

celebrating nature | advancing science

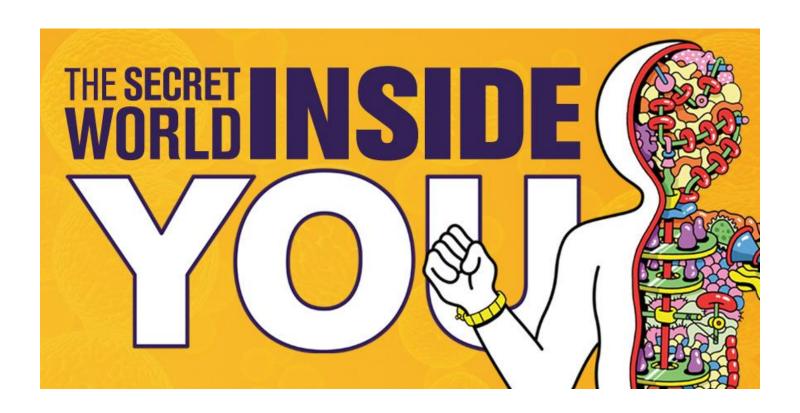
Secret World Inside You

Sponsorship and Impact Report

April 2017

Thank You!

The North Carolina Museum of Natural Sciences and Friends of the Museum are grateful for the support and partnership of UNC REX Healthcare, the NC State College of Sciences, and RTI International in bringing to the Museum *The Secret World Inside You*.



Executive Summary

Crawling on your skin, swimming in your gut, and traveling through your intestines are over 100 trillion teeny, tiny microorganisms. Collectively they are known as your microbiome, and they help keep you healthy. In *The Secret World Inside You*, visitors to the North Carolina Museum of Natural Sciences were introduced to the community of creatures that your immune system, digestive system, and brain rely on for every day existence and functioning!

The Secret World inside You was on display at the Museum from October 22, 2016 through March 12, 2017. During its 134-day run, the exhibition was attended by a total of 22,746 visitors, an average of 170 per day. It captured 7.2% of the total Museum attendance during its run and was filled to capacity 11.8% of the time it was open.

Using videos, larger-than-life models, and interactive games, *Secret World Inside You* explored the microscopic, non-human life in and on our bodies and the benefits of coexisting with these organisms. Visitors discovered how the community of bacteria, fungi, and other organisms the live in and on all human beings changes as we grow and mature, as we are exposed to new environments and foods, and as medications are ingested. This unique exhibition investigated the cutting-edge science of the human microbiome and offered a new perspective on human health.

During its time in Raleigh, the exhibit included added media, interactives, and more. Visitors enjoyed exclusive features that included a talking mannequin, a "pit stop" about stinky armpits, and microbial portraits of people and places in Raleigh. In the **Super Human Theater**, mannequin Genny came to life to tell the story of the super hero microbes that saved her life. **Pit Stop** featured cutting edge research by Museum scientists about the armpit microbiomes of human and non-human primates. Visitors also explored the **Hometown Hero Microbe Portraits** of some of our favorite local celebrities, an unusual feature of the exhibition in which artist Joana Ricou's *Microbial Portrait of Raleigh*, *NC* and individual microbial portraits were painted using locally-collected microbes.

The Museum's goal for this featured exhibition was to enhance its mission "to illuminate the interdependence of nature and humanity" by increasing the public's curiosity about and knowledge of science, the natural world, and humanity's interconnection with nature. While the logistics of quantifying the achievement of such a goal can be challenging, based on public interest in the exhibit, visitor feedback, and the positive evolution of the event, we believe the Museum has provided a valuable service to North Carolina and beyond be hosting this exhibition. In that spirit, we offer as evidence the report that follows. We are humbled that our sponsors share this vision and are eternally grateful for your support.

With gratitude,

Dr. Emlyn Koster, PhD

Director

NC Museum of Natural Sciences

Attendance

Tickets to this exhibition were \$10 for adults, but 21% of attendees gained free admission. Free admission was given to members of the Friends of the Museum, students at certain local universities, state employees (during State Employees Appreciation Week) and assorted others.

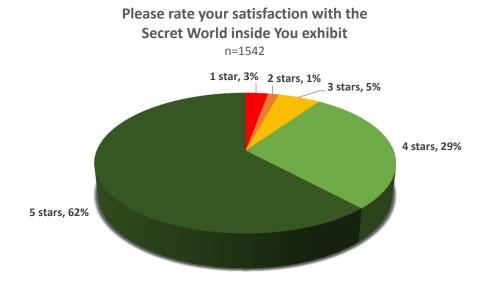
	Dates	Total	Daily Avg.	Capture rate	Fill rate	Adult price
SWIY	10/22/16 -	22,746	170	7.2%	11.8%	\$10
	3/12/17					

Evaluation Method

An electronic survey kiosk positioned near the exit door of the gallery collected visitor feedback. 1,542 valid responses were collected (6.8% of the total attendance to this exhibition), an average of about 11 responses per day.

