



# wwPDB X-ray Structure Validation Summary Report ⓘ

Nov 6, 2023 – 05:16 PM EST

PDB ID : 5I1O  
Title : Villin headpiece subdomain with a Gln26 to ACPC substitution  
Authors : Kreitler, D.F.; Mortenson, D.E.; Gellman, S.H.; Forest, K.T.  
Deposited on : 2016-02-05  
Resolution : 1.35 Å(reported)

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We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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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 : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

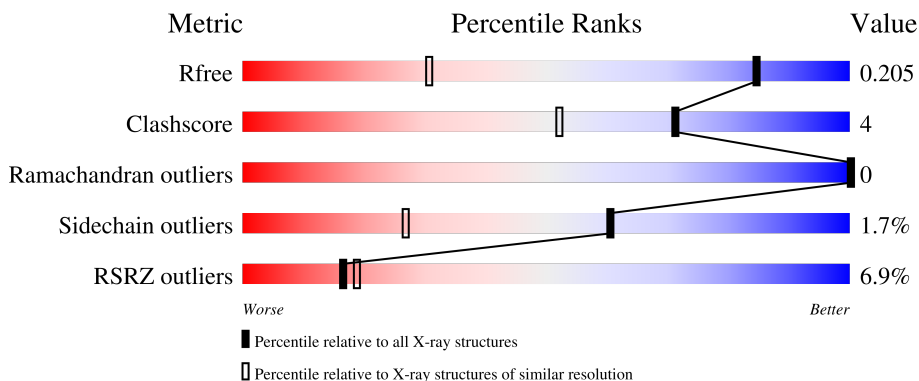
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

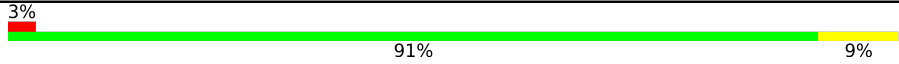
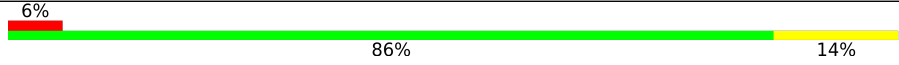
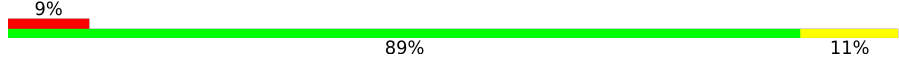
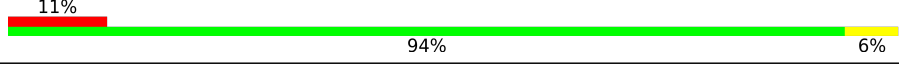

The reported resolution of this entry is 1.35 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.






Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1385 (1.36-1.32)
Clashscore	141614	1417 (1.36-1.32)
Ramachandran outliers	138981	1397 (1.36-1.32)
Sidechain outliers	138945	1397 (1.36-1.32)
RSRZ outliers	127900	1369 (1.36-1.32)

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  $\geq 3$ , 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	35	
1	B	35	
1	C	35	
1	D	35	
2	E	35	

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Mol	Chain	Length	Quality of chain
2	F	35	 91% 6% •
2	G	35	 89% 9% •
2	H	35	 91% 6% •

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 4933 atoms, of which 2342 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 Villin-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	A	35	593	193	300	49	50	1	0	1	0
1	B	35	582	190	294	48	49	1	0	0	0
1	C	35	582	190	294	48	49	1	0	0	0
1	D	35	574	188	290	48	47	1	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	26	XCP	GLN	engineered mutation	UNP P02640
A	27	HIS	ASN	engineered mutation	UNP P02640
B	26	XCP	GLN	engineered mutation	UNP P02640
B	27	HIS	ASN	engineered mutation	UNP P02640
C	26	XCP	GLN	engineered mutation	UNP P02640
C	27	HIS	ASN	engineered mutation	UNP P02640
D	26	XCP	GLN	engineered mutation	UNP P02640
D	27	HIS	ASN	engineered mutation	UNP P02640

