高雄醫學大學 KAOHSIUNG MEDICAL UNIVERSITY

--College of Health Sciences

Medical Laboratory Science and Biotechnology (MLSB)

Professor & Director
Liang-Yin (Maurice) Ke
2023/2

History of KMU-MLSB

Department Logo

Aug, 1981

School of Technology for Medical Sciences

Aug, 1994

Medical Laboratory Technique & Radiological Technique divisions

Aug, 2001

Dep. of Medical Imaging and Radiological Sciences

Aug, 2004

- Faculty of Biomedical Laboratory Science
- Master Program

Aug, 2008

- Dep. of Medical Laboratory Sciences and Biotechnology
- Ph.D. program

Currently,

- 149 students in Bachler program
- 21 students in Master program
- 7 students in Ph.D. program

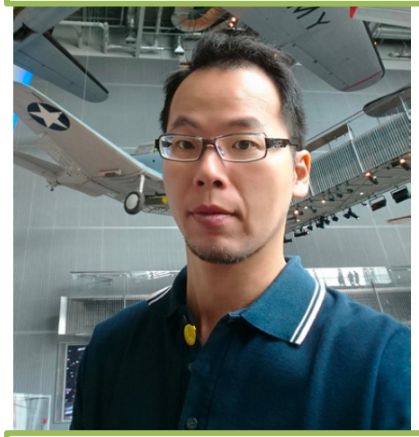
Faculty Members of MLSB

Professor
Liang-Yin Ke

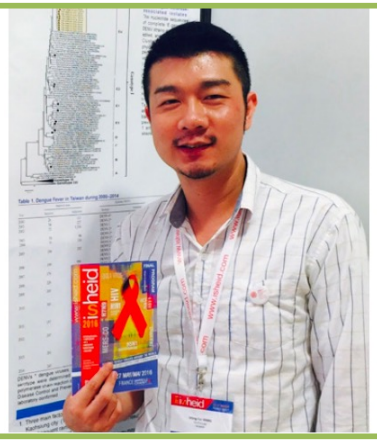
