



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

INNOVATION 2017 AWARDS



THURSDAY **OCTOBER 26**
TRUHLSSEN CAMPUS EVENTS CENTER
5:00 PM





On behalf of UNMC and UNO leadership and UNeMed staff, we welcome you to the 2017 Research Innovation Awards Banquet as we celebrate all those who make our continued existence possible: You, the innovative UNMC and UNO faculty, staff and students who we honor today.

UNeMed's mission is simple: *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 was created more than 25 years ago. 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 technologies. Today, we will recognize the inventors who have submitted new inventions, received issued U.S. patents, and successfully licensed a technology. In addition, we will look to the future by recognizing a new technology with strong potential, and honor Dr. Donny Suh with the 2017 Emerging Inventor 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 benefit the lives of people throughout Nebraska and around the world.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Dixon".

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

INNOVATION
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INNOVATION AWARDS SCHEDULE

Welcome

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

Opening Remarks

James Linder, M.D.
President, University Technology
Development Corporation &
Chief Strategist, University of Nebraska

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
- Emerging Inventor

Steven Schreiner, Ph.D.
Vice President & Director of
Marketing and Licensing, UNeMed

Closing Remarks

Reception



INNOVATION
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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.

The awards ceremony was 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.

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. This year, the program has grown into the Research Innovation Awards Banquet, an exclusive, invitation-only event that combines the best elements of the Awards program and the annual Shareholder Meeting.

Last year, the collaborative work of Joyce Solheim, Ph.D., and Tatiana Bronich, Ph.D., was featured as the most promising new invention. Innovator of the Year honors went to Irving Zucker, Ph.D.

Dr. Bronich, the Park-Davis Professor of Pharmaceutical Sciences, and Dr. Solheim, a professor at the Eppler Institute, were honored for their nanoparticle formulation of a protein for the treatment of cancer. The protein, called CCL21, is short-lived but attracts immune cells to the tumor site. Their nanoformulation protects the protein from degradation and prolongs its beneficial effects.



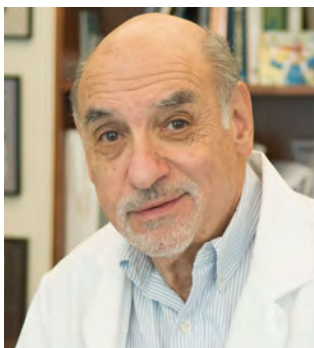
Dr. Bronich



Dr. Solheim

Dr. Zucker, the Theodore F. Hubbard Professor of Cardiovascular Research in UNMC's Department of Cellular and Integrative Physiology, was named the 2016 Innovator of the Year for his achievement in developing a new strategy for treating cardiovascular disease, and for the discovery of measurable sympathetic vasomotion signatures.

Dr. Zucker's research focuses on the role that central brain mechanisms play in regulating circulation in chronic heart failure and hypertension. His lab is currently developing strategies to reduce excessive sympathetic nerve activity, which is often associated with several cardiovascular conditions.



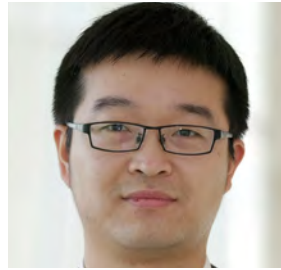
Dr. Zucker

INNOVATION 2017 AWARDS





Mark Carlson, M.D.
Professor, Department of Surgery,
University of Nebraska Medical Center



Shixuan Chen, Ph.D.
Research Associate, Mary & Dick
Holland Regenerative Medicine
Program and Department of Surgery,
University of Nebraska Medical Center



Jingwei Xie, Ph.D.
Assistant Professor, Mary & Dick
Holland Regenerative Medicine
Program and Department of
Pharmaceutical Sciences,
University of Nebraska Medical Center

Nanofiber Sponges for Hemostasis

Mark Carlson, M.D., and researchers Jingwei Xie, Ph.D., and Shixuan Chen, Ph.D., joined forces in a collaboration that addresses a major, unmet need. Together, the trio developed a new technology to stop severe bleeding, which could help stabilize pre-hospital patients with traumatic, non-compressible intra-abdominal hemorrhage.

