University of Iowa Carver College of Medicine
University of Iowa Health Care

No. 13 Winter 2012

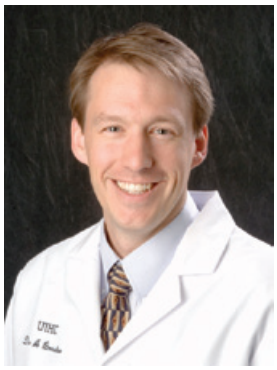
- Case Study
- Vitamin D Deficiency
- KRAS Mutation
- UIDL Test Updates
- Spring AP Course Agenda
- Awards & Recognition
- New Faculty
- Research Day Highlights
- Research Awards
- Research Publications
- Resident Awards
- Resident Teaching Award
- House Staff Roster 2011-12

PathBeat

The Newsletter of the Department of Pathology
University of Iowa Carver College of Medicine

INSIDE THIS ISSUE

FACULTY FOCUS



Aaron Bossler

> "Dr. Cohen, then the new head of the Department of Pathology, recommended that I investigate a career in molecular pathology as he anticipated its importance to medicine."

Aaron Bossler, MD, PhD

Clinical Associate Professor and Director of the Molecular Pathology Laboratory and Molecular Infectious Disease Section

Joined University of Iowa Department of Pathology: 2005

Hometown:
Van Horne, Iowa

When did you decide to go into a career in medicine?

I enjoyed my biology and chemistry classes in high school and decided to pursue a biochemistry degree in college. Many of my classmates were pre-med and my mom who had been a nurse encouraged me to consider medicine. The summer after my sophomore year I took an offer to be a lab assistant in a cell biology research laboratory. After learning the basics like all undergrads of washing dishes, ordering supplies, etc., Chloe Bulinski, my advisor and head of the lab, started me on a research project examining microtubule function in mitosis and the inhibitory effects of the drug taxol, derivatives of which are now used in cancer chemotherapy. She introduced me to the career of a clinician scientist and the possibility of doing combined MD, PhD training. That experience propelled me into medicine and research and I was happy to accept a position to the University of Iowa, Medical Scientist Training Program.

What made you choose academic pathology?

I chose to study human papillomavirus (HPV) and its role in cervical cancer for my doctoral work, and my mentors, Drs. Tom Haugen and Lubomir Turek, are both pathologists. They encouraged me to consider pathology as a career. Dr. Cohen, then the new head of the Department of Pathology, recommended that I investigate a career in molecular pathology as he anticipated its importance to medicine. Fortunately I followed his advice and after completing residency in clinical pathology at Iowa, I did the molecular genetic pathology fellowship at the University of Pennsylvania in Philadelphia.

What is your area of research?

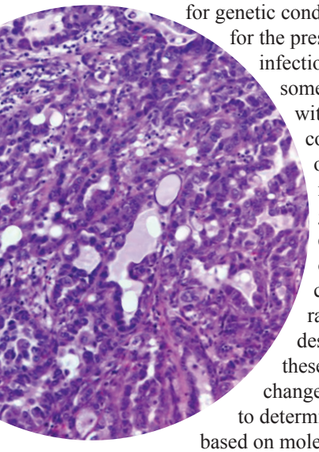
HPV and its role in squamous cell carcinoma which has expanded to include other tissue types including oral and rectal mucosa continue to interest me. I have worked with otolaryngologists and other researchers at the University of Iowa and the University of South Dakota to explore the increasing rate of HPV infection and mechanisms of transformation in oral carcinoma. I am also beginning a new project examining the rate of HPV infection in HIV positive individuals who

iapc12 Spring Conference SIGN UP (Page 8)

are at increased risk for anal squamous cell carcinoma in collaboration with researchers from Tufts University.

What visions/goals do you have for the future of the Molecular Pathology Lab at UIHC?

Our goal is to provide innovative molecular diagnostic tests which advance the care of patients in this era of personalized healthcare. We are in the midst of dramatic change and the rapid pace of biomedical discovery has accelerated the need and utility for molecular diagnostic testing. The Department of Pathology has a long history of early adoption of vital new tests, and the Molecular Pathology Laboratory is continuing that tradition. We have had the ability to analyze DNA and RNA for genetic conditions or for the presence of infectious agents for some time. Now with greater comprehension of the molecular genetic changes that occur in cancer and rational drug design to target these molecular changes the ability to determine therapy based on molecular analysis is becoming available. For example, lung cancer patients with EGFR mutations or colorectal cancer patients lacking KRAS mutations in the tumor cells may respond to specifically targeted therapy. In absence of FDA approved assays, the Molecular Pathology Laboratory developed and validated molecular testing for EGFR and KRAS mutations in tumor specimens. We have the capability to develop similar tests and are investing in new and evolving technologies. Our mission also includes educating our trainees, staff and clients on the effective utility of molecular diagnostic testing.



Publications/Books:

Bossler AD and Caliendo, AM. Molecular Methods in Diagnosis and Monitoring of Infectious Diseases. In: Tietz Textbook of Clinical Chemistry and Molecular Diagnostics, Fifth Edition. Burtis, Ashwood and Bruns, eds. New York, Elsevier, 2012.

Arbefeville, SS and Bossler AD. Bronchiolitis in an Infant; Infection with Human Metapneumovirus. In: Diagnostic Molecular Pathology in Practice. Shrijver ed.Springer-Verlag, Berlin Heidelberg, 2011.

Arbefeville, SS and Bossler AD. Human Papillomavirus Infection and ASC-US Triage. In: Diagnostic Molecular Pathology in Practice. Shrijver ed. Springer-Verlag, Berlin Heidelberg, 2011.

Bossler AD, Gunsolly CS, Pyne MT, Rendo A, Rachel J, Mills R, Miller M, Sipley J, Hillyard D, Jenkins S, Essmyer C, Young S, Lewinski M, Rennert H. Performance of the COBAS® Ampliprep/ COBAS TaqMan® Automated System for Hepatitis C Virus (HCV) Quantification in a Multi-center Comparison. J. Clin. Virol.: 2011 Feb;50(2):100-3.

Honor/Awards/Appointments:

Member, Economic Affairs Committee, Association for Molecular Pathology (AMP)
AMP Representative to the Pathology Coding Caucus (PCC), American Medical Association
Member, AMA Molecular Pathology CPT Coding Work Group (tasked with revising outdated CPT coding for molecular based laboratory testing)
Member, Economic Affairs Committee, College of American Pathology
Member, Editorial Board, Journal of Molecular Diagnostics

Professional Organizations:

Association for Molecular Pathology (AMP)
College of American Pathologists (CAP)
United States and Canadian Academy of Pathology (USCAP)
American Society for Microbiology (ASM)
Pan American Society for Clinical Virology (PASCV)
American Society for Clinical Pathology (ASCP)
Iowa Association of Pathologists (IAP)
American Medical Association (AMA)

When not working, what are your personal interests and/or hobbies?

Poverty and homelessness are social issues that concern me and I have worked with the Crisis Center of Johnson County to help those in need. I enjoy a great workout and like to bicycle, run, lift weights and ski. Having grown up on a farm instilled a desire to grow my own food, and I look forward to growing vegetables every spring.

Any additional information you would like to add about the Molecular Pathology Service?

The Molecular Pathology Laboratory has talented and friendly staff and faculty who are available to answer questions and provide guidance for appropriate molecular testing.

Focus on
Mucoepidermoid Carcinoma Grading

Robert A. Robinson, MD, PhD

Mucoepidermoid carcinoma is composed of cells with squamous and mucin producing cells along with clear, basal, and intermediate cells. Mucoepidermoid carcinoma is seen in the major salivary glands and in mucosal (minor) salivary glands. In the oral cavity, the palate is a common site.

Historically the tumors have been graded into three categories, low, intermediate and high or a corresponding numerical system of Grades 1, 2 or 3. In general, tumors that are Grade 1 exhibit minimal nuclear pleomorphism. (Figure 1) They also show a large cystic component. (Figure 2) Grade 3 tumors almost always exhibit significantly more nuclear atypia and show a marked amount of atypical squamous differentiation along with a desmoplastic response. (Figure 3) They can be difficult to separate from moderately differentiated squamous carcinoma. However, at times mucoepidermoid carcinomas that have an aggressive behavior can exhibit minimal nuclear atypia. This problem is addressed in the most recent grading systems for mucoepidermoid carcinoma, known as the Brandwein classification system by most.

