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CIBoG



名古屋大学卓越大学院プログラム  
情報・生命医科学コンボリューション on グローカルアライアンス卓越大学院

Nagoya University, WISE Program (Doctoral Program for World-leading Innovative & Smart Education)  
Convolution of Informatics and Biomedical Sciences on Glocal Alliances, CIBoG



お問い合わせ Contact CIBoG卓越大学院推進室 CIBoG Office

〒466-8550 名古屋市昭和区鶴舞町65番地  
名古屋大学大学院医学系研究科(医系研究棟3号館5階522室)  
Address: 65 Tsurumai-cho, Showa-ku, Nagoya, 466-8550, Japan  
Nagoya University Graduate School of Medicine (Room 522, 5F, Medical Research Building 3)

TEL : 052-744-1946  
E-mail: [cibog@med.nagoya-u.ac.jp](mailto:cibog@med.nagoya-u.ac.jp)  
Web : <https://cibog.med.nagoya-u.ac.jp/>

MASAHIRO NISHIMURA  
HIRO KOHDA  
TSUKASA SHIMAMURA  
YUKI AOYAMA  
SHOHEI SAKAI  
KAZUHIRO KUMAGAI  
MARIE OHBIKI  
SATOSHI NAKANO  
TAKUMI KAGAWA  
MIDORI SHIBUSHITA  
MONAMI KIHARA  
TAKAHIRO NAKAGAWA  
SHAOXIANG DANG  
WENDA LI  
TAKERU SHIINA  
SEITA TOMIDA  
YUJUN ZHOU

Aiming to be the world's best research university.

世界屈指の研究大学を目指して。

2024年度

修了生インタビュー

Graduate Interviews



CIBoG | Convolution of Informatics and Biomedical Sciences on Glocal Alliances  
名古屋大学 卓越大学院プログラム  
情報・生命医科学コンボリューション on グローカルアライアンス卓越大学院

009

2024

個別化医療から個別化予防へ ——

このキーワードのもと、情報科学と生命医学の融合を教育の軸に据えて、  
2019年に開設された

「情報・生命医学コンボリューション on グローカルアライアンス卓越大学院(CIBoG)」。

2025年3月、第二期修了生が、それぞれの志を胸に新たなステージへと旅立つ。

CIBoGでの学びは、彼らの成長にどのような影響を与えたのか？

これまでの軌跡と、これからの展望について、修了生17名に話を聞いた。

From precision medicine to precision prevention

Under this keyword, the WISE program of Convolution of Informatics and Biomedical Sciences on Glocal Alliances (CIBoG) was established in 2019 with the integrating informatics and biomedical sciences as its educational axis.

In March 2025, the second batch of students will leave for a new stage with their own aspirations in mind.

How did their studies at CIBoG affect their growth?

We interviewed 17 graduates about their past trajectories and future prospects.

## 名古屋大学

Nagoya University

大学院医学系研究科  
総合保健学専攻

Graduate School of Medicine  
Departments of Integrated  
Health Sciences

大学院医学系研究科  
総合医学専攻

Graduate School of Medicine  
Departments of Integrated Medicine

西村 匡弘



Masahiro  
NISHIMURA

神田 容



Hiro  
KOHDA

島村 司



Tsukasa  
SHIMAMURA

青山 友紀



Yuki  
AOYAMA

酒井 昭平



Shohei  
SAKAI

熊谷 和裕



Kazuhiro  
KUMAGAI

大引 真理恵



Marie  
OHIKI

仲野 聡



Satoshi  
NAKANO

香川 匠



Takumi  
KAGAWA

渋谷 碧



Midori  
SHIBUSHITA

大学院生命農学研究科  
応用生命科学専攻

Graduate School of Bioagricultural Sciences  
Department of Applied Biosciences

木原 もなみ



Monami  
KIHARA

中川 貴博



Takahiro  
NAKAGAWA

党 少翔



Shaoxiang  
DANG

李文達



Wenda  
LI

椎名 健



Takeru  
SHIINA

富田 晟太



Seita  
TOMIDA

ZHOU YUJUN



Yujun  
ZHOU

大学院情報学研究科  
知能システム学専攻

Graduate School of Informatics  
Department of Intelligent Systems

大学院創薬科学研究科  
基盤創薬学専攻

Graduate School of Pharmaceutical  
Sciences Department of  
Basic Medicinal Sciences

大学院連合農学研究科  
生物資源科学専攻

The United Graduate School of Agricultural Science  
Science of Biological Resources

## 岐阜大学

Gifu University

異分野融合マインドを発揮し、

学際的研究成果を社会へ、

そして社会制度の改革へ

Maximize Potential of Interdisciplinary Mindsets,  
Broad Results of Interdisciplinary Research to Society,  
and Activate Revolutions of Social Institutions.

## 西村 匡弘

2025年3月名古屋大学大学院医学系研究科総合保健学専攻リハビリテーション療法学博士後期課程修了。理学療法士。専門分野は人の動作分析。修了後は国立長寿医療研究センターの研究者へ。



In March 2025, He completed the doctoral course in rehabilitation therapy at Nagoya University Graduate School of Medicine, Department of Comprehensive Health Sciences (Physical therapy). My research field is human motion analysis. After graduating, he will become a researcher at the National Center for Geriatrics and Gerontology.



# MASAHIRO NISHIMURA

国立長寿医療研究センターでは理学療法の知見を活かし、高齢者の転倒予防に役立つ実証的研究を進めたい、と意欲を示す西村匡弘さん。国が進めるムーンショット型研究開発事業(\*)への参加も予定している。

順風満帆に見える歩みだが、大学生時代では挫折も経験。しかし、自分の想いや知識が活かせる方法を真剣に考え、理学療法、そして研究者の道を選んできた。その資質を開花させたのはCIBoGの環境だ。「医学と情報学の融合領域における知見の創出を目指すCIBoGの理念と工学領域における自身の軸を組み合わせた学びや経験が研究成果として実り、キャリアに結びついた」と分析。「多様なバックボーンを持つ研究者との交流を通じて、自分の専門に異分野の研究を組み合わせる“異分野融合マインド”を養えたことが大きかった」と振り返る。個別のリハビリ提案につながるウェアラブルデバイスによる歩行分析、潜在的なバランス能力低下を抽出する手法の開発など、CIBoGでの研究は西村さんの活動のコアにもなっている。

他の研究室の門をたたくなど、常に自分の可能性を追求してきた西村さん。「手を伸ばせばできるかもしれない、と考える執着心が行動力の原点かも」と笑う。「いつか必ず」と胸に誓うのは、研究成果を実社会で活用するだけでなく、医療制度に関わる行政分野で個別化予防を進めること。「研究成果を活かすには制度改革が不可欠。疲弊する医療・介護現場での労働環境改善を図ったうえで、研究成果が真に社会に生かされるような仕組みづくりを目指したい」。その眼差しは既に先を見つめている。

\* ムーンショット型研究開発事業：日本発の破壊的イノベーションの創出を目指し、挑戦的な研究開発を推進する国の研究プログラム。国立長寿医療研究センターでは、実際の医療・介護現場で使えるようになるまで実証実験でロボットを鍛え、進化させるための研究を行う。

Mr. Masahiro Nishimura is motivated to utilize his knowledge of physical therapist to promote practical research that will help prevent falls in the older people at National Center for Geriatrics and Gerontology. He also plans to participate in Moonshot R&D Program(\*) promoted by the national government for his next career.

Although his career path is likely to have been smooth sailing, he experienced some setbacks during his undergraduate student. However, he seriously considered ways in which he could apply his thoughts and mind, and chose the path of physical therapist and that of a researcher. Then, it was the environment at CIBoG that allowed his qualities to flourish. He interpreted, "The combination of CIBoG's philosophy, which aims to create expertise in the convolution of medicine and informatics, and my own knowledge in the field of engineering, has resulted in research achievements that have led me to my present career. He also looks back on his experience at CIBoG, saying, "It was magnificent that I was able to cultivate a 'interdisciplinary fusion mindset,' combining my own specialty with research in other fields, through interaction with researchers who were in diverse backgrounds. His research at CIBoG is also at the core concept of his activities, including gait analysis using wearable devices that lead to individualized rehabilitation proposals and the development of a method to identify latent balance impairment.

He has always pursued his own potential through knocking on the doors of other laboratories. He laughs, "I think that my persistence in considering what I might be able to do if I just reach out to my ideal may be the origin of my motivation". His willingness is to not only apply the results of his research in the real world, but also to promote Precision Medicine in administrative fields related to the medical care system. He says, "Medical care system revolution is indispensable to make use of the research. I would like to engage for improvement of working environment in the exhausted medical and nursing care staffs, and then create a system where research outputs can truly be utilized in society. His eyes are always looking future.

