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STOP PRESS

Do not forget our rapid tests for RSV and Influenza A/B are in stock ready for your seasonal needs

Multi-analyte Coagulation Controls (& Calibrator)

If you are looking for a multi-analyte coagulation control your search is over. The manufacturer, **REAADS**, have normal and abnormal control plasmas which offer an extremely broad range of measured parameters (see table 3).

REAADS Coagulation Control 1 (#701-001) and REAADS Coagulation Control 2 (#702-001) are prepared from frozen pools of citrated plasma and are buffered and lyophilised to ensure stability of all plasma products. They are available in packs of 10x1ml.

Each vial needs to be reconstituted with 1ml of distilled or deionised water 20 minutes before use. Reconstituted stability varies depending on the analyte concerned.

Protein C
Total Protein S
Free Protein S
von Willebrand Factor
Collagen binding assay
Fibrinogen
Factors II, V, VII, VIII, IX, X, XI, XII
Plasminogen
ATIII
Ristocetin Cofactor.

Table 3: REAADS multi-analyte control parameters

Hyphen Biomed also has a normal and abnormal multi-analyte control, as well as a calibrator. Each contains a more modest range of parameters than the REAADS products, namely: Protein C; AT; FVIII; FVII+X; FII, V, VII, IX, X and Plasminogen.

The Biophen Plasma Calibrator (#222101); Biophen Normal Control (#223201) and Biophen Abnormal Control (#223301) are available in packs of 12x1 ml.

The materials are prepared from pooled citrated human plasma and are freeze dried and stabilised. Concentrations are established against the NIBSC International Standard.

For details of these and other calibration and control materials please see our 2010 price list and/or contact us.

Meetings & Exhibitions

Quadrtech will be attending and/or sponsoring the following exhibitions and meetings this year. Please feel free to come and talk to us at any of these events.

February 2010

2nd-3rd : CVN, Cardiff (*sponsoring*)

May 2010

20th-21st : SDVG, Inverness

June 2010

30th : Physiology 2010, Manchester (*sponsoring*)

September 2010

8th-9th : NEQAS, Sheffield

23rd: Microparticles Meeting, Oxford (*sponsoring*)

24th-26th: Microbe, Sheffield

Special points of interest:

- *NHS – the five year plan*
- *Malaria - a testing time*
- *The importance of being able to measure DTI's*
- *hCG - an overview*
- *Multi-analyte calibrator & control materials*

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Q News & Views

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Quadrtech Diagnostics Ltd

Welcome to 2010

Happy New Year to one and all, as we bid farewell to the 'noughties' and say hello to the next decade. This year is being touted as the year of change for the UK - and at Quadrtech we have embraced change early on. We are starting 2010 with a new look website and a redesigned price list. Both of which should help you to locate our products with greater ease.

Quadrtech Website

(www.quadrtech.co.uk): has a new corporate look and feel about it. In addition, the new format will better facilitate the use of search engines to find products. We have also uploaded a number of new papers and articles which may be of interest to you, and plan to continue sharing information in this way throughout the coming year. **Cusabio** is a new supplier

for 2010, they have over 4000 ELISA assays for research use. A full Cusabio product listing is included on the web, it is an excel file which makes it easier to search for products using the standard 'Edit' 'Find' function. We invite you to visit our website to explore the changes for yourselves.



New Look Price Lists: all our price lists have had a facelift ready for the new decade. The Quadrtech Rapid Test price list contains

the usual product offerings: tests for pregnancy, infectious disease, parasitology etc. However, we have added a contents page and extra information about the products for your convenience.

This year our three separate Haemostasis price lists have been combined into one composite list for ease of product location and cross manufacturer comparison. We have included a contents page, a key products 'at a glance' section and an index. In addition products are now grouped by category for added convenience.

New products in the price lists include: rapid malaria; smaller HIT kits; latex turbidimetric assays to name a few.

We hope you find all these changes helpful.

Bah Humbug!

This time last year we told you that being happy is good for the nations health. But now it has been found that being grumpy is not such a bad thing. An Australian psychology expert



Thoughtful mood?

has found that being miserable can help you think more clearly. Studies have shown that people in a bad mood out perform those who are happy. They were seen to be less gullible, better decision makers and more attentive than their more cheerful counterparts. The brain seems to process information in a more careful, strategic

manner meaning grumpy people cope better in more demanding situations.

But before you go completely 'bah humbug' Prof. Forgas also showed that happy people are more creative, flexible and co-operative.

So it seems you need to pick your mood based on the task at hand!

