Full wwPDB EM Validation Report

Aug 28, 2025 – 03:15 PM EDT

PDB ID	:	9CI3 / pdb_00009ci3
EMDB ID	:	EMD-45609
Title	:	Structure of the LRRK2/14-3-3 complex
Authors	:	Martinez Fiesco, J.A.; Zhang, P.
Deposited on	:	2024-07-02
Resolution	:	3.96 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:

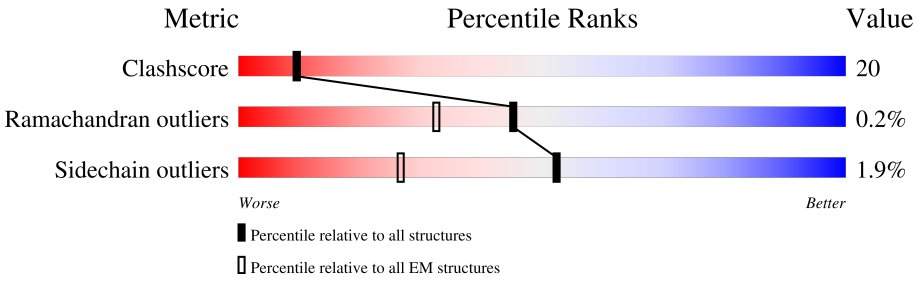
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.96 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=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	B	265	43% 55% 35% 9%
1	C	265	32% 54% 34% • 11%
2	A	2562	28% 36% 23% • 41%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 15926 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 14-3-3 protein gamma.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	C	237	Total	C	N	O	S	0	0
			1909	1190	325	384	10		
1	B	240	Total	C	N	O	S	0	0
			1935	1204	330	391	10		

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-17	MET	-	initiating methionine	UNP P61981
C	-16	GLY	-	expression tag	UNP P61981
C	-15	SER	-	expression tag	UNP P61981
C	-14	HIS	-	expression tag	UNP P61981
C	-13	HIS	-	expression tag	UNP P61981
C	-12	HIS	-	expression tag	UNP P61981
C	-11	HIS	-	expression tag	UNP P61981
C	-10	HIS	-	expression tag	UNP P61981
C	-9	HIS	-	expression tag	UNP P61981
C	-8	SER	-	expression tag	UNP P61981
C	-7	GLY	-	expression tag	UNP P61981
C	-6	GLU	-	expression tag	UNP P61981
C	-5	ASN	-	expression tag	UNP P61981
C	-4	LEU	-	expression tag	UNP P61981
C	-3	TYR	-	expression tag	UNP P61981
C	-2	PHE	-	expression tag	UNP P61981
C	-1	GLN	-	expression tag	UNP P61981
C	0	GLY	-	expression tag	UNP P61981
B	-17	MET	-	initiating methionine	UNP P61981
B	-16	GLY	-	expression tag	UNP P61981
B	-15	SER	-	expression tag	UNP P61981
B	-14	HIS	-	expression tag	UNP P61981
B	-13	HIS	-	expression tag	UNP P61981
B	-12	HIS	-	expression tag	UNP P61981
B	-11	HIS	-	expression tag	UNP P61981
B	-10	HIS	-	expression tag	UNP P61981

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-9	HIS	-	expression tag	UNP P61981
B	-8	SER	-	expression tag	UNP P61981
B	-7	GLY	-	expression tag	UNP P61981
B	-6	GLU	-	expression tag	UNP P61981
B	-5	ASN	-	expression tag	UNP P61981
B	-4	LEU	-	expression tag	UNP P61981
B	-3	TYR	-	expression tag	UNP P61981
B	-2	PHE	-	expression tag	UNP P61981
B	-1	GLN	-	expression tag	UNP P61981
B	0	GLY	-	expression tag	UNP P61981

- Molecule 2 is a protein called Leucine-rich repeat serine/threonine-protein kinase 2.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	A	1521	Total	C	N	O	P	S	0	0
			12054	7711	2074	2197	2	70		

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-34	MET	-	initiating methionine	UNP Q5S007
A	-33	GLY	-	expression tag	UNP Q5S007
A	-32	SER	-	expression tag	UNP Q5S007
A	-31	ASP	-	expression tag	UNP Q5S007
A	-30	TYR	-	expression tag	UNP Q5S007
A	-29	LYS	-	expression tag	UNP Q5S007
A	-28	ASP	-	expression tag	UNP Q5S007
A	-27	HIS	-	expression tag	UNP Q5S007
A	-26	ASP	-	expression tag	UNP Q5S007
A	-25	GLY	-	expression tag	UNP Q5S007
A	-24	ASP	-	expression tag	UNP Q5S007
A	-23	TYR	-	expression tag	UNP Q5S007
A	-22	LYS	-	expression tag	UNP Q5S007
A	-21	ASP	-	expression tag	UNP Q5S007
A	-20	HIS	-	expression tag	UNP Q5S007
A	-19	ASP	-	expression tag	UNP Q5S007
A	-18	ILE	-	expression tag	UNP Q5S007
A	-17	ASP	-	expression tag	UNP Q5S007
A	-16	TYR	-	expression tag	UNP Q5S007
A	-15	LYS	-	expression tag	UNP Q5S007
A	-14	ASP	-	expression tag	UNP Q5S007
A	-13	ASP	-	expression tag	UNP Q5S007

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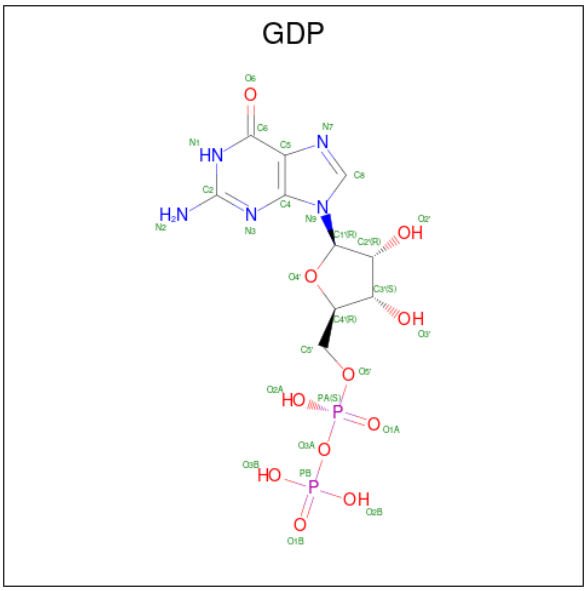
Chain	Residue	Modelled	Actual	Comment	Reference
A	-12	ASP	-	expression tag	UNP Q5S007
A	-11	ASP	-	expression tag	UNP Q5S007
A	-10	LYS	-	expression tag	UNP Q5S007
A	-9	LEU	-	expression tag	UNP Q5S007
A	-8	GLY	-	expression tag	UNP Q5S007
A	-7	LEU	-	expression tag	UNP Q5S007
A	-6	GLU	-	expression tag	UNP Q5S007
A	-5	VAL	-	expression tag	UNP Q5S007
A	-4	LEU	-	expression tag	UNP Q5S007
A	-3	PHE	-	expression tag	UNP Q5S007
A	-2	GLN	-	expression tag	UNP Q5S007
A	-1	GLY	-	expression tag	UNP Q5S007
A	0	PRO	-	expression tag	UNP Q5S007
A	50	HIS	ARG	variant	UNP Q5S007

- Molecule 3 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).



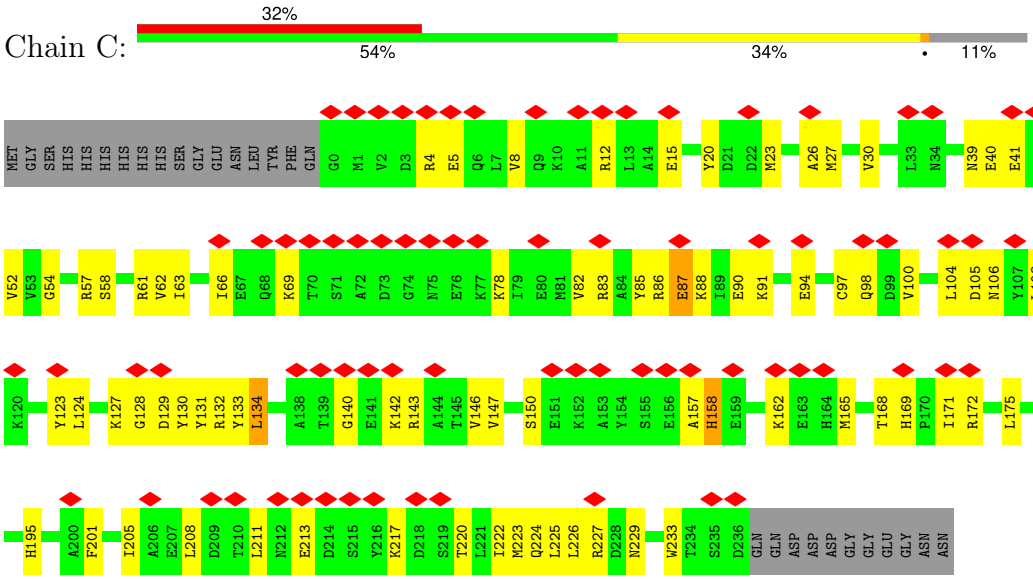
Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	P	0
			28	10	5	11	2	

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.

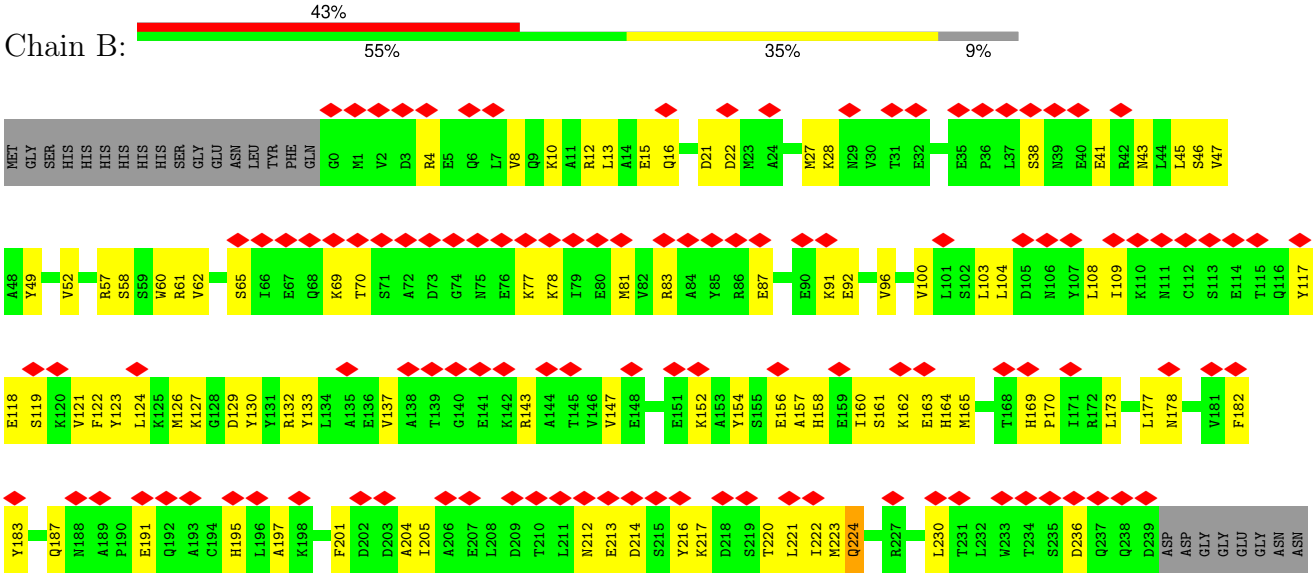
• Molecule 1: 14-3-3 protein gamma

Chain C:



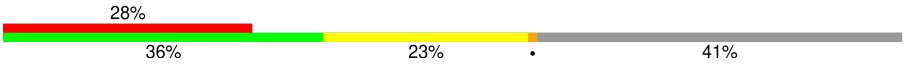
• Molecule 1: 14-3-3 protein gamma

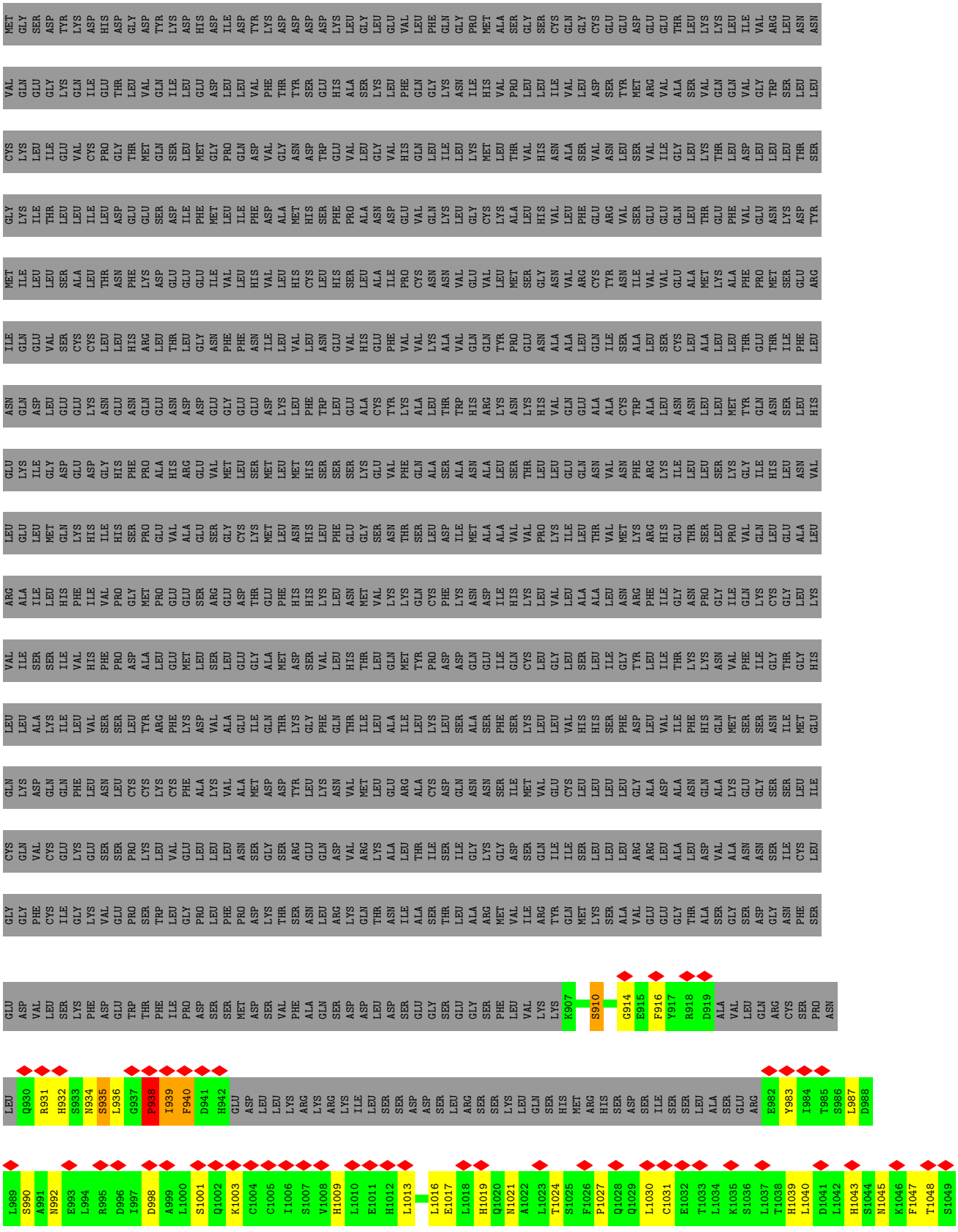
Chain B:

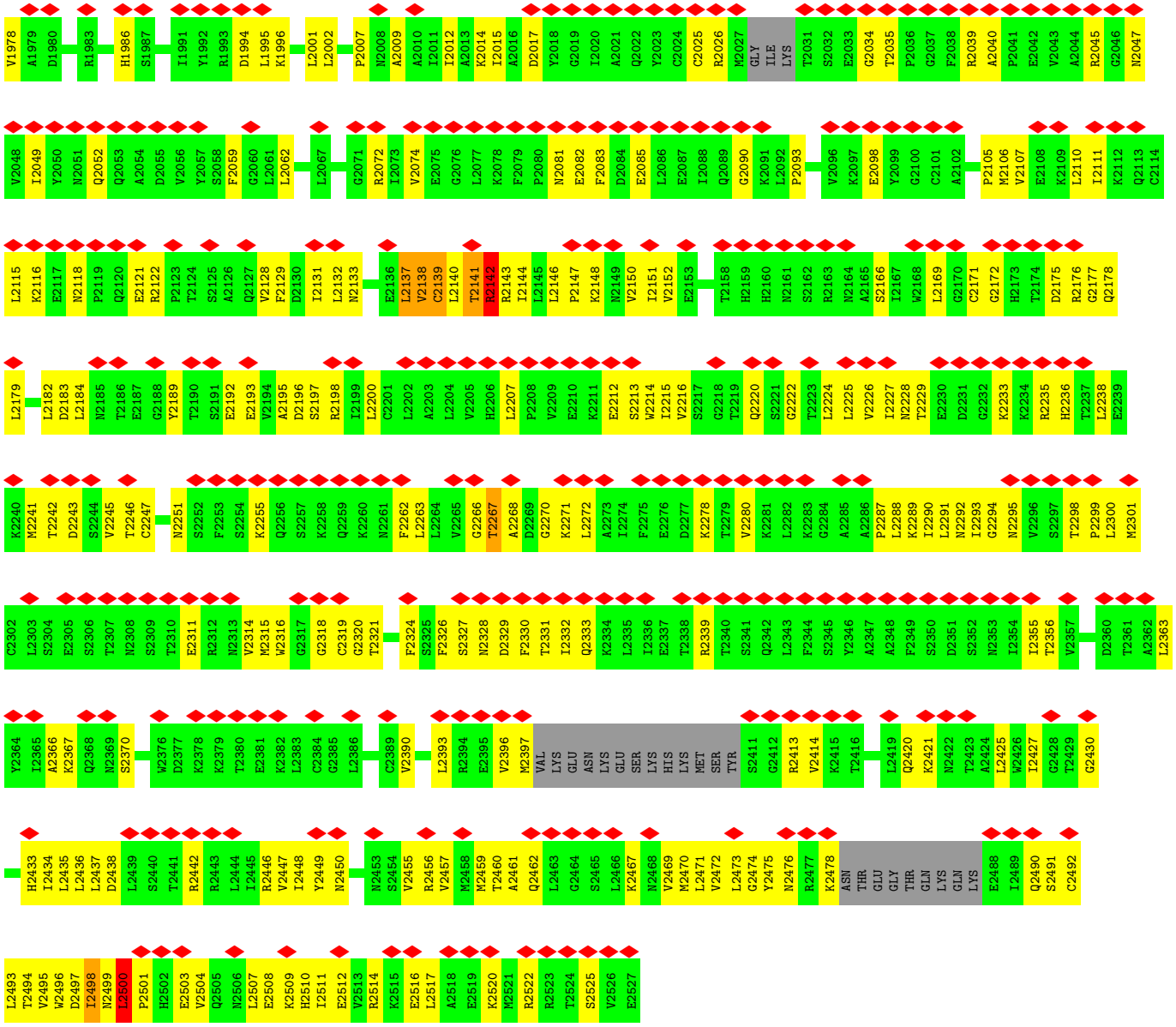


• Molecule 2: Leucine-rich repeat serine/threonine-protein kinase 2

Chain A:


28%
36%
23%
41%


MET GLY SER ASP TYR LYS ASP HIS ASP ILE ASP TYR LYS ASP ASP ASP LYS LEU GLY LEU GLU VAL LEU PHE GLN GLY PRO MET ALA SER GLY SER CYS GLN GLY CYS GLU GLU ASP GLU GLU THR LEU LYS LYS LEU ILE VAL ARG LEU ASN ASN
VAL GLN GLU GLY LYS GLN ILE GLU THR LEU VAL GLN ILE LEU GLU ASP LEU LEU VAL PHE THR TYR SER GLU HIS ALA SER LYS LEU PHE GLN GLY LYS ASN ILE HIS VAL PRO LEU LEU ILE VAL LEU ASP SER TYR MET ARG VAL ALA SER VAL GLN GLN VAL GLY TRP SER LEU LEU
CYS LYS LEU ILE GLU VAL CYS PRO GLY THR MET GLN SER LEU MET GLY PRO GLN ASP VAL GLY ASN ASP TRP GLU VAL LEU GLY VAL HIS GLN LEU ILE LEU LYS MET LEU THR VAL HIS ASN ALA SER VAL ASN LEU SER VAL ILE GLY LEU LYS THR LEU ASP LEU LEU LEU THR SER
GLY LYS ILE THR LEU LEU ILE LEU ASP GLU GLU SER ASP ILE PHE MET LEU ILE PHE ASP ASP ALA MET HIS SER PHE PRO ALA ASN ASP GLU VAL GLN LYS LEU GLY CYS LYS ALA LEU HIS VAL LEU PHE GLU ARG VAL SER GLU GLU GLN LEU THR GLU PHE VAL GLU ASN LYS ASP TYR
MET ILE LEU LEU SER ALA LEU THR ASN PHE LYS ASP GLU GLU GLU ILE VAL LEU HIS VAL LEU HIS CYS LEU HIS SER LEU ALA ILE PRO CYS ASN ASN VAL GLU VAL HIS GLU PHE VAL VAL LYS ALA VAL GLN GLN ILE GLU GLU ALA MET LYS ALA PHE PRO MET SER GLU ARG
ILE GLN GLU VAL SER CYS CYS LEU LEU LEU HIS ARG LEU THR LEU GLY ASN PHE PHE ASN ILE LEU LEU VAL LEU ASN GLU VAL HIS GLU PHE VAL VAL LYS ALA VAL GLN GLN TYR PRO GLU ASN ALA ALA LEU GLN ILE SER ALA LEU SER CYS TYR ASN ILE VAL VAL GLU ALA LEU LEU LEU THR GLU THR ILE PHE LEU
ASN GLN ASP LEU GLU GLU LYS ASN GLU ASP ASP GLU GLY GLU GLU ASP LYS LEU PHE TRP LEU GLU GLU ALA CYS TYR LYS ALA LEU THR TRP HIS ARG LYS ASN LYS HIS VAL GLN GLU ALA ALA LEU GLN ILE SER ALA LEU SER TRP ALA LEU ASN ASN LEU LEU LEU MET TYR GLN ASN SER LEU HIS
GLU LYS ILE GLY ASP GLU ASP GLY HIS PHE PRO ALA HIS ARG GLU VAL MET LEU SER MET LEU MET HIS SER SER SER LYS GLU VAL PHE GLN ALA LEU SER ALA ASN ALA LEU SER THR LEU LEU GLU GLN ASN VAL ASN PHE ARG LYS ILE LEU LEU LEU SER LYS GLY ILE HIS LEU ASN VAL
LEU GLU LEU MET GLN LYS HIS ILE HIS SER PRO PRO GLU VAL ALA GLU SER GLY CYS LYS MET LEU ASN HIS LEU PHE GLU GLY GLY SER ASN THR SER LEU ASP ILE MET ALA ALA VAL VAL PRO LYS ILE LEU LEU THR VAL MET LYS ARG HIS GLU THR SER LEU PRO VAL GLN LEU GLU ALA LEU
ARG ALA ILE LEU HIS PHE ILE VAL PRO GLY MET PRO GLU GLU SER ARG GLU ASP THR GLU PHE HIS HIS LYS LEU ASN MET VAL LYS LYS GLN CYS PHE LYS ASN ASP ILE HIS LYS LEU VAL LEU ALA ALA LEU ASN ARG PHE ILE GLY ASN PRO GLY ILE GLN LYS CYS GLY LEU LYS
VAL ILE SER SER ILE VAL HIS PHE PRO ASP ALA LEU GLU MET LEU SER LEU GLU GLY ALA MET ASP SER VAL LEU HIS THR LEU GLN MET TYR PRO ASP ASP GLN GLU ILE GLN CYS LEU GLY LEU SER LEU ILE GLY TYR LEU ILE THR LYS LYS ASN VAL PHE ILE GLY THR GLY HIS
LEU LEU ALA LYS ILE LEU VAL SER SER LEU TYR ARG PHE LYS ASP VAL ALA GLU ILE GLN THR LYS GLY PHE GLN THR ILE LEU ALA ILE LEU LYS LEU SER ALA SER PHE SER LYS LEU LEU VAL HIS HIS SER PHE ASP LEU VAL ILE PHE HIS GLN MET SER SER ASN ILE MET GLU
GLN LYS ASP GLN GLN PHE LEU ASN LEU CYS CYS LYS CYS PHE ALA LYS VAL ALA MET ASP ASP TYR LEU LYS ASN VAL MET LEU GLU ARG ALA CYS ASP GLN ASN ASN SER ILE MET VAL GLU CYS LEU LEU LEU LEU GLY ALA ASP ALA ASN GLN ALA LYS GLU GLY SER SER LEU ILE
CYS GLN VAL CYS GLU LYS GLU SER SER PRO LYS LEU VAL GLU LEU LEU LEU ASN SER GLY SER ARG GLU GLN ASP VAL ARG LYS ALA LEU THR ILE SER THR LEU ALA ALA ARG MET VAL ILE ARG TYR GLN ILE ILE SER LEU LEU LEU LEU ARG ARG LEU ALA LEU ASP VAL ALA ASN ASN SER ILE CYS LEU
GLY GLY PHE CYS ILE GLY LYS VAL GLU PRO SER TRP LEU GLY PRO LEU PHE PRO ASP LYS THR SER ASN LEU ARG LYS GLN THR ASN ILE ALA SER THR LEU ALA ARG MET LYS SER LEU VAL ILE ARG TYR GLN MET LYS SER ALA VAL GLU GLU GLY THR ALA SER GLY SER ASP GLY ASN PHE SER
GLU ASP VAL LEU SER LYS PHE ASP GLU TRP THR PHE ILE PRO ASP SER SER MET ASP SER VAL PHE ALA GLN SER ASP ASP LEU ASP SER GLU GLY SER GLU GLY SER PHE LEU VAL LYS LYS K907 S910 G914 E915 F916 Y917 R918 D919 ALA VAL LEU GLN ARG CYS SER PRO ASN
LEU Q930 R931 H932 S933 N934 S935 L936 G937 P938 I939 F940 D941 H942 GLU ASP LEU LEU LYS ARG LYS ARG LYS ILE LEU LEU SER ASP ASP ASP SER LEU ARG SER ASP SER LEU GLN SER HIS MET ARG HIS SER ASP SER ILE LEU SER LEU LEU ARG SER SER LYS LEU GLN SER ASP ARG E982 Y983 I984 T985 S986 L987 D988
L989 S990 A991 N992 E993 L994 R995 D996 I997 D998 A999 L1000 S1001 Q1002 K1003 C1004 C1005 I1006 S1007 V1008 H1009 L1010 E1011 H1012 L1013 L1016 E1017 L1018 H1019 Q1020 N1021 A1022 L1023 T1024 S1025 F1026 P1027 Q1028 Q1029 L1030 C1031 E1032 T1033 L1034 K1035 S1036 L1037 T1038 H1039 L1040 D1041 L1042 H1043 S1044 N1045 K1046 F1047 T1048 S1049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V2048 I2049 Y2050 N2051 Q2052 Q2053 A2054 D2055 V2056 Y2057 S2058 F2059 G2060 L2061 L2062 L2067 G2071 R2072 I2073 V2074 E2075 G2076 L2077 K2078 F2079 P2080 N2081 E2082 F2083 D2084 E2085 L2086 E2087 I2088 Q2089 G2090 K2091 L2092 P2093 V2096 K2097 E2098 Y2099 G2100 C2101 A2102 P2105 M2106 V2107 E2108 K2109 L2110 I2111 K2112 Q2113 C2114
L2115 K2116 E2117 N2118 P2119 Q2120 E2121 R2122 P2123 T2124 S2125 A2126 Q2127 V2128 F2129 D2130 I2131 L2132 N2133 E2136 L2137 V2138 C2139 L2140 T2141 R2142 R2143 T2144 L2145 L2146 P2147 K2148 N2149 V2150 I2151 V2152 E2153 T2158 H2159 H2160 N2161 S2162 R2163 N2164 A2165 S2166 I2167 W2168 L2169 G2170 C2171 G2172 H2173 T2174 D2175 R2176 G2177 Q2178
L2179 L2182 D2183 L2184 N2185 T2186 E2187 G2188 Y2189 T2190 S2191 E2192 E2193 V2194 A2195 D2196 S2197 R2198 I2199 L2200 C2201 L2202 A2203 L2204 V2205 H2206 L2207 P2208 V2209 E2210 K2211 E2212 S2213 W2214 I2215 V2216 S2217 G2218 T2219 Q2220 S2221 G2222 T2223 L2224 L2225 V2226 I2227 N2228 T2229 E2230 D2231 G2232 K2233 K2234 R2235 H2236 T2237 L2238 E2239
K2240 M2241 T2242 D2243 S2244 V2245 T2246 C2247 N2251 S2252 F2253 S2254 K2255 Q2256 S2257 K2258 Q2259 K2260 N2261 F2262 L2263 L2264 V2265 G2266 T2267 A2268 D2269 G2270 K2271 L2272 A2273 I2274 F2275 E2276 D2277 K2278 T2279 V2280 K2281 L2282 K2283 G2284 A2285 A2286 P2287 L2288 K2289 I2290 L2291 N2292 I2293 G2294 N2295 V2296 S2297 T2298 P2299 L2300 M2301
C2302 L2303 S2304 E2305 S2306 T2307 N2308 S2309 T2310 E2311 R2312 N2313 V2314 M2315 W2316 G2317 G2318 C2319 G2320 T2321 F2324 S2325 F2326 S2327 N2328 D2329 F2330 T2331 I2332 Q2333 K2334 L2335 I2336 E2337 T2338 R2339 T2340 S2341 Q2342 L2343 F2344 S2345 Y2346 A2347 A2348 F2349 S2350 D2351 S2352 N2353 I2354 I2355 T2356 V2357 D2360 T2361 A2362 L2363
Y2364 I2365 A2366 K2367 Q2368 N2369 S2370 W2376 D2377 K2378 K2379 T2380 E2381 K2382 L2383 C2384 G2385 L2386 C2389 V2390 L2393 R2394 E2395 V2396 M2397 VAL LYS GLU ASN LYS GLU SER LYS HIS LYS MET SER TYR S2411 G2412 R2413 V2414 K2415 T2416 L2419 Q2420 K2421 N2422 T2423 A2424 L2425 W2426 I2427 G2428 T2429 G2430
H2433 I2434 L2435 L2436 L2437 D2438 L2439 S2440 T2441 R2442 R2443 L2444 I2445 R2446 V2447 I2448 Y2449 N2450 N2453 S2454 V2455 R2456 V2457 M2458 M2459 T2460 A2461 Q2462 L2463 G2464 S2465 L2466 K2467 N2468 V2469 M2470 L2471 V2472 L2473 G2474 Y2475 N2476 R2477 K2478 ASN THR GLU GLY THR GLN LYS GLN LYS E2488 I2489 Q2490 S2491 C2492
L2493 T2494 V2495 W2496 D2497 T2498 N2499 L2500 P2501 H2502 E2503 V2504 Q2505 N2506 L2507 E2508 K2509 H2510 I2511 E2512 V2513 R2514 K2515 E2516 L2517 A2518 E2519 K2520 M2521 R2522 R2523 T2524 S2525 V2526 E2527

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	432285	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS TALOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOCONTINUUM (6k x 4k)	Depositor
Maximum map value	2.360	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.020	Depositor
Recommended contour level	0.122	Depositor
Map size (Å)	325.62, 325.62, 325.62	wwPDB
Map dimensions	402, 402, 402	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.81, 0.81, 0.81	Depositor

5 Model quality

5.1 Standard geometry

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

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	B	0.17	0/1963	0.46	0/2648
1	C	0.17	0/1937	0.43	0/2613
2	A	0.19	0/12271	0.46	6/16603 (0.0%)
All	All	0.18	0/16171	0.46	6/21864 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	A	0	1

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	938	PRO	CA-N-CD	-9.96	98.06	112.00
2	A	938	PRO	CB-CA-C	7.04	123.18	111.56
2	A	938	PRO	N-CA-CB	-6.67	96.25	103.25
2	A	2142	ARG	N-CA-C	6.30	116.77	107.88
2	A	2500	LEU	N-CA-C	5.83	122.68	109.81
2	A	1425	GLN	CA-CB-CG	5.14	124.39	114.10

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	A	2142	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	1935	0	1898	84	0
1	C	1909	0	1878	82	0
2	A	12054	0	12234	475	0
3	A	28	0	12	0	0
All	All	15926	0	16022	626	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 20.

