All[ele]ustrious pmWasabi-Actin

(Cytoskeleton)

Catalog Number: ABP-FP-WACT100

Size: 10ug Price: $349.00

Introduction

All[ele]ustrious pmWasabi-actin is a mammalian expression vector that encodes a fusion of mWasabi N-terminal to human beta actin ACTB. It can be a great tool for visualizing cytoskeleton (microfilaments).

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.

One of the most conserved proteins, actin can be found in microfilaments, thin filaments and other contractile apparatus in all eukaryotic species. Actin has several isoforms, which are globular proteins of about 43 kD. Actins can be present in extremely high concentrations, e.g. over 100 uM. Actin filaments are linked to alpha-actinin and to membrane through vinculin. The head domain of vinculin associates with E-cadherin via alpha-, beta-, and gamma-catenins. The tail domain of vinculin binds to membrane lipids and to actin filaments (see Alleleustrious fusions with these proteins).

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).....1-595

mWasabi……613-1320

Actin……..1321-2469

SV40 PolyA Signal.....2629-2679

bla Promoter.....3218-3322

Ampicillin Resistance Gene.....3307-4167

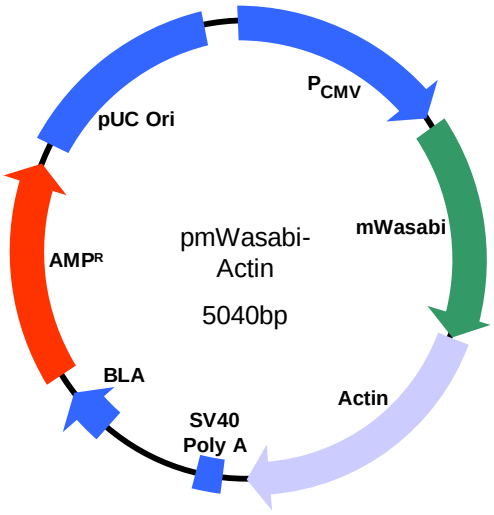
pUC Origin.....4316-4958

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. Holmes KC, Popp D, Gebhard W, Kabsch W. Atomic model of the actin filament. *Nature* 1990, 347, 21-2. Berg T; S Mousavi, Malerod L, Kjeken R. "Clathrin-dependent endocytosis". *Biochem J* 1990 377: 1–16. Khaitlina SY Functional specificity of actin isoforms. *Int Rev Cytol* 2001 202:35-98.

