Clinical Biochemistry News

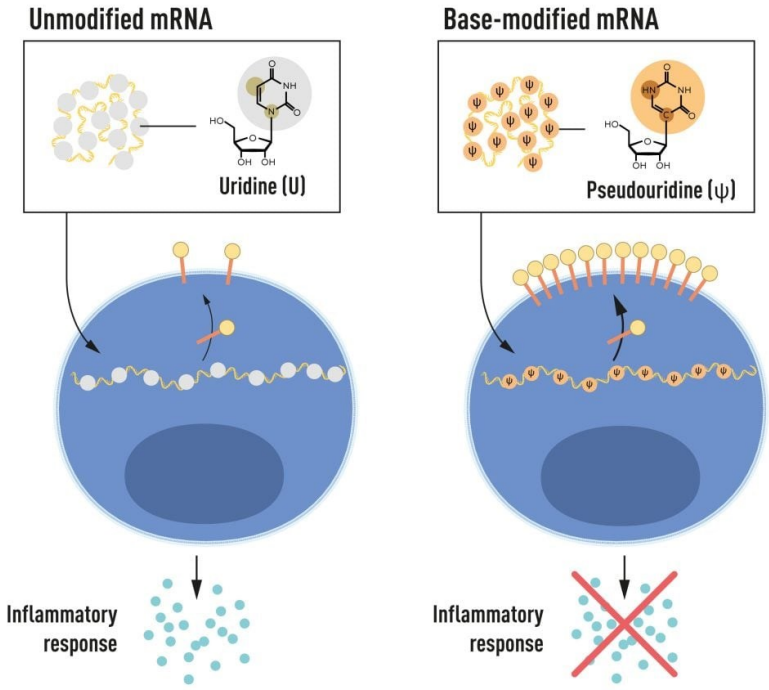
ACBI

ACB

October 2023

Newsletter of the Association of Clinical Biochemists in Ireland

and the Association for Clinical Biochemistry and Laboratory Medicine (Republic of Ireland Region)



Nobel Prize Press Release: Physiology or Medicine. Artwork by Mattias Karlén

The 2023 Nobel Prize in Physiology or Medicine was awarded jointly to Katalin Karikó and Drew Weissman "for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19".

Early work on mRNA vaccines were mostly unsuccessful because of the immune reactions generated against RNA when administered intravenously. Karika and Weissman discovered that chemically modifying bases in mRNA strands almost completely eliminated the inflammatory reactions. Their findings were published in 2005. In 2008 and 2010 they reported that protein production was significantly improved as a result of mRNA base modifications.

These two findings enabled rapid production of mRNA vaccines which, in the case of Covid-19, saved millions of lives.

Contents

Editors: Dr. Martin Healy; Dr. Peadar McGing

Message from the President of the Association of Clinical Biochemists in Ireland
Dr. Jennifer Brady

As I write we are putting the finishing touches to the organisation of our annual conference and excitement is building. Dr Paula O'Shea has ably led the conference committee to produce a really exciting scientific programme. It has been great to see representatives from many hospitals joining the committee and contributing to the organisation of the event. Our conference dinner promises to be a very special event with a meal and musical accompaniment at the beautiful number 59 Eccles St. There is still time to register for the event so visit www.acbi.ie/events to find out all the details and follow the conference updates on twitter #ACBI2023.

We had planned to host an EFLM postgraduate course entitled 'how to write a good scientific and professional article' prior to the conference. Unfortunately we have had to postpone this due to speaker travel issues. However, we hope to reschedule this in early February and will keep you updated as soon as we have further information. This will be a really exciting and important opportunity to hear from the experts what it takes to get your paper published. The importance of publishing our research and unusual cases cannot be overstated. How often do we turn to the literature to answer a clinical question, find an evidence base for our practice or seek data to support reference intervals? Publishing our work adds to the knowledge base on a topic and provides evidence and data that others can use in their laboratory practice, and of course it also is a great addition to your CV. However, it can be daunting and difficult to know where to start when trying to write a paper – where to submit it, what data to include and how to present it, how to critique the data, and how to write the cover letter. All of these will be covered in this course so please keep an eye out for updates on this course in your email and on the website.

Another upcoming CPD opportunity is the Irish Endocrine Society annual meeting taking place in Sligo on 24th and 25th November. All the event information is on the IES website. Of course, all of these activities can be recorded on the CPD module of our website.

As the EFLM national society there are, as always, plenty of opportunities to represent the ACBI on task forces and working groups. I am delighted to announce that Dr Graham Lee has joined the EFLM task & finish group: Biomarkers of Diagnosis and Follow-up of Nitrous Oxide Abuse. New groups are continually being created so please keep an eye on the EFLM website, EFLM updates on our website, and emails for opportunities that might be of interest to you.

I hope to see many of you at the conference!

Dr. Jennifer Brady, ACBI President.

Jocelyn Hicks & Chuck Feeney

Jocelyn M. Hicks, past President of the ADLM (formerly AACC) (1982) and IFCC (2006-2008) died on the 7th of October 2023. She authored or co-authored books on paediatric reference ranges, biochemistry of paediatric diseases, point of care testing and directories of rare analyses. More details on her career can be found here.

Charles "Chuck" Feeney, American billionaire philanthropist, died on the 9th of October 2023. He made major contributions to education, health and peace initiatives in Ireland. See here and here for examples of his generosity to this country. In total he spent $8 billion on philanthropic projects worldwide.

In Memory of Rosemarie Freaney

The death of Dr Rosemarie Freaney in Dublin (on 3 April 2023) signals the loss of a brilliant clinical biochemist, scientist, academic, mentor, teacher, and friend to many national and international colleagues. She will be remembered as a clinical biochemist whose work in the areas of renal, parathyroid hormone, calcium, vitamin D, and bone over more than four decades profoundly influenced the direction in these fields.

Rosemarie graduated with a BSc from University College Dublin in 1956. Her early choice of applying her knowledge of biochemistry to the medical field influenced her career path. Her first appointment as a biochemist was in Jervis Street Hospital, Dublin, in 1956. The acquisition of a haemodialysis machine in 1958 paved the way for the Renal Unit to quickly adapt to a rapid, rising tide of technology, applied biochemistry, and complex patient care. All this happened at a time when the Renal Unit was the only haemodialysis facility in the Republic for the treatment of renal failure. During Rosemarie's years there from 1956 to 1961, she attained her in-depth knowledge of the complex biochemistry of the kidney among other medical disorders.

