



## Full wwPDB EM Validation Report ⓘ

Mar 8, 2026 – 08:08 AM UTC

PDB ID : 8RD4 / pdb\_00008rd4  
EMDB ID : EMD-19065  
Title : Telomeric RAP1:DNA-PK complex  
Authors : Eickhoff, P.; Fisher, C.E.L.; Inian, O.; Guettler, S.; Douglas, M.E.  
Deposited on : 2023-12-07  
Resolution : 3.58 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

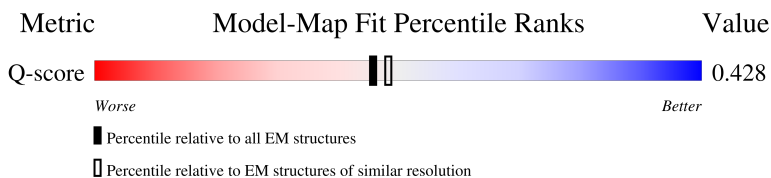
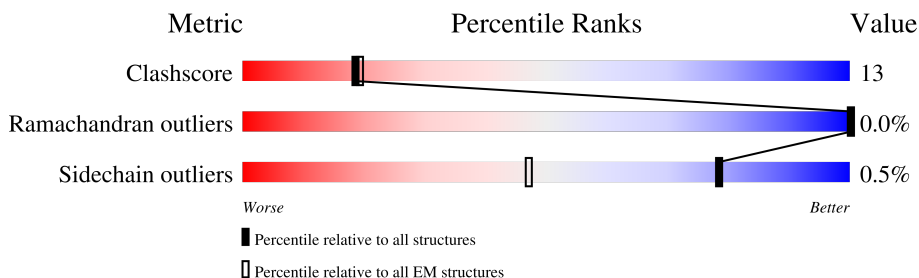
EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.58 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	12629 ( 3.08 - 4.08 )

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

Mol	Chain	Length	Quality of chain
1	A	4128	 7% 61% 26% 13%
2	D	399	 28% 12% 60%
3	E	609	 64% 28% 8%
4	F	732	 53% 23% 24%

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Mol	Chain	Length	Quality of chain
5	X	100	<div><div><div>6%</div><div>20%</div><div>21%</div><div>59%</div></div></div>
6	Y	100	<div><div><div>5%</div><div>16%</div><div>25%</div><div>59%</div></div></div>

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 40711 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 DNA-dependent protein kinase catalytic subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	3597	Total	C	N	O	S	0	0
			28855	18531	4885	5250	189		

- Molecule 2 is a protein called Telomeric repeat-binding factor 2-interacting protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	158	Total	C	N	O	S	0	0
			1232	770	223	235	4		

- Molecule 3 is a protein called X-ray repair cross-complementing protein 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	560	Total	C	N	O	S	0	0
			4522	2891	764	847	20		

- Molecule 4 is a protein called X-ray repair cross-complementing protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	F	553	Total	C	N	O	S	0	0
			4421	2820	747	831	23		

- Molecule 5 is a DNA chain called DNA (41-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
5	X	41	Total	C	N	O	P	0	0
			842	401	154	246	41		

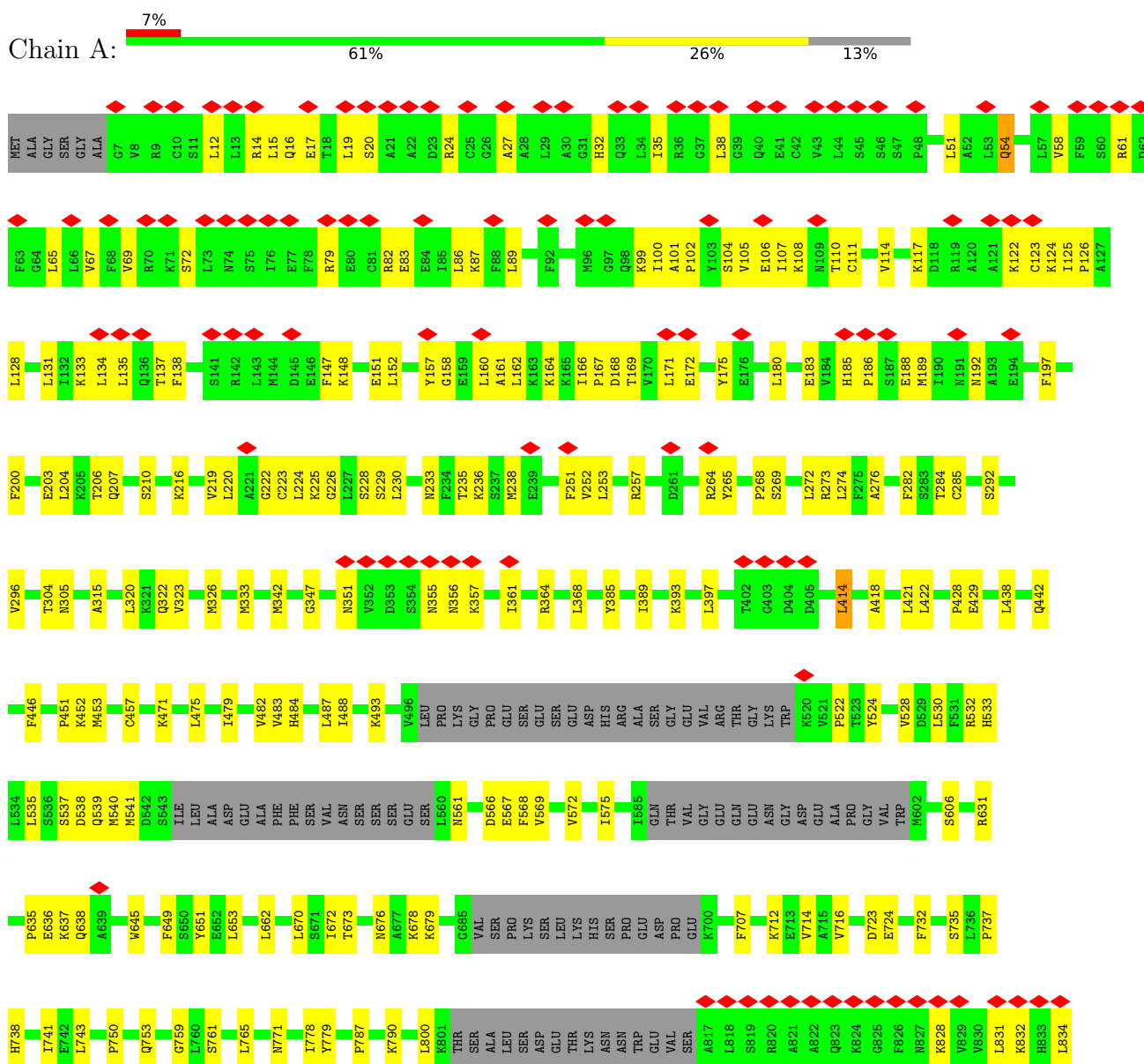
- Molecule 6 is a DNA chain called DNA (41-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	Y	41	Total	C	N	O	P	0	0
			839	400	152	246	41		

### 3 Residue-property plots

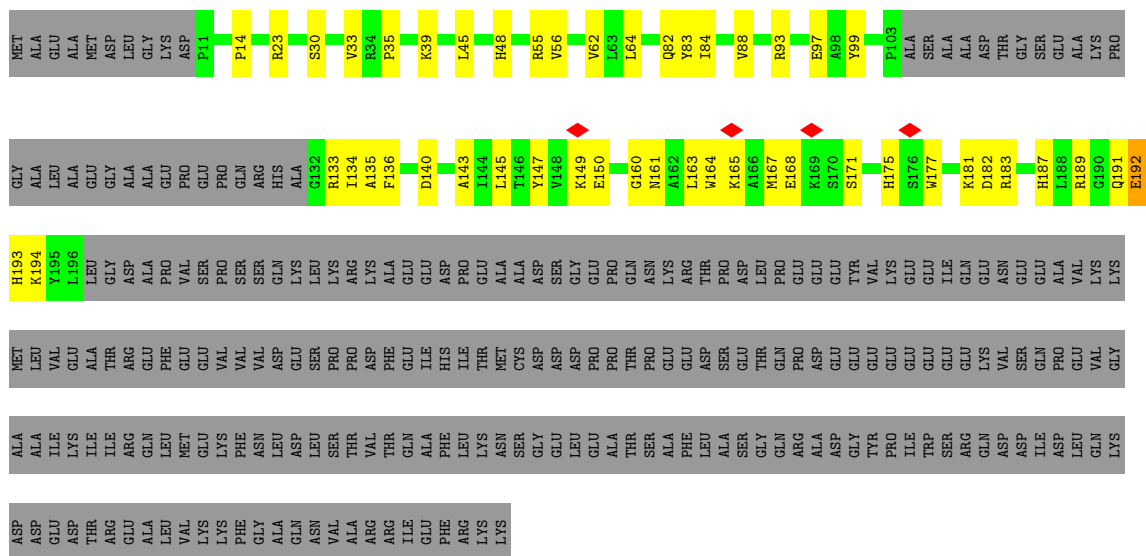
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: DNA-dependent protein kinase catalytic subunit



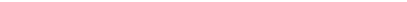
ASP	K1869	E1769	V1671	S1564	L1458	I1341	W1256	H1152	V1054	Y938	K835
GLY	K1870	Q1770	T1674	I1567	H1459	M1342	L1261	L1153	R1062	M939	LYS
PRO	M1871	Q1771	Y1675	N1568	R1460	T1347	E1265	P1154	F940	M941	THR
TYR	Y1873	M1773	S1677	L1464	L1463	T1351	E1273	R1155	L1068	Q947	LYS
MET	K1875	E1775	L1575	D1576	H1465	K1357	R1274	S1160	P1070	NET	ASN
SER	L1876	E1778	V1579	M1583	I1467	K1361	L1282	A1161	N1071	PRO	LEU
LEU	L1877	F1778	D1681	K1591	Q1471	K1366	GLY	S1162	K1074	GLY	SER
SER	D1878	F1782	K1683	M1592	D1474	C1364	THR	L1166	R1075	GLN	GLU
TYR	R1879	R1783	L1684	K1597	S1478	N1365	ALA	D1167	F1082	ALA	ASP
LEU	M1880	R1784	D1685	M1597	L1484	T1366	GLN	L1168	N1083	ALA	ASP
ALA	Y1881	I1785	H1687	L1597	V1487	L1368	SER	R1178	N1084	P957	THR
ASP	L1884	T1786	K1688	D1602	F1493	M1369	LEU	C1183	Y1086	N958	SER
SER	P1885	R1787	H1687	E1607	GLY	V1371	L1291	R1184	R1087	V968	LEU
THR	K1886	R1788	L1688	Q1614	ASP	T1375	F1296	H1185	F1089	D977	GLN
LEU	K1887	G1789	L1689	Q1617	GLU	E1378	F1297	K1186	R1090	Q978	GLN
SER	D1888	Q1793	L1690	K1617	ARG	P1379	L1298	F1191	E1093	Y979	THR
GLY	V1889	T1794	L1696	L1618	GLN	E1299	E1299	V1195	S1094	T980	THR
GLN	A1891	L1797	S1701	A1619	CYS	F1384	S1300	R1202	L1095	Q981	THR
GLN	K1892	Y1802	L1702	T1620	PRO	N1385	I1301	M1205	F1101	Y983	THR
ASP	E1893	E1803	T1703	L1622	S1502	I1386	HIS	L1206	E1102	Y984	THR
PHE	S1894	M1804	T1703	W1626	L1515	D1387	ILE	K1213	A1103	E985	THR
SER	K1895	F1805	L1623	K1627	E1516	G1387	ILE	E1214	L1104	P986	THR
THR	L1896	L1806	L1623	W1628	A1520	D1388	ALA	F1219	Y1105	V987	THR
GLY	N1897	L1812	L1623	K1628	A1520	V1398	ALA	K1119	Y1107	V988	THR
VAL	R1897	L1813	L1623	K1628	E1516	C1399	GLY	K1124	M1108	M989	THR
GLN	Y1898	T1814	L1623	W1633	A1520	L1400	LYS	Q1125	L1010	Q990	THR
GLN	G1902	L1818	L1623	L1633	A1520	N1401	CYS	T1223	E1011	L1014	THR
TYR	S1903	F1819	L1623	L1639	G1523	L1402	PHE	F1224	L1124	L1014	THR
SER	C1904	D1821	L1623	L1639	L1524	M1403	GLY	E1225	Q1126	L1014	THR
SER	I1905	S1823	L1623	M1643	C1525	K1407	THR	P1232	D1132	V1017	THR
GLN	T1906	L1824	L1623	L1646	E1526	M1408	ALA	S1233	H1133	V1018	THR
ASP	L1918	L1825	L1623	A1647	L1533	D1413	ALA	G1234	L1134	V1021	THR
PRO	C1919	C1831	L1623	L1648	S1539	H1418	GLY	G1234	C1135	D1022	THR
ARG	Y1920	S1832	L1623	L1649	L1524	L1419	ASN	I1235	I1136	S1023	THR
PRO	Y1920	D1824	L1623	A1650	C1525	R1420	ARG	A1237	I1137	D1027	THR
ALA	D1921	L1825	L1623	K1651	SER	E1430	THR	Q1236	I1138	F1028	THR
THR	A1922	L1825	L1623	I1652	LEU	V1434	S1323	T1240	K1140	C1029	THR
GLY	F1923	C1831	L1623	L1653	GLY	E1430	Q1324	L1241	H1141	L1037	THR
ARG	T1924	S1832	L1623	V1659	SER	V1434	Q1325	L1242	H1142	T1045	THR
PHE	E1925	L1836	L1623	S1660	GLN	Y1437	E1326	Y1243	L1145	T1045	THR
ARG	N1926	L1836	L1623	F1661	GLY	D1440	K1334	L1244	N1146	P1046	THR
THR	R1937	V1850	L1623	H1665	SER	D1444	C1335	G1246	E1147	Q1047	THR
GLU	L1938	L1851	L1623	G1666	ILE	D1444	T1336	P1247	A1148	K1051	THR
GLN	Y1940	Y1852	L1623	S1667	VAL	K1456	V1337	S1249	K1149	K1051	THR
ASP	H1941	S1853	L1623	E1670	H1552	Q1457	V1339	L1250	K1150	E1050	THR
PRO	C1942	R1854	L1623	V1670	E1557		R1340		R1151	K1051	THR
THR	A1944	L1858	L1623								THR
VAL	Y1945	T1868	L1623								THR
HIS	Y1945		L1623								THR
ALA	N1946		L1623								THR
ASN	C1947		L1623								THR
ASP	A1948		L1623								THR
SER	I1949		L1623								THR

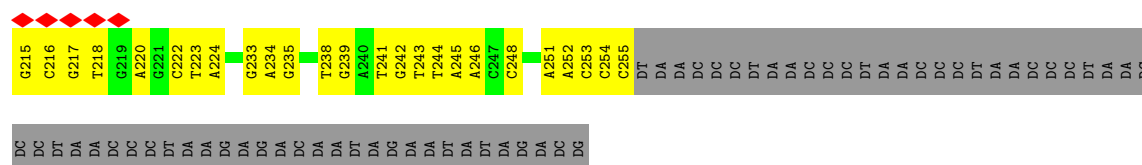




- Molecule 4: X-ray repair cross-complementing protein 5



Chain X:  6% 20% 21% 59%



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	526885	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	TFS FALCON 4i (4k x 4k)	Depositor
Maximum map value	57.506	Depositor
Minimum map value	-30.445	Depositor
Average map value	-0.003	Depositor
Map value standard deviation	1.084	Depositor
Recommended contour level	5.2	Depositor
Map size ( $\text{\AA}$ )	360.96, 360.96, 360.96	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.94, 0.94, 0.94	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z  > 5$	RMSZ	# $ Z  > 5$
1	A	0.14	0/29447	0.37	2/39776 (0.0%)
2	D	0.17	0/1257	0.52	0/1699
3	E	0.20	0/4609	0.34	0/6202
4	F	0.18	0/4511	0.36	0/6084
5	X	0.22	0/944	0.38	0/1455
6	Y	0.24	0/940	0.40	0/1448
All	All	0.16	0/41708	0.37	2/56664 (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	D	0	1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
1	A	1734	PRO	CA-N-CD	-8.61	99.95	112.00
1	A	1991	PRO	CA-N-CD	-6.06	103.52	112.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	D	183	ARG	Peptide

## 5.2 Too-close contacts ⓘ

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	28855	0	29332	749	0
2	D	1232	0	1217	40	0
3	E	4522	0	4607	134	0
4	F	4421	0	4445	130	0
5	X	842	0	463	21	0
6	Y	839	0	463	22	0
All	All	40711	0	40527	1056	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 13.