- Molecule 2 is a protein (with D amino acids) called D-Villin headpiece subdomain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
2	E	35	593	192	299	50	51	1	0	1	0
2	F	34	561	180	284	48	48	1	0	0	0
2	G	34	571	184	288	48	50	1	0	1	0
2	H	35	581	189	293	49	49	1	0	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	35	Total O 35 35	0	0
3	B	46	Total O 46 46	0	0
3	C	34	Total O 34 34	0	0
3	D	47	Total O 47 47	0	0
3	E	30	Total O 30 30	0	0
3	F	42	Total O 42 42	0	0
3	G	37	Total O 37 37	0	0
3	H	25	Total O 25 25	0	0

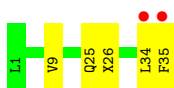
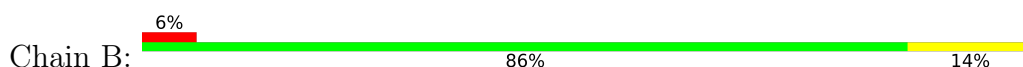
### 3 Residue-property plots [i](#)

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.

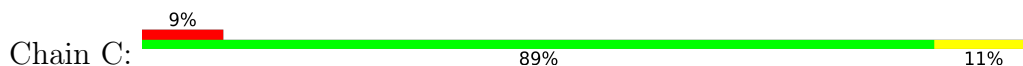
- Molecule 1: Villin-1



- Molecule 1: Villin-1



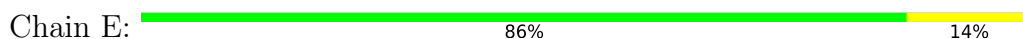
- Molecule 1: Villin-1



- Molecule 1: Villin-1



- Molecule 2: D-Villin headpiece subdomain




- Molecule 2: D-Villin headpiece subdomain

Chain F:  91% 6%



• Molecule 2: D-Villin headpiece subdomain

Chain G:  89% 9%



• Molecule 2: D-Villin headpiece subdomain

Chain H:  91% 6%



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	36.90Å 40.00Å 48.42Å 111.44° 110.18° 94.65°	Depositor
Resolution (Å)	18.39 – 1.35 18.39 – 1.35	Depositor EDS
% Data completeness (in resolution range)	92.1 (18.39-1.35) 92.2 (18.39-1.35)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.06	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.05 (at 1.35Å)	Xtrriage
Refinement program	PHENIX 1.9_1692	Depositor
R, $R_{free}$	0.173 , 0.204 0.176 , 0.205	Depositor DCC
$R_{free}$ test set	2019 reflections (4.23%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	12.2	Xtrriage
Anisotropy	0.441	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.47 , 58.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.57$ , $\langle L^2 \rangle = 0.41$	Xtrriage
Estimated twinning fraction	0.000 for -h,-k,h+k+l	Xtrriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	4933	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	20.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.04% 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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: DLY, DLE, DAL, DGN, DTR, DAR, XCP, DHI, DAS, DGL, DPR, DTH, MED, DPN, DVA, DSN, DSG

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	0.27	0/294	0.42	0/389
1	B	0.28	0/286	0.41	0/378
1	C	0.33	0/286	0.43	0/378
1	D	0.25	0/282	0.42	0/373
2	E	0.32	0/6	0.39	0/4
2	F	0.16	0/6	0.44	0/4
2	G	0.30	0/6	0.36	0/4
2	H	0.32	0/6	0.17	0/4
All	All	0.29	0/1172	0.42	0/1534

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	B	0	1
1	C	0	1
1	D	0	1
2	H	0	1
All	All	0	5

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	25	GLN	Peptide
1	B	25	GLN	Peptide
1	C	25	GLN	Peptide
1	D	25	GLN	Peptide
2	H	34	DLE	Peptide

## 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	293	300	299	3	0
1	B	288	294	293	1	0
1	C	288	294	293	1	0
1	D	284	290	289	0	0
2	E	294	299	273	6	1
2	F	277	284	260	1	0
2	G	283	288	265	5	0
2	H	288	293	268	2	0
3	A	35	0	0	0	1
3	B	46	0	0	0	0
3	C	34	0	0	1	0
3	D	47	0	0	0	1
3	E	30	0	0	1	0
3	F	42	0	0	0	1
3	G	37	0	0	2	0
3	H	25	0	0	0	0
All	All	2591	2342	2240	16	2

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 4.

