Full wwPDB X-ray Structure Validation Report (i)

May 2, 2023 – 10:35 am BST

PDB ID	:	8CDA
Title	:	Crystal structure of MAB_4123 from Mycobacterium abscessus
Authors	:	Ung, K.L.; Poussineau, C.; Couston, J.; Alsarraf, H.M.A.B.; Blaise, M.
Deposited on	:	2023-01-30
Resolution	:	2.10 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 (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:

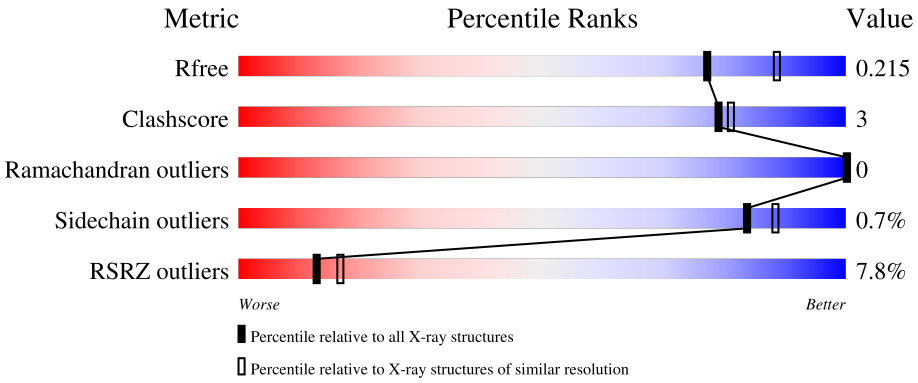
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.32.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.32.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.10 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	5197 (2.10-2.10)
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)
RSRZ outliers	127900	5083 (2.10-2.10)

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	423	4% 88% 5% 6%
1	B	423	5% 87% 6% 6%
1	C	423	9% 87% 6% 6%
1	D	423	11% 83% 9% 8%
1	E	423	5% 86% 7% 6%

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Mol	Chain	Length	Quality of chain
1	F	423	4% 86% 7% 7%
1	G	423	7% 87% 7% 7%
1	H	423	7% 84% 8% 7%
1	I	423	9% 86% 8% 6%
1	J	423	9% 87% 6% 7%
1	K	423	3% 87% 7% 7%
1	L	423	13% 85% 8% 7%
1	M	423	7% 84% 9% 7%
1	N	423	11% 87% 6% 7%
1	O	423	9% 87% 7% 6%
1	P	423	4% 84% 8% 7%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 51940 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.

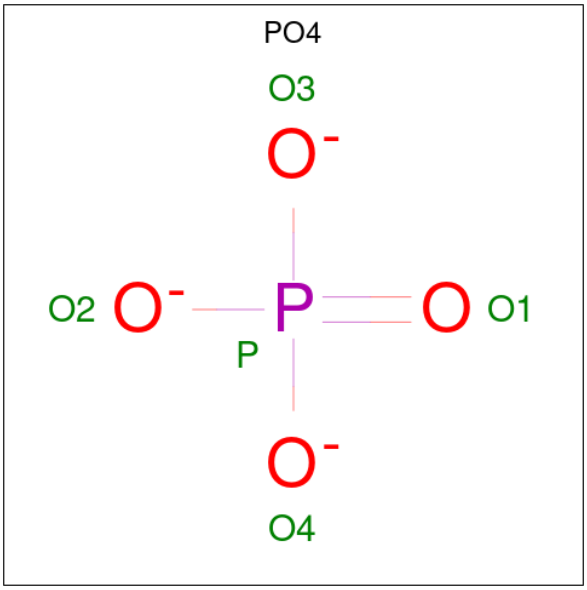
- Molecule 1 is a protein called Probable monooxygenase.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
1	A	396	Total 3062	C 1916	N 556	O 590	0	0	0
1	B	396	Total 3068	C 1919	N 557	O 592	0	1	0
1	C	396	Total 3062	C 1916	N 556	O 590	0	0	0
1	D	391	Total 3017	C 1888	N 549	O 580	0	0	0
1	E	396	Total 3091	C 1932	N 563	O 596	0	3	0
1	F	395	Total 3052	C 1910	N 553	O 589	0	0	0
1	G	395	Total 3052	C 1910	N 553	O 589	0	0	0
1	H	392	Total 3029	C 1896	N 549	O 584	0	0	0
1	I	396	Total 3058	C 1913	N 554	O 591	0	0	0
1	J	395	Total 3061	C 1915	N 555	O 591	0	1	0
1	K	395	Total 3052	C 1910	N 553	O 589	0	0	0
1	L	393	Total 3038	C 1902	N 551	O 585	0	0	0
1	M	394	Total 3043	C 1905	N 552	O 586	0	0	0
1	N	393	Total 3045	C 1904	N 555	O 586	0	1	0
1	O	397	Total 3074	C 1922	N 558	O 594	0	1	0
1	P	392	Total 3029	C 1897	N 550	O 582	0	0	0

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	expression tag	UNP B1MIH5
B	0	GLY	-	expression tag	UNP B1MIH5
C	0	GLY	-	expression tag	UNP B1MIH5
D	0	GLY	-	expression tag	UNP B1MIH5
E	0	GLY	-	expression tag	UNP B1MIH5
F	0	GLY	-	expression tag	UNP B1MIH5
G	0	GLY	-	expression tag	UNP B1MIH5
H	0	GLY	-	expression tag	UNP B1MIH5
I	0	GLY	-	expression tag	UNP B1MIH5
J	0	GLY	-	expression tag	UNP B1MIH5
K	0	GLY	-	expression tag	UNP B1MIH5
L	0	GLY	-	expression tag	UNP B1MIH5
M	0	GLY	-	expression tag	UNP B1MIH5
N	0	GLY	-	expression tag	UNP B1MIH5
O	0	GLY	-	expression tag	UNP B1MIH5
P	0	GLY	-	expression tag	UNP B1MIH5

- Molecule 2 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total O P 5 4 1	0	0
2	B	1	Total O P 5 4 1	0	0
2	C	1	Total O P 5 4 1	0	0

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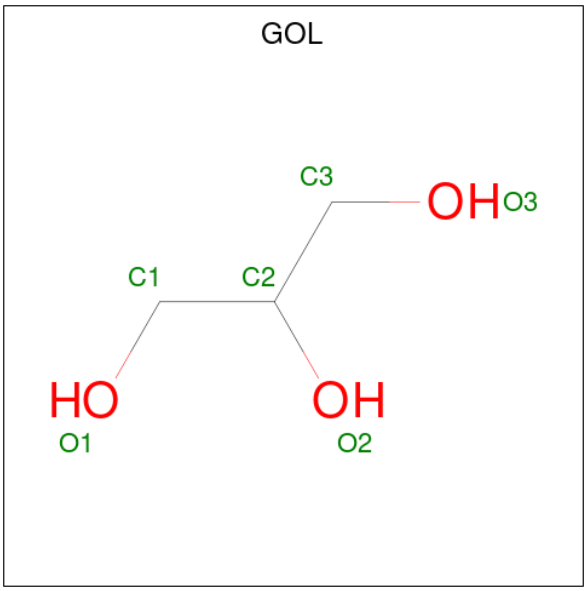
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	D	1	Total O P 5 4 1	0	0
2	E	1	Total O P 5 4 1	0	0
2	F	1	Total O P 5 4 1	0	0
2	F	1	Total O P 5 4 1	0	0
2	G	1	Total O P 5 4 1	0	0
2	H	1	Total O P 5 4 1	0	0
2	I	1	Total O P 5 4 1	0	0
2	J	1	Total O P 5 4 1	0	0
2	K	1	Total O P 5 4 1	0	0
2	L	1	Total O P 5 4 1	0	0
2	M	1	Total O P 5 4 1	0	0
2	N	1	Total O P 5 4 1	0	0
2	O	1	Total O P 5 4 1	0	0
2	P	1	Total O P 5 4 1	0	0

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total C O 6 3 3	0	0
3	J	1	Total C O 6 3 3	0	0
3	K	1	Total C O 6 3 3	0	0
3	L	1	Total C O 6 3 3	0	0
3	M	1	Total C O 6 3 3	0	0
3	P	1	Total C O 6 3 3	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	224	Total O 224 224	0	0
4	B	230	Total O 230 230	0	0
4	C	178	Total O 178 178	0	0
4	D	144	Total O 144 144	0	0
4	E	258	Total O 258 258	0	0
4	F	242	Total O 242 242	0	0

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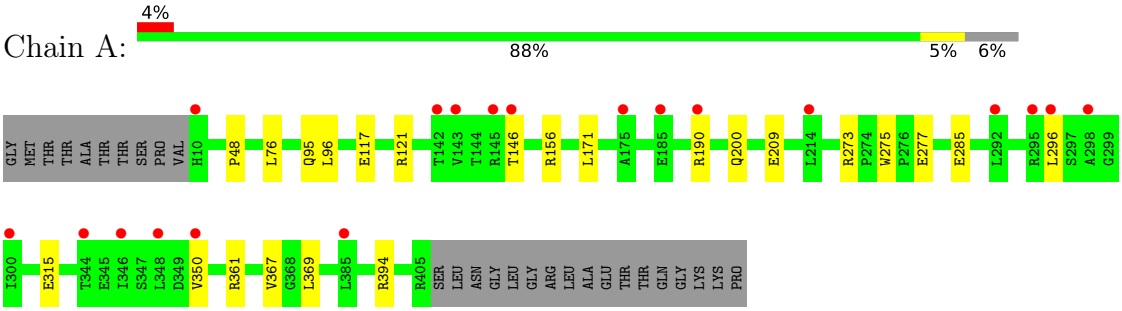
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	G	223	Total O 223 223	0	0
4	H	179	Total O 179 179	0	0
4	I	150	Total O 150 150	0	0
4	J	157	Total O 157 157	0	0
4	K	188	Total O 188 188	0	0
4	L	122	Total O 122 122	0	0
4	M	149	Total O 149 149	0	0
4	N	184	Total O 184 184	0	0
4	O	185	Total O 185 185	0	0
4	P	173	Total O 173 173	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

