Full wwPDB EM Validation Report ⓘ

Nov 3, 2024 – 01:51 AM EST

PDB ID	:	7RQZ
EMDB ID	:	EMD-24641
Title	:	Cryo-EM structure of the full-length TRPV1 with RTx at 48 degrees Celsius, in an open state, class alpha
Authors	:	Kwon, D.H.; Suo, Y.; Lee, S.-Y.
Deposited on	:	2021-08-08
Resolution	:	3.32 Å(reported)
Based on initial model	:	7LP9

This is a Full wwPDB EM 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/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

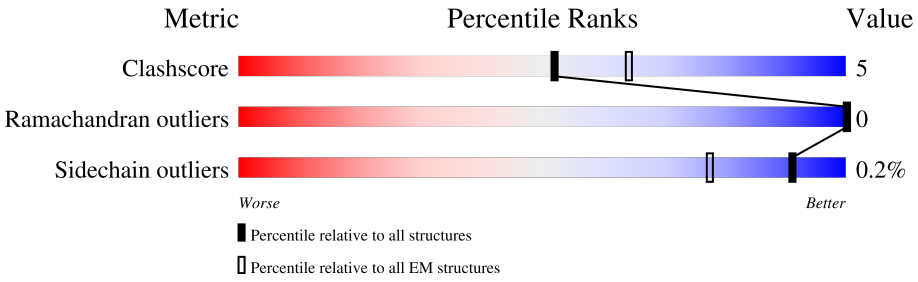
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.32 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	868	26% 53% 8% 39%
1	B	868	26% 54% 8% 39%
1	C	868	26% 53% 8% 39%
1	D	868	26% 54% 7% 39%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 33596 atoms, of which 16464 are hydrogens and 0 are deuteriums.

In the tables below, 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 Transient receptor potential cation channel subfamily V member 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	532	Total	C	H	N	O	S	0	0
			8007	2698	3902	654	731	22		
1	C	532	Total	C	H	N	O	S	0	0
			8007	2698	3902	654	731	22		
1	B	532	Total	C	H	N	O	S	0	0
			8007	2698	3902	654	731	22		
1	D	532	Total	C	H	N	O	S	0	0
			8007	2698	3902	654	731	22		

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	839	GLU	-	expression tag	UNP O35433
A	840	ASN	-	expression tag	UNP O35433
A	841	SER	-	expression tag	UNP O35433
A	842	LEU	-	expression tag	UNP O35433
A	843	GLU	-	expression tag	UNP O35433
A	844	VAL	-	expression tag	UNP O35433
A	845	LEU	-	expression tag	UNP O35433
A	846	PHE	-	expression tag	UNP O35433
A	847	GLN	-	expression tag	UNP O35433
A	848	GLY	-	expression tag	UNP O35433
A	849	PRO	-	expression tag	UNP O35433
A	850	ASP	-	expression tag	UNP O35433
A	851	TYR	-	expression tag	UNP O35433
A	852	LYS	-	expression tag	UNP O35433
A	853	ASP	-	expression tag	UNP O35433
A	854	ASP	-	expression tag	UNP O35433
A	855	ASP	-	expression tag	UNP O35433
A	856	ASP	-	expression tag	UNP O35433
A	857	LYS	-	expression tag	UNP O35433
A	858	ALA	-	expression tag	UNP O35433
A	859	HIS	-	expression tag	UNP O35433

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Chain	Residue	Modelled	Actual	Comment	Reference
A	860	HIS	-	expression tag	UNP O35433
A	861	HIS	-	expression tag	UNP O35433
A	862	HIS	-	expression tag	UNP O35433
A	863	HIS	-	expression tag	UNP O35433
A	864	HIS	-	expression tag	UNP O35433
A	865	HIS	-	expression tag	UNP O35433
A	866	HIS	-	expression tag	UNP O35433
A	867	HIS	-	expression tag	UNP O35433
A	868	HIS	-	expression tag	UNP O35433
C	839	GLU	-	expression tag	UNP O35433
C	840	ASN	-	expression tag	UNP O35433
C	841	SER	-	expression tag	UNP O35433
C	842	LEU	-	expression tag	UNP O35433
C	843	GLU	-	expression tag	UNP O35433
C	844	VAL	-	expression tag	UNP O35433
C	845	LEU	-	expression tag	UNP O35433
C	846	PHE	-	expression tag	UNP O35433
C	847	GLN	-	expression tag	UNP O35433
C	848	GLY	-	expression tag	UNP O35433
C	849	PRO	-	expression tag	UNP O35433
C	850	ASP	-	expression tag	UNP O35433
C	851	TYR	-	expression tag	UNP O35433
C	852	LYS	-	expression tag	UNP O35433
C	853	ASP	-	expression tag	UNP O35433
C	854	ASP	-	expression tag	UNP O35433
C	855	ASP	-	expression tag	UNP O35433
C	856	ASP	-	expression tag	UNP O35433
C	857	LYS	-	expression tag	UNP O35433
C	858	ALA	-	expression tag	UNP O35433
C	859	HIS	-	expression tag	UNP O35433
C	860	HIS	-	expression tag	UNP O35433
C	861	HIS	-	expression tag	UNP O35433
C	862	HIS	-	expression tag	UNP O35433
C	863	HIS	-	expression tag	UNP O35433
C	864	HIS	-	expression tag	UNP O35433
C	865	HIS	-	expression tag	UNP O35433
C	866	HIS	-	expression tag	UNP O35433
C	867	HIS	-	expression tag	UNP O35433
C	868	HIS	-	expression tag	UNP O35433
B	839	GLU	-	expression tag	UNP O35433
B	840	ASN	-	expression tag	UNP O35433
B	841	SER	-	expression tag	UNP O35433

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Chain	Residue	Modelled	Actual	Comment	Reference
B	842	LEU	-	expression tag	UNP O35433
B	843	GLU	-	expression tag	UNP O35433
B	844	VAL	-	expression tag	UNP O35433
B	845	LEU	-	expression tag	UNP O35433
B	846	PHE	-	expression tag	UNP O35433
B	847	GLN	-	expression tag	UNP O35433
B	848	GLY	-	expression tag	UNP O35433
B	849	PRO	-	expression tag	UNP O35433
B	850	ASP	-	expression tag	UNP O35433
B	851	TYR	-	expression tag	UNP O35433
B	852	LYS	-	expression tag	UNP O35433
B	853	ASP	-	expression tag	UNP O35433
B	854	ASP	-	expression tag	UNP O35433
B	855	ASP	-	expression tag	UNP O35433
B	856	ASP	-	expression tag	UNP O35433
B	857	LYS	-	expression tag	UNP O35433
B	858	ALA	-	expression tag	UNP O35433
B	859	HIS	-	expression tag	UNP O35433
B	860	HIS	-	expression tag	UNP O35433
B	861	HIS	-	expression tag	UNP O35433
B	862	HIS	-	expression tag	UNP O35433
B	863	HIS	-	expression tag	UNP O35433
B	864	HIS	-	expression tag	UNP O35433
B	865	HIS	-	expression tag	UNP O35433
B	866	HIS	-	expression tag	UNP O35433
B	867	HIS	-	expression tag	UNP O35433
B	868	HIS	-	expression tag	UNP O35433
D	839	GLU	-	expression tag	UNP O35433
D	840	ASN	-	expression tag	UNP O35433
D	841	SER	-	expression tag	UNP O35433
D	842	LEU	-	expression tag	UNP O35433
D	843	GLU	-	expression tag	UNP O35433
D	844	VAL	-	expression tag	UNP O35433
D	845	LEU	-	expression tag	UNP O35433
D	846	PHE	-	expression tag	UNP O35433
D	847	GLN	-	expression tag	UNP O35433
D	848	GLY	-	expression tag	UNP O35433
D	849	PRO	-	expression tag	UNP O35433
D	850	ASP	-	expression tag	UNP O35433
D	851	TYR	-	expression tag	UNP O35433
D	852	LYS	-	expression tag	UNP O35433
D	853	ASP	-	expression tag	UNP O35433

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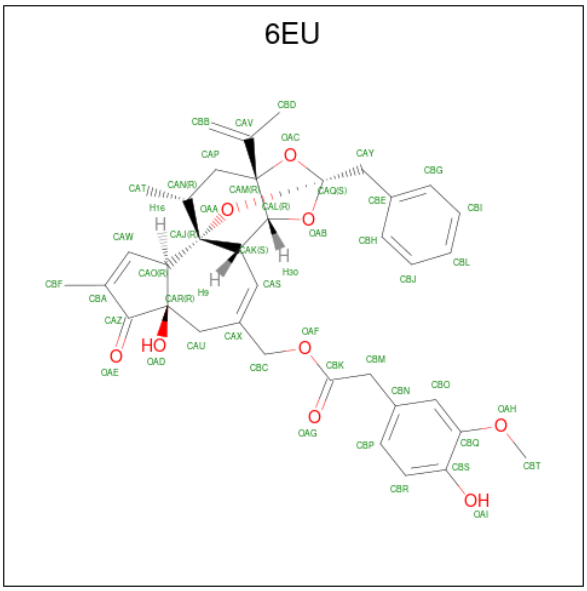
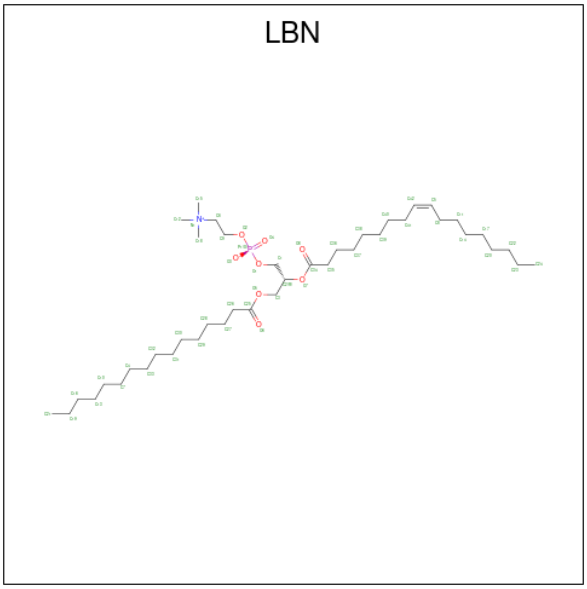
Chain	Residue	Modelled	Actual	Comment	Reference
D	854	ASP	-	expression tag	UNP O35433
D	855	ASP	-	expression tag	UNP O35433
D	856	ASP	-	expression tag	UNP O35433
D	857	LYS	-	expression tag	UNP O35433
D	858	ALA	-	expression tag	UNP O35433
D	859	HIS	-	expression tag	UNP O35433
D	860	HIS	-	expression tag	UNP O35433
D	861	HIS	-	expression tag	UNP O35433
D	862	HIS	-	expression tag	UNP O35433
D	863	HIS	-	expression tag	UNP O35433
D	864	HIS	-	expression tag	UNP O35433
D	865	HIS	-	expression tag	UNP O35433
D	866	HIS	-	expression tag	UNP O35433
D	867	HIS	-	expression tag	UNP O35433
D	868	HIS	-	expression tag	UNP O35433

- Molecule 2 is resiniferatoxin (three-letter code: 6EU) (formula: $C_{37}H_{40}O_9$).



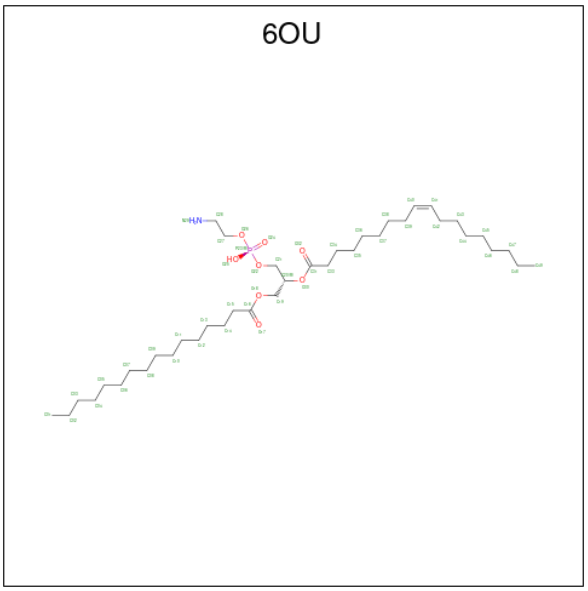
Mol	Chain	Residues	Atoms				AltConf
2	A	1	Total	C	H	O	0
			86	37	40	9	
2	C	1	Total	C	H	O	0
			86	37	40	9	
2	B	1	Total	C	H	O	0
			86	37	40	9	
2	D	1	Total	C	H	O	0
			86	37	40	9	

- Molecule 3 is 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphocholine (three-letter code: LBN) (formula: $C_{42}H_{82}NO_8P$).



Mol	Chain	Residues	Atoms						AltConf
3	A	1	Total	C	H	N	O	P	0
			76	23	43	1	8	1	
3	A	1	Total	C	H	N	O	P	0
			101	32	59	1	8	1	
3	C	1	Total	C	H	N	O	P	0
			76	23	43	1	8	1	
3	C	1	Total	C	H	N	O	P	0
			101	32	59	1	8	1	
3	B	1	Total	C	H	N	O	P	0
			76	23	43	1	8	1	
3	B	1	Total	C	H	N	O	P	0
			101	32	59	1	8	1	
3	D	1	Total	C	H	N	O	P	0
			101	32	59	1	8	1	
3	D	1	Total	C	H	N	O	P	0
			76	23	43	1	8	1	

- Molecule 4 is [(2 {R})-1-[2-azanylethoxy(oxidanyl)phosphoryl]oxy-3-hexadecanoyloxy-propan-2-yl] ({Z})-octadec-9-enoate (three-letter code: 6OU) (formula: $C_{39}H_{76}NO_8P$).



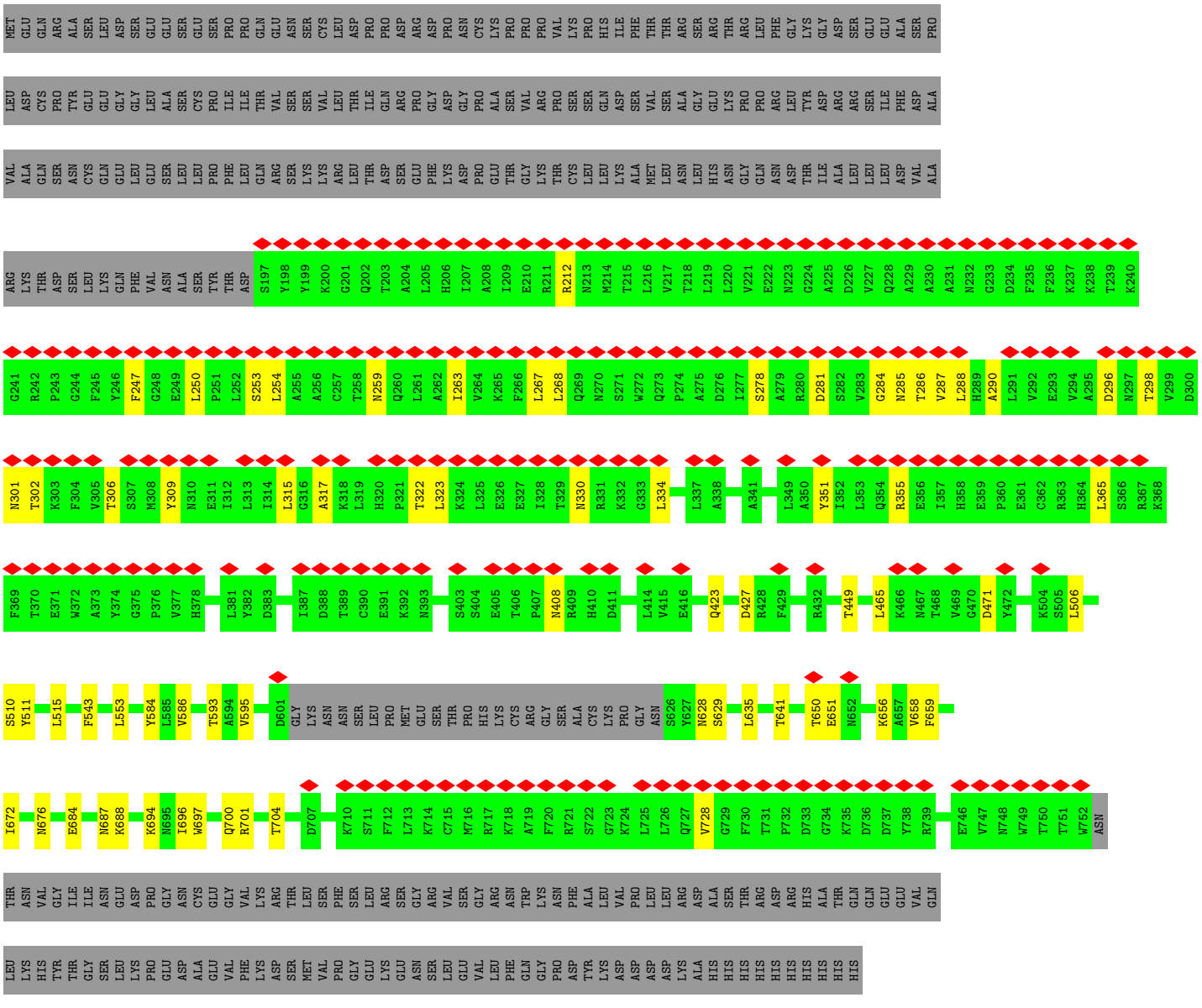
Mol	Chain	Residues	Atoms	AltConf
4	A	1	Total C H O P 71 23 39 8 1	0
4	A	1	Total C H O 58 21 33 4	0
4	C	1	Total C H O P 71 23 39 8 1	0
4	C	1	Total C H O 58 21 33 4	0
4	B	1	Total C H O P 71 23 39 8 1	0
4	B	1	Total C H O 58 21 33 4	0
4	D	1	Total C H O P 71 23 39 8 1	0
4	D	1	Total C H O 58 21 33 4	0

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

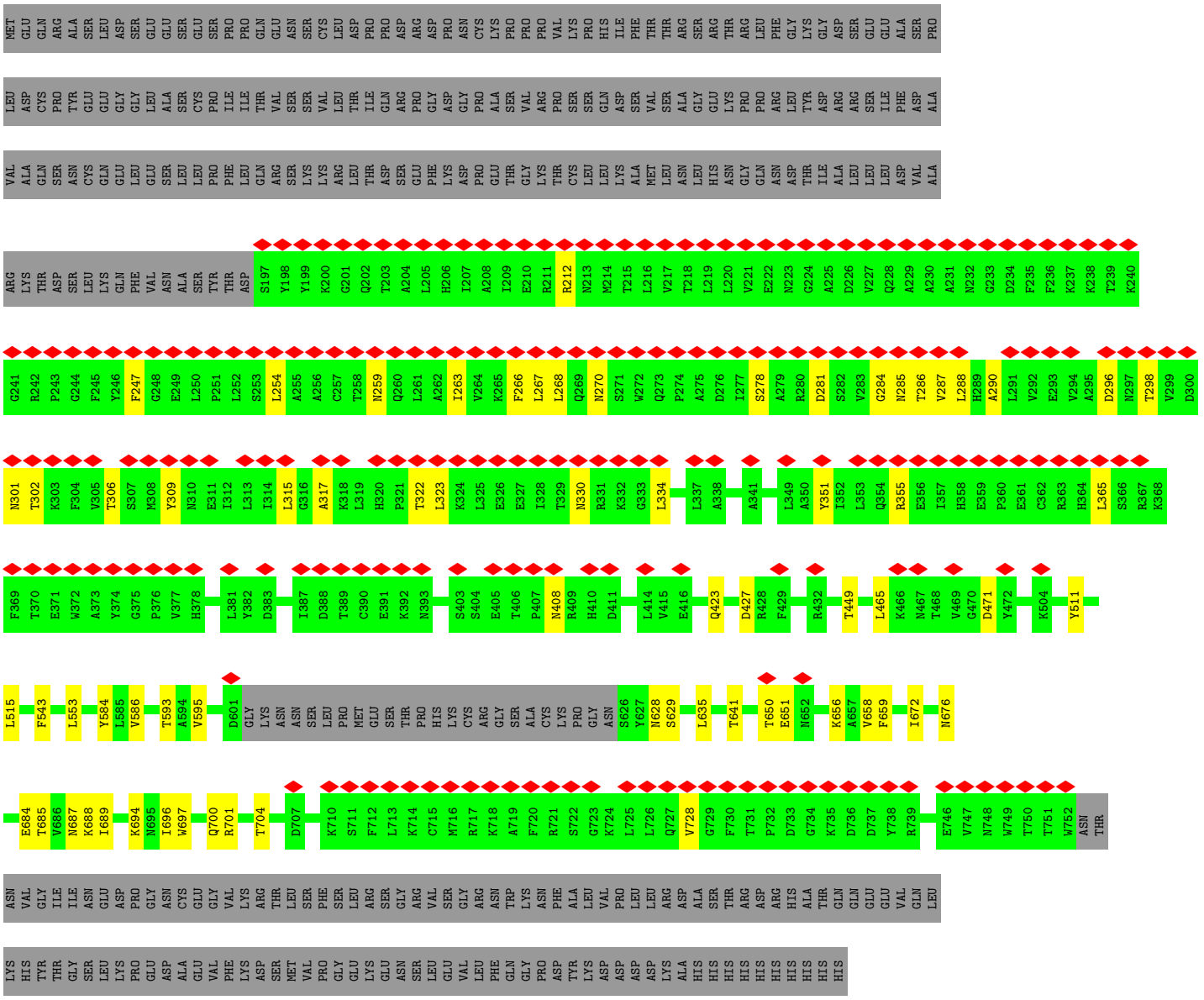
• Molecule 1: Transient receptor potential cation channel subfamily V member 1

