# An Introductory Biology Lab that uses Enzyme Histochemistry to Teach Students about Skeletal Muscle Fiber Types

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## Abstract

One important goal of introductory biology laboratory experiences is to engage students directly in all steps in the process of scientific discovery. Even when laboratory experiences are built on principles discussed in the classroom, students often do not adequately apply this background to interpretation of results they obtain in lab. This disconnect has been described at the level of medical education, so it should not be surprising that educators have struggled with this same phenomenon at the undergraduate level. We describe a new introductory biology lab that challenges students to make these connections. The lab utilizes enzyme histochemistry and morphological observations to draw conclusions about the composition of functionally different types of muscle fibers present in skeletal muscle. We report that students were not only successful at making these observations on a specific skeletal muscle, the gastrocnemius of the frog *Rana pipiens*, but that they were able to connect their results to the principles of fiber type differences that exist in skeletal muscles in all vertebrates.

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