

Nov 20, 2022 – 07:30 PM EST

PDB ID 7U05: EMDB ID EMD-26254 : Title : Structure of the yeast TRAPPII-Rab11/Ypt32 complex in the closed/closed state (composite structure) Bagde, S.R.; Fromme, J.C. Authors : 2022-02-17 Deposited on : 3.70 Å(reported) Resolution : Based on initial models 3PR6, 3CUE, 3RWO :

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

We welcome your comments at *validation@mail.wwpdb.org* A user guide is available at https://www.wwpdb.org/validation/2017/EMValidationReportHelp with specific help available everywhere you see the (i) 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 (1)) were used in the production of this report:

EMDB validation analysis	:	0.0.1. dev 43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7(2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.70 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	$egin{array}{llllllllllllllllllllllllllllllllllll$	${f EM} {f structures} \ (\#{f Entries})$
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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

Mol	Chain	Length	Quality of chain	
1	М	242	94%	6%
1	m	242	<u>6%</u> 94%	6%
2	С	560	• 51% 49%	
2	с	560	51% 49%	
3	D	152	92%	8%
3	d	152	92%	8%
4	Е	268	77%	23%
4	е	268	• • 76% •	23%
5	F	193	• 96%	·



Mol	Chain	Length	Quality of chain	
5	Ι	193	94%	• 5%
5	f	193	96%	•
5	i	193	• 95%	• 5%
6	G	159	97%	•••
6	g	159	97%	••
7	Н	219	82%	18%
7	h	219	82%	18%
8	J	283	74%	26%
8	j	283	73% •	26%
9	K	175	82%	17%
9	k	175	83%	• 17%
10	L	227	• 85%	15%
10	1	227	• 85%	15%
11	В	1104	74%	26%
11	b	1104	74%	26%
12	A	1289	• 86%	14%
12	a	1289	€ €	14%
13	N	210	63% 37°	/ 0
13	n	210	63% 379	

Continued from previous page...



2 Entry composition (i)

There are 14 unique types of molecules in this entry. The entry contains 130986 atoms, of which 65392 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 Trafficking protein particle complex II-specific subunit 130.

Mol	Chain	Residues		Α	AltConf	Trace			
1	М	227	Total 2040	C 681	Н 905	N 227	O 227	0	0
1	m	227	Total 2040	C 681	Н 905	N 227	O 227	0	0

• Molecule 2 is a protein called Trafficking protein particle complex II-specific subunit 65.

Mol	Chain	Residues			AltConf	Trace				
2	С	286	Total	С	Η	Ν	0	S	0	0
	U	286	4652	1488	2353	372	434	5	0	0
0	0	286	Total	С	Η	Ν	0	S	0	0
	C	200	4652	1488	2353	372	434	5	0	0

• Molecule 3 is a protein called TRAPP-associated protein TCA17.

Mol	Chain	Residues			AltConf	Trace				
2	л	140	Total	С	Η	Ν	Ο	\mathbf{S}	0	0
5	D	140	2262	729	1145	175	209	4	0	0
9	d	140	Total	С	Η	Ν	0	S	0	0
Э	u	140	2262	729	1145	175	209	4	0	0

• Molecule 4 is a protein called Trafficking protein particle complex subunit 33.

Mol	Chain	Residues			AltConf	Trace				
1	F	207	Total	С	Η	Ν	Ο	S	0	0
4	Ľ	201	3430	1092	1736	286	308	8	0	0
4	0	207	Total	С	Η	Ν	Ο	S	0	0
4	е	201	3430	1092	1736	286	308	8	0	0

• Molecule 5 is a protein called Trafficking protein particle complex subunit BET3.



Mol	Chain	Residues			Aton	ns			AltConf	Trace
5	Б	186	Total	С	Η	Ν	0	\mathbf{S}	0	0
0	Г	100	2997	955	1500	246	285	11	0	0
Б	т	194	Total	С	Η	Ν	0	S	0	0
0	1	104	2971	947	1489	244	280	11	0	0
Б	t	196	Total	С	Н	Ν	0	S	0	0
0	1	100	2997	955	1500	246	285	11	0	0
Б	;	194	Total	С	Н	Ν	0	S	0	0
5	1	104	2971	947	1489	244	280	11	U	U

• Molecule 6 is a protein called Trafficking protein particle complex subunit BET5.

