wwPDB X-ray Structure Validation Summary Report (i)

Dec 3, 2024 – 12:24 PM EST

PDB ID	:	9BKX
Title	:	Mycobacterium tuberculosis encapsulin in complex with DyP
Authors	:	Cuthbert, B.J.; Batot, G.O.; Contreras, H.; Chen, X.; Burley, K.H.; Goulding, C.W.
Deposited on	:	2024-04-29
Resolution	:	3.15 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 (i) 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 (i)) were used in the production of this report:

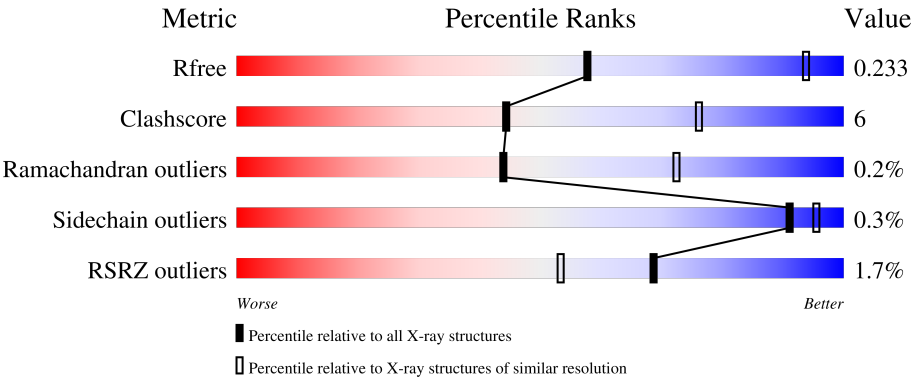
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.15 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}	164625	2168 (3.20-3.12)
Clashscore	180529	2333 (3.20-3.12)
Ramachandran outliers	177936	2266 (3.20-3.12)
Sidechain outliers	177891	2265 (3.20-3.12)
RSRZ outliers	164620	2169 (3.20-3.12)

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 <=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	279	84% 12% .
1	B	279	80% 15% 5%
1	C	279	% 77% 19% .
1	D	279	% 82% 13% 5%
1	E	279	86% 12% .

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	279	78% 17% 5%
1	G	279	85% 11% 5%
1	H	279	81% 15%
1	I	279	86% 9%
1	J	279	84% 11%
1	K	279	80% 15% 5%
1	L	279	83% 11% 5%
1	M	279	84% 11% 5%
1	N	279	80% 15% 5%
1	O	279	79% 16% 5%
1	P	279	82% 13% 5%
1	Q	279	84% 11% 5%
1	R	279	83% 12% 5%
1	S	279	84% 11%
1	T	279	84% 11% 5%
2	d	335	97%
2	g	335	98%
2	h	335	97%
2	i	335	96%
2	p	335	98%
2	q	335	98%
2	r	335	98%
2	s	335	97%
2	t	335	98%

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 42837 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 Type 1 encapsulin shell protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	267	Total	C	N	O	S	0	1	0
			2040	1282	358	398	2			
1	B	265	Total	C	N	O	S	0	0	0
			2030	1276	354	398	2			
1	C	268	Total	C	N	O	S	0	1	0
			2055	1293	359	401	2			
1	D	266	Total	C	N	O	S	0	1	0
			2042	1284	355	401	2			
1	E	272	Total	C	N	O	S	0	0	0
			2075	1305	361	407	2			
1	F	266	Total	C	N	O	S	0	0	0
			2035	1279	355	399	2			
1	G	266	Total	C	N	O	S	0	0	0
			2035	1279	354	400	2			
1	H	267	Total	C	N	O	S	0	0	0
			2044	1284	356	402	2			
1	I	267	Total	C	N	O	S	0	0	0
			2044	1284	356	402	2			
1	J	267	Total	C	N	O	S	0	0	0
			2040	1282	356	400	2			
1	K	266	Total	C	N	O	S	0	0	0
			2039	1281	355	401	2			
1	L	265	Total	C	N	O	S	0	2	0
			2039	1281	356	400	2			
1	M	266	Total	C	N	O	S	0	0	0
			2031	1277	355	397	2			
1	N	266	Total	C	N	O	S	0	0	0
			2035	1278	354	401	2			
1	O	266	Total	C	N	O	S	0	0	0
			2035	1279	355	399	2			
1	P	266	Total	C	N	O	S	0	0	0
			2027	1274	354	397	2			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	Q	265	Total	C	N	O	S	0	0	0
			2023	1272	353	396	2			
1	R	266	Total	C	N	O	S	0	0	0
			2035	1278	354	401	2			
1	S	267	Total	C	N	O	S	0	3	0
			2065	1299	362	402	2			
1	T	266	Total	C	N	O	S	0	0	0
			2039	1281	355	401	2			

There are 280 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	266	LYS	-	expression tag	UNP I6WZG6
A	267	LEU	-	expression tag	UNP I6WZG6
A	268	ALA	-	expression tag	UNP I6WZG6
A	269	ALA	-	expression tag	UNP I6WZG6
A	270	ALA	-	expression tag	UNP I6WZG6
A	271	ALA	-	expression tag	UNP I6WZG6
A	272	LEU	-	expression tag	UNP I6WZG6
A	273	GLU	-	expression tag	UNP I6WZG6
A	274	HIS	-	expression tag	UNP I6WZG6
A	275	HIS	-	expression tag	UNP I6WZG6
A	276	HIS	-	expression tag	UNP I6WZG6
A	277	HIS	-	expression tag	UNP I6WZG6
A	278	HIS	-	expression tag	UNP I6WZG6
A	279	HIS	-	expression tag	UNP I6WZG6
B	266	LYS	-	expression tag	UNP I6WZG6
B	267	LEU	-	expression tag	UNP I6WZG6
B	268	ALA	-	expression tag	UNP I6WZG6
B	269	ALA	-	expression tag	UNP I6WZG6
B	270	ALA	-	expression tag	UNP I6WZG6
B	271	ALA	-	expression tag	UNP I6WZG6
B	272	LEU	-	expression tag	UNP I6WZG6
B	273	GLU	-	expression tag	UNP I6WZG6
B	274	HIS	-	expression tag	UNP I6WZG6
B	275	HIS	-	expression tag	UNP I6WZG6
B	276	HIS	-	expression tag	UNP I6WZG6
B	277	HIS	-	expression tag	UNP I6WZG6
B	278	HIS	-	expression tag	UNP I6WZG6
B	279	HIS	-	expression tag	UNP I6WZG6
C	266	LYS	-	expression tag	UNP I6WZG6
C	267	LEU	-	expression tag	UNP I6WZG6
C	268	ALA	-	expression tag	UNP I6WZG6

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	269	ALA	-	expression tag	UNP I6WZG6
C	270	ALA	-	expression tag	UNP I6WZG6
C	271	ALA	-	expression tag	UNP I6WZG6
C	272	LEU	-	expression tag	UNP I6WZG6
C	273	GLU	-	expression tag	UNP I6WZG6
C	274	HIS	-	expression tag	UNP I6WZG6
C	275	HIS	-	expression tag	UNP I6WZG6
C	276	HIS	-	expression tag	UNP I6WZG6
C	277	HIS	-	expression tag	UNP I6WZG6
C	278	HIS	-	expression tag	UNP I6WZG6
C	279	HIS	-	expression tag	UNP I6WZG6
D	266	LYS	-	expression tag	UNP I6WZG6
D	267	LEU	-	expression tag	UNP I6WZG6
D	268	ALA	-	expression tag	UNP I6WZG6
D	269	ALA	-	expression tag	UNP I6WZG6
D	270	ALA	-	expression tag	UNP I6WZG6
D	271	ALA	-	expression tag	UNP I6WZG6
D	272	LEU	-	expression tag	UNP I6WZG6
D	273	GLU	-	expression tag	UNP I6WZG6
D	274	HIS	-	expression tag	UNP I6WZG6
D	275	HIS	-	expression tag	UNP I6WZG6
D	276	HIS	-	expression tag	UNP I6WZG6
D	277	HIS	-	expression tag	UNP I6WZG6
D	278	HIS	-	expression tag	UNP I6WZG6
D	279	HIS	-	expression tag	UNP I6WZG6
E	266	LYS	-	expression tag	UNP I6WZG6
E	267	LEU	-	expression tag	UNP I6WZG6
E	268	ALA	-	expression tag	UNP I6WZG6
E	269	ALA	-	expression tag	UNP I6WZG6
E	270	ALA	-	expression tag	UNP I6WZG6
E	271	ALA	-	expression tag	UNP I6WZG6
E	272	LEU	-	expression tag	UNP I6WZG6
E	273	GLU	-	expression tag	UNP I6WZG6
E	274	HIS	-	expression tag	UNP I6WZG6
E	275	HIS	-	expression tag	UNP I6WZG6
E	276	HIS	-	expression tag	UNP I6WZG6
E	277	HIS	-	expression tag	UNP I6WZG6
E	278	HIS	-	expression tag	UNP I6WZG6
E	279	HIS	-	expression tag	UNP I6WZG6
F	266	LYS	-	expression tag	UNP I6WZG6
F	267	LEU	-	expression tag	UNP I6WZG6
F	268	ALA	-	expression tag	UNP I6WZG6

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
F	269	ALA	-	expression tag	UNP I6WZG6
F	270	ALA	-	expression tag	UNP I6WZG6
F	271	ALA	-	expression tag	UNP I6WZG6
F	272	LEU	-	expression tag	UNP I6WZG6
F	273	GLU	-	expression tag	UNP I6WZG6
F	274	HIS	-	expression tag	UNP I6WZG6
F	275	HIS	-	expression tag	UNP I6WZG6
F	276	HIS	-	expression tag	UNP I6WZG6
F	277	HIS	-	expression tag	UNP I6WZG6
F	278	HIS	-	expression tag	UNP I6WZG6
F	279	HIS	-	expression tag	UNP I6WZG6
G	266	LYS	-	expression tag	UNP I6WZG6
G	267	LEU	-	expression tag	UNP I6WZG6
G	268	ALA	-	expression tag	UNP I6WZG6
G	269	ALA	-	expression tag	UNP I6WZG6
G	270	ALA	-	expression tag	UNP I6WZG6
G	271	ALA	-	expression tag	UNP I6WZG6
G	272	LEU	-	expression tag	UNP I6WZG6
G	273	GLU	-	expression tag	UNP I6WZG6
G	274	HIS	-	expression tag	UNP I6WZG6
G	275	HIS	-	expression tag	UNP I6WZG6
G	276	HIS	-	expression tag	UNP I6WZG6
G	277	HIS	-	expression tag	UNP I6WZG6
G	278	HIS	-	expression tag	UNP I6WZG6
G	279	HIS	-	expression tag	UNP I6WZG6
H	266	LYS	-	expression tag	UNP I6WZG6
H	267	LEU	-	expression tag	UNP I6WZG6
H	268	ALA	-	expression tag	UNP I6WZG6
H	269	ALA	-	expression tag	UNP I6WZG6
H	270	ALA	-	expression tag	UNP I6WZG6
H	271	ALA	-	expression tag	UNP I6WZG6
H	272	LEU	-	expression tag	UNP I6WZG6
H	273	GLU	-	expression tag	UNP I6WZG6
H	274	HIS	-	expression tag	UNP I6WZG6
H	275	HIS	-	expression tag	UNP I6WZG6
H	276	HIS	-	expression tag	UNP I6WZG6
H	277	HIS	-	expression tag	UNP I6WZG6
H	278	HIS	-	expression tag	UNP I6WZG6
H	279	HIS	-	expression tag	UNP I6WZG6
I	266	LYS	-	expression tag	UNP I6WZG6
I	267	LEU	-	expression tag	UNP I6WZG6
I	268	ALA	-	expression tag	UNP I6WZG6

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
I	269	ALA	-	expression tag	UNP I6WZG6
I	270	ALA	-	expression tag	UNP I6WZG6
I	271	ALA	-	expression tag	UNP I6WZG6
I	272	LEU	-	expression tag	UNP I6WZG6
I	273	GLU	-	expression tag	UNP I6WZG6
I	274	HIS	-	expression tag	UNP I6WZG6
I	275	HIS	-	expression tag	UNP I6WZG6
I	276	HIS	-	expression tag	UNP I6WZG6
I	277	HIS	-	expression tag	UNP I6WZG6
I	278	HIS	-	expression tag	UNP I6WZG6
I	279	HIS	-	expression tag	UNP I6WZG6
J	266	LYS	-	expression tag	UNP I6WZG6
J	267	LEU	-	expression tag	UNP I6WZG6
J	268	ALA	-	expression tag	UNP I6WZG6
J	269	ALA	-	expression tag	UNP I6WZG6
J	270	ALA	-	expression tag	UNP I6WZG6
J	271	ALA	-	expression tag	UNP I6WZG6
J	272	LEU	-	expression tag	UNP I6WZG6
J	273	GLU	-	expression tag	UNP I6WZG6
J	274	HIS	-	expression tag	UNP I6WZG6
J	275	HIS	-	expression tag	UNP I6WZG6
J	276	HIS	-	expression tag	UNP I6WZG6
J	277	HIS	-	expression tag	UNP I6WZG6
J	278	HIS	-	expression tag	UNP I6WZG6
J	279	HIS	-	expression tag	UNP I6WZG6
K	266	LYS	-	expression tag	UNP I6WZG6
K	267	LEU	-	expression tag	UNP I6WZG6
K	268	ALA	-	expression tag	UNP I6WZG6
K	269	ALA	-	expression tag	UNP I6WZG6
K	270	ALA	-	expression tag	UNP I6WZG6
K	271	ALA	-	expression tag	UNP I6WZG6
K	272	LEU	-	expression tag	UNP I6WZG6
K	273	GLU	-	expression tag	UNP I6WZG6
K	274	HIS	-	expression tag	UNP I6WZG6
K	275	HIS	-	expression tag	UNP I6WZG6
K	276	HIS	-	expression tag	UNP I6WZG6
K	277	HIS	-	expression tag	UNP I6WZG6
K	278	HIS	-	expression tag	UNP I6WZG6
K	279	HIS	-	expression tag	UNP I6WZG6
L	266	LYS	-	expression tag	UNP I6WZG6
L	267	LEU	-	expression tag	UNP I6WZG6
L	268	ALA	-	expression tag	UNP I6WZG6

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
L	269	ALA	-	expression tag	UNP I6WZG6
L	270	ALA	-	expression tag	UNP I6WZG6
L	271	ALA	-	expression tag	UNP I6WZG6
L	272	LEU	-	expression tag	UNP I6WZG6
L	273	GLU	-	expression tag	UNP I6WZG6
L	274	HIS	-	expression tag	UNP I6WZG6
L	275	HIS	-	expression tag	UNP I6WZG6
L	276	HIS	-	expression tag	UNP I6WZG6
L	277	HIS	-	expression tag	UNP I6WZG6
L	278	HIS	-	expression tag	UNP I6WZG6
L	279	HIS	-	expression tag	UNP I6WZG6
M	266	LYS	-	expression tag	UNP I6WZG6
M	267	LEU	-	expression tag	UNP I6WZG6
M	268	ALA	-	expression tag	UNP I6WZG6
M	269	ALA	-	expression tag	UNP I6WZG6
M	270	ALA	-	expression tag	UNP I6WZG6
M	271	ALA	-	expression tag	UNP I6WZG6
M	272	LEU	-	expression tag	UNP I6WZG6
M	273	GLU	-	expression tag	UNP I6WZG6
M	274	HIS	-	expression tag	UNP I6WZG6
M	275	HIS	-	expression tag	UNP I6WZG6
M	276	HIS	-	expression tag	UNP I6WZG6
M	277	HIS	-	expression tag	UNP I6WZG6
M	278	HIS	-	expression tag	UNP I6WZG6
M	279	HIS	-	expression tag	UNP I6WZG6
N	266	LYS	-	expression tag	UNP I6WZG6
N	267	LEU	-	expression tag	UNP I6WZG6
N	268	ALA	-	expression tag	UNP I6WZG6
N	269	ALA	-	expression tag	UNP I6WZG6
N	270	ALA	-	expression tag	UNP I6WZG6
N	271	ALA	-	expression tag	UNP I6WZG6
N	272	LEU	-	expression tag	UNP I6WZG6
N	273	GLU	-	expression tag	UNP I6WZG6
N	274	HIS	-	expression tag	UNP I6WZG6
N	275	HIS	-	expression tag	UNP I6WZG6
N	276	HIS	-	expression tag	UNP I6WZG6
N	277	HIS	-	expression tag	UNP I6WZG6
N	278	HIS	-	expression tag	UNP I6WZG6
N	279	HIS	-	expression tag	UNP I6WZG6
O	266	LYS	-	expression tag	UNP I6WZG6
O	267	LEU	-	expression tag	UNP I6WZG6
O	268	ALA	-	expression tag	UNP I6WZG6

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
O	269	ALA	-	expression tag	UNP I6WZG6
O	270	ALA	-	expression tag	UNP I6WZG6
O	271	ALA	-	expression tag	UNP I6WZG6
O	272	LEU	-	expression tag	UNP I6WZG6
O	273	GLU	-	expression tag	UNP I6WZG6
O	274	HIS	-	expression tag	UNP I6WZG6
O	275	HIS	-	expression tag	UNP I6WZG6
O	276	HIS	-	expression tag	UNP I6WZG6
O	277	HIS	-	expression tag	UNP I6WZG6
O	278	HIS	-	expression tag	UNP I6WZG6
O	279	HIS	-	expression tag	UNP I6WZG6
P	266	LYS	-	expression tag	UNP I6WZG6
P	267	LEU	-	expression tag	UNP I6WZG6
P	268	ALA	-	expression tag	UNP I6WZG6
P	269	ALA	-	expression tag	UNP I6WZG6
P	270	ALA	-	expression tag	UNP I6WZG6
P	271	ALA	-	expression tag	UNP I6WZG6
P	272	LEU	-	expression tag	UNP I6WZG6
P	273	GLU	-	expression tag	UNP I6WZG6
P	274	HIS	-	expression tag	UNP I6WZG6
P	275	HIS	-	expression tag	UNP I6WZG6
P	276	HIS	-	expression tag	UNP I6WZG6
P	277	HIS	-	expression tag	UNP I6WZG6
P	278	HIS	-	expression tag	UNP I6WZG6
P	279	HIS	-	expression tag	UNP I6WZG6
Q	266	LYS	-	expression tag	UNP I6WZG6
Q	267	LEU	-	expression tag	UNP I6WZG6
Q	268	ALA	-	expression tag	UNP I6WZG6
Q	269	ALA	-	expression tag	UNP I6WZG6
Q	270	ALA	-	expression tag	UNP I6WZG6
Q	271	ALA	-	expression tag	UNP I6WZG6
Q	272	LEU	-	expression tag	UNP I6WZG6
Q	273	GLU	-	expression tag	UNP I6WZG6
Q	274	HIS	-	expression tag	UNP I6WZG6
Q	275	HIS	-	expression tag	UNP I6WZG6
Q	276	HIS	-	expression tag	UNP I6WZG6
Q	277	HIS	-	expression tag	UNP I6WZG6
Q	278	HIS	-	expression tag	UNP I6WZG6
Q	279	HIS	-	expression tag	UNP I6WZG6
R	266	LYS	-	expression tag	UNP I6WZG6
R	267	LEU	-	expression tag	UNP I6WZG6
R	268	ALA	-	expression tag	UNP I6WZG6

Continued on next page...

