Selecta Biosciences Initiates Head-to-Head Clinical Trial (COMPARE) of SEL-212 vs. KRYSTEXXA® in Patients with Chronic Refractory Gout and Strengthens Management Team

-First patient enrolled in COMPARE trial evaluating efficacy and safety of SEL-212 v. KRYSTEXXA® in patients with chronic refractory gout
-Strengthened management and clinical teams with the appointments of Elona Kogan, J.D. as General Counsel & Corporate Secretary and Horacio Plotkin, MD, FAAP as Head of Clinical Development

Watertown, Mass., March 29, 2019 – Selecta Biosciences, Inc. (NASDAQ: SELB), a clinical-stage biotechnology company focused on unlocking the full potential of biologic therapies based on its immune tolerance platform technology, ImmTOR, today announced the initiation of a six month head-to-head clinical trial (COMPARE), designed to evaluate superiority of its lead product candidate, SEL-212 (ImmTOR + Pegadricase), compared to KRYSTEXXA, the current U.S. Food and Drug Administration (FDA) - approved uricase therapy in adult patients with chronic refractory gout. Additionally, the company has also strengthened its management and clinical development teams with the appointments of Elona Kogan, J.D. as General Counsel and Corporate Secretary, and Horacio Plotkin, MD, FAAP as Head of Clinical Development.

"We are excited about the opportunity to demonstrate the superiority of SEL-212 compared to the current FDA-approved uricase therapy, as we continue to believe that our product candidate has the potential to fulfill several unmet needs in chronic refractory gout patients, including sustained serum uric acid reduction, reduced painful flares and once monthly dosing. We expect to report interim six-month data in the fourth quarter of 2019," said Dr. Carsten Brunn, President and CEO of Selecta Biosciences. "Additionally, we are pleased to welcome both Elona and Horacio to the Selecta team. Their extensive experience in the biopharmaceutical industry will be instrumental as we continue to develop our ImmTOR platform for rare and serious diseases that require new treatment options."

"I am delighted to join Selecta and to work with such driven and accomplished colleagues. This is a pivotal time for the company as we kick off the COMPARE trial with the aim of making significant therapeutic advances in chronic refractory gout and continue advancing Selecta's promising ImmTOR gene therapy platform," said Ms. Kogan. "Physicians and patients are relying on the delivery of novel treatments to improve patients' lives and I am eager to contribute to this mission."

The COMPARE trial is expected to enroll between 100 and 150 patients and is designed to compare the efficacy and safety of SEL-212 to Krystexxa in adult patients with chronic refractory gout. The primary endpoint is expected to be the maintenance of serum uric acid (sUA) levels of <6mg/dL at six months. An interim six-month data readout is projected in the fourth quarter of 2019 with a full statistical superiority data analysis readout expected in the first quarter of 2020. The results of the COMPARE trial are expected to inform the design of the planned Phase 3 clinical trial of SEL-212, which the company plans to initiate in the fourth quarter of 2019.

Key Management Appointments:

Elona Kogan, J.D. joins Selecta as General Counsel and Corporate Secretary after most recently serving as General Counsel and head of Government Relations at ARIAD Pharmaceuticals, Inc., a rare disease oncology company, where she was a key executive through the acquisition of the company by Takeda Pharmaceuticals Company Limited. Prior to joining ARIAD, Ms. Kogan led the legal and government affairs functions of a publicly traded pharmaceutical company, dedicated to developing treatments for central nervous system disorders, where she played a central role in the strategic acquisition of the company by Otsuka Pharmaceutical Co. Ltd. Prior roles included positions of increasing responsibility at King Pharmaceuticals, Inc., Bristol-Myers Squibb, and Bergen Brunswig Corporation. Ms. Kogan is a graduate of the SCALE program at Southwestern University School of Law. Ms. Kogan graduated cum laude from Columbia University, Barnard College, with a degree in economics. Ms. Kogan is also a member of the board of directors of a biotechnology company and serves as the Chairperson of the Compensation Committee, and a member of the Audit Committee.

Horacio Plotkin, MD, FAAP brings 20 years of clinical pediatric experience and 12 years in biotech to Selecta Biosciences as the new Head of Clinical Development. Most recently, he was Head of Clinical Development, Rare Diseases at Moderna Therapeutics. Dr. Plotkin is also an Adjunct Associate Professor of Pediatrics and Orthopedic Surgery at the University of Nebraska School of Medicine and is a member of the scientific advisory board for several rare disease patient advocacy organizations and a member of the Advances in Therapeutics and Technology section at the American Academy of Pediatrics. He has authored eight chapters in medical textbooks and more than 50 scientific papers and presented more than 70 abstracts in national and international scientific meetings. Dr. Plotkin has previously held positions at Genzyme, Enobia, Alexion, Retrophin, Shire and PPD, and from 2002 to 2007 he was the founder and medical director of the Pediatric Bone Diseases program within the Metabolic Diseases Department at University of Nebraska. Dr. Plotkin earned his medical degree from the University of Buenos Aires School of Medicine. He performed a pediatrics residency, followed by fellowships in pediatric endocrinology at the J. P. Garrahan Pediatric Hospital, metabolic bone diseases at the Metabolic Research Institute, endocrinology at the Yale University School of Medicine and pediatric metabolic bone diseases at the Shriners Hospital for Children and McGill University.

