



## Full wwPDB EM Validation Report ⓘ

Aug 26, 2024 – 03:51 PM EDT

PDB ID : 8V7X  
EMDB ID : EMD-43009  
Title : Cryo-EM structure of TTMV-LY1 anellovirus virus-like particle expressed in HEK293  
Authors : Rajendra, B.; Swanson, K.  
Deposited on : 2023-12-04  
Resolution : 2.80 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](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.dev112  
MolProbity : 4.02b-467  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.38.3

# 1 Overall quality at a glance

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

The reported resolution of this entry is 2.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	0	609	54% 83% 15%
1	1	609	53% 83% 15%
1	2	609	53% 83% 15%
1	3	609	53% 83% 15%
1	4	609	54% 83% 15%
1	5	609	53% 83% 15%
1	6	609	54% 83% 15%
1	7	609	54% 83% 15%
1	A	609	54% 83% 15%

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Mol	Chain	Length	Quality of chain		
1	B	609	54%	83%	15%
1	C	609	53%	83%	15%
1	D	609	54%	83%	15%
1	E	609	53%	83%	15%
1	F	609	53%	83%	15%
1	G	609	53%	83%	15%
1	H	609	54%	83%	15%
1	I	609	53%	83%	15%
1	J	609	53%	83%	15%
1	K	609	54%	83%	15%
1	L	609	54%	83%	15%
1	M	609	53%	83%	15%
1	N	609	53%	83%	15%
1	O	609	53%	83%	15%
1	P	609	53%	83%	15%
1	Q	609	54%	83%	15%
1	R	609	53%	83%	15%
1	S	609	53%	83%	15%
1	T	609	54%	83%	15%
1	U	609	53%	83%	15%
1	V	609	53%	83%	15%
1	W	609	53%	83%	15%
1	X	609	54%	83%	15%
1	Y	609	53%	83%	15%
1	Z	609	54%	83%	15%


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Mol	Chain	Length	Quality of chain	
1	a	609	54%	83% 15%
1	b	609	54%	83% 15%
1	c	609	53%	83% 15%
1	d	609	54%	83% 15%
1	e	609	54%	83% 15%
1	f	609	54%	83% 15%
1	g	609	54%	83% 15%
1	h	609	53%	83% 15%
1	i	609	53%	83% 15%
1	j	609	54%	83% 15%
1	k	609	54%	83% 15%
1	l	609	54%	83% 15%
1	m	609	54%	83% 15%
1	n	609	54%	83% 15%
1	o	609	54%	83% 15%
1	p	609	53%	83% 15%
1	q	609	54%	83% 15%
1	r	609	53%	83% 15%
1	s	609	53%	83% 15%
1	t	609	53%	83% 15%
1	u	609	54%	83% 15%
1	v	609	53%	83% 15%
1	w	609	53%	83% 15%
1	x	609	53%	83% 15%
1	y	609	54%	83% 15%

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Mol	Chain	Length	Quality of chain
1	z	609	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into three segments: a red segment on the left labeled '53%', a green segment in the middle labeled '83%', and a grey segment on the right labeled '15%'. A small black dot is located at the end of the green segment.</p>

## 2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 253440 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Capsid protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	515	4224	2700	715	792	17	0	0
1	1	515	4224	2700	715	792	17	0	0
1	2	515	4224	2700	715	792	17	0	0
1	3	515	4224	2700	715	792	17	0	0
1	4	515	4224	2700	715	792	17	0	0
1	5	515	4224	2700	715	792	17	0	0
1	6	515	4224	2700	715	792	17	0	0
1	7	515	4224	2700	715	792	17	0	0
1	A	515	4224	2700	715	792	17	0	0
1	B	515	4224	2700	715	792	17	0	0
1	C	515	4224	2700	715	792	17	0	0
1	D	515	4224	2700	715	792	17	0	0
1	E	515	4224	2700	715	792	17	0	0
1	F	515	4224	2700	715	792	17	0	0
1	G	515	4224	2700	715	792	17	0	0
1	H	515	4224	2700	715	792	17	0	0
1	I	515	4224	2700	715	792	17	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	J	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	K	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	L	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	M	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	N	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	O	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	P	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	Q	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	R	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	S	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	T	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	U	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	V	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	W	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	X	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	Y	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	Z	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	a	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	b	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	c	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	d	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	e	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	f	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	g	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	h	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	i	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	j	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	k	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	l	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	m	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	n	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	o	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	p	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	q	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	r	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	s	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	t	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	u	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	v	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	w	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	x	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		
1	y	515	Total	C	N	O	S	0	0
			4224	2700	715	792	17		

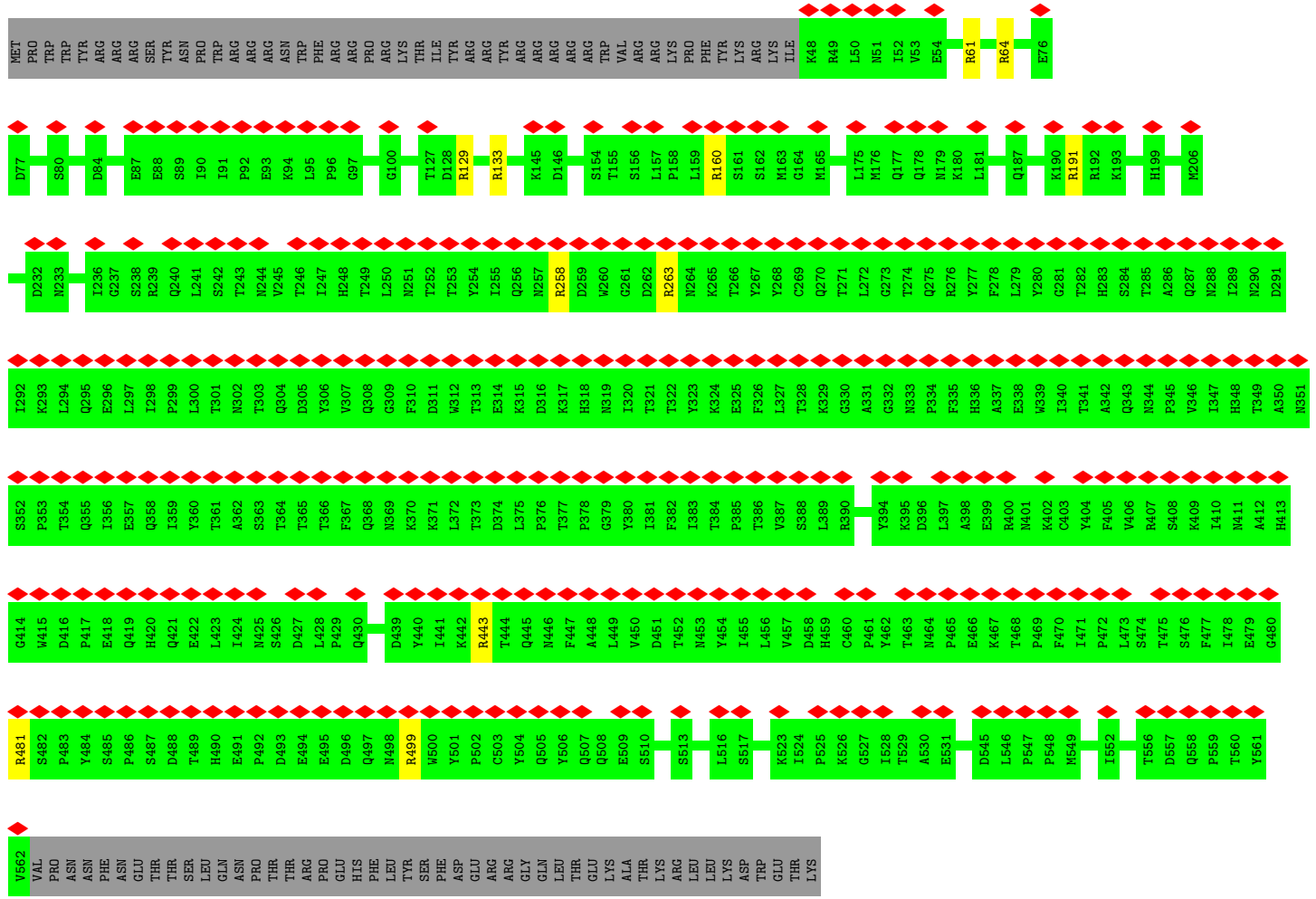
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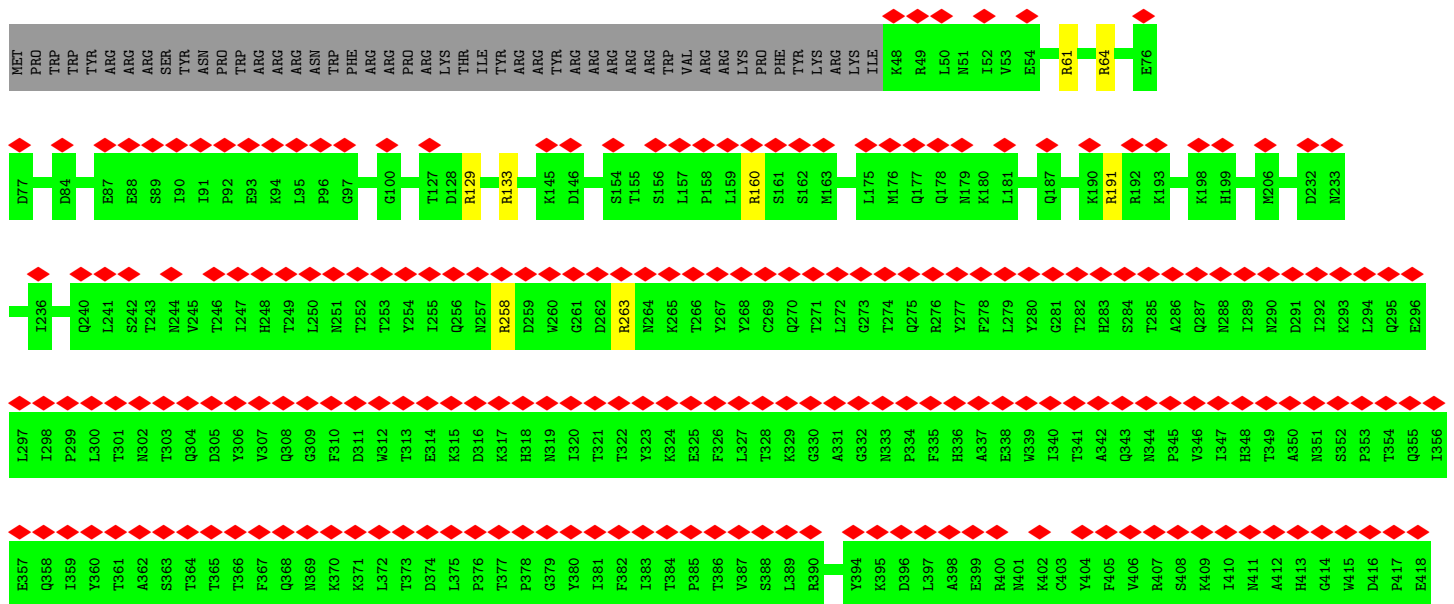
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	z	515	4224	2700	715	792	17	0	0





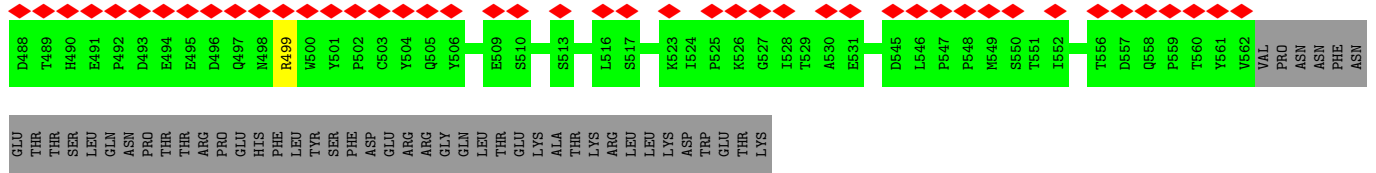
• Molecule 1: Capsid protein

Chain 2:



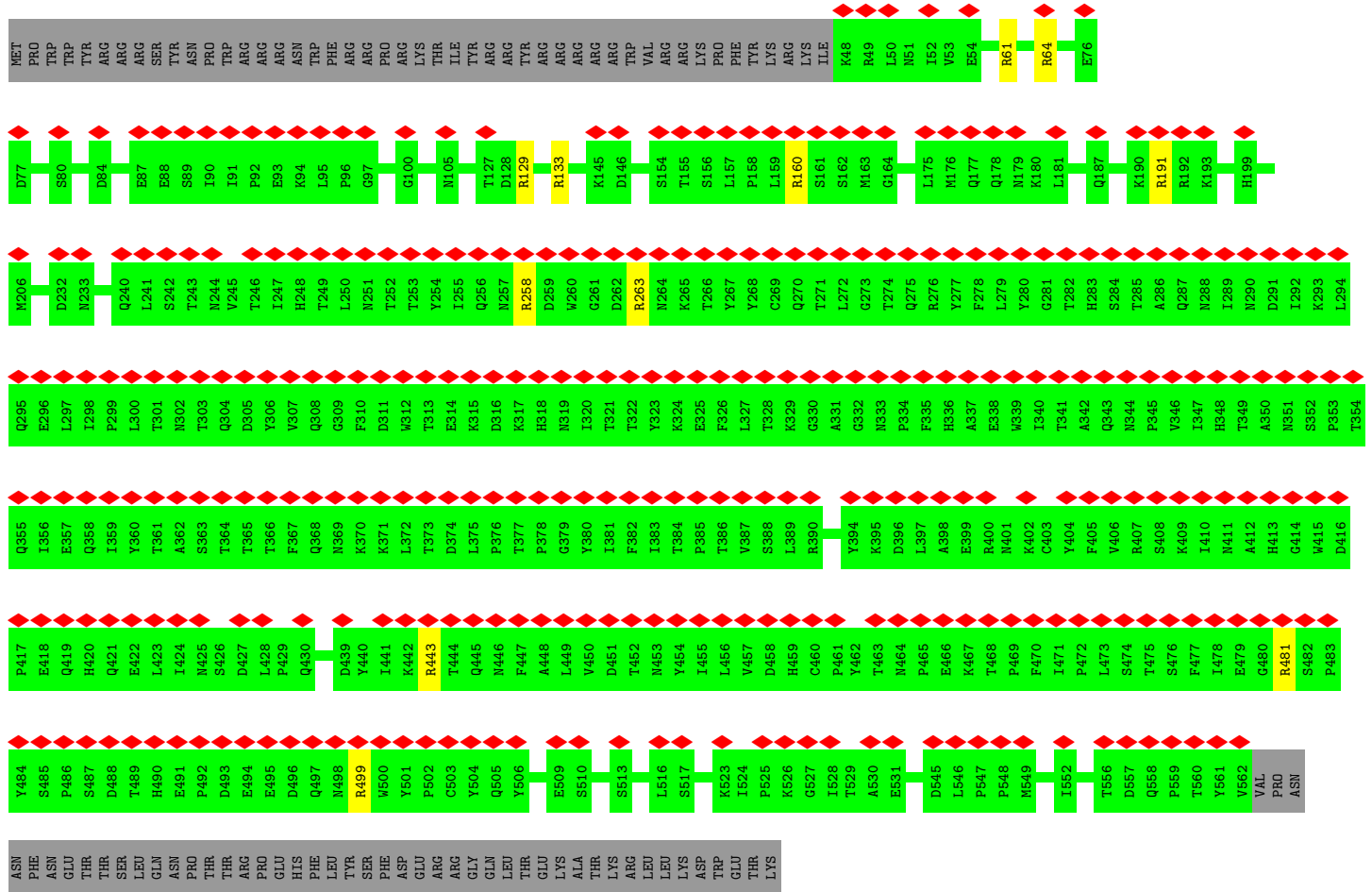






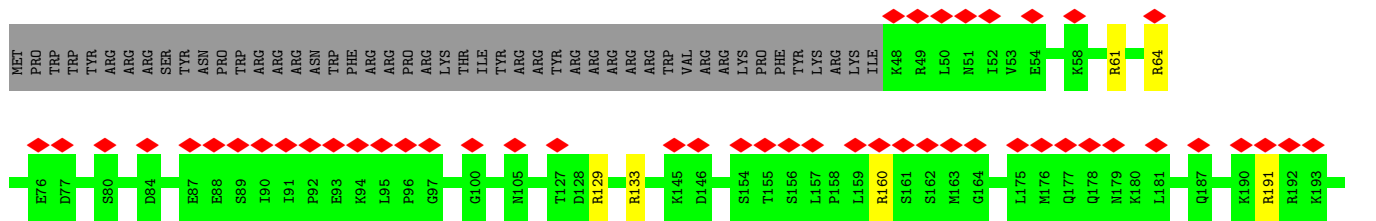
• Molecule 1: Capsid protein

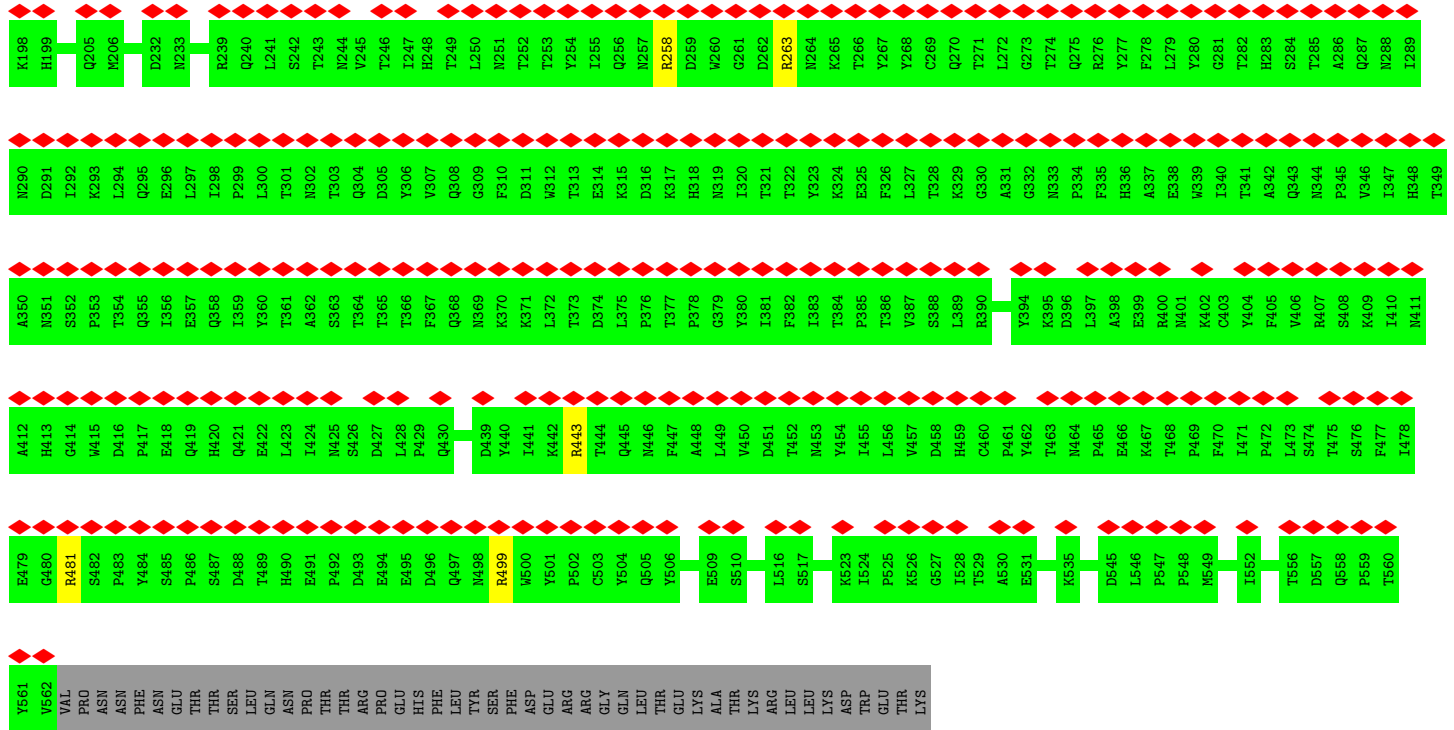
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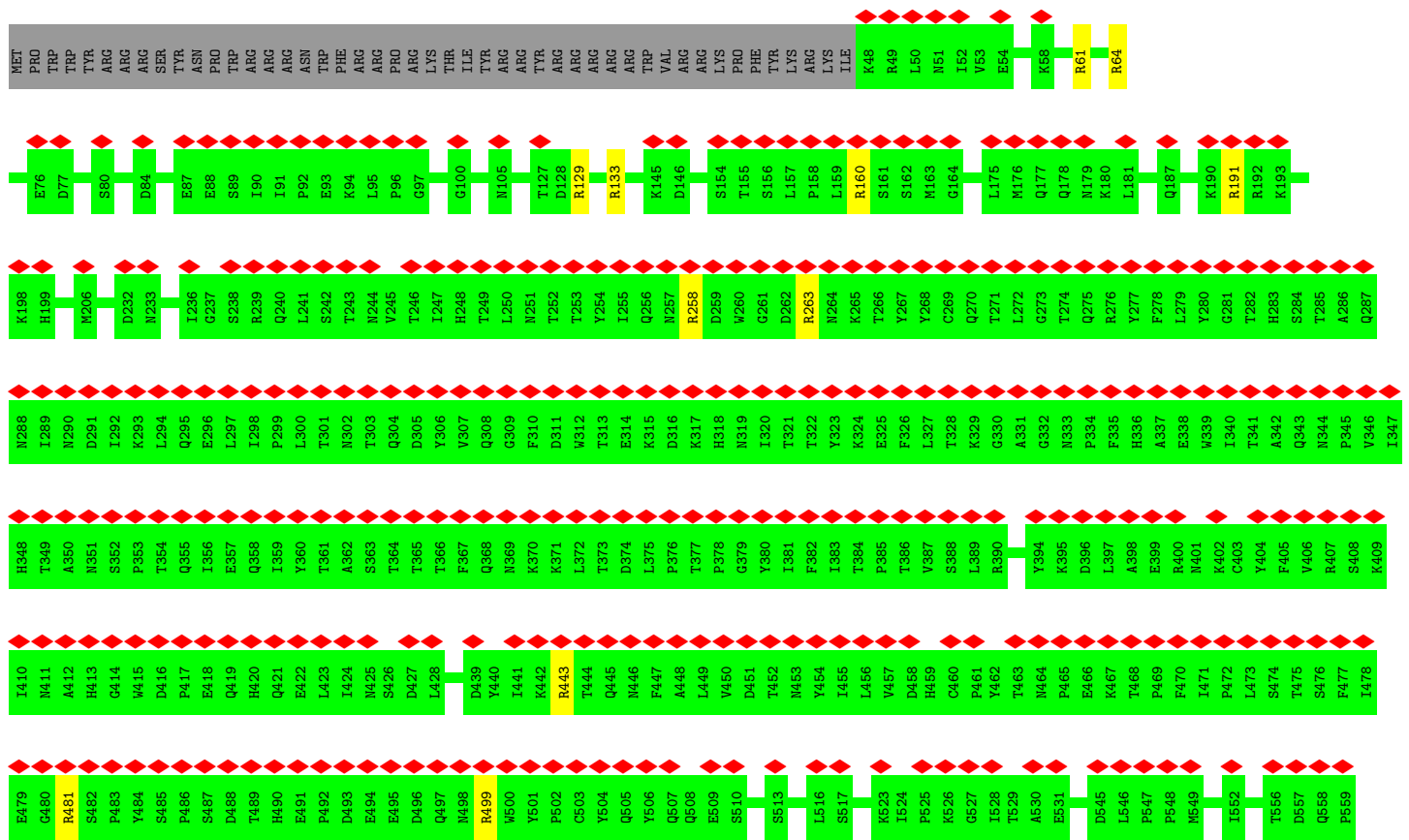
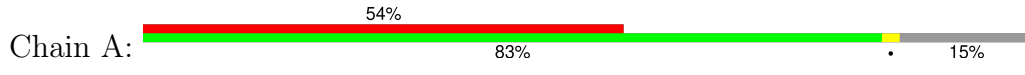
• Molecule 1: Capsid protein

