

All About MEXT Scholarship & Research Experiences in Japan

Beni Lestari





Assalamu'alaikum wr. wb.
Hallo kenalin...

- **Doctoral (2020-now):**
 - Cell Biology Center, Dept. of Life Science and Technology, Tokyo Institute of Technology, Japan
- **Master (2017-2019):**
 - Tumor Cell Biology Lab, Grad. School of Biological Science, Nara Institute of Science and Technology, Japan
- **Pharmacist Professional Program (2015-2016):**
 - Faculty of Pharmacy, Universitas Gadjah Mada
- **Undergraduate (2011-2015):**
 - Faculty of Pharmacy, Universitas Gadjah Mada

Kenapa pengen lanjut S2- S3?

- Perlukah saya lanjut S2 dan S3 setelah profesi?
- Apa mimpi/cita-cita kamu?
- Profesional/praktisi
- Dosen/akademisi/peneliti
- Apakah kamu suka research-based atau course-based?
- Beban S2 dan S3 itu jauuuuh lebih berat dari S1, apalagi di LN
- S2: 5-8x lipat S1
- S3: 20-30x S1



Kenapa milih di Jepang?

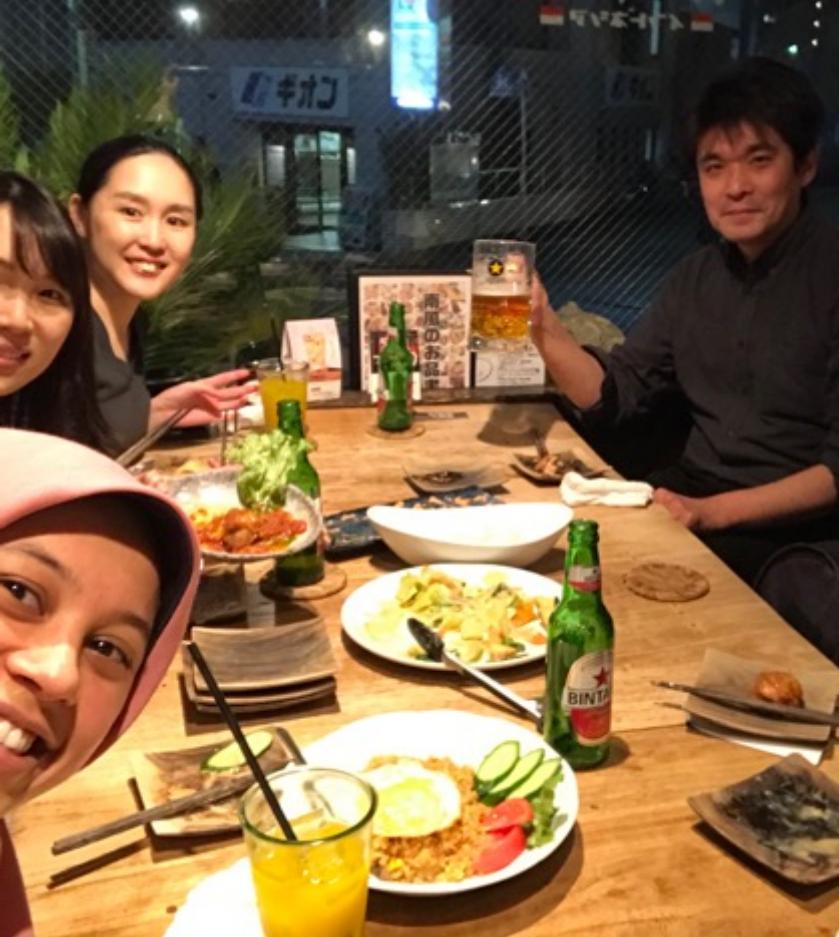
Untuk S2

- Ada project kerjasama
- Sudah pernah bertemu Professor yang diinginkan di Indonesia
- Paling fast response
- Lab dan tema riset sesuai interest
- Syarat bhs inggris masih boleh TOEFL
- Ramah muslim
- Komunitas Indonesia banyak

