

Synthesis of a photoactivatable non-natural substrate for Protein Farnesyltransferase

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Protein Farnesyltransferase (PFTase) has the ability to site-specifically transfer a variety of non-natural isoprenoid groups to proteins ending in the amino acid sequence CVIA. Here a non-natural isoprenoid was synthesized containing a vinyloxybenzene moiety in six steps. This vinyloxybenzene tag allows for the creation of a fluorescent probe after photoreaction with a diaryl tetrazole. The fluorescent tag can be seen within a cell, thus a protein movement and interactions can be assessed. In the past, protein tags have often been large. The inclusion of a large tag may obscure a protein from its normal functions, and its ability to interact with other proteins. The vinyloxybenzene modification after reaction with diaryl tetrazole allows for a fluorescent tag that should have less of an impact on protein interactions and functions.