

My friend, colleague and collaborator, Jan Shute sadly passed away recently. Jan was the Professor of Respiratory Pharmacology in the School of Pharmacy and Biomedical Sciences, University of Portsmouth. Jan was an exceptionally talented and passionate researcher who started her professional career at the University of Reading where she obtained a First Class Honours degree in Physiology and Biochemistry before successfully completing her PhD there working on the biochemistry of milk fat synthesis. Post her PhD Jan spent time working in Odense, Denmark (where I understand she actually wrote the majority of her PhD thesis), at the University of Utrecht in Holland and in the University of Birmingham. She subsequently joined the world-famous MRC Immunopharmacology Centre in the University of Southampton headed by Professor Sir Stephen Holgate where her interest in respiratory diseases started and it was at this stage of her career that I first met Jan. As an aside I would also argue that this is also where Jan saw the light and decided to enter the field of pharmacology, an area she remained active in until her untimely passing.

Jan published early seminal research showing that heparin, in addition to its well recognised anti-coagulant activities for which it was widely prescribed, had effects on mucous composition – a very important observation given the importance of mucous in contributing to a wide range of diseases of the lung such as cystic fibrosis, asthma and chronic obstructive pulmonary disease (COPD). However, not being satisfied with carrying out basic research into heparin, Jan was determined to translate her findings into clinical practice and she teamed up with colleagues in Southampton to set up clinical trials to demonstrate that when patients with cystic fibrosis were treated with nebulised heparin administered directly to the lung, this resulted in clinical benefit. The results from this early clinical work were impressive in an area of medicine where at that time there was great unmet need and indeed in a number of specialist centres in the UK, this treatment is still being used to improve the quality of life for patients with this disease. Additionally, Jan published widely on the anti-inflammatory effects of heparin which undoubtedly also contributed to the benefit heparin had been shown to have in patients with other diseases of the lung such as asthma, COPD and acute lung injury.

Jan was very successful in obtaining research grants from a range of sources such as the North American Cystic Fibrosis Foundation, the UK Cystic Fibrosis Trust and just before her passing she was awarded a substantial grant from the UK Company Life Arc. However, Jan realised early on in her career that to further develop her ideas to be of benefit to more patients, in particular, how to deliver heparin most efficiently to the lung, she needed to look elsewhere for funding and therefore co-founded her own biotech company, Ockham Biotech Ltd. Under Jan's guidance, Ockham developed novel formulations of heparin for inhalation, and more recently for other molecules related to heparin as new approaches to treat patients with lung disease. Her work in this field resulted in her being a named inventor on a number of patents, in addition to her continuing to publish her important research findings in highly reputable, peer reviewed journals. I had the privilege to work closely with Jan to put together a clinical trial investigating the effect of inhaled heparin in patients severely ill with COPD who were undergoing pulmonary rehabilitation.

During the recent COVID pandemic I worked very closely with Jan in setting up a clinical trial in Brazil investigating the benefits of inhaled heparin in patients hospitalised with this infection. The work Jan and her colleagues had previously carried out showing the safety and efficacy of inhaled heparin in patients with a variety of lung diseases was captured in an Investigators Brochure which helped us persuade regulatory authorities in a number of countries that inhaled heparin was worth investigating in hospitalised patients with COVID-19 pre the arrival of the vaccines in an attempt to reduce the number of sick patients with this disease having to enter an intensive care unit. Our pilot study was successful and led to other investigators around the world using inhaled heparin for the treatment of this condition and the results from this work across 17 countries are currently being analysed for wider dissemination. This work has important implications for how patients with complications arising from other virally induced pneumonias may be treated in the future.

Jan published over 130 peer reviewed papers across her career and was a highly respected scientist. She was regularly invited to talk about her work at other Universities and international scientific meetings. Most recently Jan gave a plenary lecture on her work with heparin to the World Pharmacology Conference in Glasgow in the summer of 2023 sealing her place as a preeminent pharmacologist! Beyond her research Jan should also be remembered as a passionate educator involved in teaching both undergraduate students and in the training of a number of PhD students. Jan was appointed a Reader in Pharmacology at the University of Portsmouth in 2001 and was deservedly appointed to be a Full Professor in 2013. The loss of Jan is a major blow to the scientific community and she will be sorely missed by the many friends and colleagues who knew her, and particularly by those of us who had the privilege to work with her as I did. Her passion for her work was infectious and her knowledge of the pharmacology of heparin and related molecules encyclopaedic. Her legacy will be the many patients who have benefited from her work on inhaled heparin and hopefully there will be many more in the future as the work she started at Ockham continues.

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