The Inflammatory Response

Page One = The Cast of characters, color coded

Page Two

*(Note: the terms are in their colors from the coloring sheet. Don’t write them in that color, just write them in regular pen/pencil, and then highlight them in their given colors. Do this whenever a new term is introduced.)*

Here is the skin under normal conditions. The upper epidermis is covered by a protective keratinized layer called the stratum corneum. There are bacteria on the surface of this layer, but they are either harmless, or kept out of the body by the stratum corneum. Within the dermis are cells, like the macrophage, that are part of the immune system. They lurk about, ready to go into action when necessary.

Page Three

*(Note: there are no basophils in the cartoon that you colored. Draw one on the outside of the box, sending out its signal of histamines. Also, a lot happens in this step, so it may take two pages.)*

Security breach! A tack has punctured the skin and brought with it bacteria from the outside world. A blood vessel has been ruptured. The introduced bacteria can cause a terrible infection if nothing is done. Fortunately we have an army of leukocytes that are ready to respond to such events. First, the basophils signal the alarm in the form of chemicals called histamines. These are secreted from the granules in the basophil. Histamines cause capillaries to dilate and stretch, a process called vasodilation.

When vasodilation occurs, neutrophils emerge through the gaps between the endothelial cells making up the capillaries. They emerge in a process called diapedesis. Now they are ready to attack the invading bacteria. When the neutrophils deliberately move towards their targets, it is called chemotaxis.

When the neutrophils are close enough, they engulf the bacteria in a process called phagocytosis.

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The neutrophils have cleared out the bacteria, but now they begin to die. Larger leukocytes, called macrophages, come in and use phagocytosis to clean up the deceased neutrophils.

Page Five

Now that all the action is over, fiber-producing cells called fibroblasts come to the area and heal the damaged tissue.