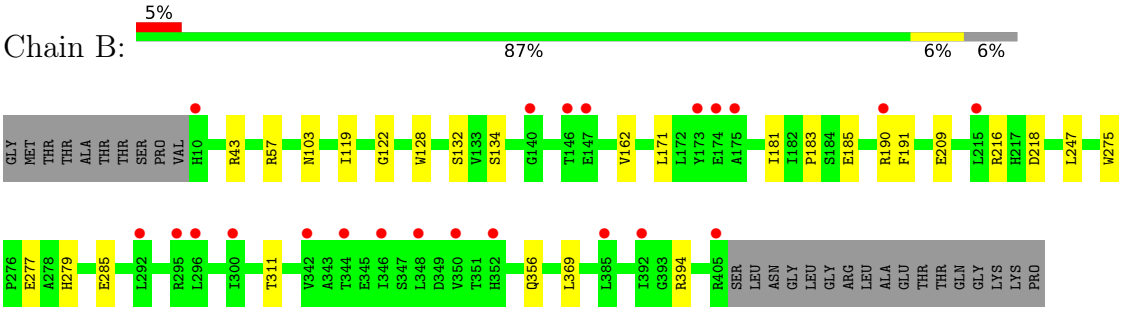
• Molecule 1: Probable monooxygenase

Chain A:



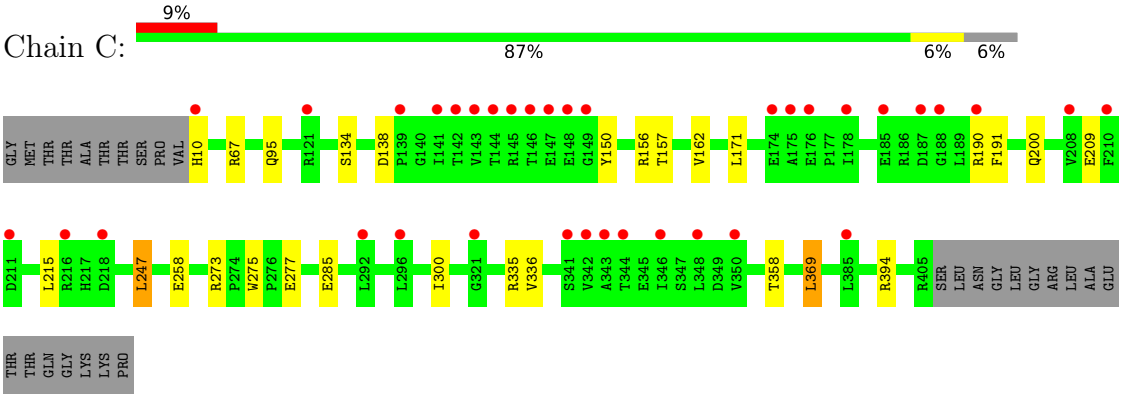
• Molecule 1: Probable monooxygenase

Chain B:



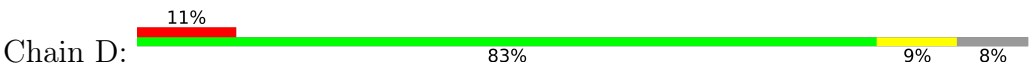
• Molecule 1: Probable monooxygenase

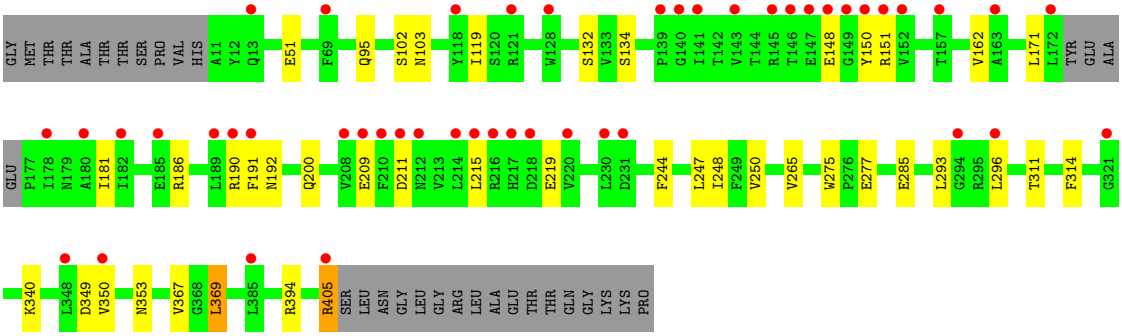
Chain C:



• Molecule 1: Probable monooxygenase

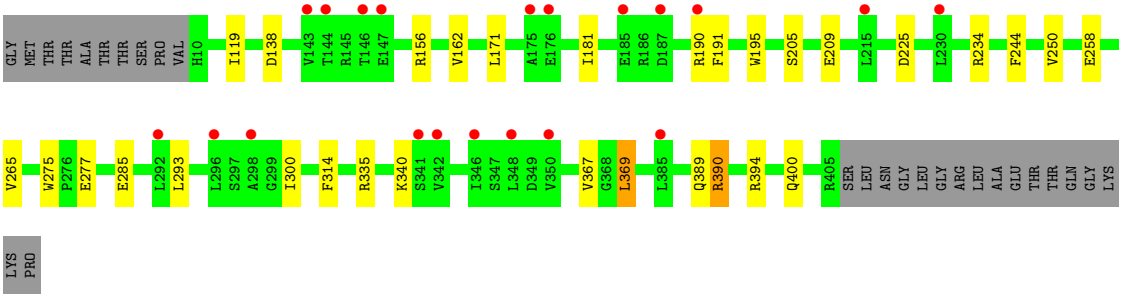
Chain D:





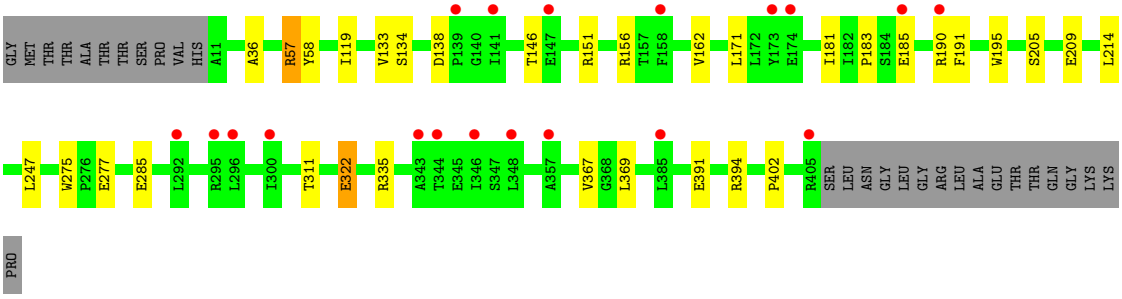
• Molecule 1: Probable monooxygenase

Chain E:



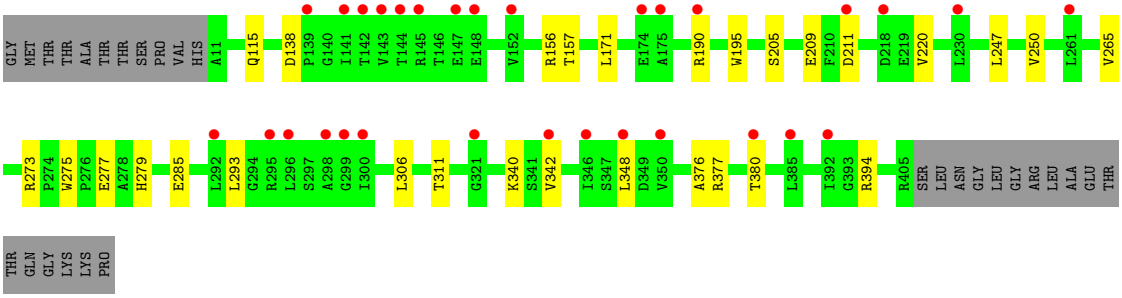
• Molecule 1: Probable monooxygenase

Chain F:



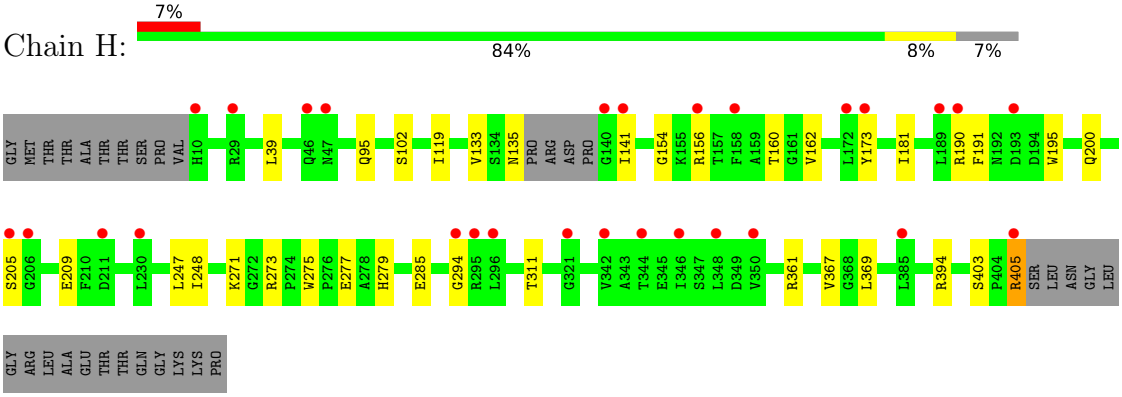
• Molecule 1: Probable monooxygenase

Chain G:



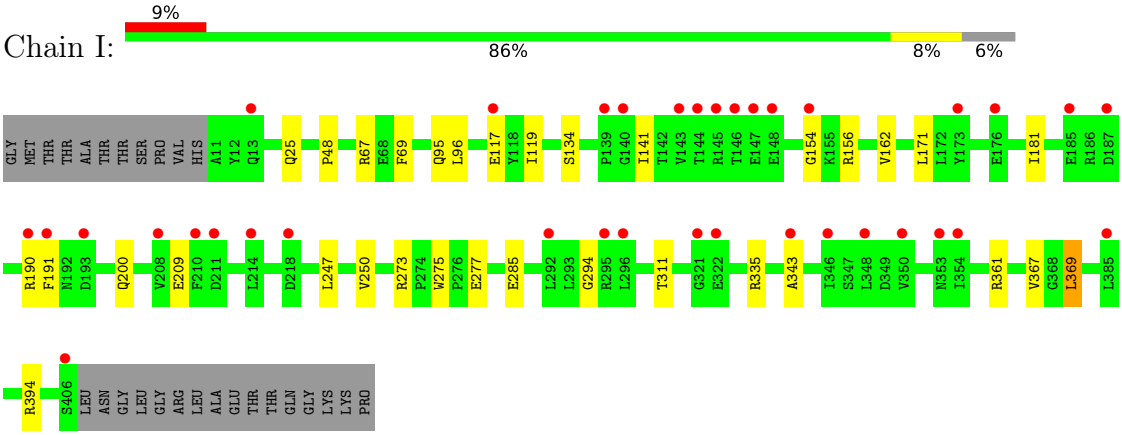
• Molecule 1: Probable monooxygenase

Chain H:



