



TECHNOLOGY

mVermilion: A Novel Red Fluorescent Protein for Dual-Color and Deep Tissue Imaging

OVERVIEW

mVermilion is a novel, monomeric red fluorescent protein (RFP) based on the structure and characteristics of mCherry. Using a proprietary platform, mCherry was analyzed and significantly modified, resulting in the new protein with approximately two-fold greater brightness and similar excitation and emission spectra. mVermilion has demonstrated improved absorption, quantum yield, and stability making it an ideal candidate for highly quantifiable live tissue imaging. Additionally, mVermilion retains the same compatibility with multiple fluorescent proteins. This allows mVermilion to be used in conjunction with cyan, green, and yellow fluorophores for routine fluorescence microscopy and FRET (Förster Resonance Energy Transfer).

The red color of mVermilion is ideal for live animal imaging as red light penetrates deep tissues more readily than light of other colors. The increased brightness of mVermilion means that more information about a living tissue can be revealed from a greater depth, opening the doors for the study of protein localization and function in real time in living animal models.

Fluorescent proteins have become a staple in medical research labs as rapid and robust reporters of targeted cellular activity. As the breadth of their utility grows, so does the demand for new proteins with improved stability and brightness. mVermilion is a next generation red fluorescent protein that can dramatically improve the amount of quantifiable data obtained from *in vivo* animal models.

ADVANTAGES

Twice the brightness and improved stability compared to mCherry offer better visibility for more accurate quantitative imaging of live cell/tissue expression systems.

Maximum absorbance and emission peaks are compatible with use of other fluorescent proteins for FRET and multiparametric microscopy applications.

Monomeric fluorophores are minimally disruptive to tagged-protein folding and function, reducing toxicity and have rapid maturation making them detectable upon protein translation

STAGE OF DEVELOPMENT

The final coding DNA sequence for mVermilion has been custom-synthesized and characterized

R&D REQUIRED

The characteristics of the mVermilion protein need to be further quantified. This includes its brightness, stability, pH sensitivity and photostability. Additional studies demonstrating its utility as a fluorescent protein need be performed, including the fusion of mVermilion to variable proteins of interest to highlight its utility over currently available reagents.

CONTACT INFO

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Additional Information

INSTITUTION

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LICENSE STATUS

UM seeks to develop and commercialize by an exclusive or non-exclusive license agreement and/or sponsored research with a company active in the area.

INVESTIGATOR(S)

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