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### **Microenvironmental Impact on Initial Division Behavior and Functional Properties of Human Cord Blood Stem Cells**

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To investigate the influence of adhesive interactions on the divisional behavior of human hematopoietic progenitors, we developed a novel single cell system that combined microscopic observation of the divisional history by dye resolution tracking with subsequent functional analysis. The data presented in this study demonstrated that depending on culture conditions, a small subfraction of cells remained quiescent and non-responsive to late-acting and proliferation inducing cytokines, which could not be influenced by fibronectin. Asymmetric cell division was not influenced by fibronectin as well. However, when cells were cultured in contact with AFT024 stromal feeders almost all cells proliferated extensively and more cells divided asymmetrically compared to fibronectin and BSA. Functional assessment revealed that more cells with subsequent clonogenic capacity divided asymmetrically and more clonogenic progenitors could be detected after contact with AFT024 stromal feeders. This demonstrates that the microenvironment of AFT024 changes proliferation and asymmetric division of hematopoietic stem cell which could be related to its complex stem cell supporting interactions.