

# Webinar on Nanomedicine: Nanotechnology and Pharmaceutics

March 07, 2022

## Accepted Abstracts



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**Bone marrow, peripheral blood and plasma for quantitation of BCR-ABL transcript in Chronic Myeloid Leukemia**

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Molecular diagnosis based on the quantitative monitoring of BCR-ABL transcript in Chronic Myeloid Leukemia (CML) using quantitative real-time PCR (qRT-PCR) has been performed in the bone marrow. Recently, the reliability of using the source of peripheral as well as plasma for BCR-ABL transcript quantitation has been questioned. We herein reported a study on 172 paired samples, partitioned into 3 groups, including before treatment (newly diagnosed CML), under 1 year, and more than 1 year after initiation of TKI therapy for BCR-ABL transcript quantitation as performed by qRT-PCR. Based on the results, quantitatively, we concluded that there was only agreement of BCR-ABL measurements among bone marrow, peripheral blood, and plasma in the group of the newly diagnosed CML patients based on the evaluation of %IS-NCN and the kappa-value. Our data suggested that the source sample of peripheral blood and plasma were suitable for the BCR-ABL transcripts quantitation for CML patients without undergoing TKI treatment. The plasma-based quantification assay was more sensitive in untreated patients compared to the bone marrow test.

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## Evaluation of disinfectants for use in the pharmaceutical environments

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Disinfectants are used in pharmaceutical companies to guarantee the reduction or elimination of microorganisms that may be present in production lines, equipment, personnel or the environment. Although the manufacturer guarantees their effectiveness, it is necessary to test them in the pharmaceutical environment where they are to be used.

Three disinfectants were evaluated, NDP-Surfaplus in 70% concentration, NDP-Surfaclin in 2% and 0.5% concentration and Tristel Jet gel activated at 0.12% concentration. Swabs were performed before and after the application of the disinfectant to sections of wall surfaces, floors, marble plateaus and stainless steel sinks. From each surface the sections that were most difficult to carry out the cleaning and disinfection processes were chosen. The counting method used was the poured plate method. The disinfectants were shown to meet the stipulated acceptance criteria with a 90% reduction in the initial microbial population, except for the 0.5% concentration of the NDP-Surfaclin disinfectant. A greater number of microorganisms were isolated on surfaces that had a tendency to form pores due to erosion from cleaning and disinfection processes, and it was also shown that disinfectants had a better activity on stainless steel surfaces. The effectiveness of disinfectants in the pharmaceutical environment of the formulation line was demonstrated, approving their use for cleaning and disinfection processes. The best-performing disinfectant was NDP-Surfaplus at the 70% concentration.

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## Plasma Epstein-Barr Virus (EBV) DNA as a biomarker for diagnosis of Syrian EBV-positive Burkitt's Lymphoma

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Epstein-Barr Virus -positive Burkitt's Lymphoma is defined as the presence of Epstein-Barr virus (EBV) in tumor cells, the standard way to detect (EBV) in Burkitt's Lymphoma is in situ hybridization (ISH) of EBV-encoded small RNA (EBERs) in tumor cells. The present study aimed to evaluate plasma Epstein-Barr virus (EBV) DNA as a noninvasive biomarker for diagnosis and prognosis of EBV-positive Burkitt's lymphoma. The study included 40 newly diagnosed patients with Burkitt's lymphoma, ranging in age from 4 to 60 years, and 55 sex and age-matched controls. (40) Formalin-fixed paraffin embedded blocks of Burkitt's lymphoma tissue samples were used to investigate the EBV by in situ hybridization detection of the EBERs. Plasma EBV DNA was quantified by real-time quantitative polymerase chain reaction (PCR) for all Burkitt lymphoma patients prior to therapy and for control. The results showed that (22/40, 55%) of Burkitt lymphoma were positive for histological EBER, whereas plasma EBV DNA was detectable (range from  $1.2 \times 10^4$  to  $4.7 \times 10^6$  copies/mL) in all EBV-positive Burkitt lymphoma samples (22/22). EBV DNA was undetectable in all cases of EBV-negative Burkitt lymphomas (18/18) and all healthy control (55/55). It is worth mentioning that our results demonstrated that the EBV DNA load was significantly high in the EBV-positive BL patients suffering poor prognostic state. In conclusion: Plasma EBV-DNA can be used as a noninvasive biomarker for diagnosis and prognosis of EBV-positive Burkitt's lymphoma.

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