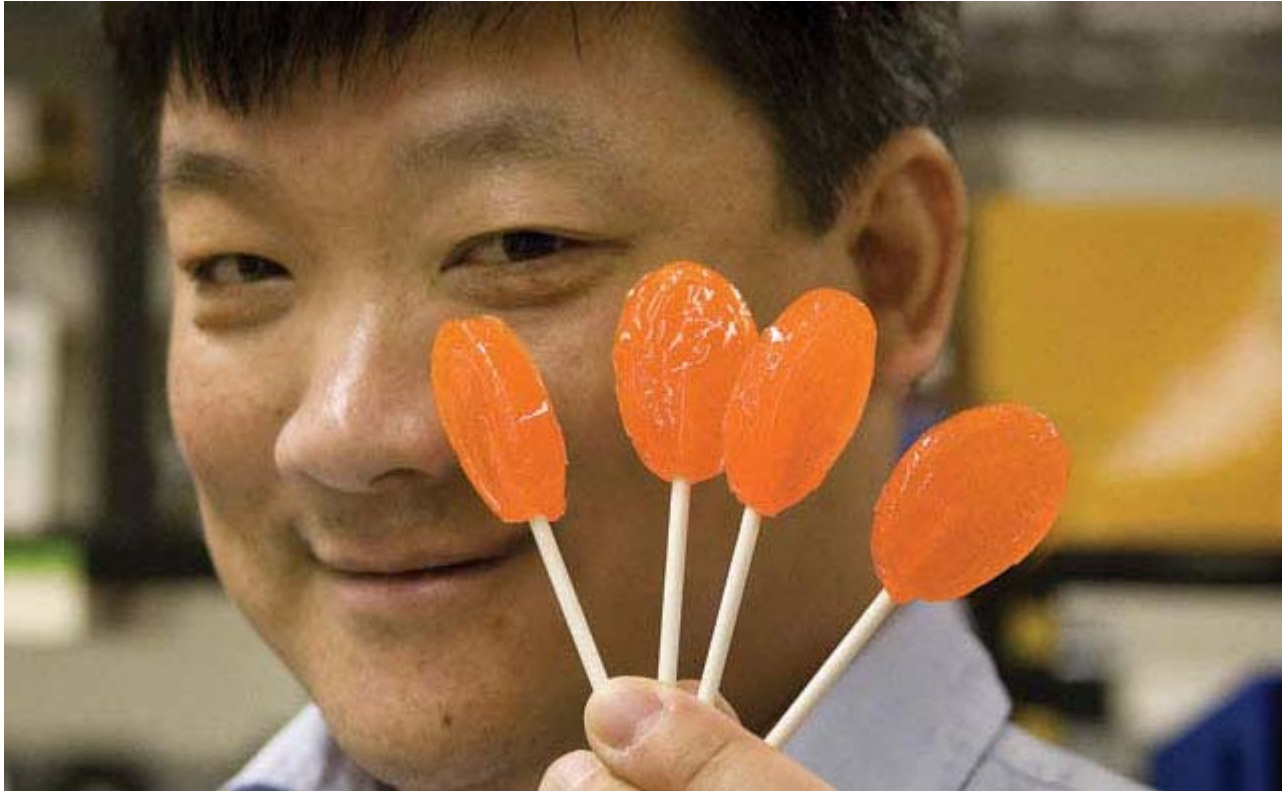


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For your sweet tooth: candy without the cavities

BY CYNTHIA LEE

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What Willy Wonka did for chocolate, UCLA microbiologist Wenyuan Shi is doing for lollipops.

Because of Shi, thousands of orange-flavored lollipops are rolling out of a factory in Grand Rapids, Mich., into the hands of people eager to lick them for one reason only. Shi and his lab team at the School of Dentistry have managed to make candy that's actually good for your teeth. The orange-flavored, sugar-free lollipop they devised is infused with a natural ingredient found in licorice that kills the primary bacterium causing tooth decay, *Streptococcus mutans*.

Marketed as Dr. John's Herbal Candy, the lollipop, now available for purchase through a candy manufacturer that licenses the technology from UCLA, is the first therapeutic developed by Shi. But he has many more in the works to target bacteria wreaking havoc in the nose, ear and gut, to name just a few.

It all emerges from a vision the microbiologist had eight years ago to apply a medical approach to dentistry — to identify the decay-causing pathogens among the 700 kinds of bacteria living in the human mouth, track their presence and then target them with antimicrobial "smart bombs" that he and his lab would engineer to kill the bad bacteria without harming the good.

And he's also working on kits to test for these devilish pathogens. "Part of my wild dream is that one day you will walk into the dentist's office and give a saliva sample to be tested, just as you would give urine and blood samples to doctors," said Shi, a professor with joint appointments in UCLA's dental and medical schools.

Working closely with UCLA's Office of Intellectual Property and with the support of the Delta Dental Plan and other major investors, Shi is living his dream as the founding scientist and scientific adviser for C3-Jian Inc., a company valued at more than \$20 million. It is developing the therapeutics as well as the kits. In fact, kits are already being sold to dentists in Japan and Europe to test for patients at high risk for tooth decay.

Company execs are also talking to major oral health companies, like Colgate, and pet food manufacturers, who are keenly interested in adding Shi's formula to their products.

China-born Shi identified the active ingredient in licorice root after conducting 50,000 experiments on 2,000 Chinese herbs.

While dental cleanings, nightly brushing and flossing can get rid of the plaque and reduce tooth decay, they don't target the bacteria, he said. The bad bacteria grow back rapidly because your mouth is the perfect incubator, providing just the right temperature and a generous food supply.

While he does not advocate people giving up brushing, cleaning and other preventive measures, Shi does recommend that users consume a lollipop twice a day, once after breakfast and again before bed, for 10 days. Then, to maintain effectiveness, they should use the lollipop two to four times a year, or as directed by their dentist. Since it takes five minutes to kill bacteria, the lollipop is the perfect slow-release device, he said.

Delta Dental Plan is currently recruiting 2,000 children in Head Start schools nationwide for its Healthy Teeth Lollipop Project to test its efficacy. The lollipop is also being tested by residents of two Los Angeles-area convalescent homes.

"The difficulty there is that the support staff keeps eating them!" Shi said.

Meanwhile, Shi shares his valuable experience and advice about moving technology from the bench to the marketplace with other UCLA researchers in the medical and engineering schools. "I've become a poster child of technology development at UCLA," he said, laughing.

Details about the lollipop can be found at [C3-Jian Inc.'s Web site](#).

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