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Cancer Prevention Research

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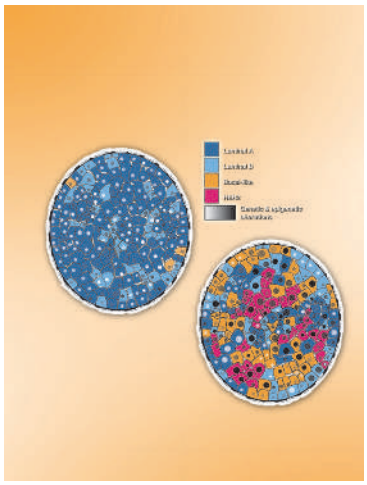
ABOUT THE COVER



The cover illustration shows two breast ducts containing ductal carcinoma *in situ* (DCIS; courtesy of Drs. Hal Berman and Mona Gauthier) and representing opposite ends of the theoretical spectrum of molecular heterogeneity in DCIS. The two heterogeneous ducts theoretically could occur in different individuals (i.e., interlesional heterogeneity) or between two regions within a patient's single DCIS lesion (i.e., intralesional heterogeneity). DCIS can range from homogeneity (left) to a surprising degree of heterogeneity (right) within a single lesion. The continuum of DCIS heterogeneity includes differences in nucleus and cell size, presence and number of coexisting molecular subtypes, and genetic and epigenetic alterations. Well established in invasive breast disease, molecular heterogeneity increasingly clearly is becoming a prevalent, distinct phenotype of DCIS. Key pathways of tumorigenesis modulate critical features of premalignant lesions such as proliferation, differentiation, stress response, and even the generation of diversity. Current studies demonstrate that evaluation of these lesions may provide clinically useful information on future tumor formation as well as biological insights into the origin and functional significance of this distinct phenotype. It is hypothesized that increased heterogeneity marks an increased risk of transformation of DCIS. See article by Berman et al. (beginning on page 579) for more information.

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