Chain A:



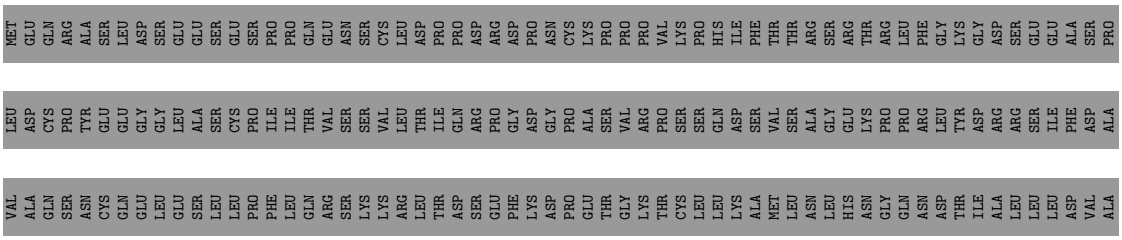
• Molecule 1: Transient receptor potential cation channel subfamily V member 1

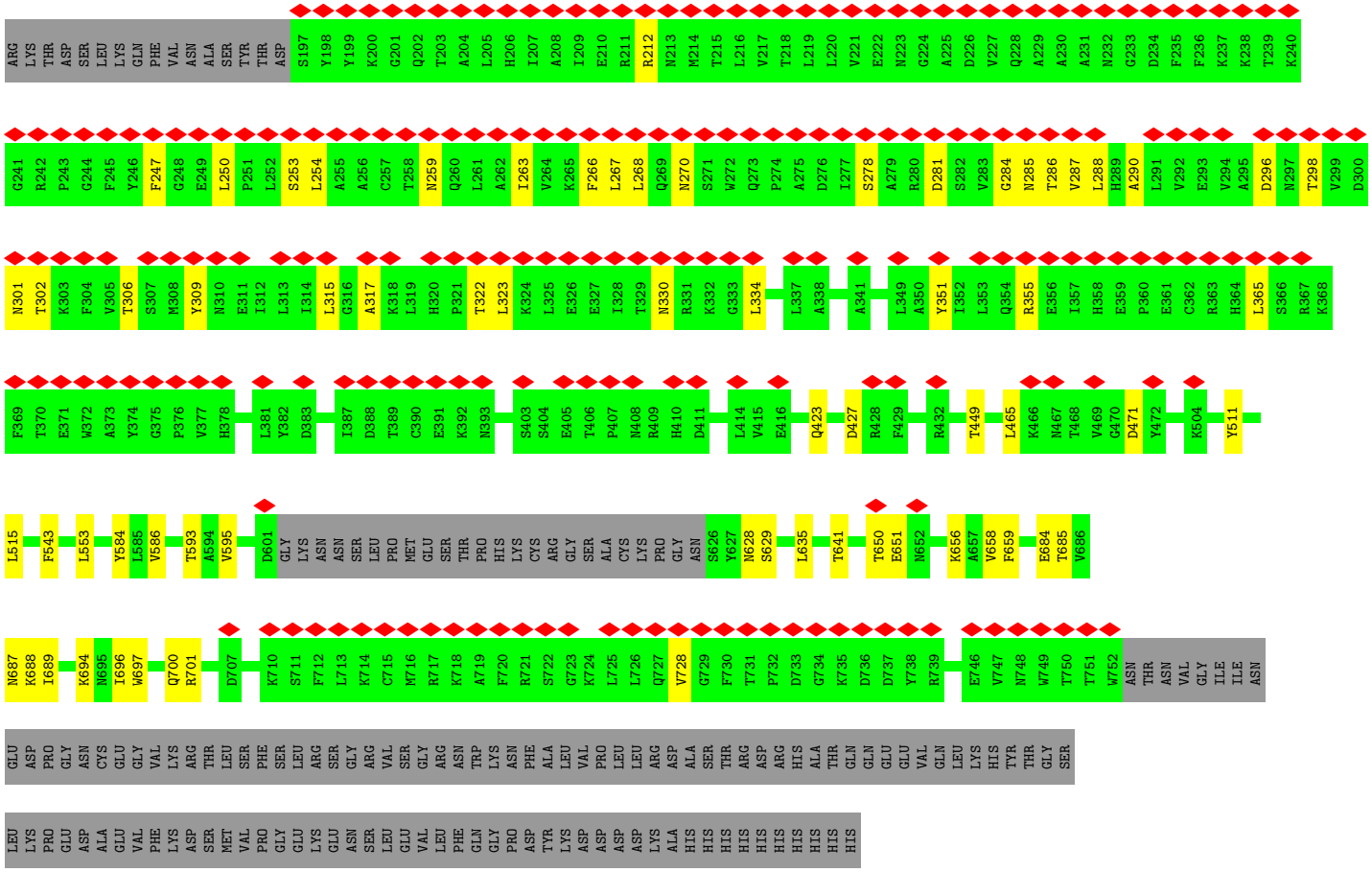
Chain C:



• Molecule 1: Transient receptor potential cation channel subfamily V member 1

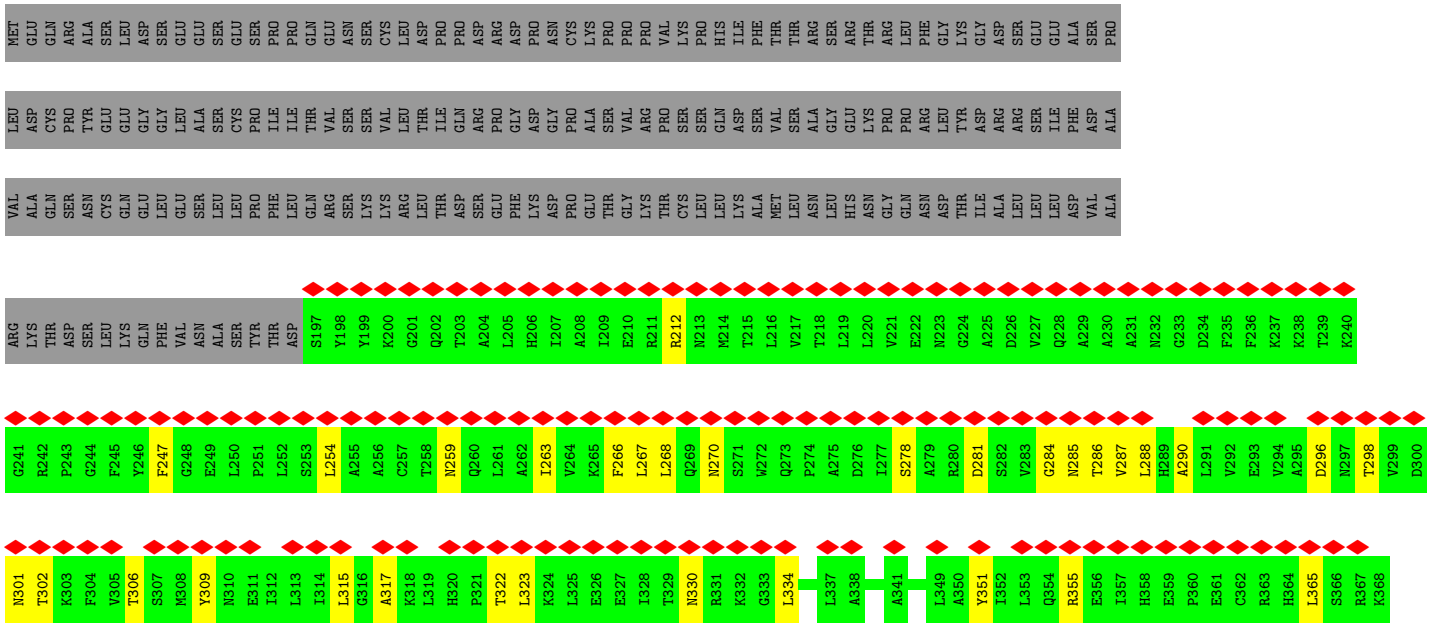
Chain B:

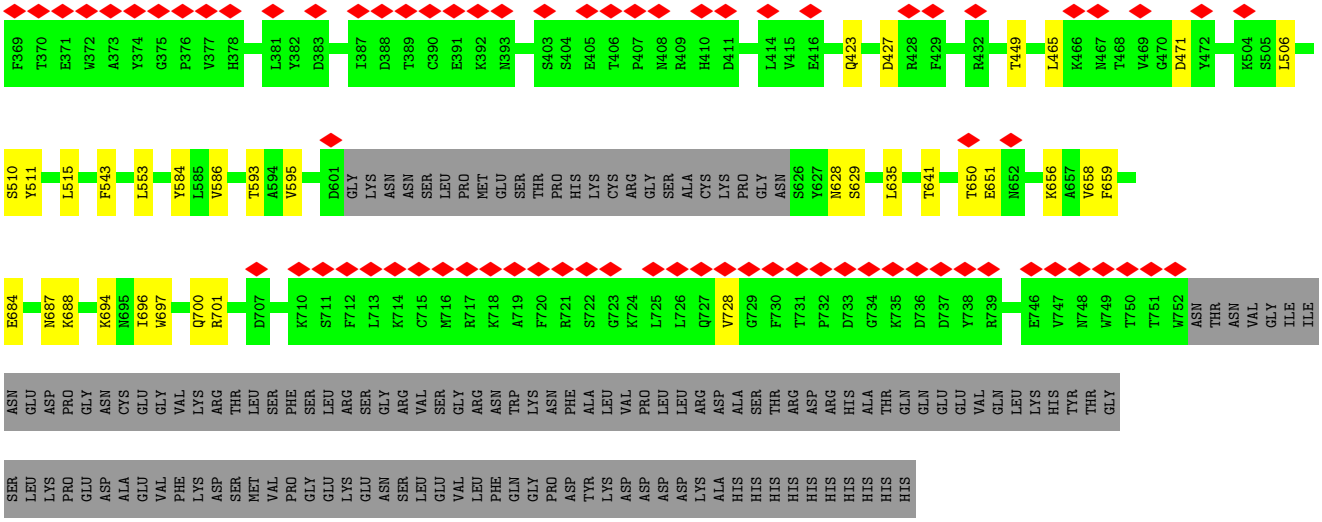




• Molecule 1: Transient receptor potential cation channel subfamily V member 1

Chain D:




F369 T370 E371 W372 A373 Y374 G375 P376 V377 H378 L381 Y382 D383 I387 D388 T389 C390 E391 K392 N393 S403 S404 E405 T406 P407 N408 R409 H410 D411 L414 V415 E416 Q423 D427 R428 F429 R432 T449 L465 K466 N467 T468 V469 G470 D471 Y472 K504 S505 L506
S510 V511 L515 F543 L553 Y584 L585 V586 T593 A594 V595 D601 GLY LYS ASN ASN SER LEU PRO MET GLU SER THR PRO HIS LYS CYS ARG GLY SER ALA CYS LYS PRO GLY ASN S626 Y627 N628 S629 L635 T641 T650 E651 N652 K656 A657 V658 F659
E684 N687 K688 K694 N695 I696 W697 Q700 R701 D707 K710 S711 F712 L713 K714 C715 M716 R717 K718 A719 F720 R721 S722 G723 K724 L725 L726 Q727 V728 G729 F730 T731 P732 D733 G734 K735 D736 D737 Y738 R739 E746 V747 N748 W749 T750 T751 W752 ASN THR ASN VAL GLY ILE ILE
ASN GLU ASP PRO GLY ASN CYS GLU GLY VAL LYS ARG THR LEU SER PHE SER LEU ARG SER GLY ARG VAL SER GLY ARG ASN TRP LYS ASN PHE ALA LEU VAL PRO LEU LEU ARG ASP ALA SER THR ARG ASP ARG HIS ALA THR GLN GLN GLU GLU VAL GLN LEU LYS HIS TYR THR GLY
SER LEU LYS PRO GLU ASP ALA GLU VAL PHE LYS ASP SER MET VAL PRO GLY GLU LYS GLU ASN SER LEU GLU VAL LEU PHE GLN GLY PRO ASP TYR LYS ASP ASP ASP ASP LYS ALA HIS HIS HIS HIS HIS HIS HIS HIS HIS HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	18341	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	44	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.233	Depositor
Minimum map value	-0.160	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.0353	Depositor
Map size (Å)	276.224, 276.224, 276.224	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.079, 1.079, 1.079	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 6OU, LBN, 6EU

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	0.31	0/4203	0.45	0/5719
1	B	0.31	0/4203	0.45	0/5719
1	C	0.31	0/4203	0.45	0/5719
1	D	0.31	0/4203	0.45	0/5719
All	All	0.31	0/16812	0.45	0/22876

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	4105	3902	3959	48	0
1	B	4105	3902	3959	46	0
1	C	4105	3902	3959	48	0
1	D	4105	3902	3959	46	0
2	A	46	40	0	1	0
2	B	46	40	0	1	0
2	C	46	40	0	1	0
2	D	46	40	0	1	0
3	A	75	102	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	75	102	0	0	0
3	C	75	102	0	0	0
3	D	75	102	0	0	0
4	A	57	72	0	1	0
4	B	57	72	0	1	0
4	C	57	72	0	1	0
4	D	57	72	0	1	0
All	All	17132	16464	15836	172	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (172) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:423:GLN:NE2	1:C:427:ASP:OD2	2.07	0.87
1:B:423:GLN:NE2	1:B:427:ASP:OD2	2.07	0.87
1:A:423:GLN:NE2	1:A:427:ASP:OD2	2.07	0.87
1:D:423:GLN:NE2	1:D:427:ASP:OD2	2.07	0.86
1:A:449:THR:HG23	1:C:593:THR:HG21	1.61	0.83
1:A:593:THR:HG21	1:D:449:THR:HG23	1.61	0.82
1:C:449:THR:HG23	1:B:593:THR:HG21	1.62	0.81
1:A:268:LEU:HD13	1:A:315:LEU:HD22	1.64	0.80
1:B:268:LEU:HD13	1:B:315:LEU:HD22	1.64	0.80
1:D:268:LEU:HD13	1:D:315:LEU:HD22	1.64	0.79
1:C:268:LEU:HD13	1:C:315:LEU:HD22	1.64	0.79
1:B:449:THR:HG23	1:D:593:THR:HG21	1.62	0.79
1:C:296:ASP:OD1	1:C:301:ASN:ND2	2.19	0.75
1:B:296:ASP:OD1	1:B:301:ASN:ND2	2.19	0.75
1:A:296:ASP:OD1	1:A:301:ASN:ND2	2.19	0.74
1:D:296:ASP:OD1	1:D:301:ASN:ND2	2.19	0.73
1:A:628:ASN:OD1	1:A:629:SER:N	2.32	0.63
1:C:628:ASN:OD1	1:C:629:SER:N	2.32	0.63
1:D:628:ASN:OD1	1:D:629:SER:N	2.32	0.63
1:C:284:GLY:O	1:C:330:ASN:ND2	2.33	0.62
1:B:628:ASN:OD1	1:B:629:SER:N	2.32	0.62
1:B:284:GLY:O	1:B:330:ASN:ND2	2.33	0.62
1:A:284:GLY:O	1:A:330:ASN:ND2	2.33	0.61
1:D:284:GLY:O	1:D:330:ASN:ND2	2.33	0.61
1:A:553:LEU:CD1	1:C:586:VAL:HG21	2.33	0.59
1:C:553:LEU:CD1	1:B:586:VAL:HG21	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:586:VAL:HG21	1:D:553:LEU:CD1	2.32	0.58
1:B:553:LEU:CD1	1:D:586:VAL:HG21	2.33	0.58
1:B:298:THR:O	1:B:302:THR:OG1	2.18	0.57
1:A:586:VAL:HG21	1:D:553:LEU:HD11	1.87	0.56
1:C:553:LEU:HD11	1:B:586:VAL:HG21	1.87	0.56
1:A:553:LEU:HD11	1:C:586:VAL:HG21	1.87	0.55
1:C:651:GLU:O	1:C:656:LYS:NZ	2.37	0.55
2:D:902:6EU:CAT	2:D:902:6EU:CAW	2.85	0.55
2:C:901:6EU:CAW	2:C:901:6EU:CAT	2.85	0.55
1:B:553:LEU:HD11	1:D:586:VAL:HG21	1.87	0.55
2:B:901:6EU:CAW	2:B:901:6EU:CAT	2.85	0.54
2:A:901:6EU:CAT	2:A:901:6EU:CAW	2.85	0.54
1:A:465:LEU:HG	1:A:471:ASP:OD1	2.08	0.53
1:C:465:LEU:HG	1:C:471:ASP:OD1	2.08	0.53
1:D:465:LEU:HG	1:D:471:ASP:OD1	2.08	0.53
1:D:298:THR:O	1:D:302:THR:OG1	2.18	0.52
1:B:465:LEU:HG	1:B:471:ASP:OD1	2.08	0.52
1:C:268:LEU:HD13	1:C:315:LEU:CD2	2.39	0.52
1:A:651:GLU:O	1:A:656:LYS:NZ	2.37	0.51
1:A:697:TRP:HZ3	1:A:701:ARG:HD3	1.76	0.51
1:B:268:LEU:HD13	1:B:315:LEU:CD2	2.39	0.51
1:B:697:TRP:HZ3	1:B:701:ARG:HD3	1.76	0.51
1:D:697:TRP:HZ3	1:D:701:ARG:HD3	1.76	0.51
1:C:286:THR:HG22	1:C:287:VAL:N	2.27	0.50
1:B:286:THR:O	1:B:290:ALA:N	2.36	0.50
1:A:286:THR:HG22	1:A:287:VAL:N	2.26	0.50
1:C:322:THR:HG23	1:C:323:LEU:HG	1.93	0.50
1:C:697:TRP:HZ3	1:C:701:ARG:HD3	1.76	0.50
1:B:322:THR:HG23	1:B:323:LEU:HG	1.93	0.50
1:B:250:LEU:O	1:B:253:SER:OG	2.18	0.50
1:D:322:THR:HG23	1:D:323:LEU:HG	1.93	0.50
1:D:286:THR:O	1:D:290:ALA:N	2.36	0.50
1:B:286:THR:HG22	1:B:287:VAL:N	2.26	0.49
1:A:268:LEU:HD13	1:A:315:LEU:CD2	2.39	0.49
1:A:322:THR:HG23	1:A:323:LEU:HG	1.93	0.49
1:D:286:THR:HG22	1:D:287:VAL:N	2.26	0.49
1:B:684:GLU:O	1:B:688:LYS:HG3	2.13	0.49
1:D:684:GLU:O	1:D:688:LYS:HG3	2.13	0.49
1:A:543:PHE:HE2	1:C:658:VAL:HG13	1.78	0.48
1:D:651:GLU:O	1:D:656:LYS:NZ	2.37	0.48
1:A:658:VAL:HG13	1:D:543:PHE:HE2	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:268:LEU:HD13	1:D:315:LEU:CD2	2.39	0.48
1:D:278:SER:O	1:D:278:SER:OG	2.31	0.48
1:C:684:GLU:O	1:C:688:LYS:HG3	2.13	0.48
1:A:286:THR:O	1:A:290:ALA:N	2.36	0.48
1:A:298:THR:O	1:A:302:THR:OG1	2.18	0.48
1:A:684:GLU:O	1:A:688:LYS:HG3	2.13	0.48
1:C:728:VAL:HG22	1:C:728:VAL:O	2.14	0.48
1:D:286:THR:HG22	1:D:287:VAL:H	1.80	0.47
1:A:728:VAL:O	1:A:728:VAL:HG22	2.14	0.47
1:B:728:VAL:HG22	1:B:728:VAL:O	2.14	0.47
1:A:286:THR:HG22	1:A:287:VAL:H	1.80	0.47
1:C:543:PHE:HE2	1:B:658:VAL:HG13	1.80	0.47
1:A:281:ASP:OD1	1:A:285:ASN:N	2.47	0.47
1:B:543:PHE:HE2	1:D:658:VAL:HG13	1.80	0.47
1:B:651:GLU:O	1:B:656:LYS:NZ	2.37	0.47
1:A:306:THR:HG21	1:A:351:TYR:CD1	2.50	0.47
1:C:212:ARG:NH2	1:C:259:ASN:O	2.45	0.47
1:B:286:THR:HG22	1:B:287:VAL:H	1.80	0.47
1:B:306:THR:HG21	1:B:351:TYR:CD1	2.50	0.47
1:D:212:ARG:NH2	1:D:259:ASN:O	2.45	0.47
1:C:286:THR:HG22	1:C:287:VAL:H	1.80	0.47
1:D:728:VAL:HG22	1:D:728:VAL:O	2.14	0.46
1:C:281:ASP:OD1	1:C:285:ASN:N	2.47	0.46
1:C:286:THR:O	1:C:290:ALA:N	2.36	0.46
1:C:306:THR:HG21	1:C:351:TYR:CD1	2.50	0.46
1:D:306:THR:HG21	1:D:351:TYR:CD1	2.50	0.46
1:A:250:LEU:O	1:A:253:SER:OG	2.18	0.46
1:B:212:ARG:NH2	1:B:259:ASN:O	2.45	0.46
1:B:288:LEU:HD22	1:B:309:TYR:CE1	2.51	0.46
1:C:288:LEU:HD22	1:C:309:TYR:CE1	2.51	0.45
1:A:278:SER:O	1:A:278:SER:OG	2.31	0.45
1:D:281:ASP:OD1	1:D:285:ASN:N	2.47	0.45
1:D:288:LEU:HD22	1:D:309:TYR:CE1	2.51	0.45
1:D:247:PHE:CG	1:D:254:LEU:HD13	2.52	0.45
1:A:212:ARG:NH2	1:A:259:ASN:O	2.45	0.45
1:A:288:LEU:HD22	1:A:309:TYR:CE1	2.51	0.45
1:A:543:PHE:CE2	1:C:658:VAL:HG13	2.52	0.44
1:B:281:ASP:OD1	1:B:285:ASN:N	2.47	0.44
1:A:247:PHE:CG	1:A:254:LEU:HD13	2.52	0.44
1:C:247:PHE:CG	1:C:254:LEU:HD13	2.52	0.44
1:B:635:LEU:HD22	4:B:903:6OU:C33	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:635:LEU:HD22	4:D:904:6OU:C33	2.48	0.44
1:B:247:PHE:CG	1:B:254:LEU:HD13	2.52	0.44
1:B:278:SER:O	1:B:278:SER:OG	2.31	0.44
1:C:635:LEU:HD22	4:C:903:6OU:C33	2.48	0.44
1:C:317:ALA:HB2	1:C:365:LEU:HD11	2.00	0.44
1:C:650:THR:HG23	1:C:651:GLU:N	2.33	0.44
1:A:595:VAL:HG13	1:A:659:PHE:HE1	1.83	0.43
1:A:635:LEU:HD22	4:A:903:6OU:C33	2.48	0.43
1:A:658:VAL:HG13	1:D:543:PHE:CE2	2.53	0.43
1:B:584:TYR:CE1	1:B:641:THR:HG21	2.53	0.43
1:D:595:VAL:HG13	1:D:659:PHE:HE1	1.83	0.43
1:A:584:TYR:CE1	1:A:641:THR:HG21	2.53	0.43
1:B:650:THR:HG23	1:B:651:GLU:N	2.33	0.43
1:D:281:ASP:OD1	1:D:284:GLY:N	2.45	0.43
1:C:584:TYR:CE1	1:C:641:THR:HG21	2.54	0.43
1:C:694:LYS:HA	1:C:697:TRP:CD1	2.53	0.43
1:A:506:LEU:O	1:A:510:SER:OG	2.29	0.43
1:A:650:THR:HG23	1:A:651:GLU:N	2.33	0.43
1:C:595:VAL:HG13	1:C:659:PHE:HE1	1.83	0.43
1:B:694:LYS:HA	1:B:697:TRP:CD1	2.53	0.43
1:D:694:LYS:HA	1:D:697:TRP:CD1	2.53	0.43
1:B:317:ALA:HB2	1:B:365:LEU:HD11	2.00	0.43
1:D:650:THR:HG23	1:D:651:GLU:N	2.33	0.43
1:A:511:TYR:CE2	1:A:515:LEU:HD11	2.54	0.43
1:C:511:TYR:CE2	1:C:515:LEU:HD11	2.54	0.43
1:B:543:PHE:CE2	1:D:658:VAL:HG13	2.54	0.43
1:A:317:ALA:HB2	1:A:365:LEU:HD11	2.00	0.43
1:D:584:TYR:CE1	1:D:641:THR:HG21	2.53	0.43
1:C:278:SER:O	1:C:278:SER:OG	2.31	0.42
1:D:511:TYR:CE2	1:D:515:LEU:HD11	2.54	0.42
1:B:511:TYR:CE2	1:B:515:LEU:HD11	2.54	0.42
1:D:263:ILE:O	1:D:267:LEU:HD13	2.19	0.42
1:D:334:LEU:H	1:D:334:LEU:HD23	1.84	0.42
1:C:334:LEU:H	1:C:334:LEU:HD23	1.85	0.42
1:C:263:ILE:O	1:C:267:LEU:HD13	2.19	0.42
1:B:334:LEU:HD23	1:B:334:LEU:H	1.85	0.42
1:A:694:LYS:HA	1:A:697:TRP:CD1	2.53	0.42
1:C:672:ILE:O	1:C:676:ASN:ND2	2.50	0.42
1:B:263:ILE:O	1:B:267:LEU:HD13	2.19	0.42
1:A:263:ILE:O	1:A:267:LEU:HD13	2.19	0.42
1:B:595:VAL:HG13	1:B:659:PHE:HE1	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:696:ILE:O	1:D:700:GLN:HG2	2.20	0.42
1:C:298:THR:O	1:C:302:THR:OG1	2.18	0.42
1:D:317:ALA:HB2	1:D:365:LEU:HD11	2.00	0.41
1:D:351:TYR:O	1:D:355:ARG:N	2.53	0.41
1:C:696:ILE:O	1:C:700:GLN:HG2	2.20	0.41
1:A:334:LEU:H	1:A:334:LEU:HD23	1.85	0.41
1:B:351:TYR:O	1:B:355:ARG:N	2.53	0.41
1:D:506:LEU:O	1:D:510:SER:OG	2.29	0.41
1:A:351:TYR:O	1:A:355:ARG:N	2.53	0.41
1:C:351:TYR:O	1:C:355:ARG:N	2.53	0.41
1:C:408:ASN:OD1	1:C:408:ASN:N	2.54	0.41
1:C:543:PHE:CE2	1:B:658:VAL:HG13	2.54	0.41
1:D:266:PHE:O	1:D:270:ASN:N	2.54	0.41
1:A:701:ARG:HA	1:A:704:THR:HG22	2.03	0.41
1:B:266:PHE:O	1:B:270:ASN:N	2.54	0.41
1:A:696:ILE:O	1:A:700:GLN:HG2	2.20	0.40
1:C:266:PHE:O	1:C:270:ASN:N	2.54	0.40
1:C:701:ARG:HA	1:C:704:THR:HG22	2.03	0.40
1:A:408:ASN:OD1	1:A:408:ASN:N	2.54	0.40
1:A:672:ILE:O	1:A:676:ASN:ND2	2.49	0.40
1:B:685:THR:O	1:B:689:ILE:HG12	2.21	0.40
1:C:685:THR:O	1:C:689:ILE:HG12	2.21	0.40
1:B:696:ILE:O	1:B:700:GLN:HG2	2.20	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 PDB entries followed by that with respect to all EM entries.

