



# wwPDB EM Validation Summary Report ⓘ

Nov 20, 2022 – 04:15 am GMT

PDB ID : 5UOT  
EMDB ID : EMD-8577  
Title : CryoEM structure of the helical assembly of full length MxB  
Authors : Perilla, J.R.; Alvarez, F.J.D.; Zhang, P.; Schulten, K.  
Deposited on : 2017-02-01  
Resolution : 4.60 Å (reported)  
Based on initial model : 4WHJ

This is a wwPDB EM Validation Summary 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:

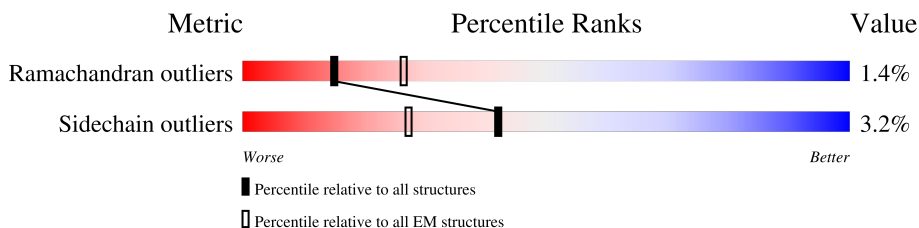
EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.2

# 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 4.60 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	619	96% 75% 19% . . .
1	1	619	96% 75% 19% . .
1	2	619	96% 74% 18% . . .
1	3	619	96% 75% 17% . .
1	4	619	96% 74% 20% . .
1	5	619	96% 74% 19% . .
1	6	619	96% 75% 20% . .
1	7	619	96% 75% 18% . . .
1	8	619	96% 75% 19% . . .

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Mol	Chain	Length	Quality of chain	
1	9	619	96%	19%
1	A	619	96%	20%
1	B	619	96%	19%
1	C	619	96%	17%
1	D	619	96%	19%
1	E	619	96%	18%
1	F	619	96%	19%
1	G	619	96%	17%
1	H	619	96%	17%
1	I	619	96%	20%
1	J	619	96%	20%
1	K	619	96%	17%
1	L	619	96%	17%
1	M	619	96%	18%
1	N	619	96%	18%
1	O	619	96%	20%
1	P	619	96%	21%
1	Q	619	96%	18%
1	R	619	96%	18%
1	S	619	96%	20%
1	T	619	96%	18%
1	U	619	96%	21%
1	V	619	96%	19%
1	W	619	96%	19%
1	X	619	96%	16%


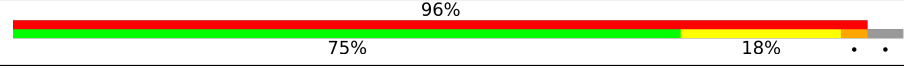
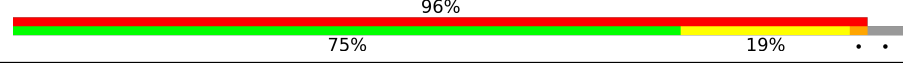
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Mol	Chain	Length	Quality of chain	
1	Y	619	96%	17%
1	Z	619	96%	18%
1	a	619	96%	17%
1	b	619	96%	18%
1	c	619	96%	18%
1	d	619	96%	17%
1	e	619	96%	18%
1	f	619	96%	19%
1	g	619	96%	20%
1	h	619	96%	20%
1	i	619	96%	20%
1	j	619	96%	16%
1	k	619	96%	20%
1	l	619	96%	20%
1	m	619	96%	17%
1	n	619	96%	21%
1	o	619	96%	20%
1	p	619	96%	19%
1	q	619	96%	19%
1	r	619	96%	19%
1	s	619	96%	17%
1	t	619	96%	21%
1	u	619	96%	20%
1	v	619	96%	19%
1	w	619	96%	18%

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Mol	Chain	Length	Quality of chain
1	x	619	
1	y	619	
1	z	619	

## 2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 298034 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 Interferon-induced GTP-binding protein Mx2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	596	4807	3046	841	896	24	0	0
1	1	596	4807	3046	841	896	24	0	0
1	2	596	4807	3046	841	896	24	0	0
1	3	596	4807	3046	841	896	24	0	0
1	4	596	4807	3046	841	896	24	0	0
1	5	596	4807	3046	841	896	24	0	0
1	6	596	4807	3046	841	896	24	0	0
1	7	596	4807	3046	841	896	24	0	0
1	8	596	4807	3046	841	896	24	0	0
1	9	596	4807	3046	841	896	24	0	0
1	a	596	4807	3046	841	896	24	0	0
1	b	596	4807	3046	841	896	24	0	0
1	c	596	4807	3046	841	896	24	0	0
1	d	596	4807	3046	841	896	24	0	0
1	e	596	4807	3046	841	896	24	0	0
1	f	596	4807	3046	841	896	24	0	0
1	g	596	4807	3046	841	896	24	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	h	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	i	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	j	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	k	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	l	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	m	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	n	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	o	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	p	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	q	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	r	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	s	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	t	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	u	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	v	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	w	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	x	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	y	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	z	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	A	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	B	596	Total 4807	C 3046	N 841	O 896	S 24	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	C	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	D	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	E	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	F	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	G	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	H	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	I	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	J	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	K	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	L	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	M	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	N	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	O	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	P	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	Q	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	R	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	S	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	T	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	U	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	V	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	W	596	Total 4807	C 3046	N 841	O 896	S 24	0	0

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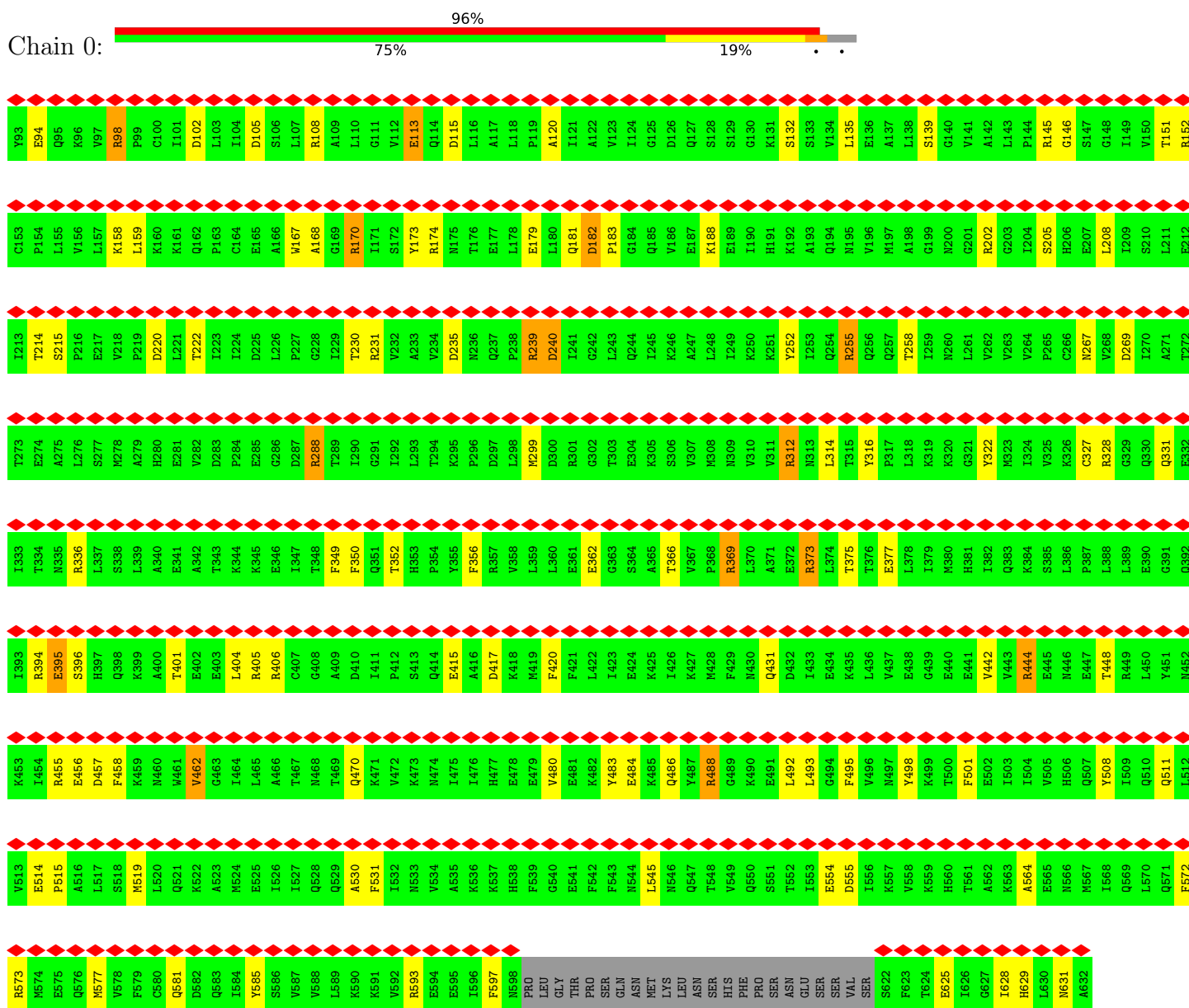
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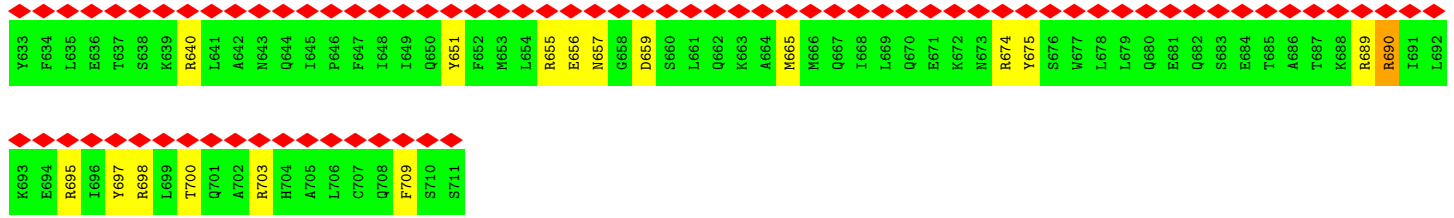
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	X	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	Y	596	Total 4807	C 3046	N 841	O 896	S 24	0	0
1	Z	596	Total 4807	C 3046	N 841	O 896	S 24	0	0

### 3 Residue-property plots

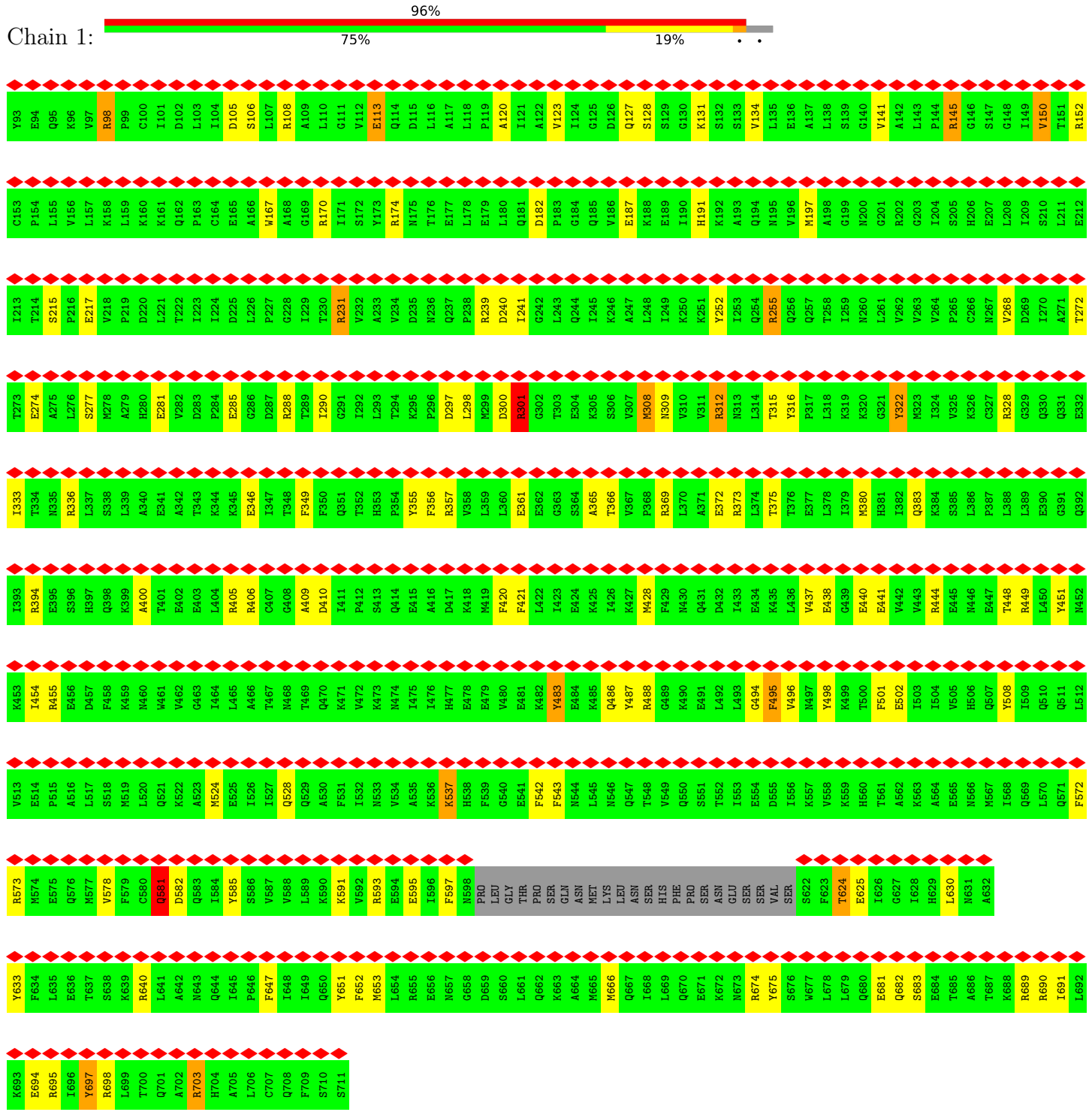
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Interferon-induced GTP-binding protein Mx2





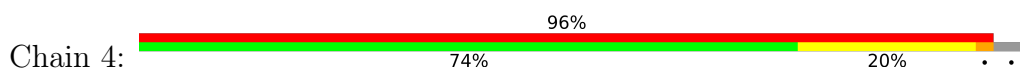
• Molecule 1: Interferon-induced GTP-binding protein Mx2





Y93	E94	Q95	K96	V97	R98	P99	C100	I101	D102	L103	I104	S105	L107	R108	A109	L110	G111	V112	E113	Q114	D115	L116	A117	L118	P119	A120	I121	A122	V123	I124	G125	D126	Q127	S128	S129	G130	K131	S132	S133	V134	V135	L136	A137	L138	S139	G140	V141	A142	L143	P144	R145	G146	S147	G148	I149	V150	T151	R152		
C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	V167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	D180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212	
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	E225	L226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	G202	V262	V263	V264	P265	G266	N267	V268	D269	I270	L271	T272	
T273	E274	A275	L276	S277	M278	A279	H280	E281	V282	D283	P284	E285	G286	D287	R288	T289	I290	G291	I292	L293	T294	K295	P296	D297	L298	M299	D300	R301	G302	T303	E304	K305	S306	V307	M308	N309	V310	V311	R312	N313	L314	R315	T316	Y317	P318	K319	G320	H321	Y322	M323	I324	V325	K326	C327	R328	G329	Q331	E332		
I333	T334	N335	R336	L337	S338	L339	A340	E341	A342	T343	K344	K345	E346	I347	T348	F349	G350	Q351	T352	H353	P354	Y355	F356	R357	V358	L359	L360	E361	G362	G363	S364	A365	T366	V367	P368	R369	L370	A371	E372	R373	L374	T375	T376	E377	L378	I379	N380	H381	I382	Q383	K384	S385	L386	F387	L388	L389	E390	G391	Q392	
I393	R394	E395	S396	H397	Q398	L399	A400	T401	E402	E403	L404	R405	R406	C407	G408	A409	D410	I411	P412	S413	Q414	E415	A416	D417	K418	M419	F420	F421	L422	I423	E424	K425	L426	K427	M428	F429	N430	Q431	D432	I433	E434	K435	L436	V437	E438	G439	E440	E441	F442	V443	V444	E445	N446	E447	T448	R449	E450	Y451	N452	
K453	L454	R455	E456	D457	F458	K459	M460	V461	A462	G463	L464	L465	A466	T467	N468	T469	Q470	K471	V472	K473	N474	L475	L476	H477	E478	E479	V480	E481	K482	Y483	E484	K485	Q486	Y487	R488	G489	K490	E491	L492	L493	G494	F495	V496	M497	Y498	K499	T500	F501	E502	V443	I503	L504	V505	E506	Q507	V508	I509	Q510	Q511	L512
V513	E514	P515	A516	L517	S518	M519	L520	Q521	K522	A523	M524	E525	L526	L527	Q528	Q529	A530	F531	I532	N533	V534	A535	K536	K537	H538	F539	G540	E541	F542	F543	N544	L545	N546	Q547	T548	V549	Q550	S551	T552	L553	L554	S555	L556	K557	V558	K559	H560	T561	A562	G627	K663	E564	V565	N566	M567	L568	Q569	L570	Q571	F572
R573	M574	E575	Q576	M577	V578	F579	C580	Q581	D582	Q583	L584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	L596	F597	N598	PRO	LEU	GLY	THR	PRO	SER	GLN	ASN	MET	LYS	LEU	ASN	SER	HIS	PHE	PRO	SER	ASN	GLU	SER	SER	VAL	S622	F623	L624	E625	L626	G627	L628	H629	L630	N631	A632		
Y633	F634	L635	E636	T637	S638	K639	T700	L641	A642	R643	Q644	L645	P646	F647	L648	I649	O650	Y651	F652	R653	L654	R655	E656	N657	D659	S660	L661	Q662	R663	A664	M665	M666	Q667	L668	L669	Q670	E671	K672	N673	R674	Y675	S676	M677	L678	L679	O680	E681	D682	S683	E684	T685	A686	T687	K688	R689	R690	L691	L692		
K693	E694	R695	I696	Y697	R698	L699	T700	Q701	A702	R703	H704	A705	L706	C707	Q708	F709	S710	S711																																										

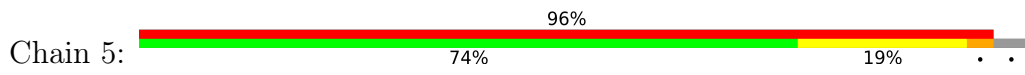
• Molecule 1: Interferon-induced GTP-binding protein Mx2



Y93	E94	Q95	K96	V97	R98	P99	C100	I101	D102	L103	I104	S105	L107	R108	A109	L110	G111	V112	E113	Q114	D115	L116	A117	L118	P119	A120	I121	A122	V123	I124	G125	D126	Q127	S128	S129	G130	K131	S132	S133	V134	L135	E136	A137	L138	S139	G140	V141	A142	L143	P144	R145	G146	S147	G148	I149	V150	T151	R152		
C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	V167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	D180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	S193	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212

I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	D225	D226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	D297	Q238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	K251	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	V264	P265	C266	N267	V268	D269	I270	A271	T272	
T273	E274	A275	L276	S277	M278	A279	H280	E281	V282	D283	P284	E285	G286	D287	R288	T289	I290	G291	I292	L293	T294	K295	P296	D297	L298	M299	D300	R301	G302	T303	E304	K305	S306	V307	M308	N309	V310	V311	R312	N313	L314	T315	Y316	P317	L318	K319	K320	G321	Y322	N323	I324	V325	V326	S327	R328	G329	Q330	Q331	E332	
I333	T334	N335	R336	L337	S338	L339	A340	E341	A342	T343	K344	E345	G346	D347	T348	F349	F350	Q351	T352	H353	P354	Y355	F356	R357	V358	L359	L360	E361	G362	G363	S364	A365	T366	V367	P368	R369	L370	A371	E372	R373	L374	T375	T376	E377	L378	I379	M380	H381	I382	Q383	K384	S385	K386	P387	L388	L389	Q390	G391	Q392	
I393	R394	E395	S396	H397	Q398	K399	A400	T401	E402	T403	L404	R405	R406	C407	G408	A409	D410	I411	P412	S413	Q414	E415	A416	D417	K418	M419	F420	F421	L422	I423	E424	K425	I426	K427	M428	F429	M430	Q431	D432	I433	L434	K435	L436	V437	E438	G439	E440	E441	V442	V443	R444	E445	N446	E447	T448	R449	L450	Y451	N452	
K453	I454	R455	E456	D457	K458	M460	L461	V462	G463	I464	L465	A466	T467	M468	T469	Q470	K471	V472	K473	M474	I475	I476	H477	E478	E479	V480	E481	K482	Y483	E484	K485	Q486	Y487	R488	G489	G490	E491	L492	L493	G494	F495	V496	M497	Y498	K499	T500	F501	E502	I503	I504	V505	H506	Q507	Y508	I509	Q510	Q511	L512		
V513	E514	P515	A516	L517	S518	M519	L520	Q521	K522	A523	M524	E525	I526	L527	Q528	Q529	A530	F531	I532	M533	V534	A535	K536	K537	H538	F539	G540	E541	F542	F543	N544	L545	N546	Q547	T548	V549	Q550	S551	T552	I553	E554	E555	D556	I556	K557	V558	K559	H560	T561	A562	K563	A564	E565	N566	M567	I568	Q569	L570	Q571	F572
R573	M574	E575	Q576	M577	V578	F579	C580	Q581	Q582	Q583	I584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	I596	F597	G598	PRO	LEU	GLY	THR	PRO	SER	GLN	ASN	MET	LYS	LEU	ASN	SER	PHE	PRO	SER	ASN	GLU	SER	SER	VAL	SER	S622	F623	T624	E625	L626	L628	H629	L630	M631	A632			
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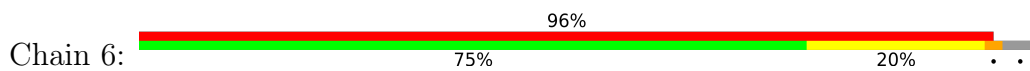
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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C153	P154	L155	V156	K158	L159	K160	K161	Q162	P163	C164	E165	A166	W167	A168	G169	R170	I171	S172	Y173	R174	M175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	L188	E189	I190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L210	L211	E212	
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	D225	D226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	D297	Q238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	K251	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	V264	P265	C266	N267	V268	D269	I270	A271	T272	
T273	E274	A275	L276	S277	M278	A279	H280	E281	V282	D283	P284	E285	G286	D287	R288	T289	I290	G291	I292	L293	T294	K295	P296	D297	L298	M299	D300	R301	G302	T303	E304	K305	S306	V307	M308	N309	V310	V311	R312	N313	L314	T315	Y316	P317	L318	K319	K320	G321	Y322	N323	I324	V325	V326	S327	R328	G329	Q330	Q331	E332	

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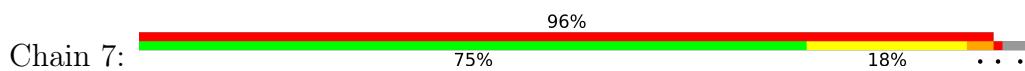
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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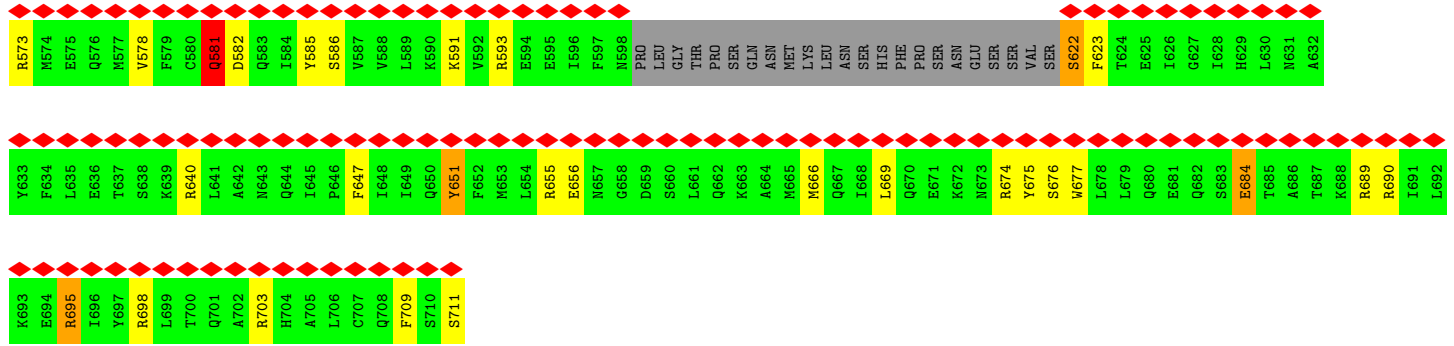
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● Molecule 1: Interferon-induced GTP-binding protein Mx2

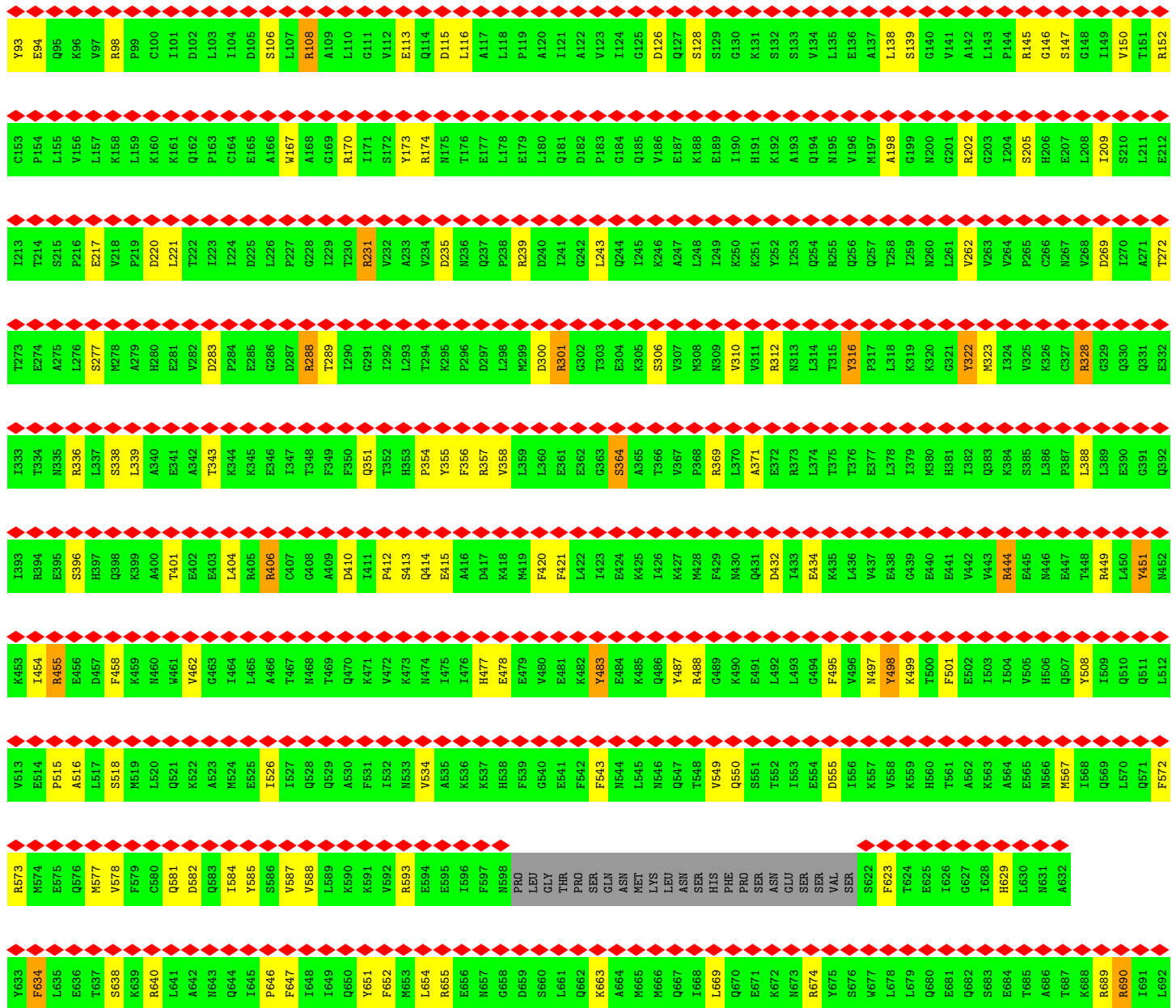
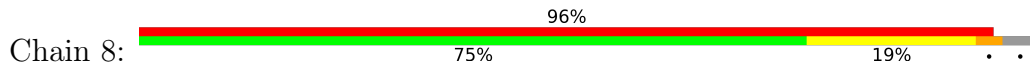


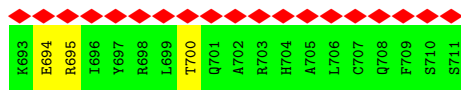
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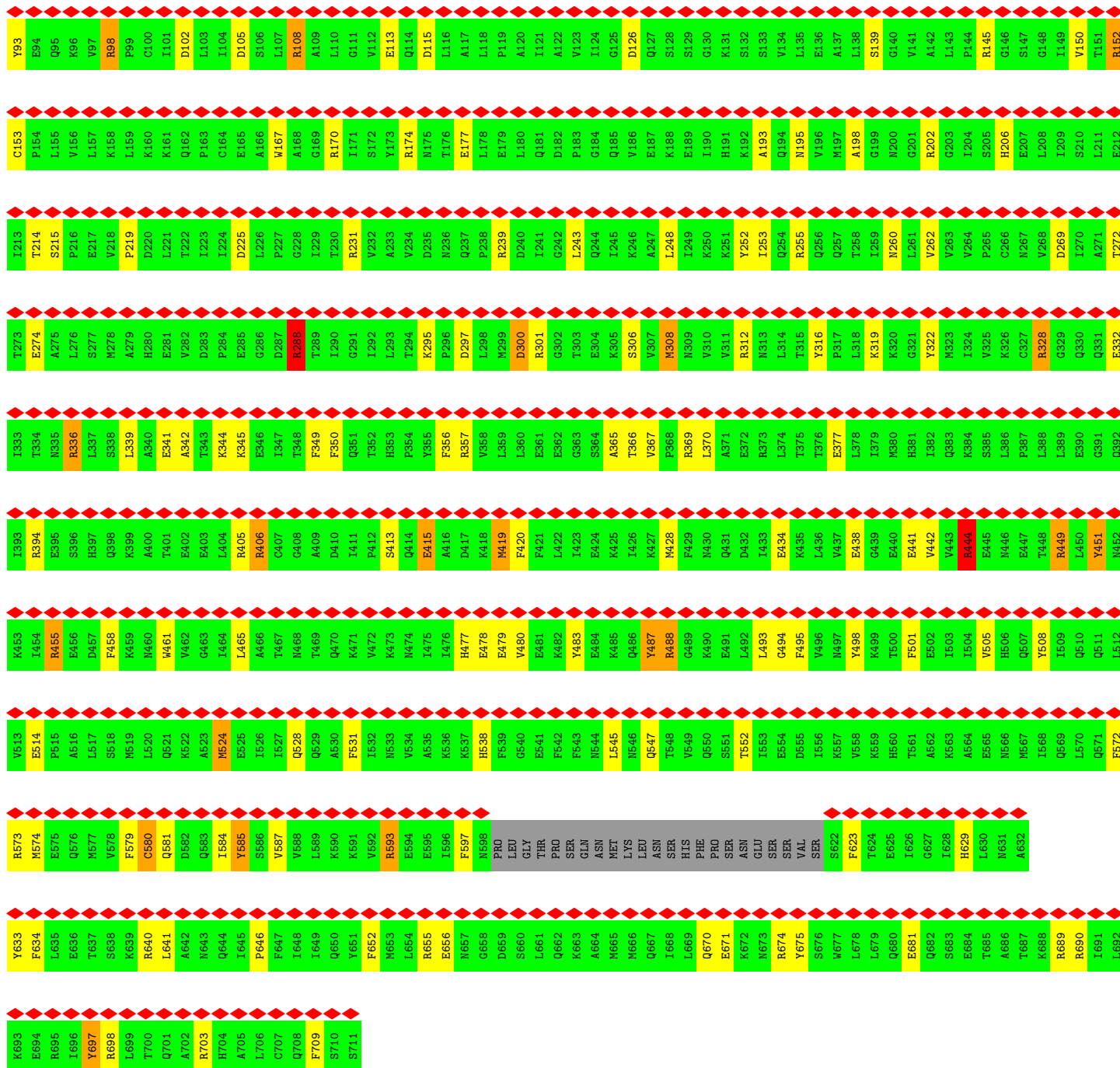


