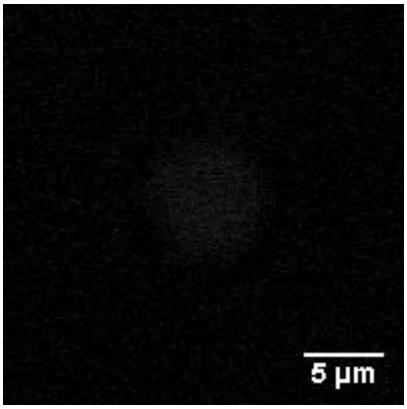
Why Novartis scouts for disruptive technology [1]

From Our Labs [2]

On January 9, 2007, Steve Jobs launched a revolution when he pulled an unfamiliar device out of his pocket and told a room of 5,000 tech-geeks that his company was “going to reinvent the phone.” The device could do unimaginable things, he said, like search the web, make calls, and play music all with a remarkably simple user-interface. At the time it did not seem possible, now it’s hard to imagine life without the iPhone and its descendants.



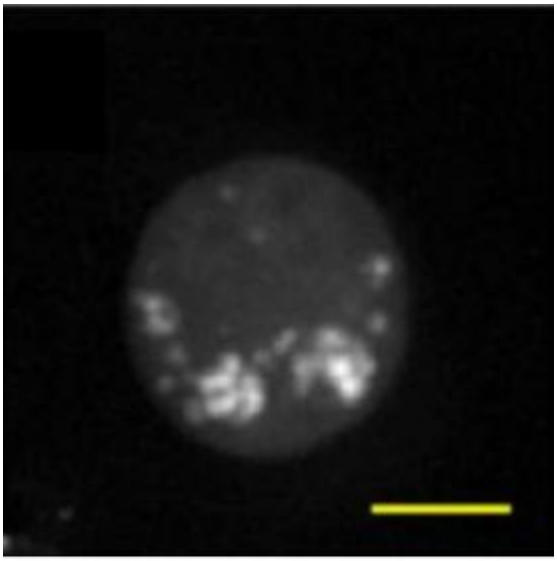
Stimulated raman scattering microscopy reveals enrichment of the oncology drug imatinib in the lysosomes of living cells. (Video courtesy of Nature Chemistry)

Most end users of technology tend to accept the status quo until they’re handed something better—its human nature. But researchers at the Novartis Institutes for BioMedical Research (NIBR) are actively pursuing disruptive technology before it takes them by surprise. Teams are scouring academic labs for new inventions and launching collaborations to push the development of equipment in a direction that will benefit scientists working in drug discovery.

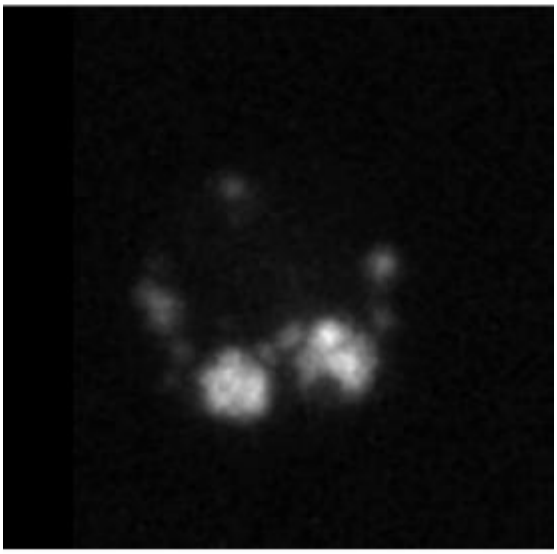
A study published online [3] in Nature Chemistry on May 25 is the culmination of one such collaboration. Researchers used a novel imaging technique invented at Harvard to visualize the small-molecule drugs imatinib and nilotinib inside the cell without using molecular tags.

In drug discovery, scientists might get annoyed with the limitations of a particular microscope or mass spectrometer, but they typically suppress such feelings, bottling up frustration for the sake of the experiment in progress. Steve Martin, Head of Analytical Sciences and Imaging at NIBR, is pushing his teams to harness their malaise to improve—and even transform—lab equipment.

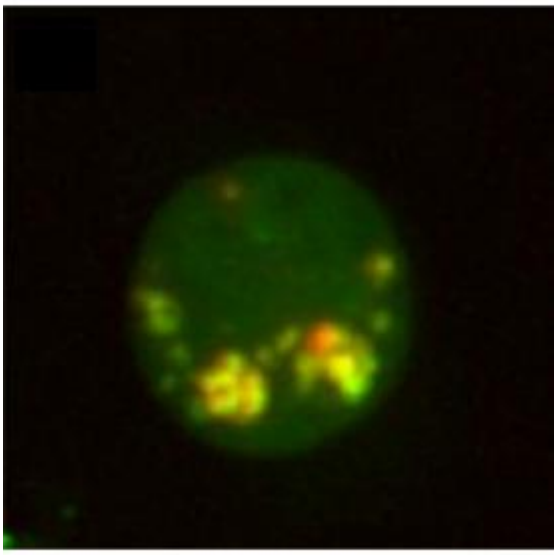
“If we’re going to cure patients five years and ten years from now, then we’re going to have to evolve the technology we use to understand biology and the chemistry,” he explains. “We can’t just take what’s on the shelf and use it as it is. That’s just not going to get us where we need to be.”



The Harvard-Novartis team used traditional fluorescent imaging to pinpoint the locations of lysosomes in the cell.



The team used new technology called stimulated raman scattering to visualize the small molecule drug imatinib in the cell.



By overlaying the two images, the