Biomarker for Kawasaki Disease

Summary

Kawasaki Disease (KD) is an acute rare pediatric condition that causes inflammation of the blood vessel in children. It is one of the leading causes of acquired heart disease in the pediatric age group of which there is no definitive diagnostic test available. Through robust whole blood modular analysis, Dr. Virginia Pascual's team identified the specific overexpression of PDGFC (Platelet-Derived Growth Factor C) in KD patient serums, not overexpressed in other febrile conditions. Our serum based KD Biomarker is proven to be specific and robust.

Key Investigators
Virginia Pascual, MD

Field
Inflammatory Disease

Technology
Diagnostic biomarker and therapeutic target

Key Features
Non-invasive specific serum based assay

Stage of Development
Preclinical

Status
Available for licensing

Patent Status
Patent pending
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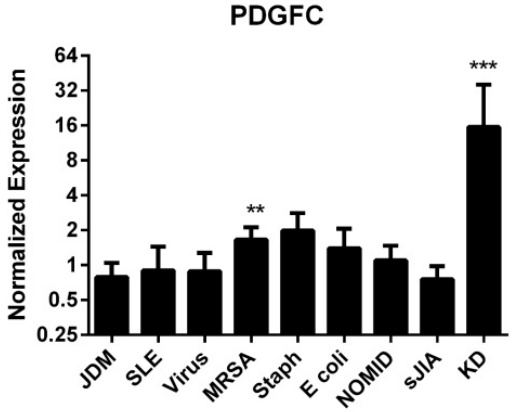
Market

Each year, there are more than 6 million pediatric admissions for fever in the US, with an aggregate cost of $30 billion. Kawasaki disease (KD) clinically mimics other common childhood febrile conditions and diagnosis is often subjective and equivocal. Although the incidence of KD is rare (annual incidence of 112/100,000 in children less than 5 years of age) and it is most common among children of Asian descent, it is the most common cause of acquired heart disease of children in the developed world. The etiology and pathogenic mechanisms are unknown. No tests are currently available to diagnose KD. Instead, the diagnosis requires the fulfillment of a set of clinical criteria. High dose intravenous gamma globulin (IVIG) is the standard treatment, but >10d delay in initiation of this non-specific form of therapy might lead to permanent damage to the coronary arteries in the majority of patients. Because symptoms are non-specific and shared by many pediatric febrile illnesses, there is an important need to develop robust biomarkers for early diagnosis of KD.

Technology

Our study discovered PDGFC (Platelet-Derived Growth Factor C) as a specific biomarker for KD. Thus, PDGFC transcript levels are distinctively high in KD while they are not increased in other febrile conditions, including autoimmune and autoinflammatory diseases as well as viral and bacterial diseases. Only in systemic forms of S. aureus infection PDGFC levels were mildly elevated (2 fold, compared to 16 fold in KD). The discovery of the specificity of PDGFC makes it an ideal marker to be used in a non invasive blood based diagnostic assay specific for Kawasaki Disease:



**: p<0.01, ***: p<0.001

- Rule-out test targeted to all children with prolonged fever
- Rule-in test to confirm suspected Kawasaki disease before initiation of treatment