Drug Discovery Research Partner-Seeking Program

(Wish list)

2018

EA Pharma Co., Ltd.

Research Institute

**Objectives and Background**

As a Japanese specialty pharma in the field of gastrointestinal disease, EA Pharma Co., Ltd. aims to be a human health care (*hhc*) company that can get close to patients suffering from gastrointestinal diseases through specialized research and development as well as a unique product lineup, and provide a wide range of solutions to patients and their families. In order to fill the further medical needs of patients, we wish to seek cooperation/collaborative study in drug discovery, drug development, and basic technologies.

1. **Drug candidates and New drug discovery targets project**

**Inflammatory bowel disease (IBD)**

1. New drug targets or drug candidates related to the factors described below that correct the immune response to the antigen by a mechanism different from existing anti-inflammatory drugs. Recent studies have shown that IBD is a heterozygous disorder characterized by excessive immune response or immunodeficiency against certain enteric factors.
2. Activation of antigen recognition of innate immune cells (excluding TLR agonists)
3. induction of immune tolerance and reconfiguration of immune system to excessive immune response
4. Complete elimination / reconstruction of immunological memory
5. Resolution of inflammation
6. New drug targets or drug candidates related to the factors described below that have a beneficial effect on the regulation of mucosal barrier function in human small intestine. IBD is associated with decreased mucous barrier function and altered microbial species. Altered microbes can degrade the mucous layer or inhibit mucin production and delay epithelial wound repair. These mechanisms are assumed to be involved in the etiology and / or severity of IBD.
7. Suppression of mucous degradation and erosion in human small intestine (exclude those caused by infectious diseases)
8. Promotion of epithelial cell wound healing in human small intestine (exclude growth hormones)

**Non-alcoholic steatohepatitis (NASH)**

1. Drug candidates that have high inhibitory effect on ballooning, inflammation and fibrosis of the liver by a mechanism of action different from those of FXR agonist or PPAR agonist, and is expected to have high safety.
2. Drug candidates or new drug targets that can identify a specific patient population through the analysis of clinical pathophysiology of NASH and show an effect specifically on the patient population.
3. Drugs or compounds that can be advanced early to the clinical development stage through drug re-positioning or other techniques.

The above-mentioned drug discovery candidate is a lead compound confirmed to have high activity, and it is desirable to obtain in vivo efficacy data in the NASH model. Modality is low molecular compound, nucleic acid medicine, antibody, peptide medicine etc.

**Irritable bowel syndrome (IBS)**

1. New drug targets or drug candidates expected to improve IBS abdominal pain by ameliorating a central nervous system (CNS) abnormality (eg central sensitization) without adverse effects of diarrhea or constipation.

It is desirable that new drug targets or drug candidates have been shown to improve or supposed to improve either diarrhea or constipation, in addition to abdominal pain improvement.

In addition, it is desirable to be a new drug target or a drug candidate that can improve the abnormality of CNS as a result of peripheral tissue, peripheral nerve as the primary target, not the CNS itself.

With respect to the above new drug target, priority is given to molecular targets suggested to be directly or indirectly related to clinical pathology of IBS, excluding probiotics, prebiotics, synbiotics and food ingredients

**NSAIDs-induced mucosal injury in small intestine**

1. New drug discovery candidates or drug targets that are expected to have preventive or therapeutic effects through action on mucosal epithelial barrier, mucosal blood flow, intestinal bacteria, etc. against small intestinal mucosal injury caused by chronic use of NSAIDs or low dose aspirin.

It is desirable that the drug candidate has a clear target molecule. Drug targets should be expected to be safe without adverse effects such as influence on immune function and diarrhea.

Excluding prostaglandin supplements (such as PGE derivatives), antibiotics, improving agents of NSAIDs (improvement of formulation, novel anti-inflammatory analgesic targets that do not cause mucosal injury, etc.), probiotics, prebiotics, synbiotics and food ingredients.

**Gastrointestinal adverse effects by treatment of other diseases**

1. Drug candidates that are expected to be exert a preventive or therapeutic effects against gastrointestinal adverse effects caused by treatment of various diseases including cancer (such as anticancer agent-induced mucosal injury).

The drug discovery candidates mentioned above should be clinical development products prior to the clinical proof of concept (PoC) study or candidates for nonclinical development which have already completed or are implementing the GLP study.

**Other gastrointestinal diseases (Excluding oncology)**

Drug candidates or new drug targets that are expected to exert a therapeutic effect against gastrointestinal diseases (e.g. chronic pancreatitis and rare gastrointestinal diseases), for which patients have not been satisfied with treatments.

1. **Technology project related to diseases**

**Non-alcoholic steatohepatitis (NASH)**

1. New in vitro assay techniques mimicking human liver and reflecting the pathophysiology of NASH, such as fibrosis in humans.
2. New simple techniques to identify progression of fibrosis in NASH.
3. Biomarkers enabling quantitative determination of symptoms, severity, and prognosis of NASH.
4. Technologies enabling efficient delivery of nucleic acid to the cells that can be the therapeutic targets of NASH. Specific examples: hepatic stellate cells, immune cells, etc.

**Irritable bowel syndrome (IBS)**

1. Simple and non-invasive biomarkers that can select the IBS patients with visceral hypersensitivity.
2. Animal model that reflects the abnormality of CNS and exhibits chronic visceral hyperalgesia (essential) or gastrointestinal motility dysfunction (diarrhea or constipation, or both).

**NSAIDs-induced mucosal injury in small intestine**

1. In nonclinical practice, biomarker candidates and technologies that can non-invasively measure mucosal injury of the small intestine; That is, technologies and biomarker candidates that can be expected to be applied to clinical diagnosis and evaluation, and technologies and biomarker candidates for the sequential and quantitative evaluation of inflammation of the small intestine without using radio isotope (RI).