



Full wwPDB EM Validation Report ⓘ

May 25, 2024 – 07:37 PM EDT

PDB ID : 7RL5
EMDB ID : EMD-24516
Title : Yeast CTP Synthase (URA8) filament bound to CTP at low pH
Authors : Hansen, J.M.; Lynch, E.M.; Farrell, D.P.; DiMaio, F.; Quispe, J.; Kollman, J.M.
Deposited on : 2021-07-23
Resolution : 3.80 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) : 2.36.2

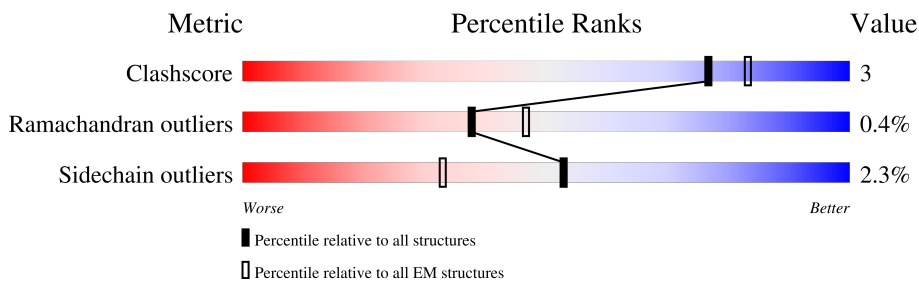
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.80 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



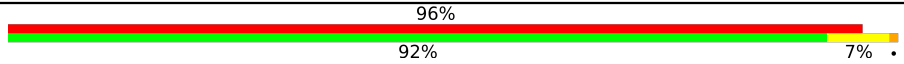
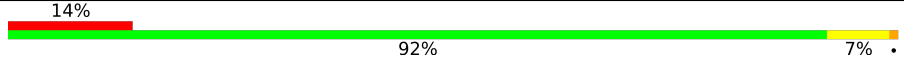
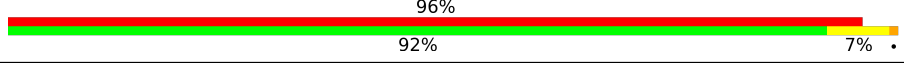
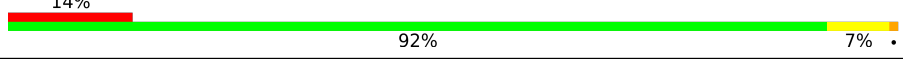
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	559	
1	B	559	
1	C	559	
1	D	559	
1	E	559	
1	L	559	
1	M	559	
1	O	559	

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Mol	Chain	Length	Quality of chain
1	P	559	
1	Q	559	
1	R	559	
1	S	559	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	CTP	A	601	-	-	X	-
2	CTP	B	601	-	-	X	-
2	CTP	C	601	-	-	X	-
2	CTP	D	601	-	-	X	-
2	CTP	E	601	-	-	X	-
2	CTP	L	601	-	-	X	-
2	CTP	M	601	-	-	X	-
2	CTP	O	601	-	-	X	-
2	CTP	P	601	-	-	X	-
2	CTP	Q	601	-	-	X	-
2	CTP	R	601	-	-	X	-
2	CTP	S	601	-	-	X	-

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 106320 atoms, of which 53004 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 CTP synthase.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
1	A	559	8778	2775	4393	757	833	20	0	0
1	B	559	8778	2775	4393	757	833	20	0	0
1	C	559	8778	2775	4393	757	833	20	0	0
1	D	559	8778	2775	4393	757	833	20	0	0
1	E	559	8778	2775	4393	757	833	20	0	0
1	M	559	8778	2775	4393	757	833	20	0	0
1	P	559	8778	2775	4393	757	833	20	0	0
1	R	559	8778	2775	4393	757	833	20	0	0
1	L	559	8778	2775	4393	757	833	20	0	0
1	O	559	8778	2775	4393	757	833	20	0	0
1	Q	559	8778	2775	4393	757	833	20	0	0
1	S	559	8778	2775	4393	757	833	20	0	0

There are 144 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	TYR	deletion	UNP A0A6A5PYW3
A	?	-	MET	deletion	UNP A0A6A5PYW3
A	?	-	PRO	deletion	UNP A0A6A5PYW3
A	?	-	GLU	deletion	UNP A0A6A5PYW3
A	?	-	ILE	deletion	UNP A0A6A5PYW3
A	?	-	ASP	deletion	UNP A0A6A5PYW3

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	LYS	deletion	UNP A0A6A5PYW3
A	?	-	GLU	deletion	UNP A0A6A5PYW3
A	?	-	HIS	deletion	UNP A0A6A5PYW3
A	?	-	MET	deletion	UNP A0A6A5PYW3
A	?	-	GLY	deletion	UNP A0A6A5PYW3
A	?	-	GLY	deletion	UNP A0A6A5PYW3
B	?	-	TYR	deletion	UNP A0A6A5PYW3
B	?	-	MET	deletion	UNP A0A6A5PYW3
B	?	-	PRO	deletion	UNP A0A6A5PYW3
B	?	-	GLU	deletion	UNP A0A6A5PYW3
B	?	-	ILE	deletion	UNP A0A6A5PYW3
B	?	-	ASP	deletion	UNP A0A6A5PYW3
B	?	-	LYS	deletion	UNP A0A6A5PYW3
B	?	-	GLU	deletion	UNP A0A6A5PYW3
B	?	-	HIS	deletion	UNP A0A6A5PYW3
B	?	-	MET	deletion	UNP A0A6A5PYW3
B	?	-	GLY	deletion	UNP A0A6A5PYW3
B	?	-	GLY	deletion	UNP A0A6A5PYW3
C	?	-	TYR	deletion	UNP A0A6A5PYW3
C	?	-	MET	deletion	UNP A0A6A5PYW3
C	?	-	PRO	deletion	UNP A0A6A5PYW3
C	?	-	GLU	deletion	UNP A0A6A5PYW3
C	?	-	ILE	deletion	UNP A0A6A5PYW3
C	?	-	ASP	deletion	UNP A0A6A5PYW3
C	?	-	LYS	deletion	UNP A0A6A5PYW3
C	?	-	GLU	deletion	UNP A0A6A5PYW3
C	?	-	HIS	deletion	UNP A0A6A5PYW3
C	?	-	MET	deletion	UNP A0A6A5PYW3
C	?	-	GLY	deletion	UNP A0A6A5PYW3
C	?	-	GLY	deletion	UNP A0A6A5PYW3
D	?	-	TYR	deletion	UNP A0A6A5PYW3
D	?	-	MET	deletion	UNP A0A6A5PYW3
D	?	-	PRO	deletion	UNP A0A6A5PYW3
D	?	-	GLU	deletion	UNP A0A6A5PYW3
D	?	-	ILE	deletion	UNP A0A6A5PYW3
D	?	-	ASP	deletion	UNP A0A6A5PYW3
D	?	-	LYS	deletion	UNP A0A6A5PYW3
D	?	-	GLU	deletion	UNP A0A6A5PYW3
D	?	-	HIS	deletion	UNP A0A6A5PYW3
D	?	-	MET	deletion	UNP A0A6A5PYW3
D	?	-	GLY	deletion	UNP A0A6A5PYW3
D	?	-	GLY	deletion	UNP A0A6A5PYW3

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Chain	Residue	Modelled	Actual	Comment	Reference
E	?	-	TYR	deletion	UNP A0A6A5PYW3
E	?	-	MET	deletion	UNP A0A6A5PYW3
E	?	-	PRO	deletion	UNP A0A6A5PYW3
E	?	-	GLU	deletion	UNP A0A6A5PYW3
E	?	-	ILE	deletion	UNP A0A6A5PYW3
E	?	-	ASP	deletion	UNP A0A6A5PYW3
E	?	-	LYS	deletion	UNP A0A6A5PYW3
E	?	-	GLU	deletion	UNP A0A6A5PYW3
E	?	-	HIS	deletion	UNP A0A6A5PYW3
E	?	-	MET	deletion	UNP A0A6A5PYW3
E	?	-	GLY	deletion	UNP A0A6A5PYW3
E	?	-	GLY	deletion	UNP A0A6A5PYW3
M	?	-	TYR	deletion	UNP A0A6A5PYW3
M	?	-	MET	deletion	UNP A0A6A5PYW3
M	?	-	PRO	deletion	UNP A0A6A5PYW3
M	?	-	GLU	deletion	UNP A0A6A5PYW3
M	?	-	ILE	deletion	UNP A0A6A5PYW3
M	?	-	ASP	deletion	UNP A0A6A5PYW3
M	?	-	LYS	deletion	UNP A0A6A5PYW3
M	?	-	GLU	deletion	UNP A0A6A5PYW3
M	?	-	HIS	deletion	UNP A0A6A5PYW3
M	?	-	MET	deletion	UNP A0A6A5PYW3
M	?	-	GLY	deletion	UNP A0A6A5PYW3
M	?	-	GLY	deletion	UNP A0A6A5PYW3
P	?	-	TYR	deletion	UNP A0A6A5PYW3
P	?	-	MET	deletion	UNP A0A6A5PYW3
P	?	-	PRO	deletion	UNP A0A6A5PYW3
P	?	-	GLU	deletion	UNP A0A6A5PYW3
P	?	-	ILE	deletion	UNP A0A6A5PYW3
P	?	-	ASP	deletion	UNP A0A6A5PYW3
P	?	-	LYS	deletion	UNP A0A6A5PYW3
P	?	-	GLU	deletion	UNP A0A6A5PYW3
P	?	-	HIS	deletion	UNP A0A6A5PYW3
P	?	-	MET	deletion	UNP A0A6A5PYW3
P	?	-	GLY	deletion	UNP A0A6A5PYW3
P	?	-	GLY	deletion	UNP A0A6A5PYW3
R	?	-	TYR	deletion	UNP A0A6A5PYW3
R	?	-	MET	deletion	UNP A0A6A5PYW3
R	?	-	PRO	deletion	UNP A0A6A5PYW3
R	?	-	GLU	deletion	UNP A0A6A5PYW3
R	?	-	ILE	deletion	UNP A0A6A5PYW3
R	?	-	ASP	deletion	UNP A0A6A5PYW3

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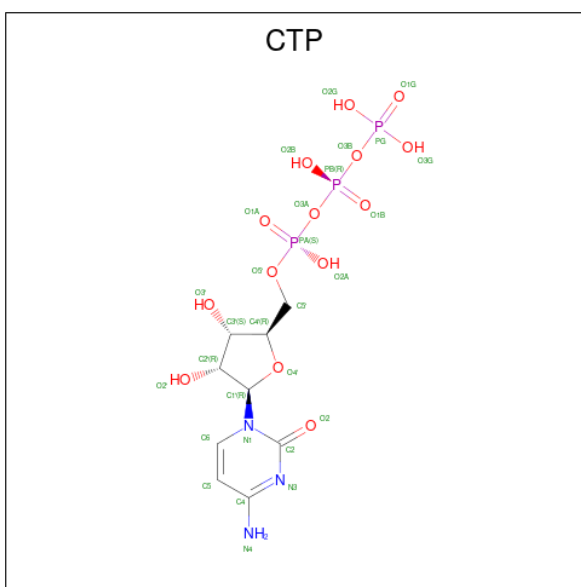
Chain	Residue	Modelled	Actual	Comment	Reference
R	?	-	LYS	deletion	UNP A0A6A5PYW3
R	?	-	GLU	deletion	UNP A0A6A5PYW3
R	?	-	HIS	deletion	UNP A0A6A5PYW3
R	?	-	MET	deletion	UNP A0A6A5PYW3
R	?	-	GLY	deletion	UNP A0A6A5PYW3
R	?	-	GLY	deletion	UNP A0A6A5PYW3
L	?	-	TYR	deletion	UNP A0A6A5PYW3
L	?	-	MET	deletion	UNP A0A6A5PYW3
L	?	-	PRO	deletion	UNP A0A6A5PYW3
L	?	-	GLU	deletion	UNP A0A6A5PYW3
L	?	-	ILE	deletion	UNP A0A6A5PYW3
L	?	-	ASP	deletion	UNP A0A6A5PYW3
L	?	-	LYS	deletion	UNP A0A6A5PYW3
L	?	-	GLU	deletion	UNP A0A6A5PYW3
L	?	-	HIS	deletion	UNP A0A6A5PYW3
L	?	-	MET	deletion	UNP A0A6A5PYW3
L	?	-	GLY	deletion	UNP A0A6A5PYW3
L	?	-	GLY	deletion	UNP A0A6A5PYW3
O	?	-	TYR	deletion	UNP A0A6A5PYW3
O	?	-	MET	deletion	UNP A0A6A5PYW3
O	?	-	PRO	deletion	UNP A0A6A5PYW3
O	?	-	GLU	deletion	UNP A0A6A5PYW3
O	?	-	ILE	deletion	UNP A0A6A5PYW3
O	?	-	ASP	deletion	UNP A0A6A5PYW3
O	?	-	LYS	deletion	UNP A0A6A5PYW3
O	?	-	GLU	deletion	UNP A0A6A5PYW3
O	?	-	HIS	deletion	UNP A0A6A5PYW3
O	?	-	MET	deletion	UNP A0A6A5PYW3
O	?	-	GLY	deletion	UNP A0A6A5PYW3
O	?	-	GLY	deletion	UNP A0A6A5PYW3
Q	?	-	TYR	deletion	UNP A0A6A5PYW3
Q	?	-	MET	deletion	UNP A0A6A5PYW3
Q	?	-	PRO	deletion	UNP A0A6A5PYW3
Q	?	-	GLU	deletion	UNP A0A6A5PYW3
Q	?	-	ILE	deletion	UNP A0A6A5PYW3
Q	?	-	ASP	deletion	UNP A0A6A5PYW3
Q	?	-	LYS	deletion	UNP A0A6A5PYW3
Q	?	-	GLU	deletion	UNP A0A6A5PYW3
Q	?	-	HIS	deletion	UNP A0A6A5PYW3
Q	?	-	MET	deletion	UNP A0A6A5PYW3
Q	?	-	GLY	deletion	UNP A0A6A5PYW3
Q	?	-	GLY	deletion	UNP A0A6A5PYW3

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Chain	Residue	Modelled	Actual	Comment	Reference
S	?	-	TYR	deletion	UNP A0A6A5PYW3
S	?	-	MET	deletion	UNP A0A6A5PYW3
S	?	-	PRO	deletion	UNP A0A6A5PYW3
S	?	-	GLU	deletion	UNP A0A6A5PYW3
S	?	-	ILE	deletion	UNP A0A6A5PYW3
S	?	-	ASP	deletion	UNP A0A6A5PYW3
S	?	-	LYS	deletion	UNP A0A6A5PYW3
S	?	-	GLU	deletion	UNP A0A6A5PYW3
S	?	-	HIS	deletion	UNP A0A6A5PYW3
S	?	-	MET	deletion	UNP A0A6A5PYW3
S	?	-	GLY	deletion	UNP A0A6A5PYW3
S	?	-	GLY	deletion	UNP A0A6A5PYW3

- Molecule 2 is CYTIDINE-5'-TRIPHOSPHATE (three-letter code: CTP) (formula: $C_9H_{16}N_3O_{14}P_3$).



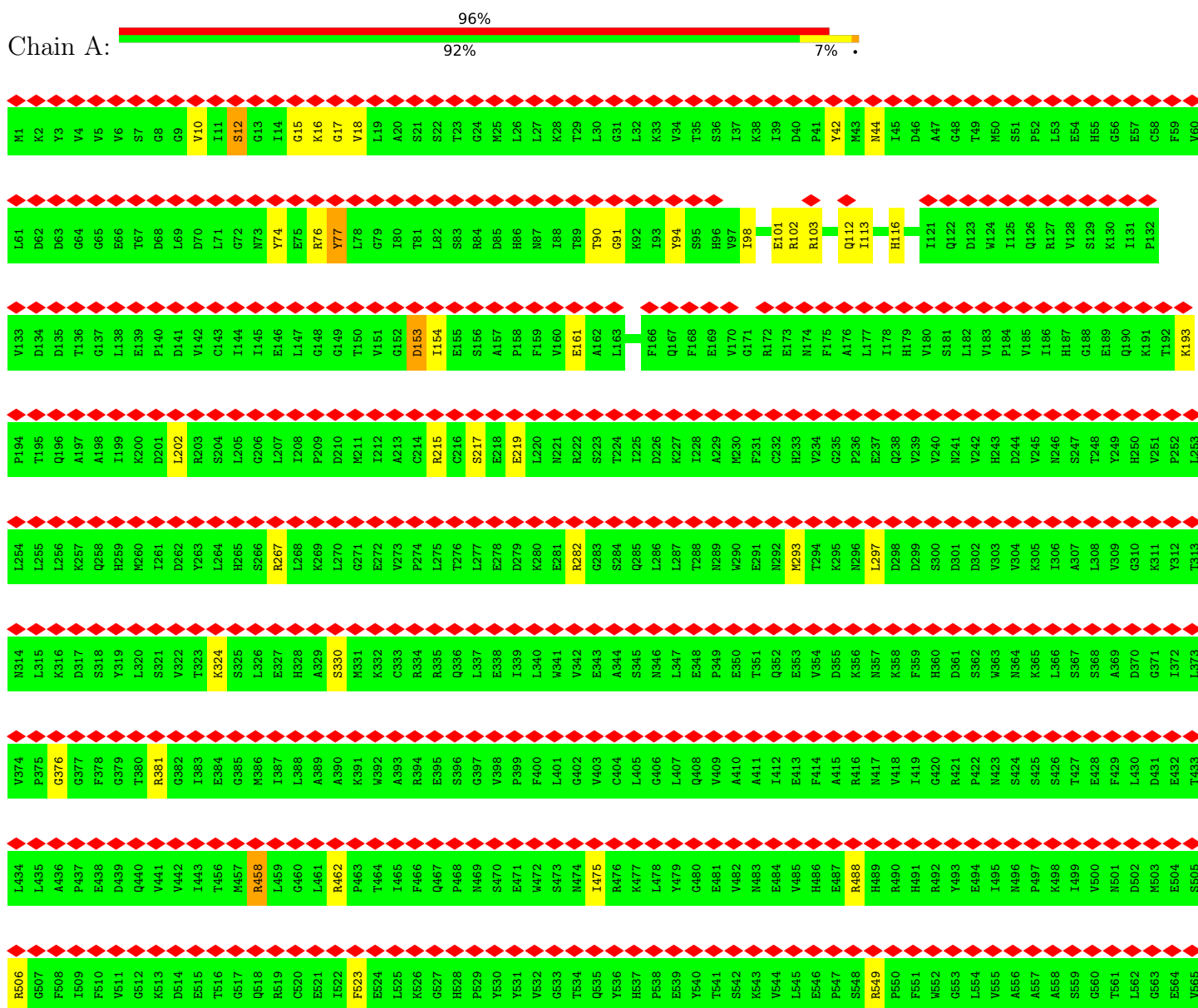
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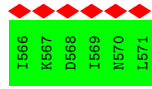
Mol	Chain	Residues	Atoms						AltConf
			Total	C	H	N	O	P	
2	C	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	D	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	D	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	E	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	E	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	M	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	M	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	P	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	P	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	R	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	R	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	L	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	L	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	O	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	O	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	Q	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	Q	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	S	1	Total 41	C 9	H 12	N 3	O 14	P 3	0
2	S	1	Total 41	C 9	H 12	N 3	O 14	P 3	0

3 Residue-property plots

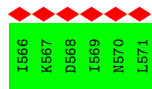
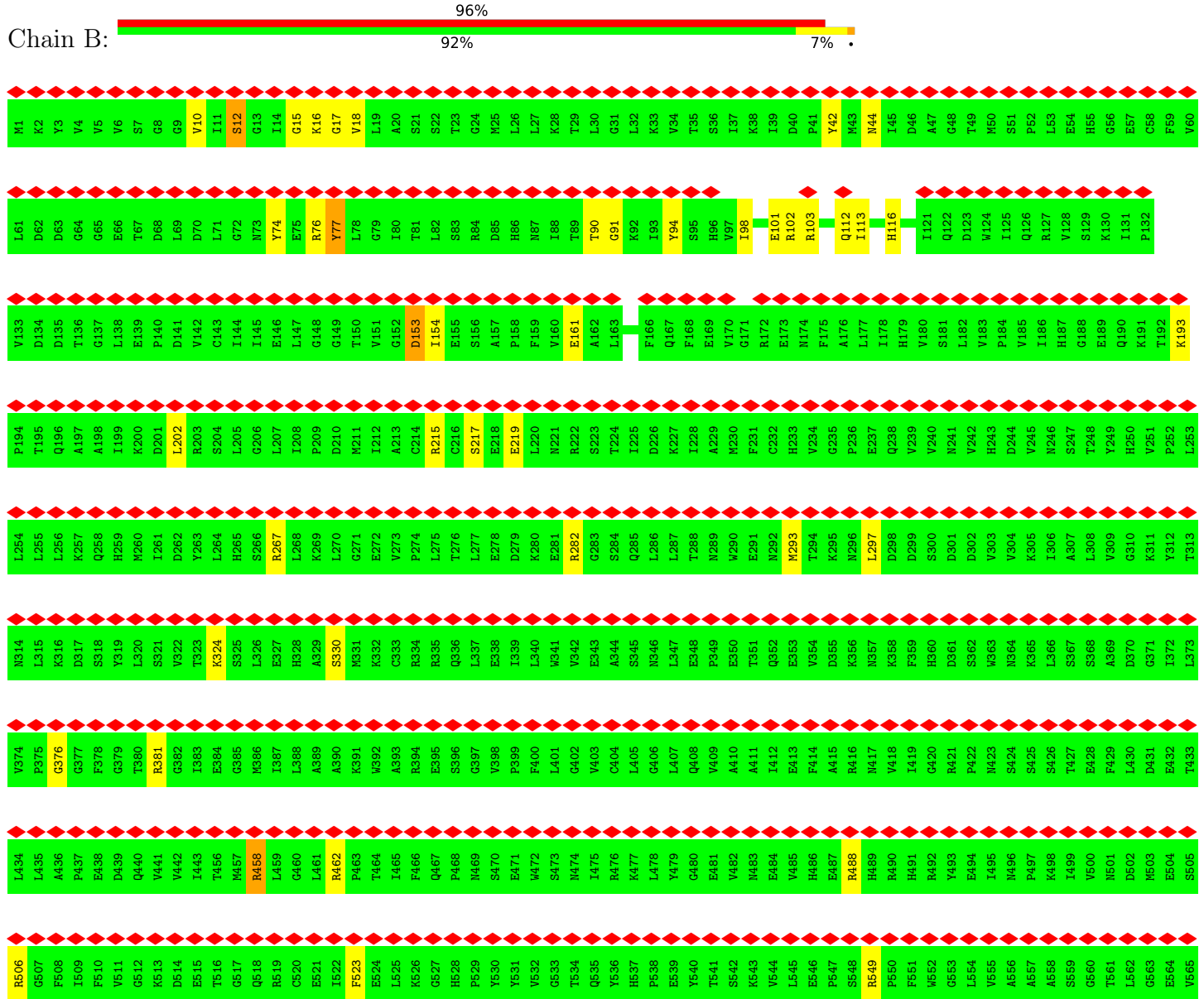
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: CTP synthase