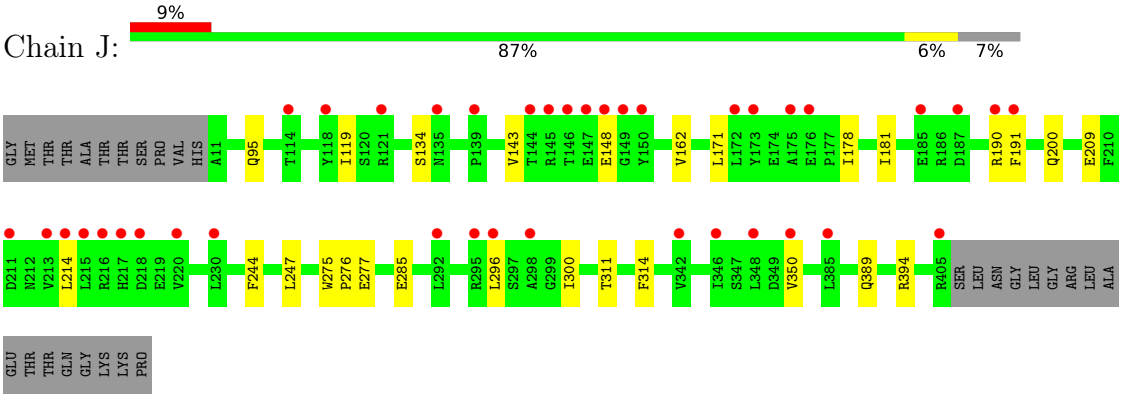
• Molecule 1: Probable monooxygenase

Chain I:



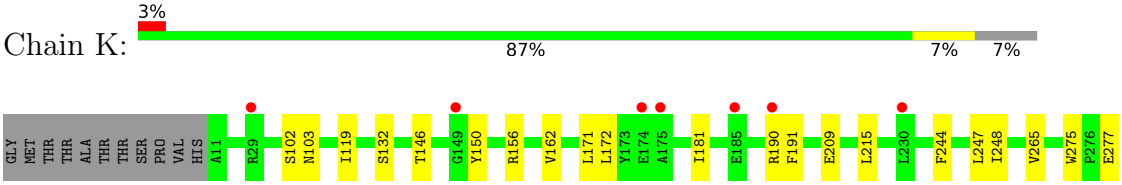
• Molecule 1: Probable monooxygenase

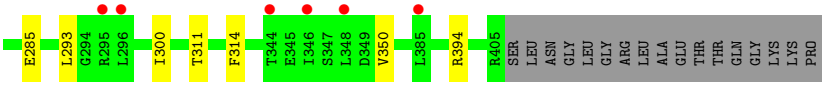
Chain J:



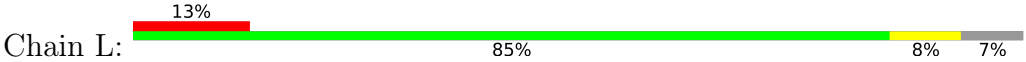
• Molecule 1: Probable monooxygenase

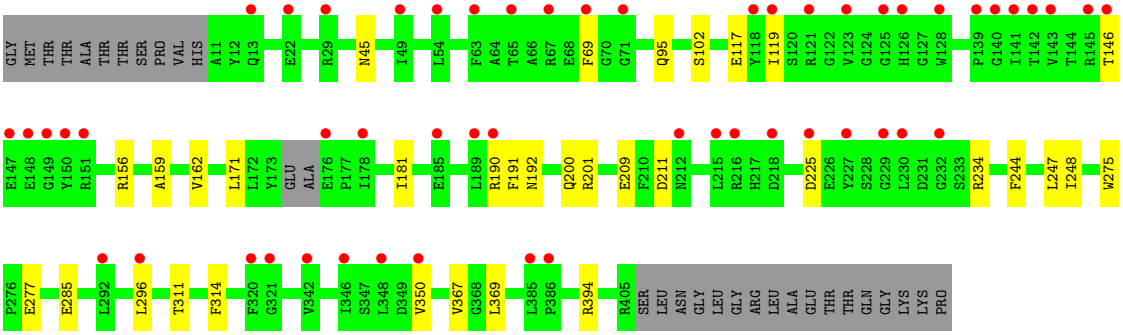
Chain K:



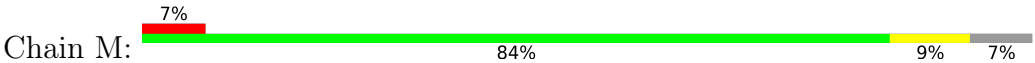


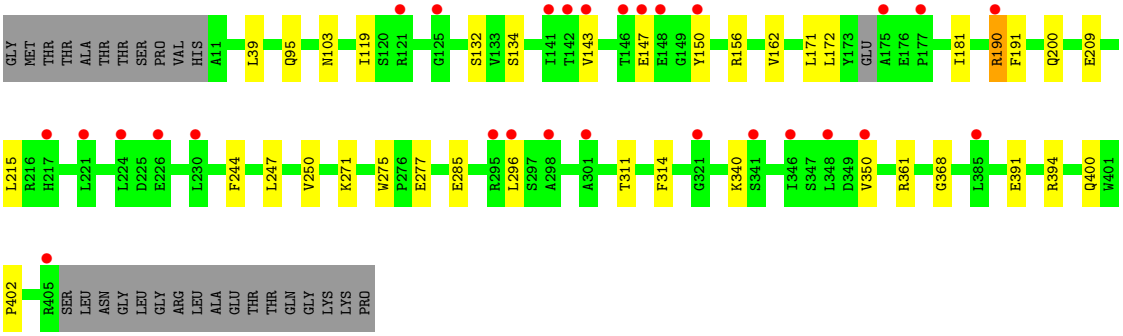
• Molecule 1: Probable monooxygenase



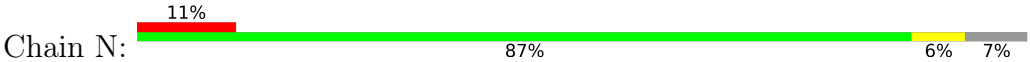


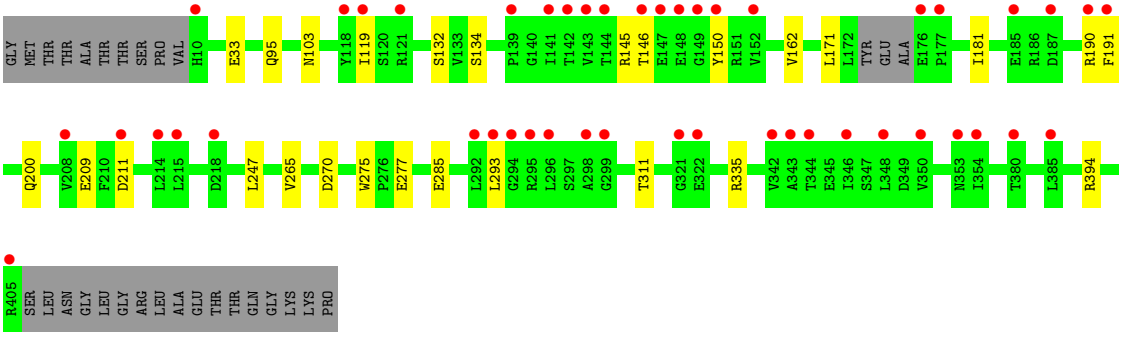
• Molecule 1: Probable monooxygenase



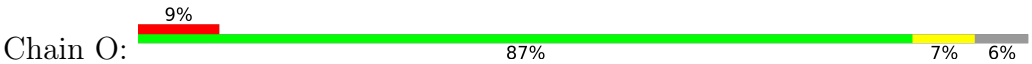


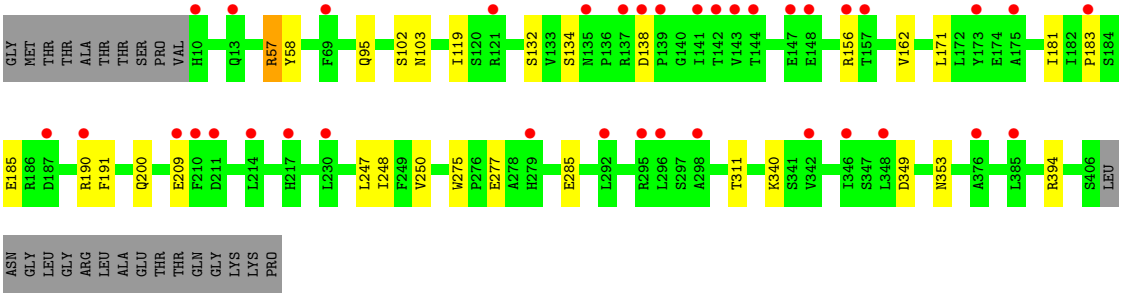
• Molecule 1: Probable monooxygenase



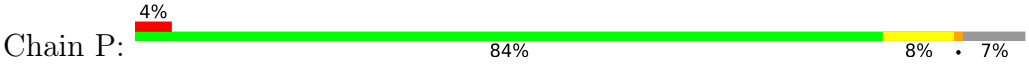


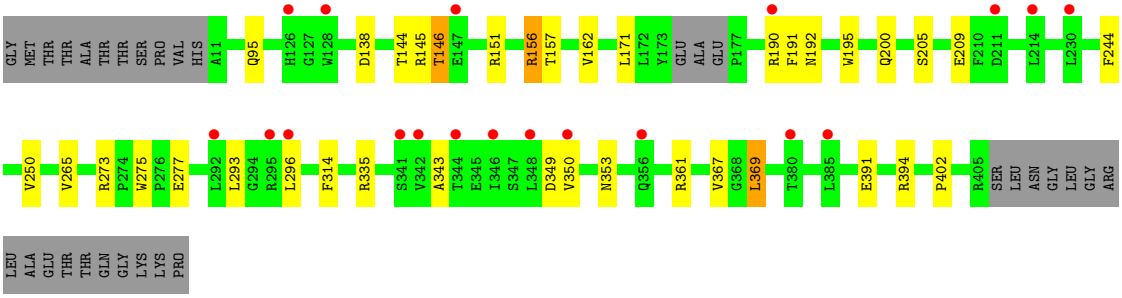
• Molecule 1: Probable monooxygenase





- Molecule 1: Probable monooxygenase





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	131.91Å 134.18Å 206.80Å 90.00° 90.68° 90.00°	Depositor
Resolution (Å)	47.94 – 2.10 47.94 – 2.10	Depositor EDS
% Data completeness (in resolution range)	98.8 (47.94-2.10) 98.8 (47.94-2.10)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.41 (at 2.10Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487, PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.179 , 0.213 0.182 , 0.215	Depositor DCC
R_{free} test set	2016 reflections (0.49%)	wwPDB-VP
Wilson B-factor (Å^2)	38.8	Xtriage
Anisotropy	0.366	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 46.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.008 for -k,-h,-l 0.013 for k,h,-l 0.074 for h,-k,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	51940	wwPDB-VP
Average B, all atoms (Å^2)	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.45% 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: PO4, GOL

