



MASTERCLASS

IPPOG

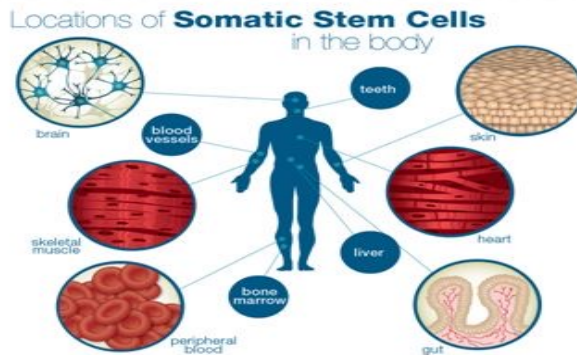
KONTROLI QELIZOR GJENETIKA DHE GJENOMIKA E KANCERIT

TIPET E QELIZAVE TE NJERIU

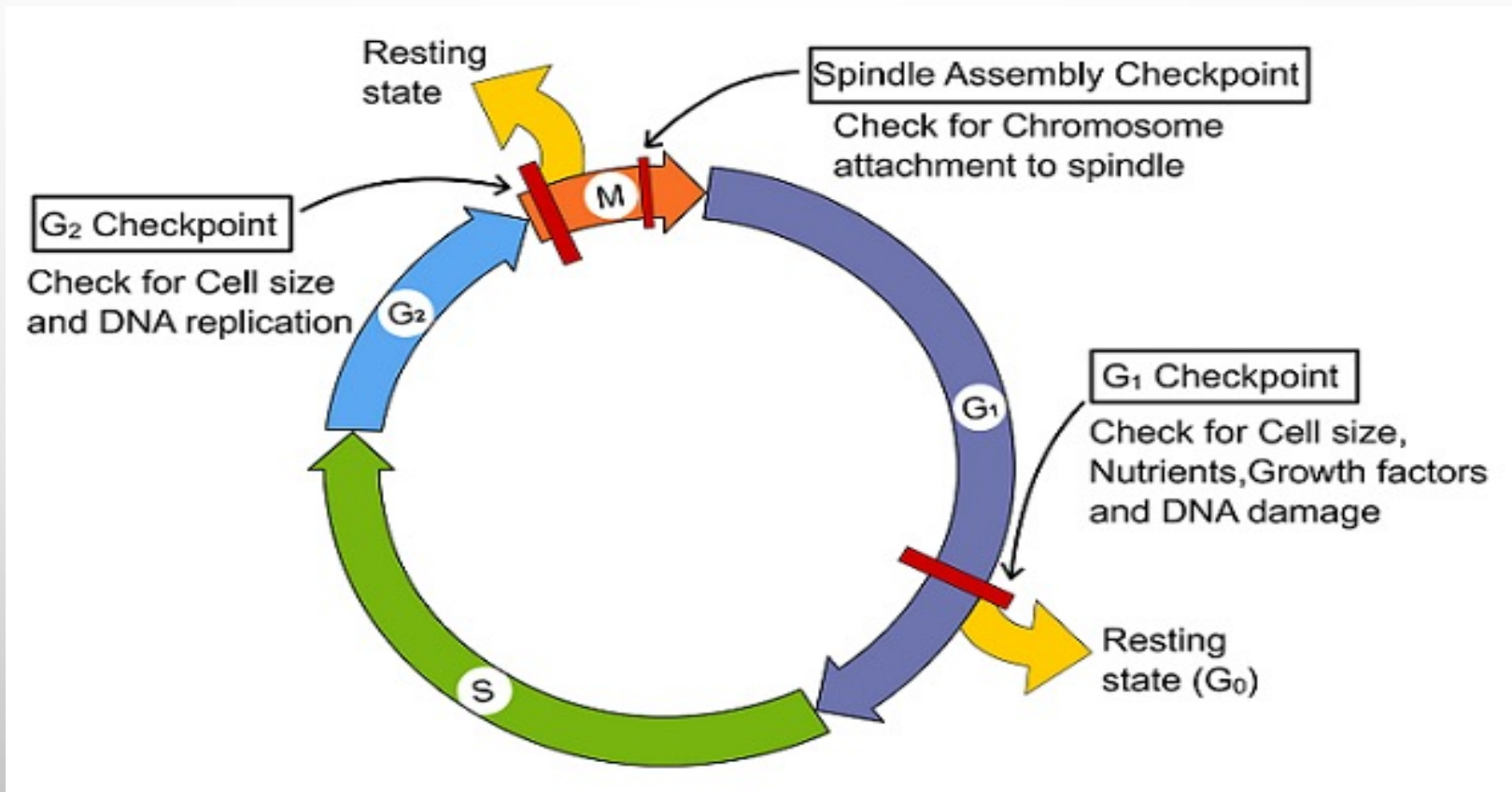
Somatic Cells v. Gametes

- Somatic – body cells
- Ex. Skin, liver, eyeballs

- Gametes – sex cells
- Ex. Egg or sperm (DNA here gets passed on to your kids!)