Untuk S3

- Family oriented
- Lab dan tema riset sesuai interest
- Cukup nyaman dengan research-based study
- Jepang adl negara ramah beasiswa s3

Suka Duka S2 di Jepang



- Penelitian: skill yang oke, semua alat dan bahan yang kamu mau ada, kesempatan publikasi di jurnal high impact
- Progress studi kita terkontrol
- Kesempatan konferensi ke negara lain
- Kita bisa merasakan menjadi orang asing dan minoritas (keluar dari zona nyaman)
- Kesempatan berdakwah dan promosi Indonesia ke orang lokal
- Koneksi global
- Self-improvement: manajemen waktu, manajemen stress
- Merasakan 4 musim
- Jalan-jalan dan silaturahmi dengan orang Jepang or Indonesia
- Mendapatkan pelayanan publik yang sama dg orang lokal

Suka Duka S2 di Jepang

- Kangen kuliner Indonesia
- Effort lebih untuk makanan halal
- Tidak ada gofood
- Tidak banyak orang yang bisa berbahasa inggris
- Dokumen2 dari pemerintah berbahasa Jepang
- Budaya kerja overtime



Types of MEXT Scholarship

1

Embassy Recommendation

- Seleksi di negara asal (perwakilan diplomatic Jepang di Indonesia)
- Seleksi sistem gugur (dokumen, ujian tulis, wawancara)
- Tidak perlu mengontak calon supervisor/univ
- Ujian tulis: basing and basjep

2

University Recommendation

- Seleksi di universitas tujuan
- Seleksi dokumen, ujian tulis (optional), presentasi dan wawancara
- Dokumen dikirim langsung ke Jepang via post mail
- Perlu mengontak calon supervisor dan sudah mendapat inform consent

Benefit MEXT:

1. Tanpa ikatan dinas
2. Living allowance lebih dari cukup
3. Free tiket pulang pergi
4. Regulasi dipermudah
5. Free tuition fee

All About MEXT University Recommendation

Types: tergantung universitas

- 1.General S2 only
- 2.General S2 + S3
- 3.General Research student + S3
- 4.General language training + S3

5.Super Global University (SGU)

- Can be used for S2 only or S2-S3
- Not an annual number of awards
- Domestic selection
- Not all universities

All About MEXT University Recommendation: STEPS

1

Tentukan pilihan major study dan universitas tujuan



2

Hubungi calon supervisor
(amunisi: CV, transkrip, study background)

3

Seleksi berkas (Form, IELTS/TOEFL IBT,
Recommendation letter, Field of study, Research
plan, LoA)

