THE CANCER LETTER INTERACTIVE

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Klausner Urges Emphasis On Research, Warns Against Shift To Health Programs

Scientists and advocates for biomedical research should resist pressure to shift federal support from basic research to public health programs, NCI Director Richard Klausner said last week.

It would be foolish, he said, to think that substantial progress can be made against cancer merely by applying current knowledge, with no further need for discovery, said Klausner at the Dec. 5 meeting of the National Cancer Advisory Board.

"I would put in a plea that we do not, in our rightful impatience for results, fool ourselves to think that discovery's over, that we now know enough," Klausner said. "We absolutely do not. It would be very dangerous. We won't reach our goals if we do that. In our desire for applications, we cannot ignore the need for discovery and exploration, which is what this Institute needs to be about."

The remarks represent a summation of what Klausner described as his "philosophy of NCI" in what may have been his final NCAB appearance

(Continued to page 2)

In Brief:

Gregory Reaman Elected Chairman, C.O.G.; NCI Seeks Nominations For Consumer Group

GREGORY REAMAN was elected chairman of the Children's Oncology Group, the NCI-supported clinical trials group said last week. Reaman is a professor of pediatrics at George Washington University School of Medicine and executive director of the Children's National Medical Center. The other candidate was Michael Link, professor of pediatrics, Stanford University. The group's PIs voted electronically last month. . . . **NCI SEEKS** nominations for five new members of the NCI Director's Consumer Liaison Group. The 15-member DCLG helps NCI identify advocates to serve on program and policy advisory committees, and serves as a channel for consumer advocates to voice their concerns. DCLG members must be U.S. citizens. Nominations can be made by organizations or individuals, including self-nominations. To receive a nomination package, send name, advocacy/voluntary organization affiliation if any, address and phone number, to Liaison Activities, NCI, c/o Palladian Partners, 1010 Wayne Ave. Suite 1200, Silver Spring, MD 20910, fax 301-650-8676. Nominations must be postmarked by Feb. 15. . . . **THE CANCER LETTER** will not be published for the next two weeks while the staff takes its annual winter publication break. The next issue, Vol. 27 No. 1, is scheduled for publication on Jan. 5.

Klausner: Pressure Growing To Cut Basic Research

(Continued from page 1)

as the NCI director. As a Presidential appointee, Klausner was required to submit his resignation effective Jan. 19. It will be up to President-elect George W. Bush to decide whether to accept his resignation.

"My position is to serve at the pleasure of the President," Klausner, a molecular biologist, said in an interview this week with **The Cancer Letter.** [The interview appears on page 3.]

Klausner was appointed the 11th NCI director by President Clinton in August 1995, at a time when the Institute was struggling with an increasingly weighty bureaucracy and lacked clear priorities or cohesive leadership. Klausner developed a good working relationship with both Republicans and Democrats on Capitol Hill. His vision for reinventing NCI produced a series of generous budget increases for the Institute.

Klausner's principal goal was to restructure NCI into an international leader in supporting cancer genetics research. On his watch, the Institute has subjected its largest grant programs to year-long reviews by outside experts, established dozens of new programs and shut down unproductive ones, and invited experts in to review the Institute's research efforts for every major type of cancer.

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Klausner has repeated persistently that the war on cancer is at a turning point thanks to a scientific consensus over the past 10 or 15 years about the origins of cancer. According to this "unified theory," cancer is always a disease of altered genes and altered gene function, whether the alteration arises from a virus, from a chemical cause, or through heredity.

Thus, Klausner maintains, aggressive funding of research in cancer genetics will spur discoveries that will bring the cures.

Working with academia and advocates, Klausner established NCI's research priorities and made them publicly accessible by rewriting a formerly unwieldy document called the NCI Bypass Budget, the Institute director's annual report to the President about scientific opportunities in cancer research.

"Growing Pressure" On Need For Basic Research

Klausner's warning to the NCAB about the importance of basic research echoes a theme that emerged in a debate earlier this fall with one of his predecessors, Vincent DeVita, NCI director from 1980-88, now director of the Yale Cancer Center.

DeVita, co-chairman of a committee funded by the American Cancer Society to develop a white paper for a new version of the National Cancer Act, was invited to speak to the NCAB last September to describe the committee's work. DeVita maintained that cancer research had reached a "critical mass," enabling "the next level of the National Cancer Program," which would entail greater emphasis on cancer control, or applying known prevention, screening, and treatment more widely (**The Cancer Letter**, Vol. 26 No. 34, Sept. 22, 2000).

At that September meeting, Klausner questioned whether a "critical mass" had been reached. He said it would be unwise to give the public and Congress the impression that, "we did what we needed to do in basic research, and now it's just a question of application."

In his remarks to the NCAB last week, Klausner repeated the point. "We are interested, more and more, with the issue of application," Klausner said. "Yet I am concerned that we not fool ourselves with the level of progress we have made to think the questions are all answered and that all we need to do is apply what we know."

Klausner spoke for an hour and half to the board, covering budget and programmatic issues, but devoting about half of the time to his "philosophy of NCI."

Following is an edited transcript of Klausner's remarks to the NCAB:

Any institution that plans to be successful needs to reflect an articulated philosophy, and in cleaning up some files in my office, I found notes I have from five-and-a-half years ago when I first spoke to the NCAB and talked about the question of the challenge of an institution that must be an institution of science, that needed to articulate and then try to follow the ethos of science, discovery, research. Despite the remarkable public support and Congressional support with the growth of the budget over the last three years, after a long period of not only no growth, but effectively a decrease in the research budget, one might feel that the argument has been won about the continued public and government support of science. That argument must be continuously engaged.

I bring this up not only to discuss the Bypass budget, but also in light of what I feel are a growing set of pressures about the need for basic research and science. We are interested, more and more, with the issue of application. Yet I am concerned that we not fool ourselves with the level of progress we have made to think the questions are all answered and that all we need to do is apply what we know.

I do not want to say that we do not need to apply what we know, and I think as you've seen, this Institute is, in a growing way, committed to being concerned with diffusion, dissemination, application, and ways of monitoring and assuring that we apply what we know. But I am concerned that we continue to recognize, within those institutions that are fundamentally about discovery, how much more we need to discover, in all aspects of what we do.

What I want to describe is something that has come up in the past year, in discussions that I and others have been having, that were initiated by a group of eminent practitioners and thinkers of science,

Interview With NCI Director Richard Klausner:

"We Need A Long-Term Commitment" To Discovery

In an interview with ***The Cancer Letter*** *on Dec. 13, the day following the U.S. Supreme Court decision that cleared the way for George W. Bush to become the next President, NCI Director Richard Klausner said he couldn't discuss whether he would be willing to serve in a Bush Administration.*

The Cancer Letter: As all Presidential appointees, you have submitted your resignation.

Klausner: Yes, as of Jan. 19.

CL: In some changes of Administration, NCI directors have stayed on. As a Clinton appointee, would you be willing to serve in a Bush Administration?

K: I shouldn't discuss that. My position is to serve at the pleasure of the President.

