In This Issue

• Changing Lives with Regenerative Medicine
• The Power of Scientific Collaboration
Sustaining Our Momentum
Working Together to Ensure a Bright Future

The last decade has been a pivotal period in our 117 year history. With your help, we’ve transformed from a small, seasonal research station into a rising biomedical research institution known for unconventional thinking, rapid results, and the real potential to bring new life-changing therapies to market.

As we plan for the future, we are driven by possibility. Yet we know we must work harder than ever to maintain our momentum. Federal science budgets continue to shrink, and small, independent institutions are particularly vulnerable to economic pressures. Despite our small size, the MDI Biological Laboratory has passionate supporters and a history of moving our research forward no matter what. Just look at what we’ve accomplished together over the last five years:

- Established the Kathryn W. Davis Center for Regenerative Biology and Medicine
- Recruited five research groups to conduct research in regenerative medicine and aging
- Constructed a 12,000 sq. ft. state-of-the-art research building
- Established Novo Biosciences, a for-profit regenerative medicine company developing a new drug to treat heart disease
- Secured more than $70 million in federal and state grants to support our research
- Expanded our capacity to incubate for-profit life science companies on our campus
- Established the Kathryn W. Davis Center for Regenerative Biology and Medicine
- Formed Anecdata, an online tool for crowd-sourcing science data

This summer we are pleased to launch Regen2015, a two-week international course and symposium that will bring scientific leaders together to share concrete examples of how regenerative medicine is changing lives (see page 4).

MDI Biological Laboratory has been a lean, agile, innovative institution for 117 years, and we’re not about to stop now.

Kevin Strange, Ph.D.
New Australian Partnership Launched

The MDI Biological Laboratory in Bar Harbor, Maine, has signed a partnership agreement with the Australian Regenerative Medicine Institute (ARMI) at Monash University in Melbourne, Australia, to promote research and education on regeneration and the development of new therapies to improve human health.

“ARMI and the MDI Biological Laboratory are the only two research institutions in the world that focus on understanding how diverse animals are able to readily grow new body parts after injury or disease,” says Kevin Strange, Ph.D., president of the MDI Biological Laboratory. “By partnering with ARMI, we will be able to speed the discovery of new ways to promote healing and tissue repair in humans and potentially improve Maine’s economy. This is an exciting opportunity for us all.”

The new agreement will facilitate the creation of an international exchange program between faculty and students at the two research institutions, including graduate students conducting Ph.D. thesis research at the MDI Biological Laboratory and Monash University, and Monash University medical students. Three Monash graduate students will participate in a new regenerative biology course and symposium to be held at the MDI Biological Laboratory in summer 2015.

The partnership also opens the possibility of developing biotech business connections between Maine and Australia in areas of shared interest, and may also develop a drug discovery consortium focused on using a variety of organisms to model diseases and identify new pharmaceuticals.

According to Professor Peter Curtin, ARMI’s deputy director, “This partnership offers an unprecedented opportunity to build on our increasing knowledge about natural mechanisms for healing and repair. ARMI and the MDI Biological Laboratory share a common mission and drive to put our discoveries to work as new therapies.”

Updike Receives $1.7M Grant to Study the Germine

Dustin Updike, Ph.D., has been awarded a $1.7 million grant by the National Institutes of Health to study factors that may make it safer and easier to use stem cells in medical treatments.

Updike studies small structures known as germ granules that are found only in germine stem cells. Germine stem cells give rise to all cells in the body including the sperm and eggs that will carry the organism’s DNA into the next generation. Stem cells, with their ability to repair or replace damaged tissues, have great potential for treating injuries and diseases such as diabetes and heart disease.

“The presence of germ granules in a cell can alter and confer stem cell properties,” says Updike. “Once we determine how germ granules function, we may be able to use those natural mechanisms to create stem cell therapies from a patient’s own cells that are safer.”

Updike joined the Davis Center for Regenerative Biology and Medicine at the MDI Biological Laboratory in 2012. He was the first researcher to demonstrate that if you remove germ granules from germine stem cells, the cells lose their stem cell qualities and become more like muscle or nerve cells.