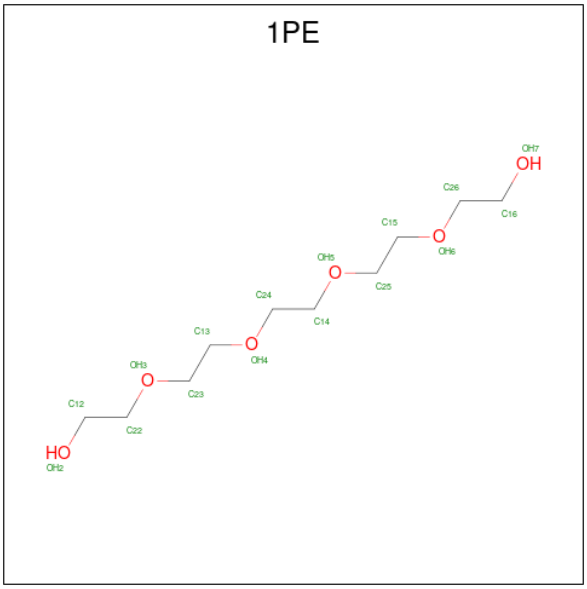
Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
R	269	ALA	-	expression tag	UNP I6WZG6
R	270	ALA	-	expression tag	UNP I6WZG6
R	271	ALA	-	expression tag	UNP I6WZG6
R	272	LEU	-	expression tag	UNP I6WZG6
R	273	GLU	-	expression tag	UNP I6WZG6
R	274	HIS	-	expression tag	UNP I6WZG6
R	275	HIS	-	expression tag	UNP I6WZG6
R	276	HIS	-	expression tag	UNP I6WZG6
R	277	HIS	-	expression tag	UNP I6WZG6
R	278	HIS	-	expression tag	UNP I6WZG6
R	279	HIS	-	expression tag	UNP I6WZG6
S	266	LYS	-	expression tag	UNP I6WZG6
S	267	LEU	-	expression tag	UNP I6WZG6
S	268	ALA	-	expression tag	UNP I6WZG6
S	269	ALA	-	expression tag	UNP I6WZG6
S	270	ALA	-	expression tag	UNP I6WZG6
S	271	ALA	-	expression tag	UNP I6WZG6
S	272	LEU	-	expression tag	UNP I6WZG6
S	273	GLU	-	expression tag	UNP I6WZG6
S	274	HIS	-	expression tag	UNP I6WZG6
S	275	HIS	-	expression tag	UNP I6WZG6
S	276	HIS	-	expression tag	UNP I6WZG6
S	277	HIS	-	expression tag	UNP I6WZG6
S	278	HIS	-	expression tag	UNP I6WZG6
S	279	HIS	-	expression tag	UNP I6WZG6
T	266	LYS	-	expression tag	UNP I6WZG6
T	267	LEU	-	expression tag	UNP I6WZG6
T	268	ALA	-	expression tag	UNP I6WZG6
T	269	ALA	-	expression tag	UNP I6WZG6
T	270	ALA	-	expression tag	UNP I6WZG6
T	271	ALA	-	expression tag	UNP I6WZG6
T	272	LEU	-	expression tag	UNP I6WZG6
T	273	GLU	-	expression tag	UNP I6WZG6
T	274	HIS	-	expression tag	UNP I6WZG6
T	275	HIS	-	expression tag	UNP I6WZG6
T	276	HIS	-	expression tag	UNP I6WZG6
T	277	HIS	-	expression tag	UNP I6WZG6
T	278	HIS	-	expression tag	UNP I6WZG6
T	279	HIS	-	expression tag	UNP I6WZG6

- Molecule 2 is a protein called Dye-decolorizing peroxidase.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	d	10	Total C N O 54 33 10 11	0	0	0
2	g	6	Total C N O 35 23 6 6	0	0	0
2	h	9	Total C N O 50 31 9 10	0	0	0
2	i	12	Total C N O 74 47 12 15	0	0	0
2	p	8	Total C N O 44 28 8 8	0	0	0
2	q	8	Total C N O 43 25 8 10	0	0	0
2	r	8	Total C N O 48 31 8 9	0	0	0
2	s	10	Total C N O 60 39 11 10	0	0	0
2	t	8	Total C N O 50 32 8 10	0	0	0

- Molecule 3 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 13 8 5	0	0
3	A	1	Total C O 7 4 3	0	0
3	B	1	Total C O 10 6 4	0	0

Continued on next page...

Continued from previous page...

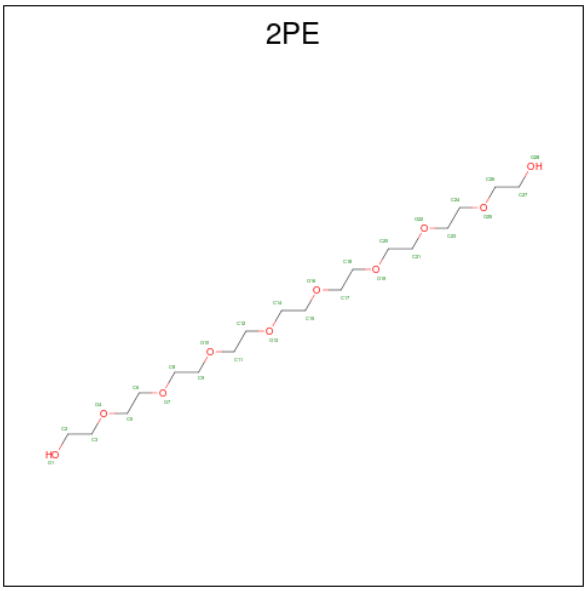
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total C O 10 6 4	0	0
3	B	1	Total C O 16 10 6	0	0
3	C	1	Total C O 10 6 4	0	0
3	C	1	Total C O 16 10 6	0	0
3	C	1	Total C O 32 20 12	0	1
3	E	1	Total C O 16 10 6	0	0
3	E	1	Total C O 10 6 4	0	0
3	F	1	Total C O 13 8 5	0	0
3	F	1	Total C O 16 10 6	0	0
3	F	1	Total C O 13 8 5	0	0
3	F	1	Total C O 32 20 12	0	1
3	G	1	Total C O 10 6 4	0	0
3	H	1	Total C O 16 10 6	0	0
3	H	1	Total C O 20 12 8	0	1
3	H	1	Total C O 10 6 4	0	0
3	I	1	Total C O 16 10 6	0	0
3	I	1	Total C O 10 6 4	0	0
3	I	1	Total C O 10 6 4	0	0
3	J	1	Total C O 10 6 4	0	0
3	J	1	Total C O 16 10 6	0	0
3	K	1	Total C O 10 6 4	0	0

Continued on next page...

Continued from previous page...

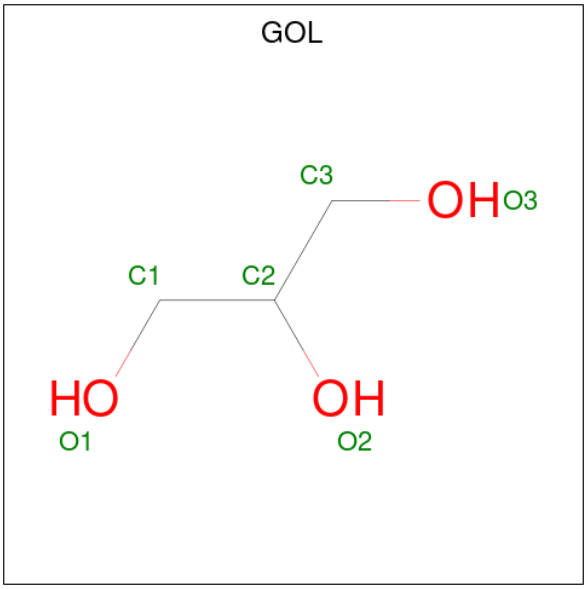
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	K	1	Total C O 13 8 5	0	0
3	L	1	Total C O 16 10 6	0	0
3	L	1	Total C O 13 8 5	0	0
3	L	1	Total C O 32 20 12	0	1
3	N	1	Total C O 10 6 4	0	0
3	N	1	Total C O 10 6 4	0	0
3	N	1	Total C O 13 8 5	0	0
3	O	1	Total C O 10 6 4	0	0
3	P	1	Total C O 13 8 5	0	0
3	P	1	Total C O 13 8 5	0	0
3	Q	1	Total C O 16 10 6	0	0
3	Q	1	Total C O 10 6 4	0	0
3	R	1	Total C O 10 6 4	0	0
3	R	1	Total C O 7 4 3	0	0
3	R	1	Total C O 13 8 5	0	0
3	T	1	Total C O 16 10 6	0	0
3	T	1	Total C O 10 6 4	0	0

- Molecule 4 is NONAETHYLENE GLYCOL (three-letter code: 2PE) (formula: $C_{18}H_{38}O_{10}$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 10 6 4	0	0
4	H	1	Total C O 25 16 9	0	0
4	H	1	Total C O 22 14 8	0	0
4	J	1	Total C O 16 10 6	0	0
4	L	1	Total C O 25 16 9	0	0

- Molecule 5 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 6 3 3	0	0
5	A	1	Total C O 6 3 3	0	0
5	A	1	Total C O 6 3 3	0	0
5	A	1	Total C O 6 3 3	0	0
5	A	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	B	1	Total C O 6 3 3	0	0
5	C	1	Total C O 6 3 3	0	0
5	C	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	D	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0
5	E	1	Total C O 6 3 3	0	0
5	F	1	Total C O 6 3 3	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	F	1	Total	C	O	0	0
			6	3	3		
5	F	1	Total	C	O	0	0
			6	3	3		
5	G	1	Total	C	O	0	0
			6	3	3		
5	H	1	Total	C	O	0	0
			6	3	3		
5	H	1	Total	C	O	0	0
			6	3	3		
5	H	1	Total	C	O	0	0
			6	3	3		
5	H	1	Total	C	O	0	0
			6	3	3		
5	H	1	Total	C	O	0	0
			6	3	3		
5	I	1	Total	C	O	0	0
			6	3	3		
5	I	1	Total	C	O	0	0
			6	3	3		
5	I	1	Total	C	O	0	0
			6	3	3		
5	I	1	Total	C	O	0	0
			6	3	3		
5	I	1	Total	C	O	0	0
			6	3	3		
5	I	1	Total	C	O	0	0
			6	3	3		
5	J	1	Total	C	O	0	0
			6	3	3		
5	J	1	Total	C	O	0	0
			6	3	3		
5	J	1	Total	C	O	0	0
			6	3	3		
5	J	1	Total	C	O	0	0
			6	3	3		
5	K	1	Total	C	O	0	0
			6	3	3		
5	K	1	Total	C	O	0	0
			6	3	3		
5	K	1	Total	C	O	0	0
			6	3	3		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	K	1	Total	C	O	0	0
			6	3	3		
5	K	1	Total	C	O	0	0
			6	3	3		
5	K	1	Total	C	O	0	0
			6	3	3		
5	L	1	Total	C	O	0	0
			6	3	3		
5	L	1	Total	C	O	0	0
			6	3	3		
5	L	1	Total	C	O	0	0
			6	3	3		
5	L	1	Total	C	O	0	0
			6	3	3		
5	M	1	Total	C	O	0	0
			6	3	3		
5	M	1	Total	C	O	0	0
			6	3	3		
5	M	1	Total	C	O	0	0
			6	3	3		
5	N	1	Total	C	O	0	0
			6	3	3		
5	N	1	Total	C	O	0	0
			6	3	3		
5	O	1	Total	C	O	0	0
			6	3	3		
5	O	1	Total	C	O	0	0
			6	3	3		
5	O	1	Total	C	O	0	0
			6	3	3		
5	O	1	Total	C	O	0	0
			6	3	3		
5	O	1	Total	C	O	0	0
			6	3	3		
5	O	1	Total	C	O	0	0
			6	3	3		
5	Q	1	Total	C	O	0	0
			6	3	3		
5	Q	1	Total	C	O	0	0
			6	3	3		
5	Q	1	Total	C	O	0	0
			6	3	3		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	R	1	Total C O 6 3 3	0	0
5	R	1	Total C O 6 3 3	0	0
5	R	1	Total C O 6 3 3	0	0
5	R	1	Total C O 6 3 3	0	0
5	S	1	Total C O 6 3 3	0	0
5	S	1	Total C O 6 3 3	0	0
5	S	1	Total C O 6 3 3	0	0
5	S	1	Total C O 6 3 3	0	0
5	S	1	Total C O 6 3 3	0	0
5	S	1	Total C O 6 3 3	0	0
5	T	1	Total C O 6 3 3	0	0
5	T	1	Total C O 6 3 3	0	0
5	T	1	Total C O 6 3 3	0	0
5	T	1	Total C O 6 3 3	0	0

- Molecule 6 is NICKEL (II) ION (three-letter code: NI) (formula: Ni).

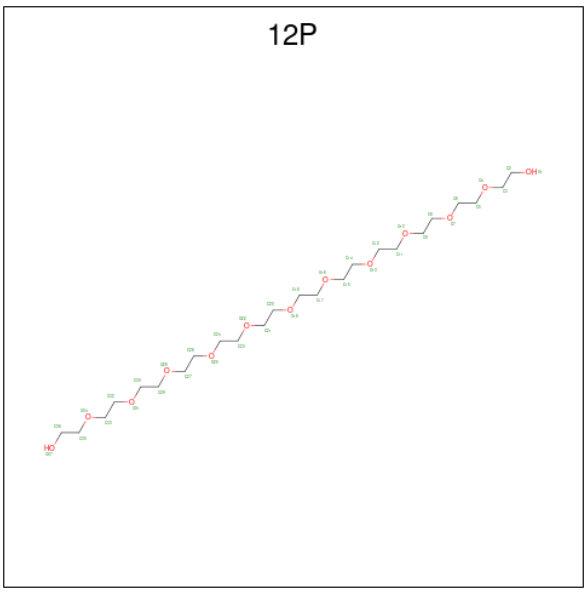
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total Ni 1 1	0	0
6	C	4	Total Ni 4 4	0	0
6	D	2	Total Ni 2 2	0	0
6	E	2	Total Ni 2 2	0	0
6	F	2	Total Ni 2 2	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	H	2	Total Ni 2 2	0	0
6	I	2	Total Ni 2 2	0	0
6	J	2	Total Ni 2 2	0	0
6	K	1	Total Ni 1 1	0	0
6	L	2	Total Ni 2 2	0	0
6	M	1	Total Ni 1 1	0	0
6	N	1	Total Ni 1 1	0	0
6	O	3	Total Ni 3 3	0	0
6	P	2	Total Ni 2 2	0	0
6	Q	2	Total Ni 2 2	0	0
6	R	1	Total Ni 1 1	0	0
6	S	3	Total Ni 3 3	0	0

- Molecule 7 is DODECAETHYLENE GLYCOL (three-letter code: 12P) (formula: $C_{24}H_{50}O_{13}$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	T	1	Total C O 13 8 5	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	25	Total O 25 25	0	0
8	B	14	Total O 14 14	0	0
8	C	15	Total O 15 15	0	0
8	D	16	Total O 16 16	0	0
8	E	14	Total O 14 14	0	0
8	F	24	Total O 24 24	0	0
8	G	12	Total O 12 12	0	0
8	H	23	Total O 23 23	0	0
8	I	29	Total O 29 29	0	0
8	J	30	Total O 30 30	0	0
8	K	24	Total O 24 24	0	0
8	L	28	Total O 28 28	0	0
8	M	18	Total O 18 18	0	0
8	N	17	Total O 17 17	0	0
8	O	16	Total O 16 16	0	0
8	P	14	Total O 14 14	0	0
8	Q	18	Total O 18 18	0	0
8	R	19	Total O 19 19	0	0
8	S	24	Total O 24 24	0	0

Continued on next page...

Continued from previous page...

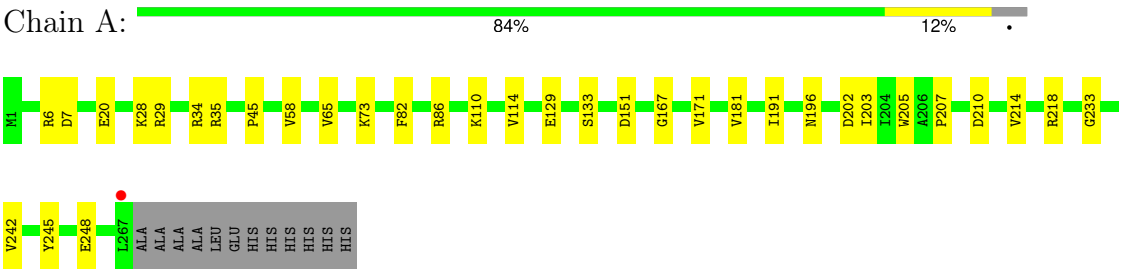
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	T	12	Total	O	0	0
			12	12		

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.

