



# wwPDB X-ray Structure Validation Summary Report ⓘ

Jan 31, 2016 – 06:58 PM GMT

PDB ID : 1DDX  
Title : CRYSTAL STRUCTURE OF A MIXTURE OF ARACHIDONIC ACID AND PROSTAGLANDIN BOUND TO THE CYCLOOXYGENASE ACTIVE SITE OF COX-2: PROSTAGLANDIN STRUCTURE  
Authors : Kiefer, J.R.; Pawlitz, J.L.; Moreland, K.T.; Stegeman, R.A.; Gierse, J.K.; Stevens, A.M.; Goodwin, D.C.; Rowlinson, S.W.; Marnett, L.J.; Stallings, W.C.; Kurumbail, R.G.  
Deposited on : 1999-11-11  
Resolution : 3.00 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](mailto:validation@mail.wwpdb.org)  
A user guide is available at  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20026688  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

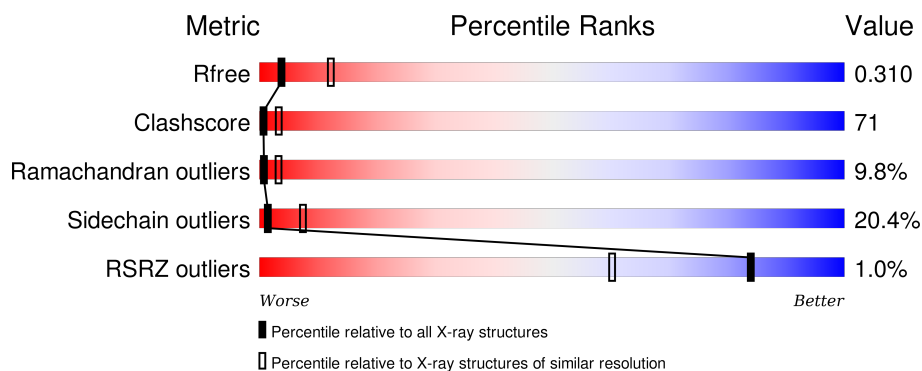
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 3.00 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))
$R_{free}$	91344	1578 (3.00-3.00)
Clashscore	102246	1912 (3.00-3.00)
Ramachandran outliers	100387	1853 (3.00-3.00)
Sidechain outliers	100360	1856 (3.00-3.00)
RSRZ outliers	91569	1592 (3.00-3.00)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	552	<div> <div></div> <div> <div>19%</div> <div>59%</div> <div>21%</div> </div> <div>•</div> </div>
1	B	552	<div> <div></div> <div> <div>19%</div> <div>59%</div> <div>20%</div> </div> <div>•</div> </div>
1	C	552	<div> <div></div> <div> <div>20%</div> <div>57%</div> <div>22%</div> </div> <div>•</div> </div>
1	D	552	<div> <div></div> <div> <div>18%</div> <div>60%</div> <div>20%</div> </div> <div>•</div> </div>

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 crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	NAG	A	661	-	-	-	X
2	NAG	C	2661	-	-	-	X
3	NAG	B	1681	-	-	-	X
3	NAG	C	2681	-	-	-	X
4	BOG	A	702	-	-	-	X
4	BOG	C	2702	-	-	-	X
4	BOG	D	3702	-	-	-	X
5	PGX	A	701	-	-	X	X
5	PGX	B	1701	-	-	X	X
5	PGX	C	2701	-	-	X	X
5	PGX	D	3701	-	-	X	X

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 18477 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 PROTEIN (PROSTAGLANDIN H2 SYNTHASE-2).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	552	Total	C	N	O	S	0	0	0
			4475	2885	750	815	25			
1	B	552	Total	C	N	O	S	0	0	0
			4475	2885	750	815	25			
1	C	552	Total	C	N	O	S	0	0	0
			4475	2885	750	815	25			
1	D	552	Total	C	N	O	S	0	0	0
			4475	2885	750	815	25			

- Molecule 2 is a polymer of unknown type called SUGAR (NAG-NAG).