Mol	Chain	Residues			Atom	S			AltConf	Trace
6	C	156	Total	С	Η	Ν	0	S	0	0
0	b G	150	2518	813	1245	216	238	6	0	0
6	CC CC	156	Total	С	Η	Ν	0	S	0	0
6 g	g	150	2518	813	1245	216	238	6	0	0

• Molecule 7 is a protein called Trafficking protein particle complex subunit 23.

Mol	Chain	Residues			Atom	IS			AltConf	Trace
7	п	170	Total	С	Η	Ν	0	S	0	0
1	11	179	2863	921	1432	230	272	8	0	U
7	h	170	Total	С	Η	Ν	0	S	0	0
7 h	h	179	2863	921	1432	230	272	8	0	0

• Molecule 8 is a protein called Trafficking protein particle complex subunit 31.

Mol	Chain	Residues			Atom	S			AltConf	Trace
8	т	210	Total	С	Н	Ν	0	S	0	0
0	J	210	3343	1077	1652	288	317	9	0	0
8	i	210	Total	С	Η	Ν	0	S	0	0
0	J	210	3343	1077	1652	288	317	9	0	0

• Molecule 9 is a protein called Trafficking protein particle complex subunit 20.

Mol	Chain	Residues	Atoms					AltConf	Trace	
0	K	146	Total	С	Η	Ν	Ο	\mathbf{S}	0	0
9	Γ	140	2342	766	1152	197	222	5	0	0
0	k	k 146	Total	С	Η	Ν	Ο	\mathbf{S}	0	0
9			2342	766	1152	197	222	5	0	0

• Molecule 10 is a protein called GTP-binding protein YPT32/YPT11.



Mol	Chain	Residues	Atoms					AltConf	Trace	
10	т	103	Total	С	Η	Ν	Ο	\mathbf{S}	0	0
10		195	2982	949	1477	254	298	4	0	0
10	1	103	Total	С	Η	Ν	0	S	0	0
10	1	195	2982	949	1477	254	298	4	U	U

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference	
L	221	HIS	-	expression tag	UNP P51996	
L	222	HIS	-	expression tag	UNP P51996	
L	223	HIS	-	expression tag	UNP P51996	
L	224	HIS	-	expression tag	UNP P51996	
L	225	HIS	-	expression tag	UNP P51996	
L	226	HIS	-	expression tag	UNP P51996	
L	227	HIS	-	expression tag	UNP P51996	
1	221	HIS	-	expression tag	UNP P51996	
1	222	HIS	-	expression tag	UNP P51996	
1	223	HIS	-	expression tag	UNP P51996	
1	224	HIS	-	expression tag	UNP P51996	
1	225	HIS	-	expression tag	UNP P51996	
1	226	HIS	-	expression tag	UNP P51996	
1	227	HIS	-	expression tag	UNP P51996	

• Molecule 11 is a protein called Trafficking protein particle complex II-specific subunit 130.

Mol	Chain	Residues	Atoms					AltConf	Trace	
11	В	815	Total	С	Η	Ν	Ο	S	0	0
	D	010	13433	4334	6748	1081	1242	28	0	
11	b b	b 815	Total	С	Η	Ν	Ο	S	0	0
			13433	4334	6748	1081	1242	28	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
В	1103	ALA	-	expression tag	UNP Q03660
В	1104	ALA	-	expression tag	UNP Q03660
b	1103	ALA	-	expression tag	UNP Q03660
b	1104	ALA	-	expression tag	UNP Q03660

• Molecule 12 is a protein called Trafficking protein particle complex II-specific subunit 120.



Mol	Chain	Residues		Atoms					AltConf	Trace
12 A	1114	Total	С	Η	Ν	Ο	S	0	0	
	Л	1114	18376	5905	9272	1477	1680	42	0	U
19	12 a	a 1114	Total	С	Η	Ν	Ο	S	0	0
12			18376	5905	9272	1477	1680	42		

• Molecule 13 is a protein called Trafficking protein particle complex II-specific subunit 65.