CL: Your talk at the NCAB meeting last week was the second time this fall that you have spoken with the board about support for basic research. What prompted you to bring up the subject again?

K: As I tried to say, I do think there is a growing and erroneous misinterpretation of the need to pay attention to the application of what we know, extrapolated to the idea that we are in some profound shift from a discovery phase to an application phase. I think there is a naive misunderstanding of how much we have left to discover. As we expand, both at NCI and all biomedical research, we need to make sure real discovery and real advances are applied, but we need to assure that we do not fool ourselves into thinking that we've just been through the Golden Age and all we need to do is apply. I really do worry that we not lose our traditional strong support for the discovery process, because we have a lot to discover.

It was a philosophical statement of how I hoped the board would maintain oversight. The board needs to maintain oversight within a restatement of the philosophical basis for this institution, in addition to its operations and management.

CL: What has fueled that "misinterpretation," as you called it?

K: It's complicated, as is any attempt to encompass how people are thinking at any moment. There's impatience, there is a profound expectation that science and technology are delivering all these wonders and ought to do all we want.

CL: Do you feel there will be increasing pressure on the next Administration to demonstrate results against cancer? Where will that pressure come from?

K: I think there is always pressure to demonstrate results, and that's not bad, as long as we don't lose sight of the fundamental nature of the enterprise. We need a long-term commitment to continuing to discover and develop, and that it not be sacrificed in the rightful oversight and questions about deliverables and success and failure.

particularly a group of people from Harvard, led by Lewis Branscomb [emeritus professor, Kennedy School of Government, Harvard University] and Gerald Holton [Mallinckrodt Professor of Physics and emeritus professor of history of science, Harvard University].

A group of people have gotten together for rethinking what research government should fund. Not the least of which has been motivated by a concern that we need to pay attention broadly to the support of science and research and to respond to questions from Congress, including great supporters of research in the Congress, about how we articulate and justify research. I think it's relevant to the question of the tension between discovery and application.

Holton has proposed a vision for articulating a philosophical approach to the support of research and science, which he refers to as "Jeffersonian science." It particularly draws its inspiration from Jefferson's collusion with Meriwether Lewis in the Corps of Discovery in the Lewis and Clark expedition. In his article in Issues In Science and Technology, Holton points out that there has been a request from members of Congress for "a new contract between science and society for the post-Cold War era."

The aim of this group is to propose an imperative for an invigorated science policy that adds to the well-established arguments for government support of basic research. They address seemingly contradictory, or two alternative approaches, to think about scientific research. One is curiosity-driven, or basic research, versus applied or mission-oriented research, recognizing that this dualism really is not very accurate about how science is practiced.

They refer to science for its own sake, curiosity-driven and "Newtonian science," as opposed to "Baconian science," which is applied research, or problem-solving, after Francis Bacon. There was some discussion at this meeting whether the phrase Baconian science, with its implication of pork, may not be the best way to approach Congress.

At this meeting [the American Association for the Advancement of Science Conference on Basic Science in Service of Public Objectives, Nov. 28], I was invited to talk about NIH and NCI. Branscomb opened it up and put a slide on, and the slide said: "The NCI's goal is to stimulate and support scientific discovery and its application to achieve a future when all cancers are uncommon and easily treated." This was from the executive summary of the NCI Bypass budget.

I was a little bit nervous, because you don't like to go to an open meeting where your words are put up to be critiqued. Luckily, he critiqued it quite positively. He said: "Just consider, the main goal is, in fact, science. It is not research, but discovery, a word that implies novelty and value, while 'research' sounds more pedantic. The goal is both discovery and application. NCI is willing to be accountable for how the discovery finds its way into clinical practice, even if NCI does not control all the variables"—something Harold [Freeman] and we have been talking about a lot—"and the discovery is to 'achieve a future,' not to create or manage the future, with 'achieve' implying enabling, not causing, and we don't promise to cure or eliminate cancer, but rather to reduce the threat to a much more acceptable level. And finally, the future doesn't say actually when it is."

NIH seems to provide us with a model of the Jeffersonian strategy. The fact is, even with that, there remains, as we've seen around this table, a constant tension between medical public health needs and scientific opportunity. The Baconian impulse that plays out in questions about dollars spent versus some quantitative measure of burden of disease and calculated disease-by-disease is strong and persistent. The notion of the Jeffersonian vision of achieving societal goals via support for basic research is attractive, to me, for many reasons, not the least of which is that it actually reflects how biomedical research has been successfully accomplished and by and large, successfully supported.

While the phrase "Jeffersonian research" may be useful shorthand, it may not be the clearest way, for the public, to refer to a description of how to integrate support for basic science and the need for continued discovery, and relate that with the support of the infrastructure required for that in achieving societal goals. On the other hand, the language that we use is important, and I like very much the reference to Lewis and Clark's Corps of Discovery as a powerful historic antecedent to publicly supported science. That early 19th century enterprise offers us two terms that I will use in describing the Bypass budget that can help frame pragmatically an approach to a Jeffersonian model of publicly funded science. These two terms are 'exploration' and 'discovery.'

Great and quite specific goals are expected of the NCI, and that is to reduce the burden of cancer. Public interaction with NCI is intense because of the prevalence and the burden of cancer, the fear that this set of diseases invokes, and the growing

engagement of the public, particularly the concern of the immediately affected public, in the scrutiny and the support of NCI. Support for a Jeffersonian model requires that we clearly articulate why we currently still lack all the tools that we need to reduce the burden of cancer, that cancer remains an incredible puzzle—and I'm talking about the entire continuum of cancer—including the extraordinary puzzles of human behavior, and that we only hope to solve this puzzle through discovery, through gaining knowledge addressing the areas of our ignorance, and that the very nature of discovery entails both uncertainty and surprises. Given that premise, we need to direct our attention as managers of such enterprises to the exploration processes that allow discovery.

When creating the Corps of Discovery, Jefferson and Lewis focused their planning on two aspects of exploration, one, the exploration vehicle—the transportation needs, the tools, the personnel, the supplies, training—and the exploration domain, in this case the uncharted territory of the Louisiana Purchase. I think we can come back to these two components of exploration in describing the philosophical basis of the Bypass budget.

In my five and a half years in this position, one of the clearest manifestations of questioning our philosophical model of science in service of society has been put in questions to all of us at NIH as to how we plan and set priorities. On one level, this question asks how we determine the needs for programs, for specific approaches to specific problems, how we relate that to our specific requests for budget and other resources, and how research resource choices can be both accounted and accountable.

On a deeper level, the setting of priorities forces the formulation of the structural details of a science funding enterprise: grants, contracts, in-house research, training, infrastructure, etc., on the one hand. On the other hand, it forces a formulation of categories of research whose taxonomy and interrelations are both complex and keep changing. For example, basic versus applied, or basic versus clinical versus population, or science versus technology. On the deepest level, the setting and articulation of priorities actually lays out the possibility of painting a Jeffersonian landscape, offering us the opportunity to define and defend the philosophical underpinnings of the enterprise. So of the different aspects of the Jeffersonian model that one could discuss, I think examining a planning process is a particularly useful one.

