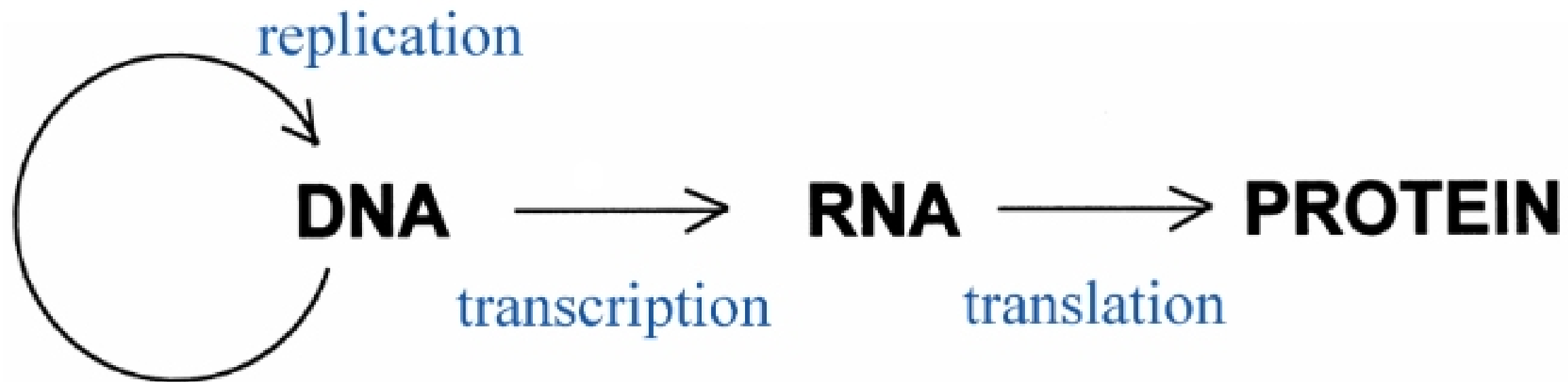


Inheritance and Genetic Diseases

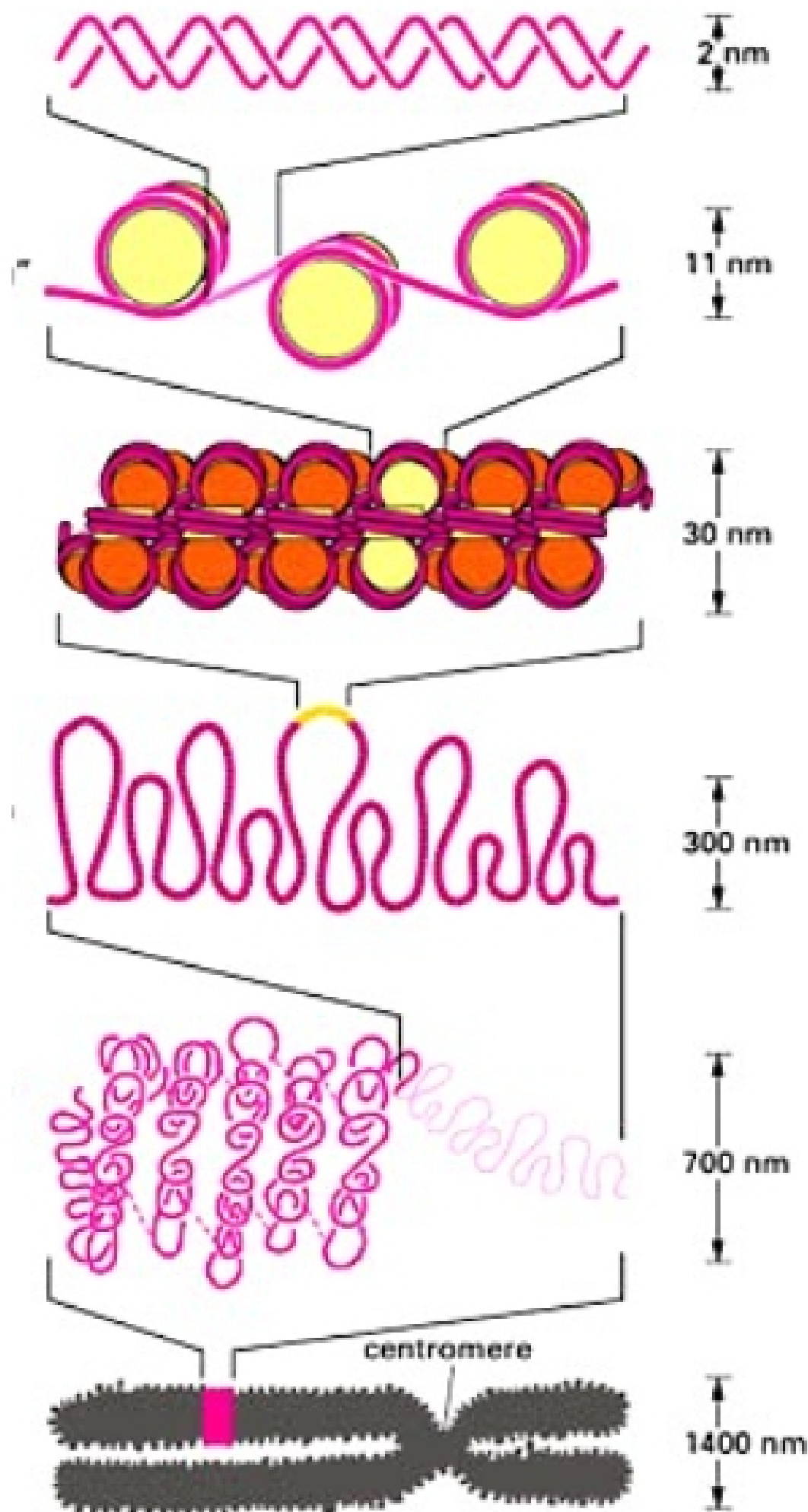
Mark F. Wiser

DNA is the Hereditary Material



- **DNA encodes the information necessary for cellular functions (ie, proteins)**
- **cells can make exact copies of DNA**
- **reproduction involves passing a copy of the DNA from parent to offspring**
- **Traits (ie, proteins) encoded in DNA are inherited**

Chromosomes



- **genomic DNA is very long**
 - humans, 6×10^9 base pairs
 - ~ 1.8 meters total length
- **total length reduced via associations with proteins**
- **individual DNA molecules packaged into chromosomes**
- **each chromosome represents one linear DNA molecule**
- **human cells contain 23 pairs of chromosomes = karyotype**