



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 8, 2026 – 10:52 AM UTC

PDB ID : 5ZJK / pdb_00005zjk
Title : Structure of myroilysin
Authors : Li, W.D.; Ran, T.T.; Xu, D.Q.; Wang, W.W.
Deposited on : 2018-03-20
Resolution : 2.60 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

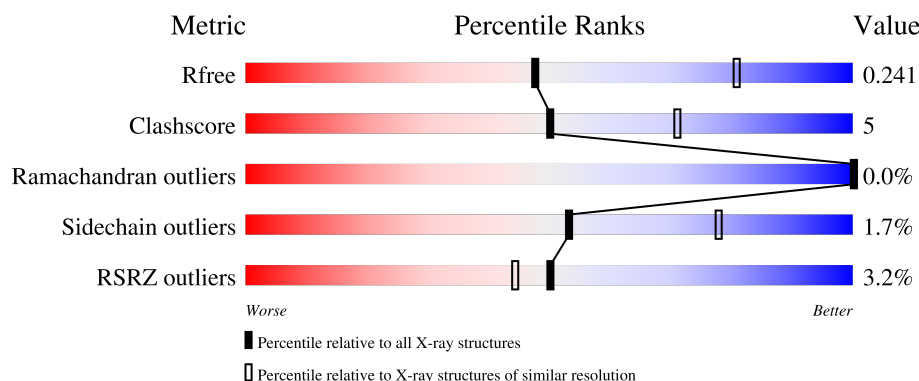
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	4008 (2.60-2.60)
Clashscore	190562	4347 (2.60-2.60)
Ramachandran outliers	187476	4277 (2.60-2.60)
Sidechain outliers	187428	4277 (2.60-2.60)
RSRZ outliers	180081	4008 (2.60-2.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	213	
1	B	213	
1	C	213	
1	D	213	
1	E	213	

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Mol	Chain	Length	Quality of chain
1	F	213	 88% 8% .
1	G	213	 86% 10% .
1	H	213	 84% 12% .
1	I	213	 84% 10% . .
1	J	213	 92% 5% .
1	K	213	 83% 12% . .
1	L	213	 89% 5% . .
1	M	213	 85% 11% .
1	N	213	 21% 61% 31% . .
1	O	213	 84% 11% . .
1	P	213	 85% 11% .
1	Q	213	 6% 76% 19% .
1	R	213	 26% 59% 30% 7% .

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	PO4	E	301	-	X	-	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 30072 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 Myroilysin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	B	206	Total	C	N	O	S	0	0	0
			1637	1042	271	321	3			
1	C	205	Total	C	N	O	S	0	0	0
			1629	1036	270	320	3			
1	D	205	Total	C	N	O	S	0	0	0
			1629	1036	270	320	3			
1	E	205	Total	C	N	O	S	0	0	0
			1629	1036	270	320	3			
1	F	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	G	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	H	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	I	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	J	207	Total	C	N	O	S	0	0	0
			1646	1047	272	324	3			
1	K	206	Total	C	N	O	S	0	0	0
			1637	1042	271	321	3			
1	L	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	M	205	Total	C	N	O	S	0	0	0
			1629	1036	270	320	3			
1	N	204	Total	C	N	O	S	0	0	0
			1601	1019	262	317	3			
1	O	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	P	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	Q	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			
1	R	204	Total	C	N	O	S	0	0	0
			1621	1032	268	318	3			

There are 144 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	243	LEU	-	expression tag	UNP A0A0P0DZ84
A	244	GLU	-	expression tag	UNP A0A0P0DZ84
A	245	HIS	-	expression tag	UNP A0A0P0DZ84
A	246	HIS	-	expression tag	UNP A0A0P0DZ84
A	247	HIS	-	expression tag	UNP A0A0P0DZ84
A	248	HIS	-	expression tag	UNP A0A0P0DZ84
A	249	HIS	-	expression tag	UNP A0A0P0DZ84
A	250	HIS	-	expression tag	UNP A0A0P0DZ84
B	243	LEU	-	expression tag	UNP A0A0P0DZ84
B	244	GLU	-	expression tag	UNP A0A0P0DZ84
B	245	HIS	-	expression tag	UNP A0A0P0DZ84
B	246	HIS	-	expression tag	UNP A0A0P0DZ84
B	247	HIS	-	expression tag	UNP A0A0P0DZ84
B	248	HIS	-	expression tag	UNP A0A0P0DZ84
B	249	HIS	-	expression tag	UNP A0A0P0DZ84
B	250	HIS	-	expression tag	UNP A0A0P0DZ84
C	243	LEU	-	expression tag	UNP A0A0P0DZ84
C	244	GLU	-	expression tag	UNP A0A0P0DZ84
C	245	HIS	-	expression tag	UNP A0A0P0DZ84
C	246	HIS	-	expression tag	UNP A0A0P0DZ84
C	247	HIS	-	expression tag	UNP A0A0P0DZ84
C	248	HIS	-	expression tag	UNP A0A0P0DZ84
C	249	HIS	-	expression tag	UNP A0A0P0DZ84
C	250	HIS	-	expression tag	UNP A0A0P0DZ84
D	243	LEU	-	expression tag	UNP A0A0P0DZ84
D	244	GLU	-	expression tag	UNP A0A0P0DZ84
D	245	HIS	-	expression tag	UNP A0A0P0DZ84
D	246	HIS	-	expression tag	UNP A0A0P0DZ84
D	247	HIS	-	expression tag	UNP A0A0P0DZ84
D	248	HIS	-	expression tag	UNP A0A0P0DZ84
D	249	HIS	-	expression tag	UNP A0A0P0DZ84
D	250	HIS	-	expression tag	UNP A0A0P0DZ84
E	243	LEU	-	expression tag	UNP A0A0P0DZ84
E	244	GLU	-	expression tag	UNP A0A0P0DZ84

