

# Heads Up

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## PRAZMA:

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# Father of ENT Research at UNC

by Joseph W. Hall, PhD

**D**r. George Prazma “mostly” retired from our department about seven years ago. It would be hard to tell that by examining his academic productivity, however, as he continues to make outstanding research contributions to the field of Otolaryngology. Of special importance to us, he continues his long history of helping our medical students and residents acquire the research skills that they need to launch their academic careers. For these reasons and many more, we can say that Dr. Prazma is the Father of ENT Research at UNC.

Before bringing you up to date on what’s new with Dr. Prazma, it is worthwhile first to consider some of his history, because his is a far from average story. He joined our faculty in 1969, arriving from the former Czechoslovakia. Although Dr. Prazma loved (and still loves) his homeland, he was not fond of the communists who had taken over his country soon after World War II. He became particularly dissatisfied on August 21, 1968, when Soviet tanks rolled in to Prague in order to quell the rising Czech aspirations for freedom. At this moment, he was a young, gifted, highly trained physician/scientist and a member of the Czech Academy of Sciences, but realized that there was little chance of fulfilling his intellectual potential under the oppressive conditions that had suddenly taken a turn for the worse. He therefore looked into the possibility of relocating to the West, where the climate was more favorable for scientific inquiry and academic freedom. Getting the green light from Dr. Newton Fischer, then the Chief of the Division of Otolaryngology/Head and Neck Surgery at UNC, Dr. Prazma and his wife Tamara set a course for Chapel Hill.

Dr. Fischer provided friendship and support for the Prazmas, and Dr. Prazma was soon on his way to developing a topflight hearing research laboratory. Over the years, many of the ENT faculty have collaborated closely with Dr. Prazma, including the legendary Paul Biggers. When Dr. Pillsbury assumed leadership of the program in 1983, he developed a close association with Dr. Prazma, and they rapidly became a formidable team, attracting some of the most talented medical students and residents in the country. Dr. Prazma consistently showed an ability to frame



important scientific questions in ways that could be tackled within the relatively compressed timeframe available to the young researchers. The trainees tended to wind up not only with publications, but also with top prizes for outstanding presentations at national meetings. Over the past thirty years, Dr. Prazma has helped to train an enormous number of students and residents, many of whom have pursued careers in academic medicine. This list includes Amelia Drake, Jim Sidman, Vinnie Carrasco, Gaelyn Garret, Lianne de Serres, Greg Hulka, Tim Smith, Carlton Zdanski, Kris Rosbe, Andy Lane, Austin Rose, Raymond Cook, Rob Labadie, Brian Jewett, Brian Downs, David White, and Carlos Ebert, among others. Most projects have investigated physiological mechanisms related to hearing, and have dealt with a wide range of topics including active ion transport, cochlear blood flow, effects of diabetes on hearing, and mechanisms of hair cell loss. Dr. Prazma has published over 100 papers in peer-reviewed journals.

Dr. Prazma's latest research passion deals with a problem that causes hearing difficulties in many young children, otitis media with effusion (OME). Although the hearing loss associated with OME is reversible, it can be quite persistent and can cause problems that may not fully resolve until adolescence. Dr. Prazma is working on the idea that many instances of this hearing problem may be due to an allergy-induced inflammation that causes the Eustachian tube dysfunction underlying OME. The most exciting aspect of this research is that it is testing whether immune modulatory oligonucleotides (IMO) can be used to control such allergic inflammations. This could open the door to new treatments for a number of problems associated with allergy-induced airway inflammation. Not surprisingly, Dr. Prazma has involved young researchers in all of the studies investigating this new area. Among these researchers are Drs. Carlos Ebert, Deidra Blanks, and Rose Eapen, all of whom are residents in our NIH-supported Research Training Program directed by Dr. Paul Manis.

This latest research track sounds like great fun, but you may be wondering what else a "mostly" retired gentleman scientist does to keep himself entertained. Well, he and Tamara are finding more time for travel. They've recently visited South America, Europe, Scandinavia, Japan, and Alaska. He has maintained his fascination with the natural world - his dogs, fish, and botanical wonders in his greenhouse. Few people know that he's a talented artist, working with acrylics to create big, colorful abstract paintings, which are displayed all over his house. He has two beautiful grandchildren, Daniel and Matthew. All in all, Dr. Prazma seems to be doing very nicely, indeed.

## Chair's Corner



I always love this time of the year. Our residents who've just left all went to wonderful fellowships and the new residents are awesome. We've added two new faculty members: Adam Zanation, newly finished from a skull base-rhinology fellowship, and Esa Bloedon, who just completed his residency and will be at Wake Med. Part of the joy of this "season" is the success we've had in research, which is well documented in this issue of *Heads Up*.

