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Summary of scientific research

Ranzi, at the beginning oriented in comparative embryology, going to development biology, produced evidence that aquatic eggs take mineral ions from environmental water.

He studied the growth of Selachian embryos in ovipara, ovovipara and vivipara species. A correlation was found between the growth of the embryo, the uterus histophysiology and different organs of the mother. Omphaloplacenta of vivipara Selachia was described.

Ranzi studied the action of LiC1 and other chemical substances on the embryo of different animals. Moreover, he carried out a comparative study on the action of LiC1 and substances inhibiting transcription and translation on chick embryo. These research works led to the conclusions that notochord determination in vertebrates, ectoderm formation in sea urchin and induction processes in vertebrates are related to process of protein denaturation.

A simple method to recognize the shape of protein molecules in solution has been presented. The protein differentiation during embryonic development was studied. Some processes of molecular ontogenesis were studied in Anura hybrids. A method of protein precipitation was employed to study the affinity between different animals.

The importance of RNAs in cytodifferentiation was studied, and cell transformation with synthesis of glycogen was obtained by liver ribonucleoproteins. Striated myofibrils were obtained by muscle RNP and epithelial vesicles by kidney RNP.

More recently mRNA coding for myosin heavy chain was demonstrated to be able to induce somites in postnodal explants of chick embryo and tubulin mRNA was able to induce microtubules in such explants.

In some research work ecological problems and evolution questions were examined.