A novel duplication in chromosome 7q34 led to the identification of \textit{BRAF} as a gene that may play a role in the initiation of pediatric low-grade brain tumors, according to a Children’s Hospital study. This finding may aid in the development of targeted therapy for children with these tumors.

Jaclyn Biegel, Ph.D., Division of Human Genetics, led the study, published in the October 2008 online version of \textit{Brain Pathology}.

Investigators analyzed DNA from 28 pediatric low-grade brain tumors using high-density genome-wide arrays. They identified a novel duplication in chromosome band 7q34 in 20 of the 28 tumors. Further positional cloning and sequencing analysis demonstrated a novel \textit{BRAF} fusion gene in these tumors. A smaller subset of tumors also revealed mutations in the \textit{BRAF} oncogene.

“Until this point, studies of low-grade brain tumors have failed to identify a consistent pattern of genetic abnormalities that could be used to identify a diagnosis and determine a prognosis,” says Dr. Biegel. Low-grade brain tumors typically arise in the first 20 years of life and account for nearly 30 percent of tumors of the central nervous system in children. These tumors do not typically become malignant; however, they can recur as a more aggressive type of brain tumor. Although the prognosis for most children with low-grade brain tumors is favorable, many suffer from functional impairments caused by the treatment or the tumor itself.

Surgery is the preferred method for treating slow-growing tumors, but depending on the location of the tumor, it is not always feasible. Standard chemotherapy is not an ideal treatment for benign tumors because it kills both cancerous and normal cells. By detecting abnormalities in the \textit{BRAF} gene, investigators have identified a potential target for effective therapies in children with low-grade brain tumors. Drugs that target the \textit{BRAF} gene have been developed and are currently in clinical trials in adult patients with melanoma. Similar inhibitors could be used to treat children who have brain tumors that demonstrate abnormalities in the \textit{BRAF} gene.

Ongoing studies in both children and adults are in progress to define the spectrum of brain tumors that may carry an alteration in the \textit{BRAF} gene. \textit{In vitro} studies have also been undertaken to identify the mechanism by which the \textit{BRAF} gene can cause a cell to become cancerous.

The National Institutes of Health and the Neurosurgery Research and Education Foundation provided support for the study. Dr. Biegel’s co-authors were Angela Sievert, M.D.; Eric Jackson, M.D.; Xiaowu Gai, Ph.D.; Hakon Hakonarson, M.D., Ph.D.; Alexander Judkins, M.D.; Adam Resnick, Ph.D.; Leslie Sutton, M.D.; Phillip Storm, M.D.; and Tamim Shaikh, Ph.D.
### Recruitment Begins in National Children’s Study

The National Children's Study (NCS) has begun recruiting volunteers to take part in the largest long-term study of environmental and genetic effects on children's health ever conducted in the United States. By following 100,000 children from before birth to age 21, investigators hope to collect information to prevent and treat some of the nation's most pressing health problems, including autism, birth defects, diabetes, heart disease, and obesity.

Seven Vanguard centers were selected to be the first to work with their communities on this study. In January 2009, the first phase of recruitment began with two Vanguard centers. The University of North Carolina at Chapel Hill began recruiting study volunteers from Duplin County, N.C., and the Mount Sinai School of Medicine began recruiting volunteers from the New York City borough of Queens, N.Y. During this initial recruitment phase, researchers will evaluate their recruitment and sampling methods.

In April 2009, Children's Hospital, one of the seven Vanguard centers, will begin recruiting families in Montgomery County, Pa. Each Vanguard center is expected to have recruited 375 study participants at the end of 18 months, with the goal of recruiting 1,250 participants countywide over a five-year period.

Under the direction of Jennifer Culhane, Ph.D., M.P.H., Division of Adolescent Medicine, the Children's Hospital NCS Study Center will also manage local participation, recruitment, and data collection in Philadelphia County, Pa.; New Castle County, Del.; Schuylkill County, Pa.; and Burlington County, N.J. Investigators anticipate approximately 1,000 families in each of these counties will participate.

