

The Role of Tesmin Expression in Non-small Cell Lung Cancer

Description for the general public

Despite a significant improvement in the diagnostics and detection of cancer, lung cancer is a growing health and socioeconomic issue. Unfavorable epidemiological indicators reflected by a high and constantly increasing number of new lung cancer cases over the years and by high mortality rates suggest an insufficient understanding of the mechanisms related to tumor development and a need for further development of the knowledge in that matter. Tesmin is a protein which is involved in binding heavy metal ions and is similar to the proteins from the metallothionein family. Studies on tesmin from the perspective of cancer development seem to be promising. Tesmin was firstly described in mice testis tissue during spermatogenesis, which suggests the participation of this protein in the process of cellular proliferation. The results of my pilot studies indicate that the protein is present in lung cancer cells in higher amounts than in the cancer-free lung tissue. This may suggest that tesmin is involved in processes facilitating cancer development such as proliferation, formation of new blood and lymphatic vessels, metastatic formation or inhibition of programmed cell death (apoptosis). Insufficient literature on the role of this protein in lung carcinoma and other cancers as well as promising pilot results of my studies suggest that this path of research seems to be reasonable. Moreover, elevated tesmin expression in cancer cells may be a negative prognostic factor in non-small cell lung cancer (NSCLC) and even a potential target of cancer therapy in the future.