

Complex Inheritance

- I. Environmental Effects
 - A. Environment can interact with genes to determine traits
 1. Example: sex determination in reptiles
- II. Multiple Alleles
 - A. A gene that has more than two *alleles*
 1. Example: rabbit fur color
- III. Polygenic Traits
 - A. Traits produced by more than one *gene*
 1. Examples
 - a. Skin color: at least 171 genes
 - b. Hair color: at least 124 genes
 - c. Eye color: at least 16 genes
 2. Epistasis: One of the genes of a polygenic trait masks the other genes
 - a. This gene is called an “epistatic gene”
 - b. Example: Albinism (the albino gene will mask all pigmentation)
- IV. Incomplete Dominance (IN-BETWEEN)
 - A. Two alleles are both dominant, and the resulting phenotype is a MIX between the two
 1. Heterozygotes will be a blend of phenotypes
 2. Example
 - a. Flower Color
 - b. Betta Fish Color
- V. Codominance (COEXIST)
 - A. Two alleles are both dominant, and the resulting phenotype is PATCHES of each
 1. Heterozygotes will show each phenotype
 2. Example
 - a. Flower Color
 - b. Blood type