

Abstract

Cancer is one of the most frequent causes of death. Fortunately, human body has a number of various mechanisms that protect cells from tumorigenic transformation. One of those mechanisms are tumor suppressor genes. The latest described tumor suppressor gene encodes LACTB protein. LACTB is the mammalian homolog of bacterial beta-lactamases and penicillin binding proteins (PBPs). PBPs are involved in construction of bacterial cell walls (specifically in the synthesis of peptidoglycan) and they could be inhibited by penicillin antibiotics. Beta-lactamases are able to break the beta-lactam ring of penicillin and provide resistance to the antibiotics. The main topic of this work will be the LACTB protein. LACTB is localized in the intermembrane space of mammalian mitochondria. Here it forms filaments whose physiological function still remains unknown. LACTB, apart from its connection with cancer, was also associated with obesity and penicillin allergy. Main focus of this work will be to gather all known information about the LACTB protein and put them into a wider context.