



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 20, 2020 – 02:11 PM BST

PDB ID : 5LHY
Title : PB3 Domain of Human PLK4 (apo)
Authors : Cottee, M.A.; Johnson, S.; Lea, S.M.
Deposited on : 2016-07-13
Resolution : 3.31 Å(reported)

This is a Full wwPDB X-ray Structure Validation 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Xtriage (Phenix) : 1.13
EDS : 2.13
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) : 2.13

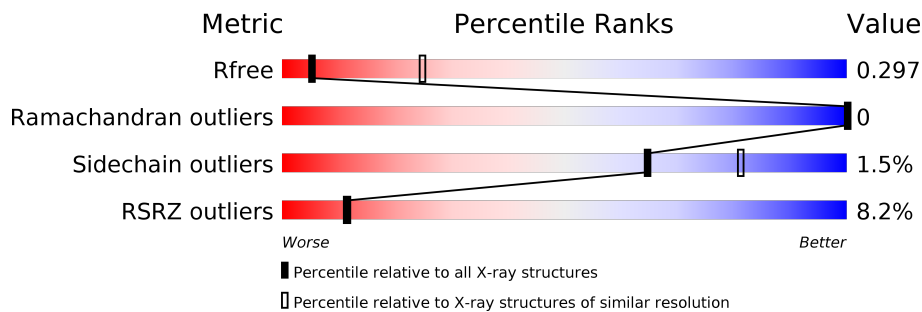
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.31 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	1089 (3.36-3.28)
Ramachandran outliers	138981	1115 (3.36-3.28)
Sidechain outliers	138945	1114 (3.36-3.28)
RSRZ outliers	127900	1059 (3.36-3.28)

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 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	1	91	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">2% 84% • 15%</p>
1	2	91	<div style="display: flex; align-items: center;"> <div style="width: 7%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">7% 84% • 15%</p>
1	3	91	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">2% 82% •• 15%</p>
1	4	91	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">2% 82% • 15%</p>
1	5	91	<div style="display: flex; align-items: center;"> <div style="width: 82%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">82% • 15%</p>
1	6	91	<div style="display: flex; align-items: center;"> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">84% • 15%</p>
1	7	91	<div style="display: flex; align-items: center;"> <div style="width: 7%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 84%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: grey; margin-right: 5px;"></div> </div> <p style="text-align: center;">7% 84% • 15%</p>

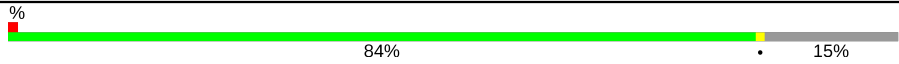



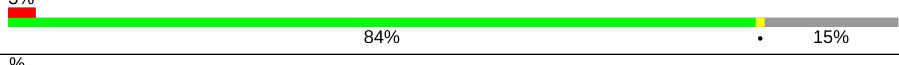
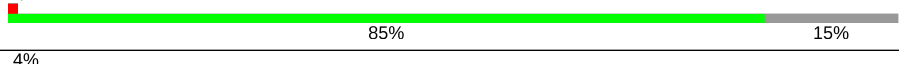
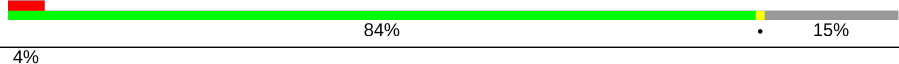

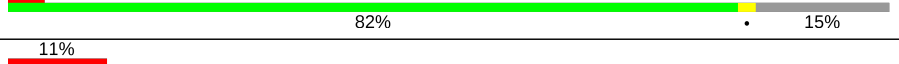


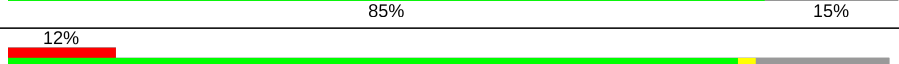

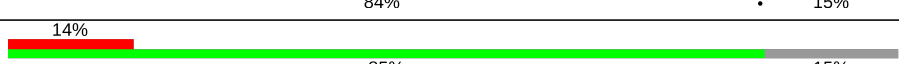

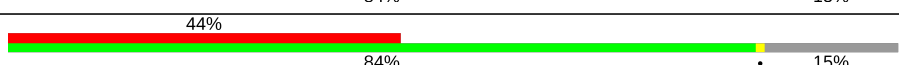
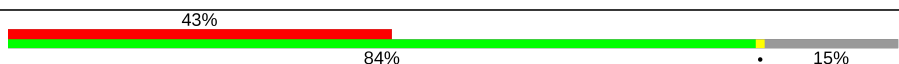
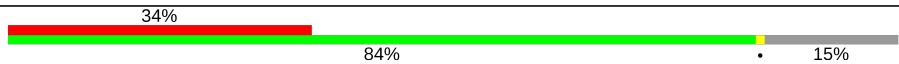
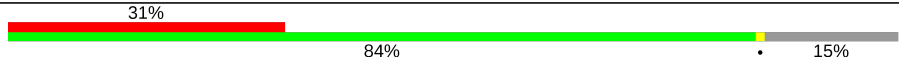


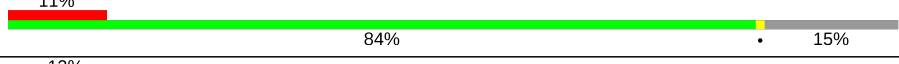
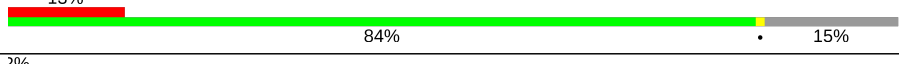


Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	8	91	5% 84% 15%
1	9	91	9% 85% 15%
1	A	91	82% 15%
1	B	91	84% 15%
1	C	91	% 85% 15%
1	D	91	2% 84% 15%
1	E	91	3% 84% 15%
1	F	91	2% 84% 15%
1	G	91	3% 84% 15%
1	H	91	5% 84% 15%
1	I	91	3% 84% 15%
1	J	91	9% 84% 15%
1	K	91	3% 84% 15%
1	L	91	3% 84% 15%
1	M	91	4% 84% 15%
1	N	91	5% 84% 15%
1	O	91	10% 84% 15%
1	P	91	10% 84% 15%
1	Q	91	% 84% 15%
1	R	91	3% 84% 15%
1	S	91	% 84% 15%
1	T	91	85% 15%
1	U	91	% 84% 15%
1	V	91	2% 84% 15%
1	W	91	84% 15%

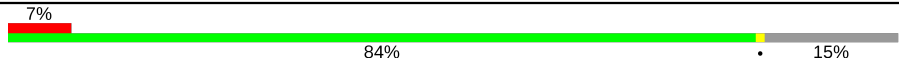

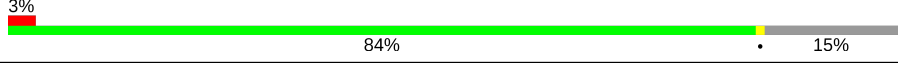
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	X	91	 % 84% 15%
1	Y	91	 2% 84% 15%
1	Z	91	 % 84% 15%
1	a	91	 9% 84% 15%
1	b	91	 3% 84% 15%
1	c	91	 % 85% 15%
1	d	91	 4% 84% 15%
1	e	91	 4% 84% 15%
1	f	91	 4% 82% 15%
1	g	91	 11% 84% 15%
1	h	91	 4% 82% 15%
1	i	91	 5% 85% 15%
1	j	91	 12% 82% 15%
1	k	91	 20% 84% 15%
1	l	91	 14% 85% 15%
1	m	91	 5% 84% 15%
1	n	91	 44% 84% 15%
1	o	91	 43% 84% 15%
1	p	91	 34% 84% 15%
1	q	91	 31% 84% 15%
1	r	91	 3% 84% 15%
1	s	91	 11% 84% 15%
1	t	91	 11% 84% 15%
1	u	91	 13% 84% 15%
1	v	91	 2% 85% 15%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	w	91	 <p>7% 84% 15%</p>
1	x	91	 <p>4% 84% 15%</p>
1	y	91	 <p>3% 84% 15%</p>

2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 35580 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 Serine/threonine-protein kinase PLK4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	77	593	377	98	116	2	0	0	0
1	B	77	593	377	98	116	2	0	0	0
1	C	77	593	377	98	116	2	0	0	0
1	D	77	593	377	98	116	2	0	0	0
1	E	77	593	377	98	116	2	0	0	0
1	F	77	593	377	98	116	2	0	0	0
1	G	77	593	377	98	116	2	0	0	0
1	H	77	593	377	98	116	2	0	0	0
1	I	77	593	377	98	116	2	0	0	0
1	J	77	593	377	98	116	2	0	0	0
1	K	77	593	377	98	116	2	0	0	0
1	L	77	593	377	98	116	2	0	0	0
1	M	77	593	377	98	116	2	0	0	0
1	N	77	593	377	98	116	2	0	0	0
1	O	77	593	377	98	116	2	0	0	0
1	P	77	593	377	98	116	2	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	Q	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	R	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	S	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	T	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	U	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	V	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	W	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	X	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	Y	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	Z	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	1	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	2	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	3	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	4	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	5	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	6	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	7	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	8	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	9	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	a	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	b	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	c	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	d	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	e	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	f	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	g	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	h	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	i	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	j	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	k	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	l	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	m	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	n	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	o	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	p	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	q	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	r	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	s	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	t	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	u	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	v	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	w	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	x	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			
1	y	77	Total	C	N	O	S	0	0	0
			593	377	98	116	2			

