

## US stamps to honour philhellenes

A NEW collection of postage stamps dedicated to American philhellenes will be sold at post offices across the United States in April.

The Association of American Philhellenes launched the initiative, with the group's president, Panagiotis Nikolopoulos, saying the stamp collection will be "dedicated to the Americans who struggled and sacrificed themselves for the liberation of Greece".

The collection includes a portrait of Dr Samuel Gridley Howe, a Bostonian doctor who fought alongside Greeks in 1824 in the country's fight for independence from Turkey and organised the medical staff of the Greek army.

Another stamp will picture the grave of New Yorker George Jarvis, the first American volunteer to join the Greek War of Independence in 1822.

According to Nikolopoulos, the stamps have been approved by the postal service authority and the initiative is in its final stages. He said the stamps will be ready for distribution on April 19 - the annual Philhellenism and International Solidarity Day that was established under a decision by the Greek parliament. (ANA)



## The American documentary

THE GREEK Film Archive and the embassy of the United States in Athens are organising a weeklong retrospective titled Contemporary American Documentary.

The event, which will open on February 24, will feature award-winning contemporary documentaries that give insight into life and culture in the US.

As part of the retrospective, two experts on American documentaries will visit Greece for presentations and workshops. Oscar-winning documentary director Bill Guttentag and acclaimed producer Sandra Ruch will give workshops for filmmakers and media and film students.

The retrospective will move to Naoussa on March 4 for the International Film Festival. A two-day programme will include film screenings and a panel discussion with Guttentag and Ruch.

The films being shown in both Athens and Naoussa cover a broad spectrum of cinematography and narrative techniques as well as themes - from human rights and immigration to the environment and natural disasters, as well as stories of personal journeys.

The retrospective is part of the American Documentary Showcase - a touring programme of about 60 independently produced documentaries travelling to some two dozen countries. (Athens News)

# What Darwin got wrong



*By comparing the genetic makeup of different fungi, Antonis Rokas discovers surprising new evidence that overturns some longstanding ideas about evolution*

By **Kathy Tzivilakis**  
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**G**ENES can jump from one species of fungus to another, according to new research published by Antonis Rokas.

"And it violates the strict Darwinian or evolutionary rules in that genes are only passed down through generations - vertically and not horizontally," says Rokas, assistant professor of biological sciences at Vanderbilt University in the United States.



Rokas' discovery has uprooted the so-called tree of life - a metaphor for the process of evolution. His research, which was published in the January 25 issue of the journal *Current Biology*, is being debated by scientists around the world. The implications are vast.

"We've seen in the past transfers of much smaller pathways," Rokas tells the *Athens News* in a

telephone interview from his lab at Vanderbilt. "But in this case we are talking about a transfer of 23 genes - it's actually one of the biggest metabolic pathways that we know. It's the first time we are seeing the transfer of really big chunks of DNA material and especially ones that are dedicated to a particular function. It's a transfer where in a single step you gain the ability to produce a new toxin."

Up to now, most evolutionary scientists have only studied the vertical passage of genes - from parent to child.

Rokas' work focuses on the horizontal gene transfer, which has only rarely been reported in complex cells like those found in plants, animals and fungi.

This is why the unprecedented gene transfer detected by Rokas and his research associate, Jason Slot, is considered a significant finding.

"We were quite surprised in that there doesn't seem to be an upper limit in the amount of DNA that's being transferred," says Rokas, who was born and raised in the western Athens industrial suburb of Elefsina.

"The fungi are telling us something very important about evolution - something we didn't know," he adds.

Horizontal gene transfer has been discovered in bacteria, where scientists have concluded it is responsible for the spread of drug resistance. However, Rokas' discovery shatters the widely held belief that it is relatively rare among organisms like plants and animals.

### Athens News: What was the goal of your research?

Antonis Rokas: We've been interested in understanding how the diversity of fungi evolves. Fungi are organisms that are the decomposers of natural ecosystems - they feed on dead material, usually plant material. Different fungi have the ability to eat different substances. Some can eat wood, some can eat leaf and so on. This is encoded in their DNA - their genome sequences.

We have a longstanding research programme where we are interested in understanding how this diversity has evolved. Traditionally, we know that genes are transferred from parents to offspring and along through the generations. What we found is that in addition to the standard pathway of inheritance, an entire pathway was jumped across.

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## Brief bio

ANTONIS Rokas is an assistant professor in the department of biological sciences at Vanderbilt University. A graduate of the University of Crete in 1998, Rokas received his PhD in 2001 from Edinburgh University in Scotland for research on the evolutionary ecology of oak-feeding gall wasps. Before joining Vanderbilt, he worked at the Broad Institute of MIT and Harvard as a research scientist, and at the University of Wisconsin-Madison as a postdoctoral fellow.

He got his first real taste of biology when he was in his second year of undergraduate studies at the University of Crete.

"I took a course in evolutionary biology," Rokas says. "And I got hooked. I knew after taking that class that I wanted to become an evolutionary biologist and spent all my energy pursuing that goal."

Today, Rokas' interests are centred on two major areas of comparative biology: understanding the evolutionary relationships among living organisms and elucidating the molecular origins and evolution of genetic pathways and morphological traits.

In 2009, the National Science Foundation in the United States awarded Rokas with a grant that funds outstanding young faculty in research and education outreach.

He received a five-year grant worth an estimated 500,000 euros for his research into yeast genomes and how they may expand understanding of the evolutionary relationships among living organisms.

Asked whether a professional move back to Greece is in his future plans, Rokas says he does not think so - at least not in the near future. "The situation in Greece is difficult right now," he said. "People have occasionally enquired, but right now I am nicely situated at Vanderbilt."

"We have a pseudo-Greek environment here. Our chancellor is Greek American and we have Greek students and colleagues here."