All (1056) 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:A:1437:TYR:HH	1:A:1502:SER:N	1.47	1.12
1:A:2374:LEU:HD12	1:A:2375:ALA:H	1.37	0.88
1:A:1976:LEU:HD12	1:A:1979:GLU:HB3	1.57	0.86
3:E:411:VAL:HG11	3:E:434:LEU:HG	1.56	0.85
4:F:387:LEU:HD12	4:F:388:ASP:H	1.44	0.82
1:A:606:SER:HB3	1:A:1023:SER:HB2	1.64	0.80
1:A:86:LEU:HA	1:A:89:LEU:HB2	1.63	0.79
4:F:130:ARG:HB2	4:F:159:ILE:HG22	1.65	0.79
3:E:470:ARG:NH1	4:F:389:MET:SD	2.58	0.77
1:A:131:LEU:O	1:A:135:LEU:HB3	1.85	0.75
1:A:1245:ARG:HD2	1:A:1246:GLY:H	1.50	0.75
3:E:252:ARG:HD3	3:E:253:LYS:H	1.52	0.74
1:A:2871:LEU:HD22	1:A:2876:VAL:HG23	1.71	0.73
1:A:2234:ASN:HA	1:A:2237:ILE:HD12	1.70	0.73
3:E:413:LEU:HB3	3:E:432:PHE:HD2	1.54	0.73
4:F:93:ASP:HA	4:F:96:SER:HB3	1.70	0.73
1:A:111:CYS:SG	1:A:133:LYS:NZ	2.62	0.73
1:A:1783:ARG:HG2	1:A:1787:ARG:HH21	1.54	0.72
1:A:3603:LYS:O	1:A:3605:ASN:ND2	2.23	0.72
3:E:207:LYS:NZ	3:E:211:PHE:O	2.20	0.72
4:F:363:LYS:HG2	4:F:420:VAL:HG12	1.72	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:170:THR:HG22	3:E:172:GLU:H	1.54	0.71
1:A:160:LEU:HD21	3:E:312:LEU:HG	1.72	0.71
1:A:1833:LEU:HD23	1:A:1835:ALA:H	1.55	0.71
3:E:77:SER:HB2	3:E:249:LYS:HB3	1.70	0.71
1:A:2408:MET:HE2	1:A:2411:LEU:HG	1.73	0.71
1:A:15:LEU:HD11	1:A:65:LEU:HD21	1.72	0.70
5:X:20:DG:H2''	5:X:21:DG:H5''	1.72	0.70
4:F:50:ASN:ND2	4:F:52:ASP:OD2	2.24	0.70
1:A:1298:LEU:HD13	1:A:1364:CYS:HB3	1.74	0.69
1:A:1225:GLU:HB3	1:A:1232:PRO:HD2	1.74	0.69
3:E:515:ASN:ND2	4:F:255:SER:OG	2.25	0.69
1:A:2379:MET:HE1	1:A:2401:VAL:HA	1.75	0.68
1:A:3646:LYS:HA	1:A:3650:LYS:HD3	1.74	0.68
1:A:3710:LYS:HD2	1:A:3711:PRO:HD2	1.74	0.68
1:A:3052:LEU:HD22	1:A:3092:LEU:HD21	1.76	0.68
1:A:1602:ASP:OD1	1:A:1651:LYS:NZ	2.27	0.68
1:A:3650:LYS:HG3	1:A:3651:LEU:HD22	1.75	0.68
1:A:3665:MET:HE3	1:A:3665:MET:H	1.59	0.67
3:E:561:GLU:HG3	3:E:565:LYS:HD2	1.76	0.67
1:A:1949:ILE:HD12	1:A:2100:LEU:HD22	1.77	0.67
3:E:213:ILE:HG23	3:E:231:VAL:HG13	1.75	0.67
4:F:85:LEU:HD12	4:F:86:PRO:HD2	1.75	0.67
4:F:66:ASN:HB3	4:F:69:SER:HB2	1.77	0.67
1:A:2540:LEU:HD21	1:A:2832:ILE:HG23	1.77	0.67
3:E:570:LYS:HG3	3:E:572:THR:HG23	1.75	0.67
4:F:486:ARG:NH2	6:Y:235:DG:OP1	2.25	0.67
1:A:1876:ILE:O	1:A:1880:MET:HG2	1.94	0.67
2:D:133:ARG:NH2	5:X:29:DT:O2	2.27	0.67
3:E:317:LYS:HB2	3:E:328:ILE:HD11	1.76	0.66
1:A:3462:ARG:O	1:A:3498:TRP:NE1	2.27	0.66
3:E:252:ARG:HD3	3:E:253:LYS:N	2.10	0.66
1:A:158:GLY:HA2	1:A:161:ALA:HB3	1.76	0.66
4:F:68:LEU:HG	4:F:70:GLY:H	1.60	0.66
4:F:339:CYS:SG	4:F:394:ARG:NH1	2.69	0.66
1:A:2461:PHE:HB3	1:A:2473:MET:HE1	1.77	0.65
1:A:148:LYS:NZ	1:A:185:HIS:O	2.26	0.65
1:A:901:MET:HE1	1:A:2536:LEU:HB2	1.79	0.65
2:D:97:GLU:OE1	2:D:97:GLU:N	2.30	0.65
1:A:1868:THR:HA	1:A:1871:MET:HG3	1.79	0.65
1:A:2535:THR:HG22	1:A:2565:MET:HE2	1.79	0.64
1:A:3048:LYS:HB3	1:A:3061:LEU:HD11	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:407:PRO:HG3	4:F:486:ARG:HD2	1.78	0.64
4:F:55:ALA:HB2	4:F:83:LEU:HD22	1.80	0.64
2:D:135:ALA:HB3	2:D:175:HIS:HB3	1.79	0.64
4:F:73:GLN:O	4:F:75:GLN:NE2	2.30	0.64
4:F:138:LEU:HD11	4:F:165:LEU:HD22	1.78	0.64
1:A:1010:LEU:HD22	1:A:1054:VAL:HG13	1.80	0.64
4:F:16:VAL:HB	4:F:101:GLY:H	1.61	0.64
1:A:2381:ALA:O	1:A:2385:LEU:HD12	1.98	0.64
1:A:1132:ASP:HB3	1:A:1136:ARG:HH21	1.63	0.64
1:A:3831:ASP:O	1:A:3833:ARG:N	2.28	0.64
2:D:164:TRP:HZ2	2:D:181:LYS:HE2	1.62	0.63
3:E:214:SER:HB3	3:E:218:ARG:HD3	1.80	0.63
1:A:1261:LEU:HD13	1:A:1337:VAL:HG22	1.80	0.63
1:A:1018:VAL:HG21	1:A:1074:LYS:HA	1.81	0.63
1:A:3630:ARG:HG2	1:A:3633:ILE:H	1.62	0.63
1:A:828:LYS:HA	1:A:831:LEU:HD23	1.80	0.63
1:A:1018:VAL:HG21	1:A:1074:LYS:HD3	1.81	0.63
1:A:2550:ILE:HG13	1:A:2550:ILE:O	1.98	0.63
3:E:489:ASN:ND2	4:F:331:MET:O	2.30	0.63
4:F:381:ILE:HD11	4:F:417:GLU:HB3	1.80	0.63
1:A:123:CYS:HG	1:A:169:THR:HG1	1.46	0.63
1:A:268:PRO:O	1:A:272:LEU:HD22	1.99	0.63
1:A:901:MET:SD	1:A:2535:THR:OG1	2.56	0.63
2:D:167:MET:HA	2:D:171:SER:HB2	1.81	0.63
1:A:887:ASP:OD2	1:A:891:ARG:NH1	2.32	0.62
1:A:1178:ARG:NH1	1:A:1183:CYS:SG	2.72	0.62
1:A:2249:LEU:HG	1:A:2250:SER:HB2	1.80	0.62
3:E:427:VAL:HG23	3:E:428:THR:HG23	1.81	0.62
1:A:3499:ILE:HD11	1:A:3529:ILE:HD13	1.81	0.62
3:E:392:LYS:HG3	4:F:458:ILE:HD11	1.79	0.62
6:Y:241:DT:H2"	6:Y:242:DG:C8	2.35	0.62
1:A:1459:HIS:HB2	1:A:1464:LEU:HD22	1.81	0.62
1:A:1775:GLU:OE2	1:A:1822:ARG:NH1	2.32	0.62
4:F:386:ASP:OD1	4:F:387:LEU:N	2.33	0.62
3:E:36:ASP:OD1	3:E:37:SER:N	2.32	0.62
4:F:479:THR:HA	4:F:482:ILE:HD12	1.80	0.62
1:A:3326:GLN:O	1:A:3330:LEU:HG	2.00	0.62
3:E:588:TYR:OH	3:E:606:HIS:NE2	2.18	0.62
1:A:3630:ARG:HB3	1:A:3633:ILE:HG22	1.82	0.62
1:A:1119:LYS:HD3	1:A:1124:ILE:HD11	1.81	0.62
1:A:1145:LEU:O	1:A:1147:LYS:NZ	2.33	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3878:VAL:HG23	1:A:3965:ARG:HH21	1.65	0.62
1:A:2828:GLU:O	1:A:2832:ILE:HG12	1.99	0.62
1:A:3598:LYS:HG3	1:A:3599:THR:HG23	1.82	0.62
1:A:1400:VAL:HG11	1:A:1460:ARG:HD2	1.81	0.62
1:A:1851:LEU:HA	1:A:1870:LYS:HE3	1.81	0.62
1:A:2281:MET:HE2	1:A:2326:ILE:HA	1.82	0.62
1:A:3009:LYS:HE2	1:A:3009:LYS:HA	1.82	0.62
1:A:3319:ASN:O	1:A:3319:ASN:ND2	2.24	0.62
1:A:3693:GLU:HB3	1:A:3696:ARG:HD2	1.81	0.61
1:A:1342:MET:HE2	1:A:1402:LEU:HD22	1.82	0.61
1:A:723:ASP:OD1	1:A:724:GLU:N	2.33	0.61
1:A:2272:VAL:O	1:A:2276:LEU:HD12	2.00	0.61
3:E:596:LYS:NZ	5:X:31:DA:OP1	2.33	0.61
4:F:24:ILE:HG13	4:F:27:ILE:HD13	1.82	0.61
1:A:134:LEU:HD23	1:A:180:LEU:HD13	1.83	0.61
1:A:1017:ILE:HG12	1:A:1029:CYS:HB3	1.82	0.61
1:A:4038:TRP:HD1	1:A:4040:PRO:HG3	1.66	0.61
1:A:2941:GLY:HA3	1:A:3978:GLY:HA2	1.81	0.61
1:A:3856:MET:HE1	1:A:4072:PRO:HG2	1.80	0.61
1:A:1734:PRO:O	1:A:1738:ASN:N	2.23	0.61
1:A:1938:ARG:NH2	1:A:2092:GLU:OE1	2.34	0.61
1:A:172:GLU:HB2	1:A:222:GLY:HA3	1.83	0.61
1:A:3508:LYS:NZ	1:A:3510:GLN:OE1	2.34	0.61
3:E:304:ASN:HD22	3:E:308:GLY:HA2	1.65	0.61
2:D:45:LEU:HD23	2:D:88:VAL:HG21	1.83	0.61
4:F:140:SER:O	4:F:200:GLN:NE2	2.33	0.61
1:A:539:GLN:HB3	1:A:541:MET:HE1	1.83	0.60
1:A:897:PRO:O	1:A:2566:THR:OG1	2.19	0.60
1:A:1219:PHE:O	1:A:1223:THR:OG1	2.17	0.60
5:X:24:DA:H2'	5:X:25:DG:C8	2.36	0.60
1:A:1768:ARG:HA	1:A:1815:THR:HG22	1.83	0.60
1:A:1804:MET:HE2	1:A:1819:PHE:CE2	2.36	0.60
3:E:413:LEU:HD22	3:E:432:PHE:HB3	1.83	0.60
4:F:59:PHE:HA	4:F:77:ILE:HA	1.84	0.60
1:A:1725:GLN:HB3	1:A:1728:GLU:HB2	1.83	0.60
1:A:3708:ARG:NH2	1:A:3769:GLN:OE1	2.34	0.60
4:F:541:GLU:HB3	4:F:543:LYS:HG2	1.81	0.60
1:A:879:MET:SD	1:A:879:MET:N	2.75	0.60
1:A:2937:ASP:OD1	1:A:3784:ARG:NH2	2.32	0.60
5:X:50:DT:H2''	5:X:51:DA:C8	2.37	0.60
1:A:984:TYR:HA	1:A:987:LEU:HB3	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1892:LYS:HA	1:A:1896:ILE:HD13	1.83	0.60
1:A:2252:PRO:HB2	1:A:2255:LEU:HB3	1.83	0.60
2:D:164:TRP:HA	2:D:167:MET:HG2	1.84	0.60
1:A:3303:THR:O	1:A:3307:LEU:N	2.28	0.60
1:A:105:VAL:HA	1:A:147:PHE:HE1	1.66	0.60
1:A:304:THR:HG22	1:A:305:ASN:H	1.67	0.60
1:A:3100:LYS:O	1:A:3104:GLN:HG2	2.02	0.60
2:D:84:ILE:O	2:D:88:VAL:HG23	2.02	0.59
1:A:2242:VAL:HA	1:A:2245:TRP:HB3	1.84	0.59
3:E:157:VAL:HG12	3:E:159:PHE:H	1.68	0.59
1:A:1681:ASP:OD2	1:A:1683:LYS:NZ	2.33	0.59
4:F:368:ARG:HG3	4:F:369:ASP:H	1.68	0.59
4:F:155:LYS:HE2	4:F:215:LEU:HD11	1.83	0.59
1:A:1804:MET:HE2	1:A:1819:PHE:HE2	1.67	0.59
1:A:131:LEU:O	1:A:135:LEU:CB	2.50	0.59
1:A:1191:PHE:O	1:A:1195:VAL:HG23	2.02	0.59
1:A:175:TYR:HB3	1:A:200:PHE:HE1	1.68	0.59
1:A:1102:GLU:HA	1:A:1154:PRO:HB3	1.85	0.59
1:A:3538:GLU:OE2	1:A:3797:THR:OG1	2.21	0.59
1:A:3603:LYS:HA	1:A:3655:LYS:HZ1	1.67	0.59
3:E:215:LEU:O	3:E:217:TYR:N	2.29	0.59
4:F:362:LEU:HB2	4:F:421:TYR:HB3	1.85	0.59
1:A:3843:LEU:HD23	1:A:3858:MET:HG3	1.84	0.59
1:A:269:SER:OG	1:A:273:ARG:NH2	2.35	0.58
1:A:566:ASP:HB2	1:A:645:TRP:HE1	1.67	0.58
3:E:444:ARG:HH22	4:F:270:GLU:HB2	1.68	0.58
1:A:3630:ARG:HG3	1:A:3632:PHE:H	1.68	0.58
1:A:4090:ARG:NH2	1:A:4113:ASP:OD2	2.36	0.58
1:A:253:LEU:HD11	1:A:257:ARG:HH21	1.67	0.58
5:X:56:DA:H2''	5:X:57:DC:H5''	1.86	0.58
3:E:369:TYR:OH	4:F:436:SER:O	2.16	0.58
1:A:148:LYS:HZ1	1:A:188:GLU:HB3	1.69	0.58
1:A:1665:HIS:CD2	1:A:1667:SER:H	2.21	0.58
1:A:2844:LEU:HD12	1:A:2871:LEU:HD21	1.86	0.58
1:A:493:LYS:HE2	1:A:522:PRO:HG2	1.85	0.58
1:A:292:SER:O	1:A:296:VAL:HG22	2.02	0.57
1:A:1881:TYR:HE1	1:A:1889:VAL:HG21	1.68	0.57
1:A:2980:ASP:HB3	1:A:2981:TRP:HE3	1.69	0.57
2:D:134:ILE:HD13	3:E:596:LYS:HZ3	1.69	0.57
1:A:1539:SER:OG	1:A:1552:HIS:ND1	2.34	0.57
1:A:3006:ALA:HB3	1:A:3257:LYS:HD2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3140:GLU:OE2	1:A:3164:TRP:NE1	2.32	0.57
1:A:3263:HIS:O	1:A:3266:SER:OG	2.22	0.57
1:A:1083:ASN:ND2	1:A:1126:GLN:OE1	2.36	0.57
1:A:1976:LEU:O	1:A:1980:ASN:ND2	2.38	0.57
1:A:1420:ARG:NH2	1:A:1466:ASN:O	2.37	0.57
1:A:1897:ASN:HA	1:A:1902:GLY:HA2	1.87	0.57
1:A:2121:ASP:HA	1:A:2126:MET:HE3	1.87	0.57
1:A:3455:LYS:NZ	1:A:3489:SER:OG	2.37	0.57
3:E:462:MET:HG2	4:F:380:LEU:HA	1.87	0.57
1:A:1407:LYS:HD3	1:A:1463:LEU:HD22	1.87	0.57
1:A:2857:CYS:O	1:A:2861:ILE:HG12	2.04	0.57
1:A:3469:LEU:HD11	1:A:3505:LEU:HD22	1.86	0.57
1:A:1836:LEU:HD21	1:A:1884:LEU:HD21	1.87	0.57
1:A:2547:SER:O	1:A:2547:SER:OG	2.21	0.57
1:A:778:ILE:HG22	1:A:779:TYR:HD1	1.69	0.57
1:A:1233:SER:HA	1:A:1236:LEU:HG	1.87	0.57
1:A:3793:VAL:HG22	1:A:3803:ILE:HG22	1.86	0.57
1:A:1619:ALA:O	1:A:1623:LEU:HD22	2.05	0.57
1:A:3358:ARG:NH1	1:A:3361:GLU:OE1	2.38	0.57
1:A:3627:ALA:HA	1:A:3629:ARG:HH12	1.70	0.57
3:E:426:GLN:HB3	4:F:434:MET:HE1	1.84	0.57
4:F:188:HIS:CE1	4:F:478:PRO:HD2	2.39	0.57
1:A:3826:ALA:O	1:A:3830:SER:OG	2.19	0.56
2:D:55:ARG:HG2	2:D:56:VAL:HG13	1.87	0.56
1:A:1167:ASP:N	1:A:1167:ASP:OD1	2.33	0.56
3:E:200:LEU:HD11	3:E:220:ILE:HG22	1.87	0.56