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	0/3128	0.50	0/4256
1	B	0.24	0/3134	0.50	0/4264
1	C	0.24	0/3128	0.50	0/4256
1	D	0.24	0/3080	0.49	0/4188
1	E	0.25	0/3157	0.51	0/4294
1	F	0.25	0/3117	0.51	0/4241
1	G	0.24	0/3117	0.51	0/4241
1	H	0.24	0/3092	0.50	0/4204
1	I	0.24	0/3123	0.50	0/4249
1	J	0.24	0/3126	0.50	0/4253
1	K	0.24	0/3117	0.51	0/4241
1	L	0.24	0/3102	0.49	0/4219
1	M	0.24	0/3107	0.49	0/4226
1	N	0.24	0/3109	0.50	0/4228
1	O	0.24	0/3140	0.50	0/4272
1	P	0.24	0/3093	0.50	0/4206
All	All	0.24	0/49870	0.50	0/67838

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

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	3062	0	2960	12	0
1	B	3068	0	2962	15	0
1	C	3062	0	2960	16	0
1	D	3017	0	2927	24	0
1	E	3091	0	2984	19	0
1	F	3052	0	2953	18	0
1	G	3052	0	2953	17	0
1	H	3029	0	2928	21	0
1	I	3058	0	2958	19	0
1	J	3061	0	2960	16	0
1	K	3052	0	2953	15	0
1	L	3038	0	2941	19	0
1	M	3043	0	2946	20	0
1	N	3045	0	2946	15	0
1	O	3074	0	2967	17	0
1	P	3029	0	2936	20	0
2	A	5	0	0	0	0
2	B	5	0	0	0	0
2	C	5	0	0	1	0
2	D	5	0	0	0	0
2	E	5	0	0	0	0
2	F	10	0	0	0	0
2	G	5	0	0	1	0
2	H	5	0	0	0	0
2	I	5	0	0	0	0
2	J	5	0	0	0	0
2	K	5	0	0	0	0
2	L	5	0	0	0	0
2	M	5	0	0	0	0
2	N	5	0	0	0	0
2	O	5	0	0	0	0
2	P	5	0	0	0	0
3	D	6	0	8	0	0
3	J	6	0	8	0	0
3	K	6	0	8	0	0
3	L	6	0	8	0	0
3	M	6	0	8	0	0
3	P	6	0	8	0	0
4	A	224	0	0	0	0
4	B	230	0	0	2	0
4	C	178	0	0	1	0
4	D	144	0	0	1	0
4	E	258	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	F	242	0	0	1	0
4	G	223	0	0	0	0
4	H	179	0	0	0	0
4	I	150	0	0	2	0
4	J	157	0	0	0	0
4	K	188	0	0	0	0
4	L	122	0	0	0	0
4	M	149	0	0	0	0
4	N	184	0	0	1	0
4	O	185	0	0	1	0
4	P	173	0	0	0	0
All	All	51940	0	47282	265	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 3.

