

### Controllable gold-capped nanoporous anodic alumina chip for detection of various bacteria

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Here we describe the development of a gold-capped nanostructured porous anodic alumina (PAA) chip, which makes use of localized surface plasmon resonance and interferometry for the label-free and specific detection of bacteria via changes in relative reflected intensity (RRI). We investigated the effects of varying the thicknesses of the PAA and gold layers on the optical responses of the chip. With this chip, we detected and identified *Pseudomonas aeruginosa*; this chip can detect bacterial cells in a quantitative manner with a detection limit of 20 CFU per assay. This work was supported by the Intelligent Synthetic Biology Center (2011-0031963) through the Global Frontier Project of the Ministry of Education, Science and Technology. Further supports by C1 Gas Refinery Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT and Future Planning (NRF2016M3D3A1A01913265) are appreciated. (Reference: D.-K. Kim, D. M. Kim, S. M. Yoo, S. Y. Lee, Controllable gold-capped nanoporous anodic alumina chip for label-free, specific detection of bacterial cells, RSC Adv., 2017, 7, 18815–18820).