

Human centric digital twins services

R&D Project Title

Development of digital twin by integrating multi-layered biomedical information

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Summary : Disease prevention is one of the key issues to promote human health and to maintain social vitality. The purpose of this project is to develop a new digital twin technology for predicting personalized risks of diseases and for simulating future health conditions of individuals by incorporating information of DNA polymorphisms and omics into that of long-term health checkup records.

In the feasibility study R&D project, we focused on unique health checkup systems of Japanese companies, constructed a cohort with DNA polymorphism information of 60,000 people, and successfully calculated and verified the disease risks (polygenic risk score:PRS) for prevention of several common diseases.

In the full-scale R&D project, its scope will be expanded to 38 diseases and 200,000 people. Moreover, by utilizing cutting-edge information science, more advanced and novel digital twin technology that includes not only genomic information but also omics and biophysical information will be developed and personalized approaches to disease prevention will be generated.

