THE CANCER LETTER INTERACTIVE

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NCI Advisors Approve Center Grants For Research On Health Disparities

Advisors to NCI have approved the Institute's plan to fund four or five specialized cancer centers to conduct cancer control and population research to understand the causes of health disparities in cancer.

The NCI Board of Scientific Advisors voted 14-9, with three abstentions, in favor of the proposal to spend an estimated $40 million over the next five years on the grants.

Each grant would support at least three research projects as well as funds for training, pilot projects, and shared resources. A major objective of the project is to bring together scientists from different areas of

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In Brief:

After A One-Month Retirement, Becker Returns To M.D. Anderson As Research Prof

FREDERICK BECKER, formerly vice president for research at M.D. Anderson Cancer Center and special advisor to center president **John Mendelsohn**, retired last Aug. 31 only to return Oct. 1 to a new career at the center. Becker will serve as research professor of molecular pathology and is forming a company to apply the research technology developed in his laboratory with **Peter Gascoyne**, professor of molecular pathology. Their research combining the fields of dielectrophoresis and microfluidics has resulted in a technology that can isolate cancer cells from normal cells in human blood and fluid samples and also characterize genes and gene products within the cells. Dielectrophoresis is a physical phenomenon in which particles are moved within liquids by electrical forces that do not depend on them having their own electrical charges. The technique induces local charges that reflect differences between the electrical properties of molecules or cells and their surroundings, and permits the structure of cells to be investigated through their intrinsic electrical properties, Becker said. "The research has demonstrated proof of concept that by combining DEP and microfluidics we can isolate and characterize human cancer cells, genes and gene products," he said. "We now are on the cusp of applying our research technology to automated diagnostic analysis that should help reduce the expensive, time-consuming, people-driven techniques currently required." The work has been funded with grants from the State of Texas Advanced Research Project, NIH, NCI, and the Defense Advance Research Project Agency, and private support.

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New Program To Support 4-5 Specialized Center Grants

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specialization to work together to understand complex health disparities, Robert Hiatt, deputy director of the NCI Division of Cancer Control and Population Sciences, said to the board at its Nov. 14 meeting.

The excerpted text of the concept statement for the initiative follows:

Centers for Population Health and Cancer. Concept for a new RFA, total estimated set-aside $40 million over five years, four to five center grants. Program director: Suzanne Heurtin-Roberts, Division of Cancer Control and Population Sciences.

The purpose of this RFA is to provide support for Centers for Population Health and Cancer beginning in FY2003. Our overall goal is to understand the causes of health disparities in cancer and develop effective interventions to reduce them. The objective of these Centers is to improve our capacity and accelerate knowledge to achieve this goal through fundamental cancer control and population research. NCI is currently funding very little interdisciplinary investigator-initiated research in this field. The proposed RFA will stimulate new research in an area which has been identified as one of NCI's priority challenges for the budget years 2002 and 2003.

Centers funded with the NIH specialized center grant mechanism (P50) will support the following research environment:

1. Centers will bring together basic, clinical, and cancer control scientists with population scientists, such as sociologists, anthropologists, economists, behavioral and political scientists. An essential requirement of the Centers is that they provide the structure and opportunities for the face-to-face interactions of investigators in regular seminars and workgroups.

2. Centers require at least three research projects that focus on any of the research areas outlined above. In addition, we will expect a CPHC to develop a plan for the promotion and support of interdisciplinary research and implementation and synthesis of research across and within individual projects.

3. Centers will support pilot or developmental research projects and the shared resources needed to attract investigators able to work in an interdisciplinary research setting.

4. Career development is a key component of Centers and funding and resources will be available for junior investigators.

5. Centers will incorporate an evaluation component to assess how well they meet the goals and objectives of the RFA.

Applicants are encouraged to describe other institutional center or infrastructure grants they have in population sciences. The skills and capabilities of these Centers may synergistically strengthen research on social determinants of cancer and cancer-related health disparities in other areas of inquiry.

Interaction among different CPHCs is an important part of this initiative. Centers must identify strategies to foster both formal and informal collaborations that may identify overarching scientific and methodological issues. A requirement for all CPHC Principal Investigators and selected project investigators will be participation in an annual meeting in the Washington, DC, area or another mutually convenient location. The purpose of these annual meetings will be to share scientific information, assess progress, identify and solve common methodological problems, identify new research opportunities and novel approaches to collaboration between CPHC and other centers focused on social determinants of health research.

The following are the thematic areas and topics for research that will be supported by these Centers. These topics illustrate why this initiative requires a true interdisciplinary approach and why the interaction of Centers with different themes is needed in order to

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realize the initiative's full potential. Although not required, investigations that take advantage of defined geographic areas of study and existing high-quality population-based cancer registries will have an advantage in many types of these investigations.

Methodological Issues: This RFA will not support CPHCs that are comprised exclusively of methodological studies, but methodologic research components within Centers are encouraged.

There is a need for research to ascertain the most appropriate measures of SES for cancer. How do measurements of SES interact with measures of race and ethnicity? What is the nature of social gradients for specific cancer sites in different age groups? What are the best ways to measure SES and to monitor cancer trends related to SES? How do various measurements differ in other countries and cultures, particularly in regard to the contextual effects of neighborhood and social environment on individual measures of SES?

It is important to develop innovative and effective ways to integrate multiple research methods, both qualitative and quantitative, in order to adequately investigate the complex, multi-layered nature of cancer control and population health. This includes the use of multi-level (hierarchical) conceptual models and analytic strategies.

It may be useful to explore existing longitudinal studies originally initiated for general study of other outcomes for their value in describing relationships of social determinants and cancer.

Behavior and Social Gradients: The role of individual behaviors, such as tobacco use, diet, physical activity, and cancer screening are critical factors in cancer etiology. However, the study of individual behaviors will be supported by this RFA only when considered in relationship to broader social influences on behavior.

We need to learn more about the role of social networks and hierarchies, social capital, health policy decisions, and the psychologic effects of autonomy in the workplace and various forms of social injustice on cancer risk factor behaviors and incidence.

The influence of the collective properties of social environments on health requires investigation. Treating the community as a unit of analysis in its own right, and defining the characteristics of "healthy communities"and factors that lead to environments that promote health must be elucidated. Just as important are studies that advance our knowledge of what constitutes a "toxic" community environment, how such environments develop and what kinds of interventions can be proposed to remedy these conditions.

Protective factors and mechanisms promoting positive health outcomes and preventing cancer and its sequelae must be better understood. Better understanding of human resilience, resistance to disease, and factors supporting positive health behaviors requires investigation.

Health Care System Issues: This RFA will only support research into the role of the health care system in contributing to disparities in cancer outcomes when it is integrated with studies of social and environmental factors.

