Stem Cell-niche Interaction in Aging Muscle

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Aging is the major risk factor for a variety of prevalent human diseases, such as sarcopenia, the decline of muscle mass, function, and regenerating capacity. Senescence is a hallmark of aging, characterized by an irreversible growth arrest and featured by the emergence of the senescence-associated secretory phenotype (SASP). Emerging studies have begun to reveal the remarkable heterogeneity of cellular senescence and the wide spectrum of SASPs; defining senescence/SASP and upstream regulators is a key starting point to its functional dissection. A possible link has been established between cellular senescence and sarcopenia but much more efforts are needed to further understand the dynamics, regulation and functions of senescence in aging muscle. Here in this study we aim to conduct a multi-modal profiling of the senescence atlas and elucidate muscle stem cell-niche interactions in aging muscle. Our findings will provide fundamental knowledge for future development of senotherapeutics to ameliorate sarcopenia.