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## Cell Evacology: Could it be a New Science

**Amro Abd Al Fattah Amara\***

Department of Protein Research, Genetic Engineering and Biotechnology Research Institute, Scientific Publishing, City for Scientific Research and Technological Applications, Universities and Research Center district, New Borg El-Arab, Egypt

**\*Corresponding author:** Amro Abd Al Fattah Amara, Head of the Protein Research Department, Genetic Engineering and Biotechnology Research Institute, and Head of the office of the Scientific Publishing, City for Scientific Research and Technological Applications, Universities and Research Center District, New Borg El-Arab, P.O. Box: 21934 Alex, Egypt, Tel: 2034593422; Fax: 2034593497; E-mail: amroamara@web.de

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### Letter to Editor

The sponge like protocol successfully introduced a fast, cheap and in house cell evacuation for nearly all the biological cells [1]. The original protocol describes bacterial cell evacuation from its cytoplasmic contents [1,2]. The protocol was optimized using Plackett-Burman design, which enables randomization for the variables included. Such randomization enables mapping the best cells' evacuation experimental conditions, which give the best un-deformed 3D structure and un-deteriorated surface antigens [1,3]. Its main concept is to determine the minimum inhibition concentration (MIC) and the minimum growth concentration (MGC) of chemical compounds able to induce pores in the cell walls [1,3]. Using of both MIC and MGC are critical step(s) to minimize any negative effect of the used chemical compounds and to guarantee cell killing but keep them un-deformed. It is able to introduce a single pore (in most cases), remove completely the cytoplasm and its contents, it turns normal cells to ghosts. The used chemical compounds until now are Sodium Dodecyl Sulphate (SDS), NaOH, NaH<sub>2</sub>CO<sub>3</sub>, H<sub>2</sub>O<sub>2</sub>, CaCO<sub>3</sub>, NaCl and ethanol. Any chemical compound, physical or biological conditions able to produce pore in any cell, to degrade the genomic constituents, to remove the cytoplasmic content and to keep the cell 3D structure and the surface antigen in correct form is invited. Many controlling steps are involved in the original protocol such as investigating the existence of any still existed viable cells. Out of the twelve Plackett-Burman experiments, only single viable cell colony was obtained. The viable cells in this experiment were degraded by activating the lysozyme gene using chloramphenicol in the *E. coli* BL21 [4]. Controlling the cells 3D structure during their evacuation steps using the light microscope guarantee full evacuation with nearly no effect on the 3D or the surface antigens [2]. For each cell, the condition for the best evacuation with the best cell quality might need some adjustment, but after adjusting the evacuation conditions, the protocol is reliable and straightforward.

The idea of the protocol was used to evacuate the Newcastle virus [5], the eukaryotic *Saccharomyces cerevisiae* was further used additionally after the evacuation as a drug transport model) and more species are invited [6,7]. To prove that the protocol concept is universal and could exceed the chemical compounds to the biological ones, lysozyme and

proteinase K were used with the spore former extremothermophilic *Bacillus stearothermophilus*. The enzymes when used in their minimum killing activity concentrations and their minimum living activity concentrations succeeded to turn the spore former bacteria to ghosts [8]. One could say that this protocol and its concept enable the evacuation of the biological cells without harming their cell wall or their outer membrane [9-11]. Such protocol will open many applications concerning the viable biological cells and the evacuated biological cells. In addition, its concept, which is based on using the critical concentration of both of the killing and the living concentrations of the used chemical compounds, enzymes, etc., might exceed the biological science to other fields and applications. Moreover, it might give idea about the need for determining the effect of the active compound(s) and enzyme(s), protein(s), etc., at the cell level (dosage/cell) rather than at the body level (dosage/kg). Cell evacology might be a term for a new science concerns with the cell evacuation.

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