All[ele]ustrious pmWasabi-Vimentin

(Cytoskeleton)

Catalog Number: ABP-FP-WVIM100

Size: 10ug Price: $349.00

Introduction

All[ele]ustrious pmWasabi-Vimentin is a mammalian expression vector that expresses mWasabi fused to the C-terminus of a human vimentin (VIM). This product can be a great tool for your research involving cytoskeleton (intermediate filaments).

All[ele]ustrious mWasabi is a monomeric green fluorescent protein that can be easily detected using standard GFP filter sets. mWasabi may be used as a direct replacement for EGFP or other GFPs for superior performance, and may be co-imaged with blue and red fluorescent labels without substantial bleed-through.

Vimentin forms intermediate filaments. Along with the microfilaments (actins) and microtubules (tubulins), Vimentins represent a third class of well-characterized cytoskeletal elements. The subunits of intermediate filaments display a tissue-specific pattern of expression. Desmin is the subunit specific for muscle and vimentin the subunit specific for mesenchymal tissue. Although most intermediate filaments are stable structures, in fibroblasts, vimentin exists as a dynamic structure. It is found that vimentin is attached to the nucleus, endoplasmic reticulum, and mitochondria, either laterally or terminally. Vimentin plays a significant role in supporting and anchoring the position of the organelles in the cytosol.

Source

Engineered variant of mTFP1, originally derived from *Clavularia sp.* coral.

Recommended Use

mWasabi has been optimized for use with standard GFP/FITC filter sets.

Features

- About 2-fold brighter than EGFP
- Similar photostability to EGFP
- Uses standard filter sets
- Can be co-imaged with blue and red FPs or dyes
- Mammalian expression vector ready to transfect your favorite cells
- Low sensitivity to acidic pH (fluorescence pKa=4.3)
- True monomer that will not aggregate or cause nonspecific interactions

Reconstitution

10 µg provided in lyophilized powder form. Reconstitute with 10 µL of nuclease-free water for a final concentration of 1 µg/µL.

Storage

Store at -20°C or at -80°C for long-term preservation.

Human CMV Immediate-Early

Promoter (CMV Promoter).....1-589

Vimentin.....637-2034

Linker.....2035-2055

mWasabi.....2056-2766

SV40 PolyA Signal.....2918-2968

bla Promoter.....3507-3611

Ampicillin Resistance Gene.....3596-4456

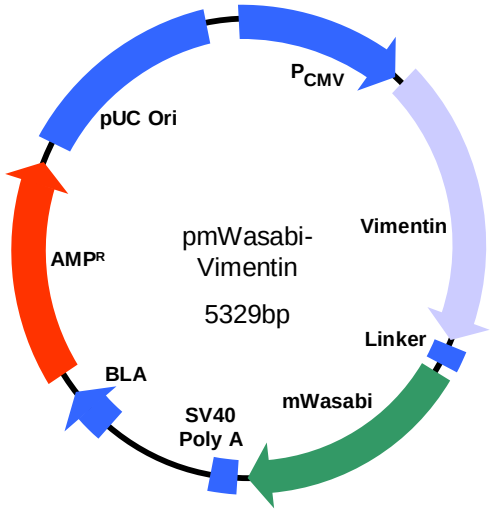
pUC Origin.....4605-5247

Upstream Sequencing Primer:

Universal CMV Promoter Primer

Downstream Sequencing Primer:

SV40 Primer:GCTTT ATTTG TGAAA TTTGT GATGC TATTG C



References: Ai H, Olenych SG, Wong P, Davidson MW, Campbell RE. Hue-shifted monomeric variants Clavularia cyan fluorescent protein: identification of the molecular determinants of color and applications in fluorescence imaging. *BMC Biology.* 2008 Mar; 6:13. Shaner NC, Patterson GH, Davidson MW. Advances in fluorescent protein technology. *J Cell Sci.* 2007 Dec 15;120(Pt 24):4247-60. Ai HW, Hazelwood KL, Davidson MW, Campbell RE. Fluorescent protein FRET pairs for ratiometric imaging of dual biosensors. *Nature Methods*. 2008 5(5): 401-03. Ai HW, Henderson JN, Remington SJ, Campbell RE. Directed evolution of a monomeric, bright, and photostable version of *Clavularia* cyan fluorescent protein: structural characterization and applications in fluorescence imaging. *Biochem J.* 2006. Shaner NC, Steinbach PA, Tsien RY. A guide to choosing fluorescent proteins. *Nat Methods.* 2005 2(12):905-09. Goldman R. D., Khuon S., Chou Y., Opal P., Steinert P. (1996). "The function of intermediate filaments in cell shape and cytoskeletal integrity" *J Cell Biol* 134 (4): pp. 971–83. Katsumoto T., Mitsushima A., Kurimura T. (1990). "The role of the vimentin intermediate filaments in rat 3Y1 cells elucidated by immunoelectron microscopy and computer-graphic reconstruction" Biol Cell 68 (2): pp. 139–46.