The planning process and the products of that process provide the opportunity to articulate Jeffersonian science principles and to convincingly link those principles to how the institution and the supported enterprise actually functions. In the planning process, therefore, you need to, 1) articulate the societal need as a challenge requiring knowledge, 2) to articulate science as the discovery process capable of creating that needed knowledge, 3) to articulate the connection between discovery and the application of discovery to societal need, 4) to establish criteria and processes for determining the vehicles and the domains and the support needed for the exploratory activities that are required for discovery, and 5) to address with some realism, timelines, milestones, and expectations, as well as to be aware of the uncertainties of timelines and plans that are fundamentally dependent of discoveries not yet made.

In undertaking planning, which I feel is one of the major ways I've spent my time here, we need to confront and actually talk about the oxymoron of science planning. We can plan exploration, but we cannot plan discovery. It's in reinforcing that central premise that it's useful to return to the inspiration of Jefferson's Corps of Discovery. In the planning for exploration, we need to address manpower needs, infrastructure, support systems—the tools of both exploration and discovery—and even the products: communication, documentation, measurements, collections, repositories.

At NCI, we use the distinction between the vehicles and the domains of exploration to drive both the review processes and to organize planning and the creation of new funding initiatives. The goal is both discovery and the application of discovery. The means of discovery is the capacity to explore, which involves both designing vehicles of exploration and formulating productive domains leading exploration. New explorations range from genomics, to models of human disease, to the linkages of biology and chemistry to explore molecular targets, of physics and biology to measure and image, to bioinformatics, to epidemiology, to clinical trials. These provide a conceptual framework for the discovery processes that are driven within these exploratory domains and through these exploration vehicles, by the processes and ethos of Newtonian science.

The issue of tools, in the broadest sense, emerges as a prominent component of exploration and discovery. Tool-building is an underused element in

articulating Jeffersonian science. It has been too much pushed to the periphery of the processes and concerns of NIH by an overly restrictive view of science as hypothesis-testing, a view that does not help in supporting a Jeffersonian vision of basic science in pursuit of societal goals.

Science is rather a process of inquiry which includes, but is not limited to hypothesis testing. We inquire via a wide range of tools, the tools both limiting and often determining the boundaries and success of inquiry. Tools enable science and science enables tool building. I have found that speaking about the value of the building, dissemination, and use of tools is broadly understood by the public and Congress, and reinforces the exploration-discovery-application continuum that can define a Jeffersonian science enterprise. Attention to the importance of tools emphasizes that to be successful, such an enterprise must recognize that it is the infrastructure of exploration and the freedom to explore that connects basic science to achieving societal goals. The question of tools, where they come from and how they are used, also serves to link all of the sciences and demands that all of us pay attention to fundamental knowledge in physics, chemistry, materials science and mathematics and computational science as critical to progress in biology and medicine.

How has this played out in NCI's planning process and how have we addressed the tension I alluded to between scientific opportunity and medical public health need? Our planning processes have three components, two of which comprise the annual budget document called the NCI Bypass Budget. That document, however, employs a scientific opportunity approach that emphasizes the vehicles for and the domains of exploration.

The section called the NCI challenge is organized to addresses the vehicles for exploration. It's structured to lay out the rationale behind, and to argue for the size and the structure of the major vehicles of exploration including: investigator-initiated research; consortia, networks and centers; informatics and information flow; clinical trials; training, education and career development; quality cancer care research, and others.

The second section, Extraordinary Opportunities for Investment, is aimed at describing new and promising domains of exploration. They illustrate how the possibilities of exploration are created by often unexpected development in knowledge and tools. As you recall, that's one of our criteria for being an extraordinary opportunity, the creating of a new Louisiana Purchase, a new domain for exploration, such as: Genes and the Environment, Molecular Targets; Cancer Imaging; Molecular Signatures; Cancer Communications; Tobacco.

Against this backdrop of programs aimed at exploration, driven by the nature and opportunities of science, we add a third planning component, the disease-specific progress review groups, or PRGs. Every three months, a group of outside scientists, clinicians and consumers are organized to begin a nine to 12-month process of producing a report to the Institute, and to the whole community, that formulates and prioritizes what we currently believe we need to know, what we need to understand, and what we need to be able to do in order to address the issues of a particular cancer.

To me, the most interesting part of this process, and the aspect most relevant to the discussion of Jeffersonian science, is the process of mapping the recommendations driven by medical or public health need, against the plans, programs and priorities established through the scientific opportunity-based planning processes of the Bypass Budget. We do this in a very detailed and quantitative way and we do it with the members of the outside review group. The result is an open discussion of the extent to which a scientific enterprise driven by notions of exploration and discovery actually can address the somewhat Baconian charge to disease-specific planning groups.

In every case to date, about 85 percent of the recommendations map to our vehicles and domains of exploration that were established by addressing scientific opportunity. Importantly, the public demonstration and experience of this mapping process reinforces, I hope, rather than challenges the essential role of discovery in making progress against particular cancers. At the end, the reports of the PRGs are widely advertised and posted on the NCI Web site along with the mapping to NCI vehicles and domains of exploration. They serve as much to inform and challenge the research community as to charge the NCI. Our role in implementation is, in part then, to guide investigators to utilize the vehicles and domains of exploration, manifested by dozens of specific funding structures, dozens of possibilities for exploration, to pursue the scientific community's goals of discovery.

I do believe that a Jeffersonian vision of science ought to be able to sustain public support and confidence without compromising the nature and ethos

of science. Essential to this vision is that it must actually describe how federally-funded science enterprises work. That requires planning, implementation and evaluation processes that reflect and reinforce that explicit vision. I have only talked about the planning part of it, but the core of all three of those processes—planning, implementation, and evaluation—must include an explicit formulation of the nature of science and of the nature of the connection between science and societal goals.

I cannot emphasize enough the importance of making this vision explicit and accessible and clearly link that vision to the planning, implementation, and evaluation processes that turn that vision into action. The relationship between societal needs that motivate public investment and the successful conduct of science in a way that ultimately addresses those needs will be continually questioned. The tension between scientific opportunity and societal needs does not easily get resolved by any single formulation, process, speech, document, etc., rather it needs to be continuously engaged.

I think it is important that federal agencies that cut across all the science enterprises need to learn from each other and to work to evaluate how one addresses these tensions, because we need each other, and how to best formulate such a Jeffersonian model, that I actually do believe can have resonance with the public, our politicians, as well as with the scientific community.

I've talked about my view of the need for this board, as the board of continuity that cuts across Administrations and people within the Institute, to pay attention not necessarily to this formulation of philosophy, and not only the issue of process and processes, but to the question of the articulation of underlying philosophy.

I would put in a plea that we do not, in our rightful impatience for results, fool ourselves, as came up in discussion at the last NCAB [meeting], to think that discovery's over, that we now know enough. We don't. We absolutely do not. It would be very dangerous. We won't reach our goals if we do that. In our desire for applications, we cannot ignore the need for discovery and exploration, which is what this Institute needs to be about.