The Cancer Control Outcomes and Surveillance initiative [http://appliedresearch.cancer.gov/cancors.html] currently supports research on cancer outcomes and cancer-related health disparities arising from differences in health systems and the quality of care.

The CPHC RFA will call for studies of the relative impact of the health care system as compared to the underlying social characteristics and risk factor behaviors of the cancer patient population prior to diagnosis. What is the role of unequal access to care? To what degree is lack of health insurance responsible for unequal access and treatment? What is the influence of inadequate or inappropriate communication strategies or low literacy in decision-making?

Sociobiological Mechanisms: What are the biologic pathways through which social determinants might affect cancer incidence and outcomes? How do factors in these pathways, which may include genetic, endocrine, and immunologic variables, interact with behavioral, psychological, and social influences prior to the diagnosis of cancer? What evidence is there for differential effects of cancer therapy by social groupings? Are there psychonueroimmunologic or other pathways by which social level influences might act on both cancer incidence and survival?

Intervention Research: CPHC will encourage intervention research where causal pathways of social determinants have been elucidated. For pathways where more fundamental research is required, intervention components are not required. The intent is to support intervention research when and where it is likely to have an impact on reducing cancer-related health disparities.

To what extent can prevention, early detection, treatment, communication, and/or policy interventions

effectively reduce the social determinants of cancer and their impact on the cancer burden and related health disparities?

Funding for four to five Centers will begin in FY 2003 requiring an average of $8M in each year for a 5-year total of $40M. This level of support will include funding to conduct the evaluation component described above. With additional funding from partners both within the NIH and internationally, we expect and to expand the number of Centers and integrate them with other similar initiatives.

Discussions between NCI and the National Institute for Environmental Health Sciences have reached general agreement to coordinate and co-fund their respective Centers initiatives both scheduled for FY2003. With approval of support for such an RFA from the NCI and subsequent approvals from NIEHS (and perhaps NHLBI), a single trans-NIH RFA could be issued.

NCI Programs:

BSA Approves 3 Concepts For Grants Worth $44 Million

The NCI Board of Scientific Advisors voted concept approval for three new grant programs at its meeting Nov. 13.

Altogether, the programs propose to fund $44 million worth of grants over the next three to five years, in the areas of optical imaging, molecular targets, and chemoprevention.

The excerpted text of the concept statements for the new initiatives follow:

Network for Translational Research in Optical Imaging. Concept for a new RFA, estimated total set-aside $30 million over five years, three awards. Program director: Houston Baker, Division of Cancer Treatment and Diagnosis.

The intent of this proposed RFA is to establish a network consisting of a few inter-disciplinary, inter-institutional research teams for the purpose of supporting translational research for optical methods using pre-clinical models and/or human investigations. The Network for Translational Research for Optical Imaging (NTROI) will operate under the guidance of a Steering Committee. The network will be a consortium with sufficient flexibility and funding incentives to encourage research collaboration and data sharing to accelerate the timetable for translational research, including validation of the optical imaging methods for specific cancer applications. Molecular imaging methods will be strongly encouraged. The research scope is envisioned to include the detection and classification of pre-cancerous lesions, cancer detection and diagnosis, and measurement of response to therapy. The teams will be selected to ensure that the above network goals will be met. A pre-application meeting for potential applicants will be organized to help communicate the goals of this RFA. It is envisioned that this network will collaborate closely with other NCI funded programs (ACRIN, ICMICS, SPORES, EDRN, CTEP, IMAT and MMHCC) and recommend promising imaging protocols for optical imaging methods for both human and/or pre clinical models.

The objective is to support a network of approximately three multidisciplinary, multi-institutional research teams. Each team would include investigators from at least two academic institutions, academic/national laboratories or NIH intramural programs. Broad multidisciplinary teams that include molecular biologists and chemists, in addition to physicists, optical and computer engineers, imaging scientists and physicians would be strongly encouraged. Involvement of basic scientists who may not have a specific research record in cancer research, but who have the potential to provide critical experience for the success of this network are considered important. Partnerships with industry may be included to enhance technology dissemination.

Applications from each team should budget for three types of research projects proposed for this network as shown below, where the funds are allocated to the PIs of each team:

1. Primary Project Fund (Years 1-5; $1.1 million per team per year): Each team shall define three primary projects and a translational research core that supports all three primary projects; i.e. similar to a program project (P01). The translational research core should include facilities such as imaging and spectroscopic systems for either small animal or human investigations or core laboratories for development of contrast agents, as well as facilities required for validation studies. There should also be an administrative core to facilitate both inter- and intra-team interactions.

2. Developmental Projects Fund (Years 2-5, $150,000 per team per year): The primary projects for each team can be modified, scaled up, and/or changed to focus on translational research, including validation, when development (pilot) projects succeed,

and where the application of additional resources to them could accelerate the research timetable. Proposals for use of Developmental Funds will be reviewed by the SC. Inter-team projects are to be encouraged.

3. Associate Members Fund (Years 2-5, $150,000 per team per year): This fund is intended to provide supplementary funding for the accrual of new collaborating partners to the network as Associate Members. They are expected to provide access to new optical imaging methods or provide a novel means for their validation. It is anticipated that small businesses will actively participate. The support for each Associate Member is limited to two years with a limit of $75,000 per year. These investigators will be encouraged to apply for further funding through NCI external peer review and thus extend the period of their associate membership if successful.

Each team must perform translational research for specific cancer applications in order to be responsive to the proposed RFA, i.e., performance of system optimization and validation studies, as opposed to emphasis on technology development that may not be cancer specific. Each team will be therefore be required to address at least two of the following three proposed research topics:

1. Basic Research: Interdisciplinary research to improve the understanding of molecular processes or cellular environment in vivo that may influence the measurement, interpretation, and validation of optical signatures for either extrinsic or intrinsic contrast mechanisms.

2. Contrast Agents: Development and validation of target-based optical contrast agents that have either the potential for (a) improving the sensitivity and/or specificity of cancer investigations, and/or (b) contrast agents for dual modality imaging.

3. Technology Optimization and Validation: System integration and optimization of new optical imaging/spectroscopy sensors specifically for cancer investigations, 'including data acquisition, image guidance and software processing methods for quantitative analysis. The research scope may include development and sharing of databases and software required for validating methods.

