



# 4th Japan-Germany Symposium on Advanced Preventive Medicine 2022

- Through Worldwide-COVID-19 Pandemic to  
International alignment -

Date: 3rd – 5th of February, 2022



[Nagasaki U (NU) / Chiba U (CU) / Kanazawa U (KU) / Heinrich Heine University Dusseldorf (HHU)]

Thursday, February 3rd, Japan time: 16:00~, Germany time: 8:00~

<b>Opening remarks</b>	Shigeru Kono, the president of NU Heiner Fangerau (HHU)	Japan 16:00~16:15 Germany 8:00~8:15
<b>I. Plenary Lectures-1</b>	Chairs: Yuji Nagayama (NU) and Christian Herder (DDZ/HHU)	
1. Lessons from Chernobyl and Fukushima	Noboru Takamura (NU)	J 16:15~16:45 G 8:15~8:45
2. The role of adipose tissue in refining novel diabetes subtypes	Oana Patricia Zaharia (DDZ/HHU)	J 16:45~17:15 G 8:45~9:15
Coffee break		J 17:15~17:30 G 9:15~9:30
<b>II. Collaborative studies</b> <b>(1) Ongoing collaborative studies-1</b>	Chairs: Hiroyuki Nakamura (KU) and Tamara Schikowski (IUF/HHU)	
1. Sex differences in the association between air pollutants and asthma prevalence in Japanese rural residents	Akinori Hara (KU) (Collaborated with Sara Kress, <i>et al.</i> (IUF/HHU))	J 17:30~17:50 G 9:30~9:50
2. Gene-environment interaction effects on respiratory health among ancestry groups	Sara Kress (IUF/HHU) (Collaborated with Akinori Hara (KU))	J 17:50~18:10 G 9:50~10:10
<b>III. Oral sessions-1</b>	Chairs: Kenichi Sakurai (CU) and Yasuhiro Nagata (NU)	
1. Next-generation online RA telemedicine using mixed reality and artificial intelligence	Shin-ya Kawashiri (NU)	J 18:10~18:22 G 10:10~10:22
2. Genome analysis of umbilical cord tissue DNA using SNP array in a Japanese cohort	Tomoko Takahashi (CU)	J 18:22~18:34 G 10:22~10:34
3. End of an era of sample collection for the Nagasaki Atomic Bomb Survivor's tumor tissue bank	Yuko Akazawa (NU)	J 18:34~18:46 G 10:34~10:46
4. The effect of temperature and air pollution on lung function in elderly women, and children	Ashtyn Tracey Areal (IUF/HHU)	J 18:46~18:58 G 10:46~10:58
<b>Closing remarks</b>	Atsushi Tajima (KU)	

<b>I. Plenary Lectures-2</b>	Chairs: Chisato Mori (CU) and Christian Herder (DDZ/HHU)	
1. COVID-19 pandemic & internet use and health outcome: JAGES longitudinal studies.	Katsunori Kondo (CU)	J 16:00~16:30 G 8:00~8:30
2. The role of air pollution on COVID 19	Tamara Schikowski (IUF/HHU)	J 16:30~17:00 G 8:30~9:00
Coffee break		J 17:00~17:15 G 9:00~9:15
<b>II. Collaborative studies</b> <b>(1) Ongoing collaborative studies-2</b>	Chairs: Toshinari Takamura (KU) and Tillmann Supprian (DDZ/HHU)	
1. Development of a C-ABC touch panel cognitive test Germany version and the relationship between social isolation and cognitive decline among elderly: Japan-Germany comparative study	Moeko Shinohara (KU) (collaborated with Tillmann Supprian (IUF/HHU))	J 17:15~17:35 G 9:15~9:35
2. Selenoprotein P, type 2 diabetes and diabetes-related complications: KORA F4/FF4 study	Christian Herder (DDZ/HHU) (collaborated with Toshinari Takamura, <i>et al.</i> (KU))	J 17:35~17:55 G 9:35~9:55
<b>III. Oral sessions-2</b>	Chairs: Kiyoshi Aoyagi (NU) and Emiko Todaka (CU)	
1. Epidemiological features of tuberculosis infection in a prefecture in western Japan	Yixiao Lu, et al. (NU)	J 17:55~18:07 G 9:55~10:07
2. Association of Epstein-Barr virus serological reactivation with psychological distress in relation to insulin-like growth factor-1	Hiroto Yamanashi (NU)	J 18:07~18:19 G 10:07~10:19
3. Preliminary study on the factors affecting the elemental distribution in deciduous teeth	Aya Hisada (CU)	J 18:19~18:31 G 10:19~10:31
4. Association of neighborhood greenness with depressive symptoms in elderly women	Hicran Altug (IUF/HHU)	J 18:31~18:42 G 10:31~10:42
5. Short Term effect of temperature on skin aging in Indian women	Nidhi Singh (IUF/HHU)	J 18:42~18:54 G 10:42~10:54
<b>Closing remarks</b>	Chisato Mori (CU)	

