

Naturally-occurring protein may be effective in limiting heart attack injury and restoring function

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Medical College of Wisconsin researchers in Milwaukee have shown for the first time that thrombopoietin (TPO), a naturally occurring protein being developed as a pharmaceutical to increase platelet count in cancer patients during chemotherapy, can also protect the heart against injury during a heart attack.

The study, led by John E. Baker PhD, professor of pediatric surgery in the division of cardiothoracic surgery, was published in the January 2008 issue of *Cardiovascular Research*. The importance of these findings was underscored in an accompanying editorial.

Currently there are no therapies available to directly protect the heart against the damaging effects of a heart attack. Dr. Baker's team has shown that administering a single dose of TPO to rats during a heart attack decreased the extent of permanent muscle damage to the heart and increased the ability of the heart to function afterwards, when compared with no drug treatment. Additionally, they found that a single cardioprotective treatment with TPO did not increase platelet count. This novel finding suggests the cardioprotective actions of TPO are separate from its ability to increase platelet count.

Dr. Baker has submitted a US and worldwide patent application on the tissue protective properties of TPO. Dr. Baker's discovery is licensed to Cardiopoiētis, a Wisconsin LLC, formed to develop drugs for the

treatment of heart attacks.

TPO is a hormone which is naturally produced by the liver and kidney. Dr. Baker's investigative team had previously shown that erythropoietin, a protein and pharmaceutical currently in clinical use to treat anemia in end-stage kidney disease, protects the rat heart against injury during a heart attack. They found that although erythropoietin and TPO have separate functional roles, there were similarities in the structures of the two proteins that suggested TPO may have protective properties similar to erythropoietin.

“We hypothesized that a single treatment with TPO during a heart attack would be sufficient to protect the heart from injury,” says Dr. Baker. “Our results suggest that TPO directly protects the heart and may represent a novel approach for the treatment of acute heart attack.”

Source: Medical College of Wisconsin

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