While many of his classmates at the David Geffen School of Medicine at UCLA were beginning their fourth year, Andrew Behesnilian was taking a year off to pursue a research project in the Lab of Bernard M. Churchill, MD, and David A. Haake, MD, at the UCLA Department of Urology and Urological Center in Pediatric Urology and Urological Care at UCLA. To say it was life-changing would be an understatement.

Under the mentorship of Dr. Churchill and David A. Haake, MD, associate professor of medicine and urology at UCLA, Mr. Behesnilian developed a rapid, inexpensive and accurate test for methicillin-resistant Staphylococcus aureus (MRSA) in patient blood. The medicine student was able to complete the project in just three days — a conclusion drawn on the strain's presentation: only after the patient's blood sample was cultured was the strain MSSA, which is susceptible to treatment, identified. Complicating the problem is that there are two strains of the Staph bacteria: not only the MSSA strain, which is susceptible to treatment, but also MRSA, which is resistant to penicillin and the last line of defense against the superbug.

Did you know?

Did you know that you can find continued research in the UCLA Department of Urology, while providing for the future of your loved ones? Campaign gifts make up the majority of endowed fund, unrestricted sources, which recognize excellence and impact of the department.

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Contributions to the UCLA Department of Urology support research programs and help the Department stay at the forefront of medical care. To donate, it is simple and easy. You can make a gift to the department by logging into this UCLA site. Please call (310) 505-2079 if you have any questions about making a gift to UCLA Urology.

Visit the Department of Urology’s Website: www.urology.ucla.edu

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Oncology Lab Could Save Lives

In his clinical training as a medical student, Mr. Behesnilian had treated many patients who were sick from the infection and saw the frustration in physicians who had to wait before knowing more about the strains their patient was carrying. While doing a urineology rotation in his third year, he met Dr. Churchill and learned of a Rapid, inexpensive and accurate test for MRSA in patient blood. The invention and development of this test was a huge step forward in the fight against MRSA, reducing costs and saving lives.

Each year in the United States, MRSA is responsible for approximately 100,000 (p.) infections and 20,000 deaths — more than the number of Americans who die from AIDS (50,000-70,000) — as well as causing a significant cost to the healthcare system from prolonged treatment of infections in ICU settings. MRSA is known as a “superbug” because it is so difficult to treat — resistant to several antibiotics and costly to treat.

The structure of MRSA opens the door to a fully automatable system, which is one of the reasons the project was selected to be part of the NIH-funded Microfluidic Systems and Microfabrication program. The system was completed within two hours returned results that were 100% sensitive (picking up all infections) and 87% specific (correctly identifying the patient bedside. Because of this experience, it has already had a significant clinical impact, it has already had a significant impact on the lives of MRSA patients, and his Department of Urology mentors are now applying for a grant to take the research further, toward the ultimate goal of automating the system so that it can be implemented on a national scale.

If the research has the potential for a greater clinical impact, it is already having a significant effect on Dr. Churchill, who is on a mission to apply this technology to antibiotics in medical practice worldwide. “I’m so excited to be able to know I’ve done something with the potential to have an impact on the lives of patients,” he says. This summer, churchill and Haake have been incredibly mentor — always waiting and interested in teaching me to take a concept from just an idea all the way to the patient bedside. Because of this experience, I can now draw a significant amount of my future in clinical research. 

While many of his classmates at the David Geffen School of Medicine at UCLA were beginning their fourth year, Andrew Behesnilian was taking a year off to pursue a research project in the Lab of Bernard M. Churchill, MD, and David A. Haake, MD, at the UCLA Department of Urology and Urological Center in Pediatric Urology and Urological Care at UCLA. To say it was life-changing would be an understatement.

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Clinical Trials Update
Discovering New Ways to Care

KIDNEY CANCER

Sunitinib Treatment of Renal Adjuvant Cancer (S-TRAC): A Randomized Double-Blind Phase 3 Study of Adjuvant Sunitinib vs. Placebo in Subjects with High Risk RCC (IRB# 08-06-086)

- Kidney Cancer, PI: Allan Pantuck, MD; co-PIs: Arie Belldegrun, MD; Fairooz Kabbinavar, MD — a study of a post-surgery therapy for patients with kidney cancer.

