ABSTRACT

TEAD proteins belong to a significant family of transcription factors that contribute to the regulation of organism growth and cell differentiation during its development by activating the expression of a wide variety of genes. This family shares two highly conserved sites, the TEA DNA binding domain, after which the proteins have been named, and the domain by which transcription factors bind other coactivators. Because TEAD proteins are not able to activate transcription themselves, they interact with a number of coactivators. These coactivators allow the transcription of the gene of interest to be regulated. Failure of TEAD protein activity regulation can lead to cancer. Therefore, TEAD family proteins nowadays play an important role in the development of new anticancer drugs.

One way of inhibiting these proteins is to block the active site in their DNA binding domain, thus, to block their binding to DNA. This bachelor thesis deals with recombinant expression of said DNA binding domain of transcription factor TEAD1, which is extended by amino acids in unstructured regions. After finding suitable conditions of protein production, we proceeded to large volume production which was followed by purification and protein identity verification. Finally, the ability of the produced protein to interact with DNA was confirmed. Thus, the prepared protein can be used to study the ways in which it interacts with DNA, that in the future may help to find TEAD1 transcription factor blocking agents (*In Czech*).

KEYWORDS

Recombinant expression, protein purification, DNA binding protein, transcription regulation, cell signalling, TEAD1, transcription factor, DNA binding domain