Full wwPDB EM Validation Report ⓘ

Jul 6, 2024 – 01:53 PM EDT

PDB ID	:	8UEX
EMDB ID	:	EMD-42174
Title	:	In-situ complex I, Deactive class06
Authors	:	Zheng, W.; Zhu, J.; Zhang, K.
Deposited on	:	2023-10-02
Resolution	:	3.90 Å(reported)

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:

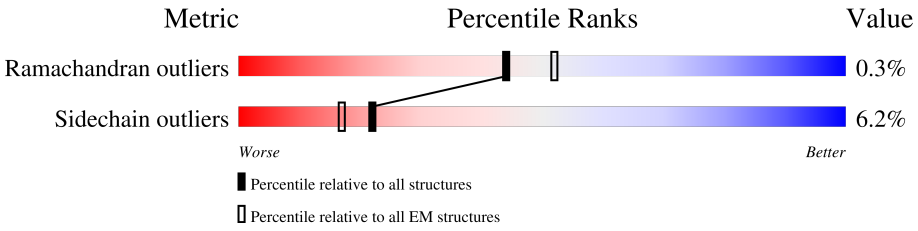
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 3.90 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1A	115	17% 71% 5% 23%
2	1B	258	18% 57% 40%
3	1C	264	43% 75% 21%
4	1D	476	30% 84% 12%
5	1E	249	84% 79% 7% 14%
6	1F	464	91% 88% 5% 7%
7	1G	727	67% 89% 7%
8	1H	318	15% 94% 5%
9	1I	239	13% 70% 26%

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Mol	Chain	Length	Quality of chain
10	1J	175	25% 90% 10%
11	1K	98	15% 91% 9%
12	1L	606	94% 6%
13	1M	459	97%
14	1N	347	5% 97%
15	1O	357	48% 85% 5% 10%
16	1P	377	63% 84% 7% 9%
17	1Q	175	48% 70% 26%
18	1R	123	54% 74% 22%
19	1S	99	81% 80% 7% 12%
20	1T	156	44% 51% 46%
20	1U	156	7% 50% 5% 45%
21	1V	116	86% 91% 7%
22	1W	128	64% 81% 9% 10%
23	1X	172	26% 92% 7%
24	1Y	141	6% 94% 5%
25	1Z	144	25% 93% 5%
26	1a	70	10% 93% 7%
27	1b	84	24% 93% 6%
28	1c	76	25% 58% 7% 36%
29	1d	123	11% 97%
30	1e	106	13% 85% 8% 7%
31	1f	135	15% 41% 58%
32	1g	154	16% 58% 6% 35%
33	1h	189	10% 68% 5% 27%

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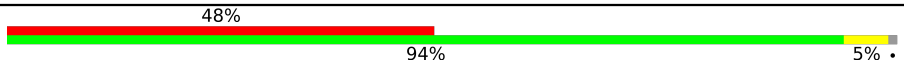
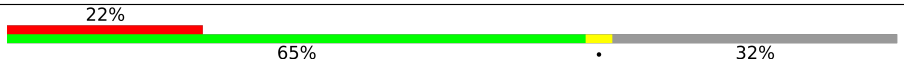
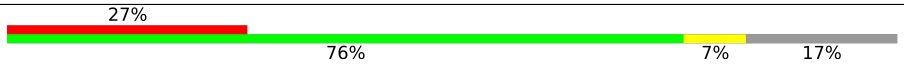
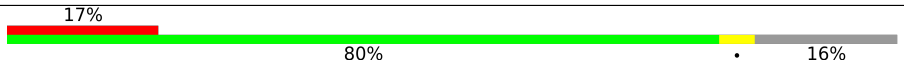
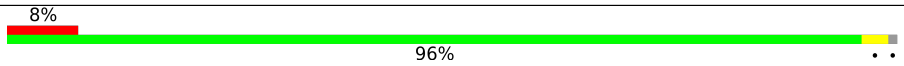
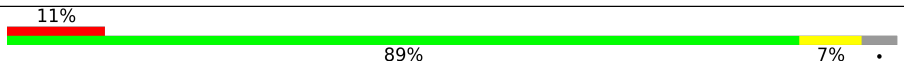
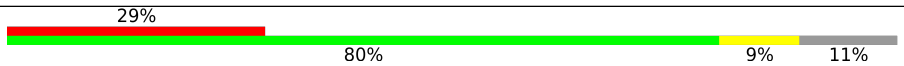
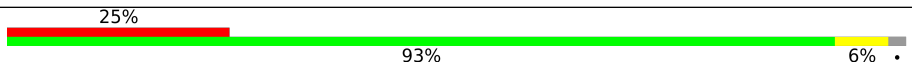
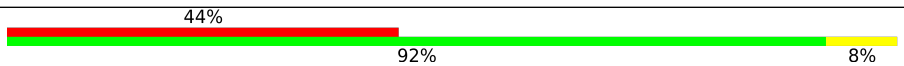
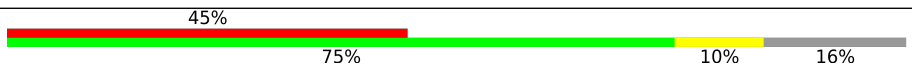
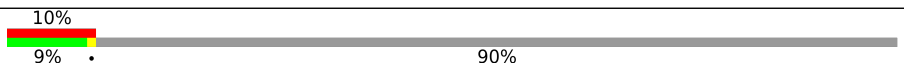
Mol	Chain	Length	Quality of chain
34	1i	128	
35	1j	105	
36	1k	98	
37	1l	186	
38	1m	129	
39	1n	179	
40	1o	137	
41	1p	176	
42	1q	145	
43	1r	114	
44	1s	471	

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 67180 atoms, of which 0 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 NADH-ubiquinone oxidoreductase chain 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1A	88	707	484	101	117	5	0	0

- Molecule 2 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	1B	155	1242	791	226	211	14	0	0

- Molecule 3 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	1C	209	1740	1125	297	316	2	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1C	104	GLN	ARG	conflict	UNP A0A286ZNN4
1C	154	GLY	ASP	conflict	UNP A0A286ZNN4

- Molecule 4 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	1D	418	3369	2155	574	616	24	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1D	0	GLY	GLU	conflict	UNP A0A8D0QM68

- Molecule 5 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	1E	214	Total	C	N	O	S	0	0
			1658	1058	278	312	10		

- Molecule 6 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	1F	432	Total	C	N	O	S	0	0
			3325	2100	592	613	20		

- Molecule 7 is a protein called NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	1G	699	Total	C	N	O	S	0	0
			5362	3360	933	1029	40		

- Molecule 8 is a protein called NADH-ubiquinone oxidoreductase chain 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	1H	318	Total	C	N	O	S	0	0
			2504	1673	385	425	21		

- Molecule 9 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	1I	176	Total	C	N	O	S	0	0
			1412	887	243	269	13		

- Molecule 10 is a protein called NADH-ubiquinone oxidoreductase chain 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	1J	175	Total	C	N	O	S	0	0
			1339	898	190	238	13		

- Molecule 11 is a protein called NADH-ubiquinone oxidoreductase chain 4L.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	1K	98	Total	C	N	O	S	0	0
			750	494	113	129	14		

- Molecule 12 is a protein called NADH-ubiquinone oxidoreductase chain 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	1L	606	Total	C	N	O	S	0	0
			4818	3195	746	826	51		

- Molecule 13 is a protein called NADH-ubiquinone oxidoreductase chain 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	1M	459	Total	C	N	O	S	0	0
			3632	2411	572	610	39		

- Molecule 14 is a protein called NADH-ubiquinone oxidoreductase chain 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	1N	347	Total	C	N	O	S	0	0
			2712	1783	420	463	46		

- Molecule 15 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	1O	320	Total	C	N	O	S	0	0
			2590	1649	440	491	10		

- Molecule 16 is a protein called NADH:ubiquinone oxidoreductase subunit A9.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	1P	342	Total	C	N	O	S	0	0
			2751	1783	481	478	9		

- Molecule 17 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	1Q	129	Total	C	N	O	S	0	0
			1047	659	186	199	3		

- Molecule 18 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	1R	96	Total	C	N	O	S	0	0
			741	452	140	146	3		

- Molecule 19 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	1S	87	Total	C	N	O	S	0	0
			700	440	131	127	2		

- Molecule 20 is a protein called NADH:ubiquinone oxidoreductase subunit AB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	1T	85	Total	C	N	O	S	0	0
			689	445	101	138	5		
20	1U	86	Total	C	N	O	S	0	0
			694	448	102	139	5		

- Molecule 21 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5 isoform X1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	1V	115	Total	C	N	O	S	0	0
			927	599	157	168	3		

- Molecule 22 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	1W	115	Total	C	N	O	S	0	0
			971	619	179	168	5		

- Molecule 23 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	1X	171	Total	C	N	O	S	0	0
			1398	887	250	251	10		

- Molecule 24 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	1Y	139	Total	C	N	O	S	0	0
			1016	648	173	189	6		

- Molecule 25 is a protein called NADH:ubiquinone oxidoreductase subunit A13.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	1Z	141	Total	C	N	O	S	0	0
			1168	752	202	205	9		

- Molecule 26 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	1a	70	Total	C	N	O	S	0	0
			562	361	101	94	6		

- Molecule 27 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	1b	83	Total	C	N	O	S	0	0
			643	417	110	115	1		

- Molecule 28 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	1c	49	Total	C	N	O	0	0
			417	276	71	70		

- Molecule 29 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C2.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	1d	121	Total	C	N	O	S	0	0
			996	648	172	170	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1d	-2	ACE	-	acetylation	UNP A0A480JRW3

- Molecule 30 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	1e	99	Total	C	N	O	S	0	0
			816	519	151	140	6		

- Molecule 31 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1 [Sus scrofa].

Mol	Chain	Residues	Atoms					AltConf	Trace
31	1f	57	Total	C	N	O	S	0	0
			487	316	89	80	2		

There are 29 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1f	-77	MET	-	initiating methionine	UNP A0A8D1IZ33
1f	-76	ALA	-	expression tag	UNP A0A8D1IZ33
1f	-75	ALA	-	expression tag	UNP A0A8D1IZ33
1f	-74	ALA	-	expression tag	UNP A0A8D1IZ33
1f	-73	ILE	-	expression tag	UNP A0A8D1IZ33
1f	-72	LEU	-	expression tag	UNP A0A8D1IZ33
1f	-71	LYS	-	expression tag	UNP A0A8D1IZ33
1f	-70	LEU	-	expression tag	UNP A0A8D1IZ33
1f	-69	GLU	-	expression tag	UNP A0A8D1IZ33
1f	-68	GLU	-	expression tag	UNP A0A8D1IZ33
1f	-67	THR	-	expression tag	UNP A0A8D1IZ33
1f	-66	ARG	-	expression tag	UNP A0A8D1IZ33
1f	-65	GLY	-	expression tag	UNP A0A8D1IZ33
1f	-64	GLY	-	expression tag	UNP A0A8D1IZ33
1f	-63	GLY	-	expression tag	UNP A0A8D1IZ33
1f	-62	GLU	-	expression tag	UNP A0A8D1IZ33
1f	-61	LYS	-	expression tag	UNP A0A8D1IZ33
1f	-60	CYS	-	expression tag	UNP A0A8D1IZ33
1f	-59	ASP	-	expression tag	UNP A0A8D1IZ33
1f	-58	LYS	-	expression tag	UNP A0A8D1IZ33
1f	-57	ASN	-	expression tag	UNP A0A8D1IZ33
1f	-56	GLN	-	expression tag	UNP A0A8D1IZ33
1f	-55	GLY	-	expression tag	UNP A0A8D1IZ33
1f	-54	VAL	-	expression tag	UNP A0A8D1IZ33
1f	-53	LYS	-	expression tag	UNP A0A8D1IZ33
1f	-52	GLY	-	expression tag	UNP A0A8D1IZ33
1f	-51	ARG	-	expression tag	UNP A0A8D1IZ33
1f	-50	ARG	-	expression tag	UNP A0A8D1IZ33
1f	-49	PHE	-	expression tag	UNP A0A8D1IZ33

- Molecule 32 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	1g	100	Total	C	N	O	S	0	0
			835	535	138	158	4		

- Molecule 33 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	1h	138	Total	C	N	O	S	0	0
			1151	754	195	199	3		

- Molecule 34 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	1i	127	Total	C	N	O	S	0	0
			1100	723	194	181	2		

- Molecule 35 is a protein called NADH:ubiquinone oxidoreductase subunit B2.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	1j	71	Total	C	N	O	S	0	0
			601	394	99	107	1		

- Molecule 36 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	1k	81	Total	C	N	O	S	0	0
			649	422	110	116	1		

- Molecule 37 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	1l	156	Total	C	N	O	S	0	0
			1310	847	213	242	8		

- Molecule 38 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	1m	128	Total	C	N	O	0	0
			1062	691	182	189		

- Molecule 39 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	1n	172	Total	C	N	O	S	0	0
			1495	956	273	258	8		

- Molecule 40 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	1o	122	Total	C	N	O	S	0	0
			1045	650	198	187	10		

- Molecule 41 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	1p	173	Total	C	N	O	S	0	0
			1449	908	263	270	8		

- Molecule 42 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	1q	145	Total	C	N	O	S	0	0
			1212	775	219	213	5		

- Molecule 43 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	1r	96	Total	C	N	O	S	0	0
			767	483	144	137	3		

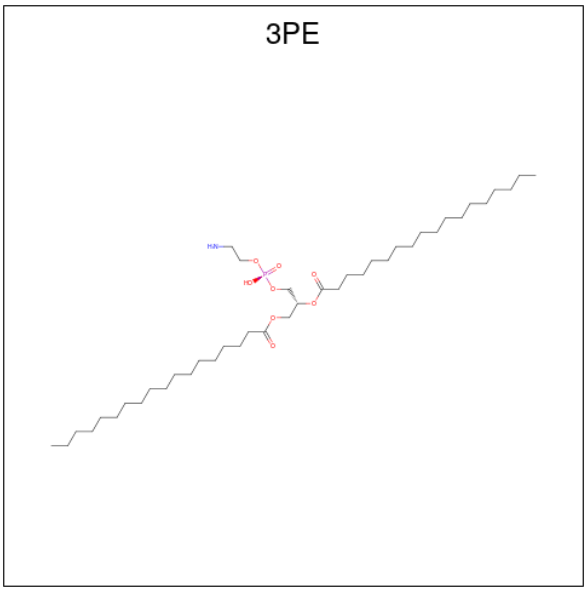
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1r	0	ACE	-	insertion	UNP A0A8W4F7N8

- Molecule 44 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial.

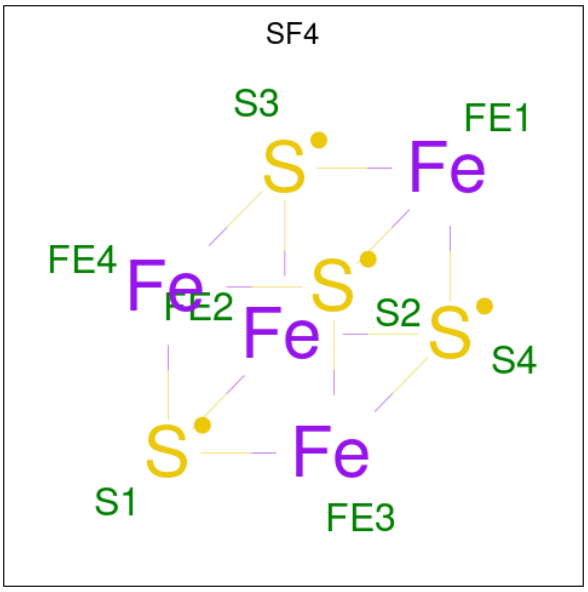
Mol	Chain	Residues	Atoms					AltConf	Trace
44	1s	45	Total	C	N	O	S	0	0
			382	238	70	73	1		

- Molecule 45 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: $C_{41}H_{82}NO_8P$).



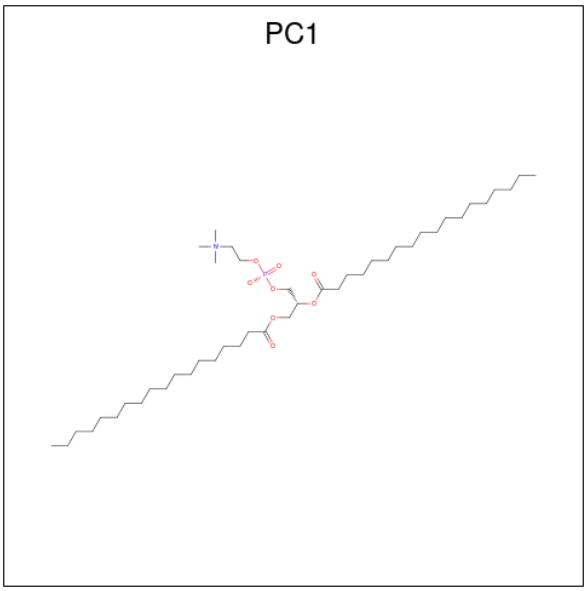
Mol	Chain	Residues	Atoms					AltConf
45	1A	1	Total	C	N	O	P	0
			47	37	1	8	1	
45	1L	1	Total	C	N	O	P	0
			46	36	1	8	1	
45	1L	1	Total	C	N	O	P	0
			31	21	1	8	1	
45	1L	1	Total	C	N	O	P	0
			42	32	1	8	1	
45	1N	1	Total	C	N	O	P	0
			51	41	1	8	1	
45	1Y	1	Total	C	N	O	P	0
			51	41	1	8	1	

- Molecule 46 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



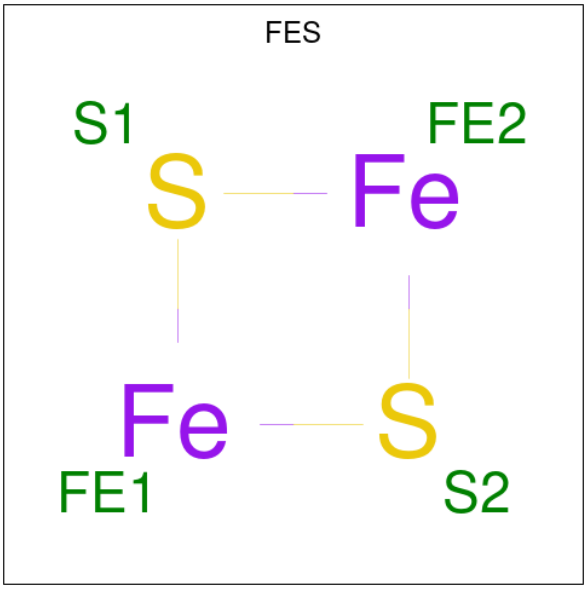
Mol	Chain	Residues	Atoms	AltConf
46	1B	1	Total Fe S 8 4 4	0
46	1F	1	Total Fe S 8 4 4	0
46	1G	1	Total Fe S 8 4 4	0
46	1G	1	Total Fe S 8 4 4	0
46	1I	1	Total Fe S 8 4 4	0
46	1I	1	Total Fe S 8 4 4	0

- Molecule 47 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (three-letter code: PC1) (formula: $C_{44}H_{88}NO_8P$).



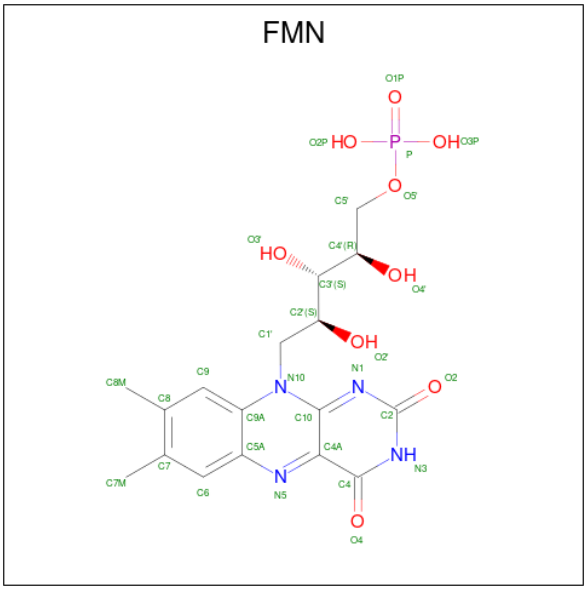
Mol	Chain	Residues	Atoms					AltConf
47	1D	1	Total	C	N	O	P	0
			54	44	1	8	1	
47	1I	1	Total	C	N	O	P	0
			44	34	1	8	1	
47	1J	1	Total	C	N	O	P	0
			35	25	1	8	1	
47	1M	1	Total	C	N	O	P	0
			44	34	1	8	1	
47	1h	1	Total	C	N	O	P	0
			46	36	1	8	1	

- Molecule 48 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms	AltConf
48	1E	1	Total Fe S 4 2 2	0
48	1G	1	Total Fe S 4 2 2	0

- Molecule 49 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).

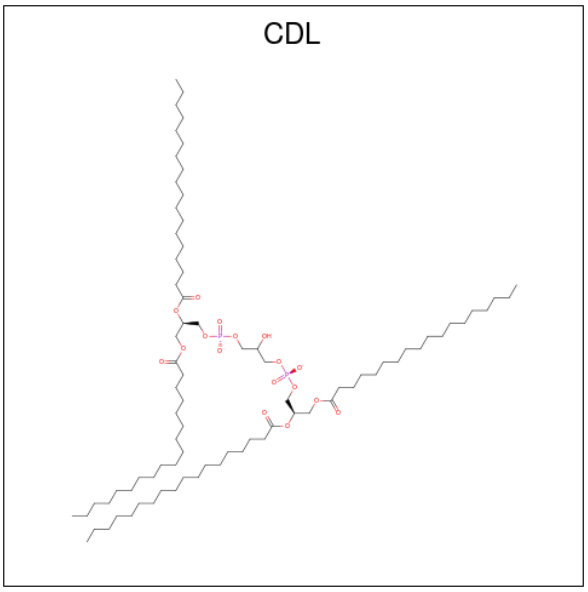


Mol	Chain	Residues	Atoms	AltConf
49	1F	1	Total C N O P 31 17 4 9 1	0

- Molecule 50 is POTASSIUM ION (three-letter code: K) (formula: K).

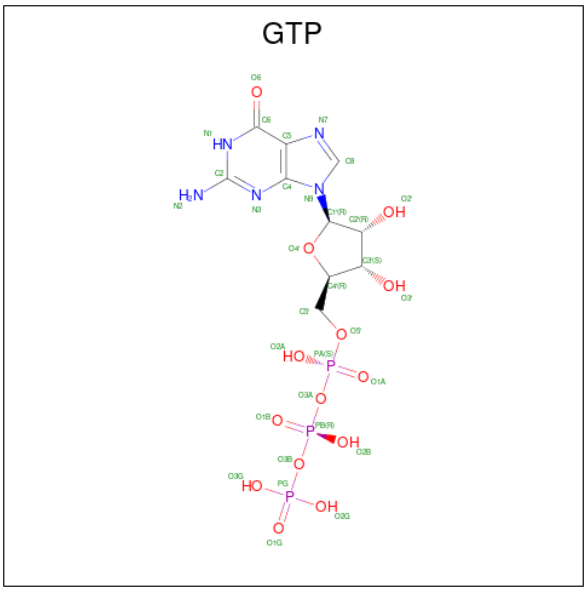
Mol	Chain	Residues	Atoms	AltConf
50	1G	1	Total K 1 1	0

- Molecule 51 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms				AltConf
51	1N	1	Total	C	O	P	0
			77	58	17	2	
51	1r	1	Total	C	O	P	0
			61	42	17	2	

- Molecule 52 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).

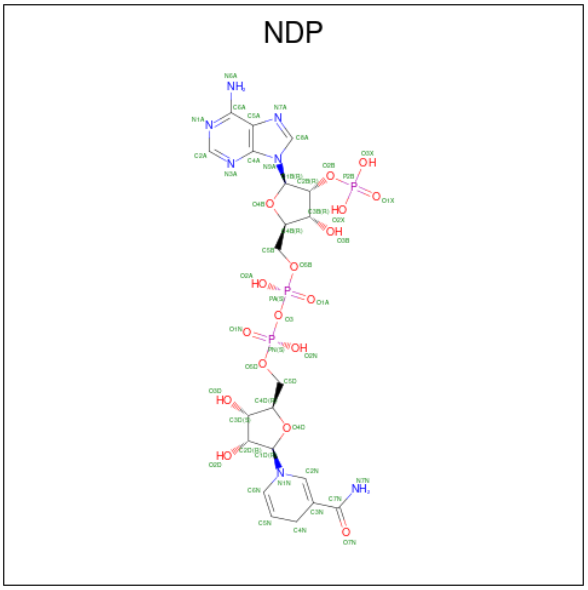


Mol	Chain	Residues	Atoms					AltConf
52	1O	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 53 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
53	1O	1	Total	Mg	0
			1	1	

- Molecule 54 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).

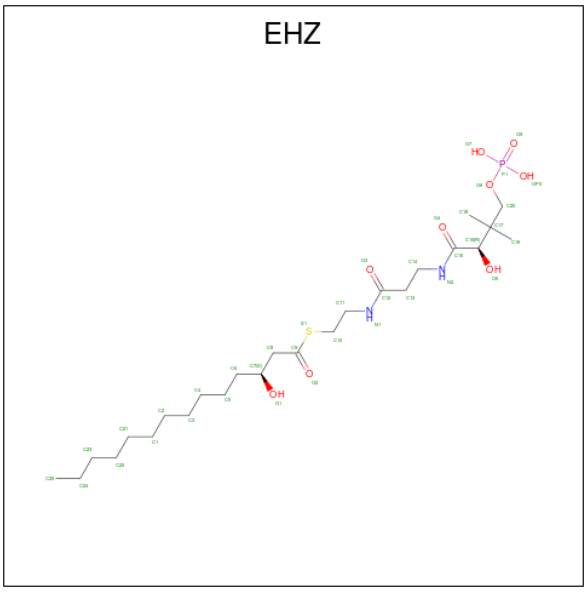


Mol	Chain	Residues	Atoms					AltConf
54	1P	1	Total	C	N	O	P	0
			48	21	7	17	3	

- Molecule 55 is ZINC ION (three-letter code: ZN) (formula: Zn).

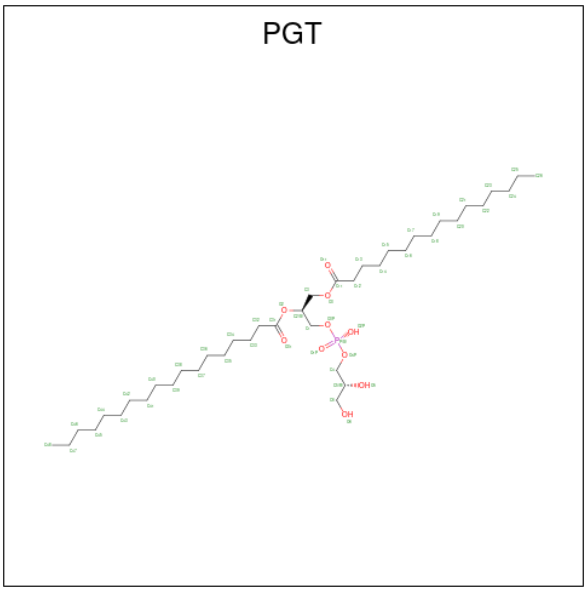
Mol	Chain	Residues	Atoms		AltConf
55	1R	1	Total	Zn	0
			1	1	

- Molecule 56 is {S}-[2-[3-[[(2 {R})-3,3-dimethyl-2-oxidanyl-4-phosphonooxy-butanoyl]amino]propanoylamino]ethyl] (3 {S})-3-oxidanyltetradecanethioate (three-letter code: EHZ) (formula: $C_{25}H_{49}N_2O_9PS$).



