



## FOR IMMEDIATE RELEASE

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### **Scientists Discover Novel Way to Remove Iron from Ferritin**

*Research Results featured in the Journal of Biological Chemistry*

November 2, 2007 - Oakland, CA – A new study led by Children's Hospital Oakland Research Institute senior scientist, Elizabeth Theil, Ph.D., is the first to suggest that a small protein or heptapeptide (seven amino acids wrapped into one unit) could be used to accelerate the removal of iron from ferritin. The results of this study may help scientists develop new medications that dramatically improve the removal of excess iron in patients diagnosed with blood diseases such as  $\beta$ -Thalassemia (Cooley's anemia) or Sickle Cell Disease.

The study appears in this month's issue of the *Journal of Biological Chemistry* and was conducted by Dr. Theil and her co-authors Xiaofeng S. Liu, postdoctoral fellow at Children's Hospital Oakland Research Institute, Marvin J. Miller, Ph.D. and Leslie D. Patterson, a predoctoral student, both from the University of Notre Dame. The scientists knew that the ferritin protein cage had pores that could open and close. It was also known that chelators (a method to detoxify blood) removed iron faster when the pores were open.

“We wanted to prove a hypothesis that a small protein or peptide could bind to ferritin and could be used to regulate ferritin pores,” said Dr. Theil. “Our hypothesis was correct. We proved that when a binding heptapeptide, is coupled with Desferal® the rate of removal of iron from ferritin is eight times faster.” Desferal® is currently used to detoxify the blood of patients with iron overload and is a common therapeutic remedy.

Ferritin is a protein that concentrates iron in its inner core or “cage.” It plays a critical role in understanding iron overload, which can lead to a variety of symptoms such as chronic fatigue, weakness, joint pain and arthritis. If left untreated, iron overload can lead to serious problems, including diabetes, liver and heart disease.

The study's results are based on laboratory tests. The National Institutes of Health (NIH), the Cooley's Anemia Foundation and Children's Hospital & Research Center Oakland provided funding for this research.

For more information on Dr. Theil's research, please visit [http://www.chori.org/Principal\\_Investigators/Theil\\_Elizabeth\\_C/theil\\_overview.html](http://www.chori.org/Principal_Investigators/Theil_Elizabeth_C/theil_overview.html).

**Research at Children's Hospital & Research Center Oakland, CA**

Research efforts at Children's Hospital & Research Center Oakland are coordinated through Children's Hospital Oakland Research Institute (CHORI). Children's Hospital Oakland is Northern California's only freestanding and independent children's hospital. CHORI's internationally renowned biomedical research facility brings together seven centers of excellence that are devoted to clinical and basic science research to treat and prevent disease. CHORI has approximately 300 staff members and an annual budget of more than \$49 million. The National Institutes of Health is CHORI's primary funding source. The institute is a leader in translational research, bringing bench discoveries to bedside applications. These include providing cures for blood diseases, developing new vaccines for infectious diseases and discovering new treatment protocols for previously fatal or debilitating conditions such as cancers, sickle cell disease and thalassemia, diabetes, asthma, HIV/AIDS, pediatric obesity, nutritional deficiencies, birth defects, hemophilia and cystic fibrosis.

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