

Unit 3 - Week 1: "Fundamentals of Central Dogma of Molecular Biology" and "Chromosome Structure and Function"

Course outline

How does an NPTEL online course work?

Zero Assignment

Week 1: "Fundamentals of Central Dogma of Molecular Biology" and "Chromosome Structure and Function"

- Lecture 1: Fundamentals of central dogma, Part 1
- Lecture 2: Fundamentals of central dogma, Part 2
- Lecture 3: Fundamentals of central dogma, Part 3
- Lecture 4: Chromosome Structure and Function
- Quiz : Week 1- Assignment
- Feedback For Week 1
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Week 2: Pedigree Analysis and Molecular Biology Tools

Week 3: Molecular Pathology

Week 4: Gene discovery for monogenic and polygenic disorders

Lecture Notes

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Books

VIDEO DOWNLOADS

Live Sessions

Week 1- Assignment

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2020-02-12, 23:59 IST.

1) Karyotype of a healthy male and female are:

1 point

- 46XY and 46XX
- 23XY and 23XX
- 48XX and 48XY
- 46XX and 46XY

No, the answer is incorrect. Score: 0

Accepted Answers: 46XY and 46XX

2) A karyotype can help us to identify:

1 point

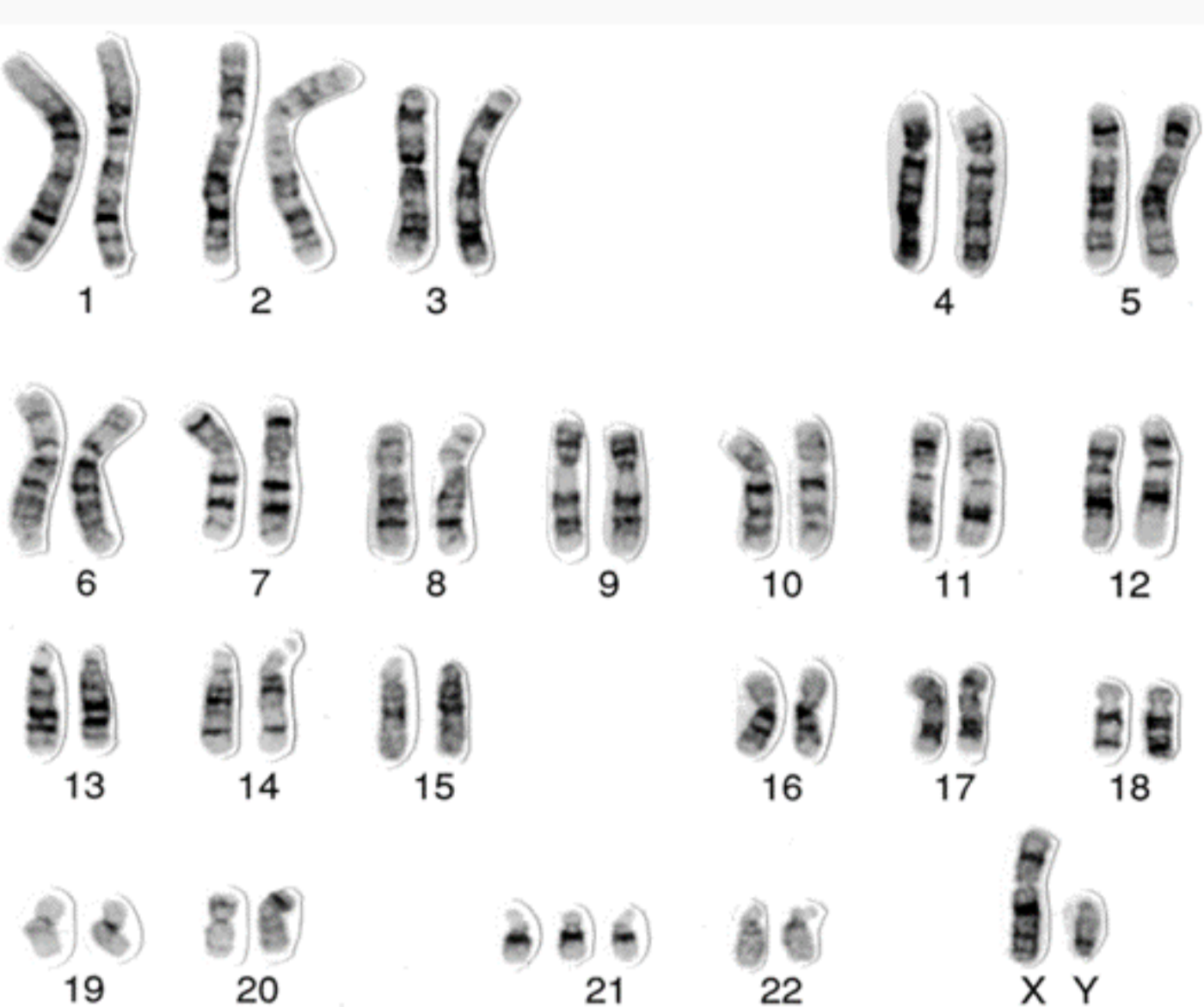
- The translocation of a gene
- Sex of the individuals
- The genetic basis of a disorder
- All of these

