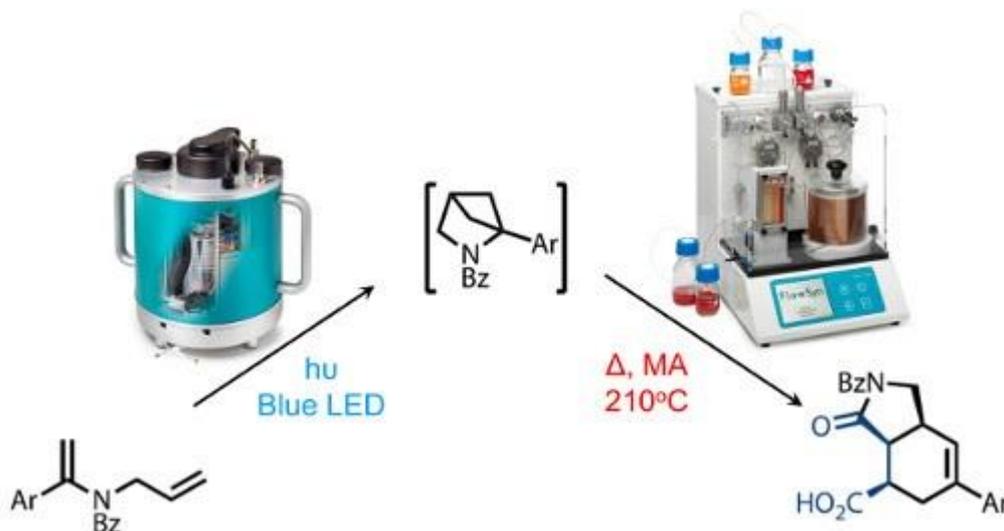


## Sequential Photothermal Flow Chemistry Delivers High Yields

Uniqsis reports how researchers at the School of Chemistry, University of Bristol (UK) have successfully prepared bicyclic lactams in high overall yield and excellent purity, under flow through conditions, using a photochemical [2+2] cycloaddition followed by a thermal electrocyclic cascade.



### By moving the photochemistry,

performed using a PhotoSyn™ LED photoreactor, from ultraviolet (UV) to visible, the Bristol researchers were able to make their [2+2] ring closure much more energy-efficient. Integrating this with a FlowSyn™ Continuous Flow Reactor they were also able to apply automated high-temperature flow chemistry to the thermal cascade step facilitating safe and reliable scale-up with short reaction times..



### Using this experimental set-up -

the researchers were able to demonstrate a unique example of a photothermal daisy-chained process combining a visible-light-mediated photochemical initiation and a thermal cascade reaction as a fully continuous process yielding 20 grams / hour. This process was facilitated by the ability to employ acetonitrile as solvent at high temperature under pressurised conditions and the precise control of residence time and temperature in the flow reactor which enabled the isolation of a reactive diene intermediate on a scale and yield not achievable under batch conditions

### For further information

on the research work undertaken by the University of Bristol please download application note 32 from <https://www.uniqsis.com/fcApplications.aspx#2117>

**The Uniqsis FlowSyn™**

is a fully integrated continuous flow reactor with everything you need to start doing flow chemistry including reaction optimisation, synthesis and scale up. To provide maximum flexibility, a wide range of mixer and reactor options are available as well as additional modules for performing multiple experiments, or sub-ambient chemistry. Fully compatible with the FlowSyn™, the PhotoSyn™ photoreactor lamp module is designed to provide scientists with a high-power LED light source for continuous flow applications. Available with a selection of different LED arrays the unit can provide outputs up to 700W from the dedicated programmable power supply.



**For further information**

on the FlowSyn™ continuous flow reactor or the PhotoSyn™ photoreactor lamp module please visit [www.uniqsis.com](http://www.uniqsis.com) or contact Uniqsis on +44-845-864-7747/ [info@uniqsis.com](mailto:info@uniqsis.com)

**Uniqsis Ltd.**

Since 2007, Uniqsis has specialised in the design and supply of mesoscale continuous flow chemistry systems for a wide range of applications in chemical and pharmaceutical research. The company's aim is to make flow chemistry easily accessible to both novices and experienced users.

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