

Morphological details of primate axons and dendrites revealed by extracellular injection of biocytin: an economic and reliable alternative to PHA-L.

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The objective of this study was to determine if biocytin would reliably label details of distant axons and dendrites when injected extracellularly in primates. Biocytin (2.5-5%) was injected iontophoretically or by pressure into several areas of the visual and somatosensory systems of macaque monkeys, squirrel monkeys, tree shrews and galagos. After survival times that ranged from 9 h to 2 weeks, fine details of anterogradely filled axons and/or retrogradely filled dendrites were reliably revealed with an avidin-biotin-HRP complex (ABC solution) that was enhanced with heavy metals. Biocytin labeling was successfully combined with choline acetyltransferase (ChAT) or cytochrome oxidase (CO) histochemistry to reveal double-labeled cells. Our results show that biocytin is a versatile, easy-to-use label that completely fills cell processes both anterogradely and retrogradely in several primate species.