

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

**THE EXPRESSION OF PPARs GAMMA IN THE CERVICAL
CANCER LINE, HELA AND THE EFFECTS OF SPECIFIC
PPAR LIGAND ON CELL GROWTH**

PENYELIDIK

PROFESOR NIK SORIANI YAACOB

2013

END OF PROJECT & BENEFITS REPORT

Please fill in the relevant details in the space provided.

Please tick (/) where appropriate and provide further description, if required.

I PROJECT IDENTITY**A. PROJECT DESCRIPTION**

- 1 Project Number: 06-02-05-1020 PR0024/09-02
- 2 Project Title: The expression of PPARs gamma in the cervical cancer cell line, HeLa, and the effects of specific PPAR ligands on cell growth
- 3 Project Leader's Details
- Name: Dr. Nik Soriani Yaacob
- Position & Institution: Associate Professor, Universiti Sains Malaysia
- Email: soriani@kb.usm.my
- Contact No: 09-7664750
- Address (if differ from RMC/HQ): Dept. Chemical Pathology, School of Medical Sciences, USM Health Campus, 16150 Kubang Kerian, Kelantan
- 4 Total Budget Approved: RM 267,000
- 5 Total Project Expenses: RM 265,574.54
- 6 Project Duration: 48 months
- Start Date: 1/10/03 End Date: 30/11/07

B. OBJECTIVES OF THE PROJECT**1 Socio-economic Objectives (SEO)****1.1 What are the SEO addressed by your project?**

(Please refer to the Malaysian R&D Classification System, 5th Edition.)

Research Priority Area (priority area): Biotechnology
SEO Category: Health (S30100)
SEO Group: Clinical (organs, diseases and conditions) – cancer

2 Fields of Research (FOR)**2.1 What are the two main FOR of your project?**

(Please refer to the Malaysian R&D Classification System, 5th Edition)

a. Primary FOR

FOR Category: Medical and Health Sciences (F11000)
FOR Group: Medical Biochemistry and Clinical Chemistry (F11002)
FOR Area: Other Medical Biochemistry and Clinical Chemistry (Cell Biology)

b. Secondary FOR

FOR Category: Biological Sciences (F10800)
FOR Group: Genetics and molecular biology (F10802)
FOR Area: Molecular cell biology

C. OBJECTIVES ACHIEVEMENT**1 Original Project Objectives**

(Please state the specific project objectives as described in Section II of the Application Form)

1. To quantify the mRNA expression levels of PPAR γ in the cervical cancer cell line, HeLa, using real-time PCR.
2. To correlate the findings in (1) with the corresponding protein expression levels by Western blotting.
3. To correlate the transcriptional and translational levels of PPAR γ with markers of apoptosis in these cells.
4. To determine whether addition of specific PPAR γ ligands to the tumour cell line would modulate the above parameters.

2 Objectives Achieved

(Please state the extent to which the project objectives were achieved)

All objectives were completely achieved according to plan

3 Objectives Not Achieved

(Please state the objectives that were not achieved and provide reasons)

Not applicable

D. TECHNOLOGY TRANSFER/COMMERCIALISATION APPROACH, IF ANY

(Please describe the approach planned to transfer/commercialize the results of your project)

None

E. ASSESSMENT OF RESEARCH APPROACH

(Please highlight the main steps actually performed and indicate any major departure from the planned approach or any major difficulty encountered)

Research approach taken was appropriate and according to plan

F. ASSESSMENT OF PROJECT SCHEDULE

(Please make any relevant comment regarding the actual duration of the project and highlight any significant variation from plan)

Project schedule was not satisfactory due to high turnover of staff as previously reported. Hence, project duration was extended. Although all objectives were completed, repeat experiments could not be undertaken and therefore publications need to be combined with other experiments outside this project

G. ASSESSMENT OF PROJECT COSTS

(Please comment on the appropriateness of the original budget and highlight any major departure from the planned budget)

Budget obtained was sufficient

H. ADDITIONAL PROJECT FUNDING OBTAINED

(In case of involvement of other funding sources, please indicate the source and total funding provided)

