

COLUMBIA PATHOLOGY AND CELL BIOLOGY REPORT

Holiday Edition 2012-2013

Glioma Research Surges in the Department of Pathology and Cell Biology

By Lloyd Greene and Peter Canoll

There were nearly 14,000 deaths from brain tumors in the US last year and for Grade IV glioblastomas (GBM), there is currently no effective cure. Over the past few years, the Department of Pathology and Cell Biology has become a vigorous center for brain tumor research with studies that define basic cellular mechanisms of transformation and that attempt to discover new targets for therapy. We are actively engaged in preclinical testing and in the development of clinical trials.

Jim Goldman has pioneered studies on the heterogeneous population of cycling glial precursor cells that are present throughout an entire lifetime and that are likely to give rise to many low and high grade gliomas. His lab is asking if there is any correlation between changes in precursor types over age and the age-related risk of developing different types of gliomas. Building off of this work, Peter Canoll's lab has used genetically engineered mouse models and targeted retrovirus delivery to test the tumorigenic potential of glial progenitors that reside in the adult subcortical white matter, and has shown that these cells give rise to "proneural" gliomas, which account for the majority of low grade gliomas and secondary GBM. The Canoll lab has further identified molecular alterations that occur at early stages of glial progenitor transformation and they are exploring their functional significance and potential as therapeutic targets.

Antonio Iavarone and colleagues have been targeting the most aggressive forms of GBM, namely those with the "mesenchymal" gene expression signature. They have recently identified the first example of a highly oncogenic gene fusion protein (FGFR-TACC) associated with a subset of GBM and have shown that targeting this protein with an oral FGFR inhibitor significantly prolongs survival of mice bearing tumors initiated by the fusion protein.

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This edition of The Newsletter, the 9th in the series, has a lot to cover. The last Newsletter was dedicated to the 25th anniversary of the modern era and included almost all of the recent history of the Department, as well as much that occurred many years ago. For those who did not see it, it is on-line. There was no room for our usual features: Annals of Administration, New Grants, New Faculty, New Administrators, New Residents, New Graduate Students, Promotions, Anniversaries, and all of the good things that help to unify a department of almost 400 people. This issue returns to that format and we hope to make up for lost time. We also feature a short article that explains the increasing glioma research in the Department. We salute Carol Mason, President-elect of the Society for Neuroscience. There were two laggards for the Anniversary Newsletter-the Breast and Neuropath Services and because we are forgiving, we include them here. We are back to saluting our administrators, including the HR staff and also Ellie Johnson our Business Manager. We admire all of the many people who got important grants in this difficult financial time. We have many new clinical faculty members. Finally, as a treat, we include some of the more amusing photos from the 25th Anniversary celebration-with captions. Who knew that this group could rock?

After the Greatest Party of All Time... It's Back to Basics

Carol Mason to Be President of The Society for Neuroscience



Our own Carol Mason is President-elect of the Society for Neuroscience. Carol reportedly was elected with a large majority. Since the Society for Neuroscience has 40,000 members, this means more people voted for her than for Newt Gingrich and Rick Perry combined in the New Hampshire Presidential Primary (CPR is from New Hampshire and knows these things). On this proud note, we interviewed Dr. Mason:

Columbia Pathology Reports (CPR):
When do you take over?

CM: Well, I have a year as president-elect, which starts on Oct. 10, so I will be president in 2013. Moses Chao from NYU is the current President. I'm actually the third Columbia person, after Eric Kandel and Mickey Goldberg, to be president. The first woman though!

CPR: Do you have to lobby the government?

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COLUMBIA UNIVERSITY
MEDICAL CENTER

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CM: Well, believe it or not, the SfN has a building in Washington and a staff of 90 and we already have a lobbying staff, led by Marty Saggese. Recently, the Association for Neurosciences Graduate Programs was folded into the SfN, making it even larger. I should say that we are proud that 30% of our members are from other countries. It is clear that neurological problems, particularly with autism at the beginning of life and with dementias later in life cause enormous anguish and drive up medical costs. The SfN has always been in the forefront of studying and finding solutions for these problems and I hope to continue that. I am also very concerned about traumatic brain injury.

CPR: The country is waking up, once more, to the importance of science. How do you intend to keep this going?

CM: We need science for the people. We are already doing that, but we need to do more. In March we will have Brain Awareness Week and among the things we do is to take human brains into schools and engage students. A model for this is Columbia University Neuroscience Outreach led by Kelly Remole. With the resources of SfN, we can expand this program and make it better known and more accessible.

CPR: But what role do you have in supporting research?

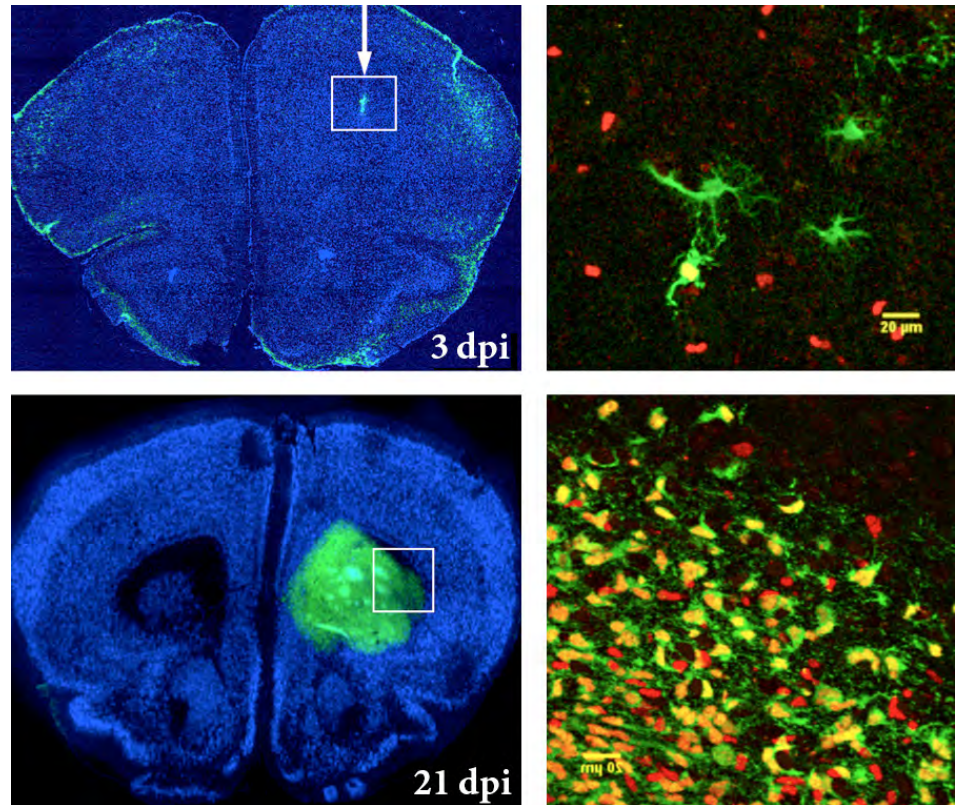
CM: As I mentioned, the SfN already has responsibility for neuroscience graduate programs. If we want neuroscientists to find a way out of the problems that beset all people, we cannot afford blunt force trauma to research support.

CPR: What resources can you deploy?

CM: I am very concerned with ways to maintain research and careers in this slower economy. As far as careers are concerned, I am worried about all stages—from graduate or medical school, to programs that allow young scientists to have families. I also feel that people late in their careers can make great creative contributions and are an underused resource. There should be some way to mobilize their talents to the benefit of the next generations of neuroscientists.

