X4 Pharmaceuticals to Present Clinical Data Used to Determine Phase 3 Dose from Phase 2/3 Study of X4P-001-RD in WHIM Syndrome

November 1, 2018

Study designed to evaluate X4P-001-RD in a rare genetic, primary immunodeficiency disease to be presented at the American Society of Hematology meeting

CAMBRIDGE, MA, November 1, 2018 – X4 Pharmaceuticals, a clinical stage biotechnology company developing novel CXCR4 antagonist drugs to improve immune cell trafficking to treat rare disease and cancer, today announced that an abstract highlighting X4P-001-RD, the company's CXCR4 antagonist, has been selected for poster presentation at the 60th Annual American Society of Hematology (ASH) meeting, taking place Dec. 1-4 in San Diego. The presentation will describe Phase 2 results used to determine the Phase 3 dose in the ongoing Phase 2/3 study of X4P-001-RD in patients with WHIM syndrome, a rare genetic, primary immunodeficiency disease.

Details of the presentation on X4P-001-RD in WHIM syndrome are as follows:

- **Title:** Determination of Phase 3 Dose for X4P-001 in Patients with WHIM Syndrome
- **Date & Time:** Saturday, December 1, 6:15 PM – 8:15 PM
- **Location:** San Diego Convention Center, Hall GH
- **Publication #:** 1102
- **Poster Session:** 201. Granulocytes, Monocytes, and Macrophages: Poster I

About WHIM Syndrome
WHIM syndrome is a primary immunodeficiency disease caused by genetic mutations in the CXCR4 receptor gene resulting in susceptibility to certain types of infections. WHIM is an abbreviation for the characteristic clinical symptoms of the syndrome: Warts, Hypogammaglobulinemia, Infections, and Myelokathexis. Within the overall category of primary immunodeficiencies, there are between 15,000 and 100,000 patients in the U.S. that are classified with primary immunodeficiency disease of unknown origin – of which WHIM is one.1,2,3 WHIM syndrome is a rare disorder and the precise prevalence or incidence of patients that have the genetic mutation responsible for WHIM syndrome is unknown. Individuals with WHIM syndrome are more susceptible to potentially life-threatening bacterial infections4. Additionally, WHIM syndrome is associated with significant morbidity beginning in early childhood and continuing throughout life. Current therapy is limited to treatment of acute infections with antibiotics or prevention through the use of intravenous immunoglobulin or G-CSF. There is no approved therapy for the treatment of WHIM syndrome.

About X4 Pharmaceuticals
X4 Pharmaceuticals is developing novel therapeutics designed to improve immune cell trafficking to treat rare diseases and cancer. The Company's oral small molecule drug candidates antagonize the CXCR4 pathway, which plays a central role in immune surveillance. X4's most advanced product candidate is in a Phase 2/3 clinical trial in patients with WHIM syndrome, a rare genetic, primary immunodeficiency disease, and is currently under investigation in multiple clinical trials in solid tumors. X4 was founded and is led by a team with deep product development and commercialization expertise, including several former members of the Genzyme leadership team, and is located in Cambridge, MA. For more information, visit x4.theyatesnetwork.com.

[1] Boyle JM, Buckley, RH, Population Prevalence of Diagnosed Primary Immunodeficiency Diseases in the United States. *J Clin Immunol* 2007;27:497–502.

[2] Gathmann B, Grimbacher B, et al. The European internet-based patient and research database for primary immunodeficiencies: results 2006–2008. *Clin Exp Immunol.* 2009 Sep;157 Suppl 1:3-11.

[3] Modell V, Gee B, et al. Global study of primary immunodeficiency diseases (PI) — diagnosis, treatment, and economic impact: an updated report from the Jeffrey Modell Foundation. *Immunol Res.* 2011;51:61–70.

[4] Primary Immunodeficiency Foundation: https://primaryimmune.org/disease/whim-syndrome

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