wwPDB X-ray Structure Validation Summary Report (i)

Feb 1, 2016 – 01:36 PM GMT

PDB ID	:	3U5P
Title	:	Crystal structure of the complex of TRIM33 PHD-Bromo and H3(1-28)K9me 3K14acK18acK23ac histone peptide
Authors	:	Wang, Z.; Patel, D.J.
Deposited on	:	2011-10-11
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
A user guide is available at
http://wwpdb.org/validation/2016/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The following versions of software and data (see references (1)) were used in the production of this report:

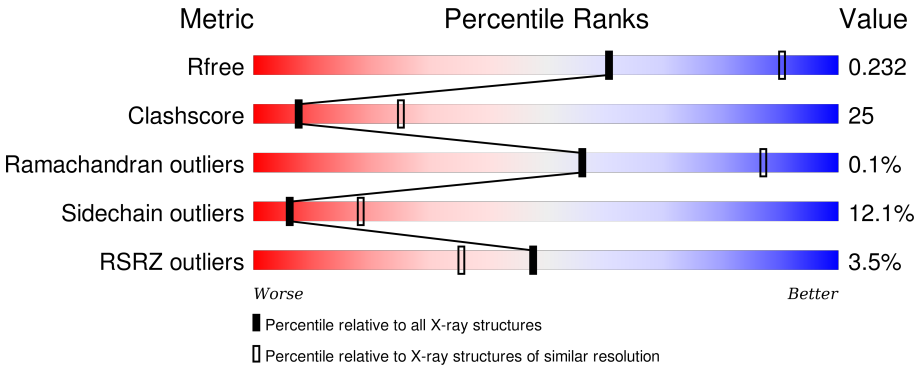
MolProbity	:	4.02b-467
Mogul	:	1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix)	:	1.9-1692
EDS	:	rb-20026688
Percentile statistics	:	20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac	:	5.8.0135
CCP4	:	6.5.0
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)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

1 Overall quality at a glance (i)

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}	91344	2393 (2.80-2.80)
Clashscore	102246	2827 (2.80-2.80)
Ramachandran outliers	100387	2782 (2.80-2.80)
Sidechain outliers	100360	2784 (2.80-2.80)
RSRZ outliers	91569	2404 (2.80-2.80)

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 on the lower bar indicate the fraction of residues that contain outliers for >=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 <=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	207	% 53% 30% 7% 9%
1	B	207	% 53% 32% 6% 9%
1	C	207	49% 34% 7% 9%
1	D	207	% 56% 27% 8% 9%
1	E	207	2% 57% 28% 6% 9%

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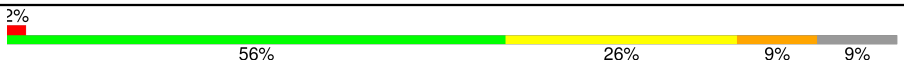
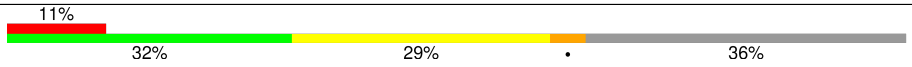
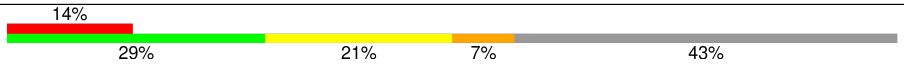
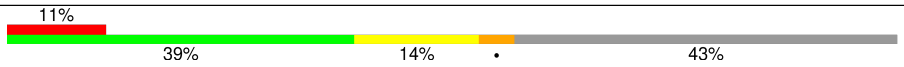
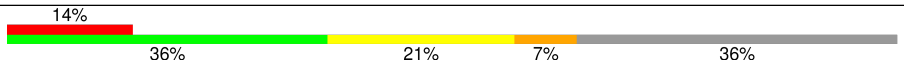
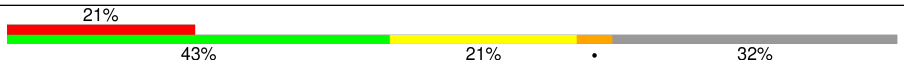
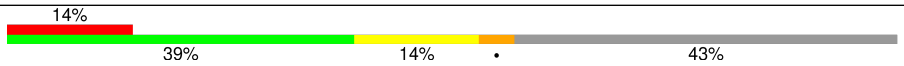
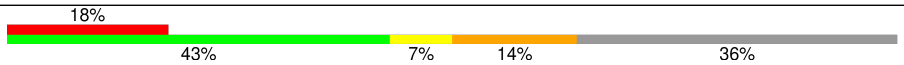
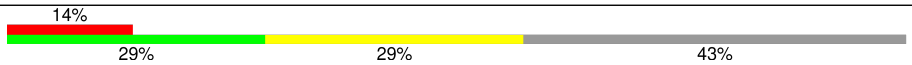
Mol	Chain	Length	Quality of chain
1	F	207	
1	G	207	
1	H	207	
2	I	28	
2	J	28	
2	K	28	
2	L	28	
2	M	28	
2	N	28	
2	O	28	
2	P	28	

