# A Timeline of Pioneering Cancer Treatments

#### 3000 BC:

Eight cases of tumors or ulcers were described in ancient Egyptian text on trauma surgery. Tumors were treated by cauterization with a "fire drill.'

# 168 BC: Galen, a Roman physician, believed

advanced tumors should be operated on by cutting around the affected area.

## Late 1800's:

Surgeons perfected procedures to remove parts of affected tissues, such as mastectomies (removal of the entire breast and lymphatic system of the breast) to prevent outward invasion.

## 1893:

Coley's Toxins were administered as a vaccine to cancer patients. The idea that the immune system could be used to help fight cancer was pioneered.

# 1930' s-1940' s:

1939: Charles Huggins discovered that hormones were important for the growth of certain cancers, further paving the way for hormone therapies.

# Diethylstilbestrol, a synthetic estrogen,

was found to be effective in treating prostate cancer.

#### 1970's:

Less extensive surgery was shown to be equally as effective. Also, 3D radiation delivery was developed with CT, allowing for more accurate radiation dosing.

Scientists identified a mutation in the Philadelphia chromosome as the genetic cause of chronic myelogenous leukemia (CML).

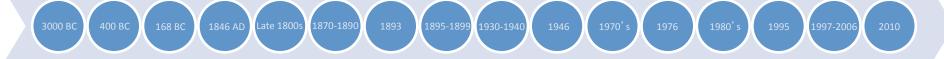
# 1980's:

Biological therapy immunotherapy expanded, as interferon was found to be able to treat cancer.

Late 1990's to early 2000's:

Monoclonal antibodies against tumor antigens were approved by the FDA to treat certain cancers. 2001: The first targeted anticancer therapy, against CML, was

approved.



#### 400 BC:

Hippocrates proposed the Humoral Theory of Medicine and attributed cancer to an excess of black bile. He believed the cancer should be left alone, because those who got treatment did not live as long as those who were untreated.

# 1846 AD:

Anesthesia becomes available and surgery becomes more prominent.

# 1870-1890:

**Thomas Beatson** discovered that estrogen stimulates breast cancer, providing a foundation for hormone therapy.

# 1890's:

1895: Wilhelm Rontgen discovered xrays, which helped in the detection of tumors 1899: The first successful treatment of cancer with radiation from x-rays. Radiation therapy begins.

#### 1946:

The first chemotherapy was discovered by Louis Goodman. Nitrogen mustards, used in WWII chemical warfare, were found to be useful as chemotherapeutic agents against cancer.

#### 1976:

The first oncogene was discovered by Harold E. Varmus and J. Michael Bishop.

#### 1995:

DNA microarrays were developed to measure gene expression. This led to the possibility of targeted therapy, or targeting genes and processes directly involved in cancer initiation and metastases.

#### 2010:

Sipuleucel-T (a cancer vaccine that boosts the immune system) was approved to treat prostate cancer.