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### **Peculiarities of chickens' glucose transport and mechanisms involved**

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Facilitated transport of glucose into cells is catalyzed by specific transporters called glucose transporters (GLUTs). Glucose transport is the limiting step of glucose metabolism and is regulated by insulin. In mammals, GLUT4 has been described as the major insulin-sensitive glucose transporter. The underlying mechanism uses the PI3K signaling pathway to regulate the translocation of GLUT-4 from internal vesicles to plasma membrane in order to let the glucose transport into the cell. Previous studies in our laboratory showed that glucose transport can be sensitive to insulin despite the lack of GLUT4 in chickens. The aim of our study was to determine which mechanisms were involved in this insulin-sensitive glucose transport in chickens.

We used chicken primary muscle cells and a non-radioactive kit to measure glucose transport via 2-deoxyglucose transport. Glucose transport was measured in presence or in absence of different activators or different inhibitors: insulin as an activator, phloretin as an inhibitor known to block glucose transport by changing membrane conformation and LY294002 as an inhibitor of the PI3K pathway.

As expected, insulin increased glucose transport. Moreover, phloretin and LY294002 both inhibited glucose transport into cells as described in mammals. Further studies are currently conducted to find the insulin-sensitive glucose transporter(s) involved in this mechanism.