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2014-Present	Professor, The University of Tokyo
2009-2014	Professor, Kyushu University
2002-2009	Assistant Professor, Kyoto University
2001-2002	Postdoctoral Fellow, Stanford University, USA
2001 PhD	Kyoto University
1998 MS	Kyoto University
1996 BS	Kyoto University

Research Interests:

Molecular Imaging, Peptide Pharmaceuticals, High throughput screening, DNA-encoded library

Selected Publications:

1. Iori Tamura, Daichi M. Sakamoto, Bo Yi, Yutaro Saito, Naoki Yamada, Jumpei Morimoto, Yoichi Takakusagi, Masafumi Kuroda, Shumpei I. Kubota, Hiroyuki Yatabe, Minoru Kobayashi, Hiroshi Harada, Kazuki Tainaka, and Shinsuke Sando*
   "Click3D: Click reaction across deep tissues for whole-organ 3D fluorescence imaging"
   Science Advances **2024**, *10*, eado8471.

2. Daichi M. Sakamoto, Iori Tamura, Bo Yi, Sho Hasegawa, Yutaro Saito, Naoki Yamada, Yoichi Takakusagi, Shimpei I. Kubota, Hiroshi Harada, Kenjiro Hanaoka, Masayasu Taki, Masaomi Nangaku, Kazuki Tainaka*, and Shinsuke Sando*
   "Whole-body and whole-organ 3D imaging of hypoxia using activatable covalent fluorescent probe compatible with tissue clearing"
   ACS Nano **2024**, *18*, 5167–5179.

3. Yuki Hosono, Satoshi Uchida, Moe Shinkai, Chad E. Townsend, Colin N. Kelly, Matthew R. Naylor, Hsiau-Wei Lee, Kayoko Kanamitsu, Mayumi Ishii, Ryosuke Ueki, Takumi Ueda, Koh Takeuchi, Masatake Sugita, Yutaka Akiyama*, Scott R. Lokey*, Jumpei Morimoto* and Shinsuke Sando*
   "Amide-to-ester substitution as a stable alternative to N-methylation for increasing membrane permeability in cyclic peptides"
   Nature Communications **2023**, *14*, 1416.

4. Yutaro Saito, Hiroyuki Yatabe, Iori Tamura, Yohei Kondo, Ryo Ishida, Tomohiro Seki, Keita Hiraga, Akihiro Eguchi, Yoichi Takakusagi, Keisuke Saito, Nobu Oshima, Hiroshi Ishikita, Kazutoshi Yamamoto, Murali C. Krishna,* Shinsuke Sando*
   "Structure-guided design enables development of a hyperpolarized molecular probe for the detection of aminopeptidase N activity in vivo"
   Science Advances **2022**, *8*, eabj2667.

DNA Encoded Library Based on Recording by Synthesis

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Abstract

DNA Encoded Library (DEL) is a method that leverages chemical synthesis technology and DNA encoding techniques. Various DELs have been developed to date, leading to the discovery of biologically active molecules. In DELs, the synthesis history of compounds is recorded using DNA barcodes. Currently, the enzyme ligation method is widely used for constructing DNA barcodes.

However, due to the chemical fragility of DNA barcodes in response to repeated organic reactions, the feasible organic reactions that can be employed are limited. This also restricts the number of repetitive units in the process of DEL construction.

To address these challenges, several approaches have been explored. We focus on constructing DNA barcodes based on chemical synthesis methods (*Recording by Synthesis*). We report on our investigation into chemically synthesized DNA barcodes that can withstand the necessary coupling reactions.