

The Inflammatory Response

What happens when you get a cut and bacteria get "under your skin"? We have all seen what happens from the outside. Within an hour or two after getting the cut or puncture (usually even if no bacteria got in), the area around the wound will swell and get red. If an infection is initiated, within two or three days you might observe some pus in the wound. The infected area will usually feel soft and warm. A few days after the puss is gone the area begins to itch and, though it may still be swollen, it will no longer be soft to the touch. Over the next several days a scar forms. The bacteria are gone, your immune system has triumphed! But what has been going on down there under your skin, at the level of individual immune cells and bacteria? The following pages will take you through this inflammatory response, demonstrating the take-no-prisoners warfare that goes on following even a minor infection.

The experiments performed to generate these images were done several decades ago. Hamsters were injected with Staphylococcus aureus (the bacteria responsible for many skin infections such as pimples and boils) and tissue samples removed at various time intervals thereafter. The tissues were thin sectioned, mounted on microscope slides, and stained. For many years, these slides served as a centerpiece of Immunology instruction at the University of Kansas. Their owner, Dr. Lawrence Draper, was kind enough to allow me to borrow a set of these slides and shoot these photographs.

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