All (265) 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:D:190:ARG:HB2	1:D:209:GLU:HB2	1.65	0.79
1:I:190:ARG:HB2	1:I:209:GLU:HB2	1.70	0.73
1:B:190:ARG:HB2	1:B:209:GLU:HB2	1.73	0.70
1:I:285:GLU:OE1	1:J:394:ARG:NH1	2.24	0.69
1:E:156:ARG:NH2	1:E:171:LEU:O	2.25	0.69
1:P:190:ARG:HB2	1:P:209:GLU:HB2	1.75	0.69
1:J:190:ARG:HB2	1:J:209:GLU:HB2	1.75	0.68
1:G:348:LEU:HD21	1:G:380:THR:HG21	1.76	0.67
1:E:285:GLU:OE1	1:H:394:ARG:NH1	2.27	0.67
1:L:190:ARG:HB2	1:L:209:GLU:HB2	1.76	0.67
1:G:273:ARG:NH1	2:G:501:PO4:O4	2.28	0.66
1:M:190:ARG:HB3	1:M:209:GLU:HB2	1.77	0.66
1:O:190:ARG:HB2	1:O:209:GLU:HB2	1.77	0.66
1:N:190:ARG:HB2	1:N:209:GLU:HB2	1.77	0.66
1:M:285:GLU:OE1	1:P:394:ARG:NH1	2.28	0.66
1:A:285:GLU:OE1	1:D:394:ARG:NH1	2.30	0.65
1:B:247:LEU:HD21	1:B:311:THR:HA	1.79	0.65
1:B:285:GLU:OE1	1:C:394:ARG:NH1	2.29	0.65
1:K:156:ARG:NH2	1:K:171:LEU:O	2.26	0.65
1:J:134:SER:HB3	1:J:171:LEU:HD13	1.77	0.65
1:K:247:LEU:HD21	1:K:311:THR:HA	1.79	0.65
1:F:247:LEU:HD21	1:F:311:THR:HA	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:156:ARG:NH2	1:A:171:LEU:O	2.30	0.64
1:N:247:LEU:HD21	1:N:311:THR:HA	1.78	0.64
1:E:390:ARG:NH2	4:E:602:HOH:O	2.30	0.64
1:C:95:GLN:OE1	1:C:200:GLN:NE2	2.28	0.63
1:A:394:ARG:NH1	1:D:285:GLU:OE1	2.32	0.63
1:N:285:GLU:OE1	1:O:394:ARG:NH1	2.33	0.62
1:A:190:ARG:HB3	1:A:209:GLU:HB2	1.80	0.61
1:D:95:GLN:OE1	1:D:200:GLN:NE2	2.27	0.61
1:N:134:SER:HB3	1:N:171:LEU:HD13	1.82	0.61
1:B:394:ARG:NH1	1:C:285:GLU:OE1	2.32	0.61
1:J:247:LEU:HD21	1:J:311:THR:HA	1.81	0.61
1:O:247:LEU:HD21	1:O:311:THR:HA	1.83	0.61
1:K:394:ARG:NH1	1:L:285:GLU:OE1	2.33	0.61
1:K:190:ARG:HB3	1:K:209:GLU:HB2	1.84	0.60
1:D:134:SER:HB3	1:D:171:LEU:HD13	1.84	0.60
1:F:394:ARG:NH1	1:G:285:GLU:OE1	2.33	0.60
1:I:134:SER:HB3	1:I:171:LEU:HD13	1.83	0.59
1:F:133:VAL:HG12	1:F:156:ARG:HD2	1.85	0.59
1:H:190:ARG:HB2	1:H:209:GLU:HB2	1.83	0.59
1:G:156:ARG:NH2	1:G:171:LEU:O	2.32	0.59
1:H:247:LEU:HD21	1:H:311:THR:HA	1.85	0.59
1:G:247:LEU:HD21	1:G:311:THR:HA	1.85	0.59
1:M:134:SER:HB3	1:M:171:LEU:HD13	1.84	0.59
1:N:95:GLN:OE1	1:N:200:GLN:NE2	2.30	0.58
1:N:190:ARG:NH2	1:N:211:ASP:OD2	2.37	0.58
1:C:190:ARG:HB2	1:C:209:GLU:HB2	1.85	0.58
1:C:156:ARG:NH2	1:C:171:LEU:O	2.38	0.57
1:F:134:SER:HB3	1:F:171:LEU:HD13	1.85	0.57
1:I:67:ARG:NH1	4:I:602:HOH:O	2.36	0.57
1:E:190:ARG:HB2	1:E:209:GLU:HB2	1.86	0.57
1:B:183:PRO:HB2	1:B:185:GLU:HG2	1.87	0.56
1:L:95:GLN:OE1	1:L:200:GLN:NE2	2.37	0.56
1:D:247:LEU:HD21	1:D:311:THR:HA	1.87	0.56
1:B:103:ASN:OD1	1:B:132:SER:HB2	2.05	0.56
1:H:403:SER:OG	1:H:405:ARG:NH2	2.39	0.56
1:A:95:GLN:OE1	1:A:200:GLN:NE2	2.33	0.56
1:G:190:ARG:HB2	1:G:209:GLU:HB2	1.86	0.56
1:O:95:GLN:OE1	1:O:200:GLN:NE2	2.38	0.56
1:O:134:SER:HB3	1:O:171:LEU:HD13	1.88	0.55
1:D:150:TYR:HB2	1:D:215:LEU:HB2	1.88	0.55
1:I:119:ILE:HD11	1:I:181:ILE:HD13	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:247:LEU:HD21	1:I:311:THR:HA	1.89	0.55
1:M:103:ASN:OD1	1:M:132:SER:HB2	2.07	0.54
1:J:95:GLN:OE1	1:J:200:GLN:NE2	2.34	0.54
1:I:162:VAL:HG12	1:I:191:PHE:HE1	1.72	0.54
1:K:285:GLU:OE1	1:L:394:ARG:NH1	2.41	0.54
1:B:162:VAL:HG12	1:B:191:PHE:HE1	1.72	0.54
1:C:67:ARG:NH1	4:C:608:HOH:O	2.40	0.54
1:K:156:ARG:HH21	1:K:172:LEU:HD23	1.73	0.54
1:O:349:ASP:OD1	1:O:353:ASN:ND2	2.39	0.54
1:L:190:ARG:NH2	1:L:211:ASP:OD2	2.40	0.54
1:J:162:VAL:HG12	1:J:191:PHE:HE1	1.73	0.53
1:N:103:ASN:OD1	1:N:132:SER:HB2	2.08	0.53
1:K:265:VAL:HG22	1:K:293:LEU:HD13	1.90	0.53
1:H:271:LYS:O	1:H:361:ARG:NH2	2.38	0.53
1:I:394:ARG:NH1	1:J:285:GLU:OE1	2.37	0.53
1:D:405:ARG:NH2	4:D:603:HOH:O	2.34	0.53
1:C:134:SER:HB3	1:C:171:LEU:HD13	1.91	0.53
1:G:377:ARG:HH21	1:G:380:THR:HG23	1.74	0.53
1:P:162:VAL:HG12	1:P:191:PHE:HE1	1.74	0.53
1:K:275:TRP:CD1	1:K:277:GLU:HB2	2.44	0.52
1:A:117:GLU:OE2	1:A:121:ARG:NH2	2.42	0.52
1:F:190:ARG:HB2	1:F:209:GLU:HB2	1.92	0.52
1:P:349:ASP:OD1	1:P:353:ASN:ND2	2.41	0.52
1:H:275:TRP:CD1	1:H:277:GLU:HB2	2.45	0.52
1:C:162:VAL:HG12	1:C:191:PHE:HE1	1.74	0.51
1:O:119:ILE:HD11	1:O:181:ILE:HD13	1.91	0.51
1:A:275:TRP:CD1	1:A:277:GLU:HB2	2.46	0.51
1:B:119:ILE:HD11	1:B:181:ILE:HD13	1.93	0.51
1:P:156:ARG:NH2	1:P:171:LEU:O	2.44	0.51
1:F:367:VAL:HG12	1:F:369:LEU:HG	1.92	0.51
1:G:275:TRP:CD1	1:G:277:GLU:HB2	2.45	0.51
1:M:156:ARG:NH2	1:M:171:LEU:O	2.30	0.51
1:O:103:ASN:OD1	1:O:132:SER:HB2	2.11	0.51
1:M:39:LEU:HD11	1:M:368:GLY:HA3	1.93	0.51
1:D:103:ASN:OD1	1:D:132:SER:HB2	2.10	0.50
1:E:162:VAL:HG12	1:E:191:PHE:HE1	1.77	0.50
1:N:162:VAL:HG12	1:N:191:PHE:HE1	1.77	0.50
1:E:258:GLU:HG3	1:E:300:ILE:HG21	1.94	0.50
1:H:95:GLN:OE1	1:H:200:GLN:NE2	2.27	0.50
1:P:95:GLN:OE1	1:P:200:GLN:NE2	2.33	0.50
1:N:394:ARG:NH1	1:O:285:GLU:OE1	2.44	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:275:TRP:CD1	1:L:277:GLU:HB2	2.47	0.49
1:E:335:ARG:NH2	4:E:612:HOH:O	2.44	0.49
1:E:394:ARG:NH2	1:E:400:GLN:OE1	2.45	0.49
1:E:275:TRP:CD1	1:E:277:GLU:HB2	2.48	0.49
1:F:162:VAL:HG12	1:F:191:PHE:HE1	1.78	0.49
1:L:69:PHE:HE1	1:L:117:GLU:HG3	1.77	0.49
1:O:57:ARG:HD2	1:O:58:TYR:CE2	2.48	0.49
1:P:367:VAL:HG12	1:P:369:LEU:HD13	1.95	0.49
1:L:225:ASP:HA	1:L:234:ARG:HH12	1.78	0.49
1:H:162:VAL:HG12	1:H:191:PHE:HE1	1.78	0.48
1:M:95:GLN:OE1	1:M:200:GLN:NE2	2.38	0.48
1:C:273:ARG:NH2	2:C:501:PO4:O3	2.40	0.48
1:H:135:ASN:O	1:H:156:ARG:NE	2.46	0.48
1:P:144:THR:HG23	1:P:151:ARG:HB2	1.94	0.48
1:A:273:ARG:HD3	1:A:361:ARG:NH2	2.29	0.48
1:O:162:VAL:HG12	1:O:191:PHE:HE1	1.78	0.48
1:I:156:ARG:NH2	1:I:171:LEU:O	2.46	0.48
1:I:275:TRP:CD1	1:I:277:GLU:HB2	2.48	0.48
1:F:119:ILE:HD11	1:F:181:ILE:HD13	1.94	0.47
1:J:296:LEU:HB3	1:J:350:VAL:HG22	1.96	0.47
1:K:103:ASN:OD1	1:K:132:SER:HB2	2.14	0.47
1:K:162:VAL:HG12	1:K:191:PHE:HE1	1.79	0.47
1:M:247:LEU:HD21	1:M:311:THR:HA	1.94	0.47
1:H:119:ILE:HD11	1:H:181:ILE:HD13	1.94	0.47
1:H:141:ILE:HG21	1:H:156:ARG:HH22	1.79	0.47
1:O:156:ARG:NH2	4:O:609:HOH:O	2.46	0.47
1:B:134:SER:HB3	1:B:171:LEU:HD13	1.97	0.47
1:L:162:VAL:HG12	1:L:191:PHE:HE1	1.79	0.47
1:C:275:TRP:CD1	1:C:277:GLU:HB2	2.48	0.47
1:B:275:TRP:CD1	1:B:277:GLU:HB2	2.48	0.47
1:D:275:TRP:CD1	1:D:277:GLU:HB2	2.49	0.47
1:D:148:GLU:HG2	1:D:151:ARG:HH21	1.80	0.47
1:F:57:ARG:HD2	1:F:58:TYR:CE2	2.50	0.47
1:J:143:VAL:HG11	1:J:178:ILE:HD12	1.96	0.47
1:L:192:ASN:HD21	1:L:209:GLU:HG2	1.80	0.47
1:M:271:LYS:O	1:M:361:ARG:NH2	2.43	0.47
1:L:119:ILE:HD11	1:L:181:ILE:HD13	1.95	0.46
1:D:265:VAL:HG22	1:D:293:LEU:HD13	1.97	0.46
1:M:394:ARG:NH2	1:M:400:GLN:OE1	2.48	0.46
1:K:119:ILE:HD11	1:K:181:ILE:HD13	1.96	0.46
1:A:367:VAL:HG12	1:A:369:LEU:HG	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:367:VAL:HG12	1:D:369:LEU:HD13	1.96	0.46
1:G:376:ALA:O	1:G:380:THR:HG22	2.15	0.46
1:O:275:TRP:CD1	1:O:277:GLU:HB2	2.51	0.46
1:E:394:ARG:NH1	1:H:285:GLU:OE2	2.49	0.46
1:P:275:TRP:CD1	1:P:277:GLU:HB2	2.51	0.46
1:F:195:TRP:CE2	1:F:205:SER:HB2	2.51	0.46
1:M:244:PHE:HB2	1:M:314:PHE:CZ	2.51	0.45
1:M:162:VAL:HG12	1:M:191:PHE:HE1	1.81	0.45
1:M:275:TRP:CD1	1:M:277:GLU:HB2	2.52	0.45
1:D:192:ASN:HD21	1:D:209:GLU:HG2	1.81	0.45
1:I:69:PHE:HE1	1:I:117:GLU:HG3	1.80	0.45
1:P:265:VAL:HG22	1:P:293:LEU:HD13	1.99	0.45
1:F:138:ASP:OD2	1:F:156:ARG:HD3	2.16	0.45
1:J:119:ILE:HD11	1:J:181:ILE:HD13	1.98	0.45
1:N:119:ILE:HD11	1:N:181:ILE:HD13	1.97	0.45
1:C:358:THR:HG21	1:C:369:LEU:HD21	1.99	0.45
1:I:95:GLN:OE1	1:I:200:GLN:NE2	2.35	0.45
1:I:367:VAL:HG12	1:I:369:LEU:HD13	1.98	0.45
1:N:275:TRP:CD1	1:N:277:GLU:HB2	2.52	0.45
1:O:102:SER:HB2	1:O:248:ILE:HD13	1.99	0.45
1:G:190:ARG:NH2	1:G:211:ASP:OD2	2.50	0.45
1:H:95:GLN:HE21	1:H:160:THR:HG21	1.81	0.44
1:O:138:ASP:OD2	1:O:156:ARG:HD3	2.17	0.44
1:C:150:TYR:HB2	1:C:215:LEU:HB2	1.98	0.44
1:I:141:ILE:HD13	1:I:154:GLY:HA3	1.99	0.44
1:K:244:PHE:HB2	1:K:314:PHE:CZ	2.51	0.44
1:L:247:LEU:HD21	1:L:311:THR:HA	1.99	0.44
1:N:265:VAL:HG22	1:N:293:LEU:HD13	1.99	0.44
1:B:216:ARG:NH2	1:B:218:ASP:OD2	2.51	0.44
1:L:244:PHE:HB2	1:L:314:PHE:CZ	2.52	0.44
1:M:247:LEU:HD12	1:M:247:LEU:HA	1.86	0.44
1:P:296:LEU:HB3	1:P:350:VAL:HG22	1.98	0.44
1:C:247:LEU:HD12	1:C:247:LEU:HA	1.81	0.44
1:P:391:GLU:HG2	1:P:402:PRO:HG3	2.00	0.44
1:B:247:LEU:HD12	1:B:247:LEU:HA	1.88	0.44
1:J:148:GLU:HB2	1:J:214:LEU:HD11	2.00	0.44
1:L:296:LEU:HB3	1:L:350:VAL:HG22	2.00	0.43
1:N:145:ARG:NH1	1:N:150:TYR:OH	2.51	0.43
1:P:250:VAL:HG13	1:P:343:ALA:HB2	2.00	0.43
1:F:275:TRP:CD1	1:F:277:GLU:HB2	2.53	0.43
1:M:250:VAL:HG22	1:M:340:LYS:HA	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:296:LEU:HB3	1:M:350:VAL:HG22	2.01	0.43
1:D:119:ILE:HD11	1:D:181:ILE:HD13	2.01	0.43
1:E:250:VAL:HG22	1:E:340:LYS:HA	2.00	0.43
1:G:115:GLN:NE2	1:G:220:VAL:O	2.44	0.43
1:J:300:ILE:HD11	1:J:350:VAL:HG21	1.99	0.43
1:P:138:ASP:OD2	1:P:156:ARG:HD2	2.18	0.43
1:F:322:GLU:HG3	4:F:759:HOH:O	2.19	0.42
1:H:102:SER:HB2	1:H:248:ILE:HD13	2.00	0.42
1:O:183:PRO:HB2	1:O:185:GLU:HG2	2.00	0.42
1:G:306:LEU:HD23	1:G:342:VAL:HG21	2.01	0.42
1:K:300:ILE:HD11	1:K:350:VAL:HG21	2.01	0.42
1:M:391:GLU:HG2	1:M:402:PRO:HG3	2.01	0.42
1:P:138:ASP:OD1	1:P:157:THR:HG22	2.18	0.42
1:C:138:ASP:OD1	1:C:157:THR:HG22	2.19	0.42
1:C:258:GLU:HG3	1:C:300:ILE:HG21	2.00	0.42
1:D:186:ARG:NH2	1:D:219:GLU:OE2	2.46	0.42
1:G:195:TRP:CE2	1:G:205:SER:HB2	2.54	0.42
1:I:25:GLN:NE2	4:I:612:HOH:O	2.50	0.42
1:F:151:ARG:CZ	1:F:214:LEU:HB2	2.50	0.42
1:N:270:ASP:OD2	4:N:601:HOH:O	2.21	0.42
1:D:349:ASP:OD1	1:D:353:ASN:ND2	2.53	0.42
1:D:250:VAL:HG22	1:D:340:LYS:HA	2.01	0.42
1:E:244:PHE:HB2	1:E:314:PHE:CZ	2.55	0.42
1:G:250:VAL:HG22	1:G:340:LYS:HA	2.00	0.42
1:J:275:TRP:CD1	1:J:277:GLU:HB2	2.54	0.42
1:M:119:ILE:HD11	1:M:181:ILE:HD13	2.01	0.42
1:P:244:PHE:HB2	1:P:314:PHE:CZ	2.55	0.42
1:D:102:SER:HB2	1:D:248:ILE:HD13	2.01	0.42
1:D:162:VAL:HG12	1:D:191:PHE:HE1	1.85	0.42
1:D:190:ARG:NH2	1:D:211:ASP:OD2	2.53	0.42
1:E:367:VAL:HG12	1:E:369:LEU:HD13	2.01	0.42
1:P:192:ASN:HD21	1:P:209:GLU:HG2	1.84	0.42
1:B:43:ARG:NH1	4:B:610:HOH:O	2.47	0.41
1:H:141:ILE:HD13	1:H:154:GLY:HA3	2.02	0.41
1:L:102:SER:HB2	1:L:248:ILE:HD13	2.02	0.41
1:F:183:PRO:HB2	1:F:185:GLU:HG2	2.02	0.41
1:C:247:LEU:HD13	1:C:336:VAL:HG13	2.01	0.41
1:E:138:ASP:OD2	1:E:156:ARG:HD2	2.21	0.41
1:F:285:GLU:OE2	1:G:394:ARG:NH1	2.54	0.41
1:L:156:ARG:NH2	1:L:171:LEU:O	2.51	0.41
1:D:51:GLU:OE1	1:D:51:GLU:N	2.52	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:244:PHE:HB2	1:D:314:PHE:CZ	2.55	0.41
1:I:273:ARG:HD2	1:I:361:ARG:CZ	2.51	0.41
1:E:225:ASP:HA	1:E:234:ARG:HH12	1.85	0.41
1:H:135:ASN:HA	1:H:156:ARG:HH21	1.86	0.41
1:M:150:TYR:HB2	1:M:215:LEU:HB2	2.02	0.41
1:D:296:LEU:HB3	1:D:350:VAL:HG22	2.02	0.41
1:E:265:VAL:HG22	1:E:293:LEU:HD13	2.02	0.41
1:F:391:GLU:HG2	1:F:402:PRO:HG3	2.03	0.41
1:G:265:VAL:HG22	1:G:293:LEU:HD13	2.03	0.41
1:B:356:GLN:OE1	4:B:601:HOH:O	2.21	0.41
1:L:45:ASN:HB2	1:L:201:ARG:NH2	2.36	0.41
1:E:389:GLN:O	1:H:294:GLY:HA3	2.21	0.41
1:F:36:ALA:HB2	1:N:33:GLU:HG3	2.03	0.41
1:G:138:ASP:OD1	1:G:157:THR:HG22	2.20	0.41
1:H:39:LEU:HD23	1:H:39:LEU:HA	1.90	0.41
1:H:195:TRP:CE2	1:H:205:SER:HB2	2.56	0.41
1:H:273:ARG:HD2	1:H:361:ARG:NE	2.35	0.41
1:J:275:TRP:CD2	1:J:276:PRO:HD2	2.55	0.41
1:K:102:SER:HB2	1:K:248:ILE:HD13	2.02	0.41
1:K:150:TYR:HB2	1:K:215:LEU:HB2	2.03	0.41
1:M:143:VAL:HG21	1:M:172:LEU:HD13	2.03	0.41
1:O:250:VAL:HG22	1:O:340:LYS:HA	2.02	0.41
1:A:76:LEU:N	1:A:315:GLU:OE2	2.54	0.41
1:B:122:GLY:HA3	1:B:128:TRP:CE3	2.57	0.41
1:E:119:ILE:HD11	1:E:181:ILE:HD13	2.02	0.41
1:P:145:ARG:NH1	1:P:146:THR:O	2.54	0.41
1:A:296:LEU:HB3	1:A:350:VAL:HG22	2.03	0.40
1:I:250:VAL:HG13	1:I:343:ALA:HB2	2.04	0.40
1:L:159:ALA:HB1	1:L:162:VAL:HG21	2.03	0.40
1:L:367:VAL:HG12	1:L:369:LEU:HG	2.03	0.40
1:E:195:TRP:CZ2	1:E:205:SER:HB2	2.55	0.40
1:I:294:GLY:HA3	1:J:389:GLN:O	2.20	0.40
1:J:244:PHE:HB2	1:J:314:PHE:CZ	2.57	0.40
1:P:273:ARG:HD3	1:P:361:ARG:NH2	2.36	0.40
1:H:367:VAL:HG12	1:H:369:LEU:HG	2.02	0.40
1:A:48:PRO:HG3	1:A:96:LEU:HD11	2.03	0.40
1:I:48:PRO:HG3	1:I:96:LEU:HD11	2.03	0.40
1:P:195:TRP:CZ2	1:P:205:SER:HB2	2.55	0.40

