



# wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 13, 2017 – 08:14 am GMT

PDB ID : 3V7E  
Title : Crystal structure of YbxF bound to the SAM-I riboswitch aptamer  
Authors : Baird, N.J.; Zhang, J.; Hamma, T.; Ferre-D'Amare, A.R.  
Deposited on : 2011-12-21  
Resolution : 2.80 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](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 : 1.7.2 (RC1), CSD as538be (2017)  
Xtriage (Phenix) : 1.9-1692  
EDS : trunk28620  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
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) : recalc28949

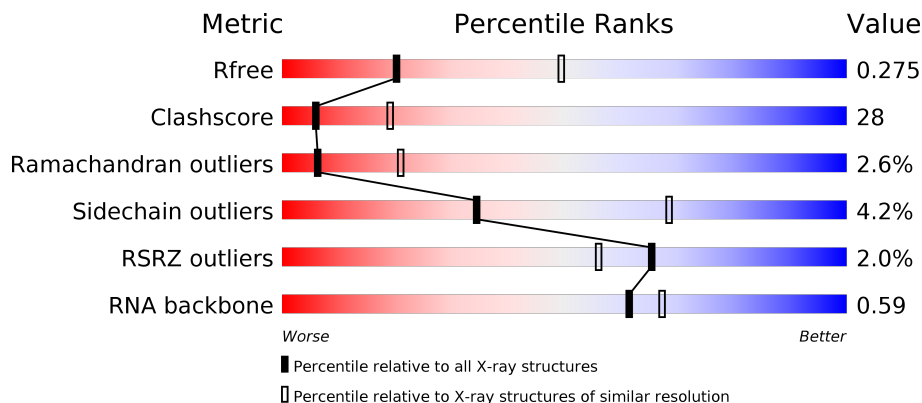
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 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))
$R_{free}$	100719	2583 (2.80-2.80)
Clashscore	112137	3033 (2.80-2.80)
Ramachandran outliers	110173	2983 (2.80-2.80)
Sidechain outliers	110143	2985 (2.80-2.80)
RSRZ outliers	101464	2610 (2.80-2.80)
RNA backbone	2435	1007 (3.10-2.50)

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  $\geq 3$ , 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	82	<div> <div>0%</div> <div> <div></div> <div>66%</div> <div>29%</div> <div>••</div> </div> </div>
1	B	82	<div> <div>9%</div> <div> <div></div> <div>57%</div> <div>37%</div> <div>6%</div> </div> </div>
2	C	126	<div> <div>29%</div> <div> <div></div> <div>52%</div> <div>13%</div> <div>6%</div> </div> </div>
2	D	126	<div> <div>20%</div> <div> <div></div> <div>60%</div> <div>16%</div> <div>5%</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 criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NCO	C	905	-	-	X	X
3	NCO	C	906	-	-	-	X
3	NCO	C	907	-	-	-	X
3	NCO	C	910	-	-	-	X
3	NCO	C	911	-	-	-	X
3	NCO	D	401	-	-	-	X
3	NCO	D	402	-	-	X	X
3	NCO	D	403	-	-	-	X
3	NCO	D	405	-	-	-	X
3	NCO	D	406	-	-	-	X
4	SAM	C	913	-	-	-	X
4	SAM	D	407	-	-	-	X

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 6551 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 Ribosome-associated protein L7Ae-like.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	81	Total	C	N	O	S	0	0	0
			524	328	88	105	3			
1	B	77	Total	C	N	O	S	0	0	0
			438	270	77	88	3			

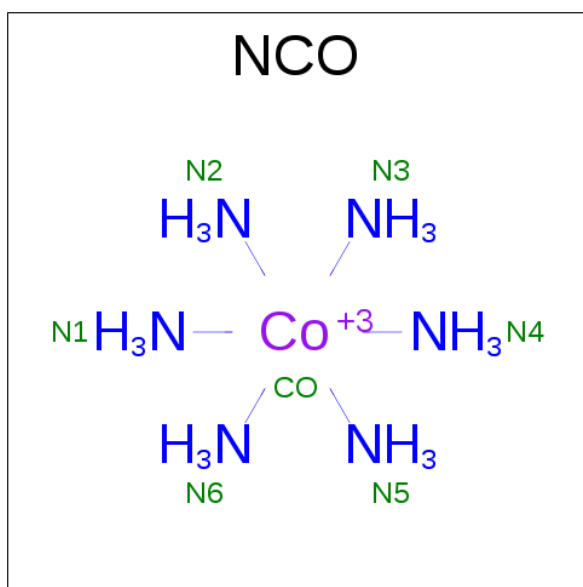
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	501	GLY	-	EXPRESSION TAG	UNP P46350
B	601	GLY	-	EXPRESSION TAG	UNP P46350

