PURDUE INNOVATES | Office of Technology Commercialization

Localized Oxygen Delivery Platforms for Wound Healing

An inexpensive, localized, paper-bonded engineered material generates and diffuses concentrated oxygen directly to chronic wounds, integrating easily with existing wound dressings.

Studies have shown that enhanced oxygen levels aid in the process of wound healing. Unlike superficial injuries that receive sufficient oxygen from the blood, the damaged vascular structure in deep, chronic wounds often restrict adequate oxygen for tissue growth. Modern treatment of such wounds employs hyperbaric oxygen therapy, allowing the blood to carry up to three times more oxygen to the wound.

Purdue University researchers have developed a wound dressing that concentrates an abundant supply of oxygen to badly damaged tissue. This platform consists of an engineered material bonded to paper where hydrogen peroxide reacts with a catalyst to generate and diffuse oxygen directly to the wound. In product testing oxygen levels increased to 25.6 percent compared to atmospheric conditions or 21 percent.

Advantages:

-The treatment can be localized to small areas on demand

-Inexpensive compared to other treatment methods

-Integrates with existing wound dressings

Potential Applications:

-Medical/Healthcare

-Army field hospitals

-Intensive care units

-Developing countries

Technology ID
2014-ZIAI-66621

Category
Materials Science & Nanotechnology/Biomedical & Bioinspired Materials

Authors
Manuel Ochoa
Rahim Rahimi
Babak Ziaie

Further information
Dipak Narula
dnarula@prf.org

View online

TRL: 4

Intellectual Property:

Provisional-Patent, 2014-01-21, United States | Utility Patent, 2015-01-21, United States

Keywords: Oxygen wound dressing, enhanced oxygen levels, chronic wounds, tissue growth, hyperbaric oxygen therapy alternative, engineered material dressing, hydrogen peroxide catalyst, localized wound treatment, inexpensive wound care, oxygen diffusing platform, Dressings, Medical/Health, Wounds