



Next Generation Fluorescence Imaging

Smart Sensor Solutions

General Information

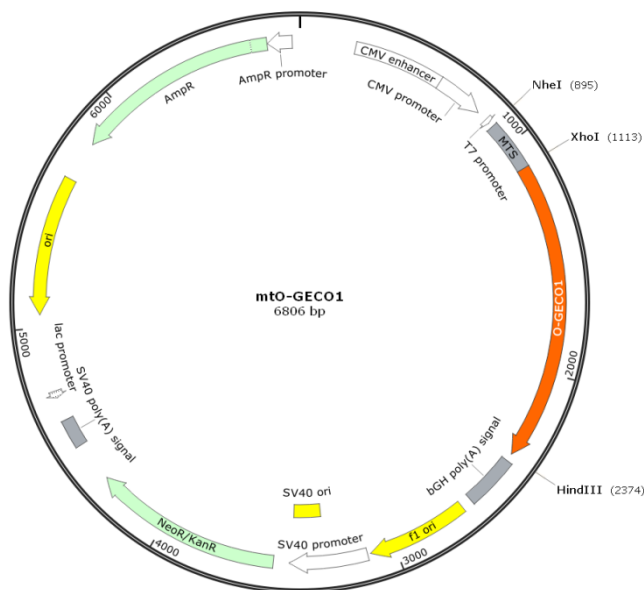
This product is non-toxic, non-contagious and is not intended for human use. The plasmid DNA in the package is synthetic and only for research and development purposes. It does not present any danger for humans, animals or the environment. The product is only for in vitro studies and is not for commercial use.

mtO-GECO1 vector

This vector has not been completely sequenced. All provided information regarding the vector composition was compiled using the information from published literature, other sources together with partial sequences obtained by NGFI.

Vector description

mtO-GECO1 is a genetically encoded orange fluorescent intensiometric probe for imaging Ca^{2+} within the mitochondrial matrix of intact mammalian cells. In order to express mtO-GECO1 in cells of interest, 20 μg of purified endotoxin-free plasmid DNA coding for mtO-GECO1 is provided. The plasmid coding for mtO-GECO1 represents a mammalian expression vector with a strong viral promoter. For plasmid amplification in E.coli ampicillin should be used. 1 – 1.5 μg DNA is required for cell transfection in a single well of a standard 6-well dish following standard transfection procedures. Usually cells express high amounts of mtO-GECO1 24 – 48 hours after cell transfection. Optical filters for imaging OFP at 572/28 nm should be used. The vector can be also used as a source of mtO-GECO1 coding sequence. Flanking restriction sites are convenient for excision of mtO-GECO1 sequence and its further insertion into other expression vectors of choice.



Propagation in E. coli

Suitable host strains for propagation in E. coli include DH5alpha, HB101, XL1-Blue, and other general purpose strains. The vector confers resistance to ampicillin (100 $\mu\text{g}/\text{ml}$) to E. coli hosts.

Note: The higher excitation wavelength of red-shifted Ca^{2+} indicators (> 480 nm) allows a combination with UV-excitable chemical indicators such as fura-2 for simultaneous real-time imaging of Ca^{2+} dynamic within cell organelles and the cytosol in a ratiometric manner.

References

Wu J. (2013) "Improved Orange and Red Ca^{2+} Indicators and Photophysical Considerations for Optogenetic Applications" (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3689190/pdf/cn400012b.pdf>)

Waldeck-Weiermair M. (2015) "Rearrangement of MICU1 multimers for activation of MCU is solely controlled by cytosolic Ca^{2+} " (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4615007/pdf/srep15602.pdf>)

NGFI - Next Generation Fluorescence Imaging GmbH

🏠 Stremayergasse 16/4, 8010 Graz, Austria

☎ +43 316 380 4202

@ sales@ngfi.eu

🌐 www.ngfi.eu

VAT-Number: ATU70385424

Commercial Register: FN 448322y

IBAN: AT631700000109001651

BIC / SWIFT: BFKKAT2K