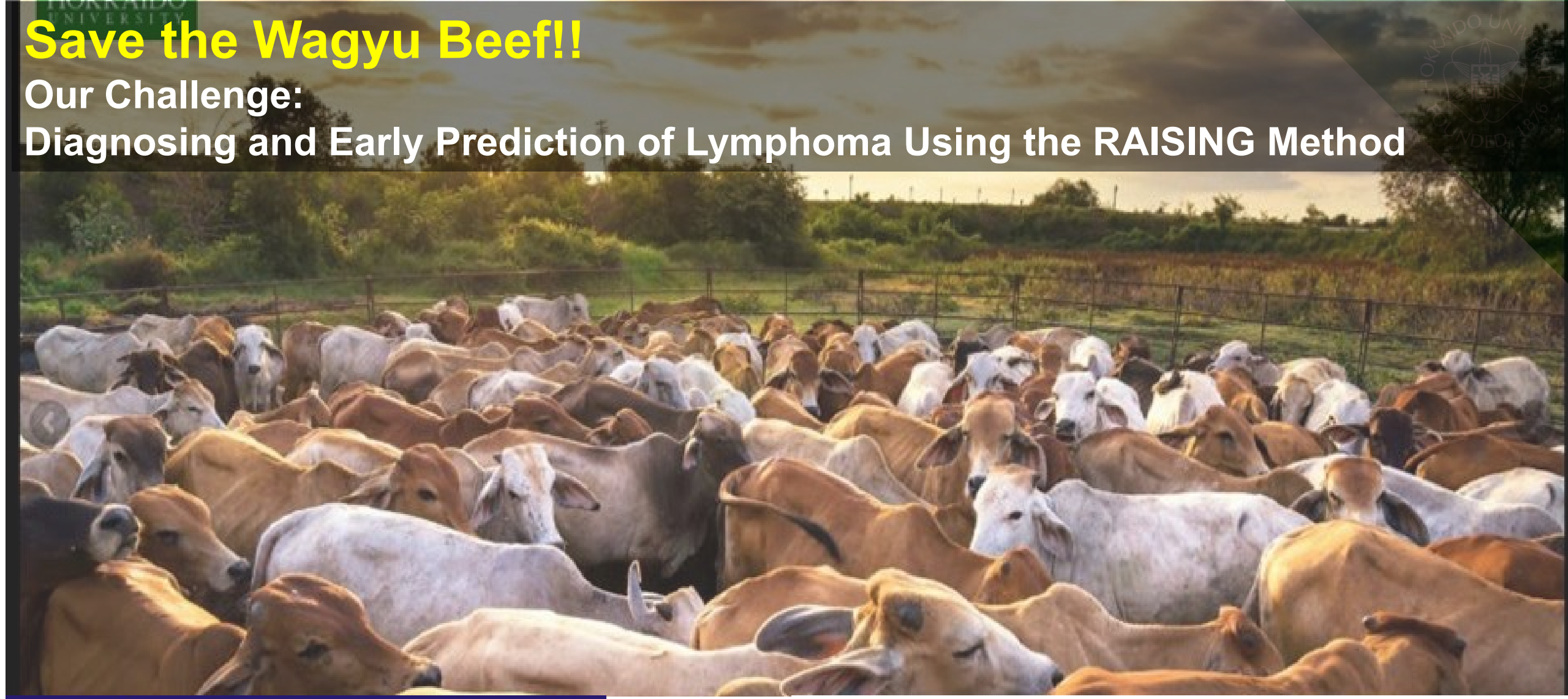
Save the Wagyu Beef!!

Our Challenge:
Diagnosing and Early Prediction of Lymphoma Using the RAISING Method