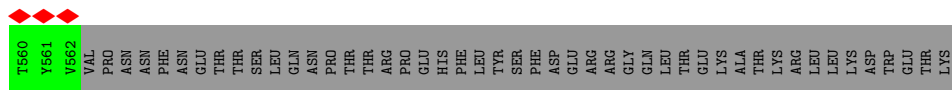
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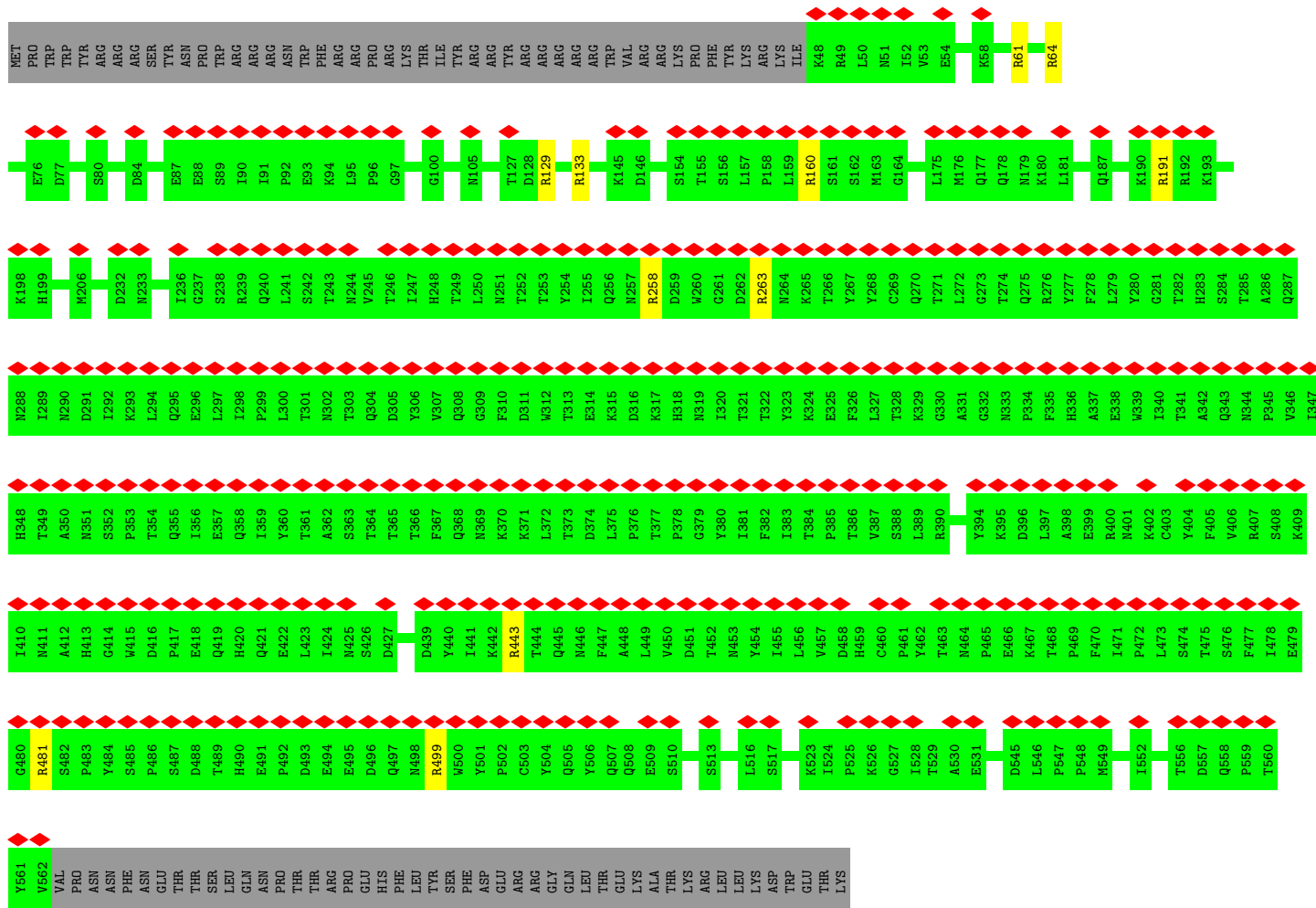
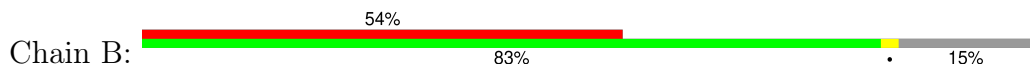


• Molecule 1: Capsid protein

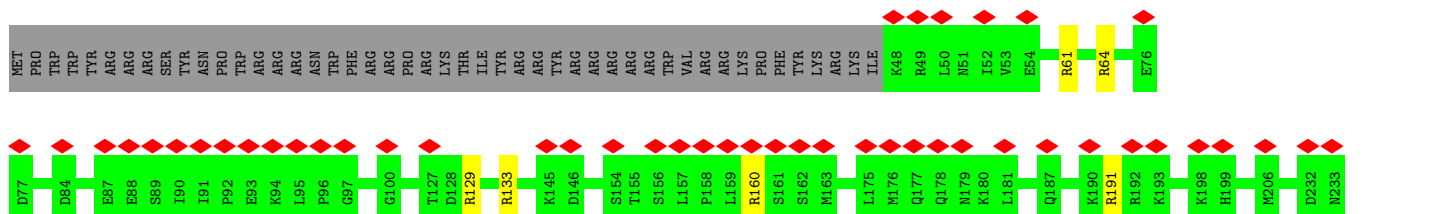
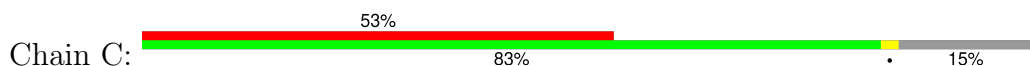




• Molecule 1: Capsid protein



• Molecule 1: Capsid protein





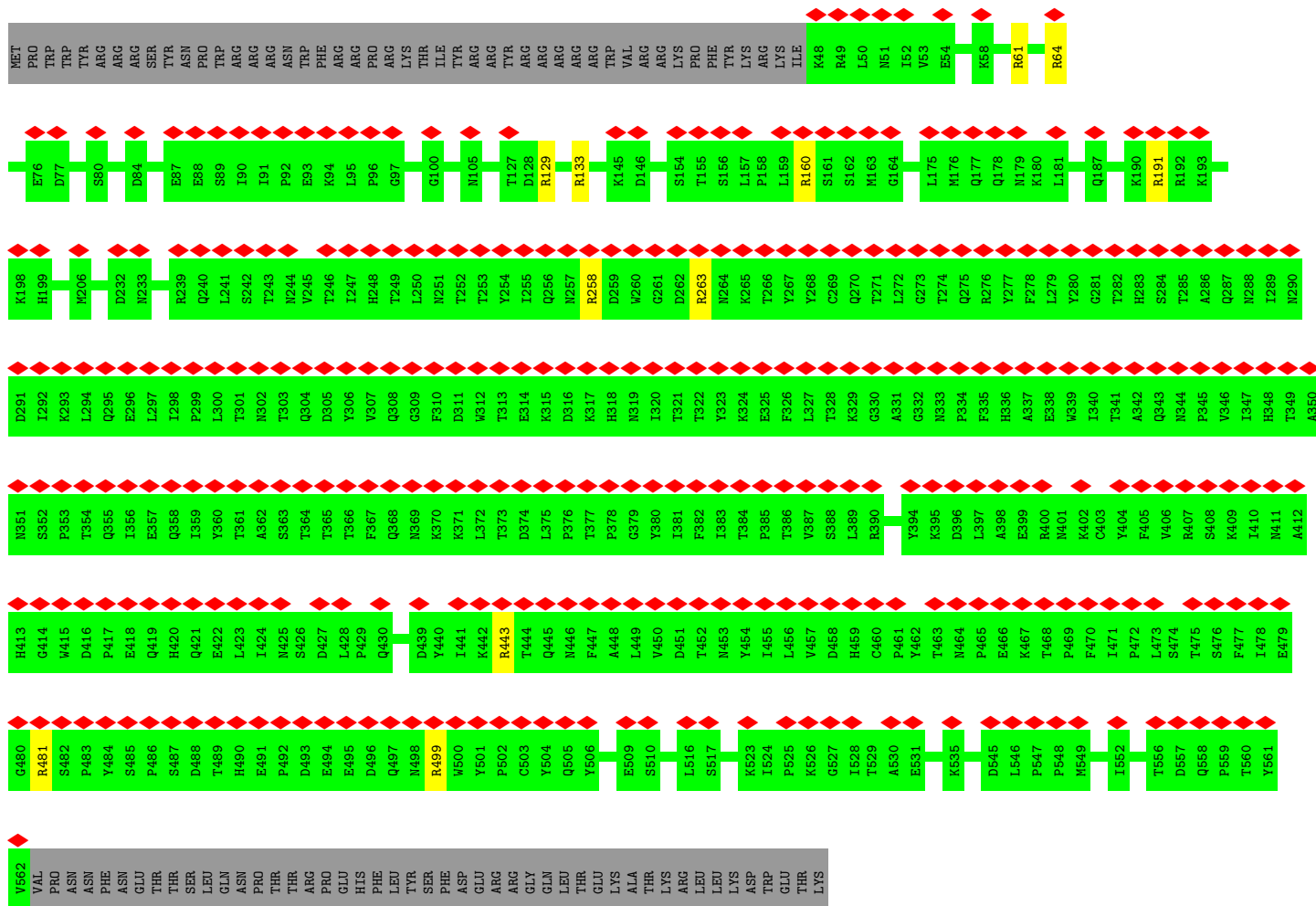




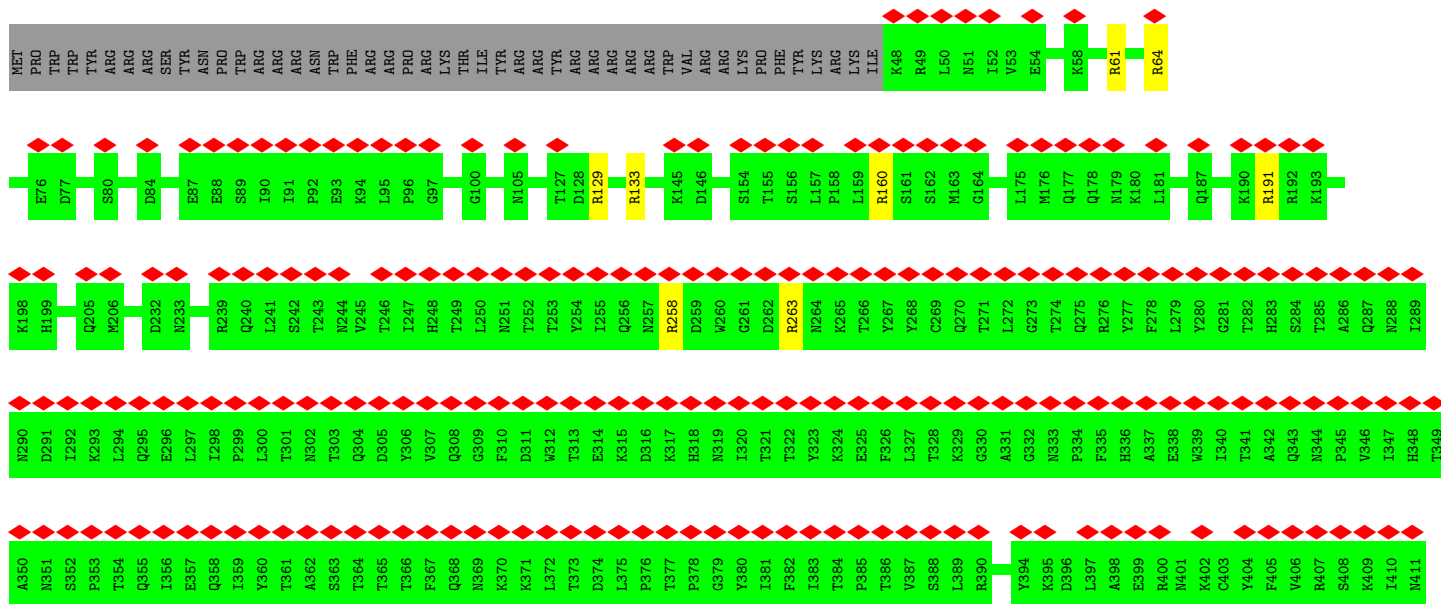
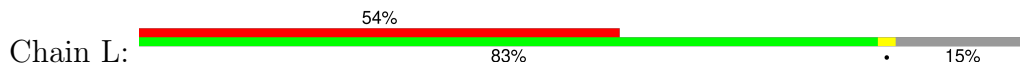








• Molecule 1: Capsid protein

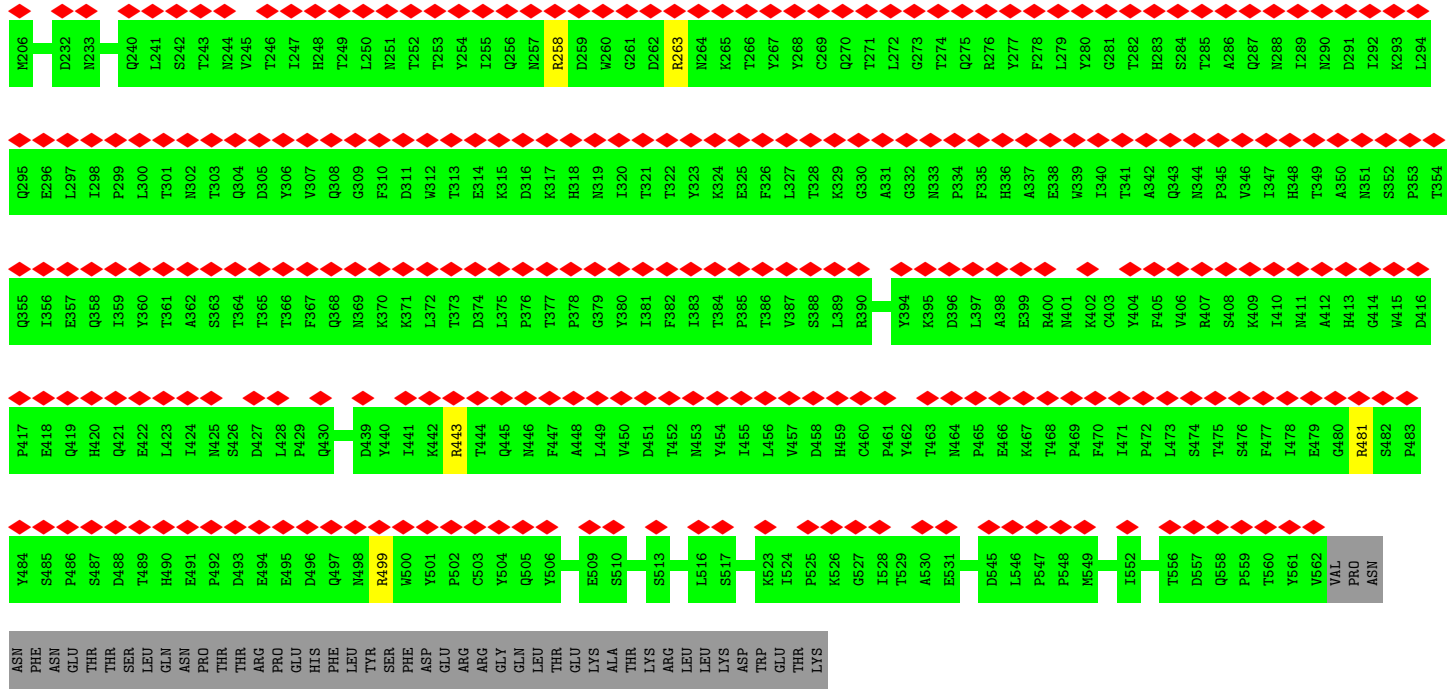




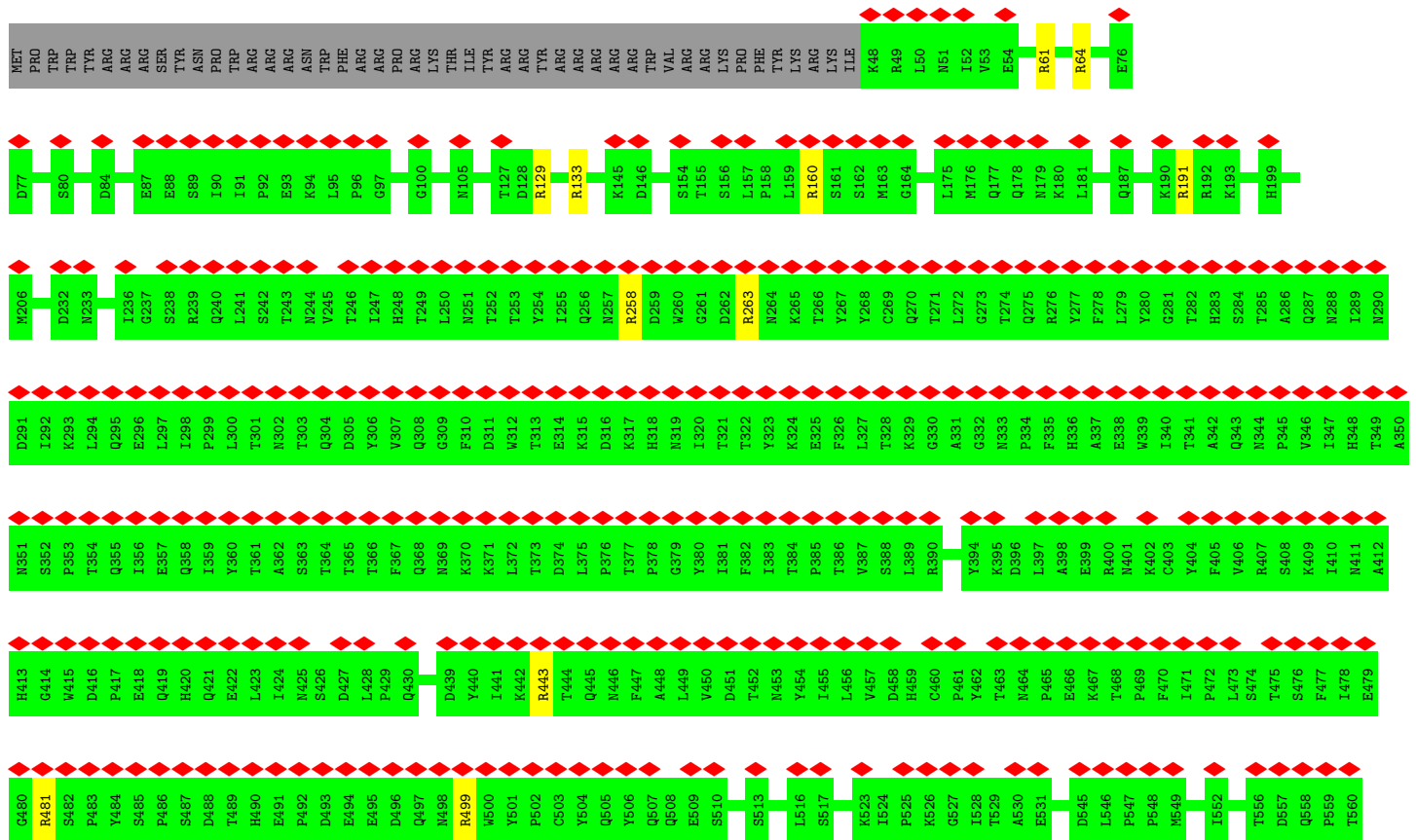
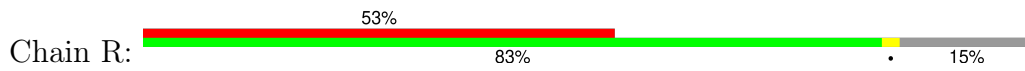


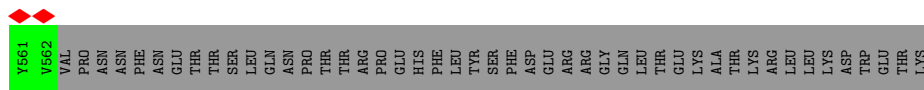




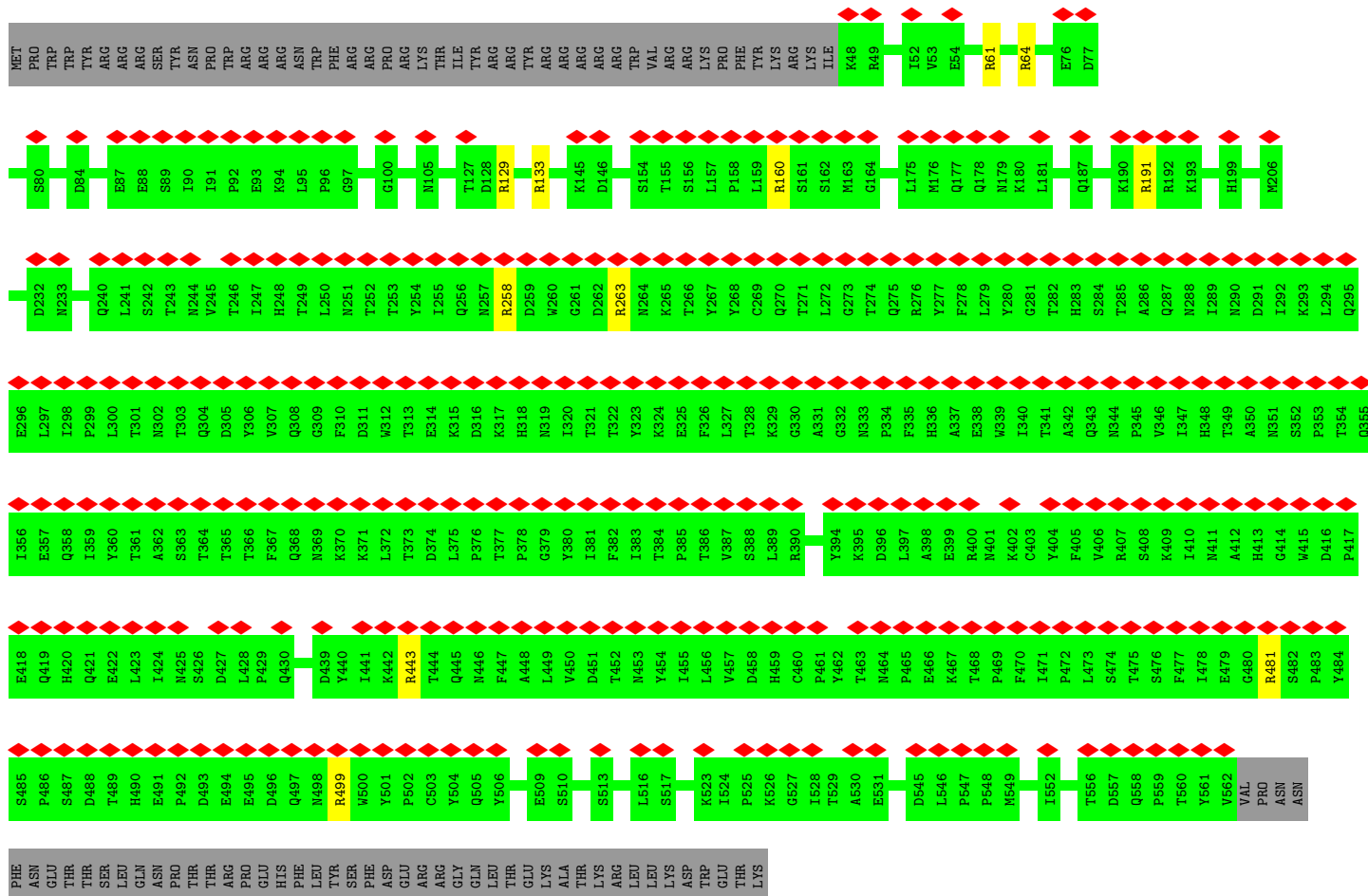
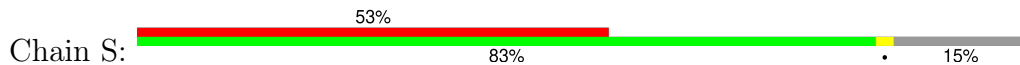


• Molecule 1: Capsid protein

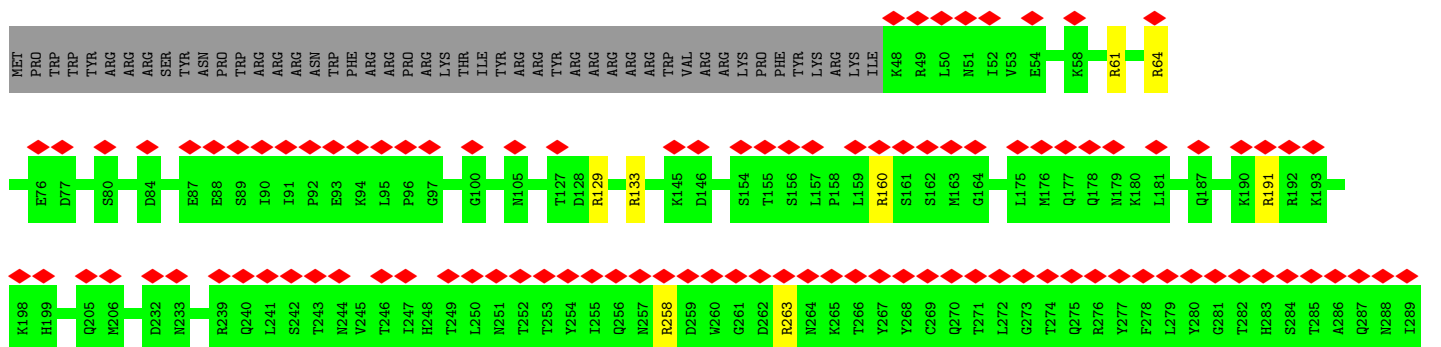
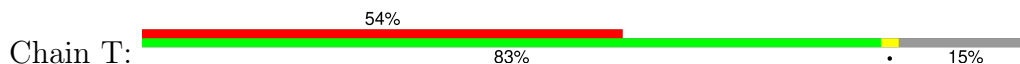




