

## **[Multiple Myeloma - Latest Research](#) [1]**

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 06/2015

**ON THIS PAGE:** You will read about the scientific research being done now to learn more about this type of cancer and how to treat it. To see other pages, use the menu on the side of your screen.

Doctors are working to learn more about myeloma, ways to prevent it, how to best treat it, and how to provide the best care to people diagnosed with this disease. The following areas of research may include new options for patients through [clinical trials](#) [3]. Always talk with your doctor about the diagnostic and treatment options best for you. Below are some of the areas researchers are looking into. With the fast pace of myeloma research, patients are encouraged to ask about clinical trials open to them.

**Expanded use of stem cell transplantation.** While autologous (AUTO) stem cell transplantation is a standard treatment for myeloma, researchers are studying the benefits of tandem (double) AUTO transplantations, ALLO transplantations, and tandem AUTO mini-allogeneic transplantations. Autologous means the stem cells are from the patient, and allogeneic means that the stem cells came from a donor. For more information about transplantation, read the [Treatment Options](#) [4] section.

**New drugs.** Rapid progress is being made in researching new treatments of myeloma. A variety of new drugs are being studied for the treatment of myeloma, including the following:

- A monoclonal antibody is a substance made in a laboratory that acts like the antibodies the body's immune system naturally makes to fight diseases such as a tumor. Many of these drugs are being studied for multiple myeloma, such as elotuzumab. Clinical trials using elotuzumab, usually in combination with lenalidomide and dexamethasone,

SAR650984, and daratumumab are underway. AntiCD138 monoclonal antibody-immunoconjugate (Indatuximab Ravtansine) is being studied at this time as well. Elotuzumab, SAR650984, and daratumumab have all received breakthrough designation from the FDA, which means they are on a faster-track review.

- Arry520 (filanesib) is a kinesin spindle protein inhibitor that prevents segregation of DNA into daughter cells at the time of cell division and multiplication and causes growth arrest and cancer cell death.
- Histone deacetylase (HDAC) inhibitors are an area of active research for their use as a treatment option for myeloma, both as single drugs and in combination with other drug therapy. Drugs in this category include panobinostat and ACY1215.
- Lenalidomide and dexamethasone with or without elotuzumab, lenalidomide and dexamethasone with or without ixazomib and lenalidomide and dexamethasone with or without carfilzomib have all finished phase III clinical trials; results are pending.
- The fibroblast growth factor receptor 3 (FGFR3) is expressed in approximately 15% of patients with myeloma and is involved in cell growth, angiogenesis, and wound healing. Drugs that inhibit FGFR3 are being developed to help control cancer in these patients.
- Three new proteasome inhibitors, called ixazomib (MLN9708), oprozomib, and marizomib (NPI-0052), are currently being researched in clinical trials.
- Late-phase III studies to treat myeloma are also underway with drugs called masitinib and plitidepsin (Aplidin).

Myeloma represents a new treatment paradigm (a set of assumptions and practices) in cancer because the new drugs that target the tumor cell, tumor-bone marrow interaction, and bone marrow environment can overcome conventional drug resistance. Drugs are first tested in patients with advanced myeloma and then used to treat patients with earlier stage myeloma.

**Drug combinations.** Most myeloma cells will eventually become resistant to standard chemotherapy, a condition called multidrug resistance. New drugs and combinations of approved drugs are being researched to provide more options for patients with myeloma. Many new drug combinations are being studied, including:

- Bortezomib and lenalidomide in combination with dexamethasone

- Bortezomib, cyclophosphamide, and dexamethasone
- Lenalidomide, carfilzomib, and dexamethasone
- Carfilzomib, pomalidomide, and dexamethasone
- Pomalidomide, dexamethasone, and clarithromycin (Biaxin)

**Immunotherapy.** This type of therapy, also called biologic therapy, helps to boost a person's immune system to fight cancer. It uses materials made either by the body or in a laboratory to improve, target, or restore immune system function. Vaccines are a type of immunotherapy being explored in the treatment of multiple myeloma.

Checkpoint inhibitor therapies include antibodies to block PDL-1 on multiple myeloma cells and PD-1 on immune cells. PD-1 is found on the surface of T-cells, which are a type of white blood cell that directly helps body's immune system fight disease. Because PD-1 keeps the immune system from destroying cancer cells, blocking PD-1 allows the immune system to better eliminate the disease. Learn more about the basics of [immunotherapy](#) [5].

**Cytogenetics.** Cytogenetics, which is the study of genetic changes in cells, and molecular studies may be performed on the tissue sample removed during the biopsy to find out how aggressive the cancer is.

**Palliative care.** Clinical trials are underway to find better ways of reducing symptoms and side effects of current myeloma treatments in order to improve patients' comfort and quality of life. For instance, research announced at a recent ASCO Annual Meeting: [Anti-Depressant Helps Manage Peripheral Neuropathy From Chemotherapy](#) [6].

## Looking for More About the Latest Research?

If you would like additional information about the latest areas of research regarding myeloma, explore these related items that will take you outside of this guide:

- To find clinical trials specific to your diagnosis, talk with your doctor or [search online clinical trial databases now](#) [7].
- Visit the website of the [Conquer Cancer Foundation](#) [8] to find out how to help support research for every cancer type. Please note this link takes you to a separate ASCO website.

The [next section in this guide is Coping with Side Effects](#) [9] and it offers some guidance in how to cope with the physical, emotional, and social changes that cancer and its treatment can bring. Or, use the menu on the side of your screen to choose another section to continue reading this guide.

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### **Links**

[1] <http://www.cancer.net/cancer-types/multiple-myeloma/latest-research>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/19375>

[4] <http://www.cancer.net/node/33696>

[5] <http://www.cancer.net/node/24726>

[6] <http://www.cancer.net/node/24377>

[7] <http://www.cancer.net/node/24878>

[8] <http://www.conquercancerfoundation.org/research-results>

[9] <http://www.cancer.net/node/19376>