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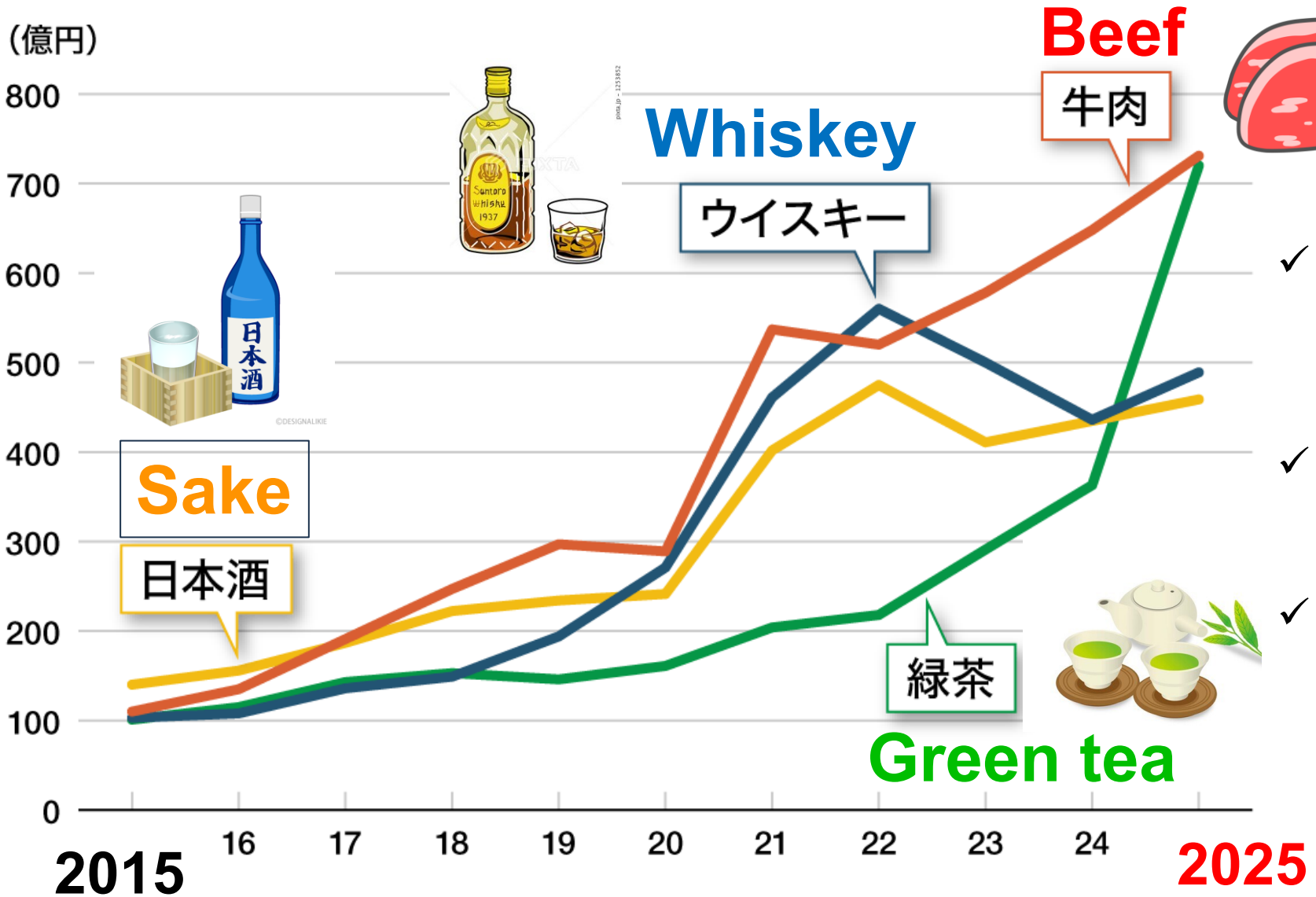
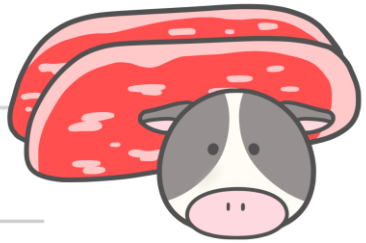
Trends in Japan's Export Value