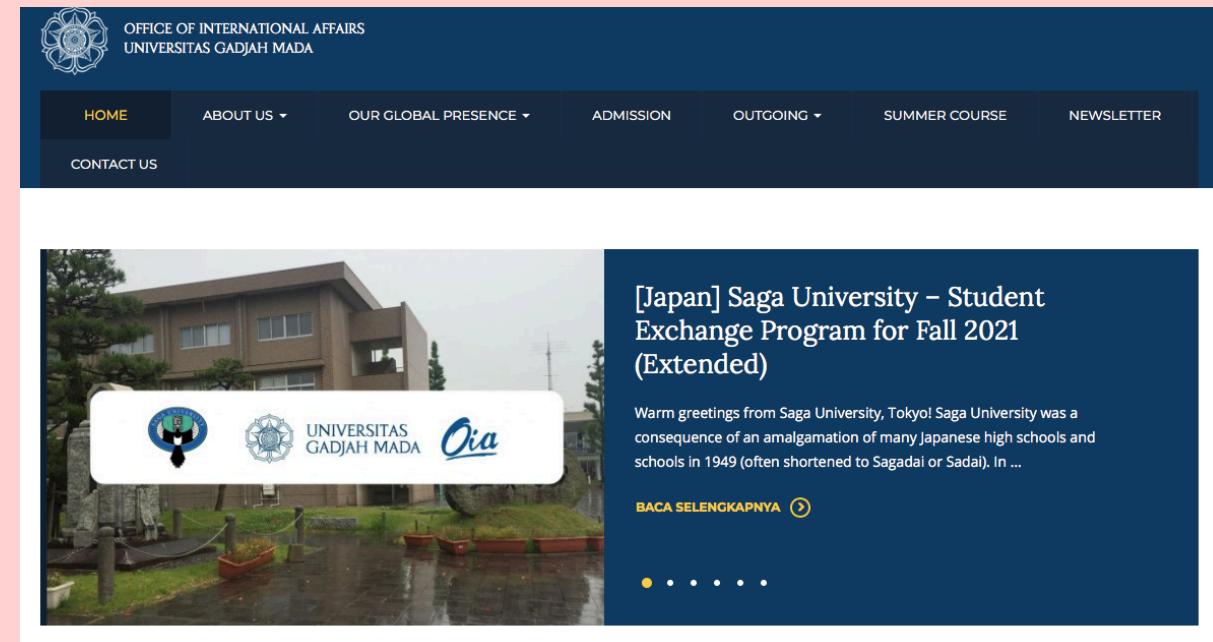
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4

Seleksi Presentasi dan wawancara

TIPS MEMILIH, LAB, JURUSAN DAN UNIVERSITAS

- Pilih univ yang mempunyai hubungan Kerjasama dengan kampus
- Kepo website lab-lab yang mempunyai research area yang kamu inginkan (sampe ke paper yang mereka terbitkan)
- Pilih lab yang mempunyai koneksi langsung dengan Dosen di kampus kita
- Pilih lab yang ada orang Indonesia/orang asing (jembatan komunikasi)
- Kirim email ke beberapa calon supervisor



OFFICE OF INTERNATIONAL AFFAIRS
UNIVERSITAS GADJAH MADA

HOME ABOUT US OUR GLOBAL PRESENCE ADMISSION OUTGOING SUMMER COURSE NEWSLETTER

CONTACT US

[Japan] Saga University – Student Exchange Program for Fall 2021 (Extended)

Warm greetings from Saga University, Tokyo! Saga University was a consequence of an amalgamation of many Japanese high schools and schools in 1949 (often shortened to Sagadai or Sadai). In ...

BACA SELengkapnya



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People

教授 Professor
駒田 雅之 Masayuki Komada (経歴はこちら)

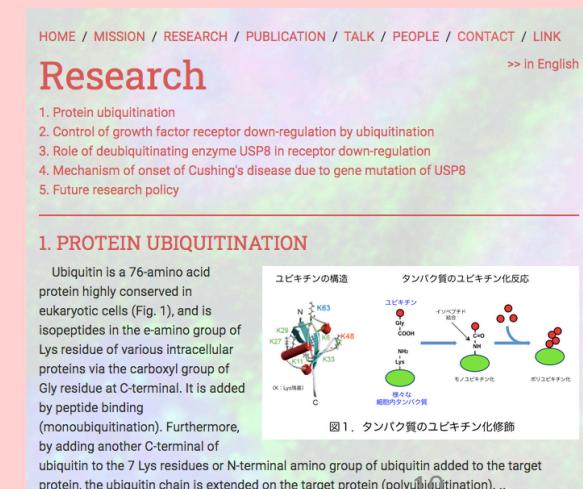
助教 Assistant Prof.
福嶋 俊明 Toshiaki Fukushima

