

## Fluorescent Protein Expression Vector

**CoralHue<sup>®</sup>**

**humanized monomeric Kusabira-Orange 2 (phmKO2-MCL)**

Code No.	Quantity
AM-V0149M	20 µg

**BACKGROUND:** The plasmid DNA encodes a monomeric version of the fluorescent protein **CoralHue<sup>®</sup>** Kusabira-Orange (KO). KO has been cloned from the stony coral, whose Japanese name is “Kusabira-ishi”. Wild-type **CoralHue<sup>®</sup>** KO forms a brightly fluorescent dimer. **CoralHue<sup>®</sup>** KO 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. **CoralHue<sup>®</sup>** mKO2 is the mutant of mKO1 and has a feature of the rapid maturation. It absorbs light maximally at 551 nm and emits orange light at 565 nm. **CoralHue<sup>®</sup>** mKO2 can be used to label proteins or subcellular structures, or for reporter assay. **CoralHue<sup>®</sup>** hmKO2 sequence is codon-optimized for higher expression in mammalian cells. This plasmid has the flexible linker between fluorescence protein and multiple cloning site.

**SOURCE:** The **CoralHue<sup>®</sup>** KO gene was cloned from stony coral (*Fungia concinna*).

**FORMULATION:** Dry form. Reconstitute with distilled water or TE before use.

**PURITY:** A260/A280 > 1.5

**STORAGE:** Stored at -20°C

### SEQUENCE LANDMARKS:

**CoralHue<sup>®</sup>** hmKO2 gene: bases 1-654  
peptide linker: bases 655-726  
CMV promoter: bases 4132-4704  
SV40 polyA: bases 942-976  
Kanamycin/Neomycin resistance gene: bases 2019-2810  
pUC origin: bases 3398-4041  
f1 origin: bases 1039-1494  
SV40 origin: bases 1835-1970

### INTENDED USE:

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

### REFERENCES:

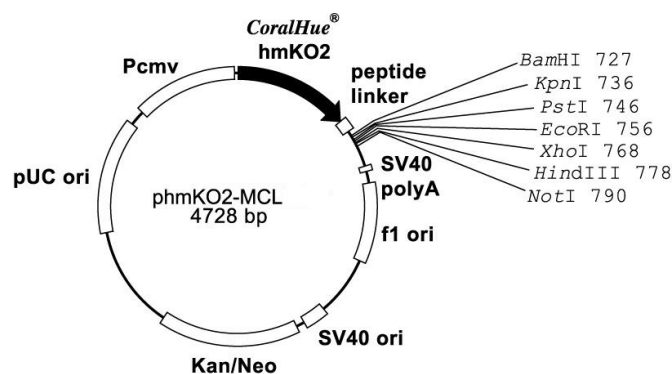
- 1) Sakaue-Sawano, S., *et al.*, *Cell* **132**, 487-498 (2008)
- 2) Karasawa, S., *et al.*, *Biochem J.* **381**, 307-312 (2004)

### NOTICES:

- 1) Val is inserted to second amino acid of **CoralHue<sup>®</sup>** hmKO2 to form kozak sequence. (The corresponding nucleotide sequence is GTG.)
- 2) It is highly recommended to add stop codon at 3'-terminus of a cDNA when a cDNA is inserted using *NotI* site. Some cDNA frame might not work in this construct without addition of stop codon.

### RELATED PRODUCTS:

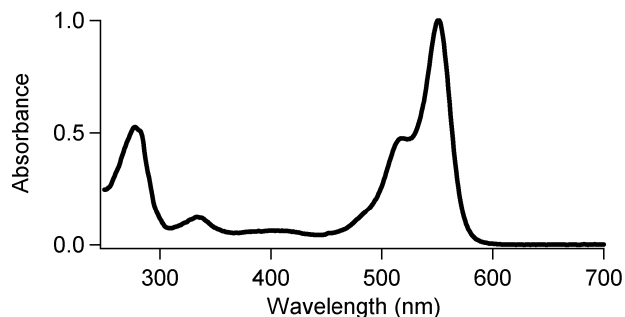
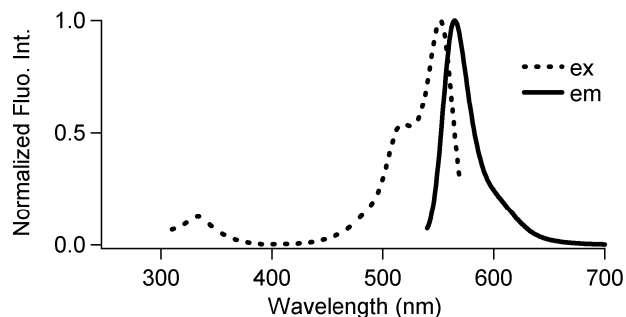
- AM-V0140M **CoralHue<sup>®</sup>** humanized monomeric Kusabira-Orange 2 (phmKO2-MNL)
- AM-V0145M **CoralHue<sup>®</sup>** humanized monomeric Kusabira-Orange 2 (phmKO2-MC1)
- AM-V0146M **CoralHue<sup>®</sup>** humanized monomeric Kusabira-Orange 2 (phmKO2-MN1)



