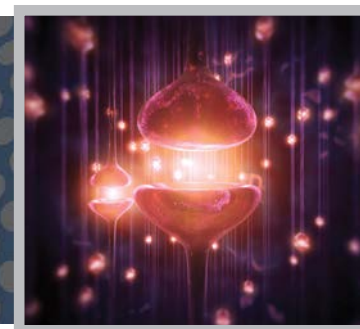


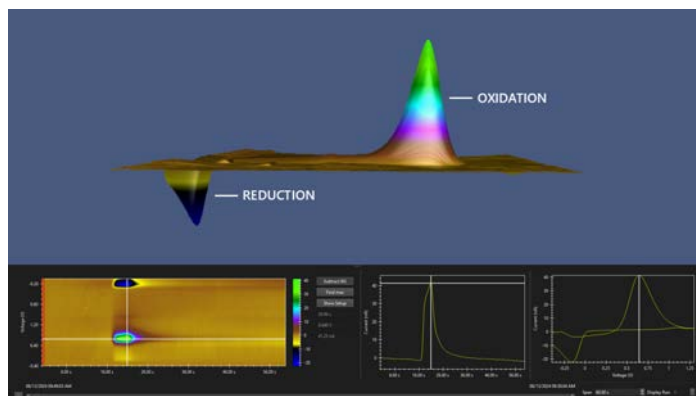


FAST SCAN CYCLIC VOLTAMMETRY

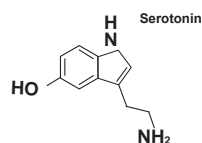
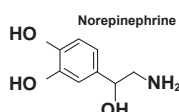
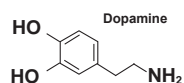


Pinnacle's turn-key **FAST SCAN CYCLIC VOLTAMMETRY (FSCV)** system detects catecholamines and other electroactive neurotransmitters in real time. Its integrated hardware and software simplify setup, enable real-time color plotting and continuous recording, and maintain compatibility with established FSCV filter standards across labs.

Available in tethered or wireless formats, the platform integrates with our stimulation modules, flow-cell calibration system, and carbon-fiber electrodes—or researchers can use their own designs. Together, these components create a flexible, end-to-end solution for *in vivo*, *ex vivo*, and organoid models.



DETECT ELECTROACTIVE ANALYTES INCLUDING:



IN VIVO NEUROTRANSMITTER DETECTION

Developed in collaboration with the FSCV community, Pinnacle's integrated hardware and software provide standardized, reproducible detection of neurotransmitters *in vivo*. The system applies rapid voltage scans at carbon-fiber microelectrodes to detect electrochemical changes directly in the brain—no genetic modification or optical labeling required.