Current methods for creating stem cells from ordinary cells involve making changes inside the cell nucleus, where the cell’s chromosomes are found. These methods can damage DNA, making the procedures risky. Germ granules, however, lie along the outside of the membrane around the nucleus. They appear to intercept and regulate genetic material exiting the nucleus that would otherwise cause the cell to differentiate or become a specific type of cell.

Incubating Early-Stage Companies

A new Maine biotech company, RockStep Solutions, Inc., began working out of offices at the MDI Biological Laboratory earlier this year. Founded in October 2013, RockStep develops information management software for research laboratories.

“The MDI Biological Laboratory is a perfect start-up environment for RockStep,” says Chuck Donnelly, Ph.D., the company’s CEO. “The Lab offers a world-class research environment combined with an entrepreneurial spirit, and we’ll have the added benefit of being able to interact with the MDI Biological Laboratory’s scientific staff.”

RockStep develops laboratory management information systems designed specifically for mobile platforms, such as smartphones and tablets, to give researchers quicker access to their data. The company recently received a Small Business Innovation Research grant of $224,000 from the National Institutes of Health.

“We feel it’s important to make our physical and intellectual resources accessible to early stage biotech companies,” says MDI Biological Laboratory president Kevin Strange. “An important part of our mission is to ensure that we are using our talents and resources to solve real world problems. Creating a dynamic research and development environment here benefits us all, and it will help grow and modernize Maine’s economy.”

The MDI Biological Laboratory campus is already home to the Laboratory’s spinoff company, Novo Biosciences, Inc., and its new data collection project, Anecdata.org. Noting their presence, Chuck Donnelly says, “The MDI Biological Laboratory is a place where entrepreneurial collaborations and synergies are really ripe for picking.”

New Art Meets Science Café Series Launched

Working in partnership with Kelly and Jane Littlefield of Littlefield Gallery in Winter Harbor, Maine, the MDI Biological Laboratory will launch a new Art Meets Science Café series this summer. Similar in format to a Science Café, the new Art Meets Science Café is designed to encourage casual conversation about the connections between art and science.

Events are open to the public and will be held every other Monday during July and August. The first Café will be on July 13, 2015 at 5:00 p.m. in the Kinne Library at the MDI Biological Laboratory, and will feature a presentation by Maine sculptor, Mark Herrington and Dr. Harold Borns, professor emeritus at the University of Maine School of Earth and Climate Sciences. Attendees are encouraged to participate in lively discussion, enjoy refreshments, and explore the 2015 Art Meets Science exhibit, Is it Art, or is it Science?

More details available at www.mdibl.org/artcafes.
Changing Lives with Regenerative Medicine

MDI Biological Laboratory launches new Regenerative Medicine Course and Symposium

Dustin Shillcox was 26 years old when doctors told him he’d never move his legs again.

It was August, 2010. Shillcox was driving the company truck on the interstate near Green River, Wyoming. A tire blew out, the truck flipped over, and Dustin was flung through the window. He broke his back, sternum, elbow, and four ribs. His lungs collapsed and he injured his spine, leaving him paralyzed from the chest down.

But today, Dustin can move his legs and toes, and is working on his sit ups and back extensions, thanks to an experimental research study led by Claudia Angeli, Ph.D., senior researcher at the Human Locomotion Research Center at Frazier Rehab in Louisville, KY.

Angeli will be joined by Shillcox to describe this seemingly miraculous success in a keynote presentation at a symposium entitled “Comparative Biology of Tissue Repair, Regeneration, and Aging” at the MDI Biological Laboratory, June 26–28. The keynote presentation is one of several lectures that will be free and open to the public.

A symposium for the scientific experts—and for the rest of us

The science of regenerative medicine isn’t easy for the average person to understand. For one thing, it uses an unfamiliar, complicated language—terms like “pluripotent stem cells” and “gene expression regulation” are beyond most of us.

