Full wwPDB EM Validation Report ⓘ

Jun 9, 2024 – 11:26 AM EDT

PDB ID	:	8EZB
EMDB ID	:	EMD-28733
Title	:	NHEJ Long-range complex with ATP
Authors	:	Chen, S.; He, Y.
Deposited on	:	2022-10-31
Resolution	:	8.90 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

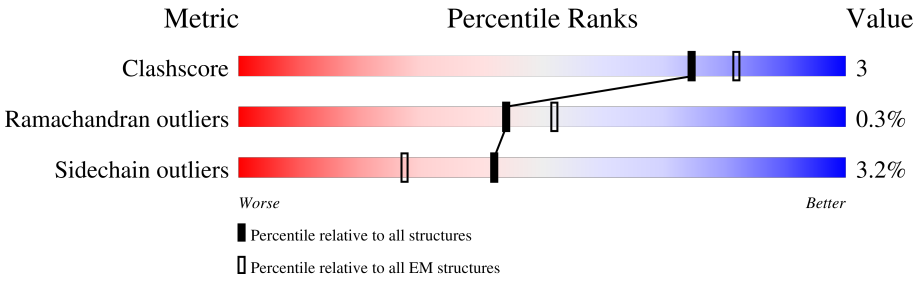
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 8.90 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	609	9% 72% 9% • 18%
1	J	609	9% 72% 9% • 18%
2	B	732	19% 65% 5% • 28%
2	K	732	19% 65% 5% • 28%
3	C	4128	• 81% 8% • 10%
3	L	4128	• 81% 8% • 10%
4	D	31	• 42% 48% 10%
4	M	31	• 42% 52% 6%

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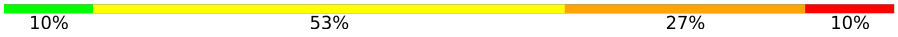
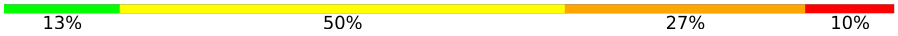
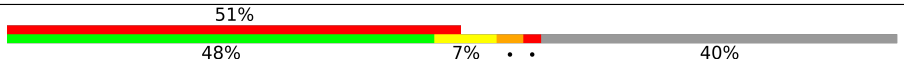
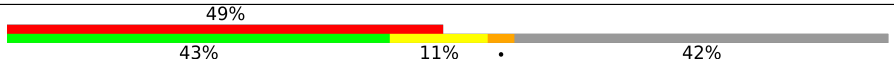
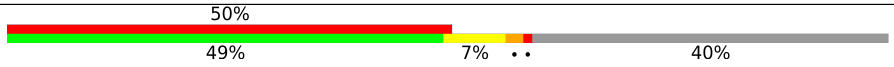
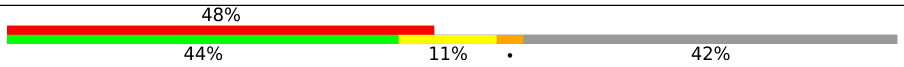
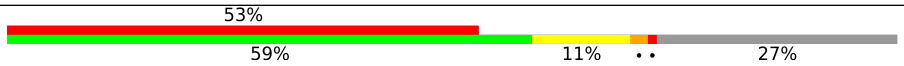
Mol	Chain	Length	Quality of chain
5	E	30	
5	N	30	
6	F	336	
6	G	336	
6	O	336	
6	P	336	
7	H	299	
7	I	299	
8	S	204	
8	T	204	
9	X	911	
9	Y	911	

2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 93038 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 X-ray repair cross-complementing protein 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	497	Total	C	N	O	S	0	0
			4021	2577	680	746	18		
1	J	497	Total	C	N	O	S	0	0
			4021	2577	680	746	18		

- Molecule 2 is a protein called X-ray repair cross-complementing protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	524	Total	C	N	O	S	0	0
			4204	2689	704	788	23		
2	K	524	Total	C	N	O	S	0	0
			4204	2689	704	788	23		

- Molecule 3 is a protein called DNA-dependent protein kinase catalytic subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	3724	Total	C	N	O	S	0	0
			29799	19101	5041	5463	194		
3	L	3724	Total	C	N	O	S	0	0
			29799	19101	5041	5463	194		

- Molecule 4 is a DNA chain called DNA (31-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	31	Total	C	N	O	P	0	0
			634	304	113	186	31		
4	M	31	Total	C	N	O	P	0	0
			634	304	113	186	31		

- Molecule 5 is a DNA chain called DNA (30-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	30	Total	C	N	O	P	0	0
			616	295	110	181	30		
5	N	30	Total	C	N	O	P	0	0
			616	295	110	181	30		

- Molecule 6 is a protein called DNA repair protein XRCC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	201	Total	C	N	O	S	0	0
			1628	1031	278	312	7		
6	G	195	Total	C	N	O	S	0	0
			1595	1012	272	304	7		
6	O	201	Total	C	N	O	S	0	0
			1628	1031	278	312	7		
6	P	195	Total	C	N	O	S	0	0
			1595	1012	272	304	7		

- Molecule 7 is a protein called Non-homologous end-joining factor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	223	Total	C	N	O	S	0	0
			1779	1140	298	326	15		
7	I	218	Total	C	N	O	S	0	0
			1737	1111	290	321	15		

- Molecule 8 is a protein called Protein PAXX.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	S	23	Total	C	N	O	S	0	0
			168	107	30	30	1		
8	T	23	Total	C	N	O	S	0	0
			168	107	30	30	1		

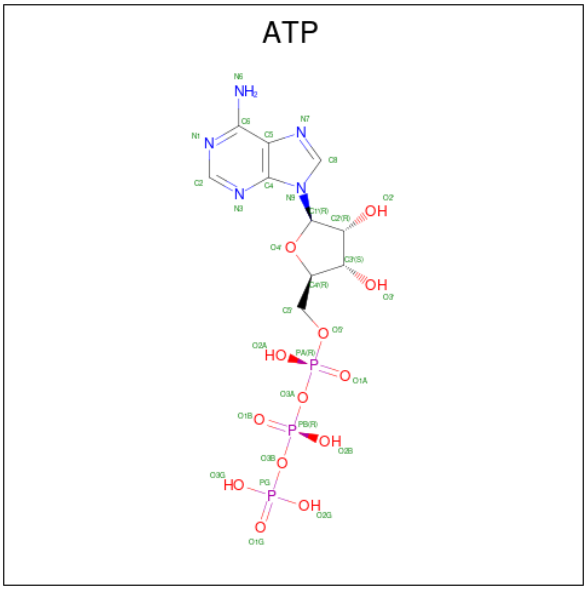
- Molecule 9 is a protein called DNA ligase 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	X	254	Total	C	N	O	S	0	0
			2064	1314	348	389	13		
9	Y	254	Total	C	N	O	S	0	0
			2064	1314	348	389	13		

- Molecule 10 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	AltConf
10	C	1	Total Mg 1 1	0
10	L	1	Total Mg 1 1	0

- Molecule 11 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



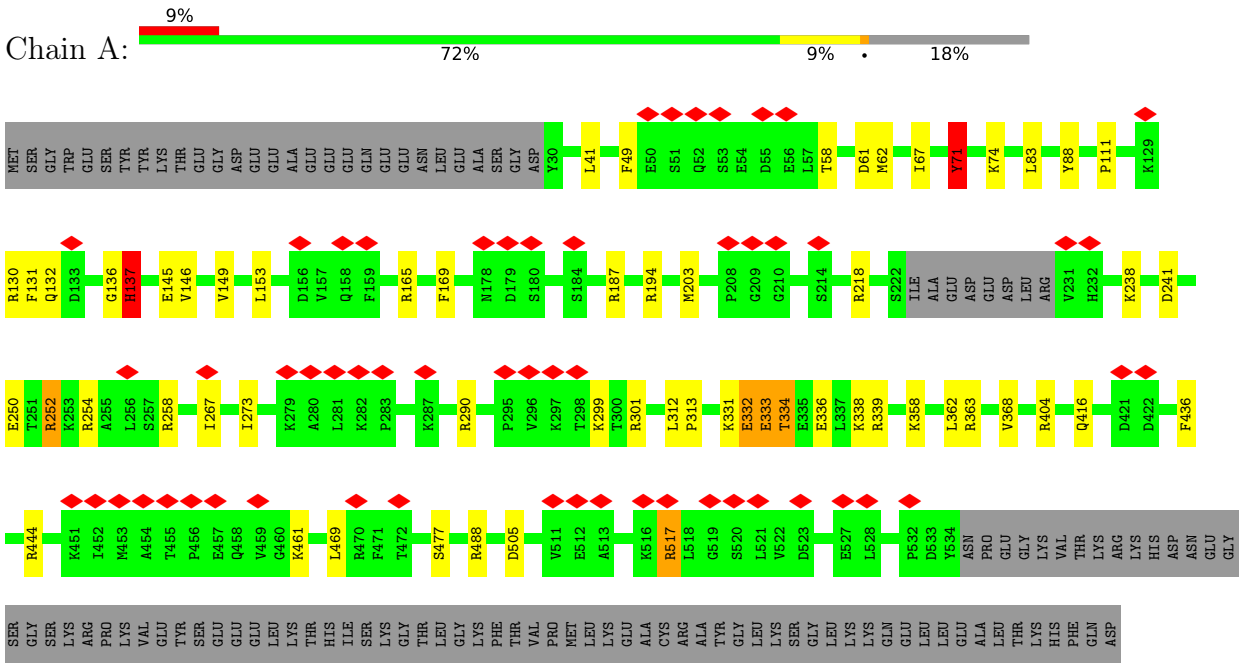
Mol	Chain	Residues	Atoms	AltConf
11	C	1	Total C N O P 31 10 5 13 3	0
11	L	1	Total C N O P 31 10 5 13 3	0

3 Residue-property plots (i)

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

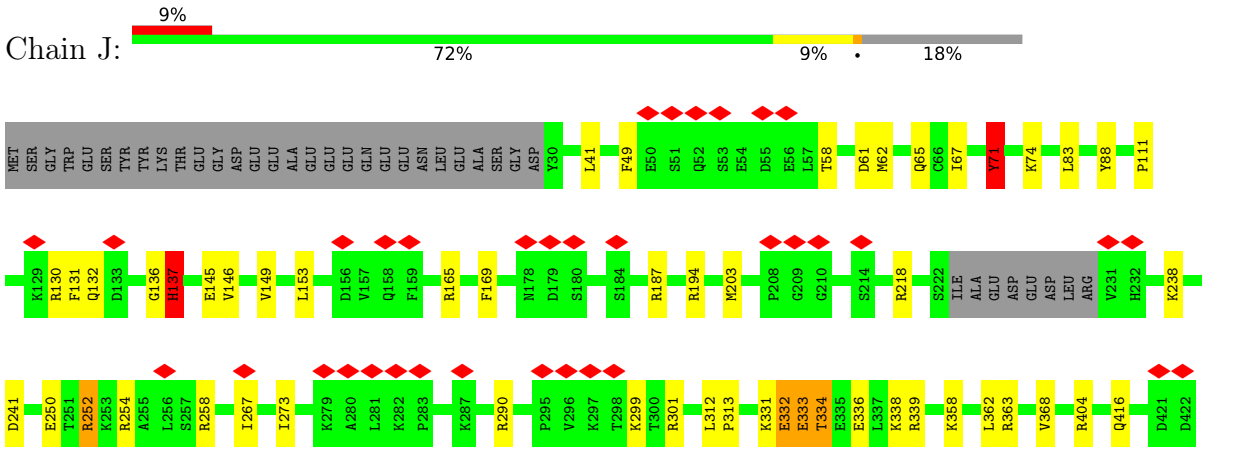
• Molecule 1: X-ray repair cross-complementing protein 6

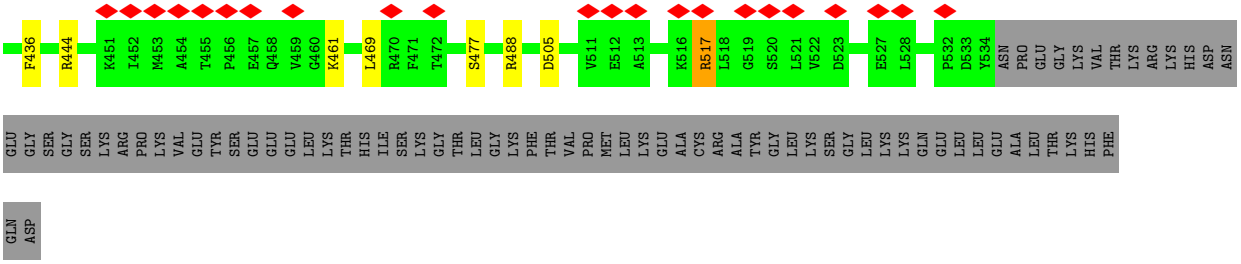
Chain A:



• Molecule 1: X-ray repair cross-complementing protein 6

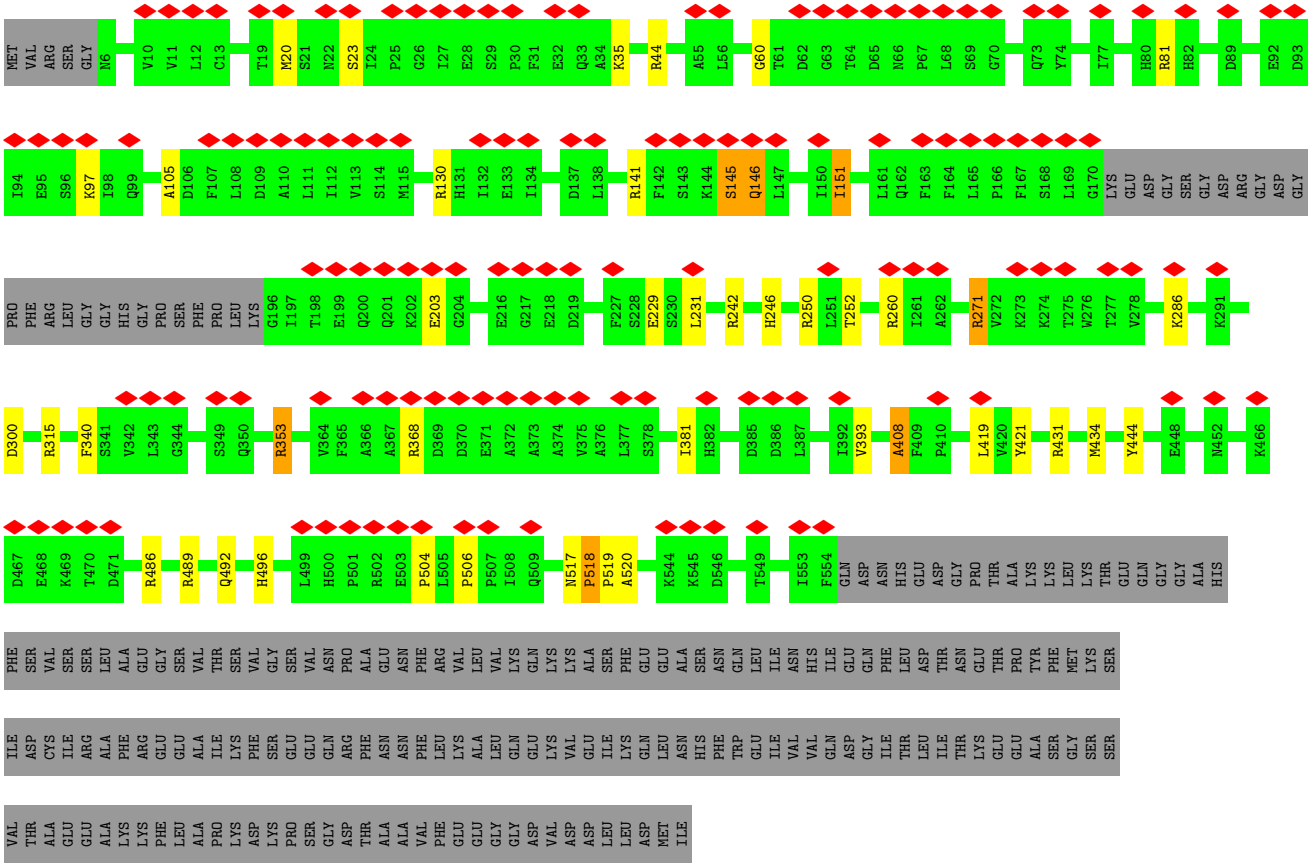
Chain J:





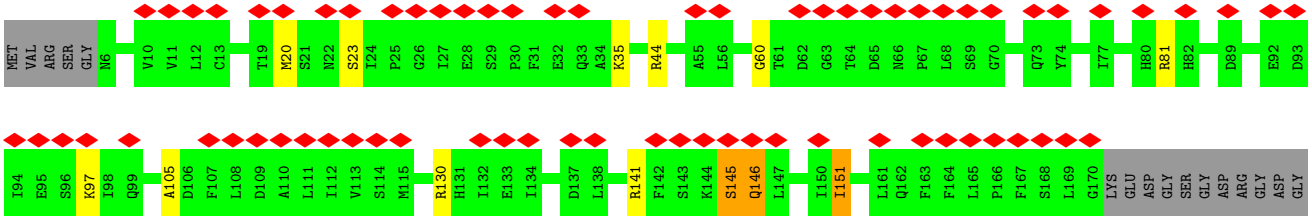
• Molecule 2: X-ray repair cross-complementing protein 5

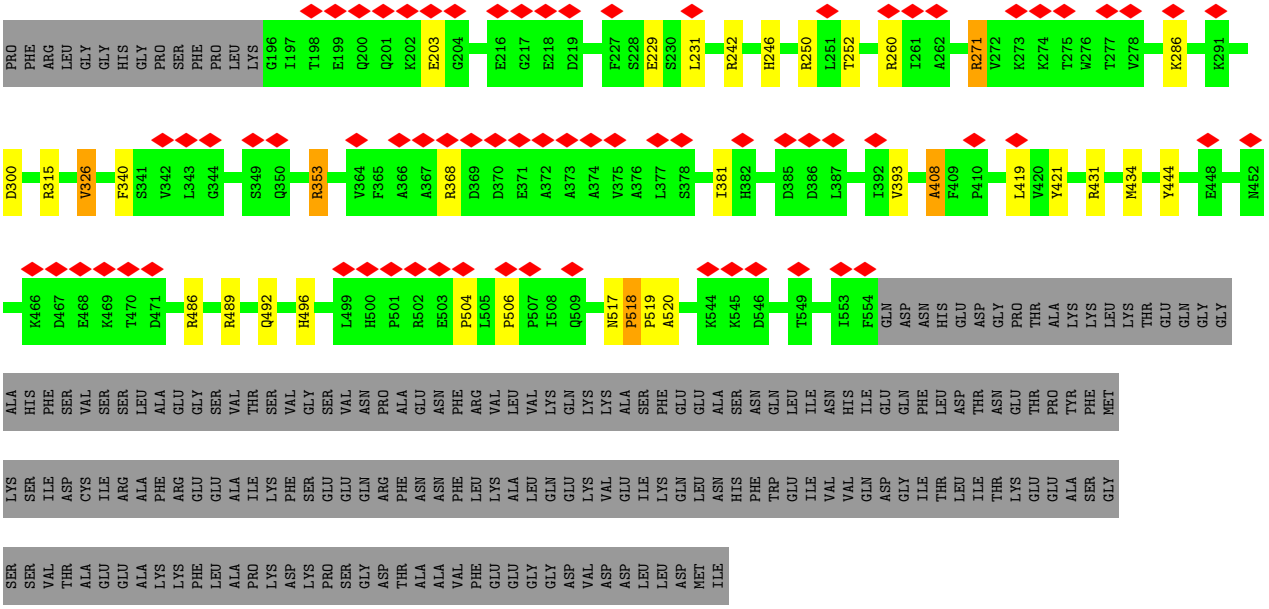
Chain B:



• Molecule 2: X-ray repair cross-complementing protein 5

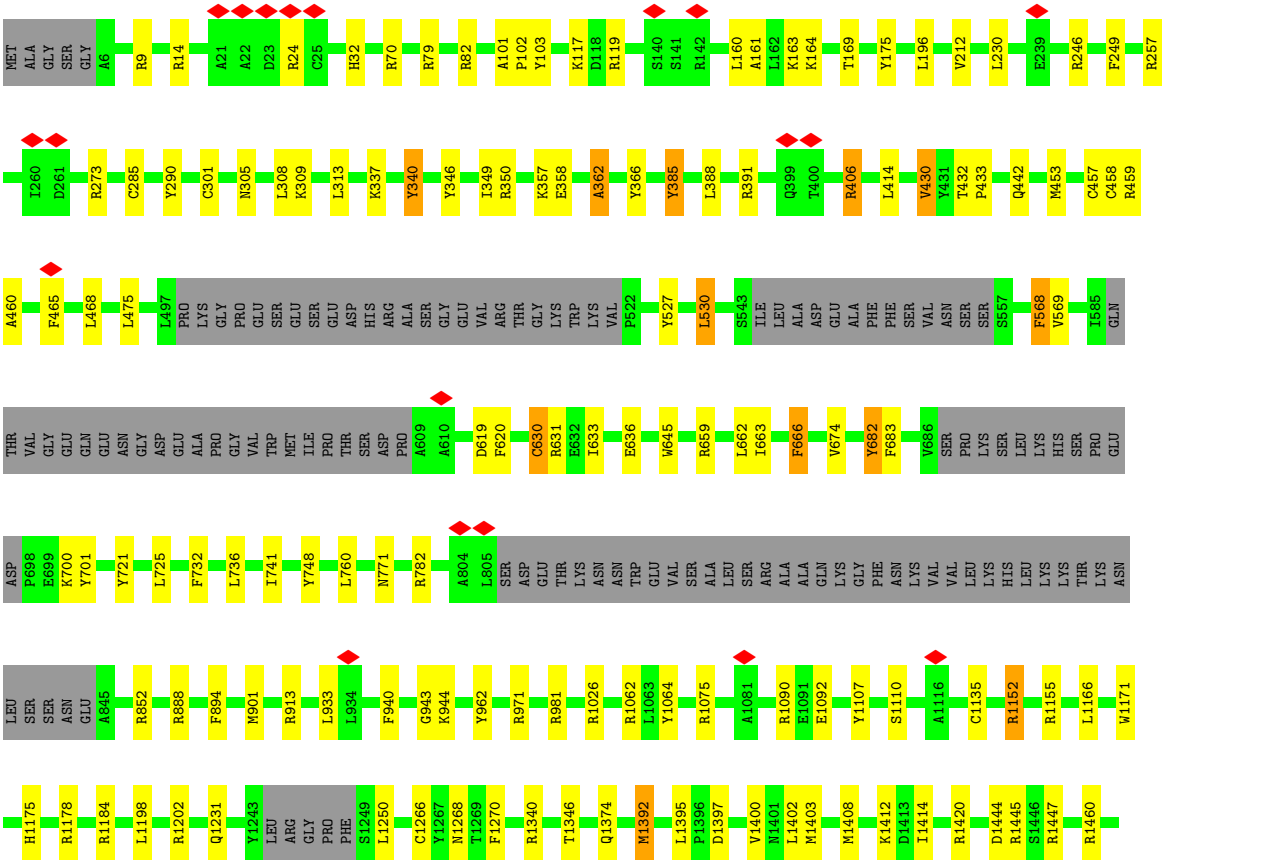
Chain K:

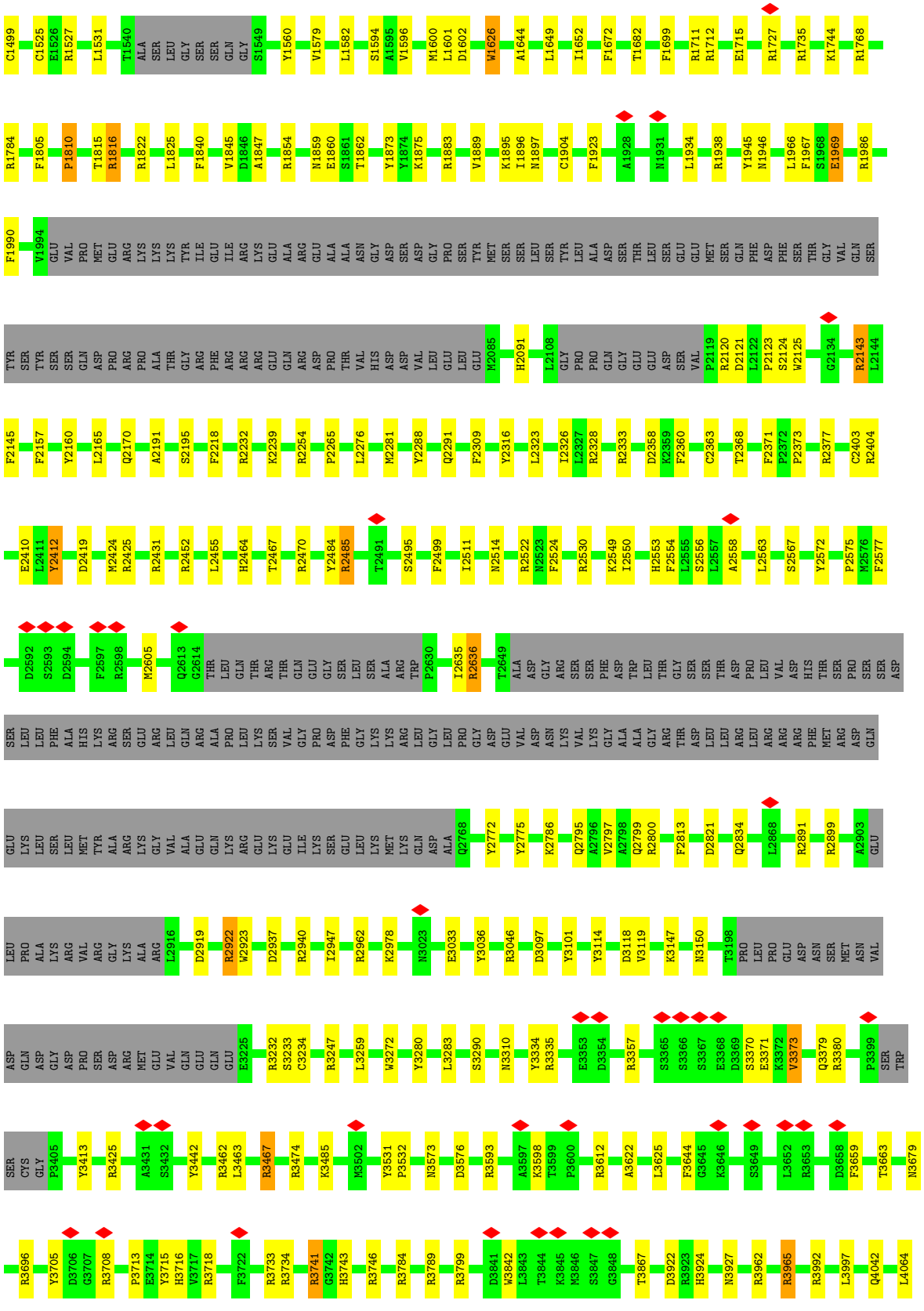


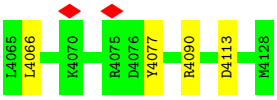


• Molecule 3: DNA-dependent protein kinase catalytic subunit

Chain C:

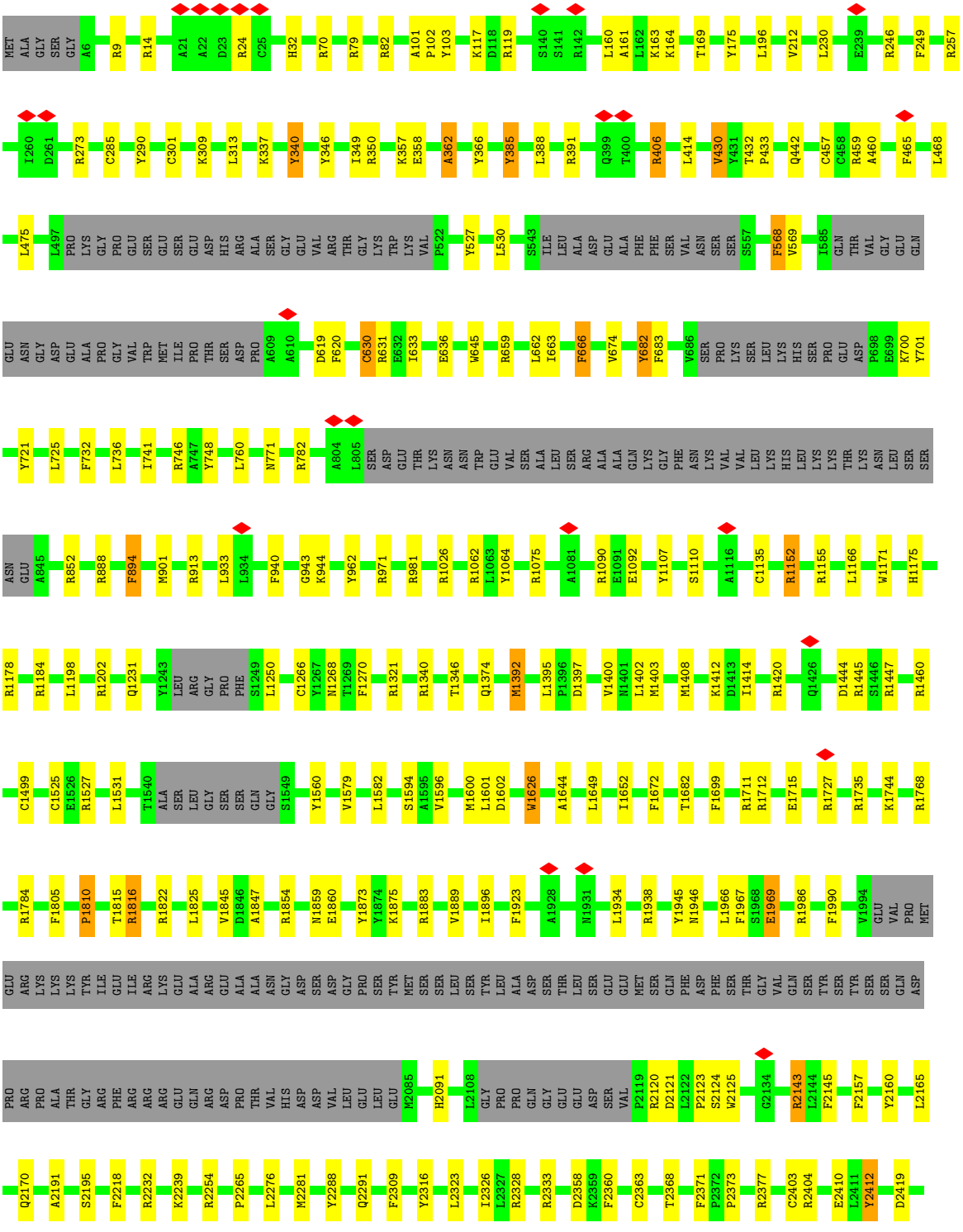


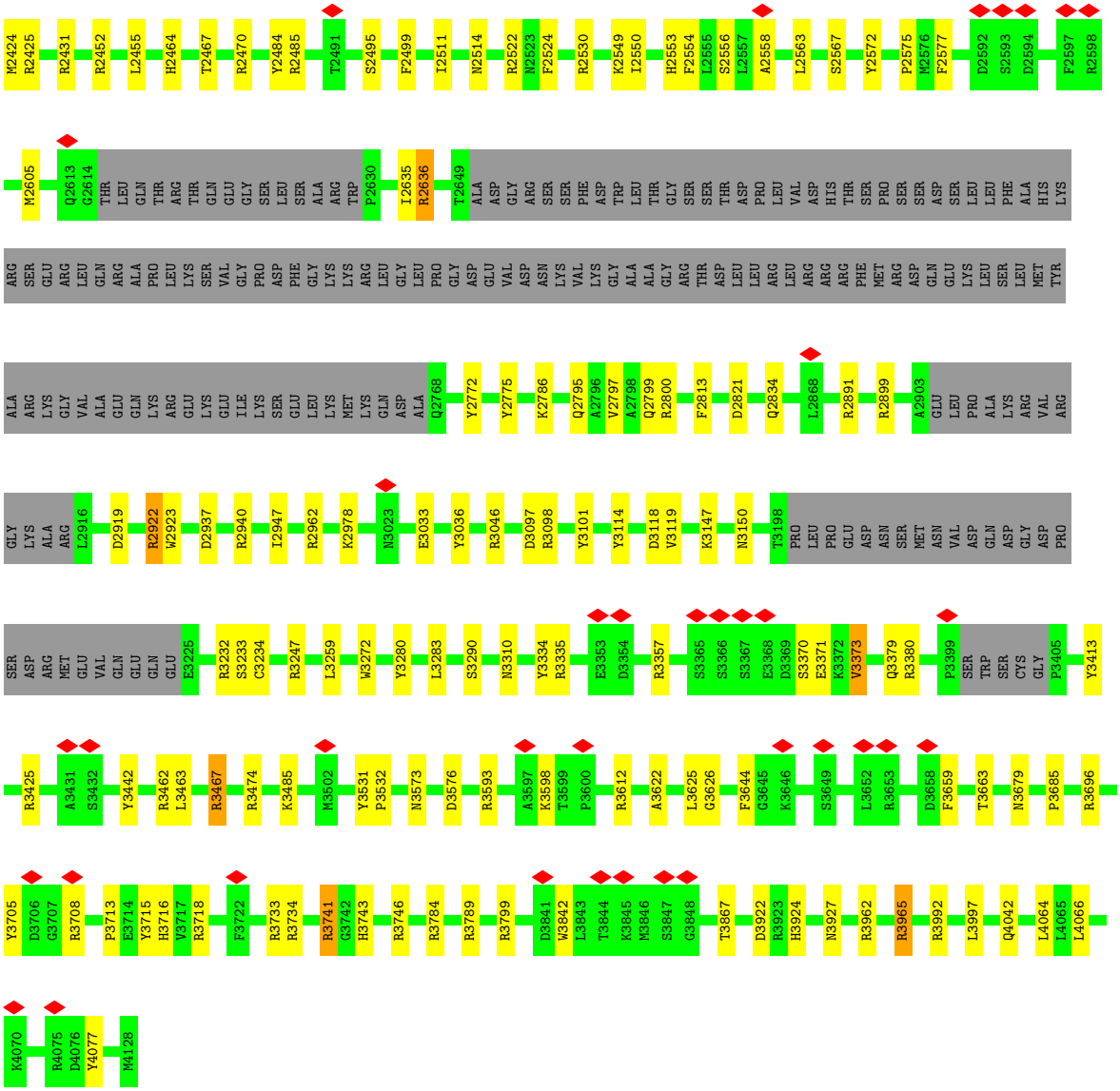

C1499 C1525 E1526 R1527 L1531 T1540 S1549 Y1560 V1579 L1582 S1594 A1595 V1596 M1600 L1601 D1602 W1626 A1644 L1649 I1652 F1672 T1682 F1699 R1711 R1712 E1715 R1727 R1735 K1744 R1768
R1784 F1805 P1810 T1815 R1816 R1822 L1825 F1840 V1845 D1846 A1847 R1854 N1859 E1860 S1861 T1862 Y1873 Y1874 K1875 R1883 V1889 K1895 I1896 N1897 C1904 F1923 A1928 N1931 L1934 R1938 Y1945 N1946 L1966 F1967 S1968 E1969 R1986
F1990 V1994
TYR SER TYR SER SER GLN ASP PRO ARG PRO ALA THR GLY ARG PHE ARG ARG ARG GLU GLN ARG ASP PRO PRO THR VAL HIS ASP ASP VAL VAL LEU GLU LEU GLU M2085 H2091 L2108 GLY PRO PRO GLN GLY GLU GLU ASP SER VAL P2119 R2120 D2121 L2122 P2123 S2124 W2125 G2134 R2143 L2144
F2145 F2157 Y2160 L2165 Q2170 A2191 S2195 F2218 R2232 K2239 R2254 P2265 L2276 M2281 Y2288 Q2291 F2309 Y2316 L2323 I2326 L2327 R2328 R2333 D2358 K2359 F2360 C2363 T2368 F2371 P2372 P2373 R2377 C2403 R2404
E2410 L2411 Y2412 D2419 M2424 R2425 R2431 R2452 L2455 H2464 T2467 R2470 Y2484 R2485 T2491 S2495 F2499 I2511 N2514 R2522 N2523 F2524 R2530 K2549 I2550 H2553 F2554 L2555 S2556 L2557 A2558 L2563 S2567 Y2572 P2575 M2576 F2577
D2592 S2593 D2594 F2597 R2598 M2605 Q2613 G2614 THR LEU GLN THR ARG THR GLN GLU GLY SER LEU SER ALA ARG TRP P2630 I2635 R2636 T2649 ALA ASP GLY ARG SER SER PHE ASP TRP LEU THR GLY SER SER THR ASP PRO LEU VAL ASP HIS THR SER PRO SER SER ASP
SER LEU LEU PHE ALA HIS LYS ARG SER GLU ARG LEU GLN ARG ALA PRO LEU LEU LYS SER VAL GLU VAL GLY PRO ASP PHE GLY LYS LYS ARG LEU GLY LEU PRO GLY ASP GLU GLU VAL ASP ASN LYS VAL LYS GLY ALA ALA GLY ARG THR ASP LEU LEU ARG LEU ARG ARG ARG ARG PHE MET ARG ASP GLN
GLU LYS LEU SER LEU MET TYR ALA ARG LYS GLY VAL ALA GLU GLN LYS ARG GLU LYS GLU ILE LYS SER GLU LEU LYS MET LYS GLN ASP ALA Q2768 Y2772 Y2775 K2786 Q2795 A2796 V2797 A2798 Q2799 R2800 F2813 D2821 Q2834 L2868 R2891 R2899 A2903 GLU
LEU PRO ALA LYS ARG VAL ARG GLY LYS ALA ARG L2916 D2919 R2922 W2923 D2937 R2940 I2947 R2962 K2978 N3023 E3033 Y3036 R3046 D3097 Y3101 Y3114 D3118 V3119 K3147 N3150 T3198 PRO LEU PRO GLU ASP ASN SER MET ASN VAL
ASP GLN ASP GLY ASP PRO SER ASP ARG MET GLU VAL GLN GLU GLN GLU E3225 R3232 S3233 C3234 R3247 L3259 W3272 Y3280 L3283 S3290 N3310 Y3334 R3335 E3353 D3354 R3357 S3365 S3366 S3367 E3368 D3369 S3370 E3371 K3372 V3373 Q3379 R3380 P3399 SER TRP
SER CYS GLY P3405 Y3413 R3425 A3431 S3432 Y3442 R3462 L3463 R3467 R3474 K3485 M3502 Y3531 P3532 N3573 D3576 R3593 A3597 K3598 T3599 P3600 R3612 A3622 L3625 F3644 G3645 K3646 S3649 L3652 R3653 D3658 F3659 T3663 N3679
R3696 Y3705 D3706 G3707 R3708 P3713 E3714 Y3715 H3716 Y3717 R3718 F3722 R3733 R3734 R3741 G3742 H3743 R3746 R3784 R3789 R3799 D3841 W3842 L3843 T3844 K3845 M3846 S3847 G3848 T3867 D3922 R3923 H3924 N3927 R3962 R3965 R3992 L3997 Q4042 L4064



• Molecule 3: DNA-dependent protein kinase catalytic subunit

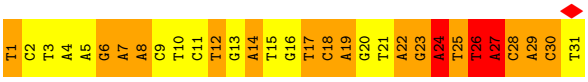
Chain L:





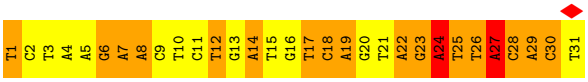
• Molecule 4: DNA (31-MER)

Chain D:



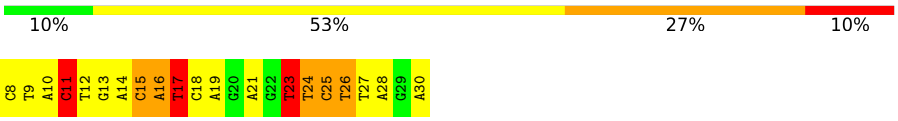
• Molecule 4: DNA (31-MER)

Chain M:



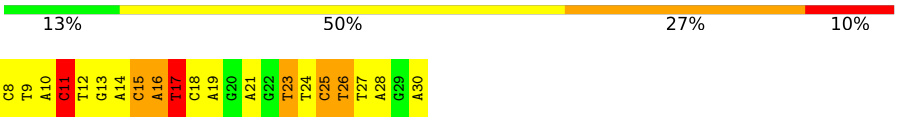
• Molecule 5: DNA (30-MER)

Chain E:



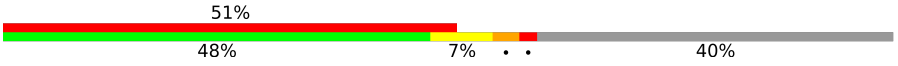
• Molecule 5: DNA (30-MER)

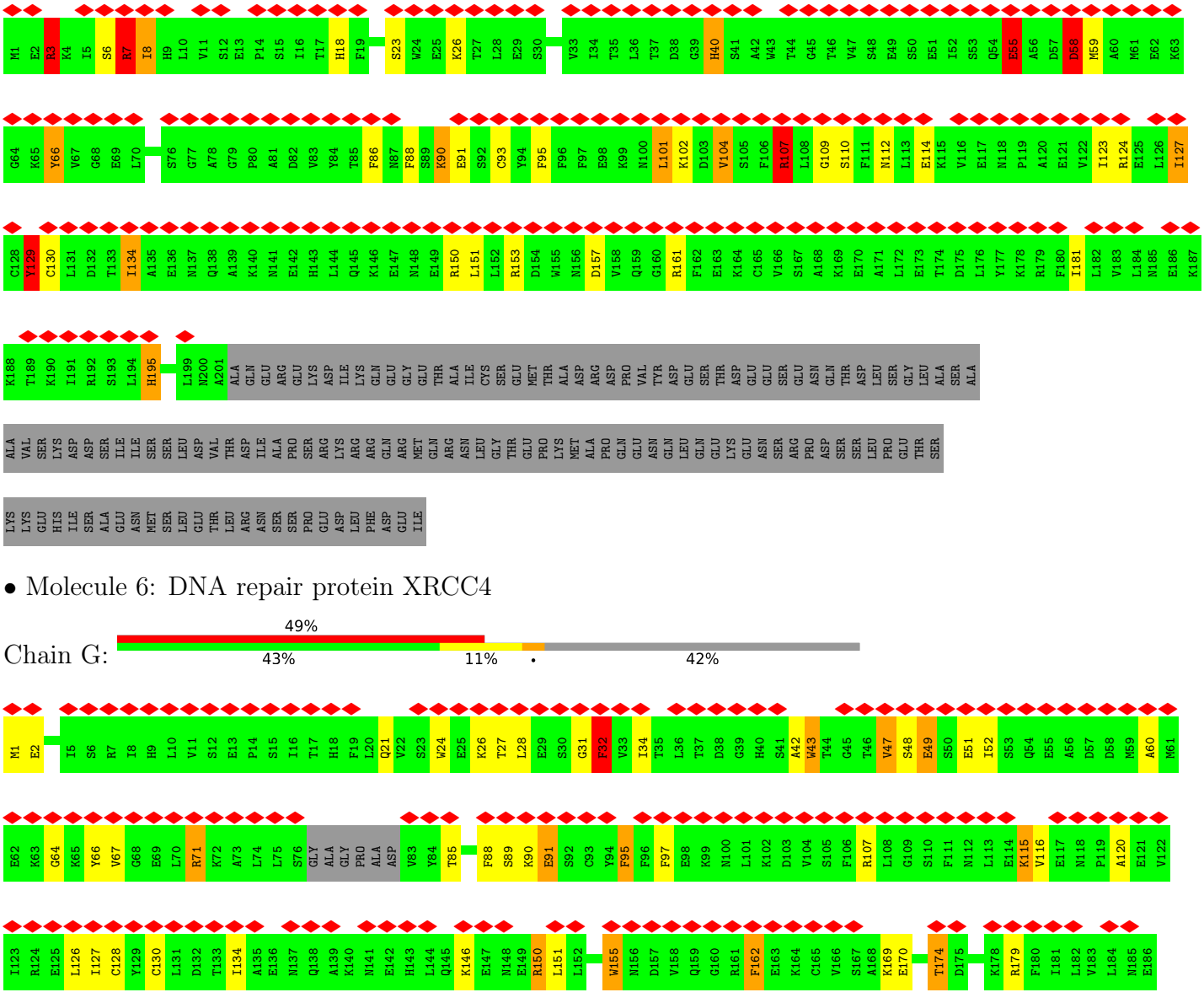
Chain N:



• Molecule 6: DNA repair protein XRCC4

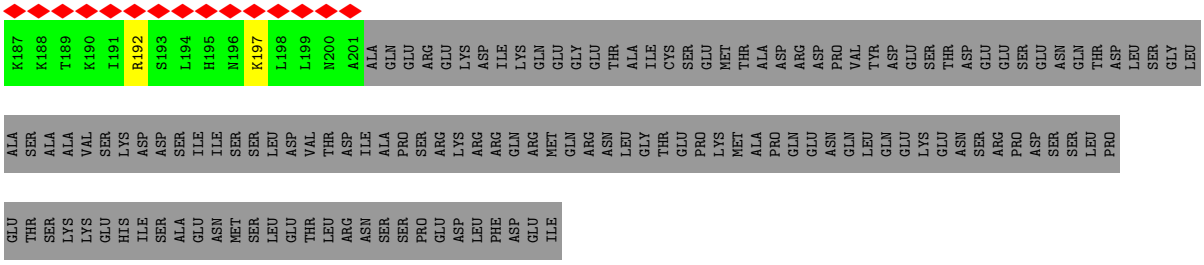
Chain F:





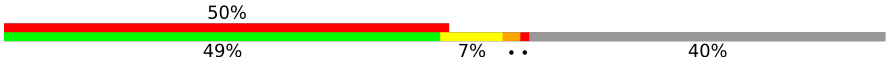
• Molecule 6: DNA repair protein XRCC4

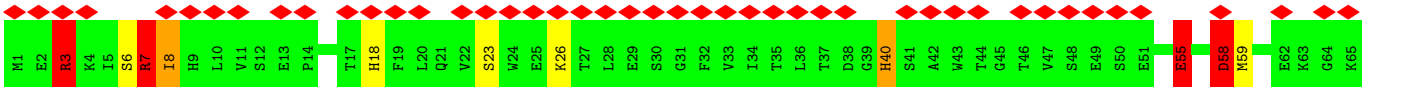
Chain G:

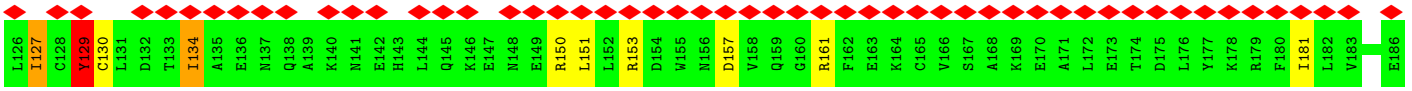


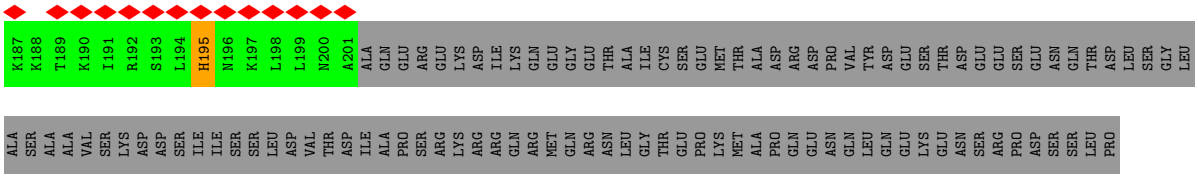
• Molecule 6: DNA repair protein XRCC4

Chain O:



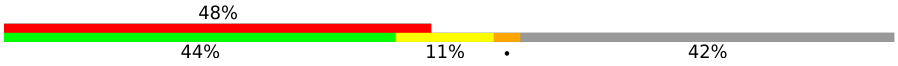


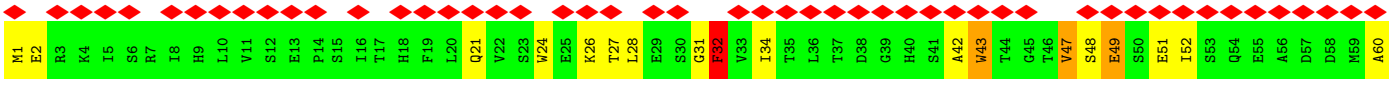


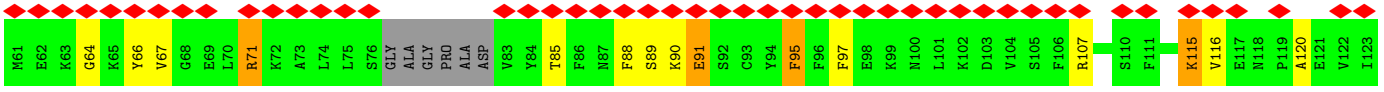


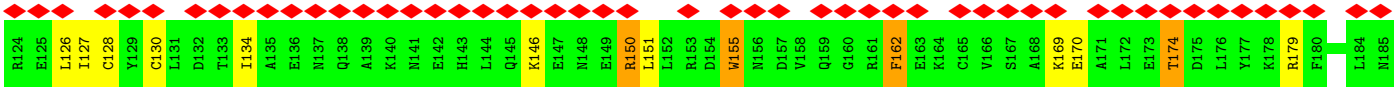
• Molecule 6: DNA repair protein XRCC4

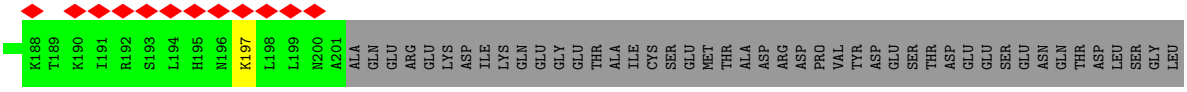
Chain P:

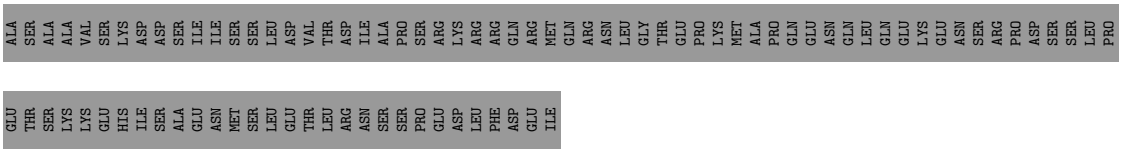






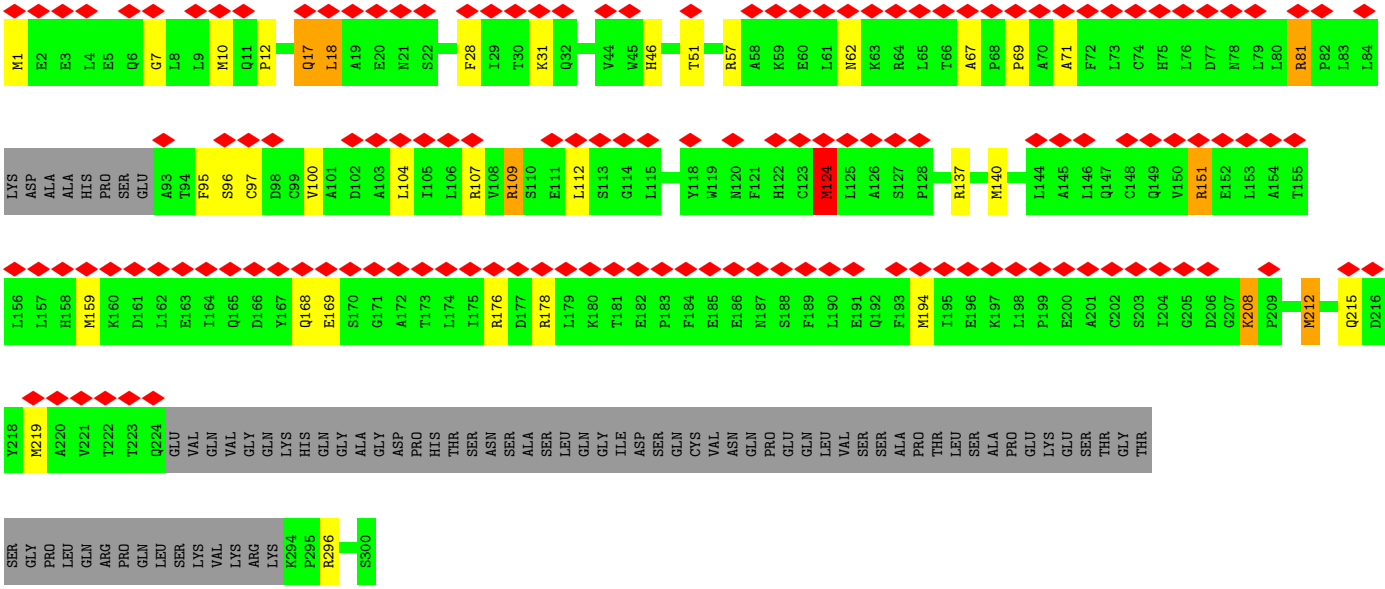






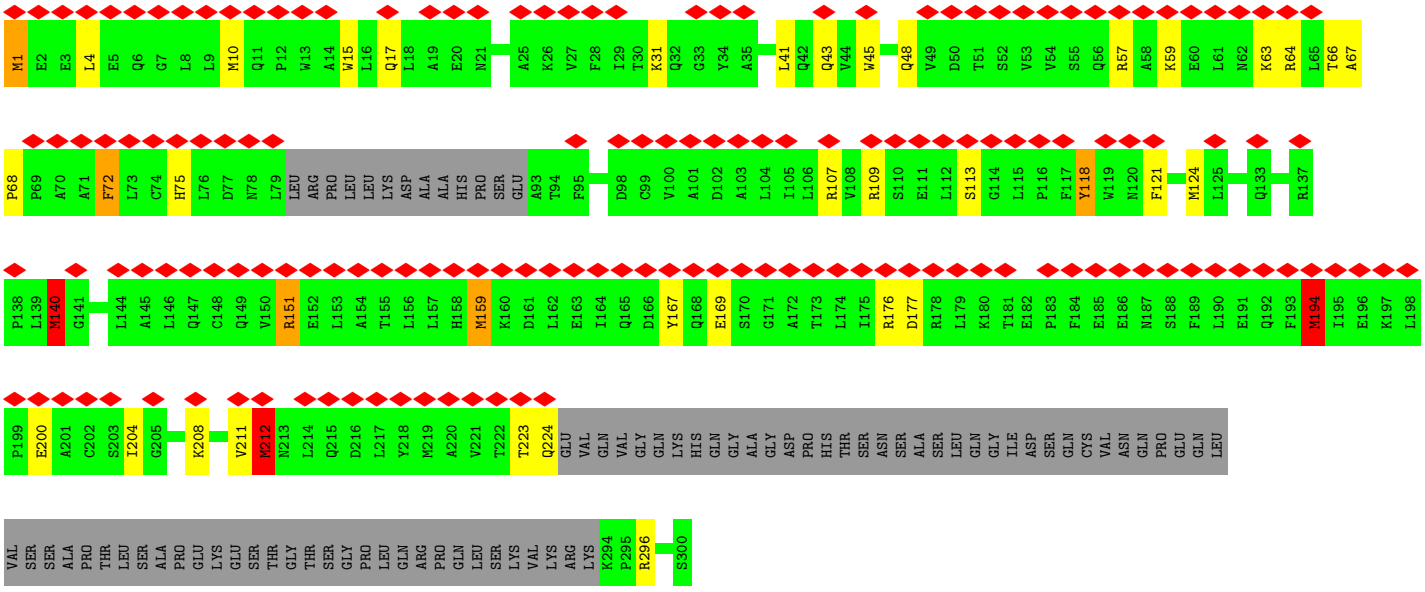
• Molecule 7: Non-homologous end-joining factor 1

Chain H:



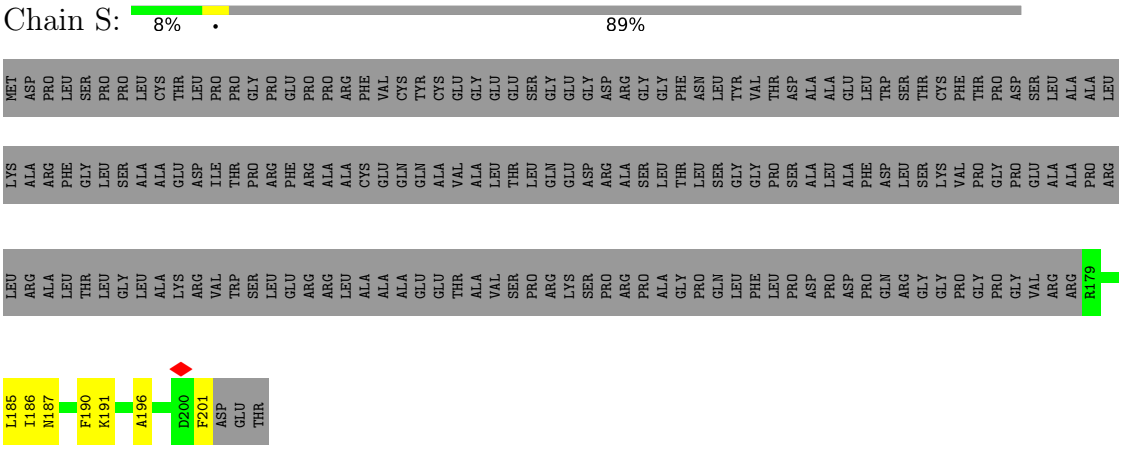
• Molecule 7: Non-homologous end-joining factor 1

Chain I:



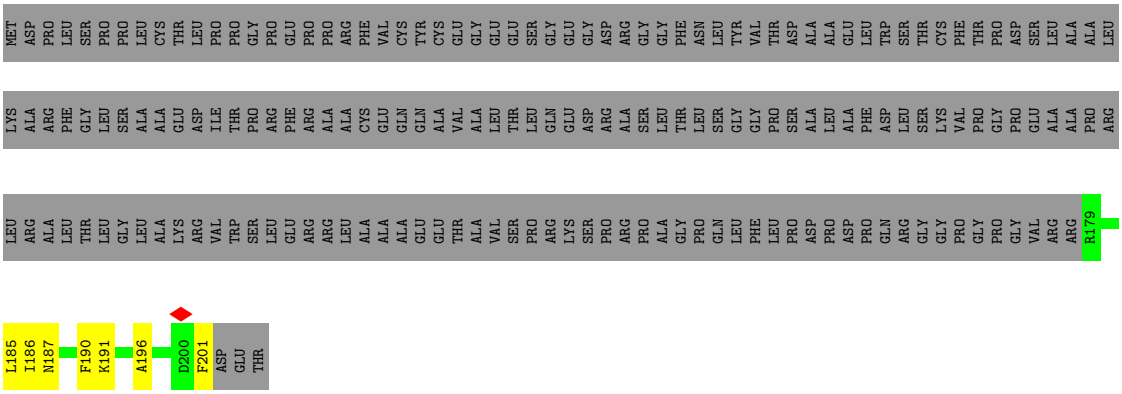
• Molecule 8: Protein PAXX

Chain S:



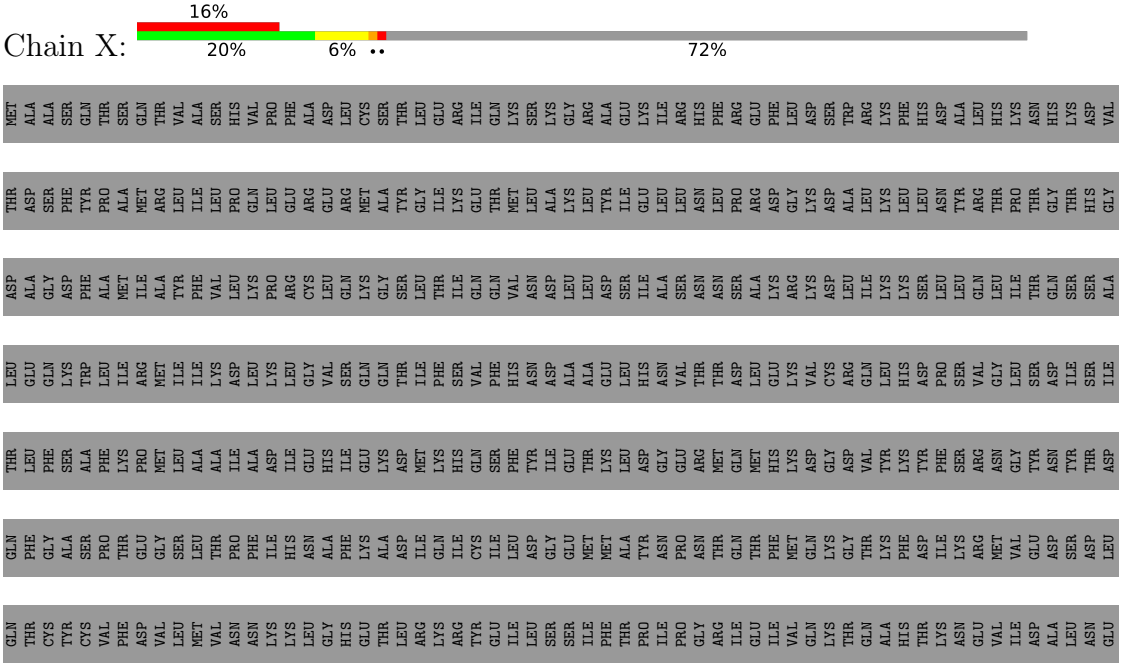
• Molecule 8: Protein PAXX

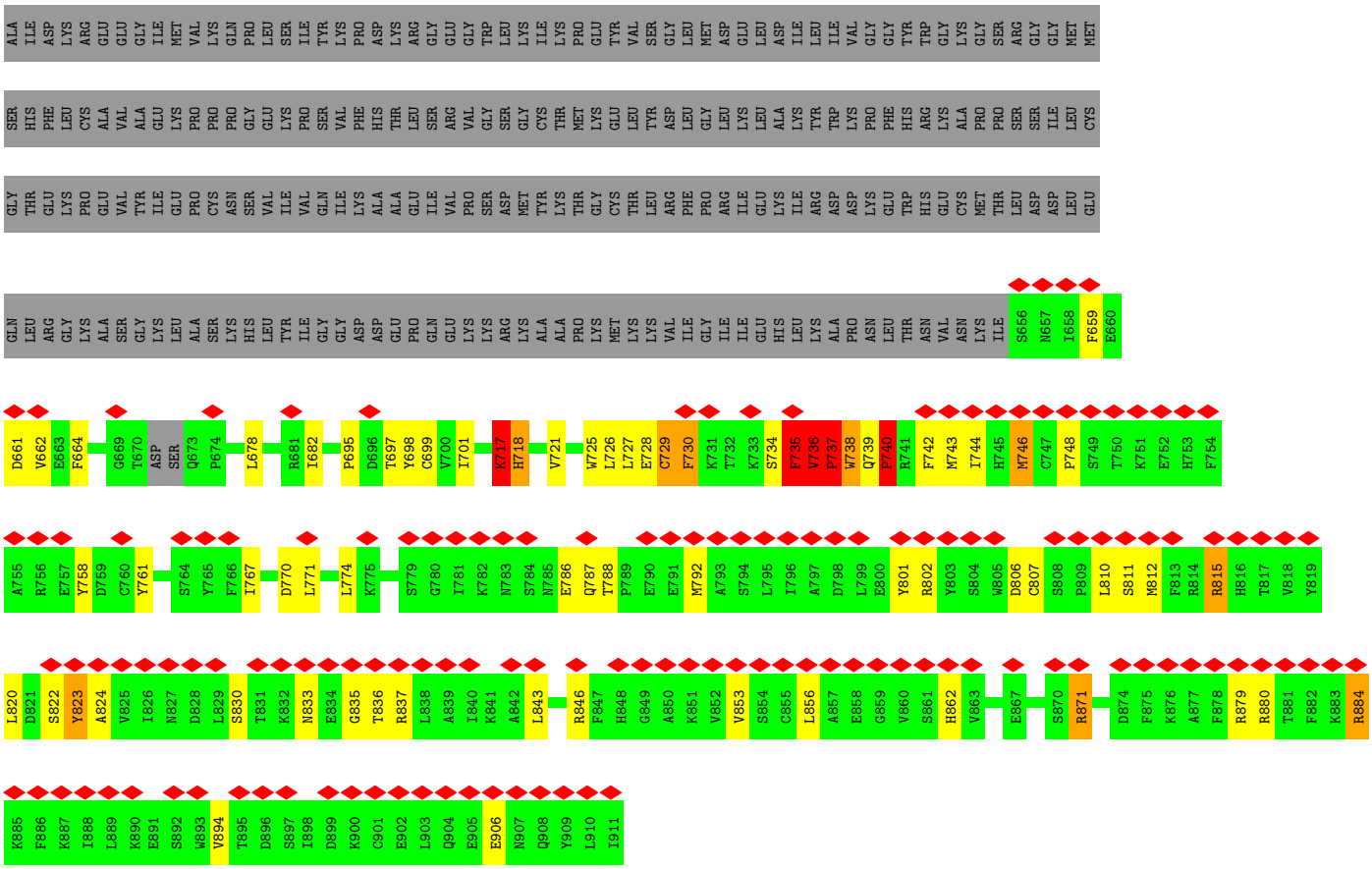
Chain T:



• Molecule 9: DNA ligase 4

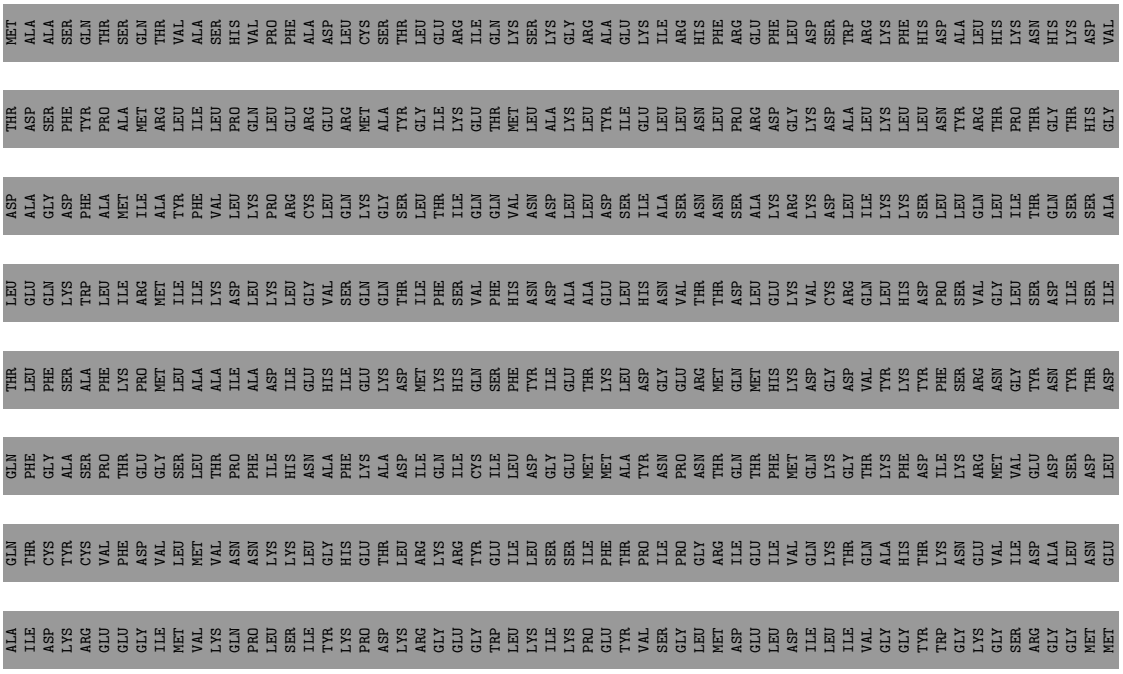
Chain X:

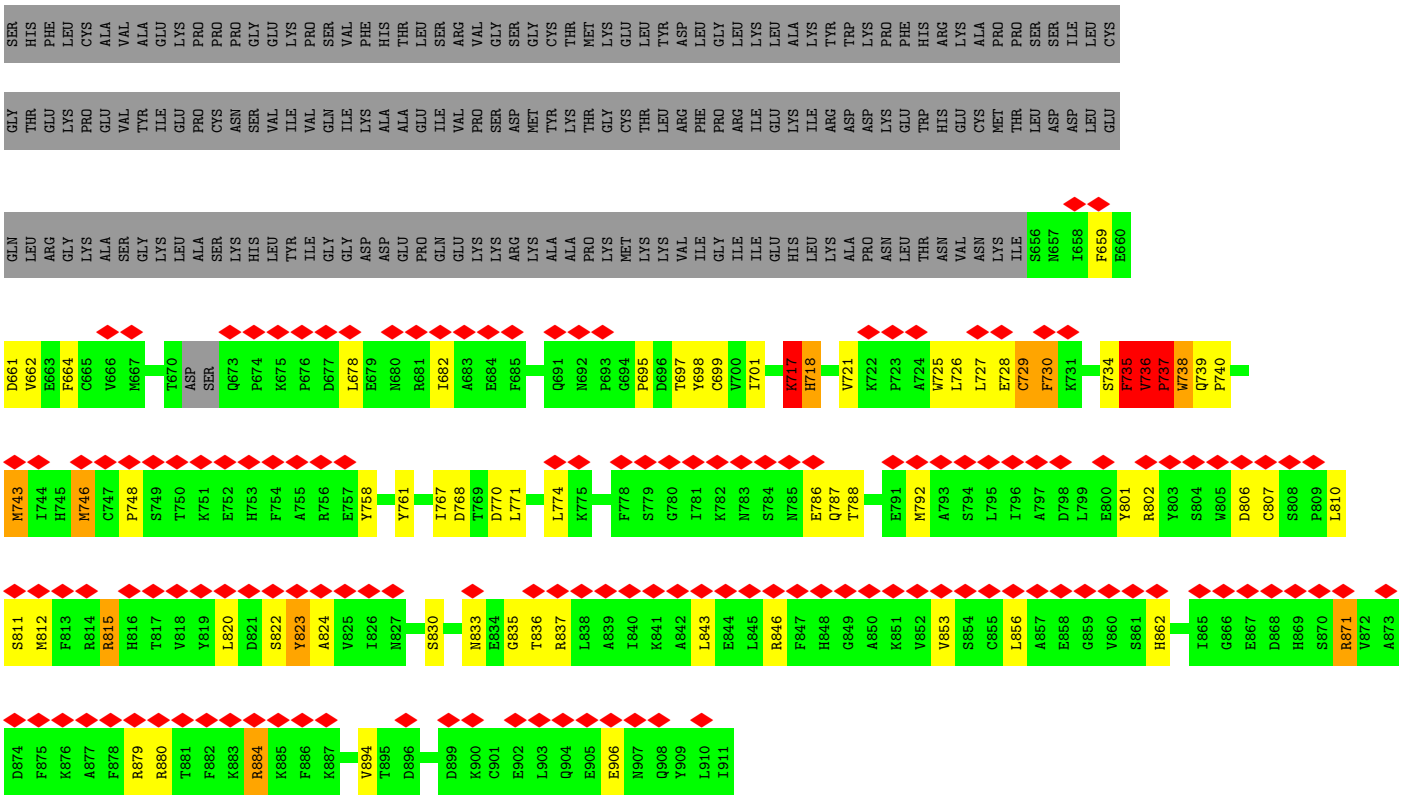




• Molecule 9: DNA ligase 4

Chain Y:




SER HIS PHE LEU CYS ALA VAL ALA GLU LYS PRO PRO PRO GLY GLU LYS PRO SER VAL PHE HIS THR LEU SER ARG VAL GLY SER GLY CYS THR MET LYS GLU LEU TYR ASP LEU GLY LEU LYS LEU ALA LYS TYR TRP LYS PRO PHE HIS ARG LYS ALA PRO PRO SER SER ILE LEU CYS
GLY THR GLU LYS PRO GLU VAL TYR ILE GLU PRO CYS ASN SER VAL ILE VAL GLN ILE LYS ALA ALA GLU ILE VAL PRO SER ASP MET TYR LYS THR GLY CYS THR LEU ARG PHE PRO ARG ILE GLU LYS ILE ARG ASP ASP LEU GLU
GLN LEU ARG GLY LYS ALA SER GLY LYS LEU ALA SER LYS HIS LEU TYR ILE GLY GLY ASP ASP GLU PRO GLN GLU LYS LYS ARG LYS ALA ALA PRO LYS MET LYS LYS VAL ILE GLY ILE ILE GLU HIS LEU LYS ALA PRO ASN LEU THR ASN VAL ASN LYS ILE S656 N657 I658 F659 E660
D661 V662 E663 F664 C665 V666 M667 T670 ASP SER Q673 P674 K675 P676 D677 L678 E679 N680 R681 I682 A683 E684 F685 Q691 N692 P693 G694 P695 D696 T697 Y698 C699 V700 I701 K717 H718 V721 K722 P723 A724 W725 L726 L727 E728 C729 F730 K731 S734 F735 V736 P737 W738 Q739 P740
M743 I744 H745 M746 C747 P748 S749 T750 K751 E752 H753 F754 A755 R756 E757 Y758 Y761 I767 D768 T769 D770 L771 L774 K775 F778 S779 G780 I781 K782 N783 S784 N785 E786 Q787 T788 E791 M792 A793 S794 L795 I796 A797 D798 L799 E800 Y801 R802 Y803 S804 W805 D806 C807 S808 P809 L810
S811 M812 F813 R814 R815 H816 T817 V818 Y819 L820 D821 S822 Y823 A824 V825 I826 N827 S830 N833 E834 G835 T836 R837 L838 A839 I840 K841 A842 L843 E844 L845 R846 F847 H848 G849 A850 K851 V852 V853 S854 C855 L856 A857 E858 G859 V860 S861 H862 I865 G866 E867 D868 H869 S870 R871 V872 A873
D874 F875 K876 A877 F878 R879 R880 T881 F882 K883 R884 K885 F886 K887 V894 T895 D896 D899 K900 C901 E902 L903 Q904 E905 E906 N907 Q908 Y909 L910 I911

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	495819	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 ($e^-/Å^2$)	65	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	60000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.081	Depositor
Minimum map value	-0.037	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.016	Depositor
Map size (Å)	506.88, 506.88, 506.88	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.112, 2.112, 2.112	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ATP

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	1.23	9/4101 (0.2%)	1.20	34/5523 (0.6%)
1	J	1.23	9/4101 (0.2%)	1.20	34/5523 (0.6%)
2	B	0.66	0/4286	1.08	17/5781 (0.3%)
2	K	0.66	0/4286	1.10	18/5781 (0.3%)
3	C	0.68	0/30414	1.08	116/41106 (0.3%)
3	L	0.68	0/30414	1.08	119/41106 (0.3%)
4	D	1.71	6/710 (0.8%)	2.77	81/1093 (7.4%)
4	M	1.77	8/710 (1.1%)	2.83	85/1093 (7.8%)
5	E	1.68	3/690 (0.4%)	2.32	53/1063 (5.0%)
5	N	1.69	4/690 (0.6%)	2.32	54/1063 (5.1%)
6	F	0.76	0/1657	1.29	15/2228 (0.7%)
6	G	0.74	0/1622	1.29	20/2178 (0.9%)
6	O	0.76	0/1657	1.28	14/2228 (0.6%)
6	P	0.74	0/1622	1.29	19/2178 (0.9%)
7	H	0.78	7/1814 (0.4%)	1.17	13/2454 (0.5%)
7	I	0.79	6/1771 (0.3%)	1.11	5/2395 (0.2%)
8	S	0.67	0/172	1.01	0/229
8	T	0.67	0/172	1.01	0/229
9	X	0.83	2/2112 (0.1%)	1.41	29/2851 (1.0%)
9	Y	0.82	2/2112 (0.1%)	1.40	27/2851 (0.9%)
All	All	0.80	56/95113 (0.1%)	1.20	753/128953 (0.6%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3
1	J	0	3
2	B	0	5

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	K	0	5
3	C	0	36
3	L	0	36
4	D	0	16
4	M	0	15
5	E	0	11
5	N	0	11
6	F	0	5
6	G	0	2
6	O	0	5
6	P	0	2
7	H	0	2
7	I	0	4
9	X	0	7
9	Y	0	8
All	All	0	176

All (56) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	334	THR	CB-CG2	39.47	2.82	1.52
1	J	334	THR	CB-CG2	39.47	2.82	1.52
1	J	334	THR	N-CA	30.85	2.08	1.46
1	A	334	THR	N-CA	30.80	2.08	1.46
1	A	333	GLU	CB-CG	28.20	2.05	1.52
1	J	333	GLU	CB-CG	28.14	2.05	1.52
1	J	334	THR	CB-OG1	17.36	1.77	1.43
1	A	334	THR	CB-OG1	17.31	1.77	1.43
1	A	333	GLU	CG-CD	14.30	1.73	1.51
1	J	333	GLU	CG-CD	14.25	1.73	1.51
1	J	333	GLU	CA-CB	13.26	1.83	1.53
1	A	333	GLU	CA-CB	13.22	1.83	1.53
1	A	333	GLU	N-CA	10.89	1.68	1.46
1	J	333	GLU	N-CA	10.89	1.68	1.46
1	A	333	GLU	C-N	9.78	1.56	1.34
1	J	333	GLU	C-N	9.77	1.56	1.34
4	M	26	DT	P-O5'	9.53	1.69	1.59
1	J	333	GLU	CA-C	9.46	1.77	1.52
1	A	333	GLU	CA-C	9.43	1.77	1.52
4	M	26	DT	C5'-C4'	8.52	1.60	1.51
4	D	26	DT	P-O5'	8.19	1.68	1.59
4	M	25	DT	O3'-P	-7.06	1.52	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	Y	737	PRO	CA-C	6.66	1.66	1.52
9	X	737	PRO	CA-C	6.65	1.66	1.52
7	H	1	MET	CG-SD	6.58	1.98	1.81
9	X	737	PRO	N-CA	6.33	1.58	1.47
9	Y	737	PRO	N-CA	6.29	1.57	1.47
7	H	140	MET	CG-SD	6.19	1.97	1.81
7	H	10	MET	CG-SD	6.18	1.97	1.81
7	I	1	MET	CG-SD	6.04	1.96	1.81
7	I	124	MET	CG-SD	5.95	1.96	1.81
7	I	140	MET	CG-SD	5.93	1.96	1.81
7	I	194	MET	CG-SD	5.86	1.96	1.81
7	H	212	MET	CG-SD	5.75	1.96	1.81
7	I	212	MET	CG-SD	5.65	1.95	1.81
7	H	124	MET	CG-SD	5.61	1.95	1.81
4	D	27	DA	C5-C4	-5.59	1.34	1.38
7	I	159	MET	CG-SD	5.48	1.95	1.81
4	D	22	DA	C5-C4	-5.45	1.34	1.38
4	M	22	DA	C5-C4	-5.45	1.34	1.38
7	H	194	MET	CG-SD	5.41	1.95	1.81
5	N	5	DA	C5-C4	-5.39	1.34	1.38
4	D	24	DA	C5-C4	-5.34	1.35	1.38
4	M	24	DA	C5-C4	-5.34	1.35	1.38
7	H	159	MET	CG-SD	5.30	1.95	1.81
5	N	16	DA	C5-C4	-5.29	1.35	1.38
5	E	16	DA	C5-C4	-5.28	1.35	1.38
5	E	5	DA	C5-C4	-5.26	1.35	1.38
4	D	6	DG	C2-N2	-5.13	1.29	1.34
4	M	6	DG	C2-N2	-5.13	1.29	1.34
5	N	8	DC	C4-N4	-5.13	1.29	1.33
4	D	29	DA	C5-C4	-5.04	1.35	1.38
4	M	29	DA	C5-C4	-5.04	1.35	1.38
4	M	27	DA	C5-C4	-5.03	1.35	1.38
5	E	3	DG	C2-N2	-5.02	1.29	1.34
5	N	18	DC	C4-N4	-5.02	1.29	1.33