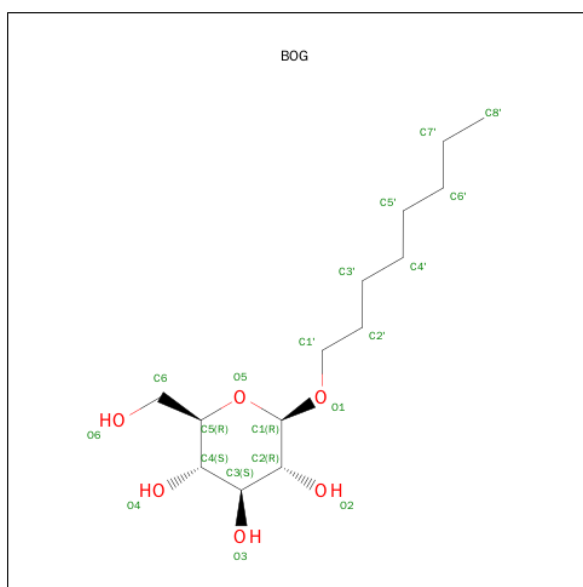
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	2	Total	C	N	O	0	0
			28	16	2	10		
2	B	2	Total	C	N	O	0	0
			28	16	2	10		
2	C	2	Total	C	N	O	0	0
			28	16	2	10		
2	D	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 3 is SUGAR (N-ACETYL-D-GLUCOSAMINE) (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



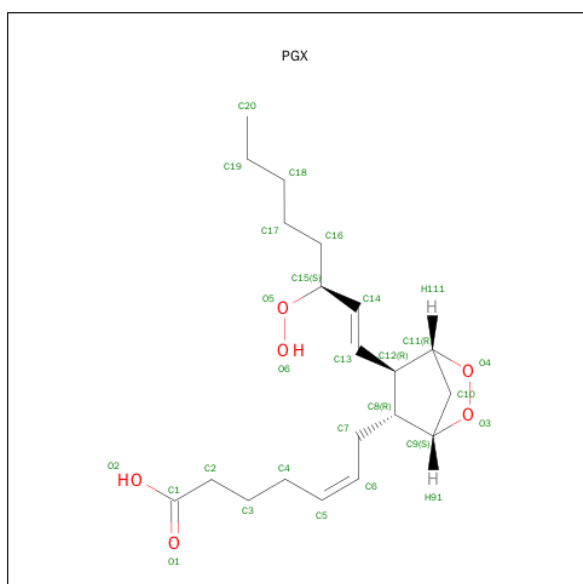
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	C	1	Total	C	N	O	0	0
			14	8	1	5		
3	C	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 4 is B-OCTYLGLUCOSIDE (three-letter code: BOG) (formula:  $C_{14}H_{28}O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			20	14	6		
4	B	1	Total	C	O	0	0
			20	14	6		
4	C	1	Total	C	O	0	0
			20	14	6		
4	D	1	Total	C	O	0	0
			20	14	6		

- Molecule 5 is 7-[6-(3-HYDROPEROXY-OCT-1-ENYL)-2,3-DIOXA-BICYCLO[2.2.1]HEPT-5-YL]-HEPT-5-ENOIC ACID (three-letter code: PGX) (formula:  $C_{20}H_{32}O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			25	20	5		
5	B	1	Total	C	O	0	0
			25	20	5		
5	C	1	Total	C	O	0	0
			25	20	5		
5	D	1	Total	C	O	0	0
			25	20	5		

