

## Functionalized BODIPY derivatives as potential fluorescent labels

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Labels can be attached to proteins, for example antibodies, which accumulate in specific organs for imaging in animals and human subjects. However, there is a growing realization that imaging events in cells and whole organisms by fluorescence is limited by the accessible probes. 4,4-Difluoro-4-bora-3a,4a-diaza-s-indacene (BODIPY) dyes tend to be strongly UV-absorbing small molecules that emit relatively sharp fluorescence peaks with high quantum yields. They are relatively insensitive to the polarity and pH of their environment and are reasonably stable to physiological conditions. Moreover, small modifications to their structures enable tuning of their fluorescence characteristics. Therefore, these dyes are widely used to label proteins and DNA, among others. Consequently, there is the potential that modifications to the BODIPY framework will lead to probes that can be used more effectively for imaging in living cells and whole organisms, but that it is still largely unrealized. Having in mind earlier studies, by other groups, and also the research developed recently by our group, we report in this work the synthesis and evaluation of the optical properties of BODIPY derivatives having in mind their potential application as novel fluorescent probes for the detection of a wide range of analytes, such as neutral molecules and ions, as well for bio-imaging in living cells.

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