



- Clear evidence that **low dose radiation** < 1 Gy causes changes associated with **cataract** in mouse models and human LEC
- **Radiation dose, dose rate, age, sex** and **genetic background** all contribute to cataract development, with **significant interaction effects** detected between these factors
- New data on cataract detection and classification, and an indication that **early lens changes** may be better characterized as **tissue reactions** (clear threshold), whereas **longer term changes** are better described as **stochastic** ...
- New data on the association between radiation effects in the lens and wider systemic effects, including in the brain and on behaviour
- 16 peer review publications in total, many presented in the Jan 2022 Radiat Res Focus Issue (open access): <https://doi.org/10.1667/RADE-21-00188.1>



Ainsbury *et al.*, 2021 (10.1016/j.envint.2020.106213) and Ainsbury *et al.*, 2022 (LDLensRad commentary):

The lens question is not solved!

There is a particular need for:

- More work on low dose and dose rate mechanisms (inverse dose rate effect for some endpoints...)
- Age, sex, genotype as experimental factors or to be controlled
- Phenotypes to be further investigated: stochastic or tissue reaction...
- Tissues in the eye other than the lens, e.g. retina and glaucoma
- Link between lens and wider systemic effects -> wider programmes of research
- Ideally, prospective molecular epidemiology, with novel characterisation...



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Melodi: <https://melodi-online.eu/>

LDLensRad:

<https://www.researchgate.net/project/LDLensRad-the-European-CONCERT-project-starting-in-2017-Towards-a-full-mechanistic-understanding-of-low-dose-radiation-induced-cataracts>