



Human Genome Facts

- The human genome contains 3 billion chemical nucleotide bases (A, C, T, and G).
- The average gene consists of 3000 bases, but sizes vary greatly, with the largest known human gene being dystrophin at 2.4 million bases.
- The functions are unknown for more than 50% of discovered genes.
- The human genome sequence is almost (99.9%) exactly the same in all people.
- About 2% of the genome encodes instructions for the synthesis of proteins.
- Repeat sequences that do not code for proteins make up at least 50% of the human genome.
- Repeat sequences are thought to have no direct functions, but they shed light on chromosome structure and dynamics. Over time, these repeats reshape the genome by rearranging it, thereby creating entirely new genes or modifying and reshuffling existing genes.
- The human genome has a much greater portion (50%) of repeat sequences than the mustard weed (11%), the worm (7%), and the fly (3%).
- Over 40% of the predicted human proteins share similarity with fruit-fly or worm proteins.
- Genes appear to be concentrated in random areas along the genome, with vast expanses of noncoding DNA between.
- Chromosome 1 (the largest human chromosome) has the most genes (2968), and the Y chromosome has the fewest (231).
- Genes have been pinpointed and particular sequences in those genes associated with numerous diseases and disorders including breast cancer, muscle disease, deafness, and blindness.
- Scientists have identified about 3 million locations where single-base DNA differences (SNP's) occur in humans. This information promises to revolutionize the processes of finding DNA sequences associated with such common diseases as cardiovascular disease, diabetes, arthritis, and cancers.

From 2can Bioinformatics Educational Resource

<http://www.ebi.ac.uk/2can/disease/genes12.html>

- If all the DNA in your body was put end to end, it would reach to the sun and back over 600 times (100 trillion times six feet divided by 92 million miles).
- It would take a person typing 60 words per minute, eight hours a day, around 50 years to type the human genome.
- If all three billion letters in the human genome were stacked one millimeter apart, they would reach a height 7,000 times the height of the Empire State Building.

From NOVA "Cracking the Code of Life"

<http://www.pbs.org/wgbh/nova/genome/facts.html>