



Highlights from Autumn 2025

Daylight hours are shortening here in Lyon, which means it is time for the final *IARC Monographs* newsletter of the year. On this page are calls for data and experts for newly announced [Meeting 143](#) on cannabis smoking, which was recommended for evaluation with high priority by our [Advisory Group](#).

On [p. 2](#), we present the results of Meeting 140, in which pesticides were evaluated for the first time in 10 years. The herbicides atrazine and alachlor were classified in Group 2A and the fungicide vinclozolin in Group 2B. Two early career scientists who joined Meeting 140 describe highlights of their experience on [p. 4](#).

Our feature article on [p. 3](#) provides key background on the main objectives of cancer hazard identification and how it differs fundamentally from risk assessment.

We also announce ([p. 5](#)) the publication of the full Volume 136, [Talc and Acrylonitrile](#).

In Issue [No. 12](#), we introduced celebrations underway for the 60th anniversary of the founding of IARC, culminating in a major scientific conference for IARC@60 – Cancer Research into Action – to take place on 19–21 May 2026 here in Lyon. The [call for abstracts](#) is open until 12 January. Don't miss out on your chance to take part in this exciting event!

Mary Schubauer-Berigan

Call for Data

IARC is interested in identifying studies that are relevant to the carcinogenicity of the agents that will be reviewed in each volume. This includes all pertinent cancer epidemiology studies, cancer bioassays, and mechanistic evidence in both exposed humans and experimental systems. Eligible studies should be published or accepted for publication in the openly available scientific literature. Relevant exposure data (particularly from low- and middle-income countries) that are or can be made publicly available are also requested. Please see the [IARC Monographs Preamble](#) for details of the types of study that may be reviewed.

The **Call for Data** and **Call for Experts** are announced approximately 1 year before the meeting on the [IARC Monographs website](#).

Meeting 141: Tris(chloropropyl)phosphate, butyraldehyde, and cumyl hydroperoxide

Meeting dates: 3–10 March 2026

[Call for Data](#) closing date: 2 February 2026

[Call for Experts](#) CLOSED: 2 June 2025

Meeting 142: Butyl benzyl phthalate, dibutyl phthalate, and diisononyl phthalate

Meeting dates: 9–16 June 2026

[Call for Data](#) closing date: 10 May 2026

[Call for Experts](#) CLOSED: 10 August 2025

Meeting 143: Cannabis smoking

Meeting dates: 3–11 November 2026

[Call for Data](#) closing date: 10 October 2026

[Call for Experts](#) closing date: 16 December 2025

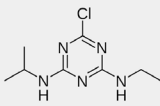
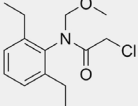
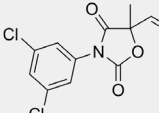
IARC encourages the participation of Representatives of national and international health agencies. If you are interested in serving as a Representative, contact us at imonews@iarc.who.int.

Results of IARC Monographs Meeting 140: Atrazine, Alachlor, and Vinclozolin

Meeting held from 28 October to 4 November 2025, in Lyon, France

International Agency for Research on Cancer
World Health Organization

IARC Monographs Vol. 140
28 October to 4 November 2025

Atrazine	Alachlor	Vinclozolin
 Atrazine is a broad-spectrum herbicide used extensively, mainly on corn, but also on turf and lawns.	 Alachlor is a broad-spectrum herbicide that has been used extensively, mainly on corn and soybean.	 Vinclozolin is a fungicide that is used mainly on fruit and vegetables.
Group 2A Probably carcinogenic to humans	Group 2A Probably carcinogenic to humans	Group 2B Possibly carcinogenic to humans
There is <i>limited</i> evidence for cancer in humans: t(14;18)-positive non-Hodgkin lymphoma	There is <i>limited</i> evidence for cancer in humans: laryngeal cancer	
		
Exposure for all agents		
 For each of these pesticides, workers have the highest exposures , which can occur during pesticide production and agricultural activities.		 General population exposure occurs primarily via drinking-water and the diet and is typically estimated to be lower.