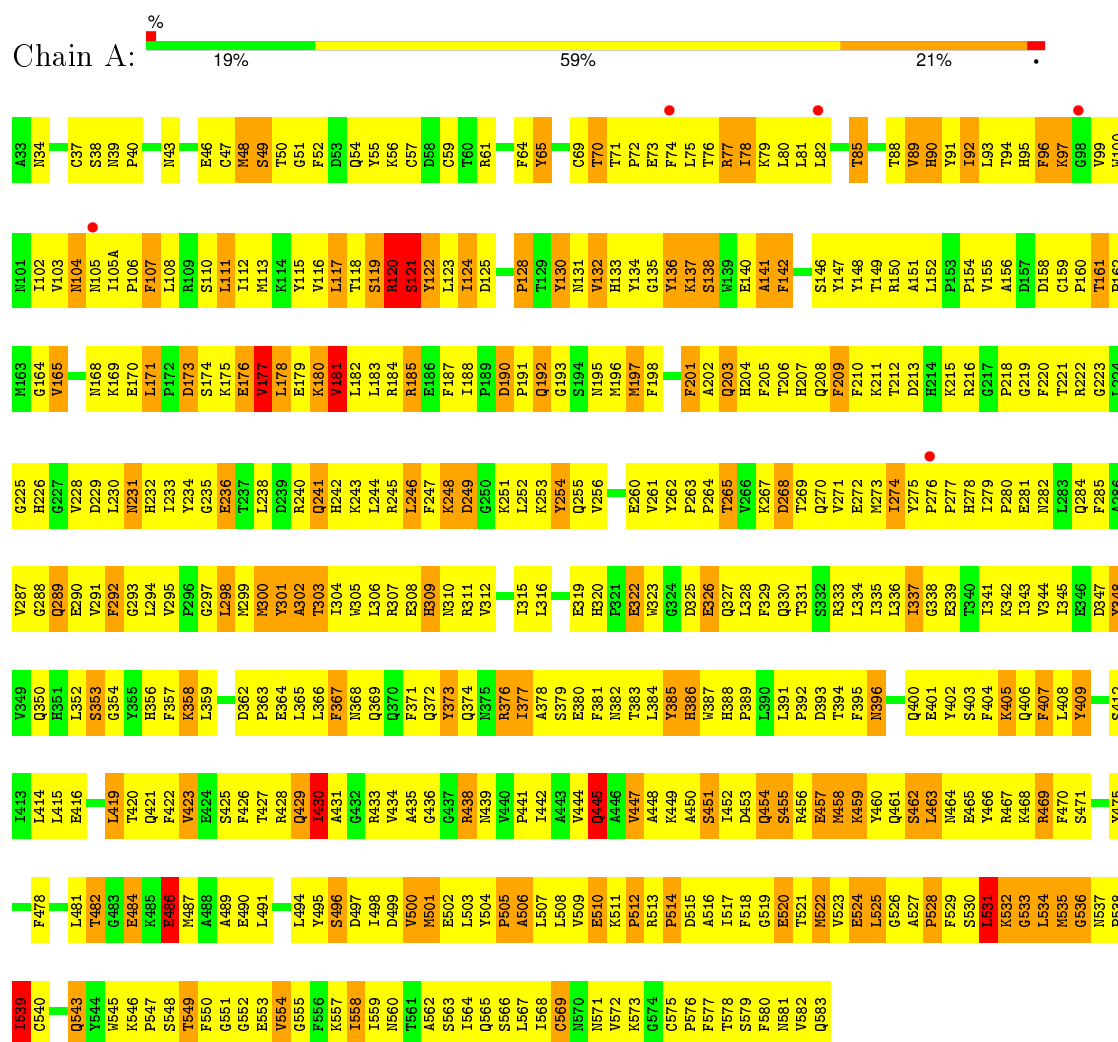
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	45	Total	O	0	0
			45	45		
6	B	39	Total	O	0	0
			39	39		
6	C	46	Total	O	0	0
			46	46		
6	D	43	Total	O	0	0
			43	43		

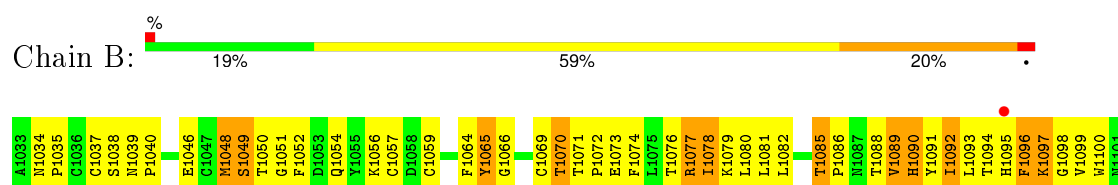
### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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: PROTEIN (PROSTAGLANDIN H2 SYNTHASE-2)