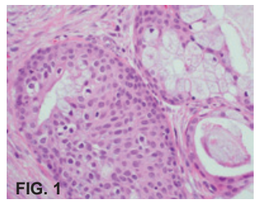


FIG. 1

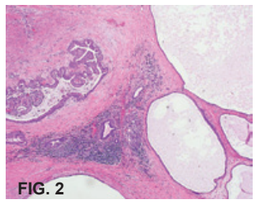


FIG. 2

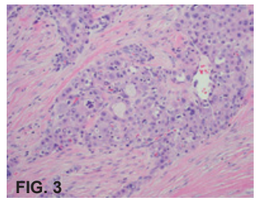


FIG. 3

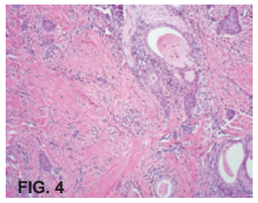


FIG. 4

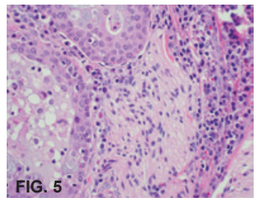


FIG. 5

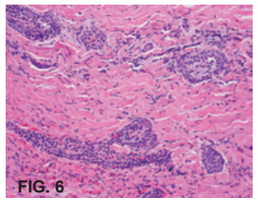


FIG. 6

Mucoepidermoid Carcinoma Grading
(Brandwein M, et al, Am J Surgical Pathology 2001:25(7):815-845.

Histopathologic Feature	Point Value
Intracystic component < 25%	2
Tumor front invades in small nests and islands	2
Pronounced nuclear atypia	2
Lymphatic and or vascular invasion	3
Invasion of bone	3
Mitoses (>4/10 HPF)	3
Necrosis	3
Perineural spread	3
Grade I	0
Grade II	2–3
Grade III	>4

This system uses a point counting scale to arrive at a specific grade. Not only does nuclear atypia factor into the equation but also degree of cystic change, invasive characteristics, perineural invasion, necrosis, bone invasion and mitotic rate.

Recently we have seen a case example at UIHC that highlights the importance of using this grading system rather than an estimation of the degree of overall nuclear atypia of the tumor to adequately assess the biologic behavior of a mucoepidermoid carcinoma.

Case Findings:
Our patient presented with a mass in the submandibular gland. The tumor was found to be extensively invasive at the time of surgery with involvement of numerous nearby tissues. On histologic review the tumor was composed of mucus and squamous cells with minimal atypia but showing only minimal cystic components (2 points). (Figure 4) The histologic features of the tumor also included extensive perineural invasion (3 points) as well as a marked desmoplastic response and invasion into numerous margins with thin infiltrating cords of tumors (2 points). (Figures 5 & 6) Using prior grading systems, this tumor would likely have been graded as Grade 1 based on the nuclear features. Using the Brandwein classification system, this tumor had a total of 7 points, which falls into the high grade or Grade 3 category. This grade is much more reflective of the biologic behavior of the neoplasm as seen at the time of operation and will influence the type of treatment and followup recommended.

Vitamin D
Deficiency & Testing

Matthew Krasowski, MD, PhD
Clinical Associate Professor, Vice-Chair for Clinical Affairs, Director of Clinical Laboratories

VITAMIN D IS AN ESSENTIAL FAT-SOLUBLE VITAMIN THAT AFFECTS NEARLY EVERY ORGAN SYSTEM.

Vitamin D was first recognized as a vitamin in the early twentieth century as a factor in cod liver oil that prevented the development of rickets, a debilitating syndrome of bone weakening in children that can lead to fractures and permanent skeletal deformity (e.g., 'bowed' legs). In the last two decades, there has been increasing interest in the biology of vitamin D, as well as a growing recognition that vitamin D deficiency is common throughout the world including industrialized countries such as the United States. One consequence of the growing clinical attention to vitamin D has been a substantial increase in laboratory testing for vitamin D.

The 'classic' actions of vitamin D are in the regulation of calcium and phosphate metabolism. Vitamin D and parathyroid hormone (PTH) together serve as the most important physiologic regulators of calcium and phosphorus. Prolonged vitamin D deficiency can lead to a sustained increase in PTH secretion, a condition known as secondary hyperparathyroidism that can cause dramatic loss of calcium from bones.

Medical research has demonstrated an increasing list of 'non-classical' vitamin D actions, including effects on immune system, cell growth, and brain health. Vitamin D deficiency has now been linked with increased risk of multiple sclerosis, certain cancers (especially breast, colorectal, and prostate cancers), and chronic respiratory infections (e.g., tuberculosis). Consequently, vitamin D deficiency has health implications that extend well beyond skeletal abnormalities.

The term 'vitamin D' usually refers collectively to vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol), together known as the calciferols. Vitamin D2 and D3 are hydroxylated in the liver to form 25-hydroxyvitamin D2 or D3. 25-Hydroxyvitamin D is the main storage form of vitamin D and also the analyte typically measured in serum or plasma to assess vitamin D stores. 25-Hydroxyvitamin D is further hydroxylated in the kidney to form 1,25-dihydroxyvitamin D (calcitriol), which represents the biologically most active form of vitamin D in terms of effects at the vitamin D receptor. 1,25-Dihydroxyvitamin D varies day-to-day much more than 25-hydroxyvitamin D and is in fact not a good marker of overall vitamin D nutritional status. In fact, it is possible to be profoundly deficient in overall stores of vitamin D yet have a 1,25-dihydroxyvitamin D serum/plasma concentration within the reference range due to higher levels of PTH that cause greater conversion of 25-hydroxyvitamin D to 1,25-dihydroxyvitamin D.

There are a number of factors that contribute to vitamin D deficiency. The first is decreased endogenous production in the skin by exposure to ultraviolet B (UVB) rays (the same UV rays also associated with skin cancers). In practical terms, optimal endogenous vitamin D3 production in response to sunlight in the northern latitudes requires sunlight exposure in the warmer months and during peak sunlight hours (approximately 10:00 AM to 3:00 PM). In the Northern Hemisphere above 35° latitude (roughly that of Atlanta, Georgia in the United States) essentially no vitamin D3 is produced endogenously from November to March even with direct sunlight exposure. Consequently, for many individuals in the United States (including Iowa) during the winter months, the only substantial source of vitamin D is from the diet. Sunscreen use also dramatically decreases vitamin D production. Sunscreens with sun protection factor (SPF) 15 or higher block 99% or more of vitamin D production. Skin damage (e.g., burns, scars, keloids) can also reduce vitamin D production, depending on the extent of injury.

The second main factor underlying vitamin D deficiency is low dietary intake. There are a relatively small number of foods that naturally contain high amounts of vitamin D. These include oily fish (e.g., mackerel), eggs, and Shiitake mushrooms. The amount of vitamin D in supplements varies considerably. Most multivitamins contains 400 international units (IU) of vitamin D2 or D3. Vitamin D3 supplements generally contain 400, 800, 1000, or 2000 IU.

There is a liquid supplement of vitamin D2 that contains 8,000 IU/mL and a prescription vitamin D2 capsule containing 50,000 IU. To enhance vitamin D intake on a population-wide basis, dairy products (e.g., milk, butter) may be supplemented with either vitamin D2 or D3. It is important to keep in mind that dietary intake of vitamin D is often much less than could be achieved with 30 minutes of direct sunlight. For example, sunlight equivalent to one minimal erythemal dose (just enough to achieve redness of skin in 24 hours) in summertime can result in 20,000 IU of vitamin D3 production. In contrast, 3.5 ounces of fresh wild salmon contains 600-1,000 IU of vitamin D3 while most fortified beverages and food (e.g., milk, orange juice) contain only 100 IU per serving. Breast milk also contains low concentrations of vitamin D, especially in lactating women who themselves are vitamin D insufficient.

The third main factor that can contribute to vitamin D deficiency is malabsorption. Conditions that can reduce vitamin D absorption include use of bile acid sequestrants (e.g., cholestyramine, colesevelam), cystic fibrosis, celiac disease, Whipple's disease, Crohn's disease, and gastric bypass surgery. These patient populations are also at risk for deficiency in other fat-soluble vitamins (A, E, and K). In patients with these conditions, increased vitamin D supplementation may be indicated. Alternatively, use of tanning beds at sub-tanning intensities can be highly effective in increasing vitamin D production in skin.

One of the major areas of discussion in the vitamin D literature is what should be the appropriate reference/target ranges for 25-hydroxyvitamin D. There is rough consensus that 25-hydroxyvitamin D levels below 20 ng/mL are 'deficient'. This is the threshold used by the World Health Organization. What has been more difficult to define is an optimal level. One physiologic approach to define 25-hydroxyvitamin D ranges is to look at the relationship between 25-hydroxyvitamin D and PTH levels. These show an inverse relationship with PTH concentrations rising as the 25-hydroxyvitamin D concentration decreases, allowing for the body to maintain adequate serum calcium levels. PTH begins to increase substantially when 25-hydroxyvitamin D concentrations drop below 30-40 ng/mL, suggesting that 25-hydroxyvitamin D levels below this range are not optimal, even though overt disease (e.g., rickets, osteomalacia, bone pain) may not be evident.

There are a number of methods for measuring 25-hydroxyvitamin D in serum/plasma including enzyme immunoassay, radioimmunoassay, high-performance liquid chromatography (HPLC), liquid chromatography-mass spectrometry (LC/MS), and liquid chromatography/tandem mass spectrometry (LC/MS/MS). One downside up to now has been that the available methods for measuring 25-hydroxyvitamin D either require expensive instrumentation such as LC/MS/MS that are generally feasibly only for reference laboratories or larger medical center laboratories, or are relatively slow and labor-intensive.

