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Green Surgery

One aspect of medicine that has remained largely unperturbed by high-tech bells and whistles is the need for surgeons to distinguish between tissue to be removed and tissue to leave behind. Kishimoto *et al.* have demonstrated the use of a viral vector that targets tumor cells specifically, not to kill them directly, but to demarcate cancerous tissue clearly. They started with a designed adenovirus, OBP-401, which can replicate only in cells that contain an active telomerase, as in malignant tissue. This virus also contains a gene for green fluorescent protein (GFP). In a proof-of-principle study, peritoneal tumors were induced in nude mice by injecting human cancer cells containing red fluorescent protein (RFP). Twelve days later, disseminated nodules had formed, and intraperitoneal injection of the virus and examination 5 days later revealed co-localization of red and green fluorescent signals. In a similar mouse model for pleural dissemination using unlabeled human lung cancer cells, nodules that would not have been detected by eye were clearly visualized via GFP. Although other tumor-imaging approaches are available, cancer-specific labeling could add value to the idea of virus-aided, fluorescence-guided surgery. — BJ

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