All (753) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	M	25	DT	O3'-P-O5'	-20.14	65.73	104.00
4	D	25	DT	P-O3'-C3'	-15.95	100.56	119.70
4	M	26	DT	O5'-P-OP1	14.99	128.69	110.70
4	M	26	DT	P-O5'-C5'	14.40	143.94	120.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	26	DT	O5'-P-OP1	14.13	127.66	110.70
6	F	3	ARG	NE-CZ-NH2	13.58	127.09	120.30
6	O	3	ARG	NE-CZ-NH2	13.50	127.05	120.30
1	J	334	THR	N-CA-CB	-13.31	85.01	110.30
1	A	334	THR	N-CA-CB	-13.29	85.04	110.30
1	J	333	GLU	CA-CB-CG	-13.08	84.62	113.40
1	A	333	GLU	CA-CB-CG	-13.06	84.66	113.40
2	B	231	LEU	CB-CG-CD1	13.04	133.16	111.00
2	K	231	LEU	CB-CG-CD1	13.00	133.11	111.00
2	K	326	VAL	CA-CB-CG1	12.91	130.27	110.90
4	D	25	DT	OP1-P-O3'	-12.54	77.61	105.20
4	M	26	DT	O4'-C4'-C3'	-12.54	98.47	106.00
4	D	26	DT	O4'-C1'-C2'	-12.35	96.02	105.90
1	J	333	GLU	C-N-CA	-12.23	91.14	121.70
1	A	333	GLU	C-N-CA	-12.21	91.17	121.70
9	Y	735	PHE	CB-CG-CD2	-11.60	112.68	120.80
9	X	735	PHE	CB-CG-CD2	-11.55	112.72	120.80
1	A	333	GLU	CB-CA-C	-11.52	87.35	110.40
1	J	333	GLU	CB-CA-C	-11.52	87.35	110.40
1	J	334	THR	CA-CB-OG1	-11.52	84.82	109.00
1	A	334	THR	CA-CB-OG1	-11.50	84.85	109.00
9	X	735	PHE	CB-CG-CD1	10.56	128.19	120.80
9	Y	735	PHE	CB-CG-CD1	10.55	128.19	120.80
1	J	333	GLU	O-C-N	10.34	139.25	122.70
1	J	333	GLU	CG-CD-OE2	-10.33	97.64	118.30
1	A	333	GLU	CG-CD-OE2	-10.33	97.64	118.30
1	A	333	GLU	O-C-N	10.30	139.19	122.70
4	M	25	DT	P-O3'-C3'	-10.18	107.48	119.70
1	J	333	GLU	CG-CD-OE1	10.16	138.62	118.30
1	A	333	GLU	CG-CD-OE1	10.14	138.58	118.30
6	G	43	TRP	CB-CG-CD2	10.06	139.67	126.60
6	P	43	TRP	CB-CG-CD2	10.05	139.67	126.60
4	M	27	DA	C5-C6-N1	9.91	122.66	117.70
9	Y	737	PRO	N-CA-C	9.90	137.83	112.10
9	X	737	PRO	N-CA-C	9.89	137.81	112.10
7	I	176	ARG	NE-CZ-NH2	9.60	125.10	120.30
1	J	333	GLU	N-CA-CB	-9.55	93.41	110.60
1	A	333	GLU	N-CA-CB	-9.54	93.43	110.60
1	J	258	ARG	NE-CZ-NH2	9.50	125.05	120.30
4	M	7	DA	C5-C6-N1	9.47	122.43	117.70
4	D	7	DA	C5-C6-N1	9.46	122.43	117.70
1	A	258	ARG	NE-CZ-NH2	9.43	125.02	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	H	109	ARG	NE-CZ-NH2	9.40	125.00	120.30
4	D	5	DA	N1-C6-N6	-9.38	112.97	118.60
3	C	1445	ARG	NE-CZ-NH2	9.33	124.97	120.30
3	L	1445	ARG	NE-CZ-NH2	9.33	124.97	120.30
4	M	5	DA	N1-C6-N6	-9.32	113.01	118.60
6	P	43	TRP	CB-CG-CD1	-9.24	114.98	127.00
6	G	43	TRP	CB-CG-CD1	-9.22	115.01	127.00
4	D	27	DA	C5-C6-N1	9.21	122.31	117.70
3	C	385	TYR	CB-CG-CD2	-9.20	115.48	121.00
2	K	353	ARG	NE-CZ-NH2	9.19	124.89	120.30
3	L	385	TYR	CB-CG-CD2	-9.16	115.50	121.00
3	C	1735	ARG	NE-CZ-NH2	9.11	124.86	120.30
2	B	353	ARG	NE-CZ-NH2	9.10	124.85	120.30
4	D	27	DA	O4'-C1'-N9	9.06	114.34	108.00
4	M	25	DT	OP1-P-O3'	-9.04	85.31	105.20
4	D	8	DA	N1-C6-N6	-8.99	113.20	118.60
4	M	27	DA	C4-C5-C6	-8.98	112.51	117.00
9	X	823	TYR	CB-CG-CD1	-8.96	115.62	121.00
4	M	8	DA	N1-C6-N6	-8.95	113.23	118.60
9	Y	823	TYR	CB-CG-CD1	-8.92	115.65	121.00
3	L	1735	ARG	NE-CZ-NH2	8.91	124.76	120.30
4	D	29	DA	C5-C6-N1	8.83	122.12	117.70
9	Y	758	TYR	CB-CG-CD2	-8.83	115.70	121.00
4	M	29	DA	C5-C6-N1	8.80	122.10	117.70
9	X	871	ARG	NE-CZ-NH2	8.79	124.69	120.30
9	Y	738	TRP	CG-CD2-CE3	8.79	141.81	133.90
9	Y	871	ARG	NE-CZ-NH2	8.77	124.68	120.30
4	D	19	DA	N1-C6-N6	-8.75	113.35	118.60
9	X	758	TYR	CB-CG-CD2	-8.75	115.75	121.00
3	C	852	ARG	NE-CZ-NH2	8.74	124.67	120.30
3	L	852	ARG	NE-CZ-NH2	8.74	124.67	120.30
9	X	738	TRP	CG-CD2-CE3	8.70	141.73	133.90
4	D	27	DA	C4-C5-C6	-8.70	112.65	117.00
4	M	19	DA	N1-C6-N6	-8.69	113.39	118.60
3	C	1178	ARG	NE-CZ-NH2	8.66	124.63	120.30
7	I	57	ARG	NE-CZ-NH2	8.58	124.59	120.30
3	L	1178	ARG	NE-CZ-NH2	8.57	124.58	120.30
6	F	129	TYR	CB-CG-CD1	-8.56	115.86	121.00
4	D	4	DA	C5-C6-N1	8.55	121.97	117.70
4	M	4	DA	C5-C6-N1	8.55	121.97	117.70
6	O	129	TYR	CB-CG-CD1	-8.51	115.89	121.00
5	N	10	DA	O4'-C4'-C3'	-8.43	100.94	106.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	K	381	ILE	CA-CB-CG1	8.41	126.98	111.00
2	B	381	ILE	CA-CB-CG1	8.38	126.93	111.00
4	D	7	DA	N1-C6-N6	-8.38	113.57	118.60
3	L	3357	ARG	NE-CZ-NH2	8.37	124.49	120.30
5	E	10	DA	O4'-C4'-C3'	-8.37	100.98	106.00
5	N	14	DA	N1-C6-N6	-8.36	113.59	118.60
5	E	14	DA	N1-C6-N6	-8.32	113.61	118.60
5	E	5	DA	C5-C6-N1	8.31	121.86	117.70
4	D	18	DC	N3-C2-O2	-8.29	116.10	121.90
4	M	7	DA	N1-C6-N6	-8.29	113.63	118.60
6	P	155	TRP	CB-CG-CD2	8.28	137.36	126.60
6	G	155	TRP	CB-CG-CD2	8.27	137.35	126.60
4	M	18	DC	N3-C2-O2	-8.27	116.11	121.90
5	N	5	DA	C5-C6-N1	8.26	121.83	117.70
3	C	3357	ARG	NE-CZ-NH2	8.26	124.43	120.30
7	H	57	ARG	NE-CZ-NH2	8.24	124.42	120.30
5	E	15	DC	N3-C2-O2	-8.21	116.16	121.90
5	N	15	DC	N3-C2-O2	-8.21	116.16	121.90
5	E	19	DA	C5-C6-N1	8.17	121.78	117.70
4	D	14	DA	C5-C6-N1	8.16	121.78	117.70
9	X	770	ASP	N-CA-CB	-8.15	95.92	110.60
6	G	88	PHE	CB-CG-CD1	-8.12	115.12	120.80
5	N	19	DA	C5-C6-N1	8.12	121.76	117.70
7	H	151	ARG	NE-CZ-NH2	8.11	124.36	120.30
3	C	1810	PRO	C-N-CA	8.11	141.97	121.70
6	P	88	PHE	CB-CG-CD1	-8.09	115.14	120.80
4	D	14	DA	N1-C6-N6	-8.07	113.76	118.60
3	C	3741	ARG	NE-CZ-NH2	8.07	124.33	120.30
4	D	8	DA	C4-C5-C6	-8.02	112.99	117.00
4	M	14	DA	C5-C6-N1	8.02	121.71	117.70
4	D	22	DA	C5-C6-N1	8.02	121.71	117.70
4	D	30	DC	O4'-C1'-N1	8.00	113.60	108.00
4	M	14	DA	N1-C6-N6	-7.99	113.81	118.60
4	M	8	DA	C4-C5-C6	-7.97	113.01	117.00
3	L	3741	ARG	NE-CZ-NH2	7.95	124.28	120.30
6	G	97	PHE	CB-CG-CD1	-7.95	115.24	120.80
3	C	3696	ARG	NE-CZ-NH2	7.94	124.27	120.30
4	M	30	DC	O4'-C1'-N1	7.94	113.56	108.00
4	D	24	DA	C5-C6-N1	7.92	121.66	117.70
4	M	24	DA	C5-C6-N1	7.92	121.66	117.70
4	M	22	DA	C5-C6-N1	7.88	121.64	117.70
9	X	738	TRP	CB-CG-CD2	7.87	136.83	126.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	P	97	PHE	CB-CG-CD1	-7.86	115.30	120.80
9	Y	738	TRP	CB-CG-CD2	7.85	136.81	126.60
4	M	26	DT	O4'-C1'-C2'	-7.83	99.63	105.90
3	L	2120	ARG	NE-CZ-NH2	7.82	124.21	120.30
3	L	3696	ARG	NE-CZ-NH2	7.82	124.21	120.30
3	C	2470	ARG	NE-CZ-NH2	7.80	124.20	120.30
4	M	8	DA	C5-C6-N1	7.76	121.58	117.70
4	D	8	DA	C5-C6-N1	7.75	121.58	117.70
3	C	1816	ARG	NE-CZ-NH2	7.74	124.17	120.30
4	M	27	DA	O4'-C1'-N9	7.74	113.42	108.00
3	C	2120	ARG	NE-CZ-NH2	7.73	124.17	120.30
5	N	16	DA	C4-C5-C6	-7.73	113.13	117.00
1	A	165	ARG	NE-CZ-NH2	7.71	124.16	120.30
3	L	1816	ARG	NE-CZ-NH2	7.71	124.16	120.30
5	E	30	DA	C5-C6-N1	7.71	121.55	117.70
5	N	30	DA	C5-C6-N1	7.71	121.55	117.70
7	H	178	ARG	NE-CZ-NH2	7.69	124.14	120.30
5	E	30	DA	N1-C6-N6	-7.68	113.99	118.60
1	J	165	ARG	NE-CZ-NH2	7.68	124.14	120.30
4	D	19	DA	C5-C6-N1	7.67	121.53	117.70
5	E	16	DA	C4-C5-C6	-7.67	113.17	117.00
3	L	2470	ARG	NE-CZ-NH2	7.67	124.13	120.30
6	P	155	TRP	CB-CG-CD1	-7.66	117.05	127.00
5	N	30	DA	N1-C6-N6	-7.65	114.01	118.60
6	G	155	TRP	CB-CG-CD1	-7.65	117.06	127.00
4	M	29	DA	C4-C5-C6	-7.61	113.20	117.00
4	D	24	DA	C4-C5-C6	-7.60	113.20	117.00
4	M	24	DA	C4-C5-C6	-7.60	113.20	117.00
5	N	28	DA	C5-C6-N1	7.60	121.50	117.70
4	M	19	DA	C5-C6-N1	7.57	121.49	117.70
4	D	1	DT	N3-C2-O2	-7.57	117.76	122.30
4	D	27	DA	O4'-C4'-C3'	-7.57	101.46	106.00
3	L	1075	ARG	NE-CZ-NH2	7.55	124.08	120.30
5	E	28	DA	C5-C6-N1	7.54	121.47	117.70
3	C	1075	ARG	NE-CZ-NH2	7.52	124.06	120.30
4	D	19	DA	C4-C5-C6	-7.52	113.24	117.00
4	D	29	DA	C4-C5-C6	-7.51	113.25	117.00
4	M	19	DA	C4-C5-C6	-7.49	113.25	117.00
3	C	1711	ARG	NE-CZ-NH2	7.48	124.04	120.30
3	L	1711	ARG	NE-CZ-NH2	7.48	124.04	120.30
4	D	31	DT	C6-C5-C7	-7.46	118.42	122.90
4	D	4	DA	N1-C6-N6	-7.46	114.12	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	M	31	DT	C6-C5-C7	-7.45	118.43	122.90
3	C	2522	ARG	NE-CZ-NH2	7.44	124.02	120.30
4	M	1	DT	N3-C2-O2	-7.42	117.84	122.30
4	M	4	DA	N1-C6-N6	-7.42	114.15	118.60
1	J	339	ARG	NE-CZ-NH2	7.40	124.00	120.30
7	H	18	LEU	CD1-CG-CD2	7.38	132.64	110.50
4	D	9	DC	N3-C2-O2	-7.36	116.75	121.90
3	L	2962	ARG	NE-CZ-NH2	7.35	123.98	120.30
3	L	2636	ARG	NE-CZ-NH2	7.35	123.97	120.30
7	I	151	ARG	NE-CZ-NH2	7.34	123.97	120.30
3	L	2522	ARG	NE-CZ-NH2	7.33	123.97	120.30
6	G	88	PHE	CB-CG-CD2	7.33	125.93	120.80
6	P	88	PHE	CB-CG-CD2	7.33	125.93	120.80
4	M	9	DC	N3-C2-O2	-7.33	116.77	121.90
3	C	2962	ARG	NE-CZ-NH2	7.32	123.96	120.30
5	E	14	DA	C4-C5-C6	-7.32	113.34	117.00
6	F	161	ARG	NE-CZ-NH2	7.32	123.96	120.30
4	M	28	DC	N3-C2-O2	-7.31	116.78	121.90
5	N	18	DC	N3-C4-C5	7.30	124.82	121.90
1	A	339	ARG	NE-CZ-NH2	7.29	123.95	120.30
3	C	2636	ARG	NE-CZ-NH2	7.29	123.94	120.30
3	L	2891	ARG	NE-CZ-NH2	7.29	123.94	120.30
5	N	14	DA	C4-C5-C6	-7.28	113.36	117.00
5	N	16	DA	C5-C6-N1	7.28	121.34	117.70
6	O	161	ARG	NE-CZ-NH2	7.26	123.93	120.30
3	C	2891	ARG	NE-CZ-NH2	7.24	123.92	120.30
5	E	16	DA	C5-C6-N1	7.24	121.32	117.70
4	D	28	DC	N3-C2-O2	-7.20	116.86	121.90
1	J	333	GLU	CA-C-N	-7.19	101.38	117.20
4	D	5	DA	C5-C6-N1	7.18	121.29	117.70
1	A	333	GLU	CA-C-N	-7.17	101.42	117.20
4	M	5	DA	C5-C6-N1	7.17	121.28	117.70
5	E	18	DC	N3-C4-C5	7.16	124.76	121.90
3	L	385	TYR	CB-CG-CD1	7.16	125.29	121.00
4	D	29	DA	O4'-C1'-N9	7.15	113.00	108.00
4	M	29	DA	O4'-C1'-N9	7.15	113.00	108.00
4	D	14	DA	C4-C5-C6	-7.09	113.45	117.00
4	M	14	DA	C4-C5-C6	-7.09	113.45	117.00
5	N	10	DA	C4-C5-C6	-7.08	113.46	117.00
5	E	10	DA	C4-C5-C6	-7.06	113.47	117.00
2	B	151	ILE	CA-CB-CG1	7.04	124.39	111.00
2	K	151	ILE	CA-CB-CG1	7.04	124.38	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	M	7	DA	C4-C5-C6	-7.04	113.48	117.00
3	C	385	TYR	CB-CG-CD1	7.04	125.22	121.00
5	N	10	DA	N1-C6-N6	-7.03	114.38	118.60
4	D	7	DA	C4-C5-C6	-7.02	113.49	117.00
1	J	517	ARG	NE-CZ-NH2	7.01	123.81	120.30
1	A	517	ARG	NE-CZ-NH2	7.00	123.80	120.30
3	L	2232	ARG	NE-CZ-NH2	6.99	123.80	120.30
3	C	2232	ARG	NE-CZ-NH2	6.98	123.79	120.30
3	L	2425	ARG	NE-CZ-NH2	6.98	123.79	120.30
4	D	22	DA	C4-C5-C6	-6.98	113.51	117.00
4	D	9	DC	O4'-C4'-C3'	6.96	110.18	106.00
4	M	9	DC	O4'-C4'-C3'	6.94	110.16	106.00
3	C	1184	ARG	NE-CZ-NH2	6.93	123.77	120.30
3	L	1184	ARG	NE-CZ-NH2	6.93	123.77	120.30
3	C	2425	ARG	NE-CZ-NH2	6.93	123.76	120.30
6	G	32	PHE	CB-CG-CD2	-6.92	115.96	120.80
6	P	32	PHE	CB-CG-CD2	-6.91	115.96	120.80
4	M	22	DA	C4-C5-C6	-6.91	113.55	117.00
7	H	176	ARG	NE-CZ-NH2	6.91	123.75	120.30
9	X	846	ARG	NE-CZ-NH2	6.91	123.75	120.30
5	N	21	DA	C5-C6-N1	6.89	121.15	117.70
3	L	3962	ARG	NE-CZ-NH2	6.89	123.75	120.30
4	M	31	DT	N3-C2-O2	-6.88	118.17	122.30
5	E	10	DA	N1-C6-N6	-6.87	114.48	118.60
1	A	290	ARG	NE-CZ-NH2	6.86	123.73	120.30
3	C	2530	ARG	NE-CZ-NH2	6.86	123.73	120.30
1	A	187	ARG	NE-CZ-NH2	6.85	123.72	120.30
1	J	290	ARG	NE-CZ-NH2	6.84	123.72	120.30
4	D	31	DT	N3-C2-O2	-6.83	118.20	122.30
3	C	3962	ARG	NE-CZ-NH2	6.81	123.70	120.30
3	L	2530	ARG	NE-CZ-NH2	6.79	123.70	120.30
5	E	21	DA	C5-C6-N1	6.79	121.09	117.70
1	J	187	ARG	NE-CZ-NH2	6.76	123.68	120.30
1	J	218	ARG	NE-CZ-NH2	6.76	123.68	120.30
3	L	1460	ARG	NE-CZ-NH2	6.76	123.68	120.30
9	Y	758	TYR	CB-CG-CD1	6.75	125.05	121.00
9	Y	738	TRP	N-CA-CB	-6.75	98.45	110.60
3	C	3413	TYR	CB-CG-CD2	-6.74	116.95	121.00
3	L	3413	TYR	CB-CG-CD2	-6.74	116.95	121.00
9	X	738	TRP	N-CA-CB	-6.74	98.47	110.60
4	D	4	DA	C4-C5-C6	-6.74	113.63	117.00
3	L	1727	ARG	NE-CZ-NH1	-6.73	116.94	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	Y	846	ARG	NE-CZ-NH2	6.73	123.67	120.30
3	C	1460	ARG	NE-CZ-NH2	6.71	123.66	120.30
3	L	82	ARG	NE-CZ-NH2	6.71	123.65	120.30
4	M	4	DA	C4-C5-C6	-6.71	113.65	117.00
9	X	736	VAL	CA-C-O	-6.70	106.02	120.10
4	D	6	DG	O4'-C1'-N9	6.70	112.69	108.00
4	M	6	DG	O4'-C1'-N9	6.70	112.69	108.00
5	E	28	DA	C4-C5-C6	-6.69	113.66	117.00
3	L	3247	ARG	NE-CZ-NH2	6.69	123.64	120.30
3	L	913	ARG	NE-CZ-NH2	6.69	123.64	120.30
4	M	26	DT	O4'-C1'-N1	6.69	112.68	108.00
9	Y	736	VAL	CA-C-O	-6.68	106.07	120.10
5	N	28	DA	C4-C5-C6	-6.67	113.66	117.00
3	C	1727	ARG	NE-CZ-NH1	-6.67	116.97	120.30
1	A	218	ARG	NE-CZ-NH2	6.66	123.63	120.30
9	X	758	TYR	CB-CG-CD1	6.65	124.99	121.00
9	Y	879	ARG	NE-CZ-NH2	6.64	123.62	120.30
5	N	17	DT	C5-C6-N1	-6.64	119.71	123.70
3	C	913	ARG	NE-CZ-NH2	6.63	123.61	120.30
3	C	3247	ARG	NE-CZ-NH2	6.63	123.61	120.30
3	C	82	ARG	NE-CZ-NH2	6.62	123.61	120.30
3	C	3335	ARG	NE-CZ-NH2	6.62	123.61	120.30
5	E	17	DT	C5-C6-N1	-6.62	119.73	123.70
5	E	19	DA	C4-C5-C6	-6.61	113.69	117.00
9	Y	735	PHE	CA-CB-CG	6.61	129.75	113.90
9	X	735	PHE	CA-CB-CG	6.60	129.75	113.90
6	G	95	PHE	CB-CG-CD1	-6.60	116.18	120.80
6	P	95	PHE	CB-CG-CD1	-6.60	116.18	120.80
4	D	1	DT	O4'-C1'-N1	6.58	112.61	108.00
5	N	21	DA	N1-C6-N6	-6.58	114.65	118.60
5	N	10	DA	C5-C6-N1	6.57	120.98	117.70
5	N	21	DA	C4-C5-C6	-6.57	113.72	117.00
9	X	879	ARG	NE-CZ-NH2	6.57	123.58	120.30
4	M	1	DT	O4'-C1'-N1	6.57	112.60	108.00
3	C	3593	ARG	NE-CZ-NH2	6.56	123.58	120.30
3	L	3593	ARG	NE-CZ-NH2	6.56	123.58	120.30
3	L	3335	ARG	NE-CZ-NH2	6.56	123.58	120.30
5	N	19	DA	C4-C5-C6	-6.54	113.73	117.00
1	A	333	GLU	CB-CG-CD	-6.52	96.58	114.20
5	E	21	DA	C4-C5-C6	-6.52	113.74	117.00
1	J	333	GLU	CB-CG-CD	-6.50	96.64	114.20
1	A	137	HIS	CA-CB-CG	-6.48	102.59	113.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	25	DT	OP2-P-O3'	6.47	119.44	105.20
5	N	6	DA	C4-C5-C6	-6.47	113.76	117.00
1	J	137	HIS	CA-CB-CG	-6.47	102.61	113.60
5	E	6	DA	C4-C5-C6	-6.46	113.77	117.00
6	O	150	ARG	NE-CZ-NH2	6.45	123.53	120.30
3	C	1712	ARG	NE-CZ-NH2	6.43	123.51	120.30
3	C	1986	ARG	NE-CZ-NH2	6.42	123.51	120.30
5	E	10	DA	C5-C6-N1	6.42	120.91	117.70
5	E	21	DA	N1-C6-N6	-6.41	114.75	118.60
9	X	717	LYS	CA-CB-CG	6.41	127.50	113.40
3	L	2232	ARG	NE-CZ-NH1	-6.41	117.10	120.30
6	P	179	ARG	NE-CZ-NH2	6.40	123.50	120.30
9	Y	717	LYS	CA-CB-CG	6.39	127.47	113.40
6	P	162	PHE	CB-CG-CD2	-6.39	116.33	120.80
9	X	740	PRO	CA-N-CD	-6.39	102.56	111.50
6	F	134	ILE	CA-CB-CG1	6.38	123.13	111.00
6	F	150	ARG	NE-CZ-NH2	6.38	123.49	120.30
6	O	134	ILE	CA-CB-CG1	6.37	123.10	111.00
3	L	1986	ARG	NE-CZ-NH2	6.36	123.48	120.30
6	G	179	ARG	NE-CZ-NH2	6.36	123.48	120.30
6	G	162	PHE	CB-CG-CD2	-6.36	116.35	120.80
7	H	137	ARG	NE-CZ-NH2	6.35	123.47	120.30
6	O	7	ARG	NE-CZ-NH2	6.35	123.47	120.30
4	M	24	DA	N1-C6-N6	-6.33	114.80	118.60
4	D	24	DA	N1-C6-N6	-6.33	114.80	118.60
5	N	23	DT	C6-C5-C7	-6.33	119.10	122.90
6	F	7	ARG	NE-CZ-NH2	6.33	123.46	120.30
3	L	1727	ARG	NE-CZ-NH2	6.32	123.46	120.30
3	C	2232	ARG	NE-CZ-NH1	-6.32	117.14	120.30
5	E	25	DC	C2-N3-C4	-6.30	116.75	119.90
4	D	6	DG	N3-C2-N2	-6.29	115.50	119.90
4	D	18	DC	N1-C2-O2	6.29	122.67	118.90
3	L	1712	ARG	NE-CZ-NH2	6.28	123.44	120.30
5	E	4	DT	C6-C5-C7	-6.28	119.13	122.90
6	F	124	ARG	NE-CZ-NH2	6.27	123.44	120.30
4	M	18	DC	N1-C2-O2	6.27	122.66	118.90
5	E	23	DT	C6-C5-C7	-6.26	119.14	122.90
3	C	1727	ARG	NE-CZ-NH2	6.26	123.43	120.30
5	N	25	DC	C2-N3-C4	-6.25	116.77	119.90
4	M	3	DT	C6-C5-C7	-6.25	119.15	122.90
4	M	2	DC	N3-C2-O2	-6.24	117.53	121.90
4	M	6	DG	N3-C2-N2	-6.24	115.53	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	J	444	ARG	NE-CZ-NH2	6.24	123.42	120.30
5	E	5	DA	C4-C5-C6	-6.23	113.88	117.00
3	C	888	ARG	NE-CZ-NH2	6.23	123.41	120.30
3	C	246	ARG	NE-CZ-NH2	6.22	123.41	120.30
5	N	4	DT	C6-C5-C7	-6.22	119.17	122.90
4	D	2	DC	N3-C2-O2	-6.22	117.55	121.90
3	L	888	ARG	NE-CZ-NH2	6.22	123.41	120.30
1	A	444	ARG	NE-CZ-NH2	6.21	123.40	120.30
4	M	30	DC	N3-C4-C5	6.20	124.38	121.90
5	E	25	DC	N3-C4-C5	6.19	124.38	121.90
4	D	3	DT	C6-C5-C7	-6.18	119.19	122.90
3	L	246	ARG	NE-CZ-NH2	6.17	123.39	120.30
4	D	30	DC	N3-C4-C5	6.17	124.37	121.90
5	N	8	DC	N3-C4-C5	6.17	124.37	121.90
2	B	431	ARG	NE-CZ-NH2	6.16	123.38	120.30
6	O	124	ARG	NE-CZ-NH2	6.15	123.37	120.30
3	L	3733	ARG	NE-CZ-NH2	6.13	123.37	120.30
2	K	431	ARG	NE-CZ-NH2	6.12	123.36	120.30
5	E	18	DC	N3-C4-N4	-6.12	113.72	118.00
3	L	1392	MET	CA-CB-CG	6.12	123.70	113.30
4	M	25	DT	N3-C2-O2	-6.11	118.64	122.30
3	C	1392	MET	CA-CB-CG	6.10	123.67	113.30
5	N	25	DC	N3-C4-C5	6.10	124.34	121.90
5	E	8	DC	N3-C4-C5	6.09	124.34	121.90
5	N	5	DA	C4-C5-C6	-6.09	113.95	117.00
3	C	3234	CYS	CA-CB-SG	-6.09	103.04	114.00
3	L	3234	CYS	CA-CB-SG	-6.09	103.04	114.00
4	D	5	DA	C4-C5-C6	-6.09	113.96	117.00
3	C	3733	ARG	NE-CZ-NH2	6.08	123.34	120.30
4	D	20	DG	O4'-C4'-C3'	6.08	109.65	106.00
3	C	459	ARG	NE-CZ-NH2	6.08	123.34	120.30
5	N	14	DA	C5-C6-N1	6.08	120.74	117.70
7	H	109	ARG	NE-CZ-NH1	-6.08	117.26	120.30
5	N	18	DC	N3-C4-N4	-6.08	113.75	118.00
4	D	30	DC	C1'-O4'-C4'	-6.08	104.02	110.10
3	C	406	ARG	NE-CZ-NH2	6.07	123.34	120.30
3	C	2452	ARG	NE-CZ-NH2	6.06	123.33	120.30
4	M	30	DC	C1'-O4'-C4'	-6.06	104.04	110.10
4	D	25	DT	N3-C2-O2	-6.05	118.67	122.30
5	E	14	DA	C5-C6-N1	6.04	120.72	117.70
5	N	6	DA	C5-N7-C8	-6.04	100.88	103.90
3	C	1184	ARG	NE-CZ-NH1	-6.03	117.28	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	E	6	DA	C5-N7-C8	-6.03	100.88	103.90
3	L	1064	TYR	CB-CG-CD2	-6.03	117.38	121.00
4	M	26	DT	C6-C5-C7	-6.03	119.28	122.90
4	M	5	DA	C4-C5-C6	-6.02	113.99	117.00
4	M	1	DT	C6-C5-C7	-6.02	119.29	122.90
3	C	2333	ARG	NE-CZ-NH2	6.02	123.31	120.30
3	C	1202	ARG	NE-CZ-NH2	6.01	123.31	120.30
6	F	59	MET	CA-CB-CG	6.00	123.51	113.30
3	C	527	TYR	CB-CG-CD2	-6.00	117.40	121.00
3	L	527	TYR	CB-CG-CD2	-6.00	117.40	121.00
6	O	59	MET	CA-CB-CG	6.00	123.50	113.30
3	C	2940	ARG	NE-CZ-NH2	6.00	123.30	120.30
3	C	2431	ARG	NE-CZ-NH2	5.99	123.29	120.30
4	D	25	DT	O3'-P-O5'	-5.99	92.62	104.00
3	L	1202	ARG	NE-CZ-NH2	5.99	123.29	120.30
3	L	2333	ARG	NE-CZ-NH2	5.99	123.29	120.30
3	L	3784	ARG	NE-CZ-NH2	5.98	123.29	120.30
3	L	2452	ARG	NE-CZ-NH2	5.98	123.29	120.30
3	L	2940	ARG	NE-CZ-NH2	5.97	123.28	120.30
3	L	406	ARG	NE-CZ-NH2	5.97	123.28	120.30
6	P	150	ARG	NE-CZ-NH2	5.97	123.28	120.30
3	L	1184	ARG	NE-CZ-NH1	-5.96	117.32	120.30
3	C	1064	TYR	CB-CG-CD2	-5.96	117.42	121.00
3	C	631	ARG	NE-CZ-NH2	5.96	123.28	120.30
3	C	14	ARG	NE-CZ-NH2	5.96	123.28	120.30
6	F	58	ASP	CA-CB-CG	5.96	126.51	113.40
3	L	1340	ARG	NE-CZ-NH2	5.96	123.28	120.30
4	M	20	DG	O4'-C4'-C3'	5.95	109.57	106.00
6	P	66	TYR	CB-CG-CD1	-5.95	117.43	121.00
3	L	340	TYR	CB-CG-CD2	-5.95	117.43	121.00
6	O	58	ASP	CA-CB-CG	5.95	126.49	113.40
9	Y	738	TRP	CE2-CD2-CE3	-5.94	111.58	118.70
6	G	66	TYR	CB-CG-CD1	-5.93	117.44	121.00
3	C	340	TYR	CB-CG-CD2	-5.92	117.45	121.00
3	L	2431	ARG	NE-CZ-NH2	5.92	123.26	120.30
3	L	459	ARG	NE-CZ-NH2	5.91	123.26	120.30
6	P	107	ARG	NE-CZ-NH2	5.91	123.25	120.30
9	X	738	TRP	CE2-CD2-CE3	-5.90	111.62	118.70
3	L	1854	ARG	NE-CZ-NH2	5.90	123.25	120.30
4	D	1	DT	C6-C5-C7	-5.90	119.36	122.90
4	D	23	DG	C5-C6-N1	5.89	114.45	111.50
5	E	30	DA	C4-C5-C6	-5.89	114.06	117.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	N	30	DA	C4-C5-C6	-5.89	114.06	117.00
3	L	1445	ARG	NH1-CZ-NH2	-5.88	112.93	119.40
4	M	23	DG	C5-C6-N1	5.88	114.44	111.50
3	L	14	ARG	NE-CZ-NH2	5.88	123.24	120.30
3	C	1152	ARG	NE-CZ-NH2	5.87	123.23	120.30
4	M	23	DG	N3-C2-N2	-5.86	115.80	119.90
3	C	971	ARG	NE-CZ-NH2	5.86	123.23	120.30
3	C	3784	ARG	NE-CZ-NH2	5.85	123.22	120.30
2	K	408	ALA	CB-CA-C	5.85	118.87	110.10
6	G	150	ARG	NE-CZ-NH2	5.84	123.22	120.30
3	C	1340	ARG	NE-CZ-NH2	5.84	123.22	120.30
4	D	23	DG	N3-C2-N2	-5.83	115.82	119.90
3	C	1445	ARG	NH1-CZ-NH2	-5.83	112.99	119.40
2	B	260	ARG	NE-CZ-NH2	5.82	123.21	120.30
6	G	107	ARG	NE-CZ-NH2	5.82	123.21	120.30
2	B	408	ALA	CB-CA-C	5.82	118.83	110.10
3	C	1026	ARG	NE-CZ-NH2	5.82	123.21	120.30
3	L	1026	ARG	NE-CZ-NH2	5.82	123.21	120.30
4	D	12	DT	C6-C5-C7	-5.81	119.42	122.90
9	X	758	TYR	CA-CB-CG	5.80	124.43	113.40
3	L	1784	ARG	NE-CZ-NH2	5.80	123.20	120.30
6	O	153	ARG	NE-CZ-NH2	5.79	123.20	120.30
4	M	12	DT	C6-C5-C7	-5.78	119.43	122.90
1	A	363	ARG	NE-CZ-NH2	5.78	123.19	120.30
5	E	19	DA	N1-C6-N6	-5.78	115.14	118.60
3	L	3467	ARG	NE-CZ-NH2	5.77	123.19	120.30
4	M	29	DA	N1-C6-N6	-5.77	115.14	118.60
9	Y	758	TYR	CA-CB-CG	5.77	124.37	113.40
3	C	1854	ARG	NE-CZ-NH2	5.77	123.19	120.30
4	D	29	DA	N1-C6-N6	-5.76	115.14	118.60
3	L	3036	TYR	CB-CG-CD2	-5.76	117.54	121.00
3	C	2899	ARG	NE-CZ-NH2	5.76	123.18	120.30
6	F	153	ARG	NE-CZ-NH2	5.76	123.18	120.30
2	K	260	ARG	NE-CZ-NH2	5.75	123.18	120.30
3	L	1152	ARG	NE-CZ-NH2	5.75	123.18	120.30
3	L	631	ARG	NE-CZ-NH2	5.75	123.17	120.30
3	C	3467	ARG	NE-CZ-NH2	5.75	123.17	120.30
1	J	363	ARG	NE-CZ-NH2	5.75	123.17	120.30
3	C	1062	ARG	NE-CZ-NH2	5.73	123.17	120.30
3	C	3036	TYR	CB-CG-CD2	-5.73	117.56	121.00
5	N	2	DT	N3-C2-O2	-5.73	118.86	122.30
5	N	19	DA	N1-C6-N6	-5.73	115.16	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	3425	ARG	NE-CZ-NH2	5.73	123.16	120.30
6	F	55	GLU	CA-CB-CG	5.72	125.99	113.40
3	L	3992	ARG	NE-CZ-NH2	5.72	123.16	120.30
6	O	55	GLU	CA-CB-CG	5.72	125.99	113.40
5	E	18	DC	O4'-C1'-N1	5.72	112.00	108.00
5	E	24	DT	C6-C5-C7	-5.72	119.47	122.90
5	N	24	DT	C6-C5-C7	-5.72	119.47	122.90
3	C	1784	ARG	NE-CZ-NH2	5.71	123.16	120.30
3	C	2254	ARG	NE-CZ-NH2	5.71	123.16	120.30
3	L	3425	ARG	NE-CZ-NH2	5.71	123.16	120.30
3	L	119	ARG	NE-CZ-NH2	5.71	123.15	120.30
3	L	2899	ARG	NE-CZ-NH2	5.70	123.15	120.30
3	C	119	ARG	NE-CZ-NH2	5.70	123.15	120.30
1	J	254	ARG	NE-CZ-NH2	5.70	123.15	120.30
2	B	23	SER	N-CA-C	5.69	126.37	111.00
3	L	1062	ARG	NE-CZ-NH2	5.69	123.14	120.30
6	P	150	ARG	NE-CZ-NH1	-5.69	117.45	120.30
2	K	23	SER	N-CA-C	5.68	126.35	111.00
4	D	17	DT	N3-C2-O2	-5.68	118.89	122.30
7	H	17	GLN	CA-C-N	-5.67	104.72	117.20
3	L	971	ARG	NE-CZ-NH2	5.67	123.14	120.30
3	C	2143	ARG	NE-CZ-NH2	5.67	123.14	120.30
3	C	1822	ARG	NE-CZ-NH2	5.66	123.13	120.30
3	C	2922	ARG	NE-CZ-NH2	5.66	123.13	120.30
3	C	3992	ARG	NE-CZ-NH2	5.65	123.13	120.30
5	E	2	DT	N3-C2-O2	-5.65	118.91	122.30
3	L	9	ARG	NE-CZ-NH2	5.65	123.13	120.30
5	N	18	DC	O4'-C1'-N1	5.65	111.95	108.00
1	J	334	THR	CB-CA-C	5.65	126.84	111.60
3	L	2254	ARG	NE-CZ-NH2	5.65	123.12	120.30
1	A	334	THR	CB-CA-C	5.64	126.83	111.60
3	C	9	ARG	NE-CZ-NH2	5.64	123.12	120.30
1	A	488	ARG	NE-CZ-NH2	5.64	123.12	120.30
1	A	358	LYS	O-C-N	-5.63	113.69	122.70
6	O	95	PHE	CB-CG-CD1	-5.63	116.86	120.80
1	J	358	LYS	O-C-N	-5.62	113.71	122.70
1	A	254	ARG	NE-CZ-NH2	5.62	123.11	120.30
6	F	95	PHE	CB-CG-CD1	-5.61	116.87	120.80
1	A	165	ARG	NE-CZ-NH1	-5.61	117.49	120.30
3	L	1822	ARG	NE-CZ-NH2	5.61	123.10	120.30
3	C	3708	ARG	NE-CZ-NH2	5.60	123.10	120.30
3	L	2922	ARG	NE-CZ-NH2	5.60	123.10	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	L	3708	ARG	NE-CZ-NH2	5.60	123.10	120.30
1	J	517	ARG	NE-CZ-NH1	-5.60	117.50	120.30
9	X	802	ARG	NE-CZ-NH2	5.60	123.10	120.30
6	G	150	ARG	NE-CZ-NH1	-5.60	117.50	120.30
4	M	9	DC	N1-C2-O2	5.59	122.25	118.90
1	J	165	ARG	NE-CZ-NH1	-5.58	117.51	120.30
6	G	71	ARG	NE-CZ-NH2	5.58	123.09	120.30
3	L	2377	ARG	NE-CZ-NH2	5.57	123.09	120.30
5	N	18	DC	C3'-C2'-C1'	-5.57	95.82	102.50
5	E	18	DC	C3'-C2'-C1'	-5.56	95.83	102.50
5	E	18	DC	N3-C2-O2	-5.56	118.01	121.90
1	J	488	ARG	NE-CZ-NH2	5.55	123.08	120.30
4	M	17	DT	N3-C2-O2	-5.55	118.97	122.30
6	O	66	TYR	CB-CG-CD1	-5.54	117.67	121.00
3	C	2291	GLN	O-C-N	-5.54	113.84	122.70
3	L	2143	ARG	NE-CZ-NH2	5.54	123.07	120.30
3	L	2291	GLN	O-C-N	-5.53	113.85	122.70
5	E	18	DC	N1-C2-O2	5.53	122.22	118.90
5	N	18	DC	N1-C2-O2	5.53	122.22	118.90
5	E	4	DT	C5-C6-N1	-5.53	120.39	123.70
5	N	11	DC	N3-C4-C5	5.53	124.11	121.90
3	C	257	ARG	NE-CZ-NH2	5.52	123.06	120.30
6	P	71	ARG	NE-CZ-NH2	5.52	123.06	120.30
1	A	517	ARG	NE-CZ-NH1	-5.51	117.54	120.30
5	N	18	DC	N3-C2-O2	-5.51	118.04	121.90
3	C	2377	ARG	NE-CZ-NH2	5.51	123.06	120.30
4	D	10	DT	C6-C5-C7	-5.51	119.59	122.90
4	D	9	DC	N1-C2-O2	5.50	122.20	118.90
2	K	486	ARG	NE-CZ-NH2	5.50	123.05	120.30
3	C	430	VAL	CB-CA-C	-5.50	100.95	111.40
9	Y	884	ARG	NE-CZ-NH2	5.50	123.05	120.30
3	L	430	VAL	CB-CA-C	-5.50	100.96	111.40
5	E	1	DG	N1-C6-O6	-5.49	116.61	119.90
5	N	1	DG	N1-C6-O6	-5.49	116.61	119.90
3	L	465	PHE	CB-CG-CD2	-5.48	116.96	120.80
9	Y	802	ARG	NE-CZ-NH2	5.48	123.04	120.30
3	C	1601	LEU	CB-CA-C	5.48	120.61	110.20
4	M	10	DT	C6-C5-C7	-5.48	119.61	122.90
7	I	107	ARG	NE-CZ-NH2	5.48	123.04	120.30
3	C	465	PHE	CB-CG-CD2	-5.47	116.97	120.80
5	E	11	DC	N3-C4-C5	5.47	124.09	121.90
6	F	66	TYR	CB-CG-CD1	-5.47	117.72	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	L	1601	LEU	CB-CA-C	5.47	120.60	110.20
2	K	146	GLN	N-CA-C	5.47	125.78	111.00
9	X	884	ARG	NE-CZ-NH2	5.47	123.03	120.30
2	B	146	GLN	N-CA-C	5.47	125.76	111.00
5	N	4	DT	C5-C6-N1	-5.47	120.42	123.70
3	C	1883	ARG	NE-CZ-NH2	5.46	123.03	120.30
5	N	16	DA	N1-C6-N6	-5.46	115.33	118.60
3	C	3734	ARG	NE-CZ-NH2	5.45	123.02	120.30
3	L	3462	ARG	NE-CZ-NH2	5.45	123.02	120.30
2	B	486	ARG	NE-CZ-NH2	5.44	123.02	120.30
3	C	962	TYR	CB-CG-CD2	-5.43	117.74	121.00
3	C	981	ARG	NE-CZ-NH2	5.43	123.02	120.30
3	L	962	TYR	CB-CG-CD2	-5.43	117.74	121.00
4	D	23	DG	N1-C6-O6	-5.43	116.64	119.90
3	L	257	ARG	NE-CZ-NH2	5.42	123.01	120.30
4	D	13	DG	O4'-C4'-C3'	5.42	109.25	106.00
3	L	1447	ARG	NE-CZ-NH2	5.41	123.00	120.30
3	L	1883	ARG	NE-CZ-NH2	5.41	123.01	120.30
4	M	13	DG	O4'-C4'-C3'	5.41	109.24	106.00
3	C	3046	ARG	NE-CZ-NH2	5.40	123.00	120.30
3	L	3046	ARG	NE-CZ-NH2	5.40	123.00	120.30
5	E	24	DT	N3-C2-O2	-5.39	119.06	122.30
3	L	3734	ARG	NE-CZ-NH2	5.39	123.00	120.30
4	D	2	DC	N1-C2-O2	5.39	122.14	118.90
5	E	12	DT	N3-C2-O2	-5.39	119.06	122.30
3	C	1447	ARG	NE-CZ-NH2	5.39	123.00	120.30
7	H	57	ARG	NH1-CZ-NH2	-5.39	113.47	119.40
5	N	12	DT	C6-C5-C7	-5.39	119.67	122.90
7	H	18	LEU	CB-CG-CD1	-5.38	101.85	111.00
4	M	2	DC	N1-C2-O2	5.38	122.13	118.90
4	M	12	DT	N3-C2-O2	-5.38	119.07	122.30
5	N	12	DT	N3-C2-O2	-5.38	119.08	122.30
6	G	97	PHE	CB-CG-CD2	5.37	124.56	120.80
3	L	273	ARG	NE-CZ-NH2	5.37	122.99	120.30
1	A	130	ARG	NE-CZ-NH2	5.37	122.98	120.30
4	D	26	DT	C4'-C3'-C2'	-5.37	98.27	103.10
5	E	16	DA	N1-C6-N6	-5.37	115.38	118.60
3	C	3789	ARG	NE-CZ-NH2	5.37	122.98	120.30
3	L	350	ARG	NE-CZ-NH2	5.37	122.98	120.30
3	L	1527	ARG	NE-CZ-NH2	5.36	122.98	120.30
5	N	24	DT	N3-C2-O2	-5.36	119.08	122.30
2	B	145	SER	N-CA-C	5.35	125.45	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	L	3965	ARG	NE-CZ-NH2	5.35	122.97	120.30
4	D	6	DG	C4'-C3'-C2'	-5.34	98.29	103.10
4	M	6	DG	C4'-C3'-C2'	-5.34	98.29	103.10
6	F	107	ARG	NE-CZ-NH2	5.34	122.97	120.30
2	K	145	SER	N-CA-C	5.34	125.42	111.00
2	K	315	ARG	NE-CZ-NH2	5.34	122.97	120.30
3	C	273	ARG	NE-CZ-NH2	5.33	122.97	120.30
6	P	97	PHE	CB-CG-CD2	5.33	124.53	120.80
3	C	3442	TYR	CB-CG-CD2	-5.33	117.81	121.00
1	J	404	ARG	NE-CZ-NH2	5.33	122.96	120.30
3	L	981	ARG	NE-CZ-NH2	5.33	122.96	120.30
3	C	350	ARG	NE-CZ-NH2	5.32	122.96	120.30
5	E	9	DT	N3-C2-O2	-5.32	119.11	122.30
4	M	23	DG	N1-C6-O6	-5.32	116.71	119.90
1	A	404	ARG	NE-CZ-NH2	5.32	122.96	120.30
1	J	301	ARG	NE-CZ-NH2	5.32	122.96	120.30
9	X	738	TRP	N-CA-C	5.32	125.36	111.00
6	G	179	ARG	CD-NE-CZ	5.32	131.04	123.60
3	L	3789	ARG	NE-CZ-NH2	5.32	122.96	120.30
4	D	21	DT	C6-C5-C7	-5.32	119.71	122.90
9	Y	738	TRP	N-CA-C	5.32	125.35	111.00
2	K	271	ARG	NE-CZ-NH2	5.31	122.96	120.30
5	N	9	DT	N3-C2-O2	-5.31	119.11	122.30
1	J	130	ARG	NE-CZ-NH2	5.31	122.96	120.30
3	C	3462	ARG	NE-CZ-NH2	5.31	122.95	120.30
5	E	12	DT	C6-C5-C7	-5.30	119.72	122.90
6	P	179	ARG	CD-NE-CZ	5.30	131.02	123.60
3	C	3474	ARG	NE-CZ-NH2	5.29	122.94	120.30
3	L	3474	ARG	NE-CZ-NH2	5.29	122.94	120.30
5	E	9	DT	C6-C5-C7	-5.29	119.73	122.90
5	N	9	DT	C6-C5-C7	-5.29	119.73	122.90
4	D	12	DT	N3-C2-O2	-5.28	119.13	122.30
2	B	315	ARG	NE-CZ-NH2	5.28	122.94	120.30
3	C	1527	ARG	NE-CZ-NH2	5.28	122.94	120.30
6	G	197	LYS	CB-CG-CD	5.28	125.32	111.60
3	C	2232	ARG	CD-NE-CZ	5.27	130.98	123.60
3	L	2232	ARG	CD-NE-CZ	5.27	130.98	123.60
1	A	194	ARG	NE-CZ-NH2	5.26	122.93	120.30
5	E	13	DG	C5-C6-N1	5.26	114.13	111.50
5	N	13	DG	C5-C6-N1	5.26	114.13	111.50
3	C	782	ARG	NE-CZ-NH2	5.26	122.93	120.30
4	D	1	DT	O4'-C1'-C2'	-5.26	101.69	105.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	H	81	ARG	NE-CZ-NH2	5.26	122.93	120.30
6	P	197	LYS	CB-CG-CD	5.26	125.27	111.60
2	B	271	ARG	NE-CZ-NH2	5.25	122.92	120.30
3	C	2328	ARG	NE-CZ-NH2	5.25	122.93	120.30
4	D	29	DA	O4'-C1'-C2'	-5.25	101.70	105.90
3	L	782	ARG	NE-CZ-NH2	5.25	122.92	120.30
4	M	29	DA	O4'-C1'-C2'	-5.25	101.70	105.90
3	L	2328	ARG	NE-CZ-NH2	5.25	122.92	120.30
2	B	504	PRO	N-CA-C	5.24	125.73	112.10
3	C	3746	ARG	NE-CZ-NH2	5.24	122.92	120.30
2	B	141	ARG	NE-CZ-NH2	5.24	122.92	120.30
3	L	3442	TYR	CB-CG-CD2	-5.24	117.86	121.00
2	K	504	PRO	N-CA-C	5.24	125.72	112.10
9	X	815	ARG	NE-CZ-NH1	5.24	122.92	120.30
9	Y	738	TRP	CD1-CG-CD2	-5.24	102.11	106.30
4	M	21	DT	C6-C5-C7	-5.23	119.76	122.90
9	X	738	TRP	CD1-CG-CD2	-5.23	102.12	106.30
3	C	3965	ARG	NE-CZ-NH2	5.23	122.91	120.30
4	D	22	DA	C5-N7-C8	-5.23	101.29	103.90
5	N	12	DT	C5-C6-N1	-5.22	120.57	123.70
4	M	1	DT	O4'-C1'-C2'	-5.22	101.72	105.90
2	K	141	ARG	NE-CZ-NH2	5.22	122.91	120.30
5	E	5	DA	N1-C6-N6	-5.22	115.47	118.60
4	D	25	DT	C5-C6-N1	-5.22	120.57	123.70
3	L	1420	ARG	NE-CZ-NH2	5.22	122.91	120.30
4	M	25	DT	C5-C6-N1	-5.22	120.57	123.70
9	Y	815	ARG	NE-CZ-NH1	5.21	122.91	120.30
4	M	9	DC	N3-C4-C5	5.21	123.98	121.90
1	A	301	ARG	NE-CZ-NH2	5.20	122.90	120.30
4	D	16	DG	N1-C6-O6	-5.20	116.78	119.90
3	L	3746	ARG	NE-CZ-NH2	5.20	122.90	120.30
4	M	16	DG	N1-C6-O6	-5.20	116.78	119.90
1	J	194	ARG	NE-CZ-NH2	5.19	122.90	120.30
3	C	2800	ARG	NE-CZ-NH2	5.19	122.89	120.30
4	D	25	DT	C6-C5-C7	-5.19	119.79	122.90
5	N	5	DA	N1-C6-N6	-5.19	115.48	118.60
9	X	738	TRP	CB-CG-CD1	-5.19	120.25	127.00
3	L	366	TYR	CB-CG-CD1	-5.19	117.89	121.00
4	D	3	DT	O4'-C1'-N1	5.19	111.63	108.00
5	E	9	DT	C5-C6-N1	-5.17	120.60	123.70
5	N	9	DT	C5-C6-N1	-5.17	120.60	123.70
3	C	79	ARG	NE-CZ-NH2	5.17	122.88	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	3799	ARG	NE-CZ-NH2	5.16	122.88	120.30
3	L	3799	ARG	NE-CZ-NH2	5.16	122.88	120.30
9	Y	738	TRP	CB-CG-CD1	-5.16	120.29	127.00
3	C	748	TYR	CB-CG-CD2	-5.16	117.91	121.00
4	M	25	DT	OP2-P-O3'	5.16	116.54	105.20
3	L	2800	ARG	NE-CZ-NH2	5.15	122.88	120.30
3	C	362	ALA	CB-CA-C	5.15	117.83	110.10
4	D	17	DT	C6-C5-C7	-5.15	119.81	122.90
6	O	3	ARG	NH1-CZ-NH2	-5.15	113.74	119.40
9	X	737	PRO	O-C-N	-5.15	114.47	122.70
9	X	880	ARG	NE-CZ-NH2	5.14	122.87	120.30
3	L	748	TYR	CB-CG-CD2	-5.14	117.91	121.00
4	M	25	DT	C6-C5-C7	-5.14	119.81	122.90
6	F	3	ARG	NH1-CZ-NH2	-5.14	113.74	119.40
4	D	26	DT	C4'-C3'-O3'	5.14	122.58	112.30
5	N	17	DT	C6-C5-C7	-5.13	119.82	122.90
1	A	252	ARG	NE-CZ-NH2	5.13	122.87	120.30
3	L	1525	CYS	CA-CB-SG	-5.13	104.77	114.00
3	C	1525	CYS	CA-CB-SG	-5.13	104.77	114.00
9	Y	880	ARG	NE-CZ-NH2	5.13	122.86	120.30
1	J	416	GLN	N-CA-C	5.13	124.84	111.00
4	D	9	DC	N3-C4-C5	5.12	123.95	121.90
3	L	362	ALA	CB-CA-C	5.12	117.79	110.10
1	J	332	GLU	C-N-CA	-5.12	108.89	121.70
3	L	1810	PRO	C-N-CA	5.12	134.51	121.70
5	E	12	DT	C5-C6-N1	-5.12	120.63	123.70
4	M	22	DA	C5-N7-C8	-5.12	101.34	103.90
1	A	416	GLN	N-CA-C	5.12	124.82	111.00
4	D	26	DT	C6-C5-C7	-5.12	119.83	122.90
2	B	250	ARG	N-CA-C	5.12	124.81	111.00
1	A	332	GLU	C-N-CA	-5.11	108.92	121.70
2	K	250	ARG	N-CA-C	5.11	124.78	111.00
4	D	8	DA	C6-C5-N7	5.10	135.87	132.30
4	M	26	DT	N3-C2-O2	-5.10	119.24	122.30
9	Y	737	PRO	O-C-N	-5.10	114.55	122.70
3	C	366	TYR	CB-CG-CD1	-5.09	117.94	121.00
3	C	1420	ARG	NE-CZ-NH2	5.09	122.84	120.30
3	C	3380	ARG	NE-CZ-NH2	5.09	122.84	120.30
3	L	3098	ARG	NE-CZ-NH2	5.09	122.84	120.30
4	M	8	DA	C6-C5-N7	5.09	135.86	132.30
9	X	748	PRO	N-CA-CB	5.08	109.40	103.30
9	Y	748	PRO	N-CA-CB	5.08	109.40	103.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	M	27	DA	N1-C6-N6	-5.08	115.55	118.60
3	L	79	ARG	NE-CZ-NH2	5.07	122.84	120.30
3	L	391	ARG	NE-CZ-NH2	5.07	122.84	120.30
3	C	391	ARG	NE-CZ-NH2	5.07	122.84	120.30
5	E	17	DT	C6-C5-C7	-5.07	119.86	122.90
3	L	24	ARG	NE-CZ-NH2	5.06	122.83	120.30
3	L	70	ARG	NE-CZ-NH2	5.06	122.83	120.30
3	L	3373	VAL	CG1-CB-CG2	-5.06	102.81	110.90
3	C	3373	VAL	CG1-CB-CG2	-5.05	102.82	110.90
4	M	3	DT	O4'-C1'-N1	5.05	111.54	108.00
5	N	28	DA	N1-C6-N6	-5.05	115.57	118.60
3	L	1321	ARG	NE-CZ-NH2	5.04	122.82	120.30
4	M	26	DT	C5'-C4'-C3'	5.04	123.18	114.10
3	L	527	TYR	CB-CG-CD1	5.04	124.03	121.00
3	L	666	PHE	CB-CG-CD2	-5.04	117.27	120.80
2	K	252	THR	N-CA-C	5.04	124.61	111.00
6	G	192	ARG	NE-CZ-NH2	5.04	122.82	120.30
2	B	252	THR	N-CA-C	5.03	124.59	111.00
4	M	27	DA	O3'-P-O5'	5.03	113.56	104.00
3	C	666	PHE	CB-CG-CD2	-5.03	117.28	120.80
3	C	70	ARG	NE-CZ-NH2	5.03	122.81	120.30
1	J	252	ARG	NE-CZ-NH2	5.03	122.81	120.30
3	L	746	ARG	NE-CZ-NH2	5.03	122.81	120.30
3	L	3232	ARG	NE-CZ-NH2	5.03	122.81	120.30
9	Y	718	HIS	CA-CB-CG	5.02	122.14	113.60
4	M	13	DG	N1-C6-O6	-5.02	116.89	119.90
9	X	718	HIS	CA-CB-CG	5.02	122.13	113.60
3	C	527	TYR	CB-CG-CD1	5.01	124.01	121.00
3	C	24	ARG	NE-CZ-NH2	5.01	122.81	120.30
3	C	3232	ARG	NE-CZ-NH2	5.01	122.81	120.30
7	H	107	ARG	NE-CZ-NH2	5.01	122.81	120.30
7	I	121	PHE	CB-CG-CD1	-5.01	117.29	120.80
3	C	2485	ARG	NE-CZ-NH2	5.01	122.80	120.30
3	L	894	PHE	CB-CG-CD1	-5.00	117.30	120.80
3	L	3380	ARG	NE-CZ-NH2	5.00	122.80	120.30