The exciting recent development is that automated assays for 25-hydroxyvitamin D have finally reached the U.S. market. Given that foods in the U.S. may contain either vitamin D2 or D3, the FDA has insisted that 25-hydroxyvitamin D assays equally detect both forms of vitamin D, which presented a technical challenge for diagnostic manufacturers that has only recent been overcome. Recently, both Siemens Healthcare Diagnostics and Abbott Diagnostics have received clearances from the Food and Drug Administration (FDA) for 25-hydroxyvitamin D immunoassays that can run on high-throughput chemistry analyzers. Other diagnostic manufacturers are also seeking FDA approval for their own 25-hydroxyvitamin D assays. The availability of these immunoassays will allow smaller hospital laboratories to more easily perform 25-hydroxyvitamin D analysis. The University of Iowa Hospitals and Clinics Core Chemistry laboratory brought the 25-hydroxyvitamin D assay in-house in January 2012.

Some key points regarding vitamin D testing:

(1) Routine screening should use an assay for 25-hydroxyvitamin D. Testing for 1,25-dihydroxyvitamin D is rarely indicated.

(2) Although there is no consensus on reference ranges for 25-hydroxyvitamin D, most authorities recognize that serum levels below 20 ng/mL are clearly deficient, and that level between 20 and 30 ng/mL are probably not optimal.

References: Holick MF. Vitamin D deficiency. N Engl J Med 357(3): 266-281, 2007.
Krasowski MD. Pathology consultation on vitamin D testing. Am J Clin Pathol 136(4): 507-514, 2011.

Questions may be directed to:
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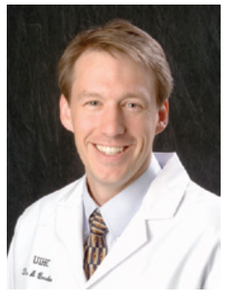

Accurate Detection of

KRAS Mutations to Guide Proper Cancer Treatment Selection

Aaron Bossler, MD, PhD
Director, Molecular Pathology Laboratory

COLORECTAL CANCER IS THE THIRD MOST COMMON MALIGNANCY AND THE THIRD LEADING CAUSE OF CANCER-RELATED DEATH IN THE US.

Although the 5-year survival rate has improved significantly during the past 20 years, the rate of detection of metastatic disease continues to be a medical and socioeconomic problem.

Progress has been made with the introduction of anti–epidermal growth factor receptor (EGFR) monoclonal antibodies including cetuximab or panitumumab. However, these targeted therapies are ineffective in patients with tumors that harbor mutations in the downstream signaling molecules of the EGFR pathway, ie, KRAS, NRAS, PIK3CA, and BRAF. These downstream genes are mutated in approximately 35% to 65% of cases with KRAS being most frequently mutated. Only patients with a KRAS wild type tumor are likely to respond to therapy, and the American Society of Clinical Oncology and the National Comprehensive Cancer Network recommend that all patients with metastatic colorectal cancer who are candidates for anti-EGFR antibody therapy should have their tumor tested for KRAS mutations.

Kirsten RAS (KRAS) is a member of the Ras oncogene family, which encodes small G proteins with intrinsic GTPase activity. GDP/GTP cycling is regulated by guanine nucleotide exchange factors (Ras-GEFs) that promote formation of active Ras-GTP, whereas GTPase activating proteins (GAPs) stimulate GTP hydrolysis and formation of inactive Ras-GDP. In normal quiescent cells, Ras is GDP bound and inactive. Extracellular stimuli (eg, epidermal growth factor) cause transient formation of the active, GTP-bound form of Ras. Activated Ras-GTP binds to a spectrum of downstream targets, which are involved in the regulation of cell proliferation, differentiation and survival through the MAK kinase as well as the PI3 kinase signaling pathways.

The most common KRAS mutations are point mutations involving exon 2 and 3 at codon 12, 13 and 61, more rarely, in codons 117 and 146. This spectrum of RAS mutations are all positioned in the same three-dimensional space of the folded protein. Mutations in RAS impairs its intrinsic GTP hydrolysis function resulting in constitutive activation of the protein, leading to stimulus independent, persistent activation of downstream effectors.

Accurate detection of KRAS mutations is important for guiding proper treatment selection. Various methods have been described for the detection of KRAS mutations, and though Sanger DNA sequencing remains the gold standard for detecting any variation in the gene, it has a poor limit of detection of approximately 20%. The Molecular Pathology Laboratory in the Department of Pathology at the University of Iowa Hospitals and Clinics (UIHC) has developed a PCR-based single nucleotide primer extension assay that detects KRAS mutation in codons 12, 13 and 61.

The sensitivity of the assay is 2-5% of mutant allele in the background of wild type allele from formalin-fixed paraffin-embedded tissue specimens. Tissue sections are reviewed by a pathologist before testing to determine whether sufficient material is present, and specimens with minimal tumor cells may be rejected. Genomic DNA is isolated from the selected area with tumor, quantified and amplified by polymerase chain reaction (PCR) using primers to exons 2 and 3 of the KRAS gene. PCR products are subjected to single nucleotide primer extension followed by capillary gel electrophoresis and fluorescence detection. The absence or presence of a specific mutation in codon 12, 13 or 61 is reported.

Questions may be directed to:

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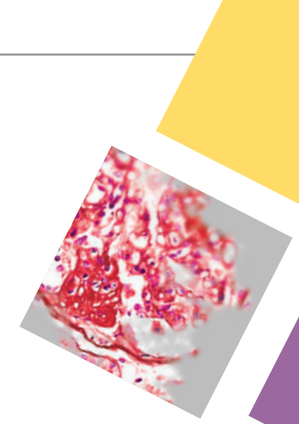
UIDL
UI Diagnostic Laboratories



UIDL Corner

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UIDL Client Services
Local: **319-384-7212**
Toll-Free: **866-844-2522**

UIDL Website and Test Directory
www.healthcare.uiowa.edu/uidl

NEW: KRAS MUTATIONAL ANALYSIS

This assay detects mutations in codons 12, 13, and 61 (total of 19 mutations). The presence of mutation **may indicate lack of responsiveness to anti-EGFR therapy** for patients with colorectal, lung, breast or other cancers for which cetuximab (Erbitux) or panitumumab (Vectibix) are used. Advanced PCR and Single Nucleotide Primer Extension technology.
Go to the UIDL Test Directory: KRAS

NEW: Vitamin D, 25-HYDROXY

This immunoassay is the **appropriate screening test for routine assessment of vitamin D** nutritional status. This assay accurately quantifies the sum of vitamin D3, 25-Hydroxy and vitamin D2, 25-Hydroxy. Optimum 25-hydroxy vitamin D concentration is 30 ng/mL or higher. For workup for hypercalcemia, vitamin D status in renal failure patients, and certain malignancies, “Vitamin D (1,25-dihydroxy)” may be indicated.
Go to the UIDL Test Directory: Vitamin D

NEW: LARGE DNA Sequencing

Mutations in the LARGE gene cause muscular dystrophies in the dystroglycanopathy spectrum. **Walker-Warburg syndrome (WWS; OMIM 236670), a severe congenital** muscular dystrophy (CMD) with defective neuronal migration and associated structural brain and eye abnormalities, is the most severe manifestation (Godfrey et al. Brain 130:2725-2735, 2007). At least one patient with congenital muscular dystrophy (MDC1D; OMIM 608840) and LARGE mutations has been described (Longman et al. Hum Mol Genet 12:2853-2861, 2003).

The dystroglycanopathies are inherited in an autosomal recessive manner. Like-acetylglycosaminyltransferase (LARGE) activity is necessary for proper post translational processing of the protein, alpha-dystroglycan (ADG). In the absence of this enzyme, ADG remains hypoglycosylated and diverse pathologies follow (Barresi and Campbell, J Cell Science 119:199-207, 2006). Molecular diagnosis (and classification) of the dystroglycanopthy subtypes is complex because extensive locus heterogeneity exists for each disorder (Godfrey et al. Brain 130:2725-2735, 2007), and because the phenotypes caused by the six demonstrated and putative glycosyltransferase genes continue to expand (e.g. van Reeuwijk et al. Hum Mut 27:453-459, 2006).

