Liz Ainsbury: EU LDLensRad
Headline results

• 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](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…

¹Public Health England, Centre for Radiation, Chemical and Environmental Hazards, Oxford, United Kingdom; ²Southern Urals Biophysics Institute, Clinical Department, Chelyabinsk, Russian Federation; ³University of Pavia, Physics Department, Pavia, Italy; ⁴Helmholtz Zentrum München, German Research Center for Environmental Health, Institute of Developmental Genetics, Neuherberg, Germany; ⁵Memorial Sloan Kettering Cancer Center, Departments of Medical Physics and Radiology, New York, United States; ⁶Agenzia Nazionale Per Le Nuove Tecnologie, L’energia e Lo Sviluppo Economico Sostenibile, Rome, Italy; ⁷Guglielmo Marconi University, Department of Radiation Physics, Rome, Germany; ⁸Indiana University School of Medicine, Department of Radiation Oncology, Indianapolis, United States; ⁹Central Research Institute of Electric Power Industry, Nuclear Technology Research Laboratory, Tokyo, Japan; ¹⁰Technical University, Munich, Germany; ¹¹Federal Office for Radiation Protection, Neuherberg, Germany; ¹²Durham University, School of Biological and Biomedical Sciences, Durham, United Kingdom; ¹³Oxford Brookes University, Department of Biological and Medical Sciences - Faculty of Health and Life Sciences, Oxford, United Kingdom.
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Elizabeth A. Ainsbury a,1, Claudia Dalke b,1, Nobuyuki Hamada c,1, Mohamed Amine Benajdaoud d, Vadim Chumak e, Merce Ginjaume f, Judith L. Kok g, Mariateresa Mancuso h, Laure Sabatier i, Lara Struelens j, Juliette Thariat k,1, Jean-René Jourdain d,*

a Public Health England (PHE) Centre for Radiation, Chemical and Environmental Hazards, Oxon, United Kingdom
b Helmholtz Zentrum München GmbH, German Research Center for Environmental Health, Germany
c Radiation Safety Research Center, Nuclear Technology Research Laboratory, Central Research Institute of Electric Power Industry (CRIEPI), Tokyo, Japan
d Institut de Radioprotection et de Sûreté Nucléaire (IRSN), BP 17, 31 avenue de la division Leclerc, Fontenay-aux-Roses, France
e National Research Centre for Radiation Medicine, Ukraine
f Universitat Politècnica de Catalunya, Spain
g Princess Máxima Center for Pediatric Oncology, Utrecht, the Netherlands
h Laboratory of Biomedical Technologies, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, (ENEA), Rome, Italy
i Commissariat à l’Energie Atomique et aux Energies Alternatives, Saclay, France
j Belgian Nuclear Research Centre, Mol, Belgium
k Laboratoire de physique corpusculaire IN2P3/ENSICAEN –UMR6534 – Unicaen – Normandie University, France
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Liz.Ainsbury@phe.gov.uk

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