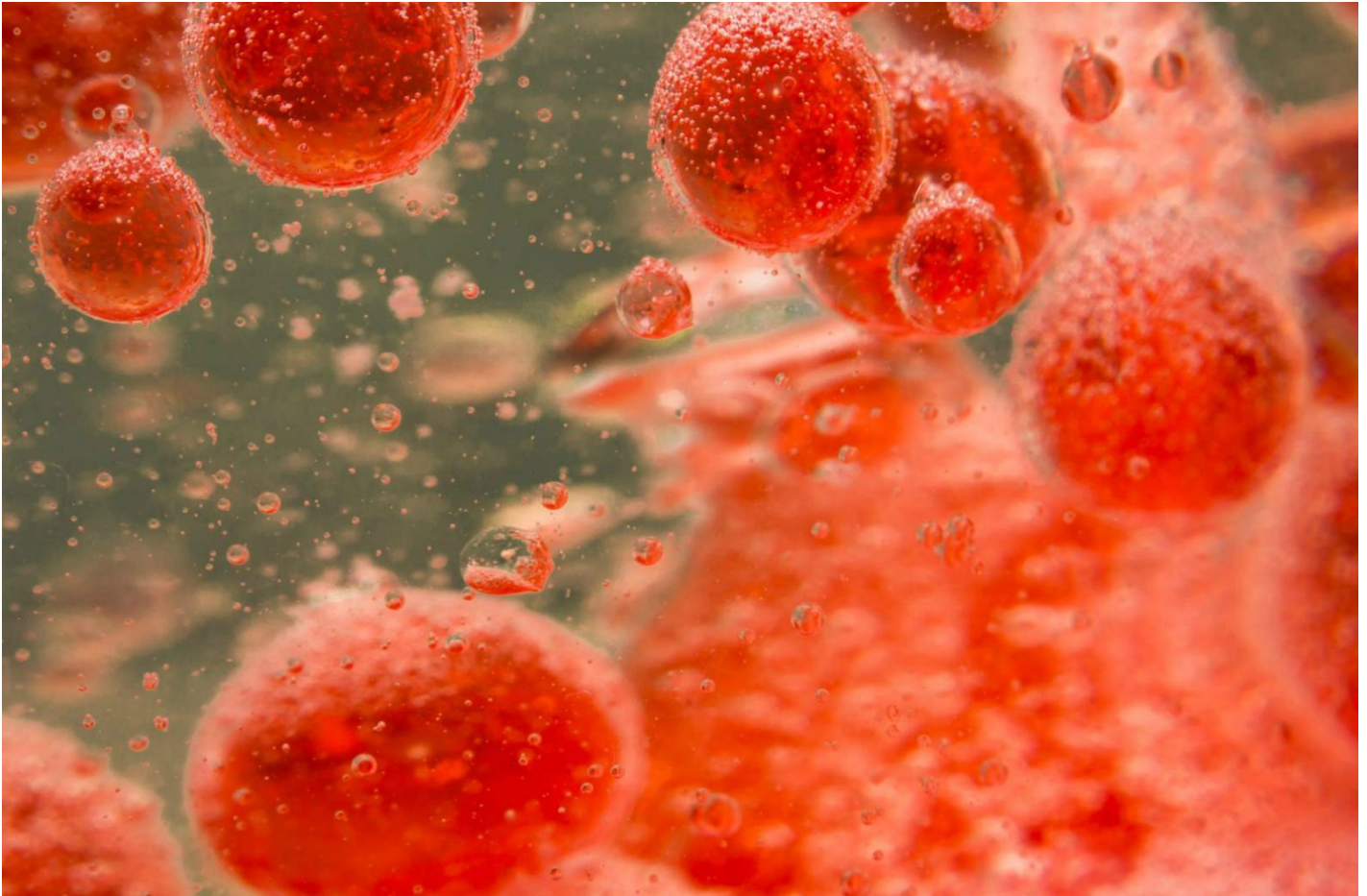


Researcher Improves Life-Saving Blood Clotting Agent

University of California, Santa Barbara (UC Santa Barbara)



Marines deployed in Iraq carry what looks like a container of sand but is actually a novel agent used to stop severe bleeding. The granular substance, a product called QUIKCLLOT brand hemostatic agent, is manufactured by Z-Medica Corp., which recently licensed intellectual property originating at University of California, Santa Barbara (UCSB) to improve their product.

Originally developed in cooperation with the U.S. military and approved by the FDA in 2002, QUIKCLLOT® is a novel blood-clotting agent that is helping emergency response personnel and soldiers save lives at home and abroad. Researchers in the laboratory of Galen Stucky, a professor with joint appointments in materials science and chemistry, studied the molecular properties of QUIKCLLOT® and used their insights to develop a new formulation.

“QUIKCLLOT® employs mineral material derived from volcanic rock, generically termed a zeolite, to solve the problem of excessive bleeding.

The zeolite acts like a sponge to absorb water from blood by funneling and trapping it in tiny pores. Unlike a sponge, however, QUIKCLLOT® is selective, leaving clotting proteins in blood behind. Because these proteins and platelets are

too large to enter the pores in the zeolite, they become more highly concentrated, speeding up the process of clot formation. The UCSB inventors discovered that zeolite surface chemistry also enhances clotting by activating platelets, binding phospholipids, and providing calcium ions, a cofactor for clotting enzymes.

The original formulation of QUIKCLOT® generates heat when it comes into contact with water, which can produce unwanted effects. The UCSB team found this exothermic reaction was due to hydrogen bond formation between positively charged atoms in the zeolite and water in the blood. By altering the mix of positively charged atoms in the formulation they were able to eliminate the problem. The new formulation discovered at UCSB includes silver ions, which have known antibiotic activity, further enhancing the product's usefulness in wound treatment. It is currently undergoing testing in animals and is expected to be approved and released in summer 2006.

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