The pancreas behaves like a cactus.

So says Dr. Avinoam Nevler, a 2015-2016 APF research fellow in pancreatic cancer at Thomas Jefferson University's Pancreas, Biliary and Related Cancer Center in Philadelphia.

"The blood flow to the pancreas is markedly decreased compared to other important organs, as is the oxygen content. With lower levels of oxygen and nutrients it's like a cactus living in the desert, it's hardy."

"If a cancer arises in that tissue, the cancer is also very sturdy, robust and resilient," says the 36-year-old Reut resident. "And like a cactus, pancreatic cancer is very tolerant of extreme environmental conditions; nothing affects it. Also, pancreatic cancer, like a cactus, can slow replication during these harsh times, thereby resisting current weapons such as chemotherapy and radiation that are specifically directed at replicating cells.

"Leukemia, in comparison, may grow very rapidly and aggressively. Yet its strength is also a weakness since chemotherapy targeting these dividing cells is actually very effective," says Nevler. "With pancreatic cancer, however, we can throw the most expensive, sophisticated therapies at it and gain only about four to six months for most of the patients, depending on at which stage it is diagnosed."

The Chaim Sheba Medical Center (Tel Aviv) Senior General Surgery Resident says pancreatic cancer "uses every trick in the book" (creating new vasculature, more proteins, more energy, more nutrients and more immune cells) to outwit treatment. "It's like the cancer goes into survival mode."

These qualities make it, in his opinion, the biggest problem the Western World has in terms of cancer, even though pancreatic cancer is ranked third in terms of lethality in the United States.

"If you look at cancer numbers in the past five years, the trend is that many other cancers are decreasing in lethality and occurrence. The numbers dying from 1 and 2 (lung and colon cancers) are declining; while the numbers for pancreatic cancer have been on the rise for the past 15 years. The American Cancer Society expects pancreatic cancer to become the second most lethal cancer in the US within a few years.

"While it is not a common cancer, affecting about 2 percent of the population, most diagnosed will die relatively quickly – with only between 7 and 8 percent surviving to five years. And that's with a stage one (early) diagnosis, the very best case scenario.

"It is a sad grim story.

"A great part of the story is also screening and lifestyle changes. People stop smoking and that affects lung cancer rates. Colonoscopies affect colon cancer and mammography affects breast cancer rates. We have genetic screenings and great advances in treatment and lifetime survival – there's also a lot of money going into these causes.

"With pancreatic cancer we have practically none of these things."

Nevler came to Philadelphia with his family: wife Naomi, 36, a neurologist and APF researcher at nearby University of Pennsylvania; daughter Daphna, 8 and son Nimrod Zvi, 4 ½.

The Tel Aviv native says he knew he was going to become a doctor by the time he was 9 years old. "My mother is a microbiologist and I always loved

biology. From the time I was 5 years old I went to the lab with her. She would let me help and look at things under microscopes.

“When I was 9 years old my grandmother died from cancer. At that time I knew I wanted to become a doctor.

“I’m drawn to science and to help people. I hope to be a combination of both – a surgeon/researcher.”

He was accepted to the prestigious Tel Aviv University’s Technological High School division, where he was an award-winning student on an accelerated track. From there, as a member of the IDF Medical Academic Reserve Program, he headed to medical school at The Sackler Faculty of Medicine, also at Tel Aviv University.

Nevler interned at Edith Wolfson Medical Center in Holon (south of Tel Aviv).

He then became an army medical officer, earning many promotions and awards, while also developing new programs. Nevler served into his residency, ultimately in an elite unit. He is now in the Army Reserves.

How did he get to his specialized path?

“When we got into medical school, most us started out wanting to become pediatricians. Everyone loves kids. The coolest things is to work with kids – before you realize what working with sick kids really entails.

“But during my fifth year in medical school, the first time I got a scalpel in my hand, I just fell in love with it! It was ‘the road of no return.’ ”

During his fifth year of medical school he also began his “entrepreneurial period.” That started with a company he helped create to sponsor his invention of an implanted device to improve bowel continence.

Awards, more devices and patents followed. Nevler has published 21 articles and presented research abroad. Nothing, however, spelled pancreatic cancer specifically.

Why the pancreatic cancer research and surgery specialty decision now?

It came in recent years, said Nevler. And it’s another sad story.

“We are such a large referral center that, for better or worse, we see a large number of pancreatic cancer cases. I started to get a closer picture of this disease. We operate, but most patients die.

“But what really got to me was colleagues dying. Our chief of pancreatic cancer surgery died of pancreatic cancer three years ago and then, two years ago, our chief of trauma died of it.

“Having those people close to me with that disease just hit home and drove me to want to do more with it -- to help people with pancreatic cancer in as many ways as possible.

“Surgery is good, but cancer cells are resistant and 80 percent of patients are not even able to undergo surgery.

“That’s why I think the answer lies in research. That’s why I’ve gone into this specific area and I’ve been fortunate to be able to do research here at Thomas Jefferson University.”

Why choose Thomas Jefferson?

Nevler says he chose Jefferson because it has a high-volume, dedicated pancreatic cancer center with state-of-the-art facilities and top people. “No institute such as this exists in Israel, nothing even close.

“Thomas Jefferson has one of the leading pancreatic cancer research centers in the United States, along with Johns Hopkins. And they are both world-renowned – you will not find any pancreatic study written up that does not cite the head of one of these places or both.

“Dr. Charles J. Yeo, Chairman of Surgery at Thomas Jefferson and co-director of the Pancreas, Biliary and Related Cancer Center, has performed more than 1,500 pancreatic resections.

"He has done more resections in his lifetime than anyone in Israel will ever do. These two centers have some of the most skilled surgeons in this area in the US, in the world. I don't even think European centers have larger surgery numbers.

"Also, I work closely with Dr. Jordan M. Winter - a pancreatic surgeon and an excellent researcher. He is my role model for a surgeon/researcher."

Nevler hopes to publish four to six research papers from his Jefferson experience.

What's a Philadelphia day like for him?

His workday starts at about 9 a.m. and ends at 5 or 6 p.m. Sometimes there are evening or weekend hours and occasional visits to nearby Fox Chase Cancer Center for training.

"Mostly I do basic science, working with live cells of pancreatic cancer. I do some 'clinical correlative research' (computer work) as well."

But a research schedule is far easier on family life than Nevler's clinical schedule back in Israel.

"Back home, most of the time I wasn't there to see my kids go to sleep. And when I left for work they were still sleeping. I saw them for one hour before they went to sleep – if I was lucky.

"Now I can see them in the morning, read them a story before bed and eat dinner with them. They love it!

The Nevlers have gotten used to snow and rain. "We've never before experienced rain in May. On some days a trickle here is considered a rainy day in Israel."

They have also traveled in Pennsylvania, upstate New York and Vermont.

When Nevler returns to Israel he will finish his final year of residency at Sheba and then take up a five-year-contract as an Attending Surgeon there.

He won't be able to get back to research while still a resident. But when he becomes a certified surgeon he hopes for a place in another researcher's lab where he will be able to continue pancreatic cancer work.

"I will always, however, keep in touch with Thomas Jefferson and I will take back with me new research techniques. Someday I'd like to have my own lab in Israel which I will devote to pancreatic and biliary cancer research.

"But more than anything, I wish for more attention to be paid to this deadly disease – more awareness, more funding, more research. It's so important."

Dr. Nevler says he wants to call out to people to get involved in this cause and to "Wage Hope." "Wage Hope" is the motto of the Pancreatic Cancer Action Network, a far-reaching network dedicated to advancing research, supporting patients and creating hope for those affected by pancreatic cancer.