increased upon ALG-1 O/E, and among the upregulated miRNAs, 8 were also upregulated in long-lived, stress resistant glp-1 mutants, where ALG-1 is also increased. The proteomic analysis revealed differences in proteins related to nucleotide binding, reproduction and DNA mismatch repair – all processes commonly related to aging.
CONCLUSION
Together, these results support the notion that ALG-1 expression can be dynamically modified to confer protection against oxidative stress, contributing to the general healthspan of C. elegans.
Keywords: miRNAs, Oxidative Stress, Metabolism
Supported by: FAPESP

08589 - Poster Session

EB.01 - Melanoma cell migration in response to red and near-infrared low-level light
Carolina Gouvêa de Souza Contatori [1], Mayara Santana Pinto[1], Martha Simões Ribeiro[1]
[1]CELAP, Nuclear and Energy Research Institute (São Paulo, Brazil)

INTRODUCTION
Cell migration plays an important role in tissue formation and cancer progression. In vitro scratch assay has been used for many years to study cell migration to mimic the migration of in vivo cells, and, thus, to evaluate cancer growth. Low-level red and near-infrared light (LLL) can increase normal cell migration. However, the impact of LLL on tumor cells remains unclear.
OBJECTIVES
In this work, we aimed to evaluate the effects of a single LLL dose on melanoma cell migration.
MATERIALS AND METHODS
B16F10 (murine melanoma) cells were cultivated in RPMI medium with 10% of fetal bovine serum until they reached 80% confluency. The cell line was seeded in a 6-well plate at a density of $2x10^5$ cells/well in triplicate at two different moments. A wound scratch was performed to disrupt the confluent cell monolayer with a 10 μL pipette tip. Immediately after the injury, the cells were submitted to the LLL at two distinct wavelengths (660 and 780 nm) provided by a LED and a laser, respectively, delivering 3 different energies (1.3, 3.6, and 6 J) at an irradiance of 4.2 mW/cm^2. The control group was not irradiated. Cells were photographed immediately and at 3, 12, 24, and 36 h after the scratch. The wound closure was measured using ImageJ software. To evaluate the overall migration, we calculated the areas under the curve for each group.
DISCUSSION AND RESULTS
Cells exposed to the red laser at 6 J migrated slower than control. In contrast, LLL at 780 nm promoted faster cell migration when irradiated with 3.6 J.
CONCLUSION
These results suggest that low-level LEDs at 660 nm could prevent melanoma progression in higher energies. However, 780 nm should be avoided at middle energies.
Keywords: Melanoma, Photobiomodulation therapy, Scratch-wound assay
Supported by: CNPq and CAPES

08700 - Poster Session

EB.02 - Mechanisms of membrane protection by deuterated PUFA
Márcia Silvana Freire Franco [1]
[1]Departamento de Bioquímica, Universidade de São Paulo - Instituto de Química (São Paulo, Brasil), [2]Departamento de Física Aplicada, Universidade de São Paulo - Instituto de Física (São Paulo, Brasil), [3]Drug Discovery, Retrotope (Califórnia , United States)

INTRODUCTION
Polyunsaturated fatty acids (PUFAs) constitute one of the most abundant and important components found in membrane bilayers. PUFAs stabilize protein complexes and modulate membrane properties, ensuring homeostasis of organelles and cells. However, PUFAs are highly susceptible to oxidative damage through lipid peroxidation (LPO) chain reaction which triggers atherosclerosis, cancer and neurodegenerative diseases. Selective hydrogen replacement of bis-allylic PUFA hydrogens by deuterium offers protection against LPO, but the protection mechanism is not fully understood.
OBJECTIVES
To understand the protection mechanism by deuterium substitution, Giant Unilamellar Vesicles (GUV) were prepared with H-Lin-PC, in the presence of small amounts of D-PUFAs.
MATERIALS AND METHODS
We analyzed photo-induced oxidation in the presence of 1μM of Al(III) Phthalocyanine tetrasulfonic acid chloride. The initial steps of the membrane oxidation, which consists of lipid hydroperoxidation by singlet oxygen, are characterized by fluctuations and area expansion of the GUVs. Membrane permeabilization results from further oxidation steps, forming lipid truncates aldehyds.
DISCUSSION AND RESULTS
We show that the presence of 20% of D-PUFA in the 80%of H-Lin-PC matrix of vesicles, prevents substantially the fluctuation/area increase, and the loss of contrast. The presence of tocopherol, following the same proportion of D2-PUFA-PC in H-Lin-PC, is effective in preventing the formation of pores/membrane permeabilization, however it does not inhibit the formation of hydroperoxides, resulting in area fluctuation and increase.
CONCLUSION
These findings demonstrate that a small proportion of D-PUFAs is sufficient for the protection of both contact-dependent and contact-independent oxidation processes. Deuterium reinforced lipids offer membrane protection and the relief of the oxidative stress, mitigating several diseases.
Keywords: Lipid peroxidation, Giant Unilamellar vesicles, Deuterium reinforced lipids
Supported by: FUSP - RETROTOPE

08905 - Poster Session

EB.03 - Effects of photodynamic inactivation mediated by Zn(II) porphyrin on promastigote and amastigote forms of Leishmania amazonensis
Tiago Henrique dos Santos Souza [1,5], Camila Andrade[1], Fernanda Cabral[2], José Sarmento-Neto[3], Júlio Rebouças [3], Beate Santos[4], Martha Ribeiro[2], Regina Figueiredo[5], Adriana Fontes[1]
[1]Departamento de Biofísica e Radiobiologia, Universidade Federal de Pernambuco (Pernambuco, Brazil), [2]Centro de Lasers e Aplicações, Instituto de Pesquisas Energéticas e Nucleares (São Paulo, Brazil), [3]Departamento de Química, Universidade Federal da Paraíba (Paraíba, Brazil), [4]Departamento de Ciências Farmacêuticas, Universidade Federal de Pernambuco (Pernambuco, Brazil), [5]Instituto Aggeu Magalhães, Fundação Oswaldo Cruz (Pernambuco, Brazil)

INTRODUCTION
Photodynamic inactivation (PDI) has been attracting attention as an innovative technology to treat topical diseases, such as cutaneous leishmaniasis (CL) and infections caused by multidrug-resistant microorganisms. Zn(II) *meso*-tetrakis(*N*-n-hexylpyridinium-2-yl)porphyrin ($ZnTnHex\text{-}2\text{-}PyP^{4+}$) is a lipophilic water-soluble Zn(II) porphyrin with improved photophysical properties, high chemical stability, and cationic/amphiphilic character that can enhance its interaction with cells.