



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 14, 2026 – 11:37 AM UTC

PDB ID : 5JX5 / pdb_00005jx5
Title : GH6 Orpinomyces sp. Y102 enzyme
Authors : Tsai, L.C.; Huang, H.C.
Deposited on : 2016-05-12
Resolution : 1.80 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

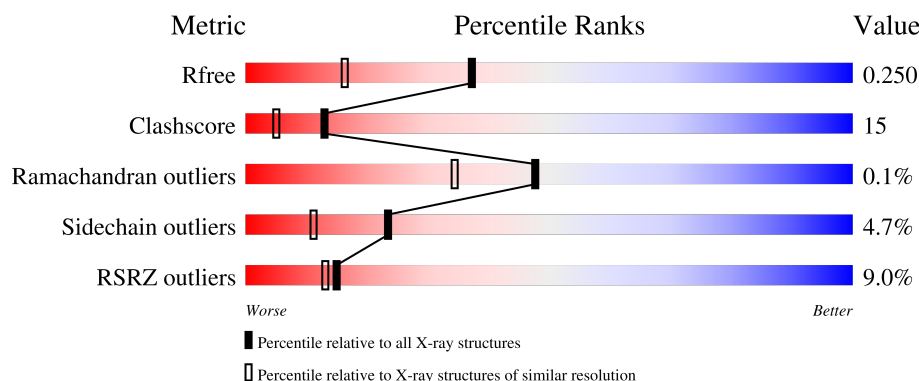
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.80 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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	7662 (1.80-1.80)
Clashscore	190562	8479 (1.80-1.80)
Ramachandran outliers	187476	8391 (1.80-1.80)
Sidechain outliers	187428	8390 (1.80-1.80)
RSRZ outliers	180081	7663 (1.80-1.80)

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	322	9% 76% 20% ..
1	B	322	9% 73% 24% .
1	C	322	11% 74% 20% 5% .
1	D	322	7% 74% 22% .

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	GOL	C	501	-	-	X	-
3	GOL	C	502	-	-	X	-
4	EDO	A	507	-	-	X	-
4	EDO	A	510	-	-	X	-
4	EDO	B	502	-	-	X	-
4	EDO	B	507	-	-	X	-
7	PEG	C	506	-	-	X	-
7	PEG	C	507	-	-	X	-

2 Entry composition [i](#)

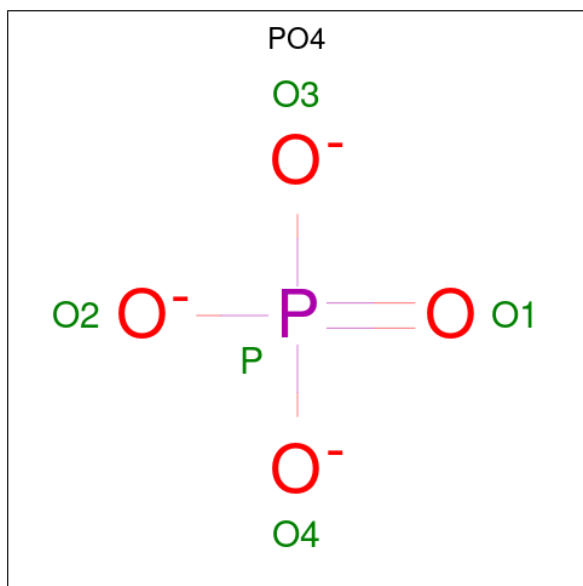
There are 9 unique types of molecules in this entry. The entry contains 11278 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Glucanase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	322	Total	C	N	O	S	0	5	0
			2507	1560	449	488	10			
1	B	322	Total	C	N	O	S	0	3	0
			2503	1559	448	486	10			
1	C	322	Total	C	N	O	S	0	3	0
			2501	1558	446	486	11			
1	D	322	Total	C	N	O	S	0	6	0
			2509	1562	448	489	10			

- Molecule 2 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	P	0	0
			5	4	1		

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		
3	A	1	Total	C	O	0	0
			6	3	3		
3	B	1	Total	C	O	0	0
			6	3	3		
3	C	1	Total	C	O	0	0
			6	3	3		
3	C	1	Total	C	O	0	0
			6	3	3		
3	D	1	Total	C	O	0	0
			6	3	3		
3	D	1	Total	C	O	0	0
			6	3	3		

- Molecule 4 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C₂H₆O₂).



