Expression of Nuclear Receptor Co-Activators 1 and 3 in Archival IDC Breast Cancer: Loss of ESRa points the way.

R. Smith¹, R. A. Lea¹, S. R. Weinstein², L. R. Griffiths¹

¹ School of Medical Science, Griffith University, QLD, Australia.
² Pathology, Gold Coast Hospital, Gold Coast, QLD, Australia

Introduction: Previous studies in our laboratory have shown association of nuclear receptor expression and histological breast cancer grade. To further investigate the relationship between nuclear hormone receptor expression and breast cancer clinopathological factors, it was the objective of this study to determine if expression levels of the nuclear receptor coactivators 1 and 3 (NCoA1 and NCoA3) varied in different breast cancer grades or was related to pathological characteristics. Methods: RNA extracted from paraffin embedded archival breast tumour tissue was converted into cDNA and cDNA underwent semi-quantitative PCR. NCoA expression data was normalised against an 18S ribosomal RNA multiplex and analysed using ANOVA. Results: Analysis indicated a significant alteration of expression for NCoA1 in different cancer grades, as well as in ESRa negative tissue (P = 0.028 and 0.001 respectively). Post-hoc tests indicate that the expression of NCoA1 is increased in grade 3 and ESRa negative tissue tumour tissue compared to controls. NCoA3 showed a similar trend of increasing expression, but this was not significant. For clinopathological characteristics, neither NCoA showed a significant correlation with any character, although NCoA1 and NCoA3 did show non-significant correlation to a lack of tumour calcification and metastasis respectively (P > 0.05). Conclusions: The increased expression of NCoA1 in late stage and ESRa negative breast tumours may have implications to the treatment of breast tumours, particularly those lacking expression of NCoA3 or other NCoA family members.