

NEUROGENESIS IN THE BRAIN OF ADULT ANIMALS

S u m m a r y

Traditional views maintain that the generation of neurons in the brain is restricted to a discrete developmental period. However, it is now commonly known that stem cells remain in the adult central nervous system and that adult vertebrates as well as adult invertebrates are adding new cells in some structures of their central nervous system. The progenitor cells may differentiate into neurons, astrocytes and oligodendrocytes. In some invertebrates (insects) neurogenesis occurs in the mushroom bodies, which are functional analogues of the hippocampus, brain structures involved in learning and memory. In vertebrates, the subventricular zone and the dentate gyrus of the hip-

pocampus are sites of neuronal precursor proliferation. The production and survival of new neurons in the adult brain is regulating by hormones, transmitters, growth factors and environmental factors (stress, season, environmental complexity and experience). The role of newly formed neurons in adult brain remains still questionable. It seems that function of adult generated neurons is related to the brain regions into which new neurons are incorporated. Some experimental data suggest that adult generated neurons play a role in learning and memory. It is also postulated that neural precursors may be use to achieve repair after brain injury or neurodegenerational diseases.