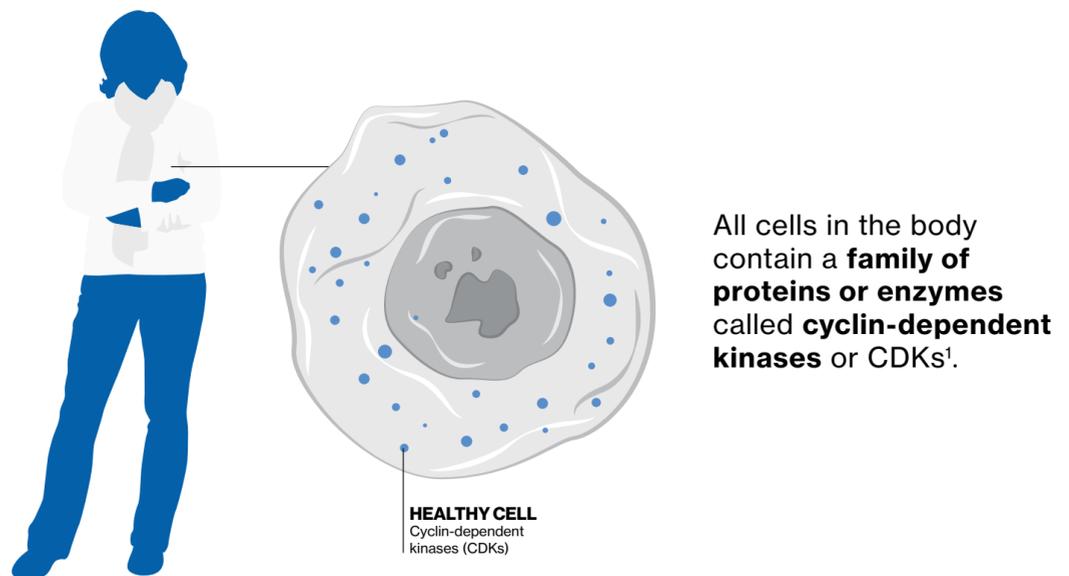


Cyclin-Dependent Kinase (CDK) Inhibitors in Advanced or Metastatic Breast Cancer

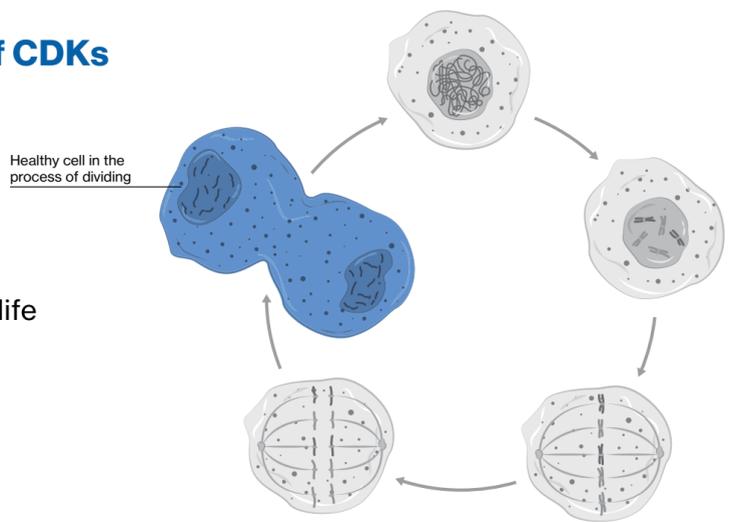
What are cyclin-dependent kinases (CDKs)?

