

## Discovery Partnerships with Academia

**Discovery Partnerships with Academia (DPAc) is a unique way for academic researchers to collaborate with GSK to translate their innovative ideas into transformative medicines.**

DPAc seeks to partner with academics who have unique skills, insight or expertise and who want to be intimately involved in making a medicine. Academic researchers work with a dedicated DPAc Leader from GSK whose experience in drug discovery guides the project all the way from inception to, if successful, product launch. This close relationship between the academic researcher and the DPAc leader develops trust and openness and is critical to navigating through the challenges of medicines discovery and development. Each project is structured with defined milestones, and universities receive milestone payments as well as royalties if a medicine is commercialised. If the project terminates for any reason, the academic researcher is provided with key tools to enable them to continue their work.

In 2011 DPAc collaborated with Damian Mole, a clinician scientist fellow and consultant surgeon at the University of Edinburgh (UoE), to discover a treatment for severe acute pancreatitis

(SAP), a devastating condition with no available therapy. Damian's initial clinical observations indicated the tryptophan pathway is increased in patients with SAP compared to those whose disease spontaneously resolves. Genetic knockdown of a key enzyme of this pathway prevented SAP in rodent models, suggesting inhibition of kynurenine monooxygenase (KMO) in patients with acute disease could prevent the progression to severe disease, thus reducing morbidity and mortality.

The UoE team provided a deep understanding of the disease biology, pathway biochemistry and structural biology of the target and this was combined with the assay development, pharmacology, synthetic, computational and medicinal chemistry expertise from GSK. A series of KMO inhibitors designed and synthesised within GSK were profiled in biochemical and cellular assays by both partners. Lead compounds showed clear efficacy when dosed in a therapeutically relevant manner in a rodent model of SAP, demonstrating pharmacological inhibition of KMO protects against organ damage. This work was published in Nature Medicine and led to the filing of a patent application.

“It's great working with a DPAc team that always keeps the goal very much on the middle of the table. It's **extremely rewarding** to be part of this collaboration with GSK and it's a **great working environment**. Everyone on our DPAc team is really good at what they do. I feel privileged to be part of it.”

Mr Damian Mole, MRC Senior Clinical Fellow and Honorary Consultant Surgeon,  
University of Edinburgh<sup>1</sup>

The project is now progressing to clinical development with potential to significantly reduce the incidence of SAP, thereby dramatically improving patient outcomes and decreasing the major healthcare burden associated with this disease.

*For more information about DPAc visit  
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