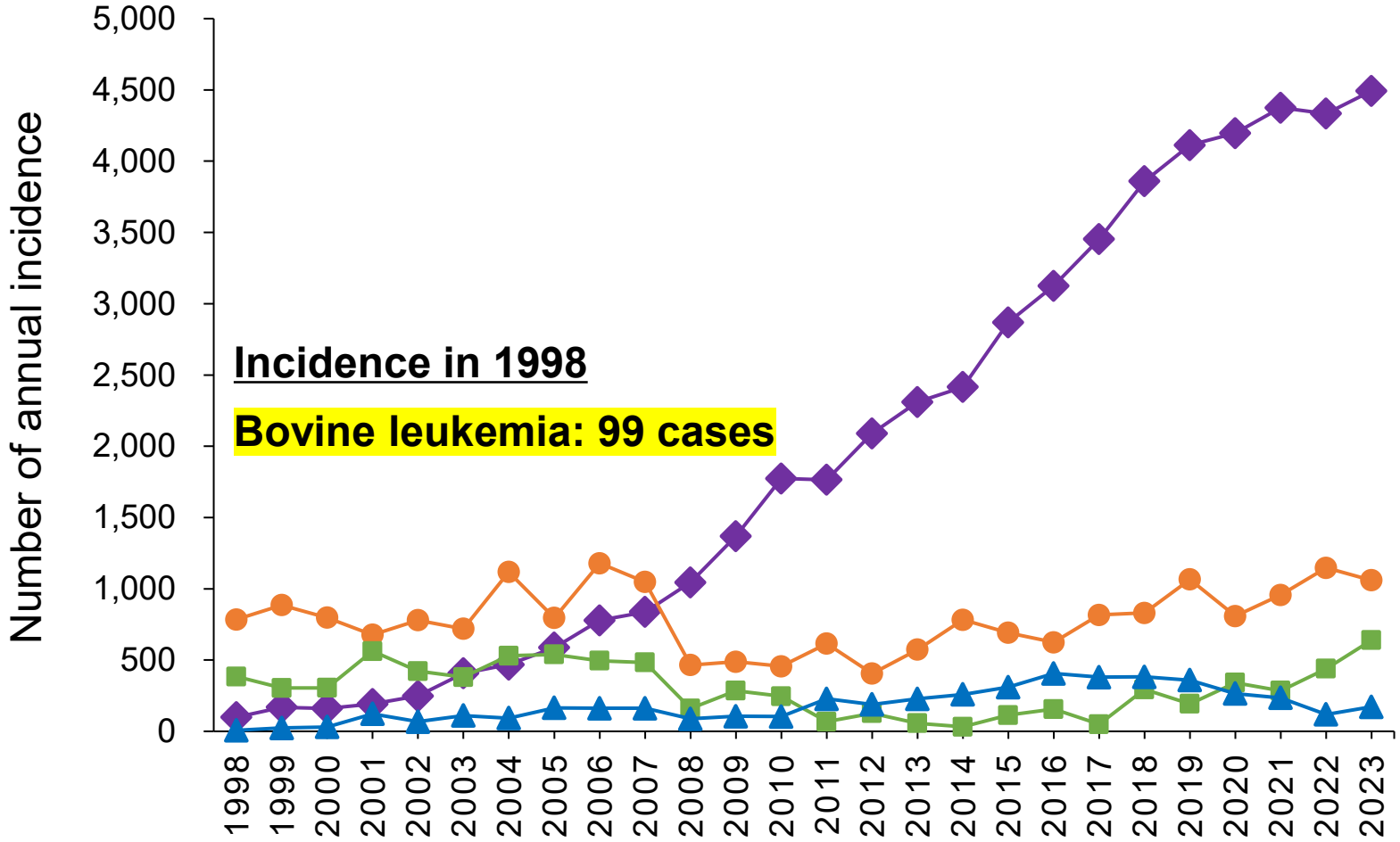


- ✓ **Exports of agricultural, fishery, and food products from Japan have been increasing year by year.**
- ✓ **This is mainly because Japanese food has become more popular around the world**
- ✓ **The exports of sake, whiskey, green tee and beef have surged.**

出典：農林水産省

https://www.nippon.com/ja/japan-data/h02743/?utm_source=openai

Monitored infectious diseases of cattle in Japan



Incidence in 2023

Bovine leukemia: 4,493 cases

Johne's disease: 1,060 cases

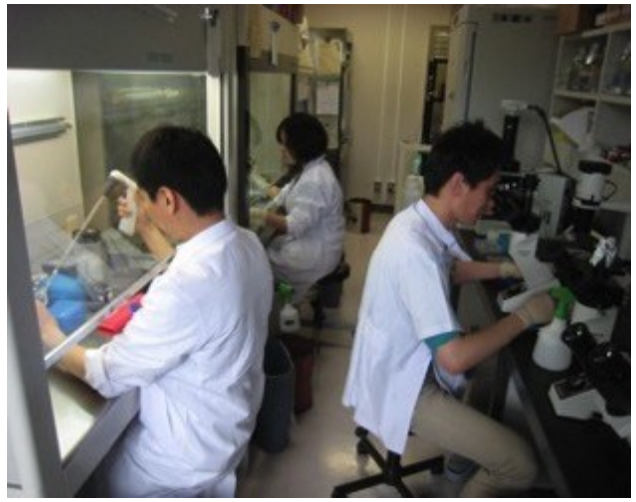
Salmonellosis: 639 cases

Bovine viral diarrhea: 172 cases

(Data source: Ministry of Agriculture, Forestry and Fisheries, Japan)

The incidence of bovine leukemia has been increasing and is the most common monitored infectious disease of cattle.

