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Red de Optimización de la Protección Radiológica Ocupacional en LatinoAmérica y el Caribe

NEWSLETTER

MAY 2025

INTERNATIONAL WORKERS' DAY

On this May 1st, REPROLAM pays tribute to all workers who, day by day, contribute with dedication, knowledge, and effort to the development of our societies.

We especially recognize the work of those involved in the field of radiation protection in Latin America and the Caribbean—a vital area for ensuring safe environments in medicine, industry, and research. Their commitment is essential to protecting the health and well-being of workers, patients, and communities.

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REPROLAM ARTICLE:

INTERNAL CONTAMINATION MONITORING: FUNDAMENTALS AND RELEVANCE FOR RADIOLOGICAL PROTECTION

In the field of occupational radiological protection, one of the most critical and often less visible aspects is internal contamination by radionuclides. This occurs when radioactive materials enter the human body through pathways such as inhalation, ingestion, skin absorption, or open wounds. Monitoring and controlling this type of contamination is essential to assess the internal dose received and to establish appropriate protective measures.

Why is it important to monitor internal contamination?

Unlike external contamination, which can be more easily detected with portable monitoring equipment, internal contamination requires specific detection and analysis methods, as the radionuclides are already inside the body and their behavior depends on biokinetic factors.

Internal exposure can lead to significant doses to critical organs, especially in workers who handle unsealed radioactive materials in nuclear industries, research laboratories, nuclear medicine, and radioactive waste management.

MEASUREMENT METHODS

There are two main approaches to internal contamination assessment:

- **Bioassays (biological sampling)**: These involve the analysis of biological samples (such as urine, feces, or blood) to determine the presence and concentration of radionuclides. This method is especially useful for alpha and beta emitters, such as plutonium or tritium.

- **In vivo monitoring (direct measurement):** This method uses sensitive detectors (such as high-purity germanium or NaI(Tl)) placed near the body to directly detect the radiation emitted by radionuclides in specific organs. It is mainly applied for gamma emitters or low-energy X-rays, such as iodine-131 or cesium-137.

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Key Requirements for Effective Monitoring

- Proper calibration of detection systems.
- Biokinetic and dosimetric models tailored to the radionuclide and route of intake.
- Periodic evaluations for workers with potential exposure.
- Trained personnel for sampling and analysis procedures.
- Reference levels and action limits established by international organizations such as the ICRP and the IAEA.

Regional Focus

In Latin America and the Caribbean, the capacity to perform internal contamination monitoring varies by country, and many centers face technical or human resource limitations. Initiatives promoted by REPROLAM and the IAEA, which foster technical cooperation and the harmonization of protocols, are essential to strengthening regional capabilities in internal monitoring and dosimetric surveillance.

METHOD	RADIATION TYPE DETECTED	TYPICAL RADIONUCLIDES	ADVANTAGES	LIMITATIONS
Bioassays (urine, feces, blood analysis)	Alpha, beta, some gamma emitters	Plutonium-239, Tritium, Carbon-14, Natural Uranium	High sensitivity for emitters not detectable externally	Requires specialized labs; results are not immediate
In vivo spectrometry (thyroid, whole body, lung)	Gamma and X-rays	Iodine-131, Cesium-137, Cobalt-60	Non-invasive, real-time results, localized monitoring	Lower sensitivity for non-gamma emitters; requires complex calibration
Nasal swabs (nasal smear counting)	Alpha, beta	Plutonium, Actinides	Fast method for initial screening after incidents	Only useful for recent inhalation; does not assess committed dose
Personal air sampling (filter-based)	Alpha, beta, gamma	Depends on the workplace environment	Useful as an indirect method to estimate potential intake	Does not measure actual intake; dose estimation required afterward

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MONITOR YOUR DOSE

Internal exposure

Why is control important?

During practices involving the handling of radioactive materials, the personnel involved may be exposed to potential incorporations, that is, to internal contamination.

How can incorporation occur?

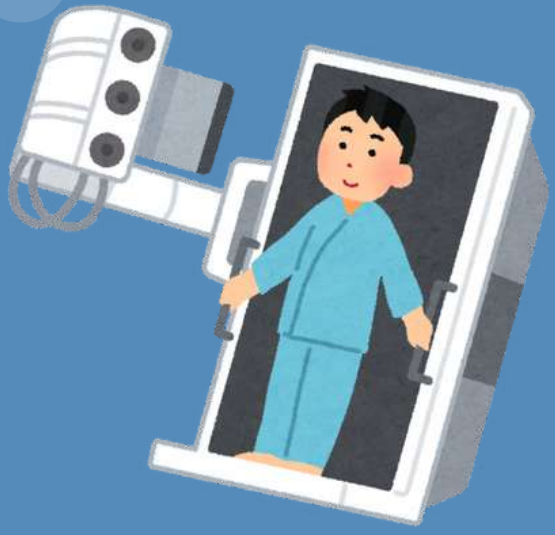
INGESTION

INHALATION

ABSORPTION OR WOUNDS

WHY IS ITS CONTROL IMPORTANT?