- Molecule 2 is a RNA chain called SAM-I riboswitch aptamer with an engineered helix P3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	126	Total	C	N	O	P	0	0	0
			2691	1201	494	871	125			
2	D	126	Total	C	N	O	P	0	0	0
			2681	1196	489	871	125			

- Molecule 3 is COBALT HEXAMMINE(III) (three-letter code: NCO) (formula: CoH<sub>18</sub>N<sub>6</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	C	1	Total	Co	N	0	0
			7	1	6		
3	D	1	Total	Co	N	0	0
			7	1	6		
3	D	1	Total	Co	N	0	0
			7	1	6		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	D	1	Total 7	Co 1	N 6	0	0
3	D	1	Total 7	Co 1	N 6	0	0
3	D	1	Total 7	Co 1	N 6	0	0
3	D	1	Total 7	Co 1	N 6	0	0

- # SAM
- 
- The image displays the chemical structure of S-adenosylmethionine (SAM). The structure is composed of three main parts: an adenosine moiety, a ribose sugar, and a methionine side chain. The adenosine moiety consists of an adenine base (a fused pyrimidine and imidazole ring system) attached to a ribose sugar. The ribose sugar is a five-membered ring with hydroxyl groups at the 2' and 3' positions. The methionine side chain is attached to the 5' carbon of the ribose sugar via a sulfonium group (S<sup>+</sup>). The methionine side chain includes a methylene group (CH<sub>2</sub>) and a methyl group (CH<sub>3</sub>), and is terminated by a primary amine group (NH<sub>2</sub>). The structure is labeled with various atoms and bonds, including carbon (C), nitrogen (N), oxygen (O), and sulfur (S). The adenine base is shown in blue, the ribose sugar in red, and the methionine side chain in green. The sulfonium group is shown in yellow. The structure is oriented with the adenine base at the top and the methionine side chain at the bottom.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	C	1	Total 27	C 15	N 6	O 5	S 1	0	0
4	D	1	Total 27	C 15	N 6	O 5	S 1	0	0

- | Mol | Chain | Residues | Atoms             | ZeroOcc | AltConf |
|-----|-------|----------|-------------------|---------|---------|
| 5   | D     | 9        | Total Mg<br>9 9   | 0       | 0       |
| 5   | C     | 13       | Total Mg<br>13 13 | 0       | 0       |

- 
- WORLD WIDE  
PDB  
PROTEIN DATA BANK

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total 1	O 1	0	0
6	C	7	Total 7	O 7	0	0
6	D	7	Total 7	O 7	0	0

### 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 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.

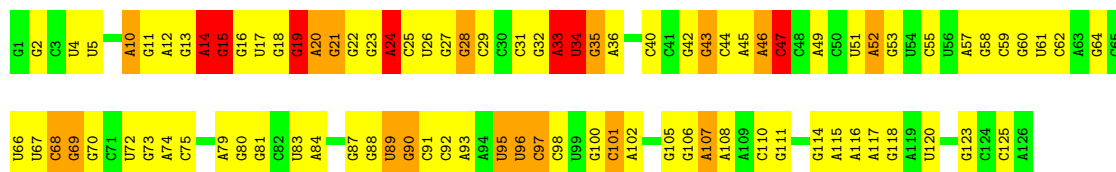
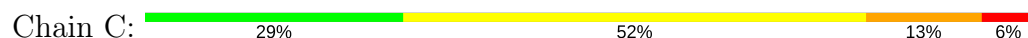
- Molecule 1: Ribosome-associated protein L7Ae-like



