

P017 Novel cell adhesion compounds immobilise dendritic cells and allow efficient phagocytosis

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Immature dendritic cells (DC) show a high capacity for antigen capture by phagocytosis and macropinocytosis, later down-regulating antigen capture in favour of antigen presentation to T cells as the DC mature. One of the most common experimental sources of DC is murine bone marrow (BMDC). These immature cells grow in suspension, and are largely non-adherent, hampering phagocytosis studies, such as analysis of antigen delivery by microspheres.

A library of polyurethane co-polymers was produced by parallel synthesis using a combinatorial approach and printed in a microarray format on microscope slides. Following incubation of the microarrays containing 120 different polymers with BMDC, the identification of novel materials mediating cellular adhesion was readily achieved. These polymers, sharing a common structural motif, were compared with the traditional cell adhesion compound, poly-L-lysine, for the ability to immobilise cells and the ability of the DC to carry out phagocytosis when immobilised. The polyurethane polymers proved superior to poly-L-lysine, which restricted phagocytosis. This study illustrates the power of combinatorial chemistry and microarray technology to identify novel compounds that can be tailor-made to select and bind distinct cell types.