Further reading:

Coupling Science and the Public Interest, The Lewis Branscomb Lecture, by Gerald Holton, Harvard University, March 16, 2000, http://www.ksg.harvard.edu/iip/Dean/hiip/Activities/Seminars/lmb/holton.htm.

A Vision of Jeffersonian Science, by Gerald Holton and Gerhard Sonnert, Issues in Science and Technology, Fall 1999, http://www.nap.edu/issues/16.1/holton.htm

The False Dichotomy: Scientific Creativity and Utility, by Lewis Branscomb, Issues in Science and Technology, Fall 1999, http://www.nap.edu/issues/16.1/branscomb.htm.

NCI History:

First NCI Director To Resign Due To Presidential Election?

Richard Klausner may be the first NCI director to have had to submit his resignation after a Presidential election.

Earlier this month, all Presidential appointees were required to submit their resignations to Cabinet Secretaries for forwarding to the transition team of the next Administration. Klausner's would have been addressed to HHS Secretary Donna Shalala.

In 1993, at the end of the Administration of the President-elect's father, George H. W. Bush, the NCI director at the time, Samuel Broder, was not required to submit a resignation. Broder was appointed by President Reagan in 1989 and served through the Bush Administration and more than two years into the Clinton Administration.

Historically, the NCI director's job was considered a non-political position. Since the Institute's formation in 1937, six of 10 NCI directors held their jobs for more than one Presidential Administration, and four of those served both Republican and Democratic Presidents.

It was only after the National Cancer Act of 1971 that the job became a Presidential appointment. Unlike the NIH director, the NCI director is not confirmed by the Senate.

Even after 1971, the resignation of NCI directors was usually unrelated to changes of occupancy in the White House. Broder's predecessor, Vincent DeVita, was appointed by President Carter in 1980 and served nearly to the end of the Reagan Administration, leaving in 1988. Arthur Upton was NCI director for two years in the Carter Administration.

Frank Rauscher Jr., the first NCI director to be appointed after President Nixon signed the Cancer Act, served through the Ford Administration. In early 1976, Rauscher, with five children to put through college, announced he could no longer afford to work

for the government at a salary frozen for six years at around $36,000 (**The Cancer Letter**, Vol. 2 No. 6, Feb. 6, 1976).

When efforts to increase the salary failed to come through, Rauscher left for a job at the American Cancer Society four days before Carter's victory on Nov. 2 (**The Cancer Letter**, Vol. 2 No. 50, Oct. 22, 1976).

Prior to 1971, two NCI directors served in both Republican and Democratic Administrations, though they were not appointed by the President.

The fourth director, John Roderick Heller Jr., appointed in 1948 during the Truman Administration, served through the Eisenhower Administration until July 1960. His successor, Kenneth Endicott, appointed in 1960 during the Eisenhower Administration, served through the Kennedy and Johnson Administrations, until 1969.

Funding Opportunities:

DOD Prostate Cancer Research Program

The fiscal year 2001 Defense Appropriations Act provides $100 million to the Department of Defense Prostate Cancer Research Program.

This program has been administered since FY97 by the U.S. Army Medical Research and Materiel Command (USAMRMC) through the Office of the Congressionally Directed Medical Research Programs (CDMRP).

FY01 PCRP Program Announcement I invites proposal submissions through three mechanisms: Idea Development Awards, New Investigator Awards, and

Postdoctoral Traineeship Awards. The proposal receipt deadline for these mechanisms is March 21. A proposal body limit of 10 pages (to include all figures, tables, graphs, and photographs) applies to proposals in all award categories. Detailed descriptions of each award category, evaluation criteria and proposal submission requirements can be found in FY01 PCRP Program Announcement I. This document may be downloaded from the CDMRP web site at http://cdmrp.army.mil.

Idea Development Awards are designed for independent investigators at the assistant professor level or above who are established prostate cancer investigators and those investigators who want to move into the prostate cancer field. Preliminary data are required for submission. Funding may be requested for up to $375,000 per award (direct costs) for a 3-year period.

New Investigator Awards are designed for independent investigators who are in the early phases of their research careers and for established investigators new to prostate cancer research. Preliminary data are not required for submission. Funding may be requested for up to $225,000 per award (direct costs) for a 3-year period.

Postdoctoral Training Awards are designed for recent doctoral degree graduates with limited postdoctoral experience (3 years or less at the time of proposal submission). Funding may be requested for up to $98,000 per award, inclusive of both direct and indirect costs, for a 2-year period.

FY01 PCRP Program Announcement II invites proposals in four new award mechanisms: clinical trials, research consortium development, institutional training, and scholar awards. The institutional training awards are Historically Black College and University focused.

FY01 PCRP Program Announcement II is anticipated to be released in January 2001, and receipt of proposals is expected in May or June of 2001.

Consult the CDMRP web site at http://cdmrp.army.mil for further information on the PCRP and other CDMRP programs.

Program Announcement

PA-01-030: Exploratory/Developmental Grants for Diagnostic Cancer Imaging

The Biomedical Imaging Program of the Division of Cancer Treatment and Diagnosis invites applications for research into high risk/high impact areas in diagnostic cancer imaging by providing investigators at all career levels the resources for feasibility and pilot testing. If the concepts were viable, investigators would be competitive for continued funding through other NIH research award mechanisms, leading to the establishment of new research programs in areas that might have previously remained unexplored. The PA will use the NIH exploratory/developmental R21 grant mechanism.

Inquiries: Anne Menkens, Biomedical Imaging Program, NCI, EPN 6068, 6130 Executive Blvd., Bethesda, MD 20892, phone 301-496-9531; fax 301-480-5785; e-mail am187k@nih.gov. BIP Web site http://www.nci.nih.gov/bip

Toxicogenomics Research Consortium RFA-ES-01-002-Addendum

National Institute of Environmental Health Sciences plans to convene a special technical assistance preapplication workshop to give background information about the preparation of an application in response to the RFA. The workshop is scheduled for Feb. 2, 10 am-4 pm, NIEHS Conference Center, Research Triangle Park, NC. Contact Kenya Brumby at phone 919 541-1442; e-mail Brumby@niehs.nih.gov

Inquiries: Michael McClure, Organs and Systems Toxicology Branch Division of Extramural Research and Training, NIEHS, 111 T.W. Alexander Dr., Research Triangle Park, NC 27709; phone 919-541-5327; fax 919-541-5064; e-mail mm461n@nih.gov

THE CANCER LETTER

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Business & Regulatory Report

Formerly "Cancer Economics"

Clinical Trials:

EntreMed Begins Pilot Phase II Trial Of Small Molecule Angiogenesis Inhibitor

EntreMed Inc. (Nasdaq: ENMD) of Rockville, Md, announced commencement of a pilot phase II trial for 2-methoxyestradiol (2ME2), a small molecule inhibitor of angiogenesis that is taken orally as a capsule.

