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Scientists in Korea change paradigm of drug discovery with world's first atomic editingÃ¢â?¬â?¹

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Technology enables selective editing, even when applied to complex natural products or pharmaceuticals



In pioneering drug development, a new technology that enables the easy and rapid editing of key atoms responsible for drug efficacy has been regarded as a fundamental and 'dream' technology, revolutionising the process of discovering potential drug candidates. Researchers at Korea Advanced Institute of Science and Technology (KAIST) have become the first in the world to successfully develop single-atom editing technology that maximises drug efficacy.

Professor Yoonsu Park’s research team from the Department of Chemistry successfully developed a technology that enables the easy editing and correction of oxygen atoms in furan compounds into nitrogen atoms, directly converting them into pyrrole frameworks, which are widely used in pharmaceuticals.

Many drugs have complex chemical structures, but their efficacy is often determined by a single critical atom. Atoms like oxygen and nitrogen play a central role in enhancing the pharmacological effects of these drugs, particularly against viruses.

Professor Yoonsu Park, who led the research, remarked, "This breakthrough, which allows for the selective editing of five-membered organic ring structures, will open new doors for building libraries of drug candidates, a key challenge in pharmaceuticals."