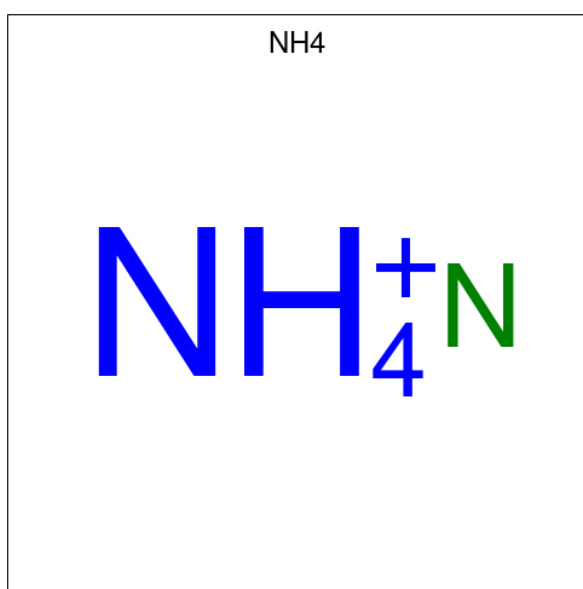
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	A	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	B	1	Total	C	O	0	0
			4	2	2		
4	C	1	Total	C	O	0	0
			4	2	2		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	C	O	0	0
			4	2	2		
4	C	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	0
			4	2	2		
4	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 5 is AMMONIUM ION (CCD ID: NH4) (formula: H₄N).



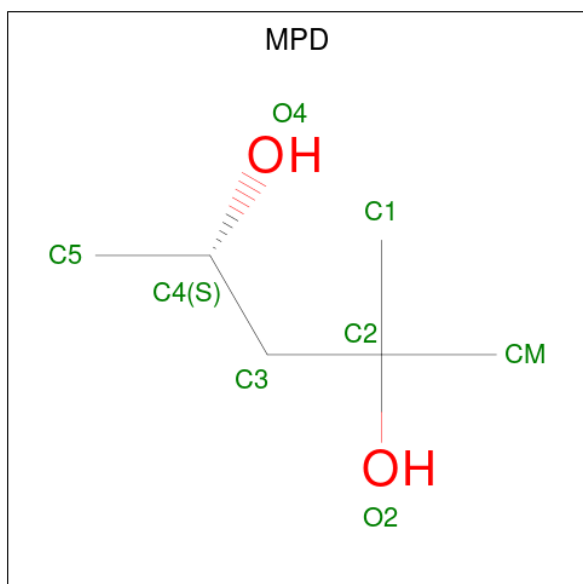
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	N	0	0
			1	1		
5	A	1	Total	N	0	0
			1	1		
5	A	1	Total	N	0	0
			1	1		
5	A	1	Total	N	0	0
			1	1		
5	B	1	Total	N	0	0
			1	1		
5	B	1	Total	N	0	0
			1	1		
5	C	1	Total	N	0	0
			1	1		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	1	Total N 1 1	0	0
5	C	1	Total N 1 1	0	0
5	C	1	Total N 1 1	0	0
5	C	1	Total N 1 1	0	0
5	D	1	Total N 1 1	0	0
5	D	1	Total N 1 1	0	0

- Molecule 6 is (4S)-2-METHYL-2,4-PENTANEDIOL (CCD ID: MPD) (formula: C₆H₁₄O₂).



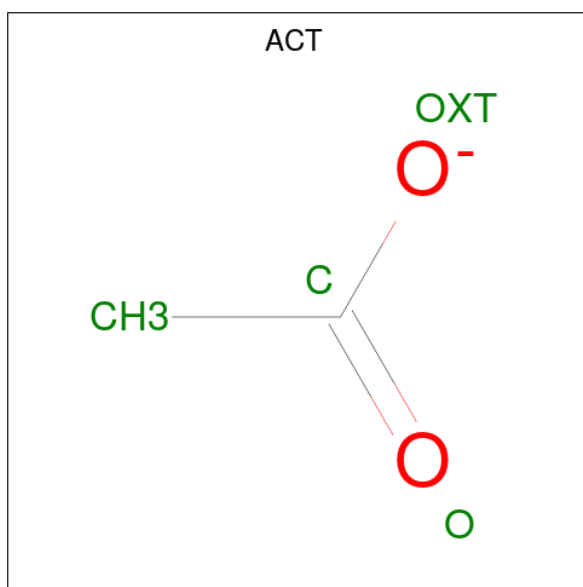
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C O 8 6 2	0	0