6:Y:217:DG:H2'	6:Y:218:DT:H71	1.87	0.56
1:A:662:LEU:HD23	1:A:662:LEU:H	1.70	0.56
1:A:931:CYS:O	1:A:984:TYR:OH	2.23	0.56
1:A:1202:ARG:HH21	1:A:1206:LEU:HD12	1.71	0.56
1:A:1652:ILE:HG13	1:A:1653:LEU:N	2.20	0.56
1:A:1684:LEU:HD21	1:A:1688:LEU:HD21	1.85	0.56
1:A:1734:PRO:HA	1:A:1737:ASN:HB2	1.87	0.56
1:A:2268:LYS:O	1:A:2271:SER:OG	2.20	0.56
1:A:2458:VAL:HG21	1:A:2476:ILE:HD11	1.87	0.56
1:A:2952:ILE:HG12	1:A:2975:ALA:HB2	1.86	0.56
1:A:3410:ILE:HG13	1:A:3453:ALA:HB1	1.86	0.56
1:A:1871:MET:HE1	1:A:1939:LEU:HB3	1.86	0.56
2:D:164:TRP:CZ2	2:D:181:LYS:HE2	2.40	0.56
1:A:168:ASP:OD2	1:A:168:ASP:N	2.35	0.56
1:A:2241:LEU:O	1:A:2245:TRP:N	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2546:TYR:OH	1:A:2551:GLU:OE2	2.24	0.56
4:F:163:PHE:HB2	4:F:224:ILE:HG22	1.87	0.56
1:A:568:PHE:O	1:A:572:VAL:HG23	2.06	0.56
1:A:3946:PHE:HZ	1:A:4002:MET:HB3	1.71	0.56
1:A:1769:GLU:O	1:A:1822:ARG:NH2	2.38	0.56
1:A:2263:LYS:N	1:A:2263:LYS:HD3	2.21	0.56
1:A:4061:CYS:SG	1:A:4078:VAL:HG23	2.46	0.56
1:A:24:ARG:HH22	1:A:27:ALA:HB3	1.71	0.56
1:A:1963:GLN:O	1:A:1968:SER:OG	2.24	0.56
3:E:420:LEU:HD21	3:E:424:LYS:HA	1.88	0.56
1:A:1301:ILE:HD13	1:A:1371:VAL:HG12	1.86	0.56
1:A:1617:LYS:O	1:A:1621:THR:OG1	2.21	0.56
1:A:2575:PRO:HD3	1:A:2786:LYS:HA	1.88	0.56
1:A:3531:TYR:O	1:A:3535:ILE:HG12	2.06	0.56
1:A:123:CYS:SG	1:A:169:THR:OG1	2.62	0.56
1:A:2563:LEU:HD12	1:A:2795:GLN:HE21	1.69	0.56
1:A:3815:LEU:HD22	1:A:3930:VAL:HG11	1.87	0.56
2:D:182:ASP:OD2	6:Y:248:DC:N4	2.39	0.56
4:F:263:ALA:HB2	4:F:364:VAL:HG12	1.88	0.56
1:A:1579:VAL:O	1:A:1583:MET:HE3	2.06	0.55
1:A:3028:ASN:H	1:A:3031:TRP:HD1	1.52	0.55
3:E:385:LEU:O	3:E:389:CYS:HB2	2.06	0.55
1:A:86:LEU:HD11	1:A:125:ILE:HG12	1.88	0.55
1:A:186:PRO:HA	1:A:189:MET:HB2	1.88	0.55
1:A:1942:CYS:O	1:A:1946:ASN:ND2	2.39	0.55
3:E:474:ARG:HH21	3:E:476:ASP:HB3	1.70	0.55
4:F:81:ARG:HH11	4:F:90:LEU:HD13	1.72	0.55
1:A:2216:LEU:O	1:A:2220:MET:HG3	2.07	0.55
1:A:2434:VAL:O	1:A:2438:ILE:HG12	2.07	0.55
4:F:91:LEU:HA	4:F:94:ILE:HG12	1.88	0.55
1:A:3684:SER:HB3	1:A:3687:MET:HB2	1.89	0.55
2:D:33:VAL:HB	2:D:39:LYS:HG3	1.88	0.55
3:E:149:VAL:O	3:E:153:LEU:HD12	2.06	0.55
3:E:204:HIS:CE1	3:E:212:ASP:HB2	2.41	0.55
1:A:978:GLN:NE2	1:A:982:GLN:OE1	2.39	0.55
1:A:3447:VAL:HG22	1:A:3468:LEU:HD22	1.88	0.55
2:D:140:ASP:OD1	2:D:140:ASP:N	2.39	0.55
1:A:941:MET:HB2	1:A:958:MET:HE1	1.87	0.55
1:A:1273:GLU:HG3	1:A:1275:THR:HG23	1.88	0.55
1:A:2123:PRO:HA	1:A:2127:LYS:HB2	1.89	0.55
1:A:2461:PHE:HB3	1:A:2473:MET:CE	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:13:CYS:SG	4:F:110:ALA:HB1	2.47	0.55
1:A:1564:SER:O	1:A:1568:ASN:ND2	2.40	0.55
1:A:1711:ARG:NH1	1:A:1760:GLU:OE2	2.38	0.55
4:F:90:LEU:O	4:F:94:ILE:HG23	2.06	0.55
1:A:3011:LEU:HD22	1:A:3047:SER:HB3	1.87	0.54
1:A:3356:ALA:O	1:A:3360:LEU:HB2	2.07	0.54
4:F:267:ILE:HD12	4:F:267:ILE:H	1.72	0.54
6:Y:215:DG:N3	6:Y:215:DG:H2'	2.22	0.54
1:A:2339:GLU:O	1:A:2343:GLU:HG2	2.07	0.54
1:A:631:ARG:HG3	1:A:672:ILE:HD11	1.89	0.54
1:A:1265:GLU:OE1	1:A:1340:ARG:NE	2.39	0.54
1:A:3530:VAL:HG11	1:A:3568:ILE:HG21	1.89	0.54
2:D:145:LEU:HD21	2:D:187:HIS:NE2	2.22	0.54
3:E:412:ALA:HB2	3:E:437:LEU:HD11	1.89	0.54
4:F:409:PHE:HD2	4:F:420:VAL:HG23	1.71	0.54
1:A:533:HIS:O	1:A:537:SER:OG	2.19	0.54
1:A:1714:LEU:HD12	1:A:1717:LEU:HD21	1.89	0.54
1:A:3758:LEU:HB2	1:A:3795:PRO:HB3	1.88	0.54
1:A:3828:TYR:HE1	1:A:3835:PRO:HG2	1.72	0.54
3:E:252:ARG:HH11	3:E:253:LYS:H	1.55	0.54
1:A:3608:LYS:HG3	1:A:3612:ARG:HH22	1.72	0.54
3:E:567:HIS:O	3:E:571:GLY:N	2.34	0.54
3:E:71:TYR:O	3:E:75:ILE:HG22	2.08	0.54
4:F:526:SER:HB2	4:F:530:LEU:HD23	1.90	0.54
1:A:87:LYS:HE3	1:A:124:LYS:HG2	1.89	0.54
1:A:1623:LEU:HA	1:A:1626:TRP:HD1	1.72	0.54
1:A:3031:TRP:HE1	1:A:3064:PHE:HE1	1.55	0.54
1:A:87:LYS:HD2	1:A:128:LEU:HD13	1.90	0.53
1:A:1151:ARG:NH1	1:A:1163:LEU:O	2.42	0.53
1:A:1364:CYS:HB2	1:A:1368:LEU:H	1.72	0.53
1:A:3049:LEU:O	1:A:3053:LEU:HD12	2.08	0.53
1:A:3630:ARG:HD2	1:A:3683:CYS:HB3	1.90	0.53
1:A:3665:MET:H	1:A:3665:MET:CE	2.21	0.53
3:E:167:MET:HG2	3:E:203:MET:HE3	1.90	0.53
3:E:245:LYS:HD2	3:E:247:ARG:HH21	1.72	0.53
3:E:491:GLU:OE1	4:F:316:TYR:OH	2.23	0.53
1:A:79:ARG:O	1:A:82:ARG:NH2	2.41	0.53
4:F:104:GLN:OE1	4:F:140:SER:OG	2.24	0.53
1:A:1047:GLN:OE1	1:A:1047:GLN:N	2.33	0.53
1:A:1147:LYS:HD2	1:A:1149:LYS:HE3	1.90	0.53
1:A:1623:LEU:HA	1:A:1626:TRP:CD1	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2443:MET:HE3	1:A:2479:TRP:CE3	2.43	0.53
4:F:153:SER:O	4:F:153:SER:OG	2.25	0.53
1:A:126:PRO:C	1:A:128:LEU:H	2.15	0.53
1:A:162:LEU:HD23	3:E:301:ARG:HB3	1.90	0.53
1:A:2304:VAL:HG11	1:A:2344:LEU:HG	1.91	0.53
2:D:140:ASP:HA	2:D:143:ALA:HB3	1.91	0.53
4:F:128:GLU:HG2	4:F:129:LYS:HE3	1.89	0.53
5:X:43:DC:H2"	5:X:44:DA:H8	1.73	0.53
1:A:635:PRO:O	1:A:638:GLN:NE2	2.41	0.53
1:A:1772:HIS:N	1:A:1775:GLU:OE1	2.41	0.53
4:F:133:GLU:HG2	4:F:164:PHE:HE1	1.74	0.53
5:X:19:DG:H22	6:Y:255:DC:H2"	1.73	0.53
1:A:3992:ARG:HD3	1:A:4100:GLU:HG2	1.90	0.53
6:Y:252:DA:H2"	6:Y:253:DC:OP2	2.08	0.53
1:A:228:SER:HB3	1:A:274:LEU:HD12	1.91	0.53
1:A:3180:ASP:HA	1:A:3242:MET:HE1	1.90	0.53
1:A:1101:PHE:HD1	1:A:1168:LEU:HD22	1.72	0.53
1:A:1296:PHE:O	1:A:1299:GLU:N	2.40	0.53
1:A:1437:TYR:OH	1:A:1502:SER:N	2.29	0.53
4:F:81:ARG:HD2	4:F:90:LEU:HD13	1.90	0.53
1:A:1104:LEU:O	1:A:1108:MET:HG2	2.09	0.53
1:A:2189:ILE:O	1:A:2193:ILE:HG12	2.09	0.53
1:A:1239:PRO:HD3	1:A:1256:TRP:CD2	2.44	0.52
1:A:1245:ARG:CD	1:A:1246:GLY:H	2.20	0.52
1:A:3661:ASP:O	1:A:3664:ASN:ND2	2.42	0.52
1:A:4020:MET:HE3	1:A:4027:TRP:HD1	1.74	0.52
1:A:1082:PHE:HA	1:A:1085:ILE:HG12	1.91	0.52
4:F:347:LYS:HA	4:F:389:MET:HA	1.91	0.52
1:A:72:SER:OG	1:A:82:ARG:NH1	2.36	0.52
1:A:1408:MET:HE3	1:A:1408:MET:HA	1.91	0.52
3:E:43:ASP:OD1	3:E:44:ALA:N	2.42	0.52
3:E:48:MET:HE3	3:E:48:MET:O	2.10	0.52
1:A:418:ALA:O	1:A:422:LEU:HD12	2.09	0.52
1:A:446:PHE:CG	1:A:530:LEU:HD22	2.45	0.52
1:A:2250:SER:C	1:A:2251:ILE:HD12	2.35	0.52
1:A:3666:LEU:O	1:A:3670:MET:HG2	2.09	0.52
1:A:442:GLN:HE21	1:A:457:CYS:HB2	1.75	0.52
1:A:487:LEU:HD11	1:A:568:PHE:HE1	1.73	0.52
1:A:1487:VAL:HG11	1:A:1515:LEU:HD22	1.92	0.52
1:A:2572:TYR:N	1:A:2573:PRO:HD3	2.25	0.52
1:A:2798:ALA:HA	1:A:2804:ILE:HG23	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3274:VAL:O	1:A:3278:GLN:HG3	2.10	0.52
1:A:3564:GLN:OE1	1:A:3564:GLN:N	2.42	0.52
6:Y:253:DC:H5'	6:Y:253:DC:C6	2.44	0.52
1:A:83:GLU:CD	1:A:124:LYS:HD3	2.35	0.52
1:A:3859:TYR:HE2	1:A:4080:VAL:HG11	1.74	0.52
3:E:357:LYS:HD2	3:E:360:HIS:HE1	1.74	0.52
4:F:106:ASP:OD2	4:F:109:ASP:N	2.41	0.52
5:X:49:DT:H2''	5:X:50:DT:H5''	1.91	0.52
1:A:1793:THR:O	1:A:1797:LEU:HG	2.10	0.52
1:A:2091:HIS:O	1:A:2091:HIS:ND1	2.42	0.52
1:A:3786:LEU:HD21	1:A:3983:ILE:HD12	1.92	0.52
2:D:193:HIS:CD2	2:D:194:LYS:HD3	2.44	0.52
3:E:461:LYS:O	3:E:465:ILE:HG13	2.09	0.52
4:F:10:VAL:HB	4:F:240:ILE:HD11	1.92	0.52
4:F:107:PHE:HE1	4:F:134:ILE:HG21	1.75	0.52
1:A:743:LEU:HD12	1:A:743:LEU:H	1.74	0.52
1:A:1893:GLU:OE1	1:A:1893:GLU:N	2.40	0.52
1:A:2927:ALA:HB2	1:A:2942:ILE:HD11	1.91	0.52
3:E:484:GLN:OE1	3:E:488:ARG:NH1	2.43	0.52
4:F:91:LEU:H	4:F:91:LEU:HD23	1.75	0.52
1:A:892:LEU:HD13	1:A:908:ASP:HB3	1.92	0.52
1:A:1238:GLN:HG2	1:A:1296:PHE:HB3	1.92	0.52
1:A:3460:GLU:OE2	1:A:3460:GLU:N	2.27	0.52
1:A:1960:LYS:O	1:A:1963:GLN:NE2	2.37	0.51
1:A:3578:LEU:HD23	1:A:3752:VAL:HG21	1.91	0.51
1:A:566:ASP:OD1	1:A:567:GLU:N	2.44	0.51
1:A:2365:ASN:OD1	1:A:2396:LEU:HD23	2.10	0.51
1:A:3855:TYR:HA	1:A:3858:MET:HB3	1.91	0.51
2:D:189:ARG:HD3	2:D:194:LYS:HG3	1.92	0.51
3:E:386:LEU:HB2	3:E:432:PHE:HE1	1.75	0.51
1:A:14:ARG:HD3	1:A:38:LEU:HD11	1.91	0.51
1:A:1238:GLN:O	1:A:1240:THR:N	2.39	0.51
1:A:2503:LYS:O	1:A:2507:ILE:HG13	2.11	0.51
1:A:2860:ASP:OD1	1:A:2864:GLN:NE2	2.43	0.51
1:A:479:ILE:O	1:A:483:VAL:HG22	2.10	0.51
1:A:990:GLN:HG3	1:A:2781:PRO:HA	1.92	0.51
1:A:2474:TYR:O	1:A:2478:MET:HE3	2.10	0.51
1:A:3307:LEU:HD21	1:A:3330:LEU:HD23	1.92	0.51
1:A:2780:LEU:N	1:A:2781:PRO:HD2	2.25	0.51
1:A:3693:GLU:OE2	1:A:3694:PHE:N	2.43	0.51
3:E:347:LEU:HD23	3:E:349:GLY:H	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2358:ASP:OD1	1:A:2358:ASP:N	2.43	0.51
1:A:3772:ASN:HA	1:A:3775:LEU:HB2	1.92	0.51
1:A:16:GLN:N	1:A:16:GLN:OE1	2.44	0.51
1:A:3648:GLY:O	1:A:3652:LEU:HB3	2.11	0.51
3:E:341:ASP:OD2	3:E:399:ARG:NH2	2.41	0.51
3:E:357:LYS:HD2	3:E:360:HIS:CE1	2.46	0.51
4:F:405:VAL:HG23	4:F:424:LEU:HB2	1.93	0.51
1:A:2172:ALA:HB2	1:A:2189:ILE:HG21	1.92	0.51
3:E:304:ASN:OD1	3:E:304:ASN:N	2.44	0.51
4:F:461:MET:HG2	4:F:522:VAL:HG13	1.92	0.51
1:A:385:TYR:CE1	1:A:389:ILE:HD11	2.45	0.51
1:A:2280:VAL:O	1:A:2285:LEU:HB2	2.11	0.51
1:A:2565:MET:O	1:A:2568:MET:HG3	2.11	0.51
1:A:2849:SER:O	1:A:2849:SER:OG	2.28	0.51
1:A:4115:ASN:OD1	1:A:4119:ARG:NH2	2.44	0.51
2:D:39:LYS:HE2	3:E:498:MET:HE1	1.93	0.51
3:E:48:MET:HE1	3:E:59:PRO:HB2	1.93	0.51
3:E:372:GLU:OE2	3:E:379:SER:OG	2.26	0.51
1:A:985:GLU:O	1:A:989:MET:HG2	2.11	0.50
1:A:1045:THR:OG1	1:A:1047:GLN:OE1	2.17	0.50
1:A:1347:THR:O	1:A:1351:THR:HG22	2.11	0.50
1:A:1413:ASP:OD1	1:A:1413:ASP:N	2.44	0.50
1:A:1335:CYS:HA	1:A:1338:VAL:HG22	1.93	0.50
1:A:2158:ARG:HG2	1:A:2196:TRP:HE3	1.77	0.50
5:X:44:DA:H2'	5:X:45:DT:C6	2.46	0.50
1:A:2289:ASP:N	1:A:2290:PRO:HD3	2.26	0.50
1:A:3998:LEU:O	1:A:4002:MET:HG3	2.11	0.50
3:E:109:ASP:OD1	3:E:110:ASN:N	2.41	0.50
1:A:117:LYS:HE3	4:F:299:ASP:HA	1.93	0.50
1:A:3602:ASN:HD21	1:A:3605:ASN:HB2	1.76	0.50
1:A:1646:LEU:HD21	1:A:1688:LEU:HB2	1.94	0.50
1:A:1661:PHE:H	1:A:1665:HIS:HB2	1.77	0.50
1:A:1952:ILE:O	1:A:1955:VAL:HG12	2.12	0.50
1:A:2421:VAL:HG13	1:A:2457:PRO:HG3	1.94	0.50
1:A:4064:LEU:HD13	1:A:4077:TYR:HB3	1.92	0.50