Glioma Research Surges in the Department

(continued from page 1)



Glial progenitors give rise to proneural glioma. Adult transgenic mice were injected with retrovirus that induces cre-mediated deletion of PTEN and expression of PDGF. At 3 days post injection (3 dpi) there is a small collection of retrovirus infected progenitor cells (green) at the injection site in the subcortical white matter (upper panels). By 21 days post-injection (21 dpi) the retrovirus infected progenitor cells have given rise to a tumor (lower panels). Hoechst nuclear stain (blue), olig2 (red). Courtesy Dr. Peter Canoll.

Anna Lasorella, an expert in neural stem cell differentiation, has closely collaborated with Antonio on such studies. Lloyd Greene, in collaboration with ex-post-doc Jim Angelastro (now at UC Davis) has focused on ATF5, a transcription factor that is present in neural precursor cells and in various brain tumors and that appears to be required by glioblastoma cells, but not by non-transformed cells, for their survival. They have developed and are testing cell-permeating peptides that interfere with ATF5 function and that have been effective in eradicating endogenously generated gliomas in a preclinical animal model.

Key to making the Pathology and Cell Biology brain tumor effort a first rate program is the highly collaborative and interactive environment at Columbia both within and outside of the Department. Helping to foster this atmosphere is the newly reconstituted Neuro-Oncology program within the Herbert Irving Columbia Cancer Center that is headed by Neurosurgery's Jeff Bruce and

that includes all of the above Departmental members. Among many examples of such collaborative activities is Peter Canoll's work with Jeff Bruce to optimize convection-enhanced delivery of chemotherapeutics to the brain and the movement of this work to clinical trials. Another is the effort between Antonio Iavarone and Biomedical Informatics Professor Andrea Califano to use an integrated computational approach to identify both targets and drugs for treatment of GBM. Additionally, recently appointed chief of neuro-oncology, Andrew Lassman, has been advising Lloyd Greene and others in the Department about translating their potential therapeutics to human trials. We look forward to the continued progress of brain tumor research in the Department and the University and to the translation of our efforts into new treatments.



*Top-Manual Terrell and Paul Castellano,
Bottom, Abbygale Dove and Mary C. Quaratino*

Our PathHR team is now fully staffed. For the past several months, Abby Dove and Paul Castellano have had the pleasure of working with many of you on a myriad of HR, payroll, academic affairs, and administrative issues and challenges. We are thrilled that Mary Quaratino and Manual Terrell have joined the PathHR Team.

Here is a little background on each team member . . .

Paul L. Castellano, SPHR – Paul is our newly appointed Manager of HR and Academic Affairs. Paul joined the PathHR team as Supervisor-HR/Administrative Coordinator in October 2011. Prior to his relocation from San Francisco to New York City, Paul served close to eight years as the Manager of Human Resources and Academic Personnel for the Helen Diller Family Comprehensive Cancer Center at the University of California, San Francisco, School of Medicine. His previous appointments include Assistant Executive Director-Council Services for the Girl Scouts of Tres Condados in Santa Barbara, California, IT Manager for Girl Scouts of Washington, D.C., Data Systems Manager for the U.S. Air Force Plant 42 in Palmdale, California, and EEO Representative for Rockwell International. Paul holds

an Associate of Science degree from Solano Community College. Over 30 years in HR and administration, Paul earned his SPHR (Senior Professional in Human Resources) certification from the Society for Human Resource Management (SHRM) and the Human Resources Association of New York (HRNY) in 2011. A professional opera chorister (Tenor), Paul is an active member of the American Guild of Musical Artists (AGMA). He hails from Napa Valley, California, and has been married over 29 years to Dr. Bruce Smith, retired Dean, School of Liberal Arts, City College of San Francisco.

Abbygale Dove- Prior to joining the PathHR Team as HR/Administrative Coordinator in August 2011, Abby served in the role of HR Assistant for the U.S. Congressional Budget Office in Washington, D.C., as the Senior HR Assistant for the New York University ITS Department, and as HR Assistant for the Brooklyn Academy of Music. Abby holds a Bachelor of Arts degree in Sociology from New York University and is currently investigating Masters programs to enhance her education. While at NYU, Abby also earned a Certificate in Human Resource Management. Abby's current passions include spending time with her young son Kingston. She enjoys reading, writing, fashion, and home decorating projects. Abby hails from Brooklyn, New York.

Mary C. Quaratino- Mary joined the PathHR Team on May 1, 2012, as HR/Administrative Coordinator. She was recruited from within CU (12 years of service) where she started as a Temp in Doctors Private Offices (DPO) at the uptown campus. She most recently served four years as Administrative Coordinator with the Mailman School of Public Health in the Department of Environment Sciences in the Columbia Center for Children's Environmental Health (CCCEH), where the focus was on environmental factors that affect Mothers and their Newborns living in the South Bronx, Upper Manhattan. Mary was born, raised, and continues to live in Washington Heights. Mary graduated from the College of Mount Saint Vincent with a Bachelor of Arts in Psychology. After college, Mary worked in retail sales and customer service for many years before joining the Columbia community. Mary

lives with her son Kevin, who is completing his junior year at Fordham University-Lincoln Center, is proud to be an active member in her Parish, and enjoys cooking.

Manual Terrell- Manual joined the PathHR team as HR/Administrative Coordinator on May 16, 2012. He previously served approximately 10 years as the lead HR Representative specializing in full-cycle recruitment in the HR Department of the Western Connecticut Health Network, a non-profit health care network in Connecticut. During his tenure with the Western Connecticut Health Network, Manual also worked for the Housing Department at Western Connecticut State University as a Residential Assistant while obtaining his Bachelor of Arts degree at Western Connecticut State University. Manual earned his Master Certificate in Human Resource Management and a Masters of Business Administration with a concentration in Human Resource Management. Until the time is right to have his own children, Manual is considering adopting a dog and enjoying the experience of unconditional puppy love...though he admits that a few goldfish will do for now. Manual hails from the great State of New Jersey.

The PathHR Team is located in PH 15 West, Room 1564-G, and can be reached by email at PathHR@pathology.columbia.edu or by calling (212) 305-7164. We encourage and welcome you to visit with the PathHR Team and introduce yourselves... team members will enjoy learning more about you, hearing your stories, and solving your HR problems.

25 Years of Neuropathology at Columbia (1987-2012)

By Jim Goldman

I arrived at Columbia with Mike Shelanski in 1987 to find a group of experienced neuropathologists – **Phil Duffy, David Cowen, Dick Defendini, and Rusty Hays** – in a Division with a long history of work in diagnostic and experimental neuropathology. The Division was one of the first neuropathology divisions in the country, led by **Abner Wolf** beginning in 1930. He was joined by David Cowen in 1937. Together they published seminal papers on the neuropathology of congenital toxoplasmosis and other perinatal pathologies, experimental research on toxoplasmosis and viral encephalitis including polio, the effects of X-irradiation on the brain, and the pathology of brain tumors and neurodegenerative disorders. David Cowen, who directed the Division from 1967-1976, attended our teaching conferences beginning in 1987 and we all enjoyed tales stemming from his long experience. His dry wit and connection to our past were invaluable. Phil Duffy and Dick Defendini directed the program between 1976 and 1987. One of Phil's interests was astrocytes, about which he wrote a book, so I have felt at home carrying on the tradition of astrocyte studies. Dick, besides having a broad knowledge of neuroanatomy, neurology and neuropathology, was a student of the history of these disciplines and our guide on many occasions to classic literature and historical perspectives. Rusty was, and still is, a renowned expert on nerve and muscle diseases, retiring a few years ago as our Director of the Nerve and Muscle Laboratory.

