

# Ch. 14: Human Heredity

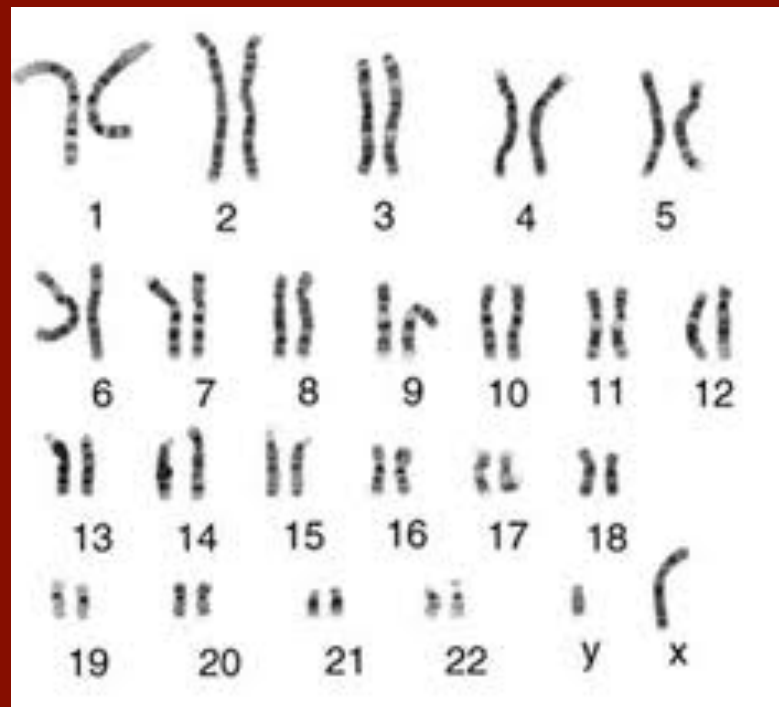
Essential questions:

- How is blood type inherited?
- What is a ***sex-linked trait***?
  - Why are sex-linked disorders more common in males?
- What is ***non-disjunction***, and what problems it can cause?

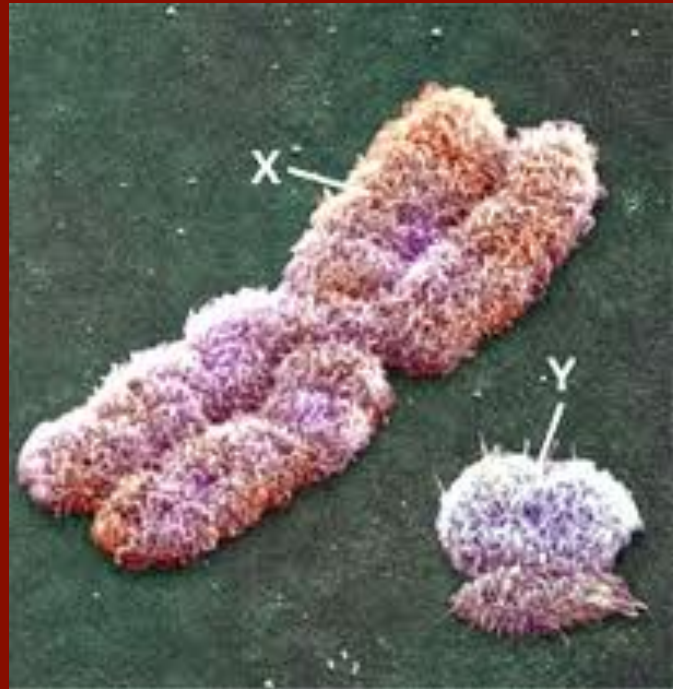
# Chapter 14–1: Human Heredity

## ■ Human Chromosomes

- karyotype – picture of chromosomes arranged in pairs

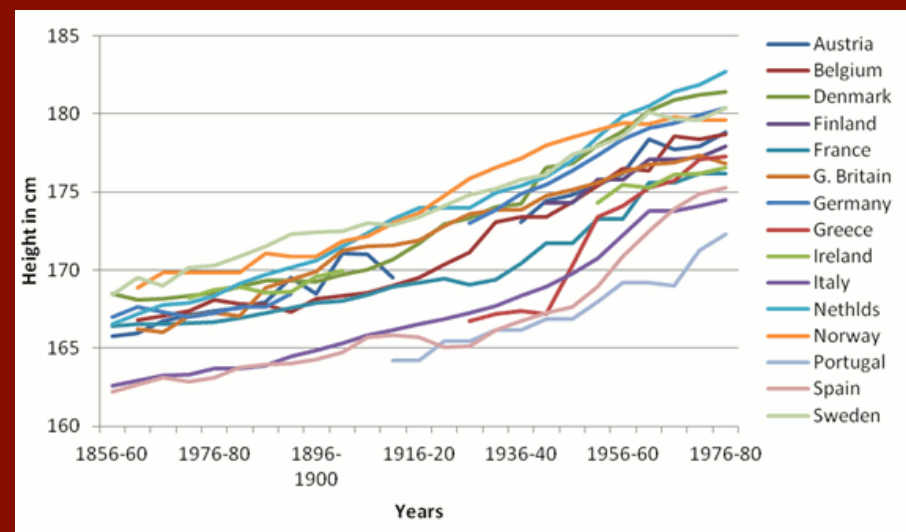
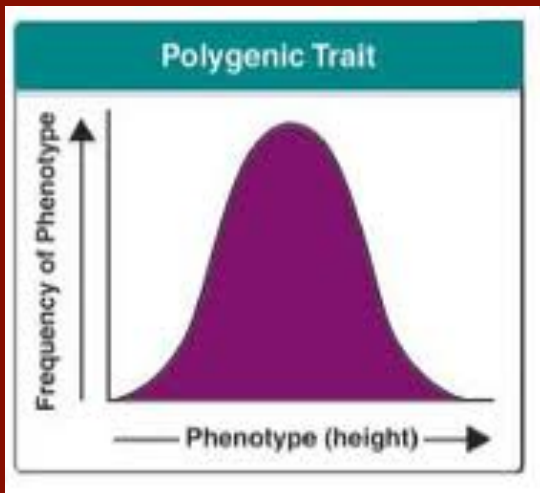