Ratings & Recommendations

Visitors to the exhibition were very satisfied with their experience, with 90% giving it a rating of four or five out of five. The average rating across all responses was 4.5 out of 5. 84% said that they would recommend it to others.



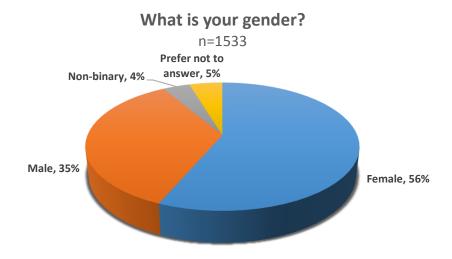
Comments

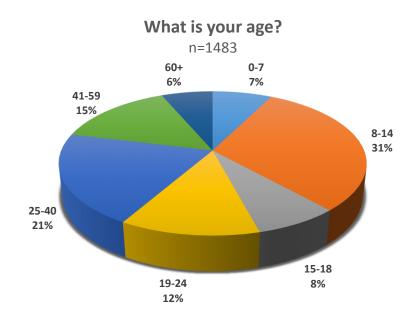
The majority of comments about the exhibition were positive. Below are select quotes from visitors:

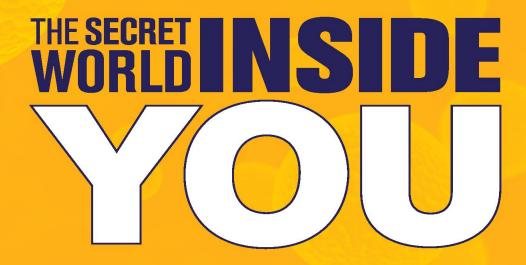
- "Best travelling exhibit so far. Top notch! This one will make you think differently about what you eat, how you view
 "germs", and you will walk away with positive changes you can incorporate into becoming healthier and less
 dependent on meds which can destroy our body's natural defenses."
- "Great exhibit. A visit should be required for schools."
- "Very valuable information relative to microbes and to assumptions that need to be reassessed concerning health."
- "This exhibit was really well done and provided a lot of info that will help me in my future career choices."
- "I definitely recommend this exhibit for all ages and that the museum did an excellent job with everything in this exhibit! THANK YOU!!!!!"
- "Thank you!!! Any exhibit about the human body will 10000x over bring me back here. I spent 4 hours in this exhibit alone and could have been here longer."
- "It was super educational and fun."
- "Love it!! Especially the way it ties in to human health and makes you change your mind about what to put in your body. Inspires Wonder"

Demographics

More females (56%) than males (35%) completed the survey. 54% of the respondents were adults (aged 19 and older), while 46% were aged 18 and under. Most visitors (88%) were from North Carolina, but 38 other states were represented in the zip codes that were reported.







PRESENTED BY:



IN PARTNERSHIP WITH:

NC STATE College of Sciences

WITH ADDITIONAL SUPPORT FROM:



MEDIA SPONSORS:

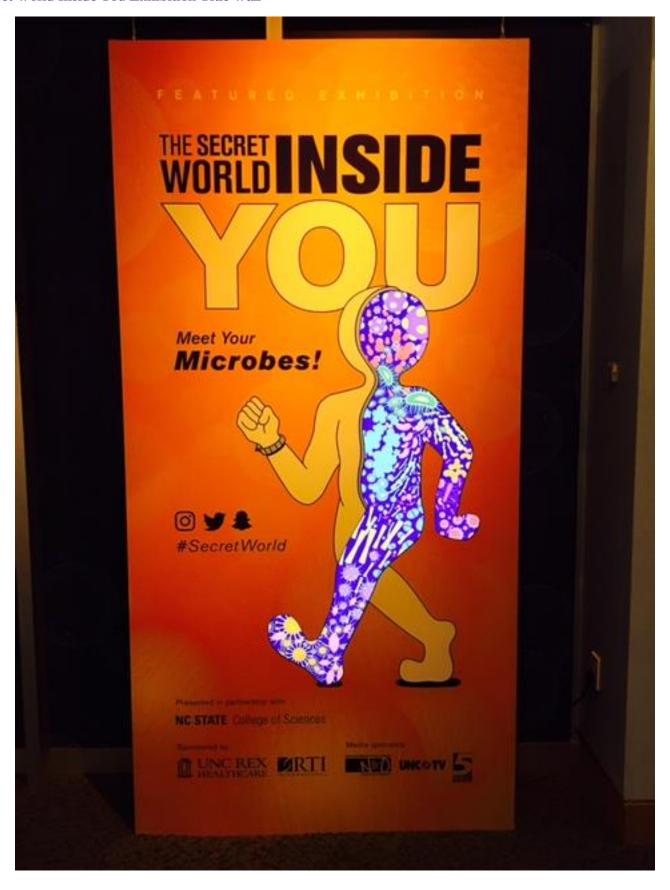




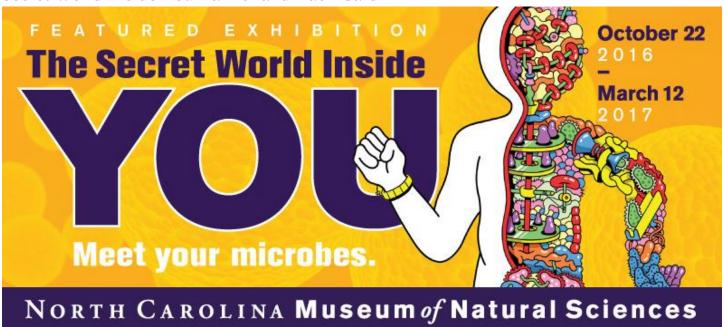


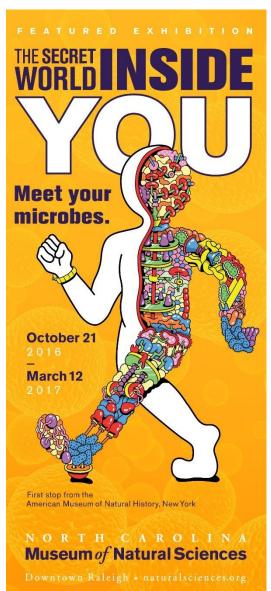


Secret World Inside You Exhibition Title Wall



Secret World Inside You Banner and Rack Card





WORLD INSIDE

Most your microbes.

October 22, 2016 - March 12, 2017

Did you know that there are more microbes living in and on your body than there are stars in our Milky Way galaxy! Microbes — arganisms too small to be soon with the naked en your body than there are stars in our Milky Way galaxy Microber — arganisms too small to be soon with the nakes eye — have often been seen simply as "germs" that cause disease. Yet courtary to this cananon misconception, most of your microber are vital to kenying your digestive system, your immune system, and even your brain wacking system. This exhibition explores the napidly evolving science that is revolutionizing how we view human health and the inner workings of our bodier.

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College of Sciences

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Tickers also equilable collines atunalicien cer.org

Proceeds benefit Friends of the еснь, в 501(c)(5) попровіл which supports Museum programs, research and exhibits



NORTH CAROLINA Museum of Natural Sciences

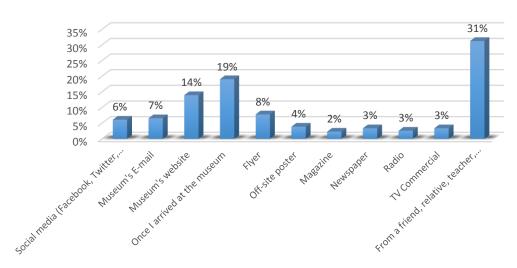
11 West James Street - Raleigh, NC 27601-1029 naturalsciences.org . @naturalsciences

Marketing and promotions

Most visitors heard about the exhibition via word of mouth (31%), after they arrived at the Museum (19%), or via the Museum's website (14%). The majority (75%) said that they came to the Museum specifically to see this exhibition.

How did you hear about this exhibit?

n=1940



During the 6-month run of the exhibition, 23,688 people viewed the Secret World Inside You page of the Museum's web site. This page included sponsor logos as pictured below:

http://naturalsciences.org/exhibits/featured-exhibitions/secret-world-inside-you



Advertising (need to double check the statement below and get rid of the formatting and just list)

The exhibition was promoted on all Museum social media, including Facebook, Twitter, Instagram and Snapchat(?) It featured prominently on the Museum homepage, and paid advertising spots through a variety of media included:

Web	Radio	TV	Print
Newsandobserver.com	North Carolina Public	UNC-TV	The Raleigh News &
WRAL.com	Radio WUNC	FOX50	Observer
		MeTV	







Fun 4 Raleigh Kids @Fun4RaleighKids - 22 Oct 2016

Who said science can't be fun? The Secret World Inside You Exhibit at North Carolina Museum of Natural Sciences... fb.me/5glN0ZSaE



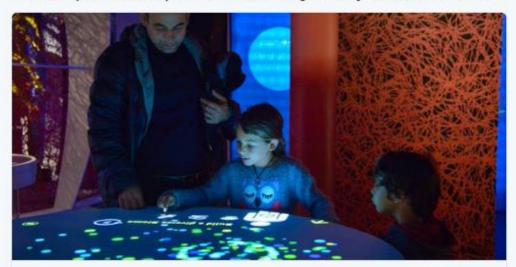






Rest House Float @RESTHouseFloat - 18 Oct 2016
The Secret World Inside of Us

The still-mysterious ecosystem of bacteria living inside you determines an...