- Early detection of radioactive contaminants in the body
- Prevention of occupational diseases
- Regulatory compliance and safeguarding health
- Optimization of protective measures in the workplace



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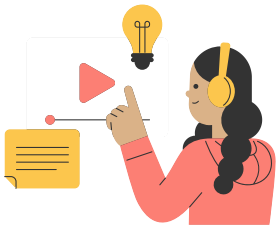
CONTINUING EDUCATION COURSE IN RADIOLOGICAL PROTECTION

📅 MAY 12 TO JUNE 30, 2025

Aimed at Radiopharmacists, Technologists, and professionals working in various areas of Radiopharmacy. The course credit is earned by completing 80% of the mandatory components, including assignments or seminars. A final theoretical assessment test will also be conducted. For students enrolled in the Radiopharmacy Specialist Diploma, it grants 3 credits in the mandatory areas.

DATE: MAY 12 TO JUNE 30, 2025
TOTAL HOURS: 20-HOUR THEORETICAL COURSE
SCHEDULE:

- Theoretical Classes: Videos available online during class weeks
- Synchronous Sessions: Mandatory synchronous calculation class (June 2, 7:00 PM)
- Asynchronous Online Complementary Tasks
- Student Seminar Presentation: Mandatory (date to be coordinated)



Responsible Instructor: Dr. Mariella Terán, Associate Professor of Radiochemistry
Lead Instructor: Dr. Ana M. Rey, Full Professor of Radiochemistry

🎯 **OBJECTIVES**:

- Provide the theoretical foundation for the development and/or supervision of a radiological protection program in Radiopharmacy and/or radionuclide and radiopharmaceutical production centers.
- Update participants on national regulations and international radioprotection recommendations.

CONTENT:

1. Introduction to the course. General principles of Radiological Protection. Roles and responsibilities. Basic safety standards.
2. Chemical and biological effects of radiation.
3. Radiological Protection Criteria. Fundamental, dosimetric, and operational quantities.
4. Risk assessment from exposure to external and internal sources.
5. Annual dose limits. Exposure of embryos, fetuses, and infants. Patient protection.
6. Personal protective equipment and environmental monitoring.
7. Transport and storage of radioactive materials. Final disposal of waste.
8. Radiological Protection Program. Written procedures and organization.

The syllabus is complemented by a Seminar led by the students.

The final exam will be mandatory for DERF students and optional for others. If not taken, only an attendance certificate will be issued.

COURSE COST:

Theoretical cost only: $7,900 (for students from Uruguay) or U$S 190 (for international students).
The registration fee must be paid via deposit or transfer at BROU
Current account No. 001559463-00004. The receipt must be sent by email to ep@fq.edu.uy.

For international students, the payment must be made via PayPal transfer.

Transfer details will be provided once the registration is accepted.

Prior registration required by completing the registration form at the following link: http://www.fq.edu.uy/node/631

For students enrolled in the Radiopharmacy Specialist Diploma, the only valid method for registration is by completing the form at the following link: http://www.fq.edu.uy/es/node/711

Important: Please note that payment should only be made after receiving confirmation of your spot from Continuing Education.

FOR INQUIRIES, PLEASE CONTACT:
mteran@fq.edu.uy or arey@fq.edu.uy

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RADONORM 2025 – LIQUID SCINTILLATION COUNTING (LSC) AND ALPHA SPECTROMETRY FOR NORM CHARACTERISATION – THE TWO WEEKS TRAINING COURSE

📍 KATOWICE - POLONIA

📅 MAY 12TH – 23TH 2025

The main objective of this training course is to maintain and develop competencies in radiochemistry. The purpose is to train young researchers and professionals in the measurement of the activity concentration of specific natural radionuclides.

Theoretical knowledge will be provided on the behavior of natural radionuclides in the environment, determining the need for their monitoring, as well as the advanced features of the Liquid Scintillation Counter (LSC) and alpha particle spectrometry. However, special attention will be given to the development of practical competencies in laboratory work.

Participants will have the opportunity to acquire hands-on skills and practical experience by applying fast yet precise and validated analytical techniques, following the entire analytical chain—from sample preservation, dissolution, and pre-concentration of the radionuclides of interest, to the chemical separation of interfering radionuclides and matrix components, up to sample preparation for analysis.
Relevant measurement procedures, the setup of measurement instruments, the necessary rules for calibration, and the final interpretation of the obtained results will crown each evaluation procedure.