And that can make it tough to grasp why the work going on at the MDI Biological Laboratory is so important. Just how is it relevant? What are the implications for human health? And when will we see the benefits?

The symposium will answer these questions in language that anyone with an interest in science can understand.

Top experts in regenerative medicine will share their latest discoveries with the scientific community, and talk about where the field can potentially go. They will offer six free lectures designed to educate and engage the general public about the broad range of research that makes up the field of regenerative medicine—and how it can actually change people’s lives, today and in the future.

“It looked like a miracle,” says Angeli.

The experimental treatment that Shillcox received is just one dramatic example of how research in regenerative medicine changes lives. A new therapy called spinal cord epidural stimulation has enabled Shillcox—and all three of the other paraplegic men who participated in the study—to regain voluntary movement. It’s a potential game-changer for the 1.25 million individuals in the US who suffer paralysis as a result of a spinal cord injury.

How does it work? A small electrode—an off-the-shelf commercial device typically used to treat neurologic pain—was implanted on the spinal cord of each research participant in the location corresponding to the neurons that control locomotion. When the stimulator is switched on, all four of the men are able to move their hips, knees, ankles, and toes voluntarily.

Ongoing training consisting of assisted standing and stepping exercises has enabled them to expand their range of movement and increase their control.

Catastrophic spinal cord injuries damage and interrupt the pathways between their brains and their lower extremities. Yet, even after severe injury—and years after the initial injury—the spinal cord retains the capacity to control and direct muscle movement.

“Everyone used to think the brain was the main controller. But our argument is that all the organization occurs in the spinal cord. All the brain has to do is send the intent to move. Then the spinal cord takes over,” says Angeli.

What to expect at the keynote lecture

At the opening keynote presentation, Angeli will explain the groundbreaking scientific significance of these results—and how they fit into the broader scope of regenerative medicine. And Shillcox will talk about the incredible impact this experiment has had on his life.

“The feeling I get when I turn the stim on is amazing,” he says. “When I stand or work on walking, I feel great because I’m doing things that I was told would never happen again. It makes me feel normal. It’s like… I’m back!”

The symposium will host about 100 scientists, most of whom will offer presentations on their latest research. “We will have students, young scientists who are just starting their careers, and the leading experts in the field,” says Voot Yin, Ph.D., assistant professor at the MDI Biological Laboratory.

“It will be an opportunity for scientists, students, and the public to interact, and to foster movement into the next great discovery.”

For more information about the Regen2015 Public Lecture Series, log on to www.mdibl.org/events/Regen2015.

First-of-its-Kind Course Offered in Conjunction with the Symposium

“This is something I’ve been eager to have happen for a number of years,” says Voot Yin, assistant professor at MDI Biological Laboratory, and one of the architects of the course.

“Our goal is to create a signature course that builds upon the unique strengths of our research programs.”

This summer, the MDI Biological Laboratory will host a two-week, intensive course in comparative regenerative biology, taught by a faculty of outstanding scientists from around the world.

“There are so many organisms that have the natural ability to repair damaged tissues, or replace missing tissues,” says Yin. “These model systems are instrumental in revealing what is important at a cellular and genetic level in regeneration. They also serve as platforms for developing therapies for regenerative medicine.”

Faculty will include the leading experts for four model systems commonly used in regenerative biology research—hydra, planaria, salamander, and zebrafish. Students will have the opportunity to learn the techniques and processes for working in the lab with each of these animal systems.

The course will integrate the newest technology in bioinformatics to identify genes responsible for regeneration in each model system and explore commonalities among them.

“By the end of the course, we’ll have a data set that looks at comparative genomic response of these different systems, and the students will be authors on a paper we plan to publish,” says Yin.

Course enrollment will include registration for the symposium, providing students with a unique opportunity to meet with and learn from a diverse group of experts in the fields of regeneration and aging biology and medicine.

“This will be a truly international group of students, representing Japan, Europe, New Zealand, Australia, Latin America, as well as the US,” says Yin.
**Voices Dustin Shillcox**

Clockwise from left: Dustin Shillcox stopping traffic on 42nd Street in New York City, and standing in Grand Central.

