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Can assessment of synovial fluid and blood specimens for pro- and anti-inflammatory markers predict the type of arthritis patients may develop

Laurence O'Neill
Institute of Technology Carlow, Republic of Ireland

Matrix metalloproteinase-2 and -9 are produced in arthritis conditions such as osteoarthritis and rheumatoid arthritis. Pro-inflammatory cytokines such as Interleukin-6 (IL-6) and Tumor necrosis factor-alpha (TNF-α) are known to be elevated, whereas anti-inflammatory cytokines such as Interleukin-10 (IL-10) and Interleukin-17 (IL-17) are lower. The balance between pro- and anti-inflammatory cytokines determines the severity of arthritis. This is due to the pro-inflammatory cytokines initiating a sequence of events which ultimately leads to joint destruction. Our research seeks to compare the levels of matrix metalloproteinases found in blood samples from arthritis patients to the levels obtained in blood from healthy volunteers. Using these results to then determine if a diagnosis can be made from the cytokine profile present in a patients' samples. Gelatin zymography was carried out to determine the levels of Matrix metalloproteinases (MMPs) in blood and synovial fluid samples and the results were analysed using Image J. Enzyme-linked immunosorbent assay (ELISA) was also used to determine the levels of cytokines IL-1, IL-6, TNF-α and IL-17 in all the blood specimens.

Biography

Mr Laurence O'Neill is completing a Masters Research at the Institute of Technology, Carlow (IT Carlow). The project is funded by the Presidents' Fellowship Award Scholarship Scheme at IT Carlow. He completed his undergraduate degree in biosciences with biopharmaceuticals (Honours) at IT Carlow.

laurencemon@hotmail.com

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