In 1988 the Department hired **Jim Powers** as Division Director. Under his guidance we changed our methods of performing frozen sections, expanded our immunostaining resources, and increased efficiency and cooperation with our clinical colleagues. Jim, as an experienced neuropathologist with high standards and an overabundance of not-so-dry wit, was fun to work with and solidified our excellent relationships with neurosurgery and neurology, which have continued. When Jim left for Rochester, I took over as Chief of Neuropathology.

We have been fortunate to have attracted a group of excellent neuropathology fellows, some of whom we have even persuaded to remain in our Division. **Phyllis Faust** (1996), among our first trainees, came with strong background in lysosomal function

and glycobiology. Having been caught in the Jim Powers web of peroxisomal diseases, Phyllis spent years after her fellowship working at Rockefeller to establish the first mouse model of a peroxisomal disorder. She then returned to the fold. **Steve Chin** (1994) joined us with a strong background in cytoskeletal biology and an interest in neurodegenerative diseases. After a number of years with us, Steve moved on to the University of Utah Medical Center, where he became Director of Neuropathology. **Kurenai Tanji** (2004) brought to her training in neuropathology a long experience in mitochondrial myopathies acquired with her husband, Eduardo Bonilla. She has become a leading muscle and nerve neuropathologist, first working closely with Rusty Hays and then becoming Director of the Nerve and Muscle Laboratory. Under her leadership the Laboratory has continued to grow and now represents one of the largest and most respected nerve and muscle pathology centers in the country. **Peter Canoll** (2002) joined the faculty with a strong background in glial cell biology. He has developed important and novel mouse models of gliomas, now in widespread use, and has been instrumental in strengthening the Pathology arm of the Neuro-Oncology program at CUMC, including supervising the Brain Tumor Bank. Although we are accredited by the ACGME for training 1 fellow each year, in 2008 we applied for a waiver to allow us to train 2 neuropathology fellows in that year. They were **Andy Teich** and John Cray and because both were excellent, we didn't want to lose either one. Both Andy and John then joined our faculty in 2010 and are currently working on cellular and molecular approaches to Alzheimer disease and other tauopathies.

We have also gone outside our small nest to bring in neuropathologists from far away institutions. **Yuan Chang** (1993) came to us from neuropathology training at Stanford, and although her diagnostic and teaching skills are first-rate, she decided to pursue in addition a laboratory program looking for viruses in Kaposi's sarcoma. Together with her husband Pat Moore she discovered HHV-8, now recognized as the causative agent in Kaposi's. Yuan and Pat moved on to Pittsburgh in 2002. **Jean-Paul Vonsattel** moved here from Massachusetts General

Hospital in 2001 to establish a Brain Bank. Jean Paul has given tremendous time and energy to develop a modern and first-rate Brain Bank, which disperses thousands of samples each year to laboratories throughout the U.S. and overseas.

Andy Dwork and **Ben Tyko** participated in the clinical service for several years and remain members of the Department. Andy works at the Psychiatric Institute researching the neuropathology of psychiatric disorders, and teaches medical students with us, presenting a grisly lecture on head trauma. Ben is a long-standing and prominent member of the Cancer Center, investigating mechanisms of gene imprinting and gene methylation. Finally, let me say that we are delighted to have **Nadejda Mincheva Tsankova, MD, PhD** who has joined us from UT Southwestern as Assistant Professor of Neuropathology.

We have been most fortunate to have had an excellent support staff, including **Joan Hctor, Joan Sullivan, Patricka Jeremie, Chris deSousa, Linda McCamery, Maddy Kagan**, and a dedicated and technically impressive histology staff in our neuropathology laboratory (when it was a separate lab) and our nerve and muscle laboratory, including **Ruby Alcaraz, Maria G. Corotan, Dinnah Neri, Laarni Gapuz, Rey C. Octavino, Cui Zhen He, Wenhong Li, Evelyn Hernandez-Rosa**, and **Linda Friedman**.

Through these 25 years, we've seen a consolidation of laboratories, a large increase in the numbers of specimens and a large increase in the kinds of immuno- and other special stains and molecular tests that have become standards of care in dealing with neuropathology specimens. Much of this progress has been driven by the tremendous advances in our understanding of the complicated molecular events that regulate the growth of brain tumors and the development of neurodegenerative disorders. Columbia has been a terrific and fertile place in which to work and to grow our Division. We have taken advantage of the strong basic science and clinical neuroscience communities at Columbia for invaluable collaborations and also for the opportunity to offer our fellows an education in any of a wide variety of neuroscience areas.

The Med to Grad Program



Top row: Kristin Politi (Pathobiology Program, Serge Przedborski's laboratory); Gannie Tzoneva (Pathobiology Program, Adolfo Ferrando's laboratory); Maria Avrutsky (Integrated program, Tae-Wan Kim's laboratory); Kip Kitur (Pharmacology Program, Alice Prince's laboratory). Bottom row: Kenta Yamamoto (Pathobiology Program, Shan Zha's laboratory); Deepti Mathur (Integrated Program, Ramon Parson's laboratory); Shannon Rose (Nutrition Program, Tim Wang's laboratory); Yuxi Lin (Nutrition Program, Tony Ferrante's laboratory).

Kris Smith, RN

Kris Smith has joined Pathology & Cell Biology's Central Administrative team as our Practice Manager.

Kris reports to Joann Li and is responsible for providing leadership in our clinical operations. She will partner with our Division Managers to coordinate and monitor our clinical services and outreach efforts and our billing operations. Kris works closely with our Faculty leadership and ColumbiaDoctors in overseeing all practice-related activities.

Kris served as a Division Administrator in Surgery at Columbia, for four years. Prior to that, she worked at South Nassau Communities Hospital. Before taking her current job, Kris consulted for Allscripts on the CROWN implementation here at CUMC. Kris' background is in nursing and in health care administration. Her office is in PH15W-1564 and she can be reached at 212-305-3935 or Kris.Smith@columbia.edu

Will Vanti

Will moved to NYC from Toronto in 2003 and took his first job as a lab technician/manager at Mount Sinai. In 2005 he joined Asa Abeliovich's lab and has been in Columbia ever since. He will take over some of the duties of Carl Reyes. Will says, "I was happy to be offered a chance to try something different in this new administrative position, although I do miss holding a pipette from time to time. I am glad to have the opportunity to contribute to the research efforts of the department in this new role!"

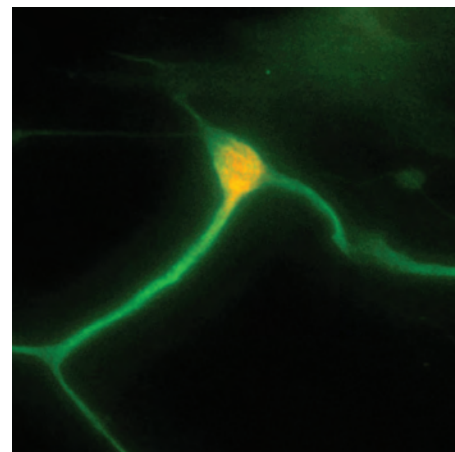


Honors and Awards

Asa Abeliovich received the coveted 2012 NIH Director's Transformative Research Projects award.

This is an NIH Program that focuses on very high risk and potentially transformative proposals. As Asa explains it:

We are pursuing improved cell and animal models of human brain disorders, as well as novel cell therapy strategies for brain diseases. Recently, we succeeded in the directed conversion of human patient skin fibroblasts to neurons, achieved by introducing a 'cocktail' of pro-neural factors. Such cell reprogramming approaches may allow for the facile generation of replacement cells for some brain disorders. We have also applied this technology to model Alzheimer disease pathology, with the intention of pursuing disease mechanisms and testing potential therapies.



