
Tanaka Memorial Foundation Announces Recipients of Precious Metals Research Grants

Yoshiho Ikeuchi, a Lecturer at The University of Tokyo, wins Gold Award for the development of a platinum electrode device for manipulating artificial nerve tissues produced from human induced pluripotent stem cells (iPSCs), and

Katsunori Tanaka, a Chief Scientist at RIKEN, wins Gold Award for in vivo precious metal catalysis in mammals for treatment of disease

Prizes won for developing technology for a device using platinum for efficient analysis of neurological disorders such as ALS, and next-generation drug development technology using precious metals catalysis to contribute to future treatments for cancer

The Tanaka Memorial Foundation (Representative Director: Hideya Okamoto) today announced the recipients of the FY2017 Precious Metals Research Grants.

Following a rigorous screening, two-million yen Gold Awards were granted to Yoshiho Ikeuchi, a Lecturer at The University of Tokyo, and Katsunori Tanaka, a Chief Scientist at RIKEN. Besides, five research projects received Silver Awards, and two Young Researcher Awards were granted.

The Tanaka Memorial Foundation undertakes programs designed to foster development in new precious metal fields and contribute to the advancement of science, technology, and socio-economics so that numerous people can experience an enriching society through advances in science and technology. The research grant program was launched in FY1999 and has been conducted every year since to support the various challenges faced in the “new world opened up by precious metals.” This year, the 19th of the program, 167 applications were received in a wide range of fields where precious metals can make contributions to research and development of new technologies. A total of 15.2 million yen in research grants was awarded for 23 projects.

The recipients of the two Gold Awards, their research topics, and the reasons for the awards are shown below.

■ **Yoshiho Ikeuchi, Lecturer at The University of Tokyo**

Development of a platinum electrode device for manipulating artificial nerve tissues produced from human induced pluripotent stem cells (iPSCs)

In this research, a technique was created for developing a tissue culture device for reproducing human neuron diseases *in vitro* to find treatments. In the tissue culture device developed, three-dimensionally processed electrodes made of platinum were embedded with the aim of creating artificial tissues and simultaneously electrically and genetically manipulating them. The new device will enable understanding of the pathogenesis of diseases, which may lead to the establishment of treatments. This research has been highly evaluated for indicating the possibility of establishing treatments for intractable neurodegenerative disorders such as amyotrophic lateral sclerosis (ALS) and enabling precious metals to contribute to improving the quality of life of many patients currently fighting those diseases.

■ **Katsunori Tanaka, Chief Scientist at RIKEN**

In vivo precious metal catalysis in mammals for treatment of disease

This research provides a method of in vivo synthesizing of highly active anticancer agents in areas surrounding cancer tissues through separately injecting inactive precursors to the anticancer agents after in vivo incorporation into the cancer cells of precious metals-catalyzed proteins through the binding of proteins and lipids using sugar chains that mainly exist on cell surfaces. It presents the possibility of being able to use anticancer agents that are highly active but have had no practical application because they are also very toxic. This research has been highly evaluated for the possibility of precious metals being able to contribute to future in vivo treatments that produce far less damage (highly non-invasive therapies).

Five Silver Awards, Two Young Researcher Awards, and 14 Encouragement Awards were also granted. The recipients of these awards and an overview of the Precious Metals Research Grants are indicated below. Applications for the FY2018 research grants are scheduled to open in the autumn.