**Name**
Dustin Shillcox

**Born & Raised**
Wyoming

**Currently Resides**
Salt Lake City, Utah

**MDI Biological Laboratory Affiliation**
Keynote co-presenter at the Comparative Biology of Tissue Repair, Regeneration, and Aging Symposium 2015, where he will speak about his experience with an experimental new therapy—electronic epidural stimulation—that has returned his ability to move after a catastrophic spinal cord injury.

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**Q:** How severe was the spinal cord injury you sustained in 2010?

**A:** I have no sensory or motor function in the lower part of my body.

**Q:** What has the stimulator implant made possible that you were unable to do before?

**A:** With the stim turned on, I have voluntary movement—I can move my legs, toes and ankles. I can stand upright—full weight-bearing—on my legs.

**Q:** Can you describe what it was like when you first discovered you could move, three days after the stimulator implant in 2013?

**A:** It was a shocking moment. When you’re told that you will never be able to move your legs, toes, and ankles—you have to work hard to accept that that’s where you’re going to be. When I had the opportunity to be involved in this research, I thought in the back of my mind that it wasn’t going to work for me. When I started having movement, it was an amazing feeling.

**Q:** Are you continuing to use the stimulator now that the research study is officially over?

**A:** I go to the gym every day and work with my stimulator religiously. I can’t do a full sit-up, but I can work the muscles. The stimulator definitely helps me get stronger, but what I’m doing also advances the research. I know the stimulator will eventually become an option for anyone living with a spinal cord injury.

**Q:** Has the stimulator therapy had any other impact on your health?

**A:** It has improved my pulmonary function enormously. In the accident, both my lungs collapsed and my lung capacity was severely reduced. Now my lung capacity is the same as the average able-bodied person. It also helps regulate my blood pressure, improves certain autonomic functions, and increases muscle mass.

**Q:** How significant is the change in your life, since you had the implant?

**A:** Before the implant, I spent a lot of time in therapy, trying to get something back. It was frustrating. My self-confidence dropped. I was afraid to do things, to put myself out there. The stimulator has given me back control. It brought back hope and motivation. It boosted my self-confidence and changed my whole quality of life. It’s been huge.

**Q:** What are your plans and hopes for the future?

**A:** I want to continue working with the stimulator, trying to advance to the ultimate goal, which is to walk again. I also want to continue to inspire people with motivational talks. I look forward to marriage and a family. In the short term I’m training for a triathlon this summer. And this November, I’ll be competing in the New York City Marathon!
Zoya Ignatova, Ph.D., is a biochemist at the University of Potsdam in Germany and an expert on the cellular machinery that makes proteins, the large molecules that keep cells functioning. Scientists have long assumed that as organisms age, their cells become more likely to make mistakes as they form new proteins, and those mistakes can lead to serious conditions such as Alzheimer’s, Huntington’s, and Parkinson’s diseases. But the detrimental effects of age on protein synthesis has never actually been proven, so in 2013 Ignatova decided to take that assumption as her hypothesis and test it.

To learn precisely how the cell’s protein factories—the ribosomes—link individual amino acids together to make new proteins, Ignatova had studied cancer cells grown in a lab dish. But cultured cells don’t age in any conventional sense. Therefore, to test the effects of aging, she needed new expertise and know-how. So she began a trans-Atlantic collaboration with Aric Rogers, Ph.D., assistant professor at the MDI Biological Laboratory and an expert in aging and C. elegans.

A history of collaboration

The MDI Biological Laboratory was built on the premise that collaboration is one of the best ways to move science forward. For nearly a century, scientists and their students came to Salisbury Cove in the summer to work with researchers from different academic and research institutions. As the late Leon Goldstein, Ph.D., a Brown University professor who spent more than fifty summers at the MDI Biological Laboratory, put it, “the chance to collaborate with other investigators who were the ‘best and brightest’ from around the world was stimulating and highly rewarding.” Scientists and their families stayed in small cabins located, for the most part, on campus, and science imbued every hour of the day and night.