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Chain	Residue	Modelled	Actual	Comment	Reference
E	245	HIS	-	expression tag	UNP A0A0P0DZ84
E	246	HIS	-	expression tag	UNP A0A0P0DZ84
E	247	HIS	-	expression tag	UNP A0A0P0DZ84
E	248	HIS	-	expression tag	UNP A0A0P0DZ84
E	249	HIS	-	expression tag	UNP A0A0P0DZ84
E	250	HIS	-	expression tag	UNP A0A0P0DZ84
F	243	LEU	-	expression tag	UNP A0A0P0DZ84
F	244	GLU	-	expression tag	UNP A0A0P0DZ84
F	245	HIS	-	expression tag	UNP A0A0P0DZ84
F	246	HIS	-	expression tag	UNP A0A0P0DZ84
F	247	HIS	-	expression tag	UNP A0A0P0DZ84
F	248	HIS	-	expression tag	UNP A0A0P0DZ84
F	249	HIS	-	expression tag	UNP A0A0P0DZ84
F	250	HIS	-	expression tag	UNP A0A0P0DZ84
G	243	LEU	-	expression tag	UNP A0A0P0DZ84
G	244	GLU	-	expression tag	UNP A0A0P0DZ84
G	245	HIS	-	expression tag	UNP A0A0P0DZ84
G	246	HIS	-	expression tag	UNP A0A0P0DZ84
G	247	HIS	-	expression tag	UNP A0A0P0DZ84
G	248	HIS	-	expression tag	UNP A0A0P0DZ84
G	249	HIS	-	expression tag	UNP A0A0P0DZ84
G	250	HIS	-	expression tag	UNP A0A0P0DZ84
H	243	LEU	-	expression tag	UNP A0A0P0DZ84
H	244	GLU	-	expression tag	UNP A0A0P0DZ84
H	245	HIS	-	expression tag	UNP A0A0P0DZ84
H	246	HIS	-	expression tag	UNP A0A0P0DZ84
H	247	HIS	-	expression tag	UNP A0A0P0DZ84
H	248	HIS	-	expression tag	UNP A0A0P0DZ84
H	249	HIS	-	expression tag	UNP A0A0P0DZ84
H	250	HIS	-	expression tag	UNP A0A0P0DZ84
I	243	LEU	-	expression tag	UNP A0A0P0DZ84
I	244	GLU	-	expression tag	UNP A0A0P0DZ84
I	245	HIS	-	expression tag	UNP A0A0P0DZ84
I	246	HIS	-	expression tag	UNP A0A0P0DZ84
I	247	HIS	-	expression tag	UNP A0A0P0DZ84
I	248	HIS	-	expression tag	UNP A0A0P0DZ84
I	249	HIS	-	expression tag	UNP A0A0P0DZ84
I	250	HIS	-	expression tag	UNP A0A0P0DZ84
J	243	LEU	-	expression tag	UNP A0A0P0DZ84
J	244	GLU	-	expression tag	UNP A0A0P0DZ84
J	245	HIS	-	expression tag	UNP A0A0P0DZ84
J	246	HIS	-	expression tag	UNP A0A0P0DZ84