Mol	Chain	Residues	Atoms				AltConf	Trace		
12	N	139	Total	С	Η	Ν	Ο	0	0	
10	1 N	152	1188	396	528	132	132	0	0	
12	n	120	Total	С	Н	Ν	Ο	0	0	
61	11	n	152	1188	396	528	132	132	0	0

• Molecule 14 is PALMITIC ACID (three-letter code: PLM) (formula: $C_{16}H_{32}O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
14	F	1	Total	С	Η	0	0
		1	48	16	31	1	0
14	Т	1	Total	С	Η	Ο	0
14	1	1	48	16	31	1	0
14	c	1	Total	С	Η	Ο	0
14	1		48	16	31	1	0
14	14 i	1	Total	С	Η	Ο	0
14			48	16	31	1	U



3 Residue-property plots (i)

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

• Molecule 1: Trafficking protein particle complex II-specific subunit 130



MET GLU CYS CYS PHE PRO LEU LEU ARG CYS ASP	LEU GLY SER ASN ASN ASN CLU CLU CLU CLU SER HIS	SER ARG LYS PHE ILE ILE PHE ASP GLU CLU	LEU TRP TRP FHE GLN GLY SER GLU GLU	ASN LYS PHE VAL LEU GLN ASN MET TLE ILE ILE	
ASN GLU GLU THR THR SER SER THR	LLE ASP ASP ASP CHR CHR CHR CHR CHR ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN	TRP ARG LLEU LLEU ASP ASP CYS CYS CYS SER LYS ILLE	PHE PHE LYS SER SER ASN VAL VAL VAL ASN ASN ASN ASN	ASN ASN ASN ASN ALN TILE LLN PHE PHE PHE CLU TYS SER SER VAL	
ASP ALA ASN PHE ASN ASN ASN ASP SER SER LEU	GLM AGLM AGLM GLN GLN GLN TTR TTR ALA ALA ALA ALA ALA ALA	SER SER LYS ASN ASN ASN HIS LEU CLU CLU	ASN ARG ALA ALA ALA ARG VAL SER SER SER SER SER SER SER SER	SER GLU GLU GLU GLU GLU GLU GLU ALA SER SER SER SER SER SER SER SER SER SER	
THR PHE THR LEU LYS LEU GLN TYR PRO TLE	27HE 2211 2251 2253 H253 H253 H253 H253 H253 F233 L303 L303 L303 L303 L303 L303 L203 R203 R203 R203 R203 R204 R204 R204 R204 R204 R204 R204 R204	E322 E341 LYS ARG ARG ARG ARG ART TYS SER SER	JER THR SER SER GLN TYR TYR SER SER ASN ASN ASN	THR ASN ASN ASN SER SER SER ALA ALA ALA ASN ASN	VAL
ASN SER GLY GLY CLY LEU ALA ASN LEU LEU	GLY VAL SER SER SER SER ARG ARG CLY GLY ALA ALA SER SER SER	THR T400 D442 P465 SER ALA ALA ALA	ASN VAL ASN ASN SER ASN GLY ASN ASN CYS GLY	MET ASN ASN ASN CLY THR THR THR PRO ASN SER PRO ASO CO C	
• Molecule 3:	TRAPP-associate	d protein TCA1'	7		
Chain D:		92%		8%	
MET SER L3 L3 GLU GLU GLU ASN GLU E29	1146 SER SER SER CLU VAL CLU CLU LEU				
• Molecule 3:	TRAPP-associate	d protein TCA1	7		
Chain d:		92%		8%	
MET SER L3 L3 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1	1146 SER THR GLU VAL GLU CLU				
• Molecule 4:	Trafficking protein	a particle comple	ex subunit 33		
Chain E:		77%		23%	
MET SER THR HIS SER ASN VAL VAL CLY	PHLS PRO GLN SER SER PRO GLV CLV CLV CLV GLU GLN CLN	ARG ALA GLN GLN GLN GLN TYR GLU GLU ASN	LIA 137 64 64 62 Y ASP SER SER SER SER SER	ASN VAL THR SER GLU GLU ASN ASN ASN ASN ASN ASN ASN ASN	
LYS R87 N145 M161 D190	MET PRO GLN GLN				
• Molecule 4:	Trafficking protein	a particle comple	ex subunit 33		
Chain e:		76%	·	23%	
MET SER SER THR HIS SER ASN VAL CLY	PHIS CHA CLM CLM SER SER SER SER SER CLM CLM CLU CLU CLM	ARG ALA GLN GLN GLN TYR GLN THE THE GLU SSN SSN	L37 L37 S64 GLY ASP VAL ILE SER SER SER SER	ASN THR SER CUU ASN CLY ASN CLY ASN ASN ASN ASN ASN ASN	
LYS R87 N1 45 N1 45 N1 51 N1 51	12.65 MET PRO GLN				