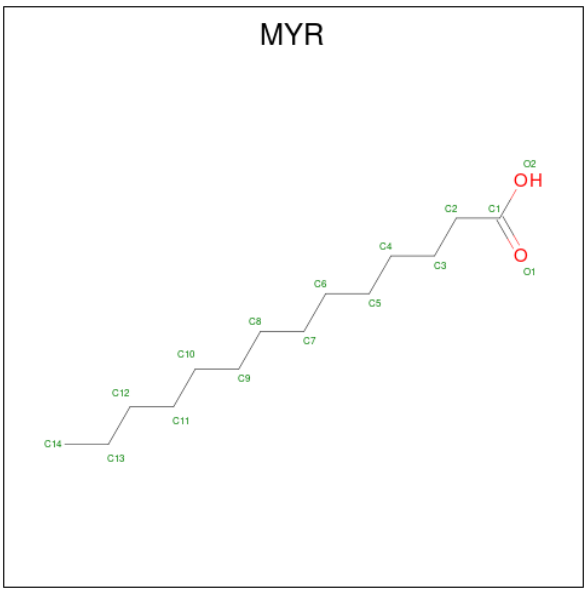
Mol	Chain	Residues	Atoms						AltConf
56	1W	1	Total	C	N	O	P	S	0
			37	25	2	8	1	1	
56	1n	1	Total	C	N	O	P	S	0
			37	25	2	8	1	1	

- Molecule 57 is (1S)-2-{[{[(2R)-2,3-DIHYDROXYPROPYL]OXY}(HYDROXY)PHOSPHORYL]OXY}-1-[(PALMITOYLOXY)METHYL]ETHYL STEARATE (three-letter code: PGT) (formula: $C_{40}H_{79}O_{10}P$).



Mol	Chain	Residues	Atoms				AltConf
57	1Y	1	Total	C	O	P	0
			51	40	10	1	

- Molecule 58 is MYRISTIC ACID (three-letter code: MYR) (formula: $C_{14}H_{28}O_2$).



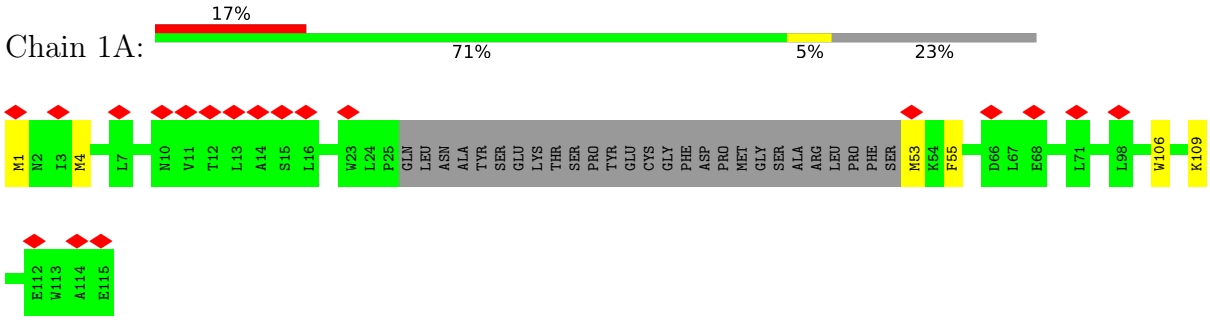
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
58	1l	1	15	14	1	0

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.

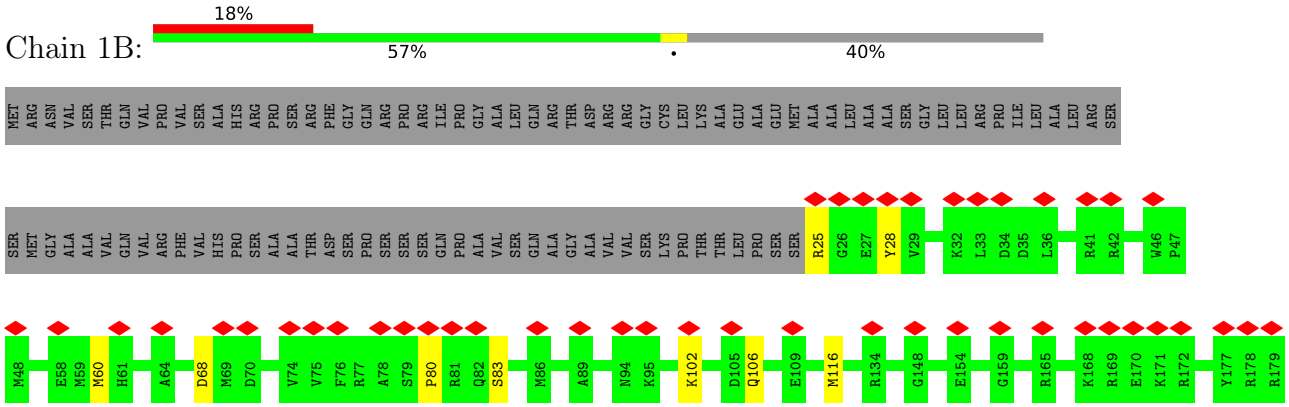
• Molecule 1: NADH-ubiquinone oxidoreductase chain 3

Chain 1A:



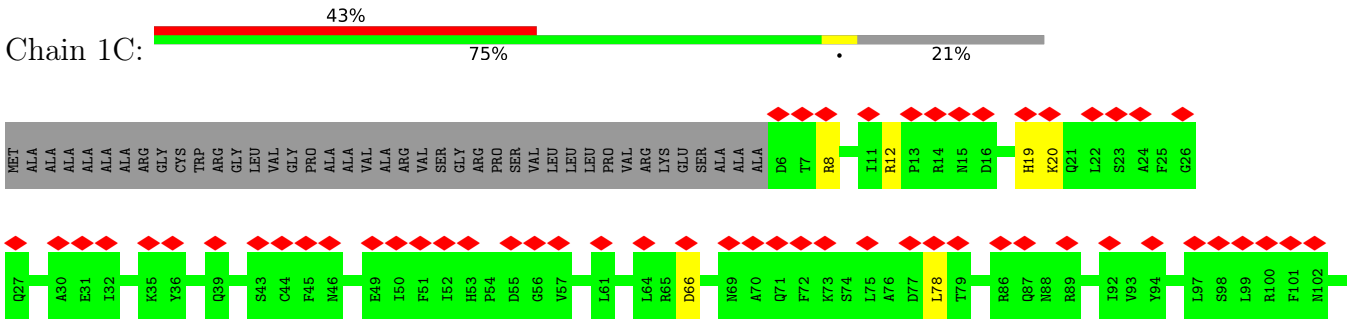
• Molecule 2: NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial

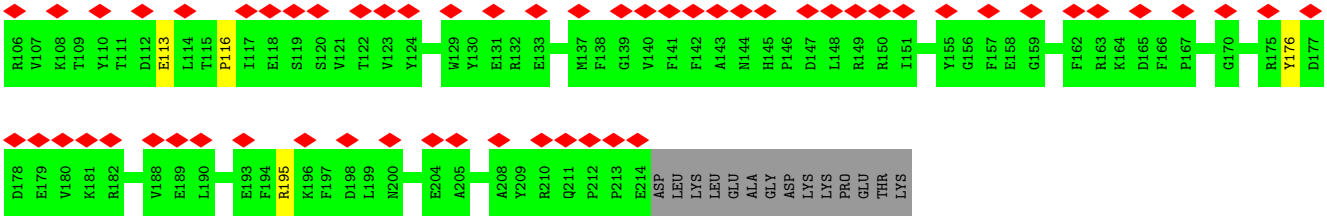
Chain 1B:



• Molecule 3: NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial

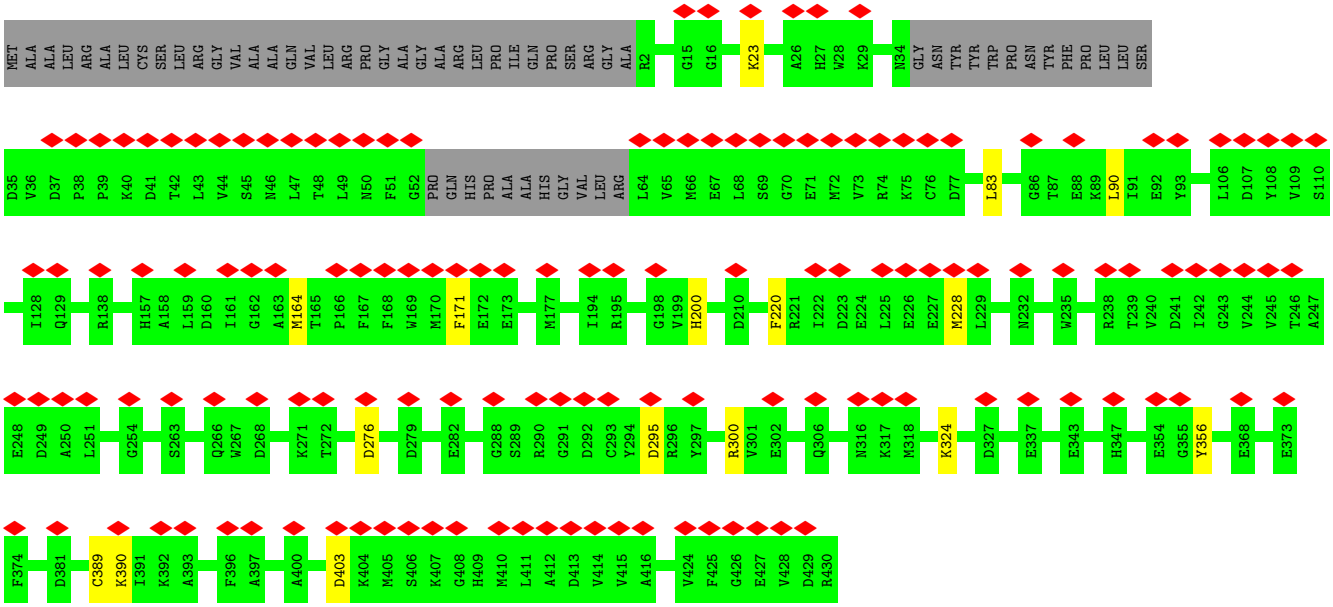
Chain 1C:





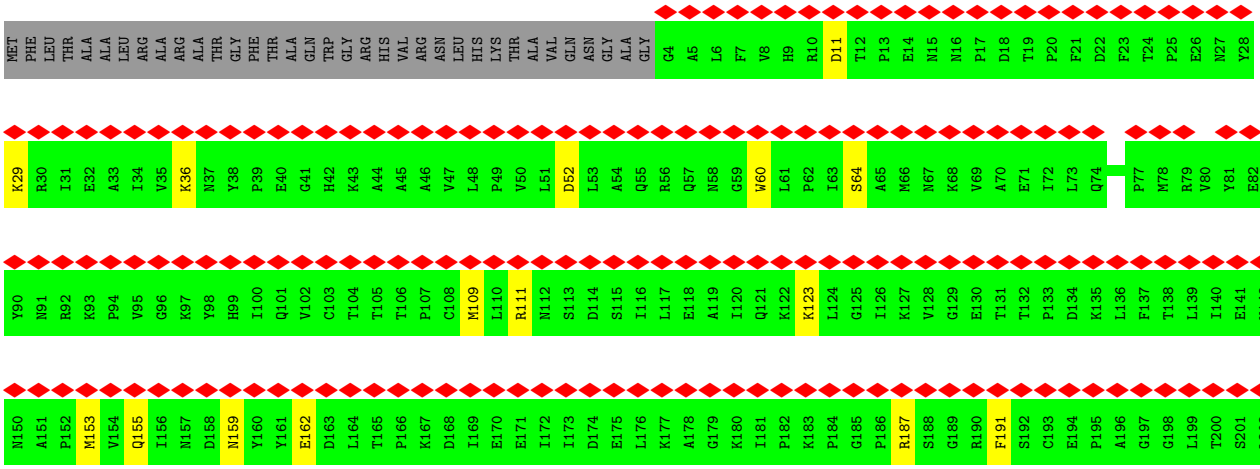
• Molecule 4: NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial

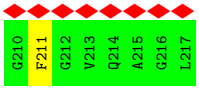
Chain 1D:



• Molecule 5: NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial

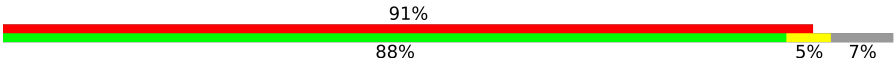
Chain 1E:

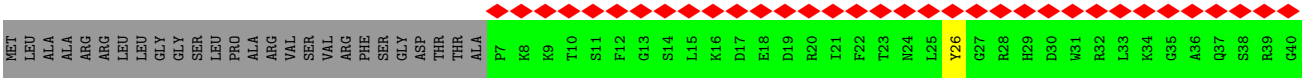


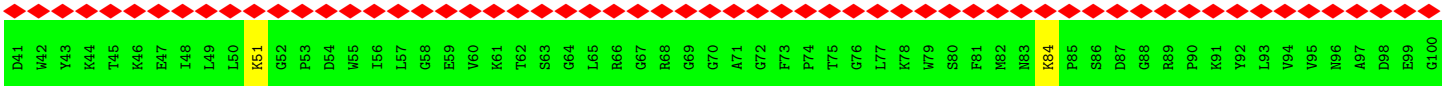


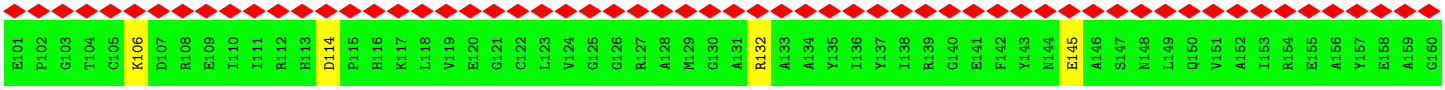
• Molecule 6: NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial

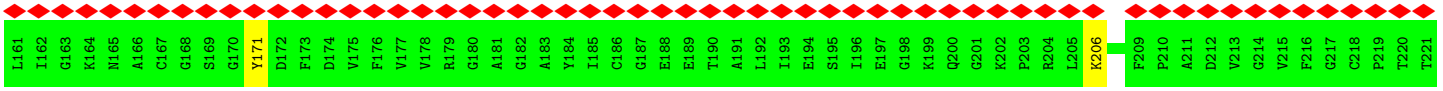
Chain 1F:

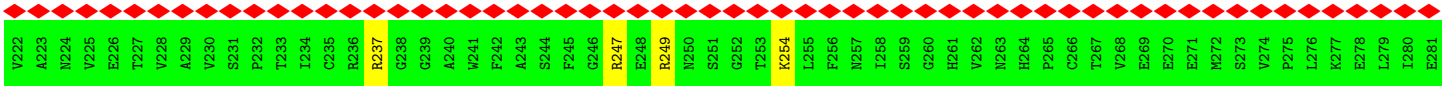


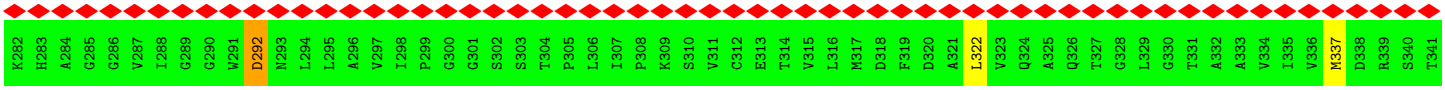


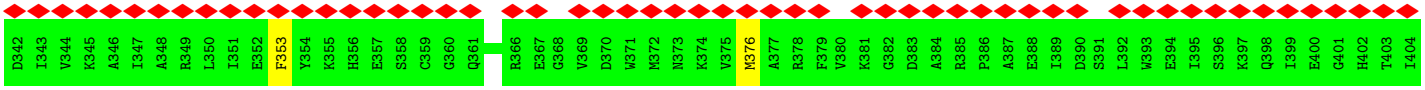


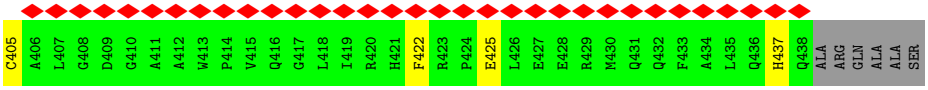






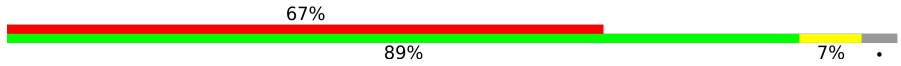


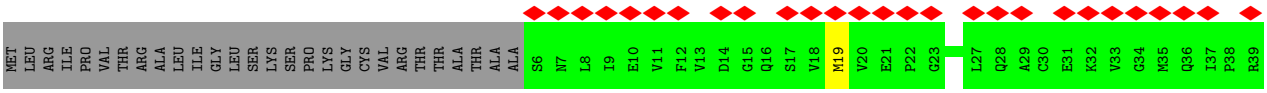


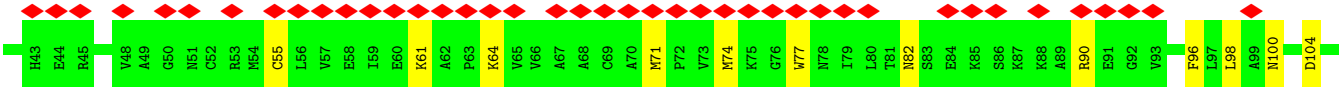


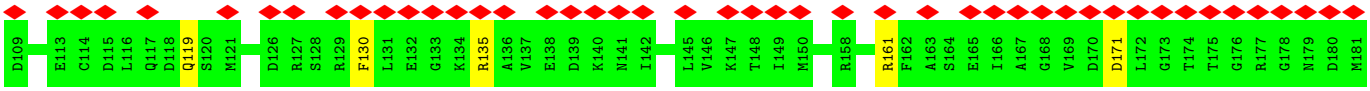
• Molecule 7: NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial

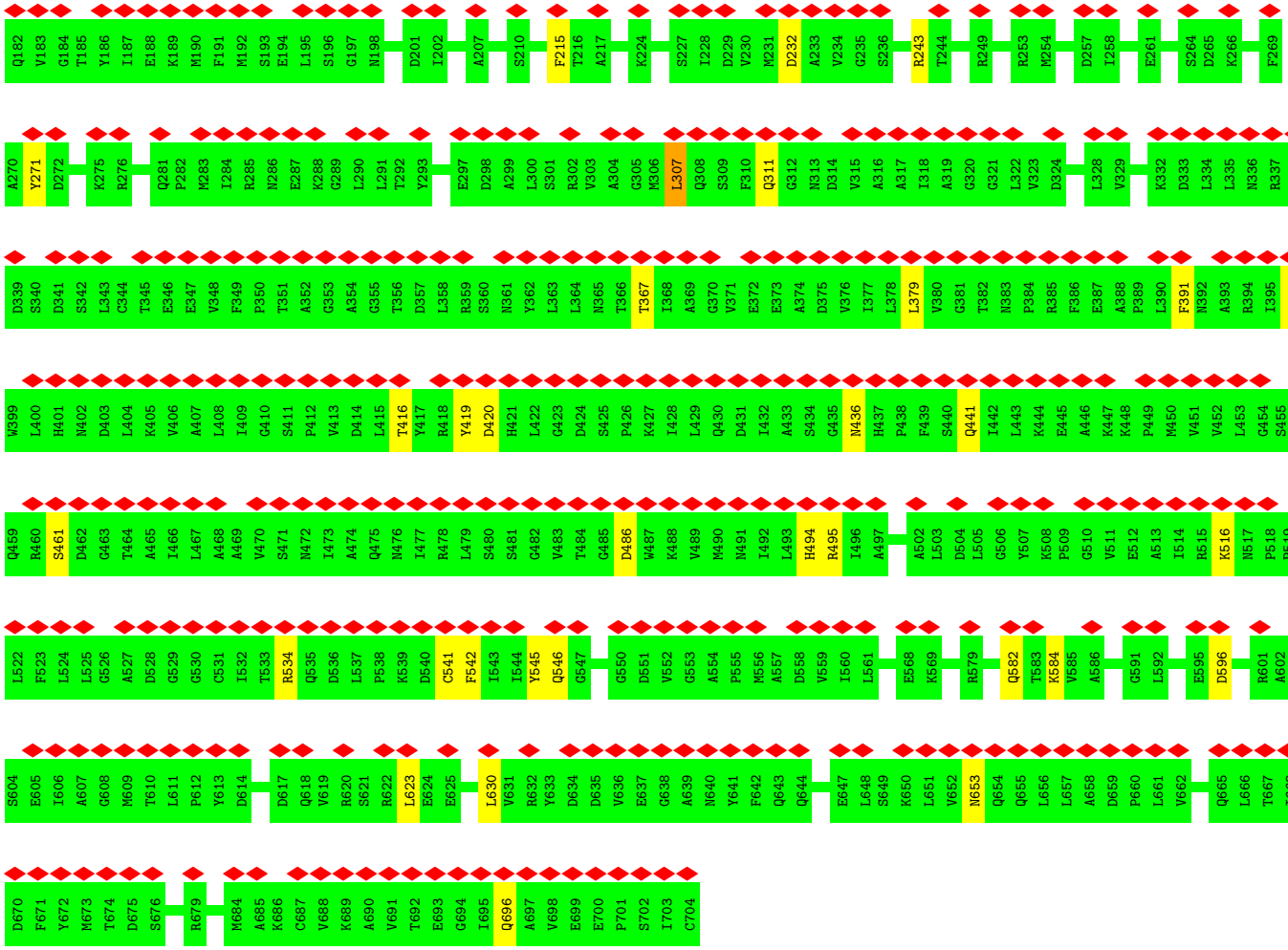
Chain 1G:





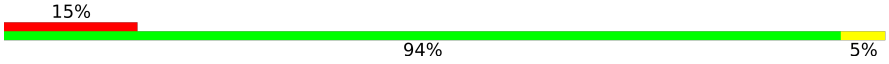


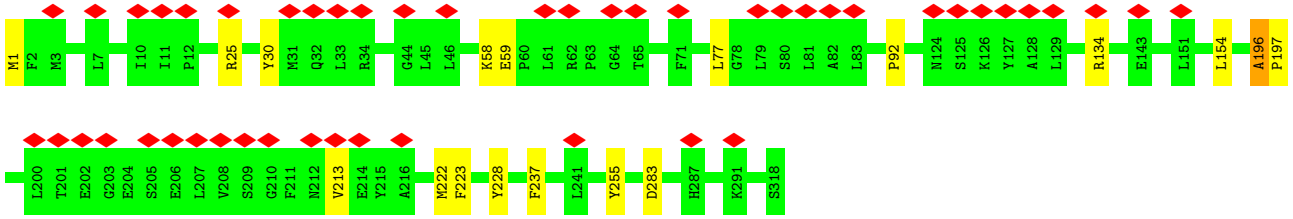




• Molecule 8: NADH-ubiquinone oxidoreductase chain 1

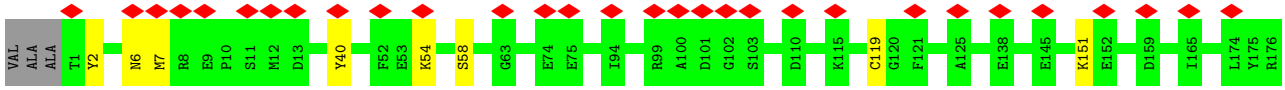
Chain 1H:





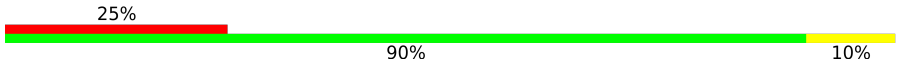
• Molecule 9: NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial

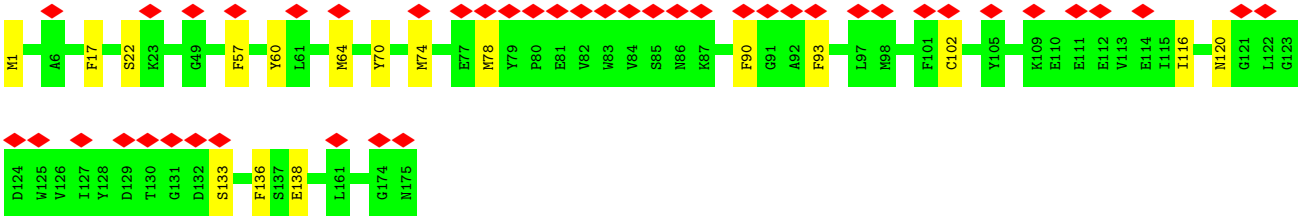
Chain 1I:



• Molecule 10: NADH-ubiquinone oxidoreductase chain 6

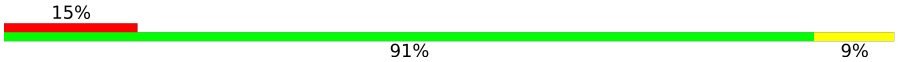
Chain 1J:

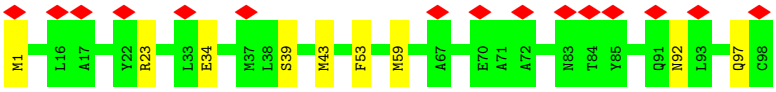




• Molecule 11: NADH-ubiquinone oxidoreductase chain 4L

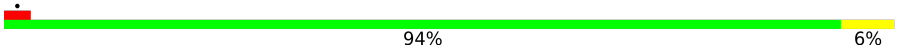
Chain 1K:

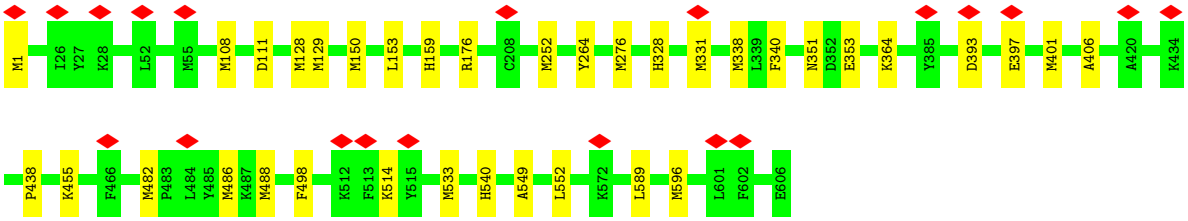




• Molecule 12: NADH-ubiquinone oxidoreductase chain 5

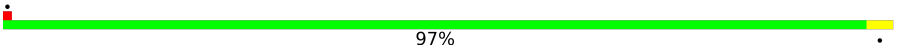
Chain 1L:

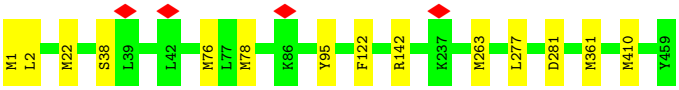




• Molecule 13: NADH-ubiquinone oxidoreductase chain 4

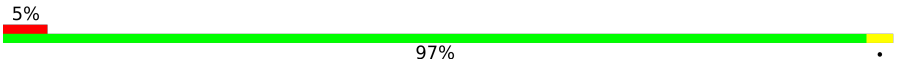
Chain 1M:

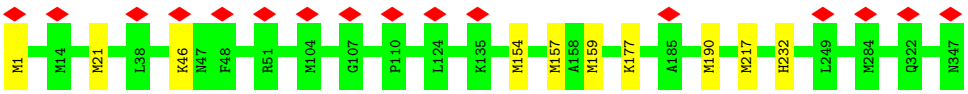




• Molecule 14: NADH-ubiquinone oxidoreductase chain 2

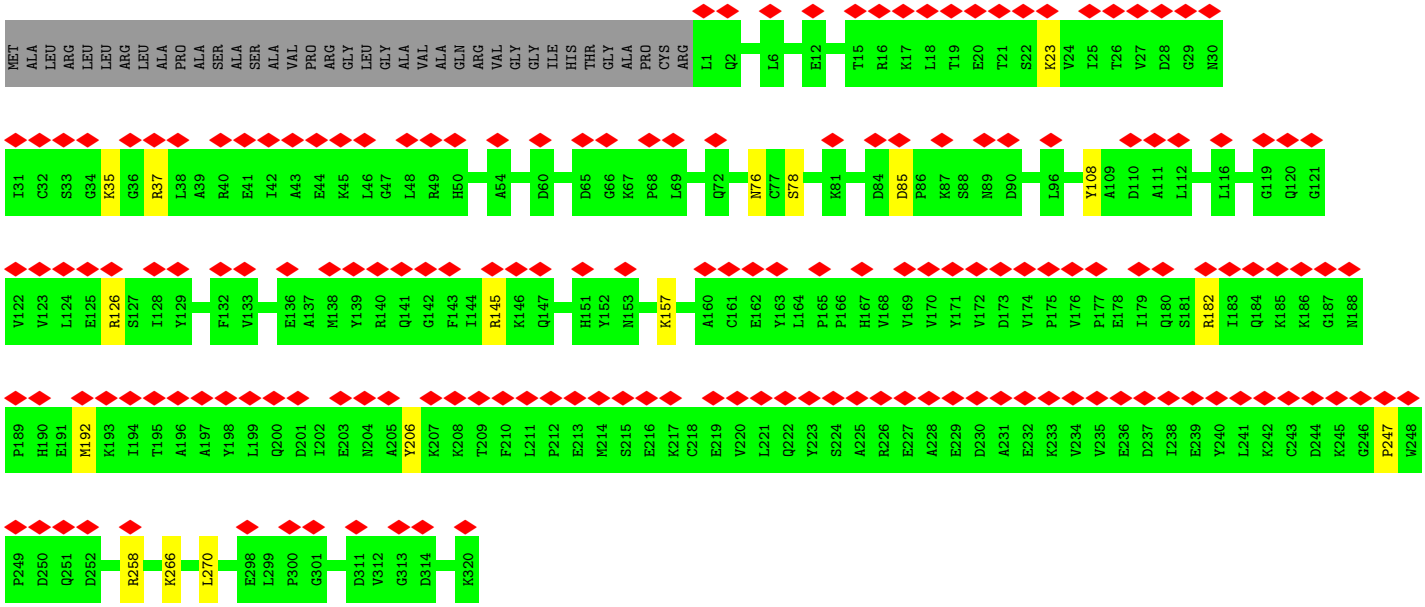
Chain 1N:





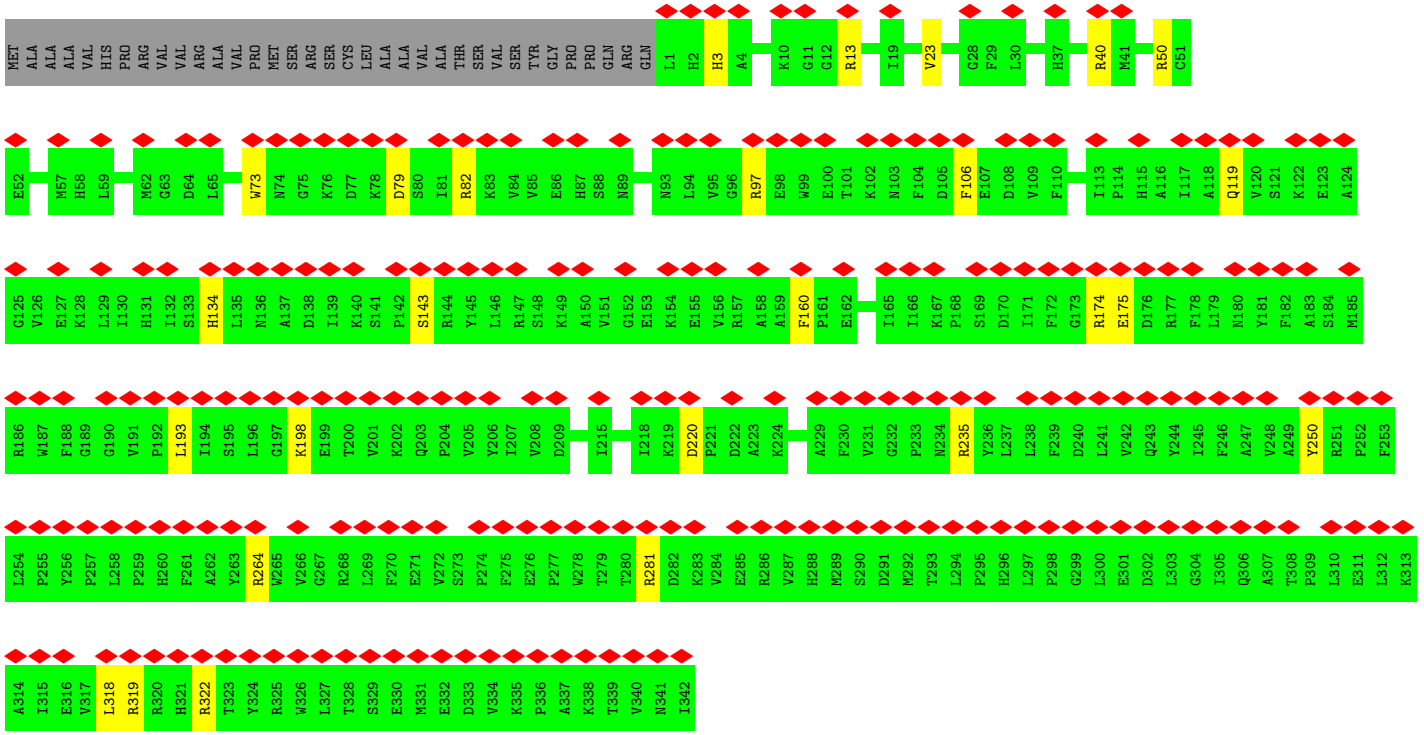
• Molecule 15: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial

Chain 1O:



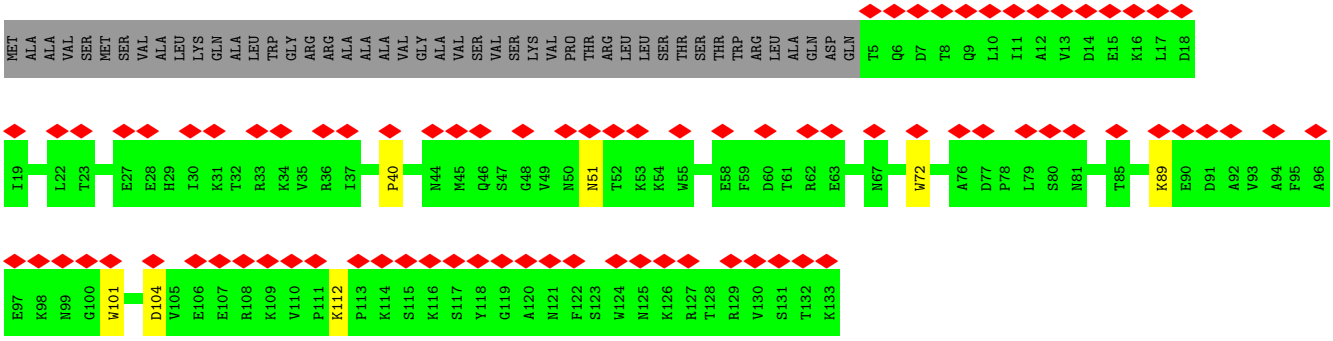
• Molecule 16: NADH:ubiquinone oxidoreductase subunit A9

Chain 1P:

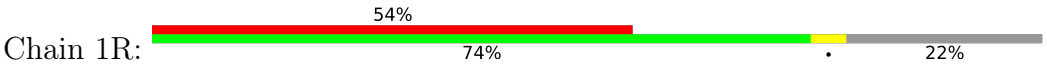


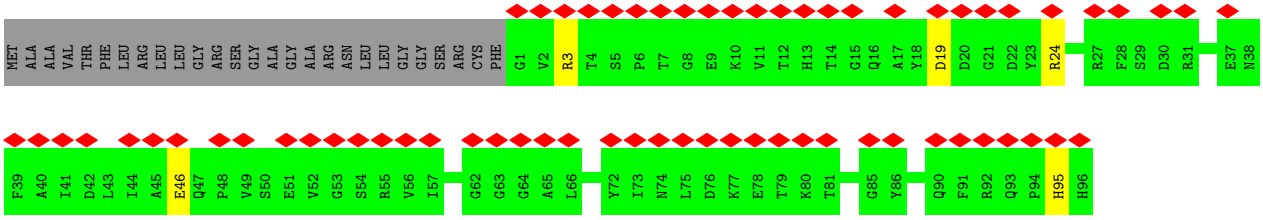
• Molecule 17: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

Chain 1Q:

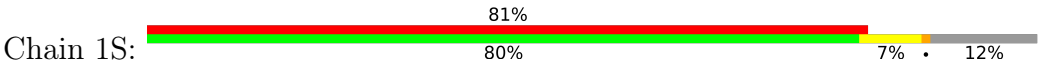


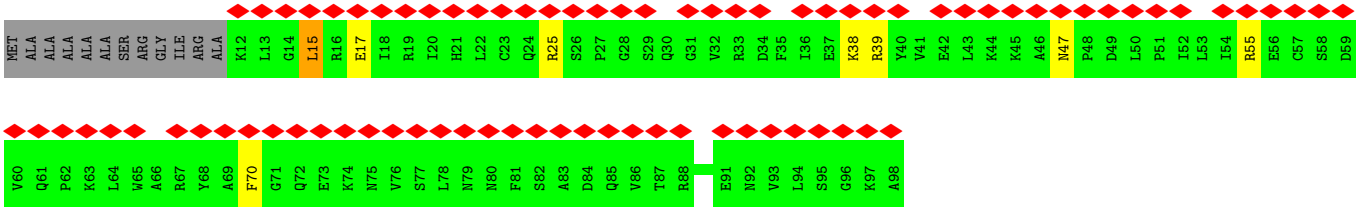
• Molecule 18: NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial



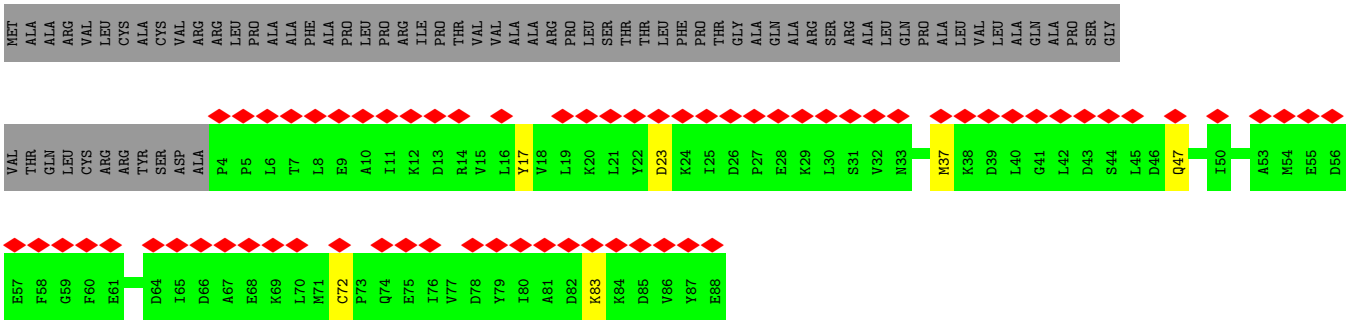


• Molecule 19: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2

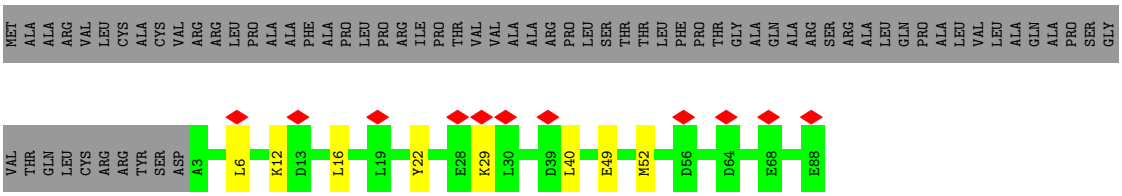




• Molecule 20: NADH:ubiquinone oxidoreductase subunit AB1

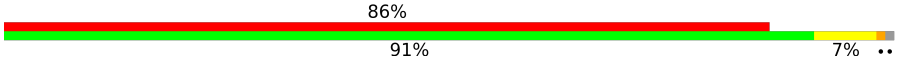


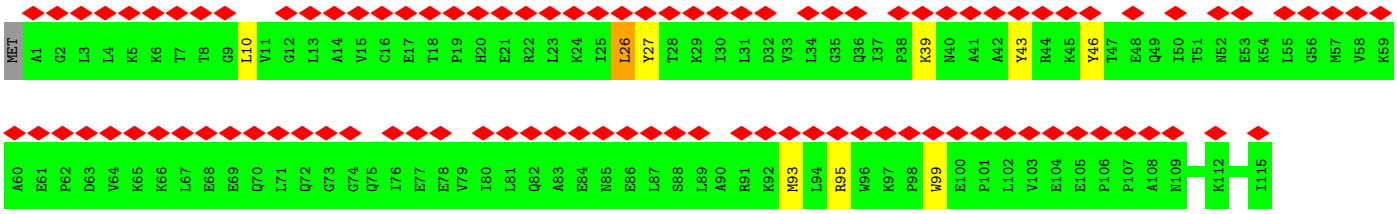
• Molecule 20: NADH:ubiquinone oxidoreductase subunit AB1



• Molecule 21: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5 isoform X1

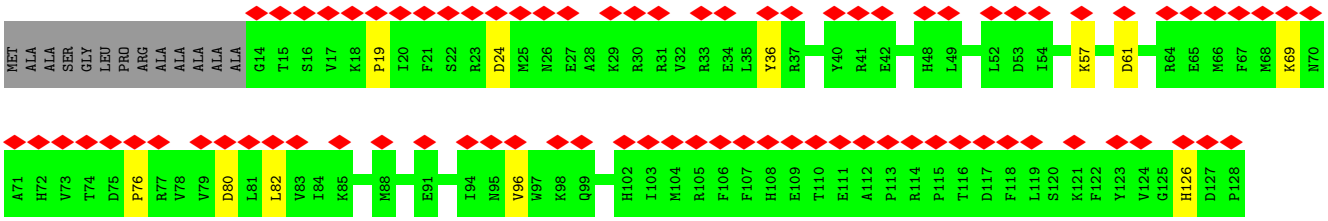
Chain 1V:





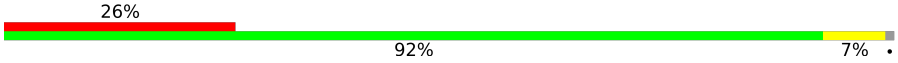
• Molecule 22: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6

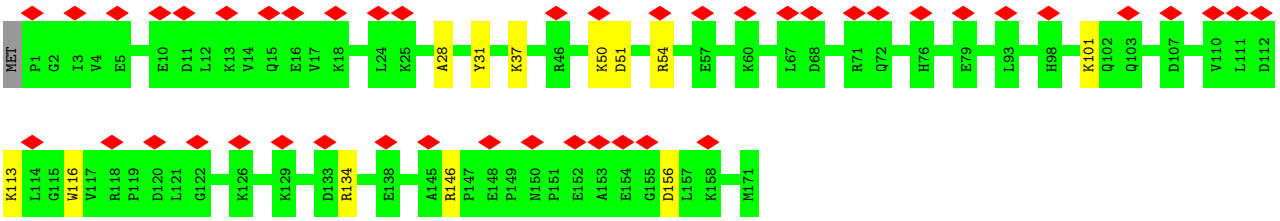
Chain 1W:



• Molecule 23: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8

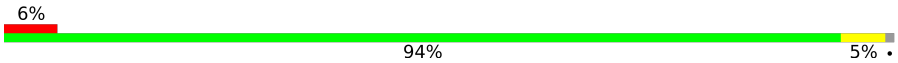
Chain 1X:

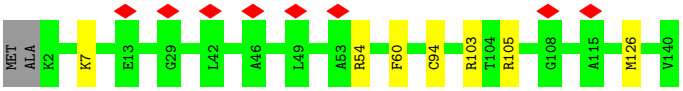




• Molecule 24: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11

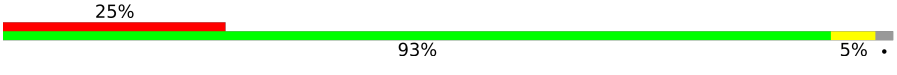
Chain 1Y:

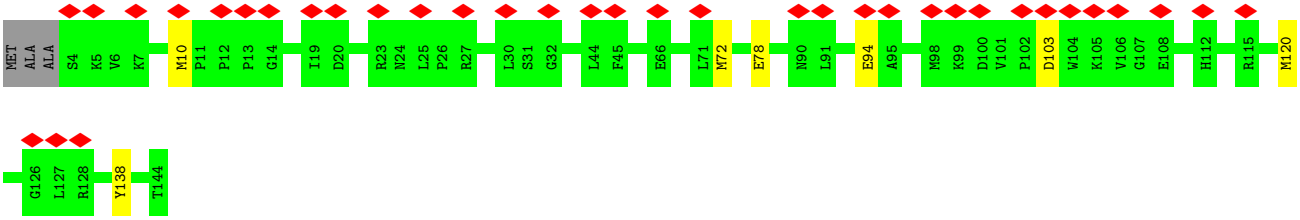




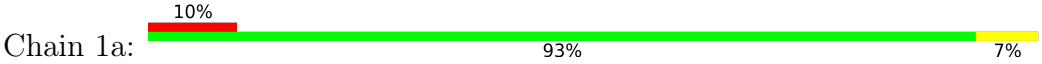
• Molecule 25: NADH:ubiquinone oxidoreductase subunit A13

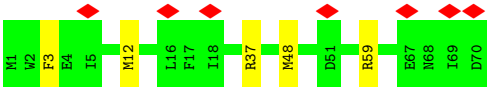
Chain 1Z:



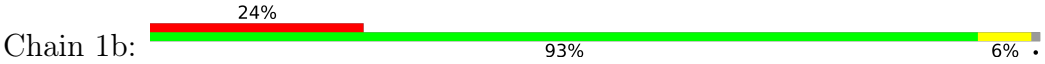


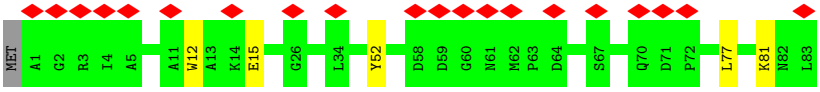
• Molecule 26: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1





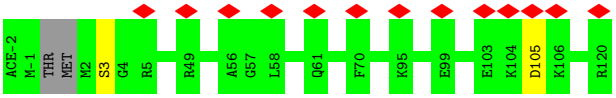
• Molecule 27: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3



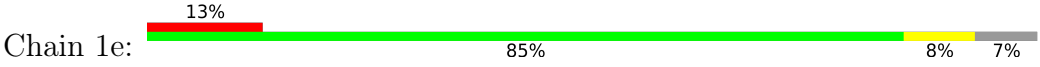


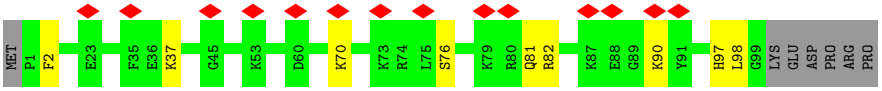
• Molecule 28: NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial

• Molecule 29: NADH dehydrogenase [ubiquinone] 1 subunit C2

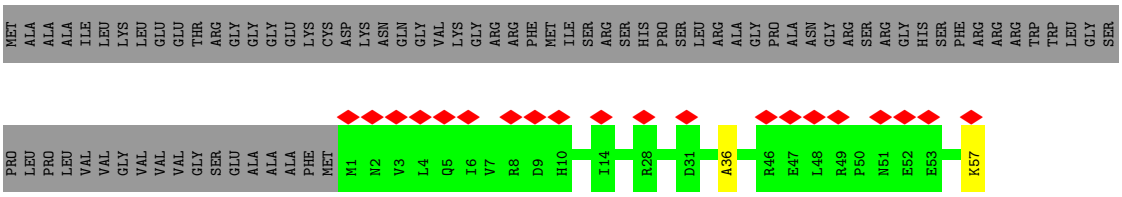


• Molecule 30: NADH dehydrogenase [ubiquinone] iron-sulfur protein 5



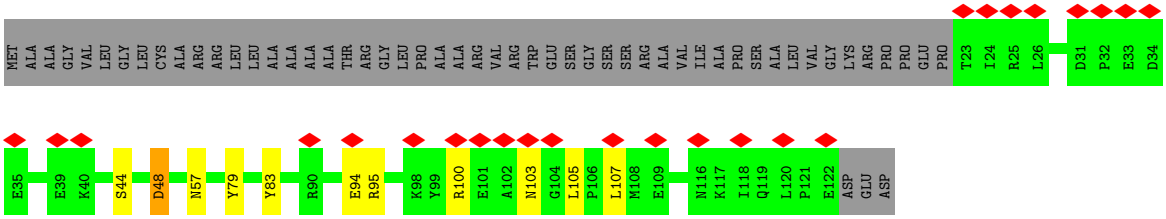


• Molecule 31: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1 [Sus scrofa]



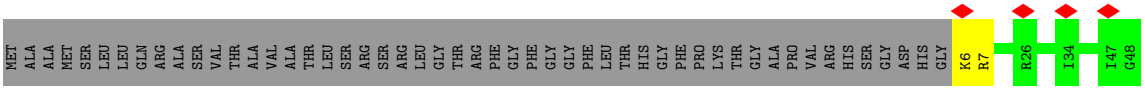
• Molecule 32: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial

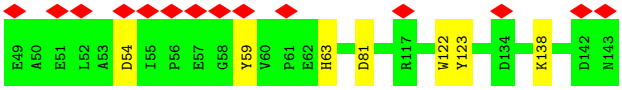
Chain 1g:



• Molecule 33: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial

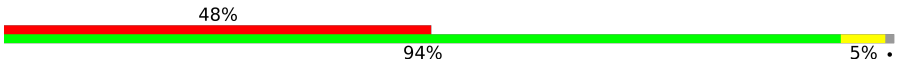
Chain 1h:

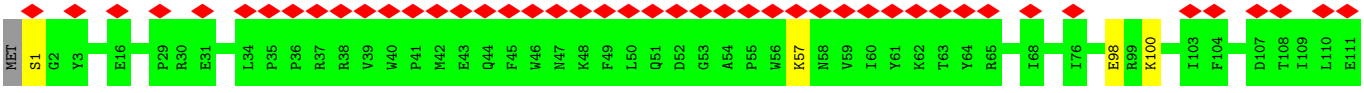


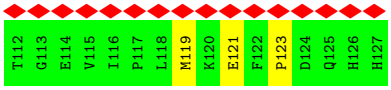


• Molecule 34: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6

Chain 1i:

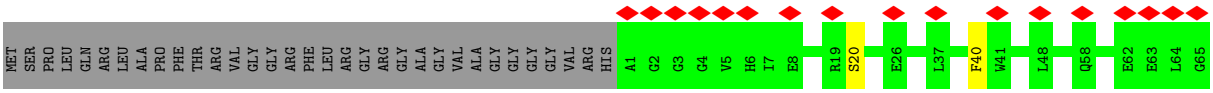


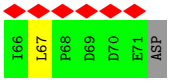




• Molecule 35: NADH:ubiquinone oxidoreductase subunit B2

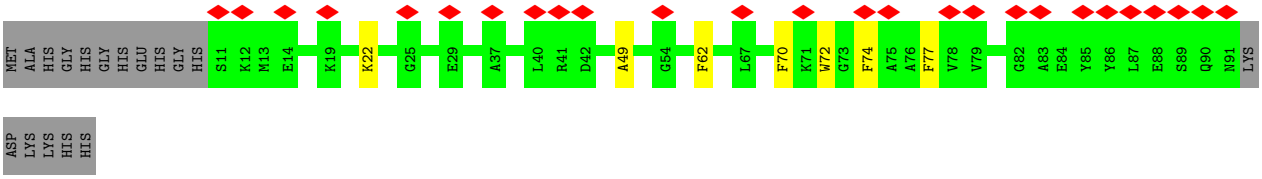
Chain 1j:





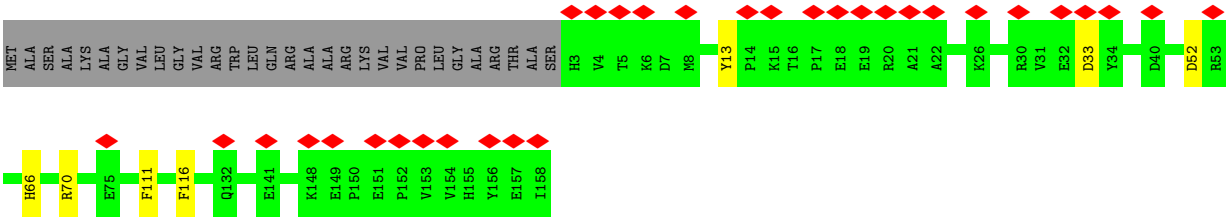
• Molecule 36: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3

Chain 1k:



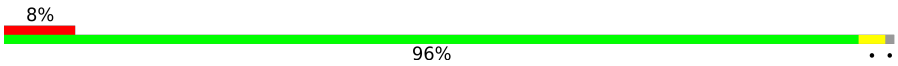
• Molecule 37: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial

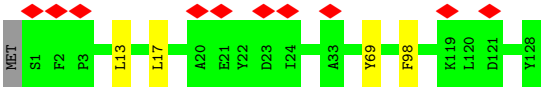
Chain 1l:



• Molecule 38: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4

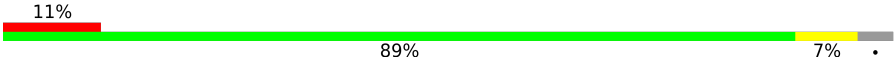
Chain 1m:

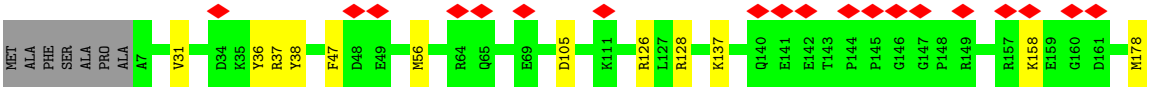




• Molecule 39: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9

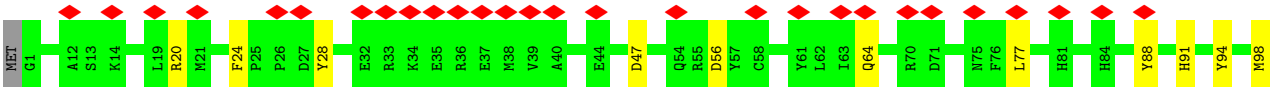
Chain 1n:

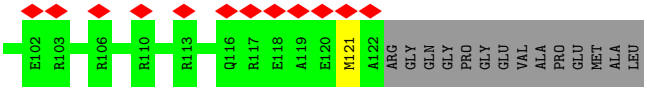




• Molecule 40: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7

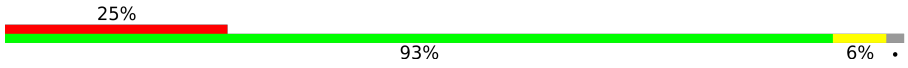
Chain 1o:

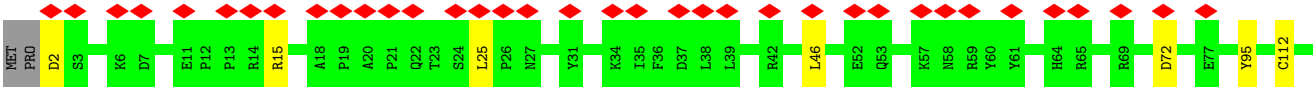


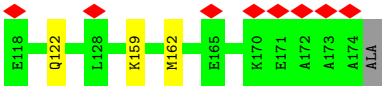


• Molecule 41: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10

Chain 1p:

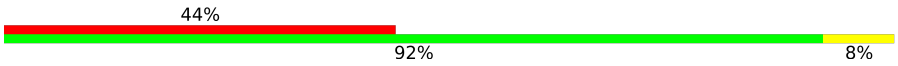


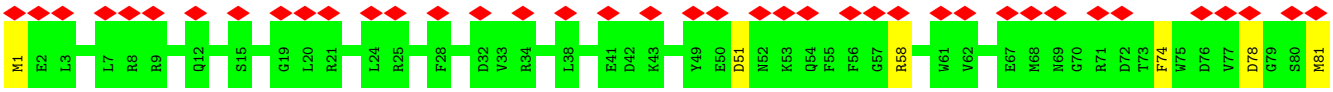


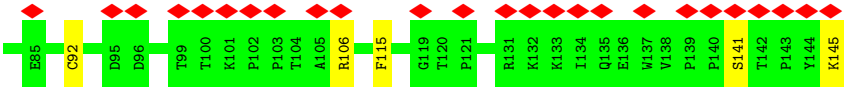


• Molecule 42: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12

Chain 1q:

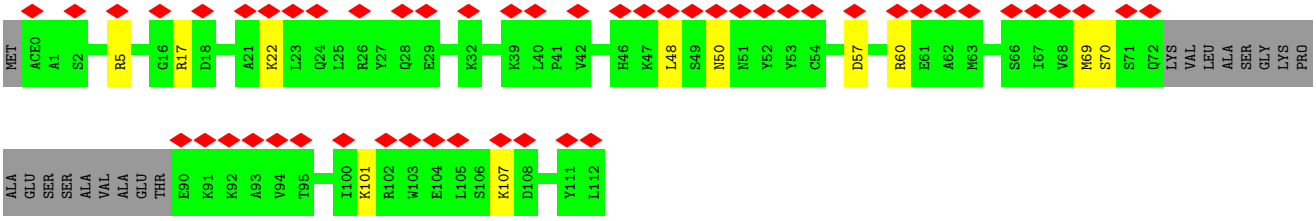






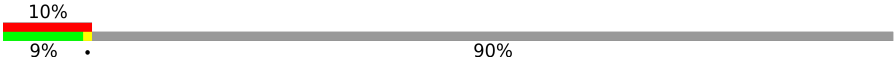
• Molecule 43: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7

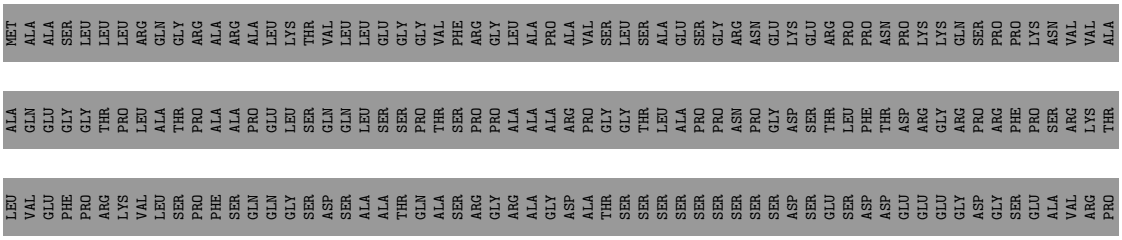
Chain 1r:

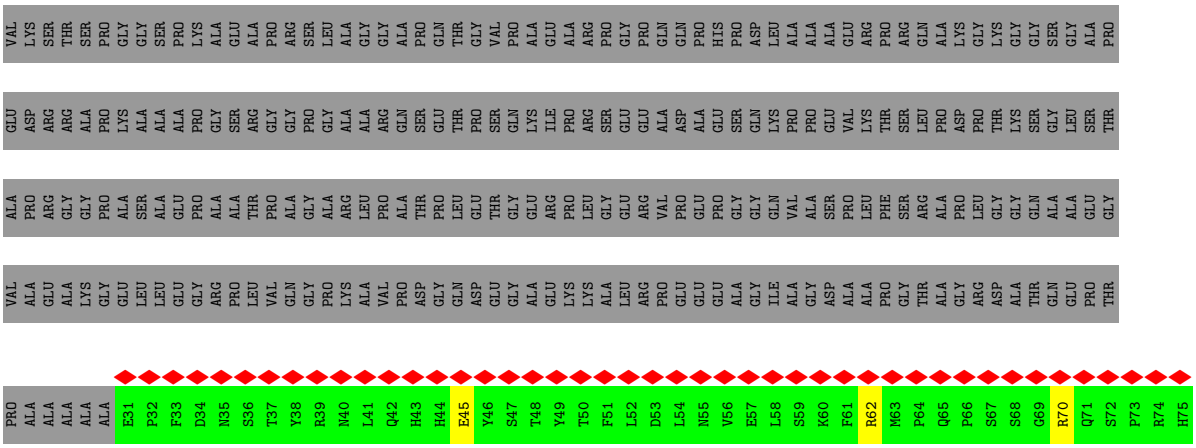


• Molecule 44: NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial

Chain 1s:






VAL LYS SER THR SER PRO GLY GLY SER PRO LYS ALA GLU ALA PRO ARG SER LEU ALA GLY GLY ALA PRO GLN THR GLY VAL PRO ALA GLU ALA ARG PRO GLY PRO GLN GLN PRO HIS PRO ASP LEU ALA ALA ALA GLU ARG PRO ARG GLN ALA LYS GLY LYS GLY GLY SER GLY ALA PRO
GLU ASP ARG ARG ALA PRO LYS ALA ALA ALA PRO GLY SER ARG GLY GLY PRO GLY ALA ALA ARG GLN SER GLU THR PRO SER GLN LYS ILE PRO ARG SER GLU GLU ALA ASP ALA GLU SER GLN LYS PRO PRO GLU VAL LYS THR SER LEU PRO ASP PRO THR LYS SER GLY LEU SER THR
ALA PRO ARG GLY GLY PRO ALA SER ALA GLU PRO ALA ALA PRO ALA ALA GLY ALA ARG LEU PRO ALA THR PRO LEU GLU THR GLY GLU ARG PRO LEU GLY GLU ARG VAL PRO GLU PRO GLY GLY GLN VAL ALA SER PRO LEU PHE SER ARG ALA PRO LEU GLY GLY GLN ALA ALA GLY
VAL ALA GLU ALA LYS GLY GLU LEU GLU GLY ARG PRO LEU VAL GLN GLY PRO LYS ALA VAL PRO ASP GLY GLN ASP GLU GLY GLY ALA LYS LYS ALA LEU ARG PRO GLU GLU GLU ALA GLY ILE ALA GLY ASP ALA ALA PRO GLY THR ALA GLY ARG ASP ALA THR GLN GLU PRO THR
PRO ALA ALA ALA ALA ALA E31 P32 F33 D34 N35 S36 T37 Y38 R39 N40 L41 Q42 H43 H44 E45 Y46 S47 T48 Y49 T50 F51 L52 D53 L54 N55 V56 E57 L58 S59 K60 F61 R62 M63 P64 Q65 P66 S67 S68 G69 R70 Q71 S72 P73 R74 H75

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	3500	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)	300300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1300	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.978	Depositor
Minimum map value	-0.443	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.026	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	425.6, 425.6, 425.6	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.33, 1.33, 1.33	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: ACE, CDL, GTP, NDP, 3PE, SAC, K, SF4, EHZ, FMN, PC1, ZN, FES, FME, MYR, MG, PGT

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	1A	0.26	0/713	0.54	0/975
2	1B	0.38	1/1273 (0.1%)	0.75	3/1722 (0.2%)
3	1C	0.29	0/1791	0.59	1/2439 (0.0%)
4	1D	0.26	0/3457	0.56	1/4683 (0.0%)
5	1E	0.26	0/1698	0.53	0/2311
6	1F	0.26	0/3401	0.55	1/4595 (0.0%)
7	1G	0.26	0/5451	0.55	3/7387 (0.0%)
8	1H	0.27	0/2566	0.50	0/3509
9	1I	0.29	0/1443	0.58	0/1952
10	1J	0.27	0/1364	0.49	0/1850
11	1K	0.27	0/751	0.59	0/1018
12	1L	0.26	0/4939	0.51	1/6718 (0.0%)
13	1M	0.24	0/3713	0.47	0/5063
14	1N	0.26	0/2765	0.53	1/3758 (0.0%)
15	1O	0.26	0/2650	0.55	1/3588 (0.0%)
16	1P	0.27	0/2828	0.57	0/3834
17	1Q	0.30	0/1070	0.71	1/1446 (0.1%)
18	1R	0.26	0/755	0.58	0/1018
19	1S	0.29	0/711	0.73	1/956 (0.1%)
20	1T	0.26	0/701	0.54	0/946
20	1U	0.26	0/706	0.57	2/954 (0.2%)
21	1V	0.26	0/946	0.55	1/1281 (0.1%)
22	1W	0.30	0/995	0.71	2/1340 (0.1%)
23	1X	0.26	0/1436	0.53	0/1938
24	1Y	0.26	0/1037	0.47	0/1404
25	1Z	0.26	0/1199	0.54	0/1617
26	1a	0.27	0/577	0.49	0/777
27	1b	0.28	0/664	0.58	0/912
28	1c	0.28	0/430	0.54	0/581
29	1d	0.29	0/1024	0.52	0/1383
30	1e	0.27	0/836	0.57	0/1118
31	1f	0.26	0/499	0.59	0/673

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
32	1g	0.29	0/858	0.65	2/1165 (0.2%)
33	1h	0.26	0/1184	0.54	0/1603
34	1i	0.54	2/1131 (0.2%)	0.73	3/1541 (0.2%)
35	1j	0.25	0/627	0.54	0/858
36	1k	0.27	0/668	0.52	0/903
37	1l	0.26	0/1365	0.51	0/1867
38	1m	0.26	0/1092	0.52	0/1481
39	1n	0.25	0/1549	0.52	0/2098
40	1o	0.25	0/1069	0.55	0/1430
41	1p	0.24	0/1481	0.52	0/1997
42	1q	0.27	0/1253	0.56	0/1704
43	1r	0.28	0/782	0.63	0/1057
44	1s	0.28	0/394	0.60	0/533
All	All	0.27	3/67842 (0.0%)	0.56	24/91983 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
8	1H	0	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	1i	123	PRO	CG-CD	-13.50	1.06	1.50
34	1i	123	PRO	N-CD	6.99	1.57	1.47
2	1B	80	PRO	CG-CD	-5.74	1.31	1.50

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	1i	123	PRO	N-CD-CG	-13.85	82.42	103.20
34	1i	123	PRO	CA-N-CD	-11.89	94.85	111.50
2	1B	80	PRO	CA-N-CD	-11.73	95.08	111.50
17	1Q	40	PRO	CA-N-CD	-10.18	97.25	111.50
12	1L	533	MET	CG-SD-CE	9.61	115.58	100.20
2	1B	80	PRO	N-CD-CG	-8.92	89.82	103.20
22	1W	19	PRO	CA-N-CD	-7.75	100.64	111.50
34	1i	123	PRO	CA-CB-CG	-7.47	89.81	104.00
19	1S	15	LEU	CA-CB-CG	7.00	131.41	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	1O	247	PRO	CA-N-CD	-6.76	102.04	111.50
4	1D	83	LEU	CA-CB-CG	6.24	129.65	115.30
20	1U	16	LEU	CA-CB-CG	5.43	127.78	115.30
14	1N	217	MET	CA-CB-CG	5.40	122.48	113.30
6	1F	292	ASP	CB-CG-OD1	5.33	123.10	118.30
2	1B	68	ASP	CB-CG-OD2	5.29	123.07	118.30
20	1U	6	LEU	CA-CB-CG	5.28	127.44	115.30
3	1C	116	PRO	CA-N-CD	-5.27	104.13	111.50
21	1V	26	LEU	CA-CB-CG	5.16	127.17	115.30
22	1W	82	LEU	CA-CB-CG	5.15	127.15	115.30
32	1g	48	ASP	CB-CG-OD1	5.12	122.91	118.30
7	1G	98	LEU	CA-CB-CG	5.07	126.96	115.30
7	1G	630	LEU	CA-CB-CG	5.05	126.92	115.30
7	1G	307	LEU	CA-CB-CG	5.02	126.86	115.30
32	1g	105	LEU	CA-CB-CG	5.01	126.82	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
8	1H	196	ALA	Peptide

5.2 Too-close contacts (i)

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

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	1A	84/115 (73%)	80 (95%)	3 (4%)	1 (1%)	13 49
2	1B	153/258 (59%)	135 (88%)	18 (12%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	1C	207/264 (78%)	184 (89%)	22 (11%)	1 (0%)	29	67
4	1D	414/476 (87%)	392 (95%)	22 (5%)	0	100	100
5	1E	212/249 (85%)	191 (90%)	21 (10%)	0	100	100
6	1F	430/464 (93%)	388 (90%)	42 (10%)	0	100	100
7	1G	697/727 (96%)	620 (89%)	74 (11%)	3 (0%)	34	71
8	1H	316/318 (99%)	295 (93%)	17 (5%)	4 (1%)	12	48
9	1I	174/239 (73%)	158 (91%)	15 (9%)	1 (1%)	25	63
10	1J	173/175 (99%)	159 (92%)	11 (6%)	3 (2%)	9	43
11	1K	96/98 (98%)	91 (95%)	5 (5%)	0	100	100
12	1L	604/606 (100%)	559 (92%)	41 (7%)	4 (1%)	22	60
13	1M	457/459 (100%)	438 (96%)	18 (4%)	1 (0%)	47	79
14	1N	345/347 (99%)	326 (94%)	19 (6%)	0	100	100
15	1O	318/357 (89%)	298 (94%)	20 (6%)	0	100	100
16	1P	340/377 (90%)	308 (91%)	30 (9%)	2 (1%)	25	63
17	1Q	127/175 (73%)	109 (86%)	18 (14%)	0	100	100
18	1R	94/123 (76%)	86 (92%)	8 (8%)	0	100	100
19	1S	85/99 (86%)	77 (91%)	8 (9%)	0	100	100
20	1T	83/156 (53%)	71 (86%)	12 (14%)	0	100	100
20	1U	84/156 (54%)	78 (93%)	6 (7%)	0	100	100
21	1V	113/116 (97%)	102 (90%)	11 (10%)	0	100	100
22	1W	113/128 (88%)	105 (93%)	7 (6%)	1 (1%)	17	54
23	1X	169/172 (98%)	158 (94%)	10 (6%)	1 (1%)	25	63
24	1Y	137/141 (97%)	129 (94%)	8 (6%)	0	100	100
25	1Z	139/144 (96%)	130 (94%)	9 (6%)	0	100	100
26	1a	68/70 (97%)	66 (97%)	2 (3%)	0	100	100
27	1b	81/84 (96%)	74 (91%)	7 (9%)	0	100	100
28	1c	47/76 (62%)	46 (98%)	1 (2%)	0	100	100
29	1d	117/123 (95%)	111 (95%)	6 (5%)	0	100	100
30	1e	97/106 (92%)	93 (96%)	4 (4%)	0	100	100
31	1f	55/135 (41%)	47 (86%)	7 (13%)	1 (2%)	8	42
32	1g	98/154 (64%)	89 (91%)	9 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
33	1h	136/189 (72%)	122 (90%)	13 (10%)	1 (1%)	22 60
34	1i	124/128 (97%)	112 (90%)	12 (10%)	0	100 100
35	1j	69/105 (66%)	66 (96%)	3 (4%)	0	100 100
36	1k	79/98 (81%)	75 (95%)	3 (4%)	1 (1%)	12 48
37	1l	154/186 (83%)	143 (93%)	11 (7%)	0	100 100
38	1m	126/129 (98%)	117 (93%)	9 (7%)	0	100 100
39	1n	170/179 (95%)	166 (98%)	3 (2%)	1 (1%)	25 63
40	1o	120/137 (88%)	111 (92%)	9 (8%)	0	100 100
41	1p	171/176 (97%)	167 (98%)	4 (2%)	0	100 100
42	1q	143/145 (99%)	127 (89%)	15 (10%)	1 (1%)	22 60
43	1r	90/114 (79%)	81 (90%)	9 (10%)	0	100 100
44	1s	43/471 (9%)	37 (86%)	6 (14%)	0	100 100
All	All	8152/9744 (84%)	7517 (92%)	608 (8%)	27 (0%)	44 75

All (27) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	1G	696	GLN
8	1H	92	PRO
8	1H	197	PRO
10	1J	138	GLU
12	1L	406	ALA
13	1M	2	LEU
23	1X	28	ALA
36	1k	49	ALA
7	1G	416	THR
8	1H	213	VAL
10	1J	116	ILE
16	1P	174	ARG
33	1h	63	HIS
42	1q	141	SER
1	1A	109	LYS
9	1I	119	CYS
10	1J	60	TYR
12	1L	549	ALA
3	1C	113	GLU
7	1G	367	THR
12	1L	552	LEU

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Mol	Chain	Res	Type
39	1n	31	VAL
12	1L	159	HIS
16	1P	23	VAL
31	1f	36	ALA
22	1W	96	VAL
8	1H	196	ALA

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	1A	76/99 (77%)	72 (95%)	4 (5%)	22 52
2	1B	131/212 (62%)	124 (95%)	7 (5%)	22 52
3	1C	190/227 (84%)	182 (96%)	8 (4%)	30 57
4	1D	363/405 (90%)	348 (96%)	15 (4%)	30 58
5	1E	183/207 (88%)	166 (91%)	17 (9%)	9 34
6	1F	346/368 (94%)	324 (94%)	22 (6%)	17 47
7	1G	588/610 (96%)	543 (92%)	45 (8%)	13 42
8	1H	274/274 (100%)	261 (95%)	13 (5%)	26 55
9	1I	151/201 (75%)	144 (95%)	7 (5%)	27 55
10	1J	140/140 (100%)	127 (91%)	13 (9%)	9 34
11	1K	84/84 (100%)	76 (90%)	8 (10%)	8 33
12	1L	539/539 (100%)	509 (94%)	30 (6%)	21 51
13	1M	408/408 (100%)	396 (97%)	12 (3%)	42 65
14	1N	310/310 (100%)	302 (97%)	8 (3%)	46 68
15	1O	283/307 (92%)	267 (94%)	16 (6%)	20 50
16	1P	296/323 (92%)	272 (92%)	24 (8%)	11 40
17	1Q	117/152 (77%)	111 (95%)	6 (5%)	24 53
18	1R	79/97 (81%)	74 (94%)	5 (6%)	18 47
19	1S	77/82 (94%)	69 (90%)	8 (10%)	7 29

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
20	1T	79/133 (59%)	73 (92%)	6 (8%)	13 42
20	1U	79/133 (59%)	73 (92%)	6 (8%)	13 42
21	1V	100/101 (99%)	91 (91%)	9 (9%)	9 36
22	1W	107/112 (96%)	99 (92%)	8 (8%)	13 42
23	1X	153/154 (99%)	142 (93%)	11 (7%)	14 44
24	1Y	101/102 (99%)	94 (93%)	7 (7%)	15 45
25	1Z	123/124 (99%)	116 (94%)	7 (6%)	20 50
26	1a	58/58 (100%)	53 (91%)	5 (9%)	10 38
27	1b	69/70 (99%)	64 (93%)	5 (7%)	14 44
28	1c	45/66 (68%)	40 (89%)	5 (11%)	6 27
29	1d	107/109 (98%)	105 (98%)	2 (2%)	57 75
30	1e	87/94 (93%)	78 (90%)	9 (10%)	7 30
31	1f	54/113 (48%)	53 (98%)	1 (2%)	57 75
32	1g	92/129 (71%)	82 (89%)	10 (11%)	6 28
33	1h	121/158 (77%)	113 (93%)	8 (7%)	16 46
34	1i	119/120 (99%)	114 (96%)	5 (4%)	30 57
35	1j	62/84 (74%)	59 (95%)	3 (5%)	25 54
36	1k	63/76 (83%)	57 (90%)	6 (10%)	8 33
37	1l	141/161 (88%)	134 (95%)	7 (5%)	24 53
38	1m	113/114 (99%)	109 (96%)	4 (4%)	36 62
39	1n	156/160 (98%)	145 (93%)	11 (7%)	14 44
40	1o	110/120 (92%)	98 (89%)	12 (11%)	6 28
41	1p	154/156 (99%)	144 (94%)	10 (6%)	17 46
42	1q	131/131 (100%)	121 (92%)	10 (8%)	13 42
43	1r	85/98 (87%)	74 (87%)	11 (13%)	4 23
44	1s	44/351 (12%)	41 (93%)	3 (7%)	16 45
All	All	7188/8272 (87%)	6739 (94%)	449 (6%)	22 48

All (449) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	1A	4	MET
1	1A	53	MET

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Mol	Chain	Res	Type
1	1A	55	PHE
1	1A	106	TRP
2	1B	25	ARG
2	1B	28	TYR
2	1B	60	MET
2	1B	83	SER
2	1B	102	LYS
2	1B	106	GLN
2	1B	116	MET
3	1C	8	ARG
3	1C	12	ARG
3	1C	19	HIS
3	1C	20	LYS
3	1C	66	ASP
3	1C	78	LEU
3	1C	176	TYR
3	1C	195	ARG
4	1D	23	LYS
4	1D	90	LEU
4	1D	164	MET
4	1D	171	PHE
4	1D	200	HIS
4	1D	220	PHE
4	1D	228	MET
4	1D	276	ASP
4	1D	295	ASP
4	1D	300	ARG
4	1D	324	LYS
4	1D	356	TYR
4	1D	389	CYS
4	1D	390	LYS
4	1D	403	ASP
5	1E	11	ASP
5	1E	29	LYS
5	1E	36	LYS
5	1E	52	ASP
5	1E	60	TRP
5	1E	64	SER
5	1E	109	MET
5	1E	111	ARG
5	1E	123	LYS
5	1E	144	CYS

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Mol	Chain	Res	Type
5	1E	153	MET
5	1E	155	GLN
5	1E	159	ASN
5	1E	162	GLU
5	1E	187	ARG
5	1E	191	PHE
5	1E	211	PHE
6	1F	26	TYR
6	1F	51	LYS
6	1F	84	LYS
6	1F	106	LYS
6	1F	114	ASP
6	1F	132	ARG
6	1F	145	GLU
6	1F	171	TYR
6	1F	206	LYS
6	1F	237	ARG
6	1F	247	ARG
6	1F	249	ARG
6	1F	254	LYS
6	1F	292	ASP
6	1F	322	LEU
6	1F	337	MET
6	1F	353	PHE
6	1F	376	MET
6	1F	405	CYS
6	1F	422	PHE
6	1F	425	GLU
6	1F	437	HIS
7	1G	19	MET
7	1G	55	CYS
7	1G	61	LYS
7	1G	64	LYS
7	1G	71	MET
7	1G	74	MET
7	1G	77	TRP
7	1G	82	ASN
7	1G	90	ARG
7	1G	96	PHE
7	1G	100	ASN
7	1G	104	ASP
7	1G	119	GLN

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Mol	Chain	Res	Type
7	1G	130	PHE
7	1G	135	ARG
7	1G	161	ARG
7	1G	171	ASP
7	1G	215	PHE
7	1G	232	ASP
7	1G	243	ARG
7	1G	271	TYR
7	1G	307	LEU
7	1G	311	GLN
7	1G	379	LEU
7	1G	391	PHE
7	1G	396	ARG
7	1G	419	TYR
7	1G	420	ASP
7	1G	436	ASN
7	1G	441	GLN
7	1G	461	SER
7	1G	486	ASP
7	1G	494	HIS
7	1G	495	ARG
7	1G	516	LYS
7	1G	534	ARG
7	1G	541	CYS
7	1G	542	PHE
7	1G	545	TYR
7	1G	546	GLN
7	1G	582	GLN
7	1G	584	LYS
7	1G	596	ASP
7	1G	623	LEU
7	1G	653	ASN
8	1H	25	ARG
8	1H	30	TYR
8	1H	58	LYS
8	1H	59	GLU
8	1H	77	LEU
8	1H	134	ARG
8	1H	154	LEU
8	1H	222	MET
8	1H	223	PHE
8	1H	228	TYR

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Mol	Chain	Res	Type
8	1H	237	PHE
8	1H	255	TYR
8	1H	283	ASP
9	1I	2	TYR
9	1I	6	ASN
9	1I	7	MET
9	1I	40	TYR
9	1I	54	LYS
9	1I	58	SER
9	1I	151	LYS
10	1J	17	PHE
10	1J	22	SER
10	1J	57	PHE
10	1J	64	MET
10	1J	70	TYR
10	1J	74	MET
10	1J	78	MET
10	1J	90	PHE
10	1J	93	PHE
10	1J	102	CYS
10	1J	120	ASN
10	1J	133	SER
10	1J	136	PHE
11	1K	23	ARG
11	1K	34	GLU
11	1K	39	SER
11	1K	43	MET
11	1K	53	PHE
11	1K	59	MET
11	1K	92	ASN
11	1K	97	GLN
12	1L	108	MET
12	1L	111	ASP
12	1L	128	MET
12	1L	129	MET
12	1L	150	MET
12	1L	153	LEU
12	1L	176	ARG
12	1L	252	MET
12	1L	264	TYR
12	1L	276	MET
12	1L	328	HIS

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Mol	Chain	Res	Type
12	1L	331	MET
12	1L	338	MET
12	1L	340	PHE
12	1L	351	ASN
12	1L	353	GLU
12	1L	364	LYS
12	1L	393	ASP
12	1L	397	GLU
12	1L	401	MET
12	1L	438	PRO
12	1L	455	LYS
12	1L	482	MET
12	1L	486	MET
12	1L	488	MET
12	1L	498	PHE
12	1L	514	LYS
12	1L	540	HIS
12	1L	589	LEU
12	1L	596	MET
13	1M	22	MET
13	1M	38	SER
13	1M	76	MET
13	1M	78	MET
13	1M	95	TYR
13	1M	122	PHE
13	1M	142	ARG
13	1M	263	MET
13	1M	277	LEU
13	1M	281	ASP
13	1M	361	MET
13	1M	410	MET
14	1N	21	MET
14	1N	46	LYS
14	1N	154	MET
14	1N	157	MET
14	1N	159	MET
14	1N	177	LYS
14	1N	190	MET
14	1N	232	HIS
15	1O	23	LYS
15	1O	35	LYS
15	1O	37	ARG