• Molecule 1: Interferon-induced GTP-binding protein Mx2





• Molecule 1: Interferon-induced GTP-binding protein Mx2



• Molecule 1: Interferon-induced GTP-binding protein Mx2



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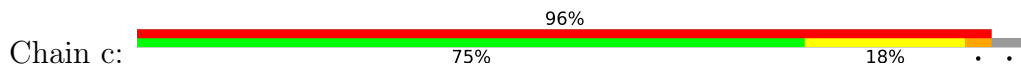
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	W167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212		
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	E225	A226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	K251	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	V264	P265	C266	N267	V268	D269	I270	A271	T272		
T273	E274	A275	L276	S277	M278	A279	H280	E281	V282	D283	P284	E285	G286	D287	R288	T289	I290	G291	I292	L293	T294	K295	P296	D297	L298	M299	D300	R301	G302	T303	E304	K305	S306	V307	M308	N309	V310	V311	R312	N313	L314	T315	Y316	P317	L318	K319	K320	G321	Y322	M323	I324	V325	P326	C327	R328	G329	Q330	Q331	E332		
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I393	R394	E395	S396	H397	Q398	K399	A400	T401	E402	E403	L404	E405	R406	C407	G408	A409	D410	I411	P412	S413	Q414	E415	A416	D417	K418	M419	F420	F421	L422	I423	A424	K425	I426	K427	M428	F429	M430	Q431	D432	I433	E434	K435	L436	V437	E438	G439	E440	E441	V442	V443	R444	E445	N446	E447	T448	R449	L450	Y451	N452		
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V513	E514	F515	A516	L517	S518	M519	L520	Q521	K522	A523	M524	E525	I526	I527	Q528	Q529	A530	F531	I532	N533	V534	A535	K536	K537	H538	F539	G540	E541	F542	F543	N544	L545	N546	Q547	T548	V549	Q550	S551	T552	L553	E554	D555	I556	K557	V558	K559	H560	T561	G562	L563	E564	E565	N566	M567	I568	Q569	L570	Q571	F572		
R573	M574	E575	Q576	M577	V578	F579	C580	Q581	D582	Q583	L584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	L596	F597	N598	PRO	LEU	GLY	THR	PRO	SER	GLN	ASN	MET	LYS	LEU	ASN	HIS	PHE	PRO	SER	GLU	SER	VAL	SER	S622	F623	T624	E625	I626	L628	H629	L630	N631	A632						
Y633	F634	L635	E636	T637	S638	K639	R640	L641	A642	M643	Q644	L645	P646	F647	L648	L649	Q650	Y651	F652	M653	L654	R655	E656	M657	G658	D659	S660	L661	Q662	K663	A664	M665	M666	Q667	L668	L669	Q670	E671	K672	M673	R674	Y675	S676	M677	L678	L679	D680	E681	Q682	S683	E684	R685	L686	G687	K688	R689	L690	L691	L692		
K693	E694	R695	L696	Y697	R698	L699	T700	Q701	A702	R703	H704	A705	L706	C707	Q708	F709	S710	S711																																											

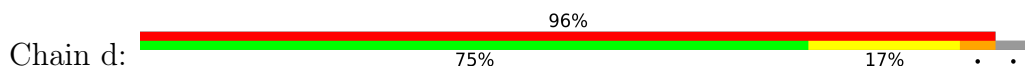
• Molecule 1: Interferon-induced GTP-binding protein Mx2



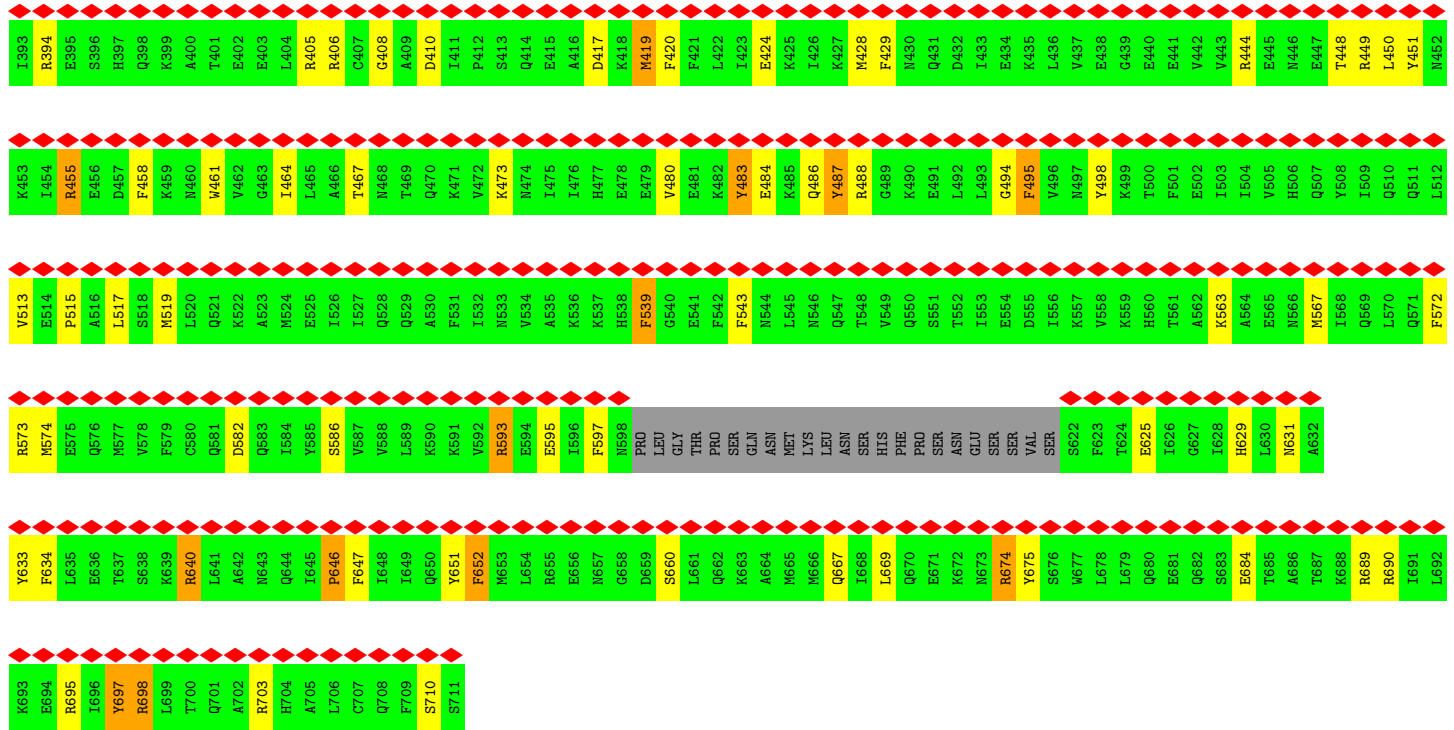
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C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	W167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	E225	A226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	K251	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	V264	P265	C266	N267	V268	D269	I270	A271	T272

T273	I333	I393	K453	V513	R573	Y633	K693
E274	T334	R394	I454	E514	M574	F634	E694
A275	M335	E395	R455	P515	E575	L635	R695
L276	R336	S396	F456	A516	Q576	E636	L696
S277	L337	H397	D457	L517	M577	T637	V697
M278	S338	Q398	F458	S518	V578	S638	R698
A279	L339	K399	K459	M519	F579	K639	L699
H280	A340	A400	M460	L520	C580	R640	T700
E281	E341	T401	V461	Q521	Q581	L641	Q701
V282	A342	A402	V462	K522	D582	A642	A702
D283	T343	E403	G463	A523	Q583	M643	R703
P284	K344	L404	I464	M524	I584	Q644	H704
E285	K345	R405	L465	E525	Y585	I645	A705
G286	E346	O406	A466	I526	S586	P646	L706
D287	I347	C407	T467	I527	V587	F647	C707
R288	T348	G408	M468	Q528	V588	L648	Q708
T289	F349	A409	T469	Q529	L589	I649	F709
I290	F350	D410	Q470	A530	K590	Q650	S710
G291	Q351	I411	K471	F531	K591	Y651	S711
I292	T352	P412	V472	I532	V592	F652	
L293	H553	S413	K473	M533	R593	M653	
L294	P354	Q414	M474	V534	E594	L654	
K295	Y355	E415	I475	A535	E595	R655	
P296	F356	A416	I476	K336	I596	E656	
D297	R357	D417	H477	K337	F597	M657	
L298	V358	K418	E478	H538	N598	G658	
M299	L359	M419	E479	F539	P60	D659	
D300	L360	F420	V480	G540	L60	S660	
R301	E361	F421	E481	E541	GLY	L661	
G302	E362	L422	K482	F542	THR	Q662	
T303	G363	I423	Y483	F543	SER	R663	
E304	S364	A242	E484	N544	GLN	A664	
K305	A365	K425	K485	L545	ASN	M665	
S306	T366	I426	Q486	N546	MET	M666	
V307	V367	K427	Y487	Q547	LEU	Q667	
M308	P368	M428	R488	T548	ASN	L668	
N309	R369	F429	G489	V549	HIS	L669	
V310	L370	N430	K490	Q550	PHE	Q670	
V311	A371	Q431	E491	S551	PRO	E671	
M312	E372	D432	L492	T552	ASN	K672	
M313	R373	I433	L493	I553	GLU	M673	
L314	L374	E434	G494	E554	SER	R674	
T315	T375	K435	F495	D555	SER	Y675	
Y316	T376	L436	V496	I556	VAL	S676	
P317	E377	V437	M497	K557	S622	M677	
L318	L378	E438	Y498	V558	F623	L678	
K319	I379	G439	K499	K559	T624	L679	
K320	M380	E440	T500	H560	E625	Q680	
G321	H381	E441	F501	T561	L626	E681	
Y322	I382	V442	E502	A562	G627	Q682	
M323	Q383	V443	I503	K563	L628	S683	
I324	K384	R444	I504	A564	H629	E684	
V325	S385	E445	V505	E565	L630	T685	
G326	L386	E446	H506	N566	M631	A686	
C327	P387	E447	Q507	M567	N632	T687	
R328	L388	T448	Y508	I568	A632	K688	
G329	L389	R449	I509	Q569		R689	
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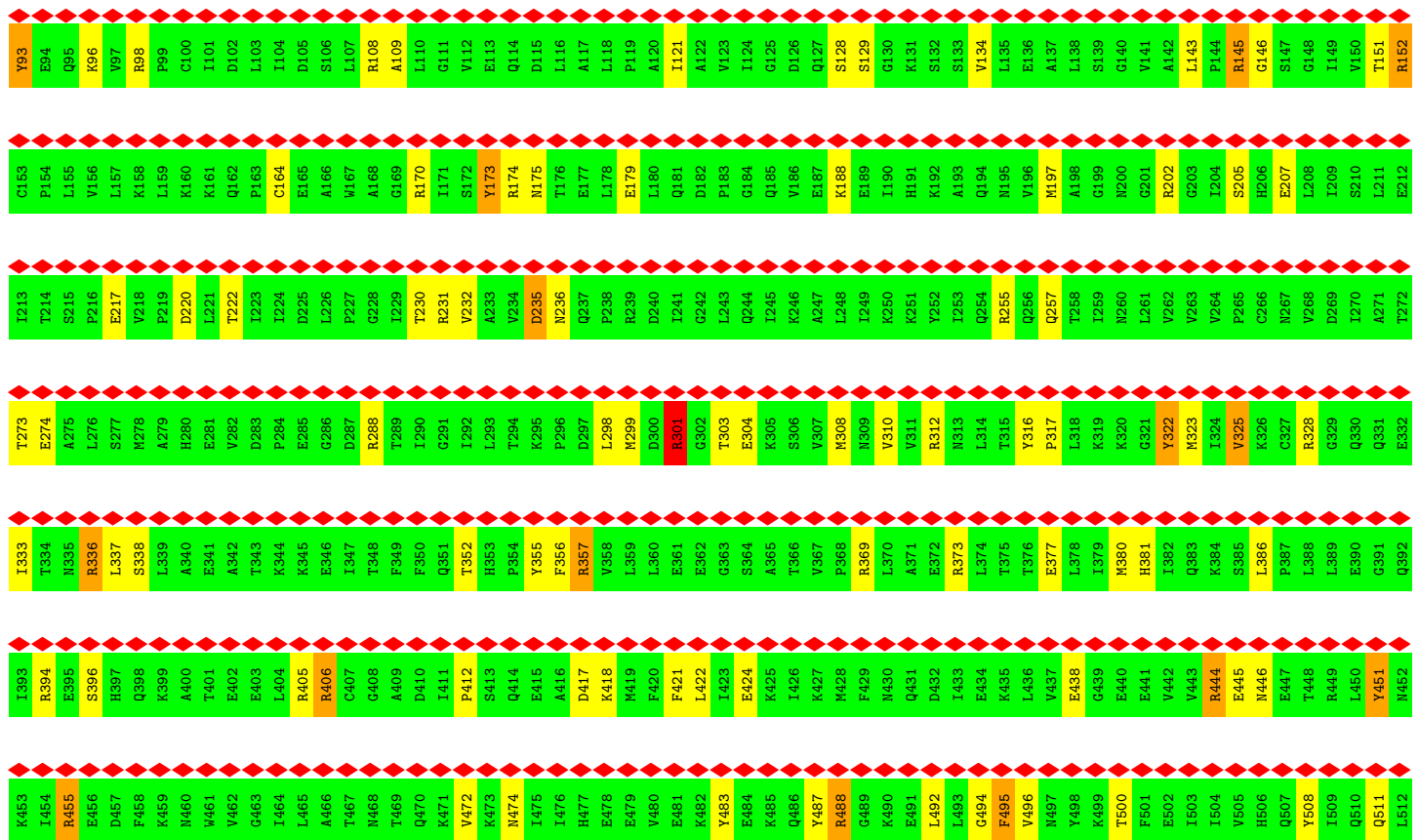
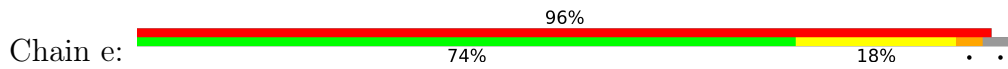
• Molecule 1: Interferon-induced GTP-binding protein Mx2



Y93	T273	I213	T273	I333
E94	E274	T214	E274	T334
Q95	A275	S215	A275	M335
K96	L276	P216	L276	R336
V97	S277	E217	S277	L337
R98	M278	V218	M278	S338
P99	A279	P219	A279	L339
C100	H280	D220	H280	A340
I101	E281	L221	E281	E341
D102	V282	T222	V282	A342
L103	D283	I223	D283	T343
I104	P284	L224	P284	K344
D105	E285	D225	E285	K345
S106	G286	L226	G286	E346
L107	D287	P227	D287	I347
R108	R288	G228	R288	T348
A109	T289	I229	T289	F349
L110	I290	T230	I290	F350
G111	G291	R231	G291	Q351
V112	L292	V232	L292	T352
E113	L293	A233	L293	H353
Q114	T294	V234	T294	P354
D115	K295	D235	K295	Y355
L116	P296	N236	P296	F356
A117	D297	Q237	D297	R357
L118	L298	P238	L298	V358
P119	M299	R239	M299	L359
A120	D300	D240	D300	L360
I121	R301	I241	R301	E361
A122	G302	G242	G302	E362
V123	T303	P183	T303	G363
I124	E304	G184	E304	S364
G125	K305	Q185	K305	A365
V126	S306	Q186	S306	T366
Q127	V307	E187	V307	V367
D128	M308	L188	M308	P368
S129	N309	E189	N309	R369
G130	V310	K250	V310	L370
K131	V311	K251	V311	A371
S132	R312	I192	R312	E372
A133	M313	I253	M313	R373
V134	L314	Q254	L314	L374
L135	T315	R255	T315	T375
E136	Y316	Q256	Y316	T376
A137	P317	Q257	P317	E377
L138	L318	T258	L318	L378
S139	K319	I259	K319	I379
G140	N320	N260	N320	M380
V141	L261	L261	L261	H381
A142	R202	G202	R202	G321
L143	G203	V263	G203	Y322
P144	I204	V264	I204	M323
R145	S205	P265	S205	I324
G146	H206	C266	H206	V325
S147	E207	N267	E207	L326
G148	L208	V268	G148	S385
I149	I209	D269	I149	L386
V150	S210	L270	V150	P387
T151	L211	A271	T151	L388
R152	E212	T272	R152	L389

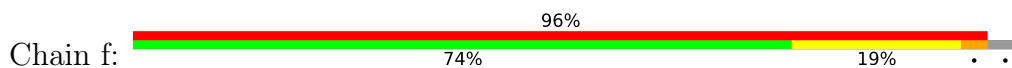


● Molecule 1: Interferon-induced GTP-binding protein Mx2

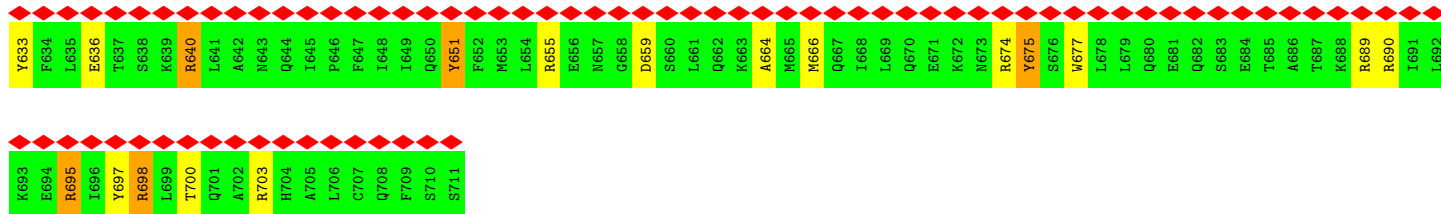


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R573	M574	E575	Q576	M577	V578	F579	C580	Q581	D582	Q583	I584	S585	I586	V587	V588	L589	Q590	K591	V592	R593	E594	E595	I596	F597	N598	PRO	LEU	GLY	THR	PRO	PRO	GLN	ASN	ASN	MET	LYS	LEU	ASN	SER	HIS	PHE	PRO	SER	ASN	GLU	SER	SER	VAL	SER	S622	F623	T624	E625	I626	E627	I628	H629	L630	N631	A632
Y633	F634	L635	E636	T637	K638	K639	R640	L641	A642	N643	Q644	I645	P646	F647	I648	L649	Q650	Y651	F652	M653	L654	R655	E656	M657	G658	D659	S660	L661	L662	K663	A664	M665	G666	Q667	I668	L669	Q670	E671	K672	M673	R674	Y675	S676	M677	L678	L679	Q680	E681	Q682	S683	E684	T685	A686	T687	K688	R689	R690	I691	L692	
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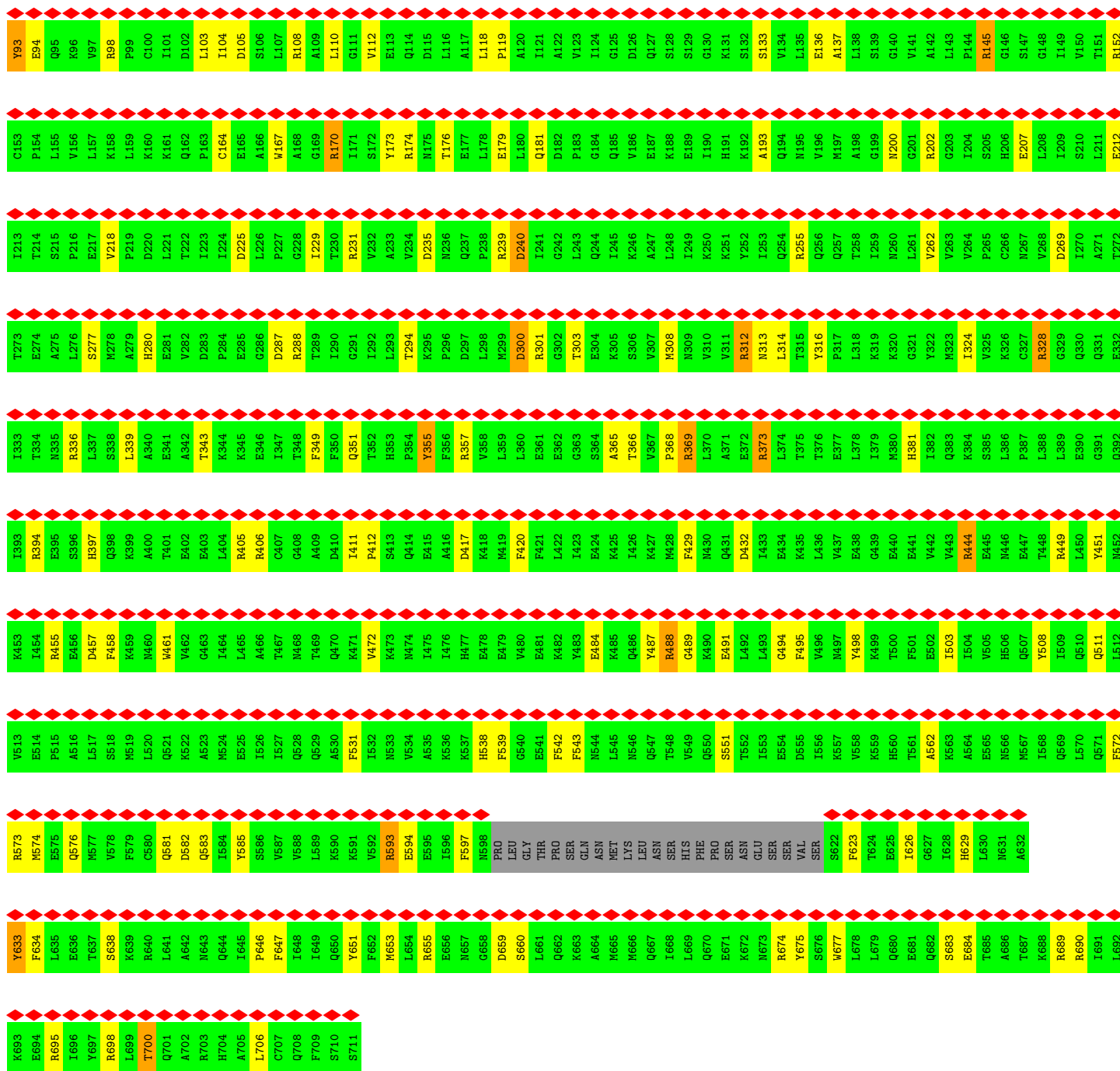
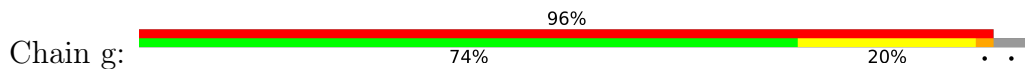
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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C153	P154	L155	V156	L157	K158	L159	K160	I161	Q162	P163	C164	E165	A166	W167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	L180	Q181	I182	P183	G184	G185	Q186	E187	K188	E189	I190	H191	K192	A193	S193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212	
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	D225	L226	P227	G228	T229	I230	R231	V232	A233	Q234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	S246	K247	M248	N249	K250	Y251	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	Y262	V263	V264	P265	C266	N267	V268	D269	I270	A271	T272			
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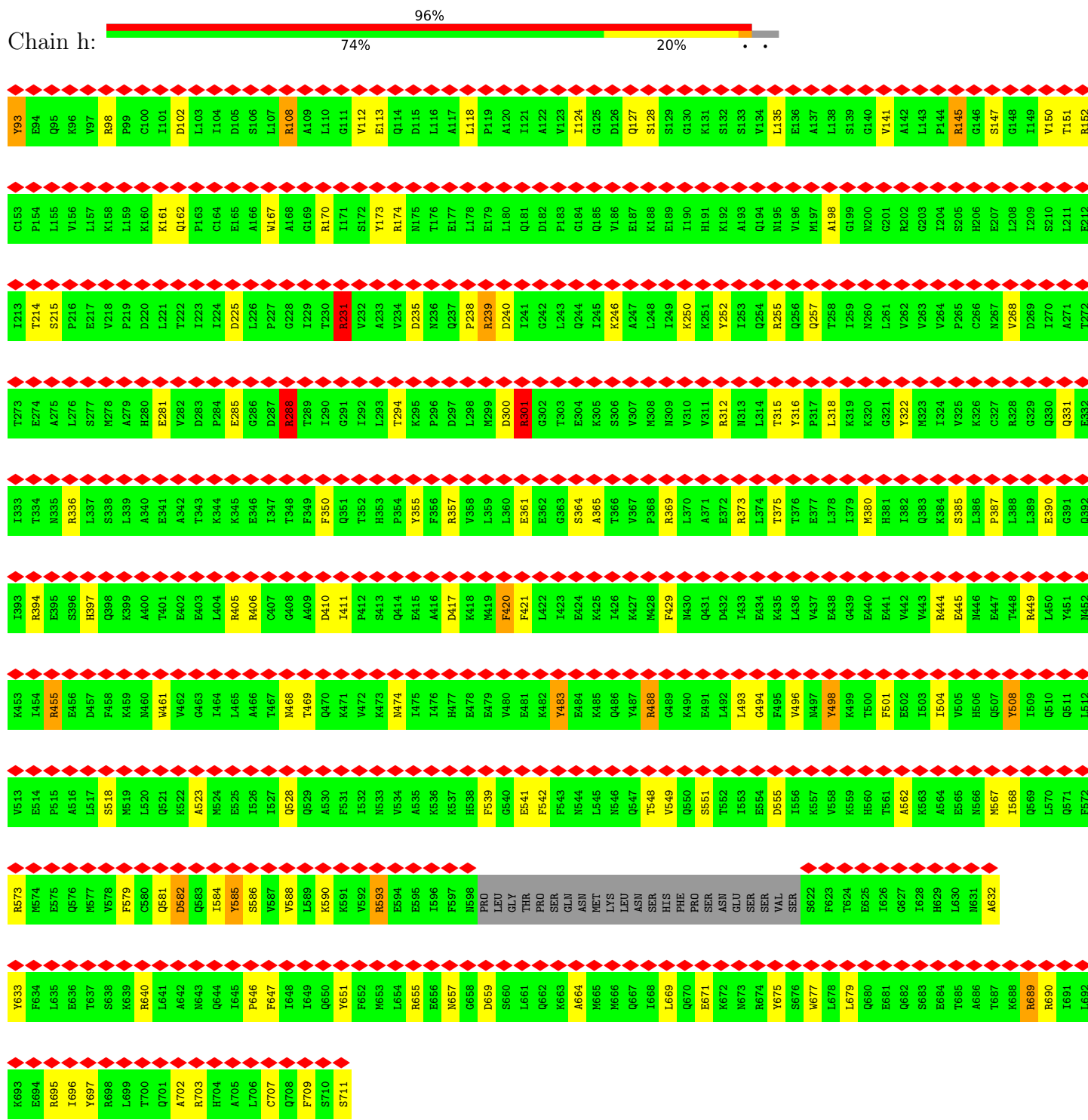


• Molecule 1: Interferon-induced GTP-binding protein Mx2





● Molecule 1: Interferon-induced GTP-binding protein Mx2

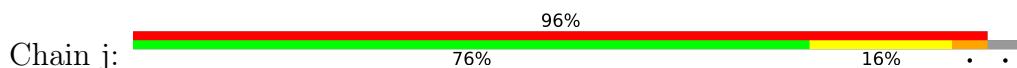


● Molecule 1: Interferon-induced GTP-binding protein Mx2



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C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	V167	A168	G169	R170	I171	S172	Y173	R174	M175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	V194	M195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	G206	E207	L208	I209	S210	L211	E212
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	L223	I224	E225	L226	P227	G228	L229	T230	R231	V232	A233	V234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	K251	Y252	L253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	I264	P265	C266	N267	V268	I269	G270	A271	T272
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V513	E514	P515	A516	L517	S518	M519	L520	A521	K522	A523	M524	E525	L526	L527	Q528	Q529	A530	F531	I532	N533	V534	A535	K536	K537	H538	F539	G540	E541	F542	F543	N544	L545	N546	Q547	T548	V549	Q550	S551	T552	L553	E554	D555	L556	K557	V558	K559	H560	T561	A562	G563	H564	E565	N566	M567	L568	Q569	L570	Q571	F572
R573	M574	E575	Q576	M577	V578	F579	C580	Q581	D582	Q583	I584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	E596	F597	PRO	LEU	GLY	THR	PRO	SER	GLN	ASN	MET	LYS	ASN	SER	HIS	PHE	PRO	SER	ASN	GLU	SER	VAL	S622	F623	T624	E625	L626	L628	H629	L630	N631	A632					
V633	F634	L635	E636	T637	S638	K639	R640	L641	A642	K643	O644	L645	P646	F647	L648	I649	Q650	Y651	F652	M653	L654	R655	E656	M657	D659	S660	L661	Q662	K663	A664	M665	M666	Q667	I668	L669	Q670	E671	K672	M673	R674	Y675	S676	M677	L679	O680	E681	O682	S683	E684	T685	A686	T687	K688	R689	R690	L691	L692		
K693	E694	R695	I696	Y697	R698	L699	T700	Q701	A702	R703	H704	A705	L706	C707	L708	F709	S710	S711																																									

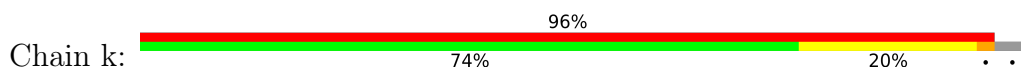
• Molecule 1: Interferon-induced GTP-binding protein Mx2



