

# FUNDING PROGRAM FOR NEXT GENERATION WORLD-LEADING RESEARCHERS

**Project Title:** Exhaustive screening of myokines released by muscle contraction

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## 1. Background of research

In recent days, lifestyle diseases are becoming familiar threats for everyone. To alleviate huge national medical expenses has become an emergency task to shift a priority issue from “cures for diseases” to “prevention of diseases”. Physical exercise has positive effects on “the advancement of health” and “the prevention of disease” and their safe use raises expectations. In order to employ exercise in national measures to realize longevity in a healthy society, it is necessary to scientifically clarify the mechanism of exercise’s effects on the health. This project is a trial to make a new concept, the exercise-induced endocrine system.

## 2. Research objectives

This research aimed at verifying that “the effects of exercise on the advancement of health and the prevention of diseases are caused by several myokines secreted from contracting muscles and delivered to all parts of the body through the blood stream.”

## 3. Research characteristics (incl. originality and creativity)

This research is very new and creative in that it verifies that the contraction of muscles not only produces motion, but also provides stimulation to secrete hormones, and clarifies quite a new biological role of muscles.

## 4. Anticipated effects and future applications of research

It will clarify a part of the reason why exercise can produce “diverse” and “systemic” effects. This is expected to allow to: (1) create a drug with the effects of exercise using muscle-derived hormones (creation of drugs and medicines), (2) establish a high level preventive medicine by prescribing an exercise program with the effect of effectively secreting hormones, and (3) diagnose physical and mental health conditions by the concentration of hormones in the blood.

# Hypothesis

Myokines released by muscle contraction produce “The Exercise Effects” including the advancement of health and the prevention of disease

*Muscle contraction triggers myokine release*

