Published in final edited form as:

Cancer. 2010 February 15; 116(4 Suppl): 1011–1012. doi:10.1002/cncr.24786.

Introduction to the Supplement, “Cancer Therapy With Antibodies and Immunoconjugates”

David M. Goldenberg, ScD, MD

Garden State Cancer Center, Center for Molecular Medicine and Immunology, Belleville, NJ

Keywords

Antibodies; cancer; imaging; immunotherapy; radioimmunotherapy

This supplement represents a selection of the 56 papers presented at the “Twelfth Conference on Cancer Therapy With Antibodies and Immunoconjugates,”¹ which is part of a series of biennial meetings spanning since 1980, reviewed elsewhere,² truly before the current era of the adoption of monoclonal antibodies as a new class of anticancer agents. At present, 9 such antibodies, including one drug- and 2 radionuclide-conjugates, are commercialized in the USA for cancer therapy,³ but prior thereto, murine antibodies were used as radioconjugates in diagnostic imaging.^{3–5} We can also consider this history as an early example of a targeted therapy of cancer, which has become a major goal for all classes of cancer therapeutics. The majority of these conferences have focused on radiolabeled antibodies over the past 29 years, but I believe this work served as an impetus for the identification, development, and evaluation of many different forms and uses of monoclonal antibodies targeting a growing array of cancer antigens and receptors. We started with affinity-purified polyclonal antibodies in the 1970’s and progressed to murine and then chimeric, humanized and now fully human monoclonal antibodies; from intact IgG to F(ab’)₂ and Fab’ fragments to single chain, diabody and other multivalent constructs, as well as reengineered antibodies to affect binding, effector, signaling, or other functions; and from monospecific to multispecific monoclonal antibodies.^{3–5} Each of these advances, many born in academia, spawned new technologies within established pharmaceutical companies, as well as many new and since merged biotechnology firms. As useful as many of the commercialized monoclonal antibodies have become in cancer therapy, it is instructive that virtually all have their most important impact when used in combination with other therapeutic modalities, particularly cytotoxic chemotherapy. This intuitively justifies further exploration of combining the modalities into single antibody constructs, such as antibody-drug, antibody-radioisotope and antibody-cytokine conjugates.

The articles in this supplement encompass new research or timely reviews of the use of new antibodies and radioimmunoconjugates of various types for a number of different cancers, both hematologic and solid tumors. The two radioimmunoconjugates licensed in the USA for the therapy of non-Hodgkin lymphoma (NHL), ¹³¹I-tositumomab and ⁹⁰Y-ibritumomab tiuxetan, are generally accepted to be more potent in treating indolent and transformed NHL in each setting studied on comparison to rituximab, as discussed by the reviews herein by Palanca-Wessels and Press (p.) and Sharkey et al. (p.), and also discussed elsewhere,⁶ yet actual usage does not reflect this evidence. Is this a prejudice against radiolabeled antibodies

Corresponding author and reprints: DM Goldenberg, 520 Belleville Ave., Belleville, NJ 07109; Telephone 973-844-7000; Facsimile 973-844-7020; dmg.gscancer@att.net.

Financial Disclosure: No potential conflicts related to this paper are declared.

that will predict an adoption problem even with future successes in solid tumor radioimmunotherapy, or an aberrancy in hematological oncology? Based on a review of current clinical studies, the pharmaceutical industry seems to believe the former, while some of us who like our antibodies “hot” still persevere to demonstrate that targeting radiation to cancers systemically has an important role in the therapy of disseminated disease, particularly in early disease and adjuvant settings, where the radiation dose delivered is inversely proportional to tumor size.^{4,5}

The articles in this supplement cover naked, radiolabeled, and drug-conjugated antibodies. Targets such as FLT3, platelet-derived growth factor receptor- α , vascular endothelial growth factor receptor-1, carcinoembryonic antigen, HER2, TAG72, prostate-specific membrane antigen, and CD20 are examples of tumor-associated antigens studied in various laboratory and clinical settings. Three articles, including two clinical studies, address the use of the method of pretargeting, which reduces myelosuppression by separating the targeting with an unconjugated antibody from the delivery of the therapeutic radionuclide after blood titers of the former have been reduced.^{4,5}

I am grateful to the Program Committee for reviewing abstracts and chairing various sessions of the conference. I also thank Dr. Robert M. Sharkey for helping in relieving me of other responsibilities while organizing this conference and preparing the supplement. The conference and this supplement would not have been possible without the scientific contributors, attendees, and the generous support of several companies, a conference grant from the National Cancer Institute, and the New Jersey Commission on Cancer Research enabling students to participate. Finally, I appreciate the cooperation and assistance of the editorial staff of *Cancer*.

Acknowledgments

Grant Support: This conference was supported in part by USPHS grant 1 R13 CA124279 from the National Cancer Institute and the New Jersey Commission on Cancer Research.

REFERENCES

1. Program and abstracts of the Twelfth Conference on Cancer Therapy with Antibodies and Immunoconjugates. *Cancer Biother Radiopharm*. 2008; 23:505–528.
2. Goldenberg DM. Introduction to the Eleventh Conference on Cancer Therapy with Antibodies and Immunoconjugates. *Clin Cancer Res*. 2007; 13(18 Suppl):5499s. [PubMed: 18080348]
3. Sharkey RM, Goldenberg DM. Targeted therapy of cancer: New prospects for antibodies and immunoconjugates. *CA: A Cancer J Clin*. 2006; 56:226–243.
4. Sharkey RM, Goldenberg DM. Advances in radioimmunotherapy in the age of molecular engineering and pretargeting. *Cancer Invest*. 2006; 24:82–97. [PubMed: 16466997]
5. Sharkey RM, Goldenberg DM. Novel radioimmunopharmaceuticals for cancer imaging and therapy. *Curr Opin Invest Drugs*. 2008; 9:1302–1316.
6. Sharkey RM, Press OW, Goldenberg DM. A re-examination of radioimmunotherapy in the treatment of non-Hodgkin lymphoma: prospects for dual-targeted antibody/radioantibody therapy. *Blood*. 2009; 113:3891–3895. [PubMed: 19182204]