

Ipsen Completes Acquisition of ONIVYDE[®] (irinotecan liposome injection) and Additional Oncology Assets from Merrimack Pharmaceuticals

- **Significantly expands Ipsen's growing oncology portfolio**
- **Immediate U.S. commercialization rights for ONIVYDE[®] for metastatic pancreatic cancer in adult patients¹**

Paris (France), 3 April 2017 – Ipsen (Euronext: IPN; ADR: IPSEY) announced today that it has completed its acquisition of global oncology assets from Merrimack Pharmaceuticals, in Cambridge, MA., focusing on ONIVYDE[®] (irinotecan liposome injection) for the treatment of patients with metastatic adenocarcinoma of the pancreas after disease progression following gemcitabine-based therapy, in combination with fluorouracil and leucovorin.^{1,2} Ipsen has gained exclusive commercialization rights for the current and potential future indications for ONIVYDE[®] in the U.S., as well as the current licensing agreements with Shire for commercialization rights ex-U.S. and PharmaEngine for Taiwan. The acquisition also includes the Merrimack commercial and manufacturing infrastructure for ONIVYDE[®], and generic doxorubicin HCl liposome injection.

“The addition of ONIVYDE[®] to Ipsen's Oncology portfolio is very important, first and foremost for patients with pancreatic cancer across the U.S., as there are limited approved therapies,” said **Cynthia Schwalm, Executive Vice President and President, North American Commercial Operations, Ipsen**. “Together with our experienced commercial and medical teams and the legacy we have gained through the acquisition of ONIVYDE[®], we are confident in our ability to meet the growing needs of these patients.”

Along with this acquisition, Ipsen will continue to advance the clinical development program for ONIVYDE[®].

Financial terms of the acquisition include an upfront cash payment of \$575 million to Merrimack Pharmaceuticals, and up to \$450 million upon the approval of potential additional indications for ONIVYDE[®] in the U.S.

About Pancreatic Cancer

Pancreatic cancer is a rare and deadly disease with approximately 338,000³ new patients diagnosed globally each year, approximately 50,000 of which are in the United States⁴. More

¹ ONIVYDE[®] Full Prescribing Information Oct 2015 (v0.1) p. 2.

² ONIVYDE[®] is not indicated as a single agent for the treatment of patients with metastatic adenocarcinoma of the pancreas.

³ World Cancer Research Fund International. Cancer Facts and Figures. Pancreatic Cancer Statistics. Accessed on March 27, 2017. <http://www.wcrf.org/int/cancer-facts-figures/data-specific-cancers/pancreatic-cancer-statistics>



than half are diagnosed with metastatic disease, which has an overall 5-year survival rate of less than three percent⁴, and often rapidly progresses during or shortly after receiving chemotherapy⁵. Pancreatic cancer is the 3rd leading cause of cancer-related death in the United States, surpassing breast cancer.⁴ It is expected to become the 2nd leading cause of cancer-related death in the U.S. by the year 2030, surpassing colorectal cancer.^{4,6}

About ONIVYDE®

ONIVYDE® is an encapsulated formulation of irinotecan. This long-circulating liposomal form is designed to increase length of tumor exposure to both irinotecan and its active metabolite, SN-38. ONIVYDE® was approved by the U.S. FDA in combination with fluorouracil and leucovorin for the treatment of patients with metastatic adenocarcinoma of the pancreas after disease progression following gemcitabine-based therapy. For full prescribing information, including Boxed WARNING, please visit www.ONIVYDE.com.

IMPORTANT SAFETY INFORMATION - UNITED STATES

INDICATION

ONIVYDE® (irinotecan liposome injection) is indicated, in combination with fluorouracil (5-FU) and leucovorin (LV), for the treatment of patients with metastatic adenocarcinoma of the pancreas after disease progression following gemcitabine-based therapy.

Limitation of Use: ONIVYDE® is not indicated as a single agent for the treatment of patients with metastatic adenocarcinoma of the pancreas.

WARNING: SEVERE NEUTROPENIA and SEVERE DIARRHEA

Fatal neutropenic sepsis occurred in 0.8% of patients receiving ONIVYDE®. Severe or life-threatening neutropenic fever or sepsis occurred in 3% and severe or life-threatening neutropenia occurred in 20% of patients receiving ONIVYDE® in combination with fluorouracil (5-FU) and leucovorin (LV). Withhold ONIVYDE® for absolute neutrophil count below 1500/mm³ or neutropenic fever. Monitor blood cell counts periodically during treatment.

Severe diarrhea occurred in 13% of patients receiving ONIVYDE® in combination with 5-FU/LV. Do not administer ONIVYDE® to patients with bowel obstruction. Withhold ONIVYDE® for diarrhea of Grade 2-4 severity. Administer loperamide for late diarrhea of any severity. Administer atropine, if not contraindicated, for early diarrhea of any severity.