\* Moonshot R&D Program : A national research program that promotes challenging research and development with the aim of creating disruptive innovations originating in Japan. National Center for Geriatrics and Gerontology has conducted a plenty of feasibility research related to advanced robotics techniques through demonstration experiments so that they can be used in medical and nursing care settings in our society.

神田さんは、肥満に伴う脂肪組織の炎症・線維化に着目し、マクロファージと線維芽細胞の相互作用メカニズムを解明する研究を進めてきた。今後は研究をさらに発展させ、加齢に伴う皮下脂肪組織の機能不全メカニズムの解明に挑む予定だ。「肥満や加齢による慢性炎症は、多くの疾患の発症に関わる重要なテーマ。脂肪組織の炎症や線維化を制御することができれば、生活習慣病の予防や治療につながる可能性があります」

そんな神田さんの研究を後押ししたのは、CIBoGで得た情報学の知識だ。「プログラミングを学んでビッグデータ解析への敷居が下がり、実際、研究にシングルセル解析や空間トランスクリプトーム解析などを用いることができた」と、その学習効果を評価。CIBoGリトリートではシングルセル解析を用いた研究成果を発表し、ベストプレゼンテーション賞を受賞した。一方、データ解析を重ねる中で「解析そのものより解釈の重要性を実感した」とも。「疾患の知識がなければ、データはただの数字に過ぎません。医師としての臨床経験を持ち、WetとDry両面から解析できる研究者として独自性のある研究を展開したい」と将来を展望する。

博士課程中に出産・育児のため1年間休学した経験も。ライフイベントと研究の両立は簡単ではなかったはずだが、「女性研究者としてロールモデルになればと思っています。CIBoGには修了後も研究者を志す学生が多く、心強かったです」と神田さん。その前向きな姿勢と情熱が、次世代を強く勇気づけてくれるはずだ。

Hiro KOHDA has focused her research on the adipose tissue inflammation and fibrosis during the development of obesity, working to elucidate the mechanisms of interaction between macrophages and fibroblasts. Moving forward, she plans to expand her research to investigate the mechanisms underlying subcutaneous adipose tissue dysfunction caused by aging. "Chronic inflammation induced by obesity and aging is a critical factor in the development of many diseases. If we can control inflammation and fibrosis in adipose tissue, it may lead to the prevention and treatment of lifestyle-related diseases," she explains.

What propelled her research forward was the knowledge of informatics she gained through CIBoG. "Learning programming lowered the barrier to big data analysis, enabling me to apply methods such as single-cell and spatial transcriptomics to my research," she explains, acknowledging the impact of her studies. At the CIBoG retreat, she presented her research findings utilizing single-cell analysis and received the Best Presentation Award. Through repeated data analyses, she realized that "interpretation is more important than the analysis itself." She reflects, "Without knowledge of diseases, data is nothing more than numbers. As a physician with clinical experience, I aspire to conduct unique research that integrates both Wet and Dry approaches."

During her doctoral program, she took a year off for childbirth and childcare. Balancing life events with research must not have been easy, but she shares, "I hope to become a role model for other female researchers. Many students at CIBoG continue to pursue careers as researchers after graduation, which was very encouraging for me." Her positive attitude and passion will undoubtedly inspire and empower the next generation.

## 正常の本質を追い求め、 異常を防ぐカギを探す

Pursuing the essence of normal development,  
Searching for the key to prevent abnormalities

### 島村 司

2025年3月名古屋大学大学院医学系研究科総合医学専攻(MD・PhDコース)博士課程修了。所属研究室に残り、現在の研究を継続する予定。



Will complete the doctoral program in Integrated Medicine (MD-PhD course) at Nagoya University Graduate School of Medicine in March 2025. Plans to continue current research while remaining at the affiliated laboratory.



# TSUKASA SHIMAMURA



## 疾患の知識をもとに データを読み解くからこそ、 見えてくる世界がある

Seeing Beyond the Data: The Power of Disease Insights

### 神田 容

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士課程単位取得満期退学。専門分野は免疫代謝学。引き続き所属研究室に在籍し、異なるアプローチから研究に取り組む。



She withdrew upon completing the required coursework for a PhD in the Department of Integrated Medicine at Nagoya University Graduate School of Medicine in March 2025. Her area of expertise is immunometabolism. She will continue to work in the same laboratory, pursuing research from new and diverse approaches.



# HIRO KOHDA



胎生期の脳の発生を研究テーマとする島村司さん。ニューロンの元となる神経前駆細胞に焦点を当て、細胞同士が組織内でどのように影響しながら動いて、最終的に脳を形成するのかを解析している。

島村さんの研究を大きく発展させたのは、情報学との出会いだ。「CIBoGで情報系の講座を受けなければ、自らプログラミングして解析方法を生み出す発想は思いつかなかった」と明かす。三次元空間での細胞挙動の解析に役立てたプログラムも、CIBoGで得たスキルの成果だ。

将来的には脳の発生にとどまらず、他臓器も含めて一大イベントである「発生」を包括的に理解し、産婦人科と小児科の橋渡しとなる研究に取り組むことを目指している。胎児期における正常発生の仕組みを解明することで、出生前診断や早期治療、予防の基盤となる知見を提供したいという願いが、そこにはある。「正常とはどういう状態か、実はよくわかっていないんです。臨床現場では異常、つまり疾患の治療に目が向けられますが、正常がどう成り立つのかを知ることが、異常を理解するカギになると考えています」

研究室以外にも多様な人材と交流できるコミュニティが持てたこと、メンターの先生にいつでも相談できたことも心強かった、とCIBoGの魅力を語る島村さん。自身も教育に関心があり、「次世代に知識を伝えることは楽しいです。自分のやりがいにもなっています」と笑顔を見せる。医療と研究、そして教育。島村さんの挑戦はこれからも続いていく。

Tsukasa Shimamura's research focuses on brain development during the embryonic period. He analyzes how neural progenitor cells, which give rise to neurons, move and interact within tissues to ultimately form the brain. His research took a significant leap forward through his encounter with informatics. "Without taking informatics courses at CIBoG, I would never have thought of creating analytical methods through my own programming," he reveals. The program he developed for analyzing cellular behavior in three-dimensional space is also a product of the skills he acquired at CIBoG.

Looking ahead, he aims to comprehensively understand "development" - not just of the brain but including other organs - and to conduct research that bridges obstetrics and pediatrics. His goal is driven by a desire to provide insights that can serve as a foundation for prenatal diagnosis, early treatment, and prevention by elucidating the mechanisms of normal fetal development. "We don't actually have a clear understanding of what constitutes 'normal.' While clinical settings focus on treating abnormalities or diseases, I believe that understanding how normal development occurs is key to understanding abnormalities."

Shimamura speaks highly of CIBoG's value, particularly appreciating the community outside his laboratory and the ability to consult with mentor professors. With his own interest in education, he smiles as he says, "I enjoy passing knowledge on to the next generation. It gives me a sense of fulfillment." Medicine, research, and education - Shimamura's journey continues to evolve.

## 異分野を融合させる

## 知識とスキルを活かし

## 新薬開発に挑む

**Promote interdisciplinary collaboration"**

**Leverage knowledge and skills**

**Pursuing new drug development**

### 青山 友紀

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士課程修了。研究分野は脳の細胞動態解析。大手製薬企業で中枢神経系疾患に関する創薬研究に従事予定。



March 2025: Completed Doctoral Program in Integrated Medicine, Graduate School of Medicine, Nagoya University. Research specialization: Cellular dynamics analysis in the brain. Set to join a leading pharmaceutical company in March to engage in drug discovery research for central nervous system disorders.



# YUKI AOYAMA



身近にアルツハイマー型認知症の人がいたことから、創薬研究の必要性を強く感じていた青山友紀さん。工学部出身だが、学部時代から神経変性疾患に着目した研究に取り組み、それを生体レベルで発展させるべく大学院は医学系へ。マウス脳をリアルタイムで観察可能な生体イメージング技術を用いて、脳内の細胞動態と行動との連関を解析してきた。

工学をバックボーンに医学研究に挑む青山さんを、さらに飛躍させたのがCIBoGでの経験だ。「データサイエンスの講義はまさに自分が知りたかった内容でした。異分野融合に向けた知識と技術を深め、研究に反映させることができました」

また、「異分野の研究者など多様な背景を持つ方々と交流し、改めてサイエンスコミュニケーションの大切さを学びました。専門的な内容をわかりやすく伝える力は今後ますます必要になると感じています」と振り返る。さらに、産学連携の講義や製薬企業との交流を通じて、アカデミアと企業の研究スタンスの違いを学び、キャリアの選択肢が広がったと感じている。

修了後は製薬企業で、中枢神経系疾患に対する創薬研究に携わる予定だ。そこでは新薬開発への貢献はもちろん、企業とアカデミアを結ぶトランスレーショナルリサーチの推進にも力を入れたいと考えている。「CIBoGでの経験を活かし、医療現場と研究開発の橋渡し役として、枠組みの改善にも関わりたいですね」。医療の進化を加速させるために、青山さんはもうその歩みを進めている。

Ms. Yuki Aoyama, who had a close connection with someone suffering from Alzheimer's disease, strongly felt the need for research into drug discovery. In the Faculty of Engineering, she focused on studies related to neurodegenerative diseases, and in graduate school, she advanced her research to a biological level by moving into the medical field. Using in vivo imaging technology that enables real-time observation of mouse brains, she analyzed the relationship between cellular dynamics in the brain and behavior.

