MIRDcalc

Freely available internal dosimetry software for calculating organ-level radiopharmaceutical doses using the MIRD schema.

https://example.com/1762583716453

Overview

MIRDcalc is a freely available, community-developed software tool designed for calculating organ-level radiopharmaceutical dosimetry, a fundamental aspect of diagnosis, treatment, optimization, and safety in nuclear medicine.

Developed as a collaboration between the University of Florida and Memorial Sloan Kettering Cancer Center, and hosted on the MIRDsoft.org platform, MIRDcalc implements the well-established Medical Internal Radiation Dose (MIRD) schema for internal dosimetry.

The software is built on a standard Microsoft Excel spreadsheet platform, providing an immediate, easy-to-use single-screen interface. It incorporates a significantly enhanced database, including calculation-specific details for 333 radionuclides (ICRP Publication 107) and a family of 12 ICRP reference phantoms (ICRP Publications 110 and 143), with 81 source regions and 43-48 target regions.

Key Capabilities:

Organ-Level Dosimetry: Enables biodistribution-to-dosimetry calculations using the MIRD schema.
Patient-Specific Modeling: Supports interpolation and extrapolation between reference phantoms for patient-specific dosimetry based on total-body mass and patient organ mass adjustments.
Tumor Dosimetry: Includes sphere models of various compositions for tumor dosimetry.
Advanced Features: Offers error propagation, phantom interpolation, dynamic remainder values, quality control checks, batch processing, and report-preparation capabilities.
Validation: MIRDcalc has been validated in peer-reviewed literature and shown to produce results in reasonable agreement with commercial dosimetry software like IDAC-Dose and OLINDA.
Target Users and Platform: MIRDcalc is primarily targeted at professionals, researchers, and clinicians in the medical radiation dose community, nuclear medicine, and radiopharmaceutical therapy. As it is written and compiled within Microsoft Excel, a licensed version of Excel must be installed on the host computer, and it currently only works on a PC (Windows environment). It is released as an open-source technology and is available for free download (requiring registration).

Key Features

- Organ-level radiopharmaceutical dosimetry
- MIRD schema calculations
- 333 Radionuclide database (ICRP 107)
- 12 ICRP reference phantoms
- Patient-specific dosimetry (interpolation/scaling)
- Error propagation
- Batch processing
- Report-preparation capabilities

Pricing

Model: free

Freely available for download from MIRDsoft.org; requires account registration for access.

Target Company Size: startup, small, medium, enterprise

Integrations

microsoft-excel, csv, xml