補佐員 Secretary
秋吉 裕子 Yuko Akiyoshi

博士課程 PhD students
柿原 慧達 Keijun Kakihara
レスラリ ベニ Beni Lestari

修士課程 Master students
新垣 沙希 Saki Arakaki
氷見 雄哉 Yuya Himi

学士課程 Undergraduate students
宗田 光平 Kohei Souda
西岡 柚香 Yuzuka Nishioka



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Research

1. Protein ubiquitination
2. Control of growth factor receptor down-regulation by ubiquitination
3. Role of deubiquitinating enzyme USP8 in receptor down-regulation
4. Mechanism of onset of Cushing's disease due to gene mutation of USP8
5. Future research policy

1. PROTEIN UBIQUITINATION

Ubiquitin is a 76-amino acid protein highly conserved in eukaryotic cells (Fig. 1), and is isopeptides in the e-amino group of Lys residue of various intracellular proteins via the carboxyl group of Gly residue at C-terminal. It is added by peptide binding (monoubiquitination). Furthermore, by adding another C-terminal of ubiquitin to the 7 Lys residues or N-terminal amino group of ubiquitin added to the target protein, the ubiquitin chain is extended on the target protein (polyubiquitination).

図1. タンパク質のユビキチン化修飾

TIPS MENGHUBUNGI CALON SUPERVISOR

- Subjek email: singkat, padat, jelas, tertarget
- Perkenalan diri (nama, jabatan professional/akademik, institusi, background akademik)
- Tujuan mengirim email (paparkan motivasi, tunjukkan komitmen ingin mendaftar program apa dan kapan)
- Bertanya tentang peluang
- Alasan memilih lab tersebut
- Rencana riset/studi yang ingin dikerjakan
- Urgensi: misal ingin/sedang mendaftar beasiswa apa
- Tunjukkan keterbukaan misal bersedia untuk wawancara via zoom
- Lampirkan CV, Backround studi, transkrip
- Kirim jauh-jauh hari
- Kirim saat jam kerja

Gmail Beni Lestari <beni.lestari11@gmail.com>

Apply for PhD position at Prof. Shinae Kondoh's lab (Beni Lestari)
3 messages

Beni Lestari <beni.lestari11@gmail.com>
To: skondoh@bio.titech.ac.jp 28 June 2019 at 16:19

Dear Prof. Shinae Kondoh,

Firstly, I would like to introduce myself. My name is Beni Lestari (F) from Indonesia. I had my bachelor degree from Faculty of Pharmacy, Majoring Pharmaceutical Science and Technology, Universitas Gadjah Mada, Indonesia and currently I am a studying in Nara Institute of Science and Technology (NAIST), Japan as a master student. I am expected to graduate in this September and I just did my master thesis defense.

I am planning to pursue my PhD study major in cancer field. Since I was an undergraduate student and master thesis project, I have been conducting research in the scope of cancer. I found the announcement in Tokyo Tech website as below: https://www.titech.ac.jp/graduate_school/news/pdf/2019.9doctor.pdf

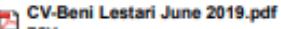
I meet all of the requirements and I am ready to apply this admission. I do interest with your research group topics and I think these topics are related with my research interest. Thus, I would like to know if there is any chance for me to pursue my PhD under your supervision.

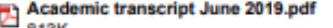
I sincerely appreciate if you have any time to discuss with me and it will be an honor for me to join your lab. For your further consideration, please find my curriculum vitae, academic transcript, and letter of expected graduation in the attachment file.

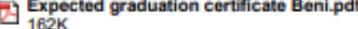
Thank you in advance for taking the time and reading my email. Looking forward to your reply at your most convenient time.