There are 240 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	880	GLY	-	expression tag	UNP O00444
A	881	PRO	-	expression tag	UNP O00444
A	882	MET	-	expression tag	UNP O00444
A	883	GLY	-	expression tag	UNP O00444
B	880	GLY	-	expression tag	UNP O00444
B	881	PRO	-	expression tag	UNP O00444
B	882	MET	-	expression tag	UNP O00444
B	883	GLY	-	expression tag	UNP O00444
C	880	GLY	-	expression tag	UNP O00444
C	881	PRO	-	expression tag	UNP O00444
C	882	MET	-	expression tag	UNP O00444
C	883	GLY	-	expression tag	UNP O00444
D	880	GLY	-	expression tag	UNP O00444
D	881	PRO	-	expression tag	UNP O00444
D	882	MET	-	expression tag	UNP O00444
D	883	GLY	-	expression tag	UNP O00444
E	880	GLY	-	expression tag	UNP O00444
E	881	PRO	-	expression tag	UNP O00444
E	882	MET	-	expression tag	UNP O00444
E	883	GLY	-	expression tag	UNP O00444
F	880	GLY	-	expression tag	UNP O00444
F	881	PRO	-	expression tag	UNP O00444
F	882	MET	-	expression tag	UNP O00444
F	883	GLY	-	expression tag	UNP O00444
G	880	GLY	-	expression tag	UNP O00444
G	881	PRO	-	expression tag	UNP O00444
G	882	MET	-	expression tag	UNP O00444
G	883	GLY	-	expression tag	UNP O00444
H	880	GLY	-	expression tag	UNP O00444
H	881	PRO	-	expression tag	UNP O00444
H	882	MET	-	expression tag	UNP O00444
H	883	GLY	-	expression tag	UNP O00444
I	880	GLY	-	expression tag	UNP O00444
I	881	PRO	-	expression tag	UNP O00444

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
I	882	MET	-	expression tag	UNP O00444
I	883	GLY	-	expression tag	UNP O00444
J	880	GLY	-	expression tag	UNP O00444
J	881	PRO	-	expression tag	UNP O00444
J	882	MET	-	expression tag	UNP O00444
J	883	GLY	-	expression tag	UNP O00444
K	880	GLY	-	expression tag	UNP O00444
K	881	PRO	-	expression tag	UNP O00444
K	882	MET	-	expression tag	UNP O00444
K	883	GLY	-	expression tag	UNP O00444
L	880	GLY	-	expression tag	UNP O00444
L	881	PRO	-	expression tag	UNP O00444
L	882	MET	-	expression tag	UNP O00444
L	883	GLY	-	expression tag	UNP O00444
M	880	GLY	-	expression tag	UNP O00444
M	881	PRO	-	expression tag	UNP O00444
M	882	MET	-	expression tag	UNP O00444
M	883	GLY	-	expression tag	UNP O00444
N	880	GLY	-	expression tag	UNP O00444
N	881	PRO	-	expression tag	UNP O00444
N	882	MET	-	expression tag	UNP O00444
N	883	GLY	-	expression tag	UNP O00444
O	880	GLY	-	expression tag	UNP O00444
O	881	PRO	-	expression tag	UNP O00444
O	882	MET	-	expression tag	UNP O00444
O	883	GLY	-	expression tag	UNP O00444
P	880	GLY	-	expression tag	UNP O00444
P	881	PRO	-	expression tag	UNP O00444
P	882	MET	-	expression tag	UNP O00444
P	883	GLY	-	expression tag	UNP O00444
Q	880	GLY	-	expression tag	UNP O00444
Q	881	PRO	-	expression tag	UNP O00444
Q	882	MET	-	expression tag	UNP O00444
Q	883	GLY	-	expression tag	UNP O00444
R	880	GLY	-	expression tag	UNP O00444
R	881	PRO	-	expression tag	UNP O00444
R	882	MET	-	expression tag	UNP O00444
R	883	GLY	-	expression tag	UNP O00444
S	880	GLY	-	expression tag	UNP O00444
S	881	PRO	-	expression tag	UNP O00444
S	882	MET	-	expression tag	UNP O00444
S	883	GLY	-	expression tag	UNP O00444

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
T	880	GLY	-	expression tag	UNP O00444
T	881	PRO	-	expression tag	UNP O00444
T	882	MET	-	expression tag	UNP O00444
T	883	GLY	-	expression tag	UNP O00444
U	880	GLY	-	expression tag	UNP O00444
U	881	PRO	-	expression tag	UNP O00444
U	882	MET	-	expression tag	UNP O00444
U	883	GLY	-	expression tag	UNP O00444
V	880	GLY	-	expression tag	UNP O00444
V	881	PRO	-	expression tag	UNP O00444
V	882	MET	-	expression tag	UNP O00444
V	883	GLY	-	expression tag	UNP O00444
W	880	GLY	-	expression tag	UNP O00444
W	881	PRO	-	expression tag	UNP O00444
W	882	MET	-	expression tag	UNP O00444
W	883	GLY	-	expression tag	UNP O00444
X	880	GLY	-	expression tag	UNP O00444
X	881	PRO	-	expression tag	UNP O00444
X	882	MET	-	expression tag	UNP O00444
X	883	GLY	-	expression tag	UNP O00444
Y	880	GLY	-	expression tag	UNP O00444
Y	881	PRO	-	expression tag	UNP O00444
Y	882	MET	-	expression tag	UNP O00444
Y	883	GLY	-	expression tag	UNP O00444
Z	880	GLY	-	expression tag	UNP O00444
Z	881	PRO	-	expression tag	UNP O00444
Z	882	MET	-	expression tag	UNP O00444
Z	883	GLY	-	expression tag	UNP O00444
1	880	GLY	-	expression tag	UNP O00444
1	881	PRO	-	expression tag	UNP O00444
1	882	MET	-	expression tag	UNP O00444
1	883	GLY	-	expression tag	UNP O00444
2	880	GLY	-	expression tag	UNP O00444
2	881	PRO	-	expression tag	UNP O00444
2	882	MET	-	expression tag	UNP O00444
2	883	GLY	-	expression tag	UNP O00444
3	880	GLY	-	expression tag	UNP O00444
3	881	PRO	-	expression tag	UNP O00444
3	882	MET	-	expression tag	UNP O00444
3	883	GLY	-	expression tag	UNP O00444
4	880	GLY	-	expression tag	UNP O00444
4	881	PRO	-	expression tag	UNP O00444

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
4	882	MET	-	expression tag	UNP O00444
4	883	GLY	-	expression tag	UNP O00444
5	880	GLY	-	expression tag	UNP O00444
5	881	PRO	-	expression tag	UNP O00444
5	882	MET	-	expression tag	UNP O00444
5	883	GLY	-	expression tag	UNP O00444
6	880	GLY	-	expression tag	UNP O00444
6	881	PRO	-	expression tag	UNP O00444
6	882	MET	-	expression tag	UNP O00444
6	883	GLY	-	expression tag	UNP O00444
7	880	GLY	-	expression tag	UNP O00444
7	881	PRO	-	expression tag	UNP O00444
7	882	MET	-	expression tag	UNP O00444
7	883	GLY	-	expression tag	UNP O00444
8	880	GLY	-	expression tag	UNP O00444
8	881	PRO	-	expression tag	UNP O00444
8	882	MET	-	expression tag	UNP O00444
8	883	GLY	-	expression tag	UNP O00444
9	880	GLY	-	expression tag	UNP O00444
9	881	PRO	-	expression tag	UNP O00444
9	882	MET	-	expression tag	UNP O00444
9	883	GLY	-	expression tag	UNP O00444
a	880	GLY	-	expression tag	UNP O00444
a	881	PRO	-	expression tag	UNP O00444
a	882	MET	-	expression tag	UNP O00444
a	883	GLY	-	expression tag	UNP O00444
b	880	GLY	-	expression tag	UNP O00444
b	881	PRO	-	expression tag	UNP O00444
b	882	MET	-	expression tag	UNP O00444
b	883	GLY	-	expression tag	UNP O00444
c	880	GLY	-	expression tag	UNP O00444
c	881	PRO	-	expression tag	UNP O00444
c	882	MET	-	expression tag	UNP O00444
c	883	GLY	-	expression tag	UNP O00444
d	880	GLY	-	expression tag	UNP O00444
d	881	PRO	-	expression tag	UNP O00444
d	882	MET	-	expression tag	UNP O00444
d	883	GLY	-	expression tag	UNP O00444
e	880	GLY	-	expression tag	UNP O00444
e	881	PRO	-	expression tag	UNP O00444
e	882	MET	-	expression tag	UNP O00444
e	883	GLY	-	expression tag	UNP O00444

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
f	880	GLY	-	expression tag	UNP O00444
f	881	PRO	-	expression tag	UNP O00444
f	882	MET	-	expression tag	UNP O00444
f	883	GLY	-	expression tag	UNP O00444
g	880	GLY	-	expression tag	UNP O00444
g	881	PRO	-	expression tag	UNP O00444
g	882	MET	-	expression tag	UNP O00444
g	883	GLY	-	expression tag	UNP O00444
h	880	GLY	-	expression tag	UNP O00444
h	881	PRO	-	expression tag	UNP O00444
h	882	MET	-	expression tag	UNP O00444
h	883	GLY	-	expression tag	UNP O00444
i	880	GLY	-	expression tag	UNP O00444
i	881	PRO	-	expression tag	UNP O00444
i	882	MET	-	expression tag	UNP O00444
i	883	GLY	-	expression tag	UNP O00444
j	880	GLY	-	expression tag	UNP O00444
j	881	PRO	-	expression tag	UNP O00444
j	882	MET	-	expression tag	UNP O00444
j	883	GLY	-	expression tag	UNP O00444
k	880	GLY	-	expression tag	UNP O00444
k	881	PRO	-	expression tag	UNP O00444
k	882	MET	-	expression tag	UNP O00444
k	883	GLY	-	expression tag	UNP O00444
l	880	GLY	-	expression tag	UNP O00444
l	881	PRO	-	expression tag	UNP O00444
l	882	MET	-	expression tag	UNP O00444
l	883	GLY	-	expression tag	UNP O00444
m	880	GLY	-	expression tag	UNP O00444
m	881	PRO	-	expression tag	UNP O00444
m	882	MET	-	expression tag	UNP O00444
m	883	GLY	-	expression tag	UNP O00444
n	880	GLY	-	expression tag	UNP O00444
n	881	PRO	-	expression tag	UNP O00444
n	882	MET	-	expression tag	UNP O00444
n	883	GLY	-	expression tag	UNP O00444
o	880	GLY	-	expression tag	UNP O00444
o	881	PRO	-	expression tag	UNP O00444
o	882	MET	-	expression tag	UNP O00444
o	883	GLY	-	expression tag	UNP O00444
p	880	GLY	-	expression tag	UNP O00444
p	881	PRO	-	expression tag	UNP O00444

Continued on next page...


Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
p	882	MET	-	expression tag	UNP O00444
p	883	GLY	-	expression tag	UNP O00444
q	880	GLY	-	expression tag	UNP O00444
q	881	PRO	-	expression tag	UNP O00444
q	882	MET	-	expression tag	UNP O00444
q	883	GLY	-	expression tag	UNP O00444
r	880	GLY	-	expression tag	UNP O00444
r	881	PRO	-	expression tag	UNP O00444
r	882	MET	-	expression tag	UNP O00444
r	883	GLY	-	expression tag	UNP O00444
s	880	GLY	-	expression tag	UNP O00444
s	881	PRO	-	expression tag	UNP O00444
s	882	MET	-	expression tag	UNP O00444
s	883	GLY	-	expression tag	UNP O00444
t	880	GLY	-	expression tag	UNP O00444
t	881	PRO	-	expression tag	UNP O00444
t	882	MET	-	expression tag	UNP O00444
t	883	GLY	-	expression tag	UNP O00444
u	880	GLY	-	expression tag	UNP O00444
u	881	PRO	-	expression tag	UNP O00444
u	882	MET	-	expression tag	UNP O00444
u	883	GLY	-	expression tag	UNP O00444
v	880	GLY	-	expression tag	UNP O00444
v	881	PRO	-	expression tag	UNP O00444
v	882	MET	-	expression tag	UNP O00444
v	883	GLY	-	expression tag	UNP O00444
w	880	GLY	-	expression tag	UNP O00444
w	881	PRO	-	expression tag	UNP O00444
w	882	MET	-	expression tag	UNP O00444
w	883	GLY	-	expression tag	UNP O00444
x	880	GLY	-	expression tag	UNP O00444
x	881	PRO	-	expression tag	UNP O00444
x	882	MET	-	expression tag	UNP O00444
x	883	GLY	-	expression tag	UNP O00444
y	880	GLY	-	expression tag	UNP O00444
y	881	PRO	-	expression tag	UNP O00444
y	882	MET	-	expression tag	UNP O00444
y	883	GLY	-	expression tag	UNP O00444

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.

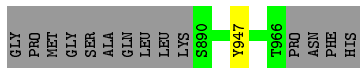
- Molecule 1: Serine/threonine-protein kinase PLK4

Chain A: 




- Molecule 1: Serine/threonine-protein kinase PLK4

Chain B: 




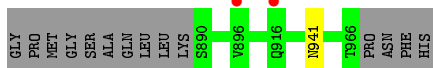
- Molecule 1: Serine/threonine-protein kinase PLK4

Chain C: 




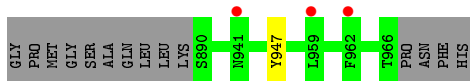
- Molecule 1: Serine/threonine-protein kinase PLK4

Chain D: 

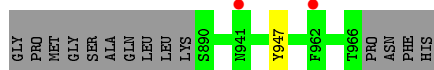
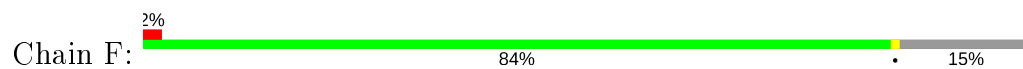


- Molecule 1: Serine/threonine-protein kinase PLK4

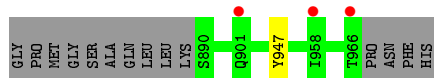
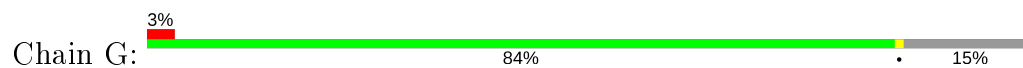
Chain E: 



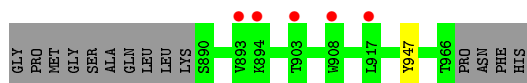
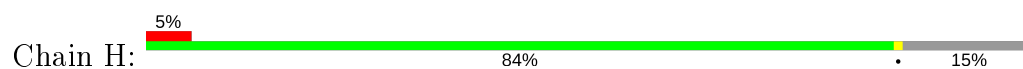
- Molecule 1: Serine/threonine-protein kinase PLK4



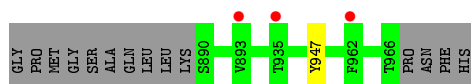
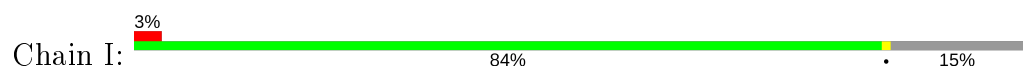
- Molecule 1: Serine/threonine-protein kinase PLK4



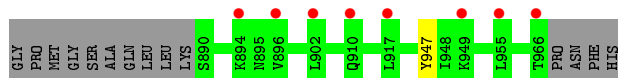
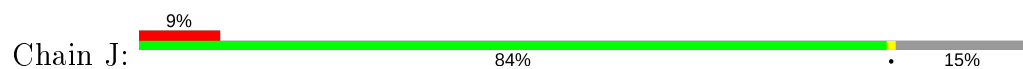
- Molecule 1: Serine/threonine-protein kinase PLK4



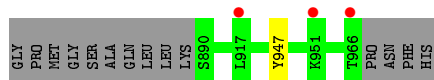
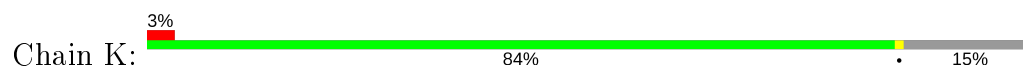
- Molecule 1: Serine/threonine-protein kinase PLK4



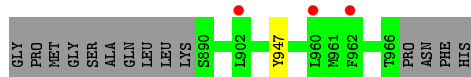
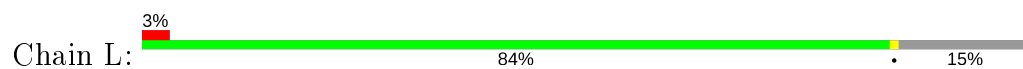
- Molecule 1: Serine/threonine-protein kinase PLK4



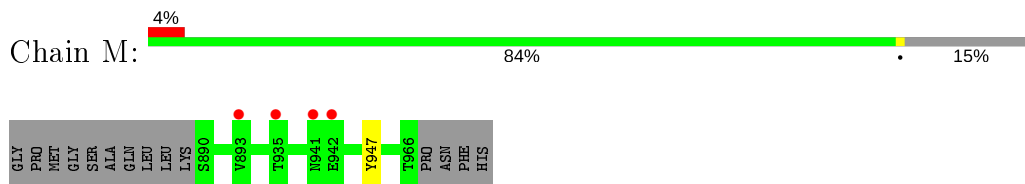
- Molecule 1: Serine/threonine-protein kinase PLK4



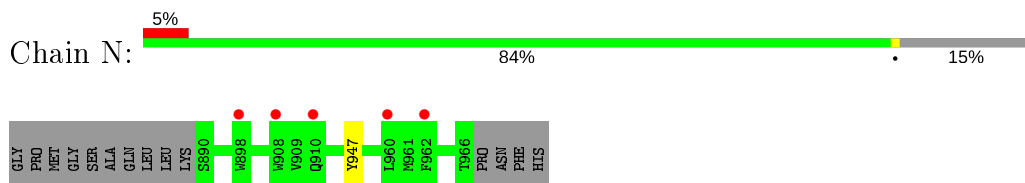
- Molecule 1: Serine/threonine-protein kinase PLK4



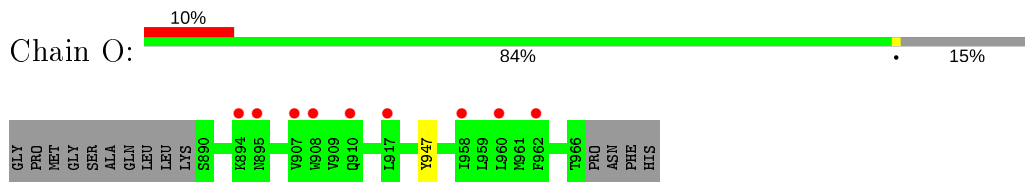
- Molecule 1: Serine/threonine-protein kinase PLK4



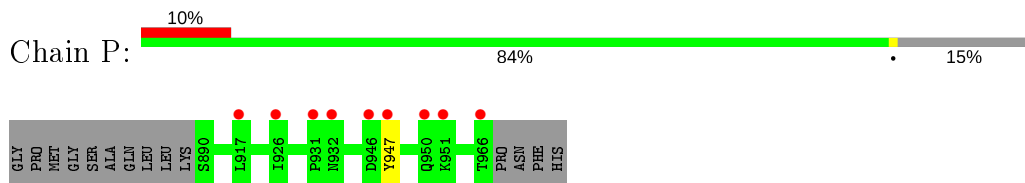
- Molecule 1: Serine/threonine-protein kinase PLK4



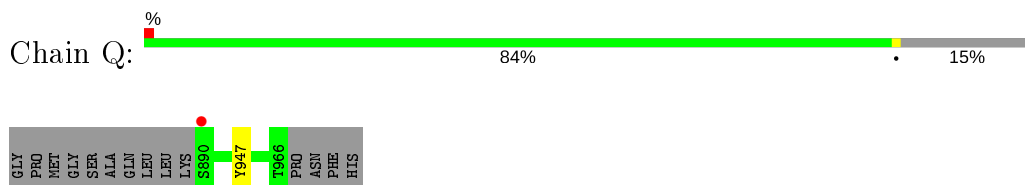
- Molecule 1: Serine/threonine-protein kinase PLK4