- Molecule 7 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	C	1	Total	C	O	0	0
			7	4	3		
7	C	1	Total	C	O	0	0
			7	4	3		
7	D	1	Total	C	O	0	0
			7	4	3		

- Molecule 8 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	C	1	Total	C	O	0	0
			4	2	2		

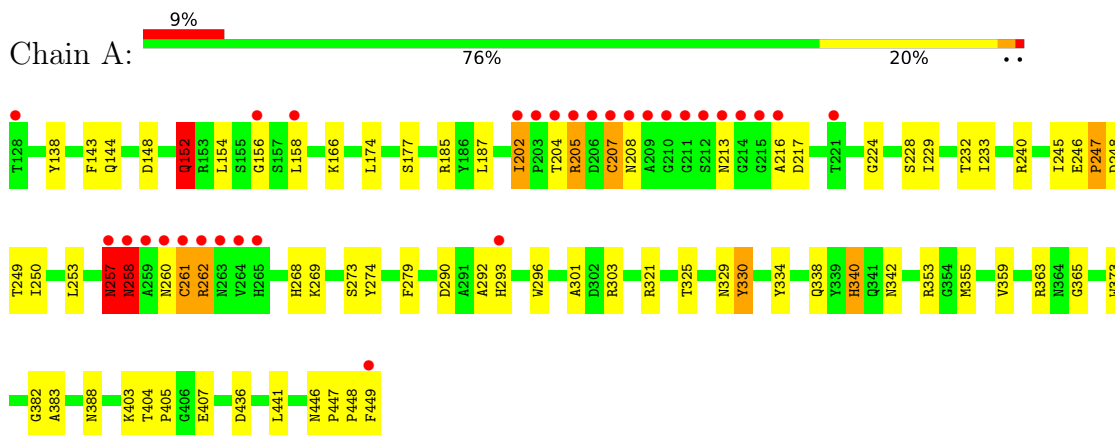
- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	275	Total 275	O 275	0	0
9	B	274	Total 274	O 274	0	0
9	C	273	Total 273	O 273	0	0
9	D	271	Total 271	O 271	0	0

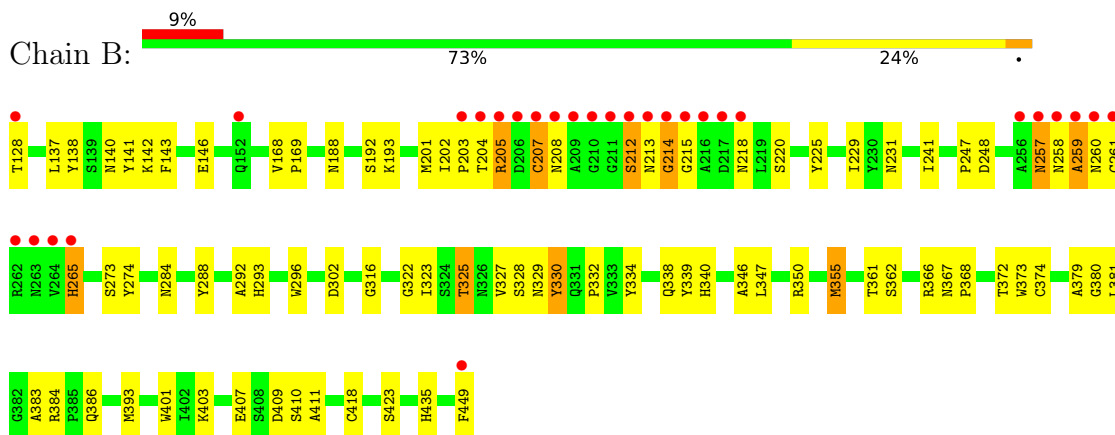
3 Residue-property plots [i](#)

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.