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Chain	Residue	Modelled	Actual	Comment	Reference
J	247	HIS	-	expression tag	UNP A0A0P0DZ84
J	248	HIS	-	expression tag	UNP A0A0P0DZ84
J	249	HIS	-	expression tag	UNP A0A0P0DZ84
J	250	HIS	-	expression tag	UNP A0A0P0DZ84
K	243	LEU	-	expression tag	UNP A0A0P0DZ84
K	244	GLU	-	expression tag	UNP A0A0P0DZ84
K	245	HIS	-	expression tag	UNP A0A0P0DZ84
K	246	HIS	-	expression tag	UNP A0A0P0DZ84
K	247	HIS	-	expression tag	UNP A0A0P0DZ84
K	248	HIS	-	expression tag	UNP A0A0P0DZ84
K	249	HIS	-	expression tag	UNP A0A0P0DZ84
K	250	HIS	-	expression tag	UNP A0A0P0DZ84
L	243	LEU	-	expression tag	UNP A0A0P0DZ84
L	244	GLU	-	expression tag	UNP A0A0P0DZ84
L	245	HIS	-	expression tag	UNP A0A0P0DZ84
L	246	HIS	-	expression tag	UNP A0A0P0DZ84
L	247	HIS	-	expression tag	UNP A0A0P0DZ84
L	248	HIS	-	expression tag	UNP A0A0P0DZ84
L	249	HIS	-	expression tag	UNP A0A0P0DZ84
L	250	HIS	-	expression tag	UNP A0A0P0DZ84
M	243	LEU	-	expression tag	UNP A0A0P0DZ84
M	244	GLU	-	expression tag	UNP A0A0P0DZ84
M	245	HIS	-	expression tag	UNP A0A0P0DZ84
M	246	HIS	-	expression tag	UNP A0A0P0DZ84
M	247	HIS	-	expression tag	UNP A0A0P0DZ84
M	248	HIS	-	expression tag	UNP A0A0P0DZ84
M	249	HIS	-	expression tag	UNP A0A0P0DZ84
M	250	HIS	-	expression tag	UNP A0A0P0DZ84
N	243	LEU	-	expression tag	UNP A0A0P0DZ84
N	244	GLU	-	expression tag	UNP A0A0P0DZ84
N	245	HIS	-	expression tag	UNP A0A0P0DZ84
N	246	HIS	-	expression tag	UNP A0A0P0DZ84
N	247	HIS	-	expression tag	UNP A0A0P0DZ84
N	248	HIS	-	expression tag	UNP A0A0P0DZ84
N	249	HIS	-	expression tag	UNP A0A0P0DZ84
N	250	HIS	-	expression tag	UNP A0A0P0DZ84
O	243	LEU	-	expression tag	UNP A0A0P0DZ84
O	244	GLU	-	expression tag	UNP A0A0P0DZ84
O	245	HIS	-	expression tag	UNP A0A0P0DZ84
O	246	HIS	-	expression tag	UNP A0A0P0DZ84
O	247	HIS	-	expression tag	UNP A0A0P0DZ84
O	248	HIS	-	expression tag	UNP A0A0P0DZ84

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Chain	Residue	Modelled	Actual	Comment	Reference
O	249	HIS	-	expression tag	UNP A0A0P0DZ84
O	250	HIS	-	expression tag	UNP A0A0P0DZ84
P	243	LEU	-	expression tag	UNP A0A0P0DZ84
P	244	GLU	-	expression tag	UNP A0A0P0DZ84
P	245	HIS	-	expression tag	UNP A0A0P0DZ84
P	246	HIS	-	expression tag	UNP A0A0P0DZ84
P	247	HIS	-	expression tag	UNP A0A0P0DZ84
P	248	HIS	-	expression tag	UNP A0A0P0DZ84
P	249	HIS	-	expression tag	UNP A0A0P0DZ84
P	250	HIS	-	expression tag	UNP A0A0P0DZ84
Q	243	LEU	-	expression tag	UNP A0A0P0DZ84
Q	244	GLU	-	expression tag	UNP A0A0P0DZ84
Q	245	HIS	-	expression tag	UNP A0A0P0DZ84
Q	246	HIS	-	expression tag	UNP A0A0P0DZ84
Q	247	HIS	-	expression tag	UNP A0A0P0DZ84
Q	248	HIS	-	expression tag	UNP A0A0P0DZ84
Q	249	HIS	-	expression tag	UNP A0A0P0DZ84
Q	250	HIS	-	expression tag	UNP A0A0P0DZ84
R	243	LEU	-	expression tag	UNP A0A0P0DZ84
R	244	GLU	-	expression tag	UNP A0A0P0DZ84
R	245	HIS	-	expression tag	UNP A0A0P0DZ84
R	246	HIS	-	expression tag	UNP A0A0P0DZ84
R	247	HIS	-	expression tag	UNP A0A0P0DZ84
R	248	HIS	-	expression tag	UNP A0A0P0DZ84
R	249	HIS	-	expression tag	UNP A0A0P0DZ84
R	250	HIS	-	expression tag	UNP A0A0P0DZ84

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn).