SEQUENCE

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241  AAGTACGCCC CCTATTGACG TCAATGACGG TAAATGGCCC GCCTGGCATT ATGCCCAGTA
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421  ATTTCCAAGT CTCCACCCCA TTGACGTCAA TGGGAGTTTG TTTTGGCACC AAAATCAACG
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Acc16I	1	3871	tgc/gca
AccB1I	9	465 745 1448 1457 1598 2245 2301 2910 4141	g/gyrcc
AccB7I	1	1052	ccannnn/ntgg
AccBSI	4	1959 2103 2810 3255	gagcgg
AccI	1	1370	gt/mkac
AccIII	1	1321	t/ccgga
AcsI	3	2649 3134 3145	r/aatty
AcyI	8	122 175 258 444 1058 1106 1449 3554	gr/cgyc
AfeI	1	596	agc/gct
AflIII	2	2721 4982	a/crygt
AgeI	1	600	a/ccggt
AhdI	1	4094	gacnnn/nngtc
Alw21I	5	1559 1643 3426 3511 4672	gwgcw/c
Alw44I	2	3422 4668	g/tgcac
AlwNI	1	4573	cagnnn/ctg
Ama87I	4	889 1334 1421 1633	c/ycgrg
AocI	1	2114	cc/tnagg
Aor51HI	1	596	agc/gct
ApaLI	2	3422 4668	g/tgcac
ApoI	3	2649 3134 3145	r/aatty
AseI	2	7 3919	at/taat
AsnI	2	7 3919	at/taat
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AspEI	1	4094	gacnnn/nngtc
AspHI	5	1559 1643 3426 3511 4672	gwgcw/c
AspI	1	1813	gacn/nngtc
AtsI	1	1813	gacn/nngtc
AvaI	4	889 1334 1421 1633	c/ycgrg
AviII	1	3871	tgc/gca
BalI	2	698 2023	tgg/cca
BamHI	1	2470	g/gatcc
BanI	9	465 745 1448 1457 1598 2245 2301 2910 4141	g/gyrcc
BanII	2	783 2880	grgcy/c
BbeI	1	1452	ggcgc/c
BbiII	8	122 175 258 444 1058 1106 1449 3554	gr/cgyc
BbsI	1	1434	gaagac
Bbv12I	5	1559 1643 3426 3511 4672	gwgcw/c
Bbv16II	1	1434	gaagac
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BclI	1	2492	t/gatca
BcoI	4	889 1334 1421 1633	c/ycgrg
BglI	6	90 212 283 1180 1423 3976	gccnnnn/nggc
BglII	1	1330	a/gatct
BpiI	1	1434	gaagac
BpmI	4	768 1131 2052 4009	ctggag
BpuAI	1	1434	gaagac
BsaAI	3	340 1080 2951	yac/gtr
BsaBI	3	2323 2407 2497	gatnn/nnatc
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BsaMI	2	2585 2684	gaatgc
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BsaWI	7	600 1321 1804 2476 3798 4629 4776	w/ccggw
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BseRI	5	633 972 1641 2045 2338	gaggag
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BspHI	4	1907 2186 3254 4262	t/catga
BspLU11I	1	4982	a/catgt
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BsrGI	1	1313	t/gtaca
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BssSI	2	3430 4814	ctcgtg
BssT1I	4	360 611 962 1676	c/cwwgg
BstD102I	4	1959 2103 2810 3255	gagcgg
BstDSI	6	360 611 962 1277 1946 2024	c/crygg
BstEII	2	1257 1815	g/gtnacc
BstH2I	5	598 1452 2796 2804 4742	rgcgc/y
BstI	1	2470	g/gatcc
BstMCI	5	605 1952 3576 3725 4648	cgry/cg
BstPI	2	1257 1815	g/gtnacc
BstSFI	6	1167 1932 2728 3848 4526 4717	c/tryag
BstSNI	1	340	tac/gta
BstX2I	12	585 1226 1330 1913 2470 2479 3447 3464 4232 4244 4330 4341	r/gatcy
BstXI	1	762	ccannnnn/ntgg
BstYI	12	585 1226 1330 1913 2470 2479 3447 3464 4232 4244 4330 4341	r/gatcy
BstZI	1	1949	c/ggccg
Bsu36I	1	2114	cc/tnagg
Cfr10I	5	600 1048 1396 2846 4009	r/ccggy
Cfr9I	1	1421	c/ccggg
CfrI	8	696 1137 1776 1884 1949 2021 2073 3701	y/ggccr
CvnI	1	2114	cc/tnagg
DraI	4	2537 3516 4208 4227	ttt/aaa
DraII	3	836 1662 1890	rg/gnccy
DraIII	4	1209 1647 1827 2954	cacnnn/gtg
DrdI	3	2077 2998 4880	gacnnnn/nngtc
DsaI	6	360 611 962 1277 1946 2024	c/crygg
EaeI	8	696 1137 1776 1884 1949 2021 2073 3701	y/ggccr
EagI	1	1949	c/ggccg
Eam1104I	3	2057 2127 3305	ctcttc
Eam1105I	1	4094	gacnnn/nngtc
EarI	3	2057 2127 3305	ctcttc
EclHKI	1	4094	gacnnn/nngtc
EclXI	1	1949	c/ggccg
Eco105I	1	340	tac/gta
Eco130I	4	360 611 962 1676	c/cwwgg
Eco24I	2	783 2880	grgcy/c
Eco255I	2	2350 3613	agt/act
Eco31I	4	636 1047 1719 4027	ggtctc
Eco32I	1	1353	gat/atc
Eco47III	1	596	agc/gct
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Eco57I	5	678 1101 1545 3412 4460	ctgaag
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Eco88I	4	889 1334 1421 1633	c/ycgrg
Eco91I	2	1257 1815	g/gtnacc
EcoO109I	3	836 1662 1890	rg/gnccy
EcoO65I	2	1257 1815	g/gtnacc
EcoRV	1	1353	gat/atc
EcoT14I	4	360 611 962 1676	c/cwwgg
EcoT22I	1	5039	atgca/t
EheI	1	1450	ggc/gcc
ErhI	4	360 611 962 1676	c/cwwgg
Esp1396I	1	1052	ccannnn/ntgg
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FbaI	1	2492	t/gatca
FriOI	2	783 2880	grgcy/c
FspI	1	3871	tgc/gca
GsuI	4	768 1131 2052 4009	ctggag
HaeII	5	598 1452 2796 2804 4742	rgcgc/y
Hin1I	8	122 175 258 444 1058 1106 1449 3554	gr/cgyc
HincII	3	1152 1371 2598	gty/rac
HindII	3	1152 1371 2598	gty/rac
HpaI	1	2598	gtt/aac
Hsp92I	8	122 175 258 444 1058 1106 1449 3554	gr/cgyc
KasI	1	1448	g/gcgcc
Kpn2I	1	1321	t/ccgga
Ksp22I	1	2492	t/gatca
Ksp632I	3	2057 2127 3305	ctcttc
MamI	3	2323 2407 2497	gatnn/nnatc
MfeI	1	2585	c/aattg
MflI	12	585 1226 1330 1913 2470 2479 3447 3464 4232 4244 4330 4341	r/gatcy
MluI	1	2721	a/cgcgt
MluNI	2	698 2023	tgg/cca
Mph1103I	1	5039	atgca/t
MroI	1	1321	t/ccgga
MroNI	2	1396 2846	g/ccggc
MscI	2	698 2023	tgg/cca
MslI	8	365 613 961 1795 2251 3323 3682 3841	caynn/nnrtg
Msp17I	8	122 175 258 444 1058 1106 1449 3554	gr/cgyc
MspA1I	4	2108 3458 4399 4644	cmg/ckg
MunI	1	2585	c/aattg
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NarI	1	1449	gg/cgcc
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NdeI	1	234	ca/tatg
NgoAIV	2	1396 2846	g/ccggc
NgoMI	2	1396 2846	g/ccggc
NheI	1	591	g/ctagc
NsiI	1	5039	atgca/t
NspBII	4	2108 3458 4399 4644	cmg/ckg
NspI	2	1389 4986	rcatg/y
PaeR7I	1	1334	c/tcgag
PflMI	1	1052	ccannnn/ntgg
PinAI	1	600	a/ccggt
Ple19I	1	3725	cgat/cg
Ppu10I	1	5035	a/tgcat
PpuMI	1	1890	rg/gwccy
PshBI	2	7 3919	at/taat