9 Fascinating Facts About The Microbiome, The Trillions Of Microb...

The still-mysterious ecosystem of bacteria living inside you determines an incredible amount about your healthand your personality.

fastcoexist com



Galaxy Diagnostics @Bartonella - Feb 14

What does your armpit say about you? The Secret World Inside You @naturalsciences runs til March 12. #Microbiome



What does your armpit say about you? Museum exhibit takes a look

The North Carolina Museum of Natural Sciences' current featured exhibit focuses on the human microbiome, the private ecosystem made up of th...

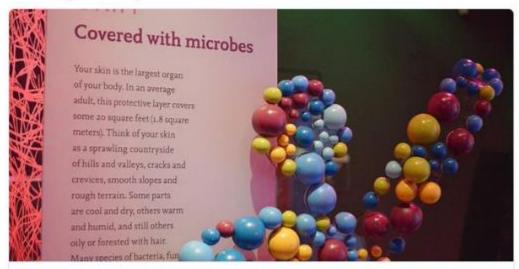
newsobserver.com





Technician @NCSUTechnician Jan 17

"The Secret World Inside You" is an illuminating source for learning about something that every human has in common.



NC Museum of Natural Sciences features enthralling microbes exhibit

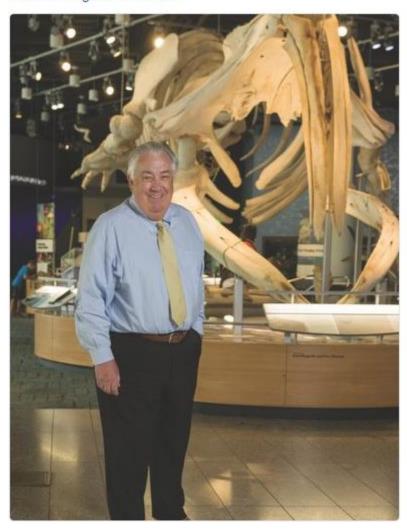
The North Carolina Museum of Natural Sciences' "The Secret World Inside You" exhibit is a germaphobe's nightmare. As a section of the museum t...

technicianonline.com



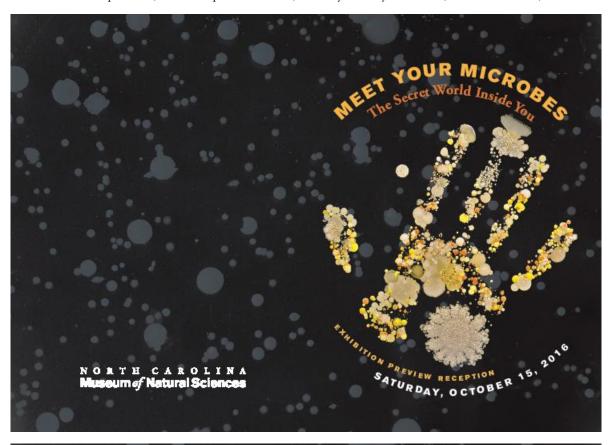
Midtown Magazine @MidtownMagazine · 24 Oct 2016

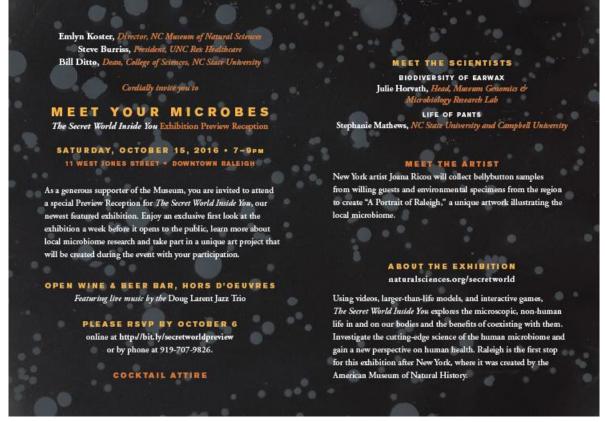
The new exhibit at @naturalsciences exposes The Secret World Inside You! We chat with Director about its inspiration midtownmag.com/ncmons/



VIP Reception Invitation

On Saturday, October 15, *The Secret World Inside You* opened with an Exhibition Preview Reception was attended by about 150 representatives of fabulous sponsors, other corporate donors, Brimley Society members, elected officials, and other VIPs.





Media Preview

On Friday, October 21??, The Secret World Inside You opened to the public with a Media Preview attended by about 50 people including members of the print and broadcast press as well as sponsors and Museum researchers.

