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J INTS BIO launches AI-Supercomputing alliance to transform cancer therapy in Korea

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A collaboration marking a transformative leap in cancer research, showcasing the potential of merging AI with biotechnology

J INTS BIO has signed a Memorandum of Understanding (MoU) at Baekyangnuri Plaza, Yonsei University, unveiling a groundbreaking artificial intelligence (AI)-driven collaboration to revolutionise cancer treatment.

This alliance unites leading institutions, including Yonsei University College of Medicine's DAAN Cancer Research Institute, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Korea Research Institute of Chemical Technology (KRICT), and KAIST.

J INTS BIO is at the forefront of developing personalised lung cancer therapies through the integration of artificial intelligence and multi-omics technology. Multi-omics offers a comprehensive approach to disease biology by combining genomics, transcriptomics, metabolomics, and proteomics.

Using AI and national supercomputing infrastructure, the project aims to enhance drug efficacy prediction and minimise toxicity, addressing the critical challenges that plague conventional oncology drug development.

The collaboration is structured around a comprehensive, four-phase research strategy- meticulous patient sample collection and preparation, AI-driven protein analysis using supercomputers, synthesis of drug candidates informed by AI insights, and rigorous clinical trials for validation.

The DAAN Cancer Research Institute at Yonsei University will lead the first phase, collecting lung cancer tissue and genomic samples and preparing them for AI model development. Using cell and animal models, the institute will validate AI predictions, identify drug resistance mechanisms, and refine algorithms to maximise accuracy.

DGIST's Core Protein Resources Center will utilise national supercomputers to simulate protein-drug interactions, conducting high-precision structural analyses and virtual experiments. This work will confirm AI-driven hypotheses and facilitate the design of drugs tailored to the molecular characteristics of cancer.

KRICT's Medicinal Bio Research Division will synthesise the AI-recommended drug candidates, subjecting them to thorough pharmacological and toxicological assessments.

J INTS BIO will oversee the entire project, managing clinical trials to validate AI-based predictions and develop clinically proven, patient-specific treatment protocols.

The consortium plans to unveil interim results from the "AI-Supercomputing-Based Personalized Lung Cancer Therapy" project at a major international conference in the first half of next year, showcasing the project's far-reaching impact and potential.