What further propelled Ms. Aoyama, who is tackling medical research with a foundation in engineering, was her experience at CIBoG. "The lectures on data science were exactly what I wanted to learn. I deepened my knowledge and skills in interdisciplinary integration and was able to apply them to my research," she says. She also reflects, "Interacting with researchers from diverse backgrounds and other fields taught me the importance of science communication. I've come to realize that the ability to clearly convey specialized content will become increasingly essential in the future."

Additionally, through lectures on industry-academia collaboration and exchanges with pharmaceutical companies, she gained insight into the differences in research approaches between academia and industry, broadening her career options.

After completing her studies, she plans to engage in drug discovery research for central nervous system disorders at a pharmaceutical company. There, she aims not only to contribute to new drug development but also to promote translational research that bridges the gap between academia and industry. "I want to leverage my experiences at CIBoG to act as a bridge between medical practice and research and development, and contribute to improving frameworks," she says.

To accelerate the evolution of medicine, Ms. Aoyama has already begun taking steps forward.

手足・のど・舌の筋肉や呼吸に必要な筋肉がだんだんやせて力がなくなっていき、運動神経変性疾患ALS(筋萎縮性側索硬化症)。酒井昭平さんは、その病態解明研究に取り組んできた。関心の出発点は、中学時代に身近な人をALSで失った経験にある。「患者も家族も医療従事者も辛く苦しい。それを目の当たりにして、ALSと勝負すると決めました」博士課程では、ALSの疾患モデルマウスやiPSC細胞を活用した疾患モデル細胞をつくり、疾患のメカニズム解析に取り組んできた。「従来とは異なる着眼点で作製した独自のモデルは今後の研究の重要な基盤となるはず」と先を見通す。

その研究を加速させたのが、イギリス・キングスカレッジロンドンへの留学だ。「CIBoGでの英語学習や国際学会での発表経験が留学の扉を開き、最先端の研究技術を学んで自身の研究に取り入れることができました」と酒井さん。CIBoGで得た気づきやチャンス、レベルの高い同世代の学生との交流により、人間としても研究者としても成長できたと感謝する。

自身の成長のために再び海外留学を見据えている酒井さん。そして、自分にプレッシャーをかけて奮い立たせる性格と断りながら「ノーベル賞級の発見で医学に貢献し、世界トップレベルの研究者を目指したい」とも。「やると決めたのでやるだけ。その先には難病が治せる未来があれば幸いです」と笑顔を見せる酒井さんの信念は、中学生だったあの頃から揺るぎない。

Mr. Shohei Sakai is trying to elucidate the pathomechanisms of ALS (amyotrophic lateral sclerosis), an incurable motor neuron disease. His journey began in junior high school, when he lost a close family member who suffered from ALS. "Patients, their families, and healthcare workers all suffer deeply. Experiencing that firsthand, I decided to take on the challenge of ALS," he reflects.

In his doctoral program, Mr. Sakai has worked on creating new ALS models using mouse and iPSC (induced pluripotent stem cell), aiming to analyze the mechanisms of the disease. "Our unique models, developed from a new perspective, will serve as a crucial foundation for future research," he confidently predicts.

His research gained momentum through a study abroad opportunity at King's College London. "English training courses at CIBoG and my experiences at international conferences opened the door to this opportunity. I learned cutting-edge research techniques and incorporated them into my research," Mr. Sakai explains. He expresses gratitude to CIBoG for giving him various insights and opportunities, which allowed him to grow both as a researcher and as a person.

Looking ahead, Mr. Sakai is already planning another study abroad experience to further his growth. He explains that he is the type of person who motivates himself by putting pressure on himself, and adds, "I aim to make Nobel Prize-level discoveries that contribute to medicine and become a world-class researcher."

With a smile, he concludes, "I've decided to do this, so I'll just do it. If it leads to a future where incurable diseases can be treated, I'll be happy." His unwavering determination, rooted in his junior high school years, continues to guide him.

## 神経難病が治せる

## 未来を目指して

## 世界へ挑戦

**Striving for a Future**

**Where Neurodegenerative Diseases Are Curable  
- Challenging the World**

### 酒井 昭平

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士後期課程満期退学。専門分野は病態神経科学。アカデミアで現在の研究を継続し、その後は海外留学も視野に入れる。



Completed his doctoral course at Department of Integrated Medicine, Graduate School of Medicine, Nagoya University. Majored in Neuroscience and Pathobiology. He will continue his current study in academia and is considering conducting research abroad.



# SHOHEI SAKAI



がん細胞を排除する免疫細胞の活性が、なぜ人によって異なるのか？その謎を遺伝子レベルで研究してきた熊谷さん。修了後も京都大学がん免疫総合研究センターにて研究を続け、次は新たな視点から現象解明に挑もうと情熱を燃やす。

今まで触れてこなかった研究分野に、これまで培ってきた研究技術やアイデアを融合させる研究。そこに挑むには強い意志が求められるが「CIBoGでの出会いを通じて多様な価値観や研究の幅を知ったからこそ、その志が持てた」と、その心の内を語る熊谷さん。また、これまで敬遠しがちだった情報科学への一歩をCIBoGが後押ししてくれたことも大きい、と明かす。

がん免疫療法は世界中で熱く注目されている研究分野だ。近い将来、個別化予防につながる免疫療法が実現できるのではないかと熊谷さんも予想する。一方で、「自分では敢えて将来に向けて大きな目標を掲げることはしない」とも。「一度大きな目標を設定すると、それを達成するための手段にとらわれてしまう。自分が面白いと思った方向へ柔軟に動ける余地を残しておきたいんです」

なぜ薬を飲むと病気が治るの？そんな幼い頃に抱いた「なぜ？」を推進力に研究の道を歩み続けてきた熊谷さん。CIBoGでのさまざまな活動を通して「やると決めたらぶれずにやり遂げる」自分の特性を再認識し、アカデミアで生きる決意も固まった。これからも自身の興味に正直に、「なぜ？」を探究し続ける熊谷さんだからこそ、発見できる次代があるはずだ。

Why does the activity of immune cells that eliminate cancer cells vary from person to person? This inquiry has driven his research. Going forward, he will continue his research at Kyoto University; Center for Cancer Immunotherapy and Immunobiology (CCII), now fueled by a passion to unravel these phenomena from a new perspective.

His work integrates research techniques and ideas he has cultivated with fields he has never explored before. Taking on such a challenge requires strong determination, but he says, "Through my encounters at CIBoG, I was able to learn about diverse perspectives and research approaches, which strengthened my resolve." He also revealed that CIBoG played a significant role in encouraging him to take his first steps into bioinformatics, a field he had previously been hesitant to engage with.

Cancer immunotherapy is a research field that is gaining intense global attention. He anticipates that in the near future, immunotherapy will lead to personalized preventive treatments. However, he deliberately refrains from setting grand long-term goals. "If I set a big goal, I might become fixated on the means to achieve it. I want to leave room for flexibility so that I can move in directions that genuinely interest me."

As a child, he often wondered, "Why does medicine cure illnesses?" This curiosity has been the driving force behind his journey into research. Through CIBoG, he reaffirmed his trait of unwavering commitment once he decides on something, further solidifying his determination to pursue a career in academia. By staying true to his curiosity and continuously exploring the question of "why?", Kumagai is bound to uncover new breakthroughs in the future of cancer immunology research.

## 「なぜ？」を研究の推進力に がん免疫療法の 次代を探究する

"Why?" as the Driving Force of Research  
Exploring the Next Generation of Cancer Immunotherapy

熊谷 和裕

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士課程単位取得満期退学。専門分野は腫瘍免疫学。今後は京都大学がん免疫総合研究センターの研究員として研究を継続。



In March 2025, the doctoral program in the Nagoya University Graduate School of Medicine will be completed without degree. His specialty is Tumor immunology. Moving forward, research will continue at the Center for Cancer Immunotherapy and Immunology (CCII), Kyoto University.



# KAZUHIRO KUMAGAI

## データサイエンスで 造血細胞移植患者さんの 命を支えていく

Supporting the lives of hematopoietic cell  
transplant recipients through data science

大引 真理恵

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士課程修了。血液内科医として病院勤務後、博士課程へ。修了後は日本造血細胞移植データセンターに勤務予定。



In March 2025, she completed the doctoral program at the Department of Integrated Medicine, Nagoya University Graduate School of Medicine. After working as a hematologist at a hospital, she entered the doctoral program. Upon completion, she plans to work at the Japanese Data Center for Hematopoietic Cell Transplantation.



