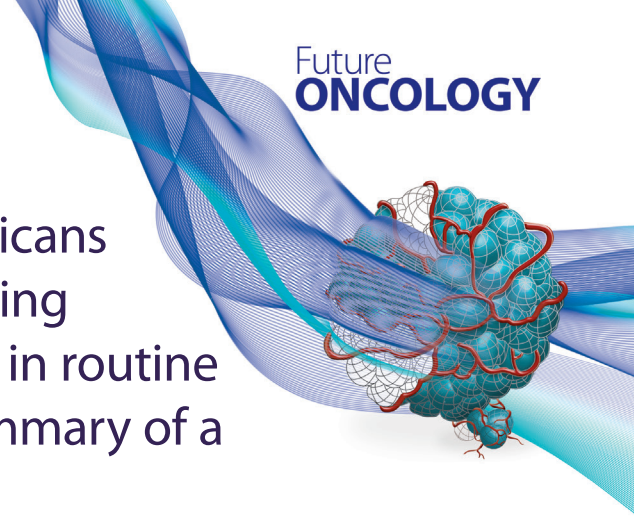
Plain Language Summary of Publication



Prolonging the lives of African–Americans with metastatic breast cancer by adding palbociclib to an aromatase inhibitor in routine clinical practice: a plain language summary of a real-world database study

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Summary

What is this summary about?

This summary is about a study that was published in the medical journal *The Oncologist* in July 2023. The combination of palbociclib with an aromatase inhibitor (AI) was approved by the FDA in 2015 as a treatment for people with **hormone receptor**-positive/human epidermal growth factor receptor 2-negative (HR+/HER2–) **metastatic** breast **cancer** (MBC). However, the effectiveness of palbociclib in African–Americans with MBC is not well studied. The goal of this study was to find out whether adding palbociclib to an AI helped African–Americans with HR+/HER2– MBC live longer.

How to say (double click sound icon to play sound)...

- **Aromatase:** ah-ROH-muh-tays
- **Estrogen:** EH-struh-juhn
- **Metastatic:** meh-tuh-STA-tik
- **Palbociclib:** PAL-boh-SY-klib

What are the key takeaways?

This study used **de-identified** medical information from the Flatiron Database. This database contains healthcare information on people with cancer treated by doctors in the United States but personal information is removed to maintain privacy. Medical information for people who received certain treatments in routine clinical practice or real-world setting was included in the study.

This study showed that in the real-world setting, African–Americans with HR+/HER2– MBC lived longer when receiving palbociclib with an AI than with an AI alone. Also, the study showed that African–Americans treated with palbociclib plus an AI lived longer without their cancer getting worse than those treated with an AI alone.

What was the main conclusion reported by the researchers?

These results support the use of palbociclib with an AI as a first treatment for African–Americans with HR+/HER2– MBC.

Hormone: a chemical messenger that helps different parts of the body work in specific ways.
Receptor: a protein inside or on the surface of cells that binds to a specific chemical (such as a hormone) and causes a specific change in cells.
Metastatic: a word that describes cancer cells that have spread from the place where they first formed to another part of the body.
Cancer: abnormal cells that grow and divide without control.
De-identified: the removal of personal information (such as names, addresses, social security numbers and photographs) from medical records to protect peoples' privacy.

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Where can I find the original article on which this summary is based?

The original article 'Real-world effectiveness of palbociclib plus aromatase inhibitors in African–American patients with metastatic breast cancer' is published in the scientific journal *The Oncologist*.

It is available to read for free at: https://academic.oup.com/oncolo/advance-article/doi/10.1093/oncolo/oyad209/7230175

What is the purpose of this plain language summary?

The purpose of this plain language summary is to help you to understand the findings from recent research. The results of this study may differ from those of other studies. Health professionals should make treatment decisions based on all available evidence, not on the results of a single study.

Who sponsored the study?

Pfizer Inc **sponsored** this study.

Sponsor: a sponsor is a company or organisation that oversees and pays for a clinical research study. The sponsor also collects and analyses the information that was generated during the study.

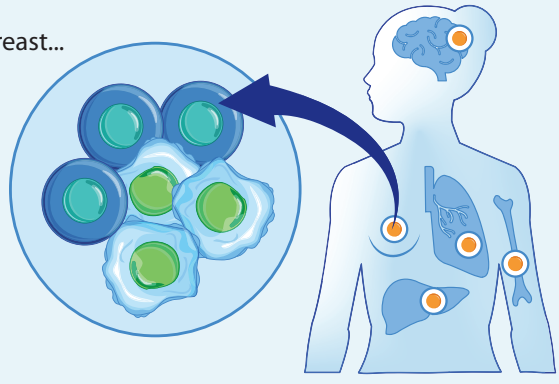
Who should read this article?

