

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

**STUDIES OF TRANSFORMING GROWTH FACTOR GENES
IN CLEFT LIP AND PALATE IN MALAYS POPULATION**

PENYELIDIK

DR. ROSELINDA AB RAHMAN

PENYELIDIK BERSAMA

**PROF. MADYA MOHAMED NIZAM ISA
DR. ROWANI MOHD RAWI**

2013

1. Nama Ketua Penyelidik: DR ROSELINDA BINTI AB RAHMAN
Name of Research Leader

Profesor Madya/
Assoc. Prof.

Dr./
Dr.

Encik/Puan/Cik
Mr/Mrs/Ms

RECEIVED

- 8 MAY 2013

UNIVERSITI SAINS
MALAYSIA
RCMO

2. Pusat Tanggungjawab (PTJ):

School/Department

PUSAT PENGAJIAN SAINS PERGIGIAN

3. Nama Penyelidik Bersama: Prof Madya Mohamed Nizam B. Isa

Name of Co-Researcher

Dr Rowani BT. Mohd Rawi

4. Tajuk Projek:

Title of Project

Studies of Transforming Growth Factor Genes In Cleft lip and Palate in Malays

Population

5. Ringkasan Penilaian/Summary of Assessment:

Tidak
Mencukupi
Inadequate

Boleh
Diterima
Acceptable

Sangat Baik
Very Good

1

2

3

4

5

i) Pencapaian objektif projek:

Achievement of project objectives

ii) Kualiti output:

Quality of outputs

iii) Kualiti impak:

Quality of impacts

iv) Pemindahan teknologi/potensi pengkomersialan:

Technology transfer/commercialization potential

v) Kualiti dan usahasama :

Quality and intensity of collaboration

vi) Penilaian kepentingan secara keseluruhan:

Overall assessment of benefits

6. Abstrak Penyelidikan

(Perlu disediakan di antara 100 - 200 perkataan di dalam Bahasa Malaysia dan juga Bahasa Inggeris. Abstrak ini akan dimuatkan dalam Laporan Tahunan Bahagian Penyelidikan & Inovasi sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti & masyarakat luar).

Abstract of Research

(An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English).

This abstract will be included in the Annual Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)

Sila Lihat Lampiran A

7. Sila sediakan laporan teknikal lengkap yang menerangkan keseluruhan projek ini.

[Sila gunakan kertas berasingan]

Applicant are required to prepare a Comprehensive Technical Report explaining the project.

(This report must be appended separately)

Sila lihat Lampiran B

Senaraikan kata kunci yang mencerminkan penyelidikan anda:

List the key words that reflects your research:

Bahasa Malaysia

Bahasa Inggeris

Rekahan bibir dan lelangit

cleft lip and palate

Gen TGF-alpha

TGF-alpha gene

'rare' alel C2

rare allele C2

8. Output dan Faedah Projek

Output and Benefits of Project

(a) * Penerbitan Jurnal

Publication of Journals

(Sila nyatakan jenis, tajuk, pengarang/editor, tahun terbitan dan di mana telah diterbitkan/diserahkan)

(State type, title, author/editor, publication year and where it has been published/submitted)

Artikel Journal bertajuk ' Transforming Growth Factor- α and Non Syndromic cleft lip with or without cleft palate

only in Kelantan, Malaysia.' Pengarang : Roselinda Rahman, Azlina Ahmad, Zainal Ariff Abdul Rahman, Khairani

Mokhtar, Nik Ahmad Nik Lah, Zilfalil Alwi, Ab Rani Samsudin, Tahun 2008. The Cleft Palate-Craniofacial Journal

(b) **Faedah-faedah lain seperti perkembangan produk, pengkomersialan produk/pendaftaran paten atau impak kepada dasar dan masyarakat.**

State other benefits such as product development, product commercialisation/patent registration or impact on source and society.

Penyelidikan ini merupakan penyelidikan yang pertama kali dilakukan mengenai genetic pada pesakit

rekahan bibir dan langit di Malaysia. Hasil dari kajian ini boleh dijadikan asas untuk kajian seterusnya.

* Sila berikan salinan/Kindly provide copies

(c) **Latihan Sumber Manusia**

Training in Human Resources

i) **Pelajar Sarjana:**

Graduates Students

(Perincikan nama, ijazah dan status)

(Provide names, degrees and status)

Roselinda binti Ab Rahman, Master in Clinical Dentistry (Oral & Maxillofacial Surgery)

Pensyarah Pergigian

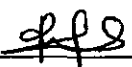
ii) **Lain-lain:**

Others

9. **Peralatan yang Telah Dibeli:**

Equipment that has been purchased

Tiada


Tandatangan Penyelidik
Signature of Researcher

6 Mei 2013

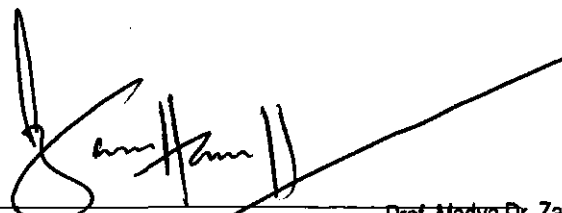
Tarikh
Date

The work has been ^{published} in the *Chapt* *Labeta*
Cranford *Journal* 2008.
edit has an impact factor -

Good work -

Tidak Geran.
Baku geran?

