



Workshop on Adverse Outcome Pathways (AOP) for radiation effects (12 to 16 April 2021, (every afternoon).

Workshop objective

The concept of AOP is a new concept for radioprotection research that has originally been proposed and developed for the assessment of the toxicity of chemical stressors with an overall goal to aid regulation based off mechanistic knowledge of biological effects. Promoted and coordinated by the OECD, the AOP concept has been considered of value to radioprotection research that can help reconcile knowledge within radiation biology and epidemiology. The workshop's main objective is to enhance awareness of and trigger interest in the AOP concept among those involved in radioprotection research. We therefore plan an in-depth immersion in the topic starting from the introduction to detailed coverage of the concept and to hands-on sessions during which specific AOPs will be proposed.

Preliminary program

Session 1: Refresher Session: principles of AOPs arranged by the OECD AOP group (Magdalini Sachana) – Monday 12 April (13h00-17h30)

Objectives: To introduce the concept and all basic principles of AOP and qAOP to a novice; To introduce the AOP Knowledge Base and its components, as well as the process of validation; To explain how AOP is expected to help radioprotection

Session organised by the OECD AOP program

Session 2: Use of AOP for risk assessment and risk management – Tuesday 13 April (14h30-16h30)

Objectives: To introduce expectations of how AOP should be used; To present examples of current use in regulation (e.g. skin sensitization); To give an overview of perspectives of AOP for radioprotection (how dose limits are defined)

Moderators: Andrzej Wojcik, Knut Erik Tollefsen

Session 3: Existing radiation AOPs and what AOPs need to be developed next – Tuesday 13 April (16h30-18h30)

Objectives: To present radiation AOPs submitted to AOPwiki; To discuss/propose criteria for selecting radiation AOPs for developing in the near future

Confirmed speakers: Vinita Chauhan, Olivier Armant

Moderators: Dominique Laurier, Nele Horemans



Session 4: AOPs for chemicals and IR: what are the similarities and differences – Wednesday 14 April (13h00-16h30)

Objectives: To present a balanced overview of what is common and what is different between chemical and radiation AOPs, with examples; To discuss what biology or exposure scenarios (or other factors) underlie the differences; To discuss how does this affects approaches towards developing radiation AOP

Confirmed speakers: Knut Erik Tollefsen

Moderators: Donald Cool, Rodolphe Gilbin

Session 5: Usefulness of AOP to identify knowledge gaps and define research priorities - Wednesday 14 April (16h30-18h30)

Objectives: To present the weight of evidence, how it is produced and how it can guide identification of knowledge gaps and set research priorities ; To present examples from chemical and radiation AOPs

Moderators: Magdalini Sacchana, Vinita Chauhan

Session 6: Systems Biology approach as a tool for developing AOPs - Thursday 15 April (14h30-17h30)

Objectives: To present Systems Biology as a tool in the context of AOP development; To provide an overview of methods available, including machine learning and statistical methods; To present successful examples of using these tools in AOP development

Confirmed speakers: Christian Kaiser, Karine Audouze

Moderators: Dmitry Klovov, Christian Kaiser

Hands-on sessions (upon invitation) – Tuesday 12 to Thursday 15 April (13h00-14h30) + Friday 16 April (13h00-17h30)

Discussions about the development of specific AOPs will be proposed for two relevant adverse outcomes for radiation effects (one on cancer; one on non-cancer of interest for both human and ecosystems).



Scientific committee

ADAM-GUILLERMIN Christelle (Local organizing committee, IRSN)

ARMANT Olivier (Local organizing committee, IRSN)

AUDOUBE Karine (Université Paris Descartes)

BARQUINERO Francesc (Autonomous University of Barcelona)

CHAUHAN Vinita (Health Canada)

COOL Donald (EPRI)

GARNIER-LAPLACE Jacqueline (OECD/NEA)

GILBIN Rodolphe (Local organizing committee, IRSN)

GOMOLKA Maria (BfS)

GUEGUEN Yann (Local organizing committee, IRSN)

HAMADA Nobuyuki (CRIEPI)

HOREMANS Nele (SCK.CEN)

KAISER Christian (Helmholtz-Muenchen)

KLOKOV Dmitry (Local organizing committee, IRSN)

LAURENT Olivier (Local organizing committee, IRSN)

LAURIER Dominique (IRSN, OECD/NEA/HLG-LDR)

LUUKKONEN Jukka (University of East Finland)

MAGDALINI Sachana (OECD)

QUINTENS Roel (SCK-CEN)

ROY Laurence (Local organizing committee, IRSN)

TOLLEFSEN Knut-Erik (NIVA CERAD)

WOJCIK Andrzej (Stockholm University)