

Bottom up - my experience in the KAKENHI system

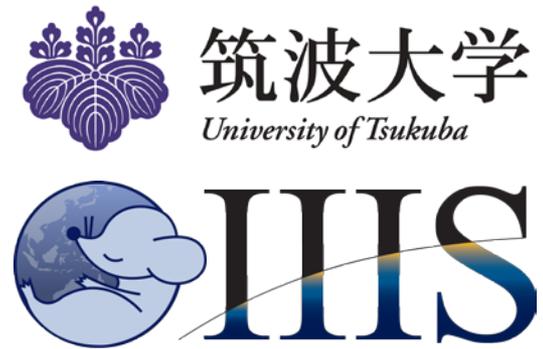
Michael Lazarus

International Institute for Integrative
Sleep Medicine, University of Tsukuba

About me

- ✓ From Germany, came to Japan in 1999.
- ✓ 1999-2002: Postdoc at Osaka Bioscience Institute (OBI).
- ✓ 2002-2007: Postdoc and instructor at Beth Israel Deaconess Medical Center/Harvard Medical School.
- ✓ 2007-2013: Staff scientist at Osaka Bioscience Institute.
- ✓ Since 2013: Principal Investigator and Associate Professor at IIS.
- ✓ Applying for KAKENHI and (many) other grants since 2007.

International Institute for Integrative Sleep Medicine (WPI-IIIIS)



- An assorted population of scientists gather “***under one roof***”, focusing on molecular genetics, neuroscience, and medicinal chemistry.
- The “***open lab***” concept (i.e., shared facilities and equipment) stimulates collaborative research.
- English is the official language: English speaking and reading abilities are essential for researchers in neurobiology and a “***ticket to a well-paying job***”.

Lazarus Laboratory



Output of competitive grants

Grant system	Successful		Failed	Language ^a	
	IIS	OBI		English	Japanese
Kiban B	1	2	4	3	0
Innovative Areas	3	0	3	2	1
Hoga	0	0	4	0	0
JSPS Postdoc	2	0	3	2	0
Sakigake	0	0	5	0	0
CREST	(1) ^b	0	0	0	1
A-STEP	0	1	4	0	1 ^c
Private foundation	3	2	6	2	3 ^c

^aOnly successful applications; ^bPI: Masashi Yanagisawa; ^cApplication in Japanese is required.

- ✓ Keep applying for grants
- ✓ Apply for multiple grants
- ✓ English is just fine

Standard KAKENHI grants are bottom-up grants

KAKENHI grants are designed to support research projects that are based on independent ideas of researchers (“bottom-up approach”).

- ✓ Aim for the highest level of scientific innovation and originality (in your research category):

“Scientists are a curious species, and the harder the problem, the more interesting it looks.” (Osamu Hayaishi) - **Be innovative!**

“Just because everybody loves blueberries, it doesn’t mean that the world needs pinkberries.” (Osamu Hayaishi) - **Be original!**

- ✓ Convince the reviewers that you are capable of carrying out the project.
- ✓ Convince the reviewers that your lab and research environment is the best place to carry out the research project.

Competence of applicant

- ✓ Research achievements (original articles, review articles, books, invited conference presentations)
- ✓ Organizer of and speaker in symposia at international or domestic meetings
- ✓ Web sources: Lab website, Facebook page, or ORCID or Frontiers LOOP.
- ✓ Citation reports (e.g. Hirsch Index)
- ✓ Editorial board membership
- ✓ Peer review activity: ORCID or Publons
(e.g. <https://publons.com/a/1275840>)

Research environment and collaborations

- ✓ Describe the facilities where your research will be conducted, e.g.:

“All research will take place at the University of Tsukuba’s International Institute for Integrative Sleep Medicine (IIS). IIS was launched by the Ministry of Education, Culture, Sports, Science and Technology of Japan with the aim of building globally visible and innovative research centers. The newly constructed IIS building is operated under the “open lab” concept, i.e., shared facilities, equipment and research tools (e.g. 2-photon microscopy, fluorescence endomicroscopy, EEG/EMG recording, ex-vivo and in-vivo electrophysiology, viral vectors and Cre driver mice), to stimulate highly collaborative research between groups.”

- ✓ Introduce your co-investigators and describe their role, e.g.:

*“- Dr. Yo Oishi (Co-investigator) was trained in sleep research and systems neurobiology by Prof. Osamu Hayaishi at Osaka Bioscience Institute (Oishi Y, et al. Proc Natl Acad Sci USA 2008;105:19992) and Prof. Clifford Saper at Harvard Medical School (Oishi Y, et al. J Neurosci 2013;33:9743). Dr. Oishi will carry out...
- Dr. Tsuyoshi Saito (Co-Investigator) is a senior chemist in the Nagase laboratory, one of the best laboratories for medicinal chemistry in the world. Dr. Saitoh will synthesize ...”*

Tips for KAKENHI preparation (1)

- ✓ Use the Japanese version of the KAKENHI forms to maximize the space for your proposal.

