

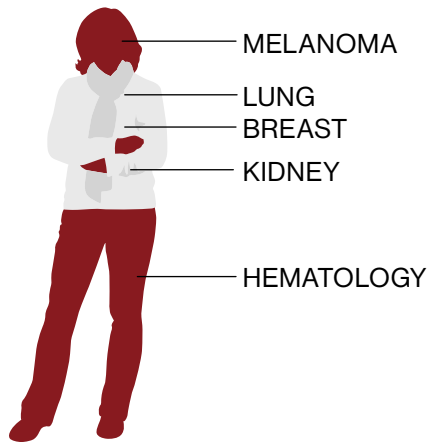
# Developing Innovative Treatments in Cancer

## Targeted Therapy, Immuno-oncology & Combinations

Novartis Oncology

At Novartis, our research strategy is to leverage our leadership in targeted therapies and our strong immuno-oncology pipeline to develop combinations that may improve outcomes for patients.

### Key areas in oncology



Targeted Therapy

Immuno-oncology

Combinations

### Targeted Therapy

A **targeted therapy** interferes with specific pathways that are involved in the growth, progression and spread of cancer.

Over the past decade, several targeted therapies have shown to be effective in multiple tumor types.<sup>1</sup>

As a targeted therapy innovator, Novartis looks to the genetic signatures of cancer to drive our research. This approach is grounded in defining the pathways most commonly associated with cancer growth, screening compounds to find ones with the greatest potential to impact these pathways, and attempting to identify patients most likely to benefit from therapy.

### Immuno-oncology

**Immuno-oncology** helps the immune system fight cancer by improving recognition of cancer as an “enemy” and boosting natural defenses to improve or restore immune system function.<sup>2</sup>

Immuno-oncology has become a primary therapeutic category in fighting certain types of cancers.

We are exploring multiple approaches to immuno-oncology:

- 1) educating the immune system to recognize cancer as a threat;
- 2) immunomodulation (unleashing immune cells that have been primed); and
- 3) making the tumor more accessible to immune cells.

10+ targeted therapies already approved

16 potential targeted therapies in full development

18 immuno-oncology compounds in development

## Developing Transformative Approaches to Cancer Treatment

Novartis is leading in scientific research to understand how cancer is responding to therapy – including why therapies work, why they don't, how cancers escape from therapy and which patients may benefit most from treatments. In expanding our knowledge about how cancers operate, we have embarked on the development of therapies that may potentially provide more hope to cancer patients.

Immuno-oncology has become an important part of cancer treatment; however, a relatively small number of tumors currently respond to immuno-oncology therapy options. Even among responders, a significant number of treatment regimens are discontinued due to adverse events. We believe that bringing together various targeted therapies and immuno-oncology therapies can have a much more impactful effect on cancers to help more patients. This approach has the potential to attack the cancer via multiple pathways, help the body fight the cancer with its immune system, overcome treatment resistance and enhance the durability of the therapeutic benefit.

## Interplay Between Targeted Therapies and Immune Response

Our scientists are exploring the interplay between targeted therapies and immune response in the attempt to unleash the full potential of these treatments by combining and sequencing them in thoughtful and creative ways. Novartis is uniquely positioned to develop combination therapies because of our broad and deep pipeline and portfolio of targeted therapies and next generation immuno-oncology treatments.

Immuno-oncology helps the body recognize and  
**FIGHT THE CANCER**



Targeted Therapies  
**REDUCE CANCER**

**7** targeted therapy+targeted therapy combination trials in early development

**11** immuno-oncology +immuno-oncology exploratory combination trials

**8** immuno-oncology +targeted therapy exploratory combination trials

1 Novartis. Leadership Perspectives: A Transformational Time in Cancer Care. <https://www.novartis oncology.com/stories/leadership-perspectives-transformational-time-cancer-care>. Accessed February 2017.  
2 NIH NCI. Immunotherapy. <https://www.cancer.gov/about-cancer/treatment/types/immunotherapy>. Accessed February 2017.