All (626) 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)
2:A:1240:LYS:HD2	2:A:1243:LEU:HD22	1.54	0.90
1:C:225:LEU:O	1:C:229:ASN:ND2	2.08	0.87
2:A:1437:ASN:HD21	2:A:1702:MET:HE3	1.37	0.86
1:C:57:ARG:NH2	2:A:935:SEP:O2P	2.11	0.84
2:A:2456:ARG:NH1	2:A:2475:TYR:OH	2.11	0.83
2:A:1161:ARG:HH21	2:A:1181:SER:H	1.28	0.81
2:A:2241:MET:HE3	2:A:2243:ASP:H	1.45	0.80
2:A:2460:THR:HA	2:A:2470:MET:HA	1.63	0.79
2:A:1068:ASN:O	2:A:1093:ASN:ND2	2.15	0.79
1:C:227:ARG:NH2	2:A:1728:ARG:O	2.17	0.78
2:A:2146:LEU:HD12	2:A:2147:PRO:HD2	1.63	0.78
2:A:1701:PRO:HG2	2:A:1704:PHE:HB2	1.65	0.76
2:A:1341:GLY:O	2:A:1434:TRP:NE1	2.18	0.76
2:A:1439:LYS:HB2	2:A:1480:PRO:HD3	1.68	0.76
2:A:1767:VAL:HG21	2:A:1777:LEU:HB2	1.67	0.76
1:C:54:GLY:HA2	1:C:57:ARG:HD3	1.68	0.76
2:A:1119:ILE:HB	2:A:1139:ASN:HD21	1.50	0.76
1:C:165:MET:O	1:C:172:ARG:NH1	2.19	0.75
2:A:1115:GLU:HB2	2:A:1137:SER:HB3	1.68	0.75
2:A:1246:ARG:H	2:A:1246:ARG:HD3	1.52	0.75
1:B:161:SER:HA	1:B:165:MET:HG2	1.69	0.74
1:B:132:ARG:NH1	1:B:154:TYR:OH	2.18	0.74
2:A:1858:ASP:HB2	2:A:1918:ARG:HH12	1.52	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2499:ASN:C	2:A:2501:PRO:HD2	2.13	0.73
1:B:117:TYR:HB3	1:B:165:MET:HE1	1.69	0.72
1:C:86:ARG:NH2	1:C:90:GLU:OE2	2.21	0.72
1:C:88:LYS:NZ	1:B:22:ASP:OD2	2.22	0.72
2:A:2251:ASN:HD21	2:A:2262:PHE:HB2	1.55	0.71
2:A:1353:GLN:HE22	2:A:1492:GLU:HA	1.56	0.71
2:A:1866:ARG:HA	2:A:1869:MET:HE3	1.73	0.70
2:A:1076:LEU:HD22	2:A:1105:VAL:HG21	1.72	0.70
2:A:1076:LEU:HB3	2:A:1101:ASN:HB2	1.74	0.70
2:A:1437:ASN:ND2	2:A:1702:MET:HE3	2.06	0.70
2:A:2355:ILE:HG22	2:A:2356:THR:HG23	1.74	0.70
1:C:213:GLU:O	1:C:217:LYS:NZ	2.23	0.70
1:B:164:HIS:ND1	1:B:165:MET:SD	2.64	0.69
2:A:1433:PRO:O	2:A:1437:ASN:ND2	2.20	0.69
2:A:2106:MET:HE1	2:A:2137:LEU:HB2	1.75	0.69
1:C:142:LYS:O	1:C:146:VAL:HG23	1.93	0.68
2:A:2271:LYS:HA	2:A:2292:ASN:HA	1.75	0.68
2:A:1610:ILE:HG13	2:A:1611:LEU:HD12	1.75	0.68
1:B:170:PRO:HA	1:B:173:LEU:HD12	1.77	0.67
2:A:1584:HIS:ND1	2:A:1586:GLN:OE1	2.27	0.67
1:B:124:LEU:HD13	1:B:127:LYS:HD3	1.76	0.67
1:B:27:MET:SD	1:B:27:MET:N	2.69	0.66
2:A:2224:LEU:HB2	2:A:2238:LEU:HB2	1.76	0.66
1:B:156:GLU:O	1:B:160:ILE:HG12	1.96	0.66
1:C:217:LYS:HA	1:C:220:THR:HG22	1.78	0.66
2:A:1315:ALA:HA	2:A:1318:ILE:HD12	1.77	0.66
2:A:1703:GLY:O	2:A:1707:ARG:NH1	2.28	0.66
2:A:1222:LEU:H	2:A:1246:ARG:HH21	1.43	0.66
2:A:1243:LEU:O	2:A:1246:ARG:NH1	2.27	0.66
1:C:124:LEU:HD23	1:C:127:LYS:HD3	1.77	0.65
2:A:1386:ARG:HH12	2:A:1519:VAL:HG13	1.61	0.65
2:A:2139:CYS:SG	2:A:2500:LEU:HB3	2.36	0.65
2:A:1137:SER:HA	2:A:1161:ARG:H	1.60	0.65
1:B:221:LEU:HA	1:B:224:GLN:HE22	1.62	0.65
2:A:1270:LEU:HD21	2:A:1273:LEU:HD13	1.79	0.65
1:C:134:LEU:HB2	1:C:146:VAL:HG11	1.78	0.65
1:B:143:ARG:O	1:B:147:VAL:HG12	1.97	0.65
2:A:1338:MET:HE1	2:A:1409:MET:HA	1.77	0.65
2:A:2140:LEU:HB2	2:A:2496:TRP:CE3	2.32	0.64
2:A:1776:LEU:O	2:A:1780:VAL:HG12	1.98	0.64
2:A:1095:LEU:HD23	2:A:1119:ILE:HD11	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2213:SER:O	2:A:2229:THR:OG1	2.16	0.63
1:B:123:TYR:HA	1:B:126:MET:HE3	1.80	0.63
2:A:2216:VAL:HG12	2:A:2226:VAL:HG22	1.81	0.63
2:A:1316:LYS:NZ	2:A:2045:ARG:O	2.31	0.63
1:B:177:LEU:HD11	1:B:222:ILE:HG23	1.80	0.63
2:A:987:LEU:HD22	2:A:1013:LEU:HD11	1.79	0.63
2:A:1138:LYS:N	2:A:1161:ARG:O	2.26	0.63
2:A:1492:GLU:N	2:A:1492:GLU:OE1	2.31	0.63
2:A:1230:ASN:HD21	2:A:1232:ILE:HD12	1.64	0.63
2:A:2507:LEU:O	2:A:2511:ILE:HG12	1.98	0.63
2:A:1168:MET:HB3	2:A:1171:LEU:HD23	1.78	0.63
2:A:2082:GLU:HA	2:A:2085:GLU:HG2	1.81	0.63
1:C:205:ILE:HA	1:C:208:LEU:HD23	1.80	0.62
2:A:1076:LEU:O	2:A:1101:ASN:ND2	2.19	0.62
2:A:992:ASN:O	2:A:1021:ASN:ND2	2.32	0.62
1:B:216:TYR:O	1:B:220:THR:HG23	1.99	0.62
2:A:1406:PRO:HG2	2:A:1703:GLY:HA3	1.80	0.62
2:A:1449:LEU:HD11	2:A:1482:ILE:HD13	1.82	0.62
2:A:1155:VAL:HB	2:A:1175:MET:HE1	1.82	0.61
2:A:1864:LEU:HD11	2:A:1922:VAL:HA	1.82	0.61
2:A:1876:GLU:HB3	2:A:1897:ALA:HB3	1.81	0.61
2:A:1940:ILE:HG13	2:A:1941:ARG:H	1.65	0.61
2:A:1944:MET:SD	2:A:1944:MET:N	2.73	0.61
2:A:2116:LYS:O	2:A:2122:ARG:NH1	2.30	0.61
2:A:2299:PRO:O	2:A:2320:GLY:N	2.31	0.61
1:C:12:ARG:O	1:C:15:GLU:HG3	2.00	0.61
2:A:1195:LEU:HD12	2:A:1198:LEU:HD12	1.83	0.61
1:B:92:GLU:O	1:B:96:VAL:HG23	2.00	0.61
2:A:1552:ARG:HH12	2:A:1556:LEU:HG	1.65	0.61
2:A:2474:GLY:O	2:A:2492:CYS:N	2.33	0.61
2:A:2177:GLY:HA3	2:A:2195:ALA:HB3	1.82	0.60
1:B:201:PHE:O	1:B:205:ILE:HG12	2.01	0.60
2:A:1693:ARG:HD3	2:A:1777:LEU:HD11	1.83	0.60
2:A:1955:LEU:HG	2:A:1959:LEU:HD23	1.83	0.60
1:B:78:LYS:HA	1:B:81:MET:HE2	1.84	0.60
2:A:990:SER:O	2:A:1021:ASN:ND2	2.34	0.60
2:A:2301:MET:SD	2:A:2301:MET:N	2.74	0.60
2:A:2311:GLU:HG3	2:A:2314:VAL:HG12	1.83	0.60
2:A:1918:ARG:HA	2:A:1921:LEU:HG	1.84	0.60
2:A:1931:SER:HB3	2:A:2514:ARG:HH22	1.66	0.60
2:A:1680:ILE:HD11	2:A:1732:MET:HE1	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:77:LYS:O	1:B:81:MET:HG3	2.02	0.60
2:A:1552:ARG:NH1	2:A:1555:GLN:OE1	2.35	0.60
2:A:1879:GLN:HG2	2:A:1894:TYR:HE2	1.67	0.60
2:A:2420:GLN:HG2	2:A:2421:LYS:H	1.67	0.60
2:A:1994:ASP:OD1	2:A:1996:LYS:NZ	2.35	0.59
1:C:143:ARG:O	1:C:147:VAL:HG13	2.02	0.59
2:A:1134:LEU:HB3	2:A:1158:PHE:HD1	1.65	0.59
2:A:1270:LEU:HB3	2:A:1291:LEU:HD11	1.85	0.59
2:A:1434:TRP:O	2:A:1438:ILE:HG12	2.03	0.59
1:C:169:HIS:ND1	1:C:171:ILE:HG12	2.18	0.59
2:A:1739:TYR:HB2	2:A:1749:LEU:HD13	1.83	0.59
1:B:43:ASN:O	1:B:47:VAL:HG12	2.02	0.59
2:A:1188:ILE:HD11	2:A:1212:PRO:HD2	1.84	0.59
2:A:1622:PRO:HG2	2:A:1625:ILE:HD12	1.84	0.59
2:A:1116:GLY:HA2	2:A:1138:LYS:HB2	1.83	0.59
2:A:1659:ALA:HB1	2:A:1669:VAL:HG22	1.83	0.59
2:A:2288:LEU:HB3	2:A:2289:LYS:HD2	1.85	0.59
1:C:50:LYS:NZ	2:A:938:PRO:HG2	2.17	0.59
1:B:152:LYS:NZ	1:B:156:GLU:OE1	2.34	0.58
1:B:70:THR:HB	1:B:78:LYS:HE2	1.85	0.58
2:A:1093:ASN:N	2:A:1117:ASN:OD1	2.31	0.58
2:A:1694:LEU:HB2	2:A:1811:TRP:HB2	1.86	0.58
2:A:1092:TYR:OH	2:A:1138:LYS:NZ	2.30	0.58
1:B:49:TYR:HA	1:B:52:VAL:HG22	1.85	0.58
2:A:1031:CYS:HB2	2:A:1057:MET:HE1	1.84	0.58
2:A:1226:LEU:HD13	2:A:1251:HIS:HB2	1.84	0.58
2:A:2151:ILE:O	2:A:2172:GLY:N	2.35	0.58
2:A:2326:PHE:HA	2:A:2333:GLN:HG2	1.86	0.58
2:A:1224:GLU:HG2	2:A:1249:LYS:HD3	1.86	0.58
2:A:2241:MET:HE3	2:A:2243:ASP:N	2.18	0.58
2:A:1610:ILE:HD13	2:A:1653:LEU:HD21	1.86	0.58
1:B:123:TYR:HD1	1:B:126:MET:HE1	1.69	0.57
1:B:217:LYS:O	1:B:221:LEU:HG	2.04	0.57
2:A:1045:ASN:O	2:A:1068:ASN:ND2	2.36	0.57
2:A:1386:ARG:NH1	2:A:1519:VAL:O	2.36	0.57
2:A:2499:ASN:O	2:A:2501:PRO:HD2	2.04	0.57
1:B:160:ILE:HA	1:B:163:GLU:HG2	1.86	0.57
2:A:1177:ILE:HD11	2:A:1199:ARG:HE	1.70	0.57
1:C:128:GLY:O	1:C:132:ARG:HG2	2.05	0.57
1:B:213:GLU:HA	1:B:216:TYR:HB3	1.86	0.57
2:A:1702:MET:HE2	2:A:1702:MET:N	2.20	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2228:ASN:OD1	2:A:2229:THR:N	2.37	0.57
1:B:191:GLU:O	1:B:195:HIS:ND1	2.30	0.57
2:A:1260:ILE:HG12	2:A:1281:LEU:HD11	1.85	0.57
2:A:1324:GLN:C	2:A:1524:PRO:HB3	2.29	0.57
2:A:1851:PRO:HG2	2:A:1854:GLN:HB2	1.86	0.57
1:B:122:PHE:CD1	1:B:126:MET:HE2	2.40	0.57
1:B:183:TYR:HD1	1:B:187:GLN:HG3	1.70	0.56
2:A:1039:HIS:HA	2:A:1062:ASN:HB3	1.87	0.56
1:B:214:ASP:HA	1:B:217:LYS:HZ3	1.71	0.56
2:A:931:ARG:O	2:A:932:HIS:ND1	2.38	0.56
2:A:2314:VAL:HG13	2:A:2316:TRP:HE1	1.70	0.56
2:A:2473:LEU:HD21	2:A:2491:SER:HB2	1.87	0.56
2:A:1509:LEU:HD23	2:A:1519:VAL:HG21	1.87	0.56
1:B:124:LEU:HA	1:B:127:LYS:HG2	1.86	0.56
2:A:1705:TRP:CE2	2:A:1736:GLN:HB3	2.41	0.56
2:A:1550:ARG:HG3	2:A:1594:ASP:HA	1.87	0.56
2:A:1333:ASN:OD1	2:A:1386:ARG:HD2	2.06	0.56
2:A:1940:ILE:O	2:A:1941:ARG:HG2	2.06	0.56
2:A:2107:VAL:HA	2:A:2110:LEU:HG	1.87	0.56
2:A:2449:TYR:O	2:A:2450:ASN:ND2	2.39	0.56
1:C:223:MET:HA	1:C:226:LEU:HD23	1.87	0.56
2:A:2111:ILE:O	2:A:2115:LEU:N	2.39	0.56
1:C:43:ASN:O	1:C:47:VAL:HG22	2.05	0.56
2:A:2222:GLY:HA3	2:A:2241:MET:O	2.06	0.56
1:C:83:ARG:HA	1:C:86:ARG:HG2	1.88	0.56
2:A:1083:PRO:HB2	2:A:1108:LYS:HG2	1.86	0.56
2:A:1285:PRO:HD2	2:A:1288:MET:HE3	1.88	0.55
1:B:57:ARG:NH1	2:A:910:SEP:O1P	2.31	0.55
2:A:1193:LEU:HD21	2:A:1212:PRO:HG2	1.86	0.55
2:A:1974:ILE:O	2:A:1978:VAL:HG12	2.05	0.55
2:A:1067:ARG:HD3	2:A:1883:PHE:HB2	1.88	0.55
2:A:1651:LYS:O	2:A:1655:LYS:HG3	2.07	0.55
1:C:23:MET:HG3	1:C:48:ALA:HB1	1.88	0.55
1:C:97:CYS:SG	1:C:98:GLN:N	2.79	0.55
2:A:1986:HIS:CE1	2:A:2052:GLN:HB3	2.42	0.55
2:A:2175:ASP:OD1	2:A:2175:ASP:N	2.40	0.55
2:A:2494:THR:HG23	2:A:2496:TRP:HE1	1.71	0.55
2:A:1435:LEU:HD11	2:A:1449:LEU:HD21	1.88	0.55
2:A:1435:LEU:HD12	2:A:1474:LEU:HD11	1.89	0.55
2:A:1771:ARG:O	2:A:1775:ILE:HG13	2.07	0.55
1:C:105:ASP:OD1	1:C:106:ASN:N	2.39	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1337:LEU:HD22	2:A:1392:VAL:HG12	1.87	0.55
2:A:2470:MET:SD	2:A:2471:LEU:N	2.80	0.55
1:C:143:ARG:NH1	1:C:147:VAL:HG11	2.22	0.54
1:B:38:SER:N	1:B:41:GLU:OE1	2.36	0.54
2:A:2469:VAL:HA	2:A:2497:ASP:HA	1.89	0.54
2:A:2396:VAL:HG11	2:A:2447:VAL:HG11	1.88	0.54
2:A:1168:MET:HE3	2:A:1192:ILE:HD11	1.89	0.54
2:A:1677:ARG:HB3	2:A:1734:TRP:CE2	2.42	0.54
2:A:1491:THR:OG1	2:A:1492:GLU:OE1	2.12	0.54
2:A:1737:GLY:HA2	2:A:1750:VAL:O	2.07	0.54
2:A:1905:VAL:HG12	2:A:1946:VAL:HG13	1.90	0.54
2:A:1646:MET:SD	2:A:1648:GLN:HB2	2.48	0.54
2:A:1693:ARG:NH2	2:A:1829:ASP:OD2	2.33	0.54
2:A:1799:ASP:OD1	2:A:1799:ASP:N	2.39	0.54
2:A:1530:LEU:HA	2:A:1533:ILE:HG12	1.88	0.54
2:A:1839:LEU:HD12	2:A:1941:ARG:HH22	1.72	0.54
1:C:57:ARG:O	1:C:61:ARG:HG3	2.08	0.54
1:C:108:LEU:HD22	1:C:123:TYR:CZ	2.43	0.54
2:A:1695:TYR:OH	2:A:1781:VAL:HG23	2.08	0.54
1:C:224:GLN:HE21	2:A:1727:LEU:HB2	1.71	0.54
2:A:1342:ASN:OD1	2:A:1402:TYR:OH	2.26	0.54
2:A:1149:LEU:HD23	2:A:1171:LEU:HD13	1.88	0.53
