



wwPDB EM Validation Summary Report ⓘ

May 4, 2024 – 06:22 pm BST

PDB ID : 6EMK
EMDB ID : EMD-3896
Title : Cryo-EM Structure of Saccharomyces cerevisiae Target of Rapamycin Complex 2
Authors : Karuppasamy, M.; Kusmider, B.; Oliveira, T.M.; Gaubitz, C.; Prouteau, M.; Loewith, R.; Schaffitzel, C.
Deposited on : 2017-10-02
Resolution : 7.90 Å (reported)
Based on initial model : 5FVM

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

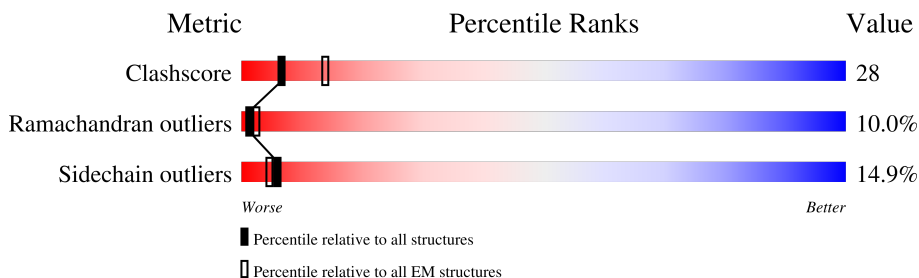
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 7.90 Å.

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




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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	2474	38% 42% 10% 9%
1	C	2474	38% 43% 9% 9%
2	B	303	41% 47% 10% ..
2	D	303	44% 44% 9% ..
3	E	303	91% 9%
3	F	303	88% 12%
4	G	426	33% 64%
4	H	426	30% 5% 64%
5	I	1176	6% 5% 88%

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Mol	Chain	Length	Quality of chain
5	J	1176	 6% 5% .. 88%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 48012 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 Serine/threonine-protein kinase TOR2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	2262	Total	C	N	O	S	0	0
			18186	11650	3110	3345	81		
1	C	2262	Total	C	N	O	S	0	0
			18186	11650	3110	3345	81		

- Molecule 2 is a protein called Target of rapamycin complex subunit LST8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	300	Total	C	N	O	S	0	0
			2372	1468	433	460	11		
2	D	300	Total	C	N	O	S	0	0
			2372	1468	433	460	11		

- Molecule 3 is a protein called Target of rapamycin complex 2 subunit TSC11.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	E	303	Total	C	N	O	0	0
			1515	909	303	303		
3	F	303	Total	C	N	O	0	0
			1515	909	303	303		

- Molecule 4 is a protein called Target of rapamycin complex 2 subunit AVO2.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	G	155	Total	C	N	O	0	0
			762	452	155	155		
4	H	155	Total	C	N	O	0	0
			762	452	155	155		