None

II BENEFITS OF THE PROJECT

A. Direct Outputs of the Project

1 Technical Contribution of the Project

1.1 What was the achieved direct output of your project?

a. Basic Research Project

Algorithm

Please describe:

Structure

Please describe:

Data

Please describe:

New information on cell signaling molecules involved in PPAR γ ligand-induced apoptosis of cervical cancer cells

Others, please specify: _____

b. Applied Research Project

Method/technique /process

Please describe:

Demonstrator/laboratory prototype

Please describe:

Product/component

Please describe:

Software

Please describe:

Others, please specify: _____

1.2 How would you characterize the quality of this output?

Significant breakthrough

Major improvement

Minor improvement

2 Contribution of the Project to Knowledge

2.1 How has the output of your project been documented?

- Detailed project report
- Product/process specification documents
- Others, please specify: Five conference papers

2.2 What intellectual property (IP) did your project acquire?

- | | International | National |
|--|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> Patent granted
<u>Please state</u>
Invention Title & Number:
Inventor: | <input type="checkbox"/> quantity | <input type="checkbox"/> quantity |
| <input type="checkbox"/> Patent pending
<u>Please state</u>
Invention Title & Number:
Inventor: | <input type="checkbox"/> quantity | <input type="checkbox"/> quantity |
| <input type="checkbox"/> Potential patent to be filed
<u>Please state</u>
Invention Title & Number:
Inventor: | <input type="checkbox"/> quantity | <input type="checkbox"/> quantity |
| <input type="checkbox"/> Copyright
<u>Please state</u>
Invention Title & Number:
Inventor: | <input type="checkbox"/> quantity | <input type="checkbox"/> quantity |
| <input type="checkbox"/> Trade Mark
<u>Please state</u>
Invention Title & Number:
Inventor: | <input type="checkbox"/> quantity | <input type="checkbox"/> quantity |
| <input type="checkbox"/> Industrial Design
<u>Please state</u>
Invention Title & Number:
Inventor: | <input type="checkbox"/> quantity | <input type="checkbox"/> quantity |
| <input type="checkbox"/> Others, please specify: _____ | | |

2.3 What are the available publications of your project?

- Article(s) in scientific publications International quantity National quantity
Please state
Title:
Publication:
Author(s):
Year:
- Title:
Publication:
Author(s):
Year:
- Paper(s) delivered at conference/seminar 2 quantity 3 quantity
Please state
Title: The possible role of PPAR γ in cervical cancer
Publication: First National Scientific Meeting on Cervical Cancer, USM Health Campus, Kota Bharu
Author(s): Nik Soriani Yaacob, Halisa Mohd. Darus and Norazmi Mohd. Nor
Year: 2004
- Title: The effects of 15-deoxy- d^{12,14} – prostaglandin J₂ on cell growth and apoptosis induction in HeLa cells
Publication: 10th National Conference of Medical Sciences. USM Health Campus, Kota Bharu
Author(s): Halisa Mohd. Darus, Jamaruddin Mat Asan, Norazmi Mohd. Nor and Nik Soriani Yaacob
Year: 2005
- Title: Effects of prostaglandin J₂ metabolite on the expression of selected apoptotic signaling molecules in HeLa cells
Publication: Health and Medical Science Conference, First Penang International Postgraduate Convention, Penang
Author(s): Rabail Nasir Nik Soriani Yaacob and Norazmi Mohd. Nor
Year: 2006
- Title: Prostaglandin J₂ modulates the expression of apoptotic signaling molecules in HeLa cells
Publication: 9th AIMBN Conference and 16th MSMBB Scientific Meeting: From Genomics and Proteomics to Translational Initiatives, The Legend Hotel, Kuala Lumpur
Author(s): Rabail Nasir, Halisa Mohd. Darus, Norazmi Mohd. Nor and Nik Soriani Yaacob
Year: 2006
- Title: Modulation of peroxisome proliferators-activated receptor gamma (PPAR γ) expression in HeLa cells by Prostaglandin J₂
Publication: International Medical and Health Congress, Kota Bharu,
Author(s): Rabail Nasir, Halisa Mohd. Darus, Norazmi Mohd. Nor and Nik Soriani Yaacob
Year: 2007