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Mol	Chain	Res	Type
15	1O	76	ASN
15	1O	78	SER
15	1O	85	ASP
15	1O	108	TYR
15	1O	126	ARG
15	1O	145	ARG
15	1O	157	LYS
15	1O	182	ARG
15	1O	192	MET
15	1O	206	TYR
15	1O	258	ARG
15	1O	266	LYS
15	1O	270	LEU
16	1P	3	HIS
16	1P	13	ARG
16	1P	40	ARG
16	1P	50	ARG
16	1P	73	TRP
16	1P	79	ASP
16	1P	82	ARG
16	1P	97	ARG
16	1P	106	PHE
16	1P	119	GLN
16	1P	134	HIS
16	1P	143	SER
16	1P	160	PHE
16	1P	175	GLU
16	1P	193	LEU
16	1P	198	LYS
16	1P	220	ASP
16	1P	235	ARG
16	1P	250	TYR
16	1P	264	ARG
16	1P	281	ARG
16	1P	318	LEU
16	1P	319	ARG
16	1P	322	ARG
17	1Q	51	ASN
17	1Q	72	TRP
17	1Q	89	LYS
17	1Q	101	TRP
17	1Q	104	ASP

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Mol	Chain	Res	Type
17	1Q	112	LYS
18	1R	3	ARG
18	1R	19	ASP
18	1R	24	ARG
18	1R	46	GLU
18	1R	95	HIS
19	1S	15	LEU
19	1S	17	GLU
19	1S	25	ARG
19	1S	38	LYS
19	1S	39	ARG
19	1S	47	ASN
19	1S	55	ARG
19	1S	70	PHE
20	1T	17	TYR
20	1T	23	ASP
20	1T	37	MET
20	1T	47	GLN
20	1T	72	CYS
20	1T	83	LYS
20	1U	12	LYS
20	1U	22	TYR
20	1U	29	LYS
20	1U	40	LEU
20	1U	49	GLU
20	1U	52	MET
21	1V	10	LEU
21	1V	26	LEU
21	1V	27	TYR
21	1V	39	LYS
21	1V	43	TYR
21	1V	46	TYR
21	1V	93	MET
21	1V	95	ARG
21	1V	99	TRP
22	1W	24	ASP
22	1W	36	TYR
22	1W	57	LYS
22	1W	61	ASP
22	1W	69	LYS
22	1W	76	PRO
22	1W	80	ASP

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Mol	Chain	Res	Type
22	1W	126	HIS
23	1X	31	TYR
23	1X	37	LYS
23	1X	50	LYS
23	1X	51	ASP
23	1X	54	ARG
23	1X	101	LYS
23	1X	113	LYS
23	1X	116	TRP
23	1X	134	ARG
23	1X	146	ARG
23	1X	156	ASP
24	1Y	7	LYS
24	1Y	54	ARG
24	1Y	60	PHE
24	1Y	94	CYS
24	1Y	103	ARG
24	1Y	105	ARG
24	1Y	126	MET
25	1Z	10	MET
25	1Z	72	MET
25	1Z	78	GLU
25	1Z	94	GLU
25	1Z	103	ASP
25	1Z	120	MET
25	1Z	138	TYR
26	1a	3	PHE
26	1a	12	MET
26	1a	37	ARG
26	1a	48	MET
26	1a	59	ARG
27	1b	12	TRP
27	1b	15	GLU
27	1b	52	TYR
27	1b	77	LEU
27	1b	81	LYS
28	1c	1	LYS
28	1c	2	PHE
28	1c	3	TYR
28	1c	15	LEU
28	1c	30	TYR
29	1d	3	SER

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Mol	Chain	Res	Type
29	1d	105	ASP
30	1e	2	PHE
30	1e	37	LYS
30	1e	70	LYS
30	1e	76	SER
30	1e	81	GLN
30	1e	82	ARG
30	1e	90	LYS
30	1e	97	HIS
30	1e	98	LEU
31	1f	57	LYS
32	1g	44	SER
32	1g	48	ASP
32	1g	57	ASN
32	1g	79	TYR
32	1g	83	TYR
32	1g	94	GLU
32	1g	95	ARG
32	1g	100	ARG
32	1g	103	ASN
32	1g	107	LEU
33	1h	6	LYS
33	1h	7	ARG
33	1h	54	ASP
33	1h	59	TYR
33	1h	81	ASP
33	1h	122	TRP
33	1h	123	TYR
33	1h	138	LYS
34	1i	57	LYS
34	1i	98	GLU
34	1i	100	LYS
34	1i	119	MET
34	1i	121	GLU
35	1j	20	SER
35	1j	40	PHE
35	1j	67	LEU
36	1k	22	LYS
36	1k	62	PHE
36	1k	70	PHE
36	1k	72	TRP
36	1k	74	PHE

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Mol	Chain	Res	Type
36	1k	77	PHE
37	1l	13	TYR
37	1l	33	ASP
37	1l	52	ASP
37	1l	66	HIS
37	1l	70	ARG
37	1l	111	PHE
37	1l	116	PHE
38	1m	13	LEU
38	1m	17	LEU
38	1m	69	TYR
38	1m	98	PHE
39	1n	36	TYR
39	1n	37	ARG
39	1n	38	TYR
39	1n	47	PHE
39	1n	56	MET
39	1n	105	ASP
39	1n	126	ARG
39	1n	128	ARG
39	1n	137	LYS
39	1n	158	LYS
39	1n	178	MET
40	1o	20	ARG
40	1o	24	PHE
40	1o	28	TYR
40	1o	47	ASP
40	1o	56	ASP
40	1o	64	GLN
40	1o	77	LEU
40	1o	88	TYR
40	1o	91	HIS
40	1o	94	TYR
40	1o	98	MET
40	1o	121	MET
41	1p	2	ASP
41	1p	15	ARG
41	1p	25	LEU
41	1p	46	LEU
41	1p	72	ASP
41	1p	95	TYR
41	1p	112	CYS

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Mol	Chain	Res	Type
41	1p	122	GLN
41	1p	159	LYS
41	1p	162	MET
42	1q	1	MET
42	1q	51	ASP
42	1q	58	ARG
42	1q	74	PHE
42	1q	78	ASP
42	1q	81	MET
42	1q	92	CYS
42	1q	106	ARG
42	1q	115	PHE
42	1q	145	LYS
43	1r	5	ARG
43	1r	17	ARG
43	1r	22	LYS
43	1r	48	LEU
43	1r	50	ASN
43	1r	57	ASP
43	1r	60	ARG
43	1r	69	MET
43	1r	70	SER
43	1r	101	LYS
43	1r	107	LYS
44	1s	45	GLU
44	1s	62	ARG
44	1s	70	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

Mol	Chain	Res	Type
3	1C	21	GLN
3	1C	87	GLN
4	1D	114	ASN
4	1D	149	ASN
4	1D	409	HIS
5	1E	9	HIS
5	1E	74	GLN
7	1G	101	HIS
7	1G	119	GLN
7	1G	494	HIS
7	1G	546	GLN

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Mol	Chain	Res	Type
7	1G	646	ASN
8	1H	5	ASN
8	1H	157	ASN
9	1I	156	ASN
10	1J	120	ASN
12	1L	479	ASN
13	1M	103	GLN
13	1M	349	GLN
13	1M	425	ASN
14	1N	36	ASN
16	1P	134	HIS
16	1P	180	ASN
17	1Q	44	ASN
17	1Q	50	ASN
18	1R	32	GLN
18	1R	36	ASN
18	1R	74	ASN
19	1S	61	GLN
19	1S	80	ASN
21	1V	75	GLN
27	1b	45	ASN
29	1d	46	ASN
30	1e	96	HIS
34	1i	13	GLN
39	1n	25	HIS
39	1n	140	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

8 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	$\#\|Z\|>2$
14	FME	1N	1	14	8,9,10	0.52	0	7,9,11	1.02	1 (14%)
11	FME	1K	1	11	8,9,10	0.50	0	7,9,11	1.05	1 (14%)
10	FME	1J	1	10	8,9,10	0.54	0	7,9,11	0.99	1 (14%)
8	FME	1H	1	8	8,9,10	0.49	0	7,9,11	1.09	1 (14%)
1	FME	1A	1	1	8,9,10	0.50	0	7,9,11	1.10	1 (14%)
12	FME	1L	1	12	8,9,10	0.51	0	7,9,11	1.00	1 (14%)
34	SAC	1i	1	-	7,8,9	0.52	0	8,9,11	1.08	1 (12%)
13	FME	1M	1	13	8,9,10	0.54	0	7,9,11	0.85	1 (14%)

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
14	FME	1N	1	14	-	1/7/9/11	-
11	FME	1K	1	11	-	2/7/9/11	-
10	FME	1J	1	10	-	2/7/9/11	-
8	FME	1H	1	8	-	0/7/9/11	-
1	FME	1A	1	1	-	0/7/9/11	-
12	FME	1L	1	12	-	0/7/9/11	-
34	SAC	1i	1	-	-	3/7/8/10	-
13	FME	1M	1	13	-	0/7/9/11	-

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
34	1i	1	SAC	O-C-CA	-2.95	117.04	124.78
8	1H	1	FME	O-C-CA	-2.67	117.79	124.78
1	1A	1	FME	O-C-CA	-2.60	117.97	124.78
10	1J	1	FME	O-C-CA	-2.53	118.14	124.78
11	1K	1	FME	O-C-CA	-2.49	118.25	124.78
12	1L	1	FME	O-C-CA	-2.46	118.34	124.78
14	1N	1	FME	O-C-CA	-2.37	118.56	124.78
13	1M	1	FME	O-C-CA	-2.16	119.11	124.78

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	1J	1	FME	O-C-CA-CB
11	1K	1	FME	O-C-CA-CB
14	1N	1	FME	O1-CN-N-CA
34	1i	1	SAC	O-C-CA-CB
10	1J	1	FME	N-CA-CB-CG
34	1i	1	SAC	CB-CA-N-C1A
11	1K	1	FME	N-CA-CB-CG
34	1i	1	SAC	C-CA-N-C1A

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 31 ligands modelled in this entry, 3 are monoatomic - leaving 28 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
46	SF4	1I	202	9	0,12,12	-	-	-		
46	SF4	1G	801	7	0,12,12	-	-	-		
45	3PE	1L	702	-	30,30,50	0.34	0	33,35,55	0.62	1 (3%)
46	SF4	1B	201	2	0,12,12	-	-	-		
51	CDL	1r	201	-	60,60,99	0.33	0	66,72,111	0.40	0
48	FES	1G	803	7	0,4,4	-	-	-		
46	SF4	1F	502	6	0,12,12	-	-	-		
46	SF4	1I	201	9	0,12,12	-	-	-		
47	PC1	1J	201	-	34,34,53	0.32	0	40,42,61	0.32	0
49	FMN	1F	501	-	33,33,33	0.58	0	48,50,50	0.64	1 (2%)
54	NDP	1P	501	-	45,52,52	0.62	0	53,80,80	0.84	2 (3%)
45	3PE	1L	701	-	45,45,50	0.31	0	48,50,55	0.46	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
58	MYR	1l	201	-	14,14,15	0.34	0	13,13,15	0.38	0
47	PC1	1h	201	-	45,45,53	0.28	0	51,53,61	0.37	0
52	GTP	1O	401	53	26,34,34	0.97	2 (7%)	32,54,54	0.87	1 (3%)
56	EHZ	1n	201	-	29,36,37	0.16	0	35,44,47	1.26	1 (2%)
48	FES	1E	301	5	0,4,4	-	-	-		
47	PC1	1D	501	-	53,53,53	0.26	0	59,61,61	0.30	0
47	PC1	1M	501	-	43,43,53	0.30	0	49,51,61	0.36	0
45	3PE	1Y	202	-	50,50,50	0.26	0	53,55,55	0.34	0
57	PGT	1Y	201	-	50,50,50	0.48	0	53,56,56	0.45	0
56	EHZ	1W	201	-	29,36,37	0.19	0	35,44,47	1.13	1 (2%)
45	3PE	1A	201	-	46,46,50	0.27	0	49,51,55	0.55	1 (2%)
47	PC1	1I	203	-	43,43,53	0.29	0	49,51,61	0.34	0
46	SF4	1G	802	7	0,12,12	-	-	-		
45	3PE	1L	703	-	41,41,50	0.31	0	44,46,55	1.25	4 (9%)
51	CDL	1N	402	-	76,76,99	0.32	0	82,88,111	0.36	0
45	3PE	1N	401	-	50,50,50	0.26	0	53,55,55	0.40	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
46	SF4	1I	202	9	-	-	0/6/5/5
46	SF4	1G	801	7	-	-	0/6/5/5
45	3PE	1L	702	-	-	10/34/34/54	-
46	SF4	1B	201	2	-	-	0/6/5/5
51	CDL	1r	201	-	-	16/71/71/110	-
48	FES	1G	803	7	-	-	0/1/1/1
46	SF4	1F	502	6	-	-	0/6/5/5
46	SF4	1I	201	9	-	-	0/6/5/5
47	PC1	1J	201	-	-	4/38/38/57	-
49	FMN	1F	501	-	-	2/18/18/18	0/3/3/3
54	NDP	1P	501	-	-	8/30/77/77	0/5/5/5
45	3PE	1L	701	-	-	7/49/49/54	-
58	MYR	1l	201	-	-	0/11/12/13	-
47	PC1	1h	201	-	-	5/49/49/57	-
52	GTP	1O	401	53	-	3/18/38/38	0/3/3/3
56	EHZ	1n	201	-	-	10/42/44/45	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
48	FES	1E	301	5	-	-	0/1/1/1
47	PC1	1D	501	-	-	9/57/57/57	-
47	PC1	1M	501	-	-	7/47/47/57	-
45	3PE	1Y	202	-	-	8/54/54/54	-
57	PGT	1Y	201	-	-	24/55/55/55	-
56	EHZ	1W	201	-	-	8/42/44/45	-
45	3PE	1A	201	-	-	8/50/50/54	-
47	PC1	1I	203	-	-	7/47/47/57	-
46	SF4	1G	802	7	-	-	0/6/5/5
45	3PE	1L	703	-	-	4/45/45/54	-
51	CDL	1N	402	-	-	10/87/87/110	-
45	3PE	1N	401	-	-	10/54/54/54	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	1O	401	GTP	C5-C6	-2.66	1.42	1.47
52	1O	401	GTP	C8-N7	-2.10	1.31	1.35

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
56	1n	201	EHZ	C10-S1-C9	7.01	123.70	101.87
56	1W	201	EHZ	C10-S1-C9	6.17	121.07	101.87
45	1L	703	3PE	O21-C21-C22	6.05	124.54	111.50
54	1P	501	NDP	O4D-C1D-C2D	-2.89	100.35	106.64
45	1L	703	3PE	O21-C21-O22	-2.68	117.23	123.70
52	1O	401	GTP	O4'-C1'-C2'	-2.63	103.09	106.93
45	1L	703	3PE	C2-O21-C21	2.57	124.11	117.79
45	1L	703	3PE	O21-C2-C1	2.53	117.57	108.40
45	1L	702	3PE	O21-C21-C22	2.33	116.53	111.50
54	1P	501	NDP	C5A-C6A-N6A	2.22	123.73	120.35
45	1A	201	3PE	O21-C2-C1	2.08	115.93	108.40
49	1F	501	FMN	C4-N3-C2	-2.02	121.91	125.64

There are no chirality outliers.

All (160) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
45	1A	201	3PE	C1-O11-P-O14
45	1L	701	3PE	C1-O11-P-O12
45	1L	702	3PE	C1-O11-P-O13
45	1L	702	3PE	C1-O11-P-O14
45	1L	702	3PE	O32-C31-O31-C3
45	1L	702	3PE	C32-C31-O31-C3
45	1L	702	3PE	O22-C21-O21-C2
45	1L	702	3PE	C22-C21-O21-C2
45	1L	703	3PE	O22-C21-O21-C2
45	1L	703	3PE	C22-C21-O21-C2
45	1N	401	3PE	C1-O11-P-O14
45	1Y	202	3PE	C1-O11-P-O14
45	1Y	202	3PE	C2-C1-O11-P
47	1I	203	PC1	C11-O13-P-O12
47	1I	203	PC1	C11-O13-P-O11
47	1I	203	PC1	O21-C2-C3-O31
47	1M	501	PC1	C1-O11-P-O14
47	1h	201	PC1	O32-C31-O31-C3
47	1h	201	PC1	C32-C31-O31-C3
51	1N	402	CDL	OB5-CB3-CB4-OB6
51	1r	201	CDL	CA3-OA5-PA1-OA3
52	1O	401	GTP	C5'-O5'-PA-O3A
54	1P	501	NDP	C5D-O5D-PN-O1N
56	1W	201	EHZ	S1-C10-C11-N1
56	1W	201	EHZ	C16-C17-C20-O6
56	1W	201	EHZ	C18-C17-C20-O6
56	1W	201	EHZ	O2-C9-S1-C10
56	1W	201	EHZ	C8-C9-S1-C10
56	1n	201	EHZ	C15-C16-C17-C18
56	1n	201	EHZ	C15-C16-C17-C20
56	1n	201	EHZ	O5-C16-C17-C18
56	1n	201	EHZ	O5-C16-C17-C20
56	1n	201	EHZ	O2-C9-S1-C10
56	1n	201	EHZ	C8-C9-S1-C10
57	1Y	201	PGT	C32-C31-O2-C2
57	1Y	201	PGT	C1-O3P-P-O1P
57	1Y	201	PGT	C4-O4P-P-O3P
57	1Y	201	PGT	C4-O4P-P-O1P
57	1Y	201	PGT	C4-O4P-P-O2P
57	1Y	201	PGT	C5-C4-O4P-P
57	1Y	201	PGT	C4-C5-C6-O6
57	1Y	201	PGT	O31-C31-O2-C2
54	1P	501	NDP	O4D-C1D-N1N-C6N

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Mol	Chain	Res	Type	Atoms
57	1Y	201	PGT	C15-C16-C17-C18
47	1J	201	PC1	C1-O11-P-O13
47	1D	501	PC1	C24-C25-C26-C27
56	1W	201	EHZ	C19-C17-C20-O6
57	1Y	201	PGT	C40-C41-C42-C43
57	1Y	201	PGT	C12-C13-C14-C15
57	1Y	201	PGT	C14-C15-C16-C17
45	1L	701	3PE	C33-C34-C35-C36
57	1Y	201	PGT	O5-C5-C6-O6
47	1I	203	PC1	C36-C37-C38-C39
57	1Y	201	PGT	C35-C36-C37-C38
45	1Y	202	3PE	C3C-C3D-C3E-C3F
57	1Y	201	PGT	C32-C33-C34-C35
45	1A	201	3PE	O21-C2-C3-O31
51	1r	201	CDL	OB6-CB4-CB6-OB8
57	1Y	201	PGT	C21-C22-C23-C24
51	1N	402	CDL	C75-C76-C77-C78
45	1A	201	3PE	C1-O11-P-O13
51	1r	201	CDL	CB3-OB5-PB2-OB2
45	1Y	202	3PE	O11-C1-C2-C3
45	1Y	202	3PE	C35-C36-C37-C38
45	1L	703	3PE	O11-C1-C2-O21
45	1N	401	3PE	O31-C31-C32-C33
45	1N	401	3PE	C3A-C3B-C3C-C3D
51	1N	402	CDL	OA6-CA4-CA6-OA8
56	1n	201	EHZ	O5-C16-C17-C19
45	1N	401	3PE	C34-C35-C36-C37
47	1D	501	PC1	O31-C31-C32-C33
45	1L	701	3PE	C32-C33-C34-C35
52	1O	401	GTP	C4'-C5'-O5'-PA
45	1A	201	3PE	C1-C2-C3-O31
47	1I	203	PC1	C1-C2-C3-O31
51	1N	402	CDL	CA3-CA4-CA6-OA8
57	1Y	201	PGT	C1-C2-C3-O3
45	1L	701	3PE	C1-O11-P-O13
45	1Y	202	3PE	C1-O11-P-O13
45	1Y	202	3PE	O11-C1-C2-O21
51	1r	201	CDL	CB2-C1-CA2-OA2
51	1r	201	CDL	CB4-CB3-OB5-PB2
51	1r	201	CDL	C52-C51-CB5-OB6
51	1N	402	CDL	OB5-CB3-CB4-CB6
45	1L	701	3PE	C22-C23-C24-C25

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Mol	Chain	Res	Type	Atoms
45	1N	401	3PE	C2-C1-O11-P
54	1P	501	NDP	C4B-C5B-O5B-PA
54	1P	501	NDP	C5D-O5D-PN-O3
57	1Y	201	PGT	C31-C32-C33-C34
57	1Y	201	PGT	C22-C23-C24-C25
45	1N	401	3PE	C1-O11-P-O13
47	1M	501	PC1	C1-O11-P-O13
51	1r	201	CDL	CA4-CA3-OA5-PA1
45	1A	201	3PE	C1-O11-P-O12
45	1L	701	3PE	C1-O11-P-O14
47	1I	203	PC1	C11-O13-P-O14
47	1J	201	PC1	C1-O11-P-O14
51	1r	201	CDL	CB3-OB5-PB2-OB3
51	1r	201	CDL	CB3-OB5-PB2-OB4
52	1O	401	GTP	C5'-O5'-PA-O1A
54	1P	501	NDP	C5D-O5D-PN-O2N
47	1M	501	PC1	O11-C1-C2-C3
45	1Y	202	3PE	C12-C11-O13-P
45	1N	401	3PE	C2-C3-O31-C31
49	1F	501	FMN	N10-C1'-C2'-O2'
56	1W	201	EHZ	C10-C11-N1-C12
47	1J	201	PC1	O13-C11-C12-N
51	1r	201	CDL	CB3-CB4-CB6-OB8
47	1D	501	PC1	C23-C24-C25-C26
47	1h	201	PC1	C2-C1-O11-P
45	1L	701	3PE	C38-C39-C3A-C3B
45	1L	702	3PE	O21-C2-C3-O31
47	1D	501	PC1	C1-O11-P-O13
47	1h	201	PC1	C11-O13-P-O11
51	1N	402	CDL	CB3-OB5-PB2-OB2
51	1r	201	CDL	CA3-OA5-PA1-OA2
51	1r	201	CDL	CB2-OB2-PB2-OB5
57	1Y	201	PGT	C1-O3P-P-O4P
47	1M	501	PC1	C1-C2-C3-O31
45	1L	702	3PE	C32-C33-C34-C35
57	1Y	201	PGT	C2-C1-O3P-P
51	1N	402	CDL	CA7-C31-C32-C33
56	1n	201	EHZ	C1-C2-C3-C4
47	1D	501	PC1	C3D-C3E-C3F-C3G
45	1N	401	3PE	O21-C2-C3-O31
47	1D	501	PC1	O32-C31-C32-C33
56	1n	201	EHZ	S1-C10-C11-N1

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Mol	Chain	Res	Type	Atoms
47	1D	501	PC1	C3E-C3F-C3G-C3H
45	1L	703	3PE	C1-C2-O21-C21
45	1N	401	3PE	O11-C1-C2-O21
57	1Y	201	PGT	C37-C38-C39-C40
56	1W	201	EHZ	C11-C10-S1-C9
47	1J	201	PC1	O21-C2-C3-O31
57	1Y	201	PGT	C38-C39-C40-C41
51	1N	402	CDL	C72-C71-CB7-OB8
47	1I	203	PC1	C1-O11-P-O13
45	1A	201	3PE	C33-C34-C35-C36
45	1A	201	3PE	O21-C21-C22-C23
56	1n	201	EHZ	C15-C16-C17-C19
51	1r	201	CDL	C12-C13-C14-C15
45	1A	201	3PE	O22-C21-C22-C23
51	1N	402	CDL	C72-C71-CB7-OB9
47	1M	501	PC1	O31-C31-C32-C33
47	1D	501	PC1	C1-O11-P-O14
47	1M	501	PC1	C11-O13-P-O14
47	1M	501	PC1	C1-O11-P-O12
47	1h	201	PC1	C11-O13-P-O14
54	1P	501	NDP	C2N-C3N-C7N-N7N
54	1P	501	NDP	O4B-C4B-C5B-O5B
45	1N	401	3PE	O32-C31-C32-C33
51	1r	201	CDL	C17-C18-C19-C20
54	1P	501	NDP	C3B-C2B-O2B-P2B
57	1Y	201	PGT	C17-C18-C19-C20
47	1D	501	PC1	C3A-C3B-C3C-C3D
49	1F	501	FMN	N10-C1'-C2'-C3'
51	1N	402	CDL	C32-C33-C34-C35
45	1L	702	3PE	O22-C21-C22-C23
51	1r	201	CDL	C52-C51-CB5-OB7
45	1L	702	3PE	O21-C21-C22-C23
51	1r	201	CDL	C32-C31-CA7-OA8

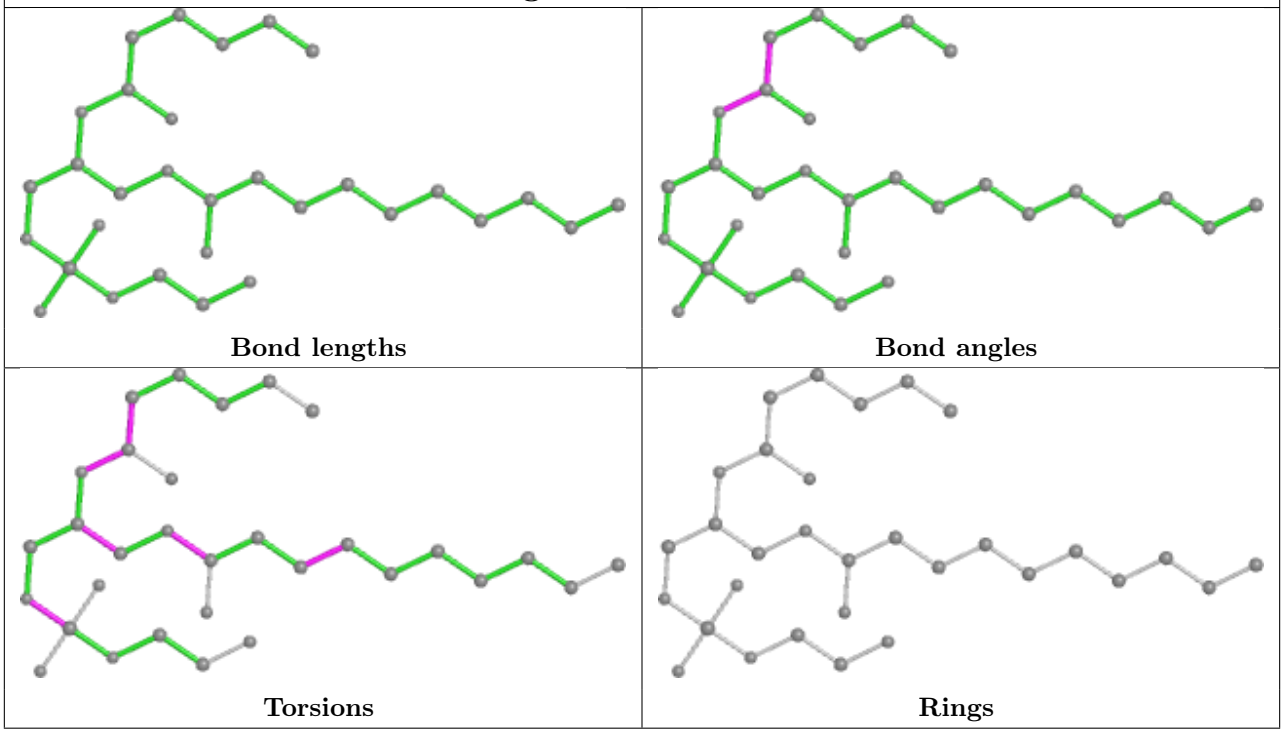
There are no ring outliers.

