Sección temática: Biología Molecular y Biotecnología.

Hibridación *in situ* fluorescente (FISH)

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Background: At the end of 80s, cloning technologies with the increase of the antibodies' sensibility made easier the development of technologies based on Fluorescence *in situ* Hibridation (FISH). Nowadays, It's widely used in the field of basic investigation as much as clinic diagnostic.

Method: FISH is a technique that combines molecular biology with histochemistry way to detect specific nucleotide sequences so that chromosome's section or even whole chromosome can be marked on metaphases cells (cell in division) and on attached cellular nucleus. This detection is realized using DNA fluorescence probes (marked with fluorophores), that can be different according to the structures manage to detect: large single-locus probes, small unique-sequence probes, chromosome- or region-specific "paints" or repetitive sequence probes and genomic DNA probes. Some of the applications of this technique is that can be so useful in the detection of numerical and structural chromosomal alterations such as polyploidies or genomic rearrangement, to mapping metaphases cells and even to detect bacteria or another type of microorganism. In addition, FISH allows us to monitoring diseases (antitumor therapies, quantification of genomic altered cells…) and the precise location of chromosomic broken spots on tumor searching for new genes involved in cancer and detect and map interested known genes.

Conclusion: FISH has many advantages ahead of conventional cytogenetic techniques (bands G karyotype) overall at the time of establish a clinic diagnostic to detect tumors and chromosomic aberration, presenting a higher sensibility and specificity as well as being a relative quick technique (24 hours).