Professor
Yeou-Lih Huang

Professor
Ching-Shuang Wu

Professor
Pei-Yu Chu



Professor
Sung-Pin Tseng

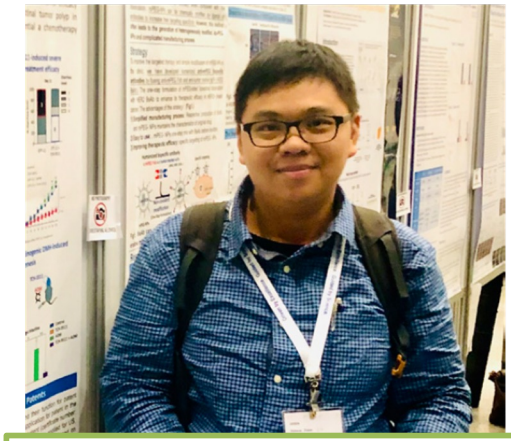


Professor
Sheng-Fan Wang

Faculty Members of MLSB

Associate Professor
Wan-Chi Tsai

Associate Professor
Shyh-Jong Wu



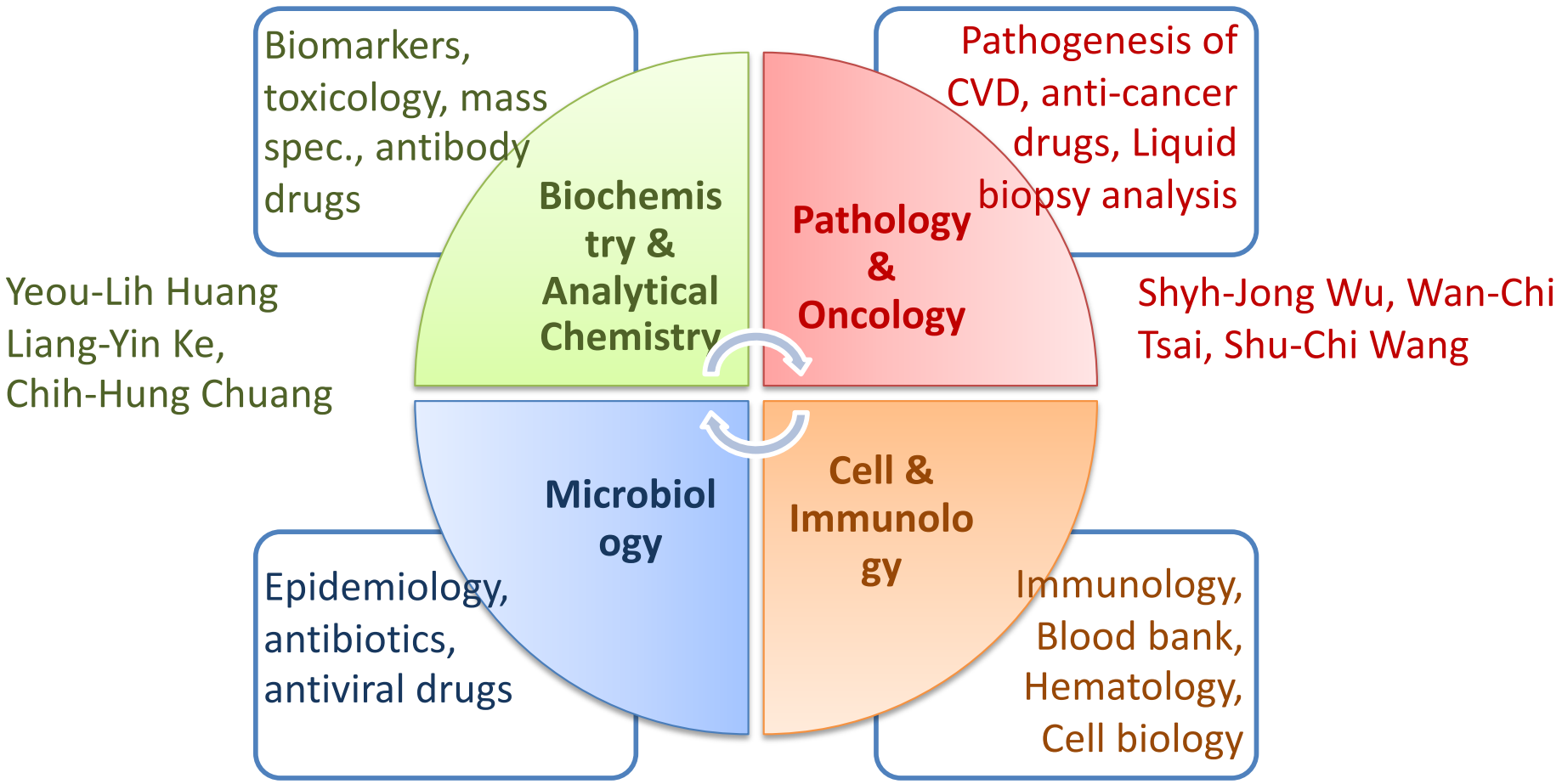
Associate Professor
Chih-Hung Chuang

Assistant Professor
I-Lin Lin

Assistant Professor
Li-Wen Huang

Associate Professor
Shu-Chi Wang

Specialty and Research

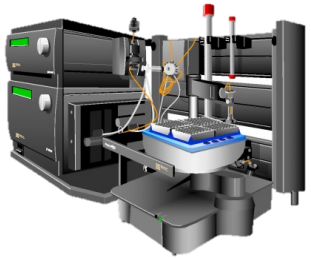


Liang-Yin Ke, Ph.D.: Lipid Science training program for international students

- Research Gate: https://www.researchgate.net/profile/Liang-Yin-Ke
- Publons: https://publons.com/researcher/1499009/liang-yin-ke/
- ORCID: https://orcid.org/0000-0002-2547-0987

