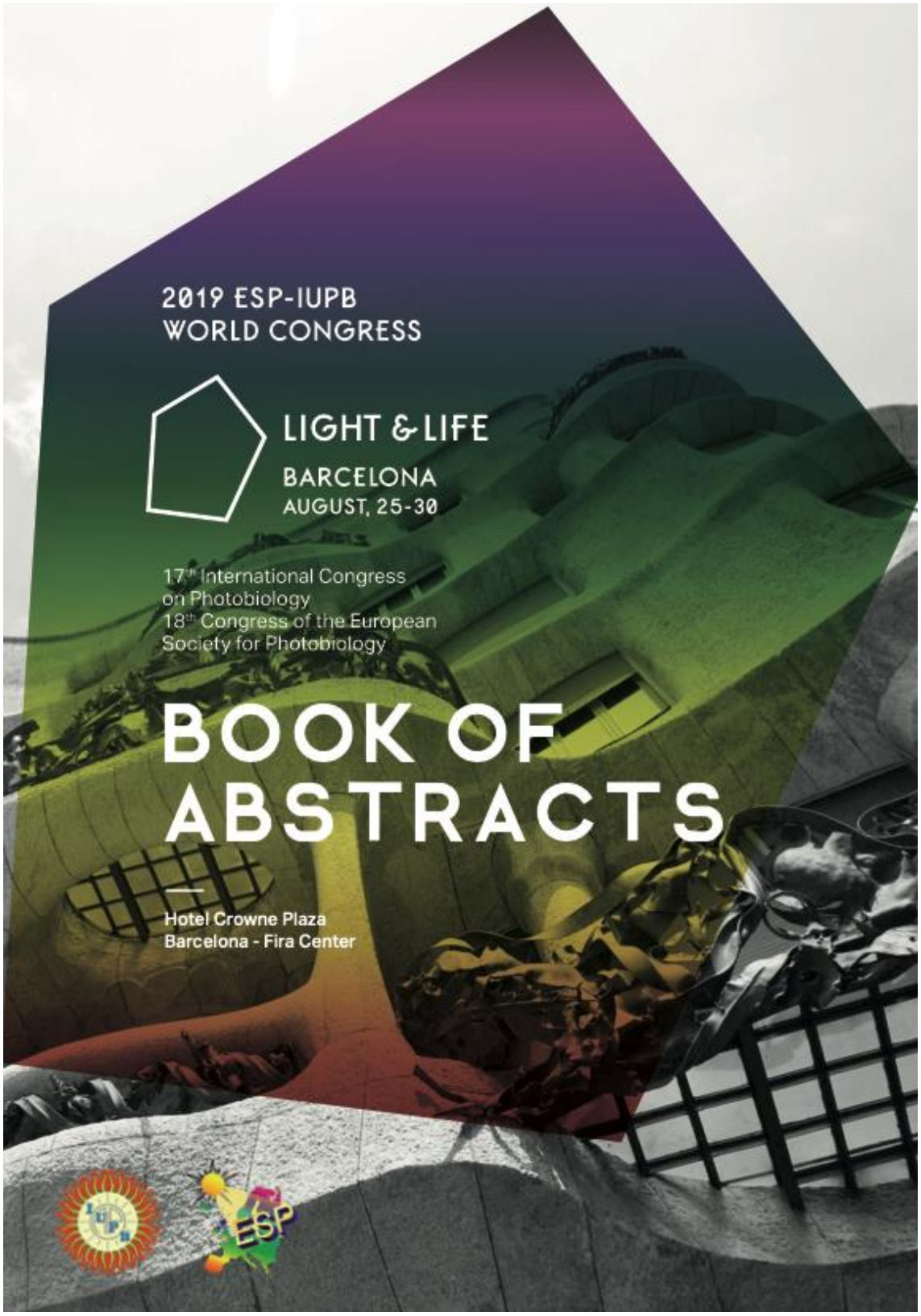
2019 ESP-IUPB
WORLD CONGRESS
LIGHT & LIFE
BARCELONA
AUGUST, 25-30
17th International Congress
on Photobiology
18th Congress of the European
Society for Photobiology
BOOK OF
ABSTRACTS
Hotel Crowne Plaza
Barcelona - Fira Center
ESP

LIGHT & LIFE
BARCELONA
AUGUST, 25-30

2019 ESP-IUPB
WORLD CONGRESS

17th International Congress
on Photobiology
18th Congress of the European
Society for Photobiology

Congress Chairs

Prof. Santi Nonell
President, European Society for Photobiology
IQS School of Engineering, University Ramon Llull,
Barcelona, Spain

Prof. John L. Spudich
President, International Union of Photobiology
University of Texas Health Science Center at Houston,
USA

Scientific Organizing Committee

Santi Nonell (Barcelona, Spain)
John Spudich (Houston, USA)
Rex M. Tyrrell (Bath, UK)
Evelyne Sage (Paris, France)
Francesco Ghetti (Pisa, Italy)
Franz Trautinger (St. Pölten, Austria)
Miguel A. Miranda (Valencia, Spain)
Kristian Berg (Oslo, Norway)
Ann Webb (Manchester, UK)
Massimo Trotta (Bari, Italy)
Silvia E. Braslavsky (Mülheim, Germany)