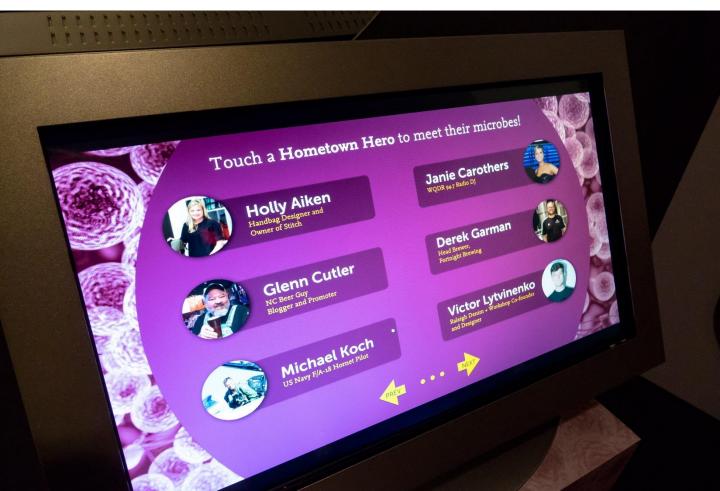
Pictured below are staff members from UNC-Rex, the Museum, and NCSU College of Sciences.



GRTI

NC Museum of Natural Sciences Secret World Inside You









Media Coverage

PRINT

Raleigh News & Observer, WRAL, The Daily Tar Heel, Triangle Business Journal, Indy Weekly, Carolina Parent

VIDEO/ TELEVISION ABC 11, WRAL, WTVD

- The Secret World of Microbes
- What does your armpit say about you? Museum exhibit takes a look
- NC Museum of Natural Science explores microscopic organisms in new exhibit
- Discover the 'secret world inside you' at NC Museum of Natural Sciences
- Destination: Secret World Inside You
- New science museum exhibit explores 'the secret world' inside us
- NC Museum of Natural Sciences features enthralling microbes exhibit
- RTI International contributes metabolomics module at NC Museum of Natural Sciences Exhibit exploring microscopic organisms
- Discover "The Secret World Inside You" at the North Carolina Museum of Natural Sciences
- Kick Off the New Year with These Exhibits at Raleigh, N.C., Museums

http://www.visitraleigh.com/blog/post/2016/10/4/Discover-The-Secret-World-Inside-You-at-the-North-Carolina-Museum-of-Natural-Sciences/9517/ Discover "The Secret World Inside You" at the North Carolina Museum of Natural Sciences Posted on October 4, 2016 at 6:25AM by North Carolina Museum of Natural Sciences



The microbes in and on your body are more numerous than the stars in the Milky Way. Clump them together, and they weigh about as much as your brain—approximately three pounds. Microbes—the term used for organisms that are too small to be seen with the naked eye—have often been seen simply as "germs" that cause disease. Yet contrary to this common misconception, most of the microbes that live in your body are vital to keeping your digestive system, your immune system and even your brain working properly.

Open Oct. 22, 2016, through March 12, 2017, at the <u>North Carolina Museum of Natural Sciences</u> in Raleigh, N.C., <u>Secret World Inside You</u> uses larger-than-life models, computer interactives, videos and art installations to explore the rapidly-evolving science that's revolutionizing how we view human health and understand the inner workings of our bodies.

NC Museum of Natural Sciences Secret World Inside You



Our bodies are home to many trillions of microbes living in and on us, including bacteria, viruses, fungi and other organisms collectively called the "human microbiome." In any individual, microbial genes outnumber the genes in human DNA by more than 100 to one. Your body also contains more microbial cells than human cells—a new perspective that is changing and complicating our view of ourselves.

Investigating the human microbiome is a very young science, and researchers are just beginning to understand what constitutes a "normal" microbiome, how it changes over time and how it affects health and disease. But what's clear is that the effects of the microbiome on its human host are profound and multifaceted—and could play an important role in common health problems like allergies, asthma, obesity and even anxiety and depression.

How do your interactions with microbes—from the type of environment where you grew up to the number of times you have taken antibiotics, which destroy both bad and good bacteria—influence your health? In what ways can your microbiome be said to be its own organ? And is it possible that the state of the bacteria in your gut plays a role in your mental health? *Secret World Inside You* dives into these intriguing and other profound questions through an interactive tour of the human body, making stops at places where microbes thrive, like your skin, your gut and even your armpits.

Your skin covers about 20 square feet, making it the largest organ in your body, and microscopic organisms cover it from head to toe. From the point of view of a microbe, your skin is like an enormous continent, with resources that vary dramatically from one region to another. Differences in skin temperature, texture, thickness, humidity and chemistry help determine which kinds of microbes live where.

Your digestive tract, or gut, is home to about 99 percent of your microbiome. Very few bacteria can survive in the acidic environment of your stomach, but they thrive in the small intestine and large intestine, where most digestion and fermentation of food takes place, respectively. The microbes here help with digestion, immune regulation, disease prevention, healing and protecting your gut lining, appetite control, brain development and even emotion.