• Molecule 1: Capsid protein

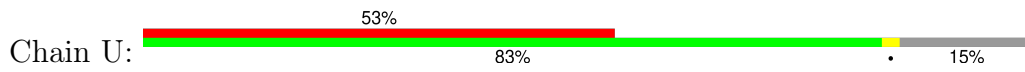


• Molecule 1: Capsid protein



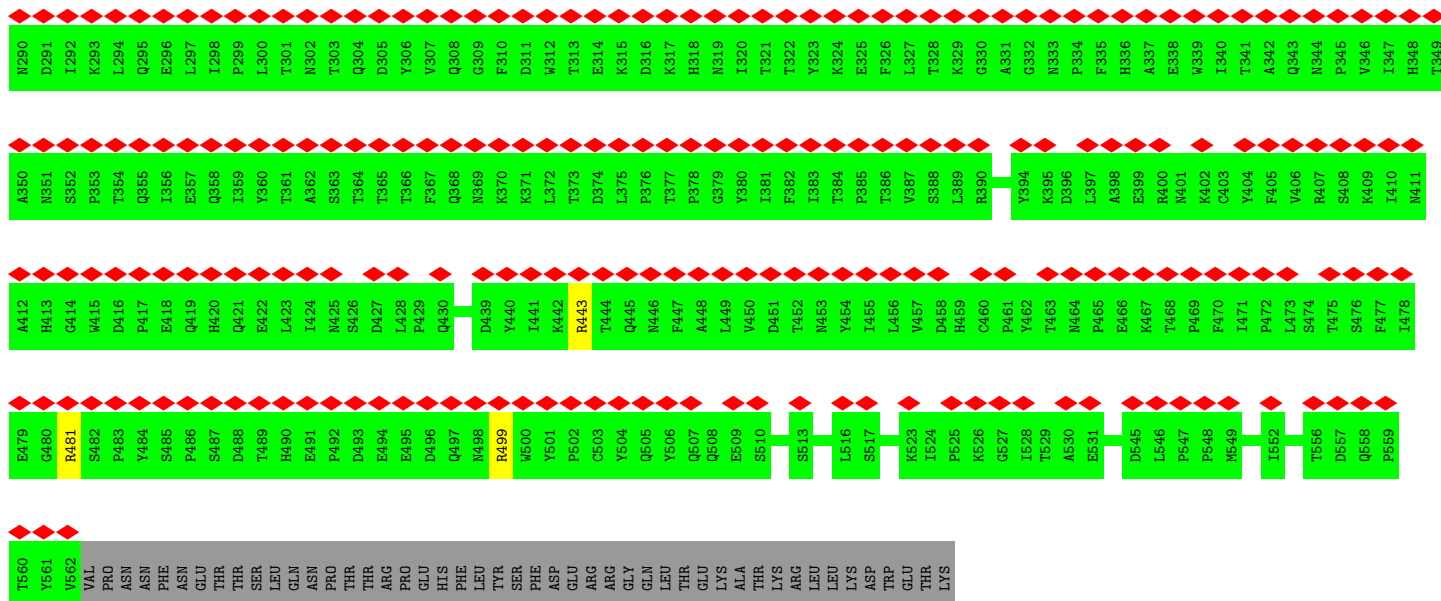
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A350	N351	S352	P353	T354	Q355	I356	E357	Q358	Y360	T361	A362	S363	T364	T365	T366	F367	Q368	N369	K370	K371	L372	T373	D374	E375	P376	T377	P378	G379	Y380	I381	F382	I383	T384	P385	T386	V387	S388	L389	R390	Y394	K395	D396	L397	A398	E399	R400	M401	K402	W339	F470	C403	Y404	F405	R407	S408	K409	I410	M411
A412	H413	G414	W415	D416	P417	E418	Q419	H420	Q421	E422	L423	I424	M425	S426	D427	L428	P429	Q430	D439	Y440	I441	K442	R443	T444	Q445	N446	F447	A448	L449	V450	D451	T452	M453	Y454	I455	L456	V457	D458	H459	C460	P461	Y462	T463	M464	P465	E466	K467	T468	P469	F470	I471	P472	L473	S474	T475	S476	F477	I478
E479	G480	R481	S482	P483	Y484	S485	P486	D488	T489	E422	H490	E491	P492	D493	E494	E495	D496	Q497	M498	R499	W500	Y501	P502	C503	Y504	Q505	Y506	E509	S510	L516	S517	K523	I524	P525	K526	G527	I528	T529	A530	E531	K535	D545	L546	P547	P548	M549	I552	T556	D557	Q558	P559	T560						
Y561	V562	VAL	PRO	ASN	PHE	ASN	GLU	THR	SER	LEU	GLN	ASN	PRO	ASN	THR	ARG	ARG	PRO	HIS	PHE	LYS	LEU	TYR	SER	TYR	PHE	ARG	ASP	GLU	ARG	ARG	GLY	GLN	LEU	LEU	THR	GLU	ALA	THR	LYS	ARG	LYS	ASP	TRP	GLU	LYS												

• Molecule 1: Capsid protein

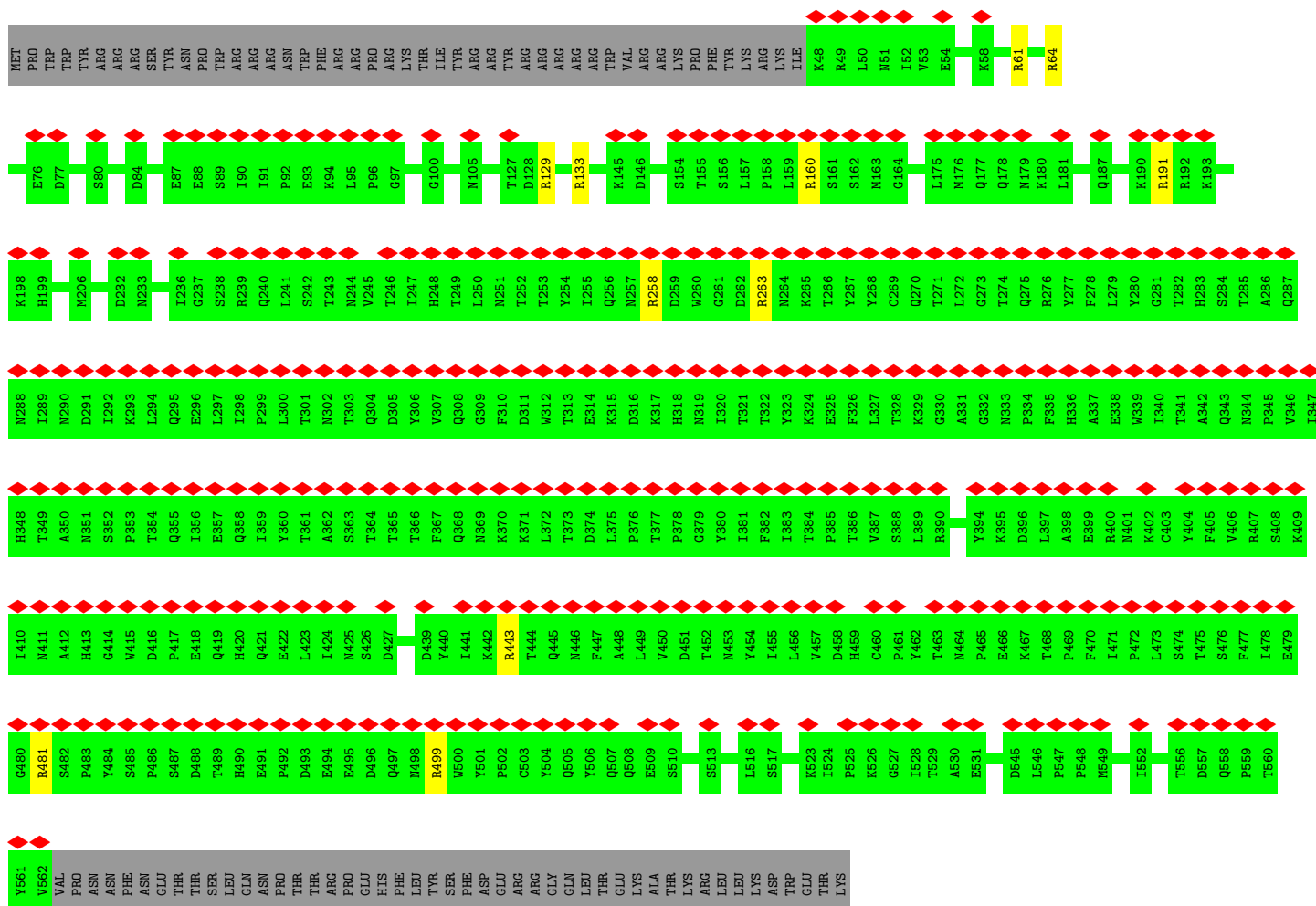
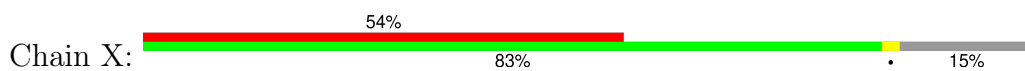


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D77	S80	D84	E87	E88	S89	I90	I91	P92	E93	K94	L95	P96	G97	G100	N105	T127	D128	R129	R133	K145	D146	S154	T155	S156	L157	P158	L159	R160	S161	S162	M163	G164	M165	L175	M176	Q177	Q178	N179	K180	L181	L182	Q187	K190	R191	R192	K193	K198													
H199	M206	D232	N233	I236	G237	R238	Q240	L241	E242	S242	L243	N244	Y245	T246	I247	H248	L250	N251	T252	Y253	Y254	I255	Q256	N257	R258	D259	W260	G261	D262	R263	N264	K265	T266	Y267	Y268	C269	T271	L272	G273	T274	Q275	R276	Y277	F278	L279	Y280	G281	T282	H283	S284	T285	A286	Q287	N288						
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T349	A350	N351	S352	P353	T354	Q355	I356	E357	Q358	Y360	T361	A362	S363	T364	T365	T366	F367	Q368	N369	K370	K371	L372	T373	D374	E375	P376	T377	P378	G379	Y380	I381	F382	I383	T384	P385	T386	V387	S388	L389	R390	Y394	K395	D396	L397	A398	E399	R400	M401	K402	C403	Y404	F405	V406	R407	S408	K409	I410			
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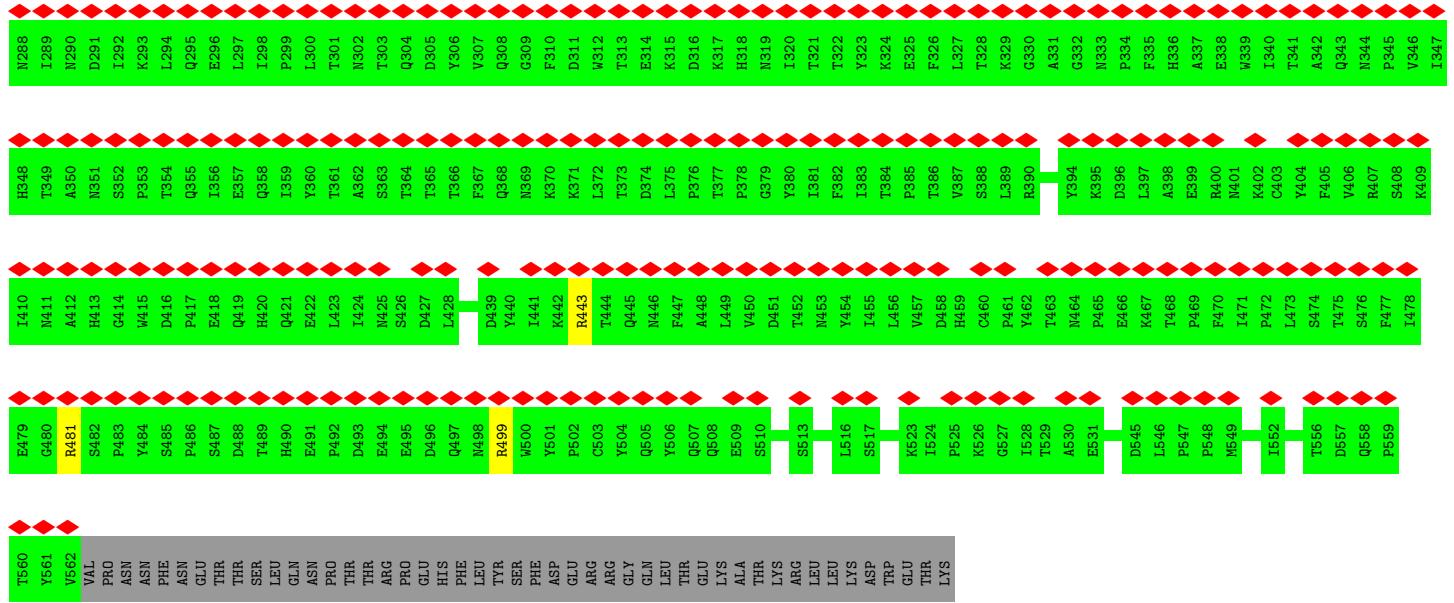




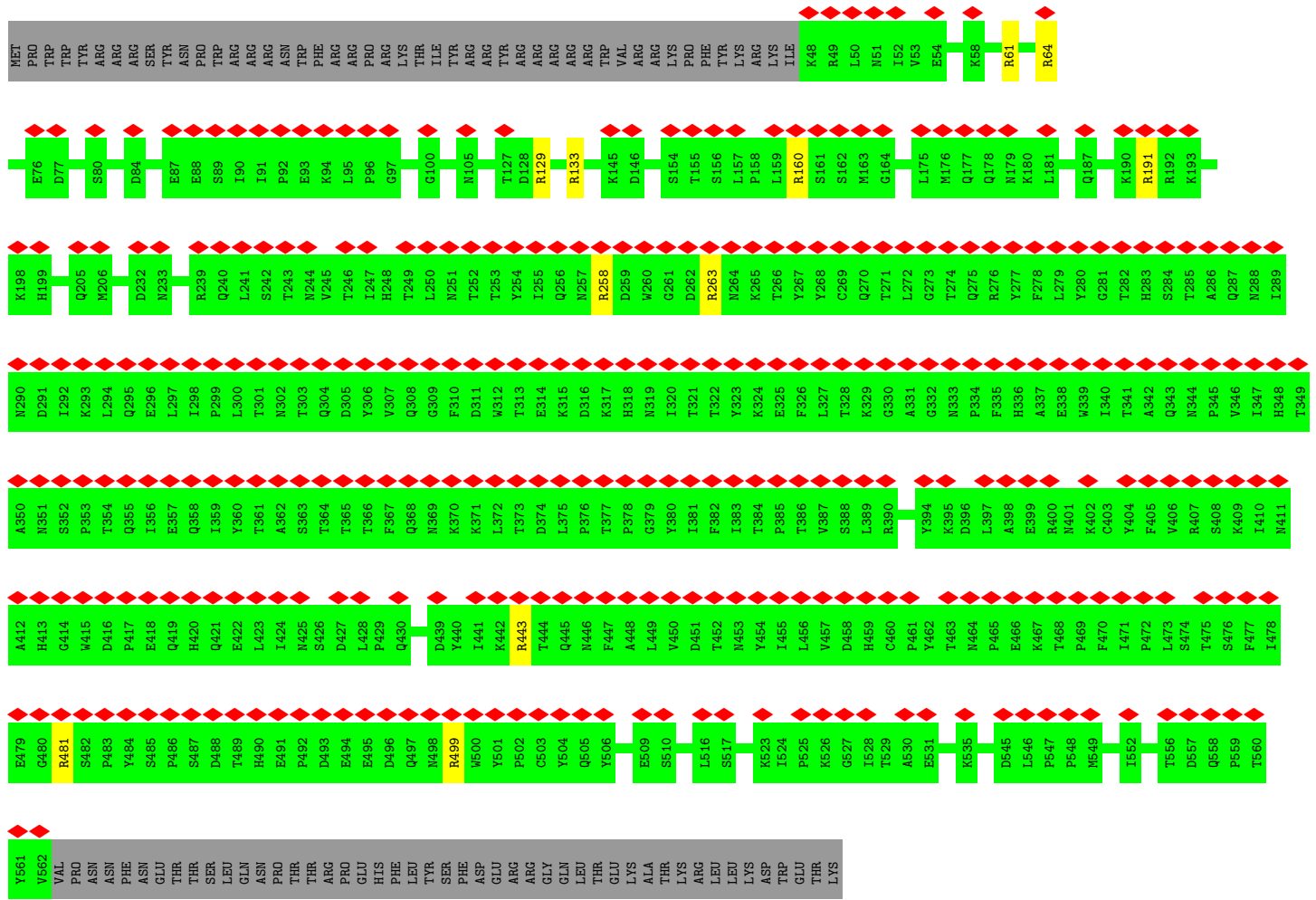
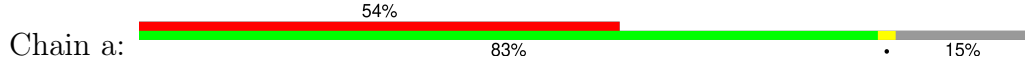
• Molecule 1: Capsid protein







• Molecule 1: Capsid protein



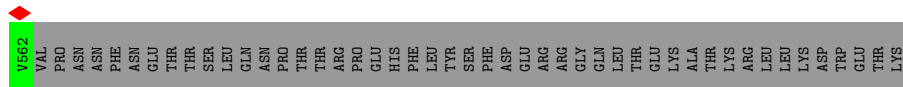




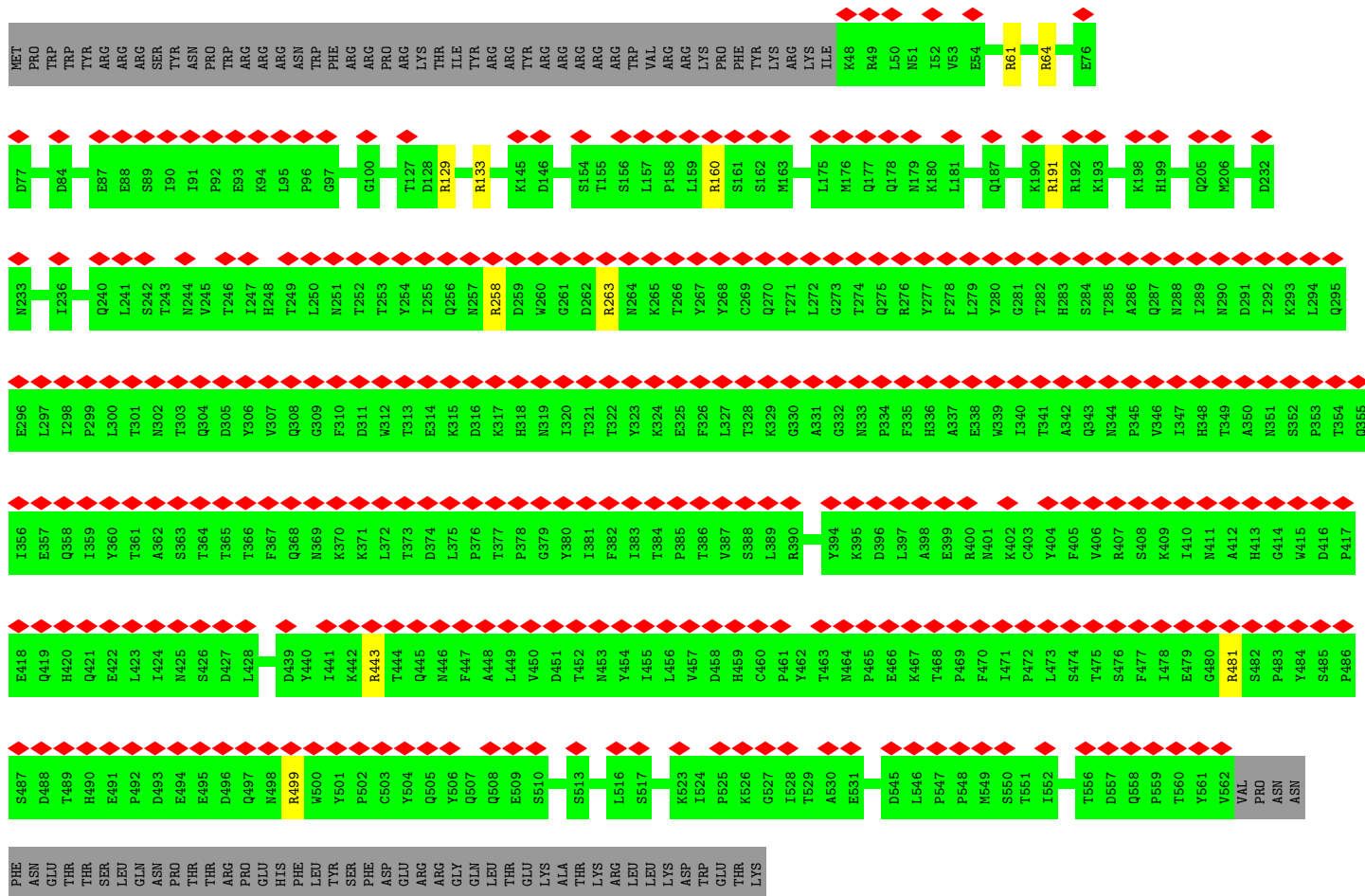
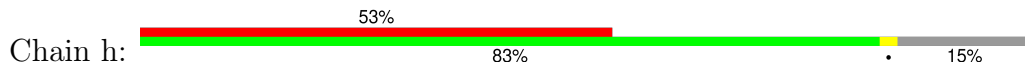




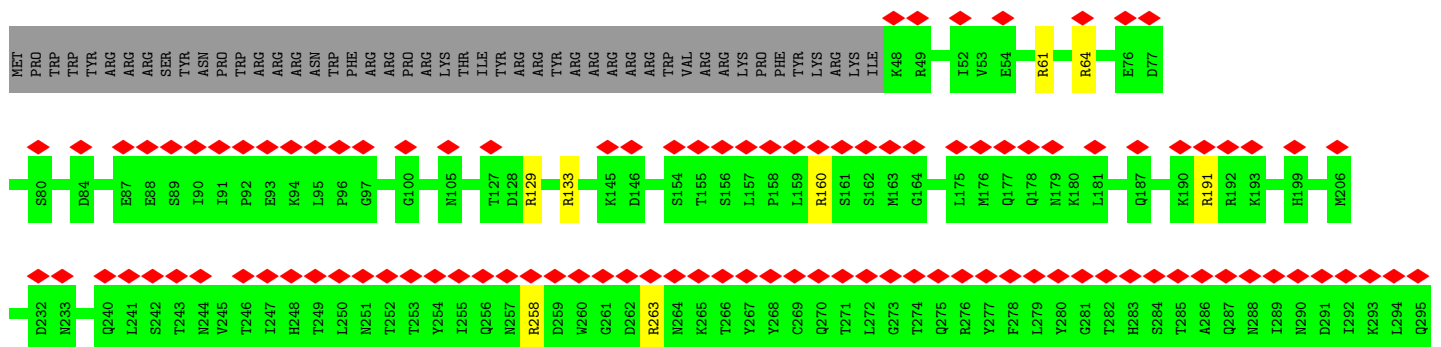
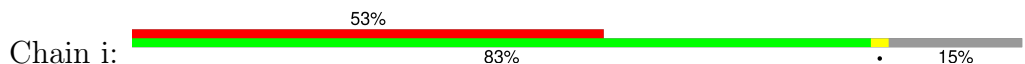




• Molecule 1: Capsid protein

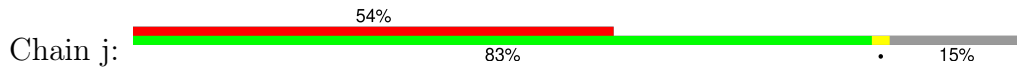


• Molecule 1: Capsid protein



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• Molecule 1: Capsid protein

