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グラフィカルアブストラクト概要編

京都大学高等研究院 ヒト生物学高等研究拠点 (ASHBi)

リサーチコーディネーター

井上寛美

今日のアジェンダ

- グラフィカルアブストラクトとは？
- 様々なグラフィカルアブストラクト
- 制作を始める前に考えるべきことと制作フロー
- 作図のためのツール

グラフィカルアブストラクトとは？

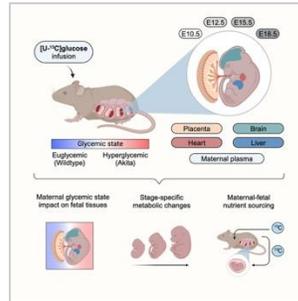
グラフィカルアブストラクトの役割 / Cell Press

[https://www.cell.com/issue/S0092-8674\(23\)X0002-6](https://www.cell.com/issue/S0092-8674(23)X0002-6)

Jan 04, 2024
Volume 187, Issue 1, p1-216

On the cover: This cover kicks off a year-long celebration of Cell's 50th anniversary and is accompanied by an editorial in this issue. The imagery draws ... [Show more](#)

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Atlas of fetal metabolism during mid-to-late gestation and diabetic pregnancy

Cesar A. Perez-Ramirez, Haruko Nakano, Richard C. Law, Nedas Matulionis, Jennifer Thompson, Andrew Pfeiffer, Junyoung O. Park, Atsushi Nakano, Heather R. Christofk

[Open Access](#)

A descriptive atlas of murine metabolism *in utero* during mid-to-late gestation in normal and diabetic pregnancy reveals the impact of maternal hyperglycemia on fetal tissues. ¹³C-glucose tracing highlights differences in fetal tissue nutrient sourcing in diabetic pregnancies.

書誌情報

メタ情報：論文のまとめテキスト

Engineering TALE-linked deaminases to facilitate precision adenine base editing in mitochondrial DNA
Sung-ik Cho, Kyeong Lim, Seongho Hong, Jaesuk Lee, Annie Kim, Chae Jin Lim, Seungmin Ryou, Ji Min Lee, Young Geun Mok, Eugena Chung, Sanghan Kim, Seungmin Han, Sang-Mi Cho, Jeun Kim, Eun-Kyung Kim, Ki-Hoan Nam, Yehi Oh, Minkyung Choi, Tae Hyeon An, Kyoung-Jin Oh, Seonghyn Lee, Hyunji Lee, Jin-Soo Kim

Most mitochondrial genetic diseases are caused by A-to-G or C-to-T point mutations in the human mitochondrial DNA (mtDNA). Engineered TALE-linked deaminases with fine-tuned enzyme activity largely avoid RNA off-target edits in the transcriptome and bystander edits at the target site, enabling creation of mouse models with pathogenic A-to-G mutations.

Full-Text HTML | PDF

XIST directly regulates X-linked and autosomal genes in naive human pluripotent cells
Iris Dror, Tzohar Chikashvili, Shawn Y.X. Tan, Clara T. Cano, Anna Sahayyan, Yolanda Markaki, Constantinos Chronis, Amanda J. Collier, Weixian Deng, Guohao Liang, Yu Sun, Anna Atashevva, Jarrett Miller, Wen Xiao, Douglas L. Black, Fangyuan Ding, Kathrin Plath

During X chromosome dampening, when XIST expression is uncoupled from complete gene silencing and displays a non-typical dispersed configuration, XIST spreads beyond the X chromosome to downregulate gene expression on autosomes.

Full-Text HTML | PDF

RAF-like protein kinases mediate a deeply conserved, rapid auxin response
Andre Kuhn, Mark Rooijen, Sumanth Muttu, Shiv Mani Dubey, Vanessa Polet Carrillo Carrasco, Sjoef Boeren, Aline Monzer, Jasper Koehorst, Takayuki Kohchi, Ryuzhi Nishihama, Mayas Fendrych, Joris Sprakel, Jiri Friml, Dolf Weijers

The molecule auxin triggers fast and specific protein phosphorylation changes in land plants and algae. This ancient and widespread response is mediated by conserved B4 RAF-like kinases that connect rapid signaling to cellular auxin responses such as the acceleration of cytoplasmic streaming.

Full-Text HTML | PDF

Time-resolved single-cell transcriptomics defines immune trajectories in glioblastoma
Daniel Kirschenbaum, Ken Xie, Florian Ingelfinger, Yonatan Katzenellenbogen, Kathleen Abadie, Thomas Look, Fadi Sheiban, Truong San Phan, Baoguo Li, Pascale Zwicky, Ido Yofe, Eyal David, Kfir Mazuz, Jinchao Hou, Yun Chan, Hila Shain, Mayra Sharkey, Soeren Becker, Jawen Qian, Marco Colombo, Florent Girhouat, Katsuyun Reavans, Fabian J. Theis, Nir Yosef, Tobias Weiss, Assaf Weiner, Ido Amit

A technology for *in vivo* recording of scRNA-seq with time (Zman-seq) revealing the temporal sequence of molecular changes in the tumor microenvironment that lead to immune dysfunction in glioblastoma.

Full-Text HTML | PDF

A TCF4-dependent gene regulatory network confers resistance to immunotherapy in melanoma
Joanna Pozniak, Dennis Pedri, Ewout Landeloc, Yannick Van Herck, Asier Antoranz, Lukas Vanwynsbeghe, Ada Nowosad, Nicolò Roda, Samira Makzami, Greet Benneets, Lucas Ferreira Maciel, Carlos Ariel Pulido-Vicuña, Lotte Palstra, Ruth Seuring, Fang Zhao, Kairui Fan-Karim, William Damyan, Limin Chen, Despina Karagianni, Sonia Cinque, Sam Kiri, Katy Vandereyken, Benjamin Rombaut, Thierry Voet, Frank Vermaelen, Wim Annaert, Diether Lambrechts, Veerle Boeckxstaens, Yvan Saeyns, Joost van den Oord, Francesca Bossio, Panagiotis Karras, A. Hunter Shain, Marcus Bosenberg, Eleonora Leucci, Annette Paschen, Florian Rambow, Oliver Bechtler, Jean-Christophe Marinie

Single-cell and spatial multi-omics analyses of patient biopsies highlight the association of a mesenchymal-like (MES) state, previously known to confer resistance to targeted therapy, with resistance to immunotherapy in human melanoma and the importance of TCF4 in orchestrating multiple transcriptional programs to confer immune tolerance to MES cells.