There are no chirality outliers.

All (176) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	137	HIS	Sidechain
1	A	71	TYR	Sidechain

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Mol	Chain	Res	Type	Group
1	A	88	TYR	Sidechain
2	B	242	ARG	Sidechain
2	B	421	TYR	Sidechain
2	B	44	ARG	Sidechain
2	B	444	TYR	Sidechain
2	B	489	ARG	Sidechain
3	C	103	TYR	Sidechain
3	C	1107	TYR	Sidechain
3	C	1152	ARG	Sidechain
3	C	1155	ARG	Sidechain
3	C	1414	ILE	Mainchain
3	C	1682	THR	Mainchain
3	C	175	TYR	Sidechain
3	C	1768	ARG	Sidechain
3	C	1969	GLU	Peptide
3	C	1990	PHE	Sidechain
3	C	2160	TYR	Sidechain
3	C	2316	TYR	Sidechain
3	C	2410	GLU	Peptide
3	C	2412	TYR	Sidechain
3	C	2464	HIS	Sidechain
3	C	2484	TYR	Sidechain
3	C	2495	SER	Peptide
3	C	3101	TYR	Sidechain
3	C	32	HIS	Sidechain
3	C	3280	TYR	Sidechain
3	C	3290	SER	Peptide
3	C	3334	TYR	Sidechain
3	C	340	TYR	Sidechain
3	C	346	TYR	Sidechain
3	C	3467	ARG	Sidechain
3	C	3612	ARG	Sidechain
3	C	3705	TYR	Sidechain
3	C	3715	TYR	Sidechain
3	C	3741	ARG	Sidechain
3	C	3965	ARG	Sidechain
3	C	568	PHE	Sidechain
3	C	659	ARG	Sidechain
3	C	682	TYR	Sidechain
3	C	701	TYR	Sidechain
3	C	721	TYR	Sidechain
3	C	894	PHE	Sidechain

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Mol	Chain	Res	Type	Group
4	D	1	DT	Sidechain
4	D	11	DC	Sidechain
4	D	12	DT	Sidechain
4	D	17	DT	Sidechain
4	D	18	DC	Sidechain
4	D	19	DA	Sidechain
4	D	22	DA	Sidechain
4	D	23	DG	Sidechain
4	D	24	DA	Sidechain
4	D	26	DT	Sidechain
4	D	27	DA	Sidechain
4	D	29	DA	Sidechain
4	D	30	DC	Sidechain
4	D	6	DG	Sidechain
4	D	7	DA	Sidechain
4	D	8	DA	Sidechain
5	E	1	DG	Sidechain
5	E	11	DC	Sidechain
5	E	15	DC	Sidechain
5	E	16	DA	Sidechain
5	E	17	DT	Sidechain
5	E	23	DT	Sidechain
5	E	25	DC	Sidechain
5	E	26	DT	Sidechain
5	E	5	DA	Sidechain
5	E	6	DA	Sidechain
5	E	7	DT	Sidechain
6	F	129	TYR	Sidechain
6	F	195	HIS	Sidechain
6	F	3	ARG	Sidechain
6	F	66	TYR	Sidechain
6	F	7	ARG	Sidechain
6	G	32	PHE	Sidechain
6	G	95	PHE	Sidechain
7	H	17	GLN	Mainchain
7	H	81	ARG	Sidechain
7	I	118	TYR	Sidechain
7	I	167	TYR	Sidechain
7	I	72	PHE	Sidechain
7	I	75	HIS	Sidechain
1	J	137	HIS	Sidechain
1	J	71	TYR	Sidechain

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Mol	Chain	Res	Type	Group
1	J	88	TYR	Sidechain
2	K	242	ARG	Sidechain
2	K	421	TYR	Sidechain
2	K	44	ARG	Sidechain
2	K	444	TYR	Sidechain
2	K	489	ARG	Sidechain
3	L	103	TYR	Sidechain
3	L	1107	TYR	Sidechain
3	L	1152	ARG	Sidechain
3	L	1155	ARG	Sidechain
3	L	1414	ILE	Mainchain
3	L	1682	THR	Mainchain
3	L	175	TYR	Sidechain
3	L	1768	ARG	Sidechain
3	L	1969	GLU	Peptide
3	L	1990	PHE	Sidechain
3	L	2160	TYR	Sidechain
3	L	2316	TYR	Sidechain
3	L	2410	GLU	Peptide
3	L	2412	TYR	Sidechain
3	L	2464	HIS	Sidechain
3	L	2484	TYR	Sidechain
3	L	2495	SER	Peptide
3	L	3101	TYR	Sidechain
3	L	32	HIS	Sidechain
3	L	3280	TYR	Sidechain
3	L	3290	SER	Peptide
3	L	3334	TYR	Sidechain
3	L	340	TYR	Sidechain
3	L	346	TYR	Sidechain
3	L	3467	ARG	Sidechain
3	L	3612	ARG	Sidechain
3	L	3705	TYR	Sidechain
3	L	3715	TYR	Sidechain
3	L	3741	ARG	Sidechain
3	L	3965	ARG	Sidechain
3	L	568	PHE	Sidechain
3	L	659	ARG	Sidechain
3	L	682	TYR	Sidechain
3	L	701	TYR	Sidechain
3	L	721	TYR	Sidechain
3	L	894	PHE	Sidechain

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Mol	Chain	Res	Type	Group
4	M	1	DT	Sidechain
4	M	11	DC	Sidechain
4	M	12	DT	Sidechain
4	M	17	DT	Sidechain
4	M	18	DC	Sidechain
4	M	19	DA	Sidechain
4	M	22	DA	Sidechain
4	M	23	DG	Sidechain
4	M	24	DA	Sidechain
4	M	27	DA	Sidechain
4	M	29	DA	Sidechain
4	M	30	DC	Sidechain
4	M	6	DG	Sidechain
4	M	7	DA	Sidechain
4	M	8	DA	Sidechain
5	N	1	DG	Sidechain
5	N	11	DC	Sidechain
5	N	15	DC	Sidechain
5	N	16	DA	Sidechain
5	N	17	DT	Sidechain
5	N	23	DT	Sidechain
5	N	25	DC	Sidechain
5	N	26	DT	Sidechain
5	N	5	DA	Sidechain
5	N	6	DA	Sidechain
5	N	7	DT	Sidechain
6	O	129	TYR	Sidechain
6	O	195	HIS	Sidechain
6	O	3	ARG	Sidechain
6	O	66	TYR	Sidechain
6	O	7	ARG	Sidechain
6	P	32	PHE	Sidechain
6	P	95	PHE	Sidechain
9	X	718	HIS	Sidechain
9	X	730	PHE	Sidechain
9	X	735	PHE	Sidechain
9	X	737	PRO	Peptide
9	X	761	TYR	Sidechain
9	X	801	TYR	Sidechain
9	X	823	TYR	Sidechain
9	Y	718	HIS	Sidechain
9	Y	730	PHE	Sidechain

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Mol	Chain	Res	Type	Group
9	Y	735	PHE	Sidechain
9	Y	737	PRO	Peptide
9	Y	761	TYR	Sidechain
9	Y	770	ASP	Peptide
9	Y	801	TYR	Sidechain
9	Y	823	TYR	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4021	0	4100	64	0
1	J	4021	0	4100	66	0
2	B	4204	0	4250	10	0
2	K	4204	0	4250	10	0
3	C	29799	0	30190	136	0
3	L	29799	0	30190	132	0
4	D	634	0	350	12	0
4	M	634	0	350	8	0
5	E	616	0	337	4	0
5	N	616	0	337	4	0
6	F	1628	0	1620	34	0
6	G	1595	0	1592	23	0
6	O	1628	0	1620	29	0
6	P	1595	0	1592	24	0
7	H	1779	0	1797	16	0
7	I	1737	0	1744	21	0
8	S	168	0	169	15	0
8	T	168	0	169	15	0
9	X	2064	0	2012	48	0
9	Y	2064	0	2012	51	0
10	C	1	0	0	0	0
10	L	1	0	0	0	0
11	C	31	0	12	0	0
11	L	31	0	12	0	0
All	All	93038	0	92805	595	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including

hydrogen atoms). The all-atom clashscore for this structure is 3.

