BY RICHARD SALTUS

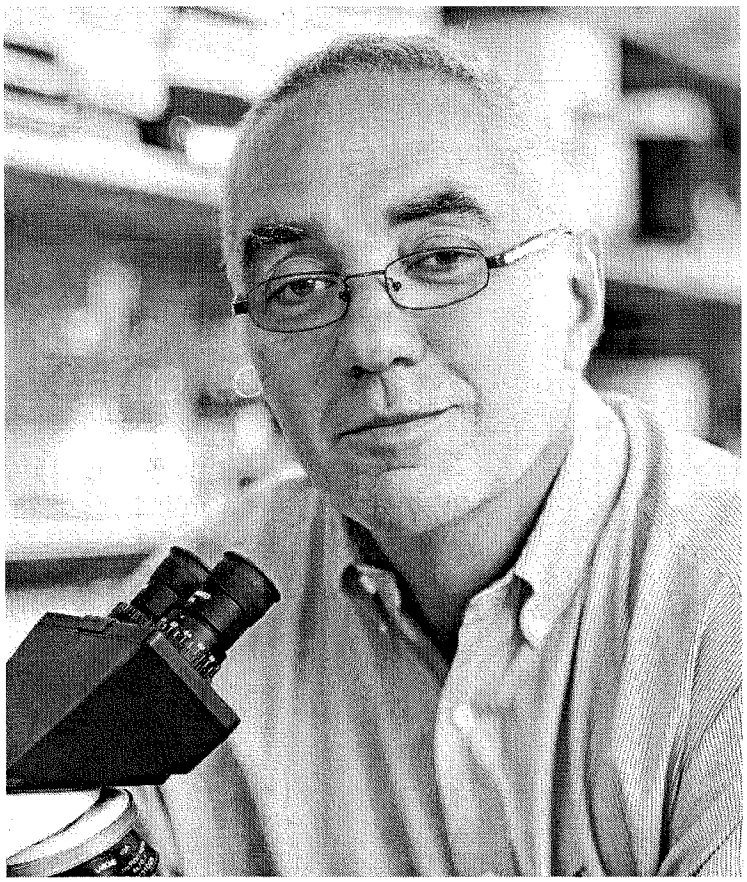
Researcher Profile

In an expansive suite of high-tech equipment in the Center for Molecular Oncologic Pathology (CMOP), Massimo "Max" Loda, MD, and his colleagues are setting the stage for the coming era of personalized medicine.

Scientists in the CMOP, of Dana-Farber and Brigham and Women's Cancer Center (DF/BWCC), are taking pathology beyond its traditional role of examining tissue specimens to diagnose disease. They're defining tumors by their molecular and genetic traits, which doctors may then be able to use to tailor cancer drugs for an individual patient's tumor.

The path to these new drugs runs through the laboratory, where scientists test experimental compounds on dishes of cultured cells or in laboratory mice engineered to have specific types of cancer. These mouse models have many advantages. For example, researchers using sophisticated imaging techniques can determine whether an experimental drug given to a mouse actually hits the intended molecular target on cancer cells. This gives a much quicker answer than waiting months to see if the mouse's disease improves. The same approach can be used with some human cancers.

Massimo Loda, MD



"You can envision treating a slice of a patient's tumor with the drug, and within two days showing whether the drug is hitting the target and what the effect is," Loda says. "We take [tumor] samples obtained in the operating room, and study them here in the CMOP. Some of the tissue slices we culture in the laboratory, while other portions of tumor are injected into mice to try and create an animal model of the cancer." The latter work is led by Senior Staff Scientist Ewa Sicinska, MD.

> One of our mandates in CMOP is to propagate primary tumors in mice and build models for preclinical testing of drugs.

Loda's group is developing mouse models for aggressive, difficult-to-treat malignancies, such as ovarian cancer, and sarcomas, which develop in connective tissues including bone, muscle, and fat. In the latter project, Loda is joining forces with Andrew Wagner, MD, PhD, a member of DF/BWCC's Center for Sarcoma and Bone Oncology.

In conversations at Dana-Farber and at a specialized meeting in Milan they both attended, "We began talking about how the work we have been doing could apply to [a type of soft-tissue sarcoma known as] liposarcomas," recalls Loda. "It's a shame that sarcomas haven't been studied so much in animal models. We thought that these sarcomas might grow well in mice."