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Duke In Process To Restart Three Trials Using Microarray Analysis Of Tumors

By Paul Goldberg

Duke University said it is in the process of restarting three clinical trials using microarray analysis of patient tumors to predict their response to chemotherapy.

The university halted the trials to review their scientific underpinnings after a paper in the Annals of Applied Statistics said that the genomic technology developed at Duke and used in the trials incorporated errors and inaccurate calculations and could conceivably put patients at risk (The Cancer Letter, Oct. 2, Oct. 9, Oct. 23, 2009).

In a letter to the editor of The Cancer Letter, Duke officials said that the Institutional Review Board had consulted three directors of cancer centers, who recommended that the patients continue to receive the treatments to

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In the Cancer Centers:

Gerold Bepler Named President And CEO Of Barbara Ann Karmanos Cancer Institute

GEROLD BEPLER was named president and chief executive officer of the **Barbara Ann Karmanos Cancer Institute**. Bepler, a thoracic oncologist, will begin his new position Feb. 1.

Bepler will also serve as principal investigator of Karmanos' NCI Comprehensive Cancer Center Support Grant; associate dean, Cancer Programs, Wayne State University School of Medicine; director, Cancer Institute, WSU School of Medicine; and chair of the soon to be created Department of Oncology of the WSU School of Medicine.

Bepler most recently was director of the Comprehensive Lung Cancer Research Center, department chair of Thoracic Oncology, and program leader of the Lung Cancer Program at the Moffitt Cancer Center. He also served as professor of medicine and oncology at the University of South Florida.

"Dr. Bepler comes to us with exceptional experience in oncology, both in the clinical and research settings," said **Alan Schwartz**, chair of the Karmanos Board of Directors. "His expertise, leadership and knowledge will help us achieve our mission as one of the top cancer centers in the nation. We are excited to enter this new chapter under his leadership."

Ann Schwartz, who served as interim CEO for the past 10 months, will serve in a transitional capacity as interim executive vice president, assisting Bepler in the management of administrative affairs.

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Duke Says Data, Methods To Be Released At Publication

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which they were assigned via genomic analysis. Patients were being assigned to standard therapies.

Also, the IRB convened a panel of experts who were able to validate the results of the university's researchers, Joseph Nevins and Anil Potti, Duke officials said. This finding would be significant, because it would constitute the first independent validation of the Duke genomic technology.

However, at least for now, these findings fall short of a validation that can be assessed by others because a detailed justification for Duke's decision is yet to be made public. The names of the members of the group that validated the data have not been released, and their report remains confidential. Also, the names of the cancer center directors who recommended restarting the trials have not been made public.

"The independent review was commissioned by the Duke IRB and was done under confidentiality," Michael Cuffe, vice dean, medical affairs, at Duke University School of Medicine, said to The Cancer Letter. "While the reviewers approved of our sharing the report with the NCI, we consider it a confidential document. Similarly, the three cancer center directors were approached under the condition of confidentiality and, therefore, we cannot release their names."

In an email, Cuffe said that the independent review included "both the previously published work and the models used today in the related cancer trials." Nevins and Potti are preparing "additional manuscripts for the peer-reviewed literature with more complete descriptions of the data and methods that were in question."

The data and detailed methods of analysis will be made available at the time of publication of the work, Cuffe said. The letter to the editor announcing the results of the review was signed by Cuffe and Sally Kornbluth, Duke's vice dean for research.

"Most importantly, an examination of the underlying scientific methodology that had been published by the Duke investigators, and used in these trials, was confirmed by the reviewers' own independent analysis using the respective datasets and prescribed methods of analysis," the letter states. "The reviewers concluded that 'the approaches used in the Duke clinical predictors are viable and likely to succeed,' and 'we believe the predictors are scientifically valid.'"

M.D. Anderson Cancer Center biostatisticians Keith Baggerly and Kevin Coombes, whose analysis raised questions about the Duke group's work, said they would reserve judgment about the validation claims until they are able to review the data and reproduce the results.