All (595) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:333:GLU:CA	1:J:333:GLU:CB	1.83	1.56
1:J:333:GLU:CA	1:J:333:GLU:N	1.68	1.54
1:A:333:GLU:C	1:A:333:GLU:CA	1.77	1.51
1:A:333:GLU:CA	1:A:333:GLU:N	1.68	1.51
1:A:333:GLU:CA	1:A:333:GLU:CB	1.83	1.51
1:J:333:GLU:CA	1:J:333:GLU:C	1.77	1.51
1:J:333:GLU:CB	1:J:333:GLU:CG	2.05	1.35
1:A:333:GLU:CB	1:A:333:GLU:CG	2.05	1.32
1:A:334:THR:CB	1:A:334:THR:OG1	1.77	1.32
1:J:334:THR:OG1	1:J:334:THR:CB	1.78	1.31
1:A:334:THR:N	1:A:334:THR:CA	2.07	1.17
1:J:334:THR:N	1:J:334:THR:CA	2.08	1.15
3:C:1815:THR:HG21	3:L:1860:GLU:HG3	1.46	0.94
3:C:1860:GLU:HG3	3:L:1815:THR:HG21	1.47	0.94
7:H:71:ALA:HB1	6:O:104:VAL:HG21	1.49	0.94
3:C:1815:THR:HG21	3:L:1860:GLU:CG	2.01	0.90
3:C:1860:GLU:CG	3:L:1815:THR:HG21	2.01	0.90
1:A:332:GLU:HB3	3:C:212:VAL:HG13	1.54	0.89
1:J:313:PRO:HG3	3:L:164:LYS:HD3	1.56	0.88
1:J:332:GLU:HB3	3:L:212:VAL:HG13	1.54	0.87
7:I:15:TRP:HB2	7:I:211:VAL:HG21	1.55	0.86
1:A:477:SER:O	8:S:196:ALA:O	1.93	0.86
1:J:477:SER:O	8:T:196:ALA:O	1.93	0.86
1:A:334:THR:OG1	1:A:334:THR:CA	2.24	0.85
1:J:334:THR:OG1	1:J:334:THR:CA	2.24	0.85
1:A:313:PRO:HG3	3:C:164:LYS:HD3	1.56	0.85
1:J:332:GLU:C	1:J:333:GLU:CA	2.46	0.84
9:Y:664:PHE:CE2	9:Y:726:LEU:HD11	2.13	0.83
9:X:664:PHE:CE2	9:X:726:LEU:HD11	2.13	0.83
1:A:332:GLU:C	1:A:333:GLU:CA	2.46	0.83
9:X:698:TYR:O	9:X:737:PRO:HA	1.79	0.82
1:A:332:GLU:HB3	3:C:212:VAL:CG1	2.09	0.82
1:A:333:GLU:C	1:A:333:GLU:CB	2.48	0.82
7:H:71:ALA:CB	6:O:104:VAL:HG21	2.09	0.82
9:Y:698:TYR:O	9:Y:737:PRO:HA	1.79	0.82
1:A:332:GLU:CA	3:C:212:VAL:HG11	2.10	0.81
7:I:211:VAL:HG23	7:I:212:MET:SD	2.20	0.81
1:J:332:GLU:HB3	3:L:212:VAL:CG1	2.09	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:332:GLU:CA	3:L:212:VAL:HG11	2.10	0.81
1:J:333:GLU:CB	1:J:333:GLU:C	2.48	0.81
2:B:300:ASP:OD2	3:C:117:LYS:HE2	1.81	0.81
1:J:332:GLU:HA	3:L:212:VAL:HG11	1.64	0.80
1:A:332:GLU:HA	3:C:212:VAL:HG11	1.64	0.80
6:F:134:ILE:HD11	6:G:130:CYS:HA	1.63	0.80
6:O:134:ILE:HD11	6:P:130:CYS:HA	1.63	0.80
2:K:300:ASP:OD2	3:L:117:LYS:HE2	1.81	0.79
6:F:101:LEU:HD22	7:I:113:SER:HA	1.64	0.78
9:X:664:PHE:CZ	9:X:726:LEU:HD11	2.17	0.78
6:O:40:HIS:CG	6:P:120:ALA:HB2	2.19	0.78
1:J:333:GLU:CA	1:J:333:GLU:CG	2.62	0.78
9:Y:664:PHE:CZ	9:Y:726:LEU:HD11	2.17	0.78
1:A:334:THR:CB	1:A:334:THR:N	2.48	0.77
9:Y:664:PHE:CD2	9:Y:726:LEU:HD21	2.19	0.77
1:A:333:GLU:CA	1:A:333:GLU:CG	2.62	0.77
6:F:40:HIS:CG	6:G:120:ALA:HB2	2.19	0.77
9:X:664:PHE:CD2	9:X:726:LEU:HD21	2.19	0.77
6:O:104:VAL:HB	6:O:106:PHE:CE2	2.20	0.76
1:J:334:THR:CB	1:J:334:THR:N	2.48	0.76
9:Y:699:CYS:SG	9:Y:725:TRP:CH2	2.80	0.75
9:X:699:CYS:SG	9:X:725:TRP:CH2	2.80	0.75
9:X:659:PHE:CZ	9:X:729:CYS:HB3	2.21	0.74
9:Y:659:PHE:CZ	9:Y:729:CYS:HB3	2.21	0.74
1:A:313:PRO:CG	3:C:164:LYS:HD3	2.18	0.73
1:A:331:LYS:O	1:A:334:THR:HG22	1.89	0.73
9:X:701:ILE:HG12	9:X:726:LEU:HD22	1.71	0.73
1:J:313:PRO:CG	3:L:164:LYS:HD3	2.18	0.73
1:J:331:LYS:O	1:J:334:THR:HG22	1.89	0.72
3:L:2368:THR:HG23	3:L:2404:ARG:HB2	1.71	0.72
3:C:2563:LEU:HD12	3:C:2795:GLN:HE22	1.55	0.72
9:Y:701:ILE:HG12	9:Y:726:LEU:HD22	1.71	0.72
3:C:1392:MET:HA	3:C:1395:LEU:CD2	2.20	0.72
3:L:1392:MET:HA	3:L:1395:LEU:CD2	2.20	0.71
3:L:2563:LEU:HD12	3:L:2795:GLN:HE22	1.55	0.71
3:C:2368:THR:HG23	3:C:2404:ARG:HB2	1.71	0.71
6:F:101:LEU:HB2	7:I:113:SER:HB2	1.70	0.71
1:A:74:LYS:HE3	8:S:186:ILE:O	1.91	0.70
9:Y:721:VAL:HG11	9:Y:725:TRP:CD2	2.27	0.70
1:J:74:LYS:HE3	8:T:186:ILE:O	1.92	0.69
1:J:333:GLU:CB	1:J:333:GLU:N	2.55	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:333:GLU:N	1:A:333:GLU:CB	2.55	0.69
9:X:721:VAL:HG11	9:X:725:TRP:CD2	2.27	0.69
1:A:250:GLU:HG2	8:S:187:ASN:HD21	1.57	0.69
1:J:333:GLU:C	1:J:334:THR:CA	2.62	0.68
9:X:725:TRP:CZ3	9:X:726:LEU:HD13	2.29	0.68
1:J:250:GLU:HG2	8:T:187:ASN:HD21	1.58	0.68
9:Y:725:TRP:CZ3	9:Y:726:LEU:HD13	2.29	0.67
1:A:333:GLU:C	1:A:334:THR:CA	2.62	0.67
1:J:333:GLU:CA	1:J:334:THR:N	2.58	0.67
1:J:58:THR:HB	1:J:61:ASP:HB2	1.77	0.66
1:A:58:THR:HB	1:A:61:ASP:HB2	1.77	0.66
1:A:333:GLU:CA	1:A:334:THR:N	2.58	0.65
6:O:130:CYS:HB3	6:P:130:CYS:HB3	1.78	0.65
9:X:662:VAL:HG21	9:X:735:PHE:CD1	2.32	0.64
3:C:1815:THR:CG2	3:L:1860:GLU:HG3	2.22	0.64
1:A:74:LYS:CE	8:S:186:ILE:O	2.45	0.64
6:F:130:CYS:HB3	6:G:130:CYS:HB3	1.78	0.64
3:C:3924:HIS:CE1	3:C:3927:ASN:ND2	2.66	0.64
1:A:332:GLU:CB	3:C:212:VAL:CG1	2.76	0.64
9:Y:662:VAL:HG21	9:Y:735:PHE:CD1	2.32	0.64
3:C:1860:GLU:HG3	3:L:1815:THR:CG2	2.24	0.64
3:C:305:ASN:HA	4:D:26:DT:H2'	1.79	0.63
3:L:3924:HIS:CE1	3:L:3927:ASN:ND2	2.66	0.63
2:B:434:MET:HG2	8:S:191:LYS:NZ	2.14	0.63
6:O:130:CYS:HB3	6:P:130:CYS:CB	2.28	0.63
1:J:332:GLU:CB	3:L:212:VAL:CG1	2.76	0.63
3:C:3922:ASP:O	3:C:3927:ASN:ND2	2.32	0.62
3:L:1346:THR:OG1	3:L:1402:LEU:HD13	1.99	0.62
3:L:3922:ASP:O	3:L:3927:ASN:ND2	2.32	0.62
6:F:130:CYS:HB3	6:G:130:CYS:CB	2.28	0.62
1:J:74:LYS:CE	8:T:186:ILE:O	2.47	0.62
3:C:2368:THR:HG22	3:C:2403:CYS:HB2	1.81	0.62
2:K:434:MET:HG2	8:T:191:LYS:NZ	2.14	0.61
3:L:2368:THR:HG22	3:L:2403:CYS:HB2	1.82	0.61
3:C:1346:THR:OG1	3:C:1402:LEU:HD13	1.99	0.61
3:L:2635:ILE:HD11	3:L:2775:TYR:CD1	2.36	0.61
9:X:659:PHE:CZ	9:X:729:CYS:CB	2.83	0.61
9:Y:659:PHE:CZ	9:Y:729:CYS:CB	2.83	0.61
3:C:2635:ILE:HD11	3:C:2775:TYR:CD1	2.36	0.61
9:Y:806:ASP:CB	9:Y:815:ARG:HH21	2.14	0.61
3:L:430:VAL:HG22	3:L:1499:CYS:H	1.65	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:131:PHE:CE2	1:A:137:HIS:CE1	2.89	0.60
3:C:430:VAL:HG22	3:C:1499:CYS:H	1.65	0.60
6:F:134:ILE:CG1	6:G:134:ILE:HG13	2.31	0.60
6:O:134:ILE:CG1	6:P:134:ILE:HG13	2.31	0.60
9:Y:721:VAL:HG11	9:Y:725:TRP:CG	2.36	0.60
9:Y:725:TRP:CE3	9:Y:726:LEU:HD13	2.37	0.60
9:X:806:ASP:CB	9:X:815:ARG:HH21	2.14	0.60
1:J:131:PHE:CE2	1:J:137:HIS:CE1	2.89	0.60
1:J:312:LEU:HD21	3:L:161:ALA:HA	1.84	0.60
4:M:25:DT:H2"	4:M:26:DT:O5'	2.02	0.60
3:C:2191:ALA:HB1	3:C:2195:SER:HB2	1.84	0.59
9:X:721:VAL:HG11	9:X:725:TRP:CG	2.36	0.59
9:X:725:TRP:CE3	9:X:726:LEU:HD13	2.37	0.59
3:C:1859:ASN:HD21	3:L:1715:GLU:HB3	1.68	0.59
1:A:312:LEU:HD21	3:C:161:ALA:HA	1.84	0.59
9:Y:787:GLN:HB2	9:Y:792:MET:HG2	1.85	0.58
3:L:2191:ALA:HB1	3:L:2195:SER:HB2	1.84	0.58
9:X:787:GLN:HB2	9:X:792:MET:HG2	1.85	0.58
3:C:1392:MET:HA	3:C:1395:LEU:HD21	1.85	0.58
3:L:1392:MET:HA	3:L:1395:LEU:HD21	1.85	0.58
4:D:25:DT:H2"	4:D:26:DT:O5'	2.03	0.58
3:C:169:THR:HG23	5:E:11:DC:OP1	2.04	0.58
1:J:241:ASP:O	8:T:186:ILE:HD11	2.04	0.58
9:X:721:VAL:HG12	9:X:725:TRP:HB3	1.85	0.58
1:A:312:LEU:HD22	3:C:160:LEU:O	2.04	0.57
3:C:1923:PHE:CZ	3:C:1966:LEU:HD23	2.39	0.57
1:J:334:THR:CB	1:J:334:THR:CG2	2.82	0.57
1:A:334:THR:CB	1:A:334:THR:CG2	2.82	0.57
3:C:2575:PRO:HA	3:C:2786:LYS:HA	1.87	0.57
7:H:67:ALA:HB1	6:O:104:VAL:HG11	1.86	0.57
1:J:312:LEU:HD22	3:L:160:LEU:O	2.04	0.57
9:Y:721:VAL:HG12	9:Y:725:TRP:HB3	1.85	0.57
3:C:414:LEU:HB2	3:C:460:ALA:HB1	1.86	0.57
3:C:2567:SER:HA	3:C:2572:TYR:CD1	2.40	0.57
3:L:1923:PHE:CZ	3:L:1966:LEU:HD23	2.39	0.57
1:J:333:GLU:HA	1:J:336:GLU:HB3	1.87	0.56
3:L:169:THR:HG23	5:N:11:DC:OP1	2.04	0.56
3:L:2567:SER:HA	3:L:2572:TYR:CD1	2.40	0.56
7:H:18:LEU:HD13	7:H:96:SER:HA	1.87	0.56
1:A:333:GLU:HA	1:A:336:GLU:HB3	1.87	0.56
6:F:101:LEU:HB2	7:I:113:SER:CB	2.34	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:107:ARG:H	7:I:66:THR:HG22	1.71	0.56
9:X:721:VAL:CG1	9:X:725:TRP:CG	2.89	0.56
1:A:241:ASP:O	8:S:186:ILE:HD11	2.06	0.56
3:L:2575:PRO:HA	3:L:2786:LYS:HA	1.87	0.56
1:J:312:LEU:CD2	3:L:160:LEU:O	2.54	0.56
3:L:442:GLN:HG3	3:L:457:CYS:SG	2.46	0.56
1:A:312:LEU:CD2	3:C:160:LEU:O	2.54	0.56
3:C:732:PHE:CZ	3:C:736:LEU:HD21	2.41	0.56
3:L:414:LEU:HB2	3:L:460:ALA:HB1	1.86	0.56
9:Y:824:ALA:HB2	9:Y:833:ASN:HD21	1.71	0.56
3:L:732:PHE:CZ	3:L:736:LEU:HD21	2.41	0.55
9:Y:721:VAL:CG1	9:Y:725:TRP:CG	2.89	0.55
6:F:40:HIS:CD2	6:G:120:ALA:HB2	2.41	0.55
1:J:49:PHE:CD2	1:J:137:HIS:ND1	2.75	0.55
6:O:40:HIS:CD2	6:P:120:ALA:HB2	2.40	0.55
3:C:1715:GLU:HB3	3:L:1859:ASN:HD21	1.71	0.55
1:A:332:GLU:CB	3:C:212:VAL:HG11	2.36	0.55
3:C:442:GLN:HG3	3:C:457:CYS:SG	2.46	0.55
4:D:25:DT:H2"	4:D:26:DT:C5'	2.36	0.55
4:D:27:DA:C2'	4:D:28:DC:H5"	2.37	0.55
7:I:10:MET:SD	7:I:223:THR:HA	2.47	0.55
1:J:332:GLU:CB	3:L:212:VAL:HG11	2.36	0.55
6:G:31:GLY:HA3	6:G:48:SER:HA	1.89	0.54
1:J:132:GLN:OE1	1:J:137:HIS:CD2	2.60	0.54
1:A:49:PHE:CD2	1:A:137:HIS:ND1	2.75	0.54
3:C:943:GLY:HA3	3:C:2577:PHE:CZ	2.43	0.54
3:C:430:VAL:CG2	3:C:1499:CYS:H	2.21	0.54
3:C:1560:TYR:OH	3:C:1596:VAL:HA	2.08	0.54
2:K:434:MET:HG2	8:T:191:LYS:HZ1	1.71	0.54
9:X:824:ALA:HB2	9:X:833:ASN:HD21	1.71	0.54
3:C:2923:TRP:CG	3:C:2947:ILE:HD11	2.43	0.54
3:L:1945:TYR:CZ	3:L:1966:LEU:HD22	2.43	0.54
3:L:3622:ALA:HB3	3:L:3625:LEU:HB2	1.88	0.54
1:A:132:GLN:OE1	1:A:137:HIS:CD2	2.60	0.53
7:H:12:PRO:HB3	7:H:219:MET:SD	2.48	0.53
3:L:940:PHE:CZ	3:L:944:LYS:HE2	2.44	0.53
3:C:940:PHE:CZ	3:C:944:LYS:HE2	2.44	0.53
3:L:430:VAL:CG2	3:L:1499:CYS:H	2.21	0.53
3:C:3622:ALA:HB3	3:C:3625:LEU:HB2	1.88	0.53
3:C:3842:TRP:CZ2	3:C:3867:THR:HA	2.44	0.53
3:L:1560:TYR:OH	3:L:1596:VAL:HA	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:250:GLU:HG2	8:T:187:ASN:ND2	2.23	0.53
2:K:326:VAL:HG21	9:Y:743:MET:H	1.74	0.53
6:F:101:LEU:HD13	7:I:113:SER:O	2.08	0.53
3:L:943:GLY:HA3	3:L:2577:PHE:CZ	2.43	0.53
6:P:31:GLY:HA3	6:P:48:SER:HA	1.89	0.53
1:A:362:LEU:HD23	1:A:436:PHE:HB3	1.90	0.53
3:C:1945:TYR:CZ	3:C:1966:LEU:HD22	2.43	0.53
3:L:568:PHE:CE1	3:L:633:ILE:CG2	2.92	0.53
3:L:2923:TRP:CG	3:L:2947:ILE:HD11	2.43	0.53
6:O:8:ILE:HB	6:O:86:PHE:CD1	2.44	0.53
3:L:1934:LEU:HD12	3:L:1934:LEU:H	1.74	0.52
1:A:332:GLU:CB	3:C:212:VAL:HG13	2.33	0.52
3:L:1938:ARG:HH22	3:L:2091:HIS:CE1	2.27	0.52
3:C:568:PHE:CE1	3:C:633:ILE:CG2	2.92	0.52
3:C:1934:LEU:HD12	3:C:1934:LEU:H	1.74	0.52
7:I:10:MET:SD	7:I:223:THR:HG22	2.49	0.52
1:J:362:LEU:HD23	1:J:436:PHE:HB3	1.91	0.52
9:Y:662:VAL:HG21	9:Y:735:PHE:CG	2.45	0.52
1:J:477:SER:C	8:T:196:ALA:O	2.48	0.52
3:C:2635:ILE:HD11	3:C:2775:TYR:CE1	2.45	0.52
2:K:300:ASP:OD1	3:L:117:LYS:HG2	2.10	0.52
3:L:3842:TRP:CZ2	3:L:3867:THR:HA	2.44	0.52
3:C:1250:LEU:H	3:C:1250:LEU:HD12	1.75	0.52
3:L:2635:ILE:HD11	3:L:2775:TYR:CE1	2.45	0.52
6:P:155:TRP:CZ3	9:Y:835:GLY:HA2	2.45	0.52
1:A:250:GLU:HG2	8:S:187:ASN:ND2	2.23	0.52
2:B:300:ASP:OD1	3:C:117:LYS:HG2	2.10	0.52
3:C:940:PHE:CE1	3:C:944:LYS:HE2	2.45	0.52
3:C:1938:ARG:HH22	3:C:2091:HIS:CE1	2.27	0.52
3:C:2923:TRP:CD1	3:C:2947:ILE:HD11	2.45	0.52
3:C:3233:SER:HA	3:C:3272:TRP:CZ2	2.45	0.52
6:G:155:TRP:CZ3	9:X:835:GLY:HA2	2.45	0.52
1:J:169:PHE:CE2	1:J:203:MET:SD	3.03	0.52
3:L:940:PHE:CE1	3:L:944:LYS:HE2	2.45	0.52
3:C:3370:SER:HA	3:C:3373:VAL:CG2	2.40	0.51
3:C:3659:PHE:CZ	3:C:3663:THR:HG21	2.45	0.51
3:L:3233:SER:HA	3:L:3272:TRP:CZ2	2.45	0.51
1:A:169:PHE:CE2	1:A:203:MET:SD	3.03	0.51
1:A:477:SER:C	8:S:196:ALA:O	2.48	0.51
3:L:3659:PHE:CZ	3:L:3663:THR:HG21	2.45	0.51
9:X:662:VAL:HG21	9:X:735:PHE:CG	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:349:ILE:HD11	3:C:362:ALA:C	2.31	0.51
6:F:8:ILE:HB	6:F:86:PHE:CD1	2.44	0.51
1:J:334:THR:OG1	1:J:334:THR:HA	2.11	0.51
9:Y:806:ASP:HB3	9:Y:815:ARG:HH21	1.74	0.51
1:J:267:ILE:HD12	1:J:267:ILE:H	1.75	0.51
3:L:3370:SER:HA	3:L:3373:VAL:CG2	2.40	0.51
3:L:2360:PHE:HA	3:L:2363:CYS:HB3	1.93	0.51
6:P:155:TRP:CE3	9:Y:835:GLY:HA2	2.46	0.51
2:B:340:PHE:CE1	2:B:393:VAL:HG11	2.46	0.51
3:C:1860:GLU:CG	3:L:1815:THR:CG2	2.82	0.51
3:L:2467:THR:HG21	3:L:2514:ASN:HD22	1.76	0.51
3:L:3370:SER:HA	3:L:3373:VAL:HG22	1.93	0.51
4:M:27:DA:C2'	4:M:28:DC:H5"	2.41	0.51
9:X:806:ASP:HB3	9:X:815:ARG:HH21	1.74	0.51
3:C:1815:THR:CG2	3:L:1860:GLU:CG	2.81	0.51
6:F:109:GLY:HA2	7:I:64:ARG:HH21	1.76	0.51
3:L:1250:LEU:HD12	3:L:1250:LEU:H	1.75	0.51
3:L:2511:ILE:CG2	3:L:2550:ILE:HD12	2.41	0.51
3:C:2511:ILE:CG2	3:C:2550:ILE:HD12	2.41	0.51
3:L:2923:TRP:CD1	3:L:2947:ILE:HD11	2.45	0.50
2:B:408:ALA:HB1	2:B:419:LEU:HD21	1.93	0.50
3:L:349:ILE:HD11	3:L:362:ALA:C	2.31	0.50
3:C:2373:PRO:HA	3:C:2404:ARG:CZ	2.42	0.50
3:C:2467:THR:HG21	3:C:2514:ASN:HD22	1.76	0.50
2:K:340:PHE:CE1	2:K:393:VAL:HG11	2.46	0.50
3:L:2373:PRO:HA	3:L:2404:ARG:CZ	2.41	0.50
6:G:155:TRP:CE3	9:X:835:GLY:HA2	2.46	0.50
3:C:4064:LEU:HD13	3:C:4077:TYR:HB3	1.94	0.50
9:X:807:CYS:HA	9:X:812:MET:HA	1.93	0.50
3:C:2360:PHE:HA	3:C:2363:CYS:HB3	1.93	0.50
6:F:102:LYS:HE2	6:F:102:LYS:HA	1.94	0.50
9:Y:730:PHE:CD1	9:Y:730:PHE:N	2.80	0.50
3:C:1810:PRO:HA	3:L:1810:PRO:HA	1.93	0.50
9:Y:726:LEU:HD12	9:Y:729:CYS:HB2	1.94	0.50
1:A:267:ILE:HD12	1:A:267:ILE:H	1.75	0.49
4:D:25:DT:H1'	4:D:26:DT:H5'	1.93	0.49
4:M:26:DT:H2"	4:M:27:DA:C8	2.46	0.49
3:C:3370:SER:HA	3:C:3373:VAL:HG22	1.93	0.49
2:B:434:MET:HG2	8:S:191:LYS:HZ1	1.74	0.49
2:K:60:GLY:H	2:K:105:ALA:HB3	1.76	0.49
1:A:58:THR:O	1:A:62:MET:N	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:67:ILE:O	1:A:71:TYR:HB2	2.13	0.49
2:B:60:GLY:H	2:B:105:ALA:HB3	1.76	0.49
6:O:134:ILE:HG13	6:P:134:ILE:HG13	1.94	0.49
9:Y:807:CYS:HA	9:Y:812:MET:HA	1.93	0.49
9:X:698:TYR:O	9:X:737:PRO:CA	2.54	0.49
3:C:2554:PHE:CE1	3:C:2558:ALA:HB2	2.48	0.49
4:D:14:DA:N6	5:E:17:DT:H3	2.11	0.49
4:D:26:DT:H2"	4:D:27:DA:C8	2.48	0.49
4:M:14:DA:N6	5:N:17:DT:H3	2.11	0.49
9:Y:659:PHE:CE2	9:Y:729:CYS:HB3	2.48	0.49
1:J:67:ILE:O	1:J:71:TYR:HB2	2.13	0.48
1:J:238:LYS:HG2	8:T:185:LEU:HD13	1.95	0.48
9:X:659:PHE:CE2	9:X:729:CYS:HB3	2.48	0.48
9:Y:698:TYR:O	9:Y:737:PRO:CA	2.54	0.48
7:H:97:CYS:SG	7:H:104:LEU:HD11	2.53	0.48
3:L:4064:LEU:HD13	3:L:4077:TYR:HB3	1.94	0.48
9:Y:678:LEU:HD22	9:Y:727:LEU:HD21	1.96	0.48
1:A:131:PHE:CE2	1:A:137:HIS:NE2	2.82	0.48
1:J:58:THR:O	1:J:62:MET:N	2.45	0.48
2:K:408:ALA:HB1	2:K:419:LEU:HD21	1.93	0.48
3:L:1889:VAL:HA	3:L:1896:ILE:HD11	1.96	0.48
3:C:2485:ARG:HA	3:C:2499:PHE:CZ	2.48	0.48
3:C:3718:ARG:HH11	3:C:3743:HIS:CD2	2.32	0.48
6:G:43:TRP:CH2	6:G:115:LYS:HD2	2.49	0.48
1:J:517:ARG:HH11	8:T:201:PHE:HB2	1.79	0.48
6:F:127:ILE:HD12	6:G:126:LEU:HD22	1.96	0.48
9:X:726:LEU:HD12	9:X:729:CYS:HB2	1.94	0.48
3:C:1889:VAL:HA	3:C:1896:ILE:HD11	1.96	0.48
6:F:134:ILE:HG13	6:G:134:ILE:HG13	1.94	0.48
3:L:2554:PHE:CE1	3:L:2558:ALA:HB2	2.48	0.48
3:L:2636:ARG:HG3	3:L:2772:TYR:CZ	2.49	0.48
3:L:3371:GLU:H	3:L:3371:GLU:CD	2.17	0.48
1:A:469:LEU:HD13	8:S:201:PHE:CZ	2.49	0.48
9:X:695:PRO:O	9:X:738:TRP:CD1	2.67	0.48
3:C:249:PHE:CE2	3:C:285:CYS:HB3	2.48	0.48
3:C:2636:ARG:HG3	3:C:2772:TYR:CZ	2.49	0.48
3:L:249:PHE:CE2	3:L:285:CYS:HB3	2.48	0.48
3:L:2485:ARG:HA	3:L:2499:PHE:CZ	2.48	0.48
3:C:3924:HIS:CE1	3:C:3927:ASN:HD21	2.32	0.47
6:P:43:TRP:CH2	6:P:115:LYS:HD2	2.49	0.47
1:J:469:LEU:HD13	8:T:201:PHE:CZ	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:3718:ARG:HH11	3:L:3743:HIS:CD2	2.32	0.47
9:Y:738:TRP:CZ2	9:Y:767:ILE:HD12	2.49	0.47
4:D:24:DA:C2	4:D:25:DT:C2	3.03	0.47
3:L:1626:TRP:HE1	3:L:1652:ILE:HD11	1.79	0.47
1:A:238:LYS:HG2	8:S:185:LEU:HD13	1.96	0.47
3:C:3371:GLU:CD	3:C:3371:GLU:H	2.17	0.47
1:J:131:PHE:CE2	1:J:137:HIS:NE2	2.82	0.47
9:X:678:LEU:HD22	9:X:727:LEU:HD21	1.95	0.47
9:Y:695:PRO:O	9:Y:738:TRP:CD1	2.67	0.47
1:A:145:GLU:O	1:A:149:VAL:HG23	2.15	0.47
3:L:1560:TYR:CZ	3:L:1596:VAL:HA	2.50	0.47
9:X:738:TRP:CZ2	9:X:767:ILE:HD12	2.49	0.47
3:C:1560:TYR:CZ	3:C:1596:VAL:HA	2.50	0.47
3:C:1626:TRP:HE1	3:C:1652:ILE:HD11	1.80	0.47
3:C:3259:LEU:HD11	3:C:3283:LEU:HD23	1.97	0.47
6:O:127:ILE:HG22	6:P:127:ILE:HG12	1.97	0.47
9:X:695:PRO:O	9:X:738:TRP:CG	2.68	0.47
9:Y:721:VAL:CG1	9:Y:725:TRP:CB	2.93	0.47
1:A:333:GLU:CB	1:A:333:GLU:CD	2.83	0.47
3:L:3924:HIS:CE1	3:L:3927:ASN:HD21	2.32	0.47
4:M:27:DA:H2"	4:M:28:DC:H5"	1.97	0.47
1:A:149:VAL:O	1:A:153:LEU:HD23	2.15	0.47
1:J:145:GLU:O	1:J:149:VAL:HG23	2.15	0.47
9:X:730:PHE:CD1	9:X:730:PHE:N	2.80	0.47
6:F:127:ILE:HG22	6:G:127:ILE:HG12	1.97	0.47
9:X:697:THR:O	9:X:738:TRP:CE3	2.68	0.46
3:C:313:LEU:HD13	3:C:357:LYS:HB2	1.98	0.46
3:C:933:LEU:HD11	3:C:2797:VAL:HG11	1.98	0.46
2:K:246:HIS:CD2	2:K:368:ARG:HH22	2.33	0.46
1:J:149:VAL:O	1:J:153:LEU:HD23	2.15	0.46
2:B:246:HIS:CD2	2:B:368:ARG:HH22	2.33	0.46
2:B:496:HIS:CD2	2:B:506:PRO:HD3	2.51	0.46
4:D:27:DA:H2"	4:D:28:DC:H5"	1.96	0.46
3:L:568:PHE:CE1	3:L:633:ILE:HG21	2.50	0.46
4:M:24:DA:C2	4:M:25:DT:C2	3.03	0.46
4:D:25:DT:C2'	4:D:26:DT:H5'	2.46	0.46
6:P:32:PHE:CE2	6:P:47:VAL:HG23	2.51	0.46
1:A:74:LYS:HE2	8:S:186:ILE:O	2.16	0.46
3:C:1600:MET:HE3	3:C:1600:MET:O	2.16	0.46
7:I:194:MET:SD	7:I:194:MET:N	2.89	0.46
3:L:4042:GLN:HG2	3:L:4066:LEU:HD21	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:O:127:ILE:HD12	6:P:126:LEU:HD22	1.96	0.46
9:X:721:VAL:CG1	9:X:725:TRP:CB	2.93	0.46
1:J:333:GLU:N	1:J:334:THR:N	2.64	0.46
3:L:933:LEU:HD11	3:L:2797:VAL:HG11	1.98	0.46
3:L:3118:ASP:OD1	3:L:3119:VAL:N	2.49	0.46
3:L:3259:LEU:HD11	3:L:3283:LEU:HD23	1.97	0.46
9:Y:695:PRO:O	9:Y:738:TRP:CG	2.68	0.46
3:C:290:TYR:CE1	3:C:337:LYS:HE3	2.51	0.46
6:O:134:ILE:HD11	6:P:130:CYS:CA	2.41	0.46
9:X:721:VAL:CG1	9:X:725:TRP:HB3	2.46	0.46
9:Y:682:ILE:HD11	9:Y:726:LEU:HD23	1.97	0.46
6:F:134:ILE:HD11	6:G:130:CYS:CA	2.41	0.46
3:L:290:TYR:CE1	3:L:337:LYS:HE3	2.51	0.46
6:F:104:VAL:CG1	7:I:68:PRO:HD3	2.46	0.46
3:L:313:LEU:HD13	3:L:357:LYS:HB2	1.98	0.46
3:C:568:PHE:CE1	3:C:633:ILE:HG21	2.50	0.45
3:C:3118:ASP:OD1	3:C:3119:VAL:N	2.49	0.45
6:F:88:PHE:CE1	6:F:93:CYS:HA	2.51	0.45
1:J:332:GLU:CB	3:L:212:VAL:HG13	2.33	0.45
9:Y:721:VAL:CG1	9:Y:725:TRP:HB3	2.46	0.45
1:A:334:THR:OG1	1:A:334:THR:HA	2.11	0.45
9:X:682:ILE:HD11	9:X:726:LEU:HD23	1.97	0.45
9:Y:697:THR:O	9:Y:738:TRP:CE3	2.69	0.45
1:A:333:GLU:N	1:A:334:THR:N	2.64	0.45
3:C:2323:LEU:HD23	3:C:2326:ILE:HD12	1.99	0.45
6:O:88:PHE:CE1	6:O:93:CYS:HA	2.52	0.45
6:P:2:GLU:HB2	6:P:24:TRP:CE2	2.51	0.45
2:K:496:HIS:CD2	2:K:506:PRO:HD3	2.51	0.45
6:O:181:ILE:HD11	9:Y:771:LEU:HA	1.99	0.45
3:C:4042:GLN:HG2	3:C:4066:LEU:HD21	1.97	0.45
1:J:132:GLN:OE1	1:J:137:HIS:CG	2.70	0.45
3:C:301:CYS:HB3	3:C:358:GLU:HG2	1.98	0.45
6:G:32:PHE:CE2	6:G:47:VAL:HG23	2.51	0.45
4:M:25:DT:C2'	4:M:26:DT:O5'	2.61	0.45
7:H:51:THR:HG23	7:H:69:PRO:CG	2.47	0.45
1:A:517:ARG:HH11	8:S:201:PHE:HB2	1.81	0.45
3:C:2511:ILE:HG21	3:C:2550:ILE:HD12	1.98	0.45
6:F:123:ILE:O	6:F:127:ILE:HG23	2.17	0.45
1:J:333:GLU:CB	1:J:333:GLU:CD	2.83	0.45
3:C:2556:SER:HB2	3:C:2799:GLN:HA	1.99	0.45
7:I:67:ALA:HB3	7:I:72:PHE:CE2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:432:THR:HB	3:C:433:PRO:HD3	1.98	0.44
6:G:2:GLU:HB2	6:G:24:TRP:CE2	2.51	0.44
3:L:2323:LEU:HD23	3:L:2326:ILE:HD12	1.99	0.44
9:X:742:PHE:CZ	9:X:744:ILE:HB	2.52	0.44
1:A:332:GLU:O	1:A:333:GLU:CA	2.66	0.44
6:O:97:PHE:O	6:O:107:ARG:HA	2.16	0.44
3:C:2276:LEU:C	3:C:2276:LEU:HD23	2.37	0.44
3:L:313:LEU:HD13	3:L:357:LYS:CB	2.48	0.44
9:X:662:VAL:HG21	9:X:735:PHE:CE1	2.53	0.44
3:C:313:LEU:HD13	3:C:357:LYS:CB	2.48	0.44
3:C:468:LEU:HB3	3:C:475:LEU:HD13	2.00	0.44
3:L:1171:TRP:CE2	3:L:1175:HIS:CD2	3.06	0.44
3:L:3147:LYS:HB2	3:L:3150:ASN:ND2	2.32	0.44
3:C:2919:ASP:HA	3:C:2922:ARG:HD2	2.00	0.44
6:F:181:ILE:HD11	9:X:771:LEU:HA	1.98	0.44
3:L:940:PHE:CZ	3:L:944:LYS:CE	3.00	0.44
3:L:2511:ILE:HG21	3:L:2550:ILE:HD12	1.98	0.44
9:Y:662:VAL:HG21	9:Y:735:PHE:CE1	2.53	0.44
9:Y:721:VAL:HG12	9:Y:725:TRP:CB	2.48	0.44
1:A:132:GLN:OE1	1:A:137:HIS:CG	2.70	0.44
3:C:305:ASN:HB3	3:C:308:LEU:HB3	2.00	0.44
3:C:1266:CYS:C	3:C:1270:PHE:CE2	2.91	0.44
3:L:2276:LEU:HD23	3:L:2276:LEU:C	2.37	0.44
3:L:2919:ASP:HA	3:L:2922:ARG:HD2	2.00	0.44
6:P:91:GLU:CD	6:P:91:GLU:H	2.21	0.44
3:C:940:PHE:CZ	3:C:944:LYS:CE	3.00	0.44
3:L:1266:CYS:C	3:L:1270:PHE:CE2	2.91	0.44
3:L:3531:TYR:HB2	3:L:3532:PRO:HD3	2.00	0.44
5:N:26:DT:H2'	5:N:27:DT:C6	2.53	0.44
1:A:136:GLY:C	1:A:137:HIS:CD2	2.91	0.44
3:C:1649:LEU:HD12	3:C:1652:ILE:HD12	1.99	0.44
3:L:468:LEU:HB3	3:L:475:LEU:HD13	2.00	0.44
3:C:3147:LYS:HB2	3:C:3150:ASN:ND2	2.32	0.44
3:C:3531:TYR:HB2	3:C:3532:PRO:HD3	2.00	0.44
3:L:301:CYS:HB3	3:L:358:GLU:HG2	1.99	0.44
6:O:90:LYS:HE3	6:O:90:LYS:H	1.83	0.44
6:O:123:ILE:O	6:O:127:ILE:HG23	2.17	0.44
3:C:1171:TRP:CE2	3:C:1175:HIS:CD2	3.06	0.43
6:F:104:VAL:HG11	7:I:67:ALA:HA	2.00	0.43
7:H:18:LEU:CD2	7:H:95:PHE:O	2.65	0.43
3:L:1847:ALA:HB1	3:L:1873:TYR:CD1	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:434:MET:HG2	8:S:191:LYS:HZ2	1.82	0.43
6:G:91:GLU:CD	6:G:91:GLU:H	2.21	0.43
3:C:2265:PRO:HD2	3:C:2309:PHE:CE2	2.53	0.43
3:L:1649:LEU:HD12	3:L:1652:ILE:HD12	1.99	0.43
6:F:58:ASP:CB	7:I:63:LYS:HD3	2.49	0.43
9:X:698:TYR:O	9:X:736:VAL:O	2.37	0.43
3:C:442:GLN:CD	3:C:457:CYS:SG	2.97	0.43
3:C:662:LEU:HA	3:C:725:LEU:HD22	2.00	0.43
1:J:136:GLY:C	1:J:137:HIS:CD2	2.91	0.43
3:L:432:THR:HB	3:L:433:PRO:HD3	1.98	0.43
3:L:2556:SER:HB2	3:L:2799:GLN:HA	1.99	0.43
3:L:2567:SER:HA	3:L:2572:TYR:CG	2.54	0.43
9:Y:698:TYR:O	9:Y:736:VAL:O	2.37	0.43
3:L:2549:LYS:O	3:L:2550:ILE:HD13	2.18	0.43
5:E:26:DT:H2'	5:E:27:DT:C6	2.53	0.43
6:F:90:LYS:H	6:F:90:LYS:HE3	1.83	0.43
7:I:140:MET:SD	7:I:140:MET:C	2.97	0.43
9:X:721:VAL:HG12	9:X:725:TRP:CB	2.48	0.43
9:X:729:CYS:SG	9:X:734:SER:HB2	2.59	0.43
1:A:250:GLU:HG2	8:S:190:PHE:CG	2.54	0.43
3:C:1166:LEU:HA	3:C:1198:LEU:HD21	2.01	0.43
3:C:2549:LYS:O	3:C:2550:ILE:HD13	2.18	0.43
7:H:71:ALA:CB	6:O:104:VAL:CG2	2.89	0.43
7:H:112:LEU:HD22	6:O:106:PHE:CZ	2.53	0.43
3:L:1397:ASP:HA	3:L:1400:VAL:HG22	2.00	0.43
3:L:3463:LEU:HB3	3:L:3997:LEU:HD11	2.00	0.43
3:C:1672:PHE:CD1	3:C:1699:PHE:CD2	3.07	0.43
1:J:41:LEU:HD21	1:J:146:VAL:HG12	2.01	0.43
3:C:2567:SER:HA	3:C:2572:TYR:CG	2.54	0.43
3:L:630:CYS:HA	3:L:633:ILE:HB	2.01	0.43
3:C:1847:ALA:HB1	3:C:1873:TYR:CD1	2.53	0.42
1:J:250:GLU:HG2	8:T:190:PHE:CG	2.54	0.42
1:J:273:ILE:HD13	1:J:368:VAL:HG22	2.01	0.42
3:L:3713:PRO:HA	3:L:3716:HIS:CG	2.54	0.42
6:P:24:TRP:CD1	6:P:27:THR:C	2.93	0.42
9:Y:729:CYS:SG	9:Y:734:SER:HB2	2.59	0.42
3:C:3463:LEU:HB3	3:C:3997:LEU:HD11	2.00	0.42
3:C:4090:ARG:NH1	3:C:4113:ASP:OD2	2.38	0.42
9:X:725:TRP:CH2	9:X:734:SER:O	2.73	0.42
3:C:2121:ASP:HB3	3:C:2125:TRP:CE2	2.55	0.42
6:G:24:TRP:CD1	6:G:27:THR:C	2.93	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:H:7:GLY:HA3	7:H:28:PHE:CE2	2.55	0.42
1:J:332:GLU:O	1:J:333:GLU:CA	2.66	0.42
6:O:55:GLU:HA	6:O:58:ASP:HB3	2.01	0.42
3:L:442:GLN:CD	3:L:457:CYS:SG	2.97	0.42
3:L:569:VAL:HG11	3:L:645:TRP:CE3	2.54	0.42
3:L:662:LEU:HA	3:L:725:LEU:HD22	2.00	0.42
3:L:2265:PRO:HD2	3:L:2309:PHE:CE2	2.53	0.42
3:C:630:CYS:HA	3:C:633:ILE:HB	2.01	0.42
7:I:1:MET:SD	7:I:4:LEU:HB2	2.59	0.42
7:I:208:LYS:HG2	7:I:212:MET:SD	2.59	0.42
6:F:55:GLU:HA	6:F:58:ASP:HB3	2.01	0.42
7:H:46:HIS:HB3	7:H:124:MET:SD	2.59	0.42
1:A:273:ILE:HD13	1:A:368:VAL:HG22	2.01	0.42
6:F:104:VAL:HG11	7:I:68:PRO:HD3	2.00	0.42
7:H:18:LEU:HD22	7:H:95:PHE:O	2.19	0.42
6:P:42:ALA:HB3	6:P:116:VAL:O	2.20	0.42
9:X:682:ILE:HD11	9:X:726:LEU:CD2	2.50	0.42
9:Y:697:THR:O	9:Y:738:TRP:HB3	2.20	0.42
1:A:333:GLU:N	1:A:333:GLU:CG	2.83	0.42
3:L:1166:LEU:HA	3:L:1198:LEU:HD21	2.01	0.42
3:L:1672:PHE:CD1	3:L:1699:PHE:CD2	3.07	0.42
3:L:1967:PHE:CD2	3:L:2123:PRO:HB3	2.55	0.42
9:X:697:THR:O	9:X:738:TRP:HB3	2.20	0.42
9:Y:725:TRP:CH2	9:Y:734:SER:O	2.73	0.42
1:A:312:LEU:CD2	3:C:161:ALA:HA	2.50	0.42
3:C:569:VAL:HG11	3:C:645:TRP:CE3	2.54	0.42
3:C:1579:VAL:HA	3:C:1582:LEU:HB2	2.02	0.42
3:L:2121:ASP:HB3	3:L:2125:TRP:CE2	2.55	0.42
9:X:725:TRP:O	9:X:729:CYS:HB2	2.20	0.42
3:C:309:LYS:HG2	3:C:313:LEU:HD12	2.02	0.42
3:C:1397:ASP:HA	3:C:1400:VAL:HG22	2.00	0.42
3:L:1579:VAL:HA	3:L:1582:LEU:HB2	2.02	0.42
6:F:90:LYS:HE3	6:F:91:GLU:OE2	2.20	0.41
6:F:101:LEU:CD2	7:I:113:SER:HA	2.42	0.41
6:F:130:CYS:HB3	6:G:130:CYS:HB2	2.02	0.41
4:M:14:DA:C2	4:M:15:DT:C2	3.08	0.41
6:O:90:LYS:HE3	6:O:91:GLU:OE2	2.20	0.41
9:Y:682:ILE:HD11	9:Y:726:LEU:CD2	2.50	0.41
9:Y:725:TRP:O	9:Y:729:CYS:HB2	2.20	0.41
3:C:1967:PHE:CD2	3:C:2123:PRO:HB3	2.55	0.41
6:P:170:GLU:O	6:P:174:THR:HG22	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:Y:726:LEU:HD12	9:Y:726:LEU:HA	1.78	0.41
3:C:196:LEU:CD2	3:C:230:LEU:HD22	2.50	0.41
6:G:42:ALA:HB3	6:G:116:VAL:O	2.20	0.41
6:G:169:LYS:NZ	9:X:810:LEU:O	2.53	0.41
1:J:83:LEU:HD23	1:J:111:PRO:HB3	2.02	0.41
6:O:130:CYS:HB3	6:P:130:CYS:HB2	2.02	0.41
1:A:41:LEU:HD21	1:A:146:VAL:HG12	2.01	0.41
3:C:663:ILE:HG21	3:C:666:PHE:CE2	2.55	0.41
4:D:14:DA:C2	4:D:15:DT:C2	3.08	0.41
1:J:333:GLU:N	1:J:333:GLU:CG	2.83	0.41
3:L:196:LEU:CD2	3:L:230:LEU:HD22	2.50	0.41
1:A:83:LEU:HD23	1:A:111:PRO:HB3	2.02	0.41
6:F:102:LYS:HA	6:F:102:LYS:CE	2.50	0.41
1:J:74:LYS:HE2	8:T:186:ILE:O	2.18	0.41
3:L:2371:PHE:CD2	3:L:2373:PRO:HD2	2.56	0.41
3:C:2371:PHE:CD2	3:C:2373:PRO:HD2	2.56	0.41
1:J:312:LEU:CD2	3:L:161:ALA:HA	2.50	0.41
3:L:1594:SER:HB2	3:L:1644:ALA:HB1	2.03	0.41
3:C:458:CYS:SG	3:C:530:LEU:HD22	2.61	0.41
1:J:65:GLN:OE1	1:J:65:GLN:HA	2.21	0.41
3:L:1825:LEU:HD11	3:L:1875:LYS:HB3	2.01	0.41
6:G:170:GLU:O	6:G:174:THR:HG22	2.20	0.41
7:H:208:LYS:O	7:H:212:MET:SD	2.78	0.41
3:L:442:GLN:CG	3:L:457:CYS:SG	3.09	0.41
3:L:663:ILE:HG21	3:L:666:PHE:CE2	2.55	0.41
3:L:741:ILE:HG22	3:L:741:ILE:O	2.21	0.41
3:L:1600:MET:HE3	3:L:1600:MET:HA	2.02	0.41
9:X:717:LYS:HA	9:X:739:GLN:HB2	2.03	0.41
9:Y:717:LYS:HA	9:Y:739:GLN:HB2	2.03	0.41
3:C:101:ALA:N	3:C:102:PRO:HD2	2.36	0.41
3:C:388:LEU:C	3:C:388:LEU:HD13	2.41	0.41
3:C:1825:LEU:HD11	3:C:1875:LYS:HB3	2.02	0.41
3:C:1840:PHE:CE1	3:C:1895:LYS:HD2	2.56	0.41
3:C:3713:PRO:HA	3:C:3716:HIS:CG	2.54	0.41
3:L:309:LYS:HG2	3:L:313:LEU:HD12	2.02	0.41
3:L:388:LEU:HD13	3:L:388:LEU:C	2.41	0.41
3:L:3626:GLY:HA2	3:L:3685:PRO:CD	2.51	0.41
6:P:169:LYS:HZ1	9:Y:810:LEU:HB3	1.85	0.41
6:P:169:LYS:NZ	9:Y:810:LEU:O	2.53	0.41
5:E:23:DT:C2	5:E:24:DT:C4	3.09	0.40
1:J:241:ASP:HB2	8:T:185:LEU:HD21	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:101:ALA:N	3:L:102:PRO:HD2	2.36	0.40
5:N:1:DG:N2	5:N:2:DT:C2	2.89	0.40
6:O:3:ARG:HH11	6:O:129:TYR:CB	2.34	0.40
9:Y:725:TRP:CE2	9:Y:734:SER:HB2	2.56	0.40
3:C:1594:SER:HB2	3:C:1644:ALA:HB1	2.03	0.40
3:C:1805:PHE:CE1	3:C:1816:ARG:HG2	2.56	0.40
4:D:27:DA:H2'	4:D:28:DC:H5"	2.03	0.40
3:L:1600:MET:HE3	3:L:1600:MET:O	2.21	0.40
3:L:1805:PHE:CE1	3:L:1816:ARG:HG2	2.56	0.40
6:O:8:ILE:HG12	6:O:18:HIS:HB2	2.03	0.40
6:O:151:LEU:HB3	6:P:151:LEU:HB3	2.03	0.40
3:C:442:GLN:CG	3:C:457:CYS:SG	3.09	0.40
3:C:1897:ASN:HA	3:C:1904:CYS:SG	2.62	0.40
6:F:8:ILE:HG12	6:F:18:HIS:HB2	2.03	0.40
7:H:215:GLN:O	7:H:219:MET:SD	2.78	0.40
3:C:2485:ARG:HA	3:C:2499:PHE:CE1	2.57	0.40
7:H:112:LEU:CD2	6:O:106:PHE:CZ	3.05	0.40
3:L:2485:ARG:HA	3:L:2499:PHE:CE1	2.56	0.40
9:X:726:LEU:HD12	9:X:729:CYS:CB	2.52	0.40
3:C:741:ILE:HG22	3:C:741:ILE:O	2.21	0.40
6:F:3:ARG:HH11	6:F:129:TYR:CB	2.34	0.40
6:F:151:LEU:HB3	6:G:151:LEU:HB3	2.03	0.40
7:I:43:GLN:HB2	7:I:45:TRP:CH2	2.57	0.40
9:Y:767:ILE:HG22	9:Y:768:ASP:O	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	493/609 (81%)	460 (93%)	33 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	J	493/609 (81%)	460 (93%)	33 (7%)	0	100 100
2	B	520/732 (71%)	473 (91%)	41 (8%)	6 (1%)	13 50
2	K	520/732 (71%)	474 (91%)	40 (8%)	6 (1%)	13 50
3	C	3694/4128 (90%)	3400 (92%)	294 (8%)	0	100 100
3	L	3694/4128 (90%)	3398 (92%)	296 (8%)	0	100 100
6	F	199/336 (59%)	192 (96%)	6 (3%)	1 (0%)	29 69
6	G	191/336 (57%)	177 (93%)	10 (5%)	4 (2%)	7 36
6	O	199/336 (59%)	193 (97%)	6 (3%)	0	100 100
6	P	191/336 (57%)	177 (93%)	10 (5%)	4 (2%)	7 36
7	H	217/299 (73%)	203 (94%)	13 (6%)	1 (0%)	29 69
7	I	212/299 (71%)	201 (95%)	10 (5%)	1 (0%)	29 69
8	S	21/204 (10%)	18 (86%)	3 (14%)	0	100 100
8	T	21/204 (10%)	18 (86%)	3 (14%)	0	100 100
9	X	250/911 (27%)	222 (89%)	24 (10%)	4 (2%)	9 44
9	Y	250/911 (27%)	222 (89%)	24 (10%)	4 (2%)	9 44
All	All	11165/15110 (74%)	10288 (92%)	846 (8%)	31 (0%)	44 77