- sex chromosomes – XX or XY
- Autosomal chromosomes – non-sex chromosomes



## ■ Human traits

- Most traits polygenic – many genes control traits
- many traits influenced by environment
  - Ex: height & nutrition



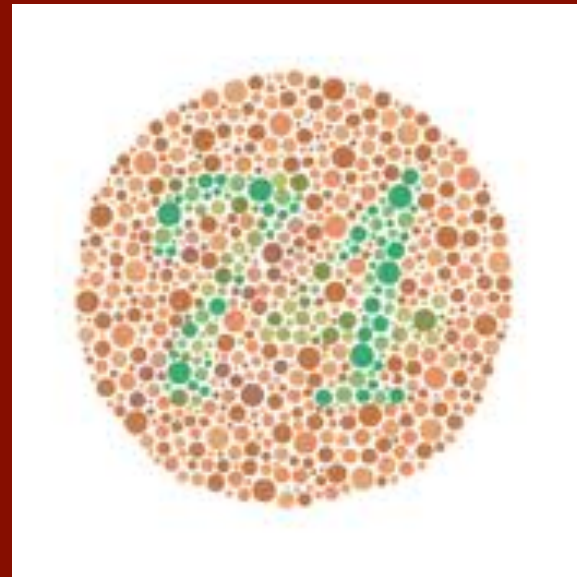
# ■ Human Genes

## – Blood Group Genes

- Rh group – single gene with 2 alleles ( + is dominant, - is recess.)
- ABO group
  - 3 alleles  $I_A$   $I_B$   $i$ 
    - first 2 are codominant
    - $I_A I_B$  = type AB
    - $I_A I_A$  or  $I_A i$  = type A
    - $I_B I_B$  or  $I_B i$  = type B
    - $ii$  = type O
  - Universal donor – Type O
  - Universal recipient – Type AB

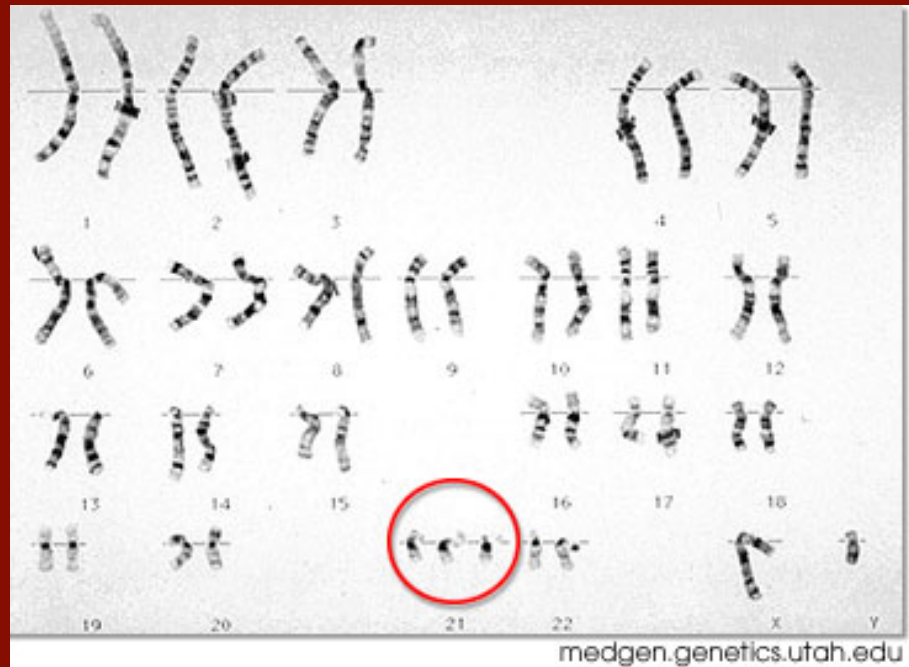
# 14–2 Human Chromosomes

- Sex-linked genes
  - many sex-linked genes found on X chromosome
  - males have only 1 X, so all x-linked alleles are expressed
    - Colorblindness
    - Hemophilia



## ■ Chromosomal disorders

- nondisjunction – error in meiosis – homologous chromosomes fail to separate – abnormal numbers of chromos. end up in gametes
- Down Syndrome – 3 copies of #21 chromosome (“trisomy”)



## ■ Sex Chromosome Disorders

- Turner's syndrome – XO
- Klinefelter's syndrome - XXY

