



## Full wwPDB EM Validation Report ⓘ

May 25, 2024 – 10:06 PM EDT

PDB ID : 7RMC  
EMDB ID : EMD-24560  
Title : Yeast CTP Synthase (Ura7) 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 : 2021-07-27  
Resolution : 3.50 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](mailto: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>.

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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

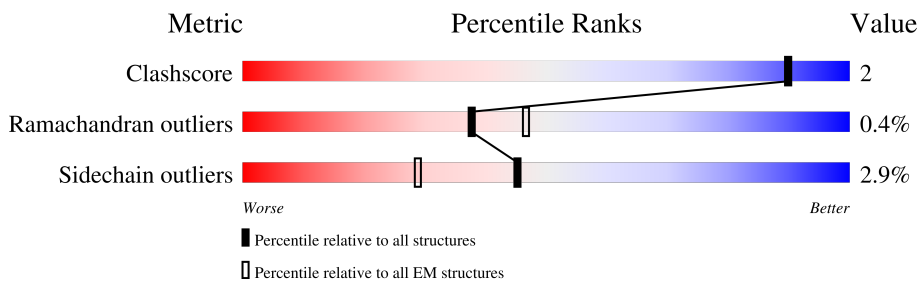
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.50 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.



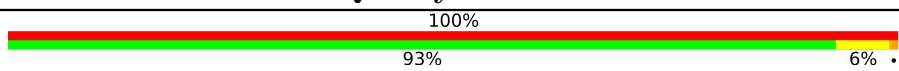
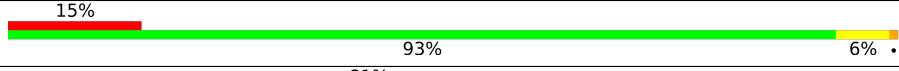
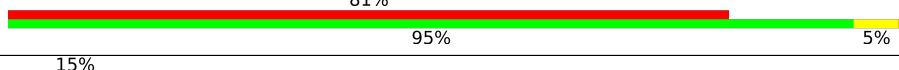
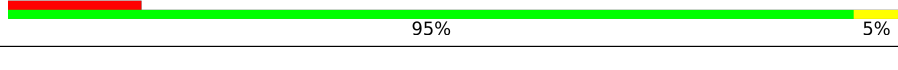
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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  $\geq 3$ , 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	D	561	
1	E	561	
1	F	561	
1	Q	561	
1	R	561	
1	S	561	
1	T	561	
1	U	561	

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Mol	Chain	Length	Quality of chain
1	V	561	
1	W	561	
1	g	561	
1	h	561	

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 106824 atoms, of which 53244 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 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
1	V	561	8844	2804	4437	746	833	24	0	0
1	D	561	8844	2804	4437	746	833	24	0	0
1	E	561	8844	2804	4437	746	833	24	0	0
1	F	561	8844	2804	4437	746	833	24	0	0
1	g	561	8844	2804	4437	746	833	24	0	0
1	Q	561	8844	2804	4437	746	833	24	0	0
1	S	561	8844	2804	4437	746	833	24	0	0
1	U	561	8844	2804	4437	746	833	24	0	0
1	h	561	8844	2804	4437	746	833	24	0	0
1	R	561	8844	2804	4437	746	833	24	0	0
1	T	561	8844	2804	4437	746	833	24	0	0
1	W	561	8844	2804	4437	746	833	24	0	0

There are 132 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
V	?	-	PRO	deletion	UNP P28274
V	?	-	GLU	deletion	UNP P28274
V	?	-	ILE	deletion	UNP P28274
V	?	-	ASP	deletion	UNP P28274
V	?	-	LYS	deletion	UNP P28274
V	?	-	GLU	deletion	UNP P28274

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Chain	Residue	Modelled	Actual	Comment	Reference
V	?	-	THR	deletion	UNP P28274
V	?	-	MET	deletion	UNP P28274
V	?	-	GLY	deletion	UNP P28274
V	?	-	GLY	deletion	UNP P28274
V	?	-	SER	deletion	UNP P28274
D	?	-	PRO	deletion	UNP P28274
D	?	-	GLU	deletion	UNP P28274
D	?	-	ILE	deletion	UNP P28274
D	?	-	ASP	deletion	UNP P28274
D	?	-	LYS	deletion	UNP P28274
D	?	-	GLU	deletion	UNP P28274
D	?	-	THR	deletion	UNP P28274
D	?	-	MET	deletion	UNP P28274
D	?	-	GLY	deletion	UNP P28274
D	?	-	GLY	deletion	UNP P28274
D	?	-	SER	deletion	UNP P28274
E	?	-	PRO	deletion	UNP P28274
E	?	-	GLU	deletion	UNP P28274
E	?	-	ILE	deletion	UNP P28274
E	?	-	ASP	deletion	UNP P28274
E	?	-	LYS	deletion	UNP P28274
E	?	-	GLU	deletion	UNP P28274
E	?	-	THR	deletion	UNP P28274
E	?	-	MET	deletion	UNP P28274
E	?	-	GLY	deletion	UNP P28274
E	?	-	GLY	deletion	UNP P28274
E	?	-	SER	deletion	UNP P28274
F	?	-	PRO	deletion	UNP P28274
F	?	-	GLU	deletion	UNP P28274
F	?	-	ILE	deletion	UNP P28274
F	?	-	ASP	deletion	UNP P28274
F	?	-	LYS	deletion	UNP P28274
F	?	-	GLU	deletion	UNP P28274
F	?	-	THR	deletion	UNP P28274
F	?	-	MET	deletion	UNP P28274
F	?	-	GLY	deletion	UNP P28274
F	?	-	GLY	deletion	UNP P28274
F	?	-	SER	deletion	UNP P28274
g	?	-	PRO	deletion	UNP P28274
g	?	-	GLU	deletion	UNP P28274
g	?	-	ILE	deletion	UNP P28274
g	?	-	ASP	deletion	UNP P28274

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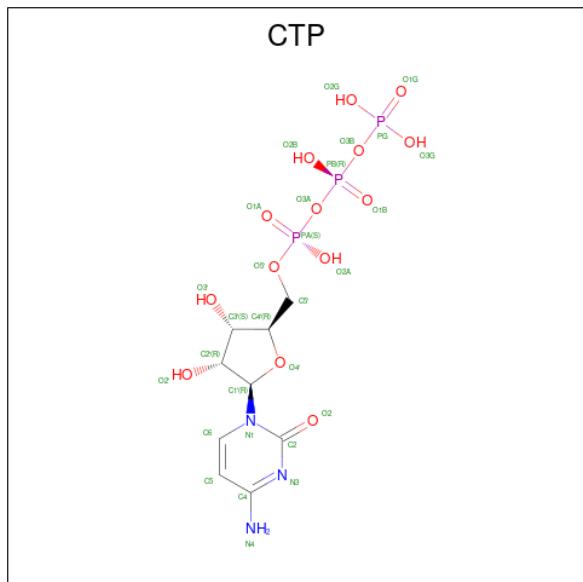
Chain	Residue	Modelled	Actual	Comment	Reference
g	?	-	LYS	deletion	UNP P28274
g	?	-	GLU	deletion	UNP P28274
g	?	-	THR	deletion	UNP P28274
g	?	-	MET	deletion	UNP P28274
g	?	-	GLY	deletion	UNP P28274
g	?	-	GLY	deletion	UNP P28274
g	?	-	SER	deletion	UNP P28274
Q	?	-	PRO	deletion	UNP P28274
Q	?	-	GLU	deletion	UNP P28274
Q	?	-	ILE	deletion	UNP P28274
Q	?	-	ASP	deletion	UNP P28274
Q	?	-	LYS	deletion	UNP P28274
Q	?	-	GLU	deletion	UNP P28274
Q	?	-	THR	deletion	UNP P28274
Q	?	-	MET	deletion	UNP P28274
Q	?	-	GLY	deletion	UNP P28274
Q	?	-	GLY	deletion	UNP P28274
Q	?	-	SER	deletion	UNP P28274
S	?	-	PRO	deletion	UNP P28274
S	?	-	GLU	deletion	UNP P28274
S	?	-	ILE	deletion	UNP P28274
S	?	-	ASP	deletion	UNP P28274
S	?	-	LYS	deletion	UNP P28274
S	?	-	GLU	deletion	UNP P28274
S	?	-	THR	deletion	UNP P28274
S	?	-	MET	deletion	UNP P28274
S	?	-	GLY	deletion	UNP P28274
S	?	-	GLY	deletion	UNP P28274
S	?	-	SER	deletion	UNP P28274
U	?	-	PRO	deletion	UNP P28274
U	?	-	GLU	deletion	UNP P28274
U	?	-	ILE	deletion	UNP P28274
U	?	-	ASP	deletion	UNP P28274
U	?	-	LYS	deletion	UNP P28274
U	?	-	GLU	deletion	UNP P28274
U	?	-	THR	deletion	UNP P28274
U	?	-	MET	deletion	UNP P28274
U	?	-	GLY	deletion	UNP P28274
U	?	-	GLY	deletion	UNP P28274
U	?	-	SER	deletion	UNP P28274
h	?	-	PRO	deletion	UNP P28274
h	?	-	GLU	deletion	UNP P28274

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Chain	Residue	Modelled	Actual	Comment	Reference
h	?	-	ILE	deletion	UNP P28274
h	?	-	ASP	deletion	UNP P28274
h	?	-	LYS	deletion	UNP P28274
h	?	-	GLU	deletion	UNP P28274
h	?	-	THR	deletion	UNP P28274
h	?	-	MET	deletion	UNP P28274
h	?	-	GLY	deletion	UNP P28274
h	?	-	GLY	deletion	UNP P28274
h	?	-	SER	deletion	UNP P28274
R	?	-	PRO	deletion	UNP P28274
R	?	-	GLU	deletion	UNP P28274
R	?	-	ILE	deletion	UNP P28274
R	?	-	ASP	deletion	UNP P28274
R	?	-	LYS	deletion	UNP P28274
R	?	-	GLU	deletion	UNP P28274
R	?	-	THR	deletion	UNP P28274
R	?	-	MET	deletion	UNP P28274
R	?	-	GLY	deletion	UNP P28274
R	?	-	GLY	deletion	UNP P28274
R	?	-	SER	deletion	UNP P28274
T	?	-	PRO	deletion	UNP P28274
T	?	-	GLU	deletion	UNP P28274
T	?	-	ILE	deletion	UNP P28274
T	?	-	ASP	deletion	UNP P28274
T	?	-	LYS	deletion	UNP P28274
T	?	-	GLU	deletion	UNP P28274
T	?	-	THR	deletion	UNP P28274
T	?	-	MET	deletion	UNP P28274
T	?	-	GLY	deletion	UNP P28274
T	?	-	GLY	deletion	UNP P28274
T	?	-	SER	deletion	UNP P28274
W	?	-	PRO	deletion	UNP P28274
W	?	-	GLU	deletion	UNP P28274
W	?	-	ILE	deletion	UNP P28274
W	?	-	ASP	deletion	UNP P28274
W	?	-	LYS	deletion	UNP P28274
W	?	-	GLU	deletion	UNP P28274
W	?	-	THR	deletion	UNP P28274
W	?	-	MET	deletion	UNP P28274
W	?	-	GLY	deletion	UNP P28274
W	?	-	GLY	deletion	UNP P28274
W	?	-	SER	deletion	UNP P28274

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



Mol	Chain	Residues	Atoms					AltConf
2	V	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	V	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	D	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	D	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	E	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	E	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	F	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	F	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	g	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	g	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	Q	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	Q	1	Total	C	N	O	P	0
			29	9	3	14	3	

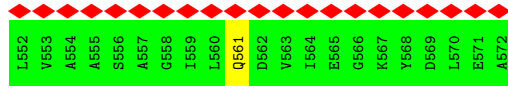
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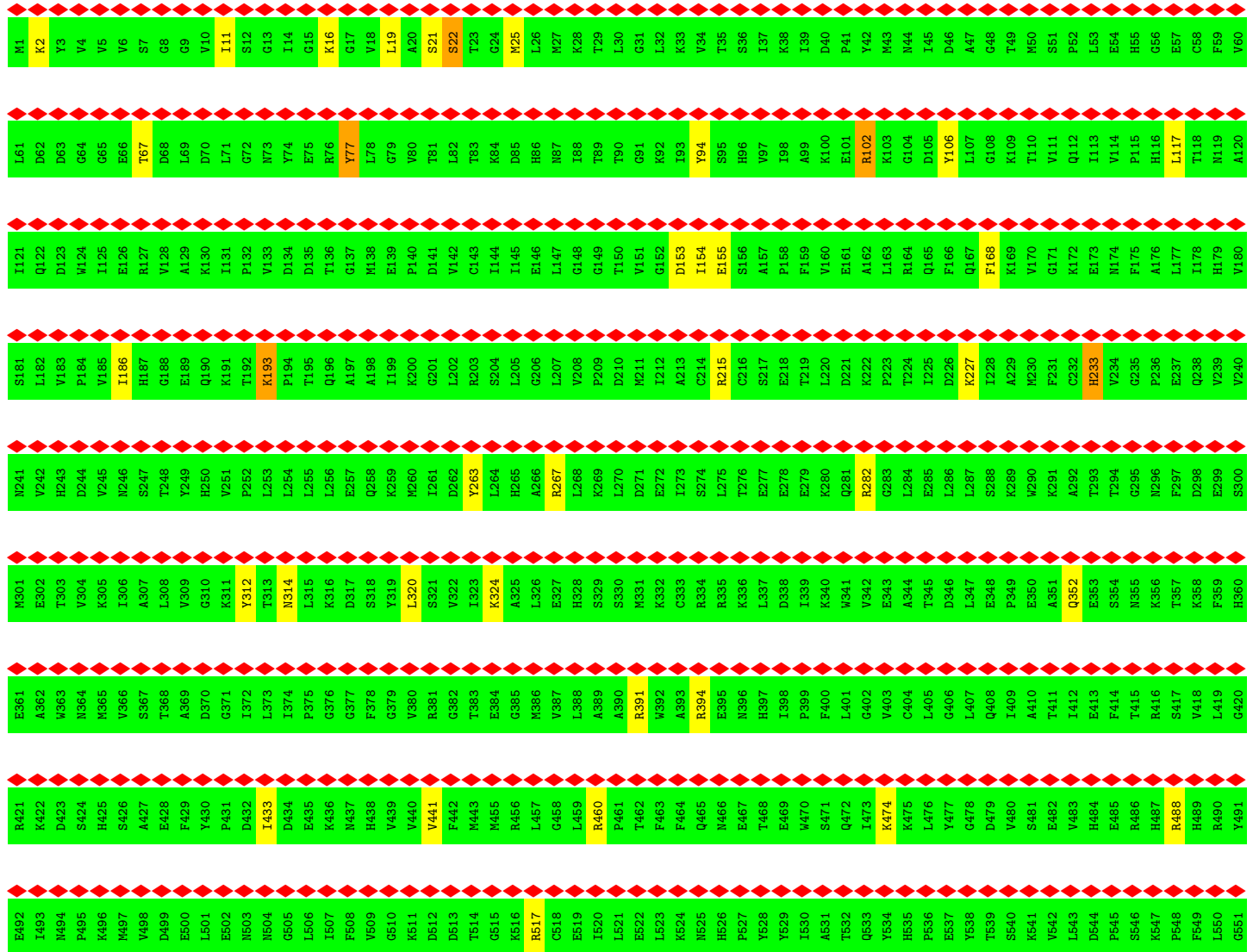
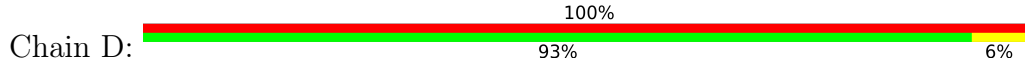
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Mol	Chain	Residues	Atoms					AltConf
2	S	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	S	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	U	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	U	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	h	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	h	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	R	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	R	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	T	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	T	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	W	1	Total	C	N	O	P	0
			29	9	3	14	3	
2	W	1	Total	C	N	O	P	0
			29	9	3	14	3	

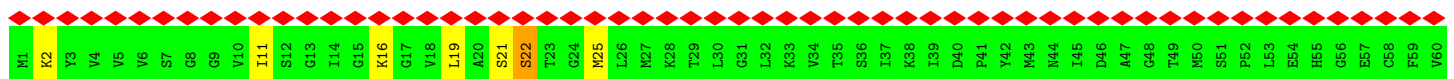
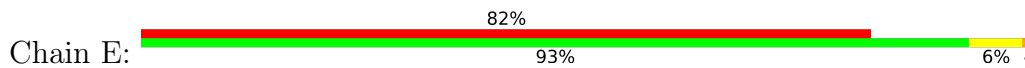


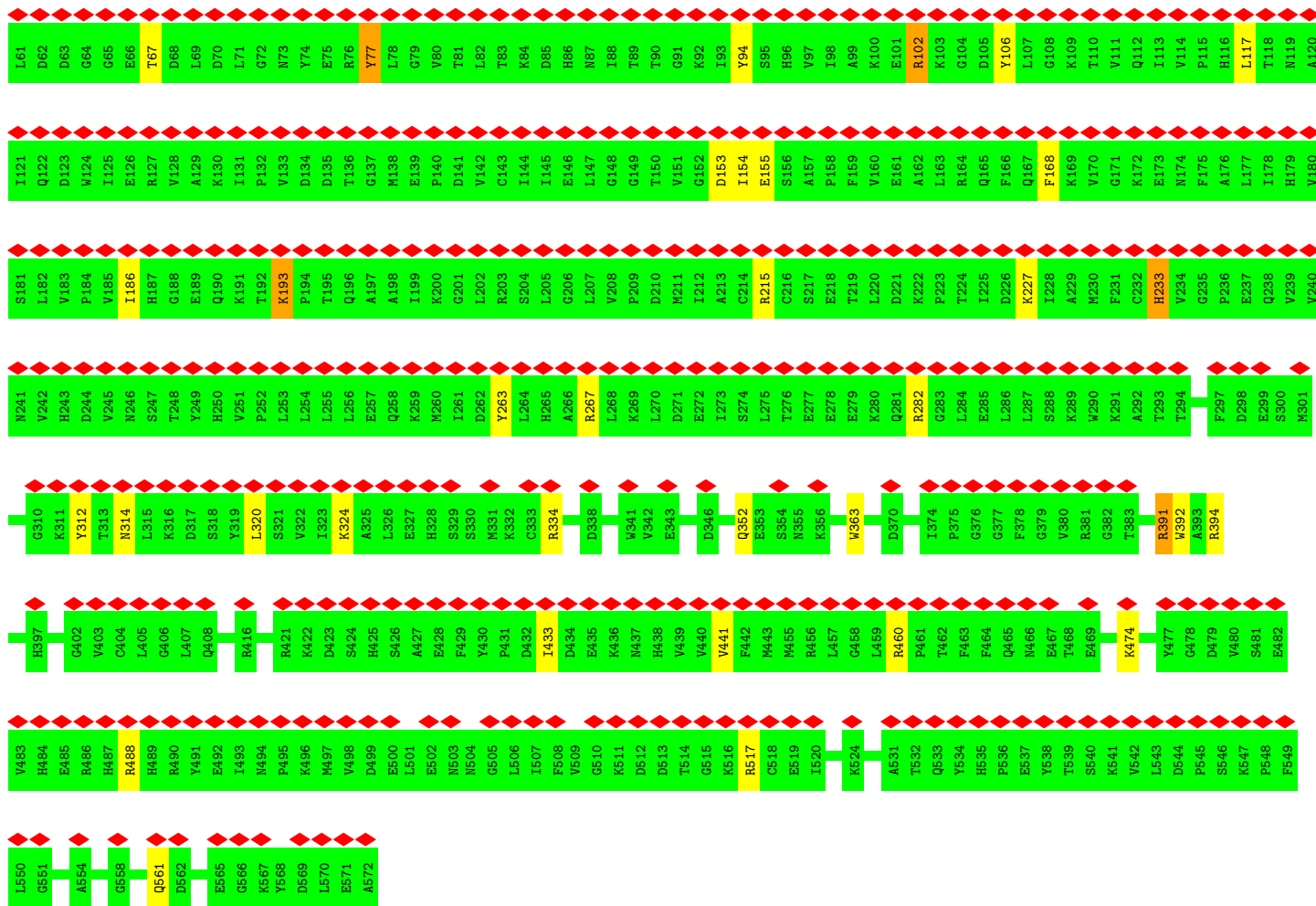


• Molecule 1: CTP synthase 1

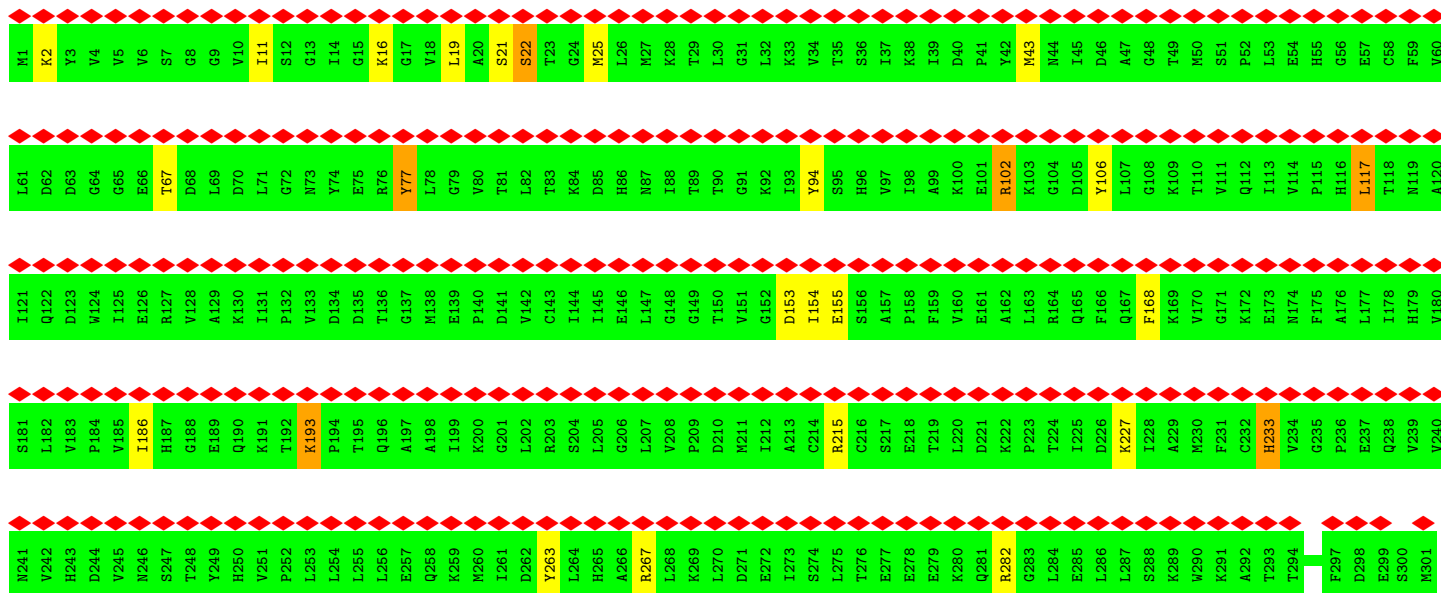
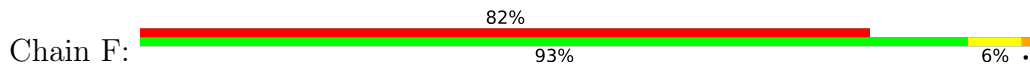


