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**Short communication**

## Effects of PEDF and VEGF on PACAP-/VIP-induced cAMP formation in rat brain derived astrocyte cultures

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**Abstract:**

Pituitary adenylate cyclase-activating polypeptide (PACAP) and vasoactive intestinal peptide (VIP) are two structurally related peptides acting on their specific receptors. Both were shown to concentration-dependently (0.001 nM – 1 μM) stimulate cyclic 3',5' adenosinomonophosphate (cAMP) formation in rat primary glial cell (astrocyte) cultures, with PACAP being distinctly more potent than VIP. The acute effects of the peptides were significantly suppressed (25% and 36% for PACAP and VIP, respectively) when tested in cell cultures preincubated for 24 h (but not 2 h) in the presence of pigment epithelium-derived factor (PEDF, 50 ng/ml). Both 24 h and 2 h preincubation of cells with vascular endothelial growth factor (VEGF, 50 ng/ml) had no influence on PACAP or VIP actions. The addition of PEDF and VEGF together for 24 h preincubation, produced suppression of the PACAP- or VIP-evoked cAMP responses similar to that seen with PEDF alone. Neither PEDF nor VEGF significantly affected cAMP generation in an assay with a 15-min incubation, which is a standard incubation period for PACAP and VIP. The findings show that PEDF, displaying by itself no effect on cAMP generating system in rat astrocytes, significantly affected biological activity of both PACAP and VIP. The reported observation may be of significance, considering the neurotrophic and/or neuroprotective activity of the tested polypeptides.

**Key words:**

PACAP, VIP, PEDF, VEGF, cAMP, astrocytes, rat brain

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