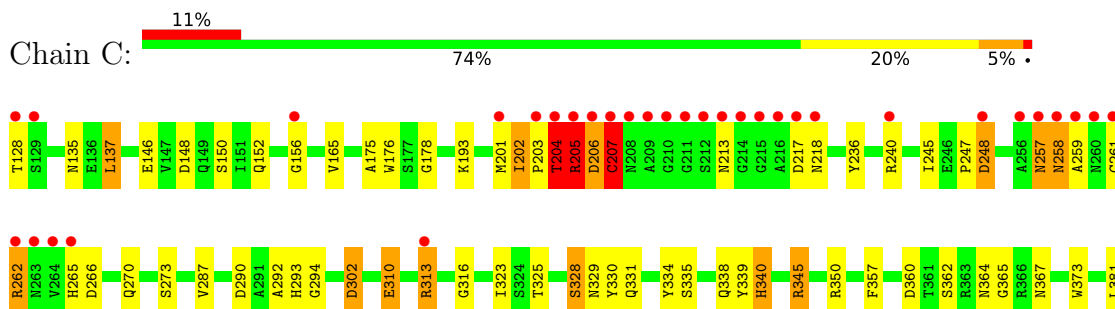
• Molecule 1: Glucanase



• Molecule 1: Glucanase

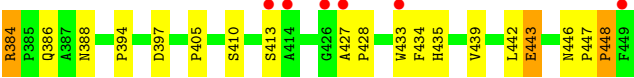
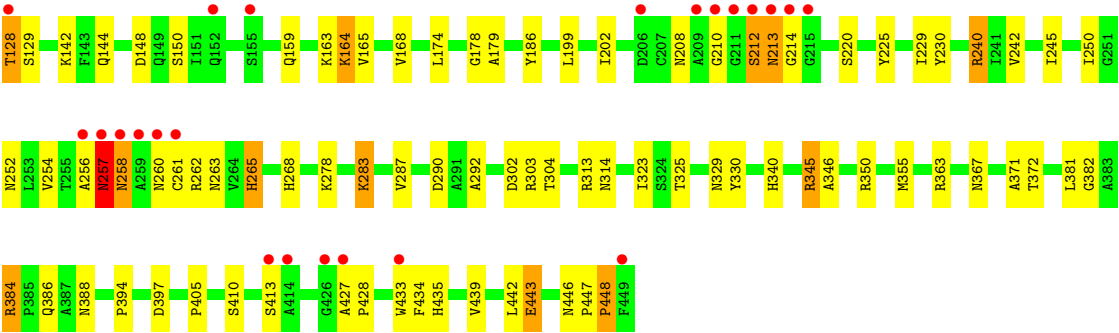


• Molecule 1: Glucanase





● Molecule 1: Glucanase



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	309.86Å 87.35Å 82.55Å 90.00° 93.95° 90.00°	Depositor
Resolution (Å)	27.76 – 1.80 27.76 – 1.80	Depositor EDS
% Data completeness (in resolution range)	98.3 (27.76-1.80) 98.4 (27.76-1.80)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.69 (at 1.80Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.209 , 0.239 (Not available) , 0.250	Depositor DCC
R_{free} test set	10048 reflections (4.94%)	wwPDB-VP
Wilson B-factor (Å ²)	26.7	Xtriage
Anisotropy	0.010	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 45.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	11278	wwPDB-VP
Average B, all atoms (Å ²)	31.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.34% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: PEG, EDO, NH4, GOL, ACT, MPD, PO4

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	1.75	27/2592 (1.0%)	1.39	12/3523 (0.3%)
1	B	1.71	34/2577 (1.3%)	1.42	23/3503 (0.7%)
1	C	1.63	21/2574 (0.8%)	1.34	11/3498 (0.3%)
1	D	1.65	26/2598 (1.0%)	1.41	21/3532 (0.6%)
All	All	1.69	108/10341 (1.0%)	1.39	67/14056 (0.5%)

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	2
1	C	0	1
All	All	0	3

The worst 5 of 108 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	382	GLY	C-O	9.01	1.32	1.23
1	B	366	ARG	N-CA	8.98	1.57	1.45
1	B	372	THR	CA-C	8.76	1.64	1.52
1	D	168	VAL	CA-C	8.49	1.59	1.53
1	D	388	ASN	N-CA	8.42	1.52	1.46

The worst 5 of 67 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	258	ASN	N-CA-C	11.38	123.76	111.36
1	C	411	ALA	N-CA-C	-9.31	96.70	110.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	214	GLY	N-CA-C	9.17	127.51	111.46
1	B	207	CYS	N-CA-C	8.57	122.97	108.23
1	C	217	ASP	N-CA-C	8.22	122.03	108.96