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 13261 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 E3 ubiquitin-protein ligase TRIM33.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	B	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	C	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	D	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	E	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	F	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	G	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			
1	H	188	Total	C	N	O	S	0	0	0
			1522	973	252	282	15			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
B	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
C	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
D	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
E	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
F	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
G	881	SER	-	EXPRESSION TAG	UNP Q9UPN9
H	881	SER	-	EXPRESSION TAG	UNP Q9UPN9

- Molecule 2 is a protein called Histone H3.1.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	I	18	Total C N O 137 82 31 24	0	0	0
2	J	16	Total C N O 128 77 29 22	0	0	0
2	K	16	Total C N O 128 77 29 22	0	0	0
2	L	18	Total C N O 137 82 31 24	0	0	0
2	M	19	Total C N O 146 87 33 26	0	0	0
2	N	16	Total C N O 128 77 29 22	0	0	0
2	O	18	Total C N O 137 82 31 24	0	0	0
2	P	16	Total C N O 128 77 29 22	0	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

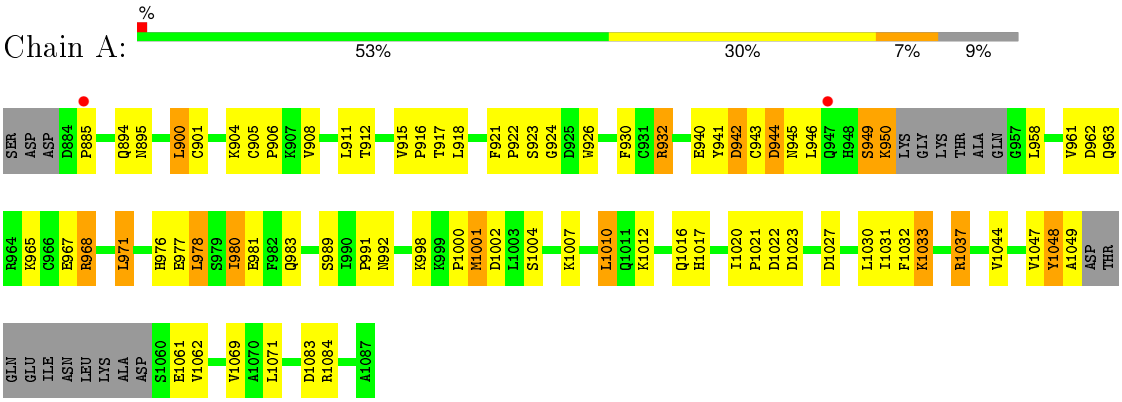
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	G	2	Total Zn 2 2	0	0
3	D	2	Total Zn 2 2	0	0
3	E	2	Total Zn 2 2	0	0
3	H	2	Total Zn 2 2	0	0
3	B	2	Total Zn 2 2	0	0
3	C	2	Total Zn 2 2	0	0
3	A	2	Total Zn 2 2	0	0
3	F	2	Total Zn 2 2	0	0

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 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.

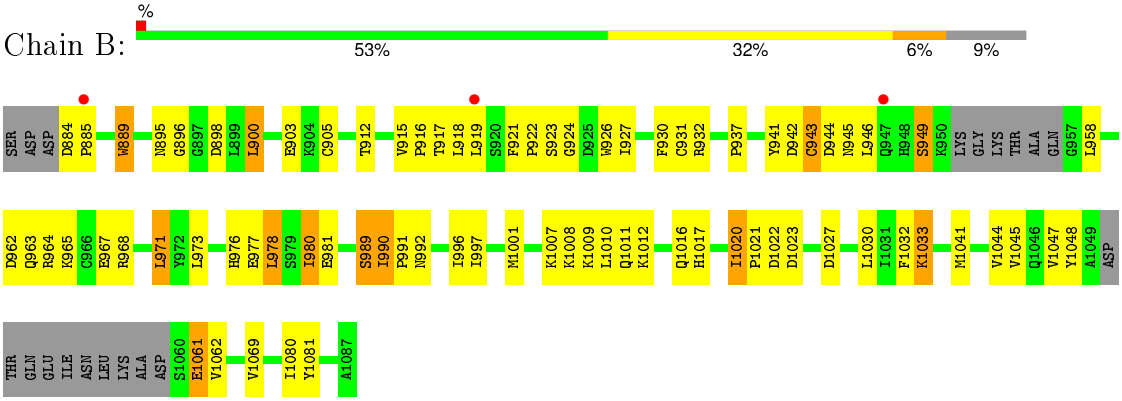
- Molecule 1: E3 ubiquitin-protein ligase TRIM33

Chain A:



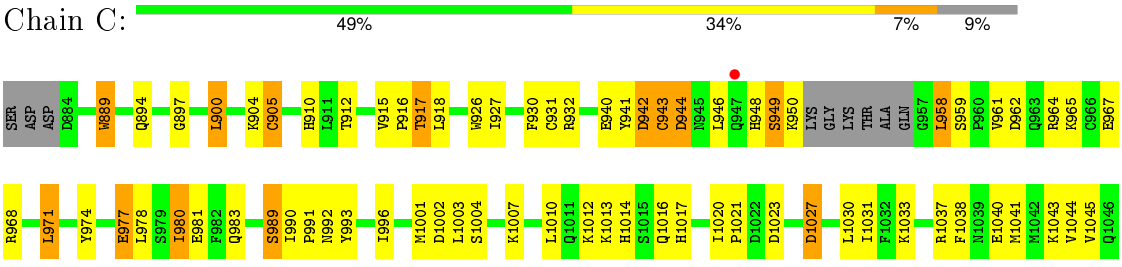
- Molecule 1: E3 ubiquitin-protein ligase TRIM33

Chain B:



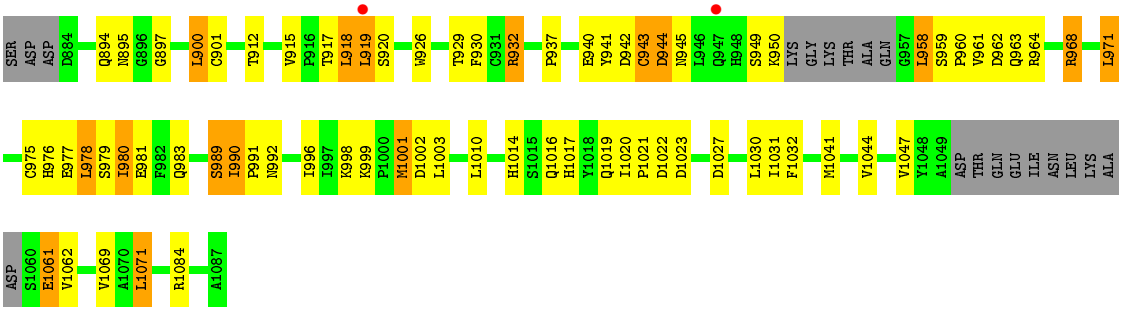
- Molecule 1: E3 ubiquitin-protein ligase TRIM33

Chain C:



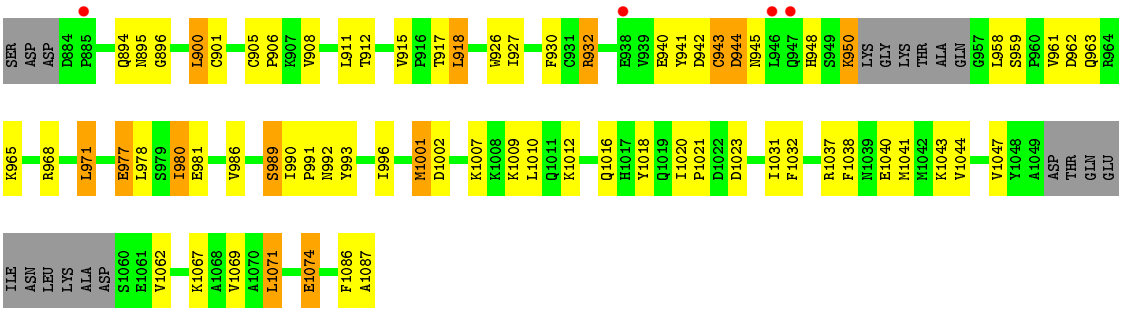
• Molecule 1: E3 ubiquitin-protein ligase TRIM33

Chain D:



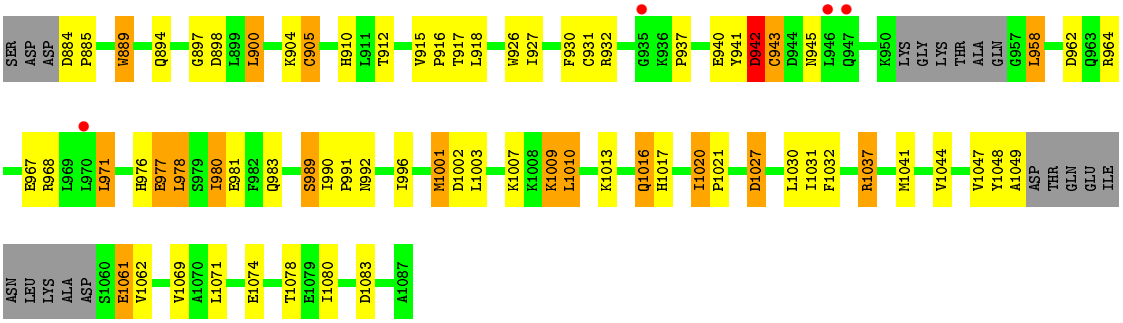
• Molecule 1: E3 ubiquitin-protein ligase TRIM33

Chain E:



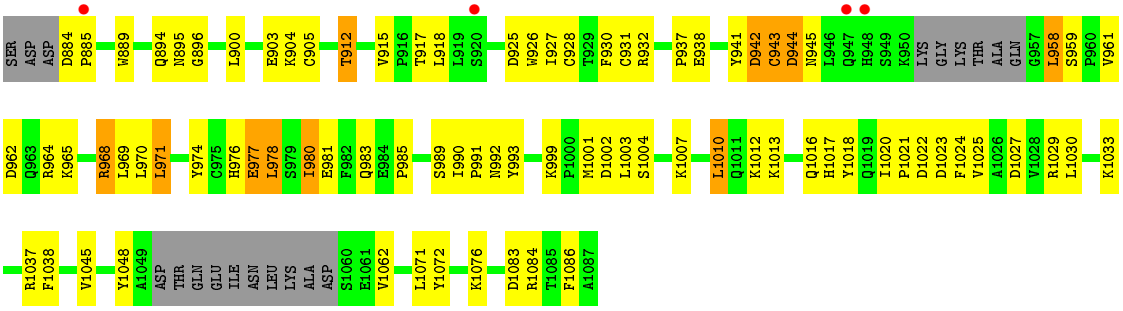
• Molecule 1: E3 ubiquitin-protein ligase TRIM33

Chain F:

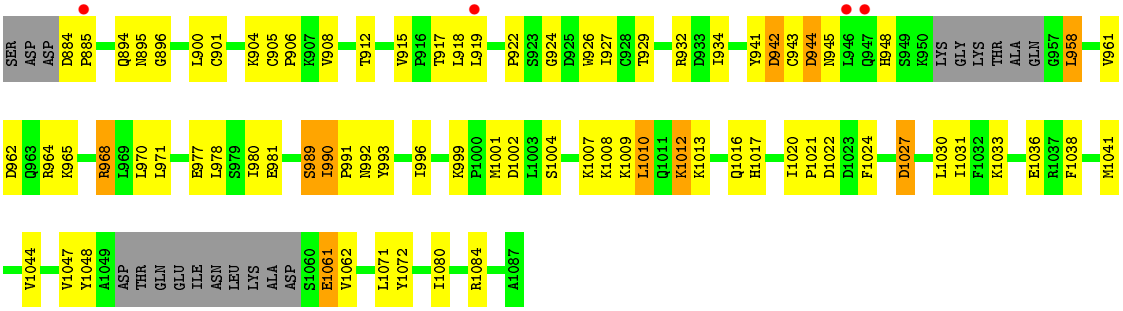


• Molecule 1: E3 ubiquitin-protein ligase TRIM33

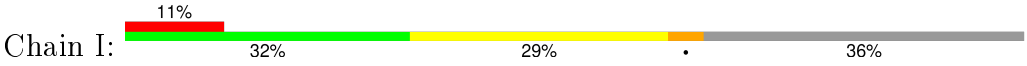
Chain G:

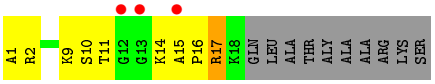


- Molecule 1: E3 ubiquitin-protein ligase TRIM33

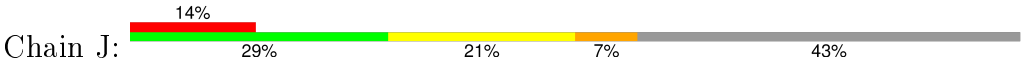


- Molecule 2: Histone H3.1

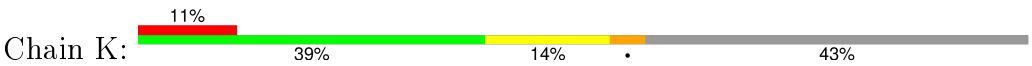


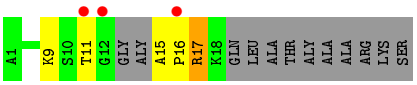


- Molecule 2: Histone H3.1

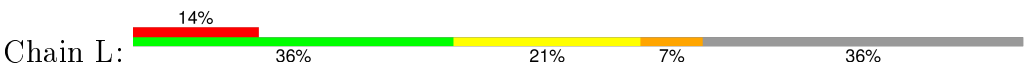


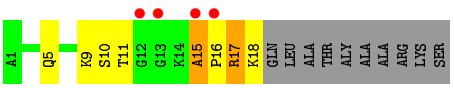
- Molecule 2: Histone H3.1





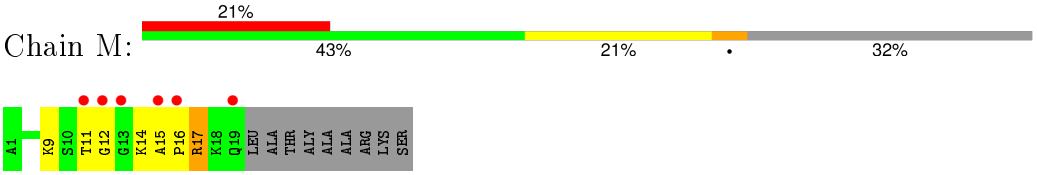
- Molecule 2: Histone H3.1





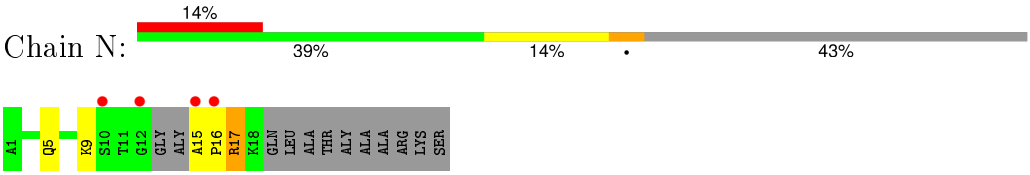
- Molecule 2: Histone H3.1

Chain M:



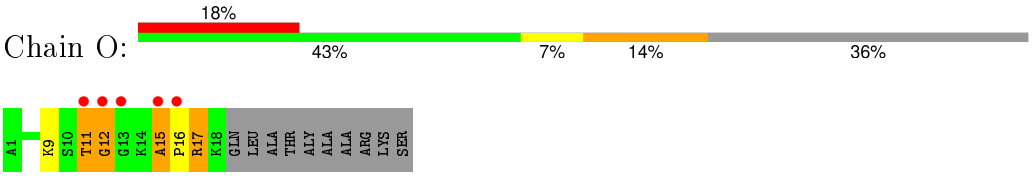
- Molecule 2: Histone H3.1

Chain N:



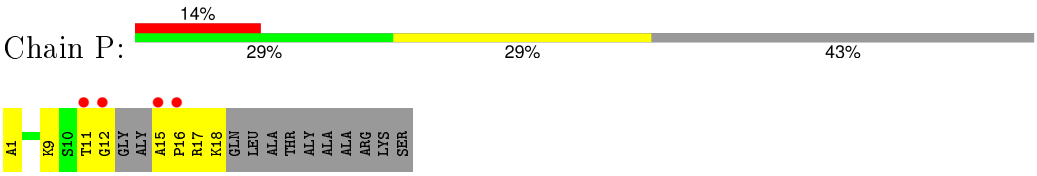
- Molecule 2: Histone H3.1

Chain O:



- Molecule 2: Histone H3.1

Chain P:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	63.43Å 63.61Å 124.61Å 90.01° 90.04° 90.00°	Depositor
Resolution (Å)	30.00 – 2.80 28.43 – 2.79	Depositor EDS
% Data completeness (in resolution range)	94.0 (30.00-2.80) 94.1 (28.43-2.79)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
$< I/\sigma(I) >$ [1]	2.08 (at 2.80Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.210 , 0.265 0.212 , 0.232	Depositor DCC
R_{free} test set	2387 reflections (5.55%)	DCC
Wilson B-factor (Å^2)	74.9	Xtriage
Anisotropy	0.095	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 42.1	EDS
Estimated twinning fraction	0.478 for k,-h,l 0.478 for -k,h,l 0.480 for h,-k,-l 0.480 for -h,k,-l 0.487 for -h,-k,l 0.479 for k,h,-l 0.480 for -k,-h,-l	Xtriage
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Outliers	0 of 47438 reflections	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	13261	wwPDB-VP
Average B, all atoms (Å^2)	94.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.84% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 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: ZN, M3L, ALY

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	0.68	0/1558	0.76	0/2105
1	B	0.69	1/1558 (0.1%)	0.73	0/2105
1	C	0.72	2/1558 (0.1%)	0.78	2/2105 (0.1%)
1	D	0.72	1/1558 (0.1%)	0.76	1/2105 (0.0%)
1	E	0.70	0/1558	0.75	0/2105
1	F	0.71	2/1558 (0.1%)	0.75	2/2105 (0.1%)
1	G	0.69	0/1558	0.77	1/2105 (0.0%)
1	H	0.70	0/1558	0.76	1/2105 (0.0%)
2	I	0.47	0/107	0.80	0/140
2	J	0.52	0/103	0.87	0/135
2	K	0.53	0/103	0.61	0/135
2	L	0.49	0/107	0.74	0/140
2	M	0.46	0/115	0.63	0/149
2	N	0.53	0/103	0.67	0/135
2	O	0.50	0/107	0.77	1/140 (0.7%)
2	P	0.50	0/103	0.63	0/135
All	All	0.69	6/13312 (0.0%)	0.75	8/17949 (0.0%)

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	1
1	D	0	1
1	E	0	1
All	All	0	3

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	1013	LYS	CE-NZ	5.95	1.64	1.49
1	D	950	LYS	CE-NZ	5.41	1.62	1.49
1	B	889	TRP	CD2-CE2	5.31	1.47	1.41
1	F	889	TRP	CD2-CE2	5.23	1.47	1.41
1	C	889	TRP	CD2-CE2	5.20	1.47	1.41

