

Cytogenetics

4th Lecture

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Ph.D. in Cancer Molecular Genetics

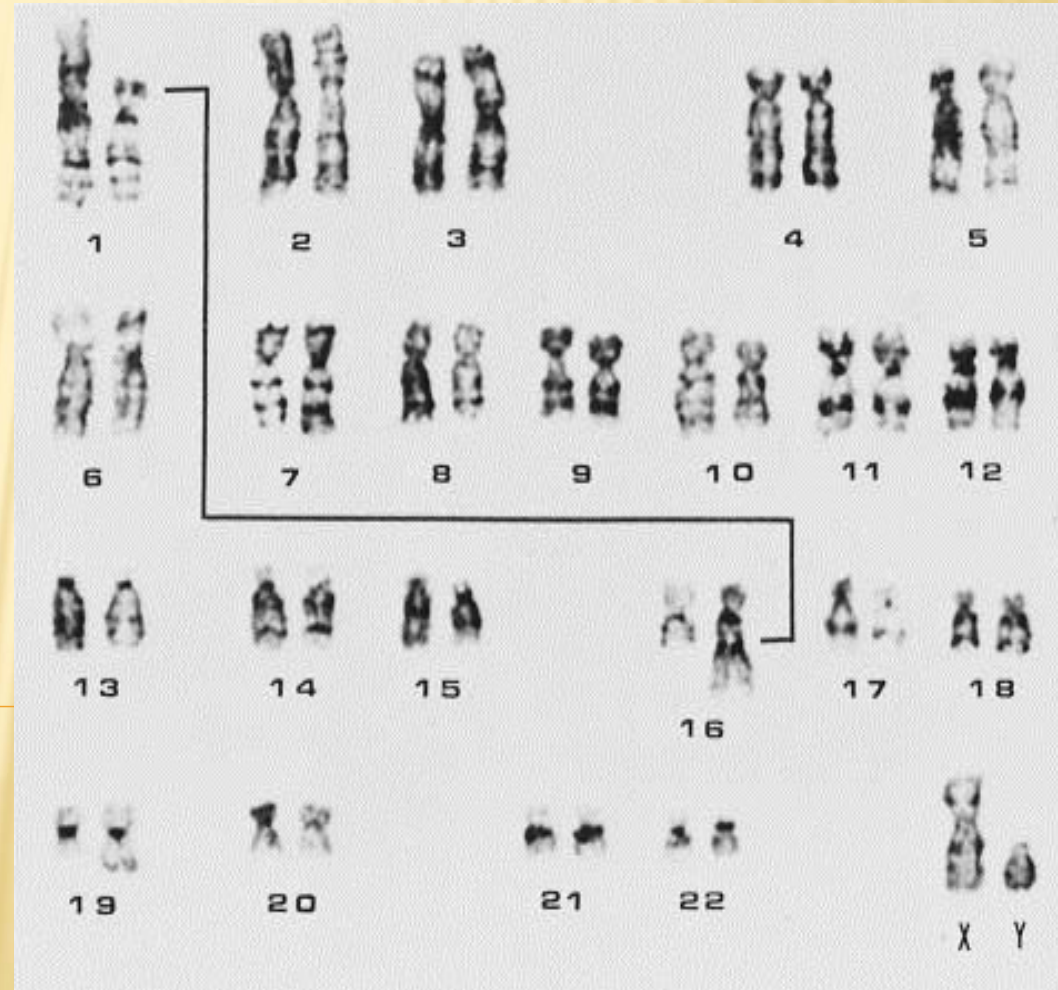
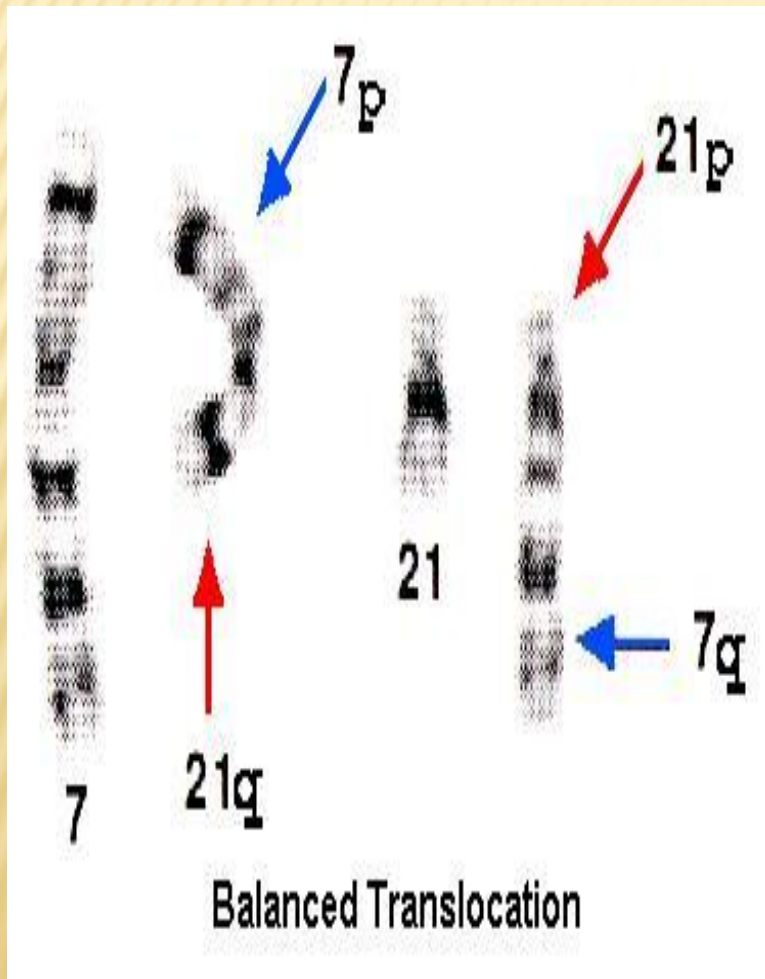
Wales University- UK