The Quality and Productivity Challenge (formally QIPP)

Following on from Lord Darzi's 'High Quality Care for All' where the aim was to put quality at the heart of the NHS came the Quality, Innovation, Productivity and Prevention (QIPP) program. Despite the current financial difficulties it has been made clear that the vision for the NHS has not changed and QIPP is the mechanism through which the goal of better care and better value can be achieved. The aim is to use innovation to drive sustained improvements in the quality of patient care and productivity of services. To reduce waste and errors and to pri-

"QIPP IS THE NEW LANDSCAPE IN WHICH WE OPERATE"

QIPP is now known within the DH and NHS as 'The Quality and Productivity Challenge' (Q&PC). In December 2009 a public report to explain

oritise effective treatments. However, it is recognised that this can only be achieved by getting everyone in the NHS to 'buy in' and get involved in driving the changes forward - no mean feat.

Q&PC was launched "NHS 2010-2015: from good to great. Preventative, people-centred, productive" The five year plan maps out proposed changes and outlines what the public and NHS staff can expect. It focuses on promoting good health, prevention and a more people centred service - whether at home, in a community setting or hospital. Despite a promise of more funding in 2010 these changes need to be made against a backdrop of £20 billion saving in the NHS over the next three years. You may well ask how this will all be achieved!

Malaria - an ancient disease in a modern world

Malaria is a serious mosquito borne disease which, despite efforts to eradicate it, is widespread in tropical and subtropical regions e.g. Africa, Asia, The Middle East, South and Central America. Each year there are about 425 million cases of malaria worldwide, of these over one million people die – the majority being young children in Africa.

Malaria is an ancient disease whose symptoms were first described in Chinese medical documents back in 2700 BC. Over the centuries greater understanding of the disease, its transmission, discovery of antimalarial drugs and development of insecticides have helped in the prevention and treatment of this disease.

The malaria parasite, *Plasmodium*, is transmitted by the bite of a female Anopheles mosquito. When the female mosquito bites an infected person the malaria parasite is taken up in the blood meal and starts a cycle of growth and multiplication in

the mosquito. 10-18 days later the parasites are seen in the salivary glands of the mosquito, so when she feeds from another human the parasites are injected with the mosquito's saliva. So beginning another infectious cycle within the human host.

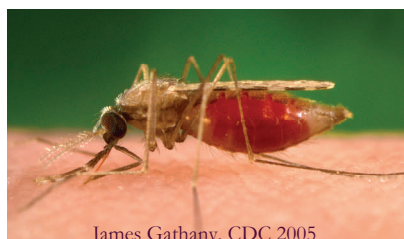
There are four species of malaria parasites that affect humans: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae*. The first two cause the most infections worldwide. *P. falciparum* causes the most serious and potentially fatal form of the disease whilst *P. vivax*, *P. ovale* and *P. malariae* cause milder, generally non fatal forms.

It is important to diagnose and treat malaria promptly, however the first symptoms and physical findings e.g. fever, chills, sweats, headaches, muscle pains, nausea and vomiting are not specific to malaria making diagnosis difficult. The clinical findings in severe malaria e.g. confusion, coma, neurological focal signs, severe anaemia, respiratory difficulties are more striking and increase the likelihood of a correct diagnosis.

Malaria is not endemic in the UK, but despite this, and the availability of prophylactic drugs, there are 1600 cases reported each year in UK travellers returning from countries where malaria is endemic. The difficulty of diagnosing malaria is compounded in

non endemic countries due to the reduced incidence hence familiarity of the disease. The gold standard confirmatory test for malaria is still microscopy, using thin and thick films, but it does rely on the experience of the BMS. Alternative tests include antigen detection kits, these are often rapid immunochromatographic tests using a dipstick or cassette format which provide a result in less than 15 minutes. These tests offer a useful alternative where reliable microscopy is not available or an extra confirmatory test is required. PCR tests are also available but are more expensive and time consuming than other methods of detection. Serological tests e.g. ELISA can be used to detect the antibodies against malaria parasites but do not detect current infection.

Quadrantech offers two rapid tests for malaria antigen detection: one is a 10 minute test for the detection of *Plasmodium falciparum*, the other a 15 minute test for the dual detection of Pf HRP-2 of *P. falciparum* and pLDH common to *P. falciparum*, *P. malariae*, *P. vivax*, *P. ovale*. Both tests have been evaluated by the World Health Organisation (WHO) for performance, stability, batch variability, operator variability, ease of use. Please contact us for further information and for a copy of the WHO reports.



James Gathany, CDC 2005

Female Anopheles mosquito

Direct Thrombin Inhibitors revisited

More than a year has passed since the oral direct thrombin inhibitor (DTI), dabigatran, was licensed for use in the UK. Expectations for this drug appear high so we thought it timely to take a look at DTI's generally.