African–Americans with MBC, their caregivers, advocates for people with breast cancer and healthcare professionals may find this summary helpful.

What is metastatic breast cancer?

Breast cancer that spreads to other areas of the body is called metastatic breast cancer (MBC). Common sites of spread include lungs, liver and bones. Currently, there is no cure for MBC. While it is more common in women, MBC can be seen in men as well.

Cancer cells first form in the breast...



...and spread to other organs

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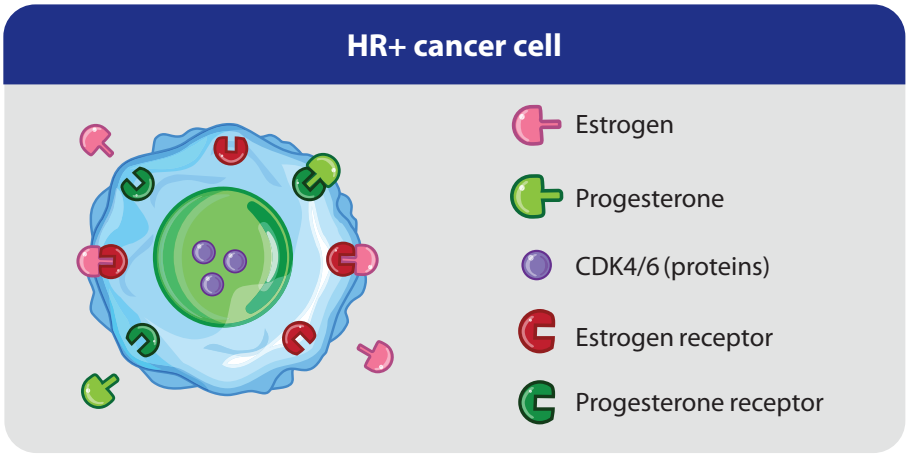
What is HR+ breast cancer?

Some types of breast cancer need hormones to grow. These types of breast cancer consist of cells that contain hormone receptors. **Estrogen** and progesterone are hormones made by the body. These hormones attach to hormone receptors and can cause cancer cells to grow or spread. Researchers call this type of breast cancer hormone receptor-positive (HR+).

Estrogen: a female hormone made by the body that can cause some types of cancer cells to grow and divide.



Adapted with permission from Rugo *et al.* The effects of adding palbociclib to endocrine therapy to treat advanced breast cancer: a plain language summary of a study using the PALOMA-2 and PALOMA-3 trial results. *Future Oncol.* 20(1), 5-16 (2024).

What does HER2– breast cancer mean?

Human epidermal growth factor receptor 2 (HER2) is a **protein** made by the body that can sometimes be involved in the growth of certain types of breast cancer. When breast cancer cells have low amounts of HER2, they are called HER-negative (HER2–). HER2– cells tend to grow more slowly and are less likely to spread than cells with a large amount of HER2.

Protein: molecules made by the body that perform many functions in normal cells and in cancer cells.

What is HR+/HER2– breast cancer?

HR+/HER2– breast cancer is made up of cells that have hormone receptors, but do not have much HER2. This is the most common type of breast cancer, with about 2 out of 3 breast cancers being HR+/HER2–.

HR+/HER2– breast cancer that has not spread to other organs responds well to treatment. Almost all women with this type of breast cancer are still alive 5 years after diagnosis. HR+/HER2– MBC is more aggressive, with only 1 in 3 women still alive 5 years after diagnosis. Fewer African–American women with HR+/HER2– MBC (1 in 4) are still alive 5 years after diagnosis than in the total population.

What is palbociclib?

Palbociclib is a type of medicine known as a cyclin-dependent kinase 4 and 6 **(CDK4/6) inhibitor**. When a protein called cyclin D1 attaches to other proteins known as CDK4 or CDK6, the cell begins to grow and divide. Cancer cells have higher than normal levels of cyclin D1, which lead to overactive cell growth and spread. Palbociclib blocks the activity of CDK4/6 and helps slow or stop the cancer cells from growing.

