SOCIAL PICTURE: Mapping sets of data drawn from posts to social networks like Twitter and Flickr (this one is by the Google mobile programmer Eric Fischer) can reveal unexpected and intriguing patterns.

ERIC FISCHER

Following Friends to Where You Are

Are we known by the company we keep? Perhaps more so than ever before. Rochester computer scientists have shown that a great deal can be learned about people from their interactions in online social media, even when users hide their personal information.

Analyzing location data from the friends of users on the microblogging service Twitter, **Henry Kautz,** professor of computer science, **Jeffrey Bigham,** assistant professor of computer science, and graduate student **Adam Sadilek** were able to pinpoint the location of individual people with surprising particularity.

In one study the researchers came within a 100-meter radius with 85 percent accuracy.

Their resulting paper, "Finding Your Friends and Following Them to Where You Are," won the Best Paper Award at the Fifth Association for Computing Machinery International Conference on Web Search and Data Mining.

The team hopes to apply the models to such tasks as tracking and predicting the spread of communicable diseases.

—Peter Iglinski

Is Homophobia Self-Phobia?

A new study finds that intense hostility toward homosexuals may be linked to a repressed same-sex attraction, combined with an authoritarian upbringing.

Though such factors aren't the only cause of homophobia, the findings suggest those "who have a discrepancy within themselves about their expressed versus unconscious sexual attraction find gay and lesbian people more threatening and are more likely to express prejudice and discrimination toward them," says **Richard Ryan**, professor of psychology. He and Netta Weinstein of the University of Essex in England coauthored the study, which was published in the *Journal of Personality and Social Psychology*. The study measured discrepancies between what people say about their sexual orientation and how they react during split-second timed tasks.

Ryan says the study may help explain the personal dynamics behind some bullying and hate crimes and shed light on high-profile cases in which public figures who have expressed antigay views have been caught engaging in same-sex sexual acts. People in denial about their sexual orientation may lash out because gay targets bring an internal conflict to the forefront, the authors note.

—Susan Hagen

Astrocytes: No Longer Just 'Brain Glue'

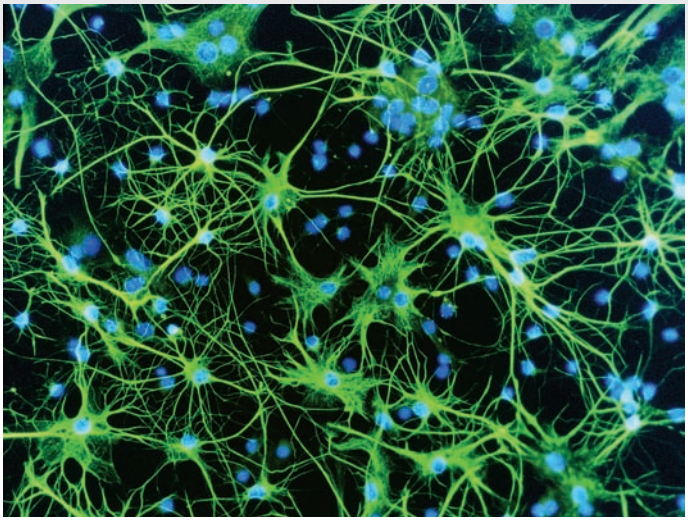
A type of cell long considered mainly the stuff that holds the brain together and often overlooked by scientists more interested in flashier cells such as neurons wields more power than had been realized, according to new research published in *Science Signaling*.

Rochester neuroscientists report that astrocytes are crucial for creating the proper environment for brains to work, playing a key role in reducing or stopping the electrical signals in brain activity, determining when cells called neurons fire and when they don't.

"It turns out [astrocytes] can influence the actions of neurons in ways that have not been realized," says **Maiken Nedergaard**, professor of neurosurgery and leader of the study.

The new research indicates that in addition to astrocytes' well-known roles in cleaning up excess potassium, the cells can cause potassium levels around neurons to drop, stopping neuronal signaling.

—Tom Rickey



NEW LOOK: Rochester scientists are giving astrocytes new attention.

Sending an Elusive 'Wireless' Message

A group of scientists led by researchers from Rochester and North Carolina State University have for the first time sent a message using a beam of neutrinos, nearly massless particles that travel at almost the speed of light. The message was sent through 240 meters of stone and said simply, "Neutrino."

Many have theorized about the possible uses of neutrinos in communication because of one particularly valuable property: they can penetrate almost anything they encounter.

While **Kevin McFarland**, a professor of physics who was involved in the experiment, says the idea of using neutrinos to communicate isn't currently practical, the project is a first step toward demonstrating its possibility.

The team performed their test at the Fermi National Accelerator Lab, outside Chicago.

The group has submitted its finding to the journal *Modern Physics Letters A*.

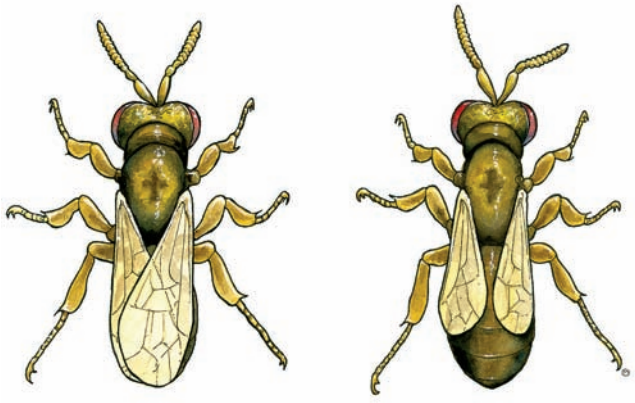
—Peter Iglinski

Scientists Find a Key to Growth Differences Between Species

The wings of the tiny jewel wasp are providing big insights into how growth is regulated, Rochester biologists say. **John (Jack) Werren**, the Nathaniel and Helen Wisch Professor of Biology, and doctoral student **David Loehlin** have discovered that changes in expression of a well-known cell regulator gene—called "unpaired"—accounts for wing-growth differences between males of closely related wasp species. The finding could lead to better understanding of cell-growth regulation and the underlying causes of some diseases.

The gene responsible for the wing difference was isolated using a technique called positional cloning. The biologists note that their discovery illustrates the principle that animals—from insects to humans—often use the same "genetic toolkit," despite immense differences in their biology. The findings were published in the journal *Science*.

—Peter Iglinski



WING GROWTH: Differences between closely related wasp species *N. giraulti* (left) and *N. vitripennis* help explain important genetic processes, say Rochester biologists.

Stopping the RAGE of Alzheimer's

Researchers have taken another crack at a promising approach to stopping Alzheimer's disease that encountered a major hurdle last year. In research published in the *Journal of Clinical Investigation*, scientists report that they have developed a compound that targets a molecular actor, known as RAGE, that plays a central role in damaging the brain tissue of people with the disease.

Scientists at Rochester and the University of Southern California synthesized a compound that stops RAGE—which stands for Receptor for Advanced Glycation Endproducts—in mice, reversing amyloid deposits, restoring healthy blood flow to the brain, squelching inflammation, and making old, sick mice smarter. But the scientists caution that the work has a long way to go before it's considered a possible treatment in people.

A 2011 study of another compound designed to stop RAGE was halted when scientists had questions about the compound's safety at high doses.

—Tom Rickey

N. KEDERSHA/PHOTO RESEARCHERS INC. (ASTROCYTES); MICHAEL OSADCIW (WASPS)