

Role of glucose-1-phosphate and glucose-6-phosphate in glycogen synthesis by pigeon liver homogenate

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1. 1. Glucose-1-C¹⁴, G-6-P-1-C¹⁴ and G-1-P-I-C¹⁴ have been incubated with a pigeon liver homogenate. Incorporation of C¹⁴ into glycogen and CO₂ were measured. 2. 2. The relative incorporation of C¹⁴ from G-6-P-1-C¹⁴ and glucose-1-C¹⁴ into glycogen and CO₂ together with the relative incorporation of C¹⁴ from G-1-P-I-C¹⁴ and glucose-1-C¹⁴ into glycogen and CO₂ were calculated. From these results, it is postulated that G-6-P is not a necessary intermediate in glycogen biosynthesis from glucose; G-1-P would be the first intermediate and the metabolic cross that leads to glycogen and CO₂. 3. 3. It is suggested that G-1-P is formed directly from glucose through the reactions catalyzed by phosphoglucokinase (E.C. 2.7.1.10) and phosphodismutase (E.C. 2.7.1.41). 4. 4. This last hypothesis is supported by the fact that G-1-P and G-1,6-diP stimulated C¹⁴ incorporation from glucose-1-C¹⁴ into both CO₂ and glycogen. Other minor facts obtained from this work and others from the literature help to su