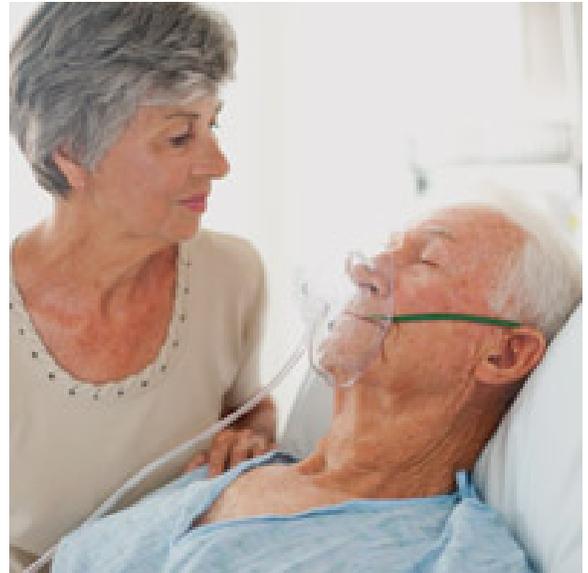


BIOLYTX PHARMACEUTICALS CORPORATION

The hospital is supposed to be a place of healing. Unfortunately, the occurrence of hospital-borne infections and antibiotic-resistant infections are on the rise. In Oklahoma, about 3,000 people who enter the hospital this year will contract pneumonia and about half of them will die due to lack of effective treatment options. The high mortality rate is due to the growing tide of antibiotic-resistant bacteria.

From 2000 to 2005, when the incidence of antibiotic-resistant infections in the U.S. nearly doubled, only three novel antibiotic drugs received FDA approval. Of these, none were effective against *Pseudomonas*, one of the most common pathogens in hospital-acquired pneumonia. Between the surge in drug resistance and lack of new antibiotics to treat these infections, the public faces an increasing threat. With the support of OCAST, Biolytx is developing a novel class of antibiotic drugs to fight these dangerous pathogens.



Hospital-acquired pneumonia, urinary tract infections and sepsis are all infections caused by Gram-negative pathogens. With sepsis alone, there are 700,000 cases every year with 30 percent of those being fatal because there is no treatment.

“While there are drugs on the market to treat Gram-positive pathogens, Gram-negative pathogens have been overlooked by major pharmaceutical companies partially because these infections are more difficult to treat and partially because resistance to antibiotics didn’t emerge as early or originally take off as fast as the Gram-positive infections. Because the timeline to create a new drug can take decades, the industry is behind in developing a treatment,” said H. Anne Pereira, chief scientific officer of Biolytx.

With current drugs, treating Gram-negative infections introduces the risk of endotoxic shock. When Gram negative pathogens are killed, endotoxin released from the bacterial membrane induces a life threatening immune response. Many antibiotics on the market today are ineffective against the most lethal Gram-negative pathogens. Those that can treat severe Gram-negative infections do nothing to mitigate the risk of endotoxic shock.

Biolytx is creating a novel class of antibiotic drugs that will kill Gram-negative pathogens and neutralize endotoxins – offering hope that severe Gram-negative infections can be treated successfully.

“Drug resistant bacteria is a major global issue,” said Pereira. “Most new drugs that come to market are modifications of previous antibiotics. So when a new one comes out, bacteria quickly develop resistance. Finding and developing a drug that has a totally different make-up is difficult, time consuming and costly.”

Because Biolytx is a small, early stage company with limited funding, they’ve chosen to narrow their focus to hospital-acquired *Pseudomonas* infections. But if their research passes all FDA approvals, it could translate into other Gram-negative infections that occur outside of the hospital such as salmonella, *E.coli* and *Acinetobacter* (a common wound infection contracted by soldiers overseas).

“To discover a treatment for Gram-negative infections would be like discovering the Holy Grail,” said Pereira.

Biolytx was formed in 2005 and is currently conducting research in the preclinical trial phase. Pereira estimates a drug could reach the market in seven to 10 years.

“OCAST was instrumental in funding my basic research as well as my applied research,” said Pereira. “We could not have found any other funding mechanism for this early stage. OCAST, EDGE, i2E, the National Institutes of Health – none can fund the full research process, but they all work synergistically to fund different aspects of a drug development program. Without OCAST, drug development would take so much longer. You have to hire people, apply for patents, hire intellectual property attorneys. Not running out of money along the way means you can do things simultaneously instead of in spurts – otherwise your patent could run out before the drug is on the market.”

Biolytx plans to reinvest the money they make from their research into the other treatment ideas they currently have on hold – keeping their company in Oklahoma and hiring additional researchers to further their capacity.

“For me, and for other researchers across the state, OCAST is a remarkable resource to have,” said Pereira. “Not just the funding, but other resources – the workshops they offer, spreading the word about science and technology to colleges and undergraduates – the services they provide are critical.”

[Go to the Biolytx website](#)