Types of Chromosome Structural abnormalities

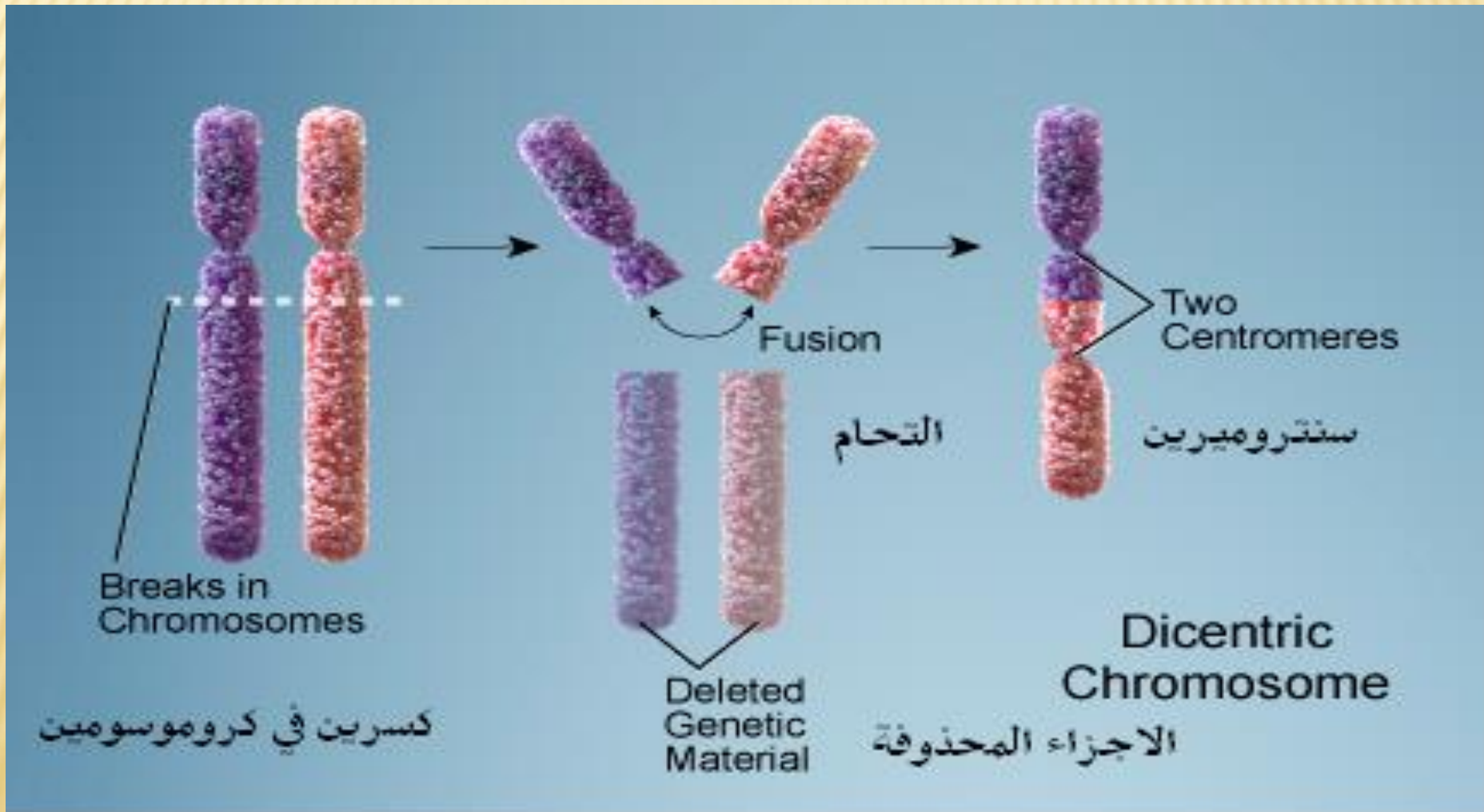
- 1. Chromosomal Translocation**
- 2. Deletion**
- 3. Inversion**
- 4. Insertion**
