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HONORING **INDIVIDUALS** FOR
NEW **INVENTIONS, PATENTS,**
& **LICENSED TECHNOLOGIES**

INNOVATION 2015 AWARDS

UNMC

THURSDAY **OCTOBER 22**
DRC I AUDITORIUM
4:00 PM


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MESSAGE FROM **MICHAEL DIXON**

On behalf of the UNMC leadership and UNeMed staff, we welcome you to the 2015 UNeMed Innovation Awards, which recognize the significant and ongoing innovations of the UNMC faculty, staff, and students.

UNeMed's mission is simple to articulate: *We are here to help improve healthcare by fostering innovation, advancing biomedical research and engaging entrepreneurs and industry to commercialize novel technologies.*

Innovations all have the same humble beginning—an idea or a hypothesis. The path for an idea to become a product that improves the lives of millions is a daunting and perilous journey fraught with many obstacles. That is why UNeMed exists. We are here to help provide the advice, pathways and connections for your idea to grow and make the world a better place.

The Innovation Awards represent the culmination of Innovation Week as we celebrate the creators of novel technology at the University of Nebraska Medical Center. Today, we will recognize the inventors who have submitted new inventions, received issued U.S. patents, and successfully licensed technology. In addition, we will look to the future by recognizing new technology with strong potential, and honor Dr. Tammy Kielian with the 2015 Innovator of the Year award.

The UNeMed staff is committed to helping you develop your new inventions and make vital connections with industry. Please draw upon our expertise, and visit us at 4460 Farnam Street (Annex 14 on the Campus map). Our goal is to help you create relationships that will enable your work to positively impact the lives of people throughout Nebraska and around the world.

Sincerely,

Michael Dixon, Ph.D.
President and CEO, UNeMed Corporation

INNOVATION 2015 AWARDS

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INNOVATION 2015 AWARDS

INNOVATION AWARDS **SCHEDULE**

Welcome	**Michael Dixon, Ph.D.** President and CEO, UNeMed
Opening Remarks	**Jeffrey Gold, M.D.** Chancellor, UNMC
Innovation Rewind: **The Year in Review**	**Michael Dixon, Ph.D.** President and CEO, UNeMed
Presentation of Awards: • New Inventions • Issued Patents • Licensed Technology	**Steven Schreiner, Ph.D.** Vice President & Director of Marketing and Licensing, UNeMed
Special Awards: • Most Promising New Invention • Innovator of the Year	**Steven Schreiner, Ph.D.** Vice President & Director of Marketing and Licensing, UNeMed
Closing Remarks	
Reception	DRC I Atrium

NEW INVENTION NOTIFICATION **CONTRIBUTORS**

Aniruddha Agarwal*
Hamid Band*
Vimla Band*
Surinder Batra
Betsy Becker
Ben Boedeker*
Liliana Bronner
Raychelle Burks
Walter Scott Campbell
Sarah Carlson*
Mark Carlson*
Tiffany Colvin
H. Dele Davies*
Diana Do*
Kathleen Duncan
Benson Edagwa*
Shane Farritor
Marius Florescu
Tom Frederick
Kai Fu
Robin Gandhi
Howard Gendelman*
Deepta Ghate
Maurice Godfrey
Timothy Greiner
Amod Gupta
Channabasavaiah Gurumurthy
Robert Tanner Hagelstrom
Jeannie Hannan
Mostafa Hanout
Steven Hinrichs
Alessandro Invernizzi
Javeed Iqbal
Maneesh Jain
Zhenshan Jia
Peter Kador
Alexey Kamenskiy
Nikolay Karpuk
Sukhwinder Kaur
Valeriya Kettelhut
Tammy Kielian
Ryan King
Shiv Ram Krishn
Anastasia Kyvelidou
Marilynn Larson
Fei Li
Jing Li
Jason MacTaggart
Eric Markvicka
Joseph John McBride
Sameer Mirza
Richard Morris*
Vincent Morris*
Prabagaran Narayanasamy
Carl Nelson*
Quan Dong Nguyen*
Thang Nguyen*
Gregory Oakley
David Oupicky
Jay Pedersen
Jody Redepenning
Richard Reinhardt
Yasir Sepah*
Heather Shafer
Pankaj Singh
Ramandeep Singh
Harvey Siy
Kim Soper
Nicholas Stergiou
Cale Stolle*
Kaihong Su*
Serguei Vinogradov
Michael Wadman*
Guangshun (Gus) Wang
Xiaobei Wang
Yan Wang
Jing Wang*
Dong Wang*
Laura Weber
Dennis Weisenburger
Wesley Zeger*
Zhixin (Jason) Zhang
Xiangshan Zhao
Tian Zhou

