WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Apr 27, 2023 – 06:02 pm BST

PDB ID	:	8ANQ
Title	:	Crystal structure of the microbial rhodopsin from Sphingomonas paucimobilis (SpaR)
Authors	:	Kovalev, K.; Okhrimenko, I.; Marin, E.; Gordeliy, V.
Deposited on	:	2022-08-05
Resolution	:	2.80 Å(reported)

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

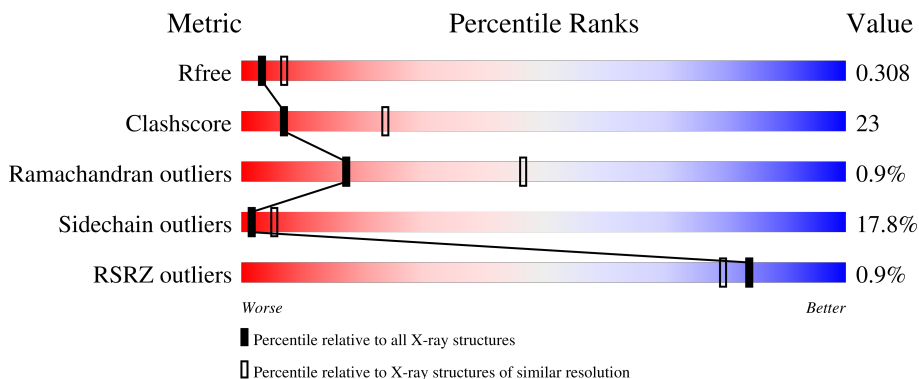|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.32.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.32.2

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.80 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.
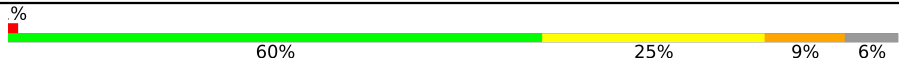
Metric	Percentile Ranks	Value
Rfree		0.308
Clashscore		23
Ramachandran outliers		0.9%
Sidechain outliers		17.8%
RSRZ outliers		0.9%

Worse — *Better*

▌ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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	239	.% 59% 26% 9% 6%
1	B	239	.% 61% 27% 8% 5%
1	C	239	.% 57% 30% 8% 5%
1	P	239	.% 60% 27% 8% 5%
1	T	239	58% 29% 8% 5%

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Mol	Chain	Length	Quality of chain
1	Y	239	

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 10547 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 Bacteriorhodopsin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	228	Total 1740	C 1182	N 267	O 285	S 6	0	0	0
1	C	227	Total 1732	C 1178	N 266	O 282	S 6	0	0	0
1	A	224	Total 1704	C 1161	N 254	O 283	S 6	0	0	0
1	P	228	Total 1740	C 1182	N 267	O 285	S 6	0	0	0
1	T	227	Total 1728	C 1177	N 263	O 282	S 6	0	0	0
1	Y	225	Total 1708	C 1162	N 256	O 284	S 6	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	238	LEU	-	expression tag	UNP A0A411LJN5
B	239	GLU	-	expression tag	UNP A0A411LJN5
C	238	LEU	-	expression tag	UNP A0A411LJN5
C	239	GLU	-	expression tag	UNP A0A411LJN5
A	238	LEU	-	expression tag	UNP A0A411LJN5
A	239	GLU	-	expression tag	UNP A0A411LJN5
P	238	LEU	-	expression tag	UNP A0A411LJN5
P	239	GLU	-	expression tag	UNP A0A411LJN5
T	238	LEU	-	expression tag	UNP A0A411LJN5
T	239	GLU	-	expression tag	UNP A0A411LJN5
Y	238	LEU	-	expression tag	UNP A0A411LJN5
Y	239	GLU	-	expression tag	UNP A0A411LJN5

- Molecule 2 is EICOSANE (three-letter code: LFA) (formula: $C_{20}H_{42}$).

LFA
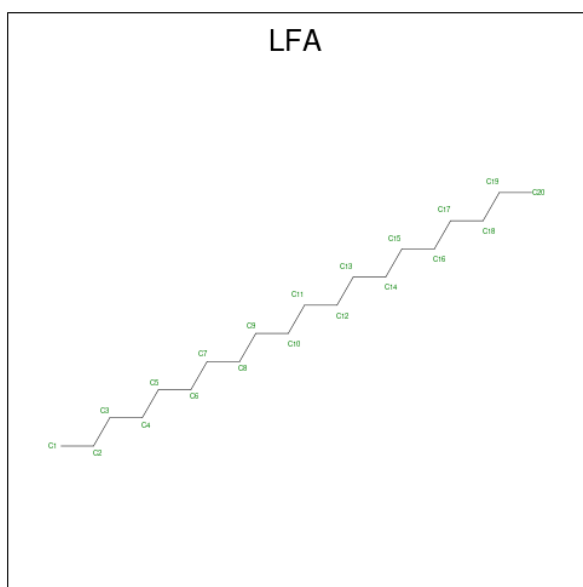
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	1	Total 10	C 10	0	0
2	B	1	Total 12	C 12	0	0
2	C	1	Total 20	C 20	0	0
2	A	1	Total 14	C 14	0	0
2	A	1	Total 10	C 10	0	0
2	A	1	Total 15	C 15	0	0
2	P	1	Total 10	C 10	0	0
2	P	1	Total 12	C 12	0	0
2	T	1	Total 20	C 20	0	0
2	Y	1	Total 14	C 14	0	0
2	Y	1	Total 10	C 10	0	0
2	Y	1	Total 15	C 15	0	0

- Molecule 3 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	6	Total 6	O 6	0	0
3	C	3	Total 3	O 3	0	0
3	A	6	Total 6	O 6	0	0
3	P	6	Total 6	O 6	0	0
3	T	5	Total 5	O 5	0	0
3	Y	7	Total 7	O 7	0	0

3 Residue-property plots ⓘ

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.
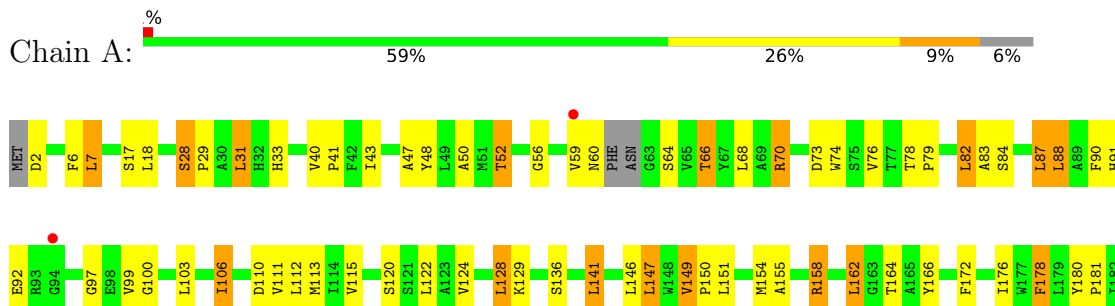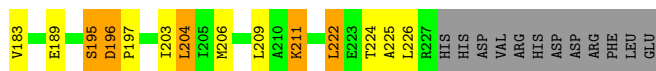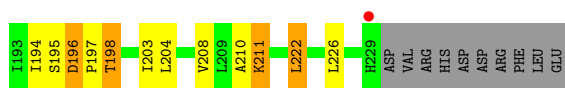
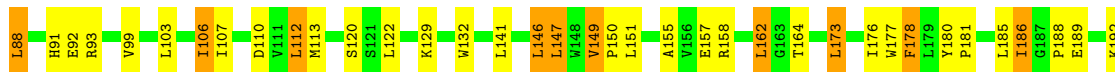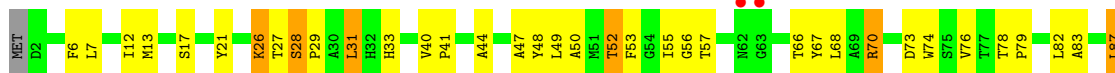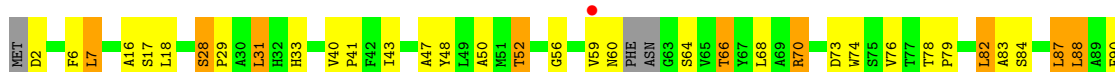- Molecule 1: Bacteriorhodopsin
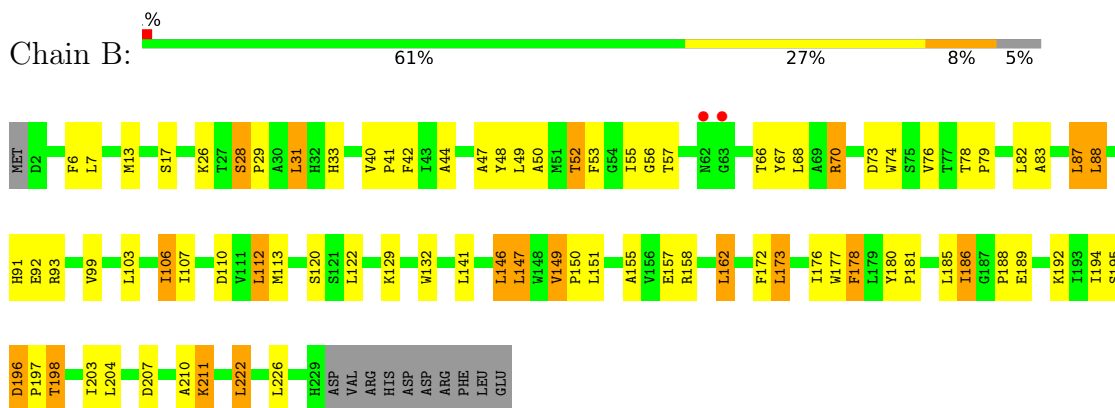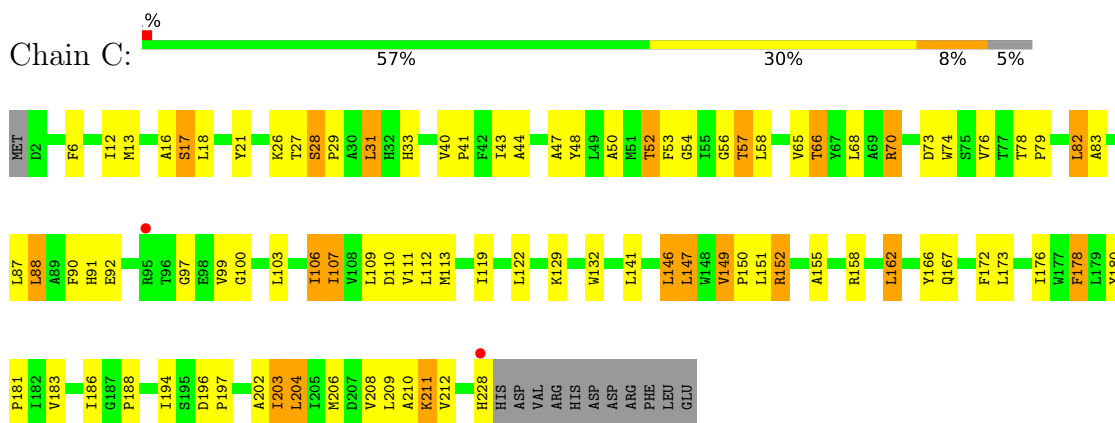
- Molecule 1: Bacteriorhodopsin

- Molecule 1: Bacteriorhodopsin

• Molecule 1: Bacteriorhodopsin

Chain P:

• Molecule 1: Bacteriorhodopsin

Chain T:

• Molecule 1: Bacteriorhodopsin

Chain Y:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	233.34Å 65.03Å 124.69Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.91 – 2.80 19.91 – 2.80	Depositor EDS
% Data completeness (in resolution range)	95.4 (19.91-2.80) 95.7 (19.91-2.80)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.33 (at 2.79Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.275 , 0.303 0.280 , 0.308	Depositor DCC
R_{free} test set	2215 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å^2)	54.3	Xtriage
Anisotropy	0.208	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 26.1	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.49, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.407 for -h,-k,l	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	10547	wwPDB-VP
Average B, all atoms (Å^2)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.13% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1] Intensities estimated from amplitudes.
[2] Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ 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: LFA, LYR

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	0.65	0/1721	0.66	0/2366
1	B	0.65	0/1759	0.66	0/2417
1	C	0.65	0/1752	0.66	0/2408
1	P	0.65	0/1759	0.66	0/2417
1	T	0.65	0/1748	0.66	0/2403
1	Y	0.65	0/1725	0.66	0/2372
All	All	0.65	0/10464	0.66	0/14383

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	1704	0	1734	82	0
1	B	1740	0	1771	78	0
1	C	1732	0	1763	82	0
1	P	1740	0	1771	79	0
1	T	1728	0	1756	94	0
1	Y	1708	0	1734	89	0
2	A	39	0	75	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	22	0	42	2	0
2	C	20	0	42	5	0
2	P	22	0	42	3	0
2	T	20	0	42	6	0
2	Y	39	0	75	2	0
3	A	6	0	0	1	0
3	B	6	0	0	0	0
3	C	3	0	0	0	0
3	P	6	0	0	1	0
3	T	5	0	0	1	0
3	Y	7	0	0	0	0
All	All	10547	0	10847	490	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 23.

