58	0.68
1:E:98:ARG:NH2	1:E:141:GLU:O	2.26	0.68
1:E:243:ALA:HB2	2:E:704:HOH:O	1.94	0.68
1:F:5:SER:O	2:F:708:HOH:O	2.10	0.68
1:A:98:ARG:NH2	1:A:141:GLU:O	2.26	0.68
1:F:277:ARG:HG3	1:F:277:ARG:HH11	1.58	0.67
1:F:185:GLU:OE2	2:F:710:HOH:O	2.13	0.67
1:E:11:GLN:HE21	1:E:17:MET:HG2	1.58	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:53:SER:O	2:F:711:HOH:O	2.13	0.67
1:C:94:SER:O	2:C:708:HOH:O	2.13	0.66
1:A:582:ASP:OD2	2:A:704:HOH:O	2.13	0.65
1:B:247:GLU:OE1	2:B:704:HOH:O	2.13	0.65
1:F:194:ASP:OD1	2:F:712:HOH:O	2.14	0.65
1:C:82:GLU:HG2	1:E:82:GLU:HG2	1.77	0.65
1:F:517:THR:OG1	1:F:534:GLN:HG3	1.96	0.65
1:E:247:GLU:OE2	1:E:248:VAL:HG23	1.98	0.64
1:B:199:GLY:O	2:B:705:HOH:O	2.14	0.64
1:B:222:ASP:OD2	2:B:706:HOH:O	2.14	0.64
1:F:98:ARG:NH2	1:F:141:GLU:O	2.28	0.64
1:F:247:GLU:HB2	1:F:250:ASN:HB3	1.80	0.63
1:A:285:LYS:NZ	1:A:549:GLU:OE2	2.32	0.63
1:C:175:GLN:HE21	1:C:309:ARG:CB	2.12	0.63
1:C:277:ARG:HH11	1:C:277:ARG:HG2	1.65	0.62
1:A:523:LYS:O	2:A:705:HOH:O	2.16	0.61
1:B:277:ARG:HG2	1:B:277:ARG:HH11	1.65	0.61
1:C:399:GLU:OE1	2:C:709:HOH:O	2.16	0.60
1:F:112:GLU:OE2	2:F:713:HOH:O	2.16	0.60
1:F:265:GLY:N	2:F:701:HOH:O	2.26	0.60
1:A:277:ARG:HH11	1:A:277:ARG:HG3	1.66	0.60
1:C:460:CYS:O	2:C:712:HOH:O	2.16	0.60
1:C:378:THR:OG1	1:C:420:GLU:OE2	2.14	0.59
1:C:435:ALA:O	1:C:439:THR:HG23	2.02	0.59
1:A:535:LYS:NZ	2:A:724:HOH:O	2.35	0.59
1:F:580:THR:OG1	1:F:582:ASP:OD1	2.11	0.59
1:E:277:ARG:HG2	1:E:277:ARG:O	2.01	0.58
1:B:435:ALA:O	1:B:439:THR:HG23	2.04	0.58
1:B:458:GLU:OE2	1:B:498:ARG:HD2	2.03	0.58
1:D:247:GLU:HB2	1:D:250:ASN:HB3	1.85	0.58
1:E:378:THR:N	1:E:420:GLU:OE2	2.35	0.58
1:A:255:GLN:NE2	2:A:722:HOH:O	2.33	0.58
1:C:480:SER:HB2	1:C:488:ALA:HB2	1.86	0.57
1:F:214:HIS:CD2	1:F:262:ASP:HB3	2.40	0.57
1:A:453:LYS:HD2	1:A:479:ILE:HD11	1.86	0.56
1:A:418:GLU:HG2	1:A:452:GLU:HB2	1.86	0.56
1:E:297:GLY:HA3	1:E:330:CYS:O	2.06	0.56
1:F:84:ARG:HD3	2:F:744:HOH:O	2.05	0.56
1:E:418:GLU:HG2	1:E:452:GLU:HB2	1.87	0.55
1:B:23:MET:HE2	1:B:48:SER:HB3	1.88	0.55
1:E:582:ASP:OD1	2:E:713:HOH:O	2.18	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:597:GLU:O	2:E:714:HOH:O	2.18	0.55
1:F:2:LEU:HD11	1:F:440:TYR:HE1	1.70	0.55
1:F:534:GLN:OE1	2:F:714:HOH:O	2.18	0.54
1:D:98:ARG:NH2	1:D:141:GLU:O	2.29	0.54
1:A:16:MET:HG3	2:A:871:HOH:O	2.08	0.54
