

# Design, synthesis and cellular dynamics studies in membranes of a new coumarin-based "turn-off" fluorescent probe selective for Fe<sup>2+</sup>

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A new coumarin-based 'turn-off' fluorescent probe, 7-(diethylamino)-N-(1,3-dihydroxy-2-(hydroxymethyl) propan-2-yl)-2-oxo-2H-chromene-3-carboxamide (AGD) was synthesized. This compound is highly selective for ferrous ions (Fe<sup>2+</sup>) and can reversibly detect them in aqueous medium. The probe localizes to the cell membrane in living cells, where it can detect changes in Fe<sup>2+</sup> concentration. Molecular dynamics (MD) simulations indicate that AGD interacts with the lipid bilayer at the level of the glycerol moieties. © 2013 Elsevier Masson SAS. All rights reserved.