

Scientists claim the body not all human

Kristin Feeney
Reporter

They cannot be seen. They cannot always be felt. Without them, humans would not exist. Microbes are microscopic organisms that profoundly shape this planet and life on it.

Despite being non-human in origin, scientists have found that even within the human body, microbes are estimated to outnumber human cells by a factor of 10-to-one. This ratio would mean 90 percent of the average human being's body is composed of an entirely unknown array of microbial communities.

To better understand just how important microbes are, the National Institutes of Health has launched the Human Microbiome Project. The five-year, \$115 million initiative is set to identify and analyze the human microbiota and its role in human health and disease.

Researchers have four objectives: To determine whether individuals share a core human microbiome, to understand whether changes in the form of the human microbiome can be correlated to changes in human health, developing new technologies to support this initiative and addressing ethical, legal and social implications raised by human microbiome research.

Antonio Izzo, assistant professor of biology, looks forward to the implications of the project.

"We always like to think

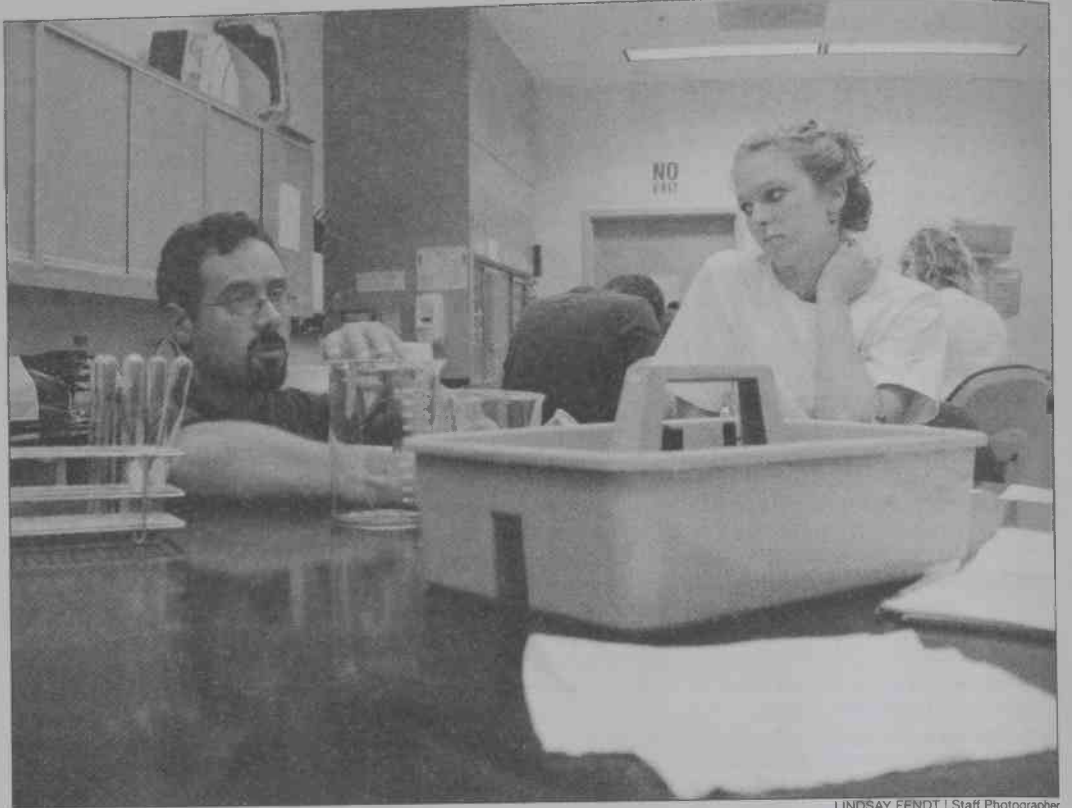
MICRO DEFINITIONS
MICROBIOME
A term used to describe the entire grouping of microbes, their genetic elements (called genomes), and environment interactions. Microbiomes are usually comprised of microbiota and their complete genetic elements.
MICROBIOTA
The microscopic living organism that typically inhabit a bodily organ or part called a flora.
MICROBES
A single microorganism.

of this notion of space and think we're not alone in this universe," Izzo said. "The reality is we're not even alone in our own body."

