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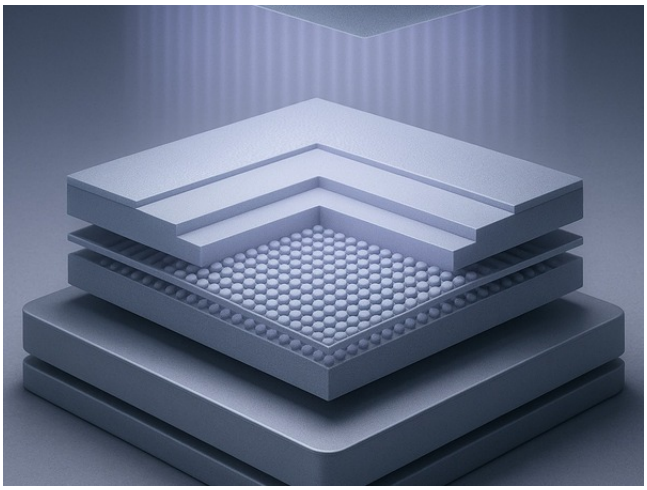
Photochemical Reactor for Solid Phase Synthesis

Open-design LED photoreactor delivers high-yield solid-phase synthesis with low power, thermal control, and scalability.



Researchers at Purdue University have created a new photochemical reactor for synthesis of organic molecules in the solid phase on polymeric supports. Current Rayonet technology often leads to undesired sample heating, which can degrade products formed through solid phase synthesis on traditional resin-based substrates. The apparatus created by Purdue researchers features a unique, open design suitable for agitation control, a thermal sink, and a low power monochromatic LED light. In testing with a photoreactive compound, 100% cleavage and 90% yield were observed with up to 230 mg of resin wherein the reactor lamp was set at 365 nm for just under one hour. This will be useful in a myriad of applications including high throughput applications such as synthesis of peptides, olgionucleotides, and complex carbohydrates.

Advantages:

-Efficient

-Low power

Technology ID

2020-LIPT-68975

Category

Biotechnology & Life Sciences/Biomarker Discovery & Diagnostics

Chemicals & Advanced Materials/Materials Processing & Manufacturing Technologies

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-Thermal control

-Agitation control

-Open design

Potential Applications:

-Chemical Synthesis

-Chemistry Research

Technology Validation:

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TRL: 5

Intellectual Property:

Provisional-Patent, 2020-05-24, United States

PCT-Patent, 2021-05-22, WO

NATL-Patent, 2022-10-31, United States

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