

# The Strengths of a Diversified Portfolio

*Managing an investment portfolio is no easy task. As the current economic climate attests, steady returns depend on both the quality and the diversity of investment opportunities. Supporting biomedical research is a different kind of investment—one in which the return is not measured in dollars but, ultimately, in disease prevented or cured—however, it too requires a diversified portfolio strategy. Biomedical science progresses through a combination of steady accrual of basic information, unpredictable technical or conceptual breakthroughs, and the means to translate new knowledge into clinical action. In this issue of CCR connections, we see strong examples of our research investment that span the ranges of low to high risk and short- to long-term returns.*

Why would an institute committed to developing cures for cancer and AIDS invest research dollars in studying how yeast mate or how mice form their tails? The answer, as discussed in two feature articles (“Balancing Silence: How a Cell’s Fate Is Determined” and “Cancer Research Takes Flight: *Wnt* Signaling in Development and Disease”), is that such studies address the fundamental mechanisms of cell development and fate that turn against us when cancers form. We may not always know at the outset how far off a clinical payoff might be and what form it will take, but we know that steady investment in basic research is the only way to break new ground.

The Center for Cancer Research (CCR), of course, also invests heavily in research questions aimed squarely at cancers and capitalizes on its rare position as an institute that has benches and bedsides in the same buildings. Several investigators featured in this issue have seen their work go from inhibiting cancerous proliferation in a dish to first-in-man studies (see

“Going after the Real Killer: Metastatic Cancer” and “Radiating Change”). This work represents the kind of translational research for rare and difficult-to-study cancers that the pharmaceutical and biotechnology sectors lack the economic incentives to tackle, but has clear returns in terms of individual lives.

The goal of overcoming economic disincentives to cure disease can result in unusual research tactics. In “By Land or by Sea: High-Yield Harvesting of an Anti-HIV Protein,” we learn of work to produce large quantities of a recently discovered HIV antiviral by infecting tobacco plants with a virus carrying the gene to produce it. As the article points out, the problem of local production and distribution of life-saving drugs to developing countries is a research problem as important as discovering such drugs to begin with and has the potential to impact millions.

In making often difficult decisions on how best to deploy our finite budget and resources to maximize the impact of our scientists and their discoveries, we



(Photo: B. Branson)

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realize that all of our research investments are not going to have immediate payoffs. We also realize that some will rely on unpredictable parallel advances in other fields, as when virology research benefits from new discoveries in molecular biology to impact cancer (see “Keeping Oncogenic HPV in Check: How the Interplay between HPV Oncoproteins and microRNAs Affects Carcinogenesis”). We even know that some very high-risk projects may not succeed at all. Our job, as is any good portfolio manager’s, is to ensure that the research we fund is both broad and deep enough to produce a steady flow of new discoveries that improve human health.

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