

International Conference on

# 3D Printing Technology and Innovations

July 05-06, 2017 Frankfurt, Germany



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### 3D printing as a practical pharmaceutical manufacturing method?

The processes used to produce tablets, the dominant form of medicine taken by patients, have changed relatively little for over a century. While these approaches serve the industry and patients very well, they remain limited and cannot create complex dosage forms or bespoke medications tailored for an individual or sub-population (i.e., personalized medicines). This would be valuable in meeting therapeutic challenges and the need for personalized medicines. 3D printing, offers a route to address these issues. As an example, I will show a 3DP 5-drug polypill and tablet with novel 3D architecture designed to control drug release. The potential and challenges for using 3DP in the manufacture of medicines will be discussed as well as the considerable challenges that must be met to satisfy scale-up issues and regulatory requirements.

I aim to show that 3D printing has already shown the capacity to meet some regulatory requirements and while many challenges remain, this is a technology that could potentially benefit patients and radically alter the way; we make and distribute some medicines.

#### Biography

Clive Roberts completed his graduation in Physics in 1987 and PhD in Surface Physics in 1991 at Imperial College. He is currently Head of the School of Pharmacy, University of Nottingham and in the past, he has been the Founder and Director of the Nottingham Nanotechnology Centre (2007-2013). His research is focused on "Improving methods to develop new medicines" and has led to over 300 research publications. He has over 25 years of experience in "Formulation methods supported by advanced nanoscale characterization" (h-index 46). He has aided the development of a number of delivery platforms and medicines with many industrial partners. He has been working on the 2D and 3D printing of solid dosage formulations. He was a Co-founder of Molecular Profiles Ltd (now Juniper Pharmaceuticals) and was Founder of Eminate Ltd, an IP translation company of University of Nottingham.

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