



# **Inheritance patterns, recurrence risks and reproductive choices in centronuclear myopathies**

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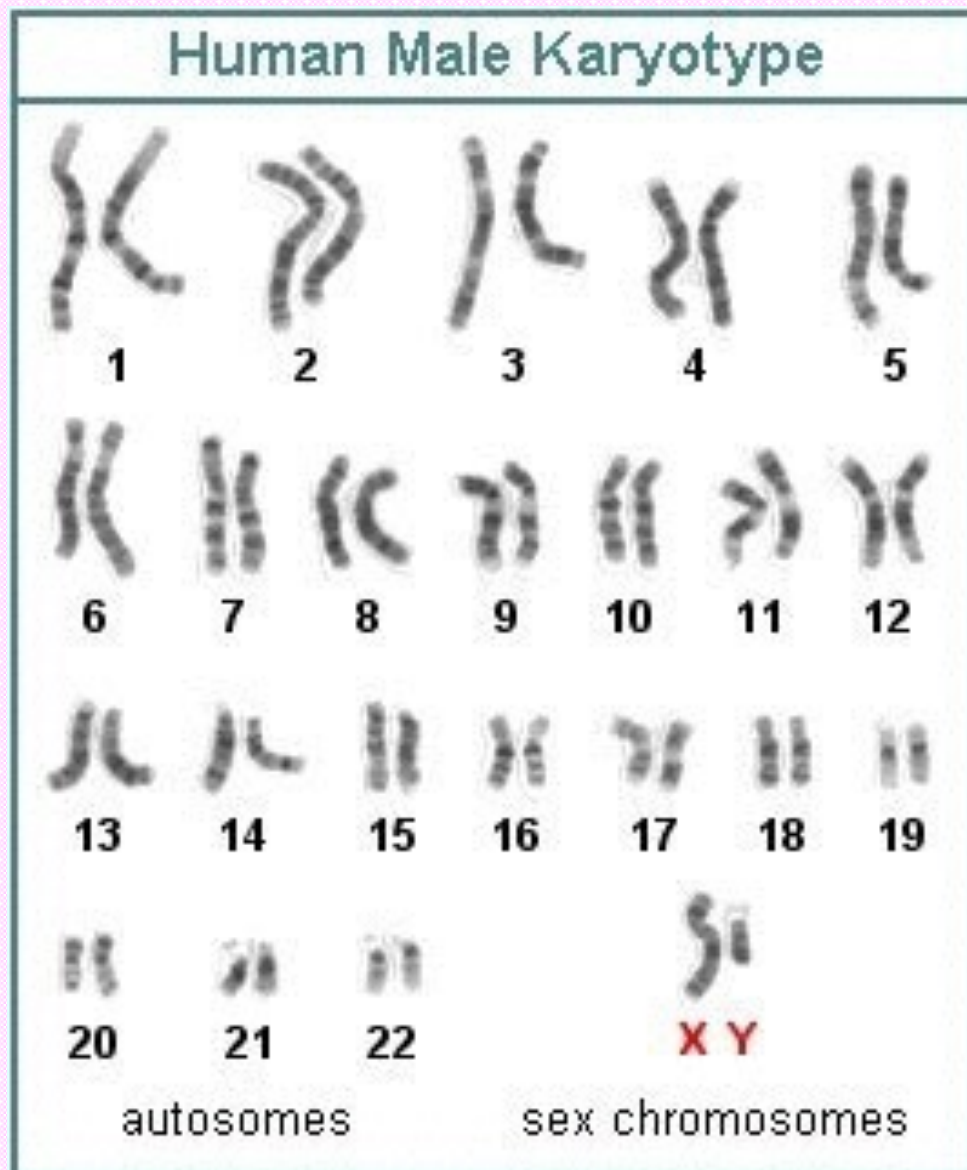
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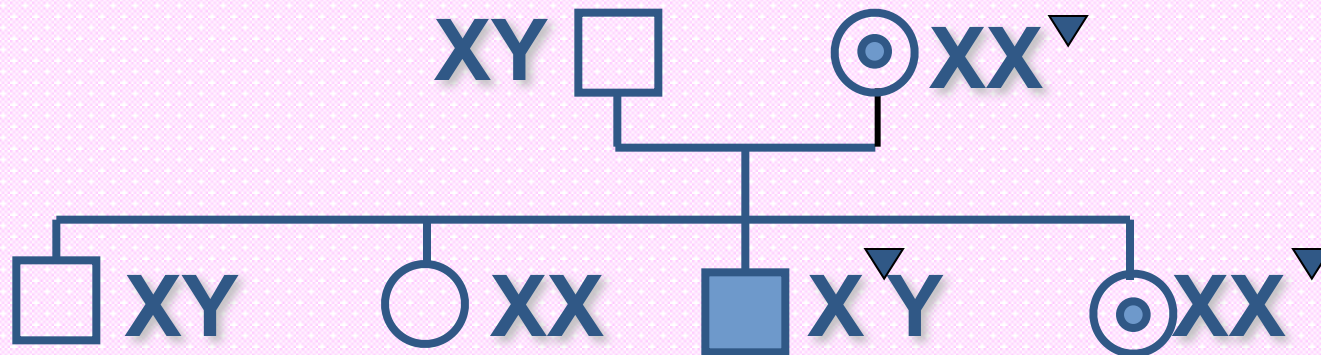