The worst 5 of 16 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:G:34:DLE:O	3:G:101:HOH:O	1.94	0.85
2:G:7:DLY:O	3:G:102:HOH:O	2.15	0.63
2:E:3:DAS:O	2:E:7:DLY:HE3	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:33:GLY:HA2	3:C:104:HOH:O	2.07	0.54
1:A:19[B]:ASN:CG	2:G:23:DTR:HD1	2.28	0.53

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:116:HOH:O	3:F:135:HOH:O[1_565]	1.99	0.21
2:E:29:DLY:HZ2	3:A:128:HOH:O[1_455]	1.53	0.07

## 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	33/35 (94%)	32 (97%)	1 (3%)	0	100	100
1	B	32/35 (91%)	31 (97%)	1 (3%)	0	100	100
1	C	32/35 (91%)	32 (100%)	0	0	100	100
1	D	32/35 (91%)	32 (100%)	0	0	100	100
2	E	2/35 (6%)	2 (100%)	0	0	100	100
2	F	2/35 (6%)	2 (100%)	0	0	100	100
2	G	2/35 (6%)	2 (100%)	0	0	100	100
2	H	2/35 (6%)	2 (100%)	0	0	100	100
All	All	137/280 (49%)	135 (98%)	2 (2%)	0	100	100

There are no Ramachandran outliers to report.

### 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	30/29 (103%)	30 (100%)	0	100	100
1	B	29/29 (100%)	28 (97%)	1 (3%)	37	7
1	C	29/29 (100%)	28 (97%)	1 (3%)	37	7
1	D	28/29 (97%)	28 (100%)	0	100	100
All	All	116/116 (100%)	114 (98%)	2 (2%)	60	27

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	35	PHE
1	C	35	PHE

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

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

136 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
1	XCP	A	26	1	8,8,9	2.71	3 (37%)	4,10,12	1.62	1 (25%)
1	XCP	B	26	1	8,8,9	3.11	3 (37%)	4,10,12	1.84	1 (25%)
1	XCP	C	26	1	8,8,9	2.72	3 (37%)	4,10,12	1.78	1 (25%)
1	XCP	D	26	1	8,8,9	3.08	3 (37%)	4,10,12	1.68	1 (25%)

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
1	XCP	A	26	1	-	1/1/12/14	0/1/1/1
1	XCP	B	26	1	-	1/1/12/14	0/1/1/1
1	XCP	C	26	1	-	1/1/12/14	0/1/1/1
1	XCP	D	26	1	-	1/1/12/14	0/1/1/1

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	26	XCP	CA-C	6.42	1.60	1.50
1	A	26	XCP	CG-CB	5.99	1.64	1.53
1	D	26	XCP	CA-C	5.91	1.59	1.50
1	D	26	XCP	CG-CB	5.88	1.63	1.53
1	B	26	XCP	CG-CB	5.29	1.62	1.53

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	26	XCP	O-C-CA	-3.14	117.83	125.16
1	C	26	XCP	O-C-CA	-2.97	118.22	125.16
1	D	26	XCP	O-C-CA	-2.94	118.31	125.16
1	A	26	XCP	O-C-CA	-2.91	118.36	125.16

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	26	XCP	O-C-CA-CB
1	B	26	XCP	O-C-CA-CB
1	C	26	XCP	O-C-CA-CB

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Mol	Chain	Res	Type	Atoms
1	D	26	XCP	O-C-CA-CB

