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Global Targeted Alpha Therapy Market Size, Drugs Approval, Proprietary Technologies & Clinical Trials Insight 2028

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Abstracts

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Global Targeted Alpha Therapy Market Size, Drugs Approval, Proprietary Technologies & Clinical Trials Insight 2028 Report Highlights:

Global Targeted Alpha Therapy Market Insight By Region

Approved Targeted Alpha Therapy Dosage & Pricing Insight

Number Of Targeted Alpha Therapy In Clinical Trials: > 20 Drugs

Targeted Alpha Therapy Clinical Trials Insight By Company, Country, Indication & Phase

Marketed Targeted Alpha Therapy Clinical Insight By Company, Country & Indication

Targeted Alpha Therapy Proprietary Technology Platform Insights By Company

Radioimmunotherapy marks a notable progression in modern medicine, utilizing radioactive isotopes to specifically target and eliminate diseased tissues. Traditionally, beta and gamma emitters have been extensively employed across various therapeutic applications, such as in the treatment of cancer, thyroid disorders, and certain neurological ailments. Beta particles, recognized for their moderate penetration

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capabilities, have played a crucial role in addressing cellular malignancies, whereas gamma rays, which penetrate deeper into tissues, are frequently used for both imaging and therapeutic interventions. Nonetheless, despite their effectiveness, these radiation types are accompanied by certain drawbacks, including potential damage to adjacent healthy tissues and difficulties in achieving precise localized effects.

The introduction of alpha emitters has transformed the field of radiopharmaceuticals. These particles, distinguished by their high linear energy transfer (LET) and very limited penetration depths, provide exceptional accuracy in eliminating cancer cells while preserving surrounding healthy tissues. This characteristic renders alpha emitters particularly advantageous for targeting micrometastatic diseases and isolated malignant cells, offering a significant improvement over conventional beta and gamma therapies.

A significant achievement in the realm of targeted alpha therapy (TAT) is the approval of Xofigo (radium-223 dichloride). This alpha-emitting radiopharmaceutical has been approved for the treatment of patients with castration-resistant prostate cancer (CRPC) who exhibit symptomatic bone metastases without known visceral metastases. Its approval, based on the pivotal Phase 3 ALSYMPCA trial, demonstrated considerable survival advantages and pain alleviation for patients, establishing a new benchmark for the management of advanced-stage prostate cancer. Presently, Xofigo holds approval in over 50 countries, underscoring its global clinical and commercial success.

While Xofigo currently stands as the sole approved alpha emitting therapy, the field of targeted alpha therapy is experiencing rapid growth, particularly for solid tumors. Researchers are diligently exploring various alpha emitters to improve treatment effectiveness and expand therapeutic applications. Among these, Lead-212 has emerged as a notably promising option, demonstrating potential in numerous preclinical and clinical investigations. Additionally, researchers are examining uses beyond oncology, highlighted by a recent study from the University of Utah that assessed the efficacy of targeted alpha therapies in treating neurodegenerative diseases such as Alzheimer’s. This illustrates the adaptability and extensive potential of alpha emitters in tackling a wide range of complex medical issues.

The landscape of clinical trials for TAT is both dynamic and competitive. Companies such as RayzeBio are at the forefront, with their candidate RYZ101 progressing to Phase 3 trials for patients with somatostatin receptor-positive gastroenteropancreatic neuroendocrine tumors. These tumors, which have advanced following previous Lutetium-177-based treatments, represent a significant unmet medical need. The advancement of RYZ101 highlights the increasing emphasis on alpha emitters as viable

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alternatives to current radiopharmaceuticals. Furthermore, the market has seen a surge of innovative preclinical candidates. In January 2024, Cellectar Biosciences reported promising preclinical results for CLR 121225, an alpha-emitting phospholipid radiotherapeutic conjugate aimed at pancreatic cancer. This development signifies a continued dedication to innovation and the potential for broadening TAT applications into previously unexplored areas.

Interest in TAT is not limited to established companies; new entrants are transforming the competitive environment by introducing novel mechanisms and expanding the array of alpha-emitting therapies. This surge of innovation is fostering partnerships, investments, and collaborative research initiatives, thereby generating momentum for additional clinical and commercial advancements. As the market progresses, the significance of alpha emitters in precision medicine is expected to increase, providing optimism for more effective and less invasive treatment options for a wide range of diseases. With the potential of targeted alpha therapy, the future of radiopharmaceuticals appears well-positioned to tackle some of the most urgent challenges in contemporary medicine.

