

Generation of ROS by Quinones: New Approach for Targeted Antitumor Drugs



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BIOGRAPHY

Professor Lev Weiner is the Head of the Electron Spin/Paramagnetic Resonance Unit at the Weizmann Institute of Science, Israel. He received his Ph.D. in Biophysics and ESR Spectroscopy from the Russian Academy of Science. His research interests are in the field of application of the modern methods of ESR spectroscopy, spin labeling and spin trapping techniques, stable nitroxyl radicals, as well as fluorescent spectroscopy in biophysical studies, in particular proteins structure and folding .

ABSTRACT

Most conventional chemotherapeutic compounds for therapy of different diseases cannot differentiate between normal and pathological cells, and thus, cause extensive toxic side effects. A new approach that is being developed by us to overcome this problem is **drug targeting**, which exploits the selectivity of carrier molecules having specific binding sites on tissues. Redox active compounds (quinones, porphyrins and hypericin) can be covalently attached to various carriers, such as peptide hormones for which receptors are present in special cells or antibodies that preferentially recognize antigens on surface of these cells. Taking into account a very short pathway of reactive oxygen species, ROS, (oxygen radicals: superoxide, $O_2^{\cdot-}$, hydroxyl radical, OH^{\cdot} , and singlet oxygen, 1O_2), we can expect that such conjugates can create a high local concentration of ROS at targeted sites and can produce site-directed damage to the cells.

Date: 1 October 2012 (Monday)
Time: 3 – 4 pm
Venue: CeLS Seminar Room 2, NUS Centre for Life Sciences
Host: Prof Barry Halliwell

