

## Effect of Grayanotoxins on Skeletal Muscle Cell C2C12

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**Abstract :** Myopathy (muscles disease) treatment are expected in the field of regenerative medicine and applied research of cultured muscle to bio actuator is performed in Biomedical Engineering as applied research of cultured muscle. This study is about cultured myoblast C2C12 from mouse skeletal muscle and a mechanism of cultured muscle contraction by electric stimulation is investigated. Grayanotoxins (GTxs) belong to neurotoxins known to enhance the permeability of cell membrane for Na ions. Grayanotoxins are extracted from a famous *Pieris japonica* and *Ericaceae* as a phytotoxin. We investigated the functional role of GTxs on muscle cells (C2C12) contraction and membrane potential. A change in membrane potential is measured using a micro glass tube electrode contraction of myotubes is induced by applying an external electrical stimulation. The contraction and membrane potential change induced by injection of current using the micro glass electrode are also measured. From the result, contraction and membrane potential of muscle cells was affected by GTxs treatment, suggesting that the diverse chemical structures of GTxs are responsible for contraction and membrane potential of muscle cells.

**Keywords :** skeletal muscle, C2C12, myoblast, myotubes, contraction, Grayanotoxins, membrane potential, neurotoxins, phytotoxin

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