In October 1961, a Metabolic Unit opened in St Vincent's Hospital (then located in St Stephen's Green) consisting of thirteen

Photo of St. Vincent's Hospital, St. Stephen's Green Dublin in the early 1960s **Wikimedia Commons**

beds and a laboratory under the direction of Professor Frank Muldowney (recently deceased on 14 June 2023). Rosemarie was appointed Clinical Biochemist. The Metabolic Unit (which moved to a purpose-built facility in St Vincent's Hospital, Elm Park in 1971) delivered clinical care adjacent to a clinical laboratory, whereby clinical staff mingled with laboratory staff in their shared daily duties of both clinical service and clinical research. This co-location led to a remarkable series of clinical investigations making unique and profound observations across a range of metabolic disorders. The following paragraphs summarise these observations into four sections, all of which overlapped: renal tubular function, parathyroid hormone (PTH), 25-hydroxyvitamin D (25OHD), and bone. While the emphasis in the following sec-

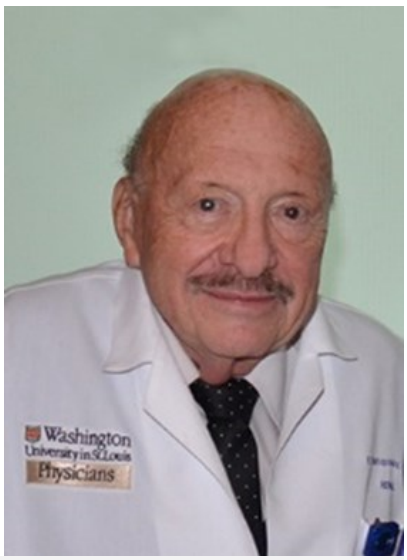
tions is on Rosemarie's achievements, her accomplishments from the 1960s through the 1980s reflect the teamwork of the quintessential academic clinician in Professor Frank Muldowney with the research-oriented clinical biochemist in Rosemarie. In addition to the hospital based activities, part of their research studies were based in a laboratory at the Department of Medicine, Woodview, University College Dublin.

In the 1960s, the principal means of investigating metabolic disorders was through balance studies. So, in those early years the Metabolic Unit directed their efforts towards studying disorders that manifested with abnormalities in renal tubular function. An early observation was that polyuria

Rosemarie enjoying a chat with Gemmell Morgan (Glasgow), Dennis O'Reilly (Glasgow, UCC graduate), and Barry Duggan (Cork) at the ACBI Annual Dinner, 1986

as a result of surgical relief of obstructive uropathy was caused by sodium diuresis. This finding was so original that it was published in the New England Journal of Medicine in 1966. The principal research observations at that time related to investigating the effect of renal bicarbonate handling on acid-base homeostasis. They described renal tubular acidosis in cases of steatorrhea due to intestinal malabsorption that they correctly attributed to secondary hyperparathyroidism, and subsequently they made similar observations in chronic renal failure and in primary hyperparathyroidism. One of their clinical studies led to a second publication in the New England Journal of Medicine in 1970. This is a noteworthy distinction for a clinical investigation from the Metabolic Unit, not once but twice, to be recognised as worthy for publication in the most prestigious medical journal in the world.

Rosemarie was inspired by Rosalyn Yalow and Solomon Berson, who published in 1960 their novel methodology of radioimmunoassay that could be used for the measurement of small molecules in tiny quantities of blood by generating radiolabelled insulin (Yalow was awarded the Nobel Prize in 1977, at which stage Berson had died 5 years earlier). In the 1970s, the Metabolic Unit was awarded Medical Research Council grants to develop assays for two small molecules: PTH and 25OHD. The PTH antiserum was donated by Professor Eduardo Slatopolsky, St. Louis, USA, which he obtained by injecting a rooster with partially purified bovine PTH. The story goes that Professor Muldowney and Rosemarie met Slatopolsky on the boardwalk in Atlantic City when they were at a scientific meeting. Slatopolsky offered his precious PTH antiserum and invited Rosemarie to visit his laboratory for training in the technique. The



Prof. Eduardo Slatopolsky, still Director, PTH/Vitamin D Laboratory, Washington University in St. Louis. [Photo courtesy of Washington University in St. Louis]

Slatopolsky antiserum identified the carboxyl-terminal of PTH. The setting up of the assay took many months, covering all criteria required for use – namely, sensitivity, specificity, and clinical evaluation. The resultant assay was very labour intensive and took over 6 days for results to be obtained. The expansion of the laboratory service to include the measurement of PTH simultaneously with the laboratory measuring ionised calcium transformed the understanding of the role of PTH in parathyroid disorders, hypercalcaemia, and renal stone disease, as well as being a precious diagnostic tool.

Rosemarie enjoying tea break at ACBI 1986 with Paddy Moore (St. James's Hospital). Some of the exhibition stands can be seen in the background

In the mid-1970s, Rosemarie supervised the setting up of two competitive radioligand binding assays for 25OHD based on previously published competitive protein binding assays, one with and one without a chromatographic step. The procedures included solvent extraction of serum, preparation of rat kidney post-microsomal supernatant used as the protein binder and the most suitable dilution (depending on its total protein concentration) shown to give good binding curves was established for each new batch. The method that included a chromatographic step was the one chosen for diagnostic use. A reference range consisting of healthy individuals was established and a month-to-month seasonal variation observed with the peak in late Summer and the nadir in late Winter.

Clinical studies on vitamin D status in Ireland followed over the next 40 years. The early studies focussed on older adults. When it was found that the majority of older adults admitted to hospital in the winter months of 1980 had undetectable 25OHD, the immediate conclusion by critics was a faulty assay. This false assumption was quickly countered when Rosemarie's collaborative studies showed that vitamin D 800 units daily readily rectified this deficiency. Subsequently, more detailed studies in the early 1980s (funded by Our Lady's Manor Dalkey) confirmed the initial observations. Afterwards, Rosemarie and her team recommended mandatory fortification of milk with vitamin D and vitamin D supplementation of 800 units daily for older adults. While the advice to Bord Bainne about mandatory fortification was ignored, the market responded with dairies adding vitamin D to milk in the late 1980s. Much later, in November 2020, public health policy in Ireland declared that older adults should supplement with 600 units of vitamin D every day. This followed recommendations made by Food Safety Authority of Ireland.