S. Vincent Rajkumar, senior associate consultant in the Mayo Clinic division of hematology, will serve as the principal investigator on the study which will test the safety and efficacy of 2ME2 in patients with stabilized or relapsed multiple myeloma, one of the most aggressive types of cancer.

The phase II trial will start before current phase I trials of 2ME2 are completed, the company said.

2ME2, the fourth angiogenesis inhibitor brought to the clinic by

(Continued to page 2)

Deals & Collaborations:

Perot Systems To Provide IT Support For US Oncology Enterprise Applications

Perot Systems Corp. (NYSE: PER) of Dallas and **US Oncology Inc.** (Nasdaq: USON) of Houston announced a five-year agreement under which Perot Systems will provide information technology support services for selected US Oncology enterprise applications.

US Oncology is contracting with Perot Systems to provide a technology infrastructure that delivers efficient administrative operations for certain enterprise systems. To accomplish this goal, Perot Systems will look for ways to streamline and upgrade system configuration and support, while maintaining and monitoring the current operating environment.

* * *

Abgenix Inc. (Nasdaq: ABGX) of Fremont, CA and **Immunex Corp.** (Nasdaq: IMNX) of Seattle, WA, announced a multi-year collaboration to discover, develop and commercialize fully human monoclonal antibody therapies for the treatment of cancer.

Abgenix and Immunex said they each would contribute five cancer-specific antigen targets during the first five years of the collaboration. They said they would supply their respective proprietary technologies and development capabilities.

Abgenix said it would utilize its XenoMouse technology, which enables the rapid generation of high affinity, fully human antibody product candidates to any disease target appropriate for antibody therapy.

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PO Box 9905
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2ME2 Attacks Tumor Cells And Blood Supply, Firm Says

(Continued from page 1)

EntreMed, is the company's first product candidate that attacks both the tumor cells and their blood supply.

"By attacking the tumor and its blood supply, 2ME2 represents the combination of chemotherapy and antiangiogenesis at work," said Edward Gubish, EntreMed executive vice president, research and development. "And because it is a molecule that occurs naturally in humans, the potential for side effects associated with standard cancer treatments is greatly reduced."

* * *

Atrix Laboratories Inc. (Nasdaq: ATRX) of Fort Collins, CO, said it has completed enrollment for a phase III trial of 3-month Leuprogel 22.5 mg, leuprolide acetate, for advanced prostate cancer.

The therapy uses the Atrigel drug delivery system to administer a 3-month sustained release dose subcutaneously, the company said. Sustained levels of leuprolide decreases testosterone levels, which in turn reduces tumor growth with hormone-responsive prostate cancer, the company said.

The 110 multi-center patients study should be completed by the second quarter of 2001 and a new drug application for 3-month Leuprogel 22.5 mg will be submitted to FDA late next year, the company said.

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* * *

Enzo Biochem Inc. (NYSE:ENZ) of Farmingdale, NY, said it has received approval from the Ministry of Health in Israel to begin a phase I double-pronged trial of its antigen immune regulation product for hepatitis C infection or its associated hepatocellular carcinoma.

Preclinical animal studies of a similar Enzo proprietary strategy of immune regulation showed complete suppression of hepatitis B-associated human liver cancer and significantly reduced mortality in laboratory mice, the company said.

Two groups, one infected with HCV and the other with HCV-associated hepatocellular carcinoma will be treated for 30 weeks, and followed for another 20 weeks, the company said.

Physicians at the Liver Unit of Hadassah University Medical Center, Jerusalem, Israel, will conduct the study, the company said.

* * *

MGI Pharma Inc. (Nasdaq: MOGN) of Minneapolis, MN, and **MethylGene Inc**., of Montreal, Canada, said they have initiated a phase II trial in Canada and the U.S. with MG98 in recurrent or metastatic squamous cell cancer of the head and neck.

MG98, a second-generation mRNA inhibitor compound, has been well tolerated and demonstrated anti-cancer activity in an ongoing phase I dose escalation trial for a variety of solid tumor types, the companies said. Up to 30 patients may be enrolled in the multicenter phase II trial.

"The studying of MG98 in head and neck cancer provides one of the first opportunities to attempt to modify gene expression as a therapeutic modality in cancer, said Andrew Maksymiuk, principal investigator at CancerCare Manitoba. "This exciting approach targets basic mechanisms and specificity of attack in cancer not traditionally seen in more non-specific cytotoxic cancer therapies."

Preclinical studies have suggested its potential to reduce the methylation of the p16 gene, thereby allowing restoration of normal tumor suppressor gene expression, the companies said.

* * *

NeoPharm (Nasdaq: NEOL) of Bannockburk, Ill, said it has initiated phase I/II clinical trials for IL13-PE38 in refractory glioblastoma multiforme.

The trial is conducted by the New Approaches to Brain Tumor Therapy, an NCI-sponsored research consortium.

Jonathan Weingart, a neurosurgeon at the Johns

Hopkins University Medical School, is principal investigator of the study.

Raj Puri, chief of the Laboratory of Molecular Tumor Biology at the FDA Center for Biologics Evaluation and Research developed IL13- PE38. NeoPharm has exclusively licensed IL13-PE38 from the NCI and FDA.

In a related development, NeoPharm said it has begun phase I/II clinical trials of SS1(dsFv) PE38 for refractory mesothelin modulated cancers at the University of Oklahoma and the National Cancer Institute.

SS1(dsFv) PE38 is an single chain tumor targeting agent that utilizes an anti-mesothelin antibody attached to a pseudomonal exotoxin, the company said.

* * *

SciClone Pharmaceuticals (Nasdaq: SCLN) of San Mateo, CA, said it has begun a clinical study in Australia of Zadaxin, an immune enhancing synthetic peptide, for malignant melanoma.

The study is designed to show whether the peptide can enhance immunity, elevate T-cell counts and contribute, in combination with active immunization, to a specific melanoma immune response, the company said. Peter Hersey of the Royal Newcastle Hospital in New South Wales, a melanoma treatment researcher, will coordinate the study.

Advanced-stage, metastatic melanoma patients with low cell-mediated immunity will be given an induction course of Zadaxin to improve their overall cellular immune responses, the company said. Half of the patients then will be given vaccinations with mature dendritic cells, which have been infused with melanoma antigen. The other half of the patients will receive the DC vaccinations plus Zadaxin, which has been shown to significantly increase the levels of CD4 and CD8 T-cells.

Deals & Collaborations:

Abgenix, Immunex To Work On Monoclonal Antibodies

(Continued from page 1)

Immunex said it would utilize its expertise in target validation and pre-clinical biology.

The companies said they would share equally in the development and commercialization of any therapeutic anti-cancer antibody product.

* * *

BioTransplant Inc. (Nasdaq: BTRN) of Charlestown, MA, and the **Massachusetts General Hospital** Transplantation Biology Research Center said they have renewed their collaborative research agreement in the transplantation of cells, tissues and organs.

The collaboration, which will continue its research advancements in allotransplantation and xenotransplantation, will focus on preventing the need for long-term immunosuppressive treatment, the companies said.

