

https://dspace.org/

Characterization of 1-ACBP B-ACBP and PBR in oesophageal cancer

McCabe, Michelle Lynn

2006-10-27T07:44:47Z
http://hdl.handle.net/10539/1484

Downloaded from a DSpace repository. https://dspace.org/

ABSTRACT

Background: Cancer of the oesophagus ranks as the ninth most common malignancy in the world, and recent evidence shows that its incidence is increasing. Apoptosis is a process of programmed cell death, which is as essential as cell growth, for the maintenance of homeostasis. When these processes lose integration, such as cancer, then uncontrolled cell growth occurs. There are at least five ACBP subgroups and the two being focused on in this study is B-ACBP (brain specific) and 1-ACBP (found in nearly all tissues). ACBPs act as intracellular carrier-proteins for medium to long chain acyl-coA, mediating fatty acid transport to the mitochondrion for ß-oxidation. ACBPs are also believed to be putative ligands of PBR (Peripheral Benzodiazepine Receptor), and bound to this receptor facilitates mitochondrial membrane permeabilization giving the notion that it favours apoptosis.

Aim: To establish the expression patterns of 1-ACBP, B-ACBP, and PBR in oesophageal cancer, and to characterize their roles in this disease.

Methodology: Paraffin-embedded sections of normal and malignant oesophageal tissues were utilized for localization studies. RNA probes was synthesized and labelled using Digoxigenin for colorimetric and fluorescent detection during the *in situ* hybridization (ISH) technique for localization. Real time quantitative RT-PCR was performed to determine the expression levels of the three genes in oesophageal cancer RNA using the Roche Lightcylcer

.**Results:** All three genes showed substantial upregulation within the malignant tissue sections compared to normal oesophageal sections, all three transcripts localized specifically to plasma cells and lymphocytes in diseased and normal tissue section. In the diseased tissue B-ACBP and 1-ACBP mRNA localized to endothelial cells of blood vessels in the submucosa. B-ACBP also localized to the nucleus of squamous

epithelium cells. PBR localization occurred in tumour islands in invasive tissue sections. Quantitative RT-PCR also illustrated PBR expression level was the highest compared to the ACBP genes expression in tumours.

Conclusion: These results show that 1-ACBP, B-ACBP and PBR play a role in the pathogenesis of oesophageal cancer as well as immunology. Further experiments are still required to determine the function of these genes and the role they play in apoptosis and oesophageal cancer.