Izzo, whose own research specializes in microbial ecology and how it impacts the health of plants, sees the opportunity for parallel growth in the field.

"The statistic is that 99 percent of what exists we can't even culture," Izzo said. "In the past, we have always collected information via cultivation (evaluating an individual bacteria strain that has been grown in a laboratory) ... it's a challenge."

To combat this problem, researchers have developed the metagenomic approach. This is a form of genetic material analysis derived from naturally harvested complete microbial communities. This approach, when complemented with the analysis of known isolated strains, aims to make unprecedented growth in



LINDSAY FENDT | Staff Photographer
Biology professor Antonio Izzo, left, assists freshman Lauren Schilke and her lab group with their experiment.

understanding the complexity of the human microbial communities. Researchers hope it will provide insight into how microbiomes actually exist in the environment and how such interactions can impact human health.

In identifying characteristics of microbiomes, scientists are able to fully understand the similarity of sequence and the better grasp role of these

particular microbiomes.

"You're looking at a two-fold question here: Who are (these microbiomes) and what are they doing?" Izzo said. "You might not universally explain the differences between types that emerge, but it definitely explains the potential to understand how patterns emerge."

Though the Human Microbiome Project is years

away from producing this kind of data, the potential for understanding and growth within microbiology and microgenetics is rich.

"We like to think of everything that's microscopic as bad, but the more we learn, the more we realize that they're the exception to the rule," Izzo said. "It's not just us by ourselves — we're in an intimate relation with the world around."

E-patients turn to Internet for checkups, seek more self-help medical databases

Hannah Williams
Senior Reporter

Sixty-one percent of American adults seek health information online, according to a December 2008 Pew Internet and American Life Project survey, up from 25 percent in a similar study in 2000.

"Searching online shouldn't be a substitute (for health care)," said Elon Director of Health Services Kitty Parrish. "It should just be an enlightenment."

The Pew survey asked participants to identify their behaviors concerning health topics ranging from information about a specific disease, a certain treatment, alternative medicine, health insurance, doctors, hospitals and ways to stay healthy and termed those who search for health information online "e-patients."

"I'm usually trying to self-diagnose,"

said senior biology major Lisa Bodine. "Or I'm looking up information about diseases that sound interesting or unusual."

While many people are turning to the Internet, 86 percent of all adults surveyed said they still turn to health professionals for information and assistance in dealing with health or medical issues, according to the study.

It also reported younger and more educated adults were more likely to use the Internet for health-related queries than older and less educated individuals.

Bodine said Googling health queries and scanning the results for legitimate information is faster and more efficient than contacting her doctor in Maryland. She named PubMed, the U.S. National Institutes of Health's free digital archive of biomedical and life sciences journal literature, as one of her trusted sources.

"I can get an immediate answer online," Bodine said. "I don't really know my doctor, and I don't have my own medical books."

Asking friends and family was survey respondents' second most popular source for health information and assistance, with the Internet and print media tied for third.

"People are better consumers now and want to have a lot of information," Parrish said.

She said the Internet was a good source for patients who have been diagnosed by a medical practitioner and want more information about their diagnosis.

"You just have to be careful about believing everything you read," Parrish said.

Sixty percent of e-patients said they or someone they know have been helped by following medical advice or

health information found online, while 3 percent said it was harmful, according to the Pew survey.

Parrish said the sites offering health information are often incomplete and unverified and warned against using the Web as a diagnostic tool.

"There are so many things with similar symptoms: the symptoms of a cold, the symptoms of the flu, the symptoms of something far more serious," she said. "The danger would be ignoring something that is much more serious than you thought it was from looking online."

Bodine said she is likely to seek medical attention if her symptoms matched a serious illness or persisted longer than usual. She said she monitors her health fairly well.

"When I know I need medicine or when I'm confused I'll seek professional help," Bodine said.

THE REBUTTLE TO THE E-PATIENT

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