Rosemarie's final contribution occurred throughout the 90s, when she had the foresight to investigate the newly available measurements of biochemical markers of bone turnover. Rosemarie received a grant from the Health Research Board. This led to highly cited publications about bone re-

modelling activity in coeliac disease, chronic liver disease, and post liver transplantation. Also, in the 1990s, Rosemarie embarked upon an adventurous collaboration with scientists in DCU, who specialised in sensor technology. Rosemarie, was awarded a prestigious grant from the then European Commission; she led a team of investigators from DCU and across Europe (Germany, Switzerland, and Austria) in a research project on developing novel instrumentation for real-time monitoring using miniaturized flow systems with integrated biosensors for application in continuous biochemical monitoring of glucose and lactate, which she showed worked successfully in an in-vivo animal study.

Rosemarie's work always had a clinical purpose. She used her knowledge of clinical biochemistry to advance the care of patients with complex metabolic conditions by bridging the interface between the laboratory and the patient. In all her laboratory work, Rosemarie had a reputation for scientific integrity and exacting standards with particular emphasis on attention to detail. Her rigorous approach in scrutinising biochemical and scientific data together with her in-depth knowledge of medical investigations, fulfilled all the requirements in her quest for pursuance of laboratory excellence. By her intense collaboration with clinicians (both in-training and at consultant level), she sought to understand the investigative needs of complex patients. In addition to providing clinicians with a laboratory service, she was relentless in her pursuit of high-quality clinical research. Her work was acknowledged by being awarded a PhD from UCD in 1975, for her thesis entitled "Laboratory Investigations in Clinical Disorders of Calcium Metabolism", and her work was published and cited in high ranking laboratory journals and clinical journals. Rosemarie was also awarded the prestigious Nordisk medal in 1996 at the Irish Endocrine Society's Annual Meeting in the Meath Hospital to mark Robert Graves Bicentenary, at which she gave a keynote lecture. She was for years on the Council and Committees of the Association of Clinical Biochemists of Ireland (ACBI) and her input had a lasting influence on the profession.

Rosemarie was a member of the St. Vincent de Paul Society and worked tirelessly with the disadvantaged in inner city Dublin with families suffering from extreme deprivation. She was a low handicap golfer, who was noted for being a competitive match play golfer. She was a distinguished member of the Clontarf Golf Club, being Lady Captain in 1981 and a Trustee of the club.

Rosemarie's influence had lasting effects on all staff, who worked in the Metabolic laboratory, and she ensured that the quality of service was maintained. Those who were privileged to have her assigned supervisor of their post graduate dissertations were secure in the knowledge that they would be successful. Clinicians, who worked with Rosemarie, are most grateful to her.

Ar dheis Dé go raibh a hanam

Barbara Murray, former Principal Biochemist, St Vincent's University Hospital

Professor Malachi McKenna, Endocrinologist, St Vincent's Private Hospital

International Federation of Clinical Chemistry (IFCC) and European Federation of Laboratory Medicine (EFLM) Update

Compiled by Alison Bransfield

IFCC/EFLM Committee opportunities

- There are vacancies on the EFLM WG "Ethics". This is a new WG and requires 3 full members and 1 young scientist-full member. Applications close on 31/Oct/2023
- Under the auspices of the EFLM the Innovate Health Initiative (IHI) has launched a call for proposals under a number of different topics. The website is accessible here
  Please note that applications are to be made through the ACBI council. If you are interested in volunteering for a committee position please contact the ACBI President, Dr Jennifer Brady

CCLM

- There is a new issue of 'Clinical Chemistry and Laboratory Medicine (CCLM)' available online from De Gruyter Online: Volume 61, Issue 11. This can be accessed through your EFLM Academy logon

IFCC/EFLM News

- The most recent issue of "EuroLabNews", the bi-monthly EFLM newsletter, is available online: Newsletter EFLM 5-2023
- The EFLM Task-Force Green Labs has developed the "EFLM Guidelines for Green and Sustainable Medical Laboratories" which can be accessed here
- A new EFLM paper has been published by The EFLM Task Force " European Regulatory Affairs" and the EFLM Committee "Quality & Regulations": In-house diagnostic devices under the EU IVDR and unwanted side-effects of intentional transparency https://doi.org/10.1515/cclm-2023-0750
- The current October issue of "IFCCNews", is available online at:
- https://pub-180a8d00f517477ba49634e6b2b147e3.r2.dev/2023/10/IFCCeNewsOct2023.pdf
- The current issue of "eJIFCC" is available online at:
  https://pub-180a8d00f517477ba49634e6b2b147e3.r2.dev/2023/07/eJIFCC2023Vol34No2.pdf

The calendar of upcoming events may be accessed here

EFLM Academy:

- Please note that EFLM Academy membership includes access to CLSI documents
  The new EFLM e-learning academy has now launched and is a comprehensive educational resource

Upcoming Meetings/Events

EFLM

- EFLM has established a series of webinars covering different diseases and their diagnoses using biomarkers. The leaflet is available here https://www.eflm.eu/upload/docs/Leaflet-lessons-in-immunochemistry.pdf
- EFLM live webinars are available here: https://www.eflm-elearning.eu/site/live-webinar
- Previous webinars available at https://www.eflm-elearning.eu/site/on-demand-webinar
- AACC Learning Lab is now available free of charge; for details see https://area9lyceum.com/laboratorymedicine/
- EFLM has established the Task-Force "Green Labs". For more information click here

Webinars:

- IFCC is looking for volunteers to present webinars, contact ACBI president for information if interested
- The IFCC General Conference presentations are available here

Meetings:

- The calendar of forthcoming IFCC Congresses and Conferences may be accessed here

IFCC/EFLM websites
http://www.ifcc.org/
https://www.eflm.eu/

Bad Blood: Secrets and Lies in a Silicon Valley Start-up. A review by Dr. Peadar McGing

As an editor one is always trying to get new material for the newsletter. Over the next few editions of *Clinical Biochemistry News* I hope to bring you some reviews of science-related books I've read recently. Feedback will be welcomed, as would any contributions (short or long) on books you've read yourself.

