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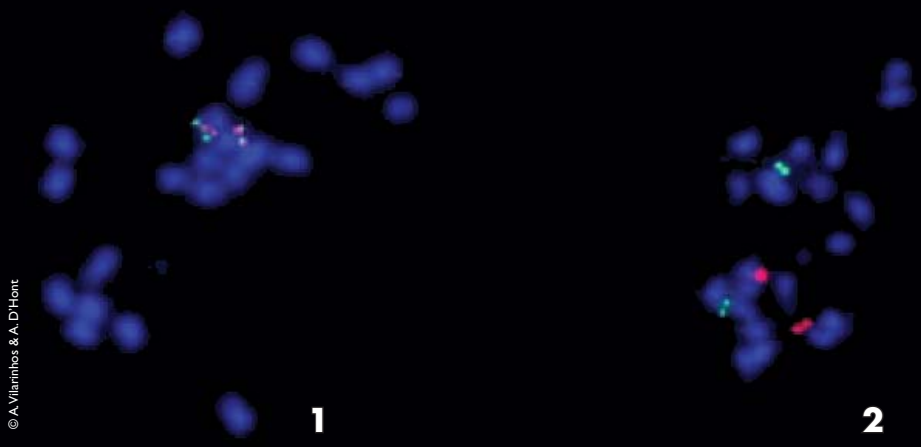
Number 5



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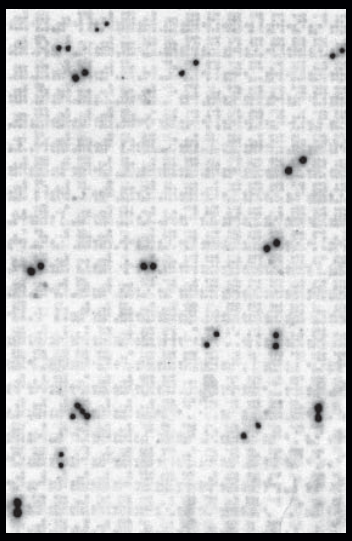
1. *Chromosomes of the Calcutta 4 (2n = 22) accession after FISH with BAC 52P01 (detected via FITC, green) and BAC54N07 (detected with Texas red staining, red)*

2. *Chromosomes of the Calcutta 4 (2n = 22) accession after FISH with BAC 52P01 (detected via FITC, green) and BAC59I20 (detected with Texas red staining, red)*

3. *Screening the BAC library with mapped probes*

Bacterial artificial chromosome-fluorescent *in-situ* hybridization (BAC-FISH) technique used with BAC library clones to identify 'labelled' sequences on banana chromosomes



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The fluorescent *in-situ* hybridization (FISH) technique is used to locate DNA sequences directly on chromosomes *(in situ)*. This technique is based on the capacity of two strands of complementary DNA to pair up and form double strands (pairing process). Target sequences are labelled with fluorochromes and can be detected on chromosomes under a fluorescence microscope.

FISH hybridization is a multistep procedure:
- labelling target sequences with a fluorochrome;
- plating chromosomes on a microscope slide;
- denaturation of DNA fragments (disassembly of two DNA strands);
- hybridization of the labelled sequence and chromosomes;
- detection of hybridization signals and location of the sequence on chromosomes.

Several probes are labelled with different fluorochromes so as to be able to detect several sequences simultaneously on one or several chromosomes.

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