1:A:3332:THR:HA	1:A:3335:ARG:HG2	1.94	0.50
2:D:163:LEU:H	2:D:165:LYS:HE2	1.76	0.50
5:X:19:DG:H2''	5:X:20:DG:H5''	1.92	0.50
1:A:122:LYS:CB	1:A:167:PRO:HG2	2.42	0.50
1:A:2246:LYS:HZ2	1:A:2285:LEU:HG	1.77	0.50
1:A:2260:PHE:HA	1:A:2270:ASN:HA	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:132:GLN:HE22	3:E:137:HIS:CE1	2.30	0.50
4:F:20:MET:SD	4:F:30:PRO:HB2	2.52	0.50
1:A:651:TYR:HE1	1:A:1386:ILE:HD11	1.77	0.50
1:A:2183:HIS:HA	1:A:2186:VAL:HG22	1.94	0.50
1:A:4046:TYR:HE2	1:A:4066:LEU:HD22	1.76	0.50
1:A:540:MET:HA	1:A:540:MET:HE2	1.93	0.50
1:A:3701:ILE:HB	1:A:3719:ILE:HG23	1.94	0.50
3:E:473:TYR:HB2	4:F:392:ILE:HD11	1.94	0.50
1:A:1440:ASP:OD1	1:A:1440:ASP:N	2.41	0.49
1:A:2446:LEU:HD11	1:A:2454:LEU:HD12	1.94	0.49
3:E:120:ASP:HB2	3:E:123:LYS:HE2	1.94	0.49
4:F:178:ARG:HG3	4:F:182:PRO:HB3	1.94	0.49
1:A:638:GLN:HG3	1:A:679:LYS:HG2	1.93	0.49
1:A:2337:LEU:HG	1:A:2341:LEU:HD11	1.94	0.49
1:A:3157:LEU:HD11	1:A:3193:ILE:HG21	1.93	0.49
3:E:312:LEU:C	3:E:314:SER:H	2.20	0.49
4:F:364:VAL:HG23	4:F:419:LEU:HB2	1.94	0.49
1:A:265:TYR:N	5:X:53:DC:OP1	2.41	0.49
1:A:3316:LEU:HD12	1:A:3316:LEU:O	2.12	0.49
4:F:461:MET:HG3	4:F:526:SER:HB3	1.94	0.49
1:A:771:ASN:OD1	1:A:854:ARG:NH1	2.43	0.49
1:A:1235:ILE:O	1:A:1235:ILE:HG13	2.13	0.49
1:A:108:LYS:NZ	1:A:151:GLU:OE2	2.34	0.49
1:A:678:LYS:HD2	1:A:737:PRO:HA	1.94	0.49
1:A:984:TYR:HD1	1:A:987:LEU:HD23	1.77	0.49
1:A:1364:CYS:O	1:A:1367:HIS:ND1	2.39	0.49
1:A:787:PRO:O	1:A:790:LYS:NZ	2.34	0.49
1:A:1068:LEU:HG	1:A:1106:ILE:HD11	1.93	0.49
1:A:1108:MET:HE1	1:A:1186:LYS:HB3	1.93	0.49
1:A:1164:CYS:SG	1:A:1165:LEU:N	2.85	0.49
1:A:3416:LEU:HD23	1:A:3449:LYS:HG3	1.93	0.49
3:E:41:LEU:HB3	3:E:168:LEU:HD12	1.95	0.49
3:E:473:TYR:CZ	4:F:424:LEU:HD13	2.48	0.49
4:F:542:ALA:O	4:F:544:LYS:NZ	2.42	0.49
1:A:220:LEU:HA	1:A:223:CYS:HB3	1.95	0.49
1:A:1139:GLU:OE2	1:A:1140:LYS:NZ	2.45	0.49
1:A:1399:CYS:O	1:A:1403:MET:HG2	2.12	0.49
1:A:1973:LYS:HB2	1:A:1975:LEU:HG	1.95	0.49
3:E:61:ASP:OD2	3:E:124:GLY:N	2.41	0.49
1:A:364:ARG:O	1:A:368:LEU:HG	2.12	0.49
1:A:939:MET:HE1	1:A:987:LEU:HD13	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1205:ASN:HB3	1:A:1275:THR:HA	1.95	0.49
1:A:2473:MET:O	1:A:2476:ILE:HG12	2.12	0.49
1:A:3746:ARG:HG3	1:A:3746:ARG:HH11	1.77	0.49
1:A:4038:TRP:CD1	1:A:4040:PRO:HG3	2.45	0.49
2:D:33:VAL:HG22	2:D:64:LEU:HB2	1.95	0.49
3:E:278:GLN:NE2	6:Y:233:DG:OP2	2.28	0.49
1:A:224:LEU:C	1:A:226:GLY:H	2.20	0.49
1:A:3846:MET:SD	1:A:3862:ALA:HB2	2.52	0.49
1:A:152:LEU:HD21	1:A:192:ASN:CG	2.38	0.48
1:A:538:ASP:N	1:A:538:ASP:OD1	2.45	0.48
1:A:636:GLU:HA	1:A:638:GLN:NE2	2.28	0.48
1:A:636:GLU:O	1:A:637:LYS:HG2	2.13	0.48
6:Y:222:DC:H2"	6:Y:223:DT:C6	2.48	0.48
1:A:414:LEU:HD11	1:A:438:LEU:HG	1.95	0.48
1:A:2185:MET:HE3	1:A:2185:MET:HA	1.95	0.48
1:A:2190:VAL:O	1:A:2194:LEU:HD12	2.13	0.48
3:E:204:HIS:HB3	3:E:237:SER:OG	2.13	0.48
4:F:469:LYS:HA	4:F:469:LYS:HD3	1.61	0.48
1:A:2371:PHE:CD1	1:A:2373:PRO:HD2	2.49	0.48
1:A:3239:LYS:O	1:A:3243:ILE:HG12	2.13	0.48
1:A:3739:ILE:HG22	1:A:3739:ILE:O	2.12	0.48
3:E:34:GLY:HA2	3:E:160:LYS:HB2	1.95	0.48
4:F:377:LEU:O	4:F:381:ILE:HG23	2.13	0.48
1:A:1820:VAL:HG12	1:A:1824:LEU:HD23	1.94	0.48
1:A:1850:VAL:O	1:A:1853:SER:OG	2.29	0.48
1:A:2189:ILE:O	1:A:2192:THR:OG1	2.25	0.48
1:A:3025:PRO:O	1:A:3027:LEU:N	2.46	0.48
4:F:136:THR:OG1	4:F:137:ASP:N	2.47	0.48
1:A:1088:GLU:C	1:A:1090:ARG:H	2.22	0.48
1:A:1202:ARG:HB3	1:A:1206:LEU:HD11	1.95	0.48
1:A:2473:MET:HE2	1:A:2473:MET:HB2	1.70	0.48
1:A:3114:TYR:HE1	1:A:3125:ARG:HH21	1.62	0.48
4:F:357:MET:HE2	4:F:429:ASP:OD1	2.13	0.48
1:A:252:VAL:HG11	1:A:274:LEU:HD22	1.96	0.48
1:A:800:LEU:O	1:A:3115:SER:OG	2.31	0.48
1:A:1160:SER:OG	1:A:1162:SER:O	2.32	0.48
1:A:1926:ASN:HD21	1:A:1974:ASN:HB3	1.79	0.48
4:F:450:GLN:HB3	4:F:537:PHE:CZ	2.49	0.48
1:A:122:LYS:HB2	1:A:167:PRO:HG2	1.96	0.48
1:A:1379:PRO:O	1:A:1384:PHE:HB2	2.14	0.48
1:A:2929:LEU:O	1:A:2932:SER:OG	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:896:VAL:HG23	1:A:2791:ILE:HD11	1.96	0.48
1:A:1366:THR:HB	1:A:1418:HIS:CE1	2.49	0.48
1:A:1633:TRP:CE2	1:A:1674:THR:HG22	2.48	0.48
3:E:465:ILE:HG23	3:E:518:LEU:HD11	1.96	0.48
1:A:849:GLU:H	1:A:849:GLU:CD	2.19	0.48
1:A:3298:LEU:HD21	1:A:3351:ILE:HG12	1.95	0.48
4:F:434:MET:HE3	4:F:434:MET:HA	1.95	0.48
1:A:110:THR:O	1:A:114:VAL:HG23	2.14	0.47
1:A:162:LEU:HA	3:E:300:THR:O	2.14	0.47
1:A:1093:GLU:O	1:A:1095:LEU:HD12	2.14	0.47
1:A:3181:ASP:O	1:A:3185:ASN:ND2	2.47	0.47
2:D:35:PRO:HB2	3:E:500:PRO:HD3	1.96	0.47
3:E:273:ILE:HD13	3:E:400:TYR:HE1	1.78	0.47
3:E:498:MET:HE2	3:E:498:MET:HA	1.96	0.47
1:A:1607:GLU:OE1	1:A:1614:GLN:NE2	2.47	0.47
1:A:1878:ASP:HB3	1:A:1947:CYS:HA	1.96	0.47
1:A:1943:ALA:HA	1:A:1946:ASN:HD22	1.79	0.47
1:A:2173:ALA:HB3	1:A:2211:LEU:HD12	1.96	0.47
1:A:2300:PHE:O	1:A:2304:VAL:HG12	2.14	0.47
1:A:2980:ASP:HB3	1:A:2981:TRP:CE3	2.49	0.47
1:A:3328:ILE:HD11	1:A:3412:ALA:HB2	1.96	0.47
1:A:1676:ILE:HG23	1:A:1713:VAL:HG21	1.96	0.47
1:A:3050:LYS:NZ	1:A:3180:ASP:OD1	2.47	0.47
1:A:4082:ARG:HD2	1:A:4082:ARG:HA	1.63	0.47
3:E:38:LEU:HD11	3:E:167:MET:SD	2.54	0.47
6:Y:233:DG:H2"	6:Y:234:DA:C8	2.50	0.47
1:A:61:ARG:HA	1:A:67:VAL:HG11	1.95	0.47
1:A:171:LEU:HB2	1:A:219:VAL:HG22	1.97	0.47
1:A:471:LYS:HD2	1:A:475:LEU:HD21	1.96	0.47
1:A:133:LYS:HA	1:A:137:THR:OG1	2.15	0.47
1:A:183:GLU:HA	1:A:233:ASN:ND2	2.30	0.47
1:A:561:ASN:N	1:A:561:ASN:OD1	2.47	0.47
1:A:1366:THR:O	1:A:1370:ARG:NE	2.37	0.47
1:A:158:GLY:HA3	1:A:162:LEU:HG	1.96	0.47
1:A:3875:GLU:OE2	1:A:3965:ARG:HB2	2.15	0.47
4:F:111:LEU:HD11	4:F:161:LEU:HD11	1.95	0.47
4:F:219:ASP:OD1	4:F:219:ASP:N	2.47	0.47
1:A:12:LEU:HA	1:A:16:GLN:OE1	2.15	0.47
1:A:1238:GLN:CG	1:A:1296:PHE:HB3	2.44	0.47
1:A:1459:HIS:CE1	1:A:1520:ALA:HB1	2.49	0.47
1:A:1686:LEU:HD11	1:A:1721:HIS:HB3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1920:TYR:O	1:A:1924:THR:OG1	2.22	0.47
1:A:2310:VAL:HG23	1:A:2310:VAL:O	2.15	0.47
1:A:3411:ASP:O	1:A:3415:THR:OG1	2.30	0.47
3:E:348:MET:HE1	3:E:399:ARG:HD3	1.95	0.47
4:F:57:VAL:HG12	4:F:79:VAL:HG13	1.97	0.47
4:F:307:LYS:HD2	4:F:307:LYS:O	2.14	0.47
1:A:1069:HIS:O	1:A:1075:ARG:NH1	2.48	0.47
1:A:2555:LEU:HD11	1:A:2854:PHE:HA	1.97	0.47
4:F:366:ALA:HA	4:F:377:LEU:HD23	1.97	0.47
1:A:984:TYR:CD1	1:A:987:LEU:HD23	2.50	0.47
1:A:3137:GLU:OE1	1:A:3167:ARG:NH2	2.48	0.47
1:A:3595:GLU:O	1:A:3599:THR:OG1	2.22	0.47
2:D:168:GLU:OE2	2:D:177:TRP:HA	2.15	0.47
1:A:347:GLY:O	1:A:351:ASN:ND2	2.48	0.47
1:A:915:THR:HG23	1:A:968:VAL:HG11	1.96	0.47
1:A:566:ASP:O	1:A:569:VAL:HG12	2.14	0.46
1:A:1789:GLY:O	1:A:1794:GLN:NE2	2.48	0.46
1:A:1938:ARG:NH1	1:A:1981:LEU:O	2.39	0.46
1:A:2135:ASN:O	1:A:2138:VAL:HG12	2.16	0.46
1:A:2203:THR:HA	1:A:2209:GLU:HG3	1.96	0.46
1:A:3917:ILE:HG13	1:A:3991:PHE:HD2	1.79	0.46
3:E:129:LYS:NZ	3:E:133:ASP:OD2	2.47	0.46
4:F:11:VAL:HG22	4:F:55:ALA:HB3	1.97	0.46
4:F:97:LYS:HD2	4:F:97:LYS:HA	1.69	0.46
1:A:1648:LEU:O	1:A:1652:ILE:HG23	2.15	0.46
1:A:1875:LYS:HA	1:A:1878:ASP:OD2	2.14	0.46
1:A:2276:LEU:HA	1:A:2279:ILE:HG12	1.98	0.46
1:A:2466:SER:OG	1:A:2469:CYS:SG	2.57	0.46
1:A:2994:TRP:O	1:A:2998:SER:OG	2.29	0.46
1:A:3281:CYS:SG	1:A:3307:LEU:HD22	2.55	0.46
2:D:136:PHE:HD2	6:Y:246:DA:H5"	1.80	0.46
1:A:282:PHE:HB3	1:A:285:CYS:SG	2.55	0.46
1:A:1456:LYS:HD3	1:A:1516:GLU:HG2	1.96	0.46
2:D:193:HIS:HD2	2:D:194:LYS:HD3	1.80	0.46
1:A:12:LEU:O	1:A:16:GLN:HB2	2.16	0.46
1:A:67:VAL:C	1:A:69:VAL:H	2.23	0.46
1:A:1014:LEU:HD23	1:A:1014:LEU:HA	1.76	0.46
1:A:1653:LEU:HD12	1:A:1695:LEU:HD23	1.96	0.46
1:A:3228:SER:C	1:A:3230:LEU:H	2.22	0.46
1:A:3789:ARG:HB3	1:A:3938:ILE:HG22	1.97	0.46
4:F:343:LEU:HD21	4:F:394:ARG:HB2	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1765:VAL:HG23	1:A:1768:ARG:HH12	1.81	0.46
1:A:2938:VAL:O	1:A:2942:ILE:HG23	2.15	0.46
1:A:3155:VAL:HG12	1:A:3156:PRO:HD3	1.98	0.46
1:A:3669:LYS:HA	1:A:3672:LYS:HD3	1.96	0.46
3:E:237:SER:O	3:E:239:LEU:N	2.47	0.46
1:A:1670:GLU:O	1:A:1674:THR:HG23	2.16	0.46
1:A:1688:LEU:O	1:A:1692:ALA:N	2.41	0.46
1:A:1945:TYR:O	1:A:1949:ILE:HG12	2.15	0.46
1:A:2330:VAL:HG13	1:A:2338:GLU:HB2	1.97	0.46
1:A:2443:MET:HA	1:A:2446:LEU:HD12	1.97	0.46
1:A:4056:PRO:HG3	1:A:4107:LEU:HD12	1.96	0.46
4:F:361:VAL:HG22	4:F:422:VAL:HG12	1.98	0.46
1:A:1239:PRO:O	1:A:1245:ARG:HD3	2.15	0.46
1:A:225:LYS:HA	1:A:228:SER:OG	2.16	0.46
1:A:487:LEU:HB3	1:A:575:ILE:HD11	1.98	0.46
1:A:881:LYS:HG2	1:A:3933:GLU:OE1	2.16	0.46
1:A:1766:LEU:HD22	1:A:1778:PHE:CD1	2.50	0.46
1:A:3917:ILE:HG13	1:A:3991:PHE:CD2	2.51	0.46
1:A:19:LEU:H	1:A:19:LEU:HD23	1.81	0.46
3:E:173:ASP:HB3	3:E:204:HIS:CE1	2.50	0.46
4:F:142:PHE:CZ	4:F:207:ILE:HD11	2.51	0.46
6:Y:222:DC:H2"	6:Y:223:DT:C5	2.51	0.46
1:A:203:GLU:HG3	1:A:204:LEU:H	1.80	0.46
1:A:207:GLN:OE1	1:A:216:LYS:N	2.33	0.46
1:A:220:LEU:HD11	4:F:554:PHE:HE2	1.81	0.46
1:A:759:GLY:C	1:A:761:SER:H	2.24	0.46
1:A:1245:ARG:HD2	1:A:1246:GLY:N	2.27	0.46
1:A:2266:ASN:OD1	1:A:2266:ASN:N	2.48	0.46
1:A:2575:PRO:O	1:A:2576:MET:HG3	2.16	0.46
1:A:3959:MET:SD	1:A:3959:MET:N	2.87	0.46
2:D:149:LYS:HE3	2:D:149:LYS:HB3	1.79	0.46
4:F:12:LEU:HB2	4:F:56:LEU:HD13	1.98	0.46
4:F:409:PHE:CD2	4:F:420:VAL:HG23	2.49	0.46
1:A:1949:ILE:HD13	1:A:1966:LEU:HD22	1.98	0.45
1:A:2245:TRP:NE1	1:A:2249:LEU:O	2.49	0.45
1:A:3662:ILE:C	1:A:3665:MET:HE1	2.41	0.45
3:E:278:GLN:HB3	4:F:431:ARG:HH21	1.81	0.45
3:E:494:ALA:HB2	4:F:321:VAL:HG11	1.97	0.45
3:E:603:LEU:HD23	3:E:603:LEU:HA	1.82	0.45
1:A:166:ILE:HD12	1:A:166:ILE:H	1.81	0.45
1:A:2275:GLN:O	1:A:2279:ILE:HG12	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:X:24:DA:N1	6:Y:251:DA:N6	2.64	0.45
1:A:1238:GLN:HA	1:A:1256:TRP:CE2	2.51	0.45