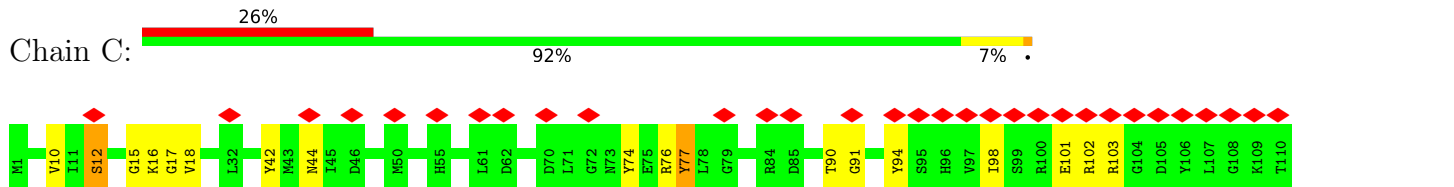


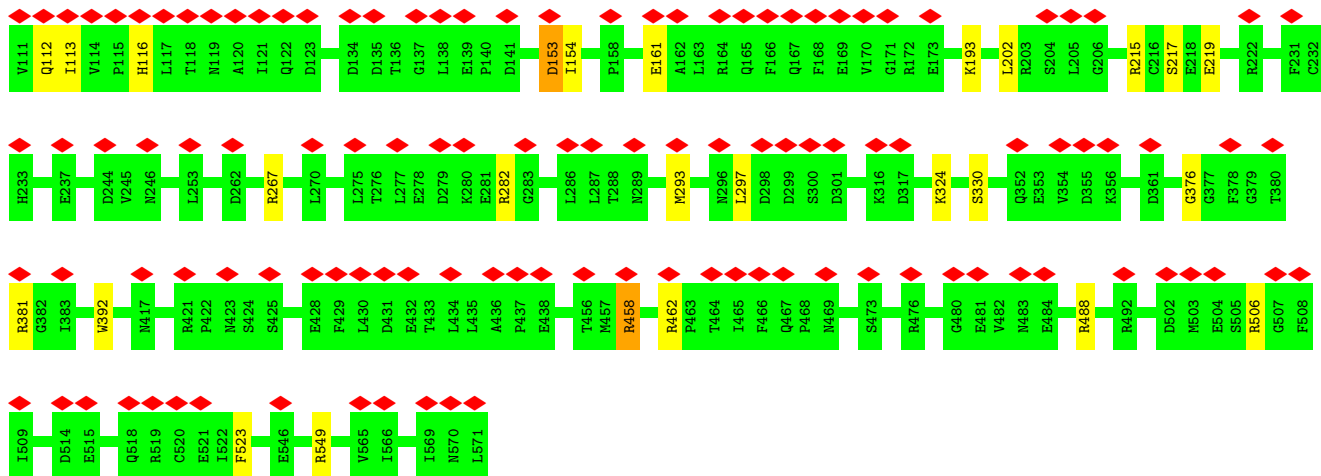


• Molecule 1: CTP synthase

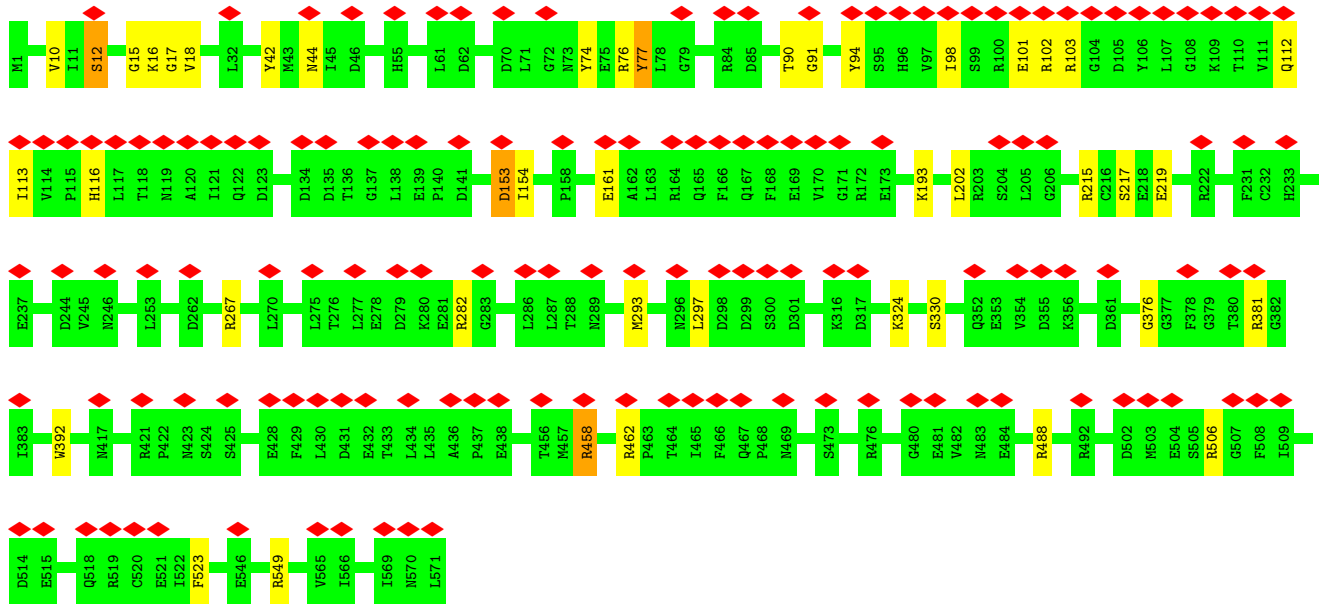
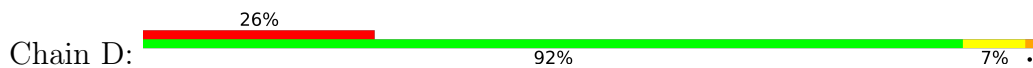


• Molecule 1: CTP synthase

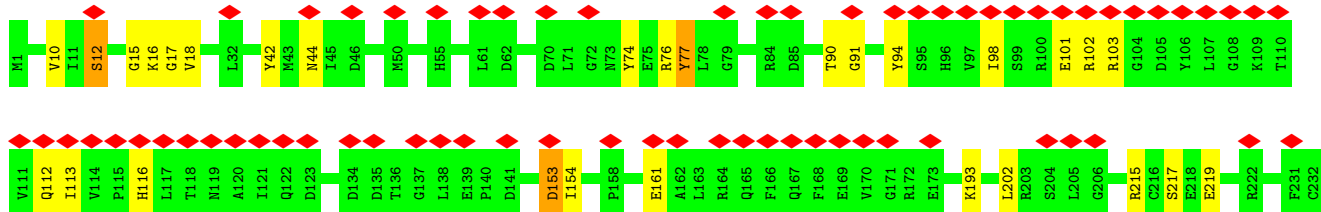
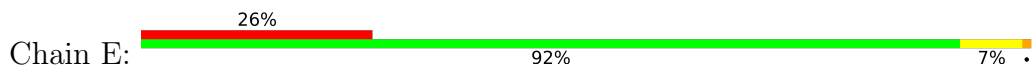


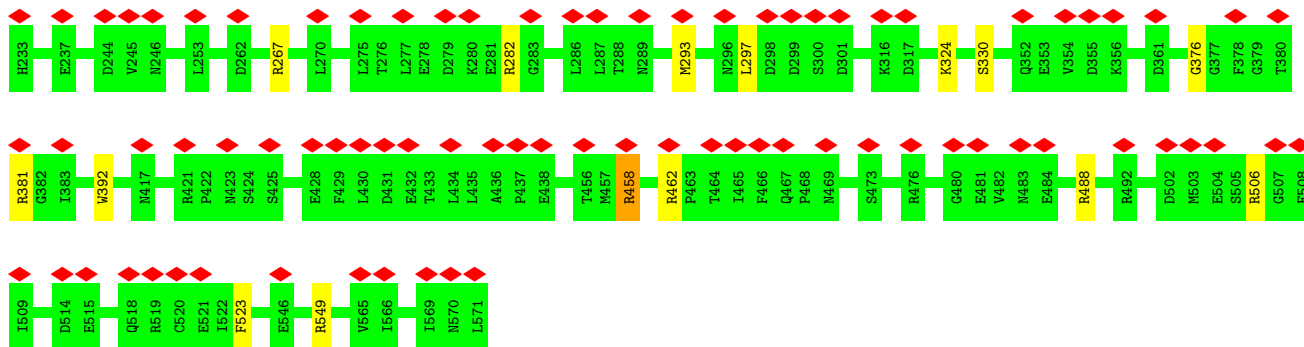


• Molecule 1: CTP synthase

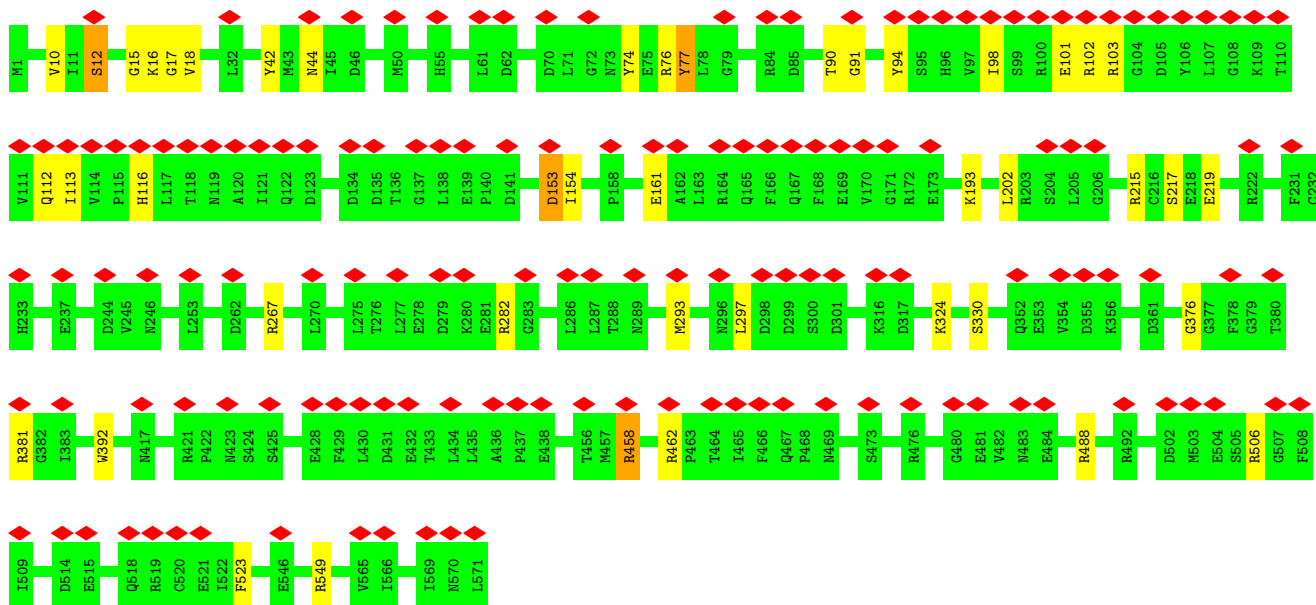


• Molecule 1: CTP synthase

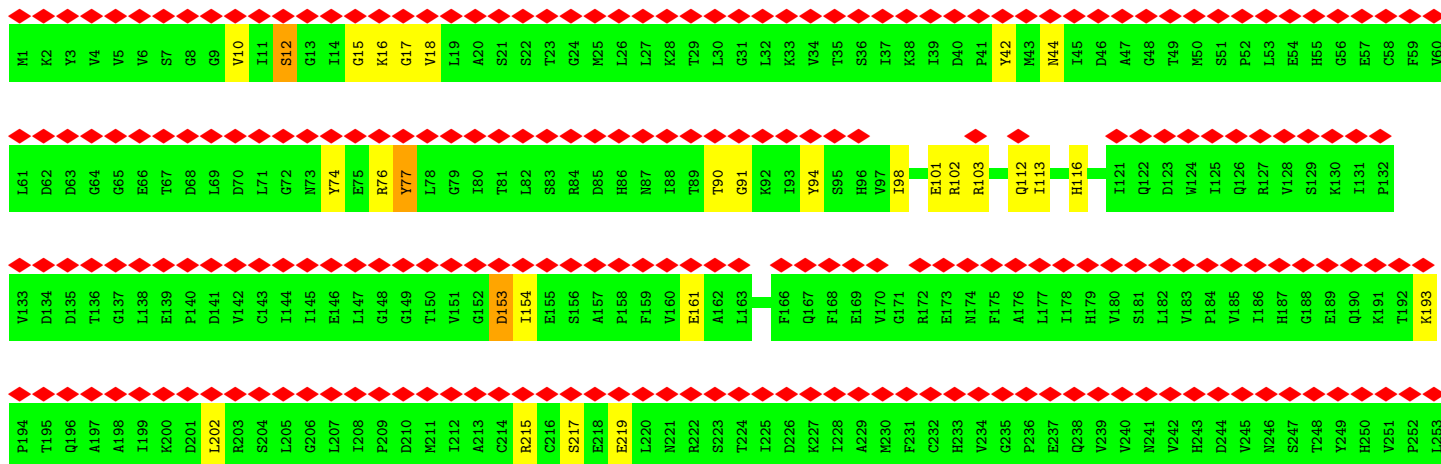
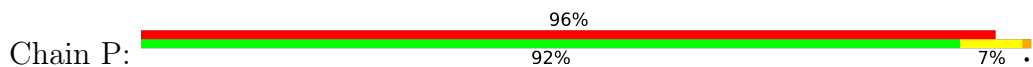




• Molecule 1: CTP synthase

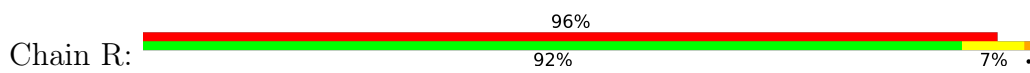


• Molecule 1: CTP synthase

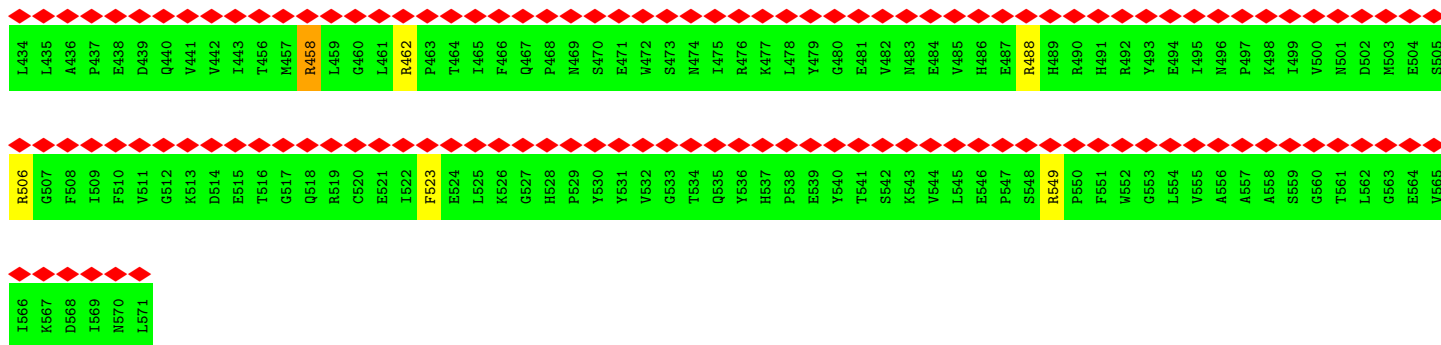


L254	N314	V374	L434	R506	I566
L255	L315	P375	L435	G507	K567
L256	K316	G376	A436	F508	D568
K257	D317	G377	P437	I509	I569
Q258	S318	F378	E438	F510	N570
H259	Y319	G379	D439	V511	L571
M260	L320	T380	Q440	G512	
I261	S321	R381	V441	K513	
D262	T322	G382	V442	D514	
Y263	T323	I383	I443	E515	
L264	K324	E384	T456	T516	
H265	S325	G385	M457	G517	
S266	L326	M386	R458	Q518	
R267	E327	I387	L459	R519	
L268	H328	L388	G460	C520	
K269	A329	A389	L461	E521	
L270	S330	A390	R462	I522	
G271	M331	K391	P463	F523	
E272	K332	W392	T464	E524	
V273	C333	A393	I465	L525	
P274	R334	R394	F466	K526	
L275	R335	E395	Q467	G527	
T276	Q336	S396	P468	H528	
L277	L337	G397	M469	P529	
E278	E338	V398	S470	Y530	
D279	I339	P399	E471	Y531	
K280	L340	F400	W472	V532	
E281	W341	L401	S473	G533	
R282	V342	G402	M474	T534	
G283	E343	V403	I475	Q535	
S284	A344	C404	R476	Y536	
Q285	S345	L405	K477	H537	
L286	N346	G406	L478	F538	
L287	L347	L407	Y479	E539	
T288	E348	Q408	G480	Y540	
N289	P349	V409	E481	T541	
W290	E350	A410	W482	S542	
E291	T351	A411	N483	K543	
N292	Q352	I412	E484	V544	
M293	E353	E413	V485	L545	
T294	V354	F414	H486	E546	
K295	H355	A415	E487	P547	
N296	K356	R416	R488	S548	
L297	N357	N417	H489	R549	
D298	K358	V418	R490	F550	
D299	F359	I419	H491	F551	
S300	H360	G420	R492	W552	
D301	D361	R421	Y493	G553	
D302	S362	P422	E494	L554	
V303	W363	N423	I495	V555	
V304	N364	S424	M496	A556	
K305	K365	S425	P497	A557	
I306	L366	S426	K498	A558	
A307	S367	T427	I499	S559	
L308	S368	E428	V500	G560	
V309	A369	F429	N501	T561	
G310	D370	L430	D502	L562	
Y312	G371	E432	M503	G563	
T313	L373	T433	E504	E564	
			S505	V565	

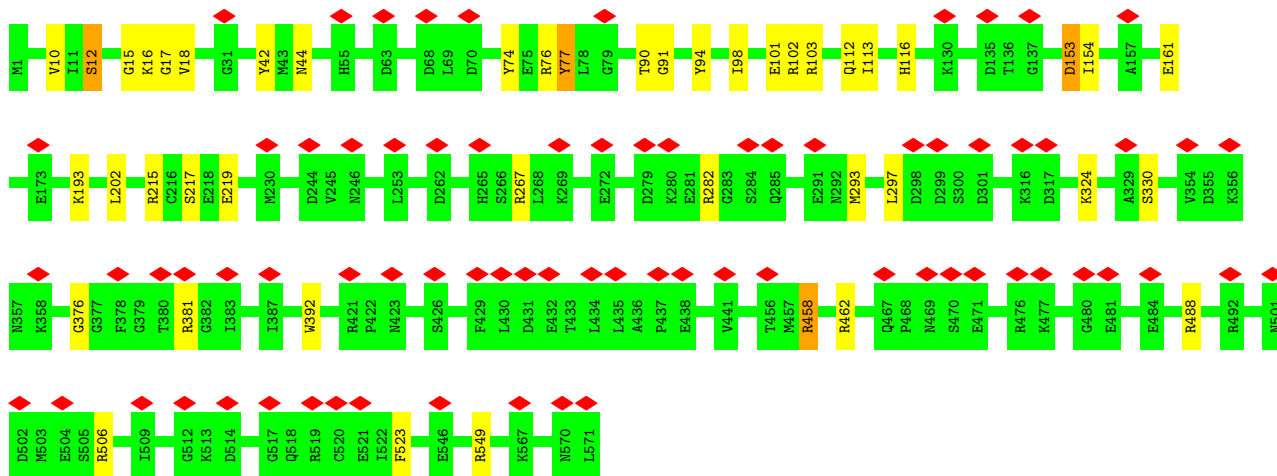
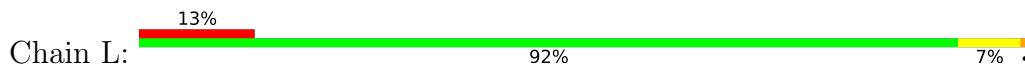
• Molecule 1: CTP synthase



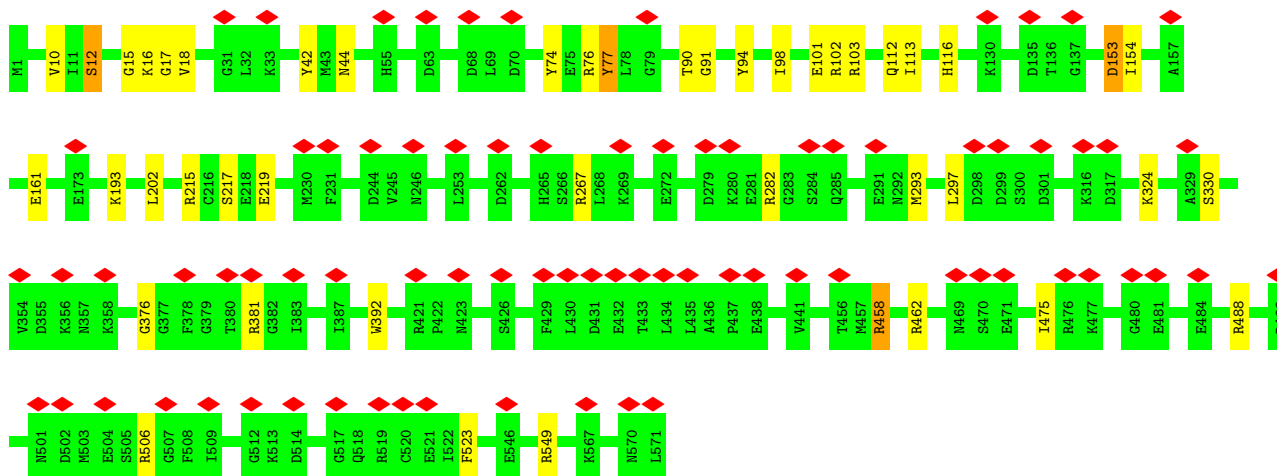
M1	L61	P194	L254	L255	N314	V374
K2	D62	T195	L256	K257	L315	P375
Y3	D63	Q196	L257	Q258	K316	G376
V4	G64	A197	K257	H259	D317	G377
W5	E65	A198	Q258	M260	S318	F378
V6	E66	I199	H259	I261	Y319	G379
S7	T67	K200	M260	D262	L320	T380
G8	D68	D201	I261	D262	S321	R381
G9	L69	L202	D262	Y263	V322	G382
V10	D70	R203	Y263	L264	T323	I383
I11	L71	S204	L264	H265	K324	E384
S12	G72	L205	H265	S266	S325	G385
G13	M73	G206	S266	R267	L326	M386
I14	Y74	L207	R267	L268	E327	I387
G15	E75	I208	L268	K269	H328	L388
K16	R76	P209	K269	L270	A329	A389
G17	Y77	D210	L270	G271	S330	A390
V18	L78	M211	G271	E272	M331	K391
L19	G79	I212	E272	V273	K332	W392
A20	I80	A213	V273	P274	C333	A393
S21	T81	C214	P274	L275	R334	R394
R22	L82	R215	L275	T276	R335	E395
T23	S83	C216	T276	L277	Q336	S396
G24	R84	S217	L277	E278	L337	G397
M25	D85	E218	E278	D279	E338	V398
L26	H86	L219	D279	K280	I339	P399
L27	H87	L220	K280	E281	L340	F400
K28	I88	M221	E281	R282	W341	L401
T29	T89	R222	R282	G283	V342	G402
L30	T90	S223	G283	S284	E343	V403
G31	G91	T224	S284	Q285	A344	C404
L32	L92	I225	Q285	L286	S345	L405
K33	I93	D226	L286	L287	N346	G406
V34	Y94	K227	L287	T288	L347	L407
T35	S95	I228	T288	N289	E348	Q408
S36	H96	A229	N289	W290	P349	V409
I37	Y97	M230	W290	E291	E350	A410
I98	I98	F231	E291	N292	T351	A411
E101	E101	C232	N292	M293	Q352	I412
R102	R102	H233	M293	T294	E353	E413
R103	R103	V234	T294	K295	V354	F414
Q112	Q112	G235	K295	N296	H355	A415
I113	I113	P236	N296	L297	K356	R416
H116	H116	E237	L297	D298	N357	N417
I121	I121	Q238	D298	D299	K358	V418
Q122	Q122	V239	D299	S300	F359	I419
D123	D123	V240	S300	D301	H360	G420
W124	W124	N241	D301	D302	D361	R421
I125	I125	V242	D302	V303	S362	P422
Q126	Q126	H243	V303	V304	W363	N423
R127	R127	D244	V304	K305	N364	S424
L53	L53	V245	K305	I306	K365	S425
V128	V128	N246	I306	A307	L366	S426
S129	S129	S247	A307	L308	S367	T427
H55	H55	T248	L308	V309	S368	E428
G56	G56	Y249	V309	G310	A369	F429
E57	E57	K130	G310	Y312	D370	L430
C58	C58	I131	Y312	T313	G371	E432
F59	F59	T132	T313		L373	T433
V60	V60	K193				



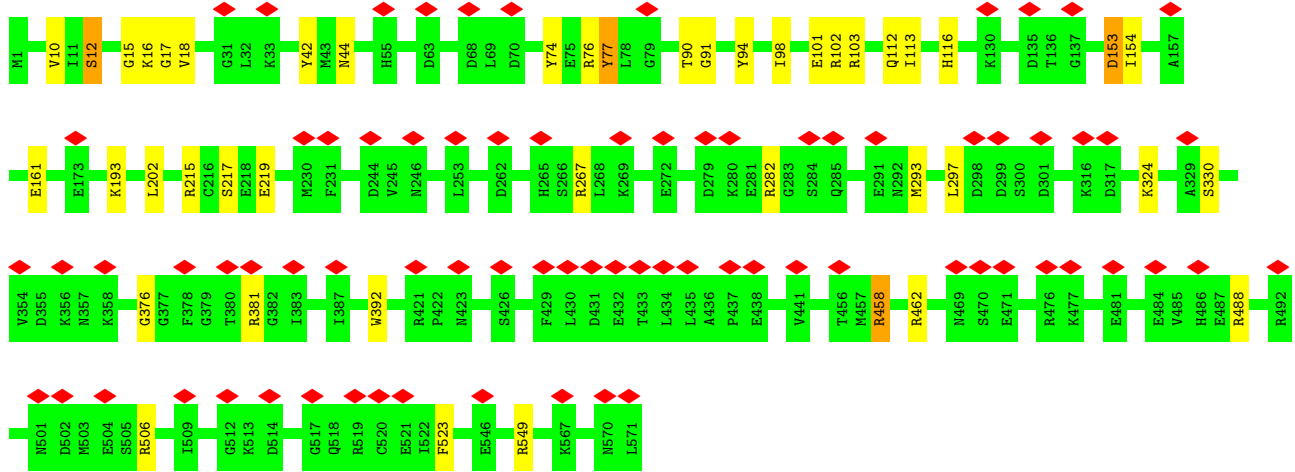
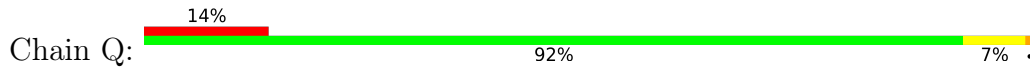
• Molecule 1: CTP synthase