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Contents

1. INTRODUCTION TO TARGETED ALPHA THERAPY

1.1 Overview
1.2 Alpha Radiation vs. Beta & Gamma Radiation In Cancer Therapy

2. TARGETED ALPHA THERAPY - STRUCTURE & MECHANISM OF ACTION

2.1 Structure
2.2 Mechanism Of Action

3. TARGETED ALPHA THERAPY APPLICATIONS BY CANCER

3.1 Hematological Malignancies
3.2 Solid Tumors

4. GLOBAL TARGETED ALPHA THERAPY MARKET INSIGHT

4.1 Current Market Scenario
4.2 Future Growth Avenues

5. TARGETED ALPHA THERAPY MARKET INSIGHT BY REGION

5.1 US
5.2 Europe
5.3 China
5.4 Japan
5.5 Australia

6. TARGETED ALPHA THERAPY CLINICAL TRIALS INSIGHT BY COMPANY, COUNTRY, INDICATION & PHASE

6.1 Research
6.2 Preclinical
6.3 Phase I
6.4 Phase I/II
6.5 Phase II
6.6 Phase II/III

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6.7 Phase III

7. MARKETED TARGETED ALPHA THERAPY CLINICAL INSIGHT BY COMPANY, COUNTRY & INDICATION

8. XOFIGO – 1ST APPROVED TARGETED ALPHA THERAPY

8.1 Overview & Patent Insight
8.2 Pricing & Dosing

9. TARGETED ALPHA THERAPY - PROPRIETARY TECHNOLOGY PLATFORM BY COMPANY

10. GLOBAL TARGETED ALPHA THERAPY MARKET DYNAMICS

10.1 Drivers & Opportunities
10.2 Challenges & Restraints

11. COMPETITIVE LANDSCAPE

11.1 Actinium Pharma
11.2 AdvanCell
11.3 Bayer
11.4 Fusion Pharma
11.5 Johnson & Johnson
11.6 Modulation Therapeutics
11.7 Orano Med
11.8 Perspective Therapeutics
11.9 RayzeBio
11.10 Telix Pharmaceuticals
Figure 2-1: Targeted Alpha Therapy - Structure
Figure 2-2: Targeted Alpha Therapy - Mechanism Of Action
Figure 3-1: LIN-AC225-AML02 Phase 1/2 (NCT03867682) Study – Initiation & Completion Year
Figure 3-2: AcTRESS Phase 1 (NCT06411301) Study – Initiation & Completion Year
Figure 3-3: RG1121028 Phase 1 (NCT04579523) Study – Initiation & Completion Year
Figure 3-4: 225Ac-DOTA-daratumumab Phase 1 (NCT05363111) Study – Initiation & Completion Year
Figure 3-5: PAnTHA Phase 1 (NCT06217822) Study – Initiation & Completion Year

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Figure 3-6: PSMA-617-100 Phase 1 (NCT04597411) Study – Initiation & Completion Year
Figure 3-7: BAY3546828 Phase 1 (NCT06052306) Study – Initiation & Completion Year
Figure 3-8: VMT-?-NET-T101 Phase 1/2a (NCT05636618) Study – Initiation & Completion Year
Figure 3-9: FPI-2059-101 Phase 1 (NCT05605522) Study – Initiation & Completion Year
Figure 4-1: Factors Influencing Future Market of Targeted Alpha Therapies
Figure 4-2: Global - Targeted Alpha Therapy Market Opportunity (US$ Million), 2025 & 2028
Figure 9-1: Fusion Pharma - Fast-Clear™ Linker Technology
Figure 9-2: AdvanCell - Proprietary 212Pb Production Technology
Figure 9-3: Cellectar Biosciences - Phospholipid Ether (PLE) Platform Technology
Figure 9-4: Perspective Therapeutics – Proprietary Technology & Pb-212 Isotope Generator VMT-?-NET
Figure 10-1: Global Targeted Alpha Therapy Market - Drivers & Opportunities
Figure 10-2: Global Targeted Alpha Therapy Market - Challenges & Restraints
Table 1 1: Alpha Radiation vs. Beta & Gamma Radiation In Cancer Therapy
Table 4-1: Efforts to Increase Radioisotope Production Capacity
Table 4-2: Recent Collaborations for Targeted Alpha Therapy Development
Table 6-1: Targeted Alpha Therapies In Research Stage, 2024
Table 6-2: Targeted Alpha Therapies In Preclinical Stage, 2024
Table 6-3: Targeted Alpha Therapies In Phase I, 2024
Table 6-4: Targeted Alpha Therapies In Phase I/II, 2024
Table 6-5: Targeted Alpha Therapies In Phase II, 2024
Table 6-6: Targeted Alpha Therapies In Phase II/III, 2024
Table 6-7: Targeted Alpha Therapies In Phase III, 2024
Table 7-1: Marketed Targeted Alpha Therapies, 2024
Table 8-1: Xofigo - Decay Correction Factor

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