B26

# The Roles of BmMre11 and BmRad50 Protein in DSB Repair

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A DNA double-strand break (DSB) is highly cytotoxic DNA damage that disrupts the genomic integrity of a cell. Unrepaired or misrepaired DSBs can kill a cell or lead to chromosome aberrations; thus the prompt and efficient repair of DSBs is fundamental for genomic stability and cancer prevention. A number of fundamentally different DSB repair pathways are available in eukaryotic cell, two of which are known as major pathway. One is non-homologous end-joining (NHEJ), another is homologous recombination (HR). *MRE11* and *RAD50* were reported to make a heterotrimer complex with *NBS1*, and play an important role in early process of HR and NHEJ. In this study, we have cloned the cDNAs encording *BmMRE11* and *BmRAD50* from silkworm testis, and their nucleotide sequences were determined. Moreover we have examined the effect of *BmMRE11* and *BmRAD50* knockdown on a silkworm cultured cell by RNA interference (RNAi). The DNA cell cycle analysis, quantified by flow cytometry, showed that the treatment of BmN4 cells with *BmMRE11* and *BmRAD50* dsRNA tended to arrest the cells in $G_2$/M phase. Now we are trying to examine the relationship between these genes and HR using the silkworm cultured cells.