Again, I welcome anyone to visit us and see what our Department is doing. I think you will have renewed faith in the future of medicine if you do so!

Harold C. Pillsbury, MD  
Department Chair

## Farewell to Fellowship-Bound Chiefs

In keeping with our annual tradition, the four chief residents who completed their training in 2008 were roasted following a dinner held in their honor on June 7th. The junior residents had plenty to tell, and Dr. Pillsbury lavished on the praises for the superb residents they each proved to be, sending them on their way to fabulous careers in Otolaryngology.

Steve C. Lee, MD, PhD, went to the University of Pittsburgh Medical Center to do a combined two-year fellowship in Head and Neck Oncologic Surgery and Skull Base Surgery.

Karen A. Bednarski, MD, is doing a fellowship in Rhinology with Dr. Fred Kuhn at the Georgia Nasal and Sinus Institute in Savannah.

Joshua C. Demke, MD, went north to Syracuse, New York, to begin a fellowship in Facial Plastic/Reconstruction at SUNY Upstate with Drs. Robert Kellman and Sherard Tatum.

Jeffrey B. LaCour, MD, is starting with a one-year fellowship at Pittsburgh Ear and Associates, followed by a year of Rhinology with Dr. Fred Kuhn at the Georgia Nasal and Sinus Institute in Savannah.

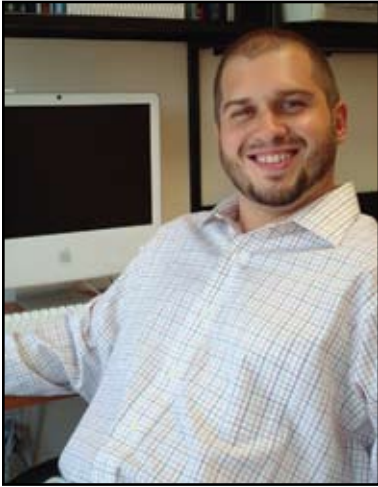


Left to right: Steve C. Lee, MD, PhD; Karen A. Bednarski, MD; Joshua C. Demke, MD; Jeffrey B. LaCour, MD

# What's New This Summer?

## Two Assistant Professors:

**A**dam M. Zanation, MD, is a fellowship-trained clinical and surgical specialist in the field of Skull Base Oncology and Surgery. He earned his MD with highest honors in 2002 from the University of North Carolina School of Medicine. He completed residency training in Otolaryngology/Head and Neck Surgery at UNC in 2007. He then went on to complete a fellowship in Skull Base Surgery and Skull Base Oncology at the University of Pittsburgh Medical Center.



Dr. Zanation began his appointment as Assistant Professor on July 7, 2008. His practice is dedicated to the diagnosis and

treatment of head and neck and skull base tumors, incorporating minimally invasive and endoscopic technologies, while prospectively evaluating outcomes and quality of life in patients treated with these methods.

**E**sa A. Bloedon, MD, earned his MD with honors (*magna cum laude*) from Thomas Jefferson Medical College in Philadelphia. He then completed his residency training in Otolaryngology at Thomas Jefferson University Hospital. Dr. Bloedon began his practice in Otolaryngology on July 22, 2008, at WakeMed Faculty Physicians ENT-Head and Neck and Facial Plastic Surgery, joining Drs. Ferguson, Dorfman, and Cook.



Dr. Bloedon's clinical interests are broad, but he particularly enjoys the areas of thyroid and parathyroid disease, rhinology, and otology. His research interests

include the pathophysiology of otitis media, specifically the role of pepsin in otitis media, and sentinel lymph node biopsy in the head and neck employing lymphosonography.

## Four Residents:



**F**our outstanding residents have joined our program to begin training in Otolaryngology. Left to right: **Jessica A. Kehren, MD** (Uniformed Services University of the Health Sciences, Bethesda, MD); **Yu-Tung Wong, MD** (Case Western Reserve University School of Medicine, Cleveland, OH); **Scott Shadfar, MD** (University of Oklahoma College of Medicine, Oklahoma City, OK); and **Kibwei A. McKinney, MD** (University of Pennsylvania School of Medicine, Philadelphia, PA). Dr. McKinney is in the 7-year Research Track.

## And an Office Building:



**T**he new Physicians Office Building opened in May of 2008. Located at 170 Manning Drive, with a pedestrian walkway connecting to the new North Carolina Cancer Hospital (nearing completion), this \$22.5 million project is part of UNC's enormous capital construction program. We moved in on June 27th and are thrilled to have all of our faculty and administrative offices together in one place, in addition to office space for residents and researchers, as well as two conference rooms.

