

Assay of Glucosamine in Human Synovial Fluid

Khadijah, B. H., Sheng, P., Chua, Y.T., Tian, F.E., & Ong, S.P.
In collaboration with Lynk Biotechnologies Pte Ltd

INDUSTRIAL VOUCHER SCHEME



Figure 1: High Performance Liquid Chromatographic System

Study Outcomes / Industrial Impact

- Glucosamine, an amino sugar believed to be effective in easing osteoarthritis pain and repairing damaged joints, has been successfully quantified in human synovial fluid using High Performance Liquid Chromatography (HPLC).
- The determination of glucosamine in human body fluids will enhance understanding of its bioavailability and make the medication more effective and safe.

Technology / Methodology

- A HPLC method for the quantitation of glucosamine in human synovial fluid was developed and validated.
- Human plasma/synovial fluid samples were subjected to a simple protein precipitation step, followed by a derivatization step to improve chromatographic retention and separation behaviour.

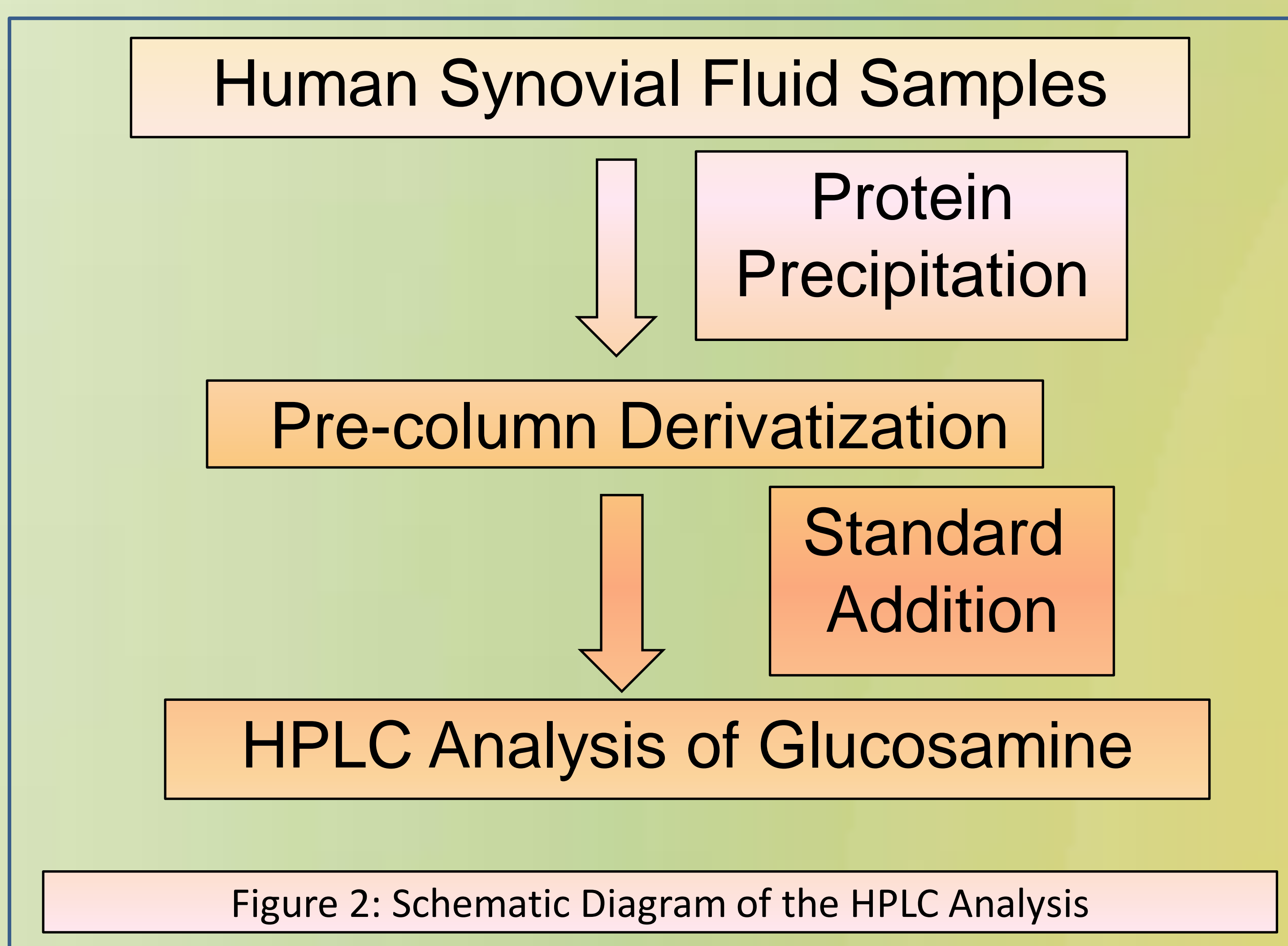
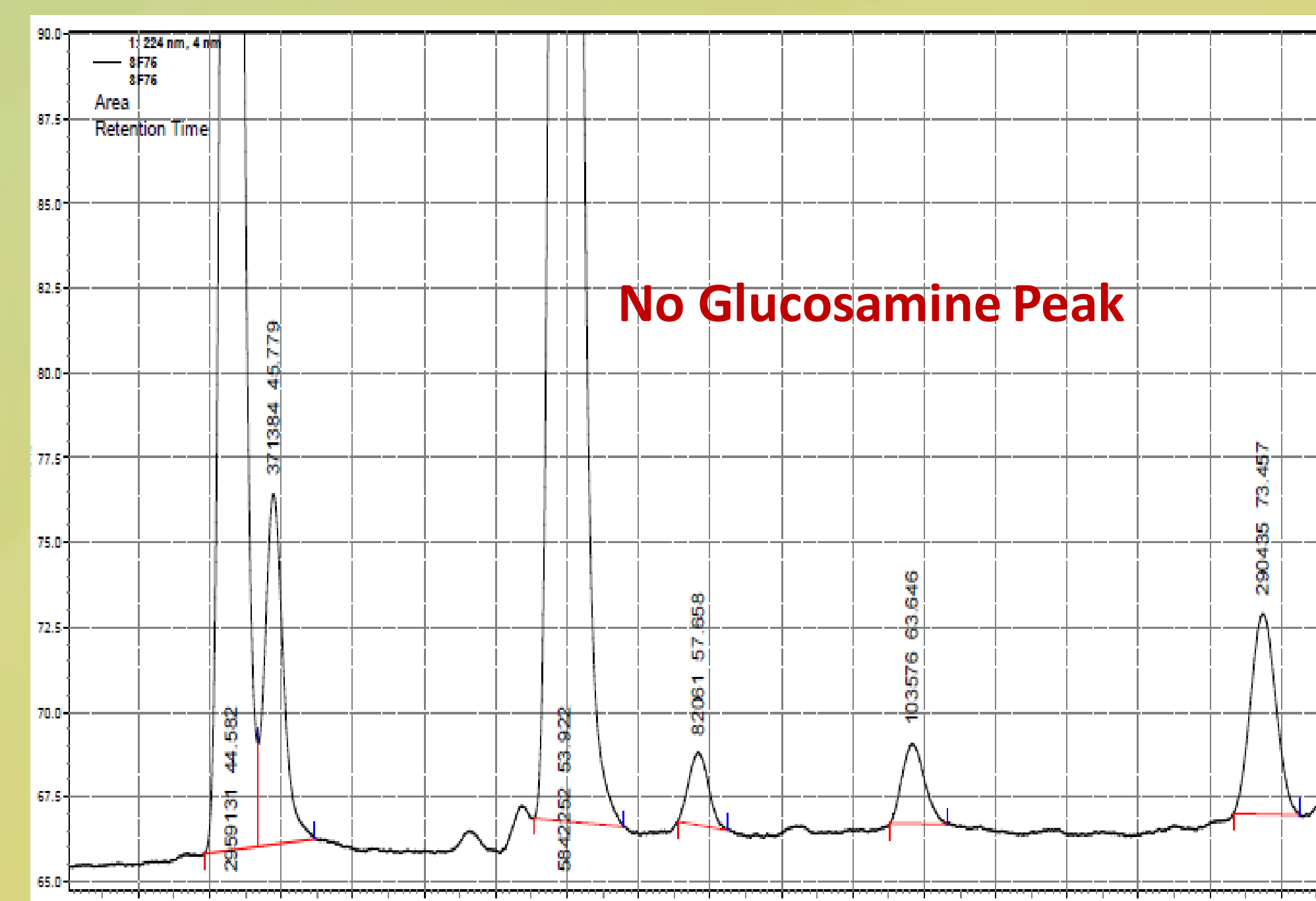
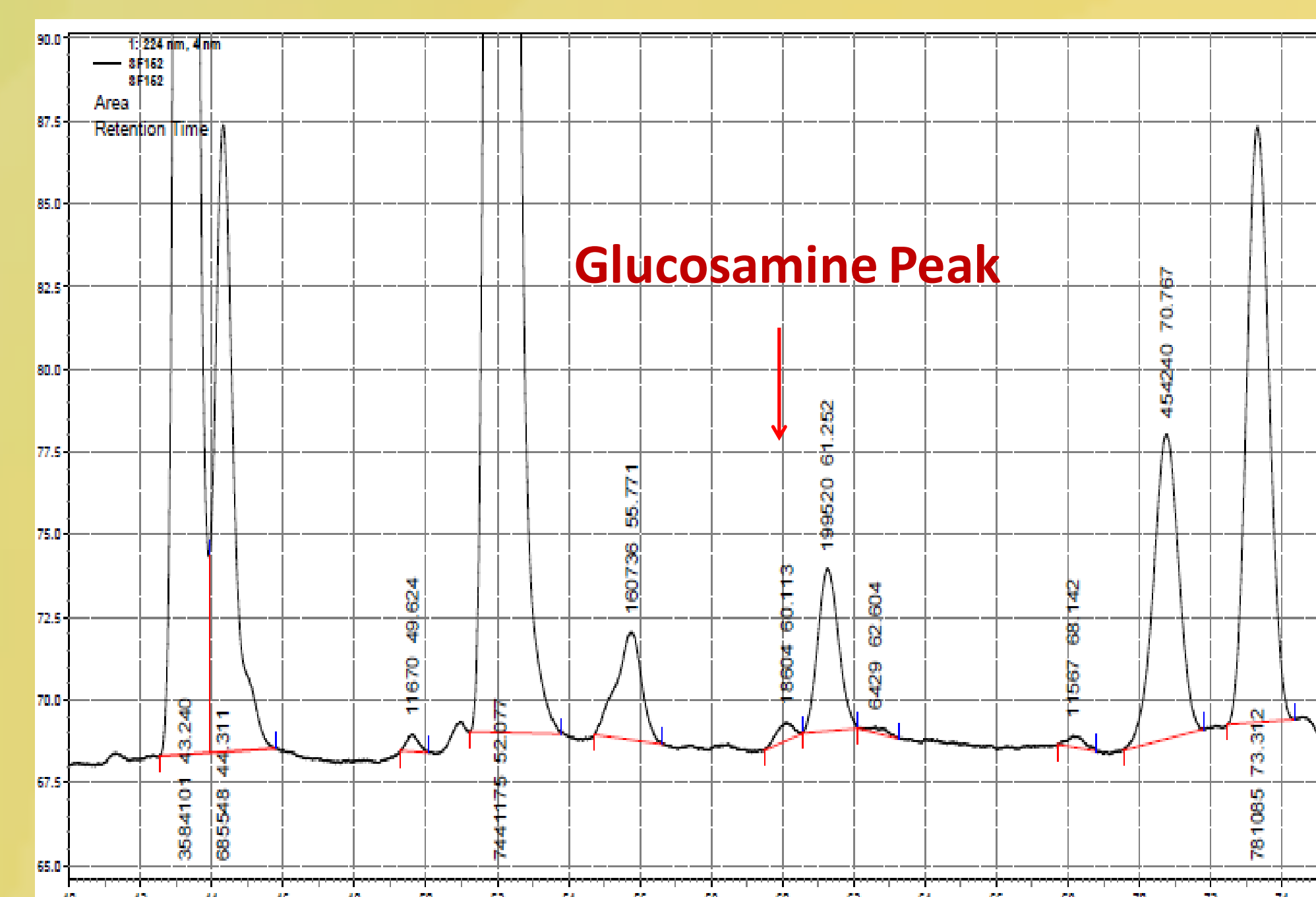


Figure 2: Schematic Diagram of the HPLC Analysis

- The quantity of glucosamine in human synovial fluid was then determined using the standard addition method.



(a)



(b)

Figure 3: Chromatograms of (a) Sample Without Glucosamine Treatment and (b) Sample With Transdermal Glucosamine Treatment