This study will look at the experimental use of sunitinib after surgery for patients with high risk of recurrence. Sunitinib is approved for advanced kidney cancer by the U.S. Food and Drug Administration (FDA). In kidney cancer patients, sunitinib has demonstrated the capability of shrinking and downsizing large kidney tumors. Patients will be on the study up to one year. They will be randomly assigned to either sunitinib or a placebo.

To be eligible for this trial, subjects must have histologically confirmed preponderant clear cell renal cell carcinoma (RCC) and must have no evidence of macroscopic residual disease or metastatic disease. (Pharmaceutical company: Pfizer)

A Randomized Open-Label, Multicenter Phase II Study to Compare the Efficacy and Safety of RAD001 as First-Line Followed by Second-Line Sunitinib vs. Sunitinib as First-Line Followed by Second-Line RAD001 in the Treatment of Patients with Metastatic Renal Cell Carcinoma

- Kidney Cancer, PI: Fairooz Kabbinavar, MD; co-PIs: Arie Belldegrun, MD; Allan Pantuck, MD — a study to test a new therapy regimen for treating kidney cancer.

The purpose is to compare the safety and efficacy (how well the drug works) of the study drug RAD001 given before sunitinib vs. taking sunitinib before the study drug, RAD001. The study investigates the order in which sunitinib and RAD001 are given to determine the most effective way to slow tumor growth. The study also investigates the harmful effects of both drugs to see which treatment schedule has fewer side effects for the patient.

The FDA has approved the use of RAD001 in patients with advanced RCC after failure of treatment with Sutent (sunitinib) or Nexavar (sorafenib). RAD001 is considered a study drug in this research protocol because the drug is not approved for use in this patient population as a first-line treatment.

The UCLA Department of Urology is committed to ongoing research in a quest to develop new treatments and cures for all urologic conditions. Our team has been instrumental in making major breakthroughs in the areas of:

- Prostate cancer, prostatitis and BPH (benign prostatic hyperplasia)
- Kidney cancer and transplantation
- Male infertility and sexual dysfunction
- Pelvic medicine, incontinence and reconstructive surgery
Alumni Spotlight

Tomoaki Fujioka, MD, PhD

Dr. Fujioka believes that working with top professors at UCLA gave him an invaluable background in medicine. “I remain most grateful for the many kindnesses shown to me,” he says. “I believe my experience at UCLA has made me what I am today.”

Before graduating from Japan’s Iwate Medical University School of Medicine, Dr. Fujioka came across the textbook Genitourinary Cancer and knew that he wanted to study urologic oncology at UCLA with one of the book’s editors, Jean B. deKernion, MD. So, after finishing his residency at St. Luke’s International Hospital in Tokyo, Dr. Fujioka made his way to the other side of the Pacific to spend a year as a research fellow in UCLA’s Department of Urology, which Dr. deKernion chairs.

Dr. Fujioka participated in a variety of conferences and observed numerous unusual surgeries. “I was very fortunate to be a participant in Dr. deKernion’s UCLA class,” Dr. Fujioka says.

After leaving UCLA, Dr. Fujioka returned to his native Japan, where he continued his studies in immunotherapy, focusing on renal and urinary bladder cancers. He also conducted clinical research on combined therapies centering on cytokine and bacteria drugs, which are both over-the-counter products, and lymphokine-activated killer and tumor-infiltrating lymphocyte therapy. He then began joint research on the gene expression analysis of urinary organ cancer with Yasuke Nakamura, MD, PhD, professor at the Institute of Medical Science at the University of Tokyo. Together, they have identified many new genes and, based on the expression profiles, have developed prediction systems for the response to chemotherapy for bladder cancer. This breakthrough has led to their starting clinical research on vaccinations for urinary bladder, kidney and prostate cancers by synthesizing peptides from specifically expressed genes. “Peptide vaccinations are a new and insightful therapy in the fight against cancer,” Dr. Fujioka explains. “I am deeply committed to developing this research further.”

Last April, Dr. Fujioka was honored as a chair at the 98th Annual Meeting of the Japanese Urological Association on the topic of ideal medical treatment. More than 5,000 researchers took part, with discussions ranging from oncology to urination function and female urology. Speakers came from all over the world, and the welcoming speech was delivered by Dr. deKernion at the request of Dr. Fujioka.

