Meet the Scientist

Using Stem Cells in the Fight Against Blood Diseases, like Leukemia

Laura M. Calvi, M.D.

Professor of Medicine, Endocrine Division

"For years there were biologists thinking about bones, and other biologists thinking about blood, without considering about how essential the connection is between the two," says Dr. Laura Calvi. "Our team sort of came out of left field and said, why don't we study what's really going on between these two?"

The result has been a leap forward in the understanding of how each of these complex systems interacts with the other, and has shed light on new and promising targets in the fight against diseases of the blood, such as leukemia. Stem cells hold tremendous promise in therapy for these diseases because, if properly manipulated, stem cells can become a healthy new cell of any kind. Unfortunately, any attempt to coax the cells into reproducing themselves instead makes them begin growing into random types of cells, which is useless as a therapy.

> ***"We can actually do something for patients—not in 20 years—but in just two or three."***

Dr. Calvi is attacking this problem by mapping out the myriad interactions of the bone and blood cells as they signal each other to grow and develop. She has already had success testing a combination of an anti-osteoporosis drug and an anti-cancer drug, both of which are already known to affect other cells in the complex chain Dr. Calvi has uncovered. Her hope is that using this combination of existing drugs that have already been proven safe can help patients in need much sooner than attempting to create a brand new treatment from scratch could.

"The best part for me personally is that all this phenomenal biology we've discovered is actually targetable," says Dr. Calvi. "It's not just discovery for discovery's sake. We can actually do something for patients—not in 20 years—but in just two or three."