• Molecule 1: CTP synthase 1





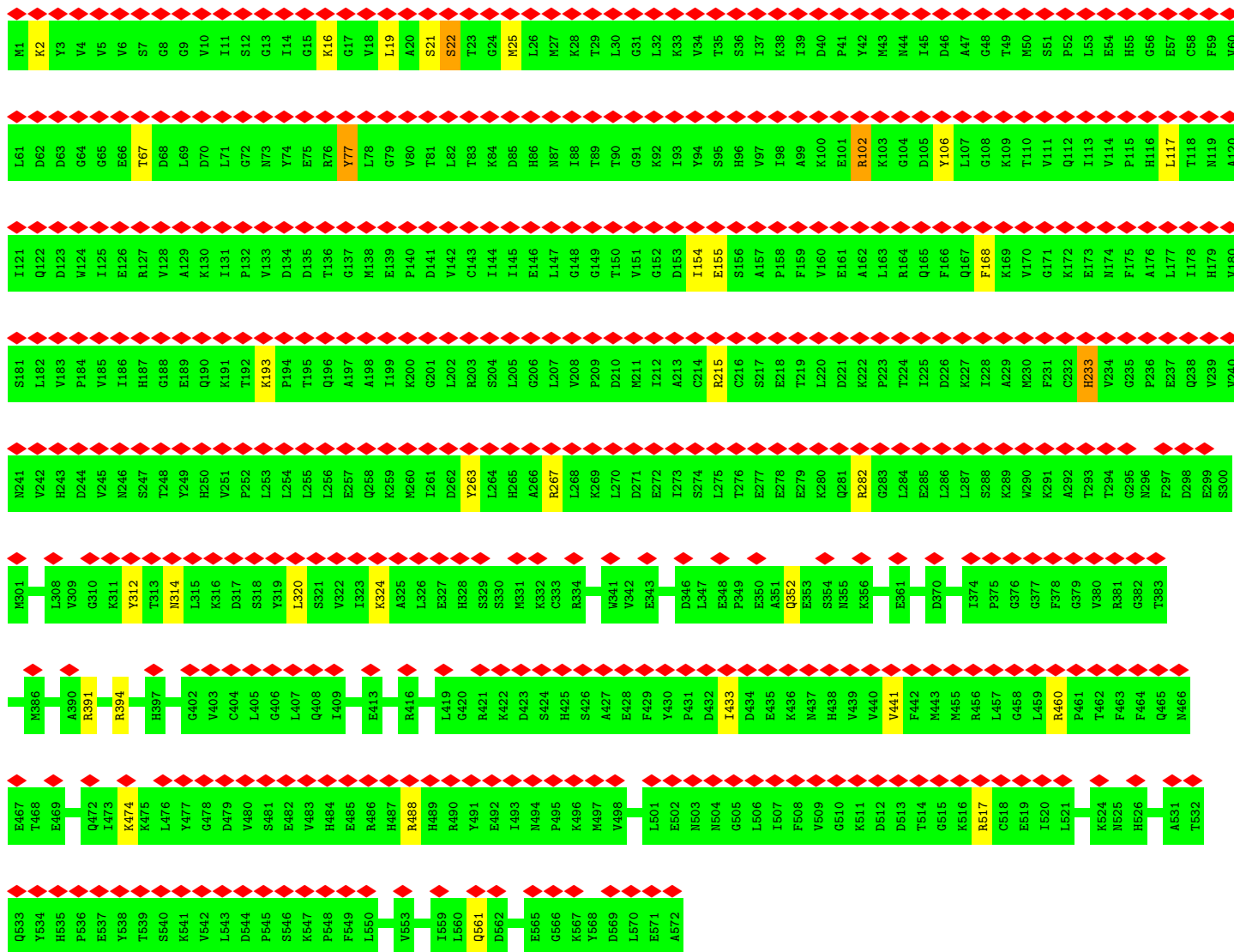
• Molecule 1: CTP synthase 1





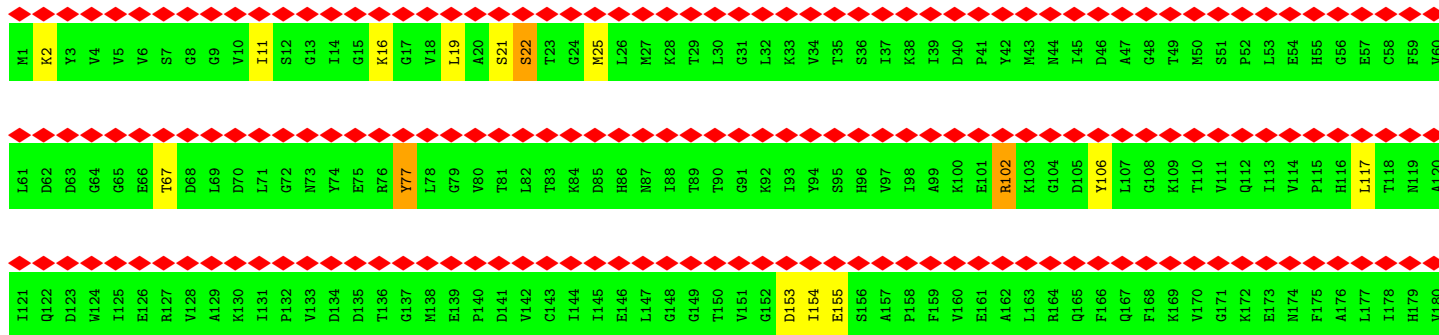
- Molecule 1: CTP synthase 1

Chain Q: 84% 94% 5% .



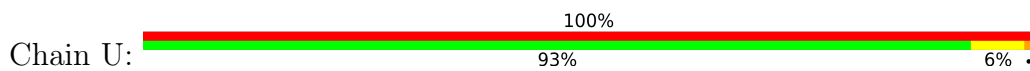
- Molecule 1: CTP synthase 1

Chain S: 100% 93% 6% .

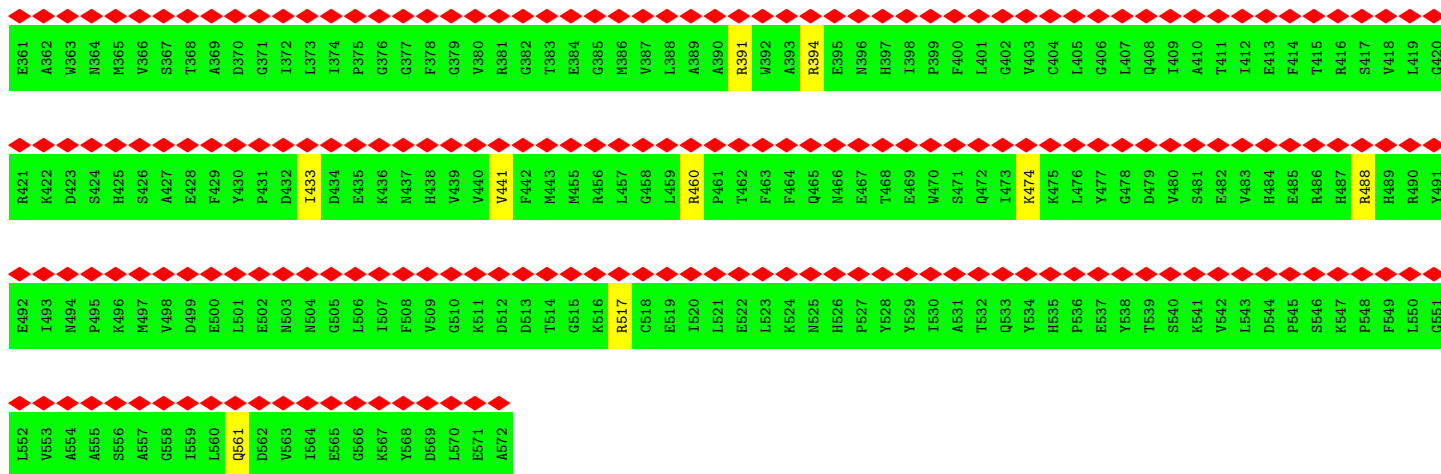


S181	N241	M301	E361	R421	E493	L562
L182	V242	E302	A362	K422	I493	V553
V183	H243	T303	W363	D423	M494	A564
P184	D244	V304	N364	S424	P495	A555
V185	V245	K305	M365	H425	K496	S556
I186	N246	I306	V366	H426	M497	A557
H187	S247	A307	S367	A427	V498	G558
G188	T248	L308	T368	E428	D499	L559
E189	Y249	V309	A369	F429	E500	L560
Q190	H250	G310	D370	Y430	L501	Q561
K191	V251	K311	G371	P431	E502	D662
T192	P252	Y312	I372	D432	N503	V563
K193	L253	T313	L373	I433	N504	L564
P194	L254	N314	I374	D434	G505	E565
T195	L255	L315	P375	E435	L506	G566
Q196	L256	K316	G376	K436	L507	K567
A197	E257	D317	G377	M437	F508	D568
A198	Q258	S318	F378	H438	V509	D569
I199	K259	Y319	G379	V439	G510	L570
K200	M260	L320	V380	V440	K511	E571
G201	L261	S321	R381	V441	D512	A572
L202	D262	V322	G382	F442	D513	
R203	Y263	I323	T383	M443	T514	
S204	L264	K324	E384	M455	G515	
L205	H265	A325	G385	R456	K516	
G206	A266	L326	M386	L457	R517	
L207	R267	E327	V387	G458	C518	
V208	L268	H328	L388	L459	E519	
P209	K269	S329	A389	R460	L520	
D210	L270	S330	A390	P461	L521	
M211	D271	M331	R391	T462	E522	
I212	E272	K332	W392	F463	L523	
A213	I273	C333	A393	F464	K524	
C214	S274	R334	R394	Q465	N525	
R215	L275	R335	E395	M466	H526	
C216	T276	K336	N396	E467	P527	
S217	E277	L337	H397	T468	Y528	
E218	E278	D338	I398	E469	V529	
T219	E279	I339	P399	M470	L530	
L220	K280	K340	F400	S471	A531	
D221	Q281	W341	L401	Q472	T532	
K222	R282	V342	G402	I473	Q533	
P223	G283	E343	V403	K474	Y534	
T224	L284	A344	C404	K475	H535	
I225	E285	T345	L405	L476	P536	
D226	L286	D346	G406	Y477	E537	
K227	L287	L347	L407	G478	Y538	
I228	S288	E348	Q408	D479	T539	
A229	K289	P349	I409	V480	S540	
M230	W290	A350	A410	S481	K541	
F231	K291	A351	T411	E482	V542	
C232	A292	Q352	I412	V483	L543	
H233	T293	E353	E413	H484	D544	
V234	V294	S354	F414	E485	P545	
G235	G295	N355	T415	R486	S546	
P236	N296	K356	R416	H487	K547	
E237	F297	T357	S417	R488	P548	
Q238	D298	K358	V418	H489	F549	
V239	E299	F359	L419	R490	L550	
V240	S300	H360	G420	Y491	G551	

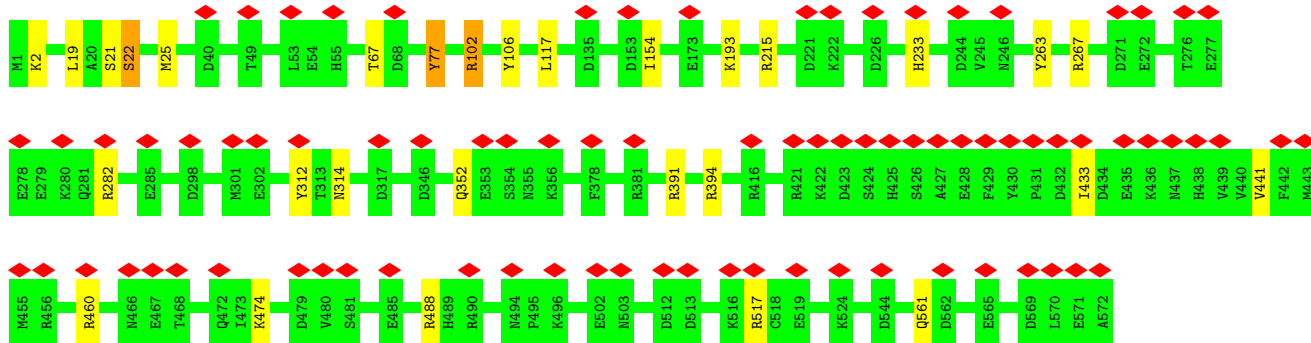
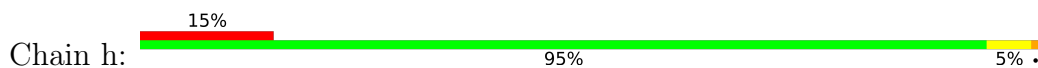
• Molecule 1: CTP synthase 1



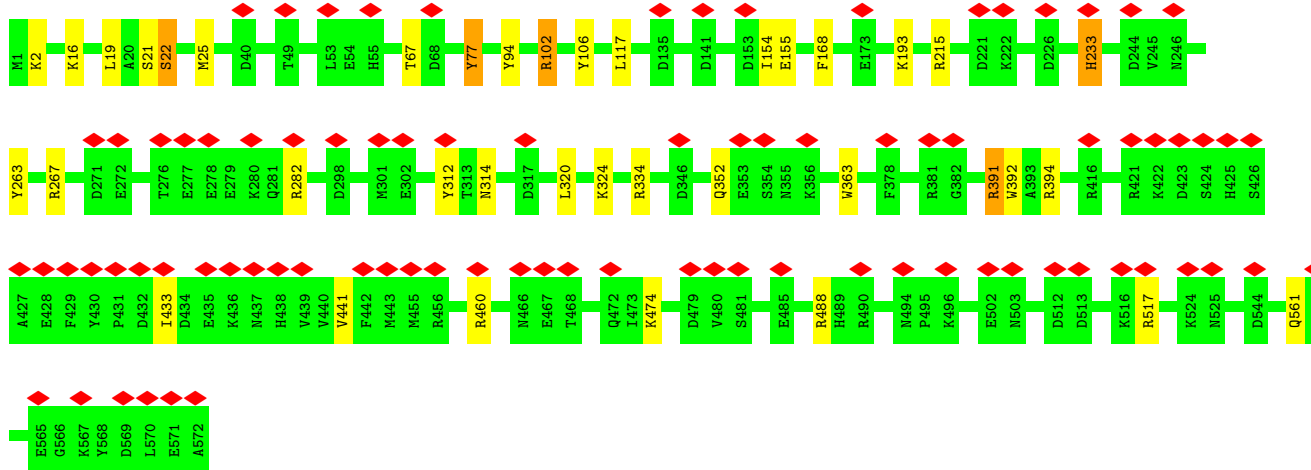
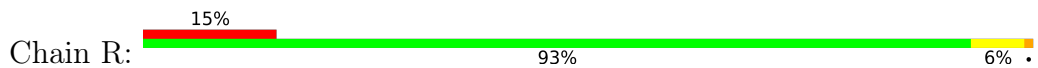
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K2	D62	Q122	L182	L182	V242	V242
Y3	D63	D123	V183	V183	H243	H243
V4	G64	W124	P184	P184	D244	D244
V5	G65	I125	V185	V185	V245	V245
V6	E66	E126	I186	I186	N246	N246
S7	T67	R127	H187	H187	S247	S247
G8	D68	V128	G188	G188	T248	T248
G9	L69	A129	E189	E189	Y249	Y249
V10	D70	K130	Q190	Q190	H250	H250
I11	L71	I131	K191	K191	V251	V251
S12	G72	P132	T192	T192	P252	P252
G13	N73	V133	K193	K193	L253	L253
I14	M74	D134	P194	P194	L254	L254
G15	E75	D135	T195	T195	L255	L255
K16	R76	T136	Q196	Q196	L256	L256
G17	Y77	G137	A197	A197	E257	E257
V18	L78	M138	A198	A198	Q258	Q258
L19	G79	E139	I199	I199	K259	K259
A20	V80	P140	K200	K200	M260	M260
S21	T81	D141	G201	G201	L261	L261
S22	L82	V142	L202	L202	D262	D262
T23	T83	C143	R203	R203	Y263	Y263
G24	K84	I144	S204	S204	L264	L264
M25	D85	I145	L205	L205	H265	H265
L26	H86	E146	G206	G206	A266	A266
M27	N87	L147	L207	L207	R267	R267
K28	L88	G148	V208	V208	L268	L268
T29	T89	G149	P209	P209	K269	K269
L30	T90	T150	D210	D210	L270	L270
G31	G91	V151	M211	M211	D271	D271
L32	K92	L152	I212	I212	E272	E272
K33	R93	G153	A213	A213	I273	I273
V34	Y94	D154	C214	C214	S274	S274
T35	S95	I155	R215	R215	L275	L275
S36	H96	S156	C216	C216	T276	T276
I37	V97	A157	S217	S217	E277	E277
K38	L98	P158	E218	E218	E278	E278
I39	A99	F159	T219	T219	E279	E279
D40	K100	V160	L220	L220	K280	K280
P41	E101	E161	D221	D221	Q281	Q281
M42	R102	A162	K222	K222	R282	R282
M43	K103	L163	P223	P223	G283	G283
M44	G104	R164	T224	T224	L284	L284
I45	D105	Q165	I225	I225	E285	E285
D46	Y106	F166	D226	D226	L286	L286
A47	L107	Q167	K227	K227	L287	L287
G48	G108	F168	I228	I228	S288	S288
T49	K109	K169	A229	A229	K289	K289
M50	V110	V170	M230	M230	W290	W290
S51	V111	G171	F231	F231	K291	K291
P52	Q112	K172	C232	C232	A292	A292
L53	I113	E173	H233	H233	T293	T293
E54	V114	M174	V234	V234	T294	T294
H55	P115	F175	G235	G235	G295	G295
G56	H116	A176	P236	P236	N296	N296
E57	L117	L177	E237	E237	F297	F297
C58	T118	I178	Q238	Q238	D298	D298
F59	M119	H179	V239	V239	E299	E299
V60	A120	V180	V240	V240	S300	S300



• Molecule 1: CTP synthase 1

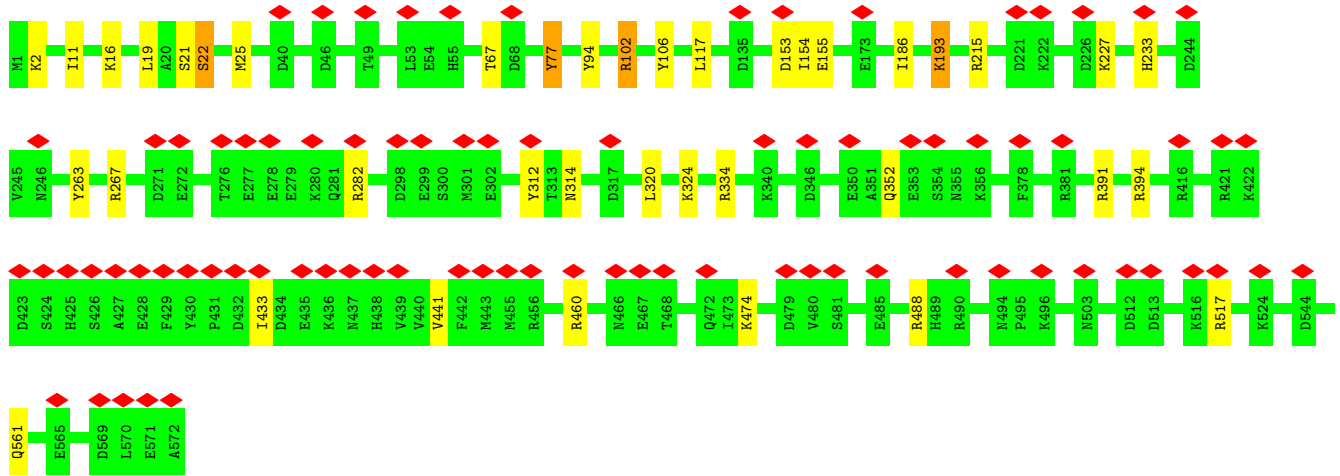
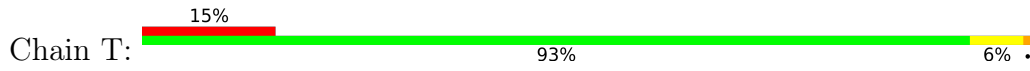


• Molecule 1: CTP synthase 1

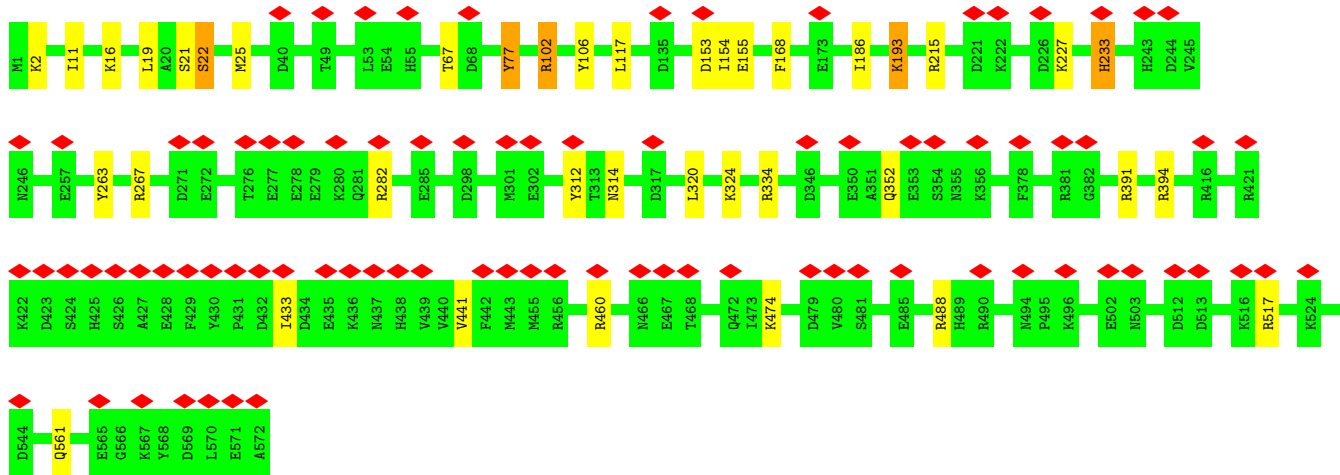


• Molecule 1: CTP synthase 1





• Molecule 1: CTP synthase 1



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, D2	Depositor
Number of particles used	64010	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	10.548	Depositor
Minimum map value	-5.796	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.226	Depositor
Recommended contour level	1.5	Depositor
Map size (Å)	336.0, 336.0, 336.0	wwPDB
Map dimensions	320, 320, 320	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	D	0.62	0/4494	1.03	14/6076 (0.2%)
1	E	0.63	0/4494	1.03	15/6076 (0.2%)
1	F	0.62	0/4494	1.03	16/6076 (0.3%)
1	Q	0.63	0/4494	1.03	15/6076 (0.2%)
1	R	0.62	0/4494	1.03	15/6076 (0.2%)
1	S	0.62	0/4494	1.03	15/6076 (0.2%)
1	T	0.62	0/4494	1.03	15/6076 (0.2%)
1	U	0.62	0/4494	1.03	15/6076 (0.2%)
1	V	0.62	0/4494	1.03	15/6076 (0.2%)
1	W	0.62	0/4494	1.03	15/6076 (0.2%)
1	g	0.63	0/4494	1.03	15/6076 (0.2%)
1	h	0.62	0/4494	1.03	14/6076 (0.2%)
All	All	0.62	0/53928	1.03	179/72912 (0.2%)

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	D	2	4
1	E	2	4
1	F	2	4
1	Q	2	4
1	R	2	4
1	S	2	4
1	T	2	4
1	U	2	4
1	V	2	4
1	W	2	4
1	g	2	4

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	h	2	4
All	All	24	48

There are no bond length outliers.