2:A:1227:PHE:O	2:A:1230:ASN:ND2	2.41	0.53
2:A:1257:LEU:HB2	2:A:1278:ASN:ND2	2.23	0.53
2:A:2500:LEU:O	2:A:2504:VAL:N	2.28	0.53
1:B:12:ARG:O	1:B:15:GLU:HG3	2.08	0.53
2:A:1780:VAL:O	2:A:1784:ILE:HG22	2.08	0.53
2:A:2425:LEU:N	2:A:2437:LEU:O	2.33	0.53
1:C:58:SER:O	1:C:62:VAL:HG22	2.08	0.53
1:C:183:TYR:HD1	1:C:187:GLN:HG3	1.73	0.53
1:B:28:LYS:HE3	1:B:28:LYS:HA	1.91	0.53
2:A:998:ASP:OD1	2:A:1001:SER:OG	2.26	0.53
2:A:1512:LYS:HA	2:A:1517:LEU:H	1.73	0.53
2:A:1587:ASP:OD1	2:A:1587:ASP:N	2.40	0.53
2:A:1695:TYR:HB2	2:A:1763:LEU:HB3	1.91	0.53
2:A:1960:GLN:HE22	2:A:2074:VAL:HG23	1.73	0.53
2:A:1564:LEU:H	2:A:1564:LEU:HD23	1.73	0.53
1:B:121:VAL:HG21	1:B:165:MET:HE3	1.91	0.53
2:A:1404:THR:HG22	2:A:1658:ILE:HG12	1.91	0.53
2:A:1576:LEU:HD12	2:A:1581:VAL:HG11	1.91	0.53
1:C:131:TYR:HB3	1:C:150:SER:HB3	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1908:PHE:HE2	2:A:1945:LEU:HB2	1.73	0.53
1:C:222:ILE:HG23	1:C:225:LEU:HD12	1.91	0.53
2:A:2140:LEU:HD12	2:A:2495:VAL:O	2.09	0.52
2:A:2178:GLN:HA	2:A:2193:GLU:HA	1.91	0.52
2:A:1214:PRO:HB3	2:A:1243:LEU:HB3	1.90	0.52
2:A:2327:SER:OG	2:A:2329:ASP:OD1	2.20	0.52
1:C:108:LEU:HD22	1:C:123:TYR:CE2	2.44	0.52
2:A:1185:PHE:HB2	2:A:1206:ASN:HD21	1.73	0.52
2:A:1973:ARG:HG2	2:A:2012:ILE:HD12	1.92	0.52
1:B:220:THR:O	1:B:223:MET:N	2.42	0.52
2:A:1863:ASP:OD1	2:A:1863:ASP:N	2.42	0.52
2:A:1235:LEU:HD11	2:A:1257:LEU:HD23	1.92	0.52
2:A:1545:PHE:HZ	2:A:1646:MET:HE3	1.75	0.52
2:A:1086:LYS:HG3	2:A:1087:GLN:HG2	1.91	0.52
2:A:1314:LYS:HD2	2:A:1316:LYS:HE2	1.90	0.52
1:B:87:GLU:O	1:B:91:LYS:HG2	2.10	0.52
2:A:1048:THR:O	2:A:1071:GLY:N	2.42	0.52
2:A:1161:ARG:HH22	2:A:1202:ASP:HB3	1.74	0.52
2:A:1731:ARG:HG3	2:A:1731:ARG:HH11	1.76	0.52
2:A:2034:GLY:HA3	2:A:2039:ARG:HH11	1.74	0.52
2:A:2144:ILE:N	2:A:2493:LEU:O	2.25	0.52
1:C:124:LEU:HA	1:C:127:LYS:HG2	1.92	0.51
1:B:27:MET:HG3	1:B:45:LEU:HA	1.93	0.51
1:B:212:ASN:O	1:B:216:TYR:N	2.40	0.51
2:A:2266:GLY:HA2	2:A:2300:LEU:HD23	1.91	0.51
2:A:2367:LYS:HB2	2:A:2370:SER:HB3	1.92	0.51
1:C:27:MET:HG3	1:C:45:LEU:HA	1.93	0.51
2:A:1870:LEU:HB2	2:A:1939:GLY:HA3	1.92	0.51
1:C:26:ALA:O	1:C:30:VAL:HG12	2.10	0.51
1:C:201:PHE:O	1:C:205:ILE:HG12	2.10	0.51
2:A:1257:LEU:HD12	2:A:1257:LEU:H	1.76	0.51
2:A:1968:ARG:H	2:A:1971:GLN:HE22	1.57	0.51
2:A:2105:PRO:HD2	2:A:2141:THR:O	2.11	0.51
2:A:2146:LEU:HG	2:A:2150:VAL:HG21	1.93	0.51
1:C:83:ARG:NH1	1:C:87:GLU:OE1	2.43	0.51
2:A:1165:LEU:O	2:A:1183:ASN:ND2	2.44	0.51
2:A:2510:HIS:O	2:A:2514:ARG:HB2	2.11	0.51
1:B:57:ARG:NH2	2:A:910:SEP:O3P	2.37	0.51
2:A:2140:LEU:HA	2:A:2496:TRP:HA	1.92	0.51
2:A:2142:ARG:HG2	2:A:2495:VAL:HB	1.91	0.51
2:A:1894:TYR:N	2:A:1905:VAL:O	2.38	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2118:ASN:HB3	2:A:2121:GLU:HB2	1.91	0.51
2:A:1278:ASN:HD22	2:A:1281:LEU:HB2	1.76	0.51
2:A:1305:ASN:HA	2:A:1516:GLN:HG3	1.93	0.51
2:A:1637:LYS:HZ2	2:A:1644:ASN:N	2.09	0.51
2:A:1845:GLN:OE1	2:A:1847:ARG:HG2	2.10	0.51
2:A:1973:ARG:NH1	2:A:2007:PRO:O	2.44	0.51
2:A:2420:GLN:NE2	2:A:2501:PRO:HG3	2.26	0.51
1:B:123:TYR:HA	1:B:126:MET:CE	2.41	0.51
2:A:1501:ARG:O	2:A:1505:ILE:HG13	2.11	0.51
2:A:2072:ARG:HG2	2:A:2083:PHE:HE1	1.76	0.51
2:A:2420:GLN:HE22	2:A:2501:PRO:HG3	1.74	0.51
2:A:1925:CYS:O	2:A:1928:HIS:NE2	2.44	0.50
1:C:162:LYS:HG3	1:C:172:ARG:NH2	2.27	0.50
1:B:147:VAL:HG23	1:B:182:PHE:CZ	2.47	0.50
2:A:2093:PRO:HB2	2:A:2098:GLU:HG3	1.92	0.50
2:A:2179:LEU:HB3	2:A:2192:GLU:HG3	1.93	0.50
1:C:130:TYR:HA	1:C:133:TYR:CD2	2.46	0.50
2:A:1418:VAL:O	2:A:1431:MET:HE1	2.12	0.50
1:B:83:ARG:NH1	1:B:87:GLU:OE2	2.44	0.50
2:A:2001:LEU:N	2:A:2014:LYS:O	2.42	0.50
2:A:2433:HIS:C	2:A:2434:ILE:HD13	2.37	0.50
2:A:2132:LEU:HA	2:A:2137:LEU:HD22	1.93	0.50
2:A:2293:ILE:HD12	2:A:2332:ILE:HD11	1.93	0.50
2:A:2471:LEU:HD11	2:A:2493:LEU:HG	1.93	0.50
2:A:1877:PHE:CZ	2:A:1879:GLN:HB2	2.46	0.50
2:A:2106:MET:CE	2:A:2137:LEU:HB2	2.41	0.50
2:A:2241:MET:SD	2:A:2242:THR:N	2.85	0.50
1:C:27:MET:HE3	1:C:27:MET:HA	1.94	0.50
1:C:222:ILE:HA	1:C:225:LEU:HG	1.93	0.50
2:A:1533:ILE:HD13	2:A:1562:LEU:HD11	1.92	0.50
2:A:1575:PHE:HD2	2:A:1576:LEU:HD22	1.77	0.50
2:A:2251:ASN:HB2	2:A:2315:MET:HE1	1.94	0.50
2:A:1971:GLN:H	2:A:1971:GLN:CD	2.20	0.49
2:A:1017:GLU:HB3	2:A:1019:HIS:CE1	2.47	0.49
2:A:1353:GLN:NE2	2:A:1491:THR:O	2.46	0.49
2:A:1395:PHE:CD1	2:A:1405:HIS:HD2	2.29	0.49
1:C:20:TYR:HA	1:C:23:MET:SD	2.52	0.49
2:A:1862:ALA:HB1	2:A:1866:ARG:HH12	1.77	0.49
1:C:82:VAL:HG22	1:B:13:LEU:HD21	1.95	0.49
2:A:2462:GLN:HB2	2:A:2467:LYS:HA	1.95	0.49
2:A:2516:GLU:O	2:A:2520:LYS:N	2.44	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1973:ARG:HD3	2:A:1976:LEU:HD12	1.93	0.49
1:B:147:VAL:HG23	1:B:182:PHE:HZ	1.76	0.49
2:A:2295:ASN:H	2:A:2298:THR:HG1	1.60	0.49
1:B:143:ARG:HG2	1:B:143:ARG:HH11	1.78	0.49
2:A:1047:PHE:H	2:A:1068:ASN:HD21	1.61	0.49
2:A:1369:VAL:HG23	2:A:1401:PHE:HE2	1.78	0.48
2:A:1501:ARG:O	2:A:1504:ILE:HG22	2.12	0.48
2:A:1122:ILE:HD11	2:A:1145:SER:N	2.28	0.48
2:A:2176:ARG:HH21	2:A:2195:ALA:N	2.09	0.48
2:A:2246:THR:OG1	2:A:2300:LEU:O	2.25	0.48
2:A:2267:THR:HG22	2:A:2268:ALA:H	1.77	0.48
1:C:131:TYR:HD1	1:C:146:VAL:HG13	1.78	0.48
2:A:1043:HIS:HB3	2:A:1066:SER:H	1.77	0.48
2:A:1287:GLU:O	2:A:1290:LYS:NZ	2.45	0.48
2:A:1610:ILE:HG21	2:A:1653:LEU:HD21	1.94	0.48
1:B:46:SER:OG	2:A:914:GLY:HA3	2.13	0.48
2:A:2025:CYS:SG	2:A:2026:ARG:N	2.86	0.48
2:A:2090:GLY:HA2	2:A:2115:LEU:HD11	1.95	0.48
2:A:2470:MET:CB	2:A:2498:ILE:HG22	2.43	0.48
1:B:130:TYR:HA	1:B:133:TYR:CD2	2.49	0.48
1:B:221:LEU:HB2	2:A:916:PHE:CE2	2.48	0.48
2:A:2039:ARG:HE	2:A:2040:ALA:H	1.61	0.48
2:A:1134:LEU:HB3	2:A:1158:PHE:CD1	2.47	0.48
2:A:1355:MET:HE1	2:A:1374:LYS:HD2	1.95	0.48
2:A:1415:TYR:CD2	2:A:1438:ILE:HD12	2.49	0.48
2:A:1545:PHE:CZ	2:A:1646:MET:HE3	2.48	0.48
2:A:2107:VAL:HG23	2:A:2110:LEU:HD12	1.94	0.48
1:B:12:ARG:O	1:B:16:GLN:HG3	2.13	0.48
2:A:2245:VAL:HA	2:A:2267:THR:HG23	1.94	0.48
2:A:1361:ASP:N	2:A:1361:ASP:OD1	2.47	0.48
2:A:2517:LEU:HA	2:A:2520:LYS:HB3	1.96	0.48
2:A:1538:ARG:HG3	2:A:1599:GLU:HB3	1.96	0.47
1:B:129:ASP:CG	1:B:178:ASN:HD22	2.22	0.47
2:A:1252:LEU:HB3	2:A:1257:LEU:HD21	1.96	0.47
2:A:1296:ASP:OD1	2:A:1296:ASP:N	2.47	0.47
2:A:1407:HIS:CE1	2:A:1791:TRP:HH2	2.32	0.47
2:A:1912:THR:O	2:A:1943:ARG:NH1	2.47	0.47
2:A:2270:GLY:HA3	2:A:2294:GLY:H	1.78	0.47
2:A:2321:THR:HG21	2:A:2339:ARG:HG3	1.96	0.47
2:A:2434:ILE:HD11	2:A:2455:VAL:HG21	1.96	0.47
2:A:1334:ARG:HA	2:A:1389:VAL:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1073:SER:OG	2:A:1075:VAL:HG13	2.14	0.47
2:A:1448:ILE:HD11	2:A:1507:GLU:HG3	1.97	0.47
2:A:2299:PRO:HG2	2:A:2301:MET:HE1	1.96	0.47
1:B:221:LEU:HA	1:B:224:GLN:NE2	2.27	0.47
2:A:1050:PHE:HB2	2:A:1074:VAL:HG23	1.97	0.47
1:B:10:LYS:HB3	1:B:10:LYS:HE2	1.75	0.47
2:A:1907:ILE:HD13	2:A:1944:MET:HB3	1.95	0.47
2:A:1966:LEU:HB3	2:A:1971:GLN:NE2	2.29	0.47
1:B:118:GLU:HG2	1:B:119:SER:N	2.28	0.47
2:A:1338:MET:HE3	2:A:1415:TYR:CE2	2.50	0.47
2:A:1709:ILE:HG12	2:A:1738:ILE:HD11	1.97	0.47
2:A:1717:PRO:HG3	2:A:1776:LEU:HD21	1.97	0.47
2:A:2182:LEU:HD13	2:A:2189:TYR:HB2	1.96	0.47
1:C:63:ILE:HD11	1:C:85:TYR:HB3	1.97	0.47
2:A:1160:ALA:O	2:A:1180:LEU:HA	2.14	0.47
2:A:1176:THR:HG22	2:A:1177:ILE:HG12	1.96	0.47
1:C:66:ILE:HA	1:C:69:LYS:HG2	1.97	0.47
2:A:1230:ASN:OD1	2:A:1231:GLN:N	2.48	0.47
2:A:1646:MET:SD	2:A:1648:GLN:N	2.88	0.47
2:A:2251:ASN:CB	2:A:2315:MET:HE1	2.45	0.47
2:A:1134:LEU:HD22	2:A:1158:PHE:CE1	2.50	0.47
2:A:1995:LEU:HG	2:A:2062:LEU:HD11	1.96	0.47
2:A:2009:ALA:O	2:A:2510:HIS:NE2	2.46	0.47
2:A:2105:PRO:HG2	2:A:2142:ARG:HB2	1.96	0.47
2:A:2196:ASP:OD1	2:A:2196:ASP:N	2.47	0.47
1:C:97:CYS:HB2	1:C:134:LEU:HD21	1.98	0.46
2:A:1165:LEU:C	2:A:1183:ASN:HD21	2.22	0.46
1:C:5:GLU:HA	1:C:8:VAL:HG22	1.96	0.46
2:A:1282:ARG:NH1	2:A:1303:HIS:H	2.13	0.46
2:A:2467:LYS:H	2:A:2467:LYS:HD2	1.80	0.46
2:A:1548:ILE:HD12	2:A:1598:VAL:HG21	1.97	0.46
2:A:1996:LYS:NZ	2:A:2035:THR:H	2.12	0.46
2:A:2272:LEU:HB2	2:A:2291:LEU:HB2	1.96	0.46
1:B:221:LEU:HB2	2:A:916:PHE:HE2	1.80	0.46
2:A:936:LEU:O	2:A:938:PRO:HD2	2.15	0.46
2:A:1051:PRO:C	2:A:1053:TYR:H	2.24	0.46
2:A:1908:PHE:CE2	2:A:1945:LEU:HB2	2.51	0.46
1:B:104:LEU:O	1:B:109:ILE:HG12	2.14	0.46
2:A:939:ILE:O	2:A:940:PHE:C	2.59	0.46
2:A:1334:ARG:HD2	2:A:1389:VAL:HG23	1.98	0.46
2:A:1942:PRO:HD2	2:A:1944:MET:HE1	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2207:LEU:HD21	2:A:2278:LYS:HA	1.96	0.46
2:A:1168:MET:HG3	2:A:1192:ILE:HG12	1.97	0.46
2:A:2106:MET:SD	2:A:2140:LEU:HD23	2.56	0.46
1:C:225:LEU:HD22	2:A:934:ASN:HD21	1.80	0.46
1:B:173:LEU:O	1:B:177:LEU:HG	2.16	0.46
2:A:1340:VAL:O	2:A:1417:ALA:HA	2.16	0.46
2:A:1371:ILE:HG13	2:A:1373:VAL:HG23	1.96	0.46
1:C:129:ASP:O	1:C:132:ARG:HG3	2.15	0.46
1:B:28:LYS:HE3	1:B:103:LEU:HD22	1.98	0.46
1:C:78:LYS:HD2	1:C:78:LYS:HA	1.75	0.45
2:A:1205:SER:O	2:A:1205:SER:OG	2.19	0.45
2:A:1694:LEU:HD21	2:A:1764:LYS:HE2	1.98	0.45
2:A:2522:ARG:O	2:A:2525:SER:OG	2.32	0.45
1:C:222:ILE:O	1:C:226:LEU:HD22	2.16	0.45
2:A:2105:PRO:HD2	2:A:2142:ARG:HB3	1.98	0.45
2:A:1202:ASP:HA	2:A:1226:LEU:HB2	1.97	0.45
2:A:2413:ARG:O	2:A:2430:GLY:N	2.40	0.45
1:B:204:ALA:HB3	1:B:223:MET:HE1	1.98	0.45
2:A:1838:ASP:OD1	2:A:1838:ASP:N	2.49	0.45
1:C:94:GLU:HA	1:C:97:CYS:SG	2.56	0.45
2:A:1061:ALA:HB1	2:A:1086:LYS:HG2	1.97	0.45
2:A:1120:SER:HA	2:A:1140:HIS:O	2.16	0.45
2:A:1814:TYR:OH	2:A:1827:LEU:HD22	2.17	0.45
2:A:2047:ASN:OD1	2:A:2047:ASN:N	2.50	0.45
2:A:2183:ASP:OD1	2:A:2184:LEU:N	2.49	0.45
2:A:1168:MET:HE1	2:A:1185:PHE:HZ	1.82	0.45
2:A:1579:SER:O	2:A:1579:SER:OG	2.32	0.45
2:A:1739:TYR:HD2	2:A:1749:LEU:HD13	1.81	0.45
