



Precision Medicine Success Stories

HER2+ Breast Cancer

Trastuzumab (Herceptin)

First companion diagnostic: **HER2 testing** identifies patients who benefit from targeted therapy. Dramatically improved survival in HER2+ patients.

CML Treatment Revolution

Imatinib (Gleevec)

Targeting **BCR-ABL fusion** transformed CML from fatal to manageable chronic disease. 5-year survival >90%.

MSI-High Cancers

Pembrolizumab (Keytruda)

First tissue-agnostic approval based on **MSI biomarker**. Immunotherapy success across multiple cancer types.

Melanoma Breakthrough

BRAF Inhibitors

BRAF V600E mutation testing enables combination therapy. Median survival improved from 9 to 25+ months.

CAR-T Cell Therapy

Tisagenlecleucel (Kymriah)



Key Lessons

- Strong biomarker-target link
- Rigorous validation studies
- Drug-diagnostic co-development

CD19+ B-cell targeting in leukemia/lymphoma. Complete remission in 80%+ of refractory patients.