The members of the steering committee will consist of three members from each of the three teams and two NCI program staff. The three members from each team will include the PI and two additional co-investigators from each team, at least one of whom is from a different institution than the PI, and one of whom is a co-investigator from the administrative core. All nine members and the two NCI staff will be voting members of the SC. The SC will elect one of the team PIs to chair this committee. The SC may include additional non-voting members such as other NCI and NIH program staff. Among its duties the SC will inform NCI staff of the emerging scientific opportunities or impediments to progress for the network, encourage inter and intra team research collaborations by reviewing proposals for use of the Developmental and Associate Members Funds, arrange semi-annual meetings of the NTROI SC, and one annual meeting for the full network members, and one open scientific meeting in year 2 to report on progress of the NTROI to date and solicit input from the broader scientific community and prospective associate members. Each team will have its own administrative structure located and supported within their administrative core facilities. Each team will plan monthly meetings to promote inter-disciplinary research, with teleconferencing as necessary between institutions. The teams will be required to submit semi-annual reports of research progress to NO program staff and the NTROI SC.

We assume that the average direct cost of each of the three teams to be $ 1. 1 million per year for the three primary projects and two cores, and a total of $300,000 per year (year 2-5) for the Developmental Projects and Associate Members Funds set-aside. NIH intramural investigators, if included in the NTROI, will be supported only by intramural funds. Indirect costs are estimated at 50%. Year one total costs: $4.95 million.

Molecular Targets for Nutrients in Prostate Cancer Prevention. Concept for a new RFA, estimated total $4.65 million over three years, four to six awards. Program director: Young Kim, Division of Cancer Prevention.

The purpose of this RFA concept is to identify and characterize molecular targets for nutrients in normal and neoplastic prostate cells. This concept is designed to stimulate *in vitro* and *in vivo* studies that will define molecular targets in terms of genetic and epigenetic events that are influenced by specific essential and non-essential nutrients. Targets are not static but exist as dynamic processes that must be examined over a full range of expression, from null to overexpression. Fortunately, target expression can be artificially manipulated using a variety of techniques including transfection, antisense nucleotide, adenoviral

infection, metabolic inhibitors, transgene, and conditional knockout. The combined use of *in vitro* and in vivo studies with various levels of target expression should offer unique opportunities for determining the precise role that nutrients have in cancer prevention.

Since nutrients may modify simultaneously more than one process including carcinogen metabolism, hormonal balance, cell signaling, cell cycle control, apoptosis, and differentiation, it is important that an integrative approach is taken to these investigations. Thus, investigators will be encouraged to address confounding factors that may influence the overall physiological response to changes in a given molecular target. For example alterations in p27(Kip1) that arise from direct or indirect interactions with nutrients may bring about fluctuations in various factors in signaling pathways such as protein tyrosine kinases, survival pathways such as IGF-1/P13K/Akt, oncogenes including c-myc, tumor suppressor genes including pRb, apoptosis related genes including Bcl2, cell senescence including telomerase activity, and inflammation related transcription factors including NF-kappaB.

Several nutrients may modify the same target. For example, p27(Kip1) could be a potential molecular target for various nutrients including genistein, EGCG, indole 3-carbinol, and resveratrol. Investigators will be encouraged to define nutrients in terms of their specificity, temporal response and overall effectiveness.

The use of chemically induced, transgenic, and knockout animal models offers additional opportunities for unraveling the specific role of nutrients beyond that possible when cell culture systems are used. For example, they have the advantage of allowing for the examination of impact of nutrients on different stages of prostate cancer including hyperplasia, dysplasia, PIN, and metastasis. The use of transgenic and conditional knockout models available through the Mouse Models for Human Cancer Consortium (http://emice.nci.nih.gov) is encouraged. For example, studies that examine the impact of suppressed or exaggerated activities of genes regulating nutrient absorption or metabolism may provide clues to variation in response. Additionally, transcriptional factors, cofactors and other regulators that influence a specific target may be appropriate for manipulation in chemically induced or transgenic models used to define the role of nutrients.

The use of a variety of molecular technologies including genetic manipulation of animal models, cDNA/tissue microarray, serial analysis of gene expression, and proteomic tools are encouraged. Investigators are encouraged to utilize the NCI Cancer Genome Anatomy Project database on human and mouse genomics including expressed sequence tags, gene expression patterns, single nucleotide polymorphisms, cluster assemblies, and cytogenetic information (http://cgap.nci.nih.gov).

The following are viewed as relevant examples for this RFA:

—Can variation in AR or ER explain the ability of soy isoflavones to retard prostate cancer?

—Can IGF-1, P13K, and Akt account for the effect of dietary fatty acids on prostate tumor growth promotion?

—Are Bax and B62 responsible for the efficacy of green tea polyphenols and indole 3-carbinol to retard prostate cancer cell growth?

—Does modification of antioxidant response element explain the ability of dietary antioxidants to reduce prostate cancer incidence?

—Can GSTP1 methylation be influenced by dietary methyl donors and ultimately modify prostate cancer risk?

The requested budget for the first year is $1.5 million to be distributed over four to six awards.

Chemoprevention of ER- Cancers in Women at High Risk: Preclinical Studies. Concept for a new RFA, estimated total cost $9.2 million over three years, five to six awards. Program director: Vernon Steele, Division of Cancer Prevention.

The development of animal model protocols that can accelerate and improve the discovery and development of agents to take to the clinic to prevent or diminish the risk of ER- breast cancer in women at high risk for this disease represents an extraordinary opportunity to reduce cancer incidence and therefore subsequent morbidity and mortality. The purpose of this initiative is to invite investigator-initiated grant applications developing and evaluating chemopreventive strategies preclinically which are applicable to women at high risk for development of ER- breast cancer and would become immediately translated to clinical studies.

The range of activities supported by this RFA would include preclinical studies to: 1) develop modulatable biomarkers in animal models of hormonally non responsive breast cancer. Such biomarkers might include: image analysis, gene or

protein expression, or specific molecular changes, DNA mutations, etc. in specific preclinical models in which relevant cancer incidence and multiplicity are decreased by known effective agents, and 2) test and prioritize agents using preclinical animal models for ER- breast cancer. It would be expected that any preclinical model would develop hormonally non responsive mammary tumors in >40% of animals and that those tumors would develop preinvasive and invasive lesions that are histologically similar to that observed in human breast cancer. The purpose of this RFA is not primarily to support development of totally new animal models for ER- breast cancer. However a grant which includes as a component limited alteration or optimization of a previously developed model is not precluded.

This RFA is intended to indicate to the scientific and peer-review communities as well as the consuming public of the NCI's interest in supporting research in this area. Applicants are especially encouraged to apply chemopreventive agents directed against certain of the recently identified molecular targets found in ER- breast cancer in humans (e.g. Neu, EGFr, COX-2). Although it is anticipated that any model would have been characterized for the presence of histopathologic lesions it would be useful to do some early characterization of any models for gene expression patterns and expression of targets that are similar to that observed in humans. In comparing results to humans published studies by Perou, CGAP etc can all be employed. Based on these initial characterizations the offeror should identify potential markers , e.g. genes or gene products which are overexpressed or underexpressed in hormonally non responsive mammary lesions in their model. The expectation would be that levels of certain of these overexpressed or underexpressed genes or gene products would be modulated in response to chemopreventive therapy in relevant preclinical models. Such preclinical validation efforts for the development of surrogate endpoints would be synergistic with NCI's Early Detection Research Network. Biomarkers relevant to ER- breast cancer identified by EDRN could then be applied to women at risk for ER- breast cancer.