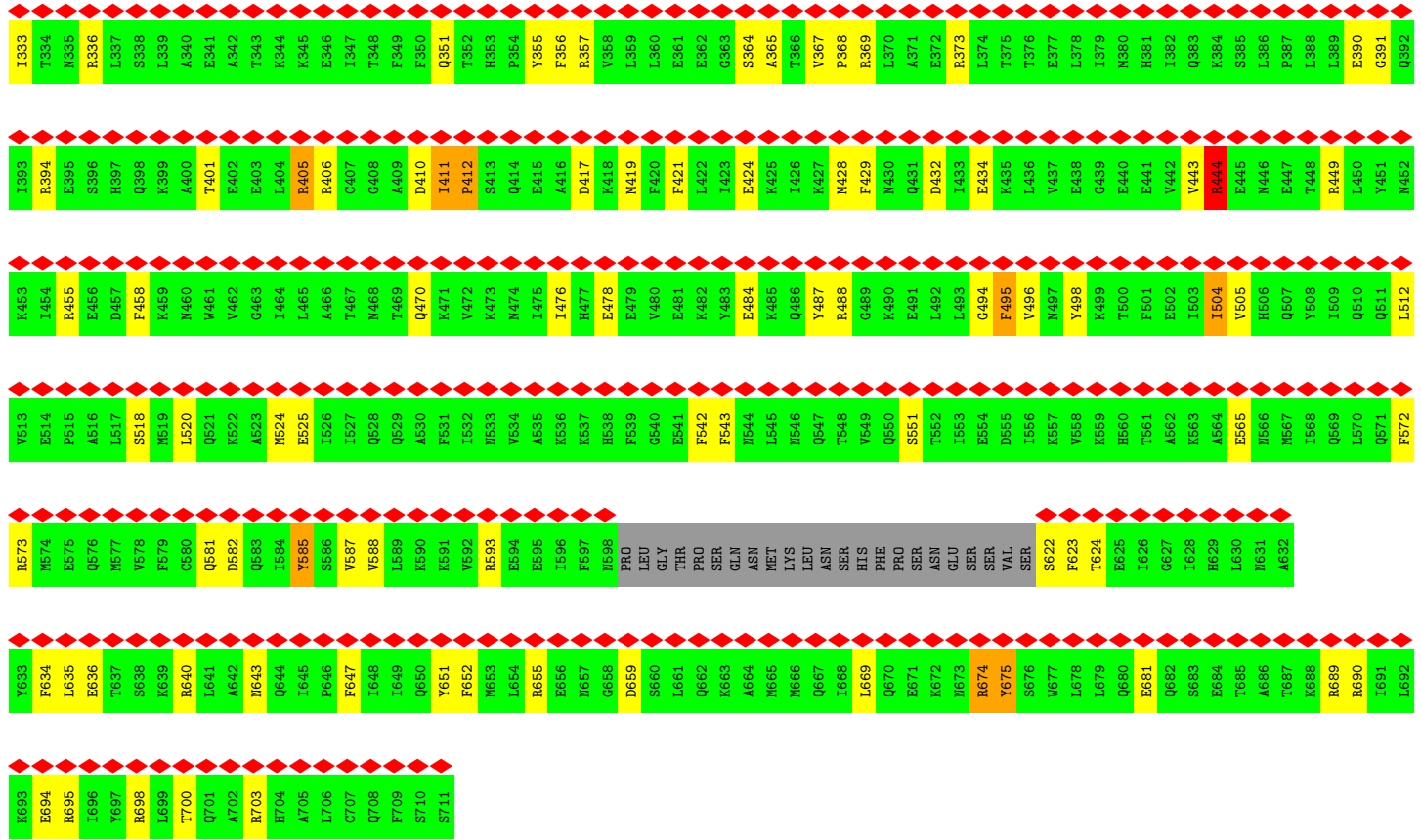
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C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	V167	A168	G169	R170	I171	S172	Y173	R174	M175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	V194	M195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	G206	E207	L208	I209	S210	L211	E212

I213	T273	I333	I393	K453	V513	R573	Y633	K693
T214	E274	T334	R394	I454	E514	M574	F634	E694
S215	A275	N335	E395	R455	P515	E575	L635	R695
P216	L276	R336	S396	E456	A516	Q576	E636	L696
E217	S277	L337	H397	D457	L517	M577	T637	Y697
V218	M278	S338	Q398	F458	S518	V578	S638	R698
P219	A279	L339	K399	K459	M519	F579	K639	L699
D220	H280	A340	A400	M460	L520	C580	R640	T700
L221	E281	E341	T401	M461	Q521	Q581	L641	Q701
T222	V282	A342	E402	V462	K522	D582	A642	A702
I223	D283	T343	E403	G463	A523	Q583	M643	R703
I224	P284	K344	L404	I464	M524	L584	Q644	H704
D225	E285	K345	R405	L465	E525	Y585	I645	A705
L226	G286	E346	R406	A466	I526	S586	P646	L706
P227	D287	I347	C407	T467	I527	V587	F647	C707
G228	R288	T348	G408	M468	Q528	V588	I648	O708
I229	T289	F349	A409	T469	Q529	L589	I649	F709
T230	I290	O350	D410	Q470	A530	K590	Q650	S710
R231	G291	Q351	I411	K471	F531	K591	Y651	S711
V232	I292	T352	P412	V472	I532	V592	F652	F712
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V234	L294	P354	Q414	M474	V534	E594	L654	Q114
D235	K295	Y355	E415	I475	A535	E595	R655	D115
N236	P296	F356	A416	I476	K536	I596	E656	L116
Q237	D297	R357	D417	H477	K537	F597	M657	A117
P238	L298	V358	K418	E478	H538	N598	G658	L118
R239	M299	L359	M419	E479	F539	D659	D659	P119
D240	D300	L360	F420	V480	G540	S660	S660	A120
I241	R301	E361	F421	E481	E541	L661	L661	I121
G242	G302	E362	L422	K482	F542	Q662	Q662	A122
L243	T303	G363	I423	Y483	F543	R663	R663	V123
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I245	K305	A365	K425	K485	L545	M665	M665	G125
K246	S306	T366	I426	Q486	N546	M666	Q667	D126
A247	V307	V367	K427	Y487	Q547	Q667	Q667	Q127
L248	M308	R368	M428	R488	T548	L668	L668	S128
I249	N309	R369	F429	G489	V549	L669	L669	S129
K250	V310	L370	M430	P490	Q550	Q670	Q670	G130
K251	V311	A371	Q431	E491	S551	E671	E671	X131
Y252	R312	E372	D432	L492	T552	K672	K672	S132
I253	N313	R373	I433	L493	I553	R673	R673	A133
Q254	L314	L374	E434	G494	E554	R674	R674	V134
R255	T315	T375	K435	F495	D555	Y675	Y675	L135
Q256	Y316	T376	L436	V496	I556	S676	S676	E136
Q257	P317	E377	V437	M497	K557	M677	M677	A137
T258	L318	L378	E438	Y498	V558	L678	L678	L138
I259	K319	I379	G439	K499	K559	L679	L679	S139
N260	K320	M380	E440	T500	H560	Q680	Q680	G140
L261	G321	H381	E441	F501	T561	E681	E681	V141
V262	Y322	I382	V442	F502	A562	Q682	Q682	A142
V263	M323	Q383	V443	I503	K563	S683	S683	L143
V264	I324	K384	R444	I504	A564	H629	H629	P144
P265	Y325	S385	E445	V505	E565	L630	L630	R145
C266	K326	L386	N446	H506	N566	M631	M631	G146
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V268	R328	L388	T448	V508	I568	K688	K688	G148
D269	G329	L389	R449	I509	Q569	R689	R689	I149
I270	Q330	E390	L450	Q510	L570	R690	R690	V150
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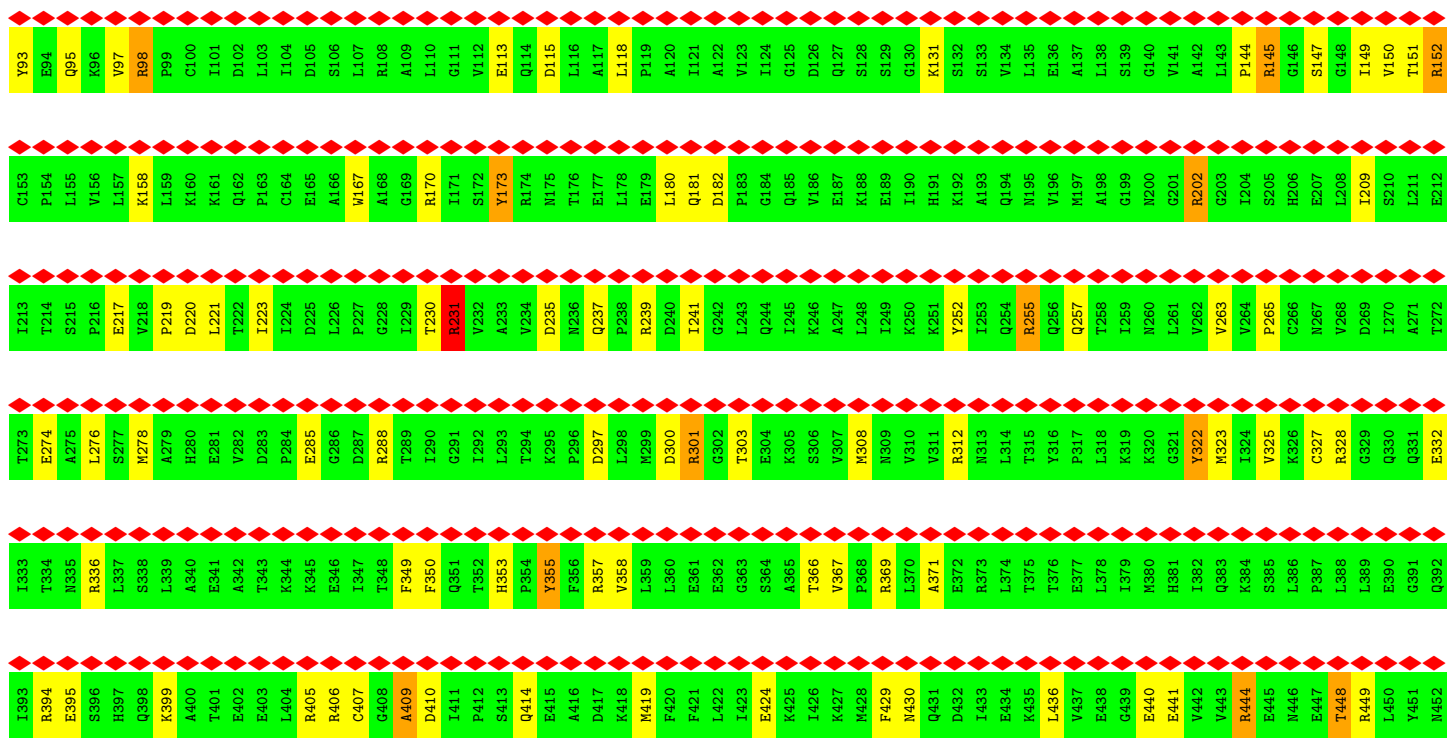
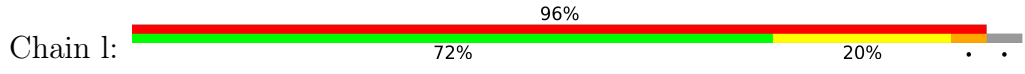
• Molecule 1: Interferon-induced GTP-binding protein Mx2

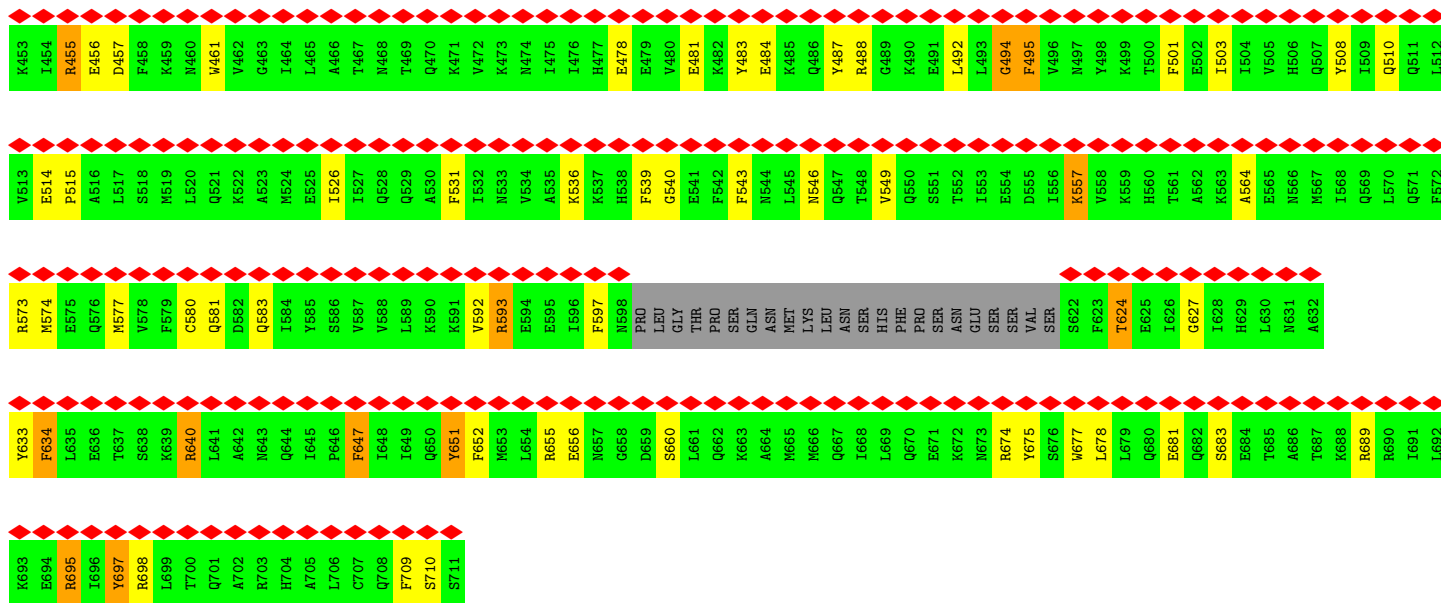


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P99	K160	P219	A279
C100	K161	D220	H280
I101	Q162	L221	E281
D102	P163	T222	V282
L103	C164	I223	D283
I104	E165	L224	P284
D105	A166	D225	E285
S106	M167	L226	G286
L107	A168	P227	D287
R108	G169	G228	R288
A109	R170	I229	T289
L110	I171	T230	I290
G111	S172	R231	G291
E113	Y173	V232	L292
Q114	R174	A233	L293
D115	N175	V234	T294
L116	T176	D235	K295
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L118	L178	Q237	D297
P119	E179	P238	L298
A120	L180	R239	M299
I121	Q181	D240	D300
A122	D182	I241	R301
V123	P183	G242	G302
I124	G184	L243	T303
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G126	L186	I245	K305
Q127	E187	K246	S306
S128	K188	A247	V307
S129	E189	L248	M308
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G148	G148	N267	M327
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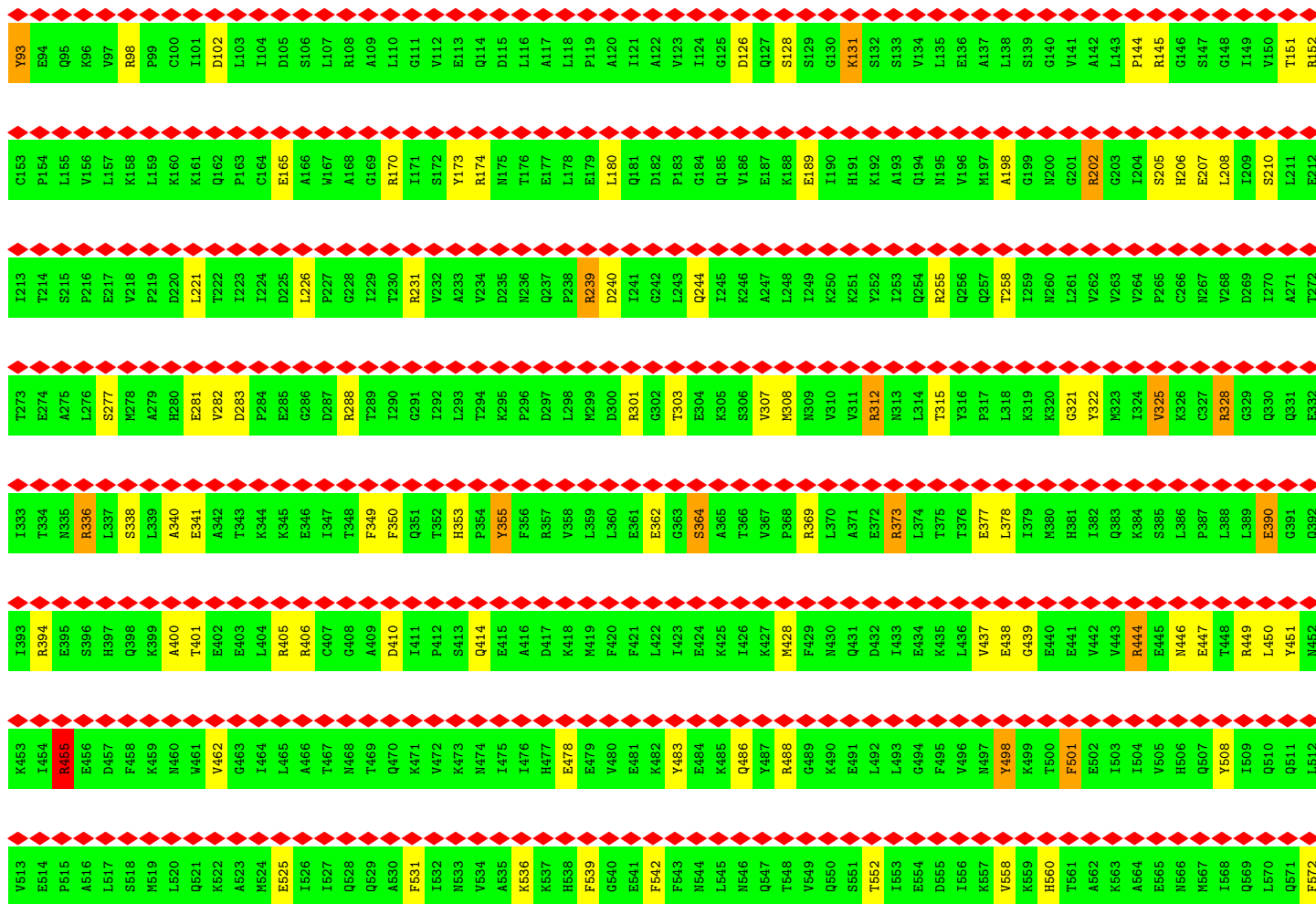
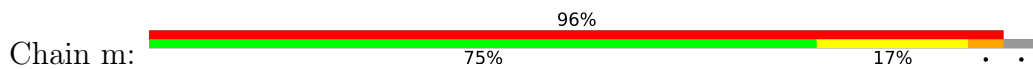


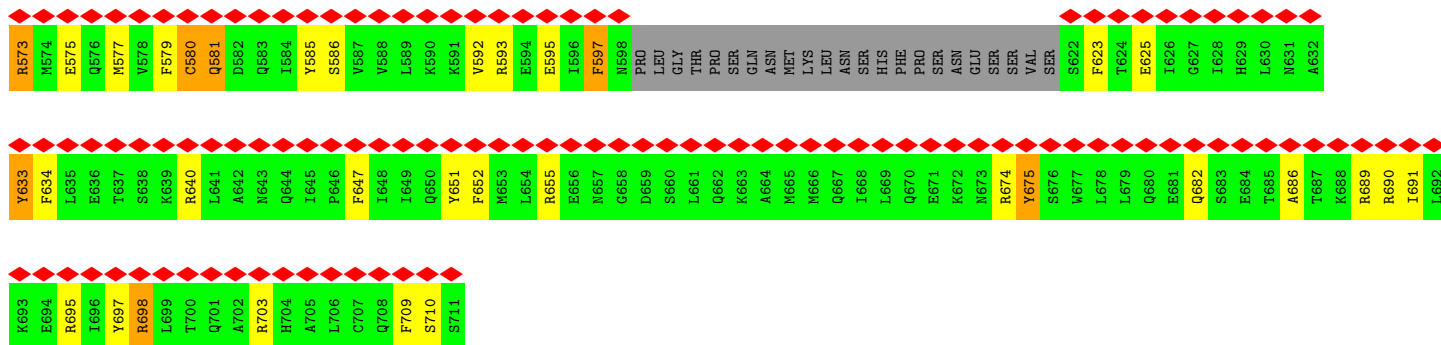
• Molecule 1: Interferon-induced GTP-binding protein Mx2



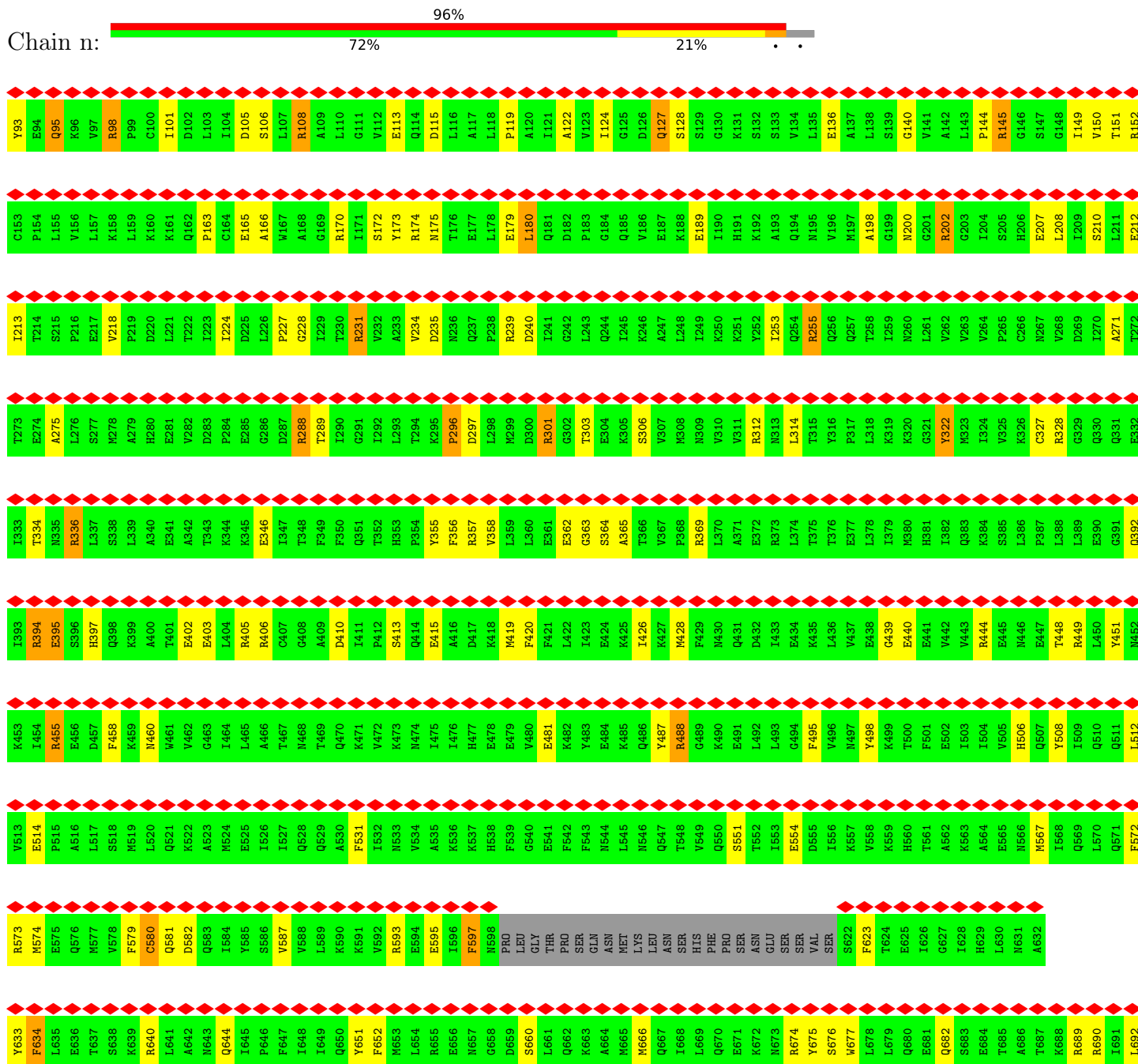


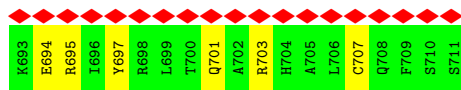
• Molecule 1: Interferon-induced GTP-binding protein Mx2



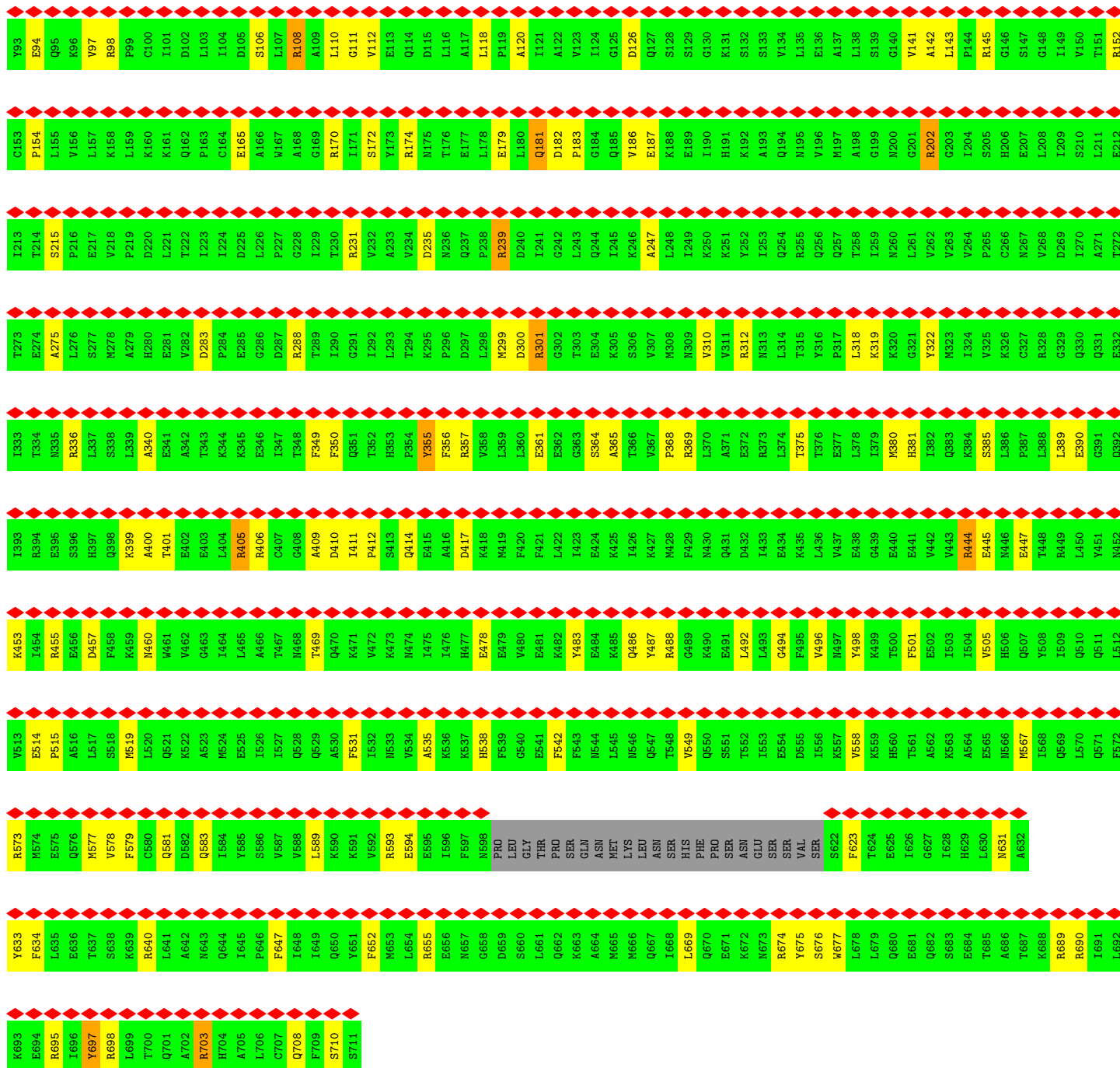
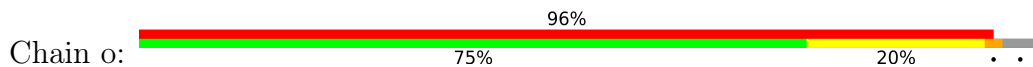