All (179) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	S	67	THR	CA-CB-OG1	9.34	128.61	109.00
1	V	67	THR	CA-CB-OG1	9.32	128.58	109.00
1	U	67	THR	CA-CB-OG1	9.32	128.58	109.00
1	E	67	THR	CA-CB-OG1	9.32	128.56	109.00
1	R	67	THR	CA-CB-OG1	9.32	128.57	109.00
1	F	67	THR	CA-CB-OG1	9.31	128.56	109.00
1	T	67	THR	CA-CB-OG1	9.31	128.56	109.00
1	Q	67	THR	CA-CB-OG1	9.30	128.54	109.00
1	h	67	THR	CA-CB-OG1	9.30	128.53	109.00
1	g	67	THR	CA-CB-OG1	9.30	128.53	109.00
1	W	67	THR	CA-CB-OG1	9.30	128.52	109.00
1	D	67	THR	CA-CB-OG1	9.28	128.48	109.00
1	D	22	SER	N-CA-CB	7.84	122.27	110.50
1	W	22	SER	N-CA-CB	7.84	122.27	110.50
1	T	22	SER	N-CA-CB	7.83	122.25	110.50
1	V	22	SER	N-CA-CB	7.83	122.24	110.50
1	g	22	SER	N-CA-CB	7.82	122.23	110.50
1	F	22	SER	N-CA-CB	7.82	122.23	110.50
1	Q	22	SER	N-CA-CB	7.81	122.22	110.50
1	R	22	SER	N-CA-CB	7.81	122.21	110.50
1	E	22	SER	N-CA-CB	7.81	122.21	110.50
1	U	22	SER	N-CA-CB	7.80	122.20	110.50
1	S	22	SER	N-CA-CB	7.78	122.17	110.50
1	h	22	SER	N-CA-CB	7.76	122.15	110.50
1	D	102	ARG	NE-CZ-NH1	6.67	123.64	120.30
1	U	102	ARG	NE-CZ-NH1	6.65	123.62	120.30
1	S	102	ARG	NE-CZ-NH1	6.64	123.62	120.30
1	R	102	ARG	NE-CZ-NH1	6.64	123.62	120.30
1	E	102	ARG	NE-CZ-NH1	6.62	123.61	120.30
1	V	102	ARG	NE-CZ-NH1	6.58	123.59	120.30
1	F	102	ARG	NE-CZ-NH1	6.57	123.58	120.30
1	T	102	ARG	NE-CZ-NH1	6.52	123.56	120.30
1	h	488	ARG	NE-CZ-NH2	6.52	123.56	120.30
1	T	517	ARG	NE-CZ-NH1	6.52	123.56	120.30
1	h	102	ARG	NE-CZ-NH1	6.49	123.54	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	g	102	ARG	NE-CZ-NH1	6.49	123.54	120.30
1	Q	517	ARG	NE-CZ-NH1	6.48	123.54	120.30
1	g	488	ARG	NE-CZ-NH2	6.48	123.54	120.30
1	T	488	ARG	NE-CZ-NH2	6.48	123.54	120.30
1	V	282	ARG	NE-CZ-NH1	6.47	123.54	120.30
1	g	517	ARG	NE-CZ-NH1	6.46	123.53	120.30
1	D	488	ARG	NE-CZ-NH2	6.46	123.53	120.30
1	F	488	ARG	NE-CZ-NH2	6.45	123.52	120.30
1	h	282	ARG	NE-CZ-NH1	6.44	123.52	120.30
1	R	282	ARG	NE-CZ-NH1	6.44	123.52	120.30
1	Q	102	ARG	NE-CZ-NH1	6.44	123.52	120.30
1	Q	282	ARG	NE-CZ-NH1	6.43	123.51	120.30
1	T	282	ARG	NE-CZ-NH1	6.43	123.52	120.30
1	D	282	ARG	NE-CZ-NH1	6.41	123.51	120.30
1	Q	488	ARG	NE-CZ-NH2	6.41	123.51	120.30
1	R	517	ARG	NE-CZ-NH1	6.41	123.51	120.30
1	V	517	ARG	NE-CZ-NH1	6.41	123.50	120.30
1	U	488	ARG	NE-CZ-NH2	6.41	123.51	120.30
1	W	488	ARG	NE-CZ-NH2	6.41	123.50	120.30
1	S	282	ARG	NE-CZ-NH1	6.41	123.50	120.30
1	W	102	ARG	NE-CZ-NH1	6.41	123.50	120.30
1	g	282	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	U	517	ARG	NE-CZ-NH1	6.40	123.50	120.30
1	V	488	ARG	NE-CZ-NH2	6.40	123.50	120.30
1	E	517	ARG	NE-CZ-NH1	6.39	123.50	120.30
1	F	517	ARG	NE-CZ-NH1	6.39	123.50	120.30
1	U	282	ARG	NE-CZ-NH1	6.39	123.49	120.30
1	S	488	ARG	NE-CZ-NH2	6.38	123.49	120.30
1	W	517	ARG	NE-CZ-NH1	6.38	123.49	120.30
1	h	517	ARG	NE-CZ-NH1	6.37	123.48	120.30
1	D	517	ARG	NE-CZ-NH1	6.37	123.48	120.30
1	R	488	ARG	NE-CZ-NH2	6.35	123.47	120.30
1	E	282	ARG	NE-CZ-NH1	6.34	123.47	120.30
1	S	517	ARG	NE-CZ-NH1	6.33	123.47	120.30
1	W	282	ARG	NE-CZ-NH1	6.33	123.47	120.30
1	F	282	ARG	NE-CZ-NH1	6.29	123.44	120.30
1	E	488	ARG	NE-CZ-NH2	6.21	123.41	120.30
1	g	394	ARG	NE-CZ-NH1	5.98	123.29	120.30
1	V	394	ARG	NE-CZ-NH1	5.97	123.29	120.30
1	W	394	ARG	NE-CZ-NH1	5.96	123.28	120.30
1	g	267	ARG	NE-CZ-NH1	5.93	123.27	120.30
1	D	394	ARG	NE-CZ-NH1	5.92	123.26	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	W	267	ARG	NE-CZ-NH1	5.92	123.26	120.30
1	R	394	ARG	NE-CZ-NH1	5.88	123.24	120.30
1	h	394	ARG	NE-CZ-NH1	5.87	123.23	120.30
1	T	394	ARG	NE-CZ-NH1	5.87	123.23	120.30
1	U	267	ARG	NE-CZ-NH1	5.85	123.22	120.30
1	F	394	ARG	NE-CZ-NH1	5.83	123.22	120.30
1	Q	394	ARG	NE-CZ-NH1	5.83	123.21	120.30
1	R	267	ARG	NE-CZ-NH1	5.82	123.21	120.30
1	T	267	ARG	NE-CZ-NH1	5.82	123.21	120.30
1	h	22	SER	CB-CA-C	5.82	121.15	110.10
1	S	394	ARG	NE-CZ-NH1	5.81	123.20	120.30
1	D	267	ARG	NE-CZ-NH1	5.80	123.20	120.30
1	S	22	SER	CB-CA-C	5.80	121.12	110.10
1	h	267	ARG	NE-CZ-NH1	5.79	123.20	120.30
1	R	22	SER	CB-CA-C	5.79	121.11	110.10
1	F	22	SER	CB-CA-C	5.79	121.10	110.10
1	Q	22	SER	CB-CA-C	5.79	121.10	110.10
1	V	267	ARG	NE-CZ-NH1	5.79	123.19	120.30
1	U	22	SER	CB-CA-C	5.79	121.09	110.10
1	E	22	SER	CB-CA-C	5.78	121.08	110.10
1	E	394	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	g	22	SER	CB-CA-C	5.78	121.08	110.10
1	W	22	SER	CB-CA-C	5.78	121.08	110.10
1	T	22	SER	CB-CA-C	5.78	121.08	110.10
1	V	22	SER	CB-CA-C	5.78	121.08	110.10
1	U	394	ARG	NE-CZ-NH1	5.78	123.19	120.30
1	D	22	SER	CB-CA-C	5.77	121.06	110.10
1	D	77	TYR	N-CA-CB	5.75	120.95	110.60
1	F	267	ARG	NE-CZ-NH1	5.75	123.17	120.30
1	U	77	TYR	N-CA-CB	5.75	120.94	110.60
1	F	77	TYR	N-CA-CB	5.74	120.94	110.60
1	Q	267	ARG	NE-CZ-NH1	5.74	123.17	120.30
1	E	77	TYR	N-CA-CB	5.74	120.92	110.60
1	Q	77	TYR	N-CA-CB	5.73	120.91	110.60
1	T	77	TYR	N-CA-CB	5.73	120.91	110.60
1	g	77	TYR	N-CA-CB	5.72	120.89	110.60
1	h	77	TYR	N-CA-CB	5.72	120.89	110.60
1	V	77	TYR	N-CA-CB	5.71	120.89	110.60
1	W	77	TYR	N-CA-CB	5.71	120.89	110.60
1	S	77	TYR	N-CA-CB	5.71	120.88	110.60
1	R	77	TYR	N-CA-CB	5.71	120.87	110.60
1	S	267	ARG	NE-CZ-NH1	5.70	123.15	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	267	ARG	NE-CZ-NH1	5.64	123.12	120.30
1	E	312	TYR	CB-CG-CD2	-5.58	117.65	121.00
1	R	460	ARG	NE-CZ-NH1	5.55	123.08	120.30
1	V	460	ARG	NE-CZ-NH1	5.55	123.07	120.30
1	U	312	TYR	CB-CG-CD2	-5.54	117.67	121.00
1	F	460	ARG	NE-CZ-NH1	5.54	123.07	120.30
1	S	460	ARG	NE-CZ-NH1	5.53	123.07	120.30
1	W	460	ARG	NE-CZ-NH1	5.53	123.06	120.30
1	S	312	TYR	CB-CG-CD2	-5.52	117.69	121.00
1	Q	460	ARG	NE-CZ-NH1	5.52	123.06	120.30
1	D	460	ARG	NE-CZ-NH1	5.51	123.05	120.30
1	R	312	TYR	CB-CG-CD2	-5.50	117.70	121.00
1	V	312	TYR	CB-CG-CD2	-5.50	117.70	121.00
1	T	312	TYR	CB-CG-CD2	-5.49	117.70	121.00
1	W	77	TYR	CB-CA-C	5.49	121.38	110.40
1	E	460	ARG	NE-CZ-NH1	5.49	123.04	120.30
1	R	77	TYR	CB-CA-C	5.48	121.36	110.40
1	g	460	ARG	NE-CZ-NH1	5.48	123.04	120.30
1	E	77	TYR	CB-CA-C	5.47	121.34	110.40
1	g	77	TYR	CB-CA-C	5.46	121.32	110.40
1	h	77	TYR	CB-CA-C	5.46	121.32	110.40
1	h	312	TYR	CB-CG-CD2	-5.46	117.72	121.00
1	T	77	TYR	CB-CA-C	5.46	121.32	110.40
1	V	77	TYR	CB-CA-C	5.46	121.31	110.40
1	D	77	TYR	CB-CA-C	5.45	121.31	110.40
1	Q	312	TYR	CB-CG-CD2	-5.45	117.73	121.00
1	S	77	TYR	CB-CA-C	5.45	121.30	110.40
1	Q	77	TYR	CB-CA-C	5.44	121.29	110.40
1	U	460	ARG	NE-CZ-NH1	5.44	123.02	120.30
1	D	312	TYR	CB-CG-CD2	-5.43	117.74	121.00
1	F	77	TYR	CB-CA-C	5.43	121.26	110.40
1	g	312	TYR	CB-CG-CD2	-5.42	117.75	121.00
1	T	460	ARG	NE-CZ-NH1	5.42	123.01	120.30
1	U	77	TYR	CB-CA-C	5.42	121.25	110.40
1	F	312	TYR	CB-CG-CD2	-5.41	117.75	121.00
1	h	460	ARG	NE-CZ-NH1	5.39	123.00	120.30
1	W	312	TYR	CB-CG-CD2	-5.34	117.79	121.00
1	D	215	ARG	NE-CZ-NH1	5.21	122.91	120.30
1	U	334	ARG	NE-CZ-NH1	5.21	122.90	120.30
1	W	334	ARG	NE-CZ-NH1	5.21	122.90	120.30
1	S	334	ARG	NE-CZ-NH1	5.19	122.90	120.30
1	h	215	ARG	NE-CZ-NH1	5.18	122.89	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	V	334	ARG	NE-CZ-NH1	5.17	122.89	120.30
1	T	215	ARG	NE-CZ-NH1	5.16	122.88	120.30
1	T	334	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	g	215	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	F	334	ARG	NE-CZ-NH1	5.11	122.86	120.30
1	W	215	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	E	215	ARG	NE-CZ-NH1	5.11	122.85	120.30
1	F	215	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	S	215	ARG	NE-CZ-NH1	5.09	122.84	120.30
1	R	334	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	U	215	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	Q	215	ARG	NE-CZ-NH1	5.08	122.84	120.30
1	E	334	ARG	NE-CZ-NH1	5.05	122.83	120.30
1	g	334	ARG	NE-CZ-NH1	5.02	122.81	120.30
1	R	215	ARG	NE-CZ-NH1	5.02	122.81	120.30
1	Q	77	TYR	CB-CG-CD1	5.01	124.01	121.00
1	V	215	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	F	77	TYR	CB-CG-CD1	5.00	124.00	121.00

All (24) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	V	22	SER	CA
1	V	77	TYR	CA
1	D	22	SER	CA
1	D	77	TYR	CA
1	E	22	SER	CA
1	E	77	TYR	CA
1	F	22	SER	CA
1	F	77	TYR	CA
1	g	22	SER	CA
1	g	77	TYR	CA
1	Q	22	SER	CA
1	Q	77	TYR	CA
1	S	22	SER	CA
1	S	77	TYR	CA
1	U	22	SER	CA
1	U	77	TYR	CA
1	h	22	SER	CA
1	h	77	TYR	CA
1	R	22	SER	CA
1	R	77	TYR	CA

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Mol	Chain	Res	Type	Atom
1	T	22	SER	CA
1	T	77	TYR	CA
1	W	22	SER	CA
1	W	77	TYR	CA

All (48) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	102	ARG	Sidechain
1	D	106	TYR	Sidechain
1	D	263	TYR	Sidechain
1	D	391	ARG	Sidechain
1	E	102	ARG	Sidechain
1	E	106	TYR	Sidechain
1	E	263	TYR	Sidechain
1	E	391	ARG	Sidechain
1	F	102	ARG	Sidechain
1	F	106	TYR	Sidechain
1	F	263	TYR	Sidechain
1	F	391	ARG	Sidechain
1	Q	102	ARG	Sidechain
1	Q	106	TYR	Sidechain
1	Q	263	TYR	Sidechain
1	Q	391	ARG	Sidechain
1	R	102	ARG	Sidechain
1	R	106	TYR	Sidechain
1	R	263	TYR	Sidechain
1	R	391	ARG	Sidechain
1	S	102	ARG	Sidechain
1	S	106	TYR	Sidechain
1	S	263	TYR	Sidechain
1	S	391	ARG	Sidechain
1	T	102	ARG	Sidechain
1	T	106	TYR	Sidechain
1	T	263	TYR	Sidechain
1	T	391	ARG	Sidechain
1	U	102	ARG	Sidechain
1	U	106	TYR	Sidechain
1	U	263	TYR	Sidechain
1	U	391	ARG	Sidechain
1	V	102	ARG	Sidechain
1	V	106	TYR	Sidechain

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Mol	Chain	Res	Type	Group
1	V	263	TYR	Sidechain
1	V	391	ARG	Sidechain
1	W	102	ARG	Sidechain
1	W	106	TYR	Sidechain
1	W	263	TYR	Sidechain
1	W	391	ARG	Sidechain
1	g	102	ARG	Sidechain
1	g	106	TYR	Sidechain
1	g	263	TYR	Sidechain
1	g	391	ARG	Sidechain
1	h	102	ARG	Sidechain
1	h	106	TYR	Sidechain
1	h	263	TYR	Sidechain
1	h	391	ARG	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	D	4407	4437	4436	16	0
1	E	4407	4437	4436	26	0
1	F	4407	4437	4436	19	0
1	Q	4407	4437	4436	8	0
1	R	4407	4437	4436	20	0
1	S	4407	4437	4436	13	0
1	T	4407	4437	4436	16	0
1	U	4407	4437	4436	15	0
1	V	4407	4437	4436	19	0
1	W	4407	4437	4436	15	0
1	g	4407	4437	4436	0	0
1	h	4407	4437	4436	0	0
2	D	58	0	24	7	0
2	E	58	0	24	7	0
2	F	58	0	24	7	0
2	Q	58	0	24	6	0
2	R	58	0	24	6	0
2	S	58	0	24	7	0
2	T	58	0	24	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	U	58	0	24	7	0
2	V	58	0	24	7	0
2	W	58	0	24	7	0
2	g	58	0	24	0	0
2	h	58	0	24	0	0
All	All	53580	53244	53520	118	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 2.

All (118) 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:F:324:LYS:HE3	2:F:602:CTP:O2	1.64	0.98
1:V:324:LYS:HE3	2:V:602:CTP:O2	1.64	0.98
1:Q:324:LYS:HE3	2:Q:602:CTP:O2	1.64	0.98
1:S:324:LYS:HE3	2:S:602:CTP:O2	1.64	0.97
1:D:324:LYS:HE3	2:D:602:CTP:O2	1.64	0.96
1:E:324:LYS:HE3	2:E:602:CTP:O2	1.64	0.96
1:W:324:LYS:HE3	2:W:602:CTP:O2	1.64	0.96
1:U:324:LYS:HE3	2:U:602:CTP:O2	1.64	0.96
1:R:324:LYS:HE3	2:R:602:CTP:O2	1.64	0.96
1:T:324:LYS:HE3	2:T:602:CTP:O2	1.64	0.96
1:R:320:LEU:HD21	2:R:602:CTP:O2'	1.75	0.87
1:W:320:LEU:HD21	2:W:602:CTP:O2'	1.75	0.86
1:E:320:LEU:HD21	2:E:602:CTP:O2'	1.75	0.86
1:V:320:LEU:HD21	2:V:602:CTP:O2'	1.75	0.86
1:S:320:LEU:HD21	2:S:602:CTP:O2'	1.75	0.86
1:U:320:LEU:HD21	2:U:602:CTP:O2'	1.75	0.85
1:D:320:LEU:HD21	2:D:602:CTP:O2'	1.75	0.85
1:Q:320:LEU:HD21	2:Q:602:CTP:O2'	1.75	0.85
1:F:320:LEU:HD21	2:F:602:CTP:O2'	1.75	0.85
1:T:320:LEU:HD21	2:T:602:CTP:O2'	1.75	0.85
1:F:324:LYS:CE	2:F:602:CTP:O2	2.39	0.71
1:Q:324:LYS:CE	2:Q:602:CTP:O2	2.39	0.71
1:T:324:LYS:CE	2:T:602:CTP:O2	2.39	0.70
1:D:324:LYS:CE	2:D:602:CTP:O2	2.39	0.69
1:S:324:LYS:CE	2:S:602:CTP:O2	2.39	0.69
1:U:324:LYS:CE	2:U:602:CTP:O2	2.39	0.69
1:V:324:LYS:CE	2:V:602:CTP:O2	2.39	0.69
1:W:324:LYS:CE	2:W:602:CTP:O2	2.39	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:324:LYS:CE	2:E:602:CTP:O2	2.39	0.69
1:R:324:LYS:CE	2:R:602:CTP:O2	2.39	0.69
1:E:227:LYS:HD3	2:F:601:CTP:O1B	2.01	0.61
1:S:227:LYS:HD3	2:U:601:CTP:O1B	2.01	0.60
1:F:16:LYS:N	2:F:602:CTP:O2G	2.30	0.60
1:Q:16:LYS:N	2:Q:602:CTP:O1G	2.30	0.60
1:V:227:LYS:HD3	2:D:601:CTP:O2B	2.02	0.59
1:T:227:LYS:HD3	2:W:601:CTP:O1B	2.02	0.59
2:V:601:CTP:O1B	1:D:227:LYS:HD3	2.03	0.58
1:U:16:LYS:N	2:U:602:CTP:O2G	2.31	0.58
1:D:16:LYS:N	2:D:602:CTP:O1G	2.31	0.58
1:E:16:LYS:N	2:E:602:CTP:O1G	2.31	0.58
2:E:601:CTP:O2B	1:F:227:LYS:HD3	2.04	0.57
2:S:601:CTP:O2B	1:U:227:LYS:HD3	2.04	0.57
1:W:16:LYS:N	2:W:602:CTP:O2G	2.30	0.56
1:V:16:LYS:N	2:V:602:CTP:O2G	2.31	0.56
1:R:16:LYS:N	2:R:602:CTP:O1G	2.30	0.56
2:T:601:CTP:O2B	1:W:227:LYS:HD3	2.04	0.56
1:S:16:LYS:N	2:S:602:CTP:O1G	2.30	0.56
1:V:11:ILE:HD12	1:D:186:ILE:HD11	1.88	0.55
1:T:11:ILE:HD12	1:W:186:ILE:HD11	1.89	0.55
1:T:16:LYS:N	2:T:602:CTP:O1G	2.30	0.55
1:E:11:ILE:HD12	1:F:186:ILE:HD11	1.88	0.55
1:S:11:ILE:HD12	1:U:186:ILE:HD11	1.89	0.55
1:E:11:ILE:HD12	1:F:186:ILE:CD1	2.39	0.53
1:S:11:ILE:HD12	1:U:186:ILE:CD1	2.39	0.53
1:V:186:ILE:HD11	1:D:11:ILE:HD12	1.90	0.53
1:V:11:ILE:HD12	1:D:186:ILE:CD1	2.39	0.53
1:E:392:TRP:HH2	1:R:363:TRP:CD2	2.27	0.53
1:T:11:ILE:HD12	1:W:186:ILE:CD1	2.39	0.53
1:E:363:TRP:CD2	1:R:392:TRP:HH2	2.27	0.52
1:T:155:GLU:HB2	2:T:601:CTP:O2	2.10	0.52
1:E:186:ILE:HD11	1:F:11:ILE:HD12	1.92	0.52
1:U:155:GLU:HB2	2:U:601:CTP:O2	2.10	0.52
1:D:155:GLU:HB2	2:D:601:CTP:O2	2.10	0.52
1:E:155:GLU:HB2	2:E:601:CTP:O2	2.10	0.52
1:V:155:GLU:HB2	2:V:601:CTP:O2	2.10	0.52
1:S:155:GLU:HB2	2:S:601:CTP:O2	2.10	0.52
1:R:155:GLU:HB2	2:R:601:CTP:O2	2.10	0.51
1:Q:155:GLU:HB2	2:Q:601:CTP:O2	2.10	0.51
1:W:155:GLU:HB2	2:W:601:CTP:O2	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:155:GLU:HB2	2:F:601:CTP:O2	2.10	0.51
1:S:186:ILE:HD11	1:U:11:ILE:HD12	1.92	0.51
1:T:153:ASP:OD1	1:W:193:LYS:HE2	2.11	0.51
1:S:153:ASP:OD1	1:U:193:LYS:HE2	2.11	0.51
1:E:391:ARG:CZ	1:R:391:ARG:CZ	2.89	0.51
1:E:391:ARG:NH2	1:R:391:ARG:NH2	2.60	0.50
1:E:153:ASP:OD1	1:F:193:LYS:HE2	2.11	0.50
1:T:186:ILE:HD11	1:W:11:ILE:HD12	1.92	0.50
1:V:153:ASP:OD1	1:D:193:LYS:HE2	2.13	0.49
1:V:186:ILE:CD1	1:D:11:ILE:HD12	2.42	0.49
1:E:391:ARG:CZ	1:R:391:ARG:NH2	2.76	0.49
1:E:392:TRP:CH2	1:R:363:TRP:CD2	3.02	0.48
1:E:391:ARG:NH2	1:R:391:ARG:CZ	2.76	0.48
1:V:168:PHE:HZ	1:E:233:HIS:CE1	2.32	0.48
1:E:363:TRP:CD2	1:R:392:TRP:CH2	3.01	0.48
1:T:186:ILE:CD1	1:W:11:ILE:HD12	2.43	0.48
1:S:193:LYS:HE2	1:U:153:ASP:OD1	2.14	0.48
1:S:186:ILE:CD1	1:U:11:ILE:HD12	2.43	0.48
1:E:193:LYS:HE2	1:F:153:ASP:OD1	2.14	0.47
1:E:186:ILE:CD1	1:F:11:ILE:HD12	2.43	0.47
1:R:233:HIS:CE1	1:W:168:PHE:HZ	2.33	0.47
1:T:193:LYS:HE2	1:W:153:ASP:OD1	2.14	0.47
1:D:233:HIS:CE1	1:F:168:PHE:HZ	2.33	0.47
1:V:193:LYS:HE2	1:D:153:ASP:OD1	2.15	0.47
1:E:392:TRP:HH2	1:R:363:TRP:CE3	2.32	0.47
1:Q:233:HIS:CE1	1:U:168:PHE:HZ	2.33	0.47
1:E:363:TRP:CE3	1:R:392:TRP:HH2	2.32	0.47
1:V:94:TYR:CZ	1:F:94:TYR:CE2	3.03	0.46
1:V:233:HIS:CE1	1:E:168:PHE:HZ	2.34	0.46
1:T:320:LEU:HD21	2:T:602:CTP:HO2'	1.80	0.46
1:V:94:TYR:CE2	1:F:94:TYR:CZ	3.04	0.46
1:Q:168:PHE:HZ	1:U:233:HIS:CE1	2.35	0.45
1:R:168:PHE:HZ	1:W:233:HIS:CE1	2.35	0.45
1:D:168:PHE:HZ	1:F:233:HIS:CE1	2.35	0.45
1:V:117:LEU:HD13	1:F:43:MET:SD	2.58	0.42
1:V:43:MET:SD	1:F:117:LEU:HD13	2.59	0.42
1:E:155:GLU:CB	2:E:601:CTP:O2	2.69	0.41
1:S:155:GLU:CB	2:S:601:CTP:O2	2.69	0.41
1:V:155:GLU:CB	2:V:601:CTP:O2	2.69	0.41
1:R:94:TYR:CZ	1:T:94:TYR:CE2	3.09	0.41
1:D:155:GLU:CB	2:D:601:CTP:O2	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:U:155:GLU:CB	2:U:601:CTP:O2	2.69	0.41
1:D:94:TYR:CZ	1:E:94:TYR:CE2	3.09	0.41
1:F:155:GLU:CB	2:F:601:CTP:O2	2.69	0.41
1:Q:155:GLU:CB	2:Q:601:CTP:O2	2.69	0.41
1:R:94:TYR:CE2	1:T:94:TYR:CZ	3.09	0.41
1:T:155:GLU:CB	2:T:601:CTP:O2	2.69	0.41
1:R:155:GLU:CB	2:R:601:CTP:O2	2.69	0.40
1:W:155:GLU:CB	2:W:601:CTP:O2	2.69	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	D	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	E	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	F	557/561 (99%)	529 (95%)	26 (5%)	2 (0%)	34	72
1	Q	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	R	557/561 (99%)	529 (95%)	26 (5%)	2 (0%)	34	72
1	S	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	T	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	U	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	V	557/561 (99%)	529 (95%)	26 (5%)	2 (0%)	34	72
1	W	557/561 (99%)	529 (95%)	26 (5%)	2 (0%)	34	72
1	g	557/561 (99%)	530 (95%)	25 (4%)	2 (0%)	34	72
1	h	557/561 (99%)	529 (95%)	26 (5%)	2 (0%)	34	72
All	All	6684/6732 (99%)	6355 (95%)	305 (5%)	24 (0%)	38	72