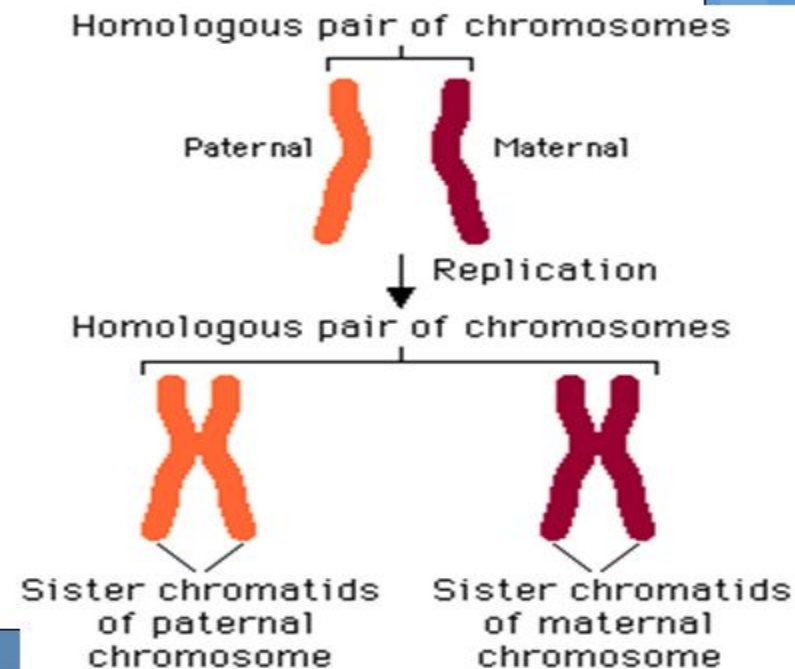
KONTROLI I CIKLIT QELIZOR



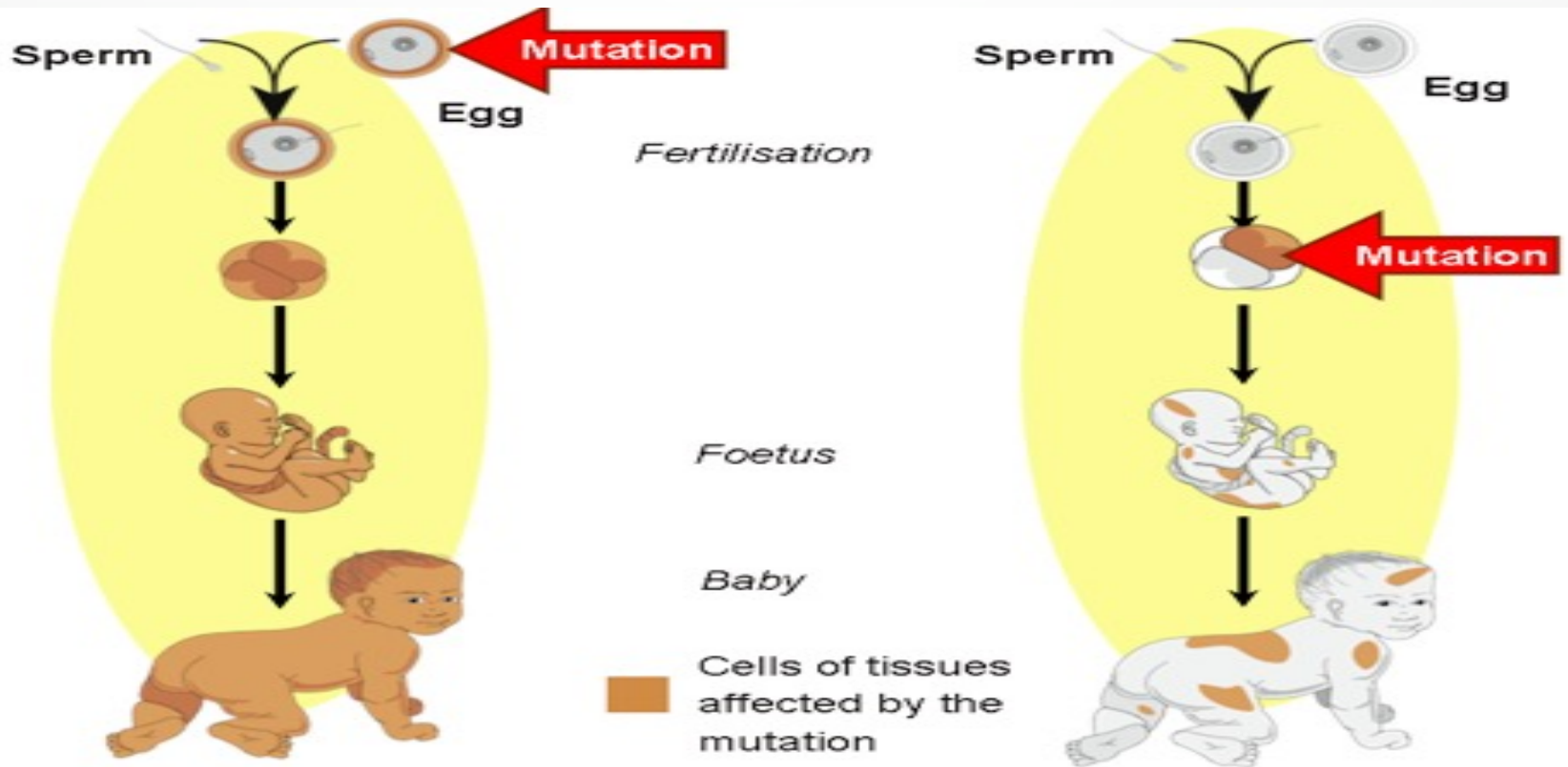
NUMRI I KROMOZOMEVE !!!