Full-Text HTML | PDF

Proteomic characterization of small cell lung cancer identifies biological insights and subtype-specific therapeutic strategies
Qian Liu, Jing Zhang, Chenchen Gao, Mengcheng Wang, Chenfei Wang, Yiyi Yan, Liangdong Sun, Di Wang, Lale Zhang, Heanhe Yu, Likun Hou, Chunyan Wu, Yuning Zhu, Gaining Jiang, Hongwen Zhu, Yanning Zhao, Shaothao Fang, Tengfei Zhang, Liang Hu, Junxiang Li, Yansheng Liu, Hui Zhang, Bing Zhang, Li Ding, Ana I. Robles, Henry Rodriguez, Daming Gao, Hongbin Ji, Hu Zhou, Peng Zhang

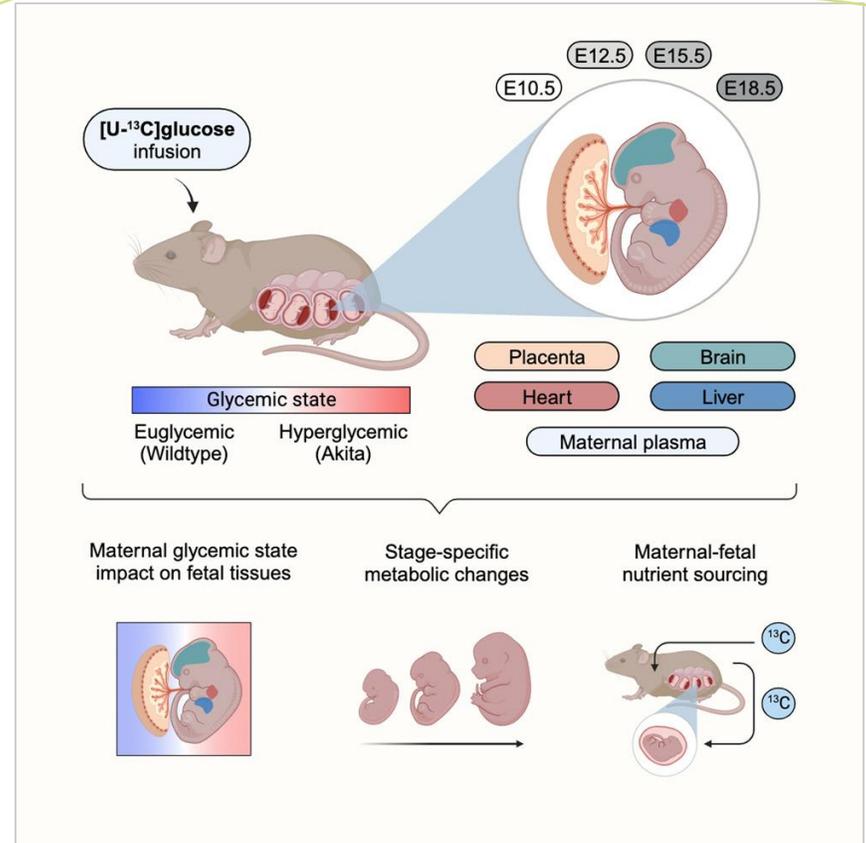
Comprehensive proteomic characterization of small cell lung cancer using paired tumor and normal adjacent tissues provides insights into tumorigenesis, potential prognostic biomarkers, and immune landscape; identifies therapeutic strategies for four subtypes; and creates a resource for further research.

Full-Text HTML | PDF

Atlas of fetal metabolism during mid-to-late gestation and diabetic pregnancy
Cesar A. Perez-Ramirez, Haruko Nakano, Richard C. Law, Nedas Matulionis, Jennifer Thompson, Andrew Pfeiffer, Junyoung O. Park, Atsushi Nakano, Heather R. Christofk

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グラフィカルアブストラクトにより、テキストよりも多くの情報を短時間で届けることができる。

読者の理解を促し、より幅広い読者を獲得することができる

Perez-ramirez, C. A. et al. (2024). Atlas of Fetal Metabolism during Mid-to-Late Gestation and Diabetic Pregnancy. *Cell*.
<https://doi.org/https://doi.org/10.1016/j.cell.2023.11.011>

グラフィカルアブストラクトの効果

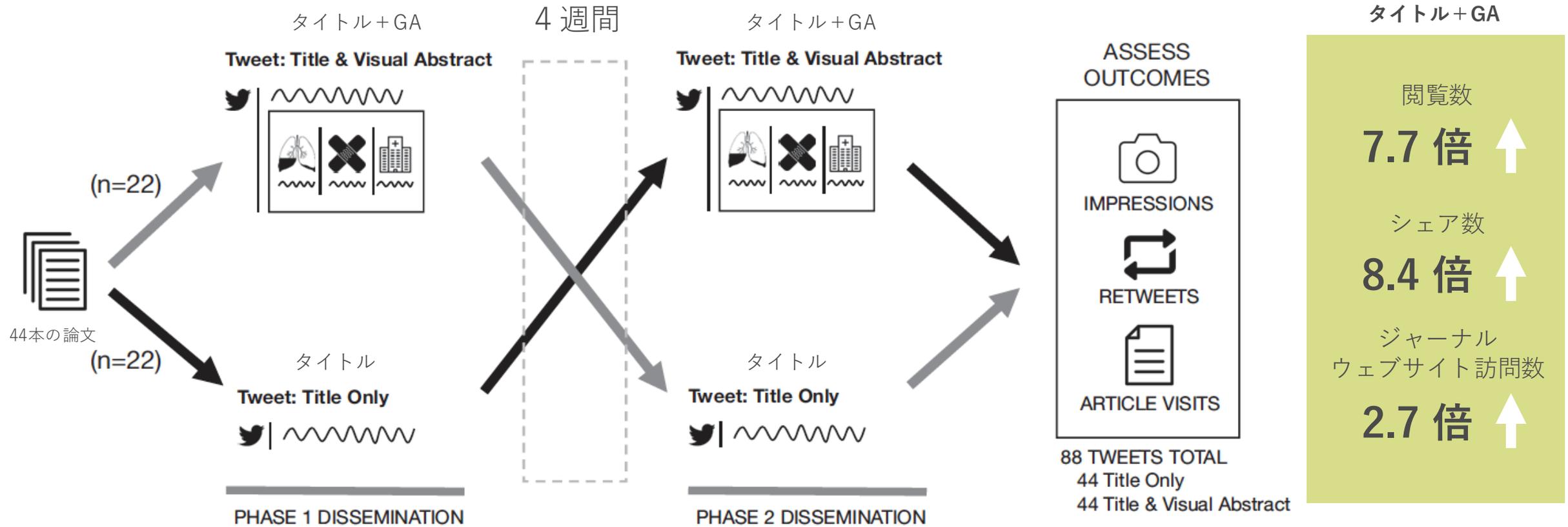


Figure 2. Study Design. Prospective, case-control crossover study to evaluate the impact of visual abstracts on Twitter.