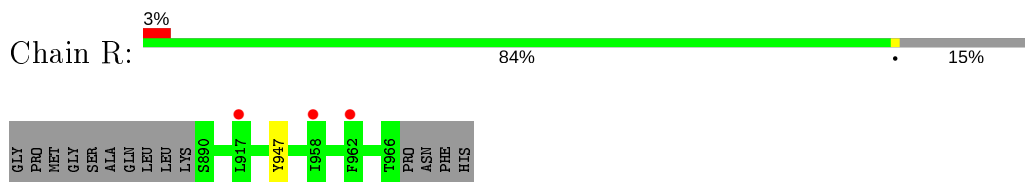
- Molecule 1: Serine/threonine-protein kinase PLK4



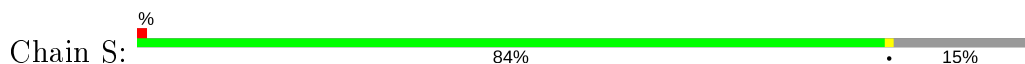
- Molecule 1: Serine/threonine-protein kinase PLK4

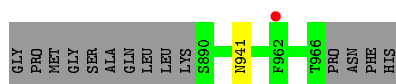


- Molecule 1: Serine/threonine-protein kinase PLK4

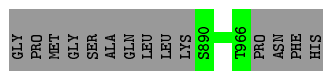
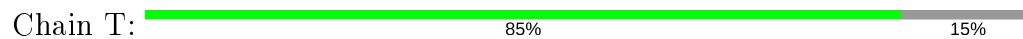


- Molecule 1: Serine/threonine-protein kinase PLK4

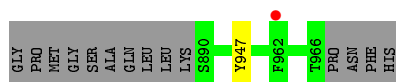
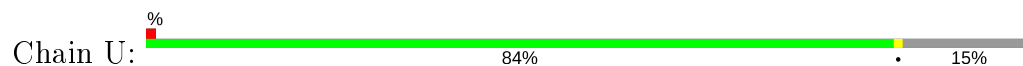




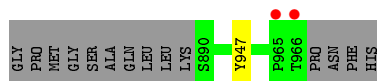
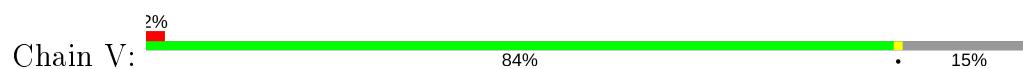
- Molecule 1: Serine/threonine-protein kinase PLK4



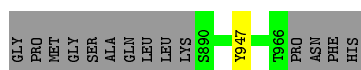
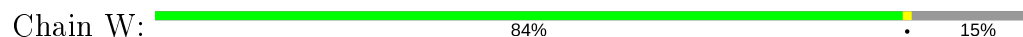
- Molecule 1: Serine/threonine-protein kinase PLK4



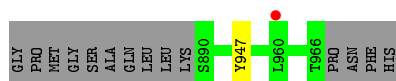
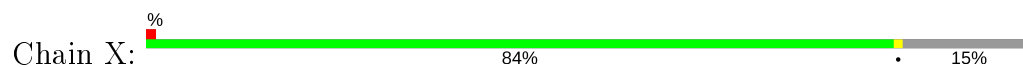
- Molecule 1: Serine/threonine-protein kinase PLK4



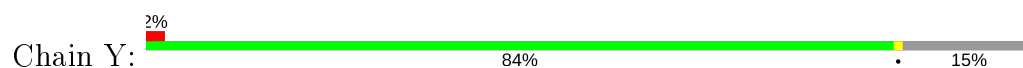
- Molecule 1: Serine/threonine-protein kinase PLK4



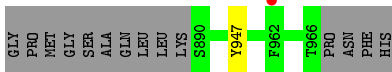
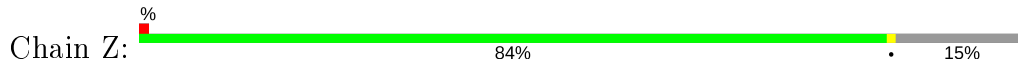
- Molecule 1: Serine/threonine-protein kinase PLK4



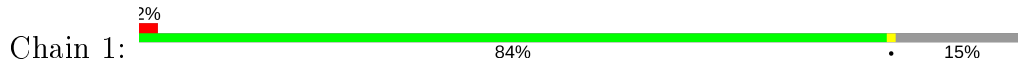
- Molecule 1: Serine/threonine-protein kinase PLK4



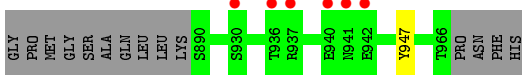
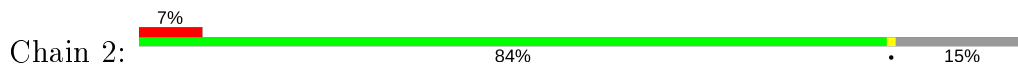
- Molecule 1: Serine/threonine-protein kinase PLK4



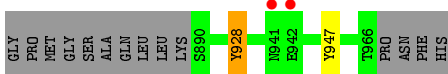
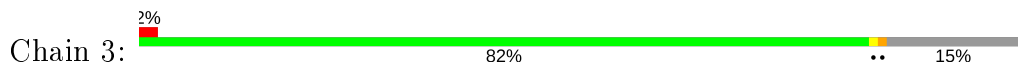
- Molecule 1: Serine/threonine-protein kinase PLK4



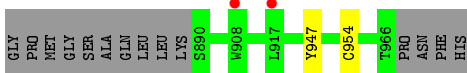
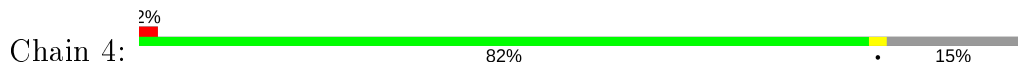
- Molecule 1: Serine/threonine-protein kinase PLK4



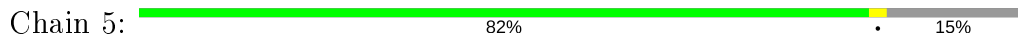
- Molecule 1: Serine/threonine-protein kinase PLK4



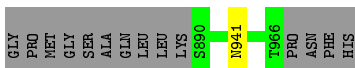
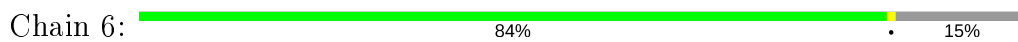
- Molecule 1: Serine/threonine-protein kinase PLK4



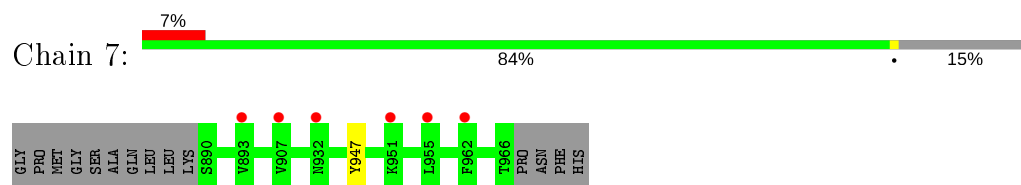
- Molecule 1: Serine/threonine-protein kinase PLK4



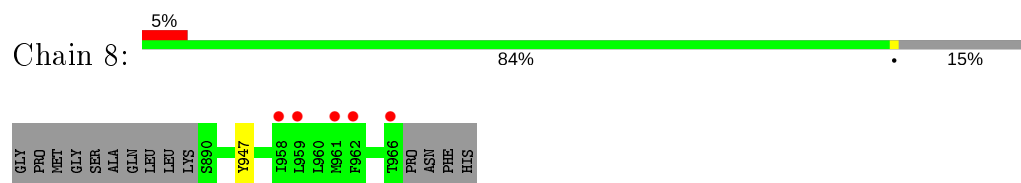
- Molecule 1: Serine/threonine-protein kinase PLK4



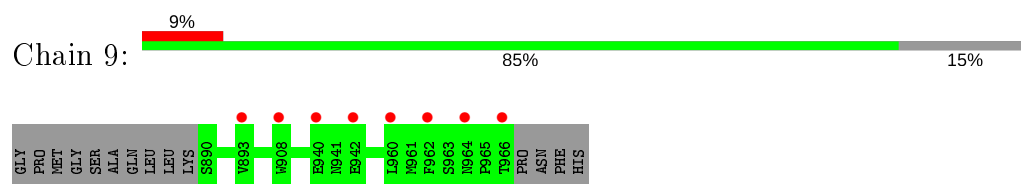
- Molecule 1: Serine/threonine-protein kinase PLK4



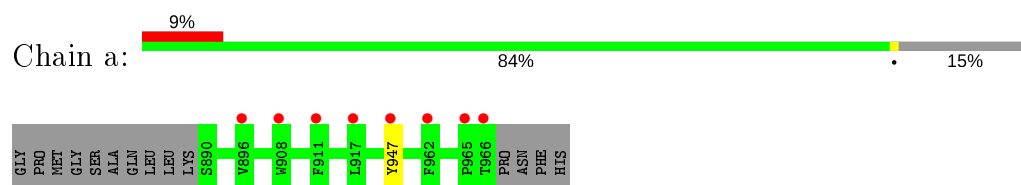
- Molecule 1: Serine/threonine-protein kinase PLK4



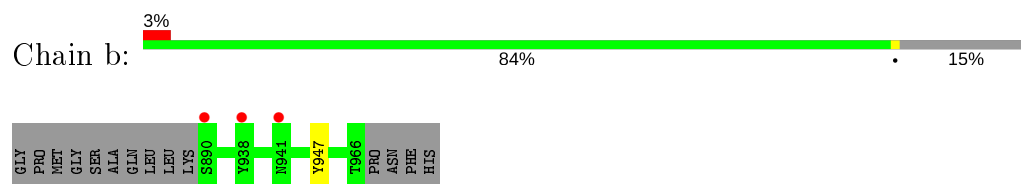
- Molecule 1: Serine/threonine-protein kinase PLK4



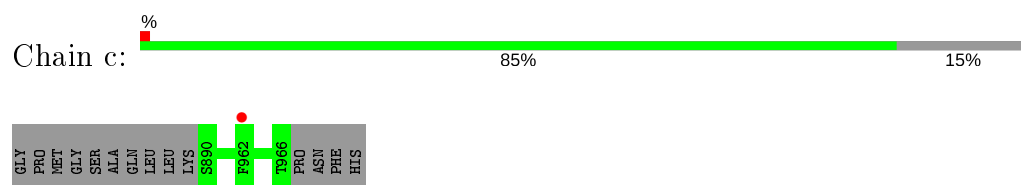
- Molecule 1: Serine/threonine-protein kinase PLK4



