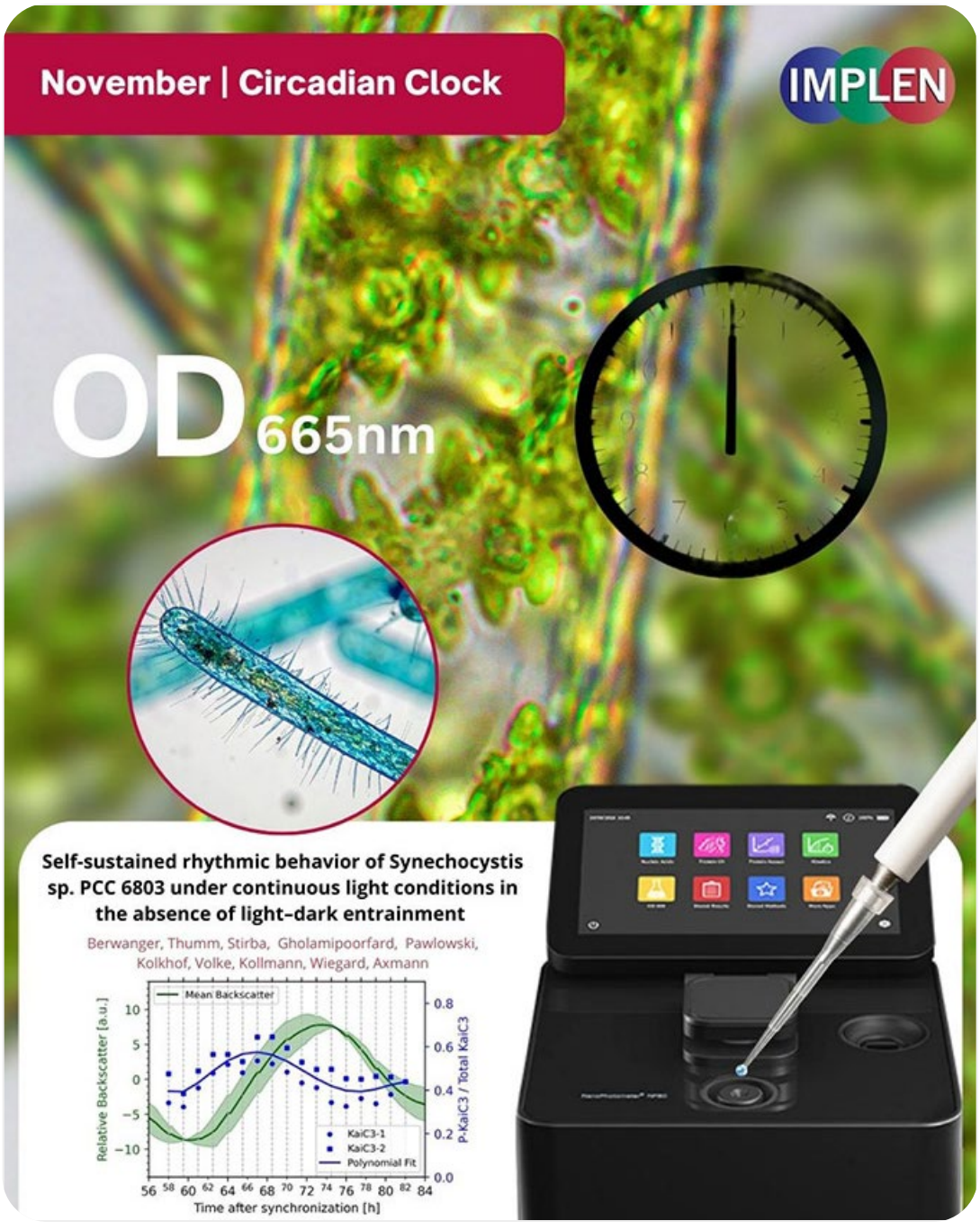
Implen Journal Club | November Issue, 2025

Explore Nov 2025 Featured Research Highlights



When Time Changes, Nature Keeps Its Rhythm

When daylight saving time throws our sleep schedules off, it's a reminder that nature keeps its own time.

Synechocystis, a tiny photosynthetic bacterium, has a self-sustained circadian clock that maintains 24-hour rhythms in gene activity, metabolism, and growth—even under constant 24 hour light. Using a gentle light-scattering method, researchers Berwanger et. al. found that these microbes stay perfectly in sync through internal “clock” proteins that also regulate their energy and daily cycles.

The Implen NanoPhotometer® was used in this study to measure the Chlorophyll a content of cell extracts by OD665nm using the equation: Cchlorophyll [µg mL−1] = OD665nm×12.6 µg mL−1 × dilution factor.

