

POSTECH Developed Smart Contact Lens for Diabetes Monitoring and Diabetic Retinopathy Therapy

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Diabetes is called an "immortal disease" as it is never completely removed with any treatment of modern medical science once it develops. But what if you could control the secretion of insulin just by wearing contact lenses?

Recently, POSTECH (Pohang University of Science and Technology) research team

developed a wireless smart contact lens technology that can diagnose diabetes by wearing contact lenses and can even treat diabetic retinopathy by itself.

The smart contact lens can diagnose and treat diabetes by controlling drug release with electrical signals. It is made of biocompatible polymers and incorporates biosensors, drug delivery systems, and data communication systems.

The research team confirmed that the sugar concentration in tears analyzed by the smart contact lens in the diabetic rabbit model is consistent with the blood sugar analyzed by the conventional glucose meter and that the drug in the smart contact lens can be used to treat diabetic retinopathy.

In recent years, by utilizing such smart contact lens-based technology, researches are being conducted to broaden the scope of use as an electronic drug system that can treat mental disorders by electrical stimulation. Mental disorders include depression and brain diseases such as Alzheimer's and Parkinson's disease.

The research team expects that smart contact lenses for self-controlled treatment, along with real-time bio-analysis, will be developed and quickly applied to wearable healthcare-related industries.

The findings were published in the world-wide journal, Science Advances.

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