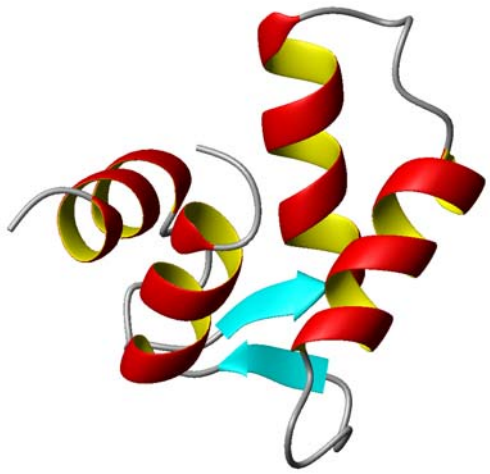
Center for Eukaryotic Structural Genomics

Protein Structure Initiative

Target ID	GO.33909	
Source Organism	*Arabidopsis thaliana*	
Target Name	At3g03410.1	
PDB Entry	1TIZ	Deposition: 02-Jun-2004
BMRB Entry	6209	Deposition: 19-May-2004
Function	EF-hand/Ca binding sensors or signal modulators	
Produced From	*E. coli* Rosetta(DE3)/pLysS	
Structure by NMR	Restraints/Residue: 25.5	Subunits/Molecule: 1
	No. of Residues: 67	Molecular Weight: 7.8 kDa
	Backbone RMSD(2–67): 0.27 Å	All Heavy Atoms RMSD(2–67): 0.87 Å
Data Collected At	Nuclear Magnetic Resonance Facility at Madison (NMRFAM)	
Authors	J. Song, Q. Zhao, S. Thao, R.O. Frederick, J.L. Markley	



Structural Features

The most similar structures in the PDB were the canonical EF-hands, including the N-terminal domains of calmodulin and calbindin. These calcium binding motifs comprise a diverse superfamily of calcium sensors and calcium signal modulators. Binding of Ca^{2+} induces a conformational change in the EF-hand motif, leading to the activation or inactivation of target proteins. Unlike most of the other canonical EF-hands, the second EF-hand of N-terminal domain of At3g03410.1 shows closed conformation in the presence of calcium. Although At3g03410.1 falls within the EF-hand superfamily, the true biological function of At3g03410.1 currently is unknown. This target aligns to domains within Pfam trusted matches for efhand over residues 2–30 and 38–66.

References: (1) Song, J., Zhao, Q., Thao, S., Frederick, R.O., Markley, J.L. (2004) Solution structure of a calmodulin-like calcium-binding domain from *Arabidopsis thaliana*. *J Biomol NMR* 30(4):451-6.

Percent Identity with Nearest PDB Structure at Time Solved	31% over 67 aa (1J7O)
Pfam Cluster	efhand
Protonet Cluster Size : Structures in PDB	794 : 12

Center for Eukaryotic Structural Genomics (CESG), University of Wisconsin-Madison Biochemistry Department, 433 Babcock Drive, Madison, WI 53706-1549; phone: 608.263.2183; fax: 608.890.1942; email: cesginfo@biochem.wisc.edu; website: http://www.uwstructuralgenomics.org. This research funded by NIH / NIGMS Protein Structure Initiative grants U54 GM074901 and P50 GM064598.