

All^{ele}ustrious pmWasabi-Mitochondria

(Mitochondria)

Catalog Number: ABP-FP-WMIT100

Size: 10ug Price: \$349.00

Introduction

All^{ele}ustrious pmWasabi-Mitochondria is a mammalian expression vector that expresses mWasabi with a human COX8A mitochondrial signal fused at the N-terminus. This product can be a great tool for your research involving mitochondria.

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.

Mitochondria is the powerhouse of a cell. COX8A, forcytochrome c oxidase subunit 8A, encodes one of several nuclear-encoded subunits of the terminal enzyme of the respiratory chain. The function of the enzyme is to couple the transfer of electrons from cytochrome c to molecular oxygen, with the concomitant production of a proton electrochemical gradient across the inner mitochondrial membrane.

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

Mitochondrial targeting signal..597-683

Linker.....694-704

mWasabi.....705-1415

SV40 PolyA Signal.....1567-1617

bla Promoter.....2156-2260

Ampicillin Resistance Gene.....2245-3105

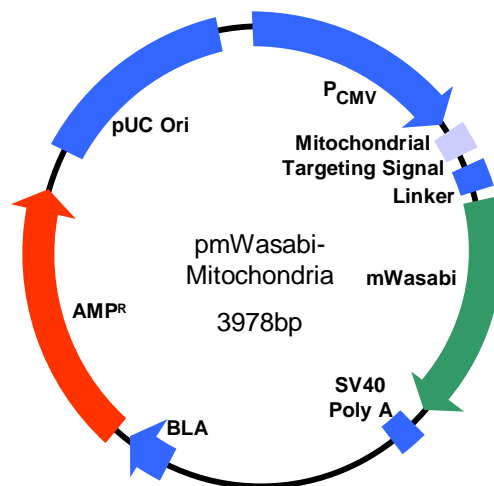
pUC Origin.....3254-3896

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. Huttemann, M., Schmidt, T.R. and Grossman, L.I. (2003) "A third isoform of cytochrome c oxidase subunit VIII is present in mammals." *Gene* 312, 95-102. Chinnery, P.F., Taylor, R.W., Diekert, K., Lill, R., Turnbull, D.M. and Lightowler, R.N. (1999). "Peptide nucleic acid delivery to human mitochondria" *Gene Ther*. 6 (12), 1919-1928.