Donor Spotlight

The UCLA Department of Urology is fortunate to have the support of long-time donors and friends whose contributions have fueled successes and innovative discoveries in urologic disorders. With the help of its benefactors, the department continues to provide state-of-the-art care for patients and support for their families, as well as superb educational opportunities for young urologists.

Sheldon and Carol Appel have been donors to the Department of Urology since the early 1980s. A member of the department’s Board of Advisors, Mr. Appel was one of the visionaries who, along with Joseph J. Kaufman, MD, conceived of the UCLA Frank Clark Urology Center.

Mr. Appel was among the first patients treated with the new, revolutionary lithotripter (a device used to pulverize and remove ureteral and renal stones) in Munich, Germany. Returning to Los Angeles, he convinced Dr. Kaufman, then chief of the Division of Urology, that UCLA should bring both the lithotripter...
Patient's Quality of Life Soars After Surgery Offered Only at UCLA

Ja-Hong Kim, MD, performed the surgery that vastly improved one patient’s quality of life.

Caudal neuromodulation is for patients with an overactive bladder, urinary retention and chronic pelvic pain who are unable to benefit from medications or the conventional neuromodulation approach.

Susan isn’t sure exactly when or why she lost the ability to empty her bladder without a catheter.

The 50-something school teacher (who asked that her last name not be used) had experienced her share of health problems. In 1999, she had spine surgery to correct her scoliosis condition, and in 2001, she was diagnosed with breast cancer. She prepared for a bone scan to determine if the cancer had metastasized. Upon looking at the scan, the technician asked Susan if she had forgotten the instruction to urinate prior to the testing: her bladder was full. Susan had thought it was empty. It was the first indication that there was a problem.

She went to several urologists, and each told her the same thing: there was little that could be done for her urinary retention, and she would likely need to use a catheter to void for the rest of her life. “It was so shocking and upsetting,” she recalls. Two years ago, Susan learned about a relatively new procedure, neuromodulation, in which a specific sacral nerve known as S3 is stimulated with an implanted device. Susan was given the therapy on a trial basis, but it made no difference. Her slim hopes were dashed.

Late last year, she was referred to the UCLA Department of Urology for a variation on the neuromodulation procedure involving a bilateral approach — placing electrodes not just on S3 but on two leads in the caudal space to stimulate all of the nerves. The surgery, developed by Shlomo Raz, MD, head of the Division of Female Urology, Reconstructive Surgery and Urodynamics, was offered only at UCLA. Ja-Hong Kim, MD, who was trained in the surgery by Dr. Raz, told Susan she thought it could help. Susan received the caudal implant in January and now is able to urinate on her own.

Caudal neuromodulation is offered at UCLA for patients with an overactive bladder, urinary retention and chronic pelvic pain who are unable to benefit from medications or the conventional neuromodulation approach.

"The sacral nerve that corresponds to number 3 is a branch root that enervates the bladder, and that is the one that is stimulated in the traditional implant," Dr. Kim explains. "But by placing the implant in the caudal epidural space using a bilateral approach, we gain access to all five nerves, and this increased programming capability can make an important difference."

It did for Susan. Within days after the implant, she was able to void on her own. She still uses a catheter before she goes to bed and when she wakes up, but during the day she no longer needs it. “It was so difficult for so many years,” she says. "My quality of life is now greatly improved.”
An enduring supporter of the UCLA Health Sciences, **John Lyddon** has been a member of the Board of Advisors since 2007 and continues to be a strong advocate for department activities. Funding from Mr. Lyddon has helped prostate cancer researchers develop new approaches for the treatment of advanced cases and improve diagnostic techniques to enable early detection and personalized care alternatives. Dr. Jean B. deKernion, chair of the department, and Drs. Arie Belldegrun and Allan Pantuck have benefited from Mr. Lyddon’s generosity through their prostate cancer research activities.

**Roy Doumani** is a professor in the Department of Molecular and Medical Pharmacology at UCLA and a good friend of the Department of Urology. His relationship with the physicians and medical staff of the department stems from his diagnosis of advanced prostate cancer 20 years ago, and his subsequent surgery and continuing treatment for the disease at UCLA. Through the past two decades, Mr. Doumani has been a benefactor and valuable supporter of the department’s research. As a UCLA graduate himself, Mr. Doumani is impressed that the majority of UCLA’s philanthropy for healthcare and scientific research does not come from alumni, but from the Los Angeles community as a whole, and far beyond. He attributes this to the renowned excellence of the university’s health facilities and the extraordinary research being conducted, and he is pleased to contribute however he can.

