

Tumor on a chip: using microfluidic devices to understand interaction between tumor and immune cells

The tumor microenvironment (TME) is a complex and dynamic entity where an intensive interplay between cancer and immune cells occurs. In this context, the vascular system is a key element for both tumor cell dissemination and immune cell infiltration thus influencing prognosis and response to therapies. The microfluidic devices represent 3D in vitro systems recapitulating crucial aspects of TME thus that they are suitable to perform high-resolution and real-time observation of signaling and interactions between tumor and immune cells on an individual patient basis. Hence, microfluidic devices allow gaining a deep understanding of cancer-related processes, including metastasis dissemination and immune responses to immunotherapies.