*Multiple

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2015
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INVENTORS WITH ISSUED PATENTS

Joe Bartels*
Ben Boedeker
Vashti Bryant
Qian Yi Chen
Jason Dumpert*
Shane Farritor*
Tom Frederick*
Howard Gendelman*
Gregory Gordon
Alan Goyzueta
Jeff Andrew Hawks
Peter Kador
Uday Kompella
Vinod Labhasetwar
Amy Lehman*
Rodney Markin
Eric Markvicka
Donald Miller
Jack Mondry
Amarnath Natarajan
Carl Nelson
Dmitry Oleynikov*
Stephen Platt*
Swita Raghava Singh
Rajkumar Rajule
Mark Rentschler*
Sneha Sundaram
Jaspreet Vasir
Jonathan Vennerstrom
Nathan Wood

CREATORS OF LICENSED TECHNOLOGY

Hamid Band
Vimla Band
Marius Florescu
Robin Gandhi
Zhenshan Jia
Tammy Kielian
Harvey Siy
Dong Wang
Xiangshan Zhao
Peter Kador*
Dmitry Oleynikov
Jyothi Arikkath
Fu Chen
Adam De Laveaga
Allison Dimartino
Kathryn Done
Anthony Floreani
Sandra Gunselman
M. Susan Hallbeck
Ralph Hauke
Art Heires
John Jackson
Hongxia Jin
Keith Johnson
Tim Judkins
Jake Kaufman
Jonathan Morse
Jakeb Riggle
Sam Sanderson
Dipika Singh
Stefano Tarantolo
Lawton Verner
Hanjun Wang
Milton Wyman
Irving Zucker
Tsuneya Ikezu*
James Wahl*

**Multiple*

TECHNOLOGIES LICENSED

Cadherin 11 (16G5) Antibody	• James Wahl • Keith Johnson
Cell Based Cancer Vaccine	• Anthony Floreani • Art Heires • John Jackson • Ralph Hauke • Sam Sanderson • Stefano Tarantolo
TTBK1 Antibody*	• Tsuneya Ikezu
K5⁺/K19⁺ hMECs	• Hamid Band • Vimla Band • Xiangshan Zhao
Hemodialysis Catheter	• Marius Florescu
Neuronal Freezing Media	• Dipika Singh • Jyothi Arikkath
Dental Binding Delivery System	• Dong Wang • Fu Chen • Zhenshan Jia
Cataract Treatment	• Peter Kador
Multifunctional Antioxidants	• Hongxia Jin • Peter Kador
Research Antibodies	• James Wahl • Keith Johnson
Treatment for Cardiovascular Diseases	• Hanjun Wang • Irving Zucker
Gene Therapy for Juvenile Batten Disease	• Tammy Kielian
Ergonomic Articulating Laparoscopic Instrument	• Dmitry Oleynikov • Jakeb Riggle
Software Risk and Management System	• Robin Gandhi • Harvey Siy

**Multiple licenses*

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INNOVATION 2015 AWARDS

PATENTS ISSUED

1. "Methods and Compositions for Targeted Delivery of Therapeutic Agents"

U.S. Patent No. 8,821,943 – issued September 2, 2014

- Uday Kompella
- Sneha Sundaram
- Swita Singh

2. "Methods, Systems and Devices for Surgical Access and Procedures"

U.S. Patent No. 8,828,024 – issued September 9, 2014

- Shane Farritor
- Stephen Platt
- Mark Rentchler
- Amy Lehman
- Jeff Hawks

3. "Magnetically Coupleable Robotic Surgical Devices and Related Methods"

U.S. Patent No. 8,834,488 – issued September 16, 2013

- Shane Farritor
- Dmitry Oleynikov
- Stephen Platt
- Mark Rentschler
- Jason Dumpert

4. "Surface-modified Nanoparticles for Intracellular Delivery of Therapeutic Agents and Composition for Making Same"

U.S. Patent No. 8,865,216 – issued October 21, 2014

- Vinod Labhasetwar
- Jaspreet Vasir

5. "Device and Method for Automating Microbiology Processes"

U.S. Patent No. 8,871,497 – issued October 28, 2014

- Rodney Markin

6. "Neuroprotective Multifunctional Antioxidants and Their Monofunctional Analogs"

U.S. Patent No. 8,877,766 – issued November 4, 2014

- Peter Kador

7. "Modular and Cooperative Medical Devices and Related Systems and Methods"