⁴ American Cancer Society. Cancer Facts and Figures 2017. Atlanta: American Cancer Society; 2017. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2017/cancer-facts-and-figures-2017.pdf>

⁵ Ammermann et al. Decision Resources. Disease Landscape and Forecast: Pancreatic Cancer. June 2016.

⁶ Rahib et al AACR 2014



CONTRAINDICATION

ONIVYDE[®] is contraindicated in patients who have experienced a severe hypersensitivity reaction to ONIVYDE[®] or irinotecan HCl.

WARNINGS AND PRECAUTIONS

Severe Neutropenia

ONIVYDE[®] can cause severe or life-threatening neutropenia and fatal neutropenic sepsis. In a clinical study, the incidence of fatal neutropenic sepsis was 0.8% among patients receiving ONIVYDE[®], occurring in 1/117 patients in the ONIVYDE[®]/5-FU/LV arm and 1/147 patients receiving ONIVYDE[®] as a single agent. Severe or life-threatening neutropenia occurred in 20% of patients receiving ONIVYDE[®]/5-FU/LV vs 2% of patients receiving 5-FU/LV. Grade 3/4 neutropenic fever/neutropenic sepsis occurred in 3% of patients receiving ONIVYDE[®]/5-FU/LV, and did not occur in patients receiving 5-FU/LV.

In patients receiving ONIVYDE[®]/5-FU/LV, the incidence of Grade 3/4 neutropenia was higher among Asian (18/33 [55%]) vs White patients (13/73 [18%]). Neutropenic fever/neutropenic sepsis was reported in 6% of Asian vs 1% of White patients.

Severe Diarrhea

ONIVYDE[®] can cause severe and life-threatening diarrhea. Do not administer ONIVYDE[®] to patients with bowel obstruction. Severe and life-threatening late-onset (onset > 24 hours after chemotherapy) and early-onset diarrhea (onset ≤24 hours after chemotherapy, sometimes with other symptoms of cholinergic reaction) were observed. An individual patient may experience both early- and late-onset diarrhea.

In a clinical study, Grade 3/4 diarrhea occurred in 13% of patients receiving ONIVYDE[®]/5-FU/LV vs 4% receiving 5-FU/LV. Grade 3/4 late-onset diarrhea occurred in 9% of patients receiving ONIVYDE[®]/5-FU/LV vs 4% in patients receiving 5-FU/LV; the incidences of early-onset diarrhea were 3% and no Grade 3/4 incidences, respectively. Of patients receiving ONIVYDE[®]/5-FU/LV, 34% received loperamide for late-onset diarrhea and 26% received atropine for early-onset diarrhea.

Interstitial Lung Disease (ILD)

Irinotecan HCl can cause severe and fatal ILD. Withhold ONIVYDE[®] in patients with new or progressive dyspnea, cough, and fever, pending diagnostic evaluation. Discontinue ONIVYDE[®] in patients with a confirmed diagnosis of ILD.

Severe Hypersensitivity Reactions

Irinotecan HCl can cause severe hypersensitivity reactions, including anaphylactic reactions. Permanently discontinue ONIVYDE[®] in patients who experience a severe hypersensitivity reaction.

Embryo-Fetal Toxicity

Based on animal data with irinotecan HCl and the mechanism of action of ONIVYDE[®], ONIVYDE[®] can cause fetal harm when administered to a pregnant woman. Advise pregnant women of the potential risk to a fetus. Advise females of reproductive potential to use effective contraception during and for 1 month after ONIVYDE[®] treatment.