This image shows human skin fibroblast cultures that have been converted to brain neurons using a 'cocktail' of neurogenic genes. The cells were then fixed and stained with antibodies for a general neuron marker (MAP2, in green) and an Alzheimer's disease associated protein, Amyloid Precursor Protein (in red).

Website Re-engineered

The Pathology and Cell Biology departmental website has been re-engineered. It now features drop down menus. If the sections relevant to your responsibilities need revision, please gather all new materials and then contact Ping Feng and Rich Kessin who will see to the implementation.

Elnora Johnson- *Our business manager*



In its continuing efforts to recognize the administrators that make the Department function (no, you academics, it does not just happen), the Newsletter would like to recognize our Business Manager, Elnora Johnson. Ellie began her employment with Barnard College back in 1979 and has been at Columbia since 1981. She was recruited to our Business Office in 2002, later became our Budget and Finance Manager and was promoted to Business Manager in 2010. Ellie comes to us with extensive experience from the downtown campus. As former Department Administrator for both the Mathematics and Philosophy departments, Ellie is our go-to resource for accounts payable, purchasing, capital expenditures, budget submissions and financial closes. Since Ms. Johnson became the Business Manager, the Department has greatly improved our business operations.

Ellie has a reputation, on both CU campuses, as a leader, problem solver and facilitator. Her understanding of our complex medical center has enabled her to navigate our systems and overcome challenges despite ongoing changes, increased regulations and limited resources. At times this puts her in the position of “enforcer” since she’s charged with ensuring pathology processes meet both internal and external standards. If she or her staff require additional documentation, it’s not to be difficult but because they are trying to protect both you and the department.

This past year, Columbia took on the tremendous task of implementing a new financial

Regrettably, Reyes Retires



After long service to the NYPD, the NYFD and the Department of Pathology and Cell Biology, Carl Reyes has decided to call it a day and retire to the more exhausting duties of grandchildren and his wife Marge’s need to travel. Carl was the Departmental Administrator for 15 years.

During these 15 years the Department’s clinical revenues increased by double digits every year. He oversaw the renovations of 60,000 sq. ft of Pathology space. He graciously dealt with numerous needy faculty, none of whom knew that he still maintains his Police Department gun permit. He man-

aged the merger of the Anatomy and Pathology Departments and oversaw the alliance with the Motor Neuron Center. Carl closely supervised the Clinical Outreach Program as part of his successful effort to increase the Department’s services and revenues.

system. The new system is named ARC, for Accounting and Reporting at Columbia. Ellie was instrumental in our implementation of the new system and has agreed to take on the heroic role of ARC liaison for the Department. Our transition to this new system was eased by thorough training and preparedness, thanks to Ellie.

Our next hurdle will be using the new system for our budget forecasts for fiscal year 2014! That process is already underway and will be in full swing right after the New Year. Once again, we can count on Ellie to keep us to task and to meet all deadlines imposed upon us all the while keeping the day-to-day business processing moving along.

Ellie also dotes on her family, especially her grandchildren Romona Carter, Zakiyah Carter, Sharayah Carter and Shakai Black Johnson.

Thank you Ellie!

aged the merger of the Anatomy and Pathology Departments and oversaw the alliance with the Motor Neuron Center. Carl closely supervised the Clinical Outreach Program as part of his successful effort to increase the Department’s services and revenues.

Carl became a police officer in 1969, which was considerably better than driving a bread truck in the middle of the night. He retired as a Lieutenant, Commanding Officer, Quartermaster Section in 1990. He became Associate Director of NYC EMS in the Health and Hospitals Corporation. For eight months, before coming to Columbia, he was a member of the Fire Department, completing an unusual tour.

While at the Police Department, Carl was the winner of a special mayoral scholarship under Mayor Koch to the Kennedy School of Government. There he earned a Master’s of Public Administration and how to row in an 8 man shell and a single person skull. He recalls this as a wonderful year and is grateful to Mayor Koch to this day.

Carl has been married to the incredibly energetic Marge Reyes for 48 years and has three children and three grandchildren to whom he is devoted. Marge has already scheduled trips to Montreal in January (what was she thinking?) and to Israel in March. Finally, Carl has been the squash partner of Rich Kessin, who will miss him terribly.

Our Far Flung Photographers

The Master Barista of Santiago



I’ll have the half-caf, double shot non-kosher latté please. Mike Shelanski, Chile, August 2012

New Faculty



Yvette C. Tanhehco, MD, PhD
Assistant Professor
of Clinical Pathology & Cell Biology
(appointed July 2012)



Patricia Tiscornia-Wasserman, MD
Associate Professor
Pathology & Cell Biology



Daniela Hoehn, MD
Assistant Professor
of Clinical Pathology & Cell Biology
(appointed August 2012)



Abel A. Gonzalez, MD
Assistant Professor
of Clinical Pathology & Cell Biology
(appointed July 2012)



Jorge L. Sepulveda, MD, PhD
Associate Professor
Pathology & Cell Biology



Alina C. Iuga, MD
Assistant Professor
of Clinical Pathology & Cell Biology
(appointed September 2012)



Xiaolin Liu-Jarin, MD, PhD
Assistant Professor of
Clinical Pathology & Cell Biology
(appointed January 2012)



Antonia R. Sepulveda, MD, PhD
Professor of Pathology & Cell Biology



Richard O. Francis, MD, PhD
Assistant Professor
of Clinical Pathology & Cell Biology
(appointed December 2011)

Nadejda Mincheva Tsankova, MD, PhD
has been a fellow for 2 years, but with us for 4. She was an AP/NP resident - 2 years AP residency, 2 years NP fellow. Her photo and story will appear in our next issue.

Our Current First Year Residents



Top row, l-r

Jaya Pradhan, DMD, Oral Pathology

Diana Sung, MD,
Anatomical and Clinical Pathology

Najiyah Kazi, MD,
Anatomical and Clinical Pathology

Amy Coffey, MD,
Anatomical and Clinical Pathology

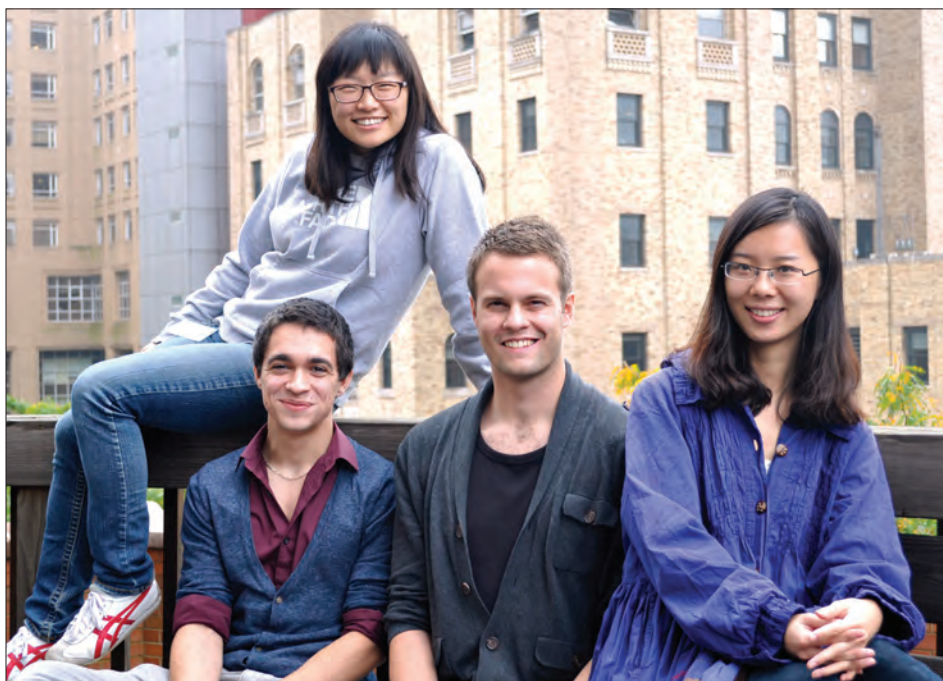
Bottom row, l-r

Jerry Wang, MD, PhD
Anatomical and Neuropathology

Jung Hoon Son, MD
Anatomical and Clinical Pathology

Armando Del Portillo, MD, PhD
Anatomical Pathology

The Pathobiology Grad students



The Department is pleased to welcome (belatedly) the 2012 class of Pathobiology graduate students. They include, from left to right: Jing Du, Peking University; YoungJoo Yang, Stony Brook University; Martin Jacko, Masaryk University (Prague) and Corentin Moevus from the Université de Montréal. They have begun rotations and are also taking Biochemistry and our novel Mechanisms of Disease course.