## Inheritance patterns in Centronuclear Myopathies

- X-linked recessive
  - MTM1
- Autosomal Dominant
  - DNM2
- Autosomal Recessive
  - BIN1
  - RYR1



# X linked recessive inheritance



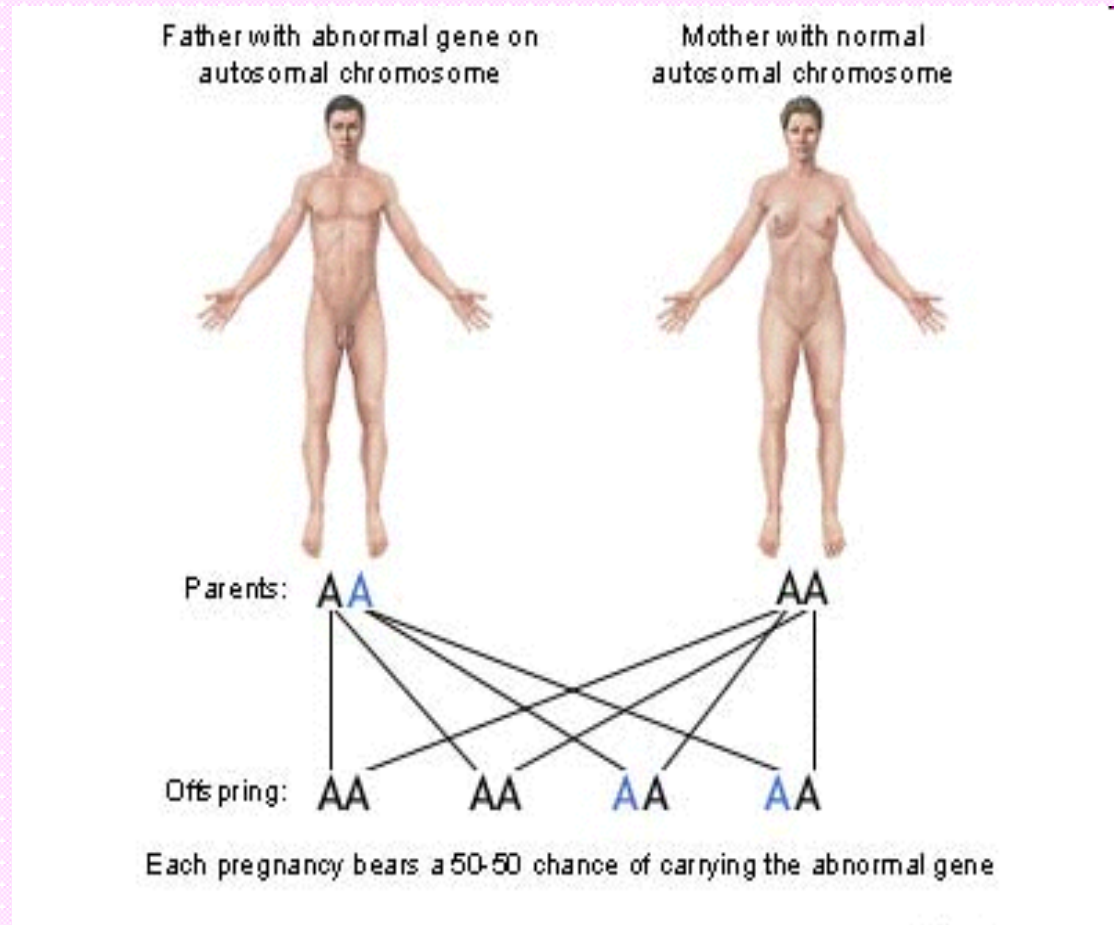


