Following administration of radiolabeled GlcN by I.V. and oral routes, about half of radioactivity was excreted in CO_2, 40% was excreted in urine whereas the remaining 2-10% were excreted in feces. Blood levels achieved after oral GlcN are only 20% of those achieved with I.V. GlcN (Anderson *et al.* 2005; Setnikar *et al.* 1983).

1.4.4 Biochemical pathways

GlcN is naturally produced in the cells as GlcN-6-phosphate via hexosamine biosynthetic pathway through the combination of glutamine with fructose-6-phoshphate in the presence of the enzyme glutamine fructose-6-phosphate amidotransferase. Ending up with the formation of uridine diphosphate-N-acetyl glucosamines, which enters in the formation of glycosaminoglycans, glycolipids and proteoglycans. This sugar will be used for O-linked glycosylation of several proteins such as RNA polymerase, transcription factors and nuclear pore proteins causing changes in the biological activity (Anderson *et al.* 2005; Roseman 2001; Uldry *et al.* 2002).