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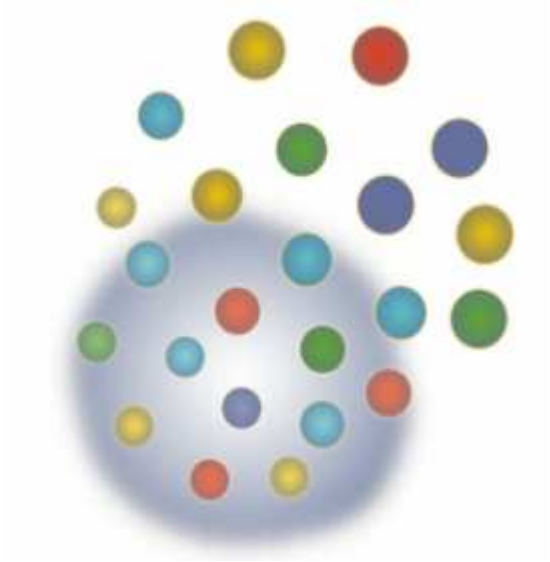

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Pediatric Cardiology, Heart Center Leipzig
University Hospital

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Translational Centre for Regenerative Medicine (TRM) Leipzig
Universität Leipzig

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Universität Leipzig

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Translational Centre for Regenerative Medicine (TRM) Leipzig
Universität Leipzig

TRM Leipzig

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Abstract no. P01

A QUICK ANALYSIS METHOD FOR CHLORINATING MYELOPEROXIDASE ACTIVITY DETECTION IN AN ANIMAL STUDY ON RHEUMATOID ARTHRITIS

Flemmig J[1,2], Schwarz P[2], Leichsenring A[3], Bäcker I[3], Lange F[3], Arnhold J[1,2]

[1]Translational Centre for Regenerative Medicine (TRM) Leipzig, University of Leipzig, [2]Institute for Medical Physics and Biophysics, Medical Faculty, University of Leipzig, [3]Fraunhofer Institute for Cell Therapy and Immunology (IZI) Leipzig

Rheumatoid arthritis (RA), a chronic inflammatory disease, leads to joint destructions and systemic immunological pathologies. Yet exact mechanisms for the initiation of RA are poorly understood. The onset of an acute inflammation includes the recruitment of immune cells and their subsequent activation. Thereby polymorphonuclear leukocytes (PMNs) are among the first cells. Their immunological activity includes an unspecific response against pathogens and the release of pro-inflammatory cytokines. The heme-containing enzyme myeloperoxidase (MPO), stored in large amounts in PMNs, is involved in both of these aspects. However, the MPO-catalysed formation of hypochlorous acid (HOCl) also contributes to the resolution of inflammation e.g. by suppressing pro-inflammatory macrophage responses. Yet, several substances present at centres of inflammation disturb the MPO-derived chloride oxidation by accumulating compound II, an inactive enzymatic state. Still, many well-known anti-inflammatory agents restore native MPO from compound II and, thus, regenerate its chlorinating activity. Preliminary studies on human PMNs showed, that certain catechins are excellent substrates for MPO compound II and, therefore, effectively regenerate the chlorinating MPO activity. In order to test whether these results are transferable to in vivo conditions we applied the flavonoid epigallocatechin gallate (EGCG) in a rat model of chronic arthritis. The erythrocyte content of the blood samples periodically collected from the animals was reduced by a hypotonic lysis procedure. Afterwards the MPO activity status was determined by staining with aminophenyl fluorescein (APF) and flow cytometry analysis. The described blood analysis method allows the quick determination of the chlorinating activity of MPO in both human and in rodent leukocytes and may, therefore, be a suitable tool to gain more insights into the role of this enzyme in chronic inflammatory diseases.