# Roche Studies Synaptic Plasticity for Insight into Auditory Learning and Memory



Dr. Roche in the Manis Lab

**J**oseph Roche, MD (PGY-2) is currently working with Paul Manis, PhD, and his laboratory group studying central auditory system processing and plasticity. Dr. Roche will be completing a two-year research rotation as part of the Research Track Residency Program funded by a NIH T32 Training Grant. Dr. Manis is the Principal Investigator and the Chief of the Division of Research Training and Education.

Synaptic plasticity and the mechanisms behind these phenomena is one of the most heavily investigated areas in neuroscience. Plasticity allows neurons to enter into or leave existing neuronal circuits and as such, has an integral role in stimulus processing,

learning and memory. Spike timing dependent plasticity (STDP) is one important mechanism underlying synaptic plasticity by which the strength of synaptic relationships is modulated by the timing difference between presynaptic input (in the form of EPSPs or IPSPs) and postsynaptic target cell action potentials. This phenomenon has been well described in other cortical areas, namely visual and somatosensory cortices, but to date no significant investigation of the phenomena in the primary auditory cortex (A1) has been published. There are many reasons why STDP may exhibit unique rules and mechanisms in the A1.

Manis and Roche were fortunate to receive the ANS/AAO-HNSF Herbert Silverstein Otolaryngology and Neurotology Research Award that will fund investigations into the rules and mechanism of STDP in the auditory cortex. The first set of experiments will attempt to define the STDP window, including the effects of spike timing on magnitude and polarity, of synaptic connections between layer 2/3 A1 pyramidal cells. This will be accomplished using rodent brain slices and whole cell clamp recording techniques. Once the timing window is defined, a second set of experiments will examine this window over time in an attempt to identify if a critical period during development exists. A third set of experiments will examine the impact of sensorineural hearing loss via surgical cochlear ablation on the STDP timing window. Understanding the circuitry, molecular mechanisms and rules of STDP in auditory cortex will drive future work on how hearing loss changes plasticity in auditory cortex, providing further insight into the pathophysiology of hearing loss and hearing restoration.

Dr. Roche grew up in Winona, Minnesota, where he attended college and met his wife, Sherell. He attended medical school at The Medical College of Wisconsin, graduating in 2007. He plans a future career as an academic Otolaryngologist and active surgeon-scientist.

## Buss, Grose, Hall Invited to Present in Paris

**P**sychoaoustic Research Scientists Drs. Emily Buss, John Grose, and Joe Hall traveled to France in June to attend Acoustics'08 Paris, organized by the Acoustical Society of America, The European Acoustics Association, and the Société Française d'Acoustique. They had been contacted by two session chairs to present topics of particular interest, based on their published works. The meeting brought together over 4000 experts from all fields of Acoustics from around the world. In addition, the conference was highlighted by a large exhibition covering all areas of Acoustics. Drs. Buss, Grose, and Hall co-authored their presentations, "Across-frequency integration of speech information in listeners with sensorineural hearing loss" and "The importance of temporal fine structure coding for speech perception in listeners with sensorineural hearing impairment as compared to normal hearing listeners."



Drs. John Grose, Emily Buss, and Joe Hall tour Montmartre

# Stadler Contributes to Anti-Tumor Vaccine Research



Dr. Stadler at the ENT Clinic at Carolina Pointe

**M**ichael Stadler, MD (PGY-3) recently finished his 6-month research block working in conjunction with the laboratories of Dr. Marion Couch and Dr. Jonathan Serody. His basic science research project, funded by an American Academy of Otolaryngology-Head & Neck Surgery (AAO-HNS) CORE grant, involved investigation into the effects of Toll-like receptor 4 (TLR-4), and various immune effector cells, on the efficacy of a whole cell, HER-2/neu expressing, GM-CSF secreting anti-tumor vaccine.

Toll-like receptors are a group of pattern recognition receptors that have been shown to play an integral role in the induction of the host pro-inflammatory reaction associated with both innate and adaptive immunity. In the vaccination process, it seems logical to create a sensitization scheme where signals simulating microbial infection are supplied so that the immune system is stimulated into responding as if it is under microbial attack, and will therefore respond to vaccination with increased vigor. This rationale supports the use of immunostimulatory agonists such as TLRs. This stimulation helps antigen presentation in a pro-inflammatory context to vigorously attract antigen presenting cells and other immune modulatory components. Prior murine studies have shown that genetically modified tumor cells used as immunotherapy can prevent and/or significantly delay tumor growth after challenge.

