CBI ERLANGEN

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Genetically engineering fish models for human muscle diseases

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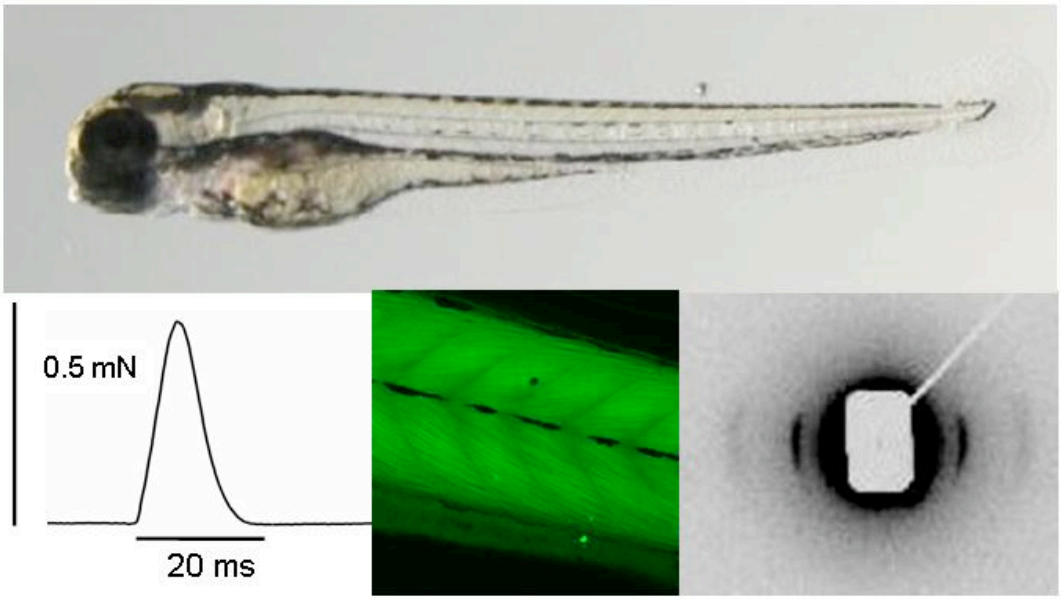

Muscles are biological motors converting chemical energy to mechanical work. In daily life our skeletal muscles provide force and shortening for locomotion. This is achieved by interaction between the motor proteins, myosin and actin, in the muscle contractile units. The contractile apparatus is anchored in an extensive cellular skeleton which provide structural support and cellular regulation. Several severe muscle diseases affect this system and mutations have been identified in a large number of muscle proteins. An important problem is that several of these proteins (normal or mutated) have unknown structural and mechanical functions. To provide new mechanistic information and higher throughput analysis, we have initiated a project where we examine zebrafish larval muscle. The zebrafish develops most organ functions (including muscle) within a few days after hatching and the protein expression can be altered by injection of blocking morpholino antisense oligonucleotides. In addition several mutated strains exist. The presentation will describe the techniques to study muscle structure/ function in zebrafish larvae and present data from different muscle disease models in the larvae.

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