

# Best Poster Presentation award at the DDU, Delhi university Science Festival 2019. Theme: Life Sciences

**Analysis of human TERT expression in squamous cell carcinoma of the skin: its implication in tumor metastasis and differentiation**

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**BACKGROUND**

The skin is the largest and the most specialized organ and the site of origin of a complex array of different tumors. Squamous cell carcinoma (SCC) is an highly invasive malignant tumor showing keratinocytic differentiation and is often associated with chronic exposure to UV light. Telomerase is a RNA dependent DNA polymerase that causes the addition of telomeric repeat DNA sequences to chromosomal ends, however its activity is undetectable with successive cell divisions. Recently, UV signature mutations has been identified in core promoter region of telomerase reverse transcriptase (TERT) gene, which encodes the main catalytic subunit leading to overexpression in cutaneous melanoma. However its role and expression pattern has not been studied in eyelid skin squamous cell carcinoma.

**RESULT**

- Positive expression of TERT was found in 60 % of the cases analyzed. (Fig. 2(C))
- Overexpression of TERT was associated with keratic differentiation (WDSOC Fig.2(C))
- Expression of TERT was also seen in patients with lymph node metastasis (75%) and in size of the tumor > 2cm (80%) indicating involvement of TERT in tumor progression as well.

**Figure 2:** (A) Normal eye, (B) Tumor arising from site of upper eyelid of the same patient, (C) Normal eyelid skin (H&E stain), (D) Tumor showing positive TERT expression (IHC stain).

**Figure 3:** (A) Eye lid skin negative for TERT (H&E stain), (B) Positive control showing TERT positivity in tumor (H&E stain), (C) Well differentiated squamous cell carcinoma (WDSOC) showing strong positivity in cytoplasm, (D) Poorly differentiated (PDSCC) negative for TERT IHC.

**OBJECTIVE**

The objective of the study was to examine the association of human telomerase reverse transcriptase in squamous cell carcinoma in eyelid using immunohistochemistry technique.

**MATERIALS AND METHODS**

**Microtomy and Histopathological Analysis**  
 Tissue samples of 10 different cases of eyelid SCC were collected from AIMS. Microtomy followed by H&E staining of formalin fixed paraffin embedded (FFPE) tumors was performed. The slides were analyzed by light microscopy for their percentage positivity and intensity expression of TERT.

**Immunohistochemistry (IHC)**  
 IHC was performed for each of these cases using TERT (A-6) mouse monoclonal antibody (sc-393013, Santa Cruz Biotechnology), HRP labeled secondary antibody and chromogen Diaminobenzidine (DAB). Results were correlated with clinicopathological features of squamous cell carcinoma.

**Table: Correlation of TERT positivity with clinicopathological parameters**

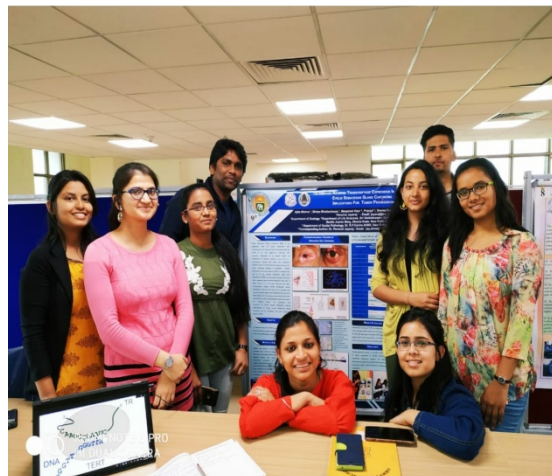
Parameters	TERT (+ve)	TERT (-ve)
Age (years)		
Age<40 (n=5)	2(80%)	1(20%)
Sex		
Male(n=4)	2(80%)	2(20%)
Female(n=6)	4(33%)	2(33%)
Size of Tumor		
<2cm (n=5)	4(80%)	1(20%)
>2cm (n=5)	4(80%)	1(20%)
Differentiation		
Well (n=6)	6(80%)	1(17%)
Moderately(n=2)	2(100%)	0(0%)
Poorly(n=3)	1(33%)	2(67%)
Surgical Intervention		
Excision (n=6)	3(50%)	3(50%)
Enucleation (n=4)	3(75%)	1(25%)
Lymph Node Metastasis (n=6)	3(50%)	3(50%)
Recurrence (n=3)	3(100%)	0(0%)

**CONCLUSIONS**

- TERT has been shown to be overexpressed immunohistochemically for the first time in eyelid skin squamous cell carcinoma.
- Our results suggest that over expression of TERT may contribute to the aggressive behaviour associated with SCC and such patients may warrant aggressive treatment.
- Blooming of TERT based drugs in their preclinical and clinical trials renders new approach for anticancer treatment.

