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# Olive oil compounds inhibit the paracrine regulation of TNF- $\alpha$ -induced endothelial cell migration through reduced glioblastoma cell cyclooxygenase-2 expression

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**Running title:** Olive oil compounds inhibit TNF- $\alpha$ -mediated inflammation

**Keywords:** COX-2; Endothelial cells; Glioblastoma; Olive oil; PGE<sub>2</sub>; TNF- $\alpha$

**Abbreviations:** AA, arachidonic acid; BBB, blood-brain barrier; CM, conditioned media; CNS, central nervous system; COX-2, cyclooxygenase-2; ERK, extracellular signal-regulated kinase; EVOO, extra virgin olive oil; GBM, glioblastoma multiforme; HBMEC, human brain microvascular endothelial cells; HT, hydroxytyrosol; I $\kappa$ B, inhibitor of  $\kappa$ B; IL-1 $\beta$ , interleukin-1 $\beta$ , JNK, c-Jun amino-terminal kinase; MAPK, mitogen-activated protein kinase; NF- $\kappa$ B, nuclear transcription factor- $\kappa$ B; OA, oleic acid; OL, oleuropein; PGE<sub>2</sub>, prostaglandin E<sub>2</sub>; TNF- $\alpha$ , tumor necrosis factor-alpha; Tyr, tyrosol; VEGF, vascular endothelial growth factor

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