

**Fucci (Fluorescent Ubiquitination-based Cell Cycle Indicator) series**  
**pFucci-S/G<sub>2</sub>/M Green (Cloning vector)**

Code No.  
AM-V9014M

Quantity  
20 µg

**VECTOR DESCRIPTION:**

AM-V9014M pFucci-S/G<sub>2</sub>/M Green is a Cloning vector encoding **CoralHue**<sup>®</sup> humanized-codon monomeric Azami-Green1 (hmAG1) fused to a part of human Geminin (hGeminin). "Fucci" stands for *Fluorescent Ubiquitination-based Cell Cycle Indicator*.

Geminin is an inhibitor of the DNA replication licensing factor. It accumulates during the S, G<sub>2</sub>, and M phases, but is degraded during G<sub>1</sub> phase by ubiquitin-mediated proteolysis. A part of hGeminin (1-110) is also degradable in a cell cycle dependent manner.

**CoralHue**<sup>®</sup> hmAG1 sequence is codon-optimized for higher expression in mammalian cells. **CoralHue**<sup>®</sup> monomeric AG1 (mAG1) has been generated from tetrameric **CoralHue**<sup>®</sup> Azami-Green (AG).

**SOURCE:** The **CoralHue**<sup>®</sup> AG gene was cloned from a stony coral (*Galaxea fascicularis*).

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

**PURITY:** A260/A280 > 1.5

**STORAGE:** Stored at -20°C

**SEQUENCE LANDMARKS:**

Fucci-S/G<sub>2</sub>/M Green gene (including stop codon): bases 2264-3304

Ampicillin resistance gene: bases 200-1059

ColE1 origin: bases 1062-2002

**REFERENCES:**

- 1) Sakaue-Sawano, A., *et al.*, *Cell*. **132**, 487-498 (2008)
- 2) Nakayama, K. I., *et al.*, *Nat. Rev. Cancer*. **6**, 369-381 (2006)
- 3) Blow, J. J., and Dutta, A., *Nat. Rev. Mol. Cell Biol.* **6**, 476-486 (2005)
- 4) Nishitani, H., *et al.*, *J. Biol. Chem.* **279**, 30807-30816 (2004)
- 5) Karasawa, S., *et al.*, *J. Biol. Chem.* **278**, 34167-71 (2003)
- 6) Nishitani, H., *et al.*, *Nature*. **404**, 625-628 (2000)

**INTENDED USE:**

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

**GenBank:**

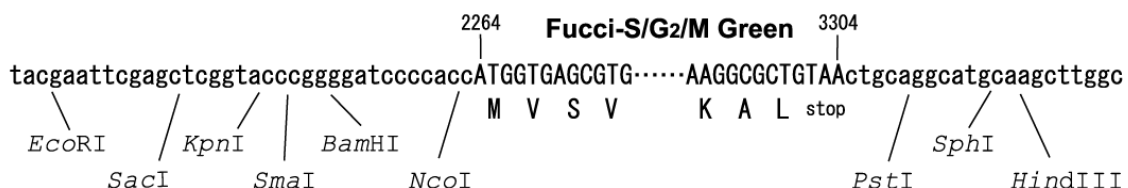
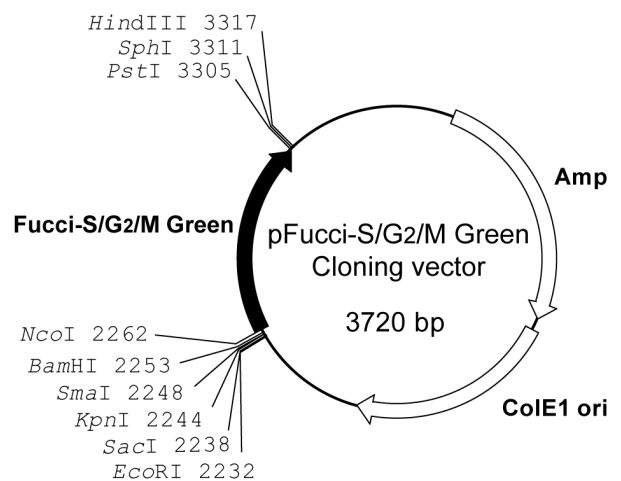
Accession Numbers: AB370333

**NOTICES:**

- 1) pFucci-S/G<sub>2</sub>/M Green (Cloning vector) is not expression vector. When pFucci-S/G<sub>2</sub>/M Green is expressed in any cells, the cDNA must be transferred to appropriate expression vectors by your own.
- 2) Val (encoded by GTG) is inserted as the second amino acid of **CoralHue**<sup>®</sup> hmAG1 to form the Kozak sequence.
- 3) It is recommended that Fucci be stably expressed.