Evaluation of a patient’s muscle biopsy by immunofluorescence can detect abnormal glycosylation of ADG and can, therefore, help direct a diagnostic evaluation. It should be noted that five other genes (POMT1, POMT2, POMGnT1, FKRP, FKTN) encode proteins required for processing of ADG. This test is indicated for individuals with symptoms consistent with WWS or CMD or individuals with immunofluorescence results demonstrating hypoglycosylation of ADG in muscle.
Go to the UIDL Test Directory: LARGE DNA Sequencing

iapc '12

Iowa Anatomic Pathology Course
Friday and Saturday, April 27 – 28
Sheraton Hotel, Iowa City, IA

SPONSORED BY: University of Iowa Roy J. and Lucille A. Carver College of Medicine and the Department of Pathology

SPECIAL EVENTS: In Honor of Dr. Frank Mitros

Friday, April 27
5:00-7:30 pm Reception Honoring Dr. Frank Mitros
Brechler Press Box at Kinnick Stadium (*For course registrants.)*

Saturday, April 28
6:15–7:00 pm Social Hour
7:00–9:00 pm Dinner Honoring Dr. Frank Mitros
Sheraton Hotel (*Separate registration required.)*

SCIENTIFIC SESSIONS
Saturday, April 28 – Sheraton Hotel

8:30-10:00 am Gastrointestinal Pathology Session I

10:00-10:20 Break

10:20-11:50 Gastrointestinal Pathology Session II
INVITED SPEAKER: Dr. Henry Appelman
M.R. Abell Endowed Professor of Surgical Pathology
University of Michigan

11:50-1:00 pm Lunch - provided at Sheraton Hotel

1:00-2:00 Chronic Hepatitis—Practical Evaluation of the Liver Biopsy
Dr. Leana Guerin
Clinical Assistant Professor of Pathology, University of Iowa

2:00-3:00 Contemporary Surgical Pathology Reporting of Colon Carcinoma
Dr. Andrew Bellizzi
Clinical Assistant Professor of Pathology, University of Iowa

3:00-3:15 Break

3:15-4:15 Endoscopic Ultrasound for the Practicing Pathologist
Dr. Chris Jensen
Clinical Professor of Pathology, University of Iowa

4:15-5:15 Gastrointestinal Pathology Vignettes- Whimsical Case Presentations, each with a Teaching Point
Dr. Frank Mitros
Professor of Pathology, University of Iowa

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To access online registration:
https://www.continuetolearn.uiowa.edu/UIConferences/

CME STATEMENT: The University of Iowa Roy J. and Lucille A. Carver College of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

QUESTIONS?
The University of Iowa Center for Conferences
319-335-4141 (local)
1-800-551-9029
Fax: 319-335-4039
Email: conferences@uiowa.edu

Dr. Cohen Receives Regents Award for Faculty Excellence 2011

Michael Cohen

Dr. **Michael Cohen**, Professor of Pathology and Urology, recently received recognition for his dedication and hard work for the University of Iowa. Dr. Cohen was awarded one of three annual Awards for Excellence in 2011. The award was presented to Dr. Cohen by the UI Staff Council. Congratulations to Dr. Cohen for his hard work and dedication to the University of Iowa.

Dr. Cohen, Professor of Pathology and Urology in UI Carver College of Medicine and Professor of Epidemiology in the UI College of Public Health, has seen his work to study prostate cancer recognized through a Career Development Award from the American Cancer Society (1992) as well as almost continuous funding from the NIH.

He has been an extremely effective teacher to an array of learning audiences, from high school students (in the Iowa Junior Science Program) to practicing professionals (through Continuing Medical Education), and many of his UI students and trainees have gone on to succeed as basic scientists, academic clinicians, and private practice pathologists.

He has been called a "devoted servant" to his colleagues and profession, with an impressive record of service that includes his role as Departmental Executive Officer of the Department of Pathology since 1999. He has served on numerous important collegiate and university-wide committees and has been a member and officer of the Faculty Senate.

Dr. Rosenthal Appointed Bierring Professor of Clinical Education

Please extend congratulations to **Nancy Rosenthal**, MD, Clinical Professor, Section Director, Hematopathology and Assistance Dean for Student Affairs, on her reappointment to the Bierring Professor of Clinical Education.

Nancy Rosenthal

Dr. De Young Appointed Interim Head of Pathology

Barry De Young

Effective February 1, 2012, Dr. **Barry De Young** has taken over as the Interim Head of the Department of Pathology. Dr. Michael Cohen, who has stepped down as head, has been appointed Professor of Pathology at the University of Utah in Salt Lake City, and began his duties there February 1.

Dr. Barry De Young joined the UI Carver College of Medicine faculty in August of 2000. He currently has appointments as a Clinical Professor in the Departments of Pathology and Orthopaedics and serves as Vice Chair for Faculty Affairs in Pathology and is currrently the Stamler Professor of Pathology. In addition, he is Director of Surgical Pathology and Director of the Surgical Pathology Fellowship Training Program. He has received many honors and awards, and has served on collegiate and UI committees. He is a member of several professional organizations and associations, including being a founding member of the International Society of Bone and Soft Tissue Pathology, serving as Secretary of the Arthur Purdy Stout Society of Surgical Pathologists, and a long-standing council member of the Association of Directors of Anatomic and Surgical Pathology.

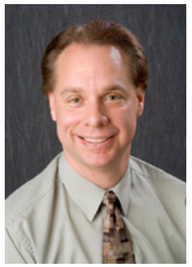
Dr. De Young's research is primarily focused on projects that assist the surgical pathologist in arriving at an accurate diagnosis or in predicting patient prognosis for a given neoplasm. His areas of active research include investigations with the proto-oncogene Her2-neu in epithelial neoplasia.

Young Investigator's Award Presented to Matthew Krasowski, MD

Matthew Krasowski

The Therapeutic Drug Monitoring/ Toxicology (TDM/Tox) Division of the American Association for Clinical Chemistry sponsors an annual award designed to recognize young persons actively engaged in the laboratory practice of therapeutic drug monitoring or toxicology and contributing to the profession through research, publication, or teaching in these fields. **Matthew Krasowski,** MD, PhD was selected by the TDM/Tox Awards Committee and received the Young Investigator's Award at the 2011 AACC Annual Meeting held in Atlanta, Georgia, July 25-28, 2011.

Dr. De Young appointed to Stamler Professorship



Barry De Young

Dr. Barry De Young, Clinical Professor of Pathology, Director of Surgical Pathology, Vice Chair of Faculty Affairs, has been appointed to the Frederic W. Stamler Professorship in Anatomic Pathology. The five-year appointment was effective July 1, 2011.

The professorship honors the long-standing dedication and service of Frederic W. Stamler, M.D., a former UI professor of pathology who passed away in 2004. Stamler was a diagnostic pathologist, teacher and faculty member in the department for more than 40 years until his retirement in 1989. He is nationally recognized for his work on improving diagnostic accuracy of tests used to assess cancers. The appointment recognizes De Young's dedication and contributions to teaching and service in the department.

De Young earned a medical degree at the Georgetown University School of Medicine and completed residency training in anatomic pathology at Barnes Hospital. He also completed fellowships in surgical pathology at Barnes Hospital and at University of Virginia Health Science Center.

2011 Distinguished Achievement Award Recipient: Stephen Bonsib, MD

Stephen Bonsib, left, receiving the award from Michael Cohen.

The 2011 Department of Pathology Distinguished Achievement Award was created to honor individual faculty, alumni and friends of the department who have made significant and enduring clinical or scientific contributions in pathology. The Distinguished Achievement Award recipient for this year was presented to **Stephen M. Bonsib**, MD, Professor and Chairman of Pathology at Louisiana State University Health Sciences Center, Shreveport, Louisiana, by Dr. Michael Cohen, MD, Head of the UI Department of Pathology.

Dr. Bonsib graduated from Indiana University School of Medicine and received his pathology training at the University of Iowa. He completed fellowships in Renal and Surgical Pathology.

He is academically active in renal pathology and urologic pathology with over 120 publications and book chapters. He has had many invited activities at the American Society of Nephrology and the United States and Canadian Academy of Pathology Annual Meetings. He was President of the Renal Pathology Society in 2007. Dr. Bonsib has a keen interest in renal neoplasms.

His seminal work in defining the principal pathway for extrarenal extension of renal cell carcinoma, involvement of the renal sinus, led to incorporation of this feature in the 2002 AJCC TNM Staging System. This work has influenced how pathologists evaluate renal cancer resections.

Dr. Mitros, GI and Liver Pathology, Honored as UIP Best Consulting Provider

Frank Mitros

The first-ever University of Iowa Physicians (UIP) Clinical Awards were presented October 17, 2011, at the UIP annual meeting. UIP is composed of the 700-plus staff physicians who provide care at UI Hospitals and Clinics.

Earlier this year, the group established the awards to honor clinical excellence among their members. Nominations are accepted annually from any UIP member or participant and evaluated by the UIP Clinical Awards Committee.

This Best Consulting Provider Award is given to an individual in recognition of his or her outstanding consulting or specialized services to the inpatient and ambulatory patients of UI Health Care. Dr. **Frank Mitros** has worked at UI Hospitals and Clinics for over 30 years, and in that time has served as the "ultimate" consultant to his colleagues. Among his many attributes is his willingness to consult when he's not "on call," whether it's after hours or on the weekends. Dr. Mitros's knowledge, dedication to patients, willingness to go the extra mile, and ability to educate place him in the most elite category.

2011 Clinical Achievement Awards Presented to Drs. Kirby and Krasowski

The 2011 Clinical Achievement Award recognizes a clinical and an anatomic pathology faculty member for their significant achievement in the creation and delivery of clinical services John Kemp, MD, Professor of Immunopathology and Associate Chair for Quality, Safety, and Performance Improvement, had the distinct honor of presenting the awards to the deserving recipients (pictured below).