U.S. Patent No. 8,894,633 – issued November 25, 2014

- Shane Farritor
- Mark Rentschler
- Amy Lehman

8. "Sheath"

U.S. Patent No. 8,911,396 – issued December 16, 2014

- Gregory Gordon

9. "Creatine Oral Supplementation Using Creatine Hydrochloride Salt"

U.S. Patent No. 8,962,685 – issued February 24, 2014

- Jonathan Vennerstrom
- Donald Miller

Patents Issued: *Continued on next page*

PATENTS ISSUED *Continued from previous page*

10. "Magnetically Coupleable Robotic Devices and Related Methods"
U.S. Patent No. 8,968,332– issued March 3, 2014
- Shane Farritor
- Dmitry Oleynikov
- Mark Rentschler
- Jason Dumpert
- Amy Lehman
- Nathan Wood

11. "Methods and Systems for Handling or Delivering Materials for Natural Orifice Surgery"
U.S. Patent No. 8,968,267– issued March 3, 2014
- Dmitry Oleynikov
- Carl Nelson
- Alan Goyzueta

12. "Modular and Cooperative Medical Devices and Related Systems and Methods"
U.S. Patent No. 8,974,440– issued March 10, 2014
- Shane Farritor
- Mark Rentschler
- Amy Lehman

13. "Method for Delivering Particulate Drugs to Tissues"
U.S. Patent No. 8,986,736– issued March 24, 2014
- Howard Gendelman
- Barrett Rabinow

14. "Quinoxaline Compounds and Uses Thereof"
U.S. Patent No. 8,993,758– issued March 31, 2014
- Amarnath Natarajan
- Vashti Bryant
- Wian Yi Chen
- Rajkumar Rajule

15. "Suction Catheter Assembly for a Laryngoscope"
U.S. Patent No. 8,998,804– issued April 7, 2014
- Ben Boedeker

16. "Local Control Robotic Surgical Devices and Related Methods"
U.S. Patent No. 9,010,214– issued April 21, 2014
- Shane Farritor
- Eric Markvicka
- Tom Frederick
- Joe Bartels
- Jack Mondry

17. "Method for Delivering Drugs to the Brain"
U.S. Patent No. 9,044,381– issued June 2, 2014
- Howard Gendelman
- Barrett Rabinow

18. "Methods, Systems, and Devices Relating to Surgical End Effectors"
U.S. Patent No. 9,060,781– issued June 23, 2014
- Shane Farritor
- Tom Frederick
- Joe Bartels

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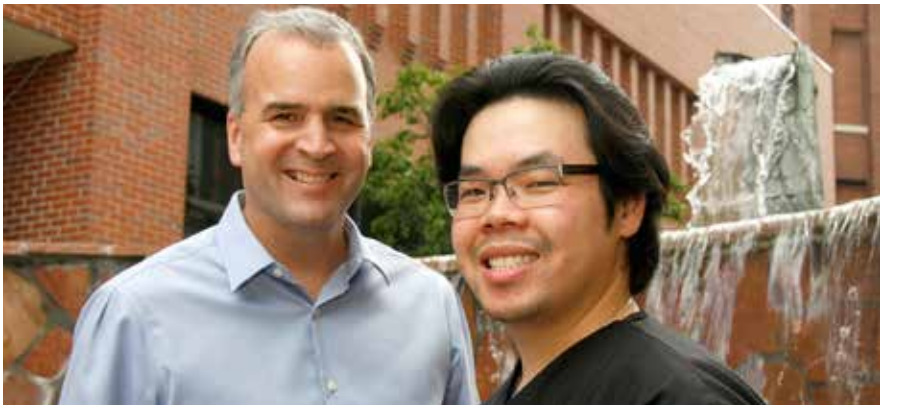


Michael C. Wadman, MD, FASEP
Professor & Vice Chair for Education, Department of Emergency Medicine
Associate Dean for Graduate Medical Education & Designated Institutional Office

Thang Nguyen, MSN, APRN, FNP-C
Advanced Practice Provider and Research Coordinator
Department of Emergency Medicine

Emergency Medicine Care Portfolio: Wound Irrigation System & Oral Airway Management

The most promising new invention of 2015 is awarded to an emergency medicine team in recognition of several innovations submitted over the past year. Inspired by their clinical work in the emergency room, a doctor-nurse duo created a technology portfolio that could significantly improve clinical practice and outcomes of patients in need of wound management or oral airway stabilization.

With more than 20 years of clinical practice and research experience between them, Thang Nguyen and Dr. Michael Wadman produced a dozen solutions for unmet clinical needs, seven of which are currently being developed and marketed.