Psp1406I	2	3492 3865	aa/cgtt	SspI	2	3159 3289	aat/att
Psp5II	1	1890	rg/gwccy	StyI	4	360 611 962 1676	c/cwwgg
PspAI	1	1421	c/ccggg	Tth111I	1	1813	gacn/nngtc
PspALI	1	1423	ccc/ggg	Van91I	1	1052	ccannnn/ntgg
PspEI	2	1257 1815	g/gtnacc	VneI	2	3422 4668	g/tgcac
PstNHI	1	591	g/ctagc	VspI	2	7 3919	at/taat
PvuI	1	3725	cgat/cg	XbaI	1	2482	t/ctaga
RcaI	4	1907 2186 3254 4262	t/catga	XcmI	3	1299 1869 2043	ccannnnn/nnnntgg
SalI	1	1369	g/tcgac	XhoI	1	1334	c/tcgag
SapI	1	2058	gctcttc	XhoII	12	585 1226 1330 1913 2470 2479 3447 3464 4232 4244 4330 4341	r/gatcy
ScaI	2	2350 3613	agt/act				
SfcI	6	1167 1932 2728 3848 4526 4717	c/tryag	XmaI	1	1421	c/ccggg
Sfr274I	1	1334	c/tcgag	XmaIII	1	1949	c/ggccg
SmaI	1	1423	ccc/ggg	XmnI	1	3494	gaann/nnttc
SnaBI	1	340	tac/gta	Zsp2I	1	5039	atgca/t
SspBI	1	1313	t/gtaca				

The following enzymes do not cut:

AatI, Acc65I, AclNI, AflII, ApaI, AscI, Asp718I, AvrII, BanIII, BbrPI, BbuI, BfrI, BlnI, BlpI, Bpu1102I, Bpu14I, Bsa29I, BscI, BseCI, BsePI, BsgI, BsiWI, BsmBI, Bsp106I, Bsp119I, Bsp120I, Bsp1720I, Bsp68I, BspDI, BspMI, BspTI, BspXI, BssHII, Bst1107I, Bst98I, BstBI, Bsu15I, CciNI, CelII, Cfr42I, ClaI, CpoI, Csp45I, CspI, Ecl136II, Eco147I, Eco72I, EcoICRI, EcoNI, EcoRI, Esp3I, FseI, HindIII, KpnI, KspI, LspI, MspCI, NotI, NruI, NspV, PacI, PaeI, Pfl23II, PmaCI, Pme55I, PmeI, PmlI, PshAI, Psp124BI, PspLI, PspOMI, PstI, PvuII, RsrII, SacI, SacII, SbfI, SexAI, SfiI, Sfr303I, SfuI, SgfI, SgrAI, SmiI, SpeI, SphI, SplI, SrfI, Sse8387I, SseBI, SstI, SstII, StuI, SunI, 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.