NC Museum of Natural Sciences Secret World Inside You



Julie Horvath, head of the museum's Genomics & Microbiology Research Lab, is a comparative evolutionary genomicist interested in understanding the evolutionary forces that have shaped primate genomes and that impact health and disease. She (and colleagues) initiated an armpit biodiversity project to identify the microbes that live under primate armpits. Since animal "fragrance" is partially determined by what is under the armpit and it is the microbes living on skin that produce body odor, this has implications for mate choice and has exciting evolutionary implications. Her team recently swabbed armpits from a variety of non-human primates to compare to humans. Citizen scientists have also helped explore some of the factors affecting microbe biodiversity, which may be dictated by the deodorant or antiperspirant used and the type of soap and water used for bathing. These studies have implications for our health and wellbeing, as well as our understanding of what constitutes a "healthy" skin microbiome. Horvath's work will also be featured in the exhibition.

Secret World Inside You is organized by the American Museum of Natural History, New York (www.amnh.org). The exhibition was co-developed by Susan Perkins and Rob DeSalle, curators in the American Museum of Natural History's Division of Invertebrate Zoology and the Sackler Institute for Comparative Genomics. The exhibition is sponsored by UNC REX Healthcare and the North Carolina State University College of Sciences.

Plan your trip to the exhibit today: get tickets here or at the museum box office, onsite or by phone at 919.707.9950 (admission to the museum is free and there's a small admission fee to get into the special exhibit).



SWIY SPECIAL EVENTS

Teen Science Cafe: Making Medicine from Microbes

Friday, January 06, 2017 6:00pm - 7:00pm Daily Planet Café

Join us to learn how a new scientific movement called "synthetic biology" is being inspired by Lego to turn microbes into microscopic factories for the discovery and manufacture of medicines to treat human diseases and infections.

Science Cafe: You Cannot B. Cereus: Microbial Food Safety in The Modern World

Thursday, January 12, 2017 7:00pm - 8:30pm Daily Planet Café

Café Speaker Dr. Ben Chapman studies how food becomes contaminated with pathogens, how to avoid it, and what to do once food has been contaminated.

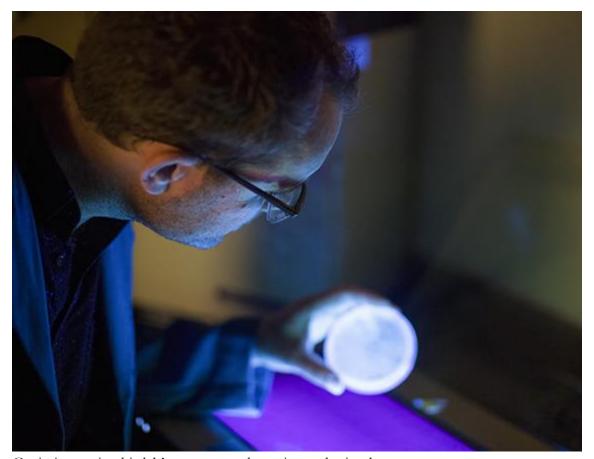
Rob Dunn: The Wild Life of Our Bodies, Homes and Foods

Wednesday, January 25, 2017 7:00pm - 8:30pm NEC 1st Floor Auditorium

Dr. Rob Dunn explains how we are beginning a new phase of our relationship with other species—a phase in which we use all of our best insights to control dangerous species, but in which we also figure out ways to favor the richness of beneficial species.

TEEN SCIENCE CAFE: MAKING MEDICINE FROM MICROBES

- Friday, January 06, 2017
- 6:00pm 7:00pm



Gavin inspecting his lab's most recently engineered microbe.

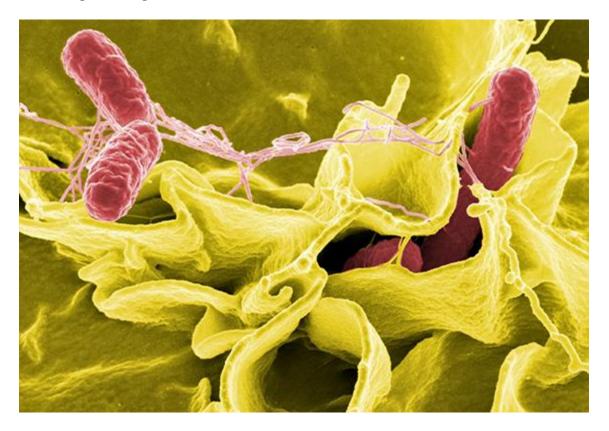
Microbes are often the cause of serious infections and diseases. But scientists are able to tame potentially dangerous microbes and can coax them into making new chemicals that are hugely beneficial to us and society. Join us to learn how a new scientific movement called "synthetic biology" is being inspired by Lego to turn microbes into microscopic factories for the discovery and manufacture of medicines to treat human diseases and infections.