Palbociclib: an oral (by mouth) medicine approved to treat HR+/HER2– metastatic breast cancer that slows down or stops the growth and spread of cancer cells.
CDK4/6 inhibitor: a class of medicines used to treat certain types of advanced breast cancer.
Clinical trial: a medical research study designed to test the benefit of a medicine or medical device for people.
Hormone therapy: a cancer treatment that slows or stops the growth of cancer cells that use hormones to grow.

Clinical trials have previously shown that palbociclib added to **hormone therapy:**

- Helped people live longer without their cancer getting worse compared with hormone therapy alone.
- Had manageable side effects for people with MBC.

Palbociclib was approved in combination with hormone therapies to treat people with HR+/HER2– MBC in 2015.

- Palbociclib has been approved in more than 90 countries, including the United States, European Union and Japan.

Palbociclib is taken by mouth (capsule or tablet) once a day for 21 of every 28 days.

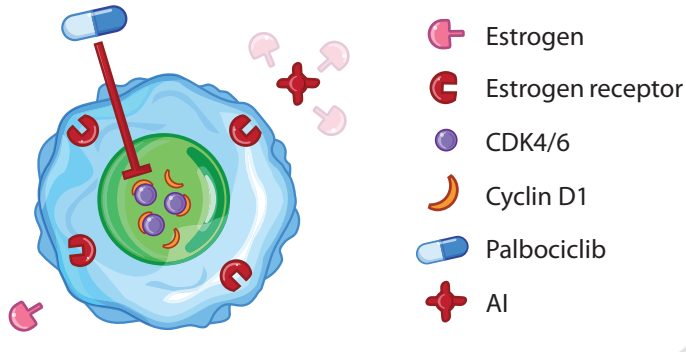
What are aromatase inhibitors?

Aromatase inhibitors (AIs) are a kind of hormone therapy that are used to treat people with HR+ breast cancer. AIs are taken orally (by mouth) and prevent the body from making estrogen. With lower levels of estrogen, there are fewer signals to tell the cancer cells to grow and spread.

Aromatase inhibitor: a type of medicine that stops cells from producing estrogen.

Combining palbociclib with an AI provides two ways to control the growth of cancer cells in people with HR+/HER2– MBC.

Palbociclib and AIs work together to slow or stop cancer cell growth



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Why was this study carried out?

Historically, African–Americans have not been well represented in cancer treatment clinical trials. This means that the percentage of African–Americans in these trials was lower than in the total population of people with cancer. When medicines are approved based on studies that had low participation from important groups of people, further research is required to understand how medicines affect people in these groups. Therefore, new studies are needed to learn how well anticancer medicines work for African–Americans.

By using medical records from routine clinical practice, researchers can gather information about how well medicines work for people in underrepresented groups, such as African–Americans. Because this information is based on previously collected medical records of peoples' treatments and outcomes, the data collected can be analyzed relatively quickly. This way, researchers, doctors and people with breast cancer do not have to wait months or years to learn if medicines work well in clinical trials. This study looked at whether adding palbociclib to an AI helped African–Americans with HR+/HER2– MBC live longer in routine clinical practice.

How was this study carried out?

This study used real-world data. The researchers looked at health records in the Flatiron Database. This database contains de-identified records of about 3 million people treated for cancer in the US.

How do real-world studies help people with MBC and their doctors make treatment decisions?
Real-world studies help researchers, clinicians, and patients understand how medicines work in routine clinical practice. People treated for cancer in routine clinical practice are often more diverse than people in clinical trials. Real-world studies also include people who are older, more racially and ethnically diverse, have other illnesses (such as hypertension, diabetes, heart disease, etc.) and who have more advanced disease than those in clinical trials.

However, real-world studies do not randomly assign people to specific treatment groups, so researchers cannot know if the medicines they are studying are the only reason for people's health outcomes. Overall, real-world studies add to the knowledge gained from clinical trials. By using information from multiple sources, doctors can help people make informed decisions about their MBC care.

Real-world studies: evaluating data from people who are treated in routine clinical practice by their cancer specialist (also known as the real-world setting), and not from people participating in clinical trials.