• Molecule 1: Interferon-induced GTP-binding protein Mx2





• Molecule 1: Interferon-induced GTP-binding protein Mx2



• Molecule 1: Interferon-induced GTP-binding protein Mx2

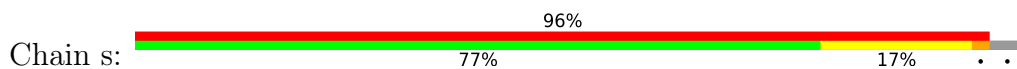




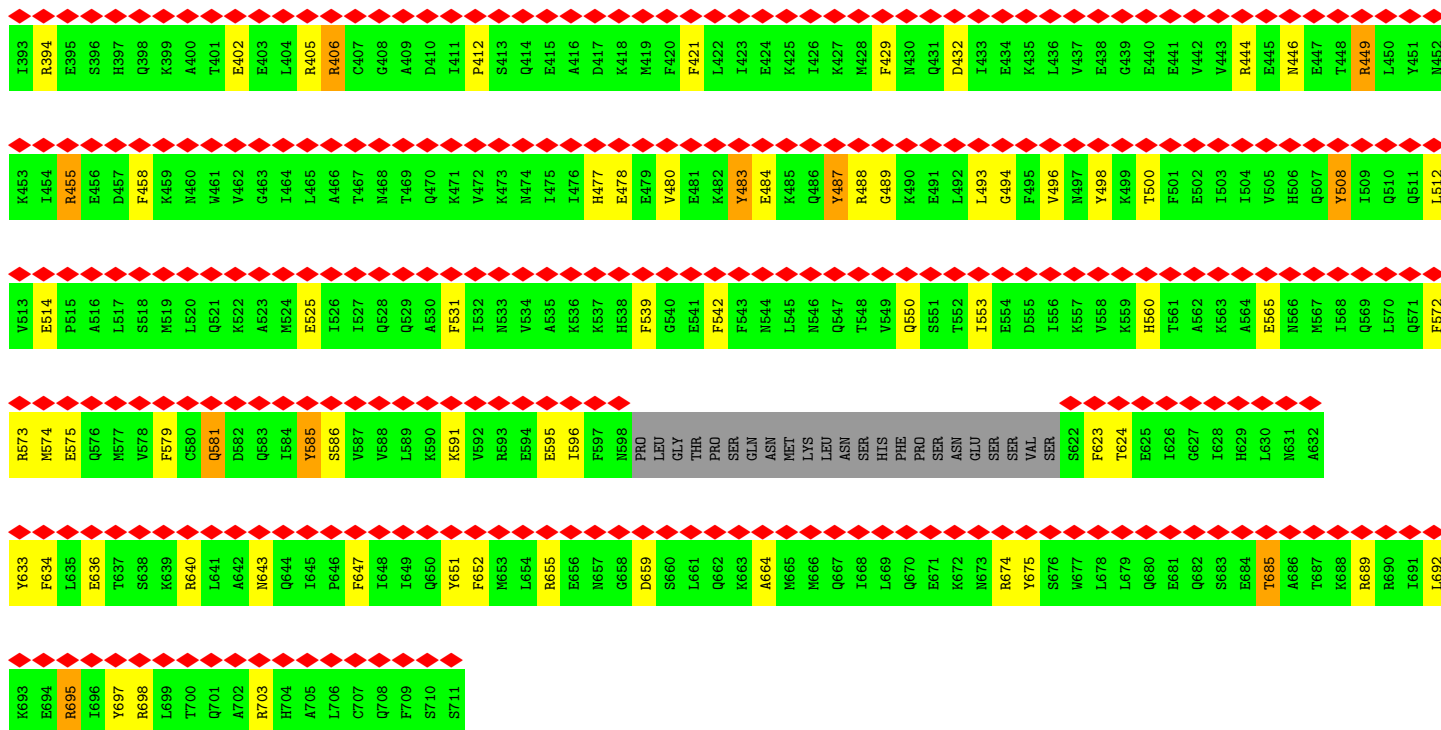


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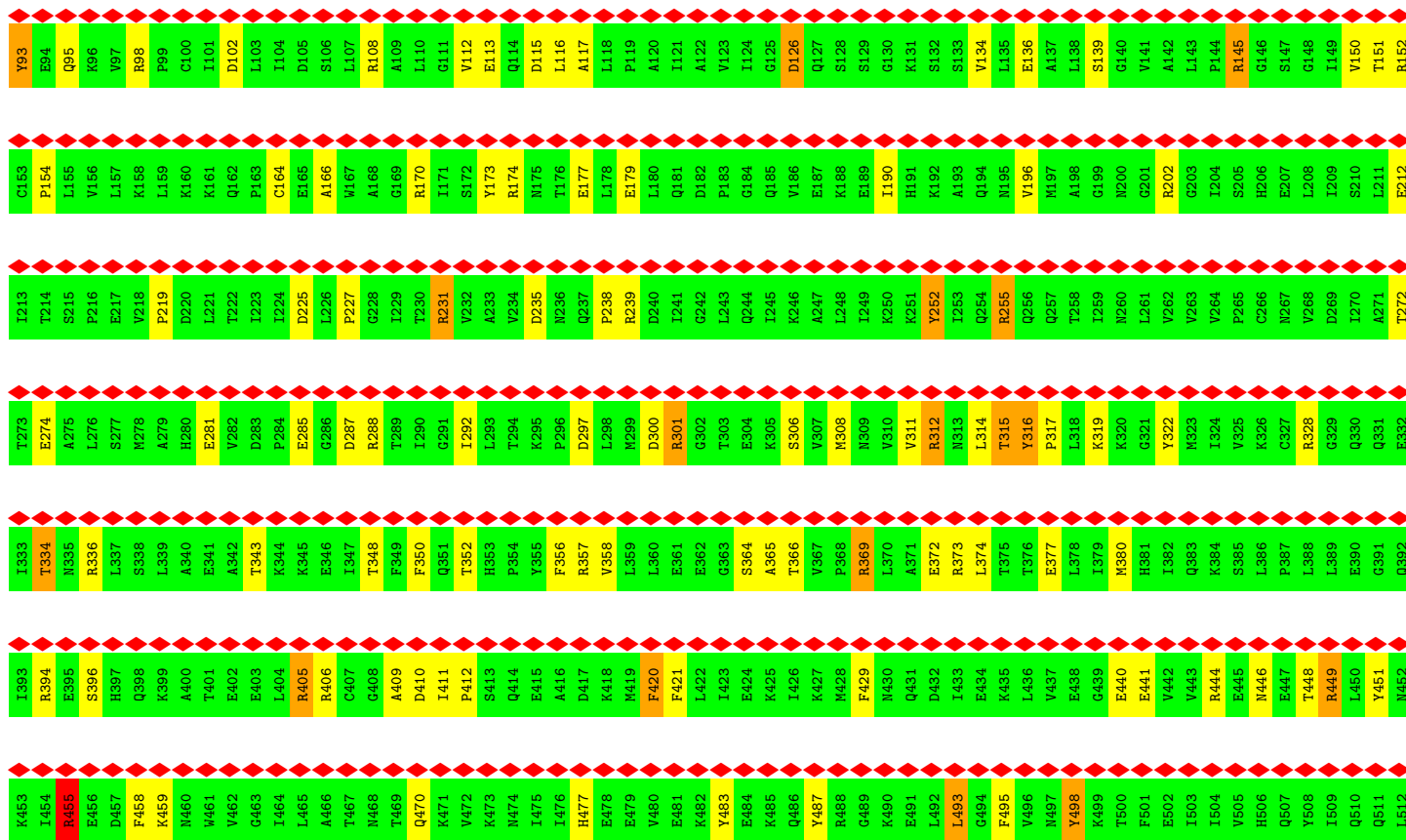
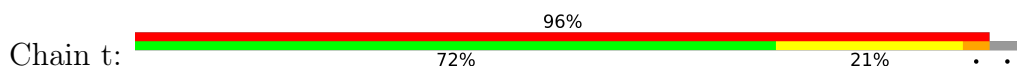
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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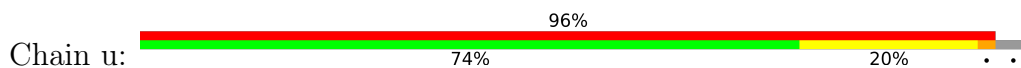


● Molecule 1: Interferon-induced GTP-binding protein Mx2

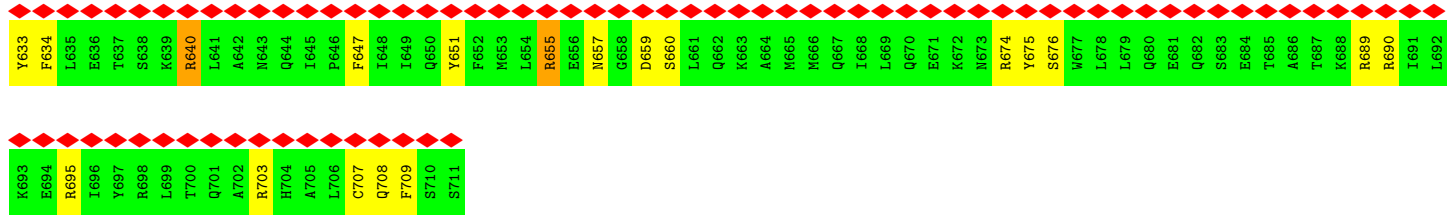


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R573	M574	E575	Q576	M577	F578	F579	C580	Q581	D582	Q583	I584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	K596	F597	N598	PRO	LEU	GLY	THR	PRO	SER	GLN	ASN	MET	LYS	LEU	ASN	SER	HIS	PHE	PRO	SER	ASN	GLU	SER	VAL	SER	S622	F623	T624	E625	I626	G627	I628	H629	L630	M631	A632	
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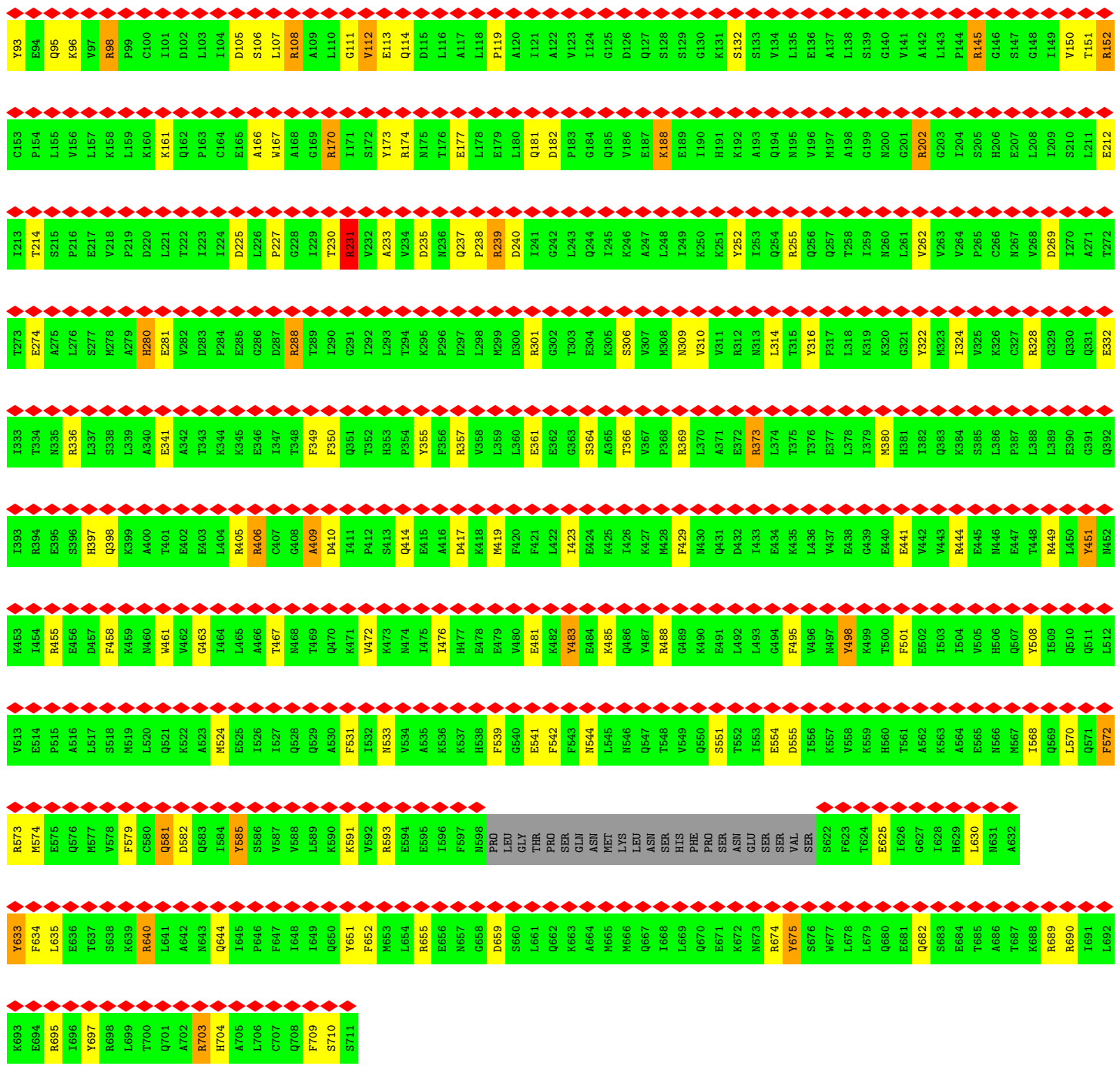
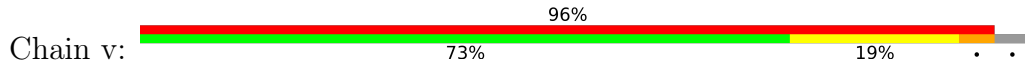
• Molecule 1: Interferon-induced GTP-binding protein Mx2



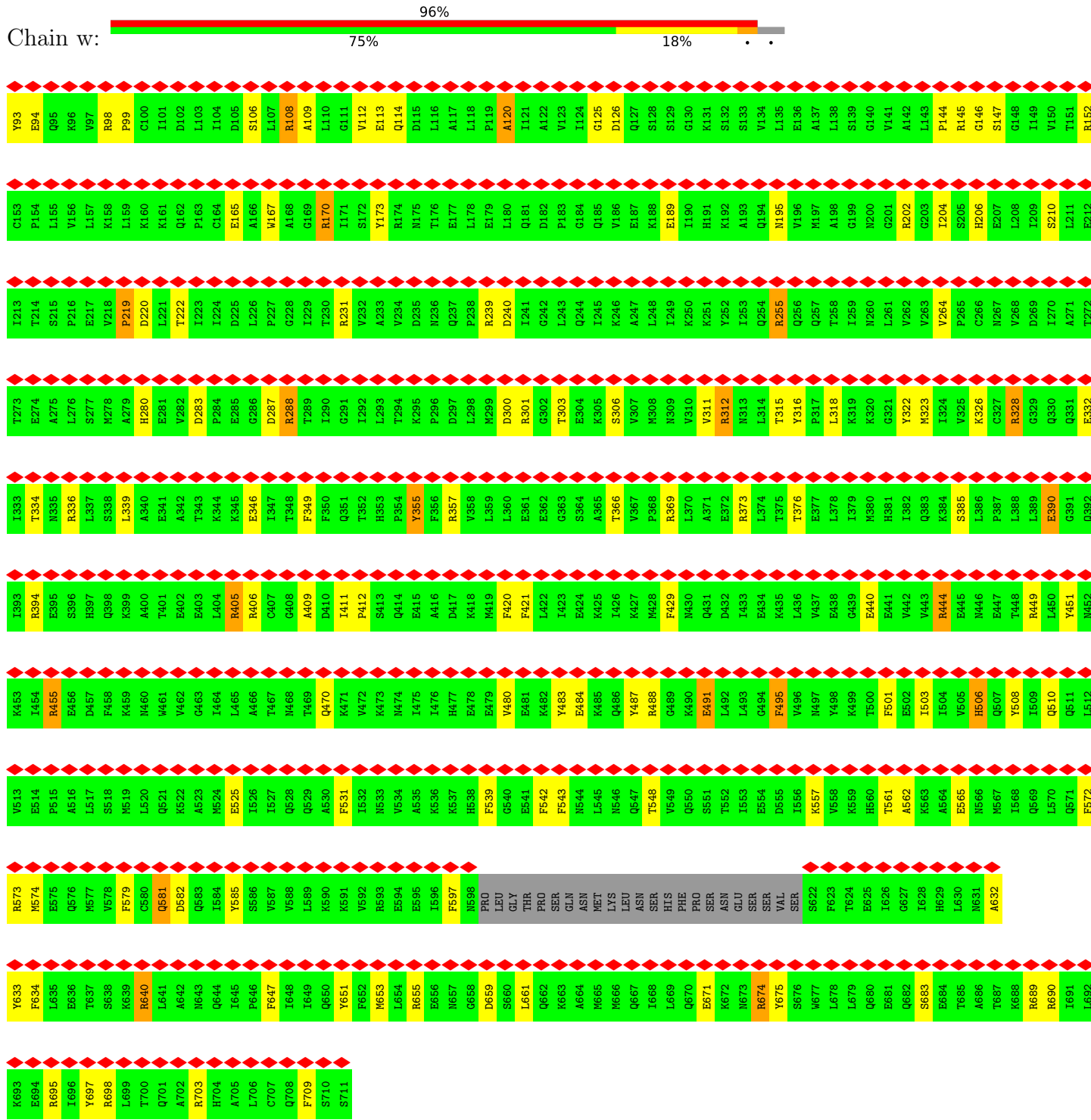
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• Molecule 1: Interferon-induced GTP-binding protein Mx2



• Molecule 1: Interferon-induced GTP-binding protein Mx2

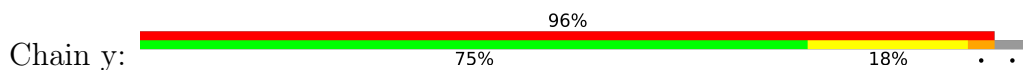


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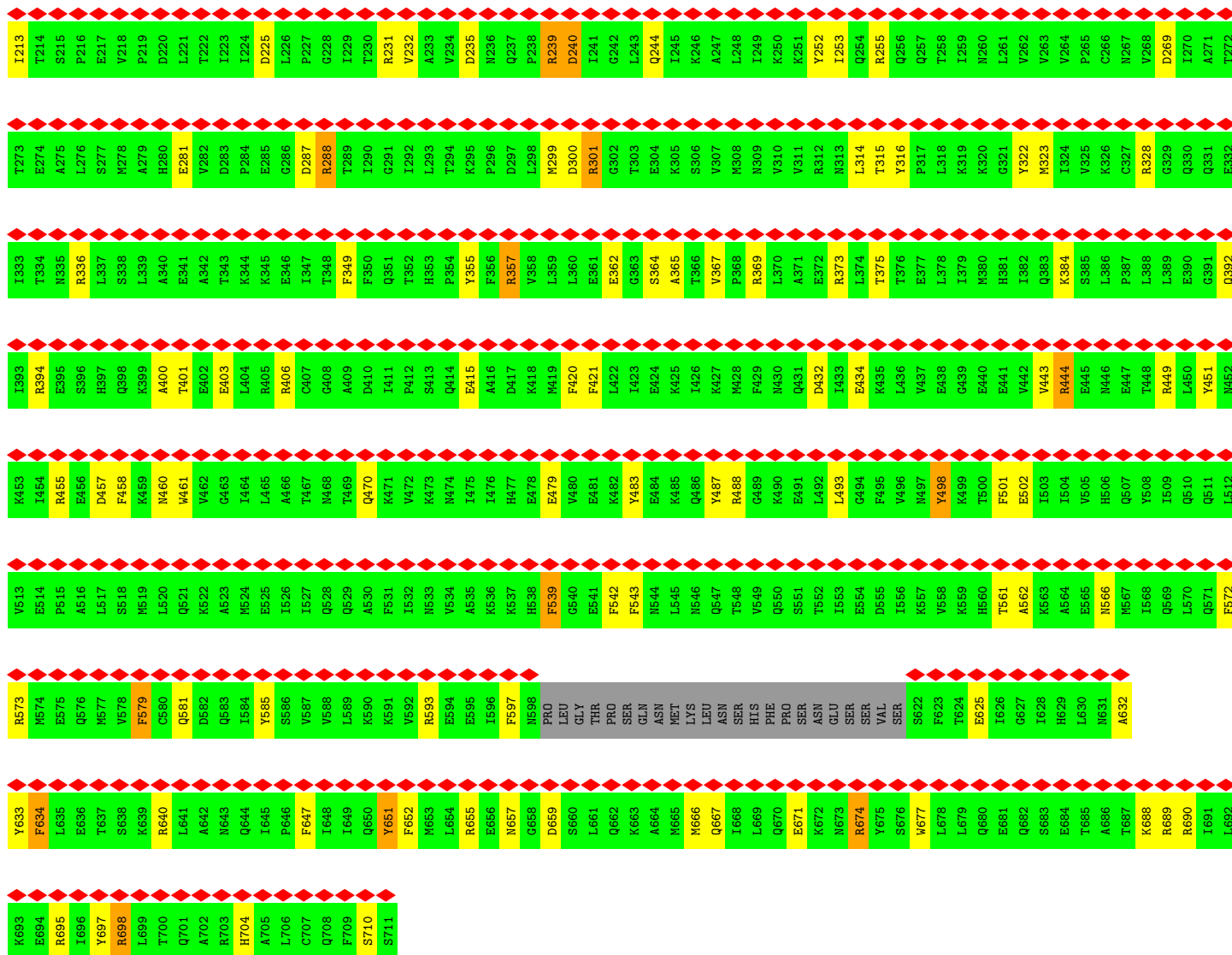


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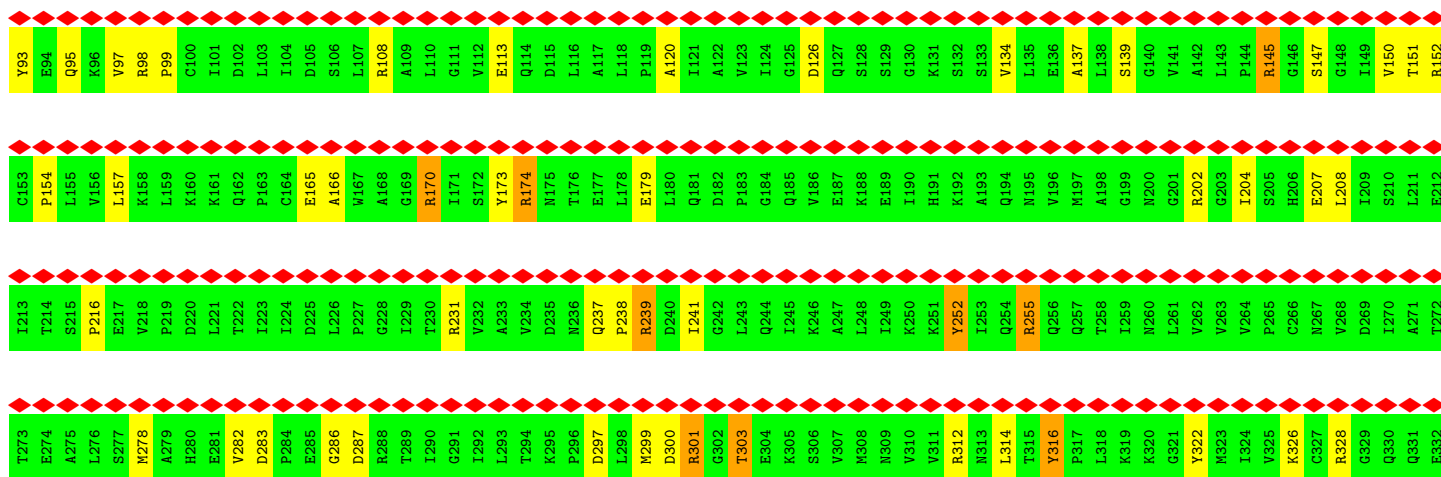
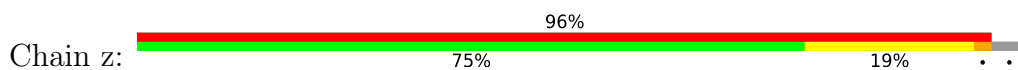
● Molecule 1: Interferon-induced GTP-binding protein Mx2



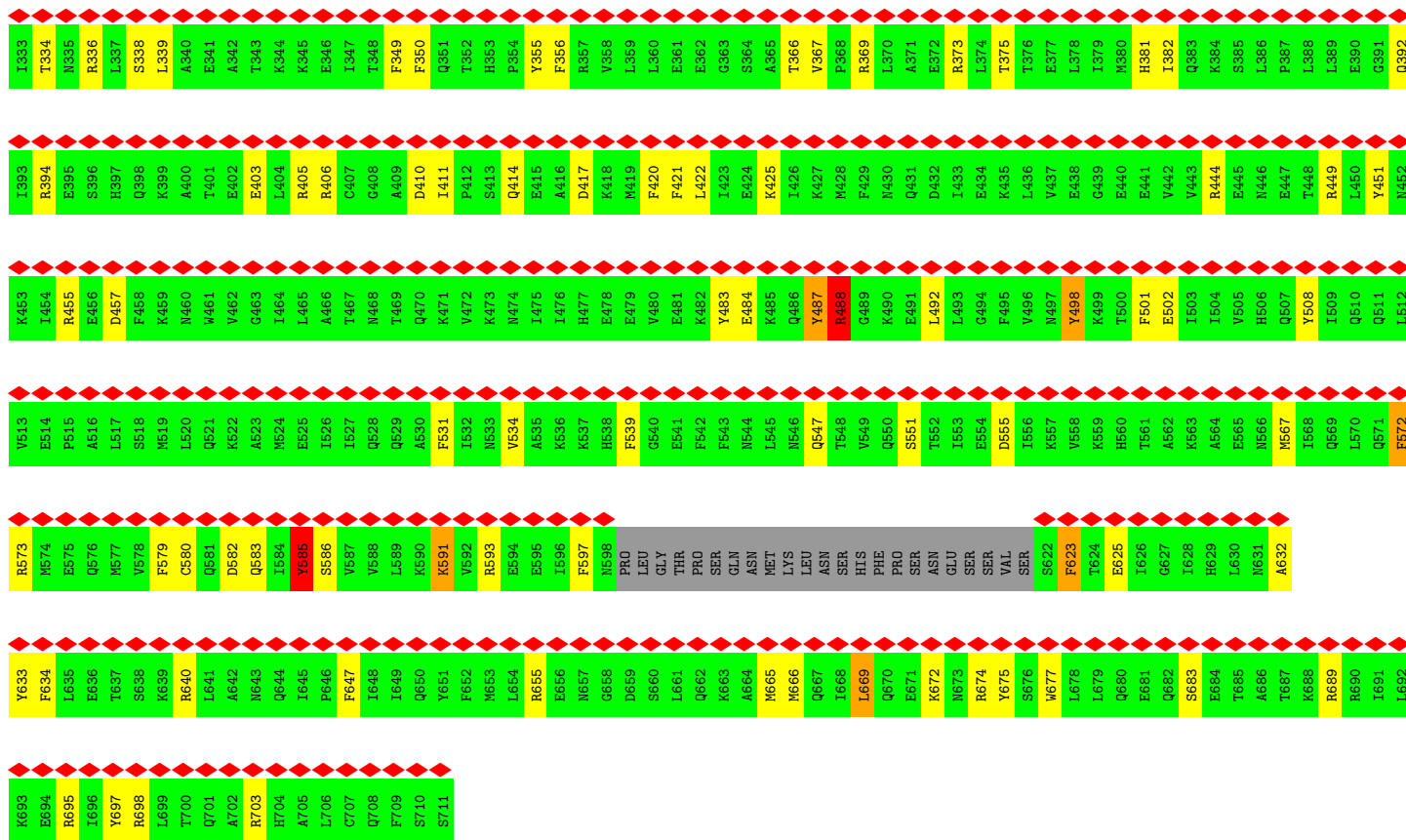
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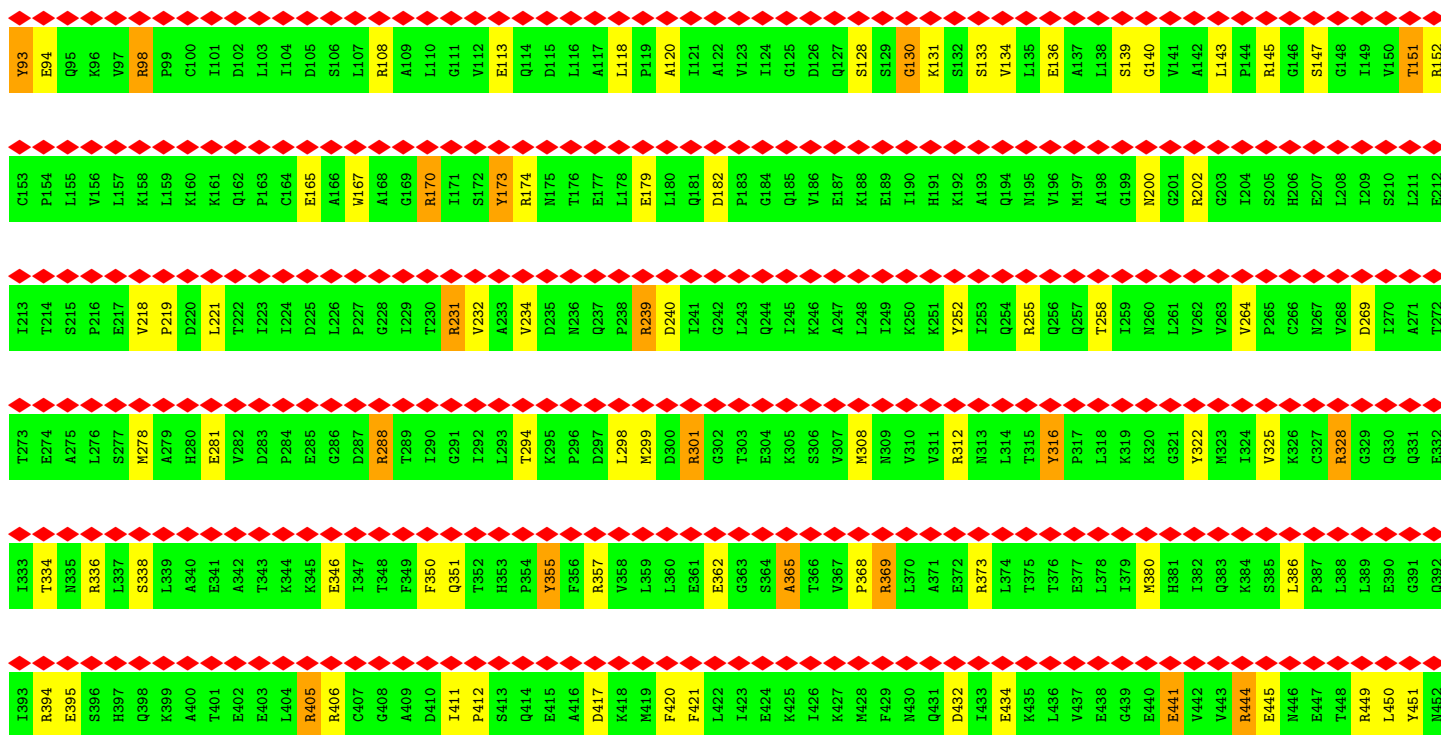
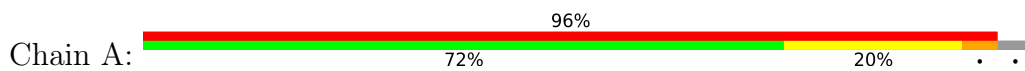
● Molecule 1: Interferon-induced GTP-binding protein Mx2





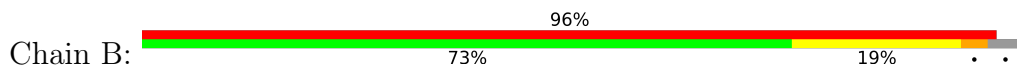


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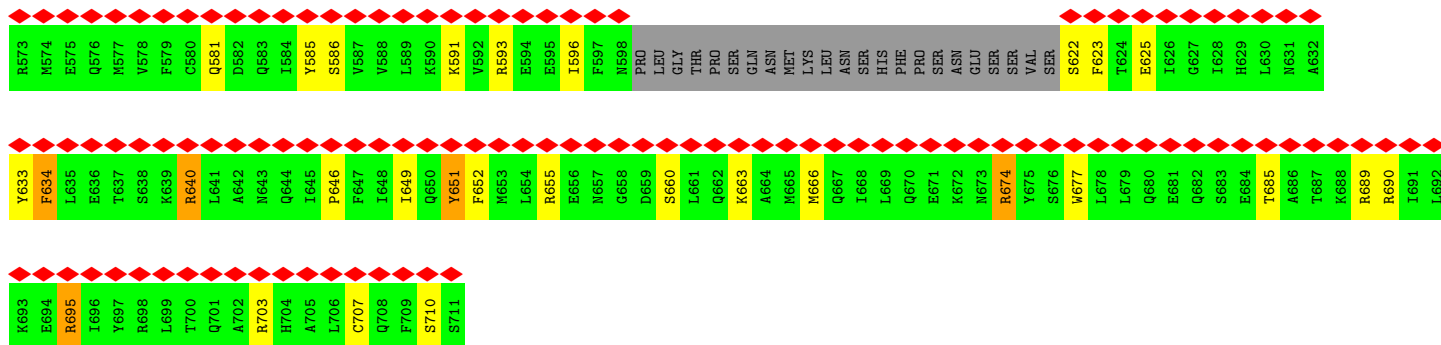


