

Publication

AUH, a gene encoding an AU-specific RNA binding protein with intrinsic enoyl-CoA hydratase activity

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AU-rich elements within the 3' untranslated region of transcripts of lymphokines and some protooncogenes serve as signal for rapid mRNA degradation. By using an AUUUA matrix, we have affinity-purified a 32-kDa protein, microsequenced it, and cloned the corresponding cDNA. In vitro, the recombinant protein bound specifically to AU-rich transcripts, including those for interleukin 3, granulocyte/macrophage colony-stimulating factor, c-fos, and c-myc. Sequence analysis revealed an unexpected homology to enoyl-CoA hydratase (EC 4.2.1.17), and the recombinant protein showed a low degree of the enzymatic activity. Thus, this gene, designated AUH, encodes an RNA binding protein with intrinsic enzymatic activity. Protein immobilized on an AUUUA matrix was enzymatically active, suggesting that hydratase and AU-binding functions are located on distinct domains within a single polypeptide.

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