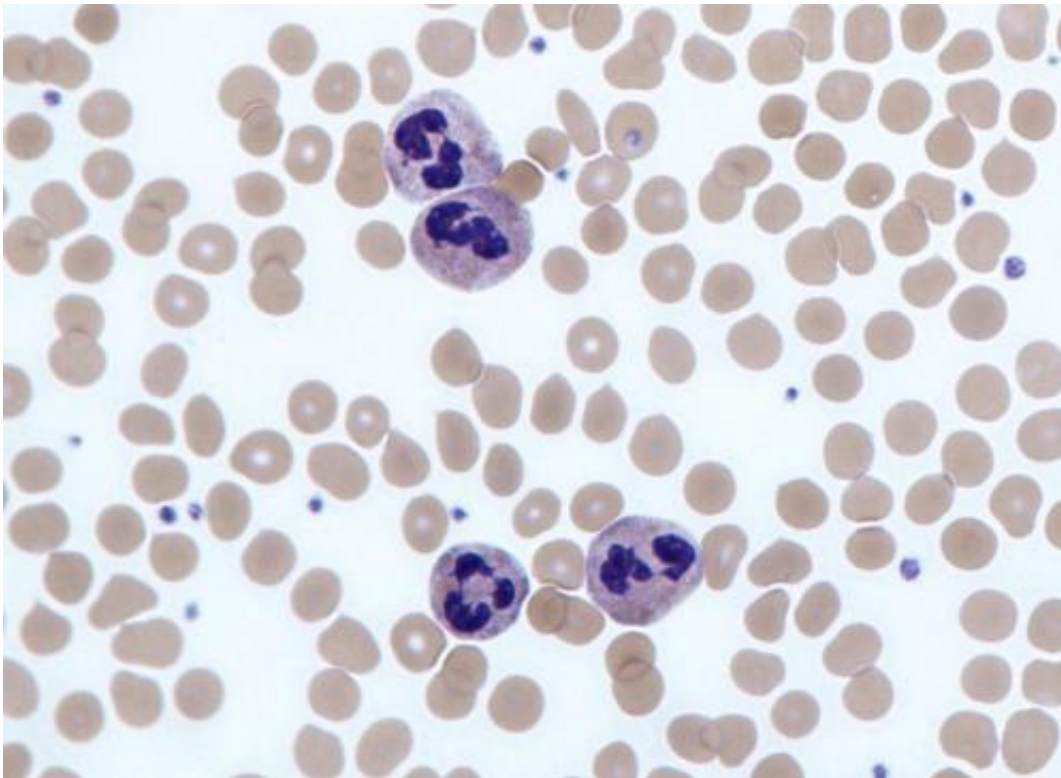


# Neutrophils found to receive directions from platelets

December 5 2014, by Bob Yirka

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Credit: Dr Graham Beards, Wikipedia.

(Medical Xpress)—A team filled with researchers from across the globe has found that white blood cells known as neutrophils (which are a vital part of causing inflammation to occur) receive messages from platelets offering directions, allowing the cell to crawl through blood vessels to reach the site of a problem, whereby it does its job. In their paper

published in the journal *Science*, the researchers describe how they used a newly developed technique that allowed for watching cell activity in a living animal, to better understand how neutrophil cells know when to move towards an impacted area and how to get there.

If you sprain your ankle, things happen inside and very soon, you find the whole area has undergone [inflammation](#)—nature's natural cast preventing further movement of the ankle until it has had time to heal. But how do the various bodily systems know where the injury is and how to instigate inflammation? That's what the team of researchers sought to learn.

Most specifically, the team wanted to know how a neutrophil cell knows when an injury has occurred and how to get from where they happen to be, to the injury site. Prior research has shown that they get there by crawling along the walls of [blood vessels](#), but the question has remained, how do they know which route to take? The team used intravital microscopy, a relatively new way to look at what goes on at the cellular level in a living creature. That allowed them to watch what happened after they injected a known inflammatory inducing chemical into a mouse's testicle muscle. They saw that a neutrophil cell extended a part of itself into a blood vessel, testing the waters, so to speak. As a platelet passed by, it touched the appendage and the two transferred information in the form of handshake made possible by a protein known as PSGL-1. That caused the neutrophil to change its shape and then to enter the [blood](#) vessel and to crawl to the infected site where it became involved with causing inflammation to come about. In another test, the researchers blocked the exchange from taking place and found the neutrophil was generally unable to either recognize that a trauma had occurred or to travel to it.

The findings by the team are interesting for two main reasons; first, because it finally answers the question of how neutrophils know when

and where to go when a trauma has occurred. And secondly, because it could lead to a way to prevent inflammation when it's harmful, such as with heart attacks or stroke—learning how to prevent the handshake that goes on between platelets and neutrophils could be the key.

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