For this edition of the newsletter I'm starting with a more detailed discussion of a book with particular relevance to clinical biochemists. The book itself led to discussion in clinical chemistry circles and to journal editorials, so I also have included some discussion on that.

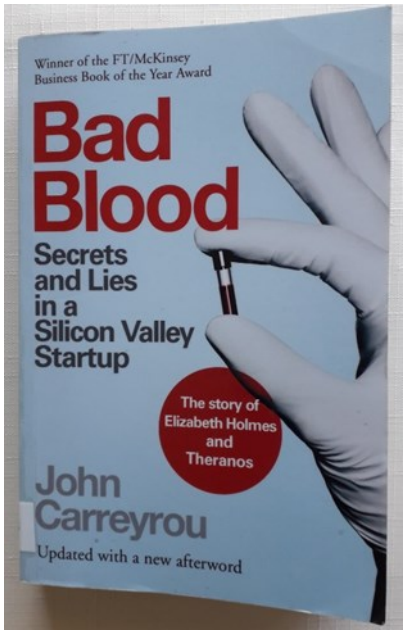
Science Stories from Public Libraries.

Before reviewing this book I just want to say a few words about the source of much of my reading. Many readers will, I hope, be familiar with the public library system in this country. If you join your local library you can borrow books that you see in that library, and you can also borrow books that are in any other library in the State. For historical research that I am undertaking on laboratory science I have benefited hugely from being able to find books listed in the Libraries Ireland catalogue, and having them delivered to me at my local library from various libraries around the country. Currently I have eight books on loan, some very connected to my research and some of more general interest.

I regularly buy books in bookshops or through in-person events, especially for books I know I will want to keep, but for research or trying out I first look to the library. This short piece is intended to remind readers about their public libraries, which also give access to e-books, and to give a flavour of one particular book.

Book Review - Bad Blood; John Carreyrou; ©2018 and ©2023 with afterward; Picador.

This book is one that I had been aware of for some time but only read recently. I'm sure many readers of this article have also heard of this book but not read it. The delay in my reading *Bad Blood* turned out to be beneficial as the copy I borrowed was a new 2022 edition that had an Afterword about the trial. This is not a spoiler, or at least it shouldn't be to any laboratory scientist. The book tells the story of Elizabeth Holmes and her company Theranos. She had a vision of revolutionising patient blood testing by devising technology that could perform a wide range of lab tests on a finger-prick sample in a POCT setting. Laudable though this was, it was not possible to even approach her target. It was her failure to grasp the realities of her quest and to listen to other people within her company who tried to help (and whom she had employed for their expertise) that brought about her demise.



The big problem for Holmes was that she became obsessed with her own image much more than focussed realistically on the technology and pathology parts of the process. She induced many prominent people to invest in her vision. She bullied and manipulated employees and used strong litigation threats (and actions) to silence employees' legitimate complaints or fears. Falsifying results, method details, IQC, and EQA, plus misleading accreditation inspectors were some of the laboratory-related issues. Worst of all, under pressure to bring more investors on board, she had pushed her untried and very unreliable technology into the patient arena in specially set up patient testing centres in Walgreens' pharmacies across a few US states.

There are not many books outside of clinical laboratory / clinical medicine textbooks that discuss laboratory tests, including pre-analytical issues, in an accurate way. Even less do so in an engaging and dramatic way; still less

that mention a clinical biochemistry association, in this case the AACC (American Association of Clinical Chemistry; now ADLM, the Association of Diagnostic and Laboratory Medicine). Being an AACC member as this story unfolded through the 2000's and 2010's I was intrigued by the ongoing discussion in the AACC mail-base ('Artery'). At first the discussion was extremely sceptical but gradually concerns for patient welfare became more prominent. A clever tactic employed by Elizabeth Holmes was her continual pronouncements that established labs and diagnostic companies were afraid she would put us all out of business and how nobody in those groups wanted her to succeed. Therefore nobody in those groups could be believed. She easily convinced the media and the general public, including lots of investors, of the worthiness of her enterprise and the success of her new technology. In 2014 *Forbes* magazine declared her to be 'the youngest woman to become a self-made billionaire'.

The book is written by a two-time winner of the Pulitzer Prize, and it details the history of the company and the development of its story. It also tells the story of the difficult journalistic probe by him and the strength of some of his sources in standing up to severe intimidation. I found it

John Carreyrou [photo from book's inside cover].

really fascinating, and also quite worrying, about how patients could be so endangered and yet regulatory systems in a country so highly regulated as the United States could be bypassed so readily. Though Elizabeth Holmes was eventually convicted and jailed the successful case against her was of defrauding investors, not of endangering patients.

In writing this review I've given you details of the crime and alluded to its punishment. This book is not a crime mystery where telling the final result is a spoiler, but is a story of greed, excess self-belief that became a block to essential collaboration, and also a story of the power of money and the legal system to override decency and morals.

Laboratory Medicine and the Lessons from the Theranos Affair.

I mentioned AACC was where I first heard of Elizabeth Holmes and Theranos. This book sparked fresh discussion in the Artery chat emails and also editorial comment in clinical chemistry journals. Because of the wider implications arising from the scandal I also want to say a few words on those responses from our clinical chemistry community.

An editorial in the AACC/ADLM Journal of Applied Laboratory Medicine (JALM) in 2019 following the initial publication of *Bad Blood* was critical of the lack of comment and publications from the clinical laboratory community. The JALM editorial is available free of charge on line and is well worth reading, even if you haven't read (or don't read) the book [Fiala, C, and Diamindis, E.P. (2019), Theranos: Almost Complete Absence of Laboratory Medicine Input; JALM, 3 (5), 749-752; https://academic.oup.com/jalm/article/3/5/749/5603092?login=true].