## X-MTM Recurrence risks in future children

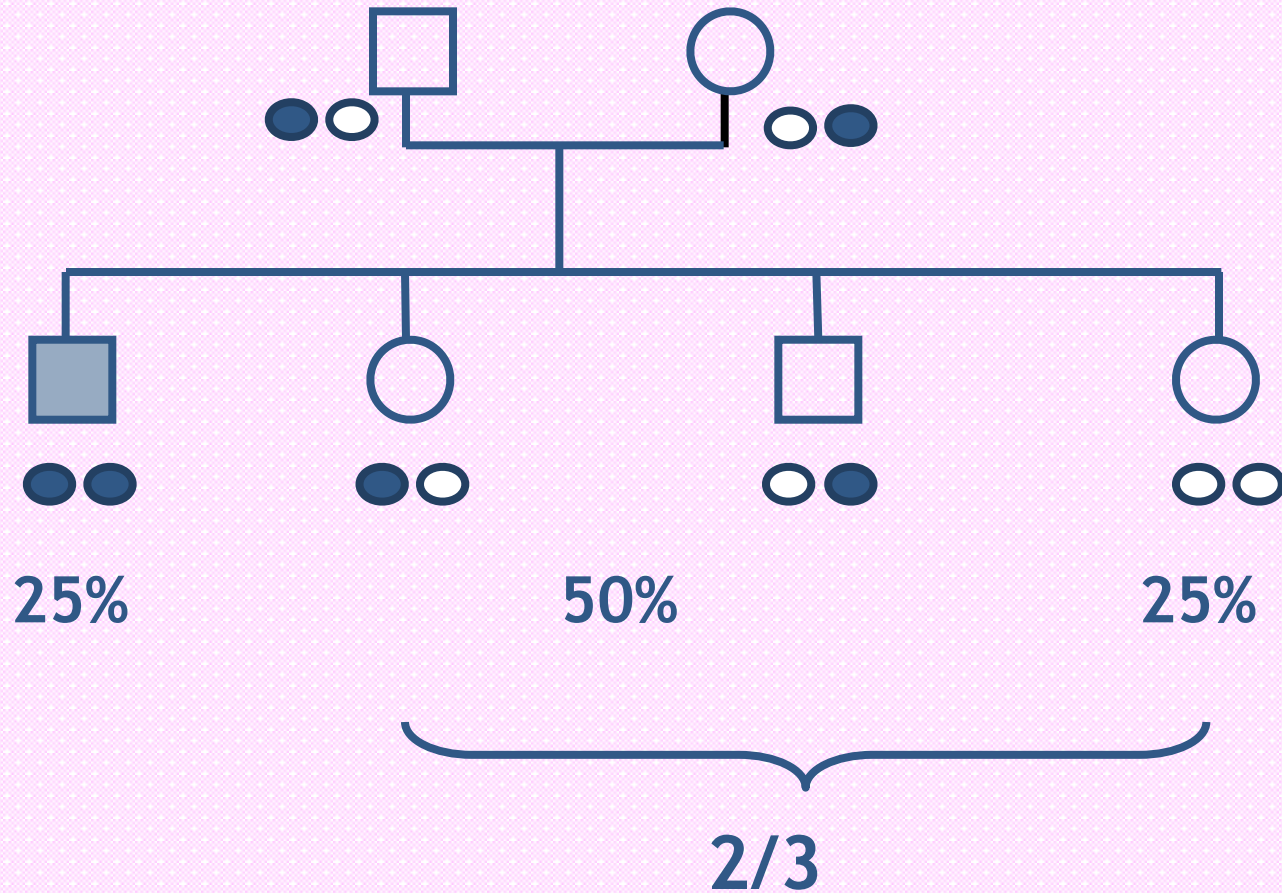
- For carrier mothers
  - 25% affected son
  - 25% carrier daughter
  - 25% unaffected son
  - 25% non-carrier daughter
- For non-carrier mothers
  - Germline mosaicism risk ~1%

