

Publication

Anti-inflammatory response following uptake of apoptotic bodies by meningeo-
thelial cells**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 4406167**Author(s)** Li, Jia V.; Fang, Lei; Meyer, Peter; Killer, Hanspeter Esriel; Flammer, Josef; Neutzner, Albert**Author(s) at UniBasel** [Neutzner, Albert](#) ; [Meyer, Peter](#) ;**Year** 2014**Title** Anti-inflammatory response following uptake of apoptotic bodies by meningeothelial cells**Journal** Journal of neuroinflammation**Volume** 11**Pages / Article-Number** 35**Keywords** Analysis of Variance; Animals; *Apoptosis; Cell Line, Tumor; Cytokines/*metabolism; Enzyme-Linked Immunosorbent Assay; Flow Cytometry; Humans; Imaging, Three-Dimensional; Meningioma/pathology; Microscopy, Confocal; Neuroblastoma/physiopathology; Phagocytes/*physiology; Swine**Mesh terms** Analysis of Variance; Animals; Apoptosis; Cell Line, Tumor; Cytokines, metabolism; Enzyme-Linked Immunosorbent Assay; Flow Cytometry; Humans; Imaging, Three-Dimensional; Meningioma, pathology; Microscopy, Confocal; Neuroblastoma, physiopathology; Phagocytes, physiology; Swine

BACKGROUND: Meningothelial cells (MECs) are the cellular components of the meninges. As such, they provide important barrier function for the central nervous system (CNS) building the interface between neuronal tissue and the cerebrospinal fluid (CSF), and are also part of the immune response of the CNS. **METHODS:** Human, immortalized MECs were analyzed by flow cytometry and confocal microscopy to study the uptake of apoptotic cells. Furthermore, cytokine and chemokine production by MECs was analyzed by cytokine array and ELISA. **RESULTS:** We found that MECs are highly active phagocytes able of ingesting and digesting large amounts of apoptotic cells. Furthermore, the uptake of apoptotic cells by MECs was immune suppressive via inhibiting the secretion of pro-inflammatory and chemoattractant cytokines and chemokines IL-6, IL-8, IL-16, MIF, and CXCL1, while increasing the secretion of anti-inflammatory IL-1 receptor antagonist by MECs. **CONCLUSION:** MECs respond with the secretion of anti-inflammatory cytokines and chemokines following the uptake of apoptotic cells potentially connecting these cells to processes important for the shut-down of immune responses in the brain.

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