"While we expect that the conclusions of the panel are valid given the data presented to them, we are asked to trust that these data were correct, without seeing those data," Baggerly and Coombes wrote to The Cancer Letter. "We are asked to trust that they got the data right 'this time' when we have empirical evidence that they got an important piece of it wrong. Based on the documented record, we are not prepared to trust this assertion without seeing the data."

The Duke officials' letter to the editor and Baggerly's and Coombes's response follow:

Duke To Restart Three Trials

Dear Editor:

In October of 2009, a series of articles in The Cancer Letter focused on questions raised by a team of biostatisticians at M.D. Anderson Cancer Center and published in the Annals of Applied Statistics.

The Applied Statistics publication questioned the scientific basis for work done by researchers at Duke University Medical Center utilizing microarray analysis of individual patient tumors as a way to predict their response to chemotherapy.

This publication also, for the first time, implied that the safety of patients enrolled in clinical trials based on this underlying science might be at risk; a very serious allegation.

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As shared with The Cancer Letter at that time, Duke quickly defined and initiated a process to re-examine the scientific methodology behind the work that subsequently provided the scientific basis for initiation of three clinical trials.

Given Duke's commitments to patient safety and scientific integrity, this process immediately focused on three priorities for patients currently on protocol.

1. Sharing the M.D. Anderson data analysis and questions raised with the principal investigators of the three clinical trials so that decisions could be made as quickly as possible about the ongoing enrollment of patients in those studies. As a result of this action, the investigators placed a voluntary temporary hold on the enrollment of new patients into these studies until the scientific issues in question could be adequately resolved.

2. Seeking recommendations based on the published M.D. Anderson data analysis and associated questions from independent external experts regarding the optimal approach for managing patients on active treatment in the three studies. We received recommendations from three nationally respected cancer center directors who were unanimous in their belief and guidance that having study patients continue on their assigned treatments would be in their best interests and would not increase safety risks.

3. Seeking assessments in light of the published M.D. Anderson questions from the clinical trials' independent Data Safety & Monitoring Boards (DSMB), and the Duke Cancer Protocols Review Committee regarding patient safety in all three trials. These entities were unanimous in their conclusion that the new questions related to the scientific underpinnings of these trials presented no immediate increased risk to study patients on protocol.

In addition, based on the questions raised about the scientific validity of the Duke work underlying the trials, the Duke IRB commissioned an independent, external review of the scientific methodology in question by biostatisticians and bioinformaticists.

We consulted with officials in the Division of Cancer Treatment and Diagnosis at the National Cancer Institute about the selection of these experts. This review has now been completed and has been provided to the IRB.

The independent review concluded that errors in various figures and tables in the early Duke publications, as identified by the MD Anderson investigators, have been largely addressed by the Duke investigators, including in prior communications with the relevant journals. The review further noted that these errors did not impact the performance of the predictors and thus the primary conclusions from the published studies. The independent review did suggest that future work would benefit from a more complete description of the methods used, a conclusion shared by Drs. Nevins and Potti.

Most importantly, an examination of the underlying scientific methodology that had been published by the Duke investigators, and used in these trials, was confirmed by the reviewers' own independent analysis using the respective datasets and prescribed methods of analysis. The reviewers concluded that "the approaches used in the Duke clinical predictors are viable and likely to succeed," and "we believe the predictors are scientifically valid."

We are pleased that an independent, external review of the data has validated this pioneering science of Drs. Nevins and Potti and their teams. This review has been shared with the principal investigators of the three clinical trials in question and they have informed us that based on this review, they will be immediately taking steps to resume patient enrollment in these studies.

We affirm the value of scientific challenge and believe strongly that translation of new and emerging bench science to the arena of patient care requires rigorous critical peer evaluation. Indeed, the questions raised and the resulting detailed external evaluation and confirmation of the scientific methodology serve to strengthen the confidence in this evolving approach to personalized cancer treatment.

The support and patience in this process demonstrated by Drs. Nevins and Potti, along with the principal investigators of the clinical trials and enrolling trial sites, is to be commended and is a clear indication of Duke Medicine's collective interest in ensuring study patient safety and scientific integrity.