We are pleased to announce that this year's anatomic pathology award was presented to **Patricia Kirby**, MD, and the clinical pathology award was presented to **Matthew Krasowski**, MD, PhD.

Patricia Kirby

Matthew Krasowski

2011 Resident Teaching Award Recipient: Dennis Firchau, MD

Congratulations to **Dennis Firchau**, MD, Clinical Assistant Professor, Anatomic Pathology. This award is given annually to a faculty member in the Department of Pathology who displays exemplary teaching and mentoring skills while working with the residents. While relatively new to the University of Iowa faculty, Dr. Firchau has made an immediate positive impact on the education and work of the pathology residents. Please see the full feature story on Dr. Firchau on page 19.

Dennis Firchau

4 New Faculty Members Join Pathology Team

The UI Department of Pathology is continually growing and expanding. We have recently added a number of prominent faculty members and we are very happy to have them as a part of our team. Please join us in welcoming Andrew Bellizzi, MD, Amani Bashir, MB, BS, Carol Holman, MD, PhD, and Dequin Ma, MD, PhD.

Andrew Bellizzi, MD
GI Pathology

Clinical Assistant Professor
Gastrointestinal/Liver Pathology/
Surgical Pathology

Phone: 319-356-4436
e-mail: andrew-bellizzi@uiowa.edu

B.S., B.A. University of Notre Dame, 2000
M.D. Northwestern University, Feinberg School of Medicine, 2004
Pathology Residency, University of Virginia Health System, 2004-2008
Chief Resident, University of Virginia Health System, 2007-2008
Gastrointestinal/Liver Pathology Fellowship, The Ohio State University Medical
Center, 2008-2009
Former Faculty member at Brigham & Women's Hospital, Boston, MA

Dr. Bellizzi is a diagnostic surgical pathologist with subspecialty expertise in gastrointestinal, liver, and pancreatobiliary pathology. Special areas of interest include colorectal neoplasia and hereditary cancer syndromes. His research interests lie in pushing the bounds of the H&E-stained glass slide and readily available ancillary techniques, with the goal of increasing the diagnostic accuracy and prognostic and therapeutic relevance of our product (i.e., the pathology report).

Dr. Bellizzi will be presenting the short course #33 - Evolving Concepts in colorectal Neplasia; A Survival Guide for 2012 on Thursday, March 22, 2012, at the upcoming USCAP 101st Annual Meeting in Vancouver, British Columbia, Canada.

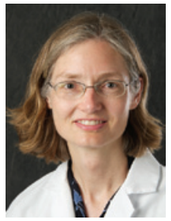
Amani Bashir, MB, BS
Surgical and Cytopathology

Clinical Assistant Professor
Surgical Pathology and
Cytopathology

Phone: 319-467-5706
e-mail: amani-bashir@uiowa.edu

M.B., B.S., University of Jordan Amman, Jordan, 1998
Intern, Jordan University Hospitals, Amman, Jordan, 1998-99
Pathology Resident, University of Jordan, Amman, Jordan, 1999
Pathology Residency, The University of Iowa, 2000-04
Cytopathology Fellowship, The University of Iowa, 2004-05
Surgical Pathology Fellowship, The University of Iowa, 2005-06
Fellow Associate, The University of Iowa, 2006-07

Dr. Bashir's primary interests are Surgical Pathology with special interest in breast, gynecologic and urologic pathology and Cytopathology special interests in performing and interpreting fine needle aspirations and an interest in salivary gland cytology.



Carol Holman, MD, PhD
Hematopathology

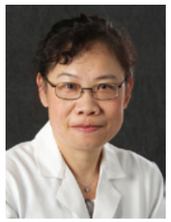
Clinical Associate Professor
Hematopathology

Phone: 319-356-3981
e-mail: carol-holman@uiowa.edu

B.S. Valparaiso University, 1990
Medical Scholars Program, University of Illinois, 1999
Ph.D. University of Illinois, Urbana, 1997
M.D. University of Illinois, Urbana, 1999
AP/CP Residency, University of Minnesota, 2003
Hematopathology Fellowship, University of Minnesota, 2005

Dr. Holman joins us from the University of Minnesota where she was a faculty member. Dr. Holman's clinical duties and interests include clinical diagnosis of patients with leukemia and lymphoma, as well as optimal laboratory testing for detection of minimal residual disease following therapy.

She has research interests in the pathogenesis of Epstein-Barr virus infection and its role in a variety of diseases including post-transplant lymphoproliferative disorder, lymphomatoid granulomatosis, and infectious mononucleosis.



Deqin Ma, MD, PhD
Molecular Pathology

Clinical Assistant Professor
Molecular Pathology/Surgical Pathology

Phone: 319-384-5700
e-mail: deqin-ma@uiowa.edu

M.D. Shandong Medical University, Jinan, P.R. China, 1988
Ph.D. University of Kentucky Medical Center, Lexington, KY, 1998
Anatomic Pathology Residency, National Cancer Institute/NIH, Bethesda, MD, 2006-2009
Molecular Genetic Pathology Fellowship, MD Anderson Cancer Center, Houston, TX, 2009-2010
Surgical Pathology Fellowship, University of Pennsylvania, Philadelphia, PA, 2010-2011

Dr. Ma's clinical duties include both molecular genetic pathology and surgical pathology. She has a special interest in molecular test development on solid tumors and hematopoietic malignancies. She is also interested in general surgical pathology. Her research primarily is focused on studying the mechanism of tumor suppressor and metastatic suppressor.

UI Faculty Presenting at Upcoming 101st USCAP Annual Meeting

Wednesday – Friday, March 21–23
Vancouver, British Columbia, Canada

Andrew Bellizzi, MD
Course #33
Evolving Concepts in Colorectal Neoplasia; A Survival Guide for 2012

Robert A. Robinson, MD, PhD
Course #25
Common Diagnostic Problems in Head and Neck Tumors: A Combined Cytologic and Surgical Pathology Approach

Robert A. Robinson, MD, PhD
Steven D. Vincent, DDS, MS
Course #37
Oral and Maxillofacial Pathology for the Practicing Pathologist: Pathology of Odontogenic and Other Common Lesions of the Jaws with Clinical and Radiographic Correlation

Research Day Highlights

The 6th Annual Pathology Research Day held on October 11, 2011, was a chance for Pathology's researchers to share their research topics, latest findings and knowledge about topics inherent to their daily work and career. The day included a full schedule of presenters covering a variety of research topics. Thirty two research posters were also displayed throughout the day.

Plenary Presentation:

Jonathan Braun, MD, PhD
Professor and Chairman
Department of Pathology and Laboratory Medicine
Co-Director, Institute of Molecular Medicine
University of California at Los Angeles

RECONSIDERING INTESTINAL INFLAMMATION AND CANCER THROUGH THE LENS OF MICROBIOME ECOLOGY

Presentation Speakers and Titles:

Alicia Olivier, DVM, PhD, Assistant Professor
Altered endocrine pancreas function prior to parenchymal destruction in newborn cystic fibrosis ferrets

Joe Mitros, MD, Surgical Pathology Fellow
Lipogranulomas, pigment, and hepatitis C

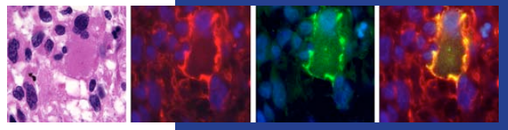
Marina Ivanovic, MD, FIAC, Associate Professor
MTA-1 as a prognostic factor for aggressive prostate cancer

Ken Blackwell, BA, Research Associate
New mechanistic Insights in TNFα-induced NF-κB activation

Ann Simons-Burnett, PhD, Assistant Professor
Role of NOX4 in autophagy and IL6 expression in head and neck cancer cells

Huy Nguyen, MS, Graduate Student
Dystroglycan in cerebellar development and diseases

Adam Dupuy, PhD, Assistant Professor
The adaptive immune system does not strongly suppress spontaneous tumors in a Sleeping Beauty model of cancer



New Research Awards

DR. GARY BAUMBACH received a notice of R01 funding from the National Institutes of Health. The title of the project is *Cerebrovascular Structure in Hypertension: Mechanisms and Contributions to Stroke*. This award is for the period of September 1, 2011 through July 31, 2016. The amount of this award is $1,651,563.

DR. AARON BOSSLER has received a research continuation to extend the studies with Roche Molecular Systems, Inc. for a research project titled *Early Evaluation of the New Cobas 4800 Instrument System*. The amount of this contract continuation is $53,125.

DR. FRED DEE received an Innovations in Teaching with Technology Award from the University of Iowa Academic Technologies Advisory Council. The title of the project is *Development and Assessment of a Web-based Student Generated Cause and Effect Diagrams in Science and Education*. The amount of this award is $30,000.

DR. DANIEL DIEKEMA has a new research contract negotiated with PurThread Technologies, Inc. for a research project titled *Efficacy of Pur Thread hospital privacy curtains in reducing privacy curtain contamination*. The contract total is $22,063. This contract is for the period of August 26, 2011 through December 19, 2011.