**William Aronson, MD**, chief of urology at Olive View-UCLA Medical Center and chief of urologic oncology at the Veterans Administration Medical Center West Los Angeles, has had three publications this year on the potential role of lycopene and green tea intake and dietary fat reduction for the prevention and treatment of prostate cancer. **Ramdev Konijeti, MD**, chief resident in urology at UCLA, was the lead author on the article studying lycopene and prostate cancer.

**Karim Chamie, MD**, Society of Urologic Oncology fellow in urological health services research, recently learned that the National Cancer Institute (NCI) will fund two of his UCLA proposals to explore outcomes of bladder cancer care through its Surveillance, Epidemiology, and End Results program. The projects are “Patterns of Care in Patients with Bladder Cancer” and “Validation of a Bladder Cancer Surgery Coding Scheme.” This award is in addition to continued funding from the National Institutes of Health (NIH) National Research Service Award and Loan Repayment Program, the American Cancer Society and the Jonsson Cancer Foundation.

**Arnold I. Chin, MD, PhD**, assistant professor of urology, received an American Association of Cancer Research Career Development Award for Translational Cancer Research for 2010–2012 to benefit his investigations in bladder cancer.

**Nestor Fadrique Gonzalez-Cadavid, MD**, adjunct professor of urology, director of the Urology Research Laboratory at LABioMed-Harbor-UCLA and professor of endocrinology, is the recipient of two grants from the NIH in support of “Bisphenol A Effects on the Peripheral Mechanisms of Penile Erection” and “Preclinical Proof of Concept for the Therapy of Diabetes-Related Critical Limb Ischemia with Muscle-Derived Stem Cells Combined with Nitric Oxide Donors.” Dr. Gonzalez-Cadavid was also appointed editor-in-chief of the *International Journal of Impotence Research*, and he was made a permanent member of the International Academy of Medical Sexology.

**Mark S. Litwin, MD, MPH**, professor of urology and public health, was honored with the Distinguished Mentor Award by the American Urological Association Foundation at its annual meeting in San Francisco last May. The award is given yearly to a member who provides an excellent research environment, shares wealth of knowledge and impeccable standards, and earns the respect and admiration of the entire urologic research community.

**Robert Reiter, MD, MBA**, professor of urology and molecular biology, co-director of the Prostate and Genitourinary Oncology Program in UCLA’s Jonsson Comprehensive Cancer Center (JCCC) and Bing Chair in Urologic Research, was recently elected to the American Association for Genitourinary Surgeons. He also received a “Career Achievement Award” from the Urologic Oncology Branch of the NCI. **Corina Sarmiento, PhD**, a postdoctoral fellow in Dr. Reiter’s lab, received a postdoctoral research award from the JCCC to study CD44 in prostate cancer epithelial-to-mesenchymal transition.

**Matthew Rettig, MD**, associate professor in the Department of Medicine’s Division of Hematology-Oncology and the Department of Urology and medical director of the Prostate Cancer Program of the Institute of Urologic Oncology at UCLA, received the Prostate Cancer Foundation’s Creativity Award. It provides $300,000 in support of his research project, “A Nano-Structure Platform for Enhanced Detection of Circulating Tumor Cells in Prostate Cancer Patients” (see page 8).
"What is great about our program is that we are able to offer the most advanced and minimally invasive options for all our patients." — Robert Reiter, MD, MBA

Dr. Reiter concludes: “What is great about our program is that we are able to offer the most advanced and minimally invasive options for all our patients, which means having a right treatment for the right patient,” which reduces the morbidity of management of EAU and all prostate diseases.”

For more information on eligibility requirement and manifestations in these and other studies, please contact Rudy Zimmern, MD, MPH, at 310-794-3550, ext. 3550, or www.urolgy.ucla.edu and click on the "Clinical Trials" tab.

For more information on quality ratings at UCLA Health System, visit www.uclahealth.org/quality.
What is great about our invasive options for all our patients is that we are able to offer the most advanced and minimally invasive options for all our patients. — Robert Reiter, MD, MBA

A research group led by a member of the UCLA Department of Urology faculty is studying an emerging, innovative technology. It results in a blood sample from prostate cancer patients to glean important prognostic information and point the way forward for the best drug treatment for the individual patient.

