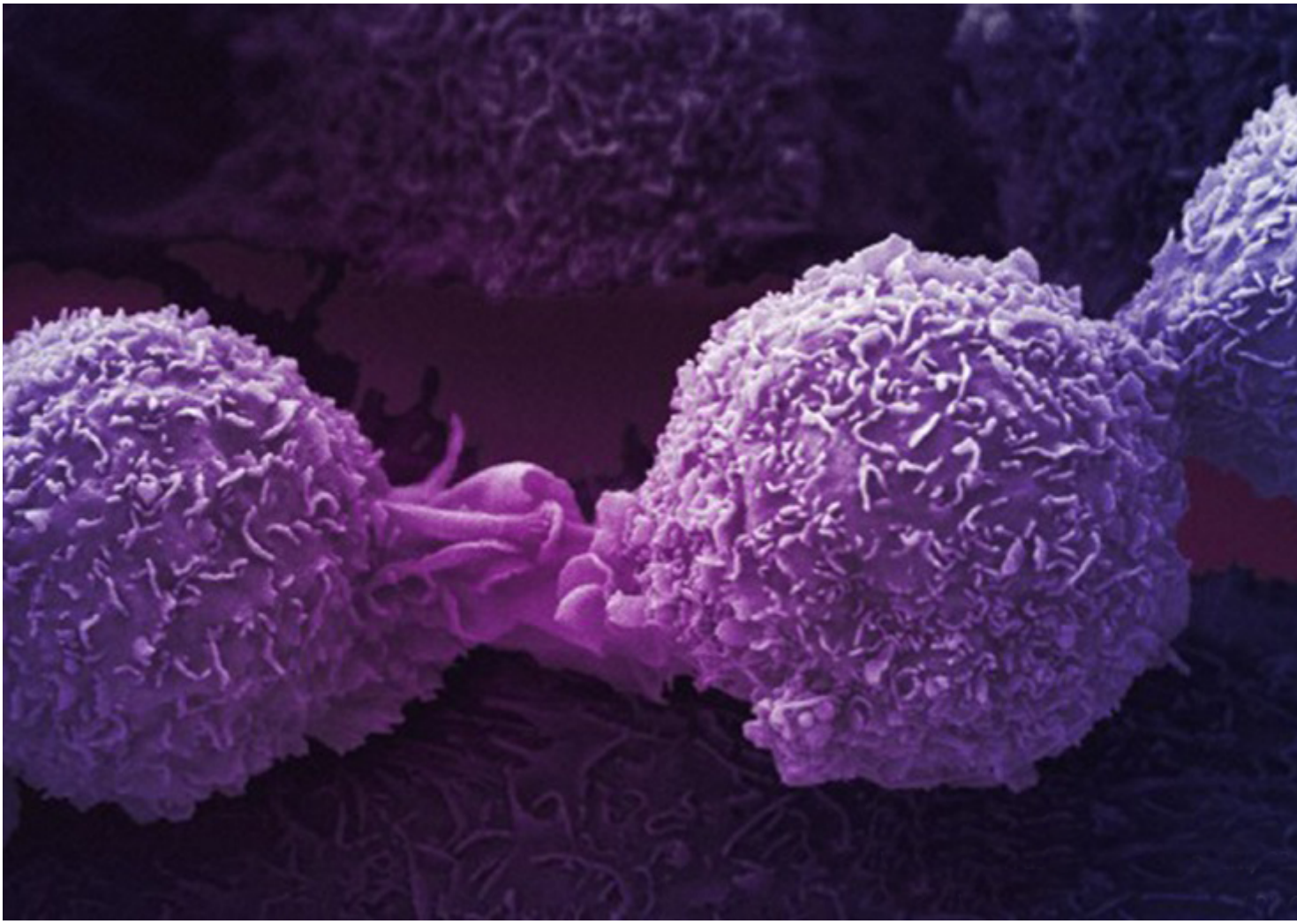
Oncology [1]

Each year there are more than 14 million new cases of cancer worldwide, and the overall incidence rate is climbing. In response to this global health concern, we are rapidly learning better ways to treat many forms of the disease.

Scientists in the Oncology Disease Area at the Novartis Institutes for BioMedical Research (NIBR) [2] seek to learn how to wipe out cancers rather than stop their spread.



With technologies now in hand to sequence a tumor's whole genome, we are making great progress in understanding the genetic changes that drive cancer. We are using technologies such as CRISPR genome editing and patient-derived xenografts to develop improved models of cancer. In expanding our knowledge about how cancers operate at the functional level, we have embarked on development of potential therapies.

Jeffrey Engelman, Global Head of Oncology, Novartis Institutes for BioMedical Research

The clinical landscape for cancer is undergoing a fundamental shift as the arsenal of available medicines has expanded beyond chemotherapy to a host of new molecularly targeted therapies. Our team is exploring many new approaches such as antibody-drug conjugates, which match the targeting capabilities of a protein therapeutic with the anticancer effects of chemotherapy. Importantly, we are also learning how to best combine treatments to overcome cancer cell resistance to targeted therapy.

“We need to bring together various targeted therapies and immunotherapies to have a much more dramatic effect on cancers—and to help more patients,” says Jeff Engelman [3], Head of Oncology at NIBR. “We may be able to unleash the full potential of these treatments by combining them in thoughtful and creative ways. We also need to be open to new approaches.”

We are driven by science and give teams full resources to follow up on significant discoveries - often working hand-in-hand with academic researchers. One example is the Cancer Cell Line Encyclopedia, a detailed genetic characterization of 1,000 human cancer cell lines that has proved an invaluable research tool for drug discovery. This is a joint project with the Broad Institute of MIT and Harvard, with continuous interaction between scientists on both sides.

We also collaborate intensely around the globe. Scientists in our main cancer research centers in Cambridge, Massachusetts (U.S.); Shanghai, China; San Diego, CA; and Basel, Switzerland work closely on drug discovery projects and our patient-derived tumor xenograft resource, which has shaped the way we look at drugs before we enter human clinical trials. In addition, our early clinical development team is part of our research group, which smooths the transition from discovery to the clinic.

Explore our career page [4] for potential opportunities on oncology research.

Video of Novartis Targets Cancer Genomics for Precision Medicine

Footnotes:

Selected Publications:

Studying clonal dynamics in response to cancer therapy using high-complexity barcoding [5]
Nature Medicine, April 13, 2015

CHZ868, a Type II JAK2 Inhibitor, Reverses Type I JAK Inhibitor Persistence and Demonstrates Efficacy in Myeloproliferative Neoplasms. [6]
Cancer Cell, July 13, 2015

Ceritinib in ALK-Rearranged Non–Small-Cell Lung Cancer [7]
N Engl J Med, March 27, 2014

The Cancer Cell Line Encyclopedia enables predictive modelling of anticancer drug sensitivity. [8]
Nature, March 28, 2012

Links
[1] https://www.novartis.com/our-science/research-disease-areas/oncology
[2] https://www.novartis.com/our-work/research-development/novartis-institutes-biomedical-research
[3] https://www.novartis.com/stories/discovery/cancer-researchers-ready-aim-cures
[4] https://www.novartis.com/careers/career-search#division=NIBR
[5] http://www.nature.com/nm/journal/v21/n5/abs/nm.3841.html
[6] http://www.sciencedirect.com/science/article/pii/S1535610815002160
[7] http://www.nejm.org/doi/full/10.1056/NEJMoa1311107
[8] http://www.nature.com/nature/journal/v483/n7391/full/nature11003.html