All (490) 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:Y:28:SER:OG	1:Y:29:PRO:CD	1.92	1.16
1:Y:28:SER:OG	1:Y:29:PRO:HD2	1.47	1.15
1:A:28:SER:OG	1:A:29:PRO:CD	1.94	1.14
1:A:28:SER:OG	1:A:29:PRO:HD2	1.49	1.13
1:Y:183:VAL:HG21	1:Y:206:MET:CE	1.80	1.11
1:Y:70:ARG:HH21	1:Y:70:ARG:HG3	1.15	1.10
1:A:28:SER:CB	1:A:29:PRO:HD3	1.80	1.10
1:Y:28:SER:CB	1:Y:29:PRO:HD3	1.81	1.09
1:A:28:SER:HB2	1:A:29:PRO:HD3	1.32	1.06
1:A:183:VAL:HG21	1:A:206:MET:CE	1.84	1.05
1:Y:28:SER:HB2	1:Y:29:PRO:HD3	1.35	1.03
1:B:28:SER:CB	1:B:29:PRO:CD	2.37	1.03
1:P:28:SER:CB	1:P:29:PRO:CD	2.36	1.02
1:T:28:SER:CB	1:T:29:PRO:CD	2.39	1.01
1:C:28:SER:CB	1:C:29:PRO:CD	2.39	1.01
1:P:28:SER:CB	1:P:29:PRO:HD2	1.89	1.01
1:B:28:SER:CB	1:B:29:PRO:HD2	1.91	1.00
1:A:28:SER:CB	1:A:29:PRO:CD	2.38	0.99
1:Y:28:SER:CB	1:Y:29:PRO:CD	2.39	0.98
1:Y:183:VAL:HG21	1:Y:206:MET:HE1	1.47	0.97
1:T:28:SER:CB	1:T:29:PRO:HD2	1.93	0.96
1:C:211:LYR:H9	1:C:211:LYR:H192	1.45	0.96