SEQUENCE

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3961 CGTATTACCG CCATGCAT

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Enzyme	Cuts	Positions	Sequence	DraII	1	928	rg/gnccy
AatII	5	125 178 261 447 1201	gacgt/c	DraIII	2	1301 1892	cacnnn/gtg
AccI13I	1	2551	agt/act	DrdI	2	1936 3818	gacnnnn/ngtgc
Acc16I	1	2809	tgc/gca	DsaI	4	360 703 1054 1369	c/crygcr
AccB1I	4	465 837 1848 3079	g/gyrcc	EaeI	4	788 1229 1417 2639	y/ggcer
AccB7I	2	680 1144	ccannnn/ntgg	EagI	1	1417	c/ggccg
AccBSI	2	1748 2193	gagcgg	Eam1104I	1	2243	ctcttc
AcsI	3	1587 2072 2083	r/aatty	Eam1105I	1	3032	gacnnn/ngtgc
AcyI	8	122 175 258 444 609 1150 1198	gr/cgyc	EarI	1	2243	ctcttc
		2492		EclHKI	1	3032	gacnnn/ngtgc
AflIII	2	1659 3920	a/crygt	EclXI	1	1417	c/ggccg
AgeI	1	692	a/ccggt	Eco105I	1	340	tac/gta
AhdI	1	3032	gacnnn/ngtgc	Eco130I	3	360 703 1054	c/cwggg
Alw21I	3	2364 2449 3610	gwgwc/c	Eco24I	2	875 1818	grgcy/c
Alw44I	2	2360 3606	g/tgcac	Eco255I	1	2551	agt/act
AlwNI	1	3511	cagnnn/ctg	Eco31I	3	728 1139 2965	ggtctc
Ama87I	1	981	c/ycgrg	Eco52I	1	1417	c/ggccg
ApaLI	2	2360 3606	g/tgcac	Eco57I	4	770 1193 2350 3398	ctgaag
ApoI	3	1587 2072 2083	r/aatty	Eco64I	4	465 837 1848 3079	g/gyrcc
AseI	2	7 2857	at/taat	Eco88I	1	981	c/ycgrg
AsnI	2	7 2857	at/taat	Eco91I	1	1349	g/gtnacc
Asp700I	1	2432	gaann/nnttc	Eco109I	1	928	rg/gnccy
AspEI	1	3032	gacnnn/ngtgc	Eco065I	1	1349	g/gtnacc
AspHI	3	2364 2449 3610	gwgwc/c	EcoT14I	3	360 703 1054	c/cwggg
AvaI	1	981	c/ycgrg	EcoT22I	1	3977	atgca/t
AviII	1	2809	tgc/gca	ErhI	3	360 703 1054	c/cwggg
BalI	1	790	tg/ccca	Esp1396I	2	680 1144	ccannnn/ngtgc
BamHI	1	686	g/gatcc	FauNDI	1	234	ca/tatg
BanI	4	465 837 1848 3079	g/gyrcc	FriOI	2	875 1818	grgcy/c
BanII	2	875 1818	grgcy/c	FspI	1	2809	tgc/gca
Bb1II	8	122 175 258 444 609 1150 1198	gr/cgyc	GsuI	3	860 1223 2947	ctggag
		2492		HaeII	3	1734 1742 3680	rgcgcy
Bbv12I	3	2364 2449 3610	gwgwc/c	HinII	8	122 175 258 444 609 1150 1198	gr/cgyc
BcgI	1	2516	cgannnnntgc			2492	
BcoI	1	981	c/ycgrg	HincII	2	1244 1536	gty/rac
BglI	5	90 212 283 1272 2914	gcnnnn/nggc	HindII	2	1244 1536	gty/rac
BpmI	3	860 1223 2947	ctggag	HpaI	1	1536	ggt/aac
BsaAI	3	340 1172 1889	yac/gtr	Hsp92I	8	122 175 258 444 609 1150 1198	gr/cgyc
BsaBI	1	1435	gatnn/nnttc			2492	
BsaHI	8	122 175 258 444 609 1150 1198	gr/cgyc	Ksp632I	1	2243	ctcttc
		2492		MamI	1	1435	gatnn/nnttc
BsaI	3	728 1139 2965	ggtctc	MfeI	1	1523	c/aattg
BsaMI	2	1523 1622	gaatgc	MflI	10	585 670 686 1318 2385 2402 3170	r/gatcy
BsaOI	5	697 1420 2514 2663 3586	cgry/cg			3182 3268 3279	
BsaWI	4	692 2736 3567 3714	w/ccggw	MluI	1	1659	a/cgctg
Bse118I	4	692 1140 1784 2947	r/ccggy	MluNI	1	790	tgg/cca
Bse8I	1	1435	gatnn/nnttc	Mph1103I	1	3977	atgca/t
BsePI	1	662	g/cgctg	MroNI	1	1784	g/cgggc
BseRI	2	725 1064	gaggag	MscI	1	790	tgg/cca
Bsh1285I	5	697 1420 2514 2663 3586	cgry/cg	MsII	6	365 705 1053 2261 2620 2779	caynn/nmrtg
Bsh1365I	1	1435	gatnn/nnttc	Msp17I	8	122 175 258 444 609 1150 1198	gr/cgyc
BshNI	4	465 837 1848 3079	g/gyrcc			2492	
BsiEI	5	697 1420 2514 2663 3586	cgry/cg	MspAlI	4	614 2396 3337 3582	cmg/ckg
BsiHKAI	3	2364 2449 3610	gwgwc/c	MunI	1	1523	c/aattg
BsiI	2	2368 3752	ctcgtg	Mva1269I	2	1523 1622	gaatgc
BsmI	2	1523 1622	gaatgc	NaeI	1	1786	gcc/ggc
BsoBI	1	981	c/ycgrg	NcoI	3	360 703 1054	c/catgg
Bsp1407I	1	1405	t/gtaca	NdeI	1	234	ca/tatg
Bsp143II	3	1734 1742 3680	rgcgcy	NgolAIV	1	1784	g/cgggc
Bsp19I	3	360 703 1054	c/catgg	NgolMI	1	1784	g/cgggc
BspCI	1	2663	cgat/cg	NheI	1	591	g/ctagc
BspHI	2	2192 3200	t/catga	NotI	1	1417	gc/gggcgc
BspLUL1I	1	3920	a/catgt	NsiI	1	3977	atgca/t
BsrBI	2	1748 2193	gagcgg	NspBII	4	614 2396 3337 3582	cmg/ckg
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BsrDI	2	2796 2978	gcaatg	PflMI	2	680 1144	ccannnn/ngtgc
BsrFI	4	692 1140 1784 2947	r/ccggy	PinAI	1	692	a/cgctg
BsrGI	1	1405	t/gtaca	Ple19I	1	2663	cgat/cg
BssaI	4	692 1140 1784 2947	r/ccggy	Ppu10I	1	3973	a/tgcat
BssHII	1	662	g/cgctg	PshBI	2	7 2857	at/taat
BsssI	2	2368 3752	ctcgtg	Psp1406I	2	2430 2803	aa/cgctt
BsstII	3	360 703 1054	c/cwggg	PspEI	1	1349	g/gtnacc
BstD102I	2	1748 2193	gagcgg	PstNHI	1	591	g/ctagc
BstDSI	4	360 703 1054 1369	c/crygg	PvuI	1	2663	cgat/cg
BstEII	1	1349	g/gtnacc	RcaI	2	2192 3200	t/catga
BstH2I	3	1734 1742 3680	rgcgcy	ScaI	1	2551	agt/act
BstI	1	686	g/gatcc	SfcI	5	1259 1666 2786 3464 3655	c/tryag
BstMCI	5	697 1420 2514 2663 3586	cgry/cg	SnaBI	1	340	tac/gta
BstPI	1	1349	g/gtnacc	SspBI	1	1405	t/gtaca
BstSFI	5	1259 1666 2786 3464 3655	c/tryag	SspI	2	2097 2227	aat/att
BstSNI	1	340	tac/gta	StyI	3	360 703 1054	c/cwggg
BstX2I	10	585 670 686 1318 2385 2402 3170	r/gatcy	Van91I	2	680 1144	ccannnn/ngtgc
		3182 3268 3279		VneI	2	2360 3606	g/tgcac
BstXI	1	854	ccannnn/ntgg	VspI	2	7 2857	at/taat
BstYI	10	585 670 686 1318 2385 2402 3170	r/gatcy	XbaI	1	1427	t/ctaga
		3182 3268 3279		XcmI	1	1391	ccannnn/nnntgg
BstZI	1	1417	c/ggccg	XhoII	10	585 670 686 1318 2385 2402 3170	r/gatcy
CciNI	1	1417	gc/gggcgc			3182 3268 3279	
Cfr10I	4	692 1140 1784 2947	r/ccggy	XmaIII	1	1417	c/ggccg
CfrI	4	788 1229 1417 2639	y/ggcer	XmnI	1	2432	gaann/nnttc
DraI	4	1475 2454 3146 3165	tta/aaa	Zsp2I	1	3977	atgca/t

