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UBC REPORTS

Geneticist David Ng splices science literacy with creativity

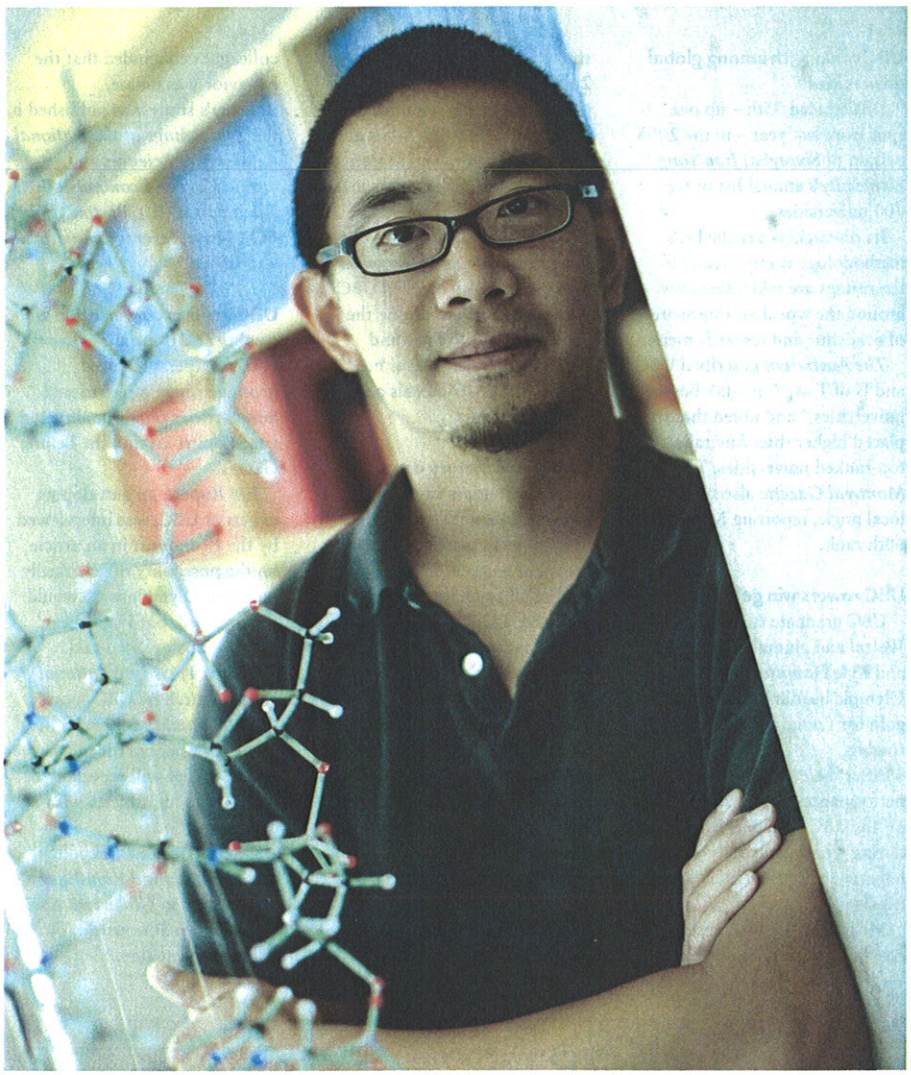

PHOTO: EUGENE LIN

David Ng(above) and Poli Sci Prof. Allen Sens co-teach an interdisciplinary arts and science course.

BY MEG WALKER

Did David Ng's dad beat up Bruce Lee? This teaser, which Ng tells to demonstrate how information needs to be understood within its context, is just one example of how the researcher-writer and Director of UBC's Advanced Molecular Biology Laboratory (AMBL) engages learners with humour and carefully chosen anecdotes. Here's how the story unfolds: Ng's dad was about 10 and Bruce merely eight when the combat occurred. Once the story is in an accurate framework, its meaning shifts dramatically.

The context for Ng himself is unique. He's a science teacher who wants to produce science-literate creative thinkers, from professional scientists to elementary school kids.

AMBL is the teaching arm of the interdisciplinary Michael Smith Laboratories, and the goal for Ng's position is to cross-fertilize ideas among academic subjects. Ng does not have an official home department or faculty, so he has had "an enormous amount of flexibility just to try things" during the nine years he's been there.

Ng teaches two upper-level courses in molecular biology, and leads workshops on molecular biology for researchers. A 2003 workshop for scientists in Lagos, Nigeria, opened new horizons for him.

"When I went to Nigeria, it opened my eyes in a huge way and really got me interested in development generally and other issues related to global sustenance and social responsibility," Ng says. "As well, I took lots of notes to gather my thoughts and that led to the first article I wrote for the general public. It got published [in *Maisonneuve* magazine], so it paved the way for an interest in writing generally."