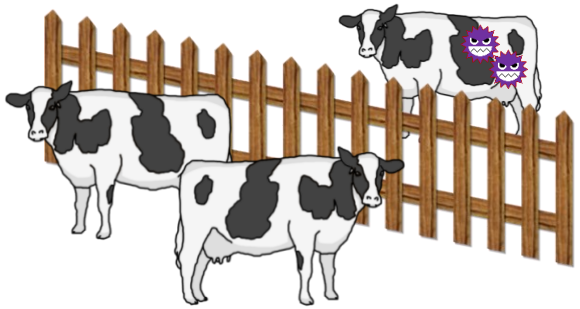
Our research activities against BLV infection at Hokkaido University(1976～)



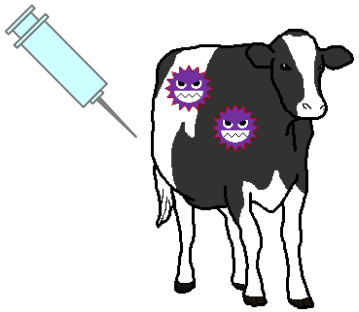
Prof. Onuma

Research approaches

1 Risk analysis of viral transmission ⇒ Herd control of infection



2 Immunological analysis ⇒ Development of BLV vaccine

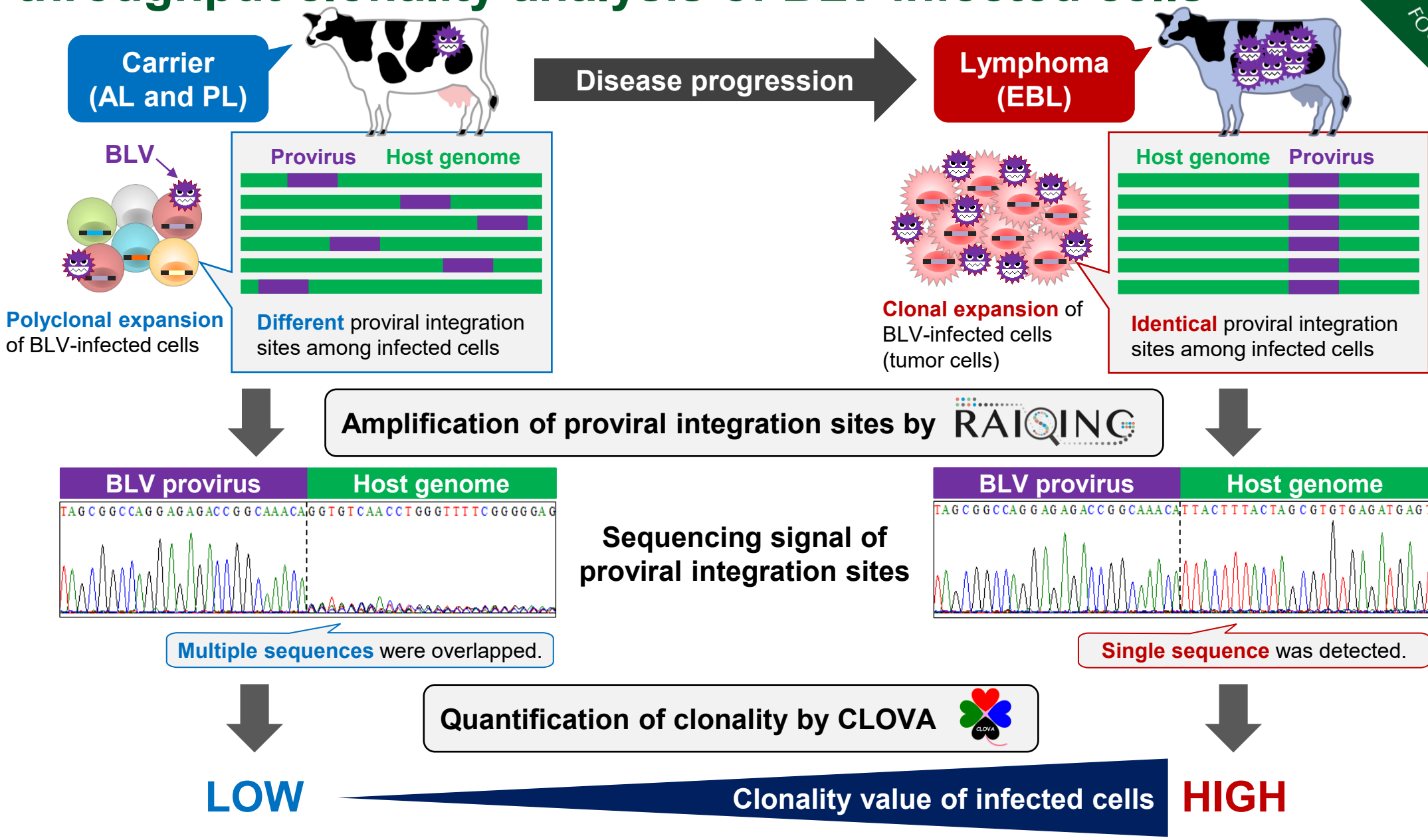


3 Clonality analysis ⇒ Early prediction and confirmation of EBL

RAIQING

Rapid Amplification of Integration Site without Interference by Genomic DNA contamination

RAISING:
High-throughput clonality analysis of BLV-infected cells



Future prospects for clonality diagnosis ‘RAISING’

Clinical application of “Bovine Cancer Screening”
to predict leukemia/lymphoma development

Reduction of economic losses
through detection and preferential culling of high-risk cattle

High-risk animal for EBL onset !!

RAIQING

Rapid Amplification of Integration Site without Interference by Genomic DNA contamination

communications biology

ARTICLE

https://doi.org/10.1038/s42003-022-03467-w OPEN

RAISING is a high-performance method for identifying random transgene integration sites