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:28:SER:CB	1:C:29:PRO:HD2	1.94	0.95
1:T:211:LYR:H9	1:T:211:LYR:H192	1.49	0.94
1:A:78:THR:OG1	1:A:79:PRO:HD3	1.68	0.94
1:Y:78:THR:OG1	1:Y:79:PRO:HD3	1.68	0.93
1:B:78:THR:OG1	1:B:79:PRO:HD3	1.68	0.93
1:P:78:THR:OG1	1:P:79:PRO:HD3	1.68	0.93
1:Y:149:VAL:HB	1:Y:150:PRO:CD	2.00	0.92
1:C:78:THR:OG1	1:C:79:PRO:HD3	1.69	0.92
1:A:149:VAL:HB	1:A:150:PRO:CD	2.00	0.92
1:T:78:THR:OG1	1:T:79:PRO:HD3	1.69	0.92
1:B:149:VAL:HB	1:B:150:PRO:CD	2.01	0.91
1:P:149:VAL:HB	1:P:150:PRO:CD	2.02	0.90
1:Y:183:VAL:HG21	1:Y:206:MET:HE2	1.54	0.89
1:T:149:VAL:HB	1:T:150:PRO:CD	2.02	0.89
1:Y:70:ARG:HD3	1:Y:74:TRP:CZ2	2.08	0.89
1:C:149:VAL:HB	1:C:150:PRO:CD	2.02	0.88
1:A:183:VAL:HG21	1:A:206:MET:HE2	1.53	0.88
1:A:183:VAL:HG21	1:A:206:MET:HE1	1.55	0.88
1:Y:40:VAL:CG1	1:Y:211:LYR:HG3	2.03	0.88
1:B:149:VAL:HB	1:B:150:PRO:HD3	1.57	0.85
1:P:149:VAL:HB	1:P:150:PRO:HD3	1.57	0.85
1:Y:149:VAL:HB	1:Y:150:PRO:HD3	1.57	0.85
1:A:149:VAL:HB	1:A:150:PRO:HD3	1.57	0.85
1:T:149:VAL:HB	1:T:150:PRO:HD3	1.59	0.85
1:C:149:VAL:HB	1:C:150:PRO:HD3	1.58	0.84
1:B:207:ASP:O	1:B:211:LYR:HG2	1.78	0.83
1:T:183:VAL:HG21	1:T:206:MET:CE	2.08	0.83
1:C:183:VAL:HG21	1:C:206:MET:CE	2.08	0.83
1:C:183:VAL:HG21	1:C:206:MET:HE2	1.61	0.80
1:A:120:SER:O	1:A:129:LYS:HG2	1.82	0.79
1:Y:70:ARG:HD3	1:Y:74:TRP:CH2	2.16	0.79
1:P:87:LEU:HD21	1:T:97:GLY:HA3	1.63	0.79
1:Y:70:ARG:HG3	1:Y:70:ARG:NH2	1.95	0.78
1:Y:120:SER:O	1:Y:129:LYS:HG2	1.83	0.78
1:B:87:LEU:HD21	1:C:97:GLY:HA3	1.64	0.77
1:B:82:LEU:HD11	1:B:177:TRP:CH2	2.19	0.77
1:Y:211:LYR:H9	1:Y:211:LYR:H192	1.66	0.77
1:P:211:LYR:H192	1:P:211:LYR:H9	1.66	0.76
1:P:186:ILE:HG23	1:P:194:ILE:HG23	1.68	0.76
1:B:186:ILE:HG23	1:B:194:ILE:HG23	1.69	0.75
1:T:113:MET:CE	1:T:211:LYR:H83	2.17	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:211:LYR:H192	1:A:211:LYR:H9	1.70	0.73
1:B:211:LYR:H192	1:B:211:LYR:H9	1.69	0.73
1:B:76:VAL:HG21	2:C:401:LFA:H72	1.72	0.70
1:Y:40:VAL:HG11	1:Y:211:LYR:HG3	1.74	0.70
1:Y:70:ARG:HH21	1:Y:70:ARG:CG	2.00	0.69
1:P:76:VAL:HG21	2:T:401:LFA:H72	1.74	0.68
1:Y:162:LEU:HD23	1:Y:225:ALA:HB1	1.74	0.68
1:C:70:ARG:HD2	1:C:74:TRP:CZ2	2.29	0.68
1:A:70:ARG:HD3	3:A:404:HOH:O	1.93	0.68
1:T:6:PHE:HB3	1:T:52:THR:HG22	1.76	0.68
1:Y:183:VAL:CG2	1:Y:206:MET:HE2	2.23	0.68
1:T:113:MET:HE3	1:T:211:LYR:H83	1.75	0.68
1:C:6:PHE:HB3	1:C:52:THR:HG22	1.77	0.67
1:T:183:VAL:HG21	1:T:206:MET:HE2	1.76	0.67
1:B:82:LEU:CD1	1:B:177:TRP:CH2	2.77	0.67
1:A:40:VAL:HB	1:A:41:PRO:HD3	1.76	0.67
1:A:60:ASN:C	1:A:64:SER:O	2.33	0.67
1:Y:60:ASN:C	1:Y:64:SER:O	2.33	0.67
1:P:91:HIS:NE2	1:P:162:LEU:HB2	2.09	0.67
1:A:183:VAL:CG2	1:A:206:MET:HE2	2.23	0.67
1:A:70:ARG:HD2	1:A:74:TRP:CZ2	2.30	0.66
1:B:91:HIS:NE2	1:B:162:LEU:HB2	2.10	0.66
1:A:91:HIS:NE2	1:A:162:LEU:HB2	2.10	0.66
1:C:152:ARG:HH11	1:C:167:GLN:HE21	1.43	0.66
1:Y:91:HIS:NE2	1:Y:162:LEU:HB2	2.10	0.66
1:A:211:LYR:H9	1:A:211:LYR:H183	1.78	0.65
2:P:302:LFA:H13	1:T:100:GLY:HA3	1.78	0.65
1:C:91:HIS:NE2	1:C:162:LEU:HB2	2.12	0.65
1:T:152:ARG:HH11	1:T:167:GLN:HE21	1.44	0.65
1:T:91:HIS:NE2	1:T:162:LEU:HB2	2.12	0.65
1:P:188:PRO:HA	1:P:192:LYS:HG2	1.78	0.65
1:B:196:ASP:N	1:B:197:PRO:HD2	2.12	0.65
1:B:70:ARG:HD2	1:B:74:TRP:CZ2	2.32	0.64
1:T:203:ILE:HA	1:T:206:MET:HE3	1.79	0.64
1:P:196:ASP:N	1:P:197:PRO:HD2	2.12	0.64
1:T:196:ASP:N	1:T:197:PRO:HD2	2.12	0.64
1:Y:40:VAL:HB	1:Y:41:PRO:HD3	1.79	0.64
1:Y:40:VAL:HG12	1:Y:211:LYR:HG3	1.77	0.64
1:A:196:ASP:N	1:A:197:PRO:HD2	2.13	0.64
1:C:196:ASP:N	1:C:197:PRO:HD2	2.12	0.64
1:A:91:HIS:CG	1:A:162:LEU:HD12	2.33	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:T:113:MET:CE	1:T:211:LYR:C8	2.75	0.64
1:T:183:VAL:HG21	1:T:206:MET:HE1	1.80	0.64
1:Y:91:HIS:CG	1:Y:162:LEU:HD12	2.32	0.64
1:B:188:PRO:HA	1:B:192:LYS:HG2	1.79	0.64
1:B:56:GLY:O	1:B:68:LEU:HD12	1.97	0.63
1:A:29:PRO:HB3	1:A:92:GLU:HG3	1.80	0.63
1:Y:196:ASP:N	1:Y:197:PRO:HD2	2.13	0.63
1:P:70:ARG:HD2	1:P:74:TRP:CZ2	2.33	0.63
1:B:195:SER:O	1:B:198:THR:HG23	1.98	0.63
1:Y:66:THR:HG21	1:Y:122:LEU:HD23	1.80	0.63
1:B:6:PHE:HB3	1:B:52:THR:HG22	1.81	0.62
2:B:302:LFA:H13	1:C:100:GLY:HA3	1.80	0.62
1:P:195:SER:O	1:P:198:THR:HG23	1.99	0.62
1:P:6:PHE:HB3	1:P:52:THR:HG22	1.82	0.62
1:T:40:VAL:CG1	1:T:211:LYR:HD2	2.29	0.62
1:A:162:LEU:HD23	1:A:225:ALA:HB1	1.80	0.62
1:P:56:GLY:O	1:P:68:LEU:HD12	1.99	0.62
1:A:66:THR:HG21	1:A:122:LEU:HD23	1.81	0.61
1:P:48:TYR:O	1:P:52:THR:HG23	1.99	0.61
1:A:6:PHE:HB3	1:A:52:THR:HG22	1.82	0.61
1:B:48:TYR:O	1:B:52:THR:HG23	1.99	0.61
1:B:211:LYR:H9	1:B:211:LYR:H183	1.83	0.61
1:P:66:THR:HG21	1:P:122:LEU:HD21	1.83	0.61
1:P:120:SER:O	1:P:129:LYS:HG3	2.01	0.61
1:C:48:TYR:O	1:C:52:THR:HG23	2.01	0.60
1:A:111:VAL:O	1:A:115:VAL:HG13	2.02	0.60
1:T:48:TYR:O	1:T:52:THR:HG23	2.01	0.60
1:Y:180:TYR:HB2	1:Y:181:PRO:HD3	1.84	0.60
1:C:204:LEU:HD22	1:C:204:LEU:O	2.00	0.60
1:B:66:THR:HG21	1:B:122:LEU:HD21	1.83	0.60
1:Y:6:PHE:HB3	1:Y:52:THR:HG22	1.83	0.60
1:A:180:TYR:HB2	1:A:181:PRO:HD3	1.84	0.59
1:P:82:LEU:CD1	1:P:177:TRP:CH2	2.85	0.59
1:Y:28:SER:OG	1:Y:29:PRO:HD3	1.82	0.59
1:A:90:PHE:O	1:A:158:ARG:NH1	2.35	0.59
1:Y:111:VAL:O	1:Y:115:VAL:HG13	2.03	0.59
1:A:211:LYR:H183	1:A:211:LYR:C9	2.31	0.59
1:Y:211:LYR:H9	1:Y:211:LYR:H183	1.85	0.59
1:A:149:VAL:CB	1:A:150:PRO:CD	2.78	0.58
1:P:76:VAL:HG11	2:T:401:LFA:H91	1.84	0.58
1:B:28:SER:CB	1:B:29:PRO:HD3	2.33	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:120:SER:O	1:B:129:LYS:HG3	2.03	0.58
1:B:149:VAL:CB	1:B:150:PRO:CD	2.79	0.58
1:B:211:LYR:H183	1:B:211:LYR:C9	2.33	0.58
1:P:13:MET:HG2	1:P:44:ALA:HB3	1.85	0.58
1:Y:149:VAL:CB	1:Y:150:PRO:CD	2.78	0.58
1:C:90:PHE:O	1:C:158:ARG:NH1	2.35	0.58
1:P:186:ILE:CG2	1:P:194:ILE:HG23	2.33	0.58
1:T:90:PHE:O	1:T:158:ARG:NH1	2.35	0.58
1:Y:90:PHE:O	1:Y:158:ARG:NH1	2.36	0.58
1:B:186:ILE:CG2	1:B:194:ILE:HG23	2.33	0.58
1:C:88:LEU:CD2	1:C:162:LEU:HD13	2.33	0.58
1:P:82:LEU:HD11	1:P:177:TRP:CH2	2.39	0.58
1:Y:29:PRO:HB3	1:Y:92:GLU:HG3	1.85	0.58
1:T:176:ILE:HD12	1:T:209:LEU:HB3	1.85	0.57
1:B:76:VAL:HG11	2:C:401:LFA:H91	1.85	0.57
1:T:88:LEU:CD2	1:T:162:LEU:HD13	2.34	0.57
1:A:195:SER:HB2	1:A:197:PRO:HD2	1.87	0.57
1:P:211:LYR:H9	1:P:211:LYR:H183	1.87	0.56
1:Y:195:SER:HB2	1:Y:197:PRO:HD2	1.87	0.56
1:A:7:LEU:HD13	1:A:7:LEU:O	2.05	0.56
1:C:53:PHE:CD1	1:A:128:LEU:HD11	2.41	0.56
1:T:204:LEU:HD22	1:T:204:LEU:O	2.05	0.56
1:T:28:SER:CB	1:T:29:PRO:HD3	2.34	0.56
1:A:129:LYS:HE2	1:A:189:GLU:O	2.06	0.56
1:C:28:SER:CB	1:C:29:PRO:HD3	2.33	0.56
1:B:49:LEU:O	1:B:53:PHE:HD2	1.88	0.56
1:Y:129:LYS:HE2	1:Y:189:GLU:O	2.06	0.56
1:Y:7:LEU:HD13	1:Y:7:LEU:O	2.07	0.55
1:Y:211:LYR:H183	1:Y:211:LYR:C9	2.35	0.55
1:B:13:MET:HG2	1:B:44:ALA:HB3	1.89	0.55
1:C:152:ARG:HD3	1:C:167:GLN:HG2	1.88	0.55
1:P:49:LEU:O	1:P:53:PHE:HD2	1.89	0.55
1:B:88:LEU:CD2	1:B:162:LEU:HD13	2.37	0.55
1:T:21:TYR:O	1:T:26:LYS:NZ	2.33	0.55
1:Y:91:HIS:HA	1:Y:162:LEU:CD1	2.37	0.55
1:A:48:TYR:O	1:A:52:THR:HG23	2.07	0.55
1:P:211:LYR:H183	1:P:211:LYR:C9	2.36	0.55
1:T:113:MET:HE1	1:T:211:LYR:H83	1.88	0.55
1:C:21:TYR:O	1:C:26:LYS:NZ	2.34	0.54
1:P:87:LEU:HD21	1:T:97:GLY:CA	2.35	0.54
1:P:57:THR:HG22	1:P:67:TYR:HD1	1.71	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:91:HIS:HA	1:A:162:LEU:CD1	2.38	0.54
1:T:43:ILE:HD13	1:T:76:VAL:HG12	1.89	0.54
1:T:152:ARG:HD3	1:T:167:GLN:HG2	1.90	0.54
1:C:53:PHE:CG	1:A:128:LEU:HD11	2.43	0.54
1:C:16:ALA:HB1	1:C:212:VAL:HG22	1.88	0.54
1:C:43:ILE:HD13	1:C:76:VAL:HG12	1.89	0.54
1:Y:48:TYR:O	1:Y:52:THR:HG23	2.08	0.54
1:P:88:LEU:CD2	1:P:162:LEU:HD13	2.38	0.54
1:C:56:GLY:O	1:C:68:LEU:HG	2.08	0.53
1:C:13:MET:HG2	1:C:44:ALA:HB3	1.89	0.53
1:T:56:GLY:O	1:T:68:LEU:HG	2.08	0.53
1:T:13:MET:HG2	1:T:44:ALA:HB3	1.90	0.53
1:C:58:LEU:HB2	1:C:66:THR:HG23	1.89	0.53
1:T:53:PHE:CD1	1:Y:128:LEU:HD11	2.44	0.53
1:T:58:LEU:HB2	1:T:66:THR:HG23	1.89	0.53
1:B:57:THR:HG22	1:B:67:TYR:HD1	1.74	0.52
1:B:129:LYS:HE3	1:B:189:GLU:O	2.09	0.52
1:T:113:MET:HE3	1:T:211:LYR:C8	2.37	0.52
1:T:176:ILE:CD1	1:T:209:LEU:HB3	2.39	0.52
1:C:33:HIS:NE2	1:C:92:GLU:OE1	2.33	0.52
1:P:129:LYS:HE3	1:P:189:GLU:O	2.10	0.52
1:Y:83:ALA:HA	1:Y:103:LEU:HD21	1.92	0.52
1:B:87:LEU:HD21	1:C:97:GLY:CA	2.37	0.51
1:T:110:ASP:O	1:T:113:MET:HB3	2.11	0.51
1:B:83:ALA:HA	1:B:103:LEU:HD21	1.91	0.51
1:C:203:ILE:HA	1:C:206:MET:HE3	1.92	0.51
1:C:110:ASP:O	1:C:113:MET:HB3	2.11	0.51
1:P:82:LEU:HD13	1:P:177:TRP:CH2	2.46	0.51
1:T:33:HIS:NE2	1:T:92:GLU:OE1	2.34	0.51
1:A:83:ALA:HA	1:A:103:LEU:HD21	1.93	0.51
1:T:91:HIS:HE1	1:T:155:ALA:O	1.94	0.51
1:C:211:LYR:H9	1:C:211:LYR:C19	2.28	0.51
1:C:91:HIS:HE1	1:C:155:ALA:O	1.94	0.51
1:P:87:LEU:CD2	1:T:97:GLY:HA3	2.37	0.51
1:T:53:PHE:CG	1:Y:128:LEU:HD11	2.46	0.51
1:B:110:ASP:O	1:B:113:MET:HB3	2.11	0.50
1:A:73:ASP:C	1:A:73:ASP:OD1	2.50	0.50
1:Y:73:ASP:C	1:Y:73:ASP:OD1	2.50	0.50
1:C:204:LEU:HD22	1:C:204:LEU:C	2.32	0.50
1:T:70:ARG:HD3	1:T:74:TRP:CZ2	2.46	0.50
1:P:91:HIS:CD2	1:P:162:LEU:HB2	2.47	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:110:ASP:O	1:P:113:MET:HB3	2.11	0.50
1:Y:183:VAL:HG11	1:Y:203:ILE:HD12	1.94	0.50
1:P:73:ASP:C	1:P:73:ASP:OD1	2.49	0.50
1:T:73:ASP:OD1	1:T:73:ASP:C	2.49	0.50
1:C:149:VAL:CB	1:C:150:PRO:CD	2.79	0.50
1:A:110:ASP:O	1:A:113:MET:HB3	2.11	0.50
1:P:49:LEU:O	1:P:53:PHE:CD2	2.64	0.50
1:Y:181:PRO:HG3	1:Y:211:LYR:H132	1.93	0.50
1:B:73:ASP:OD1	1:B:73:ASP:C	2.49	0.50
1:A:181:PRO:HG3	1:A:211:LYR:H132	1.93	0.50
1:Y:91:HIS:HE1	1:Y:155:ALA:O	1.94	0.50
1:C:73:ASP:OD1	1:C:73:ASP:C	2.50	0.50
1:C:176:ILE:HD12	1:C:209:LEU:HB3	1.94	0.50
1:P:48:TYR:O	1:P:52:THR:CG2	2.59	0.50
1:B:91:HIS:HE1	1:B:155:ALA:O	1.95	0.49
1:A:91:HIS:HE1	1:A:155:ALA:O	1.94	0.49
1:P:33:HIS:NE2	1:P:92:GLU:OE1	2.33	0.49
1:B:49:LEU:O	1:B:53:PHE:CD2	2.64	0.49
1:P:28:SER:CB	1:P:29:PRO:HD3	2.34	0.49
1:P:91:HIS:HE1	1:P:155:ALA:O	1.95	0.49
1:B:33:HIS:NE2	1:B:92:GLU:OE1	2.33	0.49
1:B:48:TYR:O	1:B:52:THR:CG2	2.60	0.49
1:B:180:TYR:N	1:B:181:PRO:HD2	2.27	0.49
1:Y:110:ASP:O	1:Y:113:MET:HB3	2.12	0.49
1:P:129:LYS:CE	1:P:189:GLU:O	2.61	0.49
1:T:149:VAL:CB	1:T:150:PRO:CD	2.79	0.49
1:A:43:ILE:HD13	1:A:76:VAL:HG12	1.94	0.49
1:P:83:ALA:HA	1:P:103:LEU:HD21	1.93	0.49
1:P:149:VAL:CB	1:P:150:PRO:CD	2.79	0.49
1:Y:178:PHE:O	1:Y:181:PRO:HD2	2.13	0.49
1:C:54:GLY:O	1:C:57:THR:HG22	2.12	0.49
1:A:48:TYR:O	1:A:52:THR:CG2	2.61	0.49
1:A:178:PHE:O	1:A:181:PRO:HD2	2.13	0.49
