

Abstract Submitted
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Chemically unassisted phototherapy: dose effects via real-time optical monitoring of cancer cells SYLVIE LANDRY, Thunder Bay Regional Research Institute, Thunder Bay, Ontario, Canada, WERDEN KEELER, Department of Physics, Lakehead University, Thunder Bay, Ontario, Canada — Ultraviolet (UV) light and short wavelength visible (VIS) light have been used to kill pathogens for many years. Although the adverse effects of UV radiation on living cells have been extensively studied using biochemical and biomolecular techniques, most of the light therapies used for medical treatment are chemically assisted (i.e., photodynamic therapy). However, the use of light alone could prove both cost and therapeutically effective as an alternative treatment modality for localized diseases. In this study, real-time oblique incidence reflection (OIR) microscopy and image analysis were used to visualize and quantify the effects of chemically unassisted light therapy on untagged live cancer cells *in vitro*. The incident radiation fluence (in mJ/cm^2) required to induce cell death was determined for selected quasi-monochromatic UV to VIS wavelengths ranging from 275nm to 460nm. A predictive mathematical equation quantifying the lethal fluence as a function of wavelength will be discussed.

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