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Design and construction of recombinant neoepitope tumour antigen in order to raise polyclonal antibodies against BFSP1

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BFSP1 (beaded filament structural protein one, or *Filensin*) is an eye lens-specific cytoskeletal protein, that forms intermediate filaments (IFs) with its assembly partner (BFSP2) in the fiber cells of the eye lens. Surprisingly, BFSP1 was identified in cultured human tumor cells "*in vitro"* as well. Previously, we proved that BFSP1 is expressed in cultured cell lines, as well as "*ex vivo*" human solid tumors by Western Blotting and MS. Furthermore, we quantitatively determined the relative expression of BFSP1 splice variants by qPCR from different cell lines. In order to provide reliable positive control, we cloned and expressed recombinant BFSP1 splice variants in a prokaryotic expression system. Since there is no sufficient antibody against BFSP1, we produced polyclonal antibodies with a BFSP1 antigen presenting self-assembling protein nanoparticle (SAPN) using rabbits. The novel antibodies were tested via Western blotting and will be essential for further research. According to the literature, BFSP1 has been known as a cytoskeletal protein expressing particularly in eye lenses so far. The presence of BFSP1 in cancer cells seems unlikely and it indicates a new exciting approach in the field of tumor biology. To establish the possible role of a new cytoskeletal protein as a tumor marker might have extraordinary significance in cancer diagnosis..

Recent Publications

1. Antal Tapodi, et.al, (2022). Involvement of Mitochondrial Mechanisms and Cyclooxygenase-2 Activation in the Effect of Desethylamiodarone on 4T1 Triple-Negative Breast Cancer Line. International Journal of Molecular Sciences. 23. 1544. .

2. Antal Tapodi, et.al, (2020). Amiodarone's major metabolite, desethylamiodarone inhibits proliferation of B16-F10 melanoma cells and limits lung metastasis formation in an *in vivo* experimental model. PloS one. 15.

3. Antal Tapodi, et.al, (2019). BFSP1 C-terminal domains released by post-translational processing events can alter significantly the calcium regulation of AQP0 water permeability. Experimental Eye Research. 185.

4. Antal Tapodi, et.al, (2018). PARP inhibition induces Akt-mediated cytoprotective effects through the formation of a mitochondria-targeted phospho-ATM-NEMO-Akt-mTOR signalosome. Biochemical Pharmacology. 162.

Biography

Antal Tapodi is working at the Department of Biochemistry and Medical Chemistry, University of Pécs Medical School, Hungary, and is well experienced in his field and has published many articles.

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