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Photosynthesis of Chiral Building Blocks for Drug Discovery

A new white paper, written by scientists at Liverpool ChiroChem (LCC), describes how the Asynt Illumin8 parallel photoreactor is being used to synthesise a range of new 2-Aryl N-Heterocycles.



Bild: A. . Illumin8 Parallel Photoreactor

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The discovery

of a novel enantioselective synthetic pathway for reduction of pyridines to the corresponding chiral piperidines led to the formation of LCC in 2014. Since inception, LCC have enhanced their expertise enabling them to provide leading scientific organisations with access to chirally-pure compounds that play their part in small molecule drug discovery.

The white paper describes

how using a combination of photoredox-mediated hydrogen atom transfer (HAT) and nickel catalysis - scientists were able to synthesise di- and tri-functionalised *N*-pyrrolidines of high interest to the drug discovery community.



Dr Shaun Smullen,

a senior research chemist at LCC commented "Our initial photochemical reaction set-up using Kessil 40 W lamps was rather time consuming. The introduction of Asynt's Illumin8 parallel photoreactor drastically improved our efficiency by allowing us to perform eight reactions simultaneously. The yields and selectivity of these reactions were comparable in both set-ups".

The Illumin8 parallel photoreactor

is designed to be simple to set-up, flexible in operation and easy-to-use. It allows users to run up to eight photochemical reactions at a time in 6 mL borosilicate tubes. The unit mounts on a standard magnetic hotplate stirrer enabling powerful agitation and heating (up to 80 °C). Easy to use connectors, on top of the Illumin8, allow for an inert atmosphere or vacuum to be applied to each reaction tube. Compact in size, the Illumin8 parallel photoreactor features a ring of eight high power UV (365 nm) or blue (450 nm) light emitting diodes (LEDs) with safety interlocks to ensure light tight photochemical reactions. With each LED positioned close to a corresponding reaction tube, Illumin8 efficiently delivers an even photon flux to each reaction enhancing the consistency of your photochemical reactions.

To read the LCC white paper

in full please visit www.asynt.com/wp-content/uploads/2020/02/Photochemistry-with-Illumin8-LCC-white-paper-SHARE.pdf. For further information on the Illumin8 please visit <https://www.asynt.com/product/illumin8-parallel-photoreactor/> or contact Asynt on +44-1638-781709 / enquiries@asynt.com.

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