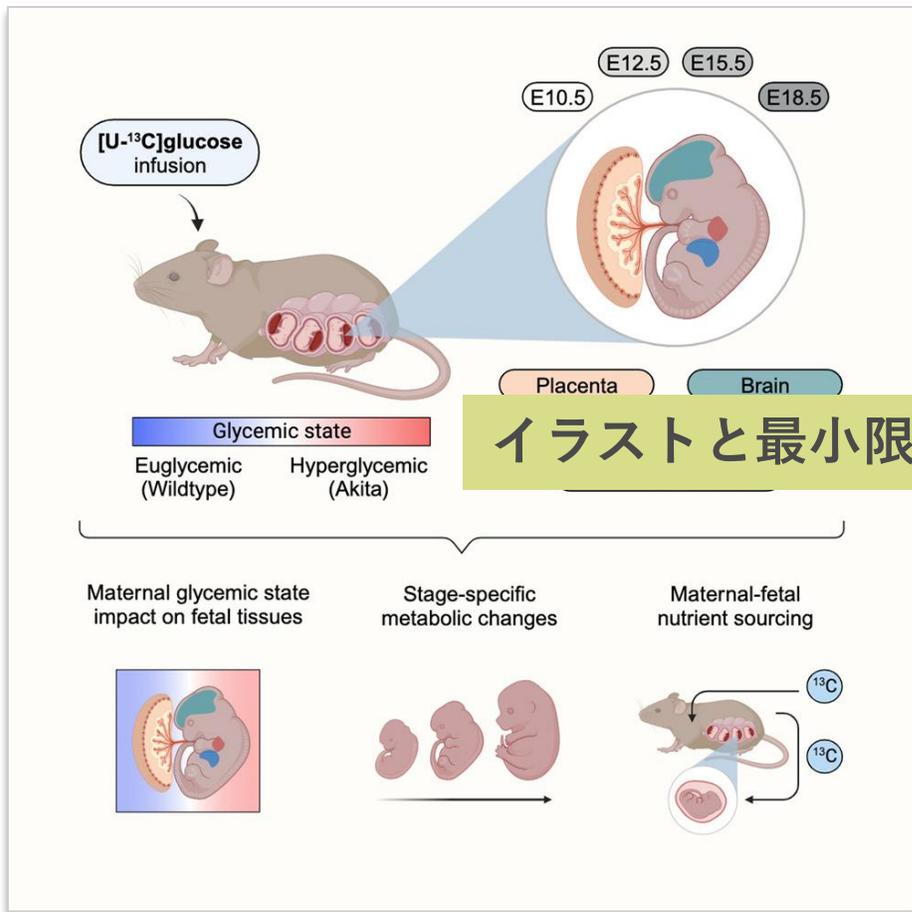
様々なグラフィカルアブストラクト

サイズや形など統一したものはない

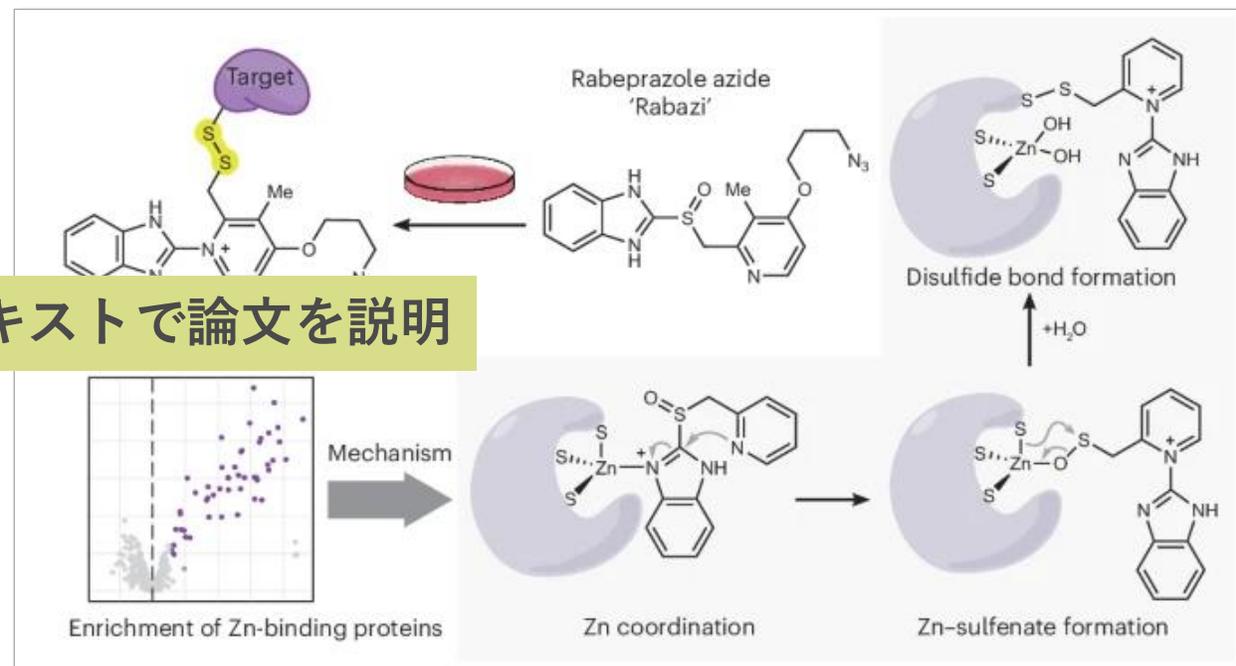
出版社によって規定が決まっている

Cell Press

Springer Nature



イラストと最小限のテキストで論文を説明



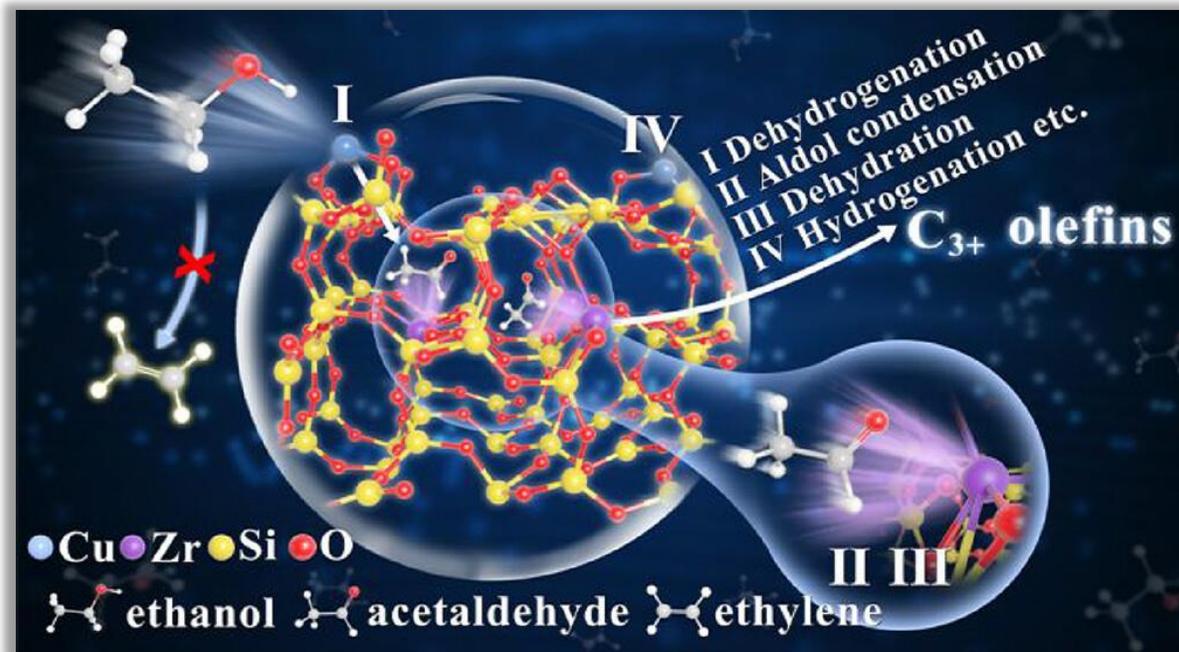
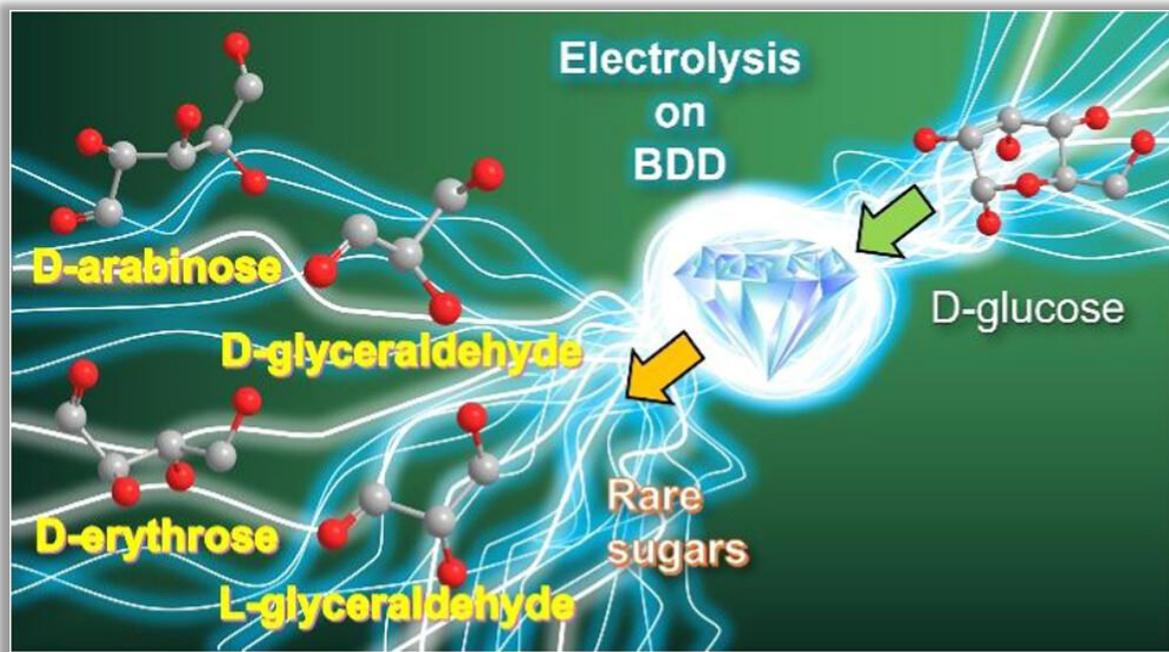
Marker, T. et al. (2025). Site-specific activation of the proton pump inhibitor rabeprazole by tetrathiolate zinc centres. *Nature Chemistry*. <https://doi.org/10.1038/s41557-025-01745-8>

Perez-ramirez, C. A. et al. (2024). Atlas of Fetal Metabolism during Mid-to-Late Gestation and Diabetic Pregnancy. *Cell*. <https://doi.org/https://doi.org/10.1016/j.cell.2023.11.011>