**ACKNOWLEDGEMENT**

The research work was carried out in Dr. R.P. Centre AIMS Institute of Medical Sciences, New Delhi under the mentorship of Dr. Seema Sen and co-mentored by Dr. P. Perumal Jayaraj, Chennai, Sri Venkateswara College.



**Science Foundation**  
 Deen Dayal Upadhyaya College  
 (University of Delhi)  
 Under the Aegis of DBT Star College Scheme  
 Supported By  
 National Academy of Science India Allahabad - NASI - Delhi Chapter  
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**Organizes**  
 Inter College Science Festival - Turiyojas  
 March 11-12, 2019

**Certificate of Appreciation**

This is to certify that, the POSTER entitled ANALYSIS OF HUMAN TERT EXPRESSION IN SQUAMOUS CELL CARCINOMA OF THE SKIN: ITS IMPLICATION IN TUMOR METASTASIS AND DIFFERENTIATION authored by STUTI KUMARI, TWINKLE, JASSIKA, RUCHI, SEEMA, PERUMAL & KARTIKEY of SRI VENKATESWARA COLLEGE, UNIVERSITY OF DELHI was presented and got FIRST Prize in the theme LIFE SCIENCES in the Inter College Science Festival - Turiyojas organized by Science Foundation, Deen Dayal Upadhyaya College (University of Delhi) during March 11-12, 2019.

*Dr. Manoj Saxena*  
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*Dr. H. C. Jain*  
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At DDU Science Festival,  
2019

**TZH student: 04 SLS: 01 (winners)**  
**Stuti Kumari, Twinkle Kathuria, Jassika Gupta, Ruchi Dubey, Kartikey Saxena**





# 1<sup>st</sup> International, Molecular Medicine Conference “From Bench to Bedside and Beyond” Organised by Amity Institute of Integrative Sciences and Health (AIISH) and Amity Institute of Biotechnology (AIB), Amity University Haryana (AUH), INDIA. 29<sup>th</sup> and 30<sup>th</sup> August, 2019

- Poster presentations by **TZH students : 02** and **SLS student (01)**

**1. Jassica Gupta** Programmed cell death (PD-1) and programmed cell death ligand (PD-L1) pathways as a target for immunotherapy in eyelid sebaceous gland carcinoma.

**2. Kartikey Saxena** Utility of TCCA Solution as a bleaching agent for assessment of conjunctival melanoma ; An Immunohistochemical approach to detect TERT immunoreactivity.

**3. Pranjal** Analysis of TERT expression in squamous cell carcinoma of the skin: its implication in tumor metastasis and clinical correlations.



1

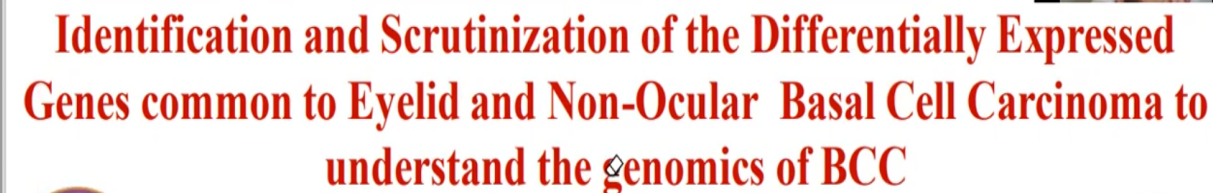


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3





Shefali Dahiya<sup>1</sup>, Dr. Perumal Jayaraj<sup>2</sup>, Pranjal Vats<sup>1</sup>, Vanshika Mohindroo<sup>1</sup>  
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**BACKGROUND-**Eyelid Basal cell carcinoma (BCC) accounts for more than 90% of Eyelid malignant neoplasms. Various aberrant signalling pathways and genes in Non-Ocular BCC have been found whereas genetics of Eyelid BCC remains elusive. Bioinformatics can prove to be an excellent technology and field of science which can be interconnected with genomics to presume the results of research, saving time and energy. Thus, the aim of this study was to find the common Differentially Expressed Genes (DEGs) of Eyelid and Non-Ocular BCC using latest technology bioinformatic tools in order to gain more insights of the genetic aspects common to both BCC non-ocular and Eyelid BCC and to identify common potential prognostic markers. Its onset is majorly due to mutations caused by Ultraviolet radiation.