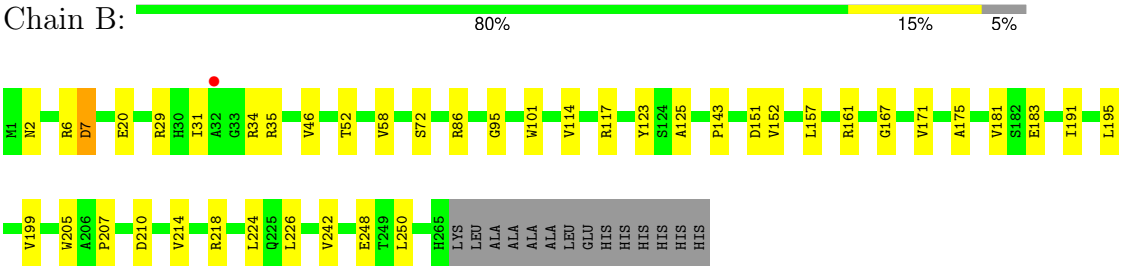
• Molecule 1: Type 1 encapsulin shell protein

Chain A:



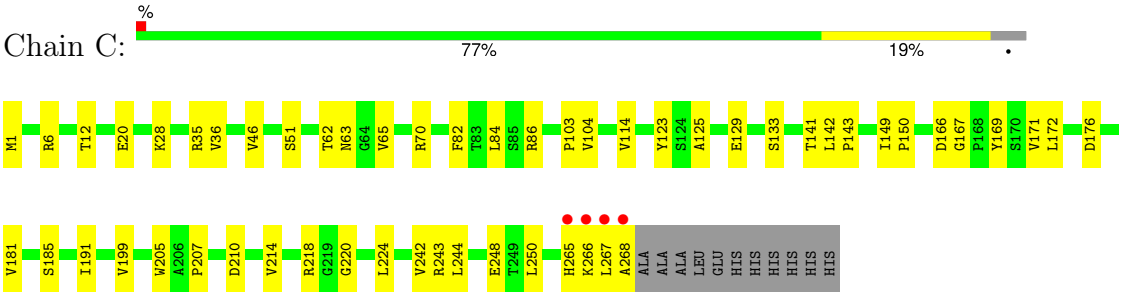
• Molecule 1: Type 1 encapsulin shell protein

Chain B:



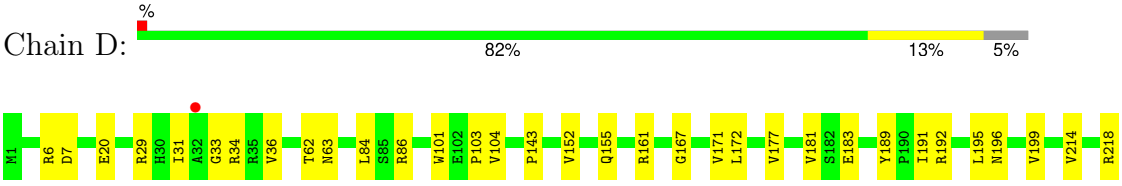
• Molecule 1: Type 1 encapsulin shell protein

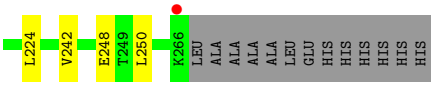
Chain C:



• Molecule 1: Type 1 encapsulin shell protein

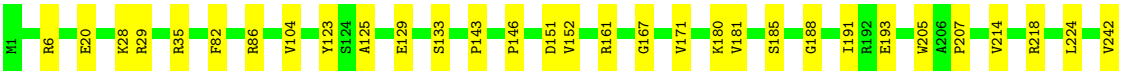
Chain D:

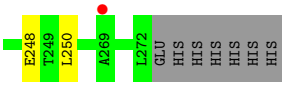




• Molecule 1: Type 1 encapsulin shell protein

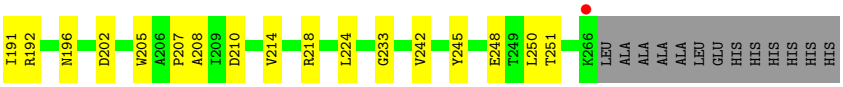
Chain E:





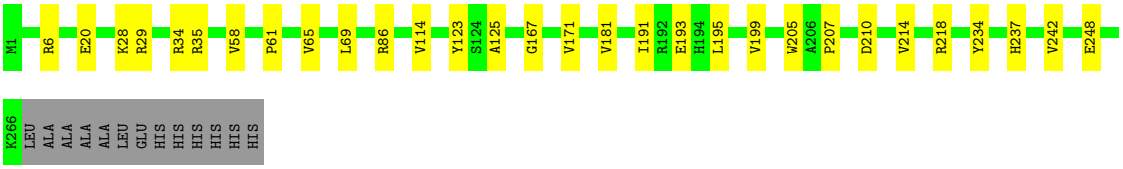
• Molecule 1: Type 1 encapsulin shell protein

Chain F:



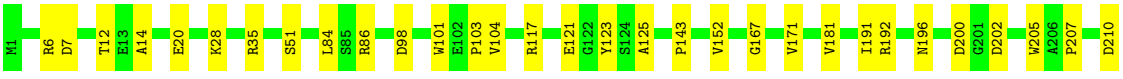
• Molecule 1: Type 1 encapsulin shell protein

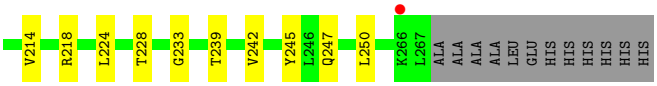
Chain G:



• Molecule 1: Type 1 encapsulin shell protein

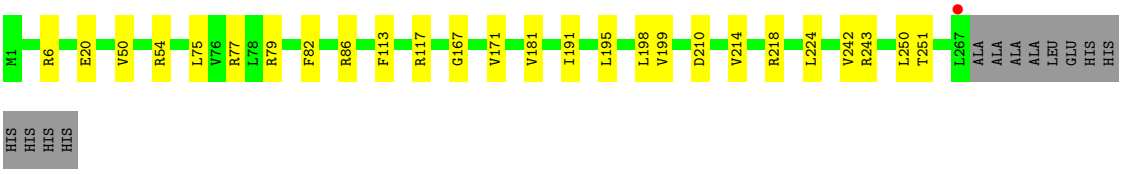
Chain H:





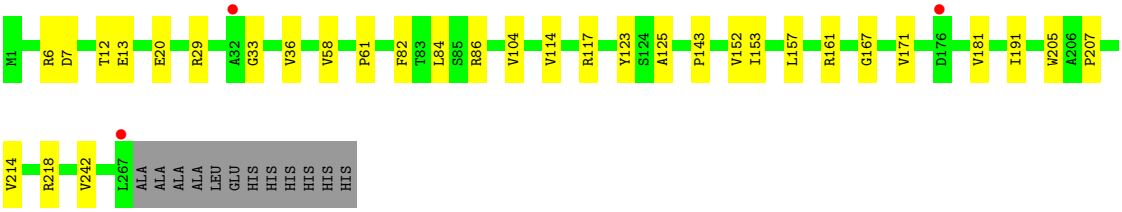
• Molecule 1: Type 1 encapsulin shell protein

Chain I:



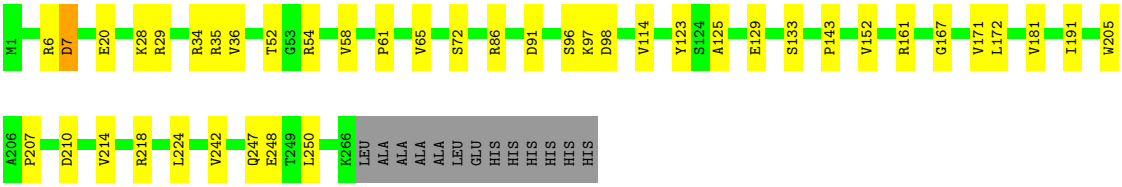
• Molecule 1: Type 1 encapsulin shell protein

Chain J:



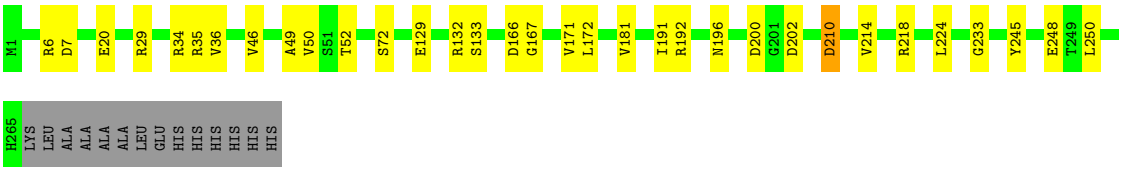
• Molecule 1: Type 1 encapsulin shell protein

Chain K:



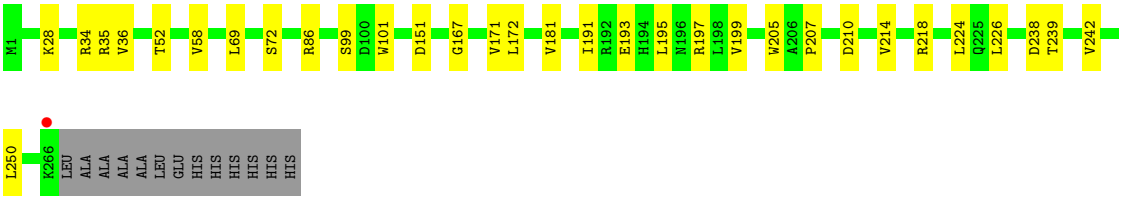
• Molecule 1: Type 1 encapsulin shell protein

Chain L:



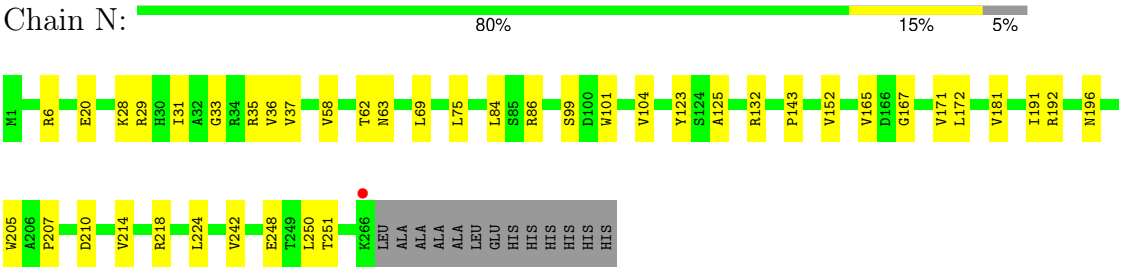
• Molecule 1: Type 1 encapsulin shell protein

Chain M:



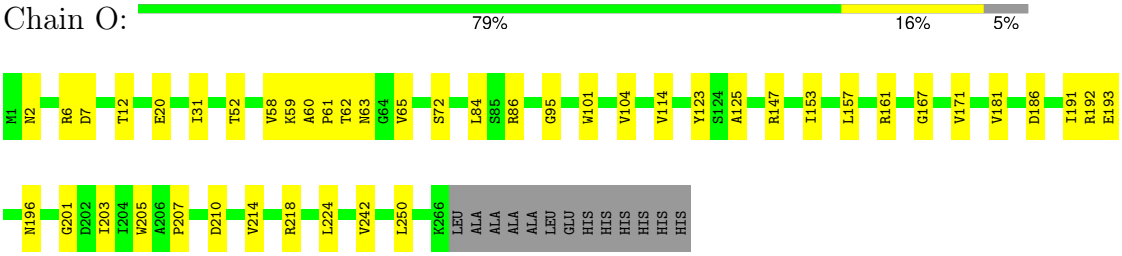
• Molecule 1: Type 1 encapsulin shell protein

Chain N:



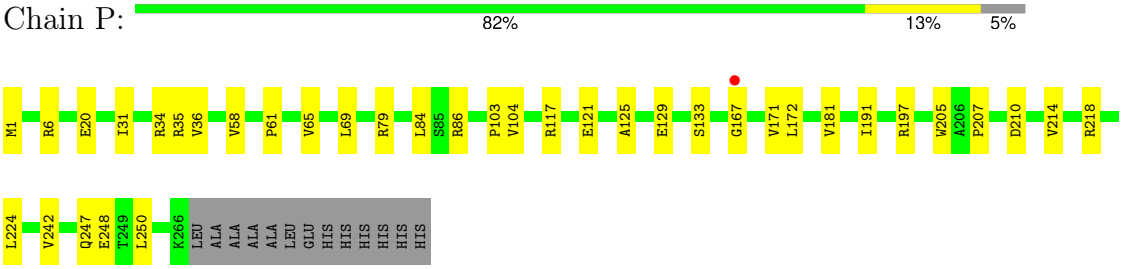
• Molecule 1: Type 1 encapsulin shell protein

Chain O:



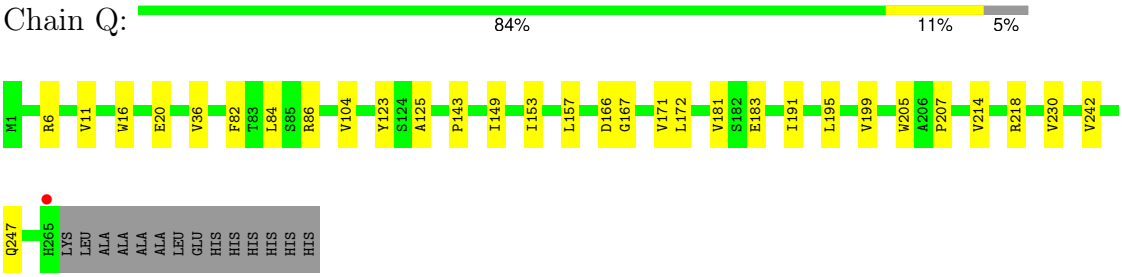
• Molecule 1: Type 1 encapsulin shell protein

Chain P:



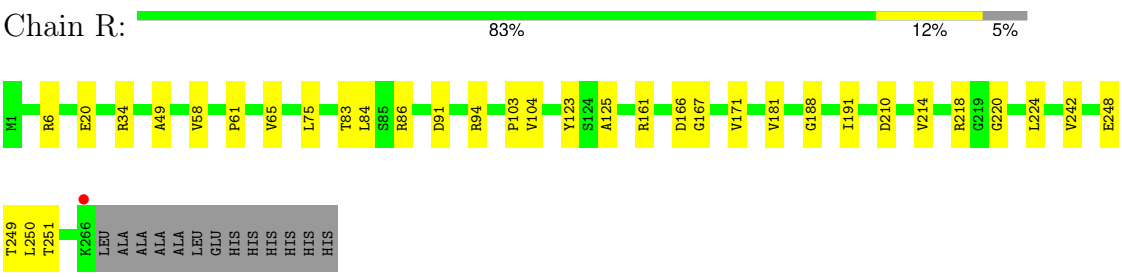
• Molecule 1: Type 1 encapsulin shell protein

Chain Q:



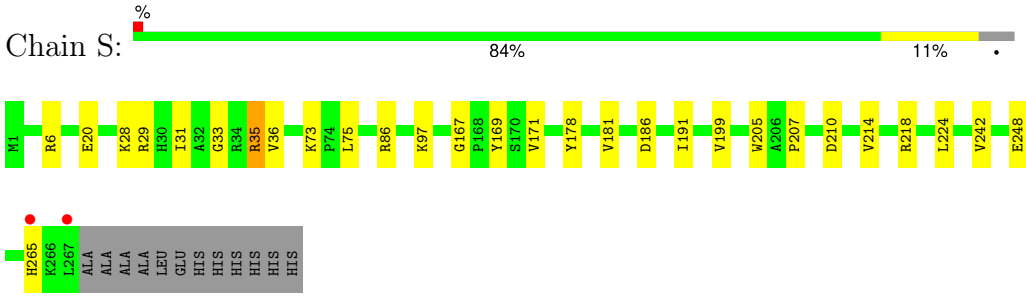
• Molecule 1: Type 1 encapsulin shell protein

Chain R:



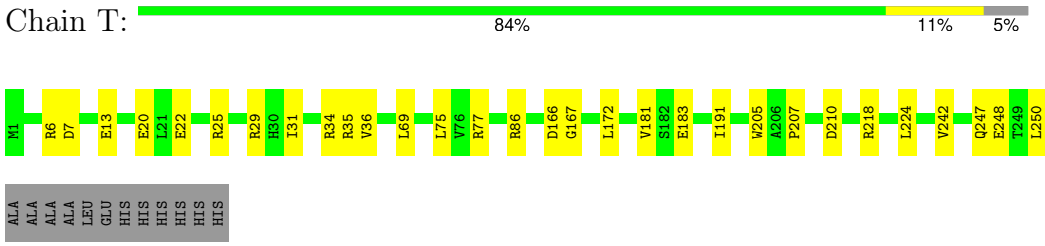
• Molecule 1: Type 1 encapsulin shell protein

Chain S:



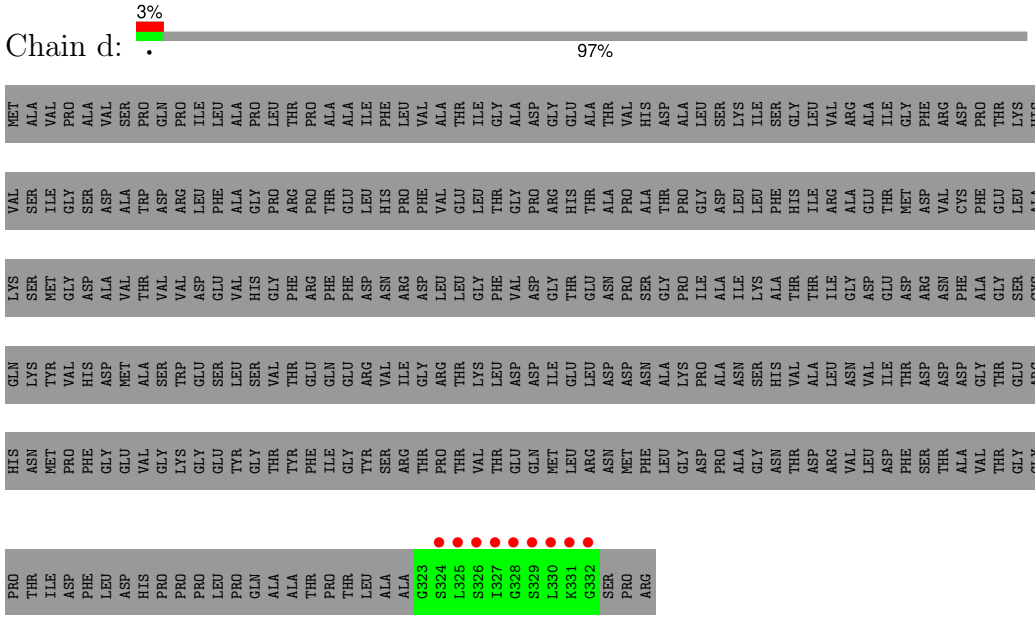
• Molecule 1: Type 1 encapsulin shell protein

Chain T:



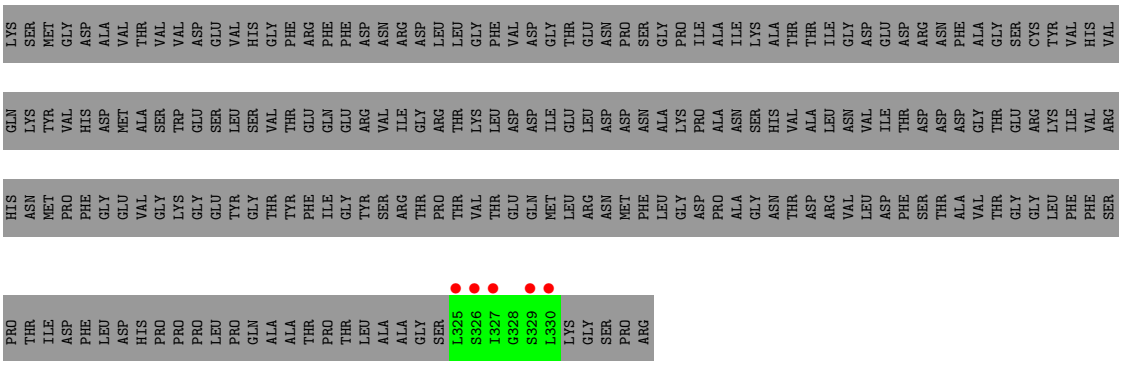
• Molecule 2: Dye-decolorizing peroxidase

Chain d:



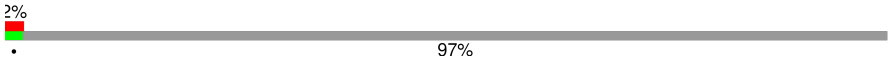
• Molecule 2: Dye-decolorizing peroxidase

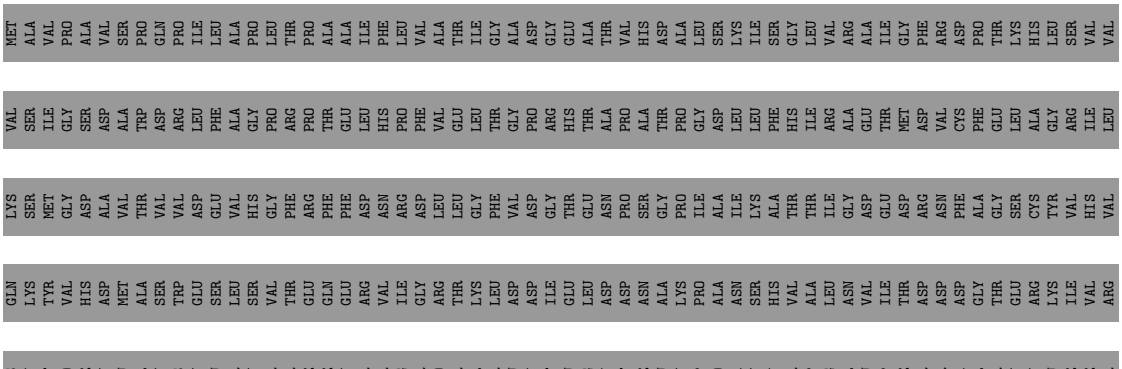
Chain g:



• Molecule 2: Dye-decolorizing peroxidase

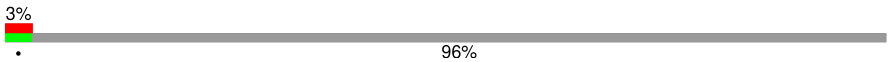
Chain h:

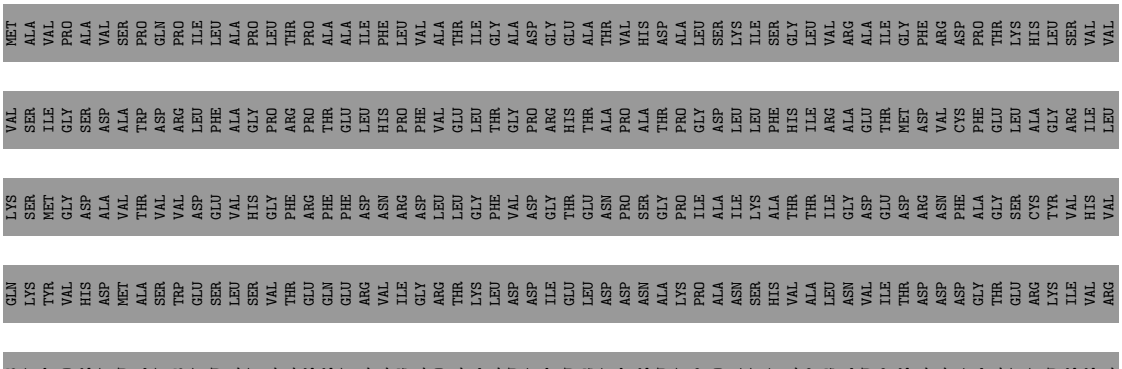




• Molecule 2: Dye-decolorizing peroxidase

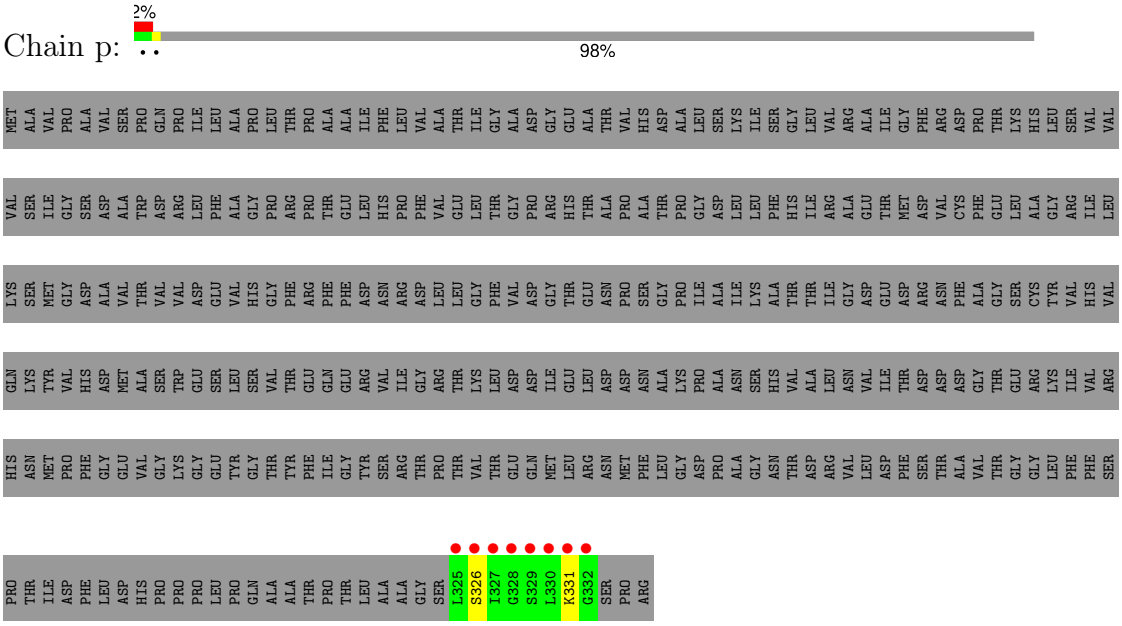
Chain i:





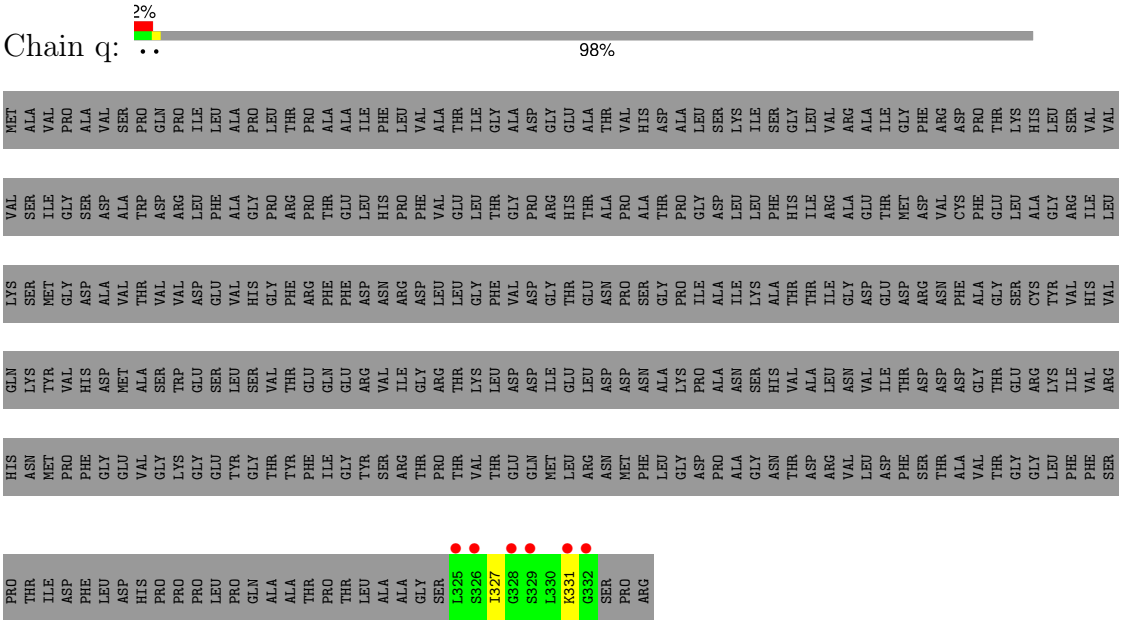
• Molecule 2: Dye-decolorizing peroxidase

Chain p:



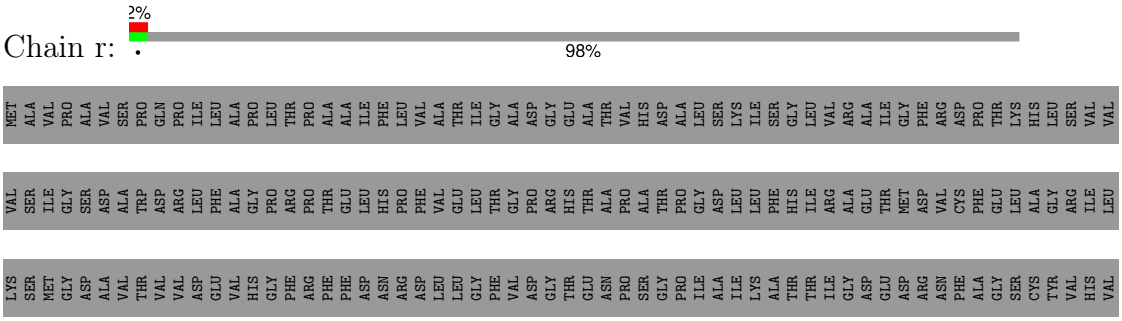
• Molecule 2: Dye-decolorizing peroxidase

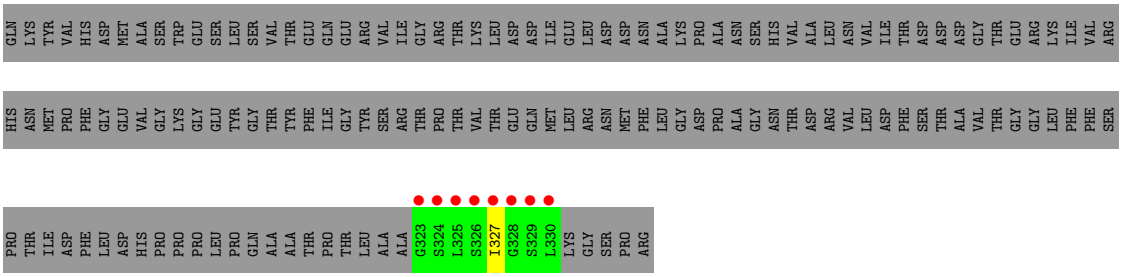
Chain q:



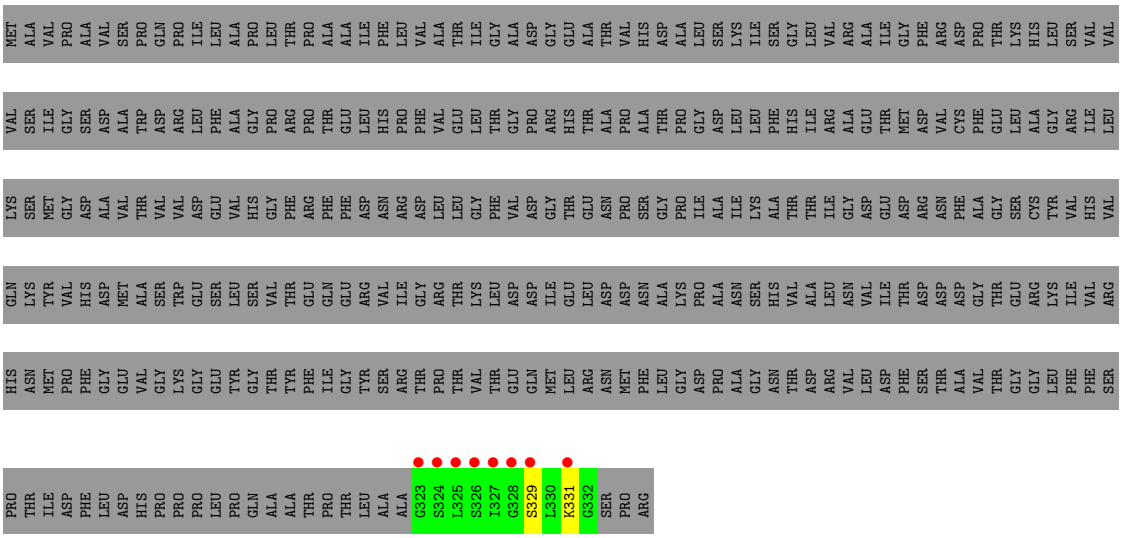
• Molecule 2: Dye-decolorizing peroxidase

Chain r:

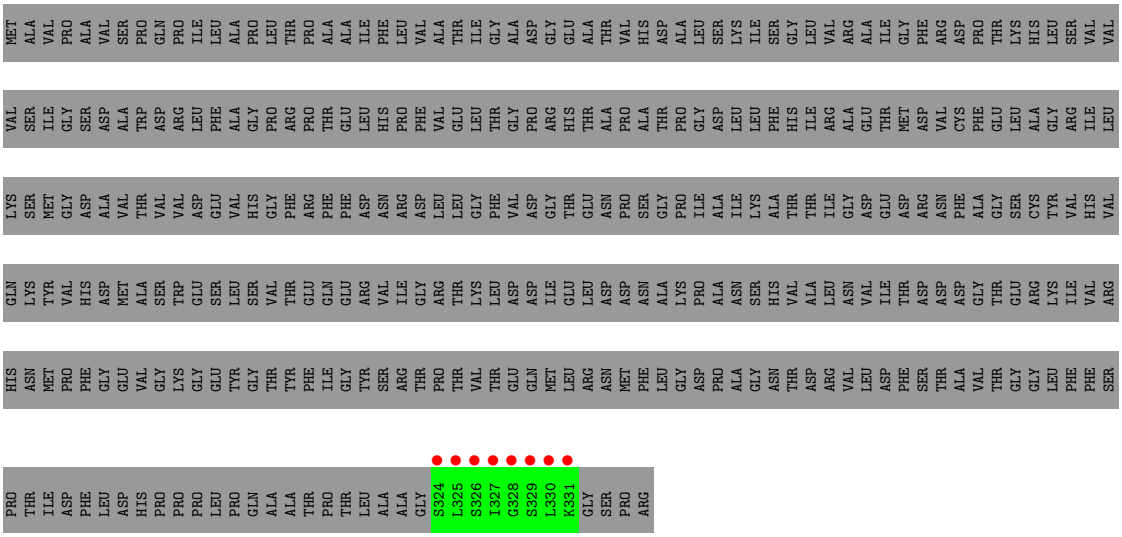




• Molecule 2: Dye-decolorizing peroxidase



• Molecule 2: Dye-decolorizing peroxidase



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 3	Depositor
Cell constants a, b, c, α, β, γ	313.45Å 313.45Å 313.45Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.56 – 3.15 49.56 – 3.15	Depositor EDS
% Data completeness (in resolution range)	99.4 (49.56-3.15) 99.3 (49.56-3.15)	Depositor EDS
R_{merge}	0.20	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.74 (at 3.12Å)	Xtriage
Refinement program	PHENIX 1.21_5207	Depositor
R, R_{free}	0.201 , 0.233 0.201 , 0.233	Depositor DCC
R_{free} test set	8619 reflections (4.89%)	wwPDB-VP
Wilson B-factor (Å^2)	52.5	Xtriage
Anisotropy	0.000	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 51.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.019 for l,-k,h	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	42837	wwPDB-VP
Average B, all atoms (Å^2)	42.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.84% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 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: GOL, 12P, NI, 1PE, 2PE

