

CHAPTER 1

INTRODUCTION

1.1 Background

Major depressive disorder is a leading cause of disability worldwide, with a lifetime population prevalence as high as 20%.

Depression is a heterogeneous group of illnesses that vary in symptomology and most likely in etiology. Symptoms of depression include depressed mood, loss of pleasure, lack of energy, dysregulated sleep or appetite, feelings of worthlessness or guilt, thoughts of suicide and of course, physical immobility.

Despite the many treatment options currently available for depression, a relevant proportion of patients up to one third do not adequately respond to treatment and up to 30% are considered non-responders. (Trivedi et al., 2006). In other word There is a need for new medicinal products with better efficacy (e.g., faster onset of action, higher rates of response and remission) and improved safety profile in patients.

In current research regarding the mental health (in this case depression), the use of animal research (i.e. mice) is become very essential which aimed to produce mental symptoms in order to understand any behavior changes as a mental symptoms (working hypothesis).

In addition, the pathophysiology of depression has not yet been elucidated, thus the responsiveness to antidepressants can be a diagnostic basis in clinical situations. Therefore, it is considered that the screening test in animals for assessing the reactivity to the drugs also serves an animal model. One of them is by using Forced Swim Test (FST) and developed the automated analysis system.

1.2 Research Question

How can we establish a good parameter for producing a effective automatic analysis ?, Can the develop automatic system detecting the anti-depressant/depression effect of specific compound ?, Is there any relationship between specific compound and protein expression in hippocampus ?

1.3 Purpose

In the present study, we first developed an automated analysis system for assessing depression-like behaviour and then investigated the effect of corticosterone administration as a stress-model physiologically, expression of the doublecortin (DCX) within the dentate gyrus (DG) among different treatment group.

1.4 Research Benefit

Successful establishment of automated analysis system which can assess depression-like behavior and antidepressant drug effect in mice