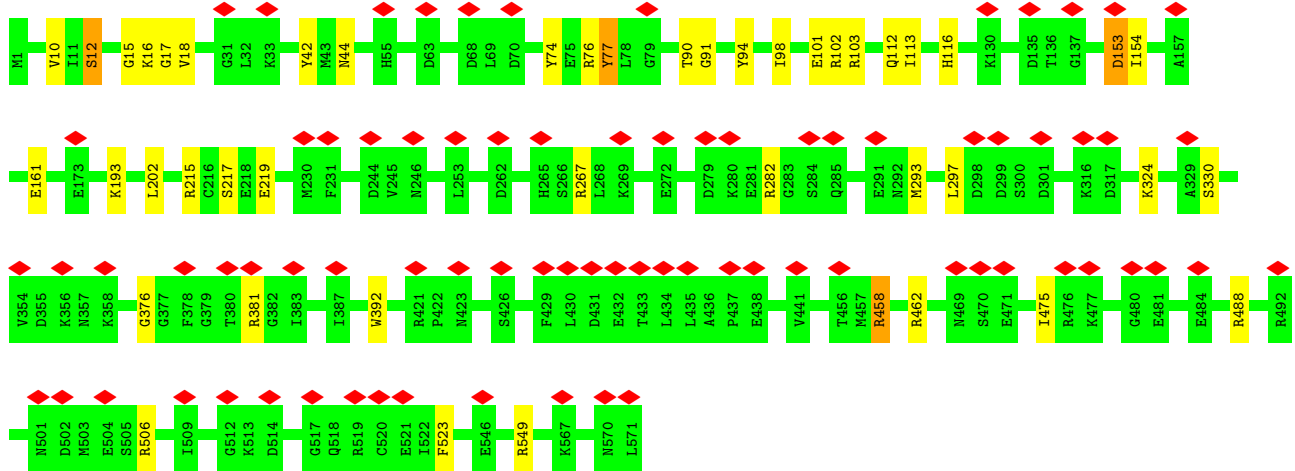
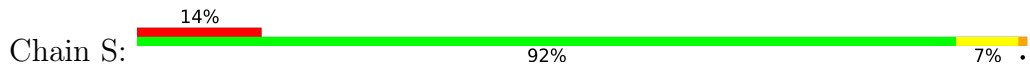
• Molecule 1: CTP synthase



• Molecule 1: CTP synthase



• Molecule 1: CTP synthase



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D2	Depositor
Number of particles used	181136	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	90	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.341	Depositor
Minimum map value	-1.004	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.13	Depositor
Map size (Å)	537.6, 537.6, 537.6	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.05, 1.05, 1.05	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: CTP

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	B	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	C	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	D	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	E	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	L	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	M	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	O	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	P	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	Q	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	R	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
1	S	0.66	1/4471 (0.0%)	1.09	17/6056 (0.3%)
All	All	0.66	12/53652 (0.0%)	1.09	204/72672 (0.3%)

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
1	A	0	2
1	B	0	2
1	C	0	2
1	D	0	2
1	E	0	2
1	L	0	2
1	M	0	2
1	O	0	2
1	P	0	2
1	Q	0	2
1	R	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	S	0	2
All	All	0	24

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	S	12	SER	CA-CB	6.85	1.63	1.52
1	R	12	SER	CA-CB	6.84	1.63	1.52
1	A	12	SER	CA-CB	6.84	1.63	1.52
1	C	12	SER	CA-CB	6.84	1.63	1.52
1	D	12	SER	CA-CB	6.83	1.63	1.52
1	L	12	SER	CA-CB	6.82	1.63	1.52
1	O	12	SER	CA-CB	6.80	1.63	1.52
1	P	12	SER	CA-CB	6.80	1.63	1.52
1	Q	12	SER	CA-CB	6.79	1.63	1.52
1	B	12	SER	CA-CB	6.79	1.63	1.52
1	E	12	SER	CA-CB	6.79	1.63	1.52
1	M	12	SER	CA-CB	6.78	1.63	1.52

All (204) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	S	12	SER	N-CA-CB	19.24	139.36	110.50
1	O	12	SER	N-CA-CB	19.24	139.35	110.50
1	M	12	SER	N-CA-CB	19.23	139.34	110.50
1	B	12	SER	N-CA-CB	19.23	139.34	110.50
1	L	12	SER	N-CA-CB	19.23	139.34	110.50
1	P	12	SER	N-CA-CB	19.22	139.33	110.50
1	C	12	SER	N-CA-CB	19.22	139.32	110.50
1	Q	12	SER	N-CA-CB	19.22	139.32	110.50
1	D	12	SER	N-CA-CB	19.21	139.32	110.50
1	E	12	SER	N-CA-CB	19.21	139.31	110.50
1	A	12	SER	N-CA-CB	19.20	139.30	110.50
1	R	12	SER	N-CA-CB	19.19	139.29	110.50
1	R	12	SER	CB-CA-C	-10.97	89.26	110.10
1	C	12	SER	CB-CA-C	-10.97	89.26	110.10
1	Q	12	SER	CB-CA-C	-10.96	89.27	110.10
1	P	12	SER	CB-CA-C	-10.96	89.28	110.10
1	E	12	SER	CB-CA-C	-10.96	89.28	110.10
1	L	12	SER	CB-CA-C	-10.95	89.29	110.10
1	A	12	SER	CB-CA-C	-10.95	89.30	110.10
1	D	12	SER	CB-CA-C	-10.95	89.30	110.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	12	SER	CB-CA-C	-10.95	89.30	110.10
1	O	12	SER	CB-CA-C	-10.95	89.30	110.10
1	S	12	SER	CB-CA-C	-10.94	89.31	110.10
1	M	12	SER	CB-CA-C	-10.93	89.33	110.10
1	B	12	SER	N-CA-C	-10.21	83.44	111.00
1	Q	12	SER	N-CA-C	-10.21	83.44	111.00
1	E	12	SER	N-CA-C	-10.20	83.45	111.00
1	O	12	SER	N-CA-C	-10.20	83.45	111.00
1	M	12	SER	N-CA-C	-10.20	83.47	111.00
1	R	12	SER	N-CA-C	-10.20	83.46	111.00
1	L	12	SER	N-CA-C	-10.20	83.47	111.00
1	C	12	SER	N-CA-C	-10.20	83.47	111.00
1	S	12	SER	N-CA-C	-10.20	83.47	111.00
1	P	12	SER	N-CA-C	-10.19	83.48	111.00
1	D	12	SER	N-CA-C	-10.19	83.49	111.00
1	A	12	SER	N-CA-C	-10.18	83.50	111.00
1	B	488	ARG	NE-CZ-NH1	7.34	123.97	120.30
1	S	488	ARG	NE-CZ-NH1	7.30	123.95	120.30
1	M	488	ARG	NE-CZ-NH1	7.29	123.95	120.30
1	P	76	ARG	NE-CZ-NH1	7.29	123.95	120.30
1	B	76	ARG	NE-CZ-NH1	7.28	123.94	120.30
1	O	76	ARG	NE-CZ-NH1	7.27	123.94	120.30
1	O	488	ARG	NE-CZ-NH1	7.27	123.94	120.30
1	R	488	ARG	NE-CZ-NH1	7.27	123.94	120.30
1	M	76	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	Q	488	ARG	NE-CZ-NH1	7.25	123.93	120.30
1	L	488	ARG	NE-CZ-NH1	7.25	123.93	120.30
1	A	488	ARG	NE-CZ-NH1	7.25	123.92	120.30
1	D	488	ARG	NE-CZ-NH1	7.24	123.92	120.30
1	E	488	ARG	NE-CZ-NH1	7.24	123.92	120.30
1	L	76	ARG	NE-CZ-NH1	7.24	123.92	120.30
1	C	488	ARG	NE-CZ-NH1	7.23	123.92	120.30
1	R	76	ARG	NE-CZ-NH1	7.22	123.91	120.30
1	S	76	ARG	NE-CZ-NH1	7.21	123.91	120.30
1	C	76	ARG	NE-CZ-NH1	7.19	123.89	120.30
1	P	488	ARG	NE-CZ-NH1	7.18	123.89	120.30
1	Q	76	ARG	NE-CZ-NH1	7.18	123.89	120.30
1	A	76	ARG	NE-CZ-NH1	7.17	123.89	120.30
1	D	76	ARG	NE-CZ-NH1	7.17	123.88	120.30
1	E	76	ARG	NE-CZ-NH1	7.16	123.88	120.30
1	Q	549	ARG	NE-CZ-NH1	6.77	123.68	120.30
1	D	102	ARG	NE-CZ-NH1	6.75	123.67	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	102	ARG	NE-CZ-NH1	6.71	123.66	120.30
1	C	102	ARG	NE-CZ-NH1	6.69	123.65	120.30
1	Q	102	ARG	NE-CZ-NH1	6.69	123.65	120.30
1	A	102	ARG	NE-CZ-NH1	6.68	123.64	120.30
1	R	102	ARG	NE-CZ-NH1	6.68	123.64	120.30
1	M	102	ARG	NE-CZ-NH1	6.68	123.64	120.30
1	E	549	ARG	NE-CZ-NH1	6.68	123.64	120.30
1	D	549	ARG	NE-CZ-NH1	6.67	123.64	120.30
1	L	549	ARG	NE-CZ-NH1	6.67	123.64	120.30
1	B	549	ARG	NE-CZ-NH1	6.66	123.63	120.30
1	S	102	ARG	NE-CZ-NH1	6.66	123.63	120.30
1	E	102	ARG	NE-CZ-NH1	6.65	123.63	120.30
1	L	102	ARG	NE-CZ-NH1	6.65	123.63	120.30
1	C	549	ARG	NE-CZ-NH1	6.64	123.62	120.30
1	O	102	ARG	NE-CZ-NH1	6.64	123.62	120.30
1	P	549	ARG	NE-CZ-NH1	6.63	123.62	120.30
1	M	549	ARG	NE-CZ-NH1	6.61	123.60	120.30
1	P	102	ARG	NE-CZ-NH1	6.61	123.60	120.30
1	O	549	ARG	NE-CZ-NH1	6.60	123.60	120.30
1	R	549	ARG	NE-CZ-NH1	6.59	123.59	120.30
1	A	549	ARG	NE-CZ-NH1	6.57	123.58	120.30
1	S	549	ARG	NE-CZ-NH1	6.57	123.58	120.30
1	P	506	ARG	NE-CZ-NH1	6.53	123.56	120.30
1	C	506	ARG	NE-CZ-NH1	6.53	123.56	120.30
1	D	506	ARG	NE-CZ-NH1	6.51	123.56	120.30
1	Q	506	ARG	NE-CZ-NH1	6.51	123.55	120.30
1	S	506	ARG	NE-CZ-NH1	6.49	123.55	120.30
1	A	506	ARG	NE-CZ-NH1	6.49	123.54	120.30
1	L	506	ARG	NE-CZ-NH1	6.43	123.52	120.30
1	O	506	ARG	NE-CZ-NH1	6.43	123.52	120.30
1	E	506	ARG	NE-CZ-NH1	6.42	123.51	120.30
1	M	506	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	B	506	ARG	NE-CZ-NH1	6.31	123.46	120.30
1	R	506	ARG	NE-CZ-NH1	6.31	123.46	120.30
1	C	282	ARG	NE-CZ-NH1	6.31	123.46	120.30
1	S	282	ARG	NE-CZ-NH1	6.26	123.43	120.30
1	O	282	ARG	NE-CZ-NH1	6.25	123.43	120.30
1	A	282	ARG	NE-CZ-NH1	6.21	123.41	120.30
1	R	282	ARG	NE-CZ-NH1	6.21	123.41	120.30
1	L	282	ARG	NE-CZ-NH1	6.20	123.40	120.30
1	M	282	ARG	NE-CZ-NH1	6.18	123.39	120.30
1	B	282	ARG	NE-CZ-NH1	6.17	123.39	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	Q	282	ARG	NE-CZ-NH1	6.17	123.39	120.30
1	E	282	ARG	NE-CZ-NH1	6.17	123.38	120.30
1	P	282	ARG	NE-CZ-NH1	6.17	123.38	120.30
1	D	282	ARG	NE-CZ-NH1	6.16	123.38	120.30
1	A	381	ARG	NE-CZ-NH2	6.09	123.35	120.30
1	C	381	ARG	NE-CZ-NH2	6.07	123.34	120.30
1	E	381	ARG	NE-CZ-NH2	6.07	123.33	120.30
1	O	381	ARG	NE-CZ-NH2	6.07	123.34	120.30
1	S	381	ARG	NE-CZ-NH2	6.06	123.33	120.30
1	B	381	ARG	NE-CZ-NH2	6.06	123.33	120.30
1	P	381	ARG	NE-CZ-NH2	6.06	123.33	120.30
1	Q	381	ARG	NE-CZ-NH2	6.06	123.33	120.30
1	L	381	ARG	NE-CZ-NH2	6.06	123.33	120.30
1	M	103	ARG	NE-CZ-NH2	-6.05	117.28	120.30
1	S	103	ARG	NE-CZ-NH2	-6.01	117.29	120.30
1	B	103	ARG	NE-CZ-NH2	-6.01	117.29	120.30
1	D	381	ARG	NE-CZ-NH2	6.00	123.30	120.30
1	P	74	TYR	CB-CG-CD2	-6.00	117.40	121.00
1	R	381	ARG	NE-CZ-NH2	5.98	123.29	120.30
1	E	74	TYR	CB-CG-CD2	-5.98	117.41	121.00
1	B	74	TYR	CB-CG-CD2	-5.97	117.42	121.00
1	D	103	ARG	NE-CZ-NH2	-5.96	117.32	120.30
1	S	74	TYR	CB-CG-CD2	-5.95	117.43	121.00
1	L	74	TYR	CB-CG-CD2	-5.94	117.44	121.00
1	D	74	TYR	CB-CG-CD2	-5.94	117.44	121.00
1	R	74	TYR	CB-CG-CD2	-5.94	117.44	121.00
1	E	103	ARG	NE-CZ-NH2	-5.93	117.33	120.30
1	M	381	ARG	NE-CZ-NH2	5.93	123.27	120.30
1	A	74	TYR	CB-CG-CD2	-5.93	117.44	121.00
1	L	103	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	C	103	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	Q	103	ARG	NE-CZ-NH2	-5.91	117.34	120.30
1	O	103	ARG	NE-CZ-NH2	-5.91	117.35	120.30
1	R	103	ARG	NE-CZ-NH2	-5.90	117.35	120.30
1	A	103	ARG	NE-CZ-NH2	-5.90	117.35	120.30
1	O	74	TYR	CB-CG-CD2	-5.90	117.46	121.00
1	M	74	TYR	CB-CG-CD2	-5.90	117.46	121.00
1	Q	74	TYR	CB-CG-CD2	-5.90	117.46	121.00
1	C	74	TYR	CB-CG-CD2	-5.87	117.48	121.00
1	Q	103	ARG	NE-CZ-NH1	5.85	123.23	120.30
1	P	103	ARG	NE-CZ-NH2	-5.84	117.38	120.30
1	R	103	ARG	NE-CZ-NH1	5.82	123.21	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	S	103	ARG	NE-CZ-NH1	5.82	123.21	120.30
1	D	103	ARG	NE-CZ-NH1	5.82	123.21	120.30
1	M	103	ARG	NE-CZ-NH1	5.79	123.19	120.30
1	B	103	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	O	103	ARG	NE-CZ-NH1	5.76	123.18	120.30
1	C	103	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	L	103	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	P	103	ARG	NE-CZ-NH1	5.72	123.16	120.30
1	E	103	ARG	NE-CZ-NH1	5.68	123.14	120.30
1	A	103	ARG	NE-CZ-NH1	5.67	123.13	120.30
1	P	267	ARG	NE-CZ-NH2	5.66	123.13	120.30
1	D	267	ARG	NE-CZ-NH2	5.63	123.12	120.30
1	R	267	ARG	NE-CZ-NH2	5.62	123.11	120.30
1	M	267	ARG	NE-CZ-NH2	5.62	123.11	120.30
1	O	458	ARG	NE-CZ-NH1	5.59	123.10	120.30
1	L	267	ARG	NE-CZ-NH2	5.59	123.10	120.30
1	S	267	ARG	NE-CZ-NH2	5.59	123.09	120.30
1	B	267	ARG	NE-CZ-NH2	5.59	123.09	120.30
1	E	458	ARG	NE-CZ-NH1	5.58	123.09	120.30
1	S	458	ARG	NE-CZ-NH1	5.57	123.09	120.30
1	C	267	ARG	NE-CZ-NH2	5.57	123.08	120.30
1	B	458	ARG	NE-CZ-NH1	5.56	123.08	120.30
1	D	458	ARG	NE-CZ-NH1	5.55	123.08	120.30
1	M	458	ARG	NE-CZ-NH1	5.55	123.08	120.30
1	O	267	ARG	NE-CZ-NH2	5.55	123.08	120.30
1	C	458	ARG	NE-CZ-NH1	5.55	123.07	120.30
1	A	267	ARG	NE-CZ-NH2	5.55	123.07	120.30
1	A	458	ARG	NE-CZ-NH1	5.54	123.07	120.30
1	Q	267	ARG	NE-CZ-NH2	5.53	123.06	120.30
1	Q	458	ARG	NE-CZ-NH1	5.53	123.06	120.30
1	L	458	ARG	NE-CZ-NH1	5.52	123.06	120.30
1	P	458	ARG	NE-CZ-NH1	5.50	123.05	120.30
1	R	458	ARG	NE-CZ-NH1	5.48	123.04	120.30
1	E	267	ARG	NE-CZ-NH2	5.46	123.03	120.30
1	A	462	ARG	NE-CZ-NH1	5.38	122.99	120.30
1	Q	462	ARG	NE-CZ-NH1	5.34	122.97	120.30
1	D	462	ARG	NE-CZ-NH1	5.33	122.97	120.30
1	L	462	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	C	462	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	M	462	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	E	462	ARG	NE-CZ-NH1	5.29	122.94	120.30
1	R	462	ARG	NE-CZ-NH1	5.27	122.93	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	O	462	ARG	NE-CZ-NH1	5.26	122.93	120.30
1	Q	215	ARG	NE-CZ-NH1	5.24	122.92	120.30
1	P	462	ARG	NE-CZ-NH1	5.22	122.91	120.30
1	S	462	ARG	NE-CZ-NH1	5.22	122.91	120.30
1	E	215	ARG	NE-CZ-NH1	5.19	122.90	120.30
1	B	462	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	L	215	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	S	215	ARG	NE-CZ-NH1	5.15	122.88	120.30
1	C	215	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	A	215	ARG	NE-CZ-NH1	5.11	122.86	120.30
1	M	215	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	D	215	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	P	215	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	O	215	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	R	215	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	B	215	ARG	NE-CZ-NH1	5.06	122.83	120.30

There are no chirality outliers.

All (24) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	458	ARG	Sidechain
1	A	77	TYR	Sidechain
1	B	458	ARG	Sidechain
1	B	77	TYR	Sidechain
1	C	458	ARG	Sidechain
1	C	77	TYR	Sidechain
1	D	458	ARG	Sidechain
1	D	77	TYR	Sidechain
1	E	458	ARG	Sidechain
1	E	77	TYR	Sidechain
1	L	458	ARG	Sidechain
1	L	77	TYR	Sidechain
1	M	458	ARG	Sidechain
1	M	77	TYR	Sidechain
1	O	458	ARG	Sidechain
1	O	77	TYR	Sidechain
1	P	458	ARG	Sidechain
1	P	77	TYR	Sidechain
1	Q	458	ARG	Sidechain
1	Q	77	TYR	Sidechain
1	R	458	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	R	77	TYR	Sidechain
1	S	458	ARG	Sidechain
1	S	77	TYR	Sidechain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4385	4393	4392	32	0
1	B	4385	4393	4392	31	0
1	C	4385	4393	4392	36	0
1	D	4385	4393	4392	36	0
1	E	4385	4393	4392	36	0
1	L	4385	4393	4392	36	0
1	M	4385	4393	4392	36	0
1	O	4385	4393	4392	38	0
1	P	4385	4393	4392	32	0
1	Q	4385	4393	4392	34	0
1	R	4385	4393	4392	31	0
1	S	4385	4393	4392	37	0
2	A	58	24	24	17	0
2	B	58	24	24	17	0
2	C	58	24	24	18	0
2	D	58	24	24	17	0
2	E	58	24	24	17	0
2	L	58	24	24	16	0
2	M	58	24	24	17	0
2	O	58	24	24	18	0
2	P	58	24	24	17	0
2	Q	58	24	24	16	0
2	R	58	24	24	17	0
2	S	58	24	24	18	0
All	All	53316	53004	52992	318	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