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	0.24	0/2083	0.52	0/2842
1	B	0.24	0/2070	0.52	0/2823
1	C	0.25	0/2099	0.52	0/2863
1	D	0.25	0/2085	0.51	0/2843
1	E	0.25	0/2115	0.53	0/2885
1	F	0.25	0/2075	0.51	0/2830
1	G	0.24	0/2075	0.50	0/2830
1	H	0.25	0/2084	0.51	0/2842
1	I	0.25	0/2084	0.53	0/2842
1	J	0.24	0/2080	0.52	0/2837
1	K	0.24	0/2079	0.51	0/2835
1	L	0.25	0/2085	0.51	0/2844
1	M	0.24	0/2071	0.51	0/2825
1	N	0.25	0/2075	0.52	0/2831
1	O	0.24	0/2075	0.51	0/2830
1	P	0.24	0/2067	0.51	0/2821
1	Q	0.24	0/2063	0.51	0/2815
1	R	0.25	0/2075	0.51	0/2831
1	S	0.25	0/2115	0.52	0/2883
1	T	0.25	0/2079	0.52	0/2835
2	d	0.30	0/53	0.64	0/70
2	g	0.24	0/34	0.41	0/45
2	h	0.25	0/49	0.69	0/65
2	i	0.24	0/73	0.51	0/98
2	p	0.23	0/43	0.48	0/57
2	q	0.20	0/42	0.48	0/55
2	r	0.21	0/47	0.39	0/62
2	s	0.29	0/59	0.70	0/77
2	t	0.23	0/49	0.55	0/65
All	All	0.25	0/42083	0.51	0/57381

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2040	0	2011	26	0
1	B	2030	0	2009	31	0
1	C	2055	0	2034	38	0
1	D	2042	0	2019	20	0
1	E	2075	0	2057	22	0
1	F	2035	0	2011	36	0
1	G	2035	0	2009	21	0
1	H	2044	0	2017	27	0
1	I	2044	0	2017	19	0
1	J	2040	0	2013	24	0
1	K	2039	0	2015	30	0
1	L	2039	0	2015	28	0
1	M	2031	0	2007	19	0
1	N	2035	0	2004	25	0
1	O	2035	0	2011	35	0
1	P	2027	0	1996	23	0
1	Q	2023	0	1996	18	0
1	R	2035	0	2004	25	0
1	S	2065	0	2050	22	0
1	T	2039	0	2015	20	0
2	d	54	0	43	0	0
2	g	35	0	30	0	0
2	h	50	0	40	0	0
2	i	74	0	78	0	0
2	p	44	0	35	0	0
2	q	43	0	32	0	0
2	r	48	0	47	0	0
2	s	60	0	60	0	0
2	t	50	0	49	0	0
3	A	20	0	26	5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	36	0	48	6	0
3	C	58	0	79	2	0
3	E	26	0	35	0	0
3	F	74	0	100	6	0
3	G	10	0	13	0	0
3	H	46	0	61	5	0
3	I	36	0	48	3	0
3	J	26	0	35	0	0
3	K	23	0	30	0	0
3	L	61	0	83	8	0
3	N	33	0	43	1	0
3	O	10	0	13	1	0
3	P	26	0	34	1	0
3	Q	26	0	35	2	0
3	R	30	0	39	2	0
3	T	26	0	35	2	0
4	A	10	0	13	1	0
4	H	47	0	62	2	0
4	J	16	0	21	1	0
4	L	25	0	33	7	0
5	A	30	0	40	5	0
5	B	30	0	40	2	0
5	C	12	0	16	1	0
5	D	30	0	40	2	0
5	E	24	0	32	2	0
5	F	18	0	24	1	0
5	G	6	0	8	0	0
5	H	30	0	40	2	0
5	I	36	0	48	3	0
5	J	24	0	32	1	0
5	K	36	0	48	5	0
5	L	24	0	32	3	0
5	M	18	0	24	0	0
5	N	12	0	16	0	0
5	O	36	0	48	1	0
5	Q	18	0	24	0	0
5	R	24	0	32	0	0
5	S	36	0	48	3	0
5	T	24	0	32	3	0
6	B	1	0	0	0	0
6	C	4	0	0	0	0
6	D	2	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	E	2	0	0	0	0
6	F	2	0	0	0	0
6	H	2	0	0	0	0
6	I	2	0	0	0	0
6	J	2	0	0	0	0
6	K	1	0	0	0	0
6	L	2	0	0	0	0
6	M	1	0	0	0	0
6	N	1	0	0	0	0
6	O	3	0	0	0	0
6	P	2	0	0	0	0
6	Q	2	0	0	0	0
6	R	1	0	0	0	0
6	S	3	0	0	0	0
7	T	13	0	16	1	0
8	A	25	0	0	0	0
8	B	14	0	0	0	0
8	C	15	0	0	0	0
8	D	16	0	0	0	0
8	E	14	0	0	1	0
8	F	24	0	0	0	0
8	G	12	0	0	0	0
8	H	23	0	0	0	0
8	I	29	0	0	0	0
8	J	30	0	0	1	0
8	K	24	0	0	0	0
8	L	28	0	0	0	0
8	M	18	0	0	0	0
8	N	17	0	0	0	0
8	O	16	0	0	0	0
8	P	14	0	0	0	0
8	Q	18	0	0	0	0
8	R	19	0	0	0	0
8	S	24	0	0	0	0
8	T	12	0	0	0	0
All	All	42837	0	42250	472	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 6.

The worst 5 of 472 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:C:171:VAL:HG22	1:C:214:VAL:HG22	1.63	0.79
1:J:171:VAL:HG22	1:J:214:VAL:HG22	1.67	0.76
1:L:171:VAL:HG22	1:L:214:VAL:HG22	1.67	0.76
1:O:147:ARG:HD2	1:O:186:ASP:HA	1.67	0.75
1:B:171:VAL:HG22	1:B:214:VAL:HG22	1.69	0.74

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	266/279 (95%)	258 (97%)	8 (3%)	0	100	100
1	B	263/279 (94%)	256 (97%)	7 (3%)	0	100	100
1	C	267/279 (96%)	258 (97%)	9 (3%)	0	100	100
1	D	265/279 (95%)	257 (97%)	7 (3%)	1 (0%)	30	61
1	E	270/279 (97%)	261 (97%)	9 (3%)	0	100	100
1	F	264/279 (95%)	258 (98%)	6 (2%)	0	100	100
1	G	264/279 (95%)	255 (97%)	9 (3%)	0	100	100
1	H	265/279 (95%)	257 (97%)	8 (3%)	0	100	100
1	I	265/279 (95%)	256 (97%)	9 (3%)	0	100	100
1	J	265/279 (95%)	257 (97%)	8 (3%)	0	100	100
1	K	264/279 (95%)	256 (97%)	8 (3%)	0	100	100
1	L	265/279 (95%)	258 (97%)	7 (3%)	0	100	100
1	M	264/279 (95%)	256 (97%)	8 (3%)	0	100	100
1	N	264/279 (95%)	257 (97%)	7 (3%)	0	100	100
1	O	264/279 (95%)	257 (97%)	7 (3%)	0	100	100
1	P	264/279 (95%)	256 (97%)	8 (3%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	Q	263/279 (94%)	255 (97%)	8 (3%)	0	100 100
1	R	264/279 (95%)	258 (98%)	6 (2%)	0	100 100
1	S	268/279 (96%)	260 (97%)	8 (3%)	0	100 100
1	T	264/279 (95%)	257 (97%)	7 (3%)	0	100 100
2	d	8/335 (2%)	6 (75%)	2 (25%)	0	100 100
2	g	4/335 (1%)	4 (100%)	0	0	100 100
2	h	7/335 (2%)	4 (57%)	2 (29%)	1 (14%)	0 1
2	i	10/335 (3%)	7 (70%)	2 (20%)	1 (10%)	0 2
2	p	6/335 (2%)	4 (67%)	0	2 (33%)	0 0
2	q	6/335 (2%)	3 (50%)	1 (17%)	2 (33%)	0 0
2	r	6/335 (2%)	5 (83%)	0	1 (17%)	0 0
2	s	8/335 (2%)	3 (38%)	3 (38%)	2 (25%)	0 0
2	t	6/335 (2%)	6 (100%)	0	0	100 100
All	All	5359/8595 (62%)	5185 (97%)	164 (3%)	10 (0%)	44 72

5 of 10 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	i	322	ALA
2	q	327	ILE
2	h	325	LEU
2	q	331	LYS
2	s	329	SER

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	216/228 (95%)	216 (100%)	0	100 100
1	B	217/228 (95%)	216 (100%)	1 (0%)	86 92
1	C	219/228 (96%)	219 (100%)	0	100 100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	D	218/228 (96%)	215 (99%)	3 (1%)	62 80
1	E	220/228 (96%)	220 (100%)	0	100 100
1	F	217/228 (95%)	217 (100%)	0	100 100
1	G	217/228 (95%)	217 (100%)	0	100 100
1	H	218/228 (96%)	217 (100%)	1 (0%)	86 92
1	I	218/228 (96%)	218 (100%)	0	100 100
1	J	217/228 (95%)	216 (100%)	1 (0%)	86 92
1	K	218/228 (96%)	216 (99%)	2 (1%)	75 87
1	L	218/228 (96%)	216 (99%)	2 (1%)	75 87
1	M	216/228 (95%)	216 (100%)	0	100 100
1	N	217/228 (95%)	217 (100%)	0	100 100
1	O	217/228 (95%)	217 (100%)	0	100 100
1	P	215/228 (94%)	215 (100%)	0	100 100
1	Q	215/228 (94%)	215 (100%)	0	100 100
1	R	217/228 (95%)	217 (100%)	0	100 100
1	S	221/228 (97%)	218 (99%)	3 (1%)	62 80
1	T	218/228 (96%)	217 (100%)	1 (0%)	86 92
2	d	3/275 (1%)	3 (100%)	0	100 100
2	g	2/275 (1%)	2 (100%)	0	100 100
2	h	3/275 (1%)	3 (100%)	0	100 100
2	i	7/275 (2%)	7 (100%)	0	100 100
2	p	2/275 (1%)	2 (100%)	0	100 100
2	q	3/275 (1%)	3 (100%)	0	100 100
2	r	4/275 (2%)	4 (100%)	0	100 100
2	s	4/275 (2%)	4 (100%)	0	100 100
2	t	5/275 (2%)	5 (100%)	0	100 100
All	All	4382/7035 (62%)	4368 (100%)	14 (0%)	91 95

5 of 14 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	K	54	ARG
1	L	210[A]	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	T	7	ASP
1	S	265[A]	HIS
1	S	265[B]	HIS

