

Communicating Science Worldwide

Through various media, in particular the journal, *Science*, the results of work carried out by scientists and engineers are routinely disseminated by AAAS. In this way, the Association helps the public understand the scientific enterprise, and the extent to which science touches everyday lives. At the same time, because of the multidisciplinary nature of the organization and of the research published in *Science*, AAAS serves as a forum for scientists who believe their work may be of importance to their colleagues in other disciplines.

Science has established an international reputation as a source of reliable and unbiased scientific information, not only in the research it publishes, but in its news pages that report the latest news about science and science policy from around the world. In 2002, as it has in other years, the journal published research that could well have far-reaching implications for the well-being of humanity.

Malaria Genome Published in *Science* >>> In 2002, *Science* published the sequencing of *Anopheles gambiae*, the primary mosquito species that transmits the malaria parasite to humans.

Thought to afflict over 500 million people and cause more than one million deaths each year, malaria is predominantly transmitted by *A. gambiae*, the most common mosquito species in Africa. The mosquito transmits the malaria parasite, *Plasmodium falciparum*, to humans when it feeds on their blood.

The sequencing of *A. gambiae*, which involved more than a hundred researchers in more than a dozen labs, appeared in *Science* on 4 October 2002. In a coordinated effort, a second journal simultaneously published the sequencing of the malaria parasite, leading to hope for an eventual breakthrough in the battle against the disease.

***Science* Publishes Sequencing of Rice Strains** >>> Earlier in 2002, in the 5 April issue of *Science*, two groups of researchers—one from the United States and one from China—published the sequencing of two strains of rice, an event viewed as critical to eventually increasing the quality and yield of rice, a staple crop for more than half the world's population.

The rice genome may help researchers working on the genomes of other important cereal crops, such as maize and wheat. Researchers were able to match 98 percent of publicly available maize, wheat, and barley protein sequences to sequences within the *japonica* genome.

Analysis confirmed that rice showed extensive “synteny” with these cereals—or, conservation of gene order and orientation between comparable chromosomes. The considerable overlap in genomes may eventually make it easier to search for genes of interest, and to identify key regulatory regions across the genomes of these important crops.

RNA—Small But Powerful >>> An array of recent studies has revealed how small RNAs can switch various genes on and off, and even trim away unwanted sections of DNA. One of the field's most electrifying discoveries in 2002, first published in *Science Express* on 22 August 2002, was that small RNAs take charge during cell division, shepherding the material in chromosomes into the right configuration.

The year's insights led to the tantalizing possibility that these processes, which include a type of cellular machinery known as “RNA interference,” may go awry in certain diseases, such as cancer. This improved understanding of RNA's role may someday support new RNA-based medical advances.



Research on small RNAs, published in *Science* and elsewhere in 2002, led *Science* to name the discovery the year's top scientific achievement, or “Breakthrough of the Year.”