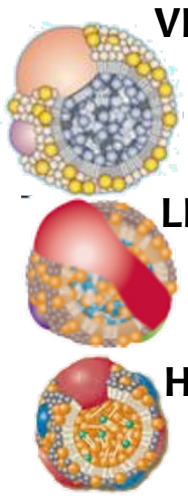
Expertise: Electronegative lipoproteins

Ultracentrifuge

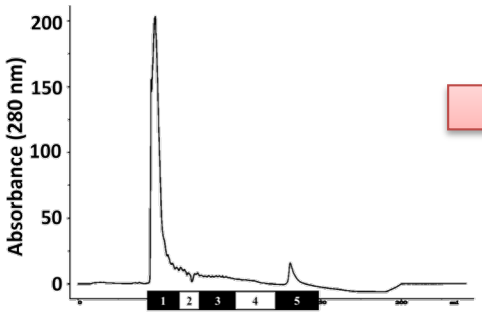


FPLC with anion-exchange column

Blood

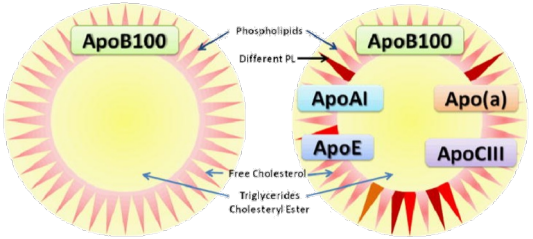


L5

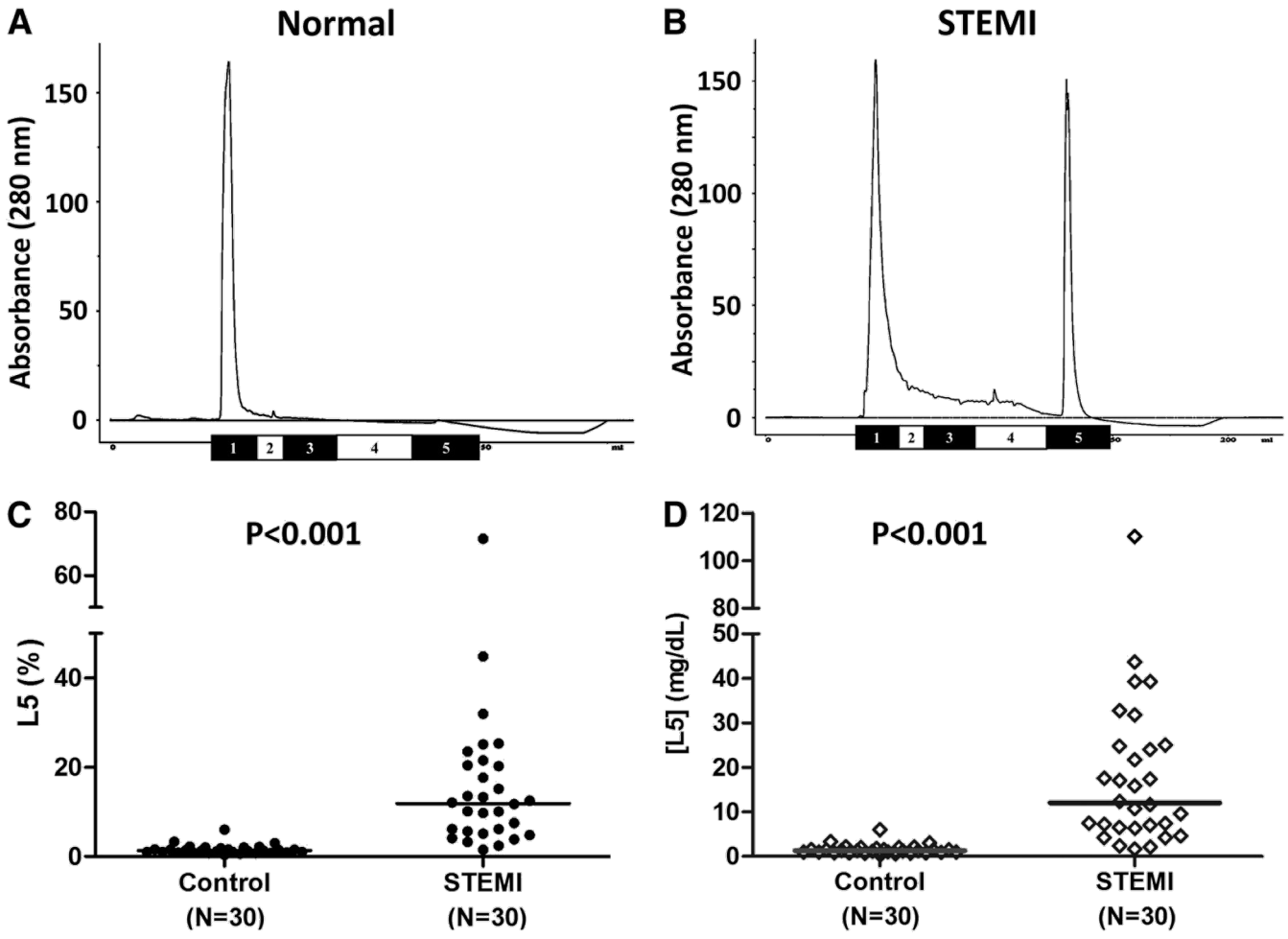


Normal Lipoproteins

Electronegative Lipoproteins



L5 LDL levels in STEMI patients

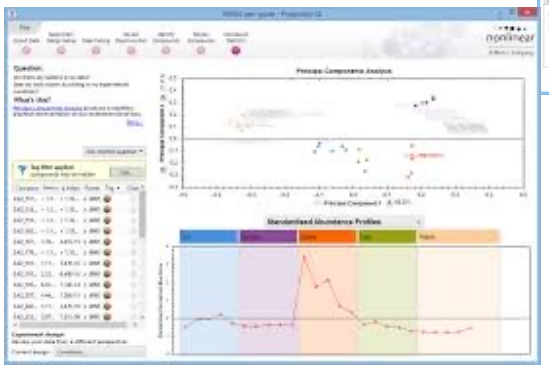


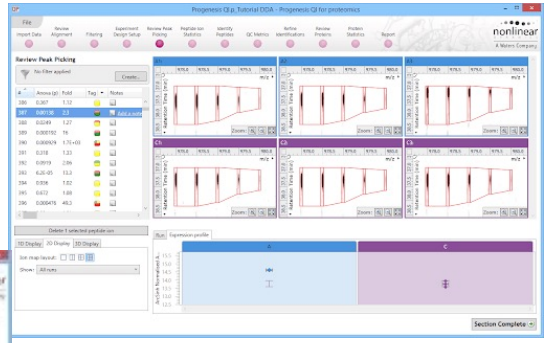
