

脳卒中易発症ラットと対照ラット間における メバロン酸二リン酸脱炭酸酵素の遺伝子発現レベルの比較

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Comparison of the Gene Expression Levels of Mevalonate Pyrophosphate Decarboxylase between Stroke-prone Spontaneously Hypertensive and Wistar Kyoto Rats

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ABSTRACT: The relationship between protein and mRNA levels of mevalonate pyrophosphate decarboxylase (MPD) in rat tissues remains to be clarified. In this study, we examined the distribution of the mRNA in Wistar rat tissues by real-time PCR. When the relative expression of MPD in 1 mg of tissue was quantified using glyceraldehyde-3-phosphate-dehydrogenase (GAPDH) as an internal control, the mRNA level was found to be markedly higher in the spleen and liver than in other organs. The correlation coefficient between protein and mRNA levels of MPD was 0.847, indicating that the protein level of MPD in Wistar rat is distributed in the tissues almost entirely dependent on the mRNA level of MPD. We previously reported that the protein levels of MPD in the liver and brain of spontaneously hypertensive rats, stroke-prone (SHRSP) are reduced. Thus, we compared mRNA levels of MPD in the liver and brain between Wistar Kyoto rats (WKY) and SHRSP. The levels in liver of SHRSP were significantly decreased, but not in brain, as compared with WKY. Also, mRNA levels of sterol regulatory element binding protein-2, which is transcription factor of cholesterol, in liver of SHRSP was similar to those of WKY. These findings indicate that the reduced protein level of MPD in the liver of SHRSP is caused by a decrease in mRNA level of MPD, and that in the brain of SHRSP is caused by increased degradation of the MPD protein..

抄録 脳卒中易発症ラット (SHRSP) と対照ラット (WKY) 間におけるメバロン酸二リン酸脱炭酸酵素 (MPD) の mRNA レベルの比較を行った。その結果、SHRSP 肝中の MPD タンパクレベルの減少は、mRNA レベルの低下により引き起こされることが示唆された。しかし、脳においては、SHRSP と WKY 共に mRNA レベルの値が同程度であることから、SHRSP 脳中の MPD タンパクレベルの減少は、タンパク分解促進作用により引き起こされることが示唆された。