

***In vitro* differentiation of myoblasts from skeletal muscle of rainbow trout**

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ABSTRACT

Substrata, plating densities and tissue culture media were compared for their effects on the proliferation and differentiation of myoblasts from skeletal muscle of rainbow trout. Mononuclear cells were isolated from the lateralis muscle of 4–11-month-old trout and plated on to glass coverslips coated with fibronectin, laminin or Matrigel. Cell proliferation was estimated by determining the density of nuclei on successive days in culture, and myoblast differentiation was detected by immunostaining cultures with the myosin-specific monoclonal antibody MF20. Mononuclear cell proliferation was highest for cells cultured on fibronectin or laminin and lowest for cells cultured on Matrigel, but the total number of nuclei in myosin-positive cells did not differ between substrata. The percentage of nuclei in myosin-positive myocytes and myotubes was significantly higher for cells cultured on Matrigel. The proportion of cells adhering to Matrigel and undergoing differentiation increased with plating density. Of three media tested, Dulbecco's Modified Eagle Medium (DMEM), RPMI 1640 (RPMI), Leibovitz's L-15 (L-15) supplemented with 1 or 10% fetal bovine serum (FBS), a significantly greater proportion of the myoblasts differentiated when cells were cultured in L-15+ 10% FBS. These results suggest that culturing trout muscle-derived cells on a substratum of Matrigel at a high density and maintaining cells in L-15+ 10% FBS provide the conditions that maximize the proportion of cells that actively synthesize muscle myosin and facilitate trout myoblast differentiation *in vitro*.

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