peptide linker 726 805  
| |  
· · · acc caa gga gga tcc tca ggt acc gga act gca gca gag aat tcg gga aac tcg aga aca aag ctt gaa taa gcg gcc gcg act cta g  
T Q G G S S G T G T A A E N S G N S R T K L E stop

**CoralHue<sup>®</sup> mKO2: 218 amino acids**

	Excit./Emiss.Maxima (nm)	Extinction Coefficient(M-1cm-1)	Fluorescence Quantum Yield	pH sensitivity
mKO2	551/565	63,800 (551 nm)	0.62	pK <sub>a</sub> =5.5

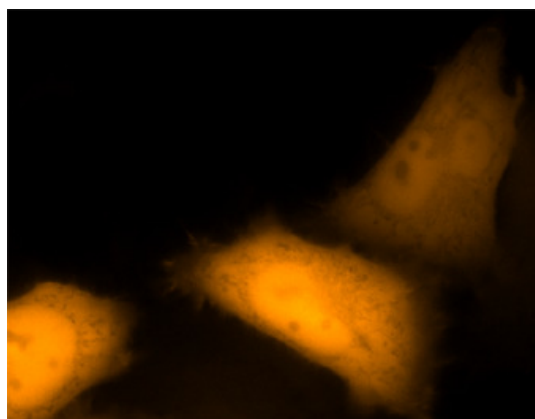


**CoralHue<sup>®</sup> hmKO2/linker DNA Sequence**

ATGGTGAGCGTGATCAAGCCGAGATGAAGATGAGGTACTACAT  
GGACGGCTCCGTCAATGGGCATGAGTTCACAATCGAGGGTGAGG  
GCACAGGCAGACCTTACGAGGGACATCAGGAGATGACACTGCGC  
GTCACAATGGCCGAGGGCGGGCCAATGCCTTTCGCCTTCGACCT  
GGTGTCCCAGTGTTCTGTACGGCCACAGAGTTTTTACCAAGT  
ACCCAGAAGAGATCCCAGACTATTTCAAGCAGGCCTTTCCTGAG  
GGCCTGTCTGGGAGAGGTCCCTGGAGTTCGAGGACGGCGGCTC  
CGCCTCCGTGAGCGCCACATCAGCCTGAGGGGCAACACCTTCT  
ACCACAAGTCCAAGTTCACCGGCGTGAAGTTCCTCCCGCCGACGGC  
CCCATCATGCAGAACCAGAGCGTGGACTGGGAGCCCTCCACCGA  
GAAGATCACCGCCAGCGACGGCGTGCTGAAGGGCGACGTGACCA  
TGTACCTGAAGCTGGAGGGCGGGCAACCACAAGTGCCAGATG  
AAGACCACCTACAAGGCCGCAAGGAGATCCTGGAGATGCCGG  
CGACACTACATCGGCCACAGGCTGGTGAGGAAGACCGAGGGCA  
ACATCACCGAGCAGGTGGAGGACGCCGTGGCCCACTCCACCGGT  
AATTCGGCTGACGGCGGGGAGGATCGGGTGGTAGTGGTGGTTC  
AGGAGGAGGATCGACCCAAGGA

**CoralHue<sup>®</sup> hmKO2/linker Amino Acid Sequence**

MVSVIKPEMKMRYMDGVSNGHEFTIEEGTGRPYEGHQEMTLR  
VTMAEGGPMPFAFDLVSHVFCYGHRVFTKYPEEIPDYFKQAFPE  
GLSWERSLEFEDGGSASVSAHISLRGNTFYHKSFTGVNFPADG  
PIMQNSVDWEPSTEKITASDGLKGDVTMYLKLEGGNHKQCM  
KTTYKAAKEILEMPGDHYIGHRLVRKTEGNITEQVEDAVAHSTG  
NSADGGGGSGGGSGGGSTQG



**CoralHue<sup>®</sup> hmKO2 expression in HeLa cells.**

**CoralHue<sup>®</sup> mKO** 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> mKO** 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 MBL [support@mbi.co.jp](mailto:support@mbi.co.jp)

Patent Nos. JP4258724, US7226993 and EP1700913.