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	394/423 (93%)	391 (99%)	3 (1%)	0	100	100
1	B	395/423 (93%)	389 (98%)	6 (2%)	0	100	100
1	C	394/423 (93%)	391 (99%)	3 (1%)	0	100	100
1	D	387/423 (92%)	377 (97%)	10 (3%)	0	100	100
1	E	397/423 (94%)	394 (99%)	3 (1%)	0	100	100
1	F	393/423 (93%)	386 (98%)	7 (2%)	0	100	100
1	G	393/423 (93%)	389 (99%)	4 (1%)	0	100	100
1	H	388/423 (92%)	380 (98%)	8 (2%)	0	100	100
1	I	394/423 (93%)	391 (99%)	3 (1%)	0	100	100
1	J	394/423 (93%)	387 (98%)	7 (2%)	0	100	100
1	K	393/423 (93%)	386 (98%)	7 (2%)	0	100	100
1	L	389/423 (92%)	384 (99%)	5 (1%)	0	100	100
1	M	390/423 (92%)	384 (98%)	6 (2%)	0	100	100
1	N	390/423 (92%)	386 (99%)	4 (1%)	0	100	100
1	O	396/423 (94%)	390 (98%)	6 (2%)	0	100	100
1	P	388/423 (92%)	382 (98%)	6 (2%)	0	100	100
All	All	6275/6768 (93%)	6187 (99%)	88 (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	A	310/331 (94%)	309 (100%)	1 (0%)	92 95
1	B	311/331 (94%)	308 (99%)	3 (1%)	76 82
1	C	310/331 (94%)	306 (99%)	4 (1%)	69 75
1	D	306/331 (92%)	304 (99%)	2 (1%)	84 88
1	E	313/331 (95%)	311 (99%)	2 (1%)	86 90
1	F	309/331 (93%)	305 (99%)	4 (1%)	69 75
1	G	309/331 (93%)	308 (100%)	1 (0%)	92 95
1	H	306/331 (92%)	302 (99%)	4 (1%)	69 75
1	I	310/331 (94%)	308 (99%)	2 (1%)	86 90
1	J	310/331 (94%)	310 (100%)	0	100 100
1	K	309/331 (93%)	308 (100%)	1 (0%)	92 95
1	L	308/331 (93%)	307 (100%)	1 (0%)	92 95
1	M	308/331 (93%)	306 (99%)	2 (1%)	86 90
1	N	309/331 (93%)	307 (99%)	2 (1%)	86 90
1	O	312/331 (94%)	311 (100%)	1 (0%)	92 95
1	P	307/331 (93%)	303 (99%)	4 (1%)	69 75
All	All	4947/5296 (93%)	4913 (99%)	34 (1%)	84 88

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	146	THR
1	B	57	ARG
1	B	279	HIS
1	B	369	LEU
1	C	10	HIS
1	C	247	LEU
1	C	335	ARG
1	C	369	LEU
1	D	369	LEU
1	D	405	ARG
1	E	369	LEU
1	E	390	ARG
1	F	57	ARG
1	F	146	THR
1	F	322	GLU
1	F	335	ARG

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Mol	Chain	Res	Type
1	G	279	HIS
1	H	133	VAL
1	H	173	TYR
1	H	279	HIS
1	H	405	ARG
1	I	335	ARG
1	I	369	LEU
1	K	146	THR
1	L	146	THR
1	M	147	GLU
1	M	190	ARG
1	N	146	THR
1	N	335	ARG
1	O	57	ARG
1	P	146	THR
1	P	156	ARG
1	P	335	ARG
1	P	369	LEU

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

Mol	Chain	Res	Type
1	E	212	ASN
1	F	279	HIS

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)

23 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	PO4	F	502	-	4,4,4	0.92	0	6,6,6	0.40	0
2	PO4	F	501	-	4,4,4	0.94	0	6,6,6	0.45	0
3	GOL	D	501	-	5,5,5	0.90	0	5,5,5	1.00	0
2	PO4	P	502	-	4,4,4	0.93	0	6,6,6	0.44	0
2	PO4	G	501	-	4,4,4	0.93	0	6,6,6	0.41	0
2	PO4	A	501	-	4,4,4	0.92	0	6,6,6	0.41	0
2	PO4	H	501	-	4,4,4	0.92	0	6,6,6	0.42	0
3	GOL	J	501	-	5,5,5	0.89	0	5,5,5	0.99	0
2	PO4	N	501	-	4,4,4	0.97	0	6,6,6	0.45	0
2	PO4	M	502	-	4,4,4	0.95	0	6,6,6	0.42	0
2	PO4	B	501	-	4,4,4	0.97	0	6,6,6	0.44	0
2	PO4	K	502	-	4,4,4	0.92	0	6,6,6	0.44	0
3	GOL	K	501	-	5,5,5	0.91	0	5,5,5	0.98	0
2	PO4	J	502	-	4,4,4	0.97	0	6,6,6	0.43	0
3	GOL	M	501	-	5,5,5	0.91	0	5,5,5	1.02	0
2	PO4	L	502	-	4,4,4	0.92	0	6,6,6	0.45	0
2	PO4	C	501	-	4,4,4	0.92	0	6,6,6	0.43	0
2	PO4	O	501	-	4,4,4	0.90	0	6,6,6	0.46	0
2	PO4	I	501	-	4,4,4	0.91	0	6,6,6	0.42	0
3	GOL	L	501	-	5,5,5	0.93	0	5,5,5	0.99	0
2	PO4	D	502	-	4,4,4	0.98	0	6,6,6	0.48	0
3	GOL	P	501	-	5,5,5	0.90	0	5,5,5	0.96	0
2	PO4	E	501	-	4,4,4	0.95	0	6,6,6	0.41	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
3	GOL	K	501	-	-	0/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	J	501	-	-	2/4/4/4	-
3	GOL	M	501	-	-	1/4/4/4	-
3	GOL	L	501	-	-	0/4/4/4	-
3	GOL	P	501	-	-	2/4/4/4	-
3	GOL	D	501	-	-	0/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	J	501	GOL	O1-C1-C2-C3
3	P	501	GOL	O1-C1-C2-C3
3	P	501	GOL	O1-C1-C2-O2
3	J	501	GOL	O1-C1-C2-O2
3	M	501	GOL	O2-C2-C3-O3