People's health records were selected for this study if they were:
- ✓ African–American
- ✓ At least 18 years of age
- ✓ Diagnosed with HR+/HER2– MBC
- ✓ Had started palbociclib plus an AI or an AI alone between February 2015 and March 2020

People's health records were not included if they:
- × Had received other medicines to treat their MBC
- × Were in a clinical trial

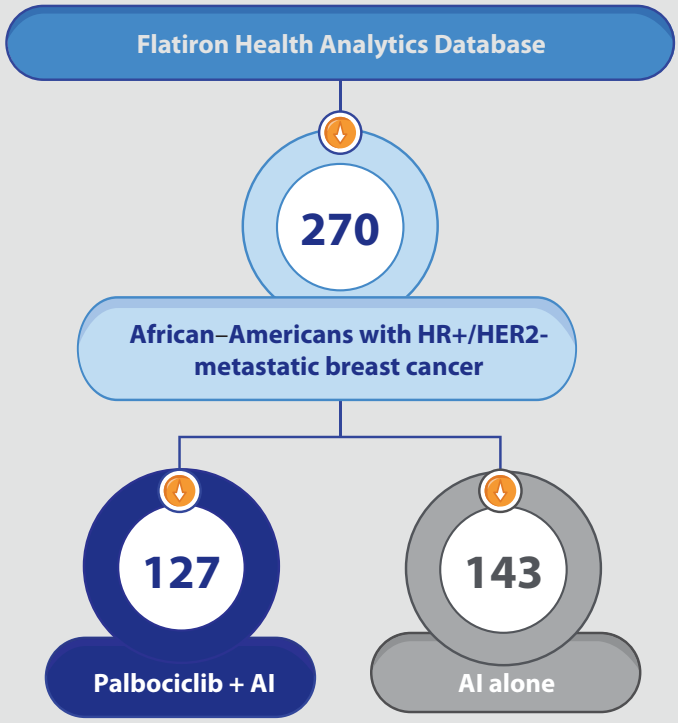
The researchers gathered information from the start of treatment to September 2020, including:
1) How long people in the study lived overall
2) How long they lived before their cancer got worse

Researchers commonly measure how long people with cancer live by determining at what point in time half of the people in a particular group are still alive.

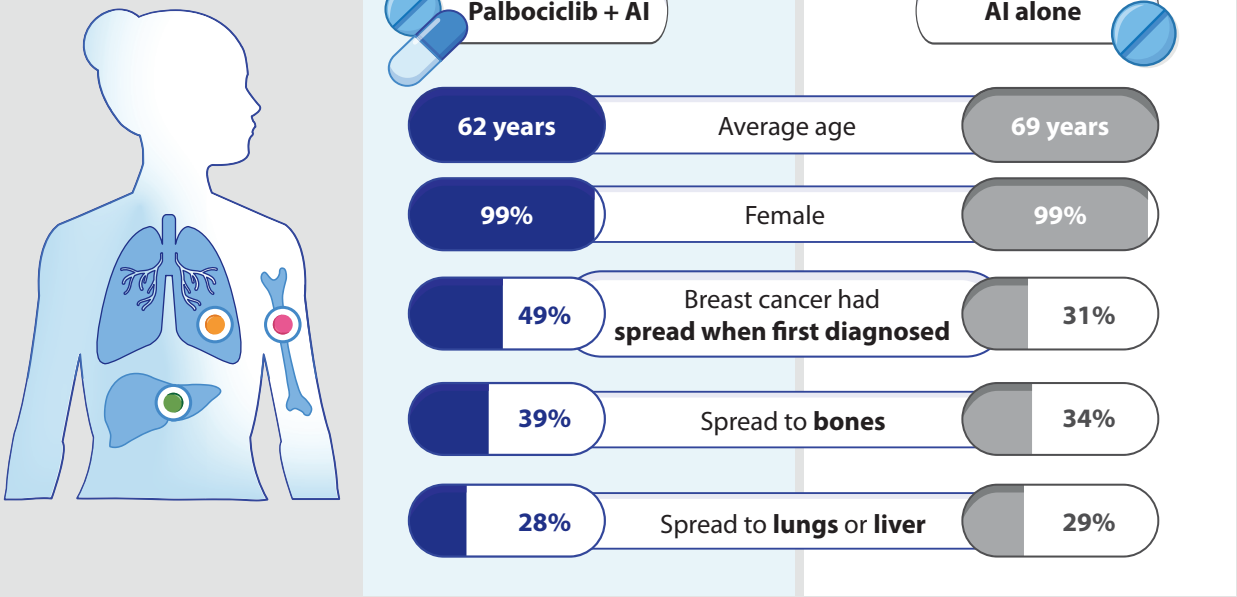
Finally, the researchers used statistical methods to see if there were meaningful differences in survival between the two treatments. These methods balanced each treatment group based on the features of the people and their cancer. As a result, the primary difference between the groups was the treatment that people in the groups received.

