

**UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI PENYELIDIKAN
LAPORAN AKHIR**

**ROLE OF PRESYNAPTIC GLUTAMATE RECEPTORS IN
MODULATION OF LONG TERM SYNAPTIC PLASTICITY
(LTP) IN INHIBITORY SYNAPSES OF VISUAL PYRAMIDAL
NEURON AFTER EPILEPSY: A WHOLE CELL PATCH
CLAMP RECORDING**

PENYELIDIK

DR. MOHAMMED FARUQUE REZA

PENYELIDIK BERSAMA

**PROF JAFRI MALIN ABDULLAH
DR. TAHAMINA BEGUM
HANIF CHE LAH**

2015



No. Fail : F0552
Tarikh : 28 Oktober 2014

Dr. Mohammed Faruque Reza
Pusat Pengajian Sains Perubatan
Universiti Sains Malaysia
Kampus Kesihatan
16150 Kubang Kerian
Kelantan Darul Naim



Memorandum

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LAPORAN AKHIR SKIM GERAN PENYELIDIKAN FUNDAMENTAL (FRGS) FASA 2/2010

Tajuk Projek : *Role Of Presynaptic Glutamate Receptors In Modulation Of Long term Synaptic Plasticity (LTP) In Inhibitory Synapses of Visual Pyramidal Neuron After Epilepsy: A Whole Cell Patch Clamp Recording*

Kod Akaun : 203/PPSP/6171137

Dengan hormatnya perkara di atas dirujuk.

2. Terlebih dahulu saya ucapkan ribuan terima kasih di atas satu (1) salinan laporan akhir untuk projek penyelidikan tuan seperti tajuk di atas.

3. Adalah dimaklumkan walaupun projek ini telah selesai, kerjasama Jabatan Bendahari dimohon untuk menguruskan penutupan akaun projek pada selewat-lewatnya **31 Disember 2014**. Tempoh ini bertujuan untuk menyelesaikan semua urusan tuntutan dan bayaran yang telah dibelanjakan di dalam tempoh projek. Walau bagaimanapun tuan dinasihatkan supaya tidak mengeluarkan borang-borang pesanan baru di dalam tempoh ini.

4. Selanjutnya sila ambil perhatian terhadap perkara-perkara berikut sekiranya berkaitan:

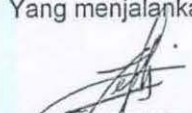
- (i) Semua penerbitan harus merakamkan penghargaan kepada **Skim Geran Penyelidikan Fundamental (FRGS)** dan kerjasama tuan dimohon untuk mengemukakan satu (1) salinan ke Pejabat Pengurusan & Kreativiti Penyelidikan (RCMO).
- (ii) PTJ boleh/akan mengagihkan semula peralatan yang telah dibeli menggunakan peruntukan geran ini seandainya terdapat penyelidik lain yang memerlukan peralatan tersebut.

5. Akhir sekali, tahniah di atas usaha dan kejayaan tuan dapat menyelesaikan projek ini dengan jayanya.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"
'Memastikan Kelestarian Hari Esok'

Yang menjalankan tugas,


(JEFFIZ EZUER SHAFII)
Pegawai Sains
Bahagian Penyelidikan dan Inovasi

RAAM,

Utta. Hindakan

er
4/3/2015

LAPORAN AKHIR SKIM GERAN PENYELIDIKAN FUNDAMENTAL (FRGS) FASA 2/2010

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s.k. Pengarah
Pejabat Pengurusan & Kreativiti Penyelidikan
Universiti Sains Malaysia

Dekan
Pusat Pengajian Sains Perubatan
Universiti Sains Malaysia
Kampus Kesihatan
16150 Kubang Kerian
Kelantan Darul Naim



Timbalan Ketua Pustakawan
Perpustakaan Hamdan Tahir
Universiti Sains Malaysia
Kampus Kesihatan
16150 Kubang Kerian
Kelantan Darul Naim

} Disampaikan satu salinan laporan akhir projek untuk simpanan Perpustakaan

Timbalan Bendahari
Jabatan Bendahari
Universiti Sains Malaysia
Kampus Kesihatan
16150 Kubang Kerian
Kelantan Darul Naim

} Mohon kerjasama pihak tuan untuk menguruskan penutupan akaun projek selewat-lewatnya pada **31 Disember 2014** dan mohon kemukakan satu salinan penyata kewangan terakhir ke Pejabat ini untuk tujuan rekod

BORANG FRGS – P3(R)



