

Section of Public Affairs	Hyo Jung Kim Section Chief (+82) 62-715-2061	Nayeong Lee Senior Administrator (+82) 62-715-2062
Contact Person for this Article	Professor Euiheon Chung Department of Biomedical Science and Engineering (+82) 62-715-2756	
Release Date	2019.11.12	

Professor Euiheon Chung's research team develops new platelet function test equipment using laser speckle decorrelation analysis

□ GIST (President Kiseon Kim) Department of Biomedical Science and Engineering Professor Euiheon Chung's research team developed a method that enables faster and more accurate testing of platelet function.

- The platelet function test is a screening test for predicting bleeding propensity and the hemorrhagic risk of patients, but it is before surgery. Therefore, this year's development is expected to significantly reduce the dependence on overseas technology through a method that can perform platelet function testing with much less blood than existing equipment.

□ The team developed an optical system that can measure the transmission of light and speckle * decorrelation ** at the same time so that normal/abnormal effects of platelet functions can be identified more precisely.

* speckle: a fine spot-shaped interference pattern seen when a laser beam hits a reflected or transmitted surface, which looks disordered but contains scattering information of the medium, which can be used for analysis of blood flow, etc.

** decorrelation: the degree to which the speckle pattern varies over time in the initial image

- Existing equipment requires 600µl (microroliter) of blood, so it was collected using intravenous injections. However, the newly developed microfluid chips

can be analyzed with only 5µl of blood. Moreover, it can be collected through a finger-prick method, which is used for self-diagnosis of diabetes, thereby minimizing burdens on the body.

- Professor Euiheon Chung said, "This study's most important achievement is using laser speckle decorrelation analysis for the first time to diagnose platelet function. Further optimization and combined with other diagnostic methods are expected to increase the effectiveness of platelet function diagnosis much faster and easier than before."

- This research was led by Professor Euiheon Chung (corresponding author) with Hee-Jae Jeon and Muhammad Mohsin Qureshi (co-first authors) with support from LG Yonam Foundation, the GIST Research Institute (GRI), the National Research Foundation of Korea (NRF), and by the Bio & Medical Technology Development Program of the NRF and was published in *Scientific Reports* on November 11, 2019.

⌘