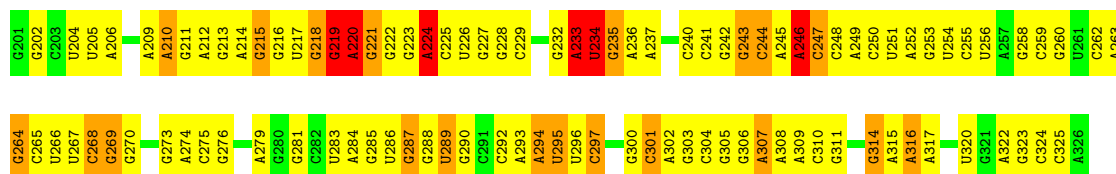
- Molecule 1: Ribosome-associated protein L7Ae-like



- Molecule 2: SAM-I riboswitch aptamer with an engineered helix P3



- Molecule 2: SAM-I riboswitch aptamer with an engineered helix P3





## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	191.76Å 54.30Å 106.37Å 90.00° 116.56° 90.00°	Depositor
Resolution (Å)	29.54 – 2.80 48.29 – 2.79	Depositor EDS
% Data completeness (in resolution range)	93.4 (29.54-2.80) 93.2 (48.29-2.79)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.10 (at 2.81Å)	Xtriage
Refinement program	CNS 1.3	Depositor
R, $R_{free}$	0.218 , 0.274 0.221 , 0.275	Depositor DCC
$R_{free}$ test set	2276 reflections (11.02%)	DCC
Wilson B-factor (Å <sup>2</sup> )	52.8	Xtriage
Anisotropy	0.764	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.24 , 50.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	6551	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	75.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.02% of the height of the origin peak. No significant pseudotranslation is detected.*

<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, 0.333 respectively for untwinned datasets, and 0.375, 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: MG, SAM, NCO

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	0.41	0/525	0.69	0/715
1	B	0.35	0/439	0.55	0/605
2	C	0.56	0/3012	0.87	13/4697 (0.3%)
2	D	0.50	1/3000 (0.0%)	0.86	14/4678 (0.3%)
All	All	0.51	1/6976 (0.0%)	0.84	27/10695 (0.3%)

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
2	C	0	6
2	D	0	3
All	All	0	9

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	234	U	C4-O4	12.29	1.33	1.23

The worst 5 of 27 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	234	U	N3-C4-C5	12.10	121.86	114.60
2	D	234	U	C2-N3-C4	-11.42	120.15	127.00
2	D	246	A	C2'-C3'-O3'	9.78	131.02	109.50
2	D	234	U	C5-C4-O4	-9.37	120.28	125.90
2	D	233	A	C2'-C3'-O3'	8.25	127.65	109.50

There are no chirality outliers.

5 of 9 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	24	A	Sidechain
2	C	28	G	Sidechain
2	C	43	G	Sidechain
2	C	44	C	Sidechain
2	C	46	A	Sidechain

## 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	524	0	505	19	0
1	B	438	0	336	29	0
2	C	2691	0	1360	113	0
2	D	2681	0	1354	118	0
3	C	84	0	0	10	0
3	D	42	0	0	9	0
4	C	27	0	22	0	0
4	D	27	0	22	1	0
5	C	13	0	0	0	0
5	D	9	0	0	0	0
6	A	1	0	0	0	0
6	C	7	0	0	0	0
6	D	7	0	0	1	0
All	All	6551	0	3599	276	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 28.

The worst 5 of 276 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)
2:C:19:G:H8	2:C:19:G:OP2	1.30	1.13
1:A:533:VAL:HG21	1:A:542:THR:HG23	1.34	1.09
2:D:234:U:H5'	2:D:234:U:H6	1.26	0.96

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:219:G:H8	2:D:219:G:OP2	1.49	0.94
2:D:295:U:H4'	3:D:402:NCO:N6	1.84	0.93

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	79/82 (96%)	69 (87%)	8 (10%)	2 (2%)	6	22
1	B	75/82 (92%)	52 (69%)	21 (28%)	2 (3%)	6	20
All	All	154/164 (94%)	121 (79%)	29 (19%)	4 (3%)	6	21

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	526	GLY
1	B	608	GLN
1	A	524	LYS
1	B	668	ALA

### 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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	48/65 (74%)	45 (94%)	3 (6%)	21 51
1	B	24/65 (37%)	24 (100%)	0	100 100
All	All	72/130 (55%)	69 (96%)	3 (4%)	34 68

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	516	THR
1	A	530	GLU
1	A	561	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	C	125/126 (99%)	21 (16%)	0
2	D	125/126 (99%)	28 (22%)	0
All	All	250/252 (99%)	49 (19%)	0

5 of 49 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	C	10	A
2	C	14	A
2	C	15	G
2	C	19	G
2	C	20	A

There are no RNA pucker outliers to report.