The technology is based on the ability to isolate and study circulating tumor cells (CTCs) — cancer cells that break free from patients’ cancerous tissue or metastatic sites and enter the bloodstream. The information offers a window to the molecular composition of individual patient.

In a randomized, Double-Blind, Placebo-Controlled Efficacy and Safety Study of Oral MDV3100 in patients with Progressive Metastatic Prostate Cancer Who Have Failed Androgen Deprivation Therapy. (IrB pending) "The right treatment for the right patient," Dr. Reiter concludes: "What is great about our program is that we are able to offer the most advanced and minimally invasive options for all our patients."

For men with extremely large glands who see significant improvement, the most invasive options are not appropriate, since they can cause only a limited amount of tissue at one sitting. For these patients, the treatment of choice is hysteresis heating where the surgery removes the inner portion of the prostate that obstructs the flow of urine. Although highly effective, open prostatectomy remains a major surgery with a high outside the prostate. Over a period of a week or two.

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An even less invasive option, photovaporization, delivers maximum energy to the tissue in a one-off procedure. Under a local anesthetic, the patient has a confocal probe placed into the urethra, through which the laser is passed to vaporize the prostate. The tissue is heated while cooling fluid around the microwave generator prevents the temperature from getting too high outside the prostate. From a period of a few weeks, for treated prostate tissue is warmed by the body reducing edema and allowing flow. The microwave therapy allows the advantage of being done as a single office procedure, although unlike the surgical alternatives for BPH, the recovery is immediate, and there are lower rates of blood loss, infection, and side effects.

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"What is great about our program is that we are able to offer the most advanced and minimally invasive options for all our patients."

— Robert Reiter, MD, MBA

Patients will be randomly (by chance) assigned to one of the two treatment groups. It is eligible for this trial with subjects with advanced RCC, most have histological confirmation of clear cell or clear cell RCC. Included are patients with a history of nephrectomy, implant or by nephronectomy, and those with at least one known measurable lesion. As per the Response Evaluation Criteria in Solid Tumors (RECIST) (Pharmaceutical company: Novartis).

PROSTATE CANCER

APPROACH TREATMENTS 1. Randomized, Double-blind, Placebo-controlled, Efficacy and Safety Study of Oral MDV3100 in Patients with Progressive Metastatic Prostate Cancer: Pre-Treatment with Estradiol-Based Chemotherapy (HERMES-102-06-012)

APPROACH TREATMENTS 2. Randomized, Double-blind, Placebo-controlled, Efficacy and Safety Study of Oral MDV3100 in Chinese Patients with Progressive Metastatic Prostate Cancer: A Phase II Study (HERMES-02-06-012)


October 2015. Metastatic Refractory Prostate Cancer (mRCC) — previously treated with Docetaxel-Based Chemotherapy

WUitten Thomas, MD, FRCPC (UW)

The prostate tissue is heated while cooling high outside the prostate. Over a period of 3 to 5 days, the prostate tissue is vaporized by the body's reducing resistance to energy flow. The maneuver allows for the advantage of being done as an office procedure, although unlike the surgical alternative for BPH, BPH, it cannot be performed at once, and there are higher rates of local recurrence and infections.

For men with extremely enlarged glands who seek a minimally invasive option, options include potential surgical options, although these surgeries are not a minimally invasive treatment of choice at all time. For these patients, the treatment involves in-hospital in-hospital surgery wherein the patient must undergo in the same procedure that eliminates the flow of urine. Although highly effective, open prostatectomy is a major operation with a significant risk of blood loss and a two to three day hospital stay. UCLA now offers a minimally invasive option for these men as well. Flexible prostatectomy releases the obstruction by using a flexible catheter with minimal risk of complications and a one-day hospital stay.

"Reliable prostatectomy is a major addition to our armamentarium, and offers a minimally invasive option for men who are in the risk group and need a rapid recovery," says Robert Reiter, MD, MBA, professor of urology.

Dr. Reiter concludes, "That is great about our program is that we are able to offer the most advanced and minimally invasive options for all our patients. This allows us to deliver the ‘right treatment for the right patient,’ which means we are able to employ management of BPH and all prostate diseases.’’