REAL-TIME DETECTION



CUSTOM WAVEFORMS

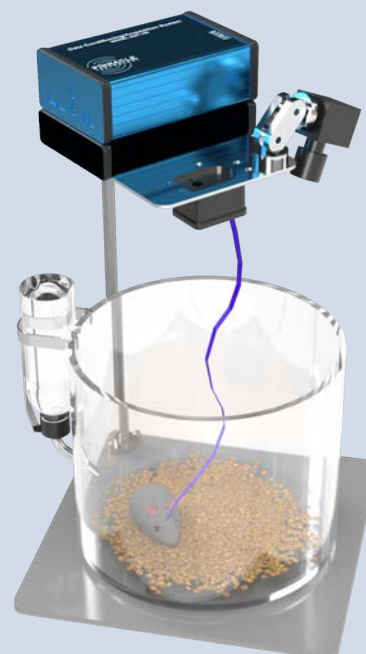


ADD OPTICAL OR ELECTRICAL STIMULATION

SYSTEMS FOR MICE AND RATS

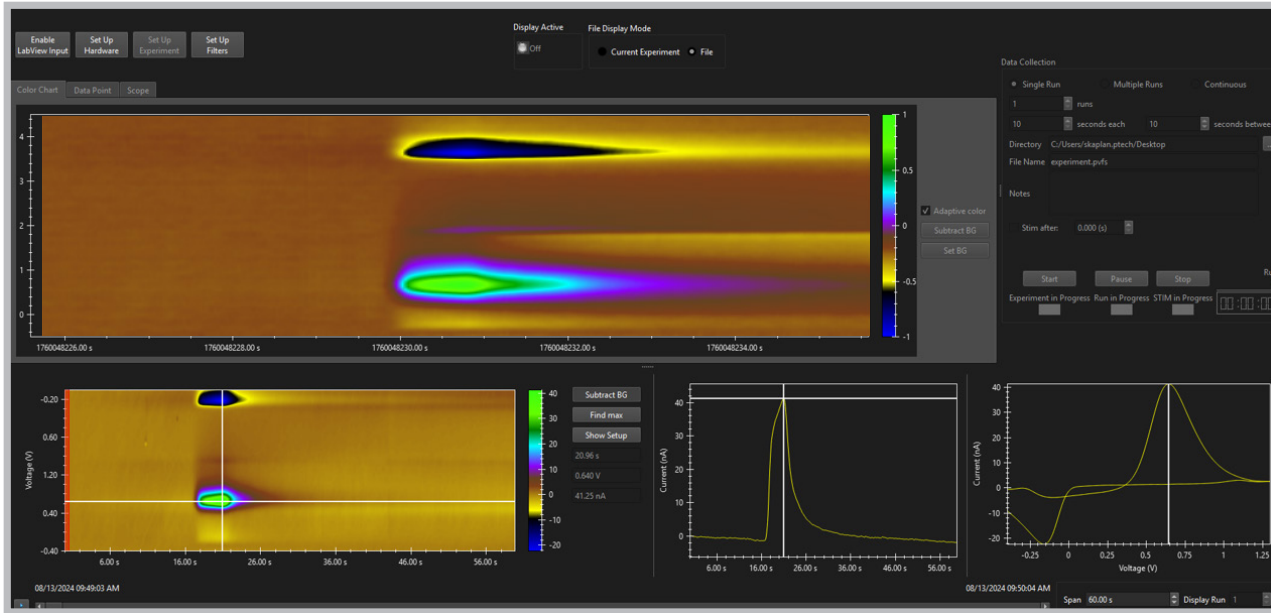
In tethered configurations, a head-mounted FSCV board transmits signals through a low-torque commutator to an interface box that streams data to the host computer. In wireless systems, the head-mounted board streams data directly via 2.4GHz Wireless for true untethered recording.

SYSTEM SPECIFICATIONS		
Specification	Tethered	Wireless
Voltage Span	± 2 V	± 1.5 V
Input Range	± 10 µA	± 3.3 µA (7 µm) or ± 33 µA (34 µm), factory configurable
Max Sweep Rate	Up to 100 sweeps / sec (applied waveform)	
Max Recording Rate	Up to 10 sweeps / sec (captured data)	
Output Filter	3 kHz Bessel	20 kHz RC
Input Filter	14 kHz Bessel	2 kHz RC
Data Resolution	1000 points / waveform	



VISUALIZING DOPAMINE DETECTION IN REAL TIME

FSCV provides direct, real-time electrochemical detection of dopamine and other analytes in the intact brain, allowing researchers to capture transient changes in concentration as they occur. The top panel displays a color plot of changing analyte concentrations, while the lower panels show corresponding current responses and voltammograms.



SOFTWARE

Pinnacle's FSCV software supports short-term and long-term recordings with background subtraction, customizable waveforms, heat maps, 3-D visualization, and selectable filters. Data export and synchronized video recording enable simultaneous behavior analysis.

FLOW CELL

Pinnacle's turn-key flow cell enables rapid, repeatable calibration of carbon fiber electrodes under controlled flow conditions. The design accommodates both 7 μm and 34 μm electrodes and includes all required components, from the pump to the waste container.

CARBON FIBER ELECTRODES AND SENSORS

CARBON FIBER ELECTRODES (CFEs) are used with all FSCV systems for *in vitro* and *in vivo* applications and require an Ag/AgCl reference electrode. Two styles are available:

STANDARD CFEs detect electroactive analytes such as dopamine. The 7 μm electrode is glass-capillary based, and the 34 μm electrode is cannula-mounted for easy use and removal.

ENZYME-MODIFIED CFEs (EM-CFEs) use glucose or lactate oxidase within a hydrogel matrix for real-time detection of non-electroactive analytes. Available in 7 μm size.