Who was included in this study?

A total of 270 African–Americans were included in this study.

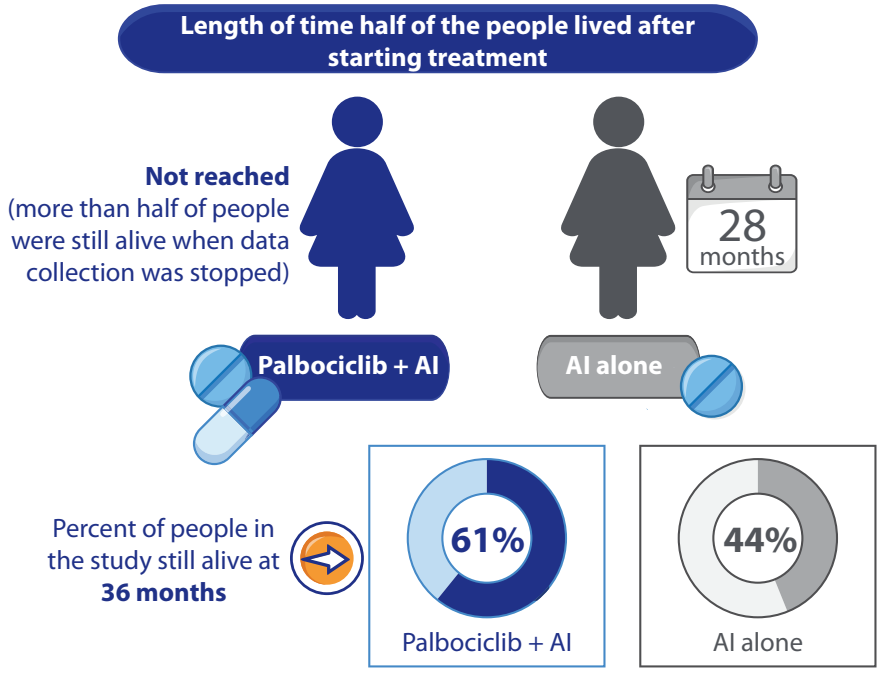


It is important to know basic information about the people included in the study because some of these characteristics may be associated with more aggressive cancer and shorter survival.

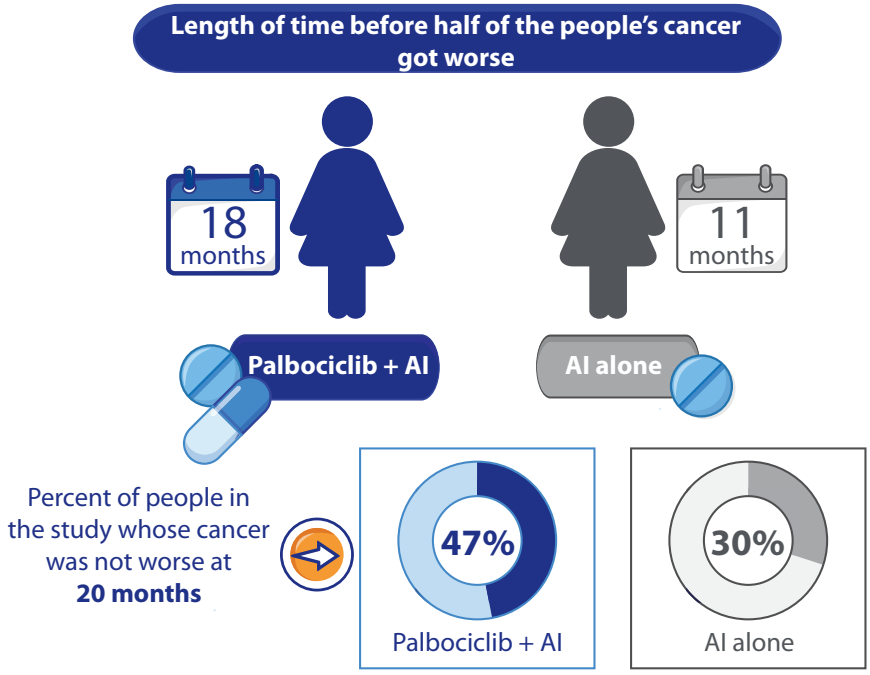


What were the overall results of this study?

