

LICENSING OPPORTUNITY AND PARTNERING CONDITIONS FOR A NEW REAGENT FOR MITOCHONDRIA STAINING

MITOBLUE

NEW NON-TOXIC, PATENT PROTECTED, BLUE-EMITTING MITOCHONDRIAL STAIN WITH HIGH PHOTOSTABILITY.

- Long exposures maintaining emission intensity.
- Compatible with available stains for multichannel experiments.
- Used also in living cells.
- Extreme resistance to photobleaching allows long exposures or multiple irradiation without loss of emission intensity.
- Simple and easy to use.

Technology offered has been patented:

- **Number:** P201300610.
- **Title:** COMPUESTOS FLUORESCENTES.
- **Date of priority:** June 20th, 2013.

The development of MitoBlue is the result of a long-term research program focused in the development of new fluorescent stains; published in:

- J. Bordello, M. I. Sánchez, M. E. Vazquez, J. L. Mascareñas, W. Al-Soufi, and M. Novo, *Angew. Chem. Int. Ed.*, 2012, **51**, 7541–7544.
M. I. Sánchez, O. Vazquez, J. Martinez-Costas, M. E. Vazquez, and J. L. Mascareñas, *Chem. Sci.*, 2012, **3**, 2383–2387.
M. I. Sánchez, O. Vazquez, M. E. Vazquez, and J. L. Mascareñas, *Chem. Commun.*, 2011, **47**, 11107–11109.
O. Vazquez, M. I. Sánchez, J. L. Mascareñas, and M. E. Vazquez, *Chem. Commun.*, 2010, **46**, 5518–5520.
O. Vazquez, M. I. Sánchez, J. Martinez-Costas, M. E. Vazquez, and J. L. Mascareñas, *Org. Lett.*, 2010, **12**, 216–219.

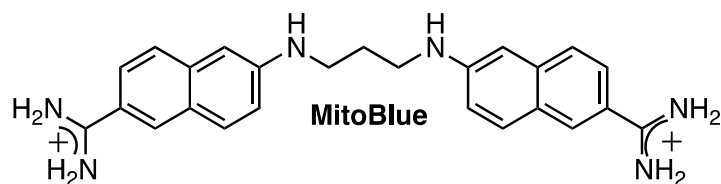
Original Research comes from the [Chemical Biology group](http://www.usc.es/ciqus) at the Center for Research in Biological Chemistry and Molecular Materials, (CIQUS-<http://www.usc.es/ciqus>). CIQUS is a member of the Singular Research Centers Network, a core structure of the Campus of International Excellence– Campus Vida project of USC.

The group is formed by 18 scientists (3 Professors, 1 PhD researcher and 12 predoctoral fellows and 2 technicians). The group has raised 1 million € in the last 5 years in competitive programs of public funding. This technology has produced 1 patent and is being prepared for publication in a high impact journal.



BRIEF DESCRIPTION

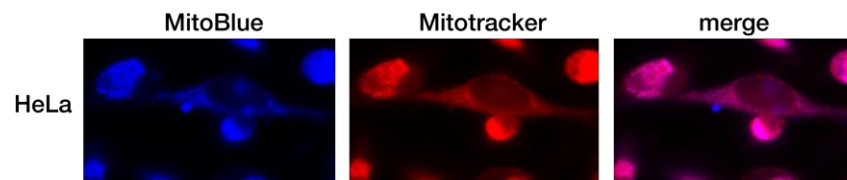
MitoBlue (N^1, N^3 -di(2-aminidonaphthalen-6-yl)propane-1,3-diamine) is a new environment-sensitive, blue-emitting fluorophore, that selectively stains functional mitochondria.



MitoBlue offers an interesting immediate commercial possibility: **Commercialization as an alternative to current commercially available stains.**

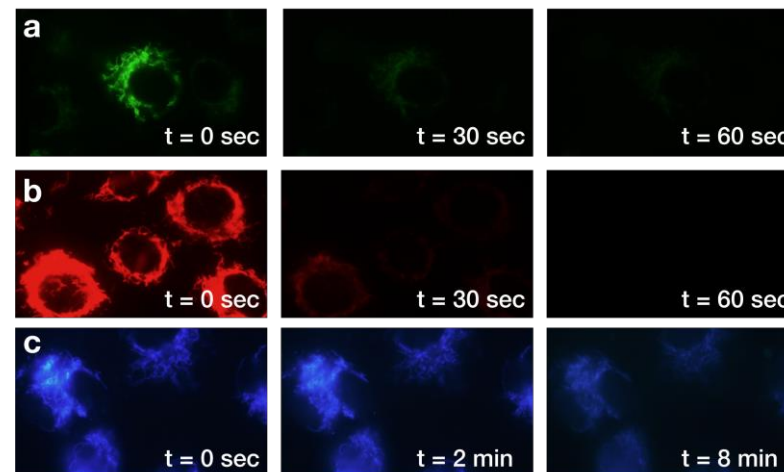
The main selling points are:

- Its emission wavelength in the blue channel (emission maximum at approximately 490 nm) is complementary to green and orange/red stains (Mitotracker dyes).



Double staining of living cells with MitoBlue and Mitotracker Red show clear overlap

- b. In contrast with current stains, MitoBlue is extremely resistance to photobleaching, which allows longer or repeated exposures in long-term experiments.



MitoBlue is more resistant to photobleaching than conventional mitochondrial dyes. Vero cells were incubated for 40 minutes under normal culture conditions with: a) rhodamine 123; b) Mitotracker Red and c) MitoBlue. After extensive washing, the cells were placed in culture medium and subjected to continuous irradiation through the 100X objective of a fluorescence microscope. The pictures were taken at the indicated times.

SUGGESTED USE FOR THIS TECHNOLOGY:

RESEARCH REAGENT

- MitoBlue efficiently and selectively labels functional mitochondria, complementing the emission channels of current dyes. MitoBlue can be used in live or fixated cells.

Examples:

- CytoPainter Mitochondrial Green, Orange and Red staining kits (abcam).
- Chromeo Live Cell Mitochondrial Staining Kit (Active Motif).
- Green, Orange, Red and Deep Red Mitotracker Dyes (Life Technologies).
- Other companies with mitochondrial staining kits; PromoKine, Sigma Aldrich, Santa Cruz Biotech, Bioxys).

ACHIEVEMENTS & RESULTS

- Identification of the basic molecular determinants for mitochondrial localization.
- Identification of a set of simple and efficient labelling conditions.

STUDIES IN PREPARATION

- We are developing new MitoBlue analogs with modified emission properties.
- Currently evaluating the application of MitoBlue in the study of mitochondrial degradation in a number of settings (neurons, aging, etc.).

SUMMARY OF ADVANTAGES

- **Blue** channel emission, **complementary** to currently available stains.
- Non-toxic.
- Compatible with **live cell** and fixated cells.
- High resistance to photobleaching (allowing **long exposures** and repeated irradiation of the samples without degradation of the emitted signal).
- **Easy** to produce.

PARTNERSHIP CONDITIONS

USC is open to different format of partnering modalities, not only limited to the following examples:

a) Non- exclusive license (World wide):

It will be based in a down payment of 15.000 € + patent maintenance costs and royalties from 6 to 9 %

b) Exclusive license for different territories:

Down payment depending size of the market + royalties from 10 to 15 %

c) Exclusive license of the technology (World wide) should be negotiated separately within a conventional format.

Interested companies in use MITOBLUE under their own environment can also request samples of the compound at a price of 300 € (25 mg) + mail cost under MTA agreement.