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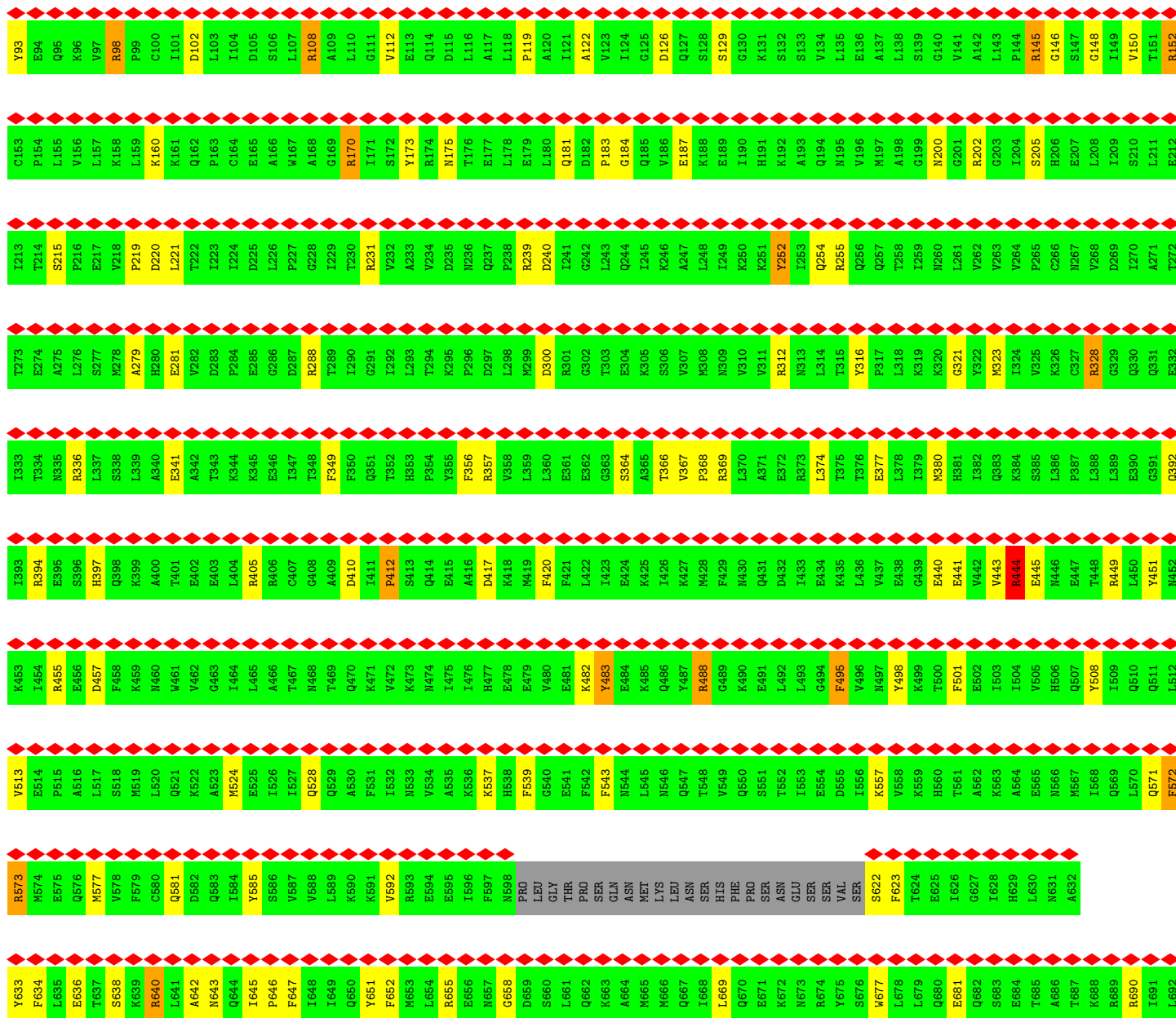
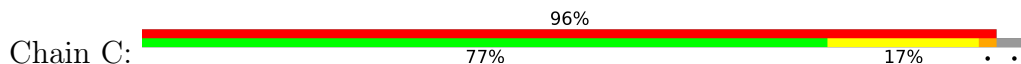
• Molecule 1: Interferon-induced GTP-binding protein Mx2

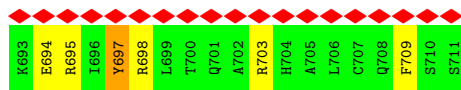


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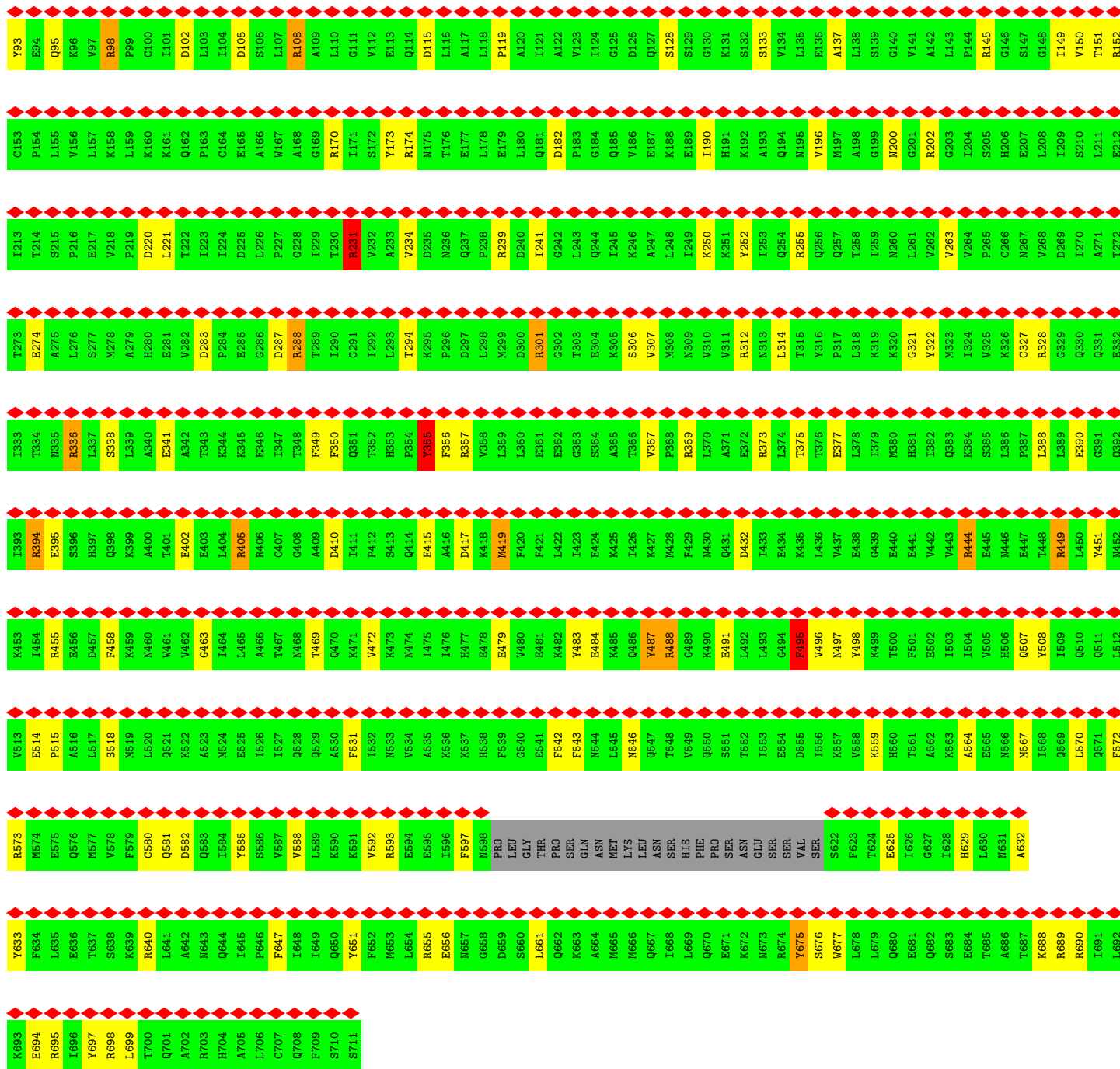


● Molecule 1: Interferon-induced GTP-binding protein Mx2





• Molecule 1: Interferon-induced GTP-binding protein Mx2



• Molecule 1: Interferon-induced GTP-binding protein Mx2



Y93	E94	Q95	K96	V97	R98	P99	C100	I101	D102	L103	I104	S105	D106	L107	R108	A109	L110	G111	V112	E113	Q114	D115	L116	A117	L118	P119	A120	I121	A122	V123	I124	G125	D126	Q127	S128	S129	G130	K131	S132	S133	V134	L135	E136	A137	L138	S139	G140	V141	A142	L143	P144	R145	G146	S147	G148	I149	V150	T151	R152	
C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	W167	A168	G169	R170	I171	S172	Y173	R174	M175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	Q186	E187	K188	E189	H190	H191	K192	A193	Q194	N195	V196	M197	L198	S199	N200	V141	R201	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212	
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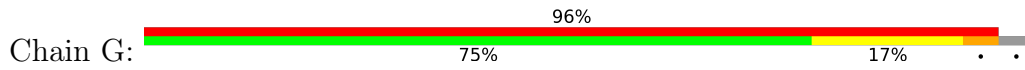
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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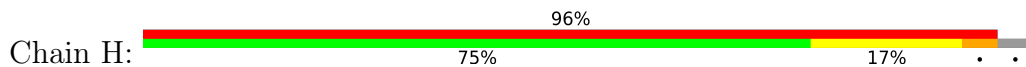
● Molecule 1: Interferon-induced GTP-binding protein Mx2



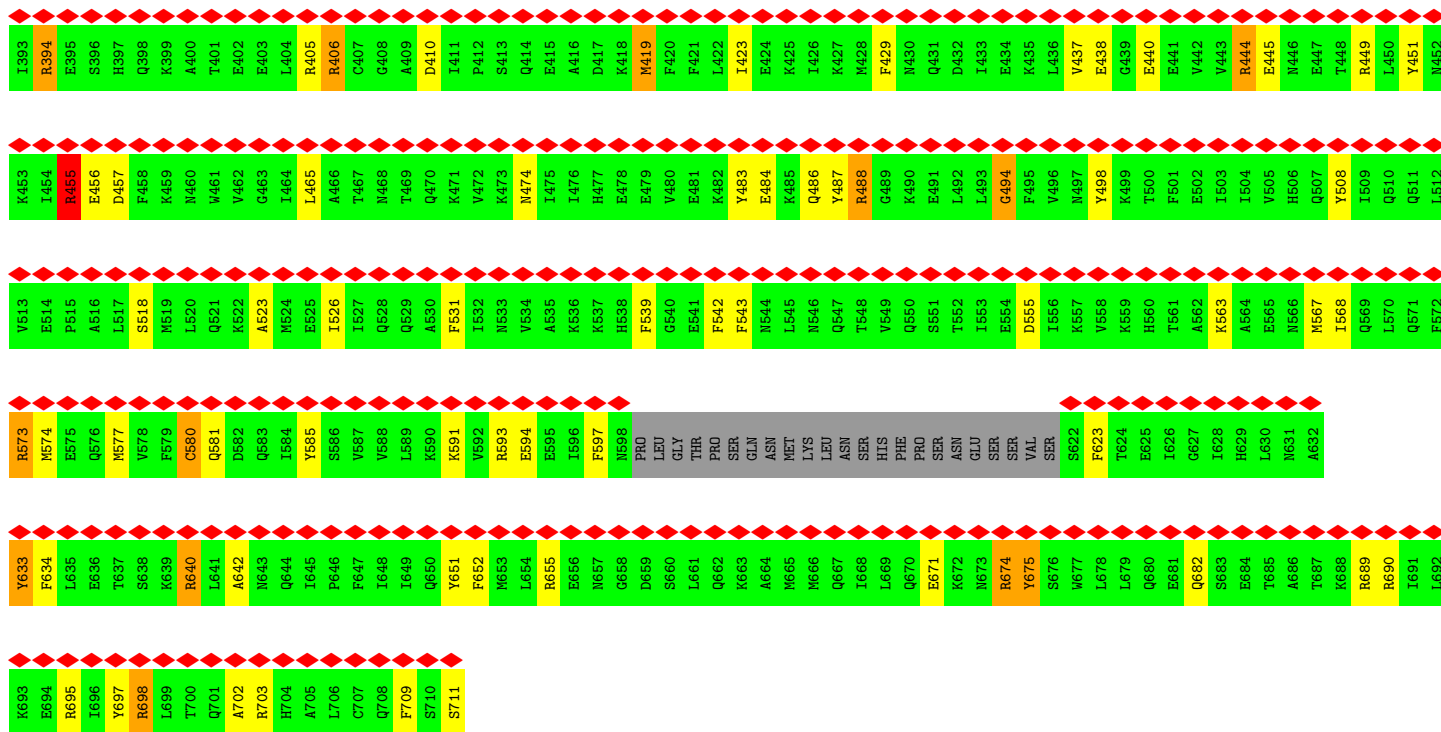
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C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	E165	A166	V167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212
I213	T214	S215	P216	E217	V218	P219	D220	L221	Q222	I223	I224	D225	E226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	L237	Q238	R239	D240	I241	G242	L243	Q244	K245	K246	A247	L248	I249	K250	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	V264	P265	C266	N267	V268	D269	S270	A271	T272	

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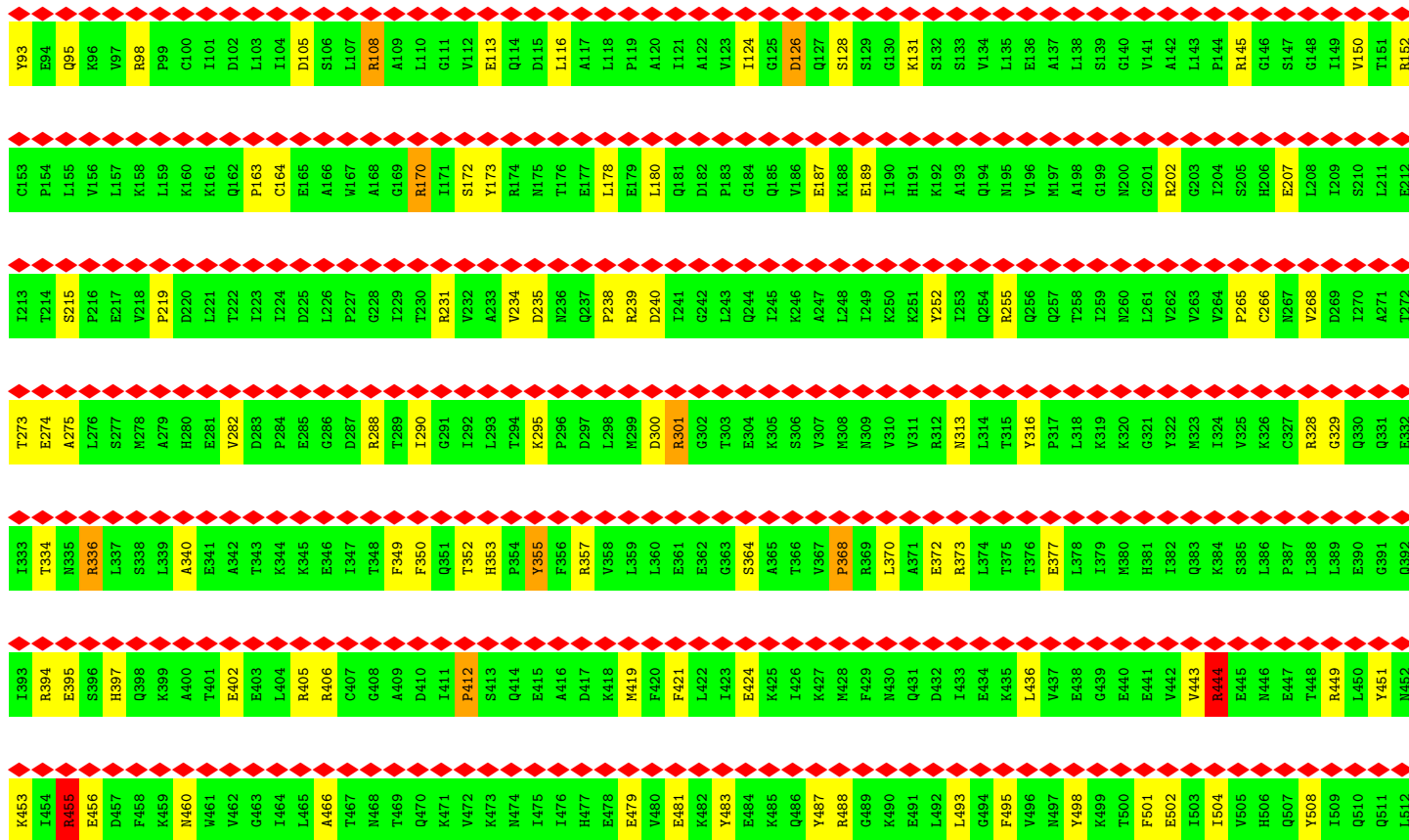
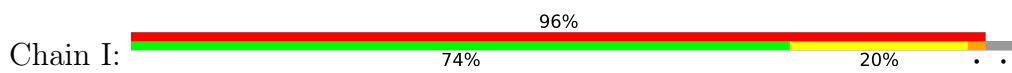
Molecule 1: Interferon-induced GTP-binding protein Mx2



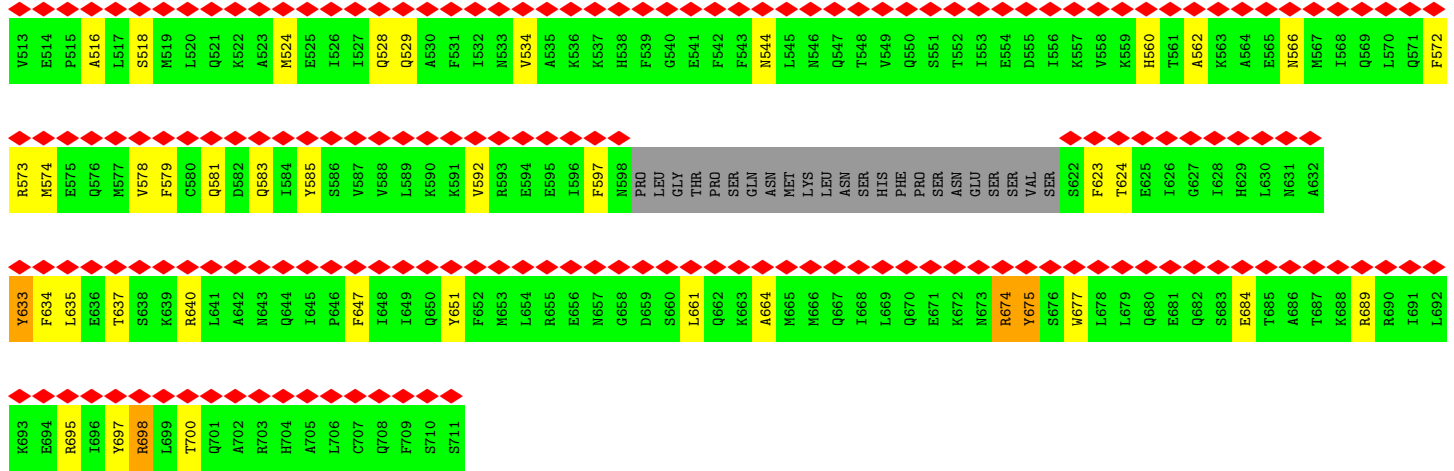
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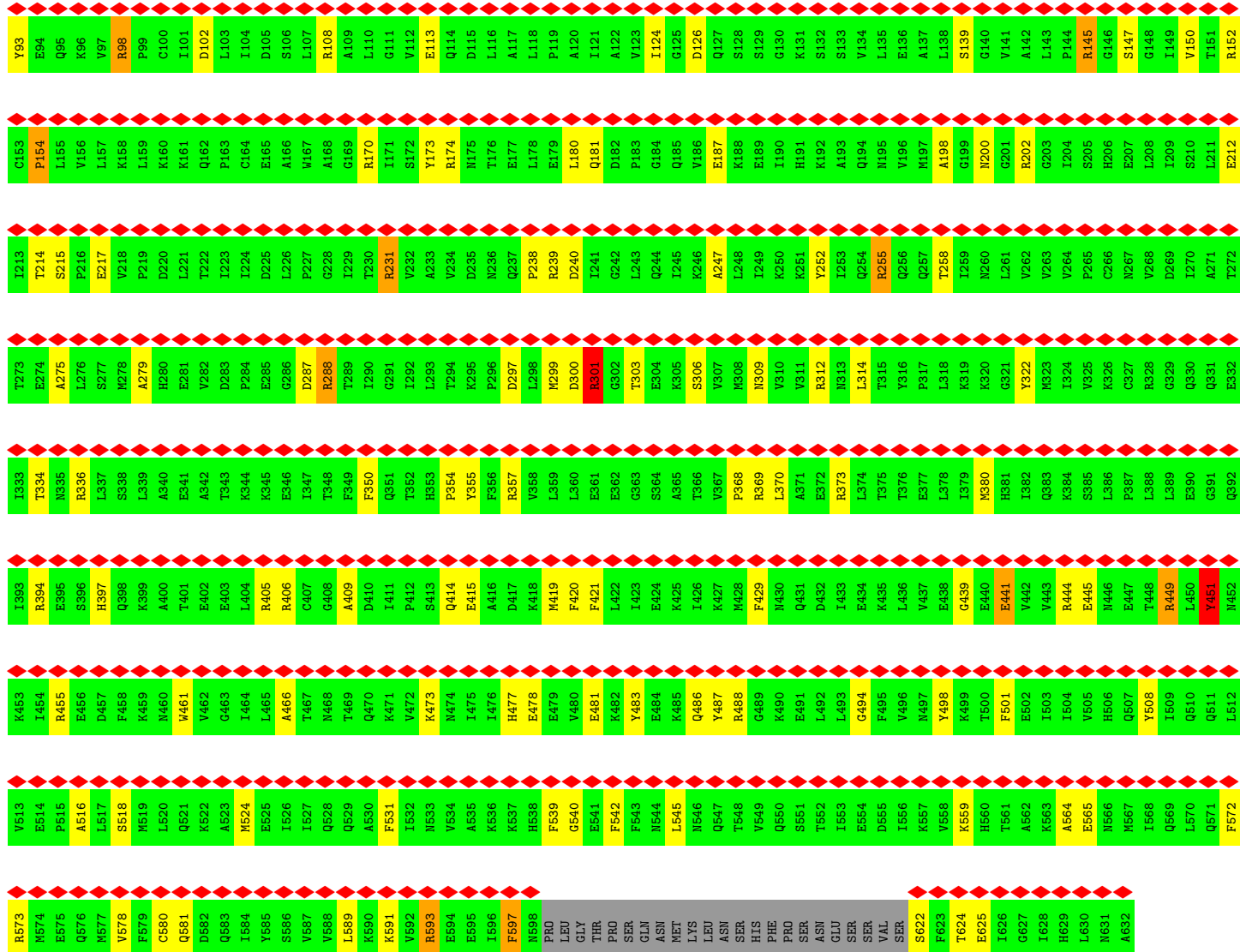
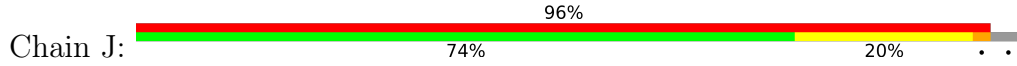
• Molecule 1: Interferon-induced GTP-binding protein Mx2

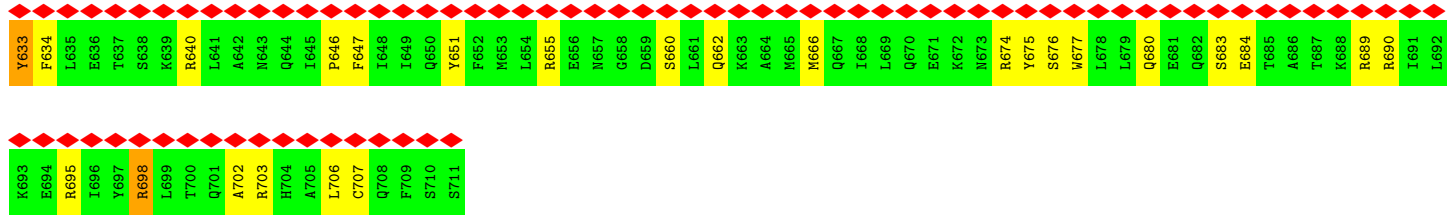




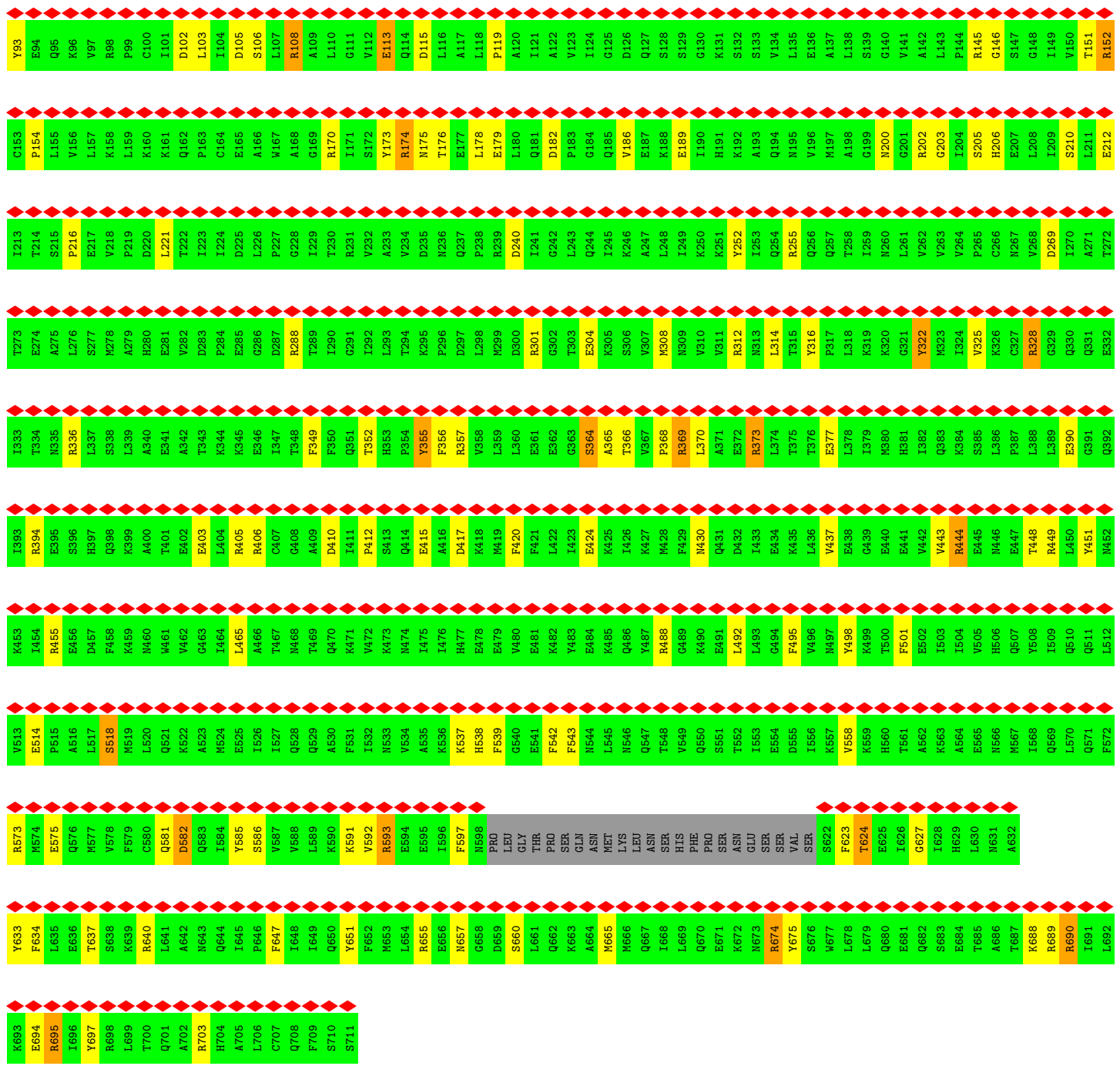


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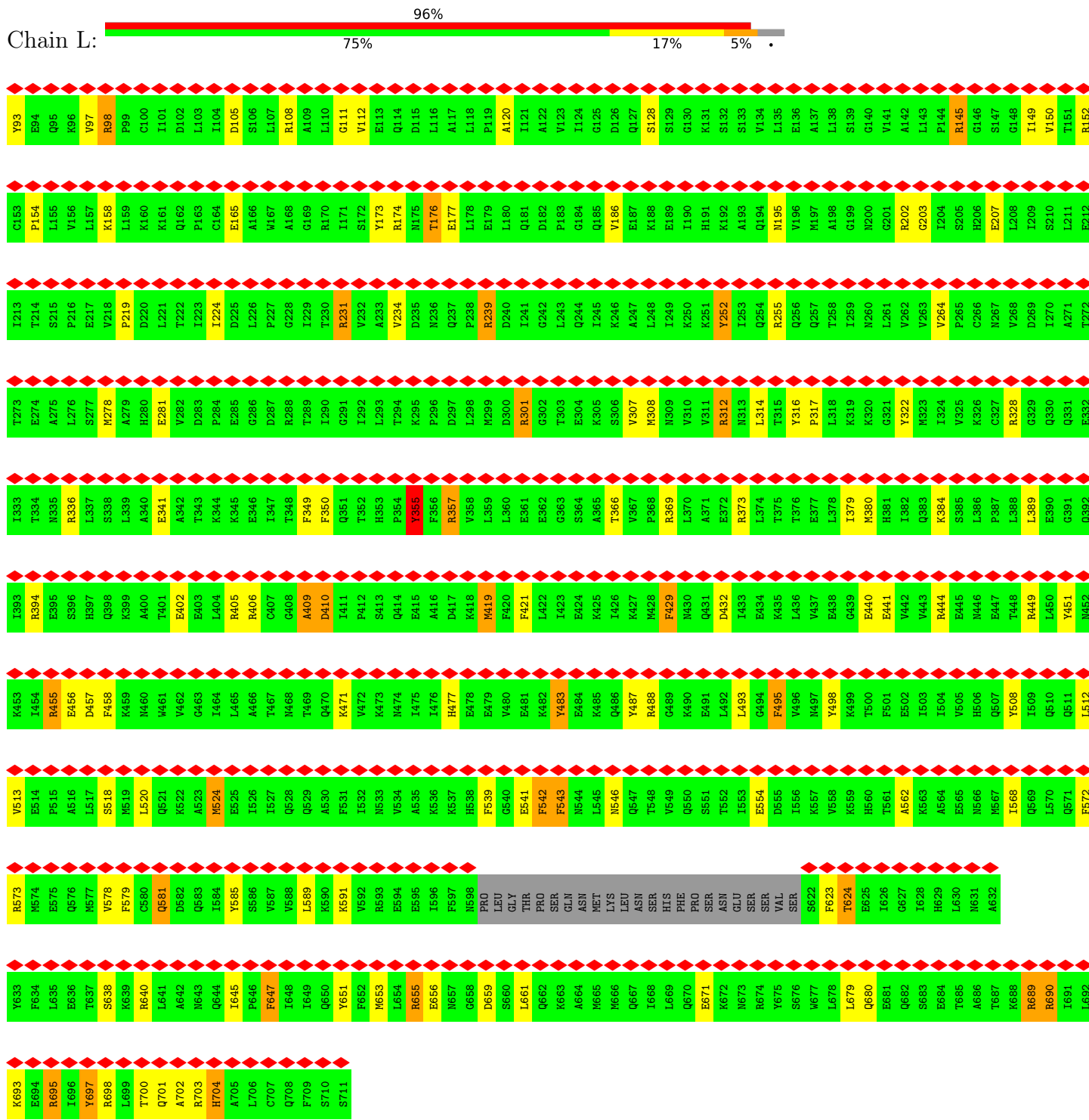




• Molecule 1: Interferon-induced GTP-binding protein Mx2



● Molecule 1: Interferon-induced GTP-binding protein Mx2

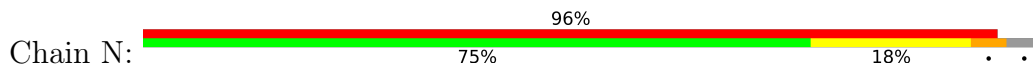


● Molecule 1: Interferon-induced GTP-binding protein Mx2



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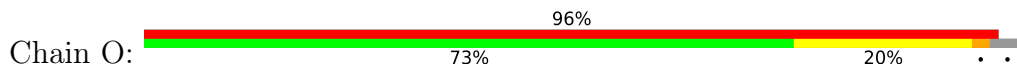
● Molecule 1: Interferon-induced GTP-binding protein Mx2