—*Sally Kornbluth,* vice dean, research, Duke University School of Medicine.

—*Michael Cuffe,* vice dean, medical affairs, Duke University School of Medicine.

M.D. Anderson Biostatistician Awaits Data

Dear Editor:

We are pleased that the independent panel was able to validate the reported results "using the respective datasets and prescribed methods of analysis."

However, we are disappointed that neither the review nor the raw data on which it is based are being made available at this time.

We have documented that the data published to date are wrong in ways that contradict major claims

and the very basis of the clinical trials being run. While it may be that some of these errors "did not impact the performance of the predictors," others, such as mislabeling samples and reversing sensitive/resistant calls most certainly do. These errors are still present, despite the acknowledgement that they have been made.

The policy of Nature Medicine, for example (one of the journals in which major claims have been made), is that, *"An inherent principle of publication is that others should be able to replicate and build upon the authors' published claims. Therefore, a condition of publication in a Nature journal is that authors are required to make materials, data and associated protocols promptly available to readers without preconditions"* (http://www.nature.com/authors/editorial_policies/availability.html), not that these data and methods will be provided in "additional manuscripts being prepared for the peer-reviewed literature."

Conclusions based on the data have already been published in peer-reviewed literature. We believe it is now time to supply the data that provide the basis for the already-published conclusions. *If they are ready to restart clinical trials, they should be ready to supply the data.*

While we expect that the conclusions of the panel are valid given the data presented to them, we are asked to trust that these data were correct, without seeing those data. In this regard, we note that in mid-November, in the middle of the panel's investigation, the Duke investigators posted incorrect data purporting to support the claims made in Hsu et al (JCO, 25:4350-7, 2007), which is the basis for the trials involving cisplatin and pemetrexed which were initiated in 2007.

These data included array quantifications for 59 "test samples" used to validate the performance of their predictors. At least 43 of these samples were mislabeled. We say "at least" because the genes were so thoroughly mislabeled for the remaining 16 samples that we could not identify the sample of origin. Further, the sensitive and resistant labels for the pemetrexed were reversed. In short, the data for all 59 validation samples was wrong, and the directions of predictions reversed, two years after trials using the associated drugs were initiated.

We reported this information at the time to both the Duke investigation and to the NCI, and had others download the data for confirmation. These data were stripped from the web two days later, and all of the group's web pages were taken down by the end of that week, so no data remains to be checked. Our report and the underlying code and raw data are now available as a single zip file from our website, http://bioinformatics.mdanderson.org/Supplements/ReproRsch-All/Modified/index.html.

We are asked to trust that they got the data right "this time" when we have empirical evidence that they got an important piece of it wrong. Based on the documented record, we are not prepared to trust this assertion without seeing the data. Until the correct data are posted, we hold to our documented conclusions that these methods are flawed and inaccurate, and, until we can see further data—of the sort that Nature Medicine requires be made available for the normal process of science—we must respectfully express skepticism with conclusions that "the approaches used in the Duke clinical predictors are viable and likely to succeed" and that "the predictors are scientifically valid."

We have precisely documented both our conclusions and the exact routes we took to arrive at these conclusions. Drs. Potti and Nevins have made dramatic claims, but have yet to provide data and methods adequate for these claims to be reproduced, not just by us, but by their own coauthors (The Cancer Letter, Oct. 23, 2009). The panel's confirmation represents the first independent validation of which we are aware. Given that the correct data and methods were evidently recently assembled for the panel (and are thus readily at hand), we would hope to see these data and methods made publicly available so that others can use this approach. As employees of the world's largest cancer center, we and our colleagues are eager to employ an effective approach here, where it could have a large clinical impact.

—*Keith Baggerly,* associate professor, Department of Bioinformatics and Computational Biology, M.D. Anderson Cancer Center.

—*Kevin Coombes*, deputy chair, bioinformatics and professor, Department of Bioinformatics and Computational Biology, M.D. Anderson Cancer Center.