1:T:54:GLY:O	1:T:57:THR:HG22	2.11	0.49
1:B:129:LYS:CE	1:B:189:GLU:O	2.62	0.48
1:C:91:HIS:CD2	1:C:162:LEU:HB2	2.48	0.48
1:P:57:THR:HG22	1:P:67:TYR:CD1	2.47	0.48
1:T:180:TYR:N	1:T:181:PRO:HD2	2.28	0.48
1:T:91:HIS:CD2	1:T:162:LEU:HB2	2.48	0.48
1:Y:43:ILE:HD13	1:Y:76:VAL:HG12	1.95	0.48
1:B:91:HIS:CD2	1:B:162:LEU:HB2	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:106:ILE:HD11	1:A:147:LEU:HD13	1.95	0.48
1:B:79:PRO:HB2	2:B:302:LFA:H91	1.95	0.48
1:C:48:TYR:O	1:C:52:THR:CG2	2.60	0.48
1:P:55:ILE:HD13	1:T:119:ILE:HG23	1.95	0.48
1:P:180:TYR:N	1:P:181:PRO:HD2	2.27	0.48
1:Y:106:ILE:HD11	1:Y:147:LEU:HD13	1.95	0.48
1:A:56:GLY:O	1:A:68:LEU:HB2	2.14	0.48
1:A:91:HIS:CD2	1:A:162:LEU:HB2	2.49	0.48
1:T:203:ILE:CA	1:T:206:MET:HE3	2.42	0.48
1:Y:56:GLY:O	1:Y:68:LEU:HB2	2.14	0.48
1:B:55:ILE:HD13	1:C:119:ILE:HG23	1.96	0.48
1:A:91:HIS:HA	1:A:162:LEU:HD12	1.95	0.48
1:C:178:PHE:O	1:C:181:PRO:HG2	2.14	0.48
1:T:48:TYR:O	1:T:52:THR:CG2	2.61	0.48
1:Y:48:TYR:O	1:Y:52:THR:CG2	2.62	0.48
1:C:176:ILE:CD1	1:C:209:LEU:HB3	2.45	0.47
1:C:180:TYR:N	1:C:181:PRO:HD2	2.28	0.47
1:P:13:MET:HG2	1:P:44:ALA:CB	2.43	0.47
1:Y:91:HIS:CD2	1:Y:162:LEU:HB2	2.49	0.47
1:C:111:VAL:HG11	2:C:401:LFA:H82	1.96	0.47
1:T:178:PHE:O	1:T:181:PRO:HG2	2.14	0.47
1:T:111:VAL:HG11	2:T:401:LFA:H82	1.96	0.47
1:C:6:PHE:CB	1:C:52:THR:HG22	2.44	0.47
1:Y:120:SER:O	1:Y:129:LYS:CG	2.59	0.47
1:Y:91:HIS:HA	1:Y:162:LEU:HD12	1.96	0.47
1:B:178:PHE:O	1:B:181:PRO:HG2	2.14	0.47
1:A:40:VAL:CG1	1:A:211:LYR:HD2	2.44	0.47
1:A:120:SER:O	1:A:129:LYS:CG	2.59	0.47
1:P:178:PHE:O	1:P:181:PRO:HG2	2.14	0.47
1:T:6:PHE:CB	1:T:52:THR:HG22	2.44	0.47
1:P:70:ARG:NH2	3:P:401:HOH:O	2.32	0.47
1:P:211:LYR:H192	1:P:211:LYR:C9	2.40	0.47
1:P:79:PRO:HB2	2:P:302:LFA:H91	1.97	0.47
1:T:16:ALA:HB1	1:T:212:VAL:HG22	1.96	0.47
1:T:17:SER:HB2	1:T:41:PRO:HG2	1.96	0.47
1:Y:211:LYR:H192	1:Y:211:LYR:C9	2.38	0.46
1:B:57:THR:HG22	1:B:67:TYR:CD1	2.50	0.46
1:B:83:ALA:HA	1:B:103:LEU:CD2	2.46	0.46
1:B:149:VAL:HB	1:B:150:PRO:HD2	1.94	0.46
1:C:57:THR:CG2	1:C:57:THR:O	2.64	0.46
1:B:211:LYR:H192	1:B:211:LYR:C9	2.41	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:T:211:LYR:H192	1:T:211:LYR:C9	2.31	0.46
1:Y:129:LYS:CE	1:Y:189:GLU:O	2.63	0.46
1:B:195:SER:CB	1:B:198:THR:HG22	2.46	0.46
1:C:88:LEU:HD23	1:C:162:LEU:HD13	1.98	0.46
1:T:83:ALA:HA	1:T:103:LEU:HD21	1.97	0.46
1:P:12:ILE:HG21	1:P:208:VAL:HG22	1.96	0.46
1:B:132:TRP:HZ2	1:A:50:ALA:HA	1.81	0.46
1:P:149:VAL:HB	1:P:150:PRO:HD2	1.95	0.46
1:T:106:ILE:HD11	1:T:147:LEU:HD13	1.98	0.46
1:C:106:ILE:HD11	1:C:147:LEU:HD13	1.98	0.46
1:P:21:TYR:O	1:P:26:LYS:HE3	2.16	0.46
1:P:195:SER:CB	1:P:198:THR:HG22	2.46	0.46
1:T:88:LEU:HD23	1:T:162:LEU:HD13	1.98	0.46
1:B:176:ILE:HG21	1:B:210:ALA:HB2	1.98	0.46
1:T:208:VAL:O	1:T:212:VAL:HB	2.16	0.45
1:A:88:LEU:HD13	1:A:166:TYR:HA	1.97	0.45
1:A:28:SER:OG	1:A:29:PRO:HD3	1.84	0.45
1:T:57:THR:CG2	1:T:57:THR:O	2.65	0.45
1:T:70:ARG:NH2	3:T:501:HOH:O	2.50	0.45
1:Y:149:VAL:HB	1:Y:150:PRO:HD2	1.92	0.45
1:A:222:LEU:O	1:A:226:LEU:HG	2.17	0.45
1:T:204:LEU:HD22	1:T:204:LEU:C	2.37	0.45
1:A:149:VAL:HB	1:A:150:PRO:HD2	1.92	0.45
1:T:111:VAL:CG1	2:T:401:LFA:H82	2.46	0.45
1:C:17:SER:HB2	1:C:41:PRO:HG2	1.98	0.45
1:A:129:LYS:CE	1:A:189:GLU:O	2.64	0.45
1:T:103:LEU:HD23	1:T:103:LEU:HA	1.86	0.45
1:Y:31:LEU:C	1:Y:31:LEU:HD22	2.37	0.45
1:Y:70:ARG:NH2	1:Y:70:ARG:CG	2.69	0.45
1:C:111:VAL:CG1	2:C:401:LFA:H82	2.47	0.45
1:Y:16:ALA:HB1	1:Y:212:VAL:HG22	1.98	0.45
1:A:211:LYR:H192	1:A:211:LYR:C9	2.40	0.45
1:P:132:TRP:HZ2	1:Y:50:ALA:HA	1.82	0.45
1:P:186:ILE:CG2	1:P:194:ILE:CG2	2.95	0.45
1:P:222:LEU:O	1:P:226:LEU:HG	2.16	0.45
1:T:82:LEU:HG	1:T:106:ILE:CD1	2.47	0.45
1:B:196:ASP:N	1:B:197:PRO:CD	2.80	0.44
1:P:31:LEU:C	1:P:31:LEU:HD22	2.37	0.44
1:P:83:ALA:HA	1:P:103:LEU:CD2	2.47	0.44
1:P:176:ILE:HG21	1:P:210:ALA:HB2	1.99	0.44
1:A:97:GLY:HA2	2:A:303:LFA:H121	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:T:113:MET:SD	1:T:211:LYR:H81	2.57	0.44
1:Y:91:HIS:CD2	1:Y:162:LEU:HD12	2.52	0.44
1:B:106:ILE:HD11	1:B:147:LEU:HD13	2.00	0.44
1:P:40:VAL:N	1:P:41:PRO:HD2	2.32	0.44
1:Y:76:VAL:C	1:Y:79:PRO:HD2	2.38	0.44
1:Y:88:LEU:HD13	1:Y:166:TYR:HA	1.98	0.44
1:B:40:VAL:N	1:B:41:PRO:HD2	2.32	0.44
1:B:186:ILE:CG2	1:B:194:ILE:CG2	2.95	0.44
1:C:13:MET:HG2	1:C:44:ALA:CB	2.47	0.44
1:C:40:VAL:N	1:C:41:PRO:HD2	2.32	0.44
1:A:76:VAL:C	1:A:79:PRO:HD2	2.38	0.44
1:P:196:ASP:N	1:P:197:PRO:CD	2.80	0.44
1:A:83:ALA:HA	1:A:103:LEU:CD2	2.48	0.44
1:T:40:VAL:N	1:T:41:PRO:HD2	2.32	0.44
1:B:13:MET:HG2	1:B:44:ALA:CB	2.47	0.44
1:T:13:MET:HG2	1:T:44:ALA:CB	2.47	0.44
1:T:211:LYR:H9	1:T:211:LYR:C19	2.33	0.44
1:C:82:LEU:HG	1:C:106:ILE:CD1	2.48	0.44
1:C:176:ILE:HG21	1:C:210:ALA:HB2	1.99	0.44
1:C:202:ALA:C	1:C:206:MET:HE3	2.38	0.44
1:P:76:VAL:C	1:P:79:PRO:HD2	2.38	0.44
1:T:79:PRO:HB3	1:T:107:ILE:HD12	2.00	0.44
1:T:88:LEU:HD13	1:T:166:TYR:HA	1.98	0.44
1:B:82:LEU:HD13	1:B:177:TRP:CH2	2.53	0.43
1:P:50:ALA:HA	1:T:132:TRP:HZ2	1.83	0.43
1:Y:82:LEU:HD12	1:Y:82:LEU:HA	1.82	0.43
1:B:146:LEU:HD12	1:B:146:LEU:HA	1.79	0.43
1:Y:83:ALA:HA	1:Y:103:LEU:CD2	2.48	0.43
1:B:76:VAL:C	1:B:79:PRO:HD2	2.38	0.43
1:C:79:PRO:HB3	1:C:107:ILE:HD12	2.00	0.43
1:T:83:ALA:HA	1:T:103:LEU:CD2	2.48	0.43
1:A:76:VAL:O	1:A:79:PRO:HD2	2.19	0.43
1:Y:76:VAL:O	1:Y:79:PRO:HD2	2.19	0.43
1:B:82:LEU:CD1	1:B:177:TRP:HH2	2.29	0.43
1:A:82:LEU:HD12	1:A:82:LEU:HA	1.82	0.43
1:A:91:HIS:NE2	1:A:162:LEU:CB	2.78	0.43
1:C:88:LEU:HD13	1:C:166:TYR:HA	1.99	0.43
1:P:106:ILE:HD11	1:P:147:LEU:HD13	2.01	0.43
1:A:31:LEU:C	1:A:31:LEU:HD22	2.39	0.43
1:B:222:LEU:O	1:B:226:LEU:HG	2.18	0.43
1:C:83:ALA:HA	1:C:103:LEU:HD21	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:196:ASP:N	1:C:197:PRO:CD	2.80	0.43
1:A:91:HIS:CD2	1:A:162:LEU:HD12	2.54	0.43
1:Y:162:LEU:HD23	1:Y:225:ALA:CB	2.45	0.43
1:C:76:VAL:C	1:C:79:PRO:HD2	2.38	0.43
1:A:6:PHE:CB	1:A:52:THR:HG22	2.47	0.43
1:A:141:LEU:HD12	1:A:141:LEU:HA	1.83	0.43
1:T:76:VAL:C	1:T:79:PRO:HD2	2.38	0.43
1:T:76:VAL:O	1:T:79:PRO:HD2	2.19	0.43
1:T:176:ILE:HG21	1:T:210:ALA:HB2	2.00	0.43
1:P:91:HIS:NE2	1:P:162:LEU:CB	2.81	0.42
1:T:196:ASP:N	1:T:197:PRO:CD	2.80	0.42
1:Y:78:THR:HG22	1:Y:211:LYR:H43	2.00	0.42
1:C:107:ILE:HG21	2:C:401:LFA:H142	2.01	0.42
1:T:207:ASP:O	1:T:211:LYR:HG2	2.20	0.42
1:Y:91:HIS:NE2	1:Y:162:LEU:CB	2.78	0.42
1:B:91:HIS:NE2	1:B:162:LEU:CB	2.81	0.42
1:C:76:VAL:O	1:C:79:PRO:HD2	2.19	0.42
1:P:82:LEU:HD13	1:P:177:TRP:HH2	1.83	0.42
1:C:53:PHE:CG	1:A:128:LEU:CD1	3.01	0.42
1:A:136:SER:OG	1:A:211:LYR:H142	2.19	0.42
1:Y:207:ASP:O	1:Y:211:LYR:HB3	2.19	0.42
2:Y:302:LFA:H41	2:Y:303:LFA:H61	2.01	0.42
1:B:42:PHE:CE2	1:C:109:LEU:HD23	2.55	0.42
1:A:172:PHE:CD1	1:A:172:PHE:C	2.93	0.42
1:Y:141:LEU:HD12	1:Y:141:LEU:HA	1.83	0.42
1:Y:196:ASP:N	1:Y:197:PRO:CD	2.82	0.42
1:A:196:ASP:N	1:A:197:PRO:CD	2.81	0.42
1:A:204:LEU:C	1:A:204:LEU:CD2	2.88	0.42
1:P:146:LEU:HD12	1:P:146:LEU:HA	1.78	0.42
1:T:146:LEU:HD12	1:T:146:LEU:HA	1.79	0.42
1:B:6:PHE:CB	1:B:52:THR:HG22	2.47	0.42
1:B:50:ALA:HA	1:C:132:TRP:HZ2	1.85	0.42
1:C:83:ALA:HA	1:C:103:LEU:CD2	2.50	0.42
1:Y:6:PHE:CB	1:Y:52:THR:HG22	2.48	0.42
1:Y:172:PHE:CD1	1:Y:172:PHE:C	2.93	0.42
1:P:6:PHE:CB	1:P:52:THR:HG22	2.47	0.42
1:T:40:VAL:HG12	1:T:211:LYR:HD2	2.00	0.42
1:Y:87:LEU:HD12	1:Y:87:LEU:HA	1.78	0.42
1:B:31:LEU:C	1:B:31:LEU:HD22	2.39	0.41
1:B:112:LEU:HD12	1:B:112:LEU:HA	1.78	0.41
1:C:188:PRO:HG3	1:C:196:ASP:HA	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:208:VAL:O	1:C:212:VAL:HB	2.21	0.41
1:T:172:PHE:CD1	1:T:172:PHE:C	2.93	0.41
1:A:147:LEU:HD12	1:A:147:LEU:HA	1.87	0.41
1:T:82:LEU:HG	1:T:106:ILE:HD12	2.01	0.41
1:Y:204:LEU:C	1:Y:204:LEU:CD2	2.89	0.41
1:C:172:PHE:CD1	1:C:172:PHE:C	2.94	0.41
1:A:87:LEU:HA	1:A:87:LEU:HD12	1.79	0.41
1:A:90:PHE:CE2	1:A:154:MET:HE1	2.55	0.41
1:T:47:ALA:O	1:T:50:ALA:HB3	2.20	0.41
1:B:76:VAL:O	1:B:79:PRO:HD2	2.20	0.41
1:B:173:LEU:HD22	1:B:173:LEU:HA	1.89	0.41
1:C:47:ALA:O	1:C:50:ALA:HB3	2.20	0.41
1:Y:47:ALA:O	1:Y:50:ALA:HB3	2.20	0.41
1:Y:147:LEU:HD12	1:Y:147:LEU:HA	1.87	0.41
1:B:82:LEU:HD13	1:B:177:TRP:HH2	1.85	0.41
1:C:211:LYR:H192	1:C:211:LYR:C9	2.29	0.41
1:A:47:ALA:O	1:A:50:ALA:HB3	2.21	0.41
1:P:112:LEU:HD12	1:P:112:LEU:HA	1.77	0.41
1:T:176:ILE:HD12	1:T:209:LEU:CB	2.51	0.41
1:Y:178:PHE:C	1:Y:181:PRO:HD2	2.41	0.41
1:C:31:LEU:C	1:C:31:LEU:HD22	2.41	0.41
2:A:302:LFA:H41	2:A:303:LFA:H61	2.02	0.41
1:T:113:MET:CE	1:T:211:LYR:H81	2.50	0.41
1:P:158:ARG:HG3	1:P:158:ARG:HH11	1.86	0.41
1:P:173:LEU:HD22	1:P:173:LEU:HA	1.89	0.41
1:P:188:PRO:HG3	1:P:196:ASP:HA	2.02	0.41
1:Y:33:HIS:NE2	1:Y:92:GLU:OE1	2.34	0.41
1:Y:146:LEU:O	1:Y:151:LEU:HB2	2.21	0.41
1:B:172:PHE:CD1	1:B:172:PHE:C	2.94	0.41
1:B:211:LYR:H6	1:B:211:LYR:H41	1.91	0.41
1:C:183:VAL:HG21	1:C:206:MET:HE1	1.97	0.41
1:C:211:LYR:C9	1:C:211:LYR:H183	2.51	0.41
1:P:13:MET:CG	1:P:44:ALA:HB3	2.49	0.41
1:P:47:ALA:O	1:P:50:ALA:HB3	2.21	0.41
1:T:91:HIS:NE2	1:T:162:LEU:CB	2.82	0.41
1:T:146:LEU:O	1:T:151:LEU:HB2	2.21	0.41
1:T:180:TYR:CG	1:T:211:LYR:H7	2.56	0.41
1:A:100:GLY:HA3	2:A:303:LFA:C12	2.51	0.41
1:C:82:LEU:HG	1:C:106:ILE:HD12	2.03	0.40
1:C:91:HIS:NE2	1:C:162:LEU:CB	2.82	0.40
1:P:76:VAL:O	1:P:79:PRO:HD2	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:P:302:LFA:H81	2:T:401:LFA:H131	2.03	0.40
1:T:66:THR:HG21	1:T:122:LEU:CD2	2.52	0.40
1:B:146:LEU:O	1:B:151:LEU:HB2	2.21	0.40
1:P:146:LEU:O	1:P:151:LEU:HB2	2.21	0.40
1:T:31:LEU:C	1:T:31:LEU:HD22	2.42	0.40
1:T:107:ILE:HG21	2:T:401:LFA:H142	2.03	0.40
1:A:146:LEU:O	1:A:151:LEU:HB2	2.22	0.40
1:Y:78:THR:HG22	1:Y:211:LYR:C4	2.52	0.40
1:B:158:ARG:HG3	1:B:158:ARG:HH11	1.87	0.40
1:C:82:LEU:HD12	1:C:82:LEU:HA	1.80	0.40
1:A:176:ILE:CD1	1:A:209:LEU:HD13	2.51	0.40
1:B:47:ALA:O	1:B:50:ALA:HB3	2.21	0.40
1:C:66:THR:HG21	1:C:122:LEU:CD2	2.52	0.40
1:C:146:LEU:O	1:C:151:LEU:HB2	2.21	0.40
1:A:33:HIS:NE2	1:A:92:GLU:OE1	2.34	0.40
1:T:211:LYR:H81	1:T:211:LYR:H10	1.96	0.40
1:Y:100:GLY:HA3	2:Y:303:LFA:C12	2.52	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	219/239 (92%)	213 (97%)	4 (2%)	2 (1%)	17	46
1	B	225/239 (94%)	221 (98%)	2 (1%)	2 (1%)	17	46
1	C	224/239 (94%)	219 (98%)	3 (1%)	2 (1%)	17	46
1	P	225/239 (94%)	220 (98%)	3 (1%)	2 (1%)	17	46
1	T	224/239 (94%)	218 (97%)	4 (2%)	2 (1%)	17	46
1	Y	220/239 (92%)	216 (98%)	2 (1%)	2 (1%)	17	46
All	All	1337/1434 (93%)	1307 (98%)	18 (1%)	12 (1%)	17	46