# MARIE OHBIKI



血液内科医として約6年間、診療に従事してきた大引真理恵さん。白血病や悪性リンパ腫などの患者さんと向き合う日々の中で、移植医療の可能性と課題に直面してきた。そして「目の前の人だけでなく、より多くの人を救うために臨床の立場から研究したい」との想いが募り、博士課程へ。研究室に在籍しながら、博士2年の頃から日本造血細胞移植データセンターでのインターンシップを通じて、データ管理やデータ解析の経験を積んできた。

「CIBoGでは情報学やアントレプレナーシップを学び、情報学分野の最新研究や実装について知ることができました。リトリートや国際シンポジウムを通じてリーダーシップやコミュニケーション力が向上しました。GAME<sup>(\*)</sup> Annual Meetingでは英語力も磨き、国際的な研究に備える力も養えました」と大引さん。これらの経験は、がん疫学の研究者との共同研究にも活かされ、造血細胞移植分野のリアルワールドデータを用いた研究論文は国際学術誌に掲載された。

修了後も大引さんは引き続き、造血細胞移植・細胞治療分野の発展に向けて、同データセンターでデータを用いた研究を進めていく。思い描く将来像は、臨床医学や疫学、情報科学を融合し、データベースを扱って研究を行うデータサイエンティスト。融合研究の成果を臨床医学の視点から解釈し、患者の診療や社会的基盤の構築への還元を志す。「研究成果を発信し、造血細胞移植後の患者さんを含め、さまざまな疾患のサバイバーがより暮らしやすい政策や社会の認識変化につながれば」。大引さんの視線の先には、いつも患者さんがいる。

Dr. Marie Ohbiki engaged in clinical practice as a hematologist for approximately six years. While treating patients with hematological malignancies such as leukemia and malignant lymphoma, she has faced the possibilities and challenges of hematopoietic cell transplantation (HCT). Her desire to "do research from a clinical perspective to save the lives of more people, not just the individuals in front of her" led her to pursue a Ph.D. program. While enrolled in the doctoral program, she has been an intern at the Japanese Data Center for Hematopoietic Cell Transplantation (JDCHCT) since her second year of doctoral studies. Her internship provided her with experience in data management and analysis.

"Through CIBoG program, I learned informatics and entrepreneurship, gaining insights into the latest research and implementations in the field of informatics. Through retreats and international symposiums, I enhanced my leadership and communication skills. At the GAME<sup>\*</sup> Annual Meeting, I improved my English proficiency and prepared myself for international research," says Dr. Ohbiki. These experiences have been applied to her collaborative research with researchers in cancer epidemiology, resulting in her research paper using real-world data in the field of HCT being published in an international journal. After completing the doctoral program, Dr. Ohbiki plans to continue advancing research in HCT and cellular therapy at the JDCHCT. Her envisioned future is a data scientist who handles databases and conducts research by integrating clinical medicine, epidemiology, and information science. By interpreting the outcomes of integrated research from a clinical perspective, she aims to contribute to patient care and the establishment of a robust societal foundation. Patients always remain at the center of her vision, and Dr. Ohbiki says, "I hope that sharing research outcomes will lead to policies and societal awareness changes that improve the lives of survivors of HCT and other diseases."

\* GAME (Global Alliance of Medical Excellence) : 名古屋大学、香港中文大学、高麗大、モナコ大学、ミュンヘン大学、エラスムス・ロツテルダム大学、ゴローニャ大学、ノッティンガム大学の医学部が参加する戦略的国際学術アライアンス。未来の医学教育や国際的な共同研究の発展を目指し、8大学がそれぞれ共同で事業に取り組む。

\* GAME (Global Alliance of Medical Excellence) Medical schools from Nagoya University, the Chinese University of Hong Kong, Korea University, Monash University, the University of Munich, Erasmus University Rotterdam, the University of Bologna, and the University of Nottingham participate in this international strategic academic alliance. Aiming to develop future medical education and international joint research, these 8 universities collaborate on projects.

## Surgeon Scientistとして、 臨床と研究の架け橋に

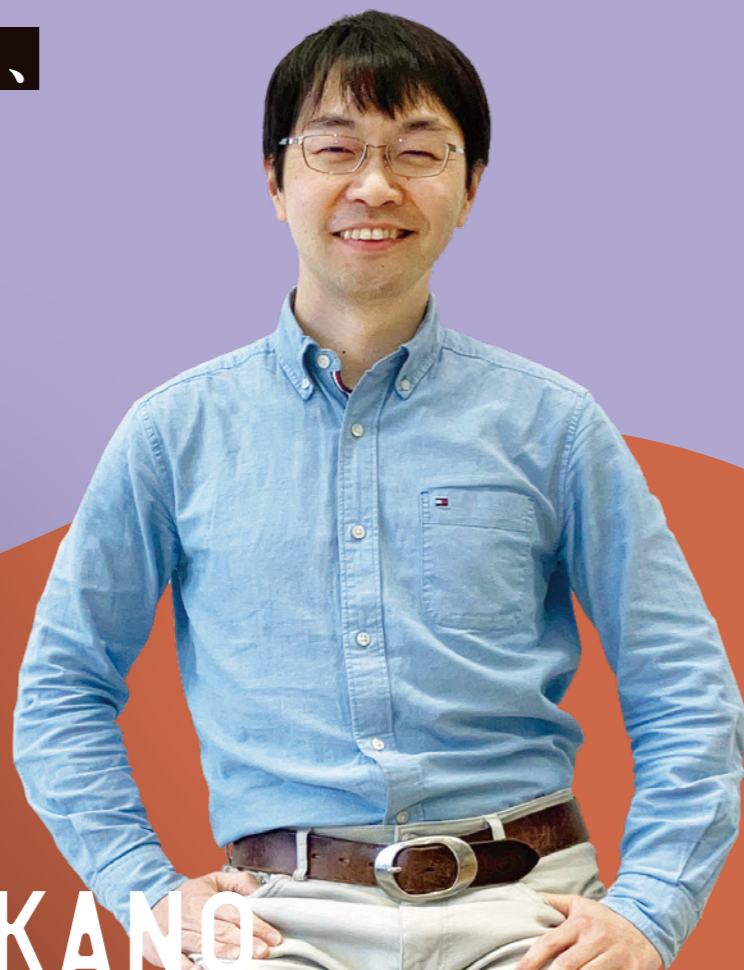
As a Surgeon Scientist,  
Bridging Clinical Practice and Research

### 仲野 聡

名古屋大学大学院医学系研究科総合医学専攻博士課程。小児外科医として9年間の臨床経験を積んだ後、博士課程へ。博士課程の研究の一環で2022年8月～2025年2月までフライブルク大学に留学。



PhD candidate, Department of Integrated Medicine, Nagoya University Graduate School of Medicine. After nine years of clinical experience as a pediatric surgeon, he took the bold step of entering the doctoral program. As part of his research, he has been studying at the University of Freiburg from August 2022 to February 2025.



# SATOSHI NAKANO

臨床で希少疾患などを患う子どもたちを治療してきた仲野聡さん。博士課程では、小児がんの横紋筋肉腫を対象に新たな腫瘍マーカーを探求するため、オミクス研究の一種である尿中代謝物解析(メタボロミクス)を行い、予測モデルを構築した。その後、CIBoGの支援を得てドイツ・フライブルク大学に留学。患者由来の腫瘍を移植したマウスを使い、タンパク質解析(プロテオミクス)を進めながら腫瘍のバイオロジー解明に挑んでいる。仲野さんのキャリア観を刺激したのは、このドイツ留学だ。「ドイツのアカデミア人材は皆さん英語が堪能で、ラボの約半分を女性研究者が占めています。研究を効率的に進める姿勢、人種・ジェンダーの多様性を目の当たりにし、日本との違いを実感しました。この経験や知見を日本のアカデミアにフィードバックしていきたいですね」

仲野さんによれば、CIBoGは研究を志す臨床医にとって理想的な環境。特に「研修などを通じて海外を含む他大学とつながり、人脈が広がるのはメリット。それが次のキャリアに結びつく」と話す。東北・大阪・京都・名古屋大学が参加した生命系卓越大学院共創シンポジウム2024では学生グループ発表で最優秀賞を受賞し、大学院教育改革フォーラム2024の学生グループ発表でもExcellent Awardを受賞した。Boston研修では、製薬企業やMITの研究者と交流し、MGHの小児希少疾患研究者のLabを訪問した。帰国後は、Surgeon Scientistとして臨床業務と研究活動を並行して行う予定だ。臨床で目の前の患者さんを救うと同時に、いずれはバイオインフォマティクスやオミクス研究の知見を活用し、小児がんや希少性疾患の診療に活用できるトランスレーショナル研究で貢献したいとも考えている。小さな患者さんを救うために、仲野さんはこれからも二刀流で闘い続ける。

Satoshi Nakano MD has treated children with rare diseases in his clinical field. During his doctoral studies, to identify novel biomarkers for rhabdomyosarcoma, one of intractable pediatric tumors, he carried out urinary metabolites profiling analysis (metabolomics) and constructed a predictive model in Nagoya. Supported by CIBoG, he then went to study at the University of Freiburg in Germany. Using patient-derived xenograft tumors, he performed protein profiling analysis comprehensively (proteomics) to elucidate tumor biology. His time in Freiburg has had a significant impact on his career outlook:

"In Germany, everyone in academia is fluent in English, and approximately half of the lab members are female researchers. Their commitment to the effective working habit in research, and the diversity in terms of race and gender, really struck me," he says. "I hope to bring the insights back to Japanese academia."