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	528/868 (61%)	503 (95%)	25 (5%)	0	100	100
1	B	528/868 (61%)	503 (95%)	25 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	528/868 (61%)	503 (95%)	25 (5%)	0	100	100
1	D	528/868 (61%)	502 (95%)	26 (5%)	0	100	100
All	All	2112/3472 (61%)	2011 (95%)	101 (5%)	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 PDB entries followed by that with respect to all EM entries.

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	415/770 (54%)	414 (100%)	1 (0%)	92	95
1	B	415/770 (54%)	414 (100%)	1 (0%)	92	95
1	C	415/770 (54%)	414 (100%)	1 (0%)	92	95
1	D	415/770 (54%)	414 (100%)	1 (0%)	92	95
All	All	1660/3080 (54%)	1656 (100%)	4 (0%)	91	95

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	687	ASN
1	C	687	ASN
1	B	687	ASN
1	D	687	ASN

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

Mol	Chain	Res	Type
1	A	410	HIS
1	A	687	ASN
1	C	410	HIS
1	C	687	ASN
1	B	410	HIS

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Mol	Chain	Res	Type
1	B	687	ASN
1	D	410	HIS
1	D	687	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

20 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	$\#\|Z\| > 2$
3	LBN	C	905	-	41,41,51	1.36	5 (12%)	47,49,59	0.91	2 (4%)
4	6OU	A	903	-	31,31,48	1.73	4 (12%)	34,36,53	0.93	2 (5%)
3	LBN	B	905	-	41,41,51	1.36	4 (9%)	47,49,59	0.91	2 (4%)
2	6EU	B	901	-	45,52,52	4.49	16 (35%)	44,83,83	2.02	9 (20%)
2	6EU	D	902	-	45,52,52	4.48	16 (35%)	44,83,83	2.03	9 (20%)
3	LBN	D	901	-	41,41,51	1.36	4 (9%)	47,49,59	0.91	2 (4%)
4	6OU	A	904	-	24,24,48	1.28	2 (8%)	26,26,53	0.84	1 (3%)
2	6EU	A	901	-	45,52,52	4.49	16 (35%)	44,83,83	2.03	9 (20%)
3	LBN	C	902	-	32,32,51	1.31	2 (6%)	38,40,59	0.97	1 (2%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	LBN	A	902	-	32,32,51	1.32	2 (6%)	38,40,59	0.97	1 (2%)
4	6OU	C	903	-	31,31,48	1.73	4 (12%)	34,36,53	0.93	2 (5%)
2	6EU	C	901	-	45,52,52	4.49	16 (35%)	44,83,83	2.03	9 (20%)
4	6OU	C	904	-	24,24,48	1.28	1 (4%)	26,26,53	0.85	1 (3%)
4	6OU	D	905	-	24,24,48	1.28	2 (8%)	26,26,53	0.84	1 (3%)
3	LBN	B	902	-	32,32,51	1.31	2 (6%)	38,40,59	0.97	1 (2%)
4	6OU	B	903	-	31,31,48	1.73	4 (12%)	34,36,53	0.93	2 (5%)
3	LBN	D	903	-	32,32,51	1.31	2 (6%)	38,40,59	0.97	1 (2%)
3	LBN	A	905	-	41,41,51	1.36	4 (9%)	47,49,59	0.91	2 (4%)
4	6OU	B	904	-	24,24,48	1.28	1 (4%)	26,26,53	0.85	1 (3%)
4	6OU	D	904	-	31,31,48	1.73	4 (12%)	34,36,53	0.93	2 (5%)

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	LBN	C	905	-	-	21/45/45/55	-
4	6OU	A	903	-	-	16/33/33/52	-
3	LBN	B	905	-	-	21/45/45/55	-
2	6EU	B	901	-	-	2/20/101/101	0/8/7/7
2	6EU	D	902	-	-	2/20/101/101	0/8/7/7
3	LBN	D	901	-	-	21/45/45/55	-
4	6OU	A	904	-	-	9/25/25/52	-
2	6EU	A	901	-	-	2/20/101/101	0/8/7/7
3	LBN	C	902	-	-	15/36/36/55	-
3	LBN	A	902	-	-	15/36/36/55	-
4	6OU	C	903	-	-	16/33/33/52	-
2	6EU	C	901	-	-	2/20/101/101	0/8/7/7
4	6OU	C	904	-	-	9/25/25/52	-
4	6OU	D	905	-	-	9/25/25/52	-
3	LBN	B	902	-	-	15/36/36/55	-
4	6OU	B	903	-	-	16/33/33/52	-
3	LBN	D	903	-	-	15/36/36/55	-
3	LBN	A	905	-	-	21/45/45/55	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	6OU	B	904	-	-	9/25/25/52	-
4	6OU	D	904	-	-	16/33/33/52	-

All (111) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	901	6EU	CAS-CAX	17.93	1.61	1.33
2	A	901	6EU	CAS-CAX	17.92	1.61	1.33
2	C	901	6EU	CAS-CAX	17.92	1.61	1.33
2	D	902	6EU	CAS-CAX	17.87	1.61	1.33
2	D	902	6EU	OAB-CAL	-10.84	1.27	1.43
2	A	901	6EU	OAB-CAL	-10.83	1.27	1.43
2	B	901	6EU	OAB-CAL	-10.82	1.27	1.43
2	C	901	6EU	OAB-CAL	-10.76	1.27	1.43
2	C	901	6EU	CAW-CBA	9.48	1.52	1.33
2	B	901	6EU	CAW-CBA	9.45	1.52	1.33
2	D	902	6EU	CAW-CBA	9.45	1.52	1.33
2	A	901	6EU	CAW-CBA	9.44	1.52	1.33
2	B	901	6EU	CAM-CAL	7.67	1.66	1.54
2	A	901	6EU	CAM-CAL	7.60	1.66	1.54
2	D	902	6EU	CAM-CAL	7.60	1.66	1.54
2	C	901	6EU	CAM-CAL	7.52	1.65	1.54
2	C	901	6EU	CAK-CAS	7.45	1.67	1.50
2	D	902	6EU	CAK-CAS	7.44	1.67	1.50
2	A	901	6EU	CAK-CAS	7.44	1.67	1.50
2	B	901	6EU	CAK-CAS	7.41	1.67	1.50
2	A	901	6EU	CAP-CAM	7.19	1.67	1.53
2	C	901	6EU	CAP-CAM	7.19	1.67	1.53
2	B	901	6EU	CAP-CAM	7.16	1.67	1.53
2	D	902	6EU	CAP-CAM	7.15	1.67	1.53
2	B	901	6EU	OAA-CAJ	6.87	1.59	1.44
2	D	902	6EU	OAA-CAJ	6.86	1.59	1.44
2	A	901	6EU	OAA-CAJ	6.86	1.59	1.44
2	C	901	6EU	OAA-CAJ	6.86	1.59	1.44
2	C	901	6EU	OAA-CAQ	6.76	1.50	1.42
2	B	901	6EU	OAA-CAQ	6.74	1.50	1.42
2	A	901	6EU	OAA-CAQ	6.72	1.50	1.42
2	D	902	6EU	OAA-CAQ	6.68	1.50	1.42
4	C	903	6OU	P23-O22	5.29	1.77	1.60
4	A	903	6OU	P23-O22	5.28	1.77	1.60
4	D	904	6OU	P23-O22	5.28	1.77	1.60
4	B	903	6OU	P23-O22	5.27	1.76	1.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	905	LBN	P1-O2	5.18	1.79	1.59
3	D	901	LBN	P1-O2	5.17	1.79	1.59
3	C	905	LBN	P1-O2	5.17	1.79	1.59
3	B	905	LBN	P1-O2	5.17	1.79	1.59
4	B	903	6OU	P23-O26	5.01	1.73	1.54
4	D	904	6OU	P23-O26	5.01	1.73	1.54
4	A	903	6OU	P23-O26	5.01	1.73	1.54
4	C	903	6OU	P23-O26	5.01	1.73	1.54
3	A	902	LBN	P1-O2	4.60	1.77	1.59
3	C	902	LBN	P1-O2	4.60	1.77	1.59
3	B	902	LBN	P1-O2	4.60	1.77	1.59
3	D	903	LBN	P1-O2	4.58	1.77	1.59
2	D	902	6EU	CAJ-CAO	4.35	1.61	1.54
2	A	901	6EU	OAC-CAM	-4.32	1.37	1.44
2	C	901	6EU	OAC-CAM	-4.32	1.37	1.44
2	D	902	6EU	OAC-CAM	-4.32	1.37	1.44
2	B	901	6EU	CAJ-CAO	4.31	1.61	1.54
2	B	901	6EU	OAC-CAM	-4.31	1.37	1.44
2	A	901	6EU	CAJ-CAO	4.31	1.61	1.54
2	C	901	6EU	CAJ-CAO	4.29	1.61	1.54
2	C	901	6EU	OAB-CAQ	-4.09	1.34	1.41
2	B	901	6EU	OAB-CAQ	-4.09	1.34	1.41
2	A	901	6EU	OAB-CAQ	-4.06	1.34	1.41
2	D	902	6EU	OAB-CAQ	-4.01	1.34	1.41
4	C	904	6OU	C19-C20	3.05	1.57	1.50
4	A	904	6OU	C19-C20	3.02	1.57	1.50
4	D	905	6OU	C19-C20	3.02	1.57	1.50
4	B	904	6OU	C19-C20	2.99	1.57	1.50
2	C	901	6EU	OAF-CBK	2.97	1.42	1.33
2	A	901	6EU	OAF-CBK	2.96	1.42	1.33
2	D	902	6EU	OAF-CBK	2.96	1.42	1.33
2	B	901	6EU	OAF-CBK	2.95	1.41	1.33
2	B	901	6EU	OAH-CBQ	2.79	1.41	1.37
2	A	901	6EU	OAH-CBQ	2.77	1.41	1.37
2	C	901	6EU	OAH-CBQ	2.76	1.41	1.37
2	D	902	6EU	OAH-CBQ	2.72	1.41	1.37
2	A	901	6EU	CAY-CBE	2.66	1.55	1.51
2	C	901	6EU	CAY-CBE	2.64	1.55	1.51
2	B	901	6EU	CAY-CBE	2.62	1.55	1.51
2	D	902	6EU	CAY-CBE	2.62	1.55	1.51
3	C	905	LBN	C1-C2	2.59	1.58	1.50
3	D	901	LBN	C1-C2	2.58	1.58	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	905	LBN	C1-C2	2.58	1.58	1.50
3	B	905	LBN	C1-C2	2.56	1.58	1.50
3	A	902	LBN	O2-C9	-2.44	1.35	1.44
3	C	902	LBN	O2-C9	-2.44	1.35	1.44
3	D	903	LBN	O2-C9	-2.44	1.35	1.44
3	B	902	LBN	O2-C9	-2.43	1.35	1.44
3	C	905	LBN	C6-C9	2.37	1.58	1.51
3	B	905	LBN	C6-C9	2.36	1.58	1.51
3	D	901	LBN	C6-C9	2.36	1.58	1.51
4	A	903	6OU	C21-C20	2.36	1.58	1.50
4	C	903	6OU	C21-C20	2.36	1.58	1.50
4	D	904	6OU	C21-C20	2.36	1.58	1.50
3	A	905	LBN	C6-C9	2.35	1.58	1.51
4	B	903	6OU	C21-C20	2.34	1.58	1.50
3	A	905	LBN	P1-O1	2.32	1.68	1.59
3	C	905	LBN	P1-O1	2.30	1.68	1.59
3	B	905	LBN	P1-O1	2.30	1.68	1.59
3	D	901	LBN	P1-O1	2.30	1.68	1.59
2	D	902	6EU	OAI-CBS	2.28	1.40	1.36
2	A	901	6EU	OAI-CBS	2.27	1.40	1.36
2	C	901	6EU	OAI-CBS	2.27	1.40	1.36
2	B	901	6EU	OAI-CBS	2.26	1.40	1.36
2	D	902	6EU	CAJ-CAN	-2.09	1.49	1.54
2	B	901	6EU	CAJ-CAN	-2.07	1.49	1.54
2	C	901	6EU	CAJ-CAN	-2.06	1.49	1.54
4	A	903	6OU	C19-C20	2.04	1.57	1.50
2	A	901	6EU	CAJ-CAN	-2.04	1.49	1.54
4	B	903	6OU	C19-C20	2.04	1.57	1.50
4	D	904	6OU	C19-C20	2.04	1.57	1.50
4	C	903	6OU	C19-C20	2.03	1.57	1.50
3	C	905	LBN	O2-C9	-2.02	1.36	1.44
4	D	905	6OU	C33-C31	2.01	1.56	1.50
4	A	904	6OU	C33-C31	2.00	1.56	1.50

All (60) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	901	6EU	CBD-CAV-CAM	-8.01	97.22	116.79
2	A	901	6EU	CBD-CAV-CAM	-8.00	97.23	116.79
2	D	902	6EU	CBD-CAV-CAM	-8.00	97.23	116.79
2	C	901	6EU	CBD-CAV-CAM	-8.00	97.25	116.79
2	D	902	6EU	OAF-CBK-CBM	5.41	119.66	111.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	901	6EU	OAF-CBK-CBM	5.40	119.65	111.21
2	A	901	6EU	OAF-CBK-CBM	5.38	119.61	111.21
2	B	901	6EU	OAF-CBK-CBM	5.36	119.59	111.21
2	A	901	6EU	OAH-CBQ-CBS	3.64	120.01	114.55
2	C	901	6EU	OAH-CBQ-CBS	3.64	120.01	114.55
2	D	902	6EU	OAH-CBQ-CBS	3.63	120.00	114.55
2	B	901	6EU	OAH-CBQ-CBS	3.61	119.96	114.55
2	A	901	6EU	CAQ-CAY-CBE	-3.53	109.46	113.60
2	C	901	6EU	CAQ-CAY-CBE	-3.53	109.46	113.60
2	D	902	6EU	CAQ-CAY-CBE	-3.52	109.47	113.60
2	B	901	6EU	CAQ-CAY-CBE	-3.51	109.48	113.60
3	A	902	LBN	O3-P1-O4	3.51	128.77	112.44
3	B	902	LBN	O3-P1-O4	3.51	128.77	112.44
3	C	902	LBN	O3-P1-O4	3.50	128.75	112.44
3	D	903	LBN	O3-P1-O4	3.50	128.73	112.44
3	A	905	LBN	O3-P1-O4	3.47	128.59	112.44
3	C	905	LBN	O3-P1-O4	3.47	128.59	112.44
3	D	901	LBN	O3-P1-O4	3.47	128.57	112.44
3	B	905	LBN	O3-P1-O4	3.46	128.56	112.44
4	B	903	6OU	O25-P23-O24	3.45	124.27	110.83
4	D	904	6OU	O25-P23-O24	3.45	124.27	110.83
2	C	901	6EU	CAM-CAV-CBB	3.45	131.16	121.88
2	A	901	6EU	CAM-CAV-CBB	3.44	131.16	121.88
2	D	902	6EU	CAM-CAV-CBB	3.44	131.16	121.88
4	A	903	6OU	O25-P23-O24	3.44	124.25	110.83
4	C	903	6OU	O25-P23-O24	3.44	124.25	110.83
2	B	901	6EU	CAM-CAV-CBB	3.43	131.13	121.88
2	B	901	6EU	CBD-CAV-CBB	2.89	131.57	121.12
2	A	901	6EU	CBD-CAV-CBB	2.89	131.54	121.12
2	D	902	6EU	CBD-CAV-CBB	2.89	131.54	121.12
2	C	901	6EU	CBD-CAV-CBB	2.88	131.52	121.12
2	D	902	6EU	CAJ-OAA-CAQ	2.68	117.99	113.53
2	C	901	6EU	CAJ-OAA-CAQ	2.67	117.97	113.53
2	A	901	6EU	CAJ-OAA-CAQ	2.66	117.96	113.53
2	B	901	6EU	CAJ-OAA-CAQ	2.65	117.94	113.53
2	D	902	6EU	CBF-CBA-CAW	-2.54	125.54	130.40
2	B	901	6EU	CBF-CBA-CAW	-2.52	125.56	130.40
2	C	901	6EU	CBF-CBA-CAW	-2.51	125.58	130.40
2	A	901	6EU	CBF-CBA-CAW	-2.51	125.59	130.40
4	C	904	6OU	O30-C31-C33	2.41	116.70	111.48
4	B	904	6OU	O30-C31-C33	2.40	116.67	111.48
4	D	905	6OU	O30-C31-C33	2.40	116.67	111.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	904	6OU	O30-C31-C33	2.39	116.65	111.48
4	B	903	6OU	O30-C31-C33	2.31	116.47	111.48
4	A	903	6OU	O30-C31-C33	2.30	116.45	111.48
4	D	904	6OU	O30-C31-C33	2.30	116.45	111.48
4	C	903	6OU	O30-C31-C33	2.29	116.43	111.48
2	C	901	6EU	OAH-CBQ-CBO	-2.26	120.19	124.08
2	A	901	6EU	OAH-CBQ-CBO	-2.24	120.23	124.08
2	B	901	6EU	OAH-CBQ-CBO	-2.23	120.24	124.08
2	D	902	6EU	OAH-CBQ-CBO	-2.20	120.28	124.08
3	A	905	LBN	O2-P1-O4	-2.16	100.36	108.94
3	B	905	LBN	O2-P1-O4	-2.16	100.38	108.94
3	D	901	LBN	O2-P1-O4	-2.16	100.39	108.94
3	C	905	LBN	O2-P1-O4	-2.15	100.40	108.94

There are no chirality outliers.