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	28	SER
1	B	149	VAL
1	C	28	SER
1	C	149	VAL
1	A	28	SER
1	A	149	VAL
1	P	28	SER
1	P	149	VAL
1	T	28	SER
1	T	149	VAL
1	Y	28	SER
1	Y	149	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	163/191 (85%)	133 (82%)	30 (18%)	1	5
1	B	166/191 (87%)	139 (84%)	27 (16%)	2	7
1	C	165/191 (86%)	135 (82%)	30 (18%)	1	5
1	P	166/191 (87%)	137 (82%)	29 (18%)	2	6
1	T	164/191 (86%)	135 (82%)	29 (18%)	2	5
1	Y	164/191 (86%)	133 (81%)	31 (19%)	1	5
All	All	988/1146 (86%)	812 (82%)	176 (18%)	2	5

All (176) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	7	LEU
1	B	17	SER
1	B	26	LYS
1	B	31	LEU
1	B	52	THR

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Mol	Chain	Res	Type
1	B	70	ARG
1	B	87	LEU
1	B	88	LEU
1	B	93	ARG
1	B	99	VAL
1	B	106	ILE
1	B	107	ILE
1	B	112	LEU
1	B	141	LEU
1	B	146	LEU
1	B	147	LEU
1	B	157	GLU
1	B	162	LEU
1	B	173	LEU
1	B	178	PHE
1	B	185	LEU
1	B	186	ILE
1	B	196	ASP
1	B	198	THR
1	B	203	ILE
1	B	204	LEU
1	B	222	LEU
1	C	12	ILE
1	C	17	SER
1	C	18	LEU
1	C	27	THR
1	C	31	LEU
1	C	52	THR
1	C	57	THR
1	C	65	VAL
1	C	66	THR
1	C	70	ARG
1	C	82	LEU
1	C	87	LEU
1	C	88	LEU
1	C	99	VAL
1	C	106	ILE
1	C	107	ILE
1	C	112	LEU
1	C	129	LYS
1	C	141	LEU
1	C	146	LEU

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Mol	Chain	Res	Type
1	C	147	LEU
1	C	152	ARG
1	C	162	LEU
1	C	173	LEU
1	C	178	PHE
1	C	186	ILE
1	C	194	ILE
1	C	203	ILE
1	C	204	LEU
1	C	228	HIS
1	A	2	ASP
1	A	7	LEU
1	A	17	SER
1	A	18	LEU
1	A	31	LEU
1	A	52	THR
1	A	59	VAL
1	A	66	THR
1	A	70	ARG
1	A	82	LEU
1	A	84	SER
1	A	87	LEU
1	A	88	LEU
1	A	99	VAL
1	A	106	ILE
1	A	112	LEU
1	A	124	VAL
1	A	128	LEU
1	A	141	LEU
1	A	147	LEU
1	A	158	ARG
1	A	162	LEU
1	A	164	THR
1	A	178	PHE
1	A	195	SER
1	A	196	ASP
1	A	203	ILE
1	A	204	LEU
1	A	222	LEU
1	A	224	THR
1	P	7	LEU
1	P	17	SER

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Mol	Chain	Res	Type
1	P	26	LYS
1	P	27	THR
1	P	31	LEU
1	P	52	THR
1	P	70	ARG
1	P	87	LEU
1	P	88	LEU
1	P	93	ARG
1	P	99	VAL
1	P	106	ILE
1	P	107	ILE
1	P	112	LEU
1	P	141	LEU
1	P	146	LEU
1	P	147	LEU
1	P	157	GLU
1	P	162	LEU
1	P	164	THR
1	P	173	LEU
1	P	178	PHE
1	P	185	LEU
1	P	186	ILE
1	P	196	ASP
1	P	198	THR
1	P	203	ILE
1	P	204	LEU
1	P	222	LEU
1	T	12	ILE
1	T	17	SER
1	T	18	LEU
1	T	27	THR
1	T	31	LEU
1	T	52	THR
1	T	57	THR
1	T	65	VAL
1	T	66	THR
1	T	82	LEU
1	T	87	LEU
1	T	88	LEU
1	T	99	VAL
1	T	106	ILE
1	T	107	ILE

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Mol	Chain	Res	Type
1	T	112	LEU
1	T	129	LYS
1	T	141	LEU
1	T	146	LEU
1	T	147	LEU
1	T	152	ARG
1	T	162	LEU
1	T	173	LEU
1	T	178	PHE
1	T	186	ILE
1	T	194	ILE
1	T	203	ILE
1	T	204	LEU
1	T	228	HIS
1	Y	2	ASP
1	Y	7	LEU
1	Y	17	SER
1	Y	18	LEU
1	Y	31	LEU
1	Y	52	THR
1	Y	59	VAL
1	Y	66	THR
1	Y	70	ARG
1	Y	82	LEU
1	Y	84	SER
1	Y	87	LEU
1	Y	88	LEU
1	Y	99	VAL
1	Y	106	ILE
1	Y	112	LEU
1	Y	124	VAL
1	Y	128	LEU
1	Y	141	LEU
1	Y	147	LEU
1	Y	158	ARG
1	Y	160	GLU
1	Y	162	LEU
1	Y	164	THR
1	Y	178	PHE
1	Y	195	SER
1	Y	196	ASP
1	Y	198	THR

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Mol	Chain	Res	Type
1	Y	203	ILE
1	Y	204	LEU
1	Y	222	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	91	HIS
1	C	91	HIS
1	C	167	GLN
1	A	91	HIS
1	A	167	GLN
1	P	91	HIS
1	T	91	HIS
1	T	167	GLN
1	Y	91	HIS

5.3.3　RNA ⓘ

There are no RNA molecules in this entry.

