

# Transfer of yeast artificial chromosomes into mammalian cells and comparative study of their integrity

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Yeast artificial chromosomes (YACs) from the CEPH MegaYAC library (Paris, France) ranging in size from 350 to 1600 kb and mapping to the q22.1 and q22.2 regions of human chromosome 21 were transferred into mammalian cells by spheroplast fusion. The integrity of the YACs from two adjacent parts of the region was compared after retrofitting and stable transfer into mammalian cells. We found that large YACs could easily be manipulated to allow transfer of the YAC material into mammalian cells and that the size of the YAC did not appear to be limiting for fusion. However, we show that there was great variability in the integrity of the YACs from the two regions, which was not related to the size of the YACs. Four YACs in region I from sequence-tagged site (STS) G51E05 up to STS LL103 showed, in general, no loss of material and correct gene transfer into mammalian cells. In contrast, the three YACs in the more centromeric region II (from STS G51B09 up to G51E05) frequently showed a loss of