Sincerely,
Beni Lestari

3 attachments

 CV-Beni Lestari June 2019.pdf
75K

 Academic transcript June 2019.pdf
813K

 Expected graduation certificate Beni.pdf
162K

TIPS SELEKSI BERKAS

- Pastikan IPK dan skor tes Bahasa inggris aman
- Formulir: sangat simple, isi sesuai data diri
- Field of study dan research plan harus up to date, menarik, inline dengan previous research dan topik lab yang dituju (show the connection)
- Surat rekomendasi sebisa mungkin dari seseorang yang mengenal kita secara profesional, akademis, dan personal (seseorang yang mempunyai jabatan juga bisa dipertimbangkan)
- Pastikan sudah interview personal dengan calon supervisor

1. Field of study

I have been taken a keen interest in chemistry and biology since Junior High School. Universitas Gadjah Mada (Indonesia) is the place I had taken Bachelor degree for 4 years and an extra a year for Pharmacist Professional Program. I graduated as a Pharmacist majoring in Pharmaceutical Science and Technology. During these years, my heart was moved to learn more about cancer and its therapies, because the disease has become a serious social problem.

Since I was an undergraduate student, I have been conducting research in the scope of identifying anti-tumorigenic agents based on natural products, which are usually safe for human. I joined one of the best research center in my university, named Cancer Chemoprevention Research Center (CCRC). Starting from analyzing plant extracts isolated from several different Indonesian plants, I examined the anti-cancer activity of curcumin and its derivatives, an active compound contained in turmeric. Curcumin has been reported to possess various health benefits including an anti-cancer activity, but its bioavailability is limited because of the low absorption efficiency. We revealed that curcumin and its analogues have potential effects in cancer metastasis (Meiyanto *et al.*, 2019). My undergraduate thesis was also highly correlated with the cancer chemoprevention. I found the lower cancer risk caused by hormone replacement therapy for menopause woman by utilizing the potency of the phytoestrogens component in pumpkin seeds (Lestari *et al.*, 2019).

After entering Master course in Nara Institute of Science and Technology (NAIST, Japan), I focused on the characterization of anti-cancer properties of Pentagamavunon-1 (PGV-1), a curcumin analogue with improved physicochemical properties. I studied about the molecular mechanisms by which PGV-1 regulates the cell cycle machinery and cancer metabolism. I found that PGV-1 induces M phase (prometaphase) arrest and modulates the production of reactive oxygen species (ROS) in cancer cells by binding to several ROS-metabolizing enzymes (Lestari *et al.*, 2019). My master thesis project provides a strong evidence of PGV-1's properties as a new type of anti-tumorigenic drug.

Conducting researches and discussing with experts made me want to learn more and widen my knowledge. Therefore, I am willing to expand my scientific experiences and research skills through Doctorate degree at Cell Biology Center and Center for Biological Resources and Informatics, Tokyo Institute of Technology. My proposed research aims to discover a novel protein complex inhibitor for Cushing's disease, a pituitary tumor secreting adrenocorticotrophic hormone (ACTH).

Reference list:

Lestari, B., Nakamae, I., Yoneda-Kato, N., Morimoto, T., Kanaya, S., Yokoyama, T., Shionyu, M., Shirai, T., Meiyanto, E., and Kato, JY. (2019). Pentagamavunon-1 (PGV-1) inhibits ROS

metabolic enzymes and suppresses tumor cell growth by inducing M phase (prometaphase) arrest and cell senescence. *Scientific Reports*, 9, 14867. DOI: 10.1038/s41598-019-51244-3

Lestari, B., Walidah, Z., Utomo, R. Y., Murwanti, R., & Meiyanto, E. (2019). Supplementation with extract of pumpkin seeds exerts estrogenic effects upon the uterine, serum lipids, mammary glands, and bone density in ovariectomized rats. *Phytotherapy Research*, 33(4), 891-900. DOI: 10.1002/ptr.6280

Meiyanto, E., Putri, H., Larasati, Y.A., Utomo, R.Y., Jenie, R.I., Ikawati, M., Lestari, B., Yoneda-Kato, N., Yokoyama, T., Kawaichi, M., Kato, JY. (2019). Anti-Proliferative and Anti-Metastatic Potential of Pentagamavunon-1 (PGV-1) toward Highly Metastatic Breast Cancer Cells in Correlation with ROS Generation. *Advanced Pharmaceutical Bulletin*, 9(3), 445-452. DOI: 10.15171/apb.2019.053