Chromosomes and Chromosome Number

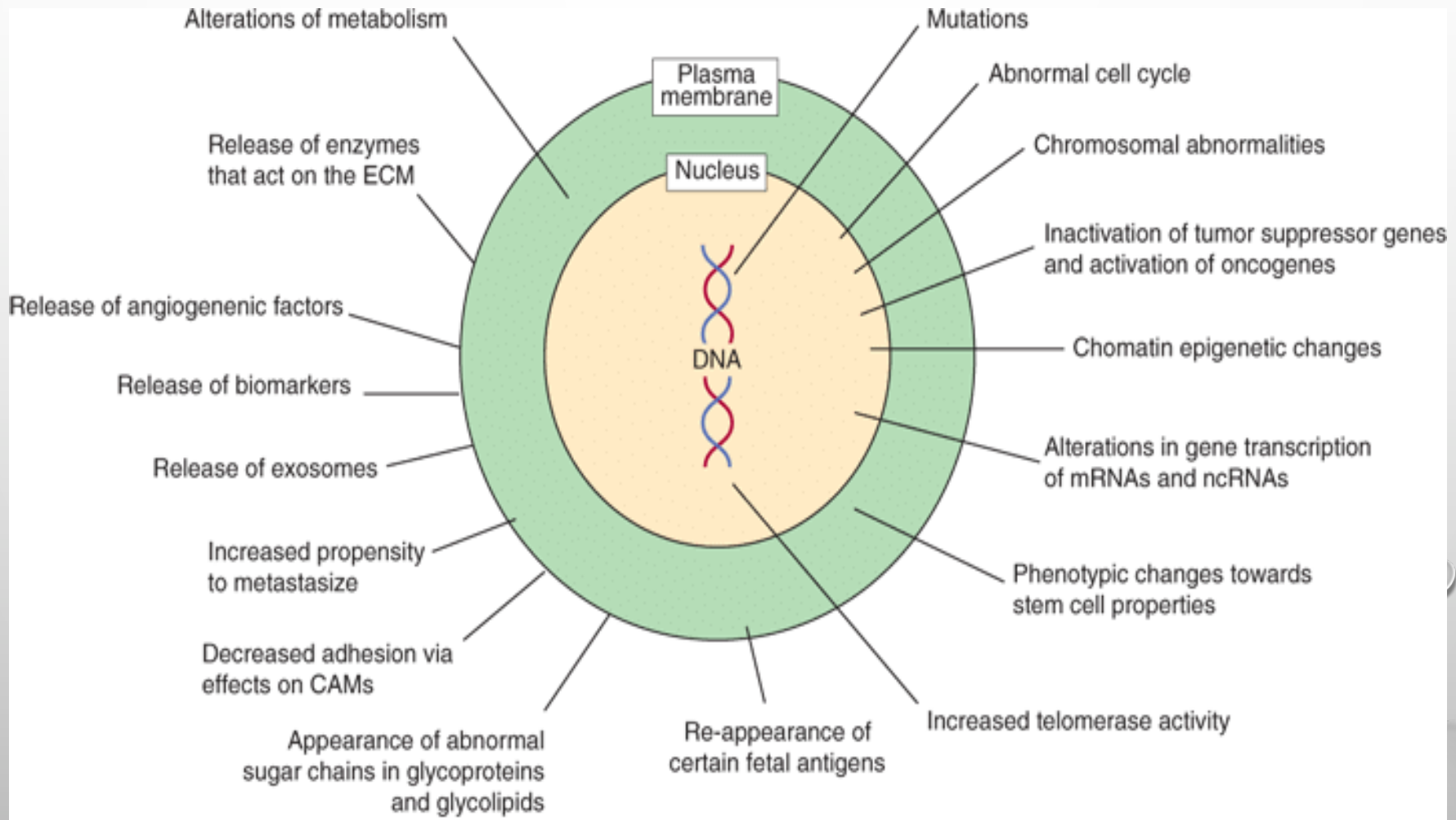
- Homologous chromosomes — set of chromosomes with same genes in same locations:
 - Get one from each parent
- Somatic cells: 46 chromosomes
- Gametes: 23 chromosomes



NDRYSHIMET (MUTACIONET)



