Dear Dr. Sokoloff

I was very glad to see you again in NIH. I enjoyed your clear lectures very much. Since I returned to Japan, I have been looking for laboratory for Radio-isotope use because in my hospital we are prohibited from using RI for animals. But, I will solve this problem soon.

I am always thinking about the equation to get \( V_m^* \) and \( K_T^* \). You gave me a equation to solve \( V_m^* \) and \( K_T^* \) for methyl glucose as follows.

\[
\begin{align*}
\text{m MG} &= \frac{K_{MG}}{K_{IAP}} \times \frac{\lambda_{MG}}{\lambda_{MG}} \\
&= 1 - e^{-(PS*)_{MG}} \\
\text{PS}^* - C_P^* &= V_m^* - PS^* \left(1 + \frac{C_P}{K_T}\right) \times K_T^* \text{ TRUE} \cdot \text{MG} 
\end{align*}
\]

I have several question about equation.

Q1. To get \( V_m^* \) and \( K_T^* \). We need \( PS^* \) values at different plasma glucose concentration. To get diffusion limitation of methyl glucose (\( \text{m MG} \)), we also need information about \( \lambda_{MG} \) and \( \lambda_{IAP} \) according to Eq(1). I know \( \lambda_{MG} \) is different at different plasma glucose concentration. How about \( \lambda_{IAP} \)? Is it different at different plasma glucose concentration?
Do I need data of \( \lambda \) IAP at different plasma glucose concentrations by different animal groups?

Q2. Eq\(^3\) is final equation to get \( V_m^* \) and \( K_T^* \). I know \( K_T \) for glucose is about 6.8. However, is \( K_T \) same value at different plasma glucose concentration and different brain structures?

In pathological condition, I think \( K_T \) should change. So, according to Eq\(^3\), it is impossible to get \( V_m^* \) and \( K_T^* \) without information of \( K_T \).

What do you think about that?

I know you are extremely busy person. But, could you answer my questions?

I am looking forward to seeing in Sendai next year. I will attend reunion party in Sendai.

Sincerely yours

Kentaro Mori

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