

E Abstract

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 Abstracting and Indexing Aims and Scope Article Processing Charges Articles in Press Author Guidelines Bibliographic Information Contact Information Editorial Board Editorial Workflow Reviewers Acknowledgment Subscription Information 	Research Article Monitoring of Enzymatic P Assembled Quantum Dot-F Aaron R. Clapp, ^{1,4} Ellen R. Goldman, ² H. Te Whitley, ³ and Igor L. Medintz ¹ ¹ Division of Optical Sciences, Code 5611, U DC 20375, USA ² Department of Chemical & Biological Engli ³ Center for Bio/Molecular Science and Eng Ave, SW, Washington, DC 20375, USA ⁴ Promega Biosciences, Inc., 277 Granada II ⁵ Center for Biomedical Genomics, George M
 Open Special Issues Published Special Issues Special Issue Guidelines 	Received 9 May 2008; Accepted 28 June 20 Academic Editor: Francesco Baldini Abstract
Call for Proposals for Special Issues	We have previously utilized hybrid semi enzymatic proteolysis. In this report, we

Full-Text PDF 🖶 Full-Text HTML roteolysis Using Self-E Linked References Protein Substrate Sensors How to Cite this Article etsuo Uyeda,^{1,5} Eddie L. Chang,² Jessica L. U.S. Naval Research Laboratory, 4555 Overlook Ave, SW, Washington, neering, Iowa State University, Ames, IA 50011, USA ineering, Code 6900, U.S. Naval Research Laboratory, 4555 Overlook Dr., San Luis Obispo, CA 93401, USA Mason University, Fairfax, VA 22030, USA 800

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iconductor quantum dot- (QD-) peptide substrates for monitoring of expand on this sensing strategy to further monitor protein-protease interactions. We utilize QDs self-assembled with multiple copies of dye-labeled proteins as substrates for the sensing of protease activity. Detection of proteolysis is based on changes in the rate of fluorescence resonance energy transfer (FRET) between the QDs and the proximal dye-labeled proteins following protein digestion by added enzyme. Our study focused on two representative proteolytic enzymes: the cysteine protease papain and the serine protease endoproteinase K. Analysis of the enzymatic digestion allowed us to estimate minimal values for the enzymatic activities of each enzyme used. Mechanisms of enzymatic inhibition were also inferred from the FRET data collected in the presence of inhibitors. Potential applications of this technology include drug discovery assays and in vivo cellular monitoring of enzymatic activity.

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