Who we are

Majority owned by the NHS, but with the commercial freedom to invest in innovation, Viapath are on a mission to transform pathology services in the UK. We provide pathology services to the NHS, private hospitals and other organisations both across the country and internationally.

What we do

All our laboratories are either accredited or working towards accreditation by UKAS to ISO15189. To view our laboratory accreditation status please follow this link:
http://www.viapath.co.uk/about-viapath/quality-and-governance/accreditations

TEST OVERVIEW

Description
Approximately 30% of ATP in platelets, and most of the ADP, is contained within the dense granules. The ratio of total ATP to ADP is <2.6 in normal platelets but in dense body defects the ratio is elevated because of the reduced or absent ADP. The nucleotides are measured in a luminometric technique as described below. Supernatant from the platelet lysate that contains platelet ATP is incubated with the enzyme luciferase and its substrate luciferin, which generates adeny luciferin and light. The amount of light generated is directly proportional to the ATP concentration. The ADP from the dense bodies is unstable and cannot be measured directly so it is converted to ATP in a separate reaction using the enzyme pyruvate kinase (PK). The action of PK on its substrate phosphoenolpyruvate converts ADP to ATP and generates the product pyruvate. The ATP in this tube is then measured using the same reaction as before and the ATP level should be higher than that in the first. The ADP concentration is calculated by subtracting the first ATP result from the second whereby the ATP:ADP ratio can then be obtained.

Clinical details
Platelets are anucleate fragments of the cytoplasm of their parent cell, the megakaryocyte. They circulate predominantly at the margins of blood vessels in a dormant, resting state, but are capable of a rapid and dramatic response to various stimuli arising from vessel trauma. They have a complex structure that facilitates their specialised functions, of which the main ones are listed below: ● Interaction with collagen-captured VWF to form the initial barrier to blood loss ● Propagate the clot via platelet aggregation ● Provide the platform for secondary haemostasis ● Localisation mechanisms ● Maintain endothelial junction integrity Exposure of sub-endothelial collagen after vessel trauma promotes binding of VWF which tethers platelets via their GpIb receptor. Blood flow rolls the platelet over where it forms stable associations via separate collagen binding receptors which also serves to activate the platelet. Activated platelets change their shape to promote effective physical interaction and release of the contents of cytoplasmic granules which activate more platelets and promote platelet-to-platelet aggregation via fibrinogen bridging of receptors on adjacent platelets. Biochemical pathways are also activated to promote aggregation, and the phospholipid membrane re-organises to promote localisation of secondary haemostasis to stabilise the platelet plug. Reduced platelet numbers, receptor deficiency/dysfunction, granule deficiency or granule content deficiency, biochemical abnormalities

Related condition or disease
Bleeding disorder

Units
ATP & ADP: nmoles/108 platelets

Department
Haemostasis and Thrombosis Department

Laboratory
Diagnostic Haemostasis and Thrombosis Laboratory at St Thomas’

Location
Viapath at St Thomas' Hospital

www.viapath.co.uk
020 7188 7188 (54109)
BusinessDevelopment@viapath.co.uk
and drug interactions can lead to bleeding disorders. Adenine nucleotides are found in platelet cytoplasm and dense granules and their measurement contributes to diagnosis of storage pool disorders affecting platelet function.

ORDERING INFORMATION

Sample type and Volume required
Contact laboratory

Turnaround time
Contact laboratory

Contacts
Diagnostic Haemostasis and Thrombosis Department
020 7188 2797
St Thomas’ Hospital
North Wing - 4th and 5th Floors
Westminster Bridge Road
London SE1 7EH

Laboratory opening times
24/7

How can we help?

We have a number of partnering options to suit your needs, whether you require this specific test or a range of services, we are here to help. Contact one of our friendly Business Development Managers for more information, or visit our website.