SEQUENCE

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Enzyme	Cuts	Positions	Sequence
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Acc16I	1	4160	tgc/gca
AccB1I	5	465 691 2188 3199 4430	g/gyrcc
AccB7I	1	2495	ccannnn/ntgg
AccBSI	2	3099 3544	gagcgg
AcsI	4	629 2938 3423 3434	r/aatty
AcyI	9	122 175 258 444 905 1556 2501 2549 3843	gr/cgyc
AfeI	1	596	agc/gct
AflIII	2	3010 5271	a/crygt
AgeI	1	2043	a/ccggt
AhdI	2	1272 4383	gacnnn/nngtc
Alw21I	6	620 712 1040 3715 3800 4961	gwgcw/c
Alw44I	2	3711 4957	g/tgcac
AlwNI	3	963 1368 4862	cagnnn/ctg
Ama87I	6	613 687 804 859 1039 2332	c/ycgrg
AocI	1	1903	cc/tnagg
Aor51HI	1	596	agc/gct
ApaLI	2	3711 4957	g/tgcac
ApoI	4	629 2938 3423 3434	r/aatty
AseI	2	7 4208	at/taat
AsnI	2	7 4208	at/taat
Asp700I	1	3783	gaann/nnttc
AspEI	2	1272 4383	gacnnn/nngtc
AspHI	6	620 712 1040 3715 3800 4961	gwgcw/c
AspI	1	732	gacn/nngtc
AtsI	1	732	gacn/nngtc
AvaI	6	613 687 804 859 1039 2332	c/ycgrg
AviII	1	4160	tgc/gca
BalI	1	2141	tgg/cca
BamHI	1	2037	g/gatcc
BanI	5	465 691 2188 3199 4430	g/gyrcc
BanII	5	620 712 1040 2226 3169	grgcy/c
BanIII	1	1403	at/cgat
BbiII	9	122 175 258 444 905 1556 2501 2549 3843	gr/cgyc
Bbv12I	6	620 712 1040 3715 3800 4961	gwgcw/c
BcgI	2	682 3867	cgannnnnntgc
BcoI	6	613 687 804 859 1039 2332	c/ycgrg
BglI	5	90 212 283 2623 4265	gccnnnn/nggc
BglII	1	609	a/gatct
BpmI	5	716 1011 2211 2574 4298	ctggag
Bpu14I	1	627	tt/cgaa
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BsaOI	6	706 2048 2771 3865 4014 4937	cgry/cg
BsaWI	7	600 1544 1592 2043 4087 4918 5065	w/ccggw
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Bsp19I	3	360 2054 2405	c/catgg
BspCI	1	4014	cgat/cg
BspDI	1	1403	at/cgat
BspHI	2	3543 4551	t/catga
BspLU11I	1	5271	a/catgt
BspMI	3	1118 1489 1795	acctgc
BspXI	1	1403	at/cgat
BsrBI	2	3099 3544	gagcgg
BsrBRI	1	2786	gatnn/nnatc
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BsrFI	6	701 1109 2043 2491 3135 4298	r/ccggy
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BstDSI	4	360 2054 2405 2720	c/crygg
BstEII	1	2700	g/gtnacc
BstH2I	4	598 3085 3093 5031	rgcgc/y
BstI	1	2037	g/gatcc
BstMCI	6	706 2048 2771 3865 4014 4937	cgry/cg
BstPI	1	2700	g/gtnacc
BstSFI	12	747 874 955 1369 1486 1729 1833 2610 3017 4137 4815 5006	c/tryag
BstSNI	1	340	tac/gta
BstX2I	11	585 609 1022 2037 2669 3736 3753 4521 4533 4619 4630	r/gatcy
BstXI	1	2205	ccannnnn/ntgg
BstYI	11	585 609 1022 2037 2669 3736 3753 4521 4533 4619 4630	r/gatcy
BstZI	2	703 2768	c/ggccg
Bsu15I	1	1403	at/cgat
Bsu36I	1	1903	cc/tnagg
CciNI	1	2768	gc/ggccgc
Cfr10I	6	701 1109 2043 2491 3135 4298	r/ccggy
Cfr9I	3	687 804 859	c/ccggg
CfrI	9	703 899 1031 1169 1722 2139 2580 2768 3990	y/ggccr
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CvnI	1	1903	cc/tnagg
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DraIII	2	2652 3243	cacnnn/gtg
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DsaI	4	360 2054 2405 2720	c/crygg
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Eco130I	4	360 1056 2054 2405	c/cwwgg
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Eco31I	3	2079 2490 4316	ggtctc
Eco47III	1	596	agc/gct
Eco52I	2	703 2768	c/ggccg
Eco57I	5	1221 2121 2544 3701 4749	ctgaag
Eco64I	5	465 691 2188 3199 4430	g/gyrcc
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EcoICRI	3	618 710 1038	gag/ctc
EcoNI	6	669 1084 1171 1489 1531 1564	cctnn/nnnagg
EcoO109I	2	1077 2279	rg/gnccy
EcoO65I	1	2700	g/gtnacc
EcoRI	1	629	g/aattc
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EcoT22I	1	5328	atgca/t
ErhI	4	360 1056 2054 2405	c/cwwgg
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Esp3I	1	1279	cgtctc
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FspI	1	4160	tgc/gca
GsuI	5	716 1011 2211 2574 4298	ctggag
HaeII	4	598 3085 3093 5031	rgcgc/y
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HincII	3	1266 2595 2887	gty/rac
HindII	3	1266 2595 2887	gty/rac
HindIII	1	622	a/agctt
HpaI	1	2887	gtt/aac
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Ksp632I	5	1326 1356 1683 1882 3594	ctcttc
LspI	1	627	tt/cgaa
MamI	1	2786	gatnn/nnatc
MfeI	1	2874	c/aattg
MflI	11	585 609 1022 2037 2669 3736 3753 4521 4533 4619 4630	r/gatcy
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MluNI	1	2141	tgg/cca
Mph1103I	1	5328	atgca/t
MroNI	3	701 1109 3135	g/ccggc
MscI	1	2141	tgg/cca
MslI	8	365 1775 2021 2056 2404 3612 3971 4130	caynn/nnrtg
Msp17I	9	122 175 258 444 905 1556 2501 2549 3843	gr/cgyc
MspA1I	3	3747 4688 4933	cmg/ckg
MunI	1	2874	c/aattg
Mva1269I	2	2874 2973	gaatgc
NaeI	3	703 1111 3137	gcc/ggc
NcoI	3	360 2054 2405	c/catgg
NdeI	1	234	ca/tatg
NgoAIV	3	701 1109 3135	g/ccggc
NgoMI	3	701 1109 3135	g/ccggc
NheI	1	591	g/ctagc
NotI	1	2768	gc/ggccgc
NsiI	1	5328	atgca/t
NspBII	3	3747 4688 4933	cmg/ckg
NspI	2	1396 5275	rcatg/y
NspV	1	627	tt/cgaa
PaeR7I	2	613 1039	c/tcgag
Pfl23II	1	1449	c/gtacg