All (318) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:392:TRP:HZ3	1:Q:392:TRP:CZ3	0.97	1.66
1:D:392:TRP:HZ3	1:L:392:TRP:CZ3	0.95	1.64
1:C:392:TRP:HZ3	1:O:392:TRP:CZ3	0.97	1.63
1:E:392:TRP:HZ3	1:S:392:TRP:CZ3	0.96	1.63
1:C:392:TRP:CZ3	1:O:392:TRP:HZ3	0.98	1.62
1:E:392:TRP:CZ3	1:S:392:TRP:HZ3	0.96	1.61
1:M:392:TRP:CZ3	1:Q:392:TRP:HZ3	0.97	1.59
1:D:392:TRP:CZ3	1:L:392:TRP:HZ3	0.94	1.58
1:D:392:TRP:CZ3	1:L:392:TRP:CZ3	1.83	1.15
1:M:392:TRP:CZ3	1:Q:392:TRP:CZ3	1.86	1.15
1:C:392:TRP:CZ3	1:O:392:TRP:CZ3	1.86	1.13
1:E:392:TRP:CZ3	1:S:392:TRP:CZ3	1.85	1.12
1:L:18:VAL:HG23	2:L:601:CTP:O1A	1.57	1.05
1:Q:18:VAL:HG23	2:Q:601:CTP:O2A	1.57	1.05
1:S:18:VAL:HG23	2:S:601:CTP:O1A	1.57	1.05
1:O:18:VAL:HG23	2:O:601:CTP:O2A	1.57	1.05
1:C:18:VAL:HG23	2:C:601:CTP:O2A	1.57	1.05
1:E:18:VAL:HG23	2:E:601:CTP:O1A	1.57	1.05
1:P:18:VAL:HG23	2:P:601:CTP:O2A	1.57	1.04
1:A:18:VAL:HG23	2:A:601:CTP:O1A	1.57	1.04
1:M:18:VAL:HG23	2:M:601:CTP:O2A	1.57	1.04
1:D:18:VAL:HG23	2:D:601:CTP:O1A	1.57	1.04
1:R:18:VAL:HG23	2:R:601:CTP:O1A	1.57	1.02
1:B:18:VAL:HG23	2:B:601:CTP:O2A	1.57	1.02
1:M:324:LYS:NZ	2:M:601:CTP:O2	1.94	1.00
1:D:324:LYS:NZ	2:D:601:CTP:O2	1.94	1.00
1:C:324:LYS:NZ	2:C:601:CTP:O2	1.94	0.99
1:E:324:LYS:NZ	2:E:601:CTP:O2	1.94	0.99
1:O:324:LYS:NZ	2:O:601:CTP:O2	1.94	0.99
1:S:324:LYS:NZ	2:S:601:CTP:O2	1.94	0.99
1:R:324:LYS:NZ	2:R:601:CTP:O2	1.94	0.99
1:B:324:LYS:NZ	2:B:601:CTP:O2	1.94	0.99
1:Q:324:LYS:NZ	2:Q:601:CTP:O2	1.94	0.99
1:L:324:LYS:NZ	2:L:601:CTP:O2	1.94	0.98
1:A:324:LYS:NZ	2:A:601:CTP:O2	1.94	0.98
1:P:324:LYS:NZ	2:P:601:CTP:O2	1.94	0.97
1:O:16:LYS:HB2	2:O:601:CTP:O2G	1.82	0.80
1:S:16:LYS:HB2	2:S:601:CTP:O1G	1.82	0.80
1:B:16:LYS:HB2	2:B:601:CTP:O2G	1.82	0.79
1:R:16:LYS:HB2	2:R:601:CTP:O1G	1.82	0.79
1:E:16:LYS:HB2	2:E:601:CTP:O1G	1.82	0.79
1:L:16:LYS:HB2	2:L:601:CTP:O1G	1.82	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:16:LYS:HB2	2:C:601:CTP:O2G	1.82	0.78
1:D:16:LYS:HB2	2:D:601:CTP:O1G	1.82	0.78
1:Q:16:LYS:HB2	2:Q:601:CTP:O2G	1.82	0.78
1:M:16:LYS:HB2	2:M:601:CTP:O2G	1.82	0.78
1:A:16:LYS:HB2	2:A:601:CTP:O1G	1.82	0.78
1:P:16:LYS:HB2	2:P:601:CTP:O2G	1.82	0.77
1:C:18:VAL:HG22	2:C:601:CTP:C6	2.23	0.74
1:E:18:VAL:HG22	2:E:601:CTP:C6	2.23	0.74
1:A:18:VAL:HG22	2:A:601:CTP:C6	2.23	0.74
1:E:77:TYR:CZ	2:E:601:CTP:N4	2.54	0.74
1:P:18:VAL:HG22	2:P:601:CTP:C6	2.23	0.74
1:C:77:TYR:CZ	2:C:601:CTP:N4	2.54	0.74
1:L:112:GLN:OE1	2:S:602:CTP:O3'	2.06	0.74
1:A:77:TYR:CZ	2:A:601:CTP:N4	2.54	0.73
1:P:77:TYR:CZ	2:P:601:CTP:N4	2.54	0.73
1:R:18:VAL:HG22	2:R:601:CTP:C6	2.23	0.73
1:Q:18:VAL:HG22	2:Q:601:CTP:C6	2.23	0.73
1:B:18:VAL:HG22	2:B:601:CTP:C6	2.23	0.73
1:L:18:VAL:HG22	2:L:601:CTP:C6	2.23	0.73
1:S:18:VAL:HG22	2:S:601:CTP:C6	2.23	0.73
1:O:18:VAL:HG22	2:O:601:CTP:C6	2.23	0.73
1:E:112:GLN:OE1	2:R:602:CTP:O3'	2.06	0.73
1:D:77:TYR:CZ	2:D:601:CTP:N4	2.54	0.73
1:D:18:VAL:HG22	2:D:601:CTP:C6	2.23	0.73
1:M:18:VAL:HG22	2:M:601:CTP:C6	2.23	0.73
1:M:77:TYR:CZ	2:M:601:CTP:N4	2.54	0.73
1:A:112:GLN:OE1	2:D:602:CTP:O3'	2.06	0.73
1:S:77:TYR:CZ	2:S:601:CTP:N4	2.54	0.72
1:D:392:TRP:CZ3	1:L:392:TRP:CH2	2.74	0.72
1:O:77:TYR:CZ	2:O:601:CTP:N4	2.54	0.72
1:E:392:TRP:CZ3	1:S:392:TRP:CH2	2.74	0.71
1:E:392:TRP:CH2	1:S:392:TRP:CZ3	2.74	0.70
1:M:392:TRP:CZ3	1:Q:392:TRP:CH2	2.75	0.70
1:C:392:TRP:CZ3	1:O:392:TRP:CH2	2.75	0.70
1:D:392:TRP:CH2	1:L:392:TRP:CZ3	2.72	0.70
1:L:77:TYR:CZ	2:L:601:CTP:N4	2.54	0.70
1:Q:77:TYR:CZ	2:Q:601:CTP:N4	2.54	0.69
1:O:112:GLN:OE1	2:Q:602:CTP:O3'	2.10	0.69
1:D:392:TRP:HZ3	1:L:392:TRP:CE3	1.95	0.69
1:C:392:TRP:CH2	1:O:392:TRP:CZ3	2.76	0.68
1:M:112:GLN:OE1	2:P:602:CTP:O3'	2.10	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:112:GLN:OE1	2:C:602:CTP:O3'	2.10	0.68
2:O:602:CTP:O3'	1:Q:112:GLN:OE1	2.12	0.68
1:R:77:TYR:CZ	2:R:601:CTP:N4	2.54	0.67
1:B:77:TYR:CZ	2:B:601:CTP:N4	2.54	0.67
1:M:392:TRP:CH2	1:Q:392:TRP:CZ3	2.75	0.66
1:D:77:TYR:OH	2:D:601:CTP:N4	2.28	0.66
1:M:77:TYR:OH	2:M:601:CTP:N4	2.28	0.66
1:S:77:TYR:OH	2:S:601:CTP:N4	2.28	0.66
1:A:77:TYR:OH	2:A:601:CTP:N4	2.29	0.66
1:O:77:TYR:OH	2:O:601:CTP:N4	2.28	0.66
1:P:77:TYR:OH	2:P:601:CTP:N4	2.28	0.66
1:L:77:TYR:OH	2:L:601:CTP:N4	2.28	0.66
2:M:602:CTP:O3'	1:P:112:GLN:OE1	2.12	0.65
1:Q:77:TYR:OH	2:Q:601:CTP:N4	2.28	0.65
1:R:77:TYR:OH	2:R:601:CTP:N4	2.28	0.65
1:B:77:TYR:OH	2:B:601:CTP:N4	2.28	0.65
1:E:77:TYR:OH	2:E:601:CTP:N4	2.28	0.65
1:C:77:TYR:OH	2:C:601:CTP:N4	2.29	0.64
2:B:602:CTP:O3'	1:C:112:GLN:OE1	2.12	0.64
1:L:77:TYR:CE1	2:L:601:CTP:N4	2.65	0.63
1:Q:77:TYR:CE1	2:Q:601:CTP:N4	2.65	0.63
2:L:602:CTP:O3'	1:S:112:GLN:OE1	2.17	0.62
2:A:602:CTP:O3'	1:D:112:GLN:OE1	2.17	0.62
1:D:324:LYS:CE	2:D:601:CTP:O2	2.48	0.62
1:B:324:LYS:CE	2:B:601:CTP:O2	2.48	0.61
2:E:602:CTP:O3'	1:R:112:GLN:OE1	2.17	0.61
1:M:324:LYS:CE	2:M:601:CTP:O2	2.48	0.61
1:S:77:TYR:CE1	2:S:601:CTP:N4	2.65	0.61
1:R:324:LYS:CE	2:R:601:CTP:O2	2.48	0.61
1:A:324:LYS:CE	2:A:601:CTP:O2	2.48	0.61
1:C:324:LYS:CE	2:C:601:CTP:O2	2.48	0.61
1:E:324:LYS:CE	2:E:601:CTP:O2	2.48	0.61
1:O:77:TYR:CE1	2:O:601:CTP:N4	2.65	0.61
1:P:324:LYS:CE	2:P:601:CTP:O2	2.48	0.61
1:L:90:THR:HG21	1:S:113:ILE:HD11	1.83	0.61
1:O:324:LYS:CE	2:O:601:CTP:O2	2.48	0.60
1:Q:324:LYS:CE	2:Q:601:CTP:O2	2.48	0.60
1:S:324:LYS:CE	2:S:601:CTP:O2	2.48	0.60
1:E:90:THR:HG21	1:R:113:ILE:HD11	1.83	0.60
1:L:324:LYS:CE	2:L:601:CTP:O2	2.48	0.60
1:P:77:TYR:CE1	2:P:601:CTP:N4	2.65	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:77:TYR:CE1	2:A:601:CTP:N4	2.65	0.59
1:C:77:TYR:CE1	2:C:601:CTP:N4	2.65	0.59
1:E:77:TYR:CE1	2:E:601:CTP:N4	2.65	0.59
1:A:90:THR:HG21	1:D:113:ILE:HD11	1.83	0.59
1:R:77:TYR:CE1	2:R:601:CTP:N4	2.65	0.59
1:B:77:TYR:CE1	2:B:601:CTP:N4	2.65	0.58
1:D:77:TYR:CE1	2:D:601:CTP:N4	2.65	0.58
1:M:77:TYR:CE1	2:M:601:CTP:N4	2.65	0.58
1:B:16:LYS:HB2	2:B:601:CTP:PG	2.44	0.57
1:R:16:LYS:HB2	2:R:601:CTP:PG	2.44	0.57
1:D:16:LYS:HB2	2:D:601:CTP:PG	2.44	0.57
1:M:16:LYS:HB2	2:M:601:CTP:PG	2.44	0.57
1:A:16:LYS:HB2	2:A:601:CTP:PG	2.44	0.57
1:P:16:LYS:HB2	2:P:601:CTP:PG	2.44	0.57
1:L:154:ILE:HG21	1:S:161:GLU:OE1	2.05	0.57
1:E:154:ILE:HG21	1:R:161:GLU:OE1	2.05	0.56
1:L:16:LYS:HB2	2:L:601:CTP:PG	2.44	0.56
1:Q:16:LYS:HB2	2:Q:601:CTP:PG	2.44	0.56
1:S:16:LYS:HB2	2:S:601:CTP:PG	2.44	0.56
1:E:16:LYS:HB2	2:E:601:CTP:PG	2.44	0.56
1:O:16:LYS:HB2	2:O:601:CTP:PG	2.44	0.56
1:C:16:LYS:HB2	2:C:601:CTP:PG	2.44	0.56
1:O:90:THR:HG21	1:Q:113:ILE:HD11	1.88	0.56
1:A:154:ILE:HG21	1:D:161:GLU:OE1	2.05	0.55
1:M:90:THR:HG21	1:P:113:ILE:HD11	1.88	0.55
1:A:16:LYS:CB	2:A:601:CTP:O1G	2.54	0.55
1:D:16:LYS:CB	2:D:601:CTP:O1G	2.54	0.55
1:P:16:LYS:CB	2:P:601:CTP:O2G	2.54	0.55
1:M:16:LYS:CB	2:M:601:CTP:O2G	2.54	0.55
1:E:16:LYS:CB	2:E:601:CTP:O1G	2.54	0.55
1:B:90:THR:HG21	1:C:113:ILE:HD11	1.88	0.54
1:C:16:LYS:CB	2:C:601:CTP:O2G	2.54	0.54
1:S:16:LYS:CB	2:S:601:CTP:O1G	2.54	0.54
1:O:16:LYS:CB	2:O:601:CTP:O2G	2.54	0.54
1:O:113:ILE:HD11	1:Q:90:THR:HG21	1.90	0.54
1:B:113:ILE:HD11	1:C:90:THR:HG21	1.90	0.53
1:L:16:LYS:CB	2:L:601:CTP:O1G	2.54	0.53
1:L:18:VAL:HG22	2:L:601:CTP:C5	2.44	0.53
1:Q:18:VAL:HG22	2:Q:601:CTP:C5	2.44	0.53
1:O:154:ILE:HG21	1:Q:161:GLU:OE1	2.09	0.53
1:Q:16:LYS:CB	2:Q:601:CTP:O2G	2.54	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:18:VAL:HG22	2:B:601:CTP:C5	2.44	0.52
1:R:18:VAL:HG22	2:R:601:CTP:C5	2.44	0.52
1:O:18:VAL:HG22	2:O:601:CTP:C5	2.44	0.52
1:A:18:VAL:HG22	2:A:601:CTP:C5	2.44	0.52
1:C:18:VAL:HG22	2:C:601:CTP:C5	2.44	0.52
1:E:18:VAL:HG22	2:E:601:CTP:C5	2.44	0.52
1:S:18:VAL:HG22	2:S:601:CTP:C5	2.44	0.52
1:E:94:TYR:CD2	1:R:94:TYR:CD2	2.97	0.52
1:A:94:TYR:CD2	1:D:94:TYR:CD2	2.97	0.52
1:B:154:ILE:HG21	1:C:161:GLU:OE1	2.09	0.52
1:P:18:VAL:HG22	2:P:601:CTP:C5	2.44	0.52
1:M:154:ILE:HG21	1:P:161:GLU:OE1	2.09	0.52
1:A:113:ILE:HD11	1:D:90:THR:HG21	1.92	0.52
1:M:18:VAL:HG22	2:M:601:CTP:C5	2.44	0.52
1:A:101:GLU:OE2	1:D:44:ASN:ND2	2.43	0.52
1:D:18:VAL:HG22	2:D:601:CTP:C5	2.44	0.52
1:M:113:ILE:HD11	1:P:90:THR:HG21	1.90	0.52
1:E:113:ILE:HD11	1:R:90:THR:HG21	1.92	0.51
1:R:16:LYS:CB	2:R:601:CTP:O1G	2.54	0.51
1:L:94:TYR:CD2	1:S:94:TYR:CD2	2.97	0.51
1:L:113:ILE:HD11	1:S:90:THR:HG21	1.92	0.51
1:B:16:LYS:CB	2:B:601:CTP:O2G	2.54	0.51
1:L:101:GLU:OE2	1:S:44:ASN:ND2	2.43	0.51
1:C:18:VAL:CG2	2:C:601:CTP:O2A	2.46	0.51
1:E:18:VAL:CG2	2:E:601:CTP:O1A	2.46	0.51
1:E:101:GLU:OE2	1:R:44:ASN:ND2	2.43	0.51
1:B:161:GLU:OE1	1:C:154:ILE:HG21	2.11	0.50
1:L:153:ASP:OD1	1:O:193:LYS:HE2	2.12	0.50
1:O:161:GLU:OE1	1:Q:154:ILE:HG21	2.11	0.50
1:E:153:ASP:OD1	1:M:193:LYS:HE2	2.11	0.50
1:A:153:ASP:OD1	1:B:193:LYS:HE2	2.12	0.50
1:B:18:VAL:CG2	2:B:601:CTP:O2A	2.46	0.50
1:B:94:TYR:CD2	1:C:94:TYR:CD2	3.00	0.50
1:M:94:TYR:CD2	1:P:94:TYR:CD2	3.00	0.50
1:L:161:GLU:OE1	1:S:154:ILE:HG21	2.12	0.50
1:A:161:GLU:OE1	1:D:154:ILE:HG21	2.12	0.49
1:R:18:VAL:CG2	2:R:601:CTP:O1A	2.46	0.49
1:L:98:ILE:HD11	1:S:91:GLY:HA2	1.94	0.49
1:O:94:TYR:CD2	1:Q:94:TYR:CD2	3.00	0.49
1:M:161:GLU:OE1	1:P:154:ILE:HG21	2.11	0.49
1:E:161:GLU:OE1	1:R:154:ILE:HG21	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:161:GLU:OE2	2:S:602:CTP:N4	2.46	0.49
1:E:161:GLU:OE2	2:R:602:CTP:N4	2.45	0.49
1:A:98:ILE:HD11	1:D:91:GLY:HA2	1.94	0.49
1:A:161:GLU:OE2	2:D:602:CTP:N4	2.45	0.48
1:E:98:ILE:HD11	1:R:91:GLY:HA2	1.94	0.48
1:M:101:GLU:OE2	1:P:44:ASN:ND2	2.46	0.48
1:Q:153:ASP:OD1	1:S:193:LYS:HE2	2.14	0.48
1:C:153:ASP:OD1	1:D:193:LYS:HE2	2.14	0.48
1:A:193:LYS:HE2	1:B:153:ASP:OD1	2.14	0.48
1:M:44:ASN:ND2	1:P:101:GLU:OE2	2.47	0.48
1:P:153:ASP:OD1	1:R:193:LYS:HE2	2.14	0.48
1:L:193:LYS:HE2	1:O:153:ASP:OD1	2.14	0.48
1:B:44:ASN:ND2	1:C:101:GLU:OE2	2.47	0.47
1:O:101:GLU:OE2	1:Q:44:ASN:ND2	2.46	0.47
1:B:101:GLU:OE2	1:C:44:ASN:ND2	2.46	0.47
1:O:44:ASN:ND2	1:Q:101:GLU:OE2	2.47	0.47
1:E:193:LYS:HE2	1:M:153:ASP:OD1	2.14	0.47
1:O:161:GLU:OE2	2:Q:602:CTP:N4	2.49	0.46
1:M:161:GLU:OE2	2:P:602:CTP:N4	2.49	0.45
1:L:324:LYS:HE3	2:L:601:CTP:O2	2.16	0.45
1:O:324:LYS:HE3	2:O:601:CTP:O2	2.16	0.45
1:S:324:LYS:HE3	2:S:601:CTP:O2	2.16	0.45
1:B:161:GLU:OE2	2:C:602:CTP:N4	2.49	0.45
1:Q:324:LYS:HE3	2:Q:601:CTP:O2	2.16	0.45
1:O:18:VAL:CG2	2:O:601:CTP:O2A	2.46	0.45
1:P:193:LYS:HE2	1:R:153:ASP:OD1	2.17	0.45
1:S:18:VAL:CG2	2:S:601:CTP:O1A	2.46	0.45
1:O:98:ILE:HD11	1:Q:91:GLY:HA2	1.99	0.45
1:M:98:ILE:HD11	1:P:91:GLY:HA2	1.99	0.45
1:M:324:LYS:HE3	2:M:601:CTP:O2	2.16	0.45
1:Q:193:LYS:HE2	1:S:153:ASP:OD1	2.17	0.45
2:B:602:CTP:N4	1:C:161:GLU:OE2	2.50	0.45
1:C:17:GLY:HA3	2:C:601:CTP:O1A	2.17	0.45
1:E:17:GLY:HA3	2:E:601:CTP:O2A	2.17	0.45
1:P:17:GLY:HA3	2:P:601:CTP:O1A	2.17	0.45
1:D:324:LYS:HE3	2:D:601:CTP:O2	2.16	0.44
2:M:602:CTP:N4	1:P:161:GLU:OE2	2.50	0.44
1:R:112:GLN:H	1:R:116:HIS:CD2	2.36	0.44
2:O:602:CTP:N4	1:Q:161:GLU:OE2	2.50	0.44
1:A:17:GLY:HA3	2:A:601:CTP:O2A	2.17	0.44
1:B:112:GLN:H	1:B:116:HIS:CD2	2.36	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:153:ASP:OD1	1:M:193:LYS:CE	2.65	0.44
1:Q:112:GLN:H	1:Q:116:HIS:CD2	2.35	0.44
1:L:112:GLN:H	1:L:116:HIS:CD2	2.36	0.44
1:A:91:GLY:HA2	1:D:98:ILE:HD11	2.00	0.44
1:D:17:GLY:HA3	2:D:601:CTP:O2A	2.17	0.44
1:E:324:LYS:HE3	2:E:601:CTP:O2	2.16	0.44
1:M:17:GLY:HA3	2:M:601:CTP:O1A	2.17	0.44
1:C:112:GLN:H	1:C:116:HIS:CD2	2.36	0.44
1:C:324:LYS:HE3	2:C:601:CTP:O2	2.16	0.44
1:E:112:GLN:H	1:E:116:HIS:CD2	2.36	0.44
1:O:112:GLN:H	1:O:116:HIS:CD2	2.35	0.44
1:B:324:LYS:HE3	2:B:601:CTP:O2	2.16	0.44
1:P:324:LYS:HE3	2:P:601:CTP:O2	2.16	0.44
1:R:17:GLY:HA3	2:R:601:CTP:O2A	2.17	0.44
1:S:112:GLN:H	1:S:116:HIS:CD2	2.35	0.44
1:A:324:LYS:HE3	2:A:601:CTP:O2	2.16	0.44
1:M:112:GLN:H	1:M:116:HIS:CD2	2.36	0.44
1:R:324:LYS:HE3	2:R:601:CTP:O2	2.16	0.44
1:A:153:ASP:OD1	1:B:193:LYS:CE	2.66	0.44
1:B:17:GLY:HA3	2:B:601:CTP:O1A	2.17	0.44
1:S:17:GLY:HA3	2:S:601:CTP:O2A	2.17	0.44
1:A:112:GLN:H	1:A:116:HIS:CD2	2.35	0.43
1:C:193:LYS:HE2	1:D:153:ASP:OD1	2.17	0.43
1:L:44:ASN:ND2	1:S:101:GLU:OE2	2.50	0.43
2:L:602:CTP:N4	1:S:161:GLU:OE2	2.51	0.43
1:O:17:GLY:HA3	2:O:601:CTP:O1A	2.17	0.43
1:O:91:GLY:HA2	1:Q:98:ILE:HD11	2.00	0.43
1:A:44:ASN:ND2	1:D:101:GLU:OE2	2.50	0.43
1:D:112:GLN:H	1:D:116:HIS:CD2	2.36	0.43
1:A:18:VAL:CG2	2:A:601:CTP:O1A	2.46	0.43
2:A:602:CTP:N4	1:D:161:GLU:OE2	2.51	0.43
1:P:112:GLN:H	1:P:116:HIS:CD2	2.36	0.43
1:Q:17:GLY:HA3	2:Q:601:CTP:O1A	2.17	0.43
1:B:91:GLY:HA2	1:C:98:ILE:HD11	2.00	0.43
1:P:18:VAL:CG2	2:P:601:CTP:O2A	2.46	0.43
1:L:17:GLY:HA3	2:L:601:CTP:O2A	2.17	0.43
1:L:91:GLY:HA2	1:S:98:ILE:HD11	2.00	0.43
1:B:98:ILE:HD11	1:C:91:GLY:HA2	1.99	0.43
2:E:602:CTP:N4	1:R:161:GLU:OE2	2.51	0.43
1:E:44:ASN:ND2	1:R:101:GLU:OE2	2.50	0.43
1:L:153:ASP:OD1	1:O:193:LYS:CE	2.65	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:91:GLY:HA2	1:R:98:ILE:HD11	2.00	0.42
1:M:91:GLY:HA2	1:P:98:ILE:HD11	2.00	0.42
1:P:153:ASP:OD1	1:R:193:LYS:CE	2.67	0.42
1:C:153:ASP:OD1	1:D:193:LYS:CE	2.67	0.42
1:C:18:VAL:HA	2:C:601:CTP:C5	2.55	0.42
1:L:193:LYS:CE	1:O:153:ASP:OD1	2.68	0.42
1:A:193:LYS:CE	1:B:153:ASP:OD1	2.68	0.42
1:B:18:VAL:HA	2:B:601:CTP:C5	2.55	0.42
1:E:18:VAL:HA	2:E:601:CTP:C5	2.55	0.41
1:R:18:VAL:HA	2:R:601:CTP:C5	2.55	0.41
1:O:18:VAL:HA	2:O:601:CTP:C5	2.55	0.41
1:A:18:VAL:HA	2:A:601:CTP:C5	2.55	0.41
1:P:18:VAL:HA	2:P:601:CTP:C5	2.55	0.41
1:S:18:VAL:HA	2:S:601:CTP:C5	2.55	0.41
1:E:193:LYS:CE	1:M:153:ASP:OD1	2.68	0.41
1:Q:153:ASP:OD1	1:S:193:LYS:CE	2.67	0.41
1:L:18:VAL:HA	2:L:601:CTP:C5	2.55	0.41
1:D:18:VAL:HA	2:D:601:CTP:C5	2.55	0.41
1:M:18:VAL:HA	2:M:601:CTP:C5	2.55	0.41
1:O:16:LYS:N	2:O:601:CTP:O2G	2.48	0.41
1:Q:18:VAL:HA	2:Q:601:CTP:C5	2.55	0.41
1:P:153:ASP:OD1	1:R:193:LYS:NZ	2.54	0.40
1:S:16:LYS:N	2:S:601:CTP:O1G	2.48	0.40
1:O:475:ILE:HD12	1:O:475:ILE:HA	1.98	0.40
1:S:475:ILE:HD12	1:S:475:ILE:HA	1.98	0.40
1:A:475:ILE:HD12	1:A:475:ILE:HA	1.98	0.40
1:C:16:LYS:N	2:C:601:CTP:O2G	2.48	0.40
1:M:18:VAL:CG2	2:M:601:CTP:O2A	2.46	0.40
1:P:475:ILE:HD12	1:P:475:ILE:HA	1.98	0.40
1:D:18:VAL:CG2	2:D:601:CTP:O1A	2.46	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	555/559 (99%)	534 (96%)	19 (3%)	2 (0%)	34	70
1	B	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
1	C	555/559 (99%)	534 (96%)	19 (3%)	2 (0%)	34	70
1	D	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
1	E	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
1	L	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
1	M	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
1	O	555/559 (99%)	534 (96%)	19 (3%)	2 (0%)	34	70
1	P	555/559 (99%)	534 (96%)	19 (3%)	2 (0%)	34	70
1	Q	555/559 (99%)	534 (96%)	19 (3%)	2 (0%)	34	70
1	R	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
1	S	555/559 (99%)	535 (96%)	18 (3%)	2 (0%)	34	70
All	All	6660/6708 (99%)	6415 (96%)	221 (3%)	24 (0%)	38	70