Times have changed for science, academia, and families; science imbued every hour of the day and night. Scientists and their families stayed in small cabins located, for the most part, on campus, and science imbued every hour of the day and night.

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In 2015, 70% of all visiting scientist applications were for collaborations with faculty members.

The laboratory also hosts scientific conferences that bring scores of researchers together, and it was at one such event that Ignatova learned about Aric Rogers. As a biochemist, she presented her work on how ribosomes translate genetic information into proteins at the annual meeting of the Biophysical Society, held at the MDI Biological Laboratory in September 2013. She met Kevin Strange, Ph.D., the MDI Biological Laboratory's president, whose work also involves C. elegans, protein synthesis, and aging. He suggested she approach Rogers about collaboration and apply for an Innovation Award to enable her to visit the Laboratory.

Working together to understand aging

“Our research interests are closely aligned,” says Rogers about Ignatova. “In my laboratory, we’re interested in protein synthesis and how changes in that process affect longevity. So we’re very interested in the translational machinery. And Zoya is an expert in that.”

Ignatova studies what happens inside the cell’s ribosomes, where new proteins are formed. Long strands of messenger RNA arrive at the ribosome bearing information directly from the DNA in the cell’s nucleus. Every group or codon of three nucleotides along the RNA corresponds to a particular amino acid. The protein synthesis machinery in the ribosome reads the codons and translates their information into a new protein as it selects the appropriate amino acids and assembles the larger molecule.

Ribosomes work quickly, and mistakes happen. When codons are especially repetitive, mistakes are more likely to occur. Ignatova has delineated a process known as frameshifting in which the ribosomal machinery starts reading the second letter in a series of codons as the first and, as a result, creates misformed proteins. In other words, instead of reading CAG CAG CAG and selecting the amino acid that corresponds with CAG, it reads AGC AGC AGC and chooses a different amino acid.

The gene that codes for huntingtin, the protein involved in Huntington’s disease, has long repetitive stretches that make it easier for frameshifting to occur, making it an excellent subject for Ignatova’s study. In fact, doctors predict the course of the disease in Huntington’s patients by examining the length of those repetitive elements in their genes—the greater the number of repeats, the faster the disease will progress. So before Ignatova arrived at the MDI Biological Laboratory last summer, she sent Rogers a genetic construct that enables C. elegans worms to produce the human version of the huntingtin gene.

“The chance to collaborate with other investigators who were the ‘best and brightest’ from around the world was stimulating and highly rewarding.”

Ignatova, like Rogers, chose C. elegans as her model organism because of its relatively short lifespan, normally two to three weeks, and well-understood genome. “They grow really fast,” she says. “That allows many experiments to be done simultaneously in a short time. And the genetics of C. elegans is beautiful.” All of the worm’s genes and their functions are well understood, so it’s easy to modify specific genes to answer research questions.

Before Ignatova or her graduate student even arrived in Maine, the Rogers lab had injected the genetic construct and created a strain of worms producing the human huntingtin protein. In addition to his professional interest, Rogers has a strong personal motivation to discover the mechanisms underlying Huntington’s and other neurodegenerative diseases. His father’s mother and grandmother both had Huntington’s, and one of his aunts has it now. “Even as a child I could see what was happening to my grandmother,” he says of watching her health deteriorate. Now, he focuses on aging because it is the source of discovery for every age-related disease.

A beneficial alliance

Both Rogers and Ignatova feel their research has benefited from their working together, and especially from the kind of on-site collaboration made possible by the visiting scientist program at the MDI Biological Laboratory. “Technically, this was a new field for us, and we had so many questions,” Ignatova says. “Being physically present in Aric’s lab was wonderful.” Rogers notes, “The visiting scientist program is not something most people in science have access to. Yet it is hugely helpful for forming new collaborations and maintaining established ones.”