As Nakano said, CIBoG offers an ideal environment for clinicians eager to pursue research. One great advantage, he notes, is the chance to connect with peers across multiple universities through various training programs – a professional network can open doors for your future career. His collaborative spirit bore fruit at the Life Science Excellence Graduate School Co-Creation Symposium 2024 – hosted by Nagoya, Tohoku, Osaka, Kyoto Universities – where his group won the top prize. At the Graduate School Education Reform Forum 2024, his group received the Excellent Award for a student group presentation. During the Boston workshop, he communicated with pharmaceutical companies, interact with researchers at MIT Koch institute, and visit the lab of a pediatric rare disease researcher at MGH. After returning to Japan, Nakano plans to continue both clinical work and research, fulfilling the role of a Surgeon Scientist. While saving the patients, he hopes eventually to leverage his knowledge of bioinformatics for translational studies that can be applied to the diagnosis and treatment of pediatric cancer and rare diseases. To save the lives of children, Nakano keep fighting on both fronts as "Two-Way-Player".

より自分の研究能力が高められる方向へ。その軸を持って進むべき道を選んできた香川さん。薬学部を卒業後は修士課程で毒性学を学び、製薬会社勤務を経て医学系研究科の博士課程へ。CIBoGも自身の研究への相乗効果が期待できると感じ、迷わず履修を選択した。

現在は環境衛生学を専門に、環境中の化学物質が人体に及ぼす影響を探究する。その中で、研究成果の創出に多に役立ったプログラムとして挙げるのは、CIBoGの情報学に関する講義や情報学分野の研究者との交流だ。「ヒト集団における化学物質曝露と疾患の関係を探究してきましたが、従来の方法に加えてCIBoGで学んだ機械学習を用いた解析により、高血圧とヒ素との新たな関係性を発見することができました」。香川さんにとってデータサイエンスを研究に本格的に応用した初めての挑戦だったが、その成果は評価され、国際学術誌に掲載された。引き続きアカデミアで、化学物質や環境因子の機能性や安全性に関する研究を進める予定の香川さん。当たり前のようでいて難しい「真に健康で安心して暮らせる社会の実現」が、そのゴールだ。また、情報科学と生命科学の知識を兼ね備えた研究者として、後進の育成に携わりたいという思いも抱く。「CIBoGではプログラム担当やメンターの先生方など多くの方にお世話になりました。今度は私が後輩や学生の指導を通じて恩返しをし、社会に還元していければうれしいですね」。研究者としてのさらなる挑戦と成長を目指し、香川さんは次の一步を踏み出している。

Takumi Kagawa has consistently chosen paths that align with his goal of enhancing his research abilities. After earning a degree in pharmaceutical sciences and completing a master's program in toxicology, he gained experience in the pharmaceutical industry before pursuing a PhD at the Graduate School of Medicine. Recognizing the potential synergy with his research, he eagerly enrolled in the CIBoG.

Currently, Kagawa specializes in environmental health, studying the effects of environmental chemicals on human health. He credits the CIBoG program's lectures on informatics and interactions with researchers in the field for significantly contributing to his research. "I have been investigating the relationship between chemical exposure and disease in human populations. By applying machine learning techniques learned through CIBoG alongside conventional methods, I discovered a new association between arsenic exposure and hypertension," Kagawa explained. This was his first attempt to fully integrate data science into his research, and the results were published in an international academic journal. Looking ahead, Kagawa plans to continue advancing his research in academia, focusing on the functionality and safety of environmental factors such as chemical substances. His ultimate goal is to contribute to the realization of a society where people can live healthy and secure lives—an ideal that seems simple but is profoundly challenging. Additionally, he aims to mentor younger researchers by teaching informatics and life sciences. "During my time at CIBoG, I received significant support from the program's faculty and mentors. I hope to give back by supporting students and younger colleagues and contributing to society through my work," Kagawa said. Striving for further challenges and growth as a researcher, Kagawa is taking his next step forward.

## CIBoGで得た解析手法で、 化学物質と疾患の 新たな関係性を発見

Discovering New Links Between Environmental  
Factors and Diseases Using Analytical Methods  
Acquired Through CIBoG

### 香川 匠

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士課程修了。専門分野は環境労働衛生学。修了後は名古屋大学の助教として研究を継続。



Takumi Kagawa is completing PhD program at the Department of Occupational and Environmental Health, Nagoya University Graduate School of Medicine in March 2025. He will continue his research as an Assistant Professor at Nagoya University.



# TAKUMI KAGAWA

「CIBoGで吸収した知識と経験は、視野を広げ、人間性も成長させてくれた」と感謝する渋下碧さん。プログラム内で得た解析技術が精神疾患や神経科学の研究に役立ち、英語教育によって国際性も磨かれたと言う。特にキャリア選択に結びついたと感じているのが、CIBoGリトリートなどの異分野融合イベントだ。「大学時代から発達症の研究を続けてきましたが、他分野の研究者や学生と交流することで自分の専門性に固執せず、より広い視野で医学研究を捉えられるようになりました」

修了後は、出版社で医学分野の記者・編集者としてキャリアをスタートさせる予定だ。これまで培ってきた知識を活かし、「専門的な内容をわかりやすく噛み砕いて医学の最新トピックを医療従事者に届け、社会に貢献したい」と目を輝かせる。また、出版社で進めるニューロダイバーシティ(\*)の取り組みに参画し、神経発達症患者を含む生きづらさを抱える人々がその特性を活かせる社会の実現を目指す。「幼少期に発達症の友人と過ごした経験が、私の思想の原点です。みんなと同じように丸くするのではなく、その人なりの星のまま、個性を潰さず社会の中で輝ける環境をつくりたいというビジョンが、私を動かしています」

医学と社会をつなぐ情報発信を通じて、多様性を受け入れる世界への転換を図る渋下さん。「AI時代こそ、発達症の方々が持つ鋭い感性が必要になるかもしれませんね」と微笑む。その挑戦は、社会をより良く変える価値観をもたらすに違いない。

\*ニューロダイバーシティ：「脳や神経、それに由来する個人レベルでの様々な特性の違いを多様性と捉えて相互に尊重し、それらの違いを社会の中で活かしていこう」という考え方。

"I am deeply grateful to CIBoG for broadening my horizons and helping me grow as a person," says Shibushita. The analytical techniques she acquired during the program greatly contributed to her research in psychiatric disorders and neuroscience, and the English education she received enhanced her international perspective. One of the most impactful experiences for her career choice was the interdisciplinary fusion events such as the CIBoG Retreat.

"Since my university days, I've been studying neurodevelopmental disorders. Interacting with researchers and students from other fields helped me move beyond fixation on my own expertise and allowed me to view medical research from a broader perspective."

After completing her doctoral program, she plans to begin her career as a journalist and editor in the medical field at a publishing company. She is eager to use the knowledge she has cultivated thus far to "To contribute to society by delivering the latest medical topics to medical professionals in an easy-to-understand manner by breaking down specialized content." Moreover, she will actively participate in the publisher's initiatives to promote neurodiversity (\*), aiming to create a society where individuals, including those with neurodevelopmental disorders, can leverage their unique traits to thrive.

"My childhood experiences with friend who had neurodevelopmental disorders are the foundation of my beliefs. Rather than forcing everyone to conform to a single mold, I want to create an environment where people can shine as the stars they are, preserving their individuality within society. That vision is what drives me," she explains. Shibushita strives to advance a transformation toward a world that fully embraces diversity through her efforts to bridge medicine and society through information dissemination. "In an age driven by AI, the sharp sensitivities of people with neurodevelopmental disorders may prove to be indispensable," she adds with a smile. Her endeavors are sure to bring valuable perspectives that transform society for the better.

\* Neurodiversity : A concept that views differences in the brain, nervous system, and the resulting individual characteristics as diversity, promotes mutual respect for these differences, and seeks to incorporate them into society.

