

Immunoassay For Human Erythroferrone

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Technology description

Summary

UCLA researchers from the Department of Medicine have developed a novel immunoassay for human erythroferrone.

Background

Erythroferrone (ERFE) is a hormone that is secreted by developing red blood cells to increase iron absorption and availability, as iron is an essential component of hemoglobin. ERFE is secreted in response to the hormone erythropoietin. ERFE levels have been previously demonstrated in mouse studies to increase after hemorrhage or erythropoietin therapy analogous to athlete doping. In human studies, ERFE is increased after blood donation and erythropoietin therapy, in other conditions where erythropoiesis is stimulated such as polycythemia, and is dramatically increased in ineffective erythropoiesis, such as in β -thalassemia. However, until now there has not been a validated assay for human ERFE.

Innovation

UCLA researchers have developed a quantitative immunoassay for human erythroferrone (ERFE) that has been validated in human patients. The working range that the immunoassay can detect is 14-100 ng/ml, which enables clinical measurements of physiological and pathological ERFE levels from standard blood sample.

Application area

- ☒ Diagnosis of anemia, specifically the detection of ineffective erythropoiesis
- ☒ Assessing early therapeutic response to erythropoietin agonists
- ☒ Detection of doping with erythropoietin even with synthetic erythropoietin agonists
- ☒ Diagnosis of iron overload syndromes
- ☒ Differential diagnosis of polycythemia

Advantages

- ☒ First validated immunoassay for human erythroferrone (ERFE)
- ☒ Targets the converging downstream effect of the erythropoietin pathway
- ☒ Good working range for clinical and experimental measurements

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