All (252) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	902	LBN	N1-C6-C9-O2
3	A	905	LBN	C2-C1-O1-P1
3	A	905	LBN	C1-O1-P1-O2
3	A	905	LBN	C1-O1-P1-O3
3	A	905	LBN	C9-O2-P1-O1
3	A	905	LBN	C35-C34-O7-C2
3	C	902	LBN	N1-C6-C9-O2
3	C	905	LBN	C2-C1-O1-P1
3	C	905	LBN	C1-O1-P1-O2
3	C	905	LBN	C1-O1-P1-O3
3	C	905	LBN	C9-O2-P1-O1
3	C	905	LBN	C35-C34-O7-C2
3	B	902	LBN	N1-C6-C9-O2
3	B	905	LBN	C2-C1-O1-P1
3	B	905	LBN	C1-O1-P1-O2
3	B	905	LBN	C1-O1-P1-O3
3	B	905	LBN	C9-O2-P1-O1
3	B	905	LBN	C35-C34-O7-C2
3	D	901	LBN	C2-C1-O1-P1
3	D	901	LBN	C1-O1-P1-O2
3	D	901	LBN	C1-O1-P1-O3
3	D	901	LBN	C9-O2-P1-O1
3	D	901	LBN	C35-C34-O7-C2
3	D	903	LBN	N1-C6-C9-O2

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Mol	Chain	Res	Type	Atoms
4	A	903	6OU	C20-C21-O22-P23
4	A	903	6OU	C21-O22-P23-O25
4	A	903	6OU	C21-O22-P23-O26
4	A	904	6OU	C19-C20-O30-C31
4	C	903	6OU	C20-C21-O22-P23
4	C	903	6OU	C21-O22-P23-O25
4	C	903	6OU	C21-O22-P23-O26
4	C	904	6OU	C19-C20-O30-C31
4	B	903	6OU	C20-C21-O22-P23
4	B	903	6OU	C21-O22-P23-O25
4	B	903	6OU	C21-O22-P23-O26
4	B	904	6OU	C19-C20-O30-C31
4	D	904	6OU	C20-C21-O22-P23
4	D	904	6OU	C21-O22-P23-O25
4	D	904	6OU	C21-O22-P23-O26
4	D	905	6OU	C19-C20-O30-C31
3	A	905	LBN	O8-C34-O7-C2
3	C	905	LBN	O8-C34-O7-C2
3	B	905	LBN	O8-C34-O7-C2
3	D	901	LBN	O8-C34-O7-C2
4	A	904	6OU	C15-C16-O18-C19
4	C	904	6OU	C15-C16-O18-C19
4	B	904	6OU	C15-C16-O18-C19
4	D	905	6OU	C15-C16-O18-C19
3	A	902	LBN	C26-C25-O5-C3
3	C	902	LBN	C26-C25-O5-C3
3	B	902	LBN	C26-C25-O5-C3
3	D	903	LBN	C26-C25-O5-C3
3	A	905	LBN	C25-C26-C27-C28
3	C	905	LBN	C25-C26-C27-C28
3	B	905	LBN	C25-C26-C27-C28
3	D	901	LBN	C25-C26-C27-C28
3	A	902	LBN	O6-C25-O5-C3
3	C	902	LBN	O6-C25-O5-C3
3	B	902	LBN	O6-C25-O5-C3
3	D	903	LBN	O6-C25-O5-C3
4	A	904	6OU	O17-C16-O18-C19
4	C	904	6OU	O17-C16-O18-C19
4	B	904	6OU	O17-C16-O18-C19
4	D	905	6OU	O17-C16-O18-C19
4	A	903	6OU	C34-C35-C36-C37
4	B	903	6OU	C34-C35-C36-C37

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Mol	Chain	Res	Type	Atoms
4	D	904	6OU	C34-C35-C36-C37
4	C	903	6OU	C34-C35-C36-C37
3	A	905	LBN	C26-C27-C28-C29
3	C	905	LBN	C26-C27-C28-C29
3	B	905	LBN	C26-C27-C28-C29
3	D	901	LBN	C26-C27-C28-C29
3	A	902	LBN	C29-C30-C31-C32
3	C	902	LBN	C29-C30-C31-C32
3	B	902	LBN	C29-C30-C31-C32
3	D	903	LBN	C29-C30-C31-C32
3	A	902	LBN	C34-C35-C36-C37
3	A	905	LBN	C34-C35-C36-C37
3	C	902	LBN	C34-C35-C36-C37
3	C	905	LBN	C34-C35-C36-C37
3	B	902	LBN	C34-C35-C36-C37
3	B	905	LBN	C34-C35-C36-C37
3	D	901	LBN	C34-C35-C36-C37
3	D	903	LBN	C34-C35-C36-C37
4	A	903	6OU	C10-C11-C12-C13
4	C	903	6OU	C10-C11-C12-C13
4	B	903	6OU	C10-C11-C12-C13
4	D	904	6OU	C10-C11-C12-C13
4	A	903	6OU	C36-C37-C38-C39
4	C	903	6OU	C36-C37-C38-C39
4	B	903	6OU	C36-C37-C38-C39
4	D	904	6OU	C36-C37-C38-C39
3	A	902	LBN	C35-C36-C37-C38
3	C	902	LBN	C35-C36-C37-C38
3	B	902	LBN	C35-C36-C37-C38
3	D	903	LBN	C35-C36-C37-C38
3	A	902	LBN	C2-C1-O1-P1
3	C	902	LBN	C2-C1-O1-P1
3	B	902	LBN	C2-C1-O1-P1
3	D	903	LBN	C2-C1-O1-P1
3	A	905	LBN	C14-C11-C8-C5
3	C	905	LBN	C14-C11-C8-C5
3	B	905	LBN	C14-C11-C8-C5
3	D	901	LBN	C14-C11-C8-C5
3	C	905	LBN	C30-C31-C32-C33
3	B	905	LBN	C30-C31-C32-C33
3	A	905	LBN	C30-C31-C32-C33
3	D	901	LBN	C30-C31-C32-C33

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Mol	Chain	Res	Type	Atoms
3	A	905	LBN	C28-C29-C30-C31
3	D	901	LBN	C28-C29-C30-C31
4	A	904	6OU	C31-C33-C34-C35
4	C	904	6OU	C31-C33-C34-C35
4	B	904	6OU	C31-C33-C34-C35
4	D	905	6OU	C31-C33-C34-C35
3	C	905	LBN	C28-C29-C30-C31
3	B	905	LBN	C28-C29-C30-C31
4	C	903	6OU	C07-C08-C09-C10
4	A	903	6OU	C07-C08-C09-C10
4	B	903	6OU	C07-C08-C09-C10
4	D	904	6OU	C07-C08-C09-C10
4	A	903	6OU	C12-C13-C14-C15
4	C	903	6OU	C12-C13-C14-C15
4	B	903	6OU	C12-C13-C14-C15
4	D	904	6OU	C12-C13-C14-C15
3	A	905	LBN	C37-C38-C39-C40
3	C	905	LBN	C37-C38-C39-C40
3	B	905	LBN	C37-C38-C39-C40
3	D	901	LBN	C37-C38-C39-C40
3	A	905	LBN	C1-C2-C3-O5
3	C	905	LBN	C1-C2-C3-O5
3	B	905	LBN	C1-C2-C3-O5
3	D	901	LBN	C1-C2-C3-O5
3	A	905	LBN	C6-C9-O2-P1
3	C	905	LBN	C6-C9-O2-P1
3	B	905	LBN	C6-C9-O2-P1
3	D	901	LBN	C6-C9-O2-P1
3	A	905	LBN	N1-C6-C9-O2
3	C	905	LBN	N1-C6-C9-O2
3	B	905	LBN	N1-C6-C9-O2
3	D	901	LBN	N1-C6-C9-O2
3	A	902	LBN	O1-C1-C2-C3
3	C	902	LBN	O1-C1-C2-C3
3	B	902	LBN	O1-C1-C2-C3
3	D	903	LBN	O1-C1-C2-C3
4	C	904	6OU	C33-C34-C35-C36
4	A	904	6OU	C33-C34-C35-C36
4	D	905	6OU	C33-C34-C35-C36
4	B	904	6OU	C33-C34-C35-C36
2	A	901	6EU	OAC-CAM-CAV-CBD
2	C	901	6EU	OAC-CAM-CAV-CBD

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Mol	Chain	Res	Type	Atoms
2	B	901	6EU	OAC-CAM-CAV-CBD
2	D	902	6EU	OAC-CAM-CAV-CBD
3	A	905	LBN	O7-C2-C3-O5
3	C	905	LBN	O7-C2-C3-O5
3	B	905	LBN	O7-C2-C3-O5
3	D	901	LBN	O7-C2-C3-O5
4	A	903	6OU	O18-C19-C20-O30
4	C	903	6OU	O18-C19-C20-O30
4	B	903	6OU	O18-C19-C20-O30
4	D	904	6OU	O18-C19-C20-O30
3	A	902	LBN	C1-O1-P1-O4
3	A	905	LBN	C9-O2-P1-O4
3	C	902	LBN	C1-O1-P1-O4
3	C	905	LBN	C9-O2-P1-O4
3	B	902	LBN	C1-O1-P1-O4
3	B	905	LBN	C9-O2-P1-O4
3	D	901	LBN	C9-O2-P1-O4
3	D	903	LBN	C1-O1-P1-O4
3	A	902	LBN	C28-C29-C30-C31
3	C	902	LBN	C28-C29-C30-C31
3	B	902	LBN	C28-C29-C30-C31
3	D	903	LBN	C28-C29-C30-C31
4	A	904	6OU	C40-C41-C42-C43
4	C	904	6OU	C40-C41-C42-C43
4	B	904	6OU	C40-C41-C42-C43
4	D	905	6OU	C40-C41-C42-C43
3	A	905	LBN	C36-C37-C38-C39
3	B	905	LBN	C36-C37-C38-C39
3	D	901	LBN	C36-C37-C38-C39
3	C	905	LBN	C36-C37-C38-C39
3	C	902	LBN	C30-C31-C32-C33
3	A	902	LBN	C30-C31-C32-C33
3	D	903	LBN	C30-C31-C32-C33
3	B	902	LBN	C30-C31-C32-C33
3	A	902	LBN	O1-C1-C2-O7
3	C	902	LBN	O1-C1-C2-O7
3	B	902	LBN	O1-C1-C2-O7
3	D	903	LBN	O1-C1-C2-O7
4	B	903	6OU	C08-C09-C10-C11
4	A	903	6OU	C08-C09-C10-C11
4	C	903	6OU	C08-C09-C10-C11
4	D	904	6OU	C08-C09-C10-C11

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Mol	Chain	Res	Type	Atoms
4	A	904	6OU	C37-C38-C39-C40
4	C	904	6OU	C37-C38-C39-C40
4	B	904	6OU	C37-C38-C39-C40
4	D	905	6OU	C37-C38-C39-C40
3	A	905	LBN	C31-C32-C33-C4
3	B	905	LBN	C31-C32-C33-C4
3	C	905	LBN	C31-C32-C33-C4
3	D	901	LBN	C31-C32-C33-C4
2	A	901	6EU	OAC-CAM-CAV-CBB
2	C	901	6EU	OAC-CAM-CAV-CBB
2	B	901	6EU	OAC-CAM-CAV-CBB
2	D	902	6EU	OAC-CAM-CAV-CBB
4	A	903	6OU	C11-C12-C13-C14
4	D	904	6OU	C11-C12-C13-C14
4	C	903	6OU	C11-C12-C13-C14
4	B	903	6OU	C11-C12-C13-C14
4	A	903	6OU	C06-C07-C08-C09
4	D	904	6OU	C06-C07-C08-C09
4	C	903	6OU	C06-C07-C08-C09
4	B	903	6OU	C06-C07-C08-C09
3	A	905	LBN	C42-C5-C8-C11
3	C	905	LBN	C42-C5-C8-C11
3	B	905	LBN	C42-C5-C8-C11
3	D	901	LBN	C42-C5-C8-C11
4	A	903	6OU	C21-O22-P23-O24
4	C	903	6OU	C21-O22-P23-O24
4	B	903	6OU	C21-O22-P23-O24
4	D	904	6OU	C21-O22-P23-O24
4	C	904	6OU	C35-C36-C37-C38
4	D	905	6OU	C35-C36-C37-C38
4	A	904	6OU	C35-C36-C37-C38
4	B	904	6OU	C35-C36-C37-C38
4	B	904	6OU	C12-C13-C14-C15
4	A	904	6OU	C12-C13-C14-C15
4	C	904	6OU	C12-C13-C14-C15
4	D	905	6OU	C12-C13-C14-C15
3	B	902	LBN	C27-C28-C29-C30
3	D	903	LBN	C27-C28-C29-C30
3	A	902	LBN	C27-C28-C29-C30
3	C	902	LBN	C27-C28-C29-C30
3	A	902	LBN	O5-C25-C26-C27
3	B	902	LBN	O5-C25-C26-C27

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Mol	Chain	Res	Type	Atoms
3	D	903	LBN	O5-C25-C26-C27
3	C	902	LBN	O5-C25-C26-C27
4	A	903	6OU	O18-C19-C20-C21
4	C	903	6OU	O18-C19-C20-C21
4	B	903	6OU	O18-C19-C20-C21
4	D	904	6OU	O18-C19-C20-C21
4	C	903	6OU	O17-C16-O18-C19
4	B	903	6OU	O17-C16-O18-C19
4	D	904	6OU	O17-C16-O18-C19
4	A	903	6OU	O17-C16-O18-C19
4	A	903	6OU	C15-C16-O18-C19
4	C	903	6OU	C15-C16-O18-C19
4	B	903	6OU	C15-C16-O18-C19
4	D	904	6OU	C15-C16-O18-C19
3	B	902	LBN	O6-C25-C26-C27
3	A	902	LBN	O6-C25-C26-C27
3	C	902	LBN	O6-C25-C26-C27
3	D	903	LBN	O6-C25-C26-C27

There are no ring outliers.

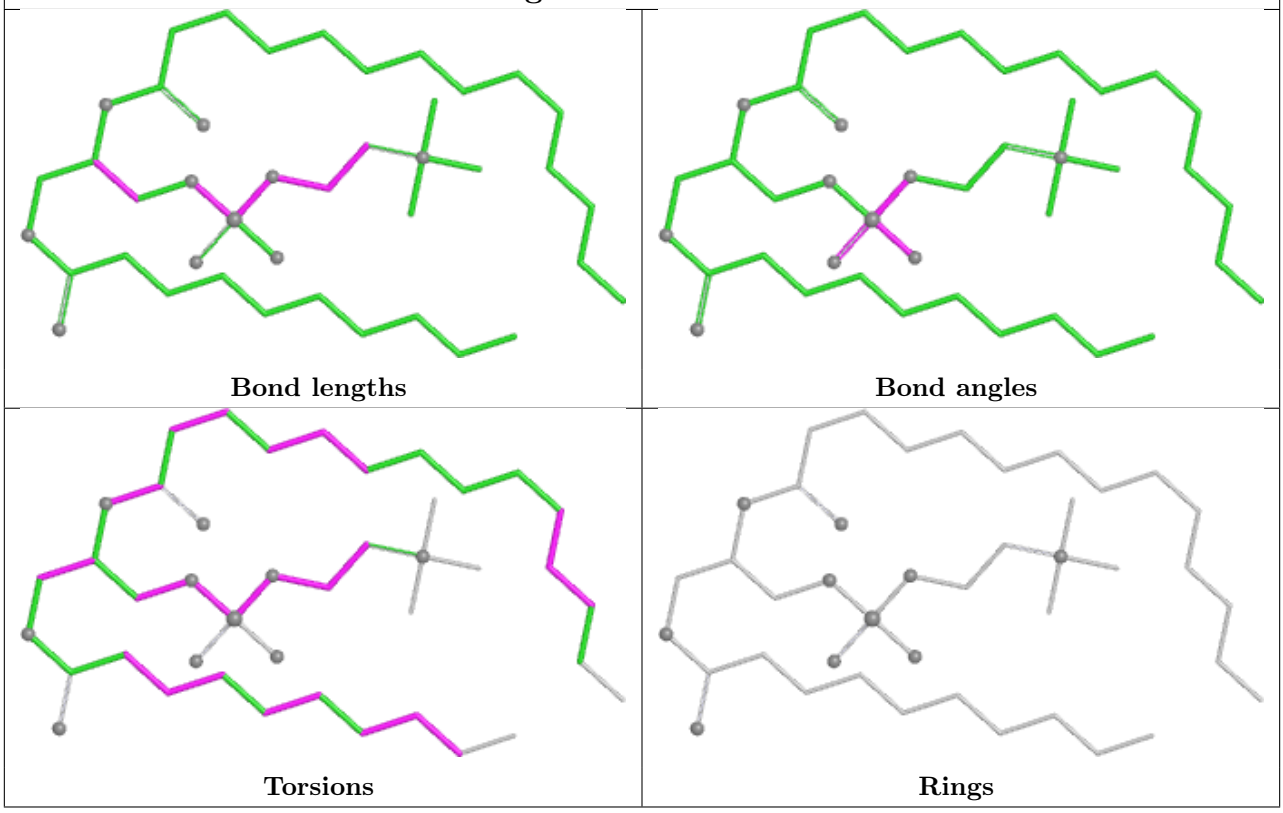
8 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	903	6OU	1	0
2	B	901	6EU	1	0
2	D	902	6EU	1	0
2	A	901	6EU	1	0
4	C	903	6OU	1	0
2	C	901	6EU	1	0
4	B	903	6OU	1	0
4	D	904	6OU	1	0