## Autosomal dominant inheritance

- Can be passed from parent to child
- Affects males and females equally
- Risk to offspring is 50% (1 in 2)
- Variable expression ( severity)
- Can only test if mutation known



# Autosomal Recessive





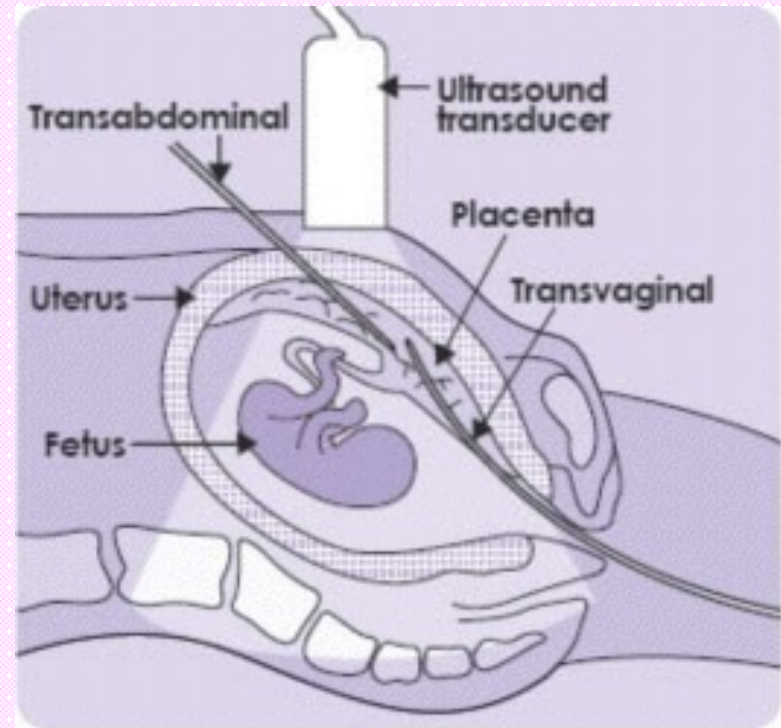
## Reproductive options

- Testing a pregnancy (CVS, amnio)
- Pre-implantation genetic diagnosis
- Important factors
  - Personal Views
  - Religion
  - Cultural



