

STRONG CHILDREN'S RESEARCH CENTER

Summer 2014 Research Scholar

Name: Kathryn Leyens

School: Upstate Medical University

Mentor: James Palis, MD

ABSTRACT

Title: Differences Between Fetal and Adult Platelets

Background:

Platelets are anucleate cells that are an important component of many physiological mechanisms including thrombosis, hemostasis, and inflammation. In the adult, platelets are made from megakaryocytes originating in the bone marrow from hematopoietic stem cells. Interestingly, the production of the first platelets in the fetus is found preceding the appearance of these stem cells. Fetal platelets are produced from megakaryocytes differentiated from transient yolk sac progenitors. Previous research has demonstrated that compared to adult platelets, fetal platelets are larger, contain smaller alpha granules, a larger open canalicular system, and express higher levels of the integrin gpIIb. Recently, it has been found that upon activation, fetal platelets display a morphological change of the integrins gpIIb/IIIa (CD41/CD61, respectively), a result that parallels that of the adult. However, unlike adults, P-selectin is not brought to the surface during this activation cascade.