化学では3Dも多用される

The Journal of
American Society of Chemistry

化学構造式やタンパク質の構造解析など、3Dで表示する分野も多い

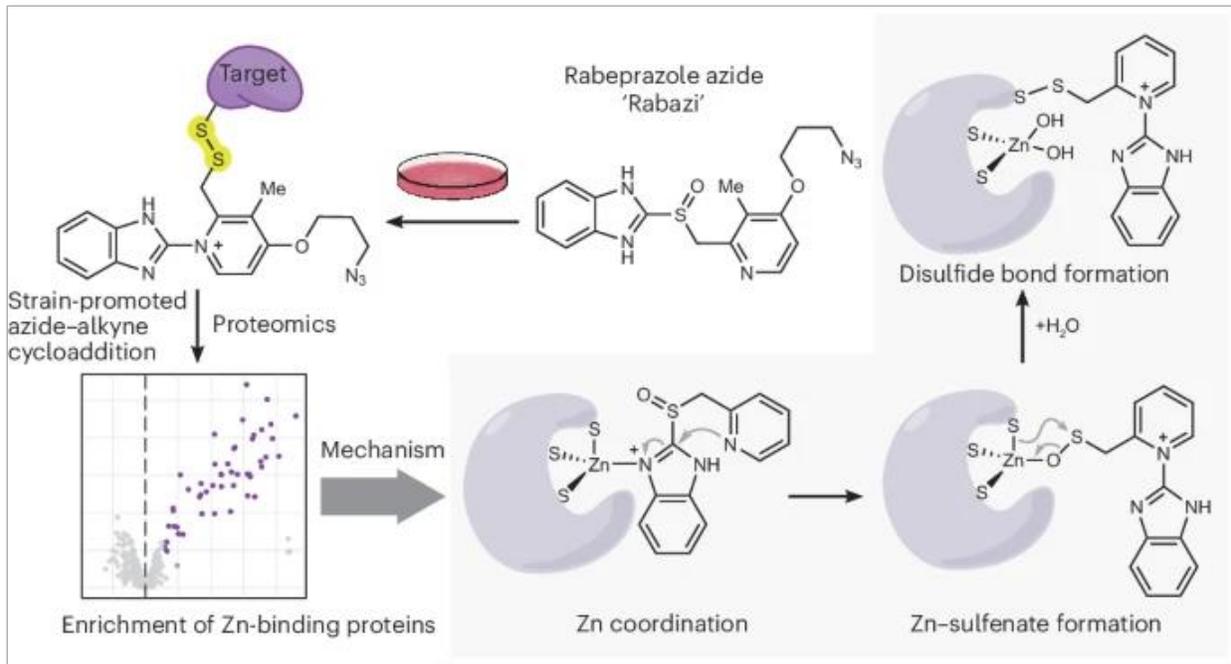


Kawakatsu, K. et al. (2025). Generation of Rare Sugars by Electrochemical Oxidation of D-Glucose Using Boron-Doped Diamond Electrode. *J. of American Society of Chemistry*. <https://pubs.acs.org/doi/10.1021/jacs.4c17553>

Yang, J. et al. (2025). Spatially Aligned Binary Single-Site Catalyst on Defective SiO₂ for Cascading Reactions. *J. of American Society of Chemistry*. <https://pubs.acs.org/doi/10.1021/jacs.5c06007>

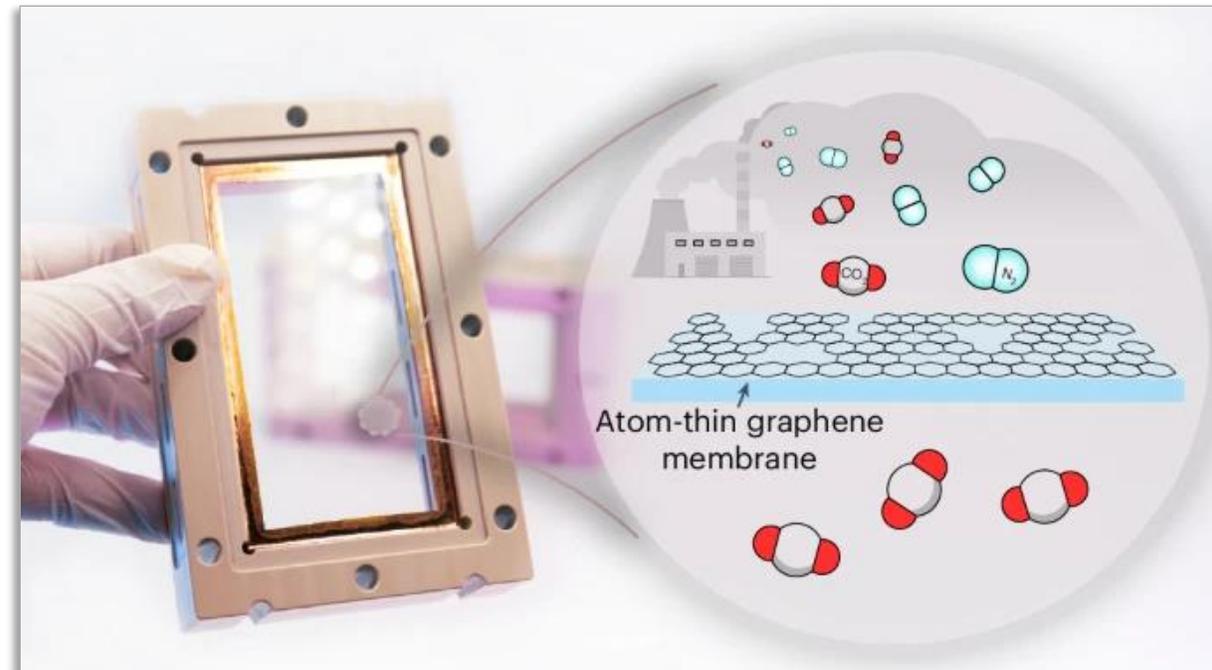
基礎研究と応用研究（化学/生命科学）

Nature chemistry



Marker, T. et al. (2025). Site-specific activation of the proton pump inhibitor rabeprazole by tetrathiolate zinc centres. *Nature Chemistry*. <https://doi.org/10.1038/s41557-025-01745-8>

Nature Chemical Engineering



Hao, J. et al. (2025). Scalable synthesis of CO₂-selective porous single-layer graphene membranes. *Nature Chemical engineering*. <https://doi.org/10.1038/s44286-025-00203-z>