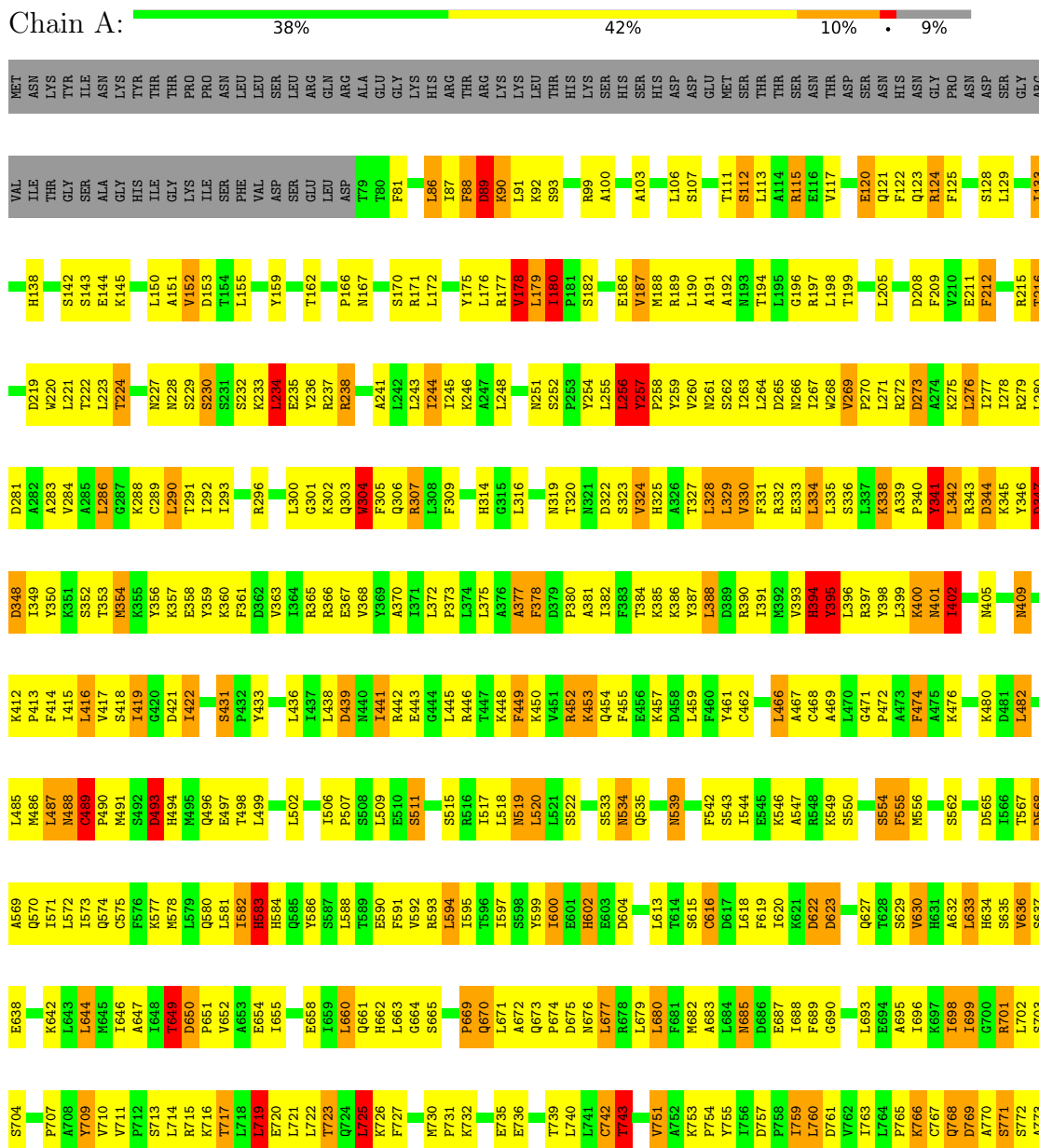
- Molecule 5 is a protein called Target of rapamycin complex 2 subunit AVO1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	I	146	1171	739	187	242	3	0	0
5	J	146	1171	739	187	242	3	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. 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. 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: Serine/threonine-protein kinase TOR2



