University of Cyprus
Department of Biological Sciences

Postgraduate Seminars

Seminar Series 2018-2019

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"Advances and Failures In Cancer Therapeutics Over The Last 50 Years"

Wednesday, 12 September 2018, at 17:00
Building CTF 01, Room 108, Panepistimioupoli Campus

This seminar is open to the public

Advances:

- **50 years ago**, cancer was viewed as a monolithic and largely untreatable disease. Advances in cancer research led to dramatic improvements in understanding cancer and our ability to treat and prevent the disease.
- **Multi drug approvals:** The number of approved drugs grew from just a handful to more than 170 drug indications today, most approved in the last decade.
- **Interdisciplinary approach:** Many patients now receive treatment combinations including chemotherapy, surgery, radiation, targeted drugs or immunotherapy.
- **Major successes:** Revolutionary progress against some cancers shows what is possible. Five-year survival rates for breast cancer, testicular cancer and some childhood cancers are now over 90 percent.
- **Surgical advances:** Today's cancer surgery is more precise with fewer complications and not sacrificing effectiveness.
- **Radiation therapy:** Radiotherapy can be tailored to each patient's tumour minimizing side-effects.
- **Side-effects management:** Better management of side effects enabling patients to live better lives.

Failures Leading to Current Research In Progress:

- **Despite the advances** and progress summarized above, unfortunately, current treatments often fail to cure cancer.
- It is likely that **Cancer Stem Cells**, (CSC) may be a key reason for the failure of current therapies.
- **The NOTCH** pathway is an important pathway in cancer stem cells.
- A **hybrid protein** (**SYNTANA 4**) translocates into the nucleus, suppresses Notch and eliminates tumour growth.
- The **P53/P21** pathway is an important pathway in cancer stem cells.

- A **hybrid protein (AB1)** translocates into the nucleus, replaces and repairs p53 function leading to tumour apoptosis.

Summary:

- **In summary, a few transcription factors are overactive in cancer and cancer stem cells. These are the most direct and hopeful targets for treating cancer.**
- **There are many more human oncogenes in signalling pathways than there are oncogenic transcription factors**.