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

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	958	LEU	CA-CB-CG	6.03	129.18	115.30
1	F	942	ASP	N-CA-C	-5.97	94.87	111.00
1	G	958	LEU	CA-CB-CG	5.95	129.00	115.30
2	O	12	GLY	N-CA-C	-5.52	99.29	113.10
1	H	958	LEU	CA-CB-CG	5.28	127.44	115.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	932	ARG	Sidechain
1	D	932	ARG	Sidechain
1	E	932	ARG	Sidechain

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	1522	0	1486	72	0
1	B	1522	0	1486	84	0
1	C	1522	0	1487	75	0
1	D	1522	0	1486	69	0
1	E	1522	0	1486	70	0
1	F	1522	0	1487	66	0
1	G	1522	0	1486	84	0
1	H	1522	0	1486	69	0
2	I	137	0	149	20	0
2	J	128	0	143	18	0
2	K	128	0	143	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	L	137	0	149	14	0
2	M	146	0	157	14	0
2	N	128	0	144	9	0
2	O	137	0	150	14	0
2	P	128	0	144	11	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
3	E	2	0	0	0	0
3	F	2	0	0	0	0
3	G	2	0	0	0	0
3	H	2	0	0	0	0
All	All	13261	0	13069	664	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 25.

The worst 5 of 664 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:L:15:ALA:HB1	2:L:16:PRO:CD	1.64	1.25
2:J:15:ALA:CB	2:J:16:PRO:HD3	1.64	1.25
2:I:16:PRO:O	2:I:17:ARG:HD3	1.35	1.24
2:O:15:ALA:HB1	2:O:16:PRO:CD	1.69	1.22
2:O:15:ALA:HB1	2:O:16:PRO:HD3	1.19	1.17

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	182/207 (88%)	170 (93%)	12 (7%)	0	100 100
1	B	182/207 (88%)	174 (96%)	8 (4%)	0	100 100
1	C	182/207 (88%)	177 (97%)	5 (3%)	0	100 100
1	D	182/207 (88%)	174 (96%)	8 (4%)	0	100 100
1	E	182/207 (88%)	175 (96%)	7 (4%)	0	100 100
1	F	182/207 (88%)	177 (97%)	5 (3%)	0	100 100
1	G	182/207 (88%)	171 (94%)	11 (6%)	0	100 100
1	H	182/207 (88%)	170 (93%)	12 (7%)	0	100 100
2	I	14/28 (50%)	14 (100%)	0	0	100 100
2	J	11/28 (39%)	10 (91%)	1 (9%)	0	100 100
2	K	11/28 (39%)	10 (91%)	1 (9%)	0	100 100
2	L	14/28 (50%)	13 (93%)	0	1 (7%)	1 3
2	M	14/28 (50%)	13 (93%)	1 (7%)	0	100 100
2	N	11/28 (39%)	10 (91%)	1 (9%)	0	100 100
2	O	14/28 (50%)	13 (93%)	0	1 (7%)	1 3
2	P	11/28 (39%)	11 (100%)	0	0	100 100
All	All	1556/1880 (83%)	1482 (95%)	72 (5%)	2 (0%)	56 87

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	O	15	ALA
2	L	15	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.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	173/189 (92%)	151 (87%)	22 (13%)	5 16
1	B	173/189 (92%)	154 (89%)	19 (11%)	8 23

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	C	173/189 (92%)	150 (87%)	23 (13%)	5 14
1	D	173/189 (92%)	151 (87%)	22 (13%)	5 16
1	E	173/189 (92%)	153 (88%)	20 (12%)	7 20
1	F	173/189 (92%)	152 (88%)	21 (12%)	6 18
1	G	173/189 (92%)	152 (88%)	21 (12%)	6 18
1	H	173/189 (92%)	154 (89%)	19 (11%)	8 23
2	I	10/16 (62%)	9 (90%)	1 (10%)	9 27
2	J	10/16 (62%)	8 (80%)	2 (20%)	1 5
2	K	10/16 (62%)	8 (80%)	2 (20%)	1 5
2	L	10/16 (62%)	9 (90%)	1 (10%)	9 27
2	M	11/16 (69%)	10 (91%)	1 (9%)	12 33
2	N	10/16 (62%)	9 (90%)	1 (10%)	9 27
2	O	10/16 (62%)	8 (80%)	2 (20%)	1 5
2	P	10/16 (62%)	10 (100%)	0	100 100
All	All	1465/1640 (89%)	1288 (88%)	177 (12%)	6 18

5 of 177 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	971	LEU
1	E	968	ARG
1	H	971	LEU
1	D	980	ILE
1	D	1061	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
2	J	5	GLN
1	C	1017	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