- 5. Rings**
- 6. Duplication**
- 7. Isochromosome**
- 8. Dicentric**

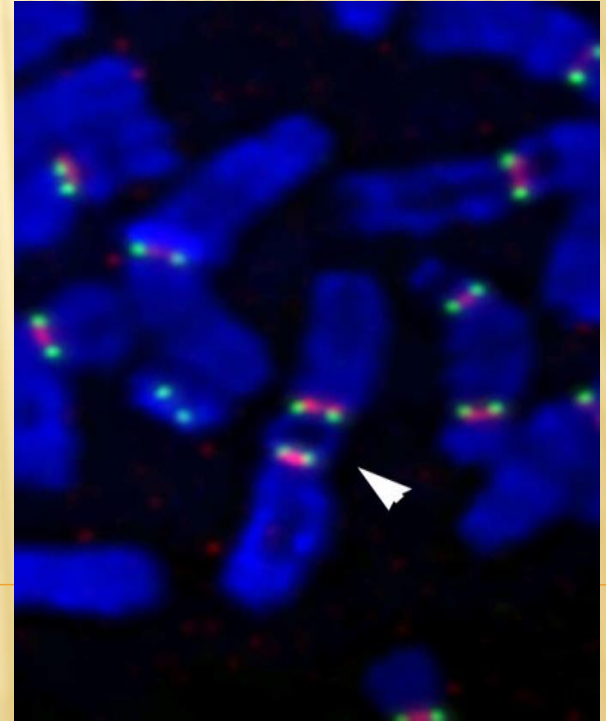
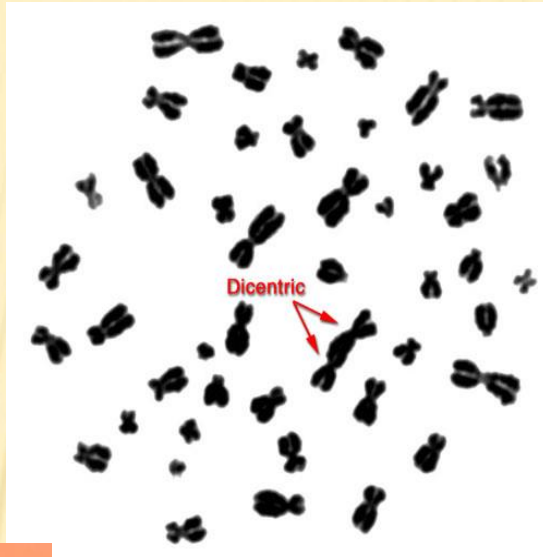
Chromosomal Translocations