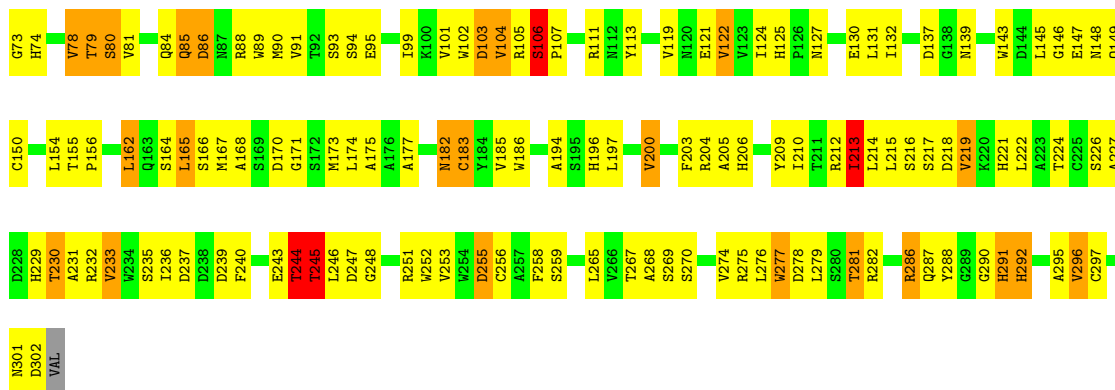
R1883	L1964	W2039	F2111	D2183	T2258	E2332	E2408
I1884	L1965	D2040	C2112	T2184	Y2259	G2383	
H1885	R1966	Y2043	K2113	F2185	T2260	S2384	H2411
Q1886	M1967	N2044	K2114	H2186	R2261	F2385	L2412
	A1968	K2047	G2115	V2187	S2262	L2386	L2415
	W1961	R2048	S2116	L2188	L2263	T2387	R2416
	H1962	K2049	D2117	T2189	A2264	T2388	
	E1963	L2048	D2120	E2191	V2265	E2389	R2419
	W1964	L2049	Y2121	R2192	M2266	C2390	
	S1900	Q2052	K2122	H2193	S2267	W2342	L2422
	D1901	L2053	Y2123	R2194	M2268	W2342	V2423
	L1902	E1967	Y2124	E2194	T2269	L2424	L2424
	G1905	G1968	L2125	L2200	I2272	K2425	K2425
	A1906	L1969	K2126	N2201	L2275	R2426	R2426
	H1906	D1970	G2127	L2202	L2275	T2427	T2427
	P1907	H2059	H2128	E2203	R2278	N2349	N2349
	Q1908	E2060	E2129	H2204	H2279	L2353	D2429
	A1909	L2061	S1973	V2205	P2280	L2354	K2430
	L1910	Q2062	R1974	V2206	S2281	H2384	L2431
	F1976	H2063	F1976	M2207	L2283	L2357	T2432
	Y1912	P2066	F1977	L2208	L2283	L2357	G2433
	P1913	K2067	G1978	L2208	M2284	M2360	M2434
	H1915	L2068	E1979	D2213	L2285	F2360	L2435
	V1916	L2069	H1980	D2213	D2286	D2363	R2437
	A1917	S2070	M1981	L2219	I2288	L2364	R2438
	K1918	E2075	K1984	L2220	K2291	L2365	F2439
	K1919	L2076	M1985	L2220	W2292	L2366	N2440
	E1921	A2077	A1988	L2223	L2293	N2367	D2441
	S1922	V2078	L1989	E2224	H2294	W2368	L2442
		P2079		V2225	I2295	G2388	D2443
		G2080		L2230	L2295	F2301	V2444
		L1992		N2231	G2298	L2372	P2445
		Y1993		N2231	D2299	L2372	P2445
		E1994		N2232	C2300	L2373	Q2447
		A1998		T2233	F2301	K2375	D2448
		K1997		E2234	A2304	L2376	D2449
		R1998		D2237	I2305	L2377	K2450
		L2006		L2238	L2306	G2382	L2451
		R2004		Y2239	R2307	G2382	T2452
		E2005		L2242	E2308	L2385	D2454
		L2006		W2243	F2310	F2387	T2455
		G2013		K2244	F2310	V2387	T2456
		R2014		S2248	L2318	A2390	E2459
		E2017		E2250	L2318	N2391	E2459
		D2018		T2251	A2326	E2392	C2462
		K2030		W2252	M2326	L2393	Y2465
		D2031		T2252	E2327	L2394	T2466
		Q1946		E2254	V2328	A2398	G2467
		V2032		R2255	W2471	I2399	W2468
		S2033		R2256	W2472	L2399	M2469
		L1949		T2257		V2404	P2470
		W1950				Q2406	R2471
		S1951				R2406	W2472
		H1952				V2407	
		A2038					