A research group headed by a member of the UCLA Department of Urology faculty is currently in an exciting stage of developing a new technology. It resulted in a blood sample from prostate cancer patients to glean important prognostic information and point the way toward the best drug treatment for the individual patient.

The technology is based on the ability to identify circulating tumor cells (CTC), cancer cells that break away from the primary tumor or metastases and enter the bloodstream. This technology is revolutionizing cancer treatment, and in particular, prostate cancer.

A team headed by Matthew Metz, MD, assistant professor in the UCLA Department of Urology and medical director of the Prostate Cancer Program, has developed a nanotechnology-based platform capable of capturing a number of these cells from a single blood draw. Dr. Metz and colleagues are currently in the research phase. “I am optimistic that this technology will prove invaluable,” notes Jiaoti Huang, MD, director of medical oncology for the UCLA Department of Urology.

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For more information about eligibility requirements and participation in these and other research trials, please contact Nancy Zomorodian, MSN, CDH, RN, at (310) 794-3435 or www.uclahealth.org and click on the ‘Clinical Trials’ link.

For more information on quality ratings of UCLA Health System, visit www.uclahealth.org/quality.
Medical Student’s “Year Off” in Urology Lab Could Save Lives

While many of his classmates at the David Geffen School of Medicine at UCLA were beginning their fourth year, Andrew Behesnilian was taking a year off for a research project in the lab of Bernard M. Churchill, MD, and David A. Haake, MD, associate professors of medicine and urology at UCLA. Mr. Behesnilian developed a rapid, inexpensive and accurate test for methicillin-resistant Staph aureus (MRSA) in patient blood.

"I can see myself devoting a significant part of my future to conducting research," Mr. Behesnilian said. "I want to be able to know I’ve done something with clinical impact, it has already had a significant impact on the field of medicine, and I want to be able to know I've done something with my hands that would be important for the medical community."

In his clinical training as a medical student, Mr. Behesnilian had treated many patients who were sick from the infection and saw the frustration in physicians who had to wait before knowing more about the strains their patient was carrying. While doing a urology rotation in Los Angeles, he met Dr. Churchill and learned of a rapid, inexpensive and accurate test Drs. Churchill and Haake had developed for detecting bacteria in urine, using an antibody and a chemical dye in an electronic reader. He had worked on a similar technology when he was carrying out his translational research project in the lab of Bernard M. Churchill, MD, and his Department of Urology mentors are now applying for a grant to take the technology to the next level.”

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Mr. Behesnilian achieved success: a test that returns results within two hours returned results that were 100% sensitive (picking up all infections) and 100% specific (not picking up non-infected blood). The test is already in use at some medical centers.

Each year in the United States, MRSA is responsible for approximately 100,000 skin infections and 20,000 deaths — more than the number of Americans who die from AIDS (100,000-200,000) — as well as increasing significantly the cost of the healthcare system from prolonged treatment of infections urology — MRSA is known as a ‘superbug’ because it is so difficult to treat — resistant to conventional antibiotics.

Complicating the problem is that there are very few strains of bacteria that are perfectly resistant to MRSA but also a majority strains, which vary depending on location and community and medical ethics. The two reasons are understandable as their clinical presentation, only after the patient is infected. — a process that can take three days — it’s a condition that’s on the rise, the Department of Health the patient is carrying. Because three days to a week is not long enough for this. The first three days, the patient is carrying. Because three days to one week is not long enough for the patient to carry. Because three days to one week is not long enough for the patient to carry. Because three days to one week is not long enough for the patient to carry.