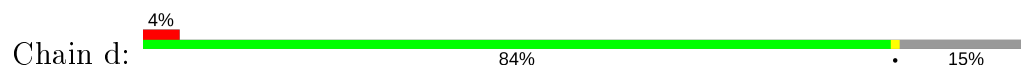
- Molecule 1: Serine/threonine-protein kinase PLK4

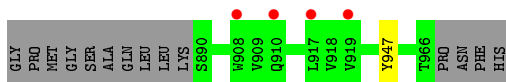


- Molecule 1: Serine/threonine-protein kinase PLK4

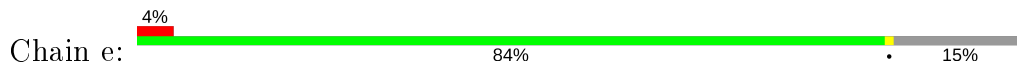


- Molecule 1: Serine/threonine-protein kinase PLK4

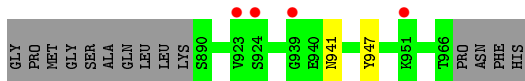
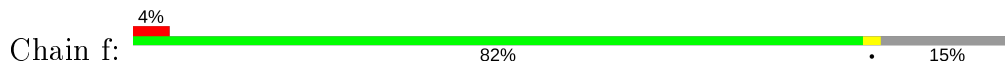




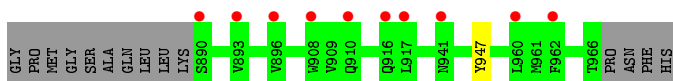
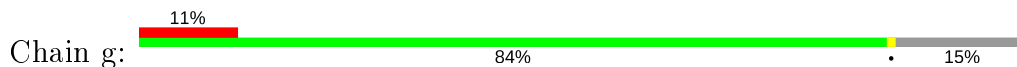
- Molecule 1: Serine/threonine-protein kinase PLK4



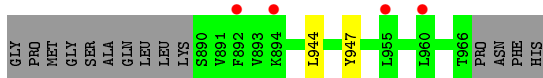
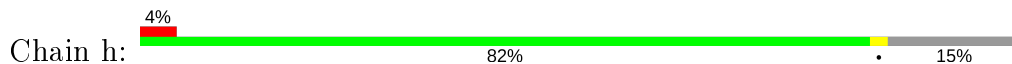
- Molecule 1: Serine/threonine-protein kinase PLK4



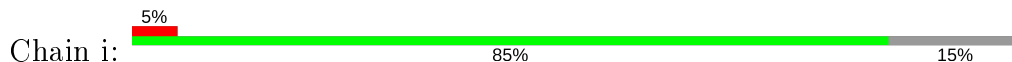
- Molecule 1: Serine/threonine-protein kinase PLK4



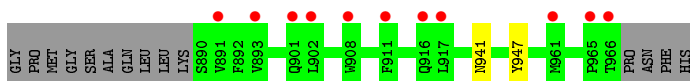
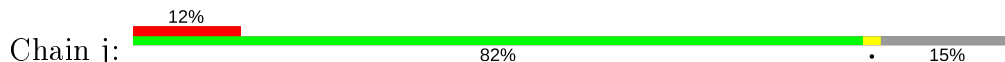
- Molecule 1: Serine/threonine-protein kinase PLK4



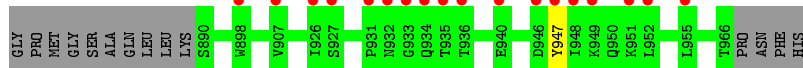
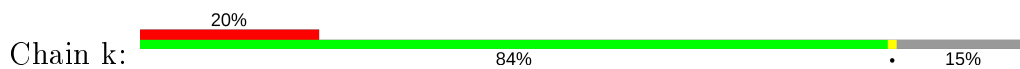
- Molecule 1: Serine/threonine-protein kinase PLK4



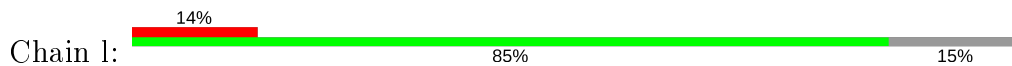
- Molecule 1: Serine/threonine-protein kinase PLK4



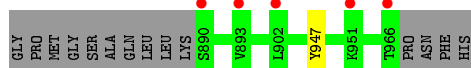
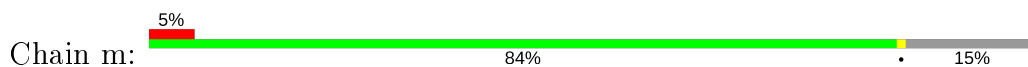
- Molecule 1: Serine/threonine-protein kinase PLK4



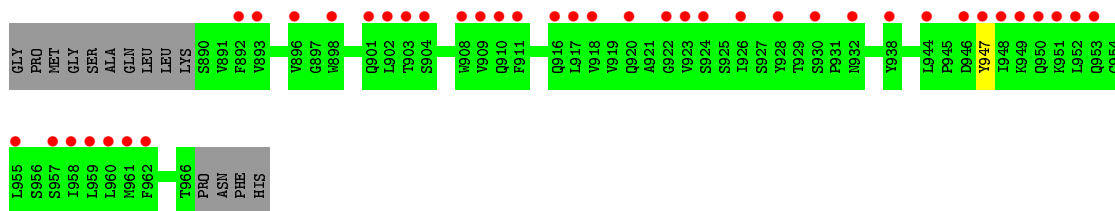
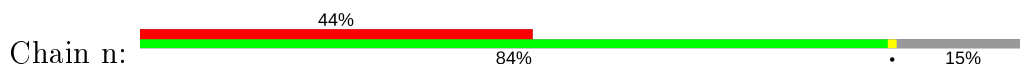
- Molecule 1: Serine/threonine-protein kinase PLK4



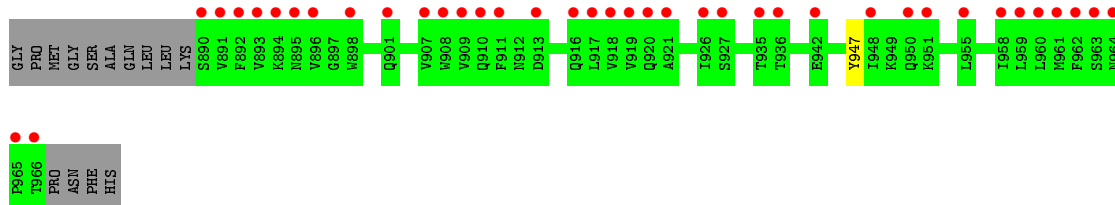
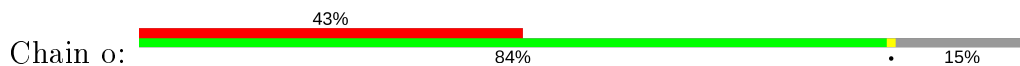
- Molecule 1: Serine/threonine-protein kinase PLK4



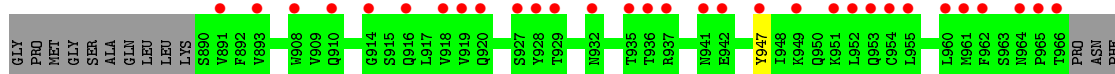
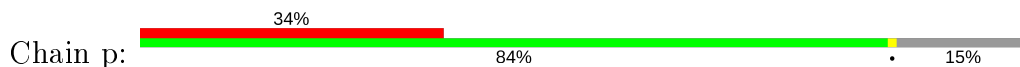
- Molecule 1: Serine/threonine-protein kinase PLK4



- Molecule 1: Serine/threonine-protein kinase PLK4

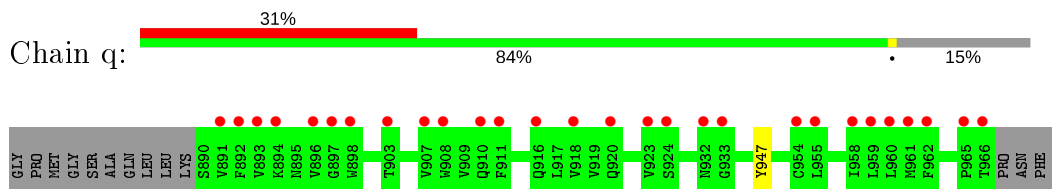


- Molecule 1: Serine/threonine-protein kinase PLK4

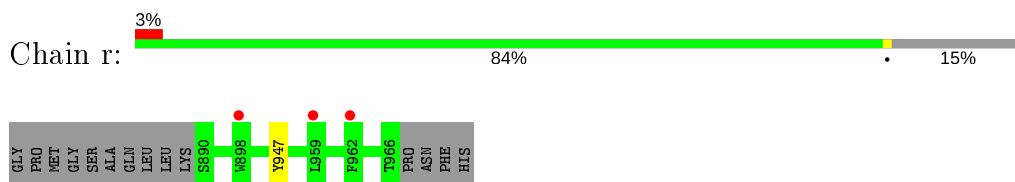


HIS

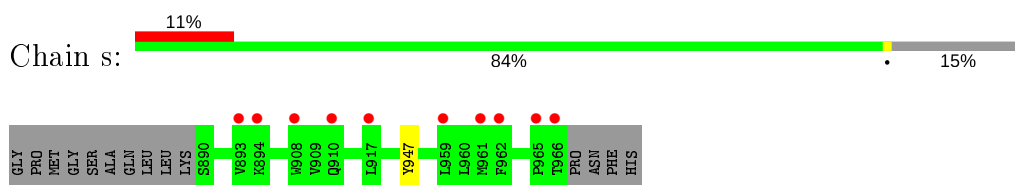
- Molecule 1: Serine/threonine-protein kinase PLK4



