Impact Biomedicines Presents Analysis at the 2017 ASH Annual Meeting Suggesting that Fedratinib Did Not Increase Wernicke Encephalopathy Risk in Phase 2 and 3 Myelofibrosis Clinical Trials

SAN DIEGO — December 11, 2017 — Impact Biomedicines today presented a case review on fedratinib, a selective oral small molecule JAK2 kinase inhibitor that is being developed for the treatment of myelofibrosis (MF) and polycythemia vera (PV), in a poster session at the 59th American Society of Hematology (ASH) Annual Meeting, taking place on December 9-12, 2017 in Atlanta, GA.

The poster titled "Case Series of Potential Wernicke Encephalopathy in Patients treated with Fedratinib," demonstrated that patients treated with fedratinib in clinical trials did not experience a decrease in thiamine levels, and the prevalence of Wernicke Encephalopathy (WE) in the trials was less than originally perceived for patients with myeloproliferative neoplasms.

"Wernicke encephalopathy is a preventable and treatable condition that can be associated with myeloproliferative neoplasms due to splenomegaly-related malnutrition and neurological symptoms, and is sometimes difficult to diagnose due to comorbidities in these patients," said Dr. Catriona Jamieson, Interim Chief Medical Officer of Impact Biomedicines. "After in-depth analysis of the fedratinib data, we were able to determine that there was only 1 clear case of WE and that occurred in a significantly malnourished and debilitated patient." Concurrently, Dr. Jamieson serves as Professor of Medicine and Chief of Regenerative Medicine, Deputy Director of the Sanford Stem Cell Clinical Center, Co-leader of the Hematologic Malignancies Program, and Director of Stem Cell Research at the Moores UC San Diego Cancer Center.

Results presented in the poster included a retrospective analysis of clinical reports showing that thiamine levels and MRI results from the 8 subjects

suspected to have WE clearly supported a diagnosis of WE in only 1 of 877 treated subjects. The diagnosed patient entered the fedratinib clinical trial with >10% weight loss and had preceding protracted nausea and vomiting, suggesting this as a contributing factor to malnutrition and thiamine deficiency. This patient was treated with IV thiamine and WE was considered resolved 2 months later.

“The retrospective identification of suspected Wernicke encephalopathy was the major impediment to fedratinib clinical development in 2013,” said Dr. John Hood, Chief Executive Officer of Impact Biomedicines. “Our extensive case review has shown us that fedratinib does not inhibit thiamine uptake. Furthermore, there are data to suggest WE is a condition already associated with myeloproliferative neoplasms, and can be treated with thiamine and prevented with proper nutrition. This discovery enables us to move forward with getting fedratinib into the hands of patients who need it.”

In JAKARTA-1, a completed international Phase 3 pivotal trial for the treatment of myelofibrosis, fedratinib met its primary and secondary endpoints by reducing spleen size in 47% of patients by $\geq$35% at 24 weeks ($p<0.0001$) and improving symptom score in 36% of patients by $\geq$50% at 24 weeks ($p< 0.0001$)[1]. Comparable responses were seen in patients with normal or low platelet counts and thrombocytopenia was similar between placebo and the target dose of 400mg. In JAKARTA-2, a study in patients who were unresponsive to all other available therapies, including patients who were either Jakafi® (ruxolitinib) resistant or intolerant, fedratinib showed similar activity[2]. In that study, 55% of patients who had failed or were intolerant to ruxolitinib experienced a spleen size reduction of $\geq$35% with fedratinib. Notably, responses were noted in 63% of patients intolerant to ruxolitinib and 61% of patients who had lost ruxolitinib response. Currently, ruxolitinib is the only drug approved by the FDA to treat patients with MF and PV. The most common adverse events for fedratinib were hematological (anemia) and gastrointestinal (nausea, diarrhea and vomiting). The results of these trials have been published in leading peer-reviewed journals.

The poster can be accessed via the “presentations and publications” section of the Impact website.

About Impact Biomedicines
Impact Biomedicines is pioneering the development of life changing treatments for patients with complex cancers. The Company's pipeline is centered around fedratinib, a potent and highly selective oral small molecule, JAK2 kinase inhibitor that is being developed initially for the treatment of myelofibrosis (MF) and polycythemia vera (PV).

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[1] Pardanani A, Harrison CN, Cortes JE, et al. Results of a randomized, double-blind, placebo-controlled phase III study (JAKARTA) of the JAK2-selective inhibitor fedratinib (SAR302503) in patients with myelofibrosis (MF) Blood. 2013;122(21):393.
[2] Harrison CN, Schaap N, Vannucchi AM, et al. Janus kinase-2 inhibitor fedratinib in patients with myelofibrosis previously treated with ruxolitinib (JAKARTA-2): a single-arm, open-label, non-randomised, phase 2, multicentre study. Lancet Haematol. 2017 Jul;4(7):e317-e324.

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