More info



The following enzymes do not cut:

AatI, Acc65I, Accl, AccIII, AclNI, Afel, AfIII, Aocl, Aor51HI, Apal, Ascl, Asp718I, Aspl, Atsl, AvrII, BanIII, Bbel, BbrPI, BbsI, Bbul, Bbv16II, BclI, BfrI, BglII, BlnI, BplI, Bpil, Bpu1102I, Bpu14I, BpuAI, Bsa29I, BscI, Bse21I, BseAI, BseCI, BsgI, BsiMI, BsiWI, BsmBI, Bsp106I, Bsp119I, Bsp120I, Bsp13I, Bsp1720I, Bsp68I, BspDI, BspEI, BspMI, BspTI, BspXI, Bst1107I, Bst98I, BstBI, Bsu15I, Bsu36I, CellI, Cfr42I, Cfr9I, Clal, Cpol, Csp45I, Cspl, CvnI, Ecl136II, Eco147I, Eco32I, Eco47III, Eco72I, Eco81I, EcoCRI, EcoNI, EcoRI, EcoRV, Ehel, Esp3I, Fbal, Fsel, HindIII, KasI, Kpn2I, KpnI, Ksp22I, Kspl, Lspl, MroI, MspCI, NarI, Nrul, NspV, PacI, PaeI, PaeR7I, Pfl23II, PmaCI, Pme55I, Pmel, PmlI, PpuMI, PshAI, Psp124BI, Psp5II, PspAI, PspALI, PspLI, PspOMI, PstI, Pvull, RsrII, SacI, SacII, Sall, SapI, SbfI, SexAI, Sfil, Sfr274I, Sfr303I, SfuI, SgfI, SgrAI, Smal, Smil, Spel, SphI, SphI, SphI, SrfI, Sse8387I, SseBI, SstI, SstII, Stul, SunI, SwaI, Tth111I, Vha464I, XhoI, XmaI



Related products:

Current Alle^{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.

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