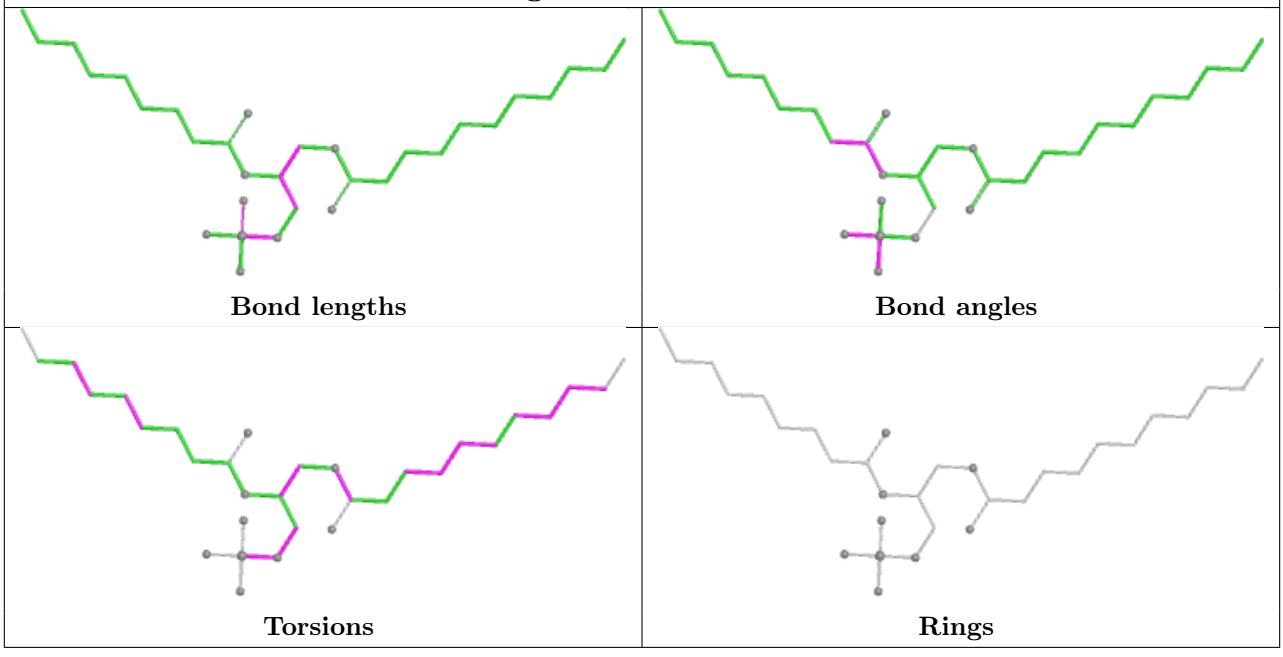
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

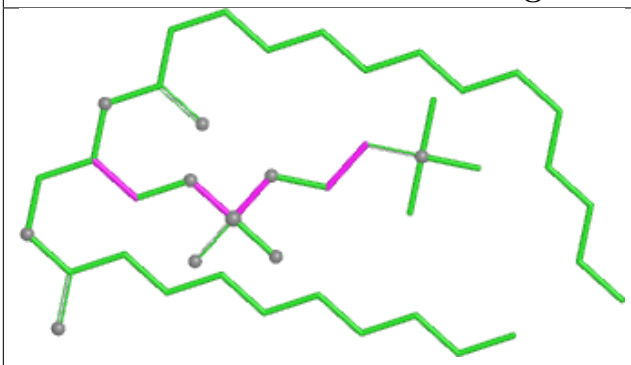
Ligand LBN C 905



Ligand 6OU A 903



Ligand LBN B 905



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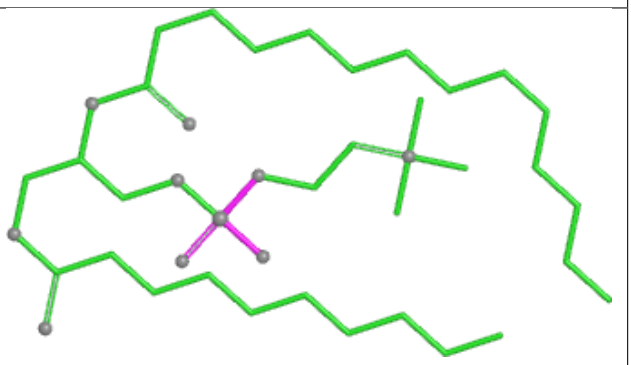
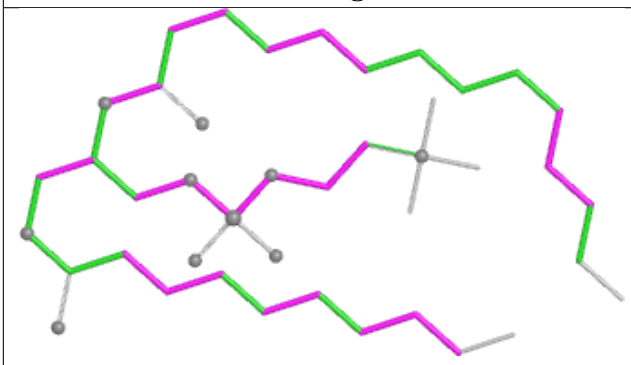
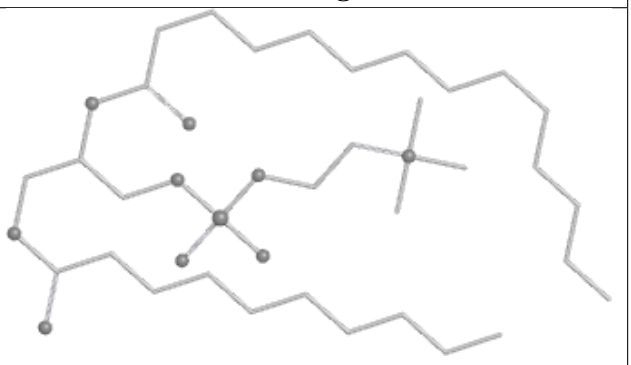


Bond angles

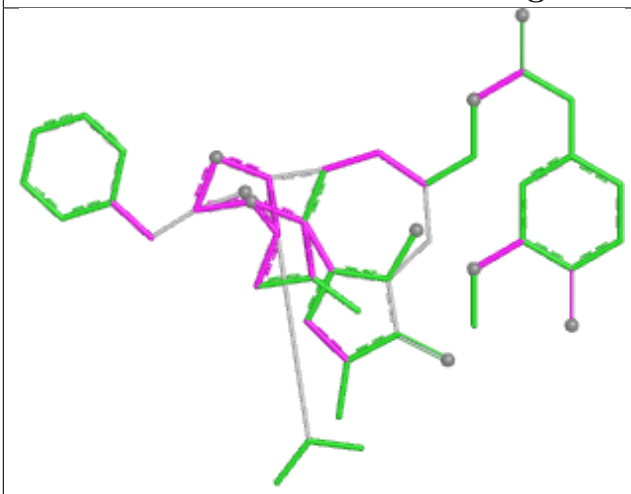


Torsions



Rings

Ligand 6EU B 901



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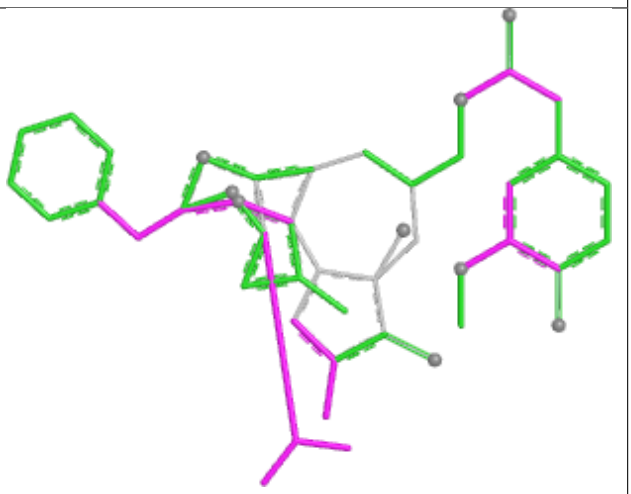

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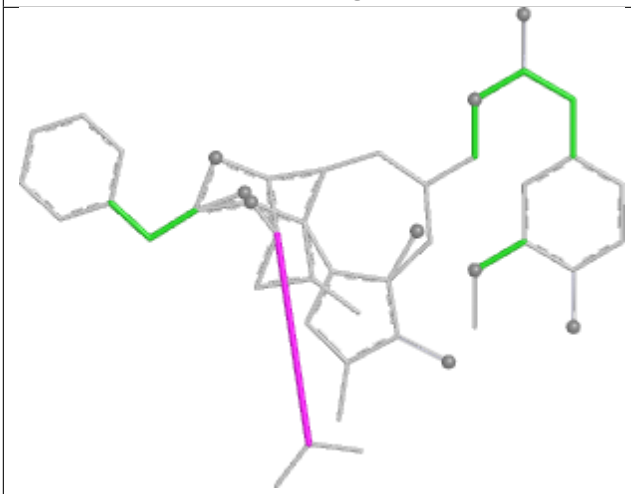

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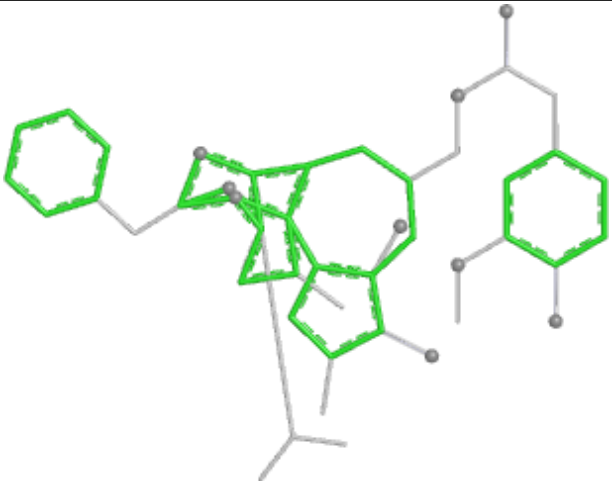
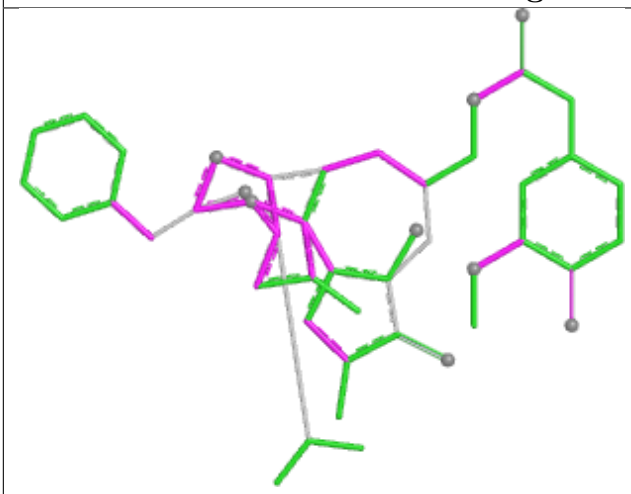


Rings

Ligand 6EU D 902



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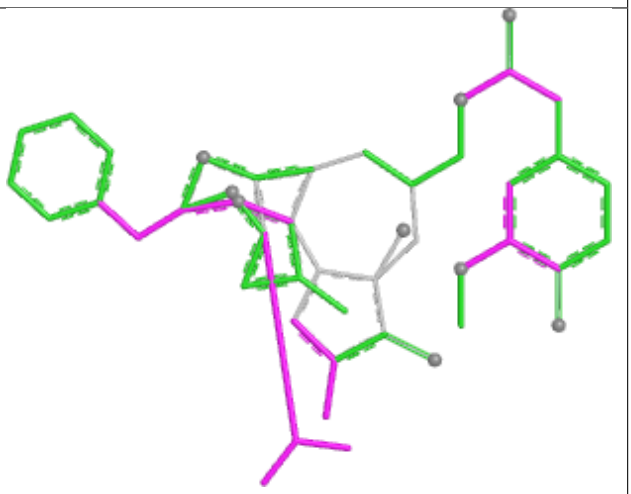

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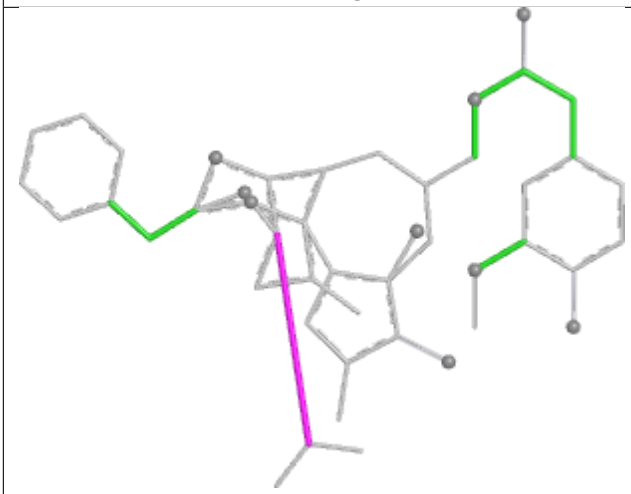

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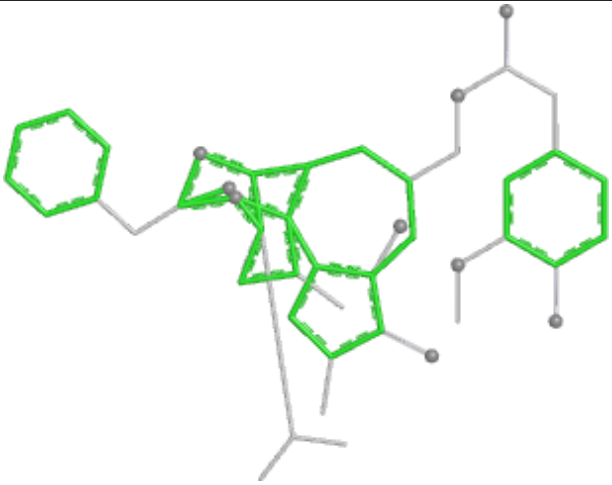
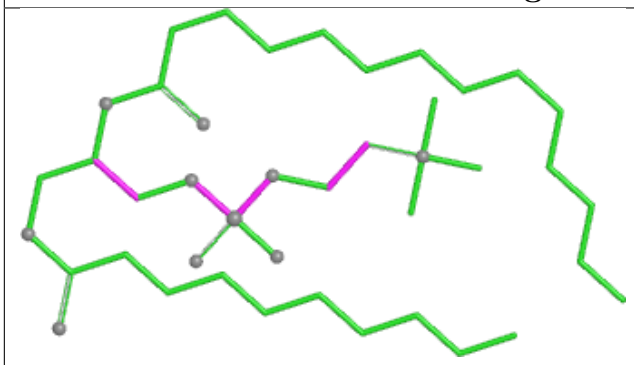


Rings

Ligand LBN D 901



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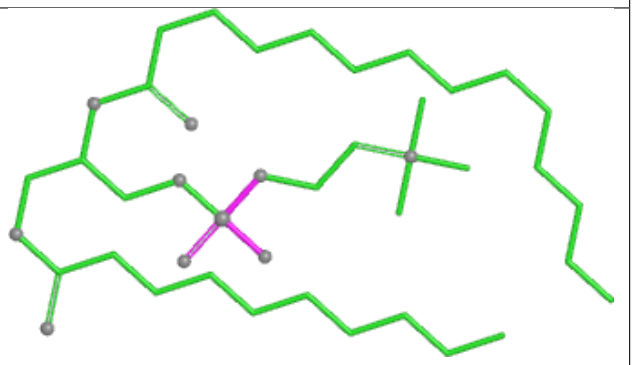

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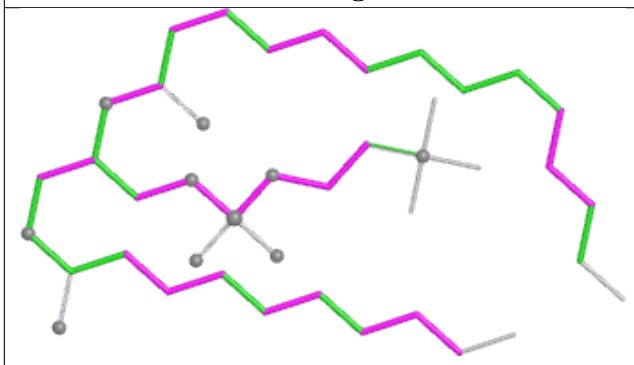

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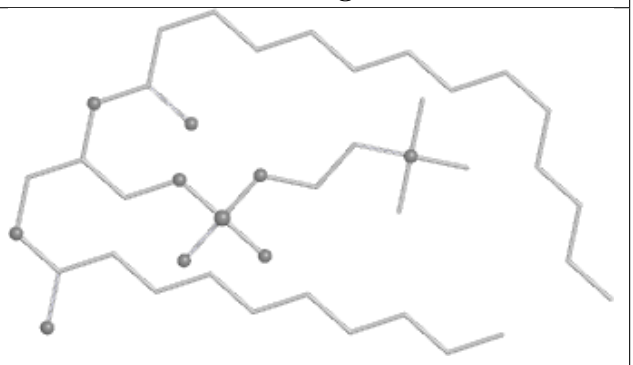
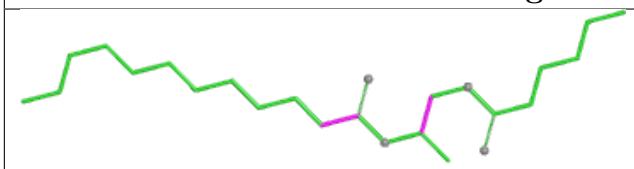


Rings

Ligand 6OU A 904



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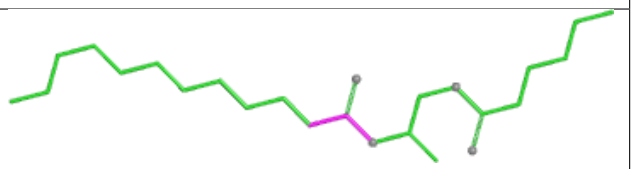

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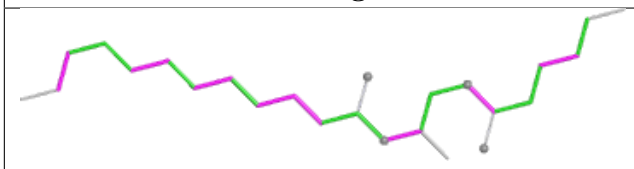

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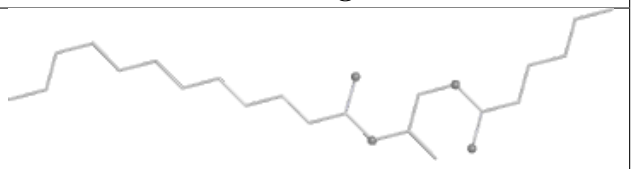

Rings

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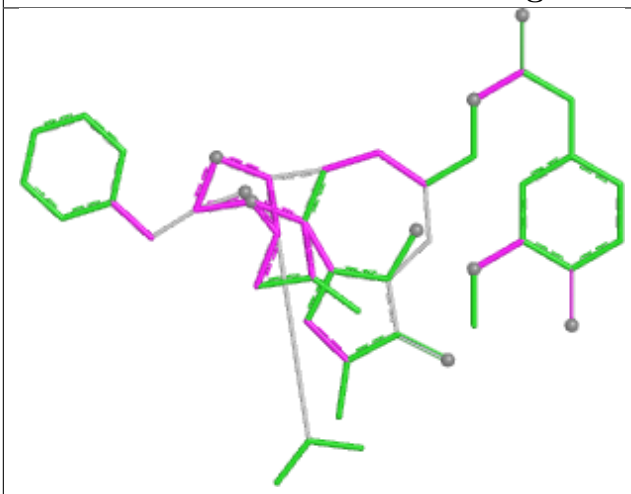

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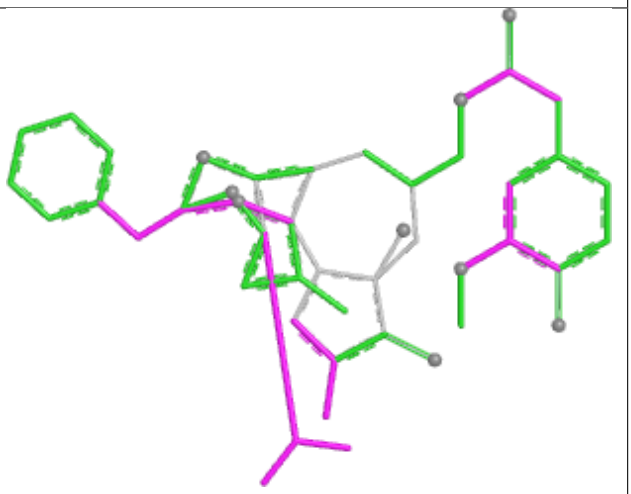

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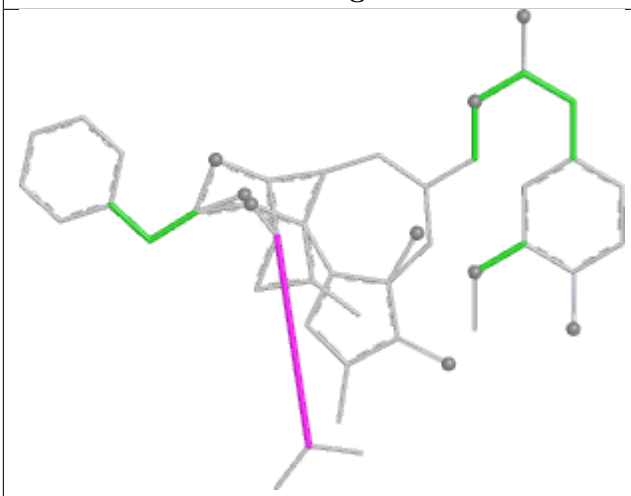