Washington Roundup:

Spending Freeze Detrimental To Research, ACS CAN Says

By Kirsten Boyd Goldberg

A three-year freeze on domestic spending "could jeopardize progress against cancer," the American Cancer Society's Cancer Action Network said in a Jan. 28 letter to the White House, a day after President Barack Obama proposed the deficit-reduction strategy in his State of the Union address.

The proposed spending freeze would take effect

in 2011 and would impact all discretionary government programs except national security, Medicare, Medicaid, and Social Security, Obama said in the Jan. 27 speech to Congress.

The ACS advocacy affiliate urged Obama to maintain his commitment last year to double the cancer research budget and sustain the increase for medical research that was included in the stimulus bill passed last year. The American Recovery and Reinvestment Act included a $10 billion boost for NIH, including $8.4 billion for medical research.

"We are deeply concerned about how your proposed freeze in domestic discretionary funding will impact continued cancer research in the near term," wrote Molly Daniels, interim president of ACS CAN. "Should funding for cancer research decline next year, new progress and innovation begun under the Recovery Act could come to a halt or be reversed."

Following the State of the Union address, other medical and patient advocacy organizations wrote letters to Congress reiterating their support for health care reform. About 65 organizations, including several cancer patient advocacy groups, signed on to one such letter.

Obama urged Congress to "take another look at the plan we've proposed."

"There's a reason why many doctors, nurses, and health care experts who know our system best consider this approach a vast improvement over the status quo," Obama said. "But if anyone from either party has a better approach that will bring down premiums, bring down the deficit, cover the uninsured, strengthen Medicare for seniors, and stop insurance company abuses, let me know.

"Here's what I ask Congress, though: Don't walk away from reform. Not now. Not when we are so close. Let us find a way to come together and finish the job for the American people. Let's get it done."

The speech is available at http://www.whitehouse.gov/photos-and-video/video/2010-state-union-address.

Following is the text of the ACS Cancer Action Network letter:

Dear President Obama:

On behalf of millions of cancer patients, survivors and their families, the American Cancer Society Cancer Action Network, the nonprofit advocacy affiliate of the American Cancer Society, thanks you for your past commitment to greater funding support for cancer research and prevention programs.

The research investments which you made through the American Recovery and Reinvestment Act are creating dramatic new opportunities in cancer research and spurring innovation and development at thousands of institutions across the country. Most importantly, this research has the potential to lead to breakthroughs in areas such as genetics and personalized medicine, forever changing how cancer is prevented and treated. Advances like this will yield long-term economic benefits, reduce death and suffering from cancer, and improve quality of life for millions of Americans.

Research capacity has grown in important ways over the past year as a result of the Recovery Act investment. The Cancer Genome Atlas is growing from a pilot study of three cancer types into a program that will involve more than 150 researchers at 18 centers to map 20 different types of cancer. Recovery Act funding is also accelerating clinical research. For example, one Pennsylvania university added four new researchers to help support the development of a new drug for breast cancer and another drug to treat women with ovarian cancer. The Recovery Act investment is also addressing health disparities by enabling the National Cancer Institute to support young leaders working within minority communities to become the next generation of health researchers.

The achievement of these goals, however, requires a sustained commitment that is consistent with your stated goal of doubling cancer research funding over an eight year period. That is why we are deeply concerned about how your proposed freeze in domestic discretionary funding will impact continued cancer research in the near term. Should funding for cancer research decline next year, new progress and innovation begun under the Recovery Act could come to a halt or be reversed.

ACS CAN urges you in the strongest terms to provide $35.2 billion for the National Institutes of Health, including $5.8 billion for the National Cancer Institute, in your FY 2011 budget proposal to sustain the investments made over the past year. This additional investment will both sustain our progress under the Recovery Act, and accomplish your goal of doubling cancer research funding over eight years. ACS CAN staff and volunteers are prepared to assist you and your administration in any way we can to support this effort.

You have been a leader in the fight against cancer, and we thank you for your ongoing support as we continue our efforts to eliminate death and suffering from this disease.