The technology is a nanofiber-based sponge capable of rapidly absorbing blood and other fluids while still retaining its overall shape and size. The nanofiber sponge absorbs more fluid more quickly than traditional gauze and sponge-based products currently on the market.

The nanofiber-based sponges can be manufactured in a variety of shapes such as pads and cylindrical pellets, similar to a packing peanut.

That flexibility makes it a versatile technology that can be used in a wide variety of bleeding injuries. The pellets can be used to pack the site of a non-compressible hemorrhage, such as battlefield injuries or other traumatic injuries involving internal bleeding. The pad form of the nanofiber sponge can be used to treat compressible hemorrhages such as those that may occur during surgery.

The new nanofiber sponge will be a useful addition to surgical suites, emergency rooms and the battlefield.

Dr. Xie received his Ph.D. in 2007 from the National University of Singapore and joined UNMC in 2014.

Dr. Chen received his Ph.D. in 2015 from Southern Medical University in Guangzhou, China. He joined UNMC later the same year.

Dr. Carlson received his M.D. in 1989 from Case Western Reserve School of Medicine, and joined UNMC in 1999.

EMERGING INVENTOR



Donny Suh, M.D.

*Associate Professor, Department of Ophthalmology & Visual Sciences,
University of Nebraska Medical Center
Chief of Pediatric Ophthalmology and Strabismus, Children's Hospital and
Medical Center*

Donny Suh, M.D., is UNeMed's 2017 Emerging Inventor of the year in recognition of his contributions to improving pediatric ophthalmology.

An avid innovator with five new inventions in fiscal 2017 alone, Dr. Suh is the Chief of Pediatric Ophthalmology and Adult Strabismus at Omaha Children's Hospital & Medical Center, and a volunteer for Orbis International medical missions programs.

Dr. Suh's first invention, the Strabismus Needle Holder, contains double-angled, locking jaws that allow surgeons to precisely place sutures while accommodating the curvature of the patient's eye and avoiding the nasal bridge. UNeMed negotiated a licensing agreement for the needle holder with Ambler Surgical. The needle holder and a previous invention, the Muscle Hook, are both commercially available.

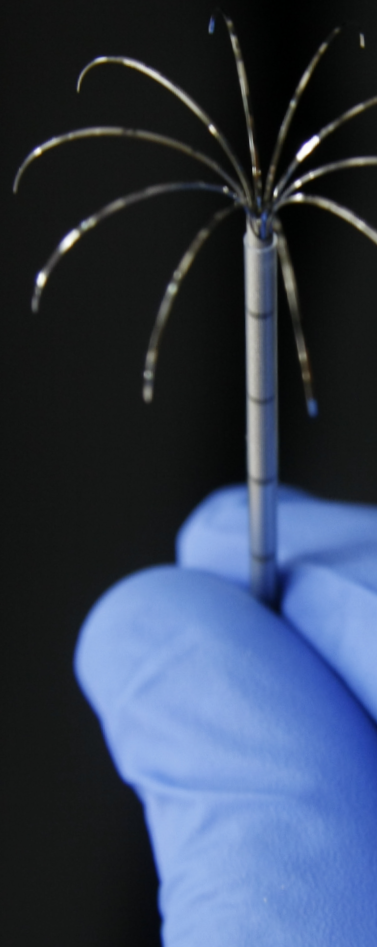
Dr. Suh also developed the Muscle Injection Forceps, which enables clinicians to securely bundle an eye muscle for Botox injection while simultaneously shielding the patient's eye. The forceps was also licensed to Ambler Surgical, and is currently being manufactured and tested.

His third invention, the Precision Injection Syringe Plunger, facilitates secure, one-handed injections when absolute precision and control are paramount to the patient's safety, such as Botox and intravitreal injections. The syringe plunger is currently under active evaluation by several companies and has garnered substantial interest in Europe.

Currently, Dr. Suh and his team are working on a smartphone camera adapter for medical imaging called MedLens, which has received strong interest from a leading digital fundoscope company. He is also collaborating on a project to design more ergonomic surgical loupes.

