

Calprotectin

First UK evaluation of a unique quantitative rapid test system: the Quantum Blue

A major barrier to the adoption of routine Calprotectin testing in hospitals is the turnaround time for low volumes of requests. The new Quantum Blue system overcomes this barrier with its rapid test format.



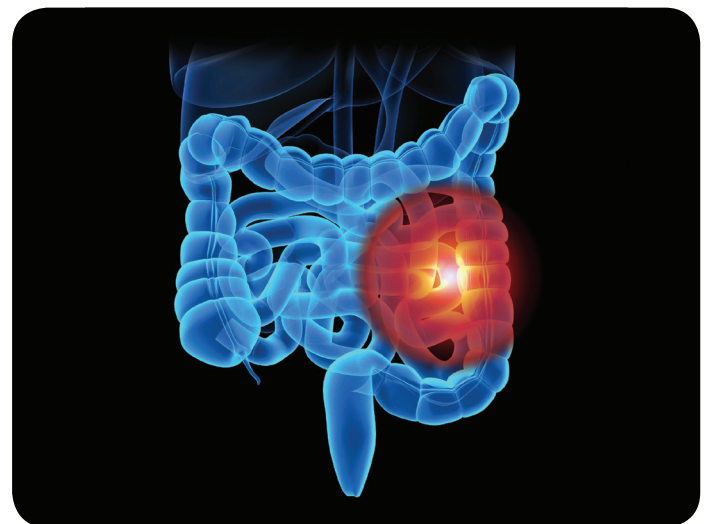
For efficient use of the Calprotectin ELISA, forty patient samples must be run in duplicate and this can slow turnaround time to 2-3 weeks with the current average test number. The Quantum Blue system addresses this by returning **a quantitative result within 30 minutes for a single test sample** or several samples can be batched and run together.

The primary application for Quantum Blue is to discriminate between inflammatory bowel diseases (IBD), where Calprotectin is elevated, and functional diseases such as Irritable Bowel Syndrome (IBS), where Calprotectin levels are low.

Mr Adrian Cudmore, Laboratory Manager at the Department of Clinical Chemistry, Royal Devon & Exeter NHS Foundation Trust was the first to adopt the system for routine use in the UK. Adrian commented,

“The requirement for an in-house, quantitative Calprotectin test with a rapid turnaround time, combined with a steadily increasing workload, led the laboratory to trial the Quantum Blue kit in parallel with our external provider's assay. The Quantum Blue test is simple to perform and its cassette-based technology allows for low numbers of tests to be performed frequently without diminution of cost effectiveness. Moreover, the test correlated well with the established ELISA assay and provided the clinical discrimination required by the gastroenterologists, but at a lower cost.”

Critically, the system has a good correlation with the ELISA test, giving an r^2 value of 0.93. This means that when the number of test requests increases, you can confidently make the transition to a high throughput quantitative assay.



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The pilot study in the Clinical Chemistry laboratory at the Royal Devon Exeter NHS Foundation Trust compared faecal extracts from 21 patients with suspected Inflammatory Bowel Disease (IBD) using the Quantum Blue against a Calprotectin ELISA referral service at another hospital. The diagnostic cut-off used was 50 µg/g. The data are presented below.

Sample No.	Quantum Blue result (µg/g)	ELISA result (µg/g)	Diagnosis (IBD/IBS)	Correlation (Y/N?)
1	<30	29	IBS	Y
2	>300	1900	IBD	Y
3	<30	13	IBS	Y
4	<30	11	IBS	Y
5	<30	12	IBS	Y
6	<30	12	IBS	Y
7	<30	11	IBS	Y
8	178	189	IBD	Y
9	<30	8	IBS	Y
10	<30	19	IBS	Y
11	<30	12	IBS	Y
12	86	123	IBD	Y
13	>300	516	IBD	Y
14	<30	12	IBS	Y
15	>300	773	IBD	Y
16	>300	1893	IBD	Y
17	<30	16	IBS	Y
18	<30	12	IBS	Y
19	37	24	IBS	Y
20	<30	26	IBS	Y
21	>300	778	IBD	Y

Qualitatively, the Quantum Blue gave a 100% diagnostic correlation with the ELISA result. Quantitatively, the in-range samples on the Quantum Blue (30-300 µg/g) matched closely with the ELISA. The Royal Devon and Exeter NHS Foundation Trust plan further studies to compare the Quantum Blue with the Buhlmann Calprotectin ELISA. The Quantum Blue is now in routine use at the hospital.

Cat. No.	Description
BI-POCTR-ABS	Quantum Blue® Reader
LF-CAL20-RD	Quantum Blue® Calprotectin

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Arena and Convention Centre, Liverpool, 22nd - 25th March 2010



Alpha Laboratories Limited
40 Parham Drive
Eastleigh, Hampshire
SO50 4NU United Kingdom

Telephone: +44 (0)23 8048 3000
Facsimile: +44 (0)23 8064 3701
Email: alpha@alphalabs.co.uk
Web: www.alphalabs.co.uk