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

6 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
1	LYR	T	211	1	27,29,30	1.25	2 (7%)	30,37,39	1.03	1 (3%)
1	LYR	P	211	1	27,29,30	1.25	2 (7%)	30,37,39	1.07	2 (6%)
1	LYR	B	211	1	27,29,30	1.25	2 (7%)	30,37,39	1.07	2 (6%)
1	LYR	C	211	1	27,29,30	1.27	2 (7%)	30,37,39	1.02	2 (6%)
1	LYR	Y	211	1	27,29,30	1.26	2 (7%)	30,37,39	1.06	3 (10%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	LYR	A	211	1	27,29,30	1.27	2 (7%)	30,37,39	1.06	3 (10%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	LYR	T	211	1	-	6/22/40/42	0/1/1/1
1	LYR	P	211	1	-	2/22/40/42	0/1/1/1
1	LYR	B	211	1	-	4/22/40/42	0/1/1/1
1	LYR	C	211	1	-	2/22/40/42	0/1/1/1
1	LYR	Y	211	1	-	4/22/40/42	0/1/1/1
1	LYR	A	211	1	-	5/22/40/42	0/1/1/1

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	P	211	LYR	C7-C80	3.97	1.41	1.35
1	A	211	LYR	C7-C80	3.96	1.41	1.35
1	Y	211	LYR	C7-C80	3.94	1.41	1.35
1	C	211	LYR	C7-C80	3.90	1.41	1.35
1	B	211	LYR	C7-C80	3.87	1.40	1.35
1	T	211	LYR	C7-C80	3.78	1.40	1.35
1	C	211	LYR	C9-C80	-2.89	1.39	1.45
1	T	211	LYR	C9-C80	-2.85	1.39	1.45
1	Y	211	LYR	C9-C80	-2.82	1.39	1.45
1	A	211	LYR	C9-C80	-2.82	1.39	1.45
1	B	211	LYR	C9-C80	-2.82	1.39	1.45
1	P	211	LYR	C9-C80	-2.73	1.40	1.45

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	211	LYR	C8-C80-C7	-3.89	117.48	122.92
1	P	211	LYR	C8-C80-C7	-3.82	117.57	122.92
1	T	211	LYR	C8-C80-C7	-3.78	117.62	122.92
1	Y	211	LYR	C8-C80-C7	-3.70	117.73	122.92
1	C	211	LYR	C8-C80-C7	-3.66	117.79	122.92
1	A	211	LYR	C8-C80-C7	-3.65	117.81	122.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	211	LYR	C8-C80-C9	2.77	122.44	118.08
1	P	211	LYR	C8-C80-C9	2.47	121.96	118.08
1	C	211	LYR	C8-C80-C9	2.36	121.80	118.08
1	Y	211	LYR	C8-C80-C9	2.30	121.71	118.08
1	A	211	LYR	C8-C80-C9	2.24	121.61	118.08
1	Y	211	LYR	C16-C17-C11	2.12	113.75	110.48
1	A	211	LYR	C16-C17-C11	2.07	113.67	110.48

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	211	LYR	O-C-CA-CB
1	Y	211	LYR	C-CA-CB-CG
1	T	211	LYR	C2-C1-NZ-CE
1	A	211	LYR	C2-C1-NZ-CE
1	T	211	LYR	CG-CD-CE-NZ
1	Y	211	LYR	CG-CD-CE-NZ
1	C	211	LYR	C2-C1-NZ-CE
1	B	211	LYR	CE-CD-CG-CB
1	P	211	LYR	C2-C1-NZ-CE
1	T	211	LYR	C3-C5-C6-C7
1	Y	211	LYR	C2-C1-NZ-CE
1	B	211	LYR	N-CA-CB-CG
1	A	211	LYR	CG-CD-CE-NZ
1	C	211	LYR	CD-CE-NZ-C1
1	T	211	LYR	CD-CE-NZ-C1
1	Y	211	LYR	CD-CE-NZ-C1
1	B	211	LYR	C2-C1-NZ-CE
1	B	211	LYR	CD-CE-NZ-C1
1	P	211	LYR	CD-CE-NZ-C1
1	T	211	LYR	C9-C10-C11-C12
1	T	211	LYR	C9-C10-C11-C17
1	A	211	LYR	CD-CE-NZ-C1
1	A	211	LYR	CE-CD-CG-CB

There are no ring outliers.

6 monomers are involved in 47 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	T	211	LYR	15	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	P	211	LYR	4	0
1	B	211	LYR	6	0
1	C	211	LYR	4	0
1	Y	211	LYR	11	0
1	A	211	LYR	7	0

5.5　Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6　Ligand geometry ⓘ

12 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	LFA	A	302	-	9,9,19	0.11	0	8,8,18	0.09	0
2	LFA	P	302	-	11,11,19	0.10	0	10,10,18	0.07	0
2	LFA	A	301	-	13,13,19	0.09	0	12,12,18	0.07	0
2	LFA	B	301	-	9,9,19	0.09	0	8,8,18	0.08	0
2	LFA	Y	301	-	13,13,19	0.09	0	12,12,18	0.07	0
2	LFA	A	303	-	14,14,19	0.09	0	13,13,18	0.05	0
2	LFA	Y	303	-	14,14,19	0.08	0	13,13,18	0.07	0
2	LFA	B	302	-	11,11,19	0.11	0	10,10,18	0.07	0
2	LFA	P	301	-	9,9,19	0.10	0	8,8,18	0.08	0
2	LFA	T	401	-	19,19,19	0.07	0	18,18,18	0.04	0
2	LFA	C	401	-	19,19,19	0.07	0	18,18,18	0.05	0
2	LFA	Y	302	-	9,9,19	0.11	0	8,8,18	0.08	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
2	LFA	A	302	-	-	4/7/7/17	-
2	LFA	P	302	-	-	6/9/9/17	-
2	LFA	A	301	-	-	4/11/11/17	-
2	LFA	B	301	-	-	2/7/7/17	-
2	LFA	Y	301	-	-	4/11/11/17	-
2	LFA	A	303	-	-	5/12/12/17	-
2	LFA	Y	303	-	-	5/12/12/17	-
2	LFA	B	302	-	-	7/9/9/17	-
2	LFA	P	301	-	-	2/7/7/17	-
2	LFA	T	401	-	-	9/17/17/17	-
2	LFA	C	401	-	-	9/17/17/17	-
2	LFA	Y	302	-	-	4/7/7/17	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (61) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	401	LFA	C2-C3-C4-C5
2	T	401	LFA	C2-C3-C4-C5
2	T	401	LFA	C11-C12-C13-C14
2	C	401	LFA	C11-C12-C13-C14
2	C	401	LFA	C6-C7-C8-C9
2	C	401	LFA	C7-C8-C9-C10
2	T	401	LFA	C6-C7-C8-C9
2	T	401	LFA	C7-C8-C9-C10
2	A	302	LFA	C4-C5-C6-C7
2	Y	302	LFA	C4-C5-C6-C7
2	A	301	LFA	C9-C10-C11-C12
2	Y	301	LFA	C9-C10-C11-C12
2	C	401	LFA	C15-C16-C17-C18
2	T	401	LFA	C15-C16-C17-C18
2	A	301	LFA	C11-C10-C9-C8
2	Y	301	LFA	C11-C10-C9-C8
2	Y	302	LFA	C2-C3-C4-C5
2	A	302	LFA	C2-C3-C4-C5
2	B	301	LFA	C15-C16-C17-C18
2	Y	303	LFA	C3-C4-C5-C6

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Mol	Chain	Res	Type	Atoms
2	C	401	LFA	C17-C18-C19-C20
2	A	303	LFA	C3-C4-C5-C6
2	Y	301	LFA	C7-C8-C9-C10
2	T	401	LFA	C17-C18-C19-C20
2	B	302	LFA	C5-C6-C7-C8
2	P	301	LFA	C15-C16-C17-C18
2	A	301	LFA	C7-C8-C9-C10
2	P	302	LFA	C5-C6-C7-C8
2	P	302	LFA	C1-C2-C3-C4
2	Y	301	LFA	C5-C6-C7-C8
2	B	302	LFA	C1-C2-C3-C4
2	C	401	LFA	C3-C4-C5-C6
2	T	401	LFA	C3-C4-C5-C6
2	A	301	LFA	C5-C6-C7-C8
2	Y	303	LFA	C11-C10-C9-C8
2	Y	303	LFA	C2-C3-C4-C5
2	A	303	LFA	C2-C3-C4-C5
2	Y	302	LFA	C5-C6-C7-C8
2	A	303	LFA	C11-C10-C9-C8
2	A	302	LFA	C5-C6-C7-C8
2	P	302	LFA	C4-C5-C6-C7
2	B	302	LFA	C2-C3-C4-C5
2	P	302	LFA	C7-C8-C9-C10
2	B	302	LFA	C4-C5-C6-C7
2	B	302	LFA	C7-C8-C9-C10
2	P	302	LFA	C2-C3-C4-C5
2	C	401	LFA	C12-C13-C14-C15
2	P	301	LFA	C14-C15-C16-C17
2	Y	303	LFA	C4-C5-C6-C7
2	A	303	LFA	C7-C8-C9-C10
2	A	303	LFA	C4-C5-C6-C7
2	B	301	LFA	C14-C15-C16-C17
2	C	401	LFA	C4-C5-C6-C7
2	T	401	LFA	C12-C13-C14-C15
2	B	302	LFA	C9-C10-C11-C12
2	P	302	LFA	C6-C7-C8-C9
2	B	302	LFA	C6-C7-C8-C9
2	Y	303	LFA	C7-C8-C9-C10
2	Y	302	LFA	C1-C2-C3-C4
2	T	401	LFA	C4-C5-C6-C7
2	A	302	LFA	C1-C2-C3-C4

There are no ring outliers.

8 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	302	LFA	1	0
2	P	302	LFA	3	0
2	A	303	LFA	3	0
2	Y	303	LFA	2	0
2	B	302	LFA	2	0
2	T	401	LFA	6	0
2	C	401	LFA	5	0
2	Y	302	LFA	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.