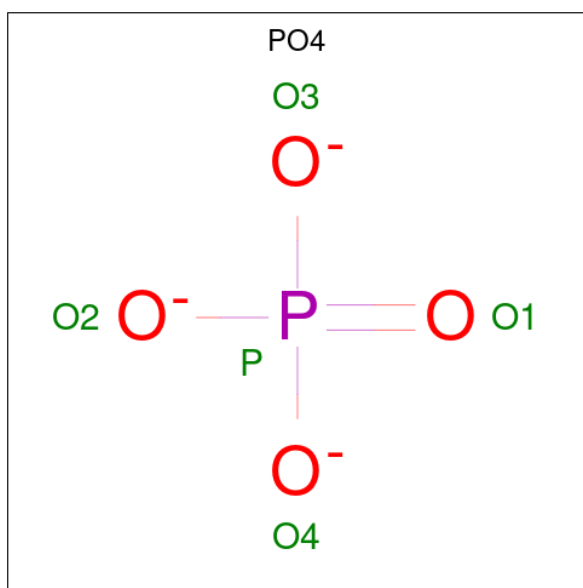
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Zn 1 1	0	0
2	B	1	Total Zn 1 1	0	0
2	C	1	Total Zn 1 1	0	0
2	D	1	Total Zn 1 1	0	0
2	E	1	Total Zn 1 1	0	0
2	F	1	Total Zn 1 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	G	1	Total 1	Zn 1	0	0
2	H	1	Total 1	Zn 1	0	0
2	I	1	Total 1	Zn 1	0	0
2	J	1	Total 1	Zn 1	0	0
2	K	1	Total 1	Zn 1	0	0
2	L	1	Total 1	Zn 1	0	0
2	M	1	Total 1	Zn 1	0	0
2	N	1	Total 1	Zn 1	0	0
2	O	1	Total 1	Zn 1	0	0
2	P	1	Total 1	Zn 1	0	0
2	Q	1	Total 1	Zn 1	0	0
2	R	1	Total 1	Zn 1	0	0

- Molecule 3 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total O P 5 4 1	0	0
3	D	1	Total O P 5 4 1	0	0
3	E	1	Total O P 5 4 1	0	0
3	F	1	Total O P 5 4 1	0	0
3	G	1	Total O P 5 4 1	0	0
3	H	1	Total O P 5 4 1	0	0
3	I	1	Total O P 5 4 1	0	0
3	J	1	Total O P 5 4 1	0	0
3	K	1	Total O P 5 4 1	0	0
3	M	1	Total O P 5 4 1	0	0
3	P	1	Total O P 5 4 1	0	0
3	Q	1	Total O P 5 4 1	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	75	Total O 75 75	0	0
4	B	61	Total O 61 61	0	0
4	C	74	Total O 74 74	0	0
4	D	80	Total O 80 80	0	0
4	E	54	Total O 54 54	0	0
4	F	50	Total O 50 50	0	0
4	G	33	Total O 33 33	0	0
4	H	39	Total O 39 39	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	I	32	Total 32	O 32	0	0
4	J	81	Total 81	O 81	0	0
4	K	18	Total 18	O 18	0	0
4	L	52	Total 52	O 52	0	0
4	M	5	Total 5	O 5	0	0
4	N	2	Total 2	O 2	0	0
4	O	28	Total 28	O 28	0	0
4	P	29	Total 29	O 29	0	0
4	Q	32	Total 32	O 32	0	0
4	R	2	Total 2	O 2	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.

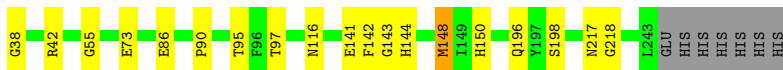
- Molecule 1: Myroilysin

Chain A:  89% 7% .



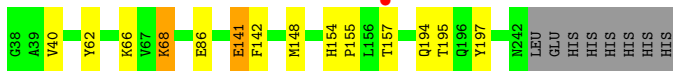
- Molecule 1: Myroilysin

Chain B:  88% 8% .



- Molecule 1: Myroilysin

Chain C:  90% 6% . .



- Molecule 1: Myroilysin

Chain D:  89% 7% .



- Molecule 1: Myroilysin

Chain E:  86% 8% . .



- Molecule 1: Myroilysin

Chain F:  88% 8% .



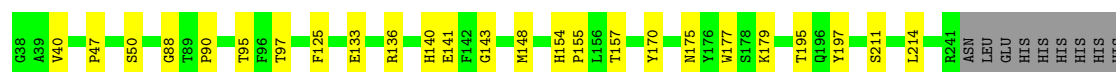
• Molecule 1: Myroilysin

Chain G:  86% 10% .



• Molecule 1: Myroilysin

Chain H:  84% 12% .



• Molecule 1: Myroilysin

Chain I:  84% 10% . .



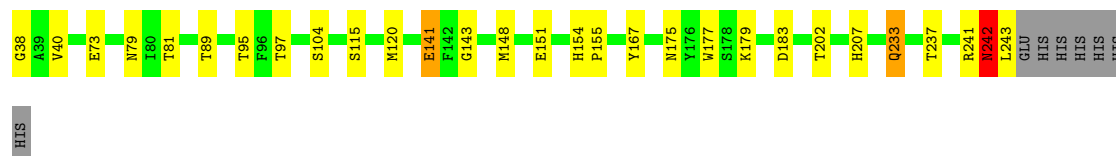
• Molecule 1: Myroilysin

Chain J:  92% 5% .



• Molecule 1: Myroilysin

Chain K:  83% 12% . .



• Molecule 1: Myroilysin

Chain L:  89% 5% . .