<b>I. Plenary Lectures-3</b>		
	Chairs: Takahiro Maeda (NU) and Hiroshi Ichimura (KU)	
1. Nagasaki Island Cohort: Multi-layered, interdisciplinary research contributing to human health	Atsushi Kawakami, et al. (NU)	J 16:00~16:30 G 8:00~8:30
2. Expanding microbiology research - Infectious diseases to dysbiosis	Shigefumi Okamoto (KU)	J 16:30~17:00 G 8:30~9:00
Coffee break		J 17:00~17:15 G 9:00~9:15
<b>II. Collaborative studies</b>		
<b>(2) The proposals for new collaborative studies</b> (You can find the abstracts down below)		
1. Multi-layered, interdisciplinary research toward the involvement of air pollutants with health hazards based on Nagasaki Island Cohort	Atsushi Kawakami (NU)	J 17:15~17:35 G 9:15~9:35
2. Cystatin C-based eGFR as a predictor for cardiovascular disease in patients with hyperglycemia and obesity: Comparison study between Germany and Japan	Keita Suzuki (KU)	J 17:35~17:55 G 9:35~9:55
<b>III. Oral sessions-3</b>		
	Chairs: Tamara Schikowski (IUF/HHU) and Masamichi Hanazato (CU)	
1. Circulating CD34-positive cell levels determine the association between handgrips strength and hypertension among elderly Japanese men	Yuji Shimizu (NU)	J 17:55~18:07 G 9:55~10:07
2. Effect of alcohol consumption and smoking on serum IgG4 during health checkups in Nagasaki Island Study	Yoshika Tsuj, <i>et al.</i> (NU)	J 18:07~18:19 G 10:07~10:19
3. Does social participation foster social supports among older population in Japan?: A 3-year follow-up study from the Japan Gerontological Evaluation Study.	Gemmei Iizuka (CU)	J 18:19~18:31 G 10:19~10:31
4. Asian sand dust and its effect on polycyclic aromatic hydrocarbons in Fukuoka and Kanazawa	Kim-Oanh Pham, <i>et al.</i> (KU)	J 18:31~18:42 G 10:31~10:42
5. Air pollution effects on skin aging in Indian Women living in highly polluted areas.	Khurshid Pia Jahan (IUF/HHU)	J 18:42~18:54 G 10:42~10:54
<b>Closing remarks</b>	Michael Roden (DDZ/HHU)	

**IV. Free dialogues on Nuclear medicine, Ophthalmopathy and Cardiovascular surgery fields**

Ophthalmopathy	Akira Kobayashi (KU)
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### The abstracts for the proposals for new collaborative studies

#### The title: Multi-layered, interdisciplinary research toward the involvement of air pollutants with health hazards based on Nagasaki Island Cohort

Abstract: Air pollutants including PM2.5 have various effects on the human body. Classically, it started with reports of respiratory allergies through enhanced Th2 immune response and lung cancers. In recent years, varying types of human diseases, including autoimmune diseases such as rheumatoid arthritis and systemic lupus erythematosus, type 2 diabetes, which is a metabolic disease, and psychiatric disorder of dementia have been included in the diseases associated with air pollutants from an epidemiological point of view. In other words, the mechanism by which air pollutants trigger the onset and exacerbation of human diseases is extremely multifaceted, and multi-layered, interdisciplinary research should be essential to clarify the details.