1:A:1678:LEU:HD23	1:A:1678:LEU:HA	1.84	0.45
1:A:1893:GLU:CD	1:A:1894:SER:H	2.24	0.45
1:A:1926:ASN:ND2	1:A:1974:ASN:HB3	2.32	0.45
1:A:3543:LYS:HA	1:A:3543:LYS:HD3	1.76	0.45
1:A:3610:TYR:CZ	1:A:3614:TYR:HE2	2.35	0.45
3:E:261:LEU:HB3	3:E:269:ILE:HG12	1.98	0.45
3:E:353:LEU:HD23	3:E:353:LEU:HA	1.81	0.45
3:E:416:GLN:NE2	3:E:429:PRO:O	2.49	0.45
4:F:532:LYS:O	4:F:536:LEU:HB2	2.16	0.45
1:A:204:LEU:HB3	1:A:251:PHE:CE2	2.52	0.45
1:A:479:ILE:HA	1:A:482:VAL:HG12	1.98	0.45
1:A:2851:PHE:HB3	1:A:2854:PHE:HB3	1.97	0.45
1:A:3078:LEU:HD12	1:A:3078:LEU:HA	1.82	0.45
1:A:3763:ARG:NE	1:A:4008:GLU:OE1	2.39	0.45
1:A:87:LYS:HA	1:A:128:LEU:HD21	1.98	0.45
1:A:355:ASN:OD1	1:A:357:LYS:N	2.35	0.45
1:A:2320:ALA:HB1	1:A:2367:VAL:HG23	1.97	0.45
1:A:2855:VAL:O	1:A:2859:GLN:HG3	2.16	0.45
4:F:34:ALA:HB2	4:F:227:PHE:CE2	2.52	0.45
4:F:364:VAL:CG2	4:F:419:LEU:HB2	2.46	0.45
1:A:428:PRO:O	1:A:429:GLU:HG2	2.16	0.45
1:A:1178:ARG:O	1:A:1184:ARG:NH1	2.49	0.45
1:A:1643:MET:HE2	1:A:1688:LEU:HD23	1.97	0.45
1:A:3632:PHE:O	1:A:3636:PHE:N	2.35	0.45
2:D:134:ILE:HD13	3:E:596:LYS:NZ	2.32	0.45
2:D:193:HIS:CE1	4:F:128:GLU:HA	2.52	0.45
3:E:392:LYS:C	3:E:393:GLU:HG3	2.42	0.45
1:A:1818:SER:OG	1:A:1822:ARG:NE	2.46	0.45
1:A:3011:LEU:HD21	1:A:3043:TYR:HB3	1.99	0.45
1:A:3997:LEU:H	1:A:3997:LEU:HD12	1.81	0.45
3:E:102:ILE:HD12	3:E:146:VAL:HB	1.98	0.45
3:E:588:TYR:CE2	3:E:590:LEU:HB2	2.51	0.45
1:A:148:LYS:NZ	1:A:188:GLU:HB3	2.32	0.45
1:A:750:PRO:HA	1:A:753:GLN:HG2	1.99	0.45
1:A:1628:LYS:HD3	1:A:1628:LYS:HA	1.77	0.45
1:A:3637:GLY:HA2	1:A:3641:ASP:HB3	1.98	0.45
1:A:1812:LEU:HG	1:A:1814:PHE:H	1.82	0.45
2:D:160:GLY:HA2	5:X:23:DT:H71	1.99	0.45
5:X:46:DA:H2"	5:X:47:DG:C8	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1773:VAL:HB	1:A:1774:MET:HE2	1.99	0.45
1:A:1990:PHE:HD2	1:A:2182:ILE:HG21	1.82	0.45
1:A:3499:ILE:O	1:A:3503:VAL:HG23	2.17	0.45
1:A:3620:PRO:HB3	1:A:3641:ASP:HB2	1.98	0.45
1:A:3622:ALA:N	1:A:3623:PRO:HD2	2.32	0.45
1:A:3919:GLY:HA3	1:A:3947:GLY:N	2.31	0.45
2:D:161:ASN:OD1	2:D:177:TRP:HH2	2.00	0.45
3:E:74:LYS:HD3	3:E:83:LEU:HD11	1.98	0.45
3:E:171:ASN:OD1	3:E:171:ASN:C	2.59	0.45
4:F:27:ILE:HA	4:F:183:PHE:CE2	2.51	0.45
4:F:113:VAL:HA	4:F:116:ASP:OD2	2.17	0.45
1:A:17:GLU:O	1:A:20:SER:OG	2.29	0.44
1:A:54:GLN:O	1:A:58:VAL:HG12	2.16	0.44
1:A:134:LEU:H	1:A:138:PHE:HD2	1.65	0.44
1:A:875:SER:HA	1:A:879:MET:HB2	2.00	0.44
1:A:1471:GLN:O	1:A:1478:SER:N	2.39	0.44
1:A:2539:LEU:HA	1:A:2542:LEU:HD12	1.99	0.44
1:A:3449:LYS:HA	1:A:3449:LYS:HD2	1.74	0.44
2:D:145:LEU:HD21	2:D:187:HIS:CE1	2.51	0.44
3:E:451:LYS:HZ3	4:F:415:ASN:C	2.26	0.44
1:A:1250:LEU:HD21	1:A:1326:GLU:HB3	1.97	0.44
1:A:3154:GLN:HG3	1:A:3227:ILE:HD11	1.99	0.44
1:A:1360:LYS:C	1:A:1361:LYS:HG3	2.42	0.44
1:A:1557:GLU:OE2	1:A:1591:LYS:NZ	2.47	0.44
1:A:1661:PHE:CE1	1:A:1671:VAL:HG11	2.52	0.44
1:A:1924:THR:HG22	1:A:1977:ILE:HG12	1.99	0.44
3:E:340:PHE:HB2	3:E:408:PRO:HD3	1.99	0.44
3:E:462:MET:HE3	3:E:465:ILE:HB	1.98	0.44
1:A:180:LEU:O	1:A:183:GLU:HG3	2.17	0.44
1:A:1715:GLU:HA	1:A:1718:ILE:HG22	2.00	0.44
1:A:3878:VAL:O	1:A:3965:ARG:NH2	2.51	0.44
4:F:87:ASP:OD1	4:F:88:PHE:N	2.50	0.44
1:A:1873:TYR:O	1:A:1876:ILE:HG13	2.17	0.44
1:A:2871:LEU:HD23	1:A:2872:ASP:N	2.33	0.44
1:A:3603:LYS:C	1:A:3604:LYS:HG3	2.43	0.44
3:E:362:LEU:HD23	3:E:362:LEU:HA	1.72	0.44
4:F:91:LEU:HD12	4:F:495:LEU:HD22	1.99	0.44
1:A:446:PHE:CD2	1:A:530:LEU:HD22	2.52	0.44
1:A:732:PHE:O	1:A:735:SER:OG	2.31	0.44
1:A:2527:HIS:HB3	1:A:2530:ARG:HH11	1.83	0.44
1:A:3880:ALA:HB1	1:A:3969:ASN:HD22	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3923:ARG:HB3	1:A:3928:PHE:HE1	1.82	0.44
3:E:31:LYS:HD2	3:E:31:LYS:HA	1.81	0.44
4:F:188:HIS:O	4:F:190:PRO:HD2	2.17	0.44
6:Y:220:DA:H5'	6:Y:220:DA:C8	2.52	0.44
1:A:421:LEU:HD12	1:A:421:LEU:HA	1.81	0.44
1:A:1296:PHE:CD1	1:A:1296:PHE:C	2.95	0.44
1:A:1525:CYS:SG	1:A:1526:GLU:N	2.91	0.44
1:A:1696:LEU:HD23	1:A:1696:LEU:HA	1.86	0.44
1:A:1987:ARG:HH12	1:A:2140:LEU:HB3	1.82	0.44
1:A:2254:ARG:CZ	1:A:2293:GLY:HA2	2.48	0.44
1:A:2559:THR:C	1:A:2795:GLN:HE22	2.25	0.44
1:A:2887:PRO:HB2	1:A:3895:GLU:HA	1.99	0.44
1:A:3107:ILE:HG13	1:A:3135:LEU:HD12	1.99	0.44
1:A:3602:ASN:OD1	1:A:3605:ASN:ND2	2.50	0.44
3:E:411:VAL:CG1	3:E:434:LEU:HG	2.39	0.44
1:A:566:ASP:OD1	1:A:566:ASP:C	2.61	0.44
1:A:714:VAL:HG11	1:A:732:PHE:HE2	1.82	0.44
1:A:738:HIS:ND1	1:A:741:ILE:O	2.51	0.44
1:A:1360:LYS:HG3	1:A:1361:LYS:HE3	1.99	0.44
1:A:1484:LEU:HD12	1:A:1524:LEU:HD22	2.00	0.44
1:A:1533:LEU:HD23	1:A:1592:MET:HG3	2.00	0.44
1:A:2150:VAL:HA	1:A:2157:PHE:HE2	1.83	0.44
1:A:2314:GLU:OE2	1:A:2314:GLU:N	2.50	0.44
1:A:3137:GLU:OE2	1:A:3186:ARG:NE	2.44	0.44
1:A:3493:TRP:CD1	1:A:3493:TRP:H	2.35	0.44
6:Y:238:DT:H2''	6:Y:239:DG:C8	2.53	0.44
1:A:355:ASN:OD1	1:A:356:ASN:N	2.51	0.43
1:A:393:LYS:HA	1:A:397:LEU:HB2	2.00	0.43
1:A:910:PHE:HB3	1:A:2804:ILE:HD11	1.99	0.43
1:A:1772:HIS:CE1	1:A:1774:MET:HE3	2.53	0.43
1:A:1937:ARG:O	1:A:1941:HIS:ND1	2.51	0.43
1:A:3796:MET:HE3	1:A:3796:MET:HB2	1.77	0.43
1:A:3929:MET:HB2	1:A:3938:ILE:HG13	2.00	0.43
3:E:369:TYR:CG	3:E:370:PRO:HD2	2.53	0.43
1:A:100:ILE:HD12	1:A:100:ILE:O	2.17	0.43
1:A:990:GLN:NE2	1:A:2781:PRO:O	2.51	0.43
1:A:1134:LEU:O	1:A:1137:ILE:HG22	2.18	0.43
1:A:2806:LYS:NZ	1:A:2856:SER:OG	2.44	0.43
1:A:3297:VAL:HA	1:A:3300:VAL:HG22	2.00	0.43
1:A:3638:LYS:HA	1:A:3638:LYS:HD3	1.62	0.43
2:D:14:PRO:HB2	2:D:48:HIS:CE1	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:76:ILE:HD11	3:E:487:PHE:CE1	2.53	0.43
4:F:273:LYS:HE2	4:F:273:LYS:HB2	1.86	0.43
1:A:197:PHE:HE2	1:A:236:LYS:HZ3	1.66	0.43
1:A:484:HIS:CE1	1:A:488:ILE:HD11	2.53	0.43
1:A:834:LEU:O	1:A:835:LYS:HG2	2.19	0.43
1:A:1153:LEU:HD12	1:A:1154:PRO:HD2	2.00	0.43
1:A:1357:LYS:HD2	1:A:1357:LYS:HA	1.80	0.43
1:A:3033:GLU:O	1:A:3035:PHE:N	2.51	0.43
1:A:3341:LEU:HD13	1:A:3348:LEU:HD13	2.00	0.43
1:A:3913:ILE:HB	1:A:3984:MET:HG2	2.00	0.43
1:A:4103:GLN:O	1:A:4107:LEU:HD13	2.19	0.43
2:D:147:TYR:HE2	2:D:167:MET:SD	2.41	0.43
3:E:45:SER:OG	3:E:46:LYS:N	2.51	0.43
1:A:361:ILE:HD12	1:A:361:ILE:HA	1.87	0.43
1:A:1368:LEU:HA	1:A:1371:VAL:HG22	2.00	0.43
1:A:3907:SER:O	1:A:3911:ILE:HG23	2.18	0.43
1:A:3985:VAL:HG23	1:A:4104:VAL:HG11	1.99	0.43
1:A:4046:TYR:CZ	1:A:4062:ASP:HB3	2.54	0.43
4:F:299:ASP:OD1	4:F:299:ASP:N	2.50	0.43
1:A:101:ALA:N	1:A:102:PRO:HD3	2.33	0.43
1:A:1071:ASN:HB3	1:A:1074:LYS:HB2	2.01	0.43
1:A:1539:SER:HG	1:A:1552:HIS:CE1	2.31	0.43
1:A:2302:ALA:HA	1:A:2305:ASN:ND2	2.33	0.43
1:A:3588:TRP:CD1	1:A:3609:MET:HE1	2.54	0.43
1:A:1135:CYS:HA	1:A:1138:ILE:HG22	2.01	0.43
1:A:1375:THR:HA	1:A:1379:PRO:HB3	2.00	0.43
1:A:3145:ILE:HD13	1:A:3145:ILE:HA	1.87	0.43
1:A:3260:LYS:HA	1:A:3260:LYS:HD3	1.59	0.43
1:A:4021:LEU:HD21	1:A:4029:GLN:HB3	1.99	0.43
1:A:4096:SER:OG	1:A:4097:GLY:N	2.51	0.43
4:F:340:PHE:CE1	4:F:393:VAL:HG11	2.53	0.43
1:A:104:SER:O	1:A:107:ILE:HG22	2.18	0.43
1:A:200:PHE:HE2	1:A:230:LEU:HD13	1.84	0.43
1:A:451:PRO:C	1:A:453:MET:H	2.27	0.43
1:A:645:TRP:O	1:A:649:PHE:HB2	2.19	0.43
1:A:1400:VAL:HG21	1:A:1460:ARG:HE	1.84	0.43
1:A:1575:LEU:HG	1:A:1576:ASP:OD1	2.19	0.43
1:A:1639:LEU:HD22	1:A:1684:LEU:HD13	2.01	0.43
1:A:1938:ARG:HG3	1:A:1981:LEU:HA	2.01	0.43
1:A:2302:ALA:HA	1:A:2305:ASN:HD21	1.84	0.43
1:A:2313:LYS:H	1:A:2313:LYS:HG2	1.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:2898:LEU:HD23	1:A:2898:LEU:HA	1.86	0.43
1:A:3090:TYR:HE2	1:A:3098:ARG:HE	1.67	0.43
1:A:3832:PRO:HB3	1:A:3837:CYS:SG	2.59	0.43
2:D:30:SER:O	2:D:62:VAL:N	2.51	0.43
3:E:362:LEU:HD21	4:F:267:ILE:HG22	2.00	0.43
1:A:1802:TYR:CZ	1:A:1806:ARG:HD2	2.54	0.43
1:A:3348:LEU:H	1:A:3348:LEU:HD12	1.84	0.43
1:A:3681:LYS:NZ	1:A:3723:ASP:O	2.50	0.43
3:E:247:ARG:HH12	3:E:488:ARG:CZ	2.32	0.43
4:F:176:GLY:HA2	4:F:178:ARG:HH21	1.83	0.43
1:A:3183:ILE:HD13	1:A:3183:ILE:HA	1.87	0.43
1:A:3330:LEU:HD12	1:A:3384:HIS:CD2	2.54	0.43
1:A:3465:PHE:CE2	1:A:3502:MET:HE2	2.54	0.43
1:A:3498:TRP:HE3	1:A:3501:HIS:CD2	2.36	0.43
1:A:3859:TYR:HB3	1:A:4076:ASP:OD1	2.19	0.43
3:E:370:PRO:HD3	3:E:382:PHE:CE2	2.54	0.43
3:E:483:LEU:HD12	3:E:487:PHE:CZ	2.54	0.43
3:E:567:HIS:HA	3:E:570:LYS:HB3	2.01	0.43
4:F:532:LYS:HB2	4:F:532:LYS:HE2	1.84	0.43
1:A:649:PHE:O	1:A:653:LEU:HG	2.19	0.43
1:A:890:LYS:HE3	1:A:890:LYS:HB2	1.81	0.43
1:A:987:LEU:O	1:A:987:LEU:HD12	2.18	0.43
1:A:2427:ARG:HD2	1:A:2427:ARG:HA	1.82	0.43
1:A:2801:ASP:OD1	1:A:2804:ILE:HG22	2.18	0.43
1:A:3312:VAL:O	1:A:3314:SER:N	2.51	0.43
1:A:3344:GLU:HB2	1:A:3348:LEU:HD11	2.01	0.43
1:A:3508:LYS:HE2	1:A:3508:LYS:HB2	1.87	0.43
3:E:216:PHE:O	3:E:216:PHE:CG	2.71	0.43
3:E:580:MET:O	3:E:583:GLU:HG3	2.19	0.43
4:F:221:LEU:HD23	4:F:221:LEU:HA	1.82	0.43
5:X:43:DC:H2"	5:X:44:DA:C8	2.53	0.43
1:A:393:LYS:O	1:A:397:LEU:HB2	2.19	0.42
1:A:451:PRO:O	1:A:452:LYS:HB3	2.19	0.42
1:A:524:TYR:O	1:A:528:VAL:HG13	2.18	0.42
1:A:977:ASP:HB3	1:A:980:THR:HB	2.01	0.42
1:A:1027:ASP:OD1	1:A:1027:ASP:N	2.50	0.42
1:A:1751:GLU:HA	1:A:1785:ILE:HG22	2.01	0.42
1:A:2534:ASN:HB3	1:A:2537:ASP:HB2	2.00	0.42
1:A:3608:LYS:HG3	1:A:3612:ARG:NH2	2.34	0.42
1:A:3631:LYS:O	1:A:3635:THR:OG1	2.26	0.42
3:E:187:ARG:HG2	3:E:220:ILE:HD11	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:580:MET:HA	3:E:583:GLU:HG3	2.02	0.42
4:F:20:MET:HE2	4:F:137:ASP:HB2	2.01	0.42
4:F:155:LYS:C	4:F:157:CYS:H	2.27	0.42
4:F:185:LEU:HA	4:F:185:LEU:HD12	1.68	0.42
6:Y:243:DT:H2'	6:Y:244:DT:H72	2.01	0.42
1:A:164:LYS:NZ	1:A:167:PRO:HD3	2.34	0.42
1:A:670:LEU:HA	1:A:673:THR:HG22	2.00	0.42
1:A:765:LEU:HA	1:A:765:LEU:HD12	1.82	0.42
1:A:1523:GLY:C	1:A:1524:LEU:HD12	2.43	0.42
1:A:1701:SER:O	1:A:1701:SER:OG	2.36	0.42
