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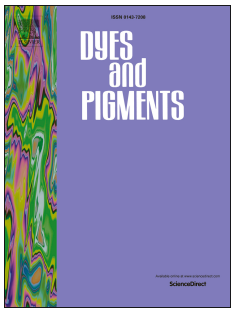


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# A Series of Dual-Responsive Coumarin-Bodipy Probes for Local Microviscosity Monitoring

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## Abstract

Local microviscosity monitoring in living cells is a powerful tool to determine their healthy status in either a specific organelle or in the cytosol. Here is presented the rational design of a new family of self-calibrating dual-microviscosity probes as a strategy to improve the probe response at low viscosity ranges. We found one of the probes is useful to determine low viscosity variations in living cells where subtle stiffening of the rotor group in the probe can increase its viscosity sensitivity. Further X-ray structure analysis, fluorescence anisotropic measurements, and quantum chemical calculations of the electronic excitation by means of a natural transition orbital (NTO) analysis confirmed the observed response. The present work demonstrates that small viscosity variations (0.01 – 0.1 cP) in cells require improved analytical sensitivity to be properly monitored.