1:F:452:GLU:OE2	2:F:715:HOH:O	2.19	0.54
1:C:104:ASN:ND2	1:C:127:LYS:HE2	2.23	0.53
1:E:11:GLN:HE21	1:E:17:MET:CG	2.21	0.53
1:C:280:ARG:NH1	1:C:290:ASP:OD1	2.42	0.53
1:A:468:PHE:HB3	1:A:507:PRO:HG2	1.90	0.53
1:F:53:SER:HA	1:F:310:GLY:HA3	1.90	0.53
1:C:175:GLN:NE2	1:C:309:ARG:HB2	2.17	0.53
1:C:458:GLU:OE2	1:C:498:ARG:HD2	2.08	0.53
1:A:549:GLU:OE1	2:A:706:HOH:O	2.18	0.53
1:B:477:TRP:CZ2	1:B:516:ASP:HB2	2.44	0.53
1:A:277:ARG:O	1:A:277:ARG:HG3	2.09	0.53
1:C:388:GLU:HG3	1:D:232:GLU:OE1	2.09	0.53
1:A:458:GLU:OE1	1:A:498:ARG:NH1	2.42	0.52
1:A:516:ASP:O	1:A:529:TRP:HA	2.09	0.52
1:F:204:VAL:HB	1:F:238:LEU:HB2	1.90	0.52
1:A:124:THR:OG1	2:A:707:HOH:O	2.19	0.52
1:C:277:ARG:NH1	1:C:277:ARG:HG2	2.24	0.52
1:C:248:VAL:HG12	2:C:857:HOH:O	2.07	0.52
1:E:486:GLU:N	1:E:486:GLU:OE1	2.30	0.52
1:D:458:GLU:OE2	1:D:498:ARG:HD2	2.10	0.52
1:C:98:ARG:NH2	1:C:141:GLU:O	2.33	0.52
1:D:255:GLN:NE2	1:D:271:ARG:HD3	2.25	0.51
1:D:11:GLN:NE2	2:D:726:HOH:O	2.43	0.51
1:F:380:PHE:CZ	1:F:423:THR:HG21	2.42	0.51
1:C:582:ASP:OD1	2:C:713:HOH:O	2.19	0.51
1:A:248:VAL:HG23	2:A:772:HOH:O	2.09	0.51
1:D:277:ARG:NH1	1:D:279:VAL:HG23	2.25	0.51
1:C:161:LEU:HD21	1:F:483:PRO:HB2	1.93	0.51
1:F:297:GLY:HA3	1:F:330:CYS:O	2.10	0.51
1:F:284:THR:O	1:F:552:GLN:HG3	2.11	0.51
1:C:255:GLN:OE1	1:C:271:ARG:HD3	2.11	0.51
1:D:381:PHE:HA	1:D:386:VAL:HG21	1.92	0.50
1:E:246:TRP:CZ2	1:E:350:GLY:HA2	2.46	0.50
1:F:438:GLU:HG2	1:F:447:MET:HE1	1.92	0.50
1:E:14:TYR:O	1:E:184:PRO:HD3	2.10	0.50
1:D:420:GLU:OE1	2:D:705:HOH:O	2.19	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:277:ARG:NH1	1:B:277:ARG:HG2	2.27	0.50
1:B:362:MET:HB2	2:B:829:HOH:O	2.11	0.50
1:F:498:ARG:NH1	2:F:707:HOH:O	2.08	0.50
1:B:84:ARG:HG2	1:B:84:ARG:HH11	1.75	0.50
1:D:477:TRP:CZ2	1:D:516:ASP:HB2	2.47	0.50
1:C:569:MET:HG2	1:F:569:MET:HG2	1.94	0.50
1:B:468:PHE:HB3	1:B:507:PRO:HG2	1.94	0.49
1:E:477:TRP:CZ2	1:E:516:ASP:HB2	2.48	0.49
1:C:571:VAL:HG21	1:F:571:VAL:HG21	1.95	0.49
1:B:194:ASP:OD1	2:B:708:HOH:O	2.20	0.49
1:E:458:GLU:OE2	1:E:498:ARG:HD2	2.13	0.49
1:B:467:ASP:O	2:B:709:HOH:O	2.20	0.49
1:D:449:GLY:O	1:D:470:CYS:HB2	2.13	0.49
1:E:255:GLN:OE1	1:E:271:ARG:HD3	2.13	0.49
1:B:480:SER:HB2	1:B:488:ALA:HB2	1.95	0.48
1:A:246:TRP:CZ2	1:A:350:GLY:HA2	2.48	0.48
1:E:385:THR:HG23	2:E:808:HOH:O	2.13	0.48
1:F:398:GLU:HG2	1:F:440:TYR:CD2	2.48	0.48