TIPS SELEKSI BERKAS

2. Study program in Japan in detail and concreteness

The detail of my research plan for Doctoral course in Tokyo Institute of Technology:

1. Research theme:

Development of STAM-USP8 Complex Inhibitors and evaluation of their therapeutic effects in Cushing's Disease

2. Background:

Cushing's disease (CD) arises from benign tumors in pituitary gland, which excessively secrete adrenocorticotropic hormone (ACTH), resulting in a wide variety of symptoms including moon faces, hypertension, obesity, and diabetes mellitus (Reincke *et al.*, 2015; Shiera *et al.*, 2015). Transsphenoidal surgery to remove the pituitary adenoma is the first-line treatment, but it requires high surgical skills. Therefore, the development of novel therapeutic strategies is needed (Huang *et al.*, 2015).

Komada's research group at Tokyo Institute of Technology reported the frequent genetic mutation in ubiquitin-specific protease 8 (USP8) gene in the pituitary adenoma in CD patients (Reincke *et al.*, 2015). USP8 is a deubiquitinase (DUB) enzyme that belongs to the ubiquitin-specific protease (USP) family (Millard *et al.*, 2006; Kawaguchi *et al.*, 2018). All of the identified mutation sites were mapped within or adjacent to the 14-3-3-binding motif in USP8 (Reincke *et al.*, 2015). The research group recently revealed that the USP8 mutants lose the binding ability to 14-3-3 protein, which cause the enhancement of the association of USP8 with STAM. Since STAM is a ubiquitin-binding protein, it functions as a substrate recognition subunit of USP8 and promotes deubiquitination reaction catalyzed by USP8 (Berlin *et al.*, 2010).

The research group also found that the mutant USP8-STAM complex effectively binds to, deubiquitinates and stabilizes the receptor of vasopressin, a major ACTH secretagogue (unpublished data). This condition must induce the high secretion of ACTH and contributes to the onset of Cushing's disease. Therefore, inhibiting the STAM-USP8 complex seems to be a promising therapeutic strategy for Cushing's disease.

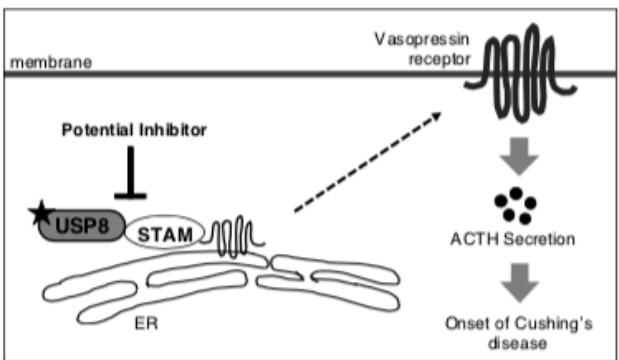


Figure 1. An illustration of inhibiting STAM-USP8 complex to reduce ACTH hypersecretion

3. Objective:

The proposed study aims to explore and characterize the inhibitor of STAM-USP8 protein complex that is expected to suppress ACTH hypersecretion in Cushing's disease. Specifically, I will (i) screen several candidates of compounds that interfere or dissociate STAM-USP8 complex formation, (ii) and investigate their effects on ACTH secretion using cell culture model and mice model with USP8 gene mutation.

4. Research Plans:

To reach the objectives of this research, I would like to perform several experiments:

A. Identification of inhibitors to STAM-USP8 complex formation using high-throughput screening (HTS) and *in silico* analysis

The precise binding regions of STAM and USP8 has been determined. I will develop *in vitro* binding assay of these binding regions based on TR-FRET method. Using this system, HTS will be performed in order to identify the compounds that inhibit their binding. As the second screening, I will examine the inhibitory effects of the hit compounds using pulldown assay-based method. Next, *in silico* analysis will be performed to improve their inhibitory effects and cell-membrane permeability.