No, the answer is incorrect. Score: 0

Accepted Answers: All of these

3) A genetic counsellor prepared the karyotype (given below) of a patient. Based on your understanding of the chromosomal anomalies, identify the disorder that the patient is most likely to be suffering from:

1 point



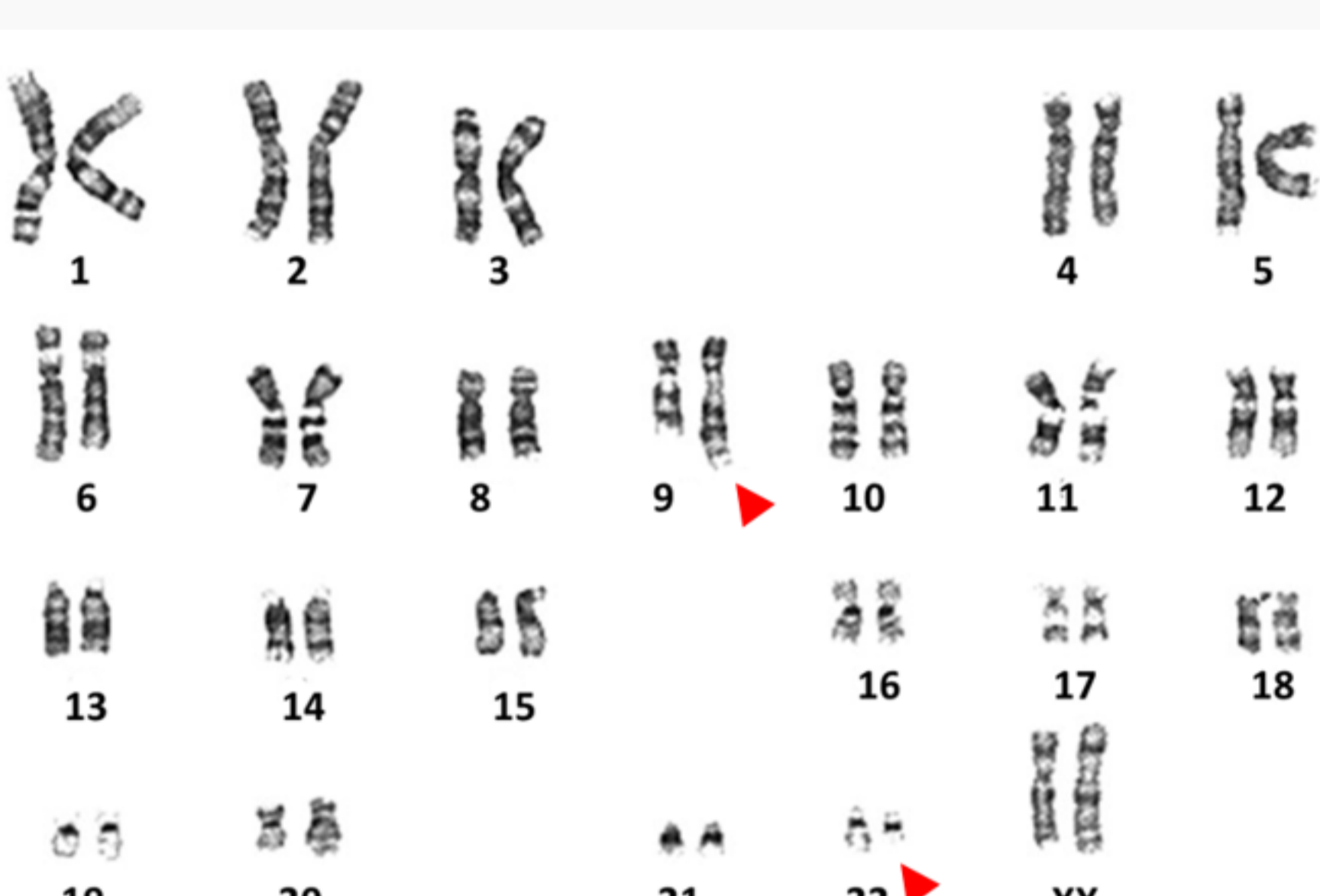
- Turner syndrome
- Klinefelter syndrome
- Down syndrome
- None of these