All (24) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	V	433	ILE
1	D	433	ILE
1	E	433	ILE
1	F	433	ILE
1	g	433	ILE
1	Q	433	ILE
1	S	433	ILE
1	U	433	ILE
1	h	433	ILE
1	R	433	ILE
1	T	433	ILE
1	W	433	ILE
1	V	441	VAL
1	D	441	VAL
1	E	441	VAL
1	F	441	VAL
1	g	441	VAL
1	Q	441	VAL
1	S	441	VAL
1	U	441	VAL
1	h	441	VAL
1	R	441	VAL
1	T	441	VAL
1	W	441	VAL

### 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	D	486/486 (100%)	472 (97%)	14 (3%)	42 71
1	E	486/486 (100%)	472 (97%)	14 (3%)	42 71
1	F	486/486 (100%)	472 (97%)	14 (3%)	42 71
1	Q	486/486 (100%)	472 (97%)	14 (3%)	42 71
1	R	486/486 (100%)	472 (97%)	14 (3%)	42 71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	S	486/486 (100%)	472 (97%)	14 (3%)	42	71
1	T	486/486 (100%)	472 (97%)	14 (3%)	42	71
1	U	486/486 (100%)	472 (97%)	14 (3%)	42	71
1	V	486/486 (100%)	472 (97%)	14 (3%)	42	71
1	W	486/486 (100%)	472 (97%)	14 (3%)	42	71
1	g	486/486 (100%)	472 (97%)	14 (3%)	42	71
1	h	486/486 (100%)	472 (97%)	14 (3%)	42	71
All	All	5832/5832 (100%)	5664 (97%)	168 (3%)	45	71

All (168) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	V	2	LYS
1	V	19	LEU
1	V	21	SER
1	V	22	SER
1	V	25	MET
1	V	77	TYR
1	V	117	LEU
1	V	154	ILE
1	V	193	LYS
1	V	233	HIS
1	V	314	ASN
1	V	352	GLN
1	V	474	LYS
1	V	561	GLN
1	D	2	LYS
1	D	19	LEU
1	D	21	SER
1	D	22	SER
1	D	25	MET
1	D	77	TYR
1	D	117	LEU
1	D	154	ILE
1	D	193	LYS
1	D	233	HIS
1	D	314	ASN
1	D	352	GLN
1	D	474	LYS
1	D	561	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	E	2	LYS
1	E	19	LEU
1	E	21	SER
1	E	22	SER
1	E	25	MET
1	E	77	TYR
1	E	117	LEU
1	E	154	ILE
1	E	193	LYS
1	E	233	HIS
1	E	314	ASN
1	E	352	GLN
1	E	474	LYS
1	E	561	GLN
1	F	2	LYS
1	F	19	LEU
1	F	21	SER
1	F	22	SER
1	F	25	MET
1	F	77	TYR
1	F	117	LEU
1	F	154	ILE
1	F	193	LYS
1	F	233	HIS
1	F	314	ASN
1	F	352	GLN
1	F	474	LYS
1	F	561	GLN
1	g	2	LYS
1	g	19	LEU
1	g	21	SER
1	g	22	SER
1	g	25	MET
1	g	77	TYR
1	g	117	LEU
1	g	154	ILE
1	g	193	LYS
1	g	233	HIS
1	g	314	ASN
1	g	352	GLN
1	g	474	LYS
1	g	561	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	Q	2	LYS
1	Q	19	LEU
1	Q	21	SER
1	Q	22	SER
1	Q	25	MET
1	Q	77	TYR
1	Q	117	LEU
1	Q	154	ILE
1	Q	193	LYS
1	Q	233	HIS
1	Q	314	ASN
1	Q	352	GLN
1	Q	474	LYS
1	Q	561	GLN
1	S	2	LYS
1	S	19	LEU
1	S	21	SER
1	S	22	SER
1	S	25	MET
1	S	77	TYR
1	S	117	LEU
1	S	154	ILE
1	S	193	LYS
1	S	233	HIS
1	S	314	ASN
1	S	352	GLN
1	S	474	LYS
1	S	561	GLN
1	U	2	LYS
1	U	19	LEU
1	U	21	SER
1	U	22	SER
1	U	25	MET
1	U	77	TYR
1	U	117	LEU
1	U	154	ILE
1	U	193	LYS
1	U	233	HIS
1	U	314	ASN
1	U	352	GLN
1	U	474	LYS
1	U	561	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	h	2	LYS
1	h	19	LEU
1	h	21	SER
1	h	22	SER
1	h	25	MET
1	h	77	TYR
1	h	117	LEU
1	h	154	ILE
1	h	193	LYS
1	h	233	HIS
1	h	314	ASN
1	h	352	GLN
1	h	474	LYS
1	h	561	GLN
1	R	2	LYS
1	R	19	LEU
1	R	21	SER
1	R	22	SER
1	R	25	MET
1	R	77	TYR
1	R	117	LEU
1	R	154	ILE
1	R	193	LYS
1	R	233	HIS
1	R	314	ASN
1	R	352	GLN
1	R	474	LYS
1	R	561	GLN
1	T	2	LYS
1	T	19	LEU
1	T	21	SER
1	T	22	SER
1	T	25	MET
1	T	77	TYR
1	T	117	LEU
1	T	154	ILE
1	T	193	LYS
1	T	233	HIS
1	T	314	ASN
1	T	352	GLN
1	T	474	LYS
1	T	561	GLN

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Mol	Chain	Res	Type
1	W	2	LYS
1	W	19	LEU
1	W	21	SER
1	W	22	SER
1	W	25	MET
1	W	77	TYR
1	W	117	LEU
1	W	154	ILE
1	W	193	LYS
1	W	233	HIS
1	W	314	ASN
1	W	352	GLN
1	W	474	LYS
1	W	561	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	V	352	GLN
1	D	352	GLN
1	E	352	GLN
1	F	352	GLN
1	g	352	GLN
1	Q	352	GLN
1	S	352	GLN
1	U	352	GLN
1	h	352	GLN
1	R	352	GLN
1	W	352	GLN

### 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	T	601	-	26,30,30	1.45	3 (11%)	39,47,47	1.83	7 (17%)
2	CTP	V	602	-	26,30,30	1.35	4 (15%)	39,47,47	1.41	6 (15%)
2	CTP	h	601	-	26,30,30	1.46	4 (15%)	39,47,47	1.81	6 (15%)
2	CTP	R	602	-	26,30,30	1.32	3 (11%)	39,47,47	1.43	6 (15%)
2	CTP	h	602	-	26,30,30	1.35	4 (15%)	39,47,47	1.41	6 (15%)
2	CTP	D	601	-	26,30,30	1.44	3 (11%)	39,47,47	1.81	7 (17%)
2	CTP	W	601	-	26,30,30	1.46	4 (15%)	39,47,47	1.80	6 (15%)
2	CTP	D	602	-	26,30,30	1.33	3 (11%)	39,47,47	1.42	6 (15%)
2	CTP	Q	601	-	26,30,30	1.45	3 (11%)	39,47,47	1.82	7 (17%)
2	CTP	E	602	-	26,30,30	1.33	4 (15%)	39,47,47	1.42	6 (15%)
2	CTP	W	602	-	26,30,30	1.35	5 (19%)	39,47,47	1.40	6 (15%)
2	CTP	F	601	-	26,30,30	1.46	4 (15%)	39,47,47	1.80	6 (15%)
2	CTP	g	602	-	26,30,30	1.35	4 (15%)	39,47,47	1.40	6 (15%)
2	CTP	V	601	-	26,30,30	1.45	4 (15%)	39,47,47	1.80	6 (15%)
2	CTP	T	602	-	26,30,30	1.33	3 (11%)	39,47,47	1.42	6 (15%)
2	CTP	S	601	-	26,30,30	1.45	3 (11%)	39,47,47	1.81	7 (17%)
2	CTP	E	601	-	26,30,30	1.45	3 (11%)	39,47,47	1.82	7 (17%)
2	CTP	F	602	-	26,30,30	1.36	4 (15%)	39,47,47	1.41	6 (15%)
2	CTP	g	601	-	26,30,30	1.45	4 (15%)	39,47,47	1.81	6 (15%)
2	CTP	U	601	-	26,30,30	1.46	4 (15%)	39,47,47	1.80	6 (15%)
2	CTP	U	602	-	26,30,30	1.35	4 (15%)	39,47,47	1.41	6 (15%)
2	CTP	Q	602	-	26,30,30	1.33	4 (15%)	39,47,47	1.42	6 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	CTP	S	602	-	26,30,30	1.33	3 (11%)	39,47,47	1.42	6 (15%)
2	CTP	R	601	-	26,30,30	1.45	3 (11%)	39,47,47	1.82	7 (17%)

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	T	601	-	-	8/22/38/38	0/2/2/2
2	CTP	V	602	-	-	8/22/38/38	0/2/2/2
2	CTP	h	601	-	-	8/22/38/38	0/2/2/2
2	CTP	R	602	-	-	7/22/38/38	0/2/2/2
2	CTP	h	602	-	-	9/22/38/38	0/2/2/2
2	CTP	D	601	-	-	8/22/38/38	0/2/2/2
2	CTP	W	601	-	-	8/22/38/38	0/2/2/2
2	CTP	D	602	-	-	7/22/38/38	0/2/2/2
2	CTP	Q	601	-	-	8/22/38/38	0/2/2/2
2	CTP	E	602	-	-	7/22/38/38	0/2/2/2
2	CTP	W	602	-	-	9/22/38/38	0/2/2/2
2	CTP	F	601	-	-	9/22/38/38	0/2/2/2
2	CTP	g	602	-	-	9/22/38/38	0/2/2/2
2	CTP	V	601	-	-	8/22/38/38	0/2/2/2
2	CTP	T	602	-	-	7/22/38/38	0/2/2/2
2	CTP	S	601	-	-	8/22/38/38	0/2/2/2
2	CTP	E	601	-	-	8/22/38/38	0/2/2/2
2	CTP	F	602	-	-	9/22/38/38	0/2/2/2
2	CTP	g	601	-	-	9/22/38/38	0/2/2/2
2	CTP	U	601	-	-	8/22/38/38	0/2/2/2
2	CTP	U	602	-	-	9/22/38/38	0/2/2/2
2	CTP	Q	602	-	-	7/22/38/38	0/2/2/2
2	CTP	S	602	-	-	7/22/38/38	0/2/2/2
2	CTP	R	601	-	-	8/22/38/38	0/2/2/2

All (87) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	601	CTP	C6-N1	-3.13	1.30	1.38
2	S	601	CTP	C6-N1	-3.12	1.30	1.38
2	T	601	CTP	C6-N1	-3.11	1.30	1.38
2	V	601	CTP	C6-N1	-3.11	1.30	1.38
2	Q	601	CTP	C6-N1	-3.10	1.30	1.38
2	U	601	CTP	C6-N1	-3.10	1.30	1.38
2	E	601	CTP	C6-N1	-3.10	1.30	1.38
2	g	601	CTP	C6-N1	-3.09	1.30	1.38
2	D	601	CTP	C6-N1	-3.09	1.30	1.38
2	h	601	CTP	C6-N1	-3.08	1.30	1.38
2	W	601	CTP	C6-N1	-3.08	1.30	1.38
2	R	601	CTP	C6-N1	-3.08	1.30	1.38
2	h	601	CTP	C5-C4	-2.78	1.36	1.42
2	E	601	CTP	C5-C4	-2.77	1.36	1.42
2	Q	601	CTP	C5-C4	-2.77	1.36	1.42
2	T	601	CTP	C5-C4	-2.77	1.36	1.42
2	W	601	CTP	C5-C4	-2.76	1.36	1.42
2	g	601	CTP	C5-C4	-2.76	1.36	1.42
2	R	601	CTP	C5-C4	-2.76	1.36	1.42
2	T	602	CTP	C6-N1	-2.75	1.31	1.38
2	D	601	CTP	C5-C4	-2.75	1.36	1.42
2	F	601	CTP	C5-C4	-2.75	1.36	1.42
2	V	601	CTP	C5-C4	-2.75	1.36	1.42
2	S	601	CTP	C5-C4	-2.74	1.36	1.42
2	F	602	CTP	C6-N1	-2.73	1.31	1.38
2	E	602	CTP	C6-N1	-2.72	1.31	1.38
2	S	602	CTP	C6-N1	-2.72	1.31	1.38
2	U	601	CTP	C5-C4	-2.72	1.36	1.42
2	D	602	CTP	C6-N1	-2.72	1.31	1.38
2	Q	602	CTP	C6-N1	-2.72	1.31	1.38
2	g	602	CTP	C6-N1	-2.71	1.31	1.38
2	h	602	CTP	C6-N1	-2.70	1.31	1.38
2	V	602	CTP	C6-N1	-2.70	1.31	1.38
2	R	602	CTP	C6-N1	-2.69	1.31	1.38
2	U	602	CTP	C6-N1	-2.68	1.31	1.38
2	W	602	CTP	C6-N1	-2.67	1.31	1.38
2	U	602	CTP	C5-C4	-2.63	1.36	1.42
2	S	602	CTP	C5-C4	-2.63	1.36	1.42
2	R	602	CTP	C5-C4	-2.62	1.37	1.42
2	Q	602	CTP	C5-C4	-2.61	1.37	1.42
2	T	602	CTP	C5-C4	-2.61	1.37	1.42
2	F	602	CTP	C5-C4	-2.60	1.37	1.42
2	D	602	CTP	C5-C4	-2.60	1.37	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	h	602	CTP	C5-C4	-2.60	1.37	1.42
2	E	602	CTP	C5-C4	-2.58	1.37	1.42
2	W	602	CTP	C5-C4	-2.58	1.37	1.42
2	g	602	CTP	C5-C4	-2.57	1.37	1.42
2	V	602	CTP	C5-C4	-2.54	1.37	1.42
2	W	602	CTP	PG-O2G	-2.41	1.45	1.54
2	F	602	CTP	PG-O2G	-2.41	1.45	1.54
2	h	602	CTP	PG-O2G	-2.40	1.45	1.54
2	V	602	CTP	PG-O2G	-2.39	1.45	1.54
2	U	602	CTP	PG-O2G	-2.39	1.45	1.54
2	g	602	CTP	PG-O2G	-2.38	1.45	1.54
2	F	602	CTP	PG-O3G	-2.15	1.46	1.54
2	g	602	CTP	PG-O3G	-2.14	1.46	1.54
2	E	602	CTP	PG-O3G	-2.14	1.46	1.54
2	h	602	CTP	PG-O3G	-2.14	1.46	1.54
2	W	602	CTP	PG-O3G	-2.14	1.46	1.54
2	D	602	CTP	PG-O3G	-2.13	1.46	1.54
2	Q	601	CTP	C2-N3	-2.13	1.32	1.36
2	Q	602	CTP	PG-O3G	-2.13	1.46	1.54
2	F	601	CTP	PB-O2B	-2.13	1.45	1.55
2	T	602	CTP	PG-O3G	-2.13	1.46	1.54
2	R	602	CTP	PG-O3G	-2.13	1.46	1.54
2	V	602	CTP	PG-O3G	-2.13	1.46	1.54
2	h	601	CTP	PB-O2B	-2.12	1.45	1.55
2	U	602	CTP	PG-O3G	-2.12	1.46	1.54
2	U	601	CTP	PB-O2B	-2.12	1.45	1.55
2	S	602	CTP	PG-O3G	-2.12	1.46	1.54
2	V	601	CTP	PB-O2B	-2.12	1.45	1.55
2	g	601	CTP	PB-O2B	-2.11	1.45	1.55
2	W	601	CTP	PB-O2B	-2.11	1.45	1.55
2	h	601	CTP	C2-N3	-2.10	1.32	1.36
2	W	601	CTP	C2-N3	-2.07	1.32	1.36
2	D	601	CTP	C2-N3	-2.06	1.32	1.36
2	U	601	CTP	C2-N3	-2.06	1.32	1.36
2	R	601	CTP	C2-N3	-2.06	1.32	1.36
2	V	601	CTP	C2-N3	-2.05	1.32	1.36
2	S	601	CTP	C2-N3	-2.05	1.32	1.36
2	E	601	CTP	C2-N3	-2.05	1.32	1.36
2	F	601	CTP	C2-N3	-2.03	1.32	1.36
2	E	602	CTP	C4-N3	-2.03	1.30	1.34
2	g	601	CTP	C2-N3	-2.02	1.32	1.36
2	T	601	CTP	C2-N3	-2.01	1.32	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	Q	602	CTP	C4-N3	-2.00	1.30	1.34
2	W	602	CTP	C4-N3	-2.00	1.30	1.34

