Mahsa Karbaschi et al., J Clinic Toxicol 2016, 6:5(Suppl)
http://dx.doi.org/10.4172/2161-0495.C1.019

High-throughput comet assay tank

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Comet Assay is a simple method to study the formation of DNA damage, both *in vitro* and *in vivo*, as markers of genotoxicity. The assay has applications in both academic institutes and pharmaceutical industry, for drug genotoxicity screening, monitoring environmental contamination with genotoxins, molecular epidemiology, and fundamental research in DNA damage and repair. Over the past ten years, comet assay has gained a great popularity, however, the assay's low sample throughput and laborious sample workup procedure are limiting factors to its application. We have developed COMPAC-50, a novel high-throughput variant of the comet assay which greatly decreases assay time, number of individual slide manipulations, reagent requirements, risk of damage to slides, and increases the number of samples analyzed. The new system employs two carriers to hold a total of 50 slides in a vertical laminar uniform orientation. This provides two distinct advantages over previous methods: firstly, to produce a highly compact, small footprint system (saving approximately 75% of lab space); and, secondly, by holding 25 slides within a rack this allows all of the slides to be processed in one batch which dramatically reduces assay time by up to 60% when compared to previous standard methods. Consequently, this is not only beneficial for electrophoresis but also in the lysis, neutralization, staining and washing steps of the Comet Assay. In addition, COMPAC-50 benefits from a high performance ceramic cooling base with sliding drawer to accommodate a cool pack, which is frozen before use, to maintain optimal buffer temperature.

Biography

Mahsa Karbaschi is interested in formation and repair of oxidatively damaged DNA, and also in development of new methodologies for the evaluation of DNA damage. Her interest in the field was initiated by her PhD in the Cancer Studies and Molecular Medicine which has led her in having two patent applications that are pending as well as one patent that have already been granted by the United States Patent and Trademark Office (USPTO).

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