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

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 162 ligands modelled in this entry, 33 are monoatomic - leaving 129 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	$\#\|Z\| > 2$
5	GOL	J	304	-	5,5,5	0.33	0	5,5,5	0.44	0
5	GOL	Q	304	-	5,5,5	0.34	0	5,5,5	0.44	0
5	GOL	J	306	-	5,5,5	0.35	0	5,5,5	0.47	0
5	GOL	D	301	-	5,5,5	0.34	0	5,5,5	0.35	0
5	GOL	S	306	-	5,5,5	0.33	0	5,5,5	0.35	0
5	GOL	M	303	-	5,5,5	0.34	0	5,5,5	0.38	0
3	1PE	C	301	-	9,9,15	0.28	0	8,8,14	0.17	0
3	1PE	I	302	-	9,9,15	0.28	0	8,8,14	0.21	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	GOL	E	304	-	5,5,5	0.32	0	5,5,5	0.41	0
5	GOL	C	305	-	5,5,5	0.33	0	5,5,5	0.41	0
3	1PE	T	303	-	9,9,15	0.29	0	8,8,14	0.20	0
5	GOL	L	301	-	5,5,5	0.33	0	5,5,5	0.50	0
3	1PE	L	303	-	15,15,15	0.30	0	14,14,14	0.19	0
5	GOL	H	310	-	5,5,5	0.34	0	5,5,5	0.33	0
5	GOL	B	307	-	5,5,5	0.32	0	5,5,5	0.41	0
3	1PE	E	302	-	9,9,15	0.28	0	8,8,14	0.30	0
5	GOL	K	304	-	5,5,5	0.34	0	5,5,5	0.40	0
3	1PE	T	302	-	15,15,15	0.30	0	14,14,14	0.22	0
5	GOL	I	307	-	5,5,5	0.33	0	5,5,5	0.40	0
3	1PE	A	301	-	12,12,15	0.29	0	11,11,14	0.21	0
5	GOL	S	305	-	5,5,5	0.33	0	5,5,5	0.41	0
3	1PE	B	305	-	15,15,15	0.30	0	14,14,14	0.19	0
5	GOL	B	308	-	5,5,5	0.34	0	5,5,5	0.40	0
5	GOL	T	306	-	5,5,5	0.33	0	5,5,5	0.38	0
3	1PE	K	302	-	12,12,15	0.31	0	11,11,14	0.24	0
5	GOL	K	303	-	5,5,5	0.34	0	5,5,5	0.37	0
3	1PE	Q	301	-	15,15,15	0.30	0	14,14,14	0.20	0
5	GOL	D	305	-	5,5,5	0.33	0	5,5,5	0.37	0
3	1PE	I	303	-	9,9,15	0.28	0	8,8,14	0.26	0
3	1PE	L	304	-	12,12,15	0.29	0	11,11,14	0.19	0
4	2PE	A	302	-	9,9,27	0.28	0	8,8,26	0.22	0
3	1PE	H	302[A]	-	9,9,15	0.28	0	8,8,14	0.19	0
5	GOL	I	309	-	5,5,5	0.36	0	5,5,5	0.39	0
3	1PE	N	303	-	12,12,15	0.29	0	11,11,14	0.18	0
4	2PE	H	303	-	24,24,27	0.30	0	23,23,26	0.15	0
3	1PE	F	304[A]	-	15,15,15	0.29	0	14,14,14	0.25	0
3	1PE	P	301	-	12,12,15	0.29	0	11,11,14	0.18	0
5	GOL	H	311	-	5,5,5	0.33	0	5,5,5	0.41	0
3	1PE	N	301	-	9,9,15	0.29	0	8,8,14	0.18	0
3	1PE	N	302	-	9,9,15	0.29	0	8,8,14	0.19	0
5	GOL	S	301	-	5,5,5	0.36	0	5,5,5	0.41	0
5	GOL	A	305	-	5,5,5	0.34	0	5,5,5	0.37	0
3	1PE	L	305[A]	-	15,15,15	0.30	0	14,14,14	0.19	0
5	GOL	S	302	-	5,5,5	0.34	0	5,5,5	0.34	0
5	GOL	A	304	-	5,5,5	0.35	0	5,5,5	0.33	0
3	1PE	B	303	-	9,9,15	0.29	0	8,8,14	0.26	0
3	1PE	G	301	-	9,9,15	0.28	0	8,8,14	0.26	0
3	1PE	I	301	-	15,15,15	0.29	0	14,14,14	0.16	0
5	GOL	D	303	-	5,5,5	0.34	0	5,5,5	0.31	0
3	1PE	F	301	-	12,12,15	0.30	0	11,11,14	0.16	0
5	GOL	O	305	-	5,5,5	0.34	0	5,5,5	0.37	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	1PE	C	302	-	15,15,15	0.30	0	14,14,14	0.17	0
5	GOL	O	304	-	5,5,5	0.34	0	5,5,5	0.39	0
5	GOL	T	307	-	5,5,5	0.34	0	5,5,5	0.38	0
5	GOL	F	305	-	5,5,5	0.34	0	5,5,5	0.34	0
3	1PE	C	303[A]	-	15,15,15	0.30	0	14,14,14	0.18	0
4	2PE	J	302	-	15,15,27	0.30	0	14,14,26	0.18	0
5	GOL	O	303	-	5,5,5	0.34	0	5,5,5	0.37	0
5	GOL	A	308	-	5,5,5	0.33	0	5,5,5	0.40	0
3	1PE	H	302[B]	-	9,9,15	0.28	0	8,8,14	0.20	0
5	GOL	I	308	-	5,5,5	0.34	0	5,5,5	0.40	0
3	1PE	P	302	-	12,12,15	0.29	0	11,11,14	0.20	0
3	1PE	J	301	-	9,9,15	0.28	0	8,8,14	0.24	0
5	GOL	D	304	-	5,5,5	0.33	0	5,5,5	0.39	0
3	1PE	A	303	-	6,6,15	0.27	0	5,5,14	0.23	0
5	GOL	K	308	-	5,5,5	0.34	0	5,5,5	0.33	0
5	GOL	Q	305	-	5,5,5	0.34	0	5,5,5	0.36	0
5	GOL	G	302	-	5,5,5	0.34	0	5,5,5	0.36	0
3	1PE	R	302	-	6,6,15	0.27	0	5,5,14	0.21	0
5	GOL	B	302	-	5,5,5	0.34	0	5,5,5	0.39	0
3	1PE	F	302	-	15,15,15	0.30	0	14,14,14	0.21	0
3	1PE	L	305[B]	-	15,15,15	0.30	0	14,14,14	0.17	0
5	GOL	L	307	-	5,5,5	0.34	0	5,5,5	0.39	0
5	GOL	B	301	-	5,5,5	0.35	0	5,5,5	0.30	0
4	2PE	L	302	-	24,24,27	0.31	0	23,23,26	0.35	0
5	GOL	E	305	-	5,5,5	0.34	0	5,5,5	0.38	0
5	GOL	R	304	-	5,5,5	0.33	0	5,5,5	0.42	0
5	GOL	R	307	-	5,5,5	0.34	0	5,5,5	0.39	0
5	GOL	L	308	-	5,5,5	0.33	0	5,5,5	0.44	0
3	1PE	R	301	-	9,9,15	0.29	0	8,8,14	0.19	0
5	GOL	H	307	-	5,5,5	0.35	0	5,5,5	0.39	0
3	1PE	K	301	-	9,9,15	0.28	0	8,8,14	0.20	0
5	GOL	K	307	-	5,5,5	0.35	0	5,5,5	0.33	0
5	GOL	B	306	-	5,5,5	0.34	0	5,5,5	0.37	0
5	GOL	I	310	-	5,5,5	0.33	0	5,5,5	0.37	0
5	GOL	Q	303	-	5,5,5	0.34	0	5,5,5	0.36	0
5	GOL	J	305	-	5,5,5	0.34	0	5,5,5	0.38	0
5	GOL	F	307	-	5,5,5	0.34	0	5,5,5	0.37	0
5	GOL	J	307	-	5,5,5	0.34	0	5,5,5	0.40	0
5	GOL	I	306	-	5,5,5	0.34	0	5,5,5	0.40	0
5	GOL	M	301	-	5,5,5	0.39	0	5,5,5	0.34	0
5	GOL	S	303	-	5,5,5	0.33	0	5,5,5	0.41	0
5	GOL	H	308	-	5,5,5	0.35	0	5,5,5	0.42	0
5	GOL	S	304	-	5,5,5	0.33	0	5,5,5	0.39	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	1PE	B	304	-	9,9,15	0.29	0	8,8,14	0.18	0
5	GOL	A	306	-	5,5,5	0.33	0	5,5,5	0.37	0
5	GOL	E	306	-	5,5,5	0.34	0	5,5,5	0.43	0
3	1PE	R	303	-	12,12,15	0.29	0	11,11,14	0.16	0
5	GOL	K	305	-	5,5,5	0.35	0	5,5,5	0.49	0
5	GOL	O	306	-	5,5,5	0.33	0	5,5,5	0.33	0
3	1PE	F	304[B]	-	15,15,15	0.29	0	14,14,14	0.23	0
5	GOL	I	305	-	5,5,5	0.36	0	5,5,5	0.30	0
5	GOL	T	304	-	5,5,5	0.34	0	5,5,5	0.36	0
5	GOL	N	305	-	5,5,5	0.34	0	5,5,5	0.39	0
5	GOL	N	304	-	5,5,5	0.34	0	5,5,5	0.39	0
3	1PE	E	301	-	15,15,15	0.30	0	14,14,14	0.16	0
3	1PE	F	303	-	12,12,15	0.30	0	11,11,14	0.20	0
5	GOL	A	307	-	5,5,5	0.33	0	5,5,5	0.39	0
5	GOL	R	305	-	5,5,5	0.36	0	5,5,5	0.39	0
4	2PE	H	304	-	21,21,27	0.30	0	20,20,26	0.17	0
5	GOL	O	302	-	5,5,5	0.33	0	5,5,5	0.38	0
3	1PE	H	305	-	9,9,15	0.30	0	8,8,14	0.35	0
3	1PE	Q	302	-	9,9,15	0.28	0	8,8,14	0.23	0
3	1PE	C	303[B]	-	15,15,15	0.30	0	14,14,14	0.18	0
3	1PE	O	301	-	9,9,15	0.28	0	8,8,14	0.19	0
5	GOL	M	302	-	5,5,5	0.35	0	5,5,5	0.36	0
5	GOL	O	307	-	5,5,5	0.33	0	5,5,5	0.36	0
5	GOL	F	306	-	5,5,5	0.34	0	5,5,5	0.46	0
5	GOL	L	306	-	5,5,5	0.35	0	5,5,5	0.43	0
5	GOL	D	302	-	5,5,5	0.35	0	5,5,5	0.32	0
5	GOL	H	309	-	5,5,5	0.34	0	5,5,5	0.41	0
3	1PE	J	303	-	15,15,15	0.30	0	14,14,14	0.18	0
7	12P	T	301	-	12,12,36	0.30	0	11,11,35	0.15	0
5	GOL	R	306	-	5,5,5	0.34	0	5,5,5	0.40	0
3	1PE	H	301	-	15,15,15	0.30	0	14,14,14	0.19	0
5	GOL	K	306	-	5,5,5	0.33	0	5,5,5	0.35	0
5	GOL	E	303	-	5,5,5	0.34	0	5,5,5	0.36	0
5	GOL	C	306	-	5,5,5	0.36	0	5,5,5	0.37	0
5	GOL	T	305	-	5,5,5	0.33	0	5,5,5	0.39	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GOL	J	304	-	-	0/4/4/4	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GOL	Q	304	-	-	0/4/4/4	-
5	GOL	J	306	-	-	0/4/4/4	-
5	GOL	D	301	-	-	0/4/4/4	-
5	GOL	S	306	-	-	2/4/4/4	-
5	GOL	M	303	-	-	0/4/4/4	-
3	1PE	C	301	-	-	2/7/7/13	-
3	1PE	I	302	-	-	3/7/7/13	-
5	GOL	E	304	-	-	0/4/4/4	-
5	GOL	C	305	-	-	1/4/4/4	-
3	1PE	T	303	-	-	1/7/7/13	-
5	GOL	L	301	-	-	0/4/4/4	-
3	1PE	L	303	-	-	5/13/13/13	-
5	GOL	H	310	-	-	0/4/4/4	-
5	GOL	B	307	-	-	0/4/4/4	-
3	1PE	E	302	-	-	1/7/7/13	-
5	GOL	K	304	-	-	0/4/4/4	-
3	1PE	T	302	-	-	10/13/13/13	-
5	GOL	I	307	-	-	0/4/4/4	-
3	1PE	A	301	-	-	5/10/10/13	-
5	GOL	S	305	-	-	0/4/4/4	-
3	1PE	B	305	-	-	6/13/13/13	-
5	GOL	B	308	-	-	0/4/4/4	-
5	GOL	T	306	-	-	0/4/4/4	-
3	1PE	K	302	-	-	8/10/10/13	-
5	GOL	K	303	-	-	0/4/4/4	-
3	1PE	Q	301	-	-	8/13/13/13	-
5	GOL	D	305	-	-	0/4/4/4	-
3	1PE	I	303	-	-	2/7/7/13	-
3	1PE	L	304	-	-	3/10/10/13	-
4	2PE	A	302	-	-	1/7/7/25	-
3	1PE	H	302[A]	-	-	4/7/7/13	-
5	GOL	I	309	-	-	0/4/4/4	-
3	1PE	N	303	-	-	6/10/10/13	-
4	2PE	H	303	-	-	11/22/22/25	-
3	1PE	F	304[A]	-	-	6/13/13/13	-
3	1PE	P	301	-	-	5/10/10/13	-
5	GOL	H	311	-	-	0/4/4/4	-
3	1PE	N	301	-	-	3/7/7/13	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	1PE	N	302	-	-	2/7/7/13	-
5	GOL	S	301	-	-	2/4/4/4	-
5	GOL	A	305	-	-	0/4/4/4	-
3	1PE	L	305[A]	-	-	4/13/13/13	-
5	GOL	S	302	-	-	0/4/4/4	-
5	GOL	A	304	-	-	2/4/4/4	-
3	1PE	B	303	-	-	3/7/7/13	-
3	1PE	G	301	-	-	1/7/7/13	-
3	1PE	I	301	-	-	5/13/13/13	-
5	GOL	D	303	-	-	2/4/4/4	-
3	1PE	F	301	-	-	2/10/10/13	-
5	GOL	O	305	-	-	2/4/4/4	-
3	1PE	C	302	-	-	4/13/13/13	-
5	GOL	O	304	-	-	0/4/4/4	-
5	GOL	T	307	-	-	0/4/4/4	-
5	GOL	F	305	-	-	2/4/4/4	-
3	1PE	C	303[A]	-	-	6/13/13/13	-
4	2PE	J	302	-	-	4/13/13/25	-
5	GOL	O	303	-	-	0/4/4/4	-
5	GOL	A	308	-	-	0/4/4/4	-
3	1PE	H	302[B]	-	-	3/7/7/13	-
5	GOL	I	308	-	-	0/4/4/4	-
3	1PE	P	302	-	-	3/10/10/13	-
3	1PE	J	301	-	-	3/7/7/13	-
5	GOL	D	304	-	-	0/4/4/4	-
3	1PE	A	303	-	-	0/4/4/13	-
5	GOL	K	308	-	-	0/4/4/4	-
5	GOL	Q	305	-	-	0/4/4/4	-
5	GOL	G	302	-	-	0/4/4/4	-
3	1PE	R	302	-	-	1/4/4/13	-
5	GOL	B	302	-	-	0/4/4/4	-
3	1PE	F	302	-	-	3/13/13/13	-
3	1PE	L	305[B]	-	-	4/13/13/13	-
5	GOL	L	307	-	-	0/4/4/4	-
5	GOL	B	301	-	-	0/4/4/4	-
4	2PE	L	302	-	-	12/22/22/25	-
5	GOL	E	305	-	-	0/4/4/4	-
5	GOL	R	304	-	-	0/4/4/4	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GOL	R	307	-	-	0/4/4/4	-
5	GOL	L	308	-	-	0/4/4/4	-
3	1PE	R	301	-	-	4/7/7/13	-
5	GOL	H	307	-	-	0/4/4/4	-
3	1PE	K	301	-	-	4/7/7/13	-
5	GOL	K	307	-	-	1/4/4/4	-
5	GOL	B	306	-	-	0/4/4/4	-
5	GOL	I	310	-	-	0/4/4/4	-
5	GOL	Q	303	-	-	2/4/4/4	-
5	GOL	J	305	-	-	0/4/4/4	-
5	GOL	F	307	-	-	0/4/4/4	-
5	GOL	J	307	-	-	0/4/4/4	-
5	GOL	I	306	-	-	0/4/4/4	-
5	GOL	M	301	-	-	0/4/4/4	-
5	GOL	S	303	-	-	2/4/4/4	-
5	GOL	H	308	-	-	0/4/4/4	-
5	GOL	S	304	-	-	0/4/4/4	-
3	1PE	B	304	-	-	1/7/7/13	-
5	GOL	A	306	-	-	0/4/4/4	-
5	GOL	E	306	-	-	0/4/4/4	-
3	1PE	R	303	-	-	0/10/10/13	-
5	GOL	K	305	-	-	0/4/4/4	-
5	GOL	O	306	-	-	0/4/4/4	-
3	1PE	F	304[B]	-	-	5/13/13/13	-
5	GOL	I	305	-	-	2/4/4/4	-
5	GOL	T	304	-	-	2/4/4/4	-
5	GOL	N	305	-	-	0/4/4/4	-
5	GOL	N	304	-	-	0/4/4/4	-
3	1PE	E	301	-	-	5/13/13/13	-
3	1PE	F	303	-	-	2/10/10/13	-
5	GOL	A	307	-	-	0/4/4/4	-
5	GOL	R	305	-	-	0/4/4/4	-
4	2PE	H	304	-	-	4/19/19/25	-
5	GOL	O	302	-	-	0/4/4/4	-
3	1PE	H	305	-	-	5/7/7/13	-
3	1PE	Q	302	-	-	5/7/7/13	-
3	1PE	C	303[B]	-	-	6/13/13/13	-
3	1PE	O	301	-	-	1/7/7/13	-
5	GOL	M	302	-	-	0/4/4/4	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GOL	O	307	-	-	0/4/4/4	-
5	GOL	F	306	-	-	0/4/4/4	-
5	GOL	L	306	-	-	0/4/4/4	-
5	GOL	D	302	-	-	0/4/4/4	-
5	GOL	H	309	-	-	0/4/4/4	-
3	1PE	J	303	-	-	6/13/13/13	-
7	12P	T	301	-	-	3/10/10/34	-
5	GOL	R	306	-	-	0/4/4/4	-
3	1PE	H	301	-	-	4/13/13/13	-
5	GOL	K	306	-	-	0/4/4/4	-
5	GOL	E	303	-	-	0/4/4/4	-
5	GOL	C	306	-	-	0/4/4/4	-
5	GOL	T	305	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 229 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	I	305	GOL	C1-C2-C3-O3
5	Q	303	GOL	O1-C1-C2-C3
5	S	301	GOL	C1-C2-C3-O3
3	K	302	1PE	OH4-C13-C23-OH3
3	L	303	1PE	OH5-C14-C24-OH4

There are no ring outliers.

58 monomers are involved in 90 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	301	1PE	1	0
3	I	302	1PE	2	0
5	E	304	GOL	1	0
5	C	305	GOL	1	0
5	L	301	GOL	1	0
3	T	302	1PE	2	0
5	I	307	GOL	1	0
3	A	301	1PE	2	0
3	B	305	1PE	3	0
5	B	308	GOL	1	0

Continued on next page...

Continued from previous page...

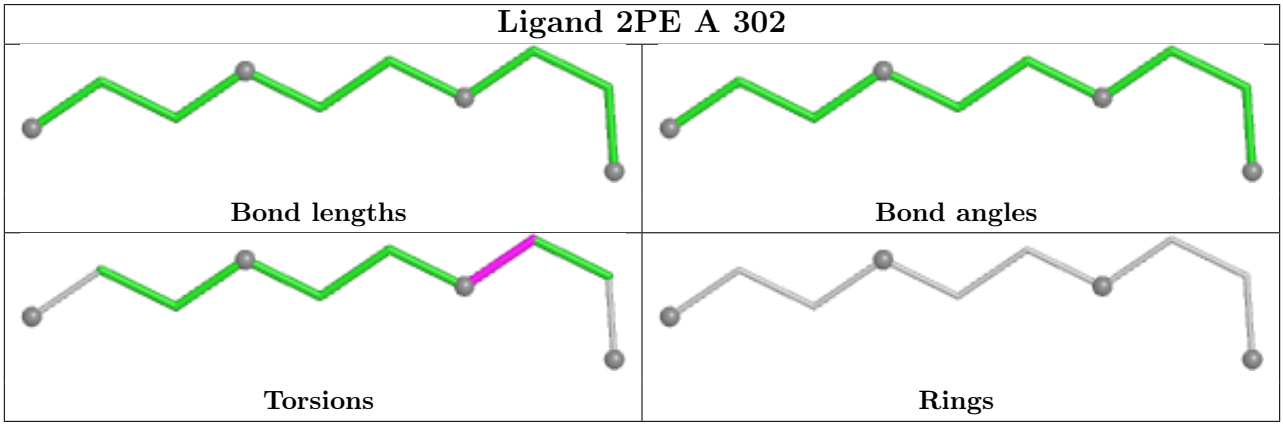
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	K	303	GOL	1	0
3	Q	301	1PE	2	0
3	L	304	1PE	2	0
4	A	302	2PE	1	0
5	I	309	GOL	1	0
3	N	303	1PE	1	0
4	H	303	2PE	2	0
3	F	304[A]	1PE	2	0
3	P	301	1PE	1	0
5	H	311	GOL	1	0
5	S	301	GOL	2	0
5	A	305	GOL	1	0
3	L	305[A]	1PE	4	0
5	A	304	GOL	2	0
3	B	303	1PE	2	0
3	I	301	1PE	1	0
5	O	305	GOL	1	0
3	C	302	1PE	1	0
4	J	302	2PE	1	0
3	H	302[B]	1PE	1	0
5	D	304	GOL	1	0
3	A	303	1PE	3	0
5	K	308	GOL	2	0
3	F	302	1PE	1	0
3	L	305[B]	1PE	2	0
4	L	302	2PE	7	0
5	B	306	GOL	1	0
5	J	305	GOL	1	0
5	I	306	GOL	1	0
5	S	303	GOL	1	0
3	B	304	1PE	1	0
5	A	306	GOL	2	0
5	E	306	GOL	1	0
3	R	303	1PE	2	0
5	K	305	GOL	1	0
3	F	304[B]	1PE	2	0
5	T	304	GOL	2	0
3	F	303	1PE	1	0
3	H	305	1PE	2	0
3	O	301	1PE	1	0
5	F	306	GOL	1	0
5	L	306	GOL	2	0

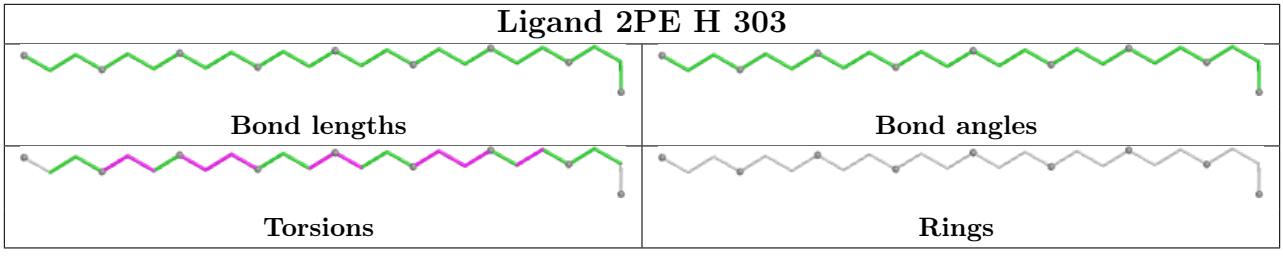
Continued on next page...