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	216	ALA	Peptide
1	A	257	ASN	Peptide
1	C	207	CYS	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2507	0	2391	79	0
1	B	2503	0	2390	83	0
1	C	2501	0	2396	69	0
1	D	2509	0	2400	55	0
2	A	5	0	0	1	0
3	A	12	0	16	4	0
3	B	6	0	8	2	0
3	C	12	0	16	13	0
3	D	12	0	16	3	0
4	A	40	0	60	36	0
4	B	12	0	18	19	0
4	C	12	0	18	3	0
4	D	8	0	12	2	0
5	A	4	0	0	0	0
5	B	2	0	0	0	0
5	C	5	0	0	0	0
5	D	2	0	0	0	0
6	B	8	0	14	2	0
7	C	14	0	20	11	0
7	D	7	0	10	2	0
8	C	4	0	3	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	A	275	0	0	17	0
9	B	274	0	0	12	0
9	C	273	0	0	11	0
9	D	271	0	0	5	0
All	All	11278	0	9788	300	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 15.

The worst 5 of 300 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:204:THR:HG22	1:B:213:ASN:CB	1.65	1.23
1:A:248:ASP:HA	9:A:665:HOH:O	1.47	1.15
1:D:240:ARG:HG3	1:D:240:ARG:HH11	1.12	1.13
1:B:204:THR:HG22	1:B:213:ASN:HB3	1.24	1.11
1:A:250:ILE:H	4:A:507:EDO:C1	1.64	1.10

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	325/322 (101%)	313 (96%)	12 (4%)	0	100	100
1	B	323/322 (100%)	306 (95%)	17 (5%)	0	100	100
1	C	323/322 (100%)	309 (96%)	13 (4%)	1 (0%)	36	25
1	D	326/322 (101%)	315 (97%)	11 (3%)	0	100	100
All	All	1297/1288 (101%)	1243 (96%)	53 (4%)	1 (0%)	48	34

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	205	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	271/266 (102%)	260 (96%)	11 (4%)	27	15
1	B	269/266 (101%)	259 (96%)	10 (4%)	30	18
1	C	269/266 (101%)	252 (94%)	17 (6%)	16	6
1	D	272/266 (102%)	255 (94%)	17 (6%)	16	6
All	All	1081/1064 (102%)	1026 (95%)	55 (5%)	23	9

5 of 55 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	206	ASP
1	C	313	ARG
1	D	448[B]	PRO
1	D	345	ARG
1	C	207	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 40 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	420	ASN
1	D	329	ASN
1	C	435	HIS
1	D	257	ASN
1	D	386	GLN