The studies funded under this RFA would be encouraged to collaborate and take advantage of animal models for human cancer, developed in collaboration with scientists involved in the Mouse Models for Human Cancer Consortium. Transgenic animal models for mammary cancer are already under development and might be used with the application of drug development. Similarly newly developed imaging techniques that as are being evaluated as part of the MMHCC activities could be incorporated.

Examples of preclinical studies that would be appropriate for funding under this RFA include:

1. Studies developing cancer preventive agents using animal models for ER- mammary cancer. Interventions that parallel potential clinical protocols with preinvasive lesions and /or "at risk" normal tissue would be useful. However a portion of any protocol would be to carry animals to an invasive tumor endpoint to determine that the changes observed parallel changes in the induction of invasive hormonally non-responsive cancer.

2. Examination and validation of modulatable surrogate biomarkers in animal models specifically relevant to ER- mammary cancer using molecular and morphological endpoints that could be applied to such clinical trials. The agents to be employed in such biomarker studies should have been shown to decrease cancer incidence and/or multiplicity of hormonally nonresponsive tumors in the relevant animal model.

The total project period may not exceed three years. Because the nature and scope of the research proposed in response to this RFA may vary, it is anticipated that the duration and sizes of awards will vary also. Applications will be accepted for R01 and competitive supplements to existing awards in this area.

In Brief:

Shirley Lansky, 66, Illinois Cancer Center Director, Dead

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The new company, aDEPtas Inc., plans to translate the research and prototype instruments to commercial use. Becker will serve as chief scientific officer for the company. Upon Becker's first retirement, an endowed chair was created in his name. The first occupant selected for the Frederick F. Becker Distinguished University Chair in Cancer Research is **Stanley Hamilton**, head of the Division of Pathology and Laboratory Medicine and an expert in colorectal diseases and cancer genomics. . . . **SHIRLEY BEAN LANSKY**, former president and director of the Illinois Cancer Center and professor of psychiatry and pediatrics at the University of Illinois at Chicago, died of ovarian cancer Nov. 18. She was 66 and lived in Minneapolis. After retiring from academic medicine in 1993, she was director of the Adolescent and

Children's Program at Brainerd State Hospital in Minnesota. . . . **THOMAS NAVARRO**, 6, a medulloblastoma patient whose parents waged a political battle to obtain alternative care, died in Houston last week. Navarro's family sought to avoid radiation treatment following resection. Arguing that Thomas's disease was likely to be cured with radiation and chemotherapy, FDA prohibited the controversial physician Stanislaw Burzynski to treat the boy. The Novarros' battle with FDA led several members of Congress to introduce "The Thomas Novarro FDA Patient Rights Act," a measure that has been defeated during the past two Congressional sessions. After more than a year, Thomas's tumor progressed to an advanced stage, and the agency allowed Burzynski to proceed with his controversial treatment (**The Cancer Letter**, Feb. 4, 2000). . . . **MOUZETTA ZUMWALT-WEATHERS** was named to the board of directors of the Mesothelioma Applied Research Foundation. She is the daughter of former Vietnam Navy commander and chief of operations Elmo Zumwalt, who died of the disease. . . . **ROBERT ROEDER**, professor and head of the Laboratory of Biochemical and Molecular Biology at Rockefeller University in New York, received the University of Pittsburgh School of Medicine 2001Dickson Prize in Medicine in conjunction with his presentation, "Regulation of Transcription in Human Cells: Complexities and Challenges," on Nov 28. Roeder is recognized for the discovery and analysis of proteins involved in transcription. . . . **G. DENMAN HAMMOND** and **SHARON MURPHY** received the Association of Community Cancer Centers annual Clinical Research Award on Oct. 5 at the ACCC conference in Seattle. Hammond is professor of pediatrics and associate vice president of health affairs at the University of Southern California and was a principal investigator of the Children's Cancer Group, which merged with the Pediatric Oncology Group and is now known as the Children's Oncology Group. Murphy is professor of pediatrics at Northwestern University Medical School in Chicago, chief of the Division of Hematology/Oncology at Children's Memorial Hospital and chairman of the Pediatric Oncology Group. . . . **ONCOLOGY NURSING CERTIFICATION CORP.** announced the following nursing test results. Of 3,000 nurses who took the Oncology Certified Nurse test in September, 2503 (85 percent) received certification. Of 233 nurses who took the Advanced Oncology Certified Nurse test, 154 (66 percent) received certification. Of 317 nurses who took the Certified Pediatric Oncology Nurse test, 244 (77 percent) earned certification. All three certifications are valid for four years.

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Business & Regulatory Report

Oncology Management:

US Oncology Renegotiates Affiliations, Converts Practices To Earnings Model

US Oncology Inc. (Nasdaq:USON) of Houston said it has signed renegotiated affiliation agreements with **Dayton Oncology & Hematology, P.A.** of Dayton, Ohio, and **Southwestern Radiation Oncology** of Tucson, Ariz.

"The agreements illustrate that the physicians no longer believe the net revenue model is the best choice for their practices," said Dale Ross, chairman and CEO of US Oncology. "Now that net revenue practices have the option of converting to the earnings model or contracting with

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Clinical Trials:

Cell Genesys Begins Phase II Trial Of Gvax Vaccine For Pancreatic Cancer

Cell Genesys Inc. (Nasdaq: CEGE) of Foster City, CA, said it has begun a phase II trial of Gvax vaccine for pancreatic cancer.

The 60 patient study conducted at Johns Hopkins Oncology Center will evaluate the vaccine in combination with surgical resection followed by standard adjuvant radiation and chemotherapy, the company said.

Gvax cancer vaccines are comprised of tumor cells that have been irradiated and genetically modified to secrete GM-CSF, the company said. The vaccines have demonstrated antitumor effects against lung cancer, prostate cancer, renal cancer and melanoma, the company said.

* * *

Coley Pharmaceutical Group Inc. of Wellesley, MA, said it has initiated a phase I/II trial of CpG 7909, an approved monoclonal antibody, in multi-drug therapy with Herceptin for breast cancer.

The phase I study, which will enroll patients whose disease has progressed despite previous treatment with Herceptin and chemotherapy, will determine the safety and tolerability of the therapy for refractory metastatic breast cancer, the company said.