All (150) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	S	601	CTP	PB-O3B-PG	-6.81	109.47	132.83
2	g	601	CTP	PB-O3B-PG	-6.80	109.49	132.83
2	Q	601	CTP	PB-O3B-PG	-6.80	109.49	132.83
2	T	601	CTP	PB-O3B-PG	-6.80	109.49	132.83
2	U	601	CTP	PB-O3B-PG	-6.80	109.49	132.83
2	F	601	CTP	PB-O3B-PG	-6.80	109.50	132.83
2	D	601	CTP	PB-O3B-PG	-6.80	109.51	132.83
2	E	601	CTP	PB-O3B-PG	-6.79	109.52	132.83
2	V	601	CTP	PB-O3B-PG	-6.79	109.52	132.83
2	h	601	CTP	PB-O3B-PG	-6.79	109.53	132.83
2	W	601	CTP	PB-O3B-PG	-6.79	109.54	132.83
2	R	601	CTP	PB-O3B-PG	-6.78	109.55	132.83
2	R	601	CTP	PB-O3A-PA	-4.08	118.82	132.83
2	T	601	CTP	PB-O3A-PA	-4.08	118.83	132.83
2	F	601	CTP	PB-O3A-PA	-4.07	118.84	132.83
2	h	601	CTP	PB-O3A-PA	-4.07	118.85	132.83
2	W	601	CTP	PB-O3A-PA	-4.07	118.85	132.83
2	U	601	CTP	PB-O3A-PA	-4.07	118.85	132.83
2	Q	601	CTP	PB-O3A-PA	-4.07	118.86	132.83
2	D	601	CTP	PB-O3A-PA	-4.07	118.87	132.83
2	V	601	CTP	PB-O3A-PA	-4.06	118.88	132.83
2	E	601	CTP	PB-O3A-PA	-4.06	118.89	132.83
2	g	601	CTP	PB-O3A-PA	-4.06	118.89	132.83
2	S	601	CTP	PB-O3A-PA	-4.06	118.89	132.83
2	D	601	CTP	O2'-C2'-C1'	-3.15	99.50	110.02
2	F	601	CTP	O2'-C2'-C1'	-3.14	99.53	110.02
2	R	601	CTP	O2'-C2'-C1'	-3.13	99.54	110.02
2	S	601	CTP	O2'-C2'-C1'	-3.13	99.57	110.02
2	g	601	CTP	O2'-C2'-C1'	-3.13	99.57	110.02
2	T	601	CTP	O2'-C2'-C1'	-3.12	99.58	110.02
2	V	601	CTP	O2'-C2'-C1'	-3.12	99.60	110.02
2	h	601	CTP	O2'-C2'-C1'	-3.12	99.60	110.02
2	W	601	CTP	O2'-C2'-C1'	-3.11	99.62	110.02
2	E	601	CTP	O2'-C2'-C1'	-3.11	99.62	110.02
2	Q	601	CTP	O2'-C2'-C1'	-3.11	99.62	110.02
2	U	601	CTP	O2'-C2'-C1'	-3.11	99.63	110.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	602	CTP	O4'-C1'-N1	3.04	115.31	108.36
2	U	602	CTP	O4'-C1'-N1	3.03	115.30	108.36
2	g	602	CTP	O4'-C1'-N1	3.03	115.29	108.36
2	T	602	CTP	O4'-C1'-N1	3.02	115.28	108.36
2	h	602	CTP	O4'-C1'-N1	3.02	115.27	108.36
2	R	602	CTP	O4'-C1'-N1	3.02	115.27	108.36
2	V	602	CTP	O4'-C1'-N1	3.01	115.25	108.36
2	W	602	CTP	O4'-C1'-N1	3.01	115.25	108.36
2	Q	602	CTP	O4'-C1'-N1	3.01	115.23	108.36
2	E	602	CTP	O4'-C1'-N1	3.00	115.23	108.36
2	D	602	CTP	O4'-C1'-N1	2.99	115.21	108.36
2	S	602	CTP	O4'-C1'-N1	2.98	115.19	108.36
2	S	602	CTP	PB-O3A-PA	-2.72	123.48	132.83
2	E	602	CTP	PB-O3A-PA	-2.72	123.50	132.83
2	T	602	CTP	PB-O3A-PA	-2.72	123.50	132.83
2	Q	602	CTP	PB-O3A-PA	-2.72	123.51	132.83
2	V	602	CTP	PB-O3A-PA	-2.71	123.53	132.83
2	g	602	CTP	PB-O3A-PA	-2.71	123.54	132.83
2	D	602	CTP	PB-O3A-PA	-2.71	123.54	132.83
2	W	602	CTP	PB-O3A-PA	-2.71	123.54	132.83
2	h	602	CTP	PB-O3A-PA	-2.70	123.55	132.83
2	R	602	CTP	PB-O3A-PA	-2.70	123.56	132.83
2	F	602	CTP	PB-O3A-PA	-2.70	123.56	132.83
2	U	602	CTP	PB-O3A-PA	-2.70	123.56	132.83
2	E	601	CTP	O3G-PG-O2G	2.60	117.59	107.64
2	R	601	CTP	O3G-PG-O2G	2.60	117.59	107.64
2	T	601	CTP	O3G-PG-O2G	2.60	117.57	107.64
2	Q	601	CTP	O3G-PG-O2G	2.59	117.54	107.64
2	R	602	CTP	O2-C2-N3	-2.47	118.31	122.33
2	V	602	CTP	O2-C2-N3	-2.47	118.32	122.33
2	T	601	CTP	O2-C2-N3	-2.47	118.32	122.33
2	F	602	CTP	O2-C2-N3	-2.46	118.33	122.33
2	T	602	CTP	O2-C2-N3	-2.42	118.39	122.33
2	h	602	CTP	O2-C2-N3	-2.42	118.40	122.33
2	g	602	CTP	O2-C2-N3	-2.42	118.40	122.33
2	Q	602	CTP	O2-C2-N3	-2.41	118.41	122.33
2	E	602	CTP	O2-C2-N3	-2.41	118.41	122.33
2	S	602	CTP	O2-C2-N3	-2.41	118.42	122.33
2	h	601	CTP	O2-C2-N3	-2.40	118.43	122.33
2	W	602	CTP	O2-C2-N3	-2.40	118.44	122.33
2	Q	601	CTP	O2-C2-N3	-2.39	118.44	122.33
2	U	602	CTP	O2-C2-N3	-2.39	118.45	122.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	V	601	CTP	O2-C2-N3	-2.38	118.45	122.33
2	F	601	CTP	O2-C2-N3	-2.38	118.46	122.33
2	g	601	CTP	O2-C2-N3	-2.38	118.46	122.33
2	R	601	CTP	O2-C2-N3	-2.38	118.47	122.33
2	W	601	CTP	O2-C2-N3	-2.37	118.47	122.33
2	D	602	CTP	O2-C2-N3	-2.37	118.48	122.33
2	E	601	CTP	O2-C2-N3	-2.36	118.50	122.33
2	V	602	CTP	O2G-PG-O1G	2.35	119.90	110.68
2	U	602	CTP	O2G-PG-O1G	2.35	119.90	110.68
2	D	601	CTP	O2-C2-N3	-2.35	118.51	122.33
2	g	602	CTP	O2G-PG-O1G	2.34	119.83	110.68
2	U	601	CTP	O2-C2-N3	-2.34	118.53	122.33
2	S	602	CTP	O2G-PG-O1G	2.34	119.82	110.68
2	F	602	CTP	O2G-PG-O1G	2.34	119.82	110.68
2	W	602	CTP	O2G-PG-O1G	2.33	119.82	110.68
2	R	602	CTP	O2G-PG-O1G	2.33	119.81	110.68
2	T	602	CTP	O2G-PG-O1G	2.33	119.81	110.68
2	S	601	CTP	O2-C2-N3	-2.33	118.54	122.33
2	h	602	CTP	O2G-PG-O1G	2.33	119.80	110.68
2	Q	602	CTP	O2G-PG-O1G	2.33	119.79	110.68
2	E	602	CTP	O2G-PG-O1G	2.32	119.78	110.68
2	D	602	CTP	O2G-PG-O1G	2.32	119.76	110.68
2	R	602	CTP	C6-C5-C4	2.18	121.02	117.50
2	E	602	CTP	C6-C5-C4	2.17	121.00	117.50
2	V	602	CTP	PB-O3B-PG	-2.17	125.39	132.83
2	U	602	CTP	C6-C5-C4	2.16	121.00	117.50
2	h	602	CTP	PB-O3B-PG	-2.16	125.42	132.83
2	h	602	CTP	C6-C5-C4	2.15	120.98	117.50
2	U	602	CTP	PB-O3B-PG	-2.15	125.45	132.83
2	D	602	CTP	PB-O3B-PG	-2.15	125.46	132.83
2	S	602	CTP	PB-O3B-PG	-2.15	125.46	132.83
2	D	602	CTP	C6-C5-C4	2.14	120.96	117.50
2	T	602	CTP	PB-O3B-PG	-2.14	125.47	132.83
2	E	602	CTP	PB-O3B-PG	-2.14	125.47	132.83
2	W	602	CTP	PB-O3B-PG	-2.14	125.47	132.83
2	g	602	CTP	PB-O3B-PG	-2.14	125.47	132.83
2	S	602	CTP	C6-C5-C4	2.14	120.96	117.50
2	F	602	CTP	PB-O3B-PG	-2.14	125.48	132.83
2	R	602	CTP	PB-O3B-PG	-2.14	125.50	132.83
2	Q	602	CTP	PB-O3B-PG	-2.13	125.50	132.83
2	W	602	CTP	C6-C5-C4	2.13	120.94	117.50
2	Q	602	CTP	C6-C5-C4	2.13	120.94	117.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	T	601	CTP	O2A-PA-O1A	2.13	122.76	112.24
2	F	602	CTP	C6-C5-C4	2.13	120.94	117.50
2	Q	601	CTP	O2A-PA-O1A	2.12	122.74	112.24
2	E	601	CTP	O2A-PA-O1A	2.12	122.72	112.24
2	U	601	CTP	O2A-PA-O1A	2.12	122.71	112.24
2	D	601	CTP	O2A-PA-O1A	2.12	122.70	112.24
2	T	602	CTP	C6-C5-C4	2.11	120.92	117.50
2	F	601	CTP	O2A-PA-O1A	2.11	122.69	112.24
2	V	602	CTP	C6-C5-C4	2.11	120.91	117.50
2	V	601	CTP	O2A-PA-O1A	2.11	122.69	112.24
2	h	601	CTP	O2A-PA-O1A	2.11	122.68	112.24
2	R	601	CTP	O2A-PA-O1A	2.11	122.66	112.24
2	S	601	CTP	O2A-PA-O1A	2.11	122.66	112.24
2	W	601	CTP	O2A-PA-O1A	2.10	122.63	112.24
2	g	601	CTP	O2A-PA-O1A	2.10	122.62	112.24
2	g	602	CTP	C6-C5-C4	2.09	120.87	117.50
2	W	601	CTP	O2'-C2'-C3'	-2.06	105.14	111.82
2	S	601	CTP	O3G-PG-O2G	2.06	115.52	107.64
2	U	601	CTP	O2'-C2'-C3'	-2.06	105.16	111.82
2	T	601	CTP	O2'-C2'-C3'	-2.06	105.17	111.82
2	S	601	CTP	O2'-C2'-C3'	-2.05	105.18	111.82
2	F	601	CTP	O2'-C2'-C3'	-2.05	105.18	111.82
2	D	601	CTP	O3G-PG-O2G	2.05	115.48	107.64
2	E	601	CTP	O2'-C2'-C3'	-2.05	105.19	111.82
2	Q	601	CTP	O2'-C2'-C3'	-2.05	105.19	111.82
2	V	601	CTP	O2'-C2'-C3'	-2.05	105.19	111.82
2	h	601	CTP	O2'-C2'-C3'	-2.04	105.23	111.82
2	g	601	CTP	O2'-C2'-C3'	-2.04	105.23	111.82
2	D	601	CTP	O2'-C2'-C3'	-2.04	105.24	111.82
2	R	601	CTP	O2'-C2'-C3'	-2.03	105.25	111.82

There are no chirality outliers.

All (193) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	V	601	CTP	C2'-C1'-N1-C6
2	V	601	CTP	C5'-O5'-PA-O1A
2	V	601	CTP	C5'-O5'-PA-O2A
2	V	602	CTP	C3'-C4'-C5'-O5'
2	V	602	CTP	C5'-O5'-PA-O1A
2	D	601	CTP	C2'-C1'-N1-C6
2	D	601	CTP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
2	D	601	CTP	C5'-O5'-PA-O2A
2	D	602	CTP	C3'-C4'-C5'-O5'
2	D	602	CTP	C5'-O5'-PA-O2A
2	D	602	CTP	PB-O3B-PG-O2G
2	E	601	CTP	C2'-C1'-N1-C6
2	E	601	CTP	C5'-O5'-PA-O1A
2	E	601	CTP	C5'-O5'-PA-O2A
2	E	602	CTP	C3'-C4'-C5'-O5'
2	E	602	CTP	C5'-O5'-PA-O2A
2	E	602	CTP	PB-O3B-PG-O2G
2	F	601	CTP	C2'-C1'-N1-C6
2	F	601	CTP	C5'-O5'-PA-O1A
2	F	601	CTP	C5'-O5'-PA-O2A
2	F	602	CTP	C3'-C4'-C5'-O5'
2	F	602	CTP	C5'-O5'-PA-O1A
2	g	601	CTP	C2'-C1'-N1-C6
2	g	601	CTP	C5'-O5'-PA-O1A
2	g	601	CTP	C5'-O5'-PA-O2A
2	g	602	CTP	C3'-C4'-C5'-O5'
2	g	602	CTP	C5'-O5'-PA-O1A
2	Q	601	CTP	C2'-C1'-N1-C6
2	Q	601	CTP	C5'-O5'-PA-O1A
2	Q	601	CTP	C5'-O5'-PA-O2A
2	Q	602	CTP	C3'-C4'-C5'-O5'
2	Q	602	CTP	C5'-O5'-PA-O2A
2	Q	602	CTP	PB-O3B-PG-O2G
2	S	601	CTP	C2'-C1'-N1-C6
2	S	601	CTP	C5'-O5'-PA-O1A
2	S	601	CTP	C5'-O5'-PA-O2A
2	S	602	CTP	C3'-C4'-C5'-O5'
2	S	602	CTP	C5'-O5'-PA-O2A
2	S	602	CTP	PB-O3B-PG-O2G
2	U	601	CTP	C2'-C1'-N1-C6
2	U	601	CTP	C5'-O5'-PA-O1A
2	U	601	CTP	C5'-O5'-PA-O2A
2	U	602	CTP	C3'-C4'-C5'-O5'
2	U	602	CTP	C5'-O5'-PA-O1A
2	h	601	CTP	C2'-C1'-N1-C6
2	h	601	CTP	C5'-O5'-PA-O1A
2	h	601	CTP	C5'-O5'-PA-O2A
2	h	602	CTP	C3'-C4'-C5'-O5'
2	h	602	CTP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
2	R	601	CTP	C2'-C1'-N1-C6
2	R	601	CTP	C5'-O5'-PA-O1A
2	R	601	CTP	C5'-O5'-PA-O2A
2	R	602	CTP	C3'-C4'-C5'-O5'
2	R	602	CTP	C5'-O5'-PA-O2A
2	R	602	CTP	PB-O3B-PG-O2G
2	T	601	CTP	C2'-C1'-N1-C6
2	T	601	CTP	C5'-O5'-PA-O1A
2	T	601	CTP	C5'-O5'-PA-O2A
2	T	602	CTP	C3'-C4'-C5'-O5'
2	T	602	CTP	C5'-O5'-PA-O2A
2	T	602	CTP	PB-O3B-PG-O2G
2	W	601	CTP	C2'-C1'-N1-C6
2	W	601	CTP	C5'-O5'-PA-O1A
2	W	601	CTP	C5'-O5'-PA-O2A
2	W	602	CTP	C3'-C4'-C5'-O5'
2	W	602	CTP	C5'-O5'-PA-O1A
2	V	602	CTP	O4'-C4'-C5'-O5'
2	D	602	CTP	O4'-C4'-C5'-O5'
2	E	602	CTP	O4'-C4'-C5'-O5'
2	F	602	CTP	O4'-C4'-C5'-O5'
2	g	602	CTP	O4'-C4'-C5'-O5'
2	Q	602	CTP	O4'-C4'-C5'-O5'
2	S	602	CTP	O4'-C4'-C5'-O5'
2	U	602	CTP	O4'-C4'-C5'-O5'
2	h	602	CTP	O4'-C4'-C5'-O5'
2	R	602	CTP	O4'-C4'-C5'-O5'
2	T	602	CTP	O4'-C4'-C5'-O5'
2	W	602	CTP	O4'-C4'-C5'-O5'
2	V	601	CTP	C2'-C1'-N1-C2
2	D	601	CTP	C2'-C1'-N1-C2
2	E	601	CTP	C2'-C1'-N1-C2
2	F	601	CTP	C2'-C1'-N1-C2
2	g	601	CTP	C2'-C1'-N1-C2
2	Q	601	CTP	C2'-C1'-N1-C2
2	S	601	CTP	C2'-C1'-N1-C2
2	U	601	CTP	C2'-C1'-N1-C2
2	h	601	CTP	C2'-C1'-N1-C2
2	R	601	CTP	C2'-C1'-N1-C2
2	T	601	CTP	C2'-C1'-N1-C2
2	W	601	CTP	C2'-C1'-N1-C2
2	V	601	CTP	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	D	601	CTP	O4'-C4'-C5'-O5'
2	E	601	CTP	O4'-C4'-C5'-O5'
2	F	601	CTP	O4'-C4'-C5'-O5'
2	g	601	CTP	O4'-C4'-C5'-O5'
2	Q	601	CTP	O4'-C4'-C5'-O5'
2	S	601	CTP	O4'-C4'-C5'-O5'
2	U	601	CTP	O4'-C4'-C5'-O5'
2	h	601	CTP	O4'-C4'-C5'-O5'
2	R	601	CTP	O4'-C4'-C5'-O5'
2	T	601	CTP	O4'-C4'-C5'-O5'
2	W	601	CTP	O4'-C4'-C5'-O5'
2	V	601	CTP	O4'-C1'-N1-C6
2	D	601	CTP	O4'-C1'-N1-C6
2	E	601	CTP	O4'-C1'-N1-C6
2	F	601	CTP	O4'-C1'-N1-C6
2	g	601	CTP	O4'-C1'-N1-C6
2	Q	601	CTP	O4'-C1'-N1-C6
2	S	601	CTP	O4'-C1'-N1-C6
2	U	601	CTP	O4'-C1'-N1-C6
2	h	601	CTP	O4'-C1'-N1-C6
2	R	601	CTP	O4'-C1'-N1-C6
2	T	601	CTP	O4'-C1'-N1-C6
2	W	601	CTP	O4'-C1'-N1-C6
2	V	601	CTP	O4'-C1'-N1-C2
2	D	601	CTP	O4'-C1'-N1-C2
2	E	601	CTP	O4'-C1'-N1-C2
2	F	601	CTP	O4'-C1'-N1-C2
2	g	601	CTP	O4'-C1'-N1-C2
2	Q	601	CTP	O4'-C1'-N1-C2
2	S	601	CTP	O4'-C1'-N1-C2
2	U	601	CTP	O4'-C1'-N1-C2
2	h	601	CTP	O4'-C1'-N1-C2
2	R	601	CTP	O4'-C1'-N1-C2
2	T	601	CTP	O4'-C1'-N1-C2
2	W	601	CTP	O4'-C1'-N1-C2
2	V	602	CTP	PB-O3B-PG-O1G
2	F	602	CTP	PB-O3B-PG-O1G
2	g	602	CTP	PB-O3B-PG-O1G
2	U	602	CTP	PB-O3B-PG-O1G
2	h	602	CTP	PB-O3B-PG-O1G
2	W	602	CTP	PB-O3B-PG-O1G
2	V	602	CTP	PB-O3B-PG-O2G

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Mol	Chain	Res	Type	Atoms
2	V	602	CTP	PB-O3B-PG-O3G
2	D	602	CTP	PB-O3B-PG-O3G
2	E	602	CTP	PB-O3B-PG-O3G
2	F	602	CTP	PB-O3B-PG-O2G
2	F	602	CTP	PB-O3B-PG-O3G
2	g	602	CTP	PB-O3B-PG-O2G
2	g	602	CTP	PB-O3B-PG-O3G
2	Q	602	CTP	PB-O3B-PG-O3G
2	S	602	CTP	PB-O3B-PG-O3G
2	U	602	CTP	PB-O3B-PG-O2G
2	U	602	CTP	PB-O3B-PG-O3G
2	h	602	CTP	PB-O3B-PG-O2G
2	h	602	CTP	PB-O3B-PG-O3G
2	R	602	CTP	PB-O3B-PG-O3G
2	T	602	CTP	PB-O3B-PG-O3G
2	W	602	CTP	PB-O3B-PG-O2G
2	W	602	CTP	PB-O3B-PG-O3G
2	V	601	CTP	C5'-O5'-PA-O3A
2	V	602	CTP	C5'-O5'-PA-O3A
2	D	601	CTP	C5'-O5'-PA-O3A
2	D	602	CTP	C5'-O5'-PA-O3A
2	E	601	CTP	C5'-O5'-PA-O3A
2	E	602	CTP	C5'-O5'-PA-O3A
2	F	601	CTP	C5'-O5'-PA-O3A
2	F	602	CTP	C5'-O5'-PA-O3A
2	g	601	CTP	C5'-O5'-PA-O3A
2	g	602	CTP	C5'-O5'-PA-O3A
2	Q	601	CTP	C5'-O5'-PA-O3A
2	Q	602	CTP	C5'-O5'-PA-O3A
2	S	601	CTP	C5'-O5'-PA-O3A
2	S	602	CTP	C5'-O5'-PA-O3A
2	U	601	CTP	C5'-O5'-PA-O3A
2	U	602	CTP	C5'-O5'-PA-O3A
2	h	601	CTP	C5'-O5'-PA-O3A
2	h	602	CTP	C5'-O5'-PA-O3A
2	R	601	CTP	C5'-O5'-PA-O3A
2	R	602	CTP	C5'-O5'-PA-O3A
2	T	601	CTP	C5'-O5'-PA-O3A
2	T	602	CTP	C5'-O5'-PA-O3A
2	W	601	CTP	C5'-O5'-PA-O3A
2	W	602	CTP	C5'-O5'-PA-O3A
2	F	601	CTP	PB-O3A-PA-O1A

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Mol	Chain	Res	Type	Atoms
2	F	602	CTP	PA-O3A-PB-O2B
2	g	601	CTP	PB-O3A-PA-O1A
2	g	602	CTP	PA-O3A-PB-O2B
2	U	602	CTP	PA-O3A-PB-O2B
2	h	602	CTP	PA-O3A-PB-O2B
2	W	602	CTP	PA-O3A-PB-O2B
2	V	602	CTP	C5'-O5'-PA-O2A
2	D	602	CTP	C5'-O5'-PA-O1A
2	E	602	CTP	C5'-O5'-PA-O1A
2	F	602	CTP	C5'-O5'-PA-O2A
2	g	602	CTP	C5'-O5'-PA-O2A
2	Q	602	CTP	C5'-O5'-PA-O1A
2	S	602	CTP	C5'-O5'-PA-O1A
2	U	602	CTP	C5'-O5'-PA-O2A
2	h	602	CTP	C5'-O5'-PA-O2A
2	R	602	CTP	C5'-O5'-PA-O1A
2	T	602	CTP	C5'-O5'-PA-O1A
2	W	602	CTP	C5'-O5'-PA-O2A

There are no ring outliers.

20 monomers are involved in 69 short contacts:

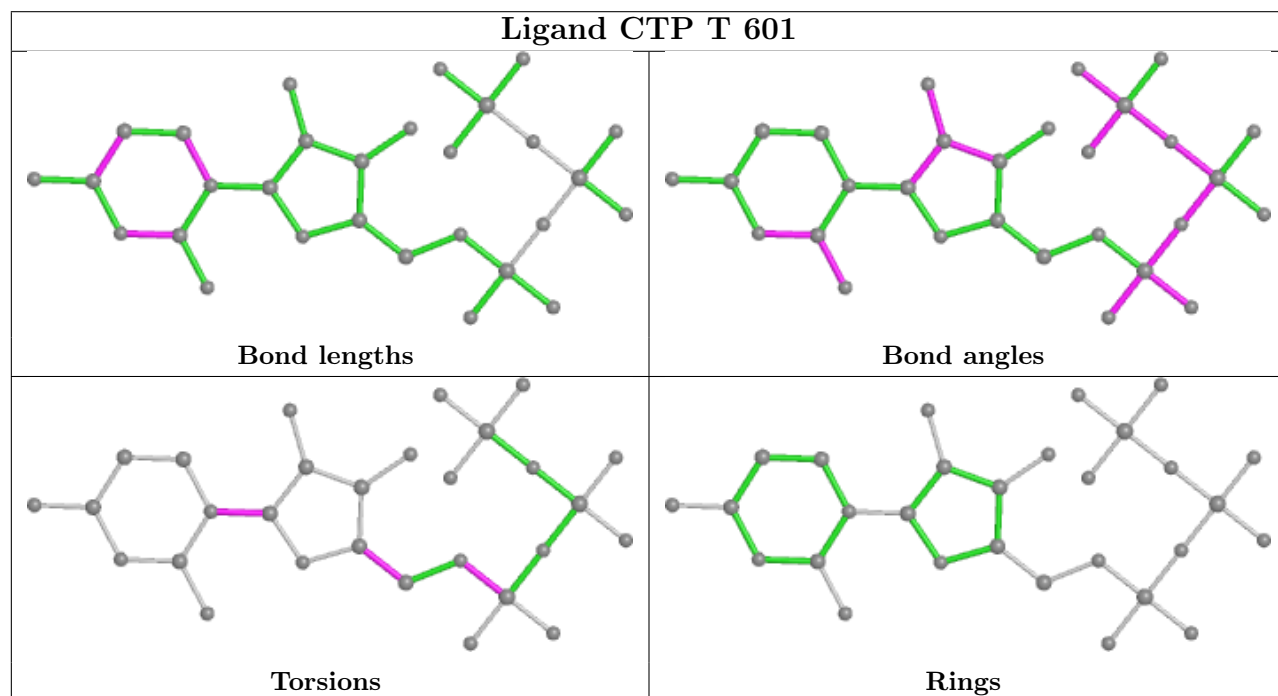
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	T	601	CTP	3	0
2	V	602	CTP	4	0
2	R	602	CTP	4	0
2	D	601	CTP	3	0
2	W	601	CTP	3	0
2	D	602	CTP	4	0
2	Q	601	CTP	2	0
2	E	602	CTP	4	0
2	W	602	CTP	4	0
2	F	601	CTP	3	0
2	V	601	CTP	3	0
2	T	602	CTP	5	0
2	S	601	CTP	3	0
2	E	601	CTP	3	0
2	F	602	CTP	4	0
2	U	601	CTP	3	0
2	U	602	CTP	4	0
2	Q	602	CTP	4	0
2	S	602	CTP	4	0