## MATERIAL METHOD

GEO 2R

(a)



(b)



BGCI-0070

OR

Pranjal Vats

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## Twinning of Bioinformatics and Genomics as a Resort for Genetic Counselors to Study the Trends of Inheritable Ocular Melanoma



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Background

Findings

Lobby

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Sign Out

Cancer becoming the leading cause of death globally; accounting for about

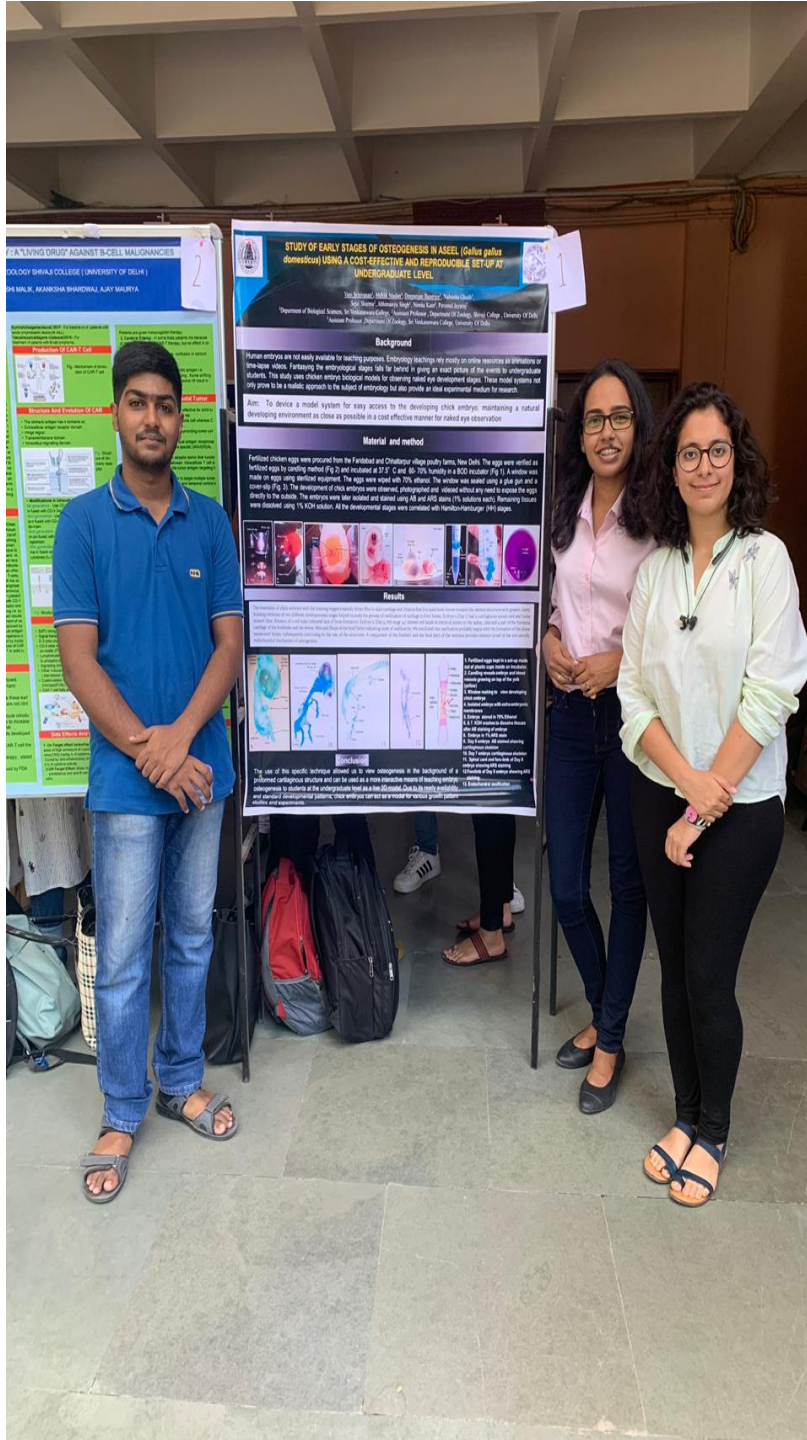
Among 63 com

like MAPK1, PPP2CB, MYC, BAX,BID and

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- ❖ **First prize for best poster presentation entitled “ study of early stages of osteogenesis in Aseel using a cost effective and reproductive set-up” at National seminar on recent trends in biological research and career prospects” held on 27<sup>th</sup> September 2019 at Shivaji college, University of Delhi. ( authors: Vani Srinivasan, Mehak Madan, Deepanjan Banerjee,Perumal Jayaraj)**





SVC-302 TEAM at National Symposium on “Trends in research and innovation in life sciences at undergraduate level”. 30 March 2016, Deen Dyal Upadhyay College, University of Delhi, New Delhi along with award winning poster.



Poster presentation at ISMPCON international conference, 2016

