^{123}I iodohippurate

^{123}I Hippuran®, ^{123}IOH

1. Indications

^{123}I-iodohippurate is *not* approved in the Netherlands.

^{123}I-iodohippurate is a radiopharmaceutical used in diagnostics of kidneys dysfunction. See chapter "Dynamic renography".

2. Preparation

^{123}I-iodohippurate is supplied as a solution for injection.

3. Quality control

^{123}I-iodohippurate is mentioned in the European Pharmacopeia. See monograph Sodium Iodohippurate (^{123}I) Injection.

- pH = 3,5-8,5
- Radiochemical Purity is assessed by Thin Layer Chromatography.

Plate	TLC Silica gel GF254 plate
Test solution	Dissolve 1 g of potassium iodide in 10 ml of water, add 1 volume of this solution to 10 volumes of the preparation to be examined and use within 10 min of mixing. If necessary dilute with the reference solution to give a radioactive concentration sufficient for the detection method.
Reference solution with impurities	Dissolve 40 mg of 2-iodobenzoic acid and 40 mg of 2-iodohippuric acid in 4 ml of a 4 g/l solution of sodium hydroxide. Add 10 mg of potassium iodide and dilute to 10 ml with water
Mobile phase	Water: Glacial acetic acid: Butanol: Toluene = 1:4:20:80 (v/v/v/v)
Application	10µl
Development	Over a path of 12 cm in about 75 min
Identification of the spots	Rf = 0 Impurity C Rf = 1 Impurity D Rr 2-[^{131}I]iodohippuric acid corresponding to reference solution.
Drying	In air
Detection	UV light of 254 nm and determine distribution of radioactivity
Limits	2-[^{123}I]iodohippuric acid: ≥96% Impurity C (^{123}I-iodine) ≤2% Impurity D (2-iodobenzoic acid) ≤2%

4. Interactions

Drugs that modify renal hemodynamics
Dopamine, diuretics, ACE-inhibitors, cyclosporine.

Probenecid
Decreases kidney uptake of ^{123}I-iodohippurate.

Drugs that can induce tubulopathies
Iodinated contrast agents, cisplatin, cyclosporine may reduce the extraction fraction.

5. Adverse events

Rare: nausea, vomiting, rash, itch and hypotension.

6. Biodistribution & pharmacokinetics

After intravenous administration, ^{123}I-iodohippurate is rapidly excreted by the renal system. The maximum renal uptake occurs normally within 2-5 min of intravenous administration, depending on the patient hydration, extent of renal impairment, the nature of the kidneys disease and medication. Approximately 70% of the compound binds reversibly with plasma proteins and about 30% of sodium hippurate is loosely bound to erythrocytes. The compound easily crosses cell membranes, renal excretion is mainly by tubular secretion (80%) and glomerular filtration (20%).
With normal renal function and hydration, 70% of a single dose is excreted in the urine within 30 min and hepatobiliary excretion is less than 0,4%. However in case of severe renal impairment, hepatobiliary excretion may increase to 5%.

7. Stability

The injection vials included in the kit having a shelf life of 20 h after the activity reference time. Store at room temperature.

8. Literature

- SmPC Sodium Iodie (I123) capsules, GE Healthcare.
- SmPC Sodium Iodide (123I) Injection 37 MBq/ml solution for injection.