

Xeuj®: Innovative T1 Contrast Agent for MRI with Dual Imaging and Therapeutic Capabilities



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Category:

Healthcare - Drugs

Intellectual Property:

IN533818
 US patent Application No. 18/429,525.
 Trademark: Product name "Xeuj", Knowledgepie logo.

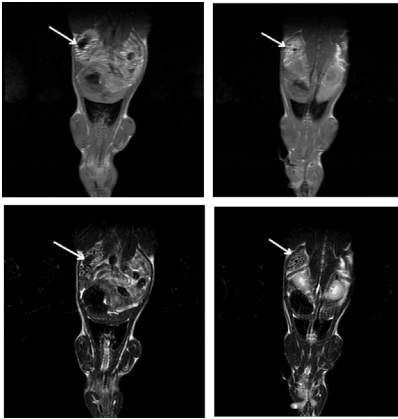


Fig. MRI images of rat with induced tumor after 24 h of contrast administration. (a) and (b) T1 of nanoparticle Treated, (c) and (d) T2 of nanoparticle Treated. Magnet strength 1.5 T. TR (ms): 500, TE (ms): 1/1 41.7kHz, FOV: 16X16, matrix:416X192, slice (mm):4.

Technology:

Xeuj® is an innovative, eco-friendly iron nanoparticle-based MRI contrast agent developed by Knowledgepie. Safer than gadolinium-based agents, it has minimal side effects and is suitable for patients with renal impairment. Xeuj® delivers high-quality imaging for diagnosing tumors and is cost-effective to produce. It also shows therapeutic effects on cancer cell lines, combining diagnosis and treatment in one groundbreaking product.

USP:

- ✓ Enhanced Safety Profile,
- ✓ Broader Clinical Applicability
- ✓ Improved Imaging Capabilities
- ✓ Sustainable and Reliable Supply

Market Forecast



Application:

- ✓ Medical Imaging
- ✓ Broadened theragnostic Applications
- ✓ High-Quality Diagnostic Imaging

Problem Addressed

- ✓ Rare but severe adverse reactions like nephrogenic systemic fibrosis (NSF) in patients with renal impairment and gadolinium deposition in organs, including the brain.
- ✓ Limited or contraindicated use in pregnant women, children, and those with severe kidney dysfunction.
- ✓ Suboptimal contrast enhancement for certain tissues or diseases, like the liver, pancreas, or lymph nodes.
- ✓ Dependence on gadolinium, raising concerns about long-term availability and sustainability.
- ✓ Potential supply chain disruptions due to reliance on a rare element.
- ✓ Need for enhanced safety, broader clinical applicability, and improved imaging capabilities.
- ✓ Need for heightened sensitivity, superior spatial resolution, and multi-modal imaging compared to existing ones.

Advantage

- ✓ **Enhanced Safety Profile:** Minimal side effects, safer for patients including those with renal impairment.
- ✓ **Environmental Sustainability:** Produced using green methods, reducing ecological footprint.

Feature	Xeuj®	Gadolinium-based Contrast Agents (GBCAs)
Safety Profile	Enhanced	Concerns with NSF
Side Effects	Minimal	Rare but serious
Renal Impaired Patients	Safe	Risky
Production Method	Green route	Traditional chemical processes
Environmental Impact	Minimal	High
Cost of 10 mL Solution (INR)	1250/-	1700-1800/-
Imaging Quality	High-quality	Standard
Therapeutic Capabilities	Yes	No
Import Dependency	No	Yes

Table: Advantage of Xeuj® over GBCAs

- ✓ **Cost-Effectiveness:** Cost-effective manufacturing, leads to more affordable pricing.
- ✓ **High-Quality Imaging:** Provides high-quality images for accurate diagnosis of various conditions.
- ✓ **Dual functionality:** The ability to achieve simultaneous therapy and diagnostics from a single agent opens up a new horizon in cancer research.
- ✓ **Support for National Initiatives:** Developed under "Make in India," supporting import substitution and export potential.

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