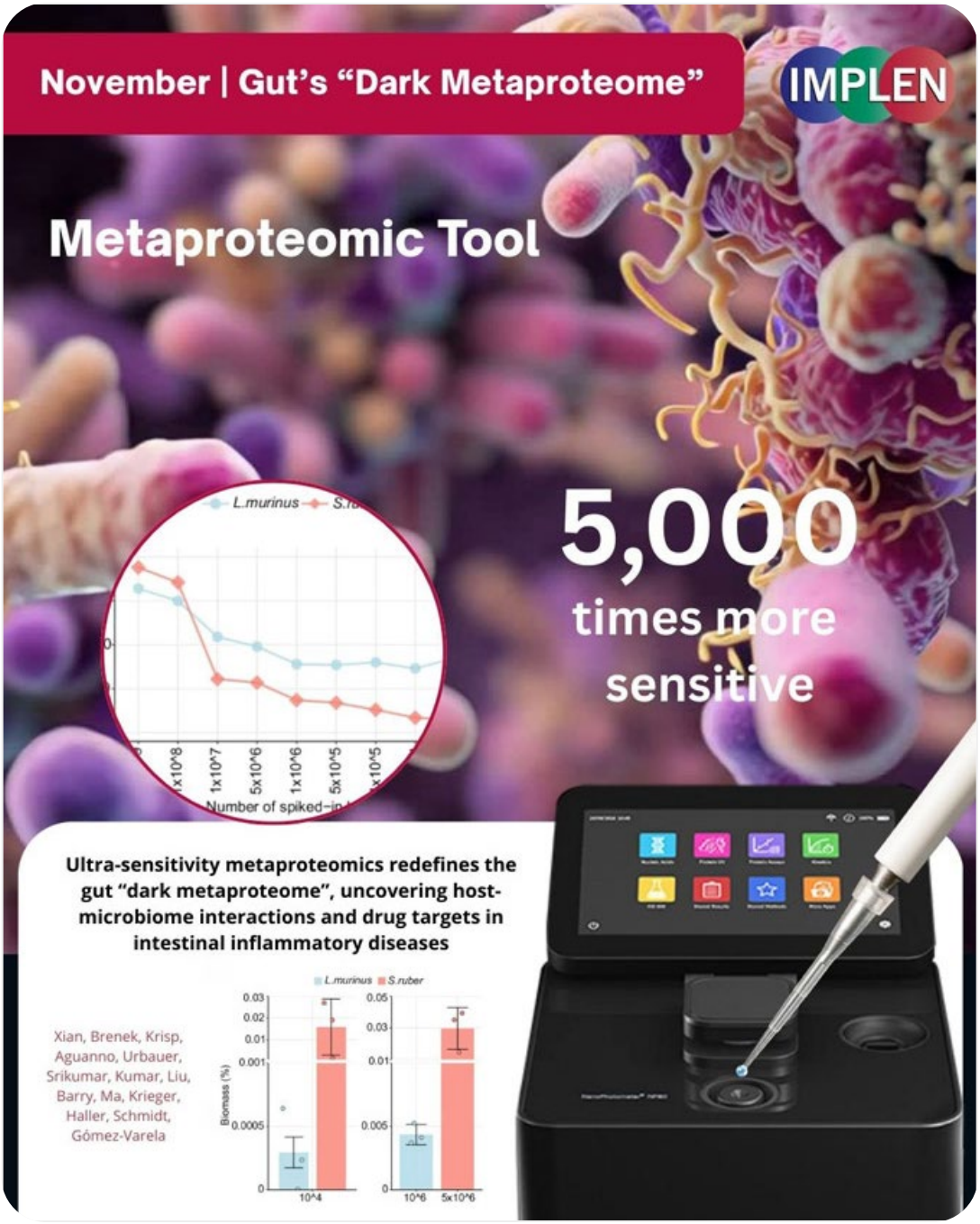
Learn more

DNA — The Next Frontier in Data Storage

DNA is emerging as a powerful way to store digital information because it's incredibly durable and compact, but until now, it's been hard to access specific data easily. Researchers Bögels et. al. published in Nature Nanotechnology the development of tiny heat-responsive capsules that safely store and organize DNA "files." By simply changing the temperature, they can open or seal these capsules to read or copy data without errors —bringing us closer to a reliable, reusable future for DNA-based storage.

The Implen NanoPhotometer® was used in this research for sample validation prior to Illumina sequencing.

Learn more



Ultra-Sensitive Metaproteomic Tool Illuminates the Gut's "Dark Metaproteome"

Researchers Xian et. al. recently developed uMetaP, an ultra-sensitive metaproteomic tool to help elucidate the gut's "dark metaproteome" – the hidden world of rare gut bacteria and their proteins. About 5,000 times more sensitive than previous methods, this method revealed how gut bacteria and the body interact during inflammation and identified 204 potential drug–protein connections, forming what scientists call a "druggable metaproteome."

The Implen NanoPhotometer® was used in this study to measure peptide concentrations at 205 nm.

#Implen hashtag#NanoPhotometer hashtag#UVVis hashtag#Spectrophotometry hashtag#Proteomics hashtag#Metaproteomics hashtag#LifeScience hashtag#Biotech hashtag#ResearchInnovation hashtag#AnalyticalInstruments hashtag#LabEquipment hashtag#ScientificDiscovery hashtag#GutMicrobiome hashtag#DrugDiscovery

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New Imaging System Enables Real-Time Tracking of Cell and Gene Therapies

Researchers Morath et al. reported in Nature Biomedical Engineering a new PET imaging method to track engineered cells—including CAR T cells and viral gene therapies—inside the body in real time. By equipping these cells with a custom surface protein that binds a safe radioactive tracer, this method shows where the cells travel, how long they persist, and how active they stay— providing insight into treatment precision and

efficacy.

The Implen NanoPhotometer® NP80 was used to determine the degree of labeling for each antibody and to accurately measure the concentration of fluorescent tracer molecules. By assessing light absorption, researchers could determine the amount of fluorescent compound in each sample, enabling accurate preparation of tracer concentrations (0.2, 1, and 5 nM) for the real-time kinetic binding experiments on the heliXcyto chip.

#Implen #NanoPhotometer #NP80 #UVVIS #Spectroscopy #PETImaging #CellTherapy #CARTCells #GeneTherapy #MolecularImaging #PrecisionMedicine #CellTracking #Radiotracers #Immunotherapy #BiotechInnovation

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