Two CCLM editorials from before and after the first book are also available free for ACBI members (through your EFLM Academy membership) [Clin Chem Lab Med 2018;56:1395–6. Clin Chem Lab Med 2016;54:1403–5.] A further editorial followed the beginning of Holmes' trial – in September 2021 CCLM e-published an opinion piece by Diamandis and colleagues titled 'Theranos revisited: the trial and lessons learned' which included an interesting table 'Lessons to be learned from the Theranos story' [https://doi.org/10.1515/cclm-2021-0994].

The final (for now anyway) clinical chemistry aspect of this saga took place at the 2022 AACC Annual Scientific Meeting in Chicago when 'A major highlight of the conference program was an in-depth discussion with Theranos whistle-blowers Erika Cheung and Tyler Shultz about their efforts to reveal Theranos' fraud and protect patients. The session offered a vivid lesson in the standards of ethics and accountability at work within the profession.'

Recommendation:

I strongly recommend this book. *Bad Blood* is available to borrow from any public library in this country and is also available to purchase from most booksellers (prices advertised at the time of writing were about €12, including free delivery).

A Selection of Members' Recent Publications

Current practice and recommendations for managing transgender patient data in clinical laboratories in the United Kingdom and Republic of Ireland.
Hepburn S, Buchanan D, **Costelloe SJ.** Ann Clin Biochem. 2023 Aug 30:45632231195484. doi: 10.1177/00045632231195484. Online ahead of print.

Capillary leak and edema following resuscitation: the potential contribution of reduced endothelial shear stress caused by haemodilution.
Walsh D, **Cunning C**, Lee G, Boylan J, McLoughlin P. Shock. 2023 Aug 28. doi: 10.1097/SHK.0000000000002215. Online ahead of print.

Spontaneous remission of pendulum swinging thyroid disease in Down syndrome.
Fox K, Fitzsimons A, Sharif F, **Lee GR**, O'Grady MJ. Endocrinol Diabetes Metab Case Rep. 2023 Aug 16;2023(3):23-0064. doi: 10.1530/EDM-23-0064. Print 2023 Aug 1.

Assay interference as a cause of false positive troponin T elevation in emergency department patients.
Lyons KS, Herity N, **Lee G**, Talbot C, McKeeman G. Int J Cardiol. 2023 Oct 15;389:131165. doi: 10.1016/j.ijcard.2023.131165. Epub 2023 Jul 7.

Maintaining glucose integrity ex-vivo: Impact of preanalytical specimen handling.
Islam MN, Lyons C, Griffin TP, Hamon S, Dunne FP, **O'Shea PM**. Ann Clin Biochem. 2023 Sep 7:45632231199374. doi: 10.1177/00045632231199374. Online ahead of print.

Measurement of hCG in women with Gestational Trophoblastic Disease.
McMahon LM, **Joyce CM**, Cuthill L, Mitchell H, Jabbar I, Sweep F; hCG working party of the EOTTD. Gynecol Obstet Invest. 2023 Jun 12. doi: 10.1159/000531499. Online ahead of print.

When to consult a geneticist specialising in gestational trophoblastic disease.
McMahon L, Maher GJ, **Joyce C**, Niemann I, Fisher R, Sunde L. Gynecol Obstet Invest. 2023 May 26. doi: 10.1159/000531218. Online ahead of print.

Upcoming EFLM Webinars

(Go to EFLM Academy Site | Live Webinar (eflm-elearning.eu) to access these and more)

Nutrition and Biochemistry Date: 24th October 2023 at 18:00 CET

Implementation of sustainable practices in medical laboratories switching Clinical Laboratories to Green Labs Date: 28th November 2023 at 18:00 CET

EFLM Lessons in Immunochemistry - Coronary Artery Disease - Predicting the development of coronary artery disease in apparently healthy individuals - the role of Lp(a) Date: 6th December 2023 at 16:00 CET

Biomarkers of sepsis: procalcitonin and more Date: 13th December 2023 at 18:00 CET

Biomarker updates

High-density lipoprotein revisited: biological functions and clinical relevance. von Eckardstein A, Nordestgaard BG, Remaley AT, Catapano AL. Eur Heart J. 2023 Apr 21;44(16):1394-1407. doi: 10.1093/eurheartj/ehac605

Pleural fluid biochemical analysis: the past, present and future. Zheng WQ, Hu ZD.Clin Chem Lab Med. 2022 Nov 17;61(5):921-934. doi: 10.1515/cclm-2022-0844

The Triglyceride/High-Density Lipoprotein Cholesterol (TG/HDL-C) Ratio as a Risk Marker for Metabolic Syndrome and Cardiovascular Disease. Kosmas CE, Rodriguez Polanco S, Bousvarou MD et al. Diagnostics (Basel). 2023 Mar 1;13(5):929. doi: 10.3390/diagnostics13050929

Antibody-mediated interferences affecting cardiac troponin assays: recommendations from the IFCC Committee on Clinical Applications of Cardiac Biomarkers. Hammarsten O, Warner JV, Lam L, Kavsak P et al. Clin Chem Lab Med. 2023 Mar 24;61(8):1411-1419. doi: 10.1515/cclm-2023-0028

Recent Reviews of Interest

Ozempic (a Glucagon-like peptide-1 [GLP-1] agonist) has been in the news lately in relation to weight loss. This brief review from the NIH outlines mechanisms and actions of GLP-1 agonists in general.

Glucagon-Like Peptide-1 Receptor Agonists - StatPearls - NCBI Bookshelf (nih.gov)

Metformin has long been used as a front-line treatment for type 2 diabetes. In recent years it has also been shown to have anti-cancer, anti-ageing and anti-inflammatory properties. This review examines the evidence.

Metformin: update on mechanisms of action and repurposing potential. Foretz M, Guigas B, Viollet B. Nat Rev Endocrinol. 2023 Aug;19(8):460-476. doi: 10.1038/s41574-023-00833-4. Epub 2023 May 2

Irritable bowel syndrome (IBS) is a chronic functional intestinal disease affecting 5-22% people depending on the population studied. Its aetiology is poorly understood. Could low circulating vitamin D be involved? This review looks at the evidence.

Role of in vitamin D in irritable bowel syndrome. Yu XL, Wu QQ, He LP, Zheng YF. World J Clin Cases. 2023 Apr 26;11(12):2677-2683. doi: 10.12998/wjcc.v11.i12.2677

A wide-ranging review of clinical utility and analytical specifications of thyroid hormone testing from the the American Thyroid Association with input from the CDC and IFCC.