20 non-standard protein/DNA/RNA residues 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	ALY	I	14	2	3,4,12	0.58	0	0,4,14	0.00	-
2	ALY	I	18	2	10,11,12	0.48	0	10,12,14	1.05	0
2	M3L	I	9	2	10,11,12	0.70	0	12,14,16	1.25	1 (8%)
2	ALY	J	18	2	10,11,12	0.46	0	10,12,14	0.92	0
2	M3L	J	9	2	10,11,12	0.78	0	12,14,16	1.02	0
2	ALY	K	18	2	10,11,12	0.47	0	10,12,14	1.57	4 (40%)
2	M3L	K	9	2	10,11,12	0.76	0	12,14,16	0.89	1 (8%)
2	ALY	L	14	2	3,4,12	0.54	0	0,4,14	0.00	-
2	ALY	L	18	2	10,11,12	0.64	0	10,12,14	1.22	2 (20%)
2	M3L	L	9	2	10,11,12	0.66	0	12,14,16	0.81	0
2	ALY	M	14	2	3,4,12	0.54	0	0,4,14	0.00	-
2	ALY	M	18	2	10,11,12	0.53	0	10,12,14	1.04	1 (10%)
2	M3L	M	9	2	10,11,12	0.74	0	12,14,16	1.13	1 (8%)
2	ALY	N	18	2	10,11,12	0.53	0	10,12,14	1.32	2 (20%)
2	M3L	N	9	2	10,11,12	0.78	0	12,14,16	0.84	0
2	ALY	O	14	2	3,4,12	0.58	0	0,4,14	0.00	-
2	ALY	O	18	2	10,11,12	0.62	0	10,12,14	1.07	0
2	M3L	O	9	2	10,11,12	0.94	0	12,14,16	1.03	0
2	ALY	P	18	2	10,11,12	0.73	0	10,12,14	1.48	2 (20%)
2	M3L	P	9	2	10,11,12	0.83	0	12,14,16	1.22	2 (16%)

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	ALY	I	14	2	-	0/0/2/12	0/0/0/0
2	ALY	I	18	2	-	2/8/10/12	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	M3L	I	9	2	-	0/8/10/12	0/0/0/0
2	ALY	J	18	2	-	2/8/10/12	0/0/0/0
2	M3L	J	9	2	-	0/8/10/12	0/0/0/0
2	ALY	K	18	2	-	2/8/10/12	0/0/0/0
2	M3L	K	9	2	-	0/8/10/12	0/0/0/0
2	ALY	L	14	2	-	0/0/2/12	0/0/0/0
2	ALY	L	18	2	-	2/8/10/12	0/0/0/0
2	M3L	L	9	2	-	0/8/10/12	0/0/0/0
2	ALY	M	14	2	-	0/0/2/12	0/0/0/0
2	ALY	M	18	2	-	2/8/10/12	0/0/0/0
2	M3L	M	9	2	-	0/8/10/12	0/0/0/0
2	ALY	N	18	2	-	2/8/10/12	0/0/0/0
2	M3L	N	9	2	-	0/8/10/12	0/0/0/0
2	ALY	O	14	2	-	0/0/2/12	0/0/0/0
2	ALY	O	18	2	-	2/8/10/12	0/0/0/0
2	M3L	O	9	2	-	0/8/10/12	0/0/0/0
2	ALY	P	18	2	-	2/8/10/12	0/0/0/0
2	M3L	P	9	2	-	0/8/10/12	0/0/0/0

There are no bond length outliers.

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	P	18	ALY	O-C-CA	-2.58	118.76	125.49
2	K	18	ALY	OH-CH-CH3	-2.32	117.81	122.06
2	I	9	M3L	O-C-CA	-2.27	119.59	125.49
2	P	18	ALY	CE-NZ-CH	-2.23	118.72	122.36
2	N	18	ALY	OH-CH-CH3	-2.21	118.00	122.06

There are no chirality outliers.

5 of 16 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	M	18	ALY	CH3-CH-NZ-CE
2	P	18	ALY	CH3-CH-NZ-CE
2	N	18	ALY	CH3-CH-NZ-CE
2	O	18	ALY	CH3-CH-NZ-CE
2	J	18	ALY	CH3-CH-NZ-CE

There are no ring outliers.

13 monomers are involved in 34 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	I	14	ALY	4	0
2	I	9	M3L	2	0
2	J	18	ALY	1	0
2	J	9	M3L	2	0
2	K	9	M3L	3	0
2	L	18	ALY	1	0
2	L	9	M3L	2	0
2	M	14	ALY	4	0
2	M	9	M3L	4	0
2	N	9	M3L	3	0
2	O	9	M3L	5	0
2	P	18	ALY	1	0
2	P	9	M3L	2	0

5.5 Carbohydrates (i)

There are no carbohydrates in this entry.