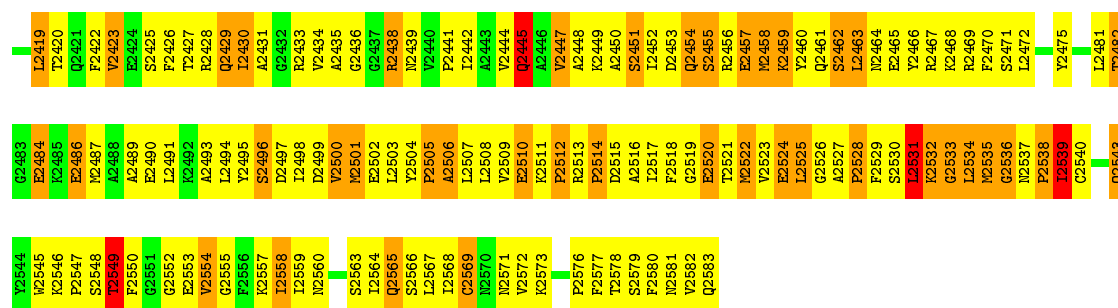


#### • Molecule 1: PROTEIN (PROSTAGLANDIN H2 SYNTHASE-2)

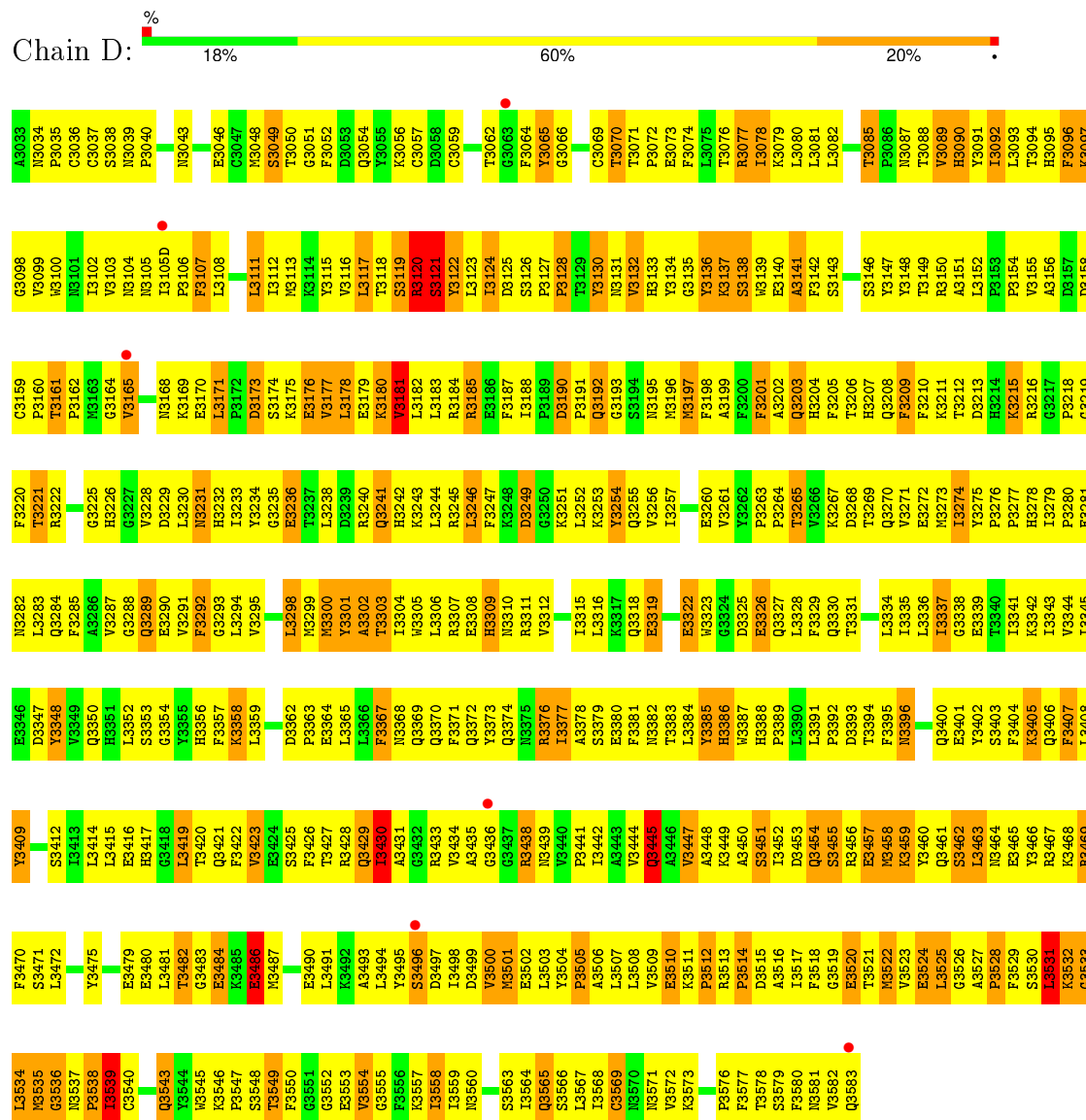








• Molecule 1: PROTEIN (PROSTAGLANDIN H2 SYNTHASE-2)