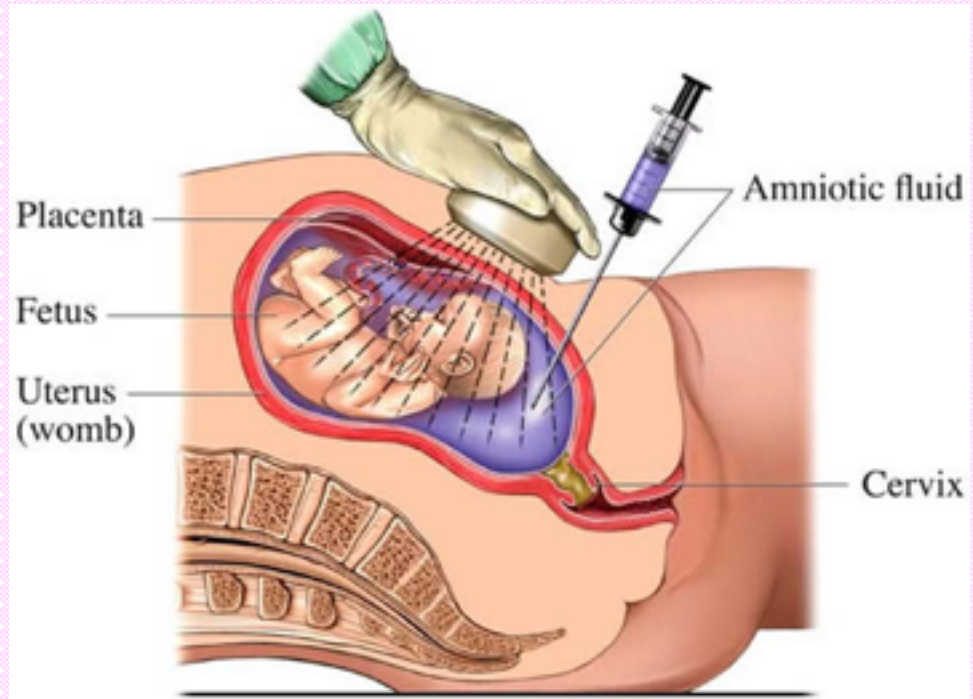
# Chorionic Villus Sampling

- 11+ weeks early result
- miscarriage rate 1-2%
- Definitive test but:
  - can fail
  - maternal contamination



# Amniocentesis

- 15-20 weeks
- Later result
- Lower miscarriage risk (0.5-1%)