Letter On Health Care Legislation

A letter to Congressional leaders urging the enactment of comprehensive health care reform, was signed by 65 organizations, including American Association for Cancer Research, American Cancer Society Cancer Action Network, American Society of Clinical Oncology, Association of American Cancer Institutes, Friends of Cancer Research, Lance Armstrong Foundation, Leukemia & Lymphoma Society, and others.

Following is the text of the letter:

Dear Speaker Pelosi, Leader Hoyer and Chairmen Rangel, Waxman, and Miller:

On behalf of over 65 organizations representing millions of patients, caregivers, health care providers, medical educators, and biomedical researchers, we continue to recognize the need for reform to our current health care system and provide high quality care to the millions of Americans that currently go without. We commend both the House and Senate for the unprecedented progress that has been made toward this goal.

The current proposals are a result of a robust dialogue over many years. While there may be points of disagreement, ending this debate and accepting the status quo would be detrimental to the health of the nation.

We urge you to swiftly complete the work that has come this far and take the remaining steps necessary to enact comprehensive health care legislation and undoubtedly improve the lives of all Americans.

In 2008, the American people voted for change, and the vision of affordable, quality health care for all seemed as though it could finally become a reality. Political forces are strong, but today we are presented with the challenging, yet revolutionary, opportunity to put partisan politics aside and do what is best for the citizens of this country.

The undersigned organizations remain committed to this goal, and stand ready to help you accomplish it.

Physicians Urge End to Medicare Payment Cuts

In a separate letter, the American College of Physicians urged Congressional leaders to "reach agreement on a legislative pathway to provide affordable care to all Americans and ensure that they have access to primary care physicians and other specialties facing shortages."

"We agree with the President that Congress must complete the task of enacting comprehensive health reform legislation consistent with the above priorities," ACP President Joseph Stubbs wrote. "The bills passed by the House and Senate advance many of the elements needed to achieve a sustainable, affordable and high quality health care system for all Americans."

Stubbs urged adoption of five ACP priorities:

1. **Create a pathway to providing affordable coverage to all Americans.** The bills passed by the House and Senate would provide coverage to 94-96 percent of all legal residents. ACP firmly believes that the final legislation must not back off on the commitment to create a pathway for all Americans to have access to health insurance coverage. We continue to support creating sliding-scale tax credits, expansion of Medicaid to cover the poor- and near-poor, insurance market reforms, and providing individuals and small businesses a wide choice of affordable health plans through a health exchange.

2. **Include the strongest possible workforce and payment policies to ensure a sufficient supply of primary care physicians and other specialties facing shortages.** Both the House and Senate bills would increase Medicare payments for designated services by primary care physicians but they differ on the amount of the bonus, the services it would apply to, and the criteria for a physician to qualify. We urge that the House's overall approach be adopted, but at the 10 percent bonus level, as passed by the Senate. We also urge adoption of the House provision to increase Medicaid payments for visit services provided by primary care and other physician specialists. We urge adoption of the highest possible mandated funding levels for primary care training programs (including the National Health Services Corps and Title VII health professions funding) and the House's provision to create a new loan repayment program for "front line" health professionals facing shortages. We support the House provision to redistribute 90 percent of unused Graduate Medical Education (GME) positions to primary care. We support provisions in both bills to create a workforce commission to recommend policies to ensure a sufficient supply of primary care and other specialties facing shortages.

Without the above policies, the United States will experience a catastrophic shortage of primary care physicians, resulting in longer waits for appointments, delays in getting needed care, over-crowded emergency rooms, and overall, higher costs and poorer outcomes of care. Providing Americans with health insurance coverage, although essential, will not ensure that patients have access to care in the absence of policies

to increase the numbers of primary care physicians and other specialties facing shortages.

3. **Accelerate pilot-testing and adoption of innovative models, including the Patient-Centered Medical Home, to improve payment and delivery systems to achieve better value.** We support provisions in both bills to establish a Center on Medicare Innovation, but we urge adoption of the House provision to fund two Medicare pilots of the Patient-Centered Medical Home. The Patient-Centered Medical Home has been shown to be one of the most promising models for improving the efficiency and outcome of care. It requires dedicated funding to allow for broader testing and adoption by Medicare and other payers.