• Molecule 1: Serine/threonine-protein kinase TOR2



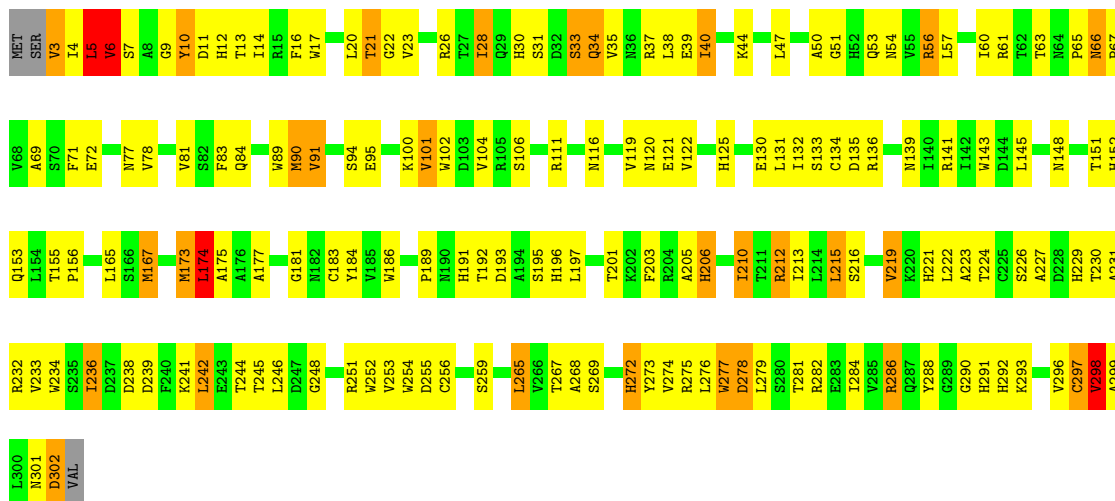
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P341	L277	I138	ILE	ASN
Y342	I278	H139	THR	LYS
L343	I279	G140	GLY	TYR
R344	R280	S143	SER	ILE
D345	R281	A144	ALA	ASN
K346	D282	E145	GLY	LYS
Y347	A283	K146	HIS	THR
D348	A284	I147	ILE	THR
D349	W221	L150	GLY	PRO
L350	A286	L151	PRO	PRO
Y351	L287	A152	ILE	ASN
K352	G288	V153	SER	LEU
S353	K289		PHE	LEU
T354	C290		VAL	LEU
M355	L291		ASP	SER
K356	I294		SER	LEU
Y357	I294		GLU	ARG
K358	S231		LEU	GLN
E359	S232		ASP	ARG
D360	D298		T79	ALA
K361	P299		T81	GLU
F362	A300		F82	GLY
D363	L301		N86	LYS
K364	G302		L87	HIS
L365	K303		L87	ARG
K366	Q304		R172	THR
R367	W305		L173	THR
E368	F306		F89	ARG
V369	Q307		D90	LYS
Y370	R308		K91	LYS
A371	L309		V96	LEU
I372	F310		P97	THR
L373	Q311		Q98	HIS
			E99	SER
L376	T314		R100	HIS
A377	H315		A101	SER
A378	G316		T110	HIS
F379	L317		L111	ASP
D380	N320		T112	ASP
P381	T321		S113	GLU
L383	M322		L114	MET
F384	D323		A115	SER
T385	S324		R116	THR
K386	V325		L191	THR
K387	H326		E117	SER
Y388	A327		V118	ASN
L389	T328		E121	THR
D390	L329		Q122	ASP
R391	L330		F123	SER
I392	V331		Q124	ASN
M393	F332		S129	HIS
H394	G333		L130	ASN
H395	E334		M131	GLY
Y396	L335		T207	PRO
L397	L336		T207	ASN
K398	S337		I134	ASP
Y399	L338		F135	GLY
L400	K339		E136	ARG