ADVERSE REACTIONS

- The most common ($\geq 20\%$) adverse reactions in which patients receiving ONIVYDE[®]/5-FU/LV experienced a $\geq 5\%$ higher incidence of any Grade vs the 5-FU/LV arm, were diarrhea (any 59%, 26%; severe 13%, 4%) (early diarrhea [any 30%, 15%; severe 3%, 0%], late diarrhea [any 43%, 17%; severe 9%, 4%]), fatigue/asthenia (any 56%, 43%; severe 21%, 10%), vomiting (any 52%, 26%; severe 11%, 3%), nausea (any 51%, 34%; severe 8%, 4%), decreased appetite (any 44%, 32%; severe 4%, 2%), stomatitis (any 32%, 12%; severe 4%, 1%), pyrexia (any 23%, 11%; severe 2%, 1%).
- Of less common ($< 20\%$) adverse reactions, patients receiving ONIVYDE[®]/5-FU/LV who experienced Grade 3/4 adverse reactions at a $\geq 2\%$ higher incidence of Grade 3/4 toxicity vs the 5-FU/LV arm, respectively, were sepsis (3%, 1%), neutropenic fever/neutropenic sepsis (3%, 0%), gastroenteritis (3%, 0%), intravenous catheter-related infection (3%, 0%), weight loss (2%, 0%), and dehydration (4%, 2%).
- The laboratory abnormalities in which patients receiving ONIVYDE[®]/5-FU/LV experienced a $\geq 5\%$ higher incidence vs the 5-FU/LV arm, were anemia (any 97%, 86%; severe 6%, 5%), lymphopenia (any 81%, 75%; severe 27%, 17%), neutropenia (any 52%, 6%; severe 20%, 2%), thrombocytopenia (any 41%, 33%; severe 2%, 0%), increased alanine aminotransferase (any 51%, 37%; severe 6%, 1%), hypoalbuminemia (any 43%, 30%; severe 2%, 0%), hypomagnesemia (any 35%, 21%; severe 0%, 0%), hypokalemia (any 32%, 19%; severe 2%, 2%), hypocalcemia (any 32%, 20%; severe 1%, 0%), hypophosphatemia (any 29%, 18%; severe 4%, 1%), hyponatremia (any 27%, 12%; severe 5%, 3%), increased creatinine (any 18%, 13%; severe 0%, 0%).
- ONIVYDE[®] can cause cholinergic reactions manifesting as rhinitis, increased salivation, flushing, bradycardia, miosis, lacrimation, diaphoresis, and intestinal hyperperistalsis with abdominal cramping and early-onset diarrhea. Grade 1/2 cholinergic symptoms other than early diarrhea occurred in 12 (4.5%) ONIVYDE[®]-treated patients.
- Infusion reactions, consisting of rash, urticaria, periorbital edema, or pruritus, occurring on the day of ONIVYDE[®] administration were reported in 3% of patients receiving ONIVYDE[®] or ONIVYDE[®]/5-FU/LV.
- The most common serious adverse reactions ($\geq 2\%$) of ONIVYDE[®] were diarrhea, vomiting, neutropenic fever or neutropenic sepsis, nausea, pyrexia, sepsis, dehydration, septic shock, pneumonia, acute renal failure, and thrombocytopenia.

DRUG INTERACTIONS



Avoid the use of strong CYP3A4 inducers, if possible, and substitute non-enzyme-inducing therapies ≥ 2 weeks prior to initiation of ONIVYDE[®]. Avoid the use of strong CYP3A4 or UGT1A1 inhibitors, if possible, and discontinue strong CYP3A4 inhibitors ≥ 1 week prior to starting therapy.

USE IN SPECIFIC POPULATIONS

Pregnancy and Reproductive Potential

Advise pregnant women of the potential risk to a fetus. Advise males with female partners of reproductive potential to use effective contraception during and for 4 months after ONIVYDE[®] treatment.

Lactation

Advise nursing women not to breastfeed during and for 1 month after ONIVYDE[®] treatment.

Pediatric

Safety and effectiveness of ONIVYDE[®] have not been established in pediatric patients.

DOSAGE AND ADMINISTRATION

The recommended dose of ONIVYDE[®] is 70 mg/m² intravenous (IV) infusion over 90 minutes every 2 weeks, administered prior to LV and 5-FU. The recommended starting dose of ONIVYDE[®] in patients known to be homozygous for the UGT1A1*28 allele is 50 mg/m² administered by IV infusion over 90 minutes. There is no recommended dose of ONIVYDE[®] for patients with serum bilirubin above the upper limit of normal. Premedicate with a corticosteroid and an anti-emetic 30 minutes prior to ONIVYDE[®]. Withhold ONIVYDE[®] for Grade 3/4 adverse reactions. Resume ONIVYDE[®] with reduced dose once adverse reaction recovered to \leq Grade 1. Discontinue ONIVYDE[®] in patients who experience a severe hypersensitivity reaction and in patients with a confirmed diagnosis of ILD.

Do not substitute ONIVYDE[®] for other drugs containing irinotecan HCl.

Please see full U.S. [Prescribing Information](#) for ONIVYDE[®].

About Generic Doxorubicin HCl Liposome Injection

Generic doxorubicin HCl Liposome Injection is currently being evaluated by the U.S. Food and Drug Administration (FDA) for the potential treatment of ovarian cancer, multiple myeloma and Kaposi's sarcoma. Teva retains the worldwide commercial rights for this product, and Ipsen will be eligible to receive milestones and shared profits from potential sales.