LDL-C levels were similar between patients with STEMI and control subjects (116.7±32.4 vs 108.1±28.4 mg/dL), However, the mean L5% was significantly elevated in STEMI patients compared with that in control subjects (15.4±14.5% vs 1.5±1.1%).

Chan HC*, Ke LY*, et.al. *Blood* 2013

Expertise: Liquid chromatography mass spectrometry

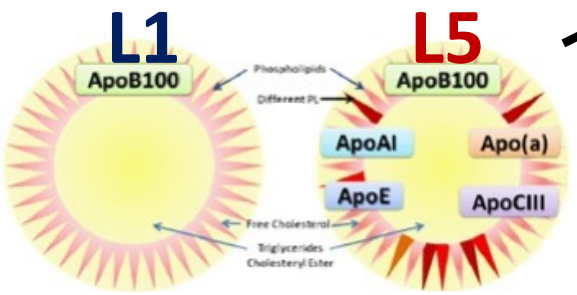
Proteomics





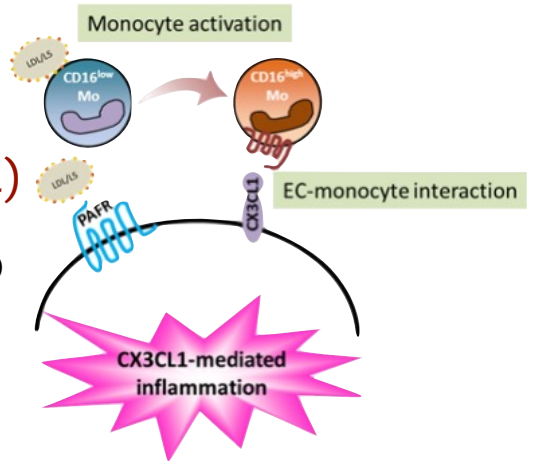
Lipidomics

Publications using omics



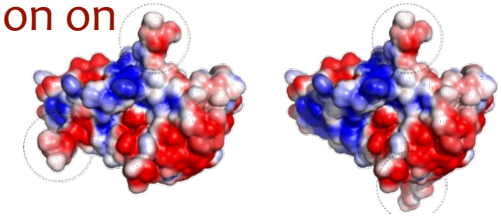
Atherogenic lipids on L5 LDL:
lysophosphatidylcholine (LPC)