DR. DANIEL DIEKEMA has a new research contract negotiated with Innovative Biosensors, Inc. for a research project titled *Evaluation of the BioFlash-Dx System for Rapid Detection of Methicllin Resistant Staphylococcus aureus (MRSA)*. The contract total is $62,500. This contract is for the period of August 25, 2011 through August 25, 2013.

DR. DANIEL DIEKEMA has a new research contract negotiated with Cerexa, Inc. for the continuation of a research project titled *In Vitro Activity of Ceftaroline Versus Staphylococcus Aureus*. The contract total is $609,500. This contract is for the period of August 4, 2011 through December 31, 2012.

DR. FIORENZA IANZINI received a notice of new funding from the National Aeronautics and Space Administration (NASA). The title of the project is *Mechanisms of Cell Survival Following Space Radiation-Induced Mitotic Catastrophe: Implications for Cancer Risk*. This award is for the period of December 1, 2010 through November 30, 2011. The amount of this award is $365,000.

DR. SIEGFRIED JANZ received notice of funding from the International Waldenstrom's Macroglobulinemia Foundation (IWMF) for a research project titled *Development of a Transgenic Mouse Model of Waldenstrom's Macroglobulinemia*. This award total is $540,000 and is for the period of August 1, 2010 through July 31, 2012.

DR. STEVEN MOORE has a supplemental award from the Jain Foundation, Inc. for a research project titled *Dysferlin Antibodies*. The supplemental award total is $2,031. This award is for the period of June 15, 2011 through June 14, 2012.

DR. THOMAS RAIFE received an Institute for Clinical and Translational Science (ICTS) Pilot Grant. The title of the project is *Genetic Determinants of the Red Blood Cell Storage Lesion*. The amount of this award is $50,000. This award is for the period of June 1, 2011 through May 31, 2012.

DR. THOMAS WALDSCHMIDT received a notice of NIH R01 subcontract funding from Dr. Michael Cho at Iowa State University. The title of the project is *Enhancing B Cell Immunity Against HIV-1 Using Novel Vaccine Delivery Platforms*. This subcontract is for the period of August 1, 2010 through July 31, 2015. The total amount of this award is expected to be $525,000.

Faculty
RESEARCH PUBLICATIONS

Hypertrophic Spinal Pachymeningitis With Thoracic Myelopathy: The Initial Presentation of ANCA-related Systemic Vasculitis.
Smucker JD, Ramme AJ, Leblond RF, **Bruch LA**, Bakhshandehpour G.
J Spinal Disord Tech. **2011** Mar 22

An enhanced antigen-retrieval protocol for immunohistochemical staining of formalin-fixed, paraffin-embedded tissues.
Syrbu SI, **Cohen MB**.
Methods Mol Biol. **2011**;717:101-10.

A report on the piloting of a novel computer-based medical case simulation for teaching and formative assessment of diagnostic laboratory testing.
Kreiter CD, Haugen T, Leaven T, Goerdt C, **Rosenthal N**, McGaghie WC, **Dee F**.
Med Educ Online. **2011** Jan 14;16. doi: 10.3402/meo.v16i0.5646.

The ARF tumor suppressor inhibits tumor cell colonization independent of p53 in a novel mouse model of pancreatic ductal adenocarcinoma metastasis.
Muniz V, Barnes JM, Paliwal S, Zhang X, Tang X, Chen S, Zamba KD, Cullen JJ, **Meyerholz DK**, Meyers S, Davis N, Grossman SR, Henry MD, Quelle DE.
Mol Cancer Res. **2011** Jun 2.

Reappraisal of the provisional entity primary cutaneous CD4+ small/medium pleomorphic T-cell lymphoma: A series of 10 adult and pediatric patients and review of the literature.
Baum CL, Link BK, Neppalli VT, **Swick BL**, **Liu V**.
J Am Acad Dermatol. **2011** Jun 3.

Observations on use of montelukast in pediatric eosinophilic esophagitis: insights for the future.
Stumphy J, Al-Zubeidi D, **Guerin L, Mitros F**, Rahhal R.
Dis Esophagus. **2011** May;24(4):229-34. doi: 10.1111/j.1442-2050.2010.01134.x. **2010**, Wiley Periodicals, Inc. and the International Society for Diseases of the Esophagus.

Pre-emptive eculizumab and plasmapheresis for renal transplant in atypical hemolytic uremic syndrome.
Nester C, Stewart Z, Myers D, Jetton J, **Nair R**, Reed A, Thomas C, Smith R, Brophy P.
Clin J Am Soc Nephrol. **2011** Jun;6(6):1488-94.

Efficacy and safety of EMR to completely remove Barrett's esophagus: experience in 41 patients.
Gerke H, Siddiqui J, **Nasr I**, Van Handel DM, **Jensen CS**.
Gastrointest Endosc. **2011** Oct;74(4):761-71.

Disseminated subarachnoid chordoma: long-term favorable follow-up of a pediatric patient.
Anderson S, Sato Y, **Kirby P**, Buatti JM, Menezes A.
Pediatr Radiol. **2011** Oct 9

Slow disease progression in a C57BL/6 pten-deficient mouse model of prostate cancer.
Svensson RU, Haverkamp JM, Thedens DR, **Cohen MB**, Ratliff TL, Henry MD.
Am J Pathol. **2011** Jul;179(1):502-12.

TOFA (5-tetradecyl-oxy-2-furoic acid) reduces fatty acid synthesis, inhibits expression of AR, neuropilin-1 and Mcl-1 and kills prostate cancer cells independent of p53 status.
Guseva NV, Rokhlin OW, Glover RA, **Cohen MB**.
Cancer Biol Ther. **2011** Jul 1;12(1):80-5. doi: 10.4161/cbt.12.1.15721.

Evidence of Spread of the Emerging Infectious Disease, Finch Trichomonosis, by Migrating birds.
Lawson B, **Robinson RA**, Neimanis A, Handeland K, Isomursu M, Agren EO, Hamnes IS, Tyler KM, Chantrey J, Hughes LA, Pennycott TW, Simpson VR, John SK, Peck KM, Toms MP, Bennett M, Kirkwood JK, Cunningham AA.
Ecohealth. **2011** Sep 21.

Consensus Statement on Effective Communication of Urgent Diagnoses and Significant, Unexpected Diagnoses in Surgical Pathology and Cytopathology From the College of American Pathologists and Association of Directors of Anatomic and Surgical Pathology.
Nakhleh RE, Myer JL, Allen TC, **Deyoung BR**, Fitzgibbons PL, Funkhouser WK, Mody DR, Lynn A, Fatheree LA, Smith AT, Lal A, Silverman JF.
Arch Pathol Lab Med. **2011** Oct 13.

Leiomyosarcoma of the head and neck: a population-based analysis.
Eppsteiner RW, **Deyoung BR**, Milhem MM, Pagedar NA.
Arch Otolaryngol Head Neck Surg. **2011** Sep;137(9):921-4.

Matching residents to pathology fellowships: the road less traveled?
Myers JL, Yousem SA, **DeYoung BR**, Cibull ML; Council of the Association of Directors of Anatomic and Surgical Pathology.
Am J Clin Pathol. **2011** Mar;135(3):335-7.

A case of solitary Blastomyces dermatitidis meningitis.
Dobre MC, Smoker WR, **Kirby P**.
Clin Neurol Neurosurg. **2011** Oct;113(8):665-7.

Postmortem gastric perforation (gastromalacia) mimicking abusive injury in sudden unexplained infant death.
Laczniak AN, Sato Y, **Nashelsky M**.
Pediatr Radiol. **2011** May 24.

Recent Iowa Trends in Sudden Unexpected Infant Deaths: The Importance of Public Health Collaboration With Medical Examiners' Offices.
Harris ML, Massaquoi D, Soyemi K, Brend SM, Klein D, Pentella M, Kraemer J, **Nashelsky M**, Schmunk G, Smith T, Pleva A.
Am J Forensic Med Pathol. **2011** Jul 20.

A reduced segment II/III graft for neonatal liver failure with absence of detectable hepatocytes. A case report and literature review.
Alawi K, **Mitros FA**, Bishop WP, Rayhill S, Wu Y.
Pediatr Transplant. **2011** May;15(3):e60-3. doi: 10.1111/j.1399-3046.2009.01276.x.

Hepatitis C virus infection and hepatic stellate cell activation downregulate miR-29: miR-29 overexpression reduces hepatitis C viral abundance in culture.
Bandyopadhyay S, Friedman RC, Marquez RT, Keck K, Kong B, **Icardi MS**, Brown KE, Burge CB, Schmidt WN, Wang Y, McCaffrey AP.
J Infect Dis. **2011** Jun 15;203(12):1753-62.

Congenital pancytopenia and absence of B lymphocytes in a neonate with a mutation in the ikaros gene.
Goldman FD, Gurel Z, Al-Zubeidi D, Fried AJ, **Icardi M**, Song C, Dovat S.
Pediatr Blood Cancer. **2011** May 5. doi: 10.1002/pbc.23160.