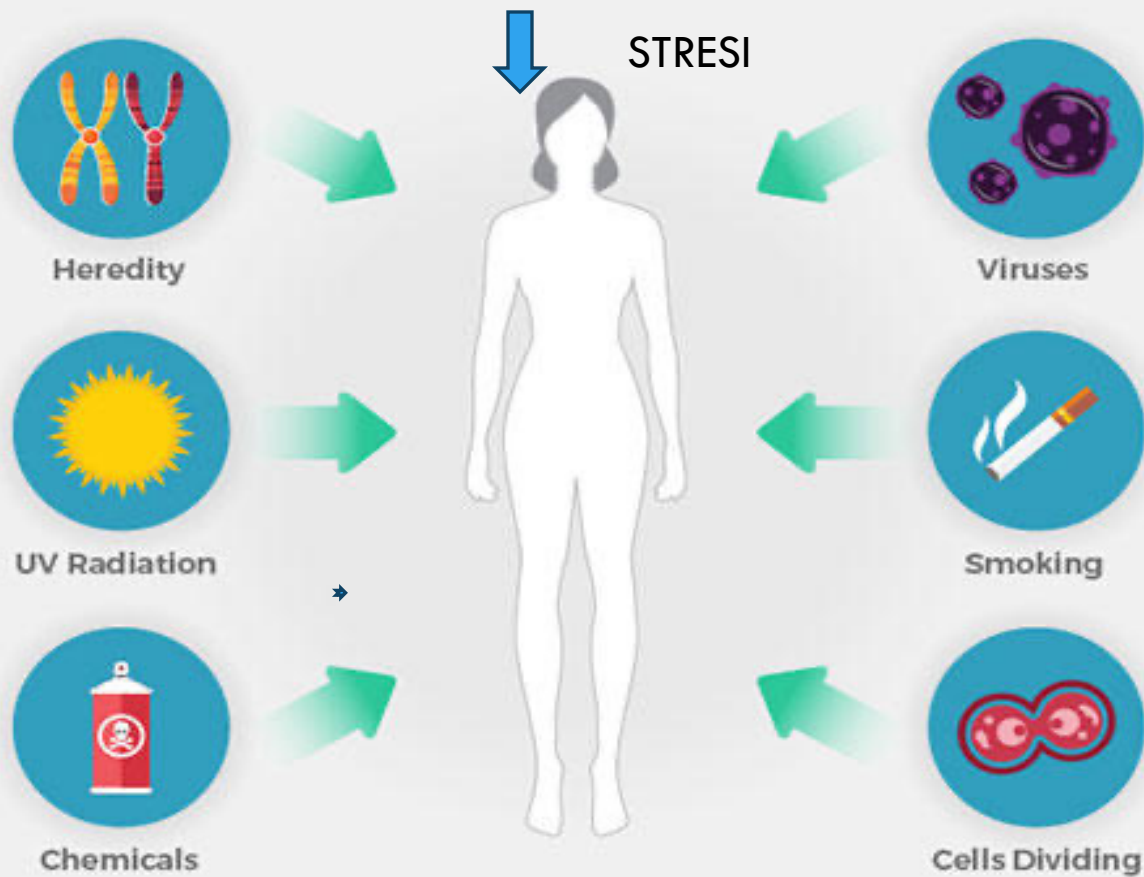
NDRYSHIMET BOKIMIKE DHE GJENETIKE QË NDODHIN NË QELIZAT KANCEROZE



NGA SHKAKTOHEN NDRYSHIMET GJENETIKE ?

8 OF 10

What Causes Genetic Changes?



TERMAT E RENDESISHEM NE BIOLOGJINE E KANCERIT

- ✓ KONTROLL QELIZOR (CIKLI QELIZOR), HUMBJE E KONTROLLIT TE CIKLIT QELIZOR
- ✓ TUMOR, KANCER, BENINJE, MALINJE
- ✓ METASTAZA
- ✓ PROTO-ONKOGJENE, ONKOGJENE
- ✓ GJENE TUMOR SUPRESORE
- ✓ MUTACIONE (NDRYSHIME GJENETIKE), EPIGJENETIKE, GJENOMIKE,
- ✓ TELOMERE, TELOMERAZA
- ✓ DIFERENCIM QELIZOR, DEDIFERNCIM QELIZOR
- ✓ INVAZIVE, ANGIOGJENEZE, APOPTOZE ETC

KARAKTERISIKAT E KANCERIT

- ✓ KANCERI TIP I SEMUNDJES KU DISA QELIZA NDAHEN NE MËNYRE TE PAKONTROLLUAR (PROLIFERIM QELIZOR)
- ✓ ZGJATË NË KOHË, SIMPTOMAT ME VONE PASI KANCERI ËSHTË NJË AKUMULIM I NJË SERIE NDRYSHIMEVE (MUTACIONEVE) GJENETIKE DHE GJENOMIKE
- ✓ QELIZAT KANCEROZE KRIJOHEN SI REZULTAT I **MUTACIONEVE GJENIKE POR POASHTU EDHE SI REZULTAT I NDIKIMEVE EPIGJENETIKE (METILIMI I ADN-SE OSE RIMODELIMI I**
- ✓ LOKALIZIMI; SPECIFIK BENINJ (TUMOR), MALINJ (KANCEROZ), METASTAZA,
- ✓ SHKAKTARË; GJENET NGA VIRUSET, (BIOLOGJIK), KIMIK, FIZIK
- ✓ QELIZAT KANCEROZE JANE TE **DEDIFERENCUARA, JANË INVAZIVE,** ANGIOGJENEZA

NIVELET (SHKALLËT) E KANCERIT DOKTORI DHE QELIZA????