Arthritis Rheumatol. 2020

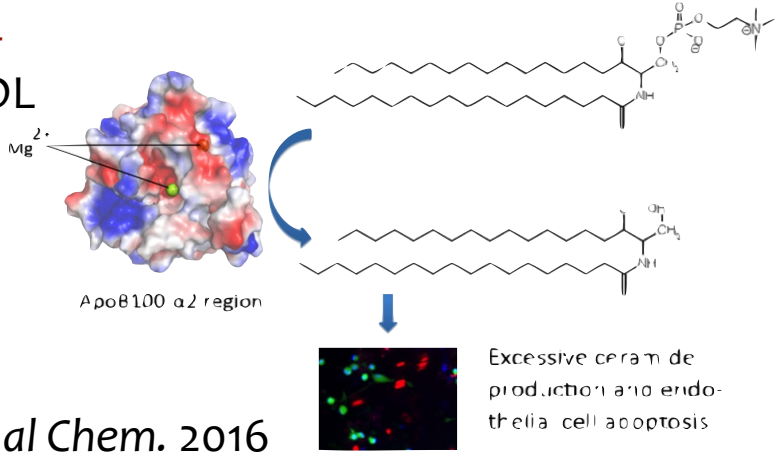


Modifications of L5 LDL:
ApoE glycosylation on
94S, 194T, 289T

FASEB J 2020



Sphingomyelinase-like activity in L5 LDL contributes to the apoptotic capacity



J Medicinal Chem. 2016

Threaputics/
Diagnostics

+ MLSB, KMU
+ KMUHs
+ MacKay
+ MLS, ISU

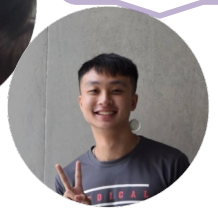
Disease
mechanisms

- Enzyme-based therapeutics for **CVD**

- Enzyme mutants

- **CVD** lipidomics

- **CVD** treatments
- mRNA therapies



- Exosome markers of S

- CRC enzyme expression
- mRNA therapies

- Enzyme-based therapeutics for NAFLD

- NAFLD lipidomics

- Mitochondrial function of GDM
- TG accumulation

- Lipids in GDM

- Lung CA metastasis

- Lung CA lipidomics

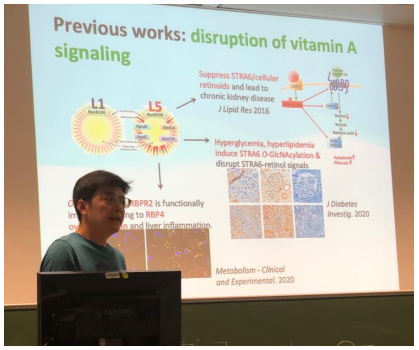
Basic

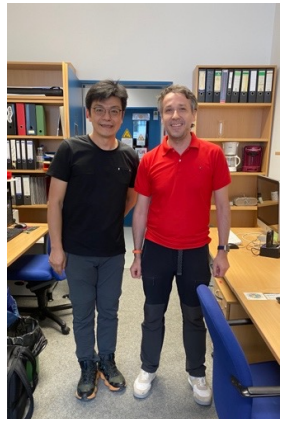
Translational

Clinical Research

Outbound to University of Cologne

- Institute of Biochemistry, AG Professor Günter Schwarz





Visiting Professor

伊藤悦朗
Etsuro Ito

Integrative Bioscience and Biomedical Engineering, Waseda University, Japan

- January 2011 – date: President of International Society for Invertebrate Neurobiology
- Editors in journals: 2017 – date, Associate Editor, *European Zoological Journal*; 2016 – date: Editorial Board, *Scientific Reports*, Associate Editor, *Frontiers in Behavioral Neuroscience*; 2015 – date: Academic Editor, *PLOS ONE*; 2013 – date: Editorial Board... Etc.

Publications：

231 papers, including 25 papers since 2016 as visiting professor

1. Chu CS, et al. *Biomedicines* 2020 Jul 30;8(8):254.
2. Mishra VK†, et al. *Cells* 2020 May 6;9(5):1145.
3. Iha K, et al. *Diagnostics* 2019 Jul 18; 9(3), pii: E78.
4. S Yamakado, et al. *BMJ Open Diabetes Research & Care* 2019.