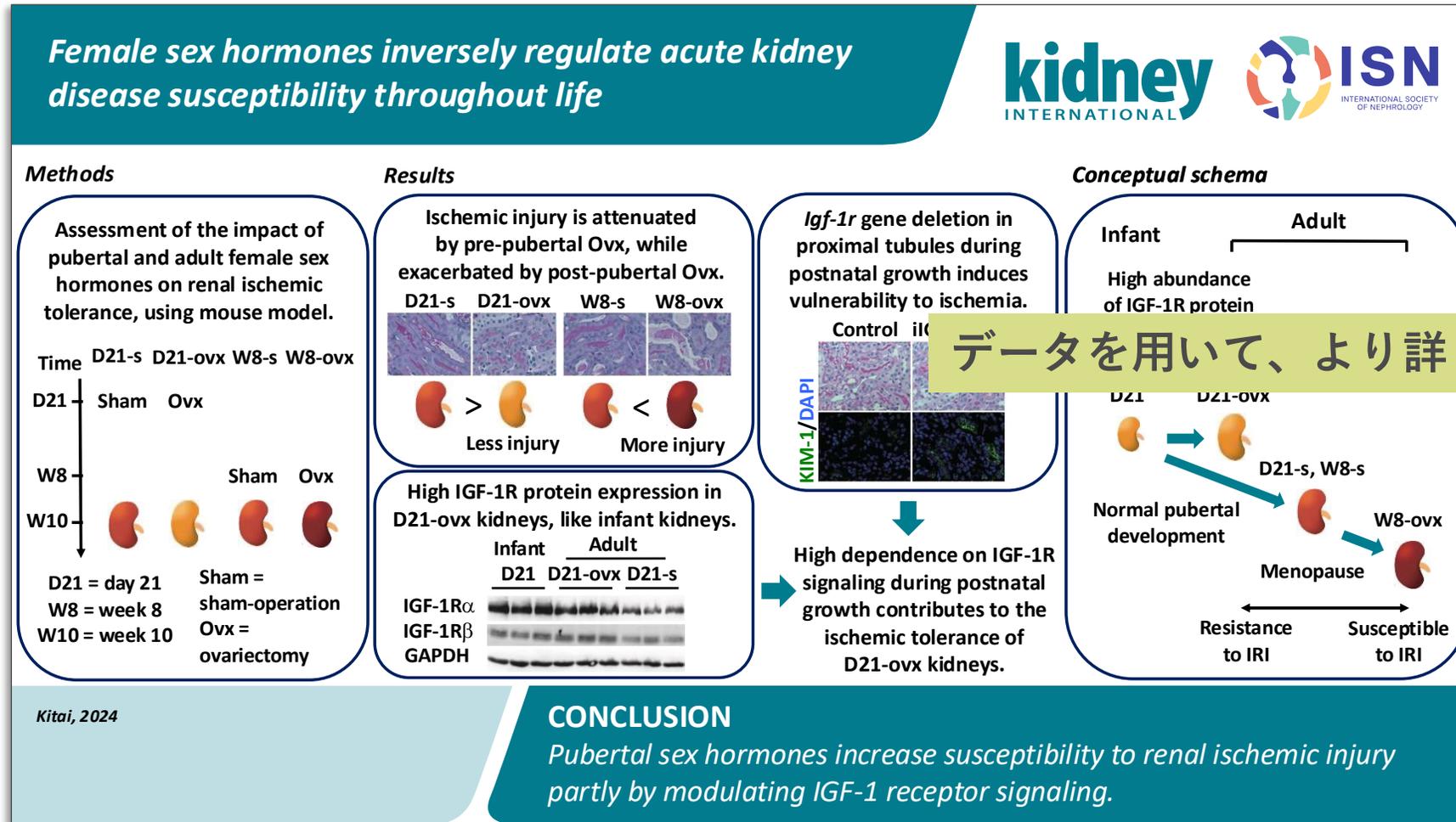
基礎研究では、研究の成果や開発した手法
Findings/Methods

応用研究では、技術の使われた未来
Implications

医学系：臨床系のジャーナルは情報が多い

Kidney International

医学専門誌では、
Visual abstractと呼ばれる

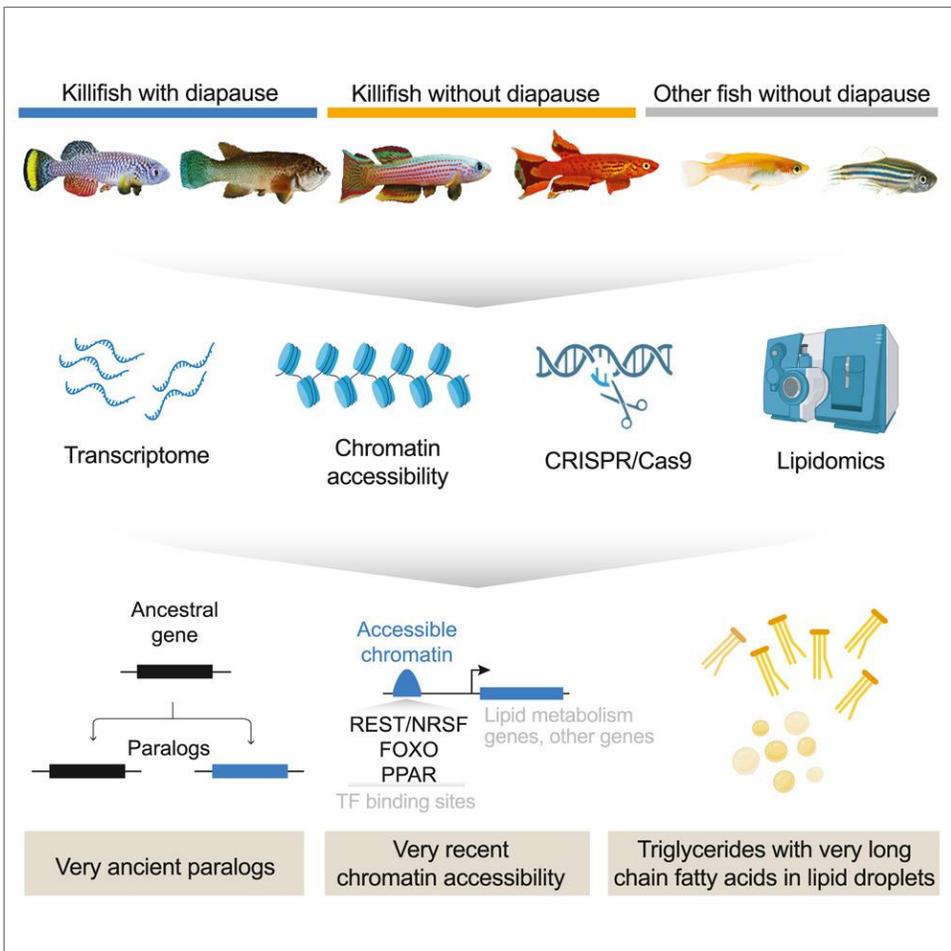


制作を始める前に考えるべきことと
制作フロー

実際に例を見ている (レイアウトからアイデアを)

