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HOWARD HUGHES MEDICAL INSTITUTE

RESEARCH NEWS

OCTOBER 12, 2011

HHMI Debuts "The Making of the Fittest" Short Films

ANAHEIM, CA—In a red carpet event for 600 biology teachers, the Howard Hughes Medical Institute (HHMI) will unveil three short science films that use vivid storytelling to teach the vital concepts of adaptation and natural selection. The films, which were created to be used in classrooms, will premiere at the National Association of Biology Teachers annual meeting.

"We're trying to put kids in the footsteps of scientists, whether that is modern day experimentation or a voyage, expedition, or safari in the past that led to a scientific discovery," says Sean B. Carroll, HHMI's vice president for science education, who will emcee the first "HHMI Night at the Movies."

The films, produced by HHMI's Biointeractive team and the Institute's new film production unit, each run for about 10 minutes, a length optimized for use in the classroom. The first three films in the "Making of the Fittest" series will be provided to teachers at the premiere and will also be available to the wider education community for download or DVD order on the Biointeractive website, www.hhmi.org/biointeractive. The films cover a wide range of current topics in evolutionary biology:

The Birth and Death of Genes: While trawling the ocean floor off the coast of Antarctica in 1927, a Norwegian zoologist pulled up an unusual fish. The liquid flowing through its veins was as clear as ice water. The fish, now known as an icefish, is an example of an organism that adapts to live in an extreme environment. Today, biologists continue to study how the unique blood of the icefish lets it thrive in some of the coldest waters on earth.

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- Sean B. Carroll

Natural Selection and Adaptation: In some areas of the southwest United States, a mouse's survival depends on whether it can blend into its

environment. If it is spotted by predators, it might become another animal's next meal. But the landscape populated by so-called pocket mice isn't all the same color: it's light-colored desert spotted with black hardened lava. The mice have adapted to blend into both environments—and mice living in the lava-covered areas are darker than those that call the desert home.

Natural Selection in Humans: Charles Darwin found that harmful traits in a population tend to disappear over time. But the blood disorder sickle cell anemia, a genetic disease that affects hemoglobin production, is relatively common in Africans and African Americans. One scientist's observation that populations on the coast of Africa had more sickle cell anemia than those inland led him to suggest new ideas about why the disease has never disappeared.

“Film is a powerful way to tell stories,” Carroll says. “You can have moving images and animations. You can hear scientists talking in their own words and see the places where they do their own work. The right story, told well, can be engaging, informative, and memorable.”

Carroll’s firsthand experience in working on science documentaries provided the genesis for the series. As a consulting producer for the public television program NOVA he saw how much footage can be left on the cutting-room floor when a show is produced for broadcast and recognized the potential for adaptive reuse.

“For a couple of minutes of broadcast time, it is hours and hours of footage and days of shooting,” he says. “And where does all that other stuff go? There’s a tremendous amount of high quality footage out there that never gets to be seen.”

The first three short films were assembled by professional producers from video already shot for NOVA specials, as well as new interviews with scientists that tied the stories together. But as HHMI begins producing feature length science films through the film production unit, the team plans to use that footage to create additional short films that delve into specific scientific topics for students.

“There are always stories that don’t get enough time in the feature length documentaries,” says Dennis W.C. Liu, who heads HHMI’s education resource group. “In the long run, the idea is to have dozens, if not hundreds, of these short films, that teachers can choose from and use how they want.”

Liu’s team also plans to create resources to help teachers take advantage of the short films, such as online animations, videos, and curriculum. “A film isn’t meant to replace the teacher, and it’s not meant to replace the textbook,” Liu says. “It’s meant to supplement, in a useful way, what’s already going on in the classroom.”

Liu and his colleagues are already talking to teachers to pinpoint important topics. “I think there’s a really healthy dynamic, even a tension, between the way filmmakers want to tell a story—with pace and drama—and the way educators want to make sure certain points are hit upon and made clear,” Liu says. “And so it’s important to us that this is a collaboration, a constant back and forth, between those groups.”

More importantly, Liu and Carroll hope the short films show students the process of scientific discovery. “By telling these stories, we hope that we will excite students and encourage them to look deeper into these topics,” Liu says.