Important information

- Course participation is free of charge for participants
- The organizers do not reimburse travel and accommodation costs, but suggest applying for a travel grant in frame of either RadoNorm or PIANOFORTE project:
  - https://www.radonorm.eu/calls/call-for-travel-grant/ (for PhD students)
  - https://pianoforte-partnership.eu/calls/travel-grants-for-researchers (MSc students also can apply)
  - https://pianoforte-partnership.eu/calls/travel-grants-for-early-career-radiation-protection-professionals (especially for young professionals)
- The training course is conducted in English.
- The deadline for the submission of applications is: 12th March 2025. Notification of acceptance or rejection will be sent by March 19th, 2025
- A certificate of attendance will be issued at the end of the course

For more details and registration: **https://szkolenia.gig.eu/radonorm2025-1/**

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IAEA LAUNCHES A NEW SERIES OF WEBINARS ON NUCLEAR LAW

🌐WEBINAR 2: PURSUIT OF THE GLOBAL NUCLEAR LIABILITY REGIME

📅 FRIDAY, JUNE 20, 2025 - 08:00 AM (UTC-03:00)

A global nuclear liability regime, based on the principles of nuclear liability and consisting of effective and coherent mechanisms at both the national and global levels to ensure prompt, meaningful, and non-discriminatory compensation for damages caused by a nuclear incident, is an important element of the legal framework necessary to support the safe, secure, and peaceful use of nuclear energy.

This webinar will address the principles, elements, and benefits of a global nuclear liability regime, the process for its establishment, as well as the role of the IAEA and relevant international legal instruments, such as the Supplementary Compensation Convention for Nuclear Damage, in this process.

🎙 **MODERATOR:**

- Anthony Wetherall, Head of the Nuclear and Treaty Law Section, Office of Legal Affairs, IAEA

👥 **PANELISTS**:

- Xiaodong Yang, Legal Officer, Nuclear and Treaty Law Section, Office of Legal Affairs, IAEA
- David McCauley, Consultant, Chair of the International Expert Group on Nuclear Liability (INLEX)
- Fiona Geoffroy, Senior Legal Advisor at Électricité de France (EDF), INLEX Member
- Ben McRae, Deputy General Counsel for Civilian Nuclear Programs, U.S. Department of Energy, INLEX Member

👉 **Register here →**

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SYMPOSIUM | ISRS 2025 – INTERNATIONAL SYMPOSIUM ON RADIOPHARMACEUTICAL SCIENCES

📍 **GOLD COAST CONVENTION AND EXHIBITION CENTRE, QUEENSLAND, AUSTRALIA**

📅 **MAY 11–15, 2025**

From May 11 to 15, 2025, the 26th International Symposium on Radiopharmaceutical Sciences (iSRS 2025) will be held at the Gold Coast Convention and Exhibition Centre in Queensland, Australia.

🎯 EVENT OBJECTIVE

The iSRS 2025 will bring together researchers, professionals, and students from around the world to share advances in the field of radiopharmaceutical sciences. The scientific program will include keynote lectures, oral presentations, and poster sessions, as well as pre-symposium workshops. This event is expected to foster interdisciplinary collaboration and knowledge exchange in areas such as the research and development of new radiopharmaceuticals, molecular imaging, targeted therapy, and occupational radiation protection.

PRE-SYMPOSIUM WORKSHOPS

These workshops have been designed in collaboration with young researchers from the SRS Think Tank (SRS-TT) and are primarily aimed at students and early-career researchers.
Each workshop will last approximately 1 hour and 45 minutes and will be held (with breaks) from 9:15 AM to 4:45 PM on Sunday, May 11.

Workshop 1:
“Alpha Emitters for the Curious and Cautious: Everything You Want to Know About Them but Are Afraid to Ask”

Workshop 2:
“Radiopharmaceuticals: From Bench to Bedside”

Workshop 3:
“Professional Development”

More information: https://www.srsweb.org/isrs2025-home

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ICRP 2025 – 8TH INTERNATIONAL SYMPOSIUM ON THE SYSTEM OF RADIOLOGICAL PROTECTION

📅OCTOBER 7–9, 2025
📍RITZ-CARLTON ABU DHABI, GRAND CANAL – UNITED ARAB EMIRATES

The International Commission on Radiological Protection (ICRP) will hold its 8th International Symposium on the System of Radiological Protection from October 7 to 9, 2025, at the Ritz-Carlton Abu Dhabi, Grand Canal, United Arab Emirates.

This major international event, organized in collaboration with the International Atomic Energy Agency (IAEA), will bring together leaders and professionals in the field of radiological protection to discuss advances, challenges, and perspectives in the implementation of the international system of radiological protection. Topics to be addressed include:

- Optimization and justification of radiological exposures
- Occupational protection in medical and industrial settings
- New ICRP recommendations and approaches
- Public engagement and risk communication

The symposium will feature keynote lectures, oral presentations, poster sessions, and networking opportunities for professionals from around the world.

The call for abstracts is open until May 31, 2025, and registration is already available with early bird rates and student discounts.

🔗 More information: www.icrp.org

This event represents a key opportunity for the Latin American and Caribbean region to continue strengthening the global radiological protection culture.