

## JSNC AWARD—REVIEW ARTICLE

## Introduction of the JSNC Award: Scope and Recent Research Topics from JSNC Award Memorial Lectures

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## Abstract

In each year, Japanese Society of Nuclear Cardiology (JSNC) recognizes and rewards an outstanding investigator who is making great contributions to the advancement of nuclear cardiology. From 2000 to 2016, seventeen researchers have received the JSNC award. In the award presentation session in the annual JSNC scientific meeting, the audience can encounter the latest and excellent research achievements in the field of nuclear cardiology. This award lecture session is one of the highlights of annual JSNC meeting. This article provides JSNC members with key research topics covered in recent-3 year JSNC award, including assessment of myocardial dysfunction with <sup>99m</sup>Tc-sestamibi imaging, prognostic values of <sup>123</sup>I-MIBG imaging and quantitative assessment of myocardial blood flow using cardiac positron emission tomography (PET).

**Keywords:** <sup>123</sup>I-MIBG, <sup>99m</sup>Tc-sestamibi, Award, Coronary flow reserve, Japanese Society of Nuclear Cardiology  
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**J**apanese Society of Nuclear Cardiology (JSNC) has a mission to promote nuclear cardiology research activities in Japan. JSNC award is annually given to an outstanding investigator who is making major contributions to the advancement of nuclear cardiology. The JSNC award winner presents the distinguished achievements in each year at the JSNC scientific meeting. The audience can encounter the highly-organized and latest research achievements in the presentation. Therefore, the award session is one of the biggest highlights in the JSNC annual scientific session. In this article, we provide the key research topics presented at the recent JSNC award memorial sessions.

## Recent key research topics of the JSNC award

In 2014, Kasama showed splendid achievements in a number of clinical studies of myocardial sympathetic nervous function imaging with <sup>123</sup>I-metaiodobenzylguanidine (MIBG) scintigraphy (1-4). The 15<sup>th</sup> JSNC award was given to Shu Kasama (Gunma University) for his outstanding contributions to nuclear cardiology (5). In the 25<sup>th</sup> JSNC annual meeting, the 16<sup>th</sup> JSNC award was given to Satoru Ohshima for his great achievements (5). Dr. Ohshima, Nagoya PET Imaging Center,

demonstrated that the <sup>99m</sup>Tc-sestamibi (MIBI) washout rate is correlated with an impairment in the myocardial contractile and relaxation reserve during dobutamine stress in patients with dilated cardiomyopathy (6).

Quantification of myocardial blood flow (MBF) using <sup>82</sup>Rb PET would be expected in Japan. <sup>82</sup>Rb is still not approved in Japan. In light of the obtaining approval, it is important to increase the numbers of publications as evidence. MBF quantification using <sup>82</sup>Rb was still early stage decade ago. Therefore, showing high reproducibility of MBF at rest and stress was quite important for MBF application of <sup>82</sup>Rb (7). In addition, this is the first <sup>82</sup>Rb manuscript published in Japan. Manabe and his colleague (Hokkaido University) proved the quantitative assessment of MBF in each coronary vessel in patients with coronary artery disease (8). Recently, they applied the methodology of quantification in <sup>15</sup>O-H<sub>2</sub>O PET to quantification of dynamic perfusion MRI (9). This challenge is interesting because of a new application of different modalities. Manabe et al. investigated not only MBF quantification but also myocardial inflammation using <sup>18</sup>F-fluorodeoxyglucose (FDG). They found that regional accumulation of <sup>18</sup>F-FDG in the septal wall is correlated with atrioventricular block (10).

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**Table 1** The JSNC award past winners