7:24 11

66%

Human_Genetics,_Concepts_and...

Mutations may affect the expression of other genes, but so may epigenetic influences, such as DNA methylation and chromatin remodeling (see section 11.2). One researcher calls the accumulating DNA changes that lie behind cancer "genomic scars."

is to keep the cell cycle running at the appropriate rate for a particular cell type under particular conditions.

Most mutations that cause cancer are in oncogenes or tumor suppressor genes. The effects of mutations in oncogenes

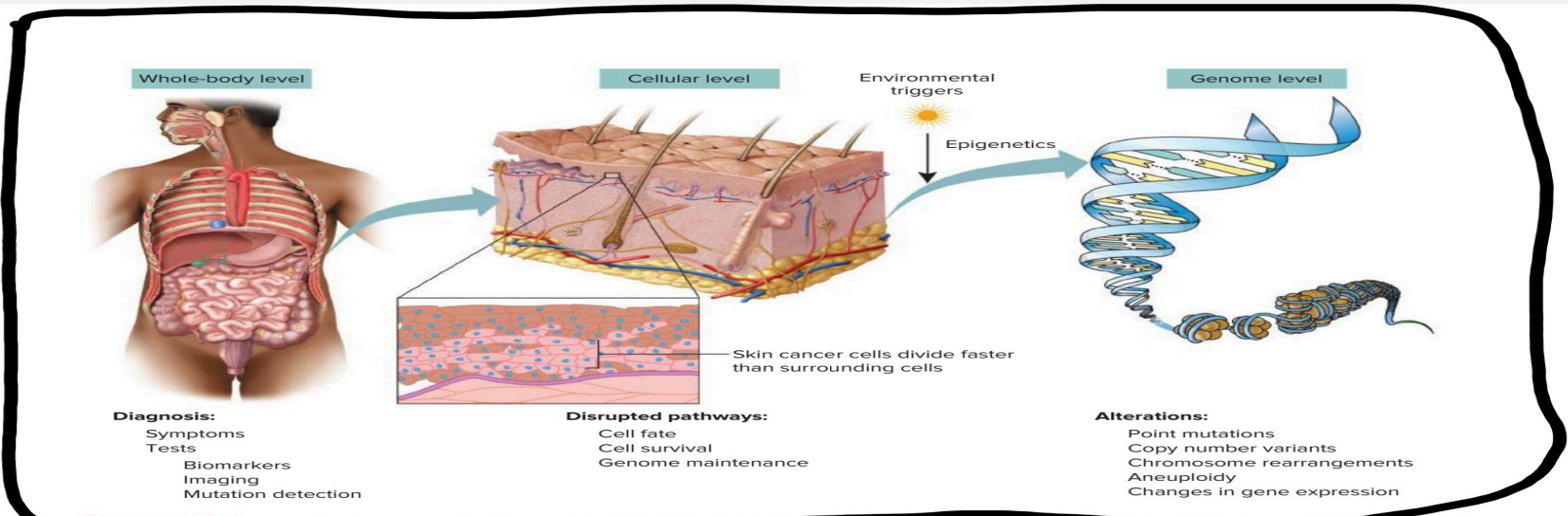
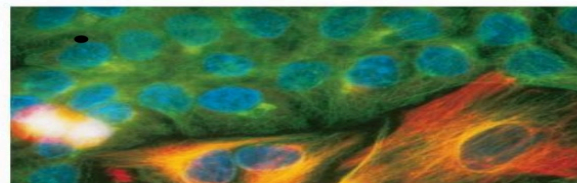


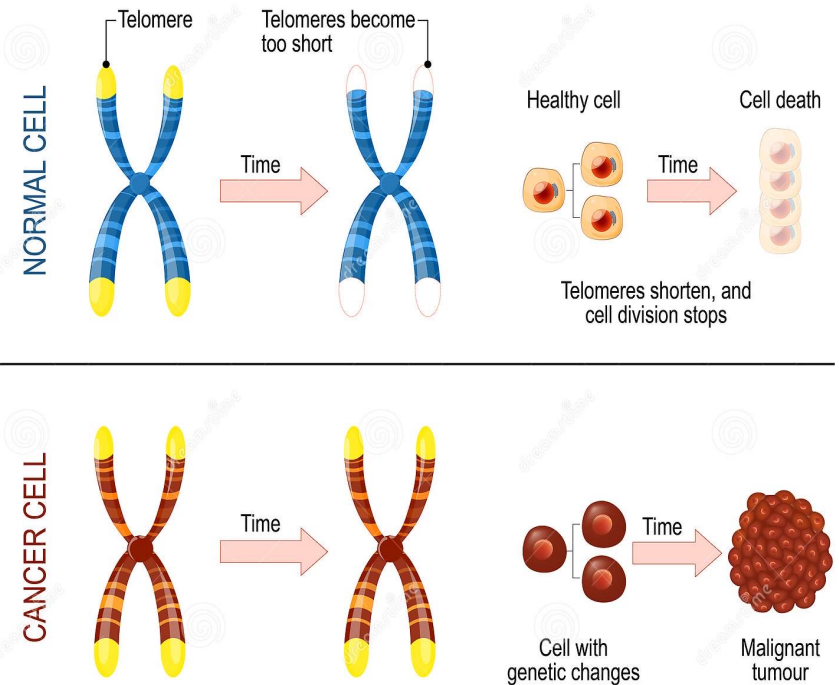
Figure 18.1 Levels of cancer. It takes years for a cancer to produce symptoms, as more and more cells undergo specializations and divide more frequently than the cells from which they descend. Mutations—from single-base changes to large-scale chromosomal upheavals—drive the disease, accompanied by changes in gene expression, some of which are responses to environmentally induced epigenetic effects.



