

PCNA immunoreactivity revealing normal proliferative activity in the brain of an adult Elasmobranch, *Torpedo marmorata*

Vito Margotta

Dipartimento di Biologia animale e dell'Uomo
(Sede di Anatomia comparata)
Università "La Sapienza" di Roma

Key words: Adult *Torpedo marmorata*, Brain, PCNA, Proliferating cells, Matrix cells and/or areas.

SUMMARY

The brain of adult heterothermic vertebrates can be already provided of quiescent cells, scattered ("matrix cells") and/or clustered ("matrix areas"). These typical cells, in some regions located at or near ventricular surfaces and at peri-ependymal layers, in other territories populating their framework, maintain some embryonic properties and are responsible of normal or variously experimentally induced proliferative activities. On these topics there are a great number of reports concerning Teleostean Osteichthyes, Urodele and Anuran Amphibians, Lacertilian Reptiles. At the contrary, only few are the contributions regarding the Petromyzontidae. Involving an immunocytochemical marker, the Proliferating Cell Nuclear Antigen (PCNA), revealing proliferative events, in the last years we have undertaken a reappraisal focused on these encephalic performances in normal adult poikilothermal vertebrates. To provide a valid comparison between our results and the literature data, our choice of the specimens was based on the desire to employ organisms belonging to the same or phylogenetically close species used by previous Authors in similar studies. In our immunocytochemical panorama there is a substantial agreement between our contributions and bibliographic references concerning natural encephalic proliferative phenomena in these vertebrates. At this point of our study, the last missing piece was represented by the Chondrichthyes about which the literature data are lacking. In order to fill this gap, the aim of the present research is to investigate, involving the same PCNA test, whether proliferative events also persist in the brain of adult cartilaginous fishes. The immunostaining images obtained in the Elasmo branch *Torpedo marmorata*, well-known for the emission of high electrical discharges, exhibit undifferentiated cells in relationship with the ependymal epithelium lining the cavities of all cerebral districts; some other neuroblasts are scattered in the mesencephalic, cerebellar and medullar sub-ependymal layers and are found in great number in the thickness of the *cerebellum*. In our re-examination, the present approach, concerning the *Torpedo marmorata*, complete the puzzle. The evidences of these proliferative signals are weighed and in an overall view the panorama, which has taken shape from our investigations, is illustrated and comparatively discussed.