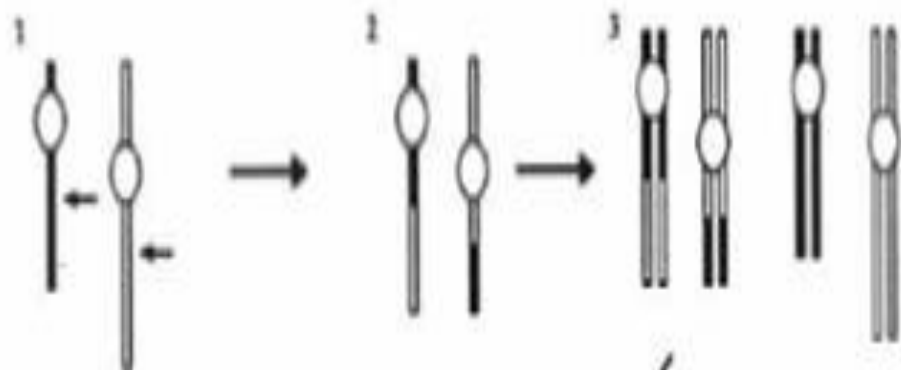
- **Balanced translocation** -
- **Unbalanced translocation** -



Centric Fusion Translocation Dicentric Chromosome Chromosomal Bridge



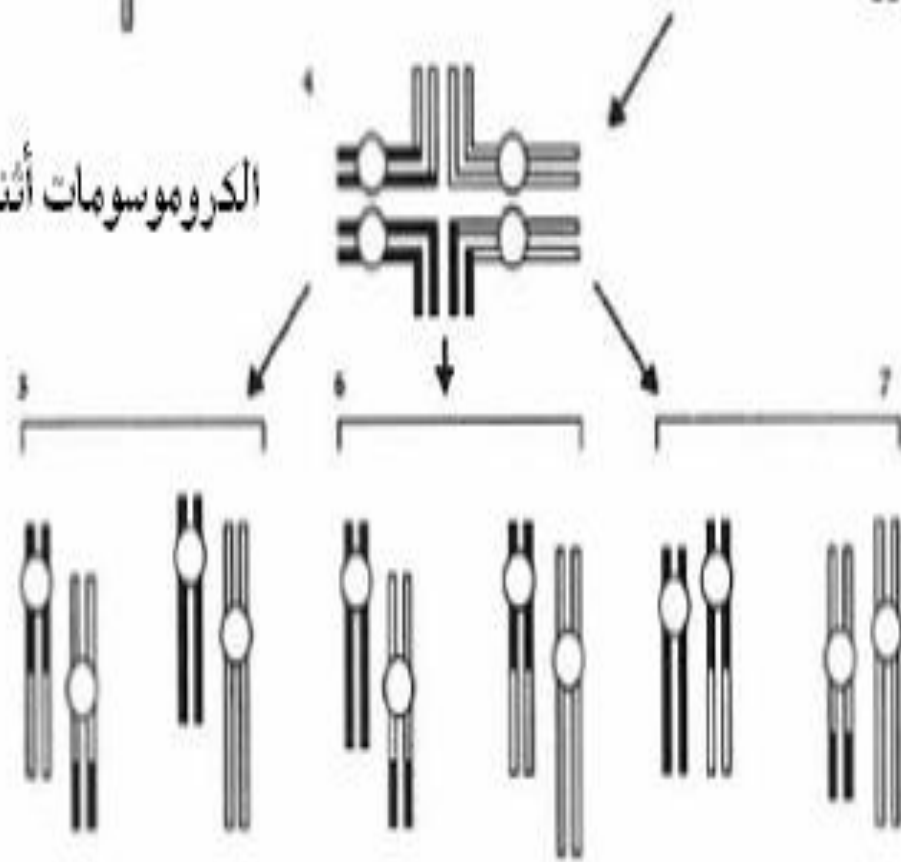




الكروموسومات المتضررة و شقيقتاها
الطبيعية قبل العبور

الكروموسومات أثناء العبور الرباعي

لكروماتيداتها



الكروموسومات المنعزلة بعد الانفصال
بأضرار متنوعة

- **Insertional Translocation**
 - **Cyclic or Complex Translocation**
 - **Derivative Chromosome**
 - 1. Alternate Type**
 - 2. Adjacent Type**
-



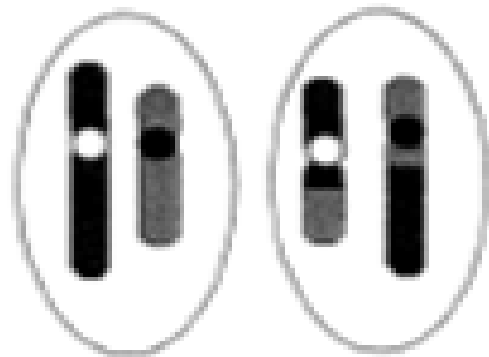
الكروموسومات

meiotic pairing

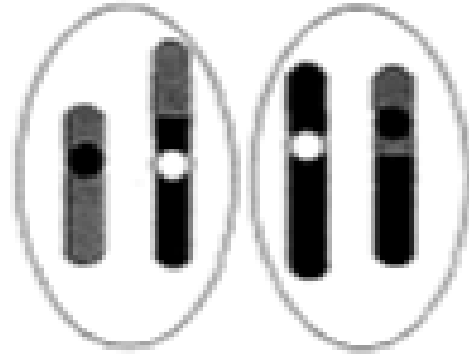
الطبيعية

الكروموسومات المتضرة

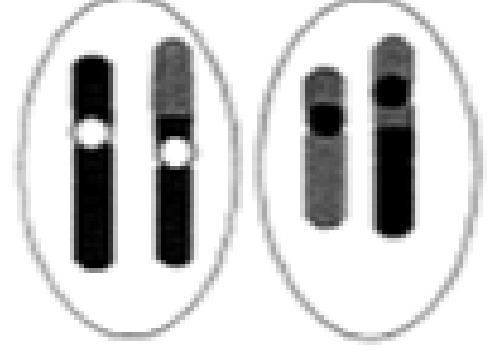
التبادل الرباعي أثناء العبور



alternate segregation



adjacent I segregation



adjacent II segregation

الانعزال التبادلي

الانعزال التجاوري

الانعزال التجاوري

Reciprocal Translocation

1. 1\700 – 1\1000 .1
2. Terminal parts exchange between two chromosomes. .2
3. Balanced translocation. .3
- 4.No sign of disease. .4
5. The consequences of the translocation on the next progeny are varied with a different types of abnormalities. .5

Robertsonian Translocation

- Homologous Robertsonian Translocations
- Non Homologous Robertsonian Translocations

1. Exchange between the acrocentric chromosomes (13,14,15,21,22).
2. Produce metacentric or sub-metacentric chromosome.
3. Reciprocal translocation.
4. Balanced Translocation.
5. With no sign disease.
6. Cells with 45 chromosomes.

Thank you