ABOUT OUR SPEAKER

Gavin Williams wants to engineer what we cannot see to produce new medicines. Gavin is an Associate Professor in Bio-organic Chemistry at NC State University. Originally from England, Gavin received his B.Sc. in Biochemistry from the University of Wales, a PhD from the University of Leeds, and completed post-doctoral training at the University of Wisconsin-Madison. Gavin joined the Department of Chemistry at NC State in 2009, was promoted to Associate Professor in 2015, and has been named a University Faculty Scholar (2015-2020). He is also recipient of the 2016 Chancellors Innovation Award, the 2012 National Science Foundation CAREER Award, the 2014 Sigma Xi Research Award and is a member of the Comparative Medicine Institute at NC State.

SCIENCE CAFE: YOU CANNOT B. CEREUS: MICROBIAL FOOD SAFETY IN THE MODERN WORLD

- Thursday, January 12, 2017
- 7:00pm 8:30pm



With an estimated 48 million illnesses annually in the U.S., food safety is a big deal. Some of the most recognizable brands — like Chipotle, Blue Bell, and Dole — have all been linked to outbreaks in the past year. While food has been known to be a source of illness for eons, how outbreak investigations are solved — and more importantly, how academics, regulators and the food industry learn from incidents — has changed drastically. Café Speaker Dr. Ben Chapman studies how food becomes contaminated with pathogens, how to avoid it, and what to do once food has been contaminated. Focusing on risk analysis, Chapman gathers data on food handling practices to prioritize management and communication efforts.

ABOUT OUR SPEAKER

Dr. Ben Chapman is an associate professor and food safety extension specialist at North Carolina State University. As a teenager, a Saturday afternoon viewing of the classic cable movie "Outbreak" sparked his interest in pathogens and public health. With the goal of less food-borne illness, his group designs, implements and evaluates food safety strategies, messages and media from farm to fork. Through reality-based research, Chapman investigates behaviors and creates interventions aimed at amateur and professional food handlers, managers and organizational decision-makers: the gatekeepers of safe food. Chapman co-hosts a bi-weekly podcast called "Food Safety Talk" and tries to further engage folks online through Instagram, Twitter, Facebook, YouTube and, maybe not surprisingly, Pinterest. Follow him on Twitter @benjaminchapman.

ROB DUNN: THE WILD LIFE OF OUR BODIES, HOMES AND FOODS

Wednesday, January 25, 2017 7:00pm - 8:30pm



From the beginning of our existence we have killed off the megafauna (our ancestors wandered alongside, then stabbed, giant sloths). We then tried to kill off the pests of our crops, the pests in our houses and anything microscopic. We then moved indoors and distanced ourselves from the nature we didn't kill. All of this destruction had its advantages, particularly in terms of our control of deadly pathogens. But our actions were too simple, our tools too crude, so in addition to killing off many species that threatened us we also destroyed many on which we depended. In this presentation, Dr. Rob Dunn will explain how we are beginning a new phase of our relationship with other species. A phase in which we use all of our best insights to control dangerous species, but in which we also figure out ways to favor the richness of beneficial species.

ABOUT OUR SPEAKER

Rob Dunn is a professor in the Department of Applied Ecology at North Carolina State University and in the Natural History Museum of Denmark at the University of Copenhagen. He is the author of The Man Who Touched His Own Heart, The Wild Life of Our Bodies, and Every Living Thing, and his magazine work is published widely, including in National Geographic, Natural History, New Scientist, Scientific American and Smithsonian. Dunn's new book, Never Out of Season, describes the dependence of our crops on biological diversity in its many forms, and is due out in March 2017 (available for pre-order now).

NC Museum of Natural Sciences Secret World Inside You

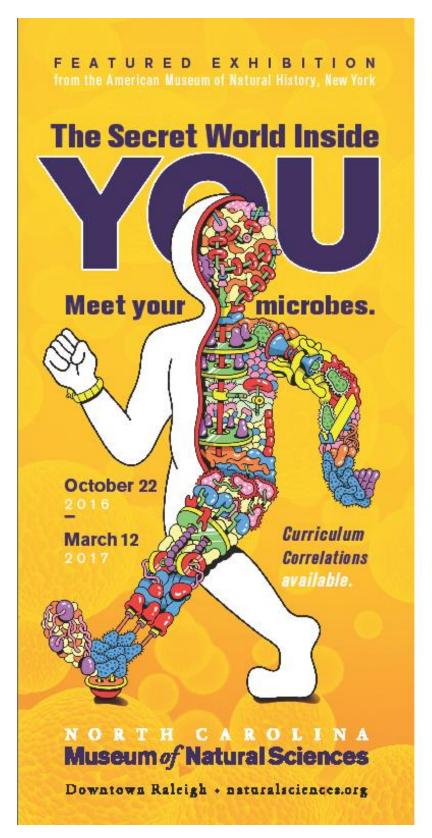
SWIY Grand Opening Day during Julie Horvath's presentation. Chris Smith holds a plate full of cheese samples as Dr.



