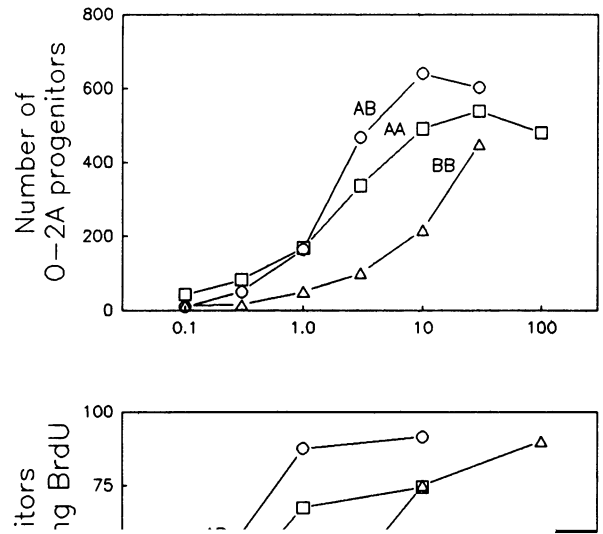


mRNA expression in the developing rat optic nerve directly by *in situ* hybridization, and again find evidence for A chain, but not B chain expression. Taken together, these results suggest that PDGF-AA is the predominant PDGF isoform

Fig. 2. Expression of PDGF mRNAs in P8 rat optic nerves. Cryosections (10 μm thick) were subjected to *in situ* hybridization and autoradiography, using ^{35}S -labelled single-stranded RNA probes, then counterstained with toluidine blue and viewed by bright-field (a and e) or dark-field light microscopy. (a) Bright-field micrograph of a longitudinal section through the mid-region of a P8 nerve, hybridized with the PDGF A chain antisense probe. (b) Same section viewed in dark-field to reveal autoradiographic signal. (c) Similar section, pretreated with RNase A before hybridization with the PDGF A chain antisense probe. (d) Section hybridized with the PDGF A chain sense probe. (e) Section hybridized with the PDGF B chain

(hPDGF) is a mixture of dimeric forms, PDGF-AB being the major species (Hammacher *et al.*, 1988). The A and B chains share ~60% amino acid similarity, but they are the products of unlinked genes whose expression is often independently regulated (Betsholtz *et al.*, 1986). When tested in human foreskin fibroblasts, PDGF-AA has a low mitogenic activity compared to either PDGF-AB or PDGF-BB (Heldin *et al.*, 1988; Kazlauskas *et al.*, 1988; Nistér *et al.*, 1988; this paper). PDGF-AA is not inherently defective, however, because PDGF-AA is reported to be a potent mitogen for Swiss mouse 3T3 cells (Kazlauskas *et al.*, 1988). Our conclusion that PDGF-AA is the predominant PDGF isoform in the CNS predicts that PDGF-AA should also be mitogenic for O-2A progenitor cells, so we tested the response of O-2A progenitors to the different dimeric forms of PDGF.

Dissociated cells from P7 rat optic nerves were plated on glass coverslips and cultured in defined medium containing transferrin and insulin, plus 0.5% fetal calf serum (FCS)



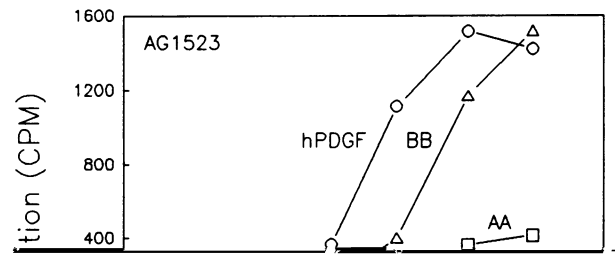


Fig. 4. O-2A precursor cells synthesize DNA in response to

Several lines of evidence point to type 1 astrocytes, which are the major cell type in the perinatal rat optic nerve (Miller *et al.*, 1985). Cultured astrocytes from newborn rat cerebral cortex which closely resemble type 1 astrocytes in optic

of a single animal species can display distinct preferences for one or other of the PDGF homodimers.

Two types of PDGF receptors are present on human fibroblasts (Claesson-Welch *et al.*, 1988; Gronwald *et al.*

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