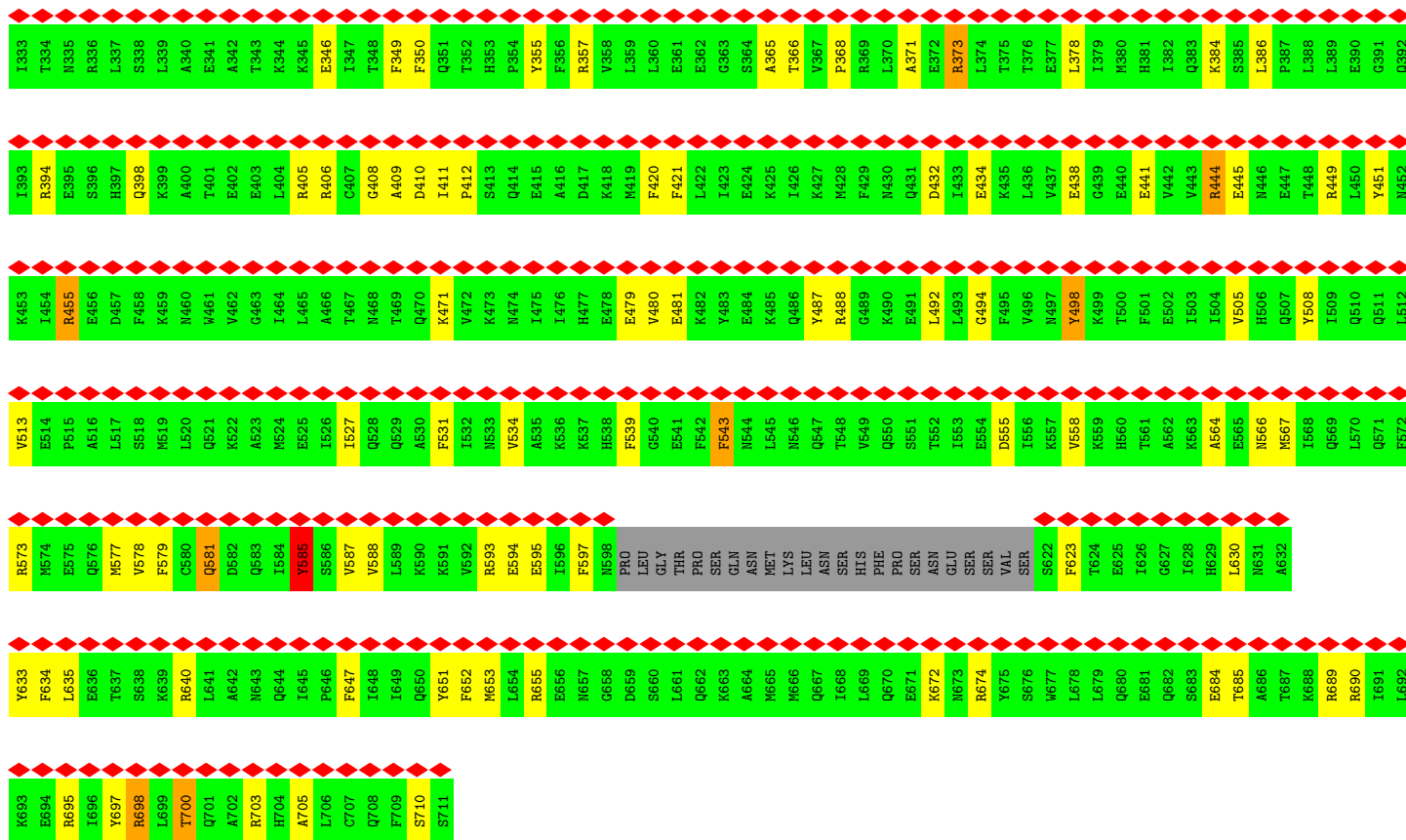
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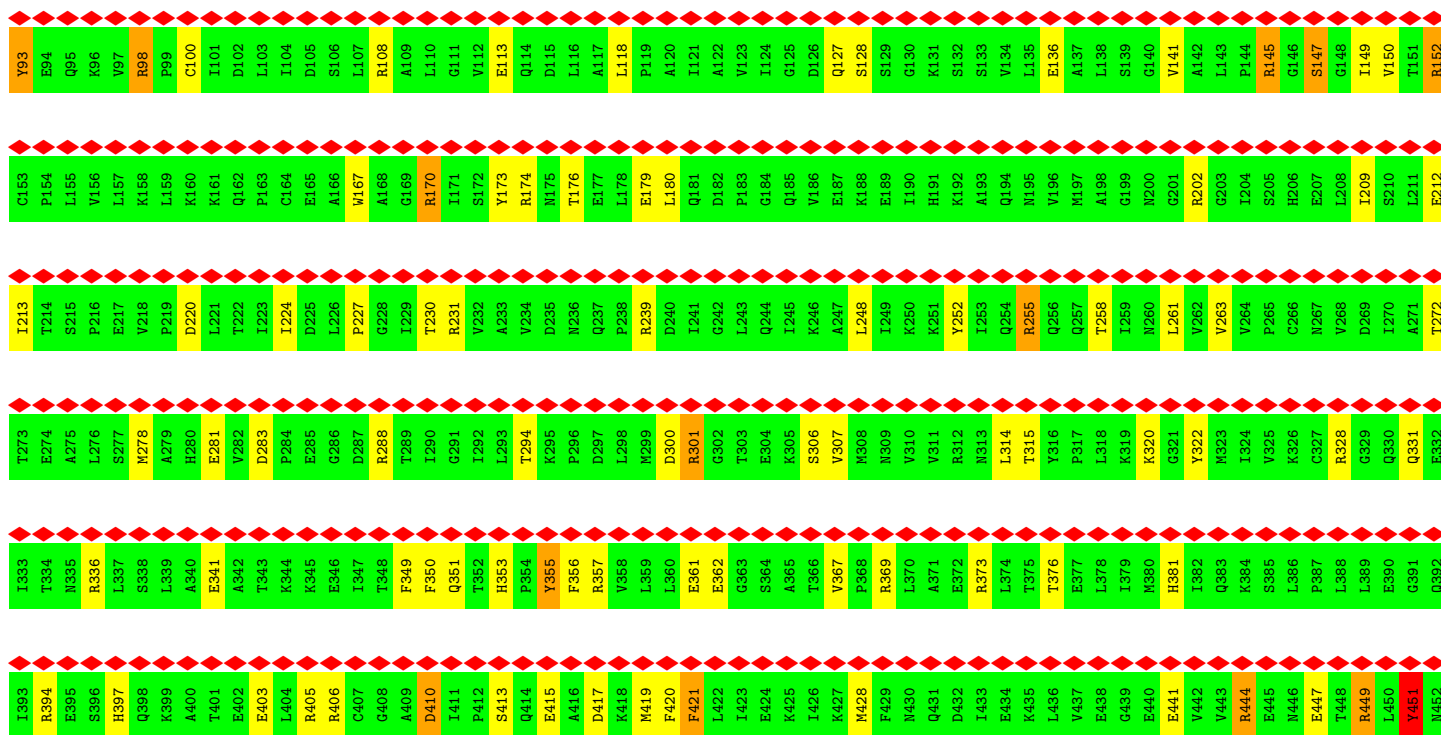
• Molecule 1: Interferon-induced GTP-binding protein Mx2



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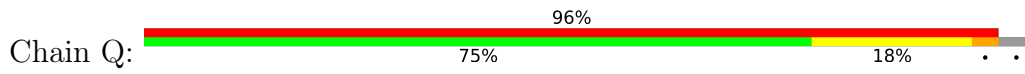


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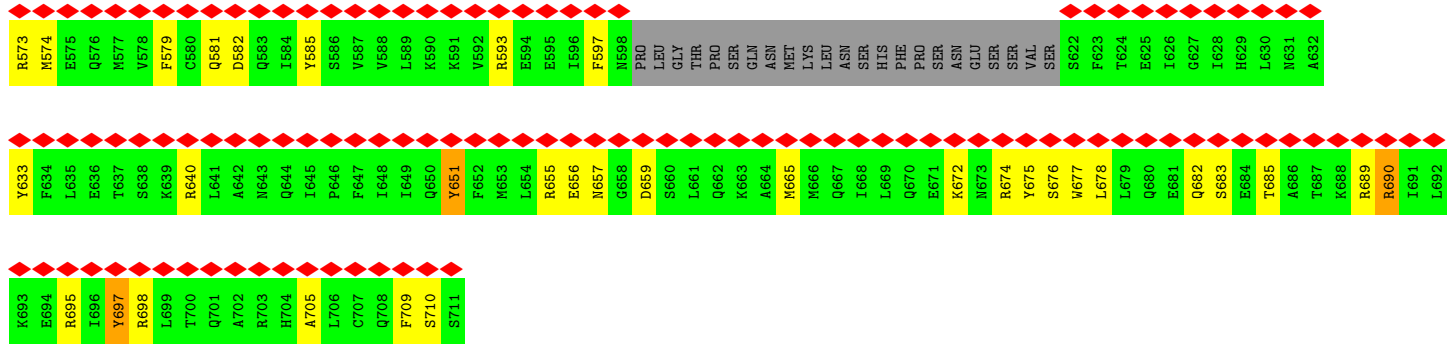


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V513	E514	P515	A516	L517	S518	M519	L520	Q521	K522	A523	M524	E525	I526	I527	Q528	Q529	A530	F531	I532	N533	V534	A535	K536	K537	H538	F539	G540	E541	F542	F543	N544	L545	L546	Q547	T548	V549	Q550	S551	T552	L553	E554	D555	I556	K557	V558	K559	H560	T561	A562	K563	A564	L565	E566	M567	I568	Q569	L570	Q571	F572																																																																															
R573	M574	E575	Q576	M577	V578	F579	C580	Q581	D582	Q583	I584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	I596	F597	N598	P599	L600	L601	T602	S603	S604	S605	S606	S607	S608	S609	S610	S611	S612	S613	S614	S615	S616	S617	S618	S619	S620	S621	S622	S623	S624	S625	S626	S627	S628	S629	S630	S631	S632	S633	S634	S635	S636	S637	S638	S639	S640	S641	S642	S643	S644	S645	S646	S647	S648	S649	S650	S651	S652	S653	S654	S655	S656	S657	S658	S659	S660	S661	S662	S663	S664	S665	S666	S667	S668	S669	S670	S671	S672	S673	S674	S675	S676	S677	S678	S679	S680	S681	S682	S683	S684	S685	S686	S687	S688	S689	S690	S691	S692	S693	S694	S695	S696	S697	S698	S699	S700	S701	S702	S703	S704	S705	S706	S707	S708	S709	S710	S711
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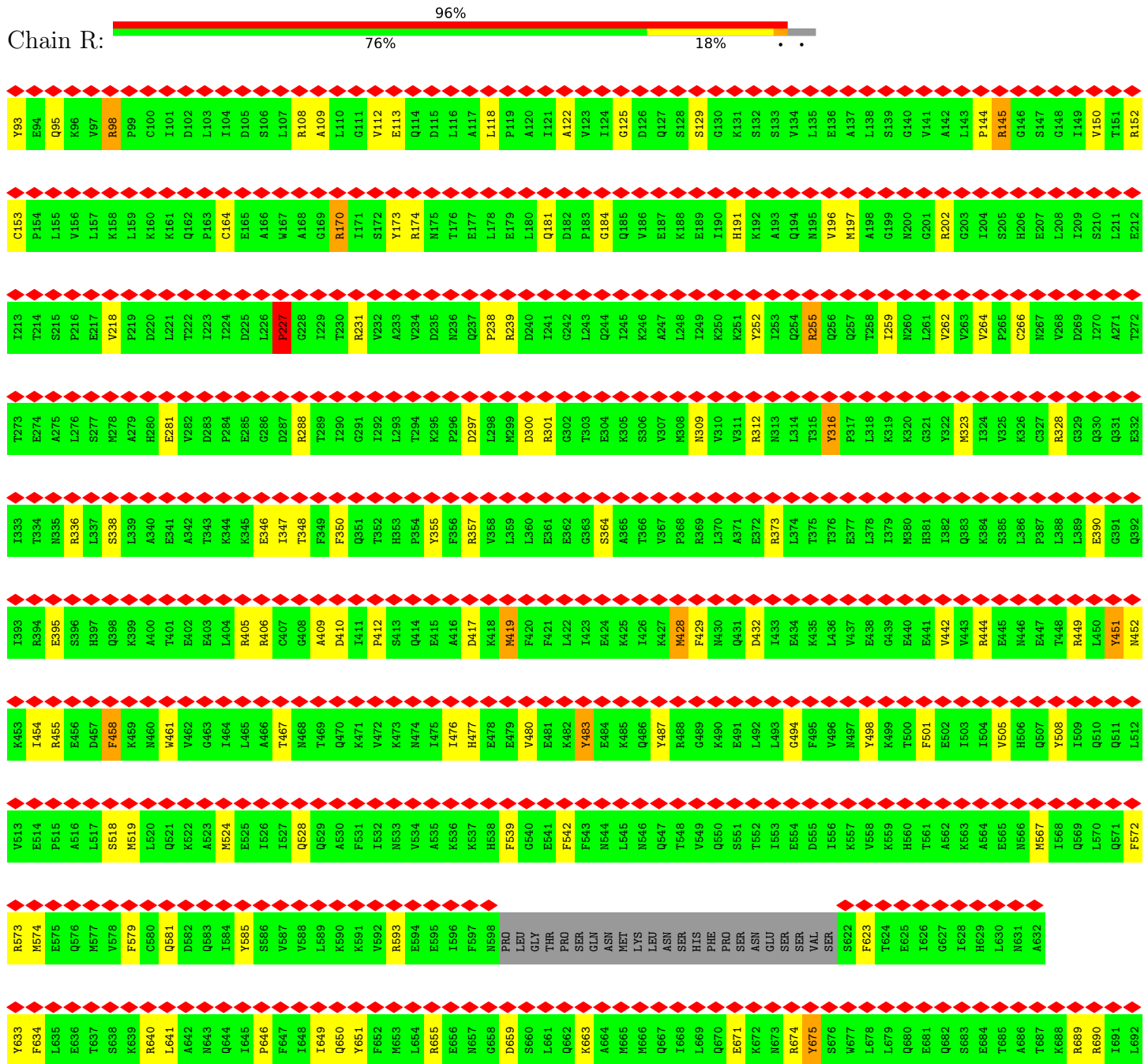
• Molecule 1: Interferon-induced GTP-binding protein Mx2



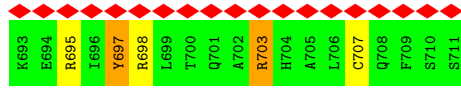
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C153	P154	L155	V156	L157	K158	L159	K160	K161	Q162	P163	C164	A165	I166	M167	A168	G169	R170	I171	S172	Y173	R174	N175	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	Q186	E187	K188	E189	S129	L190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	L204	P144	R145	G146	S147	G148	I149	V150	T151	R152
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	I224	D225	L226	P227	G228	I229	R230	R231	V232	A233	V234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	T246	A247	L248	N309	I249	K250	V311	R312	N313	L314	T315	Y316	P317	L318	I319	N260	G321	V262	V263	V264	P265	C266	N267	V268	D269	G329	Q330	Q331	T272
T273	E274	A275	L276	S277	M278	A279	H280	E281	V282	D283	P284	E285	D286	D287	R288	T289	I290	G291	I292	L293	T294	K295	P296	D297	L298	R299	D300	R301	G302	T303	E304	K305	A306	V307	M308	N309	V310	V311	R312	N313	L314	T315	Y316	P317	L318	I319	N260	G321	V262	V263	V264	P265	C266	N267	V268	D269	G329	Q330	Q331	E332	
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V513	E514	P515	A516	L517	S518	M519	L520	Q521	K522	A523	M524	E525	I526	I527	Q528	Q529	A530	F531	I532	N533	V534	A535	K536	K537	H538	F539	G540	E541	F542	F543	N544	L545	L546	Q547	T548	V549	Q550	S551	T552	L553	E554	D555	I556	K557	V558	K559	H560	T561	A562	K563	A564	L565	E566	M567	I568	Q569	L570	Q571	F572		



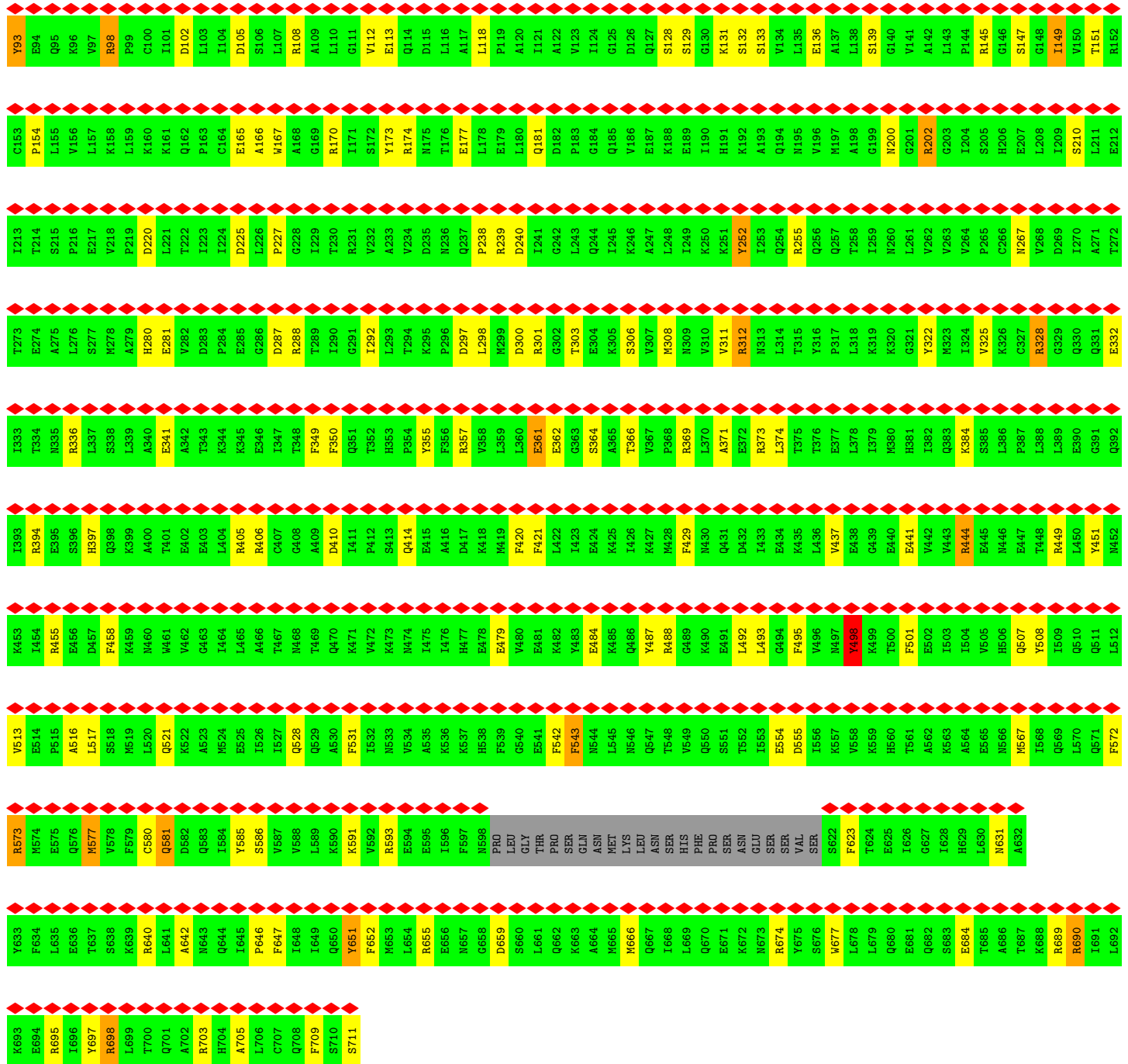
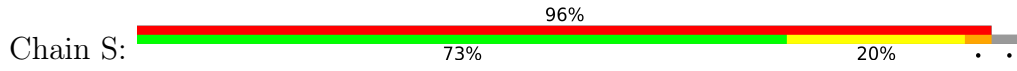
• Molecule 1: Interferon-induced GTP-binding protein Mx2







• Molecule 1: Interferon-induced GTP-binding protein Mx2



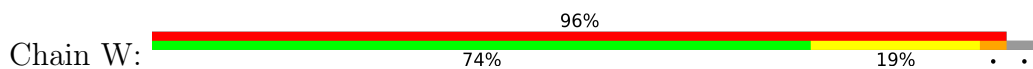
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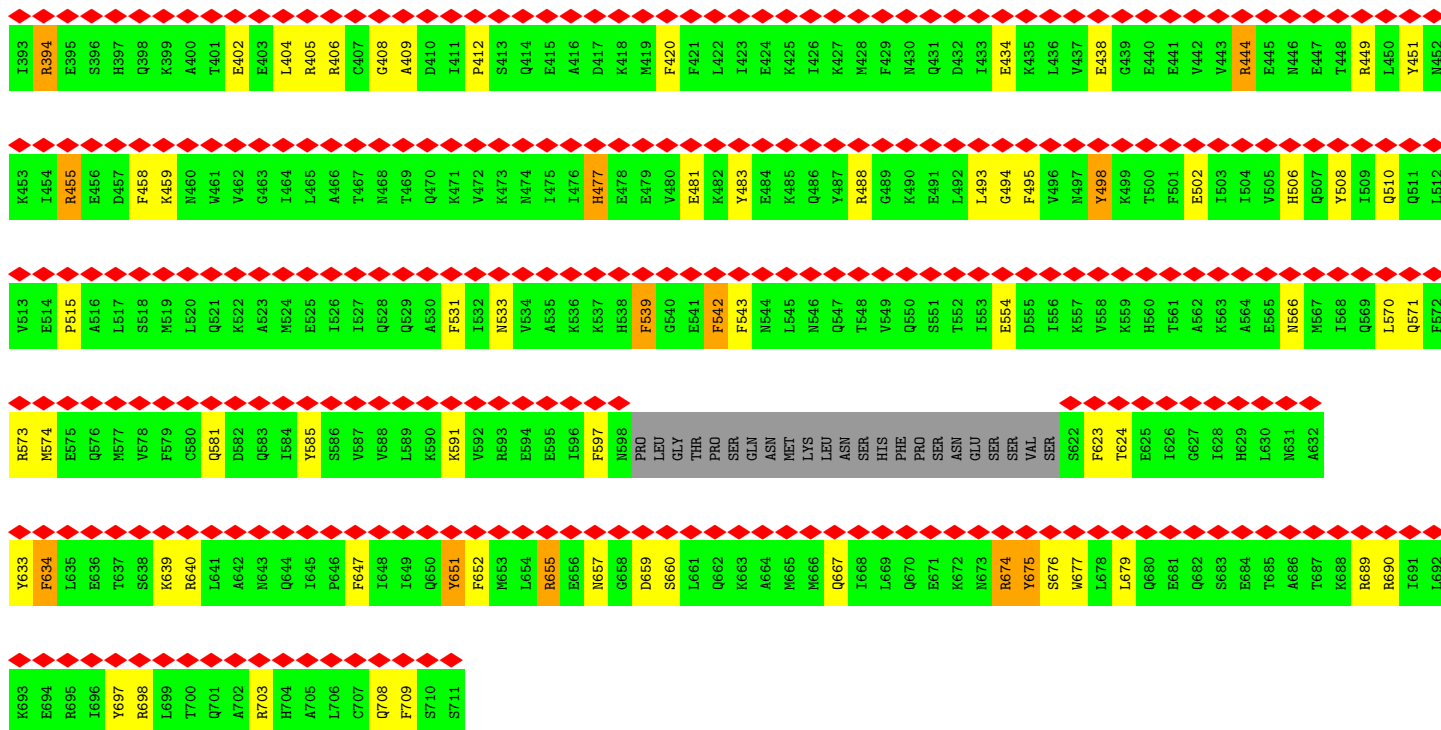


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I333	T334	M335	R336	L337	S338	L339	A340	E341	A342	T343	K344	K345	E346	I347	T348	F349	F350	Q351	T352	H353	P354	Y355	F356	R357	V358	L359	L360	E361	G362	G363	S364	A365	T366	V367	P368	R369	L370	A371	E372	R373	L374	T375	T376	E377	L378	I379	M380	H381	I382	Q383	K384	S385	N386	P387	L388	L389	Q390	G391	Q392				
I393	R394	E395	S396	H397	Q398	K399	A400	T401	E402	E403	L404	R405	R406	C407	G408	A409	D410	I411	P412	S413	Q414	E415	A416	D417	K418	M419	F420	F421	L422	I423	E424	K425	K426	K427	M428	F429	N430	Q431	D432	I433	I434	K435	L436	V437	E438	G439	E440	E441	V442	V443	E444	E445	N446	E447	T448	R449	Q450	Y451	N452				
K453	I454	R455	E456	D457	F458	K459	M460	M461	V462	G463	I464	L465	A466	T467	M468	T469	Q470	K471	V472	K473	M474	I475	I476	H477	E478	E479	V480	E481	F482	Y483	E484	K485	K486	Y487	R488	G489	K490	E491	L492	L493	G494	F495	V496	M497	Y498	K499	T500	F501	E502	I503	I504	E505	V506	Q507	Y508	I509	Q510	Q511	L512				
V513	E514	P515	A516	L517	S518	M519	L520	K521	E522	A523	M524	E525	I526	I527	Q528	Q529	A530	F531	I532	N533	V534	A535	K536	K537	H538	F539	G540	E541	PRO	PRO	PRO	GLN	ASN	MET	LYS	LEU	ASN	SER	HIS	V549	Q550	S551	T552	I553	E554	D555	I556	K557	V558	K559	H560	T561	A562	K563	A564	H565	N566	M567	I568	Q569	Q570	F571	F572
R573	M574	E575	Q576	M577	V578	F579	C580	Q581	D582	Q583	I584	Y585	S586	V587	V588	L589	K590	K591	V592	R593	E594	E595	I596	F597	PRO	LEU	GLY	THR	PRO	SER	GLN	ASN	MET	LYS	LEU	ASN	SER	HIS	PHE	PRO	SER	GLU	SER	VAL	S622	F623	T624	E625	I626	G627	I628	H629	L630	M631	A632								
Y633	F634	L635	E636	T637	S638	K639	R640	L641	A642	M643	Q644	I645	P646	F647	L648	I649	Q650	Y651	F652	M653	L654	R655	E656	M657	G658	D659	S660	L661	Q662	R663	A664	M665	Q667	L668	L669	Q670	E671	K672	M673	R674	Y675	S676	M677	L678	L679	Q680	E681	G682	S683	E684	T685	A686	T687	K688	R689	Q690	I691	L692					
K693	E694	R695	L696	Y697	R698	L699	T700	Q701	A702	R703	H704	A705	L706	C707	Q708	F709	S710	S711																																													

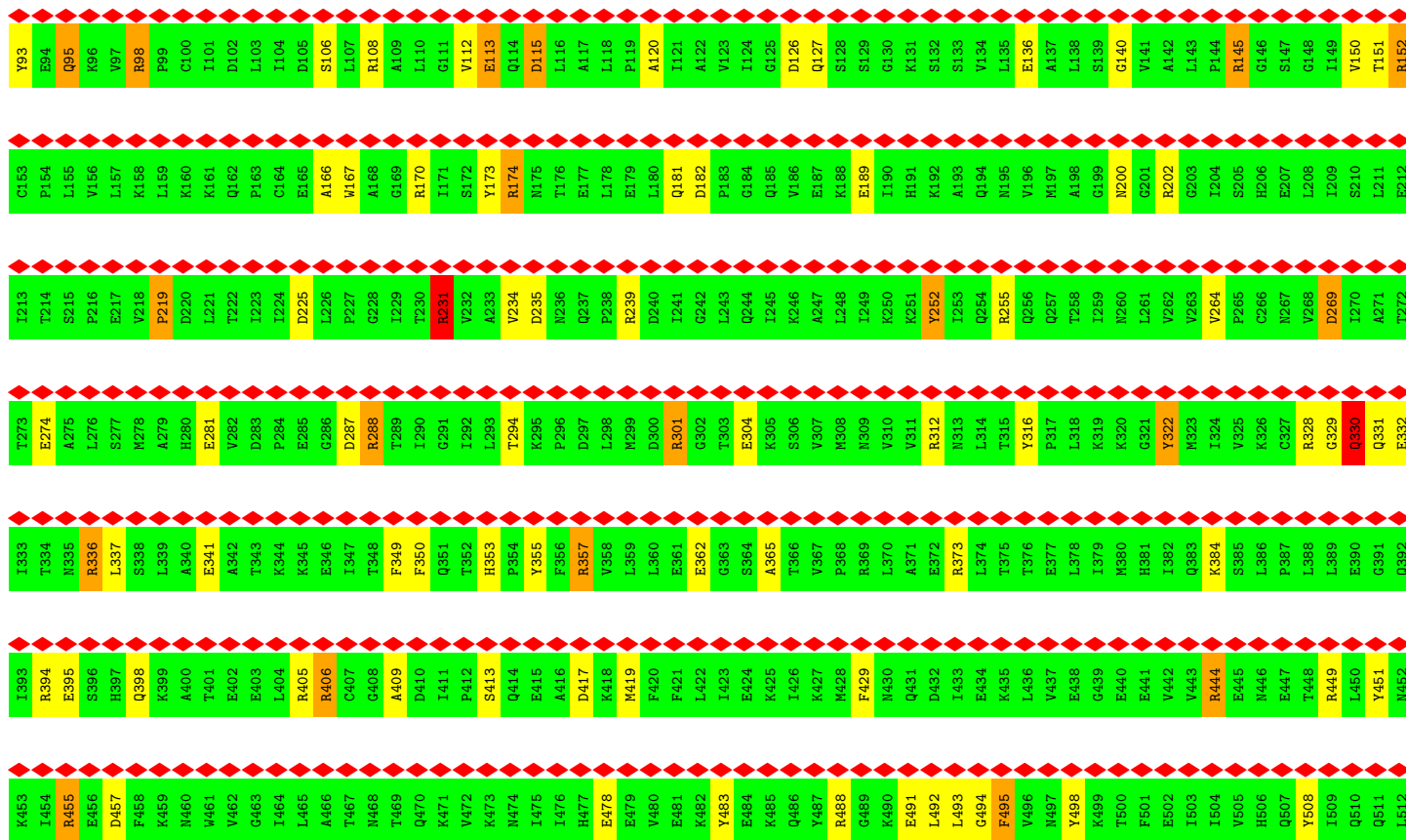
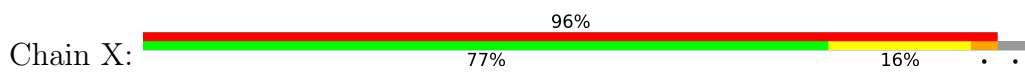
• Molecule 1: Interferon-induced GTP-binding protein Mx2