The team designed a wound irrigation system centered on two factors important for an optimally clean wound: pressure and volume. The result was Wadwand, an irrigation system that requires minimal training and is capable of producing consistent amounts of pressure with enough solution to clean almost any wound quicker and with more efficiency than ever before.

They are also developing a set of inventions for better airway maintenance and stabilization, such as an oral bite block. The bite block can maintain a patient's airway without the continued application of manual force, permitting a "hands-free" approach and allowing the medic to perform other essential tasks.

The team also found an elegant solution to clear airway obstructions: Improved suction tips specifically designed to promote optimal air flow and prevent foreign bodies from clogging the tip.

INNOVATOR OF THE YEAR

Tammy Kielian, Ph.D.
Professor and Choudari Kommineni, D.V.M., Ph.D. Professor of Pathology
Department of Pathology and Microbiology

Tammy Kielian, Ph.D., is our 2015 Innovator of the Year in recognition of her achievements in the development of potential therapies for the treatment of Juvenile Batten Disease and S. aureus biofilms.

Dr. Kielian's research interests span the fields of immunology, infectious diseases and neuroscience with a unifying theme of innate immunity. Dr. Kielian's laboratory is working on understanding the role that the immune system plays in two unrelated diseases, Juvenile Batten Disease and S. aureus biofilm infections. They have made great strides in better understanding the involvement of the immune system in both of these disease states and have recently turned their attention towards identifying and developing novel treatment strategies.

Dr. Kielian's laboratory is currently working on two separate treatment strategies for the rare but fatal childhood neurodegenerative disorder, Juvenile Batten Disease. The first strategy is to use an existing class of drugs— phosphodiesterase-4, or PDE4 inhibitors—to treat the disease. They are currently completing pre-clinical studies and hope to initiate a clinical trial soon. More recently, Dr. Kielian's laboratory has developed a novel gene therapy for Juvenile Batten Disease that has the potential to cure the disease. This therapy was recently licensed by Abeona Therapeutics and work is in progress to initiate a clinical trial in late 2016.

On top of this work, Dr. Kielian's laboratory has also developed new strategies for targeting the immune system to help prevent and treat S. aureus biofilm infections. She has collaborated with a small pharmaceutical company to test one of their proprietary drugs that could turn into a bigger opportunity in the coming months.

Raised in Stanton, Neb., Dr. Kielian received her B.S. in Biological Sciences from the University of Nebraska-Lincoln in 1991, a M.S. in Immunology from Kansas State University in 1994, and a Ph.D. in Microbiology from the University of Kansas in 1998. Following two-and-a-half years of postdoctoral training and a promotion to Research Assistant Professor at Dartmouth Medical School, Dr. Kielian joined the faculty of the University of Arkansas for Medical Sciences in 2001. In July 2008, Dr. Kielian was recruited to UNMC in the Department of Pathology and Microbiology.

Most Promising New Invention

2015	Michael Wadman, M.D., F.A.S.E.P. & Thang Nguyen, M.S.N., A.P.R.N., F.N.P.-C.	*Emergency Medicine Care Portfolio: Wound Irrigation System & Oral Airway Management*
2014	Jason MacTaggart, M.D.	*Orthagonal AquaBlade*
2013	Keshore Bidasee, Ph.D.	*Targeted Glyoxalase-1 Gene Transfer to Prevent Cardiovascular and End-Organ Complications in Diabetes*
2012	Gregory Oakley, Ph.D.	*Small Molecule in Vivo Inhibitors of the N-Terminal Protein Interacting Domain of RPA1*
2011	Babu Padanilam, Ph.D.	*Novel Target for the Treatment of Renal Fibrosis*
2010	Stephen Bonasera, M.D., Ph.D.	*Noninvasive Monitoring of Functional Behaviors in Ambulatory Human Populations*
2009	Paul Dunman, Ph.D.	*Novel Antibiotic Compounds*
2008*	Guangshun (Gus) Wang, Ph.D.	*Anti-HIV Peptides and Methods of Use Thereof*
2008*	Janina Baranowska-Kortylewicz, Ph.D.	*Sex Hormone Binding Globulin: New Target for Cancer Therapy*

Special Awards

2015	**Tammy Kielian, Ph.D.**	Innovator of the Year
2014	**Marius Florescu, M.D.**	Emerging Inventor
2013	**Howard Gendelman, M.D.**	Innovator of the Year
2012	**Tammy Kielian, Ph.D.**	Emerging Inventor
2011	**Jonathan Vennerstrom, Ph.D.**	Lifetime Achievement
2010	**Amarnath Natarajan, Ph.D.**	Emerging Inventor
2009	**Rodney Markin, M.D., Ph.D.**	Lifetime Achievement
2008	**Dong Wang, Ph.D.**	Emerging Inventor
2007	**Robert LeVeen, M.D.**	Lifetime Achievement

INNOVATION AWARDS HISTORY

Innovation Week dates back to 1998 when UNeMed and the Intellectual Property Office began hosting the Inventor's Recognition Reception, specifically tailored to honor UNMC researchers who had applied for or received patents in the previous year.

