OMICS International
conferenceseries.com

J Cancer Sci Ther 2015, 7:10
http://dx.doi.org/10.4172/1948-5956.C1.055

9th Indo Global Summit on Cancer Therapy

November 02-04, 2015 Hyderabad, India

Micro-RNA signatures distinguish breast cancer subtypes

Joyshree Nath
Indira Gandhi National Open University, India

The micro-RNAs (mi-RNAs) are a kind of short non-coding RNAs, of about 22 nucleotides in length, which modulate and sometimes degrade the mRNA genes thereby regulating a number of cellular functions like apoptosis, cell development, cell differentiation, oncogenesis, tumor suppression and much more. Recent research in this genre has led to the identification of the involvement of mi-RNAs in various disease progressions, including certain types of cancer development. Further genome-wide expression profiling of mi-RNAs has proven to be useful for differentiating various cancer types. In this paper, we have used mi-RNA expression profiles over a large set of breast cancer tumor samples for identifying subtypes of breast cancers. The experimental results demonstrate that mi-RNAs carry a unique signature that distinguishes cancer subtypes. Additional survival analyses based on clinical data also strengthen this claim. Breast cancer is a widely diagnosed cancer type in women and one of the major causes of female oncogenic death throughout the world. A lot of efforts have been made in the earlier decades to understand and combat this type of cancer. Recent advancements in molecular biology have also guided research in this genre. The expression profiles of breast cancer patients have been heavily studied recently by researchers that encompass DNA expression analysis and protein expression analysis, and very recently micro-RNA (mi-RNA) expression analysis etc. In this work, we analyze the expression profiles of mi-RNAs for a large pool of breast cancer tumors with the motivation of identifying their phenotypic subtypes. The objective of this discussion is to throw light on mi-RNAs and their effective signatures in breast cancer subtypes. Due to the tumor suppression and oncogenic functions of mi-RNAs, it has been experimentally highlighted and established that, they have certain behavioral patterns in various cancer types. Along with the classification of diseases, classification of its molecular subtypes is also necessary. In fact, classification of cancer into further subtypes can throw light on the understanding and better cure of cancer. So this discussion is basically on the hypothesis that mi-RNAs have unique signatures that distinguish cancer subtypes in breast tumor samples. This hypothesis is eventually validated using expression analyses followed by survival studies.

joyshreenath@gmail.com

Combination therapy of natural products with conventional anticancer drugs

Sandip Pawar[1], **Soumen Roy**[2], **Sandeepan Mukherjee**[2], **Abhay Chawdhary**[2] and **Debjani Dasgupta3**
[1]The Institute of Science, India
[2]Haffkine Institute of Training, Research and Testing, India
[3]D Y Patil University, India

Cervical cancer is the most common gynecological malignancy and a major threat to the health of women. It represents the second most common cancer worldwide. Botanicals rich in polyphenols in combination with chemotherapeutic drugs can be used effectively for the development of promising anti-cervical cancer therapies. The aim of the present work is to evaluate growth inhibitory effects of aqueous and ethanolic extracts of H. mystax, N. nimmoniana and O. tenuiflorum on KB (cervical cancer) cell line alone and in combination with camptothecin. Plant extracts were quantitatively determined for phenolic acids using RP-HPLC. Cytotoxicity analysis of extracts alone and in combination was performed by MTT assay. Selective toxicity of plant extracts were checked using normal cell line. The isobologram and combination index (CI) method of Chou-Talalay were used to evaluate the interactions between extracts and drug. Synergistic combinations induced cancer cell death was studied by Flow cytometry. Highest amount of phenolic acids present were vanillin in H. mystax and O. tenuiflorum and catechol in N. nimmoniana. Ethanol extracts of H. mystax and O. tenuiflorum and N. nimmoniana showing high anticancer activity were subjected to combination study. Six combinations were prepared using constant drug ratio. Combination treatment on KB cells for 24 hours showed synergistic growth inhibitory effect at medium and high dose levels (IC75 and IC90); whereas, 48 hours exposure showed synergistic growth inhibitory effect at all dose levels (IC50-IC90). The dose reduction level was different for each combination. From the present study it could be concluded that, camptothecin when combined with Ocimum tenuiflorum produced a synergistic effect in inhibiting growth of cervical cancer cell line. Therefore, conventional chemotherapeutic drugs when combined with natural products may help to minimize the dose related toxicity of chemotherapeutics.

drdebjanid@dypatil.edu