

Abstract Submitted  
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**Quantifying kinetics and dynamics of DNA repair proteins using Raster-scan Image Correlation Spectroscopy** SALIM ABDISALAAM, University of Texas at Arlington/UT Southwestern Medical Center, MILAN POUDEL, DAVID CHEN, UT Southwestern Medical Center, GEORGE ALEXANDRAKIS, University of Texas at Arlington/UT Southwestern Medical Center — DNA double strand breaks are potentially dangerous lesions as their incomplete repair may lead to carcinogenesis. In this study the confocal Raster scan Image Correlation Spectroscopy technique is used to study kinetics and dynamics of double strand break repair proteins after  $\gamma$ -irradiation of mammalian cells. Diffusion and binding constants were obtained by fitting with different physical models. Results were compared to ones obtained by creating high density DNA damage with a laser and subsequently performing Fluorescence Recovery after Photobleaching over the damage area. This work presents similarities and differences in double strand break repair response between  $\gamma$ -irradiation versus laser damage. This is of importance to answering the question of whether the popular use of laser induced DNA damage is a sufficient surrogate for predicting the radiation treatment response of cancer cells.

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