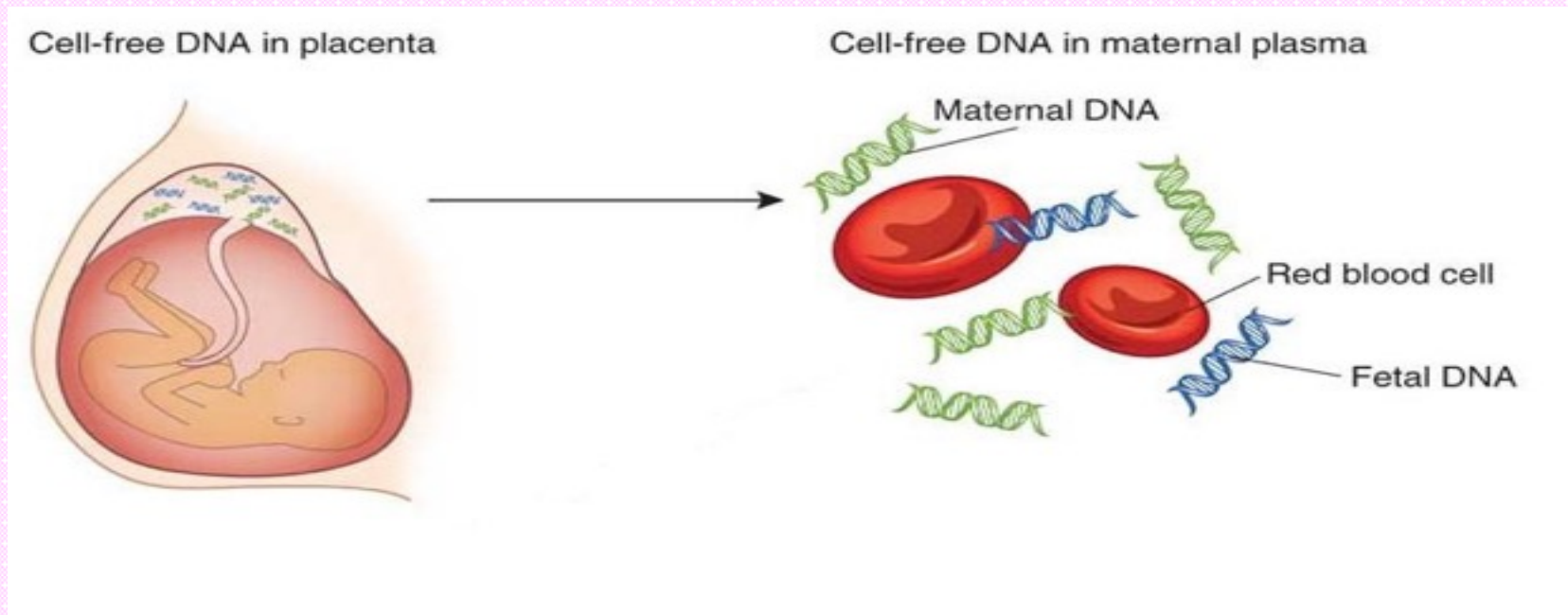




## **Modifying risk of invasive testing XMTM**

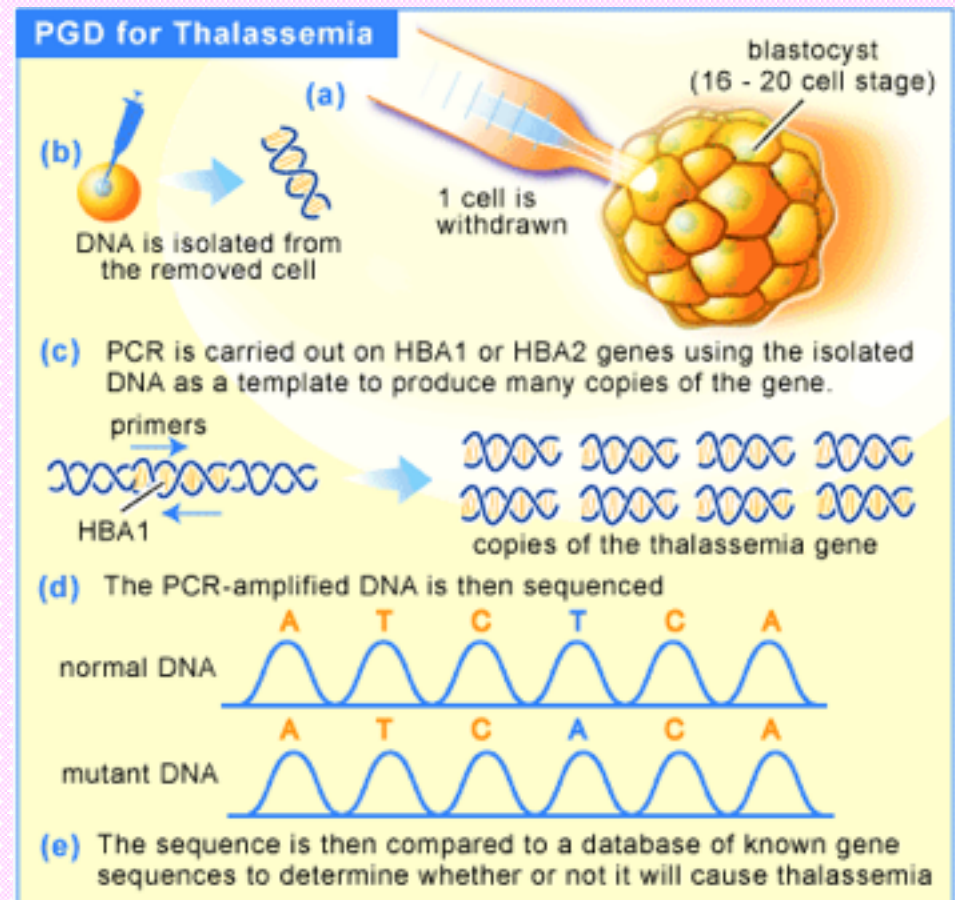
- Free fetal DNA to sex the pregnancy
- Test done on a blood sample from the pregnant woman
- Only carry out CVS/Amnio on male pregnancy

## Prenatal Diagnosis – Free fetal DNA for sexing



# Pre-implantation genetic diagnosis

- Avoids termination of pregnancy
- BUT
- 1 in 3 “take home baby rate”
- Expensive ~ £12-15,000
- Takes time to work up - ~12 months depending on license





# Questions