1:A:2104:MET:HE1	1:A:2125:TRP:CD1	2.54	0.42
1:A:3122:HIS:C	1:A:3124:SER:H	2.27	0.42
1:A:3868:VAL:HG23	1:A:4114:PRO:HB2	2.02	0.42
3:E:605:LYS:HD2	3:E:606:HIS:N	2.34	0.42
4:F:38:ILE:HD11	4:F:135:PHE:CE1	2.53	0.42
1:A:1326:GLU:OE1	1:A:1326:GLU:N	2.49	0.42
1:A:2522:ARG:HG3	1:A:2561:PHE:HE1	1.82	0.42
1:A:3028:ASN:HA	1:A:3031:TRP:HB2	2.02	0.42
1:A:3197:LEU:HD23	1:A:3197:LEU:HA	1.81	0.42
1:A:3276:TRP:HZ3	1:A:3306:LEU:HD21	1.84	0.42
2:D:167:MET:SD	2:D:167:MET:N	2.92	0.42
3:E:437:LEU:HD13	4:F:479:THR:HG21	2.00	0.42
3:E:559:TYR:CD1	3:E:564:LEU:HD11	2.54	0.42
1:A:233:ASN:C	1:A:235:THR:H	2.27	0.42
1:A:1444:ASP:OD1	1:A:1444:ASP:N	2.48	0.42
1:A:1456:LYS:HB3	1:A:1456:LYS:HE3	1.68	0.42
1:A:1874:TYR:HE2	1:A:1940:TYR:HE1	1.67	0.42
1:A:1876:ILE:HA	1:A:1879:VAL:HG12	2.01	0.42
1:A:1894:SER:O	1:A:1898:GLN:HG2	2.19	0.42
1:A:3154:GLN:NE2	1:A:3227:ILE:HG12	2.35	0.42
1:A:322:GLN:O	1:A:326:MET:SD	2.77	0.42
1:A:1458:LEU:HD21	1:A:1467:ILE:HD13	2.01	0.42
1:A:1770:GLN:HA	1:A:1770:GLN:OE1	2.19	0.42
1:A:3495:PHE:CG	1:A:3502:MET:HE1	2.54	0.42
3:E:472:THR:O	3:E:472:THR:OG1	2.31	0.42
3:E:487:PHE:O	3:E:491:GLU:HG2	2.20	0.42
4:F:229:GLU:HG2	4:F:233:LYS:HD2	2.02	0.42
5:X:45:DT:H2''	5:X:46:DA:C8	2.55	0.42
1:A:2341:LEU:HD12	1:A:2341:LEU:H	1.85	0.42
1:A:3344:GLU:C	1:A:3346:ALA:H	2.28	0.42
3:E:48:MET:HA	3:E:171:ASN:ND2	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:Y:216:DC:H1'	6:Y:217:DG:C8	2.55	0.42
1:A:204:LEU:HB3	1:A:251:PHE:HE2	1.85	0.42
1:A:238:MET:HG2	1:A:284:THR:HG22	2.02	0.42
1:A:1011:GLU:OE1	1:A:1062:ARG:NH1	2.53	0.42
1:A:1886:LYS:H	1:A:1886:LYS:HG2	1.61	0.42
1:A:3121:LEU:HD12	1:A:3121:LEU:HA	1.81	0.42
1:A:3927:ASN:O	1:A:3940:ILE:HG12	2.20	0.42
2:D:82:GLN:HA	2:D:82:GLN:OE1	2.18	0.42
3:E:243:LEU:O	3:E:246:VAL:HG13	2.20	0.42
3:E:428:THR:O	3:E:428:THR:OG1	2.28	0.42
6:Y:223:DT:H2''	6:Y:224:DA:C8	2.55	0.42
1:A:206:THR:O	1:A:210:SER:HB2	2.19	0.42
1:A:1238:GLN:NE2	1:A:1296:PHE:H	2.18	0.42
1:A:1245:ARG:HA	1:A:1248:PHE:HE1	1.84	0.42
1:A:1722:PHE:CZ	1:A:1743:MET:HE1	2.55	0.42
1:A:2443:MET:N	1:A:2444:PRO:HD2	2.35	0.42
1:A:2455:LEU:HD23	1:A:2501:LEU:HD23	2.02	0.42
1:A:2800:ARG:HD3	1:A:2800:ARG:HA	1.76	0.42
1:A:3360:LEU:HD12	1:A:3360:LEU:HA	1.94	0.42
1:A:3813:LYS:NZ	1:A:4125:GLU:OE2	2.53	0.42
1:A:3835:PRO:N	1:A:3836:PRO:HD2	2.35	0.42
1:A:4019:LYS:HB3	1:A:4019:LYS:HE3	1.85	0.42
3:E:121:GLN:O	3:E:130:ARG:NH2	2.51	0.42
1:A:99:LYS:HA	1:A:99:LYS:HD2	1.84	0.42
1:A:276:ALA:HB2	1:A:315:ALA:HA	2.02	0.42
1:A:638:GLN:OE1	1:A:676:ASN:HA	2.20	0.42
1:A:933:LEU:O	1:A:937:MET:HG3	2.20	0.42
1:A:2454:LEU:HD23	1:A:2454:LEU:HA	1.80	0.42
1:A:3138:ILE:HG12	1:A:3189:PHE:HZ	1.84	0.42
1:A:3605:ASN:O	1:A:3608:LYS:HG2	2.18	0.42
1:A:3673:ASP:HB2	1:A:3675:LYS:HE3	2.02	0.42
3:E:168:LEU:HB3	3:E:202:LEU:HB3	2.01	0.42
1:A:106:GLU:OE1	1:A:106:GLU:N	2.33	0.42
1:A:157:TYR:O	1:A:157:TYR:CG	2.73	0.42
1:A:228:SER:O	1:A:229:SER:HB2	2.20	0.42
1:A:859:LEU:HD23	1:A:859:LEU:HA	1.88	0.42
1:A:2478:MET:HG2	1:A:2524:PHE:CE1	2.55	0.42
4:F:107:PHE:HD2	4:F:142:PHE:HZ	1.67	0.42
4:F:383:ALA:O	4:F:387:LEU:HB3	2.20	0.42
1:A:2806:LYS:HG3	1:A:2857:CYS:HB2	2.01	0.41
1:A:3519:GLU:O	1:A:3522:THR:HG22	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:406:GLY:HA3	4:F:421:TYR:CE1	2.55	0.41
1:A:1142:HIS:NE2	1:A:1146:ASN:OD1	2.53	0.41
1:A:1567:ILE:H	1:A:1567:ILE:HG12	1.63	0.41
1:A:1969:GLU:HG3	1:A:1975:LEU:O	2.20	0.41
1:A:3503:VAL:HG11	1:A:3533:PHE:HA	2.02	0.41
4:F:12:LEU:HD11	4:F:41:PHE:CE2	2.54	0.41
4:F:155:LYS:HD2	4:F:159:ILE:HG12	2.02	0.41
1:A:894:PHE:HB2	1:A:907:LEU:HG	2.03	0.41
1:A:2097:LEU:HD12	1:A:2097:LEU:HA	1.80	0.41
1:A:2438:ILE:O	1:A:2442:MET:HG2	2.20	0.41
1:A:2486:ASP:C	1:A:2488:GLU:H	2.27	0.41
1:A:3630:ARG:CG	1:A:3633:ILE:H	2.31	0.41
1:A:3917:ILE:HD12	1:A:4051:LEU:HD13	2.03	0.41
3:E:526:LYS:O	3:E:530:TYR:HB2	2.21	0.41
4:F:123:ILE:HD12	4:F:123:ILE:H	1.85	0.41
1:A:1820:VAL:O	1:A:1825:LEU:HD23	2.21	0.41
1:A:3372:LYS:HE3	1:A:3372:LYS:HB2	1.80	0.41
2:D:83:TYR:HB2	2:D:99:TYR:HD2	1.86	0.41
3:E:270:SER:OG	3:E:371:GLU:OE2	2.30	0.41
4:F:115:MET:HE2	4:F:115:MET:HB3	1.85	0.41
4:F:247:TRP:CE3	4:F:263:ALA:HB3	2.56	0.41
1:A:108:LYS:HD3	1:A:147:PHE:HD1	1.86	0.41
1:A:264:ARG:NH1	5:X:52:DG:H4'	2.36	0.41
1:A:333:MET:HE2	1:A:333:MET:HB3	1.78	0.41
1:A:1661:PHE:HE1	1:A:1671:VAL:HG11	1.85	0.41
1:A:1922:ALA:C	1:A:1924:THR:H	2.28	0.41
3:E:346:MET:HE2	3:E:346:MET:HB3	1.93	0.41
3:E:420:LEU:HD21	3:E:424:LYS:HD3	2.03	0.41
3:E:572:THR:OG1	3:E:573:LEU:N	2.52	0.41
4:F:408:ALA:HA	4:F:420:VAL:O	2.19	0.41
1:A:51:LEU:H	1:A:51:LEU:HD12	1.85	0.41
1:A:1684:LEU:HD11	1:A:1688:LEU:HD21	2.02	0.41
1:A:1937:ARG:HD2	1:A:1937:ARG:HA	1.90	0.41
1:A:2170:GLN:O	1:A:2174:SER:OG	2.28	0.41
1:A:2474:TYR:C	1:A:2478:MET:HE3	2.46	0.41
1:A:3831:ASP:C	1:A:3833:ARG:H	2.24	0.41
1:A:3984:MET:HB3	1:A:4104:VAL:HG21	2.03	0.41
4:F:390:VAL:HG23	4:F:409:PHE:HA	2.03	0.41
1:A:917:LEU:HD23	1:A:917:LEU:HA	1.89	0.41
1:A:1186:LYS:HD3	1:A:1186:LYS:HA	1.70	0.41
1:A:1334:LYS:HB3	1:A:1334:LYS:HE3	1.81	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1646:LEU:HD12	1:A:1647:ALA:N	2.36	0.41
1:A:3577:GLN:OE1	1:A:3577:GLN:HA	2.21	0.41
1:A:3667:LEU:HA	1:A:3670:MET:HE3	2.03	0.41
3:E:165:ARG:HA	3:E:199:PHE:O	2.20	0.41
3:E:178:ASN:OD1	3:E:178:ASN:N	2.51	0.41
4:F:454:VAL:O	4:F:458:ILE:HG23	2.21	0.41
1:A:4031:ILE:HD12	1:A:4031:ILE:HA	1.89	0.41
2:D:23:ARG:HA	2:D:93:ARG:HH12	1.86	0.41
4:F:33:GLN:HG2	4:F:185:LEU:HD11	2.03	0.41
4:F:134:ILE:HD13	4:F:163:PHE:CE1	2.56	0.41
4:F:286:LYS:HE3	4:F:286:LYS:HB3	1.82	0.41
4:F:369:ASP:OD1	4:F:369:ASP:N	2.53	0.41
1:A:32:HIS:HA	1:A:35:ILE:HG12	2.02	0.41
1:A:125:ILE:HB	1:A:126:PRO:HD3	2.02	0.41
1:A:236:LYS:HD2	1:A:236:LYS:HA	1.94	0.41
1:A:320:LEU:HA	1:A:323:VAL:HG12	2.02	0.41
1:A:651:TYR:CE1	1:A:1386:ILE:HD11	2.56	0.41
1:A:859:LEU:HD11	1:A:870:LEU:HD13	2.02	0.41
1:A:988:VAL:HG11	1:A:1028:PHE:HZ	1.86	0.41
1:A:1366:THR:O	1:A:1370:ARG:HB2	2.21	0.41
1:A:1782:PHE:HA	1:A:1785:ILE:HG12	2.03	0.41
1:A:1783:ARG:O	1:A:1787:ARG:HG2	2.20	0.41
1:A:1786:ALA:HB1	1:A:1831:CYS:O	2.21	0.41
1:A:2409:THR:OG1	1:A:2410:GLU:N	2.54	0.41
1:A:3062:LEU:HD21	1:A:3093:GLN:HG3	2.02	0.41
1:A:3151:LEU:HD11	1:A:3196:LYS:HB2	2.02	0.41
1:A:3172:LYS:HE2	1:A:3172:LYS:HB2	1.89	0.41
1:A:3351:ILE:HD12	1:A:3351:ILE:HA	1.93	0.41
2:D:191:GLN:O	2:D:192:GLU:HB2	2.21	0.41
3:E:215:LEU:HD23	3:E:215:LEU:HA	1.74	0.41
3:E:261:LEU:HD23	3:E:269:ILE:HD11	2.02	0.41
3:E:418:GLU:HB2	3:E:430:PRO:HB3	2.03	0.41
3:E:574:GLY:C	3:E:576:PHE:N	2.79	0.41
4:F:12:LEU:HD11	4:F:41:PHE:HE2	1.86	0.41
4:F:356:PHE:CZ	4:F:409:PHE:HZ	2.39	0.41
4:F:365:PHE:HA	4:F:418:CYS:HB2	2.03	0.41
5:X:34:DT:H6	5:X:34:DT:H5'	1.86	0.41
6:Y:245:DA:C2	6:Y:246:DA:C6	3.08	0.41
1:A:257:ARG:HD3	1:A:296:VAL:HG11	2.03	0.41
1:A:860:GLY:HA3	1:A:3136:THR:OG1	2.20	0.41
1:A:900:GLU:N	1:A:900:GLU:OE1	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1086:TYR:CE1	1:A:1087:ARG:HG3	2.56	0.41
1:A:1579:VAL:HG21	1:A:1621:THR:HG21	2.03	0.41
1:A:2184:TYR:O	1:A:2187:VAL:HG12	2.21	0.41
1:A:2551:GLU:HA	1:A:2554:PHE:HB2	2.02	0.41
1:A:4006:VAL:HG23	1:A:4011:PHE:HE2	1.86	0.41
2:D:150:GLU:OE1	2:D:150:GLU:N	2.54	0.41
3:E:249:LYS:HB3	3:E:249:LYS:HE2	1.91	0.41
4:F:34:ALA:O	4:F:38:ILE:HG12	2.20	0.41
1:A:532:ARG:HA	1:A:535:LEU:HD23	2.02	0.40
1:A:1339:VAL:HG13	1:A:1398:VAL:HG21	2.02	0.40
1:A:1686:LEU:O	1:A:1690:GLY:N	2.50	0.40
1:A:3088:LEU:O	1:A:3092:LEU:HB2	2.21	0.40
1:A:3883:LEU:HD12	1:A:3883:LEU:HA	1.84	0.40
3:E:36:ASP:OD1	3:E:36:ASP:C	2.64	0.40
1:A:99:LYS:O	1:A:99:LYS:NZ	2.54	0.40
1:A:832:LYS:NZ	6:Y:218:DT:H3'	2.37	0.40
1:A:1407:LYS:NZ	1:A:1408:MET:SD	2.77	0.40
1:A:1597:LEU:HD23	1:A:1597:LEU:HA	1.92	0.40
1:A:2148:LYS:HD2	1:A:2148:LYS:HA	1.95	0.40
1:A:2286:PRO:HB3	1:A:2329:TYR:CZ	2.56	0.40
1:A:3264:LYS:HE2	1:A:3264:LYS:HB2	1.86	0.40
1:A:3911:ILE:HD11	1:A:3928:PHE:CE2	2.56	0.40
3:E:202:LEU:HD21	3:E:217:TYR:HB3	2.03	0.40
5:X:34:DT:H5'	5:X:34:DT:C6	2.55	0.40
1:A:1037:LEU:HD12	1:A:1037:LEU:HA	1.80	0.40
1:A:1242:LEU:HA	1:A:1242:LEU:HD23	1.80	0.40
1:A:1649:LEU:HD12	1:A:1649:LEU:HA	1.90	0.40
1:A:1878:ASP:OD1	1:A:1879:VAL:N	2.54	0.40
1:A:1895:LYS:O	1:A:1899:VAL:HG23	2.20	0.40
1:A:2228:ARG:HH21	1:A:2232:ARG:HD3	1.85	0.40
1:A:2415:LEU:HD13	1:A:2420:PHE:CD2	2.56	0.40
1:A:3496:ILE:H	1:A:3496:ILE:HG12	1.72	0.40
1:A:3623:PRO:HD3	1:A:3629:ARG:NH2	2.37	0.40
1:A:3958:LEU:O	1:A:4110:GLN:NE2	2.45	0.40
4:F:442:LYS:HE2	4:F:442:LYS:HB2	1.78	0.40
1:A:342:MET:HE2	1:A:342:MET:N	2.36	0.40
1:A:712:LYS:O	1:A:716:VAL:HG13	2.22	0.40
1:A:1788:ARG:HA	1:A:1788:ARG:HD2	1.79	0.40
1:A:2835:LYS:NZ	1:A:2839:ASP:OD2	2.54	0.40
1:A:3593:ARG:NH1	1:A:3661:ASP:OD1	2.52	0.40
1:A:3681:LYS:HD2	1:A:3687:MET:HB3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4037:ASN:OD1	1:A:4037:ASN:N	2.55	0.40
3:E:277:VAL:HG22	4:F:357:MET:SD	2.61	0.40
4:F:229:GLU:HG3	4:F:232:ARG:NH2	2.37	0.40
1:A:1463:LEU:HD12	1:A:1463:LEU:HA	1.93	0.40
1:A:3003:ASN:HD21	1:A:3046:ARG:CZ	2.34	0.40
1:A:3621:LYS:HD2	1:A:3621:LYS:HA	1.78	0.40
1:A:4023:LYS:HE3	1:A:4023:LYS:HB2	1.88	0.40
1:A:4040:PRO:HD2	1:A:4041:ARG:NH1	2.37	0.40
5:X:43:DC:C2	5:X:44:DA:N7	2.89	0.40
6:Y:253:DC:H1'	6:Y:254:DC:O4'	2.21	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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	3557/4128 (86%)	3192 (90%)	365 (10%)	0	100	100
2	D	154/399 (39%)	132 (86%)	21 (14%)	1 (1%)	21	54
3	E	556/609 (91%)	513 (92%)	43 (8%)	0	100	100
4	F	551/732 (75%)	493 (90%)	58 (10%)	0	100	100
All	All	4818/5868 (82%)	4330 (90%)	487 (10%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	192	GLU