All (24) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	15	GLY
1	B	15	GLY
1	C	15	GLY
1	D	15	GLY
1	E	15	GLY
1	M	15	GLY
1	P	15	GLY
1	R	15	GLY
1	L	15	GLY
1	O	15	GLY
1	Q	15	GLY
1	S	15	GLY
1	A	376	GLY
1	B	376	GLY
1	C	376	GLY
1	D	376	GLY
1	E	376	GLY
1	M	376	GLY
1	P	376	GLY

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Mol	Chain	Res	Type
1	R	376	GLY
1	L	376	GLY
1	O	376	GLY
1	Q	376	GLY
1	S	376	GLY

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	B	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	C	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	D	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	E	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	L	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	M	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	O	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	P	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	Q	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	R	488/488 (100%)	477 (98%)	11 (2%)	50	72
1	S	488/488 (100%)	477 (98%)	11 (2%)	50	72
All	All	5856/5856 (100%)	5724 (98%)	132 (2%)	53	72

All (132) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	10	VAL
1	A	12	SER
1	A	42	TYR
1	A	153	ASP
1	A	202	LEU

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Mol	Chain	Res	Type
1	A	217	SER
1	A	219	GLU
1	A	293	MET
1	A	297	LEU
1	A	330	SER
1	A	523	PHE
1	B	10	VAL
1	B	12	SER
1	B	42	TYR
1	B	153	ASP
1	B	202	LEU
1	B	217	SER
1	B	219	GLU
1	B	293	MET
1	B	297	LEU
1	B	330	SER
1	B	523	PHE
1	C	10	VAL
1	C	12	SER
1	C	42	TYR
1	C	153	ASP
1	C	202	LEU
1	C	217	SER
1	C	219	GLU
1	C	293	MET
1	C	297	LEU
1	C	330	SER
1	C	523	PHE
1	D	10	VAL
1	D	12	SER
1	D	42	TYR
1	D	153	ASP
1	D	202	LEU
1	D	217	SER
1	D	219	GLU
1	D	293	MET
1	D	297	LEU
1	D	330	SER
1	D	523	PHE
1	E	10	VAL
1	E	12	SER
1	E	42	TYR

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Mol	Chain	Res	Type
1	E	153	ASP
1	E	202	LEU
1	E	217	SER
1	E	219	GLU
1	E	293	MET
1	E	297	LEU
1	E	330	SER
1	E	523	PHE
1	M	10	VAL
1	M	12	SER
1	M	42	TYR
1	M	153	ASP
1	M	202	LEU
1	M	217	SER
1	M	219	GLU
1	M	293	MET
1	M	297	LEU
1	M	330	SER
1	M	523	PHE
1	P	10	VAL
1	P	12	SER
1	P	42	TYR
1	P	153	ASP
1	P	202	LEU
1	P	217	SER
1	P	219	GLU
1	P	293	MET
1	P	297	LEU
1	P	330	SER
1	P	523	PHE
1	R	10	VAL
1	R	12	SER
1	R	42	TYR
1	R	153	ASP
1	R	202	LEU
1	R	217	SER
1	R	219	GLU
1	R	293	MET
1	R	297	LEU
1	R	330	SER
1	R	523	PHE
1	L	10	VAL

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Mol	Chain	Res	Type
1	L	12	SER
1	L	42	TYR
1	L	153	ASP
1	L	202	LEU
1	L	217	SER
1	L	219	GLU
1	L	293	MET
1	L	297	LEU
1	L	330	SER
1	L	523	PHE
1	O	10	VAL
1	O	12	SER
1	O	42	TYR
1	O	153	ASP
1	O	202	LEU
1	O	217	SER
1	O	219	GLU
1	O	293	MET
1	O	297	LEU
1	O	330	SER
1	O	523	PHE
1	Q	10	VAL
1	Q	12	SER
1	Q	42	TYR
1	Q	153	ASP
1	Q	202	LEU
1	Q	217	SER
1	Q	219	GLU
1	Q	293	MET
1	Q	297	LEU
1	Q	330	SER
1	Q	523	PHE
1	S	10	VAL
1	S	12	SER
1	S	42	TYR
1	S	153	ASP
1	S	202	LEU
1	S	217	SER
1	S	219	GLU
1	S	293	MET
1	S	297	LEU
1	S	330	SER

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Mol	Chain	Res	Type
1	S	523	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	233	HIS
1	B	233	HIS
1	C	233	HIS
1	D	233	HIS
1	E	233	HIS
1	M	233	HIS
1	P	233	HIS
1	R	233	HIS
1	L	233	HIS
1	O	233	HIS
1	Q	233	HIS
1	S	233	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

24 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	CTP	E	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	L	602	-	26,30,30	0.90	0	39,47,47	1.33	4 (10%)
2	CTP	C	602	-	26,30,30	0.84	0	39,47,47	1.30	5 (12%)
2	CTP	Q	602	-	26,30,30	0.84	0	39,47,47	1.29	4 (10%)
2	CTP	S	601	-	26,30,30	0.79	0	39,47,47	1.27	3 (7%)
2	CTP	D	602	-	26,30,30	0.90	0	39,47,47	1.33	4 (10%)
2	CTP	L	601	-	26,30,30	0.79	0	39,47,47	1.27	3 (7%)
2	CTP	B	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	D	601	-	26,30,30	0.79	0	39,47,47	1.27	3 (7%)
2	CTP	M	602	-	26,30,30	0.84	0	39,47,47	1.30	4 (10%)
2	CTP	A	601	-	26,30,30	0.79	0	39,47,47	1.27	3 (7%)
2	CTP	M	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	B	602	-	26,30,30	0.85	0	39,47,47	1.29	5 (12%)
2	CTP	A	602	-	26,30,30	0.90	0	39,47,47	1.33	4 (10%)
2	CTP	R	602	-	26,30,30	0.91	0	39,47,47	1.33	4 (10%)
2	CTP	P	602	-	26,30,30	0.85	0	39,47,47	1.30	4 (10%)
2	CTP	E	602	-	26,30,30	0.90	0	39,47,47	1.33	4 (10%)
2	CTP	S	602	-	26,30,30	0.90	0	39,47,47	1.34	4 (10%)
2	CTP	O	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	Q	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	C	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	O	602	-	26,30,30	0.84	0	39,47,47	1.29	5 (12%)
2	CTP	P	601	-	26,30,30	0.78	0	39,47,47	1.27	3 (7%)
2	CTP	R	601	-	26,30,30	0.79	0	39,47,47	1.27	3 (7%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	CTP	E	601	-	-	8/22/38/38	0/2/2/2
2	CTP	L	602	-	-	4/22/38/38	0/2/2/2
2	CTP	C	602	-	-	1/22/38/38	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	CTP	Q	602	-	-	1/22/38/38	0/2/2/2
2	CTP	S	601	-	-	8/22/38/38	0/2/2/2
2	CTP	D	602	-	-	4/22/38/38	0/2/2/2
2	CTP	L	601	-	-	8/22/38/38	0/2/2/2
2	CTP	B	601	-	-	7/22/38/38	0/2/2/2
2	CTP	D	601	-	-	8/22/38/38	0/2/2/2
2	CTP	M	602	-	-	1/22/38/38	0/2/2/2
2	CTP	A	601	-	-	8/22/38/38	0/2/2/2
2	CTP	M	601	-	-	7/22/38/38	0/2/2/2
2	CTP	B	602	-	-	1/22/38/38	0/2/2/2
2	CTP	A	602	-	-	4/22/38/38	0/2/2/2
2	CTP	R	602	-	-	4/22/38/38	0/2/2/2
2	CTP	P	602	-	-	1/22/38/38	0/2/2/2
2	CTP	E	602	-	-	4/22/38/38	0/2/2/2
2	CTP	S	602	-	-	4/22/38/38	0/2/2/2
2	CTP	O	601	-	-	7/22/38/38	0/2/2/2
2	CTP	Q	601	-	-	6/22/38/38	0/2/2/2
2	CTP	C	601	-	-	7/22/38/38	0/2/2/2
2	CTP	O	602	-	-	1/22/38/38	0/2/2/2
2	CTP	P	601	-	-	7/22/38/38	0/2/2/2
2	CTP	R	601	-	-	8/22/38/38	0/2/2/2

There are no bond length outliers.

All (87) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	M	601	CTP	PB-O3A-PA	-3.58	120.55	132.83
2	B	601	CTP	PB-O3A-PA	-3.57	120.57	132.83
2	S	601	CTP	PB-O3A-PA	-3.57	120.57	132.83
2	Q	601	CTP	PB-O3A-PA	-3.57	120.58	132.83
2	R	601	CTP	PB-O3A-PA	-3.57	120.58	132.83
2	C	601	CTP	PB-O3A-PA	-3.57	120.58	132.83
2	D	601	CTP	PB-O3A-PA	-3.57	120.59	132.83
2	L	601	CTP	PB-O3A-PA	-3.57	120.59	132.83
2	A	601	CTP	PB-O3A-PA	-3.56	120.59	132.83
2	P	601	CTP	PB-O3A-PA	-3.56	120.59	132.83
2	E	601	CTP	PB-O3A-PA	-3.56	120.60	132.83
2	O	601	CTP	PB-O3A-PA	-3.56	120.62	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	601	CTP	PB-O3B-PG	-3.55	120.66	132.83
2	Q	601	CTP	PB-O3B-PG	-3.54	120.66	132.83
2	S	601	CTP	PB-O3B-PG	-3.54	120.66	132.83
2	R	601	CTP	PB-O3B-PG	-3.54	120.68	132.83
2	M	601	CTP	PB-O3B-PG	-3.54	120.68	132.83
2	C	601	CTP	PB-O3B-PG	-3.54	120.69	132.83
2	O	601	CTP	PB-O3B-PG	-3.53	120.70	132.83
2	P	601	CTP	PB-O3B-PG	-3.53	120.70	132.83
2	L	601	CTP	PB-O3B-PG	-3.53	120.71	132.83
2	D	601	CTP	PB-O3B-PG	-3.53	120.71	132.83
2	B	601	CTP	PB-O3B-PG	-3.52	120.73	132.83
2	A	601	CTP	PB-O3B-PG	-3.52	120.76	132.83
2	E	602	CTP	O3G-PG-O2G	2.86	118.58	107.64
2	S	602	CTP	O3G-PG-O2G	2.86	118.56	107.64
2	R	602	CTP	O3G-PG-O2G	2.86	118.56	107.64
2	L	602	CTP	O3G-PG-O2G	2.85	118.53	107.64
2	A	602	CTP	O3G-PG-O2G	2.84	118.51	107.64
2	D	602	CTP	O3G-PG-O2G	2.84	118.49	107.64
2	S	602	CTP	O2-C2-N3	-2.57	118.15	122.33
2	P	602	CTP	O2-C2-N3	-2.57	118.15	122.33
2	B	602	CTP	O2-C2-N3	-2.55	118.18	122.33
2	R	602	CTP	O2-C2-N3	-2.55	118.18	122.33
2	A	602	CTP	O2-C2-N3	-2.55	118.18	122.33
2	C	601	CTP	C3'-C2'-C1'	2.55	106.27	101.43
2	A	601	CTP	C3'-C2'-C1'	2.55	106.26	101.43
2	M	602	CTP	O2-C2-N3	-2.54	118.20	122.33
2	C	602	CTP	O2-C2-N3	-2.54	118.20	122.33
2	L	602	CTP	O2-C2-N3	-2.54	118.20	122.33
2	B	601	CTP	C3'-C2'-C1'	2.54	106.25	101.43
2	O	602	CTP	O2-C2-N3	-2.54	118.20	122.33
2	D	602	CTP	O2-C2-N3	-2.53	118.21	122.33
2	P	601	CTP	C3'-C2'-C1'	2.53	106.23	101.43
2	L	601	CTP	C3'-C2'-C1'	2.53	106.23	101.43
2	O	601	CTP	C3'-C2'-C1'	2.52	106.22	101.43
2	E	602	CTP	O2-C2-N3	-2.52	118.22	122.33
2	R	601	CTP	C3'-C2'-C1'	2.52	106.22	101.43
2	D	601	CTP	C3'-C2'-C1'	2.52	106.22	101.43
2	M	601	CTP	C3'-C2'-C1'	2.52	106.22	101.43
2	S	601	CTP	C3'-C2'-C1'	2.52	106.21	101.43
2	Q	601	CTP	C3'-C2'-C1'	2.52	106.21	101.43
2	Q	602	CTP	O2-C2-N3	-2.51	118.24	122.33
2	E	601	CTP	C3'-C2'-C1'	2.51	106.19	101.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	R	602	CTP	PB-O3A-PA	-2.23	125.16	132.83
2	M	602	CTP	PB-O3A-PA	-2.23	125.17	132.83
2	P	602	CTP	PB-O3A-PA	-2.23	125.18	132.83
2	D	602	CTP	PB-O3A-PA	-2.23	125.19	132.83
2	S	602	CTP	PB-O3A-PA	-2.22	125.19	132.83
2	O	602	CTP	PB-O3A-PA	-2.22	125.20	132.83
2	C	602	CTP	PB-O3A-PA	-2.22	125.20	132.83
2	L	602	CTP	PB-O3A-PA	-2.22	125.20	132.83
2	B	602	CTP	PB-O3A-PA	-2.22	125.21	132.83
2	Q	602	CTP	PB-O3A-PA	-2.21	125.23	132.83
2	A	602	CTP	PB-O3A-PA	-2.21	125.24	132.83
2	E	602	CTP	PB-O3A-PA	-2.21	125.25	132.83
2	B	602	CTP	O3B-PG-O1G	-2.15	99.28	111.19
2	M	602	CTP	O3B-PG-O1G	-2.15	99.29	111.19
2	Q	602	CTP	O3B-PG-O1G	-2.15	99.29	111.19
2	C	602	CTP	O3B-PG-O1G	-2.15	99.29	111.19
2	P	602	CTP	O3B-PG-O1G	-2.14	99.30	111.19
2	O	602	CTP	O3B-PG-O1G	-2.14	99.32	111.19
2	C	602	CTP	O2B-PB-O1B	2.05	122.36	112.24
2	S	602	CTP	O2B-PB-O1B	2.05	122.36	112.24
2	O	602	CTP	O2B-PB-O1B	2.04	122.33	112.24
2	A	602	CTP	O2B-PB-O1B	2.04	122.33	112.24
2	L	602	CTP	O2B-PB-O1B	2.04	122.33	112.24
2	M	602	CTP	O2B-PB-O1B	2.04	122.32	112.24
2	P	602	CTP	O2B-PB-O1B	2.04	122.32	112.24
2	B	602	CTP	O2B-PB-O1B	2.04	122.32	112.24
2	R	602	CTP	O2B-PB-O1B	2.04	122.31	112.24
2	Q	602	CTP	O2B-PB-O1B	2.04	122.30	112.24
2	E	602	CTP	O2B-PB-O1B	2.03	122.30	112.24
2	D	602	CTP	O2B-PB-O1B	2.03	122.28	112.24
2	C	602	CTP	O2G-PG-O1G	2.02	118.59	110.68
2	B	602	CTP	O2G-PG-O1G	2.01	118.54	110.68
2	O	602	CTP	O2G-PG-O1G	2.00	118.52	110.68

There are no chirality outliers.

All (119) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	CTP	C5'-O5'-PA-O1A
2	A	601	CTP	C5'-O5'-PA-O2A
2	A	601	CTP	PB-O3B-PG-O2G
2	B	601	CTP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
2	C	601	CTP	C5'-O5'-PA-O1A
2	D	601	CTP	C5'-O5'-PA-O1A
2	D	601	CTP	C5'-O5'-PA-O2A
2	D	601	CTP	PB-O3B-PG-O2G
2	E	601	CTP	C5'-O5'-PA-O1A
2	E	601	CTP	C5'-O5'-PA-O2A
2	E	601	CTP	PB-O3B-PG-O2G
2	M	601	CTP	C5'-O5'-PA-O1A
2	P	601	CTP	C5'-O5'-PA-O1A
2	R	601	CTP	C5'-O5'-PA-O1A
2	R	601	CTP	C5'-O5'-PA-O2A
2	R	601	CTP	PB-O3B-PG-O2G
2	L	601	CTP	C5'-O5'-PA-O1A
2	L	601	CTP	C5'-O5'-PA-O2A
2	L	601	CTP	PB-O3B-PG-O2G
2	O	601	CTP	C5'-O5'-PA-O1A
2	Q	601	CTP	C5'-O5'-PA-O1A
2	S	601	CTP	C5'-O5'-PA-O1A
2	S	601	CTP	C5'-O5'-PA-O2A
2	S	601	CTP	PB-O3B-PG-O2G
2	A	602	CTP	PB-O3B-PG-O1G
2	D	602	CTP	PB-O3B-PG-O1G
2	E	602	CTP	PB-O3B-PG-O1G
2	R	602	CTP	PB-O3B-PG-O1G
2	L	602	CTP	PB-O3B-PG-O1G
2	S	602	CTP	PB-O3B-PG-O1G
2	A	602	CTP	PB-O3B-PG-O3G
2	D	602	CTP	PB-O3B-PG-O3G
2	E	602	CTP	PB-O3B-PG-O3G
2	R	602	CTP	PB-O3B-PG-O3G
2	L	602	CTP	PB-O3B-PG-O3G
2	S	602	CTP	PB-O3B-PG-O3G
2	A	601	CTP	C3'-C4'-C5'-O5'
2	B	601	CTP	C3'-C4'-C5'-O5'
2	C	601	CTP	C3'-C4'-C5'-O5'
2	D	601	CTP	C3'-C4'-C5'-O5'
2	E	601	CTP	C3'-C4'-C5'-O5'
2	M	601	CTP	C3'-C4'-C5'-O5'
2	P	601	CTP	C3'-C4'-C5'-O5'
2	R	601	CTP	C3'-C4'-C5'-O5'
2	L	601	CTP	C3'-C4'-C5'-O5'
2	O	601	CTP	C3'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	Q	601	CTP	C3'-C4'-C5'-O5'
2	S	601	CTP	C3'-C4'-C5'-O5'
2	B	601	CTP	C5'-O5'-PA-O2A
2	C	601	CTP	C5'-O5'-PA-O2A
2	M	601	CTP	C5'-O5'-PA-O2A
2	P	601	CTP	C5'-O5'-PA-O2A
2	O	601	CTP	C5'-O5'-PA-O2A
2	Q	601	CTP	C5'-O5'-PA-O2A
2	A	601	CTP	O4'-C4'-C5'-O5'
2	B	601	CTP	O4'-C4'-C5'-O5'
2	C	601	CTP	O4'-C4'-C5'-O5'
2	D	601	CTP	O4'-C4'-C5'-O5'
2	E	601	CTP	O4'-C4'-C5'-O5'
2	M	601	CTP	O4'-C4'-C5'-O5'
2	P	601	CTP	O4'-C4'-C5'-O5'
2	R	601	CTP	O4'-C4'-C5'-O5'
2	L	601	CTP	O4'-C4'-C5'-O5'
2	O	601	CTP	O4'-C4'-C5'-O5'
2	Q	601	CTP	O4'-C4'-C5'-O5'
2	S	601	CTP	O4'-C4'-C5'-O5'
2	A	602	CTP	PB-O3A-PA-O2A
2	D	602	CTP	PB-O3A-PA-O2A
2	E	602	CTP	PB-O3A-PA-O2A
2	R	602	CTP	PB-O3A-PA-O2A
2	L	602	CTP	PB-O3A-PA-O2A
2	S	602	CTP	PB-O3A-PA-O2A
2	A	601	CTP	PB-O3B-PG-O1G
2	D	601	CTP	PB-O3B-PG-O1G
2	E	601	CTP	PB-O3B-PG-O1G
2	R	601	CTP	PB-O3B-PG-O1G
2	L	601	CTP	PB-O3B-PG-O1G
2	S	601	CTP	PB-O3B-PG-O1G
2	A	601	CTP	PB-O3B-PG-O3G
2	B	601	CTP	PB-O3B-PG-O3G
2	B	602	CTP	PB-O3B-PG-O3G
2	C	601	CTP	PB-O3B-PG-O3G
2	C	602	CTP	PB-O3B-PG-O3G
2	D	601	CTP	PB-O3B-PG-O3G
2	E	601	CTP	PB-O3B-PG-O3G
2	M	601	CTP	PB-O3B-PG-O3G
2	M	602	CTP	PB-O3B-PG-O3G
2	P	601	CTP	PB-O3B-PG-O3G

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Mol	Chain	Res	Type	Atoms
2	P	602	CTP	PB-O3B-PG-O3G
2	R	601	CTP	PB-O3B-PG-O3G
2	L	601	CTP	PB-O3B-PG-O3G
2	O	601	CTP	PB-O3B-PG-O3G
2	O	602	CTP	PB-O3B-PG-O3G
2	Q	601	CTP	PB-O3B-PG-O3G
2	Q	602	CTP	PB-O3B-PG-O3G
2	S	601	CTP	PB-O3B-PG-O3G
2	A	601	CTP	C5'-O5'-PA-O3A
2	B	601	CTP	C5'-O5'-PA-O3A
2	C	601	CTP	C5'-O5'-PA-O3A
2	D	601	CTP	C5'-O5'-PA-O3A
2	E	601	CTP	C5'-O5'-PA-O3A
2	M	601	CTP	C5'-O5'-PA-O3A
2	P	601	CTP	C5'-O5'-PA-O3A
2	R	601	CTP	C5'-O5'-PA-O3A
2	L	601	CTP	C5'-O5'-PA-O3A
2	O	601	CTP	C5'-O5'-PA-O3A
2	Q	601	CTP	C5'-O5'-PA-O3A
2	S	601	CTP	C5'-O5'-PA-O3A
2	A	602	CTP	PB-O3A-PA-O1A
2	D	602	CTP	PB-O3A-PA-O1A
2	E	602	CTP	PB-O3A-PA-O1A
2	R	602	CTP	PB-O3A-PA-O1A
2	L	602	CTP	PB-O3A-PA-O1A
2	S	602	CTP	PB-O3A-PA-O1A
2	B	601	CTP	PB-O3B-PG-O1G
2	C	601	CTP	PB-O3B-PG-O1G
2	M	601	CTP	PB-O3B-PG-O1G
2	P	601	CTP	PB-O3B-PG-O1G
2	O	601	CTP	PB-O3B-PG-O1G

There are no ring outliers.