"Preclinical studies have demonstrated that CpG 7909 works synergistically with monoclonal antibodies to mediate antibody dependent tumor destruction, providing early evidence to support the promise of the approach," said Harold Burstein, of Dana-Farber Cancer Institute, principal investigator of the study.

In the study, CpG 7909 will be administered weekly, 30 minutes post Herceptin infusion (per dosing instructions), in 12 to 24 patients, the

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US Oncology Converts Practices To Earnings Model

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US Oncology under the service line structure, we anticipate that the move away from the net revenue model will continue.

"Converting these contracts to an earnings model leads to an alignment of interests and mutual focus on cost containment and capital investment in the vast growth opportunities presented in the cancer care market," Ross said. "The restructuring of these relationships gives the physicians greater opportunities for collaboration and creative solutions to the ever-changing cancer treatment landscape. US Oncology will be a great asset in facing the challenge of providing high quality, cost-efficient cancer care to their patients."

The company has converted practices accounting for 16 percent of 2000 revenues from the revenue model to the earnings model, which now represents 57 percent of the Company's net revenue.

The company earned $12.9 million, $0.13 per share, on revenues of $372.7 million for the third quarter ended Sept. 30. Last year, the company's third quarter income was $11.6 million, $0.12 per share, and revenues $337.3 million.

The company said that during the fourth quarter, it will meet with affiliated practices to review the benefits of the service line structure.

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MDS Nordion of San Francisco, a part of **MDS Inc**. (NYSE: MDZ; TSE: MDS) said it has launched the Oncentra oncology information management system that encompasses the entire cancer treatment process, including information management, treatment planning, and treatment delivery.

The system is comprised of modules including an electronic patient folder, enterprise resource scheduler, treatment planning, simulation and a record and verify system. Each module is based on a stand-alone application in clinical use that can operate as part of the Oncentra solution or as an independent application, the company said.

The system has been installed at the Center for Cancer Treatment in Kristiansand, Norway, the company said. Installation of an integrated Oncentra electronic patient folder, resource scheduler and Dicom archive is underway at centres in Europe and at Self Memorial Hospital in South Carolina.

* * *

Nomos Corp. of Sewickley, PA, said it has formed a partnership with **Impac Medical System Inc.**, of Mountain View, CA, and will incorporate the Impac openRT certification program as part of its state-of-the-art treatment planning offering.

The coupling will ensure that radiation therapy treatment plans can be seamlessly transferred, verified and delivered, improving overall process efficiency and the quality of care provided to patients, the company said.

OpenRT certification establishes compliance, validation, deployment, and support standards for the interoperability of treatment planning systems with the Impac electronic medical record, and, subsequently from the EMR to the linear accelerator for treatment delivery, the company said.

"Standards for data interchange are meaningless if the interoperating systems do not utilize them consistently and the interfaces are not validated," said Joe Jachinowski, president and CEO of Impac. "We have initiated the OpenRT Certification partnership program to improve the interoperability and support of a multi-component system and confirms a vendor's commitment to developing and adhering to interface standards that ensure treatment plans can be seamlessly transferred, verified, and delivered. Combining the Nomos treatment planning experience with our installed base of verification systems will lead to improved overall IMRT process efficiency and quality of care."

* * *

HopeLink Corp. of Burlingame, CA, and **OSI Pharmaceuticals Inc.** (Nasdaq: OSIP) of Melville, NY, said they have formed a strategic partnership to accelerate enrollment in OSI phase III trials of Tarceva, a small molecule inhibitor of the EGFR gene, for lung and pancreatic cancer.

Under the agreement, OSI will utilize the HopeLink clinical trial service platform to present its pancreatic and refractory non-small cell lung cancer trials through the HopeLink syndicated network of over 40 partners including the Lustgarten Foundation for Pancreatic Cancer Research and Alliance for Lung Cancer Advocacy, Support, and Education, the company said.

"Our partnership with HopeLink allows us to raise awareness of our clinical trials, enhance our efforts to accrue patients, and increase efficiencies in our clinical trial process," said Colin Goddard, chairman and CEO of OSI Pharmaceuticals.

The HopeLink service improves access to the OSI cancer trials through a network of partners that provide online and offline trial information to targeted audiences, the company said. Trial candidates can self-select and determine if they meet preliminary eligibility requirements by answering simple inclusion/exclusion-based questions.

Clinical Trials:

Monoclonal Antibody Tested With Herceptin For Breast Ca

(Continued from page 1)

company said. Patients will be distributed among up to four groups receiving CpG 7909 in a dose escalation plan to assess the maximum tolerated dose. The MTD group will be expanded to 15 patients during the phase II study to evaluate preliminary clinical effects. If investigators observe one or more positive clinical responses, 25 additional patients will be enrolled for a total of 40, in the phase II part of the study, the company said.

Charles Vogel, clinical professor at the University of Miami School of Medicine and Hyman Muss, of Fletcher Allen Health Care in Burlington, VT, have agreed to participate in the study, the company said.

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Genta Inc. (Nasdaq: GNTA) of Berkeley Heights, CA, said it has begun a randomized multicenter trial of Genasense in non-small cell lung cancer.

The trial is designed to compare Genasense plus Taxotere (docetaxel; Aventis Pharma Inc.) versus Taxotere alone, the company said.

Endpoints include survival, tumor response, and the quality of life in patients who have failed primary chemotherapy, the company said. The study will be led by Memorial Sloan-Kettering Cancer Center, M. D. Anderson Cancer Center, and the University of Chicago.

"While chemotherapy for non small cell lung cancer has improved in recent years, patients with metastatic disease are still not being cured," Roy Herbst, chief, Section of Thoracic Oncology of M. D. Anderson. "Molecularly targeted therapies offer the promise of a major paradigm shift in the treatment of this illness."

Genasense blocks the production of Bcl-2 protein, which has emerged as a major contributing factor to chemotherapy resistance, the company said. Taxotere has been approved by FDA as second-line therapy for NSCLC.

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GTx Inc. of Memphis will begin clinical trials of Acapodene (toremifene) for prostate cancer.

The treatment, which prevents prostate cancer by reducing pre-cancerous lesions, is being conducted at 60 sites throughout the U.S., the company said. High-grade pre-malignant lesions, prostatic intraepithelial neoplasia, signify a high risk of prostate cancer development, the company said.

There are no treatments for high-grade prostatic intraepithelial neoplasia, the company said. Thirty to 50 percent of men with a high-grade PIN develop cancer within the three years. Acapodene has been shown eliminate the pre-cancerous lesions by 72 percent and the incidence of cancer by more than 50 percent, the company said.

"Men with pre-malignant lesions shouldn't have to wait for cancer to invade their bodies anymore—they may in the future be able to treat it with Acapodene," said Mitchell Steiner, vice-chairman and CEO of GTx Inc.