1:D:116:LEU:HD13	1:D:399:GLU:HB2	1.94	0.48
1:A:334:SER:HA	1:A:335:HIS:HA	1.68	0.48
1:A:378:THR:OG1	1:A:420:GLU:OE2	2.23	0.48
1:F:381:PHE:HB3	1:F:383:ALA:N	2.28	0.48
1:A:177:SER:HB2	1:A:179:TRP:CH2	2.49	0.48
1:F:2:LEU:HD11	1:F:440:TYR:CE1	2.49	0.48
1:F:418:GLU:HG2	1:F:452:GLU:HB2	1.95	0.48
1:A:82:GLU:OE1	1:A:82:GLU:N	2.38	0.48
1:E:449:GLY:O	1:E:470:CYS:HB2	2.14	0.48
1:D:244:ARG:NH1	1:D:245:LEU:O	2.47	0.47
1:D:248:VAL:HG22	1:D:288:LEU:HD23	1.95	0.47
1:D:248:VAL:O	1:D:350:GLY:O	2.31	0.47
1:E:563:GLN:NE2	2:E:739:HOH:O	2.47	0.47
1:F:61:ASP:OD2	1:F:64:GLU:HG3	2.15	0.47
1:D:297:GLY:HA3	1:D:330:CYS:O	2.14	0.47
1:E:248:VAL:HG22	1:E:288:LEU:HD23	1.96	0.47
1:F:248:VAL:O	1:F:350:GLY:O	2.32	0.47
1:A:312:HIS:CD2	1:B:312:HIS:CD2	3.03	0.47
1:E:277:ARG:HG2	1:E:277:ARG:HH11	1.78	0.47
1:A:277:ARG:NH1	1:A:277:ARG:HG3	2.29	0.47
1:E:528:MET:O	1:E:529:TRP:HB2	2.15	0.47
1:F:463:TYR:CG	1:F:464:PRO:HD3	2.50	0.47
1:B:486:GLU:H	1:B:486:GLU:CD	2.18	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:296:LYS:NZ	1:A:596:TRP:O	2.39	0.46
1:D:338:TYR:O	1:D:403:ARG:NH2	2.28	0.46
1:E:463:TYR:CG	1:E:464:PRO:HD3	2.50	0.46
1:D:69:GLY:H	1:D:140:ASN:HB2	1.80	0.46
1:A:312:HIS:CD2	1:B:312:HIS:HD2	2.34	0.46
1:E:581:ARG:HD2	2:E:930:HOH:O	2.14	0.46
1:F:338:TYR:O	1:F:403:ARG:NH2	2.32	0.46
1:B:23:MET:CE	1:B:48:SER:HB3	2.45	0.46
1:C:175:GLN:HB2	2:C:768:HOH:O	2.16	0.46
1:F:475:TYR:N	2:F:739:HOH:O	2.48	0.46
1:A:300:LYS:HE2	1:A:300:LYS:HB3	1.50	0.46
1:D:516:ASP:O	1:D:529:TRP:HA	2.16	0.46
1:B:108:ILE:HG21	1:B:120:ALA:HB1	1.97	0.46
1:C:215:PRO:HG2	1:C:261:THR:HG23	1.97	0.46
1:C:145:THR:HG22	1:C:385:THR:HB	1.97	0.46
1:C:96:THR:HA	1:C:97:HIS:HA	1.74	0.46
1:A:297:GLY:HA3	1:A:330:CYS:O	2.15	0.46
1:B:418:GLU:HG2	1:B:452:GLU:HB2	1.98	0.46
1:E:32:GLU:OE2	1:E:160:LYS:NZ	2.34	0.46
1:F:248:VAL:O	1:F:249:ARG:HG2	2.16	0.45
1:E:204:VAL:HB	1:E:238:LEU:HB2	1.97	0.45
1:E:359:ALA:HB3	1:E:416:PHE:HA	1.99	0.45
1:A:248:VAL:O	1:A:350:GLY:O	2.33	0.45
1:A:516:ASP:HB3	1:A:529:TRP:CZ3	2.52	0.45
1:B:532:GLU:OE2	2:B:711:HOH:O	2.20	0.45
1:D:566:GLU:HG2	2:D:762:HOH:O	2.14	0.45
1:E:535:LYS:NZ	2:E:712:HOH:O	2.11	0.45
1:D:244:ARG:HG3	1:D:252:TYR:CG	2.52	0.45
1:E:96:THR:HA	1:E:97:HIS:HA	1.67	0.45
1:F:222:ASP:HB2	1:F:252:TYR:OH	2.17	0.45
1:F:380:PHE:O	1:F:381:PHE:HD1	1.99	0.45
1:F:264:ASN:N	2:F:701:HOH:O	2.50	0.45