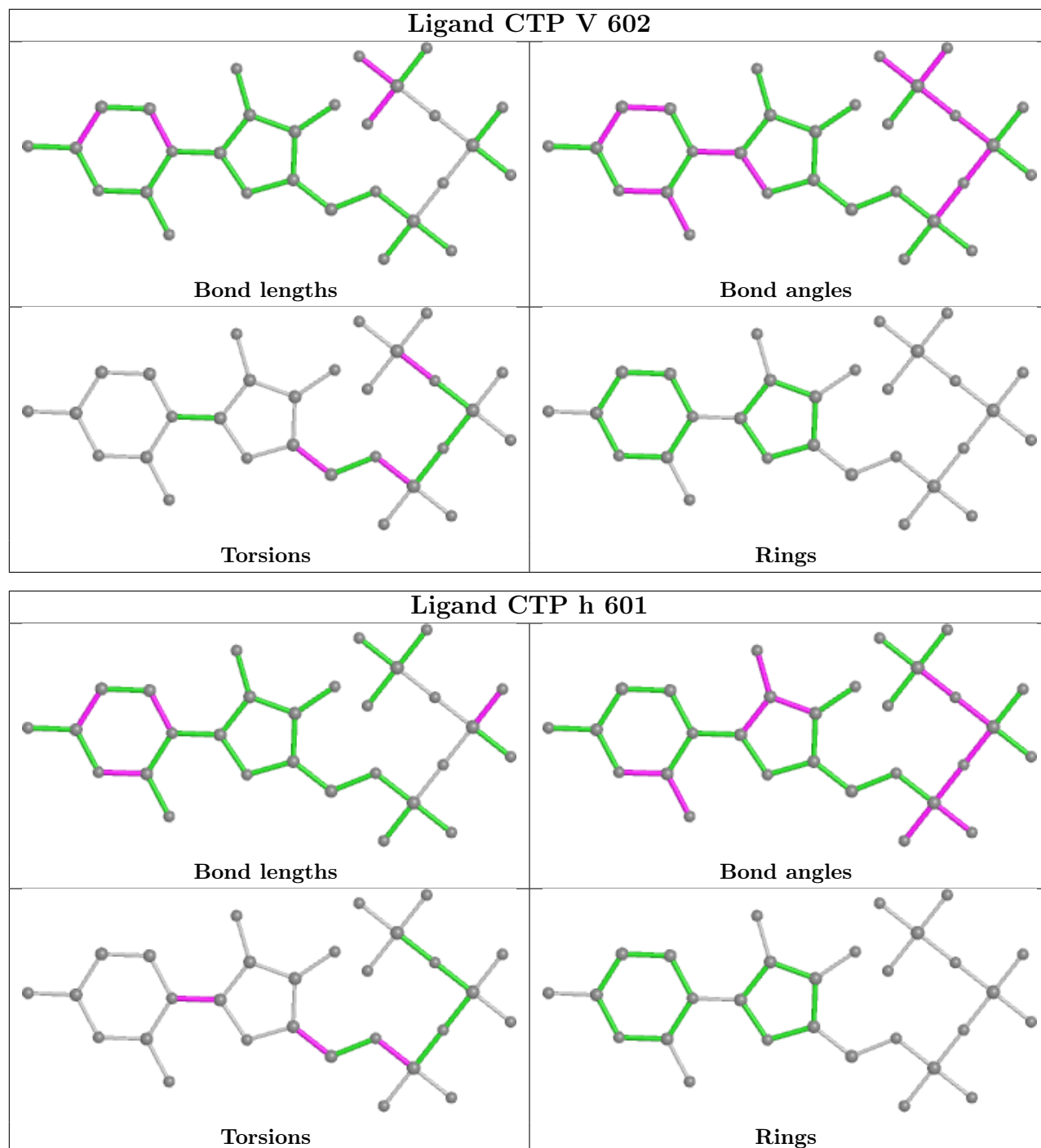
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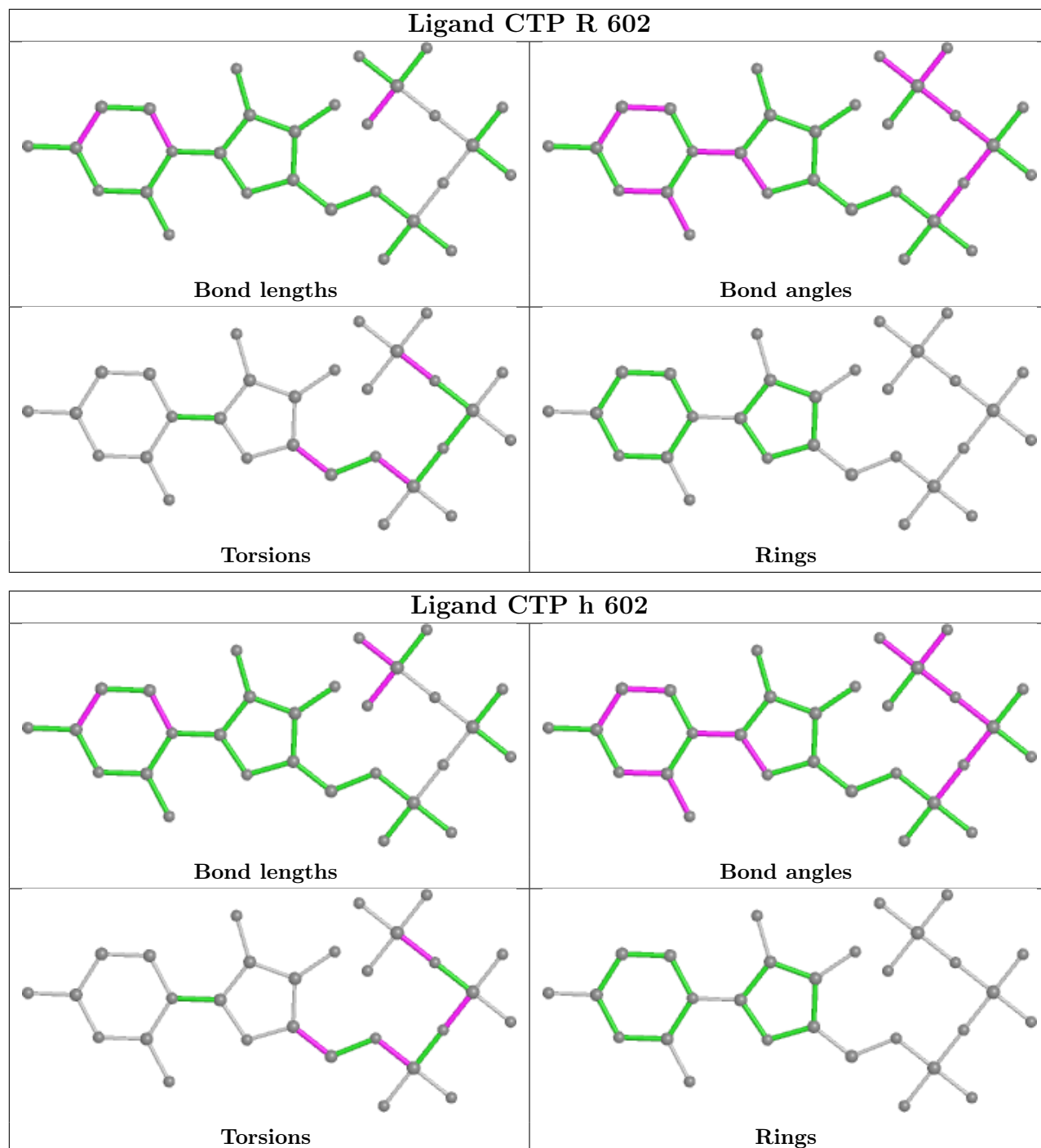
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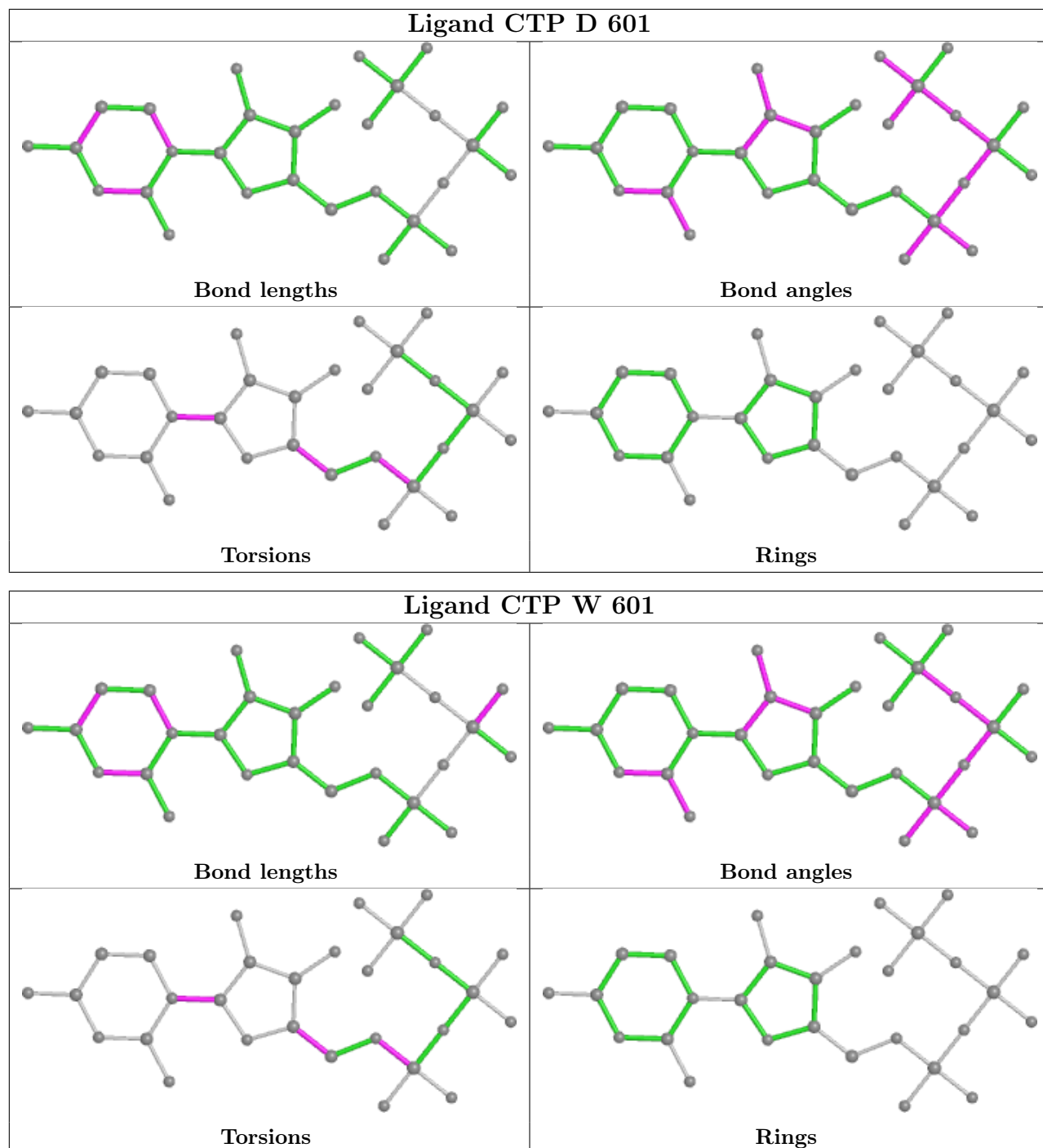
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	R	601	CTP	2	0

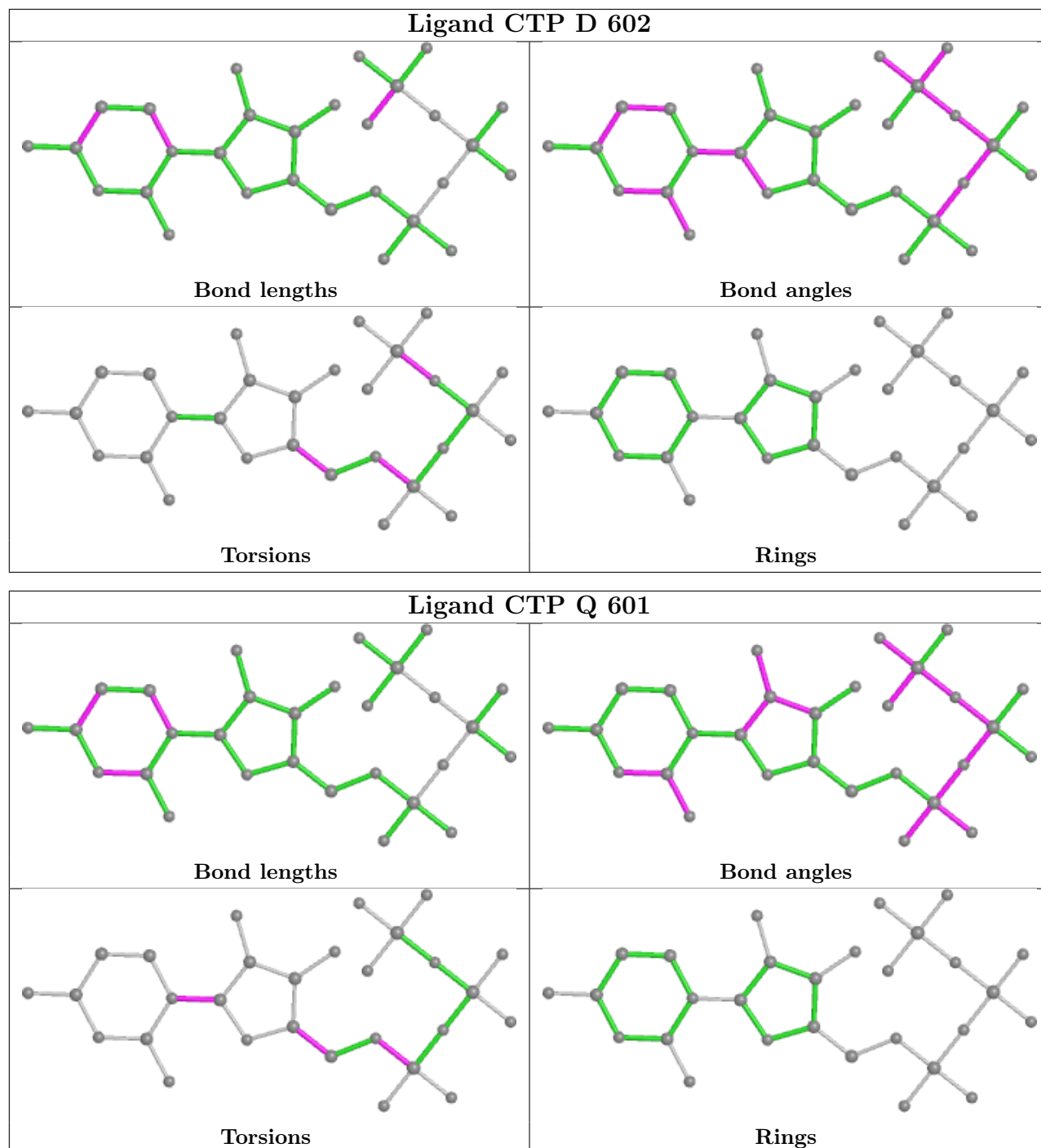
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

