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The intermediate filament: BFSP1 is expressed in various cancer cell lines and solid tumours

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BFSP1 (beaded filament structural protein one, or Filensin) is an eye lens-specific, cytoskeletal protein, which forms intermediate filaments (IFs) with its assembly partner (BFSP2) in the fiber cells of the eye lens. Previously, we proved that Filensin is a substrate for Caspases, which exposed an internal N-myristoylation site of the Tail-fragment of BFSP1. Our group identified D433 and D549 caspase cleavage sites releasing the main 53kDa N-terminus domain and two tail fragments: G434-D549 and G550-S665. Filensin is processed by caspases under physiological conditions as well during the development of the eye lens. Here we demonstrate that splice variants of BFSP1 are also expressed in various cancer cell lines which were proved by Western blotting, Q-PCR, and Mass spectrometry. BFSP1 and proteolytic fragments showed remarkable membrane binding, which was confirmed *in vitro* in cancer cell lines and *ex vivo* in human breast carcinomas. According to the literature, BFSP1 has been known as an intermediate filament expressed exclusively in eye lenses so far. The appearance of BFSP1 in cancer cells seems very unique and it indicates a new exciting approach in the field of tumor biology. To establish the possible role of

BFSP1 expressed in tumor cells might have extraordinary significance in the tumor diagnosis and it could provide a new possible target in tumor therapy.

Recent Publications

1. Balazs Veres, et.al, (2021). Cyclophilin D-dependent mitochondrial permeability transition amplifies inflammatory reprogramming in endotoxemia. *FEBS Open Bio*;11(3):684-704.
2. Balazs Veres, et.al, (2015). Anti-inflammatory effects of a triple-bond resveratrol analog: structure and function relationship. *Eur J Pharmacol*; 748:61-7.
3. Balazs Veres, et.al, (2003). Decrease of the inflammatory response and induction of the Akt/protein kinase B pathway by poly-(ADP-ribose) polymerase 1 inhibitor in endotoxin-induced septic shock. *Biochem Pharmacol*: 65(8):1373-82.

Biography

Balazs Veres 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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