Real-time monitoring of brain neurotransmitters, such as dopamine and serotonin, is the key in understanding the biological bases of neurodevelopmental disorders and also in the development of novel therapeutic agents for the treatment.

The current method for detecting brain neurotransmitters such as HPLC requires large sample volume and takes long time for sample collection.

Professor Yunshan Wang has been developing a novel label-free biosensor based on ultraviolet plasmonic enhanced native fluorescence. The UV plasmonic sensor is label-free and does not require signal enhancement from enzyme or nanoparticles, thus can significantly improve the detection speed. The sensor requires very small sample volume and can be integrated into the micro-dialysis apparatus to realize real-time monitoring of brain neurotransmitters.

The project will be a new cross-campus collaboration between the College of Engineering (Yunshan Wang, Steve Blair and Jules Magda), and the College of Pharmacy (Marco Bortolato).

COLLABORATORS

YUNSHAN WANG
College of Engineering
Chemical Engineering
Project Owner

STEPHEN BLAIR
College of Engineering
Elect & Computer Engineering

JULES MAGDA
College of Engineering
Chemical Engineering

MARCO BORTOLATO
College of Pharmacy
Pharmacology and Toxicology

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