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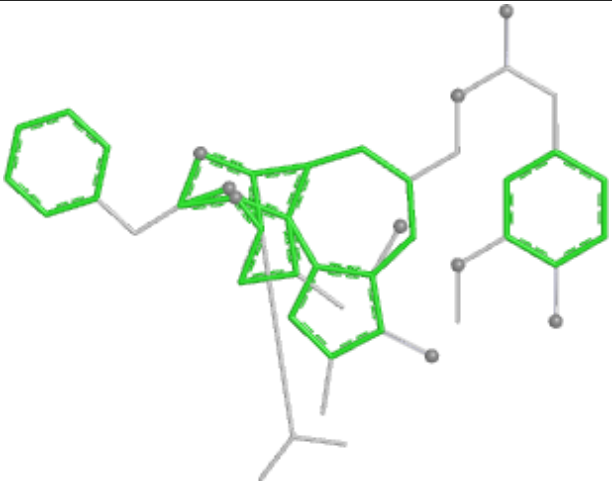
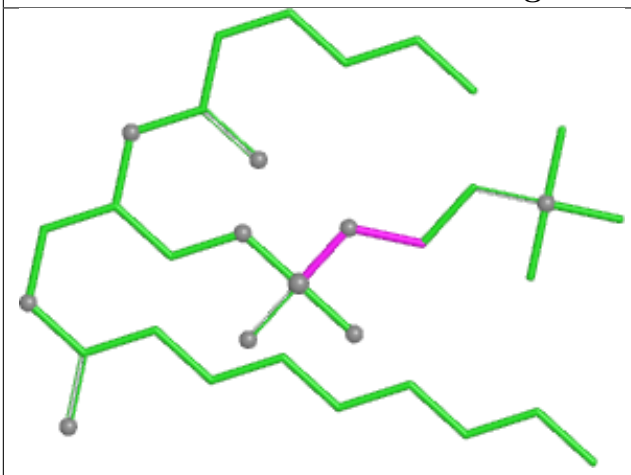


Rings

Ligand LBN C 902



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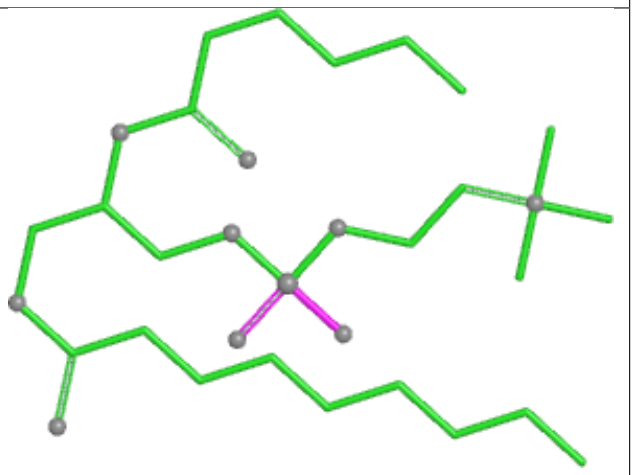

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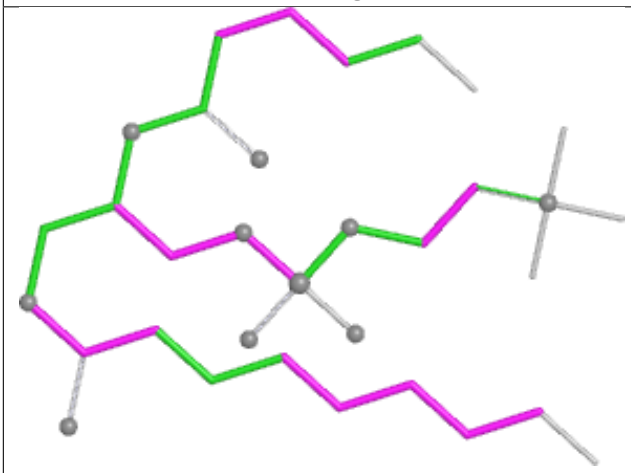

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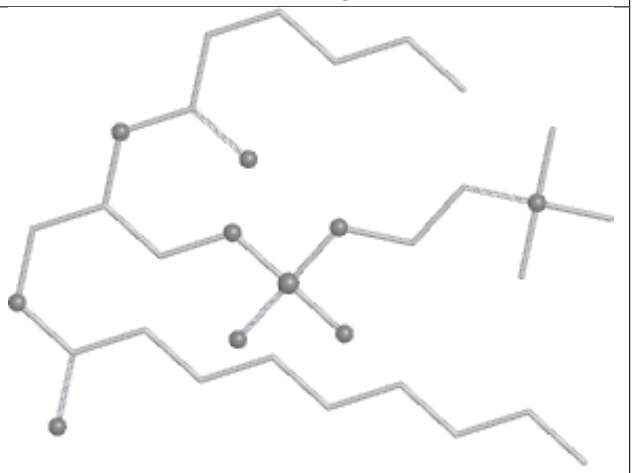
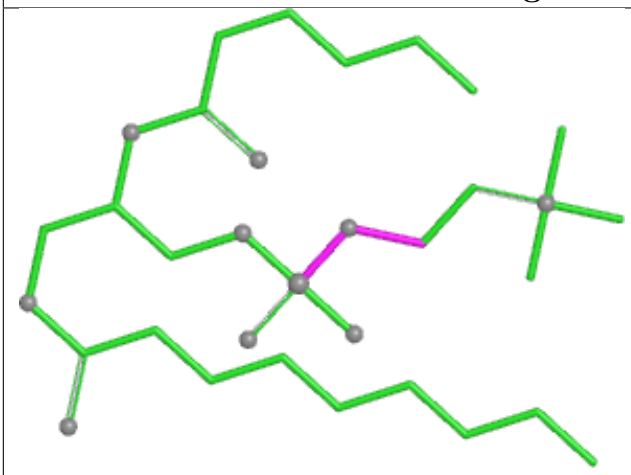


Rings

Ligand LBN A 902



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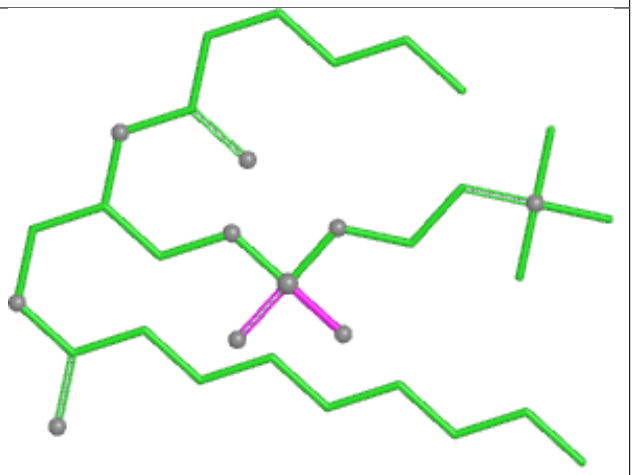

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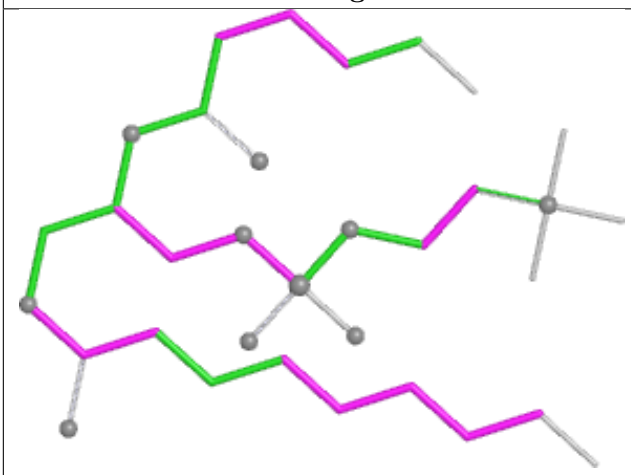

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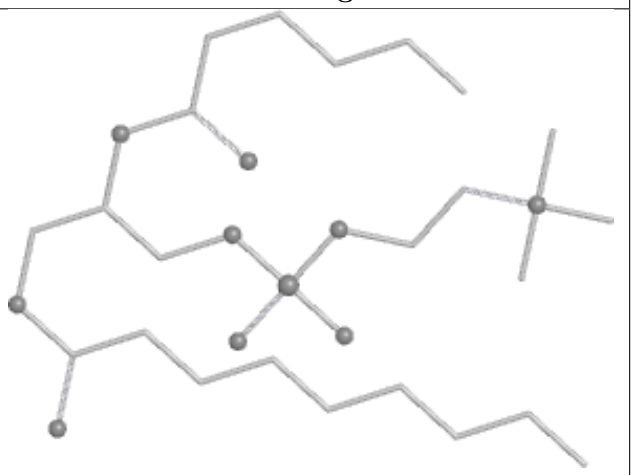
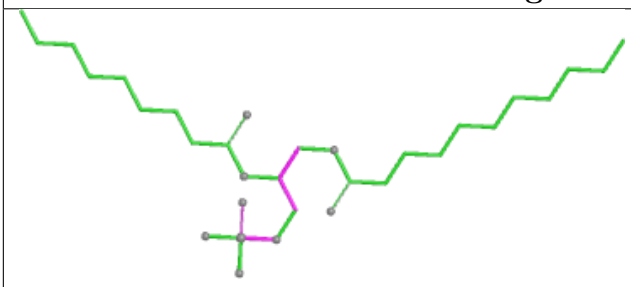
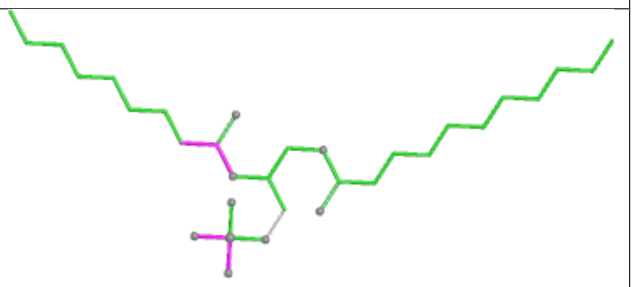