JSNC award	Year	Award winner	Research title
1 <sup>st</sup>	2000	Ryuji Nohara	Basic and clinical research of myocardial metabolism using PET and SPECT with BMIPP
2 <sup>nd</sup>	2001	Ichiro Matsunari	Assessment of myocardial viability with SPECT
3 <sup>rd</sup>	2002	Ikuo Yokoyama	Early diagnosis of arteriosclerotic disease in high-risk patients with PET imaging
4 <sup>th</sup>	2003	Hidehiro Iida	Methodological development of quantitative assessment in myocardial functional imaging
5 <sup>th</sup>	2004	Tomoaki Nakata	Heart failure and cardiac sympathetic nervous system functional imaging
6 <sup>th</sup>	2005	Junichi Taki	Assessment of cell death in ischemic myocardium using apoptosis imaging
7 <sup>th</sup>	2006	Yutaka Kagaya	Assessment of energy substrate metabolism and intracellular information transmission system in the myocardium during stress using nuclear medicine
8 <sup>th</sup>	2007	Masao Miyagawa	Cardiac molecular imaging: from pharmacologic stress to monitoring of gene expression
9 <sup>th</sup>	2008	Shinro Matsuo	Pathophysiology and prognostic assessment of heart failure
10 <sup>th</sup>	2009	Keiichiro Yoshinaga	Development of diagnostic method for early detection of coronary atherosclerotic disease and myocardial metabolic dysfunction using PET imaging
11 <sup>th</sup>	2010	Naoya Matsumoto	Role of myocardial perfusion imaging in the era of multimodality cardiac imaging
12 <sup>th</sup>	2011	Nobuhiro Tahara	Inflammation and atherosclerosis detecting PET imaging
13 <sup>th</sup>	2012	Satoshi Isobe	Assessment of cardiomyopathy with nuclear medicine
14 <sup>th</sup>	2013	Masanao Naya	Prognostic value of coronary flow reserve using PET in patients with myocardial ischemia
15 <sup>th</sup>	2014	Shu Kasama	Evaluation of heart failure using cardiac sympathetic nervous system function imaging
16 <sup>th</sup>	2015	Satoru Ohshima	Relationship between technetium-99m sestamibi washout rate and myocardial dysfunction in DCM patients, molecular imaging with Technetium-99m-labeled matrix metalloproteinase inhibitor, and PET imaging in hemodialysis patients
17 <sup>th</sup>	2016	Osamu Manabe	Quantitative assessment of myocardial perfusion and active pathological lesion

Basically, physiological accumulation of  $^{18}\text{F}$ -FDG causes false positive diagnosis, therefore elimination of physiological myocardial  $^{18}\text{F}$ -FDG accumulation is an important issue in  $^{18}\text{F}$ -FDG imaging. They documented the usefulness of advance preparation (fasting) and emphasized the pitfall of  $^{18}\text{F}$ -FDG imaging for the beginners (11). Their comprehensive assessment of imaging using multimodality approach contributed the diagnosis and management of cardiac sarcoidosis, coronary artery disease and heart failure. These great contributions were acknowledged and the 17<sup>th</sup> JSNC award was given to Osamu Manabe in 2016. Application requirements for the 18<sup>th</sup> JSNC award are found below.

#### Apply for the 18<sup>th</sup> JSNC award

Until 2016, seventeen investigators have received the JSNC award. The award winners and their honored research titles are listed in Table 1. The 18<sup>th</sup> JSNC award will be given in 27<sup>th</sup> JSNC scientific annual meeting to be held in Tokyo in 2017. Since the award is intended not only to reward outstanding researchers, but also to offer the great opportunity to share the latest well-organized research achievements with other JSNC members, the authors would like to recommend the eligible researchers to apply for the prestigious JSNC award.

#### Conclusions

The JSNC award is annually given to an outstanding

investigator who is making major contributions to the advancement of nuclear cardiology. Key research topics in the recent 3-year JSNC award, including myocardial  $^{99\text{m}}\text{Tc}$ -MIBI washout rate as a marker to assess mitochondrial damage, and prognostic value of  $^{123}\text{I}$ -MIBG imaging in patients with heart diseases and comprehensive assessment with PET imaging, were introduced in this article. The authors strongly recommend the eligible researchers to apply for the JSNC award. See Table 2.

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#### Conflicts of interest

None

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**Table 2** The 17<sup>th</sup> JSNC award**Eligibility criteria**

- A JSNC member who demonstrated excellence in his/her recent 5-year research, showed exceptional future contributions to nuclear cardiology, and is at age 50 years or younger as at April 1<sup>st</sup>, 2017.

**Due date for the application**

- March 31<sup>st</sup>, 2017

**Required application documents**

- Application form (JSNC-designated)
- Recommendation letter
- Resume
- Summary of research achievements in the field of nuclear cardiology (2000 words or less in Japanese)
- List of published work (in English)
- Separate volume of 3 major literatures that the applicant achieved.

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