1:C:124:LEU:HB3	1:C:157:ALA:HB2	1.99	0.45
2:A:1958:LEU:HD22	2:A:2002:LEU:HD12	1.99	0.45
2:A:2137:LEU:HG	2:A:2138:VAL:N	2.31	0.45
2:A:2251:ASN:ND2	2:A:2262:PHE:HB2	2.27	0.45
1:C:20:TYR:O	1:C:23:MET:HG2	2.16	0.45
2:A:998:ASP:O	2:A:1001:SER:OG	2.35	0.45
2:A:1146:GLU:HA	2:A:1169:PRO:HB2	1.98	0.45
2:A:1995:LEU:N	2:A:1996:LYS:HE3	2.32	0.45
2:A:2176:ARG:NE	2:A:2195:ALA:O	2.50	0.45
2:A:2241:MET:HE2	2:A:2267:THR:HG21	1.98	0.45
2:A:2291:LEU:HD11	2:A:2330:PHE:HB3	1.99	0.45
1:C:97:CYS:HA	1:C:100:VAL:HG22	1.98	0.44
2:A:1584:HIS:CE1	2:A:1586:GLN:HG3	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1995:LEU:H	2:A:1996:LYS:HE3	1.82	0.44
2:A:2148:LYS:HA	2:A:2148:LYS:HD2	1.79	0.44
2:A:2225:LEU:HD11	2:A:2235:ARG:HE	1.81	0.44
2:A:2461:ALA:N	2:A:2469:VAL:O	2.50	0.44
1:B:127:LYS:HB2	1:B:127:LYS:HE3	1.79	0.44
2:A:939:ILE:H	2:A:939:ILE:HG12	1.54	0.44
2:A:1172:PRO:HD2	2:A:1175:MET:HE3	1.99	0.44
2:A:2446:ARG:NH2	2:A:2508:GLU:HG3	2.32	0.44
1:C:50:LYS:HZ2	2:A:938:PRO:HG2	1.81	0.44
2:A:1811:TRP:CE3	2:A:1826:LEU:HB3	2.51	0.44
2:A:2129:PHE:O	2:A:2133:ASN:N	2.49	0.44
2:A:2434:ILE:O	2:A:2448:ILE:HD12	2.17	0.44
1:C:104:LEU:HD23	1:C:127:LYS:HB3	1.99	0.44
2:A:1729:PRO:HB3	2:A:1742:TRP:CE2	2.53	0.44
1:C:49:TYR:HA	1:C:52:VAL:HG12	1.99	0.44
1:C:158:HIS:CE1	1:C:162:LYS:HD3	2.53	0.44
2:A:1123:CYS:HB2	2:A:1148:PHE:CZ	2.53	0.44
2:A:2470:MET:HB2	2:A:2498:ILE:HG22	1.98	0.44
1:B:236:ASP:OD1	1:B:236:ASP:N	2.50	0.44
2:A:1024:THR:HA	2:A:1047:PHE:CD1	2.53	0.44
2:A:1840:LEU:HD12	2:A:1841:VAL:N	2.33	0.44
2:A:1879:GLN:HG2	2:A:1894:TYR:CE2	2.49	0.44
2:A:2319:CYS:HB2	2:A:2324:PHE:CE1	2.53	0.44
2:A:2366:ALA:HB1	2:A:2414:VAL:HG11	2.00	0.44
1:C:40:GLU:HA	1:C:43:ASN:HD21	1.83	0.44
1:C:224:GLN:NE2	2:A:1728:ARG:HG2	2.32	0.44
1:C:226:LEU:HA	1:C:229:ASN:HD21	1.83	0.44
2:A:1310:HIS:HB3	2:A:1574:HIS:CE1	2.53	0.44
2:A:1529:GLU:O	2:A:1533:ILE:HG23	2.18	0.44
2:A:1932:LEU:HD12	2:A:2015:ILE:HG13	1.99	0.44
1:C:88:LYS:O	1:C:91:LYS:HG2	2.18	0.44
1:B:49:TYR:HB3	1:B:130:TYR:OH	2.18	0.44
2:A:1864:LEU:HD11	2:A:1922:VAL:HG23	1.99	0.44
2:A:1940:ILE:HG23	2:A:1941:ARG:HE	1.82	0.44
1:C:179:TYR:OH	1:C:183:TYR:OH	2.27	0.44
1:B:28:LYS:HD3	1:B:49:TYR:OH	2.18	0.44
2:A:1537:GLU:CD	2:A:1548:ILE:HD11	2.43	0.44
2:A:1673:LEU:HD21	2:A:1733:TYR:HB3	2.00	0.44
2:A:1932:LEU:HD12	2:A:2015:ILE:O	2.17	0.44
2:A:2287:PRO:HG2	2:A:2290:ILE:HD11	2.00	0.44
1:B:4:ARG:O	1:B:8:VAL:HG12	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1533:ILE:HG13	2:A:1534:ILE:N	2.32	0.43
2:A:2197:SER:HB2	2:A:2220:GLN:HG2	2.00	0.43
1:C:63:ILE:HD12	1:C:85:TYR:HD2	1.84	0.43
1:B:57:ARG:O	1:B:61:ARG:HG3	2.19	0.43
1:B:65:SER:O	1:B:69:LYS:HG2	2.18	0.43
2:A:2233:LYS:HE2	2:A:2233:LYS:HB3	1.84	0.43
2:A:1107:GLU:HG3	2:A:1129:LYS:HE3	1.98	0.43
2:A:1161:ARG:NH2	2:A:1181:SER:H	2.07	0.43
2:A:1606:ILE:HA	2:A:1609:GLN:HG3	2.01	0.43
2:A:1019:HIS:CB	2:A:1043:HIS:H	2.31	0.43
2:A:1320:ARG:NH2	2:A:1567:ASN:O	2.52	0.43
2:A:1734:TRP:CE3	2:A:1737:GLY:HA3	2.53	0.43
2:A:1931:SER:HB3	2:A:2514:ARG:NH2	2.31	0.43
2:A:2148:LYS:HZ2	2:A:2490:GLN:HG2	1.82	0.43
2:A:2171:CYS:SG	2:A:2178:GLN:N	2.91	0.43
2:A:2329:ASP:OD2	2:A:2331:THR:OG1	2.33	0.43
2:A:2446:ARG:CZ	2:A:2508:GLU:HG3	2.48	0.43
2:A:1930:PRO:HD3	2:A:2522:ARG:HH12	1.83	0.43
1:B:165:MET:SD	1:B:165:MET:N	2.92	0.43
2:A:2166:SER:OG	2:A:2182:LEU:O	2.32	0.43
1:C:63:ILE:HA	1:C:66:ILE:HG12	1.99	0.43
1:C:124:LEU:CB	1:C:157:ALA:HB2	2.49	0.43
2:A:1321:PHE:HE1	2:A:1527:TYR:HE2	1.67	0.43
2:A:1550:ARG:HG2	2:A:1596:TYR:HE1	1.83	0.43
2:A:2459:MET:SD	2:A:2460:THR:N	2.85	0.43
1:B:124:LEU:O	1:B:127:LYS:HG2	2.19	0.43
2:A:1207:ASP:OD1	2:A:1207:ASP:N	2.49	0.43
2:A:1521:GLN:OE1	2:A:1523:ILE:HG23	2.19	0.43
2:A:2152:VAL:HG21	2:A:2169:LEU:HD23	2.01	0.43
2:A:2172:GLY:HA2	2:A:2198:ARG:HD3	2.00	0.43
2:A:1356:LYS:HB2	2:A:1356:LYS:NZ	2.34	0.43
2:A:1652:LEU:HA	2:A:1655:LYS:HG3	2.01	0.43
2:A:2500:LEU:O	2:A:2503:GLU:N	2.51	0.43
1:C:23:MET:HG3	1:C:48:ALA:CB	2.49	0.43
2:A:1211:LEU:HD23	2:A:1211:LEU:HA	1.92	0.43
2:A:1425:GLN:OE1	2:A:1425:GLN:O	2.37	0.43
2:A:2128:VAL:HA	2:A:2131:ILE:HG22	2.01	0.43
2:A:1003:LYS:HA	2:A:1003:LYS:HD3	1.82	0.42
2:A:1175:MET:HB2	2:A:1195:LEU:HD13	1.99	0.42
2:A:1550:ARG:HG2	2:A:1596:TYR:CE1	2.54	0.42
2:A:1651:LYS:HG3	2:A:1655:LYS:HE3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1978:VAL:HG13	2:A:2059:PHE:HE1	1.83	0.42
2:A:2255:LYS:HD2	2:A:2328:ASN:HB3	2.01	0.42
2:A:2300:LEU:HA	2:A:2319:CYS:HA	2.01	0.42
1:B:162:LYS:HA	1:B:162:LYS:HD3	1.69	0.42
2:A:1027:PRO:HG2	2:A:1030:LEU:HB2	2.01	0.42
2:A:1395:PHE:CD1	2:A:1405:HIS:CD2	3.07	0.42
2:A:1502:LYS:HA	2:A:1502:LYS:HD3	1.85	0.42
2:A:1771:ARG:HD3	2:A:1866:ARG:HE	1.84	0.42
1:C:229:ASN:HB2	1:C:233:TRP:CZ2	2.54	0.42
2:A:1055:LEU:HD22	2:A:1085:LEU:HD21	2.01	0.42
2:A:2146:LEU:HD12	2:A:2147:PRO:CD	2.42	0.42
2:A:1584:HIS:NE2	2:A:1593:SER:O	2.53	0.42
2:A:2200:LEU:HD13	2:A:2245:VAL:O	2.20	0.42
1:B:69:LYS:HA	1:B:69:LYS:HD3	1.93	0.42
2:A:1214:PRO:HG3	2:A:1244:TRP:CZ3	2.55	0.42
2:A:1378:ILE:HD13	2:A:1378:ILE:HA	1.91	0.42
2:A:2215:ILE:HB	2:A:2227:ILE:HG23	2.02	0.42
2:A:2438:ASP:HB3	2:A:2442:ARG:O	2.20	0.42
1:C:108:LEU:HD23	1:C:108:LEU:HA	1.90	0.42
1:C:178:ASN:HA	1:C:181:VAL:HG22	2.02	0.42
1:C:184:TYR:CD2	1:C:184:TYR:C	2.97	0.42
2:A:1145:SER:O	2:A:1148:PHE:HB2	2.18	0.42
2:A:1402:TYR:HA	2:A:1405:HIS:HD1	1.84	0.42
2:A:1893:VAL:HA	2:A:1906:LYS:HA	2.02	0.42
1:B:197:ALA:HB3	1:B:230:LEU:HD21	2.00	0.42
2:A:1244:TRP:HA	2:A:1246:ARG:NH1	2.34	0.42
2:A:1973:ARG:HD3	2:A:1973:ARG:HA	1.89	0.42
2:A:1994:ASP:CG	2:A:1996:LYS:HZ2	2.27	0.42
2:A:2216:VAL:HG21	2:A:2263:LEU:HD11	2.01	0.42
1:C:129:ASP:OD1	1:C:178:ASN:ND2	2.53	0.42
1:B:57:ARG:HH12	2:A:910:SEP:P	2.39	0.42
2:A:1190:GLU:HA	2:A:1193:LEU:HB2	2.02	0.42
2:A:1873:ASP:OD1	2:A:1873:ASP:N	2.52	0.42
2:A:2316:TRP:CE3	2:A:2363:LEU:HD21	2.55	0.42
2:A:2476:ASN:O	2:A:2478:LYS:HE2	2.19	0.42
2:A:1317:ASP:N	2:A:1317:ASP:OD1	2.53	0.42
2:A:1376:TRP:CZ3	2:A:1378:ILE:HD11	2.55	0.42
2:A:1603:LEU:O	2:A:1607:MET:HG2	2.20	0.42
1:C:39:ASN:O	1:C:43:ASN:ND2	2.52	0.42
2:A:1369:VAL:HG23	2:A:1401:PHE:CE2	2.55	0.42
2:A:1409:MET:HG2	2:A:1415:TYR:HE2	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1476:LYS:HD2	2:A:1476:LYS:HA	1.67	0.42
2:A:2152:VAL:HG21	2:A:2169:LEU:HB3	2.01	0.42
2:A:1449:LEU:O	2:A:1485:TYR:HA	2.20	0.41
2:A:2081:ASN:OD1	2:A:2081:ASN:N	2.53	0.41
2:A:2300:LEU:HD12	2:A:2318:GLY:O	2.20	0.41
2:A:2509:LYS:HA	2:A:2512:GLU:HG3	2.02	0.41
1:C:168:THR:HG21	1:C:211:LEU:HD11	2.01	0.41
2:A:1504:ILE:HD12	2:A:1504:ILE:HA	1.86	0.41
2:A:1959:LEU:HD12	2:A:1960:GLN:HG2	2.01	0.41
2:A:2143:ARG:HA	2:A:2494:THR:HA	2.02	0.41
2:A:2246:THR:N	2:A:2266:GLY:O	2.45	0.41
1:B:21:ASP:OD1	1:B:22:ASP:N	2.51	0.41
1:B:96:VAL:O	1:B:100:VAL:HG23	2.19	0.41
2:A:1602:TRP:CE2	2:A:1606:ILE:HG13	2.55	0.41
2:A:2146:LEU:HD23	2:A:2491:SER:OG	2.20	0.41
2:A:1351:LEU:HD11	2:A:1392:VAL:HG11	2.01	0.41
2:A:1926:HIS:HA	2:A:1928:HIS:CD2	2.54	0.41
2:A:1996:LYS:HZ1	2:A:2035:THR:H	1.67	0.41
2:A:1129:LYS:HD2	2:A:1130:GLU:HB2	2.03	0.41
1:B:169:HIS:O	1:B:173:LEU:HG	2.21	0.41
2:A:1092:TYR:CD2	2:A:1116:GLY:HA3	2.55	0.41
2:A:1777:LEU:O	2:A:1781:VAL:HG12	2.20	0.41
2:A:2247:CYS:O	2:A:2266:GLY:N	2.43	0.41
2:A:2427:ILE:HD11	2:A:2435:LEU:HB2	2.02	0.41
2:A:2434:ILE:CD1	2:A:2455:VAL:HG21	2.51	0.41
1:B:41:GLU:H	1:B:41:GLU:HG3	1.67	0.41
2:A:1712:LEU:O	2:A:1714:GLU:N	2.53	0.41
2:A:1956:ASP:OD1	2:A:1956:ASP:N	2.52	0.41
2:A:1230:ASN:OD1	2:A:1232:ILE:HG13	2.21	0.41
2:A:2390:VAL:HA	2:A:2393:LEU:HB2	2.01	0.41
1:B:60:TRP:CE2	1:B:137:VAL:HG12	2.56	0.41
1:B:158:HIS:NE2	1:B:162:LYS:HE2	2.35	0.41
2:A:983:TYR:HB3	2:A:1009:HIS:CE1	2.56	0.41
2:A:1016:LEU:CD2	2:A:1040:LEU:HA	2.51	0.41
2:A:1359:LYS:HG3	2:A:1360:SER:H	1.85	0.41
2:A:1488:VAL:HG21	2:A:1497:LEU:HD13	2.02	0.41
2:A:1914:LEU:O	2:A:1917:LEU:HG	2.21	0.41
2:A:1932:LEU:HD11	2:A:2017:ASP:HB3	2.02	0.41
2:A:2236:HIS:NE2	2:A:2280:VAL:O	2.45	0.41
2:A:2467:LYS:HD2	2:A:2467:LYS:N	2.35	0.41
1:C:27:MET:HB3	1:C:45:LEU:HD13	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1269:ASN:O	2:A:1269:ASN:ND2	2.42	0.41
2:A:1877:PHE:HZ	2:A:1879:GLN:HB2	1.86	0.41
2:A:1956:ASP:O	2:A:1960:GLN:HG2	2.21	0.41
2:A:1019:HIS:HB3	2:A:1043:HIS:H	1.86	0.40
2:A:1311:ILE:HD13	2:A:1586:GLN:HE21	1.86	0.40
1:B:58:SER:HA	1:B:61:ARG:CZ	2.51	0.40
2:A:1335:MET:HE3	2:A:1336:LYS:H	1.86	0.40
2:A:1346:GLY:O	2:A:1418:VAL:HG11	2.21	0.40
2:A:1592:LEU:HD13	2:A:1648:GLN:HB3	2.04	0.40
2:A:1657:GLN:HG2	2:A:1710:ASN:CG	2.47	0.40
1:C:140:GLY:O	1:C:143:ARG:HB3	2.21	0.40
1:C:158:HIS:ND1	1:C:158:HIS:C	2.79	0.40
2:A:1933:ILE:O	2:A:1933:ILE:HG13	2.22	0.40
1:B:124:LEU:HB3	1:B:157:ALA:HB2	2.02	0.40
2:A:1305:ASN:HB2	2:A:1516:GLN:HE21	1.86	0.40
2:A:1395:PHE:HD1	2:A:1405:HIS:CD2	2.39	0.40
2:A:2049:ILE:HD12	2:A:2049:ILE:HA	1.95	0.40
1:C:4:ARG:HH21	1:C:41:GLU:CD	2.26	0.40
1:C:104:LEU:O	1:C:109:ILE:HG13	2.21	0.40
1:B:58:SER:HA	1:B:61:ARG:NH2	2.37	0.40
1:B:108:LEU:HD12	1:B:123:TYR:CZ	2.56	0.40
1:B:183:TYR:CD1	1:B:187:GLN:HG3	2.54	0.40
2:A:1279:LEU:O	2:A:1282:ARG:NH2	2.55	0.40
2:A:1499:LYS:HD2	2:A:1499:LYS:HA	1.86	0.40
2:A:1677:ARG:HB3	2:A:1734:TRP:CZ2	2.56	0.40
2:A:1718:TYR:CE2	2:A:1865:PRO:HG3	2.56	0.40
2:A:1739:TYR:CD2	2:A:1749:LEU:HD13	2.56	0.40
2:A:2212:GLU:OE2	2:A:2214:TRP:NE1	2.55	0.40
2:A:2472:VAL:HB	2:A:2494:THR:HG23	2.03	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	B	238/265 (90%)	236 (99%)	2 (1%)	0	100	100
1	C	235/265 (89%)	231 (98%)	4 (2%)	0	100	100
2	A	1499/2562 (58%)	1356 (90%)	140 (9%)	3 (0%)	44	76
All	All	1972/3092 (64%)	1823 (92%)	146 (7%)	3 (0%)	45	76

