

ORGANOMETALLIC RHENIUM DYES FOR SELECTIVE NITRIC OXIDE (NO) SENSING.

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Due to the biochemical importance and multiple physiological roles of NO, there is a need for development of selective and ratiometric dyes for selective NO sensing and imaging. A new approach for selective NO sensing is presented that involves NO binding to a Re-phenanthroline complex, after photochemical substitution of a CO with a more labile solvato ligand, such as THF. Rhenium (I) complexes have been used as fluorescent sensors for other types of targets. Their favorable luminescence properties, known stability of NO complexes, and synthetic flexibility in accommodating conjugated ligand systems offer potent platforms for the design of novel NO-selective dyes.

In our approach we will put particular emphasis in understanding the chemistry of NO and NO-related products with fluorescent dyes, in comparison with the currently used diaminofluorescein, and rhodamine dyes. The optimized sensor's response will be measured in the absence and presence of NO by fluorescence spectroscopy in solution, and will be compared with the current paradigm (DAF-FM).