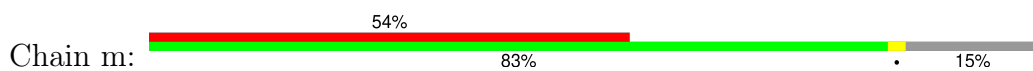


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E76	D77	S80	D84	E87	E88	S89	I90	I91	P92	E93	K94	L95	P96	G97	G100	N105	T127	D128	R129	R133	K145	D146	S154	T155	S156	L157	P158	L159	R160	S161	S162	M163	G164	L175	M176	Q177	Q178	K180	L181	Q187	K190	R191	R192	A286	Q287	N288	I289	T349	A350										
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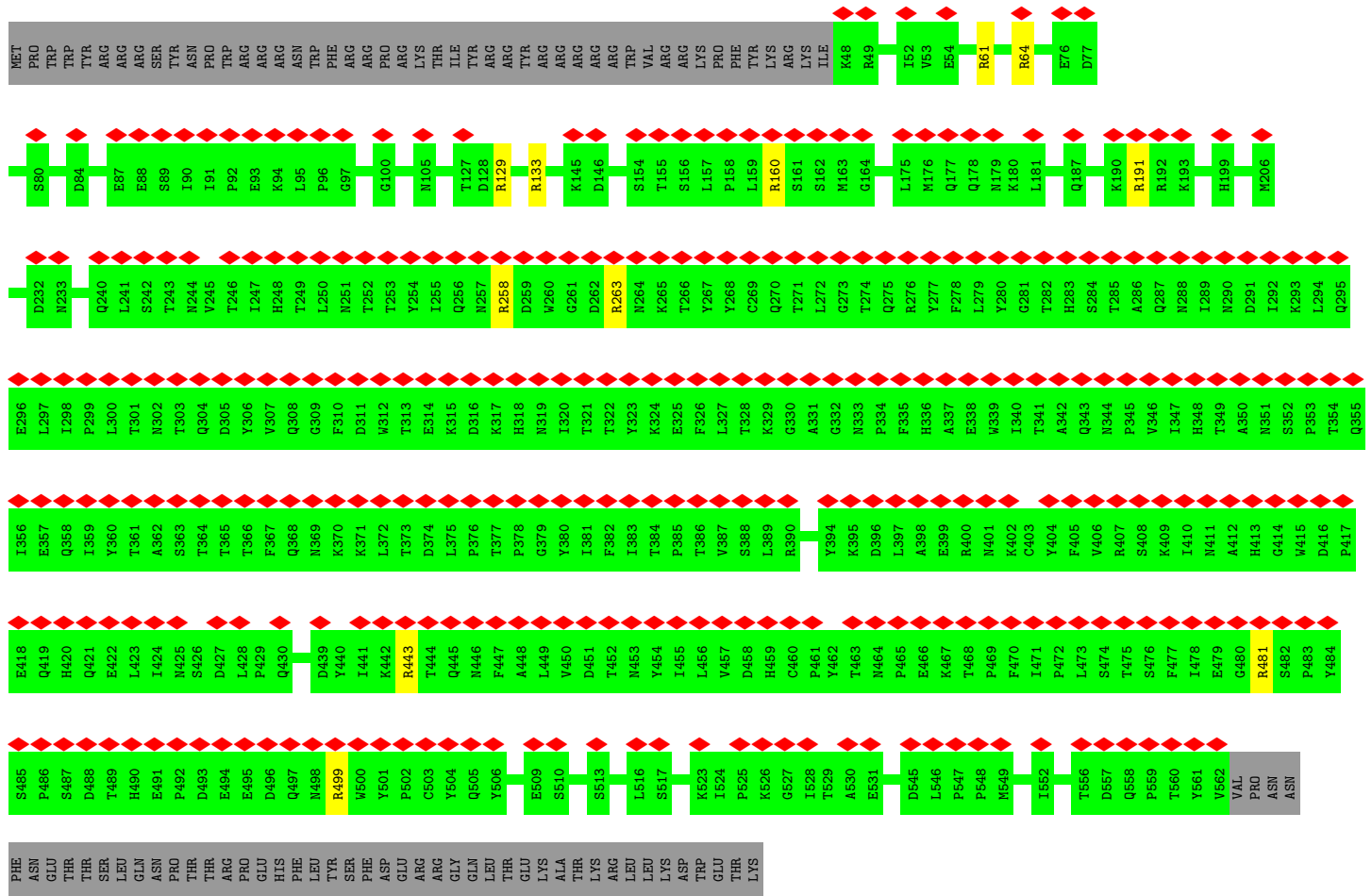
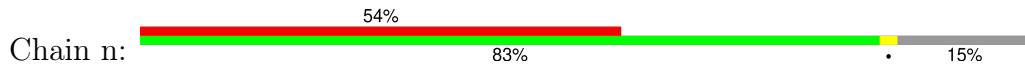
• Molecule 1: Capsid protein



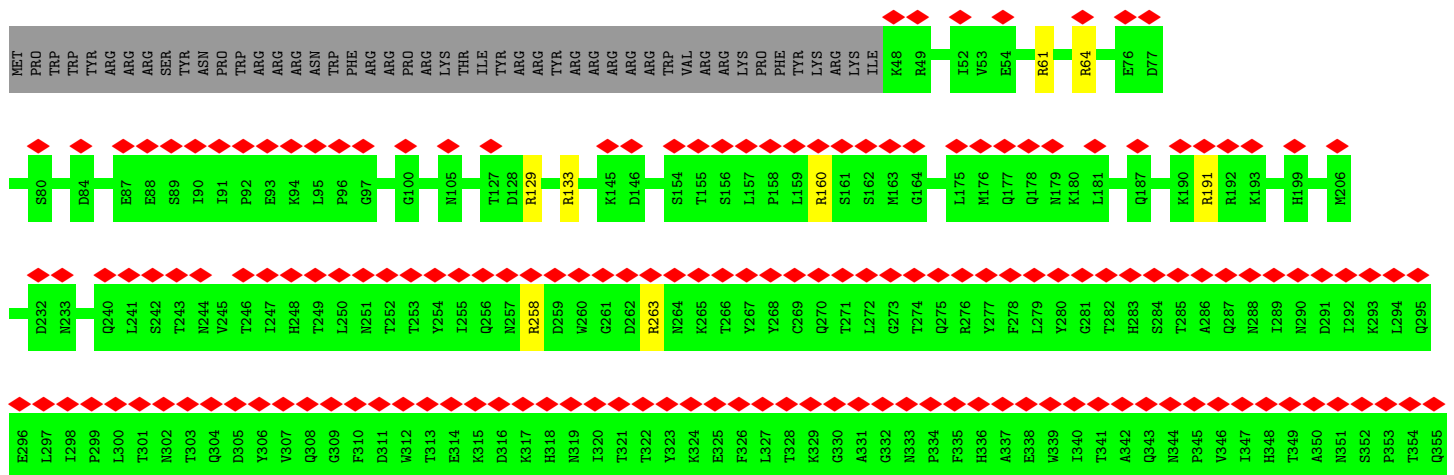
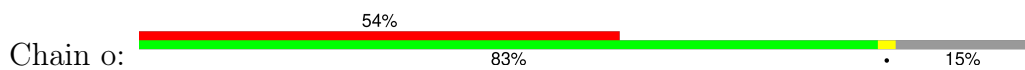
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E76	D77	S80	D84	E87	E88	S89	I90	I91	P92	E93	K94	L95	P96	G97	G100	N105	T127	D128	R129	R133	K145	D146	S154	T155	S156	L157	P158	L159	R160	S161	S162	M163	L175	M176	Q177	Q178	K180	L181	Q187	K190	R191	R192	K193	K198															
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V562	VAL	PRO	ASN	ASN	PHE	ASN	GLU	THR	THR	SER	LEU	GLN	ASN	PRO	THR	THR	THR	ARG	ARG	PRO	PRO	GLU	GLU	HIS	PHE	LEU	LEU	THR	GLU	ALA	THR	LYS	ARG	PHE	LEU	LEU	LYS	ASP	TRP	GLU	LYS	K48	R49	L50	N51	I52	V53	E54	K58	R61	R64								



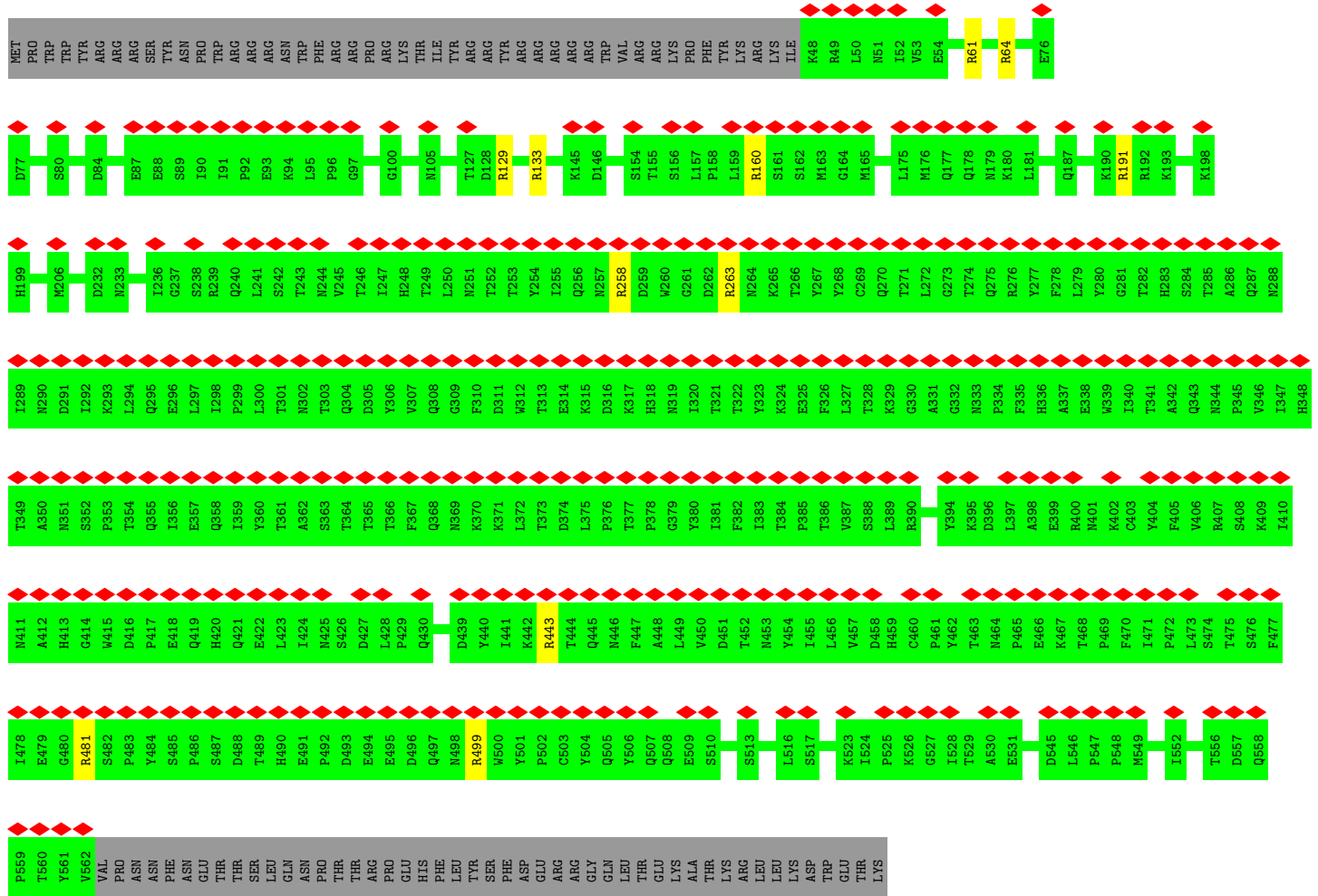
• Molecule 1: Capsid protein



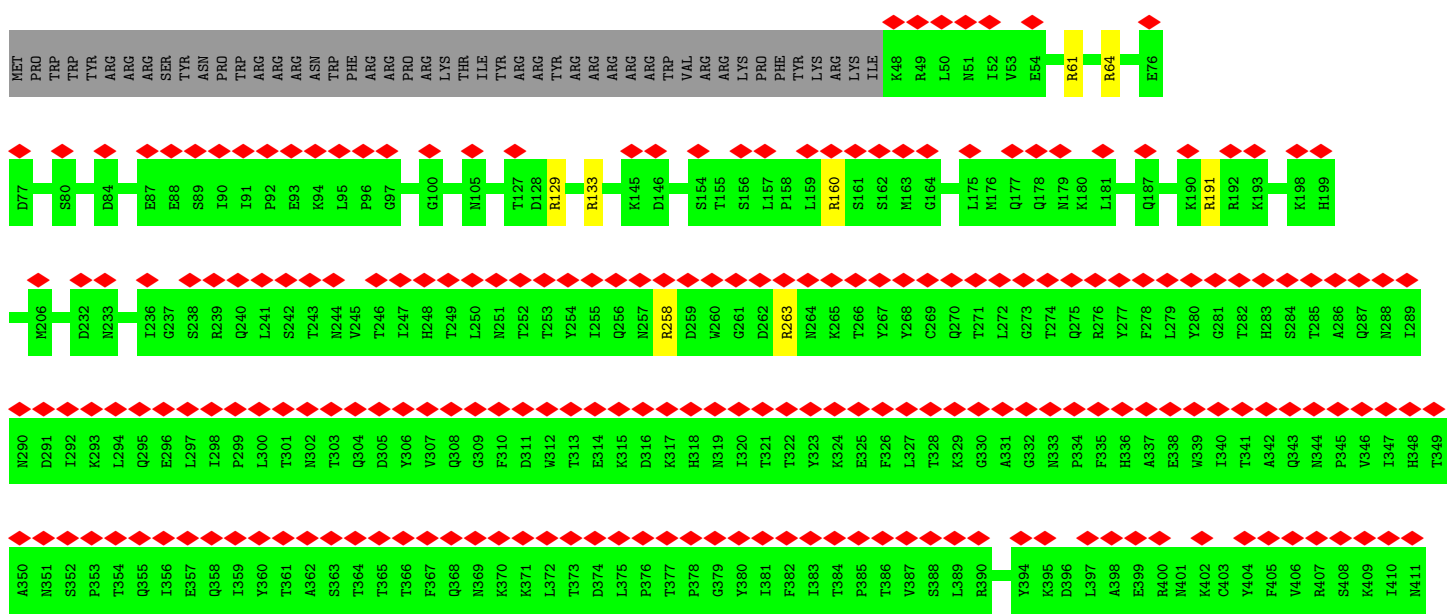
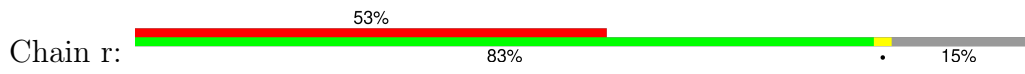
• Molecule 1: Capsid protein

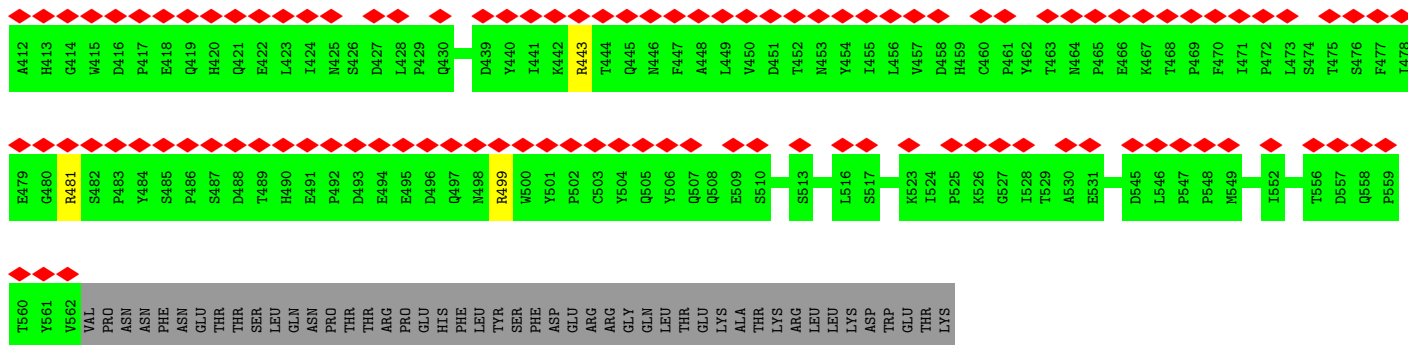




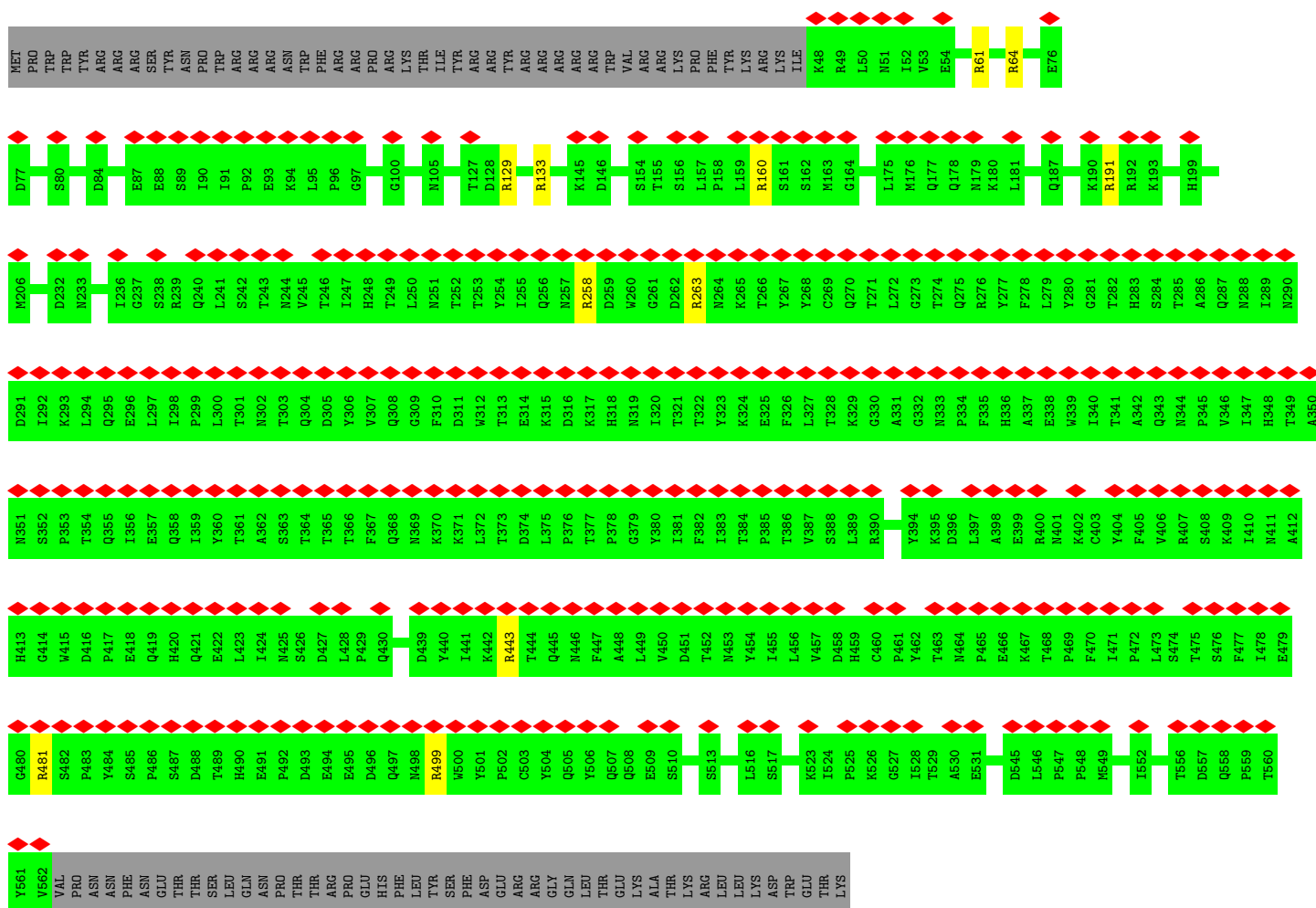
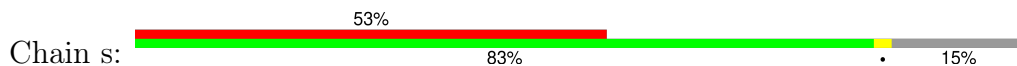


• Molecule 1: Capsid protein

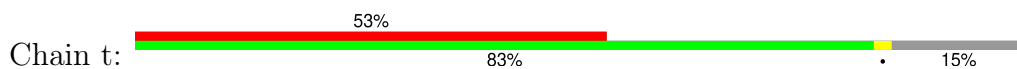


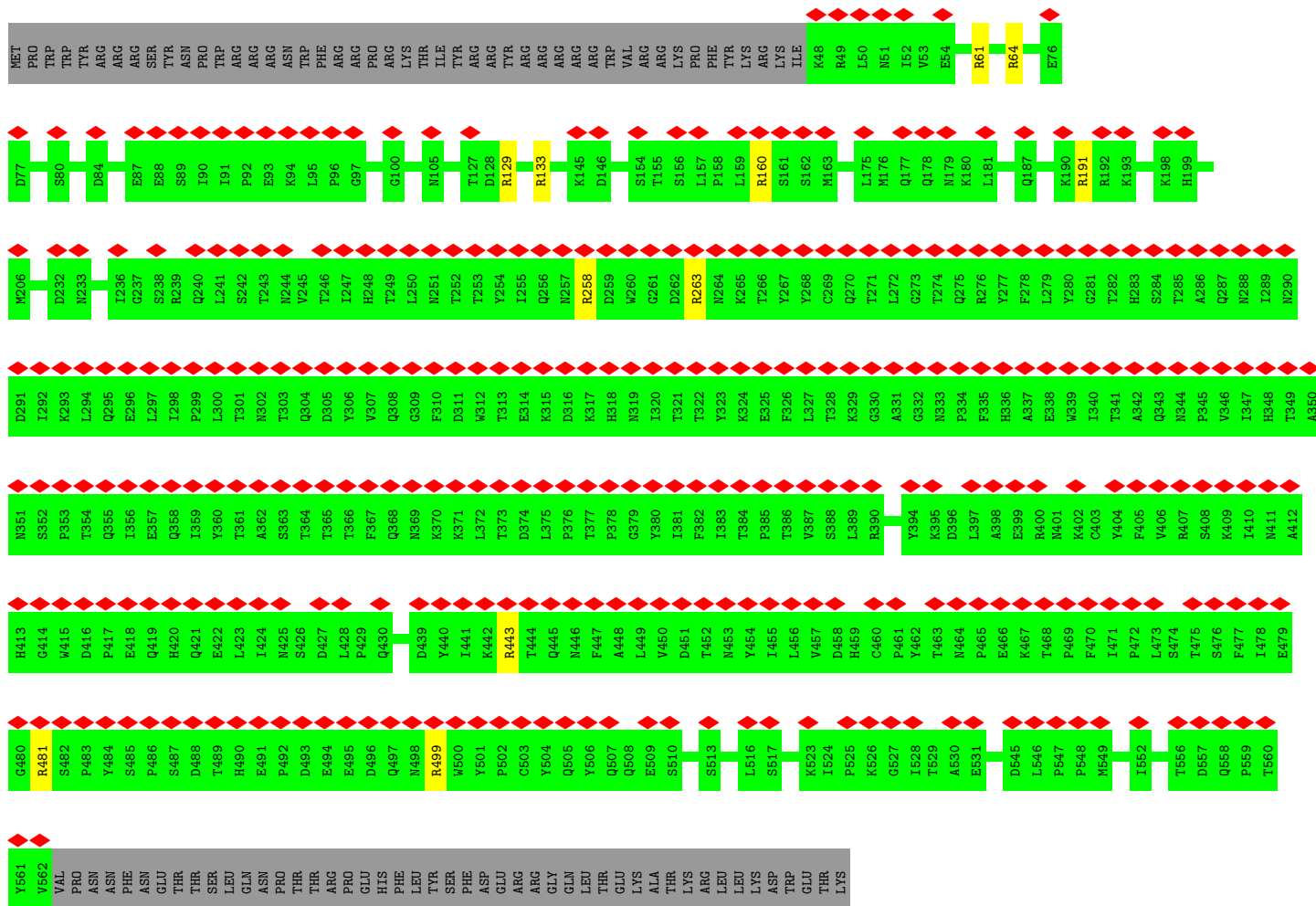


• Molecule 1: Capsid protein

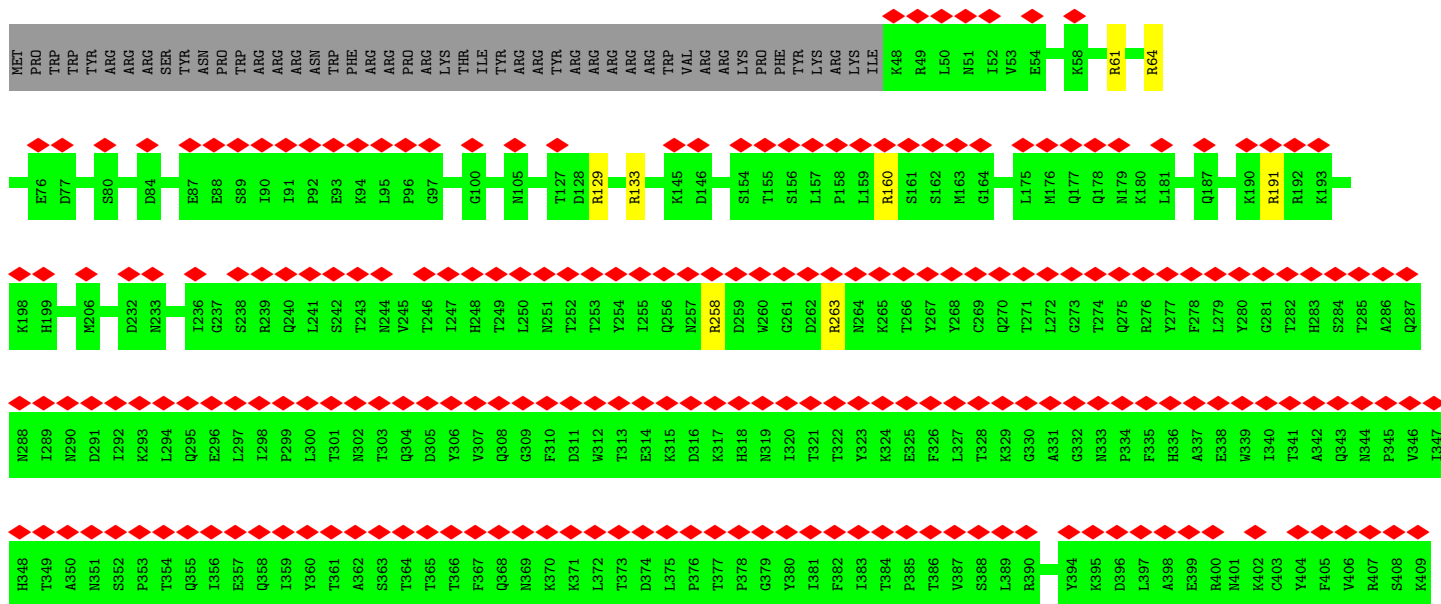
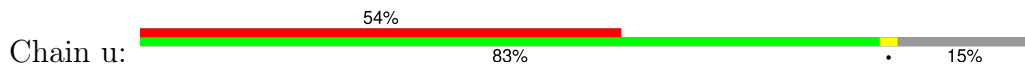