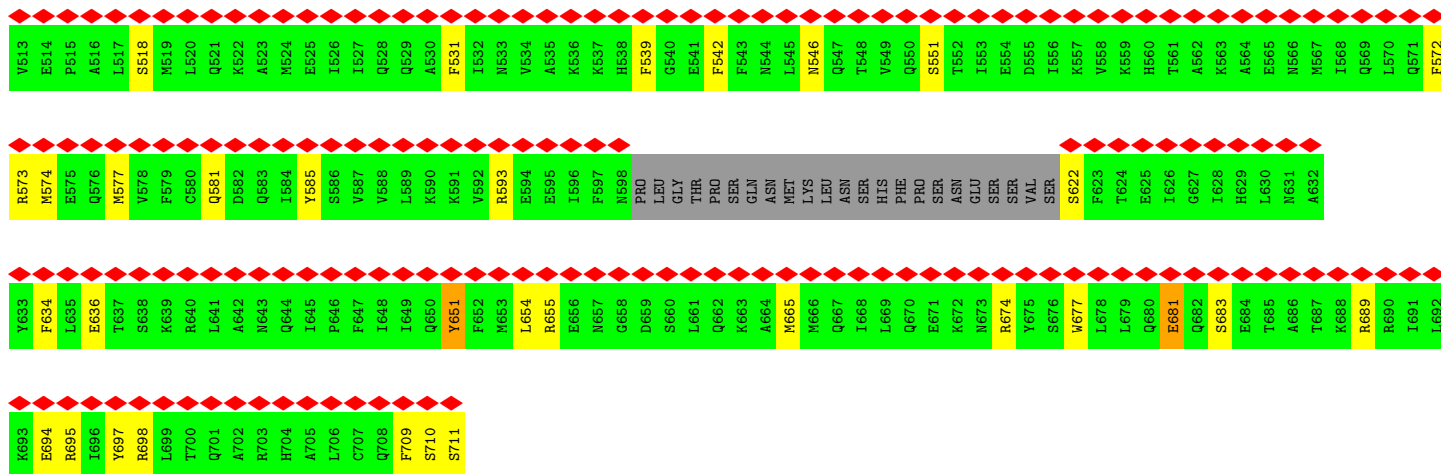


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C153	P154	L155	V156	K158	L159	K160	K161	Q162	P163	C164	E165	A166	V167	A168	G169	R170	I171	S172	Y173	R174	Q175	N176	T176	E177	L178	E179	L180	Q181	D182	P183	G184	Q185	V186	E187	K188	E189	I190	H191	K192	A193	Q194	N195	V196	M197	A198	G199	N200	G201	R202	G203	I204	S205	H206	E207	L208	I209	S210	L211	E212
I213	T214	S215	P216	E217	V218	P219	D220	L221	T222	I223	L224	D225	L226	P227	G228	I229	T230	R231	V232	A233	V234	D235	N236	Q237	P238	R239	D240	I241	G242	L243	Q244	I245	K246	A247	L248	I249	K250	H251	Y252	I253	Q254	R255	Q256	Q257	T258	I259	N260	L261	V262	V263	V264	P265	C266	N267	V268	D269	I270	A271	T272
T273	E274	A275	L276	S277	M278	A279	H280	E281	V282	D283	P284	E285	G286	D287	R288	T289	I290	G291	I292	L293	T294	K295	P296	D297	L298	M299	D300	R301	G302	T303	E304	K305	S306	V307	M308	N309	V310	V311	R312	M313	L314	T315	Y316	P317	L318	K319	G320	G321	M322	M323	I324	V325	K326	C327	R328	G329	Q330	Q331	E332
I333	T334	M335	R336	L337	S338	L339	A340	E341	A342	T343	K344	K345	E346	I347	T348	F349	F350	Q351	T352	H353	P354	Y355	F356	R357	V358	L360	E361	G362	G363	S364	A365	T366	V367	P368	R369	L370	A371	E372	R373	L374	T375	T376	E377	L378	I379	M380	H381	I382	Q383	K384	S385	N386	P387	L388	L389	Q390	G391	Q392	

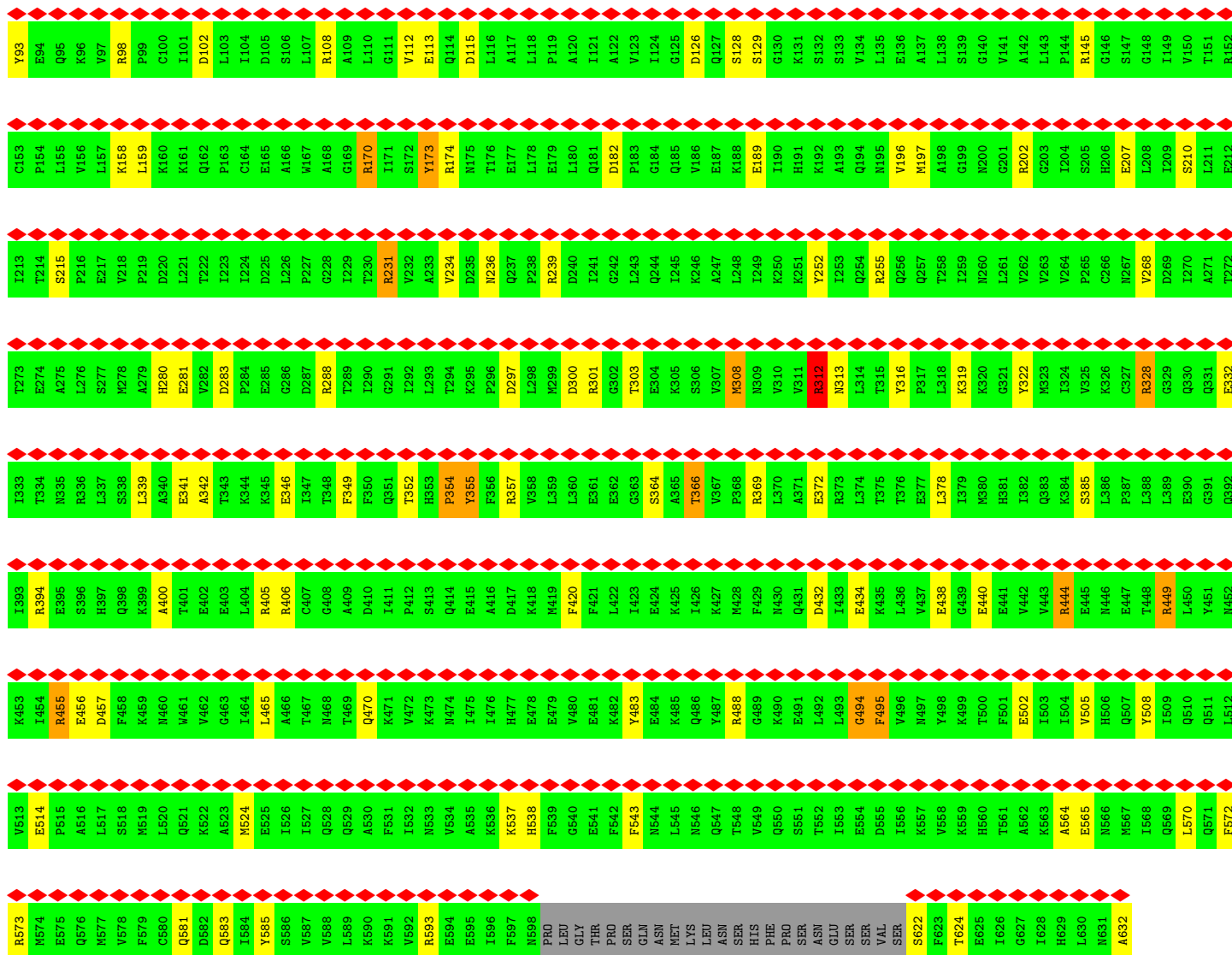
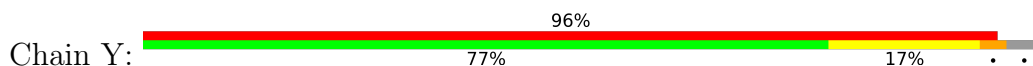


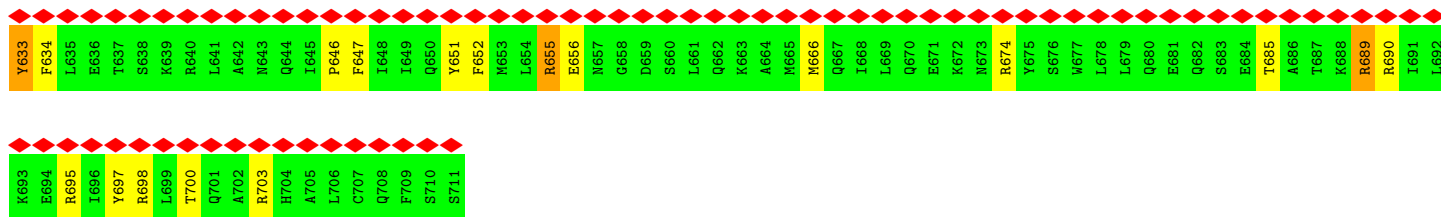
● Molecule 1: Interferon-induced GTP-binding protein Mx2



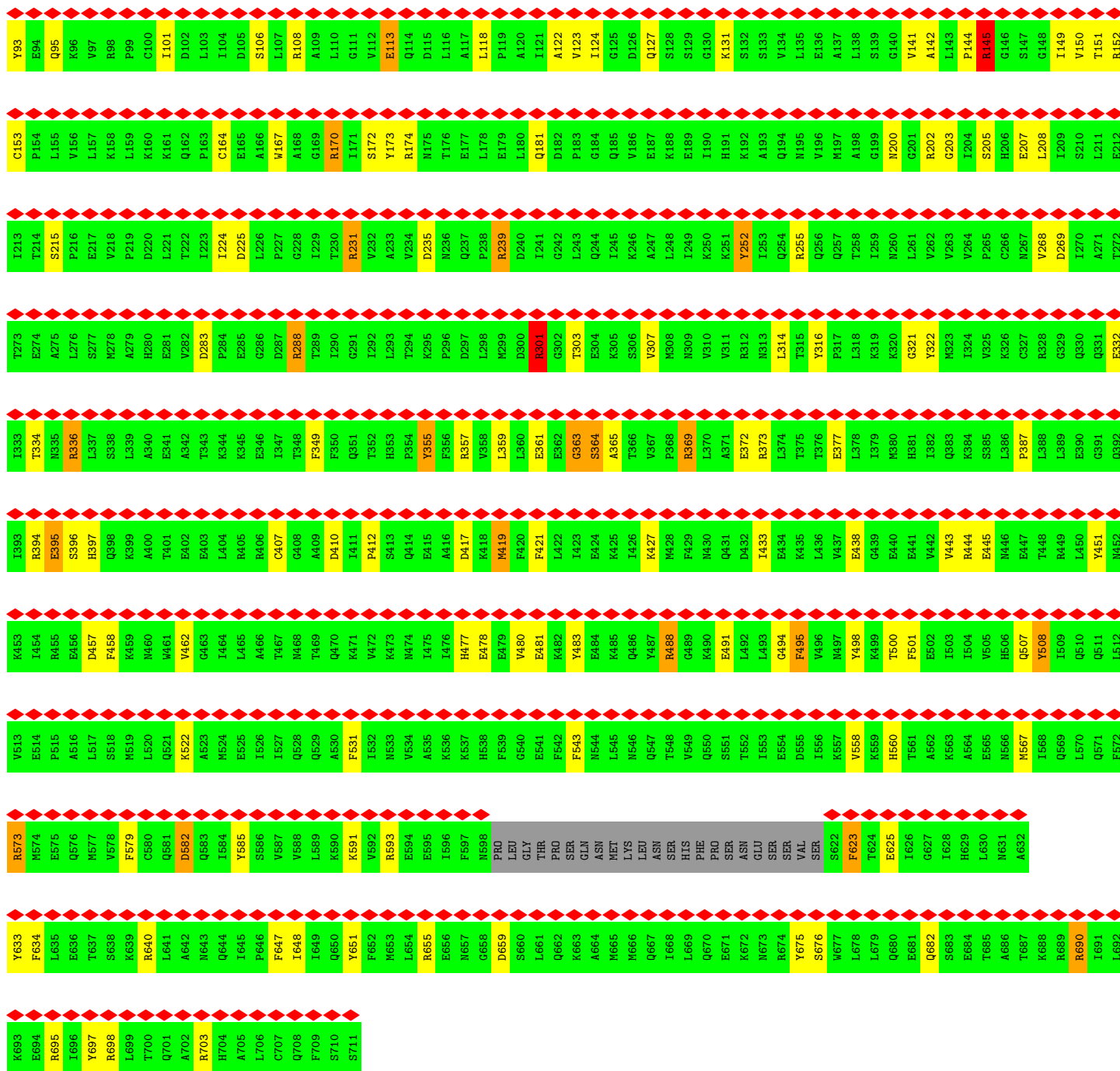
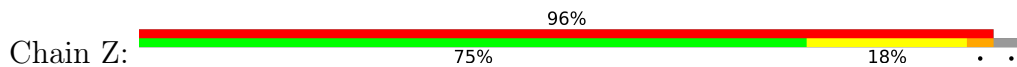


• Molecule 1: Interferon-induced GTP-binding protein Mx2





• Molecule 1: Interferon-induced GTP-binding protein Mx2



## 4 Experimental information

Property	Value	Source
EM reconstruction method	HELICAL	Depositor
Imposed symmetry	HELICAL, twist=58.4°, rise=8.25 Å, axial sym=C1	Depositor
Number of segments used	44955	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{Å}^2$ )	40	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	93000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.199	Depositor
Minimum map value	-0.091	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.011	Depositor
Recommended contour level	4.5	Depositor
Map size (Å)	516.14996, 516.14996, 516.14996	wwPDB
Map dimensions	450, 450, 450	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.147, 1.147, 1.147	Depositor



## 5 Model quality i

### 5.1 Standard geometry i

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	1.63	27/4880 (0.6%)	2.08	146/6573 (2.2%)
1	1	1.64	35/4880 (0.7%)	2.11	136/6573 (2.1%)
1	2	1.67	36/4880 (0.7%)	2.00	111/6573 (1.7%)
1	3	1.63	33/4880 (0.7%)	2.04	116/6573 (1.8%)
1	4	1.62	32/4880 (0.7%)	2.10	137/6573 (2.1%)
1	5	1.62	29/4880 (0.6%)	2.02	126/6573 (1.9%)
1	6	1.67	40/4880 (0.8%)	2.11	130/6573 (2.0%)
1	7	1.65	35/4880 (0.7%)	2.02	128/6573 (1.9%)
1	8	1.65	28/4880 (0.6%)	2.07	142/6573 (2.2%)
1	9	1.66	28/4880 (0.6%)	2.04	146/6573 (2.2%)
1	A	1.62	32/4880 (0.7%)	2.12	161/6573 (2.4%)
1	B	1.63	33/4880 (0.7%)	2.12	136/6573 (2.1%)
1	C	1.65	30/4880 (0.6%)	2.05	110/6573 (1.7%)
1	D	1.67	33/4880 (0.7%)	2.01	122/6573 (1.9%)
1	E	1.64	35/4880 (0.7%)	2.02	117/6573 (1.8%)
1	F	1.60	34/4880 (0.7%)	2.06	114/6573 (1.7%)
1	G	1.63	25/4880 (0.5%)	2.10	134/6573 (2.0%)
1	H	1.63	24/4880 (0.5%)	2.12	146/6573 (2.2%)
1	I	1.65	42/4880 (0.9%)	2.04	125/6573 (1.9%)
1	J	1.66	36/4880 (0.7%)	2.08	120/6573 (1.8%)
1	K	1.67	35/4880 (0.7%)	1.97	99/6573 (1.5%)
1	L	1.65	24/4880 (0.5%)	2.04	130/6573 (2.0%)
1	M	1.63	28/4880 (0.6%)	2.00	118/6573 (1.8%)
1	N	1.65	37/4880 (0.8%)	2.01	122/6573 (1.9%)
1	O	1.67	28/4880 (0.6%)	2.06	150/6573 (2.3%)
1	P	1.67	37/4880 (0.8%)	2.16	147/6573 (2.2%)
1	Q	1.66	30/4880 (0.6%)	2.08	138/6573 (2.1%)
1	R	1.63	21/4880 (0.4%)	2.08	135/6573 (2.1%)
1	S	1.66	36/4880 (0.7%)	2.03	135/6573 (2.1%)
1	T	1.64	27/4880 (0.6%)	2.06	134/6573 (2.0%)
1	U	1.66	40/4880 (0.8%)	2.01	134/6573 (2.0%)
1	V	1.64	33/4880 (0.7%)	2.08	142/6573 (2.2%)
1	W	1.65	34/4880 (0.7%)	2.01	129/6573 (2.0%)
1	X	1.62	25/4880 (0.5%)	1.97	108/6573 (1.6%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	Y	1.64	30/4880 (0.6%)	2.01	112/6573 (1.7%)
1	Z	1.64	33/4880 (0.7%)	2.03	122/6573 (1.9%)
1	a	1.65	22/4880 (0.5%)	2.09	127/6573 (1.9%)
1	b	1.60	30/4880 (0.6%)	2.01	113/6573 (1.7%)
1	c	1.60	21/4880 (0.4%)	2.08	143/6573 (2.2%)
1	d	1.64	29/4880 (0.6%)	2.07	133/6573 (2.0%)
1	e	1.65	31/4880 (0.6%)	2.01	136/6573 (2.1%)
1	f	1.62	31/4880 (0.6%)	2.08	143/6573 (2.2%)
1	g	1.65	30/4880 (0.6%)	2.12	142/6573 (2.2%)
1	h	1.62	35/4880 (0.7%)	2.05	129/6573 (2.0%)
1	i	1.64	34/4880 (0.7%)	2.07	131/6573 (2.0%)
1	j	1.65	32/4880 (0.7%)	2.04	120/6573 (1.8%)
1	k	1.63	27/4880 (0.6%)	1.99	109/6573 (1.7%)
1	l	1.65	36/4880 (0.7%)	2.07	141/6573 (2.1%)
1	m	1.67	41/4880 (0.8%)	2.07	133/6573 (2.0%)
1	n	1.65	43/4880 (0.9%)	2.03	129/6573 (2.0%)
1	o	1.64	33/4880 (0.7%)	2.05	125/6573 (1.9%)
1	p	1.66	27/4880 (0.6%)	2.07	140/6573 (2.1%)
1	q	1.64	29/4880 (0.6%)	2.11	129/6573 (2.0%)
1	r	1.62	33/4880 (0.7%)	2.07	139/6573 (2.1%)
1	s	1.65	26/4880 (0.5%)	2.04	122/6573 (1.9%)
1	t	1.64	27/4880 (0.6%)	2.14	160/6573 (2.4%)
1	u	1.63	33/4880 (0.7%)	2.11	123/6573 (1.9%)
1	v	1.63	27/4880 (0.6%)	2.09	152/6573 (2.3%)
1	w	1.63	29/4880 (0.6%)	2.07	131/6573 (2.0%)
1	x	1.66	37/4880 (0.8%)	2.05	116/6573 (1.8%)
1	y	1.61	26/4880 (0.5%)	2.09	127/6573 (1.9%)
1	z	1.63	25/4880 (0.5%)	2.05	132/6573 (2.0%)
All	All	1.64	1939/302560 (0.6%)	2.06	8083/407526 (2.0%)

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	9
1	1	0	10
1	2	0	22
1	3	0	22
1	4	0	14
1	5	0	17

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	6	0	11
1	7	0	15
1	8	0	17
1	9	0	19
1	A	0	23
1	B	0	17
1	C	0	17
1	D	0	17
1	E	0	18
1	F	0	27
1	G	0	19
1	H	0	20
1	I	0	18
1	J	0	15
1	K	0	18
1	L	0	23
1	M	0	13
1	N	0	21
1	O	0	16
1	P	0	19
1	Q	0	19
1	R	0	13
1	S	0	16
1	T	0	16
1	U	0	17
1	V	0	20
1	W	0	17
1	X	0	20
1	Y	0	12
1	Z	0	19
1	a	0	14
1	b	0	19
1	c	0	16
1	d	0	21
1	e	0	18
1	f	0	18
1	g	0	14
1	h	0	17
1	i	0	15
1	j	0	27
1	k	0	16
1	l	0	18

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Mol	Chain	#Chirality outliers	#Planarity outliers
1	m	0	17
1	n	0	16
1	o	0	14
1	p	0	17
1	q	0	20
1	r	0	17
1	s	0	20
1	t	0	17
1	u	0	16
1	v	0	21
1	w	0	12
1	x	0	25
1	y	0	18
1	z	0	22
All	All	0	1091

The worst 5 of 1939 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	X	113	GLU	CD-OE1	11.22	1.38	1.25
1	m	93	TYR	CE2-CZ	10.00	1.51	1.38
1	j	316	TYR	CG-CD2	9.73	1.51	1.39
1	L	483	TYR	CB-CG	9.68	1.66	1.51
1	J	518	SER	CA-CB	9.53	1.67	1.52

The worst 5 of 8083 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	6	593	ARG	NE-CZ-NH1	29.87	135.23	120.30
1	B	145	ARG	NE-CZ-NH1	29.79	135.19	120.30
1	o	488	ARG	NE-CZ-NH2	-28.44	106.08	120.30
1	h	449	ARG	NE-CZ-NH1	27.17	133.89	120.30
1	P	357	ARG	NE-CZ-NH2	-26.62	106.99	120.30

There are no chirality outliers.

5 of 1091 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	170	ARG	Sidechain
1	0	239	ARG	Sidechain
1	0	255	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	0	369	ARG	Sidechain
1	0	98	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	592/619 (96%)	556 (94%)	30 (5%)	6 (1%)	15	54
1	1	592/619 (96%)	556 (94%)	27 (5%)	9 (2%)	10	46
1	2	592/619 (96%)	555 (94%)	33 (6%)	4 (1%)	22	62
1	3	592/619 (96%)	561 (95%)	27 (5%)	4 (1%)	22	62
1	4	592/619 (96%)	554 (94%)	27 (5%)	11 (2%)	8	40
1	5	592/619 (96%)	541 (91%)	38 (6%)	13 (2%)	6	37
1	6	592/619 (96%)	550 (93%)	34 (6%)	8 (1%)	11	47
1	7	592/619 (96%)	550 (93%)	34 (6%)	8 (1%)	11	47
1	8	592/619 (96%)	554 (94%)	31 (5%)	7 (1%)	13	50
1	9	592/619 (96%)	550 (93%)	36 (6%)	6 (1%)	15	54
1	A	592/619 (96%)	547 (92%)	33 (6%)	12 (2%)	7	40
1	B	592/619 (96%)	553 (93%)	31 (5%)	8 (1%)	11	47
1	C	592/619 (96%)	546 (92%)	36 (6%)	10 (2%)	9	43
1	D	592/619 (96%)	542 (92%)	40 (7%)	10 (2%)	9	43
1	E	592/619 (96%)	555 (94%)	29 (5%)	8 (1%)	11	47
1	F	592/619 (96%)	551 (93%)	29 (5%)	12 (2%)	7	40
1	G	592/619 (96%)	551 (93%)	31 (5%)	10 (2%)	9	43

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	H	592/619 (96%)	551 (93%)	32 (5%)	9 (2%)	10	46
1	I	592/619 (96%)	546 (92%)	37 (6%)	9 (2%)	10	46
1	J	592/619 (96%)	549 (93%)	33 (6%)	10 (2%)	9	43
1	K	592/619 (96%)	549 (93%)	30 (5%)	13 (2%)	6	37
1	L	592/619 (96%)	547 (92%)	33 (6%)	12 (2%)	7	40
1	M	592/619 (96%)	553 (93%)	34 (6%)	5 (1%)	19	60
1	N	592/619 (96%)	552 (93%)	33 (6%)	7 (1%)	13	50
1	O	592/619 (96%)	551 (93%)	35 (6%)	6 (1%)	15	54
1	P	592/619 (96%)	552 (93%)	31 (5%)	9 (2%)	10	46
1	Q	592/619 (96%)	547 (92%)	38 (6%)	7 (1%)	13	50
1	R	592/619 (96%)	552 (93%)	35 (6%)	5 (1%)	19	60
1	S	592/619 (96%)	545 (92%)	36 (6%)	11 (2%)	8	40
1	T	592/619 (96%)	549 (93%)	36 (6%)	7 (1%)	13	50
1	U	592/619 (96%)	547 (92%)	35 (6%)	10 (2%)	9	43
1	V	592/619 (96%)	550 (93%)	36 (6%)	6 (1%)	15	54
1	W	592/619 (96%)	556 (94%)	30 (5%)	6 (1%)	15	54
1	X	592/619 (96%)	550 (93%)	30 (5%)	12 (2%)	7	40
1	Y	592/619 (96%)	550 (93%)	37 (6%)	5 (1%)	19	60
1	Z	592/619 (96%)	550 (93%)	28 (5%)	14 (2%)	6	36
1	a	592/619 (96%)	551 (93%)	35 (6%)	6 (1%)	15	54
1	b	592/619 (96%)	555 (94%)	31 (5%)	6 (1%)	15	54
1	c	592/619 (96%)	554 (94%)	29 (5%)	9 (2%)	10	46
1	d	592/619 (96%)	552 (93%)	31 (5%)	9 (2%)	10	46
1	e	592/619 (96%)	555 (94%)	31 (5%)	6 (1%)	15	54
1	f	592/619 (96%)	548 (93%)	35 (6%)	9 (2%)	10	46
1	g	592/619 (96%)	554 (94%)	29 (5%)	9 (2%)	10	46
1	h	592/619 (96%)	559 (94%)	25 (4%)	8 (1%)	11	47
1	i	592/619 (96%)	558 (94%)	27 (5%)	7 (1%)	13	50
1	j	592/619 (96%)	552 (93%)	29 (5%)	11 (2%)	8	40
1	k	592/619 (96%)	560 (95%)	23 (4%)	9 (2%)	10	46
1	l	592/619 (96%)	557 (94%)	27 (5%)	8 (1%)	11	47

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	m	592/619 (96%)	550 (93%)	35 (6%)	7 (1%)	13	50
1	n	592/619 (96%)	543 (92%)	38 (6%)	11 (2%)	8	40
1	o	592/619 (96%)	550 (93%)	35 (6%)	7 (1%)	13	50
1	p	592/619 (96%)	539 (91%)	39 (7%)	14 (2%)	6	36
1	q	592/619 (96%)	549 (93%)	31 (5%)	12 (2%)	7	40
1	r	592/619 (96%)	555 (94%)	29 (5%)	8 (1%)	11	47
1	s	592/619 (96%)	553 (93%)	36 (6%)	3 (0%)	29	68
1	t	592/619 (96%)	554 (94%)	27 (5%)	11 (2%)	8	40
1	u	592/619 (96%)	561 (95%)	22 (4%)	9 (2%)	10	46
1	v	592/619 (96%)	551 (93%)	33 (6%)	8 (1%)	11	47
1	w	592/619 (96%)	552 (93%)	30 (5%)	10 (2%)	9	43
1	x	592/619 (96%)	558 (94%)	27 (5%)	7 (1%)	13	50
1	y	592/619 (96%)	553 (93%)	32 (5%)	7 (1%)	13	50
1	z	592/619 (96%)	553 (93%)	33 (6%)	6 (1%)	15	54
All	All	36704/38378 (96%)	34194 (93%)	1984 (5%)	526 (1%)	15	47

5 of 526 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	1	495	PHE
1	4	175	ASN
1	4	414	GLN
1	6	200	ASN
1	8	413	SER

### 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	533/555 (96%)	516 (97%)	17 (3%)	39	62
1	1	533/555 (96%)	516 (97%)	17 (3%)	39	62

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	2	533/555 (96%)	510 (96%)	23 (4%)	29	54
1	3	533/555 (96%)	516 (97%)	17 (3%)	39	62
1	4	533/555 (96%)	518 (97%)	15 (3%)	43	65
1	5	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	6	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	7	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	8	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	9	533/555 (96%)	516 (97%)	17 (3%)	39	62
1	A	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	B	533/555 (96%)	511 (96%)	22 (4%)	30	56
1	C	533/555 (96%)	521 (98%)	12 (2%)	50	70
1	D	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	E	533/555 (96%)	512 (96%)	21 (4%)	32	57
1	F	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	G	533/555 (96%)	511 (96%)	22 (4%)	30	56
1	H	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	I	533/555 (96%)	522 (98%)	11 (2%)	53	72
1	J	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	K	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	L	533/555 (96%)	513 (96%)	20 (4%)	33	58
1	M	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	N	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	O	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	P	533/555 (96%)	512 (96%)	21 (4%)	32	57
1	Q	533/555 (96%)	521 (98%)	12 (2%)	50	70
1	R	533/555 (96%)	516 (97%)	17 (3%)	39	62
1	S	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	T	533/555 (96%)	511 (96%)	22 (4%)	30	56
1	U	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	V	533/555 (96%)	515 (97%)	18 (3%)	37	60
1	W	533/555 (96%)	517 (97%)	16 (3%)	41	63

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	X	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	Y	533/555 (96%)	518 (97%)	15 (3%)	43	65
1	Z	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	a	533/555 (96%)	518 (97%)	15 (3%)	43	65
1	b	533/555 (96%)	513 (96%)	20 (4%)	33	58
1	c	533/555 (96%)	515 (97%)	18 (3%)	37	60
1	d	533/555 (96%)	510 (96%)	23 (4%)	29	54
1	e	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	f	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	g	533/555 (96%)	518 (97%)	15 (3%)	43	65
1	h	533/555 (96%)	513 (96%)	20 (4%)	33	58
1	i	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	j	533/555 (96%)	521 (98%)	12 (2%)	50	70
1	k	533/555 (96%)	512 (96%)	21 (4%)	32	57
1	l	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	m	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	n	533/555 (96%)	510 (96%)	23 (4%)	29	54
1	o	533/555 (96%)	522 (98%)	11 (2%)	53	72
1	p	533/555 (96%)	524 (98%)	9 (2%)	60	78
1	q	533/555 (96%)	519 (97%)	14 (3%)	46	67
1	r	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	s	533/555 (96%)	525 (98%)	8 (2%)	65	80
1	t	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	u	533/555 (96%)	509 (96%)	24 (4%)	27	53
1	v	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	w	533/555 (96%)	517 (97%)	16 (3%)	41	63
1	x	533/555 (96%)	514 (96%)	19 (4%)	35	59
1	y	533/555 (96%)	520 (98%)	13 (2%)	49	69
1	z	533/555 (96%)	513 (96%)	20 (4%)	33	58
All	All	33046/34410 (96%)	32003 (97%)	1043 (3%)	42	62

5 of 1043 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	T	93	TYR
1	U	351	GLN
1	S	684	GLU
1	Z	582	ASP
1	m	131	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 174 such sidechains are listed below:

Mol	Chain	Res	Type
1	G	571	GLN
1	O	550	GLN
1	I	313	ASN
1	L	571	GLN
1	R	309	ASN

### 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](#)

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.

