Summary

A new clonal cell line, EM-G3, was derived from a primary lesion of human infiltrating ductal breast carcinoma. The line consisted of cuboidal cells with occasional appearance of more differentiated branched cells apparently involved in cell-to-cell communication. The EM-G3 cells, population doubling time 34 h, are dependent on the epidermal growth factor. Multicolor fluorescence *in situ* hybridization (mFISH) analysis demonstrated a stable genome with several genetic changes. Neither amplifications nor deletions of genes frequent in human breast cancer (*HER2/neu, cyklin D, c-myc, p53* a *Rb*) were found. Immunocytochemical analysis of EM-G3 *in vitro* revealed positivity for keratins (K) K5, K14, K18, nuclear protein p63, epithelial membrane antigen (EMA) and other proteins indicative of a pattern of mammary epithelium bipotent progenitors. Detection of integrins α6, β1, and protein CD44 by cDNA array also pointed to the character of basal/stem cells. In contrast, dominant cells in the human original tumor showed the luminal character (K18+, K19+, K5-, K14-, and p63-). However, cells with the immunocytochemical profile similar to that of cultured EM-G3 cells were found in minor clusters in the patient's tumor sections. The EM-G3 cells formed limited tumors in nu/nu mice. The cells in mouse tumors were organized in primitive ductal-like structures consisting of 1–3 large central luminal-like cells (EMA+) surrounded by peripheral myoepithelial-like cells (p63+). The large central cells gradually disintegrated, forming a pseudolumen. Apparently, EM-G3 cells are able to partially differentiate *in vivo* as well as *in vitro*. Our results indicate that EM-G3 cells were derived from a premalignant population of common progenitors of luminal and myoepithelial cells that were immortalized in an early stage of tumorigenesis.