The IARC classification (Group 1, 2A, 2B, and 3) indicates the level of certainty that a substance causes cancer (*hazard* identification).

[Click to download full-size infographic](#)

A summary of the results of Meeting 140 has now been published in *The Lancet Oncology*.

These three pesticides were all accorded high priority by the [Advisory Group to Recommend Priorities for the IARC Monographs during 2025–2029](#). Atrazine was previously evaluated by the IARC Monographs programme in 1998 in [Volume 73](#). Alachlor and vinclozolin were evaluated for the first time.

The herbicides atrazine and alachlor have been widely used globally for weed control in turf and lawns and crops such as corn. Vinclozolin is a fungicide used in agriculture, mainly on fruit and vegetables.

The Working Group evaluated both atrazine and alachlor as *probably carcinogenic to humans* (Group 2A) in two different ways: (i) the combination of *limited* evidence for cancer in humans and *sufficient* evidence for cancer in experimental animals; and (ii) the combination of *limited* evidence for cancer in humans and *strong* mechanistic evidence in exper-

imental systems. Positive associations have been observed in humans between atrazine and non-Hodgkin lymphoma that is positive for the chromosomal translocation t(14;18), and between alachlor and cancer of the larynx.

Vinclozolin was classified as *possibly carcinogenic to humans* (Group 2B) on the basis of *sufficient* evidence for cancer in experimental animals and on *strong* mechanistic evidence in experimental systems. The evidence regarding cancer in humans was *inadequate*.



Hazard identification versus risk assessment

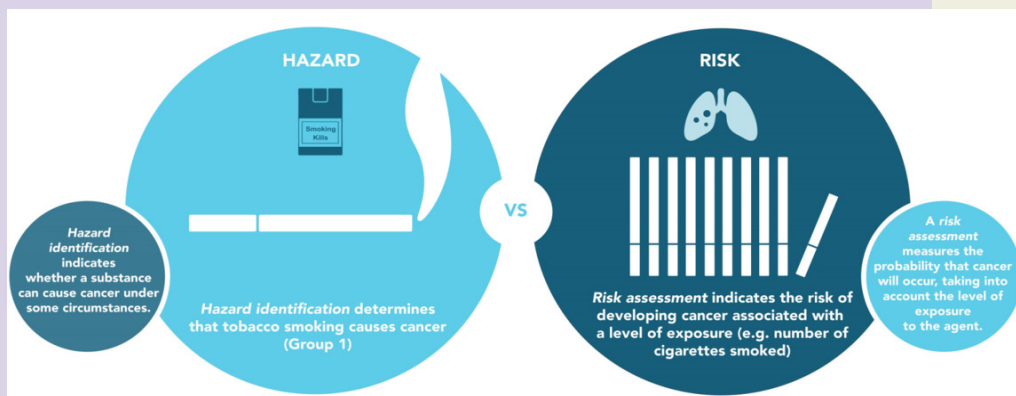
The *IARC Monographs* programme classifies the preventable causes of cancer in humans by a process of hazard identification. The programme does not perform a full risk assessment or determine any subsequent policy recommendations; these are roles carried out by other international and national public health organizations. [Hazard identification and risk assessment are closely related](#) but serve distinct purposes in public health, toxicology, and regulatory decision-making. The difference between them can be easily misunderstood, potentially leading to confusion about what the *IARC Monographs* classifications mean in “real-world” situations. It is important to have a clear understanding of the differences when considering the aims and outcomes of *IARC Monographs* evaluations.

Hazard identification is the process of determining whether an agent *can* cause cancer under at least some circumstances and is often the first step in a full risk assessment. Hazard identification does not consider how much of the agent people are exposed to or the likelihood that cancer will actually occur at a given route or level of exposure (risk assessment). Hazard identification therefore focuses on the characteristics and effects of an “agent” – such as a chemical, virus, radiation source, or occupational process – and answers the question: *What is the strength of the evidence that this agent is carcinogenic to humans?* It relies on multiple streams of evidence, including epidemiological studies of cancer in humans, laboratory studies in animals, and mechanistic data in humans or experimental systems. The *IARC Monographs* programme focuses on identifying carcinogenic hazards, and any agent classified as “Group 1” is considered *carcinogenic to humans*, which means that there is convincing evidence it can cause cancer in humans, at least at some level or route of exposure.