Pathology consultation on vitamin d testing.
Krasowski MD.
Am J Clin Pathol. **2011** Oct;136(4):507-14.

A comparative study of the sulfation of bile acids and a bile alcohol by the Zebra danio (Danio rerio) and human cytosolic sulfotransferases (SULTs).
Kurogi K, **Krasowski MD**, Injeti E, Liu MY, Williams FE, Sakakibara Y, Suiko M, Liu MC.
J Steroid Biochem Mol Biol. **2011** Aug 4.

In silico repositioning of approved drugs for rare and neglected diseases.
Ekins S, Williams AJ, **Krasowski MD**, Freundlich JS.
Drug Discov Today. **2011** Apr;16(7-8):298-310.

Aberrant activation of ERK/FOXM1 signaling cascade triggers the cell migration/invasion in ovarian cancer cells.
Lok GT, Chan DW, **Liu VW**, Hui WW, Leung TH, Yao KM, Ngan HY.
PLoS One. **2011**;6(8):e23790.

Benefit or burden? Sending patients with nonresectable lung cancer to the ICU.
Chooljian DM, **Liu V**.
Chest. **2011** Aug;140(2):558.

Cutaneous Rosai-Dorfman disease following pneumococcal vaccination.
Bassis AV, Fairley JA, Ameln RT, **Swick BL**.
J Am Acad Dermatol. **2011** Oct;65(4):890-2.

Treatment options for hyperhidrosis.
Walling HW, **Swick BL**.
Am J Clin Dermatol. **2011** Oct 1;12(5):285-95. doi: 10.2165/11587870-000000000-00000.

Simulation of cutaneous Bowen's disease by freeze artifact in tissue briefly fixed in formalin.
Walling HW, **Swick BL**.
Int J Dermatol. **2011** Jun;50(6):757-8. doi: 10.1111/j.1365-4632.2009.04503.x.

Localized acral pityriasis lichenoides chronica: report of a case.
Halbesleben JJ, **Swick BL**.
J Dermatol. **2011** Aug;38(8):832-4. doi: 10.1111/j.1346-8138.2010.01089.x.

T regulatory cells participate in the control of germinal centre reactions.
Alexander CM, Tygrett LT, Boyden AW, Wolniak KL, Legge KL, **Waldschmidt TJ**.
Immunology. **2011** Aug;133(4):452-68. doi: 10.1111/j.1365-2567.2011.03456.x.

Multiple CD4+ T Cell Subsets Produce Immunomodulatory IL-10 During Respiratory Syncytial Virus Infection.
Weiss KA, Christiaansen AF, Fulton RB, **Meyerholz DK**, Varga SM.
J Immunol. **2011** Sep 15;187(6):3145-54.

Cell of origin strongly influences genetic selection in mouse models of T-ALL.
Berquam-Vrieze KE, Nannanpaneni K, Brett BT, Holmfeldt L, Ma J, Zagorodna O, Jenkins NA, Copeland NG, **Meyerholz DK**, Knudson CM, Mullighan CG, Scheetz TE, Dupuy AJ.
Blood. **2011** Aug 9.

Systemic inflammation with multiorgan dysfunction is the cause of death in murine ligation-induced acute pancreatitis.
Yuan Z, **Meyerholz DK**, Twait EC, Kempuraj D, Williard DE, Samuel I.
J Gastrointest Surg. **2011** Oct;15(10):1670-8.

An inducible model of abacterial prostatitis induces antigen specific inflammatory and proliferative changes in the murine prostate.
Haverkamp JM, Charbonneau B, Crist SA, **Meyerholz DK**, **Cohen MB**, Snyder PW, Svensson RU, Henry MD, Wang HH, Ratliff TL.
Prostate. **2011** Aug 1;71(11):1139-50. doi: 10.1002/pros.21327.

T-cell immunoglobulin and mucin domain 1 (TIM-1) is a receptor for Zaire Ebolavirus and Lake Victoria Marburgvirus.
Kondratowicz AS, Lennemann NJ, Sinn PL, Davey RA, Hunt CL, Moller-Tank S, **Meyerholz DK**, Rennert P, Mullins RF, Brindley M, Sandersfeld LM, Quinn K, Weller M, McCray PB Jr, Chiorini J, Maury W.
Proc Natl Acad Sci U S A. **2011** May 17;108(20):8426-31.

Case report: successful treatment of recurrent focal segmental glomerulosclerosis with a novel rituximab regimen.
Stewart ZA, Shetty R, **Nair R**, Reed AI, Brophy PD. Department of Surgery, University of Iowa Hospitals and Clinics, Iowa City, Iowa.
Transplant Proc. **2011** Dec;43(10):3994-6.

Hard, pink nodules on the upper extremities. Peripheral siliconomas.
Fernandez KH, Wollner J, **Stone MS**.
University of Iowa, Iowa City, Iowa, USA.
Arch Dermatol. **2011** Oct;147(10):1215-20.

Therapeutic blockade of PD-L1 and LAG-3 rapidly clears established blood-stage Plasmodium infection.
Butler NS, Moebius J, Pewe LL, Traore B, Doumbo OK, Tygrett LT, **Waldschmidt TJ**, Crompton PD, Harty JT. Department of Microbiology, University of Iowa, Iowa City, Iowa, USA.
Nat Immunol. **2011** Dec 11. doi: 10.1038/ni.2180.

Two Exceptional Residents Receive 2011 George D. Penick Award for Excellence in Education


Ben Darbro


Mike Gailey

This year's recipients of the George D. Penick Award for Excellence in Education are **Ben Darbro**, MD, PhD and **Mike Gailey**, DO. This award is presented annually to a Pathology Resident or Residents who display excellence in and commitment to the education and teaching of medical students, peers and clinical colleagues.

Dennis Firchau, MD

Clinical Assistant Professor, Anatomic Pathology
B.S. Michigan State University, 2000
M.D. Wayne State University School of Medicine, 2004
Pathology Residency, Medical College of Wisconsin, 2004-08
Cardiovascular Pathology Fellowship, Mayo Clinic, 2008-09
Forensic Pathology Fellowship, Hennepin County Medical Examiner's Office, 2009-10

"...anyone can spot the hot topics in forensic pathology by watching court tv shows and following news headlines because the issues are really out there for the public to see."

Dennis Firchau, Assistant Professor
Interviewed by Janet Delwiche, Residency Program Coordinator

"An excellent teacher…and tremendous addition to our program." "Clearly has in-depth knowledge of forensics… and cardiac path – a great asset." "Demonstrates an enthusiasm and passion for his discipline that engages the residents." "Overall, a pleasure to work with." Such are the terms that pathology residents at the University of Iowa Hospitals and Clinics use to describe Dennis Firchau, M.D., Clinical Assistant Professor of Anatomic Pathology. Dr. Firchau, recipient of the 2011 Resident Teaching Award, joined the faculty in the fall of 2010 and has brought considerable skill and expertise in forensic and cardiovascular pathology to his teaching and work as a Deputy Medical Examiner of Johnson County.

Recently, Dr. Firchau sat down with me to discuss what led him to pursue forensic pathology, share his observations of current trends in the field, and tell me what he likes about his job at UI Pathology.

How did you come to be interested in pathology, and ultimately, to choose forensics as a subspecialty?

Given my undergraduate microbiology background, I've always had a fondness for the microscope. Then during medical school, I really started to get interested in how pathology allows us to see with our own eyes the disease process and its effect on organs and the body. Through my pathology rotations during medical school, I learned and started to appreciate how much the practice of pathology affects patient care. As far as my interest in forensics, I remember a case I observed as a medical student that helped me see the importance that medico-legal death investigation can have to issues with potential effects on the living. There was a particular case that uncovered a lot of important findings that were unexpected, and facilitated a law enforcement investigation that had a significant impact on living people. Even though the decedent was no longer alive, the forensic work enabled some degree of justice to be achieved.

What are some of the hot topics in your field right now?

I think anyone can spot the hot topics in forensic pathology by watching court tv shows and following news headlines because the issues are really out there for the public to see. Forensic pathology is following the general trend in medicine by moving toward and emphasizing evidence-based practice—by striving to generate scientifically reliable, reproducible and defensible products. So again, anyone paying close attention can get a good sense of how certain evidence holds up in a court of law or to scientific scrutiny from case to case.

What do you like best about your job at UI Pathology?

Lots of things. I enjoy the unique opportunity I have here to practice forensic and autopsy pathology as well as to sign out cardiac biopsies and other cardiovascular cases. I'm especially pleased with the medical education opportunities that allow me to work with both medical students and residents. This is a very collegial department, and I find that my interactions with other faculty pathologists and the residents make my job quite satisfying.

What's the most unexpected thing that's happened to you at work?

Oh, that would have to be winning the resident teaching award. During my interview here, one of the things that drew me to Iowa was the department's culture of faculty dedication to educating residents as well as medical students. Receiving the resident teaching award at the end of my first year in a department where I have colleagues who are among the best pathologists and most amazing teachers anywhere was quite humbling!

What is one thing you think your colleagues would be surprised to know about you?

I'm grossed out by mouths. Yep, examining mouths is my least favorite part of doing autopsies!

