A new molecule could help researchers find a bevy of new therapy options to help treat patients with anemia and other iron disorders. Researchers from several institutions including the University of Illinois, Dana-Farber/Boston Children’s Cancer and Blood Disorders Center, Brigham and Women’s Hospital and Northeastern University, have pinpointed hinokitiol—a small molecule found in Japanese cypress tree leaves could lead to treatments for a range of iron disorders including iron-deficiency anemia and iron-overload liver disease. “Without iron, life itself wouldn’t be feasible,” Dr. Barry Paw, Ph.D., said in a statement. “Iron transport is very important because of the role it plays in oxygen transport in blood, key metabolic processes and DNA replication.” The researchers successfully reversed iron deficiency and iron overload in zebrafish disease models using the molecule. “Like most things in life, too much or too little of a good thing is bad for you; the body seeks homeostasis and balance,” Paw said. “Amazingly, we observed in zebrafish that hinokitiol can bind and transport iron inside or out of cell membranes to where it is needed most.” The researchers discovered that the molecules can bind to iron atoms and move them across cell membranes and into and out of mitochondria, despite an absence of the native proteins that normally perform these functions. “If there is a genetic error, cell membranes won’t open for iron to come across,” Paw said. “But when you administer hinokitiol, it combines with iron and ferries it into, within or out of the cells and mitochondria… more detail