STATISTICAL ANALYSIS OF 2D-ELETROPHORESIS GELS OF RESTING AND PMA ACTIVATED HUMAN NEUTROPHILS

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Neutrophils are the major type of leukocytes in peripheral blood and protect against fungal and bacterial infections. Directed migration in a gradient of chemotactic stimuli enables these cells to rapidly find the site of infection and destroy the invading pathogens. PMNs can exist in three different activation states, namely, resting, primed, and activated states. Activated neutrophils produce reactive oxygen species (ROS), in what is known as respiratory burst, increase phagocytosis, delay apoptosis, among other functions. These cells also can be activated *in vitro* by particles, bacterial signal peptides and substances as phorbol- myrystate-acetate (PMA). The PMA is a diacylglicerol (DAG) analog that bypasses membrane receptors and directly activates intracellular protein kinase C (PKC). A comparative statistical analysis of 2D-eletrophoresis gels, pH4-7, of normal and stimulated neutrophils can lead to the identification of relevant diagnostic markers or potential drug targets. The gels were analyzed through Image Master Platinum (Amersham Pharmacia Biotech), and 75,15% of the spots were matched among non-activated neutrophil gels and PMA activated. The correlation coeficient was 0,797 between the two gels. 431 spots were regarded as belonging only to the resting neutrophils, and 344 spots were exclusive of the PMA activated neutrophil map. 132 matched spots showed variation in expression more than 50%, while 170 spots had 35 - 50% of variation.