1:F:456:LYS:HB3	2:F:707:HOH:O	2.15	0.45
1:C:463:TYR:CG	1:C:464:PRO:HD3	2.52	0.45
1:F:116:LEU:HD13	1:F:399:GLU:HB2	1.98	0.45
1:A:36:LYS:HA	1:A:36:LYS:HD3	1.77	0.45
1:A:381:PHE:HA	1:A:386:VAL:HG21	1.99	0.45
1:B:448:THR:HG22	1:B:468:PHE:O	2.17	0.45
1:E:280:ARG:NH1	1:E:290:ASP:OD1	2.47	0.45
1:C:334:SER:HA	1:C:335:HIS:HA	1.66	0.45
1:D:277:ARG:HH11	1:D:279:VAL:HG23	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:248:VAL:O	1:E:350:GLY:O	2.35	0.44
1:B:398:GLU:HB2	1:B:440:TYR:CE1	2.53	0.44
1:F:458:GLU:OE2	1:F:498:ARG:HD2	2.18	0.44
1:C:403:ARG:NH1	1:C:404:ASP:OD2	2.51	0.44
1:D:528:MET:O	1:D:529:TRP:HB2	2.18	0.44
1:F:418:GLU:CG	1:F:452:GLU:HB2	2.47	0.44
1:A:53:SER:HA	1:A:310:GLY:HA3	2.00	0.44
1:B:300:LYS:NZ	1:B:319:ASP:OD2	2.35	0.44
1:D:246:TRP:CZ2	1:D:350:GLY:HA2	2.52	0.44
1:B:463:TYR:CG	1:B:464:PRO:HD3	2.53	0.44
1:C:453:LYS:HD2	1:C:479:ILE:HD11	2.00	0.44
1:A:312:HIS:HD2	1:B:312:HIS:CD2	2.36	0.44
1:E:219:ARG:HG2	1:E:230:GLU:HG3	2.00	0.44
1:A:31:GLU:CD	2:A:713:HOH:O	2.56	0.43
1:A:284:THR:O	1:A:552:GLN:HG3	2.17	0.43
1:C:157:ASN:N	2:C:739:HOH:O	2.51	0.43
1:B:96:THR:HA	1:B:97:HIS:HA	1.79	0.43
1:A:192:SER:HB2	1:A:207:GLU:HG2	2.00	0.43
1:A:247:GLU:HB2	1:A:250:ASN:HB3	1.99	0.43
1:B:381:PHE:HA	1:B:386:VAL:HG21	2.00	0.43
1:E:61:ASP:OD2	1:E:63:LYS:HE2	2.19	0.43
1:F:334:SER:HA	1:F:335:HIS:HA	1.71	0.43
1:A:235:GLU:O	2:A:708:HOH:O	2.21	0.43
1:D:96:THR:HA	1:D:97:HIS:HA	1.76	0.43
1:A:359:ALA:HB3	1:A:416:PHE:HA	1.99	0.43
1:A:482:GLY:HA3	1:A:483:PRO:HD3	1.84	0.43
1:B:457:PRO:O	1:B:502:LYS:HE3	2.18	0.43
1:C:518:MET:HE1	1:C:571:VAL:HB	2.00	0.43
1:D:241:ALA:O	2:D:706:HOH:O	2.20	0.43
1:C:175:GLN:HE21	1:C:309:ARG:CG	2.31	0.43
1:C:453:LYS:HD2	1:C:479:ILE:CD1	2.48	0.43
1:D:14:TYR:O	1:D:184:PRO:HD3	2.18	0.43
1:F:381:PHE:HA	1:F:382:GLU:CB	2.49	0.43
1:F:84:ARG:NH1	2:F:744:HOH:O	2.51	0.43
1:F:96:THR:HA	1:F:97:HIS:HA	1.80	0.43
1:D:204:VAL:HB	1:D:238:LEU:HB2	2.01	0.43
1:D:334:SER:HA	1:D:335:HIS:HA	1.64	0.43
1:A:247:GLU:OE1	1:A:291:ARG:NH2	2.52	0.43
1:B:300:LYS:HB3	1:B:300:LYS:HE2	1.53	0.43
1:E:418:GLU:CG	1:E:452:GLU:HB2	2.49	0.43
1:B:403:ARG:NH1	1:B:404:ASP:OD2	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:477:TRP:CZ2	1:A:516:ASP:HB2	2.53	0.42
1:A:528:MET:O	1:A:529:TRP:HB2	2.20	0.42
1:C:313:TRP:CH2	1:C:341:GLU:HB3	2.55	0.42