"Acapodene has some very exciting possibilities for the treatment of prostate cancer through an avenue that hasn't been explored before now—prevention," said John Seigne, assistant professor of surgery at Moffitt Cancer Center and Research Institute in Tampa, lead investigator of the study.

GTx said it has licensed the drug from a Finnish pharmaceutical company, Orion Pharma.

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SLIL Biomedical Corp. of Madison, WI, said FDA has completed the review of its investigational new drug application of SL11047, allowing a phase I trial to begin for AIDS patients with non-Hodgkin's Lymphoma.

SL11047 is a second-generation polyamine analog, licensed to SLIL under a patent from the University of Wisconsin Alumni Research Foundation, the company said.

"These new cancer compounds employ a drug design strategy, known as conformational restriction, which we believe will offer improved tolerability and efficacy, compared with earlier polyamine analogs," said Peter Molloy, CEO of SILIL.

The study will evaluate the safety and tolerability, as well as pharmacokinetics, the company said. Other objectives will be to assess the clinical response to SL11047, and the sensitivity of HIV-infected macrophages to the drug. The aberrant, virally infected macrophages, termed ProMacs by SLIL, are thought to be involved in several diseases, including lymphoma, the company said.

"In vitro, the macrophages are particularly sensitive to SL11047," Molloy said. "We now hope to see the ProMac levels drop in response to the drug, and in conjunction with any clinical response."

The study will also evaluate the impact of the drug on HIV viral load, because the ProMacs may be a crucial reservoir for HIV in some AIDS patients, the company said. Lawrence Kaplan, of the University of California at San Francisco, is the principle investigator.

* * *

Immuno-Designed Molecules, S.A. of Paris and **IDM-Biotech Ltd.** of Montreal, its subsidiary, said they have received approval from the Canadian health authorities to begin phase III trials for the cell drug, IDM-1, for ovarian cancer.

IDM-Biotech, Ltd. said it would carry out the study with a Canadian team of cell therapy specialists led by Gerald Batist, director of the Montreal Center of Experimental Cancer Therapy at the McGill University Lady Davis Institute for Medical Research. Jean-Marie Dupuy, general manager of IDM-Biotech and vice president of the medical affairs program and previously with American Home Products and Pasteur Merieux, will lead the IDM team.

The cellular immunotherapy treatment eliminates residual tumor cells after surgery and chemotherapy, the company said. IDM-1 is comprised of MAK (monocytes-derived activated killer) cells associated with MDX-210, a bi-specific anti-HER-2/neu antibody developed by Medarex Inc. of Annandale, NJ, the company said.

A phase III trial for IDM-1 targets for stage III ovarian cancer is underway in Europe and Australia, the company said. The aim is to prolong remission after a positive response to a standard protocol consisting of surgery followed by two chemotherapies.

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Inex Pharmaceuticals Corp. (INEX: TSE: IEX) of Vancouver said the clinical development program for its anticancer product Onco TCS has been expanded to include two pilot phase II trials evaluating the product in combination with the drug etoposide for non-Hodgkin's lymphoma.

Onco TCS is being developed under a collaboration agreement with **Elan Corp. plc**, the company said. The trials will evaluate the product in 35 patients with relapsed aggressive NHL, the company said. The primary objectives will be safety data and preliminary efficacy data.

The first of the pilot trials is taking place at Norfolk and Norwich University Hospital, England, under Gillian Turner, the company said. The second trial will be conducted at three centers in the U.S.

"Both vincristine, the active agent in Onco TCS, and etoposide are commonly used today to treat lymphoma," said David Main, president and CEO of Inex. "Both have different mechanisms of action and different side-effect profiles and therefore are good candidates to use in combination therapy."

Including the etoposide pilot studies, the product is being evaluated in eight clinical trials, the company said. A phase II/III trial under way at medical centers in Canada and the U.S. is evaluating Onco TCS for second or later relapsed aggressive NHL. In addition, the product is being evaluated in five phase II clinical trials: as part of first-line combination treatment for aggressive NHL, as a treatment for small cell lung cancer patients, as a treatment for relapsed pediatric malignancies and in two studies as a treatment for relapsed lymphoma in combination with Rituxan (rituximab), the company said.

Onco TCS is comprised of the off-patent cancer drug vincristine encapsulated in the Inex patented drug delivery technology transmembrane carrier system, the company said. The delivery technology provides prolonged blood circulation, tumor accumulation and extended drug release at the cancer site, which increase the effectiveness and reduce the side effects of the encapsulated drug.

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Lorus Therapeutics Inc. (OTCBB:LORFF) (TSE:LOR.) of Toronto said it has expanded the phase II trial of its antisense drug GTI-2040 for advanced or metastatic renal cell carcinoma.

The study, to be conducted at Wake Forest University under the direction of Frank Torti, will investigate the effectiveness of the combined use of GTI-2040 and capecitabine.

The trial is designed as a 21-day continuous infusion of GTI-2040 with twice-daily oral administrations of capecitabine, followed by a one-week rest period, the company said. The investigation will examine the safety profile in combination therapy, determine the maximum tolerated dose when the two drugs are administered together, and observe the therapeutic effectiveness of GTI-2040 and capecitabine in combination.

In the first part of the program, patients with renal cell carcinoma were treated with GTI-2040 as a monotherapy at the recommended phase II dose to further investigate the toxicology profile of the drug, the company said.

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Protarga Inc. of King of Prussia, PA, said it has begun a multi-center phase II study of Taxoprexin DHA-paclitaxel for advanced breast cancer.

In the study, led by Stephen Johnston of the Royal Marsden Hospital of London, Taxoprexin treatment is the first taxane therapy administered.

Treatment began at the Royal Free Hospital of London under the direction of Alison Jones, the company said. Additional investigators include Stephen Houston of St. Luke's Cancer Centre of Guildford, UK and Jeffry Evans and Christopher Twelves of the Western Infirmary of Glasgow.

"One of the key aspects of Taxoprexin DHA-paclitaxel is the improved safety profile seen to date," said Johnston. "For breast cancer, this could lead to a better tolerated taxane treatment with minimal side effects, which could be very important in improving quality of life."

The study is part of a multinational phase II program designed to evaluate the safety and effectiveness of Taxoprexin DHA-paclitaxel in eight types of cancer and up to a total of 400 patients, the company said. Twenty-nine major oncology centers in the US and Europe are participating in Taxoprexin studies for cancers of the breast, colon/rectum, kidney, lung, pancreas, prostate, skin and stomach. The Royal Marsden Hospital is also conducting a study of Taxoprexin DHA-paclitaxel in combination with carboplatin, the company said.

