

## Fluorescent Protein Expression Plasmid

*CoralHue*<sup>®</sup>

### $\beta$ -Actin-targeted monomeric Kusabira-Orange 1 (pActin-hmKO1)

Code No.  
AM-V0225M

Quantity  
20  $\mu$ g

**BACKGROUND:** This plasmid is designed for expression of *CoralHue*<sup>®</sup>  $\beta$ -Actin-targeted humanized monomeric Kusabira Orange 1 (Actin-mKO1) in mammalian cells. Human cytoplasmic  $\beta$ -Actin is fused to the C-terminus of mKO1.

*CoralHue*<sup>®</sup> Kusabira Orange 1 (KO1) has been cloned from the stony coral, whose Japanese name is "Kusabira-ishi". It absorbs light maximally at 548 nm and emits orange light at 561 nm. Wild-type *CoralHue*<sup>®</sup> KO1 rapidly matures to form a brightly fluorescent dimer. *CoralHue*<sup>®</sup> KO1 has been carefully engineered to form a monomer, *CoralHue*<sup>®</sup> monomeric Kusabira Orange 1 (mKO1) that maintains the brilliance and pH stability of the parent protein.

**SOURCE:** The *CoralHue*<sup>®</sup> KO1 gene was originally cloned from the stony coral "Kusabira-ishi (*Fungia concinna*)."

**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> Actin-hmKO1 (Including Stop Codon): 1-1860  
CMV promoter: bases 5203-5775  
SV40 polyA: bases 2013-2047  
Kanamycin/Neomycin resistance gene: bases 3090-3881  
pUC origin: bases 4469-5112  
f1 origin: bases 2110-2565  
SV40 origin: bases 2906-3041

#### INTENDED USE:

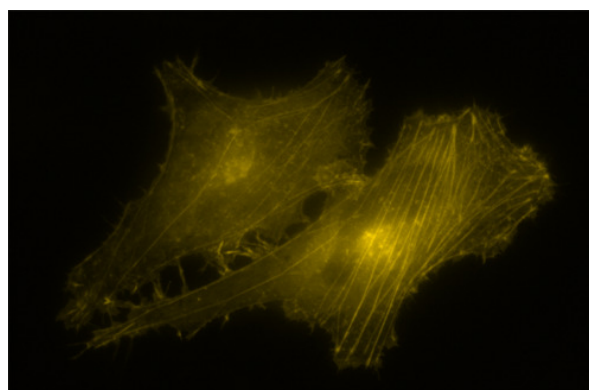
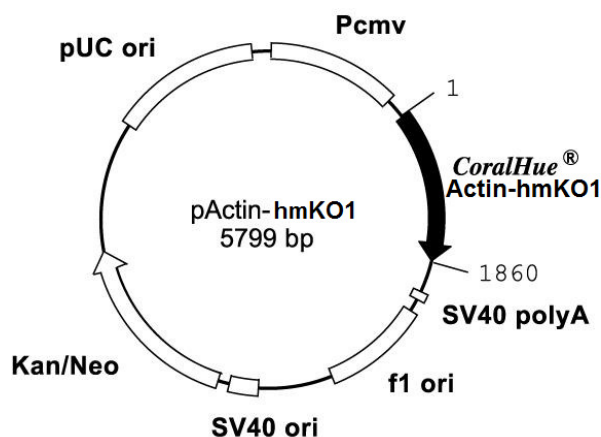
For Research Use Only. Not for use in diagnostic procedures.

#### REFERENCES:

Karasawa, S., *et al. Biochem. J.* **381**, 307-312 (2004)