5.6 Ligand geometry (i)

Of 16 ligands modelled in this entry, 16 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	188/207 (90%)	-0.09	2 (1%)	82	74	48, 85, 143, 190	0
1	B	188/207 (90%)	-0.11	3 (1%)	74	66	49, 86, 148, 215	0
1	C	188/207 (90%)	-0.08	1 (0%)	91	88	49, 85, 141, 188	0
1	D	188/207 (90%)	-0.14	2 (1%)	82	74	52, 84, 138, 184	0
1	E	188/207 (90%)	-0.12	4 (2%)	67	56	49, 86, 144, 206	0
1	F	188/207 (90%)	-0.09	4 (2%)	67	56	49, 85, 141, 183	0
1	G	188/207 (90%)	-0.05	4 (2%)	67	56	49, 85, 140, 180	0
1	H	188/207 (90%)	-0.12	4 (2%)	67	56	50, 85, 141, 189	0
2	I	15/28 (53%)	1.35	3 (20%)	1	1	84, 108, 188, 190	0
2	J	14/28 (50%)	1.16	4 (28%)	1	0	77, 97, 170, 189	0
2	K	14/28 (50%)	1.26	3 (21%)	1	1	77, 108, 155, 171	0
2	L	15/28 (53%)	1.31	4 (26%)	1	0	76, 101, 169, 188	0
2	M	16/28 (57%)	1.54	6 (37%)	0	0	83, 120, 186, 198	0
2	N	14/28 (50%)	1.38	4 (28%)	1	0	74, 109, 148, 176	0
2	O	15/28 (53%)	1.26	5 (33%)	0	0	80, 105, 187, 190	0
2	P	14/28 (50%)	1.40	4 (28%)	1	0	76, 112, 171, 179	0
All	All	1621/1880 (86%)	0.00	57 (3%)	48	35	48, 87, 150, 215	0

The worst 5 of 57 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	N	12	GLY	9.9
2	P	12	GLY	9.2
2	M	12	GLY	8.7
2	K	12	GLY	8.5
2	I	12	GLY	7.6

6.2 Non-standard residues in protein, DNA, RNA chains (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^{th} 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^2)	Q<0.9
2	M3L	M	9	12/13	0.92	0.20	-	62,83,117,119	0
2	ALY	L	14	5/13	0.48	0.53	-	169,184,191,193	0
2	M3L	N	9	12/13	0.93	0.23	-	63,77,107,109	0
2	ALY	L	18	12/13	0.91	0.19	-	38,83,116,117	0
2	ALY	O	18	12/13	0.91	0.17	-	42,93,128,131	0
2	ALY	N	18	12/13	0.93	0.16	-	44,83,126,131	0
2	ALY	I	18	12/13	0.93	0.20	-	44,82,129,131	0
2	ALY	K	18	12/13	0.89	0.18	-	49,89,120,127	0
2	ALY	J	18	12/13	0.91	0.16	-	48,90,118,123	0
2	M3L	P	9	12/13	0.92	0.23	-	72,82,119,125	0
2	M3L	I	9	12/13	0.94	0.20	-	63,78,113,123	0
2	M3L	K	9	12/13	0.91	0.26	-	69,83,108,111	0
2	ALY	M	14	5/13	0.64	0.39	-	167,190,192,198	0
2	ALY	P	18	12/13	0.88	0.25	-	50,93,127,130	0
2	ALY	O	14	5/13	0.47	0.69	-	165,190,197,205	0
2	M3L	O	9	12/13	0.95	0.21	-	68,79,124,127	0
2	ALY	M	18	12/13	0.86	0.21	-	44,84,140,145	0
2	M3L	L	9	12/13	0.96	0.20	-	62,83,119,121	0
2	ALY	I	14	5/13	0.72	0.52	-	169,189,194,194	0
2	M3L	J	9	12/13	0.92	0.27	-	61,78,119,128	0

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^{th} 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^2)	Q<0.9
3	ZN	B	2	1/1	0.99	0.13	-0.02	89,89,89,89	0
3	ZN	F	2	1/1	0.98	0.13	-0.13	88,88,88,88	0
3	ZN	C	2	1/1	0.99	0.12	-0.17	89,89,89,89	0
3	ZN	G	2	1/1	0.99	0.12	-0.35	88,88,88,88	0
3	ZN	H	2	1/1	0.99	0.11	-0.44	92,92,92,92	0
3	ZN	D	2	1/1	0.98	0.11	-0.45	86,86,86,86	0
3	ZN	A	2	1/1	0.98	0.12	-0.51	87,87,87,87	0
3	ZN	E	2	1/1	0.98	0.10	-0.67	92,92,92,92	0
3	ZN	B	1	1/1	0.99	0.11	-1.46	61,61,61,61	0
3	ZN	F	1	1/1	0.99	0.10	-1.74	68,68,68,68	0
3	ZN	C	1	1/1	0.99	0.11	-	67,67,67,67	0
3	ZN	D	1	1/1	0.99	0.10	-	68,68,68,68	0
3	ZN	E	1	1/1	1.00	0.10	-	69,69,69,69	0
3	ZN	G	1	1/1	0.99	0.12	-	69,69,69,69	0
3	ZN	H	1	1/1	0.99	0.10	-	68,68,68,68	0
3	ZN	A	1	1/1	1.00	0.13	-	66,66,66,66	0

6.5 Other polymers (i)

There are no such residues in this entry.