

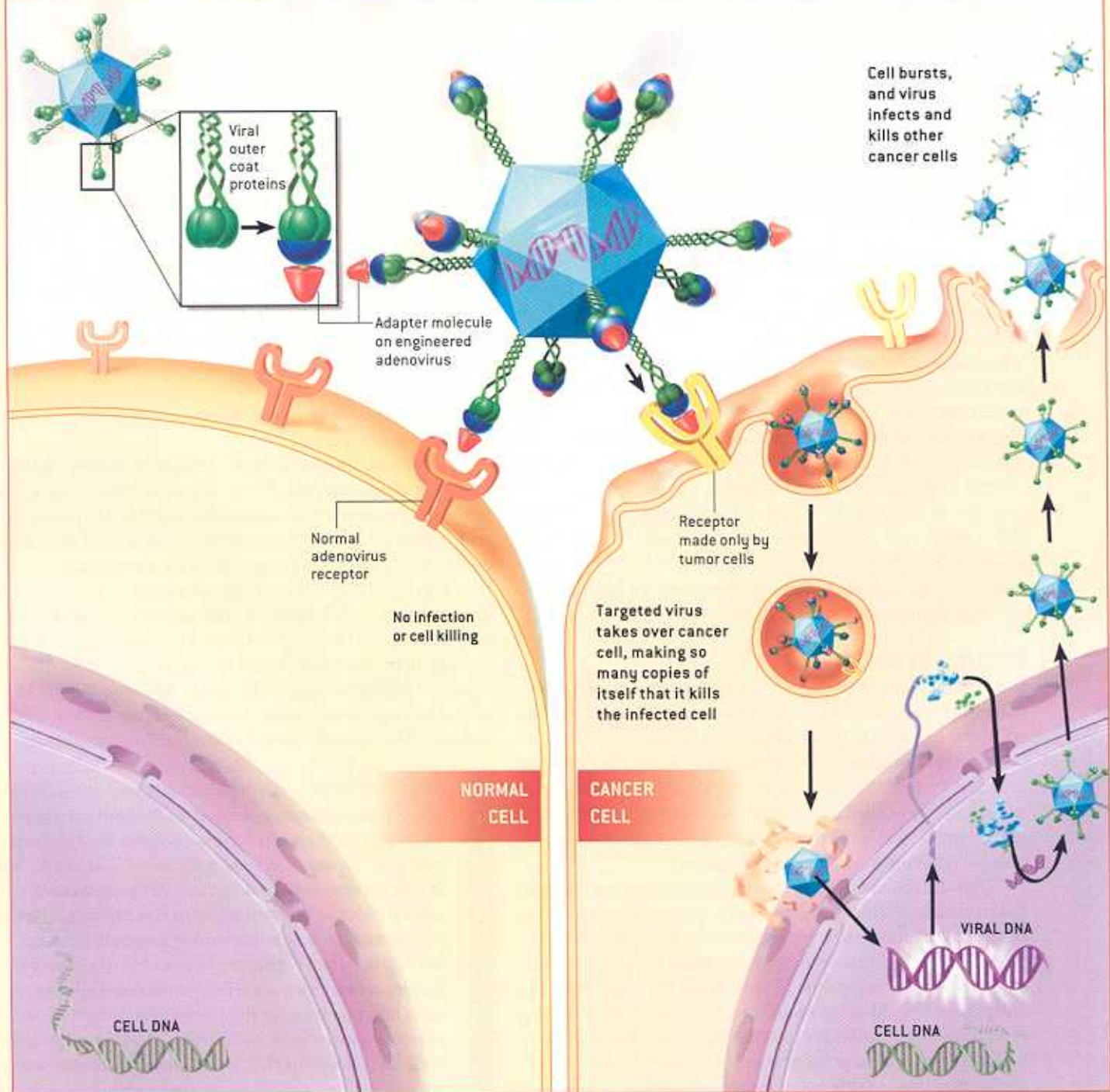
ZAPPING CANCER CELLS WITH VIRUSES

TWO MAIN STRATEGIES are being explored for virotherapy, which is the technique of using reproducing viruses to kill tumors. In the first method, dubbed transductional targeting (*below*), scientists are attempting to engineer viruses such as adenovirus—which normally causes respiratory

infections—to selectively infect and destroy only cells that have turned cancerous. They are attaching adapter molecules onto the viral outer coat proteins or directly modifying these proteins to try to prevent the viruses from entering normal cells and instead prompt them to home in

NORMAL ADENOVIRUS

VIROTHERAPY WITH TRANSDUCTIONAL TARGETING



on tumor cells. The second approach (*below*) involves placing a snippet of DNA called a tumor-specific promoter next to one of adenovirus's essential genes. The promoter acts as an "on" switch that permits the gene to function only in cancer cells. The engineered viruses

can enter normal cells, but they cannot reproduce and kill them. Once they enter cancer cells, however, the tumor-specific promoter lets them make millions of copies of themselves and ultimately burst the cancer cells. They can then spread to—and destroy—other tumors. —D.M.N. and D.T.C.

VIROTHERAPY WITH TRANSCRIPTIONAL TARGETING