K401	M402	I403	D404	M409	M410	S411	D412	K413	K414	K415	F416	L417	V418	S419	I420	G421	D422	I423	A424	F425	L437	I438	L439	D440	M441	I442	R443	E444	G445	L446	R447	T448	K449	F450	R453	K454	Q455	F456	E457	K458	D459	L460	F461	Y462	L467	A468	C469	A470	L471	G472	G473	E474	D475	F476	A477	K477																																																
L483	C490	P491	M492	S493	D494	E498	T499	L500	F501	L502	N503	N504	E505	I506	K507	F508	N515	S516	R517	I518	L519	N520	N521	N522	N523	L526	S527	E528	G529	K530	Q533	S534	N535	Q536	Y537	N541	Q542	F543	S544	L545	E546	R549	T560	G561	E562	D566	I567	L568	D569	A570	Q571	I572	L573	I574	C576	F577	L580	Q581	L582	I583	H584	H585	Q586	Y587	K588	L589	F592	N595	I596	T597	I598	S599	Y600	I601	E602	H603	A613	S616	C617	F620	I621	K622	D623	C626	Q628	T629	S630	V631	H632	A633	L634	H635	L636	L637	K638	L639	S636	V637	S638	E639	V640	L641	S642	K643
L644	L645	M646	D651	P652	M653	A654	E655	L656	R657	L658	E659	L661	Q662	H663	L664	G665	P670	Q671	L672	A673	Q674	P675	D676	Y600	L677	L678	L679	L680	L681	P682	M683	A684	L685	L686	D687	E688	L689	F690	D691	G692	L693	L694	I697	K698	L699	I700	G701	L702	L703	S704	S705	E638	V706	Y710	V711	V712																																																
P713	S714	L715	T718	L719	L720	E721	L722	L723	Q810	R811	N814	S815	R816	Q817	N730	M731	P732	L745	I746	N747	L825	S748	S749	W752	A753	K754	I757	I760	L761	D762	V763	L685	L764	L765	P766	K767	L846	C768	A771	S772	S777	L780	K781	V782	L783	G784	E785	S793	M794	T795	R796	V797	L798																																																			
K799	E800	M801	M802	P803	L804	L805	I806	F809	Q810	D811	N814	S815	R816	Q817	N825	R818	D819	L822	T823	T824	L825	G826	Q827	L828	A829	A830	V836	G837	P838	L840	D841	Y842	P843	E844	L845	L846	G847	L848	L849	I850	N851	I852	L853	K854	T855	E856	N857	L858	P859	T861	R862	R863	G864	L925	T865																																																	
V866	R867	L868	T869	C870	I881	L882	GLY	ALA	LEU	PRO	LYS	HIS	ARG	GLU	ILE	GLY	VAL	THR	SER	ASN	SER	LYS	SER	SER	SER	VAL	GLU	GLN	ASN	ALA	PRO	SER	ILE	ASP	ILE	ALA	LEU	MET	GLN	GLY	VAL	PRO	SER	ASN	ASP	E915	Y916	Y917	P918	T919	H860	I861	R862	H863	L925	N926	M926																																															
L929	L934	H938	T939	Q943	N946	H947	I948	F949	N950	N951	L952	C953	L954	R955	C956	Y957	S958	F959	D961	G962	I963	N964	P965	I966	L969	R971	P976	Q977	Q978	L979	D980	F981	Y982	F983	Q984	Q985	L986	G987	S988	L989	I990	S991	Y992	Y993	K994	I995	H996	I997	R998	P999																																																						
H1000	V1001	E1002	K1003	I1004	Y1005	G1006	V1007	I1008	R1009	E1010	F1011	P1013	I1014	I1015	K1016	L1017	C1018	I1019	I1020	I1021	I1022	I1025	E1026	S1027	I1028	K1029	S1030	I1031	L1032	E1033	T1034	I1035	R1038	E1042	T1043	L1044	T1045	F981	F1047	L1048	D1049	I1050	L986	G987	S988	M1053	S1066	M1057	K1058	R1059	Y993	K994	I1060	I1061	P1062	I1063	I1065																																															
L1066	K1067	S1068	L1069	V1070	P1074	M1075	Y1079	S1080	H1081	L1082	I1083	M1084	P1085	L1086	V1087	V1088	R1089	M1090	Y1093	S1094	S1097	L1098	K1099	K1100	I1101	I1102	I1103	I1104	L1105	G1107	R1108	L1109	A1110	K1111	M1112	I1113	M1114	E1117	M1118	S1119	S1120	R1121	Q1124	A1125	L1126	V1127	R1128	CYS	L1129	L1130	D1134	R1135																																																				
E1136	L1137	T1138	K1139	A1140	T1141	M1142	N1143	T1144	L1145	L1148	L1149	L1150	Q1151	L1152	G1153	T1154	P1151	V1162	K1165	A1166	L1167	R1171	I1172	Q1173	H1174	S1175	Y1176	Y1177	D1178	M1182	K1183	L1184	L1185	C1189	T1192	M1193	I1194	I1195	F1196	D1197	Y1208	Q1213	V1214	T1215	K1216	L1217	P1218	V1219	M1220	Q1221																																																						
M1222	K1225	M1226	C1230	S1231	D1238	M1239	Q1240	E1241	L1242	I1243	R1244	L1245	F1324	H1327	L1332	I1334	G1340	K1341	Y1342	A1343	Q1344	H1347	A1348	F1349	A1350	K1351	Y1355	K1356	E1357	V1286	E1359	F1360	P1364	K1365	Y1291	Y1292	Q1293	E1294	D1295	LEU	ILE	ALA	ALA	LEU	CYS	LYS	ALA	S1368	I1369	E1370	A1371	L1372	K1455	T1458	A1459	K1460	P1461	A1385	I1386																																													
SER	GLU	ASN	PRO	PRO	GLU	ILE	TYR	GLN	MET	LEU	LEU	ASN	L1332	V1322	E1323	F1324	H1327	L1332	I1334	G1340	K1341	Y1342	A1343	Q1344	H1347	A1348	F1349	A1350	K1351	Y1355	K1356	E1357	V1286	E1359	F1360	P1364	K1365	Y1291	Y1292	Q1293	E1294	D1295	LEU	ILE	ALA	ALA	LEU	CYS	LYS	ALA	S1368	I1369	E1370	A1371	L1372	K1455	T1458	A1459	K1460	P1461	A1385	I1386																																										
G1387	I1388	L1389	K1390	H1391	L1398	Q1399	L1400	K1401	E1402	T1403	E1406	K1407	L1408	Q1409	R1410	W1411	E1412	D1413	A1414	K1421	G1425	S1426	D1427	S1428	H1429	E1430	V1431	M1432	K1435	L1436	L1437	S1438	L1439	Y1440	A1441	L1442	G1443	E1444	W1445	L1448	L1451	A1452	S1453	E1454	K1455	T1458	A1459	K1460	P1461	A1385	I1386																																																					
K1464	A1465	A1466	M1467	A1468	P1469	L1470	G1473	A1474	A1475	A1476	G1477	L1478	E1479	I483	A1484	I488	A1485	Q1486	Y1487	M1491	K1492	S1493	Q1494	S1495	P1496	D1497	K1498	E1499	F1500	I1504	L1505	C1506	L1507	H1508	R1509	M1510	M1511	F1512	K1513	K1514	A1515	E1516	V1517	H1518	I1519	F1520	M1521	L1525	L1526	L1530	S1531	A1532	L1533	V1534																																																		



