

**P020** The extracellular matrix modulates interleukin-1 production and actions in rodent glial cells

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The extracellular matrix (ECM) is an important component of the central nervous system (CNS) and is critical during development and for normal brain function. However, the ECM is degraded during acute CNS injury, and deposited around the lesion site during inflammation and recovery. The pro-inflammatory cytokine interleukin-1 (IL-1) is a key mediator of neuroinflammation. Importantly, mechanisms of IL-1/ECM cross-talk, shown in peripheral inflammation, have not been studied in acute CNS injury.

The aim of this study was to investigate whether the brain ECM influences IL-1 $\beta$  production by microglia and IL-1 $\beta$ -induced signalling pathways in astrocytes. BV2 microglial cells and primary rat astrocytes attached, spread and formed focal adhesions when plated on fibronectin, fibrillin-1 and laminin. Using RGD peptides and specific blocking antibodies, we demonstrated that integrin subunits  $\beta$ 1,  $\alpha$ 4 and  $\alpha$ 5 supported the adhesion of microglia and astrocytes to these ECM molecules. The ECM affected IL-1 $\beta$  synthesis from BV2 microglia in a cell density-dependent manner with significantly more IL-1 $\beta$  produced from cells at lower density. The ECM also potentiated IL-1 $\beta$ -induced activation of the extracellular-regulated kinase 1/2 (ERK1/2) in astrocytes. In conclusion, our data show that ECM influences IL-1 synthesis and actions. Current studies are focused on investigating the molecular mechanisms for ECM/IL-1 cross-talk.