**RELATED PRODUCTS:**

- AM-V9016M pFucci-S/G<sub>2</sub>/M Green (Expression vector)
- AM-V9010M pFucci-S/G<sub>2</sub>/M Green-Hyg (Expression vector)
- AM-V9001M pFucci-G<sub>1</sub> Orange (Cloning vector)
- AM-V9003M pFucci-G<sub>1</sub> Orange (Expression vector)
- AM-V9034M pFucci-S/G<sub>2</sub>/M Green (N+C) (Cloning vector)
- AM-V9030M pFucci-S/G<sub>2</sub>/M Green (N+C)-Hyg (Expression vector)



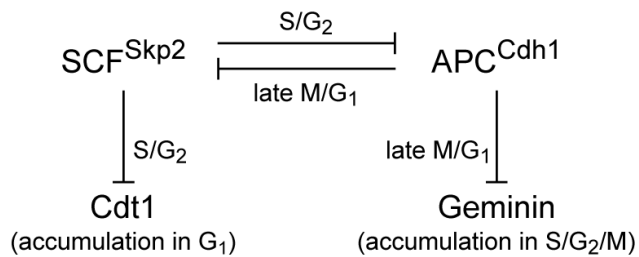


Fig 1. Cell cycle regulation by SCF<sup>Skp2</sup> and APC<sup>Cdh1</sup>

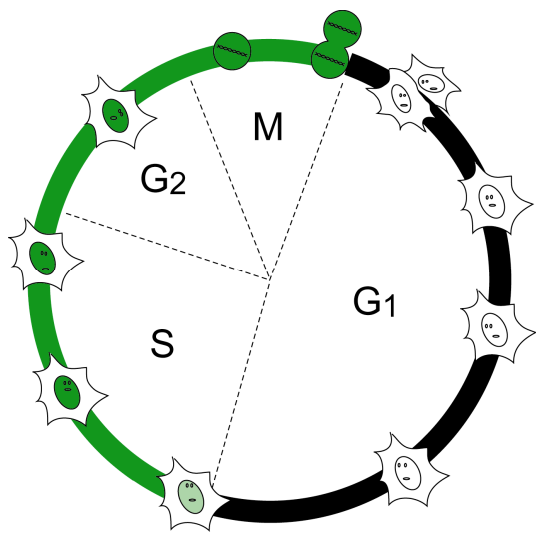


Fig 2. Schematic of the cell cycle specific fluorescence of Fucci-S/G<sub>2</sub>/M Green.

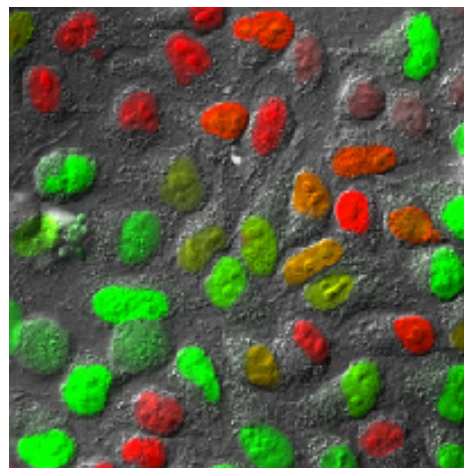
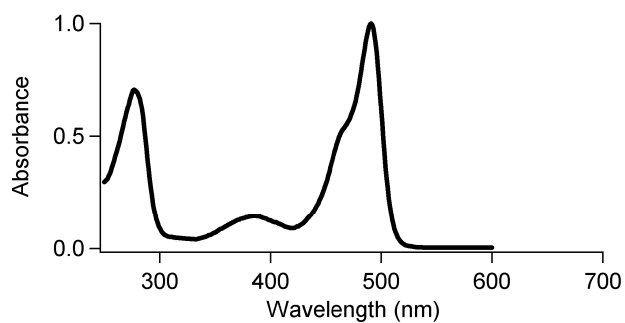
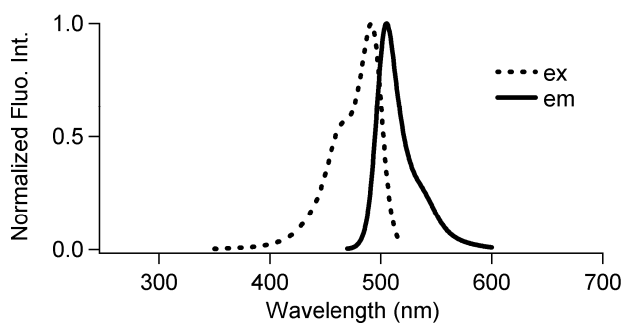


Fig 3. HeLa cells stably expressing Fucci-G<sub>1</sub> Orange and Fucci-S/G<sub>2</sub>/M Green. Fucci effectively labels individual nuclei in G<sub>1</sub> phase orange and those in S/G<sub>2</sub>/M phases green.