Dr. Suh, who joined UNMC in 2000, received his M.D. from Baylor College of Medicine in Houston, Texas. He performed an internal medicine residency at Baylor University Medical Center before completing an Ophthalmology Residency Program at the Medical College of Wisconsin. Dr. Suh completed his pediatric ophthalmology and strabismus fellowship at the Wilmer Eye Institute at Johns Hopkins University School of Medicine.

INNOVATION 2017 AWARDS



AWARD WINNERS

Most Promising New Invention

- 2017 Jingwei Xie, Ph.D.
Shixuan Chen, Ph.D.
Mark Carlson, M.D. *Nanofiber Sponges for Hemostasis*
- 2016 Joyce Solheim, Ph.D.
Tatiana Bronich, Ph.D. *Compositions for Modulated Release of Proteins and Methods of Use Thereof*
- 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. *Orthogonal 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

- 2017 Donny Suh, M.D. Emerging Inventor
- 2016 Irving Zucker, Ph.D. Innovator of the Year
- 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

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**In 2008 the Most Promising New Invention award was shared.*

NEW INVENTION NOTIFICATION CONTRIBUTORS

Iqbal Ahmad
Amy Aldrich
Jose Baca Garcia
Hamid Band
Vimla Band
Ganapati Bhat
Mark Carlson*
Wing (John) Chan
Ioannis Chatzizisis
Amit Chaudhary
Shixuan Chen
Pi-Wan Cheng
Jung Chien
Seoung-Ryoung Choi
Martin Conda Sheridan
Jesse Cox
Ayrienne Crawford
Connor Cross
Lou Cubrich
Aneesha Dasgupta
Prithviraj Dasgupta
Paul Deegan
William Denton
Punita Dhawan
Yuxiang Dong
Bin Duan*
Bryant England
Shane Farritor*
Marius Florescu*
Joel Frandsen
Tom Frederick*
Kai Fu
Catherine Gebhart
Howard Gendelman
Deepta Ghate*
Jeffrey Gold*
Timothy Greiner
Venugopal Gunda
Johnathon Hare
Megan Hedlund
Cortney Heim
James Hermsen

Sarah Holstein
Corey Hopkins*
Yunlong Huang
Fany Iseka
Zhenshan Jia
Keith Johnson
Alexey Kamenskiy*
Sachin Kedar*
Varun Keshewani
Kamel Khalili
Tammy Kielian*
Jane Kugler
Vinod Kumar
Virender Kumar
Mitchell Kuss*
Shelby Kutty
Yuju Li
Ting Li
Craig Lindsley
Steven Lisco
Xiang-De Liu
Shea Lundebly
Jason MacTaggart*
Ram Mahato
Andrew Maresch
Ross Mathiasen
Thomas McDonald
Dennis Metzger
Bhopal Mohapatra
Aaron Mohs*
Ethan Monhollon
Vincent Morris
Richard Morris
Prabakaran Narayanasamy
Amarnath Natarajan*
Carl Nelson
Trong Nguyen
Thang Nguyen*
David Oupicky
David Padgett*
Melissa Parks
William Payne*

New Inventions: Continued on next page

**Multiple*

INNOVATION
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NEW INVENTION NOTIFICATION CONTRIBUTORS

Iraklis Pipinos
 Thomas Porter
 Sandeep Rana*
 Kyle Register
 Mark Reichenbach
 Debra Romberger
 George Rozanski
 Stephen Salzbrenner
 Jennifer Sanmann
 Molly Schieber
 Derek Shafer
 Surendra Shukla
 Jonathon Sikorski
 Pankaj Singh
 Carmen Sirizzotti
 Ka-Chun Siu*
 Marcus Snow
 Matthew Storck
 Donny Suh*
 Keer Sun
 Denis Svechkarev*

