

STRATEGIES FOR RATIOMETRIC AND MULTICOLOR INDICATORS FOR ZINC IONS. Sreenath Kesavapillai, Lei Zhu, Department of Chemistry and Biochemistry, Florida State University, Tallahassee, FL 32306-4390

Two new strategies for developing fluorescent indicators for zinc ions are described. The first strategy involves the conjugation of a red-emitting fluorophore with an internal charge transfer (ICT) type fluorophore. Zn^{2+} binding enhanced intramolecular fluorescence resonance energy transfer is the basis for a ratiometric correlation between zinc ion concentration and fluorescence intensity. The developed indicator is independent of pH, offers red color emission and a large spectral separation between excitation and emission channels (near 240 nm). The second strategy was realized by integrating a spirolactam moiety, which shows turn-on fluorescence at a higher concentration of Zn^{2+} , with an ICT fluorophore. This work represents a new ratiometric chemosensor design where sequential Zn^{2+} induced emission band shifts results in a drastic emission color change.