

3D microfluidic platform for the study of cells chemotaxis

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The study of cells chemotaxis and angiogenesis phenomena plays a significant role in a better understanding of cancer evolution. As a matter of fact, cells are influenced by the physiological environment, which contains all the substances that could influence their regular life. The importance of the study of this influence from nutrients or toxic elements is generally accepted. In order to do this, in the last decade a large number of studies were carried on simple 2D devices. This type of platform did not allow a well-simulated physiological behavior, and they were overcome by 3D microfluidic platforms. In recent years a lot of different procedures were analyzed. For instance, new 3D rapid prototyping techniques are reported. Unfortunately, these methods do not always guarantee optical transparency, complete polymerization of the resin and even biocompatibility. For these reasons, the major studies are focused on microfluidic devices able to establish a chemical gradient of substances under observation. The aim of this work is to study chemotaxis of cells spheroids, with a the device that allows a 3D growth in vivo.