

## Fluorescent Protein Expression Plasmid

### *CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Keima-Red (Hyg)

Code No.  
AM-V0251HM

Quantity  
20 µg

#### VECTOR DESCRIPTION:

This vector is designed for expression of *MT-mKeima-Red* (*CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Keima-Red) gene in mammalian cells. *Keima-Red* has been cloned from *Montipora* sp., the stony coral in Kerama islands located at the southwest of Japan. A monomeric version of *CoralHue*<sup>®</sup> Keima-Red (mKeima-Red) displays a bimodal excitation spectrum with peaks at 400 and 586 nm in neutral and acidic solutions, respectively, and an emission maximum at 620 nm. Mitochondrial targeting of mKeima-Red is achieved by introducing a mitochondrial signal sequence at the N-terminus of mKeima-Red.

#### SOURCE:

The *CoralHue*<sup>®</sup> KeimaRed gene was originally cloned from the stony coral "Komon-Sango (*Montipora* sp.)."

#### FORMULATION:

Dry form. Reconstitute with distilled water or TE before use.

#### PURITY:

A260/A280 > 1.5

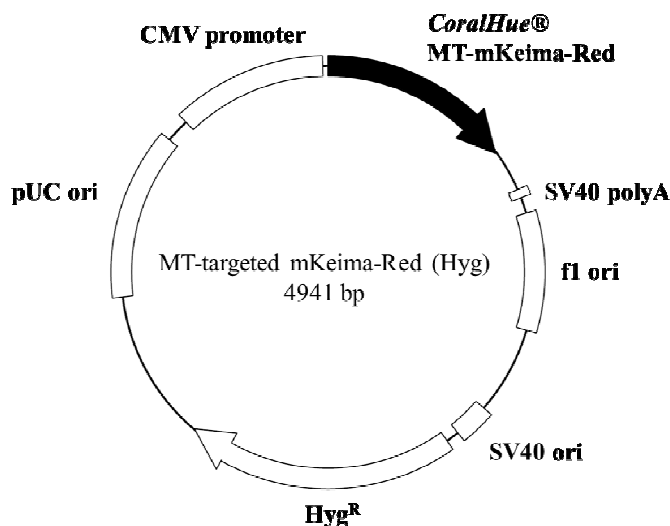
#### STORAGE:

Store at -20°C

#### SEQUENCE LANDMARKS (bases):

*CoralHue*<sup>®</sup> MT-mKeima-Red (Including Stop Codon): 1-750  
SV40 polyA: 910-944  
f1 origin: 1007-1462  
SV40 origin: 1803-1938  
Hygromycin B resistance gene: 1989-3026  
pUC origin: 3611-4254  
CMV promoter: 4347-4922

#### VECTOR MAP:



#### NOTE:

AM-V0251HM *CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Keima-Red (Hyg) contains the hygromycin B resistance gene. It allows selection of stable transformants of *Escherichia coli* and mammalian cells with hygromycin B. It is recommended to determine the optimal concentration of hygromycin B for the cells in use.

#### GenBank:

Accession Number: AB209969 (*mKeima-Red*)

#### REFERENCE:

Kogure, T., *et al.*, *Nat. Biotechnol.* **24**, 577-581 (2006)

#### Related Products:

AM-V0251M *CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Keima-Red (Kan)  
AM-V0259M *CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Keima-Red-mPark2 (Kan)  
AM-V0259HM *CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Keima-Red-mPark2 (Hyg)

#### INTENDED USE:

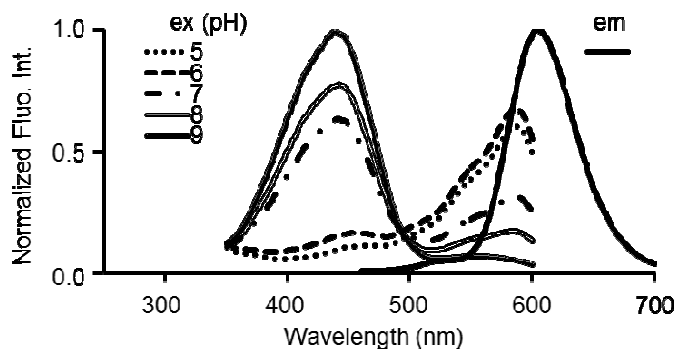
For Research Use Only. Not for use in diagnostic procedures.

**CoralHue<sup>®</sup> mKeima-Red:** 222 amino acids (without MT signal sequence)

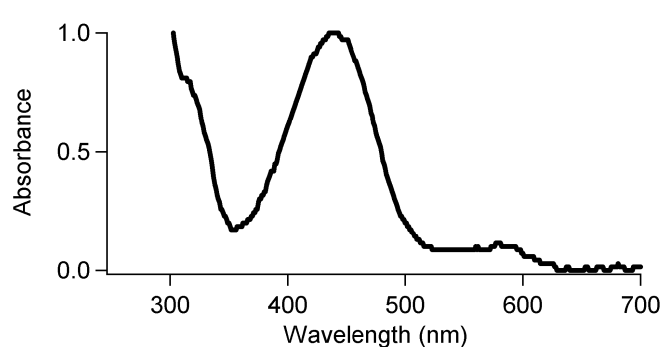
|            | *Excit./Emiss.Maxima (nm) | *Extinction Coefficient(M <sup>-1</sup> cm <sup>-1</sup> ) | *Fluorescence Quantum Yield | pH sensitivity       |
|------------|---------------------------|--|-----------------------------|----------------------|
| mKeima-Red | 440/620                   | 14,000 (440 nm)  | 0.24                        | pK <sub>a</sub> =6.5 |

\*These properties were measured in pH 7.4.

