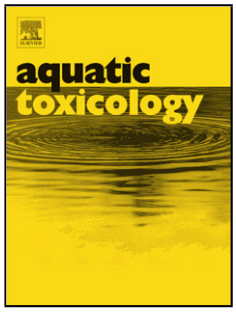

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Tritiated water exposure disrupts myofibril structure and induces mis-regulation of eye opacity and DNA repair genes in zebrafish early life stages

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Highlights

- Zebrafish larvae were exposed to 0.4 and 4 mGy/h of tritiated water (HTO) during 96h.
- Molecular, tissular and individual responses were searched.
- HTO exposure led to mis-regulation of genes involved in muscle contraction and eye opacity in 24 hpf zebrafish embryos.
- Electron microscopy observations showed sarcomeres structure disruption in 96 hpf zebrafish larvae.
- HTO exposure led to implementation of DNA damages response mechanisms in both stages at 4 mGy/h.
- A mRNAseq analysis showed an opposite pattern of expression between the two HTO dose rates.

Abstract

Tritium (^{3}H) is a radioactive isotope of hydrogen. In the environment, the most common form of tritium is tritiated water (HTO). The present study aimed to identify early biomarkers of HTO contamination through the use of an aquatic model, the zebrafish (*Danio rerio*). We used the zebrafish embryo-larvae model to investigate the modes of action of HTO exposure at dose rates of 0.4 and 4