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## MAIN FIELDS OF RESEARCH; ABSTRACT


DNA damaging agents, including ionizing radiation, oxidative damage and replication errors, constantly challenge the integrity and stability of our genome leading to different kinds of genotoxic lesions. Amongst them double-stranded DNA breaks (DSBs) are particularly genotoxic. Eukaryotic cells have evolved complex signal transduction pathways, collectively termed as DNA Damage Response (DDR), which involves post-translational modification and protein-protein interactions, to counteract genome instability and prevent tumorigenesis. The cellular DDR pathways are fully active in the cell cycle during interphase while they are truncated in mitosis. However, the earliest components of the DDR are still recruited to DSBs during mitotic progression to mark damaged chromosomes for subsequent repair.
Mediator of DNA Damage Checkpoint 1 (MDC1) is a large adaptor protein involved in DSBs repair and mediates transduction of the DNA damage. MDC1 acts as a scaffold facilitating the recruitment of downstream signalling and repair factors to DSBs through its multiple protein-protein interaction domains.
However, the role of MDC1 in maintenance of chromosome stability during mitosis has never been deeply investigated. Therefore, our research aims to elucidate the contribution of MDC1 in DDR during mitosis.


## SPECIAL TECHNIQUES AND EQUIPMENT

Immunofluorescence, confocal microscopy, live cell imaging, protein co-localization analysis, UV-laser ablation combined with FRAP and spinning disk confocal microscopy.