Ligand LFA A 302

Ligand LFA P 302

Ligand LFA A 301

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA B 301

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA Y 301

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA A 303

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA Y 303

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA B 302

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA P 301

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA T 401

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA C 401

Bond lengths

Bond angles

Torsions

Rings

Ligand LFA Y 302

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	223/239 (93%)	-0.29	2 (0%)	84	80	35, 52, 70, 93	0
1	B	227/239 (94%)	-0.25	2 (0%)	84	80	39, 56, 79, 115	0
1	C	226/239 (94%)	-0.25	2 (0%)	84	80	40, 56, 72, 119	0
1	P	227/239 (94%)	-0.21	3 (1%)	77	72	39, 56, 80, 120	0
1	T	226/239 (94%)	-0.26	1 (0%)	92	91	40, 58, 75, 124	0
1	Y	224/239 (93%)	-0.25	2 (0%)	84	80	37, 53, 73, 103	0
All	All	1353/1434 (94%)	-0.25	12 (0%)	84	80	35, 55, 75, 124	0

All (12) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	P	62	ASN	6.5
1	P	229	HIS	4.5
1	Y	59	VAL	4.5
1	B	63	GLY	4.3
1	P	63	GLY	3.9
1	A	59	VAL	3.3
1	C	228	HIS	3.2
1	C	95	ARG	2.6
1	T	228	HIS	2.4
1	B	62	ASN	2.4
1	Y	94	GLY	2.2
1	A	94	GLY	2.0

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

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
1	LYR	B	211	29/30	0.95	0.19	46,54,62,66	0
1	LYR	C	211	29/30	0.95	0.17	50,62,68,72	0
1	LYR	T	211	29/30	0.95	0.20	54,67,80,82	0
1	LYR	Y	211	29/30	0.95	0.25	42,47,54,55	0
1	LYR	A	211	29/30	0.96	0.21	32,37,51,53	0
1	LYR	P	211	29/30	0.96	0.17	51,60,67,68	0

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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
2	LFA	P	301	10/20	0.81	0.25	66,75,83,84	0
2	LFA	P	302	12/20	0.85	0.28	44,71,78,79	0
2	LFA	C	401	20/20	0.88	0.28	55,65,86,86	0
2	LFA	T	401	20/20	0.88	0.25	47,63,73,73	0
2	LFA	A	303	15/20	0.89	0.20	45,57,71,72	0
2	LFA	A	302	10/20	0.90	0.20	38,45,55,56	0
2	LFA	Y	303	15/20	0.90	0.23	39,61,78,82	0
2	LFA	Y	302	10/20	0.91	0.23	51,55,59,60	0
2	LFA	B	302	12/20	0.92	0.23	42,62,66,67	0
2	LFA	A	301	14/20	0.93	0.28	34,46,50,50	0
2	LFA	Y	301	14/20	0.93	0.31	41,44,54,56	0
2	LFA	B	301	10/20	0.94	0.20	60,65,68,69	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 LFA P 301:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
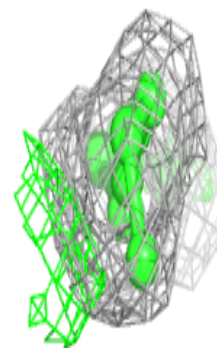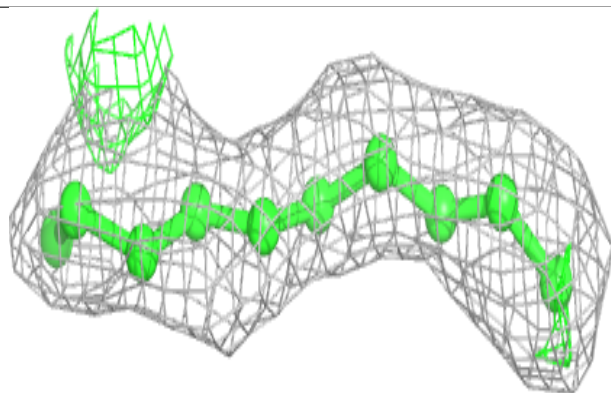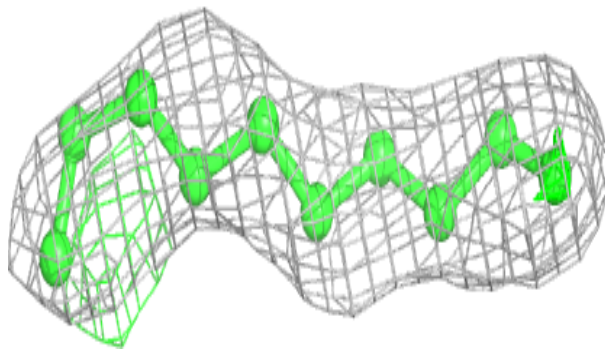
Electron density around LFA P 302:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
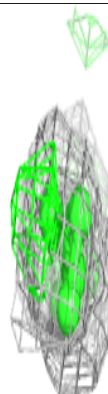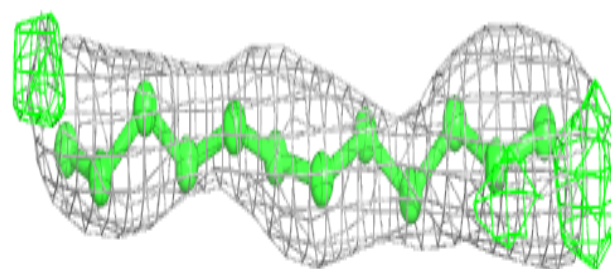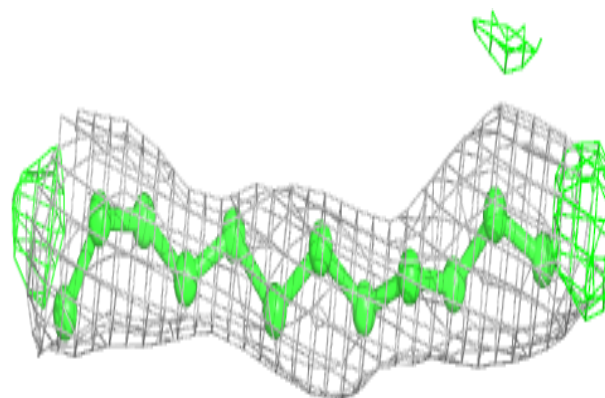
Electron density around LFA C 401:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
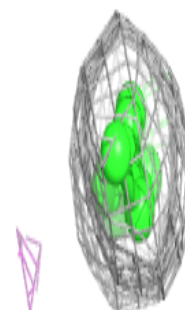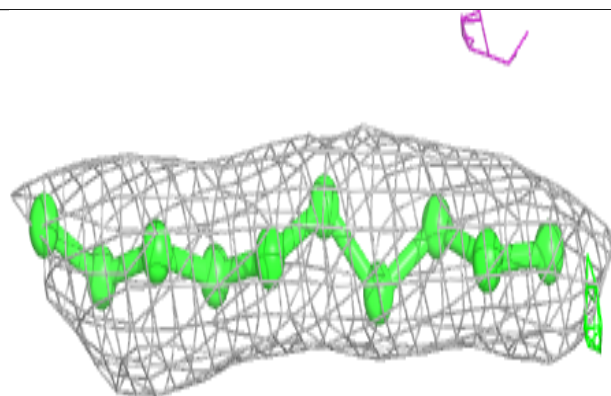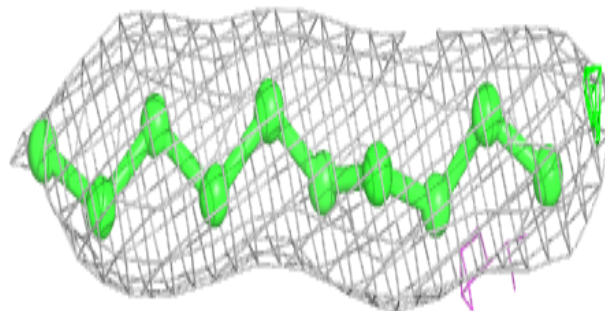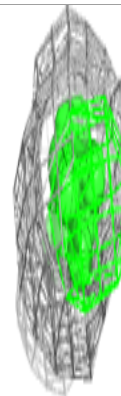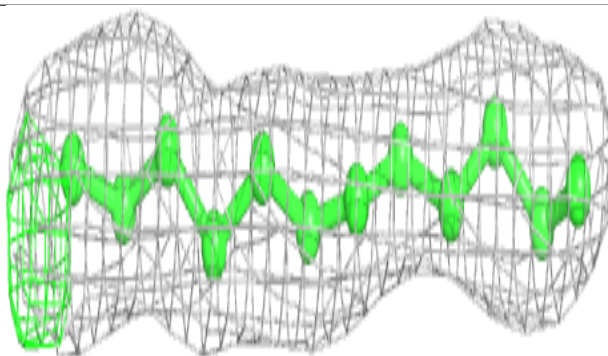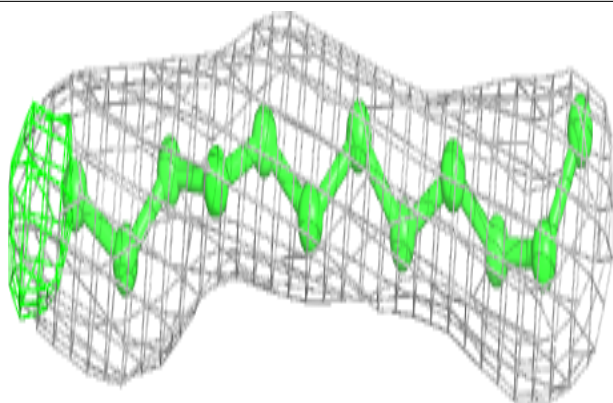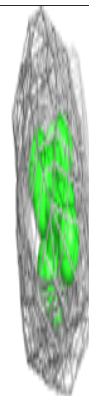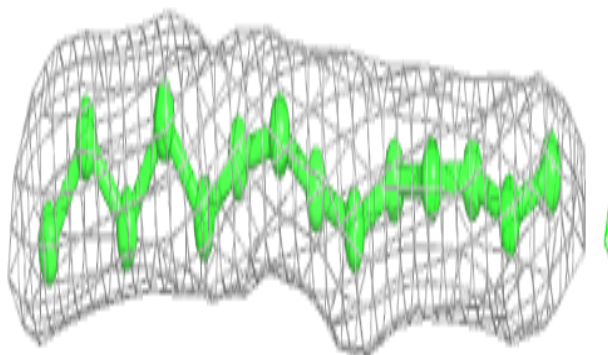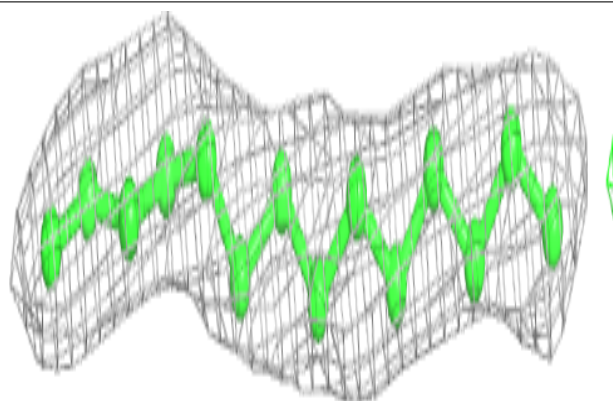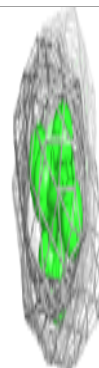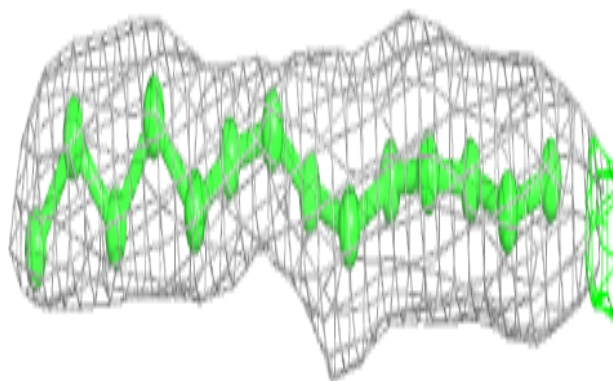mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
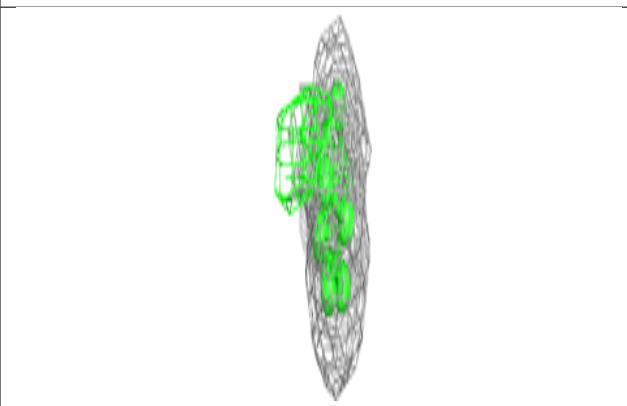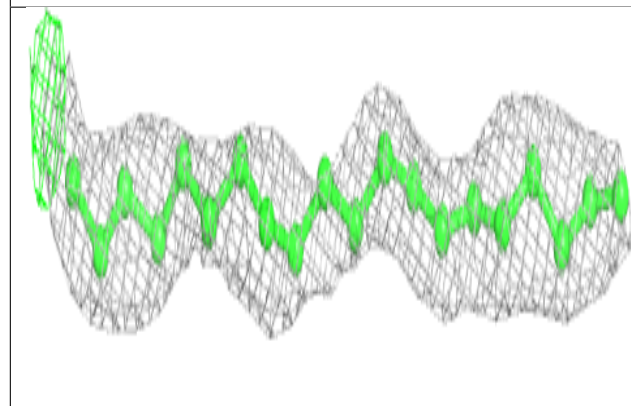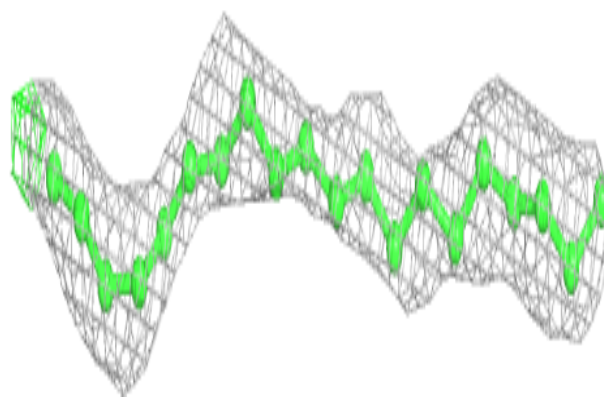
Electron density around LFA T 401:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
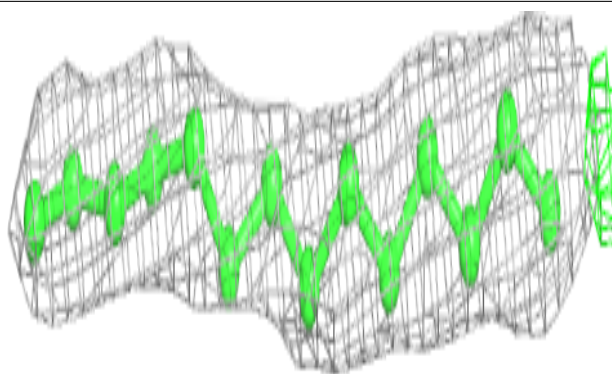and green (positive)
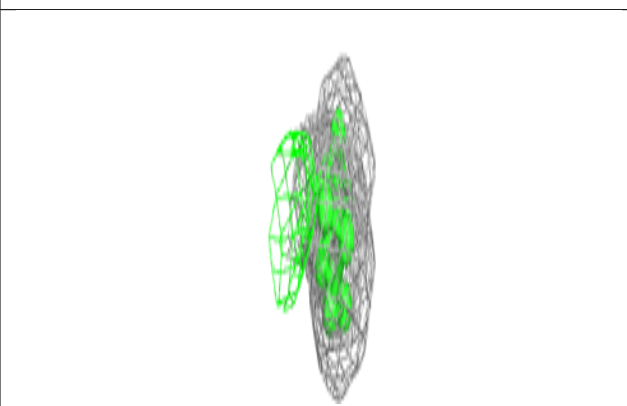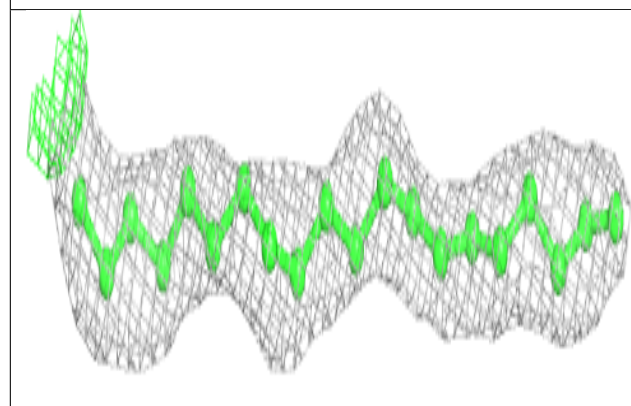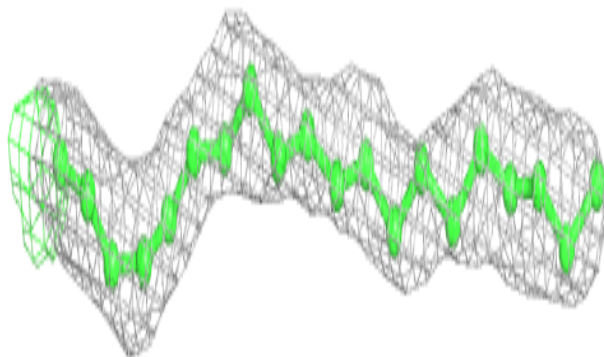
Electron density around LFA A 303:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
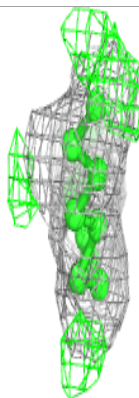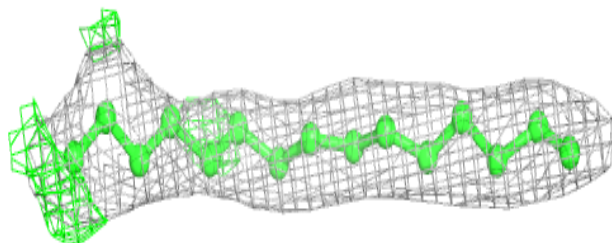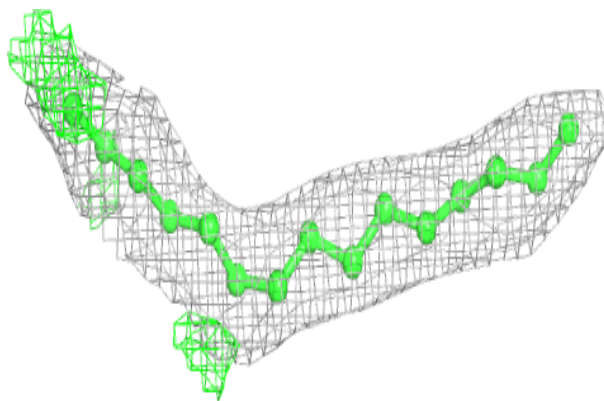
Electron density around LFA A 302:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
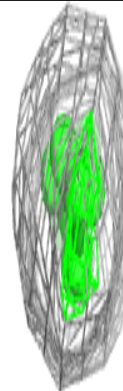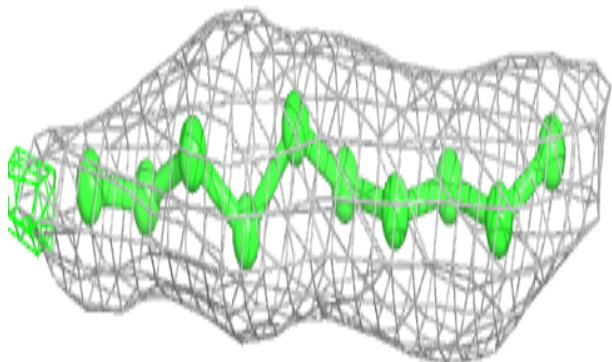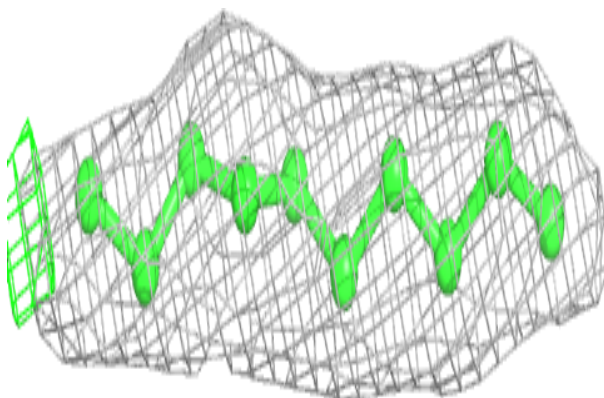
Electron density around LFA Y 303:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
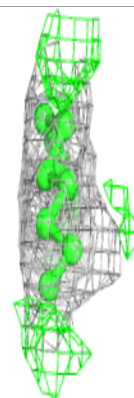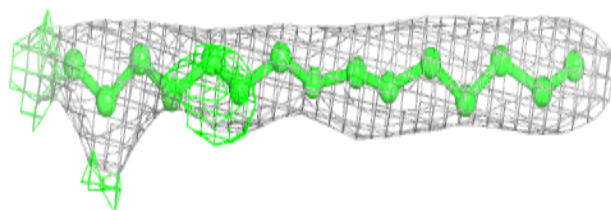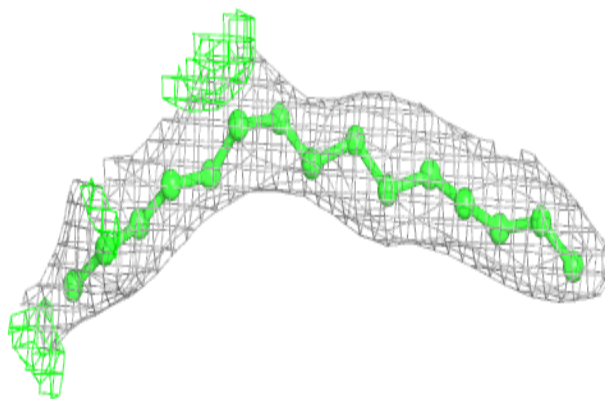
Electron density around LFA Y 302:

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 LFA B 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 LFA A 301:

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

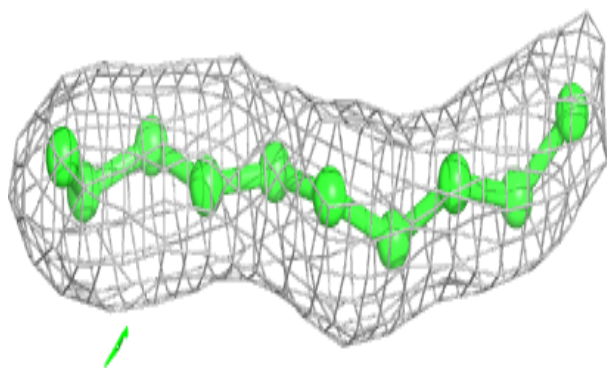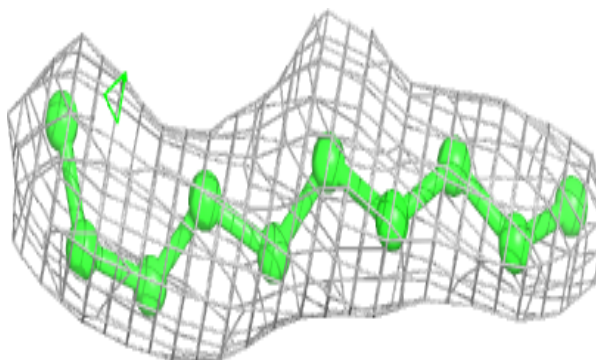**Electron density around LFA Y 301:**

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 LFA B 301:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
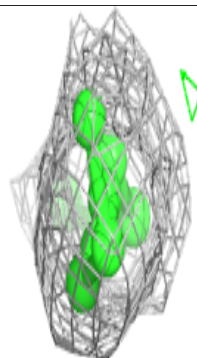
6.5 Other polymers (i)

There are no such residues in this entry.