CDKs are a family of proteins or enzymes found in all cells in the body



The Importance of CDKs

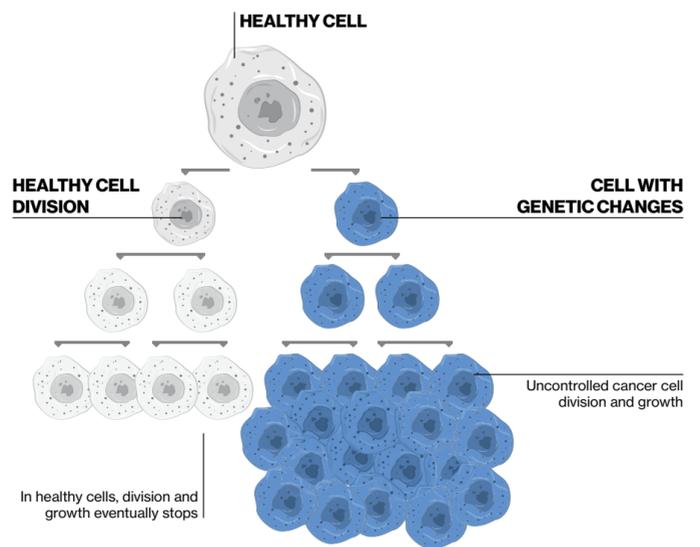
CDKs are important in controlling the normal life cycle of cells as they **grow and divide into new cells**¹.



Genetic changes to CDK4 and CDK6 have been found in many cancer cells, including breast cancer².

Effects of Genetic Changes in Cancer Cells

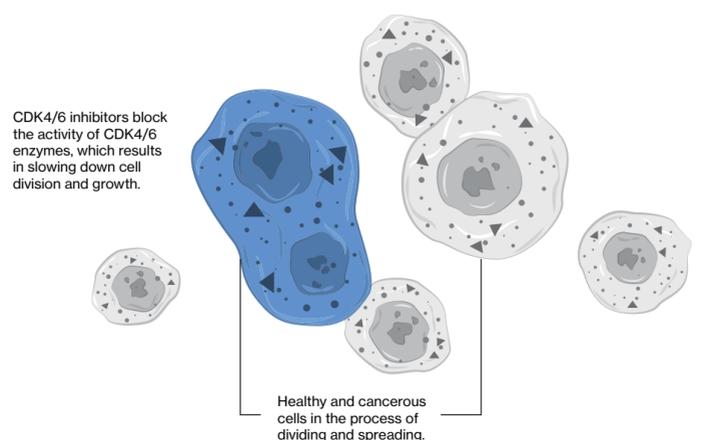
Cancer consists of cells that grow, divide and spread too quickly without control. In many cancer cells, the CDK4/6 enzymes are over-activated by abnormal genetic changes. When CDK4/6 enzymes are over-activated it causes the cancer cell to divide too quickly, creating a tumor^{3,4}.



Therapeutic Targeting of CDK4/6

CDK4/6 Inhibitors Help to Slow the Progression of Cancer

Targeting CDK4/6 enzymes may play a role in ensuring that cancer cells do not continue to replicate uncontrollably, spreading cancer^{5,6}.



Resources

- 1 Scitable. Essentials in Biology – Units 1 and 5. Nature Education (2014).
- 2 Gampenrieder, Simon Peter, Gabriel Rinnerthaler, and Richard Greil. "CDK4/6 inhibition in luminal breast cancer." *memo-Magazine of European Medical Oncology* 9.2 (2016): 76-81.
- 3 American Cancer Society. What Is Cancer? Available at <https://www.cancer.org/cancer/cancer-basics/what-is-cancer.html>. Accessed February 1, 2017.
- 4 Roberts, Patrick J., et al. "Multiple roles of cyclin-dependent kinase 4/6 inhibitors in cancer therapy." *Journal of the National Cancer Institute* 104.6 (2012):476-487.
- 5 Neganova, Irina, and Majlinda Lako. "G1 to S Phase Cell Cycle Transition in Somatic and Embryonic Stem Cells." *Journal of Anatomy* 213.1 (2008): 30–44.
- 6 O'Leary B, Finn RS, Turner NC. "Treating cancer with selective CDK4/6 inhibitors." *National Review of Clinical Oncology*. 13(7) (2016): 417-430.