• Molecule 5: Trafficking protein particle complex subunit BET3



• Molecule 5: Trafficking protein particle complex subunit BET3



• Molecule 5: Trafficking protein particle complex subunit BET3

Chain f:	96%	_
MET VAL SER THR THR GLN GLN ASP		

• Molecule 5: Trafficking protein particle complex subunit BET3



• Molecule 6: Trafficking protein particle complex subunit BET5



- MET G2 G30 K95 N128 N128 ASN GLN
- \bullet Molecule 7: Trafficking protein particle complex subunit 23

~		
Chain H:	82%	18%



MET A2 A2 Q26 Q59 Q60 Q60 Q60 M62 I63 I63 E64	ST 6 ST 8 SER ASN ASN ASN ASN ASN CLY CLY CLY CLY ASN	ASN ASN LYS HIS ASN ASN ASN CLU UYS CLU MET PRO CLN ARC CLN ARC	TTR THR TLE ALLA ALLA ALS PRO PRO PRO PRO PRO PRO PRO PRO PRO PRO
• Molecule 7: Tra	afficking protein part	ticle complex subunit 2	3
Chain h:	829	6	18%
MET A2 Q56 Q59 Q59 Q60 Q60 C161 I 062 I 062 I 063	ST 6 ST 6 ST 7 ST 7 ST 8 ASR ASR ASR ASR ASR ASN ASN CLY CLY CLY CLY	ASN ASN THIS THIS THIS THIS ASN ASN ASN ASN ASN ASN CLU THIS PRO CLU ANC CLU ANC CLU ANC CLU ANC CLU ANC ANC ANC ANC ANC ANC ANC ANC ANC ANC	TTRE TTRE TILE ALLA ALLA ALLA ARCP ARCP ARCP ARCP ARCP ARCP ARCP ARC
• Molecule 8: Tra	afficking protein part	ticle complex subunit 3	1
Chain J:	74%		26%
MET SER GIN ARG TILE TILE CLN PRO SER ALA SER ACA	CLAN CLAN PHE PHE PHE PHE S37 THE THE THE THE THE THE THE THE	LEU LEU PRO ARG ARG ARG ARG ARG CLA ARG AGU AGU SER SER SER SER SER SER SER	SER SER ASN ALA ASN ASN SER PRO CLY CLY MET ALA ALA ALA SSR SER SER STR
ALA THR SER SER ALA ALA ASN ALA ASN ALU CLU GLU GLU	CLIN THR E160 E208 C279 C279 C279 ARE	GLY	
• Molecule 8: Tra	afficking protein part	ticle complex subunit 3	1
Chain j:	73%	·	26%
MET SER GLN GLN LLE TLE TLE PRO SER ALA SER ALA	CLUN CLUN PHE PHE PHE PHE CLYS CLYS CLYS CLYS CLYS CLYS CLYS CLN CLN CLN CLN CLN CLN CLN CLN CLN CLN	SER SER LEU FLEU FLEU ALA ALA ALA ALA ALA ALA ALA ALA ALA SER SER SER SER	SSER LEU LEU SSR SSR ALA ALA ALA SSR SER ASN MET LEU ALA ASN SSR ASN
SER THR ALA THR THR THR THR THR ALA SER ALA CLU CLU	CLU CLU CLYS CLN CLN CLN CLN CC CC CC CC CC CC CC CC CC CC CC CC CC		
• Molecule 9: Tra	afficking protein part	ticle complex subunit 2	0
Chain K:	829	%	• 17%
MET P2 N25 P30 PR0 THR SEF SET SET SET	ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN	ARG ARG ARG ARG ARG ARA ASN ASN ASN ASN ASN ASN ASN ASN ASN AS	
• Molecule 9: Tra	afficking protein part	ticle complex subunit 2	0
Chain k:	83'	%	• 17%
MET P3 P3 P3 P30 P30 P30 P30 P30 C1 P30 C1 P30 C1 P30 P30 P30 P30 P30 P30 P30 P30 P30 P30	ASN ASN ASN ASN ASN ASN ASN GLY GLY GLY CLY CLY CLY ANG ANG	ARG ALA VAL ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN	
• Molecule 10: G	TP-binding protein	YPT32/YPT11	











