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Independent development of endometrial epithelium and stroma within the same endometriosis.

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Abstract

The pathogenesis of endometriosis, a common benign but debilitating disease in women, remains elusive. The currently held stem cell theory posits that circulating progenitor/stem cells are deposited outside the uterus where they differentiate into endometrial stroma and glandular tissue to establish endometriosis. Fundamental to testing this hypothesis is to elucidate the evolution of both tissue types. Here, we applied droplet digital PCR to analyze synonymous and missense somatic passenger mutations, which are neutral with respect to clonal selection, among six non-superficial endometriotic lesions. We found that among 19 mutations sequenced, all were significantly enriched in epithelial but not in stromal components of every lesion examined. Our data indicate that the evolution of non-superficial endometriosis is complex, in that epithelium is clonal and its development is independent of stroma, providing new insight into the genesis of endometriosis.