School Group Special

The Museum offered educators special resources for the exhibition including curriculum correlations and field trips. A full curriculum correlation is available at:

http://files.naturalsciences.org/CurriculumCorrelationsforSecretWorld.pdf



Coming this fall.

Be sure to mark your calendar and plan your visit!

Our bodies are home to approximately 100 trillion bacteria living inside us and on us — a vast community known as the microbiome. The Secret World Inside You explores the rapidly evolving science that is revealing the complexities of the human microbiome and reshaping our ideas about human health, offering new perspectives on common health problems including allergies, asthma and obesity. This Museum will be the first location to host this exhibition once it leaves the American Museum of Natural History.

Read more on *The Secret World Inside You* at: esturalsciences.org/secretworld

NC Essential Standard correlations: 5th grade — 5.L.1, 5.L.2, 5.PCH.3, 5.PCH.4,

5th grade — 5.L.1, 5.L.2, 5.PCH.3, 5.PCH.4, 5.NPA.2, 5.NPA.3

7th Grade — 7.L.1, 7.PCH.2, 7.NPA.3

8th Grade - 8.L.1, 8.L.2, 8.L.3, 8.PCH.1, 8.NPA.3

High School — Bio.1.1, Bio.1.2, Bio.2.1, Bio.3.3, 9.PCH.1, 9.NPA.3

Price: School group rate \$5 per person Dates: October 22, 2016-March 12, 2017

To purchase tickets call the Museum Box Office at 919.707.9950.

Plan your trip by visiting: estural:ciesess.org/visit/group-registration

Special 3D Movie Showings for your school only!

Our 1pm weekday timeslot (Monday - Friday) is available for teachers by special request. Any movies in our current catalog are available.

............

25 ticket minimum. Maximum of 250 people.

The group rate for 30 movies is currently \$3/person when 10 or more tickets are purchased in one transaction.

Arrangements must be made at least two weeks in advance by calling the Museum Box Office at 919 707 9950

For a full movie list (with educator guides for movies where available) visit: eaturalsciences.org/calendar/movies

Attendance

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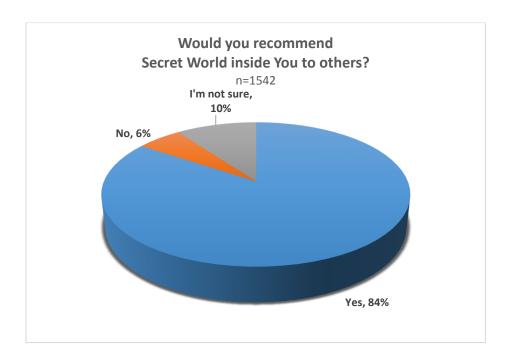
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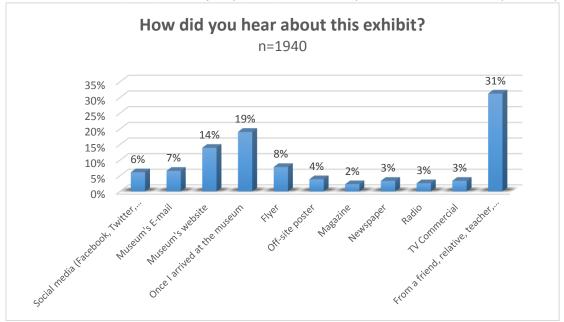
Comments

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 view "germs", and you will walk away with positive changes you can incorporate into becoming healthier and
 less dependent on meds which can destroy our body's natural defenses."
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- "Love it!! Especially the way it ties in to human health and makes you change your mind about what to put in your body. Inspires Wonder"

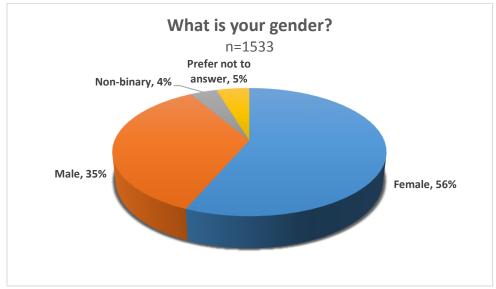
Marketing

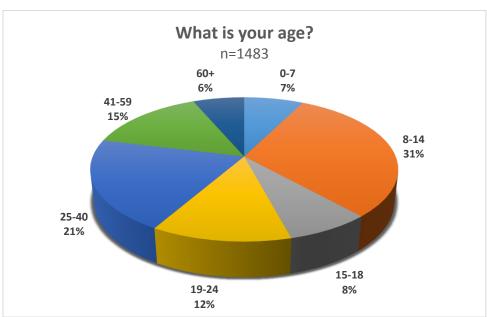
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Metabolomics Special Content

