Journal of Oncology

Hindawi

Special Issue on

Changes in Cell Signaling Pathways as a Goal of Targeted Therapy of Solid Tumors

CALL FOR PAPERS

There has been an increased incidence of cancer in both men and women followed by increased mortality over the past 40 years. Approximately 10% of cancers occurring in the human population are caused by genetic predispositions, that is, hereditary gene defects which highlight the significant effect of environmental factors on cancerogenesis. Modern principles of cancerogenesis involve multistage processes in the development of cancer in which many conditions must be met. The correct functioning of the cell is primarily dependent on the correct functioning of the signaling proteins stimulated by the appropriate receptors.

Tyrosine kinase signaling is one of most important signaling pathways which controls multiple aspects of cell and organism growth, differentiation, proliferation, and function. Therefore, altered levels of activity of tyrosine kinase group receptors are commonly associated with many human cancers and their activity is manipulated through targeted therapy. Drugs inhibit signaling pathways resulting in cell growth arrest and apoptosis and additionally bind to the external receptors which mediate Antibody-Dependent Cellular Cytotoxicity (ADCC).

Mutations in tumor cells cause alterations in protein receptors and subsequently the activation of signaling pathways such as RAS-RAF-MAPK (mitogen-activated protein *kinase*), PIK3-AKT-mTOR (inhibitors phosphatidylinositol 3ı kinase-serine/threonine-specific protein kinase-mammalian target of rapamycin), JAK-STAT (signal transducer and activator of transcription), and protein kinase C. The signal cascade of Ras/Raf/MEK/ERK is widely known and the possibility of blocking the cascade in tumor cells provides a potential foundation for the introduction of new drugs and targeted therapy in oncology.

The proper function of signaling pathways is responsible for cell differentiation, growth, aging, apoptosis, and angiogenesis. Studies related to the signaling pathway may develop understanding based on the nature of tumor progression. Knowledge of the mechanisms involved on a molecular level behind the processes of cancer formation and progression is essential for the development of effective therapy methods.

Potential topics include but are not limited to the following:

- The role of receptors overexpression for signaling pathways in cancer
- New possibilities in target therapy
- The changes in signaling pathways in cancer
- Oncogene overexpression and their influence on signal pathways in cancer
- Factors influencing signal transduction in cancer
- Deconstructing signaling pathways and optimizing cancer combination therapies

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Submission Deadline
Friday, 31 January 2020

Publication Date
June 2020