

Supplemental Information to 2nd application from PD (for FY2022 application)

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1. Overview of the FY2020 application and basic approach to FY2022 2nd application

(1) Five projects were selected for the Program.

Of the three targets, the results fell below expected levels for Target 2 (Realization of a medical network accessible for anyone from anywhere in the world) in terms of the scenarios concerning novelty, innovation, and feasibility, so no innovative proposals befitting of being called a moonshot were selected.

(2) "Chronic inflammation" was a keyword for MS Goal #7 (see "Reference" below). From the perspective of the approach to chronic inflammation, we were unable to select R&D projects relate to intestinal flora or immunology.

(3) Based on the above, the FY2022 application aims to produce a wider selection of projects related to Target 2 and/or dealing with chronic inflammation through intestinal flora etc. The COVID-19 pandemic has made research on these themes even more important.

(4) For information regarding the basic approach used in the application, please refer to the supplementary materials issued for the FY2020 application (please refer "Reference" below). (The word, "Subsidiary goals", in the "Reference" below is synonymous with "Targets".)

2. Expectations for the FY2022 2nd application

(1) From the viewpoint of "chronic inflammation", we seek PMs to manage R&D focusing on the achievement of Target 2 and R&D on novel approaches such as intestinal flora.

(2) The priority will be given to proposals with the potential to produce synergistic effects for whole MS Goal #7 projects and to maximize the results of MS Goal #7.

(3) The emphasis will also be placed on the novelty of the R&D from the perspective of science which is suitable as a moonshot (whether it is a breakthrough) and the impact when implemented in society. It also focuses on points such as milestones for implementation within society and coordination with clinical medicine, etc.

(4) The solicitation for applications welcomes proposals for Subsidiary Goal 2 that do not consist solely of comprehensive data analysis, but instead produce basic medical findings by analyzing the relationships between inflammation factors and data that is continuously measured during daily life, such as data obtained from wearable devices, and which furthermore contributes to the realization of medical networks that take into consideration the characteristics of timeline data related to daily life. Proposals can include Target 1 (Realization of a society where everyone can prevent diseases naturally through their daily life) or Target 3 (Realization of drastic improvements in QoL without feeling any additional burden) in order to

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maximize the results of MS Goal #7. For proposals that focus on intestinal flora, applicants can propose research and development related to any of Target 1 through 3, or any combination thereof.

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Reference:

Supplementary Information from the PD (for FY2020 application)

1. Open call and selection policies, and related matters

(1) Open call and selection policies

- Please propose an adventurous and challenging scenario for achieving the following goal: Realization of sustainable care systems to overcome major diseases by 2040, for enjoying one's life with relief and release from health concerns until 100 years old.
- Achieving this goal will require an approach encompassing multidisciplinary perspectives and up-to-date knowledge, including a fusion of basic research and research targeting practical applications and a fusion of medical research and research in other fields. Your proposal must be based on innovative and groundbreaking concepts, as opposed to efforts targeting incremental progress. Although it is not always necessary to implement it by 2030, the halfway point. However, your proposal must ultimately demonstrate the feasibility of practical social implementation and adaptation, with ethical, legal, and social implications (ELSI) and related social issues in mind.

(2) The nature of the proposals

The Moonshot goal of health & medical field as determined by the government have three targets or subsidiary goals. The prime emphasis will fall on the viewpoints described below, in addition to the moonshot goals determined by the government and R&D concept established by the corresponding ministries.

- Achieving a society characterized by health and longevity will require medical care that maintains QoL and goes well beyond mere treatment of disease. Medical care includes treatment, prevention, rehabilitation, and daily life post-treatment. We believe QoL is the key aspect of such medical care and post-treatment life.
- Another goal is to overcome major diseases. In a society characterized by health and longevity, major diseases such as cancer and brain and cardiovascular diseases will be regarded as lifestyle conditions attributable to genetic factors and to lifestyle factors since infancy, such as diet, exercise and sleeping, and aging (i.e., the life course). The keyword or concept here appears to be chronic inflammation. Aging and obesity are intimately related with uncontrolled chronic inflammation, which in turn give rise to major disease, including diabetes, arteriosclerosis, dementia, and cancer. Aging itself may be regarded as the result of uncontrolled inflammation. Crucial perspectives in achieving a society characterized by health and longevity will include controlling inflammation and controlling immunity and sleeping. We seek innovative perspectives that address the problem of lifestyle diseases while maintaining QoL and the problem of controlling the homeostatic mechanisms that cease to function effectively with age.
- Subsidiary Goals #1 through #3 are interlinked. Quantum life science, molecular biology, basic and clinical medicine, medical networks, data science, and the development of medical devices incorporating innovative

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technologies, all individually and/or cooperatively offer the potential to achieve effective control of the homeostatic systems that cease to function effectively with age and various lifestyle conditions. For Subsidiary Goal #3, we welcome R&D not just in the sphere of rehabilitation and regenerative medicine, but innovative QoL-based treatments. In addition to innovative proposals within the framework of a single subsidiary goal, we very much welcome proposals that address more than one subsidiary goal and proposals with strong links to or implications for other subsidiary goals. In sum, we are seeking adventurous, groundbreaking proposals.

2. R&D promotion policies

(1) Portfolio management

The relationships between multiple R&D projects will be managed as parts of a portfolio. Thus, the program will entail both cooperation and competition among PMs. Consequently, you will specify a scenario and the milestones to be achieved in years 3, 5, and 10 from the time of PM selection based on the scenario, then reappraise your proposal and budget plans to a reasonable extent based on consultations with the PD and other personnel.

(2) Industry/academia/government partnerships

We expect results that will contribute to and have material consequences for society and industry. However, this does not mean that such results must be achieved by 2030. We recommend against an excessive focus on applications at the start, as this is likely to discourage the bold, innovative outlook needed to achieve paradigm-shifting discoveries. It is important to regard failures as stepping stones to progress. At the same time, you will be expected to keep in mind at all times the potential for actual social implementation and to explore seriously, at each milestone, the potential for industry/academia/government partnerships, translation of research results with an eye toward future social implementation, and the pursuit of such potential where possible.

(3) International collaboration

As set forth in the Application Guidelines, the proposals are expected to represent a combination of leading R&D capabilities, knowledge, and ideas, whether from Japan or abroad.

Therefore, ideally, you will monitor R&D activities both at home and abroad and, where necessary, be willing to pursue R&D in partnership with overseas institutions (universities, government or nonprofit organizations, academic societies, and companies).