

# Disease of the immune system

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Rheumatoid Arthritis (RA) is an autoimmune disorder that “ leads to inflammation of the joints and surrounding tissues” (Makover, 2012). RA normally affects both the joints of the body at an equal rate and begins slowly with stiffness, fatigue and minor joint pains. The symptoms include joint pains, morning stiffness for about an hour, numbness or burning in the feet and hands, and nodules below the skin.

It comes as a result of the body’s immune system attacking its tissue by mistake. It can be tested for by lab tests like Rheumatoid factor test , Anti-CCP antibody test, Joint X-rays, synovial fluid analysis and Erythrocyte Sediment rate. Treatment of RA is life-long and includes education, medications, physiotherapy and surgery (Makover, 2012). Principle of Haematoxylin and Eosin stain After oxidation of haematoxylin, the final product is haematin which is the active ingredient in the staining solution. This in situ oxidation is enhanced by the addition of a strong oxidant to the stain.

In an alkaline solution, haematin is blue and less soluble while in acidic solution, it is red and more soluble. In acidic solution, the haematin adheres to lysine residues of nuclear histones linked by a metallic ion mordant like aluminum. The stain is applied for a long time to saturate the chemical binding sites. Consequently, a non-distinct background coloration which is removed by regulated leaching in an acid alcohol (differentiation) is produced. The process of differentiation is stopped by transferring the sample to an alkaline medium in which haematin turns blue and thus reveals the cell nuclei.

For maximum cellular details, the sample is counterstained with eosin solution. The eosin stain color is enhanced using phloxine. In order to produce clear colorations, the dyes are applied in acidic environment with the more acidic sample components holding more dye. Hence, the addition of acetic acid is appropriate.