MITOZA, PIKAT E KONTROLLIT, TELOMERAT NË QELIZAT KANCEROZE

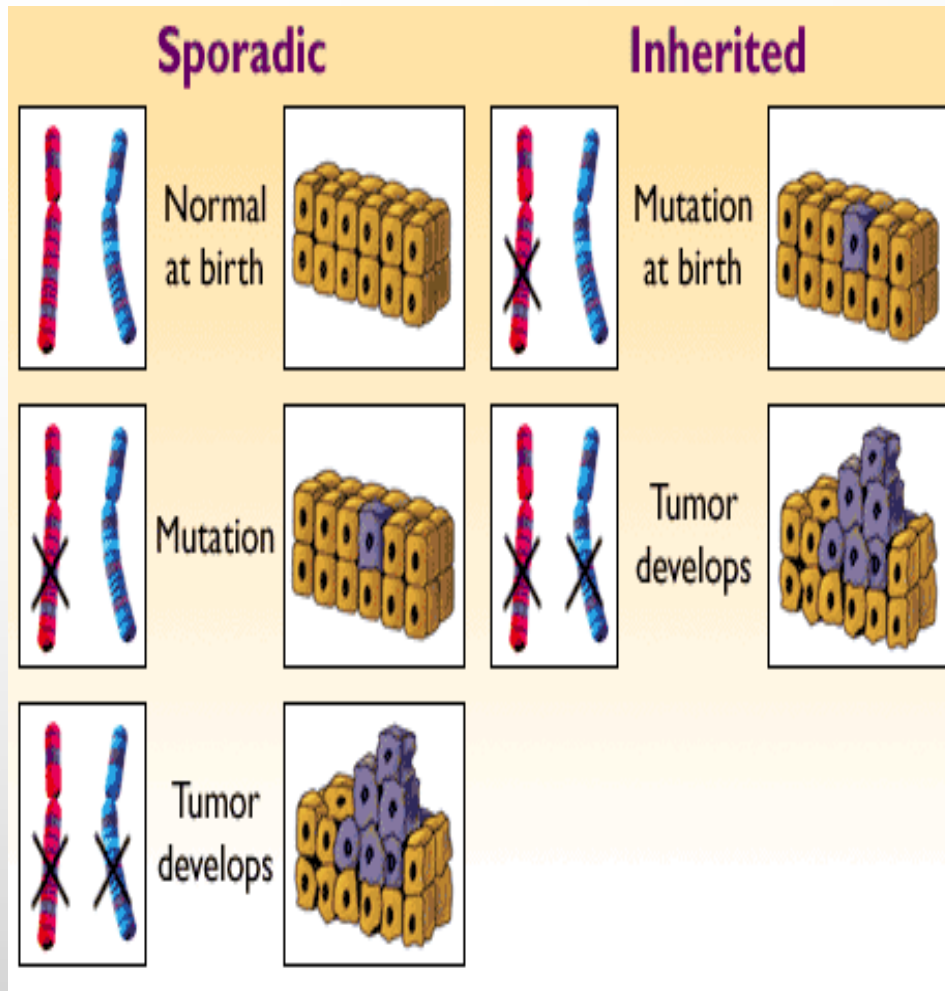
- MITOZA JO E RREGULLT, NUK KORDINOHET ME FAKTORËT E RITJES DHE MOLEKULAT SINJALIZUESE NGA JASHTË.
- PIKAT E KONTROLLIT KUR HUMBIN FUNKSIONIN ÇOJNË QELIZËN NE KANCER (MUTACIONET NË GJENET QE NGADALSOJNË OSE NDALOJNË CIKLIN QELIZOR ÇON NË MITOZË JO TË RREGULLT).
- HUMBJA E KONTROLLIT MBI TELOMERAT (TTAGGG), MUTACIONET NË TELOMERAZË OSE NE GJENIN *HTERT* NGUSHTËSISHT ME KANCERIN.

