

Working to cure cancer in our lifetime

Decades of research from ASU's Biodesign Institute dedicated to cancer treatment, prevention

By Lisa Robbins, ASU News
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What if we could cure cancer, or come close, in our lifetime?

About this story

There's a reason research matters. It creates technologies, medicines and other solutions to the biggest challenges we face. It touches your life in numerous ways every day, from the roads you drive on to the phone in your pocket.

The ASU research in this article was possible only because of the longstanding agreement between the U.S. government and America's research universities. That compact provides that universities would not only undertake the research but would also build the necessary infrastructure in exchange for grants from the government.

That agreement and all the economic and societal benefits that come from such research have recently been put at risk.

That's a goal that researchers at Arizona State University's Biodesign Institute have dedicated years of time and resources to, so that one day we may live in a cancer-free society.

Learn about more solutions to come out of ASU research at news.asu.edu/research-matters.

Sometimes cancer research starts in surprising places — like studying sponges that can withstand lethal levels of radiation or birds whose reproductive rates are linked to cancer rates.

From diagnosis and treatment to prevention, ASU scientists take a comprehensive approach to [cancer research](#). In all, there are 18 types of cancer being studied at the institute.

Here are just some of the recent studies making strides in how we think about — and treat — cancer.

The link between blood sugar and cancer risk

In humans and many other animals, high blood sugar is often linked to increased cancer risk. However, researchers recently discovered that birds, despite having significantly higher blood sugar levels, have lower cancer prevalence.

The findings challenge existing assumptions and suggest that some species have evolved natural biological defenses against cancer. These defenses — such as metabolic adaptations and cellular protective mechanisms — could inspire new approaches to cancer prevention and treatment in humans.

[Read more on ASU News.](#)

Ancient sea creatures offer fresh insights

A species of sponge called *Tethya wilhelma* has a remarkable capacity to withstand radiation and resist cancer.

A new study provides the first experimental evidence that following exposure to heavy doses of radiation, the sponges experienced minimal damage to their DNA, suggesting an extraordinary ability to repair or prevent radiation-induced damage.

This remarkable resilience offers insights into evolutionary tactics of cancer prevention and suppression that may one day help treat or prevent cancers in humans and other animals. The research may also inspire new techniques to protect humans in high-radiation environments, including nuclear reactors and during space travel.

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Cancer's reach across the animal kingdom

A 10-year study led by ASU researchers examining nearly 300 vertebrate species revealed significant differences in the prevalence of cancer.

The results deepen our understanding of cancer evolution and could provide clues for developing more effective therapies.

“Until recently, we didn’t know cancer rates in any species beyond humans, dogs and naked mole rats,” said [Carlo Maley](#), lead author of the study. “I’m excited to discover all kinds of different species with extremely low cancer rates. They can show us how nature has solved the problem of preventing cancer.”

[Read more on ASU News.](#)

Studying reproduction rates and cancer susceptibility in birds

In one of the largest studies of its kind, researchers discovered an intriguing relationship between reproductive rates and cancer susceptibility.

The researchers analyzed data from more than 108 species of birds and found that birds that lay more eggs per clutch tend to have higher rates of cancer, shedding new light on evolutionary trade-offs between reproduction and survival.

By examining how different energy allocation strategies affect cancer development in birds, researchers gain insights into relevant mechanisms for studying human cancers.

[Read more on ASU News.](#)

Scientists and philanthropists unite to combat cancer

Researchers are also developing promising new screening strategies, such as cancer detection through biomarkers, which can provide lifesaving early warning signals.

Their work has been fueled by a generous donation from the Tom and Catherine Culley Charitable Trust to the Biodesign Virginia G. Piper Center for Personalized Diagnostics.

With better disease detection and earlier treatment, the center strives to have a profound impact by decreasing mortality caused by various diseases, including cancer and autoimmune diseases.

HPV-related and lung cancer are just two of the diseases for which the researchers are developing new screening methods.

[Read more on ASU News.](#)

This story originally appeared on [ASU News](#).

Main image



Karen Anderson (right), a faculty member in the Biodesign Virginia G. Piper Center for Personalized Diagnostics, talks with molecular and cellular biology PhD student Oliver Kask (left) and fourth-year biological sciences student Naveen Kumar in her lab at the Biodesign Institute. The goal of the center is to find ways to detect diseases — like cancer — sooner so early intervention can improve patients' lives. Photo by Samantha Chow/Arizona State University