Melanoma Cancer Prediction From Microarray Gene Expression Experiments

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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 nonmelanoma 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.

objectives

The aim of our survey is the early detection of various skin diseases using micro-rays,microarray is one of the most recent advances being used for cancer research; it provides assistance in pharmacological approach to treat various diseases including skin cancer diseases. Microarray helps in analyzing large amount of samples which have either been recorded previously or new samples; it even helps to test the incidence of a particular marker in tumors.

AcKnowledgements

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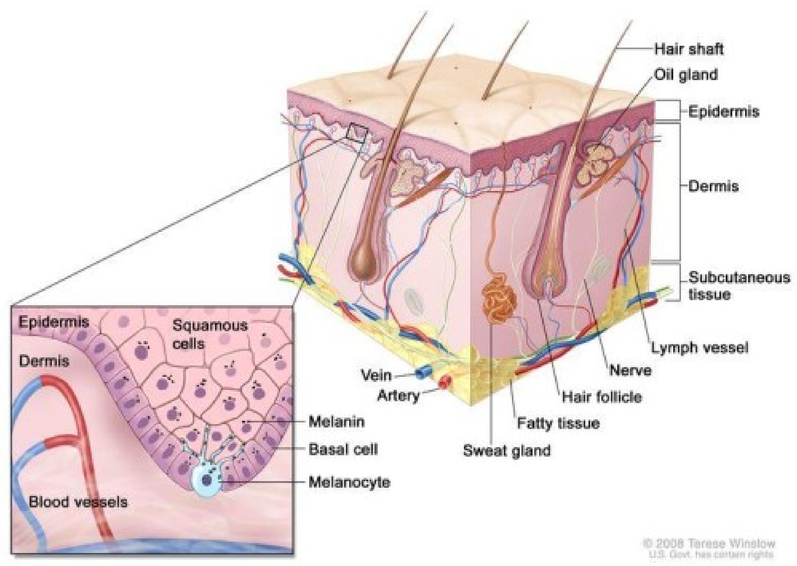
Methods

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



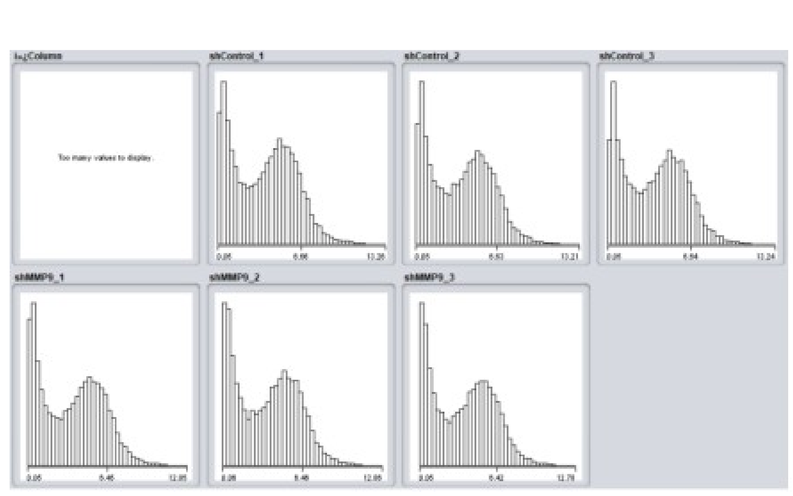
The Skin Cancer Audit Research Database: The Skin Cancer Audit Research Database (SCARD) was presented by Cliff Rosendahl from the School of Medicine, University of Queensland (QLD, Australia). It is an initiative of the Skin Cancer College of Australia and New Zealand (SCCANZ), medical practitioners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

Conclusion

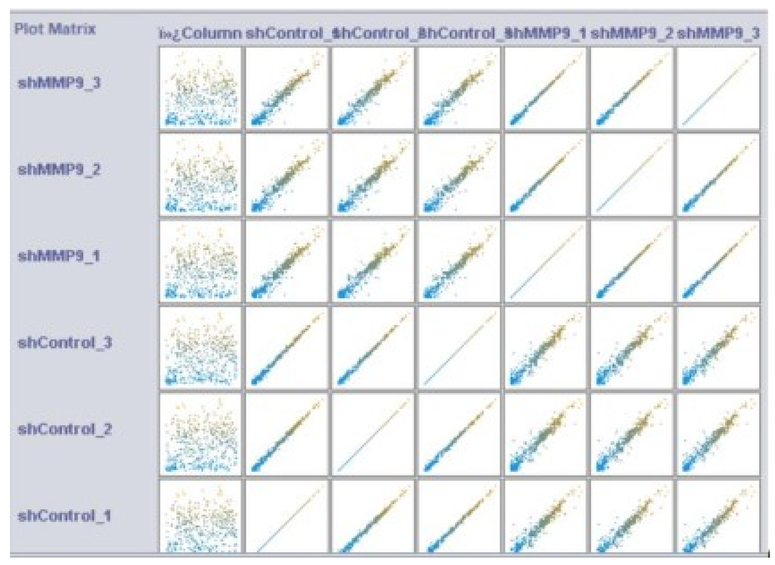
We could concisely outline some of the highlights of the third annual skin cancer conference, with a focus on current breakthroughs in melanoma and non -melanoma skin cancer epidemiology, diagnostics, and therapy. Topics centered on efforts to promote prima ry and secondary prevention and early diagnosis 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.

Results

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



Referances

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).