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Taiwan's AP Biosciences and LuminX develops novel cancer treatments

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Companies accelerate the development of drugs and therapies in the most cost-effective way through immunotherapy and cell therapy.

Taiwan's AP Biosciences and LuminX are accelerating the development of drugs and therapies for innovative cancer treatments.

AP Biosciences (APBio) is a discovery-stage immunotherapeutic company developing mono- and bi-specific antibodies for various forms of treatment. One of the company's major products, T-Cube bsAbs, involves bi-specific antibodies that lead T cells to cancer cells. They do so by bridging the T cells to unique antigens found on the surface of cancer cells, resulting in T cell activation which kills the cancer cells.

Unlike many current immune-therapeutic drugs (which activate the immune system to combat cancer cells while inducing a cytokine storm accompanied by strong side effects), APBio's antibody drugs would benefit patients via improved specificity, leading to higher efficacy and a more favourable safety profile.

"T-Cube bi-specific antibodies activate cytotoxic and memory T cells upon binding to targeted cancer cells. In short, we're creating better antibodies for better cures," explained Dr. Jeng Her, CEO of APBio. "In the near term, we see these treatments benefiting patients with liver, kidney, and lung cancers. Superiority in efficacy, safety, and cost is what makes our solutions unique and exciting to the medical community."

The strategy employed by APBio has attracted companies such as Innovent Biologics and Tasly Biopharmaceuticals to become development partners for several bi-specific antibodies. IBI302, a bi-specific antibody licensed to Innovent for the wet form of age-related macular degeneration (wet AMD), entered Phase I of clinical trials in April 2019. Further, APBio recently raised US$19.5 million in its series B funding round for the development of three in-house T-Cube antibodies, targeting human trials as early as Q4 2021.

LuminX provides cell GPS positioning in vivo

Cell therapies face great challenges in pre-market certification, owing to the difficulty of pre-clinical PK/PD data collection. LuminX aims to accelerate and fine-tune cell therapies through a better understanding of processes in the preclinical stage. With the help of an innovative cell-tracking method, live cells can be detected through fluorescence, thus making them easier to track for an extended period of time. This visibility helps scientists and researchers understand how therapeutic cells are distributed either in vivo or in vitro, how long they survive, and recognize what the cells' eventual biological fate might be in research or hospital setting.

According to Dr. Long-Jyun Su, CEO of LuminX, the company's solution involves labeling cells with LuminX-tracking reagents that are non-toxic and non-genotoxic. The outcome sees labeled cells glow red for easy visual identification and remain potent

long thereafter. The executive said that other techniques require 100, 1,000, or even 10,000 cells to elicit detection, whereas LuminX's method only requires 10.

Dr. Su explained, "LuminX's cell-tracking service is able to quantify the number of therapeutic cells in an individual organ, allowing us to obtain data on cell biodistribution and PK/PD. This means we're able to study the movement of drugs through the animal model in the preclinical stage. Additionally, for researchers and cell therapy companies, our tech will be a game-changer as it drastically cuts down the time and money otherwise needed for research and development."