### 5.3.2 Protein sidechains ⓘ

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	3218/3671 (88%)	3202 (100%)	16 (0%)	81	80
2	D	133/336 (40%)	133 (100%)	0	100	100
3	E	507/548 (92%)	504 (99%)	3 (1%)	78	79
4	F	496/649 (76%)	494 (100%)	2 (0%)	84	81
All	All	4354/5204 (84%)	4333 (100%)	21 (0%)	78	80

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	54	GLN
1	A	414	LEU
1	A	707	PHE
1	A	1021	VAL
1	A	1167	ASP
1	A	1250	LEU
1	A	1325	GLN
1	A	1906	THR
1	A	1918	LEU
1	A	2283	ASN
1	A	2315	VAL
1	A	2408	MET
1	A	2977	ASN
1	A	3145	ILE
1	A	3450	MET
1	A	4109	ASP
3	E	85	VAL
3	E	205	LEU
3	E	281	LEU
4	F	261	ILE
4	F	353	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (45) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	136	GLN
1	A	243	GLN
1	A	250	ASN
1	A	377	ASN
1	A	484	HIS
1	A	753	GLN
1	A	783	HIS
1	A	1049	GLN
1	A	1083	ASN
1	A	1125	GLN
1	A	1126	GLN
1	A	1325	GLN
1	A	1374	GLN
1	A	1442	GLN
1	A	1459	HIS
1	A	1779	GLN
1	A	1897	ASN
1	A	1946	ASN
1	A	2103	HIS
1	A	2170	GLN
1	A	2270	ASN
1	A	2493	ASN
1	A	2795	GLN
1	A	2845	ASN
1	A	2971	GLN
1	A	3074	GLN
1	A	3081	HIS
1	A	3122	HIS
1	A	3339	ASN
1	A	3379	GLN
1	A	3383	GLN
1	A	3422	GLN
1	A	3423	GLN
1	A	3573	ASN
1	A	3783	GLN
1	A	3903	HIS
1	A	4032	ASN
2	D	48	HIS
3	E	52	GLN
3	E	204	HIS
3	E	515	ASN
3	E	535	ASN
4	F	162	GLN

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Mol	Chain	Res	Type
4	F	298	ASN
4	F	510	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

### 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

### 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

### 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

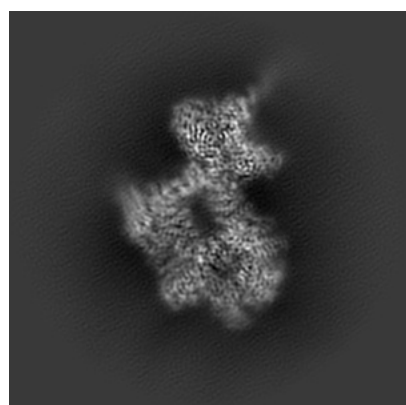
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-19065. These allow visual inspection of the internal detail of the map and identification of artifacts.

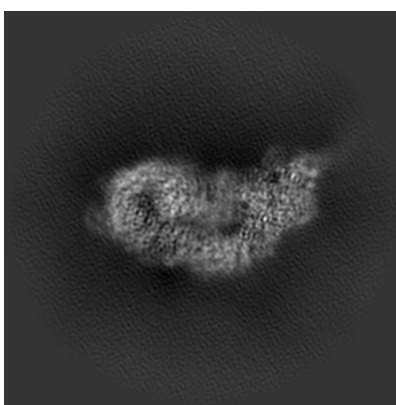
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

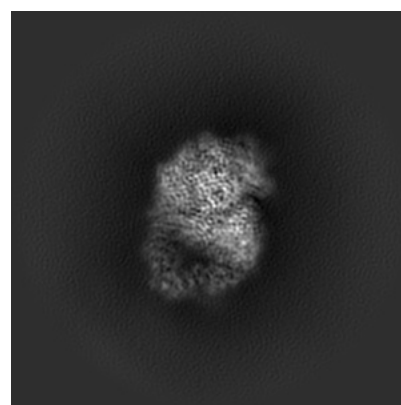
#### 6.1.1 Primary map



X



Y

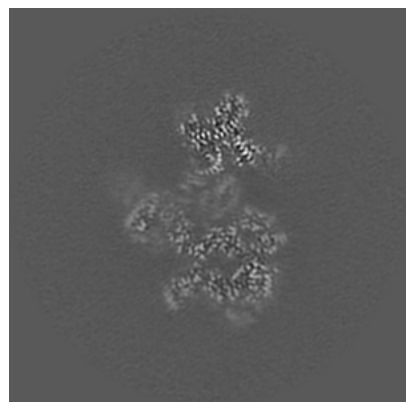


Z

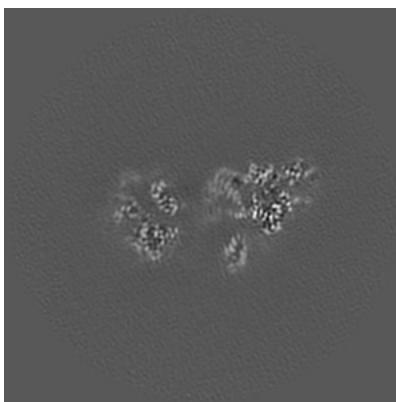
The images above show the map projected in three orthogonal directions.

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

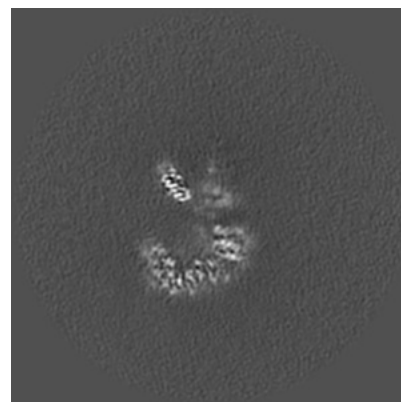
#### 6.2.1 Primary map



X Index: 192



Y Index: 192

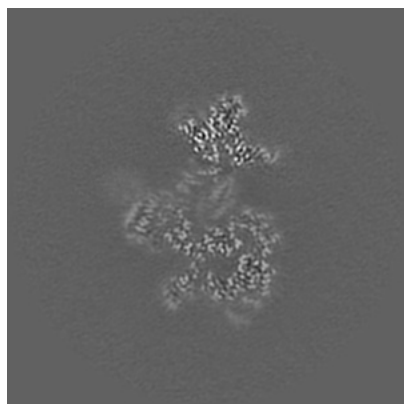


Z Index: 192

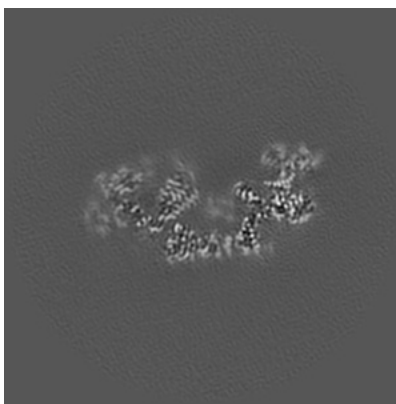
The images above show central slices of the map in three orthogonal directions.

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

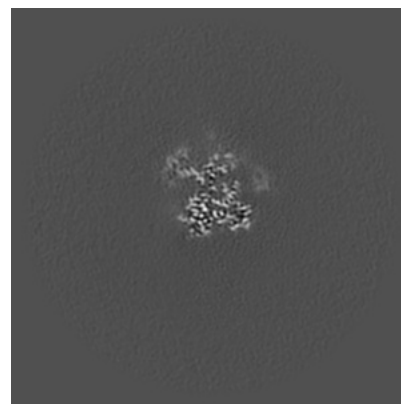
### 6.3.1 Primary map



X Index: 194



Y Index: 217

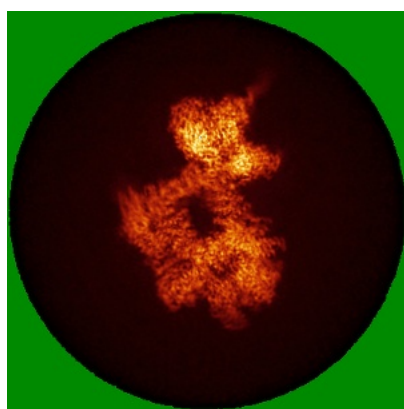


Z Index: 251

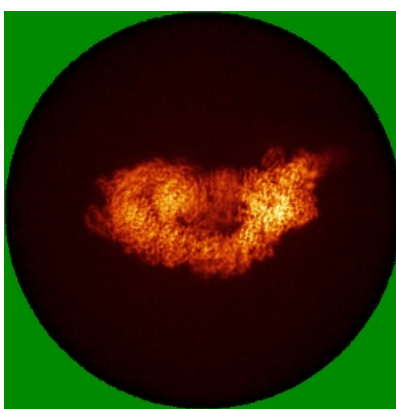
The images above show the largest variance slices of the map in three orthogonal directions.

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

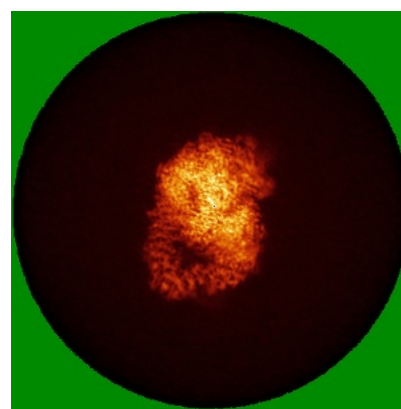
### 6.4.1 Primary map



X



Y

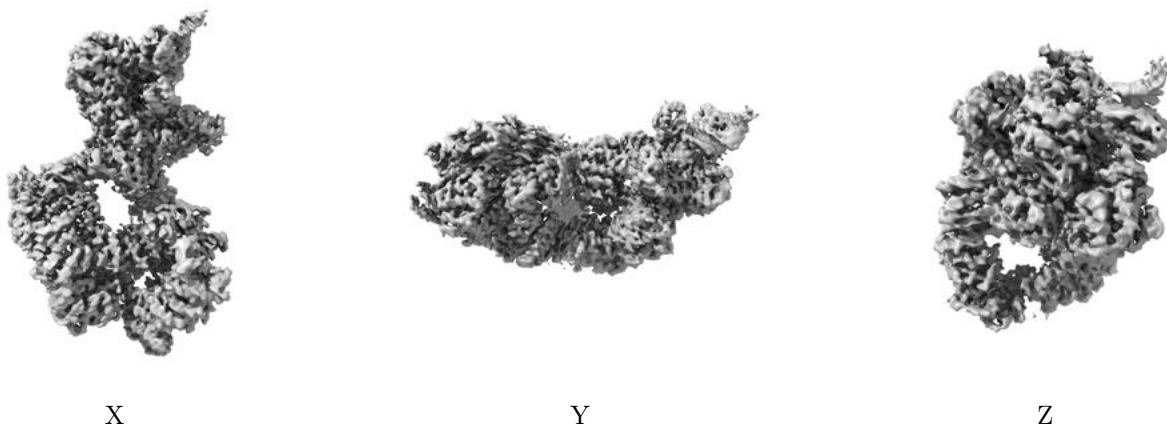


Z

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

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

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 5.2. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

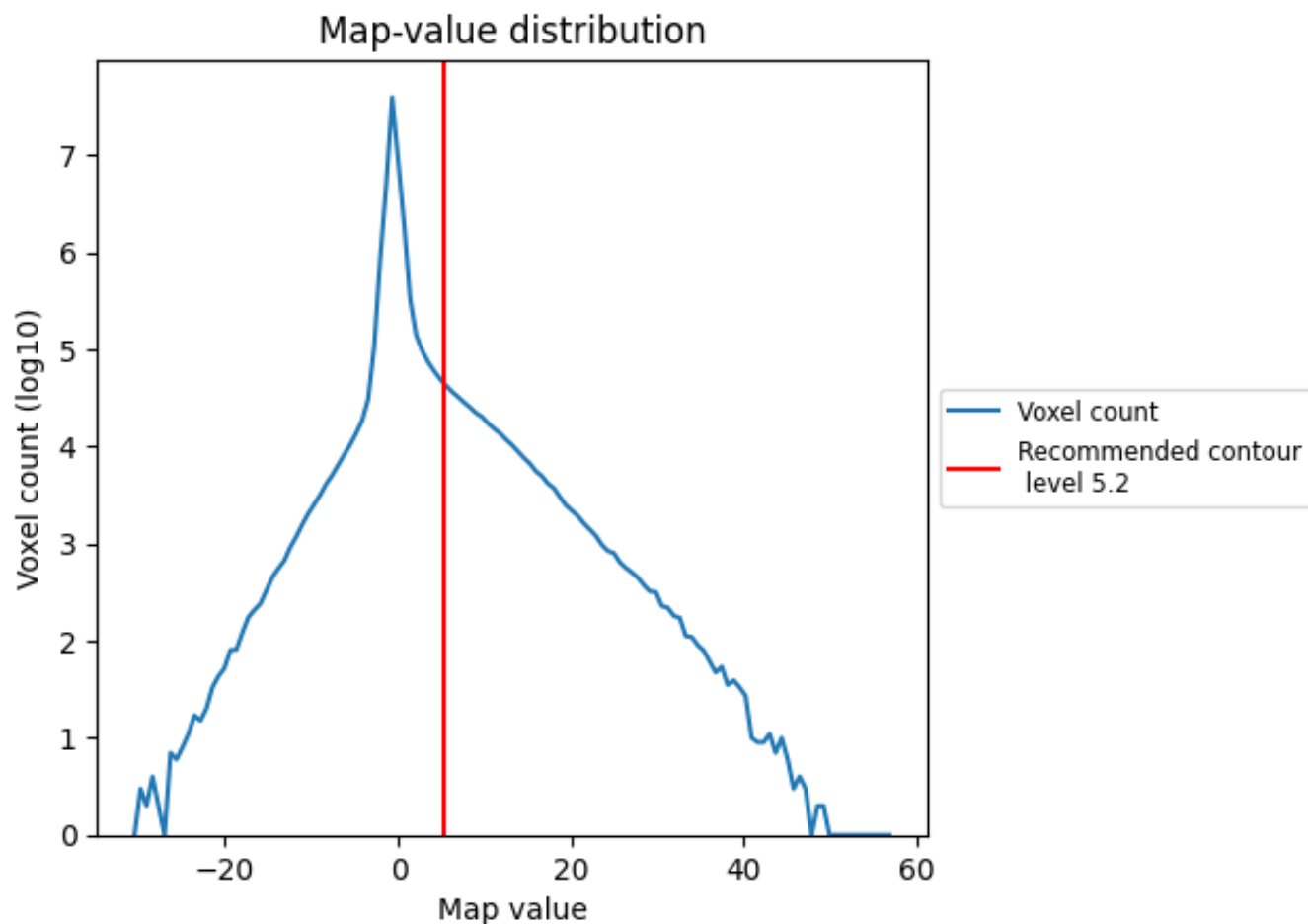
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