Organizers

European Society for Photobiology
https://www.photobiology.eu

International Union of Photobiology
http://www.iuphotobiology.org/

Local Organizing Committee

Santi Nonell
Montserrat Agut
Diego de Argila
Yolanda Gilaberte
Amadeu Llebaria
Maria Lluïsa Sagristá

Symposium Organizers

Noam Adir
Margaret Ahmad
Emilio Alarcón
Carlos Baliaré
Maurício Baptista
Mario Blumthaler
Janet F. Bornman
Ellen Bruzell
Theresa Busch
Scott Byrne
Sebastiano Campagna
John Christie
Gonzalo Cosa
Richard Debus
Thierry Douki
Oliver Ernst
Mark Farrar
Félix Figueroa
Celine Frochot
Wolfgang Gärtner
Alec Greer
Michael R. Hamblin
Peter Hegemann
Belinda Heyne
Alistair M.Hetherington
Éva Hideg
Sally Ibbotson
Gareth Jenkins
Hideki Kandori
Diana Kirilovsky
Mladen Korbelik
J. Clark Lagarias
Lionel Larue
Giovanni Leone
Virginie Lhiaubet-Vallet
Norbert Lange
Henry W. Lim
Amadeu Llebaria
Aba Losi
Harvey Lui
Sandy MacRobert
Tim Maisch
Antonio Monari
Ana Moore
David Somers
Qian Peng
Julia Pérez-Prieto
Kristjan Plaetzer
Elena Reddi
Joan Roberts
Yolanda Solà
Eleni Stavrinidou
Kaoru Sugasawa
Akihisa Terakita
Wim Vermaas
Rachel Watson
Sebastian Westenhoff
Peter Wobrauschek
Dongping Zhong

> P083. Poster

Symposium PDT-6 PDT and oxygen (Theresa Busch)

HUMAN LEUKEMIA CELLS PHOTOINACTIVATION EMPLOYING AN ANTHRAQUINONE FROM ARGENTINIAN FLORA

Authors: María Laura Mugas[1,2], Gustavo Calvo[1], Juliana Marioni[2], Pablo Vallecorsa[1], Mariela Céspedes[1], Daniel Sáenz[1], Gabriela di Venosa[1], Susana Núñez Montoya[3], Adriana Casas[1]

Presenting Author: Adriana Casas

1) Centro de Investigaciones sobre Porfirinas y Porfirias (CIPYP) CONICET-Htal de Clínicas José de San Martín - University of Buenos Aires, Argentina 2) Dpto. de Cs. Farmacéuticas, Facultad de Ciencias Fisicoquímicas,Universidad Nacional de Córdoba, Argentina 3) Instituto Multidisciplinario de Biología Vegetal, IMBIV, CONICET, Córdoba, Argentina

Parietin (PTN), an anthraquinone (AQ) found in some vegetal species even lichens, has been shown to be a good photosensitizer with promising applications in bacterial photoinactivation[1]. The aim of this work was to evaluate the *in vitro* activity of PTN as photosensitizer on K562 human leukemic cells; in order to estimate its potential use in Photodynamic Cancer Therapy (PDT).

PTN (1,8-dihydroxy-3-methoxy-6-methylanthraquinone) was isolated from the lichen *Teoloschistes nodulifer* (Nyl.) Hillman (Teloschistaceae) and it was purified by recrystallization from the acetone extract, and its purity was determined by HPLC.

Employing human leukemic K562 cells, we determined: a) PTN maximum non-cytotoxic concentration (MNCC on darkness conditions)[2]; b) incorporation time (1 h-24 h); c) incorporation mechanism (passive or active transport); d) LD_{50}: light dose inducing 50% of cell death after PDT treatment (MNCC of PTN, irradiation time ≤ 30 min) and e) cell cycle analysis after PDT in order to estimate the cell death mechanism. The results of experiments a) to d) were obtained by means of cellular viability measure, by employing the MTT colorimetric assay[3], and experiment e) by flow cytometry analysis, using propidium iodide staining. K562 cells were used at semi confluency, PTN was prepared in RPMI medium with DMSO ≤ 1% and the irradiation doses were adjusted employing different times of exposition to a light system, which consisted in 2 blue compact fluorescent lamps (Sica, 15 W).

PTN (purity of 91.2 ± 0.2%) presented a MNCC of 30 μM on K562 cells. Since little difference was observed between 1 h and 24 h incorporation, the optimal incubation time of PTN was set as 1 h. Passive transport seems to be the main mechanism involved in PTN entry to the cells, since not significant differences were observed between incorporation at 4 and 37°C. After illumination of K562 cells exposed to PTN, the LD_{50} was 1,39 J/cm^2 (5 min), and cell cycle analysis suggested that apoptosis was involved in PTN-PDT treatment (55 %). Therefore, this natural AQ produced photo-destruction of leukemic cells, at non- cytotoxic concentrations employing visible light.

The results of this work confirm the potential use of parietin in PDT, supporting the recommendations of the World Health Organization to revalue phytomedicine and consider the healing properties of the country\'s flora. Currently, we are carrying out studies of PTN-PDT on cell lines of solid tumors, as well as in non-tumor cells.

References

1- Comini L., Morán Vieyra F., Mignone R., et al., Photochem. Photobiol. Sci., 16, 201, 2017.

2- Liu A., Shu S., Qin H., Lee S., Wang Y., Du G., Planta Med., 75, 137, 2009.

3- Denizot F, Lang R., J. Immunol. Methods., 89, 271, 1986.