Under the five-year agreement, BioTransplant said it would fund a portion of the research of David Sachs and other MGH scientists, including Megan Sykes, and A. Benedict Cosimi in organ and tissue transplantation. MGH said it has granted BioTransplant exclusive worldwide royalty-bearing rights to technology and inventions developed in the course of the BioTransplant funded research.

The collaboration successfully developed a strategy for the induction of tolerance in pancreatic islet cell transplantation across allogeneic barriers, a patent to modifying swine cells, organs and tissues for human transplantation with reduced danger of rejection by natural killer cells and preliminary results for a less toxic treatment for lymphoma and leukemia, the companies said.

* * *

Celgene Corp. (Nasdaq: CELG) of Warren, NJ, announced the initiation of a Cooperative Research and Development Agreement with the NCI Surgery Branch for the preclinical and clinical development of Celgene's Selective Cytokine Inhibitory Drugs.

SelCIDs are a group of orally available small molecules that are anti-angiogenic and potent modulators of tumor necrosis factor-alpha that selectively inhibit type-4 phosphodiesterase cell-signaling enzymes linked to the overproduction of TNF-alpha.

The five-year agreement will cover clinical and preclinical evaluation of the SelCIDs in standard anti-angiogenic assays as well as assays directed at measuring anti-tumor effects, the company said.

The goals of the collaboration is to further characterize the anti-angiogenic effects of SelCIDs, both in in vitro and in vivo studies, and to advance the most promising agents for use in clinical trials.

Previously, Celgene reported that a phase I human safety trial evaluating SelCID agent CDC-801 showed no serious adverse effects and no gastrointestinal toxicity. A phase II trial under

Celgene's sponsorship is evaluating CDC-801 in Crohn's disease.

Steven Libutti and H. Richard Alexander will serve as co-investigators of the CRADA at the Surgery Branch.

Celgene and NCI have a separate CRADA for the preclinical and clinical development of Celgene's immunomodulatory drugs, structural analogs of thalidomide that have significantly greater immunomodulatory activity in-vitro while not demonstrating teratogenicity in animal models, the company said.

Two phase I/II studies of these compounds in multiple myeloma are conducted under Celgene's sponsorship at the Dana-Farber Cancer Institute of Harvard University and at the Arkansas Cancer Research Center.

* * *

Ciphergen Biosystems Inc. (Nasdaq: CIPH) of Fremont, CA, said it has entered into a multi-year research collaboration with **Johns Hopkins University School of Medicine** to discover cancer protein biomarkers.

The research, which will focus on discovery and validation of diagnostic markers for tumor detection, tumor classification by type, invasiveness and stage, and tumor monitoring, will be led by Daniel Chan, professor of pathology, oncology, urology, and radiology and director of the Clinical Chemistry Division of the Department of Pathology at Johns Hopkins Medical Center, the company said.

"Ciphergen's novel technology may improve the detection of cancer at an earlier stage and it may allow the classification of patients into high and low risk groups, so that more aggressive therapy could be applied to higher risk patients resulting in more effective therapy and less toxicity," said Chan. "Discovered biomarkers may be useful as targets or protein drug candidates for new drug development."

Ciphergen said it would provide financial support and technical assistance through its Biomarker Discovery Centers. Johns Hopkins will contribute resources including cancer serum samples and the clinical expertise of its physicians and scientists. Ciphergen will have access to the commercial rights of the discoveries, the company said.

* * *

Deltagen Inc. (Nasdaq: DGEN) of Menlo Park, CA, said it has entered into an exclusive worldwide license agreement with the **University of Kentucky** to research, develop, and commercialize methods and compounds targeting CD123 for the treatment of acute myelogenous leukemia.

"Our studies have shown that CD123 represents a unique antigenic marker for the identification of primitive leukemic cells from a broad range of human AML specimens. The development of an antibody therapy may be capable of delivering a hit that specifically targets and kills the leukemic stem cell population," said Craig Jordan, of the Department of Hematology Oncology, University of Kentucky.

* * *

Judah Folkman's laboratory at Children's Hospital, Boston, has extended its sponsored research agreement with **EntreMed Inc.** (Nasdaq: ENMD) of Rockville, Md.

EntreMed, Inc. and Children's Hospital have worked together under a sponsored research agreement since September 1993.

Through this one-year extension of the research agreement, EntreMed provided the financial support which enabled the discovery of three inhibitors of angiogenesis: Endostatin, Angiostatin, and 2-methoxyestradiol.

Under the agreement, EntreMed will continue to fund research in Folkman's laboratory and will have rights to discoveries of angiogenesis inhibitors identified under the extended research program. Scientists and technicians in the Folkman laboratory will continue to provide scientific support for the clinical trials of Endostatin and Angiostatin.

"Perhaps the most significant impact of the Endostatin trials to date is that they are beginning to change thinking among oncologists, mainly that this new class of drugs is emerging and may be available for their patients in the foreseeable future," Folkman said in a statement. "My colleagues and I greatly appreciate the fine efforts of the EntreMed scientists and management team, complimented by the efforts of the NCI, in rapidly developing these new drugs."

Under EntreMed-sponsored research, Michael O'Reilly isolated Angiostatin in Folkman' laboratory at Children's Hospital in 1994 and isolated Endostatin in 1996. It was also in this laboratory that the potent antiangiogenic effects of thalidomide and 2-methoxyestradiol were first discovered.

Thalidomide is now available under the tradename Thalomid through a regulated distribution program conducted by Celgene Inc. of Warren, NJ. Both EntreMed and Children's Hospital receive royalties on all sales of Thalomid.

"Through our relationship with Folkman and his

team, we are now testing three potent inhibitors of angiogenesis in eight separate human trials in the U.S. and Europe," said John Holaday, EntreMed Chairman, President and CEO.

Folkman does not own any shares of EntreMed stock, serves in no official capacity for the company, and receives no compensation from EntreMed through this agreement.

* * *

Epimmune Inc. (Nasdaq: EPMN) of San Diego said it is taking over responsibility for its cancer vaccine program following the **Pharmacia Corp**. (NYSE: PHA) decision to end joint development.

Pharmacia will return patent rights along with technology, data and materials to Epimmune, the company said.

The collaboration between Epimmune and G.D. Searle & Co., a wholly owned subsidiary of Pharmacia, focused on combining the Epimmune proprietary cancer-specific epitope and PADRE technologies with the Searle cytokine technology for cancer therapies development. Searle had initiated clinical trials with ProGP, an engineered cytokine, and trials with ProGP plus the Epimmune breast, colon and lung cancer vaccine, scheduled to begin by the end of 2000.

Following the merger between Pharmacia and Upjohn and Searle's parent, Monsanto Co., Pharmacia decided not to continue funding the cancer vaccine program, the company said.

"With advancements in the field since initiating our collaboration and the data package generated by Pharmacia for the breast, colon and lung cancer vaccine candidate, we now have exclusive rights to a program and intellectual property of significant potential value," said Robert Chesnut, executive vice president of research and development at Epimmune.