**Excitation and Emission Spectrum:**



**Absorption Spectrum:**



**Recommended Filters:**

- Excitation filters
  - 440AF21 (Omega Optical) for a peak at 440 nm
  - 550DF30 (Omega Optical) for a peak at 586 nm
- Dichroic mirror
  - 590DRLP (Omega Optical)
- Emission filter
  - 610ALP (Omega Optical)

**2) Amino acid sequence**

MLSLRQSIRFFKPATRTLCSSRAAAGTMVSVIAKQMTYKVYMSGTVNG  
HYFEVEGDGKGPYEGETVKLTVTKGGPLPFAWDILSPQLQYGSIPF  
TKYPEDIPDYFKQSFPEGYTWERSMNFEDGAVCTVSNDSSI QGNCFIY  
NVKISGENFPPNGPVMQKKTQGWEPSTERLFARDGMLI GNDYMALKLE  
GGGHYLCEFKSTYKAKKPVMPGRHEIDRKL DVTSHNRDYSVEQCEI  
AIRHSLLG

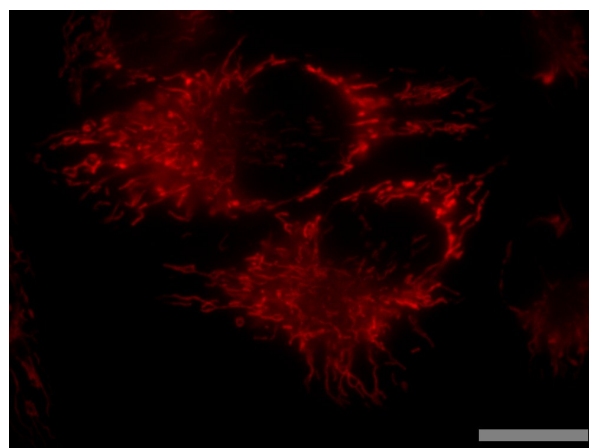
(Underlined sequences in red are from cytochrome C oxidase subunit IV.)

**CoralHue<sup>®</sup> MT-mKeima-Red**

**1) DNA sequence**

ATGCTGAGCCTGCGCCAGAGTATCCGCTTCTTCAAGCCGCCACCAGG  
ACTCTGTGCAGTTCCAGGGCGGCCGCGGGGACAAATGGTGAGTGTGATC  
GCTAAACAAATGACCTACAAGGTTTATATGTCAGGCACGGTCAATGGA  
CACTACTTTGAGGTCGAAGGCGATGGAAAAGGAAAGCCTTACGAGGGA  
GAGCAGACAGTAAAGCTCACTGTCACCAAGGGTGGACCTCTGCCATTT  
GCTTGGGATATTTTATCACCACAGCTTCAGTACGGAAGCATACCATT  
ACCAAGTACCTGAAGACATCCCTGATTATTTCAAGCAGTATTCCCT  
GAGGGATATACATGGGAGAGGAGCATGAACTTTGAAGATGGTGCAGTG  
TGACTGTGAGCAATGATTCCAGCATCCAAGGCAACTGTTTCATCTAC  
AATGTCAAATCTCTGGTGAGAACTTTCTCCCAATGGACCTGTTATG  
CAGAAGAAGACACAGGGCTGGGAACCCAGCACTGAGCGTCTCTTTGCA  
CGAGATGGAATGCTGATAGGAAACGATTATATGGCTCTGAAGTTGGAA  
GGAGGTGGTCACTATTTGTGTGAATTTAAATCTACTTACAAGGCAAAG  
AAGCTGTGAGGATGCCAGGGCCACGAGATTGACCGCAAACCTGGAT  
GTAACCAGTCACAACAGGGATTACACATCTGTTGAGCAGTGTGAAATA  
GCCATTGCACGCCACTCTTTGCTGGT

(Underlined sequences in red are from cytochrome C oxidase subunit IV.)



**CoralHue<sup>®</sup> MT-mKeima-Red expression in HeLa cells.**  
bar: 20µm

CoralHue<sup>®</sup> Keima-Red is a product of co-development with Dr. Atsushi Miyawaki at the Laboratory for Cell Function and Dynamics, the Brain Science Institute, and the Institute of Physical and Chemical Research (RIKEN).

Use of CoralHue<sup>®</sup> Keima-Red requires a license from MBL. MBL grants non-profit research organizations the right to use the product for non-commercial research purposes. For commercial entities a commercial license is required. For more information, please contact [support@mbi.co.jp](mailto:support@mbi.co.jp)