5.3.3 RNA [i](#)

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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 44 ligands modelled in this entry, 13 are modelled with single atom - leaving 31 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	EDO	C	503	-	3,3,3	0.76	0	2,2,2	0.08	0
3	GOL	B	501	-	5,5,5	0.60	0	5,5,5	0.99	0
4	EDO	A	512	-	3,3,3	0.27	0	2,2,2	1.50	1 (50%)
7	PEG	D	505	-	6,6,6	0.95	0	5,5,5	1.64	2 (40%)
6	MPD	B	504	-	7,7,7	1.57	1 (14%)	9,10,10	1.78	3 (33%)
2	PO4	A	501	-	4,4,4	0.42	0	6,6,6	1.30	0
8	ACT	C	513	-	3,3,3	0.99	0	3,3,3	0.54	0
4	EDO	A	504	-	3,3,3	0.69	0	2,2,2	0.58	0
4	EDO	A	506	-	3,3,3	0.65	0	2,2,2	0.66	0
4	EDO	D	503	-	3,3,3	0.54	0	2,2,2	0.50	0
4	EDO	B	503	-	3,3,3	0.57	0	2,2,2	0.50	0
4	EDO	A	505	-	3,3,3	0.27	0	2,2,2	0.54	0
4	EDO	A	517	-	3,3,3	0.53	0	2,2,2	1.22	0
4	EDO	C	505	-	3,3,3	0.44	0	2,2,2	0.63	0
3	GOL	A	502	-	5,5,5	0.71	0	5,5,5	0.63	0
3	GOL	C	502	-	5,5,5	0.47	0	5,5,5	0.72	0
3	GOL	C	501	-	5,5,5	0.47	0	5,5,5	0.62	0
3	GOL	A	503	-	5,5,5	0.80	0	5,5,5	1.57	1 (20%)
3	GOL	D	501	-	5,5,5	0.56	0	5,5,5	1.31	0
4	EDO	A	508	-	3,3,3	0.53	0	2,2,2	0.23	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	EDO	B	502	-	3,3,3	0.72	0	2,2,2	0.69	0
4	EDO	A	510	-	3,3,3	0.39	0	2,2,2	0.44	0
4	EDO	C	504	-	3,3,3	0.43	0	2,2,2	0.60	0
4	EDO	A	509	-	3,3,3	0.63	0	2,2,2	1.30	0
4	EDO	D	502	-	3,3,3	0.89	0	2,2,2	0.32	0
3	GOL	D	504	-	5,5,5	0.54	0	5,5,5	0.68	0
7	PEG	C	507	-	6,6,6	1.23	0	5,5,5	1.85	1 (20%)
7	PEG	C	506	-	6,6,6	0.64	0	5,5,5	0.81	0
4	EDO	B	507	-	3,3,3	0.58	0	2,2,2	0.85	0
4	EDO	A	507	-	3,3,3	1.41	1 (33%)	2,2,2	1.20	0
4	EDO	A	511	-	3,3,3	0.37	0	2,2,2	1.31	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EDO	C	503	-	-	0/1/1/1	-
3	GOL	B	501	-	-	0/4/4/4	-
4	EDO	A	512	-	-	1/1/1/1	-
7	PEG	D	505	-	-	2/4/4/4	-
6	MPD	B	504	-	-	4/5/5/5	-
4	EDO	A	504	-	-	1/1/1/1	-
4	EDO	A	506	-	-	1/1/1/1	-
4	EDO	D	503	-	-	1/1/1/1	-
4	EDO	B	503	-	-	0/1/1/1	-
4	EDO	A	505	-	-	1/1/1/1	-
4	EDO	A	517	-	-	1/1/1/1	-
4	EDO	C	505	-	-	1/1/1/1	-
3	GOL	A	502	-	-	4/4/4/4	-
3	GOL	C	502	-	-	2/4/4/4	-
3	GOL	C	501	-	-	3/4/4/4	-
3	GOL	A	503	-	-	3/4/4/4	-
3	GOL	D	501	-	-	2/4/4/4	-
4	EDO	A	508	-	-	1/1/1/1	-
4	EDO	B	502	-	-	1/1/1/1	-
4	EDO	A	510	-	-	1/1/1/1	-
4	EDO	C	504	-	-	1/1/1/1	-
4	EDO	A	509	-	-	1/1/1/1	-
4	EDO	D	502	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	D	504	-	-	1/4/4/4	-
7	PEG	C	507	-	-	3/4/4/4	-
7	PEG	C	506	-	-	3/4/4/4	-
4	EDO	B	507	-	-	0/1/1/1	-
4	EDO	A	507	-	-	1/1/1/1	-
4	EDO	A	511	-	-	0/1/1/1	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	504	MPD	O2-C2	3.50	1.53	1.44
4	A	507	EDO	O2-C2	2.42	1.54	1.42

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	C	507	PEG	O2-C2-C1	3.43	125.21	110.11
6	B	504	MPD	CM-C2-C1	-3.42	102.98	110.63
6	B	504	MPD	O4-C4-C3	2.89	122.83	111.35
3	A	503	GOL	O1-C1-C2	2.51	121.69	110.38
6	B	504	MPD	O2-C2-CM	2.35	115.32	107.99

There are no chirality outliers.

5 of 40 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	502	GOL	O1-C1-C2-C3
3	A	502	GOL	C1-C2-C3-O3
3	A	503	GOL	O1-C1-C2-C3
3	C	501	GOL	O1-C1-C2-O2
3	C	501	GOL	O1-C1-C2-C3

There are no ring outliers.

25 monomers are involved in 99 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	501	GOL	2	0
4	A	512	EDO	2	0
7	D	505	PEG	2	0
6	B	504	MPD	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	501	PO4	1	0
8	C	513	ACT	1	0
4	A	504	EDO	1	0
4	D	503	EDO	2	0
4	B	503	EDO	3	0
4	A	505	EDO	3	0
4	C	505	EDO	1	0
3	A	502	GOL	3	0
3	C	502	GOL	8	0
3	C	501	GOL	5	0
3	A	503	GOL	1	0
3	D	501	GOL	3	0
4	B	502	EDO	6	0
4	A	510	EDO	5	0
4	C	504	EDO	2	0
4	A	509	EDO	2	0
7	C	507	PEG	4	0
7	C	506	PEG	7	0
4	B	507	EDO	10	0
4	A	507	EDO	22	0
4	A	511	EDO	1	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2		OWAB(Å ²)	Q < 0.9
1	A	322/322 (100%)	0.44	30 (9%)	14 12	17, 26, 47, 86	18 (5%)
1	B	322/322 (100%)	0.44	29 (9%)	15 13	16, 26, 48, 80	20 (6%)
1	C	322/322 (100%)	0.68	34 (10%)	11 9	17, 28, 54, 84	19 (5%)
1	D	322/322 (100%)	0.39	23 (7%)	22 20	16, 28, 57, 78	14 (4%)
All	All	1288/1288 (100%)	0.49	116 (9%)	15 13	16, 27, 53, 86	71 (5%)