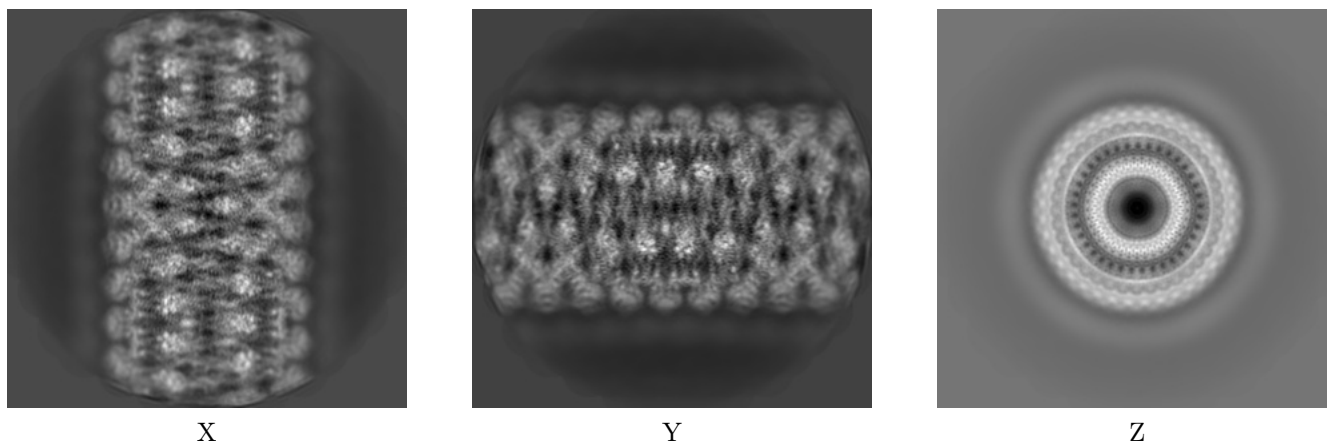
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8577. 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](#)

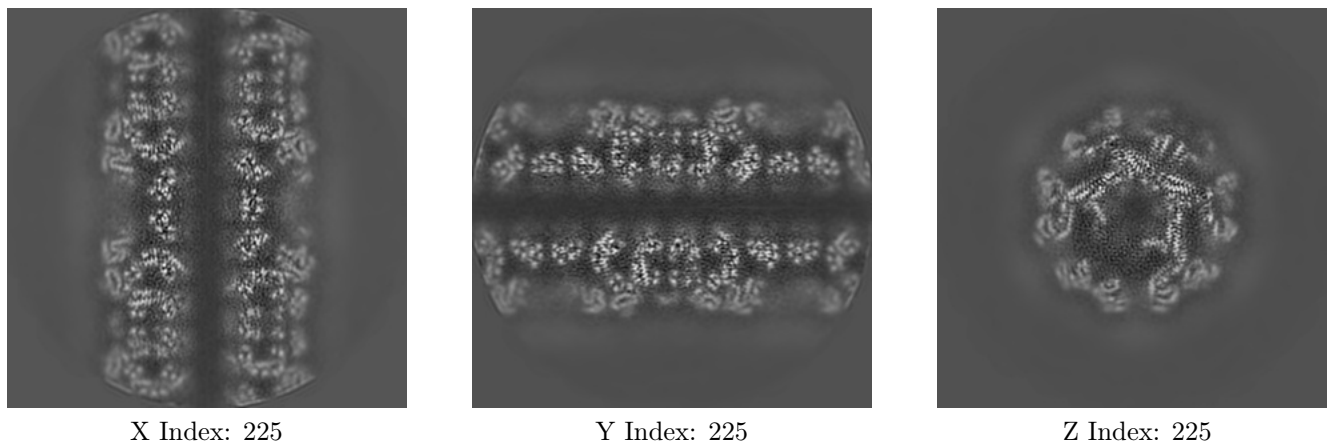
#### 6.1.1 Primary map



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

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

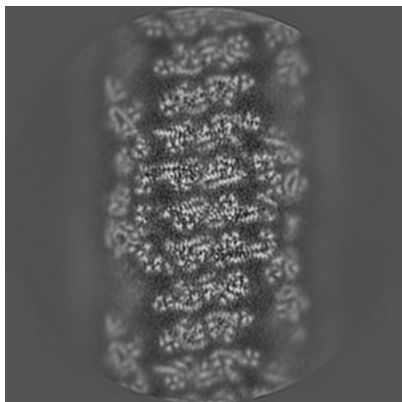
#### 6.2.1 Primary map



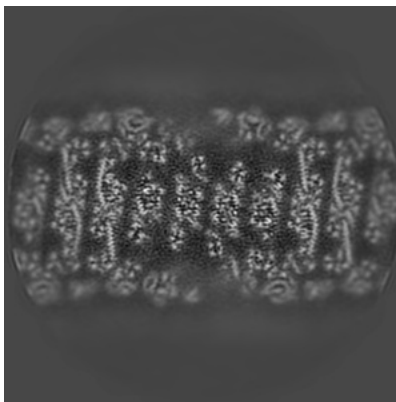
The images above show central slices of the map in three orthogonal directions.

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

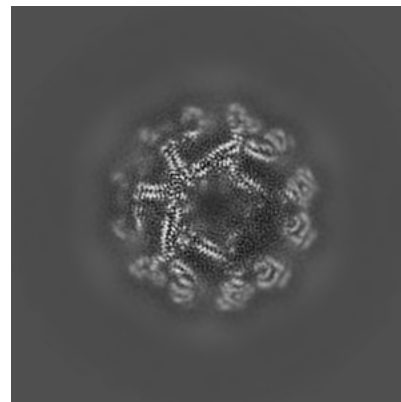
### 6.3.1 Primary map



X Index: 264



Y Index: 178



Z Index: 236

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

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

### 6.4.1 Primary map

X

Y

Z

The images above show the 3D surface view of the map at the recommended contour level 4.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

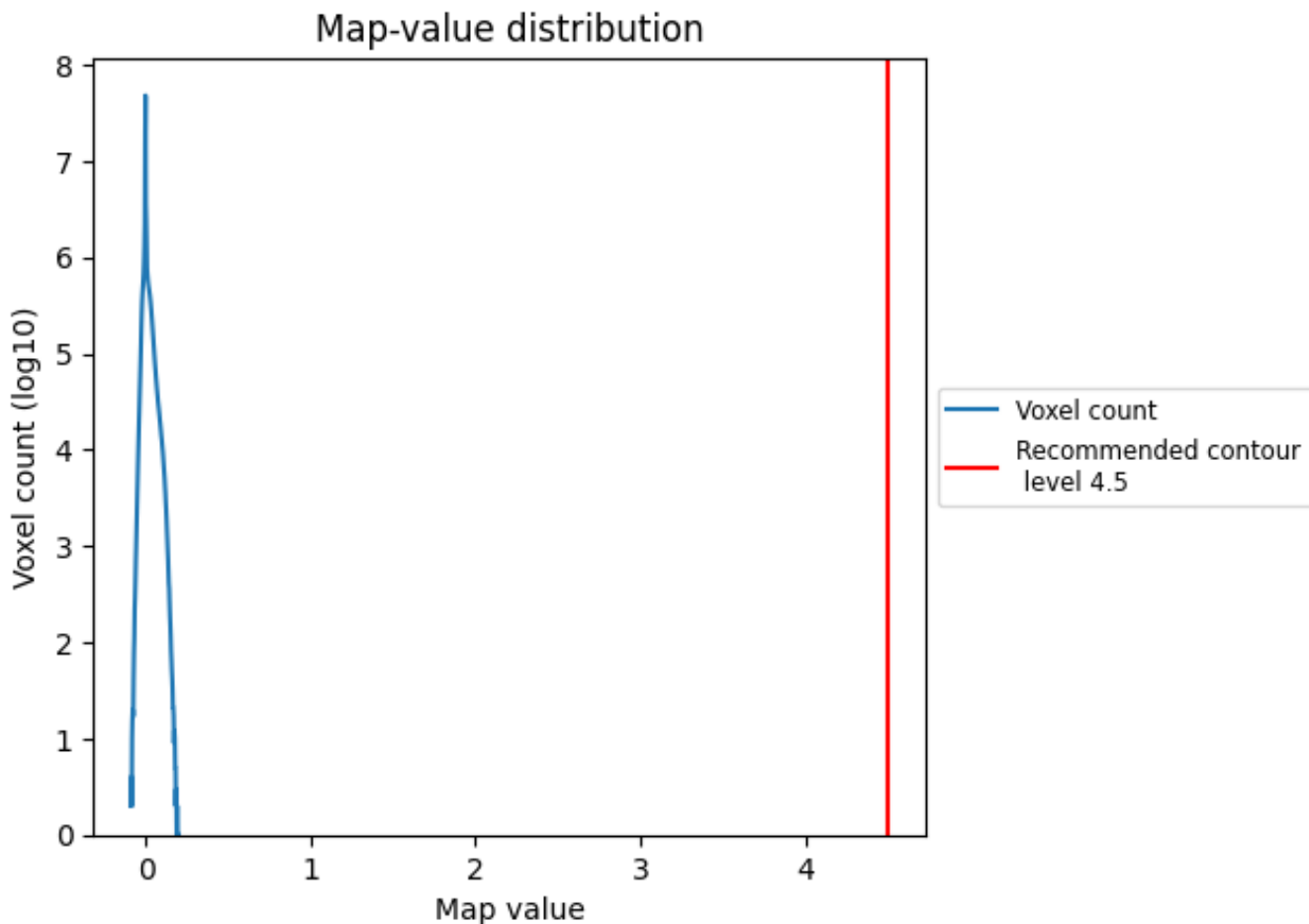
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

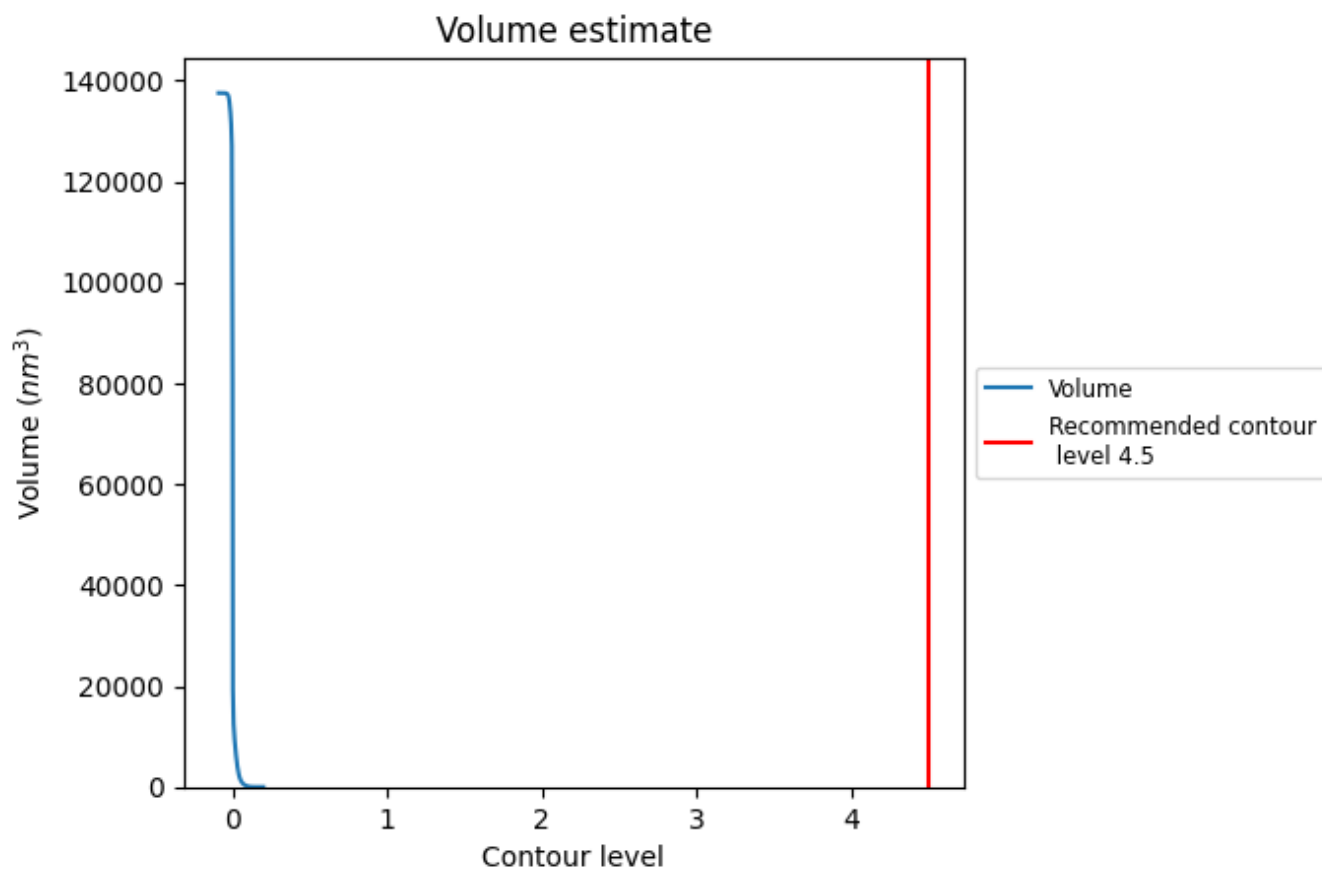
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



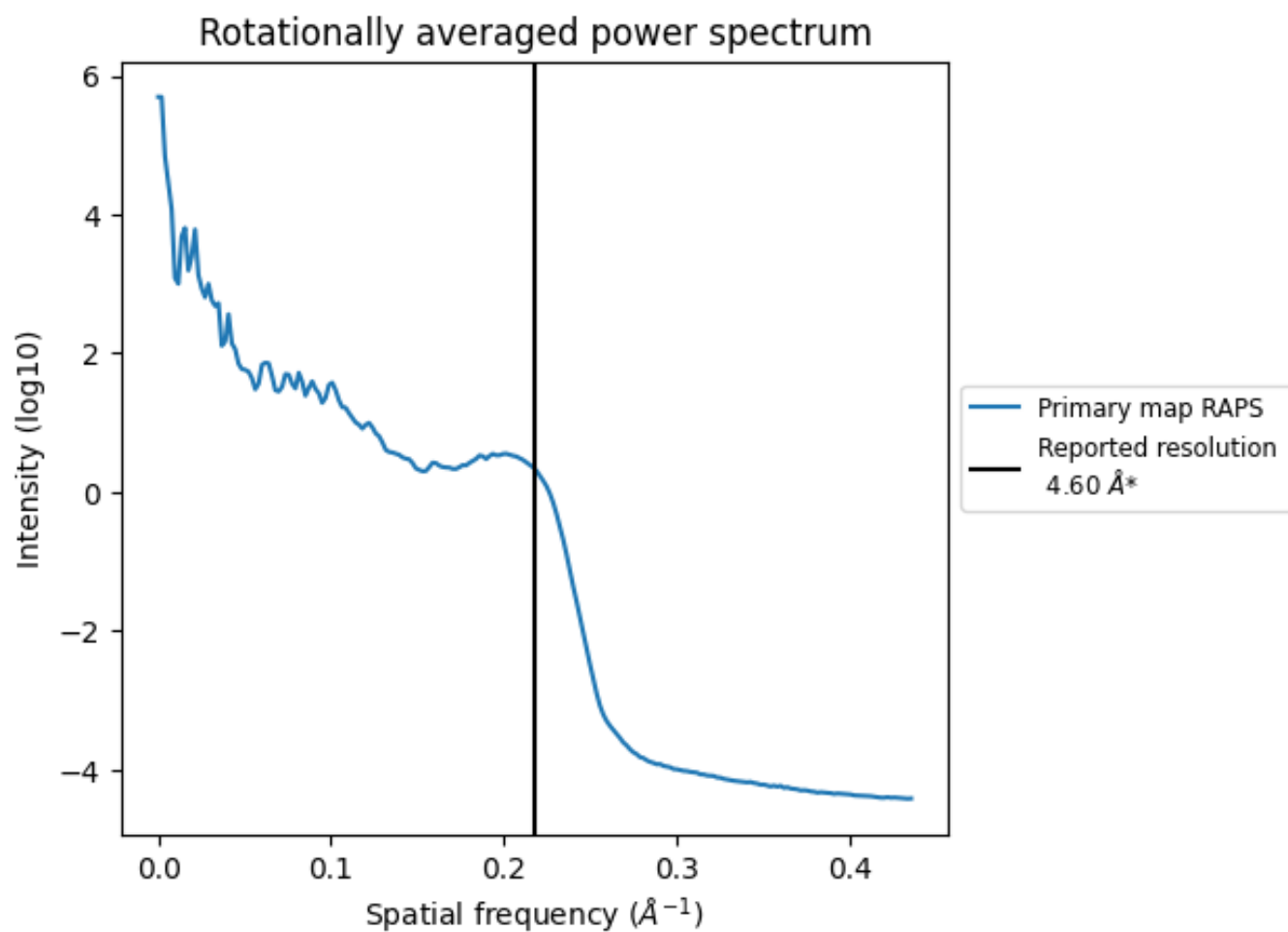
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

## 7.2 Volume estimate [i](#)



The volume 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



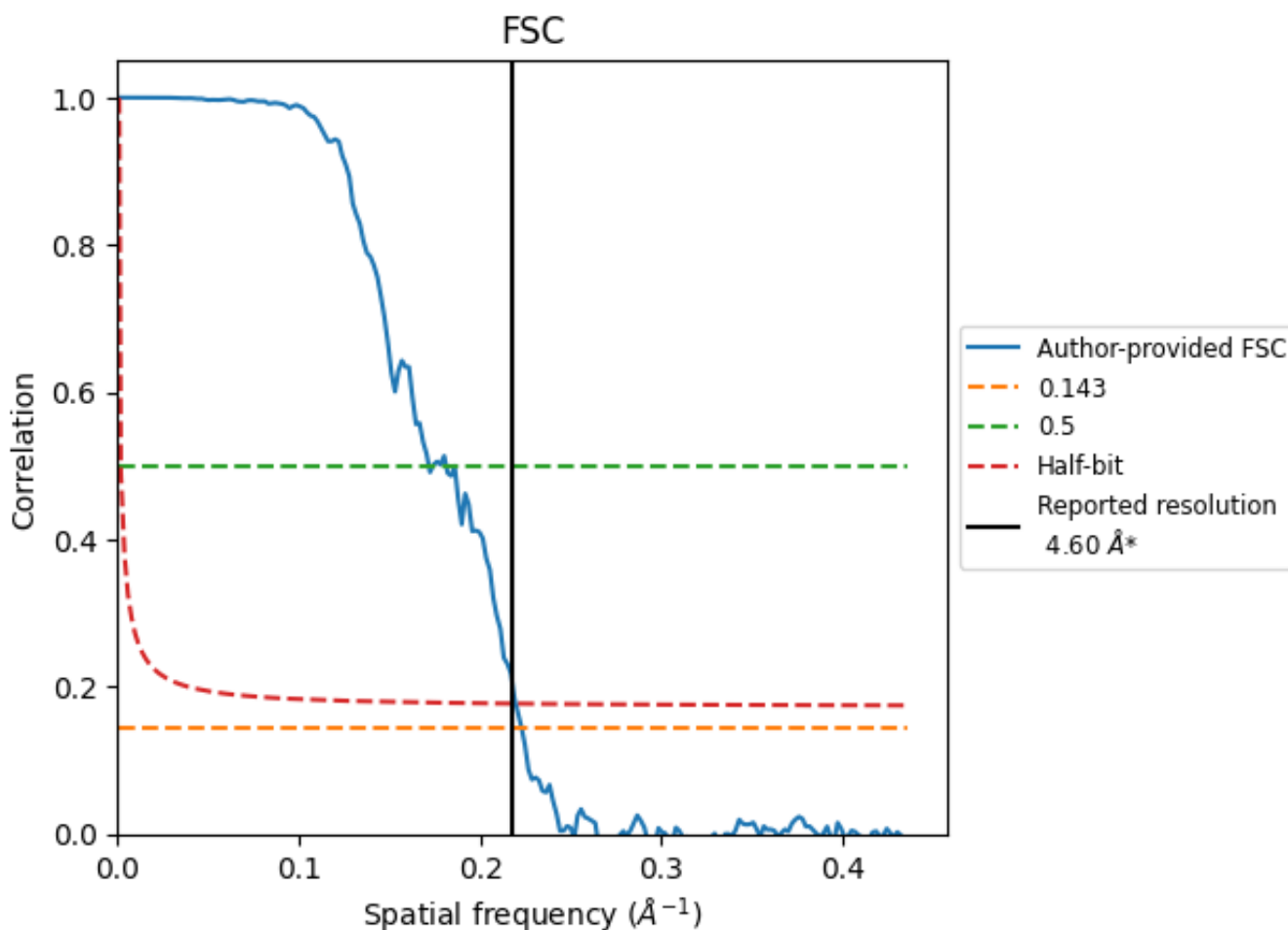
\*Reported resolution corresponds to spatial frequency of 0.217 Å<sup>-1</sup>



## 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 0.217 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

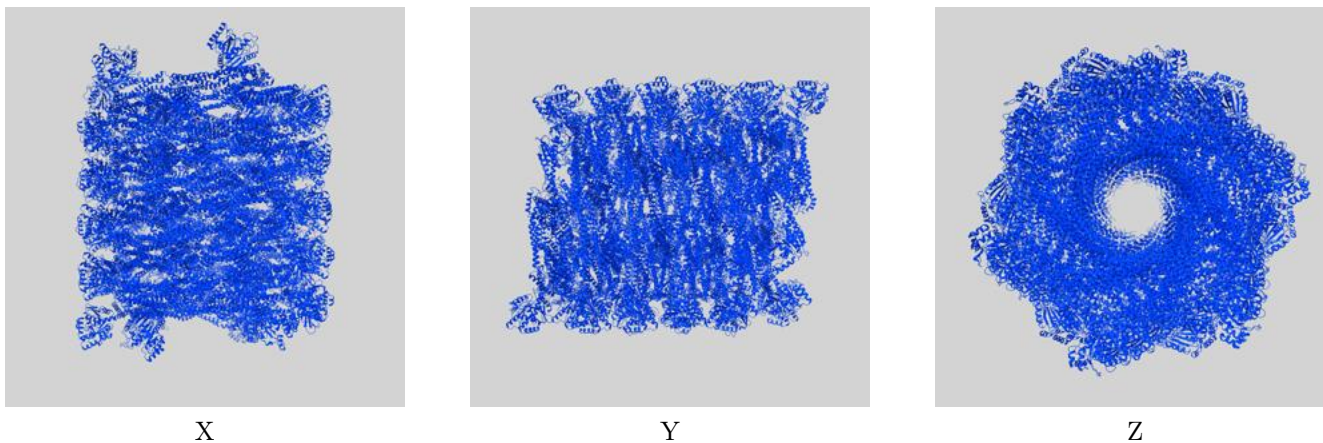
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.60	-	-
Author-provided FSC curve	4.49	5.82	4.55
Unmasked-calculated*	-	-	-

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

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

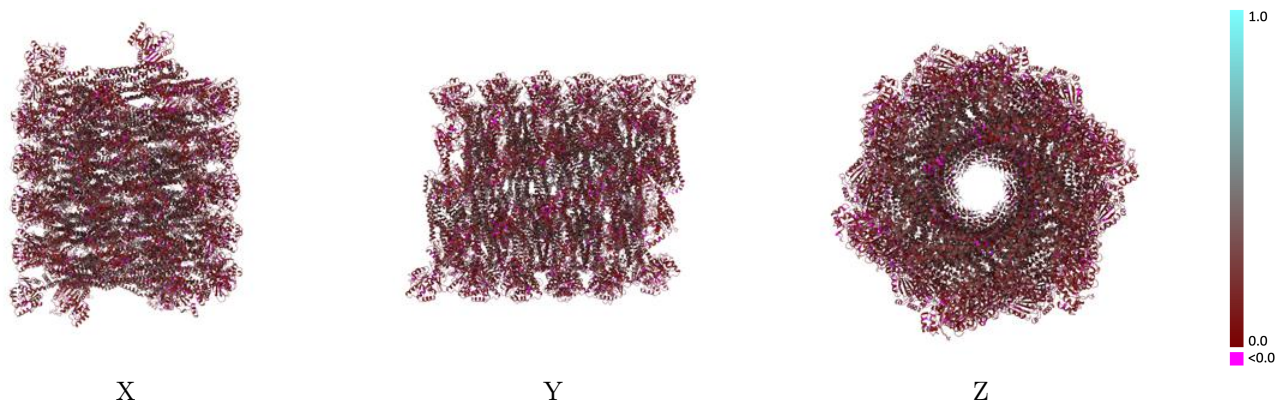
This section contains information regarding the fit between EMDB map EMD-8577 and PDB model 5UOT. Per-residue inclusion information can be found in section 3 on page 10.

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



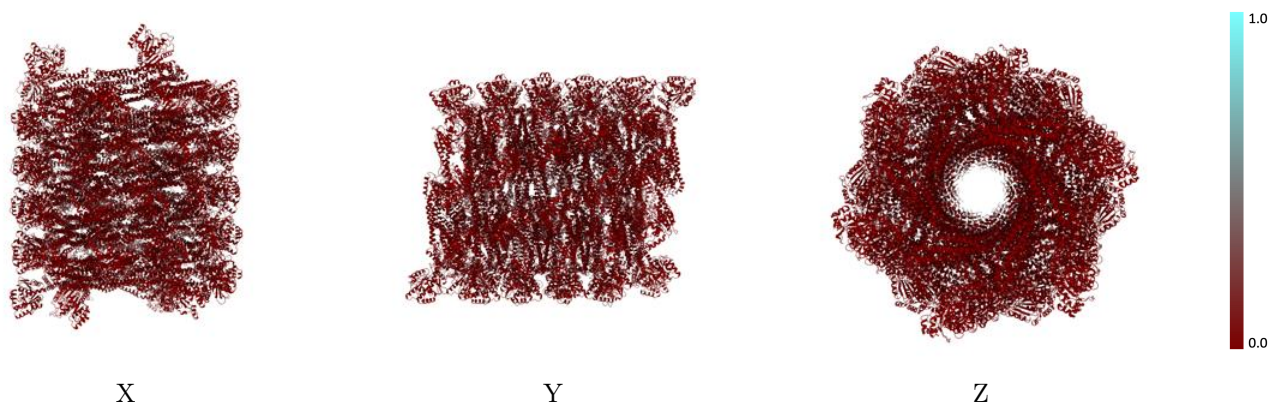
The images above show the 3D surface view of the map at the recommended contour level 4.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



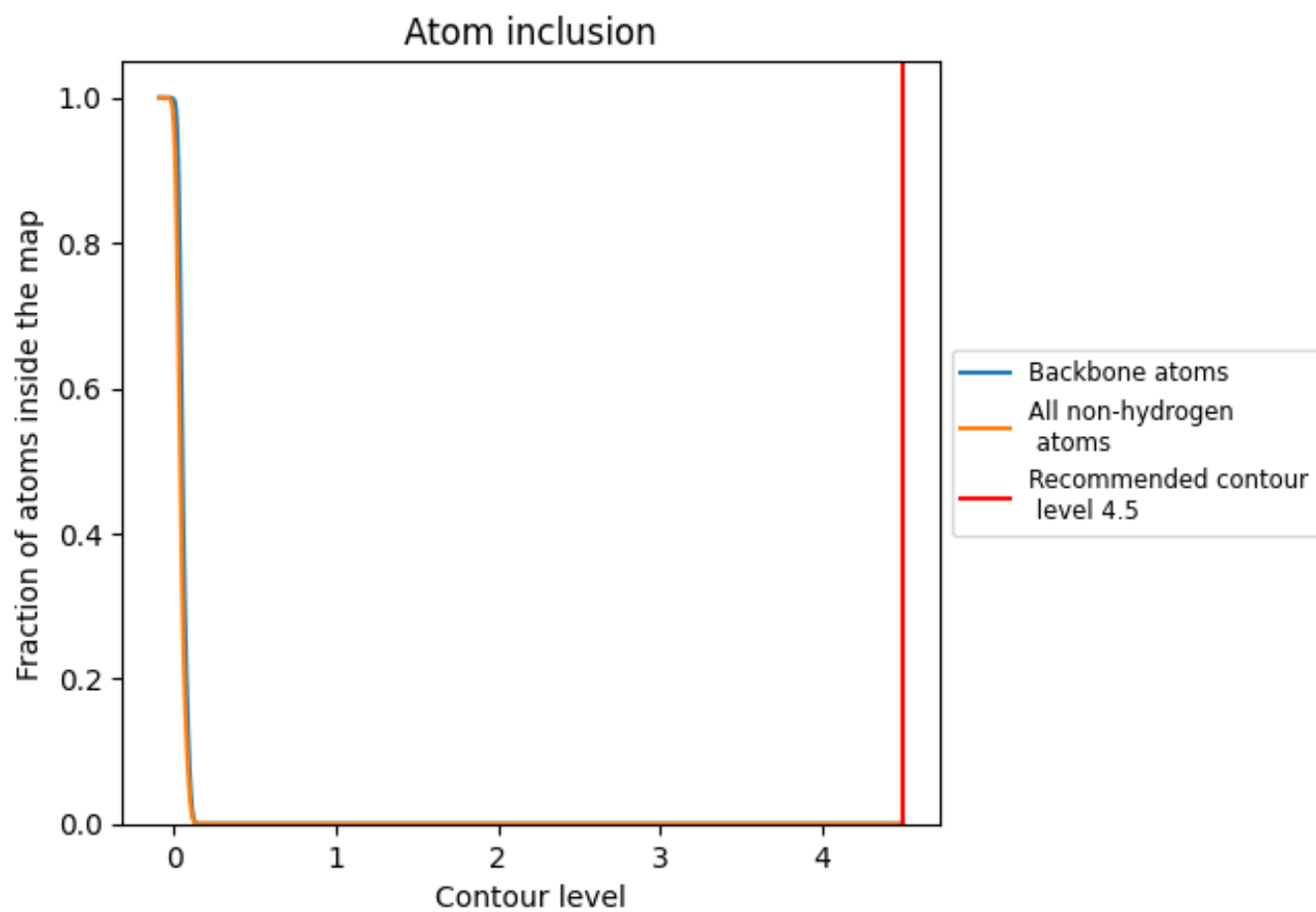
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (4.5).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 0% of all backbone atoms, 0% 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 (4.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.0000	0.1970
0	0.0000	0.1820
1	0.0000	0.1840
2	0.0000	0.1960
3	0.0000	0.1880
4	0.0000	0.2080
5	0.0000	0.1910
6	0.0000	0.2090
7	0.0000	0.2050
8	0.0000	0.1880
9	0.0000	0.2100
A	0.0000	0.2020
B	0.0000	0.2020
C	0.0000	0.2030
D	0.0000	0.1980
E	0.0000	0.2040
F	0.0000	0.2010
G	0.0000	0.2040
H	0.0000	0.2050
I	0.0000	0.1940
J	0.0000	0.2030
K	0.0000	0.1910
L	0.0000	0.2020
M	0.0000	0.1930
N	0.0000	0.1900
O	0.0000	0.1900
P	0.0000	0.1880
Q	0.0000	0.1900
R	0.0000	0.1910
S	0.0000	0.1940
T	0.0000	0.1810
U	0.0000	0.1800
V	0.0000	0.1870
W	0.0000	0.1740
X	0.0000	0.1820



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Chain	Atom inclusion	Q-score
Y	0.0000	0.1800
Z	0.0000	0.1680
a	0.0000	0.1910
b	0.0000	0.2130
c	0.0000	0.1960
d	0.0000	0.1880
e	0.0000	0.1930
f	0.0000	0.1960
g	0.0000	0.2170
h	0.0000	0.2080
i	0.0000	0.2120
j	0.0000	0.2010
k	0.0000	0.1890
l	0.0000	0.2100
m	0.0000	0.1940
n	0.0000	0.2120
o	0.0000	0.1970
p	0.0000	0.1910
q	0.0000	0.2110
r	0.0000	0.1920
s	0.0000	0.2120
t	0.0000	0.2090
u	0.0000	0.2170
v	0.0000	0.2030
w	0.0000	0.1910
x	0.0000	0.2170
y	0.0000	0.1890
z	0.0000	0.2150