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Irene Chen has been awarded the prestigious 2006 GE & Science Grand Prize for Young Life Scientists for her essay, "The Emergence of Cells: During the Origin of Life," which was published in journal's 8 December issue.

Chen received her prize along with \$21,000 in Stockholm, Sweden, during an award ceremony with Nobel Prize winners Andrew Fire and Craig Mello in attendance.

"Dr. Chen has accomplished a remarkable effort at forward engineering the possible origins of cellular behavior," said Donald Kennedy, editor-in-chief of Science. "She tested an evolutionary experiment among protocells—

vehicles built of membrane materials, some of which contained RNA, functioning as enzymes whereas others did not. Some were favored competitively, demonstrating grand evolutionary fitness."

Chen describes how she has used simple "protocells" to study how life's earliest cells emerged. The protocells consist of a cell's two fundamentals: a self-

-replicating genome (in this case made of RNA) contained in a vesicle that separates the genome from the external environment. Chen describes how interactions between the RNA and the vesicle's membrane led to the emergence of certain basic cellular behaviors. For example, when the genome replicates inside a vesicle, osmotic pressure leads the vesicle to "swell" and burst from other, more efficient vesicles.

"Replication of these minimal systems promises to lead to more exciting insights into the origin of biological complexity," she writes. Chen is currently completing medical school at Harvard University and plans to continue to study molecules and evolution.

"The cell, as an evolutionary unit, could emerge from replicating molecules through very simple physical mechanisms," said Chen. "This work suggests that evolving higher levels of biological organization might have been surprisingly easy during the origin of life."

Born in San Diego, Calif., Chen majored in chemistry at Harvard, and as an undergraduate studied molecular recognition in the laboratory of Gregory Voth. She then entered the M.D.

-Ph.D program and under the mentorship of Jack Szostak, she investigated the biophysics of the origin of life—

work that was recognized by the Harold M. Wiener-Graham Student Award.

"The award, now in its 12th year, aims to recognize outstanding Ph.D. graduate students from around the world and reward their research in the field of molecular biology," said Peter Ehrenlich, president of GE Healthcare Life Sciences. "Both Science-AAAS and GE believe that support of promising scientists at the beginning of their careers is critical for continued scientific progress."

Each year since 1995, the GE & Science Prize for Young Life Scientists has recognized outstanding young molecular biologists at an early stage of their careers. Some 54 regional winners and 12 grand prize winners have so far received the award, honoring exceptional thesis work in the field of molecular biology.

Applicants for the 2006 GE & Science Prize for Young Life Scientists earned their Ph.D. degree in 2005 and submitted a 1,000-

word essay based on their dissertations. These essays were judged on the quality of research and the applicant's ability to articulate how their work would contribute to the field of molecular biology, which investigates biological processes in terms of the physical and chemical properties of molecules in a cell.

A judging panel selects the GE & Science Prize for Young Life Scientists grand prize winner and may present regional awards in four geographic regions: North America, Europe, Japan and all other countries. These regional winners receive \$5,000 awards.

