

GIST and K-MEDI Hub selected for national new drug development project... Embark on developing oral anticancer drug that blocks cancer cells' 'immune evasion'

- Joint research team led by Professor Yong-Chul Kim of GIST's Department of Life Sciences and Dr. Tae-Woo Kim of K-MEDI Hub begins securing small molecule candidate substances targeting the cancer cell immunosuppression-inducing enzyme 'CD73'

- Development of an immune cell activating treatment with high ease of administration to replace existing injectable drugs



▲ Panoramic view of the GIST campus

The Gwangju Institute of Science and Technology (GIST, President Kichul Lim) announced that a project for the development of an immuno-oncology drug, jointly proposed by Professor Yong-Chul Kim of the Department of Life Sciences and Dr. Tae-Woo Kim of the Daegu Gyeongbuk Advanced Medical Industry Promotion Foundation (K-MEDI hub, Chairman Gu-seon Park), has been finally selected for the "New Drug Infrastructure Expansion Research (Effective Substance Stage)" category of the 1st National New Drug Development Project for 2026.

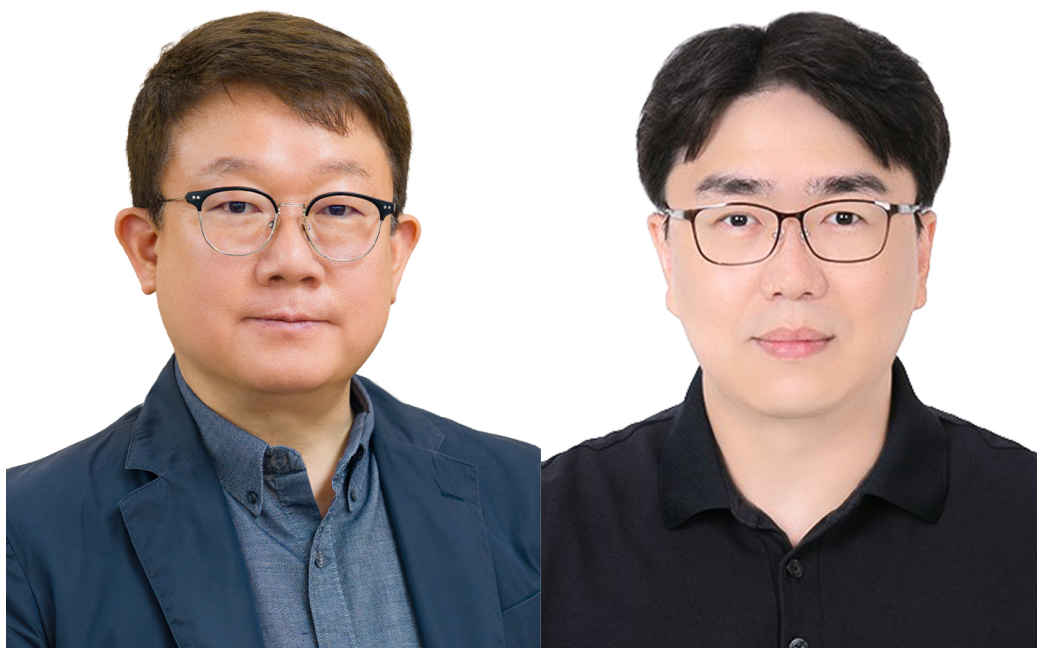
The "National New Drug Development Project" is a pan-governmental national R&D initiative launched to strengthen the global competitiveness of the domestic pharmaceutical and bio-industry. Starting in 2021, it supports all stages of the new drug development cycle for 10 years with the goal of strengthening the domestic new drug development R&D ecosystem, generating global commercialization results, and creating public benefit outcomes in the healthcare sector.

The joint research team plans to secure 'CD73-targeted small molecule candidate substances' that could lead to new drug development over a three-year period from April 2026 to March 2029.

Immune cells in our bodies, such as T cells and macrophages, play a role in attacking and eliminating cancer cells. However, cancer cells evade these attacks by utilizing the 'CD73-adenosine pathway' to weaken the function of immune cells.

The research team plans to develop an immunotherapy drug that inhibits the activity of 'CD73*,' a surface enzyme of cancer cells, thereby reducing the production of adenosine, an immunosuppressive substance, and inducing immune cells to attack cancer cells more effectively.

** CD73: An enzyme that helps produce adenosine, an immunosuppressive substance, around cancer cells.*



▲ (From left) Professor Yong-Chul Kim of the Department of Life Sciences at GIST (Principal Investigator) and Dr. Tae-Woo Kim of K-MEDI Hub (Co-Principal Investigator). The joint research team is pursuing the development of small molecule-based immuno-oncology drug candidates that target the 'CD73-adenosine' pathway, which is involved in cancer cells' immune evasion.

In particular, the goal is to inhibit CD73 activity to reduce adenosine production within the tumor microenvironment and create an environment where immune cells can recognize and attack cancer cells more effectively.

In this study, GIST will conduct initial candidate discovery based on its capabilities in medicinal chemistry and structure-based drug design, while K-MEDI Hub will be responsible for verifying efficacy and mechanisms of action by utilizing its drug development support infrastructure. Through this, the plan is to establish a research collaboration system covering the entire drug development cycle.

Through close collaboration, both institutions expect to enhance the potential for developing "oral small-molecule immunotherapies" that are more convenient to take than existing injectable antibody treatments and can be administered in combination with various other therapies.

Furthermore, this research aims to present new treatment strategies in the field of difficult-to-treat cancers and secure candidate substances that could lead to the development of innovative new drugs in the future.

Dr. Tae-Woo Kim (Co-principal Investigator) of K-MEDI Hub stated, "This project is highly significant in that it translates a new treatment strategy that regulates the immunosuppressive environment surrounding cancer into actual new drug development research." He added, "We plan to go beyond simply inhibiting enzyme function and comprehensively verify changes in actual anti-cancer immune responses, including the interactions between cancer cells and immune cells and the restoration of immune cell activity."

Professor Yong-Chul Kim of (Principal Investigator) of GIST's Department of Life Sciences stated, "The CD73-adenosine pathway is known as a proven mechanism for the development of immuno-oncology drugs," adding, "This research project aims to secure novel oral immuno-oncology drug candidates targeting this proven mechanism to address a significant unmet medical need."