PROGRAM DESCRIPTION

OBJECTIVES
The Head and Neck Fellowship is a comprehensive one year fellowship, encompassing a full spectrum of Head and Neck Oncology, interdisciplinary management of head and neck cancer patients, with clinical research involvement.

CLINICAL FOCUS
- Head and Neck Oncologic Surgery
- Microvascular Reconstructive Surgery
- Skull Base Surgery (anterior & lateral), including endoscopic approaches to the skull base
- Minimally Invasive Endocrine Surgery
- Transoral Laser Surgery of Larynx and Oropharynx
- Transoral Da Vinci Robotic Surgery of Larynx and Oropharynx
- Management of skin cancers, including melanoma, and sentinel lymph node biopsy
REQUIREMENTS

Admission to the fellowship is contingent upon completion of one of the ACGME-approved residencies in otolaryngology, plastic surgery or general surgery and eligibility to sit for board examination in applicant’s respective specialty. All applicants must be eligible for a medical license in the state of Kansas.

OVERVIEW

The University of Kansas Medical Center is a 576-bed hospital with a 20-bed Surgical Intensive Care Unit and a 28-bed OTO-HNS Ward. The patient accrual area includes all of Kansas and part of western Missouri. All patients are presented prospectively at the multidisciplinary weekly Head and Neck Oncology Tumor Board to obtain a consensus opinion on treatment. This is the busiest Tumor Board at the Medical Center, with more than 300 new head and neck cancer cases presented each year. A multidisciplinary Thyroid Tumor Board is held monthly to discuss new thyroid malignancy patients. Currently, three Da Vinci Si Robotic systems are available to surgeons at The University of Kansas Hospital Operating Room.

DUTIES AND RESPONSIBILITIES OF TRAINEES

The Head and Neck Fellow will be appointed as a Clinical Instructor at the Department of Otolaryngology–Head & Neck Surgery. The Fellow is expected to be involved as a primary or assisting surgeon in all microvascular reconstructive cases as well as skull base cases. On each particular rotation, the Fellow will follow the pre-operative as well as post-operative course of the head and neck cancer patients. The patients will be discussed with the attending physician in a manner to maximize a teaching experience for the Fellow, while encouraging increasing autonomy and responsibility.

The Fellow will also have didactic teaching responsibilities including resident/medical student lectures and two presentations at Grand Rounds. He/she will be expected to act as a teaching physician to a resident during the more straightforward part of a complex head and neck resection, or routine cases such as uncomplicated neck dissections, thyroidectomies or parotidectomies.

The Head and Neck Fellow will attend the “Introduction to Clinical Research” course at the School of Medicine. The Fellow is expected to complete a research project to be presented at a national meeting as well as submitted for publication. Travel support is available for the Fellow to present his/her research.
STRENGTHS OF THE PROGRAM

Our high clinical volume program creates an ideal combination of supervision and autonomy, preparing fellows for an independent career in academic Head and Neck Surgery and microvascular reconstruction. Strengths of the training program include:

1. Microvascular animal laboratory dissection course to be completed at the beginning of the fellowship

2. “Introduction to Clinical Research” course, which is administered by the School of Medicine and runs from August to December. This course is free to faculty and fellows, and may be taken for a grade or a certificate. A certificate is given after completing a research proposal, written as a short version of a grant proposal

3. Multiple conferences including intra-departmental Grand Rounds/teaching conferences, annual three-day winter CME meeting in Colorado, biannual AO courses on principles of maxillofacial trauma and reconstruction, two-day endoscopic thyroid dissection course and annual alumni day research conference

4. One day a week (two half-day sessions) will be devoted to elective time and research time. The Fellow will complete electives in Nuclear Medicine, Radiation Oncology, Medical Oncology and Head and Neck Radiology.