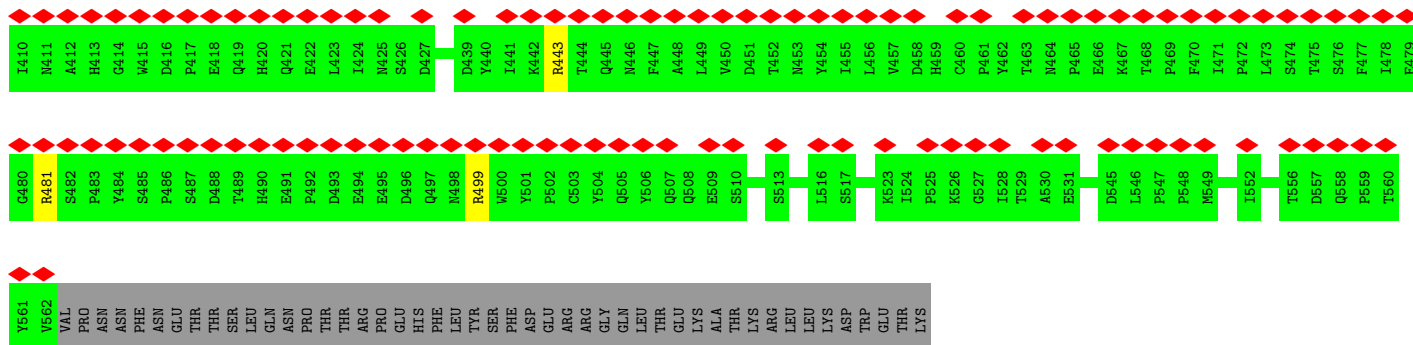
• Molecule 1: Capsid protein



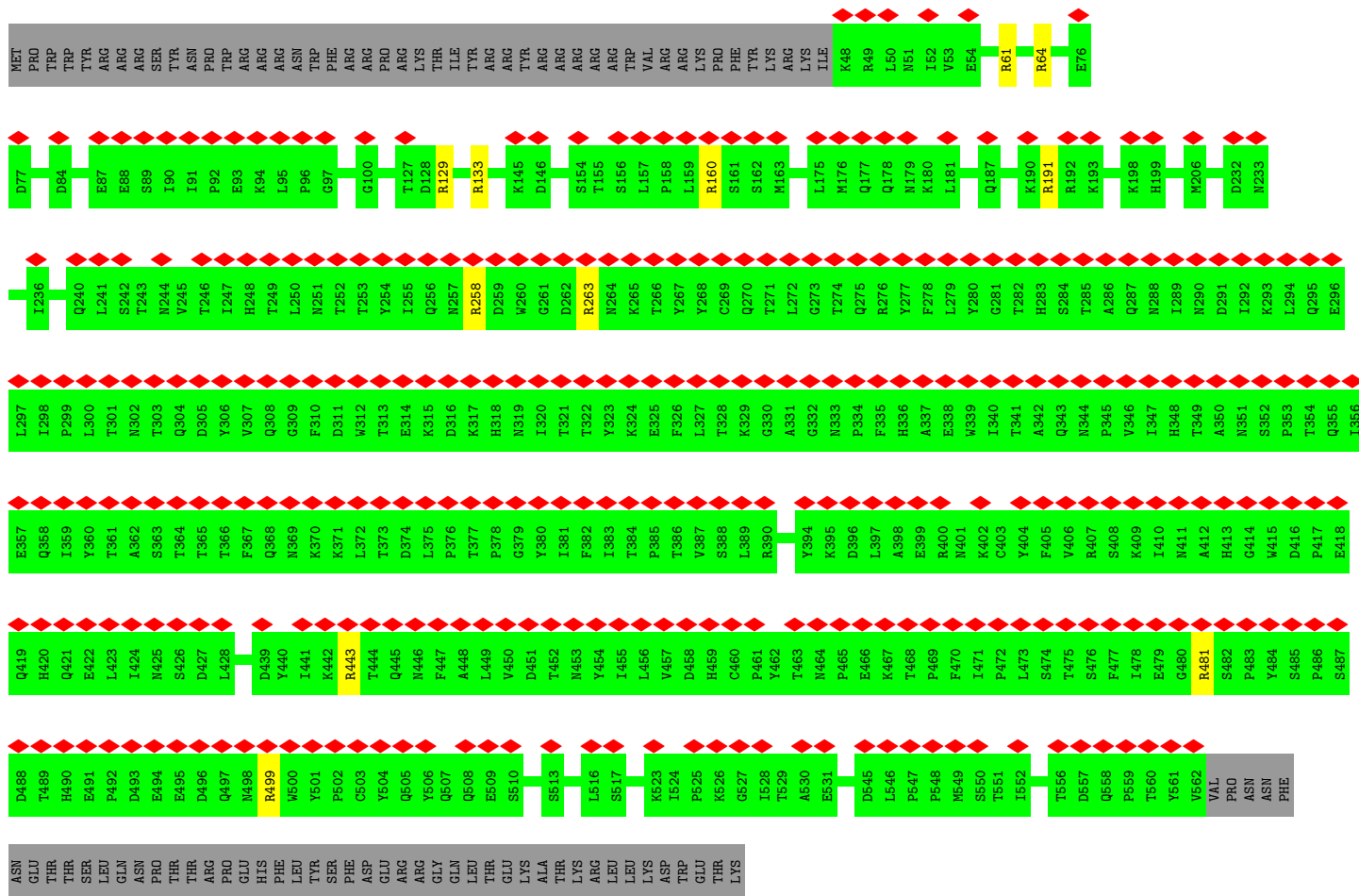
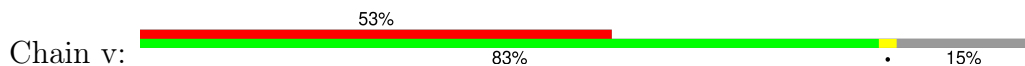


• Molecule 1: Capsid protein

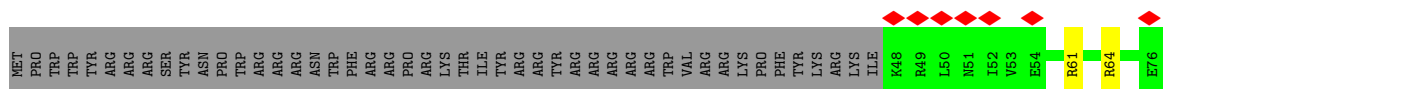
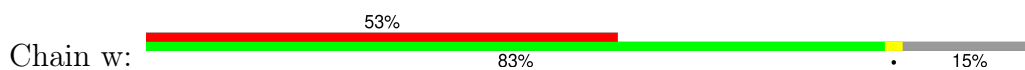


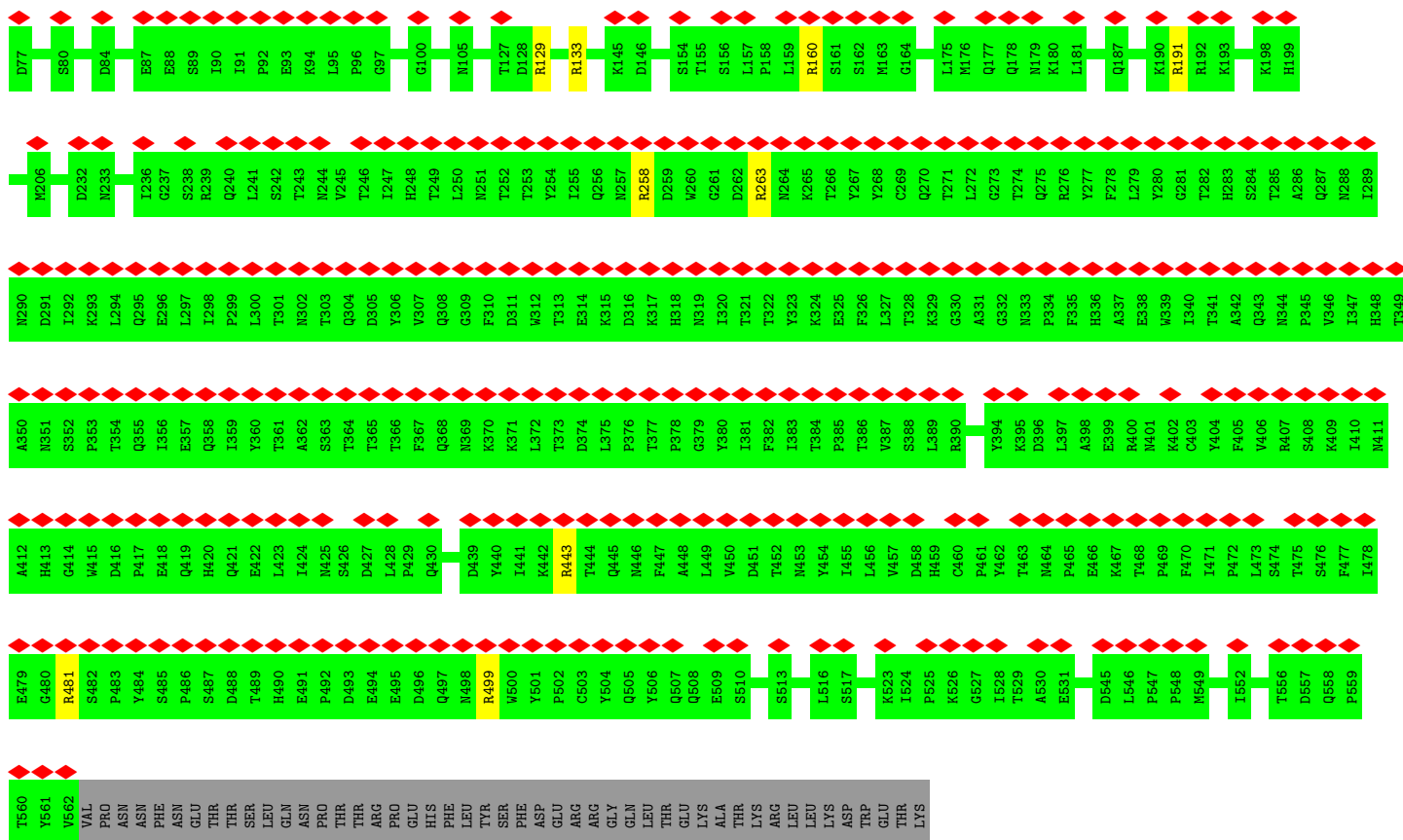


• Molecule 1: Capsid protein

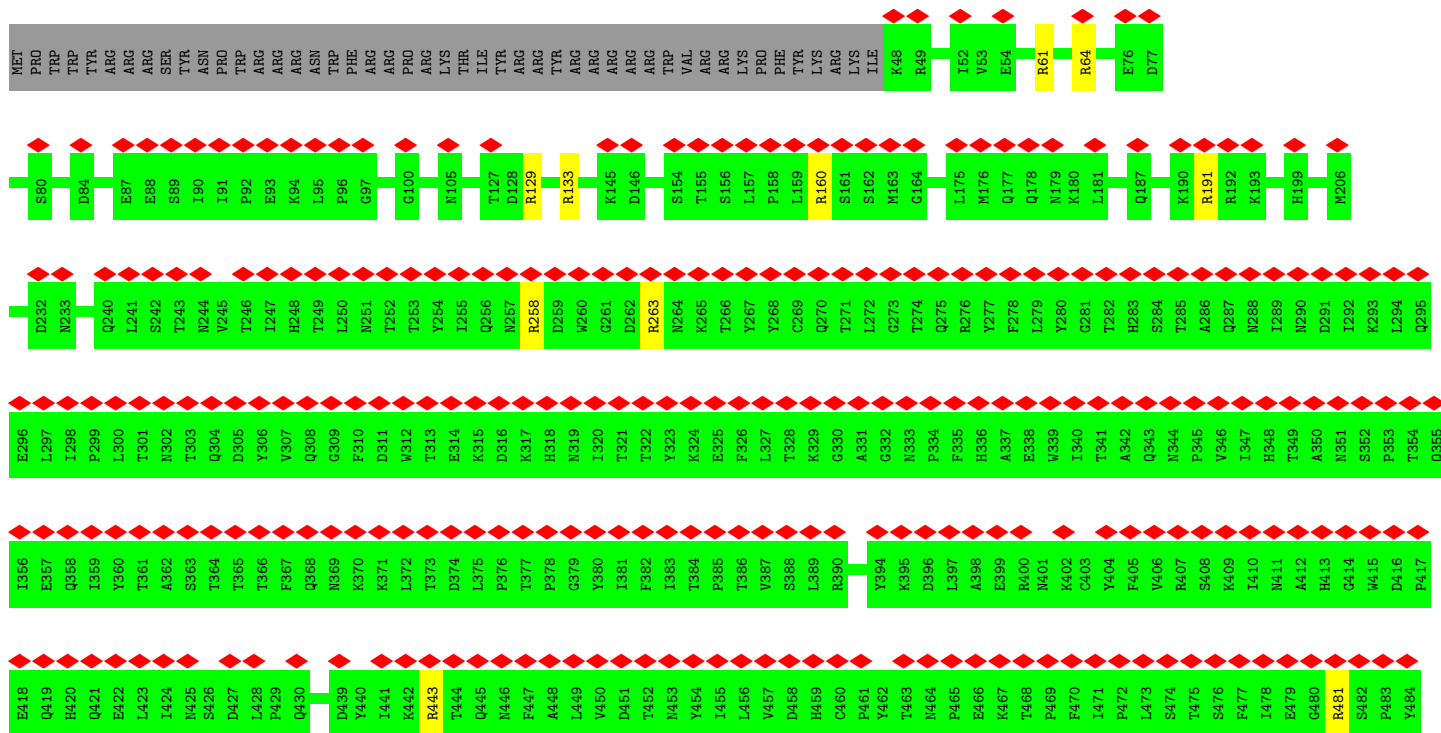
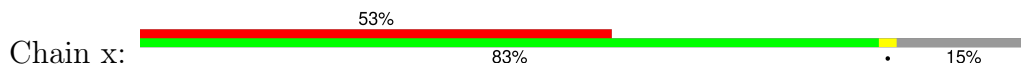


• Molecule 1: Capsid protein





• Molecule 1: Capsid protein







M206	D232	N233	I236	G237	S238	R239	Q240	S242	L241	T243	N244	V245	T246	I247	H248	T249	L250	N251	T252	T253	Y254	I255	Q256	N257	R258	D259	W260	G261	D262	R263	N264	K265	T266	Y267	Y268	C269	Q270	T271	L272	G273	T274	Q275	R276	Y277	F278	L279	Y280	G281	T282	H283	S284	T285	A286	Q287	N288	I289			
N290	D291	I292	K293	L294	Q295	E296	L297	I298	P299	L300	T301	N302	T303	Q304	D305	Y306	V307	Q308	G309	F310	D311	W312	T313	E314	K315	D316	K317	H318	N319	I320	T321	T322	Y323	K324	E325	F326	L327	T328	K329	G330	A331	G332	N333	P334	F335	H336	A337	E338	Y339	I340	T341	A342	Q343	N344	P345	V346	I347	H348	T349
A350	N351	S352	P353	T354	Q355	I356	E357	Q358	I359	Y360	T361	A362	S363	T364	T365	T366	F367	Q368	N369	K370	K371	L372	T373	D374	L375	P376	T377	P378	G379	Y380	I381	F382	I383	T384	P385	T386	V387	S388	L389	R390	Y394	K395	D396	L397	A398	E399	R400	N401	K402	C403	Y404	F405	R407	S408	K409	I410	N411		
A412	H413	G414	W415	D416	P417	E418	Q419	H420	Q421	E422	L423	I424	N425	S426	D427	L428	P429	Q430	D439	Y440	I441	K442	R443	T444	Q445	N446	F447	A448	L449	V450	D451	T452	N453	Y454	I455	L456	V457	D458	H459	C460	P461	Y462	T463	N464	P465	E466	K467	T468	P469	F470	I471	P472	L473	S474	T475	S476	F477	I478	
E479	G480	R481	S482	P483	Y484	S485	P486	S487	D488	T489	H490	E491	P492	D493	E494	E496	Q497	N498	R499	N500	Y501	P502	C503	Y504	Q505	Y506	Q507	Q508	E509	S510	S513	L516	S517	K523	I524	P525	K526	G527	I528	T529	A530	E531	D545	L546	P547	P548	M549	I552	T556	D557	Q558	P559							
T560	Y561	Y562	VAL	PRO	ASN	ASN	PHE	ASN	GLU	THR	THR	SER	LEU	GLN	ASN	PRO	THR	THR	ARG	PRO	GLU	HIS	PHE	LEU	TYR	SER	PHE	ASP	GLU	ARG	ARG	GLY	GLN	LEU	THR	LEU	GLU	THR	LYS	ALA	THR	LYS	ARG	LEU	LEU	LYS	ASP	TRP	GLU	THR	LYS								

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	23193	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50.53	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1600	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.371	Depositor
Minimum map value	-0.197	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.015	Depositor
Recommended contour level	0.113	Depositor
Map size ( $\text{\AA}$ )	500.4, 500.4, 500.4	wwPDB
Map dimensions	600, 600, 600	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.834, 0.834, 0.834	Depositor

## 5 Model quality

### 5.1 Standard geometry

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	0	0.66	0/4348	0.90	1/5923 (0.0%)
1	1	0.66	0/4348	0.90	1/5923 (0.0%)
1	2	0.66	0/4348	0.90	1/5923 (0.0%)
1	3	0.66	0/4348	0.90	1/5923 (0.0%)
1	4	0.66	0/4348	0.90	1/5923 (0.0%)
1	5	0.66	0/4348	0.90	1/5923 (0.0%)
1	6	0.66	0/4348	0.90	1/5923 (0.0%)
1	7	0.66	0/4348	0.90	1/5923 (0.0%)
1	A	0.66	0/4348	0.90	1/5923 (0.0%)
1	B	0.66	0/4348	0.90	1/5923 (0.0%)
1	C	0.66	0/4348	0.90	1/5923 (0.0%)
1	D	0.66	0/4348	0.90	1/5923 (0.0%)
1	E	0.66	0/4348	0.90	1/5923 (0.0%)
1	F	0.66	0/4348	0.90	1/5923 (0.0%)
1	G	0.66	0/4348	0.90	1/5923 (0.0%)
1	H	0.66	0/4348	0.90	1/5923 (0.0%)
1	I	0.66	0/4348	0.90	1/5923 (0.0%)
1	J	0.66	0/4348	0.90	1/5923 (0.0%)
1	K	0.66	0/4348	0.90	1/5923 (0.0%)
1	L	0.66	0/4348	0.90	1/5923 (0.0%)
1	M	0.66	0/4348	0.90	1/5923 (0.0%)
1	N	0.66	0/4348	0.90	1/5923 (0.0%)
1	O	0.66	0/4348	0.90	1/5923 (0.0%)
1	P	0.66	0/4348	0.90	1/5923 (0.0%)
1	Q	0.66	0/4348	0.90	1/5923 (0.0%)
1	R	0.66	0/4348	0.90	1/5923 (0.0%)
1	S	0.66	0/4348	0.90	1/5923 (0.0%)
1	T	0.66	0/4348	0.90	1/5923 (0.0%)
1	U	0.66	0/4348	0.90	1/5923 (0.0%)
1	V	0.66	0/4348	0.90	1/5923 (0.0%)
1	W	0.66	0/4348	0.90	1/5923 (0.0%)
1	X	0.66	0/4348	0.90	1/5923 (0.0%)
1	Y	0.66	0/4348	0.90	1/5923 (0.0%)
1	Z	0.66	0/4348	0.90	1/5923 (0.0%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	a	0.66	0/4348	0.90	1/5923 (0.0%)
1	b	0.66	0/4348	0.90	1/5923 (0.0%)
1	c	0.66	0/4348	0.90	1/5923 (0.0%)
1	d	0.66	0/4348	0.90	1/5923 (0.0%)
1	e	0.66	0/4348	0.90	1/5923 (0.0%)
1	f	0.66	0/4348	0.90	1/5923 (0.0%)
1	g	0.66	0/4348	0.90	1/5923 (0.0%)
1	h	0.66	0/4348	0.90	1/5923 (0.0%)
1	i	0.66	0/4348	0.90	1/5923 (0.0%)
1	j	0.66	0/4348	0.90	0/5923
1	k	0.66	0/4348	0.90	1/5923 (0.0%)
1	l	0.66	0/4348	0.90	1/5923 (0.0%)
1	m	0.66	0/4348	0.90	1/5923 (0.0%)
1	n	0.66	0/4348	0.90	1/5923 (0.0%)
1	o	0.66	0/4348	0.90	1/5923 (0.0%)
1	p	0.66	0/4348	0.90	1/5923 (0.0%)
1	q	0.66	0/4348	0.90	1/5923 (0.0%)
1	r	0.66	0/4348	0.90	1/5923 (0.0%)
1	s	0.66	0/4348	0.90	1/5923 (0.0%)
1	t	0.66	0/4348	0.90	1/5923 (0.0%)
1	u	0.66	0/4348	0.90	1/5923 (0.0%)
1	v	0.66	0/4348	0.90	1/5923 (0.0%)
1	w	0.66	0/4348	0.90	1/5923 (0.0%)
1	x	0.66	0/4348	0.90	1/5923 (0.0%)
1	y	0.66	0/4348	0.90	1/5923 (0.0%)
1	z	0.66	0/4348	0.90	1/5923 (0.0%)
All	All	0.66	0/260880	0.90	59/355380 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	0	0	10
1	1	0	10
1	2	0	10
1	3	0	10
1	4	0	10
1	5	0	10
1	6	0	10
1	7	0	10

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	10
1	B	0	10
1	C	0	10
1	D	0	10
1	E	0	10
1	F	0	10
1	G	0	10
1	H	0	10
1	I	0	10
1	J	0	10
1	K	0	10
1	L	0	10
1	M	0	10
1	N	0	10
1	O	0	10
1	P	0	10
1	Q	0	10
1	R	0	10
1	S	0	10
1	T	0	10
1	U	0	10
1	V	0	10
1	W	0	10
1	X	0	10
1	Y	0	10
1	Z	0	10
1	a	0	10
1	b	0	10
1	c	0	10
1	d	0	10
1	e	0	10
1	f	0	10
1	g	0	10
1	h	0	10
1	i	0	10
1	j	0	10
1	k	0	10
1	l	0	10
1	m	0	10
1	n	0	10
1	o	0	10
1	p	0	10

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	q	0	10
1	r	0	10
1	s	0	10
1	t	0	10
1	u	0	10
1	v	0	10
1	w	0	10
1	x	0	10
1	y	0	10
1	z	0	10
All	All	0	600

There are no bond length outliers.

All (59) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	f	191	ARG	NE-CZ-NH2	5.11	122.86	120.30
1	4	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	7	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	F	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	K	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	L	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	T	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	a	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	c	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	d	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	e	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	k	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	l	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	l	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	R	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	U	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	V	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	W	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	Y	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	q	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	r	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	s	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	t	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	w	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	z	191	ARG	NE-CZ-NH2	5.06	122.83	120.30
1	0	191	ARG	NE-CZ-NH2	5.05	122.82	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	B	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	D	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	X	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	Z	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	b	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	g	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	i	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	m	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	u	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	y	191	ARG	NE-CZ-NH2	5.05	122.82	120.30
1	2	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	5	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	C	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	E	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	G	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	I	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	J	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	N	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	O	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	P	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	h	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	v	191	ARG	NE-CZ-NH2	5.04	122.82	120.30
1	3	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	6	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	H	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	M	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	Q	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	S	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	n	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	o	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	p	191	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	x	191	ARG	NE-CZ-NH2	5.03	122.81	120.30

There are no chirality outliers.

