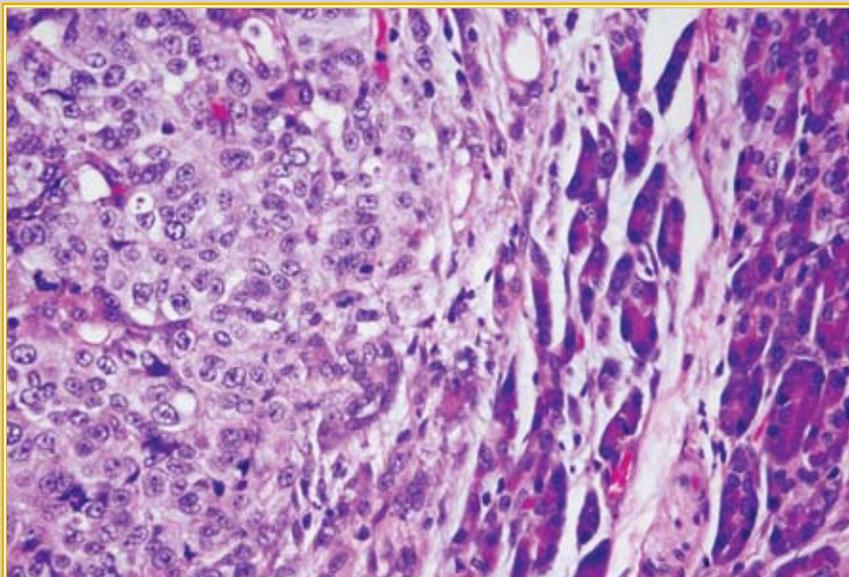


# Putting Heads Together

*NCI Chief of Surgery Steven Rosenberg teams up with NHGRI researcher Yardena Samuels against melanoma.*

(Photo: R. Lee, M.D., Ph.D.)



Micrograph of metastatic melanoma cells, left, that have invaded pancreatic tissue, right.

Sometimes, two heads are better than one. The vigorous collaboration between Steven Rosenberg, M.D., Ph.D., Chief of Surgery at CCR, and Yardena Samuels, Ph.D., an Investigator in the Molecular Cancer Genetics Section of the National Human Genome Research Institute (NHGRI), is a case in point.

"It began with a phone call from Dr. Francis Collins, who was then Head of NHGRI," recounted Dr. Rosenberg on how their collaboration began in November 2006, "telling me that he was interested in recruiting a postdoctoral fellow from Johns Hopkins to come to NHGRI, that she was very interested in somatic mutations in melanoma and I should meet with her. And that person was Yardena Samuels."

The two met the very next day. "After talking for approximately 15 minutes, Dr. Rosenberg agreed to collaborate with me," said Dr. Samuels. Dr. Rosenberg's team was studying melanomas from an immunologic

standpoint, and Dr. Samuels wanted to study the genomics of the disease. Immune responses are largely the result of genetic mutations within the melanoma, so by identifying these mutations, they hoped to identify potential new therapeutic targets.

Before their collaboration, Dr. Samuels' research into the genomics of melanoma was limited by lack of access to melanoma patients or samples. Dr. Rosenberg had accumulated just such samples over decades in the course of his immunotherapy studies. "We had put away melanoma digests that came out of the operating room from 467 different patients," said Dr. Rosenberg. "We had 329 different tissue culture lines and we had 562 fresh frozen blocks of melanoma, so we had what's probably the largest compendium of melanoma samples in the world."

"Dr. Rosenberg had the ingenuity to preserve not only the tumors, but also derive cell lines from the tumors

as well as keep the patient's blood. Few melanoma clinicians or scientists ever had such insight," added Dr. Samuels. He also had the clinical history of his patients so that they could make correlations between the genetic changes and clinical outcome. Dr. Rosenberg gave Dr. Samuels access to the entire collection of melanoma samples to begin her genomic study of the disease.

"That began what has been a wonderful and very productive collaboration where many new genetic changes have been identified in the tumors from melanoma patients," said Dr. Rosenberg. "And it has been the perfect example of going from the patient to the laboratory to study, and then back to the patient, because one of the mutations that we observed—a mutation in the *ERBB4* gene present in about 19 percent of melanomas—was something that we could specifically target with a drug called lapatinib."

Both Drs. Rosenberg and Samuels continue to learn from each other and share information about genomic changes in melanoma and how they relate to the course of the disease. They have published many papers together (in *Cancer Biology & Therapy*, *Pigment Cell Melanoma Research*, *Nature Genetics*, *Cancer Research*, and *Biochemical and Biophysical Research Communications*) and have submitted several more for publication. "It's a wonderful collaboration and exactly what the NIH is about," remarked Dr. Rosenberg, "this marriage of basic science and clinical medicine that is quite unique here."

*To learn more about Dr. Rosenberg's research, please visit his CCR Web site at <http://ccr.cancer.gov/staff/staff.asp?Name=rosenberg>.*