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Results report

１．Title of Research and Development：

Genomics, bioinformatics and systems medicine to facilitate therapy of ovarian cancer

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４．Results of Research and Development:

Ovarian cancer has a poor prognosis and a high mortality rate. Finland has a relatively high morbidity of ovarian cancer. On the other hand, Japan and other Asian countries have a high morbidity of platinum-resistant ovarian cancer including clear cell carcinoma. Identification of new therapeutic targets is critical for the implementation of personalized and effective ovarian cancer treatment.

The aim of our study is the establishment of the ovarian cancer therapy by exploring new drugs and including known molecule targeted drugs, that is, drug repositioning (DR). The results of our study of 2016 are as follows.

1. International collaboration of biobank in gynecological cancer

Finland has established biobank facilities which link medical records under the biobank law. In 2015, the Japanese group visited Auria biobank (Turku), and Helsinki biobank (Helsinki) to participate the conference on international joint research.

2. The understanding of ovarian cancer cell system with bioinformatics and identification of candidate targets for ovarian cancer therapeutics.

Japanese and Finnish groups have been detecting intracellular molecular changes occurring through the pathway in ovarian carcinogenesis, which may lead to drug repositioning (DR).

3. Genome analysis on ovarian cancer

Genome analysis was performed in ovarian cancer tissues collected in Tokyo Medical and Dental University Bioresource Research Center and Keio Women’s Health Biobank (KWB) to explore genomic alterations specific for ovarian cancer.

4. Primary culture for gynecological cancer and drug sensitivity and resistant testing

Primary culture with tissues and ascites from ovarian cancer patient was performed to detect *ex vivo* drug sensitivity of the cells.

5. Analysis for the ovarian cancer pathogenesis through impaired autophagy

P62 protein expression, which is regarded to the hub of autophagy function, was analyzed in ovarian cancer.

6. Ovarian cancer metabolome analysis

Possible involvement of metabolic alterations in refractory ovarian cancer pathogenesis was discussed.

7. Japanese - Finnish symposiums

Members from both countries participated in the meeting of Japan-Finland Cooperative Scientific Research as part of the FY 2015 Strategic International Research Cooperative Program (SICP) at Sapporo in Japan. A Finnish leader, Professor Olli Kallioniemi showed Finnish Biobamk system and its utility in precision medicine in Finland as a presentator at the 34th International Cancer Symposium held at Sapporo (25-27 June 2015).