1 研究目的、研究方法など

本研究計画書は「小区分」の審査区分で審査されます。記述に当たっては、「科学研究費助成事業における審査及び評価に関する規程」（公募要領111頁参照）を参考にしてください。

本欄には、本研究の目的と方法などについて、3頁以内で記述してください。

冒頭にその概要を簡潔にまとめて記述し、本文には、(1)本研究の学術的背景、研究課題の核心をなす学術的「問い」、(2)本研究の目的および学術的独自性と創造性、(3)本研究で何をどのように、どこまで明らかにしようとするのか、について具体的かつ明確に記述してください。

本研究を研究分担者ともに行う場合は、研究代表者、研究分担者の具体的な役割を記述してください。

(概要) ※10行程度で記述してください。

1. Research Objectives, Research Method, etc.

This research proposal will be reviewed in the Basic Section of the applicant's choice. In filling this application form, refer to the Application Procedures for Grants-in-Aid for Scientific Research -KAKENHI-.

In this column, research objectives, research method, etc. should be described within 3 pages. A succinct summary of the research proposal should be given at the beginning.

The main text should give descriptions, in concrete and clear terms, of (1) scientific background for the proposed research, and the "key scientific question" comprising the core of the research plan, (2) the purpose, scientific significance, and originality of the research project, and (3) what will be elucidated, and to what extent and how will it be pursued during the research period.

If the proposed research project involves Co-Investigator(s), a concrete description of the role-sharing between the Principal Investigator and the Co-Investigator(s) should be given.

[SUMMARY] *Describe in about 10 lines

- ✓ Use visuals, e.g. figures with preliminary data, pictures, cartoons and tables:

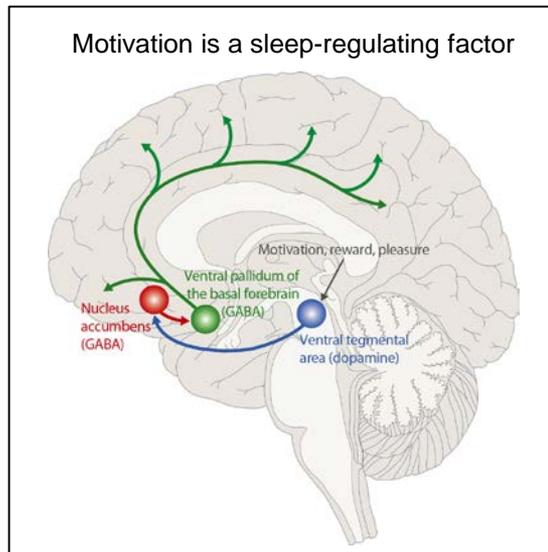


Table 1 年次計画

	平成29年度	平成30年度以降
計画A: In-vivo activity of NAαc neurons across sleep-wake states (Dr. Takata and students)		
計画A-1	c-Fos immunohistochemistry	
計画A-2	Optrode recording	
計画A-3	Endomicroscope setup and optimization	Endomicroscopic Ca imaging
計画B: Endogenous activation mechanism of the NAαc for sleep induction (Dr. Oishi and students)		
計画B-1	Sleep induction by extracellular glutamate	
計画B-2	Preparation of AAV-shEAAT2	Control of glutamate by glial cells
計画B-3	Preparation of AAV-AdK	Sleep induction by extracellular adenosine
計画C: Role of NAαc A2AR in the control of sleep (Dr. Lazarus, Dr. Saitoh and students)		
計画C-1	Synthesis and evaluation of Opto-YNT-378	
計画C-2		In-vivo optopharmacology
	Design, direction and analysis of experiments; paper writing (Dr. Lazarus)	

Tips for KAKENHI preparation (2)

- ✓ Use subheadings to guide the reviewers.

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[SUMMARY] *Describe in about 10 lines

(1) Scientific background and key questions

(2) Purpose, significance and originality

(3) What will be elucidated, to what extent and how will it pursued during the research period

- ✓ (Likely) English is a second language for the reviewers. Therefore, write tightly by using short, concise sentences, e.g.:

Bad: Adenosine has been demonstrated to be involved in the induction of sleep.

OK: Adenosine induces sleep.

- ✓ Make sure that your application is visually appealing. Format headings, subheading and references consistently, e.g.

- If you have said A, you must also say B: at least 2 headings and/or 2 subheadings

- Vancouver-like format for references: Lazarus M, et al. *Nat Neurosci* 2007;10:1131)

Tips for KAKENHI preparation (3)

- ✓ You can use **BOLD**, underline, *Italic*, or other styles for keywords and important phrases.
- ✓ Rationality and justification of the research costs:
 - Make sure the requested funds match the proposed plan.
 - If you plan to purchase any expensive equipment is planned, describe it in the 'Research Plan and Method' section.
 - The costs shall be based on the actual expected expenditure.
 - Provide reasonable details on the cost, e.g.:
 - Consumables:** Animals (C57BL/6 mice, 0000円 × 100 animals), Optical fibers (4 × 00,0000円), EEG/EMG electrodes (100 × 000円).
 - Travel Expenses:** Research presentation (SfN2018, USA, 5 days, 1 person)
 - Personnel expenditure/Remuneration:** Salary (1 person × 0 hours × 0 days × 40 weeks × 000円)
 - Other costs:** Animal housing (00円 × 100 cages × 365days)

Tips for KAKENHI preparation (4)

- ✓ Research Objectives, Research Method, etc. – purpose, scientific significance, and originality of the research project (“**ripple effects**”):
 - Is the research likely to have far-reaching effects in academia, such as making a significant contribution to the development of the field or breaking ground for a new academic field?
 - What is the impact of the research for different aspects of society, e.g., technology, industry or public health?

Thanks for your attention!

Good luck with your KAKENHI application!

“Failure is success in progress”

-- Albert Einstein