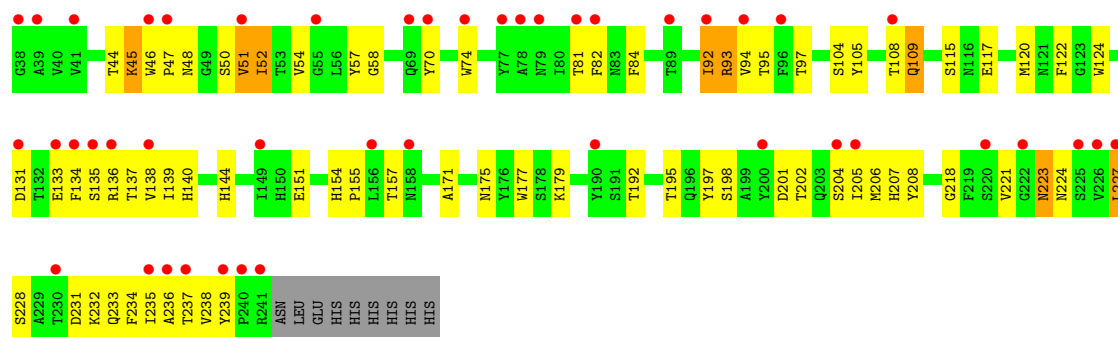
• Molecule 1: Myroilysin

Chain M: 85% 11% .



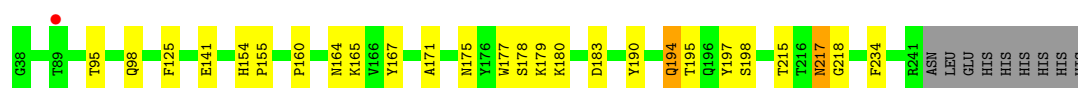
• Molecule 1: Myroilysin

Chain N: 21% 61% 31% . .



• Molecule 1: Myroilysin

Chain O: 84% 11% . .



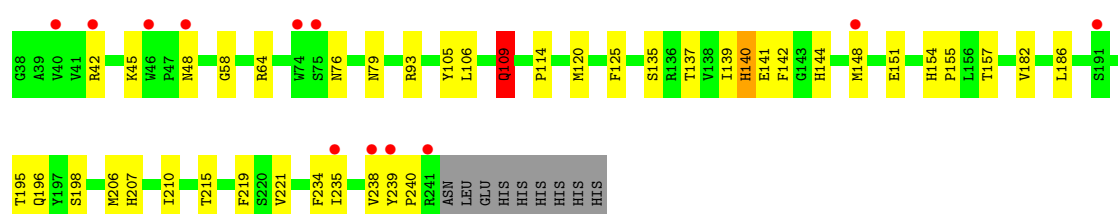
• Molecule 1: Myroilysin

Chain P: 85% 11% .

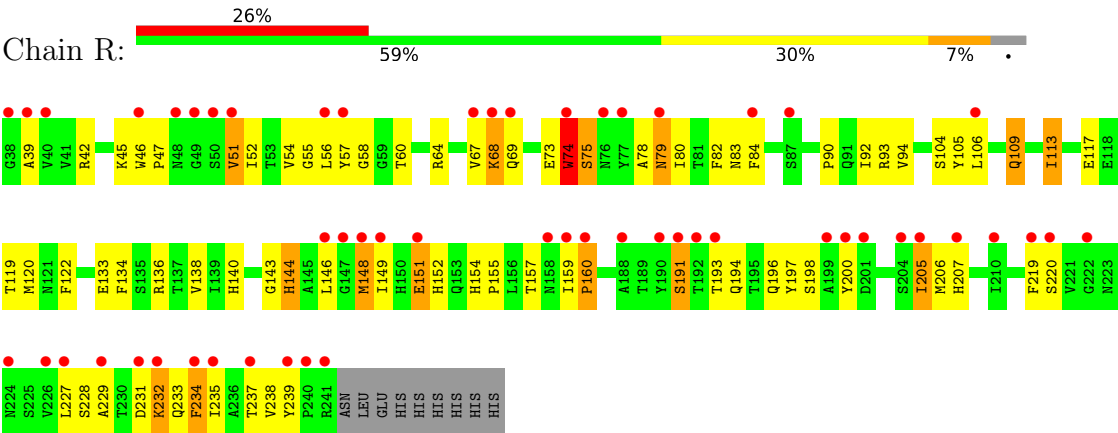


• Molecule 1: Myroilysin

Chain Q: 6% 76% 19% .