**CoralHue<sup>®</sup> mAG1: 226 amino acids**

	Excit./Emiss.Maxima (nm)	Extinction Coefficient(M <sup>-1</sup> cm <sup>-1</sup> )	Fluorescence Quantum Yield	pH sensitivity
mAG1	492/505	55,500 (492 nm)	0.74	pK <sub>a</sub> =5.8



## Fucci-S/G<sub>2</sub>/M Green

### 1) DNA sequence

ATGGTGAGCGTGATCAAGCCCGAGATGAAGATCAAGCTGTGC  
ATGAGGGGACCGTGAACGGCCACAACCTTCGTGATCGAGGGC  
GAGGGCAAGGGCAACCCCTACGAGGGCACCCAGATCCTGGAC  
CTGAACGTGACCGAGGGCGCCCCCTGCCCTTCGCCTACGAC  
ATCCTGACCACCGTGTCCAGTACGGCAACAGGGCCTTCACC  
AAGTACCCCGCGACATCCAGGACTACTTCAAGCAGACCTTC  
CCCGAGGGTACCCTGGGAGAGGAGCATGACCTACGAGGAC  
CAGGGCATCTGCACCGCCACCAGCAACATCAGCATGAGGGGC  
GACTGCTTCTTCTACGACATCAGGTTGACGGCACCAACTTC  
CCCCCAACGGCCCGTGATGCAGAAGAAGACCCTGAAGTGG  
GAGCCAGCACCGAGAAGATGTACGTGGAGGACGGCGTGCTG  
AAGGGGACGTGAACATGAGGCTGCTGCTGGAGGGCGGGGC  
CACTACAGGTGCGACTTCAAGACCACCTACAAGGCCAAGAAG  
GAGGTGAGGCTGCCGACGCCACAAGATCGACCACAGGATC  
GAGATCCTGAAGCAGACAAGGACTACAACAAGGTGAAGCTG  
TACGAGAACGCCGTGGCCAGTACTCCATGCTGCCAGCCAG  
GCCAAGGGATATCCATCACACTGGCGCCGCTCGAGATGAAT  
CCCAGTATGAAGCAGAAACAAGAAGAAATCAAAGAGAATATA  
AAGAATAGTTCTGTCCCAAGAAGAACTCTGAAGATGATTCAG  
CCTTCTGCATCTGGATCTCTTGTTGGAAGAGAAAATGAGCTG  
TCCGAGGCTTGTCCAAAAGGAAACATCGGAATGACCACTTA  
ACATCTACAACCTCCAGCCCTGGGGTTATTGTCCCAGAATCT  
AGTAAAAATAAAAATCTTGGAGGAGTCACCCAGGAGTCATTT  
GATCTTATGATTAAGAAAATCCATCCTCTCAGTATTGGAAG  
GAAGTGGCAGAAAACGGAGAAAGGGCTG

### 2) Amino acid sequence

MVSVIKPEMKIKLCMRGTVNGHNFVIEGEGKGNPYEGTQILDNLN  
VTEGAPLPFAYDILTTVFQYGNRAFTKYPADIQDYFKQTFPEGY  
HWERSMTYEDQGICTATSNISMRGDCFFYDIRFDGTFNPPNGPV  
MQKTLKWEPTSEKMYVEDGVLKGDVNMRLLEGGGHYRCDFKT  
TYKAKKEVRLPDAHKIDHRIEILKHKDYNKVKLYENAVARYSM  
LPSQAKGYPSHWRPLEMNPSSMKQKQEEIKENIKNSSVPRRTLKM  
IQPSASGSLVGRENELSAGLSKRKHNDHLTSTTSSPGVIVPES  
SENKNLGGVTQESFDLMIKENPSSQYWKVEAEKRRKAL

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**CoralHue<sup>®</sup> mAG** 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).

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Patent Nos. JP4214209, US7247449 and EP1452591.