Benjamin Swanson
 Pooja Teotia
 Mitchell Tillwick
 Myron Toews
 Steven Tracy
 Yaping Tu
 Srijayaprakash Uppada
 William Velander*
 Michael Wadman*
 James Wahl*
 Jing (Jenny) Wang
 Hanjun Wang*
 Guangshun Wang*
 Dong Wang
 Dennis Weisenburger
 David Wiemer
 Casey Wiens
 Jingwei Xie*
 Wesley Zeger
 Jialin Zheng
 Irving Zucker*

CREATORS OF LICENSED TECHNOLOGY

Daniel Anderson
 Hamid Band*
 Vimla Band*
 Dahn Clemens
 Jesse Cox*
 Michael Duryee
 Deepta Ghate
 Zhenshan Jia
 Jiang Jiang
 Jason Johanning
 Sachin Kedar
 Tammy Kielian
 Thomas McDonald*

Bhopal Mohapatra*
 Mayumi Naramura*
 Lingdong Quan
 A. Angie Rizzino*
 Sam Sanderson
 Donny Suh
 Benjamin Swanson
 Geoffrey Thiele
 Steven Tracy*
 Joseph Vetro*
 Dong Wang*
 Jingwei Xie

INNOVATION 2017 AWARDS

TECHNOLOGIES LICENSED

Activated Creatinine	<ul style="list-style-type: none"> • Thomas McDonald, Ph.D. • Steven Tracy, Ph.D. • Annika Weber
Cbl-b Floxed Mouse	<ul style="list-style-type: none"> • Hamid Band, Ph.D. • Vimla Band, Ph.D. • Mayumi Naramura, Ph.D. • Bhopal Mohapatra, Ph.D.
Cbl-b Knockout Mouse	<ul style="list-style-type: none"> • Hamid Band, Ph.D. • Vimla Band, Ph.D. • Mayumi Naramura, Ph.D. • Bhopal Mohapatra, Ph.D.
EP67	<ul style="list-style-type: none"> • Sam Sanderson, Ph.D.
Frailty Assessment	<ul style="list-style-type: none"> • Jason Johanning, M.D.
Liposome Drug Delivery	<ul style="list-style-type: none"> • Dong Wang, Ph.D. • Zhenshan Jia, Ph.D.
MAA Diagnostic Kit	<ul style="list-style-type: none"> • Daniel Anderson, M.D. Ph.D. • Geoffrey Thiele, Ph.D. • Michael Duryee
Method for Expanding Nanofiber Mats	<ul style="list-style-type: none"> • Jingwei Xie, Ph.D. • Jiang Jiang
Microscope Mount	<ul style="list-style-type: none"> • Jesse Cox, M.D. Ph.D.
NR-6-R Cells	<ul style="list-style-type: none"> • Angie Rizzino, Ph.D.
P-Dex Drug Delivery System	<ul style="list-style-type: none"> • Dong Wang, Ph.D. • Matthew Kelso, Ph.D. • Lingdong Quan, Ph.D.
Pupil Simulator	<ul style="list-style-type: none"> • Deepta Ghatge, M.D., • Sachin Kedar, M.D.
siRNA Delivery System	<ul style="list-style-type: none"> • Joe Vetro, Ph.D.
Surgical Tool Suite	<ul style="list-style-type: none"> • Donny Suh, M.D. • Jesse Cox, M.D., Ph.D.
VA-13 Cell Line	<ul style="list-style-type: none"> • Dahn Clemens, Ph.D.



INVENTORS WITH ISSUED PATENTS

Ibrahim Al-Shawi	Tammy Kielian
O. Andres Barrera	Jong Oh Kim
Joe Bartels	Amy Lehman
Surinder Batra	Xinming Liu
Volker Bertram	Robert Luxenhofer
Adam Bock	Eric Markvicka
Ben Boedeker	Tom Mcgrail
Tatiana Bronich	David Miller
Wayne Childers	Donald Miller
Keesha Crosby	Jack Mondry
Jeffrey Delaney	Dmitry Oleynikov
Jason Dumpert	Patrick Olson
Paul Dunman	David Padgett
Shane Farritor*	Moorthy Palanimuthu Pon-
Tom Frederick	nusamy
Robin Gandhi	Stephen Platt
Gregory Gordon	Mark Rentschler
Adnan Hadzialic	Carmen Sirizzotti
Hani Haider	Harvey Siy
Maneesh Jain	Jonathan Vennerstrom
Rainer Jordan	Guangshun Wang
Alexander Kabanov	Dong Wang