About Selecta Biosciences, Inc.

Selecta Biosciences, Inc. is a clinical-stage biotechnology company focused on unlocking the full potential of biologic therapies based on its immune tolerance technology (ImmTOR) platform. Selecta plans to combine ImmTOR with a range of biologic therapies for rare and serious diseases that require new treatment options due to high immunogenicity. The company's current proprietary pipeline includes ImmTOR-powered therapeutic enzyme and gene therapy product candidates. SEL-212, the company's lead product candidate, is being developed to treat chronic refractory gout patients and resolve their debilitating symptoms, including flares and gouty arthritis. Selecta's proprietary gene therapy product candidates are in preclinical development for certain rare inborn errors of metabolism

and incorporate ImmTOR with the goal of addressing barriers to repeat administration. Selecta is based in Watertown, Massachusetts. For more information, please visit http://selectabio.com.

Forward-Looking Statements

Any statements in this press release about the future expectations, plans and prospects of Selecta Biosciences, Inc. ("the company"), including without limitation, statements regarding the progress of the Phase 2 clinical trial of SEL-212, the anticipated timing of the planned Phase 2 head-to-head (COMPARE) clinical trial comparing SEL-212 and Krystexxa, related data readouts and expectations surrounding the ability of the COMPARE results to inform the planned Phase 3 clinical trial of SEL-212, the anticipated timing of the planned Phase 3 clinical trial, whether the head-to-head trial with Krystexxa will demonstrate superiority, the potential of ImmTOR to enable re-dosing of AAV gene therapy and the anticipated timing of preclinical toxicology studies in collaboration with CureCN and initiation of a clinical trial related thereto, the potential of SEL-212 to fulfill unmet needs in chronic refractory gout patients including sustained sUA reduction, reduced flares, and once monthly dosing, the company's commercial plans, the ability of the company's ImmTOR platform, including SEL-212, to unlock the full potential of biologic therapies, the potential of SEL-212 to treat chronic refractory gout patients and resolve their debilitating symptoms, the potential treatment applications for product candidates utilizing the ImmTOR platform in areas such as enzyme therapy and gene therapy, the company's plan to apply its ImmTOR technology platform to a range of biologics for rare and serious diseases, the potential of the company's two gene therapy product candidates to enable repeat administration, the potential of the ImmTOR technology platform generally and the company's ability to grow its strategic partnerships, the roles of Ms. Kogan and Dr. Plotkin, Ms. Kogan's, Dr. Plotkin's, and our ability to perform as expected, the sufficiency of the company's cash, cash equivalents and short-term investments, and other statements containing the words "anticipate," "believe," "continue," "could," "estimate," "expect," "hypothesize," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "would," and similar expressions, constitute forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Actual results may differ materially from those indicated by such forward-looking statements as a result of various important factors, including, but not limited to, the following: the uncertainties inherent in the initiation, completion and cost of clinical trials including their uncertain outcomes, the availability and timing of data from ongoing and future clinical trials and the results of such trials, whether preliminary results from a particular clinical trial will be predictive of the final results of that trial or whether results of early clinical trials will be indicative of the results of later clinical trials, the unproven approach of the company's ImmTOR technology, potential delays in enrollment of patients, undesirable side effects of the company's product candidates, its reliance on third parties to manufacture its product candidates and to conduct its clinical trials, the company's inability to maintain its existing or future collaborations, licenses or contractual relationships, its inability to protect its proprietary technology and intellectual property, potential delays in regulatory approvals, the availability of funding sufficient for its foreseeable and unforeseeable operating expenses and capital expenditure requirements, the company's recurring losses from operations and negative cash flows from operations raise substantial doubt regarding its ability to continue as a going concern, substantial fluctuation in the price of its common stock, and other important factors discussed in the "Risk Factors" section of the company's Annual Report on Form 10-K for the year ended December 31, 2018, and in other filings that the company makes with the Securities and Exchange Commission. In addition, any forward-looking statements included in this press release represent the company's views only as of the date of its publication and should not be relied upon as representing its views as of any subsequent date. The

company specifically disclaims any obligation to update any forward-looking statements included in this press release.

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