• Molecule 13: Trafficking protein particle complex II-specific subunit 65

Chain n:							63	3%										•					3	37%	6	_					-				
X1 X60 UNK X62 X102	X106	X 120 UNK	UNK UNK TINK	UNK	UNK UNK	UNK	NNK	UNK	UNK UNK	UNK	UNK	UNK																							



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	369488	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE	Depositor
	CORRECTION	
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose $(e^-/\text{\AA}^2)$	53	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	63000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	39.609	Depositor
Minimum map value	-22.623	Depositor
Average map value	0.005	Depositor
Map value standard deviation	0.657	Depositor
Recommended contour level	2.5	Depositor
Map size (Å)	572.8, 572.8, 572.8	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.4319999, 1.4319999, 1.4319999	Depositor



5 Model quality (i)

5.1 Standard geometry (i)

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

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).

Mal	Chain	Bond	Bond lengths		ond angles
	Ullalli	RMSZ	# Z > 5	RMSZ	# Z > 5
2	С	0.27	0/2344	0.57	0/3176
2	с	0.29	0/2344	0.58	1/3176~(0.0%)
3	D	0.29	0/1135	0.56	0/1530
3	d	0.30	0/1135	0.60	0/1530
4	Е	0.30	0/1726	0.60	0/2323
4	е	0.30	0/1726	0.61	0/2323
5	F	0.29	0/1524	0.57	0/2060
5	Ι	0.30	0/1509	0.59	0/2040
5	f	0.29	0/1524	0.55	0/2060
5	i	0.28	0/1509	0.56	0/2040
6	G	0.28	0/1302	0.59	0/1758
6	g	0.29	0/1302	0.60	0/1758
7	Н	0.30	0/1457	0.53	0/1968
7	h	0.29	0/1457	0.55	0/1968
8	J	0.30	0/1727	0.63	0/2328
8	j	0.30	0/1727	0.61	0/2328
9	K	0.31	0/1221	0.59	0/1655
9	k	0.30	0/1221	0.60	0/1655
10	L	0.28	0/1530	0.58	0/2070
10	1	0.28	0/1530	0.58	0/2070
11	В	0.28	0/6814	0.56	0/9188
11	b	0.29	0/6814	0.57	0/9188
12	А	0.28	0/9303	0.57	0/12602
12	a	0.29	0/9303	0.57	0/12602
All	All	0.29	0/63184	0.58	1/85396~(0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:



Conti	nued fron	n previe	ous page				
Mol	Chain	Res	Type	Atoms	Ζ	$Observed(^{o})$	$Ideal(^{o})$
Mol	Chain	Res	Type	Atoms	Ζ	$Observed(^{o})$	$Ideal(^{o})$

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	ntiles
2	С	276/560~(49%)	254 (92%)	22 (8%)	0	100	100
2	с	276/560~(49%)	252 (91%)	24 (9%)	0	100	100
3	D	136/152~(90%)	125 (92%)	11 (8%)	0	100	100
3	d	136/152~(90%)	124 (91%)	12 (9%)	0	100	100
4	Ε	203/268~(76%)	178 (88%)	25~(12%)	0	100	100
4	е	203/268~(76%)	177 (87%)	26~(13%)	0	100	100
5	F	184/193~(95%)	172 (94%)	12~(6%)	0	100	100
5	Ι	182/193~(94%)	165 (91%)	16 (9%)	1 (0%)	29	66
5	f	184/193~(95%)	173 (94%)	11~(6%)	0	100	100
5	i	182/193~(94%)	163 (90%)	19 (10%)	0	100	100
6	G	154/159~(97%)	132 (86%)	22 (14%)	0	100	100
6	g	154/159~(97%)	129 (84%)	24 (16%)	1 (1%)	25	62
7	Η	173/219~(79%)	155 (90%)	18 (10%)	0	100	100



Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	entiles
7	h	173/219~(79%)	157 (91%)	16 (9%)	0	100	100
8	J	204/283~(72%)	183 (90%)	21 (10%)	0	100	100
8	j	204/283~(72%)	185 (91%)	18 (9%)	1 (0%)	29	66
9	Κ	142/175~(81%)	128 (90%)	13 (9%)	1 (1%)	22	59
9	k	142/175~(81%)	130 (92%)	11 (8%)	1 (1%)	22	59
10	L	189/227~(83%)	169 (89%)	20 (11%)	0	100	100
10	1	189/227~(83%)	170 (90%)	19 (10%)	0	100	100
11	В	805/1104 (73%)	732 (91%)	73~(9%)	0	100	100
11	b	805/1104 (73%)	731 (91%)	73~(9%)	1 (0%)	51	83
12	А	1100/1289~(85%)	987~(90%)	112 (10%)	1 (0%)	51	83
12	a	1100/1289~(85%)	991 (90%)	109 (10%)	0	100	100
All	All	7496/9644~(78%)	6762 (90%)	727 (10%)	7 (0%)	54	83

Continued from previous page...

All (7) Ramachandran outliers are listed below:

Mol	Chain	\mathbf{Res}	Type
5	Ι	188	ILE
8	j	22	TYR
6	g	95	LYS
11	b	294	GLN
12	А	1273	GLN
9	Κ	30	PRO
9	k	30	PRO

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent side chain 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	Percer	ntiles
2	С	270/518~(52%)	269 (100%)	1 (0%)	91	95
2	с	270/518~(52%)	270 (100%)	0	100	100
3	D	127/142~(89%)	127 (100%)	0	100	100



Mol	Chain	Analysed	Rotameric	Outliers	Perce	entiles
3	d	127/142~(89%)	127~(100%)	0	100	100
4	Ε	192/248~(77%)	191 (100%)	1 (0%)	88	94
4	е	192/248~(77%)	189 (98%)	3 (2%)	62	80
5	F	171/178~(96%)	171 (100%)	0	100	100
5	Ι	169/178~(95%)	168 (99%)	1 (1%)	86	93
5	f	171/178~(96%)	171 (100%)	0	100	100
5	i	169/178~(95%)	168 (99%)	1 (1%)	86	93
6	G	142/145~(98%)	141 (99%)	1 (1%)	84	91
6	g	142/145~(98%)	142 (100%)	0	100	100
7	Н	162/199~(81%)	162 (100%)	0	100	100
7	h	162/199~(81%)	162 (100%)	0	100	100
8	J	187/249~(75%)	187 (100%)	0	100	100
8	j	187/249~(75%)	186 (100%)	1 (0%)	88	94
9	Κ	132/152~(87%)	131 (99%)	1 (1%)	81	89
9	k	132/152~(87%)	132 (100%)	0	100	100
10	L	162/194~(84%)	162 (100%)	0	100	100
10	1	162/194 (84%)	162 (100%)	0	100	100
11	В	753/1023 (74%)	753 (100%)	0	100	100
11	b	753/1023 (74%)	753 (100%)	0	100	100
12	А	1054/1213~(87%)	1053 (100%)	1 (0%)	93	98
12	a	$1054/12\overline{13}\ (87\%)$	1053 (100%)	1 (0%)	93	98
All	All	$704\overline{2/8878}$ (79%)	7030 (100%)	12 (0%)	93	97

Continued from previous page...

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	С	219	ASN
4	Е	145	ASN
6	G	133	ARG
5	Ι	8	ARG
9	Κ	25	ASN
12	А	728	LYS
4	е	87	ARG
4	е	145	ASN
4	е	181	ARG



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Mol	Chain	Res	Type
5	i	8	ARG
8	j	207	ASN
12	a	173	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
2	С	219	ASN
11	В	405	ASN
11	В	535	HIS
11	В	837	ASN
12	А	467	ASN
4	е	106	HIS
8	j	207	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)

4 ligands are modelled in this entry.

