**Selecta Biosciences Presents New Preclinical Data from its Gene Therapy Program at the American Society of Gene & Cell Therapy (ASGCT) 22nd Annual Meeting**

- *Highlights the Potential for Re-dosing of AAV-based Vectors when Administered in Combination with ImmTOR (SVP-Rapamycin)* -

**Watertown, Mass., April 16, 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 that five presentations of new preclinical data demonstrating the potential for the re-dosing of adeno-associated virus (AAV)-based gene therapy vectors when administered in combination with its ImmTOR (SVP-Rapamycin) platform will be presented by Selecta scientists and collaborators from the National Institutes of Health (NIH) and the International Centre for Genetic Engineering and Biotechnology (ICGEB) at the upcoming American Society of Gene and Cell Therapy (ASGCT) Annual Meeting from April 29 to May 2, 2019, in Washington, DC.

"The development of antibodies against the viral vectors used to deliver gene therapy has thus far impeded the ability to re-dose patients. These preclinical data highlight how the co-administration of our ImmTOR technology with AAV-based vectors suppresses the immune response to the vector, potentially enabling re-treatment to provide sustained therapeutic efficacy over time," said Carsten Brunn, CEO of Selecta Biosciences. "The ability to re-dose has the potential to increase the proportion of patients able to achieve therapeutic levels of the transgene expression, while avoiding potential toxicities associated with large vector doses. Gene therapy, in many cases, treats a very young patient population, so the prospect of repeat dosing is an essential element."

**Details of the five data presentations and key highlights include:**

**Oral Presentation Title:** *ImmTOR™ Tolerogenic Nanoparticles Enhance Transgene Expression after Both Initial and Repeat Dosing in a Mouse Model of Methylmalonic Acidemia Treated with an Anc80 AAV Vector*
**Authors:** Ilyinskii, et al.
**Abstract #:** 24
**Presentation date:** 8:15 AM ET, April 29, 2019

**Key Takeaways:**

- In a methylmalonic acidemia (MMA) mouse model, the repeated co-administration of Anc80-Mut, a rationally engineered AAV vector encoding the methylmalonic CoA transgene, and ImmTOR™ was well-tolerated and led to complete inhibition of IgG antibodies.
- Higher liver cell viral DNA copy number, sustained reduction of serum MAA levels, and normalized weight gain were seen in MMA mice treated with the combination of ImmTOR™ and Anc80-Mut.

**Oral Presentation Title:** *Tolerogenic ImmTOR Nanoparticles Enhance Vector Transduction, mRNA Synthesis and Transgene Expression after Initial and Repeated Administrations of AAV-based Gene Therapy Vectors through Immunological and Non-immunological Mechanisms*
**Authors:** Ilyinskii, et al.
**Abstract #:** 146
**Presentation date:** 3:45 PM ET, April 29, 2019

**Key Takeaways:**

- In naïve mice models, co-administration of ImmTOR™ and AAV-based vectors enhanced transgene expression after the first dose of AAV vector, with rapid and enhanced transgene expression, which may enable therapeutic benefit at lower doses, potentially avoiding toxicities associated with larger doses.

**Oral Presentation Title:** *Development of a Novel AAV-based Therapy in Combination with Tolerogenic SVP Nanoparticles for a Sustained Treatment of Ornithine Transcarbamylase Deficiency*
**Authors:** De Sabbata, et al.
**Abstract #:** 25
**Presentation date:** 8:30 AM ET, April 29, 2019

**Key Takeaways:**

- In a mouse model of Ornithine TransCarbamylase deficiency (OTCd), a monogenic urea cycle disease that results in the accumulation of ammonia in the blood, ssAAV8-OTC in combination with ImmTOR™ was shown to effectively restore the physiological levels of urinary orotic acid and serum ammonia, correcting disease. These data demonstrate a new opportunity to treat pediatric patients with the possibility to re-dose to maintain therapeutic levels.

**Poster Title:** *Characterization of pre-existing antibodies to Anc80 vector in adult and pediatric donors, and the Impact of ImmTOR technology on restoring antibody-compromised transgene activity in vivo*
**Authors:** Leung, et al.
**Abstract #:** 294
**Presentation date:** 5:00 PM ET, April 29, 2019

**Key Takeaways:**

- Using a murine passive antibody transfer mouse model, the addition ImmTOR to Anc80-Mut enabled transgene expression even in the presence of moderately neutralizing antibodies (NAbs) against the Anc80 AAV vector.

**Oral Presentation Title:** The Combination Therapy of ImmTOR™ with AAV Anc80 is Therapeutic, Safe, and Repeatable in Mice with Methylmalonic Acidemia, and Compatible with the Low Seroprevalence of Anc80 NAbs in the Patient Population

**Authors:** Li, et al.
**Abstract #:** 425
**Presentation date:** 4:00 PM ET, April 30, 2019

**Key Takeaways:**

- In a mouse model of the severe childhood form of isolated MMA, ImmTOR treatment was well tolerated and enabled repeat dosing of Anc80-Mut vector.
- A survey of sera from Mut-deficient MMA patients showed only 2/27 patients were seropositive for neutralizing antibodies (NAb) against the Anc80 vector.
- The low seroprevalence of pre-existing Anc80 NAbs in the MMA patient population, and the ability to mitigate formation of new NAbs with ImmTOR, has the potential to make this combination therapy versatile and amenable for repeat dosing.

Full poster abstracts are available on the ASGCT conference website at https://annualmeeting.asgct.org/am19/abstracts.

**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**
*This press release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including, but not limited to, statements regarding Selecta's plans to present at the American Society of Gene & Cell Therapy (ASGCT) 22nd Annual Meeting, the Company's ability to develop its ImmTOR technology, the Company's ability to re-dose patients and the potential of ImmTOR to allow for re-dosing, the number and age of patients able to receive gene therapy through use of the Company's ImmTOR technology, the potential of our therapies to avoid certain toxicities, and the potential for our therapies to provide therapeutic benefit at lower doses. All such forward-looking statements are based on management's current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. Such risks and uncertainties include but are not limited to those set forth in the "Risk Factors" section of Selecta's Annual Report on Form 10-K filed with the Securities and Exchange Commission, or SEC, on March 15, 2019 and in other filings that Selecta makes with the SEC. In addition, any forward-looking statements included in this press release*

*represent Selecta'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. Selecta specifically disclaims any obligation to update any forward-looking statements included in this press release.*

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