Book(s)
Please state
Title:
Publication:
Author(s):
Year:

quantity quantity

Others, please specify: _____

2.4 How significant are citations of the results of your project?

Citations
Please state
Title:
Publication:
Author(s):
Year:

International quantity National quantity

None yet

Not known

B ORGANIZATIONAL OUTCOMES OF THE PROJECT

1 Contribution of the Project to Expertise Development

1.1 How did the project contribute to expertise?

PhD degrees
Please state
Name:
Nationality:
Area of Specialisation:
Duration: (Date Started - Date Completed)

Name:
Nationality:
Area of Specialisation:
Duration: (Date Started - Date Completed)

MSc degrees
Please state
Name:
Nationality:
Area of Specialisation:
Duration: (Date Started - Date Completed)

Name:
Nationality:
Area of Specialisation:
Duration: (Date Started - Date Completed)

Research staff with new specialty

Please state

Name: Dr. Asma Hassan

Nationality: Malaysian

Area of Specialisation: Cancer Biology

Duration: (Date Started - Date Completed) Jan 2002 – Jan 2004

Please state

Name: Halisa Mohd Darus

Nationality: Malaysian

Area of Specialisation: Cancer Biology

Duration: (Date Started - Date Completed) April 2004 – Jan 2005

Name: Noor Fatmawati Mokhtar

Nationality: Malaysian

Area of Specialisation: Cancer Biology

Duration: (Date Started - Date Completed) Oct 2005 – Oct 2006

Others, please specify: Undergraduate Degree (dissertation) & Industrial training

Please state

Name: Rabail Nasir

Nationality: Pakistani

Area of Specialisation: Biomedical Science

Duration: (Date Started - Date Completed) June 2005 – April 2006

Name: Ong Wee Theng

Nationality: Malaysian

Area of Specialisation: Science

Duration: (Date Started - Date Completed) 2003/2004

1.2 How significant is the expertise?

One of the key areas of priority for Malaysia

An important area, but not a priority one

Others, please specify: _____

C. INFRASTRUCTURAL CONTRIBUTION OF THE PROJECT

1 What are the infrastructure contributions of your project?

- New equipment
Please state:
i) Refrigerator
ii) Waterbath
iii) Non-refrigerated centrifuge
iv) Liquid nitrogen tank
v) Freezer
vi) Desktop computer

- New/improved facility
Please state: Cell culture facility

- New information networks
Please state:

- Others, please specify: _____

2 How significant is the infrastructural contribution to your Organization?

- Very significant/significantly leverage other projects
- Moderately significant
- Not significant/does not leverage other projects

D. CONTRIBUTION OF THE PROJECT TO THE ORGANIZATION'S REPUTATION

1 How has the project contributed in increasing the reputation of your Organization?

- Recognition as a Center of Excellence

- National award
Please state
Type:
Category:

- International award
Please state
Type:
Category:

- Demand for advisory services
- Invitations to give speeches on conferences
- Visits from other organizations
- Others, please specify: _____

E. CONTRIBUTION OF THE PROJECT CONTRIBUTED TO NATIONAL/INTERNATIONAL LINKAGES

1 What are the linkages created by your project?

- Domestic industry linkages
Please state:
- International industry linkages
Please state:
- Linkages with domestic research institutions, universities
Please state:
- Linkages with international research institutions, universities
Please state:
- Others, please specify: _____

2 What is the nature of the linkages?

- Staff exchange
 - Inter-organizational project team
 - Research contract with a commercial client
 - Informal consultation
 - Others, please specify: _____
-

III PROPOSED FUTURE WORK

What are the proposed future work(s) of your project?

- Up scaling of laboratory prototype
- Development of commercial ready prototype
- Development of pilot plant
- Pre-clinical or Clinical trials/field trials
- Acquisition of foreign/local technology
- Others, please specify: Exploring the mechanism of action of potential anticancer compounds for cervical as well as other cancers

IV OTHER REMARKS

(Please include any other remarks which you feel is relevant to the evaluation of your project)

Cell culture facilities and technical expertise acquired during this period would provide a platform for further research activities into anticancer mechanism of specific drugs, compounds and natural products

Date: 25 May 2009

Signature: 