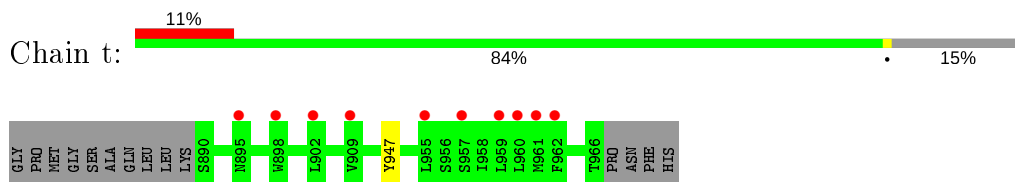
- Molecule 1: Serine/threonine-protein kinase PLK4



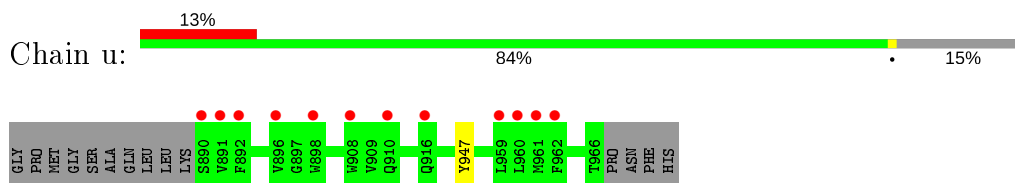
- Molecule 1: Serine/threonine-protein kinase PLK4



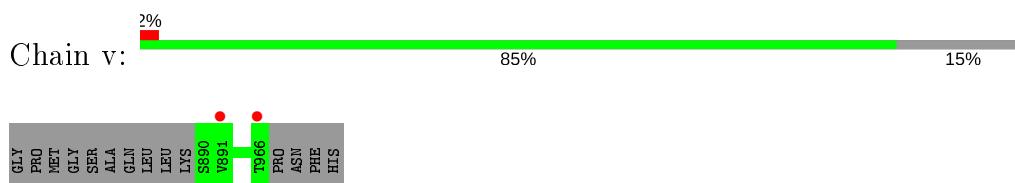
- Molecule 1: Serine/threonine-protein kinase PLK4



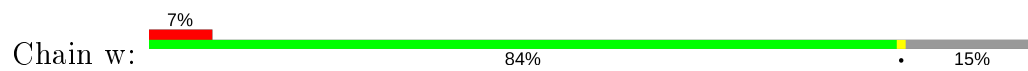
- Molecule 1: Serine/threonine-protein kinase PLK4



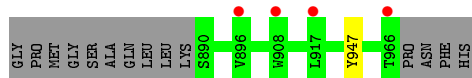
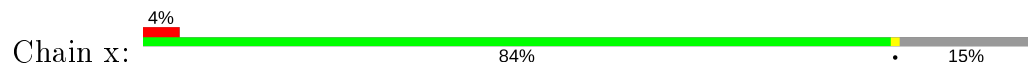
- Molecule 1: Serine/threonine-protein kinase PLK4



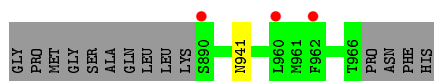
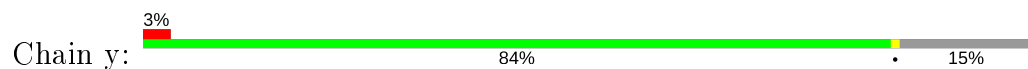
- Molecule 1: Serine/threonine-protein kinase PLK4



- Molecule 1: Serine/threonine-protein kinase PLK4



- Molecule 1: Serine/threonine-protein kinase PLK4



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	220.35Å 220.35Å 325.73Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	104.37 – 3.31 110.17 – 3.31	Depositor EDS
% Data completeness (in resolution range)	99.9 (104.37-3.31) 100.0 (110.17-3.31)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.93 (at 3.33Å)	Xtrriage
Refinement program	PHENIX (1.10.1_2155)	Depositor
R, R_{free}	0.269 , 0.295 0.271 , 0.297	Depositor DCC
R_{free} test set	5938 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	103.9	Xtrriage
Anisotropy	0.137	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 66.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	35580	wwPDB-VP
Average B, all atoms (Å ²)	126.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.67% 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 [i](#)

5.1 Standard geometry [i](#)

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	1	0.26	0/605	0.47	0/823
1	2	0.28	0/605	0.50	0/823
1	3	0.47	1/605 (0.2%)	0.51	0/823
1	4	0.26	0/605	0.47	0/823
1	5	0.27	0/605	0.46	0/823
1	6	0.27	0/605	0.50	0/823
1	7	0.26	0/605	0.47	0/823
1	8	0.25	0/605	0.47	0/823
1	9	0.26	0/605	0.47	0/823
1	A	0.26	0/605	0.48	0/823
1	B	0.26	0/605	0.49	0/823
1	C	0.25	0/605	0.45	0/823
1	D	0.26	0/605	0.46	0/823
1	E	0.26	0/605	0.48	0/823
1	F	0.27	0/605	0.49	0/823
1	G	0.26	0/605	0.49	0/823
1	H	0.25	0/605	0.44	0/823
1	I	0.26	0/605	0.46	0/823
1	J	0.26	0/605	0.46	0/823
1	K	0.27	0/605	0.47	0/823
1	L	0.25	0/605	0.45	0/823
1	M	0.27	0/605	0.47	0/823
1	N	0.26	0/605	0.45	0/823
1	O	0.26	0/605	0.48	0/823
1	P	0.25	0/605	0.46	0/823
1	Q	0.26	0/605	0.45	0/823
1	R	0.26	0/605	0.45	0/823
1	S	0.26	0/605	0.48	0/823
1	T	0.25	0/605	0.49	0/823
1	U	0.26	0/605	0.45	0/823
1	V	0.26	0/605	0.52	0/823
1	W	0.26	0/605	0.46	0/823
1	X	0.27	0/605	0.50	0/823
1	Y	0.27	0/605	0.50	0/823

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	Z	0.26	0/605	0.47	0/823
1	a	0.26	0/605	0.48	0/823
1	b	0.26	0/605	0.47	0/823
1	c	0.26	0/605	0.44	0/823
1	d	0.25	0/605	0.45	0/823
1	e	0.25	0/605	0.45	0/823
1	f	0.26	0/605	0.47	0/823
1	g	0.26	0/605	0.46	0/823
1	h	0.25	0/605	0.48	0/823
1	i	0.26	0/605	0.48	0/823
1	j	0.26	0/605	0.48	0/823
1	k	0.26	0/605	0.49	0/823
1	l	0.25	0/605	0.45	0/823
1	m	0.26	0/605	0.47	0/823
1	n	0.25	0/605	0.47	0/823
1	o	0.25	0/605	0.46	0/823
1	p	0.25	0/605	0.46	0/823
1	q	0.25	0/605	0.45	0/823
1	r	0.26	0/605	0.47	0/823
1	s	0.27	0/605	0.48	0/823
1	t	0.26	0/605	0.45	0/823
1	u	0.27	0/605	0.48	0/823
1	v	0.25	0/605	0.46	0/823
1	w	0.26	0/605	0.45	0/823
1	x	0.25	0/605	0.44	0/823
1	y	0.26	0/605	0.45	0/823
All	All	0.26	1/36300 (0.0%)	0.47	0/49380

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	3	928	TYR	CE1-CZ	-5.05	1.31	1.38

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles

5.3.1 Protein backbone

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	1	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	2	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	3	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	4	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	5	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	6	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	7	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	8	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	9	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	A	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	B	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	C	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	D	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	E	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	F	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	G	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	H	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	I	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	J	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	K	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	L	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	M	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	N	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	O	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	P	75/91 (82%)	74 (99%)	1 (1%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	Q	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	R	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	S	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	T	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	U	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	V	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	W	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	X	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	Y	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	Z	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	a	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	b	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	c	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	d	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	e	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	f	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	g	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	h	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	i	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	j	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	k	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	l	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	m	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	n	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	o	75/91 (82%)	73 (97%)	2 (3%)	0	100	100
1	p	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	q	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	r	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	s	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	t	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	u	75/91 (82%)	74 (99%)	1 (1%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	v	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	w	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	x	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
1	y	75/91 (82%)	74 (99%)	1 (1%)	0	100	100
All	All	4500/5460 (82%)	4439 (99%)	61 (1%)	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	1	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	2	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	3	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	4	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	5	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	6	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	7	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	8	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	9	68/79 (86%)	68 (100%)	0	100	100
1	A	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	B	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	C	68/79 (86%)	68 (100%)	0	100	100
1	D	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	E	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	F	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	G	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	H	68/79 (86%)	67 (98%)	1 (2%)	65	81

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	I	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	J	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	K	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	L	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	M	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	N	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	O	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	P	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	Q	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	R	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	S	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	T	68/79 (86%)	68 (100%)	0	100	100
1	U	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	V	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	W	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	X	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	Y	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	Z	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	a	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	b	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	c	68/79 (86%)	68 (100%)	0	100	100
1	d	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	e	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	f	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	g	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	h	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	i	68/79 (86%)	68 (100%)	0	100	100
1	j	68/79 (86%)	66 (97%)	2 (3%)	42	70
1	k	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	l	68/79 (86%)	68 (100%)	0	100	100
1	m	68/79 (86%)	67 (98%)	1 (2%)	65	81

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	n	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	o	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	p	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	q	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	r	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	s	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	t	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	u	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	v	68/79 (86%)	68 (100%)	0	100	100
1	w	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	x	68/79 (86%)	67 (98%)	1 (2%)	65	81
1	y	68/79 (86%)	67 (98%)	1 (2%)	65	81
All	All	4080/4740 (86%)	4020 (98%)	60 (2%)	65	81