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 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	34/35 (97%)	-0.16	1 (2%) 51 58	10, 13, 22, 29	0
1	B	34/35 (97%)	-0.11	2 (5%) 22 25	10, 13, 20, 42	0
1	C	34/35 (97%)	0.45	3 (8%) 10 11	9, 17, 27, 39	0
1	D	34/35 (97%)	0.25	4 (11%) 4 4	12, 18, 29, 45	0
2	E	2/35 (5%)	-0.72	0 100 100	14, 14, 14, 15	0
2	F	2/35 (5%)	-0.50	0 100 100	12, 12, 12, 20	0
2	G	2/35 (5%)	0.59	0 100 100	21, 21, 21, 41	0
2	H	2/35 (5%)	0.69	0 100 100	21, 21, 21, 22	0
All	All	144/280 (51%)	0.10	10 (6%) 16 19	9, 16, 28, 45	0

The worst 5 of 10 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	35	PHE	5.5
1	B	35	PHE	4.9
1	C	35	PHE	4.4
1	D	34	LEU	3.7
1	C	1	LEU	3.0

### 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. 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	B-factors(Å <sup>2</sup> )	Q<0.9
2	DPN	H	35	11/12	0.35	0.35	43,47,56,56	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	DLE	G	34	8/9	0.70	0.34	44,53,58,58	0
2	DLE	H	34	8/9	0.83	0.14	22,33,38,38	0
2	DLY	G	7	9/10	0.83	0.19	21,33,40,43	0
2	DLE	G	1	8/9	0.84	0.26	28,39,46,46	0
2	DLY	G	32	9/10	0.86	0.12	21,32,36,36	0
2	DLY	H	30	9/10	0.86	0.16	18,27,34,36	0
2	DSN	H	15	6/7	0.89	0.10	22,28,34,40	0
2	DAR	H	14	11/12	0.89	0.11	15,27,34,35	0
2	DGL	F	4	9/10	0.90	0.11	12,20,36,36	0
1	XCP	C	26	8/9	0.91	0.12	12,16,19,19	0
2	DGN	G	26	9/10	0.91	0.15	9,16,46,46	0
2	DLY	H	32	9/10	0.91	0.09	17,22,27,28	0
2	DSG	H	19	8/9	0.92	0.09	22,27,34,34	0
2	DSN	G	2	6/7	0.92	0.23	20,29,35,35	0
2	DLY	G	30	9/10	0.92	0.11	15,27,37,38	0
2	DLY	H	7	9/10	0.92	0.13	13,30,45,45	0
2	DPN	E	35	12/12	0.92	0.14	16,22,28,30	0
2	DLY	F	32	9/10	0.92	0.10	11,20,39,39	0
2	DGL	H	31	9/10	0.93	0.09	18,21,29,32	0
2	DPN	G	6	11/12	0.93	0.11	14,19,25,25	0
2	DGL	G	31[A]	9/10	0.94	0.12	18,24,29,30	12
2	DGL	G	31[B]	9/10	0.94	0.12	18,25,32,32	12
2	DAS	G	3	8/9	0.94	0.14	17,20,23,23	0
2	DLY	E	7	9/10	0.94	0.15	10,28,35,35	0
2	DAL	H	18	5/6	0.94	0.09	23,25,29,29	0
1	XCP	D	26	8/9	0.94	0.08	13,17,21,21	0
2	DLE	F	34	8/9	0.94	0.08	23,27,32,32	0
2	DLE	H	20	8/9	0.94	0.08	21,25,32,32	0
2	DAS	G	5	8/9	0.94	0.21	19,22,26,28	0
2	DAL	G	8	5/6	0.94	0.08	28,32,38,38	0
2	DAR	F	14	11/12	0.94	0.09	11,18,29,32	0
2	DLY	E	30	9/10	0.95	0.08	11,21,28,28	0
