PRESS RELEASE

High Productivity Photochemical Flow Synthesis

Asynt reports upon a new paper, written by a multidisciplinary team of experts at the **Institute for Process Research and Chemistry (iRPD)** at the **University of Leeds (UK),** that describes how the ***f*Reactor flow chemistry system** with add-on **photochemical flow modules** improves synthetic reactions commonly used in the preparation of drug intermediates.

In contrast to many tubular or plate-based flow chemistry systems, the Asynt *f*Reactor with Photo Flow modules is especially well-suited to handling multiphasic solid-liquid and gas-liquid photochemical reactions.

The new paper* describes a series of multiphasic Flow Chemistry reactions undertaken by iRPD researchers using the *f*Reactor Photo Flow platform. Experimental data is provided for a series of relevant reactions including a benzylic bromination with a subsequent nucleophilic substitution step used in the synthesis of the anti-hypertensive drug Valsartan; a reaction where a reagent is used in slurry form to minimise solvent use resulting in significantly higher productivities that would otherwise be possible, an efficient oxidation reaction using air as a simple and safe oxidising agent, and photochemical synthesis of 1,2-diamines with productivities of over 50 times that possible by batch chemistry protocols.

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Dr Francis from the iPRD commented "The *f*Reactor Photo Flow has provided us with an easy-to-use, powerful platform to undertake high productivity photochemistry in Flow Chemistry applications. Integrating the efficiency of flow processing with the advanced mixing of a continuous stirred tank reactor, we have found *f*Reactor Photo Flow to be well-suited to performing multiphasic reactions allowing our chemists to explore continuous-flow processing, with little expertise required".

The iPRD (https://www.iprd.leeds.ac.uk/) has a long track record of working with industry in developing chemical processes and equipment and in translating findings back to partners. In the described research - iPRD Professors Blacker, Marsden and Kapur, together with Dr Francis who carried out the practical work, worked closely with industry partners - Sterling Pharma Solutions and Redbrick Molecular - to identify relevant reactions to test the performance of the fReactor Photo Flow platform, before optimising reaction conditions.

*To download a copy of the new iRPD paper please visit https://www.asynt.com/wp-content/uploads/2021/11/A-Readily-Reconfigurable-Continuous-Stirred-Tank-Photochemical-Reactor-Platform.pdf
For further information on the *f*Reactor Photo Flow platform please visit https://www.asynt.com/product/freactor-photo-flow/ or contact Asynt on +44-1638-781709 / enquiries@asynt.com.

Asynt is a leading supplier of affordable products, consumables, and services for chemists in industry and academia. With a sales team of trained chemists, Asynt can draw upon their in-depth application knowledge to provide a high level of customer support for its DrySyn Heating Blocks, CondenSyn waterless condensers, Turn-Key solutions for Controlled Lab Reactors,

Synthesis Tools, Evaporators, Temperature Control Systems, Vacuum Pumps and Lab Safety Equipment.

Illustrative image:

Caption: Harrison Johnson-Evans from the iRPD setting up the fReactor Photo Flow system

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