



 **SBIR/STTR SUCCESS**

# SENESTECH

The New York Metropolitan Transportation Authority enlisted SenesTech and the National Institutes of Health to test its pilot program on the city's subway system in an effort to control the rat population.

While access to birth control will forever be a hot-button political and social issue in this country, there is one demographic in which it could be made readily available – the rat population. SenesTech and its patented ContraPest fertility management bait is set to be supplied to the country's rattiest places – starting with the Chicago subway system (CTA).

Rodent control has become a losing battle. Female rats start reproducing when they are 2 months old. They reproduce every single month, with as many as 12 per litter. Since they are immediately able to get pregnant again, efforts to kill the rats are futile and cannot keep pace with their constant mating habits. Cities get hit the hardest with rodent issues. Although rodent population statistics aren't readily available, mostly because this isn't a figure city governments want to highlight, rodent control is a costly and inefficient process.

## AGENCIES

NIH, USDA

## SNAPSHOT

Completed successful pilot tests in the New York Subway system, the neighborhoods of Metropolitan Boston, and the rice fields in Southeast Asia. Will be made available for commercial sale after EPA registration. Grew from 2 employees to 25.

## SENESTECH

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From chewing through electrical wiring, to spreading dangerous diseases through droppings, to wreaking havoc on public transportation systems, damage produced by rats can be devastating.

SenesTech's technology takes a proactive approach. Its patented and potent bait, which does no harm to the animal, sends the rats into menopause. This sterilization allows users to get ahead of the curve, and makes poisons and snap traps seem as archaic as they sound.

"People are learning that they are never going to get ahead by killing," explains Ali Applin, Vice President of Business Development for SenesTech. "The real problem is the reproduction. If you can stop that, you can gain control over rodent infestations. Our bait gets to the root causes of the problem; reproduction."

Dr. Loretta Mayer, co-founder of SenesTech, was studying heart disease after a friend suffered from the illness. Heart disease research for middle-aged women was conducted on mice, which were put into menopause by surgical removal of their ovaries. Since most women don't enter menopause in this way, she created a mouse model, called "mouseapause," which gradually sent the mice into menopause. When a local vet discovered how she had successfully sterilized the mice, he called her up and asked if they could do this for dogs. The interest in her work kept snowballing, and soon Dr. Mayer applied for a Small Business Innovation Research (SBIR) award through the National Institutes of Health (NIH).

“When we got our first SBIR award, we had 5 employees and no money,” added Applin. “This award allowed us to get incredible exposure, and most importantly to fund the New York City study that really put us in the public eye.”

The pilot project in New York City was a chance to test the bait in an urban setting. The company used both solid and liquid bait scattered around trash rooms, and found that the latter was highly attractive to rats. Since rats have a sweet receptor, much like the human “sweet tooth,” they are drawn to the sugary substance in the bait. The egg cream-like bait contains fat, water, and sweetener, along with the two active ingredients; one chemical based and one plant based, which causes the rats to become infertile. Since rats need to drink at least 10% of their body weight in water each day, they are repeatedly drawn to the tasty liquid.

While the company was working in NYC, a local reporter got wind of what was going on. Soon NPR picked up the story and SenesTech was getting flooded with calls and inquiries about their products.

SenesTech wrapped up its first pilot in NYC and is hoping to secure funding for a Phase II project with expanded sites. Meanwhile, Chicago, which was named the “Rattiest City” by Orkin, has expressed interest in doing a similar pilot, which is slated to start in mid July of this year. SenesTech is going through the EPA registration process currently to ensure safety and efficiency, and once complete, will sell its product worldwide. The platform technology has potential applications in a number of industries and has enormous potential in the agricultural sector. In rural settings, rats consume pig feed and contaminate the crops, causing farmers costly damage. Dr. Mayer recently visited the World Food Program in Rome, where she was told that 20-40% of its stored food is contaminated or consumed by rodents, making rats a huge factor in global food security.

SenesTech hopes to expand its platform to other mammals, including gophers, prairie dogs, wild pigs, feral cats and dogs, and wild horses.



The average female rat produces about 4-7 litters a year. With up to 12 pups per litter, the rat battle cannot be won by killing. SenesTech’s ContraPest focuses on sterilizing rats.