

October 01-02, 2018  
Frankfurt, GermanyLiza Bornman et al., Clin Dermatol Res J 2018, Volume 3  
DOI: 10.4172/2576-1439-C1-002

## NON-MELANOMA SKIN CANCER AFFECTS SECOND PRIMARY CANCER IN A RACE-AND CANCER-DEPENDENT MANNER

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**T**he impact of UVR on the skin, promotes vitamin D production while causing cancer, tenders for the label 'oxymoron'. UVB sustains the primary source of vitamin D, which in complex with its receptor, mediates critical functions including innate immunity. Ultraviolet index and vitamin D status count among environmental factors shaping TLR2/1 signaling efficacy during infection. Non-melanoma skin cancer (NMSC) may serve as proxy for sufficient lifetime vitamin D. Association of NMSC, as first primary (FP) cancer, with second primary (SP) cancers may shed light on the risk-benefit of UVB exposure. Multiple primary (MP) cancers were explored in a retrospective cohort of blacks and whites, recorded from 1994 to 2005 by the South African National Cancer Registry. SP cancer risk and rate ratio were calculated if FP was basal cell carcinoma (BCC) or squamous cell carcinoma (SCC), compared to FP non-skin cancer. Blacks with FP BCC had a significantly reduced risk and incidence rate ratio ( $P < 0.050$ ) for SP genital cancer (female OR 0.09 95% CI 0.02-0.35; male OR 0.26 95% CI 0.11-0.62) and infection-related cancer (female OR 0.28 95% CI 0.15-0.52; male OR 0.27 95% CI 0.16-0.48), compared to FP non-skin cancer. Whites with FP BCC had a significantly increased risk ( $P < 0.001$ ) for SP breast (females, OR 2.38 95% CI 1.81-3.12), prostate (OR 1.35 95% CI 1.15-1.58) and melanoma (female

OR 2.66 95% CI 1.82-3.88; male OR 2.96 95% CI 2.26-3.86), compared to FP non-skin cancer. The impact of NMSC as FP on SP is influenced by race and cancer type.

### Recent Publications

Meyer V, Saccone D S, Tugizimana F, Asani F F, Jeffery T J and Bornman L (2017) Methylation of the vitamin D receptor (VDR) gene, together with genetic variation, race and environment influence the signaling efficacy of the TLR2/1-VDR pathway. *Frontiers in Immunology, section Molecular Innate Immunity* 11(8):1048.

### Biography

Liza Bornman has completed her PhD in Human Genetics at University of Pretoria and two Commonwealth Fellowships in the Wellcome Trust Centre for Human Genetics at University of Oxford. Her research interest is the field of epigenetic epidemiology, involving the integration of genetics, epigenetics and environment to influence phenotype. Her research focuses on Vitamin D signaling, a model of gene-environment interaction, which is hindered in cancer and infectious diseases. She has a Scopus h-index of 16. She is the Author and Co-author of 34 publications and elicited 770 citations.

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