
COMPARISON OF PROTEIN EXPRESSION REGULATION OF RHO GDI PATHWAY IN ANTIPSYCHOTIC DRUG TREATED C6 GLIAL AND B35 NEURONAL CELL LINE

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Introduction

Our recent publication demonstrated that antipsychotic drugs (APDs) can modulate expression of RhoGDI in C6 glial cell line. RhoGDI is a key regulator of Rho proteins initiated signaling pathway. Activated Rho proteins can regulate gene transcription, cell cycle progression, vesicular trafficking, stress intracellular filament production and cell morphology. The studies of which glial cells involve in schizophrenia are important to understand the pathogenesis of this disease and the therapeutic mechanisms of antipsychotic drugs.

Objectives

We examine the expression of RhoA mediated proteins in RhoGDI pathway in APD (haloperidol, risperidone and clozapine) treated C6 cells. The same works were also performed in APD-treated B35 neuronal cell line.

Aims

We tried to investigate and compare the APD induced the protein expression in APD-treated glial and neuronal cells.

Methods

Whole cell protein extracts from APD-treated cells were analyzed by Western Blot.

Results

In C6 cells, RhoA expression could be increased by all three APDs. Both c-jun and p-JNK expressions were regulated by haloperidol and clozapine. Haloperidol and clozapine also decreased ROCK1 and MLC2 expressions. ARP2/3 expression was dramatically inhibited by all three APDs. Only haloperidol inhibited PAK1 expression. N-WASP expression was not affected by any of the three APDs. In B35 cells, regulation of c-jun and JNK expression were observed in risperidone- and clozapine-treated B35. Haloperidol increased ROCK and MLC2 expressions. Clozapine dramatically inhibit ARP2/3 expression. N-WASP expression was regulated by haloperidol and clozapine.

Conclusion

APDs induced protein expression regulations are similar but somewhat different in glial and neuronal cells.