No monomer is involved in short contacts.

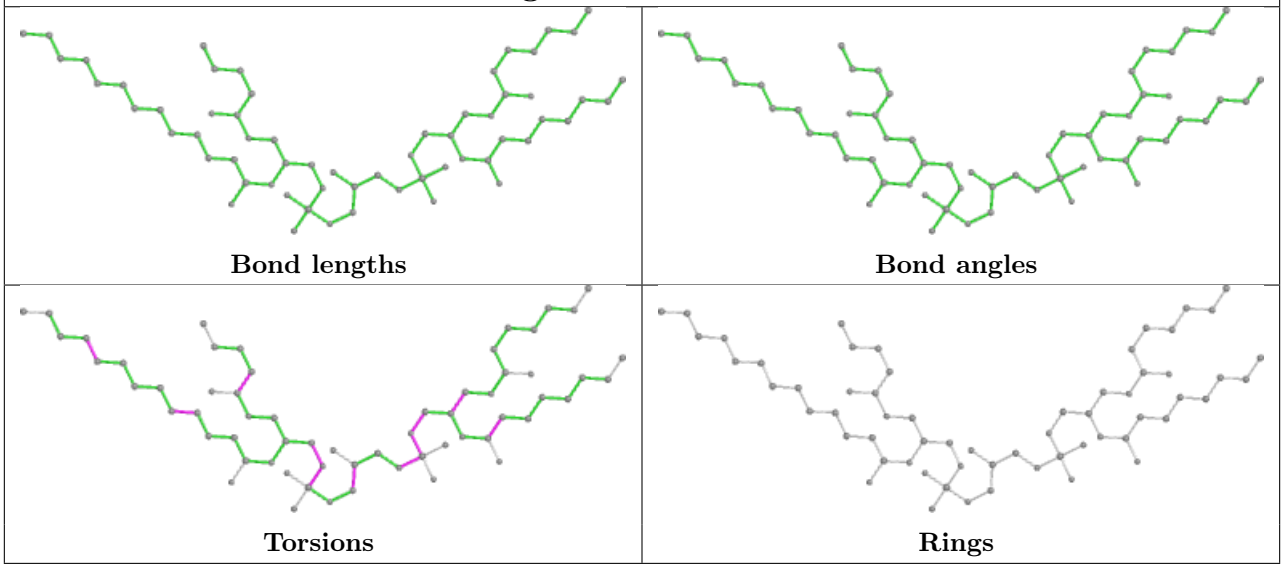
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

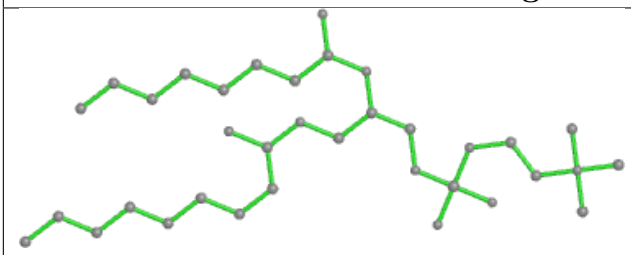
Ligand 3PE 1L 702



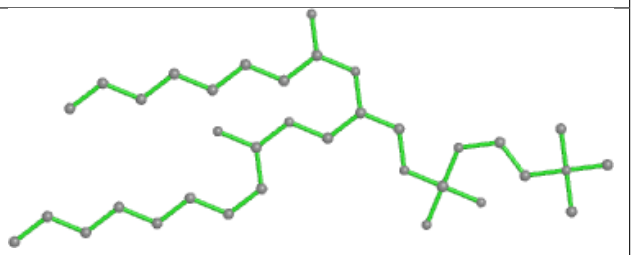
Ligand CDL 1r 201



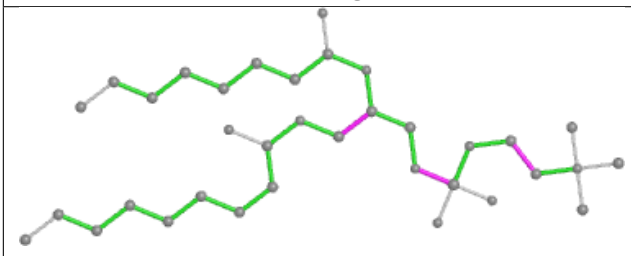
Ligand PC1 1J 201



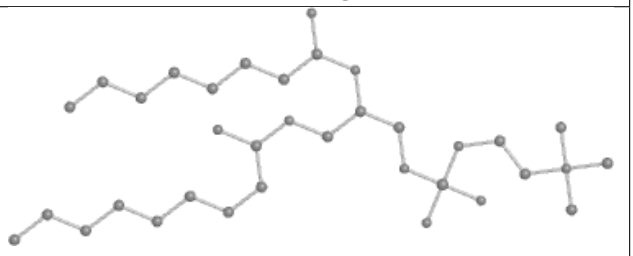
Bond lengths



Bond angles

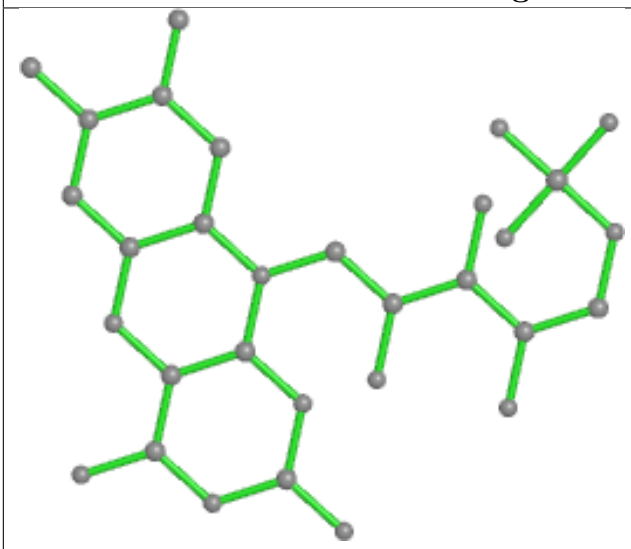


Torsions

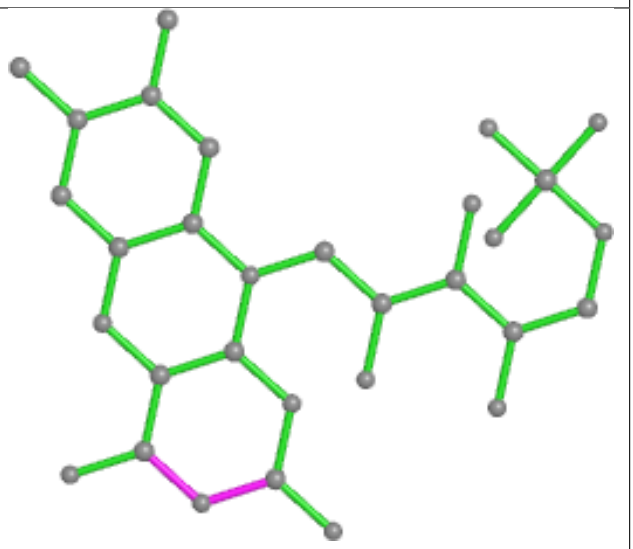


Rings

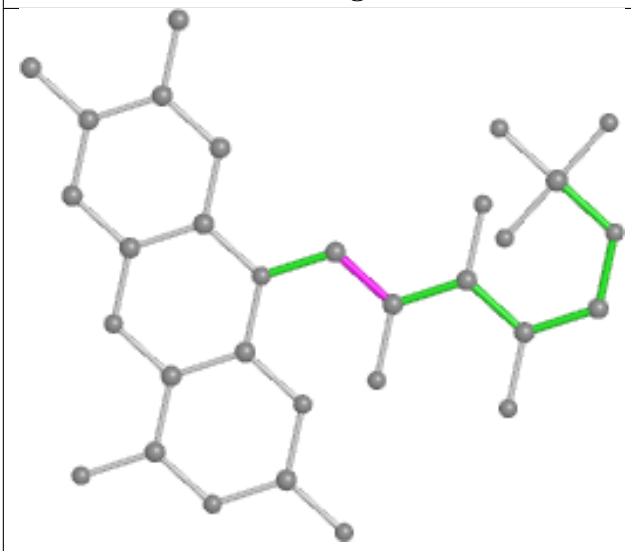
Ligand FMN 1F 501



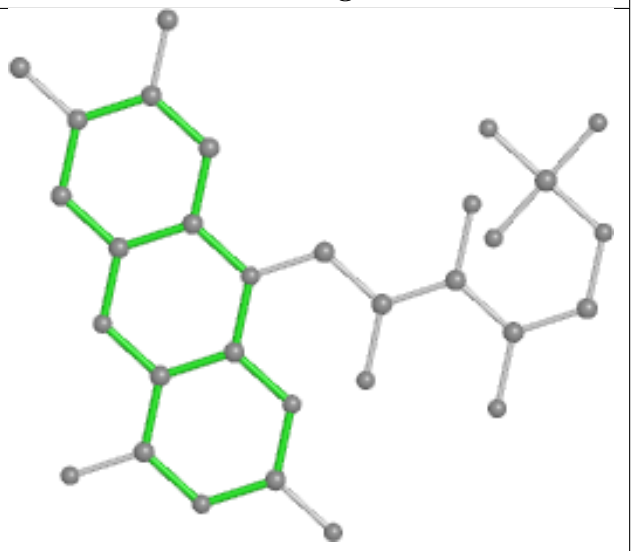
Bond lengths



Bond angles

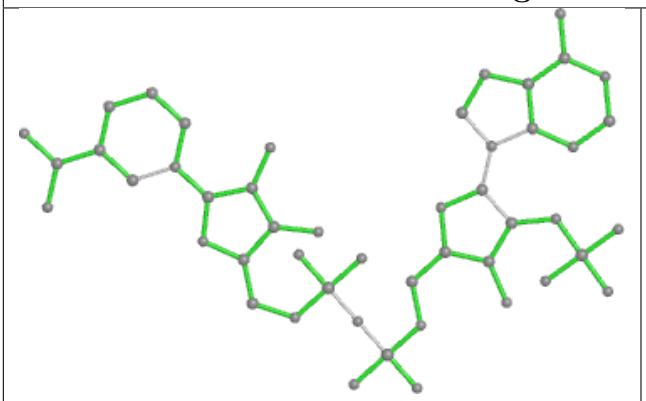


Torsions

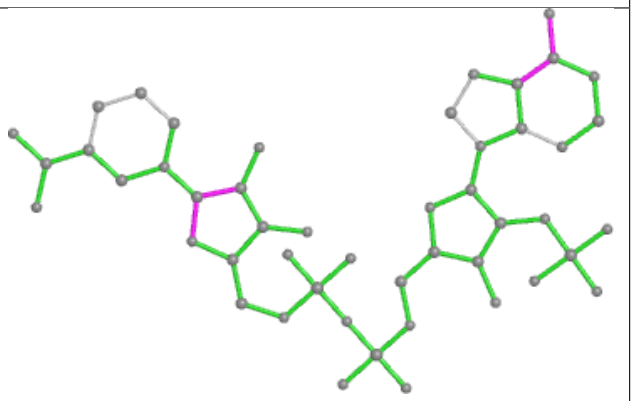


Rings

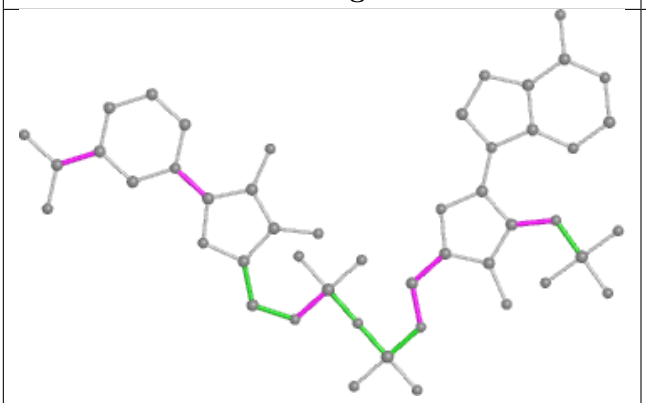
Ligand NDP 1P 501



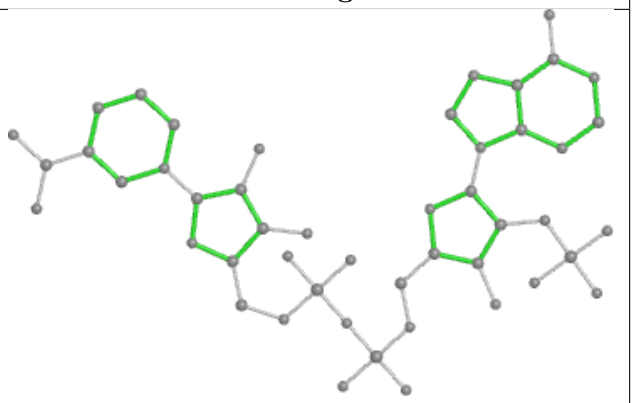
Bond lengths



Bond angles

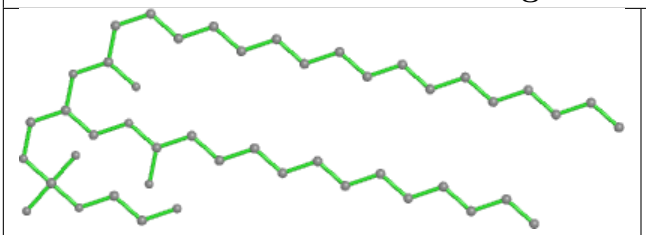


Torsions

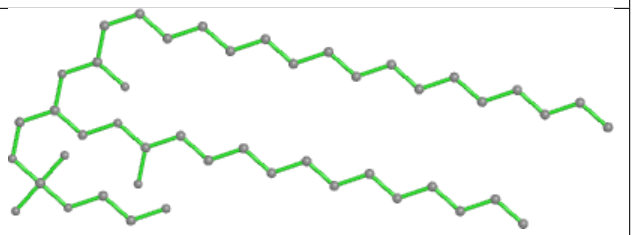


Rings

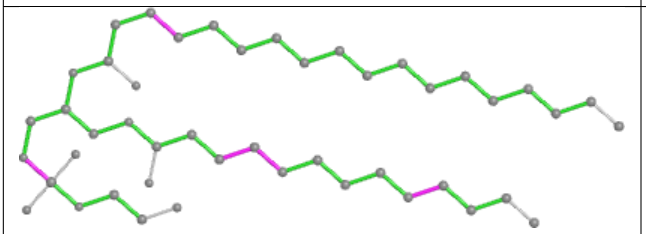
Ligand 3PE 1L 701



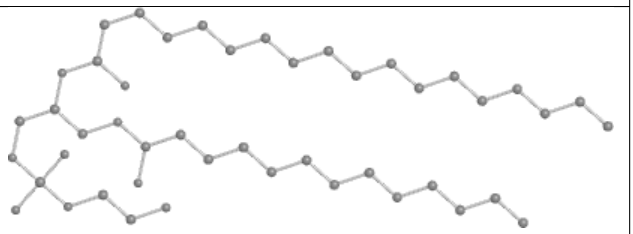
Bond lengths



Bond angles

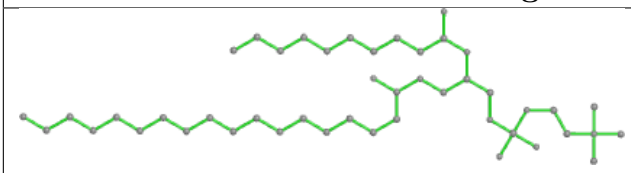


Torsions



Rings

Ligand PC1 1h 201



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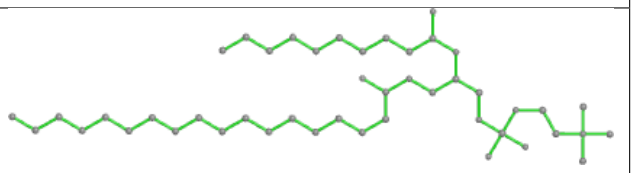
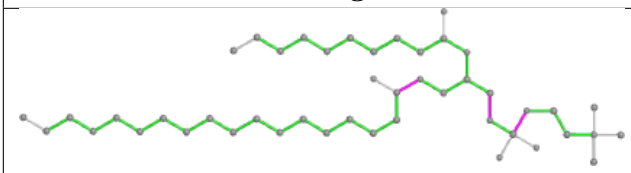


Bond angles



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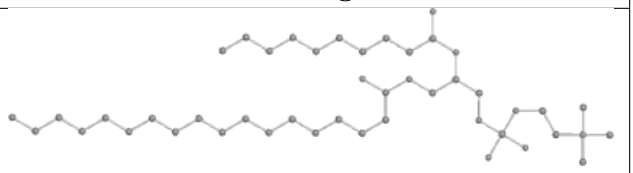
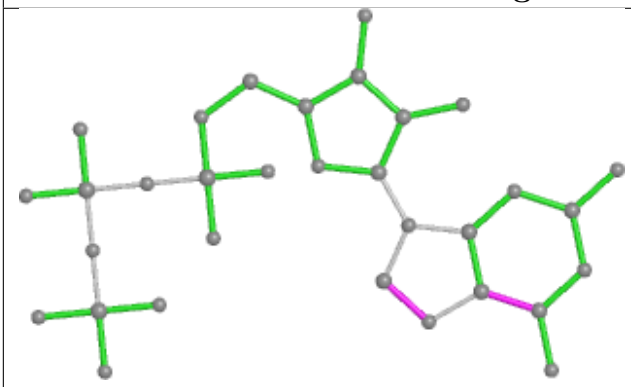


Rings

Ligand GTP 1O 401



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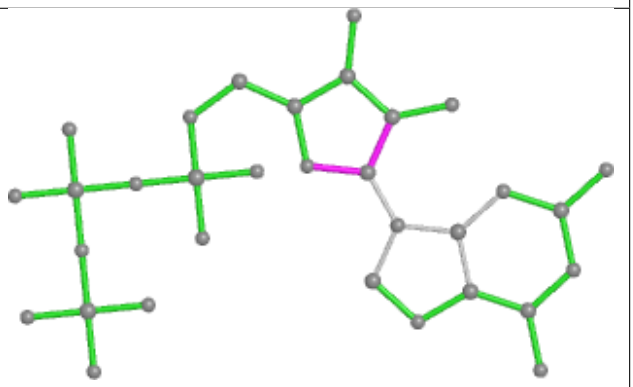
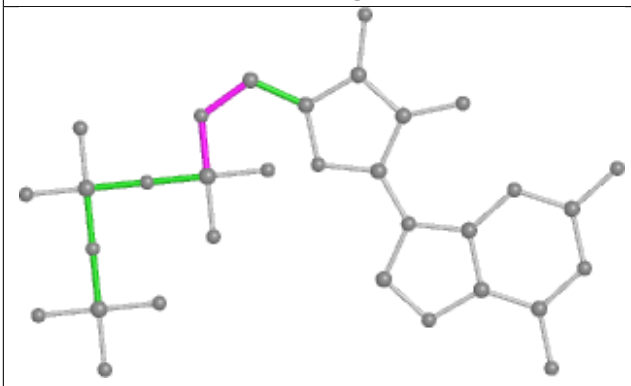


Bond angles



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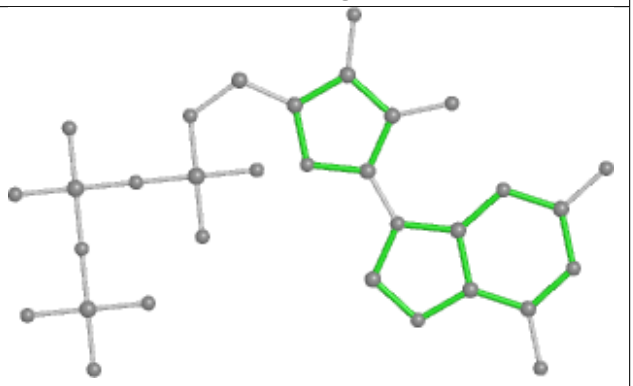
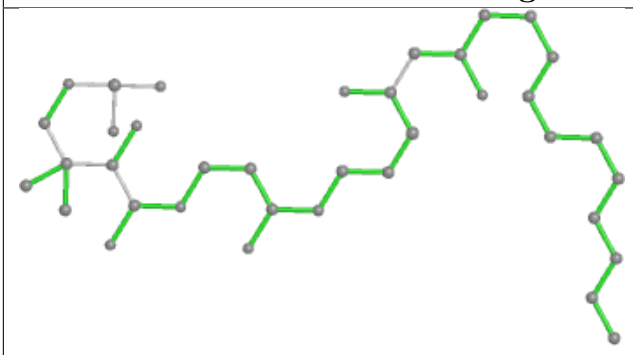


Rings

Ligand EHZ 1n 201



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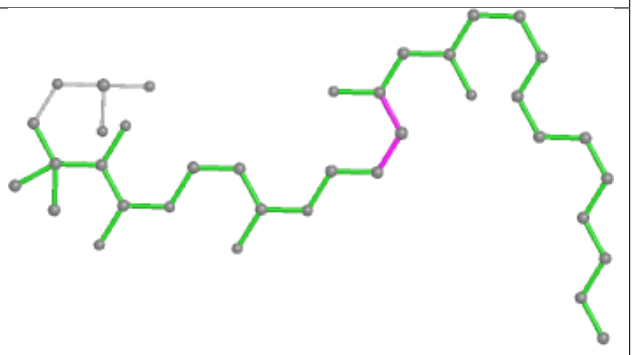
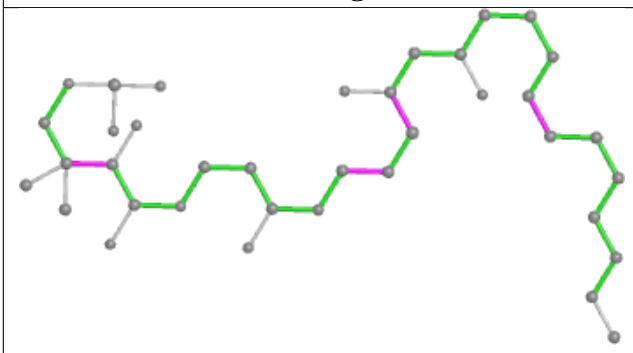


Bond angles



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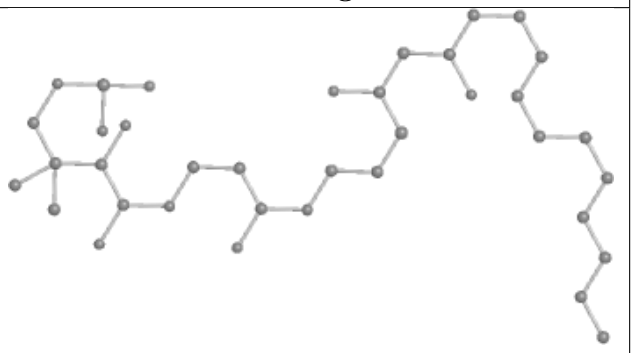
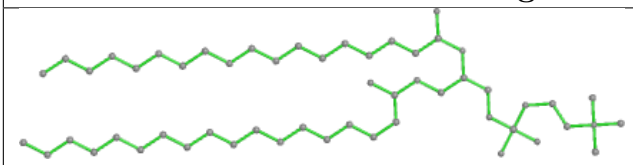
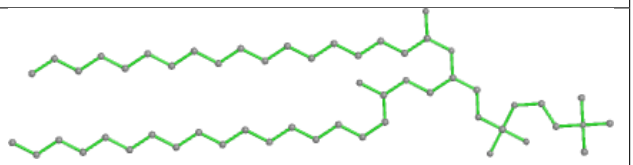


Rings

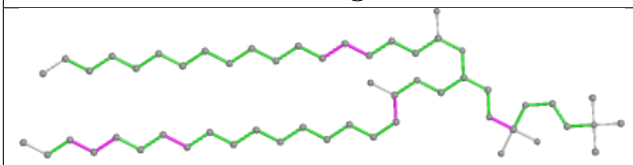
Ligand PC1 1D 501



Bond lengths



Bond angles



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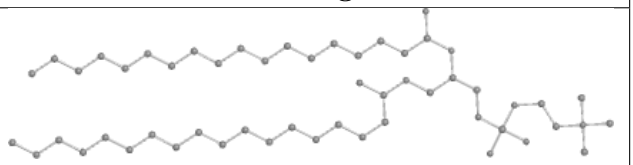
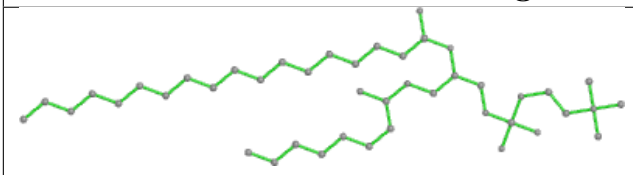


Rings

Ligand PC1 1M 501



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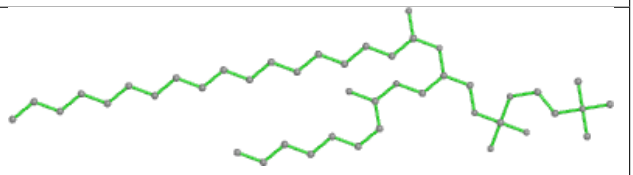
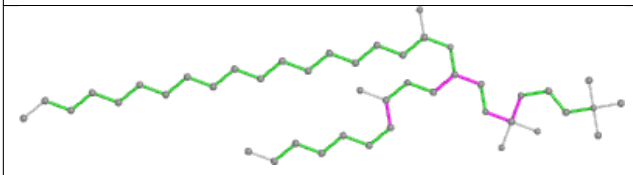
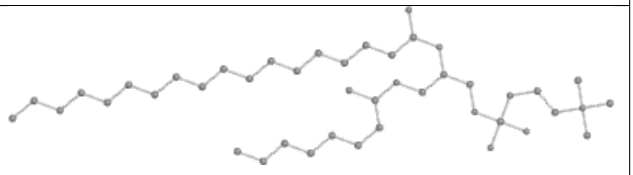


