

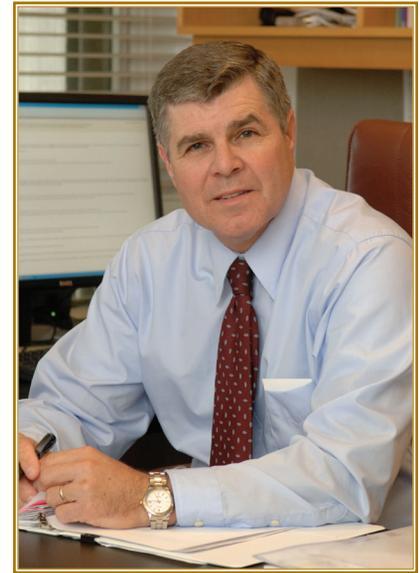
# Producing Scientific Synergism

Cancer researchers have long recognized the value of interdisciplinary research and collaboration because difficult scientific problems often cut across the borders of individual focus areas and disciplines. And as cancer's complexity becomes more evident, so does the need to increase the synergism produced by interdisciplinary teamwork. Accordingly, at CCR, we work assiduously to promote opportunities, including training, that bring basic and clinical researchers side by side, where they team to make important advances. Examples abound at CCR that validate this approach.

In this issue, we showcase how CCR's basic researchers generate discoveries with downstream relevance for better patient care. In "It Starts with a Choice," we meet Mirit Aladjem, Ph.D., who is elucidating the fundamental details behind DNA replication in both cancerous and normal cells. Aladjem explains that cancer cells burdened by unstable DNA face a critical option: They can replicate their DNA, pass through mitosis, and potentially initiate tumors, or they can self-destruct through apoptosis. Her research is now showing that interfering with replication machinery, such as the "replication origins" that coordinate DNA replication in cancer cells, may provide a new target for cancer therapy.

In CCR's interdisciplinary setting, clinical advances rely on basic science, and basic scientists rely on clinical observations to inform their research. In "Virtual Entity Yields Real-Time Results," we see how CCR scientists working through the Center of Excellence in Integrative Cancer Biology and Genomics (CEICBG) pool their knowledge, tools, and technologies of their separate disciplines to investigate cancer broadly, from tumor biology to potential therapies. Investigators in CEICBG identify genetic features that may be targeted in cancer drug development or used as biomarkers to predict patient responses to treatments. Their discoveries provide insights into cancer risk and progression. For example, their studies looking at somatic copy number alterations have identified "driver" mutations that promote tumor growth and may even lead to new diagnostic methods for staging liver cancer. Other ongoing studies are investigating genetic variants that could play a role in global health disparities for lung cancers. Still other research teams are identifying biomarkers to detect noncancerous pediatric cancers that are likely to transition to aggressive cancers. Cumulatively, these studies may make it possible to better match the right treatment to the right patient.

CCR's emphasis on interdisciplinary training enriches



(Photo: B. Branson)

Robert Wiltrout, Ph.D.

the broader oncology research community because many who study here ultimately leave and assume leadership positions in their respective fields. In "Training the Next Generation of Cancer Researchers," we explore the selfless contributions of our principal investigators who adopt young investigators-in-training and prepare them for their future successes.

Promoting and managing a culture of interdisciplinary research can be complex, but it is also of great value, because the merger of basic and clinical skills enhances the pace of developing better treatment options for all cancer patients.