Lecture 13

Mutation - Source of Variation Intro to Drift - A Game of Chance

•See Article 13. Mutation

















Mutation

→New alleles arise by mutation

➡Mutation is change in the nucleotide sequence of DNA

Mutation

- → Mutation may involve alteration of
 - ⇒1 base pair
 - →Several bases
 - ⇒Part of the chromosome
 - ➡Whole chromosomes



Source of Exposure	Dose
Dental X-ray	0.005 mSv*
135g bag of Brazil nuts	0.005 mSv
Chest X-ray	0.02 mSv
Transatlantic flight	0.07 mSv
Nuclear power station worker average annual occupationa	l exposure 0.18 mSv
UK annual average radon dose	1.3 mSv
CT scan of the head	1.4 mSv
UK average annual radiation dose	2.7 mSv
USA average annual radiation dose	6.2 mSv
CT scan of the chest	6.6 mSv
Average annual radon dose to people in Cornwall	7.8 mSv
Whole body CT scan	10 mSv
Annual exposure limit for nuclear industry employees	20 mSv
Level at which changes in blood cells can be readily observ	ved 100 mSv
Acute radiation effects including nausea and a reduction in	white blood cell coun
	1000 mSv
Dose of radiation which would kill about half of those receiption	iving it in a month
	5000 mSv























Mutation and Migration History Accumulation of mutations in maternally inherited DNA (e.g., mitochondrial) or paternally inherited DNA (Y-chromosome) can help us understand past migration. https://www3.nationalgeographic.com/genographic/index.html The Genographic Project National Geographic Society

"Millions of Men May Be Descended From Irish King, Study Says"

















→Genetic drift - random genetic change in small populations