TELOMERE and CANCER



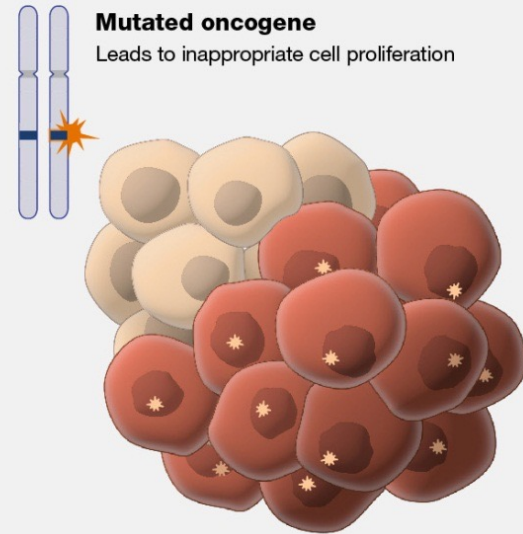
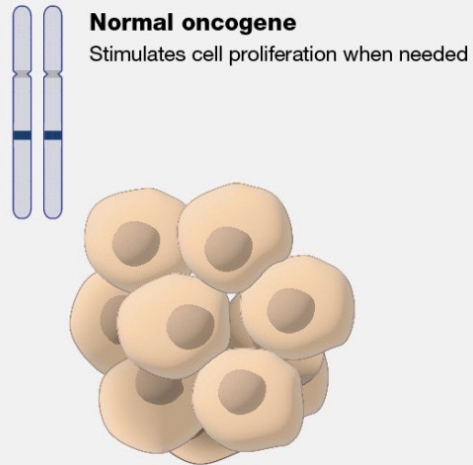
KANCERI I TRASHËGUAR PËRBALLË KANCERIT SPONTAN

- KANCERI KA BAZË GJENETIKE PASI SHKAKTOHET NGA NDRYSHIMET NË ADN, POR ZAKONISHT NUK ËSHTË I TRASHËGUESHËM!!!
- VETËM 10% E KANCEREVE JANË TË TRASHËGUESHËM
- TRASHËGOHEN PËRMES QELIZAVE TË GJINISË (SPERMATOZOIDE-VEZË)
- SHUMICA E KANCEREVE JANË SPORADIKE NGA MUTACIONE SOMATIKE
- MUTACIONET MUND TË JENË DOMINANTE/RECESIVE



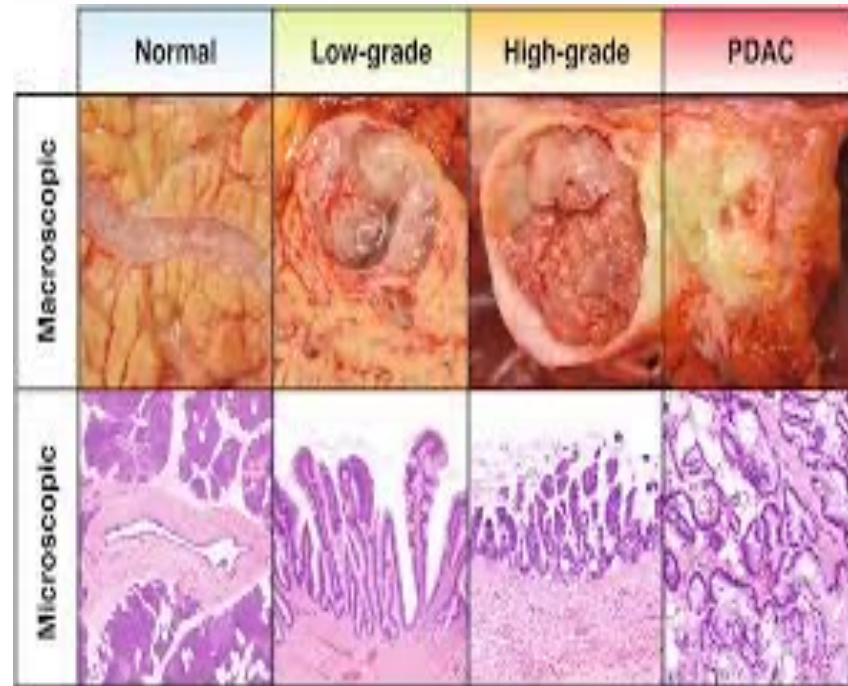
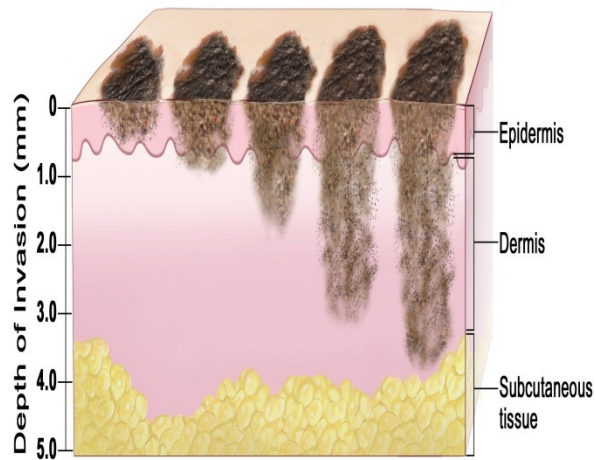
GJENET KANCEROZE DHE GJENOMIKA

