Melanoma Cancer Prediction From Microarray Gene Expression Experiments

Assiut University
Faculty Of Computers And Information Technology
Bioinformatics Department

Abstract

Topics were specifically addresses to a newly developing medical branch in Australia, namely that of Primary Care Skin Cancer Practitioners, and focuses on strategies to improve primary and secondary prevention and early detection of melanoma and non-melanoma skin cancer using dermoscopy where the School of Medicine at the University of Queensland (QLD, Australia) organize this third annual conference on skin cancer. Its goal was to provide a venue for updating primary-care practitioners with special interest in diagnosing and treating skin cancer, as well as to exchange professional information and network with others working in the field. Topics covered melanoma and keratinocyte cancers including pathogenesis, primary and secondary prevention, early diagnosis and *treatment.*

Keywords

actinic keratosis (AK) , dermatoscopy , epidemiology , melanoma , birthmarks , nevi , non-melanoma skin cancer , UV ,3rd Annual Conference ,The School of Medicine at the University of Queensland (QLD, Australia), and its partner HealthCert , cutaneous squamous cell carcinoma (SCC) ,Database (SCARD) , ECOG 1609

Introduction

Annual Skin Cancer Conference 2011 Hamilton Island, Australia, 5–6 August 2011
In this article, we will summarize some of the highlights of the third annual conference on skin cancer, with special emphasis on the recent advances regarding melanoma and non-melanoma skin cancer epidemiology, diagnosis and treatment. Topics were particularly addressed to a newly developing medical branch in Australia, namely that of Primary Care Skin Cancer Practitioners, and focused on strategies to improve primary and secondary prevention and early detection of melanoma and non melanoma skin cancer using dermoscopy.

Related Work

Many different techniques of skin cancer detection analysis have been tried. In all these efforts researchers have tried to improve the accuracy of diagnosis by employing different classification algorithms and techniques, our review is the only one that describes and summarizes features of the identified techniques ,we are using data mining techniques (supervised learning) classification ,classify treat and tumor cells.

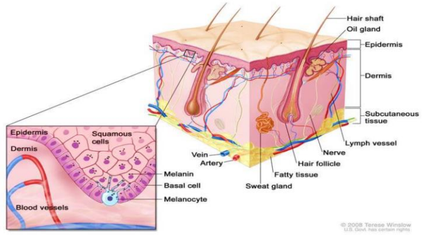
Methods

Screening for melanoma :

Screening is looking for cancer before a person has any symptoms. This can help find cancer at an early stage. When abnormal tissue or cancer is found early, it may be easier to treat. By the time symptoms appear, cancer may have begun to spread.Scientists are trying to better understand which people are more likely to get certain types of cancer. They also study the things we do and the things around us to see if they cause cancer.

Anatomy Of The Skin:

Showing the epidermis, dermis and subcutaneous tissue. The skin has several layers, but the two main layers are the epidermis (top or outer layer) and the dermis (lower or inner layer). Skin cancer begins in the epidermis, which is made up of three kinds of cells.

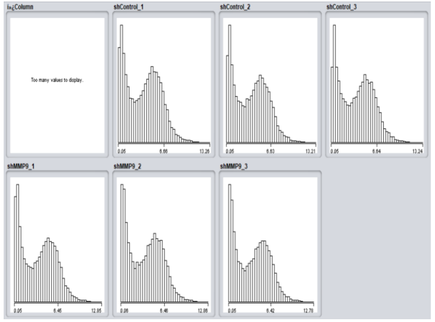


The Skin Cancer Audit Research Database:

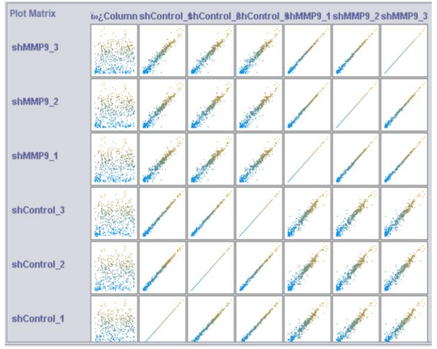
The Skin Cancer Audit Research Database (SCARD) was presented by Cliff Rosendahl from the School of Medicine, University of Queensland (QLD, Australia). It is an initiative of the Skin Cancer College of Australia and New Zealand (SCCANZ), medical practitioners [102].

Results And Visualizations

We classified between control cells (melanoma cells) and treat cells(Effect of MMP-9 knockdown in melanoma cells) .



We can visualize results in this figure:



Conclusion

We could concisely outline some of the highlights of the third annual skin cancer conference, with a focus on current breakthroughs in melanoma and non-melanoma skin cancer epidemiology, diagnostics, and therapy. Topics centered on efforts to promote primary and secondary prevention and early diagnosis of melanoma and non-melanoma skin cancer utilising dermoscopy, which is a newly established medical branch in Australia. then we divided cells into two categories: control (melanoma cells) and treated (Effect of MMP-9 knockdown in melanoma cells).
The results of the supervised classification we performed are: correlation coefficient 0.8681,Mean absolute error 0.9872 ,root mean squared error 1.2154 ,Relative absolute error 46.4229% ,Root relative squared error 49.6452% ,Total number of instances 18539.

References

1. Whiteman DC, Watt P, Purdie DM, Hughes MC, Hayward NK, Green AC. Melanocytic nevi, solar keratoses, and divergent pathways to cutaneous melanoma. J. Natl Cancer Inst. 95(11), 806–812 (2003).
2. Whiteman DC, Pavan WJ, Bastian BC. The melanomas: a synthesis of epidemiological, clinical, histopathological, genetic, and biological aspects, supporting distinct subtypes, causal pathways, and cells of origin. Pigment Cell Melanoma Res. 24(5), 879–897 (2011).
3. Zalaudek I, Catricalà C, Moscarella E, Argenziano G. What dermoscopy tells us about nevogenesis. J. Dermatol. 38(1), 16–24 (2011).
4. Zalaudek I, Guelly C, Pellacani G et al. The dermoscopical and histopathological patterns of nevi correlate with the frequency of BRAF mutations. J. Invest. Dermatol. 131(2), 542–545 (2011).
5. Welch HG, Black WC. Overdiagnosis in cancer. J. Natl Cancer Inst. 102(9), 605–613 (2010).
6. Menzies SW, Emery J, Staples M et al. Impact of dermoscopy and short-term sequential digital dermoscopy