Thyroid Stimulating Hormone and Thyroid Hormones (Triiodothyronine and Thyroxine): An American Thyroid Association-Commissioned Review of Current Clinical and Laboratory Status. Van Uytfanghe K, Ehrenkranz J, Halsall D, Hoff K, Loh TP, Spencer CA, Köhrle J.Thyroid. 2023 Sep;33(9):1013-1028. doi: 10.1089/thy.2023.0169

Microbiome studies usually focus on bacteria. However, as this review points out, we can harbour several other types of microbiota. Their role in health, particularly intestinal function, is discussed.

The Underrated Gut Microbiota Helminths, Bacteriophages, Fungi, and Archaea. Garcia-Bonete MJ, Rajan A, Suriano F, Layunta E. Life (Basel). 2023 Aug 18;13(8):1765. doi: 10.3390/life13081765.

Covid-19, programmed cell death, and its attenuation by vitamin K.

Links between Vitamin K, Ferroptosis and SARS-CoV-2 Infection. Nuszkiewicz J, Sutkowy P, Wróblewski M, Pawłowska M, Wesołowski R, Wróblewska J, Woźniak A. Antioxidants (Basel). 2023 Mar 16;12(3):733. doi: 10.3390/antiox12030733.

Meetings / Educational

Society for Endocrinology UK (SfE BES)
Annual Conference 2023
SEC Glasgow 13-15 November
Basic science, bone and calcium, adrenal, plenary lectures etc. See programme here

24th World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Disease
2024 April 11-14
Hilton London Metropole, London, UK
Includes cases, workshops, 'omics, bone biochemistry, vitamin D, hyperparathyroidism, therapies etc. See programme here

Irish Endocrine Society Annual Meeting 2023
November 24-25, Radisson Hotel, Sligo

Can a painting of a 15th century friar, completed 12 years after his death, give clues to his demise?

The Friar with the Crutch: A Pictorial Hint of the Stroke Suffered by Bernardino da Fossa (1420–1503) . Ventura L. Eur Neurol (2023) 86 (2): 155–160. https://doi.org/10.1159/000528032

Interferences in hormone immunoassays can lead to falsely high readings and possible inappropriate follow-up for patients. The following review describes different immunoassay types and possible interfering factors.

Spurious Serum Hormone Immunoassay Results: Causes, Recognition, Management. Braunstein GD. touchREV Endocrinol. 2022 Nov;18(2):141-147. doi: 10.17925/EE.2022.18.2.141

Irish Endocrine Society

The 47th Annual Irish Endocrine Society (IES) Meeting will be held on Friday 24th and Saturday 25th November 2023 in the Radission Blu Hotel, Ballincar, Rosses Point, Sligo.

The IES is an organisation that has had close links to the ACBI for many years. The society welcomes membership from all individuals 'who have a significant interest in endocrinology and diabetes'. Many Clinical Biochemists are members of IES, including Dr. Paula O'Shea who is a member of the Scientific Committee. Standard current rates are €250 for Consultants, and €130 for all other groups, including scientists, NCHDs, nurses, dietitians, etc.

This year's Annual Conference, which is free to members, will be held on Friday 24th and Saturday 25th of November in Sligo. The meeting will be in the same format as previous years with invited keynote speakers, original research presentations comprising both oral communications and posters, case report presentations, and a trade exhibition. Full details are not yet available of the oral and poster communications, but the three award lecturers have been announced, as follows:
The Paediatric Keynote Lecture will be given by Professor Nils Krone (Professor of Paediatric Endocrinology, University of Sheffield, UK). Prof. Krone leads the adrenal and disorders / differences of sex development (DSD) clinical service.

Friday's programme finishes with the Hadden Lecture, to be delivered by Professor Gudmundur Johannsson (Professor of Endocrinology, Sahlgrenska, University of Gothenburg, Sweden). His major research interests include pituitary diseases, the importance of growth hormone in adults, and adrenal insufficiency.

Saturday morning will open with two oral presentations (selected from abstracts) followed by the McKenna Lecture. The award winner is Professor Francis Finucane (Personal Professor in Medicine, NUI Galway, and Consultant Physician in Endocrinology, Saolta University Healthcare Group, Ireland). ACBI member Dr. Paula O'Shea was a previous winner of this award (2018) and Dr. Rosemarie Freaney, whose obituary is included in this issue, received the award in 1996 when it was known as the Nordisk Lecture. The 2023 awardee, Prof. Finucane, established a regional bariatric service in the West of Ireland for patients with severe and complicated obesity. He is also on the scientific committee of the European Diabetes Epidemiology Group.

Prof. Francis Finucane [photo courtesy Ollscoil na Gallaimhe]

Information on the conference can be found here. Keep checking. This is where the programme and the link to Eventbrite for the meeting and the meal will be posted. The link will remain the same but the content will be updated many times between now and the meeting.

Dr. Peadar McGing

Notable Anniversaries

Greaser ML, Gergely J. Purification and properties of the components from Troponin. J Biol Chem. 1973 Mar 25;248(6):2125
50th anniversary of the first description of the different subunits of troponin, given the names TnT and TnI, which are still in use today.

The first portable reflectance glucose meter was launched by Ames (USA) 50 years ago in1973. The instrument was named the Eyetone in the US and Europe. It was the first glucose monitor that could be used for home testing. It was mains operated, had a warm-up time of 30 minutes once switched on and needed regular calibration, but it radically changed the process of glucose monitoring in diabetes. This paper describes its first evaluationin1974.

The 'Eyetone'

Richmond W. Preparation and properties of a cholesterol oxidase from Nocardia sp. and its application to the enzymatic assay of total cholesterol in serum. Clin Chem 1973;19: 1350–6. Free to AACC/ ADLM members.
First simplified enzymatic cholesterol assay using cholesterol oxidase described 50 years ago.

This year is the 70th anniversary of the founding of the ACB. See a fascinating article by 101 year old Founder Member Fred Mitchell in the June 2023 ACB News titled *'The first 70 years of the ACB'* (page 10).