One of the strengths of the program is that it brings scientists from different fields together. “As a biochemist, Zoya has expertise that I don’t have,” Rogers says. “For example, she measures translation differently than we do. So we talk. We share our expertise and different approaches.” Working with people with different backgrounds, Ignatova says, helps her formulate approaches. “Working with people with different backgrounds, Ignatova says, helps her formulate questions that she would not normally think of.

Ignatova, who is moving her laboratory from Potsdam to the University of Hamburg this spring, also appreciates the opportunity to get away from her routine in a large university and focus exclusively on research. “It’s wonderful to have no meetings or administrative duties,” she says. “You need that at a university, but I think it’s great to have the chance to do something different—to do what I call real science.”

Preliminary results from last summer’s work suggest that aging has a definite effect on protein synthesis. “The collaboration has been fruitful,” says Ignatova, as she makes plans to be back in Rogers’ lab in the fall of 2015.
Alumni News

Whether you are in Maine or somewhere far away, we are always happy to hear from our alumni, and we’d be delighted to welcome you back to Salisbury Cove for a visit. Please send your news to our alumni coordinator, Rachel Post at rpost@mdibl.org, and stay in touch on Facebook!

Chris White, ’45 –’52, spent summers at the MDI Biological Laboratory with his dad, Dr. Philip R. White. He has many good memories of his time at the MDI Biological Laboratory, including playing softball and spending time in the dining hall. After graduating from Middlebury College in 1963 with a degree in geology, Chris spent time in the Army and taught high school in upstate New York for 33 years. Now he and his wife live in Bucksport and summer on Great Cranberry Island. The Maine life is good!

Bob Howe, ’56 -’57, has been retired for five years but loves to hear about the MDI Biological Laboratory. He is at the University of Minnesota one day a week, primarily for his own enlightenment. He’s currently in touch with Peggy Forster and Fred Berglund.

Chuck Dinsmore, ’75 -’84, became president of the Board of Directors at Hidden Valley Nature Center (HVNC) in Jefferson, ME this past January. HVNC is a 1000 acre “gem of wilderness in Mid-Coast Maine” with over 30 miles of trails. The mission is to promote nature-based education, non-motorized outdoor recreation, and sustainable, best practice forestry. When guiding naturalist hikes at HVNC Chuck often finds salamanders of the species that were so important to his regeneration research at the MDI Biological Laboratory.

Anya Brown, ’07, finished her bachelor of science at Brown University in 2009, and in 2012 she finished her master’s degree at California State University, Northridge. Her research focus was on flow-mediated coral-algal interactions. Currently she is a Ph.D. student at the University of Georgia in the Odum School of Ecology with Craig Osenberg.

Wei Chen, ’09, attended the Origins of Renal Physiology course while a second year internal medicine resident at Albert Einstein College of Medicine. Since then, she finished a clinical research renal fellowship and obtained a master of science in clinical research methods at Albert Einstein. She recently joined the renal faculty at the University of Rochester School of Medicine and Dentistry. Her current research focus is on the effect of metabolic acidosis on vascular calcification in patients with chronic kidney disease. Wei, her husband Barry, and their son Benjamin (now 5) welcomed the birth of Samuel in 2011 and Lauren (yes, finally a girl) in 2013. Benjamin, Barry and Wei revisited Bar Harbor in 2012 and are planning to take Samuel and Lauren for a hike soon in beautiful Acadia National Park.

Ryan Dawes, ’10, graduated with a BS in biology from University of Maine in 2011 and received his MS in neuroscience from the University of Rochester Medical Center in 2013. He’s currently a neuroscience Ph.D. ’16 candidate at the University of Rochester Medical Center where he’s studying the impact of psychological stress on breast cancer growth and progression. Ryan received a 2012/2013 Breast Cancer Research Initiative grant from the Breast Cancer Coalition of Rochester, and a 2014 Trainee Scholar Award from the Psychoneuroimmunology Research Society.

Dacie Manion, ’10 -’12, graduated in June from the mechanical engineering department at the Massachusetts Institute of Technology, and can’t believe how quickly college has gone!