All (600) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	129	ARG	Sidechain
1	0	133	ARG	Sidechain
1	0	160	ARG	Sidechain
1	0	258	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	0	263	ARG	Sidechain
1	0	443	ARG	Sidechain
1	0	481	ARG	Sidechain
1	0	499	ARG	Sidechain
1	0	61	ARG	Sidechain
1	0	64	ARG	Sidechain
1	1	129	ARG	Sidechain
1	1	133	ARG	Sidechain
1	1	160	ARG	Sidechain
1	1	258	ARG	Sidechain
1	1	263	ARG	Sidechain
1	1	443	ARG	Sidechain
1	1	481	ARG	Sidechain
1	1	499	ARG	Sidechain
1	1	61	ARG	Sidechain
1	1	64	ARG	Sidechain
1	2	129	ARG	Sidechain
1	2	133	ARG	Sidechain
1	2	160	ARG	Sidechain
1	2	258	ARG	Sidechain
1	2	263	ARG	Sidechain
1	2	443	ARG	Sidechain
1	2	481	ARG	Sidechain
1	2	499	ARG	Sidechain
1	2	61	ARG	Sidechain
1	2	64	ARG	Sidechain
1	3	129	ARG	Sidechain
1	3	133	ARG	Sidechain
1	3	160	ARG	Sidechain
1	3	258	ARG	Sidechain
1	3	263	ARG	Sidechain
1	3	443	ARG	Sidechain
1	3	481	ARG	Sidechain
1	3	499	ARG	Sidechain
1	3	61	ARG	Sidechain
1	3	64	ARG	Sidechain
1	4	129	ARG	Sidechain
1	4	133	ARG	Sidechain
1	4	160	ARG	Sidechain
1	4	258	ARG	Sidechain
1	4	263	ARG	Sidechain
1	4	443	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	4	481	ARG	Sidechain
1	4	499	ARG	Sidechain
1	4	61	ARG	Sidechain
1	4	64	ARG	Sidechain
1	5	129	ARG	Sidechain
1	5	133	ARG	Sidechain
1	5	160	ARG	Sidechain
1	5	258	ARG	Sidechain
1	5	263	ARG	Sidechain
1	5	443	ARG	Sidechain
1	5	481	ARG	Sidechain
1	5	499	ARG	Sidechain
1	5	61	ARG	Sidechain
1	5	64	ARG	Sidechain
1	6	129	ARG	Sidechain
1	6	133	ARG	Sidechain
1	6	160	ARG	Sidechain
1	6	258	ARG	Sidechain
1	6	263	ARG	Sidechain
1	6	443	ARG	Sidechain
1	6	481	ARG	Sidechain
1	6	499	ARG	Sidechain
1	6	61	ARG	Sidechain
1	6	64	ARG	Sidechain
1	7	129	ARG	Sidechain
1	7	133	ARG	Sidechain
1	7	160	ARG	Sidechain
1	7	258	ARG	Sidechain
1	7	263	ARG	Sidechain
1	7	443	ARG	Sidechain
1	7	481	ARG	Sidechain
1	7	499	ARG	Sidechain
1	7	61	ARG	Sidechain
1	7	64	ARG	Sidechain
1	A	129	ARG	Sidechain
1	A	133	ARG	Sidechain
1	A	160	ARG	Sidechain
1	A	258	ARG	Sidechain
1	A	263	ARG	Sidechain
1	A	443	ARG	Sidechain
1	A	481	ARG	Sidechain
1	A	499	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	A	61	ARG	Sidechain
1	A	64	ARG	Sidechain
1	B	129	ARG	Sidechain
1	B	133	ARG	Sidechain
1	B	160	ARG	Sidechain
1	B	258	ARG	Sidechain
1	B	263	ARG	Sidechain
1	B	443	ARG	Sidechain
1	B	481	ARG	Sidechain
1	B	499	ARG	Sidechain
1	B	61	ARG	Sidechain
1	B	64	ARG	Sidechain
1	C	129	ARG	Sidechain
1	C	133	ARG	Sidechain
1	C	160	ARG	Sidechain
1	C	258	ARG	Sidechain
1	C	263	ARG	Sidechain
1	C	443	ARG	Sidechain
1	C	481	ARG	Sidechain
1	C	499	ARG	Sidechain
1	C	61	ARG	Sidechain
1	C	64	ARG	Sidechain
1	D	129	ARG	Sidechain
1	D	133	ARG	Sidechain
1	D	160	ARG	Sidechain
1	D	258	ARG	Sidechain
1	D	263	ARG	Sidechain
1	D	443	ARG	Sidechain
1	D	481	ARG	Sidechain
1	D	499	ARG	Sidechain
1	D	61	ARG	Sidechain
1	D	64	ARG	Sidechain
1	E	129	ARG	Sidechain
1	E	133	ARG	Sidechain
1	E	160	ARG	Sidechain
1	E	258	ARG	Sidechain
1	E	263	ARG	Sidechain
1	E	443	ARG	Sidechain
1	E	481	ARG	Sidechain
1	E	499	ARG	Sidechain
1	E	61	ARG	Sidechain
1	E	64	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	F	129	ARG	Sidechain
1	F	133	ARG	Sidechain
1	F	160	ARG	Sidechain
1	F	258	ARG	Sidechain
1	F	263	ARG	Sidechain
1	F	443	ARG	Sidechain
1	F	481	ARG	Sidechain
1	F	499	ARG	Sidechain
1	F	61	ARG	Sidechain
1	F	64	ARG	Sidechain
1	G	129	ARG	Sidechain
1	G	133	ARG	Sidechain
1	G	160	ARG	Sidechain
1	G	258	ARG	Sidechain
1	G	263	ARG	Sidechain
1	G	443	ARG	Sidechain
1	G	481	ARG	Sidechain
1	G	499	ARG	Sidechain
1	G	61	ARG	Sidechain
1	G	64	ARG	Sidechain
1	H	129	ARG	Sidechain
1	H	133	ARG	Sidechain
1	H	160	ARG	Sidechain
1	H	258	ARG	Sidechain
1	H	263	ARG	Sidechain
1	H	443	ARG	Sidechain
1	H	481	ARG	Sidechain
1	H	499	ARG	Sidechain
1	H	61	ARG	Sidechain
1	H	64	ARG	Sidechain
1	I	129	ARG	Sidechain
1	I	133	ARG	Sidechain
1	I	160	ARG	Sidechain
1	I	258	ARG	Sidechain
1	I	263	ARG	Sidechain
1	I	443	ARG	Sidechain
1	I	481	ARG	Sidechain
1	I	499	ARG	Sidechain
1	I	61	ARG	Sidechain
1	I	64	ARG	Sidechain
1	J	129	ARG	Sidechain
1	J	133	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	J	160	ARG	Sidechain
1	J	258	ARG	Sidechain
1	J	263	ARG	Sidechain
1	J	443	ARG	Sidechain
1	J	481	ARG	Sidechain
1	J	499	ARG	Sidechain
1	J	61	ARG	Sidechain
1	J	64	ARG	Sidechain
1	K	129	ARG	Sidechain
1	K	133	ARG	Sidechain
1	K	160	ARG	Sidechain
1	K	258	ARG	Sidechain
1	K	263	ARG	Sidechain
1	K	443	ARG	Sidechain
1	K	481	ARG	Sidechain
1	K	499	ARG	Sidechain
1	K	61	ARG	Sidechain
1	K	64	ARG	Sidechain
1	L	129	ARG	Sidechain
1	L	133	ARG	Sidechain
1	L	160	ARG	Sidechain
1	L	258	ARG	Sidechain
1	L	263	ARG	Sidechain
1	L	443	ARG	Sidechain
1	L	481	ARG	Sidechain
1	L	499	ARG	Sidechain
1	L	61	ARG	Sidechain
1	L	64	ARG	Sidechain
1	M	129	ARG	Sidechain
1	M	133	ARG	Sidechain
1	M	160	ARG	Sidechain
1	M	258	ARG	Sidechain
1	M	263	ARG	Sidechain
1	M	443	ARG	Sidechain
1	M	481	ARG	Sidechain
1	M	499	ARG	Sidechain
1	M	61	ARG	Sidechain
1	M	64	ARG	Sidechain
1	N	129	ARG	Sidechain
1	N	133	ARG	Sidechain
1	N	160	ARG	Sidechain
1	N	258	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	N	263	ARG	Sidechain
1	N	443	ARG	Sidechain
1	N	481	ARG	Sidechain
1	N	499	ARG	Sidechain
1	N	61	ARG	Sidechain
1	N	64	ARG	Sidechain
1	O	129	ARG	Sidechain
1	O	133	ARG	Sidechain
1	O	160	ARG	Sidechain
1	O	258	ARG	Sidechain
1	O	263	ARG	Sidechain
1	O	443	ARG	Sidechain
1	O	481	ARG	Sidechain
1	O	499	ARG	Sidechain
1	O	61	ARG	Sidechain
1	O	64	ARG	Sidechain
1	P	129	ARG	Sidechain
1	P	133	ARG	Sidechain
1	P	160	ARG	Sidechain
1	P	258	ARG	Sidechain
1	P	263	ARG	Sidechain
1	P	443	ARG	Sidechain
1	P	481	ARG	Sidechain
1	P	499	ARG	Sidechain
1	P	61	ARG	Sidechain
1	P	64	ARG	Sidechain
1	Q	129	ARG	Sidechain
1	Q	133	ARG	Sidechain
1	Q	160	ARG	Sidechain
1	Q	258	ARG	Sidechain
1	Q	263	ARG	Sidechain
1	Q	443	ARG	Sidechain
1	Q	481	ARG	Sidechain
1	Q	499	ARG	Sidechain
1	Q	61	ARG	Sidechain
1	Q	64	ARG	Sidechain
1	R	129	ARG	Sidechain
1	R	133	ARG	Sidechain
1	R	160	ARG	Sidechain
1	R	258	ARG	Sidechain
1	R	263	ARG	Sidechain
1	R	443	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	R	481	ARG	Sidechain
1	R	499	ARG	Sidechain
1	R	61	ARG	Sidechain
1	R	64	ARG	Sidechain
1	S	129	ARG	Sidechain
1	S	133	ARG	Sidechain
1	S	160	ARG	Sidechain
1	S	258	ARG	Sidechain
1	S	263	ARG	Sidechain
1	S	443	ARG	Sidechain
1	S	481	ARG	Sidechain
1	S	499	ARG	Sidechain
1	S	61	ARG	Sidechain
1	S	64	ARG	Sidechain
1	T	129	ARG	Sidechain
1	T	133	ARG	Sidechain
1	T	160	ARG	Sidechain
1	T	258	ARG	Sidechain
1	T	263	ARG	Sidechain
1	T	443	ARG	Sidechain
1	T	481	ARG	Sidechain
1	T	499	ARG	Sidechain
1	T	61	ARG	Sidechain
1	T	64	ARG	Sidechain
1	U	129	ARG	Sidechain
1	U	133	ARG	Sidechain
1	U	160	ARG	Sidechain
1	U	258	ARG	Sidechain
1	U	263	ARG	Sidechain
1	U	443	ARG	Sidechain
1	U	481	ARG	Sidechain
1	U	499	ARG	Sidechain
1	U	61	ARG	Sidechain
1	U	64	ARG	Sidechain
1	V	129	ARG	Sidechain
1	V	133	ARG	Sidechain
1	V	160	ARG	Sidechain
1	V	258	ARG	Sidechain
1	V	263	ARG	Sidechain
1	V	443	ARG	Sidechain
1	V	481	ARG	Sidechain
1	V	499	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	V	61	ARG	Sidechain
1	V	64	ARG	Sidechain
1	W	129	ARG	Sidechain
1	W	133	ARG	Sidechain
1	W	160	ARG	Sidechain
1	W	258	ARG	Sidechain
1	W	263	ARG	Sidechain
1	W	443	ARG	Sidechain
1	W	481	ARG	Sidechain
1	W	499	ARG	Sidechain
1	W	61	ARG	Sidechain
1	W	64	ARG	Sidechain
1	X	129	ARG	Sidechain
1	X	133	ARG	Sidechain
1	X	160	ARG	Sidechain
1	X	258	ARG	Sidechain
1	X	263	ARG	Sidechain
1	X	443	ARG	Sidechain
1	X	481	ARG	Sidechain
1	X	499	ARG	Sidechain
1	X	61	ARG	Sidechain
1	X	64	ARG	Sidechain
1	Y	129	ARG	Sidechain
1	Y	133	ARG	Sidechain
1	Y	160	ARG	Sidechain
1	Y	258	ARG	Sidechain
1	Y	263	ARG	Sidechain
1	Y	443	ARG	Sidechain
1	Y	481	ARG	Sidechain
1	Y	499	ARG	Sidechain
1	Y	61	ARG	Sidechain
1	Y	64	ARG	Sidechain
1	Z	129	ARG	Sidechain
1	Z	133	ARG	Sidechain
1	Z	160	ARG	Sidechain
1	Z	258	ARG	Sidechain
1	Z	263	ARG	Sidechain
1	Z	443	ARG	Sidechain
1	Z	481	ARG	Sidechain
1	Z	499	ARG	Sidechain
1	Z	61	ARG	Sidechain
1	Z	64	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	a	129	ARG	Sidechain
1	a	133	ARG	Sidechain
1	a	160	ARG	Sidechain
1	a	258	ARG	Sidechain
1	a	263	ARG	Sidechain
1	a	443	ARG	Sidechain
1	a	481	ARG	Sidechain
1	a	499	ARG	Sidechain
1	a	61	ARG	Sidechain
1	a	64	ARG	Sidechain
1	b	129	ARG	Sidechain
1	b	133	ARG	Sidechain
1	b	160	ARG	Sidechain
1	b	258	ARG	Sidechain
1	b	263	ARG	Sidechain
1	b	443	ARG	Sidechain
1	b	481	ARG	Sidechain
1	b	499	ARG	Sidechain
1	b	61	ARG	Sidechain
1	b	64	ARG	Sidechain
1	c	129	ARG	Sidechain
1	c	133	ARG	Sidechain
1	c	160	ARG	Sidechain
1	c	258	ARG	Sidechain
1	c	263	ARG	Sidechain
1	c	443	ARG	Sidechain
1	c	481	ARG	Sidechain
1	c	499	ARG	Sidechain
1	c	61	ARG	Sidechain
1	c	64	ARG	Sidechain
1	d	129	ARG	Sidechain
1	d	133	ARG	Sidechain
1	d	160	ARG	Sidechain
1	d	258	ARG	Sidechain
1	d	263	ARG	Sidechain
1	d	443	ARG	Sidechain
1	d	481	ARG	Sidechain
1	d	499	ARG	Sidechain
1	d	61	ARG	Sidechain
1	d	64	ARG	Sidechain
1	e	129	ARG	Sidechain
1	e	133	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	e	160	ARG	Sidechain
1	e	258	ARG	Sidechain
1	e	263	ARG	Sidechain
1	e	443	ARG	Sidechain
1	e	481	ARG	Sidechain
1	e	499	ARG	Sidechain
1	e	61	ARG	Sidechain
1	e	64	ARG	Sidechain
1	f	129	ARG	Sidechain
1	f	133	ARG	Sidechain
1	f	160	ARG	Sidechain
1	f	258	ARG	Sidechain
1	f	263	ARG	Sidechain
1	f	443	ARG	Sidechain
1	f	481	ARG	Sidechain
1	f	499	ARG	Sidechain
1	f	61	ARG	Sidechain
1	f	64	ARG	Sidechain
1	g	129	ARG	Sidechain
1	g	133	ARG	Sidechain
1	g	160	ARG	Sidechain
1	g	258	ARG	Sidechain
1	g	263	ARG	Sidechain
1	g	443	ARG	Sidechain
1	g	481	ARG	Sidechain
1	g	499	ARG	Sidechain
1	g	61	ARG	Sidechain
1	g	64	ARG	Sidechain
1	h	129	ARG	Sidechain
1	h	133	ARG	Sidechain
1	h	160	ARG	Sidechain
1	h	258	ARG	Sidechain
1	h	263	ARG	Sidechain
1	h	443	ARG	Sidechain
1	h	481	ARG	Sidechain
1	h	499	ARG	Sidechain
1	h	61	ARG	Sidechain
1	h	64	ARG	Sidechain
1	i	129	ARG	Sidechain
1	i	133	ARG	Sidechain
1	i	160	ARG	Sidechain
1	i	258	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	i	263	ARG	Sidechain
1	i	443	ARG	Sidechain
1	i	481	ARG	Sidechain
1	i	499	ARG	Sidechain
1	i	61	ARG	Sidechain
1	i	64	ARG	Sidechain
1	j	129	ARG	Sidechain
1	j	133	ARG	Sidechain
1	j	160	ARG	Sidechain
1	j	258	ARG	Sidechain
1	j	263	ARG	Sidechain
1	j	443	ARG	Sidechain
1	j	481	ARG	Sidechain
1	j	499	ARG	Sidechain
1	j	61	ARG	Sidechain
1	j	64	ARG	Sidechain
1	k	129	ARG	Sidechain
1	k	133	ARG	Sidechain
1	k	160	ARG	Sidechain
1	k	258	ARG	Sidechain
1	k	263	ARG	Sidechain
1	k	443	ARG	Sidechain
1	k	481	ARG	Sidechain
1	k	499	ARG	Sidechain
1	k	61	ARG	Sidechain
1	k	64	ARG	Sidechain
1	l	129	ARG	Sidechain
1	l	133	ARG	Sidechain
1	l	160	ARG	Sidechain
1	l	258	ARG	Sidechain
1	l	263	ARG	Sidechain
1	l	443	ARG	Sidechain
1	l	481	ARG	Sidechain
1	l	499	ARG	Sidechain
1	l	61	ARG	Sidechain
1	l	64	ARG	Sidechain
1	m	129	ARG	Sidechain
1	m	133	ARG	Sidechain
1	m	160	ARG	Sidechain
1	m	258	ARG	Sidechain
1	m	263	ARG	Sidechain
1	m	443	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	m	481	ARG	Sidechain
1	m	499	ARG	Sidechain
1	m	61	ARG	Sidechain
1	m	64	ARG	Sidechain
1	n	129	ARG	Sidechain
1	n	133	ARG	Sidechain
1	n	160	ARG	Sidechain
1	n	258	ARG	Sidechain
1	n	263	ARG	Sidechain
1	n	443	ARG	Sidechain
1	n	481	ARG	Sidechain
1	n	499	ARG	Sidechain
1	n	61	ARG	Sidechain
1	n	64	ARG	Sidechain
1	o	129	ARG	Sidechain
1	o	133	ARG	Sidechain
1	o	160	ARG	Sidechain
1	o	258	ARG	Sidechain
1	o	263	ARG	Sidechain
1	o	443	ARG	Sidechain
1	o	481	ARG	Sidechain
1	o	499	ARG	Sidechain
1	o	61	ARG	Sidechain
1	o	64	ARG	Sidechain
1	p	129	ARG	Sidechain
1	p	133	ARG	Sidechain
1	p	160	ARG	Sidechain
1	p	258	ARG	Sidechain
1	p	263	ARG	Sidechain
1	p	443	ARG	Sidechain
1	p	481	ARG	Sidechain
1	p	499	ARG	Sidechain
1	p	61	ARG	Sidechain
1	p	64	ARG	Sidechain
1	q	129	ARG	Sidechain
1	q	133	ARG	Sidechain
1	q	160	ARG	Sidechain
1	q	258	ARG	Sidechain
1	q	263	ARG	Sidechain
1	q	443	ARG	Sidechain
1	q	481	ARG	Sidechain
1	q	499	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	q	61	ARG	Sidechain
1	q	64	ARG	Sidechain
1	r	129	ARG	Sidechain
1	r	133	ARG	Sidechain
1	r	160	ARG	Sidechain
1	r	258	ARG	Sidechain
1	r	263	ARG	Sidechain
1	r	443	ARG	Sidechain
1	r	481	ARG	Sidechain
1	r	499	ARG	Sidechain
1	r	61	ARG	Sidechain
1	r	64	ARG	Sidechain
1	s	129	ARG	Sidechain
1	s	133	ARG	Sidechain
1	s	160	ARG	Sidechain
1	s	258	ARG	Sidechain
1	s	263	ARG	Sidechain
1	s	443	ARG	Sidechain
1	s	481	ARG	Sidechain
1	s	499	ARG	Sidechain
1	s	61	ARG	Sidechain
1	s	64	ARG	Sidechain
1	t	129	ARG	Sidechain
1	t	133	ARG	Sidechain
1	t	160	ARG	Sidechain
1	t	258	ARG	Sidechain
1	t	263	ARG	Sidechain
1	t	443	ARG	Sidechain
1	t	481	ARG	Sidechain
1	t	499	ARG	Sidechain
1	t	61	ARG	Sidechain
1	t	64	ARG	Sidechain
1	u	129	ARG	Sidechain
1	u	133	ARG	Sidechain
1	u	160	ARG	Sidechain
1	u	258	ARG	Sidechain
1	u	263	ARG	Sidechain
1	u	443	ARG	Sidechain
1	u	481	ARG	Sidechain
1	u	499	ARG	Sidechain
1	u	61	ARG	Sidechain
1	u	64	ARG	Sidechain

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>Group</b>
1	v	129	ARG	Sidechain
1	v	133	ARG	Sidechain
1	v	160	ARG	Sidechain
1	v	258	ARG	Sidechain
1	v	263	ARG	Sidechain
1	v	443	ARG	Sidechain
1	v	481	ARG	Sidechain
1	v	499	ARG	Sidechain
1	v	61	ARG	Sidechain
1	v	64	ARG	Sidechain
1	w	129	ARG	Sidechain
1	w	133	ARG	Sidechain
1	w	160	ARG	Sidechain
1	w	258	ARG	Sidechain
1	w	263	ARG	Sidechain
1	w	443	ARG	Sidechain
1	w	481	ARG	Sidechain
1	w	499	ARG	Sidechain
1	w	61	ARG	Sidechain
1	w	64	ARG	Sidechain
1	x	129	ARG	Sidechain
1	x	133	ARG	Sidechain
1	x	160	ARG	Sidechain
1	x	258	ARG	Sidechain
1	x	263	ARG	Sidechain
1	x	443	ARG	Sidechain
1	x	481	ARG	Sidechain
1	x	499	ARG	Sidechain
1	x	61	ARG	Sidechain
1	x	64	ARG	Sidechain
1	y	129	ARG	Sidechain
1	y	133	ARG	Sidechain
1	y	160	ARG	Sidechain
1	y	258	ARG	Sidechain
1	y	263	ARG	Sidechain
1	y	443	ARG	Sidechain
1	y	481	ARG	Sidechain
1	y	499	ARG	Sidechain
1	y	61	ARG	Sidechain
1	y	64	ARG	Sidechain
1	z	129	ARG	Sidechain
1	z	133	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	z	160	ARG	Sidechain
1	z	258	ARG	Sidechain
1	z	263	ARG	Sidechain
1	z	443	ARG	Sidechain
1	z	481	ARG	Sidechain
1	z	499	ARG	Sidechain
1	z	61	ARG	Sidechain
1	z	64	ARG	Sidechain

## 5.2 Too-close contacts [i](#)

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

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	1	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	2	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	3	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	4	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	5	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	6	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	7	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	A	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	B	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	C	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	D	513/609 (84%)	508 (99%)	5 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	E	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	F	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	G	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	H	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	I	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	J	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	K	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	L	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	M	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	N	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	O	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	P	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	Q	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	R	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	S	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	T	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	U	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	V	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	W	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	X	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	Y	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	Z	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	a	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	b	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	c	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	d	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	e	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	f	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	g	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	h	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	i	513/609 (84%)	508 (99%)	5 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	j	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	k	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	l	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	m	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	n	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	o	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	p	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	q	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	r	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	s	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	t	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	u	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	v	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	w	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	x	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	y	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
1	z	513/609 (84%)	508 (99%)	5 (1%)	0	100	100
All	All	30780/36540 (84%)	30480 (99%)	300 (1%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	476/568 (84%)	476 (100%)	0	100	100
1	1	476/568 (84%)	476 (100%)	0	100	100
1	2	476/568 (84%)	476 (100%)	0	100	100
1	3	476/568 (84%)	476 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	4	476/568 (84%)	476 (100%)	0	100	100
1	5	476/568 (84%)	476 (100%)	0	100	100
1	6	476/568 (84%)	476 (100%)	0	100	100
1	7	476/568 (84%)	476 (100%)	0	100	100
1	A	476/568 (84%)	476 (100%)	0	100	100
1	B	476/568 (84%)	476 (100%)	0	100	100
1	C	476/568 (84%)	476 (100%)	0	100	100
1	D	476/568 (84%)	476 (100%)	0	100	100
1	E	476/568 (84%)	476 (100%)	0	100	100
1	F	476/568 (84%)	476 (100%)	0	100	100
1	G	476/568 (84%)	476 (100%)	0	100	100
1	H	476/568 (84%)	476 (100%)	0	100	100
1	I	476/568 (84%)	476 (100%)	0	100	100
1	J	476/568 (84%)	476 (100%)	0	100	100
1	K	476/568 (84%)	476 (100%)	0	100	100
1	L	476/568 (84%)	476 (100%)	0	100	100
1	M	476/568 (84%)	476 (100%)	0	100	100
1	N	476/568 (84%)	476 (100%)	0	100	100
1	O	476/568 (84%)	476 (100%)	0	100	100
1	P	476/568 (84%)	476 (100%)	0	100	100
1	Q	476/568 (84%)	476 (100%)	0	100	100
1	R	476/568 (84%)	476 (100%)	0	100	100
1	S	476/568 (84%)	476 (100%)	0	100	100
1	T	476/568 (84%)	476 (100%)	0	100	100
1	U	476/568 (84%)	476 (100%)	0	100	100
1	V	476/568 (84%)	476 (100%)	0	100	100
1	W	476/568 (84%)	476 (100%)	0	100	100
1	X	476/568 (84%)	476 (100%)	0	100	100
1	Y	476/568 (84%)	476 (100%)	0	100	100
1	Z	476/568 (84%)	476 (100%)	0	100	100
1	a	476/568 (84%)	476 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	b	476/568 (84%)	476 (100%)	0	100	100
1	c	476/568 (84%)	476 (100%)	0	100	100
1	d	476/568 (84%)	476 (100%)	0	100	100
1	e	476/568 (84%)	476 (100%)	0	100	100
1	f	476/568 (84%)	476 (100%)	0	100	100
1	g	476/568 (84%)	476 (100%)	0	100	100
1	h	476/568 (84%)	476 (100%)	0	100	100
1	i	476/568 (84%)	476 (100%)	0	100	100
1	j	476/568 (84%)	476 (100%)	0	100	100
1	k	476/568 (84%)	476 (100%)	0	100	100
1	l	476/568 (84%)	476 (100%)	0	100	100
1	m	476/568 (84%)	476 (100%)	0	100	100
1	n	476/568 (84%)	476 (100%)	0	100	100
1	o	476/568 (84%)	476 (100%)	0	100	100
1	p	476/568 (84%)	476 (100%)	0	100	100
1	q	476/568 (84%)	476 (100%)	0	100	100
1	r	476/568 (84%)	476 (100%)	0	100	100
1	s	476/568 (84%)	476 (100%)	0	100	100
1	t	476/568 (84%)	476 (100%)	0	100	100
1	u	476/568 (84%)	476 (100%)	0	100	100
1	v	476/568 (84%)	476 (100%)	0	100	100
1	w	476/568 (84%)	476 (100%)	0	100	100
1	x	476/568 (84%)	476 (100%)	0	100	100
1	y	476/568 (84%)	476 (100%)	0	100	100
1	z	476/568 (84%)	476 (100%)	0	100	100
All	All	28560/34080 (84%)	28560 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (241) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	73	GLN