A **full risk assessment**, in contrast, evaluates the *probability* that cancer will occur under specific conditions of exposure to the agent. It incorporates information on exposure levels, duration, frequency, and population characteristics. The key question is: *How likely is it that cancer will develop at specific levels and routes of exposure?* Risk assessment quantifies the relation between exposure (or dose) and response, estimating metrics such as lifetime cancer risk per unit of exposure. For example, a substance may be a recognized carcinogenic

hazard, but if real-world exposure is extremely low, the cancer risk may also be low.

The agents classified by IARC as Group 1, *carcinogenic to humans*, can have very different cancer risk profiles. For example, hazard identification by the *IARC Monographs* has classified tobacco smoking in Group 1 (see [Volumes 83](#) and [100E](#)). Specifically, tobacco smoking causes cancers of the lung and many other organ sites. A risk assessment for tobacco smoking would indicate the risk of developing cancer associated with a given level of exposure, for example, number of cigarettes smoked per day or over a lifetime. The *IARC Monographs* have also classified consumption of processed meat as *carcinogenic to humans* (Group 1): processed meat causes cancer of the colorectum ([Volume 114](#)). A risk assessment would



determine the probability of developing colorectal cancer associated with a given level or pattern of eating processed meat.

Both tobacco smoking and consumption of processed meat cause cancer; however, risk assessments have shown that the risk of developing cancer after long-term exposure is much higher for tobacco smoking than for processed meat consumption.

Hazard identification is often the first step in risk assessment, and effective cancer prevention policies typically rely on both: understanding hazard ensures that potential carcinogens are recognized; and understanding risk guides practical decisions, such as setting occupational exposure limits, regulating industrial emissions, or advising individuals on specific behaviours.

Hazard identification and full risk assessment are two complementary processes that serve different but equally important goals in [reducing the global cancer burden](#).

Niree Kraushaar and Mary Schubauer-Berigan



IARC Early Career Scientists at Meeting 140



From left to right: Michael Olanipekun (GEM) and Marie-Laure Aix (GEM), who assisted with a *Monographs* meeting for the first time, and Rachmad Anres Dongoran (GEM), who was introduced in [Issue No. 11](#).

Where are you originally from and how long have you been at IARC?

MO: I was born and raised in London, England, and my family is originally from Nigeria. I have been working at IARC for the last 3 years.

M-LA: I come from a village called Neuvic located in the French Massif Central, and I joined IARC almost 2 years ago.

What is your role in your group at IARC? What research projects are you working on?

MO: I am a systems biologist and post-doctoral scientist in the Mutational Epidemiology Team, specifically working on large genomics, metabolomics, and proteomics datasets to further our understanding of cancer. I work primarily on [DISCERN](#) (Discovering the Causes of Three Poorly Understood Cancers in Europe), a European Commission-funded project, which seeks to discover new causes of renal, pancreatic, and colorectal cancers in Europe. This project leverages information on environmental exposures, biological samples, and state-of-the-art technologies in an effort to identify novel carcinogenic exposures.

M-LA: I am a postdoctoral scientist working in the Genomic Epidemiology Branch. My research focuses on investigating associations between environmental exposures and mutations in cancer genomes. I am particularly involved in the DISCERN project, which aims to better understand the causes of renal, pancreatic, and colorectal cancer.

What were your main insights from your time at the *Monographs* meeting?

MO: Firstly, the evaluation process was able to distill a great amount of information into clear and concise outcomes. This way of simplifying complex information and communicate clearly is a skill I hope to continue developing. Secondly, the collaborative spirit of the experts who had come together from all over the world to produce this work was inspiring to see.