No, the answer is incorrect. Score: 0

Accepted Answers: Down syndrome

4) The karyotype shown below represents a chromosomal disorder involving chromosomes identified by the arrowhead (in red colour). Which one of the options is INCORRECT with respect to the process leading to this abnormality?

1 point



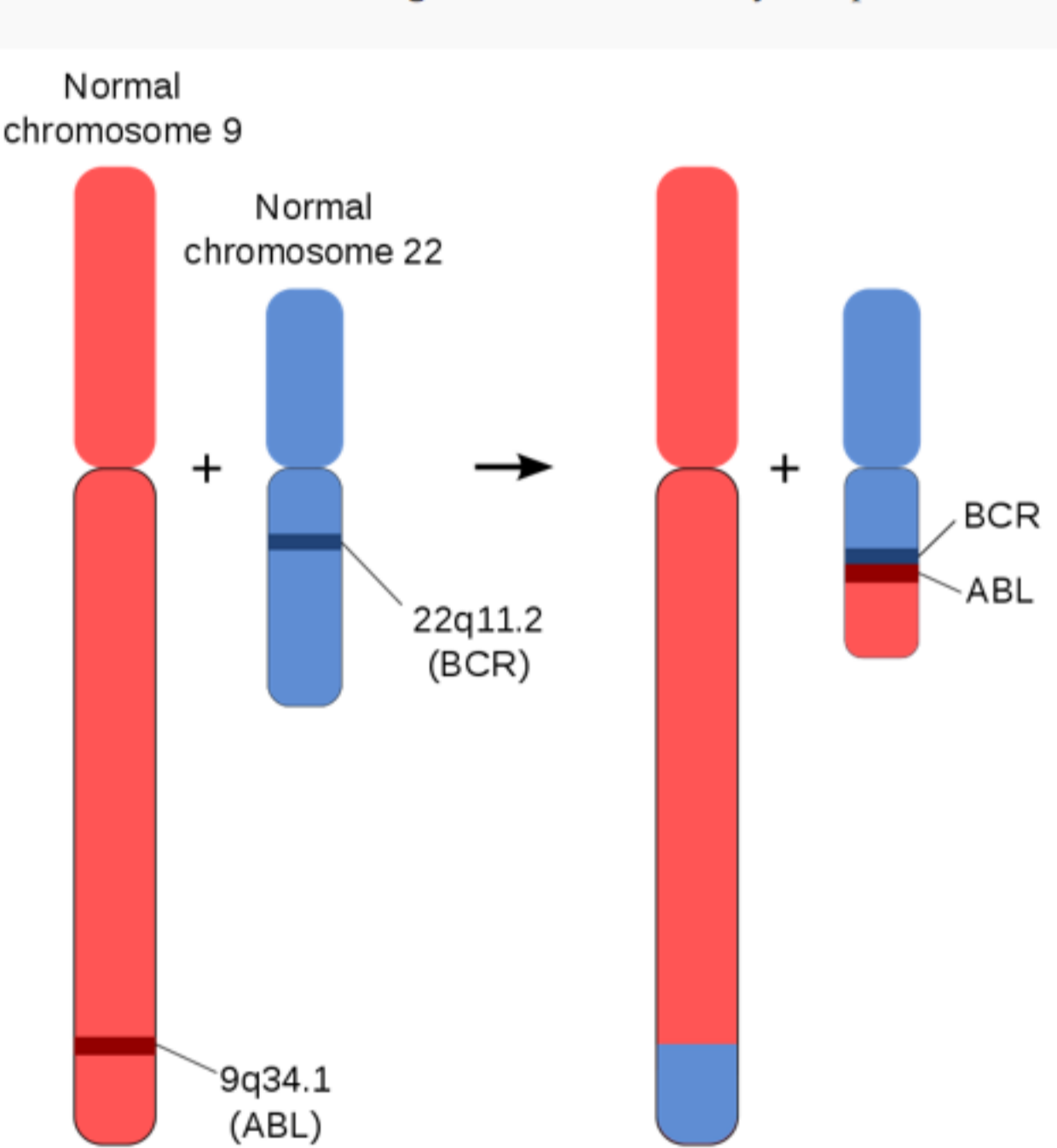
- DNA double-strand breaks
- Translocation
- Recombination
- Replication error