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	944	LEU
1	A	947	TYR
1	B	947	TYR
1	D	941	ASN
1	E	947	TYR
1	F	947	TYR
1	G	947	TYR
1	H	947	TYR
1	I	947	TYR
1	J	947	TYR
1	K	947	TYR
1	L	947	TYR
1	M	947	TYR
1	N	947	TYR
1	O	947	TYR
1	P	947	TYR
1	Q	947	TYR
1	R	947	TYR
1	S	941	ASN
1	U	947	TYR
1	V	947	TYR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	W	947	TYR
1	X	947	TYR
1	Y	947	TYR
1	Z	947	TYR
1	1	947	TYR
1	2	947	TYR
1	3	928	TYR
1	3	947	TYR
1	4	947	TYR
1	4	954	CYS
1	5	941	ASN
1	5	947	TYR
1	6	941	ASN
1	7	947	TYR
1	8	947	TYR
1	a	947	TYR
1	b	947	TYR
1	d	947	TYR
1	e	947	TYR
1	f	941	ASN
1	f	947	TYR
1	g	947	TYR
1	h	944	LEU
1	h	947	TYR
1	j	941	ASN
1	j	947	TYR
1	k	947	TYR
1	m	947	TYR
1	n	947	TYR
1	o	947	TYR
1	p	947	TYR
1	q	947	TYR
1	r	947	TYR
1	s	947	TYR
1	t	947	TYR
1	u	947	TYR
1	w	947	TYR
1	x	947	TYR
1	y	941	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	N	910	GLN
1	N	916	GLN
1	W	964	ASN
1	2	941	ASN
1	l	941	ASN
1	o	941	ASN
1	s	964	ASN
1	y	910	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

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, 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	1	77/91 (84%)	0.68	2 (2%) 56 53	58, 88, 156, 303	0
1	2	77/91 (84%)	0.89	6 (7%) 13 13	60, 84, 174, 300	0
1	3	77/91 (84%)	0.50	2 (2%) 56 53	76, 95, 159, 253	0
1	4	77/91 (84%)	0.50	2 (2%) 56 53	68, 96, 156, 183	0
1	5	77/91 (84%)	0.32	0 100 100	59, 86, 170, 203	0
1	6	77/91 (84%)	0.38	0 100 100	69, 90, 138, 181	0
1	7	77/91 (84%)	0.71	6 (7%) 13 13	82, 124, 171, 224	0
1	8	77/91 (84%)	0.66	5 (6%) 18 19	103, 135, 197, 223	0
1	9	77/91 (84%)	0.95	8 (10%) 6 6	90, 109, 186, 248	0
1	A	77/91 (84%)	0.16	0 100 100	72, 109, 172, 257	0
1	B	77/91 (84%)	0.52	0 100 100	79, 106, 160, 197	0
1	C	77/91 (84%)	0.35	1 (1%) 77 77	79, 113, 162, 207	0
1	D	77/91 (84%)	0.38	2 (2%) 56 53	79, 115, 188, 229	0
1	E	77/91 (84%)	0.50	3 (3%) 39 38	61, 81, 119, 163	0
1	F	77/91 (84%)	0.55	2 (2%) 56 53	64, 77, 142, 246	0
1	G	77/91 (84%)	0.68	3 (3%) 39 38	74, 100, 158, 172	0
1	H	77/91 (84%)	0.61	5 (6%) 18 19	72, 108, 157, 208	0
1	I	77/91 (84%)	0.55	3 (3%) 39 38	86, 119, 200, 242	0
1	J	77/91 (84%)	0.85	8 (10%) 6 6	84, 120, 181, 199	0
1	K	77/91 (84%)	0.83	3 (3%) 39 38	81, 102, 145, 275	0
1	L	77/91 (84%)	0.43	3 (3%) 39 38	77, 109, 171, 223	0
1	M	77/91 (84%)	0.66	4 (5%) 27 27	65, 83, 147, 262	0
1	N	77/91 (84%)	0.76	5 (6%) 18 19	72, 95, 141, 166	0
1	O	77/91 (84%)	0.75	9 (11%) 4 3	80, 120, 163, 250	0

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	P	77/91 (84%)	0.89	9 (11%) 4 3	74, 122, 195, 209	0
1	Q	77/91 (84%)	0.51	1 (1%) 77 77	80, 110, 176, 215	0
1	R	77/91 (84%)	0.57	3 (3%) 39 38	73, 100, 154, 250	0
1	S	77/91 (84%)	0.18	1 (1%) 77 77	75, 107, 157, 188	0
1	T	77/91 (84%)	0.37	0 100 100	78, 117, 172, 231	0
1	U	77/91 (84%)	0.25	1 (1%) 77 77	74, 95, 166, 193	0
1	V	77/91 (84%)	0.47	2 (2%) 56 53	73, 100, 152, 235	0
1	W	77/91 (84%)	0.24	0 100 100	67, 94, 164, 213	0
1	X	77/91 (84%)	0.43	1 (1%) 77 77	73, 98, 135, 180	0
1	Y	77/91 (84%)	0.64	2 (2%) 56 53	68, 90, 131, 183	0
1	Z	77/91 (84%)	0.43	1 (1%) 77 77	57, 89, 161, 180	0
1	a	77/91 (84%)	0.78	8 (10%) 6 6	83, 112, 164, 214	0
1	b	77/91 (84%)	0.44	3 (3%) 39 38	82, 125, 191, 234	0
1	c	77/91 (84%)	0.46	1 (1%) 77 77	95, 132, 196, 231	0
1	d	77/91 (84%)	0.63	4 (5%) 27 27	93, 152, 221, 290	0
1	e	77/91 (84%)	0.52	4 (5%) 27 27	89, 132, 196, 217	0
1	f	77/91 (84%)	0.60	4 (5%) 27 27	81, 128, 213, 268	0
1	g	77/91 (84%)	0.71	10 (12%) 3 3	86, 145, 197, 298	0
1	h	77/91 (84%)	0.45	4 (5%) 27 27	65, 102, 185, 227	0
1	i	77/91 (84%)	0.68	5 (6%) 18 19	68, 104, 158, 183	0
1	j	77/91 (84%)	0.75	11 (14%) 2 2	122, 175, 245, 293	0
1	k	77/91 (84%)	1.08	18 (23%) 0 0	112, 181, 249, 325	0
1	l	77/91 (84%)	0.98	13 (16%) 1 1	121, 169, 228, 272	0
1	m	77/91 (84%)	0.64	5 (6%) 18 19	126, 170, 236, 303	0
1	n	77/91 (84%)	2.22	40 (51%) 0 0	137, 225, 338, 372	0
1	o	77/91 (84%)	2.06	39 (50%) 0 0	149, 237, 315, 383	0
1	p	77/91 (84%)	1.88	31 (40%) 0 0	123, 180, 281, 372	0
1	q	77/91 (84%)	1.62	28 (36%) 0 0	130, 174, 242, 343	0
1	r	77/91 (84%)	0.50	3 (3%) 39 38	79, 103, 169, 191	0
1	s	77/91 (84%)	0.85	10 (12%) 3 3	79, 112, 151, 174	0
1	t	77/91 (84%)	0.77	10 (12%) 3 3	76, 108, 183, 235	0

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	u	77/91 (84%)	1.02	12 (15%) 2 1	80, 107, 158, 182	0
1	v	77/91 (84%)	0.51	2 (2%) 56 53	79, 104, 157, 222	0
1	w	77/91 (84%)	0.91	6 (7%) 13 13	92, 110, 189, 313	0
1	x	77/91 (84%)	0.57	4 (5%) 27 27	101, 124, 156, 203	0
1	y	77/91 (84%)	0.28	3 (3%) 39 38	84, 116, 172, 201	0
All	All	4620/5460 (84%)	0.68	381 (8%) 11 11	57, 115, 217, 383	0

