

Cultivation and differentiation of satellite cells from skeletal muscle of the rainbow trout *Salmo gairdneri*

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ABSTRACT

Postembryonic myogenic satellite cells have previously been identified by microscopic methods in skeletal muscle of the rainbow trout, *Salmo gairdneri*, and are considered to be responsible for myofiber hyperplasia and hypertrophy during the growth of skeletal muscle. However, methods to harvest satellite cells from fish skeletal muscle tissue and data to demonstrate that fish satellite cells can grow in primary cell culture appear to be lacking. Therefore, the objectives of the present preliminary research were 1) to determine if satellite cells from postembryonic rainbow trout skeletal muscle can be harvested and 2) to determine if these satellite cells can differentiate to produce multinucleated, striated myotubes in vitro. Mononucleated cells were isolated by enzymatic digestion of minced skeletal muscle tissue followed by differential centrifugation. The cells were then cultured at 20°C in Leibovitz's L-15 medium supplemented with 15% fetal bovine serum and antibiotics. Fusion of satellite cells to form multinucleated tubular structures similar to mammalian satellite cell-derived myotubes occurred from 3 to 6 days after initial plating; myofibrillar striations began to appear in some of these structures approximately 3 to 4 days after they had developed. Based on these preliminary observations, the authors concluded that viable satellite cells may be harvested from the rainbow trout and that these cells may differentiate to produce multinucleated, striated myotubes in vitro.

Received: 2 September 1988; Revised: 14 December 1988