



Assessing Radiobiological Effects of Low Doses of Ionizing Radiation on Zebrafish by Bidimensional Gel Electrophoresis

Lemos J¹, Costa P¹, Cunha L^{1,3}, Campos A², Carvalho AP², Vasconcelos V², Genésio P⁴, Ponte F⁴, Costa PS⁴, Crespo P⁵, Metello LF^{1,3}

1 – Nuclear Medicine Dept, High Institute for Allied Health Technology of Polytechnic Institute of Porto (ESTSP.IPP), 4400-330 Vila Nova de Gaia, Portugal;

2 – Biology Dept, Sciences Faculty, CIIMAR, Univ. of Porto, 4050-123 Porto, Portugal;

3 – IsoPor SA, 4445-526 Ermesinde, Portugal;

4 – Julio Teixeira SA, 4460-188 Porto, Portugal;

5 – LIP, Physics Dept, Univ of Coimbra, 3004-516 Coimbra, Portugal;

Aim: This paper relates with a specific task from a larger research project oriented to the development and application of the Zebrafish – *Danio rerio* – to the study of radiobiological effects of medical diagnostic level – low doses – of ionizing radiation.

Introduction: Studies on biological effects of ionizing radiation using animal models are considered of extreme importance when trying to overcome limitations founded when trying to extrapolate results obtained from *in vitro* cell cultures studies to *in vivo* processes. In recent years, the use of Zebrafish has grown considerably, pointing more and more as a very interesting model in biomedical research, essentially because of the full knowledge of its genome and the level of homology that it shares with the human genome, all this complemented by a very easy and affordable practical side. Based on these advantageous properties, its potential for radiobiology studies deserves each day more attention from researchers worldwide.

On other hand, proteomic analysis is a powerful tool to investigate the cellular response to injuries, such as those caused by ionizing radiation. The bidimensional gel electrophoresis (2DE) is a method used for the analysis of complex protein mixtures from biological samples. This method allows the detection of differences in protein expression under different conditions, so allowing creating relations between those differences and the irradiations that were in their basis and has been elected for this fact.

Material and Methods: This work used a population of circa 300 animals, divided in four groups and externally irradiated with three distinct protocols, with the acute biological effects of doses ranging around 100 mGy being studied using two-dimensional gel electrophoresis (2DE).

Results and Conclusion: The results obtained will be presented and discussed, including the presentation of some (attempts of) explanations.

Corresponding author: lfm@estsp.ipp.pt



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