PATENTS ISSUED

1. "Polymeric Delivery Systems for Active Agents"

U.S. Patent No. 9,402,908 — issued August 2, 2016

- Alexander V. Kabanov
- Rainer Jordan
- Robert Luxenhofer

2. "Robotic devices with arms and related methods"

U.S. Patent No. 9,403,281 — issued August 2, 2016

- | | |
|---------------------|-------------------|
| ■ Shane M. Farritor | ■ Jason Dumpert |
| ■ Dmitry Oleynikov | ■ Adnan Hadzialic |
| ■ Stephen R. Platt | ■ Nathan A. Wood |
| ■ Mark Rentschler | |

Patents Issued: Continued on next page

PATENTS ISSUED

Continued from previous page

3. “Compositions and Methods for Detection and Treatment of Cancer”

U.S. Patent No. 9,403,911 — issued August 2, 2016

- Surinder K. Batra
- Maneesh Jain
- Moorthy P. Ponnusamy

4. “Laryngeal Tube”

U.S. Patent No. 9,421,341 — issued August 23, 2016

- Ben Boedeker
- Thomas W. McGrail
- David J. Miller
- Volker Bertram

5. “Method and Device for Facilitating Surgical Access to a Body Area”

U.S. Patent No. 9,433,492 — issued September 6, 2016

- Jeffrey W. Delaney

6. “Compositions and Methods for the Treatment of Juvenile Neuronal Ceroid Lipofuscinosis and Related Disorders”

U.S. Patent No. 9,457,030 — issued October 4, 2016

- Tammy Kielian

7. “Creatine Oral Supplementation Using Creatine Hydrochloride Salt”

U.S. Patent No. 9,486,424 — issued November 8, 2016

- Jonathan L. Vennerstrom
- Donald W. Miller
- Mark C. Faulkner

8. “On-Board Tool Tracking System and Methods of Computer Assisted Surgery”

U.S. Patent No. 9,498,231 — issued November 22, 2016

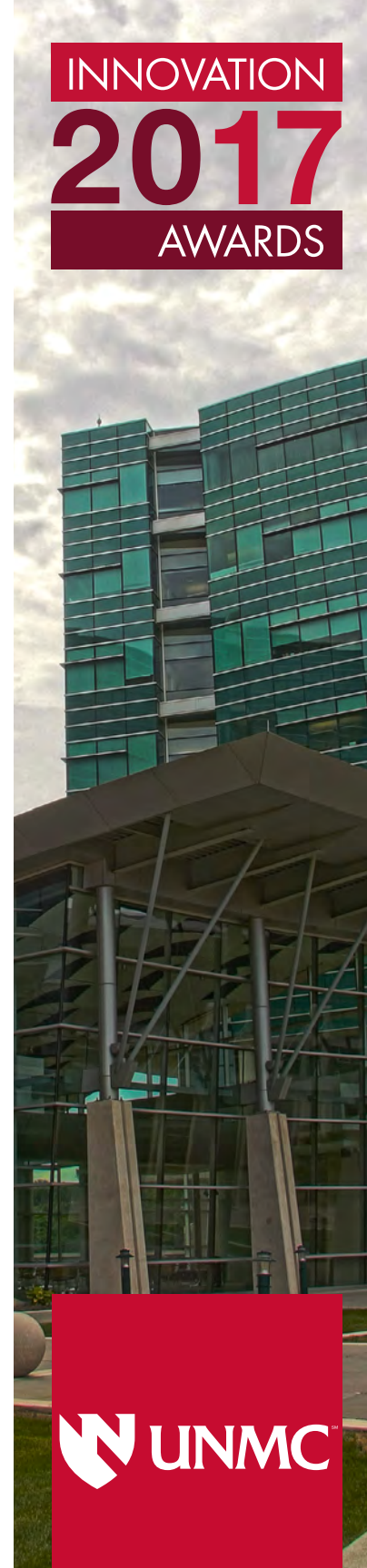
- Hani Haider
- Ibrahim Al-Shawi
- Osvaldo Andres Barrera

