IN VITRO PHOTODYNAMIC THERAPY ON OCULAR MELANOMA CELLS (TG Guimarães[1,2,3], GTAP Carvalho[4], FV Mamede[4], KM Cardoso[1,2], CM Marto[1,3,5], R Teixo[1,3,5], NAM Pereira[6], M Pineiro[6], TMVD Pinho e Melo[6], NML Alexandre[2,7], MF Botelho[1,3,5] and M Laranjo[1,3,5]) [1]University of Coimbra, Coimbra Institute for Clinical and Biomedical Research (iCBR) area of Environment Genetics and Oncobiology (CIMAGO) and Institute of Biophysics, Faculty of Medicine, Coimbra, Portugal;[2]University of Évora, Mediterranean Institute for Agriculture, Environment and Development (MED), Évora, Portugal;[3]University of Coimbra, Center for Innovative Biomedicine and Biotechnology (CIBB), Coimbra, Portugal;[4]OftalmocenterVet, Ribeirão Preto, SP, Brazil;[5]Clinical Academic Center of Coimbra (CACC), Coimbra, Portugal;[6]Coimbra Chemistry Centre (CQC) and Department of Chemistry, University of Coimbra, Portugal;[7]Department of Veterinary Medicine, School of Sciences and Technology, University of Évora, Évora, Portugal.

Purpose. To evaluate the effect of newly developed Ring-fused chlorins on cell proliferation of ocular melanoma. **Methods.** Human cell line MP-41 and a canine primary culture were subjected to the photosensitizers at concentrations between 0,5-1000 nM for 24 hours. The cells were irradiated with 10J (ƛ>570nm). Control groups included: untreated cells and cells submitted only to the administration vehicle (dimethylsulfoxide). The cytotoxicity (MTT) assessment was performed 24 hours after photodynamic therapy (PDT). **Results.** The dihydroxymethyl ring-fused chlorin (PS1) was the most active, with an IC_{50} value of 95.1 nM. The dihydroxymethyl-Pt(II) ring-fused chlorin (PS3) also showed promising photodynamic activity with an IC_{50} value of 114.8nM in MP-41 cells. These chlorins also showed highly satisfactory results in canine cells, with IC_{50} of 0.6nM for the PS1 and 2.2 nM for PS3. The dicarboxylic acid ring-fused chlorin (PS2) and dicarboxylic acid Pt(II) ring-fused chlorin (PS4) were less efficient in both ocular melanoma cells. PDT had a direct effect on ocular melanoma cell metabolic activity. High activity was obtained at very low concentrations. **Conclusion.** Satisfactory outcomes were achieved using new photosensitizers, particularly PS1 and PS3. The photosensitizers used are promising, particularly PS1 and PS3. This approach might become an option in treating eye melanoma in medicine and veterinary medicine. Supported by FCT, Portugal, SFRH/BD/139319/2018, SFRH/BD/116794/2016, UID/NEU/04539/2019, UIDB/04539/2020, UIDP/04539/2020 and POCI-01-0145-FEDER-007440. **None.**