1:D:277:ARG:NH2	1:D:443:GLN:OE1	2.37	0.42
1:F:359:ALA:HB3	1:F:416:PHE:HA	2.02	0.42
1:A:16:MET:SD	1:A:86:LYS:HE3	2.58	0.42
1:C:14:TYR:O	1:C:184:PRO:HD3	2.20	0.42
1:C:418:GLU:HG2	1:C:452:GLU:HB2	2.02	0.42
1:D:192:SER:HB2	1:D:207:GLU:HG2	2.00	0.42
1:D:435:ALA:O	1:D:439:THR:HG23	2.19	0.42
1:E:11:GLN:HG3	1:E:17:MET:HG2	2.02	0.42
1:E:277:ARG:HG2	1:E:277:ARG:NH1	2.34	0.42
1:E:53:SER:HA	1:E:310:GLY:HA3	2.01	0.42
1:F:35:LYS:HD2	1:F:35:LYS:HA	1.79	0.42
1:B:380:PHE:O	1:B:381:PHE:HB2	2.20	0.42
1:B:3:GLU:O	1:B:3:GLU:HG2	2.19	0.42
1:A:96:THR:HA	1:A:97:HIS:HA	1.75	0.42
1:B:246:TRP:CZ2	1:B:350:GLY:HA2	2.55	0.42
1:F:192:SER:O	1:F:206:TYR:HA	2.20	0.42
1:B:334:SER:HA	1:B:335:HIS:HA	1.71	0.42
1:B:378:THR:OG1	1:B:420:GLU:OE2	2.27	0.42
1:B:557:TRP:HA	1:B:558:ASN:HA	1.88	0.42
1:F:304:PHE:CG	1:F:305:PRO:HD2	2.55	0.42
1:D:277:ARG:HH11	1:D:277:ARG:HG2	1.85	0.41
1:F:286:ILE:O	1:F:292:PRO:HA	2.20	0.41
1:D:463:TYR:CG	1:D:464:PRO:HD3	2.56	0.41
1:E:153:LYS:HE3	1:E:155:LEU:HD23	2.02	0.41
1:E:68:CYS:O	1:E:160:LYS:HB2	2.20	0.41
1:A:2:LEU:N	2:A:753:HOH:O	2.53	0.41
1:F:171:TYR:OH	1:F:563:GLN:HG2	2.20	0.41
1:B:466:CYS:HB3	1:B:468:PHE:O	2.21	0.41
1:C:124:THR:HG21	1:D:435:ALA:CB	2.50	0.41
1:C:398:GLU:HG2	1:C:440:TYR:CE2	2.55	0.41
1:E:16:MET:SD	1:E:86:LYS:HE3	2.61	0.41
1:A:418:GLU:CG	1:A:452:GLU:HB2	2.50	0.41
1:C:359:ALA:HB3	1:C:416:PHE:HA	2.03	0.41
1:D:291:ARG:HA	1:D:292:PRO:HD3	1.95	0.41
1:B:247:GLU:CD	1:B:291:ARG:HH22	2.23	0.41
1:C:557:TRP:HA	1:C:558:ASN:HA	1.84	0.41
1:E:248:VAL:HG22	1:E:288:LEU:CD2	2.51	0.41
1:B:391:LYS:HA	1:B:391:LYS:HD3	1.77	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:398:GLU:HG3	1:E:440:TYR:CE1	2.56	0.41
1:E:480:SER:HB2	1:E:488:ALA:HB2	2.03	0.41
1:E:378:THR:OG1	1:E:420:GLU:OE2	2.36	0.40
1:F:398:GLU:HG2	1:F:440:TYR:CE2	2.56	0.40
1:C:124:THR:HG21	1:D:435:ALA:HB1	2.02	0.40
1:D:99:GLY:HA2	1:D:137:LYS:O	2.21	0.40
1:A:557:TRP:HA	1:A:558:ASN:HA	1.87	0.40
1:B:206:TYR:CE1	1:B:218:VAL:HG21	2.57	0.40
1:B:32:GLU:OE2	1:B:160:LYS:NZ	2.50	0.40
1:D:157:ASN:HD21	1:D:159:ARG:HE	1.69	0.40
1:D:219:ARG:HG2	1:D:230:GLU:HG3	2.03	0.40
1:F:381:PHE:HA	1:F:382:GLU:HG3	2.03	0.40
1:F:477:TRP:CZ2	1:F:516:ASP:HB2	2.56	0.40
1:F:332:ARG:NH1	1:F:356:GLU:OE2	2.53	0.40
1:E:403:ARG:NH1	1:E:404:ASP:OD2	2.54	0.40
1:C:313:TRP:HB3	1:E:50:PRO:HB3	2.03	0.40