About Ipsen in North America

Ipsen Biopharmaceuticals, Inc. is the US affiliate of Ipsen, a global specialty driven pharmaceutical group. The US head office is located in Basking Ridge, New Jersey. Ipsen Biopharmaceuticals Canada, Inc. is an integrated business unit within North America and has its head office located in Mississauga, Ontario. Ipsen Bioscience, Inc., the Ipsen US research and



development center focused on peptide research in oncology and endocrinology, is located in Cambridge, Massachusetts. At Ipsen Bioscience, we focus on creating a highly cooperative and passionate R&D organization through partnerships, innovation, and continuous learning to effectively deliver new treatments for patients. At Ipsen Biopharmaceuticals, we focus our resources, investments, and energy on discovering, developing, and commercializing new therapeutic options for oncologic, neurologic, and endocrine diseases. For more information on Ipsen in North America, please visit www.ipsenus.com or www.ipsen.ca.

About Ipsen

Ipsen is a global specialty-driven pharmaceutical group with total sales close to €1.6 billion in 2016. Ipsen sells more than 20 drugs in more than 115 countries, with a direct commercial presence in more than 30 countries. Ipsen's ambition is to become a leader in specialty healthcare solutions for targeted debilitating diseases. Its fields of expertise cover oncology, neurosciences and endocrinology (adult & pediatric). Ipsen's commitment to oncology is exemplified through its growing portfolio of key therapies improving the care of patients suffering from prostate cancer, neuro-endocrine tumors, renal cell carcinoma and pancreatic cancer. Ipsen also has a significant presence in primary care. Moreover, the Group has an active policy of partnerships. Ipsen's R&D is focused on its innovative and differentiated technological platforms, peptides and toxins, located in the heart of the leading biotechnological and life sciences hubs (Les Ulis/Paris-Saclay, France; Slough/Oxford, UK; Cambridge, US). In 2016, R&D expenditures exceeded €200 million. The Group has more than 4,900 employees worldwide. Ipsen's shares are traded on segment A of Euronext Paris (stock code: IPN, ISIN code: FR0010259150) and are eligible to the "Service de Règlement Différé" ("SRD"). The Group is part of the SBF 120 index. Ipsen has implemented a Sponsored Level I American Depositary Receipt (ADR) program, which trades on the over-the-counter market in the United States under the symbol IPSEY. For more information on Ipsen, visit www.ipsen.com.

Forward Looking Statement

The forward-looking statements, objectives and targets contained herein are based on the Group's management strategy, current views and assumptions. Such statements involve known and unknown risks and uncertainties that may cause actual results, performance or events to differ materially from those anticipated herein. All of the above risks could affect the Group's future ability to achieve its financial targets, which were set assuming reasonable macroeconomic conditions based on the information available today. Use of the words "believes," "anticipates" and "expects" and similar expressions are intended to identify forward-looking statements, including the Group's expectations regarding future events, including regulatory filings and determinations. Moreover, the targets described in this document were prepared without taking into account external growth assumptions and potential future acquisitions, which may alter these parameters. These objectives are based on data and assumptions regarded as reasonable by the Group. These targets depend on conditions or facts likely to happen in the future, and not exclusively on historical data. Actual results may depart significantly from these targets given the occurrence of certain risks and uncertainties, notably the fact that a promising product in early development phase or clinical trial may end up never being launched on the market or reaching its commercial targets, notably for regulatory or competition reasons. The Group must face or might face competition from generic products that might translate into a loss of market share. Furthermore, the Research and Development

process involves several stages each of which involves the substantial risk that the Group may fail to achieve its objectives and be forced to abandon its efforts with regards to a product in which it has invested significant sums. Therefore, the Group cannot be certain that favorable results obtained during pre-clinical trials will be confirmed subsequently during clinical trials, or that the results of clinical trials will be sufficient to demonstrate the safe and effective nature of the product concerned. There can be no guarantees a product will receive the necessary regulatory approvals or that the product will prove to be commercially successful. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements. Other risks and uncertainties include but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of pharmaceutical industry regulation and health care legislation; global trends toward health care cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; the Group's ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of the Group's patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions. The Group also depends on third parties to develop and market some of its products which could potentially generate substantial royalties; these partners could behave in such ways which could cause damage to the Group's activities and financial results. The Group cannot be certain that its partners will fulfil their obligations. It might be unable to obtain any benefit from those agreements. A default by any of the Group's partners could generate lower revenues than expected. Such situations could have a negative impact on the Group's business, financial position or performance. The Group expressly disclaims any obligation or undertaking to update or revise any forward looking statements, targets or estimates contained in this press release to reflect any change in events, conditions, assumptions or circumstances on which any such statements are based, unless so required by applicable law. The Group's business is subject to the risk factors outlined in its registration documents filed with the French Autorité des Marchés Financiers.

The risks and uncertainties set out are not exhaustive and the reader is advised to refer to the Group's 2015 Registration Document available on its website (www.ipsen.com).

ONIVYDE® is a registered trademark of Ipsen Biopharm Ltd.

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