ATPase of R could be interrpreted as a consequence of the organism's overall reduced respiratory activity[3], thus adapting the R's metabolic situation more to the W anaerobic type.

[3] M. ERMINI, Acta geront. *3*, 141 (1973).

Biochemical Aspects of the Aging of the Sea Mussel *Mytilus gallo-provincialis*

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The sea mussel *Mytilus galloprovincialis* has been examined as a possible model for gerontological research of biochemical direction. The sessility of these animals and the tendency to grow in colonies is allowing to collect within a very limited area mussels of different ages at the same time, thus guaranting relatively similar living conditions for every member of a chosen population.

Hoping that the length of the shells might be in relation with the animal's age[1], it was tried to 'calibrate' the shell's length with the biological age of it's proprietor determining certain biochemical parameters known to change in mammals during aging.

The content of water in percent of the animals body weight, and the aceton-ether extractible lipids were determined in whole animals with increasing length of the shells (6–7 groups between 35 and 80 mm), and of the adductor posterior and byssus retractor muscles the contents of total arginine and arginine phosphate (AP) were determined, as well as the myofibrillar ATPase activity. With increasing lengths of the shells the whole body water content seems to increase slowly from 82% (40–50 mm) to 85% (over 60 mm). The lipids are rather irregular but seem to decrease from 10% (dry body weight) to 5%.

The content of total arginine is higher in the adductor than in the byssus retractor and remains constant for all lengths (13–15 µmol P*i*/ fresh wt.), while in the retractor there can be observed a decline from 11.5 µmol (40–50 mm) to 7 µmol (70–75 mm). The AP is rather low in both muscles (1–2 µmol/g) and shows no age dependent changes, the variations being quite large, probably due to methodical inadequacies. The specific activity of the myofibrillar ATPase is higher in the adductor (0.318 µmol P/mg prot./5 min, 25 °C) than in the byssus retractor (0.2) as it is expected considering the former as 'phasic', the latter as 'tonic' muscle. With increasing length of the shell there is a continuous decline of the adductor's ATPase to 0.175 (63–65 mm) while the byssus retractor shows an activity of 0.105 at this length. An analogy to the mammals' quite expressed decrease of phosphocreatine during aging[2] has not been seen for the mussel's AP in relation to it's length.

The water and fat tests and the result of the determination of the myofibrillar ATPase activity, however, could signify that the mussel is still growing while already aging, thus permitting to conclude from it's lengths to it's age[3]. If this can be verified by further investigations the gerontological researcher can be provided easily with these abundant animals whose biological age is relatively simple to estimate.

[1] L. HARANGHY, Acta biol. hung. *16*, 57 (1965).
[2] M. ERMINI, Gerontologia *16*, 65 (1970).
[3] H. INAGAKI, C.r. Acad. Sci., Paris *274*, 1828 (1972).

Ultrastructural Maturation of Myocytes

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Ultrastructural maturation of myocytes is generally missing in culture: Fibrils and mitochondria do not dispose themselves in an ordered parallelity extended to several cells, and these cells are not jointed together by intercalated discs. These signs of maturation do not appear in cultures, even though the formerly trypsinized myocardial cells of chick embryo associate in clumps and pulsate as so-called mini hearts during weeks and even months. Therefore, the factor inducing maturation of myocytes in normal heart development is not present in the monolayers and cell agglomerations. The poor function of rhythmical contraction does not contain this 'agent', responsible for maturation, not taking into account that the conditions of culture, which maintain the pulsating activity for such a long time, do not provide it either (Film).

However a cell conglomeration, which, besides rhythmical contractions had some kind of functional task, was found in culture. From a purely mechanical point of view, this task is the same as the one accomplished by myocytes in the heart wall. This contraction in the heart acts against a tension provided by blood. In culture, the beating activity of some united cells acted against a traction, since the monolayer incorporated them to the cord which was formed by the rolling up of this monolayer. Through electron microscopical investigations of this portion of the pulsating cord, pulsation which is extended by linear stresses of fixed parts of the cord, we detected intercalated discs and a certain parallelity of mitochondria and myofibrils. This is characteristic during Hamburger-Hamilton stage 15 of maturation to 41.

Therefore, whereas the pulsating activity alone can only maintain the already existing development stage of heart cells, it may be concluded from our actual observations that the causal momentum of ultrastructural maturation is identical to the tonus against which the myocytes normally have to contract.

PRAEMIA

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In view of the ever growing importance of steroids in therapeutic medicine, the late President J. C. Roussel, chairman of the well known French pharmaceutical Company, created in 1969 an international Prize intended to stimulate further new research in this particular area. The Prize is given every 2 years to a chemist or a biochemist whose work has been chosen as the best by an international Committee of outstanding scientists in the field.

The next Prize ($10,000) which is scheduled for June 1974, will be concerned with the work, in the field of steroids and related compounds, published before December 1973.

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