Exploring the link between sleep and inflammation and Development of personalized digital health

Wearable Device Validation → **Data Visualization** → **Validation of subjective and objective information** → **Personalized Algorithm development** → **Social Implementation**
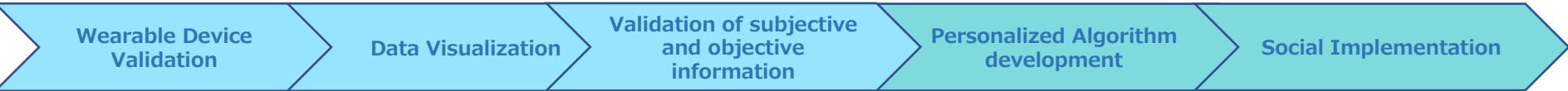
Bio bigdata

- Wearable data (Objective data)
- Questionnaire (Subjective data)
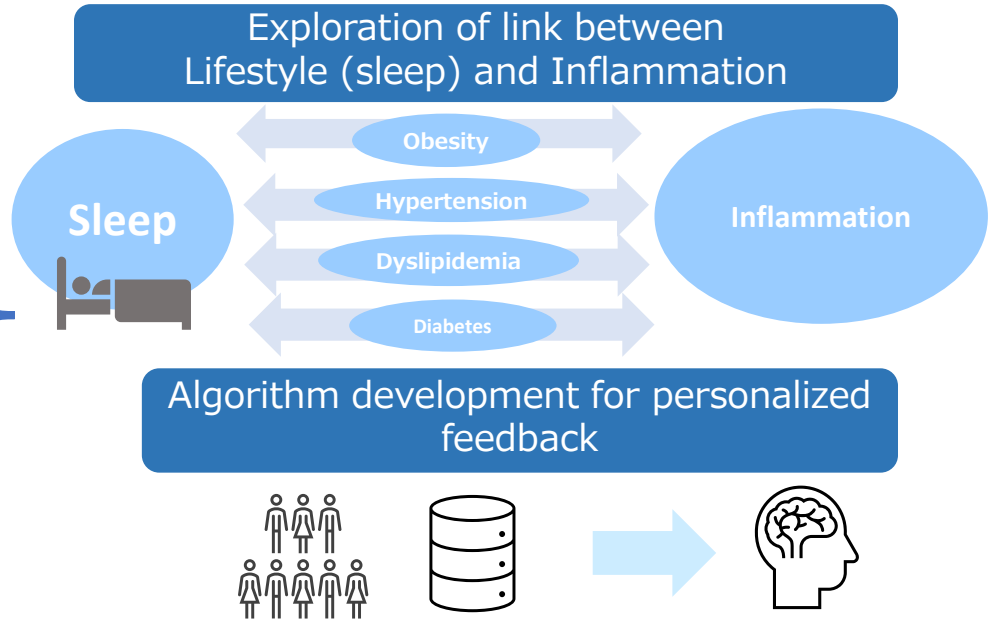- Blood test data
- Protein data
- Metabolomic data
- Genome data

Wearable device

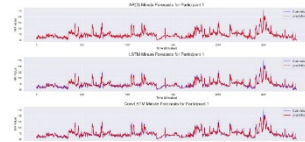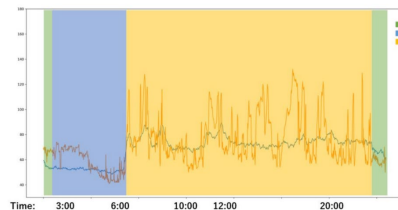Smartphone/tablet Questionnaire

Biomarkers

Explanatory variables:
Heart rate, exercise, sleep information, questionnaires, etc.

International collaboration with Sweden

Sweden

Japan

Exploration of link between Lifestyle (sleep) and Inflammation

Sleep ⟷ Inflammation

- Obesity
- Hypertension
- Dyslipidemia
- Diabetes

Algorithm development for personalized feedback

- **Selection of features related to sleep evaluation**
- **Investigation of the influence of sleep and physical activity**
- **Construction of deep and machine learning models**

Social Implementation