All (31) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	145	SER
2	B	146	GLN
2	B	518	PRO
2	B	520	ALA
6	G	26	LYS
2	K	145	SER
2	K	146	GLN
2	K	518	PRO
2	K	520	ALA
6	P	26	LYS
9	X	717	LYS
9	X	737	PRO
9	X	740	PRO
9	X	746	MET
9	Y	717	LYS
9	Y	737	PRO
9	Y	746	MET

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Mol	Chain	Res	Type
7	H	208	LYS
9	Y	740	PRO
6	F	107	ARG
6	G	49	GLU
6	P	49	GLU
2	B	519	PRO
6	G	64	GLY
7	I	177	ASP
2	K	519	PRO
6	P	64	GLY
6	G	60	ALA
6	P	60	ALA
2	B	517	ASN
2	K	517	ASN

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	452/548 (82%)	446 (99%)	6 (1%)	69 81
1	J	452/548 (82%)	446 (99%)	6 (1%)	69 81
2	B	474/649 (73%)	461 (97%)	13 (3%)	44 65
2	K	474/649 (73%)	461 (97%)	13 (3%)	44 65
3	C	3322/3671 (90%)	3253 (98%)	69 (2%)	53 72
3	L	3322/3671 (90%)	3255 (98%)	67 (2%)	55 74
6	F	180/303 (59%)	161 (89%)	19 (11%)	6 24
6	G	178/303 (59%)	158 (89%)	20 (11%)	6 22
6	O	180/303 (59%)	163 (91%)	17 (9%)	8 28
6	P	178/303 (59%)	158 (89%)	20 (11%)	6 22
7	H	198/262 (76%)	189 (96%)	9 (4%)	27 52
7	I	193/262 (74%)	176 (91%)	17 (9%)	10 31
8	S	18/160 (11%)	18 (100%)	0	100 100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
8	T	18/160 (11%)	18 (100%)	0	100 100
9	X	230/808 (28%)	205 (89%)	25 (11%)	6 23
9	Y	230/808 (28%)	206 (90%)	24 (10%)	7 24
All	All	10099/13408 (75%)	9774 (97%)	325 (3%)	42 61

All (325) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	71	TYR
1	A	252	ARG
1	A	299	LYS
1	A	338	LYS
1	A	461	LYS
1	A	505	ASP
2	B	20	MET
2	B	35	LYS
2	B	81	ARG
2	B	97	LYS
2	B	130	ARG
2	B	151	ILE
2	B	203	GLU
2	B	229	GLU
2	B	271	ARG
2	B	286	LYS
2	B	353	ARG
2	B	492	GLN
2	B	518	PRO
3	C	163	LYS
3	C	385	TYR
3	C	406	ARG
3	C	453	MET
3	C	530	LEU
3	C	619	ASP
3	C	620	PHE
3	C	630	CYS
3	C	636	GLU
3	C	674	VAL
3	C	682	TYR
3	C	683	PHE
3	C	700	LYS
3	C	760	LEU

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Mol	Chain	Res	Type
3	C	771	ASN
3	C	901	MET
3	C	1090	ARG
3	C	1092	GLU
3	C	1110	SER
3	C	1135	CYS
3	C	1231	GLN
3	C	1268	ASN
3	C	1374	GLN
3	C	1403	MET
3	C	1408	MET
3	C	1412	LYS
3	C	1444	ASP
3	C	1531	LEU
3	C	1602	ASP
3	C	1626	TRP
3	C	1744	LYS
3	C	1845	VAL
3	C	1862	THR
3	C	1946	ASN
3	C	1969	GLU
3	C	2124	SER
3	C	2143	ARG
3	C	2145	PHE
3	C	2157	PHE
3	C	2165	LEU
3	C	2170	GLN
3	C	2218	PHE
3	C	2239	LYS
3	C	2281	MET
3	C	2288	TYR
3	C	2358	ASP
3	C	2412	TYR
3	C	2419	ASP
3	C	2424	MET
3	C	2455	LEU
3	C	2524	PHE
3	C	2553	HIS
3	C	2605	MET
3	C	2813	PHE
3	C	2821	ASP
3	C	2834	GLN

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Mol	Chain	Res	Type
3	C	2937	ASP
3	C	2978	LYS
3	C	3033	GLU
3	C	3097	ASP
3	C	3114	TYR
3	C	3310	ASN
3	C	3379	GLN
3	C	3485	LYS
3	C	3573	ASN
3	C	3576	ASP
3	C	3598	LYS
3	C	3644	PHE
3	C	3679	ASN
6	F	3	ARG
6	F	6	SER
6	F	7	ARG
6	F	8	ILE
6	F	23	SER
6	F	26	LYS
6	F	40	HIS
6	F	55	GLU
6	F	58	ASP
6	F	90	LYS
6	F	101	LEU
6	F	104	VAL
6	F	110	SER
6	F	112	ASN
6	F	114	GLU
6	F	127	ILE
6	F	129	TYR
6	F	157	ASP
6	F	195	HIS
6	G	1	MET
6	G	21	GLN
6	G	28	LEU
6	G	34	ILE
6	G	47	VAL
6	G	49	GLU
6	G	51	GLU
6	G	52	ILE
6	G	67	VAL
6	G	71	ARG

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Mol	Chain	Res	Type
6	G	85	THR
6	G	89	SER
6	G	90	LYS
6	G	91	GLU
6	G	115	LYS
6	G	128	CYS
6	G	146	LYS
6	G	150	ARG
6	G	162	PHE
6	G	174	THR
7	H	31	LYS
7	H	62	ASN
7	H	100	VAL
7	H	109	ARG
7	H	124	MET
7	H	151	ARG
7	H	168	GLN
7	H	169	GLU
7	H	296	ARG
7	I	17	GLN
7	I	31	LYS
7	I	41	LEU
7	I	48	GLN
7	I	59	LYS
7	I	109	ARG
7	I	118	TYR
7	I	140	MET
7	I	151	ARG
7	I	159	MET
7	I	169	GLU
7	I	194	MET
7	I	200	GLU
7	I	204	ILE
7	I	212	MET
7	I	224	GLN
7	I	296	ARG
1	J	71	TYR
1	J	252	ARG
1	J	299	LYS
1	J	338	LYS
1	J	461	LYS
1	J	505	ASP

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Mol	Chain	Res	Type
2	K	20	MET
2	K	35	LYS
2	K	81	ARG
2	K	97	LYS
2	K	130	ARG
2	K	151	ILE
2	K	203	GLU
2	K	229	GLU
2	K	271	ARG
2	K	286	LYS
2	K	353	ARG
2	K	492	GLN
2	K	518	PRO
3	L	163	LYS
3	L	385	TYR
3	L	406	ARG
3	L	530	LEU
3	L	619	ASP
3	L	620	PHE
3	L	630	CYS
3	L	636	GLU
3	L	674	VAL
3	L	682	TYR
3	L	683	PHE
3	L	700	LYS
3	L	760	LEU
3	L	771	ASN
3	L	901	MET
3	L	1090	ARG
3	L	1092	GLU
3	L	1110	SER
3	L	1135	CYS
3	L	1231	GLN
3	L	1268	ASN
3	L	1374	GLN
3	L	1403	MET
3	L	1408	MET
3	L	1412	LYS
3	L	1444	ASP
3	L	1531	LEU
3	L	1602	ASP
3	L	1626	TRP

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Mol	Chain	Res	Type
3	L	1744	LYS
3	L	1845	VAL
3	L	1946	ASN
3	L	1969	GLU
3	L	2124	SER
3	L	2143	ARG
3	L	2145	PHE
3	L	2157	PHE
3	L	2165	LEU
3	L	2170	GLN
3	L	2218	PHE
3	L	2239	LYS
3	L	2281	MET
3	L	2288	TYR
3	L	2358	ASP
3	L	2412	TYR
3	L	2419	ASP
3	L	2424	MET
3	L	2455	LEU
3	L	2524	PHE
3	L	2553	HIS
3	L	2605	MET
3	L	2813	PHE
3	L	2821	ASP
3	L	2834	GLN
3	L	2937	ASP
3	L	2978	LYS
3	L	3033	GLU
3	L	3097	ASP
3	L	3114	TYR
3	L	3310	ASN
3	L	3379	GLN
3	L	3485	LYS
3	L	3573	ASN
3	L	3576	ASP
3	L	3598	LYS
3	L	3644	PHE
3	L	3679	ASN
6	O	3	ARG
6	O	6	SER
6	O	7	ARG
6	O	8	ILE

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Mol	Chain	Res	Type
6	O	23	SER
6	O	26	LYS
6	O	40	HIS
6	O	55	GLU
6	O	58	ASP
6	O	90	LYS
6	O	104	VAL
6	O	112	ASN
6	O	114	GLU
6	O	127	ILE
6	O	129	TYR
6	O	157	ASP
6	O	195	HIS
6	P	1	MET
6	P	21	GLN
6	P	28	LEU
6	P	34	ILE
6	P	47	VAL
6	P	49	GLU
6	P	51	GLU
6	P	52	ILE
6	P	67	VAL
6	P	71	ARG
6	P	85	THR
6	P	89	SER
6	P	90	LYS
6	P	91	GLU
6	P	115	LYS
6	P	128	CYS
6	P	146	LYS
6	P	150	ARG
6	P	162	PHE
6	P	174	THR
9	X	661	ASP
9	X	728	GLU
9	X	729	CYS
9	X	736	VAL
9	X	737	PRO
9	X	740	PRO
9	X	743	MET
9	X	746	MET
9	X	774	LEU

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Mol	Chain	Res	Type
9	X	786	GLU
9	X	788	THR
9	X	811	SER
9	X	820	LEU
9	X	822	SER
9	X	830	SER
9	X	836	THR
9	X	837	ARG
9	X	843	LEU
9	X	853	VAL
9	X	856	LEU
9	X	862	HIS
9	X	871	ARG
9	X	884	ARG
9	X	894	VAL
9	X	906	GLU
9	Y	661	ASP
9	Y	728	GLU
9	Y	729	CYS
9	Y	736	VAL
9	Y	737	PRO
9	Y	743	MET
9	Y	746	MET
9	Y	774	LEU
9	Y	786	GLU
9	Y	788	THR
9	Y	811	SER
9	Y	820	LEU
9	Y	822	SER
9	Y	830	SER
9	Y	836	THR
9	Y	837	ARG
9	Y	843	LEU
9	Y	853	VAL
9	Y	856	LEU
9	Y	862	HIS
9	Y	871	ARG
9	Y	884	ARG
9	Y	894	VAL
9	Y	906	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (32) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	68	GLN
2	B	246	HIS
3	C	185	HIS
3	C	442	GLN
3	C	539	GLN
3	C	993	HIS
3	C	1133	HIS
3	C	1465	HIS
3	C	2523	ASN
3	C	2795	GLN
3	C	3671	ASN
3	C	4110	GLN
6	F	40	HIS
7	I	46	HIS
7	I	48	GLN
1	J	68	GLN
2	K	246	HIS
3	L	185	HIS
3	L	442	GLN
3	L	539	GLN
3	L	993	HIS
3	L	1133	HIS
3	L	1465	HIS
3	L	2523	ASN
3	L	2795	GLN
3	L	3671	ASN
3	L	4110	GLN
6	O	40	HIS
8	S	187	ASN
8	T	187	ASN
9	X	833	ASN
9	Y	833	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)

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
11	ATP	L	4201	10	26,33,33	0.74	0	31,52,52	0.72	0
11	ATP	C	4201	10	26,33,33	0.73	0	31,52,52	0.73	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	ATP	L	4201	10	-	4/18/38/38	0/3/3/3
11	ATP	C	4201	10	-	4/18/38/38	0/3/3/3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	C	4201	ATP	C5'-O5'-PA-O1A
11	C	4201	ATP	C5'-O5'-PA-O2A
11	C	4201	ATP	C5'-O5'-PA-O3A
11	L	4201	ATP	C5'-O5'-PA-O1A
11	L	4201	ATP	C5'-O5'-PA-O2A
11	L	4201	ATP	C5'-O5'-PA-O3A

Continued on next page...

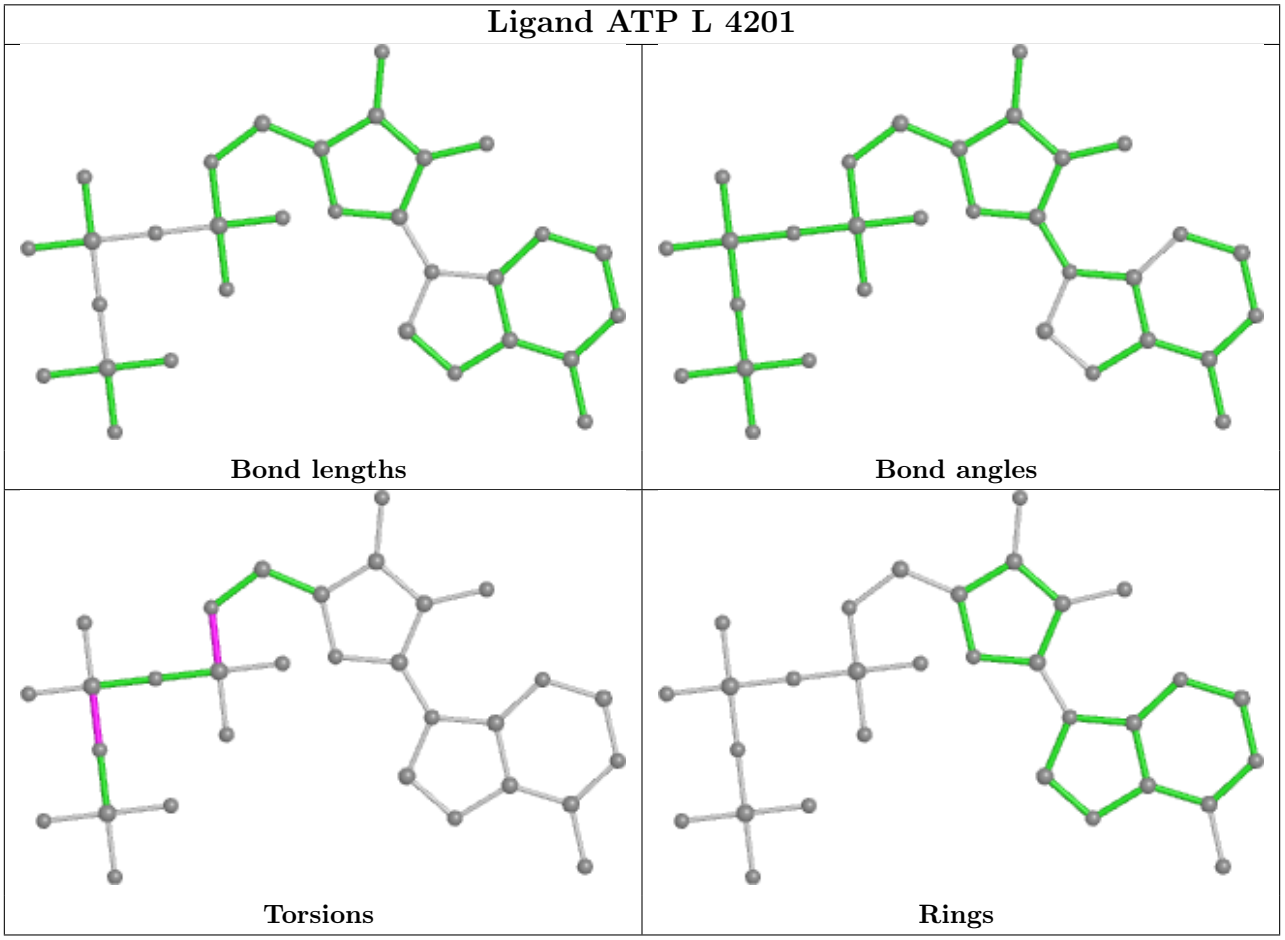
Continued from previous page...

Mol	Chain	Res	Type	Atoms
11	C	4201	ATP	PG-O3B-PB-O1B
11	L	4201	ATP	PG-O3B-PB-O1B

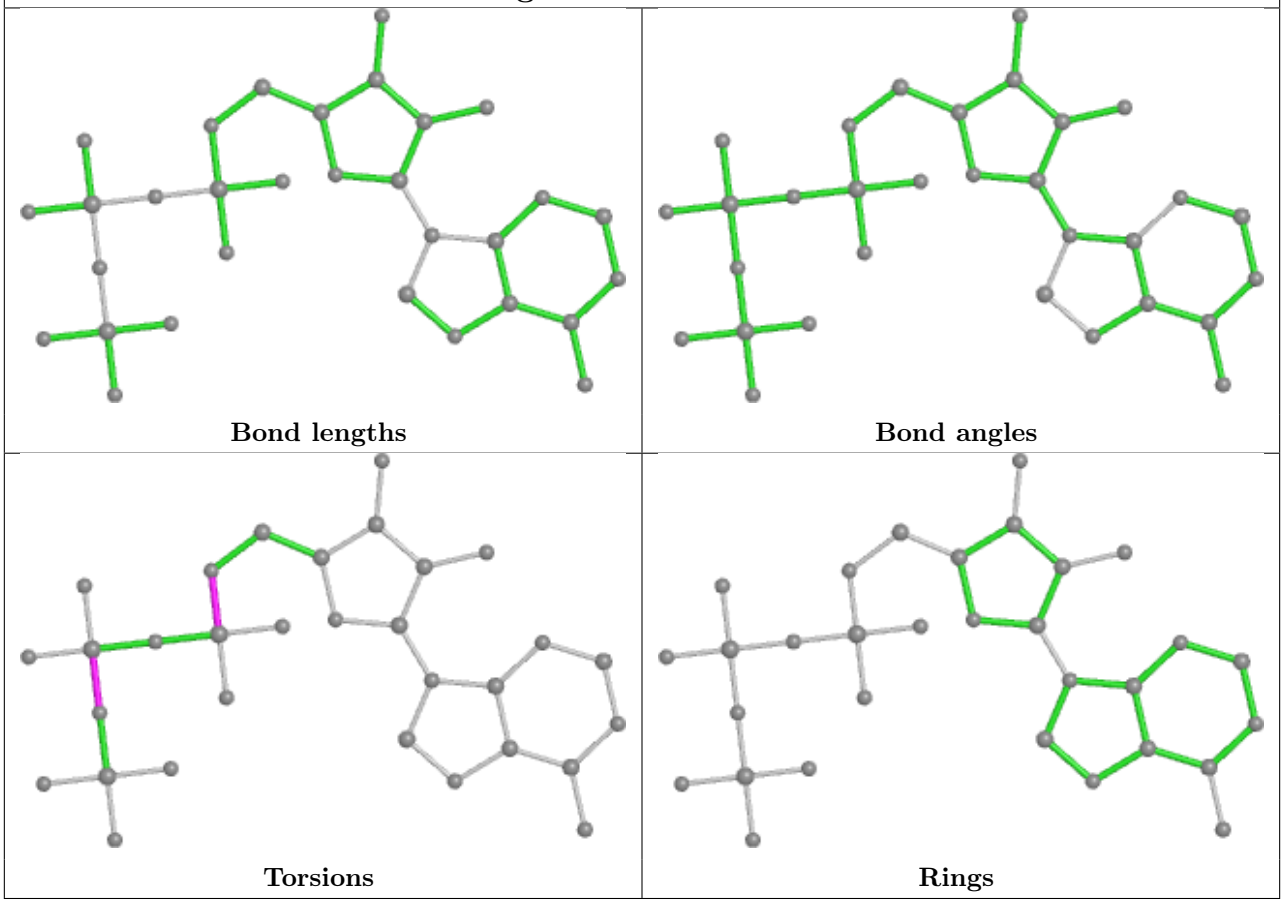
There are no ring outliers.

No monomer is involved in short contacts.

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



Ligand ATP C 4201



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.

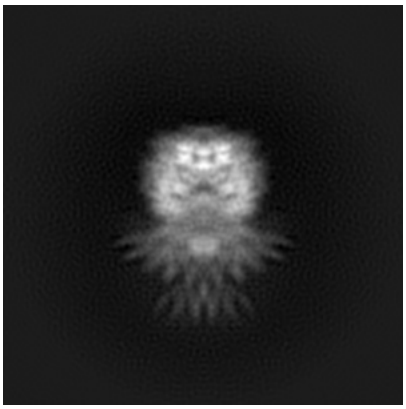
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-28733. These allow visual inspection of the internal detail of the map and identification of artifacts.

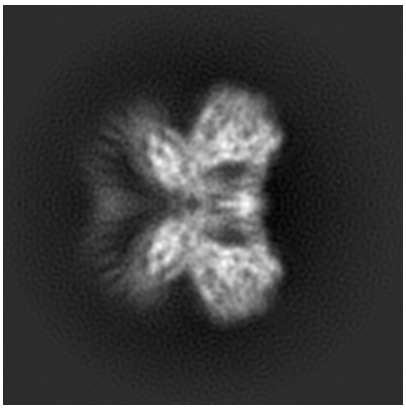
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

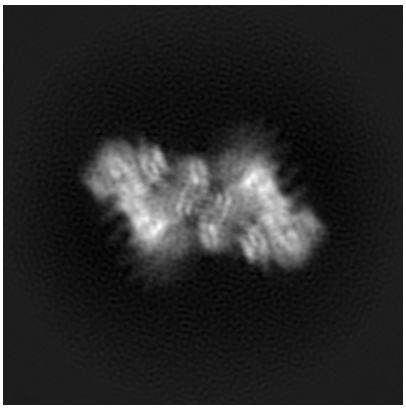
6.1.1 Primary map



X

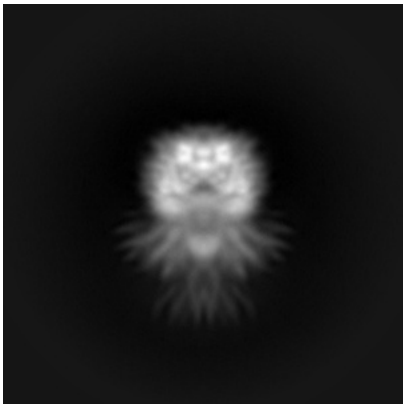


Y

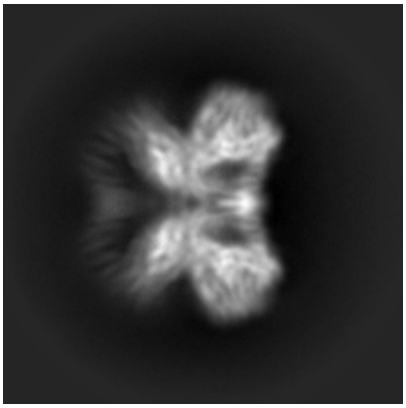


Z

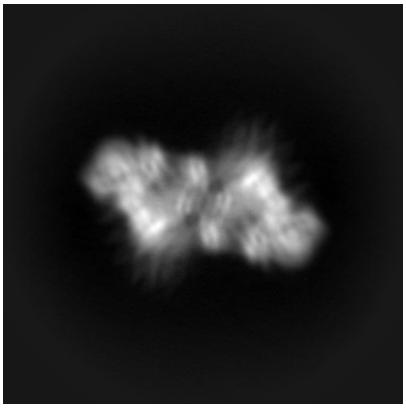
6.1.2 Raw map



X



Y

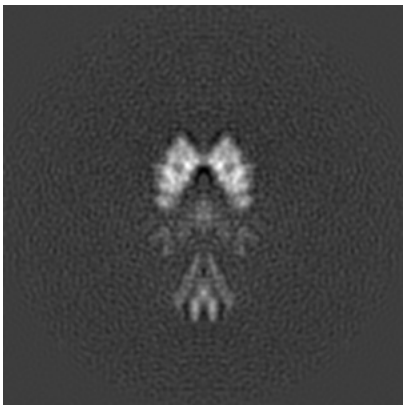


Z

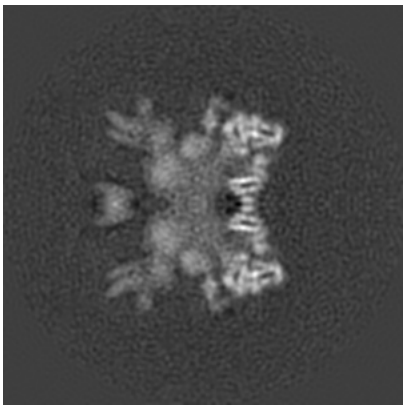
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

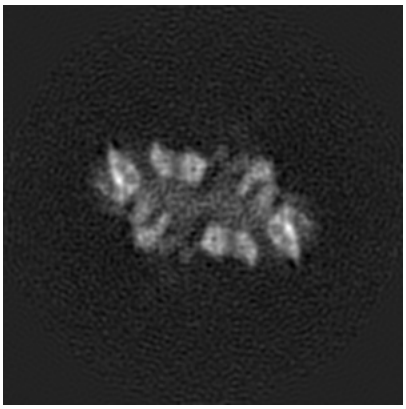
6.2.1 Primary map



X Index: 120



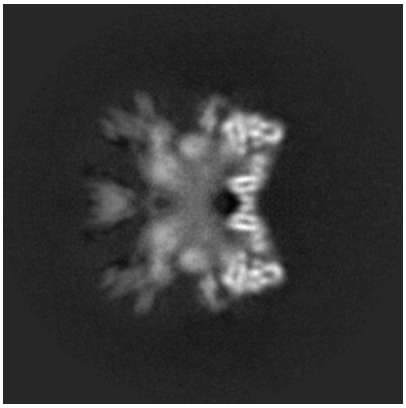
Y Index: 120



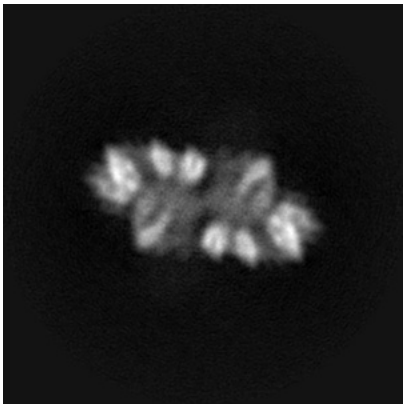
Z Index: 120

6.2.2 Raw map

X Index: 120



Y Index: 120

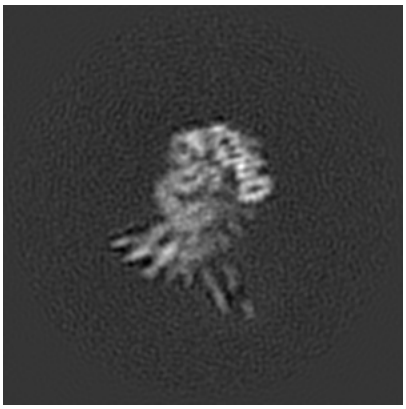


Z Index: 120

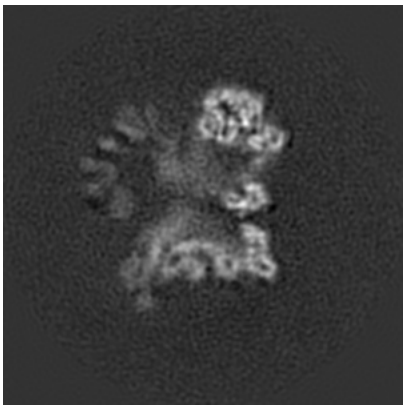
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

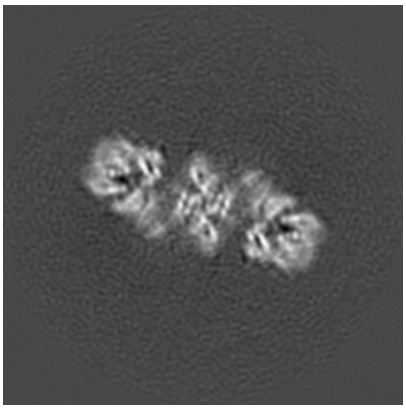
6.3.1 Primary map



X Index: 84

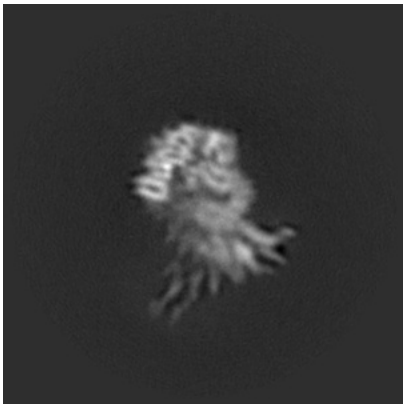


Y Index: 110

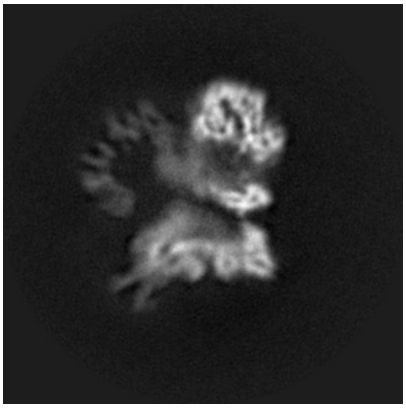


Z Index: 143

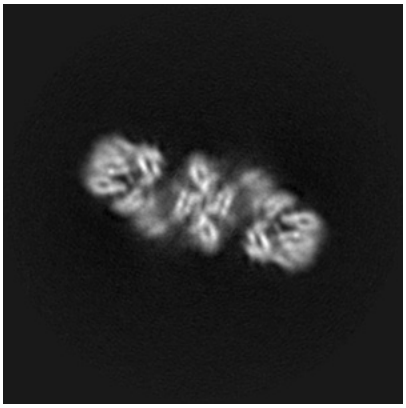
6.3.2 Raw map



X Index: 156



Y Index: 108

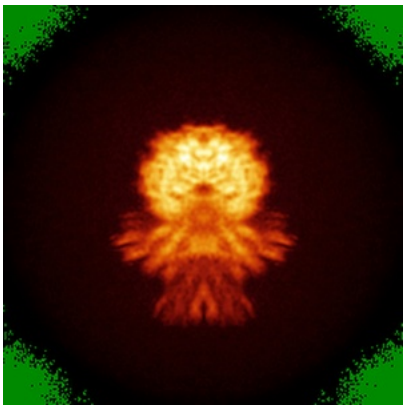


Z Index: 143

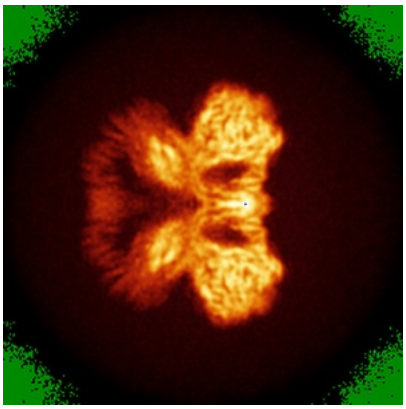
The images above show the largest variance slices of the map in three orthogonal directions.