During Dr. Stadler's six months on the project, three separate rounds of experiments, with a total of 240 mice, were carried out.

All three experimental runs showed varying degrees of tumor presence and tumor growth among the various murine subgroups and controls. However, it was clear that the mice treated with vaccine showed significant efficacy in delaying and/or preventing tumor formation. TLR-4  $-/-$  mice and wild type mice (TLR-4  $+/+$ ) showed no significant differences in terms of response to the tumor vaccine. Flow cytometry was run on spleen, draining lymph nodes (DLNs), and tumor specimens to further characterize the roles of the effector cells involved in the response to the vaccine. This complex data is currently being analyzed to further assess the roles of MDSCs, Tregs, as well as CD4+ and CD8+ cells. Real-time PCR, as well as Immunofluorescopy will be carried out on the procured tissues in the near future as well.

In addition to his main basic science research project, Dr. Stadler also has been working with Dr. Denis Guttridge at Ohio State University, and will soon be submitting a publication entitled "Chemotherapy-Induced Muscle Wasting: Association with NF-kB and Cancer Cachexia." He also worked closely with Dr. Mihir Patel (PGY-3) on a recently submitted review paper in the Hematology/Oncology Clinics of North America journal titled "The Molecular Biology of Head and Neck Cancer" under the direction of Dr. Marion Couch and Dr. Neil Hayes. Other projects that were started include a review of the UNC experience of Mucoepidermoid Carcinoma of the salivary glands, as well as a retrospective review looking at Connexin 26 testing and temporal bone imaging in children with hearing loss.

Dr. Stadler is a native of Milwaukee, Wisconsin, and spent his undergraduate and medical school years training at the University of Wisconsin in beautiful Madison. He came down to North Carolina with his fiancé, who is currently doing her residency training in the Department of Ophthalmology here at UNC as well. His current plans are to pursue a career as an academic head and neck oncology surgeon with a focus on both clinical and translational research.

## We're in the News!

**T**he North Carolina Children's Airway Center has been ranked 7th in the nation among the top 30 children's hospitals caring for children with respiratory disorders by *US News & World Report* in their 2008 issue of America's Best Children's Hospitals. Dr. Carlton Zdanski is the Surgical Director of this multidisciplinary center. Drs. Amelia Drake and Austin Rose are among the many who share in the care of pediatric patients with airway disorders.



# 5 Questions for Carlos Ebert, MD

## 1 Dr. Ebert, you've been here at UNC for 20 years. What's the story?

Although I would like to say that 20 years is an exaggeration, it is true. I enrolled at UNC in 1987 as an undergraduate. After five



years (including one year in Spain), I graduated with degrees in Political Science and Spanish. After another stint in Spain, I returned to the US wanting to use my knowledge of Spanish. In late 1993, I was hired as the Spanish interpreter at UNC Hospitals. During this time I became interested in medicine, and Dr. Carrasco and Dr. Pillsbury encouraged me to pursue a career in medicine and to apply to medical school.

After 3 years of post-baccalaureate (pre-med classes), I applied to medical school and was accepted at UNC. After five more years (including a Master's of Public Health), I graduated and ultimately began my career as an otolaryngologist (the first resident of the research track). Six years later, here I am. Whew!

## 2 What made you decide to train in Otolaryngology?

Well, as I mentioned previously, my first physician mentors/role models were Otolaryngologists (Drs. Carrasco and Pillsbury). Their support was something I did not forget. I also frequented the old ENT clinic on the 2<sup>nd</sup> floor of Memorial Hospital to provide interpreting services to the ENT residents (Drs. Buckmire and Zdanski to name of few). I always liked working with the ENT residents and faculty. Once in medical school, my ENT rotation served to solidify my decision to become an Otolaryngologist. I fondly remember the eagerness of the residents and faculty to teach and involve the students in repairing facial lacerations, draining peritonsillar abscesses, and performing T&As. I then took a year off from medical school to do research with Drs. Fitzpatrick and Prazma and obtain a Master's of Public Health in Epidemiology. And the rest is history...

## 3 What was your experience as a resident in the research track, working with the research faculty?

As any pioneer, being the first research resident was not without some logistical hurdles. But, overall I had a great experience. I worked closely with Drs. Fitzpatrick, Zdanski, Finley, and

Prazma during my research time. It is difficult to quantitatively describe everything I gained from this experience. However, to put a number on my time, I was able to be involved with publishing more than 15 peer reviewed articles since starting residency. I truly feel that investigating hypotheses, writing grants, and presenting at meetings furnished me a foundation of skills and experience that will be vital for a career in academic medicine.