## 医学と社会をつなぎ、 すべての個性が そのまま輝ける世界を

**Bridging Medicine and Society to Create a World  
Where All Unique Individuals Shine**

渋下 碧

2025年3月名古屋大学大学院医学系研究科総合医学専攻博士課程修了。専門分野は精神疾患と神経科学。修了後は医療系のメディアを持つ大手出版社へ。



Graduating in March 2025 from the Doctoral Course in Medical Sciences, Graduate School of Medicine, Nagoya University. Her specialization lies in psychiatric disorders and neuroscience. After graduation, she will join a major publishing company with a focus on medical media.



# MIDORI SHIBUSHITA

## 社会実装を目指して、 研究者を支援する技術者へ

**Toward Social Implementation,  
To engineers supporting researchers**

木原 もなみ

2025年3月名古屋大学大学院生命農学研究科応用生命科学専門博士後期課程修了。専門分野は抗体工学。修了後は精密機器メーカーで分析機器の開発に携わる。



In March 2025, completed the doctoral program at the Graduate School of Bioagricultural Sciences, Nagoya University. Specialized in antibody engineering. After graduation, engaged in the development of instruments at Precision equipment manufacturer.



# MONAMI KIHARA



「これまでの研究経験を通じて、自分の研究成果が誰かの助けになるような仕事をしたいと考えようになりました」と話す、木原もなみさん。修了後の道として選んだのは、研究者と顔を合わせ、ニーズを聞きながら技術開発に取り組む仕事だ。分析機器の技術者として、専門の抗体研究に関連する基盤技術や検出キットの開発に携わり、大学や製薬企業の研究者を支援したい、と目を輝かせる。

木原さんの選択を後押ししたのが、CIBoGの「湘南アイパーク研修」だ。企業研究者の働きぶりを間近で見て、チームで研究や社会実装に取り組む姿に魅力を感じた。また、「リトリートの実行委員としてメンバーと協働する中で、目標達成のために自分がどう貢献できるのかを考え、行動できるようになった」と木原さん。それは企業が求める博士人材像とも合致し、就職活動で高く評価される結果にもつながった。もちろん、博士課程の間には理想と現実のギャップを痛感したことも少なくなかったという。「成果が出ない時期が続き、自分のスキルや資質に課題を感じたこともありました」と吐露する。しかし、その経験を貴重な糧として、柔軟な姿勢で異分野での技術開発に挑みたいと前を向く。

胸に抱く夢は、手がけた技術や機器が「これがあって助かった」と言われる存在になること。「コロナ禍で開発された全自動検査機器のように、社会のニーズに応え、世の役に立つ技術を生み出したいです」。希望に満ちた木原さんの表情には、未来への確かな決意がうかがえる。

"Through my research experience, I have developed a strong desire to contribute my achievements to helping others," says Ms. Monami Kihara. After completing her doctoral studies, she chose a career where she could interact with researchers, understand their needs, and develop technologies accordingly. As a technical expert in analytical instruments, she aims to contribute to the development of fundamental technologies and detection kits related to antibody research, supporting researchers in universities and pharmaceutical companies.

Her decision was supported by the training at Shonan iPark provided by CIBoG. Witnessing firsthand how corporate researchers work and collaborate as a team to advance research and implement it in society left a strong impression on her. Additionally, as a member of the retreat organizing committee, she learned to consider how she could contribute to achieving common goals and take action accordingly. This experience aligned well with the qualities companies seek in PhD professionals, ultimately leading to positive evaluations during her job search.

During her PhD journey, she also faced the gap between ideal and reality. "There were times when I struggled with a lack of research progress, which made me question my skills and abilities," she admits. However, she sees these experiences as valuable lessons and is determined to take on the challenge of technology development, a field different from her original expertise, with an open and flexible mindset.

Her dream is for the technologies and instruments she helps create to become indispensable. "I want to develop technologies that meet societal needs and make a real difference, just like the fully automated testing equipment developed during the COVID-19 pandemic," she says. With a hopeful expression, she exudes a strong determination to shape the future.

# 新しいコンセプトの 医薬品を創り、 社会の課題を解決したい

Creating new-concept medicines to tackle social issues

## 中川 貴博

2025年3月、名古屋大学大学院生命農学研究科博士後期課程修了。専門分野は糖鎖生物学。修了後は製薬企業で研究職へ。



Completed his doctoral course and earned his PhD at Department of Applied Biosciences, Graduate School of Bioagricultural Sciences, Nagoya University in March 2025, specializing in glycobiology. After graduation, he began his career as a researcher in a pharmaceutical company



# TAKAHIRO NAKAGAWA

製薬企業の研究職に就く中川貴博さん。医薬品の大量生産に伴う品質管理や効率的な製造手法の開発を行うために、製造過程におけるスケールアップや活性試験の方法の確立に取り組むのが、その役割だ。「CIBoGで身につけたデータサイエンスの知識を活かし、どこにターゲットを置き、何を添加するかなど、より効果的な医薬品の製造に貢献したいですね」と意欲を見せる。

もともと農業に興味を持ち、生命農学を学んできた。その中で生物系の研究者にもデータサイエンスの知識は必要不可欠と感じたのが、CIBoGに参加した理由だ。「目的とする知識を得られただけでなく、研究科を越えた交流を通じて用語や考え方が違う異分野の学生とどうコミュニケーションを取るべきかを学ぶことができました」と話す。また、「湘南アイパーク」での研修は、大学の研究とバイオベンチャーの研究の進め方やスピード感の違いを具体的に理解する助けになったと述懐する。

研究者として重視するのは、いかに社会課題の解決につなげるかという視点だ。「例えば、mRNAワクチンは以前から研究室ベースでは研究されていましたが、パンデミックをきっかけに一気に社会へ広まりました。やはり基礎研究を応用につなげる力が社会を変える原動力となると考えています」

「いつか自分も新しいコンセプトの医薬品を創り出し、疾患に苦しむ患者さんを救いたい」と中川さん。その強い気概が、製薬の地平を切り拓いていく。

Takahiro Nakagawa is set to become a researcher in a pharmaceutical company. His role involves establishing methods for scale-up in manufacturing processes and activity checks for quality control and the efficient production of medicines. He shows enthusiasm for his work and says, "I want to contribute to the development of more efficient manufacturing methods for medicines."

Initially, he was interested in agriculture and studied agricultural sciences. Over time, he noticed the importance of data science knowledge for biological researchers and decided to participate in the CIBoG program. "In the CIBoG program, I not only acquired knowledge of bioinformatics but also learned how to communicate with researchers from different disciplines through cross-disciplinary interactions," he says. He also mentions that participating in the field trip to Shonan iPark helped him understand the differences in research approaches and decision-making speeds between universities and bio-venture companies.

As a researcher, he values how he can tackle social issues. "For example, mRNA vaccines had been researched before the COVID-19 pandemic and became widely used afterward. This story tells us that skills to translate basic science into real-world applications can be a driving force for changing the world," he reflects. "Someday, I aspire to develop innovative conceptual medicines and contribute to improving the lives of patients suffering from diseases." His strong spirit breaks new ground in the pharmaceutical field.

情報学の分野で音声認識・抽出技術の開発に取り組んできた党少翔さん。CIBoGで医学を学ぶ中で異分野の知識と視野が広がり、各分野の最先端や先行研究を知ることもできたと言っている。また、海外研修やリトリートで他の研究機関や海外の大学と交流する機会が多く、「他分野の研究者との交流意欲が高まりました」と自身の変化を分析する。

特に今後のキャリアにとって有益だったと感じているのが、医情連携とも言える神経内科との共同研究だ。パーキンソン病患者さんの音声特徴を抽出する研究に取り組み、音声データから病状の進行を評価し、AIによる補助診断の基準となるモデルを確立した。「現在、患者さんの発話からの病状評価は経験豊富な医師の判断に頼っています。もし医療現場にAIによる補助診断を導入できれば、医師の総合診断を支援する情報提供ができるようになるのではないのでしょうか」と臨床での応用に期待を寄せる。

党さんを突き動かすのは、AIを活用した生活支援技術を提供し、より便利で効率的な社会を実現したいという強い思いだ。「例えば、言語の壁を取り除くためのAI活用。AIがリアルタイムで画像内の文字データを翻訳し旅先の歴史や文化を音声で案内する技術があれば、もっと旅が楽しくなるはず」と、技術の応用で日常生活がより豊かになる近未来を予想する。「AIは単なるツールではなく、人間と協調しながら今までにない価値を生み出せる存在」という信念が、次の社会を創造する原動力になっていく。

Shaoxiang Dang has dedicated his research to developing speech recognition and extraction technologies within the field of informatics. While studying medicine at CIBoG, he found immense value in expanding his knowledge and perspective across different disciplines. His exposure to cutting-edge research and prior studies in various fields has been particularly meaningful. Additionally, through international training programs and retreats, he has had numerous opportunities to interact with other research institutions and universities worldwide, leading him to recognize his growing enthusiasm for interdisciplinary collaboration.