All (381) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	K	966	THR	12.6
1	n	893	VAL	9.4
1	p	966	THR	7.9
1	w	941	ASN	7.9
1	p	951	LYS	7.6
1	n	903	THR	7.3
1	j	966	THR	7.2
1	q	891	VAL	7.2
1	o	919	VAL	7.1
1	n	949	LYS	7.1
1	o	891	VAL	6.6
1	2	941	ASN	6.3
1	n	924	SER	6.3
1	p	936	THR	6.2
1	o	951	LYS	5.9
1	o	890	SER	5.9
1	u	891	VAL	5.8
1	m	966	THR	5.7
1	q	893	VAL	5.7
1	w	966	THR	5.6
1	o	893	VAL	5.6
1	q	908	TRP	5.3
1	w	942	GLU	5.2
1	k	948	ILE	5.1
1	p	964	ASN	5.0
1	n	953	GLN	5.0
1	o	965	PRO	4.8
1	q	955	LEU	4.8
1	n	902	LEU	4.8
1	o	898	TRP	4.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	n	926	ILE	4.7
1	q	898	TRP	4.6
1	q	916	GLN	4.6
1	s	962	PHE	4.5
1	J	966	THR	4.5
1	o	894	LYS	4.4
1	d	908	TRP	4.4
1	9	964	ASN	4.3
1	V	966	THR	4.3
1	o	892	PHE	4.3
1	n	901	GLN	4.3
1	P	947	TYR	4.3
1	p	953	GLN	4.2
1	3	942	GLU	4.2
1	o	908	TRP	4.2
1	l	892	PHE	4.2
1	n	911	PHE	4.2
1	n	923	VAL	4.1
1	n	892	PHE	4.1
1	p	941	ASN	4.0
1	2	942	GLU	4.0
1	o	917	LEU	4.0
1	p	927	SER	3.9
1	n	928	TYR	3.9
1	p	928	TYR	3.9
1	j	901	GLN	3.8
1	q	962	PHE	3.8
1	m	951	LYS	3.8
1	F	941	ASN	3.8
1	l	941	ASN	3.8
1	q	910	GLN	3.8
1	m	893	VAL	3.7
1	u	916	GLN	3.7
1	P	966	THR	3.7
1	k	951	LYS	3.7
1	k	927	SER	3.6
1	j	893	VAL	3.6
1	O	894	LYS	3.6
1	o	910	GLN	3.6
1	u	890	SER	3.6
1	o	964	ASN	3.6
1	q	918	VAL	3.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	2	940	GLU	3.5
1	l	893	VAL	3.5
1	P	951	LYS	3.5
1	n	917	LEU	3.5
1	m	890	SER	3.4
1	o	896	VAL	3.4
1	l	962	PHE	3.4
1	P	932	ASN	3.4
1	w	964	ASN	3.4
1	n	930	SER	3.4
1	g	896	VAL	3.3
1	o	966	THR	3.3
1	P	946	ASP	3.3
1	3	941	ASN	3.3
1	o	935	THR	3.3
1	o	962	PHE	3.3
1	O	962	PHE	3.3
1	k	947	TYR	3.3
1	k	955	LEU	3.3
1	a	965	PRO	3.2
1	n	950	GLN	3.2
1	q	932	ASN	3.2
1	a	966	THR	3.2
1	q	924	SER	3.2
1	E	941	ASN	3.2
1	n	904	SER	3.2
1	O	917	LEU	3.2
1	o	913	ASP	3.2
1	j	965	PRO	3.2
1	q	892	PHE	3.2
1	s	893	VAL	3.2
1	p	955	LEU	3.2
1	j	908	TRP	3.1
1	k	926	ILE	3.1
1	l	961	MET	3.1
1	o	920	GLN	3.1
1	8	962	PHE	3.1
1	l	901	GLN	3.1
1	n	962	PHE	3.1
1	n	959	LEU	3.1
1	n	898	TRP	3.1
1	n	896	VAL	3.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	x	966	THR	3.0
1	o	961	MET	3.0
1	8	966	THR	3.0
1	u	910	GLN	3.0
1	l	948	ILE	3.0
1	g	910	GLN	3.0
1	9	962	PHE	3.0
1	l	951	LYS	2.9
1	J	955	LEU	2.9
1	s	908	TRP	2.9
1	q	896	VAL	2.9
1	r	959	LEU	2.9
1	s	917	LEU	2.9
1	v	966	THR	2.9
1	N	908	TRP	2.9
1	p	935	THR	2.9
1	m	902	LEU	2.9
1	p	932	ASN	2.9
1	g	916	GLN	2.9
1	q	923	VAL	2.9
1	O	910	GLN	2.9
1	o	907	VAL	2.9
1	n	946	ASP	2.9
1	o	911	PHE	2.9
1	n	916	GLN	2.9
1	U	962	PHE	2.8
1	g	962	PHE	2.8
1	4	917	LEU	2.8
1	e	918	VAL	2.8
1	g	893	VAL	2.8
1	p	919	VAL	2.8
1	j	961	MET	2.8
1	P	950	GLN	2.8
1	N	962	PHE	2.8
1	g	917	LEU	2.8
1	n	938	TYR	2.8
1	o	895	ASN	2.8
1	o	942	GLU	2.8
1	q	933	GLY	2.8
1	p	949	LYS	2.8
1	k	932	ASN	2.8
1	q	960	LEU	2.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	t	902	LEU	2.8
1	s	961	MET	2.7
1	n	922	GLY	2.7
1	p	914	GLY	2.7
1	y	962	PHE	2.7
1	2	936	THR	2.7
1	p	929	THR	2.7
1	9	908	TRP	2.7
1	p	908	TRP	2.7
1	i	893	VAL	2.7
1	N	910	GLN	2.7
1	G	966	THR	2.7
1	9	966	THR	2.7
1	q	897	GLY	2.7
1	O	895	ASN	2.7
1	n	951	LYS	2.7
1	u	908	TRP	2.7
1	H	917	LEU	2.7
1	n	960	LEU	2.7
1	k	935	THR	2.7
1	p	942	GLU	2.6
1	P	931	PRO	2.6
1	l	891	VAL	2.6
1	n	948	ILE	2.6
1	f	924	SER	2.6
1	w	902	LEU	2.6
1	p	961	MET	2.6
1	d	919	VAL	2.6
1	8	959	LEU	2.6
1	p	952	LEU	2.6
1	o	909	VAL	2.6
1	o	921	ALA	2.6
1	p	916	GLN	2.5
1	n	952	LEU	2.5
1	n	908	TRP	2.5
1	u	898	TRP	2.5
1	9	893	VAL	2.5
1	8	961	MET	2.5
1	p	965	PRO	2.5
1	7	932	ASN	2.5
1	p	920	GLN	2.5
1	p	954	CYS	2.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	n	932	ASN	2.5
1	H	894	LYS	2.5
1	q	961	MET	2.5
1	u	961	MET	2.5
1	x	908	TRP	2.5
1	o	963	SER	2.5
1	k	936	THR	2.5
1	j	891	VAL	2.5
1	o	927	SER	2.5
1	2	937	ARG	2.5
1	t	898	TRP	2.5
1	s	910	GLN	2.5
1	j	911	PHE	2.5
1	l	911	PHE	2.5
1	L	902	LEU	2.4
1	k	907	VAL	2.4
1	p	918	VAL	2.4
1	q	894	LYS	2.4
1	M	935	THR	2.4
1	p	893	VAL	2.4
1	d	910	GLN	2.4
1	q	911	PHE	2.4
1	k	934	GLN	2.4
1	o	926	ILE	2.4
1	k	946	ASP	2.4
1	g	960	LEU	2.4
1	Z	962	PHE	2.4
1	p	937	ARG	2.4
1	q	958	ILE	2.4
1	e	902	LEU	2.4
1	l	947	TYR	2.4
1	n	958	ILE	2.4
1	n	918	VAL	2.4
1	o	936	THR	2.4
1	q	903	THR	2.4
1	o	959	LEU	2.4
1	Q	890	SER	2.4
1	S	962	PHE	2.4
1	n	910	GLN	2.4
1	o	916	GLN	2.3
1	Y	960	LEU	2.3
1	Y	962	PHE	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	s	965	PRO	2.3
1	J	896	VAL	2.3
1	K	951	LYS	2.3
1	o	958	ILE	2.3
1	q	965	PRO	2.3
1	s	959	LEU	2.3
1	c	962	PHE	2.3
1	u	962	PHE	2.3
1	H	903	THR	2.3
1	u	960	LEU	2.3
1	y	960	LEU	2.3
1	7	907	VAL	2.3
1	J	910	GLN	2.3
1	N	960	LEU	2.3
1	P	917	LEU	2.3
1	1	917	LEU	2.3
1	7	893	VAL	2.3
1	t	957	SER	2.3
1	7	955	LEU	2.3
1	t	909	VAL	2.3
1	J	894	LYS	2.3
1	V	965	PRO	2.3
1	k	898	TRP	2.3
1	f	923	VAL	2.3
1	E	959	LEU	2.3
1	o	955	LEU	2.3
1	p	960	LEU	2.3
1	q	954	CYS	2.3
1	L	962	PHE	2.3
1	n	957	SER	2.3
1	C	941	ASN	2.3
1	q	959	LEU	2.3
1	7	962	PHE	2.3
1	l	960	LEU	2.2
1	s	894	LYS	2.2
1	i	896	VAL	2.2
1	P	926	ILE	2.2
1	e	936	THR	2.2
1	t	955	LEU	2.2
1	R	962	PHE	2.2
1	k	931	PRO	2.2
1	g	908	TRP	2.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	w	908	TRP	2.2
1	u	892	PHE	2.2
1	4	908	TRP	2.2
1	t	959	LEU	2.2
1	b	890	SER	2.2
1	r	962	PHE	2.2
1	q	907	VAL	2.2
1	n	947	TYR	2.2
1	h	955	LEU	2.2
1	x	896	VAL	2.2
1	k	940	GLU	2.2
1	s	966	THR	2.2
1	u	896	VAL	2.2
1	i	960	LEU	2.2
1	H	908	TRP	2.2
1	O	958	ILE	2.2
1	2	930	SER	2.2
1	o	948	ILE	2.2
1	G	901	GLN	2.2
1	p	962	PHE	2.2
1	R	958	ILE	2.2
1	g	941	ASN	2.2
1	r	898	TRP	2.2
1	O	960	LEU	2.2
1	n	944	LEU	2.2
1	o	950	GLN	2.2
1	a	896	VAL	2.2
1	o	918	VAL	2.2
1	R	917	LEU	2.1
1	a	917	LEU	2.1
1	l	917	LEU	2.1
1	a	908	TRP	2.1
1	j	917	LEU	2.1
1	F	962	PHE	2.1
1	p	910	GLN	2.1
1	q	920	GLN	2.1
1	t	961	MET	2.1
1	M	941	ASN	2.1
1	O	908	TRP	2.1
1	G	958	ILE	2.1
1	I	893	VAL	2.1
1	j	902	LEU	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	x	917	LEU	2.1
1	p	947	TYR	2.1
1	h	894	LYS	2.1
1	E	962	PHE	2.1
1	i	910	GLN	2.1
1	J	902	LEU	2.1
1	k	933	GLY	2.1
1	u	959	LEU	2.1
1	J	949	LYS	2.1
1	D	896	VAL	2.1
1	8	958	ILE	2.1
1	p	891	VAL	2.1
1	n	955	LEU	2.1
1	7	951	LYS	2.1
1	h	960	LEU	2.1
1	9	942	GLU	2.1
1	i	902	LEU	2.1
1	o	960	LEU	2.1
1	y	890	SER	2.1
1	K	917	LEU	2.1
1	N	898	TRP	2.1
1	l	910	GLN	2.1
1	n	920	GLN	2.1
1	I	962	PHE	2.1
1	a	962	PHE	2.1
1	I	935	THR	2.1
1	g	890	SER	2.1
1	q	966	THR	2.1
1	D	916	GLN	2.0
1	n	961	MET	2.0
1	t	962	PHE	2.0
1	9	940	GLU	2.0
1	v	891	VAL	2.0
1	J	917	LEU	2.0
1	L	960	LEU	2.0
1	d	917	LEU	2.0
1	b	938	TYR	2.0
1	9	960	LEU	2.0
1	f	939	GLY	2.0
1	k	949	LYS	2.0
1	t	960	LEU	2.0
1	t	895	ASN	2.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	o	901	GLN	2.0
1	O	907	VAL	2.0
1	a	947	TYR	2.0
1	f	951	LYS	2.0
1	M	942	GLU	2.0
1	j	916	GLN	2.0
1	H	893	VAL	2.0
1	M	893	VAL	2.0
1	n	909	VAL	2.0
1	a	911	PHE	2.0
1	h	892	PHE	2.0
1	b	941	ASN	2.0
1	e	950	GLN	2.0
1	X	960	LEU	2.0
1	k	952	LEU	2.0

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 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.