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SPECIAL EDUCATION

An 11 Year-Old Boy Wonder Wins State Science Fair

Andrew Hsu, age 11, became the youngest winner ever of the grand prize in the 46th annual Washington State Science and Engineering Fair. He will represent Washington State at The Intel International Science and Engineering Fair (Intel ISEF), the world's largest pre-college celebration of science, and widely considered to be the most prestigious science fair at the high school level.

Hsu received special prizes, medallions, a trophy, and a scholarship, for his project, *Identification, Characterization, and DNA Sequencing of the Homo Sapiens and Mus Musculus COL20A1 Gene (Type XX Collagen) with Bioinformatics and Polymerase Chain Reaction (PCR)*. Andrew's project has been awarded the President's Award – Biology Excellence Award, United States Army Award, The Office of Naval Research Naval Science Award, Art Anderson Associates Special Merit Award in Engineering, Senior Division Award: Medicine and Health – First Place, and the Grand Prize Silver Award.

“The project was about a gene that I identified in the human and mouse genome called COL20A1, which encodes for the type XX collagen protein,” says Hsu. “To identify it, I used bioinformatics and PCR. Bioinformatics is the process of searching computer databases and programs, and PCR is a laboratory procedure used to amplify targeted DNA sequences. In the future, I hope to discover diseases related to mutations in the type XX collagen, and possibly find a cure for them.”

At 2, Hsu already demonstrated his amazing attention

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span and problem-solving skills by assembling LEGO blocks into a robot as tall as he was. At seven, he was already a fan of Brian Jacques, a popular fantasy fiction writer from England. “*Redwall, Mossflower, The Long Patrol, Martin the Warrior...*,” Andrew joyfully recites the titles of his series of novels, each over 350 pages long and totaling a whopping 5,000 pages of writing. “I read them all,” Andrew says. “It was a fascinating world.”

Hsu is homeschooled because he was skipping grades quickly. “We knew we had to do something about it to fill his need to learn,” says David, Andrew’s father.

Indeed, Andrew’s real life sometimes reads like a fantasy. At 9, Hsu started taking courses with the University of Nebraska Independent Study High School. He took just about all the math courses, science, and French. To explain why he took French, Hsu said, “I wanted to learn French because I admired Médecins Sans Frontières (Doctors Without Borders) and what they are doing.” The organization delivers emergency aid to victims of armed conflict, epidemics, natural and man-made disasters, and to others who lack health care due to social or geographical isolation.

At 11, he recently scored in the 99% on his ACT exams and that put him in the top 0.1% of over 1.2 million ACT test takers. He is ready to start college fulltime next year. He is now working in a University of Washington lab for his genome research. Hsu spoke about his mentor with affection, “Working with Professor Byers is a great learning experience I will always treasure.” He has also had access to Dr. Byers’ laboratory to do experiments and research. “I am also greatly indebted to Dr. Pace for his complete support in lab work. He allowed me to bother him almost any time with questions. He is very precise in the lab procedures and that taught me a lot.”

Hsu also excels in the sport of swimming. He holds team records at various age levels and now holds three in his current age group. “Swimming occupies a unique place in my heart,” he says. “It acts as a balancing weight for my study and research work, and I wouldn’t feel complete without it. And my swimming friends are fun.” Hsu also compares swimming to his research work. “Continuing to practice one move in swimming is no different than redoing my lab procedures,” he says. “In fact, the frustration of not getting the result I want

is exactly the same. Knowing what you are looking for is there and knowing you'll eventually find it are also the same."

His academic career is not everything for Hsu. He says the mission of his life is to help others. He has recently founded a non-profit organization with his brother Patrick — the World Children Organization. (www.world-children.org)

"Through video documentaries and religious affiliations, we have witnessed the gross violations of children's rights in some parts of the world," says Hsu. "Children are deprived of the opportunity for education because they need to be working to bring income for the family. In some cases, children are sold as prostitutes or used as child labor or as illegal drug traffickers." The foundation is currently fundraising to be able to create school and health kits that will be shipped out to organizations providing aid internationally.

Hsu has many goals in his life, and is bound to achieve most of them. He has said he wants to get two Ph.D.'s, one in medicine, and another one in computer engineering. #

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