- Molecule 2: Target of rapamycin complex subunit LST8

Chain D: 44% 44% 9% ..



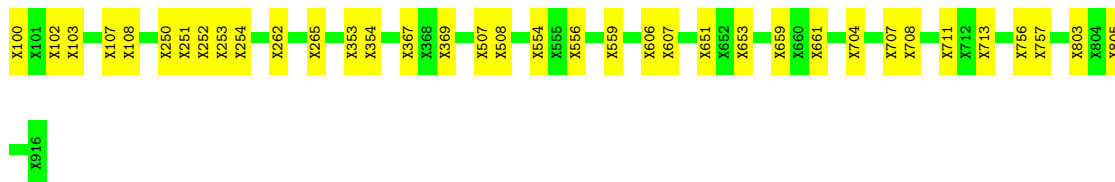
- Molecule 3: Target of rapamycin complex 2 subunit TSC11

Chain E: 91% 9%



- Molecule 3: Target of rapamycin complex 2 subunit TSC11

Chain F: 88% 12%



- Molecule 4: Target of rapamycin complex 2 subunit AVO2

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, POINT	Depositor
Number of particles used	16190, 10663	Depositor
Resolution determination method	FSC 0.143 CUT-OFF, FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION, PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50, 47	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3500	Depositor
Magnification	105000	Depositor
Image detector	FEI FALCON II (4k x 4k), GATAN K2 QUANTUM (4k x 4k)	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	0.60	0/18019	0.94	52/23495 (0.2%)
1	C	0.60	0/17986	0.93	40/23389 (0.2%)
2	B	0.60	0/2362	0.89	7/3108 (0.2%)
2	D	0.60	0/2353	0.93	4/3080 (0.1%)
4	G	0.48	0/715	0.68	0/918
4	H	0.49	0/718	0.87	2/927 (0.2%)
5	I	1.03	2/1165 (0.2%)	1.09	7/1526 (0.5%)
5	J	0.88	0/1160	1.01	8/1509 (0.5%)
All	All	0.62	2/44478 (0.0%)	0.93	120/57952 (0.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	1	28
1	C	0	25
2	B	0	4
2	D	0	2
5	I	0	2
5	J	0	2
All	All	1	63

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	I	713	LEU	N-CA	5.35	1.57	1.46
5	I	714	TYR	N-CA	5.27	1.56	1.46