"We now have full control of a program in which Pharmacia invested far more than the $17 million they paid to us," said Deborah Schueren, president and CEO of Epimmune. "We intend to pursue select clinical trials and follow up on the multiple inquiries we have had regarding the availability of licenses and collaborations in the cancer field. We can now offer access to our ImmunoSense technology for cancer antigen discovery, PADRE for cancer vaccines and our data and intellectual property covering thousands of epitopes from tumor associated antigens."

* * *

InforMax Inc. (Nasdaq: INMX) a bioinformatics software provider of Rockville, MD, said it has entered into collaboration with the **Whitehead Institute for Biomedical Research** for genomics research.

As part of the agreement, InforMax said the Whitehead Institute has licensed its GenoMax system to improve and extend the InforMax bioinformatics platform of high-throughput research. A member of the Institute will join the InforMax scientific advisory board.

GenoMax incorporates HRT research architecture, using UNIX, Oracle, and Java technologies, to analyze genomic data and select the most-likely targets, the company said. To continue the development of an HTR environment, InforMax said it would offer GenoMax modules for sequence analysis, gene expression analysis, and protein 3D structure.

* * *

MGI Pharma Inc. (Nasdaq: MOGN) of Minneapolis, MN, said it has entered into an asset purchase agreement with a subsidiary of **MedImmune Inc.** (Nasdaq: MEDI) of Gaithersburg, MD, for Hexalen (altretamine), an approved orally administered chemotherapeutic agent for the treatment of ovarian cancer following first-line therapy with cisplatin and/or alkylating agent-based combination chemotherapy.

Under the agreement, MGI Pharma said it would pay $7.2 million plus royalties on sales of Hexalen for ten years and would assume full product responsibilities early in 2001.

"We believe that the MGI Pharma commercial organization can provide the required attention to reestablish Hexalen as a second-line therapy against advanced, refractory ovarian cancer," said Michael Richman, vice president, business development of MedImmune. "Given other priorities, our sales force has not actively promoted this medically important product since late 1998, when it produced approximately $3 million in annual net sales."

The objective of a Southwest Oncology Group multi-center trial of Hexalen for stage III epithelial ovarian cancer was to determine whether six months of therapy with the agent can result in a two-year overall survival rate of greater than 65 percent in women who are in clinical complete remission following first-line chemotherapy, the company said. The two-year overall survival rate for the 97 evaluable patients was 75 percent. Side effects were comparable to those seen with other approved chemotherapies and include mild to moderate myelosuppression, neurotoxicity, nausea and vomiting.

"Hexalen is an important drug in the management of recurrent ovarian cancer and may affect the long term maintenance of clinically complete remission in patients after first-line chemotherapy," said David Alberts, professor of medicine, pharmacology and public health and associate dean for research, College of Medicine and Arizona Cancer Center, University of Arizona.

* * *

Nycomed Amersham plc (NYSE: NYE; LSE: NAM) an in-vivo diagnostic imaging and life sciences company of Princeton, NJ, said it has formed a collaborative agreement with the **Cleveland Clinic Foundation**.

As part of the agreement, Nycomed Amersham said it would fund a dedicated research laboratory and team of researchers at the Cleveland Clinic Lerner Research Institute and directed by cancer geneticist Graham Casey, of the Department of Cancer Biology of CCLRI.

The first collaborative project will be for prostate cancer, the company said.

Nycomed Amersham said it would give technological support through its life sciences business, Amersham Pharmacia Biotech, which will provide genetic profile data analysis from the Cleveland patient base.

* * *

Oxford GlycoSciences Plc (LSE: OGS) of Oxford, England, said it has entered into a multi-disease bio-marker collaboration with **Glaxo Wellcome plc** based on the OGS industrial scale high throughput proteomics technology platform.

OGS said it would use its proteomics technology to discover bio-markers in diseases in which Glaxo Wellcome currently holds or is building franchises. Under the terms of the alliance, Glaxo Wellcome will fund the proteomics research in disease-associated proteins. OGS said it retains the rights to commercialize bio-markers and any diagnostic products emerging from the alliance.

"All major pharmaceutical companies are searching for ways of accelerating the development of their drug pipelines," said Allan Baxter, group discovery director of Glaxo Wellcome. "The ability to discover and develop new drugs and bio-markers in parallel is an important strategy for increasing efficiency and addressing attrition in the discovery and development cycle."

* * *

Vysis Inc. (Nasdaq: VYSI), of Downers Grove, Ill, said its PathVysion HER-2 FISH (Fluorescence in situ Hybridization) DNA Probe test will be used for the determination of HER-2 amplification status in 15,000 women as a major part of the eligibility criteria into two of the largest international multi-center phase III randomized breast cancer trials.

"We are pleased to be able to use FISH as the determinant of HER-2 status for these clinical trials as we have found FISH to be the most accurate and reliable means of determining HER-2 status in breast cancer," said the study co-chairman Dennis Slamon, chief of the Division of Hematology/Oncology for the University of California at Los Angeles School of Medicine and the Director of the Revlon/UCLA Women's Health Research Program at UCLA Jonsson Cancer Center.

"We expect that FISH will allow proper classification of women based upon their HER-2 status and allow us to demonstrate maximum efficacy of the treatments in the clinical trial protocol," Slamon said.

The trials involve Taxotere (docetaxel) in combination with Herceptin(trastuzmab) and other adjuvant chemotheraputic regimens.

The announcement of Vysis' selection was made by the Breast Cancer International Research Group at the San Antonio Breast Cancer Conference.

"These studies will involve up to 1,000 investigators in 650 institutions on five continents, making them the largest adjuvant trials of their kind, ultimately providing critical alternative therapeutic choices in the armamentarium against breast cancer," said Jean-Marc Nabholtz, chairman of BCIRG and director of the Cancer Therapy Development Program at UCLA.

The amplification of the HER-2 gene, and subsequent overexpression of the protein has emerged as a key prognostic and therapeutic marker in breast cancer.

Product Approvals & Applications:

Bayer's HER-2/neu Blood Test Cleared By FDA For Marketing

Bayer Diagnostics of Tarrytown, NY, announced the FDA clearance of its 510(k) application for the Bayer HER-2/neu serum test for use in the follow-up and monitoring of patients with metastatic breast cancer.

The Bayer serum HER-2/neu test is the first FDA-cleared blood test for measuring circulating levels

of the HER-2/neu oncoprotein, the company said.

Traditional HER-2/neu testing is generally limited to tissue from primary breast cancer and does not provide information regarding the HER-2/neu status in women with recurrent, metastatic breast cancer, the company said.

The introduction of HER-2/neu testing using a serum sample now offers a less invasive diagnostic tool and provides a current assessment of a woman's HER-2/neu status over the course of disease, the company said.

"This FDA clearance is an important milestone in the evolution of our oncology research and development program," said Hans Hiller, senior vice president in the Laboratory Testing Segment of Bayer Diagnostics. "Bayer's strategy is to identify key oncoproteins and tumor markers from which to develop new tests, and to link these tests with the appropriate treatment options."

