[PA1-1] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Bone formation-suppressing Activities in Osteoblast like-UMR106 cells by high Glucose contents

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Diabetes is complex in nature but it gets further complicated in associating with number of other diseases like hypertension, ratinal disintegration, renal failure and many others. The latest addition to diabetic-complication is its association with bone degeneration disease; osteoporosis, which is a form of bone loss. In both the types of primary diabetes, the insulin dependent diabetes millitus (IDDM) as well in insulin independent diabetes millitus (IIDM) the glucose metabolism is altered. And especially in IDDM, glucose concentration has been observed to be too high. An altered extra cellular glucose, effect significantly the cellular processes; like modulation of cellular redox, dysfunction in cellular metabolic paths and glycosylation of proteins and DNA thus affecting cell growth and function. It may be possible that such situation may be in the bone forming cells too, hence a possible link between high glucose contents and origin of osteoporosis may exist. To prove such linkage in this study, the effect of different concentration of glucose were observed in osteoblast-like UMR106 cells. And the effects of elevated glucose concentrations (22mM, 33mM) were found to have inhibitory in nature on bone formation activities like measurements of alkaline phosphatase and collagen synthesis. Such inhibition in case of alkaline phosphatase activity was recorded at both concentrations, where degree of inhibition also increased with prolongation of duration days. Similar observation was also recorded with collagen synthesis. Such inhibitory activities of glucose is seems to be very specific to its nature only, as other derivative like mannitol failed to produced such inhibition, thus discarding the osmotic theory action. Utilization of glucose such inhibitory action also proved by reduction in glucose contents in protein assay.
This study clearly shows that high glucose contents have suppressing effect in bone formation activities, which may participate in the cause of osteoporosis also.

[PA1-2] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

High Throughput Fluorogenic Assay for TNF-alpha Converting Enzyme(TACE) inhibitors

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Human tumor necrosis factor-alpha (TNFa) is a key pro-inflammatory cytokine produced by activated monocytes and macrophage as a part of the self-defence machinery. TNF-a converting enzyme (TACE) is the metalloproteinase that processes the membrane bound precursor of TNFa to the soluble component. Recently, several evidences demonstrate that selective inhibition of TACE could be a potential strategy for modulating inflammatory response in many diseases such as rheumatoid arthritis, Crohn's disease and inflammatory bowel disease.