REGIONAL CENTRE FOR BIOTECHNOLOGY
Journal Club

Meiosis-Specific Noncoding RNA Mediates Robust Pairing of Homologous Chromosomes in Meiosis

Da-Qiao Ding et al.(2012) Science, 336, 732-736

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Wednesday, September 19, 2012
4:00 pm
Seminar Room

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Pairing and recombination of homologous chromosomes are essential for ensuring reductional segregation in meiosis. However, the mechanisms by which chromosomes recognize their homologous partners are poorly understood. Here, we report that the sme2 gene encodes a meiosis-specific noncoding RNA that mediates homologous recognition in the fission yeast Schizosaccharomyces pombe. The sme2 locus shows robust pairing from early in meiotic prophase. The sme2 RNA transcripts accumulate at their respective gene loci and greatly enhance pairing of homologous loci: Deletion of the sme2 sequence eliminates this robust pairing, whereas transposition to other chromosomal sites confers robust pairing at those ectopic sites. Thus, we propose that RNA transcripts retained on the chromosome play an active role in recognition of homologous chromosomes for pairing.