The American Association for Clinical Chemistry (ACCC) is 75 years old this year. In April the Association changed its name to the Association for Diagnostics & Laboratory Medicine (ADLM) by vote of the membership (70% in favour). In a statement they stated that the name-change reflects the 'more global reach of the organization'.

2023 is the 60th anniversary of Clinical Chemistry and Laboratory Medicine (CCLM) the official journal of both the EFLM and the IFCC. When launched in 1963 the journal was called Zeitschrift für Klinische Chemie. It changed its name to the European Journal of Clinical Chemistry and Clinical Biochemistry in 1991 and subsequently CCLM in 1998 reflecting its international status.

Professor Gerald H. Tomkin

Professor Gerald Tomkin, Consultant in Diabetes and Endocrinology, died on the 12th of July 2023 at the age of 84. Throughout his professional career he made a tremendous contribution to the study and practice of diabetes medicine in Ireland. He qualified in medicine from Trinity College in 1968 and later become a fellow of both the Irish and UK Colleges of Physicians. During this time he also completed an MD, awarded by Trinity College in 1970.

Having spent some time working in the US and UK he returned to Ireland in 1975 to take a position in his specialist area of diabetology and endocrinology. He worked first in the Adelaide Hospital and subsequently in Tallaght University Hospital. On arriving back he recognized the poor state of diabetes services in Ireland and spent the rest of his professional career trying to remedy this. He became active in the Irish Diabetes Association (now Diabetes Ireland) and through them sought to promote awareness among elected representatives and members of the public on the importance of diabetes in society.

Concerned at the lack of engagement at government level, and through the auspices of Diabetes Ireland, he was instrumental in setting up the Diabetes Service Development Group which produced a report on the failings of diabetes care and the resources needed to remedy this. As a result of these efforts the HSE set up what is now known as the Diabetes Clinical Programme with subsequent significantly improved services.

He authored over 170 papers many with his long-time scientific collaborator, Dr. Daphne Owens. His main area of academic interest related to abnormalities of cholesterol metabolism and disturbed chylomicron handling in diabetes.

Prof. Tomkin was a member of many committees and organisations. He was chairman and president of Diabetes Ireland, vice-president of the European Association for the Study of Diabetes and founding member and past president of the Irish Endocrine Society.

His sense of humour can be seen in the following articles:
My Father's Bones by Gerald Tomkin - The Gloss Magazine

Hate your job if you want to retire (imt.ie)

- Dr. Martin Healy, MISA, St. James's Hospital, Dublin

ACBI Conference 1986

In a new feature we are happy to bring you a small selection of photos from our 1986 Annual Conference, held in the Royal Marine Hotel in Dun Laoghaire.

An Appeal:

I am extremely grateful to Karen Heverin who rescued the album these pictures were taken from when it was about to be dumped during a clear out of some office in Beaumont Hospital. Fortunately she was asked if the photos were of a biochemist function and she recognised that it was. The album was then passed on to me.

Over the years photo albums have been compiled for a number of our annual conferences. I have in my possession some albums and some loose photographs. I would like to hear about any other albums members may know of, either in hospitals or in the possession of members. We were lucky not to lose the 1986 album, and that should serve as a warning. It would be my hope that we can digitise these records of our conferences at some point. I am appealing therefore to all ACBI members to check if you or your hospital have any old conference albums, or loose photos, and let me know please (email peadar.biochemist@gmail.com). In that way I can build an inventory, and at a local level members can be conscious of the archives they've got.

We hope you enjoy this new feature. Feedback welcome, including comments, questions, and stories / memories.

Dr. Peadar McGing.

Gemmell Morgan, Rosemarie Freaney

L-R: Olwyn Lanigan, Peter Browne, Dorothy Brown, Regina O'Mullane, John O'Mullane, Catherine McPartlin, Joe McPartlin

Des Kenny with very modern looking computer

Marion Davis, Belle Farrell

L-R: front table; Helen Grimes, unknown , Marion Doolin, Brendan Buckley. L-R: adjoining table; Sultan Jina, Mary Brody

L-R: Peadar McGing, Niamh Kavanagh, Catherine Mullins

Barry Desmond, Minister for Health, opening the ACBI'86 conference

Nuala McCarroll, Mary Brody, Barry Desmond (Minister of Health), unknown journalist

John O'Mullane, Barry Duggan, Mary Brody

Notices from the ACBI

ACBI Training Day: The ACBI Training Day, originally scheduled for the 19th October 2023, has now been rescheduled to Friday 2nd February 2024. It will be hosted at the The Pillar Centre for Transformative Healthcare, Eccles St. Dublin 7. The Training Day being held in collaboration with the EFLM and is a postgraduate course entitled 'A journey into mastering scientific article writing'. Registration for the training day is now open on the ACBI website. Due to the interactive nature of this course it is limited to 35 places on a first come first served basis. If you registered for the previous date and opted to retain your registration, you do not need to do anything further unless this new date is not suitable, in which case you may contact the ACBI treasurer for a full refund (treasurer@acbi.ie).

Critical Care Conference: The Hi Impact Critical Care Conference 4.0 will be held on November 10th 2023 in the Clayton Hotel Galway. Registration and programme information can be found here. Some very relevant presentations for ACBI members include interpretation of blood gas results and updates on the KDIGO Guidelines.

IFCC Task Force on Ethics: The IFCC Task Force on Ethics (TF-E) invites nominations to fill one vacant position within the Task Force. Details on the Task Force can be found here and nomination details can be found here.
Please note that applications are to be made through the ACBI council. If you are interested in volunteering for a committee position please contact the ACBI President, Dr Jennifer Brady.

HSCP Seed funding: The National Health and Social Care Professions Office has agreed to seed-fund one research project with a value of up to €20,000 with further funding for two or three smaller projects. More information and examples of themes for research can be found here.

IFCC eNews: Submissions to the IFCC's electronic newsletter can be made to Dr Katherina Psarra, IFCC eNews Editor, at enews@ifcc.org.

