

MORPHOSTRUCTURAL STUDY OF THE COCHLEAR AND VESTIBULAR NUCLEI IN THE PERINATAL PERIOD IN GALLUS DOMESTICUS. M. Guirao-Piñeyro, M^a I. Illan and M^a M. Morales. Institute "F. Olóriz", Department of Morphological Sciences, Faculty of Medicine, University of Granada, 18012 Granada Spain.

Gallus domesticus was used to study the morphology and structure of the statoacoustic nuclear complex. The study revolves around the perinatal period with particular reference to day 13 of incubation, hatching and day 7 posthatch. The number, shape and size of the nuclei were investigated. Cell numbers present a marked increase and rapid fall as a consequence of cell death around hatching time, thus rapid prehatch growth is offset in the following week in all nuclei in the complex. Furthermore variations in cell number and size were independent of each other.

INITIAL EXPRESSION OF NEUROTRANSMITTERS (CATECHOLAMINES, ACETYLCHOLINE, GABA, PEP-TIDES) IN EMBRYONIC NEUROBLASTS ISOLATED FROM AMPHIBIAN NEURULAE. P. Kan, S. Boudannaoui, F. Pituello, J.P. St. Jeannet, M. Weber, A.M. Duprat; Centre Biol. du Devel. and Lab. Pharm. Tox. Fond. du CNRS, Univ. P. Sabatier, 118 route de Narbonne, 31062 Toulouse Cedex - FRANCE.

We have previously found that neuroblasts isolated *in vitro* immediately after neural induction, have acquired the ability to phenotypically differentiate. They present specific molecular markers such as N-CAM, 200 Kda and 70 Kda neurofilament polypeptides, tetanus toxin receptors, NC¹ binding sites (Cell Differ., 1986; Arch. Anat. Morph. exp., 1987 and synthesize acetylcholine (J.E.E.M., 1985).

New biochemical and immunological studies performed on cell cultures from isolated neural plate (NP), isolated neural fold (NF) or on cocultures of these cells with chordamesodermal cells (CC) pointed out that : - Adrenergic (dopamine and norepinephrine), gabaergic, peptidergic (somatostatin, VIP, met- and leu-enkephalin, P substance) metabolisms were expressed in cocultures. Enzyme TOH, CAD, CAT, AchE activities increased with time. - Changes were observed in the expression of these specific enzymes according to NP, NF and CC cultures.

SINGLE ION CHANNELS IN THE ISOLATED PROSPECTIVE NERVE CELLS OF THE NEWT, TRITURUS VULGARIS. Tuula Jalonen, Merja Bläuer and J. Kohonen. Department of Biology, University of Turku, SF-20500 Turku, Finland.

Cells from the prospective anterior neural plate area of gastrulae or from the prospective telencephalon of neurulae and tailbud embryos of the newt were isolated mechanically and with EDTA-treatment. Within a few hours the ion currents were measured using the patch-clamp technique.

Most common was an anion (Cl⁻) current with the conductance of 70-80 pS letting ions into the cell. This ion channel was found in all developmental stages studied. A second channel type with the conductance of 25-30 pS allowing the passage of sodium ions was observed when there was an excess of Na⁺ on both sides of the cell membrane. Also some other channel types were found.

The patch-clamp technique together with the morphological methods might be a way to observe the events of the early neural development in the amphibian embryo.

NEURAL DEVELOPMENT IN CEPHALOPOD EMBRYOS. H-J. Marthy, Laboratoire Arago, UA 117 du CNRS, F-66650 Banyuls-sur-mer, France

Amongst Invertebrates, Cephalopods have the most complex nervous system and are in various respects comparable to lower Vertebrates. Needless to remind the famous "giant axons of the squid". Last but not least, Cephalopods are fascinating animals from the neurobiological point of view. Therefore it does not surprise that they became the subject of many types of research (1). But, and this is surprising, only a few neurodevelopmental studies have been done (2). A positive attempt has been made to explore experimentally the field of gangliogenesis and neural differentiation during embryogenesis (3). This state-of-the-art is presented and new results are given from *in vivo* and *in vitro* experimentation. It includes: effects of cerebral and optic ganglia excisions in squid embryos and "*in vitro* behaviour" of embryonic neural tissue.

1) Boyle, R.P. (1986). The Mollusca, 9/2. Academic Press. 2) Marthy, H-J. (1987a). NATO-ASI series, Plenum, in press. 3) Marthy, H-J. (1987b) Zool. Jb., in press.