24 monomers are involved in 205 short contacts:

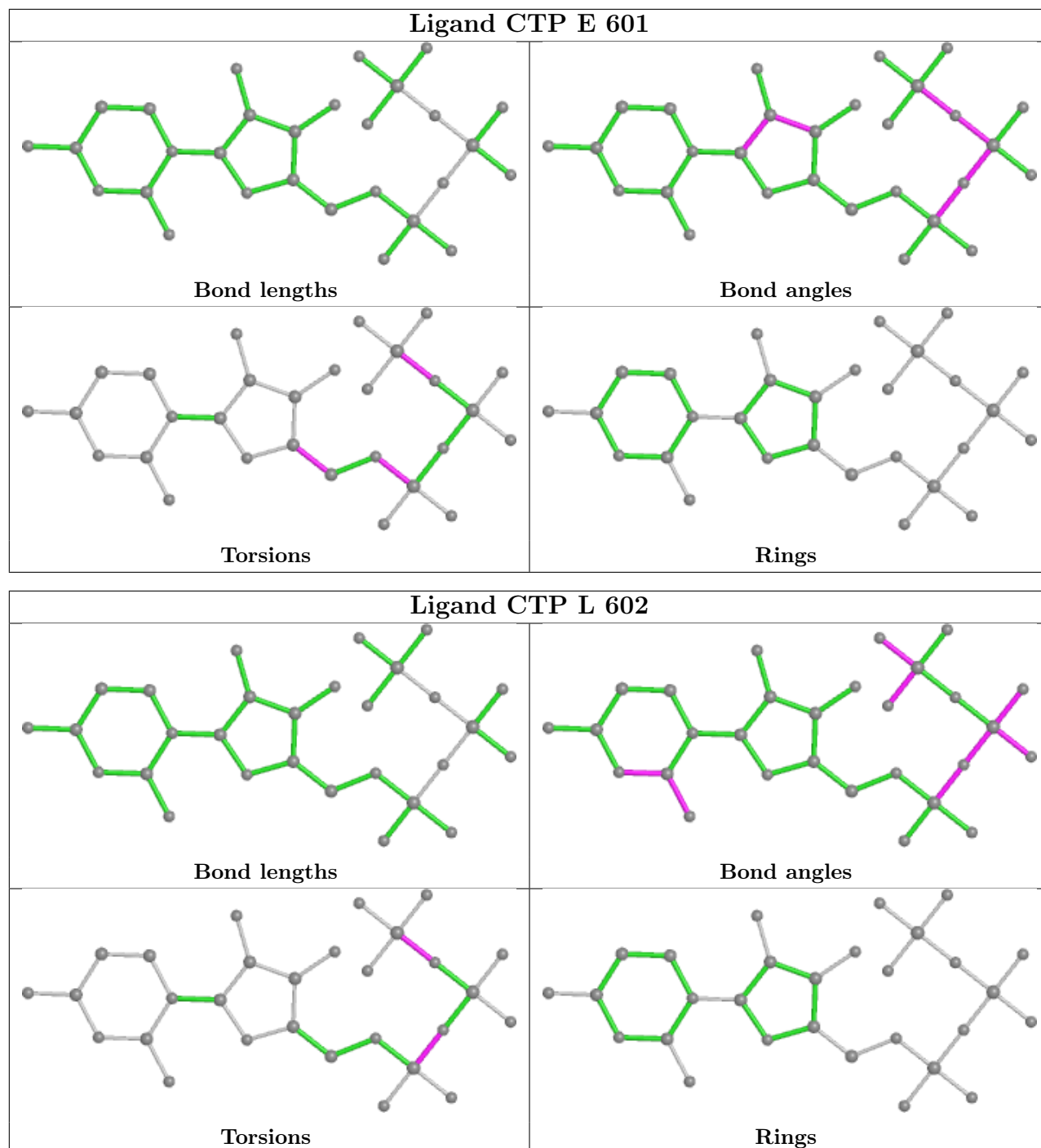
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	601	CTP	15	0
2	L	602	CTP	2	0
2	C	602	CTP	2	0
2	Q	602	CTP	2	0
2	S	601	CTP	16	0
2	D	602	CTP	2	0

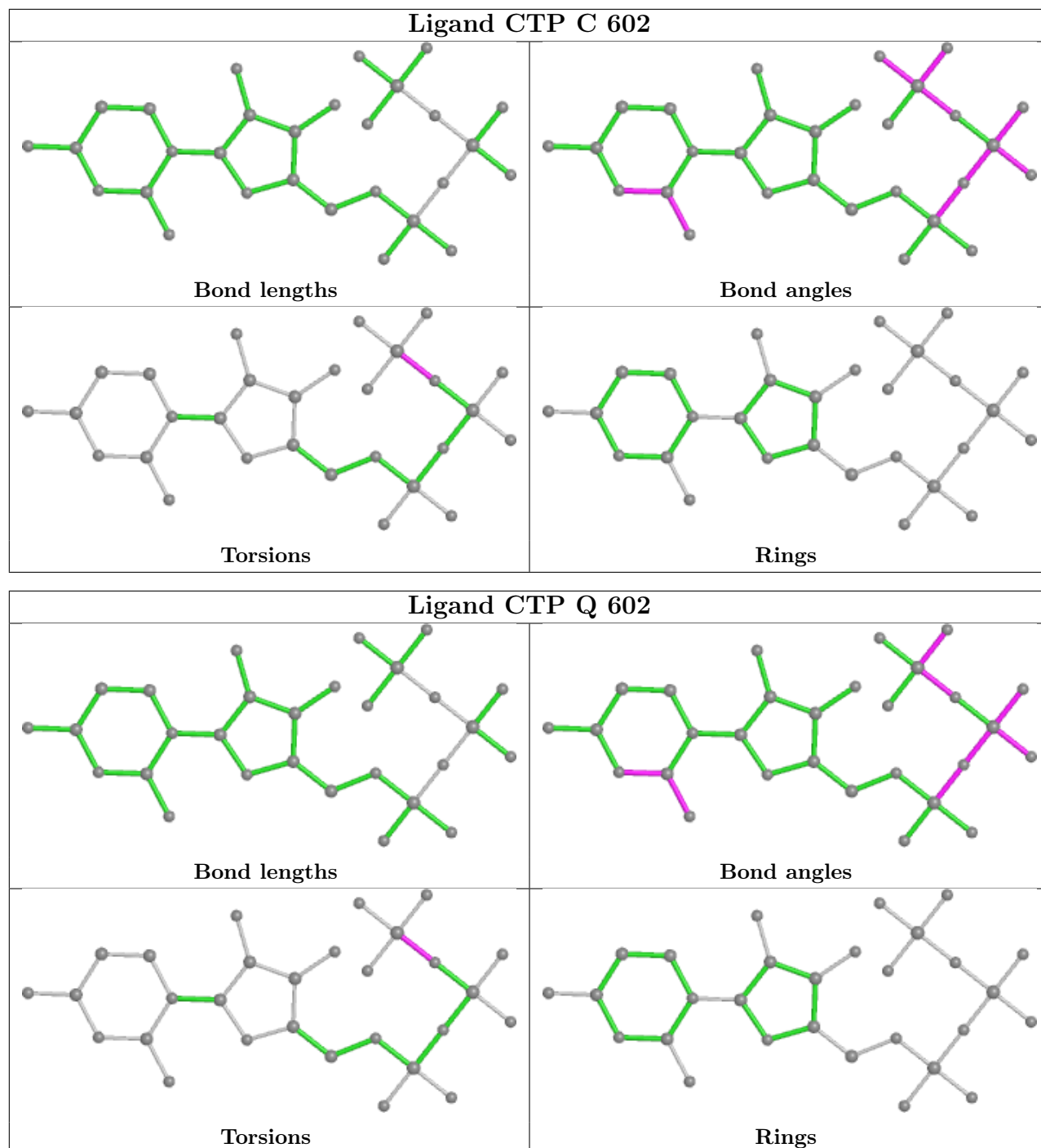
Continued on next page...

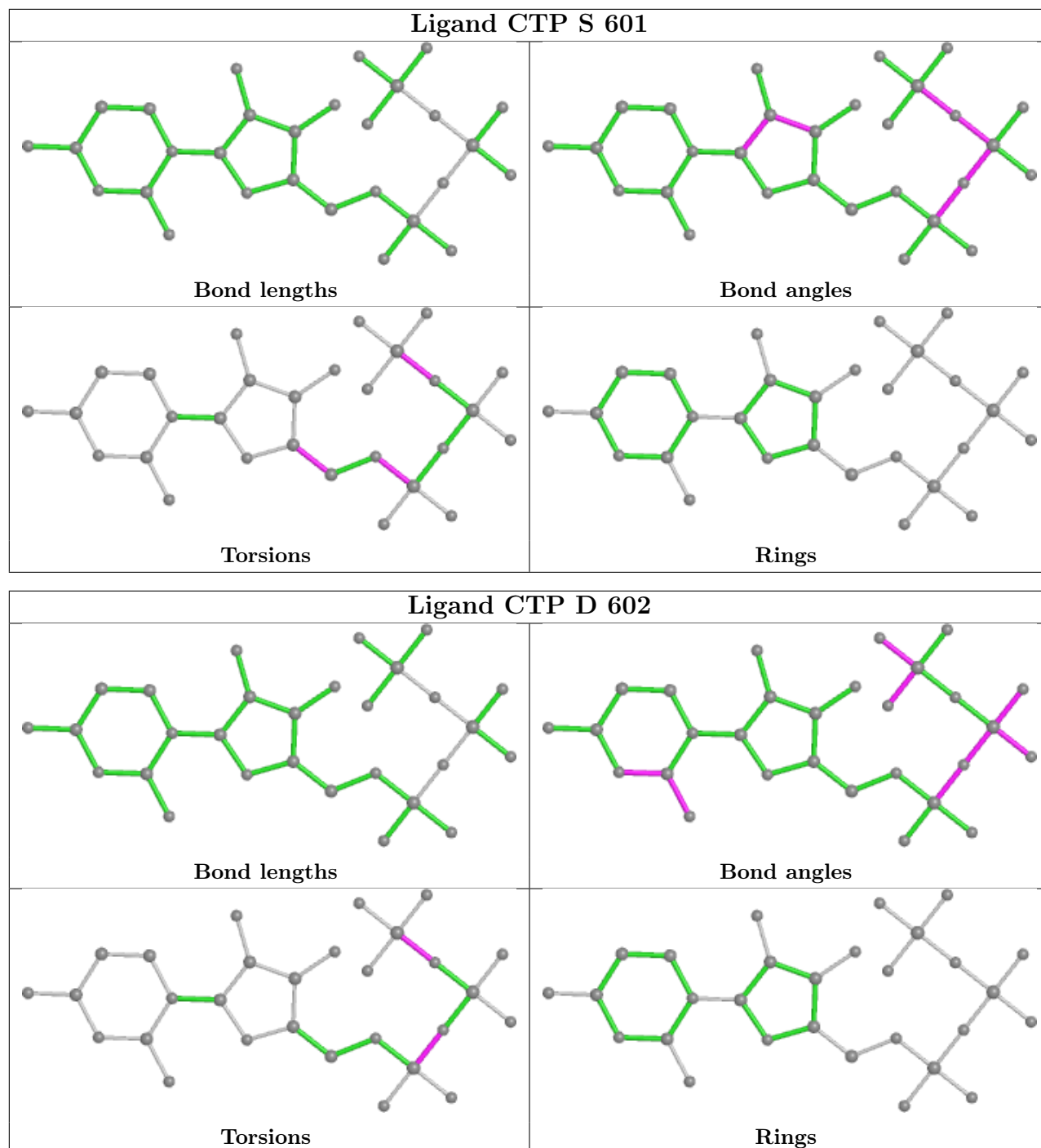
Continued from previous page...

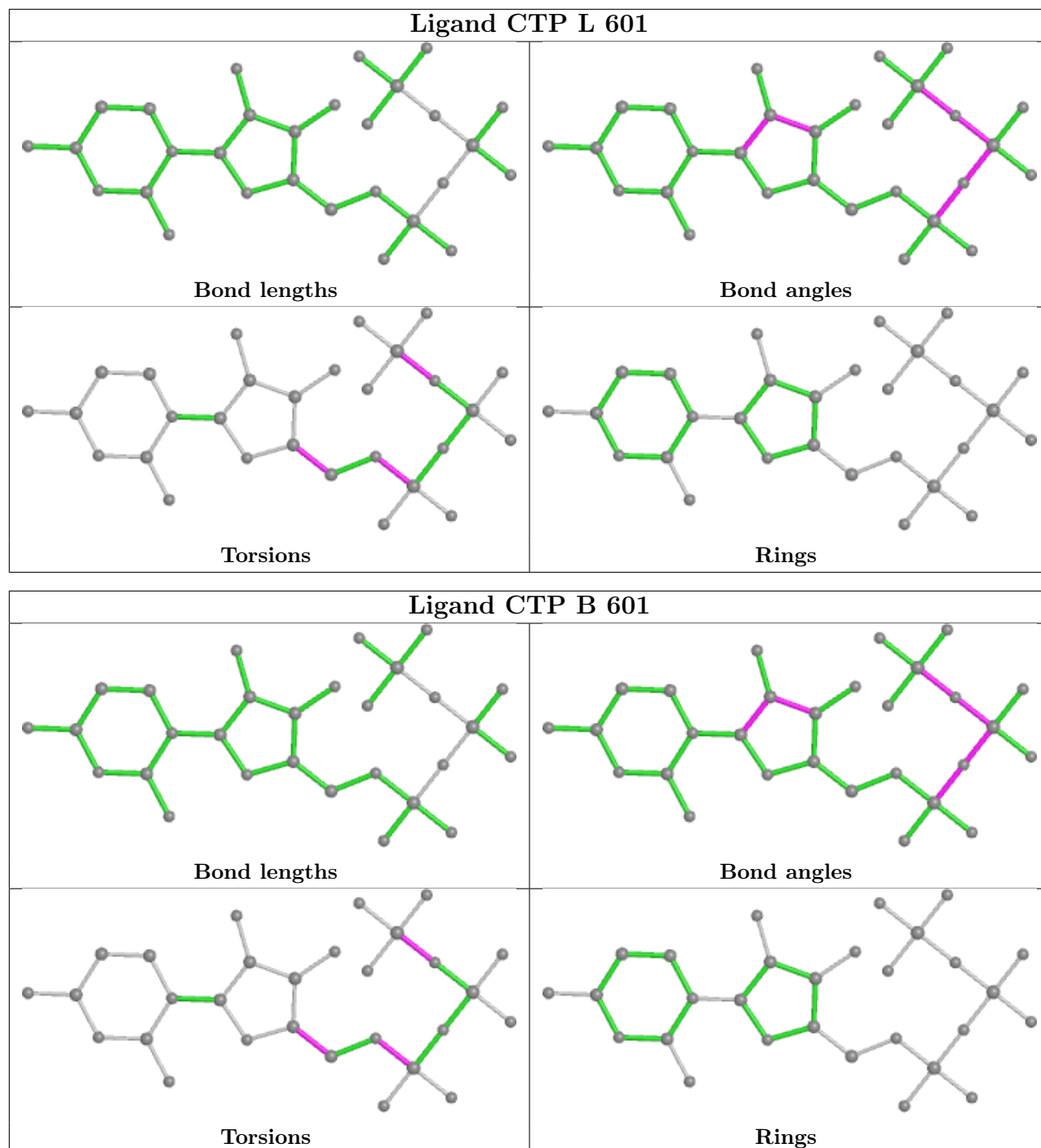
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	L	601	CTP	14	0
2	B	601	CTP	15	0
2	D	601	CTP	15	0
2	M	602	CTP	2	0
2	A	601	CTP	15	0
2	M	601	CTP	15	0
2	B	602	CTP	2	0
2	A	602	CTP	2	0
2	R	602	CTP	2	0
2	P	602	CTP	2	0
2	E	602	CTP	2	0
2	S	602	CTP	2	0
2	O	601	CTP	16	0
2	Q	601	CTP	14	0
2	C	601	CTP	16	0
2	O	602	CTP	2	0
2	P	601	CTP	15	0
2	R	601	CTP	15	0

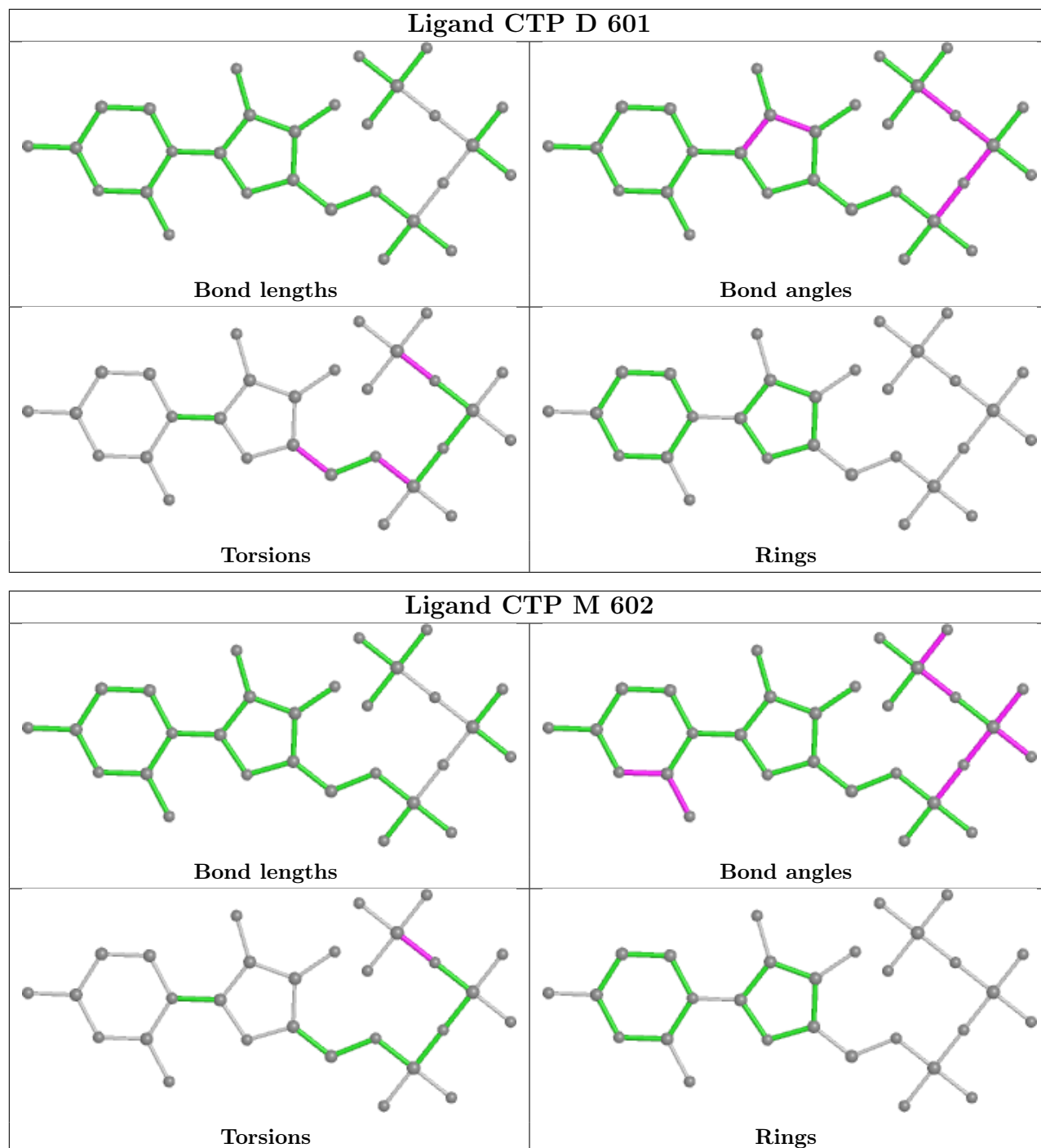
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

