

Indium In 111 Chloride Sterile Solution

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Diagnostic - For Use Only in Radiolabeling
OncoScint CR/OV (Satumomab Pendetide)

A132I0
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FOR SINGLE USE ONLY

DESCRIPTION

Indium In 111 Chloride Sterile Solution is indicated for radiolabeling OncoScint CR/OV preparations used for in vivo diagnostic imaging procedures. It is supplied as a sterile, non-pyrogenic solution of Indium (In 111) Chloride in 0.05 molar hydrochloric acid. No carrier has been added to the solution. Each 0.5 milliliter of the solution contains 185 megabecquerels (5 millicuries) of indium chloride In 111 at time of calibration (specific activity of >1.85 GBq/μg Indium; >50 mCi/μg Indium at this time of calibration). The solution pH is 1.1 to 1.4.

RADIONUCLIDIC PURITY

Indium 111 is cyclotron produced by the proton irradiation ((p,2n) reaction) of cadmium Cd-112 enriched target. At time of calibration, it contains not less than 99.925% indium 111 and, not more than 0.075% indium 114m and zinc-65 combined. At the time of expiration, it contains not less than 99.85% indium 111 and not more than 0.15% indium 114m and zinc-65 combined. No carrier has been added.

RADIOCHEMICAL PURITY

At the time of calibration, the Indium In 111 Chloride Sterile Solution contains not less than 95% of the Indium present as ionic In³⁺.

CHEMICAL PURITY

Indium In 111 Chloride Sterile Solution is tested for the following metallic impurities: copper, iron, cadmium, lead, zinc, nickel, and mercury, and contains extremely low levels of these metals. The sum of the individual impurity ratios for the metals listed is not more than 0.60 ppm.

PHYSICAL CHARACTERISTICS

Indium 111 decays by electron capture to cadmium-111 (stable) with a physical half-life of 67.32 hours (2.81 days)¹. Photons useful for detection and imaging are listed in Table 1.

Table 1. Principal Radiation Emission Data²

Radiation	Mean Percent Per Disintegration	Energy (KeV)
Gamma-2	90.2	171.3
Gamma-3	94.0	245.4

EXTERNAL RADIATION

The exposure rate constant for 37 MBq (1 mCi) of Indium In 111 is 8.3×10^{-4} C/kg/hr (3.21 R/hr) at 1 cm. The specific gamma ray constant for Indium 111 is 3.21 R/hr-mCi @ 1cm¹. The first half-value thickness of lead (Pb) is 0.023 cm. A range of values for the relative attenuation of the radiation emitted by this radionuclide that results from interposition of various thicknesses of Pb is shown in Table 2. For example, the use of 0.834 cm of Pb will decrease the external radiation exposure by a factor of about 1000.

Table 2. Indium 111 Radiation Attenuation by Lead Shielding¹

Shield Thickness (Pb) cm	Coefficient of Attenuation
0.023	0.5
0.203	10 ⁻¹
0.513	10 ⁻²
0.834	10 ⁻³
1.12	10 ⁻⁴

These estimates of attenuation do not take into consideration the presence of longer-lived contaminants with higher energy photons, namely Indium 114m.

To correct for physical decay of Indium 111, the fractions that remain at selected intervals before and after calibration time are shown in Table 3.

Table 3. Indium 111 Physical Decay Chart; Half-life 67.32 hours (2.81 days)

Hours	Fraction Remaining	Hours	Fraction Remaining
-72	2.10	0*	1.00
-60	1.85	6	0.94
-48	1.64	12	0.88
-36	1.45	24	0.78
-24	1.28	36	0.69
-12	1.13	48	0.61
-6	1.06	72	0.48

*Calibration time

CLINICAL PHARMACOLOGY

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

INDICATIONS AND USAGE

Indium In 111 Chloride Sterile Solution is indicated for radiolabeling OncoScint CR/OV preparations used for in vivo diagnostic imaging procedures. Please refer to the package insert for OncoScint CR/OV for information on the final drug product.

CONTRAINDICATIONS

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

WARNINGS

CONTENTS OF THE VIAL OF INDIUM In 111 CHLORIDE SOLUTION ARE INTENDED ONLY TO BE USED AS AN INGREDIENT FOR RADIOLABELING ONCOSCINT CR/OV FOR USE IN IN VIVO DIAGNOSTIC IMAGING PROCEDURE, AND ARE NOT TO BE ADMINISTERED DIRECTLY TO HUMANS.

PRECAUTIONS

General

Caution must be used to maintain proper aseptic technique while withdrawing and transferring contents of the Indium Chloride solution vial.

Do not use after expiration time and date indicated on vial label.

Contents of the vial are radioactive and adequate shielding and handling precautions must be maintained at all times.

Carcinogenesis, Mutagenesis and Impaired Fertility

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

Pregnancy Category

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

Nursing Mothers

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

Pediatric Use

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

ADVERSE REACTIONS

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

DOSAGE AND ADMINISTRATION AND RADIATION DOSIMETRY

Please refer to the package insert for OncoScint CR/OV for this information on the final drug product.

HOW SUPPLIED

Indium In 111 Chloride Sterile Solution is supplied in 3 mL vials containing 0.5 mL of solution. It is a sterile non-pyrogenic solution in 0.05 molar hydrochloric acid. No carrier is added to the solution. Each 0.5 mL contains 185 megabecquerels (5 millicuries) of Indium In 111 Chloride at time of calibration. The pH of the solution is 1.1 to 1.4.

SPECIAL STORAGE AND HANDLING

The contents of the vial are radioactive and adequate shielding and handling precautions must be maintained. Store at room temperature (15°C to 30°C; 59°F to 86°F).

Storage and disposal of Indium In 111 Chloride Sterile Solution should be controlled in a manner that is in compliance with the appropriate regulations of the government agency authorized to license the use of the radionuclide.

The vial should be kept inside its transportation shield whenever possible and should be handled (with forceps when contents are being removed).

¹ From Radiopharmaceutical Internal Dosimetry Information Center, Oak Ridge Associated Universities, Oak Ridge, TN 37831-0117, February 1985.

² Kocher, David C., "Radioactive Decay Data Tables", DOE/TIC-11026,115 (1981).

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