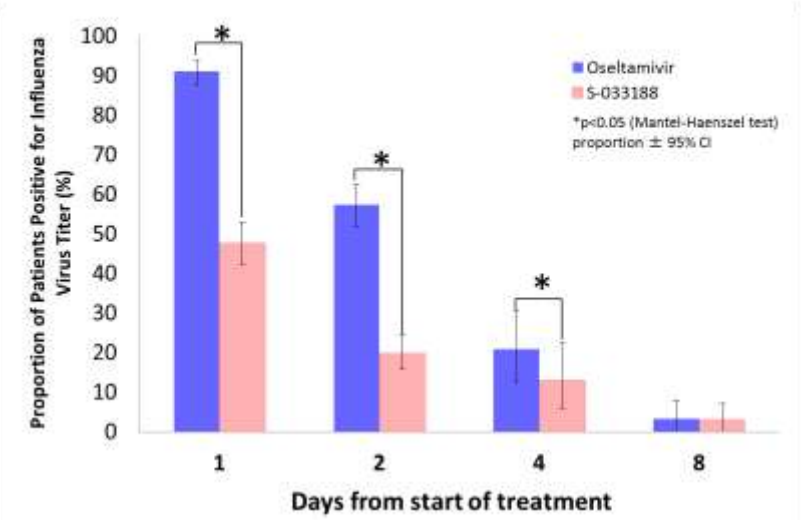
SHIONOGI TO PRESENT S-033188 PHASE 3 CAPSTONE-1 STUDY RESULTS FOR TREATMENT OF INFLUENZA AT IDWEEK 2017

OSAKA, Japan and FLORHAM PARK, NJ, October 5, 2017 – Shionogi & Co., Ltd. (hereafter "Shionogi") today announced it will report results of a S-033188 Phase 3 study in otherwise healthy influenza patients (CAPSTONE-1) at IDWeek™ 2017, held in San Diego, October 4-8. S-033188 is a novel cap-dependent endonuclease inhibitor with potent anti-viral efficacy for the treatment of influenza.

Key findings from the CAPSTONE-1 study will be presented on Saturday, October 7 and highlights include the following:

- Significant improvement in time to alleviation of symptoms (TTAS) compared with placebo. S-033188 demonstrated superiority to placebo in TTAS; the median TTAS was 53.7 hours in the S-033188 group, compared to 80.2 hours in the placebo group ($p<0.0001$). TTAS was similar between S-033188 and oseltamivir groups.
- Significant improvement compared with placebo or oseltamivir for important virological endpoints. The percentage of patients determined to be positive for influenza virus titer was significantly lower in the S-033188 group compared to the oseltamivir group at one, two and four days from the start of treatment (Figure 1). In addition, the time to cessation of viral shedding was significantly decreased in the S-033188 compared with the oseltamivir group.

Figure 1: Proportion of Patients Positive for Influenza Virus Titer by Time Point Compared with Oseltamivir (ITTI, Subgroup: Age ≥ 20)



- Significantly faster resolution of fever compared to placebo (median time to resolution of fever 24.5 versus 42.0 hours, $p<0.0001$).
- S-033188 was generally well tolerated with a numerically lower overall incidence of adverse events (20.7%) compared with placebo (24.6%) or oseltamivir (24.8%). S-033188 demonstrated a statistically significant decrease in the incidence of treatment-related adverse events compared to oseltamivir ($p=0.0088$).

In addition to Phase 3 results, Shionogi will present nonclinical efficacy data in combination with neuraminidase inhibitors. In one study, S-033188 demonstrated synergistic anti-viral activity *in vitro* when combined with neuraminidase inhibitors and in a separate study, significant improvement in mortality and body weight in mice infected with a lethal dose of influenza A virus when used in

combination with oseltamivir.

Based on the results from CAPSTONE-1, Shionogi plans to submit a New Drug Application (NDA) to the Pharmaceuticals and Medical Devices Agency (PMDA) in Japan this year. Shionogi is currently conducting another global Phase 3 study (CAPSTONE-2) in individuals at high risk for influenza-related complications; patient enrollment in the study is ongoing. A U.S. NDA is planned.

