マテリアルサイエンス系セミナー（第9回）

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A Journey from Bench to Bed,Noscapine: Opium Alkaloid-A Potential Chemotherapeutic Agent

研究から臨床への旅、Noscapin: オピウムアルカロイドー化学療法剤としての可能性

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日　時：平成29年9月29日（金）15:00～17:00

場　所：知識科学系講義棟2階　中講義室

講演要旨：Cancer cells are able to spread from a nascent tumor much earlier than scientists long thought and are more adept than later emigrants at forming potentially lethal metastases at distant sites such as the brain and bones.A recent discovery that might challenge the existing knowledge of cancer and methods to treat it, researchers found that “cancer cells spread to organs much earlier than was thought.” In fact, cancer cells can spread even before a tumour develops, remain quiet for long periods of time and then awaken to form aggressive and fatal metastasis. The findings also offer an explanation for why some 5% of cancer patients have metastases but no original tumour.At cellular level, cancer is a disease of the cell that develops because of failures in the mechanisms that regulate cell growth. An individual cell multiplies without restrain until it and its progeny eventually overwhelm tissues and organs. Cancer development is a multistep process in which the summation of events is required to produce malignant tumor. Although there is tremendous progress in understanding the molecular events that lead to malignancy, progress in the development of clinically innovative drugs that can cure cancer is not moving at that pace.

Chemotherapy with cytotoxic anticancer agents is still the main way of therapy targeted at specific cellular mechanisms in the malignant tissues. Some chemotherapeutic agents disrupt the crucial parts of the cell that are critical for cell division such as mitotic spindle. Most common cancers require combination of radiation and chemotherapy for the treatment.Noscapine, a phthalideisoquinoline alkaloid from opium is being used as a cough suppressant in humans. However, recently other clinical applications of noscapine and noscapine analogues as anti-stroke and anti-cancer have been discovered. In addition, few studies have displayed anxiolytic effects of noscapine in experimental animals. To date, several mechanisms of action have been explained for noscapine. In the suppression of cough, it is shown that noscapine acts centrally. The only evidence which currently exists points to noscapine’s inhibition of bradykinin. Anti-cancer effect of noscapine has been primarily attributed to its microtubule interfering effect. Recently, noscapine has been found to have antiangiogenic properties (preventing the formation of new blood vessels). In our novel analogues of noscapine as well as developed nanoformulations like 9-bromo-noscapine loaded human serum albumin nanoparticles, noscapine bearing rapid release solid lipid nanoparticles, noscapine and 9-bromo-noscapine loaded optimized liposomes and niosomes have shown promising consequences in in vitro and in vivo setup. Further, in depth in vivo investigations are needed on these optimized nanoformulations of noscapine and 9-bromo-noscapine, for translating in to the clinical viable anticancer products.

講演者略歴:

June 1996 – onwards　Professor, Department of Chemistry, University of Delhi,
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参加申込・予約は不要です。直接会場にお越しください。
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