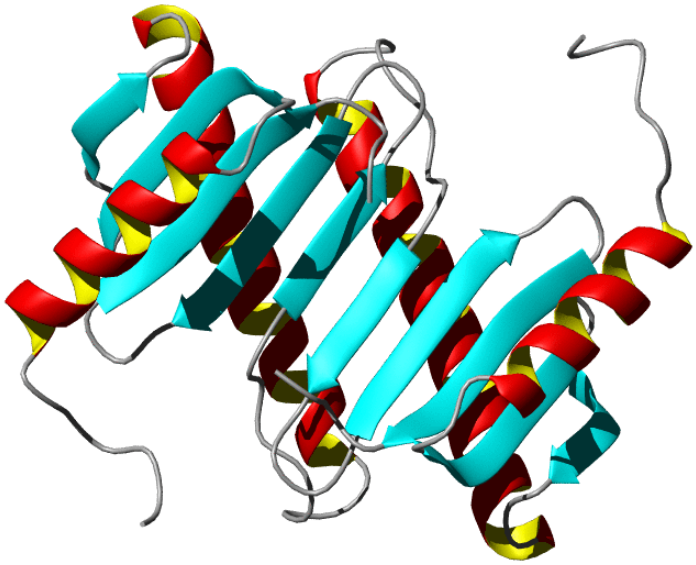
Center for Eukaryotic Structural Genomics

Protein Structure Initiative

Target ID	GO.34382	
Source Organism	*Mus musculus*	
Gene Designator	BC029172	
PDB Entry	1Y4O	Deposition: 01-Dec-2004
BMRB Entry	6396	Deposition: 18-Jan-2005
Function	cytoplasmic dynein light chain	
Produced From	Cell-free (wheat germ extract)	
Structure by NMR	Restraints/Residue: 18.5	Subunits/Molecule: 2
	No. of Residues: 96	Molecular Weight: 21.0 kDa
	Backbone RMSD(17-92): 0.69 Å	All Heavy Atoms RMSD(17-92): 1.09 Å
Data Collected At	Nuclear Magnetic Resonance Facility at Madison (NMRFAM)	
Authors	Song, J., Tyler, R.C., Lee, M.S., Tyler, E.M., Markley, J.L.	



Structural Features

Roadblock/LC7 is a member of a class of dynein light chains involved in regulating the function of the dynein complex. We have determined the three-dimensional structure of isoform 1 of the mouse Roadblock/LC7 cytoplasmic dynein light chain (robl1_mouse) by NMR spectroscopy. In contrast to a previously reported NMR structure of the human homolog with 96% sequence identity (PDB 1TGQ), which showed the protein as a monomer, our results indicate clearly that robl1 exists as a symmetric homodimer. The two beta3-strands pair with each other and form a continuous ten-stranded beta-sheet. The 25-residue alpha2-helix from one subunit packs antiparallel to that of the other subunit on the face of the beta-sheet. Zipper-like hydrophobic contacts between the two helices serve to stabilize the dimer.

References: (1) Song, J., Tyler, R.C., Lee, M.S., Tyler, E.M., Markley, J.L. (2005) Solution structure of isoform 1 of Roadblock/LC7, a light chain in the dynein complex. *J Mol Biol* 354(5):1043-51.

Percent Identity with Nearest PDB Structure at Time Solved	14% coverage 1vmg
Pfam Cluster	N/A
Sequence Family Size	145

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