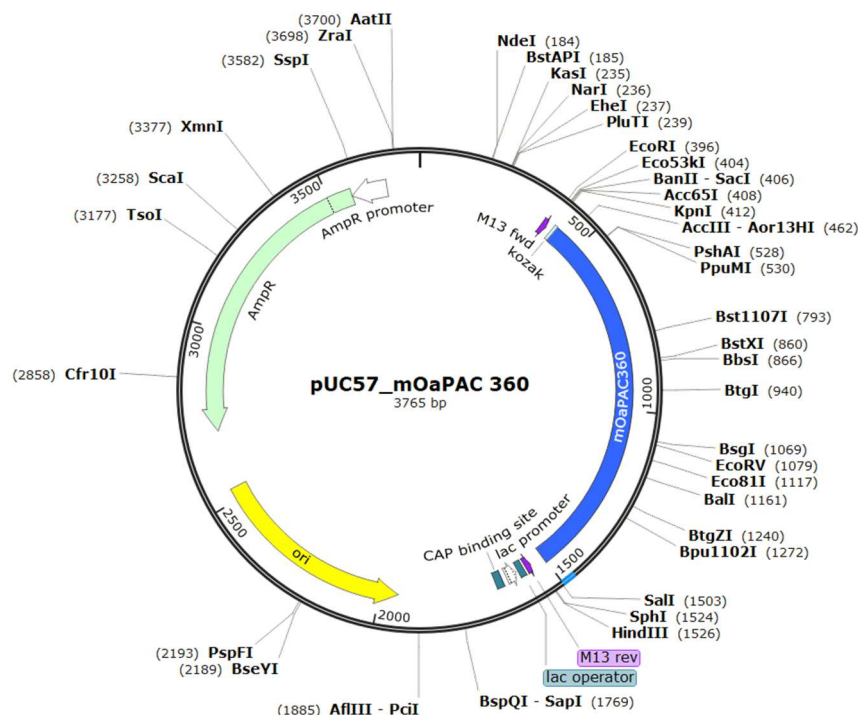


Product name	Product #	Lot#	Concentration	Content	Expiration
pmOaPAC 360	BD1178	20200401	1.0 µg/µL	10 µg	31MAR2022

Description

This DNA is a plasmid vector suitable for cloning of the target gene mammalianized OaPAC mutant "mOaPAC 360".



Location of features

M13 fwd: 379-395

kozak: 414-422

mOaPAC360: 423-1502

M13 rev: 1544-1560

lac operator: 1568-1584

lac promoter: 1592-1622

CAP binding site: 1637-1658

Ori: 1946-2534

AmpR: 2705-3565

AmpR promoter: 3566-3670

Storage

-20 °C

Concentration

1.0 µg/µL

Form

10mM Tris-HCL (pH8.0), 1mM EDTA

Size

3,765 bp

PRODUCT USE LIMITATION

This product is to be used for Research Use Only, and may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products or to provide a service to third parties without our prior written approval.

