

## DETERMINATION OF THE SPECIFIC BINDING OF THE ETS-DOMAIN OF ESE-3 BY SEQUENCES OF DNA RELATED TO CANCER

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Ets transcription factors have a characteristic conserved DNA binding domain that confers the ability to bind specific *cis*-regulatory elements containing a core GGA (A/T) DNA sequence. It has been hypothesized that ESE members, through their ability to regulate epithelial growth and differentiation, play a key role in tubulogenesis and branching morphogenesis in organs containing glandular epithelium, such as the lung and trachea, and in oncogenesis of epithelium-derived tumors, such as bronchogenic carcinoma. This work aims the understanding of the molecular mechanisms of DNA recognition by the Ets domain of ESE-3. The construction of the DNA coding sequence of the Ets domain of ESE-3 was based on a technique in which overlapping oligonucleotides are PCR-extended by a DNA polymerase (patent deposited on INPI - 016050005891). The synthetic gene was cloned into pCR-Blunt vector and subcloned into pET 23a (+) expression vector. Different strains of *Escherichia coli* were tested to overexpress the Ets domain of ESE-3. The ESE-3 Ets domain (~12 kDa) was overexpressed in *E. coli* BL21 (DE3). Purification of the recombinant protein is being done to provide enough material for crystallization trials, characterization of its three-dimensional structure and studies of sequence-specific DNA binding.