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## Image correlation spectroscopy of DNA double strand break repair foci structure

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A DNA double strand break (DSB) is one of the most serious threats to cell survival. Fortunately, a cellular surveillance system called the DNA damage response has evolved to detect, assess, and repair these type of lesions as they occur, with high fidelity. The exact mechanism by which each detected DSB is resolved can vary widely, but in each case, it involves the construction of a DSB focus, underpinned by multiple DNA repair factors that spatiotemporally evolve as a function of time. DSB foci composition and structure are therefore indicative of a DSB's repair pathway choice and extent of resolution, which are important parameters in the field of bio-dosimetry. Thus, here we aim to explore the capacity of image correlation spectroscopy coupled with multi-colour immunofluorescence (IF) of DSB biomarkers, to quantify DSB foci structure, repair pathway choice and resolution, and develop a bioimaging pipeline for DNA damage response different biospecimens.