

5th World Congress on **Cancer Therapy**

September 28-30, 2015 Atlanta, USA

UV light analysis of anticancer drug NSC 631570 in urine samples sorts healthy donors and prostate adenocarcinoma patients. Could the different drug up-take used to establish free-diagnosis cancer patients?

Larysa M Skivska¹, Oleksander Fedorchuk², Nicola Funel³ and Wassil Nowicky⁴

¹Department of Microbiology and General Immunology, Institute of Biology, ESC Taras Shevchenko National University, Ukraine

²R. E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, National Academy of Sciences of Ukraine, Ukraine

³Department of Translational Research and The New Technologies in Medicine and Surgery, Italy

⁴Ukrainian Anticancer Institute, Austria

Introduction: The mixture of Alkaloids (NSC-631570) have been showed an anticancer activities against different types of solid tumor. In particular this activities in combination with gemcitabine significantly increased the median survival of advanced PDAC patients with respect to gemcitabine alone (10.4 vs 5.2 months; $p < 0.001$). Furthermore, other studies showed an anticancer effect in prostate cancer patients also. Indeed, the cytotoxic effects of NSC-631570 was evident in preclinical studies in prostate cancer cell line (PC-3). In particular, using the auto-fluorescence properties of this Drug (by UV light excitation) some author showed a different up-take of drug in PDAC cells with respect to normal epithelial cells of pancreas (HNPE). The data of literature seem to indicate that this mixture of alkaloids had selective in cancer cell lines derived from different tumor types, but not in normal cell lines.

Aim: To investigate the concentration NSC 631570 in urine samples of prostate cancer patients using UV light approach to confirm different up-take of alkaloids mixture in both normal and prostate cancer patients.

Materials & Methods: We studied optical characteristics in urine samples (before and after the sublingual administration of the drug) using two different absorption spectrums: UV light and fluorescence at $\lambda = 540$ nm. We observed the variation of both intensity at 0, 2, 4 and 6 hours after administration. Urine samples from 2 prostate cancer patients (PC1 and PC2) and 3 healthy controls (HCs) were used.

Results: The UV light absorption spectrum of urine HCs after NSC 631570 coincided almost completely with that of the drug. PC1 showed a similar absorption spectrum similar to NSC 631570 after 4 hours sublingual administration only. While, absorption spectrum of PC2 was completely different during the entire observation period compared with those observed in HCs ($p < 0.05$). Urine fluorescence PC1 increased in both PC1 and PC2 after the drug administration, till the end of the observation period nonlinearly. However, 6 hours after administration of the drug a moderate decrease of the fluorescence intensity has been registered.

Conclusion: Comparative analyses of urine optical characteristics of both healthy donors and prostate adenocarcinoma patients have been shown that absorption spectra under the UV light after sublingual administration of the drug NSC 631570, makes the differences between prostate adenocarcinoma and healthy patients. Probably, these data indirectly indicate differences concerning dynamics clearance of drug in different subjects. Comparative study of urine fluorescence intensity of healthy donors and patients with cancer pathology at $\lambda = 540$ before and after sublingual administration of the drug NSC 631570 in dynamics proved to be uninformative. In conclusion this method could be used to test whether non clinically pathologic subject might be affected by cancer.

Biography

Larysa M. Skivka – ScD., PhD She has completed her PhD at the age of 28 years from R.E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, NAS of Ukraine and postdoctoral studies from Taras Shevchenko National University of Kyiv. She presently is a head of the Department of Microbiology and General Immunology of SCE “Institute of Biology” of Taras Shevchenko National University of Kyiv. Area of scientific activity – immunomodulation as a component of adjuvant therapy under the tumor growth, functional polarization of phagocytes in the pathogenesis of inflammatory diseases. She has published more than 13 papers in reputed journals and more than 40 abstracts in scientific congresses.

realmed@i.com.ua