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Detection of Telomerase Activity Using Capacitance Measurements[1] BONG KEUN KANG, Dept. of Physics, Yonsei University, RI MI LEE, AHMI CHOI, HYO-IL JUNG, National Core Research Center for Nanomedical Technology, Yonsei University, KYUNG-HWA YOO, Dept. of Physics and National Core Research Center for Nanomedical Technologyl, Yonsei University, DEPT. OF PHYSICS, YONSEI UNIVERSITY TEAM, NATIONAL CORE RESEARCH CENTER FOR NANOMEDICAL TECHNOLOGY, YONSEI UNIVERSITY TEAM — Telomerase activity has been found in about 85% cancer cells, while no activity observed in normal cells, so that telomerase has been proposed as a marker for cancer detection. Here, we describe electrical detection of telomerase activity using capacitance measurements. We have investigated the length dependence of capacitance on DNA solutions and found that the capacitance of DNA solutions were dependent on the DNA length. In addition, upon adding telomerase into the solution of telomeric substrate primer, the capacitance was observed to change as a function of time due to the telomeric elongation. These results suggest that this novel nanosensor may be used for rapid detection of telomerase activity.

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