● Molecule 1: Myroilysin



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	125.18Å 115.90Å 163.35Å 90.00° 93.71° 90.00°	Depositor
Resolution (Å)	19.99 – 2.60 19.99 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.6 (19.99-2.60) 99.4 (19.99-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.31 (at 2.59Å)	Xtriage
Refinement program	PHENIX 1.9_1692	Depositor
R, R_{free}	0.187 , 0.254 0.207 , 0.241	Depositor DCC
R_{free} test set	7188 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	35.1	Xtriage
Anisotropy	0.447	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 26.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	30072	wwPDB-VP
Average B, all atoms (Å ²)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.24% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: PO4, ZN

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	0.56	4/1670 (0.2%)	0.71	1/2280 (0.0%)
1	B	0.56	5/1686 (0.3%)	0.72	2/2302 (0.1%)
1	C	0.53	3/1678 (0.2%)	0.71	0/2291
1	D	0.71	5/1678 (0.3%)	0.72	0/2291
1	E	0.51	4/1678 (0.2%)	0.73	2/2291 (0.1%)
1	F	0.47	1/1670 (0.1%)	0.69	1/2280 (0.0%)
1	G	0.48	1/1670 (0.1%)	0.71	1/2280 (0.0%)
1	H	0.47	0/1670	0.68	1/2280 (0.0%)
1	I	0.56	0/1670	0.72	3/2280 (0.1%)
1	J	0.49	2/1695 (0.1%)	0.68	1/2314 (0.0%)
1	K	0.47	0/1686	0.70	2/2302 (0.1%)
1	L	0.55	5/1670 (0.3%)	0.70	1/2280 (0.0%)
1	M	0.64	1/1678 (0.1%)	0.74	0/2291
1	N	0.62	1/1650 (0.1%)	0.88	4/2257 (0.2%)
1	O	0.45	1/1670 (0.1%)	0.71	1/2280 (0.0%)
1	P	0.45	0/1670	0.70	0/2280
1	Q	0.47	1/1670 (0.1%)	0.79	2/2280 (0.1%)
1	R	0.65	0/1670	1.02	10/2280 (0.4%)
All	All	0.54	34/30129 (0.1%)	0.74	32/41139 (0.1%)

The worst 5 of 34 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	141	GLU	C-O	-7.28	1.15	1.24
1	D	141	GLU	CA-C	-7.04	1.43	1.52
1	D	142	PHE	C-O	-6.96	1.15	1.24
1	A	141	GLU	C-O	-6.75	1.15	1.24
1	C	141	GLU	C-O	-6.66	1.16	1.24

The worst 5 of 32 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	R	238	VAL	N-CA-C	-10.60	102.36	112.96
1	B	218	GLY	N-CA-C	-8.63	102.55	115.32
1	Q	109	GLN	N-CA-C	-8.19	103.29	113.20
1	R	69	GLN	N-CA-C	-7.91	102.74	111.36
1	R	75	SER	N-CA-C	7.68	122.09	112.87

There are no chirality outliers.

There are no planarity outliers.

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	1621	0	1513	7	0
1	B	1637	0	1530	8	0
1	C	1629	0	1519	8	0
1	D	1629	0	1519	6	0
1	E	1629	0	1519	12	0
1	F	1621	0	1513	8	0
1	G	1621	0	1513	12	0
1	H	1621	0	1513	15	0
1	I	1621	0	1513	17	0
1	J	1646	0	1536	5	0
1	K	1637	0	1530	18	0
1	L	1621	0	1513	6	0
1	M	1629	0	1519	16	0
1	N	1601	0	1466	63	0
1	O	1621	0	1513	17	0
1	P	1621	0	1513	14	0
1	Q	1621	0	1512	23	0
1	R	1621	0	1512	59	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
2	G	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	H	1	0	0	0	0
2	I	1	0	0	0	0
2	J	1	0	0	0	0
2	K	1	0	0	0	0
2	L	1	0	0	0	0
2	M	1	0	0	0	0
2	N	1	0	0	0	0
2	O	1	0	0	0	0
2	P	1	0	0	0	0
2	Q	1	0	0	0	0
2	R	1	0	0	0	0
3	B	5	0	0	0	0
3	D	5	0	0	0	0
3	E	5	0	0	0	0
3	F	5	0	0	0	0
3	G	5	0	0	0	0
3	H	5	0	0	0	0
3	I	5	0	0	0	0
3	J	5	0	0	0	0
3	K	5	0	0	0	0
3	M	5	0	0	0	0
3	P	5	0	0	0	0
3	Q	5	0	0	0	0
4	A	75	0	0	1	0
4	B	61	0	0	1	0
4	C	74	0	0	0	0
4	D	80	0	0	0	0
4	E	54	0	0	1	0
4	F	50	0	0	1	0
4	G	33	0	0	0	0
4	H	39	0	0	1	0
4	I	32	0	0	1	0
4	J	81	0	0	1	0
4	K	18	0	0	0	0
4	L	52	0	0	0	0
4	M	5	0	0	0	0
4	N	2	0	0	0	0
4	O	28	0	0	0	0
4	P	29	0	0	0	0
4	Q	32	0	0	0	0
4	R	2	0	0	0	0
All	All	30072	0	27266	297	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 5.

