3D Microfluidic Chips with Integrated Functional Microelements Fabricated by Femtosecond Laser for Studying the Gliding Mechanism of Cyanobacteria

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Figure S1: Enlarged image of Phormidium gliding to the high-CO$_2$ concentration region. Within 50 min, part of the Phormidium glided and attached to the exit of narrow microfluidic channel connecting to the left reservoir, which was filled with carbonic water having a high CO$_2$ concentration (50 ml CO$_2$ : 50 ml H$_2$O).
Figure S2: Transmission spectra of untreated Foturan glass and Foturan glasses integrated with optical filters of one, five, six and ten layers. The filter dimensions are 5 mm × 5 mm. The average transmittance in the wavelength range from 400 to 700 nm is evaluated to be 41 % for one layer, 14 % for five layers, 9 % for six layers and 3 % for ten layers.
Movie S1: Phormidium gliding in a T-shaped microfluidic channel. Images were taken every 3 min, and the video plays at 3 frames/s.

Movie S2: Phormidium gliding to the seedling root in a microfluidic channel covered with five layers of optical filters. Phormidium is gliding in the microfluidic channel toward the seedling root. Images were taken every 7 min, and the movie plays at 3 frames/s.

Movie S3: Phormidium gliding to the seedling root in a microfluidic channel covered with six layers of optical filters. Phormidium is hesitating at the entrance of the microfluidic channel. Images were taken every 7 min, and the movie plays at 3 frames/s.