Articles in several general-interest publications (*McSweeney's, The Walrus*) followed. All are connected to the central concept of "talking science" though usually in unexpected ways. (Imagine a fictional yet scientifically sound conversation between the Von Trapp children and a geneticist, for example.) Ng now also heads an online science magazine called *The Science Creative Quarterly* (SCQ). The site bridges a publishing gap between technical and literary content for science in the way *Wired* magazine fills a similar gap between geek-talk and social conversations around technology.

"I think a lot of that interest in writing segued to this Terry web site, which has been a major part of what I've been doing for the last three years," Ng says. He's referring to terry.ubc.ca, a website for the UBC Terry

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project which highlights the set of related projects and events that connect undergraduates in the sciences and the humanities – the two largest faculties at UBC – in order to promote discussions of global issues and social responsibility. "Terry" stands for terra, or earth.

"Dave is very creative and he's involved in the literary aspect of science, which is a very important part of this project," says Allen Sens, a political science professor, chair of the International Relations Program and the other brain that Dean of Arts Nancy Gallini approached to discuss collaboration in 2004. "When we were talking about connections between Arts and Sciences, we didn't just mean the social sciences and biology, but also the fine arts," says Sens.

Through Terry, Ng and Sens now co-teach a second-year interdisciplinary science and arts course (ASIC 200) based on the belief that global problems can only be solved by educated people who understand how both science and society work – at least well enough to know that there are links between the two.

The teachers also developed a UBC Vancouver speaker series which this year included scientist and atheist Richard Dawkins and conservationist Sheila Watt-Cloutier.

Ng credits the flexibility of AMBL to allow space for projects like Terry to happen. "Over the last nine years or so the lab has been more than just flexible, it's developed into a hub of connections because we've worked with so many different types of people from all sorts of disciplines," Ng says. "So if there's some eccentric or unconventional project that seems like it might have legs, it's that much easier to initiate it because we have those friends who we can invite in to maybe have a go at it."

The most current example of this is The Science Creative Literacy Symposium, which ran as a two-week pilot project in May and will continue in a fuller form this fall.

Calling himself "a big fan of *McSweeney's*," Ng decided to visit magazine founder Dave Eggers San Francisco literacy outreach initiative called 826 Valencia. A tutoring centre that literally lives in a pirate-themed toy store and draws kids in through storytelling exercises, the Valencia project inspired Ng.

"I thought – wouldn't it be great if something creative could be done with a science angle," Ng recalls. He had been interested in trying to reach out to elementary schools, primarily to expand beyond the lab's high-school program. But there were concerns that AMBL's fully functioning genetics lab was simply too technical for children under 12. Maybe writing was the angle that could draw younger children in, Ng thought.

Ng approached Creative Writing's Rhea Tregebov and asked if masters' students in her program might be interested. The plan was to hire an equal number of graduate students in creative writing and in science (through the UBC Let's Talk Science Partnership Program), making pairs from one student in each discipline. Each pair created a workshop that would introduce a scientific concept, and then have the children use that knowledge to make a creative work.

Ng moved to Canada from England at age 12 with an interest in science already sparked by many visits to London's Natural History Museum.

In the end, eight pairs of students designed their own templates to use during May's two-week pilot. Topic choices were left open, so the results ranged from environmental themes to genetics to a focus on insects.

"I had never heard of anything like this before," says sustainability and alternative energy researcher Lars Rose, a PhD candidate at the Materials Engineering Department and the National Research Council Institute for Fuel Cell Innovation. "But I was writing articles for the SCQ and Terry, so when Dave contacted me about this, I was interested."

Rose and playwright Mike Christie set up a class where 25 children first watched a hydrogen fuel cell charge up – "you can watch it converting water into hydrogen and oxygen in the space of a few minutes," Rose explains – and then experimented with two small cars powered by the cells. From this hands-on experience, they wrote, acted, and filmed short plays about sustainability.

With MFA poetry student Shannon Woronn and David Kent, a PhD candidate studying blood stem cells, another class looked at slides about five body organs (the brain, lungs, heart, liver and blood) and wrote down comparisons to the images, to introduce both scientific facts and the concept of similes. Then the children wrote love letters to different body parts, shaped after Elizabeth Barrett Browning's poem "How Do I Love Thee? Let me count the ways."

"Dave Ng did a phenomenal job and he was very encouraging of our teaching and our ideas," Woron says. "He was available to the kids, too. In the morning he would give a talk about the DNA lab to the kids, and he came in the afternoons to watch when the creative works were presented."

Ng moved to Canada from England at age 12 with an interest in science already sparked by many visits to London's Natural History Museum lingering over life-size models of a blue whale, dinosaurs and more.

Ng has lived in Vancouver since then, studying his way up through undergraduate and graduate degrees at UBC, earning his PhD in microbiology and immunology. He met his future wife Kate in residence and they now have two children.

James Kronstad, Director of the Michael Smith Laboratories, says he thoroughly supports the many levels of outreach that Ng does. "I think most scientists should strive to make their work accessible to the public because of the public money that goes in the research," says Kronstad. "David's got the personality and the interest to do this. He brings this level of credibility because he did a very nice PhD at UBC in molecular biology, and from there he knows how to engage an audience." R