"In the phase I 24-patient study, involving a variety of tumors, we noted a reduction in the toxic side effects typically associated with taxane treatment; no significant nerve problems, hair loss, nausea or vomiting," said Forrest Anthony, vice president of clinical development at Protarga. "In addition, we could administer 4.6 times as much taxane relative to the current FDA-approved paclitaxel dose."

Ross Donehower and Antonio Wolff at the Johns Hopkins Oncology Center conducted the phase I study, the company said.

Taxoprexin DHA-paclitaxel is a patented anticancer compound in the class of taxane drugs, the company said.

In another development, Protarga said it has begun a multi-center phase II study of Taxoprexin DHA-paclitaxel for hormone-refractory prostate cancer.

Michael Carducci, of Johns Hopkins Oncology Center, is the principal investigator, the company said. Additional investigators include Eduardo De Moraes of the Thomas Jefferson University Hospital, David Irwin of the Alta Bates Comprehensive Cancer Center in Berkeley and Manuel Modiano of Arizona Oncology Associates in Tucson.

"One of the unique features of Taxoprexin DHA-paclitaxel that makes it an appealing treatment candidate for prostate cancer is that it is sustained in tumors for a long time," said Carducci. "Given the existing clinical data that taxane therapy may be effective against prostate cancer, this prolonged exposure of tumors to a taxane could be very important in eliminating those cancer cells that presently escape treatment with conventional chemotherapy."

The study is part of a multinational phase II program designed to evaluate the Taxoprexin DHA-paclitaxel in eight types of cancers, the company said. Twenty-nine oncology centers in the US and Europe are participating in studies for cancers of the breast, colon/rectum, kidney, lung, pancreas, prostate, skin and stomach. The Royal Marsden Hospital, London, will conduct a study of Taxoprexin DHA-paclitaxel in combination with carboplatin, the company said.

Deals & Collaborations:

Alexion In Collaboration With Netherlands Center

Alexion Pharmaceuticals Inc. (Nasdaq:

ALXN) of Cheshire, CT, said it has formed a research alliance with the **University Medical Center of Nijmegen,** The Netherlands, for DC-SIGN, the Alexion immune system target.

DC-SIGN are cell system proteins found exclusively on human dendritic cells and a related receptor, L-SIGN, the company said.

Under the agreement, Alexion received rights related to the molecules and any associated therapeutic product candidates, including already identified monoclonal antibodies, the company said. The products are expected to have broad therapeutic application in several clinical settings including, autoimmune disease, inflammation, cancer, infectious disease and transplantation, the company said.

A team in the Netherlands led by Carl Figdor, professor, Department of Tumor Immunology, University Medical Center St. Radboud, Nijmegen, has developed effective inhibitors, including monoclonal antibodies of both DC-SIGN and L-SIGN, the company said. The identified monoclonal antibodies have shown efficacy in inhibiting T-cell activation, suggesting a role in inhibiting inflammation, and also in blocking HIV infection of T-cells. Alexion and UMC are also cooperating in a research and development alliance to further characterize the functional role of DC-SIGN and L-SIGN with a focus on models of human autoimmune disease, the company said.

Dendritic cells capture antigens in the peripheral tissues, process and display the antigen fragments on their cell surface, and then migrate from the periphery to the T-cell areas of the lymphoid organs, the company said. There, they attract resting T-cells, present their antigen load, thus activating the T-cells to begin an immune response. This process appears to be controlled in part by the newly identified molecule DC-SIGN, the company said.

The initial contact between resting T cells and antigen presenting dendritic cells occurs via the novel dendritic cell specific receptor identified as D treating patients with a wide array of severe disease states, including cardiovascular and autoimmune disorders, inflammation and cancer, said Figdor.

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Amersham Health of London (formerly Nycomed Amersham Imaging) and **Corixa Corp**. of Seattle said they have entered into an agreement whereby Amersham will market Bexxar (tositumomab, iodine I 131 tositumomab) in Europe for non-Hodgkin's lymphoma.

Bexxar, which is under review by FDA and is a registered trademark in the U.S, is a radioimmunotherapy that combines the targeting ability of a monoclonal antibody and the therapeutic power of radiation, with the precision of patient-specific dosing, the companies said. The agent will be used to treat NHL that does not respond to, or tolerate, chemotherapy.

Under the agreement, Corixa and Amersham Health will register the product in Europe for certain types of NHL, the companies said. Corixa will generate clinical trial data to support registration in Europe. Amersham Health will manufacture and sell the radiolabeled antibody in the territory, the companies said.

Amersham will purchase a total of up to $15 million in Corixa common stock, a portion of which will be purchased at execution of the agreement at an undisclosed premium, the company said. Amersham would then purchase the remaining portion of common stock at the Corixa election. In addition, AH will pay Corixa multi-million dollar milestone payments upon regulatory approvals in the territory as well as multi-million dollar milestone payments based on achievement of certain sales volume targets. Amersham Health will pay Corixa undisclosed royalties on all future product sales in Europe, the company said.

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Baxter International Inc. (NYSE: BAX) of Deerfield, IL, said it has completed the acquisition of **Asta Medica Onkologie GmbH & Co KG**, a subsidiary of Degussa, **AG**, of Dusseldorf for approximately 525 million euros ($470 million).

Asta Medica Oncology develops, produces and markets oncology products in more than 100 countries, the company said. Its pro forma sales of chemotherapy agents, totaled approximately $130 million in 2000. The products include cyclophosphamide (Endoxan), ifosfamide (Holoxan and as Ifex in the U.S.), and mesna (Uromitexan and as Mesnex in the U.S.).

Baxter will allocate a portion of the purchase price to in-process research and development, resulting in a one-time charge to fourth quarter 2001 earnings, the company said.

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Boston Scientific Corp. (NYSE: BSX) of Natick, MA, said it has acquired **RadioTherapeutics Corp.** of Sunnyvale, CA.

RTC is a developer and manufacturer of

radiofrequency-based therapeutic devices, such as the radiofrequency ablation system, in interventional oncology for the ablation of soft tissue lesions, the company said.

The transaction, which is expected to close at the end of the year, is subject to the usual closing conditions, the company said.

Under the agreement, RTC will become a part of the Boston Scientific Medi-tech division, the company said. The division develops medical technologies for interventional radiologists, surgical oncologists and both general and vascular surgeons.

Boston Scientific had a limited distribution agreement with RTC in the U.S. and Japan, the company said. Boston Scientific expects to investigate the RTC technology for the ablation of lesions in other soft tissue such as lung and kidney, the company said.

* * *

Corda Technologies Inc. of Lindon, UT, said NCI has renewed the agreement to have the company host the interactive graphs component of its Cancer Mortality Maps and Graph Web site.