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	0	167	ASN
1	0	213	GLN
1	0	558	GLN
1	1	73	GLN
1	1	167	ASN
1	1	213	GLN
1	1	558	GLN
1	2	73	GLN
1	2	167	ASN
1	2	213	GLN
1	2	558	GLN
1	3	73	GLN
1	3	167	ASN
1	3	213	GLN
1	3	558	GLN
1	4	73	GLN
1	4	167	ASN
1	4	213	GLN
1	4	558	GLN
1	5	73	GLN
1	5	167	ASN
1	5	213	GLN
1	5	558	GLN
1	6	73	GLN
1	6	167	ASN
1	6	213	GLN
1	6	558	GLN
1	7	73	GLN
1	7	167	ASN
1	7	213	GLN
1	7	558	GLN
1	A	73	GLN
1	A	167	ASN
1	A	213	GLN
1	A	558	GLN
1	B	73	GLN
1	B	167	ASN
1	B	213	GLN
1	B	558	GLN
1	C	73	GLN
1	C	167	ASN
1	C	213	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	558	GLN
1	D	73	GLN
1	D	167	ASN
1	D	205	GLN
1	D	213	GLN
1	D	558	GLN
1	E	73	GLN
1	E	167	ASN
1	E	213	GLN
1	E	558	GLN
1	F	73	GLN
1	F	167	ASN
1	F	213	GLN
1	F	558	GLN
1	G	73	GLN
1	G	167	ASN
1	G	213	GLN
1	G	558	GLN
1	H	73	GLN
1	H	167	ASN
1	H	213	GLN
1	H	558	GLN
1	I	73	GLN
1	I	167	ASN
1	I	213	GLN
1	I	558	GLN
1	J	73	GLN
1	J	167	ASN
1	J	213	GLN
1	J	558	GLN
1	K	73	GLN
1	K	167	ASN
1	K	213	GLN
1	K	558	GLN
1	L	73	GLN
1	L	167	ASN
1	L	213	GLN
1	L	558	GLN
1	M	73	GLN
1	M	167	ASN
1	M	213	GLN
1	M	558	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	N	73	GLN
1	N	167	ASN
1	N	213	GLN
1	N	558	GLN
1	O	73	GLN
1	O	167	ASN
1	O	213	GLN
1	O	558	GLN
1	P	73	GLN
1	P	167	ASN
1	P	213	GLN
1	P	558	GLN
1	Q	73	GLN
1	Q	167	ASN
1	Q	213	GLN
1	Q	558	GLN
1	R	73	GLN
1	R	167	ASN
1	R	213	GLN
1	R	558	GLN
1	S	73	GLN
1	S	167	ASN
1	S	213	GLN
1	S	558	GLN
1	T	73	GLN
1	T	167	ASN
1	T	213	GLN
1	T	558	GLN
1	U	73	GLN
1	U	167	ASN
1	U	213	GLN
1	U	558	GLN
1	V	73	GLN
1	V	167	ASN
1	V	213	GLN
1	V	558	GLN
1	W	73	GLN
1	W	167	ASN
1	W	213	GLN
1	W	558	GLN
1	X	73	GLN
1	X	167	ASN

*Continued on next page...*

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	X	213	GLN
1	X	558	GLN
1	Y	73	GLN
1	Y	167	ASN
1	Y	213	GLN
1	Y	558	GLN
1	Z	73	GLN
1	Z	167	ASN
1	Z	213	GLN
1	Z	558	GLN
1	a	73	GLN
1	a	167	ASN
1	a	213	GLN
1	a	558	GLN
1	b	73	GLN
1	b	167	ASN
1	b	213	GLN
1	b	558	GLN
1	c	73	GLN
1	c	167	ASN
1	c	213	GLN
1	c	558	GLN
1	d	73	GLN
1	d	167	ASN
1	d	213	GLN
1	d	558	GLN
1	e	73	GLN
1	e	167	ASN
1	e	213	GLN
1	e	558	GLN
1	f	73	GLN
1	f	167	ASN
1	f	213	GLN
1	f	558	GLN
1	g	73	GLN
1	g	167	ASN
1	g	213	GLN
1	g	558	GLN
1	h	73	GLN
1	h	167	ASN
1	h	213	GLN
1	h	558	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	i	73	GLN
1	i	167	ASN
1	i	213	GLN
1	i	558	GLN
1	j	73	GLN
1	j	167	ASN
1	j	213	GLN
1	j	558	GLN
1	k	73	GLN
1	k	167	ASN
1	k	213	GLN
1	k	558	GLN
1	l	73	GLN
1	l	167	ASN
1	l	213	GLN
1	l	558	GLN
1	m	73	GLN
1	m	167	ASN
1	m	213	GLN
1	m	558	GLN
1	n	73	GLN
1	n	167	ASN
1	n	213	GLN
1	n	558	GLN
1	o	73	GLN
1	o	167	ASN
1	o	213	GLN
1	o	558	GLN
1	p	73	GLN
1	p	167	ASN
1	p	213	GLN
1	p	558	GLN
1	q	73	GLN
1	q	167	ASN
1	q	213	GLN
1	q	558	GLN
1	r	73	GLN
1	r	167	ASN
1	r	213	GLN
1	r	558	GLN
1	s	73	GLN
1	s	167	ASN

*Continued on next page...*

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Mol	Chain	Res	Type
1	s	213	GLN
1	s	558	GLN
1	t	73	GLN
1	t	167	ASN
1	t	213	GLN
1	t	558	GLN
1	u	73	GLN
1	u	167	ASN
1	u	213	GLN
1	u	558	GLN
1	v	73	GLN
1	v	167	ASN
1	v	213	GLN
1	v	558	GLN
1	w	73	GLN
1	w	167	ASN
1	w	213	GLN
1	w	558	GLN
1	x	73	GLN
1	x	167	ASN
1	x	213	GLN
1	x	558	GLN
1	y	73	GLN
1	y	167	ASN
1	y	213	GLN
1	y	558	GLN
1	z	73	GLN
1	z	167	ASN
1	z	213	GLN
1	z	558	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 oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

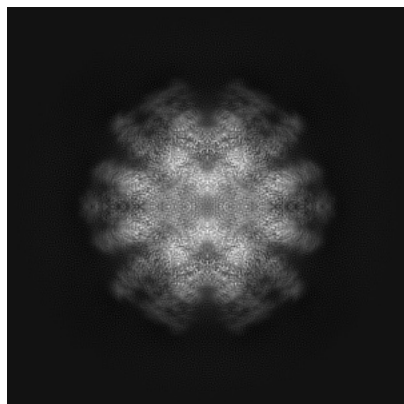
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-43009. These allow visual inspection of the internal detail of the map and identification of artifacts.

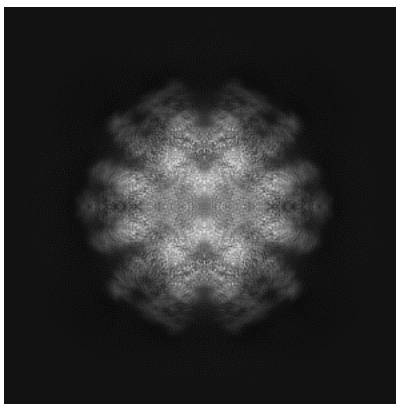
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

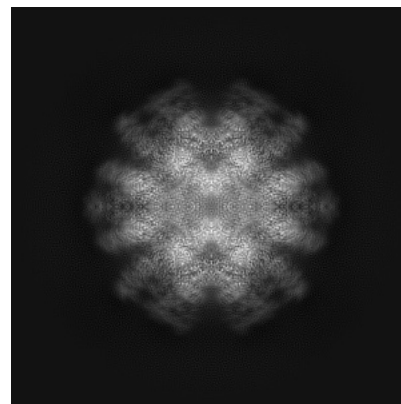
#### 6.1.1 Primary map



X

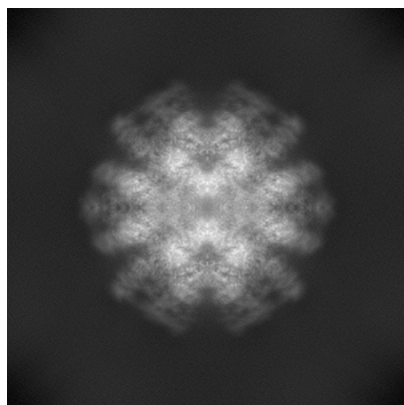


Y

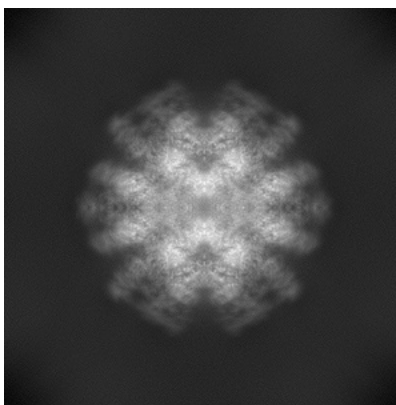


Z

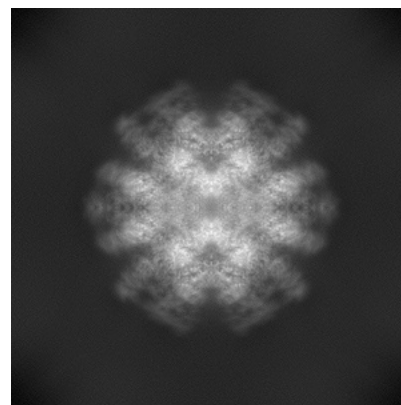
#### 6.1.2 Raw map



X



Y

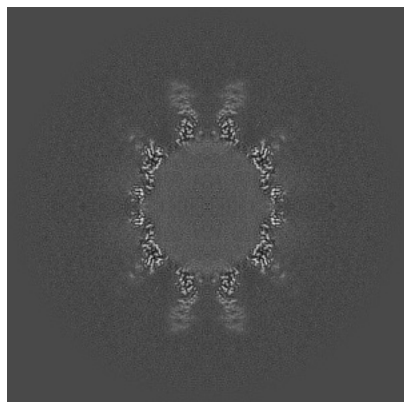


Z

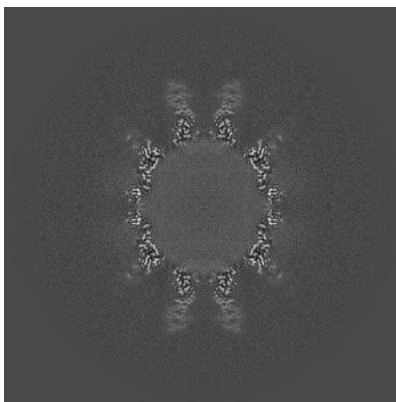
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

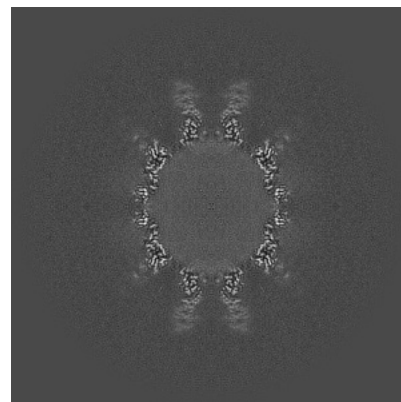
### 6.2.1 Primary map



X Index: 300

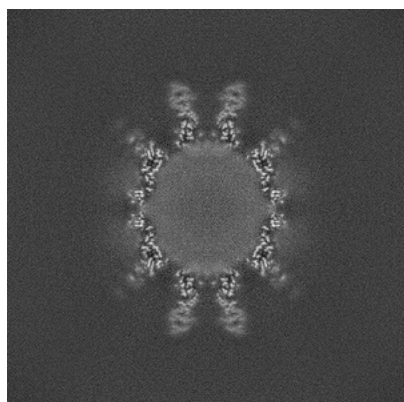


Y Index: 300

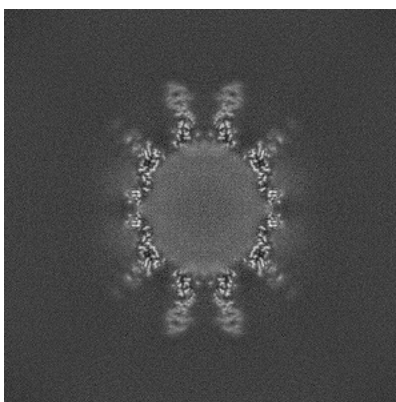


Z Index: 300

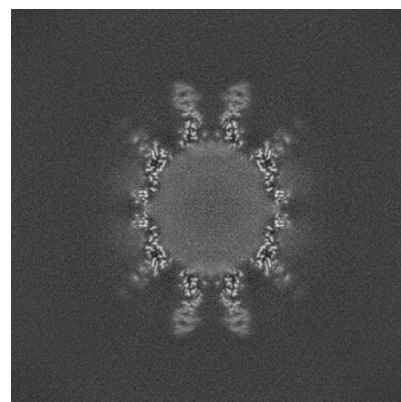
### 6.2.2 Raw map



X Index: 300



Y Index: 300

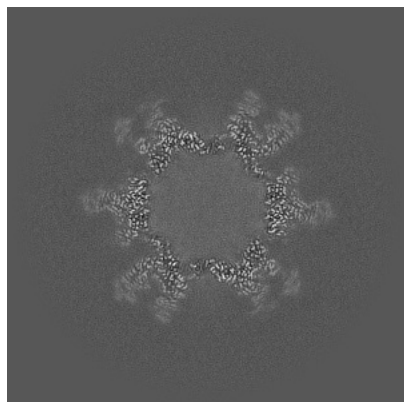


Z Index: 300

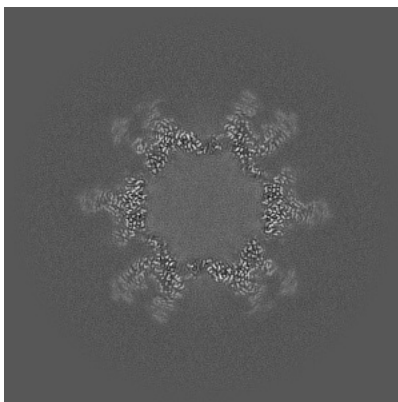
The images above show central slices of the map in three orthogonal directions.

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

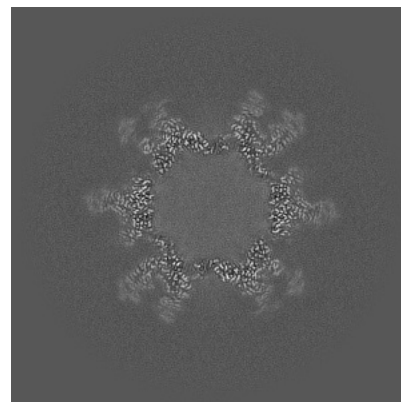
### 6.3.1 Primary map



X Index: 338

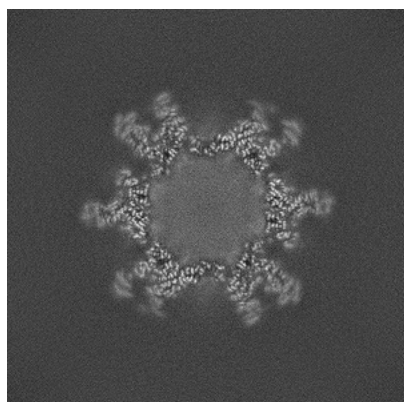


Y Index: 338

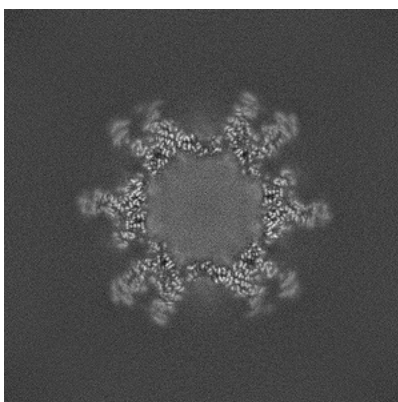


Z Index: 338

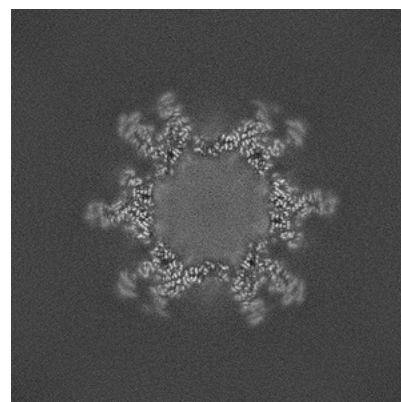
### 6.3.2 Raw map



X Index: 263



Y Index: 337

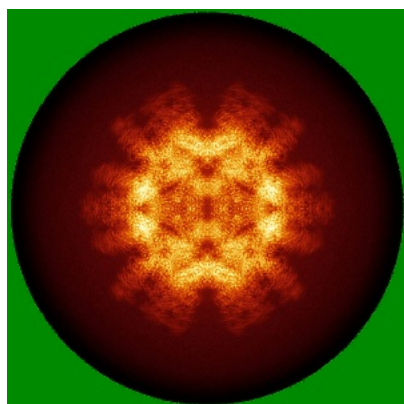


Z Index: 263

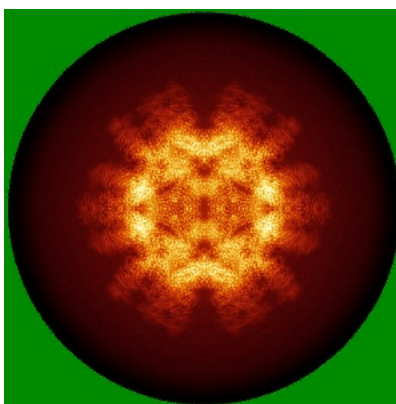
The images above show the largest variance slices of the map in three orthogonal directions.

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

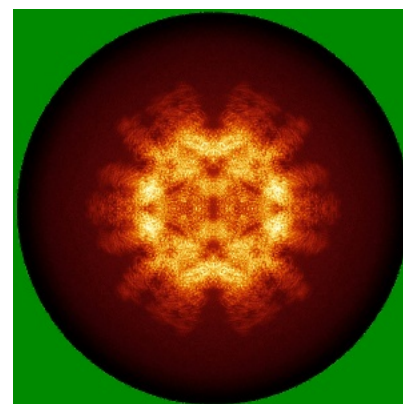
### 6.4.1 Primary map



X

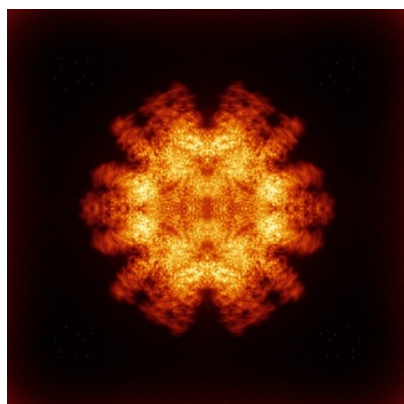


Y

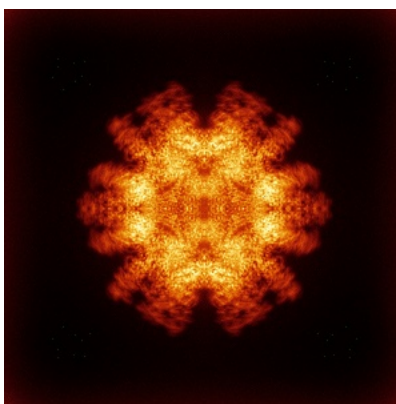


Z

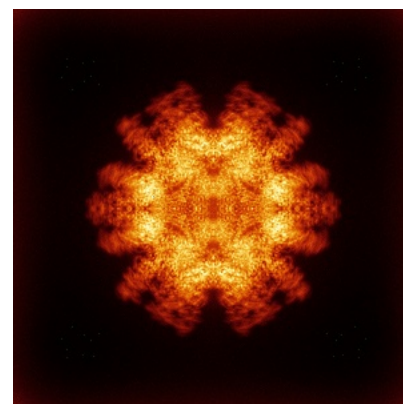
### 6.4.2 Raw map



X



Y



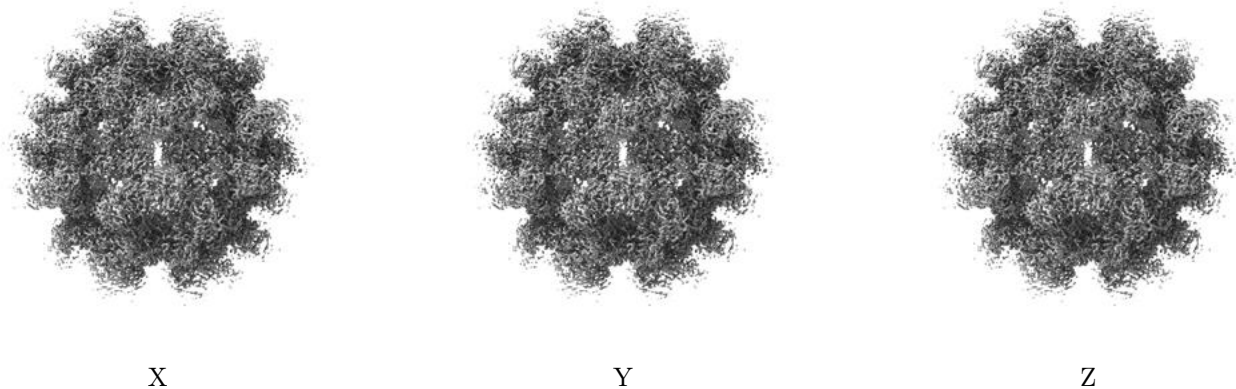
Z

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



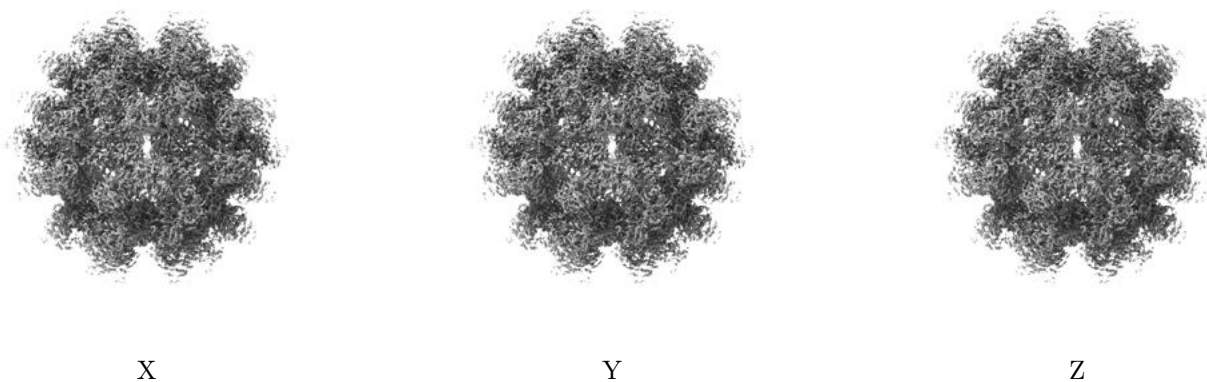
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.113. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