9. “Single Site Robotic Device and Related Systems and Methods”

U.S. Patent No. 9,498,292 — issued November 22, 2016

- Shane Farritor
- Joseph Bartels
- Eric Markvicka
- Jack Mondry
- Thomas Frederick

Patents Issued: Continued on next page



PATENTS ISSUED

Continued from previous page

10. “Drug Delivery Compositions and Methods”

U.S. Patent No. 9,498,533 — issued November 22, 2016

- Tatiana K. Bronich
- Alexander V. Kabanov
- Jong Oh Kim

11. “Small Molecule Rnase Inhibitors and Methods of Use”

U.S. Patent No. 9,517,230 — issued December 13, 2016

- Paul M. Dunman
- Patrick D. Olson
- Wayne Childers

12. “Risk Prioritization and Management”

U.S. Patent No. 9,525,698 — issued December 20, 2016

- Robin A. Gandhi
- Harvey Siy
- Keesha M. Crosby

13. “Biomaterial and Metal Binding Liposomes, Their Synthesis, and Methods of Use Thereof”

U.S. Patent No. 9,545,452 — issued January 17, 2017

- Dong Wang
- Xin-Ming Liu

14. “Methods, Systems, and Devices for Surgical Visualization and Device Manipulation”

U.S. Patent No. 9,579,088 — issued February 28, 2017

- | | |
|---------------------|------------------|
| ■ Shane M. Farritor | ■ Nathan A. Wood |
| ■ Mark Rentschler | ■ Adam Bock |
| ■ Amy Lehman | ■ Reed Prior |

15. “Anti-Microbial Peptides and Methods of Use Thereof”

U.S. Patent No. 9,580,472 — issued February 28, 2017

- Guangshun Wang

16. “Sheath”

U.S. Patent No. 9,585,691 — issued March 7, 2017

- Gregory Gordon



Catherine Murari-Kanti

Licensing Associate

- Ph.D., Cancer Biology, University of Nebraska Medical Center
- Joined UNeMed: 2016



Jason T. Nickla

Vice President & Director of Intellectual Property

- J.D., Creighton University School of Law
- LL.M., International Intellectual Property Law, Chicago-Kent College of Law
- Joined UNeMed: 2009



Anne Rivas

Office Assistant II

- Joined UNeMed: 2013



Joe Runge

Business Development Manager

- M.S., Molecular Biology, University of Iowa
- J.D., University of Iowa
- Joined UNeMed: 2005



Steve Schreiner

Vice President & Director of Marketing and Licensing

- Ph.D., Cancer Biology, University of Nebraska Medical Center
- M.A., Microbiology, University of Nebraska at Omaha
- Joined UNeMed: 2006



D.J. Thayer

Dir. of International & Domestic Business Affairs

- M.B.A., Auburn University
- Joined UNeMed: 2014



Mindy Ware

Paralegal

- Joined UNeMed: 2010



Jeff Andersen

Contracts Manager

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



Matthew Boehm

Licensing Manager

- Ph.D., Cancer Biology, University of Nebraska Medical Center
- Joined UNeMed: 2009



Michael Dixon

President & CEO

- Ph.D., Molecular Genetics, University of Nebraska Medical Center
- Joined UNeMed: 2003



Valerie Gunderson

Office Manager

- Joined UNeMed: 2007



Bo Han

UHCS Sr. Business Development Specialist

- M.D., Shanghai Jiao Tong University School of Medicine
- M.B.A., Dartmouth University
- Joined UNeMed: 2014



Cori Harsh

Accountant

- Joined UNeMed: 2009



Charlie Litton

Marketing & Web Content Specialist

- M.A., Journalism, University of Nebraska-Lincoln
- Joined UNeMed: 2013

INNOVATION 2017 AWARDS



(No Model.)

W. F. FORD.
STETHOSCOPE.

No. 257,487.

Patented May 9, 1882.