Rings

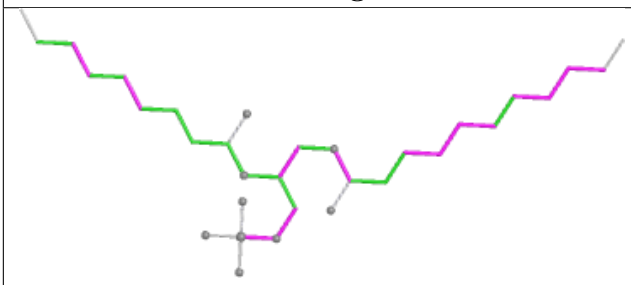
Ligand 6OU C 903



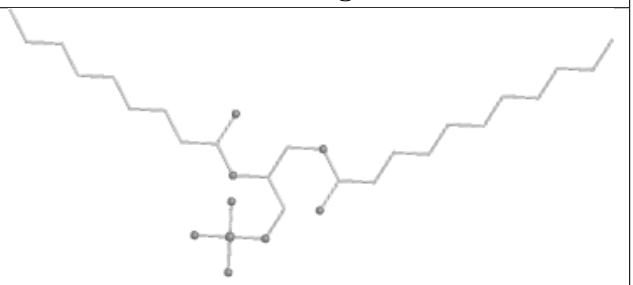
Bond lengths



Bond angles

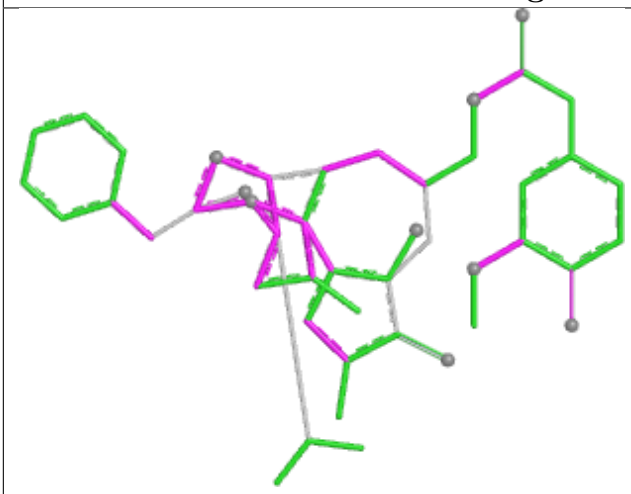


Torsions

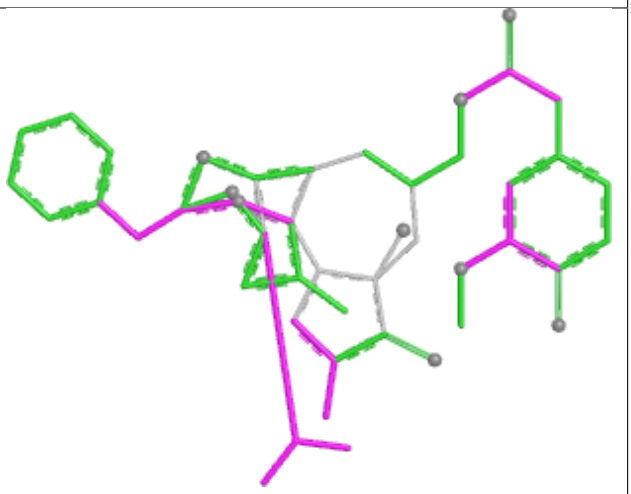


Rings

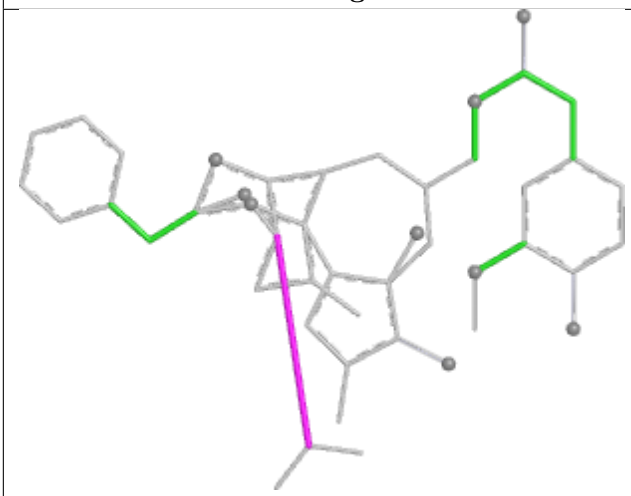
Ligand 6EU C 901



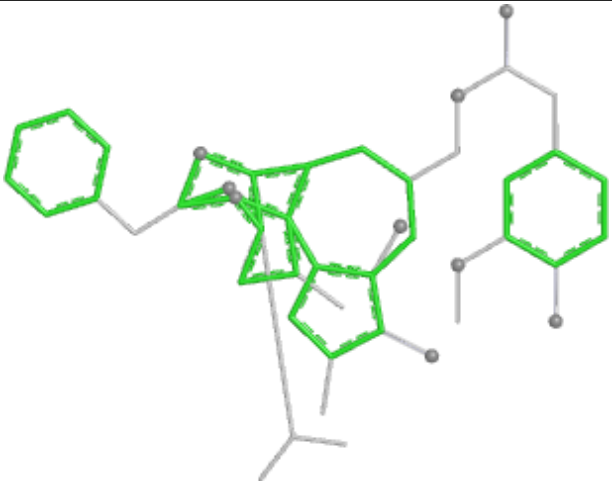
Bond lengths



Bond angles



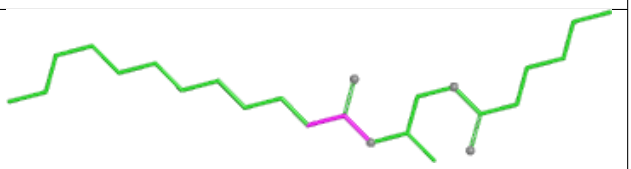
Torsions



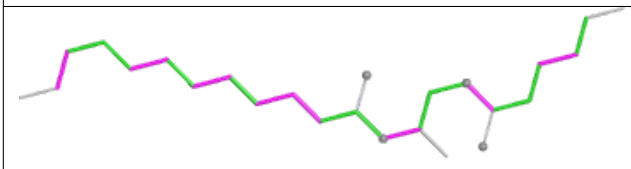
Rings

Ligand 6OU C 904

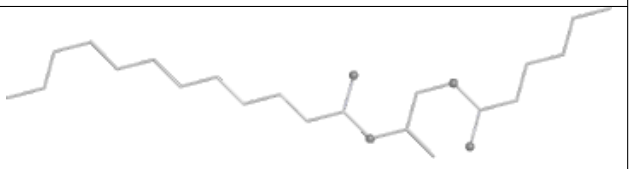
Bond lengths



Bond angles

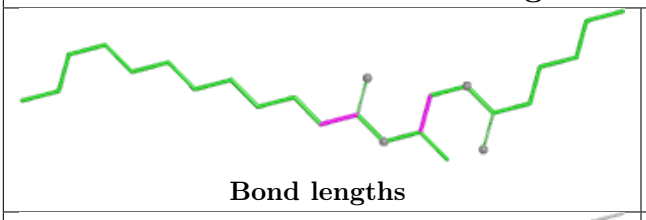


Torsions

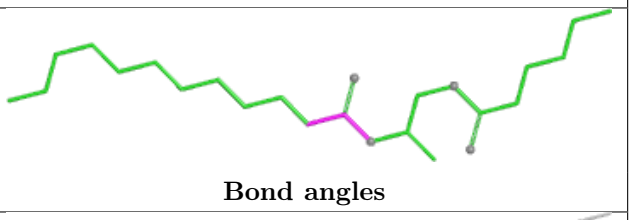


Rings

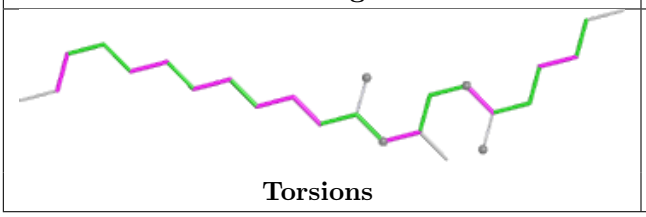
Ligand 6OU D 905



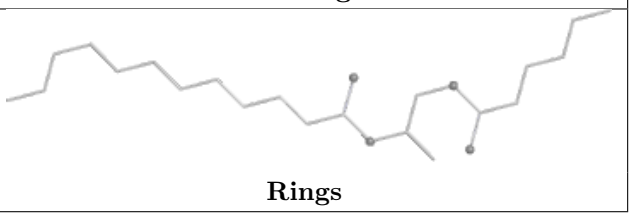
Bond lengths



Bond angles

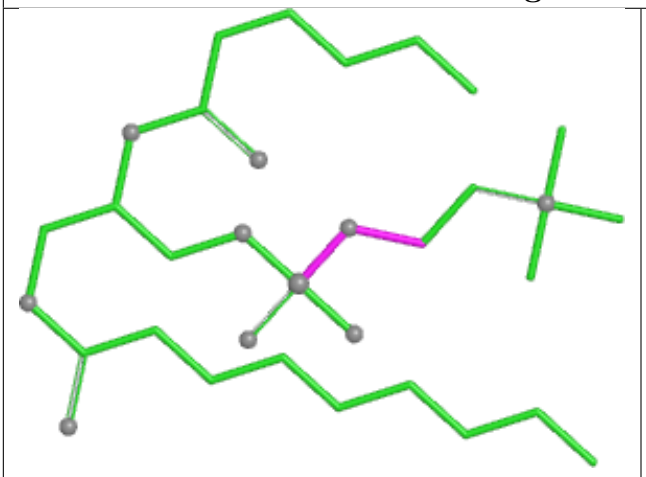


Torsions

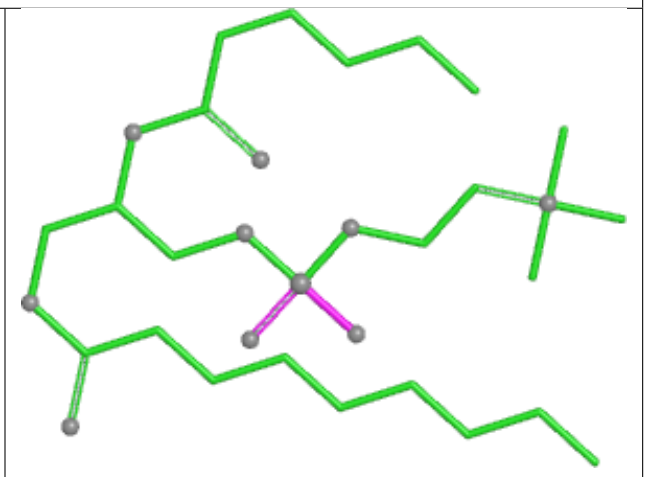


Rings

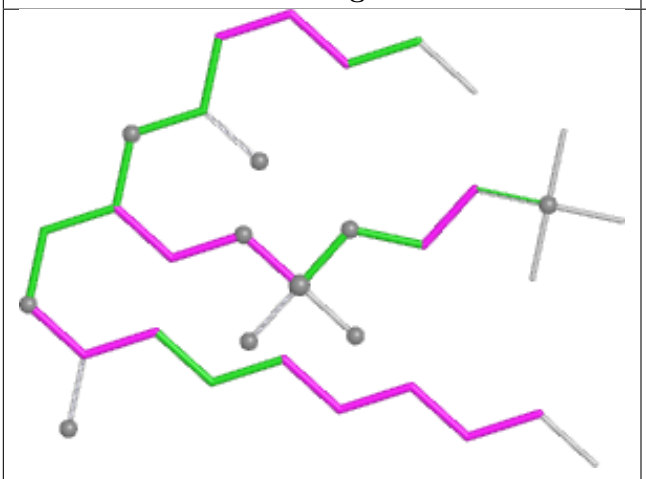
Ligand LBN B 902



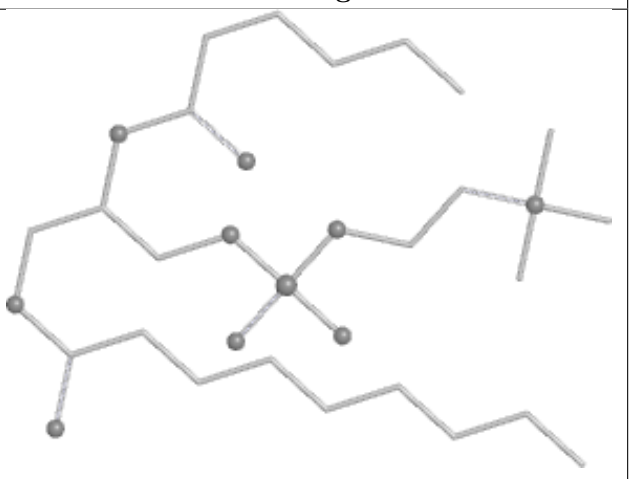
Bond lengths



Bond angles

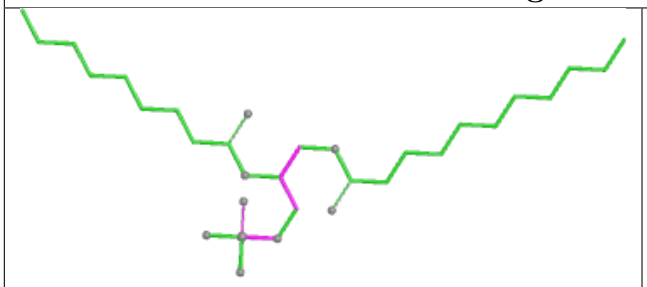


Torsions

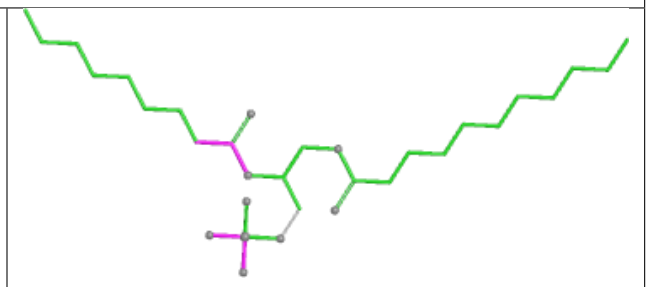


Rings

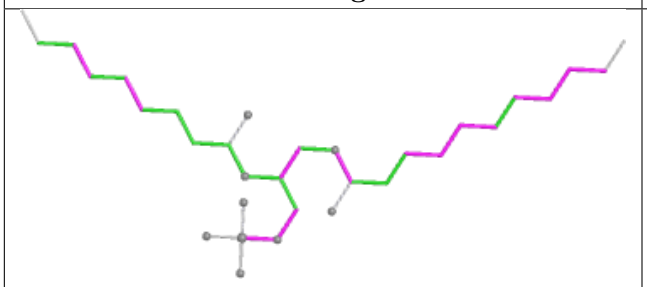
Ligand 6OU B 903



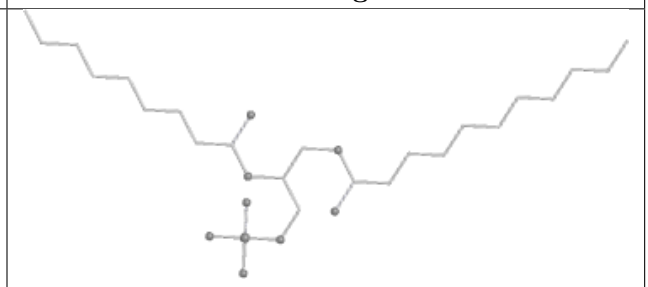
Bond lengths



Bond angles

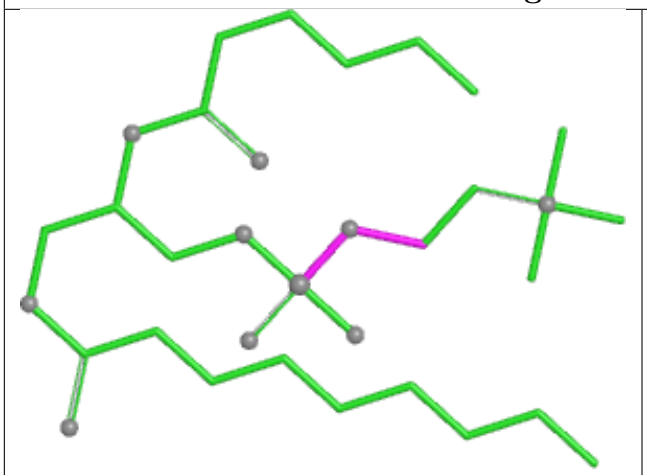


Torsions

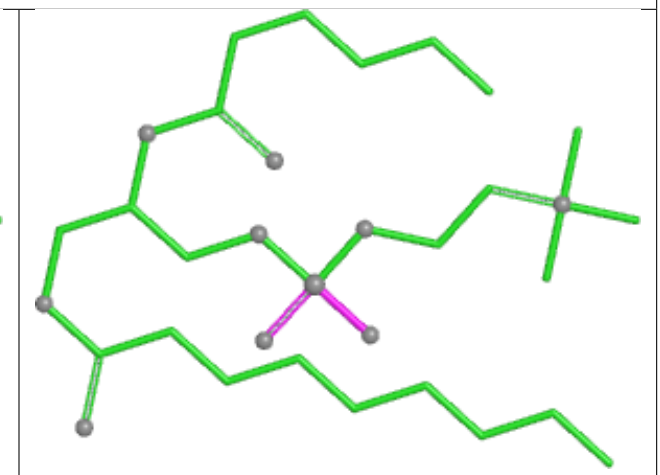


Rings

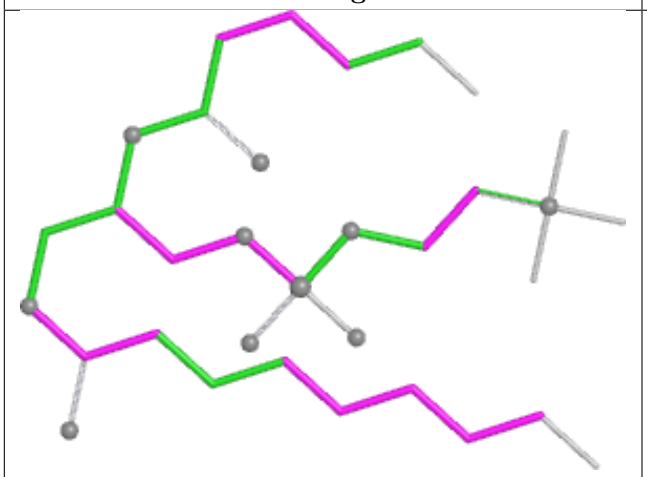
Ligand LBN D 903



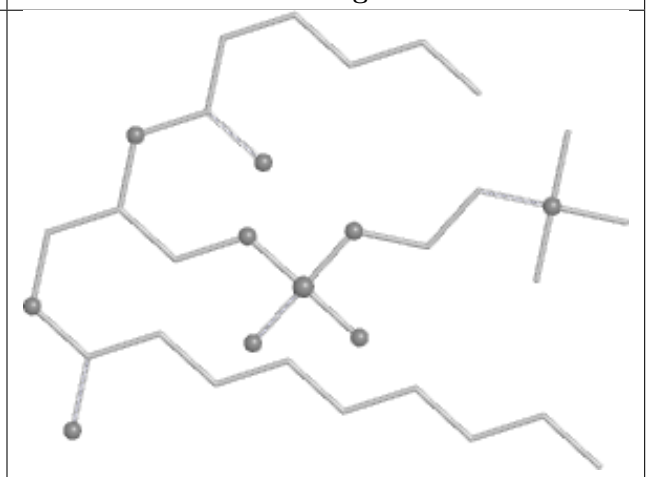
Bond lengths



Bond angles

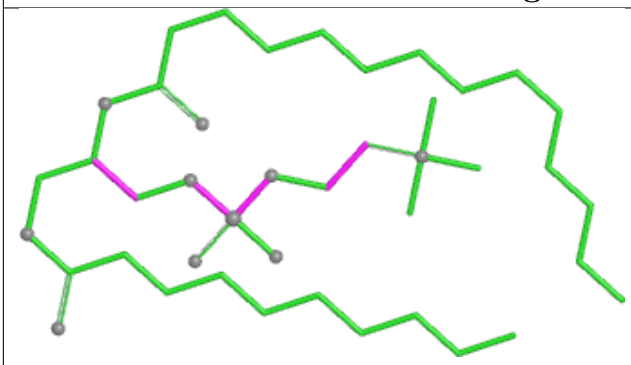


Torsions

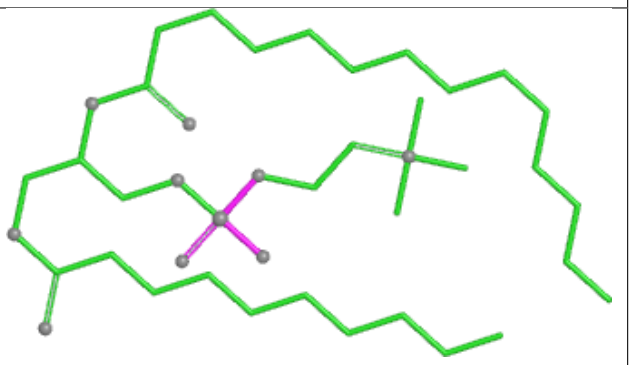


Rings

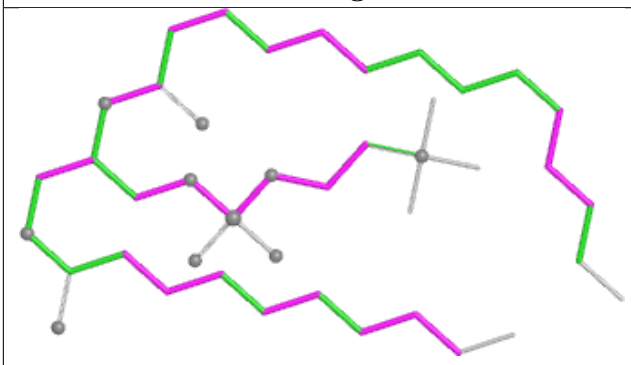
Ligand LBN A 905



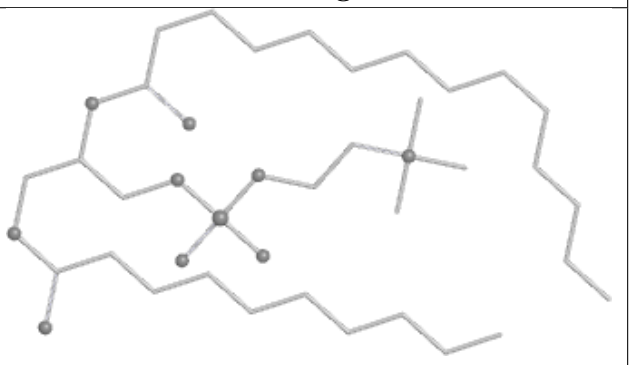
Bond lengths



Bond angles

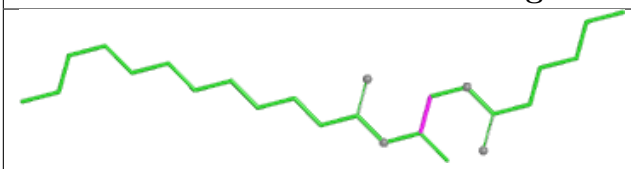


Torsions

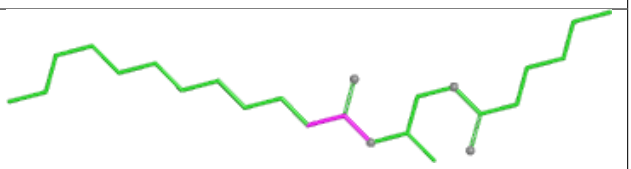


Rings

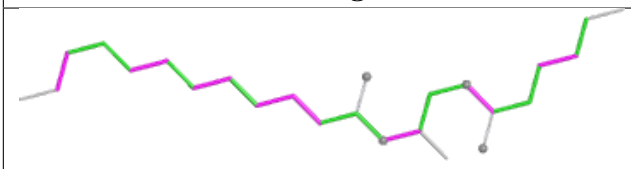
Ligand 6OU B 904



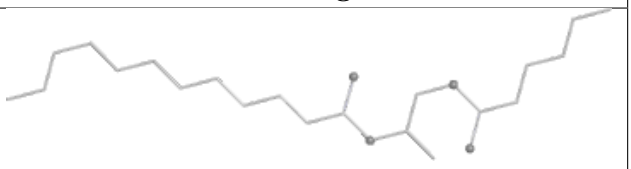
Bond lengths



Bond angles

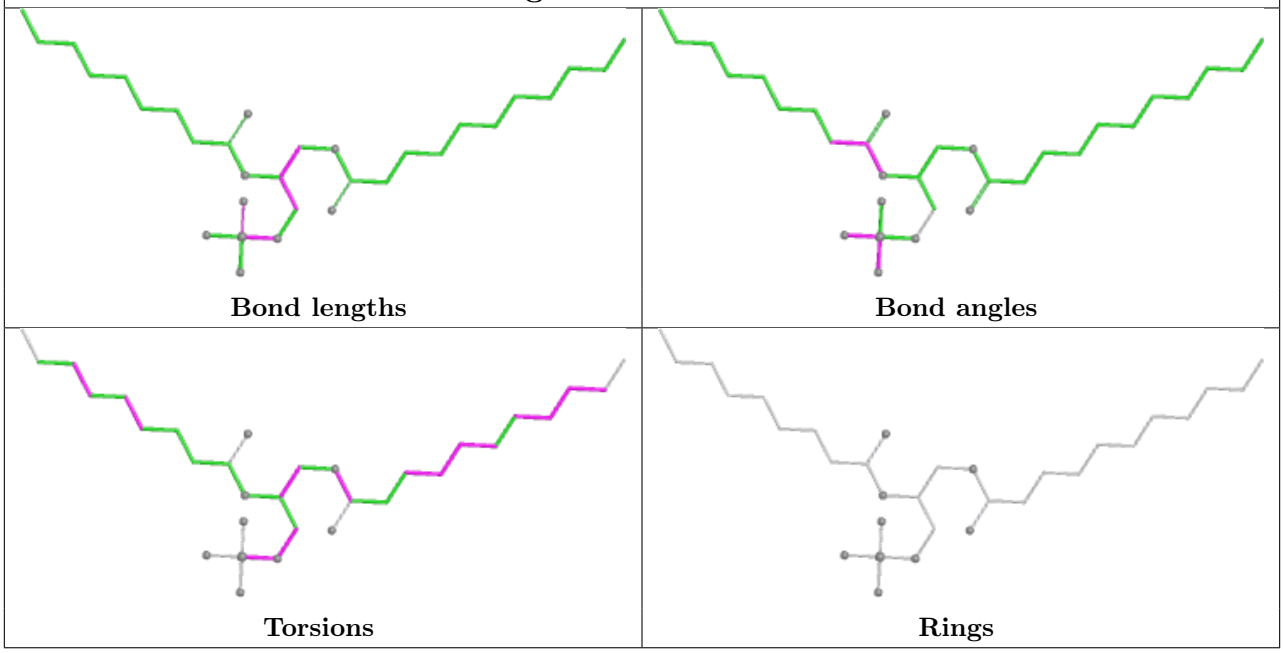


Torsions



Rings

Ligand 6OU D 904



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.

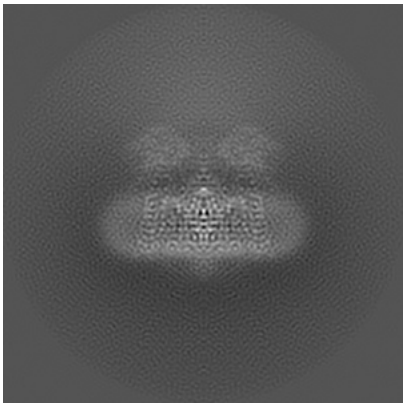
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-24641. These allow visual inspection of the internal detail of the map and identification of artifacts.

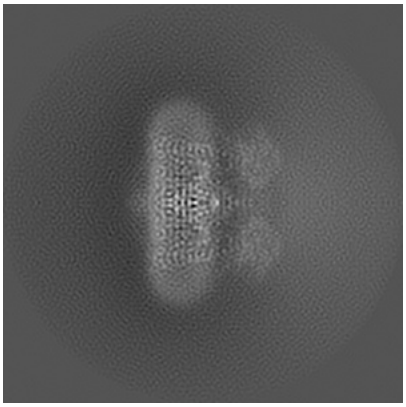
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

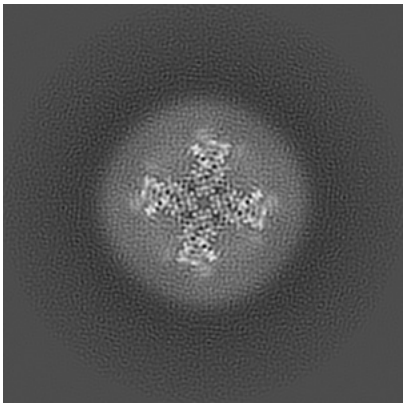
6.1.1 Primary map



X



Y

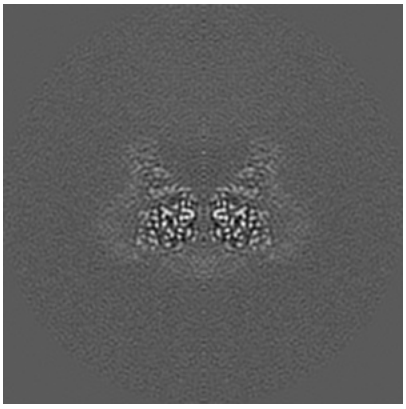


Z

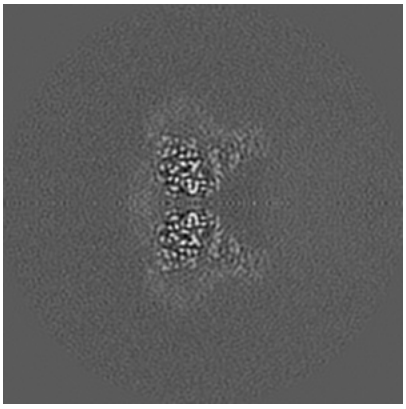
The images above show the map projected in three orthogonal directions.