All (5) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:705:HOH:O	2:F:731:HOH:O[4_1413]	1.89	0.31
2:B:777:HOH:O	2:F:887:HOH:O[4_1413]	2.00	0.20
2:A:962:HOH:O	2:B:939:HOH:O[4_1413]	2.05	0.15
1:D:159:ARG:NH2	1:E:486:GLU:OE2[3_445]	2.18	0.02
2:A:760:HOH:O	2:B:907:HOH:O[4_1413]	2.19	0.01

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	582/627 (93%)	563 (97%)	19 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	B	582/627 (93%)	566 (97%)	15 (3%)	1 (0%)	47 68
1	C	584/627 (93%)	565 (97%)	18 (3%)	1 (0%)	47 68
1	D	587/627 (94%)	570 (97%)	17 (3%)	0	100 100
1	E	582/627 (93%)	561 (96%)	20 (3%)	1 (0%)	47 68
1	F	578/627 (92%)	559 (97%)	19 (3%)	0	100 100
All	All	3495/3762 (93%)	3384 (97%)	108 (3%)	3 (0%)	51 73

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	84	ARG
1	E	84	ARG
1	C	84	ARG

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	512/546 (94%)	511 (100%)	1 (0%)	93 98
1	B	512/546 (94%)	510 (100%)	2 (0%)	91 97
1	C	514/546 (94%)	513 (100%)	1 (0%)	93 98
1	D	517/546 (95%)	513 (99%)	4 (1%)	81 93
1	E	512/546 (94%)	510 (100%)	2 (0%)	91 97
1	F	508/546 (93%)	508 (100%)	0	100 100
All	All	3075/3276 (94%)	3065 (100%)	10 (0%)	92 97