Bond angles

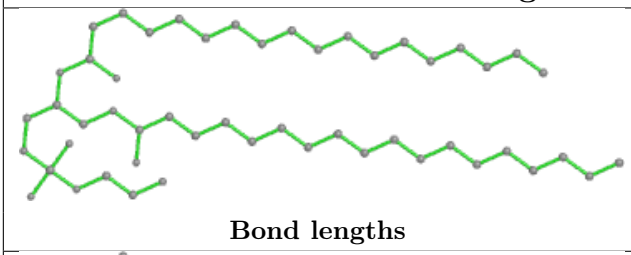


Torsions

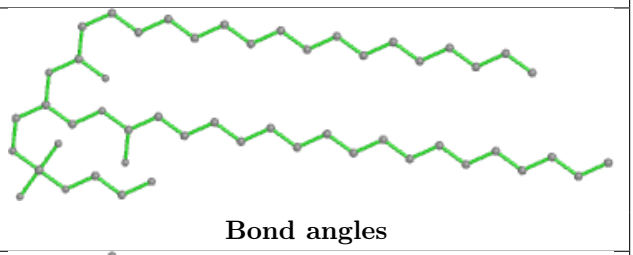


Rings

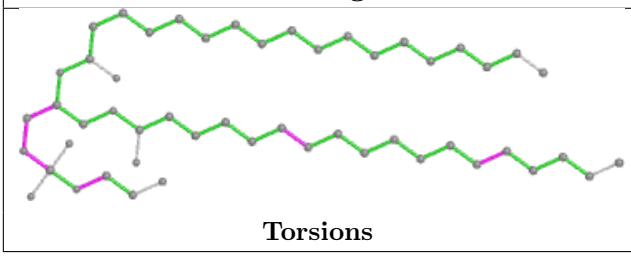
Ligand 3PE 1Y 202



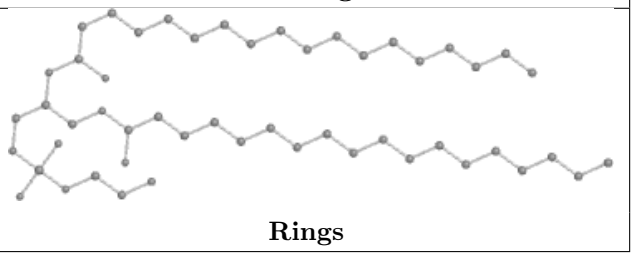
Bond lengths



Bond angles

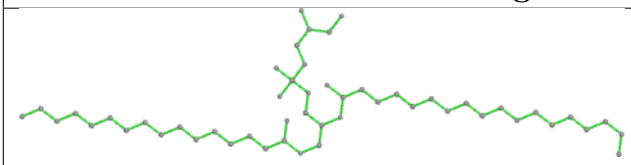


Torsions

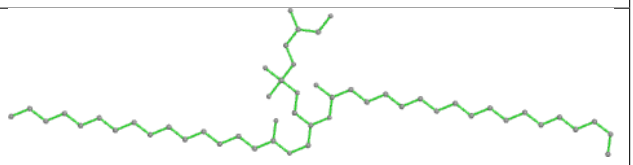


Rings

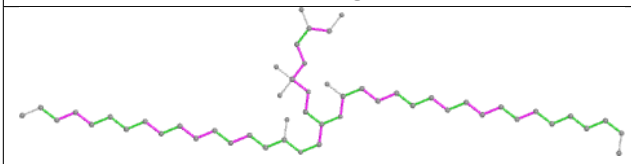
Ligand PGT 1Y 201



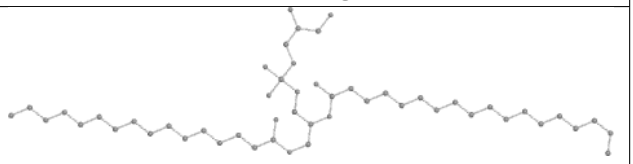
Bond lengths



Bond angles

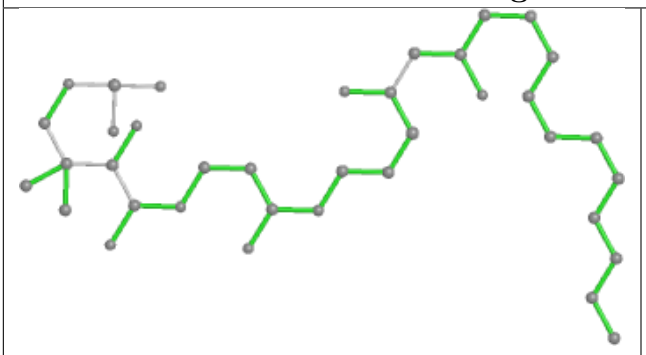


Torsions

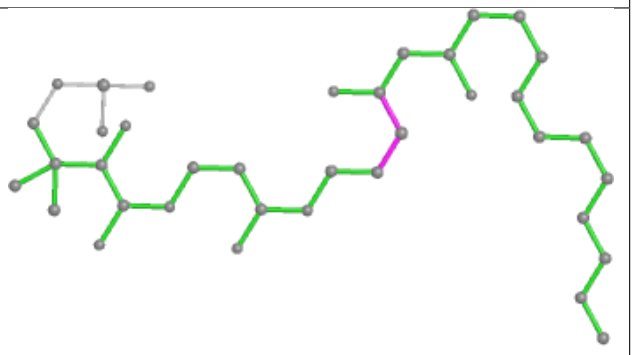


Rings

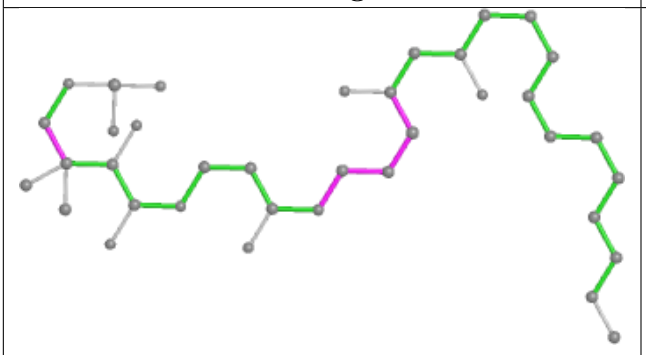
Ligand EHZ 1W 201



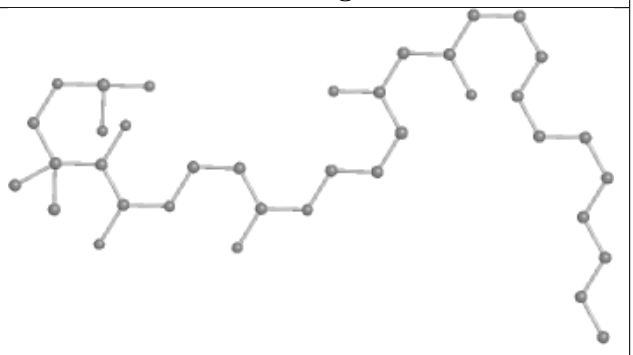
Bond lengths



Bond angles

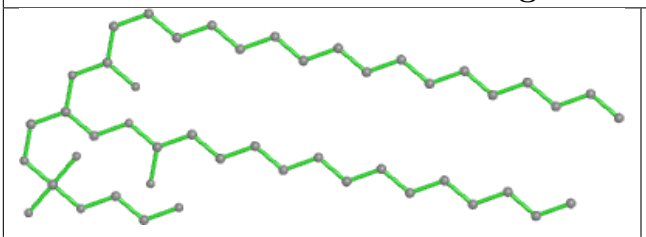


Torsions

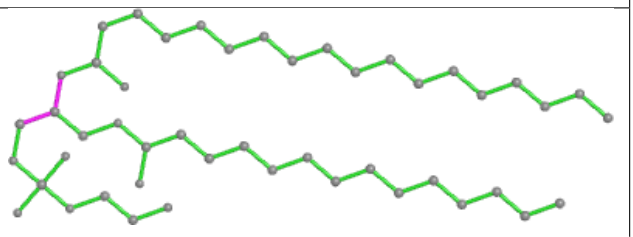


Rings

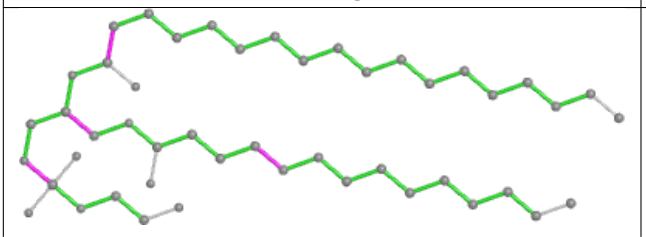
Ligand 3PE 1A 201



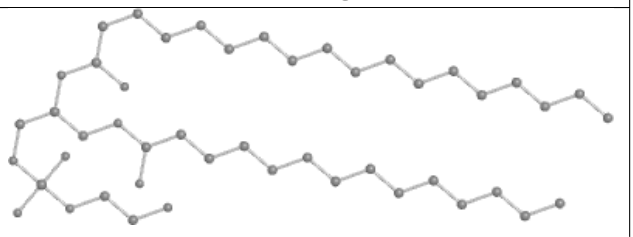
Bond lengths



Bond angles

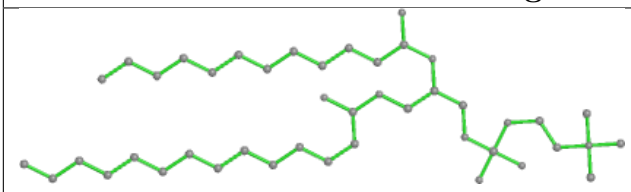


Torsions

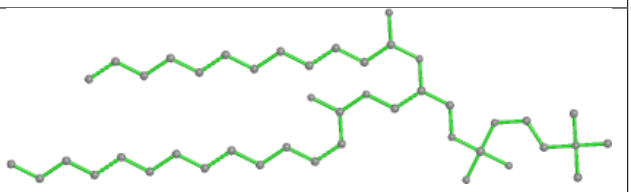


Rings

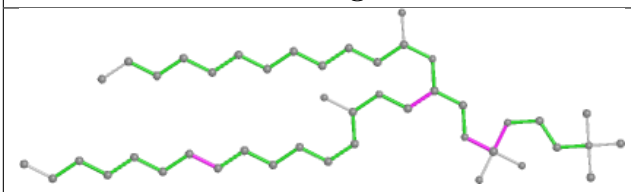
Ligand PC1 1I 203



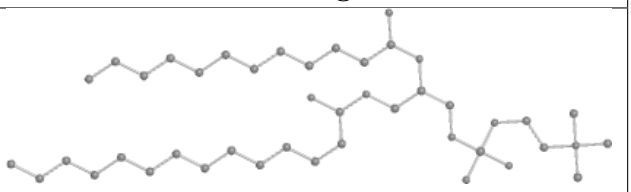
Bond lengths



Bond angles

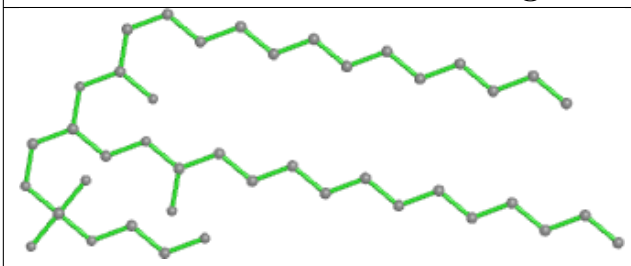


Torsions

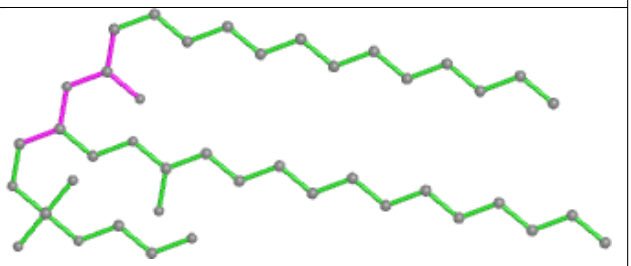


Rings

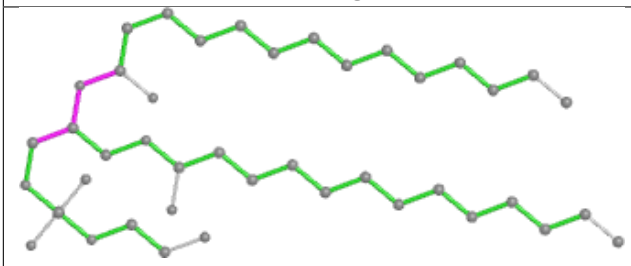
Ligand 3PE 1L 703



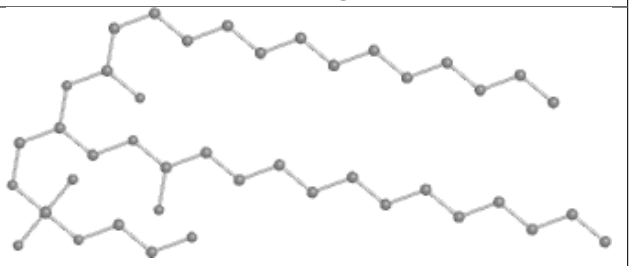
Bond lengths



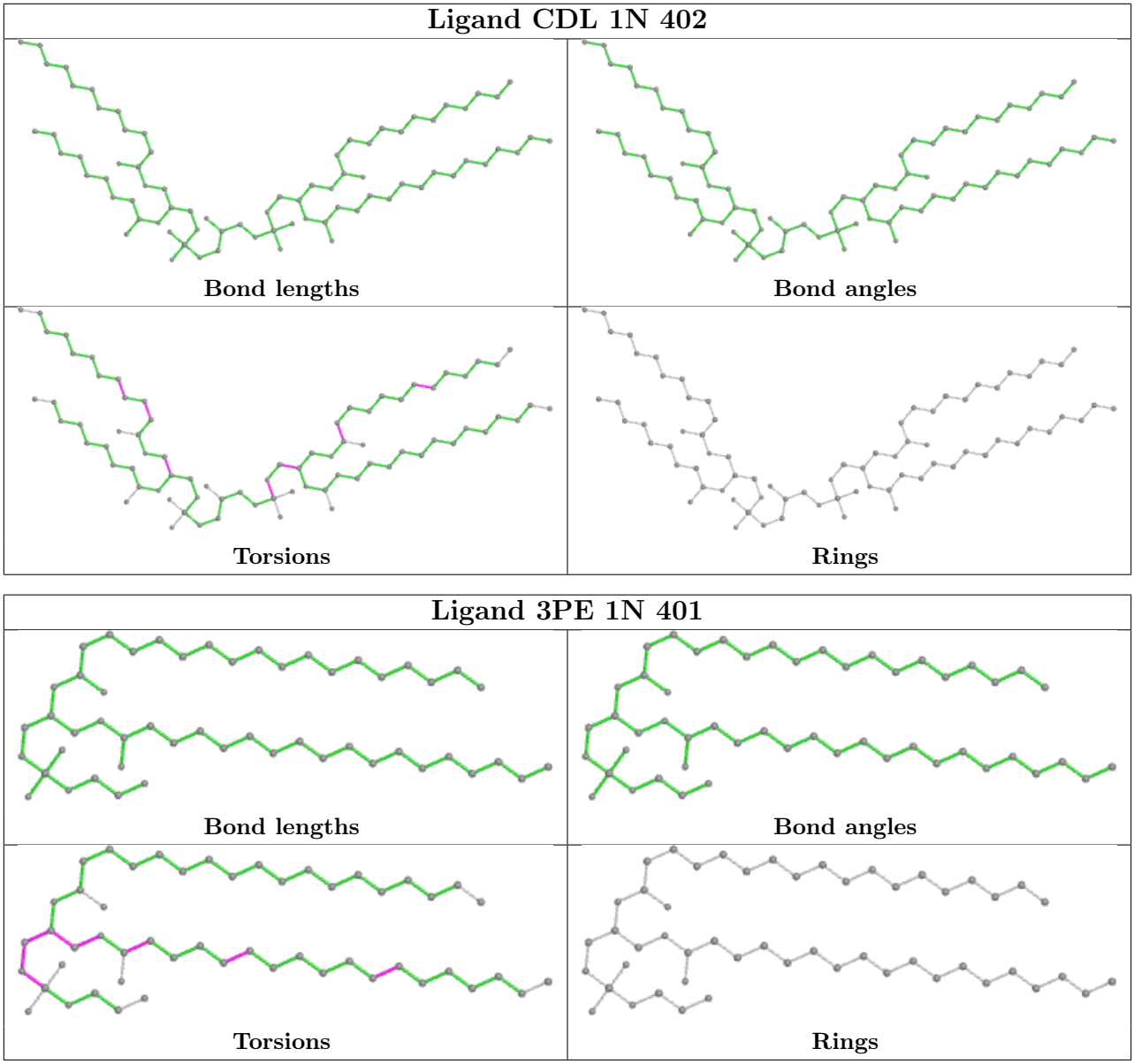
Bond angles



Torsions



Rings



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
34	1i	1
43	1r	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	1i	1:SAC	C	2:GLY	N	3.58
1	1r	1:ALA	C	2:SER	N	3.18

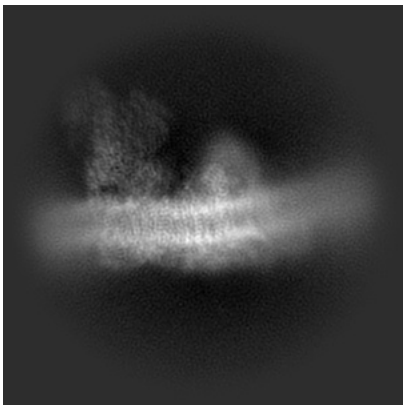
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-42174. These allow visual inspection of the internal detail of the map and identification of artifacts.

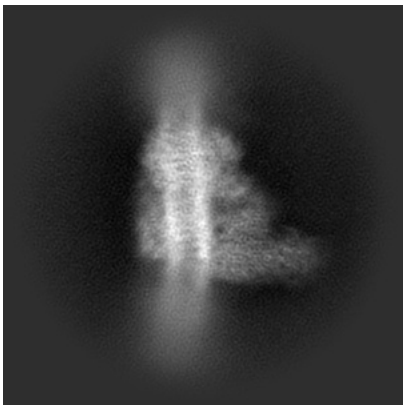
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

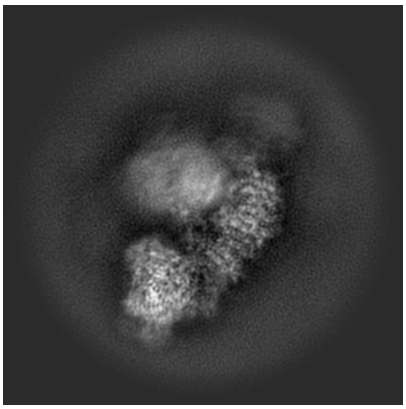
6.1.1 Primary map



X

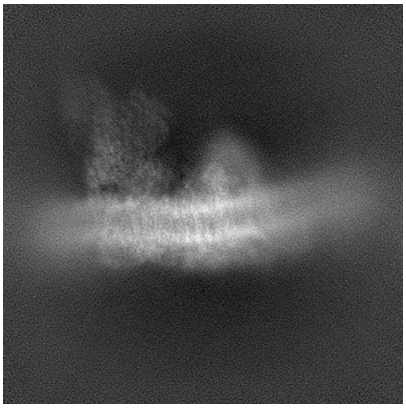


Y

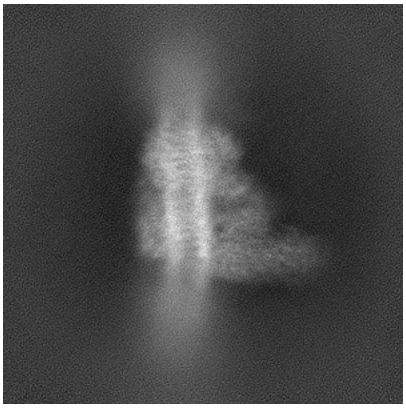


Z

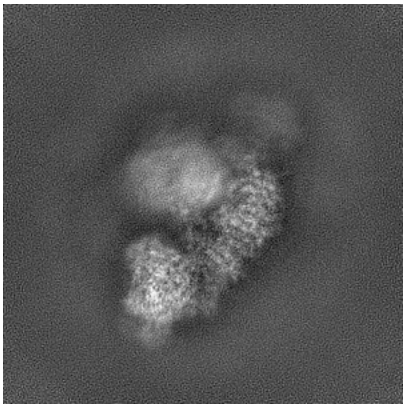
6.1.2 Raw map



X



Y

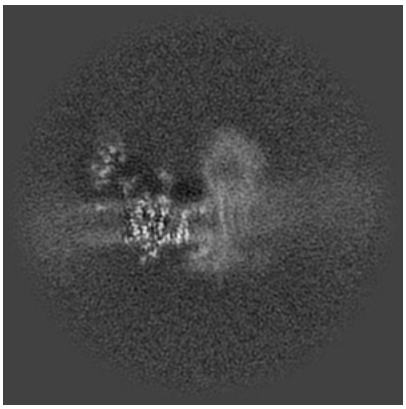


Z

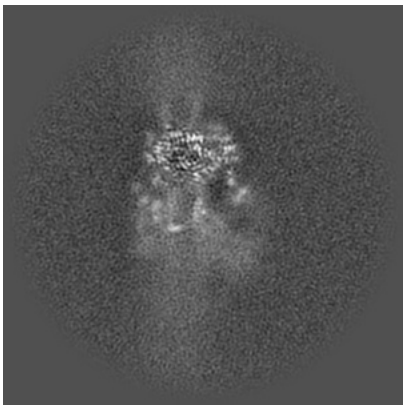
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

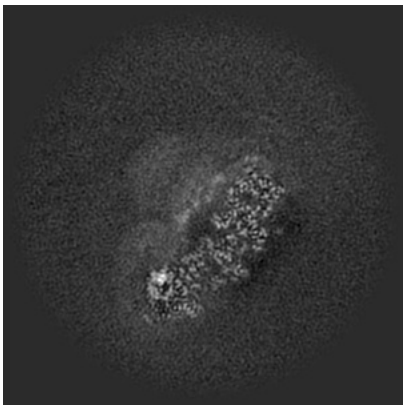
6.2.1 Primary map



X Index: 160

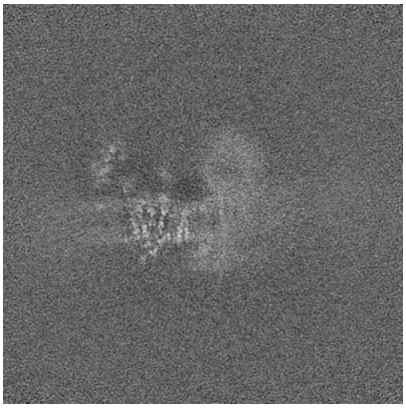


Y Index: 160

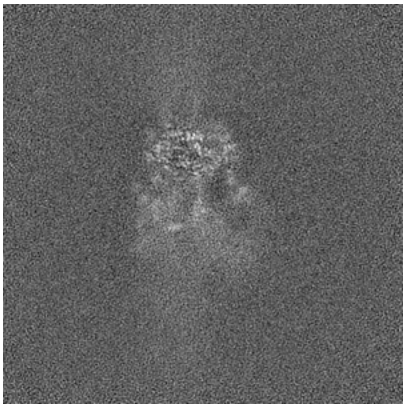


Z Index: 160

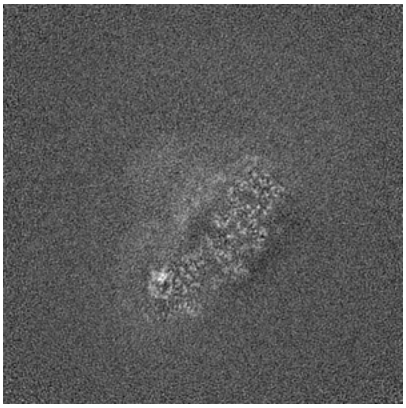
6.2.2 Raw map



X Index: 160



Y Index: 160

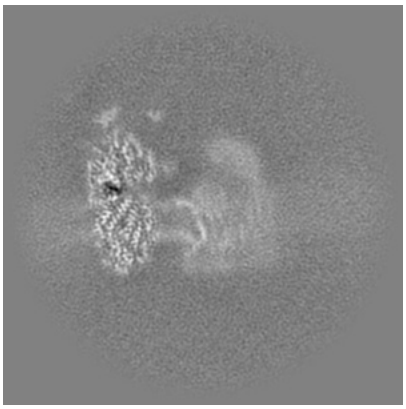


Z Index: 160

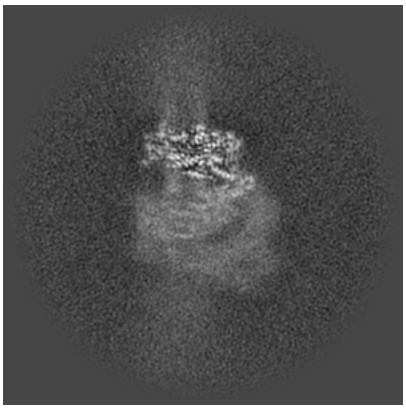
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

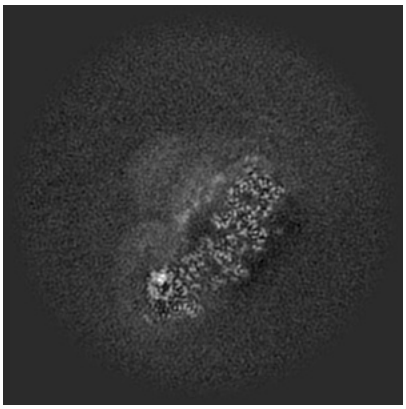
6.3.1 Primary map



X Index: 140

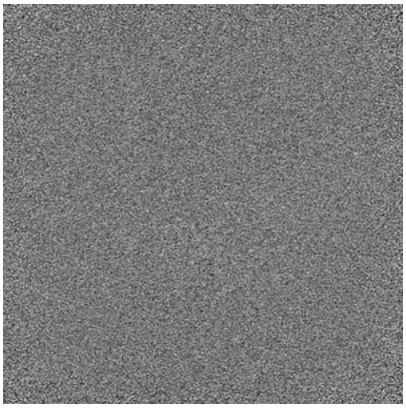


Y Index: 173

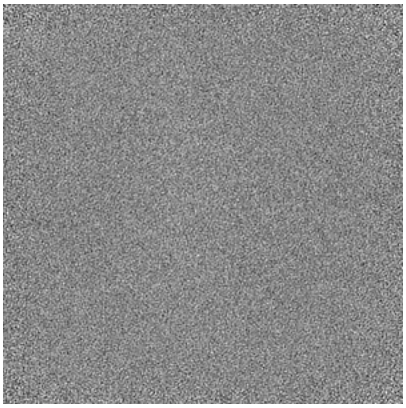


Z Index: 160

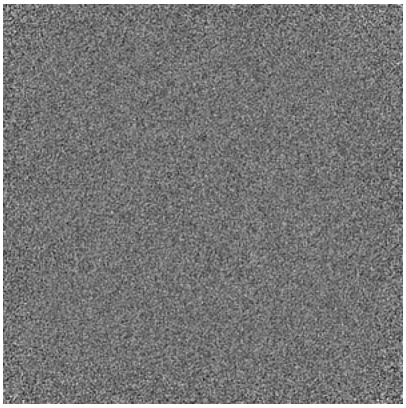
6.3.2 Raw map



X Index: 0



Y Index: 0

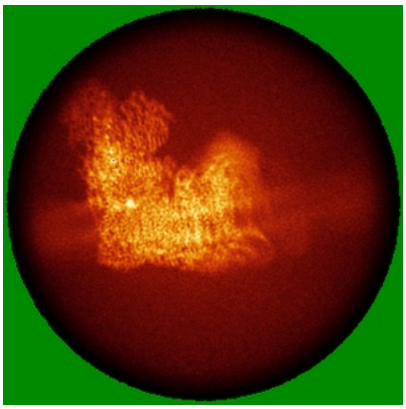


Z Index: 0

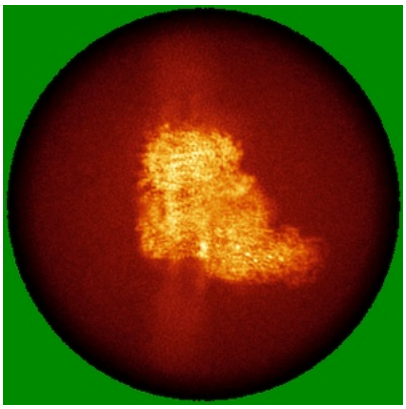
The images above show the largest variance slices of the map in three orthogonal directions.