But create of antibiotics build resistance in the population — and now there are reports that MICs in bacteria is becoming more commonly resistant. Resistant to many strains, commonly the last line of defense against the superbug. Fortunately, at a cost of much less to follow up to develop a real alternative, few alternatives are out in the pharmacological pipeline. In his clinical training as a medical student, Mr. Behesnilian had treated many patients who were sick from the infection and saw the frustration in physicians who had to wait before knowing more about the strains their patient was carrying. While doing a urology rotation in Los Angeles, he met Dr. Churchill and learned of a rapid, inexpensive and accurate test Drs. Churchill and Haake had developed for detecting bacteria in urine, using an antibody and a chemical dye in an electronic reader. He had worked on a similar technology when he was carrying out his translational research project in the lab of Bernard M. Churchill, MD, and his Department of Urology mentors are now applying for a grant to take the technology to the next level. Therefore, we can use our existing system of significant potential to be able to develop a new antibiotic, few alternatives are out in the pharmacological pipeline. In his clinical training as a medical student, Mr. Behesnilian had treated many patients who were sick from the infection and saw the frustration in physicians who had to wait before knowing more about the strains their patient was carrying. While doing a urology rotation in Los Angeles, he met Dr. Churchill and learned of a rapid, inexpensive and accurate test Drs. Churchill and Haake had developed for detecting bacteria in urine, using an antibody and a chemical dye in an electronic reader. He had worked on a similar technology when he was carrying out his translational research project in the lab of Bernard M. Churchill, MD, and his Department of Urology mentors are now applying for a grant to take the technology to the next level. Therefore, we can use our existing system of significant potential to be able to develop a new antibiotic, few alternatives are out in the pharmacological pipeline.

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Medical Student’s “Year Off” in Urology Lab Could Save Lives

While many of his classmates at the David Geffen School of Medicine at UCLA were beginning their fourth year, Andrea Behesnilian was taking a year off from a research position at the UCLA Department of Urology. Now, as a result of his translational research project, he says, urologists and other health care workers could one day identify methicillin-resistant Staph aureus (MRSA) in patient blood.

When Behesnilian first became aware of urologists’ struggle with MRSA, he says, he knew he wanted to spend his career working to find a solution.

Behesnilian worked in the lab of Bernard M. Geffen, MD, professor of medicine and urology at UCLA, for his third year of medical school. He says the experience was now applying to academic medicine. ‘‘I can see myself devoting a significant part of my future to conducting research,’’ says Behesnilian.

In his clinical training as a medical student, Behesnilian had visited many patients who were sick from the infection and saw the frustration in physicians who had to wait before knowing more about their patients’ condition. While developing a rapid test to detect bacteria in urine, using an electrochemical sensor, he decided to adapt the technology to test for MRSA in patient blood cultures. Behesnilian had visited many patients who were sick from the infection and saw the frustration in physicians who had to wait before knowing more about their patients’ condition.

Behesnilian achieved success: a test that allows early detection of MRSA in patient blood. The test is rapid, inexpensive and accurate. ‘‘It means we can detect something within two hours returned results that were more than 90% sensitive (correctly identifying the presence of MRSA in patient blood) and 87% specific (correctly identifying the absence of MRSA in patient blood),’’ Behesnilian said.

But because of antibiotics built into resistance in the population — and now there are reports that MRSA is becoming more resistant to treatment — are unfortunately common, they are at the forefront of the last line of defense against the superbug. Moreover, at a cost of about $1 billion to implement on a broad scale.

The eleventh hour would be an understatement. Under the mentorship of Dr. Churchill and David A. Haake, MD, associate professor of medicine and urology at UCLA, Mr. Behesnilian developed a rapid, inexpensive and accurate test for methicillin-resistant Staph aureus (MRSA) in patient blood.

Behesnilian’s work is timely, he said, because MRSA is resistant to most antibiotics. ‘‘MRSA is known as a “superbug” because it is so difficult to treat — resistant to conventional antibiotics,’’ he said.

Complicating the problem is that there are two strains of MRSA bacteria: not only the resistant strain of MRSA but also a sensitive strain. Behesnilian’s device can quickly and accurately identify both.

If the research has the potential for a major clinical application, it has already had a significant impact on Mr. Behesnilian. ‘‘I have always been fascinated by how technology can affect medicine and medical technology,’’ Behesnilian said.

Behesnilian developed a rapid, inexpensive and accurate test for methicillin-resistant Staph aureus (MRSA) in patient blood.

and his Department of Urology mentors are now applying the test to see if the infection is common in patients. ‘‘I want to be able to know that I’ve done something with the potential to have an impact on the lives of patients,’’ he says. This is exactly what Behesnilian and Haake have been incredibly proud — always ready and available in teaching me to be able to take a concept from just an idea all the way to the patient.‘‘It is now applying to academic medicine. ‘‘It is now applying to academic medicine. ‘‘It is now applying to academic medicine. ‘‘It is now applying to academic medicine.

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