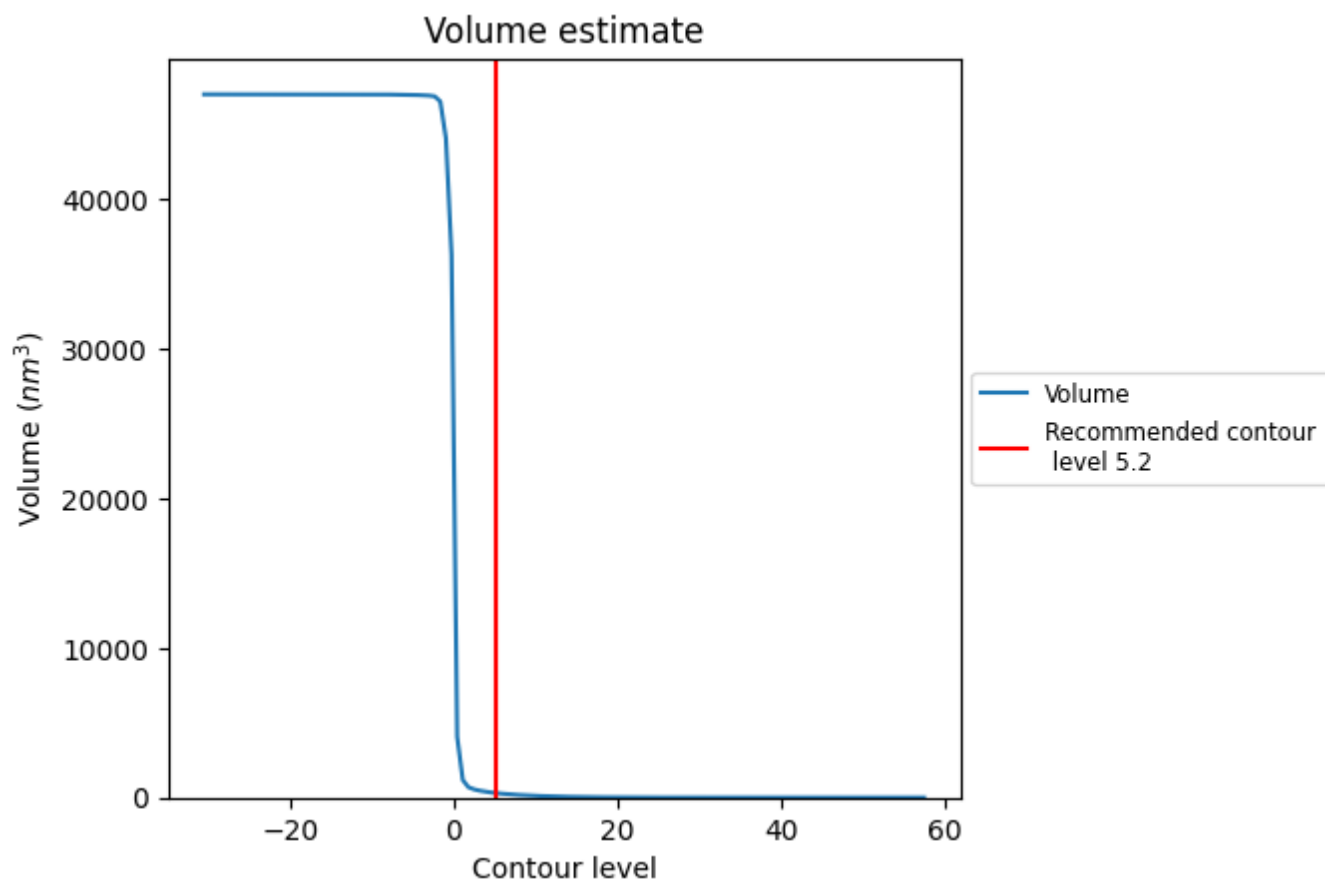
This section contains the results of statistical analysis of the map.

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



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

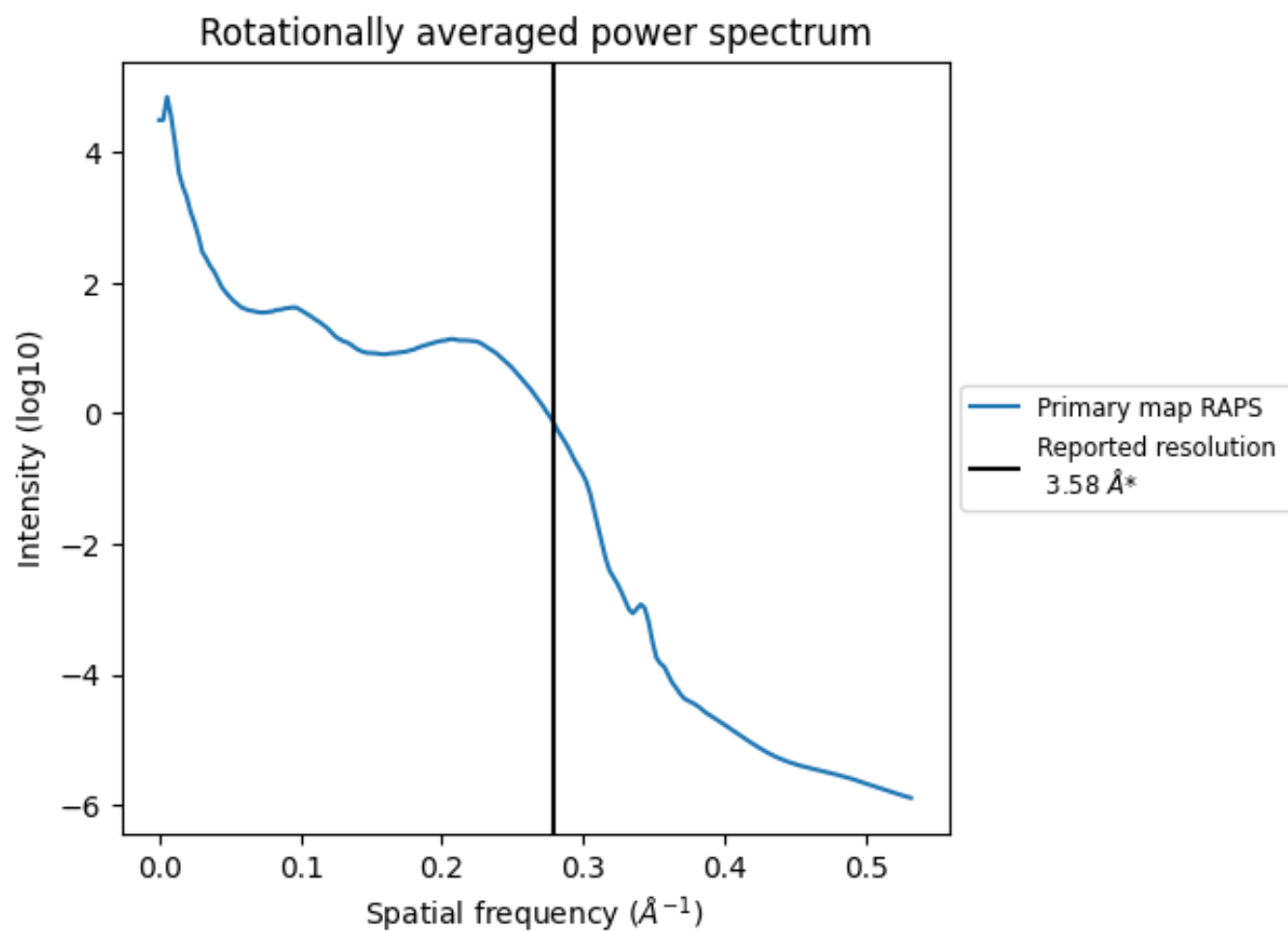
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 301 nm<sup>3</sup>; this corresponds to an approximate mass of 272 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 ⓘ



\*Reported resolution corresponds to spatial frequency of 0.279 Å<sup>-1</sup>

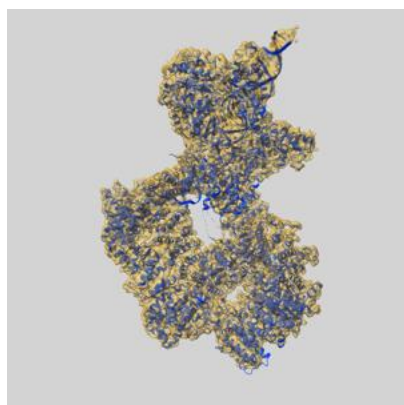
## 8 Fourier-Shell correlation

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

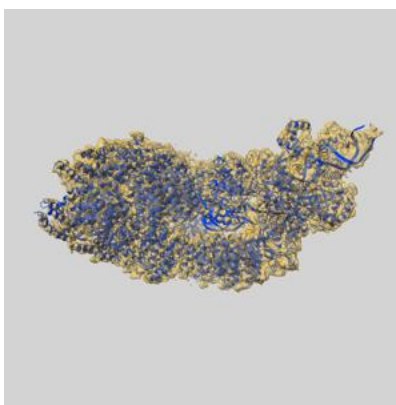
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-19065 and PDB model 8RD4. Per-residue inclusion information can be found in section [3](#) on page [5](#).

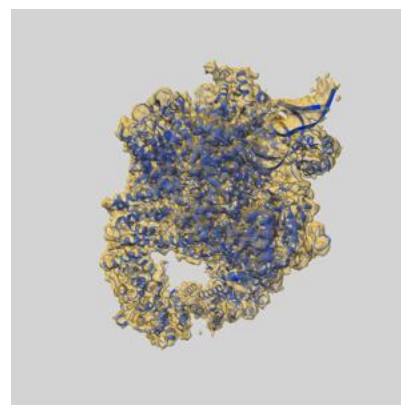
### 9.1 Map-model overlay [i](#)



X



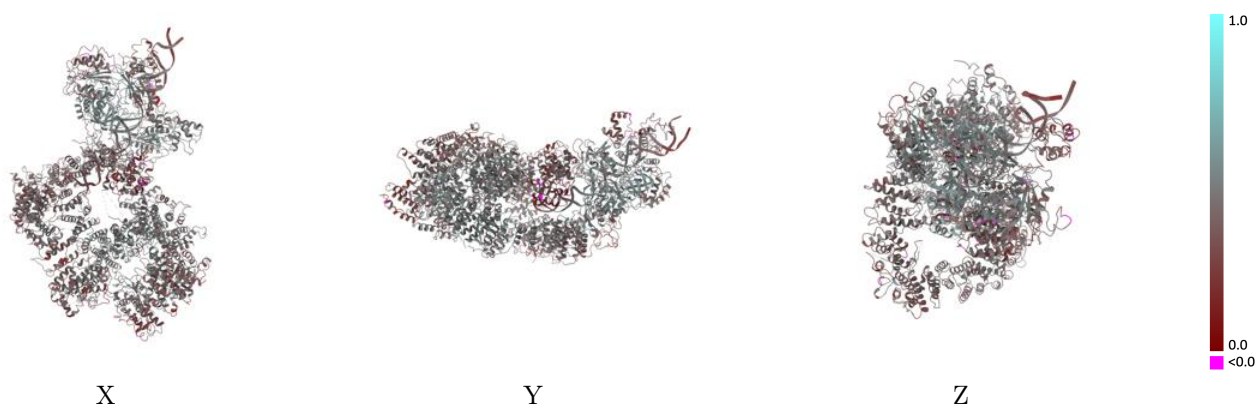
Y



Z

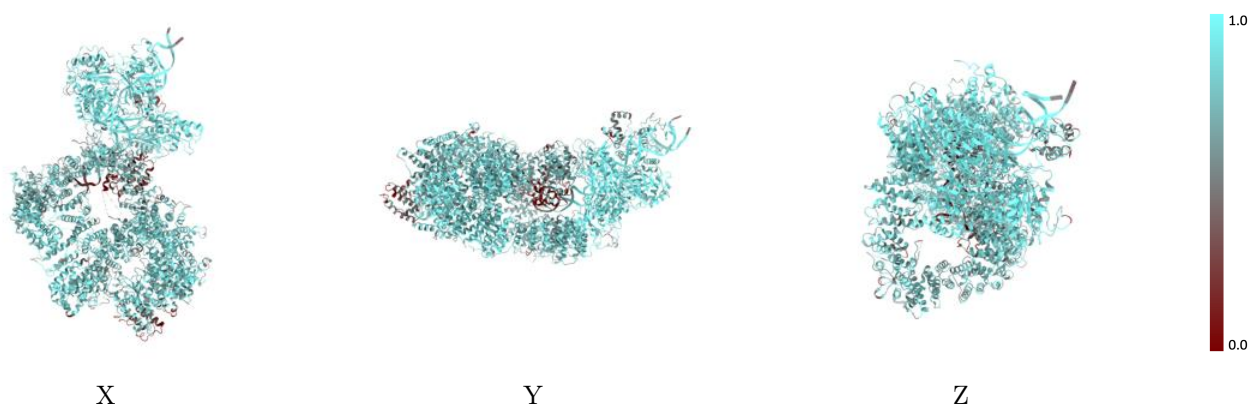
The images above show the 3D surface view of the map at the recommended contour level 5.2 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



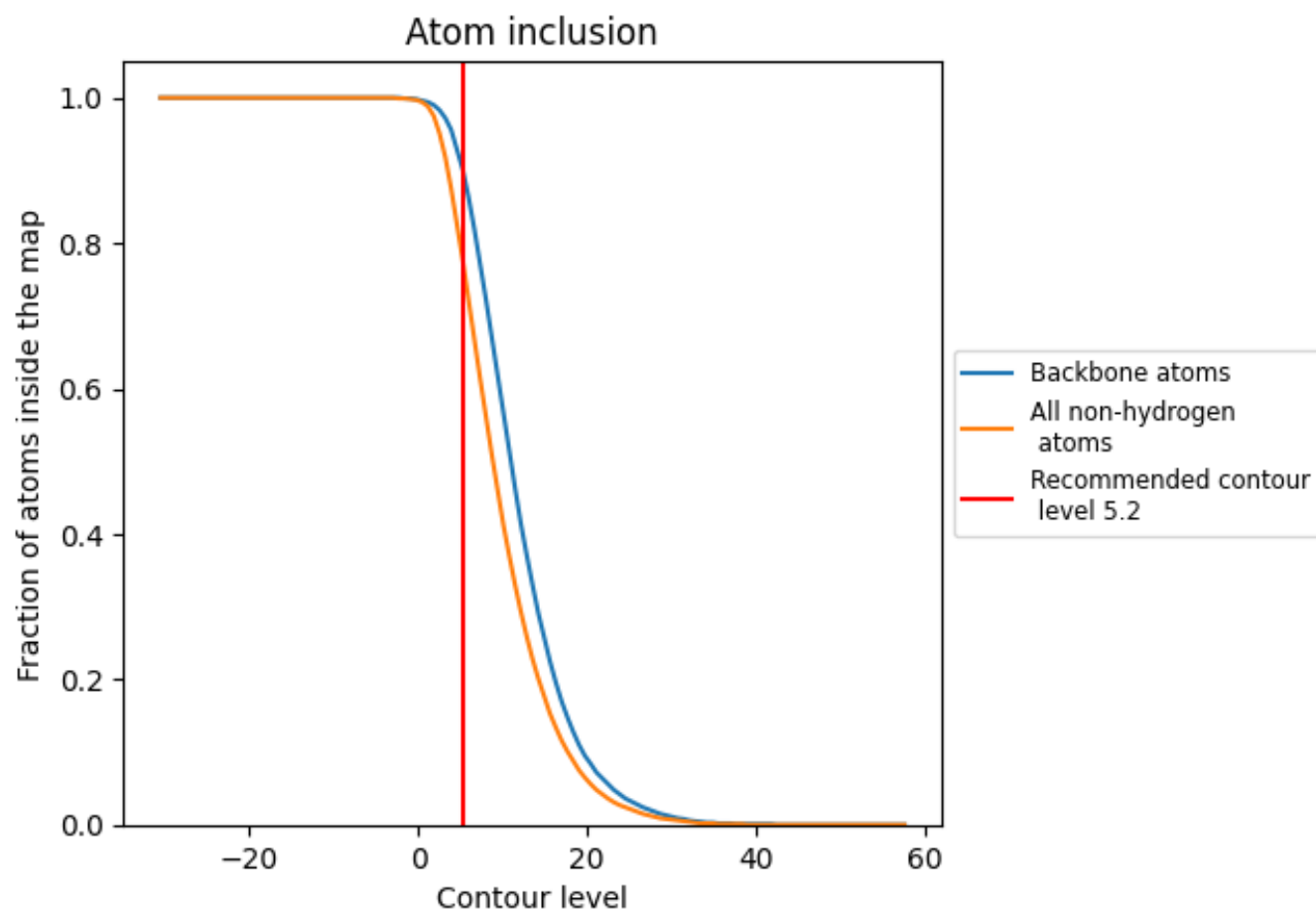
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (5.2).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 78% 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 (5.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div><div></div></div> 0.7820	<div><div></div></div> 0.4280
A	<div><div></div></div> 0.7570	<div><div></div></div> 0.4190
D	<div><div></div></div> 0.8340	<div><div></div></div> 0.4110
E	<div><div></div></div> 0.8580	<div><div></div></div> 0.4590
F	<div><div></div></div> 0.8440	<div><div></div></div> 0.4610
X	<div><div></div></div> 0.8110	<div><div></div></div> 0.4230
Y	<div><div></div></div> 0.8090	<div><div></div></div> 0.4170

1.0

0.0

<0.0