In total, the study will be conducted in 105 previously designated study locations across the United States that together are representative of the nation's population. A national probability sample was used to select the counties in the study, which took into account factors including race and ethnicity, income, education level, number of births, and babies born with low birth weights.

Each center will hold presentations and community awareness activities in their communities to inform prospective volunteers. Some families in those areas will receive letters introducing the study, and prenatal care providers and clinics in the study locations will also inform women about the study.

The study is funded by the National Institutes of Health.

For more information about the National Children's Study, visit the official Web site at [www.nationalchildrensstudy.gov](http://www.nationalchildrensstudy.gov).

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### New Research Employees


We welcome the following new research employees:

**Adolescent Health Educators**
- Jesús Kain
- Cassandra Laurent

**Associate Director - Clinical Trials Office**
- Nirmala Thevathasan

**Associate Technical Developer - Web**
- Nicholas Kight

**Child Activity Coordinator**
- Stephanie Studley

**Clinical Research Assistant**
- Shloka Joshi

**Clinical Research Coordinator**
- Jenna Tress

**Clinical Research Nurse Coordinators**
- Ly-Lynn Testaiuti
- Kathleen Gilmartin

**Data Analyst**
- Catrin Dessables

**Data Integration Analyst**
- Michael Italia

**IRB Analysts**
- Lori-Anne Tuscan
- Sarah Wilczynski

**Project Manager**
- Sarah O’Connor

**Psychometrician**
- Rosemarie Manfredi

**PT Clerks**
- Valena Davis
- Frances Hrubosky

**Research Associate**
- Maria Scarano

**Research Coordinator**
- Lisa Norton

**Research Technicians**
- Stephan Dingley
- James Doran
- Lauren Franey
- Amanda Hudome
- Rebecca Kaufman
- Whitney Kramer
- Jennifer Murray
- Xin Zhang
- Tara Donnelly

**Resource Coordinator**
- Karen Dzwil

**Senior Buyer**
- Melodeane Barr

**Social Workers**
- Caroline Richards
- Jana Speas
- Mariah Corcoran
- Dawn DeVan-Bertrand

**Sponsored Projects Officer**
- Pamela Nichols

**Technical Director**
- Qiang Zhang

**Unix/Tivoli Administrator**
- Michael Chupa

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**New Research Employees**

**December 2008 – January 2009**

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CBMi Announces Annual Healthcare Informatics Symposium

The Center for Biomedical Informatics (CBMi) is proud to announce the second annual Healthcare Informatics Symposium. This symposium provides participants with a better understanding of informatics as it enhances health through research, translational and clinical informatics, and education. Through a combination of three keynote presentations by national experts, 10 breakout sessions, a networking luncheon, poster presentations, and a panel discussion, participants will be introduced to both the clinical and translational components of informatics.

This daylong event is scheduled for Friday, April 24, at The Union League of Philadelphia in Center City. This year’s symposium has been endorsed by the American Medical Informatics Association.


Contact Mark Diltz, manager of Biomedical Informatics Education, at diltz@email.chop.edu or ext. 6-2775 with any questions.

2009 CHOP Mentor Award Announced

The Office of Faculty Development has opened nominations for the 2009 CHOP Mentor Award, which recognizes mentors who demonstrated extraordinary dedication to fostering the professional development of other members of the CHOP faculty.

Up to three awards are presented annually. Each awardee is recognized with an honorarium, an individual commemorative plaque, and a celebration dinner.

The award is designed to honor faculty-to-faculty mentoring during the past three years of activity, it is not a lifetime achievement award. Of particular consideration are dedication to mentoring regardless of personal benefit or obligation to serve; excellence in mentoring various aspects of academic careers such as research, clinical care, administration, teaching, service, and strategic career development as appropriate; and innovation in designing mentoring activities as appropriate.

A mentor’s personal academic achievements are not considered for this award. The deadline for the nominations is March 9 at 5 p.m. No letters will be accepted after this date.

Instructions for nominating faculty mentors are available at http://stokes.chop.edu/programs/facultydevelopment/mentorinstructions.php.

