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## **Headline: Top 10 Darwin and Design Science Stories of 2010**

Colorado Springs, CO – December 21, 2010

Access Research Network has just released its annual “Top 10 Darwin and Design Science Stories” for 2010.

Gaining top honors on the list was new research that revealed the optimal design of the human eye. Physicists from the Israel Institute of Technology have created a light-guiding model of the retina, which reveals that the glial (or Müller) cells provide low-scattering passage of light from the retinal surface to the photoreceptor cells, thus acting as optical fibers. Researchers concluded “The fundamental features of the array of glial cells are revealed as an optimal structure designed for preserving the acuity of images in the human retina. It plays a crucial role in vision quality, in humans and in other species.” These findings open up potentially fruitful areas for biomimetics research and might find applications in more successful eye transplants and better camera designs.

The gold rush toward biomimetics research (human designs mimicking biological designs) was another top story this year. According to Dennis Wagner, ARN Executive Director “Dozens of articles appeared in the 2010 scientific literature reporting how scientists are learning how to ‘reverse engineer’ living systems.” Examples include: 1) Caltech scientists who are studying jellyfish in order to build a better aquatic pump; 2) German engineers who are building a robotic arm inspired by the design of the elephant trunk; 3) a European team that is building a robotic arm with inspiration from a octopus’s limb; 4) swim suits and ship hulls that are being patterned after shark skin; 5) students at the University of Texas, Dallas, that are trying to harness the chemical sensing capability of bacteria to build synthetic sensors for toxins; 6) researchers at the University of Queensland who are inventing navigation systems that can perform complex maneuvers by imitating the optical flow of honeybee eyes; and 7) researchers that are pursuing new lightweight and high performance materials based on a new spider species found in Madagascar that spins silk twice as strong and twice as elastic as any previously studied. This “toughest biomaterial ever seen” is 10 times stronger than Kevlar. Wagner observed, “Many of these research articles seem to miss the rather obvious point that in order to reverse engineer a system, it had to be engineered in the first place.”

An online version of the ARN Top 10 Darwin and Design stories for 2010 with hyperlinks to original news sources can be found at [www.arn.org/top10](http://www.arn.org/top10).

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