PflMI	1	2495	ccannnn/ntgg	SfuI	1	627	tt/cgaa
PinAI	1	2043	a/ccggt	SmaI	3	689 806 861	ccc/ggg
Ple19I	1	4014	cgat/cg	SnaBI	1	340	tac/gta
Ppu10I	1	5324	a/tgcat	SplI	1	1449	c/gtacg
PpuMI	1	1077	rg/gwccy	SrfI	1	689	gccc/gggc
PshAI	1	1451	gacnn/nngtc	Sse8387I	3	878 1490 1733	cctgca/gg
PshBI	2	7 4208	at/taat	SspBI	1	2756	t/gtaca
Psp124BI	3	620 712 1040	gagct/c	SspI	2	3448 3578	aat/att
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Psp5II	1	1077	rg/gwccy	StyI	4	360 1056 2054 2405	c/cwwgg
PspAI	3	687 804 859	c/ccggg	SunI	1	1449	c/gtacg
PspALI	3	689 806 861	ccc/ggg	Tth111I	1	732	gacn/nngtc
PspEI	1	2700	g/gtnacc	Van91I	1	2495	ccannnn/ntgg
PspLI	1	1449	c/gtacg	VneI	2	3711 4957	g/tgcac
PstI	5	878 959 1373 1490 1733	ctgca/g	VspI	2	7 4208	at/taat
PstNHI	1	591	g/ctagc	XbaI	1	2778	t/ctaga
PvuI	1	4014	cgat/cg	XcmI	4	945 1650 1717 2742	ccannnnn/nnnntgg
RcaI	2	3543 4551	t/catga	XhoI	2	613 1039	c/tcgag
SacI	3	620 712 1040	gagct/c	XhoII	11	585 609 1022 2037 2669 3736 3753 4521 4533 4619 4630	r/gatcy
SbfI	3	878 1490 1733	cctgca/gg				
ScaI	1	3902	agt/act	XmaI	3	687 804 859	c/ccggg
SexAI	1	643	a/ccwggt	XmaIII	2	703 2768	c/ggccg
SfcI	12	747 874 955 1369 1486 1729 1833 2610 3017 4137 4815 5006	c/tryag	XmnI	1	3783	gaann/nnttc
				Zsp2I	1	5328	atgca/t
Sfr274I	2	613 1039	c/tcgag				

The following enzymes do not cut:

AatI, Acc65I, AccI, AccIII, AclNI, AflII, ApaI, AscI, Asp718I, AvrII, BbeI, BbrPI, BbsI, BbuI, Bbv16II, BclI, BfrI, BlnI, BlpI, BpiI, Bpu1102I, BpuAI, BseAI, BsiMI, Bsp120I, Bsp13I, Bsp1720I, Bsp68I, BspEI, BspTI, Bst1107I, Bst98I, CelII, Cfr42I, CpoI, CspI, Eco147I, Eco32I, Eco72I, EcoRV, EheI, FbaI, FseI, KasI, Kpn2I, KpnI, Ksp22I, KspI, MroI, MspCI, NarI, NruI, PacI, PaeI, PmaCI, Pme55I, PmeI, PmlI, PspOMI, PvuII, RsrII, SacII, SalI, SapI, SfiI, Sfr303I, SgfI, SgrAI, SmiI, SpeI, SphI, SseBI, SstII, StuI, SwaI, Vha464I

Related products:

Current All[ele]ustious Fluorescent Protein Family Members:
The founding member is mTFP1.

mTFPG3 is a green FP with 3 amino difference from mTFP1. It has a slightly red-shifted emission spectrum and is 1.5 fold brighter compared to EGFP. While being very bright, mTFPG3 can be photobleached within ~5 sec, about 30 times faster than EGFP, suitable for certain cell-based assays that require a bright FP with very short half-life.

mTFP0.7 is a precursor during the evolution of mTFP1. It has photo-switchable properties like Dronpa that cycles between fluorescent and nonfluorescent states. It may be developed into components in PALM/SIM applications.

Basic Vectors
Three vectors are available: pNCS-mWasabi, pmWasabi-N and pmWasabi-C.

Subcellular Marker Vectors
Twenty six vectors are available.

Vectors in Viral Vectors
All plasmid format vectors in Allele's Phoenix Retroviral vector or HiTiter Lentiviral Vectors.