

Factors Governing the Individual Response of Humans to Ionising Radiation

The draft report of ICRP TG111

Consultation webinar
9 April 2026

Our presentations

- 12:00 – Welcome and introduction – Simon Bouffler
- 12:10 – Early/late developing normal tissue reactions following radiotherapy – Andrzej Wojcik/Catharine West
- 12:20 – Circulatory diseases – Preetha Rajaraman
- 12:30 – Cataract – Nobby Hamada
- 12:40 – Cognitive impairment – Claudia Rübe
- 12:50 – Human studies on cancer – Kyoji Furukawa
- 13:00 – Experimental animal studies on cancer – Tatsuhiko Imaoka
- 13:10 – Assessment of uncertainties and confidence in conclusions
- 13:20 – Report conclusions
- 13:30 – Open discussion
- 14:00 – Meeting close



Membership

Simon Bouffler (Chair)

Kyoji Furukawa

Michael Hauptmann

William McBride

Claudia E. Ruebe

Catharine West

Stephen Barnard (Mentee)

Weiwei Pei (Mentee)

Prabal Subedi (Mentee)

Michel Bourguignon

Nobuyuki Hamada

Tatsuhiko Imaoka

Preetha Rajaraman

Dan Stram

Andrzej Wojcik

Julie Leblanc (Mentee)

Andreas Breitbarth (Mentee)

Sasha Jande (Mentee)

Terms of reference

The TG will review the currently available information on individual responses with special focus on the following questions and issues:

- What is the impact of age, sex and other determinants on normal tissue reactions and incidence of cancers and other diseases following radiation exposure?
- What is the contribution of genetics to individual normal tissue responses with respect to adverse reactions to varying radiation doses as given during radiotherapy?
- Would predictive tests contribute to better radiation protection of radiotherapy patients without compromising cure rates?
- What is the contribution of genetics and epigenetic factors to tissue radiation response with respect to cancer induction at relevant doses and dose rates?
- What is the evidence that modifiable factors can affect individual risk of radiation-induced cancers, tissue reactions and other non-cancer diseases?
- What are the ways to quantify the potential impact of individual response to radiation on the incidence of cancers, non-cancer diseases and normal tissue reactions?

Literature review - no consideration of the implications for RP

Scope

Health effects under consideration:

- Normal tissue reactions after radiotherapy
- Cancers
- Circulatory diseases
- Cataract
- Cognitive impairment

Types of evidence/study under consideration:

- Clinical studies
- Epidemiological studies
- Experimental animal studies
- Cellular assays

Importance of the topic

Currently the system of radiological protection aims to:

- **Avoid tissue injury (deterministic effects)**
- **Minimise risk of stochastic effects (cancer/hereditary)**
 - **justification, optimisation, dose limitation**
 - **limits derived from notional average that does not exist**

Potential contributors to variation in response

- **Genetic factors**
- **Epigenetic modifications**
- **Lifestyle factors**
- **Co-exposures**
- **Underlying health conditions**
- **Stochasticity of responses**
- **.....**

Consultation draft

- **Approx 200 pages of text**
- **Numerous references – 56 pages worth!**
- **Posted for public consultation February 2026**
- **Consultation open until 1 May 2026**
- **Webinar today!**

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