About CAPSTONE-1 study
The CAPSTONE-1 study was a randomized, double-blind, multicenter, parallel-group, placebo- and active-controlled study that enrolled 1,436 otherwise healthy patients diagnosed with influenza. Patients aged 20 to 64 years were randomly assigned in a ratio of 2:1:2 to receive a single one-time oral dose of 40 or 80 mg of S-033188, according to body weight, placebo, or 75 mg BID of oseltamivir for 5 days. Patients in the 12 to 19 year age stratum were randomly assigned in a ratio of 2:1 to receive either a single dose of S-033188 or placebo. Patients who weighed <80 kg at screening received 40 mg of S-033188 and patients who weighed ≥80 kg at screening received 80 mg of S-033188.

About S-033188—an investigational product
S-033188 is a cap-dependent endonuclease inhibitor with a novel mechanism of action being studied for the treatment of influenza using a single one-time oral dosing regimen. Nonclinical studies with S-033188 demonstrated its anti-viral spectrum against not only seasonal influenza strains but also oseltamivir-resistant flu strains and avian flu strains (e.g. A/H7N9) of which potential outbreak is one of several global public health concerns. Development and commercialization of S-033188 are in collaboration with F. Hoffmann-La Roche Ltd.

About Influenza
Epidemic and pandemic influenza remain a major public health concern, and novel influenza drugs that will offer significant improvement over current therapy are urgently needed. Worldwide, annual influenza epidemics are estimated to result in 3 to 5 million cases of severe illness, and about 250,000 to 500,000 deaths.[1] In general, those at highest risk of influenza-related complications include children under 2 years of age, adults over 65 years of age, pregnant women, and people of any age with certain medical conditions, including chronic heart, lung, metabolic diseases (such as diabetes) and weakened immune systems.[2]

About Shionogi
Shionogi & Co., Ltd. is a major research-driven pharmaceutical company dedicated to bringing benefits to patients based on its corporate philosophy of “supplying the best possible medicine to protect the health and wellbeing of the patients we serve.” Shionogi’s research and development currently target two therapeutic areas: infectious diseases, and pain/CNS disorders. For over 50 years, Shionogi has developed and commercialized innovative oral and parenteral anti-infectives. In addition, Shionogi is engaged in new research areas, such as obesity/geriatric metabolic disease and oncology/immunology. Contributing to the health and quality of life of patients around the world through development in these therapeutic areas is Shionogi's primary goal. For more details, please visit www.shionogi.co.jp/en/. For more information on Shionogi Inc., the U.S.-based subsidiary of Shionogi & Co., Ltd., headquartered in Florham Park, NJ, USA, please visit www.shionogi.com. For more information on Shionogi Ltd., the UK-based subsidiary of Shionogi & Co. Ltd., headquartered in London, England, please visit www.shionogi.eu.

Forward Looking Statement
This announcement contains forward-looking statements. These statements are based on expectations in light of the information currently available, assumptions that are subject to risks and uncertainties which could cause actual results to differ materially from these statements. Risks and uncertainties include general domestic and international economic conditions such as general

industry and market conditions, and changes of interest rate and currency exchange rate. These risks and uncertainties particularly apply with respect to product-related forward-looking statements. Product risks and uncertainties include, but are not limited to, completion and discontinuation of clinical trials; obtaining regulatory approvals; claims and concerns about product safety and efficacy; technological advances; adverse outcome of important litigation; domestic and foreign healthcare reforms and changes of laws and regulations. Also for existing products, there are manufacturing and marketing risks, which include, but are not limited to, inability to build production capacity to meet demand, unavailability of raw materials and entry of competitive products. The company disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise.

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2. https://www.cdc.gov/flu/about/disease/high_risk.htm CDC website, People at High Risk of Developing Flu–Related Complications, Accessed October 3, 2017.