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Breakthroughs

Designing A Safer Cigarette

Donald Frazier, 11.16.09, 12:00 AM ET

What if we had a less dangerous cigarette for people who can't kick the habit, letting them keep on smoking but stay alive longer while they're doing it? It's available in Canada, France, Russia and a few places in Asia. The 350 million smokers in China may also get their hands on it. The U.S.? Forget it.

It's another perverse result of the 1998 settlement that had tobacco companies--and, ultimately, their customers--chipping in to balance state budgets and pay for lawyers' yachts. The deal turned the big tobacco companies into a cartel and locked in their market shares. The state attorneys general who put together the \$206 billion agreement ward off potential competitors so the money keeps flowing to their states. One way to fend off rivals: pounce on any company making health claims. How convenient for Philip Morris and R.J. Reynolds.

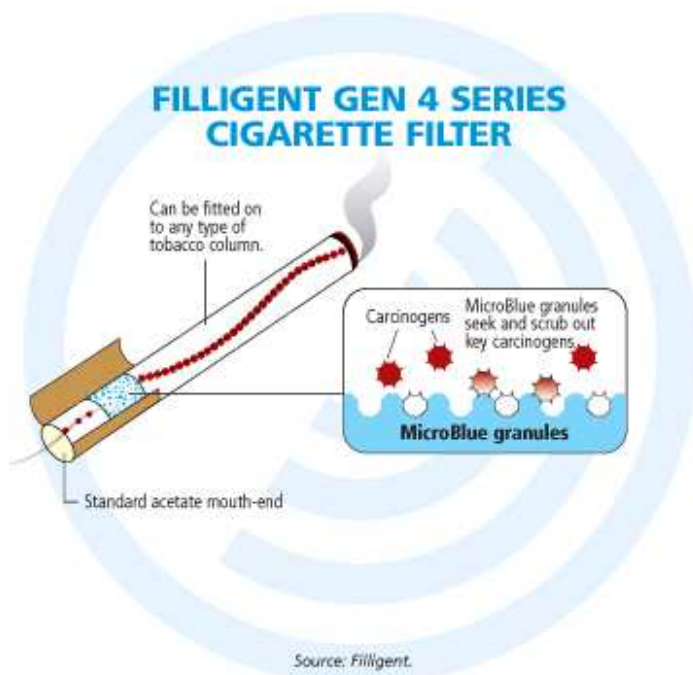
In this case the target is an eight-year-old Hong Kong biotech company, Filligent. Its MicroBlue filter blocks many of the toxins that make a cigarette dangerous but doesn't disturb the ingredients that give it flavor and produce that seductive though addictive nicotine buzz. "For years the public health community has just assumed that the smoke from cigarettes is all bad," says Scott Ballin, director for the Alliance for Health, Economic & Agriculture Development in Washington, D.C., which is funded by economic development groups in tobacco-growing states and has been critical of the settlement. "Now advances in basic science have given us a much more nuanced understanding of what's in that stuff--what's harmful and what's mainly benign."

Fewer than 5% of the people who try to stop smoking succeed for as long as five years, says Filligent Chief Executive Melissa Mowbray-d'Arbela. So given the futility of getting smokers to end their addiction, tobacco experts such as Dr. Judith Mackay of the World Lung Foundation in New York say Filligent's product could be the next best thing to quitting.

Traditional filters work like sieves, mechanically blocking everything that's in cigarette smoke, not only the carcinogens but also the nicotine. But the highly addictive nicotine is what smokers want. If they don't get enough from one cigarette, they reach for the next one. They wind up with almost as much deadly tar and nitrosamines as they would have smoking conventional cigarettes.

The MicroBlue filter is different. It includes a biochemical substance that attracts and immobilizes the carcinogens while letting nicotine slip through. Says one Filligent customer, Canadian distributor Edward Roundpoint: "People normally hate reduced-harm cigarettes. But this is different: It does not affect the flavor or the nicotine experience at all."

Does the Filligent filter work? Not completely, but tests at labs in the U.S. and the U.K. did conclude that the Filligent Generation 3 filter reduces cancer-causing DNA mutations by 40% to 75%. It also reduces cytotoxicity--that is, the killing of cells, which causes heart disease--by 18%. Filligent is now marketing its Generation 4 filter (*see graphic*). "We are in the business of saving lives," says Mowbray-d'Arbela. She and tobacco experts Ballin and Mackay say they know of no other company with such a biochemically-based filter.



Filligent makes another product designed along intelligent-filtration principles, its BioMask anti-infection face mask. With the H1N1 flu goosing sales, the BioMask will rake in most of the \$12 million in sales Filligent expects this year. (The privately held company is still in the red but says it expects to turn its first quarterly profit in the fourth quarter.)

But long-term the goal is to capture a chunk of the \$9 billion worldwide market for cigarette filters. Moving into China--where 1 million people a year die from cigarettes, according to the World Health Organization--would certainly help. The WHO is pressuring Beijing's state-run tobacco monopoly to take steps such as properly labeling cigarettes as harmful. Some 60% of Chinese smokers don't know that cigarettes are harmful, according to a WHO study last year. There has been no announcement of a contract yet, but Filligent's chief operating officer, Ben Frickel, says MicroBlue has gotten a "tremendous" reception from Chinese officials.

One of four children raised in a poor family in Australia, Mowbray-d'Arbela, 43, today sports the tailored profile of a fashion editor. She worked as a lawyer at Wall Street firm Skadden, Arps and then as a venture capitalist at GE Equity in Hong Kong, leaving in 1999 to run a small responsible-investment private equity fund, Maven International, in the city. When Neal Stewart, an Australian tech pioneer who had been advising Maven for years, approached her in 2001 about commercializing a way to sort the cancer-causing parts of cigarette smoke from the rest of it, she was revolted. She had never smoked: "The visual of sucking on the end of a car's tailpipe overrode it each time." But then, wheezing and gagging, she tried smoking to learn more. (She remains a nonsmoker.) The capitalist in her quickly responded to the marketplace opportunity.

Filligent, armed with an investment from Goldman Sachs, entered the U.S. market in 2005. A new cigarette brand called Fact used its filter, but the attorneys general went after it, saying it was making "unsubstantiated health claims." Within a year Fact was pulled off the market: It wasn't going to get far with a less harmful cigarette if it wasn't allowed to say that. Miami entrepreneur Alex De La Cruz, who marketed Fact in the U.S., says he lost \$16 million of his own money in the effort.

What would the AGs accept as substantiation for a health claim? The National Association of Attorneys General in Washington, which enforces the settlement, can't point to any specific standard in the 88-page agreement. But it does say the tests probably would be quite onerous, on the level of the multimillion-dollar, multiyear process needed to approve new pharmaceuticals. As Robert Levy, a constitutional lawyer and chairman of the Cato Institute, says, "the whole point of the agreement is for Big Tobacco to keep competitive products off the market."

For sure, governments are famously skittish about appearing to condone smoking, but this may be a case where the perfect is the enemy of the good. In any event Mowbray-d'Arbela's plan is to market her filter around the world and eventually reach the point where Americans are demanding the product. "Of course, smokers in America will eventually discover MicroBlue," she says. "But for now our sights are elsewhere."

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