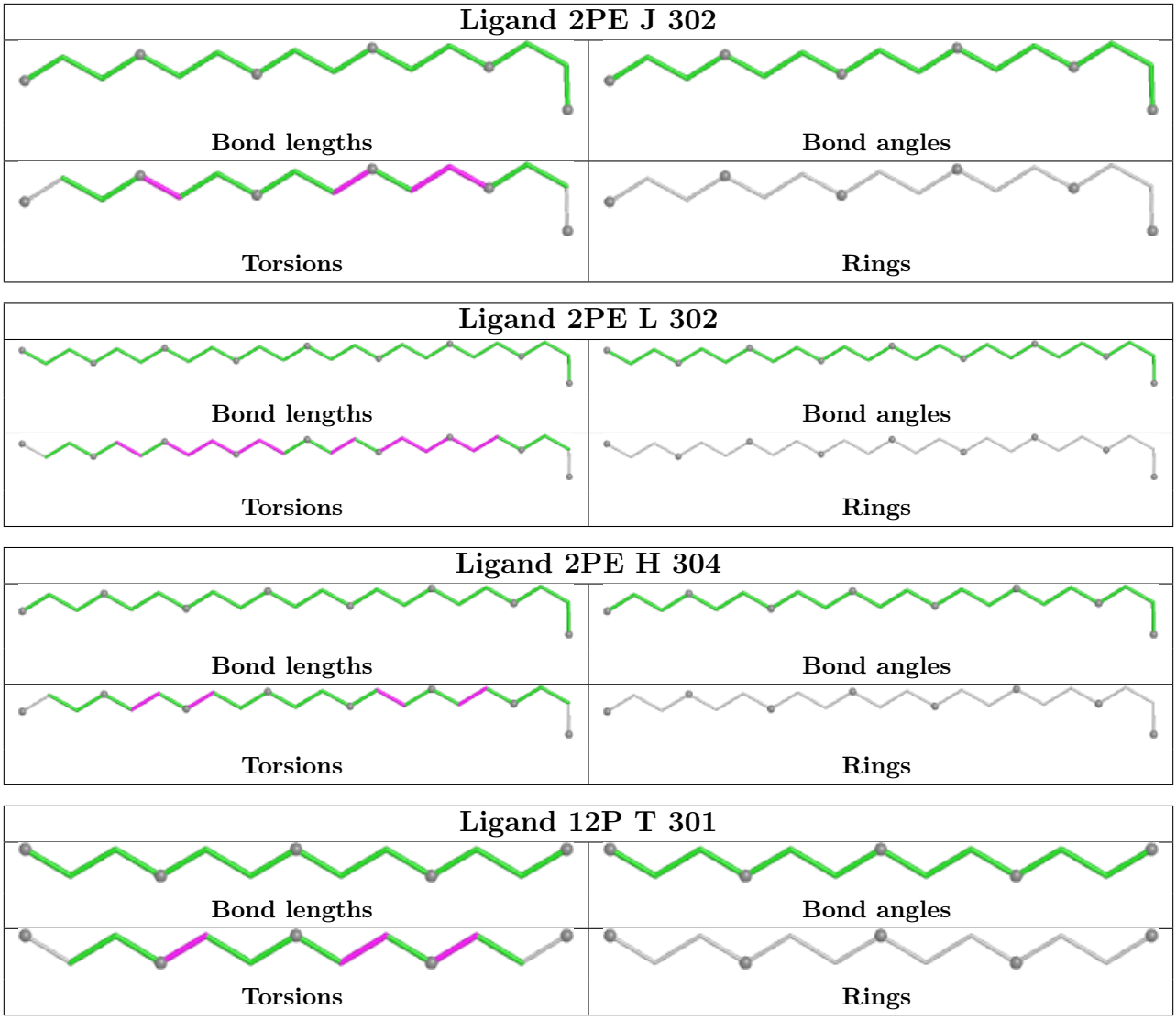
Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	D	302	GOL	1	0
5	H	309	GOL	1	0
7	T	301	12P	1	0
3	H	301	1PE	2	0
5	K	306	GOL	1	0
5	T	305	GOL	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.







5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	267/279 (95%)	-0.41	1 (0%) 89 80	22, 38, 53, 64	1 (0%)
1	B	265/279 (94%)	-0.40	1 (0%) 89 80	26, 41, 55, 70	0
1	C	268/279 (96%)	-0.34	4 (1%) 71 57	26, 40, 57, 95	1 (0%)
1	D	266/279 (95%)	-0.32	2 (0%) 82 69	27, 43, 56, 69	1 (0%)
1	E	272/279 (97%)	-0.39	1 (0%) 89 80	22, 38, 56, 63	0
1	F	266/279 (95%)	-0.42	1 (0%) 89 80	24, 38, 53, 63	0
1	G	266/279 (95%)	-0.31	0 100 100	27, 44, 57, 74	0
1	H	267/279 (95%)	-0.55	1 (0%) 89 80	21, 33, 49, 65	0
1	I	267/279 (95%)	-0.53	1 (0%) 89 80	24, 33, 50, 74	0
1	J	267/279 (95%)	-0.49	3 (1%) 77 62	22, 35, 50, 75	0
1	K	266/279 (95%)	-0.51	0 100 100	23, 36, 51, 68	0
1	L	265/279 (94%)	-0.54	0 100 100	21, 35, 51, 63	2 (0%)
1	M	266/279 (95%)	-0.15	1 (0%) 89 80	36, 50, 65, 75	0
1	N	266/279 (95%)	-0.11	1 (0%) 89 80	34, 49, 61, 79	0
1	O	266/279 (95%)	-0.24	0 100 100	30, 44, 59, 74	0
1	P	266/279 (95%)	-0.34	1 (0%) 89 80	30, 43, 58, 64	0
1	Q	265/279 (94%)	-0.24	1 (0%) 89 80	32, 46, 61, 84	0
1	R	266/279 (95%)	-0.48	1 (0%) 89 80	23, 36, 53, 68	0
1	S	267/279 (95%)	-0.44	2 (0%) 84 72	22, 37, 52, 78	3 (1%)
1	T	266/279 (95%)	-0.37	1 (0%) 89 80	28, 39, 54, 75	0
2	d	10/335 (2%)	4.76	9 (90%) 0 0	48, 57, 73, 74	10 (100%)
2	g	6/335 (1%)	4.33	5 (83%) 0 0	49, 50, 52, 65	6 (100%)
2	h	9/335 (2%)	3.49	8 (88%) 0 0	40, 47, 53, 55	9 (100%)
2	i	12/335 (3%)	4.14	11 (91%) 0 0	47, 52, 60, 61	12 (100%)

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å^2)	Q<0.9
2	p	8/335 (2%)	4.07	8 (100%)	0	0	43, 57, 60, 60	8 (100%)
2	q	8/335 (2%)	3.18	6 (75%)	0	0	44, 56, 59, 60	8 (100%)
2	r	8/335 (2%)	3.86	8 (100%)	0	0	48, 50, 57, 70	8 (100%)
2	s	10/335 (2%)	3.78	8 (80%)	0	0	39, 52, 58, 64	10 (100%)
2	t	8/335 (2%)	3.78	8 (100%)	0	0	49, 58, 60, 67	8 (100%)
All	All	5409/8595 (62%)	-0.32	94 (1%)	69	53	21, 40, 58, 95	87 (1%)

The worst 5 of 94 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	d	325	LEU	9.0
2	g	326	SER	8.9
2	r	326	SER	8.6
2	d	326	SER	8.2
2	p	326	SER	8.2

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

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

6.3 Carbohydrates (i)

There are no monosaccharides 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(Å^2)	Q<0.9
6	NI	C	309	1/1	0.62	0.27	191,191,191,191	0
5	GOL	M	303	6/6	0.66	0.21	61,65,68,73	0
5	GOL	A	308	6/6	0.68	0.20	60,71,77,85	0
5	GOL	M	301	6/6	0.71	0.27	32,68,75,78	0
5	GOL	G	302	6/6	0.72	0.19	51,52,55,64	0
3	1PE	P	302	13/16	0.72	0.30	63,77,87,88	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	GOL	F	306	6/6	0.73	0.22	63,67,74,78	0
3	1PE	E	302	10/16	0.73	0.27	54,68,72,84	0
5	GOL	H	307	6/6	0.73	0.21	37,52,57,60	0
4	2PE	H	304	22/28	0.74	0.26	58,73,76,79	22
5	GOL	S	304	6/6	0.74	0.16	55,71,77,78	0
5	GOL	S	306	6/6	0.74	0.22	46,62,77,78	0
5	GOL	B	302	6/6	0.74	0.20	47,58,71,76	0
3	1PE	P	301	13/16	0.76	0.24	38,62,80,81	0
5	GOL	D	305	6/6	0.76	0.23	43,58,70,72	0
5	GOL	Q	303	6/6	0.76	0.19	41,65,69,87	0
5	GOL	A	305	6/6	0.76	0.22	43,56,65,66	0
5	GOL	A	307	6/6	0.76	0.19	43,52,57,70	0
3	1PE	F	301	13/16	0.76	0.25	60,68,78,93	0
3	1PE	O	301	10/16	0.77	0.25	54,65,76,78	0
5	GOL	L	306	6/6	0.77	0.19	39,50,57,61	0
5	GOL	O	302	6/6	0.77	0.22	46,66,73,79	0
5	GOL	O	305	6/6	0.77	0.17	52,63,65,69	0
3	1PE	B	305	16/16	0.78	0.26	62,73,79,90	0
5	GOL	D	303	6/6	0.79	0.22	33,54,69,75	0
3	1PE	Q	301	16/16	0.79	0.24	47,77,86,87	0
3	1PE	F	304[B]	16/16	0.80	0.30	33,62,72,73	16
5	GOL	N	304	6/6	0.80	0.18	63,66,72,77	0
3	1PE	N	301	10/16	0.80	0.22	59,70,85,86	0
3	1PE	F	304[A]	16/16	0.80	0.30	38,62,73,73	16
5	GOL	O	303	6/6	0.81	0.20	39,67,74,77	0
3	1PE	B	304	10/16	0.81	0.22	45,56,74,77	0
3	1PE	C	302	16/16	0.81	0.22	62,74,86,86	0
3	1PE	J	303	16/16	0.81	0.24	41,67,84,92	0
3	1PE	F	302	16/16	0.81	0.22	46,58,78,87	0
3	1PE	R	301	10/16	0.81	0.21	47,62,69,72	0
3	1PE	H	301	16/16	0.82	0.21	52,63,76,78	0
3	1PE	L	305[A]	16/16	0.82	0.46	55,73,85,87	16
4	2PE	L	302	25/28	0.82	0.21	36,46,57,60	25
5	GOL	Q	304	6/6	0.82	0.13	57,61,65,68	0
5	GOL	S	303	6/6	0.82	0.23	47,56,61,63	0
3	1PE	L	305[B]	16/16	0.82	0.46	48,72,84,93	16
5	GOL	A	306	6/6	0.82	0.17	37,46,52,58	6
3	1PE	I	301	16/16	0.82	0.19	26,50,66,67	0
5	GOL	E	303	6/6	0.83	0.20	44,60,65,73	0
5	GOL	E	305	6/6	0.83	0.15	52,59,68,82	0
4	2PE	H	303	25/28	0.83	0.27	44,51,62,65	25
3	1PE	J	301	10/16	0.83	0.24	51,60,70,77	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	GOL	O	307	6/6	0.83	0.19	53,63,66,73	0
5	GOL	B	301	6/6	0.83	0.19	26,51,57,58	0
5	GOL	I	308	6/6	0.83	0.19	38,46,54,54	6
5	GOL	R	306	6/6	0.83	0.20	45,52,64,82	6
5	GOL	K	304	6/6	0.83	0.18	52,64,69,70	0
3	1PE	E	301	16/16	0.83	0.20	44,60,79,80	0
5	GOL	S	305	6/6	0.83	0.20	41,61,63,69	0
3	1PE	R	302	7/16	0.83	0.24	29,34,49,55	7
5	GOL	T	305	6/6	0.83	0.22	44,52,56,68	0
3	1PE	R	303	13/16	0.83	0.20	57,65,80,82	0
6	NI	O	308	1/1	0.83	0.19	120,120,120,120	0
3	1PE	I	303	10/16	0.84	0.21	54,65,74,74	0
3	1PE	N	302	10/16	0.84	0.20	61,74,78,78	0
3	1PE	T	302	16/16	0.84	0.22	58,73,82,84	0
5	GOL	J	304	6/6	0.84	0.18	59,60,72,74	0
5	GOL	J	307	6/6	0.84	0.12	48,57,62,64	0
4	2PE	A	302	10/28	0.84	0.18	53,64,74,84	0
5	GOL	B	308	6/6	0.84	0.17	45,57,68,75	0
3	1PE	C	301	10/16	0.84	0.22	38,48,58,62	0
3	1PE	H	302[A]	10/16	0.84	0.20	38,51,58,58	10
3	1PE	L	304	13/16	0.84	0.21	51,68,79,83	0
3	1PE	H	302[B]	10/16	0.84	0.20	39,48,55,57	10
6	NI	F	309	1/1	0.84	0.24	150,150,150,150	0
3	1PE	G	301	10/16	0.84	0.24	50,61,76,80	0
3	1PE	C	303[B]	16/16	0.85	0.30	36,67,79,80	16
5	GOL	C	306	6/6	0.85	0.16	41,59,63,63	0
3	1PE	T	303	10/16	0.85	0.21	54,61,72,72	0
5	GOL	T	304	6/6	0.85	0.17	44,45,60,61	0
3	1PE	A	301	13/16	0.85	0.22	51,64,76,78	0
5	GOL	R	307	6/6	0.85	0.16	56,58,69,73	0
5	GOL	S	301	6/6	0.85	0.17	39,55,64,79	0
3	1PE	C	303[A]	16/16	0.85	0.30	27,64,79,80	16
5	GOL	C	305	6/6	0.86	0.16	65,70,75,76	0
5	GOL	I	310	6/6	0.86	0.18	43,54,57,58	0
5	GOL	F	307	6/6	0.86	0.15	58,62,68,74	0
3	1PE	K	302	13/16	0.86	0.22	26,53,68,69	0
3	1PE	A	303	7/16	0.86	0.18	51,54,73,75	0
5	GOL	R	304	6/6	0.86	0.15	50,65,67,71	0
5	GOL	Q	305	6/6	0.87	0.18	36,45,51,53	6
5	GOL	I	306	6/6	0.87	0.17	50,53,64,65	0
5	GOL	K	308	6/6	0.87	0.20	35,46,74,85	0
5	GOL	B	306	6/6	0.87	0.15	44,56,62,65	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	GOL	T	307	6/6	0.87	0.14	42,57,62,63	0
6	NI	B	309	1/1	0.87	0.21	130,130,130,130	0
3	1PE	Q	302	10/16	0.87	0.20	62,73,80,85	0
3	1PE	F	303	13/16	0.87	0.17	57,68,79,80	0
6	NI	J	309	1/1	0.87	0.30	135,135,135,135	0
5	GOL	H	310	6/6	0.87	0.16	38,42,52,62	0
7	12P	T	301	13/37	0.87	0.17	45,51,58,67	0
5	GOL	T	306	6/6	0.88	0.14	37,49,54,59	0
5	GOL	J	306	6/6	0.88	0.21	22,40,48,50	6
3	1PE	B	303	10/16	0.88	0.17	41,59,68,69	0
6	NI	C	304	1/1	0.88	0.11	95,95,95,95	0
5	GOL	K	303	6/6	0.88	0.18	40,49,56,69	0
3	1PE	L	303	16/16	0.88	0.19	49,61,77,78	0
5	GOL	H	311	6/6	0.88	0.15	32,50,53,63	0
5	GOL	O	304	6/6	0.88	0.16	48,59,64,67	0
5	GOL	I	305	6/6	0.88	0.20	39,46,58,63	0
5	GOL	A	304	6/6	0.89	0.11	23,42,50,54	0
3	1PE	I	302	10/16	0.89	0.18	40,57,70,71	0
5	GOL	K	305	6/6	0.89	0.15	50,57,67,73	0
5	GOL	K	307	6/6	0.89	0.14	41,47,51,53	0
5	GOL	S	302	6/6	0.89	0.18	47,66,77,86	0
3	1PE	N	303	13/16	0.89	0.17	49,64,82,83	0
5	GOL	L	301	6/6	0.89	0.15	32,45,48,49	6
6	NI	I	311	1/1	0.89	0.11	86,86,86,86	0
5	GOL	J	305	6/6	0.89	0.14	34,46,55,57	0
5	GOL	F	305	6/6	0.89	0.19	34,39,54,62	6
6	NI	P	304	1/1	0.89	0.12	106,106,106,106	0
5	GOL	I	307	6/6	0.89	0.20	47,52,56,66	0
4	2PE	J	302	16/28	0.90	0.18	32,42,51,52	16
3	1PE	H	305	10/16	0.90	0.17	33,44,54,54	0
5	GOL	B	307	6/6	0.90	0.19	47,52,61,62	0
5	GOL	L	307	6/6	0.90	0.17	41,50,58,69	0
5	GOL	E	304	6/6	0.90	0.12	37,43,51,56	0
6	NI	M	304	1/1	0.90	0.12	102,102,102,102	0
5	GOL	O	306	6/6	0.90	0.14	46,50,56,59	0
5	GOL	M	302	6/6	0.90	0.12	46,50,51,53	0
5	GOL	D	302	6/6	0.90	0.11	33,47,54,56	0
6	NI	L	310	1/1	0.91	0.16	99,99,99,99	0
5	GOL	L	308	6/6	0.91	0.16	47,50,56,60	0
6	NI	H	312	1/1	0.91	0.11	87,87,87,87	0
5	GOL	H	309	6/6	0.91	0.15	40,49,53,57	0
6	NI	R	308	1/1	0.91	0.17	108,108,108,108	0

Continued on next page...