The worst 5 of 297 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:Q:154:HIS:O	1:Q:157:THR:HG22	1.64	0.97
1:N:223:ASN:C	1:N:223:ASN:HD22	1.82	0.88
1:N:54:VAL:HG12	1:N:92:ILE:HB	1.57	0.85
1:R:39:ALA:HB3	1:R:149:ILE:HG12	1.60	0.83
1:N:57:TYR:CE1	1:N:93:ARG:HG2	2.13	0.83

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	202/213 (95%)	196 (97%)	6 (3%)	0	100	100
1	B	204/213 (96%)	200 (98%)	4 (2%)	0	100	100
1	C	203/213 (95%)	194 (96%)	9 (4%)	0	100	100
1	D	203/213 (95%)	195 (96%)	8 (4%)	0	100	100
1	E	203/213 (95%)	196 (97%)	7 (3%)	0	100	100
1	F	202/213 (95%)	195 (96%)	7 (4%)	0	100	100
1	G	202/213 (95%)	192 (95%)	10 (5%)	0	100	100
1	H	202/213 (95%)	195 (96%)	7 (4%)	0	100	100
1	I	202/213 (95%)	195 (96%)	7 (4%)	0	100	100
1	J	205/213 (96%)	203 (99%)	2 (1%)	0	100	100
1	K	204/213 (96%)	197 (97%)	7 (3%)	0	100	100
1	L	202/213 (95%)	195 (96%)	7 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	M	203/213 (95%)	197 (97%)	6 (3%)	0	100	100
1	N	202/213 (95%)	186 (92%)	16 (8%)	0	100	100
1	O	202/213 (95%)	196 (97%)	6 (3%)	0	100	100
1	P	202/213 (95%)	196 (97%)	6 (3%)	0	100	100
1	Q	202/213 (95%)	193 (96%)	9 (4%)	0	100	100
1	R	202/213 (95%)	187 (93%)	14 (7%)	1 (0%)	24	46
All	All	3647/3834 (95%)	3508 (96%)	138 (4%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	R	160	PRO

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	176/185 (95%)	175 (99%)	1 (1%)	78	91
1	B	178/185 (96%)	175 (98%)	3 (2%)	53	78
1	C	177/185 (96%)	174 (98%)	3 (2%)	53	78
1	D	177/185 (96%)	176 (99%)	1 (1%)	78	91
1	E	177/185 (96%)	175 (99%)	2 (1%)	65	84
1	F	176/185 (95%)	175 (99%)	1 (1%)	78	91
1	G	176/185 (95%)	176 (100%)	0	100	100
1	H	176/185 (95%)	176 (100%)	0	100	100
1	I	176/185 (95%)	173 (98%)	3 (2%)	53	78
1	J	179/185 (97%)	179 (100%)	0	100	100
1	K	178/185 (96%)	173 (97%)	5 (3%)	38	66
1	L	176/185 (95%)	174 (99%)	2 (1%)	65	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	M	177/185 (96%)	173 (98%)	4 (2%)	44	71
1	N	171/185 (92%)	164 (96%)	7 (4%)	27	54
1	O	176/185 (95%)	173 (98%)	3 (2%)	53	78
1	P	176/185 (95%)	174 (99%)	2 (1%)	65	84
1	Q	176/185 (95%)	172 (98%)	4 (2%)	44	71
1	R	176/185 (95%)	164 (93%)	12 (7%)	14	32
All	All	3174/3330 (95%)	3121 (98%)	53 (2%)	53	78

5 of 53 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	N	93	ARG
1	P	141	GLU
1	R	205	ILE
1	N	135	SER
1	O	165	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 30 such sidechains are listed below:

Mol	Chain	Res	Type
1	M	83	ASN
1	R	79	ASN
1	M	194	GLN
1	R	217	ASN
1	P	233	GLN

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 ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 30 ligands modelled in this entry, 18 are monoatomic - leaving 12 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	PO4	G	301	-	4,4,4	0.98	0	6,6,6	0.44	0
3	PO4	F	301	-	4,4,4	0.99	0	6,6,6	0.46	0
3	PO4	I	301	-	4,4,4	0.97	0	6,6,6	0.47	0
3	PO4	Q	301	-	4,4,4	0.97	0	6,6,6	0.47	0
3	PO4	D	301	-	4,4,4	0.98	0	6,6,6	0.48	0
3	PO4	M	301	-	4,4,4	0.96	0	6,6,6	0.46	0
3	PO4	P	301	-	4,4,4	0.99	0	6,6,6	0.46	0
3	PO4	H	301	-	4,4,4	0.96	0	6,6,6	0.47	0
3	PO4	E	301	-	4,4,4	2.74	4 (100%)	6,6,6	1.25	1 (16%)
3	PO4	K	301	-	4,4,4	0.95	0	6,6,6	0.49	0
3	PO4	B	301	-	4,4,4	0.97	0	6,6,6	0.46	0
3	PO4	J	301	-	4,4,4	0.98	0	6,6,6	0.46	0

