

* most common mutation? **aneuploidy**

* 2nd most common mutation? **deletion**

* proto-oncogenes → **overexpressed** & **dominant**

* Tumor suppressor gene → **loss of function** & **recessive**

* Philadelphia chromosome (translocation)

ABL → chromosome 9 } → **CML** treated by **Imatinib (gleevec)**
BCR → chromosome 22 } **tyrosine Kinase inhbb** ←

* Gene Amplifications

NMYC → **neuroblastoma**

HER2 → **breast cancer**

* translocation → common in **hematogenous neoplasms**.

* deletions → common in **non-hematopoietic solid tumors**

* Aneuploidy ≈ ex: **Down** → associated tumor is **Leukemia**.

* Epigenetic modification: ① **DNA Methylation** ② **histone modification**

• **breast** ← **estrogen** ← **Tamoxifen** *
• **endometrium** ← **estrogen** ← **Tamoxifen** *

branched evolution ← **Cancer** *

