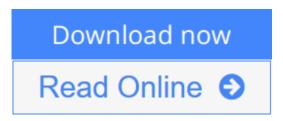


# Sharks Get Cancer, Mole Rats Don't: How Animals Could Hold the Key to Unlocking Cancer Immunity in Humans

By James S. Welsh



## Sharks Get Cancer, Mole Rats Don't: How Animals Could Hold the Key to Unlocking Cancer Immunity in Humans By James S. Welsh

This fresh and fascinating exploration of new directions in cancer research focuses on the important role of the immune system in combatting this dread disease. Integrating clues from the animal kingdom, the veterinary clinic, extraordinary human cases, and even embryology, the author—a cancer physician, biologist, and physicist—creates a novel and compelling account of tumor immunology and the promises of immunotherapy.

As the author explains, animals offer us many tantalizing clues about the nature of cancer in humans. Tasmanian devils are on the verge of extinction due to a virulent form of contagious cancer; soft-shelled clams on the East coast of North America are vanishing due to another epidemic of contagious cancer; dogs also contract a contagious cancer but they spontaneously overcome it; and a type of mouse and the homely mole rat are not susceptible to the disease at all.

In humans, there are rare instances of spontaneous cures of advanced cancers induced by radiation. An uncommon form of dwarfism called Laron syndrome confers total cancer immunity on the people who inherit the condition. And recent research suggests that cancer has stolen the secret that shields the embryo against hostile attacks from the mother's immune system.

The author makes a convincing case that what all of these diverse examples have in common is the immune system and its ability or inability to respond to malignancies. He concludes with a review of the exciting research on the human immune system and the development of new treatments that are inducing the immune system to combat and conquer even the deadliest cancers.

From the Trade Paperback edition.

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#### **Editorial Review**

#### Review

- "Fascinating! Once I started, I could not put this well-written and engaging book down. Welsh's in-depth analysis and insights are highly commendable. This is a must-read whether you are a cancer survivor like I am or just an interested party. High praise."
- —JAMES S. BOND, instructor of biological and physical sciences, Mid-State Technical College
- "Dr. Welsh's science is meticulously researched and comprehensive, and his interspecies approach to cancer research and treatment makes this book a fascinating reading."
- —DR. THOMAS BECKETT, retired veterinarian
- "A fascinating book that provides a hopeful key to unlocking many of the mysteries of cancer. It is a must-read for cancer patients and their family members. Dr. Welsh offers hope to all those battling cancer with his uniquely insightful research, and his work should be required reading for all healthcare professionals working to eradicate cancer in our lifetime."
- —ANDREW WOODS, cancer survivor and patient advocate
- "This book is fascinating. Being a cancer survivor, the chapters on the immune system and immune failure were very important to me. I'm living proof that our own immune systems are the best cure. The chapter "The Dog Knows" is about something I experienced personally: In 2006, we got a puppy, and it would only lick the right side of my neck. Eight months later, I was diagnosed with stage IV throat cancer, and the tumor was on the right side of my throat. I would suggest this book to anybody. There is a lot of valuable information here."
- —BRETT HUDSON, writer, producer, director, and stage IV throat cancer survivor
- "The title immediately attracts attention; the word "cancer" resonates with us all. As readers delve deeper, they quickly appreciate the author's great gift for presenting significant and complex material through an engaging, thought-provoking, and down-to-earth style. Welsh easily draws the reader in, using illustrations and examples from the spectrum of our human experience to convey scientific principles—everything from pop culture, dinosaurs, astronomy, and human interest. I can't wait for a television documentary based on this book!"
- —JEFFREY P. LIMMER, MEd, MSc, DABR, FAAPM, director, Medical Physics & Quality for the US Oncology Network, McKesson Specialty Health
- "A rollicking ride through the mysteries of cancer from an omnivorous mind. Dr. Welsh is to cancer what Carl Sagan was to astronomy. This book is to cancer research what the journals of the *Voyage of the Beagle* were to evolution. All young cancer researchers should read this book for insight and inspiration."
- —Dr. THOMAS ROCKWELL MACKIE, emeritus professor of medical physics, human oncology, and engineering physics, University of Wisconsin-Madison
- "This is an amazing book. Using clear and witty writing, Dr. Welsh explores the scientific history of cancer like never before. With examples ranging from galaxies to dinosaurs, creepy mammals to disgusting sea creatures, and even particle physics, he weaves a story as good as any novel. And it comes together in a way that suggests a future cure for cancer. A must-read for anyone involved with cancer."

—NORMAN WALLIS, PhD, executive director, American College of Radiation Oncology

About the Author

**James S. Welsh, MD, FACRO** is professor, director of clinical and translational research, and medical director of radiation oncology at the Stritch School of Medicine, Loyola University - Chicago and chief of radiation oncology at the Edwards Hines Jr VA Hospital. He also practices and conducts research in proton beam therapy at the Northwestern Medicine Chicago Proton Therapy Center. He has led research in boron neutron capture therapy and fast neutron therapy at Fermilab when he was the neutron therapy physician at the NIU Institute for Neutron Therapy at Fermilab.

Dr. Welsh has authored over 100 scientific articles and is a sought-after lecturer. Board certified in radiation oncology and neuro oncology, he has worked in the Oncology Department at The Johns Hopkins Hospital, the Human Oncology and Medical Physics Departments at the University of Wisconsin, and was full professor of neurosurgery and radiology at LSU-Shreveport.

He is the current\_president of the American College of Radiation Oncology and is on the board of directors for the Society for Brain Mapping and Therapeutics. He recently concluded eight years of service on the Advisory Committee for the Medical Uses of Isotopes, which advises the United States Nuclear Regulatory Commission on medical issues.

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#### Mark Sawyers:

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