

**Text S5. Overview interconvertible enzymes of human hepatic glucose metabolism.**

Enzyme	HGP /HGU	Dephosphorylated (dp)	Phosphorylated (p)	Phosphorylation Change
GS	HGU	lower affinity for udpglc	higher affinity for udpglc	<b>Inactivation</b> lower affinity for substrate different activation by glc6p
GP	HGP	lower $V_{max}$ no effect glc activation by amp little lower affinity glycogen much lower affinity glc1p much lower affinity p	higher $V_{max}$ inactivation by glc no effect amp little higher affinity glycogen much higher affinity glc1p much higher affinity p	<b>Activation</b> increased $V_{max}$ different activators, inhibitors  changed affinities substrates and products
FB2	HGP	lower affinity for fru26bp higher affinity for inactivator fru6p	higher affinity for fru26bp lower affinity for inactivator fru6p	<b>Activation</b> higher affinity for substrate lower inactivation by fru6p
PFK2	HGU	higher affinity for fru6p higher affinity for atp	lower affinity for fru6p lower affinity for atp	<b>Inactivation</b> lower affinity for substrates
PDH	HGU	higher $V_{max}$	lower $V_{max}$	<b>Inactivation</b> decreased $V_{max}$
PK	HGU	higher affinity for pep higher affinity for activator fru16p	lower affinity for pep lower affinity for activator fru16p	<b>Inactivation</b> lower affinity for substrate lower activation by fru16p