## 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 [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 42 ligands modelled in this entry, 22 are monoatomic - leaving 20 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	$\# Z  > 2$
3	NCO	C	901	-	6,6,6	0.40	0	0,15,15	0.00	-
3	NCO	C	902	-	6,6,6	0.47	0	0,15,15	0.00	-
3	NCO	C	903	-	6,6,6	0.38	0	0,15,15	0.00	-
3	NCO	C	904	-	6,6,6	0.44	0	0,15,15	0.00	-
3	NCO	C	905	-	6,6,6	0.29	0	0,15,15	0.00	-
3	NCO	C	906	-	6,6,6	0.41	0	0,15,15	0.00	-
3	NCO	C	907	-	6,6,6	0.52	0	0,15,15	0.00	-
3	NCO	C	908	-	6,6,6	0.37	0	0,15,15	0.00	-
3	NCO	C	909	-	6,6,6	0.42	0	0,15,15	0.00	-
3	NCO	C	910	-	6,6,6	0.39	0	0,15,15	0.00	-
3	NCO	C	911	-	6,6,6	0.37	0	0,15,15	0.00	-
3	NCO	C	912	-	6,6,6	0.40	0	0,15,15	0.00	-
4	SAM	C	913	-	21,29,29	1.31	3 (14%)	17,42,42	3.00	1 (5%)
3	NCO	D	401	-	6,6,6	0.37	0	0,15,15	0.00	-
3	NCO	D	402	-	6,6,6	0.54	0	0,15,15	0.00	-
3	NCO	D	403	-	6,6,6	0.41	0	0,15,15	0.00	-
3	NCO	D	404	-	6,6,6	0.38	0	0,15,15	0.00	-
3	NCO	D	405	-	6,6,6	0.44	0	0,15,15	0.00	-
3	NCO	D	406	-	6,6,6	0.37	0	0,15,15	0.00	-
4	SAM	D	407	-	21,29,29	1.32	2 (9%)	17,42,42	2.93	1 (5%)

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	NCO	C	901	-	-	0/0/0/0	0/0/0/0
3	NCO	C	902	-	-	0/0/0/0	0/0/0/0
3	NCO	C	903	-	-	0/0/0/0	0/0/0/0
3	NCO	C	904	-	-	0/0/0/0	0/0/0/0
3	NCO	C	905	-	-	0/0/0/0	0/0/0/0
3	NCO	C	906	-	-	0/0/0/0	0/0/0/0
3	NCO	C	907	-	-	0/0/0/0	0/0/0/0
3	NCO	C	908	-	-	0/0/0/0	0/0/0/0
3	NCO	C	909	-	-	0/0/0/0	0/0/0/0
3	NCO	C	910	-	-	0/0/0/0	0/0/0/0
3	NCO	C	911	-	-	0/0/0/0	0/0/0/0
3	NCO	C	912	-	-	0/0/0/0	0/0/0/0
4	SAM	C	913	-	-	0/8/33/33	0/3/3/3
3	NCO	D	401	-	-	0/0/0/0	0/0/0/0
3	NCO	D	402	-	-	0/0/0/0	0/0/0/0
3	NCO	D	403	-	-	0/0/0/0	0/0/0/0
3	NCO	D	404	-	-	0/0/0/0	0/0/0/0
3	NCO	D	405	-	-	0/0/0/0	0/0/0/0
3	NCO	D	406	-	-	0/0/0/0	0/0/0/0
4	SAM	D	407	-	-	0/8/33/33	0/3/3/3

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	913	SAM	O4'-C4'	-2.02	1.40	1.45
4	C	913	SAM	C2-N1	3.02	1.39	1.33
4	D	407	SAM	C2-N1	3.02	1.39	1.33
4	C	913	SAM	C2-N3	3.87	1.38	1.32
4	D	407	SAM	C2-N3	4.16	1.39	1.32

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	C	913	SAM	N3-C2-N1	-11.90	118.50	128.86
4	D	407	SAM	N3-C2-N1	-11.61	118.75	128.86

