NEGLECTED DISEASE
DRUG DISCOVERY
ACTIVITY BOOK

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Biological and Human Scales

Molecular and cellular biology scales compared to human scales (approx 5 orders of magnitude per column)

Human Scale Key: Aircraft Carrier (200m), 3-story House (20m), Human (2m), Liver/Gerbil (200mm), Lymph Node/Mosquito (20mm), Skin/Flee (2mm), Hair thickness (200um)

Biological Scale Key: Flee (2mm), Amoeba (200um), Eukaryotic Cell (20um), Mitochondria/Bacteria (2um), Centriol/Large Virus (200nm), Cell Membrane/Small Virus (20nm), dsDNA thickness (2nm)

by Eugene Douglass & Chad Miller - https://www.practicallyscience.com/intuiting-biological-scales-using-human-scales/#more-53
IMAGES OF A 96-WELL SCREENING PLATE

Colour all the wells that contain healthy cells with no parasite infection, IMAGE B in the KEY below.

KEY:

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Drugs Discovery Crossword

Across

2. The final outcome if a treatment for a disease is successful (5)
3. A unit of energy that is used to measure energy content of food. It is equal to 4.184 joules (7)
7. The basic units of matter and the essential structure of elements (4)
8. The movement of molecules from an area of high concentration to one of low concentration (9)
9. Product of a reaction between an acid and a base (4)
12. Description of a substance that is poisonous or harmful; the warning signs is often a skull and crossbones on a yellow triangle (5)
13. An organelle within a cell that produces proteins from amino acids (8)
14. The vessels through which blood flows towards the heart (5)
15. This describes a compound that is unreactive (5)

Down

1. The functional segments in the chromosomes that code for proteins (4)
2. Organisms that are genetically identical to their parent. Dolly the sheep is one (5)
3. The substance that is formed in a reaction between two or more chemical elements (8)
4. The name of the chemical link formed between atoms in molecules, they hold molecules and materials together (4)
5. A reaction in which oxygen is added to a molecule or electrons are lost by a molecule (9)
6. A tiny creature that lives in or on another living organism and survives by obtaining its food from that organism (8)
10. A molecule that is made up of long chain of amino acids (7)
11. A tiny disease-causing organism that replicates inside living cells and are very common causes of illness (5)
CHECK World Health Organisation’s website at:
https://www.who.int/leishmaniasis/leishmaniasis_maps/en/