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PROTHROMBIN INFLUENCES PROLIFERATION AND MIGRATION OF COLON CANCER *IN VITRO*

Marija Cumbo,¹ Branko Tomić,¹ Sofija Dunjić Manevski,¹ Maja Gvozdenov,¹ Dušan Ušjak,¹ Martina Mia Mitić,¹ Valentina Djordjević¹

¹*Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Belgrade, Serbia*

Introduction: Thrombin, crucial member of the coagulation cascade, can influence growth and development of different types of cancer. Prothrombin, thrombin precursor, although predominantly secreted from the liver into the bloodstream, can also be expressed in the cancer cells. According to latest data prothrombin can bind *in vitro* to transmembrane receptors, which have previously been shown to be up-regulated in cancers and activate migration and invasion. Despite the significant amount of data on the effects of thrombin in cancer progression, there are little data of prothrombin's effect. The aim of this study was to further examine the effects of prothrombin and thrombin in cancer cell lines.

Methods: Colon cancer cell lines (Caco2, SW480, SW620, HT29 and HCT116) were treated with prothrombin, thrombin and direct thrombin inhibitor, dabigatran, for 24h and 48h. To assess the effects of treatment on cell viability and proliferation MTT test was used, and wound healing assay was used for cell migration potential.

Results: Detected effects of treatment with prothrombin, thrombin and dabigatran varied between cell lines. Trend of lower cell viability, proliferation and migration was observed in cells treated with prothrombin in comparison to untreated controls.

Conclusion: Our results indicate that prothrombin, although considered an inactive zymogen, can exert an effect on colon cancer cells proliferation and migration *in vitro*.

Key words: prothrombin; thrombin; colorectal cancer; proliferation; migration

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