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A	938	PRO
2	A	940	PHE
2	A	1713	LEU

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	B	211/231 (91%)	209 (99%)	2 (1%)	75	83
1	C	208/231 (90%)	203 (98%)	5 (2%)	44	62
2	A	1346/2310 (58%)	1320 (98%)	26 (2%)	52	69
All	All	1765/2772 (64%)	1732 (98%)	33 (2%)	52	69

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	87	GLU
1	C	134	LEU
1	C	158	HIS
1	C	175	LEU
1	C	195	HIS
1	B	62	VAL
1	B	224	GLN
2	A	938	PRO
2	A	939	ILE
2	A	1076	LEU

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Mol	Chain	Res	Type
2	A	1114	LEU
2	A	1175	MET
2	A	1192	ILE
2	A	1203	MET
2	A	1291	LEU
2	A	1330	VAL
2	A	1388	LEU
2	A	1392	VAL
2	A	1513	ILE
2	A	1519	VAL
2	A	1582	LEU
2	A	1603	LEU
2	A	1758	HIS
2	A	2137	LEU
2	A	2138	VAL
2	A	2139	CYS
2	A	2141	THR
2	A	2267	THR
2	A	2397	MET
2	A	2436	LEU
2	A	2457	VAL
2	A	2498	ILE
2	A	2500	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	9	GLN
1	C	164	HIS
1	C	178	ASN
1	C	224	GLN
1	C	229	ASN
1	B	106	ASN
1	B	178	ASN
2	A	1021	ASN
2	A	1068	ASN
2	A	1251	HIS
2	A	1278	ASN
2	A	1353	GLN
2	A	1407	HIS
2	A	1779	GLN
2	A	1854	GLN

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Mol	Chain	Res	Type
2	A	1960	GLN
2	A	1986	HIS
2	A	2420	GLN
2	A	2506	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)

2 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	SEP	A	910	2	8,9,10	1.60	1 (12%)	7,12,14	1.30	1 (14%)
2	SEP	A	935	2	8,9,10	1.57	1 (12%)	7,12,14	1.52	1 (14%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	SEP	A	910	2	-	1/6/8/10	-
2	SEP	A	935	2	-	5/6/8/10	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	935	SEP	P-O1P	3.47	1.61	1.50
2	A	910	SEP	P-O1P	3.47	1.61	1.50

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	935	SEP	OG-CB-CA	3.57	111.62	108.14
2	A	910	SEP	OG-CB-CA	2.88	110.94	108.14

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	935	SEP	N-CA-CB-OG
2	A	935	SEP	C-CA-CB-OG
2	A	935	SEP	CB-OG-P-O1P
2	A	935	SEP	CB-OG-P-O2P
2	A	935	SEP	CB-OG-P-O3P
2	A	910	SEP	CB-OG-P-O2P

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	910	SEP	3	0
2	A	935	SEP	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

1 ligand is modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	GDP	A	2601	-	25,30,30	0.95	1 (4%)	30,47,47	1.13	3 (10%)

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
3	GDP	A	2601	-	-	2/12/32/32	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	2601	GDP	C6-N1	-2.20	1.34	1.37

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	2601	GDP	C8-N7-C5	2.96	107.58	102.55
3	A	2601	GDP	O4'-C1'-N9	2.34	111.84	108.75
3	A	2601	GDP	C5-C6-N1	2.08	118.03	114.07

There are no chirality outliers.

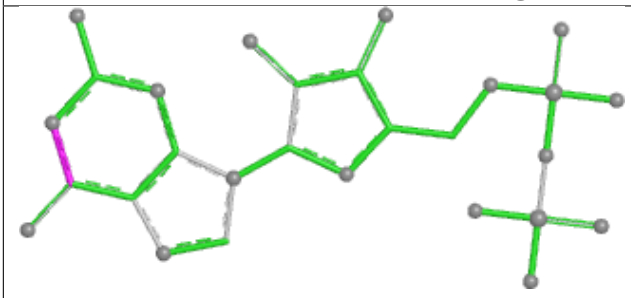
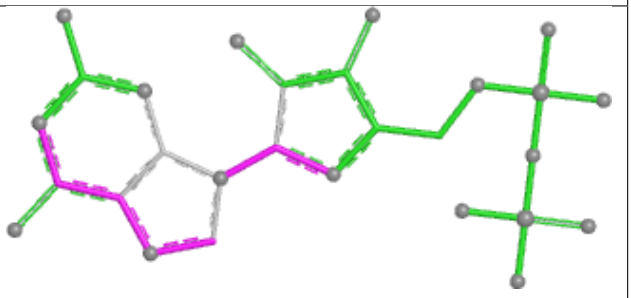
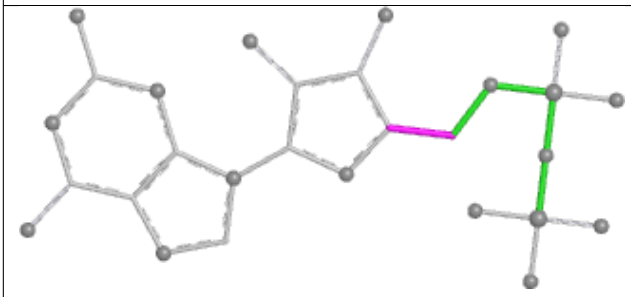
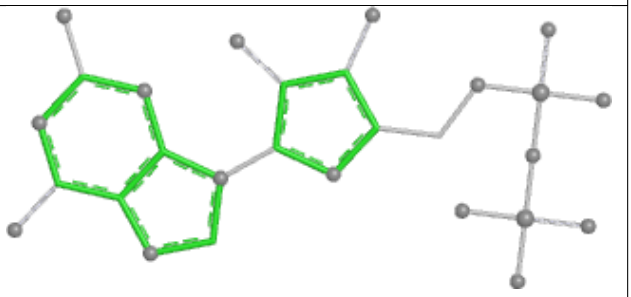
All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2601	GDP	O4'-C4'-C5'-O5'
3	A	2601	GDP	C3'-C4'-C5'-O5'

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 GDP A 2601	
 Bond lengths	 Bond angles
 Torsions	 Rings

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

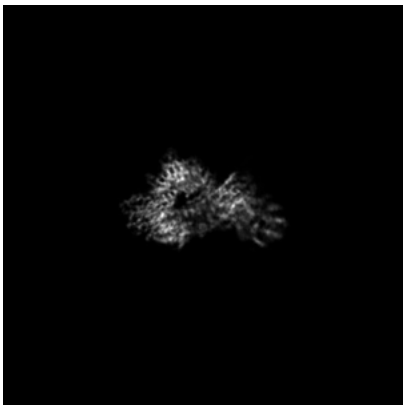
This section contains visualisations of the EMDB entry EMD-45609. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

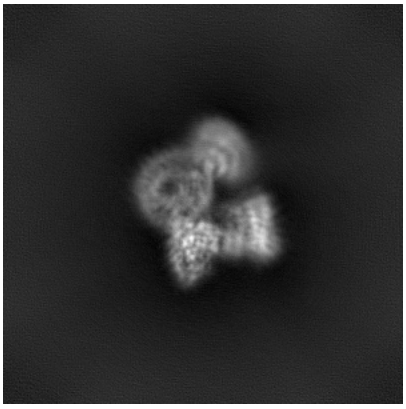
X



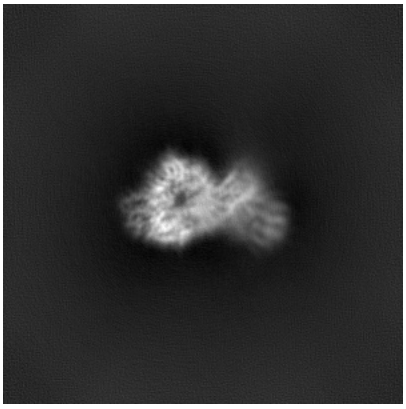
Y

Z

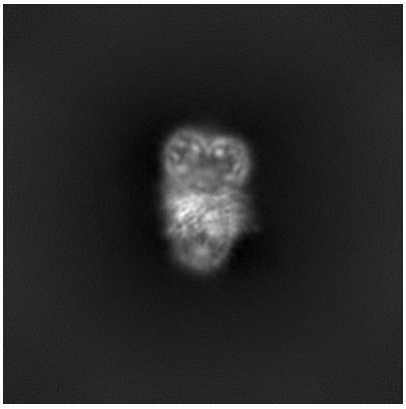
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