4. **Support broad adoption of alternatives to the current medical liability tort system.** Last night, President Obama asked for ideas from either party "to bring down premiums, bring down the deficit, cover the uninsured, strengthen Medicare for seniors, and stop insurance company abuses." According to the Congressional Budget Office," tort reform would lower costs for health care both directly, by reducing medical malpractice costs—which consist of malpractice insurance premiums and settlements, awards, and legal and administrative costs not covered by insurance—and indirectly, by reducing the use of health care services through changes in the practice patterns of providers." It estimated that such reforms "would reduce federal budget deficits by about $54 billion during the 2010–2019 period." Although the current bills have modest grant proposals to fund state liability reform initiatives, we urge Congress to seek bipartisan agreement on broader reforms, including dedicated funding to test health courts as an alternative to trial by jury.

The fifth item on the list of ACP priorities concerns a policy that—unless changed before March 1—will result in a 22 percent cut to Medicare physician fee reimbursements.

5. **Enact a permanent end to the cycle of Medicare payment cuts caused by the Sustainable Growth Rate (SGR).** The constant threat of Medicare payment cuts threatens access to care for millions of American's seniors and military families ensured by Tri-Care. In addition, a foundation of stable, predictable and positive Medicare payments is a pre-requisite to adoption of innovative payment reforms to create better value and to support patient-centered primary care. The House has passed legislation to replace the SGR with a system to eliminate devastating payment cuts, provide higher updates to all physicians, and allow for increased payments for primary care and preventive services. The Senate must now do the same. We cannot support another temporary "patch" that kicks the can down the road and with it, the cost to taxpayers of enacting a permanent solution.

In the Cancer Centers:

St. Jude, Wash U Plan Pediatric Cancer Genome Project

(Continued from page 1)

Prior to Bepler's tenure at the Moffitt Cancer Center, he was director of the Lung Cancer Program at Roswell Park Cancer Institute. Earlier, he held positions at Duke University Hospital and Durham VA Medical Center. His research has focused on the treatment of non-small cell lung cancer. He received more than $23.8 million in research funding from NCI over the past 13 years. He has published more than 100 peer-reviewed articles and holds seven patents.

ST. JUDE CHILDREN'S RESEARCH HOSPITAL and Washington University School of Medicine in St. Louis announced an effort to identify the genetic changes involved in childhood cancers. The team plans to decode the genomes of more than 600 childhood cancer patients who have contributed tumor samples. The Pediatric Cancer Genome Project is estimated to cost $65 million over three years. Scientists will sequence the entire genomes of both normal and cancer cells from each patient. Kay Jewelers has committed to providing $20 million as lead sponsor. The project will examine leukemias, brain tumors, and sarcomas. St. Jude will provide DNA from tissues, Washington University's Genome Center will perform the whole genome sequencing, and both will participate in validation sequencing.

OHIO STATE UNIVERSITY'S cancer program received nearly $12 million from federal stimulus funding for two construction projects. NIH awarded an $8 million grant to complete one of three unfinished floors of the university medical center's Biomedical Research Tower, as well as a $3.9 million grant to renovate Goss Lab in the department of Veterinary Biosciences. Construction of the fourth floor of the Biomedical Research Tower is scheduled to begin in the summer of 2011, with completion by summer 2012. Renovations to Goss Lab are scheduled to start in April 2011, with completion by February 2012. The projects are designed to increase collaboration among cancer researchers. Principal investigators are **Michael Grever**, chair of the department of internal medicine at Ohio State and co-leader of the experimental therapeutics

program at OSUCCC-James, and **Michael Lairmore**, chair and professor in the department of veterinary biosciences and associate director for basic sciences in the OSUCCC-James.

