J Biotech and Phyto 2017

Smart polymers for drug release and cellular control - triggered release and activation

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My talk will be in three parts. Firstly, I will describe polymer microarray technology, which has been developed by the Bradley group. I will introduce the technology, including our unique inkjet mediated fabrication methodologies (which allow over 7000 different substrates to be fabricated on a single glass slide) and describe how this approach has been used in a large number of stem cell based applications. Secondly, I will discuss how Palladium and Copper catalysts entrapped within a polymeric scaffold can mediate chemistry inside cells, including the formation of both new C-C bonds but also the liberation of "caged" compounds (e.g. drugs). Finally, I will describe some of the group's polymer chemistry in which Diels-Alder chemistry is used to trigger cargo liberation from nanoparticles within a biological context.

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