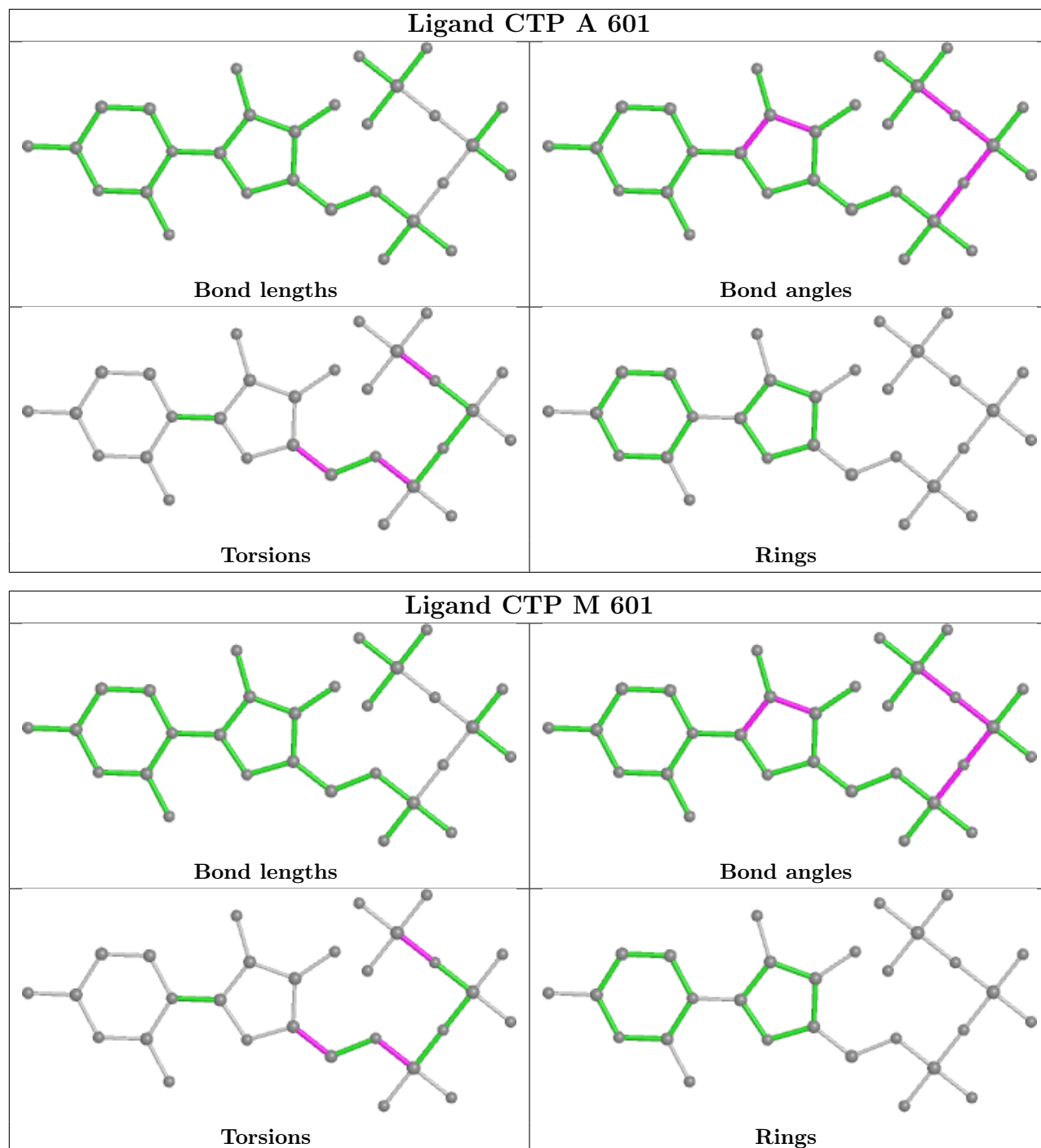


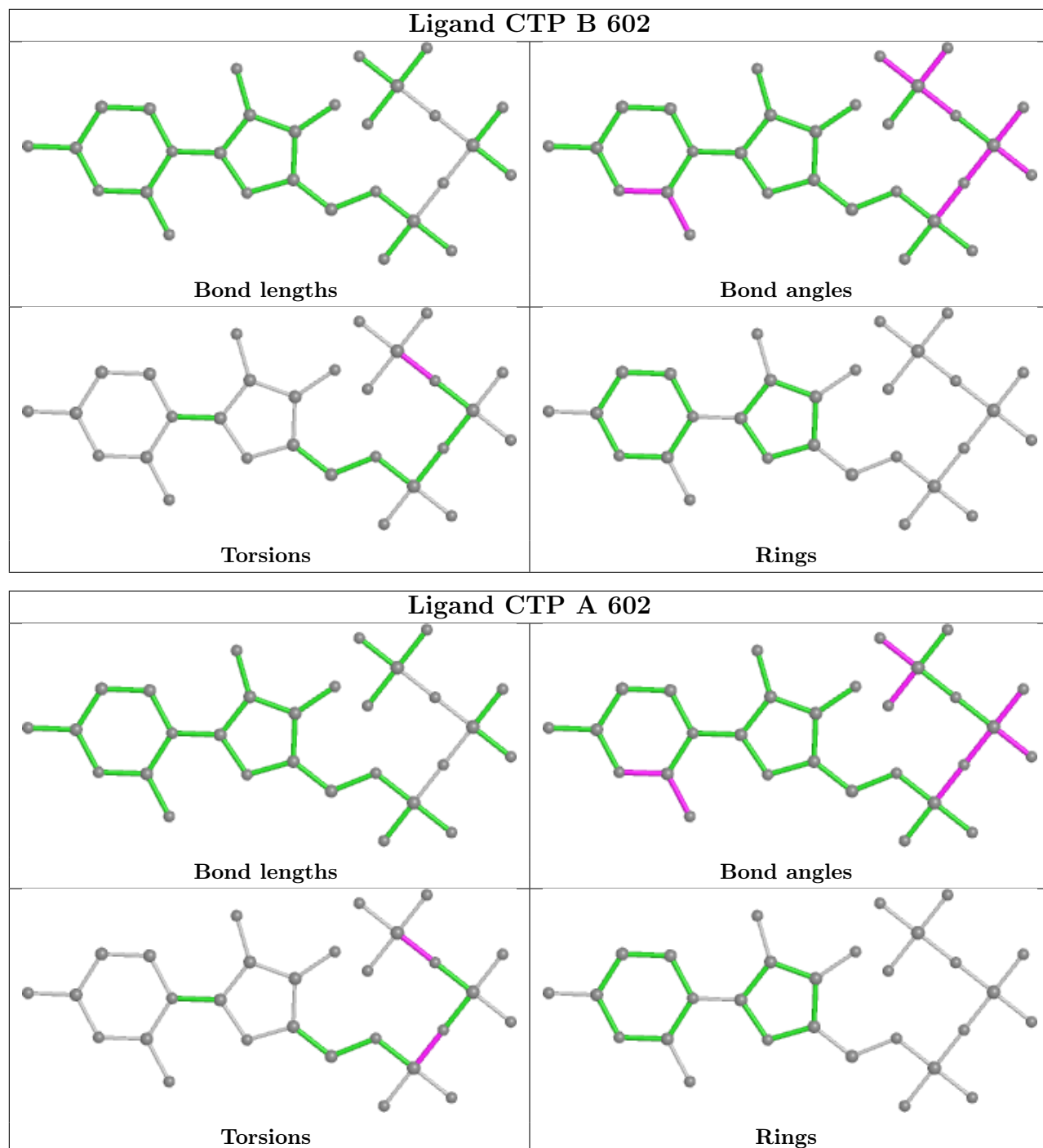


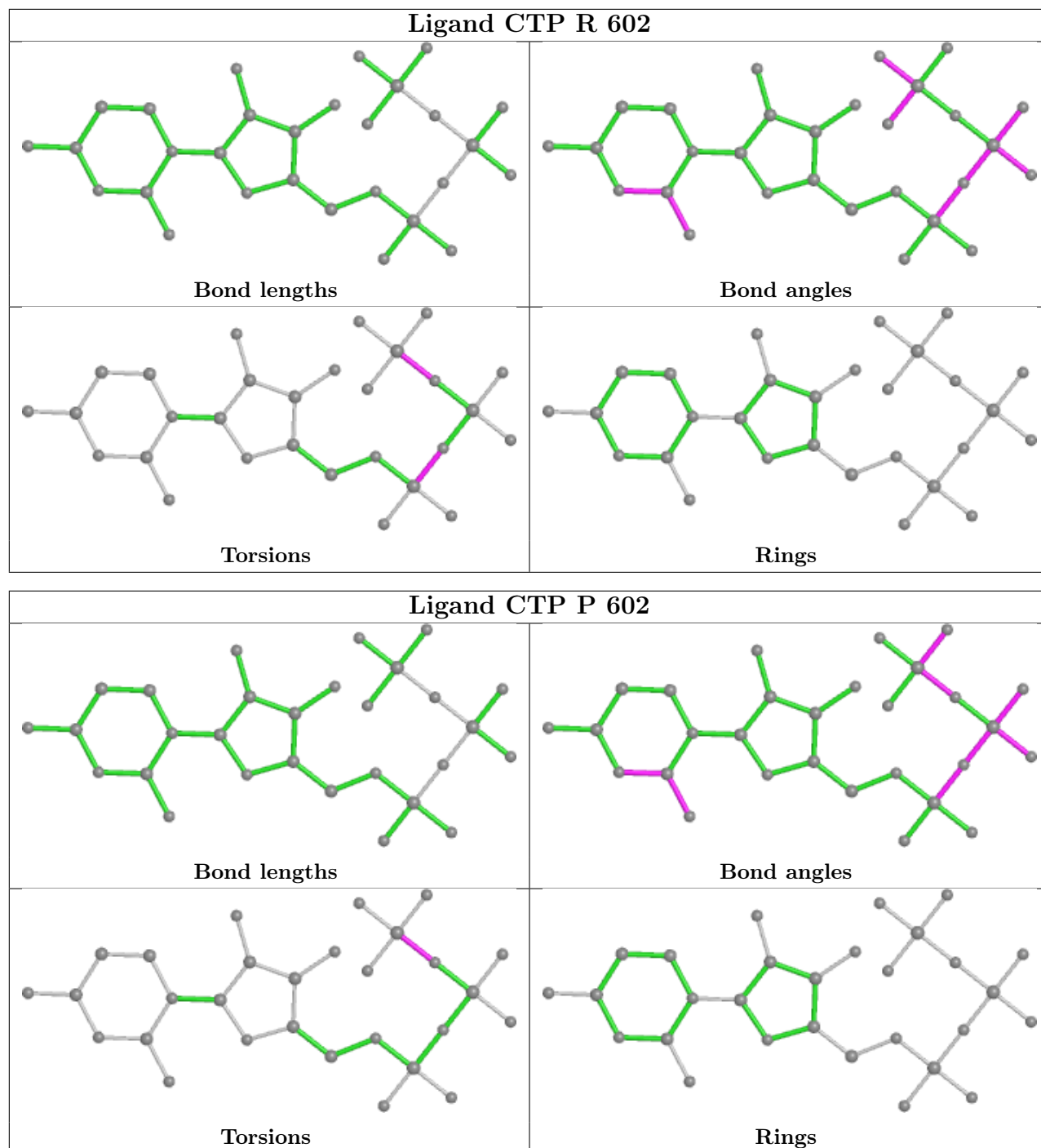


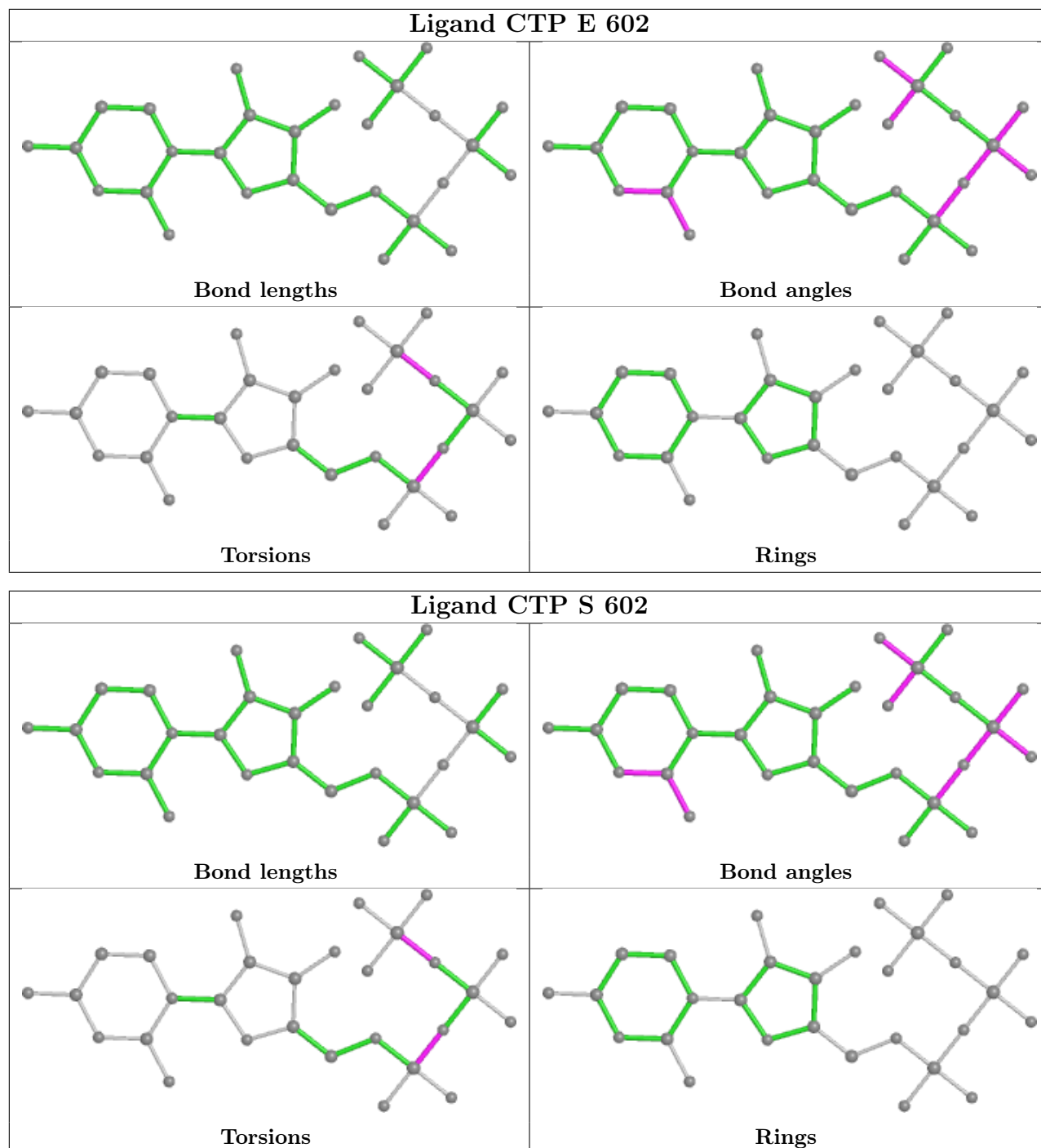


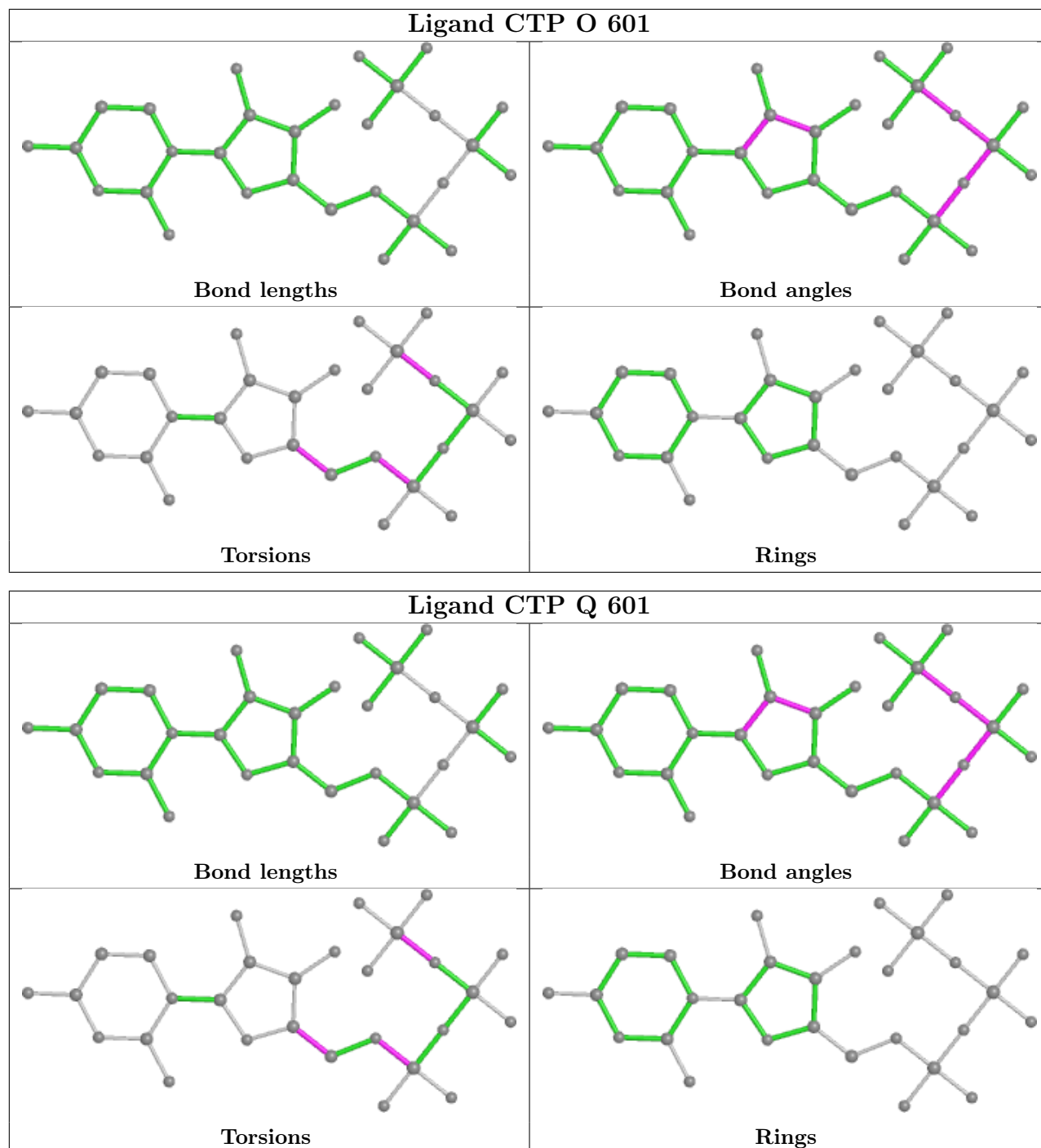


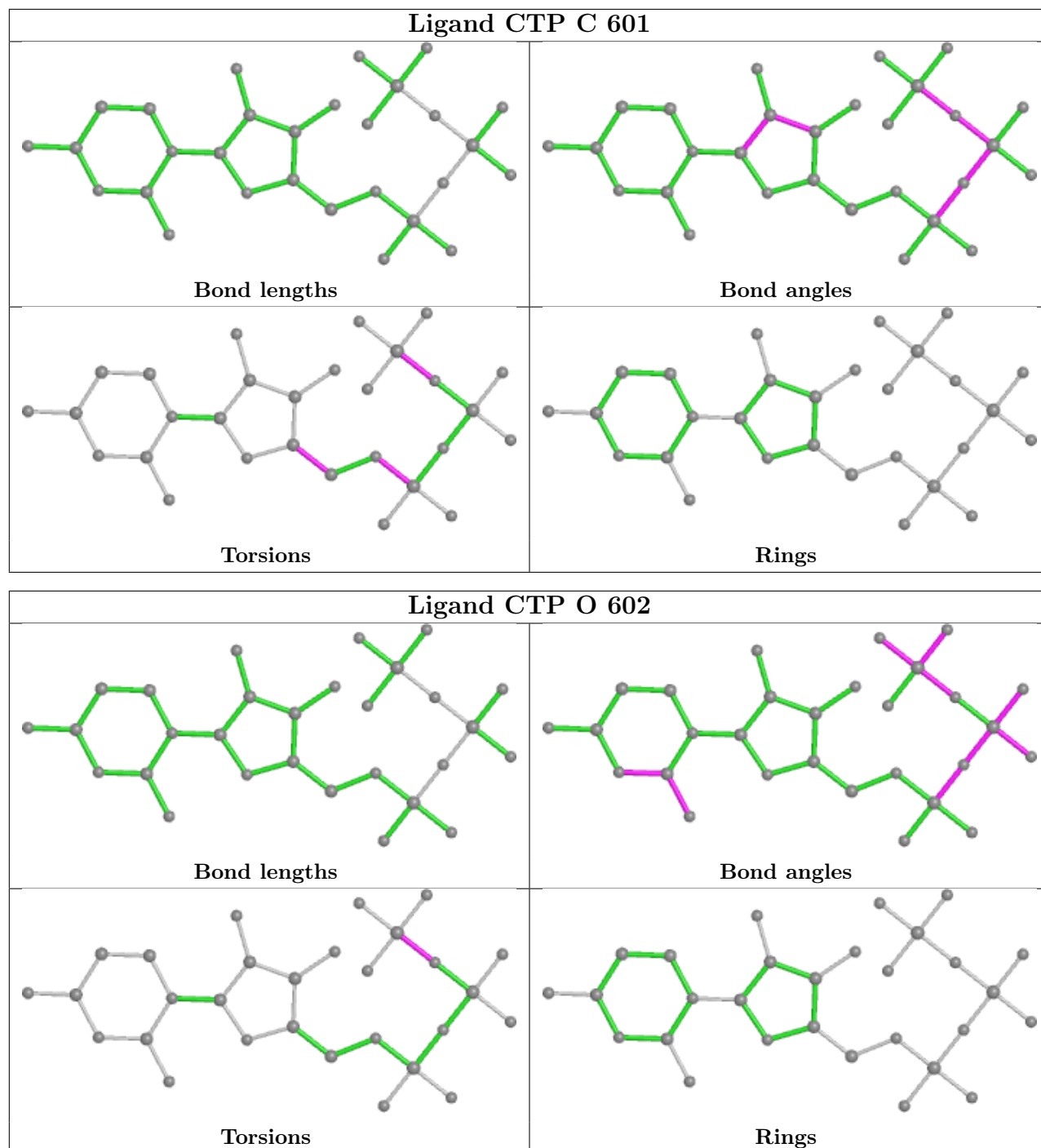


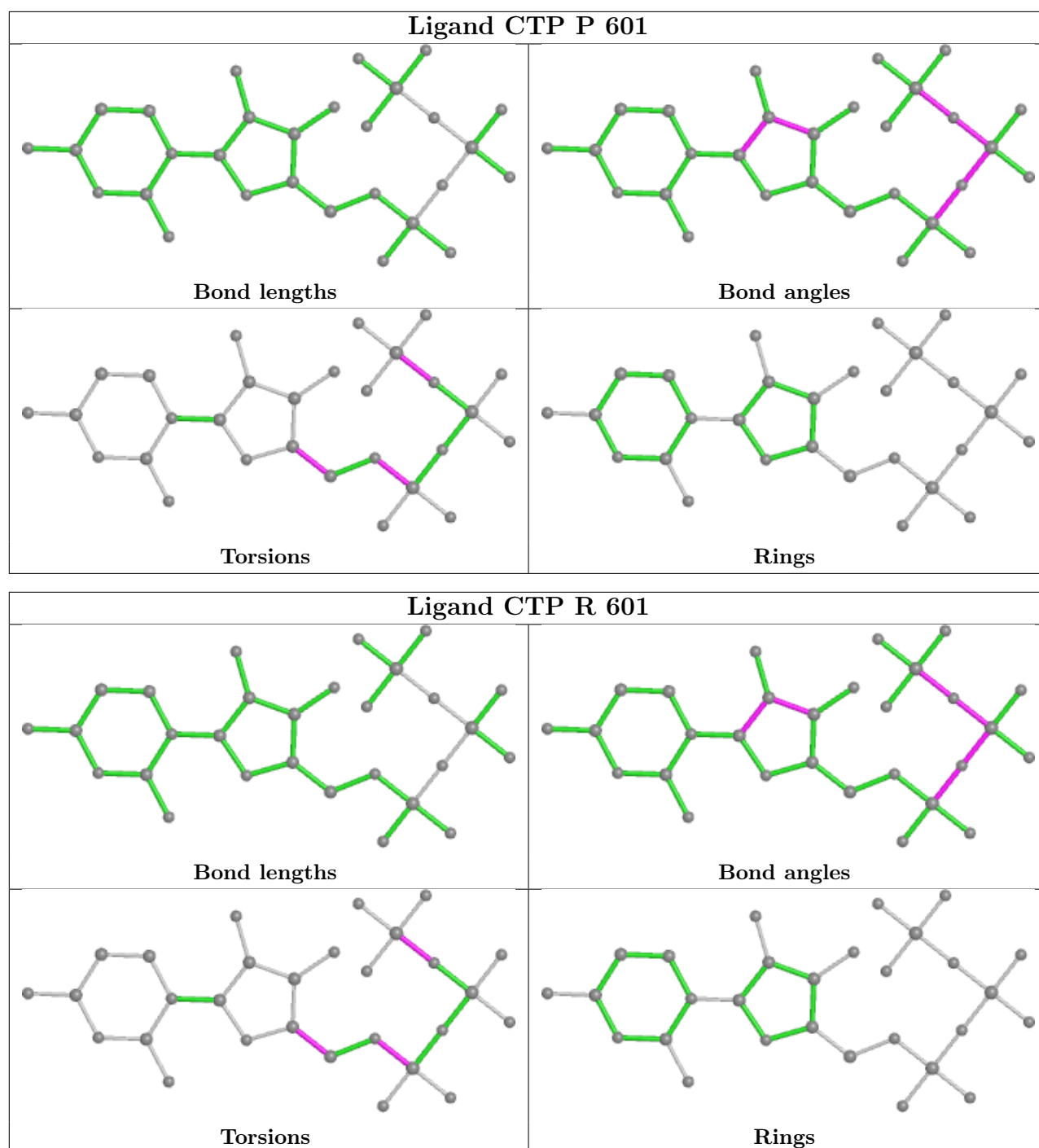












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	1
1	C	1
1	D	1
1	M	1
1	P	1
1	R	1
1	L	1
1	O	1
1	Q	1
1	S	1
1	A	1
1	E	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	443:ILE	C	456:THR	N	7.35
1	C	443:ILE	C	456:THR	N	7.35
1	D	443:ILE	C	456:THR	N	7.35
1	M	443:ILE	C	456:THR	N	7.35
1	P	443:ILE	C	456:THR	N	7.35
1	R	443:ILE	C	456:THR	N	7.35
1	L	443:ILE	C	456:THR	N	7.35
1	O	443:ILE	C	456:THR	N	7.35
1	Q	443:ILE	C	456:THR	N	7.35
1	S	443:ILE	C	456:THR	N	7.35
1	A	443:ILE	C	456:THR	N	7.34
1	E	443:ILE	C	456:THR	N	7.34

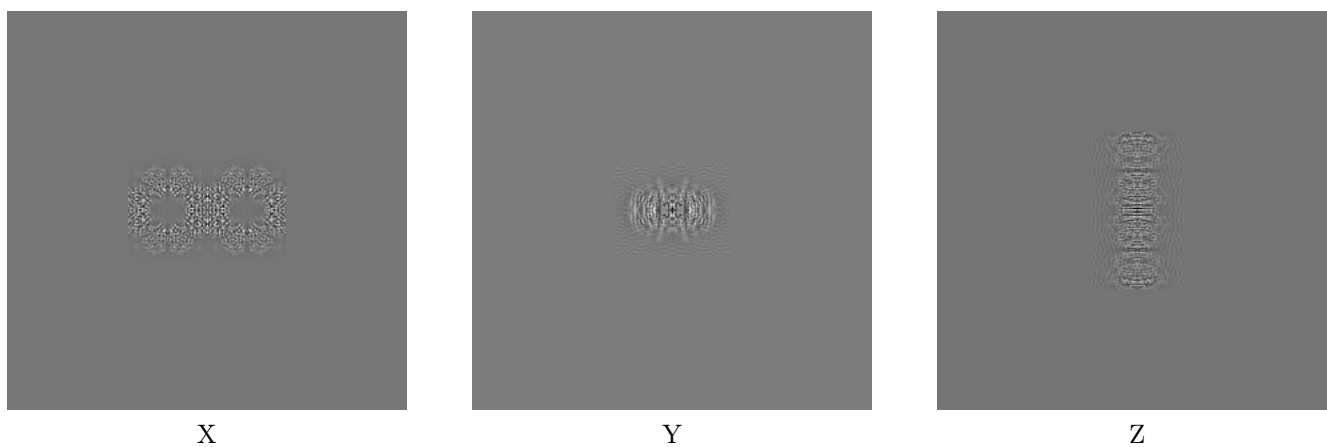
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24516. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

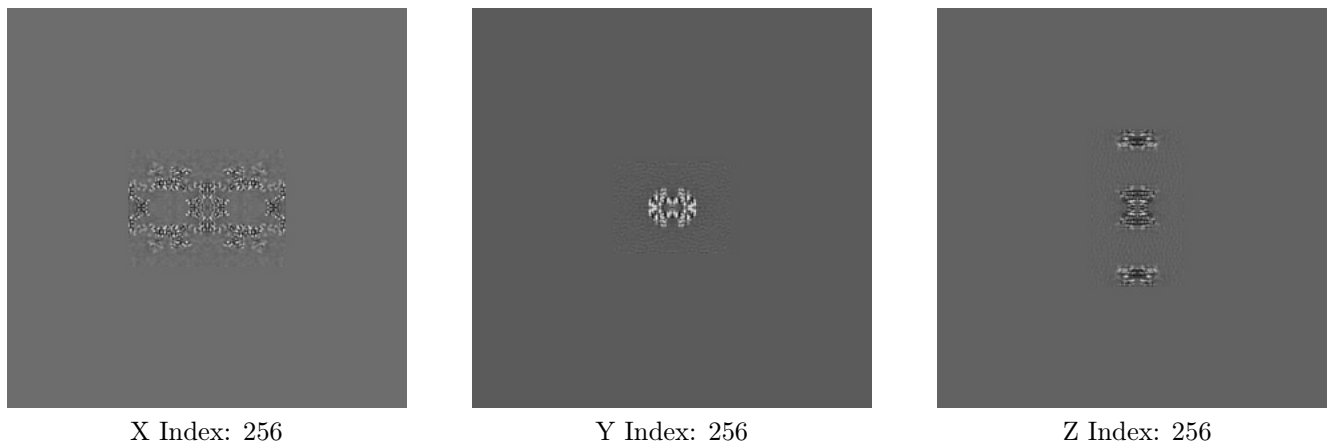
6.1.1 Primary map



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

6.2 Central slices [i](#)

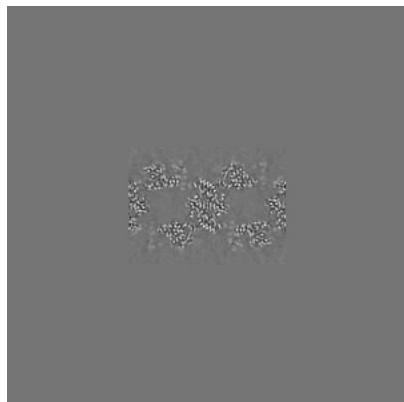
6.2.1 Primary map



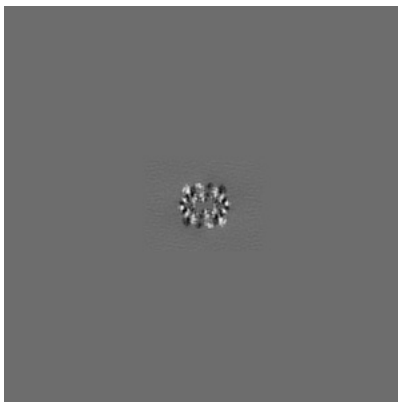
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