#### RELATED PRODUCTS:

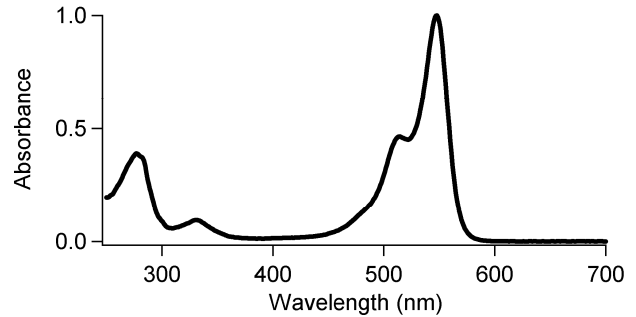
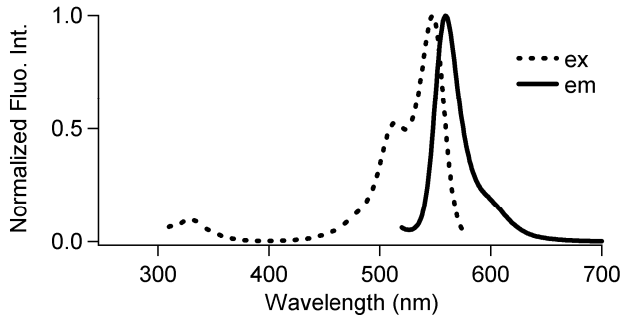
- AM-V0221M *CoralHue*<sup>®</sup> Mitochondria-targeted monomeric Kusabira-Orange 1 (pMT-mKO1)
- AM-V0222M *CoralHue*<sup>®</sup> ER-targeted monomeric Kusabira-Orange 1 (pER-mKO1)
- AM-V0223M *CoralHue*<sup>®</sup> Plasma Membrane-targeted monomeric Kusabira-Orange 1 (pPM-mKO1)
- AM-V0234M *CoralHue*<sup>®</sup> Nucleoplasm-targeted Kusabira-Orange 1 (pNP-KO1)



*CoralHue*<sup>®</sup> Actin-hmKO1 expression in HeLa cells.

**CoralHue® mKO1:** 218 amino acids (without  $\beta$ -Actin)

	Excit./Emiss.Maxima (nm)	Extinction Coefficient(M-1cm-1)	Fluorescence Quantum Yield	pH sensitivity
mKO1	548/559	51,600 (548 nm)	0.60	pKa=5.0



**CoralHue® Actin-hmKO1**

**1) DNA Sequence**

ATGGTGAGCGTGATCAAGCCGAGATGAAGATGAGGTA CTACAT  
GGACGGCTCCGTCAATGGGCATGAGTTCACAATCGAGGGTGAGG  
GCACAGGCAGACCTTACGAGGGACATCAGGAGATGACACTGCGC  
GTCACAATGGCCAAGGGCGGGCCAATGCCTTTCGCCTTCGACCT  
GGTGTCCCAGGTGTTCTGTTACGGCCACAGACCTTTTACTAAAT  
ATCCAGAAGAGATCCCAGACTATTTCAAGCAGGCCTTTCTGAG  
GGCCTGTCTGGGAGAGGTCCCTGGAGTTCGAGGACGGCGGCTC  
CGCCTCCGTGAGCGCCACATCAGCCTGAGGGGCAACACCTTCT  
ACCACAAGTCCAAGTTCACGGGGGTGA ACTTCCCGCGGACGGC  
CCCATCATGCAGAACCAGAGCGTGGACTGGAGCCCTCCACCGA  
GAAGATCACCGCCAGCGACGGCGTGCTGAAGGGGACGTGACCA  
TGTACCTGAAGCTGGAGGGGGCGGCAACCACAAGTGCCAGTTC  
AAGACCACCTACAAGGCCGCAAGAAGATCCTGAAGATGCCCGG  
CAGCCACTACATCAGCCACAGGCTGGTGAGGAAGACCGAGGGCA  
ACATCACCGAGCTGGTGGAGGACGCCGTGGCCACTCCACCGGT  
AATCCGCTGACGGCGGGGAGGATCGGGTGGTAGTGGTGGTTC  
AGGAGGAGGATCGACCAAGGAGGATCCATGGATGATGATATCG  
CCGCGCTCGTGGTACAAACGGCTCCGGCATGTGCAAGGCCGGC  
TTCGGGGGACGATGCCCGCGGGCCGTCTTCCCTCCATCGT  
GGGGCGCCAGGCACAGGGCGTGATGGTGGGCATGGGTGAGA  
AGGATTCCTATGTGGGCGACGAGGCCAGAGCAAGAGAGGCATC  
CTCACCGTGAAGTACCCATCGAGCACGGCATCGTCACCAACTG