Yusaku Wada[1,23], Tomoo Sato[2,3,23], Hiroo Hasegawa[4,5,23], Takahiro Matsudaira[1,23], Naganori Nao[6,7], ...ohiko Tasaka[9], Shunsuke Yamauchi[4], Tomohiro Okagawa[10], ...anio[11], Madoka Kuramitsu[11], Daisuke Sasaki[4], Nariyoshi Matsumoto[4], ...hi[2], Natsumi Araya[2], Kenichiro Tanabe[12], Makoto Yamagishi[13], ...akahata[14], Hidekatsu Iha[15], Masao Ogata[16], Masamichi Muramatsu[17], ...himaru[13], Yasushi Miyazaki[18,19], Satoru Konnai[10,20], Katsunori Yanagihara[4,5], ...atanabe[21], Yoshihisa Yamano[2,3,24] & Masumichi Saito[17,22,24]✉

AMERICAN SOCIETY FOR MICROBIOLOGY | Microbiology Spectrum

RESEARCH ARTICLE
November/December 2022 Volume 10 Issue 6 e02595-22
https://doi.org/10.1128/spectrum.02595-22

Diagnosis and Early Prediction of Lymphoma Using High-Throughput Clonality Analysis of Bovine Leukemia Virus-Infected Cells

Tomohiro Okagawa[a], Honami Shimakura[b], Satoru Konnai[a,b], Masumichi Saito[c,d], Takahiro Matsudaira[e], Naganori Nao[f,g], Shinji Yamada[h,i], Kenji Murakami[h,i], Naoya Maekawa[b], Shiro Murata[a,b], Kazuhiko Ohashi[a,b]

PRESS RELEASE 2022/10/21

北海道大学 HOKKAIDO UNIVERSITY | NIID 国立感染症研究所 | FASMAC | 岩手大学 IWATE UNIVERSITY | 公益財団法人 伊藤記念財団 The Ito Foundation

牛のリンパ腫発症を予測するがん検診技術を開発

～発症予測法の実用化による畜産被害の軽減に期待～

ポイント

- ウイルス感染細胞のクローナリティ解析技術を開発し、牛伝染性リンパ腫の診断と発症予測に成功。
- 現在、解析キットの市販化と臨床現場におけるがん検診の実用化に向けて、研究開発を展開。
- ウシのがん検診の実用化により、畜産被害の軽減と生産性の向上に期待。

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