DTI's are a range of anti-thrombotic drugs. As they are much less immunologic than heparin they are used when heparin is required but is unsuitable e.g. risk of HIT, unstable angina etc. Traditionally DTI's are given intravenously which limits their long term use, but with the introduction of a 'safe' oral drug the spectrum of their use is being reviewed.

DTI's are either bivalent or univalent (see table 1). As a rule bivalent DTI's form irreversible complexes with thrombin whilst univalent DTI's will bind and dissociate from thrombin leaving small amounts of free active thrombin available for haemostatic interactions. This means the action of some DTI's are more reversible than others, where it is reversible the

Drug	Admin.	Clearance	Reversible
Hirudin (bivalent)	Intravenous (IV)	Kidney	No (haemofiltration)
Lepirudin (bivalent)	IV; subcutaneous	Kidney	No
Bivalirudin (bivalent)	IV	Kidney/Liver & other	Yes
Argatroban (univalent)	IV	Liver	Yes
Dabigatran (univalent)	Oral	Kidney	Haemodialysis; activated prothrombin concs

Table 1: DTI properties

desired effects may not be seen quickly enough. Therefore, dosage is extremely important especially in renal or hepatic impairment. The ability to provide therapeutic monitoring can be crucial, especially where DTI's bind irreversibly.

Until recently DTI monitoring was only possible via the ecarin based assays. Both the clotting time and chromogenic methods use ecarin derived from the venom of the saw scaled viper - making them very costly. They also cannot measure therapeutic DTI concentrations >1ug/ml and are difficult to automate on routine systems.

Two unique, new generation kits are now available from Hyphen Biomed which do not use snake venom and are easily automatable. Both kits are based on the addition of an excess of highly purified thrombin and use a calibration curve for accurate and reproducible results, even at concentrations >1ug/ml. The chromogenic assay measures drug level for assurance of dosage whilst the clotting assay measures total hypocoagulability for a true reflection of the clinical anticoagulation status of the patient.

For more details about these new generation assays please contact Quadrantech(details on page 4)

hCG in pregnancy - what are you really measuring?

Human chorionic gonadotrophin (hCG) is a glycoprotein hormone produced by normal trophoblast cells of the placenta during pregnancy. As it is detectable in serum, plasma and urine samples the measurement of hCG has become the mainstay of detecting and monitoring pregnancy. hCG is not exclusive to pregnancy, it is also produced by trophoblast cells in hydatiform mole and choriocarcinoma i.e. gestational trophoblast diseases (GTD) and in patients with germ cell tumours and occasionally in other malignant conditions.

hCG is a heterodimer consisting of two subunits, HCG α and HCG β . It is detected in biological fluids as an intact molecule and as different isoforms (see table 2). In pregnancy the most significant molecules are HCG, HCG β and HCG β cf. HCG and HCG β are the predominant forms in early pregnancy but fluctuate significantly. By the fifth week after conception HCG β cf emerges as the

Molecule	Symbol	When detected
hCG intact	HCG	Early pregnancy; GTD; testicular germ cell tumours
hCG, nicked	HCGn	Late pregnancy; GTD; germ cell & other cancers
hCG, α -subunit	HCG α	Common to all glycoprotein hormones e.g. HCG, LH, FSH, TSH
hCG, β -subunit	HCG β	Early pregnancy; GTD; non-trophoblastic tumours
hCG, nicked β -subunit	HCG β n	Late pregnancy; GTD; germ cell & other cancers
hCG, β -core fragment	HCG β cf	Later (5 th week on) pregnancy; germ cell & other cancers
hCG, hyperglycosylated	HCGh	Very early pregnancy; GTD; testicular germ cell tumours

Table 2: hCG isoforms

major form. It is therefore desirable to use a pregnancy test which can detect all three forms of hCG, the ability to do so depends on the methodology used. Long term studies have shown that not all hCG tests recognise the different isoforms - so question their clinical utility.

Even with a suitable pregnancy assay a positive result may not always be representative of pregnancy. As the major isoforms associated with pregnancy are also seen in other conditions all results must be considered in line with clinical findings and further investigations carried out as required.

So an hCG result which tests lower in a repeat sample a week later may indicate recent fertility treatment with hCG injections or miscarriage. An hCG result with no clinical signs of pregnancy may indicate the presence of a GTD or other cancer. Equally a negative pregnancy test with one method may be positive when repeated with an alternative method (or vice versa) due to variable sensitivity and specificity of the methods. Pregnancy testing is an essential tool, understanding the potential for 'false' results and what they mean is important to ensure the best possible service is offered and provided.