Caenorhabditis elegans as a model to investigate the FLASH effect in protontherapy

Created on: 22-08-2023 - Last modified on: 05-09-2023

Contact person

Lucas Schoenauen

Organisation

Name of the organisation Université de Namur (UNamur)
Department Physics
Country Belgium

SCOPE OF THE METHOD

The Method relates to	Human health
The Method is situated in	Basic Research, Education and training, Translational - Applied Research
Type of method	In vivo
Used species	Caenorhabditis elegans

DESCRIPTION

Method keywords

Caenorhabditis elegans
C. elegans
Radiotherapy

Scientific area keywords

Cancer therapy
Protontherapy
FLASH

Method description

UHDR irradiations show healthy tissue sparing effect known as the FLASH effect. Since 2014, the FLASH effect is investigated worldwide to understand how it works and how to trigger it. The FLASH effect is defined as an *in vivo* effect. However, *in vivo* models are often expensive and time-consuming. There-fore, we wanted to use a simple, easy to manipulate but still relevant *in vivo* model. C. elegans was selected because of the extensive available literature and its ease of maintenance. After irradiation of C. elegans embryos, a growth delay can be observed on surviving worms.

Lab equipment

- Irradiation set-up (protons, XR, electrons, etc.),
- Basic biology lab equipment.

Method status

Still in development

PROS, CONS & FUTURE POTENTIAL

Advantages

- Easy to manipulate
- Small *in vivo*

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

Coordinated by

Financed by