The worst 5 of 120 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	1084	MET	C-N-CD	-9.18	100.41	120.60
2	D	174	LEU	CA-CB-CG	8.54	134.94	115.30
1	A	2426	ARG	N-CA-C	7.87	132.25	111.00
2	B	106	SER	C-N-CD	-7.69	103.69	120.60
5	I	713	LEU	CA-CB-CG	7.55	132.67	115.30

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
1	A	257	TYR	CA

5 of 63 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	178	VAL	Peptide
1	A	180	ILE	Peptide
1	A	256	LEU	Peptide
1	A	257	TYR	Peptide
1	A	347	ASP	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	18186	0	18002	1077	0
1	C	18186	0	17976	1069	0
2	B	2372	0	2199	140	0
2	D	2372	0	2191	145	0
3	E	1515	0	491	15	0
3	F	1515	0	490	23	0
4	G	762	0	290	6	0
4	H	762	0	293	9	0
5	I	1171	0	1119	61	0
5	J	1171	0	1116	54	0
All	All	48012	0	44167	2571	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 28.

The worst 5 of 2571 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:2060:GLU:HB3	1:A:2062:GLN:HG2	1.25	1.18
1:A:841:TYR:HB2	1:A:843:GLU:HG2	1.16	1.13
1:C:983:PHE:HB3	1:C:1022:ILE:HG12	1.31	1.10
1:A:179:LEU:HD22	1:A:233:LYS:HG3	1.31	1.10
2:D:297:CYS:HA	2:D:298:VAL:HB	1.25	1.09

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1309/2474 (53%)	872 (67%)	313 (24%)	124 (10%)	0	10
1	C	1267/2474 (51%)	849 (67%)	290 (23%)	128 (10%)	0	9
2	B	178/303 (59%)	122 (68%)	45 (25%)	11 (6%)	1	17
2	D	173/303 (57%)	113 (65%)	44 (25%)	16 (9%)	1	11
4	G	75/426 (18%)	57 (76%)	12 (16%)	6 (8%)	1	12
4	H	80/426 (19%)	43 (54%)	22 (28%)	15 (19%)	0	2
5	I	95/1176 (8%)	52 (55%)	29 (30%)	14 (15%)	0	4
5	J	88/1176 (8%)	52 (59%)	23 (26%)	13 (15%)	0	3
All	All	3265/8758 (37%)	2160 (66%)	778 (24%)	327 (10%)	1	9

5 of 327 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	89	ASP
1	A	112	SER
1	A	224	THR

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Mol	Chain	Res	Type
1	A	257	TYR
1	A	342	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	A	2029/2219 (91%)	1734 (86%)	295 (14%)	3 15
1	C	2029/2219 (91%)	1722 (85%)	307 (15%)	3 14
2	B	264/267 (99%)	229 (87%)	35 (13%)	4 18
2	D	264/267 (99%)	230 (87%)	34 (13%)	4 18
5	I	137/1066 (13%)	113 (82%)	24 (18%)	2 11
5	J	137/1066 (13%)	108 (79%)	29 (21%)	1 6
All	All	4860/7104 (68%)	4136 (85%)	724 (15%)	6 15

5 of 724 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	1007	VAL
1	C	2041	TRP
1	C	1108	ARG
1	C	1004	ILE
1	C	1504	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 115 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	320	ASN
2	D	229	HIS
1	C	858	ASN
2	D	152	HIS
1	C	2284	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	C	567
1	A	534
3	E	90
3	F	87
2	D	75
2	B	66
4	G	45
4	H	42
5	J	31
5	I	26

The worst 5 of 1563 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	E	416:UNK	C	450:UNK	N	40.12
1	F	416:UNK	C	450:UNK	N	39.07

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	E	512:UNK	C	550:UNK	N	33.98
1	F	717:UNK	C	750:UNK	N	33.97
1	E	717:UNK	C	750:UNK	N	33.43

6 Map visualisation

This section contains visualisations of the EMDB entry EMD-3896. 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

This section was not generated.

6.2 Central slices

This section was not generated.

6.3 Largest variance slices

This section was not generated.

6.4 Orthogonal standard-deviation projections (False-color)

This section was not generated.

6.5 Orthogonal surface views

This section was not generated.

6.6 Mask visualisation

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

This section was not generated.

7.2 Volume estimate versus contour level

This section was not generated.

7.3 Rotationally averaged power spectrum

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

8 Fourier-Shell correlation

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

9 Map-model fit

This section was not generated.