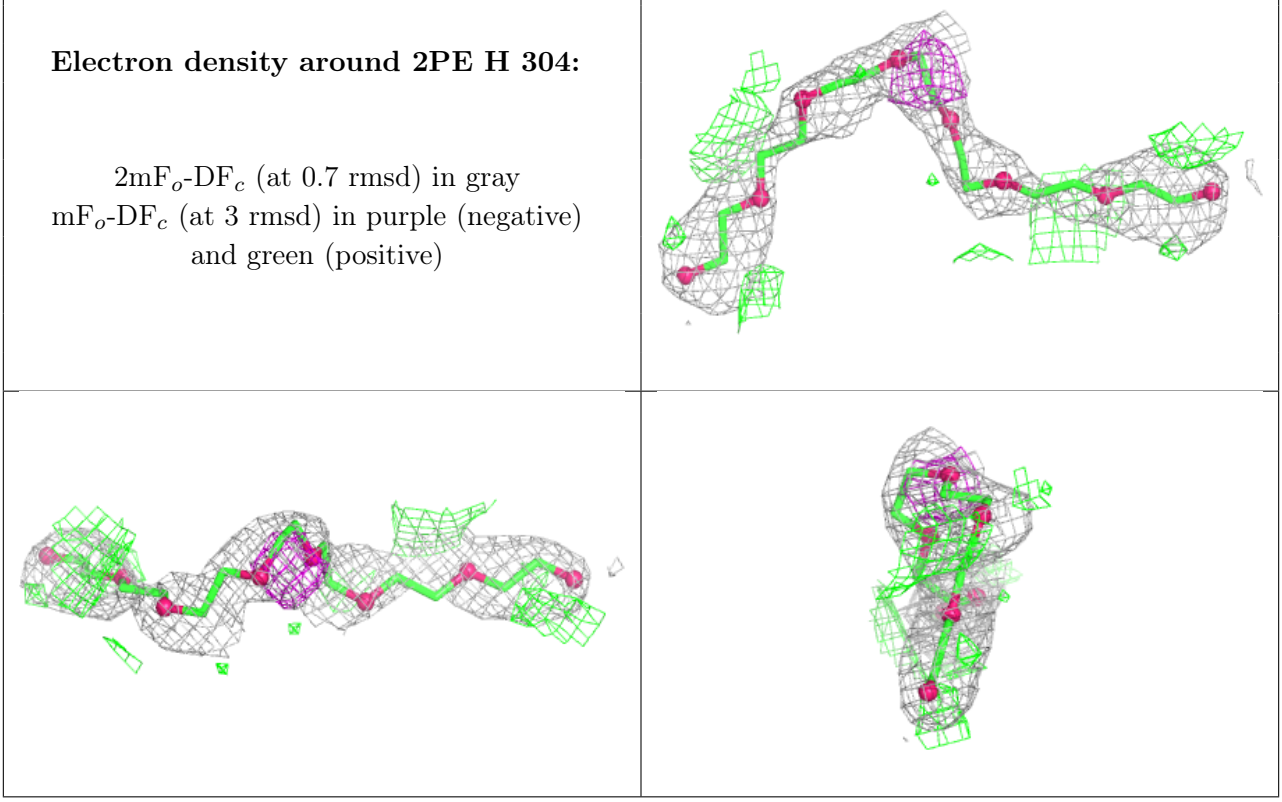
Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	NI	E	308	1/1	0.91	0.14	94,94,94,94	1
6	NI	J	308	1/1	0.92	0.10	94,94,94,94	0
5	GOL	D	304	6/6	0.92	0.15	51,53,66,70	0
5	GOL	R	305	6/6	0.92	0.13	37,50,52,58	0
5	GOL	K	306	6/6	0.92	0.18	35,47,52,56	0
5	GOL	N	305	6/6	0.92	0.10	44,55,64,70	0
5	GOL	H	308	6/6	0.92	0.16	32,49,50,65	0
3	1PE	K	301	10/16	0.92	0.15	42,56,59,60	0
5	GOL	D	301	6/6	0.92	0.13	32,49,58,66	0
5	GOL	I	309	6/6	0.93	0.12	33,35,41,42	6
6	NI	L	309	1/1	0.93	0.12	90,90,90,90	0
6	NI	D	307	1/1	0.94	0.11	99,99,99,99	0
6	NI	O	310	1/1	0.94	0.10	101,101,101,101	0
6	NI	E	307	1/1	0.94	0.13	81,81,81,81	0
5	GOL	E	306	6/6	0.94	0.11	39,51,57,62	0
6	NI	S	307	1/1	0.94	0.09	106,106,106,106	0
6	NI	F	308	1/1	0.94	0.10	104,104,104,104	0
6	NI	S	308	1/1	0.95	0.07	95,95,95,95	0
6	NI	O	309	1/1	0.96	0.08	110,110,110,110	0
6	NI	C	308	1/1	0.96	0.07	98,98,98,98	0
6	NI	H	306	1/1	0.96	0.09	92,92,92,92	0
6	NI	Q	306	1/1	0.96	0.10	96,96,96,96	0
6	NI	P	303	1/1	0.97	0.08	84,84,84,84	1
6	NI	N	306	1/1	0.97	0.06	89,89,89,89	0
6	NI	I	304	1/1	0.97	0.06	88,88,88,88	0
6	NI	Q	307	1/1	0.97	0.10	74,74,74,74	1
6	NI	D	306	1/1	0.98	0.06	77,77,77,77	0
6	NI	C	307	1/1	0.98	0.09	88,88,88,88	0
6	NI	S	309	1/1	0.98	0.06	109,109,109,109	0
6	NI	K	309	1/1	0.98	0.08	86,86,86,86	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

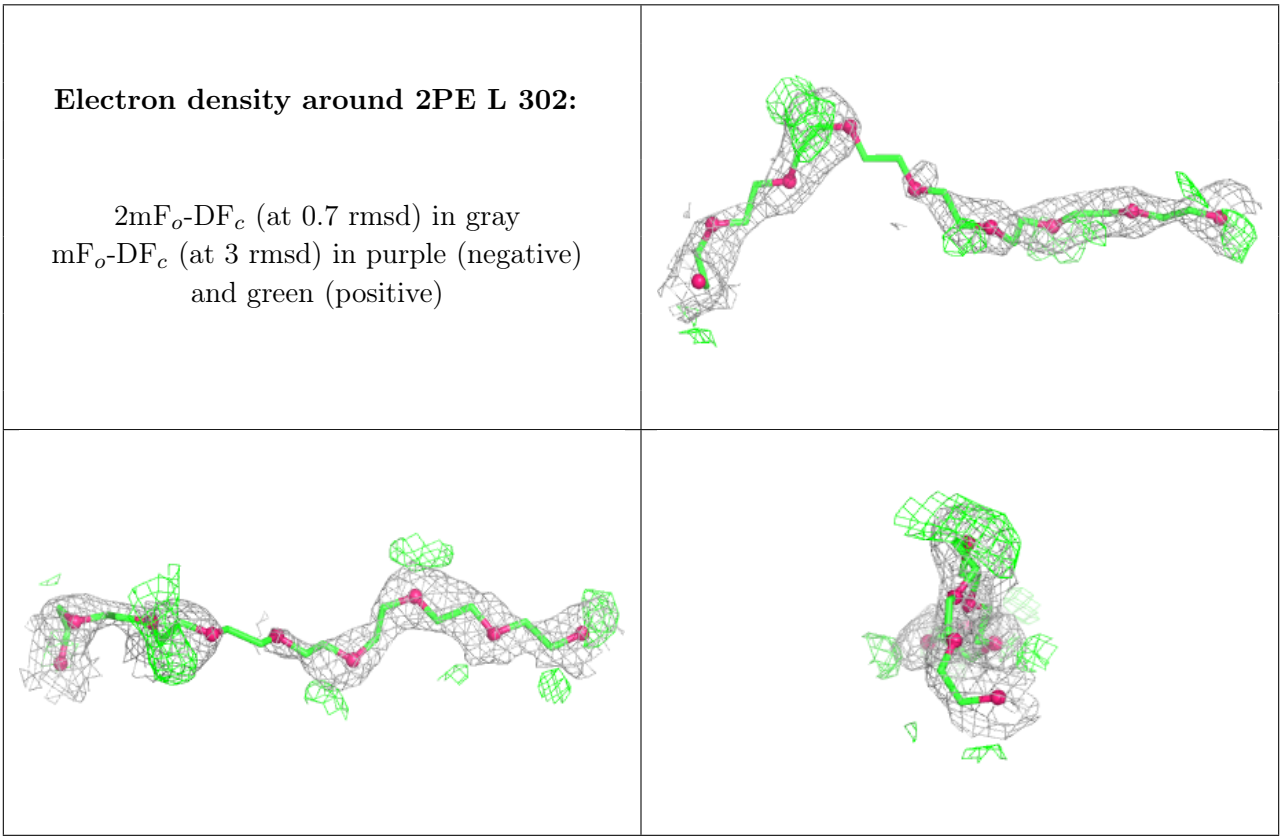
Electron density around 2PE H 304:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



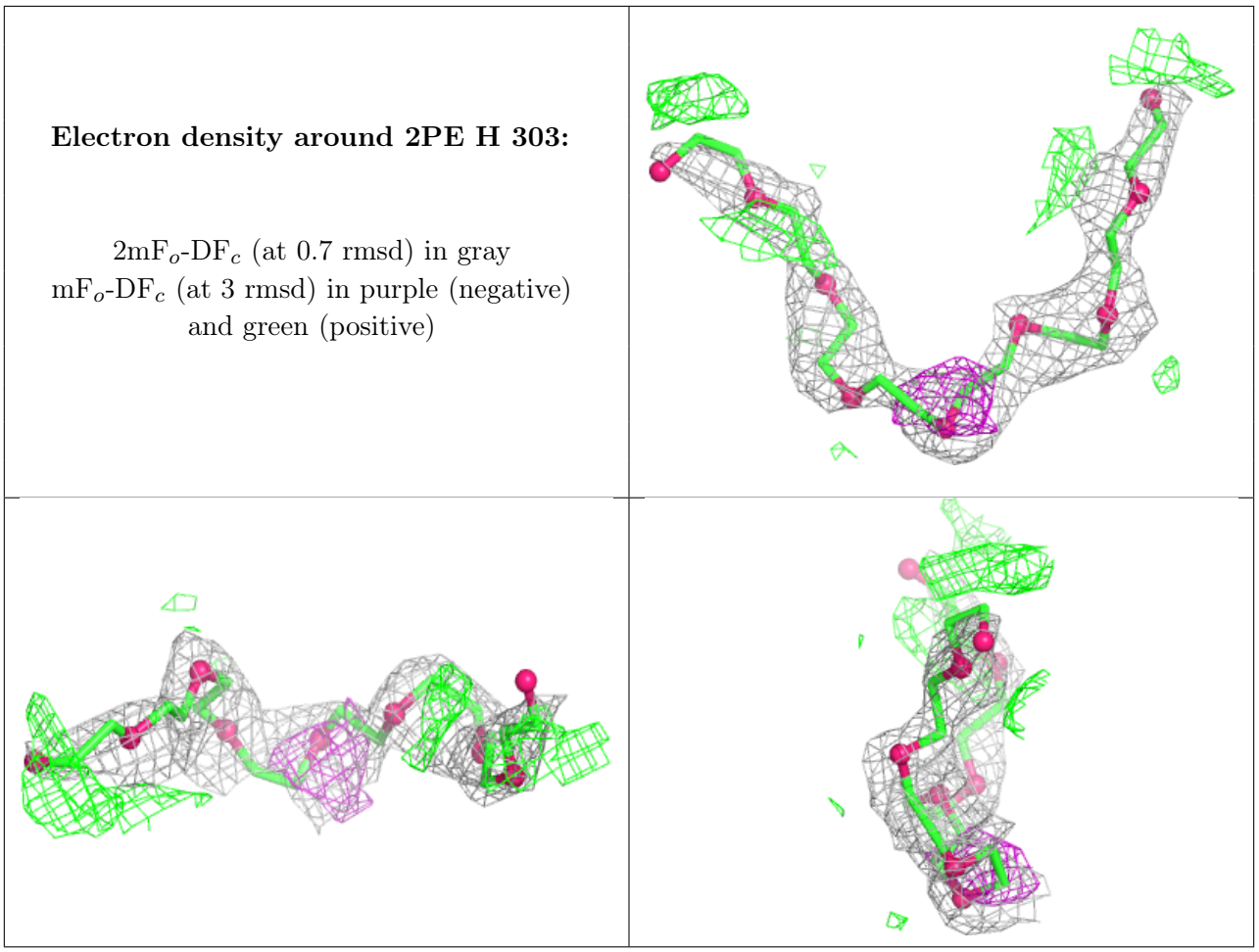
Electron density around 2PE L 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



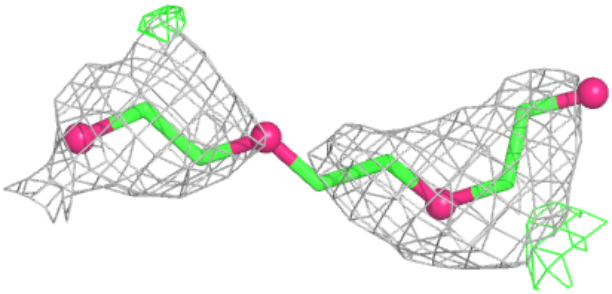
Electron density around 2PE H 303:

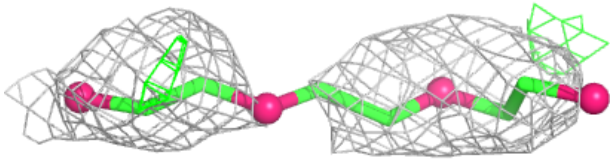
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

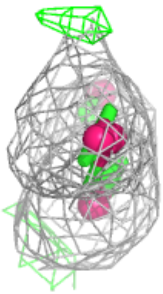


Electron density around 2PE A 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

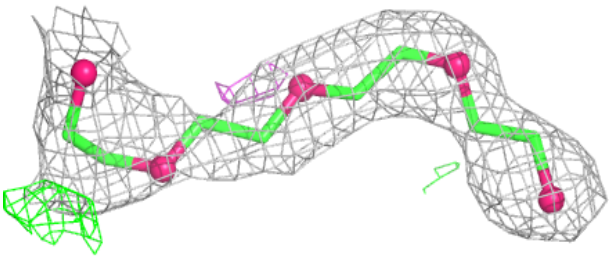


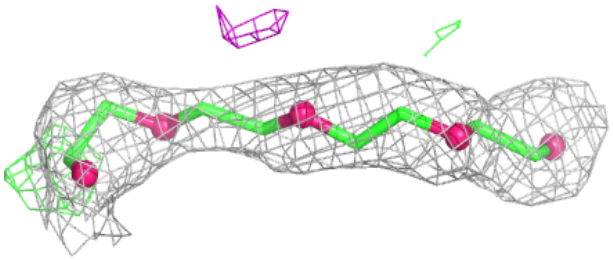


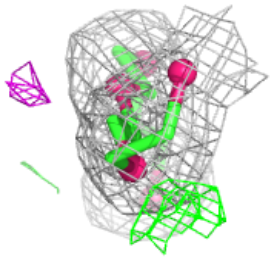


Electron density around 12P T 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

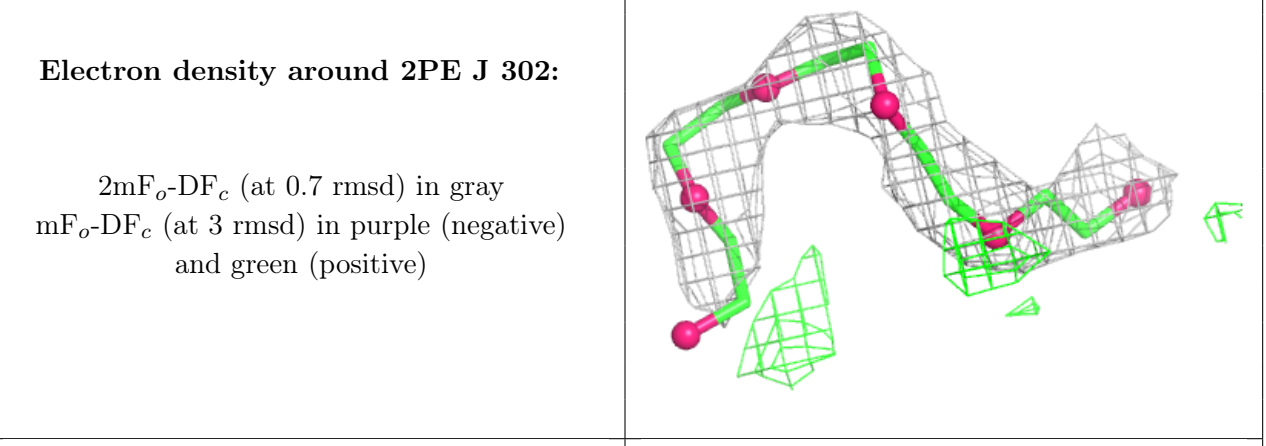


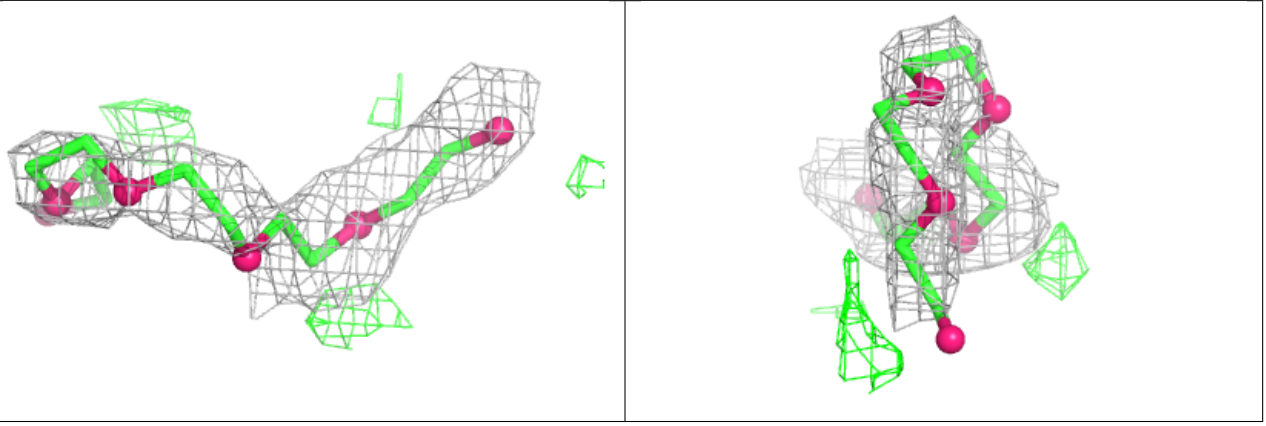




Electron density around 2PE J 302:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)





6.5 Other polymers

There are no such residues in this entry.