Hospital Researcher to Receive Pediatric Investigator Award

Theoklis Zaoutis, M.D., M.S.C.E., Division of Infectious Diseases, will be honored with the Society for Healthcare Epidemiology of America (SHEA) Pediatric Investigator Award in recognition of his exemplary contributions to infection control and healthcare epidemiology.

As a clinical epidemiologist and infectious disease specialist at Children's Hospital, Dr. Zaoutis’ research focuses on the epidemiology, prevention, and treatment of hospital-acquired infections in children with compromised immune systems. He also conducts research on antibiotic resistance and antimicrobial stewardship.

Dr. Zaoutis will be presented with the award at SHEA’s 19th Annual Scientific Meeting in San Diego, Calif. on March 19, 2009.

Founded in 1980, SHEA aims to prevent and control infections in healthcare settings.
Adolescents and young adults who are heavy users of marijuana are more likely than non-users to have disrupted brain development, according to a Children's Hospital study. While the study is preliminary and does not demonstrate that marijuana use causes the brain abnormalities, these findings are of particular concern because adolescence is a crucial period for brain development and maturation.

The study, led by Manzar Ashtari, Ph.D., Department of Radiology, was performed in collaboration with researchers from Jamaica Hospital Medical Center, The Zucker Hillside Hospital, and The Nathan S. Kline Institute for Psychiatric Research. The research was published in the January issue of the Journal of Psychiatric Research.

Investigators found abnormalities in areas of the brain that interconnect brain regions involved in memory, attention, decision-making, language, and executive functioning skills. They performed imaging studies on 14 young men from a residential drug treatment center in New York state, as well as 14 age-matched healthy controls. All the study subjects were males with an average age of 19.

The 14 subjects from the drug treatment center all had a history of heavy marijuana use during adolescence. On average, they had smoked marijuana from age 13 until age 18 or 19 and reported smoking nearly six marijuana joints daily in the final year before they stopped using the drug.

The study team performed diffusion tensor imaging—a magnetic resonance imaging scan that measures water movement through brain tissues. Abnormal patterns of water diffusion were found in the brains of the young men with histories of marijuana use, which suggests damage or an arrest in development of the protective myelin sheath that surrounds brain cells. Myelin gives its whitish hue to the white matter of the brain and covers the nerve fibers that connect different brain regions. If it does not function properly, signaling within the brain may be slower.

“Our results suggest that early-onset substance use may alter the development of white matter circuits, especially those connections among the frontal, parietal, and temporal regions of the brain,” says Dr. Ashtari. “Abnormal white matter development could slow information transfer in the brain and affect cognitive functions.”

Dr. Ashtari adds that 14 subjects with heavy marijuana use also had a history of alcohol abuse, which may have contributed an effect. It is also possible that the brain abnormalities may have predisposed the subjects to drug dependence, rather than drug usage causing the brain abnormalities.

Further research will investigate the relation between repeated marijuana use and white matter development.

Financial support for the study came from the National Institute of Mental Health.

Save the Date for the Stokes Symposium

The annual Stokes Scientific Symposium is scheduled for Friday, April 17, and will be hosted onsite at the Leonard and Madlyn Abramson Pediatric Research Center. The symposium is a celebration of the important strengths of Children's Hospital in basic, clinical, and translational research.

The daylong Symposium will include talks from faculty and an expo of our centers, cores, and administrative groups. The event will include a keynote address by Howard Hughes Medical Institute Investigator David Ginsberg, M.D., James V. Neel Distinguished University Professor of Internal Medicine and Human Genetics, Warner-Lambert/Parke-Davis Professor of Medicine, and a member of the Life Sciences Institute at the University of Michigan Medical School.

For questions, please contact Research Education at researcheducation@email.chop.edu.
NIH Provides Detailed Funding Information With RCDC

The National Institutes of Health (NIH) recently introduced the Research, Condition, and Disease Categorization (RCDC) system — a new computerized reporting process that provides detailed funding information for major research areas. The RCDC system was incorporated into NIH’s Research Portfolio Online Reporting Tool (RePORT) in January 2009.