Faculty Promotions

Gilbert Di Paolo, PhD

Associate Professor of Pathology & Cell Biology (in the Taub Institute) with tenure

Vimla Aggarwal, MBBS

Assistant Professor of Clinical Pathology & Cell Biology (appointed July 2012)

Nadejda M. Tsankova, MD, PhD

Assistant Professor of Pathology & Cell Biology (appointed July 2012)

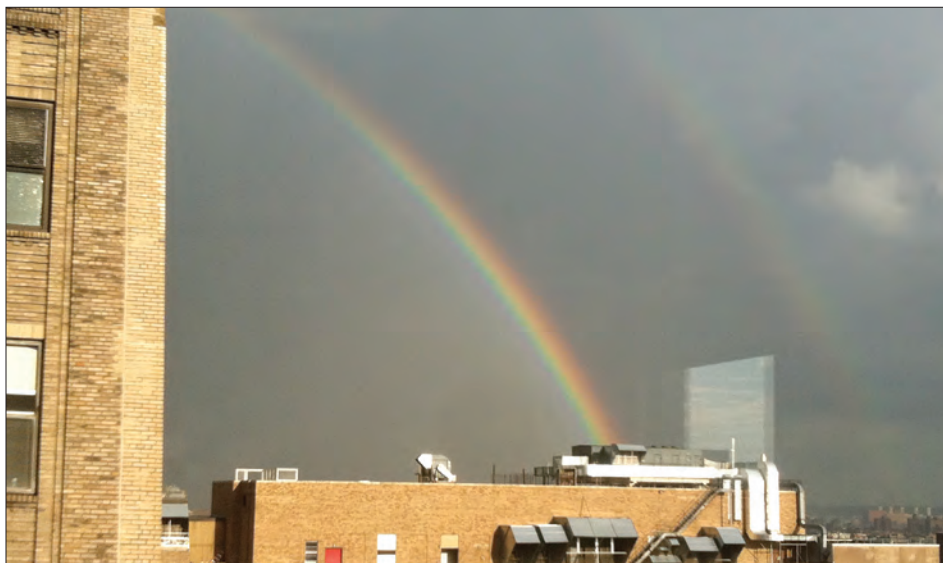
Stephen M. Lagana, MD

Assistant Professor of Clinical Pathology & Cell Biology (appointed July 2012)

Marcela A. Salomao, MD

Assistant Professor of Clinical Pathology & Cell Biology (appointed July 2012)

Our Far Flung Photographers Rainbows Over Pathology by Joann Li



In Memorium



Stephen Francis Ryan, M.D. ("Steve"), of Haworth, New Jersey, died on July 22, 2012 from complications associated with Alzheimer's disease. He was 77 years old.

The eldest of three children of William and Dolores Ryan, Steve was born in Durango, Colorado on June 6, 1935.

Steve is survived by his wife Nancy, his daughters Elaine and Elizabeth Ryan, Celia Baney, and Lynne Andujar, his sons-in-law James Baney and Stephen Andujar, his grandsons Stephen and Michael Baney, his siblings Thomas Ryan and Diane Savell, and his nieces Kelly Larson and Karen Barbera.

He was an inspiration to current resident **Patricia Raciti**.

Steve graduated from Regis College in 1957 and received his M.D. from the University of Colorado Medical School in 1961 where he was a Boettcher Scholar. He served his internship at the Columbia Division of Bellevue Hospital in NYC from 1961 to 1962, and his residency in Pathology at the University of Colorado Medical Center from 1962 to 1964. He was appointed Fellow in Pathology studying electron microscopy in 1965.

Steve's distinguished career at St. Luke's-Roosevelt Hospital Center in New York City spanned from 1966 to 2000 where he became Chief of Anatomic Pathology. He also taught at Columbia University College of Physicians and Surgeons in New York City from 1966 to 2000 and became Professor of Clinical Pathology. He specialized in pulmonary pathology with over 150 publications in the field

On the Shoulders of Giants Hanina Hibshoosh, MD



In my office, neatly piled and undisturbed, I recently found a collection of bound papers I inherited from the late Dr. Raffaele Lattes upon his retirement. These bound documents

with their yellowing frayed paper, but undiminished value, chronicle the minutes of the “Arthur Purdy Stout Club” over more than three decades.

The first of such volumes is a witness to the creation of the “Arthur Purdy Stout Club” and it reads as follows:

“MINUTES OF FOUNDER’S MEETING” *The Arthur Purdy Stout Club*

On July 14, 1947, a small group of scientists, having in common a deep and absorbing interest in pathology met in the Vanderbilt hotel, New York City, with but a single aim - to do honor to their teacher and friend, Dr. Arthur Purdy Stout.”

These men include: Asa Beach, Vincent P. Collins, John P. Heaney, Cushman D. Haagensen, Robert C. Horn, Raffaele Lattes, William L. Lehmann and Alvin O. Severance. (It was in the days, now mercifully over, before women had a large impact. In this context see the article by Heidi Rotterdam on Women in Pathology in the last newsletter. It is on our website).

The men, “hereinafter known as the founders, had two desires. First, a profound admiration and sincere devotion for Dr. Stout, their teacher, and second, to continue the keen intellectual interest and curiosity in the things he teaches. They felt that both aims could be simultaneously accomplished by organizing and naming for him a club composed of a select group of professional men with an honest interest and respect for pathology as taught by Dr. Stout. It was felt that the greatest amount of admiration could be shown him in this manner.”

Dr. Arthur P. Stout, a surgeon by training, became the father of soft tissue pathology and surgical pathology in the United States. His thoughts, contribution, methodologies

and classification have withstood, in many instances, scrutiny even in the molecular era and became a template for us all.

We now gather to celebrate and reflect on yet another transformation that has occurred in the past 25 years in the department of pathology. As such we are reminded that great men and women dedicated to a single principle have long served the Department of Pathology. Their goal is to gain a better understanding of disease so we can diminish its consequences to future generations and so that we can live better, more fulfilling lives. We are a part of an unbroken chain dedicated to this goal. The past 25 years have been thrilling as the department under Dr. Shelanski’s guidance, emerged as a focus of discovery, innovation and excellence in diverse fields from cancer to neurobiology. The discovery of PTEN, HHV8 role in Kaposi’s sarcoma, BCL6 role in lymphoma and beyond, and the participation in the creation of the preeminent neurobiology center in the world with its two Nobel prize winners (Dr Kandel and Dr. Axel) are but a few of the transforming events. Equally important is the creation of a culture where the adherence to the ideal and dedication to excellence is primary.