5. Kevin Sykes, PhD, MPH, Director of Clinical Research at the Department of Otolaryngology, is a great resource for the H&N Fellow in terms of help with IRB submission, statistical analysis, clinical trial design and administration, getting started with new study protocols as well as preparing poster and oral scientific presentations

6. Opportunity for the Fellow to participate in a medical mission trip in a developing country, with department faculty and residents.
<table>
<thead>
<tr>
<th>TYPE OF CONFERENCE</th>
<th>FREQUENCY</th>
<th>ROLE OF FELLOW</th>
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<tbody>
<tr>
<td>Multidisciplinary Head and Neck Tumor Board</td>
<td>Weekly</td>
<td>Present and discuss patient management</td>
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<tr>
<td>Thyroid Tumor Board</td>
<td>Once a month</td>
<td>Present and discuss patient management</td>
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<tr>
<td>Monday Teaching Conference</td>
<td>Once a week</td>
<td>Give two lectures or Grand Rounds per year and attend H&amp;N related lectures</td>
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<tr>
<td>Head and Neck Journal Club</td>
<td>Twice a year</td>
<td>Discuss current H&amp;N articles</td>
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<tr>
<td>Head and Neck Pathology Conference (Presented by the Pathology faculty member)</td>
<td>Every 2-3 months</td>
<td>Learn, participate in discussing pathology cases</td>
</tr>
<tr>
<td>Head and Neck Radiology Conference (Presented by radiology faculty member)</td>
<td>Every 2-3 months</td>
<td>Learn, participate in discussing pathology cases</td>
</tr>
<tr>
<td>Hard Tissue Course (Presented by AO teaching faculty)</td>
<td>Biannual 2-day conference</td>
<td>Learn principles of maxillofacial trauma and repair, supervise residents during hands-on exercises</td>
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<tr>
<td>Winter Conference, Copper Mountain, Colorado</td>
<td>Annual 3-day conference retreat</td>
<td>Learn about Core Competencies, attend lectures by invited speakers</td>
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<tr>
<td>Alumni Day Research Conference</td>
<td>Annual one-day conference</td>
<td>Present a research project, attend other lectures and presentations</td>
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RESEARCH

DRUG DISCOVERY AND DEVELOPMENT

Collaborative efforts between the highly ranked School of Pharmacy at the University of Kansas and several regional partners, including the Stowers Institute of Medical Research, provide the strength for innovative discoveries in oncology treatment. KU has strong capabilities in high throughput screening, combinatorial chemistry, bioinformatics, structural biology, imaging, analytical and process chemistry in large part due to three NIH funded grants. Committed to gaining knowledge in the lab and translating discoveries to the clinic allows Kansans access to emerging therapies through the clinical trials program.

Improving access to these clinical trials is the key driver in the University’s plan for delivering comprehensive cancer care and achieving NCI designation. In order to improve this access, infrastructural developments committed to the management and development of clinical trials are a significant part of the KU Cancer Center. The Cancer Center manages seven shared core facilities that support the research programs and member investigators. These resources include: Biospecimen, Biostatistics, Biotechnology Innovation and Optimization, Clinical Trials Office, Drug Discovery and Development Project Management, Flow Cytometry, and High Throughput Screening.

CLINICAL TRIALS

The Department of Otolaryngology at the University of Kansas is committed to offering its patients the most advanced therapies available in all of the Otolaryngology sub-specialties. The Director of Clinical Research serves as the key facilitator for the development of new investigator initiated trials and participation in multi-center trials. Assistance
is available for all aspects of clinical trials including: protocol development, statistical analysis, clinical research coordination, regulatory document management, Institutional Review Board compliance management, and poster/manuscript preparation.

Over the last several years the department has participated in numerous clinical trials and continues to provide opportunities for patients to enroll in prospective trials for various diagnoses. Specifically for our Head and Neck patients these trials have included innovative therapeutics, quality-of-life assessment, and supportive care interventions. We are excited to establish a new program in Head & Neck Basic Science Research. Dr. Sufi Thomas from the University of Pittsburgh joined us in July 2013 to lead the program.

**Overview of the Translational Research Work in the Laboratory of Dr. Sufi Thomas**

Despite improvements in conventional therapies, head and neck cancer continues to be a major challenge with poor 5-year survival rates. Dr. Thomas’ main focus has been to understand the biological mechanisms involved in head and neck squamous cell carcinoma (HNSCC) progression and to develop effective therapeutic interventions. In order to better understand HNSCC biology, it is important to examine the supportive environment that the tumor cells exist in. Several non-tumorigenic cells constitute the cellular stromal environment surrounding the tumor including fibroblasts, immune cells, cells that form blood vessels (endothelial cells and pericytes) and neuronal cells. Fibroblasts are the most abundant stromal type in HNSCC. Emerging evidence demonstrates molecular cross talk between HNSCC and fibroblasts that increase tumor growth, invasion into surrounding tissue and metastasis. Dr. Thomas is in the process of identifying signaling molecules involved in the cross-talk between HNSCC and fibroblasts in order to block tumor growth and metastasis. The finding from these studies has tremendous potential in target identification and therapeutic development. One of the impediments to cancer therapy is the lack of inhibitors specific to emerging molecular targets.