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	E	301	PO4	P-O4	-3.28	1.45	1.54
3	E	301	PO4	P-O3	-2.70	1.46	1.54
3	E	301	PO4	P-O2	-2.63	1.47	1.54
3	E	301	PO4	P-O1	-2.26	1.45	1.50

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	301	PO4	O4-P-O1	-2.44	102.31	110.95

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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å ²)	Q<0.9
1	A	204/213 (95%)	-0.52	0	100	100	12, 18, 27, 34	0
1	B	206/213 (96%)	-0.49	0	100	100	14, 20, 30, 49	0
1	C	205/213 (96%)	-0.45	1 (0%)	87	85	13, 18, 34, 55	0
1	D	205/213 (96%)	-0.44	1 (0%)	87	85	15, 21, 30, 63	0
1	E	205/213 (96%)	-0.35	1 (0%)	87	85	19, 24, 35, 54	0
1	F	204/213 (95%)	-0.36	0	100	100	21, 28, 38, 55	0
1	G	204/213 (95%)	-0.15	0	100	100	24, 31, 42, 63	0
1	H	204/213 (95%)	-0.23	0	100	100	23, 31, 42, 57	0
1	I	204/213 (95%)	-0.16	0	100	100	22, 33, 45, 59	0
1	J	207/213 (97%)	-0.50	0	100	100	15, 19, 30, 44	0
1	K	206/213 (96%)	0.04	0	100	100	30, 37, 56, 66	0
1	L	204/213 (95%)	-0.42	0	100	100	14, 24, 35, 47	0
1	M	205/213 (96%)	0.18	1 (0%)	87	85	30, 39, 54, 71	0
1	N	204/213 (95%)	1.29	45 (22%)	2	2	40, 77, 106, 122	0
1	O	204/213 (95%)	0.04	1 (0%)	87	85	24, 37, 61, 72	0
1	P	204/213 (95%)	-0.00	0	100	100	20, 35, 51, 65	0
1	Q	204/213 (95%)	0.62	12 (5%)	28	23	19, 45, 65, 99	0
1	R	204/213 (95%)	1.48	55 (26%)	1	1	53, 80, 107, 120	0
All	All	3683/3834 (96%)	-0.02	117 (3%)	50	44	12, 30, 80, 122	0

The worst 5 of 117 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	R	38	GLY	6.0
1	N	241	ARG	5.2
1	Q	235	ILE	4.2

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Mol	Chain	Res	Type	RSRZ
1	R	146	LEU	4.2
1	N	235	ILE	3.9

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](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	PO4	D	301	5/5	0.68	0.25	38,44,64,77	0
3	PO4	M	301	5/5	0.72	0.23	59,62,71,90	0
3	PO4	I	301	5/5	0.85	0.17	44,47,59,81	0
3	PO4	H	301	5/5	0.85	0.20	48,55,59,73	0
3	PO4	Q	301	5/5	0.87	0.18	44,50,66,78	0
3	PO4	B	301	5/5	0.88	0.19	37,37,46,63	0
3	PO4	P	301	5/5	0.88	0.19	40,42,60,61	0
3	PO4	K	301	5/5	0.88	0.18	49,51,60,71	0
3	PO4	E	301	5/5	0.90	0.19	43,45,59,60	0
3	PO4	G	301	5/5	0.91	0.16	43,50,66,71	0
3	PO4	F	301	5/5	0.93	0.16	38,50,55,58	0
3	PO4	J	301	5/5	0.94	0.13	29,30,43,48	0
2	ZN	M	302	1/1	0.97	0.03	31,31,31,31	0
2	ZN	N	301	1/1	0.97	0.06	70,70,70,70	0
2	ZN	Q	302	1/1	0.97	0.03	40,40,40,40	0
2	ZN	R	301	1/1	0.97	0.04	77,77,77,77	0
2	ZN	P	302	1/1	0.98	0.02	31,31,31,31	0
2	ZN	H	302	1/1	0.99	0.03	24,24,24,24	0
2	ZN	I	302	1/1	0.99	0.01	25,25,25,25	0
2	ZN	J	302	1/1	0.99	0.09	30,30,30,30	0
2	ZN	K	302	1/1	0.99	0.02	31,31,31,31	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	ZN	L	301	1/1	0.99	0.14	38,38,38,38	0
2	ZN	A	301	1/1	0.99	0.12	29,29,29,29	0
2	ZN	B	302	1/1	0.99	0.08	28,28,28,28	0
2	ZN	D	302	1/1	0.99	0.10	30,30,30,30	0
2	ZN	E	302	1/1	0.99	0.08	31,31,31,31	0
2	ZN	F	302	1/1	0.99	0.11	32,32,32,32	0
2	ZN	G	302	1/1	0.99	0.03	28,28,28,28	0
2	ZN	O	301	1/1	1.00	0.02	31,31,31,31	0
2	ZN	C	301	1/1	1.00	0.18	43,43,43,43	0

6.5 Other polymers [i](#)

There are no such residues in this entry.