*April 22, 2016*

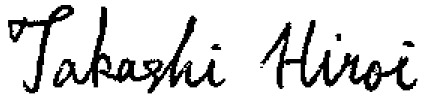
Dear Editors,

We are submitting our manuscript entitled "***Dynamic Light Scattering Microscope: Measurement of Particle Size Distribution for Turbid Solutions***" to Journal of Visualized Experiments.

In this study, a protocol for the direct measurement of particle size distributions of concentrated solutions by using a dynamic light scattering microscope is presented. Dynamic light scattering is a technique to measure a size distribution of polymer solutions. Although this technique is widely used for the assessment of polymer solutions, it is difficult to measure concentrated solutions due to the existence of multiple scattering or strong light absorption. Therefore, it has been common knowledge that the concentrated solution should be diluted before the measurement of dynamic light scattering. A dynamic light scattering microscope, which has been developed recently, overcomes this difficulty by using a confocal optical system. By using this microscope, we can measure both transparent and turbid systems under the same experimental setup without dilution. As a representative example, a measurement of the size distribution of a temperature-responsive polymer solution was performed. The size of the temperature-responsive polymer in an aqueous solution is the order of several tens nanometer at the temperature below their lower critical solution temperature (LCST). In contrast to this, the size became more than 1 m above LCST. This result is consistent with the fact that this solution becomes turbid at the temperature above LCST. Details of the protocol and data analysis are presented.

We believe that these protocols will be helpful for many researchers who are trying to implement this technique. We confirm that this manuscript has not been published elsewhere and is not under consideration by another journal. We would be grateful if the manuscript could be reviewed and considered for publication inJournal of Visualized Experiments.

Sincerely yours,



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