Scientific World Journal 2014 vol.2014

Conjugates of a photoactivated rhodamine with biopolymers for cell staining

Zaitsev S., Shaposhnikov M., Solovyeva D., Solovyeva V., Rizvanov A.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2014 Sergei Yu. Zaitsev et al. Conjugates of the photoactivated rhodamine dyes with biopolymers (proteins, polysaccharides, and nucleic acids) are important tools for microscopic investigation of biological tissue. In this study, a precursor of the photoactivated fluorescent dye (PFD) has been successfully used for staining of numerous mammalian cells lines and for conjugate formation with chitosan ("Chitosan-PFD") and histone H1 ("Histone H1.3-PFD"). The intensive fluorescence has been observed after photoactivation of these conjugates inside cells (A431, HaCaT, HEK239, HBL-100, and MDCK). Developed procedures and obtained data are important for further application of novel precursors of fluorescent dyes ("caged" dyes) for microscopic probing of biological objects. Thus, the synthesized "Chitosan-PFD" and "Histone H1-PFD" have been successfully applied in this study for intracellular transport visualization by fluorescent microscopy.

http://dx.doi.org/10.1155/2014/285405