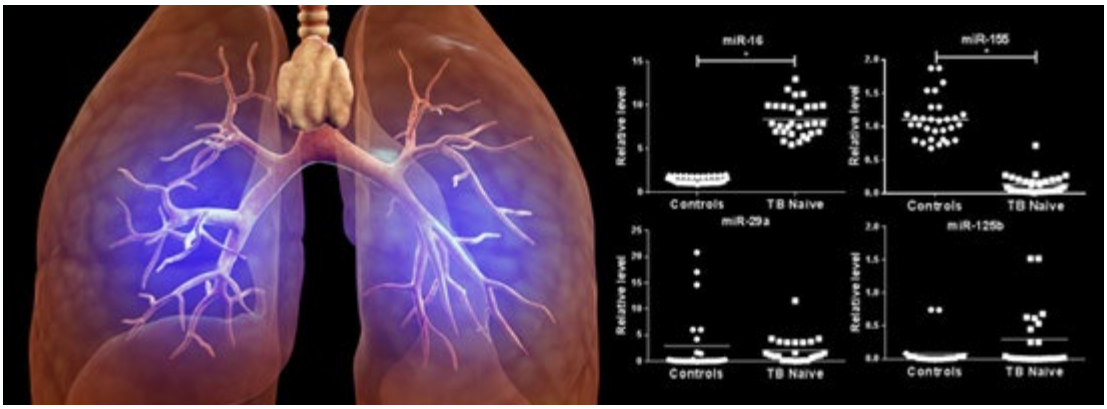
Implen Journal Club | November Issue

Here is our November issue of Implen Journal Club highlighting relevant publications where the Implen NanoPhotometer® helped researchers to unravel the mysteries of modern molecular biology.



Battling Multi Drug Resistant Mycobacterium tuberculosis is an important matter and will help improving the life of many. Here, we highlight the work of Vishal Wagh, Anant Urhekar and Deepak Modi from MGM Institute of Health Sciences and National Institute for Research in Reproductive Health, published 2017 in Tuberculosis, who have evaluated the levels of selected miRNAs in serum of TB and MDR TB patients to identify blood biomarkers that can be useful for predicting (M.TB) infection. They were able to show that miR-16 and miR-155 in serum may act as surrogate biomarker for studying TB infection, progression of therapy and MDR TB. During their experiments they used the NanoPhotometer® to determine the concentration and purity of their RNA extracts prior to cDNA synthesis. Additionally, haemoglobin estimation of blood samples was performed by measuring the absorbance at 414 and 375 nm to exclude haemolysis. All the included samples had a ratio of less/equal to 2 were considered as haemolysis free.

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Next, we like to present the work of Zoltán Mayer, Nguyen Hong Duc, Zita Sasvári and Katalin Posta from Szent István University, published 2017, studying plant-fungi interaction and its influence on abiotic stress tolerance. Their findings may contribute to a better understanding how plants adapt to unfavourable environmental conditions resulting in more resistant cultivars and crop yield. The aim of this study was to determine enzyme activities and to track the expression of glutathione S-transferase (GST) gene in plant-arbuscular mycorrhizal system under temperature- and mechanical stress conditions. The NanoPhotometer® was used to record absorbance at 436 nm (guaiacol peroxidase activity), 400 nm (polyphenol oxidase activity) and 340 nm (Glutathione S-transferase enzyme activity).

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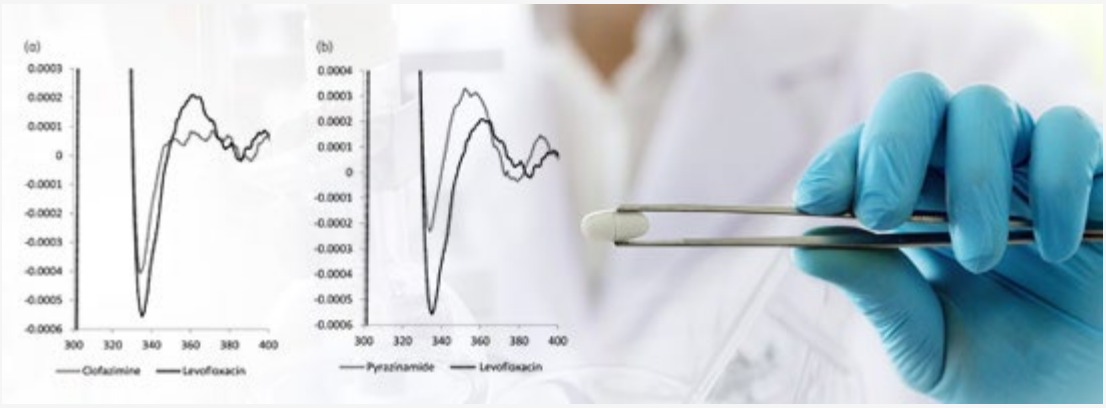
Implen is proud to present the third issue featuring the newest model for a higher throughput: N120. Highlighting the publication of Tania Emi, Layra Cintrón Rivera, Vikash Chandra Tripathi, N. Yano, Ashok Ragavendran, Joselynn Wallace, and Alexej Fedulov from Alpert Medical School of Brown University and

University of Puerto Rico, published this September in Epigenetics. They performed epigenomic and transcriptomic analysis of prototypical macrophages after incubation with talc or TiO2 to determine expression and methylation signatures resulting from these exposures and to detect potential biological pathways that could explain the pro-cancer and proinflammatory changes in the macrophages as epigenetic regulation plays an important role in maturation and functioning of phagocytes. As a result of their work they postulate that the ‘reshuffle’ of epigenetic machinery induced by the particles may be responsible for downstream malfunctioning of the exposed macrophages. Total RNA and DNA quality and quantity were assessed spectrophotometrically using the NanoPhotometer® N120.

Learn more



Again, Implen is proud to present a very interesting application of the NanoPhotometer®. We would like to feature the work of Jan-Willem Alffenaar, Erwin Jongedijk, Claudia van Winkel, Margaretha Sariko, Scott Heysell, Stellah Mpagama and Daan Touw from University of Groningen, University of Sydney, Westmead Hospital, Kibong’oto Infectious Diseases Hospital and University of Virginia, which was recently published in Journal of Antimicrobial Chemotherapy. The group developed a therapeutic drug monitoring assay to quantify levofloxacin in human saliva at the point of care for Tuberculosis endemic settings using the NanoPhotometer and its mobile capabilities. They were able to identify patients with low levofloxacin drug exposure to trigger personalized dose adjustment. The levofloxacin concentration was quantified by using the amplitude of the second-order spectrum between 300 and 400 nm of seven calibrators.

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Visit www.implen.de and find out how the NanoPhotometer® can improve your research.