Duffu
13/8/13


TANDATANGAN PENERUSI
JAWATANKUASA PENYELIDIKAN
PUSAT PENGAJIAN/PUSAT
Signature of Chairman
[Research Committee of School/Centre]

Prof. Madya Dr. Zainul Ahmad Rajion
Timbalan Dekan (Penyelidikan)
Pusat Pengajian Sains Pergigian
USM Kampus Kesihatan
16150 Kubang Kerian, Kelantan, Malaysia.

7/05/2013
Tarikh
Date

LAMPIRAN A

ABSTRACT

STUDIES OF TRANSFORMING GROWTH FACTOR GENES IN CLEFT LIP AND PALATE IN MALAY POPULATION

Cleft lip with or without cleft palate and cleft palate alone are the most common craniofacial anomalies in Malaysia. Causes for clefting to happen are multi-factorial and a number of genes, including the transforming growth factor alpha (TGF α) gene, have been implicated in its etiology. TGF α gene has been proposed as a candidate genes in the aetiology of nonsyndromic cleft lip and palate based on previous studies on animals (Lee et al 1985, Dixon et al 1991). TGF α protein, epidermal growth factor and their receptors were expressed more intensely in regions of developing primary palate where cell proliferation was most pronounced (Iamaroon et al 1996). The role of TGF α gene in lip and palatal development was also confirmed in human allelic association studies (Ardinger et al 1989, Chevenic-Trench et al 1991, Holder et al 1992). We conducted a study on forty six Malay patients from Kelantan, Malaysia with non-syndromic cleft lip, cleft palate and combination of both cleft and analysed their blood for the (TGF α) gene polymorphism at locus *Taq1* and compared it with thirty three control subjects. The results showed no significant difference between patients and controls. The presence of homozygous allele C1C1 was the most common in both cases and control, while homozygous allele C2C2 was absent in both groups. In conclusion, we could not find any association between the TGF α *Taq1* gene polymorphism and non-syndromic cleft lip with or without palate Malay patients from Kelantan Malaysia

ABSTRAK

KAJIAN MENGENAI GEN FAKTOR PERTUMBUHAN MENGUBAH DALAM REKAHAN BIBIR DAN LELANGIT DALAM POPULASI MELAYU

Rekahan bibir dengan atau tanpa lelangit sumbing dan lelangit reka sahaja adalah anomali kraniofasial paling biasa di Malaysia. Punca bagi rekahan/sumbing berlaku adalah pelbagai faktor dan beberapa gen, termasuk pertumbuhan mengubah faktor alpha gen (TGF α), telah terlibat dalam etiologi itu. Gen TGF α telah dicadangkan sebagai calon gen dalam etiologi daripada rekahan bibir dan lelangit bukan sindrom berdasarkan kajian terdahulu ke atas haiwan (Lee et al 1985, Dixon et al 1991). Protein TGF α , faktor pertumbuhan epidermis dan reseptor mereka telah diekspresi dengan lebih kuat di kawasan-kawasan pembentukan lelangit primer di mana perbezaan sel adalah yang paling ketara (Iamaroon et al 1996). Peranan gen TGF α di dalam pembentukan di bibir dan lelangit juga dijelaskan dalam kajian berkaitan alel manusia (Ardinger et al 1989, Chevenic-parit et al 1991, Holder et al 1992). Kami telah menjalankan kajian ke atas empat puluh enam pesakit Melayu dari Kelantan, Malaysia dengan rekahan bibir, rekahan lelangit dan gabungan kedua-duanya yang bukan sindromik dan dianalisis darah mereka untuk polymorphism gen (TGF α) pada lokus Taq1 dan dibandingkan dengan tiga puluh tiga pesakit kawalan. Keputusan menunjukkan tiada perbezaan yang signifikan di antara pesakit dan kawalan. Kehadiran C1C1 allele homozigot adalah yang paling biasa dalam kedua-dua kes dan kawalan, manakala C2C2 allele homozygous tidak hadir dalam kedua-dua kumpulan. Kesimpulannya, kami tidak mengesan apa-apa kaitan antara TGF α Taq1 gen polymorphism dengan pesakit rekahan bibir dan lelangit yang bukan sindromik dengan dari bangsa Melayu Kelantan Malaysia

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LAMPIRAN B

Comprehensive Technical Report

STUDIES OF TRANSFORMING GROWTH FACTOR GENES IN CLEFT LIP AND PALATE IN MALAYS POPULATION.

USM Short Term Grant: 304/PPSP/6131150

1 April 2001 and until 30 April 2002

Funding: RM 14,610.00

Researchers:

Dr Roselinda Ab Rahman

Prof Madya Mohamed Nizam B Isa

Dr Rowani Bt Mohd Rawi

ABSTRACT

Cleft lip with or without cleft palate and cleft palate only are the most common craniofacial anomalies in Malaysia. Causes of clefting to happen are multi-factorial but the exact causes still remain unknown. 46 patients of Malay ethnic in Kelantan state who were non-syndromic cleft lip, cleft palate and combination of both cleft were selected for this study. The transforming growth factor alpha Taq1(TGF α Taq1) gene locus were analyzed in this group of patients and compared with 33 control subjects. This study was done together with a group of researchers from Human Genome Centre in University Science Malaysia in Kelantan under short term IRPA grant. From our study we found that there is no significant difference of TGF α Taq1 gene polymorphism in cleft cases and control cases. The presence of homozygous allele C1C1 was the most common in both cleft cases and control cases. We also noted that there is no presence of homozygous rare allele C2C2 in both groups. In conclusion, we suggested that the defect in transforming growth factor alpha Taq1 gene expression may not play a role in non-syndromic cleft lip and palate deformity among Malay ethnic in Kelantan state.