

**【Grant-in-Aid for Scientific Research on Innovative Areas (Research in a proposed research area)】
Biological Science**



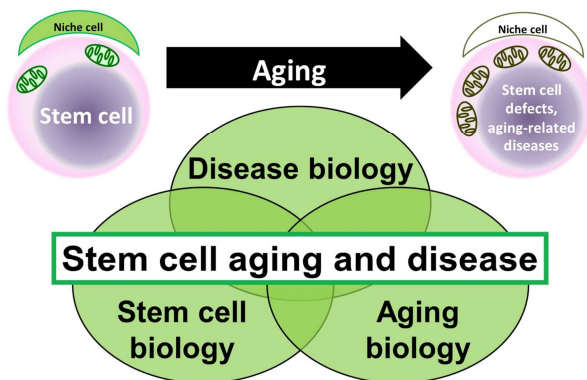
Title of Project : Establishing a new paradigm of pathogenesis of the diseases through the understanding of stem cell aging

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Research Project Number : 26115001 Researcher Number : 70244126

【Purpose of the Research Project】

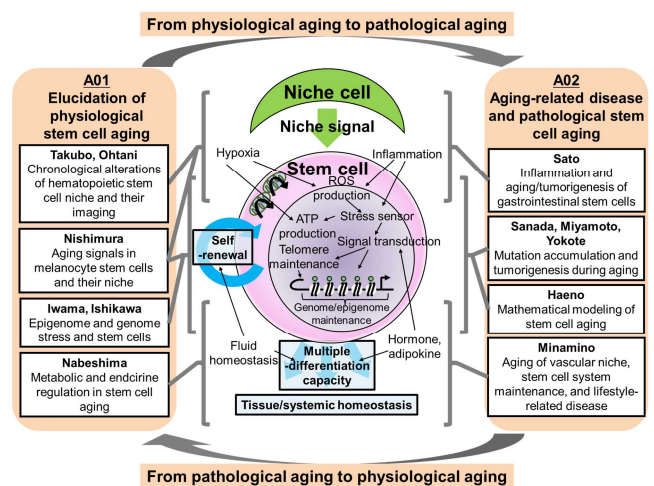
Physiological changes of tissues with age are closely associated with aging-related diseases. Given that aging-related diseases are increasing rapidly in this super-aged society, a scientific approach that targets aging-related diseases is required to achieve health and long life. Recent advances in stem cell research have demonstrated clearly that the continuous regenerative process governed by the stem cell system maintains tissue homeostasis. In the meantime, stem cells, which had been thought to be ageless, appeared to have limited life, and physiological as well as pathological aging of stem cells and their niches, namely “Stem Cell Aging” largely accounts for aging-related diseases. In this research area, we will challenge one of the latest topics, “Aging and diseases” from the viewpoint of “Stem Cell Aging”. We will recruit researchers from various related research areas and, through collaborative research, generate a new paradigm of the pathogenesis of aging-related diseases.



【Content of the Research Project】

With a hypothesis that aging-related diseases occur due to failure in various anti-aging systems that operate in stem cells and their niches, we will decipher the mechanisms of physiological and pathological aging (aging-related diseases) through understanding the impact of “Stem Cell Aging” in these processes. For this purpose, we set two major approaches: Elucidating the hallmarks of

physiological stem cell aging (A01) and the role of stem cell aging in the pathogenesis of aging-related diseases (cancer, lifestyle-related diseases, organ failure, etc.)(A02).



【Expected Research Achievements and Scientific Significance】

By focusing on “Stem Cell Aging”, we will create a new research field of “Aging and diseases”. Our research should provide new guidelines for prevention medicine and early intervention of aging-related diseases, and also for regenerative medicine.

【Key Words】

Stem cell, aging, aging-related disease

【Term of Project】 FY2014-2018

【Budget Allocation】 1,161,300 Thousand Yen

【Homepage Address and Other Contact Information】

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