Effect of Flow Stimulation on Myoblasts at Parallel Plates Channel

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1. BACKGROUND
A mechanical stimulation affects migration, proliferation, and orientation of cells. For example, the flow stimulation promotes orientation of cells (Fig. 1). Orientation of the uniaxial direction of cells might increase tensile strength of the tissue. Orientation of cells might contribute to regenerative medicine on tendons and ligaments. But, both the optimum flow and the optimum duration of stimulation for the orientation of the cell are not clear.

Fig. 1: Response of the cells by flow stimulation.

2. PURPOSE
Relation between the flow rate and the response of cells is investigated in the present study.

3. METHODS

Experimental System
Parallel plate channel was manufactured with the Polydimethylsiloxane (PDMS) disks and the silicon sheet. The upper PDMS disk has two holes to connect the tubes.

Fig. 2: Details of the parallel plate channel.

Fig. 3: Parallel plate channel.

4. REFERENCES