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 2 <sub>1</sub> 2 <sub>1</sub> 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	180.24Å 134.80Å 122.51Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 3.00 36.19 – 3.00	Depositor EDS
% Data completeness (in resolution range)	76.1 (20.00-3.00) 75.8 (36.19-3.00)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	0.11	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.34 (at 3.00Å)	Xtriage
Refinement program	X-PLOR 3.851	Depositor
R, $R_{free}$	0.267 , 0.324 0.256 , 0.310	Depositor DCC
$R_{free}$ test set	4324 reflections (10.43%)	DCC
Wilson B-factor (Å <sup>2</sup> )	34.0	Xtriage
Anisotropy	0.915	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 60.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtriage
Outliers	3 of 45890 reflections (0.007%)	Xtriage
$F_o, F_c$ correlation	0.88	EDS
Total number of atoms	18477	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 48.65 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 8.3521e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup> Intensities estimated from amplitudes.

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

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, PGX, BOG

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	0.45	0/4602	0.65	0/6239
1	B	0.45	0/4602	0.65	0/6239
1	C	0.45	0/4602	0.65	0/6239
1	D	0.46	0/4602	0.64	0/6239
All	All	0.45	0/18408	0.64	0/24956

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 [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4475	0	4373	650	0
1	B	4475	0	4373	653	0
1	C	4475	0	4373	663	0
1	D	4475	0	4373	668	0
2	A	28	0	25	0	0
2	B	28	0	25	0	0
2	C	28	0	25	0	0
2	D	28	0	25	0	0
3	A	28	0	26	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	28	0	26	0	0
3	C	28	0	26	0	0
3	D	28	0	26	0	0
4	A	20	0	28	0	0
4	B	20	0	28	0	0
4	C	20	0	28	0	0
4	D	20	0	28	1	0
5	A	25	0	30	9	0
5	B	25	0	30	13	0
5	C	25	0	30	14	0
5	D	25	0	30	11	0
6	A	45	0	0	14	0
6	B	39	0	0	12	0
6	C	46	0	0	20	0
6	D	43	0	0	15	0
All	All	18477	0	17928	2579	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 71.

The worst 5 of 2579 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:D:3312:VAL:HA	1:D:3315:ILE:HD12	1.33	1.09
1:A:312:VAL:HA	1:A:315:ILE:HD12	1.33	1.08
1:B:1312:VAL:HA	1:B:1315:ILE:HD12	1.36	1.07
1:B:1301:TYR:HA	1:B:1304:ILE:HD12	1.37	1.07
1:A:99:VAL:HA	1:A:102:ILE:HD12	1.37	1.06

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	550/552 (100%)	374 (68%)	124 (22%)	52 (10%)	1	3
1	B	550/552 (100%)	379 (69%)	119 (22%)	52 (10%)	1	3
1	C	550/552 (100%)	372 (68%)	120 (22%)	58 (10%)	1	3
1	D	550/552 (100%)	376 (68%)	121 (22%)	53 (10%)	1	3
All	All	2200/2208 (100%)	1501 (68%)	484 (22%)	215 (10%)	1	3

5 of 215 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	121	SER
1	A	122	TYR
1	A	176	GLU
1	A	180	LYS
1	A	348	TYR

### 5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	493/493 (100%)	391 (79%)	102 (21%)	1	7
1	B	493/493 (100%)	391 (79%)	102 (21%)	1	7
1	C	493/493 (100%)	393 (80%)	100 (20%)	1	7
1	D	493/493 (100%)	394 (80%)	99 (20%)	1	8
All	All	1972/1972 (100%)	1569 (80%)	403 (20%)	1	7

5 of 403 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	1457	GLU
1	C	2136	TYR
1	D	3412	SER
1	B	1482	THR
1	C	2046	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 59 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	1560	ASN
1	C	2327	GLN
1	D	3464	ASN
1	B	1565	GLN
1	B	1581	ASN

### 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 ⓘ

8 carbohydrates are modelled in this entry.