## 4 Do you have any advice for the residents who are beginning their training with us this summer?

My advice to those beginning their training is this: You all have earned a tremendous opportunity to work with an amazingly brilliant and dedicated faculty. Make the most of this opportunity. Have fun, work hard and in the end all your goals will be attainable. With this in mind it will not be too far fetched to follow Thornton Wilder's advice: "Seek the lofty by reading, hearing and seeing great work at some moment every day."

## 5 You're entering your final year of residency. In what area of Otolaryngology do you want to specialize?

Rhinology. I am planning to spend time next year in Savannah, Georgia, with Drs. Frederick Kuhn and Christopher Melroy refining and augmenting the outstanding training I have received thus far. When I think back it is hard to express the gratitude I owe to Drs. Senior, Drake, and Pillsbury, who have been very supportive of the development of my interest in rhinology and my academic career.



Dr. Ebert sutures after cochlear implantation

# Coming in 2009: Pediatric Otolaryngology Fellowship

Over the past few years, the demand for pediatric ENT services within our Department has grown exponentially. While meeting this demand has been challenging, it has also created significant learning opportunities, both in terms of clinical experience and surgical cases. To address this need, the Department now offers a one-year Pediatric Otolaryngology Fellowship and just matched its first candidate, Dr. Laura Rosenthal, who will begin in July of 2009. Dr. Rosenthal will join us after completion of her residency at the Henry Ford Hospital in Detroit, Michigan.

“As our Division grows, I think there is a clear opportunity for excellent training at the fellow level,” says Dr. Austin Rose, Director of the Pediatric Otolaryngology Fellowship Program. As home to a free-standing Children’s Hospital, Pediatric Airway Center, Craniofacial Center and Pediatric Cochlear Implant Program, UNC offers many ways for pediatric otolaryngologists entering the field to get involved and expand upon their residency training.

In addition to clinical responsibilities, there will also be opportunities for research, as well as rotations in pediatric anesthesia, pediatric pulmonary medicine and pediatric genetics. With three full-time faculty and approximately 2000 cases per year in the Children’s Hospital OR and Ambulatory Care Center outpatient operating rooms, the position offers a great deal of clinical and operative experience. As the only



Fellowship Director Dr. Austin Rose kids around with two of his patients, a brother and sister.

pediatric ENT fellowship in the state, the program should help to bolster the Division’s position as the premier group for pediatric otolaryngology training in North Carolina.

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## Finley Receives International Recognition



Left to right are Professor Abdelhamid Benghalem (conference host), [name unknown], Charlie Finley, and Patrick Boyle, Director of Clinical Research Europe for Advanced Bionics

On March 8, 2008, biomedical engineer Charlie Finley, PhD, received the award for Best Oral Presentation at the 8th Advanced Bionics European Investigators’ Conference held in Marrakech, Morocco. This is an annual conference of European clinical and basic science investigators using the Advanced Bionics cochlear implant system. Two investigators from the USA, including Finley, were invited to participate and present their research this year. Finley’s presentation, “Alternative fitting strategies based on peripheral electrode position”, described his work with collaborators at Washington University in St. Louis in determining how surgical variability in placement of intracochlear electrodes influences speech recognition outcomes. He further described how knowledge of electrode placement can be utilized to significantly improve individual patient performance by modification of speech processor fitting.

Questions, comments, or suggestions about Heads Up?  
Contact Elizabeth Perry, [eaperry@med.unc.edu](mailto:eaperry@med.unc.edu),  
or 919-260-9002.

The Department of Otolaryngology/Head and Neck Surgery is proud of its skilled faculty and staff who are committed to providing patients with the highest quality health care. Get to know us!

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William W. Shockley, MD, FACS, Vice Chair, W. Paul Biggers Distinguished Professor of Otolaryngology/Head and Neck Surgery  
Carolyn Hamby, Clinical Academic Departmental Administrator

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Marion E. Couch, MD, PhD, FACS, Associate Professor  
Xiaoying Yin, MD, Assistant Professor  
Adam M. Zanation, MD, Assistant Professor  
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Austin S. Rose, MD, Assistant Professor

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John H. Grose, PhD, Professor  
Emily Buss, PhD, Associate Professor  
Charles C. Finley, PhD, Associate Professor  
Douglas C. Fitzpatrick, PhD, Assistant Professor  
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Brett E. Dorfman, MD, Assistant Professor  
Raymond D. Cook, MD, Assistant Professor  
Esa A. Bloedon, MD, Assistant Professor

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#### **Residents:**

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Carlos S. Ebert, MD, MPH

Gregory J. Basura, MD, PhD  
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