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	901	NCO	1	0
3	C	905	NCO	9	0
3	D	402	NCO	9	0
4	D	407	SAM	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	81/82 (98%)	-0.11	1 (1%) 79 72	32, 56, 77, 90	0
1	B	77/82 (93%)	0.40	7 (9%) 10 5	55, 90, 124, 131	0
2	C	126/126 (100%)	-0.31	0 100 100	37, 57, 112, 170	0
2	D	126/126 (100%)	-0.21	0 100 100	42, 78, 132, 162	0
All	All	410/416 (98%)	-0.11	8 (1%) 65 56	32, 68, 120, 170	0

The worst 5 of 8 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	628	VAL	4.3
1	B	630	GLU	3.1
1	A	582	LEU	3.0
1	B	641	LEU	2.3
1	B	645	VAL	2.2

### 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 [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(Å <sup>2</sup> )	Q<0.9
3	NCO	C	910	7/7	0.87	0.34	20.22	141,143,144,145	0
3	NCO	C	911	7/7	0.81	0.33	10.89	167,168,168,168	0
3	NCO	C	906	7/7	0.94	0.24	9.17	92,96,99,103	0
3	NCO	D	401	7/7	0.94	0.19	8.01	117,118,120,122	0
3	NCO	C	905	7/7	0.89	0.28	7.32	112,115,119,120	0
3	NCO	D	403	7/7	0.92	0.21	7.26	104,106,109,114	0
4	SAM	C	913	27/27	0.96	0.23	7.14	19,49,74,78	0
4	SAM	D	407	27/27	0.94	0.22	5.41	41,71,86,91	0
3	NCO	D	406	7/7	0.89	0.27	4.86	137,138,138,140	6
3	NCO	D	402	7/7	0.91	0.26	4.57	79,92,94,94	0
3	NCO	C	907	7/7	0.97	0.24	3.78	53,64,68,74	0
3	NCO	D	405	7/7	0.94	0.22	3.59	97,99,101,106	0
3	NCO	C	909	7/7	0.94	0.23	1.88	127,129,132,133	0
3	NCO	C	903	7/7	0.90	0.21	1.88	141,143,144,145	0
3	NCO	C	912	7/7	0.87	0.19	1.31	94,95,96,100	7
3	NCO	C	901	7/7	0.98	0.14	0.99	73,77,80,84	0
3	NCO	C	904	7/7	0.95	0.13	0.02	91,95,98,106	0
3	NCO	C	902	7/7	0.98	0.13	-0.40	64,65,68,78	0
3	NCO	D	404	7/7	0.98	0.12	-0.77	83,85,87,91	0
5	MG	D	411	1/1	0.91	0.26	-	75,75,75,75	0
5	MG	D	413	1/1	0.94	0.11	-	60,60,60,60	0
5	MG	D	416	1/1	0.85	0.21	-	89,89,89,89	0
5	MG	C	923	1/1	0.88	0.11	-	75,75,75,75	0
5	MG	D	409	1/1	0.85	0.35	-	49,49,49,49	0
5	MG	C	926	1/1	0.96	0.20	-	69,69,69,69	0
5	MG	C	921	1/1	0.60	0.15	-	66,66,66,66	0
5	MG	C	922	1/1	0.73	0.33	-	52,52,52,52	0
5	MG	C	925	1/1	0.88	0.30	-	65,65,65,65	0
5	MG	C	917	1/1	0.90	0.23	-	56,56,56,56	0
5	MG	C	918	1/1	0.92	0.11	-	55,55,55,55	0
3	NCO	C	908	7/7	0.93	0.14	-	119,122,124,128	0
5	MG	D	408	1/1	0.91	0.13	-	60,60,60,60	0
5	MG	C	919	1/1	0.99	0.07	-	48,48,48,48	0
5	MG	D	412	1/1	0.97	0.19	-	58,58,58,58	0
5	MG	C	914	1/1	0.97	0.12	-	44,44,44,44	0
5	MG	D	410	1/1	0.77	0.13	-	62,62,62,62	0
5	MG	C	920	1/1	0.82	0.29	-	72,72,72,72	0
5	MG	C	915	1/1	0.95	0.21	-	49,49,49,49	0
5	MG	D	415	1/1	0.85	0.10	-	75,75,75,75	0
5	MG	C	916	1/1	0.81	0.22	-	60,60,60,60	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
5	MG	D	414	1/1	0.73	0.15	-	84,84,84,84	0
5	MG	C	924	1/1	0.91	0.38	-	71,71,71,71	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.