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	$\# Z  > 2$
2	NAG	A	661	1,2	14,14,15	0.65	0	15,19,21	0.71	0
2	NAG	A	662	2	14,14,15	0.75	0	15,19,21	0.53	0
2	NAG	B	1661	1,2	14,14,15	0.85	0	15,19,21	0.76	1 (6%)
2	NAG	B	1662	2	14,14,15	0.88	0	15,19,21	0.56	0
2	NAG	C	2661	1,2	14,14,15	0.65	0	15,19,21	0.72	1 (6%)
2	NAG	C	2662	2	14,14,15	0.75	0	15,19,21	0.55	0
2	NAG	D	3661	1,2	14,14,15	0.73	0	15,19,21	0.73	1 (6%)
2	NAG	D	3662	2	14,14,15	0.81	0	15,19,21	0.59	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
2	NAG	A	661	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	662	2	-	0/6/23/26	0/1/1/1
2	NAG	B	1661	1,2	-	0/6/23/26	0/1/1/1
2	NAG	B	1662	2	-	0/6/23/26	0/1/1/1
2	NAG	C	2661	1,2	-	0/6/23/26	0/1/1/1
2	NAG	C	2662	2	-	0/6/23/26	0/1/1/1
2	NAG	D	3661	1,2	-	0/6/23/26	0/1/1/1
2	NAG	D	3662	2	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1661	NAG	C2-N2-C7	-2.28	120.11	123.04
2	C	2661	NAG	C2-N2-C7	-2.15	120.28	123.04
2	D	3661	NAG	C2-N2-C7	-2.12	120.32	123.04

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.6 Ligand geometry ⓘ

16 ligands are modelled in this entry.

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	$\# Z  > 2$
3	NAG	A	671	1	14,14,15	0.66	0	15,19,21	1.17	2 (13%)
3	NAG	A	681	1	14,14,15	0.69	0	15,19,21	0.74	0
5	PGX	A	701	-	20,26,27	0.94	2 (10%)	17,33,34	1.45	1 (5%)



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	BOG	A	702	-	20,20,20	0.88	2 (10%)	25,25,25	0.65	0
3	NAG	B	1671	1	14,14,15	0.54	0	15,19,21	0.91	1 (6%)
3	NAG	B	1681	1	14,14,15	0.66	0	15,19,21	0.67	0
5	PGX	B	1701	-	20,26,27	0.93	1 (5%)	17,33,34	1.45	1 (5%)
4	BOG	B	1702	-	20,20,20	0.85	2 (10%)	25,25,25	0.66	0
3	NAG	C	2671	1	14,14,15	0.68	0	15,19,21	1.13	1 (6%)
3	NAG	C	2681	1	14,14,15	0.68	0	15,19,21	0.66	0
5	PGX	C	2701	-	20,26,27	0.86	0	17,33,34	1.45	1 (5%)
4	BOG	C	2702	-	20,20,20	0.94	2 (10%)	25,25,25	0.64	0
3	NAG	D	3671	1	14,14,15	0.57	0	15,19,21	1.00	2 (13%)
3	NAG	D	3681	1	14,14,15	0.60	0	15,19,21	0.51	0
5	PGX	D	3701	-	20,26,27	0.92	2 (10%)	17,33,34	1.46	1 (5%)
4	BOG	D	3702	-	20,20,20	0.86	2 (10%)	25,25,25	0.63	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
3	NAG	A	671	1	-	0/6/23/26	0/1/1/1
3	NAG	A	681	1	-	0/6/23/26	0/1/1/1
5	PGX	A	701	-	-	0/17/40/42	0/0/2/2
4	BOG	A	702	-	-	0/11/31/31	0/1/1/1
3	NAG	B	1671	1	-	0/6/23/26	0/1/1/1
3	NAG	B	1681	1	-	0/6/23/26	0/1/1/1
5	PGX	B	1701	-	-	0/17/40/42	0/0/2/2
4	BOG	B	1702	-	-	0/11/31/31	0/1/1/1
3	NAG	C	2671	1	-	0/6/23/26	0/1/1/1
3	NAG	C	2681	1	-	0/6/23/26	0/1/1/1
5	PGX	C	2701	-	-	0/17/40/42	0/0/2/2
4	BOG	C	2702	-	-	0/11/31/31	0/1/1/1
3	NAG	D	3671	1	-	0/6/23/26	0/1/1/1
3	NAG	D	3681	1	-	0/6/23/26	0/1/1/1
5	PGX	D	3701	-	-	0/17/40/42	0/0/2/2
4	BOG	D	3702	-	-	0/11/31/31	0/1/1/1