2	DVA	G	9	7/8	0.95	0.09	23,29,35,35	0
2	DAL	H	16	5/6	0.95	0.09	25,27,32,32	0
2	DGL	E	31	9/10	0.95	0.12	11,18,32,33	0
2	DLE	E	1	8/9	0.95	0.08	17,26,31,31	0
2	DSG	F	19	8/9	0.95	0.08	11,16,26,26	0
2	DAR	G	14	11/12	0.95	0.11	12,25,43,47	0
2	DGL	G	4	9/10	0.95	0.17	17,24,37,39	0
2	DLE	G	22	8/9	0.95	0.11	8,14,19,19	0
2	DLE	H	22	8/9	0.95	0.12	13,29,39,39	0
2	DSN	F	15	6/7	0.95	0.08	14,18,24,28	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	DHI	G	27	10/11	0.95	0.07	9,15,23,25	0
2	DHI	H	27	10/11	0.95	0.08	9,18,27,28	0
2	DLY	G	29	9/10	0.95	0.11	14,25,38,38	0
2	DLY	H	29	9/10	0.95	0.09	12,24,37,37	0
2	DLE	H	1	8/9	0.96	0.08	16,22,28,28	0
2	DTR	H	23	14/15	0.96	0.08	12,18,23,24	0
2	DLY	H	24	9/10	0.96	0.07	12,21,33,33	0
2	DSG	E	19[A]	8/9	0.96	0.13	4,8,10,11	11
2	DGN	H	26	9/10	0.96	0.08	11,20,44,44	0
2	DHI	E	27	10/11	0.96	0.09	9,18,33,34	0
2	DSG	E	19[B]	8/9	0.96	0.13	8,11,16,16	11
2	DGL	E	4	9/10	0.96	0.11	12,19,25,29	0
2	DLE	E	34	8/9	0.96	0.06	12,18,22,22	0
2	DLY	E	29	9/10	0.96	0.10	10,22,47,47	0
2	DPN	G	10	11/12	0.96	0.06	20,24,31,32	0
2	DAR	E	14	11/12	0.96	0.09	11,18,22,23	0
2	DPR	H	21	7/8	0.96	0.10	18,23,27,27	0
1	XCP	B	26	8/9	0.96	0.10	9,12,16,16	0
2	DTR	G	23	14/15	0.97	0.08	10,14,17,17	0
2	DPN	H	17	11/12	0.97	0.07	17,21,25,27	0
2	DPN	H	10	11/12	0.97	0.06	14,18,20,21	0
2	DGN	H	25	9/10	0.97	0.07	12,18,33,33	0
2	DGL	F	31	9/10	0.97	0.06	9,12,17,23	0
2	DTH	H	13	7/8	0.97	0.08	15,21,30,30	0
2	DGL	H	4	9/10	0.97	0.07	11,18,26,28	0
2	DAS	F	3	8/9	0.97	0.08	12,18,25,28	0
2	DLY	E	32	9/10	0.97	0.06	13,17,22,22	0
2	DHI	F	27	10/11	0.97	0.08	8,13,27,29	0
2	DLE	F	1	8/9	0.97	0.06	14,19,21,21	0
2	DAL	H	8	5/6	0.97	0.07	15,20,21,25	0
2	DLE	F	28	8/9	0.97	0.07	8,15,20,20	0
2	DLE	G	28	8/9	0.97	0.06	11,18,23,23	0
2	DLE	H	28	8/9	0.97	0.06	13,19,28,28	0
2	DAS	H	3	8/9	0.97	0.07	12,17,21,26	0
2	DVA	H	9	7/8	0.97	0.11	17,21,27,27	0
2	DLY	F	7	9/10	0.97	0.09	9,22,26,26	0
2	DLE	E	22	8/9	0.98	0.10	7,13,23,23	0
2	DLE	F	22	8/9	0.98	0.07	9,13,22,22	0
2	DLY	F	29	9/10	0.98	0.06	7,16,27,27	0
2	DPN	E	10	11/12	0.98	0.05	11,14,18,18	0
2	DSN	G	15	6/7	0.98	0.05	12,17,25,29	0
2	DTR	F	23	14/15	0.98	0.07	9,15,21,23	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	DLY	F	30	9/10	0.98	0.06	7,10,16,16	0