No, the answer is incorrect. Score: 0

Accepted Answers: Replication error

5) Examine the schematic given below and identify the option that correctly represents the events displayed on the schematic:

1 point



- Balanced translocation
- Fusion gene
- Leukaemia
- All of these

No, the answer is incorrect. Score: 0

Accepted Answers: All of these

6) The transfer of information from DNA to RNA is called:

1 point

- Replication
- Translation
- Transcription
- Transformation

No, the answer is incorrect. Score: 0

Accepted Answers: Transcription

7) Which one of the following can NOT make a copy of itself?

1 point

- DNA
- RNA
- Protein
- All of these

No, the answer is incorrect. Score: 0

Accepted Answers: Protein

8) The image shown here provides the mRNA sequence of a gene (top). Identify the correct option that represents the DNA strand that served as the template for the transcription:

1 point

mRNA 5' -AUGAAGCGCUGCAAUGCAGCUGCUAAGCUAGCAU -3'

Option A 5' - ATGCTAGCTTAGCAGCTGCATTGCAGCGCTTCAT-3'

Option B 5' - TACTTCGCGACGTTACGTCGACGATTGATCGTA-3'

Option C 5' - TACGATCGAATCGTCGACGTAACGTCGCGAAGTA-3'

Option D 5' - ATGAAGCGCTGCAATGCAGCTGCTAAGCTAGCAT -3'

- Option A
- Option B
- Option C
- Option D

No, the answer is incorrect. Score: 0

Accepted Answers: Option A

9) Alternative splicing in human genes results in the generation of transcripts that differ from one another in having a unique region in the matured transcript. Which one of the following options is INCORRECT with regard to elements that are likely to represent the unique region and present in the mature transcript?

1 point

- Untranslated region
- Exon
- Introns
- Open reading frame

No, the answer is incorrect. Score: 0

Accepted Answers: Introns

10) Mutation in a gene is known to cause a severe developmental disorder but only when transmitted through mother. This property of the mutations is likely due to

1 point

- Complementation
- Genomic imprinting
- Uniparental disomy
- Anticipation

No, the answer is incorrect. Score: 0

Accepted Answers: Genomic imprinting