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	511	THR
1	B	85	ASN
1	B	363	MET

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Mol	Chain	Res	Type
1	C	175	GLN
1	D	277	ARG
1	D	357	VAL
1	D	552	GLN
1	D	602	LEU
1	E	11	GLN
1	E	277	ARG

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

Mol	Chain	Res	Type
1	B	11	GLN
1	C	175	GLN
1	D	255	GLN
1	E	11	GLN
1	E	239	GLN
1	F	534	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 carbohydrates 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, 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	586/627 (93%)	-0.24	9 (1%)	73 75	25, 33, 49, 76	0
1	B	586/627 (93%)	-0.28	6 (1%)	82 84	26, 34, 52, 73	0
1	C	588/627 (93%)	-0.26	10 (1%)	70 72	26, 33, 50, 74	0
1	D	591/627 (94%)	-0.24	10 (1%)	70 72	27, 36, 55, 76	0
1	E	586/627 (93%)	-0.27	8 (1%)	75 77	27, 35, 53, 79	0
1	F	582/627 (92%)	-0.30	8 (1%)	75 77	25, 33, 51, 84	0
All	All	3519/3762 (93%)	-0.26	51 (1%)	75 77	25, 34, 52, 84	0

All (51) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	381	PHE	6.8
1	D	377	TYR	6.4
1	D	379	TYR	5.8
1	B	366	THR	5.7
1	C	264	ASN	5.5
1	F	380	PHE	5.4
1	C	263	GLY	4.7
1	B	377	TYR	4.6
1	C	377	TYR	4.5
1	F	382	GLU	4.5
1	E	598	LYS	4.3
1	E	264	ASN	4.0
1	C	366	THR	3.7
1	C	379	TYR	3.7
1	D	425	TYR	3.4
1	A	377	TYR	3.2
1	A	262	ASP	3.2
1	E	382	GLU	3.0
1	F	264	ASN	2.9

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Mol	Chain	Res	Type	RSRZ
1	A	264	ASN	2.9
1	B	365	SER	2.8
1	F	84	ARG	2.8
1	F	425	TYR	2.7
1	E	263	GLY	2.7
1	A	378	THR	2.5
1	C	598	LYS	2.5
1	D	106	MET	2.5
1	F	569	MET	2.5
1	A	156	ASN	2.5
1	A	555	LEU	2.5
1	B	84	ARG	2.4
1	C	509	VAL	2.4
1	D	603	PHE	2.4
1	E	379	TYR	2.4
1	B	379	TYR	2.3
1	C	470	CYS	2.3
1	B	156	ASN	2.3
1	A	366	THR	2.3
1	E	85	ASN	2.2
1	D	384	LEU	2.2
1	E	363	MET	2.1
1	E	84	ARG	2.1
1	D	382	GLU	2.1
1	A	263	GLY	2.1
1	D	156	ASN	2.1
1	C	85	ASN	2.0
1	D	198	CYS	2.0
1	F	363	MET	2.0
1	D	381	PHE	2.0
1	C	438	GLU	2.0
1	A	363	MET	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 carbohydrates in this entry.

6.4 Ligands

There are no ligands in this entry.

6.5 Other polymers

There are no such residues in this entry.