This effort is ongoing as a new generation of dedicated physicians, scientist and their associates takes the mantle forward to improve our patients lives...the giants are a wind in our sails! I can hear the voices of the future speaking of them now, some from yellowing pieces of paper, some from the cloud, saying thank you, thank you, thank you! For those who know not the past, rest assured the giants were here.



Dr. Arthur Purdy Stout, 1885-1967, founder of American Surgical Pathology

Scenes We Would Like to See



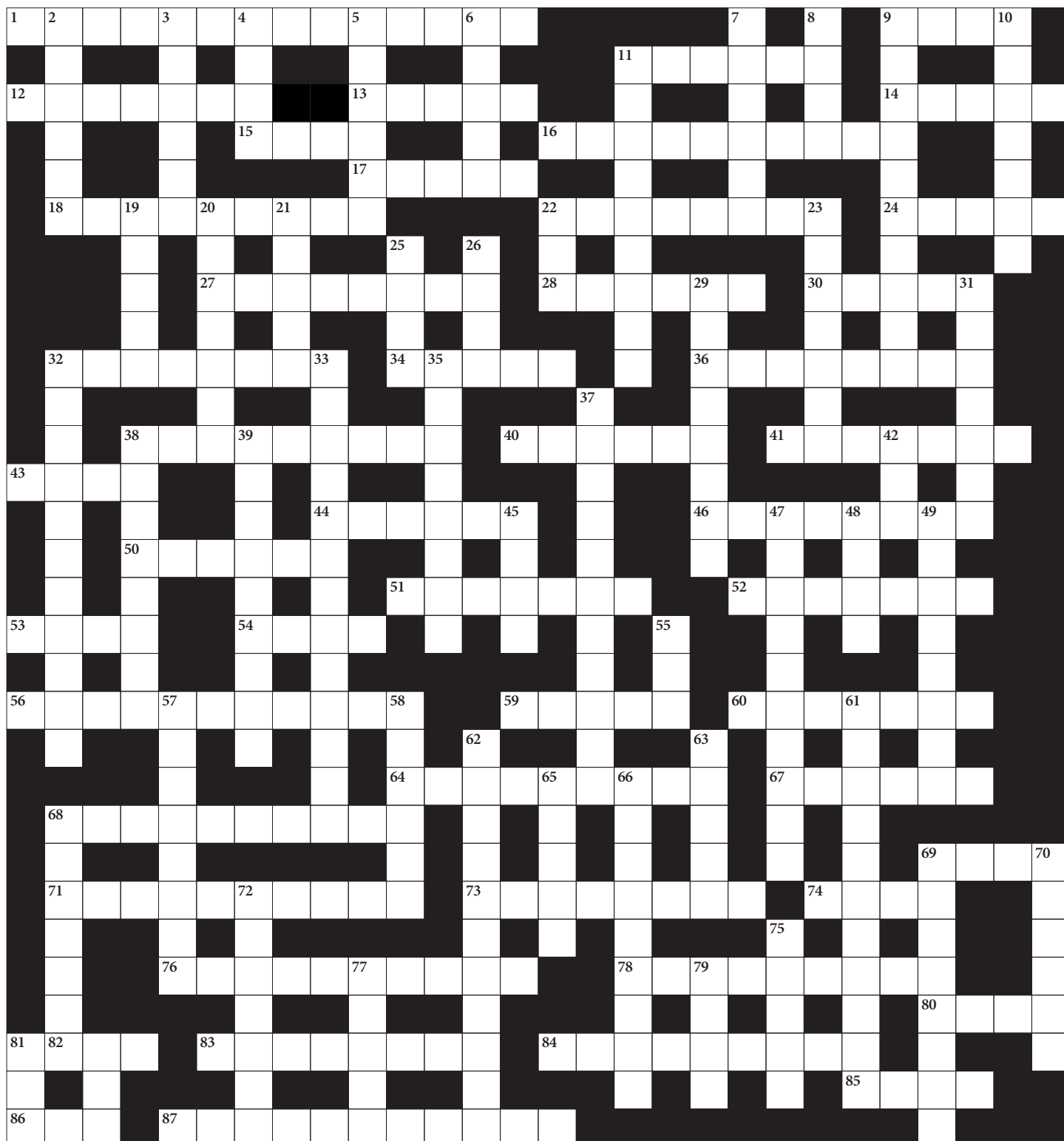
Courtesy McKim, Mead & White, later alterations by Lloyd Greene, PhD

The Pathology of Crossword Puzzles by Diane Hamle-Bena, MD

A Message from Dr. Marboe

This crossword puzzle has been created by Dr. Hamle-Bena. Completing it will acquaint you with the outstanding history of our department, among other things. It is my feeling that all residents should be able to complete this puzzle. Please deliver your completed puzzles, in ink, to Ms. Casey Schadie by February 15. No collaboration, please.

Charles Marboe, MD
Residency Program Director



Across

1. Spherical Gram positive bacterium causing skin infections
9. Powder formerly used in surgical gloves
11. Big toe
12. Tracheal branches
13. Taxonomic group containing one or more species
14. Negatively charged ion
15. Ribonucleic acid found in nucleus of cell, for short
16. The Heights
17. Pertaining to the nose
18. Doctors' homes-away-from-home
22. Agent containing double stranded RNA and implicated in some cases of infantile enteritis
24. All except pulmonary carry O₂-poor blood
27. What may result from the chickenpox virus reawakening
28. Small tissue piece procured for diagnosis
30. Great artery
32. Neural structure
34. Involuntary muscle contraction
36. Contaminate with a pathogen again
38. Part of a microscope that concentrates light on a subject or a device used to change vapor into liquid
40. Act performed on tissue to facilitate rapid diagnosis
41. Did Popeye exercise these?
43. Agency that helps make 16 across safe
44. Unsaturated hydrocarbon, e.g., ethylene
46. Veterinary version of 31 Down
50. Some employees at Columbia are fortunate to see this run by their windows
51. Rudolf, the father of modern pathology
53. Gastrointestinal stromal tumor or the core essence of something
54. Gonorrhea (slang)
56. Person who asks you to hop on one foot and touch your nose
59. Of great interest to both jail wardens and pathologists
60. Inflammation of the large intestine
64. Department of Pathology and Cell Biology's top dawg
67. Baby *Drosophila*
68. The state of having descended from a common ancestor

69. Red skin eruption or a large number of instances in a short time
71. Pathologists keep an eye on this
73. Granulomatosis with polyangiitis
74. Malady commonly affecting tooth, head, and heart
76. Catecholamine released when one is pulled over by a cop
78. Makes the dentist's "stick" less unpleasant
80. Portion of medicine taken at one time or street name for LSD
81. Form of brain imaging that registers blood flow to functioning areas
83. "Salesman" for West Nile virus
84. Surgical removal of part of a structure or organ
85. Unspecialized cell that gives rise to differentiated cells or a small instrument used for smoking crack
86. The act of obtaining CSF or Astaire's specialty
87. Long-haired piano genius of yesteryear