TWIns 東京女子医科大学・早稲田大学先端生命医科学研究教育施設

WASEDA

物理生物学の世界にようこそ

研究者紹介

早稲田大学
教育・総合科学学術院
教授
伊藤　悦朗

担当学部：　教育学部理学科生物学専修
担当大学院：　大学院先進理工学研究科生命理工学専攻／物理学及応用物理学専攻

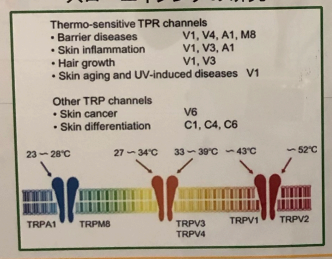
早稲田大学高等学院卒業、早稲田大学理工学部卒業、
早稲田大学大学院理工学研究科修了（理学博士）。
早稲田大学人間総合研究センター　助手、アメリカNIH-NINDS visiting fellow
北海道大学大学院理学研究科　助教授、徳島文理大学香川薬学部　教授を経て現職。

2017年度　日本動物学会　学会賞受賞。
International Society for Invertebrate Neuroscience会長。

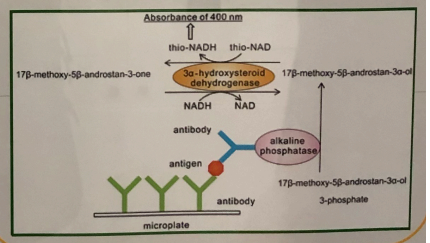
研究内容

生物は各種の物理量で記述することができます。生物は物理法則による支配から逃れることはできません。また逆にいえば、生物は、力、熱、電磁波などをうまく使っています。これらの物理量との関係を強く意識しながら、生物を眺めて行きましょうというのが、当研究室のスタンスとなります。この考え方を物理生物学（*Physicobiology*）と呼びます。

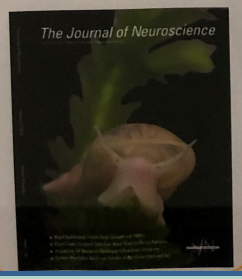
熱・放射線を考慮に入れた
スローエイジングの研究



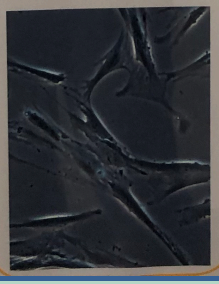
早期・非侵襲的診断を目指したタンパク質・
核酸の超高感度測定法の開発



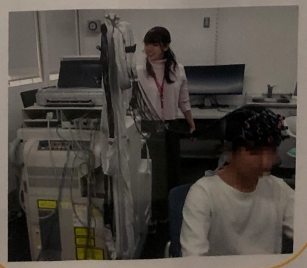
無脊椎動物を用いた
学習記憶の研究



歯髄由来の幹細胞を用いた
細胞分化の研究



痛みの緩和機構と
その脳内応答の研究



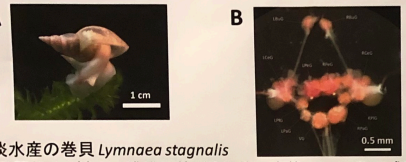
全自動学習装置による淡水産巻貝の学習記憶能力における地域差の解析

*戸谷 勇輝, 伊藤 悦朗
早大・教育・生物

要旨

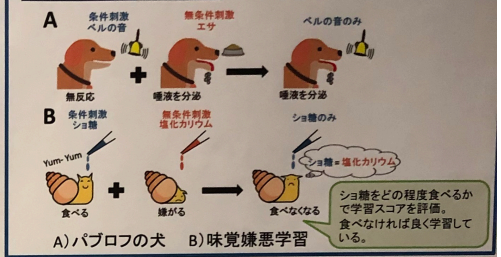
① 実験動物への訓練・学習成績評価を自動で行う装置を開発した。
② その装置を用いて学習能力の地域差を解析した。

ヨーロッパモノアラガイ



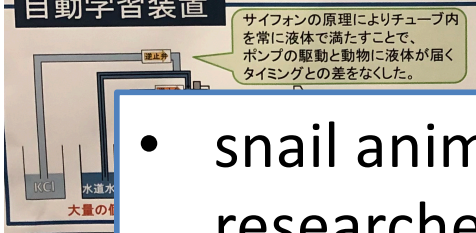
A) 淡水産の巻貝 *Lymnaea stagnalis*
学習能力があり、雌雄同体・孵化前に変態・3 - 4ヶ月で成熟。
B) *Lymnaea stagnalis* の中枢神経系（脳）
構造が単純で理解しやすいため、
学習記憶に関する詳細な解析が可能。

味覚嫌悪学習



A) パブロフの犬　B) 味覚嫌悪学習

自動学習装置



画像認識による口の検出

学習能

- snail animal model for researches on neuroscience
- Ultra-Sensitive ELISA
- Cell Clock, Ca2+ Imaging
- Near-infrared spectroscopy; NIRS


WELCOME