Gene therapy with antisense oligonucleotides can be used to specifically target molecules that are important for tumor growth. Dysregulation of growth factor receptors including the epidermal growth factor receptor (EGFR) in HNSCC results in a promotion of growth. Several EGFR inhibitors currently in clinical trials that inhibit receptor activation and function have demonstrated limited antitumor efficacy. An alternate approach is to reduce the levels of the EGFR protei using antisense gene therapy. Although intra-tumoral administration of EGFR antisense gene therapy has been demonstrated to have antitumor efficacy in a phase 1 clinical trial, intratumoral injections are not a viable route of administration for tumors that are metastatic or difficult to access. Traditional antisense DNA or RNA based molecules cannot be administered systemically due to rapid degradation by serum enzymes. To circumvent this problem, we have developed antisense agents with a pseudo-peptide backbone called guanidinium-peptide nucleic acid (GPNA). This novel class of molecules is resistant to enzymes in serum and has a strong affinity for complementary DNA and RNA sequences. We have designed a GPNA antisense oligomer complementary to EGFR mRNA (EGFRAS GPNA). EGFRAS GPNA treatment results in tumor growth inhibition on systemic delivery in animal models. Identification of other targets with therapeutic potential that lack specific inhibitors is currently underway. This method of systemically delivered antisense oligonucleotides holds immense potential for personalized cancer therapy.

**Potential Opportunities for Laboratory Research:** Residents and Fellows are encouraged to participate in basic science or translational research pertaining to the main focus areas of the laboratory.
ADDITIONAL RESEARCH FACILITIES

The Auditory and Vestibular Neuroscience (AVN) laboratory for the Department of Otolaryngology-Head & Neck Surgery is located in the new Kansas Life Sciences Innovation Center, a 205,000 square foot research facility that was completed in November of 2006. Within the AVN laboratory are facilities for small animal surgery, recording of auditory evoked potentials, histological tissue processing and light microscopy, standard molecular biological methods, and tissue culture. In addition to facilities within our departmental laboratory, core facilities around the Medical Center are readily available. These include state-of-the-art confocal and electron microscopes, laser capture microdissection equipment, microarray and bioinformatics core facilities, as well as an array of imaging and behavioral analysis core services offered through the Kansas Intellectual and Developmental Disabilities Research Center (KIDDRC).

The AVN laboratory is located in the state-of-the-art, Kansas Life Sciences Innovation Center (KLSIC). The AVN laboratory was originally established by Dr. Durham to investigate biochemical and anatomical changes in central auditory neurons following manipulation of peripheral auditory input. The laboratory research has expanded to include central mechanisms of tinnitus, avian and mammalian hair cell regeneration, and the use of viral vectors to promote restoration of vestibular function. The laboratory is fully equipped for physiology, and houses two soundproof booths. It has equipment for controlled noise exposure to laboratory animals, as well as equipment for measuring auditory evoked potentials and otoacoustic emissions.

Several institutional facilities supplement the department resources. These facilities include a core laboratory for molecular biology that contains equipment for RNA and DNA analysis, PCR, in situ hybridization, and gene chip microarray analysis. Additionally, there is a microscopy center with three new confocal microscopes, and an imaging center for preparation of digital posters and other graphics. The Kansas Intellectual and Developmental Research Center (KIDDRC) has a fully equipped histology laboratory. The KIDDRC facility houses two transmission and one scanning electron microscope, and employs two technicians to manage the facility and to prepare tissue samples. Adjacent to KLSIC, an AAALAC-approved animal facility provides veterinary support and housing for research animals, as well as common-use procedure rooms for small animal surgery, including microvascular dissection surgery.

