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Assessment of angiotensinogen metabolism in breast cancer cells using an LC/MS/MS method

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The renin- angiotensin system (RAS) has long been recognized as an important regulator of systemic blood pressure and electrocyte homeostasis. Our view of RAS has experienced remarkable change over the past decades- new enzymes and products as well as their local formation and action have been described. Tissue RAS plays an important role in development of various diseases. All components of classical RAS have been found in various type of cancer tissue. It has been demonstrated that some angiotensins peptides can contribute to development and progression of tumour. Ang II stimulates cell proliferation and angiogenesis (also Ang III and Ang IV). On the other hand, Ang- (1-7) plays opposite role to Ang II, showing antiproliferative effects and reducing fibrosis, angiogenesis, and tumour volume and weight. However, there is still the lack of studies on role and action of newer angiotensins like Ang-(1-12), which is an alternative substrat for Ang II formation. The aim of this study was to estimate the main pathways and characterize the main products of metabolism of angiotensinogen fragments (Ang-(1-14), Ang-(1-12 and Ang I) in cancer cells. Using an LC/MS/MS method, we assessed the ability of breast cancer cells (MCF7, MDA-MB-231 and T47D) to produce main active angiotensins peptides. Better understanding of RAS role in cancer may represent a new approach for cancer prevention and treatment.

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