BioWin: driving cancer immunotherapy in Wallonia

BioWin, the health competitiveness cluster of Wallonia, Belgium, is the region’s point of reference across biopharma and medtech. Cancer immunotherapy has rapidly emerged as a focal point of BioWin’s uniquely collaborative ecosystem, owing to the local high density of cancer and immunology players.

Since its inception in 2006, BioWin, the health competitiveness cluster of Wallonia, Belgium, has become the point of reference for any stakeholders in the fields of biopharma and medtech—companies, investors, research institutions, universities and government—that are interested in partnering within the region. With 187 industrial members, and a system in place to address all elements of the drug development cycle, from research to marketing, through biomanufacturing, clinical trials and drug registration, BioWin is a key contributor to the dynamic innovation ecosystem and economic output of Wallonia.

Focus on cancer immunotherapy

Enlisting the help of the body’s own immune system is a leading strategy in the fight against cancer. Wallonia has a high concentration of top-level researchers in immunology, oncology, and the combined translational field of cancer immunotherapy at centers such as the Ludwig Institute for Cancer Research (LICR), the de Duve Institute (DDI) at Université Catholique de Louvain, and the Institute of Medical Immunology (IMI). Against this backdrop, and given the collaborative environment fostered by BioWin, several startup companies in cancer immunotherapy have entered the scene. Here, we highlight four of these companies.

Celyad: developing a universal CAR-T therapy

Celyad is developing next-generation, genetically engineered autologous and allogeneic T cells expressing chimeric antigen receptors (CARs) that bind to cancer-specific antigens. In contrast to first-generation CAR-T cells, which typically recognize just one tumor antigen and thus limits their use to one type of cancer, Celyad’s CYAD-01 CAR-T cells express an artificial receptor derived from a natural receptor present in natural killer cells that interacts with eight different ligands produced by tumor cells under stress. Because these ligands are expressed in many types of tumor, CYAD-01 could be potentially useful in up to 80% of cancer types.

In preclinical studies, CYAD-01 targets tumor cells, ligand-expressing blood vessels that feed the tumor and inhibitory cells that help tumors evade the immune system within the tumor microenvironment. CYAD-01 also triggers the generation of long-term cell memory against targeted tumors—an effect akin to traditional vaccination—owing to induction of the host’s adaptive immune response.

In addition to CYAD-01, Celyad’s pipeline includes programs in solid tumors and allogeneic CAR-T cell development.