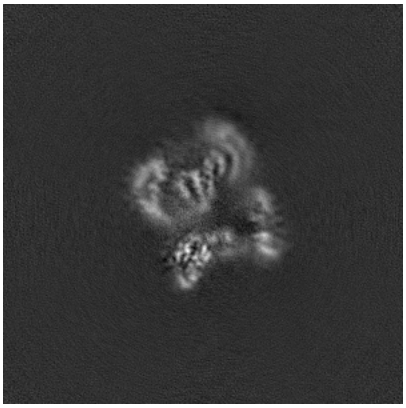
6.2.1 Primary map

X Index: 201

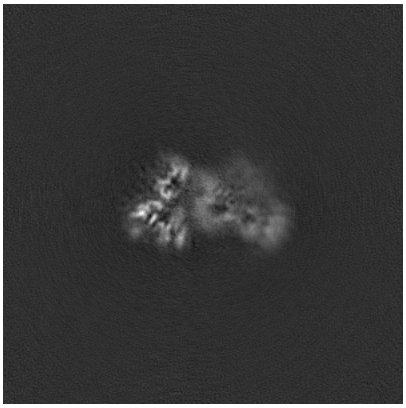
Y Index: 201

Z Index: 201

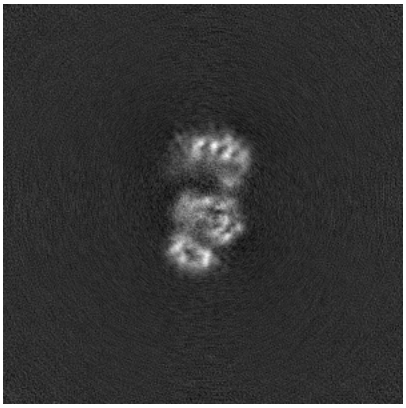
6.2.2 Raw map



X Index: 201



Y Index: 201



Z Index: 201

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

6.3 Largest variance slices (i)

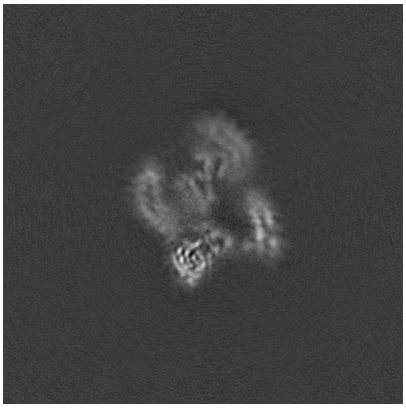
6.3.1 Primary map

X Index: 193

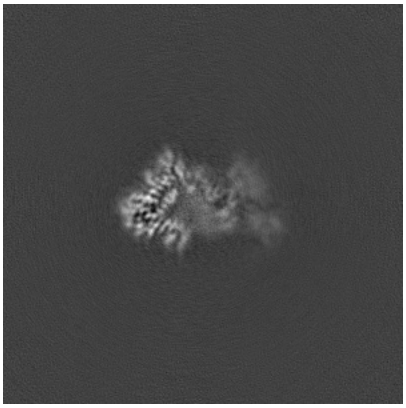
Y Index: 189

Z Index: 167

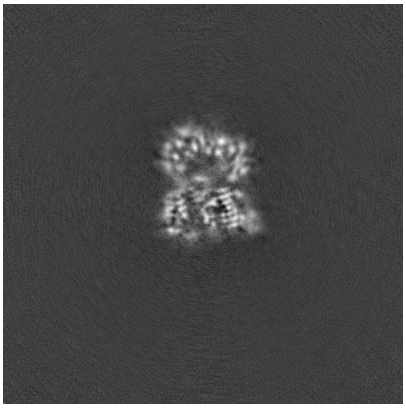
6.3.2 Raw map



X Index: 193



Y Index: 189

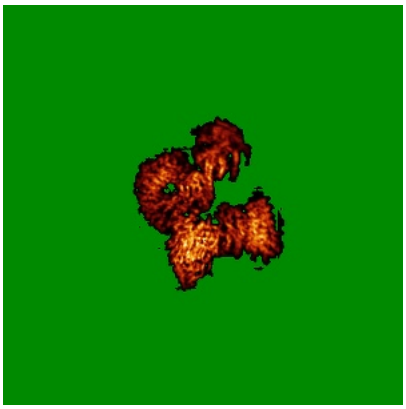


Z Index: 166

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

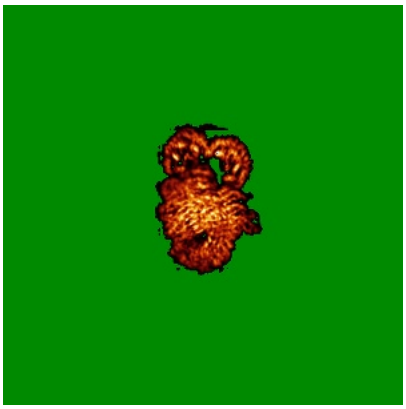
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



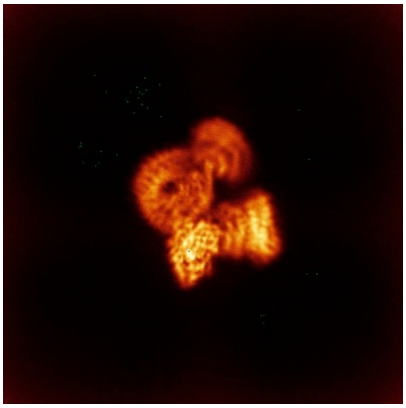
X

Y

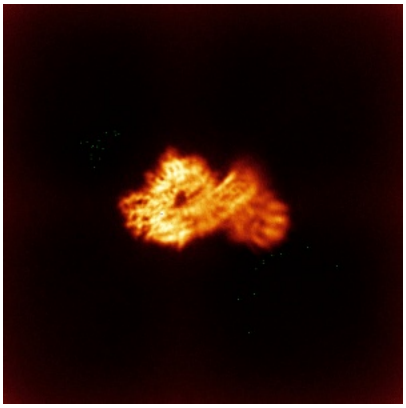


Z

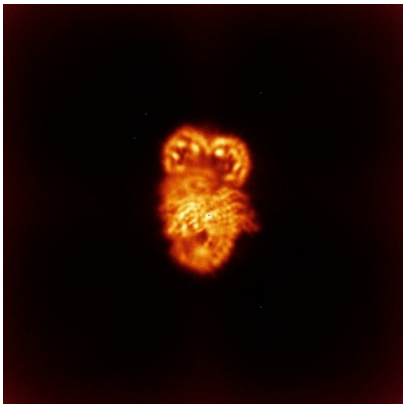
6.4.2 Raw map



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.

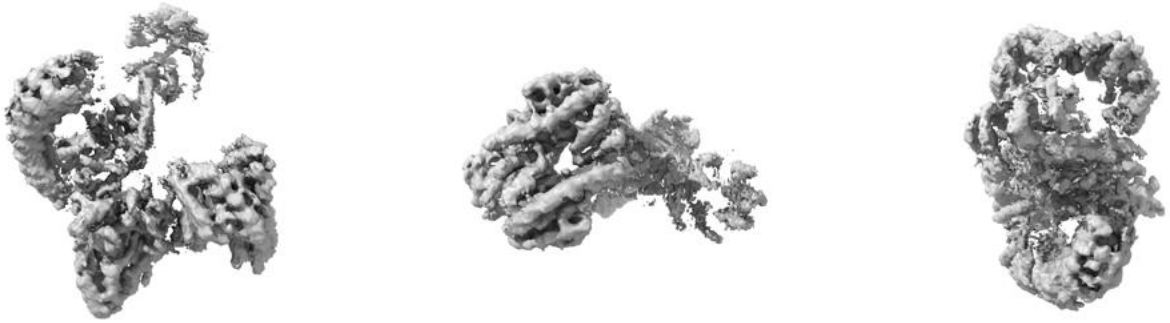
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.122. 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.

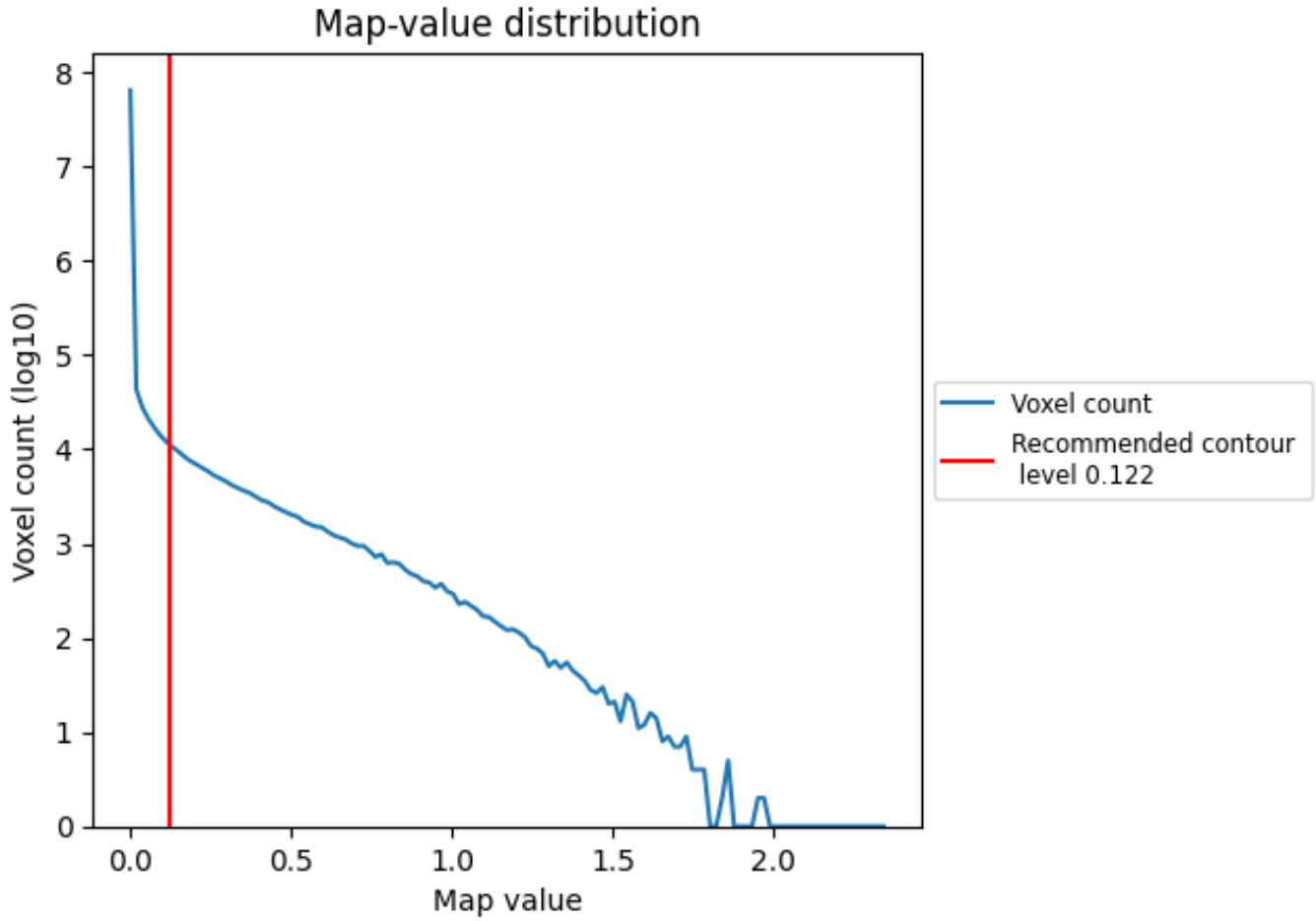
6.6 Mask visualisation (i)

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

7 Map analysis

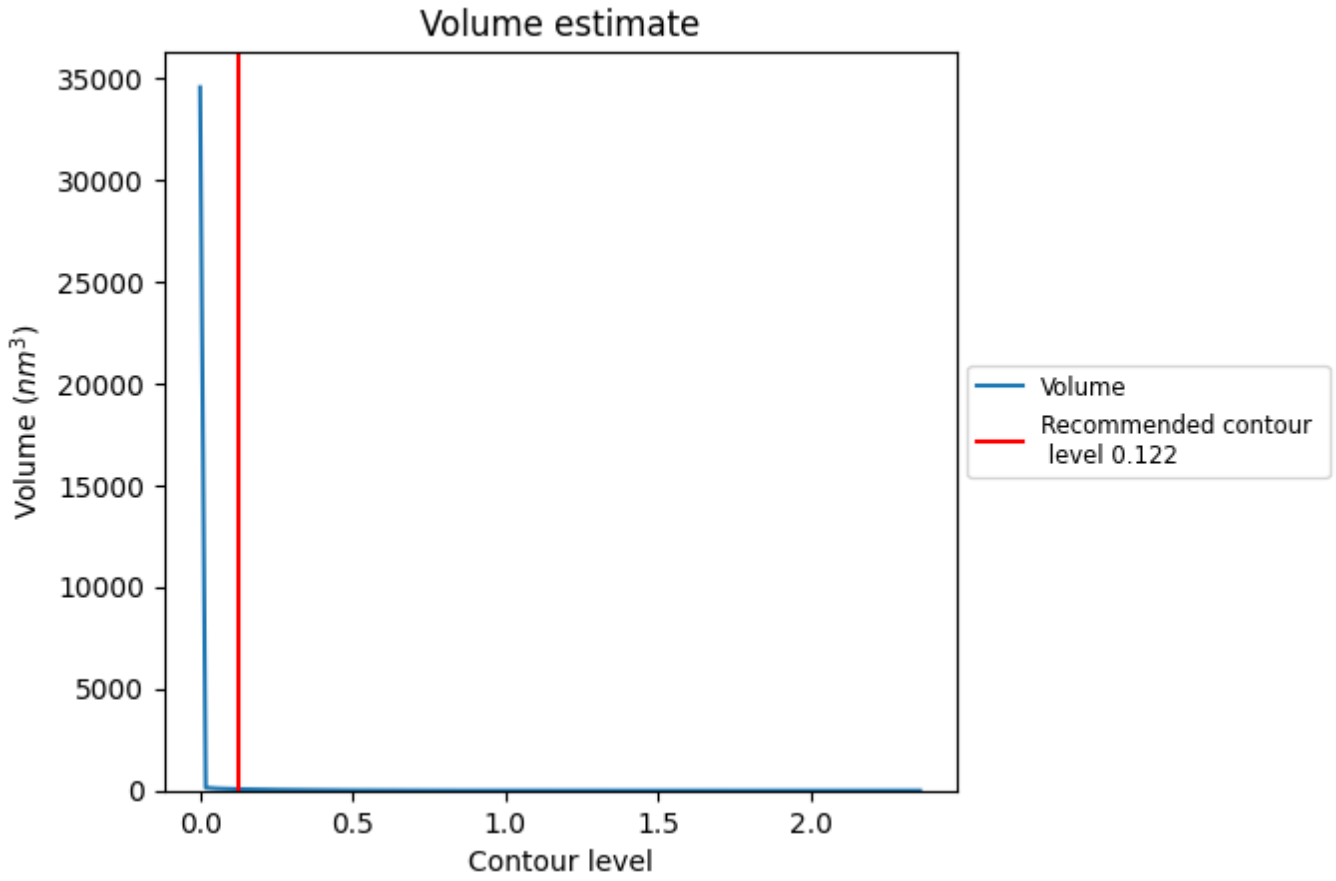
This section contains the results of statistical analysis of the map.

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.