Powered by proprietary charting and graphing software, the 5 million different data combinations are delivered to the browser of a viewer via the Web in fractions of a second, the company said. The data is presented in an easy-to-understand graphical format that allows the viewer to interact with the data through popup text and drill down functionality. The viewer can combine such data as cancer type, age, race, gender, location by state, state economic area, or county, and time period (from 1950 to 1994).

In the past year, more than 100,000 visitors have viewed data from NCI database using the Corda interactive charts and graphs, the company said. Because of the interactivity, the cancer mortality data can be grouped and compared in approximately 5 million different combinations.

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Immunomedics Inc. (Nasdaq: IMMU) of Morris Plains, NJ, said it has licensed its proprietary labeling technology for non-exclusive worldwide use with its clot imaging agent to **Agen Biomedical Ltd.** of Australia.

The clot imaging agent involves a humanized antibody to a determinant expressed on deep vascular clots and pulmonary emboli, the company said. The labeling method allows the nuclear physician to directly label the antibody a few minutes before it is administered, allowing the imaging with standard nuclear cameras to reveal sites of trapped clots.

The company would consider licensing its patent portfolio on a non-exclusive basis to gain revenues from products being developed by other companies, said Cynthia Sullivan, president and CEO of Immunomedics.

Terms of the agreement were not disclosed, the company said.

* * *

Epigenomics AG of Berlin and **MethylGene Inc.** of Montreal said they would investigate gene methylation changes of patients enrolled in phase II trials of MG98.

MG98 is a second-generation antisense oligonucleotide that inhibits DNA methyltransferase mRNA, the company said. Changes to DNA methylation patterns may indicate which patients could respond to treatment by MG98.

The alliance covers ongoing or scheduled phase II trials of MG98 in several tumor types including head and neck cancer and renal cell cancer, the companies said.

Under the agreement, Epigenomics will receive DNA-samples from patients before and after MG98 treatment and identify changes in DNA methylation patterns, the company said.

MG98 targets the mRNA of the nuclear enzyme DNA methyltransferase, which is responsible for silencing tumor suppressor genes, the company said. The compound aims to reduce hypermethylation of tumor suppressor genes by inhibiting DNA methyltransferase and thereby potentially treat tumors. Epigenomics examines the methylation pattern of different kinds of disease, including cancers, in order to detect and classify these diseases at an early stage, the company said.

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MTM Laboratories AG of Heidelberg and **Dako A/S** of Copenhagen said they have entered into a strategic licensing and product development agreement.

Under agreement Dako will gain exclusive, worldwide rights to the CINtec technology for the early identification of cervical cancer in cell-based diagnostics, the companies said. Both parties have agreed to develop the technology for diagnosis of other tumor entities.

MTM will receive upfront, milestone, R&D and royalty payments under the terms of the agreement, the companies said.

The MTM patent-protected CINtectechnology is a molecular diagnostic test, which will be developed

for the highly sensitive detection of pre-cancerous and cancerous cells in biopsies and smears of the cervix uteri, the companies said.

The cervical cancer diagnostic market is the largest single diagnostic market in the world, with 140 million tests performed annually, the companies said.

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NeoTherapeutics Inc. (Nasdaq: NEOT) of Irvine, CA, said its anti-cancer subsidiary, **NeoOncoRx Inc.**, has signed an agreement with **Bristol-Myers Squibb Co.** (NYSE: BMY) to develop Elsamitrucin for non-Hodgkin's lymphoma.

Elsamitrucin, an anti-tumor antibiotic discovered by BMS, induces single strand DNA breaks, the company said. This is a result of drug intercalation between base pairs with selectivity for the CG base pairs of DNA, which imparts a greater binding stability. The antibiotic also causes the inhibition of topoisomerase II, an enzyme important in the process of DNA replication, the company said.

The agreement grants NeoOncoRx worldwide rights to develop and market the product, the company said.

NeoOncoRx said it would begin a multi-center phase II study of Elsamitrucin in the U.S. with 40 to 50 patients.

"Elsamitrucin has shown promising activity in phase I and II studies to date," said Luigi Lenaz, president of NeoOncoRx. "We will perform a phase II study to define the non-Hodgkin's lymphoma patient population most susceptible to the efficacy of elsamitrucin. This will be followed by a phase III study for a new drug application filing in this patient population. In addition, we will consider exploring the possible activity of elsamitrucin in several other tumor types."

The drug has been tested in approximately 300 patients to date in the U.S., Canada and Europe, the company said. The dose limiting toxicity is reversible elevation of liver enzymes, and the drug has minimal or no myelosuppression, which will facilitate treatment in combination with other drugs.

In another development, Bristol-Myers Squibb and **ImClone Systems Inc.** (Nasdaq: IMCL) said ImClone has completed its FDA rolling biologics license application submission of Erbitux, formerly known as IMC-C225, for irinotecan-refractory colorectal cancer.

Erbitux is an investigational monoclonal antibody that targets and blocks the epidermal growth factor receptor, the company said.

Product Approvals & Applications:

FDA Designates Zometa For Priority Review

Novartis (NYSE: NVS) of East Hanover, NJ, said Zometa, (zoledronic acid for injection) has been designated a priority review by FDA for bone complications with a broad range of tumor types.

Included in the range are prostate cancer, lung cancer, and other tumor types for which no intravenous bisphosphonate therapy is currently approved for treatment, as well as breast cancer and multiple myeloma, the company said.

The application is based on data from three international clinical trials evaluating more than 3,000 patients with myeloma, breast cancer, prostate cancer, lung cancer and other solid tumors. This is the largest set of clinical trials ever conducted to evaluate the efficacy and tolerability of a bisphosphonate in treating cancerous bone lesions, the company said.

In the bone metastases trials submitted for FDA review, the drug was well tolerated and had comparable safety to that of Aredia in multiple myeloma and in breast cancer, the company said.

Contraindications have been mild and transient and similar to those reported for other bisphosphonates, the company said. The most commonly associated adverse events included flu-like syndrome, fatigue, gastrointestinal reactions, anemia, weakness, cough, dyspnea, and edema.

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Biomerica Inc. (Nasdaq: BMRA) of Newport Beach, CA, said it has received FDA permission to market its patented aware breast self-examination pad that makes breast self-examination both more sensitive and convenient.

The pad increases a woman's sense of touch by reducing the friction between her fingers and her breast, the company said.

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Draxis Health Inc. (NASDAQ:DRAX) (TSE:DAX.) of Mississauga, Ontario, said **Draximage Inc**., its radiopharmaceutical subsidiary, has received final approval from the Nuclear Regulatory Commission for the palladium version of its BrachySeed radioactive brachytherapy implant, BrachySeed Pd-103, for prostate cancer and other localized tumors.

The palladium implant will be marketed in Canada by Draximage and in the U.S. by **Cytogen Corp.** (Nasdaq: CYTO) of Princeton.

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