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Plant Molecular Cytogenetics

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Message from the Guest Editors

Molecular cytogenetics focuses on displaying the position of DNA, RNA and protein on chromosomes by in situ hybridization, in situ PCR, chromosome microdissection, immunofluorescence staining, etc. These technologies can reveal not only the position of DNA, RNA sequence and proteins, but also the evolutionary relationship and structural rearrangement among related species, the quality of the genome splicing sequence, the location and quantity of RNA and protein at the transcription level, etc.

Advances in high-throughput sequencing are promoting chromosome analysis. FISH technology combined with genomics, cell biology and other technologies is widely used in basic research, addressing topics such as phylogeny, genome structure, and epigenomics, as well as applied research such as distant hybridization and chromosome engineering.

The future of molecular cytogenetics is likely to depend on a better knowledge of chromosome structure and function by developing the field into living-cell cytogenetics at the three- and four-dimensional levels, combined with living imaging technology to more accurately reflect the dynamic changes of DNA, RNA and protein in cells in real time.



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Special Issue



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Message from the Editor-in-Chief

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