Fast Breaking Comments

By Napoleone Ferrara

Napoleone Ferrara answers a few questions about this month's fast breaking paper in field of Pharmacology & Toxicology.

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Field: Pharmacology & Toxicology

Article Title: Discovery and development of bevacizumab, an anti-VEGF antibody for treating cancer

Authors: Ferrara, N;Hillan, KJ;Gerber, HP;Novotny, W
Journal: NAT REV DRUG DISCOV
Volume: 3
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* Genentech Inc, Dept Mol Oncol, 1 DNA Way, San Francisco, CA 94080 USA.
* Genentech Inc, Dept Dev Sci, San Francisco, CA 94080 USA.
* Genentech Inc, Dept Clin Oncol, San Francisco, CA 94080 USA.

ST: Why do you think your paper is highly cited?

I think the paper is highly cited because it reviews important recent developments in the angiogenesis field, most notably a successful phase III clinical trial that led to the approval by the FDA of bevacizumab, a novel cancer treatment. This is believed by many to be a milestone in the field.

"Bevacizumab is the first anti-angiogenic agent to show clinical efficacy and increase patient survival in a phase III study."

ST: Does it describe a new discovery or a new methodology that's useful to others?

The paper briefly reviews the biology of VEGF, a critical mediator of angiogenesis, and describes the preclinical studies that led to the clinical development of bevacizumab, a humanized anti-VEGF monoclonal antibody. The clinical trials of bevacizumab are described in detail, including a pivotal study the resulted in FDA approval. The addition of bevacizumab to standard first-line chemotherapy resulted in a significant increase in survival and progression-free survival in patients with previously untreated metastatic colorectal cancer.

ST: Could you summarize the significance of your paper in layman's terms?

Bevacizumab is the first anti-angiogenic agent to show clinical efficacy and increase patient survival in a phase III study. It is also the first drug in this class to be FDA-approved.

ST: How did you become involved in this research?

My lab has been interested in the regulation of angiogenesis for many years. In 1989 we reported the isolation and cloning of VEGF-A. In 1993 we reported that an antibody that targets human VEGF-A substantially inhibits the growth of several human tumor cell lines transplanted in nude mice. These studies led to the idea that a humanized anti-VEGF monoclonal antibody might be useful as a cancer therapeutic.

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