Annie Evankow, ’11, graduated from Colorado College in 2012, with a thesis based on her elghras restoration work at the MDI Biological Laboratory. Shortly after graduation, she moved to Oslo, Norway, and married her college sweetheart. She is currently pursing a master’s degree at the University of Oslo in Ecology and Evolution and continuing to pursue the MDI Biological Laboratory’s objectives of community outreach through citizen science projects.

Meredith Bache-Wiig, ’12, started in the Biology Ph.D. program at the University of Washington, Seattle this year.

Tyler Ham, ’13, moved to Cape Girardeau, Missouri in 2013 to begin a new position working for the Missouri Department of Conservation as a Fisheries Research Technician. He spends most of his days on the Mississippi River, helping to gather data to make informed management decisions to ensure sustained fisheries populations for the future. This fall he will enroll in a masters of natural science program at Southeast Missouri State University. He is excited to continue to kindle the scientific flame that was ignited in him from his time at the MDI Biological Laboratory. In his free time he can usually be found fishing, reading, or hiking, although he has yet to find a view in Cape Girardeau that is as breathtaking as those of Acadia National Park.

Dr. Bodil Schmidt-Nielsen, long-time member of the MDI Biological Laboratory research community, passed away on April 27, 2015 at the age of 96. The daughter of two prominent physiologists Marie Krogh and Nobel Laureate August Krogh, Schmidt-Nielsen received her D.D.S. from the University of Copenhagen in 1941 and her Ph.D. in 1955. After studying Homer Smith’s book on the kidney, Schmidt-Nielsen first came to the MDI Biological Laboratory in 1952 to study urea secretion. She attributed her decision to pursue a career in comparative physiology partly to her interactions with Homer Smith, E.K. Marshall and others at the MDI Biological Laboratory. “My background in my father’s laboratory had already prepared me for becoming a comparative physiologist, but I did not know how much the comparative approach dominated my thinking until I started working in comparative renal physiology at the MDI Biological Laboratory.”

Schmidt-Nielsen spent the majority of her research career at Duke University and Case Western Reserve. In 1971 she resigned her tenured professorship at Case Western to become the first permanent research scientist at the MDI Biological Laboratory, where she remained until 1986. Throughout her distinguished career Schmidt-Nielsen received numerous awards and honors including election to the American Association for the Advancement of Science in 1959, and election as the first female president of the American Physiological Society in 1975. She also served as a member of the MDI Biological Laboratory Board of Trustees from 1966 – 1993, including a term as president from 1981 – 1985. A celebration of the life and career of Bodil Schmidt-Nielsen will be held at the MDI Biological Laboratory on Saturday, August 8, 2015 at 3:00 p.m.
This summer we’re excited to launch a series of fun, interactive culinary events designed specifically for members of the Star Point Society.

Star Point Society members will join an MDI Biological Laboratory scientist and a locally acclaimed chef in exploring the connections between science and food. How do we distinguish between flavors like bitter, salty and sweet? How are our abilities to smell and taste connected? Can longevity and resistance to disease be enhanced by our diet?

Enjoy a multi-course meal prepared with locally sourced ingredients seasoned with just a hint of science.

**FRIDAY, JULY 24, 6:00 P.M.**
Variation in our sensitivity to tastes such as bitter is a genetic trait. Join Dr. Robert Morris, a professor of biology at Wheaton College and chef Michael Anderson, co-owner of August Moon Catering, as we explore how and why we differ in our ability to taste certain flavors.

**FRIDAY, AUGUST 14, 6:00 P.M.**
How long we live and our ability to remain healthy are tied to our genes, but also to environmental factors such as our diet. Join Dr. Aric Rogers, assistant professor at the MDI Biological Laboratory and chef Amanda Kendall, owner of Sassafrass Catering, as we explore how our genes are regulated by the foods we eat.

*Seating is limited. For reservations, please call (207) 288-3147.*

**Kinne Library, MDI Biological Laboratory**
159 Old Bar Harbor Road, Salisbury Cove, Maine 04672