

**Geisbuhler T, Schwager T. Ribose-Enhanced Synthesis of UTP, CTP, and GTP From Parent Nucleosides in Cardiac Myocytes. *J Mol Cell Cardiol.* 1998; 30(4): 879-887.**

The participation of ribose and its metabolites in some nucleoside salvage reactions is well established. Isolated adult rat cardiac myocytes were used as a model system to determine whether ribose acts as a general stimulant of salvage reactions in cardiac muscle, or whether only certain classes of nucleosides are affected by ribose. Myocytes were incubated with [3H]-adenosine, [3H]-cytidine, [3H]-guanosine, [3H]-thymidine, or [3H]-uridine for 30 or 60 min in the presence or absence of 5 mM ribose. The cells were extracted and the extracts assayed for [3H]-nucleoside and [3H]-nucleotide products. Salvage synthesis of cytosine, guanine and uracil nucleotides from the parent nucleosides was stimulated by ribose. Guanosine and uridine salvage appeared saturated at 50 microM external nucleoside (the dose response of cytidine salvage was not examined). Adenosine salvage was unaffected by ribose addition; the response to increasing external adenosine concentration was non-Michaelis-Menten, showing a peak of activity at 25 microM external nucleoside. Thymidine salvage was also unaffected by ribose, and was saturated at 50 microM external thymidine. These data suggest that adenosine and thymidine are metabolized to their respective nucleotide monophosphates by kinase activity. Cytidine, guanosine, and uridine salvage are stimulated by ribose, and must therefore be metabolized in part by nucleoside phosphorylase and phosphoribosyltransferase activity.

