

## Rapid clinical application of specific inhibitors targeting refractory gastrointestinal cancer stem cells

### Principal Investigator

Department of Medical Data Science, Graduate School of Medicine,  
Osaka University  
Professor Hideshi ISHII

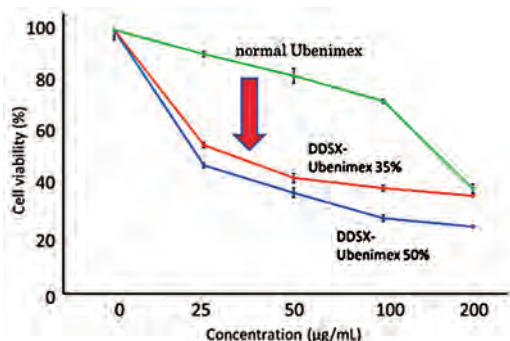
### Project Outline

## A Novel DDS loaded with Ubenimex, a Specific CD13 Inhibitor, to Target Refractory Gastrointestinal Cancer Stem Cells

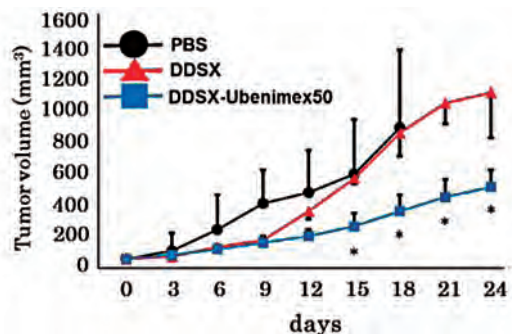
### Background

- We reported CD13 as a marker of cancer stem cells (CSCs) in patients with hepatocellular carcinoma (HCC). (*J Clin Invest* 2010)
- As a specific CD13 inhibitor, Ubenimex has been used as a maintenance therapy for adult acute non-lymphatic leukemia (ANLL) in Japan.
- The effective dose of Ubenimex for HCC needs to be much higher than the currently used dose for ANLL.

We developed a novel drug delivery system (DDS) loaded with Ubenimex to enhance its efficacy for CSCs in HCC.



The anti-cancer effect of Ubenimex was enhanced.



DDSX-Ubenimex suppressed tumor growth.

### Reference

- Patents
  - Japan: 2018-013678
  - Global: Applying
- Journals
  - *J Clin Invest* 2010;120(9):3326–3339.
  - *Oncogene* 2019;38(2):244-260.

### Business Opportunity

- Collaboration
  - Nonclinical safety experiments (monkey etc.)
  - Manufacturing (GLP, GMP grade)
- Funding
  - Clinical development

Contact to: TEL : 06-6210-8406 / FAX : 06-6210-8407 E-mail : hishii@gesurg.med.osaka-u.ac.jp

Works are underway with regard to: target disease, patent information, technical features, marketability, development challenges, business opportunity sought (joint development, licensing-out, etc.), information to clarify the division of roles between companies and academia.