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	501	PO4	1	0
2	C	501	PO4	1	0

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	396/423 (93%)	0.12	19 (4%) 30 36	30, 41, 70, 94	0
1	B	396/423 (93%)	0.14	22 (5%) 24 29	31, 42, 68, 110	0
1	C	396/423 (93%)	0.34	36 (9%) 9 12	31, 46, 88, 117	0
1	D	391/423 (92%)	0.53	47 (12%) 4 5	31, 52, 103, 149	0
1	E	396/423 (93%)	0.24	20 (5%) 28 33	26, 39, 70, 97	0
1	F	395/423 (93%)	0.24	19 (4%) 30 36	26, 37, 74, 107	0
1	G	395/423 (93%)	0.33	30 (7%) 13 18	28, 41, 79, 111	0
1	H	392/423 (92%)	0.32	28 (7%) 16 20	28, 45, 81, 106	0
1	I	396/423 (93%)	0.34	36 (9%) 9 12	33, 48, 85, 114	0
1	J	395/423 (93%)	0.39	39 (9%) 7 9	32, 48, 94, 129	0
1	K	395/423 (93%)	0.09	13 (3%) 46 53	31, 45, 74, 115	0
1	L	393/423 (92%)	0.65	53 (13%) 3 4	33, 57, 94, 136	0
1	M	394/423 (93%)	0.39	28 (7%) 16 20	33, 52, 87, 114	0
1	N	393/423 (92%)	0.52	46 (11%) 4 6	31, 45, 89, 127	0
1	O	397/423 (93%)	0.42	37 (9%) 8 11	31, 47, 88, 109	0
1	P	392/423 (92%)	0.34	19 (4%) 30 36	31, 48, 73, 101	0
All	All	6312/6768 (93%)	0.34	492 (7%) 13 17	26, 45, 85, 149	0

All (492) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	146	THR	6.0
1	D	147	GLU	5.9
1	L	321	GLY	5.8
1	M	321	GLY	5.8
1	H	156	ARG	5.8

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Mol	Chain	Res	Type	RSRZ
1	J	146	THR	5.7
1	J	145	ARG	5.7
1	G	190	ARG	5.3
1	K	230	LEU	5.2
1	C	190	ARG	5.1
1	D	211	ASP	5.1
1	O	10	HIS	5.1
1	N	141	ILE	4.9
1	C	175	ALA	4.7
1	L	185	GLU	4.7
1	N	321	GLY	4.7
1	C	149	GLY	4.5
1	N	190	ARG	4.5
1	L	118	TYR	4.5
1	L	128	TRP	4.5
1	D	217	HIS	4.5
1	C	142	THR	4.4
1	M	147	GLU	4.4
1	L	218	ASP	4.4
1	H	158	PHE	4.4
1	K	174	GLU	4.3
1	H	141	ILE	4.3
1	E	143	VAL	4.3
1	B	175	ALA	4.3
1	L	125	GLY	4.3
1	D	210	PHE	4.2
1	J	215	LEU	4.2
1	F	174	GLU	4.1
1	G	143	VAL	4.1
1	L	71	GLY	4.1
1	J	292	LEU	4.0
1	I	140	GLY	4.0
1	N	148	GLU	4.0
1	O	148	GLU	4.0
1	I	143	VAL	4.0
1	E	348	LEU	4.0
1	L	230	LEU	4.0
1	O	210	PHE	3.9
1	L	190	ARG	3.9
1	P	190	ARG	3.9
1	N	346	ILE	3.9
1	D	148	GLU	3.9

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Mol	Chain	Res	Type	RSRZ
1	I	193	ASP	3.9
1	J	175	ALA	3.8
1	H	321	GLY	3.8
1	J	173	TYR	3.8
1	G	139	PRO	3.8
1	M	230	LEU	3.8
1	G	321	GLY	3.8
1	I	146	THR	3.8
1	L	140	GLY	3.7
1	N	147	GLU	3.7
1	J	191	PHE	3.7
1	F	292	LEU	3.7
1	A	348	LEU	3.7
1	P	147	GLU	3.7
1	D	118	TYR	3.7
1	D	128	TRP	3.7
1	C	321	GLY	3.7
1	I	321	GLY	3.7
1	N	208	VAL	3.6
1	L	146	THR	3.6
1	O	141	ILE	3.6
1	B	405	ARG	3.6
1	L	147	GLU	3.6
1	E	230	LEU	3.6
1	F	173	TYR	3.6
1	F	158	PHE	3.6
1	N	10	HIS	3.6
1	I	292	LEU	3.6
1	D	190	ARG	3.6
1	F	296	LEU	3.5
1	D	321	GLY	3.5
1	D	140	GLY	3.5
1	G	292	LEU	3.5
1	N	214	LEU	3.5
1	N	292	LEU	3.5
1	H	190	ARG	3.5
1	E	176	GLU	3.5
1	K	175	ALA	3.5
1	J	214	LEU	3.4
1	P	346	ILE	3.4
1	I	208	VAL	3.4
1	G	348	LEU	3.4

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Mol	Chain	Res	Type	RSRZ
1	B	296	LEU	3.3
1	B	292	LEU	3.3
1	N	177	PRO	3.3
1	I	147	GLU	3.3
1	C	385	LEU	3.3
1	D	139	PRO	3.3
1	D	185	GLU	3.3
1	N	143	VAL	3.3
1	A	185	GLU	3.3
1	B	147	GLU	3.3
1	J	230	LEU	3.3
1	N	385	LEU	3.3
1	O	135	ASN	3.3
1	O	142	THR	3.2
1	C	210	PHE	3.2
1	C	139	PRO	3.2
1	D	189	LEU	3.2
1	L	348	LEU	3.2
1	L	145	ARG	3.2
1	D	151	ARG	3.2
1	H	10	HIS	3.2
1	B	174	GLU	3.2
1	B	173	TYR	3.1
1	L	148	GLU	3.1
1	G	175	ALA	3.1
1	N	144	THR	3.1
1	P	385	LEU	3.1
1	L	350	VAL	3.1
1	O	190	ARG	3.1
1	I	190	ARG	3.1
1	M	348	LEU	3.1
1	L	178	ILE	3.1
1	D	163	ALA	3.1
1	J	147	GLU	3.1
1	N	187	ASP	3.1
1	D	215	LEU	3.1
1	M	148	GLU	3.1
1	J	150	TYR	3.1
1	D	149	GLY	3.0
1	J	296	LEU	3.0
1	O	296	LEU	3.0
1	O	147	GLU	3.0

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Mol	Chain	Res	Type	RSRZ
1	O	279	HIS	3.0
1	K	346	ILE	3.0
1	L	123	VAL	3.0
1	J	148	GLU	3.0
1	P	344	THR	3.0
1	C	121	ARG	3.0
1	G	385	LEU	3.0
1	A	346	ILE	2.9
1	L	142	THR	2.9
1	C	174	GLU	2.9
1	G	174	GLU	2.9
1	G	144	THR	2.9
1	N	118	TYR	2.9
1	D	212	ASN	2.9
1	A	143	VAL	2.9
1	P	350	VAL	2.9
1	E	346	ILE	2.9
1	F	346	ILE	2.9
1	F	147	GLU	2.9
1	P	214	LEU	2.9
1	P	348	LEU	2.9
1	C	147	GLU	2.9
1	B	190	ARG	2.9
1	L	141	ILE	2.9
1	E	147	GLU	2.9
1	D	121	ARG	2.9
1	C	178	ILE	2.9
1	H	206	GLY	2.9
1	O	173	TYR	2.9
1	E	146	THR	2.9
1	K	296	LEU	2.9
1	L	215	LEU	2.9
1	I	346	ILE	2.8
1	A	190	ARG	2.8
1	I	353	ASN	2.8
1	D	218	ASP	2.8
1	I	176	GLU	2.8
1	N	185	GLU	2.8
1	N	139	PRO	2.8
1	H	405	ARG	2.8
1	M	190	ARG	2.8
1	L	22	GLU	2.8

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Mol	Chain	Res	Type	RSRZ
1	N	142	THR	2.8
1	G	346	ILE	2.8
1	D	348	LEU	2.8
1	H	193	ASP	2.8
1	H	296	LEU	2.8
1	O	230	LEU	2.8
1	D	150	TYR	2.8
1	P	342	VAL	2.8
1	E	185	GLU	2.8
1	J	190	ARG	2.8
1	M	296	LEU	2.8
1	N	348	LEU	2.8
1	O	292	LEU	2.8
1	P	292	LEU	2.8
1	G	211	ASP	2.7
1	H	342	VAL	2.7
1	J	211	ASP	2.7
1	O	157	THR	2.7
1	A	292	LEU	2.7
1	E	296	LEU	2.7
1	N	215	LEU	2.7
1	P	296	LEU	2.7
1	K	344	THR	2.7
1	I	191	PHE	2.7
1	E	187	ASP	2.7
1	A	298	ALA	2.7
1	C	296	LEU	2.7
1	B	140	GLY	2.7
1	L	119	ILE	2.7
1	N	296	LEU	2.7
1	D	220	VAL	2.7
1	L	151	ARG	2.7
1	L	63	PHE	2.7
1	C	141	ILE	2.7
1	J	216	ARG	2.7
1	M	121	ARG	2.7
1	F	348	LEU	2.7
1	H	348	LEU	2.7
1	C	176	GLU	2.6
1	I	218	ASP	2.6
1	L	225	ASP	2.6
1	F	343	ALA	2.6

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Mol	Chain	Res	Type	RSRZ
1	D	157	THR	2.6
1	D	405	ARG	2.6
1	F	190	ARG	2.6
1	G	296	LEU	2.6
1	H	385	LEU	2.6
1	L	342	VAL	2.6
1	O	346	ILE	2.6
1	L	320	PHE	2.6
1	N	146	THR	2.6
1	G	218	ASP	2.6
1	P	230	LEU	2.6
1	L	13	GLN	2.6
1	B	146	THR	2.6
1	P	126	HIS	2.6
1	J	172	LEU	2.6
1	O	214	LEU	2.6
1	O	187	ASP	2.6
1	I	406	SER	2.6
1	B	385	LEU	2.6
1	C	292	LEU	2.6
1	D	214	LEU	2.6
1	E	298	ALA	2.5
1	J	298	ALA	2.5
1	L	150	TYR	2.5
1	L	346	ILE	2.5
1	I	210	PHE	2.5
1	L	121	ARG	2.5
1	A	385	LEU	2.5
1	G	148	GLU	2.5
1	A	146	THR	2.5
1	O	144	THR	2.5
1	B	346	ILE	2.5
1	O	139	PRO	2.5
1	P	128	TRP	2.5
1	B	10	HIS	2.5
1	L	176	GLU	2.5
1	L	149	GLY	2.5
1	O	175	ALA	2.5
1	J	213	VAL	2.5
1	N	121	ARG	2.5
1	C	346	ILE	2.5
1	N	191	PHE	2.5

