

Author:  [ADVANCED](#) | Volume  Page   
Keyword:   |



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > Abstract

ONLINE ISSN : 1348-2246

PRINT ISSN : 0910-6340

**Analytical Sciences**

Vol. 26 (2010) , No. 6 p.659



[\[PDF \(767K\)\]](#) [\[References\]](#)

## Polydispersity as a Parameter for Indicating the Thermal Stability of Proteins by Dynamic Light Scattering

[Kohei SHIBA](#)<sup>1)2)</sup>, [Takuro NIIDOME](#)<sup>1)3)4)</sup>, [Etsuko KATOH](#)<sup>5)</sup>, [Hongyu XIANG](#)<sup>5)</sup>,  
[Lu HAN](#)<sup>5)</sup>, [Takeshi MORI](#)<sup>1)3)</sup> and [Yoshiki KATAYAMA](#)<sup>1)3)</sup>

1) Department of Applied Chemistry, Faculty of Engineering, Kyushu University

2) Sysmex Corporation

3) Center for Future Chemistry, Kyushu University

4) PRESTO, Japan Science and Technology Corporation

5) Division of Plant Research, National Institute of Agrobiological Sciences

(Received February 25, 2010)

(Accepted April 5, 2010)

A physical parameter for predicting the thermal stability of proteins was provided by a new approach using dynamic light scattering (DLS). The relationship between the melting point measured by differential scanning calorimetry (DSC) and the polydispersity of the hydrodynamic diameter determined by DLS analysis was examined. Calmodulin (CaM) and concanavalin A (ConA) were used as model proteins. The melting point measured by DSC, an indicator for thermal stability, increased and the polydispersity decreased on binding of the proteins to specific ligands, suggesting that the polydispersity could be used an indicator to predict thermal stability. In addition, the increase of thermal stability that resulted from forming a complex could be quantified by polydispersity analysis even when the melting point changed only slightly.



[\[PDF \(767K\)\]](#) [\[References\]](#)

To cite this article:

Kohei SHIBA, Takuro NIIDOME, Etsuko KATOH, Hongyu XIANG, Lu HAN, Takeshi MORI and Yoshiki KATAYAMA, *Anal. Sci.*, Vol. 26, p.659, (2010) .

---

doi:10.2116/analsci.26.659

JOI JST.JSTAGE/analsci/26.659

Copyright (c) 2010 by The Japan Society for Analytical Chemistry

---



---

[Japan Science and Technology Information Aggregator, Electronic](#)

