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tissue microarrays help in the complete analysis of a large number of tissue samples that have been collected and achieved through the use of paraffin blocks or formalin. Different tissue samples from various tissue blocks are punched and are placed on a new paraffin block. Traditionally paraffin blocks have been used for studying the histological samples from tissues infected with cancer, tumor or other similar diseases. The procedure makes the analysis of these histological samples easy by having all the information on a single slide. A paraffin block with an array is prepared and a needle transfers the samples from the histological sample blocks into it. This procedure is different from DNA micro arrays where each spot on an array represents a cloned DNA that binds to the target sequence. The procedure is best suited for screening one genetic marker or protein across thousands of samples where as DNA micro arrays are best suited to study gene expression across thousands of genes. The major limitations in molecular clinical analysis of tissues include the cumbersome nature of procedures. The current technique makes use of a novel sampling approach to produce tissues of regular size and shape that can be more precisely arrayed.

In the tissue microarray technique, a hollow needle is used to remove a tissue from pores as small as 0.6 in diameter from regions of paraffin embedded tissues such as clinical biopsies or tumor samples. These tissue cores are then inserted in a recipient paraffin block in a precisely spaced array pattern. With the help of a microtone sections of these blocks are cut and mounted on a microscope and then analyzed by any method of standard histological analysis. Each block can be cut into 100-500 sections which it can be subjected to individual tests. Tests that are commonly employed include immunohistochemistry and fluorescent in situ hybridization. Tissue microarrays are particularly useful in analysis of cancer samples.

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