1. The group of African–Americans who were treated with palbociclib with an AI survived longer than those who were treated with an AI alone:



2. The group of African–Americans who were treated with palbociclib plus an AI lived longer without their cancer getting worse than those who were treated with an AI alone:



What do the results of this study mean?

Palbociclib plus an AI, when given as a first hormone-based treatment to African–Americans with HR+/HER2– MBC, was associated with longer survival than treatment with an AI alone.

This study supports the use of palbociclib with an AI for African–Americans with HR+/HER2– MBC.

Limitations: This study was based on data from an electronic health records database. There was the possibility of missing or inaccurate patient data. Even though the researchers used statistical methods to account for differences in patient characteristics, it is possible that not all differences could be accounted for because people were not randomly assigned; that means the results for people seen in this study could have been affected by other causes than the medicine received.

The results of this study may differ from other real-world studies that use medical records from different groups of people. Finally, this study did not measure medicine-related side effects and **quality of life**. Doctors should make treatment decisions based on all available evidence, not on the results of a single study.

Quality of life: how a person feels about their health, well-being and ability to participate in normal activities.

Where can I find additional resources on breast cancer?

For more information on breast cancer, please visit: https://www.breastcancer.org/

To read the article on which this summary is based, please visit: https://academic.oup.com/oncolo/article/28/10/866/7230175 It is available free of charge.

Hope S Rugo, Xianchen Liu, Benjamin Li, Lynn McRoy, Connie Chen, Rachel M Layman, Adam Brufsky. Real-world effectiveness of palbociclib plus aromatase inhibitors in African–American patients with metastatic breast cancer, *The Oncologist*, 28(10), 866–874 (2023). The study data were gathered between February 2015 and September 2020.

For more information on this real-world database study, please visit: https://clinicaltrials.gov/study/NCT05361655

To read the original article for the study upon which the current study is based, please visit: https://www.nature.com/articles/s41523-022-00479-x

To learn more about real-world evidence studies in general, please visit: https://link.springer.com/article/10.1007/s40290-022-00456-6

For detailed information on what identifiers are removed from de-identified medical records, please visit: https://www.hhs.gov/hipaa/for-professionals/privacy/special-topics/de-identification/index.html#standard

To learn more about the clinical trials relevant to the current study (PALOMA-2 and PALOMA-3 trials), please visit: https://doi.org/10.2217/fon-2023-0407

To learn more about health-related quality of life during treatment for MBC, please visit: https://www.annalsofoncology.org/article/S0923-7534(19)45462-8/fulltext

To learn more about clinical trials in general, please visit: https://www.clinicaltrials.gov/ct2/about-studies/learn http://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/what-clinical-trials-are

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Competing interests disclosure

Hope S. Rugo reports sponsored research to her institution from Astellas Pharma Inc., AstraZeneca, Daiichi Sankyo, Inc., F. Hoffmann-La Roche AG/Genentech, Inc., Gilead Sciences, Inc., GlaxoSmithKline, Lilly, Merck & Co., Inc., Novartis Pharmaceuticals Corporation, OBI Pharma, Pfizer Inc, Pionyr Immunotherapeutics, Sermonix Pharmaceuticals Inc., Stemline Therapeutics, Taiho Oncology Inc., and Veru Inc. and consultancy/advisory with Puma, NAPO, Mylan, and Daiichi Sankyo. Rachel M. Layman reports advisory/consultancy fees from Novartis, Lilly, Celcuity, Gilead, and Biotheryx and research/grant funding from Pfizer Inc, Novartis, Lilly, GlaxoSmithKline, Zentalis, Puma, Celcuity, Accutar and Arvinas. Tiah Tomlin-Harris serves on a patient advisory board for Pfizer Inc. Adam Brufsky reports advisory/consultancy fees from AstraZeneca, Pfizer Inc, Novartis, Lilly, Genentech/Roche, SeaGen, Daiichi Sankyo, Merck, Agendia, Sanofi, and Puma and research support from Agendia and AstraZeneca. The authors have no other competing interests or relevant affiliations with any organization or entity with the subject matter or materials discussed in the manuscript apart from those disclosed.

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Funding for this plain language summary was provided by Pfizer Inc. Xianchen Liu, Benjamin Li, Lynn McRoy, and Connie Chen are employees of and stockholders in Pfizer Inc. The authors have no other financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

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