PROTOONKOGJENET – TUMOR SUPRESOR GJENET

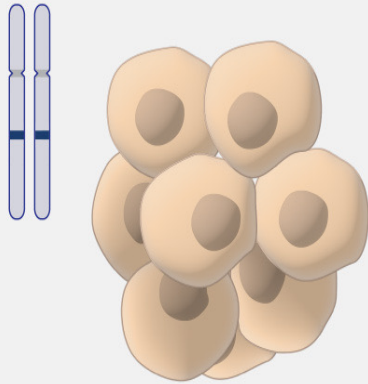


BRAF, TERT TP53 (MELANOMA, PANCREATIC CANCER),

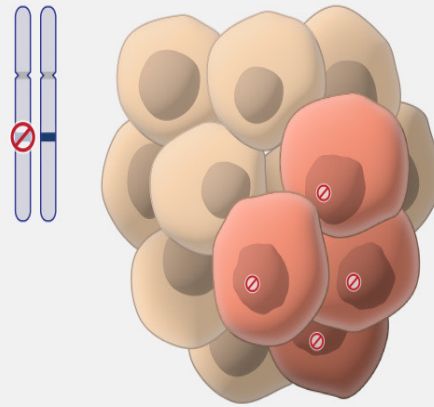
How deep is the cancer?



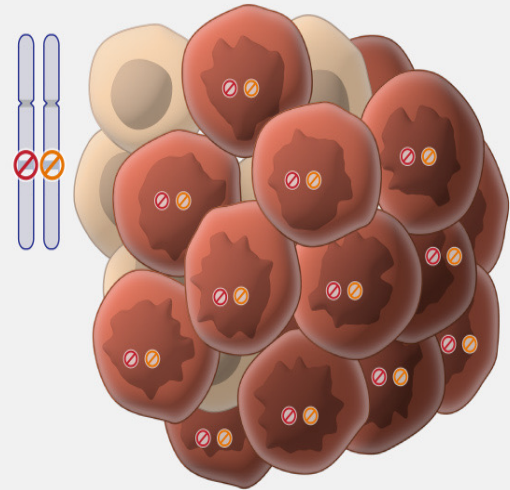
Normal tumor suppressor genes
Slows down cell proliferation



One mutated tumor suppressor gene



Two mutated tumor suppressor genes
Leads to inability to stop cell proliferation



RETINOBLASTOMA VS SARCOMA



Mutation im

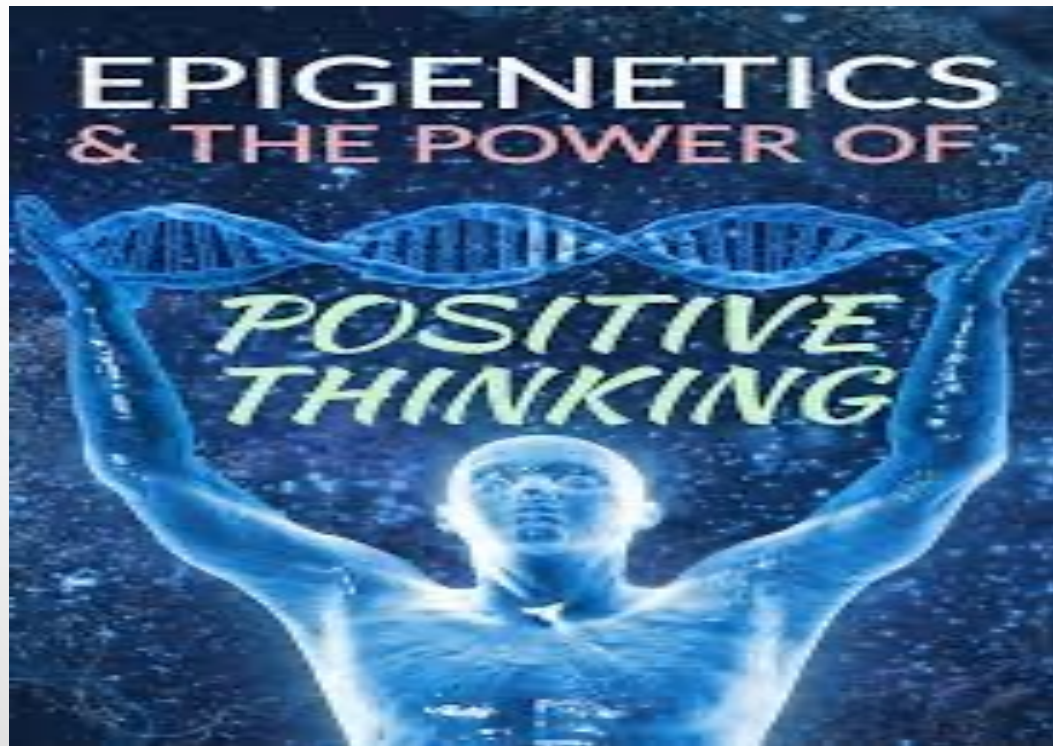
Onkogen



Tumorsuppressor



MENDO POZITIVISHT, RRI SHENDETSHËM
A MUND TË KONTROLLOJMË GJENET???



FALEMINDERIT PER VËMENDJEN !!!