Outside of work, Dr. Firchau enjoys golfing, watching sports of all kinds, and listening to music (his tastes are wide-ranging and eclectic). Dr. Firchau can be reached at his office by calling 319-356-0885 or by email at dennis-firchau@uiowa.edu

Thank you!

Pathology Residents Express Gratitude for New iPads!

Dr. Leslie Bruch, Pathology Residency Program Director, recently approached department leaders about supplementing our pathology resident training by providing iPad technology to each resident. The department immediately responded and agreed to the proposal. The following objectives were identified for the project:

- Discover innovative training and educational uses
- Determine clinical uses within our systems
- Investigate capabilities to increase resident productivity
- Recognize opportunities for increased faculty productivity as well
- Determine potential for enhancement of resident recruitment

We are happy to report that the iPads have had an immediate and very positive impact on daily productivity and learning. A pathology resident recently wrote this note to department leaders to express their gratitude: >>>>>

> **We really appreciate our new iPads** *and I have seen many residents using them in very productive manners. Just the other day I was able to research the incidence of carcinoids of the foregut during a discussion at the Friday morning GI conference. One of the chief residents found the very article on lung cancer being presented by a faculty member and emailed it to us during the conference allowing us to see closeups of the pictures she was presenting on the screen.*
>
> *While Dr. Chris Jensen was presenting on pap smear cytology I saw more than one resident pull up the ASCCP management guidelines. I believe we are using the iPads in many ways that benefit our education and we all appreciate the gift and, dare I say, learning opportunities that the iPads provide.*

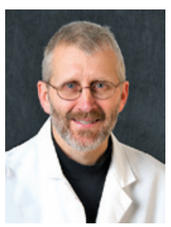
Leslie Bruch

Transition in Residency Program Leadership

As of January 1, 2012, leadership for the residency program is passing from Dr. **Leslie Bruch** to Dr. **Chris Jense**n. Dr. Bruch has been Program Director for the past four years and prior to that served as an Assistant Program Director after she joined the department in 2006. Under her stewardship the residency program has remained strong and she has been integral in bringing outstanding trainees to the department as well as working to implement changes required by the Accreditation Council for Graduate Medical Education (ACGME).

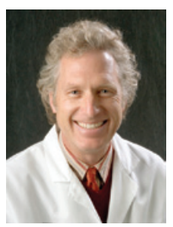
She has been actively involved in institutional GME activities, serving on many committees. In addition, she was elected to serve on the National Council of Pathology Residency Program Directors (PRODS) which serves as the leadership body that defines and refines graduate medical education in pathology. Dr. Bruch will continue to be involved in the residency program in her new role in the department as Vice Chair for Educational Affairs.

RESIDENCY PROGRAM LEADERSHIP



Program Director
Chris Jensen, MD
Residency Program
Clinical Professor
Surgical Pathology
Director of
Cytopathology

chris-jensen@uiowa.edu
319-356-3217



Assistant Program Director
Thomas J. Raife, MD
Residency Program
Clinical Professor
& Medical Director,
DeGowin Blood Center

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319-356-0369

Assistant Program Director
Yasuko O. Erickson, MD
Residency Program
Clinical Assistant Professor

yasuko-erickson@uiowa.edu
319-356-2058

2011-2012 1ST YEAR PATHOLOGY RESIDENTS

STEPHANIE STAUFFER, MD
BS - Millersville University of Pennsylvania, 2006
MD - University of Iowa, 2011

OMAR JABER, MD
MD - University of Jordan, 2009

CAROLYN ("Carly") RYSGAARD, MD
BA - University of Minnesota, 2004
MD - University of Minnesota , 2011

STEPHANIE FISCHER, MD
BS - University of Iowa, 2004
MD - University of Iowa, 2011

MARISA JACOB, MD
MD - Spartan Health Sciences University, Saint Lucia, 2011

ANNA DOLEZAL, MD
BA, BS - Drake University, 2005
MD - University of Iowa, 2011

PATHOLOGY RESIDENTS

John Blau, MD	R4
Michael Gailey, DO, *Co-Chief Resident*	R4
Guiyuan Li, MD, PhD	R4
Brian Linert, MD	R4
Joel Miron, MD, *Co-Chief Resident*	R4
Eyglo Thordardottir, MD	R4
Emilian Racila, MD	R3
Lori Sinclair, MD	R3
Thomas Wilson, MD	R3
Michelle Kurt, MD	R2
Brittany Pakalniskis, MD	R2
Erica Savage, MD	R2
Johanna Savage, MD	R2
Bryan Steussy, MD	R2
Anna Dolezal, MD	R1
Stephanie Fischer, MD	R1
Omar Jaber, MD	R1
Marisa Jacob, MD	R1
Carolyn Rysgaard, MD	R1
Stephanie Stauffer, MD	R1

PATHOLOGY EXTERNS

Amelia Gauger	M3
Kaleigh Lindblom	M2
Emily Mecklenburg	M3
Theresa Miller	M3
Mack Savage	M2
Kendall Tasche	M2

PATHOLOGY FELLOWS

Cytopathology
Sara (“Beth”) Kilborn, MD
Megan Samuelson, MD

Hematopathology
Benjamin Koch, MD

Microbiology
Daniel Marko, BMBS

Molecular Genetics
Gabriel Caponetti, MD

Surgical Pathology Fellows
Shannon Gabriel-Griggs, MD
Danniele (“Danni”) Holanda, MD
Melissa Meier, MD
Joseph Mitros, MD
Martin Potash, MD

Transfusion Medicine
Sara Shunkwiler, MD

Giving for the Future

Department of Pathology Representative for the UI Foundation

Each year, the Department of Pathology’s ability to offer outstanding care is enhanced by generous support from faculty, staff, and alumni who believe in the department and want to give back in an important way. Patients and their families also give generously to show their appreciation for care that they or their loved ones have received. These charitable gifts help maintain our tradition of world-class patient care and clinical advances by funding research, education, and special programs and projects.

I hope you will consider—in addition to making an annual gift to the department—creating a gift that will benefit the department for generations to come. I can work with you and your professional advisors to determine the type of planned gift that best suits your situation. Including a bequest in your will or trust is one way to remember the department. Naming the department as a beneficiary of part of an IRA or other qualified retirement plan is another.

If you are considering a planned gift for the UI Department of Pathology, here are a few things to keep in mind:

- **The correct legal language for a gift to the department is as follows:** To The State University of Iowa Foundation, to provide support for the Department of Pathology in the University of Iowa Roy J. and Lucille A. Carver College of Medicine.
- **Bequests are fully revocable:** We understand that your first priority in planning your estate will always be providing for your needs during your lifetime and then for your loved ones and we recognize your right to revise your plans at any time without any obligation to the college. As bequests occur only after your lifetime, you do not have to part with any of the financial resources that you may later require for your own needs.
- **Gifts payable by beneficiary designation are also fully revocable:** One type of gift that is easily overlooked, but is especially appropriate for charitable uses, involves using assets from IRA’s and qualified retirement plans. More than half of retirement plan assets could eventually end up being forfeited to taxes if left to one or more individual heirs—whereas those same assets, if left to a qualified charity, can pass to the charity completely tax-free. Naming a charity as a beneficiary of part or all of an IRA or qualified retirement plan is as simple as contacting your plan administrator to request a new beneficiary designation form. Once received, write the name of the charity along with the percentage of the plan you wish to direct to it.
- **As a member of OREF you can create an endowed fund** designating the UI Department of Pathology as the recipient – and you may be able to create your own named fund! Please contact me directly for additional information.
- **To learn more online:** Visit **www.uifoundation.org/giftplanning** for more information about charitable bequests and gifts of retirement plan assets.

Making a planned gift to the department can help you in your own financial planning, and your gift ensures a better future for all those who receive care through the Department of Pathology.

For additional information about how planned gifts can advance the work of the department, contact Shelly J. Mott the UI Foundation’s Associate Director of Development, Roy J. and Lucille A. Carver College of Medicine/University of Iowa Hospitals and Clinics, at **shelly-mott@uiowa.edu**, or by phone at 319-335-3305 or 800-648-6973.

To make a gift for the college online, go to **www.givetoiowa.org/pathology**

Shelly J. Mott
Director of Development, Roy J. and Lucille A. Carver College of Medicine/ University of Iowa Hospitals and Clinics, The University of Iowa Foundation

These charitable gifts help maintain our tradition of world-class patient care and clinical advances by funding research, education, and special programs and projects.

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OF MEDICINE
University of Iowa Health Care

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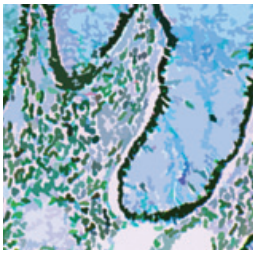
INSIDE THIS ISSUE

Meet faculty member **Dr. Aaron Bossler.**



KRAS Mutations Guide Treatment

New Technology helps residents with training.

PATHBEAT

The Newsletter of the Department of Pathology
University of Iowa Carver College of Medicine

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