In War on Cancer, Old Ideas Can Lead to Fresh Directions

BY GINA KOLATA

Mina Bissell will never forget the reception she got from a prominent scientist visiting Lawrence Berkeley National Laboratory, where she worked. She gave him a paper she had just published on the genesis of cancer.

"He took the paper and held it over the wastebasket and said, 'What do you want me to do with it?' Then he dropped it in."

That was 20 years ago, and ever since, Dr. Bissell and a few others have struggled for acceptance of what seemed a radical idea: Gene mutations are part of the process of cancer, but mutations alone are not enough. Cancer involves an interaction between rogue cells and surrounding tissue.

The idea seemed messy and unduly complicated. And cancer genes seemed comparatively clear-cut. So it was often ignored or dismissed as researchers focused on genes and on isolated cancer cells growing in Petri dishes in laboratories.

FORTY YEARS' WAR
Accepting New Approaches

Now, though, more and more researchers are plunging into those murky depths, studying tumors in their cellular environments. And, once they do, they say, they can explain many anomalies of cancer. The new focus on a cancer's surroundings, researchers say, is a major shift in thinking about why cancer occurs and how to stop it.

As yet, the research has not led to cures, and scientists expect the real fruits of their efforts — if they occur at all — will be years in the future.

But as the war on cancer drags on, nearly 40 years after it began, scientists say new directions are urgently needed. The death rate has barely budged for most cancers, and the gene mutation strategy has so far had a limited effect. That is probably because cancer cells have so many genetic mutations.
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Dr. Wim Bom had been helped by finding a "paradigm shift" in the study of the genetics of cancer.

Dr. Karolina Pujak has studied the tumors in the breast that keep or may not kill the patient.

Dr. John Doe has contributed to the fight against cancer through his research in tumor immunotherapy.

A New Model for Cancer Treatment

Looking for new ways to fight cancer, scientists are exploring the use of artificial intelligence and machine learning to better understand the disease and develop targeted therapies. These approaches offer the potential to personalize treatment for individual patients, potentially improving outcomes and reducing side effects.

Struggle for Acceptance

Despite the advances in cancer research, there are still many challenges to overcome, including the need for better diagnostic tools and a lack of funding for cancer research.

Empty Spaces: War

Even as we celebrate the progress we've made, there is still much work to be done. We must continue to support cancer research and advocate for policies that prioritize funding for this crucial work.

Lacking tools, we're limited in our ability to diagnose and treat cancer effectively. New technologies, such as gene editing and CRISPR, offer promise in the fight against cancer, but we must ensure that they are used ethically and with care.

Sleeping Cells Awakened

The research community is working to better understand the complex interactions between cancer cells and the immune system, with the goal of developing new strategies to harness the body's own defenses against cancer.

The journey ahead is long, but with continued dedication and innovation, we can make meaningful progress in the fight against cancer.

For more information, visit our website at www.cancerresearch.org.