GGACGACATGGAGAAAATCTGGCACCACACCTTCTACAATGAGC  
TGCGTGTGGCTCCCGAGGAGCACCCCGTGCTGCTGACCGAGGCC  
CCCCTGAACCCCAAGGCCAACCGGAGAGAAGATGACCCAGATCAT  
GTTTGAGACCTTCAACACCCAGCCATGTACGTTGCTATCCAGG  
CTGTGCTATCCCTGTAGCCCTCTGGCCGTACCACTGGCATCGTG  
ATGGACTCCGGTGACGGGGTCAACCACACTGTGCCATCTACGA  
GGGGTATGCCCTCCCCATGCCATCCTGCGTCTGGACCTGGCTG  
GCCGGGACCTGACTGACTACCTCATGAAGATCCTCACCGAGCGC  
GGCTACAGCTTCACCACCACGGCCGAGCGGGAAATCGTGCGTGA  
CATTAAGGAGAAGCTGTGCTACGTGCGCCCTGGACTTCGAGCAAG  
AGATGGCCACGGCTGCTTCCAGCTCCTCCCTGGAGAAGAGCTAC  
GAGCTGCCTGACGGCCAGGTGATCACCATTGGCAATGAGCGGTT  
CCGCTGCCCTGAGGCACTCTTCCAGCCTTCTTCTGGGCATGG  
AGTCCTGTGGCATCCAGAAACTACCTTCAACTCCATCATGAAG  
TGTGACGTGGACATCCGCAAAGACCTGTACGCCAACACAGTGCT  
GTCTGGCGGCACCACCATGTACCCTGGCATTGCCGACAGGATGC  
AGAAGGAGATCACTGCCCTGGCACCAGCACAATGAAGATCAAG  
ATCATTGCTCCTCTGAGGGCAAGTACTCCGTGTGGATCGGCGG  
CTCCATCCTGGCCTCGTGTCCACCTTCCAGCAGATGTGGATCA  
GCAAGCAGGAGTATGACGAGTCCGGCCCTCCATCGTCCACCGC  
AAATGCTTC

(Underlined sequences in red are from peptide linker and  $\beta$ -Actin.)

## 2) Amino Acid Sequence

MVSVIKPEMKMRYMDGVSNGHEFTIEEGTGRPYEGHQEMTLR  
VTMAKGGPMPFAFDLVSHVFCYGHRPFTKYPEEIPDYFKQAFPE  
GLSWERSLEFEDGGSASVSAHISLRGNTFYHKSFTGVNFPADG  
PIMQNSVDWEPSTEKITASDGLKGDVTMYLKLEGGGNHKCQF  
KTTYKAAKKILKMPGSHYISHRLVRKTEGNITELVEDAVAHSTG  
NSADGGGGSGGSGGGGGSTQGGSMDDIAALVVDNGSGMCKAG  
FAGDDAPRAVFPIVGRPRHQGMVGMGQKDSYVGDEAQSIRGI  
LTLKYPIEHGIVTNWDDMEKIWHHTFYNELRVAPEEHPVLLTEA  
PLNPKANREKMTQIMFETFNTPAMYVAIQAVLSLYASGRTTGIV  
MDSGDGVTHTVPIYEGYALPHAILRDLAGRDLDYLMKILTER  
GYSFTTTAEREIVRDIKEKLCYVALDFEQEMATAASSSLEKSY  
ELPDGQVITIGNERFRCPEALFQPSFLGMESGIHETTFNSIMK  
CDVDIRKDLYANTVLSGGTMYPGIADRMQKEITALAPSTMKIK  
IIAPPERKYSVWIGGSILASLSTFQMMWISKQEYDESGPSIVHR  
KCF

(Underlined sequences in red are from peptide linker and  $\beta$ -Actin.)

*CoralHue*<sup>®</sup> **Actin-hmKO1** 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> **Actin-hmKO1** requires a license from MBL Co., Ltd. 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@mbl.co.jp](mailto:support@mbl.co.jp)