

Glossary

Brachytherapy

Cancer treatment by inserting tiny implants carrying radioactive isotopes directly into a tumor; radiation from the isotopes destroys the cancerous cells.

Cobalt 60 (Co-60)

Radioisotope used to sterilize medical products and pasteurize foods.

Cyclotron

Circular particle accelerator. Its functions in medicine include the treatment of cancer and the production of radioisotopes for diagnostics.

Dosimetry

In radiotherapy, the discipline and equipment for measuring the dose of radiation delivered to a cancerous tumor and other cells in a patient.

Dynamitron

An electrostatic accelerator used in numerous industrial applications.

Electron

Elementary particle with a negative electric charge.

EtO

Ethylene oxide, a bactericidal gas used for sterilizing medical disposables (single-use medical supplies).

FDA

Food & Drug Administration: American Government agency with authority over the medical and food sectors in the United States.

Intensity Modulated Radiation Therapy (IMRT)

State-of-the-art method to deliver high conformal radiation dose to tumorous target volumes.

Ionization

Phenomenon in which an atom, a molecule, or radical either gains or loses one or several electrons, thereby endowing it with an electric charge. Ionization is used in numerous industrial processes to modify the chemical or biological properties of different substrates (materials).

Irradiation

Ionizing rays.

Medical imaging

Medical technique enabling doctors to see organs and how they function inside the body as an aid to diagnosis.

MeV

Million of electron volts (unit of energy used in atomic physics).

Nuclear medicine

Technique for making medical diagnoses by using radioisotopes to visualize the functioning of the human body.

Particle accelerator

A machine which imparts extremely high velocity to elementary particles such as electrons and protons. There are different types of accelerators, including cyclotrons, microtrons, Dynamitrons, Rhodotrons, synchrotrons, and linear accelerators.

Pasteurization

Action aimed at destroying a large number of disease-causing germs in food. Traditionally done by heat treatment (as is the case with pasteurized milk). It can also be carried out without heat using the energy of ionization.

Polymerization

Combining different molecular components to form a large molecule. This process is used in industry, in particular to modify the properties of plastics and other polymers.

Positron Emission Tomography (PET)

The most advanced branch of nuclear medicine based on the use of short-duration radioisotopes integrated into molecules present in the human body and emitting positrons. Because it delivers high-quality functional images, PET is particularly valuable for detecting and locating cancers; it has equally valuable applications in cardiology and neurology.

Proton therapy

Treatment of cancerous tumors with proton beams. This high-precision technique ensures optimal dose delivery to the tumor without damaging surrounding healthy tissue. The proton is the nucleus of the hydrogen atom.

Racetrack (Microtron)

A circular electron accelerator developed for high-precision radiotherapy.

Radioisotopes

In a group of atoms with the same number of protons but different numbers of neutrons, the atoms with an unstable number of neutrons that disintegrate, releasing rays of subatomic particles, are called radioisotopes.

Radiotherapy

The therapeutic application of rays to cancer tumors.

Rhodotron

A high-performance electron accelerator with a wide variety of industrial applications.