2	DPN	E	6	11/12	0.98	0.06	10,14,18,18	0
2	DPN	F	6	11/12	0.98	0.05	9,13,17,17	0
2	DLY	F	24	9/10	0.98	0.07	8,10,16,16	0
2	DPN	E	17	11/12	0.98	0.06	9,12,16,16	0
2	DGN	G	25	9/10	0.98	0.06	8,11,16,21	0
2	MED	H	12	8/9	0.98	0.07	16,23,34,34	0
2	DGN	E	26	9/10	0.98	0.07	8,12,24,24	0
2	DGN	F	26	9/10	0.98	0.08	7,13,29,29	0
2	DTH	G	13	7/8	0.98	0.06	11,14,20,20	0
1	XCP	A	26	8/9	0.98	0.07	9,11,15,15	0
2	DPN	H	6	11/12	0.98	0.06	11,12,15,16	0
2	DVA	F	9	7/8	0.98	0.06	9,15,19,19	0
2	DSG	G	19	8/9	0.98	0.07	8,10,15,15	0
2	DAS	E	3	8/9	0.98	0.08	12,15,24,25	0
2	DLE	E	28	8/9	0.98	0.06	9,14,21,21	0
2	DAS	H	5	8/9	0.98	0.06	11,12,15,15	0
2	DSN	E	15	6/7	0.98	0.05	13,16,21,26	0
2	DAL	G	18	5/6	0.99	0.05	10,12,15,15	0
2	DTH	F	13	7/8	0.99	0.06	10,14,19,19	0
2	DVA	E	9	7/8	0.99	0.05	10,13,16,16	0
2	DSN	E	2	6/7	0.99	0.04	11,15,18,19	0
2	DAS	E	5	8/9	0.99	0.04	10,13,14,14	0
2	DAS	F	5	8/9	0.99	0.05	10,12,14,14	0
2	DAL	E	8	5/6	0.99	0.05	12,14,15,16	0
2	DLE	E	20	8/9	0.99	0.04	7,10,16,16	0
2	DLE	F	20	8/9	0.99	0.05	8,10,13,13	0
2	DLE	G	20	8/9	0.99	0.08	8,10,16,16	0
2	DPN	F	10	11/12	0.99	0.05	10,13,17,18	0
2	DPR	E	21	7/8	0.99	0.06	8,9,13,13	0
2	DPR	F	21	7/8	0.99	0.05	8,11,16,16	0
2	DPR	G	21	7/8	0.99	0.08	7,11,15,15	0
2	DAL	F	8	5/6	0.99	0.06	10,12,16,16	0
2	DSN	H	2	6/7	0.99	0.05	12,15,18,19	0
2	MED	E	12	8/9	0.99	0.04	11,14,17,17	0
2	MED	F	12	8/9	0.99	0.05	10,13,14,14	0
2	DAL	E	16	5/6	0.99	0.05	10,11,13,14	0
2	DTR	E	23	14/15	0.99	0.07	7,12,18,19	0
2	DAL	F	16	5/6	0.99	0.04	9,12,15,15	0
2	DAL	G	16	5/6	0.99	0.05	9,12,15,15	0
2	MED	G	12	8/9	0.99	0.05	13,15,17,18	0
2	DLY	E	24	9/10	0.99	0.06	7,10,23,23	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	DSN	F	2	6/7	0.99	0.04	13,17,22,22	0
2	DLY	G	24	9/10	0.99	0.07	9,13,26,26	0
2	DPN	F	17	11/12	0.99	0.06	8,10,13,14	0
2	DGN	E	25	9/10	0.99	0.06	7,10,16,17	0
2	DGN	F	25	9/10	0.99	0.06	8,10,12,14	0
2	DPN	G	17	11/12	0.99	0.05	8,12,16,17	0
2	DTH	E	13	7/8	0.99	0.05	10,12,14,14	0
2	DAL	E	18	5/6	0.99	0.06	7,12,15,15	0
2	DAL	F	18	5/6	0.99	0.06	10,13,19,19	0

### 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 6.4 Ligands [i](#)

There are no ligands in this entry.

### 6.5 Other polymers [i](#)

There are no such residues in this entry.