NOVEL DRUG DISCOVERY APPROACHES FOR CANCER METABOLISM: OLD POARADIGM WITH NEW PERSPECTIVE

Mustafa Guzel

Istanbul Medipol University, Turkey

Cancer still remains the second leading cause of death in the world after heart disease and cardiovascular complications. Moreover, survivors of cancer still continue to suffer from symptoms of pain, fatigue, and depression despite existing treatment advances for cancer treatment. Even though numerous pharmacological therapies have been developed in the past decade, the advantage of new treatment options remains important in the fight against this deadly disease. It is now well understood that protein kinases play key roles in the growth and survival of cancer cells by regulating their onset of DNA synthesis, their response to DNA damage and their entry, progression, and exit from mitosis. Clinical validations prove that protein kinases are an attractive class of therapeutic drug targets for cancer as demonstrated with the recent approval of six protein kinase inhibitors. The Warburg effect describes the particular reliance of cancer cells on glycolysis for energy. Increased glycolysis and acid resistance have been postulated to be an essential part of carcinogenesis, conferring a significant growth advantage as well as promoting typical tumor progression. Targeting accelerated glycolysis in cancer cells is a new promising modality for treatment of cancer. Inhibition of glycolysis can be done without significant side effects, and such treatment will be additive to most known cancer therapies. Recent studies show that Methyl Jasmonate reveals promising results for treatment of cancer. During the presentation the role of Aerobic Glycolysis for tumor growth and small molecule drug discovery and development efforts as well as their therapeutic applications for oncological indications will be highlighted.

mguzel@medipol.edu.tr