VANDERBILT UNIVERSITY MEDICAL CENTER assistant professor **H. Charles Manning** received two federal stimulus grants from NCI to study imaging techniques in colorectal cancer. The grants, totaling more than $1.6 million over two years, include a Challenge Grant on biomarker discovery. Manning and his colleagues will be investigating a tracer called ^{18}F-fluorothymidine (FLT) used in positron emission tomography scans. The second grant is a five-year R01 award, with the first two years supported by stimulus funds. That project will combine and compare three unique imaging modalities, including FLT-PET, Annexin-V SPECT imaging, and apparent diffusion coefficient mapping via MRI.

CITY OF HOPE said NCI honored **Leslie Bernstein**, director of the Division of Cancer Etiology, with its Rosalind E. Franklin Award. The award recognizes the commitment of women to cancer research. Bernstein was honored at the NCI annual retreat in Bethesda, Md. In addition to receiving the award, Bernstein delivered a lecture on reducing breast cancer risk through biology and epidemiology. Bernstein's research primarily has focused on how personal and lifestyle factors affect risk of breast cancer and other malignancies including non-Hodgkin's lymphoma. She also has studied how lifestyle factors influence disease prognosis and quality of life among survivors. The award is sponsored by the NIH Women Scientist Advisors.

ARIZONA CANCER CENTER Health Disparities Institute's Partnership for Native American Cancer Prevention and Northern Arizona University have been awarded a $15.7 million grant from NCI to continue developing sustainable solutions to cancer disparities among Native Americans. ACC will receive $6.7 million, and NAU will receive $8.9 million. NACP, begun in 2002, focuses on community partnership and involvement with the Hopi Tribe, Navajo and Tohono O'odham Nations. The premise of NACP is that a sustainable solution to cancer disparities among Native Americans must be rooted in the communities. **David Alberts**, director of the Arizona Cancer Center, and **Laura Huenneke**, vice president of research at Northern Arizona University are the co-principal investigators of the grant. **Louise Canfield** of the Arizona Cancer Center, is principal investigator, NACP Training Program.

EMORY UNIVERSITY School of Medicine appointed **Michael Cohen** director of the Division of Breast Imaging. Cohen replaces **Carl D'Orsi**, who is moving to the new position of director of Breast Imaging Research at Emory. Cohen joined Emory from the University of Virginia Medical Center, where he was professor of clinical radiology and served as interim vice chair of radiology. He currently chairs the Radiological Society of North America Radiographics Panel on Breast Imaging.

NORTHWESTERN UNIVERSITY nanotechnology researcher **Chad Mirkin** is the world's top-ranked chemist spanning the last decade in terms of papers cited and published, according to Thomson Reuters Essential Science Indicators. Mirkin was the author of more than 200 papers over the last decade and had more than 18,000 collective citations—an average of 85 citations per paper, making him the number-one ranked author in the chemistry category in total citations and second in most citations per paper. Mirkin is the George B. Rathmann Professor of Chemistry in the Weinberg College of Arts and Sciences and professor of medicine, chemical and biological engineering, biomedical engineering and materials science and engineering. He also is director of the International Institute for Nanotechnology and a member of the Robert H. Lurie Comprehensive Cancer Center. Mirkin also is a member of President Obama's Council of Advisors on Science and Technology.

CORIELL INSTITUTE FOR MEDICAL RESEARCH received a $27 million, five-year contract from the National Institute of General Medical Sciences to expand operation of the NIGMS Human Genetic Cell Repository. Under the new contract, the HGCR plans to enhance its collection of human cell lines by adding induced pluripotent stem (iPS) cells that carry disease gene mutations. Established by NIGMS in 1972, the HGCR provides human cell lines and DNA for use in genetic and genomic research.

UCLA'S JONSSON COMPREHENSIVE CANCER CENTER researchers have performed the first complete genomic sequencing of a brain cancer cell line, a discovery that may unveil new molecular targets and lead to better treatments. The sequencing was done in less than a month and cost about $35,000. **Stan Nelson**, a professor of human genetics, was senior author of the study. The study appears in the Jan. 29 issue of PLoS Genetics. The sequencing was done on a much studied glioblastoma cell line called U87, because it has been so thoroughly examined. The sequencing will allow scientists who have studied the cell line to reinterpret their findings.