

THE REPROSTAR: A NOVEL HIGH SECURITY SYSTEM FOR A SAFE AND STANDARDIZED DENSITY GRADIENT SEPARATION OF HUMAN SEMEN

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Abstract Body

Traditional density gradient centrifugation is associated with the risk of contaminating the pellet during the harvesting step. The pellet can only be accessed either by aspiration or penetration of the gradient overlay. This necessitates several washing steps to ensure the desired purity of the pellet.

The REPROSTAR has been developed in order to allow direct access to the pellet fraction without contaminating it during retrieval. This is made possible by a leading channel conjoined with a lateral entrance of the tube. Hereby the contact with the upper layer can be bypassed and contamination of the pellet does not occur.

Ten individual human semen samples derived from patients of the daily andrology routine were spiked with defined amounts of horseradish peroxidase (HRP). The samples were split in half and each separated by density gradient centrifugation using either conical 15 ml tubes (DG group) or the REPROSTAR system (RS group). Sperm pellets were harvested through the lateral leading channel (RS group) or by traditional aspiration of the gradient overlays (DG group). Data was monitored by determination of the HRP concentrations given by O.D. values at 492 nm.

HRP concentration in the sperm pellets was related to the initial concentration in the semen loads (Fig.1). Three washing steps were necessary to achieve approx. the same cell purity in the DG group as compared to no washing steps in the RS group.

The data observed by means of HRP concentration reflect the highly efficient application potential of the REPROSTAR. A large clinical study is in progress.

The REPROSTAR represents a novel possibility for density gradient preparation which enables direct access to a contamination-free pellet fraction. A reduction of wash steps does not only save costs and time, but especially leads to less sperm cell damage which enables a more powerful fertility treatment for men.

Abstract image

Fig. 1