The worst 5 of 116 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	216	ALA	14.6
1	A	209	ALA	12.9
1	B	216	ALA	12.5
1	C	209	ALA	11.7
1	C	215	GLY	11.3

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q < 0.9’ lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
8	ACT	C	513	4/4	0.68	0.29	39,46,51,53	0
4	EDO	A	506	4/4	0.70	0.17	39,40,49,59	0
6	MPD	B	504	8/8	0.78	0.22	28,43,49,50	0
4	EDO	A	517	4/4	0.80	0.23	47,51,57,59	0
3	GOL	D	501	6/6	0.80	0.17	43,56,56,59	0
3	GOL	A	503	6/6	0.80	0.15	44,55,58,63	0
3	GOL	A	502	6/6	0.82	0.19	40,56,59,69	0
3	GOL	C	502	6/6	0.83	0.20	37,40,55,61	0
2	PO4	A	501	5/5	0.84	0.13	57,57,61,67	0
4	EDO	D	503	4/4	0.84	0.36	46,50,51,52	0
3	GOL	D	504	6/6	0.85	0.15	52,57,60,62	0
7	PEG	C	507	7/7	0.85	0.14	35,36,49,51	0
7	PEG	D	505	7/7	0.85	0.14	33,40,49,51	0
4	EDO	A	510	4/4	0.85	0.17	40,41,46,48	0
3	GOL	C	501	6/6	0.86	0.16	37,45,48,50	0
4	EDO	A	504	4/4	0.87	0.22	31,33,44,53	0
5	NH4	C	510	1/1	0.87	0.16	31,31,31,31	0
4	EDO	B	502	4/4	0.87	0.22	32,34,36,49	0
4	EDO	C	505	4/4	0.88	0.18	46,47,52,58	0
5	NH4	D	507	1/1	0.88	0.16	32,32,32,32	0
4	EDO	C	503	4/4	0.88	0.16	48,55,56,57	0
7	PEG	C	506	7/7	0.89	0.14	35,47,53,54	0
4	EDO	A	509	4/4	0.89	0.23	38,39,40,51	0
4	EDO	C	504	4/4	0.89	0.25	38,38,40,41	0
5	NH4	A	513	1/1	0.89	0.17	39,39,39,39	0
4	EDO	A	512	4/4	0.90	0.21	28,38,41,48	0
4	EDO	A	505	4/4	0.90	0.26	28,38,39,47	0
3	GOL	B	501	6/6	0.90	0.13	35,43,53,57	0
4	EDO	B	503	4/4	0.90	0.14	32,40,43,57	0
5	NH4	A	515	1/1	0.91	0.12	31,31,31,31	0
5	NH4	C	512	1/1	0.92	0.11	15,15,15,15	0
4	EDO	A	508	4/4	0.93	0.11	34,48,51,62	0
5	NH4	C	511	1/1	0.93	0.14	34,34,34,34	0
4	EDO	A	511	4/4	0.93	0.15	29,29,43,43	0
4	EDO	A	507	4/4	0.94	0.22	28,28,29,33	0
4	EDO	B	507	4/4	0.94	0.12	29,31,35,47	0
5	NH4	B	505	1/1	0.94	0.10	23,23,23,23	0
4	EDO	D	502	4/4	0.95	0.17	22,22,24,29	0
5	NH4	C	509	1/1	0.96	0.12	22,22,22,22	0
5	NH4	B	506	1/1	0.96	0.10	32,32,32,32	0
5	NH4	A	514	1/1	0.98	0.05	15,15,15,15	0
5	NH4	D	506	1/1	0.98	0.17	32,32,32,32	0
5	NH4	A	516	1/1	0.98	0.05	14,14,14,14	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
5	NH4	C	508	1/1	0.98	0.13	16,16,16,16	0

6.5 Other polymers [i](#)

There are no such residues in this entry.