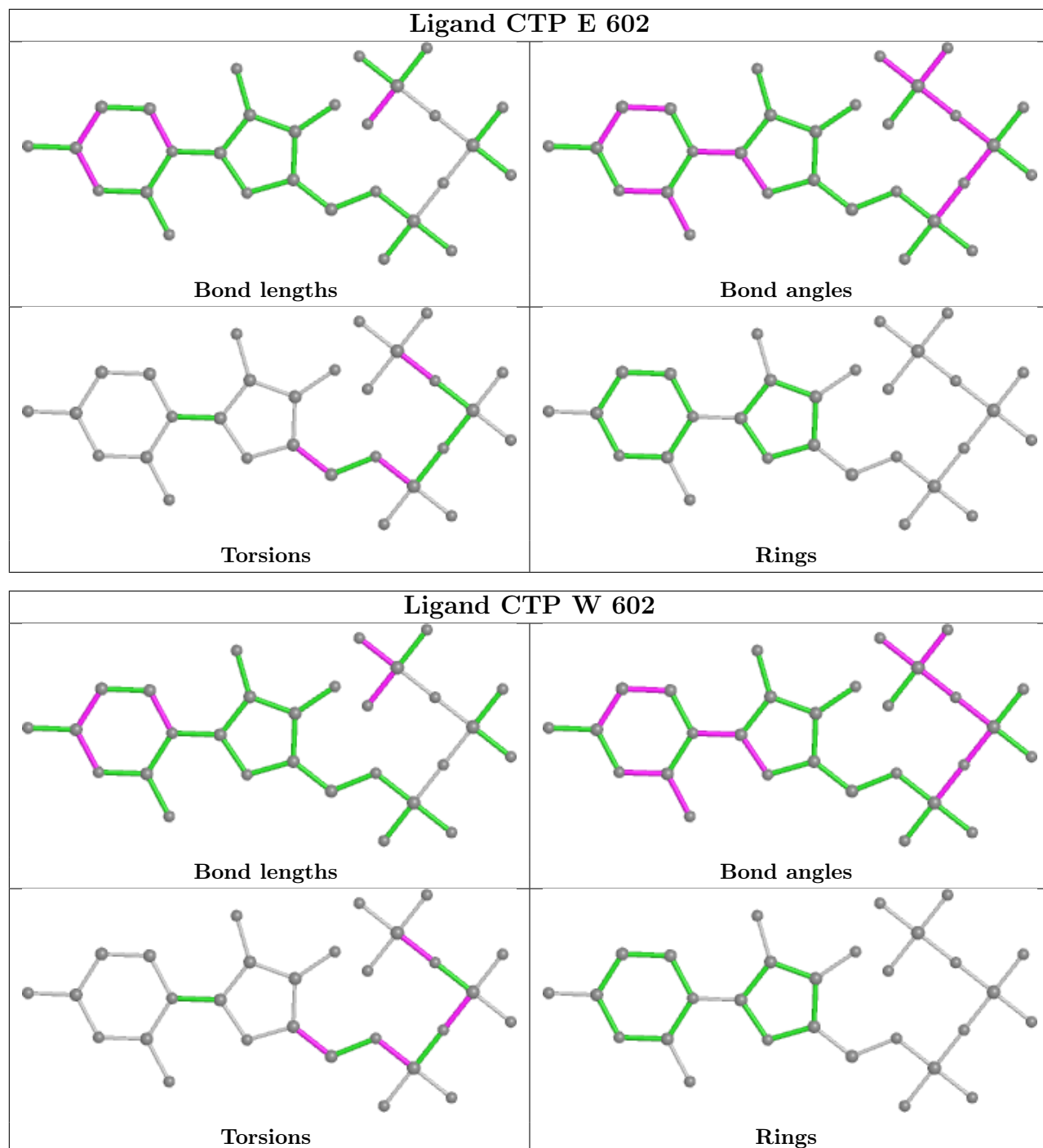


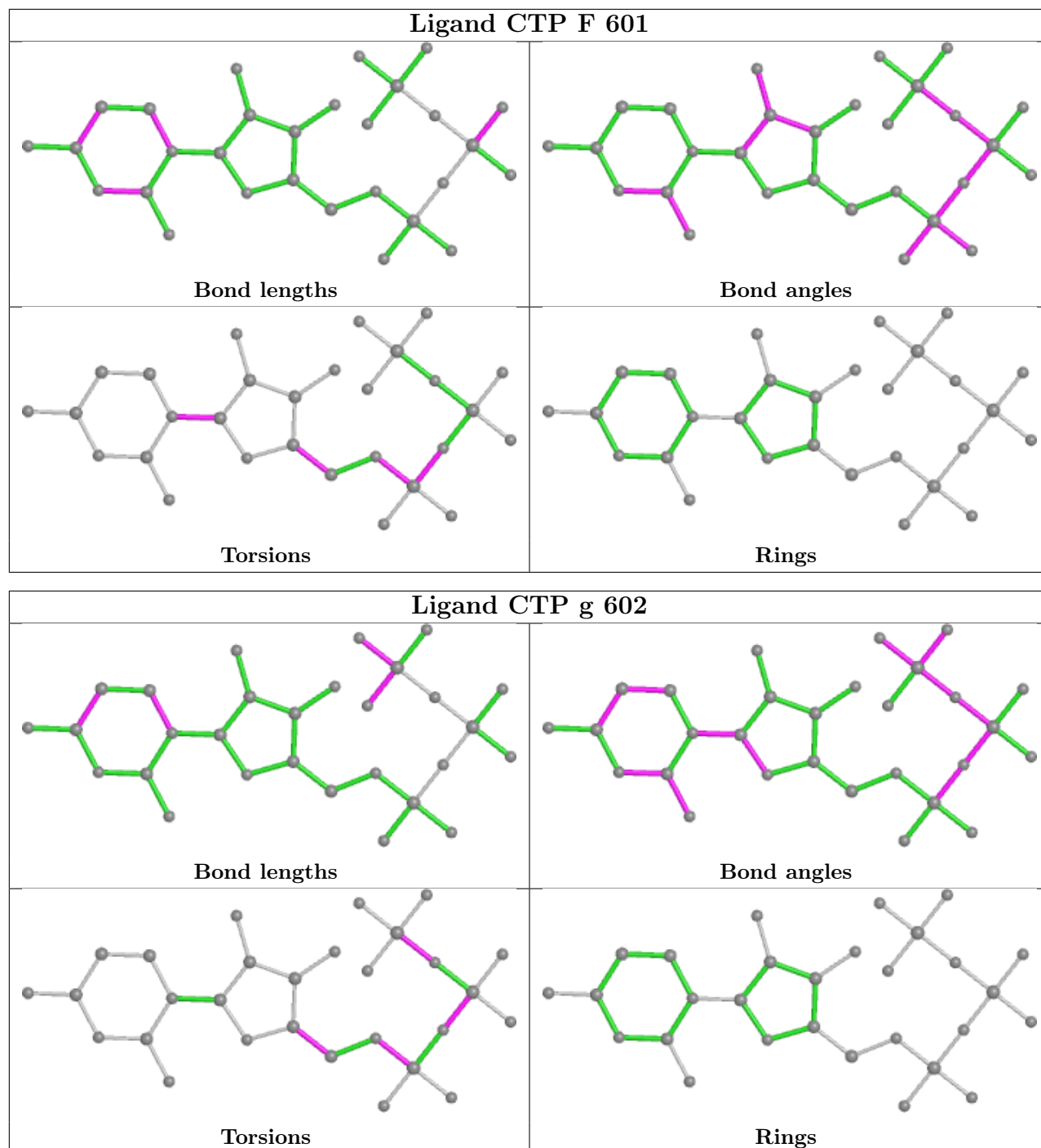




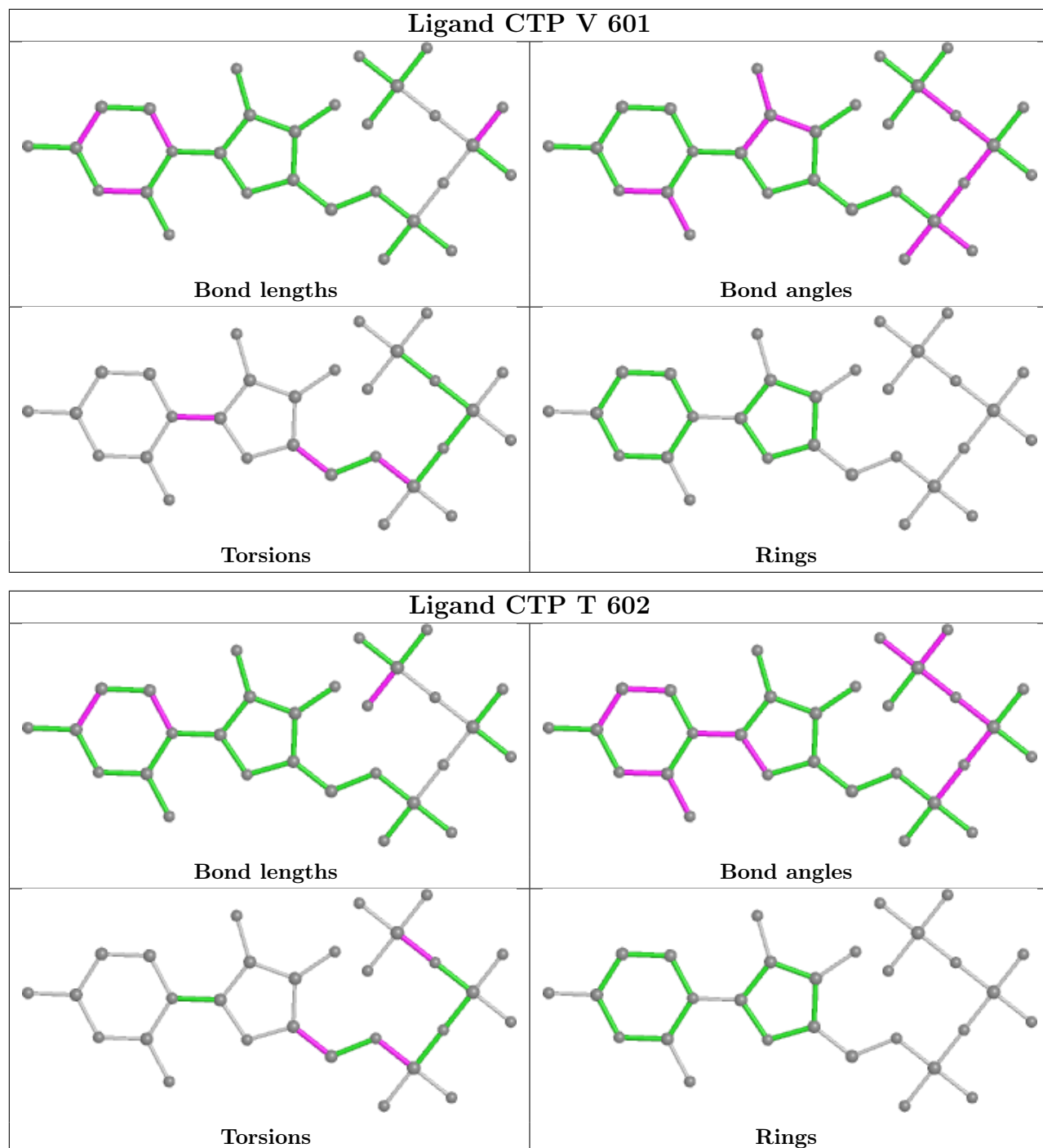


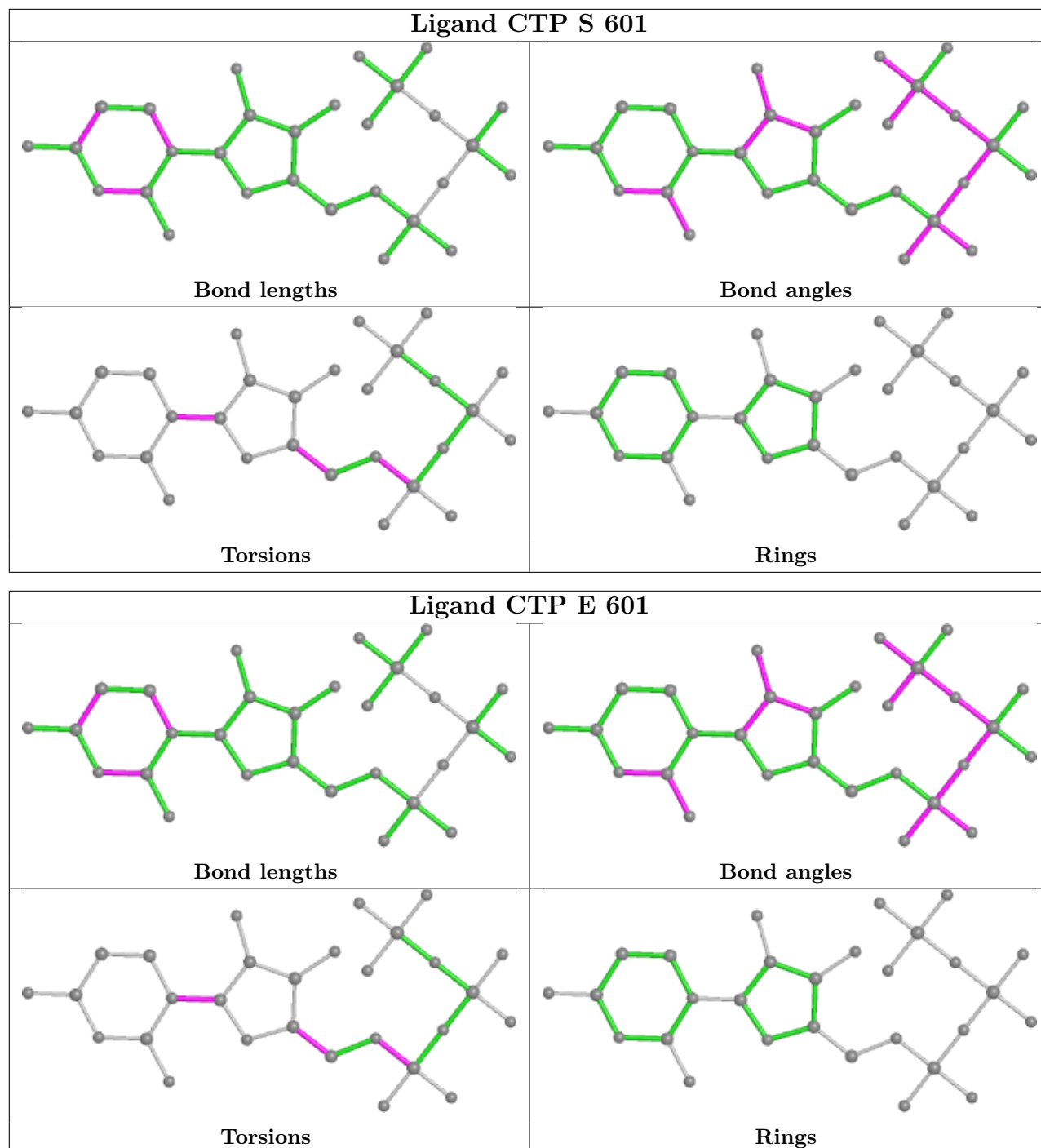


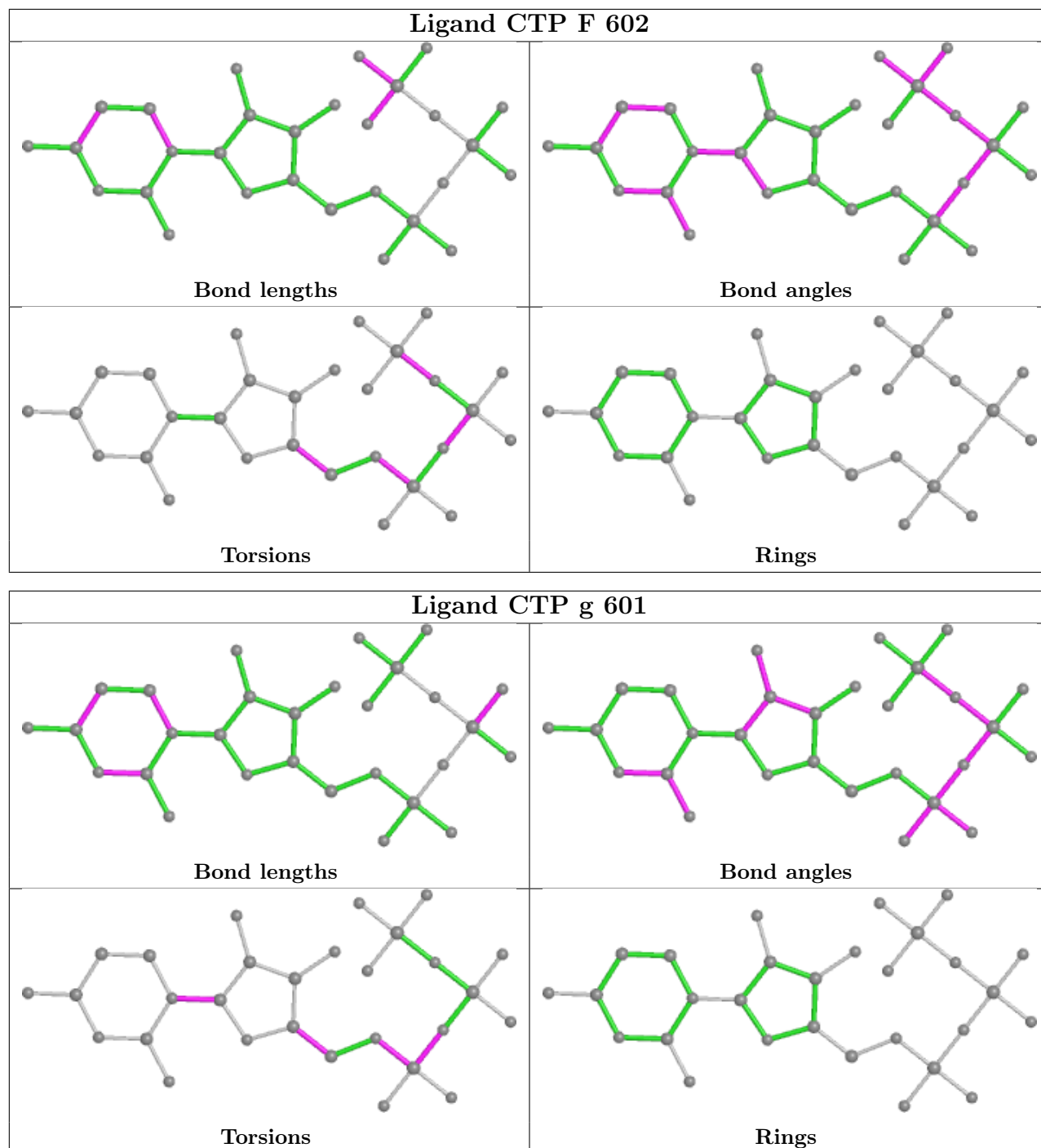


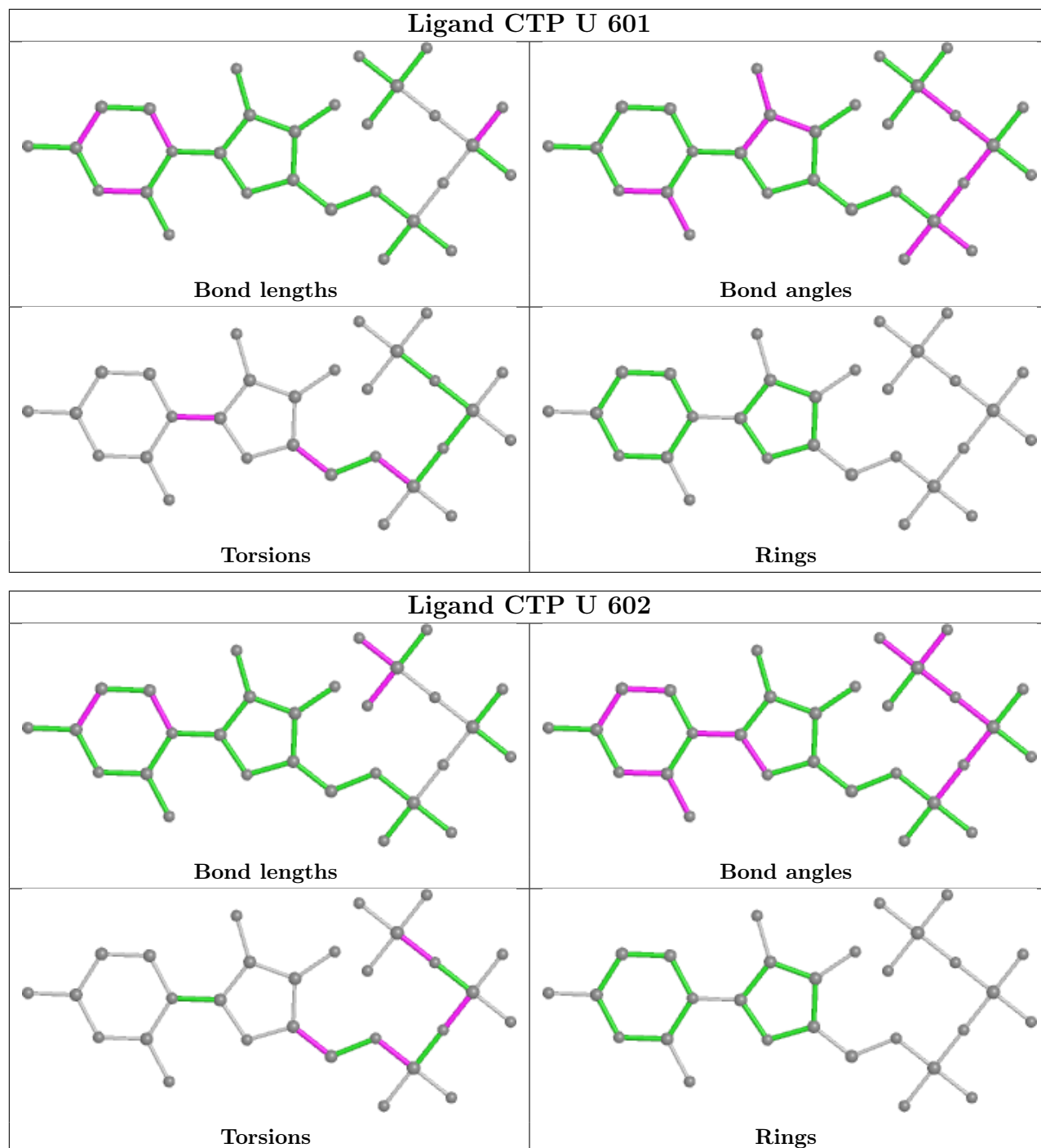


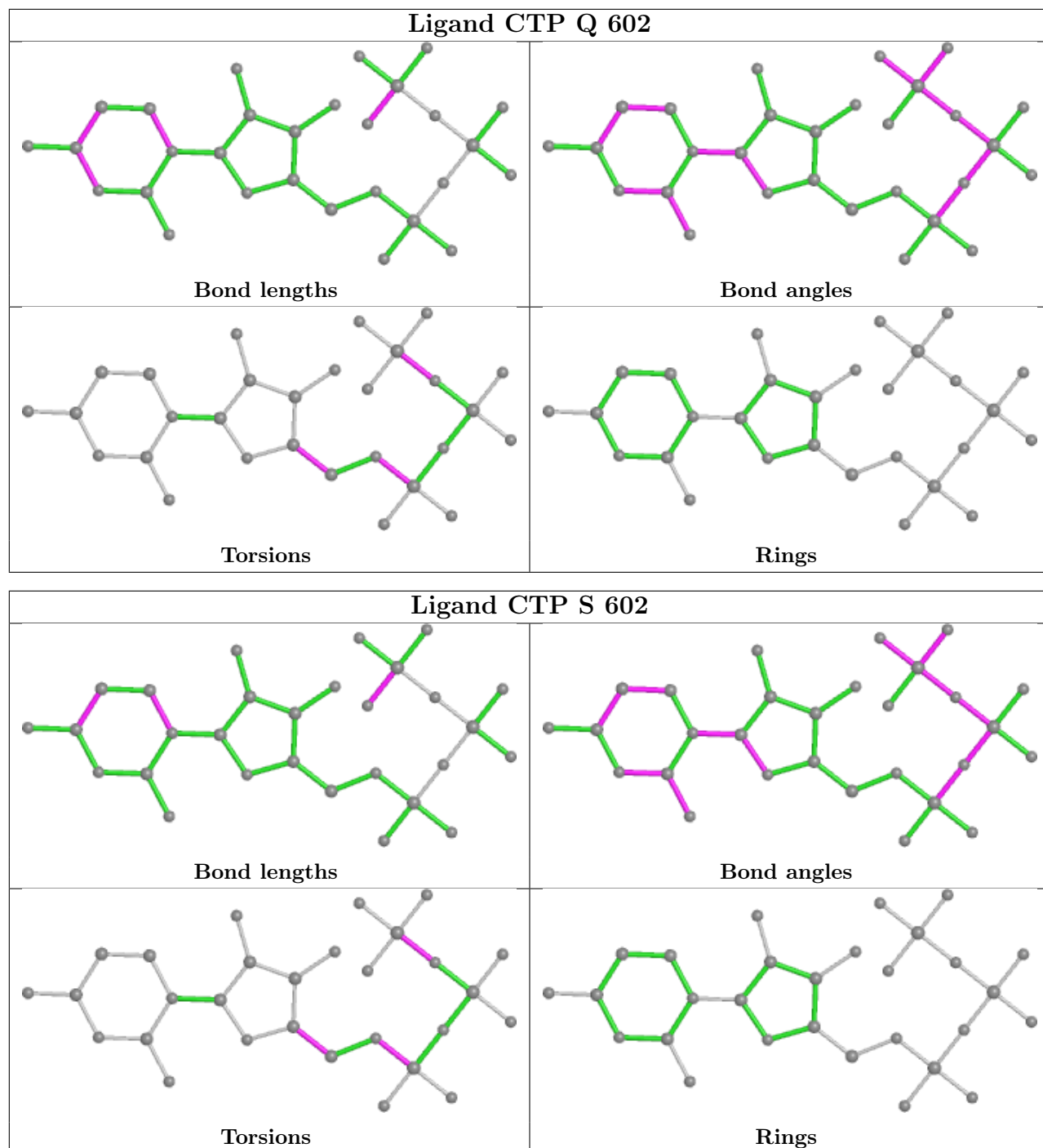


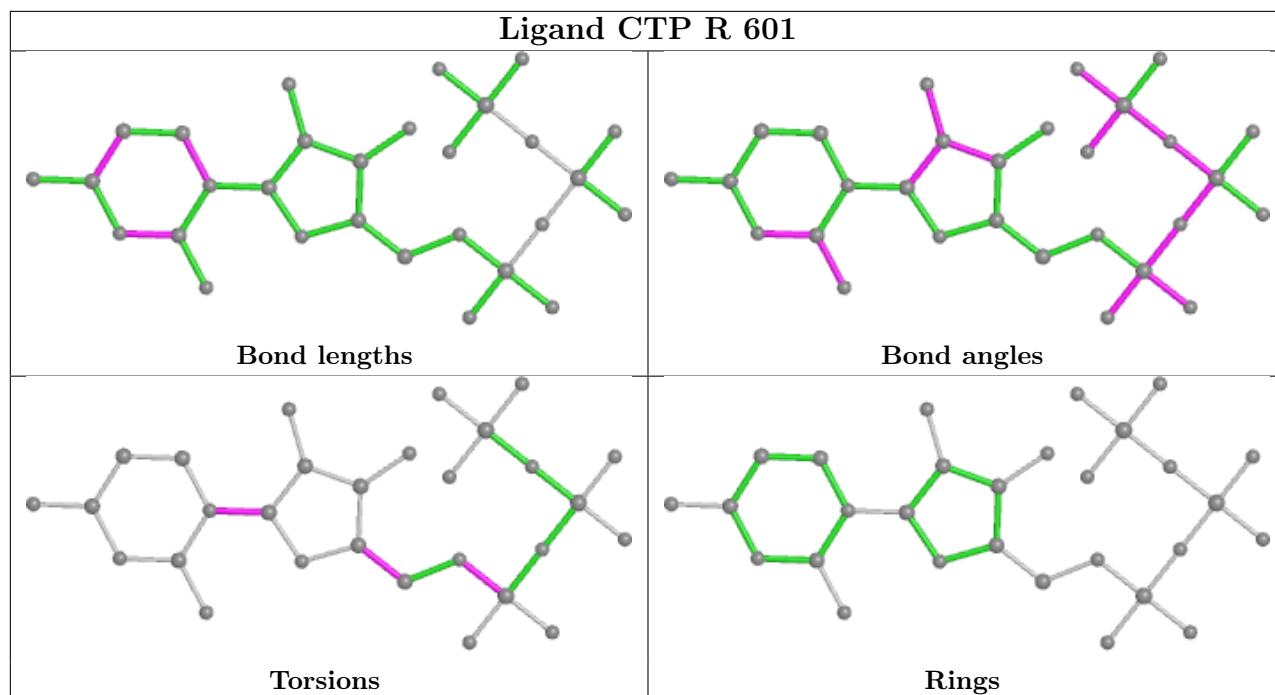












## 5.7 Other polymers [i](#)

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	V	1
1	D	1
1	E	1
1	F	1
1	g	1
1	Q	1
1	S	1
1	U	1
1	h	1
1	R	1
1	T	1
1	W	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	V	443:MET	C	455:MET	N	5.62
1	D	443:MET	C	455:MET	N	5.62
1	E	443:MET	C	455:MET	N	5.62
1	F	443:MET	C	455:MET	N	5.62
1	g	443:MET	C	455:MET	N	5.62
1	Q	443:MET	C	455:MET	N	5.62
1	S	443:MET	C	455:MET	N	5.62
1	U	443:MET	C	455:MET	N	5.62
1	h	443:MET	C	455:MET	N	5.62
1	R	443:MET	C	455:MET	N	5.62
1	T	443:MET	C	455:MET	N	5.62
1	W	443:MET	C	455:MET	N	5.62

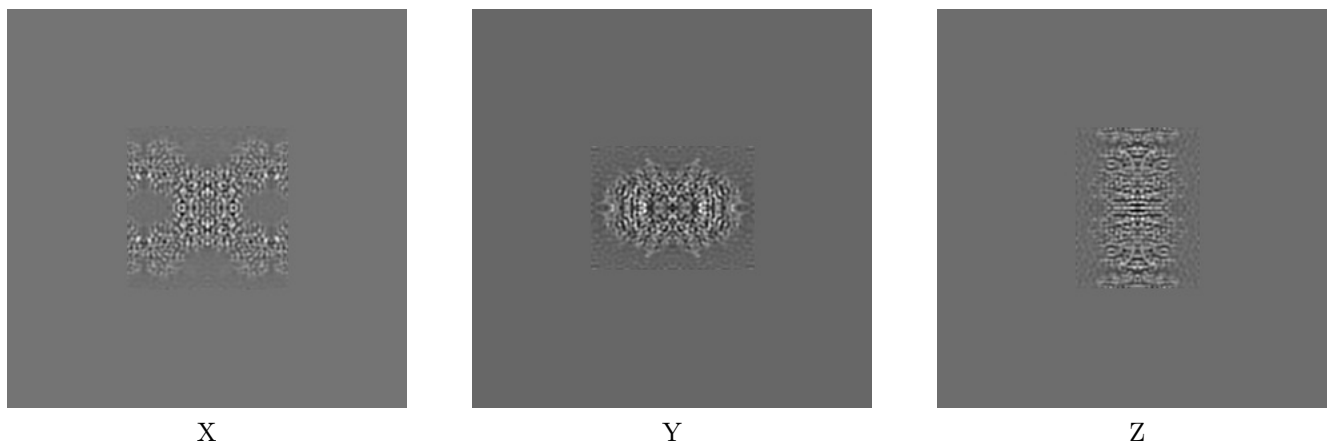
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24560. 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](#)

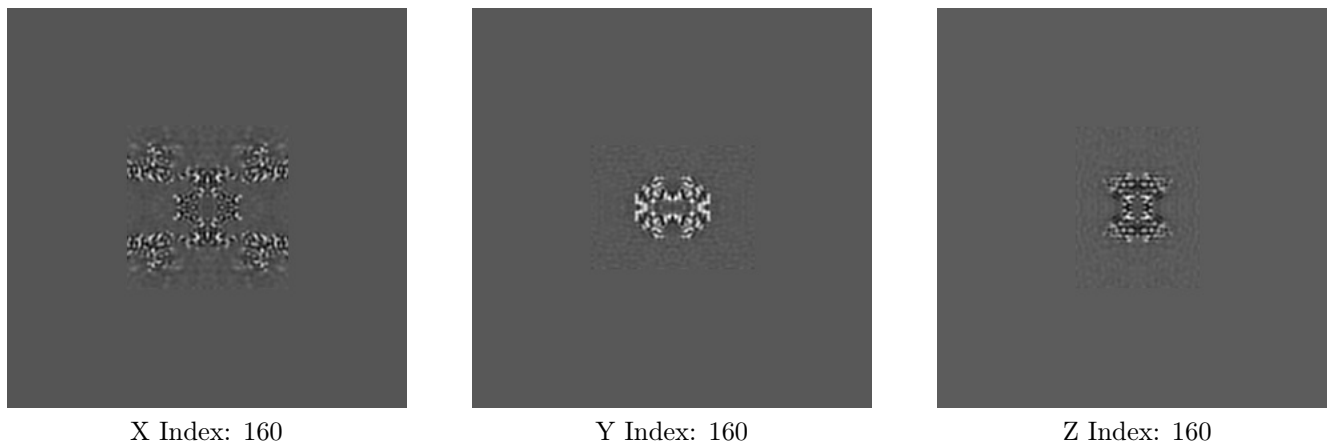
#### 6.1.1 Primary map



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

### 6.2 Central slices [i](#)

#### 6.2.1 Primary map

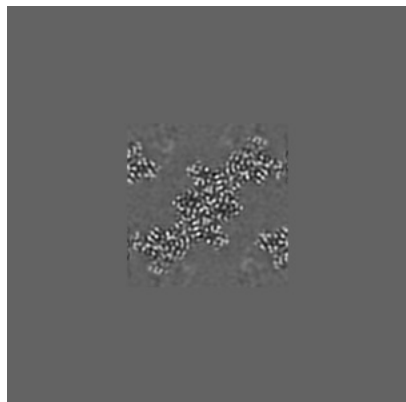




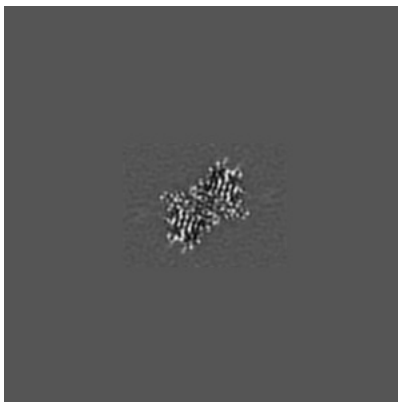
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

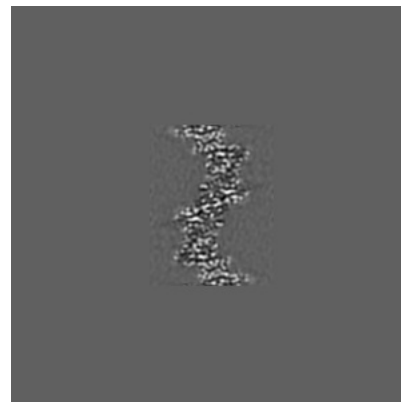
### 6.3.1 Primary map



X Index: 151



Y Index: 150

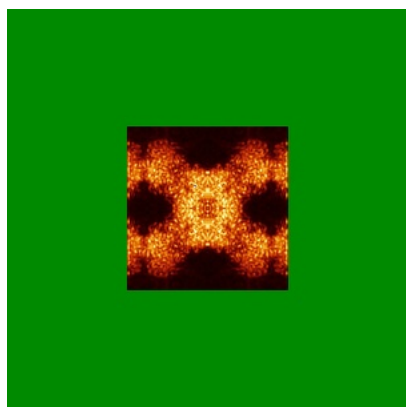


Z Index: 135

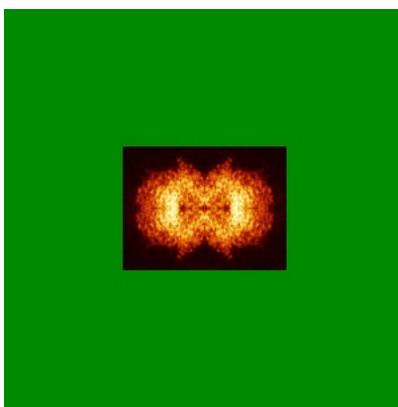
The images above show the largest variance slices of the map in three orthogonal directions.

