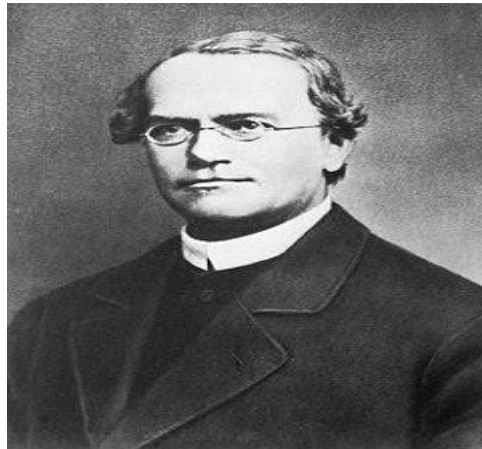


- ❖ In 1866 the Austrian monk Gregor Mendel published his paper under a title “Experiments in plant hybridization” , his paper based on Genetics and inheritance and his experiments conclusions form the foundations of Mendelian genetics and he was called “**Father of genetics**”

















### **Particular theory of Mendel**

- The inherited characteristics determined by factors called **Genes** and these genes occurred in pairs.
- When gametes are formed, the genes are segregated so that only homologous pairs are contained in particular gametes.

### **Mendel's Experiment**

- ❖ **Mendel choose Pea plant “ *Pisum sativum*” as a model organism for his experiment because:**
  - 1- It was relatively easy to grow develops quickly.
  - 2- It had variants of traits that easily to identify.
  - 3- He could easily self-fertilize the plant and produced true breeding lines.

		Traits						
		Seed		Pod		Flower		Plant
		1. color (interior)	2. shape	3. color (immature)	4. shape (mature)	5. color	6. position	7. height (mature)
Phenotype	Dominant	 yellow	 round	 green	 inflated	 purple	 axial	 tall (72–84")
	Recessive	 green	 wrinkled	 yellow	 constricted	 white	 terminal	 short (18–24")

### First Mendel law “law of segregation”

- The law of segregation state that “every individual contains two alleles for each trait and these alleles segregate (separate) during Meiosis such that each gamete contains only one of the alleles”. The offspring receives pair of alleles for a trait by inheriting homologous chromosome from the parents: one allele from the mother and another one from the father.

### Terms you should know in genetics

- **Gene:** is the unit of heredity on a chromosome and had an alternate state called the allele.
- **Allele:** each gene has two alleles and they are responsible for one trait, if this trait was dominant it’s represented by a Capital letter, while if it was recessive it’s represented by a Small letter. For example the grey color trait G (dominant), g (recessive).

- **Genotype:** means the set of genes in our DNA and the genotype is represented by two alleles present in cell whether they are dominant or recessive.
- **Phenotype:** means the physical appearance of the organism.

### The Genotype maybe

<b>TT</b>	<b>tt</b>	<b>Tt</b>
Homozygous chromosome	Homozygous chromosome	Heterozygous chromosome
Two identical alleles	Two identical alleles	Two different alleles
The trait is dominant	The trait is recessive	The trait is dominant