Down

2. Mouth infection or excellent singer with spotted underparts
3. Spasmodic inhalation or sound made by inebriated cartoon character
4. Area between thorax and pelvis or cloth sported by Johnny Weissmuller
5. Fully differentiated structural and functional units specialized for particular functions or life-enhancing instruments seldom found in operating rooms
6. Fleshy, wiggling lobe in the mouth of a screaming cartoon character or unpopular party favor given by cannibals
7. Tool used to flatten bones during surgery
8. Type of wound often found in gunshot victims
9. Opposite of longitudinal
10. Propagating genetically identical organisms
11. The study of tissues
19. Eosin is one
20. Hormone regulating the storage of glycogen in the liver
21. NH₂ or a type of acid necessary for protein synthesis
22. Curved arch of bone or a teasing remark
23. Electronic device that generates a digital representation of an image
25. Ailments
26. Same as 43 across
29. Fishes with lancet-shaped spines on their tails or people who procure tissue for pathologists
31. Posthumous examination
32. Objects on which tissue or cells are placed for microscopic examination (2 words)
33. Not communicable (of disease)
35. Purified hydrocarbon wax used for embedding histologic specimens
37. Stain commonly used to treat tissue sections for microscopic examination
38. Tubular medical device used to withdraw fluids or keep a passage open
39. One who cuts tissue for scientific examination
42. College of American Pathologists
45. Home of parathyroid and thyroid glands
47. Biologist who studies the structure and function of cells; Papanicolaou was a famous one
48. Units of electrical resistance or On Her Majesty's Service
49. A pain in the butt sometimes is this
55. Brain and spinal cord, for short
57. Abnormally small production of urine
58. Aggregate of cells having similar structure and function or a necessity for a tear jerker
61. Investigative functions of 26 down
62. Antonie, the father of microbiology
63. Dr. Lefkowitz would never consider eating this for dinner
65. To move the teeth into their proper positions or to join with others in a cause
66. Empty or acalculous gallbladder
68. Subjective evidence of disease
69. Treatments that relieve or cure disease
70. Making a crossword puzzle is _____ than I thought
72. Chronic noninfectious granulomatous disease
75. Protein found in microfilaments and active in cell movement or the other thing Dolly Parton's good at besides singing
77. Having a sudden onset, sharp rise, and short course
79. Tube carrying the secretion of a gland
81. Adipose tissue or Nanna Jenny
82. To tear or split apart or common tombstone inscription

Photos From the 25th Anniversary Party

Charles Manley was the photographer for our 25th Anniversary Party. He has created a website called “2175 Pathology 25 Years” to share pictures with friends and family. He would like you to be a member of the site. Check it out at <http://pathology25years.shutterfly.com/>. Find hundreds of pictures, of which the ones shown below are not necessarily the only good ones. **PASSWORD: pathologycumc**



The Clinical Pathology guys, Eldad Hod, Richard Francis and Steven Spitalnik



Mahesh Mansukhani



*Waddya mean I can't dance?
Joann and Eugene Li*



Master of Ceremonies Lloyd Greene



Mike and Vivien



Karen Duff. In the moment.



Ron Liem and Julie Canman



Dr. Joseph Point du Jour, Dr. Kimberly Point du Jour and Kim's mentor Gil Di Paulo



*The Yes-I'm-Tenured-Tango.
Gil Di Paulo and Rich Kessin
They had a lot to drink.*



Salomé and Chris Henderson



Chuck Marboe and Vivette D'Agati



*"I am the captain of Pathology
and I command a right good crew!"
Chairman Mike Shelanski*

*"Yeah, well I was the captain of the
USS Harry S. Truman and my crew was pretty
good too. Do your guys make carrier landings?"
Rear Admiral Herman Shelanski*



Carl and Marge Reyes



Michael Shelanski



Carol Mason, Gregg Gundersen and Fiona Doetsch



Patrice and Steve Spitalnik

New Grants

Our Faculty have continued to compete successfully for research support. In addition to the grants listed below, The Newsletter would like to note that this year we have successfully renewed the training grants for the MD/PhD program and for the CMBS graduate program. The first was under the direction of Dr. Michael Shelanski who would like to thank Patrice Spitalnik and Jeffrey Brandt for their hard work in assembling our application. The critical Cellular, Molecular and Biomedical Training Grant application was organized by Ron Liem who would like to thank Zaia Sivo and Fred Loweff. We also note the renewal of the Vision Training Grant by Carol Mason, who thanks Josie Salcedo for her help.

Abeliovich, Asa

1. Human Induced Neuronal Stem Cell Models of Familial Alzheimer's Disease-NIA (see page 5)

2. Characterization of human-induced neuronal (hiN) cells from Alzheimer's disease (AD) patients' skin (Merck)

Awano, Tomoyuki/Monani lab

Investigating the existence and role of genetic modifiers of SMA modifiers in model mice (MDA)

Clark, Lorraine

Parkinson's Disease Foundation (PDF)
Research Center Grant 2012-2013 (PDF)

Clynes, Raphael

1. Columbia University Medical Center Skin Disease Research Center (CUMCS-DRC), National Institute of Arthritis and Musculoskeletal and Skin Diseases

2. Enhancing the Vaccinal Effect of Anti-tumor Antibodies (NCI)

Crary, John

Role of microRNAs in tangle predominant Alzheimer's disease
American Health Assistance Foundation

D'Agati, Vivette Denise

Aging & Vulnerability to Ischemia: Pathways & Rescue (with NYU), NIH

Di Paolo, Gilbert

1. Role of Phosphoinositides in Neuronal Membrane Traffic and Neurodegeneration, (RO1, NS, NIH)

2. Kimberly Robinson: The Study of Phosphatidic Acid and Phospholipase D in membrane trafficking, (F31, NIH)

Doetsch, Fiona

1. Angel Maldonado-Soto: Identification and Regulation of Quiescent Stem Cells in the Adult Brain (F31, NS, NIH)

2. Perivascular niche for adult neural stem cells (R21, NS, NIH)

Faust, Phyllis

1. Essential Tremor: Gene Expression Profiling in Cerebellar Purkinje Cells (R21, NS, NIH)

Gershon, Michael

Microenvironment in Enteric Neuron Development (RO1, NS, NIH) *30th year!*

Goldman, James

Alexander Disease: Cellular and Molecular Mechanisms (NIH, with University of Wisconsin)

Greene, Lloyd

1. Neuron Death in Parkinson's Disease: The Role of Trib3 (RO1, NS, NIH)

2. Parkinson's Disease Foundation (PDF) Research Center Grant 2012-2013

3. Defeating insect-borne diseases using atomic resolution structure, Bumpus (William N and Bernice E) Foundation

4. Mechanisms of Dopamine Neuron Degeneration (P50, NS, NIH)

Gundersen, Gregg

Role of Nucleo-cytoskeleton Interactions in Cell Migration (RO1, NIGMS, NIH)

Henderson, Christopher

Contribution of neurotensin to degeneration of vulnerable motor neurons in ALS. Amyotrophic Lateral Sclerosis Association

Kim, Tae-Wan

Novel CNS Transporter Target in Alzheimer's Disease
American Health Assistance Foundation

Laufer, Edward

Molecular Regulation of Adrenal Cortex Homeostasis and Remodeling, (RO1, NIDDK, NIH)

Mao, Yinghui

Formin mDia Functions in Mitosis (RO1, NIGMS)

Mason, Carol Ann

1. Growth and Guidance of Retinal Axons (RO1, National Eye Institute)

2. The Role of Zic Genes in Patterning the Binocular Projection (RO1, National Eye Institute)

3. Vision Sciences Training Grant (T32, NIH)

4. Genes that regulate retinal ganglion cell identity, Fight for Sight, Inc.

McCabe, Brian

Disruption of neuronal NF-kB signaling by TDP-43 and FUS/TLS mutations in familial ALS, Amyotrophic Lateral Sclerosis Association

Mentis, George

Mechanisms of Central Synaptic Dysfunction in SMA, (RO1, National Institute of Neurological Disorders and Stroke/NIH)

Monani, Umrao

1. Novel Genetic Determinants of the Neuromuscular SMA Phenotype (RO1, National Institute of Neurological Disorders and Stroke/NIH)

2. Mouse model of Aromatic L-amino acid decarboxylase deficiency, (AADC Research Trust, ALADD Foundation, and the Pediatric Neurotransmitter Disease Association)