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	3702	BOG	O5-C1	2.01	1.47	1.41
5	B	1701	PGX	C8-C9	2.06	1.57	1.53
4	C	2702	BOG	O5-C1	2.07	1.47	1.41
5	D	3701	PGX	C12-C11	2.08	1.57	1.53
4	B	1702	BOG	O1-C1	2.11	1.43	1.40

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	D	3701	PGX	C11-C10-C9	-5.69	85.67	103.56
5	A	701	PGX	C11-C10-C9	-5.62	85.86	103.56
5	B	1701	PGX	C11-C10-C9	-5.60	85.95	103.56
5	C	2701	PGX	C11-C10-C9	-5.59	85.99	103.56
3	A	671	NAG	C2-N2-C7	-3.07	119.09	123.04

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5 monomers are involved in 48 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	701	PGX	9	0
5	B	1701	PGX	13	0
5	C	2701	PGX	14	0
5	D	3701	PGX	11	0
4	D	3702	BOG	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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	552/552 (100%)	-0.17	5 (0%) 85 64	2, 25, 52, 71	0
1	B	552/552 (100%)	-0.11	5 (0%) 85 64	3, 25, 51, 70	0
1	C	552/552 (100%)	-0.19	5 (0%) 85 64	2, 25, 51, 70	0
1	D	552/552 (100%)	-0.13	6 (1%) 82 58	3, 25, 51, 70	0
All	All	2208/2208 (100%)	-0.15	21 (0%) 84 60	2, 25, 51, 71	0

The worst 5 of 21 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	105	ASN	3.2
1	B	1103	VAL	3.2
1	D	3105(D)	ILE	3.2
1	C	2083	LYS	3.0
1	B	1102	ILE	2.9

### 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](#)

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
2	NAG	A	661	14/15	0.83	0.38	3.06	52,59,65,72	0
2	NAG	C	2661	14/15	0.86	0.24	2.71	51,59,64,72	0
2	NAG	D	3661	14/15	0.84	0.36	1.78	51,62,66,71	0
2	NAG	B	1661	14/15	0.79	0.34	1.50	52,60,67,74	0
2	NAG	D	3662	14/15	0.56	0.48	-	77,80,85,86	0
2	NAG	A	662	14/15	0.68	0.63	-	77,81,84,84	0
2	NAG	B	1662	14/15	0.55	0.47	-	78,81,84,84	0
2	NAG	C	2662	14/15	0.60	0.50	-	78,81,85,85	0

## 6.4 Ligands

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
5	PGX	C	2701	25/26	0.63	0.53	7.33	75,79,84,84	0
4	BOG	A	702	20/20	0.76	0.55	6.79	54,58,62,65	0
5	PGX	A	701	25/26	0.72	0.48	6.20	73,78,86,87	0
3	NAG	C	2681	14/15	0.54	0.54	5.61	66,69,73,73	0
5	PGX	D	3701	25/26	0.71	0.43	4.46	74,78,86,87	0
4	BOG	C	2702	20/20	0.76	0.48	4.35	56,60,64,66	0
5	PGX	B	1701	25/26	0.67	0.49	4.06	72,78,84,85	0
3	NAG	B	1681	14/15	0.76	0.39	2.42	66,71,73,75	0
4	BOG	D	3702	20/20	0.75	0.42	2.34	46,53,59,62	0
3	NAG	A	681	14/15	0.70	0.40	1.55	67,70,73,74	0
4	BOG	B	1702	20/20	0.79	0.39	1.22	50,54,59,59	0
3	NAG	D	3681	14/15	0.84	0.29	0.42	66,70,72,73	0
3	NAG	C	2671	14/15	0.87	0.18	-0.50	7,10,25,28	0
3	NAG	B	1671	14/15	0.89	0.18	-0.53	5,10,25,26	0
3	NAG	A	671	14/15	0.89	0.18	-0.73	2,9,25,27	0
3	NAG	D	3671	14/15	0.91	0.14	-0.97	2,9,23,25	0

## 6.5 Other polymers

There are no such residues in this entry.