Vector sequence

TCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTGTCTGTAAGCG
GATGCCGGGAGCAGACAAAGCCCGTCAGGGCGCGTCAGCGGGTGTGGCGGGTGTGGGGCTGGCTTAACATATGCG
GCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGC
ATCAGGCGCCATTTCGCCATTTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACGCC
AGCTGGCGAAAGGGGGATGTGCTGCAAGGCGATTAAAGTTGGGTAACGCCAGGGTTTTCCAGTCACGACGTTGTAA
AACGACGGCCAGTGAATTCGAGCTCGGTACCGCCACCATGAAGAGACTGACATACATTTCCAAGTTTTCCCGCCAC
TGTCGGGAGACGAGATCGAAGCTATTGGCAGGATCAGCTCCCAGAGAACCAGCAGGCAAATGTGACTGGGGTCTCT
GCTGTGCCTGGACGGAATTTCTTTTCAGATCCTGGAGGGCGAAGCCGAGAAGATTGATCGGATCTACGAAAGAATCC
TGGCTGACGAGAGGCACACAGATATTCTGTGTCTGAAAAGTGAAGTGGAGGTCCAGGAACGCATGTTCCCTGATTGG
TCAATGCAGACAATCAACCTGGACGAGAATACTGATTTCTGATTGCCCCAATCAAGGTGCTGCTGCAGACCCTGACA
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TATCCTGATGGAAGCTGGAGATTCTGCGAAATTCAGCACCTGAGGGAGCCCTCTGAGAGTCTGTACTCTGGGATCGG
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GTGAATGTCGCGCTAGGCTGGAAGCACTGACTCGCCAGCTGAGCCAGGCCCTGGTGTCTCTAGTGAGGTCAAGA
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AAAGCCTGGGGTGCTAATGAGTGAGCTACATCAATTAATTTGCGTTGCGCTCACTGCCCGCTTTCAGTCGGGAAA
CCTGTCTGTCAGCTGATTAATGAATCGGCCAACGCGGGGAGAGGCGGTTTGCATTTGGGCGCTCTTCCGCT
TCCTCGCTCACTGACTCGCTGCGCTCGGTCTGCGCTGCGGAGCGGTATCAGCTCACTCAAAGGCGGTAATACG
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GGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCC
GACCCTGCCGCTTACCGGATACCTGTCCGCTTTTCTCCCTTCCGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTA
GGTATCTCAGTTCCGGTGTAGGTCGTTGCTCCTCAAGCTGGGCTGTGTGCACGAACCCCCCGTTTCAGCCCGACCGCTG
CGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTA
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TGCCATTGCTACAGGCATCGTGGTGTACGCTCGTCTTTGGTATGGCTTCATTGAGCTCCGTTCCCAACGATCAAG
GCGAGTTACATGATCCCCATGTTGTGCAAAAAAGCGTTAGCTCCTTCGGTCTCCGATCGTTGTGAGAAGTAAGTT
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GGATCTTACCGCTGTTGAGATCCAGTTTCGATGTAACCCACTCGTGACCCCACTGATCTTCAGCATCTTTTACTTTAC
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ATACTCATACTCTTCTTTTTTCAATATTATTGAAGCATTATCAGGGTTATTGTCTCATGAGCGGATACATTTTGAATGTA
TTTAGAAAAATAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACCATTATTA
TCATGACATTAACCTATAAAAAATAGGCGTATCACGAGGCCCTTTCGTC

References

Hirano *et al.* (2019) "The C-terminal region affects the activity of photoactivated adenylyl cyclase from *Oscillatoria acuminata*." Scientific Reports 9, Article number: 20262.

Ohki *et al.* (2016) "Structural insight into photoactivation of an adenylyl cyclase from a photosynthetic cyanobacterium." PNAS 113 (24) 6659-6664.

SAFETY DATA SHEET

According to JIS Z 7253:2012

Creation Date 01-Apr-2020

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	pmOaPAC360
Product number	BD1178

Recommended uses and restrictions on use For research purposes

Manufacturer **HAMAMATSU PHOTONICS K.K.**, Central Research Laboratory
5000, Hirakuchi, Hamakita-ku, Hamamatsu City, Shizuoka Pref.,
434-8601 Japan
Phone: +81-53-586-7111
Fax: +81-53-584-0260

Supplier **HAMAMATSU PHOTONICS K.K.**, Global headquarters
325-6, Sunayama-cho, Naka-ku, Hamamatsu City, Shizuoka Pref.,
430-8587 Japan
Phone: +81-53-459-1113
Fax: +81-53-459-1114

Emergency telephone number +81-53-586-7111

Section 2: HAZARDS IDENTIFICATION

GHS classification

Classification of the substance or mixture

- Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Pictograms

- None

Signal word

- None

Hazard statements

- Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Precautionary statements-(Prevention)