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



Mal	Turne	Chain	Dec	Timle	Bond lengths			Bond angles		
1VIOI	туре	Unain	nes		Counts	RMSZ	# Z >2	Counts	RMSZ	# Z > 2
14	PLM	F	201	5	16,16,17	0.57	0	$15,\!15,\!17$	0.50	0
14	PLM	Ι	201	5	16,16,17	0.57	0	$15,\!15,\!17$	0.52	0
14	PLM	i	201	5	16,16,17	0.52	0	$15,\!15,\!17$	0.50	0
14	PLM	f	201	5	16,16,17	0.55	0	$15,\!15,\!17$	0.50	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	PLM	F	201	5	-	7/13/14/15	-
14	PLM	Ι	201	5	-	3/13/14/15	-
14	PLM	i	201	5	-	4/13/14/15	-
14	PLM	f	201	5	-	7/13/14/15	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
14	f	201	PLM	C4-C5-C6-C7
14	F	201	PLM	C4-C5-C6-C7
14	f	201	PLM	C2-C3-C4-C5
14	F	201	PLM	C2-C3-C4-C5
14	F	201	PLM	C3-C4-C5-C6
14	f	201	PLM	C3-C4-C5-C6
14	Ι	201	PLM	CB-CC-CD-CE
14	f	201	PLM	CD-CE-CF-CG
14	F	201	PLM	CD-CE-CF-CG
14	i	201	PLM	CB-CC-CD-CE
14	Ι	201	PLM	C8-C9-CA-CB
14	Ι	201	PLM	С7-С8-С9-СА
14	f	201	PLM	CB-CC-CD-CE
14	f	201	PLM	C6-C7-C8-C9
14	i	201	PLM	C9-CA-CB-CC
14	F	201	PLM	C6-C7-C8-C9
14	F	201	PLM	CB-CC-CD-CE
14	F	201	PLM	C9-CA-CB-CC



Mol	Chain	Res	Type	Atoms
14	i	201	PLM	C2-C3-C4-C5
14	f	201	PLM	C9-CA-CB-CC
14	i	201	PLM	C6-C7-C8-C9

Continued from previous page...

There are no ring outliers.

No monomer is involved in short contacts.

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







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-26254. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections (i)

6.1.1 Primary map



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

6.2 Central slices (i)

6.2.1 Primary map



X Index: 200

Y Index: 200



Z Index: 200 $\,$

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: 181

Y Index: 218

Z Index: 184

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

6.4 Orthogonal surface views (i)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 2.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.



6.5 Mask visualisation (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 563 $\rm nm^3;$ this corresponds to an approximate mass of 509 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.



7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.270 ${\rm \AA^{-1}}$



8 Fourier-Shell correlation (i)

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-26254 and PDB model 7U05. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay (i)



The images above show the 3D surface view of the map at the recommended contour level 2.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.



9.2 Q-score mapped to coordinate model (i)



The images above show the model with each residue coloured according 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 (2.5).



9.4 Atom inclusion (i)



At the recommended contour level, 82% of all backbone atoms, 82% of all non-hydrogen atoms, are inside the map.



9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (2.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score		
All	0.8213	0.4520		
А	0.8403	0.4710		
В	0.7980	0.4410		
С	0.7887	0.4540		
D	0.8116	0.4440		
E	0.8222	0.4620		
F	0.8451	0.4840		
G	0.8408	0.4870		
Н	0.7891	0.4740		
Ι	0.8347	0.4950		
J	0.8525	0.4830		
K	0.8530	0.4940		
L	0.7667	0.4540		
М	0.9101	0.2470		
Ν	0.9182	0.2490		
a	0.8428	0.4710		
b	0.7947	0.4400		
С	0.7944	0.4470		
d	0.8089	0.4440		
е	0.8192	0.4510		
f	0.8303	0.4820		
g	0.8481	0.4860		
h	0.8018	0.4750		
i	0.8279	0.4850		
j	0.8579	0.4830		
k	0.8624	0.4900		
l	0.7715	0.4560		
m	0.9181	0.2450		
n	0.9742	0.2530		



1.0

