

*International Conference on***PHARMACEUTICAL AND BIOMEDICAL ENGINEERING***October 16-17, 2017 Osaka, Japan***Non-invasive tear collector for diabetes diagnosis****Dong Yeon Nam, Yong Chan Cho and Young Bin Choy**  
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**D**iabetes is one of the serious chronic diseases which induce complications such as corneal disease, high blood pressure and myocardial infarction. To prevent these diseases, self-monitoring of a blood glucose level to manage diabetes is considered to be important. For this, diabetic patients are required to measure their blood glucose frequently using a glucometer. As the blood collection was performed via a relatively invasive means, using a lancet, this often causes pain and inconvenience to the patients. To resolve this, studies have been recently conducted to non-invasively measure blood glucose using saliva, sweat, urine, etc. Since lacrimal gland can produce tears continuously and basal tears can be collected, diagnosis of diabetes through tears has been considered as a noninvasive diagnostic method. However, the methods presented in the preceding studies may cause pain and discomfort due to eye irritation to the patient and thus, a skilled medical staff has to collect the tears with glass capillary in current clinical settings. We therefore, proposed a strip-type tear collector that minimizes the stimuli that can occur when tears are collected, so that the patients can eventually diagnose their disease by themselves. In this work, as a part of the entire development process, we optimized structural design of the tip of a tear collector. Considering the sensing, we composed a tear collector as three distinct parts: tip, channel and reservoir. To optimize the channel, we fabricated 3 different channels based on the calculation of capillary pressure and evaluated rate of tear collection of each channel. Finally, to evaluate tear collection performance of the tear collector herein, we measured the volume of collected tear *in vivo* by contacting the collector to the rabbit Inferior Palpebral Conjunctiva (IPC).

**Biography**

Dong Yeon Nam has received BS degree from the Department of Biomedical Engineering, Yonsei University. He also has work experience of 6 months as an Intern at Siemens Healthineers and 3 months experience as an Experimental Assistant at LG Electronics Co. He is currently pursuing MS in Bioengineering at College of Engineering of Seoul National University, Republic of Korea.

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