Bayer received FDA clearance for the microtiter plate ELISA product for monitoring HER-2/neu levels in metastatic breast cancer and this product is readily available throughout the U.S.

Microtiter plates are manual assays that can be used in any laboratory. The HER-2/neu oncoprotein test was also cleared for use on the Bayer Immuno 1Immunoassay System, an automated central laboratory instrument.

Earlier this year, Bayer announced FDA approval of the Bayer complexed prostate specific antigen assay as an aid in the detection of prostate cancer on the Bayer Immuno 1 Immunoassay System as well as FDA clearance for the cPSA microtiter plate for use in monitoring prostate cancer.

The Bayer Serum HER-2/neu oncoprotein test was developed in collaboration with Oncogene Science Inc., the assets of which Bayer acquired last December.

* * *

Boston Scientific Corp. (NYSE: BSX) of Natick, MA, said FDA has given clearance to two stent products for malignant obstructions associated with gastrointestinal diseases.

Both products, the Unistep Plus Wallstent Enteral Endoprosthesis, for relief of malignant obstructions of the colon and duodenum and the Unistep Plus Permalume Covered Biliary Wallstent, for palliating malignant obstructions of the bile duct, are available from Boston Scientific/Microvasive, the gastrointestinal endoscopy division of BSC, the company said.

The Unistep Plus, cleared for both duodenal and colonic indications, is the first enteral stent to be cleared as a bridge to surgery, thereby avoiding a temporary colostomy, the company said. The system features a delivery system with a braided outer catheter that allows the stent to be repositioned prior to deployment.

"The stent procedure dramatically reduces the risk in relieving the obstruction and decreases the time patients need to stay in the hospital when compared to surgery," said Alan Thorson, associate professor of surgery, Section of Colon and Rectal Surgery, Creighton University, School of Medicine, Omaha, NE.

* * *

GE Medical Systems of Waukesha, WI, said it has been granted approval by FDA for the GE Senographe 2000D, a soft copy full-field digital mammography system for breast disease.

The procedure, which displays patient images in just ten seconds after an exposure, is done directly from an advanced computer workstation, the company said

As part of the FDA supplement for the pre-market approval, GE said it conducted a clinical trial at Northwestern University, the University of Colorado, and the University of Massachusetts. Doctors involved in the trial expressed a perference for soft copy display of images, because soft copy lets them zoom in and enhance images, so they could see the difference in contrast between the lesion and surrounding tissues, the company said.

"I have interpreted more than 3,000 digital mammograms on soft copy, and I have no doubt that they are equal those from film," said John Lewin, assistant professor of radiology at the University of Colorado Health Sciences Center. "Using the workstation developed for the GE Senographe 2000D, digital mammograms can be interpreted on soft copy as quickly as on film, and the ability to magnify and adjust the image contrast and brightness adds confidence to the interpretation."

* * *

SpectraSCIENCE Inc. (OTC: SPSI) of Minneapolis and St. Paul, MN, said it has received FDA pre-market approval for its optical biopsy system as an adjunct during endoscopy of the colon.

The PMA approval did not mandate a post-approval clinical study, the company said.

Multi-center clinical trials have demonstrated an improvement in diagnostic accuracy using the Optical

Biopsy System, the company said. The non-invasive product operates by optically scan tissue and instantly provides an analysis of the tissue.

Our initial marketing efforts will be focused on performing outcome based studies with key physician opinion leaders to promote the adoption of the technology and obtain the necessary clinical data to establish both foreign and domestic reimbursement," said Chet Sievert, president and CEO SpectraSCIENCE Inc.

* * *

Surgi-Vision Inc. of Columbia, MD, said it has received marketing clearance from FDA for its intercept-prostate micro-coil, a miniaturized MRI device used to diagnose and treat prostate disease.

Similar in size to common urology catheters, the micro-coil is used in conjunction with existing MRI machines to produce high-resolution images, which can be viewed at any angle and in any three-dimensional plane, the company said.

The technology, developed at the Johns Hopkins University School of Medicine, does not require the addition of expensive capital equipment, making existing MRI machines more cost-effective, the company said.

* * *

Ventana Medical Systems Inc. (Nasdaq: VMSI) of Tucson, AZ, said FDA issued a pre-market approval of its Pathway CB11 antibody for Her 2/neu diagnostic testing.

The monoclonal antibody is intended for use in the detection of c-erbB-2 antigen in routine pathological samples on Ventana automated immunohistochemistry slide-staining devices, the company said. It is an aid for breast cancer patients who could benefit from the Genentech (NYSE: DNA) Herceptin therapy.

Data from studies by M.D. Anderson Cancer Center and Memorial Sloan-Kettering has shown very high correlation between CB11 and responses to Herceptin, the company said.

"CB11 was an excellent predictor of response to Herceptin-based therapy in patients with metastatic breast cancer," said Francisco Esteva, assistant professor of medicine at the M.D. Anderson. "In a phase II clinical study of Herceptin administered in combination with weekly Taxol, CB11 was a superior predictor of response to the therapy."

* * *

Vysis Inc. (Nasdaq: VYSI) of Downers Grove, IL, said it has submitted data to FDA for its UroVysion assay, which monitors the recurrence of bladder cancer.

The assay detects genetic changes in bladder cells utilizing the Vysis proprietary fluorescence DNA probe technology, the company said.

"It is becoming increasingly clear that abnormalities in numbers of chromosomes and genes are a significant early event in the cancer process," said John Bishop, president and CEO of Vysis. "Our Fluorescence in situ hybridization technology platform is uniquely positioned to detect these abnormalities easily and cost effectively in routine clinical laboratories."

* * *

Wyeth-Ayerst Laboratories, of Madison, WI, the pharmaceutical division of **American Home Products Corp.** (NYSE: AHP), said the European Commission has designated Mylotarg (gemtuzmab ozogamicin) an orphan medicinal product for the treatment of acute myeloid leukemia.

Mylotarg, a recombinant humanised antibody linked with a potent anti- tumour antibiotic called calicheamicin, binds specifically to the CD33 antigen, a glycoprotein commonly expressed by myeloid leukaemia cells, the company said.

The anti-CD33 antibody was developed by the Fred Hutchinson Cancer Research Center and was humanised by **Celltech Group** (NYSE: CLL) of the U.K.

"Mylotarg will become an important treatment option for European patients age 60 and over with CD33-positive relapsed acute myeloid leukemia," said Patrick Gage, president, Wyeth-Ayerst Research. "Its mechanism of action focuses on using antibody-antigen specificity to target delivery of potent chemotherapy to myeloid leukemic cells."

Patents:

Firm Wins Patent For Method, Apparatus For Cryoablation

Galil Medical, of Woburn, MA and Yokneam, Israel, said the U.S. Patent and Trademark Office has issued a patent for its SeedNet system, a minimally invasive, cryosurgical method and apparatus for the treatment of prostate cancer.

The patent features high-resolution cryoablation through thin cryoneedles that conform to the tumor using an insertion template that corresponds to a guiding grid on the screen of a 3D image for simple and accurate placement, the company said.

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