KEMENTERIAN PENDIDIKAN MALAYSIA

FINAL REPORT
FUNDAMENTAL RESEARCH GRANT SCHEME (FRGS)
Laporan Akhir Skim Geran Penyelidikan Fundamental (FRGS)
Pindaan 2/2013
A **RESEARCH TITLE:** Role of Presynaptic Glutamate Receptors in Modulation of Long Term Synaptic Plasticity (LTP) in Inhibitory Synapses of Visual Cortical Pyramidal Neuron after Epilepsy: a Whole cell patch clamp recording.
PHASE & YEAR: 2011-2013**START DATE:** 01 April 2011**END DATE:** 31 March 2013**EXTENSION PERIOD (DATE):****PROJECT LEADER:** Dr Mohammed Faruque Reza
PROJECT MEMBERS: 1. Prof Jafri Malin Abdullah
 (including GRA) 2. Dr. Tahamina Begum
 3. Hanif Che Lah
PROJECT ACHIEVEMENT (Pre-Study Project)

B					
ACHIEVEMENT PERCENTAGE					
Project progress according to milestones achieved up to this period	0 - 50%		51 - 75%		76 - 100%
Percentage (please state #%)					85%
RESEARCH OUTPUT					
Number of articles/ manuscripts/ books (Please attach the First Page of Publication)	Indexed Journal			Non-Indexed Journal	
	International			National	
Conference Proceeding (Please attach the First Page of Publication)	11th International Conference on Hybrid Intelligent Systems (HIS), 2011				
Intellectual Property (Please specify)					
HUMAN CAPITAL DEVELOPMENT					
Human Capital	Number				Others (please specify)
	On-going		Graduated		
Citizen	Malaysian	Non Malaysian	Malaysian	Non Malaysian	Short courses, Laboratory visit for visiting students and local students
PhD Student					
Master Student	1				
Undergraduate Student					
Total	1				

EXPENDITURE (Perbelanjaan)

C Budget Approved (Peruntukan diluluskan) : RM72,000
Amount Spent (Jumlah Perbelanjaan) : RM 71361.92
Balance (Baki) : RM 638.08
Percentage of Amount Spent : % 99.1
(Peratusan Belanja)

**ADDITIONAL RESEARCH ACTIVITIES THAT CONTRIBUTE TOWARDS DEVELOPING SOFT AND HARD SKILLS
(Aktiviti Penyelidikan Sarjangan yang menyumbang kepada pembangunan kemahiran insaniah)****D**

International		
Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		
National		
Activity	Date (Month, Year)	Organizer
(e.g : Course/ Seminar/ Symposium/ Conference/ Workshop/ Site Visit)		

PROBLEMS / CONSTRAINTS IF ANY (Masalah/Kelelagaan sekiranya ada)

E Long Term Potentiation (LTP) experiment was not performed due to absence of stimulatory device

RECOMMENDATION (Cadangan/Perambahbaikan)**F**

RESEARCH ABSTRACT - Not More Than 200 Words (Abstrak Penelitian - Tidak Lebih dari 200 kata per kata)

G Purpose: Results from animal models has pointed out that presynaptic NMDA (pre-NMDA) receptor is present in visual cortex and pre-NMDA has significant role in epilepsy. Therefore we have tested the role of pre-NMDA receptor for GABA-ergic transmission in the visual cortex in acute condition of epilepsy.
Methods: Using the pilocarpine mouse model, visual cortical slices were prepared immediately after having seizure (Pilo.group), and spontaneous miniature IPSCs (mIPSCs) were recorded from pyramidal neurons of layer II/III in visual cortex. Amplitudes and frequencies of mIPSC were analyzed and compared with those in age-matched saline-injected controls.
Results: Frequency of miniature IPSCs (mIPSCs) were significantly increased in saline controls compared to Pilo. Amplitude has no significant difference among groups using NBQX only or NBQX and MK801 combined use.
Conclusion: In acute condition of epilepsy, there is no significant role of presynaptic NMDA receptor for GABA-ergic neurotransmitter release which is a indicator of long term potentiation (LTP) of inhibitory synapses.

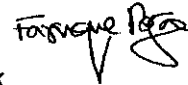
KEYWORDS: Visual cortex, NMDA receptor, GABA receptors, Synapses, Epilepsy.

te : 07 Feb 2014

Project Leader's Signature:

Tarikh

Tandatangan Ketua Projek



COMMENTS, IF ANY/ENDORSEMENT BY RESEARCH MANAGEMENT CENTER (RMC)

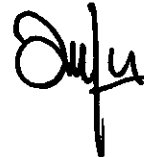
(Komen, sekiranya ada/Pengesahan oleh Pusat Pengurusan Penyelidikan)

H

Project not completed.

Name:
Nama:

Signature:
Tandatangan:



Date:
Tarikh:

13/3/14