手法

例) フロー図
斬新な手法や新しい手法など



結果

例) 対比図・シグナル図
思いがけない結果、新しい知見



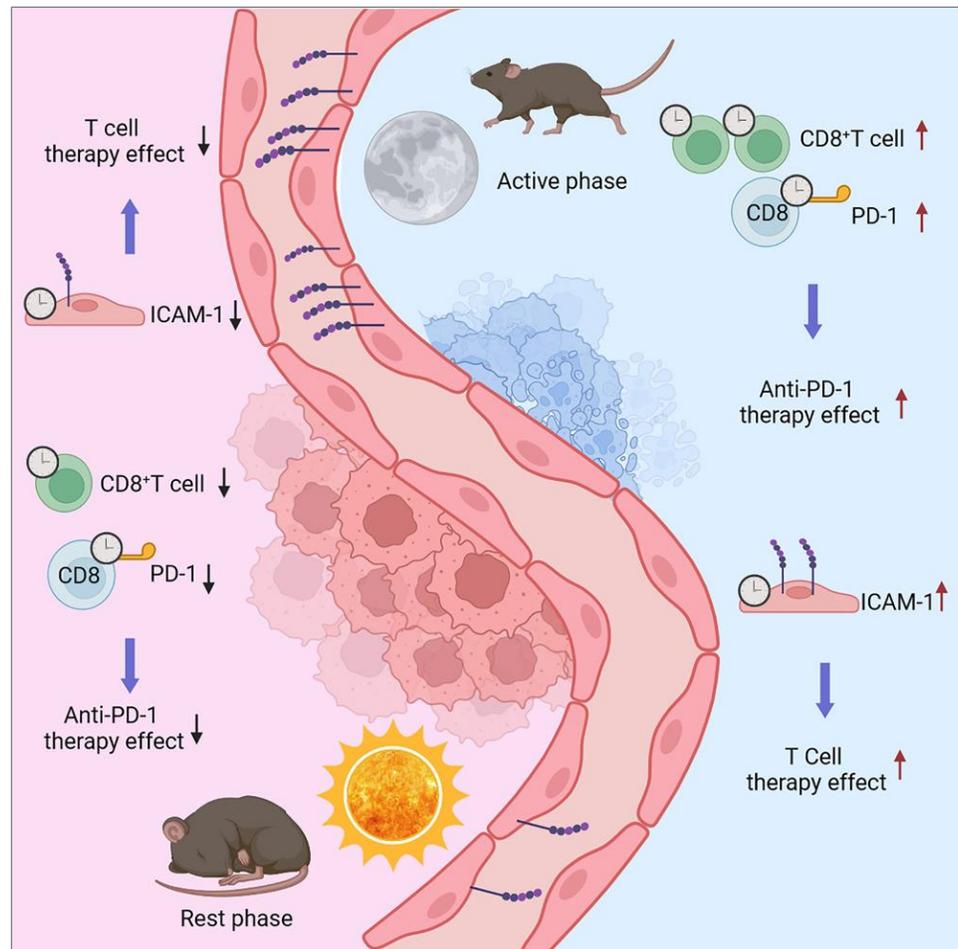
昼/
睡眠時



解析法



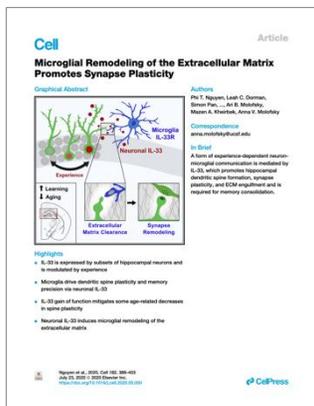
データ



夜/
覚醒時



図解化するキーマッセージを1つ決める



論文の全てを
図解化することはできない！



図解化するキーマッセージを1つ決める

アブストラクトを有効活用する

*アブストラクト: 150 – 200 wordsの論文の概要



課題

Synapse remodeling is essential to encode experiences into neuronal circuits. Here, we identify a molecular interaction between neurons and microglia that drives experience-dependent synapse remodeling in the hippocampus. We find that the cytokine interleukin-33 (IL-33) is expressed by adult hippocampal neurons in an experience-dependent manner and defines a neuronal subset primed for synaptic plasticity. Loss of neuronal IL-33 or the microglial IL-33 receptor leads to impaired spine plasticity, reduced newborn neuron integration, and diminished precision of remote fear memories. Memory precision and neuronal IL-33 are decreased in aged mice, and IL-33 gain of function mitigates age-related decreases in spine plasticity. We find that neuronal IL-33 instructs microglial engulfment of the extracellular matrix (ECM) and that its loss leads to impaired ECM engulfment and a concomitant accumulation of ECM proteins in contact with synapses. These data define a cellular mechanism through which microglia regulate experience-dependent synaptic plasticity and memory consolidation.

結果

(キーマッセージ)