M-LA: It was an amazing experience to attend the discussions among the experts within the subgroup, as well as to witness the final deliberations. One thing that really surprised me was seeing how much collaboration took place with other subgroups. The preparatory work was very interesting, as it allowed me to dive into the literature on the topic and to prepare thoroughly for the meeting. I hope to have the opportunity to participate as an expert in a Working Group myself one day!

Call for Experts

Working Group Members are responsible for all scientific reviews and evaluations developed during the *IARC Monographs* meeting. The Working Group is interdisciplinary and comprises subgroups of experts in the fields of: (1) exposure characterization; (2) cancer in humans; (3) cancer in experimental animals; and (4) mechanistic evidence.

IARC selects Working Group Members on the basis of expertise related to the subject matter and relevant methodologies, and absence of conflicts of interest. Consideration is also given to diversity in scientific approaches and views, as well as demographic composition. Self-nominations and nomination of women and of candidates from low- and middle-income countries are particularly encouraged.

Nomination of Agents

For each new volume of the *IARC Monographs*, IARC selects the agents for review from those recommended by the most recent [Advisory Group Report](#), considering the availability of pertinent research studies and current public health priorities. IARC encourages the general public, the scientific community, national health agencies, and other organizations to nominate agents for review in future *IARC Monographs* volumes.

If you would like to nominate an agent, please complete the [online form](#) (one agent per form) and the accompanying WHO Declaration of Interests.

Published in 2025

IARC Monographs



Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS)
February 2025: Volume 135
Available from:
<https://publications.iarc.who.int/636>



Talc and Acrylonitrile
June 2025: Volume 136
Available from:
<https://publications.iarc.who.int/646>

The Lancet Oncology

[Cattley RC, De Roos AJ, Mandrioli D, Pearce N, Pronk A, Soshilov A](#), et al. (2025). Carcinogenicity of atrazine, alachlor, and vinclozolin. *The Lancet Oncology*. [https://doi.org/10.1016/S1470-2045\(25\)00702-8](https://doi.org/10.1016/S1470-2045(25)00702-8)

[Karagas MR, Kaldor J, Michaelis M, Muchengeti MM, Alfaiate D, Argirion I](#), et al. (2025). Carcinogenicity of hepatitis D virus, human cytomegalovirus, and Merkel cell polyomavirus. *The Lancet Oncology*. 26(8):994–995. [https://doi.org/10.1016/S1470-2045\(25\)00403-6](https://doi.org/10.1016/S1470-2045(25)00403-6)

[Turner MC, Godderis L, Guénel P, Hopf N, Quintanilla-Vega B, Coelho Soares-Lima SC](#), et al. (2025). Carcinogenicity of automotive gasoline and some oxygenated gasoline additives. *The Lancet Oncology*. 2:548–549. [https://doi.org/10.1016/S1470-2045\(25\)00165-2](https://doi.org/10.1016/S1470-2045(25)00165-2)

Report on Key Characteristics of Carcinogens Workshop

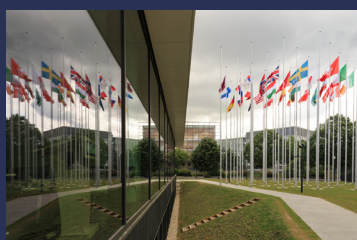
Commentary

DeMarini DM, Gwinn W, Watkins E, Reisfeld B, Chiu WA, Zeise L, et al. (2025). IARC Workshop on the key characteristics of carcinogens: assessment of end points for evaluating mechanistic evidence of carcinogenic hazards. *Environmental Health Perspectives*. 133(2):25001. <https://ehp.niehs.nih.gov/doi/10.1289/EHP15389>.



KCs Report

IARC (2025). Key characteristics-associated end-points for evaluating mechanistic evidence of carcinogenic hazards. *IARC Monographs Technical Report*. Lyon, France: International Agency for Research on Cancer. Available from: <https://monographs.iarc.who.int/wp-content/uploads/2025/06/KCW-FINAL.pdf>.



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