**Title**

Author(s): Name1,2, Name2, Name1

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**Abstract (200-300 words)**

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Title: 12pt, bold. Authors and abstract: 10.5pt.

**Presenter:**

Please underline the presenter's name. Indicate your affiliation number in the upper right corner of your name.

Example

**The extracellular matrix fibulin 7 maintains epidermal stem cell heterogeneity during skin aging**

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**Abstract**

Adult stem cells maintain tissue robustness during homeostasis and show remarkable plasticity in response to various stress or tissue damage. Dysfunction or misregulation of stem cells leads to tissue dysfunction, including impaired wound healing, tumorigenesis, and aging. Emerging evidence suggests the presence of heterogeneous stem cell populations within adult tissues with specific roles in physiological and pathological conditions. Tissue stem cells divide infrequently to minimize risks from replication stress and DNA damage, which are suggested as contributors to stem cell aging. However, it is unclear whether “slow-cycling” nature confers protection to stem cells and delays their aging. Taking advantage of a study model using the slow- and fast-cycling stem cell populations that we previously identified in the mouse skin, we demonstrate that during aging, fast-cycling stem cells are gradually depleted, and the unique lineage identities of distinct stem cell populations are compromised. Mice lacking fibulin-7, an extracellular matrix (ECM), show early impairments resembling epidermal stem cell aging, such as the loss of fast-cycling clones, delayed wound healing, and increased expression of inflammation- and differentiation-related genes. Fibulin-7 interacts with structural ECM and matricellular proteins, and the overexpression of fibulin-7 in primary keratinocytes results in slower proliferation in the absence or presence of inflammatory cytokine IL-6. Together, our results suggest that fibulin-7 maintains epidermal stem cell heterogeneity, thereby protecting skin from the detrimental effects of aging and maintaining long-term tissue robustness. Our work opens a new avenue for understanding stem cell dynamics through all life stages, from development to aging, with implications for applications in regenerative therapy and future treatments of age-related disorders, including cancer.