The Director of Clinical Research, Kevin Sykes, PhD, MPH, facilitates clinical research projects. Fellows are encouraged to participate in prospective and retrospective projects in collaboration with OTOHNS faculty. Some retrospective projects are accomplished during clinical rotations and often involve chart reviews or case reports. Research ideas should be presented to Dr. Sykes prior to study initiation for assistance with research design and Human Subjects Committee (HSC) submission. Following HSC approval, Dr. Sykes assists residents, fellows and faculty with subject recruitment, study coordination, database design, data analysis, presentation of findings, and publication of research.
INTERNATIONAL OUTREACH

The Department of Otolaryngology-Head and Neck Surgery has long supported medical work overseas starting in Nepal and Kyrgyzstan in the 1990’s. Over the last decade, the Department has supported participation from multiple faculty and residents in medical mission trips to Mexico, the Philippines, Africa, and Guatemala. The Department helped found the mission to Antigua, Guatemala in 2004, which has become an annual tradition involving over 70 participants, completing an average of 80 surgeries and over 600 patient visits in just six days.

It is the goal of the Department for every willing resident and fellow to participate in a medical mission trip during the senior years of residency or fellowship training, with the expectation of continued involvement after graduation.
FELLOWSHIP RESOURCES

There is access to computer facilities with word processing, statistical analysis, and reference retrieval. Facilities for image analysis and graphics are supplemented by extensive multimedia facilities, including a large format poster printer in the MRRC. The KUMC computer network provides email and Internet access, as well as access to the library's medical literature database. The Department library is stocked with recent textbooks and journals. This is supplemented by the comprehensive KUMC Dykes Library, which has undergone a recent renovation and now has an updated computer-based search, along with student classrooms and testing rooms.

The KU Hospital and our Department’s outpatient clinic employ an electronic medical record created by EPIC which is called O₂ (Optimal Outcomes). This system is designed to link the entire KU Medical Center enterprise into one record. The call room is located on OTOHNS Ward 53, which also has an OTOHNS treatment room, stocked with a microscope and endoscopes for performing inpatient consultation exams and procedures, which minimizes the need to transport patients to the outpatient clinical area.

The University of Kansas Physicians new Medical Office Building opened in July 2011 which includes more than 180 exam rooms. The Otolaryngology clinic has 18 exam rooms, a procedure room, a new fully equipped audiology suite, many computer stations and several conference rooms. Among hospital services at the new facility, Radiology operates an outpatient diagnostic center on the second floor. It includes MRI, CT, digital radiography and ultrasound. The lab has an outpatient draw center on Level 1 consisting of eight draw stations, with expansion available.
ABOUT KANSAS CITY

The greater Kansas City metropolitan area combines many municipalities on both sides of the Kansas and Missouri state line, encompasses five counties, and has a combined population of 1.9 million people. For the sports enthusiast, KC is home to many professional sports teams—Sporting KC (soccer), the Royals (baseball), and the Chiefs (football). Kansas City is only 40 miles away from Lawrence, Kansas and the 2008 National Championship KU basketball team and the 2008 Championship Orange Bowl team.

The cultural and performing arts are in full bloom in KC with outdoor theaters like the Starlight Theater in Swope Park and the Shakespeare festival held every summer in Southmoreland Park. The newly completed Kauffman Center for Performing Arts hosts national touring companies and houses multiple performance halls, the Kansas City Ballet, the Kansas City Symphony and the Missouri Repertory Theater. The Nelson-Atkins Art Museum is continually ranked as one of the nation’s top art museums. The Kemper Museum of Contemporary Art is just a block away from the Nelson, and has an impressive collection of contemporary American art. Adjacent to both art museums is the Kansas City Art Institute, where many well-known artists (including Walt Disney) were educated.

Kansas City is an area of many cultural traditions and festivals. The metropolitan area hosts the country’s third largest St. Patrick’s Day parade; Croatian community festivals in Strawberry Hill, Scottish Highland games every June; multiple Greek festivals throughout the summer, and Spinach Festival every September in Lenexa. Every fall, the American Royal Livestock, Horse and Rodeo Show kicks off with a parade and the world famous American Royal Barbecue. Despite Kansas City’s reputation as the barbecue capital of the world, plenty of healthful eating is available through the numerous restaurants and farmers’ markets.
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