Design and synthesis of a new coumarin-based 'turn-on' fluorescent probe selective for Cu +2

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The novel coumarin-based 'turn-on' fluorescent probe (E)-3-(2,5-dimethoxybenzylideneamino)-7-hydroxy-2H-chromen-2-one (MGM) was designed, synthesized, and characterized. This compound shows high selectivity for Cu +2, combined with a large fluorescence enhancement upon binding to Cu 2+. Benesi-Hildebrand and Job plots demonstrate that the stoichiometry of the Cu 2+ complex formed is 2:1. Preliminary studies employing epifluorescence microscopy demonstrated that Cu +2 could be imaged in human neuroblastoma SH-SY5Y cells treated with MGM.