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Structure of Mouse Apolipoprotein A-I Binding Protein. I.A. Shumilin, K.N. Jha, H. Zheng, M. Chruszcz, M. Cymborowski, J.C. Herr, W. Minor, Univ. of Virginia, Charlottesville, VA 22903.

Apolipoprotein A-I binding protein (AI-BP) specifically binds to apolipoprotein A-I, the major component of high-density lipoprotein particles. Despite the widespread presence of the AI-BP homologs in various organisms, its function remains unknown. SeMet-substituted mouse AI-BP missing N-terminal signal peptide and containing C-terminal His-tag was expressed in E. coli and used for the crystallization and structure determination. The crystals belong to space group C2 with cell dimensions a = 104.9 Å, b = 125.7 Å, c = 163.6 Å, β = 106.6° and diffract to 2.5 Å. The asymmetric unit contains six subunits of 265 residue protein organized in three dimers and includes 48 SeMet residues in total. 36 Se atoms were found and used for SAD phasing. 12 remaining SeMet are located on the 27 residue long N-terminal segments that are disordered in all subunits. The model was refined to R = 19.7% and R(free) = 21.9%. A cluster of residues conserved among AI-BP homologs is likely to constitute an active site indicating that these proteins function as enzymes. The series of complex structures with various ligands supporting this hypothesis will be presented.