One of the most impactful experiences for his future career has been his joint research with the neurology department, a collaboration that bridges medicine and information technology. In this project, he worked on extracting speech characteristics of patients with Parkinson's disease, developing a model that assesses disease progression based on voice data. This AI-assisted model establishes criteria for supplementary diagnosis. "Currently, evaluating a patient's condition through speech relies on the judgment of experienced physicians. If AI-assisted diagnostics could be introduced in clinical settings, it could provide valuable support for doctors in making comprehensive assessments," he explains, expressing his optimism about the practical applications of his research.

What drives Dang is his strong passion for leveraging AI to develop assistive technologies that enhance daily life and create a more convenient and efficient society. "For instance, AI can help eliminate language barriers. Imagine a system that translates text from images in real time and provides spoken guidance on historical and cultural sites during travel—it would make journeys much more enjoyable," he envisions. His ultimate belief is that AI is not just a tool but a collaborative entity capable of generating unprecedented value alongside humans. This conviction fuels his ambition to help shape the future of society.

# AI技術を社会に応用し、 近未来の暮らしを豊かにする

Applying AI Technology to Society for a  
More Enriched Future

## 党 少翔

名古屋大学大学院情報学研究科知能システム学専攻博士後期課程。専門分野は情報処理。



PhD candidate, department of intelligent systems, graduate school of informatics, Nagoya University. Specialization: information processing.



# SHAOXIANG DANG



コンピュータ支援外科分野における手術ロボットのビジョンシステムの研究に取り組む、李文達さん。医療画像処理は手術の精度と安全性を向上させる要であり、手術の成功率に大きな影響を与える領域だ。例えば腹腔鏡手術の際、カメラから対象部位までの深度が計測できれば3D画像を生成でき、より正確に安全に手術ができる。李さんは「技術が進化すれば、遠隔手術や自動診断システムにも応用できる」と考え、リアルタイムデータ処理とAIや機械学習を活用したビジョンアルゴリズムの開発に挑んでいる。

情報学分野から医療システムを探究してきた李さんにとって、医学分野の知識が得られるCIBoGは実に魅力的な環境だった。「多岐にわたる専門分野の知識を吸収でき、それが実際の研究にすぐに応用できる上、戦略的な思考やチームでの協働の重要性も知ることができました」と述懐。「しかも、リトリートなどで培った実践的なスキルは、国際学会でのプレゼンテーションやプロジェクトの進行管理などで役立っています」と評価する。

目指すのは、手術ロボットのビジョンシステムを世界標準の技術へ引き上げること。「そのために国際共同研究に挑戦し、これまで未解決だった課題に対する新たなアプローチを模索しながら高精度なビジョンシステムの開発や手術中のリアルタイムフィードバックシステムの強化を進めたい」と次を見据える。「患者さんにより良い技術を提供したい」という李さんの決意が、そう遠くない日に高精度な手術ロボットを当たり前にするはずだ。

Wenda Li is dedicated to researching vision systems for surgical robots in the field of computer-assisted surgery. Medical image processing plays a critical role in improving the precision and safety of surgeries, significantly influencing success rates. For instance, in laparoscopic surgery, the ability to measure the depth from the camera to the target site allows for the generation of 3D images, enabling more precise and safer procedures. Wenda Li envisions that advancements in this technology could extend to applications such as remote surgery and automated diagnostic systems. To achieve this, he is tackling the development of vision algorithms that leverage real-time data processing, AI, and machine learning. For Wenda Li, who has been exploring medical systems from the perspective of informatics, CIBoG provided an incredibly attractive research environment. "Here, I can absorb knowledge from various specialized fields and apply it to my research. I've also learned the importance of strategic thinking and teamwork. Moreover, the practical skills gained through retreats and other activities have been invaluable for presentations at international conferences and project management," he shared. Wenda Li's ultimate goal is to elevate the vision systems of surgical robots to a global standard. "To achieve this, I aim to engage in international collaborative research, develop high-precision vision systems, and strengthen real-time feedback systems during surgery," he explained. His commitment to "providing better technology for patients" is paving the way for a future where high-precision surgical robots become a standard in medical practice.

## ビジョンシステム技術を磨き、手術ロボットを進化させる

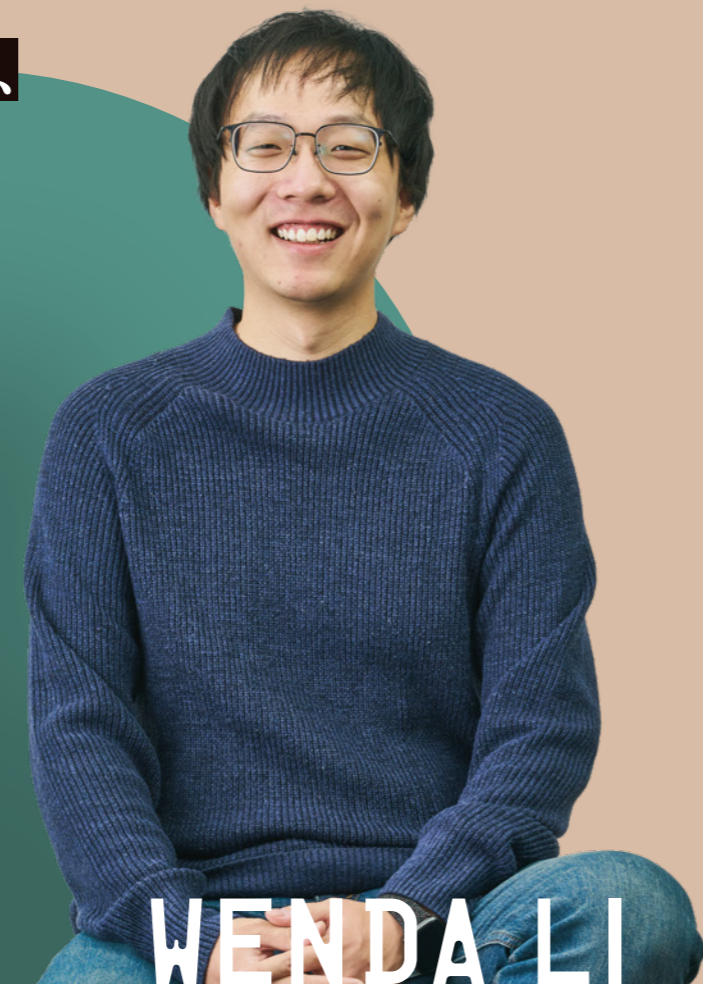
Refining Vision System Technology to Advance Surgical Robots

### 李文達

2025年3月、名古屋大学大学院情報学研究科知能システム専攻博士後期課程修了。専門分野は知能システム。引き続き所属研究室でビジョンシステムの研究を推進。



In March 2025, I completed the doctoral program in Intelligent Systems at the Graduate School of Informatics, Nagoya University. My research specializes in intelligent systems, and I will continue to advance vision system research in my affiliated laboratory.



WENDA LI

## 自分の専門性を 超えたときこそ、 新しい可能性が見つかる

New possibilities emerge when you step beyond your own expertise.

### 椎名 健

2025年3月、名古屋大学大学院創薬科学研究科基礎創薬学専攻博士後期課程修了。工学・情報・創薬と自ら異分野融合の道を進み、修了後は大手IT企業へ。



Completed the doctoral program (Ph.D.) in the Department of Basic Medicinal Sciences, Graduate School of Pharmaceutical Sciences at Nagoya University in March 2025. Having forged his own path across the fields of engineering, information science, and pharmaceutical sciences, he will join a major IT company after graduation.