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

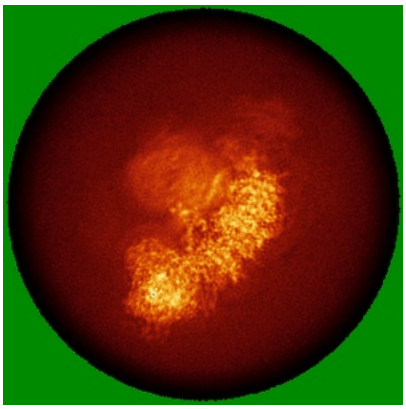
6.4.1 Primary map



X

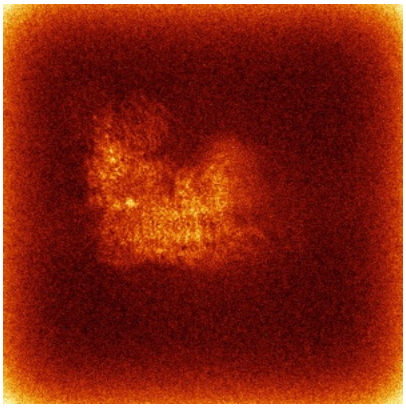


Y

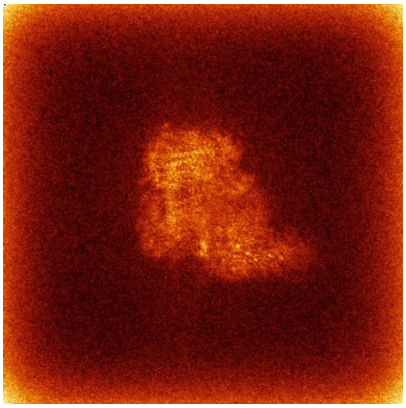


Z

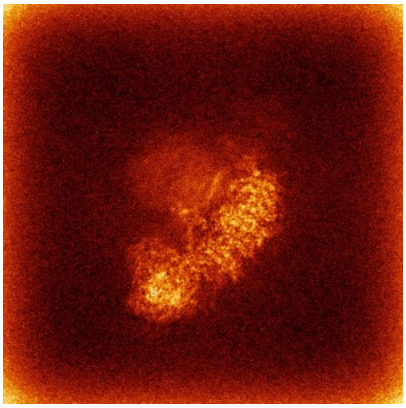
6.4.2 Raw map



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 0.15. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

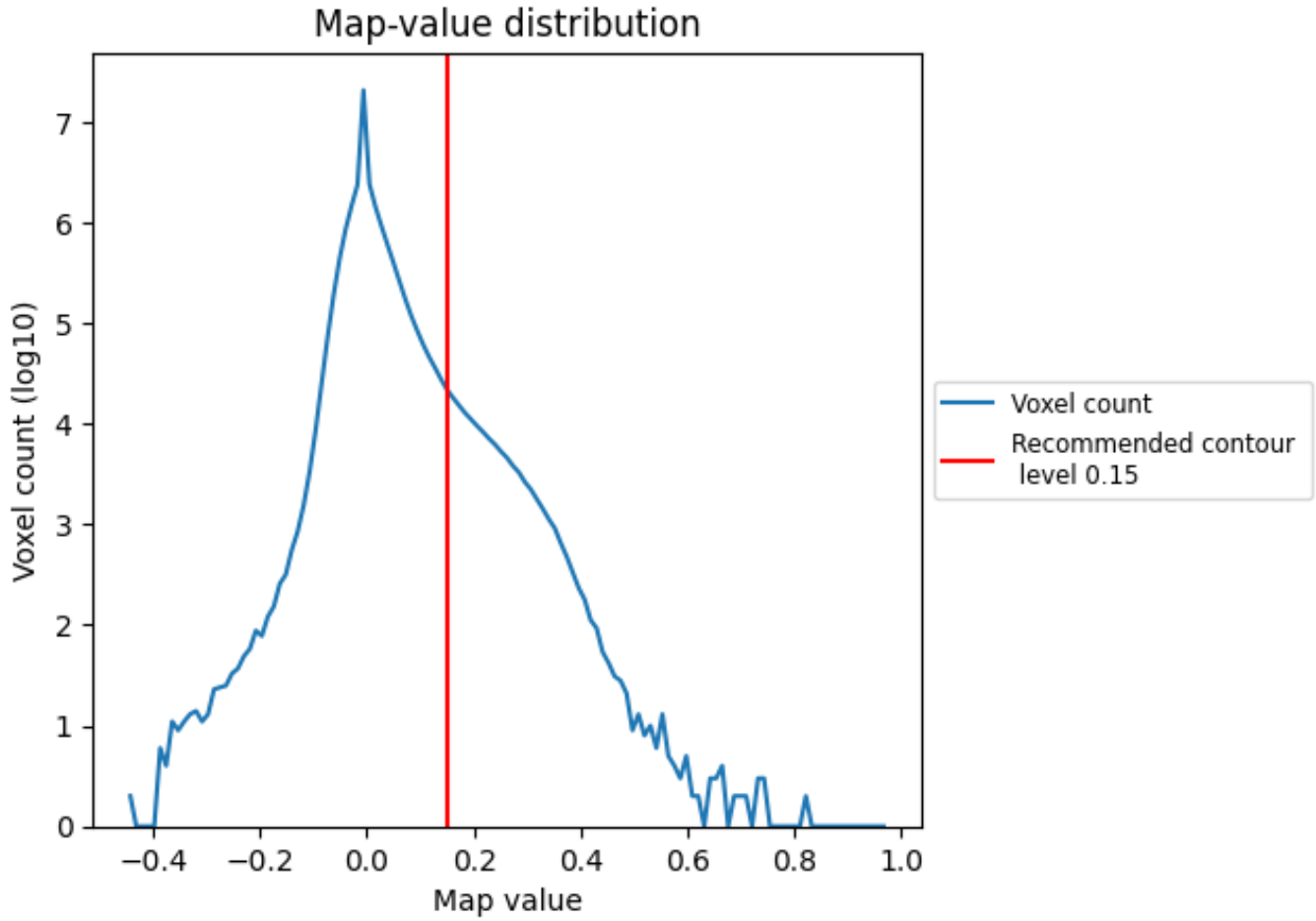
6.6 Mask visualisation (i)

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

7 Map analysis

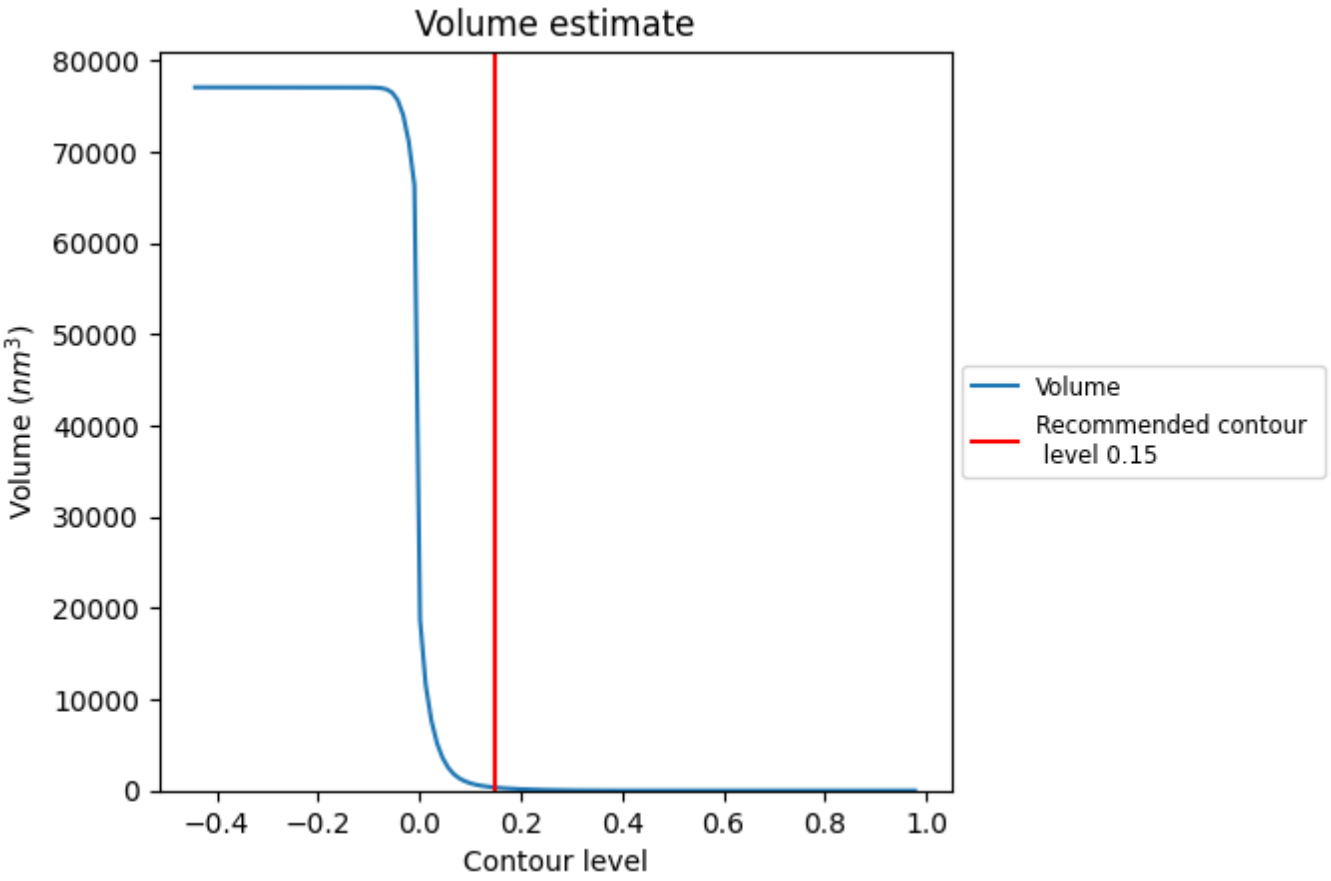
This section contains the results of statistical analysis of the map.

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.

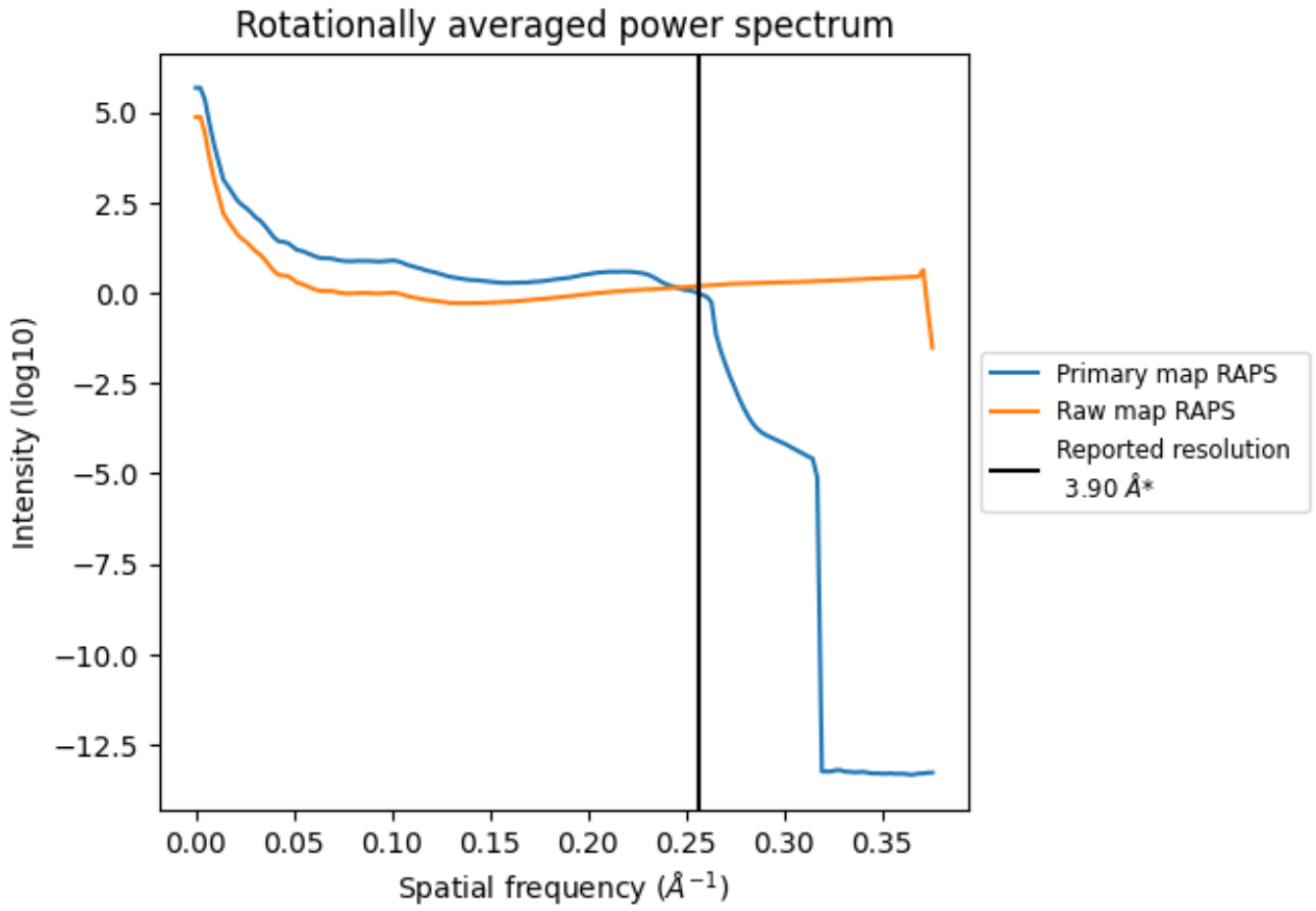
7.2 Volume estimate



The volume at the recommended contour level is 331 nm^3; this corresponds to an approximate mass of 299 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)

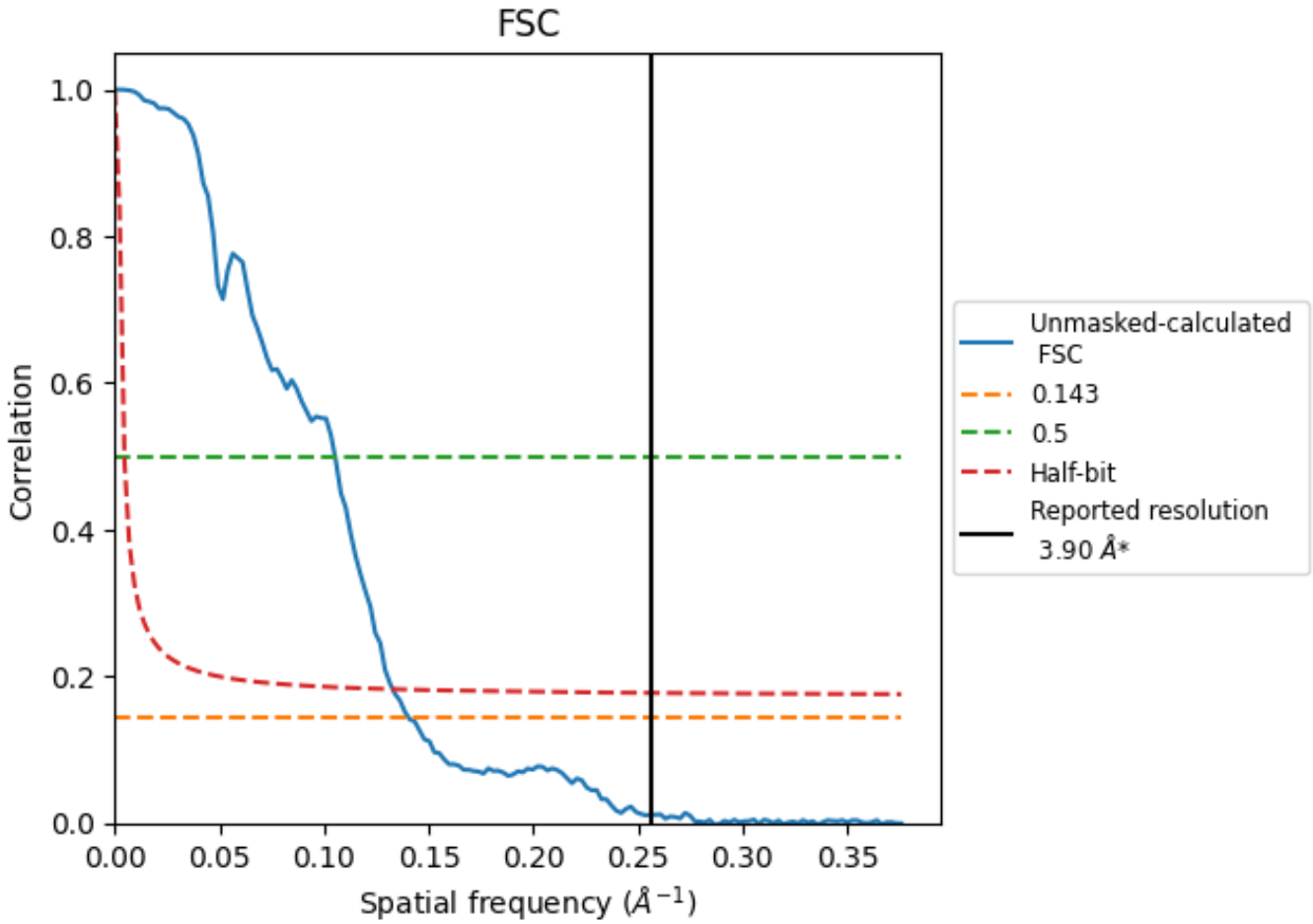


*Reported resolution corresponds to spatial frequency of 0.256 Å^{-1}

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.256 Å^{-1}

8.2 Resolution estimates (i)

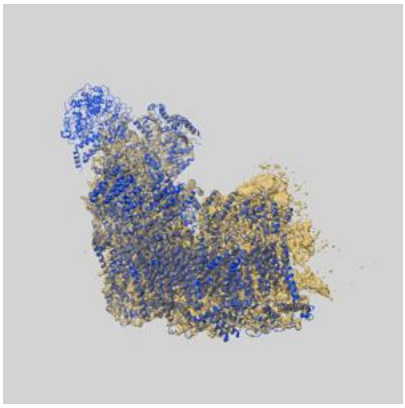
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.90	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	7.12	9.51	7.52

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.12 differs from the reported value 3.9 by more than 10 %

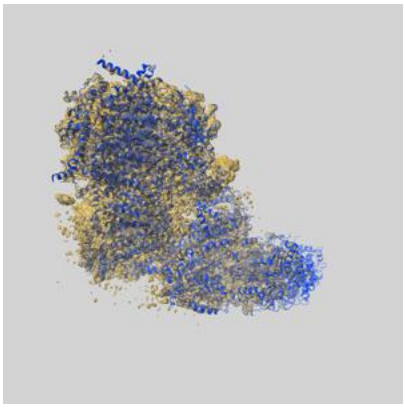
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-42174 and PDB model 8UEX. Per-residue inclusion information can be found in section 3 on page 21.

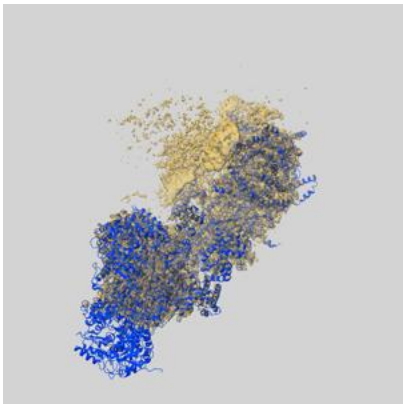
9.1 Map-model overlay



X



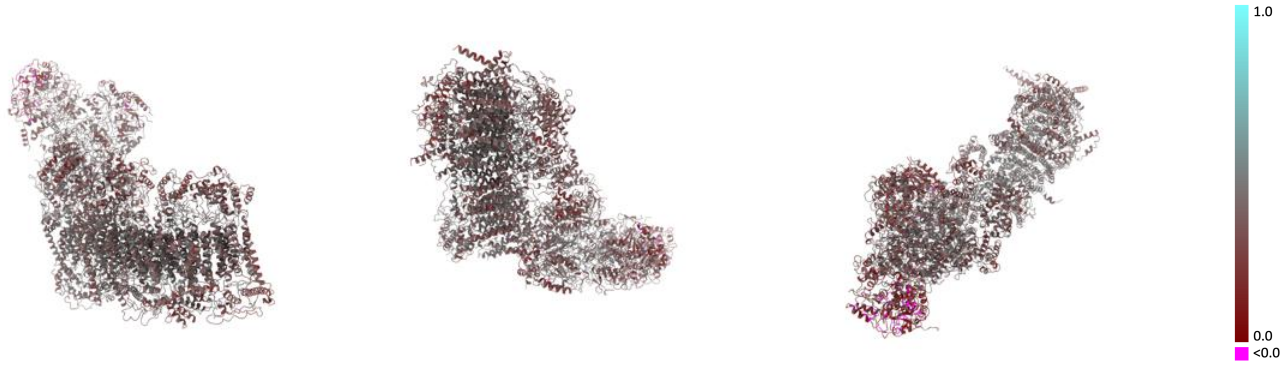
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.15 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.

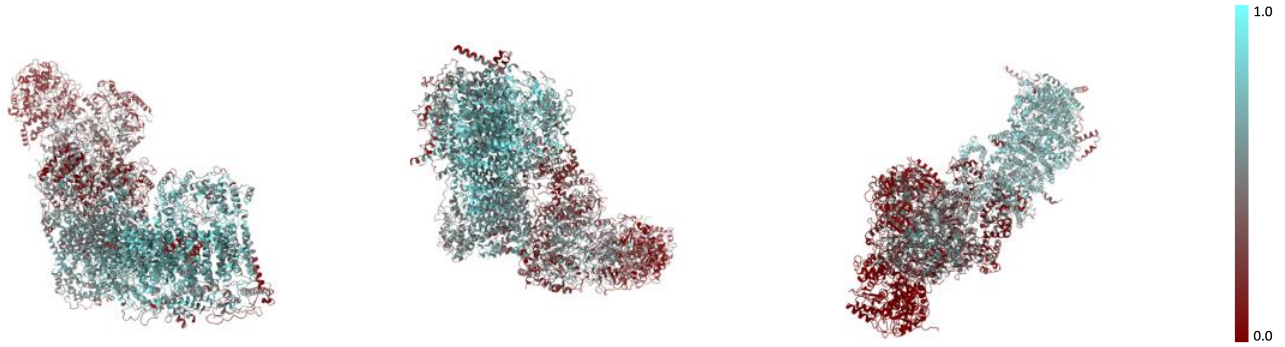
9.2 Q-score mapped to coordinate model (i)



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.

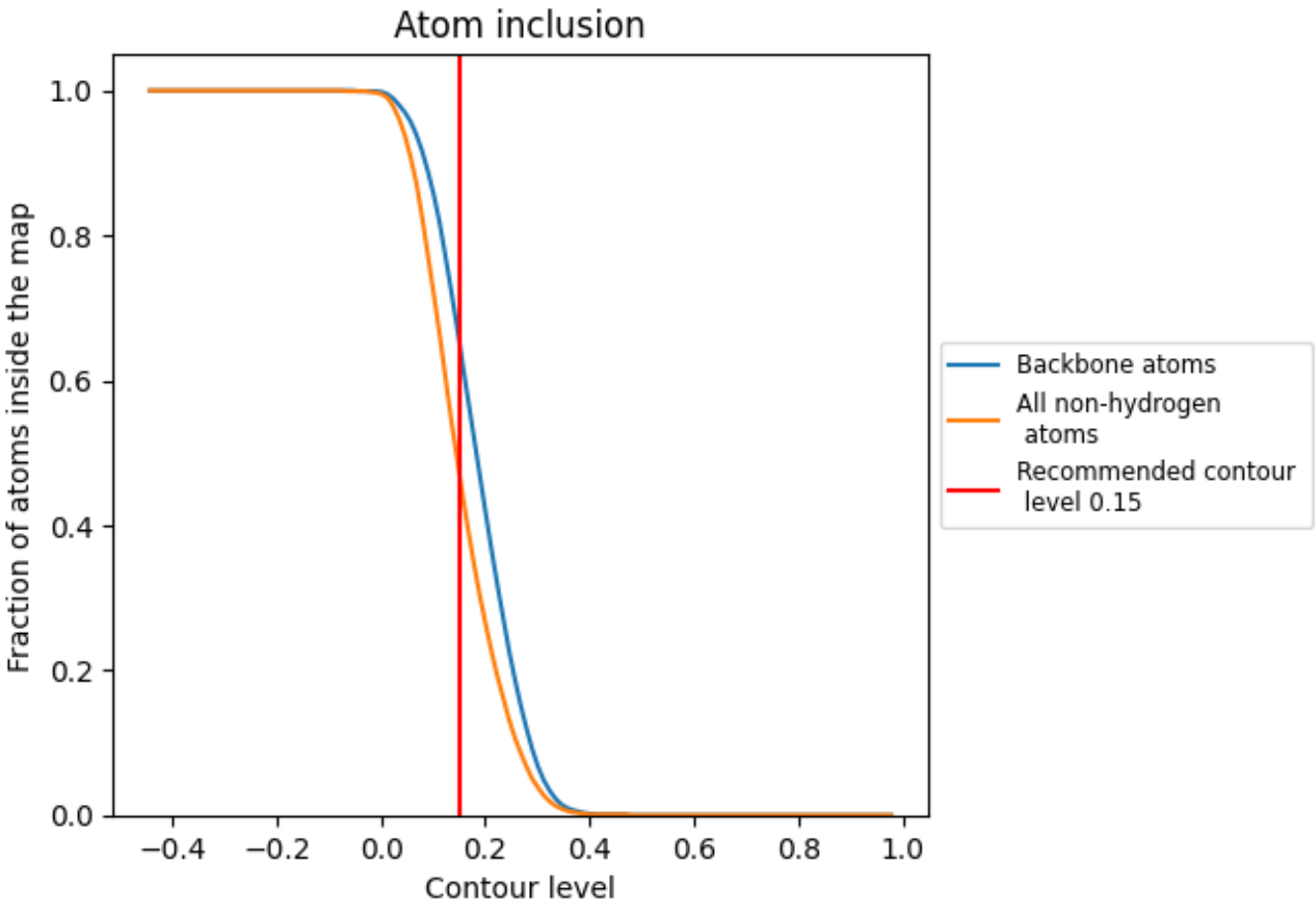
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.15).

9.4 Atom inclusion (i)



At the recommended contour level, 65% of all backbone atoms, 47% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4720	0.3720
1A	0.5230	0.3860
1B	0.5070	0.4180
1C	0.3860	0.3970
1D	0.4800	0.3900
1E	0.0200	0.2590
1F	0.0300	0.2470
1G	0.2760	0.3550
1H	0.6170	0.3910
1I	0.5640	0.4150
1J	0.5120	0.3720
1K	0.6200	0.3960
1L	0.7050	0.3970
1M	0.7590	0.4330
1N	0.6660	0.4170
1O	0.3720	0.3580
1P	0.2920	0.3370
1Q	0.3110	0.3830
1R	0.2870	0.4030
1S	0.1400	0.2810
1T	0.2050	0.2760
1U	0.6050	0.3560
1V	0.1790	0.3360
1W	0.2980	0.3280
1X	0.5230	0.3930
1Y	0.6680	0.3780
1Z	0.5460	0.4130
1a	0.6710	0.4070
1b	0.5170	0.4060
1c	0.4410	0.3610
1d	0.6470	0.4160
1e	0.5950	0.4230
1f	0.5170	0.3850
1g	0.5870	0.3580
1h	0.6450	0.4130

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Chain	Atom inclusion	Q-score
1i	0.3990	0.3520
1j	0.5340	0.3660
1k	0.5230	0.3610
1l	0.6350	0.3980
1m	0.6920	0.3720
1n	0.6710	0.3750
1o	0.5000	0.3220
1p	0.5940	0.3780
1q	0.4270	0.4070
1r	0.3890	0.4030
1s	0.0030	0.2060