

Advancements in Therapeutic Nuclear Medicine

Significant advancements in monoclonal antibody techniques for pretargeting make it very likely that radiopharmaceuticals will become an important part of therapy for various cancers. The ability to deliver high radiation doses to tumors with minimal bone marrow toxicity will offer significant therapeutic improvement and prolong lives. In addition to the use of beta particles, alpha particles may soon become a mainstay in therapeutic nuclear medicine. In this issue, *Newsline* is pleased to present a review of current research on the uses of alpha particles (“Alpha Particle Therapy Poised to Become New Line of Cancer Treatment” by Deborah Kotz, page 17N) and a summary of one company’s research into pretargeting (“Antibody Pretargeted Radiotherapy: A New Approach and a Second Chance” by Alan R. Fritzberg, PhD, of NeoRx Corporation, page 20N).

At a recent meeting sponsored by the Nuclear Medicine Research Council in the Tri-Cities area of Washington State, I was excited to hear a presentation by a representative of Frost & Sullivan, an international marketing and consulting firm based in Mountain View, CA, regarding the significant growth projected in both therapeutic and diagnostic nuclear medicine. This information is very important for nuclear medicine professionals to consider in planning for the future. A portion of the first section of this report is reprinted in this issue of *Newsline* (see “Future of Nuclear Medicine, Part I: Marketing Research

Forecasts,” page 27N). Two additional sections of this report, “Assessment of the U.S. Diagnostic Radiopharmaceuticals Market (2001–2020)” and “Assessment of the U.S. Therapeutic Radiopharmaceuticals Market (2001–2020)” will appear in future issues.

Improvements in pretargeting, research using alpha particles and the increasing nuclear medicine diagnostic capabilities in oncology are all reasons that I believe nuclear medicine physicians are well suited to play a major role in caring for oncology patients. Nuclear medicine organizations need to take measures to ensure that we advance our knowledge in dosimetry and radiation biology. It is for these reasons that I challenge the leaders of nuclear medicine organizations to include presentations on dosimetry, radiation biology and oncology at nuclear medicine meetings. I encourage nuclear medicine residency directors to increase the coverage of these subjects in their training programs. In addition, the American Board of Nuclear Medicine might consider including more questions on dosimetry, radiation biology, oncology and therapeutic nuclear medicine in its certification examination. And finally, nuclear medicine practitioners should attend tumor board meetings at their facilities and present advancements as they become available.

—Conrad E. Nagle, MD
Editor, *Newsline*

Alpha Particle Therapy Poised to Become New Line of Cancer Treatment

For more than 15 years, cancer researchers have conceptualized using powerful alpha particles to target cancer cells. The first clinical trials have begun. The question now is: Will it work?

Cancer researchers looking for an extremely potent and highly specific way to target cancer cells are in early clinical trials investigating the use of monoclonal antibodies attached to alpha-emitting radionuclides. Several news items in national magazines and trade publications have already begun to hype alpha emitters, dubbing them “smart bombs” and “magic bullets.” Given these high expectations, scientists now face the challenges of testing the efficacy of this new therapy in clinical trials and determining how, if at all, it will come into widespread use in hospitals.

Oncologists are increasingly recognizing the value of harnessing the high energy of alpha particles to destroy cancer cells. The challenge and

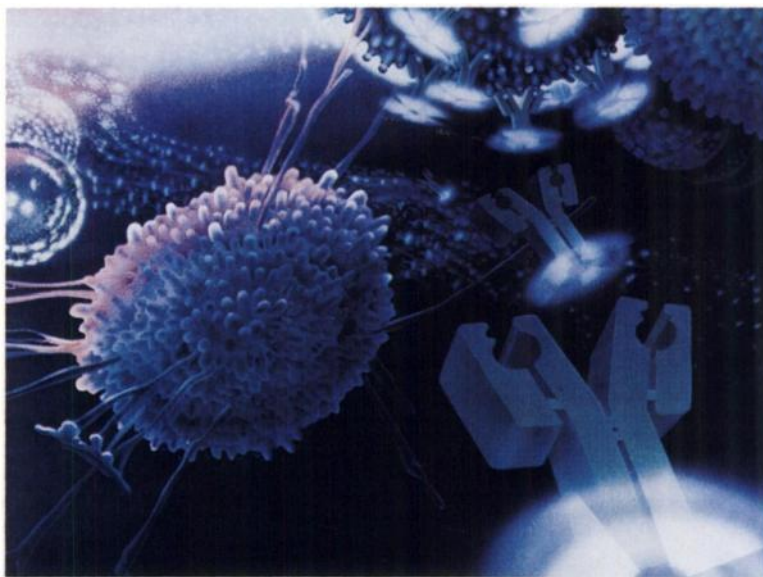


Photo: Robert E. Schemer, PhD

Radioisotope-tagged “smart bullets.” Monoclonal antibodies target malignant cells for diagnosis and treatment.