新しい記憶（シナプス）はどうやって形成されるか



予想

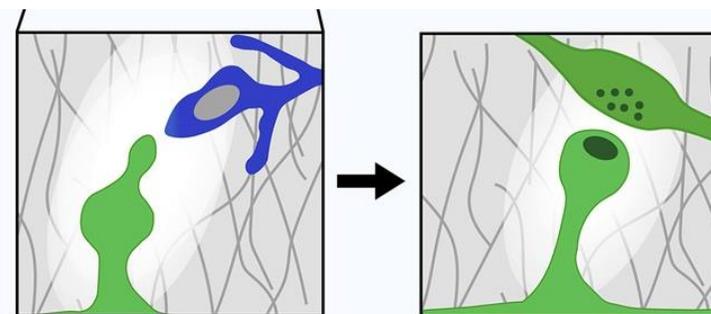
ミクログリアが
不要なシナプスを除去

思いがけない結果



ミクログリアが
必要なシナプスをサポート

結果



Extracellular
Matrix Clearance

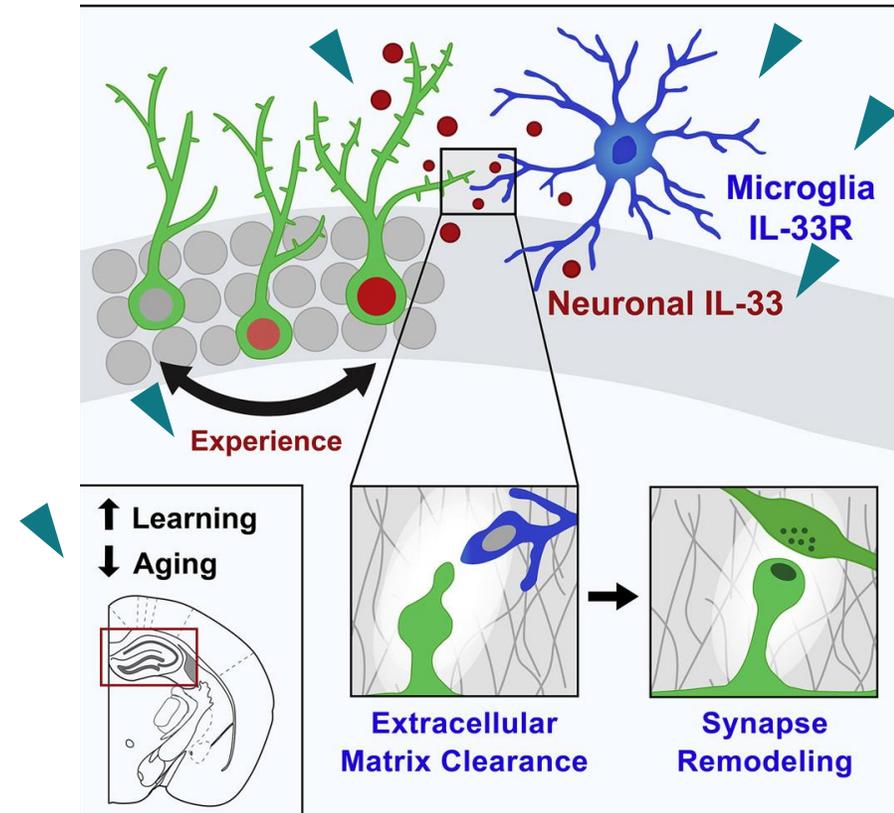
Synapse
Remodeling

アブストラクトをもとに情報を足していく

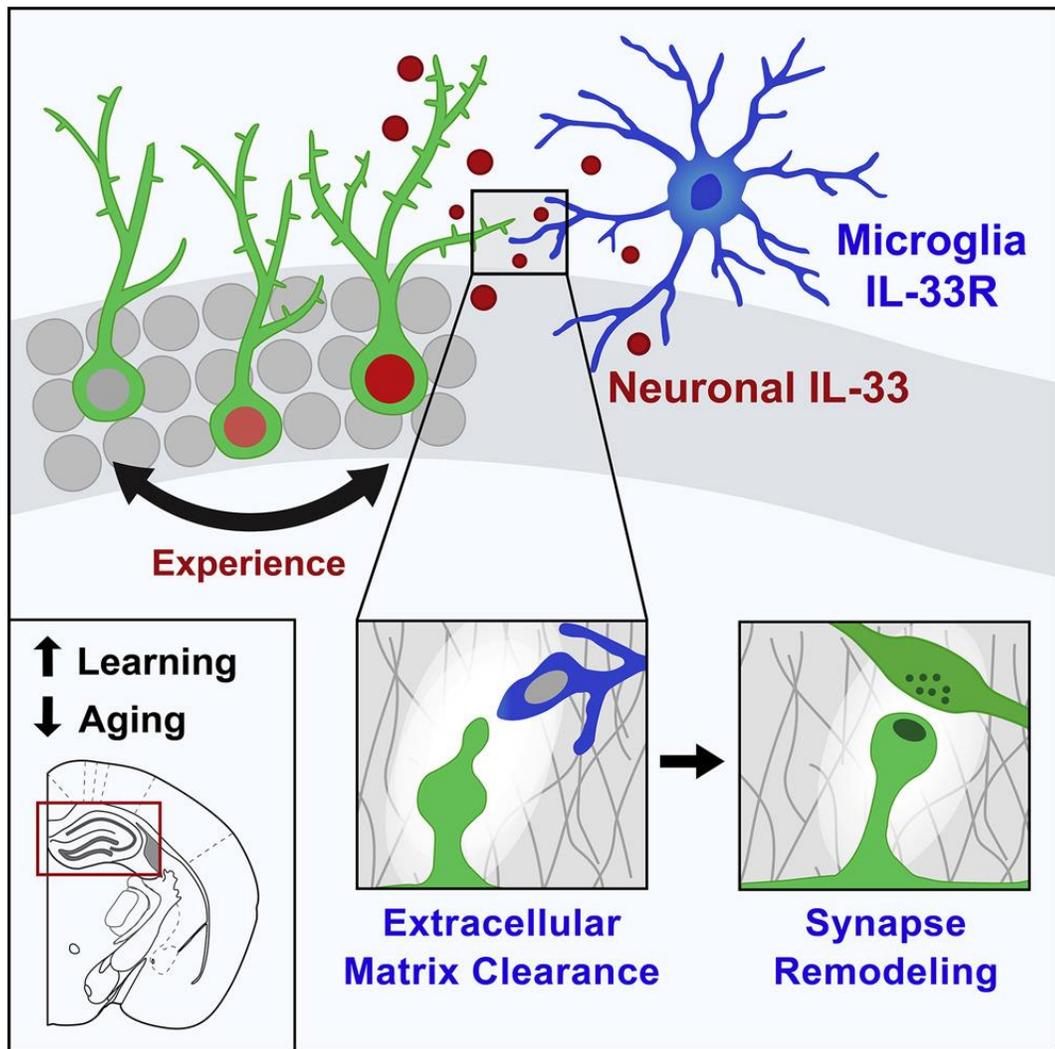
アブストラクトを有効活用！！

読者の理解を助ける情報を加えていく→

Synapse remodeling is essential to encode experiences into neuronal circuits. Here, we define a molecular interaction between neurons and microglia that drives experience-dependent synapse remodeling in the hippocampus. We find that the cytokine interleukin-33 (IL-33) is expressed by adult hippocampal neurons in an experience-dependent manner and defines a neuronal subset primed for synaptic plasticity. Loss of neuronal IL-33 or the microglial IL-33 receptor leads to impaired spine plasticity, reduced newborn neuron integration, and diminished precision of remote fear memories. Memory precision and neuronal IL-33 are decreased in aged mice, and IL-33 gain of function mitigates age-related decreases in spine plasticity. We find that neuronal IL-33 instructs microglial engulfment of the extracellular matrix (ECM) and that its loss leads to impaired ECM engulfment and a concomitant accumulation of ECM proteins in contact with synapses. These data define a cellular mechanism through which microglia regulate experience-dependent synapse remodeling and promote memory consolidation.



完成！！



制作のポイント

- ✓ メッセージに合ったレイアウトを探す

投稿先のジャーナルを見て自分の研究にあったレイアウトや表現方法を探す

- ✓ キーメッセージを中心に進める

アブストラクトを活用する

論文のキーメッセージを1つに絞る

アブストラクトを目安に情報量を調整する

▶ よくある良くないパターン。。。

- ✓ 情報過多と情報不足
- ✓ いきなり描き始める

実際の作図のためのツール

科学に特化したツール



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<https://togotv.dbcls.jp/pics.html>



<https://healthicons.org/>



<https://mindthegraph.com/>



<https://bioicons.com/>



<https://reactome.org/icon-lib>

使用时には、利用規約を確認のこと

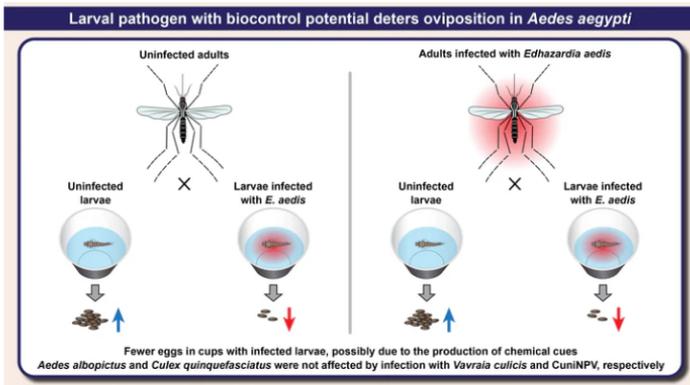
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