Improved Green-emitting Fluorescent Proteins

**OCR Number:** OCR 5318

**Description:**

The advent of fluorescent proteins (FPs) has redefined the use of fluorescence microscopy in every biological discipline. Green fluorescent protein (GFP) and its variants are commonly used in cellular imaging studies. Recently, a novel fluorescent protein, named vivid Verde Fluorescent Protein (VFP), was isolated from Cyphastrea microphthalma, a scleractinian coral found in the warmer waters of the Australian Great Barrier Reef. The VFP sequence was modified for optimal fluorescence for use in a variety of molecular and biological applications.

**Value proposition:** The variants of VFP exhibit several useful advantages when compared to the most commonly used fluorescent protein, enhanced GFP (EGFP). Both monomeric and dimeric variants of VFP have been generated and in each case exhibit brighter fluorescence than EGFP. VFP also exhibits brightness levels that surpass the improved variant of yellow fluorescent protein (YFP), Venus (see Table 1 below). This increased fluorescent signal of VFP provides the potential to increase the sensitivity and lower the detection limit in assays that employ fluorescent proteins.

Table 1: Spectral Characteristics of VFP and its variants in comparison with EGFP and Venus.

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<th>Field of Application</th>
<th>Research Reagent</th>
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<td><strong>Advantages:</strong> VFP fluoresces at least twice as brightly as EGFP. This enhanced fluorescence will be favorable toward detection of proteins in both cell-based and in vivo settings. In addition, VFP photobleaches at a faster rate than EGFP, which allows for improved sensitivity in assays such as Fluorescence Recovery after Photobleaching (FRAP).</td>
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**Publications:**

Ilagen, et al.

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