List of Recipients the 2017 Precious Metals Research Grants

Platinum Award (0 award, 5 million yen)	
Non granted	
Gold Award (2 award, 2 million yen each)	
Yoshiho IKEUCHI, Lecturer, The University of Tokyo	Development of a platinum electrode device for manipulating artificial nerve tissues produced from human induced pluripotent stem cells (iPSCs)
Katsunori TANAKA, Chief Scientist, RIKEN	In vivo precious metal catalysis in mammals for treatment of disease
Silver Awards (5 awards, 1 million yen each)	
Yoshitomo MAEDA, Assistant Professor, Japan Aerospace Exploration Agency (JAXA)	Proof of concept of large area super resolution x-ray telescopes with precious metal reflective surfaces
Tadatomo SUGA, Professor, The University of Tokyo	Ultra-low temperature bonding of precious metal materials through surface activation
Shigeki TOYAMA, Professor, Tokyo University of Agriculture and Technology	Stent robot
Yasuhiro IWAMURA, Professor, Tohoku University	Research relating to abnormal heat generation reaction due to interaction of palladium nanoparticles and deuterium/hydrogen
Hisashi KINO, Assistant Professor, Tohoku University	Development of charge retention layer with ultra-high density platinum nanoparticles for high capacity, low cost and high reliability 3D NAND flash memory
Young Researcher Awards (2 awards, 1 million yen each)	
Tso-fu Chang, Assistant Professor, Tokyo Institute of Technology	Development of precious metal – silk fiber flexible composite material with high biocompatibility for application to wearable devices
Akichika KUMATANI, Associate Professor, Tohoku University	Development of platinum-incorporated two-dimensional materials with high oxygen reduction reactivity through nano electrochemical imaging
Encouragement Award (14 awards, 300,000 yen each)	
Hirobumi TOBE, Assistant Professor, Japan Aerospace Exploration Agency (JAXA)	Caifu Li, Assistant Professor, Osaka University
Hiromasa YAGYU, Associate Professor, Kanto Gakuin University	Masaharu TSUJI, Research Professor, Kyushu University
Hiroshi YOSHIDA, Assistant Professor, Kumamoto University	Kazuhiko MASE, Associate Professor, High Energy Accelerator Research Organization (KEK)
Tomoyuki MOCHIDA, Professor, Kobe University	Yoshihiro IIDA, Research Scholar, Kobe University
Enoch Y. Park, Professor, Shizuoka University	Makoto HASEGAWA, Professor, Chitose Institute of Science and Technology
Hiroshi NAGANUMA, Assistant Professor, Tohoku University	Takayuki HARADA, Assistant Professor, Tohoku University
Hsin-Hui Huang, Researcher, Toyota Technological Institute	Tatsuya OSHIMA, Associate Professor, University of Miyazaki

Overview of the 2017 Precious Metals Research Grants

[Theme]

- Research and development for new technologies or practical implementation of products to which precious metals can make a contribution

[Grant amounts]

- Platinum Award: 5 million yen (1 award)
- Gold Award: 2 million yen (1 award)
- Silver Awards: 1 million yen (4 awards)
- Young Researcher Awards (for researchers of up to 37 years of age): 1 million yen (2 awards)
- Encouragement Award: 300,000 yen (several awards)
- The grant amount is treated as a scholarship donation.
- Each award is given to research deemed to make an unusually significant contribution to commercialization and practical implementation, and awards may not be granted in some cases.

[Eligible candidates]

- Personnel who belong to educational research institutions or public research institutes in Japan
- Applicants residing to research institutions in Japan are eligible regardless of whether they are based in Japan or overseas.
- Young Researcher Awards are given to young researchers aged up to 37 years old as of April 1, 2017.

[Application period]

- 9am, September 4, 2017 (Mon) - 5pm, November 30, 2017 (Thurs)

[Application method]

- Enter the necessary information on the application form available on the Tanaka Memorial Foundation website (<http://tanaka-foundation.or.jp>) and upload details of the research (papers and supplementary material on the theme).

[Announcement]

- Results will be announced on the Tanaka Memorial Foundation website at about the end of March 2018.
- Tanaka will contact the award recipients directly.

[Conditions]

- Precious metals must play an essential role in commercialization and practical implementation of the research.
- Development related to precious metals must provide a breakthrough in the progress of the commercialization and practical implementation.
- When applying with joint research, the representative should apply.
- Students must obtain approval from the person responsible for their laboratory to apply.
- State if the research is being performed with other precious metal manufactures (including planned).
- Applicants may be asked to exchange information with Tanaka about product development, technology development, and guidance through the research.
- Excludes research such as analysis, evaluation and production technology that has already been commercialized or for which there are such plans.

[Inquiries concerning the research grant program]

Precious Metals Research Grants Office

Marketing Department, Tanaka Kikinzoku Kogyo K.K.

22F Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo 100-6422

TEL: 03-6311-5596 FAX: 03-6311-5529 E-mail: joseikin@ml.tanaka.co.jp

Tanaka Memorial Foundation website: <http://tanaka-foundation.or.jp>

■ Tanaka Memorial Foundation

Established: April 1, 2015

Address: 22F Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Hideya Okamoto (Senior Advisor to Tanaka Holdings Co., Ltd.)

Purpose of Business: To provide grants for research related to precious metals to contribute to the development and cultivation of new fields for precious metals, and to the development of science, technology, and the social economy.

Areas of Business: Provision of grants for scientific and technological research related to precious metals. Recognition of excellent analysis of precious metals and holding of seminars and other events.

■ Tanaka Kikinzoku Kogyo K.K.

Headquarters: 22F, Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Akira Tanae, Representative Director & CEO

Founded: 1885

Incorporated: 1918

Capital: 500 million yen

Employees: 2,269 (as of March 31, 2017)

Sales: 1,059,003.329 million yen (FY2016)

Main businesses:

Manufacture, sales, import and export of precious metals (platinum, gold, silver, and others) and various types of industrial precious metals products.

Website: <http://pro.tanaka.co.jp/en>

<Press inquiries>

Tanaka Holdings Co., Ltd.

<https://www.tanaka.co.jp/en/protanaka/inquiry/index.php>