Method for non-invasively recording electrocardiograms in conscious mice

ABSTRACT

By using our technology, we can non-invasively screen large numbers of mice for ECG changes caused by genetic, pharmacological, or pathophysiological changes. The data we gathered non-invasively is in line with previously reported results that have been used invasive and expensive methods, as well as new findings showing gender-based and age-dependent variations in ECGs in mice.

INTRODUCTION

Schizophrenia is a common mental illness that occurs frequently in adolescents and young adults, but the pathophysiology and etiology of schizophrenia are still unknown. While many research articles on the relationship between change in the dopamine system and schizophrenia have shown that this link is likely to be associated directly with schizophrenia, there is little direct evidence supporting the "dopamax hypothesis in schizophrenia". The development of new molecular biology and imaging techniques has made it possible to investigate schizophrenia more effectively than before, but these methods are still not universally accepted and often yield conflicting results. The "dopamine hypothesis" is based on the manipulation of the dopachymy system through pharmacological mechanisms that mimic or reduce the symptoms of schizophrenia. In addition to their own receptor, dopamine also affects the changes in the dopinamine system; therefore, for a complete description of these changes and their relationship with each other, studies are needed to explain what happens exactly in this system. Le Fur's discovery in the early 1980s revealed the presence of high affinity binding sites for [3H]spiroperidol in peripheral blood, but there has been a long-standing dispute as to whether these sites are specific or not. Recent molecular biology research has revealed the presence of D3, D4, and D5 dopamine receptors expressed in peripheral lymphocytes, indicating that the binding sites for [3H]spiroperidol in these tissues may be authentic dope receptor bases. However, clinical significance of these findings and whether or not these receptor(s) are central dopetamine-expressing cells is unclear. In order to determine if peripheral dopamine receptor mRNA is altered in schizophrenia statically or dynamically, this study was conducted to investigate whether these receptors may be useful as a potential peripheral marker for central schizophrenia.

CONCLUSION

Through a combination of sequence analyses and 3D structure comparisons, we have demonstrated that the repeating motif in LRRs is present in the L domains of IR and EGFR subfamilies, as well as in -helix proteins. This motif is not easily identifiable, difficult to identify with sequence analysis programs, and has not been described before. We found that L domains matched well with the pectate lyase family and porcine ribonucleasese inhibitor, suggesting that they are all part of the same superfamily of protein regulators. At specific repeat positions in the IR and EGFR subfamilies, leucine is overtaken by isoleucle (or valine) while in -helix proteins, it is replaced by leU.