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

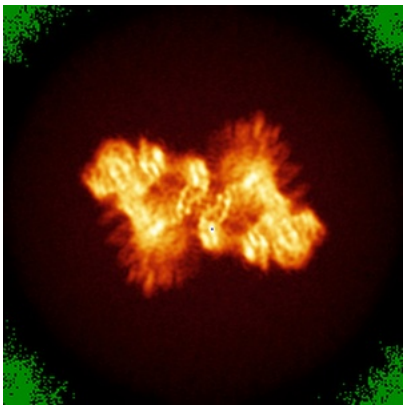
6.4.1 Primary map



X



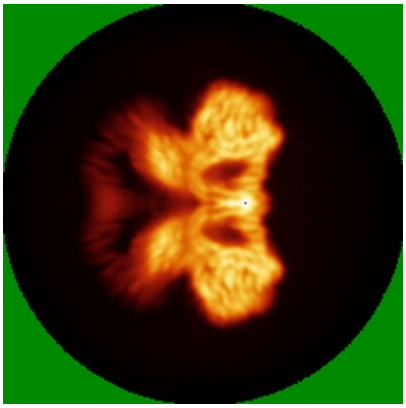
Y



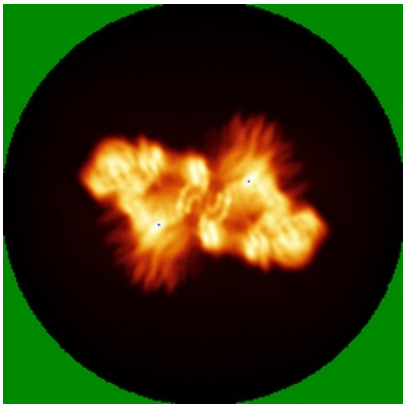
Z

6.4.2 Raw map

X



Y

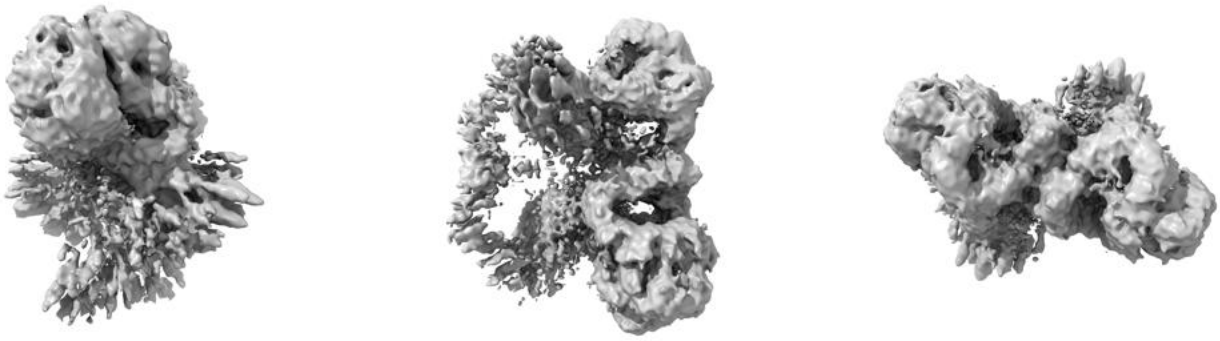


Z

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

6.5 Orthogonal surface views (i)

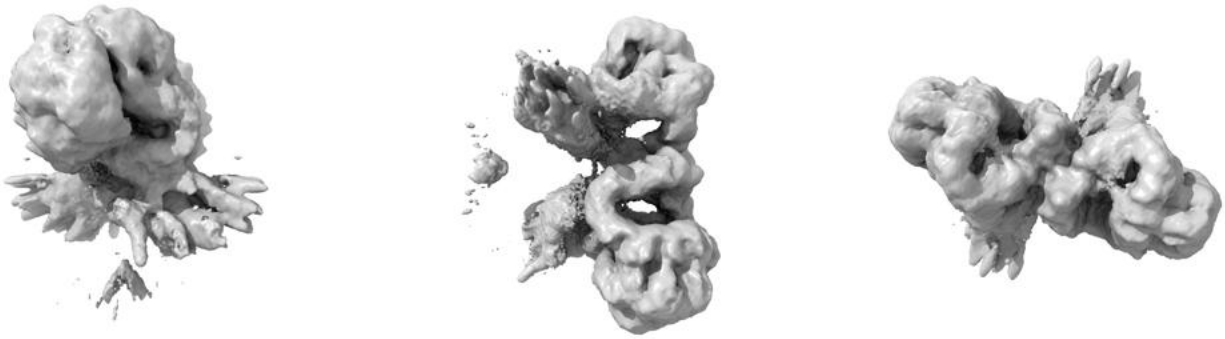
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.016. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

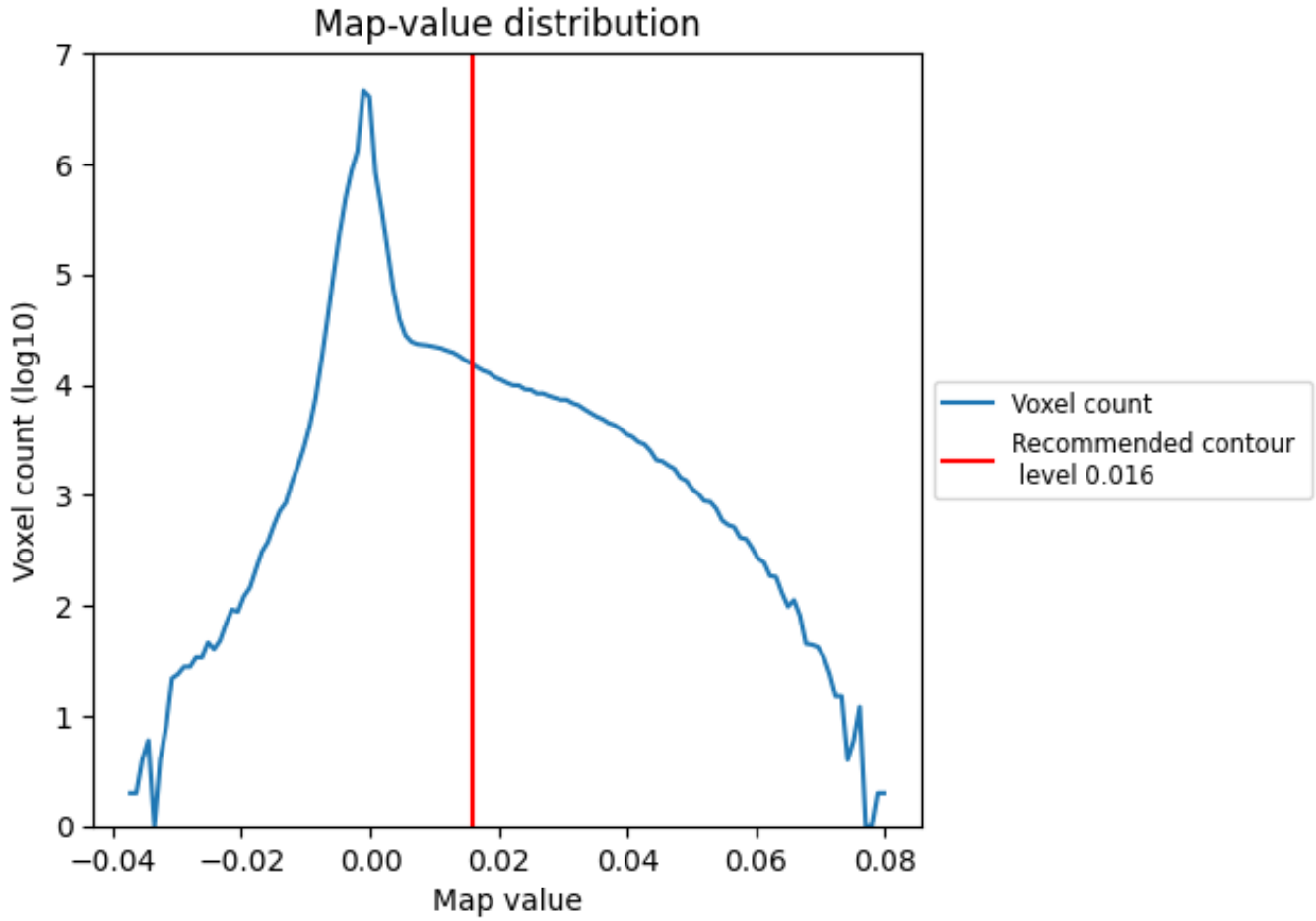
6.6 Mask visualisation (i)

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

7 Map analysis

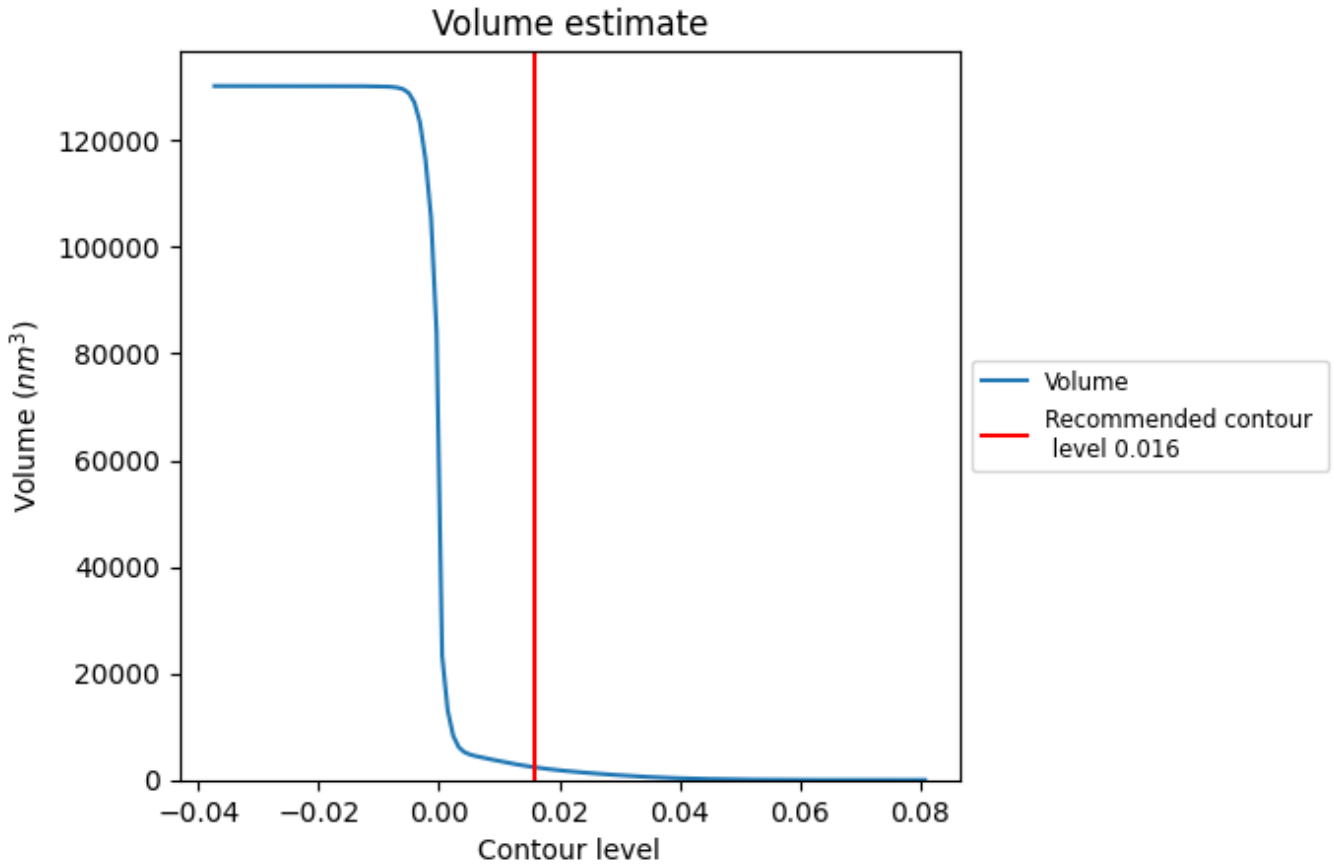
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

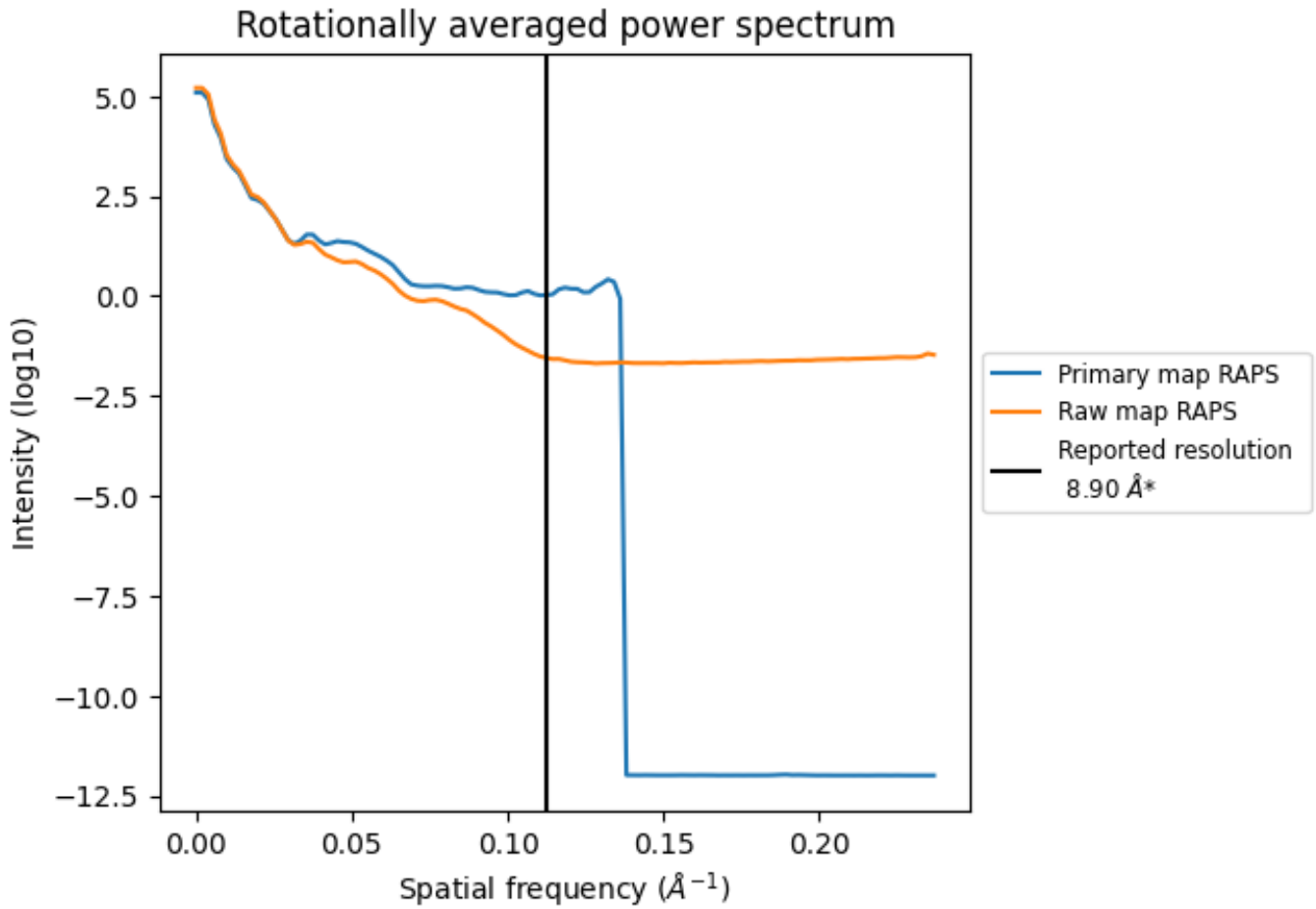
7.2 Volume estimate



The volume at the recommended contour level is 2367 nm^3; this corresponds to an approximate mass of 2138 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)

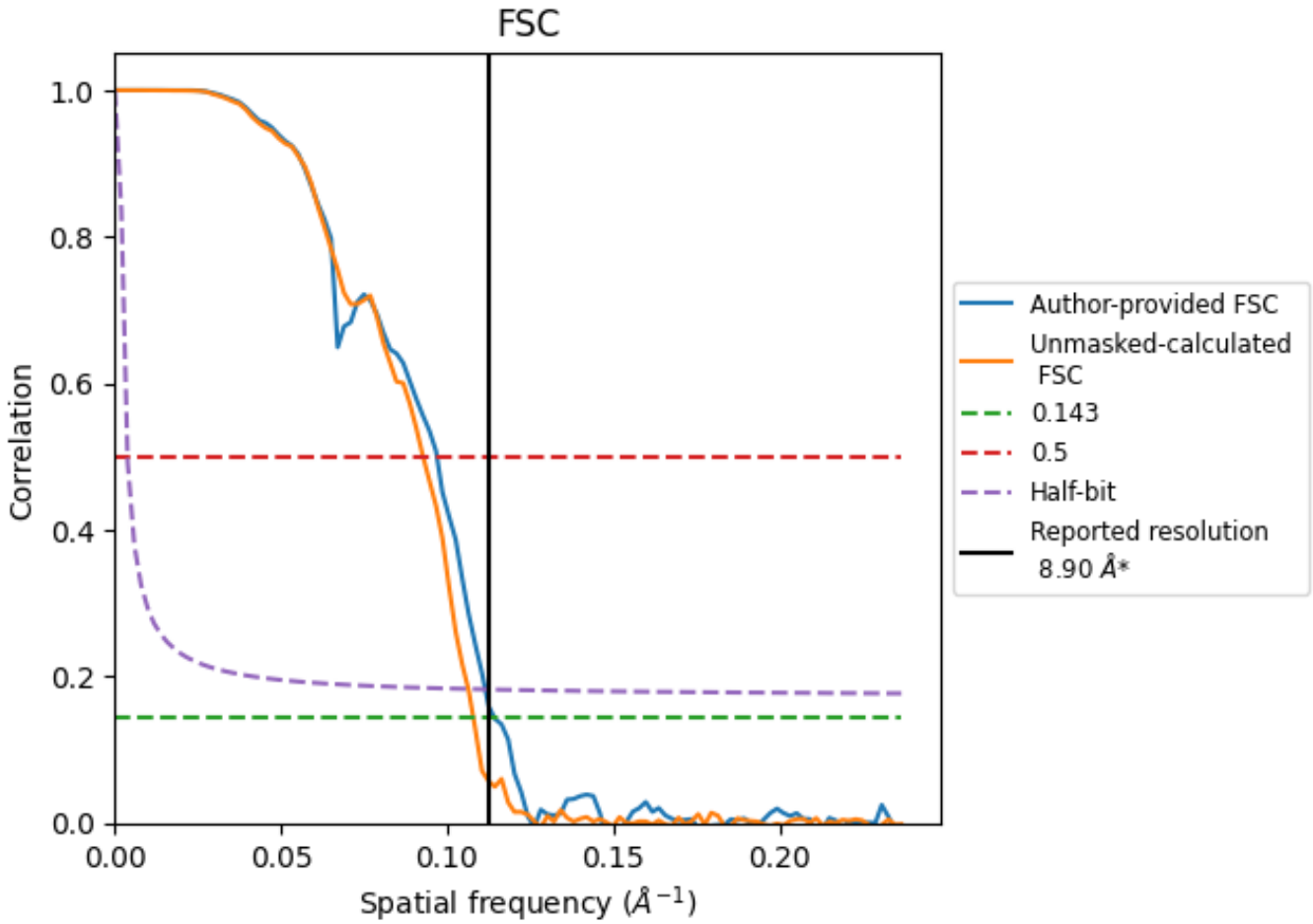


*Reported resolution corresponds to spatial frequency of 0.112 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.112 Å^{-1}

8.2 Resolution estimates (i)

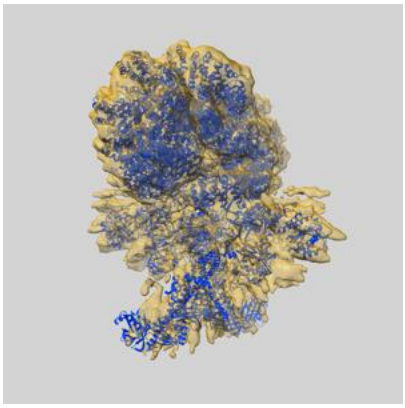
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	8.90	-	-
Author-provided FSC curve	8.75	10.32	8.97
Unmasked-calculated*	9.27	10.78	9.40

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

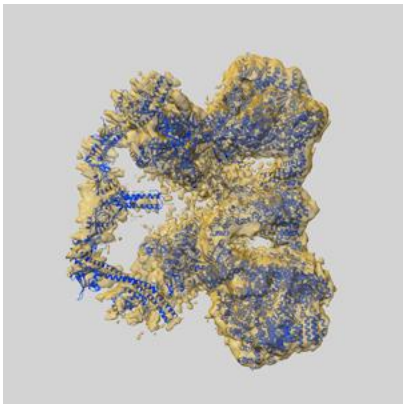
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-28733 and PDB model 8EZB. Per-residue inclusion information can be found in section 3 on page 7.

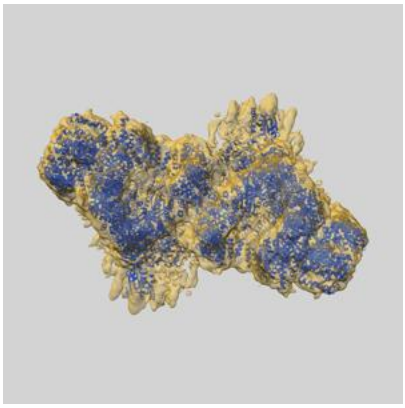
9.1 Map-model overlay



X



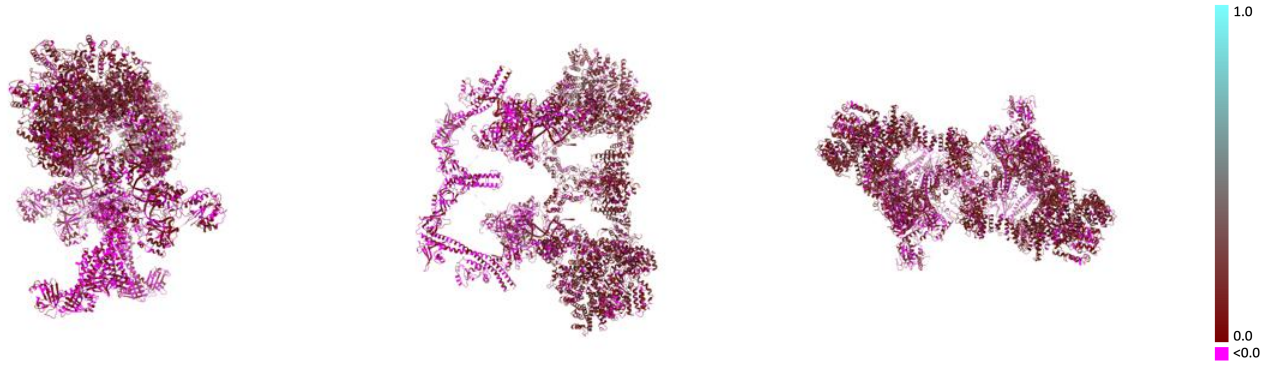
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.016 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

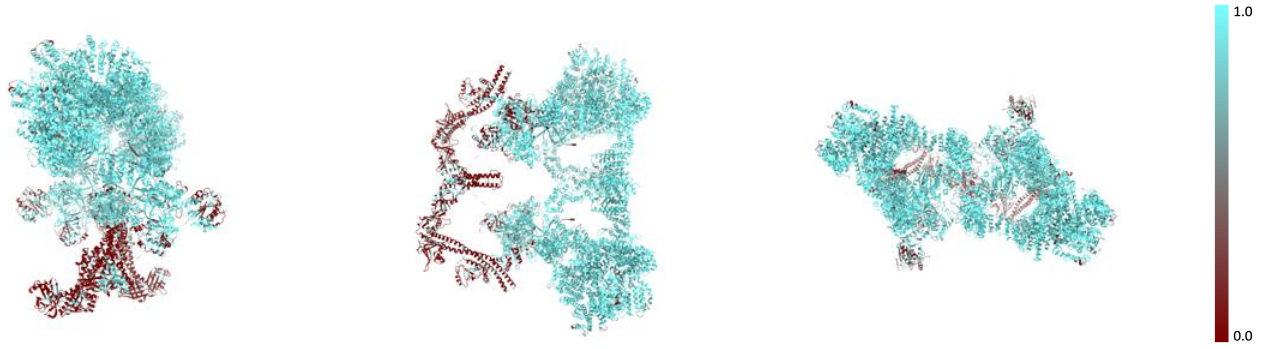
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

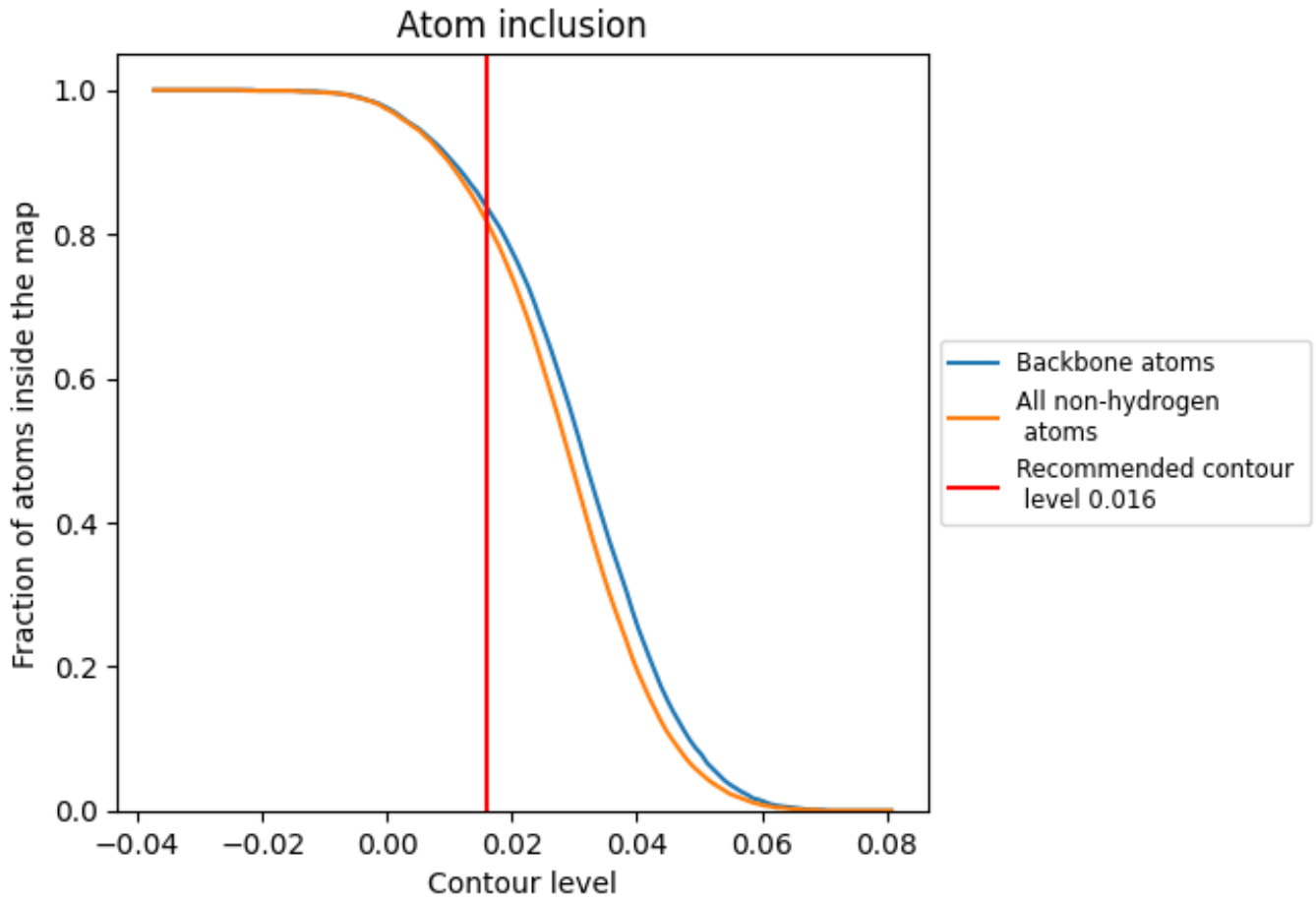
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.016).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 82% 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 (0.016) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8170	0.0800
A	0.8530	0.0310
B	0.6950	0.0360
C	0.9550	0.1100
D	0.8600	0.0720
E	0.9460	0.0990
F	0.1300	0.0040
G	0.1540	0.0100
H	0.3560	0.0070
I	0.2660	-0.0090
J	0.8520	0.0300
K	0.6950	0.0350
L	0.9550	0.1100
M	0.8600	0.0680
N	0.9460	0.0980
O	0.1490	0.0070
P	0.1700	0.0110
S	0.9340	0.0300
T	0.9340	0.0220
X	0.4000	0.0220
Y	0.4060	0.0110