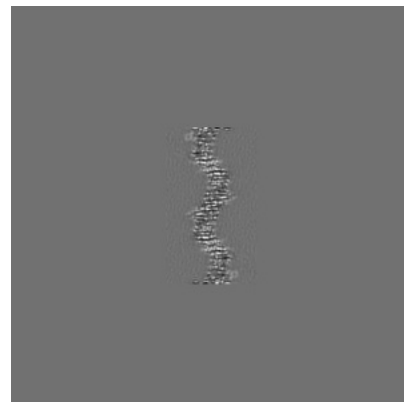
6.3.1 Primary map



X Index: 251



Y Index: 157

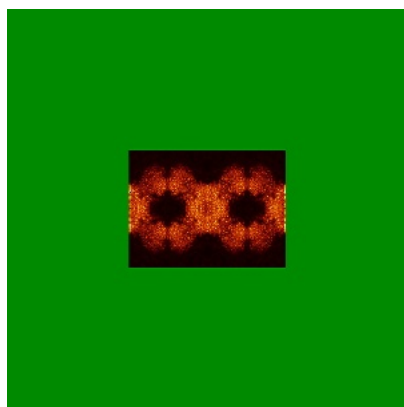


Z Index: 230

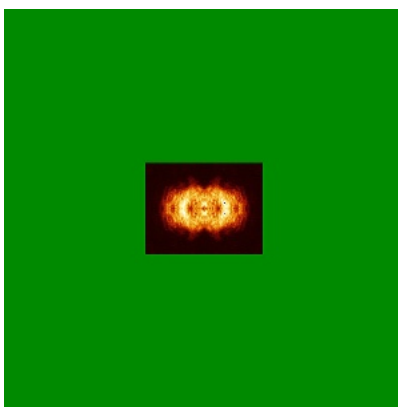
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

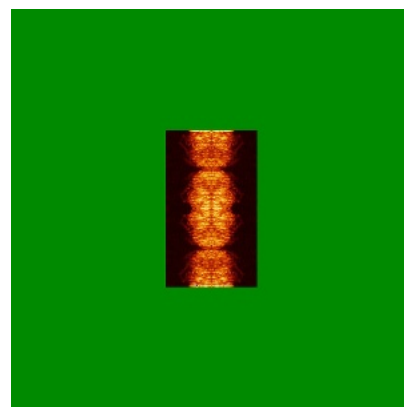
6.4.1 Primary map



X



Y

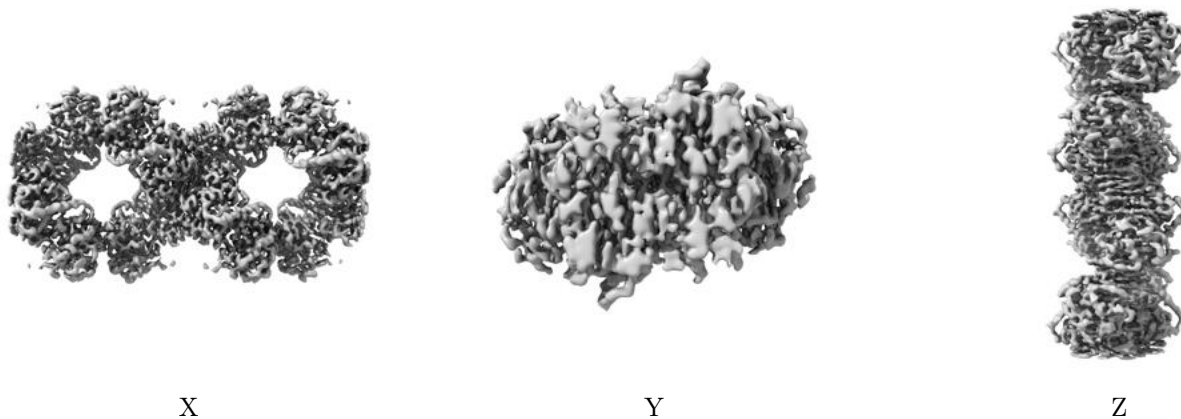


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.13. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

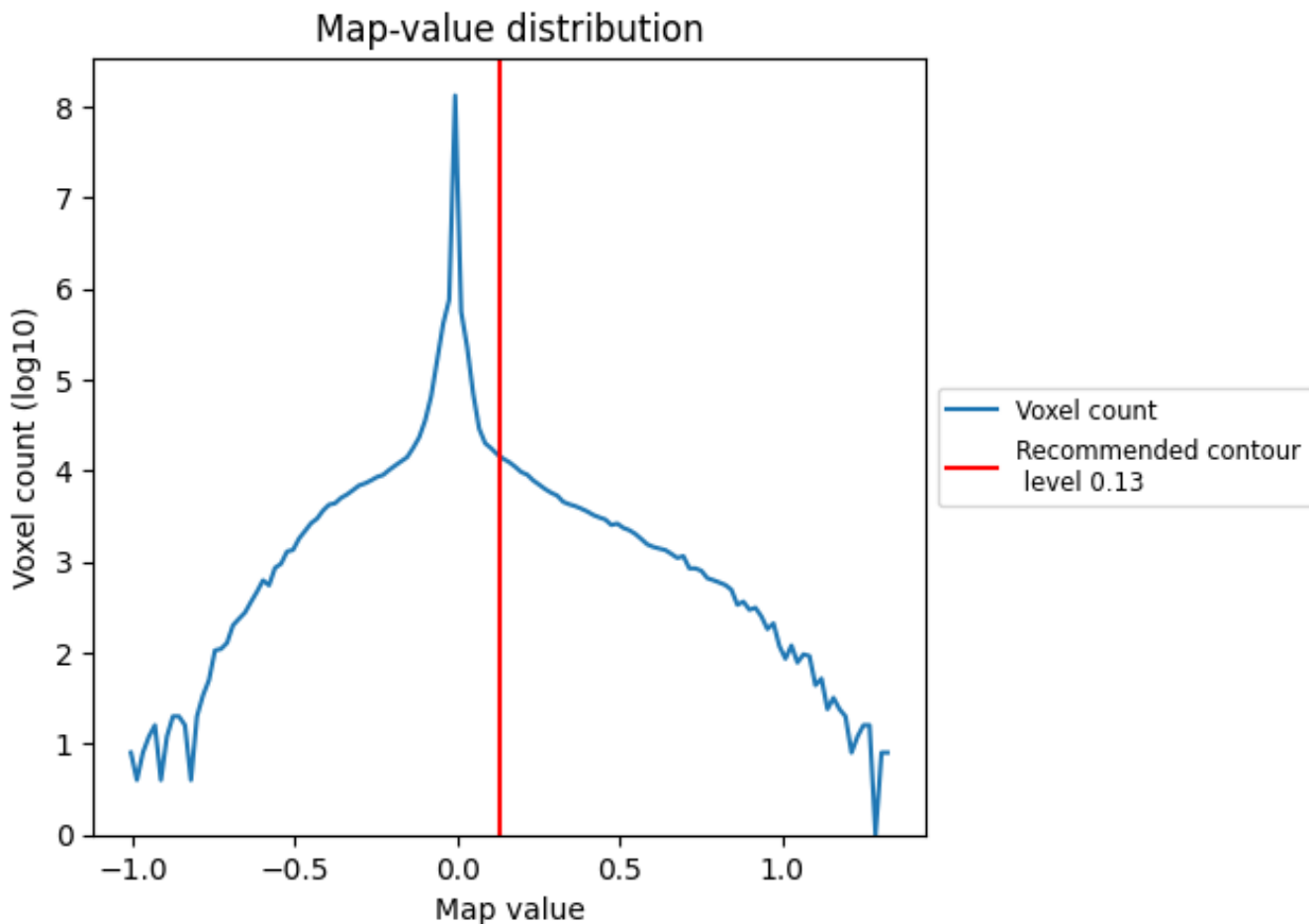
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

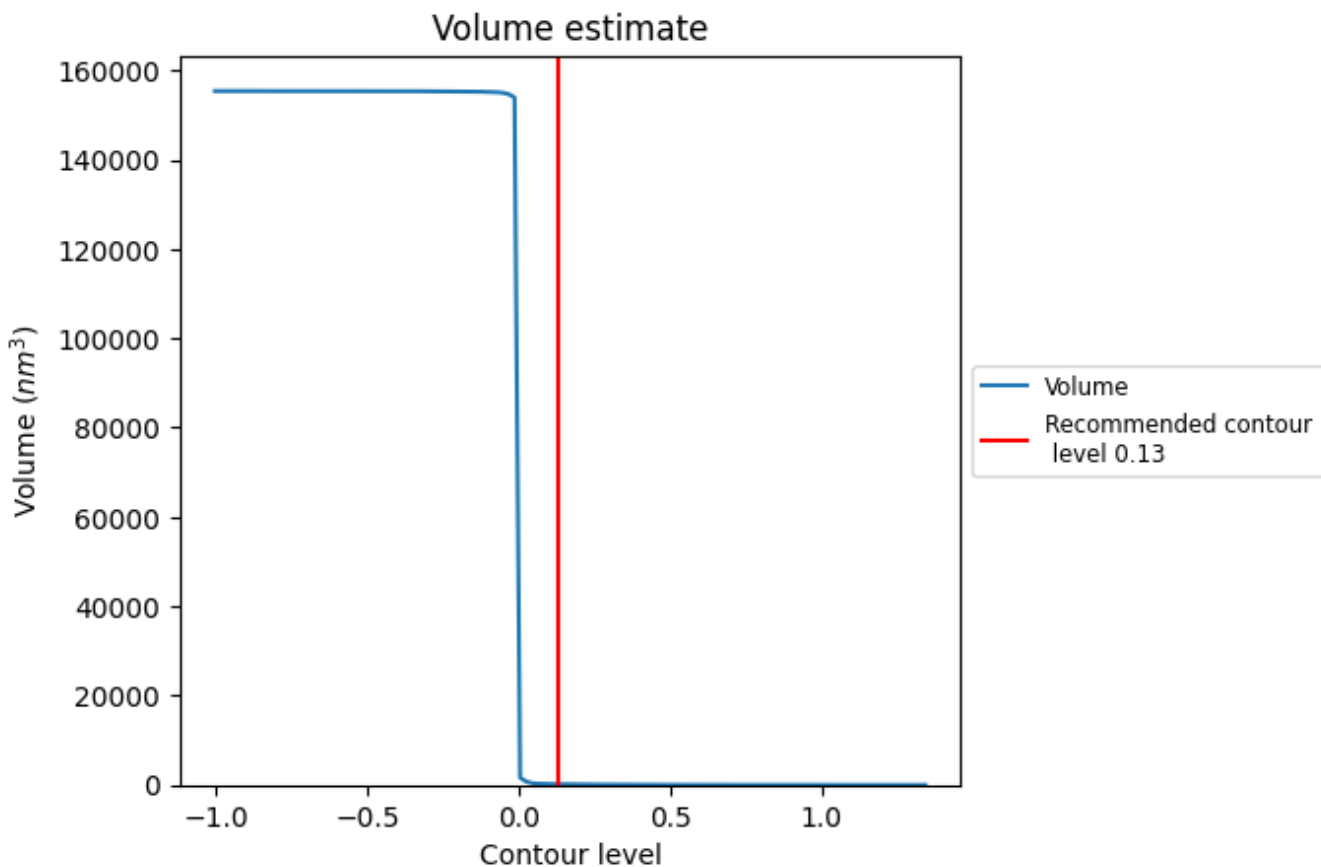
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

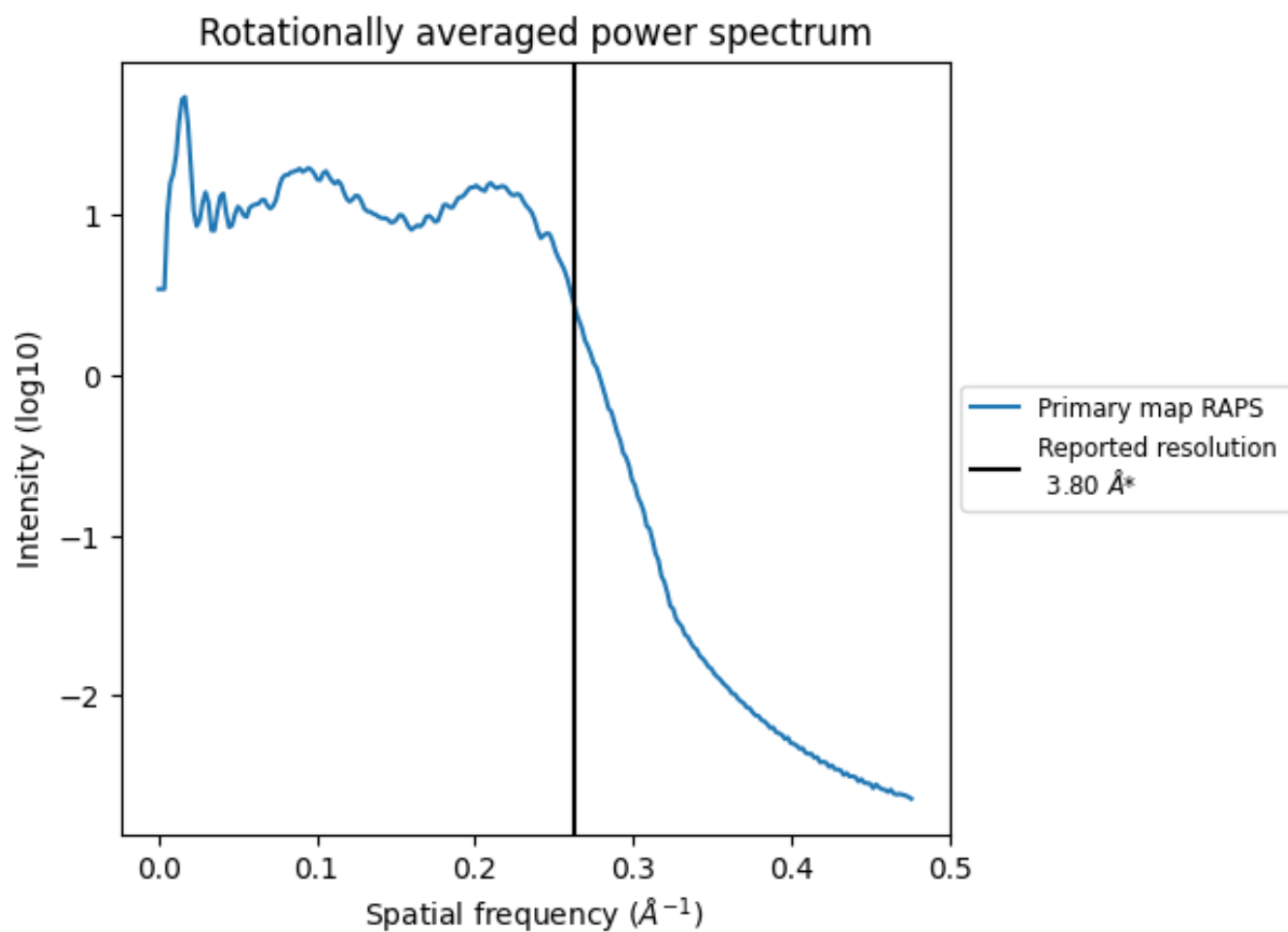
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 181 nm³; this corresponds to an approximate mass of 164 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 0.263\AA^{-1}

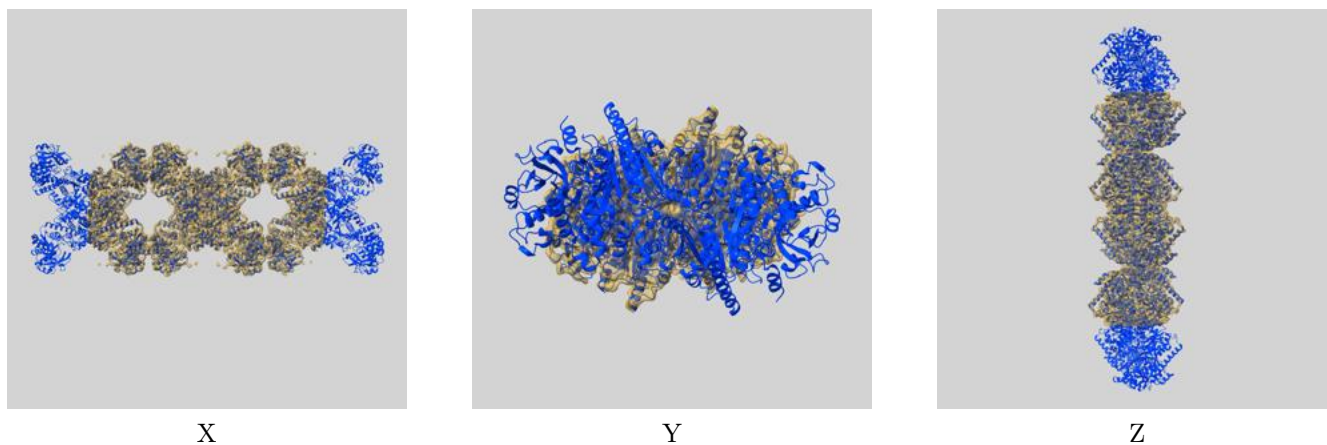
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

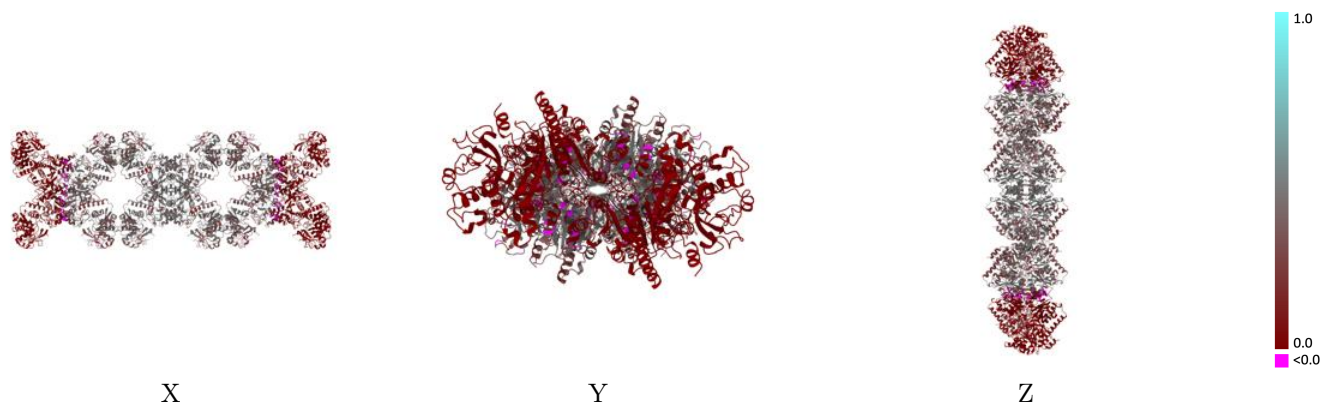
This section contains information regarding the fit between EMDB map EMD-24516 and PDB model 7RL5. Per-residue inclusion information can be found in section 3 on page 10.

9.1 Map-model overlay [i](#)



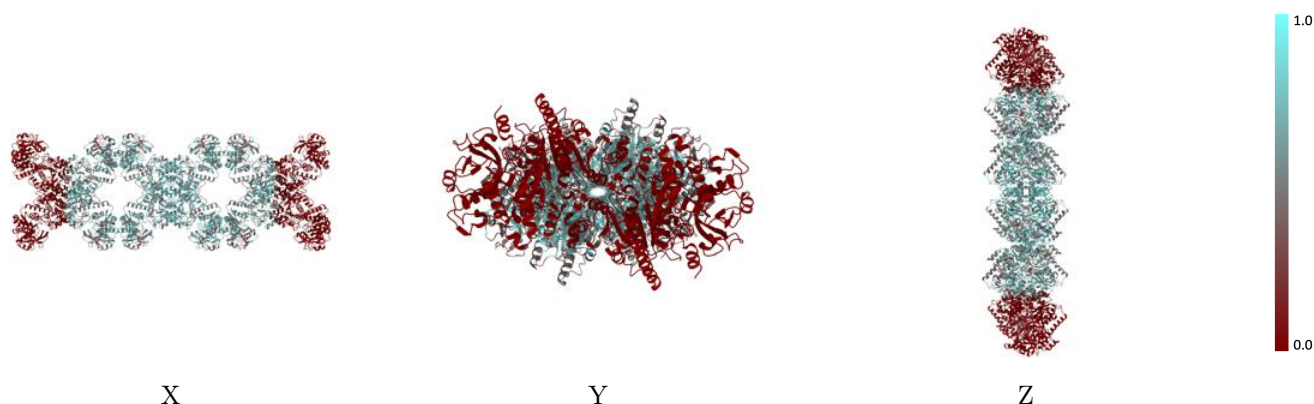
The images above show the 3D surface view of the map at the recommended contour level 0.13 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



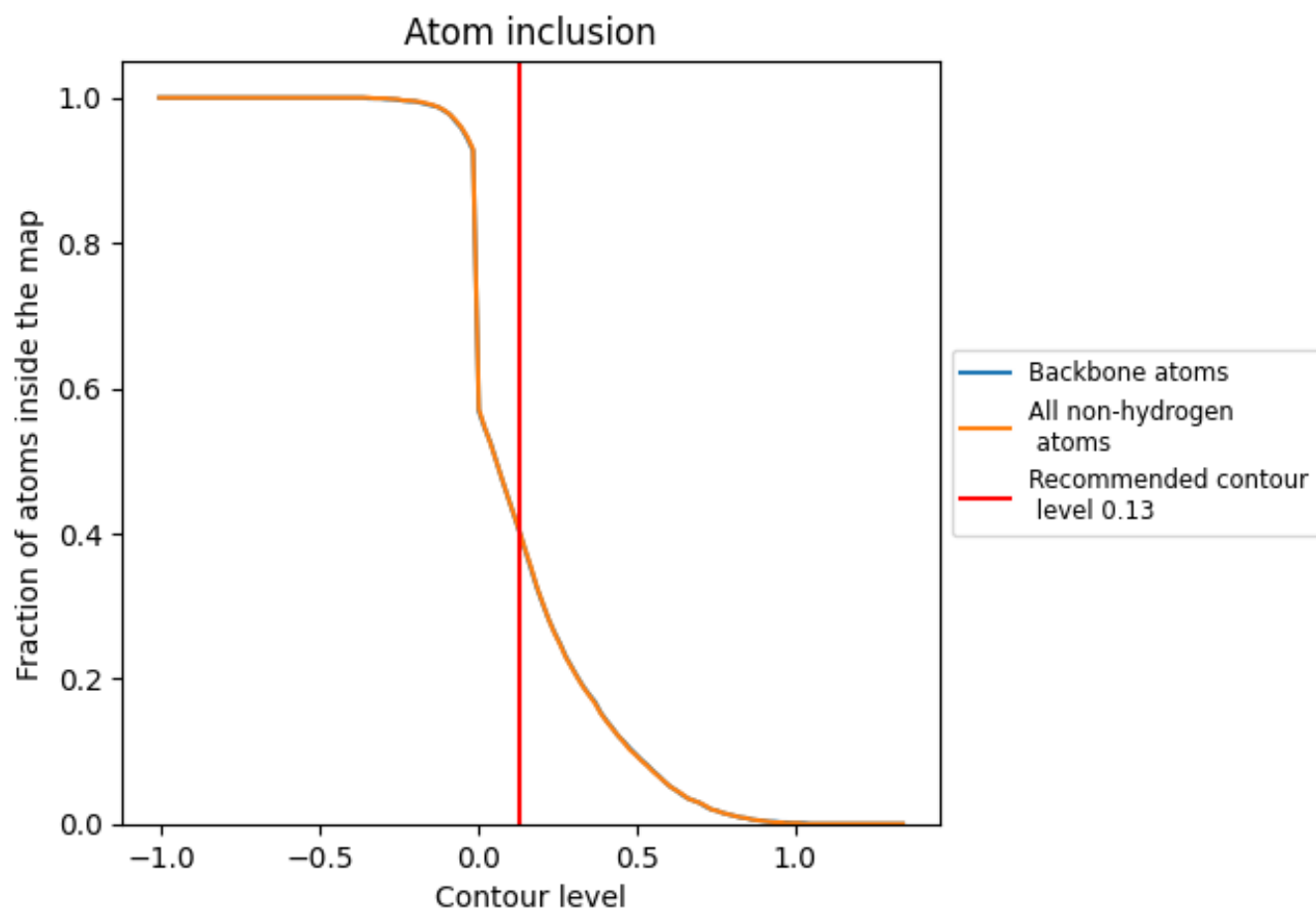
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)



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 (0.13).



























9.4 Atom inclusion [i](#)



At the recommended contour level, 40% of all backbone atoms, 40% 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 (0.13) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.4050	 0.2470
A	 0.0350	 0.0170
B	 0.0350	 0.0170
C	 0.5480	 0.3280
D	 0.5470	 0.3270
E	 0.5470	 0.3270
L	 0.6500	 0.3960
M	 0.5470	 0.3270
O	 0.6480	 0.3970
P	 0.0350	 0.0170
Q	 0.6490	 0.3980
R	 0.0350	 0.0160
S	 0.6490	 0.3970