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Mol	Chain	Res	Type	RSRZ
1	K	348	LEU	2.5
1	M	295	ARG	2.5
1	I	322	GLU	2.5
1	D	13	GLN	2.5
1	H	205	SER	2.5
1	G	295	ARG	2.5
1	M	405	ARG	2.5
1	C	218	ASP	2.5
1	D	230	LEU	2.5
1	M	146	THR	2.5
1	A	350	VAL	2.5
1	G	350	VAL	2.5
1	J	220	VAL	2.5
1	H	346	ILE	2.5
1	I	148	GLU	2.5
1	M	142	THR	2.4
1	M	224	LEU	2.4
1	H	29	ARG	2.4
1	J	342	VAL	2.4
1	N	350	VAL	2.4
1	A	10	HIS	2.4
1	J	218	ASP	2.4
1	J	118	TYR	2.4
1	D	191	PHE	2.4
1	F	385	LEU	2.4
1	L	385	LEU	2.4
1	N	218	ASP	2.4
1	C	208	VAL	2.4
1	J	350	VAL	2.4
1	O	342	VAL	2.4
1	J	149	GLY	2.4
1	J	139	PRO	2.4
1	I	144	THR	2.4
1	D	296	LEU	2.4
1	K	385	LEU	2.4
1	C	143	VAL	2.4
1	K	190	ARG	2.4
1	H	173	TYR	2.4
1	N	344	THR	2.4
1	B	348	LEU	2.4
1	F	185	GLU	2.4
1	J	176	GLU	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	145	ARG	2.4
1	O	121	ARG	2.4
1	D	208	VAL	2.4
1	L	212	ASN	2.4
1	F	139	PRO	2.4
1	B	300	ILE	2.4
1	D	141	ILE	2.4
1	F	141	ILE	2.4
1	A	296	LEU	2.4
1	H	189	LEU	2.4
1	O	385	LEU	2.4
1	N	152	VAL	2.4
1	I	185	GLU	2.4
1	N	176	GLU	2.4
1	A	142	THR	2.4
1	H	344	THR	2.4
1	M	150	TYR	2.4
1	P	211	ASP	2.4
1	D	172	LEU	2.3
1	D	385	LEU	2.3
1	G	261	LEU	2.3
1	B	342	VAL	2.3
1	D	143	VAL	2.3
1	G	152	VAL	2.3
1	N	342	VAL	2.3
1	G	145	ARG	2.3
1	K	149	GLY	2.3
1	C	187	ASP	2.3
1	G	230	LEU	2.3
1	I	385	LEU	2.3
1	L	29	ARG	2.3
1	C	148	GLU	2.3
1	G	147	GLU	2.3
1	J	144	THR	2.3
1	D	145	ARG	2.3
1	H	230	LEU	2.3
1	J	385	LEU	2.3
1	L	296	LEU	2.3
1	M	385	LEU	2.3
1	P	341	SER	2.3
1	B	350	VAL	2.3
1	E	350	VAL	2.3

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Mol	Chain	Res	Type	RSRZ
1	E	175	ALA	2.3
1	J	405	ARG	2.3
1	M	141	ILE	2.3
1	I	348	LEU	2.3
1	L	189	LEU	2.3
1	N	293	LEU	2.3
1	C	343	ALA	2.3
1	D	152	VAL	2.3
1	G	342	VAL	2.3
1	O	138	ASP	2.3
1	A	300	ILE	2.3
1	B	215	LEU	2.3
1	E	215	LEU	2.3
1	N	405	ARG	2.3
1	J	187	ASP	2.3
1	M	217	HIS	2.3
1	E	144	THR	2.2
1	E	342	VAL	2.2
1	J	217	HIS	2.2
1	B	295	ARG	2.2
1	D	209	GLU	2.2
1	F	405	ARG	2.2
1	H	46	GLN	2.2
1	O	209	GLU	2.2
1	P	295	ARG	2.2
1	J	135	ASN	2.2
1	G	300	ILE	2.2
1	A	344	THR	2.2
1	E	292	LEU	2.2
1	J	348	LEU	2.2
1	P	380	THR	2.2
1	A	295	ARG	2.2
1	N	295	ARG	2.2
1	P	356	GLN	2.2
1	M	341	SER	2.2
1	N	149	GLY	2.2
1	N	299	GLY	2.2
1	J	346	ILE	2.2
1	D	180	ALA	2.2
1	E	190	ARG	2.2
1	I	343	ALA	2.2
1	D	350	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
1	H	350	VAL	2.2
1	I	350	VAL	2.2
1	I	145	ARG	2.2
1	O	295	ARG	2.2
1	L	126	HIS	2.2
1	H	47	ASN	2.2
1	O	376	ALA	2.2
1	H	140	GLY	2.2
1	I	187	ASP	2.2
1	B	344	THR	2.2
1	M	298	ALA	2.2
1	B	392	ILE	2.2
1	F	300	ILE	2.2
1	G	392	ILE	2.2
1	I	154	GLY	2.2
1	N	322	GLU	2.2
1	C	348	LEU	2.2
1	E	385	LEU	2.2
1	G	380	THR	2.2
1	O	211	ASP	2.2
1	N	119	ILE	2.1
1	H	172	LEU	2.1
1	O	348	LEU	2.1
1	L	69	PHE	2.1
1	M	143	VAL	2.1
1	M	226	GLU	2.1
1	N	353	ASN	2.1
1	N	150	TYR	2.1
1	O	217	HIS	2.1
1	C	211	ASP	2.1
1	H	211	ASP	2.1
1	C	188	GLY	2.1
1	F	344	THR	2.1
1	D	178	ILE	2.1
1	N	354	ILE	2.1
1	L	292	LEU	2.1
1	M	221	LEU	2.1
1	I	211	ASP	2.1
1	L	67	ARG	2.1
1	O	69	PHE	2.1
1	O	137	ARG	2.1
1	D	294	GLY	2.1

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Mol	Chain	Res	Type	RSRZ
1	M	125	GLY	2.1
1	E	341	SER	2.1
1	C	144	THR	2.1
1	K	185	GLU	2.1
1	L	65	THR	2.1
1	M	301	ALA	2.1
1	N	298	ALA	2.1
1	A	145	ARG	2.1
1	I	214	LEU	2.1
1	K	295	ARG	2.1
1	O	13	GLN	2.1
1	M	350	VAL	2.1
1	I	173	TYR	2.1
1	L	386	PRO	2.1
1	J	295	ARG	2.1
1	G	141	ILE	2.1
1	G	299	GLY	2.1
1	L	232	GLY	2.1
1	C	342	VAL	2.1
1	A	175	ALA	2.1
1	L	139	PRO	2.1
1	J	114	THR	2.1
1	D	216	ARG	2.1
1	J	121	ARG	2.1
1	I	13	GLN	2.1
1	J	185	GLU	2.1
1	I	296	LEU	2.1
1	L	54	LEU	2.1
1	C	350	VAL	2.1
1	F	295	ARG	2.1
1	O	143	VAL	2.1
1	N	380	THR	2.1
1	O	298	ALA	2.1
1	D	69	PHE	2.1
1	C	10	HIS	2.1
1	C	185	GLU	2.0
1	I	117	GLU	2.0
1	C	216	ARG	2.0
1	D	182	ILE	2.0
1	N	211	ASP	2.0
1	O	156	ARG	2.0
1	M	177	PRO	2.0

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Mol	Chain	Res	Type	RSRZ
1	O	183	PRO	2.0
1	F	357	ALA	2.0
1	M	175	ALA	2.0
1	N	294	GLY	2.0
1	C	341	SER	2.0
1	H	295	ARG	2.0
1	L	216	ARG	2.0
1	I	139	PRO	2.0
1	A	214	LEU	2.0
1	L	49	ILE	2.0
1	M	346	ILE	2.0
1	C	146	THR	2.0
1	C	344	THR	2.0
1	G	298	ALA	2.0
1	L	143	VAL	2.0
1	D	231	ASP	2.0
1	K	29	ARG	2.0
1	L	227	TYR	2.0
1	B	352	HIS	2.0
1	G	142	THR	2.0
1	I	354	ILE	2.0
1	N	343	ALA	2.0
1	I	295	ARG	2.0
1	H	294	GLY	2.0
1	L	229	GLY	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)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	L	501	6/6	0.84	0.25	65,66,69,69	0
3	GOL	P	501	6/6	0.88	0.23	50,58,61,66	0
3	GOL	M	501	6/6	0.89	0.15	53,57,59,61	0
3	GOL	J	501	6/6	0.90	0.18	51,56,57,62	0
2	PO4	F	502	5/5	0.91	0.29	67,74,90,92	0
3	GOL	D	501	6/6	0.95	0.14	53,54,62,64	0
3	GOL	K	501	6/6	0.96	0.24	45,49,50,52	0
2	PO4	C	501	5/5	0.97	0.10	54,56,60,65	0
2	PO4	K	502	5/5	0.98	0.09	57,63,73,76	0
2	PO4	M	502	5/5	0.98	0.10	56,62,69,71	0
2	PO4	O	501	5/5	0.98	0.11	48,51,56,58	0
2	PO4	P	502	5/5	0.98	0.11	53,53,66,68	0
2	PO4	A	501	5/5	0.98	0.10	43,47,52,54	0
2	PO4	D	502	5/5	0.98	0.13	44,48,62,68	0
2	PO4	E	501	5/5	0.98	0.09	48,50,55,59	0
2	PO4	F	501	5/5	0.98	0.16	41,42,52,53	0
2	PO4	B	501	5/5	0.98	0.15	38,44,51,52	0
2	PO4	G	501	5/5	0.98	0.08	48,55,56,65	0
2	PO4	I	501	5/5	0.99	0.10	49,51,60,66	0
2	PO4	N	501	5/5	0.99	0.13	43,44,50,56	0
2	PO4	J	502	5/5	0.99	0.14	45,45,50,53	0
2	PO4	H	501	5/5	0.99	0.10	42,44,48,50	0
2	PO4	L	502	5/5	0.99	0.12	49,53,59,64	0

6.5 Other polymers (i)

There are no such residues in this entry.