

P01

C-met Defines a Distinct Subset of Triple Negative Breast Cancer in British Black Women

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**Background:** C-met is a receptor tyrosine kinase thought to be an independent poor prognostic factor in breast cancer and is associated with the aggressive basal-like (BL) sub-type. BL tumours are more prevalent in African-American women which may in part explain the poor prognosis for these patients. Cancers that lack expression of ER,PR and Her2 (Triple negative, TN) are often regarded as BL tumours, yet there is increasing evidence that TN tumours are heterogeneous, and can be further subdivided into BL (ER,PR,Her2 negative, CK5/6 or CK14 positive, EGFR positive) and unclassified (U)(negative for all markers). Further definition of the molecular profile and relative proportions of these sub-groups is crucial in understanding the progression of breast cancer in different ethnic groups and in targeting novel therapeutic strategies.

**Aim:** The aim of this study was to use an extended panel of immunohistochemical markers to compare sub-groups of TN tumours in black and white women and to assess the expression of c-met within these groups.

**Method:** Tissue microarrays were constructed from 248 (113 black women, 135 white) cases of invasive breast carcinoma diagnosed at the Homerton hospital between 2006 and 2009. Immunohistochemistry was performed for ER,PR,Her2, Cytokeratins, EGFR and c-met.

**Results:** 28% of black women had TN tumours versus 17% of white women. Of the TN tumours, in black women 88% were BL and 12% were U; in white women 83% were BL and 17% were U. Overall, c-met was significantly over-expressed in BL compared with U tumours (76% positive versus 0%,  $p=0.006$ ). TN tumours in young black women showed increased expression of c-met compared with young white women (88% versus 0%,  $p=0.004$ ).

**Conclusion:** Our findings suggest that BL tumours are biologically distinct from U tumours and that BL tumours in young black women are frequently c-met positive, which may contribute to the poor clinical course in these patients.