3. Identifying spinal muscular atrophy modifiers (SMA, Europe)

New High Throughput Sequencing Capacity for Personalized Genomic Medicine

Pellizzoni, Livio

1. Role of Stasimon Dysfunction in Spinal Muscular Atrophy. (R21, National Institute of Neurological Disorders and Stroke/NIH)

2. Sarah Tisdale: Molecular and cellular characterization of SMN-mediated U7 snRNP assembly, (F31, National Institute of Neurological Disorders and Stroke/NIH)

Przedborski, Serge

1. Localization of α -synuclein in mitochondrial-associated ER membranes. (Parkinson's Disease Foundation)

2. Parkinson's Disease Foundation (PDF) Research Center Grant 2012-2013

3. Mechanisms of Dopamine Neuron Degeneration (P50, National Institute of Neurological Disorders and Stroke/NIH)

4. Cell-based assays for the screening of neuroprotective small molecules for ALS, (Amyotrophic Lateral Sclerosis Association)

Spitalnik, Steven

1. Harmful effects of transfusion of older stored red cells: iron and inflammation, (RO1, National Heart, Lung, and Blood Institute/NIH)

2. Mechanisms of Effect of Iron Status & Interventions on Malaria & Other Infections, (National Institute of Child Health and Human Development/NIH)

Wichterle, Hynek

1. The Role of mir-17~92 Cluster in Motor Neuron Degeneration, (R21, National Institute of Neurological Disorders and Stroke/NIH)

2. Motor neuron selector genes and mechanism of their action, (RO1, National Institute of Neurological Disorders and Stroke)

For our national ranking in NIH funding, see the last page.



Dr. Peter Nagy and his team blocking the view of their HiSeq 2000. They are: (l-r) Jane Dunning Broadbent, Nicholas Rouse and Melissa Pang, not shown are Samantha Pottinger and Stuart Andrews

In October we celebrated the arrival of a new member of our Next-Gen sequencing family; a HiSeq 2000 machine. With the capacity of 800Gb output per run. That is equivalent to a full diploid human genome with a 100-fold coverage. What was a ten-year project a decade ago, can now be accomplished in two weeks. With this, the era of clinical full-exome and full-genome sequencing has officially started at Columbia.

This new instrument joined the Illumina GAIIX and the MiSeq machines already in clinical operation for mitochondrial genome sequencing. The new machine will be used for full-exome sequencing of patients with genetic conditions in the care of our colleagues in Pediatrics, Neurology, and several other departments. It will be the workhorse of our clinical operation, as well as a program project grant submitted jointly to the National Human Genome Research Institute by PGM at CUMC, the Cold Spring Harbor Laboratories and the New York Genome Center. The goal of this grant application is to establish the technical and ethical framework for the use of Next-Gen sequencing in the clinical arena. The results it will provide will shorten the diagnostic odyssey of our patients and provide a wealth of new information about the molecular causes of human disease and human genetic diversity.

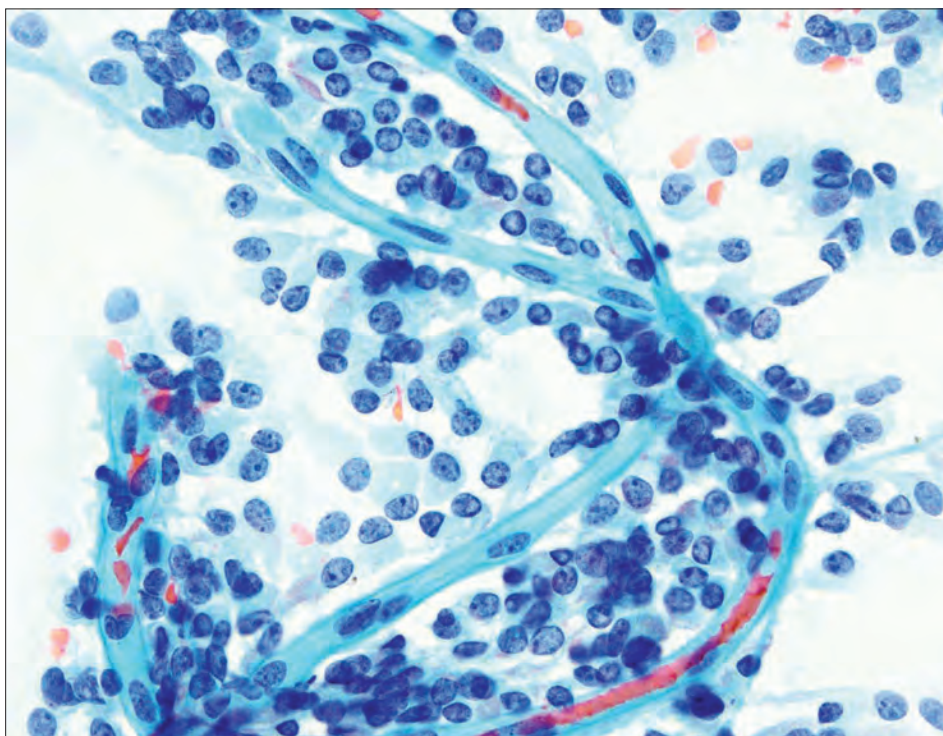
Our Far Flung Photographers

Tired of Academia? Try this!



A photo taken by our creative director Richard Miller while on vacation in Jamaica. The rainbow and the jumper were real. The Caribbean was 120 feet below. The diver lived.

The Art of Cell Biology



An inadvertent double helix. Beautiful, but serious, this is a solid pseudopapillary tumor of the pancreas. Courtesy of Anjali Saqi, MD, MBA

A Guide for the Perplexed: Columbia's New Academic Title System

It is well known that the three most complicated things in the world are: Medical Billing, Columbia's system of academic titles, and The General Theory of Relativity. In that order. Now, fulfilling a mandate from Dean Goldman, Dr. Anne Taylor, has led a committee to reform the title structure. The title structure system has been simplified and changed to recognize all types of contribution to our Medical Center. The areas of focus include: Research, but also Education and Clinical and Public Health Practice. These changes will be introduced next summer. To learn about them visit: <http://www.cumc.columbia.edu/faculty/>. Log in and click on Restructure of the Academic Tracks. This should help. Dr. Taylor informs us that more information will be forthcoming.

Departmental NIH Funding

Dean Goldman has informed us that our Department ranks fifth among Pathology Departments in the country in NIH funding, at nearly \$28 million. Emory is number 1 with nearly \$32 million, followed by The University of Pennsylvania and the University of Washington. Johns Hopkins is also ahead of us. We're way ahead of whoever is 6th (NYU).

Our Diagnostic Services

The Department offers a very broad range of expertise and diagnostic services. We are available for consultation at the following locations.

Web:

www.pathology.columbia.edu

Email:

pathology@columbia.edu

Laboratory services:

1-800-653-8200/1-212-305-4840

Administrative Services:

1-212-305-7164

A Note on Publications

The members of the department contributed approximately 260 peer reviewed publications in the years 2011-2012. The newsletter suggests that interested parties search the websites of the individual faculty members at <http://pathology.columbia.edu/>

COLUMBIA PATHOLOGY AND CELL BIOLOGY REPORT

Chairman

Dr. Michael L. Shelanski
Delafield Professor of Pathology
Pathology and Cell Biology

Editor

Dr. Richard H. Kessin
Professor
Pathology and Cell Biology

Design and production

Richard V. Miller
CUMC IT

<http://pathology.columbia.edu/>

Senior Associate Proofreader

Ms. Casey Schadie
Coordinator of Residency Programs
Department of Pathology and Cell Biology

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If you have comments or questions, contact:

Dr. Richard H. Kessin
at 212.305.5653

Email: rhk2@columbia.edu