B. Investigation of STAM-USP8 inhibition effects on ACTH secretion in cells expressing mutant USP8

Cell culture model with the desired USP8 mutation will be generated, using pituitary-derived ACTH producing cell line AtT-20. After confirming that the generated cells excessively secrete ACTH, I will treat cells with inhibitors to STAM-USP8 complex formation and measure the ACTH levels in the culture media.

Investigation of STAM-USP8 inhibition effects on ACTH secretion in mice expressing mutant USP8

Mouse model with the desired USP8 mutation will be generated. I will examine whether the mice show the CD-like phenotypes including high ACTH secretion, high corticosterone secretion, impaired glucose tolerance, and so on. Thereafter, I will treat the mice with inhibitors to STAM-USP8 complex formation, and test whether it can improve the excess of ACTH secretion and other symptoms.

5. Significance:

To put all of the results together, I will demonstrate that the inhibition of STAM and USP8 complex formation reduce the level of ACTH in cells and mice with USP8 gene mutation. The inhibitors will become lead compounds of the world's first drug for CD.

6. People and Place:

Since I have taken an interview in Tokyo Institute of Technology, this research is expected to be conducted in Cell Biology Center and Center for Biological Resources and Informatics, Tokyo Institute of Technology for three years, starting from April 2020 to March 2023. I am confidently state that the laboratory environment is highly supportive for my doctoral study.

7. References:

- Berlin, I., Schwartz, H., & Nash, P. D. (2010). Regulation of epidermal growth factor receptor ubiquitination and trafficking by the USP8-STAM complex. *Journal of Biological Chemistry*, 285(45), 34909-34921.
Huang, C., Shi, Y., & Zhao, Y. (2015). USP8 mutation in Cushing's disease. *Oncotarget*, 6(21), 18240.
Kawaguchi, K., Endo, A., Fukushima, T., Madoka, Y., Tanaka, T., Komada, M. (2018) Ubiquitin-specific protease 8 deubiquitinates Sec31A and decreases large COPII carriers and collagen IV secretion. *Biochem Biophys Res Commun*, 499, 635-641.
Millard, S. M., & Wood, S. A. (2006). Riding the DUBway: regulation of protein trafficking by deubiquitylating enzymes. *The Journal of cell biology*, 173(4), 463-468.
Reincke M, Shiera S, Hayakawa A, Theodoropoulou M, Osswald A, Beuschlein F, Meitinger T, Mizuno-Yamasaki E, Kawaguchi K, Saeki Y, Tanaka K, Wieland T, Graf E, Saeger W, Ronchi CL, Allolio B, Buchfelder M, Strom TM, Fassnacht M, Komada M. (2015). Mutations in the deubiquitinase gene USP8 cause Cushing's disease. *Nat. Genet.*, 47, 31-38.

TIPS PRESENTASI DAN WAWANCARA

PRESENTASI

- Presentasi singkat-padat-jelas (biasanya 10 min utk master, 20 min utk PhD)
- Tentang previous research dan sedikit research plan
- Komponen: background yang jelas, tujuan penelitian, results dan interpretations, conclusion, research plans related to your previous fields)
- Research plan sudah disetujui calon supervisor
- Gunakan pointer
- Latihan-Latihan-latihan

WAWANCARA

- No personal questions: pastikan paham betul previous research dan ketertarikan untuk belajar dan riset
- Fokus pertanyaan:
 - background diri (professional background, research interest dan expertise)
 - Kesiapan akademis dan riset (rencana riset, korespondensi dengan calon supervisor, rencana pendanaan, rencana setelah lulus)
 - Adaptability (adaptasi kehidupan di Jepang dan kesiapan akan budaya riset/lab di Jepang)