

**FINAL SCIENTIFIC ASSIGNMENT
INTERNATIONAL DENTAL COURSE**

**Development of An Automated Analysis System for
Assessing Depression-like Behaviour and
Antidepressant Drug Effect in Mice**



Abrar Rizal Abawa

C180453

Department of Cellular & Molecular Pharmacology

School of Dentistry, Hiroshima University

Hiroshima, Japan

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Oleh:**

ABRAR RIZAL ABAWA

NIM: 021711133043

Menyetujui

Pembimbing Utama



Professor Yukio Ago, Ph.D.

Pembimbing Serta



Dr. Ira Arundina, drg., M.Si
NIP: 197110281997022002



Eiji Imado, D.D.S.

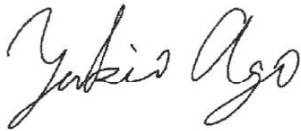
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KEDOKTERAN GIGI, UNIVERSITAS AIRLANGGA SURABAYA
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APPROVAL SHEET

We certify that we have read the final scientific assignment

Prepared by : Abrar Rizal Abawa

Entitled : Development of An Automated Analysis System for Assessing
Depression-like Behaviour and Antidepressant Drug Effect in Mice



Professor Yukio Ago, Ph.D.

Department of Cellular & Molecular Pharmacology

Hiroshima University

Institute of Biomedical and Health Science

Eiji Imado, D.D.S.

Department of Cellular & Molecular
Pharmacology

Hiroshima University

Institute of Biomedical and Health Science

JUDGES

This Final Scientific Assignment has been presented on July 7th, 2022

- 1. Professor Yukio Ago, Ph.D.**
- 2. Eiji Imado, D.D.S.**

SURAT PERNYATAAN TENTANG ORISINILITAS

Yang bertanda tangan di bawah ini, saya:

Nama : Abrar Rizal Abawa
NIM : 021711133043
Program Studi : Pendidikan Dokter Gigi
Fakultas : Kedokteran Gigi
Jenjang : Sarjana (S1)

Menyatakan bahwa saya tidak melakukan plagiat dalam penulisan skripsi saya yang berjudul:

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Demikian surat ini saya buat dengan sebenar-benarnya.

Surabaya, 26 Oktober 2021



Abrar Rizal Abawa

NIM 021711133043

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ABSTRACT

Background: Depression is a heterogeneous group of illnesses which has variety of symptoms & etiology. Despite many treatment 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. In addition, the pathophysiology of depression has not yet been elucidated. Therefore, it is considered that the screening test in animals as an animal model are necessary. One of them is by using the forced swim test and developed the automated analysis system. **Objective:** We first developed an automated analysis system, investigated the effect of corticosterone (CORT) administration as a stress-model physiologically, expression of the doublecortin (DCX) within the dentate gyrus among different treatment group. **Methods:** The development of automated analysis system for assessing depression-like behaviour and antidepressant drug effect in mice are consist of 3 method: preliminary, behavior and physiological related depression, and immunohistochemistry. **Results:** Between treatment condition "A", "B" and "C", we compared counting method and immobility detection time within the software. Finally, 1-sec immobility detection sensitivity was most suitable. There is a significant decrease in immobility time in desipramine-treated mice. The effects of chronic CORT treatment on 3 weeks treatment showed a significant effect of depression-like behavior detected by the ANY-MAZE software followed by diminished ratio of adrenal gland weight/body weight. **Conclusion:** To establish reliable experimental condition for assessing depression-like behaviour, the data of manual counting and automatic counting must showed similar result. In addition, desipramine showed antidepressant effect and also chronic treatment of CORT induced more depressive effect.

Keywords: doublecortin, corticosteroid, depression, hippocampus

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