In general, the onset and exacerbation of human diseases are regulated by varying balances of genetic predisposition and environmental factors, and air pollutants are one of the latter factors. That is, in order to consider the relation of human diseases with air pollutants, it is also crucial to analyze genetic predisposition. From these points of view, Nagasaki Island Cohort, which is based on the data of aged residents' medical examinations in the Goto Islands, Nagasaki City, developed by the joint activities between Department of Advanced Preventive Medical Sciences, Nagasaki University Graduate School of Biomedical Sciences with local government of Goto City, is in an extremely ideal research environment. Nagasaki Island Cohort has;

1. Data of 5,000 residents' interviews, physical findings, CAVI, cervical artery ultrasound, dental examination, bone density, general blood chemistry test, preserved serum samples, preserved genomic DNA samples.
2. Can track disease onset
3. Possible to research and utilize big data that links health data including medical care and nursing care.
4. Experts in air pollutant research belong to the research team.
5. Biostatistics specialist that analyzes big data in the research team. AI research specialists also belong to the research team
6. A collaborative environment among Nagasaki University, local residents and local governments is fostered
7. It has the characteristic of having air pollutants including PM2.5 measurement results, therefore, we are able to start immediately the research of air pollutants associated with health hazards. However, it is possible that both genetic predisposition and environmental factors differ between Japan and Europe. Therefore, we would like to propose international joint research with your university with the keyword of multi-layered, interdisciplinary research toward the involvement of air pollutants with health hazards, and create strong evidence that contributes to planetary health.

#### The title: Cystatin C-based eGFR as a predictor for cardiovascular disease in patients with hyperglycemia and obesity: Comparison study between Germany and Japan

Abstract: Background: Obesity is a risk factor for cardiovascular diseases (CVD). Although many clinical parameters have been identified as predictors for CVD development, there is currently no surrogate marker that clearly predicts the onset of CVD in patients with obesity.

Aim: We examined a predictor for CVD in obese Japanese patients in a prospective cohort of 787 Japanese outpatients with obesity aged more than 20 years.

Findings: A lower cystatin C-based estimated glomerular filtration rate (eGFR<sub>cys</sub>) was associated with the development of CVD in obese patients with hyperglycemia (FPG  $\geq 110$  mg/dl, HR = 0.966,  $p = 0.003$ ), but not in those without hyperglycemia (HR = 1.008,  $p = 0.455$ ). Obese patients with hyperglycemia showed a greater decline in eGFR<sub>cys</sub> during the follow-up than those without hyperglycemia (eGFR<sub>cys</sub> at baseline  $\pm$  SE (ml/min/1.73 m<sup>2</sup>), after 5 years: 103.2  $\pm$  1.8, 88.7  $\pm$  3.9 with hyperglycemia; 102.8  $\pm$  1.8, 99.1  $\pm$  3.2 without hyperglycemia). The prediction accuracy of eGFR<sub>cys</sub> was better than creatinine-based eGFR. Furthermore, patients with eGFR<sub>cys</sub> that was maintained throughout the follow-up did not develop CVD even though eGFR<sub>cys</sub> was as low as that in patients who developed CVD at baseline (eGFR<sub>cys</sub> at baseline  $\pm$  SE (ml/min/1.73 m<sup>2</sup>), after 5 years: 89.7  $\pm$  3.6, 81.1  $\pm$  5.6 in

CVD;  $90.8 \pm 3.8$ ,  $96.8 \pm 6.5$  in non-CVD) (manuscript *in preparation*).

Conclusions: These results suggest that eGFR<sub>cys</sub> is a useful predictor for CVD in patients with obesity and hyperglycemia.

Proposal: To test the generalizability of these results to Western populations, we propose a collaborative and comparative study to identify better predictors for CVD development in Germans with obesity and hyperglycemia.