Immediate-early genes (IEGs) are rapidly induced after patterned synaptic activity. Genes that are involved in this complex response code for transcription and growth factors, metabolic and signaling enzymes, small GTP binding proteins and structural proteins. Some of these proteins may play a crucial role in long term plasticity which is important for learning processes. The activity regulated cytoskeleton associated protein Arc or Arg 3.1 is enriched in dendrites and colocalizes with F-Actin. Direct interaction of Arc with actin has also been demonstrated by 

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