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Probing Ion Channel Insertion into a Bilipid Membranes with a Radio Frequency Tank Circuit HYUN CHEOL SHIN, Materials Science Program, University of Wisconsin-Madison, WI 53706, ERIC STAVA, MINRUI YU, Department of Electrical and Comupter Engineering, University of Wisconsin-Madison, WI 53706, HUA QIN, Suzhou Institute of Nano-Tech and Nano-Bionics, Suzhou City, Jiangsu 215123, People's Republic of China, HYUN-SEOK KIM, ROBERT BLICK, Department of Electrical and Comupter Engineering, University of Wisconsin-Madison, WI 53706 — We fabricated a radio frequency resonant circuit which can be applied for probing ion channels formed in bilipid membranes. The insertion of ion channels can be probed by monitoring the resonant response of the tank circuit. The circuit itself is realized on a glass chip, which simultaneously uses DC channel recordings (i.e. conventional on-chip patch clamping) and RF detection. The direct current recordings of the ion channels responses allows for the calibration of the radio frequency signal. Such radio frequency recordings of ion channel activity have great potential for high-throughput drug screening.

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