- Not applicable

Precautionary statements-(Response)

- Not applicable

Precautionary statements-(Storage)

- Not applicable

Precautionary statements-(Disposal)

- Not applicable

Others

Other hazards

- Not available

HAMAMATSU PHOTONICS K.K.

www.hamamatsu.com

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	Weight-%	Molecular weight	EC No.	ISHL No.	CAS No.
Tris-HCl (pH8.0)	<1%	157.60	214-684-5	N/A	1185-53-1
EDTA · 2Na · 2H ₂ O (pH8.0)	<0.1%	372-24	205-358-3	N/A	6381-92-6

Section 4: FIRST AID MEASURES**Inhalation**

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Remove to fresh air. Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES**Suitable extinguishing media**

Water spray (fog), carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Special extinguishing method

No information available

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Protection of fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipment to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled wastewater contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Do not touch spilled material without suitable protection (see section 8). After material is completely picked up, wash the spill site with soap and water and ventilate the area. Put all wastes in a plastic bag for disposal and seal it tightly. Remove, clean, or dispose of contaminated clothing.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling

Technical measures

Avoid contact with strong oxidizing agents. Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Storage

Safe storage conditions

Storage conditions:	Container protected from light, and store tightly closed in freezer (-20°C).
Safe packaging material:	Glass or Plastic container
Incompatible substances:	Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Personal protective equipment

Respiratory protection:	Dust mask
Hand protection:	Protection gloves
Eye protection:	Protective eyeglasses or chemical safety goggles
Skin and body protection:	Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES**Form****Color:**

Colorless

Appearance:

No data available

Odor

No data available

pH

No data available

Melting point/freezing point

No data available

Boiling point, initial boiling point and boiling range

No data available

Flash point

No data available

Evaporation rate

No data available

Flammability (solid, gas)

No data available

Upper/lower flammability or explosive limits

No data available

Lower :

No data available

Vapour pressure

No data available

Vapour density

No data available

Specific Gravity / Relative density

No data available

Solubilities

Water: soluble

n-Octanol/water partition coefficient:(log Pow)

No data available

Auto-ignition temperature

No data available

Decomposition temperature

No data available

Viscosity (coefficient of viscosity)

No data available

Dynamic viscosity

No data available

Section 10: STABILITY AND REACTIVITY**Stability****Stability:**

Stable under the recommended storage condition

Reactivity:

No data available

Hazardous reactions

None under normal processing

Conditions to avoid

Extremes of temperature and direct sunlight

Incompatible materials

Strong oxidizing agents

Hazardous decomposition productsCarbon monoxide (CO), carbon dioxide (CO₂), Nitrogen oxides (NO_x)**Section 11: TOXICOLOGICAL INFORMATION****Acute toxicity**

No data available

Skin irritation/corrosion

No data available

Serious eye damage/ irritation

No data available

Respiratory or skin sensitization

No data available

Reproductive cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Aspiration hazard

No data available

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity	No information available
Other data	No data available
Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID	Not regulated
UN number	-
Marine pollutant	Not applicable
IMDG	Not regulated
Marine pollutant (Sea)	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA	Not regulated
Environmentally Hazardous Substance	Not applicable

Section 15: REGULATORY INFORMATION

International Inventories

EINECS/ELINCS -
TSCA -

Japanese regulations

Fire Service Act	Not applicable
Poisonous and Deleterious	Not applicable
Substances Control Law Industrial Safety and Health Act	Not applicable
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.	Not applicable
Regulations for the carriage and storage of dangerous goods in ship	Not applicable
Civil Aeronautics Law	Not applicable
Pollutant Release and Transfer Register Law	Not applicable
Export Trade Control Order	Not applicable

Section 16: OTHER INFORMATION

Literature and references

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z7252(2010). *JIS: Japanese Industrial Standards

End of Safety Data Sheet