In 2007, UNMC restructured its technology transfer efforts into one organization, merging UNeMed with the Intellectual Property Office. UNeMed—under the leadership of then-CEO, James Linder, M.D.—transformed the Recognition Reception into the Research Innovation Awards.

Dr. Linder

A year later, the awards ceremony became the final event in a week of activities that celebrated the research and innovation at UNMC. In addition to recognizing researchers who secured intellectual property rights, UNeMed also added emerging inventor and lifetime achievement awards. In 2008 it also added the "Most Promising New Invention" as an annual award. In 2013, UNeMed presented for the first time ever, an "Innovator of the Year" Award. In previous years UNeMed had presented Emerging Inventor and Lifetime Achievement awards on a biennial schedule.

Today, Innovation Week is about far more than recognizing a handful of UNMC scientists who secure patents. It's a celebration that recognizes, rewards and encourages innovative thoughts and ideas, whether they come from the most seasoned and esteemed researcher or the least-known first-year student who might know a better way.

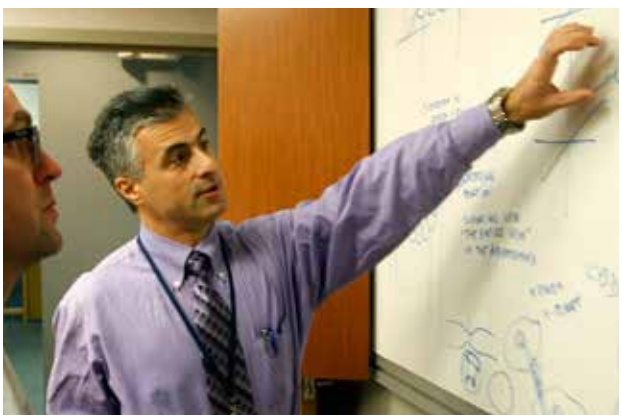
Dr. MacTaggart

Last year, the work of Jason MacTaggart, M.D., was featured as the most promising new invention, and Emerging Inventor honors went to Marius Florescu, M.D.

Dr. MacTaggart, an assistant professor in UNMC's Department of Surgery, was honored for a novel device he created that could revolutionize the treatment of life threatening disorders such as aortic dissections. He and his colleagues designed a system, called AquaBlade, that uses a high-pressure water jet to safely cut tissue and other objects amid flowing blood in the vasculature.

Dr. Florescu, an associate professor in the Nephrology Division of UNMC's Department of Internal Medicine, was named the 2014 Emerging Inventor for his innovations that could advance and improve clinical practice and patient care.

Dr. Florescu invented two technologies that could significantly improve the success of hemodialysis for patients suffering with kidney disease or renal failure—a novel hemodialysis catheter and a device that improves the arteriovenous or AV fistula.



Dr. Florescu

The catheter is designed to disrupt the fibrous sheet that often forms—and eventually blocks—current catheters. The second invention is a device that represents the first major improvement for the AV fistulas in more than 40 years. The device should promote better AV fistula creation and maturation.

INNOVATION 2015 AWARDS

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UNEMED **STAFF**

Jeff Andersen

Contracts Specialist

- **J.D., Creighton University School of Law**
- **Joined UNeMed: 2015**

Matthew Boehm

Senior Licensing Specialist

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- **Joined UNeMed: 2009**

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President & CEO

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- **Joined UNeMed: 2003**

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Office Manager

- **Joined UNeMed: 2007**

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UHCS Senior Business Development Specialist

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- **M.B.A., Dartmouth University**
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Agnes Lenagh

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- **Joined UNeMed: 2013**

UNEMED **STAFF**

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- LL.M., International Intellectual Property Law, Chicago-Kent College of Law
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Office Associate

- Joined UNeMed: 2013

Joe Runge

Director of Business Development

- M.S., Molecular Biology, University of Iowa
- J.D., University of Iowa
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Steve Schreiner

Vice President & Director of Marketing and Licensing

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Director of International & Domestic Business Affairs

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Qian Zhang

International Technology Development Specialst

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- M.B.A., University of Nebraska at Omaha
- Joined UNeMed: 2011

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