6.2 Central slices

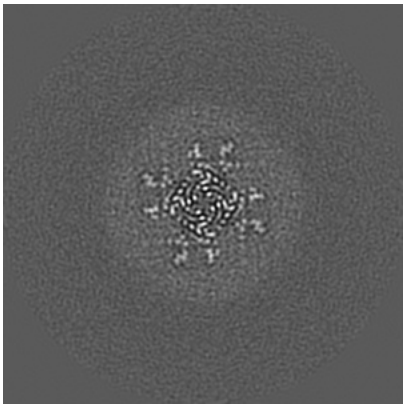
6.2.1 Primary map



X Index: 128



Y Index: 128

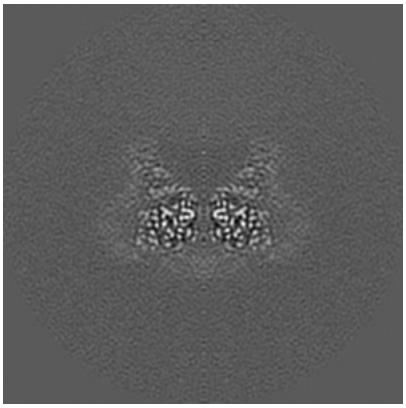


Z Index: 128

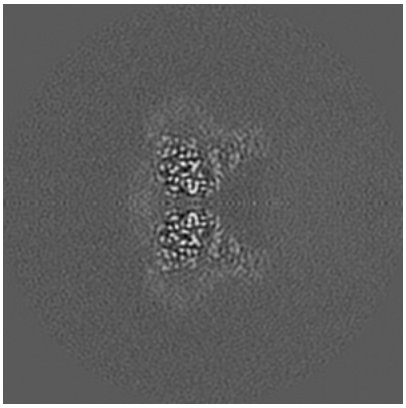
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

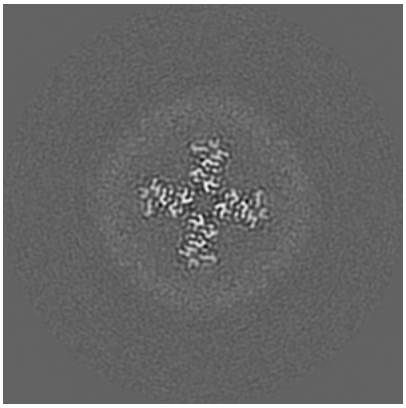
6.3.1 Primary map



X Index: 128



Y Index: 128

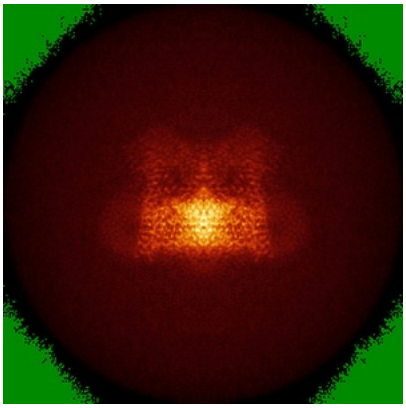


Z Index: 115

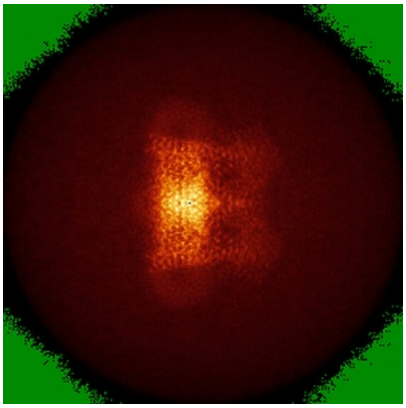
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

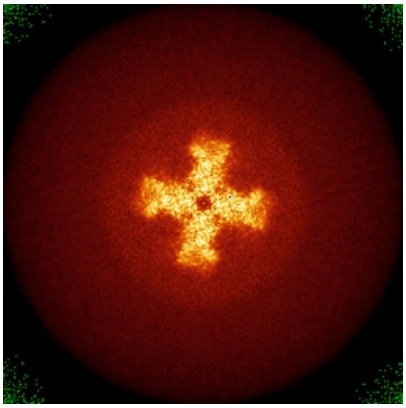
6.4.1 Primary map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0353. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

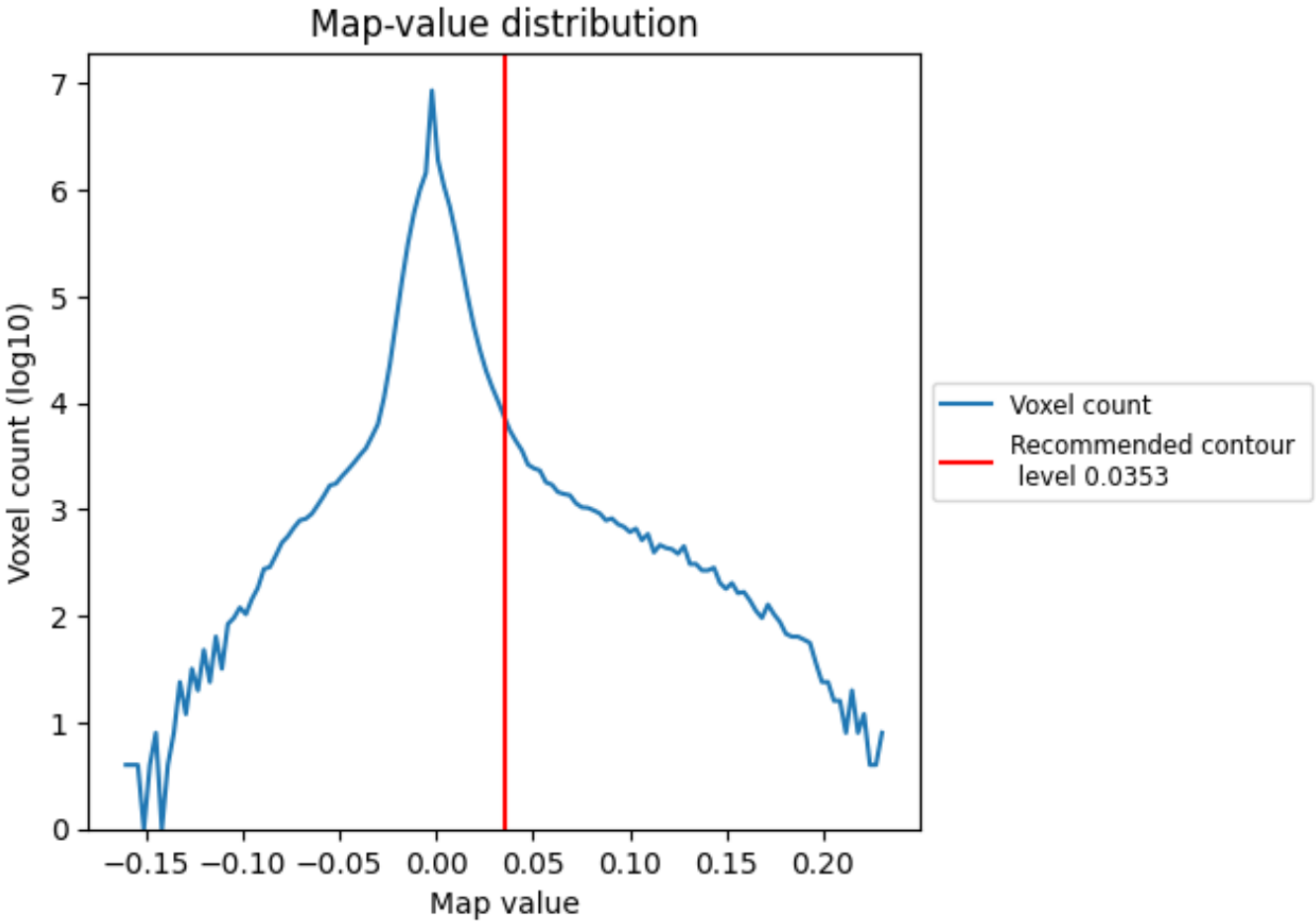
6.6 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis

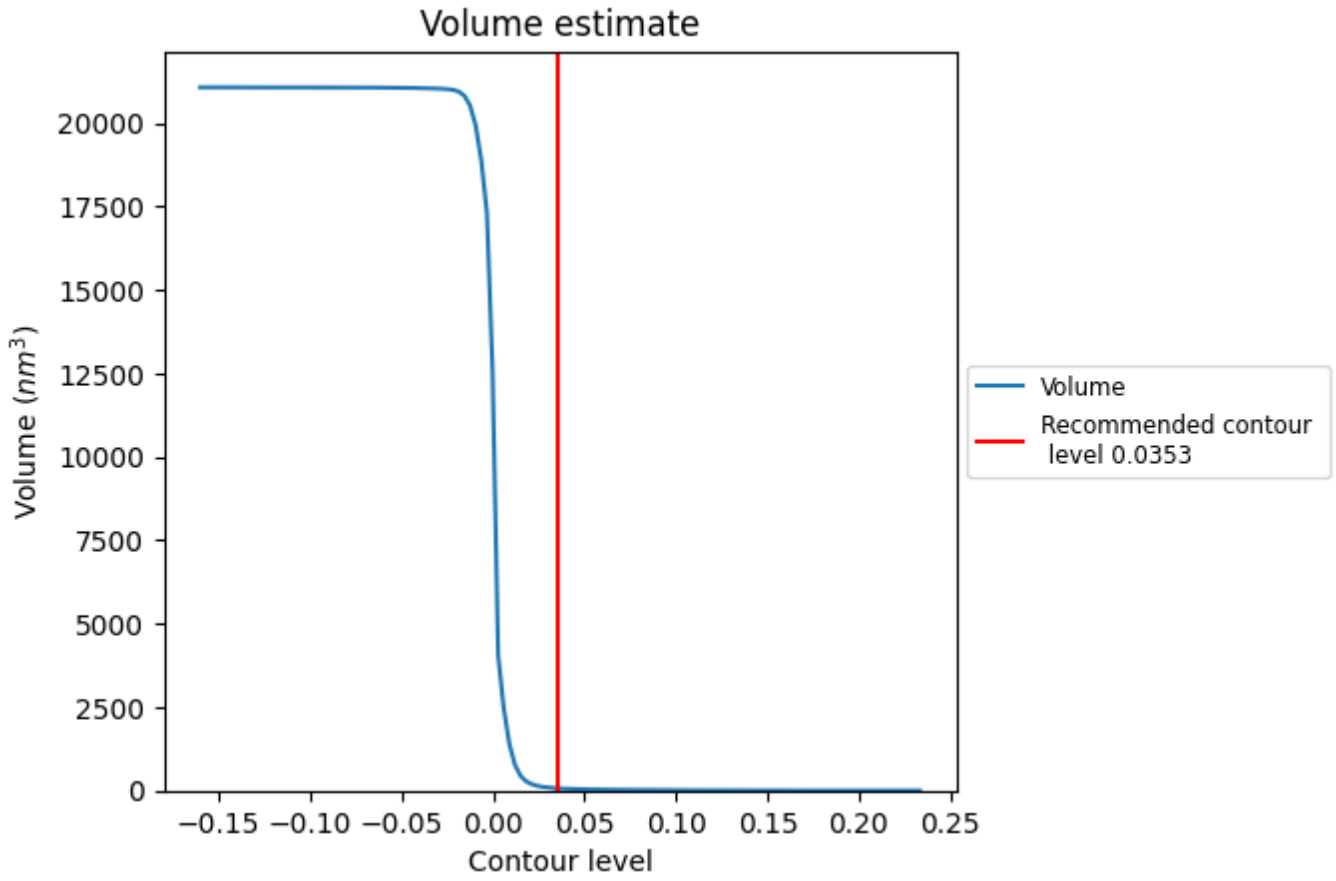
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

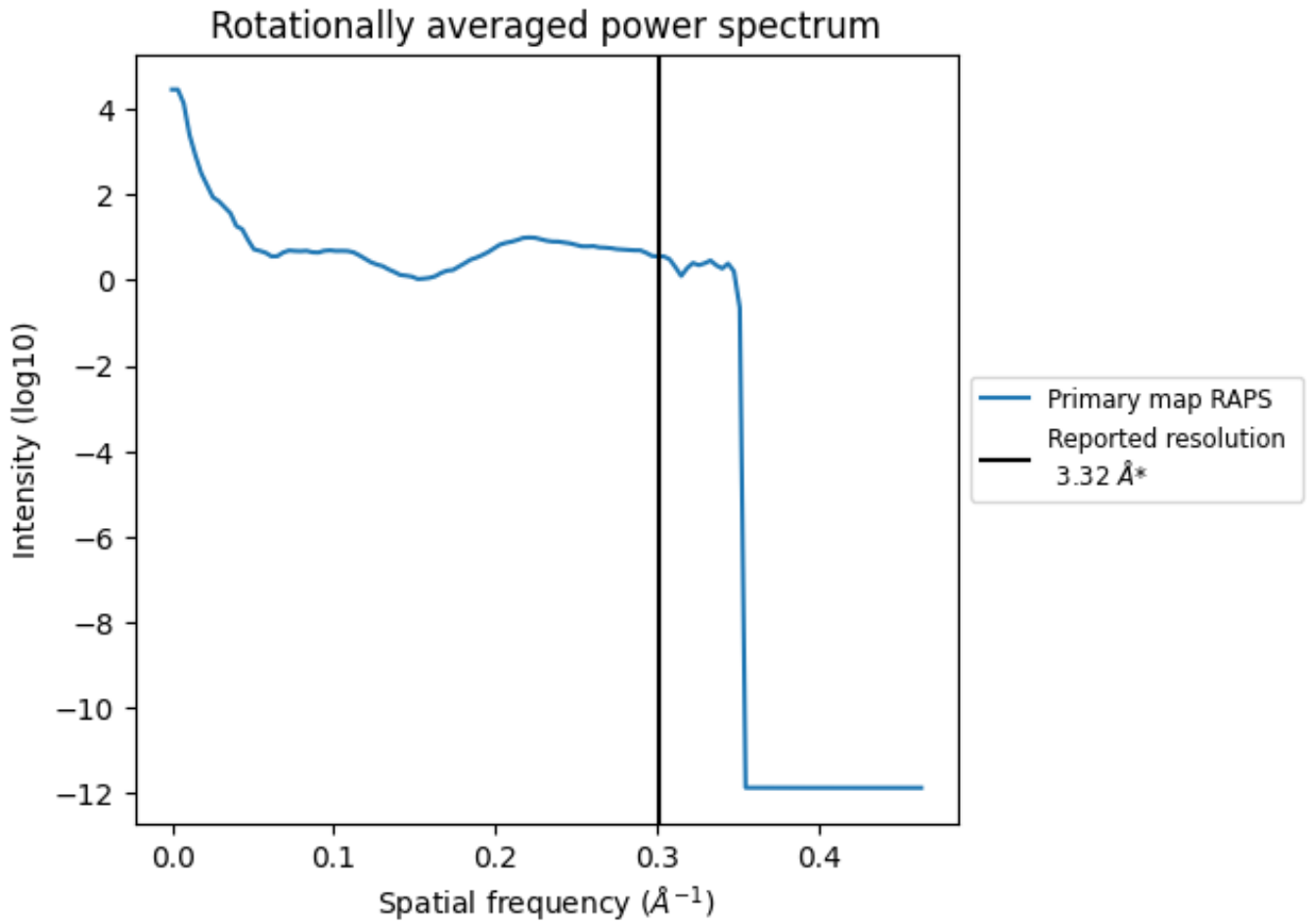
7.2 Volume estimate (i)



The volume at the recommended contour level is 66 nm^3; this corresponds to an approximate mass of 59 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.301 Å^{-1}

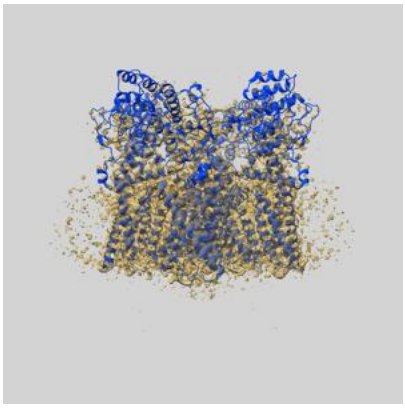
8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

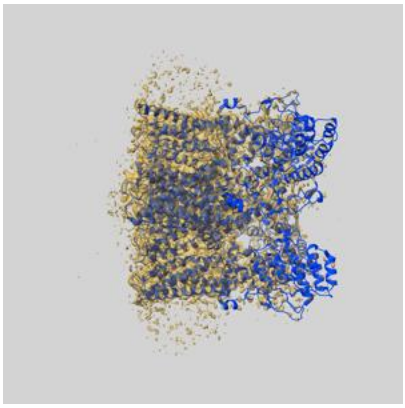
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-24641 and PDB model 7RQZ. Per-residue inclusion information can be found in section 3 on page 9.

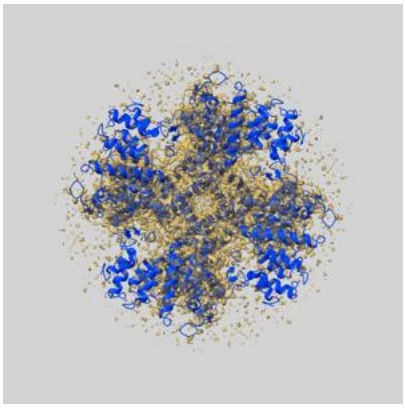
9.1 Map-model overlay



X



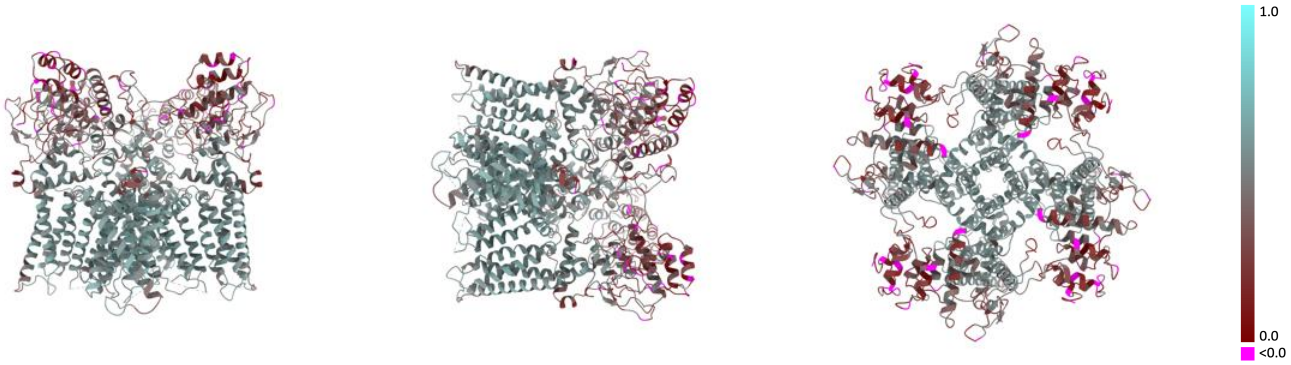
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0353 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

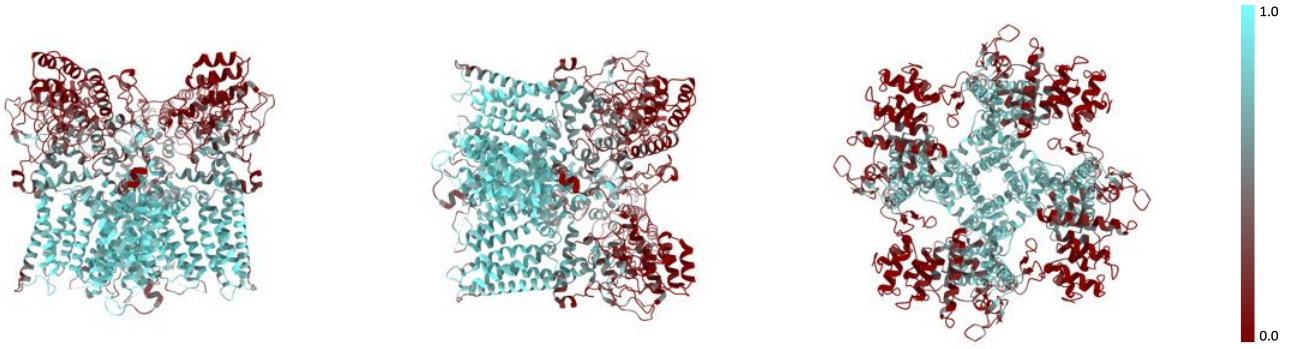
9.2 Q-score mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

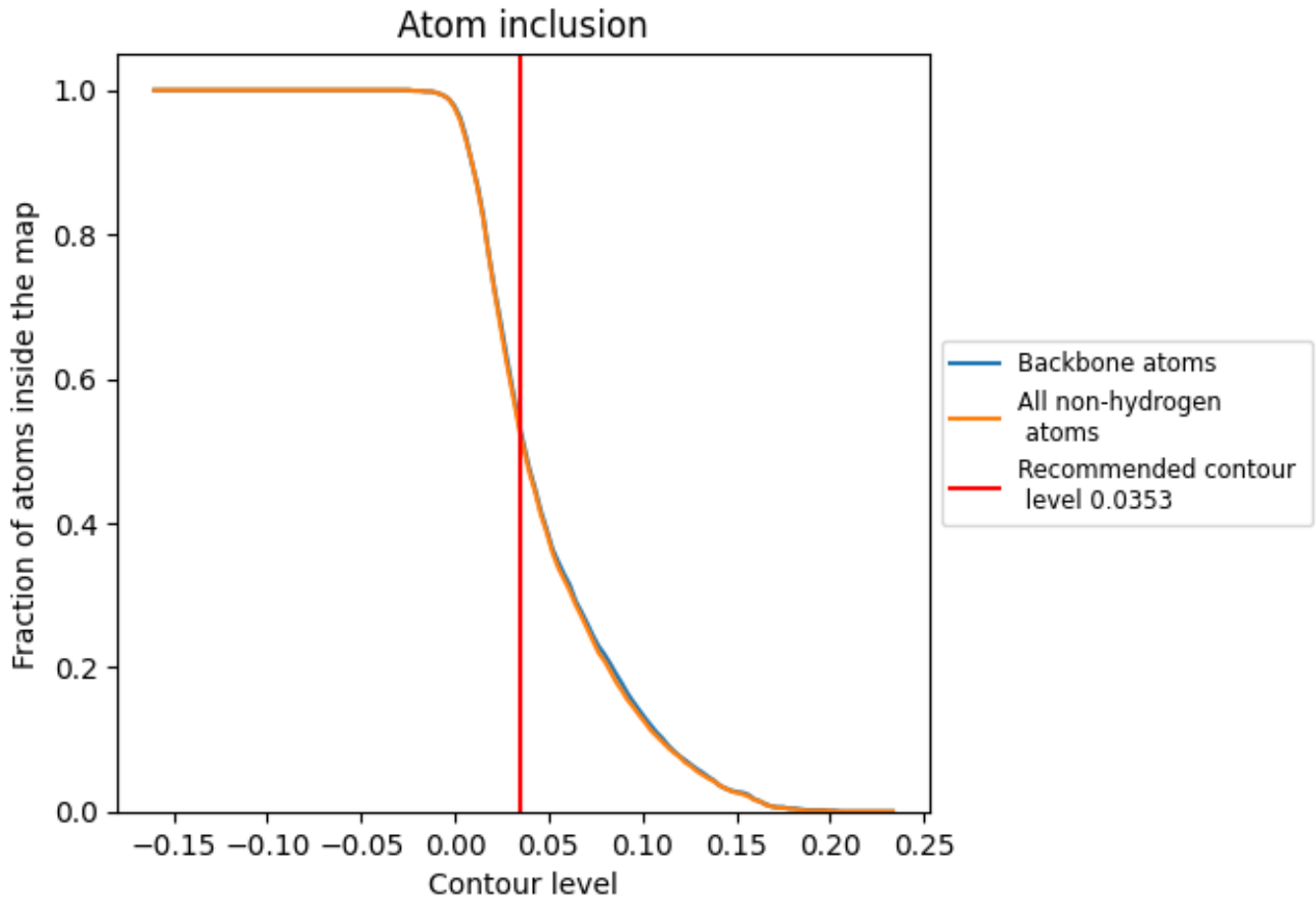
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0353).

9.4 Atom inclusion (i)



At the recommended contour level, 52% of all backbone atoms, 52% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.0353) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5170	0.4570
A	0.5140	0.4570
B	0.5140	0.4570
C	0.5130	0.4570
D	0.5130	0.4570