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

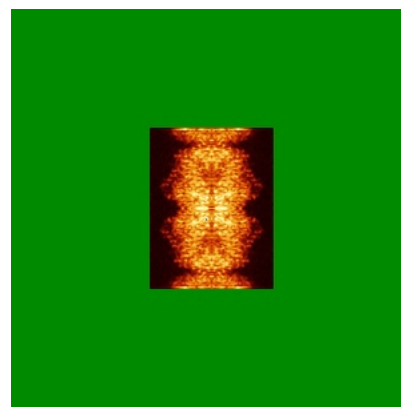
### 6.4.1 Primary map



X



Y

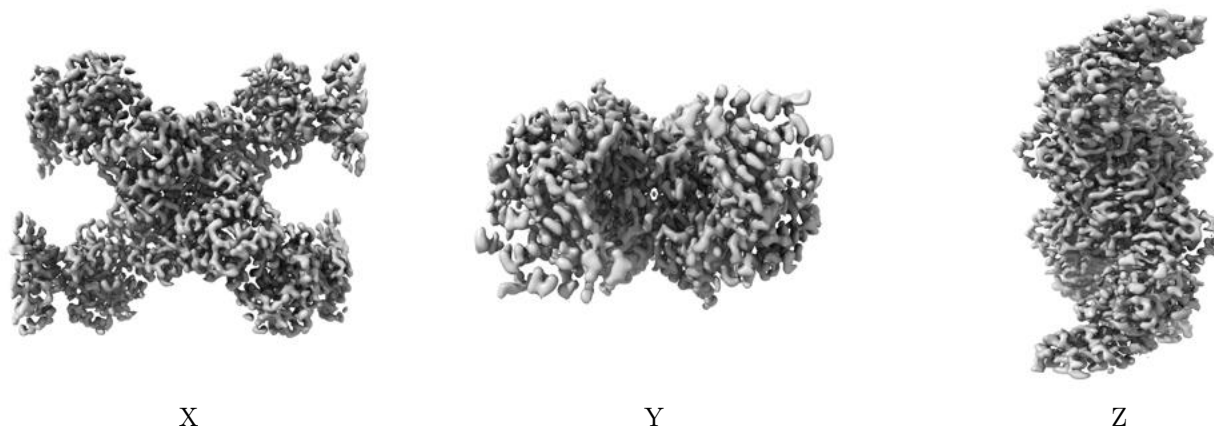


Z

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

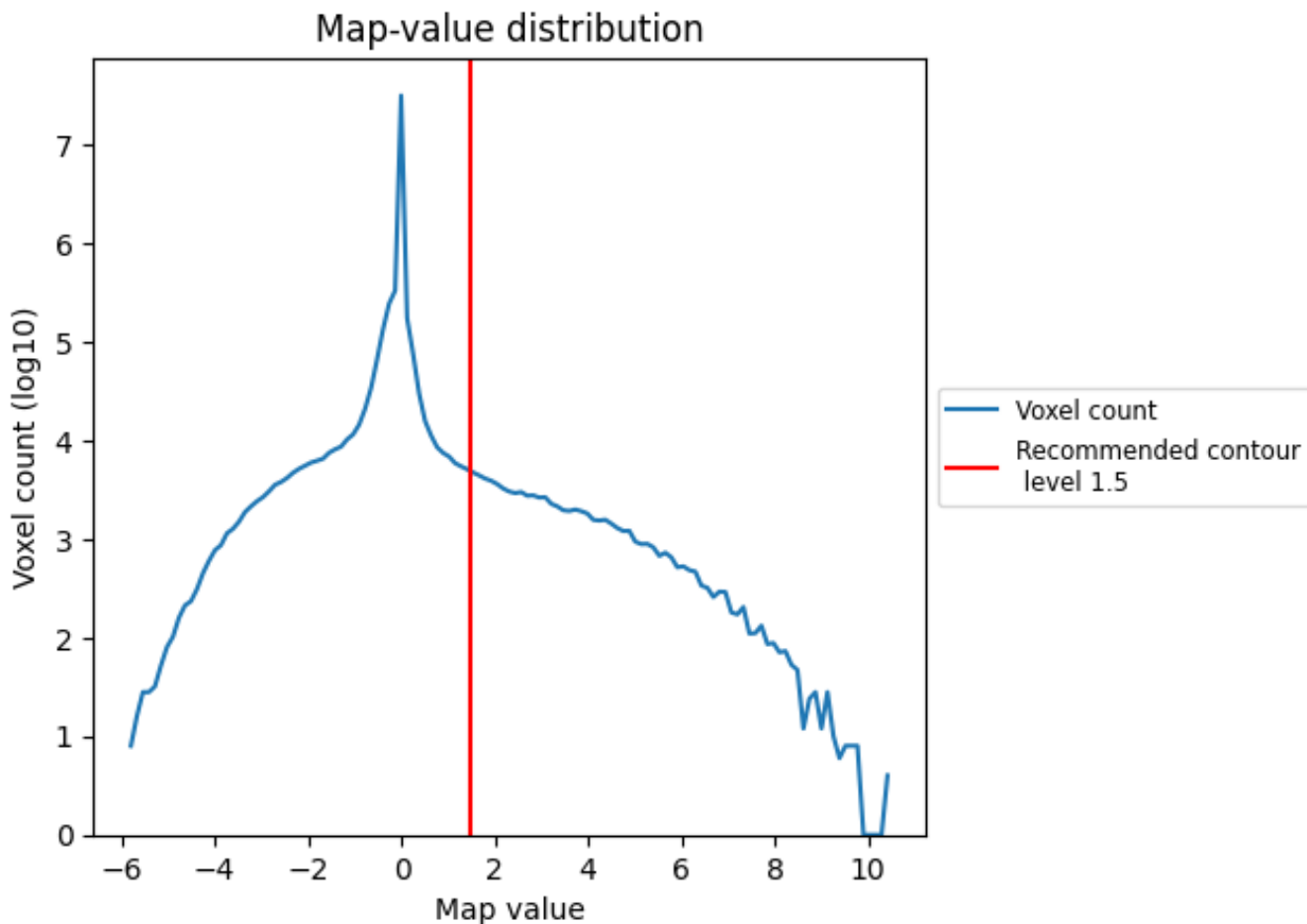
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

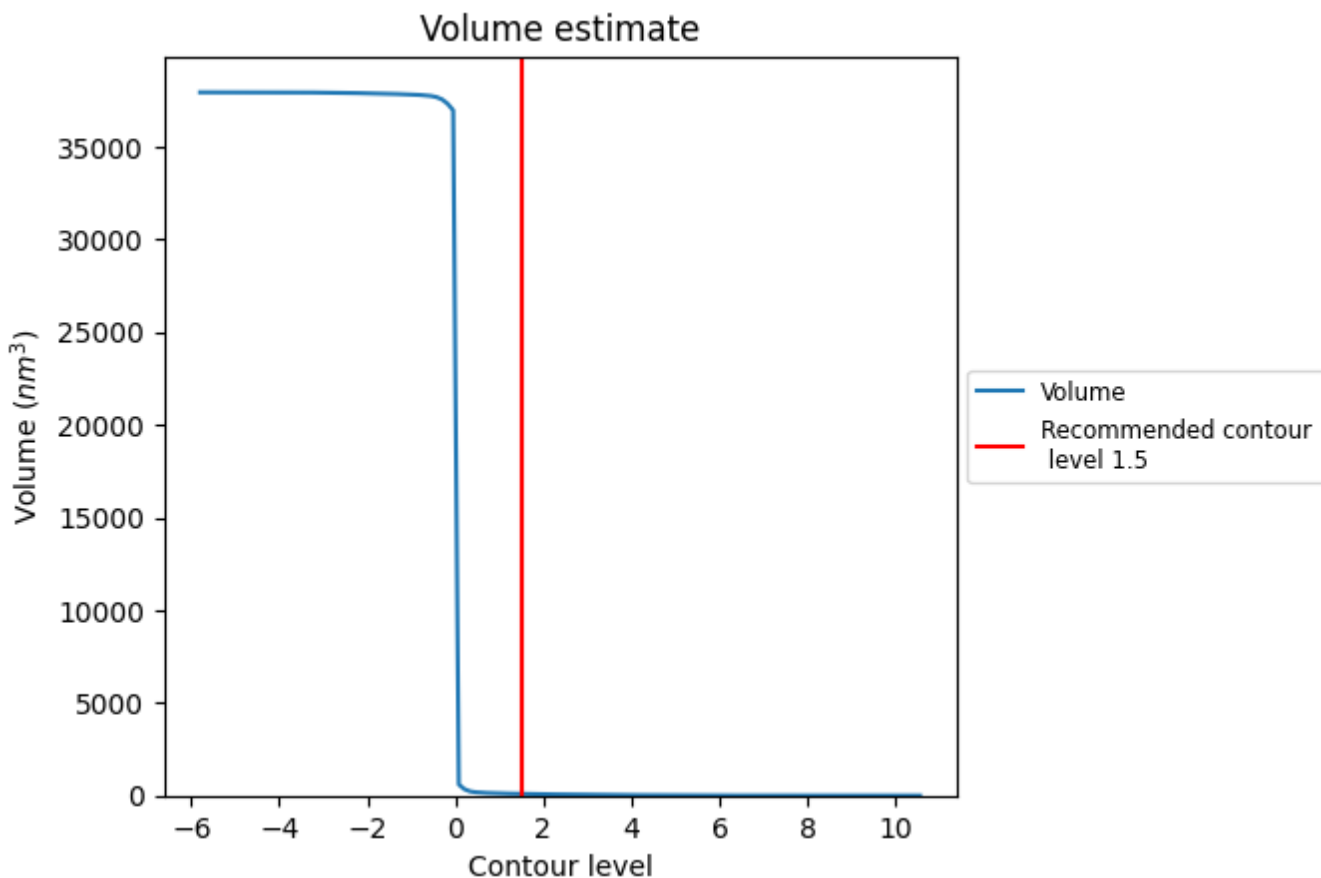
This section contains the results of statistical analysis of the map.

### 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.

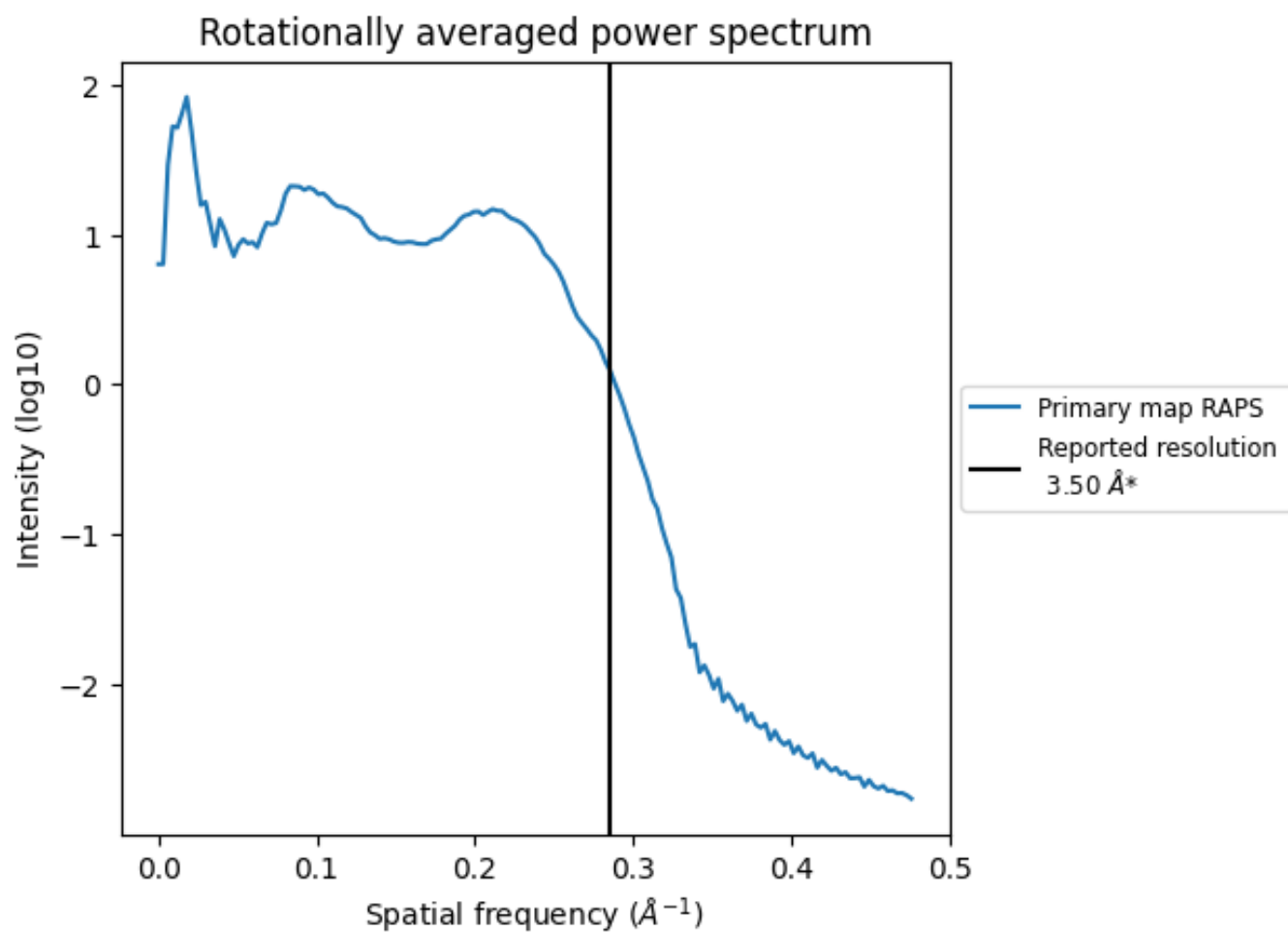
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 92 nm<sup>3</sup>; this corresponds to an approximate mass of 83 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  $0.286 \text{\AA}^{-1}$

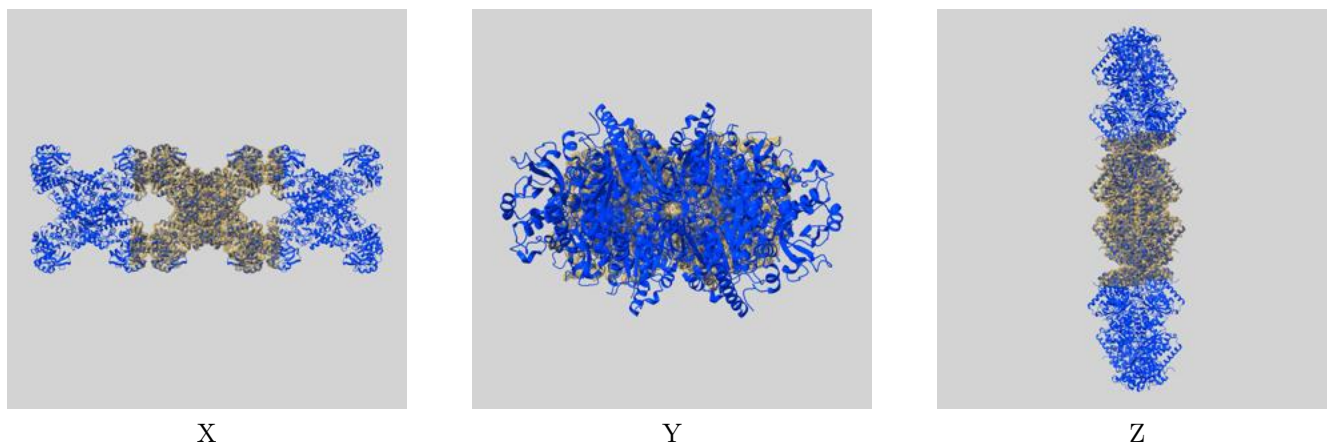
## 8 Fourier-Shell correlation

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

## 9 Map-model fit [i](#)

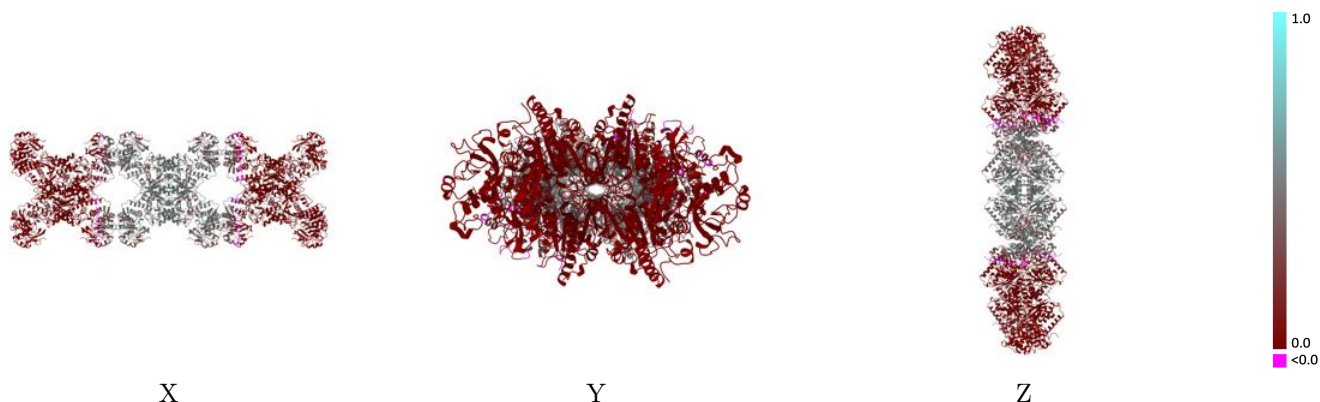
This section contains information regarding the fit between EMDB map EMD-24560 and PDB model 7RMC. Per-residue inclusion information can be found in section [3](#) on page [10](#).

### 9.1 Map-model overlay [i](#)



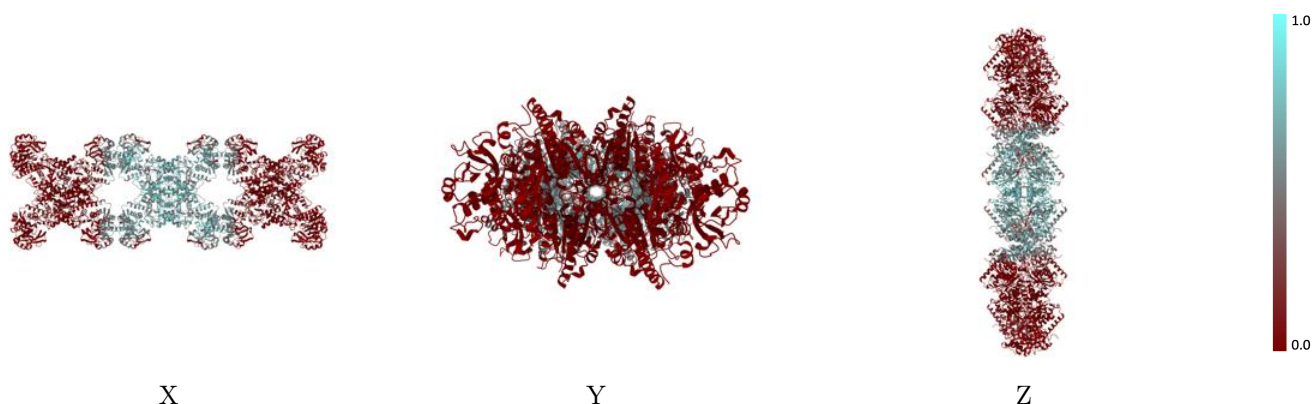
The images above show the 3D surface view of the map at the recommended contour level 1.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 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.

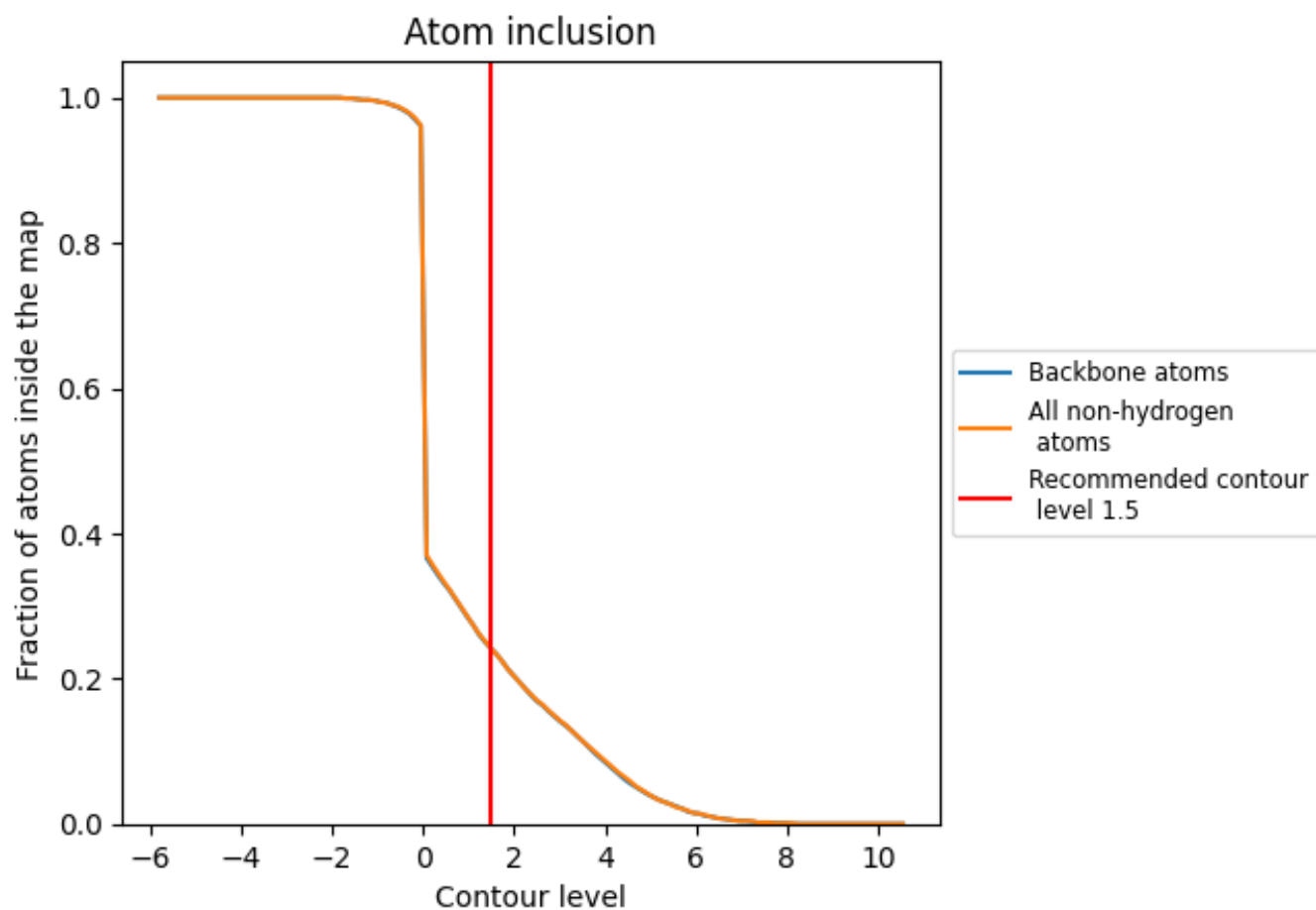
## 9.3 Atom inclusion mapped to coordinate model [i](#)



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 (1.5).





























## 9.4 Atom inclusion [i](#)



At the recommended contour level, 24% of all backbone atoms, 24% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (1.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.2410	 0.1800
D	 0.0000	 0.0000
E	 0.1290	 0.0910
F	 0.1270	 0.0910
Q	 0.1200	 0.0790
R	 0.6050	 0.4520
S	 0.0000	 0.0000
T	 0.6080	 0.4530
U	 0.0000	 0.0000
V	 0.0000	 0.0000
W	 0.6080	 0.4520
g	 0.1300	 0.0900
h	 0.6070	 0.4530