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

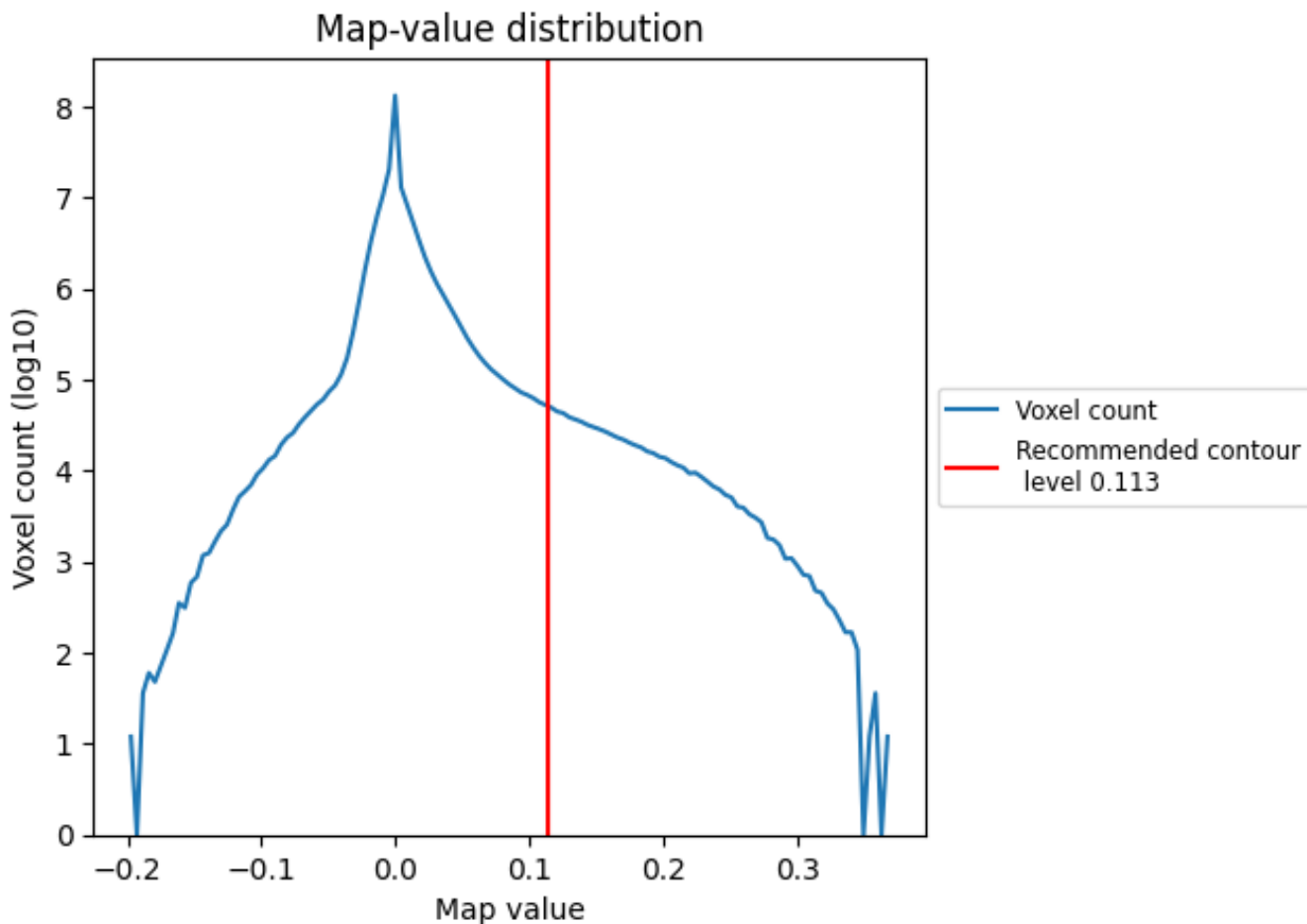
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

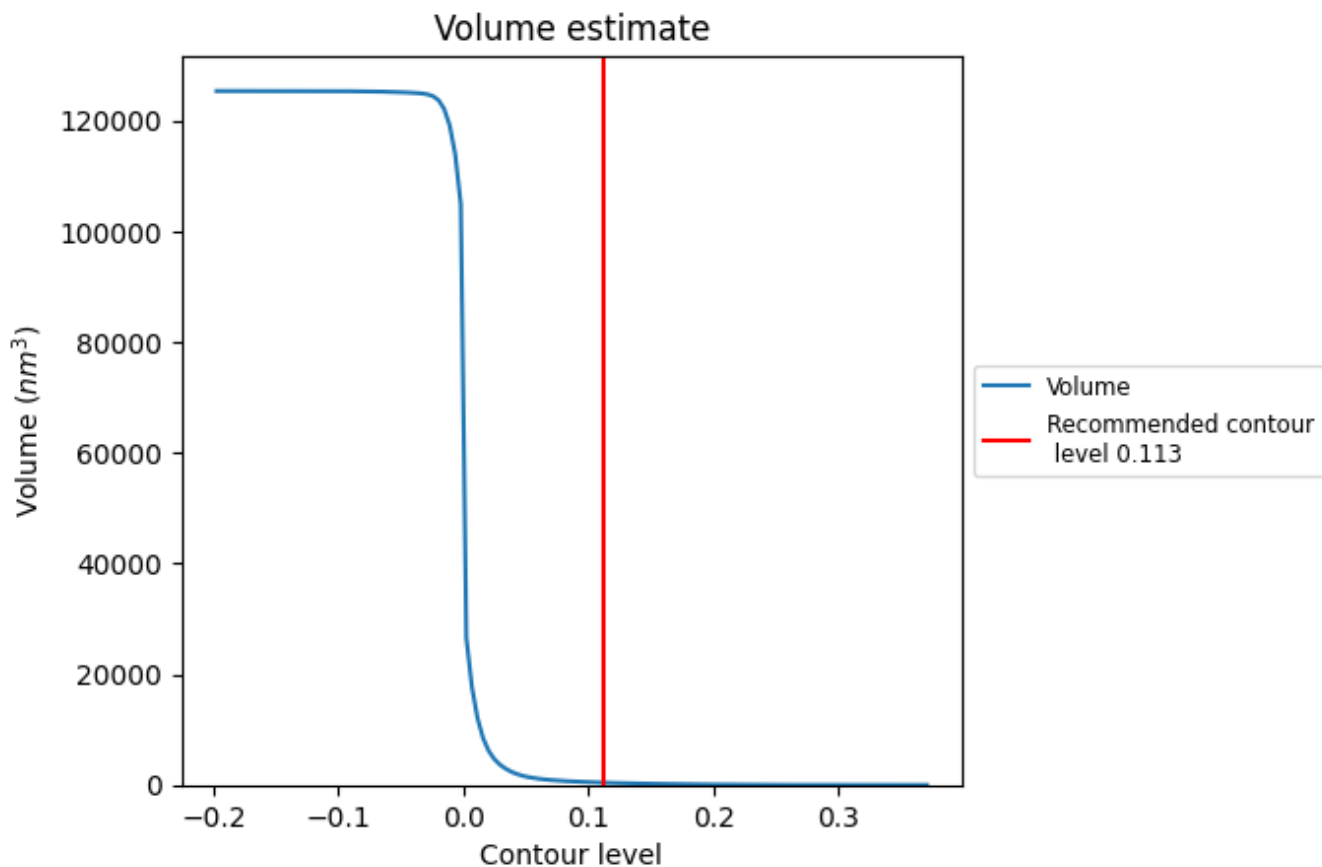
This section contains the results of statistical analysis of the map.

### 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 [\(i\)](#)

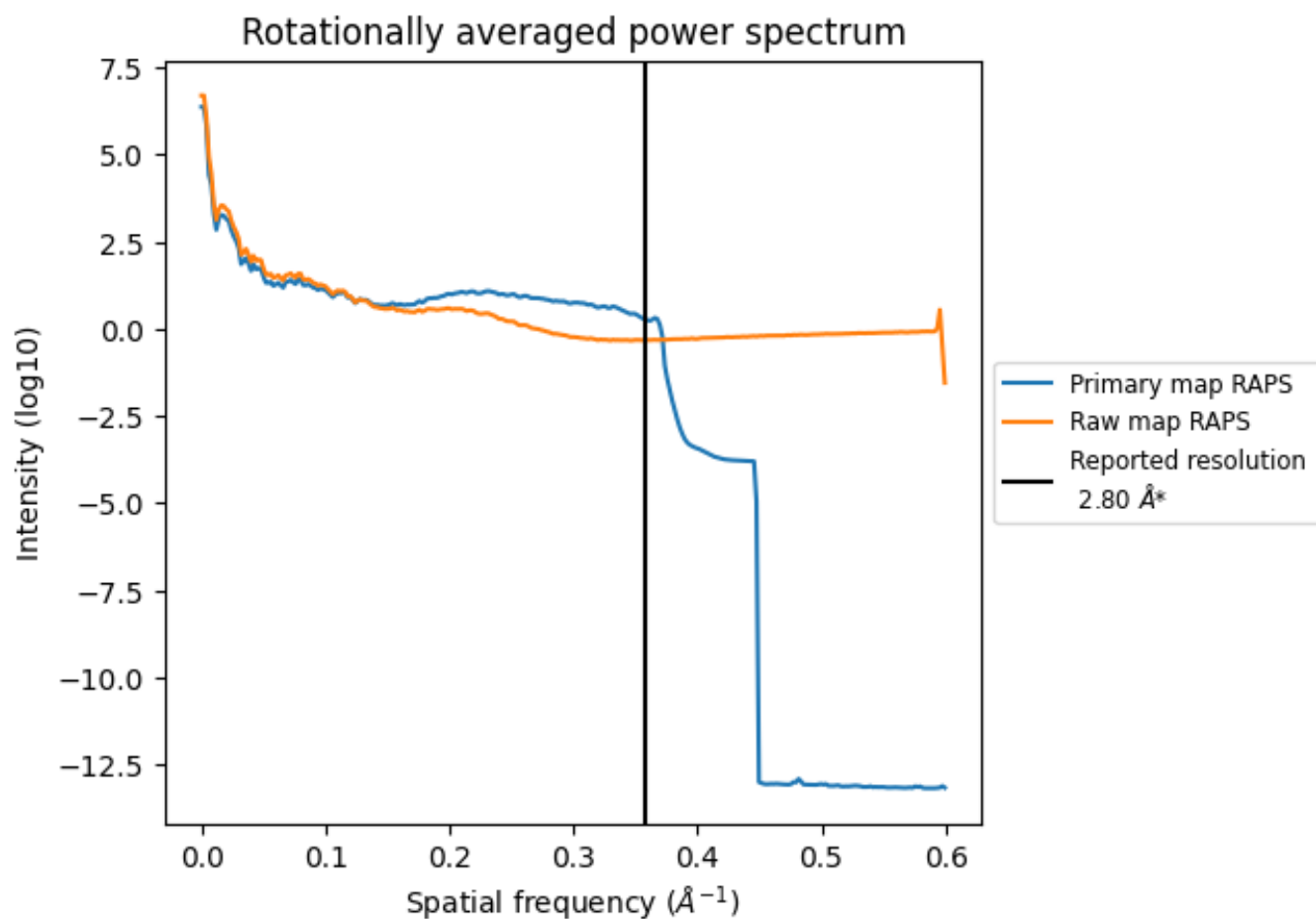


The volume at the recommended contour level is 412  $\text{nm}^3$ ; this corresponds to an approximate mass of 372 kDa.

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](#)

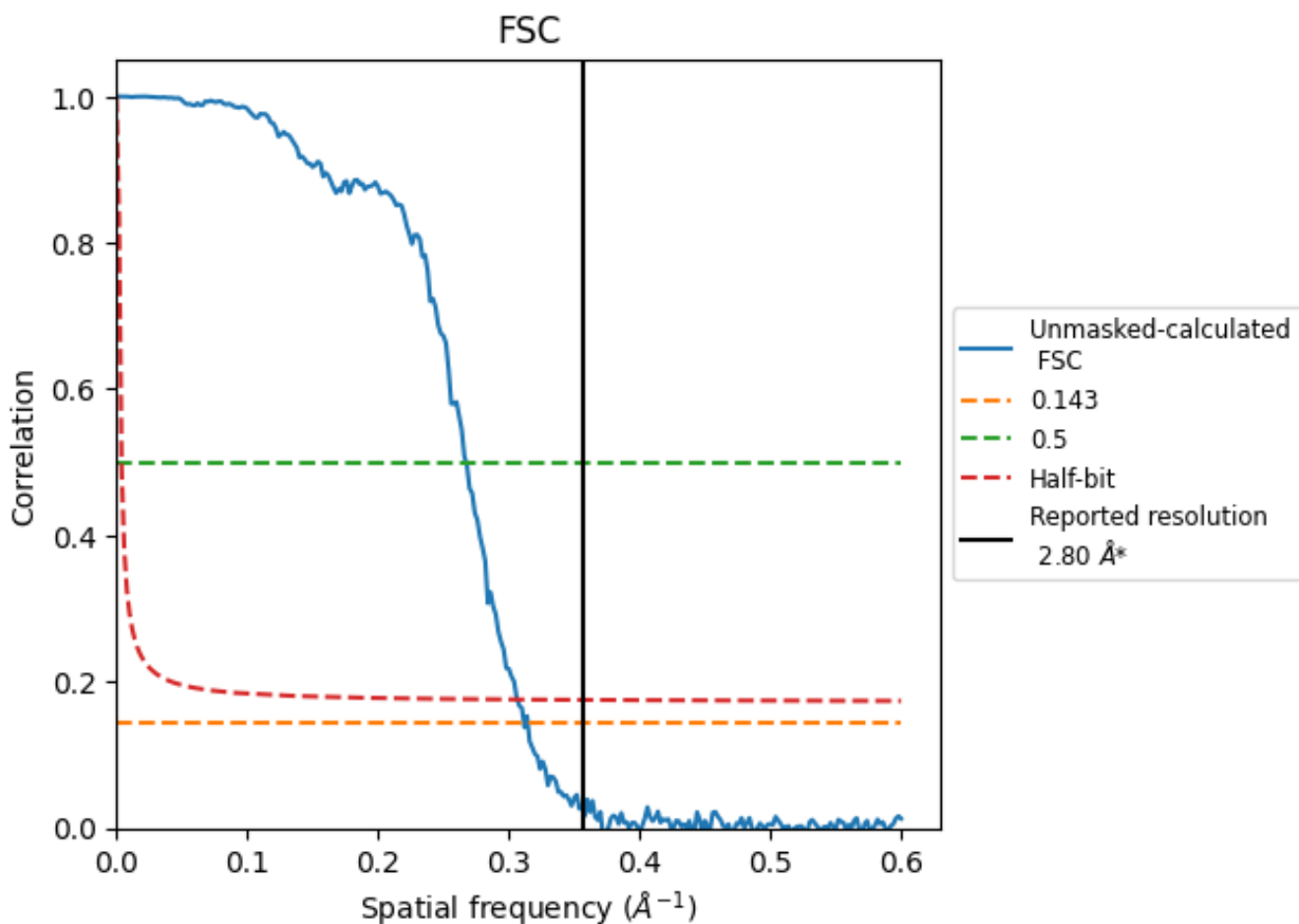


\*Reported resolution corresponds to spatial frequency of 0.357 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.357 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

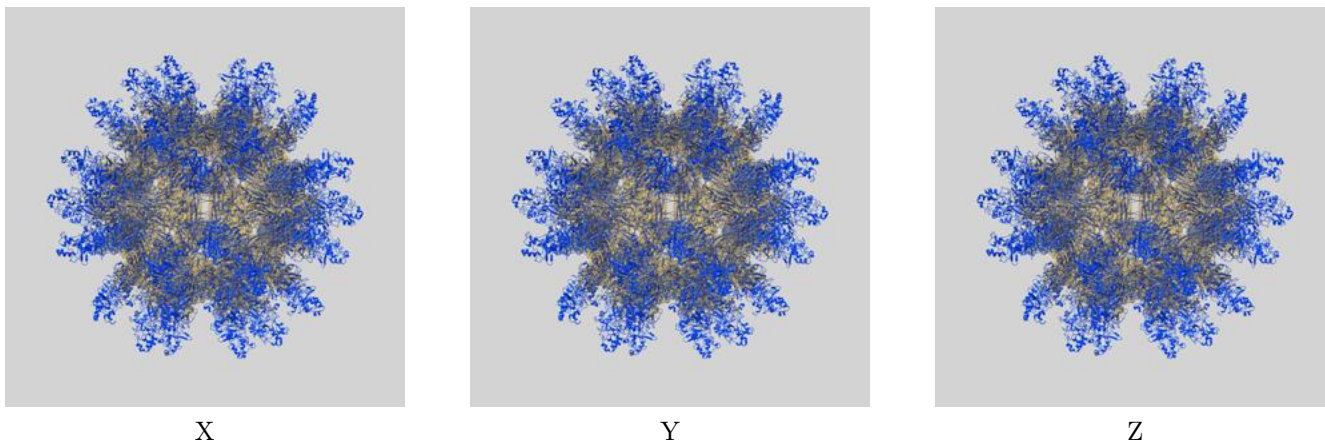
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.21	3.74	3.27

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.21 differs from the reported value 2.8 by more than 10 %

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

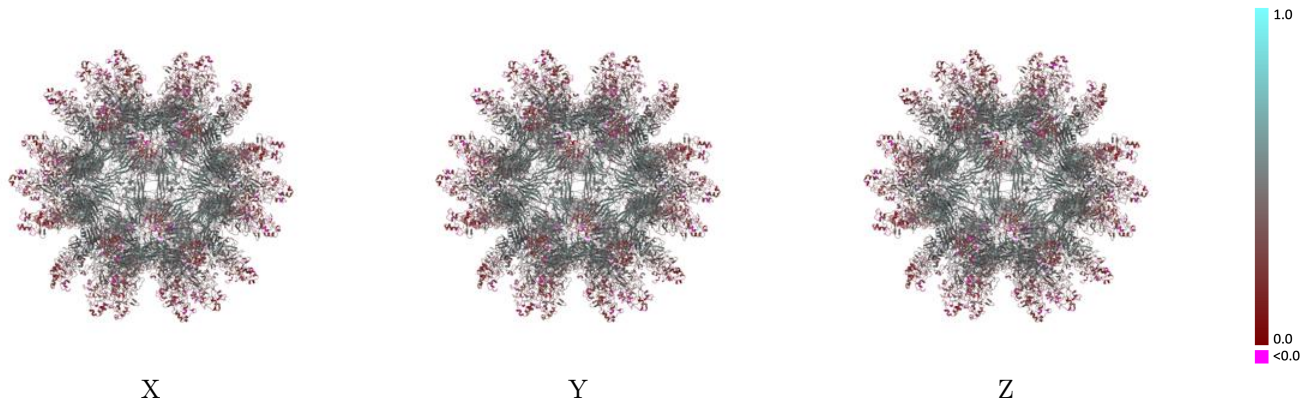
This section contains information regarding the fit between EMDB map EMD-43009 and PDB model 8V7X. Per-residue inclusion information can be found in section 3 on page 10.

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



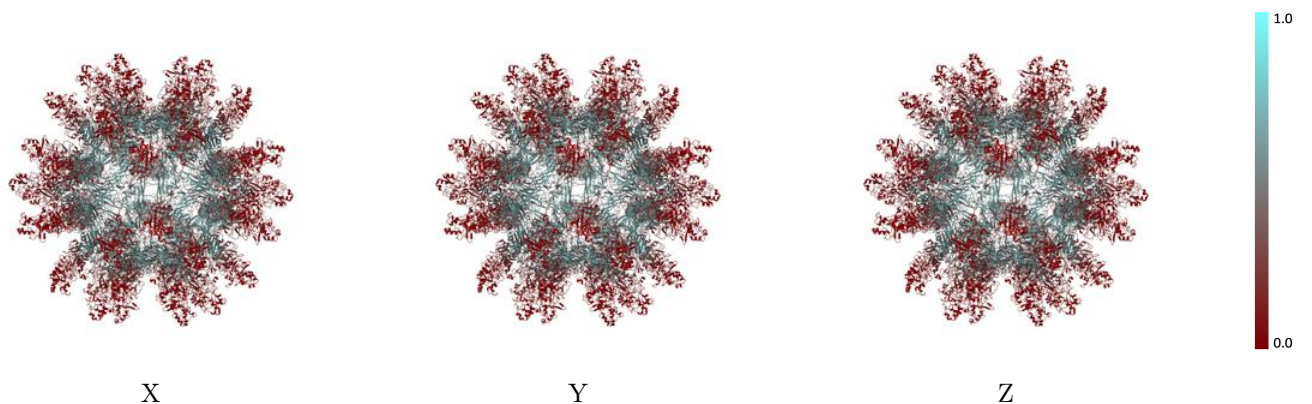
The images above show the 3D surface view of the map at the recommended contour level 0.113 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



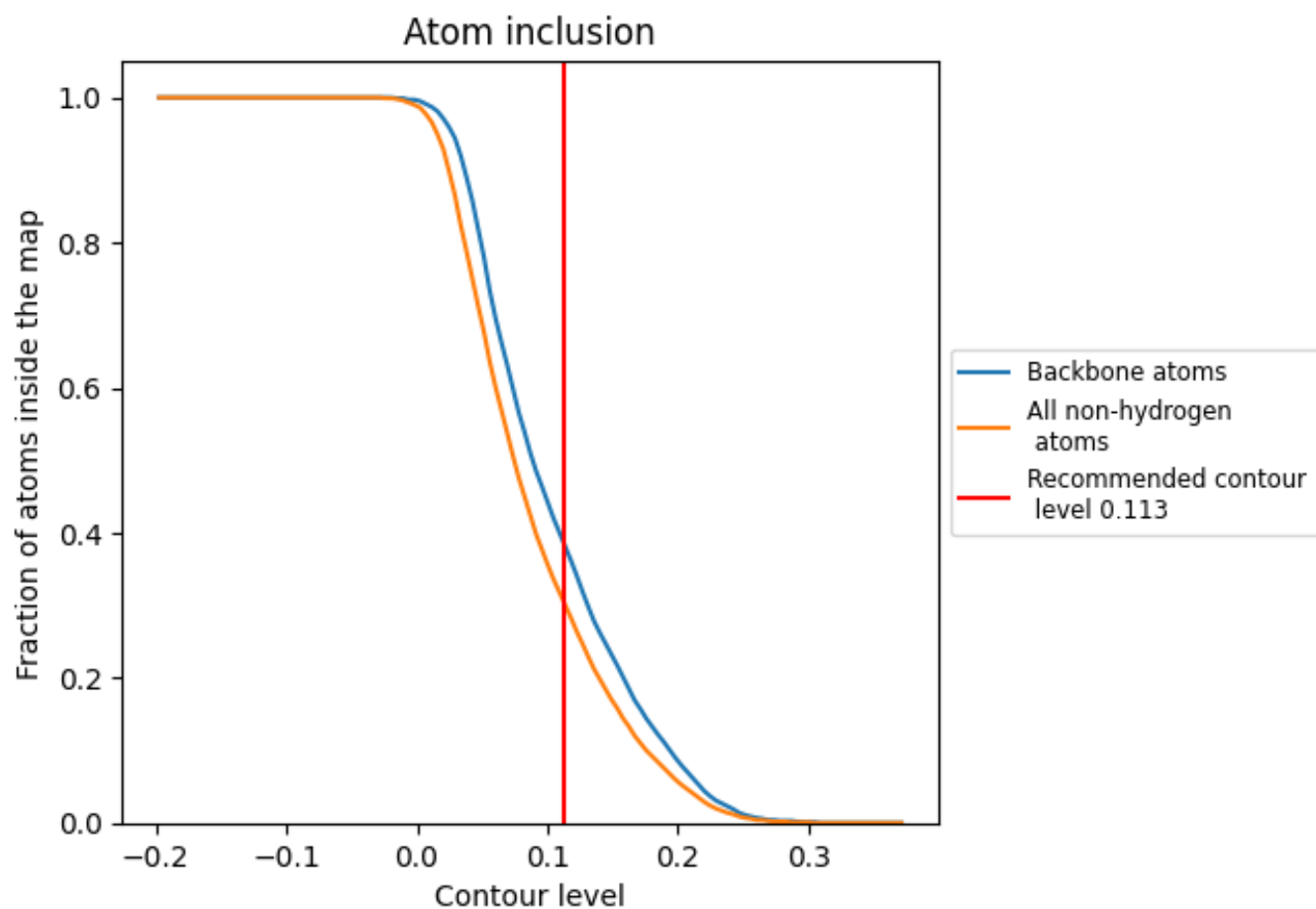
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.113).







































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 38% of all backbone atoms, 30% 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 (0.113) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3030	 0.4010
0	 0.3010	 0.3970
1	 0.3070	 0.4060
2	 0.3040	 0.3980
3	 0.3020	 0.4020
4	 0.3010	 0.4030
5	 0.3060	 0.4030
6	 0.3010	 0.4010
7	 0.3030	 0.3950
A	 0.3010	 0.3990
B	 0.3020	 0.4070
C	 0.3040	 0.3980
D	 0.3030	 0.4080
E	 0.3060	 0.4020
F	 0.3020	 0.3950
G	 0.3040	 0.4010
H	 0.3000	 0.4000
I	 0.3040	 0.3990
J	 0.3040	 0.4060
K	 0.3010	 0.3990
L	 0.3010	 0.3930
M	 0.3010	 0.3940
N	 0.3040	 0.4010
O	 0.3030	 0.4050
P	 0.3050	 0.4010
Q	 0.3020	 0.3950
R	 0.3050	 0.4030
S	 0.3030	 0.4070
T	 0.3020	 0.4030
U	 0.3060	 0.3990
V	 0.3040	 0.3980
W	 0.3050	 0.4050
X	 0.3020	 0.3970
Y	 0.3060	 0.4070
Z	 0.3010	 0.3990



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Chain	Atom inclusion	Q-score
a	■ 0.3020	■ 0.4050
b	■ 0.3020	■ 0.3980
c	■ 0.3010	■ 0.4020
d	■ 0.3040	■ 0.4030
e	■ 0.3020	■ 0.4010
f	■ 0.3020	■ 0.3980
g	■ 0.3030	■ 0.3980
h	■ 0.3050	■ 0.4020
i	■ 0.3010	■ 0.4030
j	■ 0.3010	■ 0.4010
k	■ 0.3020	■ 0.4040
l	■ 0.3030	■ 0.4050
m	■ 0.3030	■ 0.4060
n	■ 0.3020	■ 0.4060
o	■ 0.3020	■ 0.3960
p	■ 0.3010	■ 0.4050
q	■ 0.3050	■ 0.4060
r	■ 0.3050	■ 0.4010
s	■ 0.3060	■ 0.3950
t	■ 0.3060	■ 0.4020
u	■ 0.3020	■ 0.3950
v	■ 0.3040	■ 0.4060
w	■ 0.3060	■ 0.3940
x	■ 0.3010	■ 0.4000
y	■ 0.3030	■ 0.4010
z	■ 0.3050	■ 0.4020