Supporting Information

Estimation of extracellular matrix production using cultured-chondrocyte-based gate ion-sensitive field-effect transistor

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Table of Contents

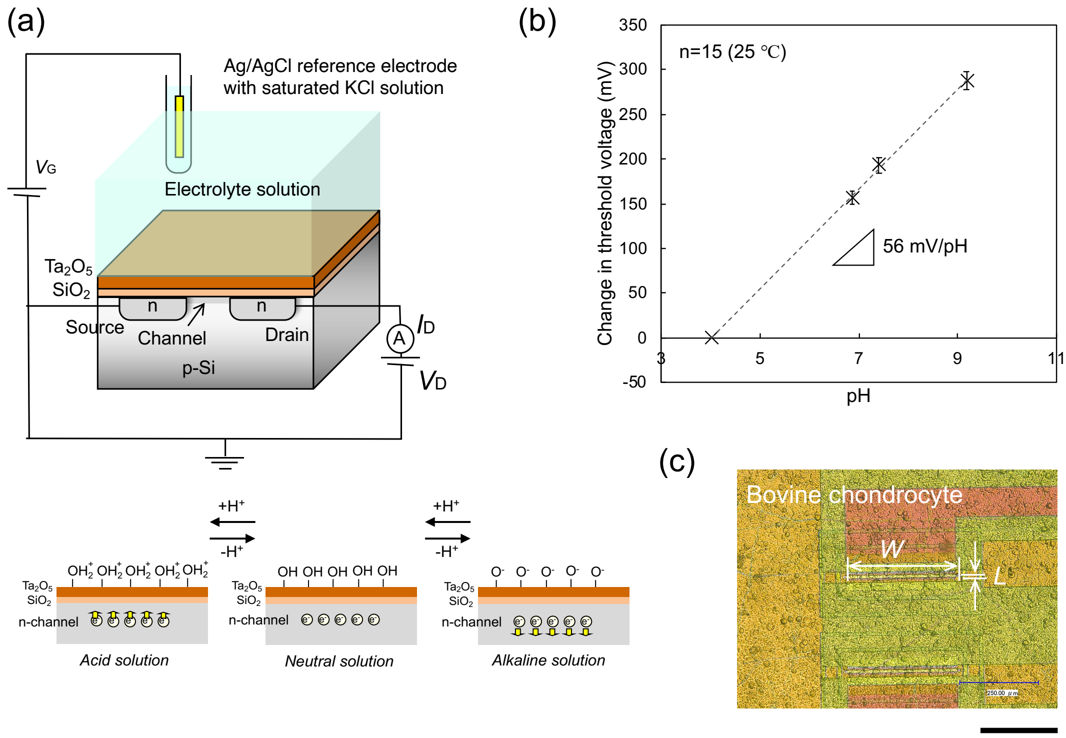

Figure S1 (a) Conceptual structure of solution-gate ISFET sensor for electrical measurement. The channel size, a width (*W*) and length (*L*) were designed to be 340 and 10 μm, respectively. Hydroxy groups at the oxide membrane in a solution exhibit the equilibrium reaction with hydrogen ions. (b) Calibration curve, which was analyzed on the basis of V_G–I_D electrical characteristic. In the V_G–I_D electrical characteristic of the ISFET sensors used in this study, the shift in V_G at a constant I_D of 1 mA was estimated as the change in V_T when the pH was changed from pH 4.01 to 9.18. The pH sensitivity of this ISFET sensor was about 56 mV/pH, which almost showed a Nernstian response at 25 °C. V_G at pH 4.01 was offset to 0. (c) Photograph of chondrocytes cultured on the gate insulator for 3 weeks in the culture medium with 1% (v/v) ITS and 200 μg/mL APM. Scale bar, 250 μm.