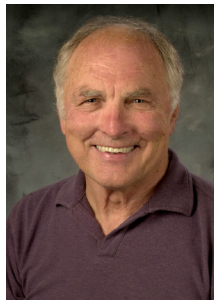




### Z-Medica and UC Santa Barbara – Engineering life saving technologies

Severe battlefield and trauma injuries present unique problems in stemming blood loss, which is the primary cause of combat deaths. In extreme cases first responders may have less than two minutes to save a life. Recognizing the need to improve survivability for US soldiers in Iraq and Afghanistan, the Navy and Marine Corps evaluated a number of products to reduce uncontrolled bleeding.

"In 2002, following the September 11 attacks, the military was looking at new technologies to stop bleeding," Ray Huey, Z-Medica's CEO says.



**Galen Stucky**  
Professor Chemistry & Biochemistry

Z-Medica's QuikClot® product was selected, and though effective in stopping blood loss it had the potential to cause second-degree burns around the wound. To solve this problem the Office of Naval Research (ONR) and Z-Medica sought out the help of Galen Stucky, Professor of Chemistry and Biochemistry, at UC Santa Barbara. Recognized as a leading inorganic materials chemist, Galen's publications place him as one of the top five most cited materials scientist in the world according to Thomson Scientific's in-cites publication

The goal of the applied research partnership with Galen's research team was to improve upon Z-Medica's technology and eliminate the side effects of severe burns. The immediate field need meant that this was not your typical research grant. "A monumental timescale compression of academic research to field application was required," Stucky

From their collaboration, Galen and Z-Medica realized that the burns could be prevented by optimizing the water content of the QuickClot® zeolite. This discovery allowed rapid improvements to be made in the formulation of the product, while protecting Z-Medica's market position. In the course of the research the

team made new discoveries as Stucky found that an alternative to zeolites, kaolin clay, not only eliminated the heat issues, but also made the product more effective.

Through its partnership Z-Medica has introduced new products for both the military and civilian markets. Its latest generation product is now a medical gauze infused with nanoparticles of kaolin clay and silver. These new formulations based on the research conducted at UC Santa Barbara have been found to be 100 percent effective in testing performed at the Naval Medical Research Center.

Dr. Michael B. Given, program officer for Casualty Care and Management with the Office of Naval Research, emphasized the impact of the improvements, "QuikClot® Combat Gauze™ has been selected by the Committee on Tactical Combat Casualty Care as the first-line product for hemorrhage control,"

In recognition for his contribution to saving lives, the Department of Defense's Advanced Technology Applications for Combat Casualty Care Award was presented to Galen August 11 during the opening ceremonies of the group's annual meeting in Florida.



**Advanced Technology Applications for Combat Casualty Care Award**

"Here's a very, very simple, cost-effective solution that works. I feel strongly about the impact it will and can have for the military and for civilians of every age," Stucky said. "It's a wonderful example of how the university can partner effectively and directly contribute to solving real-life problems."

*To learn more about how your company can work with UC Santa Barbara, contact Leslie Edwards (805-893-3944/edwards@engineering.ucsb.edu) or Andrew Elliott (805-893-5497/elliott@engineering.ucsb.edu) in the Corporate Affiliate Programs office.*

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