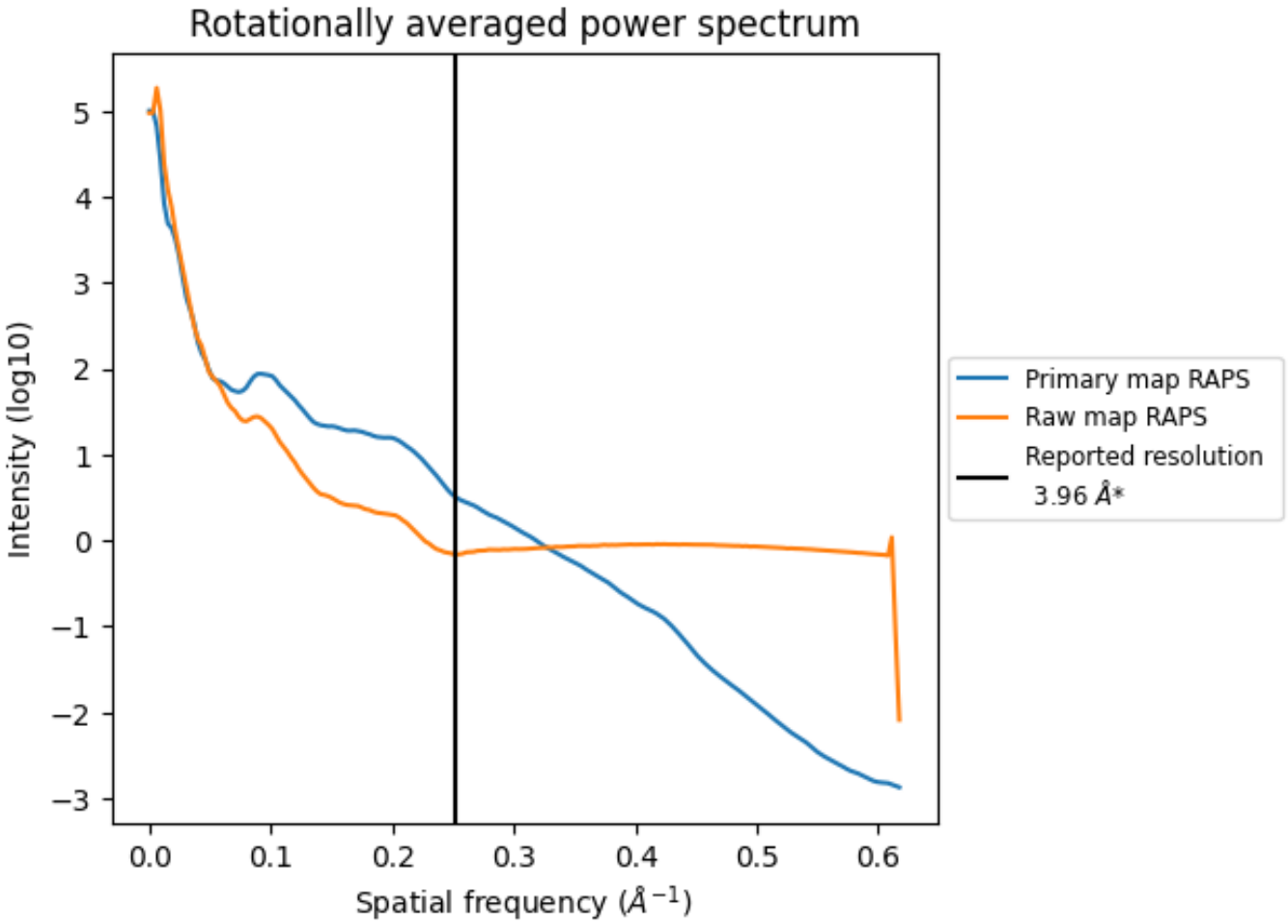
7.2 Volume estimate



The volume at the recommended contour level is 71 nm^3; this corresponds to an approximate mass of 64 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)

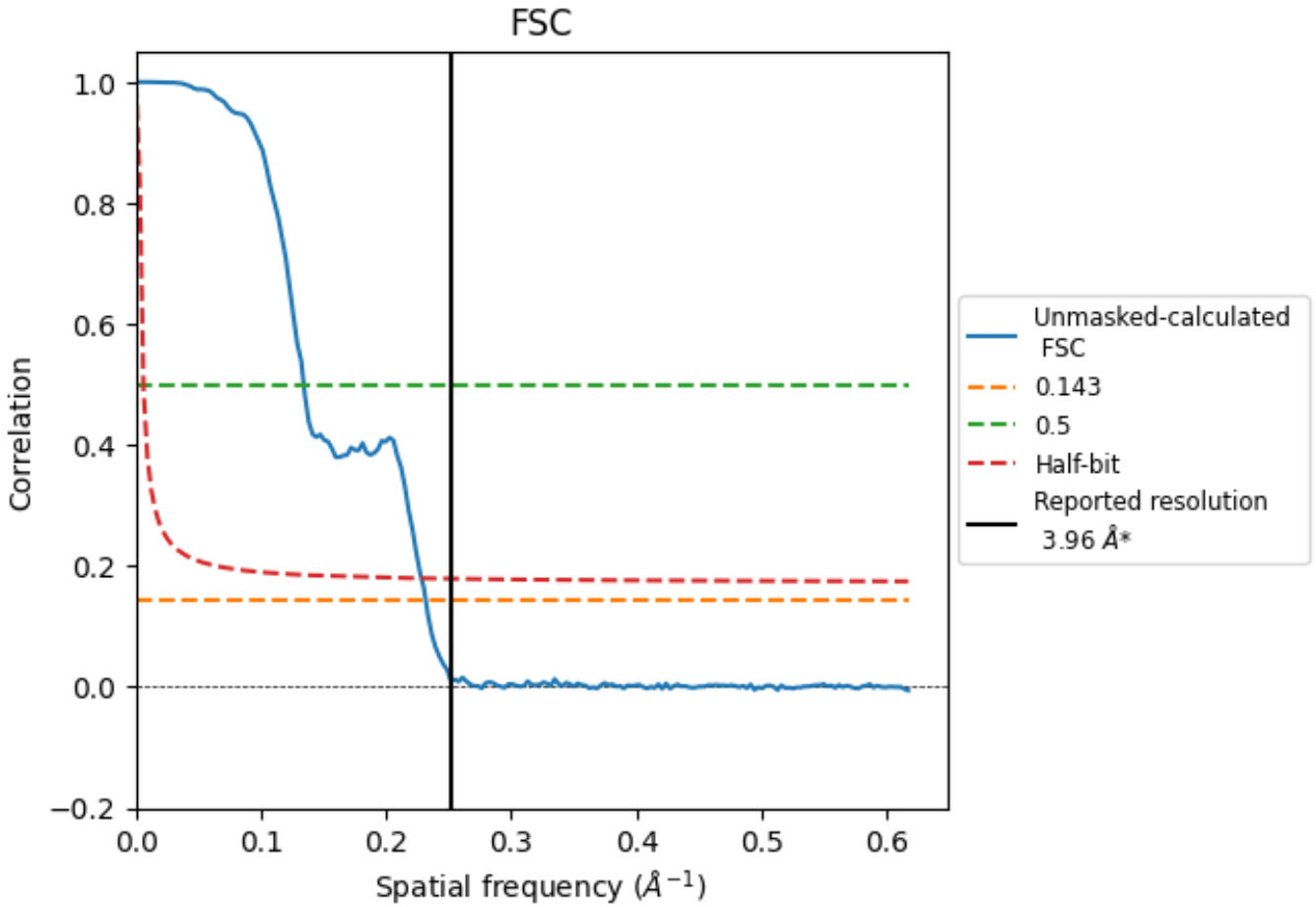


*Reported resolution corresponds to spatial frequency of 0.253 Å^{-1}

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 0.253 Å^{-1}

8.2 Resolution estimates (i)

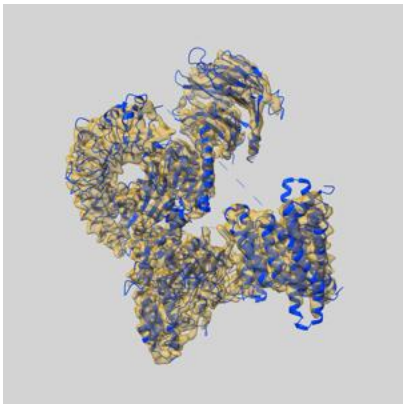
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.96	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.32	7.45	4.38

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

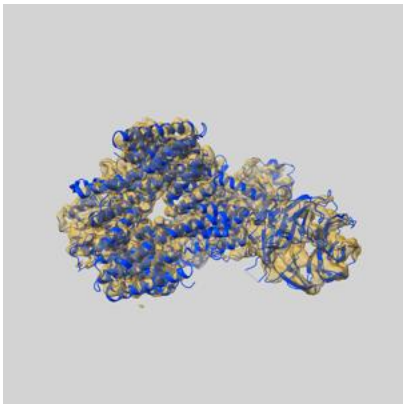
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-45609 and PDB model 9CI3. Per-residue inclusion information can be found in section 3 on page 6.

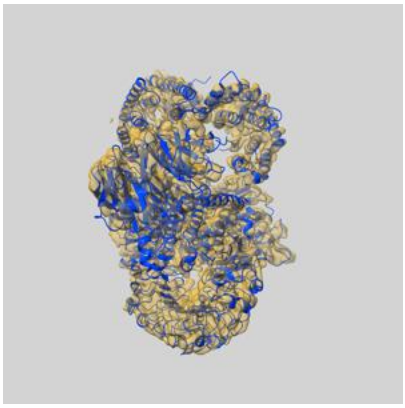
9.1 Map-model overlay



X



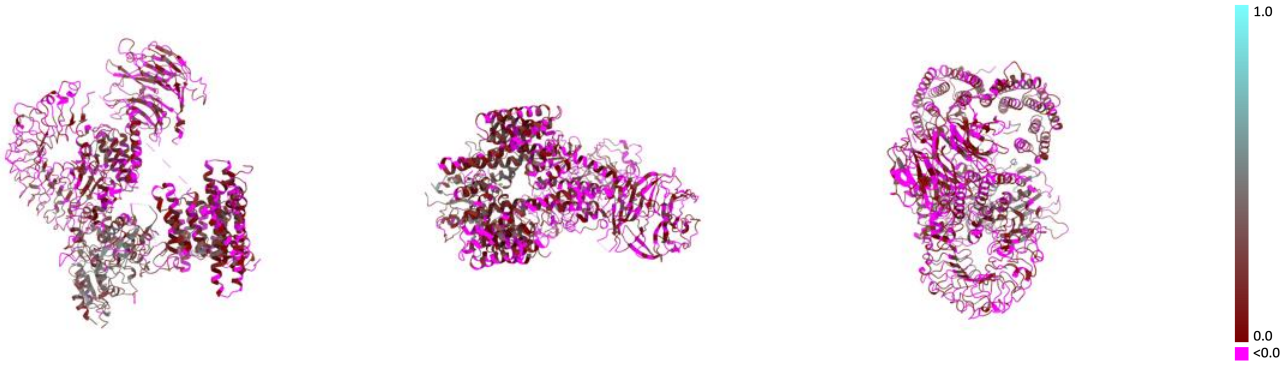
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.122 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.

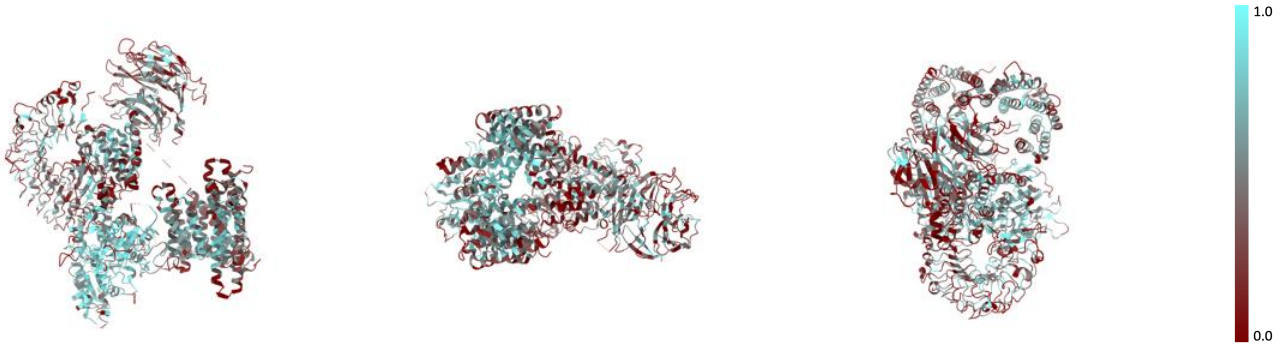
9.2 Q-score mapped to coordinate model



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.

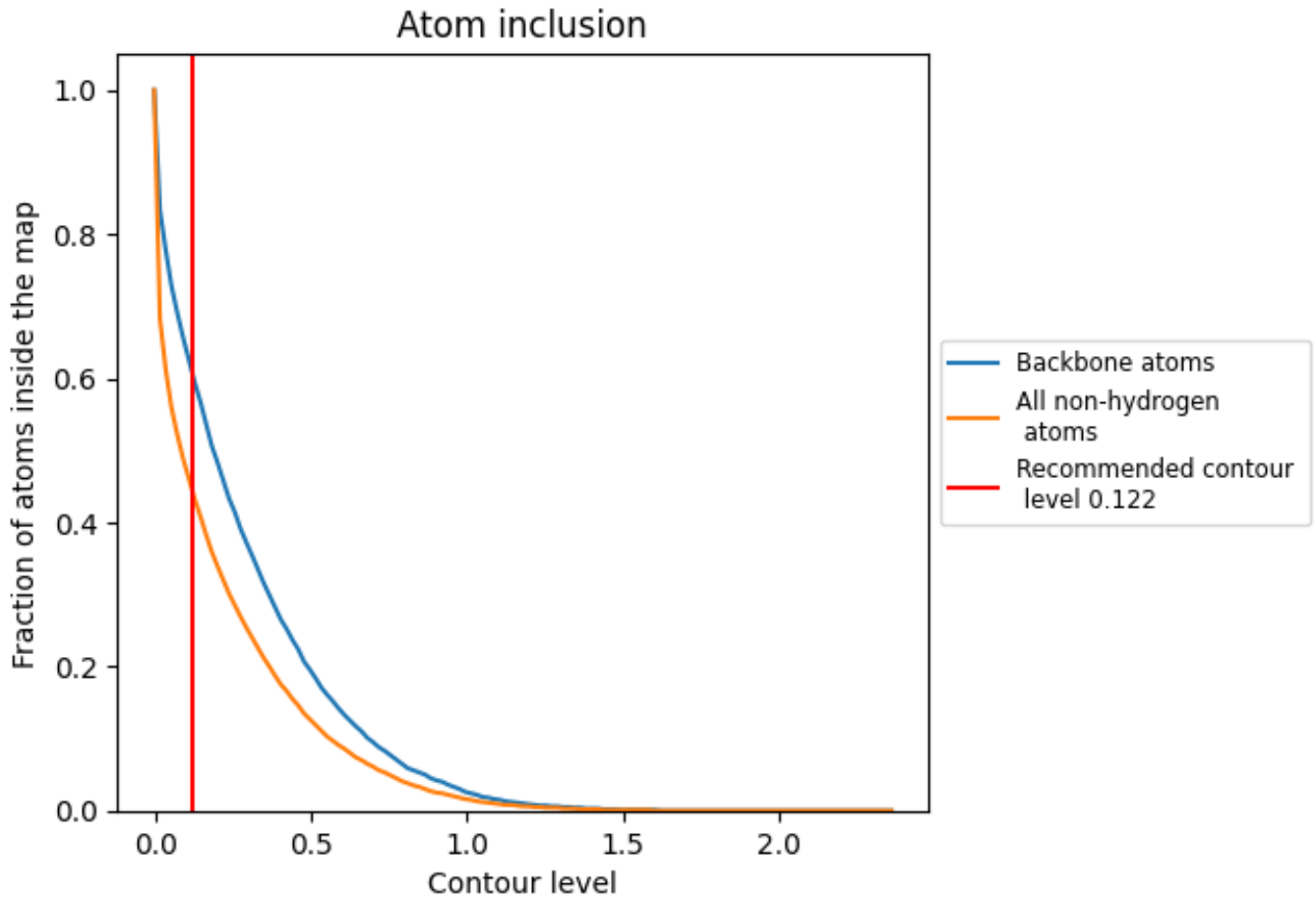
9.3 Atom inclusion mapped to coordinate model



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 (0.122).

9.4 Atom inclusion (i)



At the recommended contour level, 60% of all backbone atoms, 44% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.122) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4410	0.1120
A	0.4380	0.1170
B	0.3980	0.0800
C	0.5030	0.1170