At the end of each fiscal year, NIH will use the RCDC to categorize medical research funding in 215 research, condition, and disease areas. Each category encompasses a complete list of funded projects along with dollar amounts spent on those projects, which are based on grants, contracts, and intramural research. Viewers can print or download project listings and summary data from the current fiscal year and past fiscal years. Estimates for the next two fiscal years are posted on the RePORT Web site. Future advances in the RCDC system will include adding links to patents and publications associated with each category.

NIH developed the system following a request from Congress to provide a more consistent, modern process. NIH’s previous reporting system, the Computer Retrieval of Information on Scientific Projects (CRISP), did not have the technical ability to produce uniform results, which caused inconsistencies in reported data. RCDC eliminates these inconsistencies by categorizing and clustering words and multiword phrases with data mining.

RCDC has no impact on the way NIH funds research or the way researchers apply for grants. For more information, please visit http://report.nih.gov/rcdc.

Science Center Launches Proof-of-concept Program to Stimulate Commercialization

Despite its recognition as a hub of biomedical and life science research, the greater Philadelphia area lags behind other regions in its ability to commercialize and capture the value of early-stage life sciences technologies at research institutions.

In response, the University City Science Center has launched a new initiative aimed at partnering regional academic institutions and supporting investigators in early research projects with high marketplace potential.

The center’s Proof-of-concept Program, named QED, will provide funding of up to $200,000, as well as business and marketplace guidance to help investigators design and implement research and development projects that will reveal the commercial potential of their innovations and encourage follow-on investment.

Representatives from the Science Center will present an information session about the QED Program on March 3 from 1 to 3 p.m. in Abramson Center, Room 123. All investigators interested in exploring this new funding mechanism are encouraged to attend. The QED Program is being implemented in partnership with the Hospital’s Office of Technology Transfer.

The QED Program will be available to investigators at Children’s Hospital, Drexel University, Lankenau Institute of Medical Research, Rutgers, Temple University, Thomas Jefferson University, University of Delaware, University of Pennsylvania, University of the Sciences in Philadelphia, and The Wistar Institute, with other organizations expected to be included in future funding cycles.

For additional information about the program or the March 3 session, please contact Ellen Purpus, Ph.D., director of the Office of Technology Transfer, at purpus@email.chop.edu.
Leader in AIDS Research Honored With Silver Lecture Award

Children’s Hospital presented Anthony Fauci, M.D., director of the National Institute of Allergy and Infectious Diseases (NIAID), with the 19th Annual Herman and Gertrude Silver Lecture Award on Jan. 7. This award honors individuals who have contributed significantly to the field of pediatric HIV and AIDS.

In conjunction with the Silver Award and the Department of Pediatrics’ Grand Rounds, Dr. Fauci delivered a lecture at Children’s Hospital on “HIV/AIDS in 2009: Much Accomplished, Much to Do.”

As director of the NIAID, Dr. Fauci oversees a portfolio of basic and applied research to prevent, diagnose, and treat a wide range of diseases that include HIV and AIDS, influenza, tuberculosis, malaria, and illnesses from potential agents of bioterrorism.

Dr. Fauci is the author, coauthor, or editor of more than 1,100 major scientific publications and has received 34 honorary doctorate degrees from institutions throughout the world. He is a key advisor to the White House; a member of numerous prestigious biomedical societies, including the National Academy of Sciences; the recipient of the Kober Medal, the Albany Prize, the National Medal of Science, the Mary Woodard Lasker Award, and the Presidential Medal of Freedom.

In his lecture, Dr. Fauci highlighted advances in HIV and AIDS treatment and the current challenges the United States faces in regards to prevention methods and maintaining the health and stability of individuals living with HIV and AIDS. His important discoveries on the pathogenesis and treatment of immune-mediated and infectious diseases play an instrumental role in the development of highly effective therapies for patients with the AIDS virus and a vaccine to prevent HIV infection.