TAKERU SHIINA



工学部から情報学研究科へと進み、CIBoGのリトリートをきっかけに博士後期課程は創薬科学研究科を選んだ椎名健さん。データベースの研究、医療画像処理の研究、創薬科学分野での細胞画像解析などを経験し、専門知識とスキル、多方向の視点を身につけてきた。飽くなき好奇心を力に前進してきた椎名さんが、大きな経験になったと熱弁するのがドイツ・フライブルク大学への留学だ。CIBoGで鍛えた英語力でコミュニケーションの障壁を取り除き、現地の医学系研究者と変形性膝関節症に関する共同研究を推進。ディープラーニングを用いた軟骨細胞の画像解析は取材時も続いており、実になりつつあると笑顔を見せる。このまま生命医科学研究の道へと思いきや、修了後はデータサイエンティストとしてビッグデータ分析に取り組む予定と明かす。「これまで多様なバックグラウンドを持つ人とコラボレーションしてきて、研究者にもいろいろなキャリアパスがあることを知りました。自分の興味や適性を客観的に捉えられるようになり、主体的な進路選択の助けにもなりましたね」さらなる展望を聞くと「培った技術のライフサイエンスへの還元」と語り、経験を積み重ねた後はベンチャー立ち上げも視野に入れる。「生命科学や医療とデータサイエンスの接点を探り、技術を社会に還元する仕組みを作りたいんです」。「CIBoGは、自分の専門性を超えた可能性を広げてくれる場」と評するその姿には、分野をつないで伸びやかに能力を発揮する次代の博士人材像が見えてくる。

Originally an engineering student, Takeru Shiina went on to enroll in the Graduate School of Informatics. Inspired by a CIBoG retreat, he then decided to pursue his doctoral studies at the Graduate School of Pharmaceutical Sciences. His research has encompassed databases, medical imaging, and cell image analysis within the pharmaceutical sciences, equipping him with specialized knowledge, a diverse technical skill set, and a well-rounded perspective. Driven by boundless curiosity, Shiina cites his study abroad at the University of Freiburg in Germany as a truly transformative experience. Thanks to the English proficiency he honed through CIBoG, he was able to overcome language barriers and effectively conduct joint research on osteoarthritis with local medical researchers. His deep learning-based cartilage cell analysis work continued at the time of this interview, with Shiina smiling at its tangible progress. Although continuing in biomedical research might seem like a natural path, Shiina reveals his plan to become a data scientist specializing in big data analysis after completing his doctoral program. "By working with people from diverse backgrounds, I discovered the wide range of career options available to researchers," he explains. "Understanding my own interests and strengths helped me make proactive decisions about my future." Looking ahead, Shiina aims to "give back the expertise I've cultivated to the life sciences," and is even considering launching a startup. "I want to explore the intersection of life sciences, medicine, and data science to build mechanisms for returning technology to society," he says. Describing CIBoG as "a place that broadens your horizons beyond your own specialty," Shiina embodies the image of the next generation of Ph.D. talent—bridging multiple fields and making the most of that synergy to unlock his full potential.

## 可能性を秘めた糖鎖研究で、 個別化医療の実現に貢献を

Advancing Glycan Research to Contribute to  
the Realization of Personalized Medicine

### 富田 晟太

2025年3月岐阜大学大学院連合農学研究科生物資源科学専攻博士後期課程修了。専門分野は糖鎖生物学。修了後はポストドク研究員として引き続き糖鎖の生合成の制御について研究する。



Completion of the Doctoral Course in Science of Biological Resources, United Graduate School of Agricultural Science, Gifu University in March 2025. Specialized in glycobiology. Following graduation, he will continue researching the regulation of glycan biosynthesis as postdoctoral researcher.



# SEITA TOMIDA

糖鎖の生合成や代謝に関わる生命現象の解明をテーマに、学部時代から研究を続けてきた富田晟太さん。生合成に関わる酵素の研究と医学系の疾患研究を組み合わせることで、治療に結びつくストラテジーが構築できると考え、CIBoGの履修を決めたと言う。

富田さんが取り組む糖鎖研究は、病気の原因解明や治療法の開発につながる大きな可能性を秘めている。「糖鎖の量が適切に制御される仕組みを明らかにできれば、糖尿病やがんといった疾患の予防や治療に役立つはず。そこを目指して、糖鎖合成に関わる酵素や分子の挙動を研究し、生命現象のメカニズム解明に挑戦していきたい」と夢を明かす。

そんな富田さんの研究者としての幅を広げたのは、CIBoGでの学びだ。「情報学や医学の講義を通じて従来の研究分野を越える知識を得られたことで、分子や細胞から個体、ヒトレベルまで多角的な視点から研究を進められるようになりました。また、それまでは解析データを受け取るだけでしたが、結果を自分で解釈できるようになり成長を感じています」

CIBoGリトリートの実行委員長として企画・運営を牽引し、共同研究に必要なリーダーシップや実行力、調整力を培ってきたのも富田さんの強みだ。「これからは国内の研究室で糖鎖の研究を続けながら、糖鎖の生合成を切り口に予防医療や個別化医療に貢献できる研究を進めたい」と語る。その志は医療に光を当て、より多くの命を救う糸口となるに違いない。

Mr. Tomida has been conducting research on the elucidation of biological phenomena related to glycan biosynthesis and metabolism since his doctoral research. He decided to pursue CIBoG program, believing that integrating research on glycan biosynthetic enzymes with medical studies on diseases could lead to the development of novel therapeutic strategies. Glycan research holds great potential for elucidating disease mechanisms and developing therapeutic approaches. "If we can uncover the mechanisms that precisely regulate expression levels of glycan, it could contribute to the prevention and treatment of diseases such as diabetes and cancer. To achieve this, I am investigating the behavior of enzymes and molecules involved in glycan biosynthesis, aiming to elucidation the underlying biological mechanisms," he explains. CIBoG program have broadened his perspective as a researcher. "Through lectures in informatics and medical science, I have got interdisciplinary knowledge that extends beyond my original research field. This has enabled me to approach research from a multi-scale perspective, ranging from molecules and cells to whole organisms and humans. Previously, I would only analyze provided data; however, I now have the ability to interpret results independently, which has been a significant step in my growth." Additionally, Mr. Tomida has developed strong leadership, execution, and coordination skills through his role as the chairperson of the CIBoG retreat, where he led planning and management efforts. "Moving forward, I aim to continue glycan research in a domestic laboratory while contributing to preventive and personalized medicine through the study of glycan biosynthesis," he said. His dedication to research is expected to shed new light on medical advancements and contribute to saving lives.

「新しい薬を自分の手で作り、世に送り出すことが目標です」と語るZHOU YUJUNさん。その挑戦は、子どもの頃に抱いた夢から始まった。医療従事者の家庭に育ち、病院で「こういう薬があればいいのに」という何気ない会話を聞いたことがきっかけだ。「だったら私が」と決心し、創薬への熱意を持ち続けてきた。

ZHOUさんにとって、CIBoGの学習支援は心強い味方となった。「英会話プログラムを通じて英語力が向上し、国際学会での発表や論文投稿がスムーズに行えるようになりました」と振り返る。現在はドイツ語も学び、世界での活躍を目指す。さらに、CIBoG主催の企業との交流イベントでは、イキイキと働く企業研究者の姿にふれ、製薬企業への就職を決意する契機となった。

就職後は化学合成を専門とする研究者として、新しい医薬品の種となるシード化合物を作り出す前臨床研究に携わる。職場は製薬企業やバイオベンチャーが集まる「湘南ヘルスイノベーションパーク」にあり、積極的に企業間コミュニケーションを取りながら、日本最先端の医薬研究に取り組んでいくつもりだ。その先にはCIBoGで学習したプログラミング知識を駆使し、社内DXを推進するほか、標的に合わせた新規シード化合物のデザインやスクリーニングをより効率的に行うためのAI開発も視野に入れる。

「CIBoGで得た情報学や医学の知識を基盤に、これまでにない画期的な新薬の開発を進めたい」と次代を見つめるZHOUさん。確かな足取りで、創薬のイノベーションに向かって進み出している。

Born into a family with several medical professionals, Yujun Zhou spent most of her childhood in hospitals and had many opportunities to interact with doctors working in the actual medical field. Once, a doctor said regretfully, "If there is such a medicine, we could have helped more patients". These words made such a strong impression on her, but she replied without any hesitation, "If so, I'll make the drugs for you!" Although few people at the time remembered this episode, "however," Zhou says, "that is why I'm here now."

On the path to her dream, Zhou received a lot of support from the CIBoG program. She gives us an example, "thanks to the English conversation lessons, I can practice my English skills with native English speakers, which helps me to give presentations at international conferences and write academic papers." She is currently studying German as a fourth foreign language with the ai, of becoming active on the world stage in the future.

After graduating from UGSAS, Zhou will work as a researcher specializing in chemical synthesis for a private pharmaceutical company located in the Shonan Health Innovation Park. In this workplace, she plans to engage in cutting-edge pharmaceutical research in Japan while actively engaging in inter-company communication. Furthermore, she is also looking forwards to participating in the development of drug discovery AI, a recent trend that will make breakthrough novel therapeutics more efficient.

Zhou says, "I would like to promote the development of unprecedented next-generation therapeutics based on the informatics and medical knowledge gained from the CIBoG program." There is no doubt that she will keep working hard for future innovation of therapeutics.

## 医薬品×AI、 創薬にイノベーションを 起こすために

Drug × AI,  
For Future Innovation  
For Novel Therapeutics

### シュウ・イククン

2025年3月岐阜大学大学院連合農学研究科生物資源科学専攻博士後期課程修了。専門分野は核酸医薬・核酸有機化学。修了後はあすか製薬株式会社で新規医薬品の開発に取り組む。



Ph. D. in oligonucleotide therapeutics and organic chemistry for nucleic acids, who will graduate from the United Graduate School of Agricultural Sciences (UGSAS), Gifu University by March 2025, and will be engaged in development of new therapeutics at Asuka Pharmaceuticals Co. after graduation.



# YUJUN ZHOU