Criteria for articles are as follows:

The news must be related:
1) to National Association / Regional Federation position issues, initiatives or regulations related to clinical chemistry,
2) to activities related to the development of the profession, including short summaries that highlight a particular event of symposia and congresses.
Leader-opinions from key individuals would be highly appreciated as they would give rise to discussions. The authors should qualify at the end of the article that the views expressed were theirs and not necessarily of the IFCC.
Articles from the IFCC's Corporate Members are of high importance and they should reflect their activities within IFCC. They should be of educational value not perceived as indirect or "soft" advertising of a company's products since this could be construed as an endorsement by the IFCC.
In terms of style, the News should be journalistic and limited to approximately 500 words so as to be attractive to readers. It is understood that the Editor could edit the texts in terms of format, style and language. From 2 to 3 high quality pictures would be appreciated.

Deadlines:

Issue	Submission date	Publication date
No. 11 Nov	Oct 27th	Nov 9th
No. 12 Dec	Nov 24th	Dec 14th

IEQAS Conference 2023, Ashling Hotel, Dublin, October 5th

A Report by Dr. Peadar McGing, IEQAS Chair

The 2023 IEQAS Annual Conference was held on Thursday, October 5th, in the Ashling Hotel in Dublin. Once again it proved a day of excellent presentations, food, and camaraderie. A more detailed account of the meeting will be carried in the December issue of Clinical Biochemistry News, but to whet your appetite I'll give you a flavour in this short report.

After delivering the IEQAS Chair's Address to open the conference I handed over to Dermot McBrierty to chair the opening session.

The first speaker was Prof. Donal O'Shea, Consultant Endocrinologist in SVUH (and who is so well known on TV, radio, and in newspapers that he requires no introduction, though of course I did give him one). As usual he gave a fascinating lecture, and spent quite some time answering the many audience questions afterwards. We gained valuable understanding as he brought us through various 'First Case' scenarios in his clinical career, beginning with his first case of a transgender patient in Charing Cross Hospital in August 1996. A wealth of experience in helping such patients to get the best outcome for them was shared with the audience, giving us an insight into the many issues involved.

Having focussed on the patient journey Prof. O'Shea then gave us his perspective on laboratory testing in these patients. For male to female transition ('trans woman') he uses a target of 400 – 450 pmol/L, but a big problem is lab testing not measuring the oestradiol form from the patient's patch. A second issue is getting PSA measured for trans women as many labs have automatic rejection of PSA on females. He also made a point concerning eGFR reports in general that 'kidney failure' warnings on slightly raised creatinines are causing lots of problems for clinicians and distress for patients.

Next up was a joint presentation by Dr. Jane Finucane and Dr. Katie O'Brien of the Health Protection Surveillance Centre, where they presented an *Overview of the National Serosurveillance Programme (NSP).* Dr. Finucane first gave background to the scheme which was established in June 2021 following a request from the Department of Health on the need for population surveillance in response to the Covid-19 pandemic. Serosurveillance provides estimates of serum antibody levels against infectious diseases due to previous infection and/or previous vaccination and is an important part of disease surveillance. The programme provides information on the spread of the disease in the population, which can be used in the planning of vaccination programmes and to aid public health policy decision making.

After giving details of their pilot study and current protocols Dr. Finucane handed over to Dr. O'Brien who took us through results. Because all samples are anonymised they can be shared for other studies but cannot be used to study patient background factors. Results for Ireland are similar to other international studies. The group is now also starting to look at some non-Covid seroprevalence.

The coffee break provided a most welcome opportunity to refresh and mingle. Then it was my time to chair the second plenary session. First speaker was Jonna Pelanti, R&D Director at Labquality. Jonna, a welcome frequent attendee at our conference, spoke on the topic of *Experiences and Feedback in Preanalytical EQA*. She described three ways to collect information on the quality of the pre-analytical phase of testing — Procedure, Samples, and Quality Indicators. She then gave detailed examples of how Labquality provides services under those three banners.

The next speaker onto the podium was Breda Dreaper, currently National Laboratory Manager for Uisce Eireann and previously a Chief Medical Scientist of Quality in University Hospital, Limerick and an INAB assessor since 2017. Accreditation for clinical labs is moving to ISO15189:2022 (from the 2012 version) and Breda gave a comprehensive review of *INAB*

Accreditation against the New ISO 15189 Standards, and Gap Analysis. After giving a very comprehensive gap analysis covering the changes from 2012 to 2022 standards Breda told the audience that there's a lot of work to do, and it takes a lot of time. Team work makes the dream work, she told us, advising the audience to be patient and be organised.

The final plenary lecture was delivered by Ann Leonard, Quality Innovation Manager at Tallaght University Hospital. Ann gave a very interesting and entertaining presentation on *The CELTIC Ranges Project (Comprehensive and Effective Laboratory Test Reference Intervals for Irish Children)*. The original aim of the study was simple – to produce a comprehensive set of locally derived reference intervals for common clinical and haematological parameters in children using residual samples. The study became more extensive quite quickly. Subjects were patients referred from GP surgeries for phlebotomy, excluding any patients with clinical or metabolic conditions, or with signs of acute infection. Collection of additional samples, with suitable informed consent, allowed the collection of background information through patient interview. It is hoped the CELTIC Range study will provide comprehensive sets of paediatric reference intervals for use in Irish hospitals.

Following a very satisfactory morning comprising five plenary lectures we all headed to the hotel restaurant for a delicious lunch. I enjoyed meeting and chatting with fellow delegates until suddenly it was time to disperse to the various workshops. The Clinical Chemistry workshop was sponsored by ACBI and was chaired by Dr. Lucille Kavanagh, Principal Clinical Biochemist in MMUH. A full programme, including a case presentation from Micheál Ryan, Senior Clinical Biochemist, UHL, kept the audience engrossed for two hours.

The IEQAS Annual Conference is always a great day, an excellent example of cooperation between clinical biochemists, medical scientists, and pathologists. My thanks to all those involved in organising this meeting, and all the speakers and chairpersons who contributed their time and knowledge.

Opening plenary session L-R: Dr. Jane Finucane, Dr. Katie O'Brien, Dermot McBrierty, Prof. Donal O'Shea

Dr. Ann Leonard speaking about the *CELTIC* Ranges Project

Clinical Chemistry Workshop
L-R: Dr. David Corcoran, Dr. Lucille Kavanagh, Micheál Ryan.